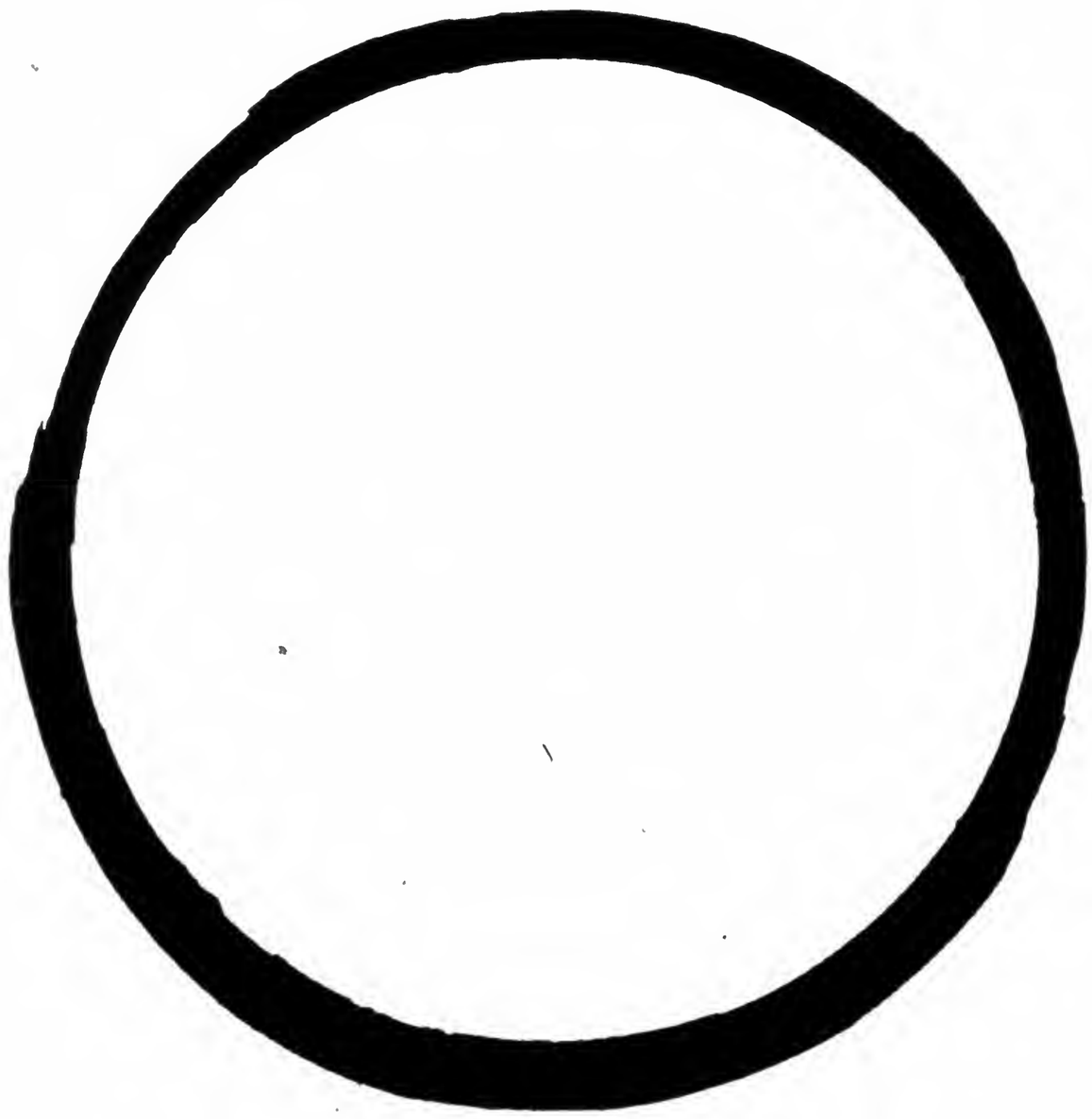


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VOL NO 1007

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1981

MICRO PHOTO DIVISION

BELL & HOWELL

Vol. 1201 Number 1

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

U.S.
DEPARTMENT
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OFFICIAL GAZETTE of the UNITED STATES PATENT and TRADEMARK OFFICE

June 2, 1981 Volume 1007 Number 1

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90-95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

Board of Appeals Decisions Rendered in the Month of Apr. 1981

Affirmed	207
Affirmed in Part	18
Reversed	65
Total	290

Availability of Patent and Trademark Office Notices on a Subscription Basis

Effective Mar. 3, 1981, a separate publication of a part of the *Official Gazette* entitled *Patent and Trademark Office Notices* is being made available on a subscription basis. This weekly periodical contains all notices which appear in the Patent *Official Gazette* and the Trademark *Official Gazette*. Additionally, current information regarding the general date status of trademark and patent applications will be provided.

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REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,427,691, Re. S.N. 235,024, Filed Feb. 17, 1981, Cl. 24/73R, COUPLING DEVICE, James R. Johnston, Owner of Record: *Inventor*, Attorney or Agent: Elliot A. Salter, et al., Ex. Gp.: 355

3,917,308, Re. S.N. 236,174, Filed Feb. 20, 1981, Cl. 280/661, ARRANGEMENT FOR SETTING THE CAMBER OF A PAIR OF VEHICLES WHEELS, Waldemar Schulz, Owner of Record: *Volkswagenwerk Aktiengesellschaft, Wolfburg, Germany*, Attorney or Agent: Granville M. Brumbaugh, et al., Ex. Gp.: 316

4,033,167, Re. S.N. 240,662, Filed Mar. 5, 1981, Cl. 72/367, PROCESS FOR FORMING INTERMEDIATE METAL CONDUIT, Robert A. Philibert, Owner of Record: *General Signal Corp., New York, N.Y.*, Attorney or Agent: Milton A. Kleinman, et al., Ex. Gp.: 321

4,071,393, Re. S.N. 240,550, Filed Mar. 4, 1981, Cl. 156/353, APPARATUS FOR USE IN THE MANUFACTURE OF A WIRING HARNESS, Robert Amphlett, Owner of Record: *Lucas Industries Ltd., Birmingham, England*, Attorney or Agent: John Clarke Holman, et al., Ex. Gp.: 161

4,191,636, Re. S.N. 241,616, Filed Mar. 9, 1981, Cl. 208/110, PROCESS FOR HYDROTREATING HEAVY HYDROCARBON OIL, Yoshio Fukui, et al., Owner of Record: *Chiyoda Chemical Engineering & Construction Co. Ltd., Yokohama-Shi, Japan*, Attorney or Agent: James E. Armstrong, et al., Ex. Gp.: 116

4,227,704, Re. S.N. 236,943, Filed Feb. 23, 1981, Cl. 277/084, SEAL, James G. Blaha, Owner of Record: *Inventor*, Attorney or Agent: Ralph E. Walters, et al., Ex. Gp.: 241

DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 1

Rules of Practice in Patent Cases; Fee for Filing a Request for Reexamination

AGENCY: Patent and Trademark Office, Commerce.

ACTION: Final rule.

SUMMARY: The Patent and Trademark Office is amending its rules of practice in patent cases to add a new fee for the filing of a request for reexamination of a patent and to provide for a refund if the request is denied. Public Law 96-517 of Dec. 12, 1980 authorizes reexamination beginning on July 1, 1981. Public Law 96-517 requires a person requesting reexamination to pay a fee established by the Commissioner of Patents and Trademarks. This amendment establishes the fee for filing a request for reexamination and the amount of any refund if the request is denied.

DATES: Effective date: July 1, 1981.

FOR FURTHER INFORMATION CONTACT: Mr. R. Franklin Burnett by telephone at (703) 557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

SUPPLEMENTARY INFORMATION: This notice changes two rules to add an appropriate fee for requesting reexamination and to refund a portion thereof if reexamination is not ordered. 35 U.S.C. 41(g) requires 60 days notice in the **Federal Register** before a fee can take effect. 35 U.S.C. 41(d) requires that the Commissioner establish fees for services, such as reexamination, which will recover the estimated average cost to the Office of performing the service.

Background:

A notice of proposed rulemaking relating to the fee, and refund, as well as the procedures for reexamination, was published in the **Federal Register** on Jan. 13, 1981 at 46 FR 3162-3174 and in the Official Gazette on Feb. 17, 1981 at 1003 O.G. 36-47. An oral hearing was held on Apr. 16, 1981. This amendment relates only to section 1.21 on fees and section 1.26 on refunds. It is being issued separately to meet the 60-day notice requirement of 35 U.S.C. 41(g). The reexamination procedures will be the subject of a later amendment. There is no difference in the amount of the fee or refund between the final rule and the proposal.

Discussion of the Background and Major Issues Involved: Two written comments and one oral comment relating to proposed section 1.21(x) indicated that the fee of $1500 seemed excessive. One comment indicated that it should be $65, the amount of the current filing fee for a United States patent application. Several oral comments indicated the amount of the fee was appropriate. In response, it is not considered possible to charge only $65 for a reexamination because 35 U.S.C. 41(d) requires the Commissioner to set the fee for reexamination at a level which will recover the estimated average cost to the Office. The estimated average cost reported to the Congress, and still considered proper, is $1500 per reexamination.

Two written comments and one oral comment referred to proposed section 1.26(c). One written comment proposed the use of a percentage rather than a dollar amount in the rule wording. In response, it is felt that the wording using the actual dollar amount is clearer. Since the amount of the fee is expected to be changed infrequently, changing section 1.26 to follow a change in §1.21 would not be burdensome. One written comment and one oral comment indicated that a fixed fee should be set without any refund in order to simplify processing. Although a fixed fee system would be less complicated, it is felt that persons who have not received a reexamination in response to their request should not be required to pay the same amount as those who had the reexamination requested. No comments were received concerning the amendments to paragraphs (a) and (b) of section 1.26 which reorganize some of the wording and raise the minimum refund without specific demand from ten cents to fifty cents.

Environmental, Energy, and Other Considerations.

The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96-354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291.

Amendment of Regulations

For the reasons set out in the preamble and under the authority given to the Commissioner of Patents and Trademarks by 35 U.S.C. 6 and 41, Part 1 of Title 37 CFR is amended as set forth below.

1. Section 1.21 is amended by adding a new paragraph (x) to read as follows:

§1.21 Patent and miscellaneous fees and charges

* * * * *

(x) To file a request for reexamination—$1,500.00

2. Section 1.26 is revised to read as follows:

§1.26 Refunds.

(a) Money paid by actual mistake or in excess, such as a payment not required by law, will be refunded, but a mere change of purpose after the payment of money, as when a party desires to withdraw his application or to withdraw an appeal, will not entitle a party to demand such a return. Amounts of fifty cents or less will not be returned unless specifically demanded within a reasonable time, nor will the payer be notified of such amount; amounts over fifty cents but less than one dollar may be returned in postage stamps, and other amounts by check or, if requested, by credit to a deposit account.

(b) Refund of a portion of any international search fee paid to the Patent and Trademark Office may be made where the prior art search made during the subsequent examination of a national application is wholly or partly based on the earlier international search made in the international application for which the search fee was paid. The amount of the refund will be as determined by the examiner according to the value of the prior international search made by the Patent and Trademark Office as an International Searching Authority, as 90 percent, 45 percent, or 0 percent of the international search fee. If the amount of the refund is not a multiple of $5, it will be rounded to the next higher multiple of $5. (Note §1.446 for refund of the search fee in an international application.)

(c) If the Commissioner decides not to institute a reexamination proceeding, a refund of $1,200.00 will be made to the requestor of the proceeding. Reexamination requestors should indicate whether any refund should be made by check or credit to a deposit account.

RENE D. TEGTMEYER,
Apr. 17, 1981. *Acting Commissioner of Patents and Trademarks.*

Approved:

ROBERT B. ELLERT,
Apr. 20, 1981. *Acting Assistant Secretary for Productivity, Technology and Innovation.*

[FR Doc. 81-17093 Filed 4-29-81; 8:45 am]
BILLING CODE 3510-16-M

PATENT NOTICES

Certificates of Correction for the Week of June 2, 1981

3,774,997	4,235,635	4,246,815	4,255,339
3,928,418	4,235,885	4,246,965	4,255,524
4,060,883	4,235,931	4,247,452	4,255,630
4,076,600	4,236,150	4,247,829	4,255,807
4,154,528	4,236,182	4,248,862	4,256,009
4,162,153	4,236,599	4,249,147	4,256,015
4,170,435	4,237,316	4,249,980	4,256,028
4,173,870	4,237,394	4,250,470	4,256,052
4,174,489	4,237,733	4,250,482	4,256,149
4,188,357	4,237,899	4,250,594	4,256,186
4,207,523	4,238,606	4,250,816	4,256,196
4,208,516	4,239,326	4,251,415	4,256,216
4,212,423	4,239,913	4,252,462	4,256,472
4,212,804	4,239,921	4,252,525	4,256,648
4,212,989	4,241,066	4,252,733	4,256,667
4,215,107	4,241,592	4,253,088	4,256,703
4,215,353	4,242,259	4,253,221	4,256,729
4,216,157	4,242,642	4,253,244	4,256,733
4,217,469	4,242,650	4,253,261	4,256,745
4,217,579	4,242,864	4,253,539	4,256,767
4,220,680	4,242,975	4,253,641	4,256,781
4,222,581	4,242,986	4,253,683	4,256,836
4,222,963	4,243,232	4,254,008	4,256,953
4,223,751	4,243,933	4,254,091	4,257,110
4,224,239	4,244,376	4,254,303	4,257,119
4,224,657	4,244,406	4,254,382	4,257,141
4,225,018	4,244,767	4,254,399	4,257,155
4,227,433	4,244,796	4,254,453	4,257,230
4,227,837	4,245,688	4,254,462	4,257,304
4,229,817	4,245,752	4,254,473	4,257,336
4,230,039	4,245,882	4,254,501	4,257,585
4,231,979	4,245,967	4,254,544	4,257,768
4,232,384	4,246,104	4,254,585	4,257,786
4,233,136	4,246,271	4,254,690	4,257,809
4,233,565	4,246,281	4,254,699	4,257,858
4,233,619	4,246,308	4,254,984	4,257,939
4,234,071	4,246,627	4,254,987	4,257,964
4,234,312	4,246,688	4,255,229	4,258,381
4,235,316			

Adverse Decisions in Interference

In the designated interference involving the indicated claims of the following patents, final decisions having been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 3,433,825, P. R. A. Maltha, S. B. Tijssen ESTERS OF 4,4-DITERT. BUTYLPEROXYPENTANOIC ACID Interference No. 100,305, decided Feb. 10, 1981, Claim 1.

Patent No. 3,484,237, M. D. Shattuck, U. Vahtra, ORANIC PHOTOCONDUCTIVE COMPOSITIONS AND THEIR USE IN ELECTROPHOTOGRAPHIC PROCESSES, Interference No. 98,047 decided Jan. 16, 1981, claim 1.

Patent No. 3,714,066, T. M. King, H. L. Vandersall, METHODS INHIBITING CORROSION WITH ETHANE DIPHOSPHONATE COMPOSITIONS, Interference No. 99,968, decided Dec. 11, 1980, claims 1, 2 and 3.

Patent No. 3,733,270, A. F. Kerst, METHODS OF SCALE INHIBITION, Interference No. 99,969, decided Dec. 11, 1980, claim 3.

Patent No. 3,905,923, J. H. Klug, POLY (UREA-URETHANE) FOAMS CONTAINING IMMOBILIZED ACTIVE ENZYMES, Interference No. 99,716, decided Feb. 13, 1981, claims 1-5.

Patent No. 3,953,964, P. Suppa, A. E. Willis, SINGLE SWITCH ARRANGEMENT FOR ADJUSTING THE TIME BEING DISPLAYED BY A TIMEPIECE, Interference No. 99,823, decided Dec. 17, 1980, claim 1.

Patent No. 4,038,442, T. Utumi, METHOD FOR COATING, Interference No. 100,508, decided Feb. 5, 1981, claims 1-3.

Patent No. 4,046,950, L. C. Isett, CHALCOGENATED TETRACENE ORGANIC METALS, Interference No. 99,986, decided Feb. 18, 1981, claims 1-11, 13, 14, 16-18 and 20.

Patent No. 4,098,744, R. A. Allen, L. W. Scott, CURABLE WATER-BORNE EPOXY RESIN COATING COMPOSITIONS, Interference No. 100,314, decided Feb. 27, 1981, claims 1-12.

Patent No. 4,104,782, S. J. Veeck, W. R. Freeman, L. E. Dardi, METHOD FOR CONSOLIDATING PRECISION SHAPES Interference No. 100,529, decided Mar. 20, 1981 Claims 1, 3-7.

Patent No. 4,125,712, U.F. Axen, CENTAIN 5,6-DIHYDROPROSTACYCLIN ANALOGS, Interference No. 100,364, decided Mar. 26, 1981, claims 57-93.

Patent No. 4,141,431, G. C. Baird, DETERMINATION OF FIRING TIMES OF ACOUSTIC PULSES, Interference No. 100,327, decided Mar. 18, 1981, claims 1, 2, 5 and 7.

Patent No. 4,147,819, Y. Hukumoto, H. Kashiwadani, S. Hiramatsu, METHOD FOR FORMING POLYPHENYLENE SULFIDE RESIN COATING ON THE SURFACE OF METAL SUBSTRATE, Interference No. 100,310, decided Mar. 27, 1981, claims 1-4.

Patent No. 4,155,912, M. Menard, G. Caron, 2-METHYL-PENEM-3-CARBOXYLIC ACID ANTIBIOTICS, Interference No. 100,502 decided Feb. 9, 1981, claims 1-17.

NANNIE B. HENRY,
Deputy Clerk,
Board of Patent Interferences.

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing in accordance with the licensing policies of the agency-sponsors.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $.50 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Va. 22161 for $5.00 each ($10.00 outside North American Continent). Requests for copies of patent applications must include the patent application number. Claims are deleted from patent application copies sold to avoid premature disclosure. Claims and other technical data will usually be made available to serious prospective licensees upon execution of a non-disclosure agreement.

Requests for information on the licensing of particular inventions should be directed to the addresses cited for the agency-sponsors.

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF THE ARMY/OTJAG
Chief, Intellectual Property Division
Room 2D 444, Pentagon
Washington, D.C. 20310

Patent application 6-140,646. A Flowing Gas Discharge Source of Vacuum Ultraviolet Line Radiation System. Filed Apr. 16, 1980.

Patent application 6-186,109. Phase Sensor for R.F. Transmission Lines. Filed Sept. 11, 1980.

Patent application 6-205,361. Line Source Antenna for Electronic Beam Scanning. Filed Nov. 10, 1980.

U.S. DEPARTMENT OF THE AIR FORCE
AF/JACP
1900 Half St., S.W.
Washington, D.C. 20324

Patent application 6-192,406. Dynamic Damping System. Filed Sept. 30, 1980.

Patent Application 6-193,048. Method and Apparatus for Measuring Hand-eye Coordination While Tracking a Changing Size Image. Filed Oct. 2, 1980.

Patent Application 6-195,147. Atmospheric Dispersion Corrector. Filed Oct. 8, 1980.

Patent Application 6-195,693. Flat Workpiece Pickup. Filed Oct. 9, 1980.

Patent 4,238,197. Analysis of Lubricating Oils for Iron Content. Filed Apr. 12, 1979. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,602. Fluorine Containing Polyethers. Filed Apr. 26, 1979. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,716. Miniature Vehicle Dispenser Spin-up Speed Control System. Filed Sept. 27, 1978. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,747. Mode Filtering Apparatus. Filed Aug. 10, 1979. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,772. Image Enhancement Using On-Line Spatial Filtering. Filed Aug. 3, 1979. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,238,827. Interferogram Synthesization Method and Apparatus. Filed Nov. 20, 1978. Patented Dec. 9, 1980. Not available NTIS.

Patent 4,239,053. Fuel Flow Distribution System. Filed Feb. 7, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,239,392. Grating Output Wavefront Sampling System. Filed July 7, 1978. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,241,223. F-Phenylalkylene Oxide Diacetylenes. Filed Aug. 28, 1979. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,242,179. Method of Fabricating Cadmium Electrodes. Filed July 27, 1979. Patented Dec. 30, 1980. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-210,460. Carriage for Cable Logging System. Filed Nov. 25, 1980.

Patent application 6-219,569. Apparatus for Treatment of Fibers with Ozone-Steam Mixtures. Filed Dec. 22, 1980.

Patent 4,239,701. Ternary Salts of Tris(Aminomethyl)-Phosphines and Their Oxides. Filed July 26, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,245,494. Inlet System for Direct Gas Chromatographic and Combined Gas Chromatographic/Mass Spectrometric Analysis of Food Volatiles. Filed Feb. 26, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,031. Prepolymer Preparation and Polymerization of Flame Retardant Chemicals from THP-Salts. Filed Oct. 11, 1978. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,246,310. High Performance, Lightweight Structual Particleboard. Filed Apr. 6, 1979. Patented Jan. 20, 1981. Not available NTIS.

Patent 4,249,017. Tris(N-Carbalkoxylaminomethyl)-Phosphine Oxides and Sulfides. Filed Nov. 29, 1978. Patented Feb. 3, 1981. Not available NTIS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6-210,044. Acoustically Transparent Hydrophone Probe. Filed Nov. 24, 1980.

Patent application 6-221,565. Recombinant DNA Process and Product Utilizing a Papilloma Virus DNA as a Vector. Filed Dec. 31, 1980.

Patent application 6-240,577. Silver Stains for Protein in Gels. Filed Mar. 4, 1981.

Patent 4,247,780. Feedback Controlled Geometry Registration System for Radiographs. Filed June 8, 1979. Patented Jan. 27, 1981. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Council for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-090,205. Arrestment System. Filed Nov. 1, 1979.

Patent application 6-189,401. A Method and Apparatus for Measuring Optical Coupling Coefficients. Filed Sept. 19, 1980.

Patent application 6-199,895. Laser Bottlenecking Technique. Filed Oct. 23, 1980.

Patent application 6-203,003. Light Burst Activity Analyzer. Filed Nov. 3, 1980.

Patent application 6-203,197. Balanced Impedance Coupler. Filed Nov. 4, 1980.

Patent application 6-206,130. Multi-Sampling-Channel Pulse Compressor. Filed Nov. 6, 1980.

Patent application 6-206,404. Method for Cation Production. Filed Nov. 13, 1980.

Patent application 6-208,355. Multiple-Microcomputer Processing. Filed Nov. 19, 1980.

Patent application 6-208,757. Recoil Force and Weight Loss Simulation Device. Filed Nov. 20, 1980.

Patent application 6-210,114. Pressure Formed Fiber Optic Connector. Filed Nov. 24, 1980.

Patent application 6-210,981. Improved Method of Preparing N, N-Bis(2-Fluoro-2,2-Dinitroethyl) Carbamyl Chloride and Its Derivatives. Filed Nov. 28, 1980.

Patent application 6-213,529. High Speed Digital to Analog Converter Circuit. Filed Dec. 5, 1980.

Patent application 6-215,213. Rotating Shutter System for Improving the Resolution of a Visual Display System. Filed Dec. 11, 1980.

Patent 4,230,995. Electrically Excited Mercury Halide Laser. Filed Oct. 24, 1978. Patented Oct. 28, 1980. Not available NTIS.

Patent 4,231,058. Tungsten-Titanium-Chromium/-Gold Semiconductor Metallization. Filed Nov. 22, 1978. Patented Oct. 28, 1980. Not available NTIS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Assistant General Counsel for Patent Matters
NASA Code GP-4
Washington, D.C. 20546

Patent 4,209,561. Structural Wood Panels with Improved Fire Resistance. Filed July 28, 1978. Patented June 24, 1980. Not available NTIS.

Patent 4,212,297. Micro-Fluid Exchange Coupling Apparatus. Filed Oct. 16, 1978. Patented July 15, 1980. Not available NTIS.

Patent 4,218,685. Coaxial Phased Array Antenna. Filed Oct. 17, 1978. Patented Aug. 19, 1980. Not available NTIS.

Patent 4,218,892. Low Cost Cryostat. Filed Mar. 29, 1979. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,218,941. Method and Tool for Machining a Transverse Slot About a Bore. Filed Oct. 17, 1978. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,219,027. Subcutaneous Electrode Structure. Filed Jan. 16, 1979. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,219,084. Fire Extinguishing Apparatus Having a Slidable Mass for a Penetrator Nozzle. Filed Apr. 19, 1978. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,219,926. Method and Apparatus for Fabricating Improved Solar Cell Modules. Filed Feb. 23, 1979. Patented Sept. 2, 1980. Not available NTIS.

Patent 4,222,098. Base Drive for Paralleled Inverter Systems. Filed Feb. 16, 1978. Patented Sept. 9, 1980. Not available NTIS.

Patent 4,225,372. Surface Finishing. Filed Jan. 25, 1979. Patented Sept. 30, 1980. Not available NTIS.

Patent 4,228,422. System for a Displaying at a Remote Station Data Generated at a Central Station and for Powering the Remote Station from the Central Station. Filed Nov. 30, 1978. Patented Oct. 14, 1980. Not available NTIS.

Patent 4,228,656. Power Control for Hot Gas Engines. Filed May 19, 1978. Patented Oct. 21, 1980. Not available NTIS.

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Patent 4,235,060. Installing Fiber Insulation. Filed Dec. 15, 1978. Patented Nov. 25, 1980. Not available NTIS.

Patent Suits

Notices under 35 U.S.C 290; Patent Act of 1952

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3,636,479, Microwave Associates, Inc., MICROWAVE STRIP TRANSMISSION LINE CIRCULATOR; **3,673,518, same,** STUB TUNED CIRCULATOR, **filed** Aug. 28, 1980, U.S. Court of Claims (Washington, D.C.), Doc. 459-80C, *Microwave Associates, Inc.* v. *The United States.*

3,673,518. **(See 3,636,479.)**

3,728,753. **(See 3,579,696.)**

3,775,788. **(See 3,296,636.)**

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3,885,062, E/M Lubricants, Inc. , PROCESS FOR TREATING MOLDS USED IN MOLDING GLASS PARTS; **3,977,885, same,** GLASS MANUFACTURING COMPOSITION, **filed** Mar. 16, 1981, D.C., S.D. Ind. (Terre Haute), Doc. TH 81-47-C, *Glass Lubricants Corp.* v. *E/M Lubricants, Inc., et al.*

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3,977,885. **(See 3,885,062.)**

3,978,777, Econovent Systems, Inc., VENTILATING APPARATUS; **4,047,519, same; 4,153,044, same,** BACKSHELF VENTILATING HOOD, **filed** Mar. 18, 1981, D.C., S.D. Ohio (Cincinnati), Doc. C-1-81-334, *Econovent Systems, Inc.* v. *Feldkamp Sheet Metal, Inc., et al.*

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3,998,454. **(See 3,858,873.)**

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4,047,519. **(See 3,978,777.)**

4,056,884. **(See 3,909,767.)**

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4,130,920, Siarto Machine & Tool Co., Inc., MACHINE TOOL; **4,200,182, same,** METHOD OF MACHINING; **4,209,088, same,** MACHINE TOOL, **filed** Feb. 24, 1981, D.C., E.D. Mich. (Detroit), Doc. 81-70586, *Ringtransfer, Inc.* v. *Siarto Machine & Tool Co., Inc., et al.*

4,131,284, Zerostat Components, Ltd., DAMPER MEANS FOR DAMPING THE RESONANCE OF DISC RECORD TONE ARMS, **filed** Mar. 27, 1980, D.C., N.D. Ill. (Chicago), Doc. 80 C 1505, *Zerostat Components, Ltd.* v. *Shure Brothers, Inc.*

4,131,869. **(See 3,909,767.)**

4,146,072. **(See 4,009,632.)**

4,151,573, Tandon Magnetics Corp., MAGNETIC RECORDING DEVICE FOR DOUBLE SIDED MEDIA, **filed** Dec. 12, 1980, D.C., C.D. Calif. (Los Angeles), Doc. 80 5569, *Microperipherals, Inc.* v. *Tandon Magnetics Corp.*

4,152,974, National Presto Industries, Inc., HOT AIR CORN POPPER, **filed** Dec, 17, 1980, D.C. Minn. (St. Paul), Doc. 3-80-671, *National Presto Industries, Inc.* v. *Holiday Station Stores, Inc., et al.*

4,153,044. **(See 3,978,777.)**

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4,160,354. **(See 3,421,285.)**

4,178,043. **(See 3,174,803.)**

4,188,189, University Patents, Inc., QUANTITATIVE TESTING FOR VITAMIN B12, **filed** Mar. 16, 1981, D.C. Colo. (Denver), Doc. 81-A-341, *University Patents, Inc.* v. *Colorado Pathologists Regional Laboratory, Inc.*

4,200,182. **(See 4,130,920.)**

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4,209,088. **(See 4,130,920.)**

4,231,173, ESCO Corp., EXCAVATING TOOTH, **filed** Mar. 11, 1981, D.C., N.D. Tex. (Dallas), Doc. CA3-81-0399 C, *ESCO Corp.* v. *G. H. Hensley Industries, Inc.*

4,235,158, Wayne Automation Corp., METHOD OF MAKING HIGH STRENGTH SHIPPING CARTON; **4,235,159, same,** MACHINE FOR MANUFACTURE OF HIGH STRENGTH SHIPPING CARTONS, **filed** Dec. 16, 1980, D.C., C.D. Calif. (Los Angeles), Doc. 80 5626, *Crown Zellerbach Corp.* v. *Wayne Automation Corp.*

4,235,159. **(See 4,235,158.)**

D. 233,135, Irvin W. Combs, Jr., SHIPPING CARTON FOR CONTAINER OR THE LIKE, **filed** Nov. 4, 1980, D.C., W.D. Tenn. (Memphis), Doc. C-80-2618-W, *Irvin W. Combs, Jr.* v. *Plough, Inc., et al.* Judgment

granted for defendant on Mar. 25, 1981.

D. 245,644, Transamerica Corp., FONT OR TYPE, **filed** June 3, 1980, D.C., C.D. Calif. (Los Angeles), Doc. 80 02374, *Transamerica Corp.* v. *George E. McCalling, doing business as Transamerica Realtors.*

D. 249,754, Schweiger Industries, Inc., CHAIR OR SIMILAR ARTICLE, **filed** Oct. 4, 1978, D.C., E.D. Wis. (Milwaukee), Doc. 78-C-638, *Schweiger Industries, Inc.* v. *Sears, Roebuck and Co.* Agreed order of dismissal filed Sept. 23, 1980.

D. 258,100, Pacific Furniture Manufacturing Co., DESIGN FOR AN ARMCHAIR; **D. 258,101, same, filed** Mar. 12, 1981, D.C., M.D.N.C. (Greensboro), Doc. C-81-111-G, *Pacific Furniture Manufacturing Co.* v. *Preview Furniture Corp.*

D. 258,101. (See D. 258,100.)

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	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
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Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
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Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
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*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 2, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-17-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT ..... Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director ..... Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-11-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	12-03-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-05-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Number 3,131,397 to 3,134,980, inclusive
Plant Patents ..... Numbers 2,399 to 2,406, inclusive

DEFENSIVE PUBLICATIONS

PUBLISHED JUNE 2, 1981

Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O.G. 687. The abstracts of Defensive Publication applications are identified by distinctly numbered series and are arranged chronologically. The heading of each abstract indicates the number of pages of specification, including claims and sheets of drawings contained in the application as originally filed. The files of these applications are available to the public for inspection and reproduction may be purchased for 30 cents a sheet.

Defensive Publication applications have not been examined as to the merits of alleged invention. The Patent and Trademark Office makes no assertion as to the novelty of the disclosed subject matter.

T100,701
IN-MOLD COATING COMPOSITIONS CONTAINING NON-FUNCTIONAL LIQUID COPOLYMERS AND FREE ISOCYANATE CONTAINING COMPOUNDS

Erich Kuehn, Wilmington, Del., assignor to ICI Americas Inc.

Filed Sep. 17, 1980, Ser. No. 188,123
Int. Cl.[3] B32B *27/00*
U.S. Cl. 428—422.8
No Drawing. 33 Pages Specification

Fully cured reinforced molded resins such as polyester, polyurea urethane, polyurea, polyurethane, polyisocyanurate, polyepoxy and polycarbonate resins can be in-mold coated to cover surface defects such as sink marks and microcracks with an improved coating composition comprising 5–94% by weight of an ethylenically unsaturated base resin free of groups reactive with isocyanate radicals; 5–94% by weight of an ethylenically unsaturated monomer free of groups reactive with isocyanate radicals and 1–20% by weight of isocyanate containing compounds or compounds which decompose to form free isocyanate containing compounds. Such coatings unexpectedly have improved adherence to molded articles over similar compositions which contain no free isocyanate. Such coatings exhibit excellent adhesion and when subjected to the standard adhesion test ASTM D3359-74 are graded from 3–5 and when subjected to the GM"X" adhesion test are graded from 8 through 10.

Typical formulations consist of 35% vinyl terminated polyester urethane resins, vinyl terminated polyisocyanurate resins, and vinyl terminated polyester resins all of which are free of groups reactive with isocyanate radical; 45% styrene; and 2–5% polyphenyl methane polyisocyanate having 2.7—NCO groups per molecule with minor amounts of emulsifiers, fillers, catalysts, cross-linking agents, dryers and pigments. Such coatings when containing electroconductive fillers can be painted by standard electrostatic paint techniques.

REISSUES

JUNE 2, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,629

GAS TURBINE ENGINE

Lindsay G. Dawson, Loughborough, England, assignor to Rolls-Royce Limited, London, England

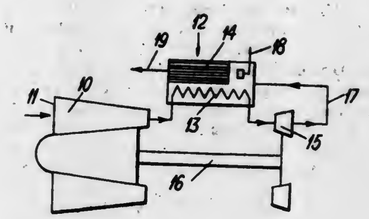
Original No. 4,062,190, dated Dec. 13, 1977, Ser. No. 557,838, Mar. 12, 1975. Application for reissue Oct. 6, 1978, Ser. No. 949,110

Claims priority, application United Kingdom, Mar. 26, 1974, 13230/74

Int. Cl.³ F02C 1/04, 7/00

U.S. Cl. 60—682

14 Claims



13. An engine system comprising

a heat engine, and

a heat input device for said engine;

said heat input device comprising a heat exchange body having an extended surface adapted for surface burning of a fuel and oxidant mixture;

means for forming a combustible oxidant-fuel mixture in said heat exchange body;

means for surface burning said oxidant-fuel mixture in said heat exchange body to thereby raise the temperature of said extended surface substantially above the temperature of the exhaust gases from the combustion of said fuel-oxidant mixture, and

a heat exchange surface forming at least a portion of said heat exchange body and being in thermal contact with said extended surface, said heat exchange surface being heated by said surface burning of said fuel-oxidant mixture.

Re. 30,630

POWER PLANT SECONDARY COOLANT CIRCUIT

David C. Morse, La Jolla, and Daniel L. Vrable, Del Mar, both of Calif., assignors to General Atomic Company, San Diego, Calif.

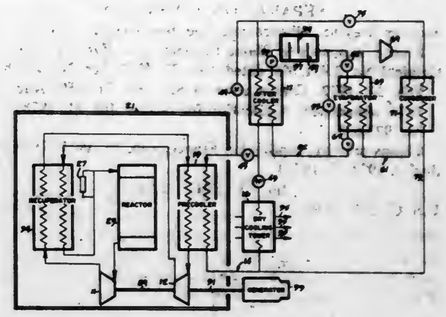
Original No. 4,144,723, dated Mar. 20, 1979, Ser. No. 757,450, Jan. 6, 1977. Continuation-in-part of Ser. No. 666,598, Mar. 15, 1976, abandoned. Application for reissue Dec. 12, 1979, Ser. No. 102,957

Int. Cl.³ F25B 25/00, 7/00, 1/00, 1/10

U.S. Cl. 62—332

16 Claims

1. In a power plant having heat removal means in a working fluid circuit, a closed loop primary coolant circuit for circulating a coolant through said heat removal means, said primary coolant circuit including a primary heat exchanger for cooling the coolant therein, a secondary heat exchanger, and adjustable means for selectively directing at least a portion of a primary coolant in said primary coolant circuit through said secondary heat exchanger for further cooling the primary coolant and thereby increasing heat rejection capacity of said



primary heat exchanger and said closed loop primary coolant circuit.

Re. 30,631

SADDLE LOCK-UP FOR TAB-LESS FLEXIBLE PRINTING PLATES

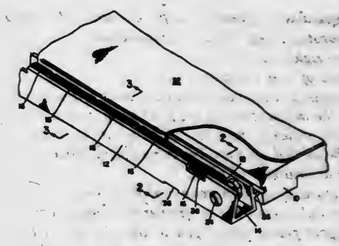
Charles B. Ruckdeschel, Jr., Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Original No. 3,896,727, dated Jul. 29, 1975, Ser. No. 446,454, Feb. 27, 1974. Application for reissue Jul. 27, 1976, Ser. No. 709,053

Int. Cl.³ B41F 27/00, 27/06

U.S. Cl. 101—415.1

4 Claims



3. A lock-up for flexible printing plates for mounting on a printing cylinder comprising:

leading edge clamping means to positively grip one end of a flexible printing plate, said leading edge clamping means adapted to mount on the surface of a printing cylinder,

trailing edge clamping means to positively grip and tension the other end of a flexible printing plate, said trailing edge clamping means being adapted to be mounted on the surface of a printing cylinder, said trailing edge clamping means having a transverse channel member being moveably mounted with respect to the surface of a printing cylinder, said channel member having an upwardly facing inverted wedge shaped opening therein,

resilient means contacting said channel member and biasing said channel member to tension a flexible printing plate; and

means mounted within said opening to positively grip a flexible printing plate and to allow lateral adjustment of the printing plate, said means comprising a plurality of transversely spaced sleeves within said opening, said sleeves radially and axially independently mounted with respect to each other and

defining a gap between said sleeves on one side of the inside of said channel member to positively grip the other end of a flexible printing plate in said gap, said sleeves conforming to the thickness of a flexible printing plate independent of each other and allowing lateral movement of the flexible printing plate for purposes of color registration.

Re. 30,632

SEPARATION APPARATUS

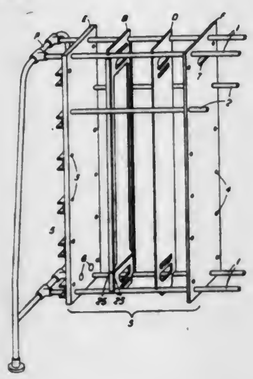
Jacques Breysse, Villeurbanne, and Jean Roget, Lyons, both of France, assignors to Rhone Poulenc, S.A., Paris, France

Original No. 3,831,763, dated Aug. 27, 1974, Ser. No. 228,887, Feb. 24, 1972. Continuation of Ser. No. 715,659, Aug. 19, 1976, abandoned. Application for reissue Jul. 11, 1978, Ser. No. 923,625

Claims priority, application France, Feb. 25, 1971, 71.06493; Jun. 1, 1971, 71.19774

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—236 **11 Claims**



11. Separation apparatus, useful essentially for ultrafiltration, said apparatus comprising, in combination:

(a) two rigid end plates;

(b) ends of said end plates;

(c) means for defining at least one inlet orifice in one end plate for the introduction of the fluid to be treated and at least one outlet orifice in the other end plate for the removal of the fluid to be treated, said orifices being placed adjacent to one end of the associated end plate;

(d) a plurality of membrane support plates in overlying relationship with respect to one another forming a stack, edges of said support plates being open to the exterior of the apparatus, means defining a recess in each face of each support plate, each said support plate carrying a semi-permeable membrane on each of its faces, each membrane covering a recess, each recess having means for supporting the said membrane for enabling the removal of the fluid which has crossed through the said membrane, and at least one duct means, the said duct means opening onto an edge of the said support plate which is open to the exterior of the apparatus;

(e) first and second apertures for the passage of the fluid to be treated through the support plates, the first apertures being adjacent one end of the support plates and aligned with one another to form a first duct through the stack, in communication with the inlet orifice of said one end plate, the second aperture being adjacent the other end of the support plates and forming a second duct through the stack;

(f) holding means extending between the two end plates effective to hold the support plates in position;

(g) jointing means provided near the periphery of each support plate and beyond the first and second apertures thereof, the said means sealing the support plate in a leak-proof manner to the adjacent support plate and determining the thickness of the layer of fluid to be treated flowing from one duct of the stack to the other, between and in contact with the membranes of two consecutive support plates;

(h) at least one intermediate plate in the stack dividing the said stack into at least two sub-assemblies; and

(i) one opening through each said intermediate plate aligned with only one of the two ducts to the stack, said intermediate plate enabling the fluid to be treated to flow in parallel in a sub-assembly and in series from one sub-assembly to the other.

Re. 30,633

3-LOWER ALKYLCARBAMYLSULFONAMIDO-4-PHENYLAMINOPYRIDINES, N-OXIDES, DERIVATIVES THEREOF AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Jacques E. Delarge, Dolembreux; Charles L. Lapiere, Tongeren, and Andre H. Georges, Ottignies, all of Belgium, assignors to A. Christiaens Societe Anonyme, Brussels, Belgium

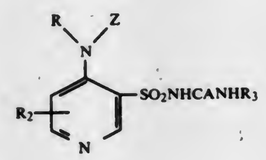
Original No. 4,018,929, dated Apr. 19, 1977, Ser. No. 568,759, Apr. 16, 1975. Continuation of Ser. No. 31,101, Apr. 18, 1979, abandoned. Application for reissue Feb. 7, 1980, Ser. No. 119,601

Claims priority, application United Kingdom, Apr. 17, 1974, 16836/74

Int. Cl.³ C07D *213/74*; A61K *31/44*

U.S. Cl. 424—263 **9 Claims**

9. A compound of the formula:



in which:

R represents a hydrogen atom or a C_1-C_4 alkyl group;

R_2 represents a hydrogen atom or a C_1-C_4-alkyl group;

R_3 represents a C_1-C_4-alkyl, allyl, cyclohexyl, unsubstituted phenyl group or a phenyl group substituted by chloro;

A represents oxygen or sulfur; and

Z represents a C_1-C_4-alkyl, methylfuryl, pyridyl or unsubstituted phenyl group or a phenyl group substituted by one or two halogen atoms or by a C_1-C_4-alkyl, alkoxy, trifluoromethyl or nitro group or by a trifluoromethyl group and a halogen atom;

with the proviso that when R represents a C_1-C_4 alkyl group, Z may only represent a C_1-C_4 alkyl or a phenyl group as defined hereabove,

and the pharmaceutically acceptable base addition salts or acid addition salts of said compounds.

Re. 30,634

BENZYL OXIME ETHERS

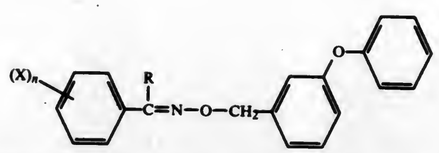
Arthur C. Henry, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Original No. 4,079,149, dated Mar. 14, 1978, Ser. No. 811,645, Jun. 30, 1977. Application for reissue Aug. 27, 1979, Ser. No. 70,271

Int. Cl.³ A61K *31/15*; C07C *131/00*

U.S. Cl. 424—327 **8 Claims**

1. The E isomeric form of a compound of the formula



wherein n is 0, 1 or 2, X is lower halogen, or is alkyl or alkoxy of from one to three carbon atoms, and R is alkyl or alkenyl of from two to seven carbon atoms, optionally substituted by from one to a plurality of halogen atoms, or is cyclopropyl [, optionally substituted by from one to four methyl groups and/or one or two halogen atoms].

Re. 30,635

METHOD OF PRODUCING INTERNALLY COATED GLASS TUBES FOR THE DRAWING OF FIBRE OPTIC LIGHT CONDUCTORS

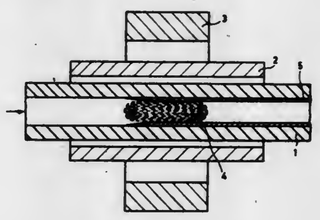
Dieter Küppers, Aachen; Hans Lydtin, Stolberg, and Ludwig Rehder, Aachen, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, Tarrytown, N.Y.

Original No. 4,145,456, dated Mar. 20, 1979, Ser. No. 852,068, Nov. 16, 1977. Continuation of Ser. No. 610,570, Sep. 5, 1975, abandoned. Application for reissue Sep. 28, 1979, Ser. No. 79,847

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1974, 2444100

Int. Cl.³ B05D *3/06*; C23C *11/00*

U.S. Cl. 427—38 **18 Claims**



12. A method of producing coatings on walls of glass comprising the steps of:

contacting at least a portion of the wall of the glass with a mixture of a gaseous glass-forming compound and gaseous oxygen at a pressure of about 1 to 100 Torr;

forming a plasma zone in the gas mixture in contact with the glass wall portion;

heating the glass wall portion, to a temperature which is above the temperature necessary to produce substantially stress-free coating layers on the heated tube wall portion but which is below the temperature at which there is substantial reaction of the mixture in the gas phase, to produce a nonisothermal plasma zone; and

thereby causing a heterogeneous reaction to occur on the glass wall resulting in the deposit on the glass wall of a glass coating.

Re. 30,636

PRODUCTS OF CONVERTED LIGNOCELLULOSIC MATERIALS

Derek Barnes, Vancouver, Canada, assignor to MacMillan Bloedel Limited, Vancouver, Canada

Original No. 4,061,819, dated Dec. 6, 1977, Ser. No. 713,507, Aug. 11, 1976. Continuation of Ser. No. 502,065, Aug. 30, 1974, abandoned, which is a division of Ser. No. 237,705, Mar. 24, 1972, abandoned. Application for reissue Oct. 31, 1979, Ser. No. 90,036

Int. Cl.³ B32B *5/12*

U.S. Cl. 428—294 **14 Claims**



1. A discrete dimensioned structural lumber product comprising adhesively bonded, substantially straight wood strands having lengths of at least 12 inches, average widths of 0.05 inch to 0.25 inch and average thickness of 0.05 inch to 0.5 inch, said strands being disposed, side by side lengthwise of the lumber product in substantially parallel relationship with adhesive bonding adjacent strands, *but with substantially no straight glue lines extending from one surface to the other of the product,* the total amount of adhesive *resin* solids in said lumber product being from 1% to 5% by weight, said lumber product having a modulus of elasticity for a given dry wood density within the boundaries in FIG. 4 of the curve of western softwood clear lumber as an upper limit of modulus of elasticity for a given dry wood density and as a lower limit of modulus of elasticity for a given dry wood density the curve for 24 inch [fiber] *strand* length 1% resin solids.

PLANT PATENTS

GRANTED JUNE 2, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,729

MINIATURE ROSE PLANT

Ernest D. Williams, 1510 Lebanon Ave., Dallas, Tex. 75208

Filed May 1, 1980, Ser. No. 145,783
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—7 1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, rounded, much branched habit, substantially as illustrated and described, characterized by bi-color buds and flowers, being essentially a deep pink to light red color on top surface of petal with the reverse surface being white or near white, the bud and flower resembling the Kathy miniature rose in general size and form; and further characterized by a plant of vigorous and compact growth habit, easy to propagate from cuttings, with an abundance of small size semi-glossy to glossy foliage and an abundance of flowers borne usually one to the stem.

4,730

MINIATURE ROSE PLANT

Cecilia L. D. Bennett, 489 Minot Ave., Chula Vista, Calif. 92010

Filed Mar. 28, 1980, Ser. No. 134,940
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—9 1 Claim

1. A new and distinct variety of miniature rose plant of hardy, dwarf, bushy, much branched habit, substantially as illustrated and described, characterized by bud and flowers of a medium pink color, being of a shade of medium pink, (R. 5) Fischer color chart; easy to propagate from cuttings or budding, with ample supply of foliage to produce an attractive plant with an abundance of flowers; singly or in large sprays on long stems usually held high above plant.

4,731

APPLE TREE-GOLDENSHEEN #2 CULTIVAR

Paul C. Stark, Jr., Louisiana, Mo., assignor to Stark Brothers Nurseries & Orchards Co., Louisiana, Mo.

Filed Jan. 25, 1980, Ser. No. 115,546
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—34 1 Claim

1. A new and distinct variety of apple tree of the Golden Delicious type which is a whole tree mutation of the Goldensheen apple tree substantially as shown and described, characterized by (a) the ability to form fruit with a deep Dresden yellow skin which is unusually free and resistant to russeting substantially identical to that of the Goldensheen cultivar, (b) a vigorous and spreading growth habit which yields a standard sized tree unliké the Goldensheen cultivar, and (c) smaller flowers which appear later than those of the Golden Delicious — Mullins cultivar.

4,732

RASPBERRY PLANT NAMED BABABERRY

Gertrude P. Millikan, 700 N. Stoneman, Alhambra, Calif. 91801

Filed Dec. 17, 1979, Ser. No. 104,565
Int. Cl.[3] A01H *5/03*
U.S. Cl. Plt.—46 1 Claim

1. I claim a new and distinct variety of everbearing red raspberry which can withstand and thrive in the warm dry climate portions of California and other similar climates and which is unusually hardy and vigorous, disease resistant and a heavy producer of large crops of firm, large, sweet, juicy raspberries of deep red color and excellent flavor, substantially as herein shown and described and identified by characteristics described above.

4,733

IMPATIENS PLANT

Cornelis P. Van den Berg, and James C. Mikkelsen, both of Ashtabula, Ohio, assignors to Mikkelsens, Inc., Ashtabula, Ohio

Filed Dec. 12, 1979, Ser. No. 103,087
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct cultivar of Impatiens known by the cultivar name Telstar, as described and illustrated, and particularly characterized as to novelty by the combined characteristics of excellent self-branching; spreading habit; highly variegated foliage; orchid/violet flowers; suitability for growing both outside in full sunlight and in hanging baskets; and by its good keeping quality both outside in full sunlight and in hanging baskets.

4,734

KALANCHOE PLANT

Cornelis P. Van den Berg, and James C. Mikkelsen, both of Ashtabula, Ohio, assignors to Mikkelsens, Inc., Ashtabula, Ohio

Filed Mar. 26, 1980, Ser. No. 134,115
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct cultivar of kalanchoe plant known by the cultivar name Serenade, as described and illustrated, and particularly characterized by its early flowering, high degree of self-branching, bright red flower color, dense foliage, and by its well clustered flowers and floriferous habit.

PATENTS

GRANTED JUN. 2, 1981

ERRATA

For CLASS	See PATENT NO.
434–156	4,270,284
411–021	4,270,434
493–287	4,270,443
411–112	4,270,591
294–169	4,270,678
493–430	4,270,744
369–170	4,270,758
298–003	4,270,786
516–704	4,271,086
564–305	4,271,091
369–041	4,271,334
369–136	4,271,335
037–021	4,271,512

PATENTS

GRANTED JUNE 2, 1981

GENERAL AND MECHANICAL

4,270,227
ARTICLES INCORPORATING AIR VENTS
Henry S. Wolfe, Harbor Bluff Largo, Fla., assignor to American Clearwater Corp., Paterson, N.J.
Filed Oct. 30, 1978, Ser. No. 955,900
Int. Cl.[3] A41D *3/04*; A43B *7/06*
U.S. Cl. 2—87 18 Claims



1. In an article defining a substantially closed space, said article having a substantially planar surface, the improvement comprising air vent means for preventing the entry of water into the space while accomplishing air circulation therethrough, said air vent means comprising:
(a) said planar portion of said article having an aperture therein;
(b) a base portion having a hole therein, said base portion being secured to the planar portion of said article about said aperture; and
(c) an elongate, substantially L-shaped member having a passage extending therethrough in communication with said hole, said L-shaped member extending inside said article with one leg secured to the base portion and the other leg extending upwardly toward the top of said article.

10. In an article defining a substantially closed space, said article having a substantially planar surface, the improvement comprising air vent means for preventing the entry of water into the space while accomplishing air circulation therethrough, said air vent means comprising:
(a) said planar portion of said article having an aperture therein;
(b) a base portion having a hole therein, said base portion being secured to the planar portion of said article about said aperture; and
(c) an elongate, substantially L-shaped member having a passage extending therethrough in communication with said hole, said L-shaped member extending outside the article with one leg secured to the base portion and the other leg extending downwardly toward the bottom of said article.

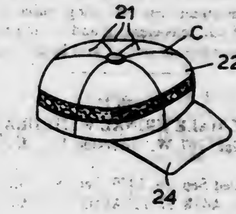
4,270,228
HAND COVER
Conrad J. Gaiser, 1048 Skyland Dr., Skyland, Zephyr Cove Area, Nev. 89448
Filed Feb. 12, 1979, Ser. No. 11,387
Int. Cl.[3] A41D *19/00*
U.S. Cl. 2—158 19 Claims

1. A hand cover which comprises a thin pad of a reticulated plastic foam with a thickness from 1/16 to about ¼ inch to enhance gripping of a tool grasped by the wearer without a significant loss of the kinestatic preception of the tool position, said pad being the only cover overlying the palm of a wearer's



hand, and binding means engageable about said hand to retain said cover on the wearer's hand.

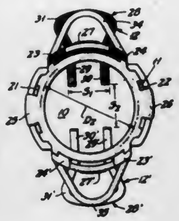
4,270,229
METHOD OF SURFACE ORNAMENTED CAP
Charles Lipschutz, Louisville, Ky., assignor to Louisville Manufacturing Co., Inc., Louisville, Ky.
Filed Jan. 17, 1980, Ser. No. 113,129
Int. Cl.[3] A42B *1/02*
U.S. Cl. 2—195 14 Claims



1. A method of producing a cap having a plurality of panels upwardly and inwardly from a base portion, and surface ornamented so as to have the appearance of a three dimensional object, comprising:
preparing photographs of side views of the object from a plurality of positions spaced at equal angles around the object and the same as the number of panels in the cap;
preparing photographs of the top portions of the object corresponding to the number of side views;
cutting from each of the side view photographs of the object a piece corresponding to the developed shape of a panel having a dimension at the base of the piece in the direction of the periphery of the cap which is at least equal to the periphery of the base portion of the cap divided by the number of panels, and having the lower edge of the image of the object at the position corresponding to the lower edge of the panel in the cap;
cutting from each of the top portion photographs of the object further pieces corresponding to the tapered portions of corresponding panels and joining them to the firstmentioned pieces for forming composites of the panels of the cap with photographic representations of the three dimensional object thereon;

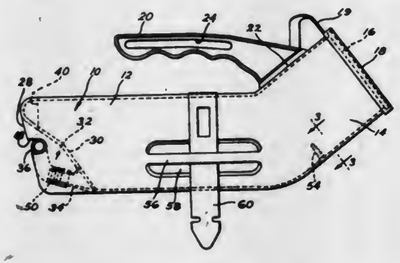
touching up the transition areas between the photographic representations on said composites; and
transferring images of said composites onto material for panels of the cap and assembling said panels into the cap.

4,270,230
INTRAOCULAR LENS
Stanley Poler, New York, N.Y., assignor to Lynell Medical Technology Inc., New York, N.Y.
Filed Dec. 4, 1979, Ser. No. 100,243
Int. Cl.³ A61F 1/16, 1/24
U.S. Cl. 3—13 29 Claims



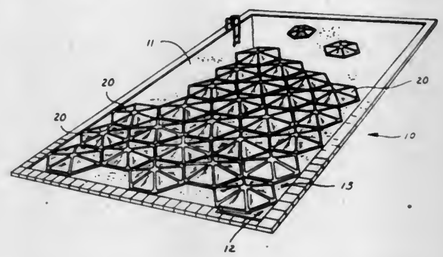
17. As an article of manufacture, an optically finished intraocular lens element having a generally circular periphery about its optical axis, and a mounting adapter for said lens element, said adapter comprising at least one circumferentially continuous annular body member having a circular inner edge of diameter less than the diameter of said lens element, at least one arcuate body member of inner-edge diameter substantially matching that of said circumferentially continuous annular body member, said body members being adjacent opposite axial sides of the peripheral region of said lens element and being connected to each other within a geometrical annulus radially outside said lens element, and a plurality of angularly spaced lens-positioning feet extending radially outwardly of the periphery of said lens element and having radially compliant integral connection to one of said body members.

4,270,231
PORTABLE MALE URINAL WITH DRAIN MEANS
Frederick J. Zint, 707 W. Riverside Dr., Jeffersonville, Ind. 47130
Filed Sep. 24, 1979, Ser. No. 78,666
Int. Cl.³ A47K 11/12; A61G 9/00; A61F 5/44
U.S. Cl. 4—144.1 10 Claims



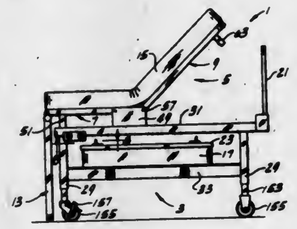
1. A portable male urinal comprising:
a. an elongate bottle-like container having a generally horizontal main body and an upwardly inclined entrance end that has an orifice that is adapted to be closed with a removable cap;
b. handle means supported from the urinal;
c. the end wall of the main body that is opposite the orifice having a recessed wall portion, a drain spout joined to the recessed wall portion near the bottom thereof so as not to protrude beyond the end wall; and
d. a drain hose joined to the drain spout for emptying the contents of the urinal into a lower receptacle;
e. the said end wall portion of the main body being provided with side notch means adapted for receiving the drain hose therethrough when the urinal is positioned upright and supported on its end wall during non-use of the urinal.

4,270,232
THERMAL POOL COVER
Ray D. Ballew, 3668 Bronco, Las Vegas, Nev. 89103
Filed Feb. 10, 1976, Ser. No. 656,787
Int. Cl.³ E04H 3/19; F24J 3/02
U.S. Cl. 4—498 4 Claims



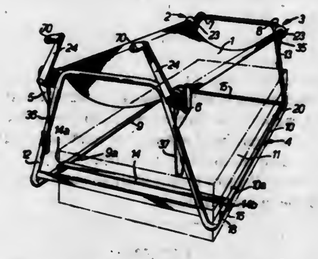
1. A cover for a swimming pool comprising: a multiplicity of cover segments each composed of a hexagonal frame of material which is lighter than water, said hexagonal frame defining an hexagonal space within said frame; at least one elongated brace extending between one point upon one side of said hexagonal frame to another point upon another side of said hexagonal frame, and the vertical cross section of the cover being an arch-like shape wherein the height at a midpoint is greater than the height at the perimeter; and, an hexagonal cover of heat transfer sheeting adhered to one side of each of the hexagonal frame elements, completely covering the space within the said hexagonal frame.

4,270,233
OBSTETRIC BED
Jack E. Mulligan, 6199 Bermuda Dr., St. Louis, Mo. 63135
Filed Feb. 15, 1979, Ser. No. 12,570
Int. Cl.³ A61G 7/00
U.S. Cl. 5—68 15 Claims



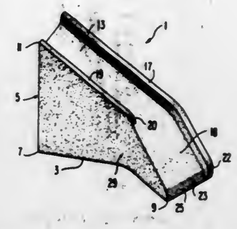
1. An obstetric bed comprising:
a base,
a support structure on top of the base for supporting a patient,
the support structure having a body section secured to the base in generally horizontal position, a head section pivotally connected to one end of the body section constituting its head end for swinging on the body section about an axis extending transversely of the support structure between a first position in which it extends generally horizontally outwardly from the body section and a second position in which it is inclined upwardly with respect to the body section, and a foot section pivotally connected to the other end of the body section constituting its foot end for swinging on the body section about an axis extending transversely of the support structure between a first position in which the foot section extends generally horizontally outwardly from the body section beyond one end of the base constituting the foot end of the base and a second position in which it extends generally vertically downwardly from the body section at the foot end of the base,
means for holding the head section in its inclined position and in selected positions of adjustment between its inclined and horizontal positions, and
means for swinging the foot section between its horizontal and vertical positions and for holding it in selected positions of adjustment therebetween,
said swinging and holding means comprising a pin mounted on the base for rotation about the axis of the pin, the latter extending transversely with respect to the base, a linkage connected at one end to the foot section and at its other end, constituting its base end, to said pin for rotation of the base end of the linkage and said pin about said pin axis, and means for rotating the base end of the linkage about said pin axis whereby on rotation in one direction the foot section is raised toward its horizontal position and on rotation in the other direction the foot section is lowered toward its vertical position,
said rotating means comprising a screw shaft mounted on the base at the foot end of the base for rotation about its longitudinal axis, said shaft lying in a generally vertical plane extending generally longitudinally of the base, a nut threaded on the screw shaft, and a link pinned at one end to the nut and rigidly secured at its other end to said pin whereby rotation of the screw shaft about its axis effects travel of the nut along the shaft to rotate the link, the pin and the base end of the linkage about the axis of the pin for swinging the foot section between its vertical and horizontal positions.

4,270,234
NET-TYPE BEDS
David R. James, Hasfield, England, assignor to James Investments Limited, Gloucester, England
Filed Sep. 24, 1979, Ser. No. 77,911
Claims priority, application United Kingdom, Oct. 3, 1978, 39016/78
Int. Cl.³ A47B 83/04
U.S. Cl. 5—81 R 10 Claims



1. A net-type bed adapted for mounting on a normal bed having a mattress base and a mattress, said net-type bed comprising: two rotatable shafts to support a flexible web between them, and a self-contained support frame which includes support crutches at each end of the frame for supporting said rotatable shafts, two spaced longitudinal frame members adapted to extend along either side of said normal bed mattress to rigidly interconnect and determine the longitudinal spacing of said end support crutches, and support means for said frame extending inwardly of said longitudinal members and adapted to rest on said mattress base of the normal bed below said mattress thereof.

4,270,235
ARM SUPPORT PILLOW
Gordon L. Gutmann, 207 Sparks Ave., Jeff, Ind. 47130
Filed Nov. 8, 1978, Ser. No. 958,859
Int. Cl.³ A47C 21/00
U.S. Cl. 5—431 6 Claims



1. A support device adapted for holding the arm of a person, comprising a body having
a bottom support surface, and
an upper face inclined upwardly at an angle from said bottom support surface and meeting said bottom surface at the lower end,
a bend in said body, said bottom surface and said upper face, said bend forming an obtuse angle, said support being shaped so that the arm of said person can be inclined by placing said arm on said upper face with the shoulder at the lower end and the wrist and hand at the upper end.

4,270,236
PROCESS FOR THE DYEING OF FIBRE MATERIAL
Jacques Zarbachen, Prattein, and Willi Lenzenegger, Bottmingen, both of Switzerland, assignors to CIBA-GEIGY Corporation, Ardsley, N.Y.
Continuation of Ser. No. 551,934, Feb. 24, 1975, abandoned, which is a continuation of Ser. No. 302,697, Nov. 1, 1972, abandoned. This application Jan. 7, 1976, Ser. No. 693,594
Claims priority, application Switzerland, Nov. 9, 1971, 16260/77
Int. Cl.³ D06P 7/00
U.S. Cl. 8—159 8 Claims

1. A batch process for dyeing fiber material comprising the steps of first applying to the fiber material a non-thickened aqueous dye liquor, consisting essentially of
(a) a water-soluble or water-dispersible dyestuff having affinity for the fiber material
(b) 0.2 to 10 g/l of a non-foaming anionic dispersing agent selected from the group consisting of benzene monosulfonic acid, naphthalene monosulfonic acid, C_1–C_4-alkyl benzene monosulfonic acid, C_1–C_4-alkyl naphthalene monosulfonic acid, tetrahydro naphthalene sulfonic acid, dinaphthylmethane disulfonic acid, diphenyl-naphthylmethane sulfonic acid, a 2:1 to 2:2 adduct thereof with formaldehyde, and water-soluble salts thereof, and
(c) water,
at a goods-to-liquor ratio of 1:1.5 to 1:2.5 and at a temperature below the absorption temperature of the dyestuff, subsequently in a closed container subjecting the fiber material and applied aqueous dye liquor to shaking or tumbling in a rotating drum sufficient to distribute evenly the aqueous dye liquor on the fiber material while still maintaining the temperature below the absorption temperature of the dyestuff, and finally heating the fiber material and the evenly distributed aqueous dye liquor to exhaust the dyestuff onto the fiber material.

4,270,237

PORTABLE APPARATUS FOR ASSEMBLING NUTS AND WASHERS ON THREADED STUDS

Marvin M. Breeze, Jr., and Virgil W. Wood, both of Rockwall, Tex., assignors to Western Electric Company, Inc., New York, N.Y.

Filed Oct. 22, 1979, Ser. No. 87,124
Int. Cl.³ B23P 19/08
U.S. Cl. 10—155 R **12 Claims**



1. An apparatus for assembling a polygonal-shaped nut onto a threaded stud, which comprises:
- a housing having a passageway extending therein for receiving a nut;
- a sleeve rotatably mounted in said housing and having a slot formed in the peripheral wall for passage of the nut, said sleeve having a polygonal-shaped interior conforming to the polygonal-shaped nut;
- a driver rod slidably mounted at one end within a first end section of the sleeve;
- a motor for rotating the driver rod and sleeve;
- a clutching device interposed between said driver rod and motor including a clutching element for holding said driver rod from rotation and for positioning said sleeve to align the slot with the passageway in said housing;
- means mounted in said housing for moving the nut through the passageway and slot into said sleeve; and
- means for retaining the nut within the sleeve while a force is applied to depress said driver rod to move relative to the sleeve to disengage the clutching element and move the rotating driver rod to push the nut along the rotating sleeve onto a threaded stud positioned within the second end section of the sleeve.

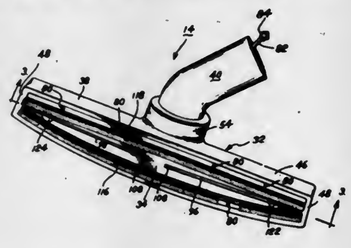
4,270,238

CLEANING TOOL

Robert L. Shallenberg, Wheaton, and Roland A. Blomgren, Glen Ellyn, both of Ill., assignors to Service Master Industries, Inc., Downers Grove, Ill.

Continuation-in-part of Ser. No. 929,355, Jul. 31, 1978, abandoned, which is a continuation of Ser. No. 841,379, Oct. 12, 1977, abandoned, which is a continuation of Ser. No. 647,795, Jan. 9, 1976, abandoned. This application Jul. 18, 1979, Ser. No. 58,485
Int. Cl.³ A47L 11/38
U.S. Cl. 15—321 **10 Claims**

1. An improved cleaning tool for the facile cleaning of walls and ceilings, the improved cleaning tool comprising:
- (A) means for supplying a cleaning fluid under pressure;
- (B) a block assembly which has one surface adapted to be positioned adjacent to the surface of a wall or ceiling to be cleaned and which has a front edge, a rear edge and side edges, the block assembly being adapted to be moved back and forth across the surface of the wall or ceiling to be cleaned in a direction generally perpendicular to the front and rear edges of the block assembly and including:
  - (i) a first continuous row of bristles that extends generally along the front edge of the block assembly from one side edge of the block assembly to the other side edge and between the front edge and the longitudinal axis of the block assembly and that have their distal ends projecting generally perpendicularly from the one surface of the block assembly toward the surface of the wall or ceiling to be cleaned;
  - (ii) a second continuous row of bristles that extends generally along the rear edge of the block assembly from one side edge of the block assembly to the other side edge and between the rear edge and the longitudinal axis of the block assembly and that have their distal ends projecting generally perpendicularly from the one surface of the block assembly toward the surface of the wall or ceiling to be cleaned; and
  - (iii) a plurality of spaced nozzles that are disposed adjacent to the first and second rows of bristles and between the first row of bristles and the front edge of the block assembly and between the second row of bristles and the rear edge of the block assembly;
- (C) means for connecting the nozzles in the block assembly with the means for supplying cleaning fluid so that cleaning fluid can flow to and through the nozzles;
- (D) means for controlling the flow of cleaning fluid through the nozzles to substantially uniformly wet the bristles in the first and second rows of bristles so that a thin film of cleaning fluid is applied to the surface of the wall or ceiling to be cleaned, as the block assembly is moved back and forth across the surface, by the distal ends of the bristles;



- (E) slot means formed in the block assembly and having first and second ends, having a central axis disposed substantially parallel to the longitudinal axis of the block assembly and having generally parallel, relatively closely spaced side walls that are generally parallel to the central axis and having tapered end walls, with the second end of the slot means having a crossectional area less than one crossectional area of the first end of the slot means and with the first end opening to the one surface of the block assembly between the first and second rows of bristles;
- (F) means for providing a source of vacuum capable of sucking air into and through the block assembly when the distal ends of the bristles are in contact with the surface to be cleaned; and
- (G) means for connecting the second end of the slot means with the vacuum source means so that air sucked into the block assembly causes the extraction of the cleaning fluid from said surface substantially instantaneously as it is applied thereto and so that the velocity of the air being sucked through the slot means is relatively high so as to thereby cause the air, with the entrained fluid, to flow into and through the slot means without substantial condensation of the entrained fluid.

4,270,239

INTERLOCK SUPPORT STRUCTURE

Meyer A. Gross, New York, N.Y., assignor to New York Toy Corporation, New York, N.Y.

Filed Aug. 8, 1979, Ser. No. 64,658
Int. Cl.³ A47B 95/02
U.S. Cl. 16—112 **3 Claims**

1. An interlock support structure for aligning first and second, substantially flat, elongated channel members and locking said members in aligned relationship comprising a locking channel having a base in a plane generally parallel to the plane of said members, side flanges extending from said base defining therebetween a locking channel opening, a stop member substantially perpendicular to said base and terminating one end of said opening and a channel projection member generally parallel to and overlying said base and generally perpendicular to



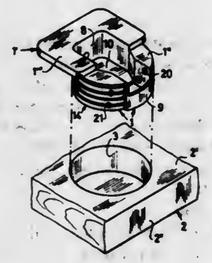
said stop member, all constructed and arranged such that said second member inserts into said opening with one of its ends abutting said stop member and said locking channel being slidable with respect to said first member, and said channel projection member received within the channel of said second channel member thereby improving the locking relationship and alignment of said channel members.

4,270,240

HINGE CUP FOR FURNITURE HINGES

Ernst Zernig, Hemer, and Willi Pittasch, Herford, both of Fed. Rep. of Germany, assignors to Richard Heinze GmbH & Co. KG, Hefford, Fed. Rep. of Germany

Filed Aug. 7, 1978, Ser. No. 931,310
Claims priority, application Fed. Rep. of Germany, Aug. 19, 1977, 7725760[U]
Int. Cl.³ E05D 11/00
U.S. Cl. 16—148 **4 Claims**



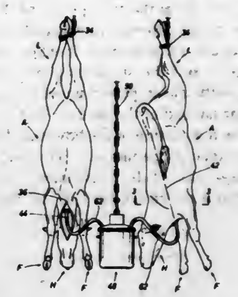
1. A hinge cup fitting for connecting a furniture hinge into a hole in a furniture panel comprising:
- anchoring means for fitting into said hole;
- a metal insert part;
- said anchoring means having at least two separate sections each having an outer peripheral surface and an inner peripheral surface, said outer peripheral surface abutting said hole and having means for anchoring therein, said inner peripheral surface abutting said insert part;
- a web connecting said at least two separate sections together into an integral unit;
- a flange on said insert part covering said web;
- at least one of said at least two separate sections including a projection on its inner peripheral surface; and
- said metal insert part including at least one hole aligned with said projection, said at least one projection engaging said at least one hole in said metal insert part.

4,270,241

PROCESS FOR SLAUGHTERING OF ANIMALS BY BLEEDING

Alphonse M. Braga, Fullerton, Calif., assignor to Radian Corporation, Austin, Tex.

Filed Oct. 25, 1977, Ser. No. 845,342
Int. Cl.³ A22B 3/00, 5/04
U.S. Cl. 17—1 C **11 Claims**



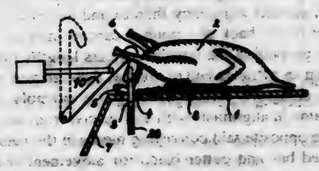
1. In the process of killing animals by bleeding wherein the animal is stunned prior to said bleeding, the improvement comprising:
- (a) making an incision in said animal to expose generally the midline of the anterior wall of the thorax of said animal,
- (b) inserting caudally a generally elongate, tubular member through said incision, said tubular member being inserted anteriorly of the sternum, generally midway between the forelimbs, and generally along a line between the point of insertion and the rectum of the animal, such that the inserted end thereof substantially, selectively enters a major mediastinal blood vessel of said animal without substantial en masse severing of plural major blood vessels by said insertion of said tubular member, and
- (c) collecting blood flowing through said tubular member from said blood vessel.

4,270,242

APPARATUS FOR AUTOMATIC EVISCERATION OF KILLED POULTRY

Kjeld Løth, and Peter Løth, both of 4, Elmegardsvej, DK-9460 Skovsgard, near Brovst, Denmark

Division of Ser. No. 859,218, Dec. 9, 1977, Pat. No. 4,208,764. This application May 14, 1979, Ser. No. 38,909
Claims priority, application Denmark, Dec. 17, 1976, 5719/76; Dec. 17, 1976, 5720/76
Int. Cl.³ A22C 21/06
U.S. Cl. 17—11 **14 Claims**



1. An apparatus for automatic evisceration of killed poultry comprising:
- a substantially horizontal supporting plate adapted to receive poultry lying on its back in a predetermined position in relation to the supporting plate;
- at least one processing station;
- said supporting plate being movable to a position opposite said at least one processing station; and
- clamping means provided at one free terminal edge of the

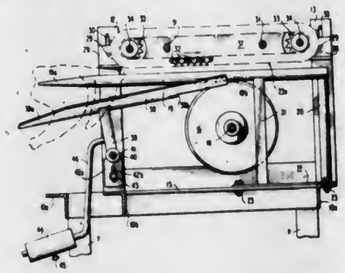
supporting plate for detachably securing the tail head of the poultry to the supporting plate, said clamping means including a bow carried throug a slot formed in the supporting plate opposite the tail head of a correctly positioned animal, said bow having an eye opening for receiving the tail head, said eye opening having a top portion and bottom portion, said top portion having a cross-section corresponding substantially to the tail head of the poultry, the eye opening increasing substantially in width downwardly from the top portion to the bottom portion, the bow being movable transversely of said supporting plate between a first position in which the bottom portion of the bow and the supporting plate form together an opening sufficient to permit unobstructed insertion of the triangular tail end of the poultry, and a second position in which the top portion of the bow and the supporting plate form together an opening which is somewhat smaller than the cross-section of the constricted area of the poultry to be secured between the tail end the the carcass.

4,270,243

POULTRY BREAST SPLITTING APPARATUS

Eugene J. Lewis, Rte. #1, Box 306, Demorest, Ga. 30535

Filed Nov. 29, 1979, Ser. No. 98,468
Int. Cl.³ A22C 21/00
U.S. Cl. 17—11 8 Claims



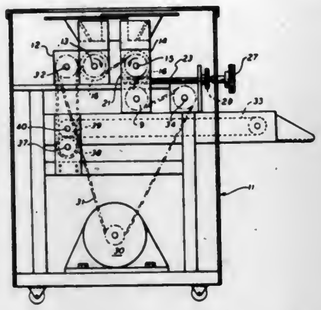
1. A device for splitting the breast of a poultry carcass comprising a support frame, an elongated feed bar affixed to said frame and adapted to support a poultry carcass impaled thereon between the carcass back and breast bones, a cutting blade mounted on said frame for rotation in a plane containing said feed bar and about a rotational axis perpendicular to and offset laterally of said feed bar between its ends, means for rotating said cutting blade about its axis, conveying means extending in the lengthwise direction of said feed bar in closely spaced, parallel adjacency thereto and adapted to contact the exterior of the back of a poultry carcass impaled on said feed bar for propelling the impaled carcass lengthwise of said feed bar from an entrance end of said bar through said cutting blade, and an elongated carcass breast guide movably supported on said frame in alignment with and spaced from said feed bar on the side opposite said conveying means in the plane containing said feed bar and cutter blade for movement relative to said feed bar in said contained plane between a feed position in which said breast guide is maintained in pressing contact with the exterior breast portion of an impaled carcass being carried by said conveying means along said feed bar into contact with said cutting blade and a retracted position in which the space between said breast guide and said feed bar entrance end is increased sufficiently to permit a carcass to be inserted between said feed bar and breast guide for impalement on said feed bar.

4,270,244

METHOD AND APPARATUS FOR MACERATING MEAT

Salvatore J. Lo Biondo, 12 Decamp Ct., West Caldwell, N.J. 07006, and Joseph V. Lo Biondo, 79 Winding La., Bloomfield, N.J. 07003

Continuation of Ser. No. 866,630, Jan. 3, 1978, abandoned. This application Jun. 1, 1979, Ser. No. 44,755
Int. Cl.³ A22C 9/00
U.S. Cl. 17—52 15 Claims



1. A method for macerating meat to effect deep penetration of the interior thereof comprising,
(a) spacing a pair of shafts in general parallelism with each other at a distance less than the width of a piece of meat to be macerated,
(b) contra-rotating the shafts,
(c) mounting radially slotted discs with blunted peripheral and blunted radial edges on the shafts wherein the peripheral edges of the discs on the respective shafts are spaced apart to define a vertical plane therebetween,
(d) mounting crushers on the shafts between the discs to space the slotted discs apart from each other, with the crushers' peripheries disposed generally at the commencement of the slots,
(e) passing meat between the shafts in engagement with the crushers and the discs,
(f) crushing the meat by engagement with the crushers as the meat passes between the shafts,
(g) slitting the crushed meat by engagement of it with the slotted discs as it passes between the shafts, and
(h) combing the meat out from between the discs after the meat has passed between the shafts.

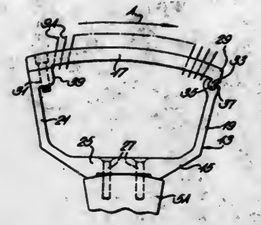
3. A macerator for macerating meat comprising,
(a) a first shaft,
(b) a second shaft,
(c) a plurality of discs mounted on the shafts,
(d) radial slots in the periphery of each disc,
(e) blunted peripheral and blunted radial edges on each disc,
(f) the discs on the first shaft offset with respect to the position of the discs on the second shaft,
(g) crusher rings mounted on the first and second shafts between the discs to urge the meat toward the discs on the opposite shaft,
(h) the crusher rings on each shaft extending radially substantially to the point of origin of the radial slots in the discs,
(i) combs positioned below each shaft,
(j) the teeth of the combs intruded between the discs on the respective shafts whereby meat jammed between the adjacent discs is stripped away, and
(k) the peripheral edges of the discs on one shaft normally extending toward a plane generally tangential to the edges of the discs wherein the peripheral edges of the discs on the first and second shafts are spaced apart to define a vertical plane therebetween.

4,270,245

LAG OR STAVE ASSEMBLY FOR KIRSCHNER BEATERS

David B. Stewart, Newtyle; William R. Stewart, Craigmount, and John M. C. Dickinson, Largoward, by Elie, all of Scotland, assignors to Wm. R. Stewart & Sons (Hackle makers) Ltd., Dundee, Scotland

Filed Oct. 22, 1979, Ser. No. 87,386
Claims priority, application United Kingdom, Oct. 24, 1978, 41779/78
Int. Cl.³ D01G 9/04
U.S. Cl. 19—85 13 Claims



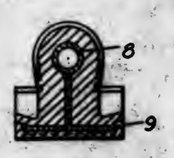
1. A lag assembly for a Kirschner beater comprising a support part for connection to a leg of the spider of the beater and a working part, a plurality of pins projecting from said working part, which pins are so located in said working part that their tips provide a working surface which is convex when viewed tansverse to its length, means adjacent one longitudinal edge of said working part removably, hingedly securing said working part to the said support part and further means adjacent an opposite longitudinal edge for fixedly securing said working part to the adjacent edge of said support part.

4,270,246

CARDING FLAT ARRANGEMENT

Wolfgang Bencke, Monchen-Gladbach, Fed. Rep. of Germany, assignor to Trutzschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Sep. 18, 1978, Ser. No. 943,217
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1977, 2742420
Int. Cl.³ D01G 15/24
U.S. Cl. 19—113 1 Claim



1. A carding flat arrangement comprising: lateral end head sections guided along sliding guide members; a center section of substantially low specific gravity material, said end head sections being pressable against said sliding guide members, said end head sections having sliding surfaces of wear-resistant material of substantially high specific gravity; T-shaped stabilizing elements inserted into said center section, said stabilizing elements being connected to said end head sections; said end head sections having sliding surfaces coated with a friction-reducing material; a tube attached to said T-shaped reinforcing element, an outside end of said tube being threaded for fastening screw of flats chain.

4,270,247

CLASP

John Freedom, 17100 S. Harlem Ave., Tinley Park, Ill. 60477

Filed Mar. 29, 1979, Ser. No. 25,191
Int. Cl.³ B65D 77/10, 63/00
U.S. Cl. 24—30.5 R 12 Claims



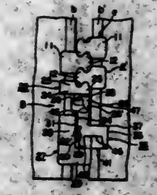
1. An improved clasp adapted to encircle and lock about a relatively flexible article comprising in combination,
a clasp bar having a pair of clasp arms extending arcuately outwardly from a central junction point and each of said clasps arms terminating in an outer end thereof,
said clasp arms and central junction point being substantially co-extensive and formed of a reasonably resilient material,
said outer ends of said clasp arms being spaced a distance apart in the normal disposition thereof,
and each of said outer ends of said clasp arms provided with cooperating lock means which cooperate to encircle and lockingly retain a flexible article between said clasp arms and said lock means,
said clasp bar positioned adjacent to a relatively flexible article at said central junction point and said lock means manipulated to encircle the flexible article and lockingly engage the same between said pair of clasp arms.

4,270,248

SLIDE FASTENER WITH BOTTOM STOP

Shunji Akashi, Kurobe, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Jul. 30, 1979, Ser. No. 61,883
Claims priority, application Japan, Jul. 31, 1978, 53-105407[U]
Int. Cl.³ A44B 19/36
U.S. Cl. 24—205.11 R 8 Claims



1. A slide fastener comprising:
(a) a pair of flexible stringer tapes carrying resilient marginal beads on and along the respective inner longitudinal edges thereof;
(b) two rows of discrete interlocking fastener elements mounted on and along said marginal beads;
(c) a slider slidably mounted on said rows of interlocking fastener elements and adapted to reciprocally slide along said interlocking fastener element rows to engage or disengage them for opening or closing of said slide fastener, said slider having a flared front end and a tapered rear end and including a neck portion formed centrally on said flared front end and a pair of opposed side flanges formed on its both sides to define therebetween a Y-shaped channel for reciprocal slidable passage of said interlocking fastener element rows therethrough; and

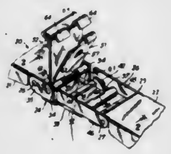
(d) a bottom end stop attached to said marginal beads at one end of said rows of interlocking fastener elements, said bottom stop including a first member mounted on one bead and adapted to engage at its upper part with the lowermost interlocking fastener element carried on the other bead, a second member mounted on said one bead a given distance below said first member and a third member mounted on said other bead a given distance below said lowermost element and disposed in opposed relation to the lower part of said first member and said second member, said third member being adapted to engage at its upper part with said first member so as to slide transversely of and along the plane of said slide fastener and to engage at its lower part with said second member so as to pivot along the plane of said slide fastener, said third member being in the shape of a polygon comprising an interior side lying inwardly of said other bead, an exterior side lying outwardly of said other bead, an upper interior corner contiguous to said interior side and an upper exterior corner contiguous to said exterior side, said third member being provided adjacent said upper interior corner with an abutment for abutting engagement with said neck portion of said slider, said upper interior corner being above said upper exterior corner thus to leave said resilient bead intact beside the former, the dimension of said third member as disposed when passing between said side of said neck portion and said corresponding flange, being slightly smaller than the distance between said side of said neck portion and said corresponding flange.

4,270,249

CLASP FOR A BRACELET OR THE LIKE

Stanley Meyerson, Brooklyn, N.Y., and Seymour Hauser, North Bergen, N.J., assignors to Admiral Watchband Co., Inc., New York, N.Y.

Filed Feb. 5, 1979, Ser. No. 9,433
Int. Cl.[3] A44B *13/00*
U.S. Cl. 24—241 PP 16 Claims



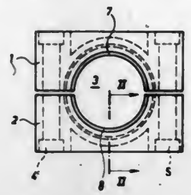
1. A clasp for a bracelet or the like comprising: a receiver for connection to one end of said bracelet; an end hook on the distal end of said receiver and having an opening on one side of said receiver; a loop for connection to another end of the bracelet and removably engageable in said end hook through the opening thereof; a first cover hinged to said receiver and swingable into and out of overlying relation with said receiver and said end hook on said one side of said receiver; a catch on said first cover for releasable snap engagement about said end hook for releasably retaining said loop in said end hook; a second cover hinged to said receiver and swingable with said first cover into and out of overlying relation with said first cover and said receiver; a catch on said second cover for releasable snap engagement about said end hook; connection means for operatively connecting said first and second covers for simultaneous swinging movement enabling simultaneous opening of said covers; and lost motion means associated with said connection means for affording limited relative movement between said covers before simultaneous movement of said covers.

4,270,250

CLAMPING RING FOR TUBULAR MEMBERS

Otmar Schön, Am Kirschenberg 5, D-6601 Scheidtberg, Fed. Rep. of Germany

Filed Apr. 1, 1980, Ser. No. 136,318
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1979, 7909896[U]
Int. Cl.[3] F16L *3/10*; A44B *21/00*
U.S. Cl. 24—263 A 1 Claim



1. In an improved clamping ring assembly for clamping a tubular member, the ring being of the type having first and second bodies formed with semi-cylindrical recesses defining a tubular passage to receive the tubular member, at least one annular groove of predetermined depth in each of said recesses, each said groove being trapezoidal in cross section widening toward the opening thereof, and at least one generally semi-cylindrical elastomeric insert being a radially protruding rib to engage one of said annular grooves, and means for urging said bodies toward each other with said recesses facing each other, the improvement wherein

each said annular rib is trapezoidal in cross section and is shaped to be received in its associated groove substantially without distortion, and

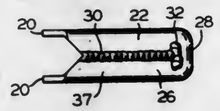
the radial dimension of each said rib is significantly smaller than the depth of the associated groove so that a gap remains between the rib and the bottom of the groove when the insert and bodies are assembled.

4,270,251

MUFFLER CLAMP AND METHOD OF MAKING SAME

Ralph K. Evans, Plantsville, and Roy S. Florian, Southington, both of Conn., assignors to Nickson Industries, Inc., Plantsville, Conn.

Filed Mar. 30, 1979, Ser. No. 25,340
Int. Cl.[3] B65D *63/00*; F16L *21/06*
U.S. Cl. 24—277 7 Claims



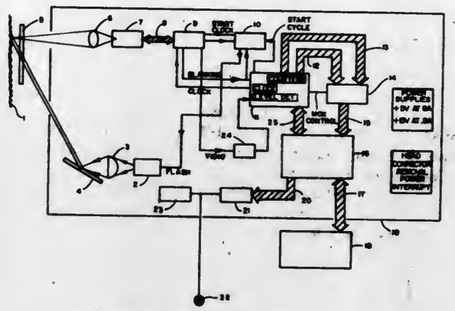
1. A saddle member for a saddle clamp, said saddle member comprising a generally U-shaped body portion provided by a pair of spaced-apart, generally parallel side wall portions and a base portion extending therebetween and end wall portions extending between the side margins of said side wall portions, said end wall portions each comprising oppositely extending side-wall flanges on the side margins of said side wall portions and extending over at least a major portion of the vertical height thereof, base flanges extending from said base portion to said side-wall flanges, and weldments rigidly bonding the opposed edges of said side-wall flanges and bonding the edge of said base flange to said side-wall flanges.

4,270,252

APPARATUS TO COUNT AND CONTROL CRIMPS IN A MOVING TOW OF YARN

David M. Harrison, Chester, Va.; Walter E. Watson, III, Beckley, W. Va.; Maurice S. Moore, Hopewell, Va., and Roger E. Jernya, Columbia, S.C., assignors to Allied Chemical Corporation, Morristown, N.J.

Filed Jan. 3, 1978, Ser. No. 866,303
Int. Cl.[3] D02G *1/12*
U.S. Cl. 28—250 18 Claims



2. An apparatus to count closely spaced variations of light intensity in a single pulse of light transmitted from a target having striations to cause said variations in light intensity comprising, in combination

a stroboscopic light,

a condenser lens,

a mirror,

a focusing lens,

a scanner photodiode array to sense said variations in intensity of light in said single pulse and transmit an electronic signal in response,

means to read out said electronic signal, and

means to trigger said stroboscopic light,

said stroboscopic light being located to transmit intense light pulses, initiated by said means to trigger, to pass through said condenser lens and then to and from said target onto said scanner photodiode array, said scanner photodiode array being electrically connected to counter means to count the number of variations in said single pulse of light and to said read-out means so that the number of striations on the target is indicated, said focusing lens being located so that light reflected from said target is focused onto said diode array, and said mirror being located so that said pulse of stroboscopic light is reflected onto said target and said apparatus is located on the same side of said target as said pulse is reflected from.

17. An apparatus to count closely spaced variations of light intensity in a single pulse of light transmitted from a target having striations to cause said variations in light intensity comprising, in combination

a stroboscopic light,

a condenser lens,

a scanner photodiode array to sense said variations in intensity of light in said single pulse and transmit an electronic signal in response,

means to read-out said electronic signal,

means to trigger said stroboscopic light,

means to move said target,

a controller,

crimping means, and

means to exert pressure on said crimping means,

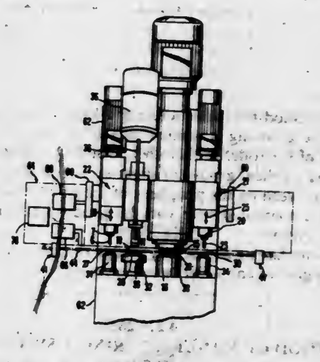
said stroboscopic light being located to transmit intense light pulses, initiated by said means to trigger, to pass through said condenser lens and then to and from said target onto said scanner photodiode array, said scanner photodiode array being electrically connected to counter means to count the number of variations in said single pulse of light and to said read-out means so that the number of striations on the target is indicated, and said moving target is a moving tow of yarn exiting from said crimping means, whereby said controller controls discharge of said yarn tow from said crimping means by regulating said pressure means in response to said signal.

4,270,253

APPARATUS FOR SIMULTANEOUS MACHINING OF A STACK OF PLATE-LIKE WORKPIECES

Eugen Herb, Ditzengen, and Berthold Leibinger, Gerlingen, both of Fed. Rep. of Germany, assignors to Trumpf America, Inc., Farmington, Conn.

Filed Sep. 20, 1978, Ser. No. 944,165
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817217
Int. Cl.[3] B23P *11/00*
U.S. Cl. 29—26 A 8 Claims



1. In a machine tool for the simultaneous machining of a stack of platelike workpieces, the combination comprising:

A. a frame;

B. a table within said frame and having a work supporting surface;

C. means for detachably securing a stack of workpieces on a metal base plate along said work-supporting surface of said table;

D. first drilling means supported in said frame for movement substantially perpendicularly to said work supporting surface for drilling an aperture in a workpiece stack aligned therewith;

E. riveting means supported in said frame for movement substantially perpendicularly to said work supporting surface to insert a rivet into the drilled aperture and deform it into engagement with the surfaces of the workpieces of the stack defining the aperture therethrough to maintain the stack in assembly;

F. machining means supported in said frame for movement substantially perpendicularly to said work-supporting surface to machine the stack of workpieces simultaneously;

G. second drilling means supported in said frame for movement substantially perpendicularly to said work supporting surface and

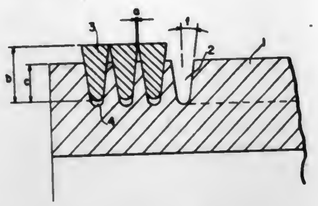
H. means for moving said stack securing means within said frame substantially perpendicularly to the axes of movement of said drilling, riveting and machining means in a first direction and in at least a second direction along an axis which is angularly disposed relative to the axis of said first direction, including movement between said first drilling means, riveting means, machining means and one of said first and second drilling means, said movement to said one of said drilling means being for the purpose of drilling out the rivet from the stack following movement of the stack from said machining means.

4,270,254

METHOD FOR MAKING GROOVED ROLLERS FOR DEHYDRATING RUNS OF MATERIALS

Dag Bergllöff; Alois Wohlfarter; Otto Heissenberger; Martin Mühlhauser, all of Graz, and Franz Petschauer, Lannach, all of Austria, assignors to Anstalt für Strömungsmaschinen Gesellschaft mbH, Austria

Filed Apr. 26, 1979, Ser. No. 33,703
Int. Cl.³ B21D 53/12; B21H 1/12; B21K 1/02
U.S. Cl. 29—148.4 D 9 Claims



1. A method for manufacturing a helically grooved roller where the grooving is continuous and extends helically from one rim of the roller to the other, which comprises

cutting a helical groove of slight side angle and in the form of a thread on the periphery of the roller, and then pressing a contoured wire with longitudinal prestressing into the groove,

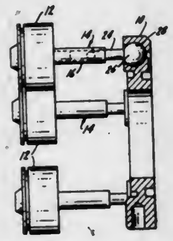
said wire having a generally wedge-shaped configuration in the groove and a flat outer periphery.

4,270,255

METHOD OF MANUFACTURING A SWASH PLATE ASSEMBLY

Edmund J. Klimek, Arlington Heights, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Mar. 26, 1979, Ser. No. 24,219
Int. Cl.³ B23P 15/00
U.S. Cl. 29—156.5 A 3 Claims



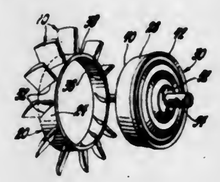
1. A method of manufacturing a swash plate assembly comprising the steps of: (1) fabricating a plurality of piston subassemblies, each of which is made by (a) providing a first connecting rod section with one end thereof formed with a substantially spherical surface; and (b) die casting a piston so that a portion of the piston captures said spherical surface in a complementary socket to form a ball/socket connection; (2) providing a plurality of second connecting rod sections each having one end formed with a spherical surface; (3) die casting a swash plate such that the ends of each second connecting rod section are captured in a complementary socket to form ball-/socket connections between said swash plate and said second connecting rod sections; (4) supporting said piston subassemblies and said swash plate in a holding fixture to align the respective said first and second connecting rod sections; (5) moving together and telescoping free ends of said connecting rod sections to effect the required final total length dimension from the bottom of said swash plate to the top of said piston subassemblies; and (6) joining said first and second connecting rod sections together of each of said piston subassemblies and said swash plate.

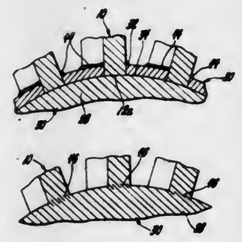
4,270,256

MANUFACTURE OF COMPOSITE TURBINE ROTORS

Bruce A. Ewing, Martinsville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jun. 6, 1979, Ser. No. 46,104
Int. Cl.³ B23P 15/04
U.S. Cl. 29—156.8 R 2 Claims





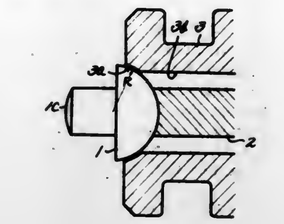
1. A method for manufacturing a composite turbine wheel having a disc hub of a first material and including a plurality of airfoils on the outside diameter comprising the steps of preforming a hub ring of expendable material to have a plurality of circumferentially spaced slots therein; forming a plurality of airfoil elements each having a base thereon, inserting said airfoil bases into said slots for locating said airfoils around the outer perimeter of said expendable ring and to expose the bases at the inner surface of said ring, preforming a disc hub having a controlled O.D. thereon, fitting the expendable ring on said controlled O.D. to mate the bases with said controlled O.D., sealing exterior joints between each of said airfoil elements and said expendable ring, sealing exterior joints between said ring and said disc hub, thereafter applying a hot isostatic environment to the full exposed exterior surfaces of said airfoils, expendable ring and hub disc to produce a resultant force acting inwardly on each of said airfoil elements which maintain the hub disc at an elevated temperature to produce metallurgical diffusion at the interface of the mating bases and controlled O.D. to produce a diffusion bond between the airfoils and the disc hub, thereafter dissolving all of the ring of expendable material from the joined airfoil elements and the disc hub to form controlled flow passages between each of said airfoils.

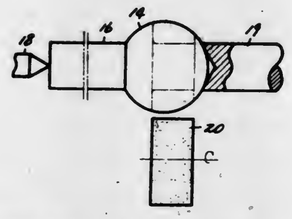
4,270,257

METHOD FOR MANUFACTURING A FUEL INJECTION VALVE

Kei Kimata, Aichi, and Shoichi Fukunaga, Iwata, both of Japan, assignors to NTN Toyo Bearing Co. Ltd., Osaka, Japan

Continuation of Ser. No. 678,762, Apr. 22, 1976, abandoned.
This application Oct. 7, 1977, Ser. No. 840,297
Claims priority, application Japan, Apr. 26, 1975, 50/50923; Apr. 28, 1975, 50/51831
Int. Cl.³ B23P 15/00, 13/00
U.S. Cl. 29—157.1 R 4 Claims





1. A method for manufacturing a valve member for use in a fuel injection valve present in an internal combustion engine wherein the valve member is axially movable to and from a cooperating seat member to permit the fuel injection valve to fully open and close, the method comprising the steps of butt welding a steel ball bearing to one end of a shaft member having the opposite end thereof threaded, mounting the welded ball and shaft member at its opposite ends in a revolvable state in support means therefor and thereafter grinding the steel ball as said welded ball and shaft are rotated about an axis extending through said shaft to cut away a portion of the steel ball remote from the shaft member leaving a remaining spherical surface whereby said grinding forms a rod-like extension extending from the spherical ball and so that its remaining spherical surface terminates as a circular edge constituting a small circle that is smaller than a circle on the surface of the sphere in a plane passing through the center of the sphere with the small circle lying in a plane perpendicular to the axis of the shaft member and more proximate to the shaft member than is the center of the sphere, whereby fuel injected past said remaining spherical surface will flare as it leaves said edge.

4,270,258

METHOD OF RETUBING A STEAM GENERATOR

Harry N. Andrews, Export, Pa.; Edmund C. Eglinton, St. Petersburg, Fla.; Joseph W. Gulaskey, N. Huntingdon, Pa.; Leonard J. Balog, Pittsburgh, Pa., and Robert W. Beer, Murrysville, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 28, 1978, Ser. No. 974,161
Int. Cl.² B23P 7/00
U.S. Cl. 29—157.4 10 Claims

1. A method of retubing a steam generator having a shell with an enlarged upper portion, a tubesheet disposed adjacent the lower end of the shell, a plurality of U-shaped tubes seal welded to the tubesheet and extending upwardly therefrom to form a closely-packed tube bundle, a head divided into an inlet and outlet compartment, each compartment having a manway and respectively an inlet and outlet nozzle, a wrapper with a dome on the upper end thereof, the wrapper being disposed between the shell and the tube bundle and blocks which support and space the wrapper from the shell while the steam generator is vertically oriented in a containment vessel, said method comprising the steps of:

installing alignment clips on the enlarged portion of the shell bridging a circumferential line on which the shell is to be parted;

cutting, on said circumferential line, a groove all the way through the shell, the groove being cut to the configuration of a weld preparation for rewelding the shell back together;

removing the upper enlarged portion of the shell;

cutting the dome from the wrapper and removing it therefrom;

enclosing the upper end of the shell with a cask large enough to accept the tube bundle and wrapper and having a hoist for supporting and lifting the tube bundle;

cutting the blocks to free the wrapper from the shell;

cutting openings in the shell and wrapper above the tubesheet to provide access to the tube bundle adjacent the upper side of the tubesheet;

cutting the tubes above the tubesheet to free the tube bundle;



raising the tube bundle and wrapper into the cask;

sealing the lower end of the cask;

removing the cask, tube bundle and wrapper from the shell;

installing a remotely controlled tool in each chamber of the head, the remotely controlled tool being capable of performing various operations on the ends of all of the tubes and holes in the tubesheet;

cutting the seal welds between the tubes and tubesheet utilizing the remotely controlled tool;

removing the stub ends of the tubes from the tubesheet;

refurbishing the holes in the tubesheet;

installing a new wrapper and tube support system in the shell;

installing simultaneously one or more rows of tubes in the support system and tubesheet until all of the tubes are installed;

expanding at least a portion of the tubes into engagement with the holes in the tubesheet as they are installed therein;

seal welding the ends of the tubes to the tubesheet;

aligning the upper portion of the shell with the lower portion thereof;

welding the upper portion of the shell to the lower portion;

inspecting the weld joining the upper and lower portions of the shell;

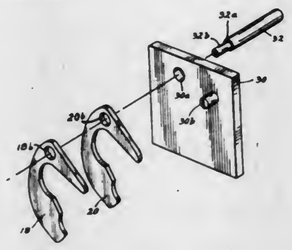
heat treating the weld joining the upper and lower portions of the shell;
closing the holes cut in the shell above the tubesheet; and
testing the shell hydrostatically.

4,270,259

METHOD AND APPARATUS FOR REBUILDING ADVANCE WEIGHTS

Brian N. Tichy, Bloomington, and Robert E. Clark, New Germany, both of Minn., assignors to Thexton Manufacturing Company, Minneapolis, Minn.

Filed Mar. 15, 1979, Ser. No. 20,798
Int. Cl.³ B23P 6/00, 19/04; F02P 1/00; B23B 49/00
U.S. Cl. 29—402.06 **8 Claims**



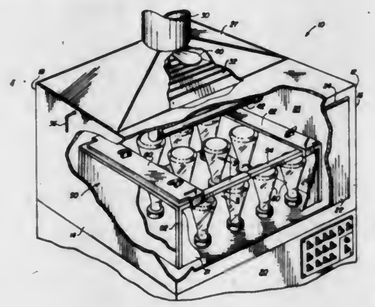
1. Process for repairing a single deformed worn hole in each of a pair of identical advance weights of a distributor assembly of an automobile comprising the steps of:
a. establishing the location of the axis of the original round hole in each of the advance weights by initially supporting each weight on an unworn peripheral portion of the single hole and upon a round pin with a shape the same as the shape of said unworn peripheral portion, and aligning the two axes of the original round holes of the two weights with each other;
b. enlarging the deformed worn hole to an oversized round hole on the original axis; and,
c. inserting a bushing in the oversized hole having an inner diameter equal to the diameter of the original round hole whereby said bushing hole correspond in diameter and on axial center to the original round hole.

4,270,260

METHOD FOR THE SALVAGE AND RESTORATION OF INTEGRATED CIRCUITS FROM A SUBSTRATE

Ellison F. Krueger, 3916 Grand View, Tempe, Ariz. 85281

Filed Oct. 10, 1978, Ser. No. 949,763
Int. Cl.³ B23Q 17/00
U.S. Cl. 29—403.4 **5 Claims**



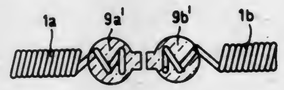
1. A salvage method for simultaneously desoldering a plurality of electronic components mounted on a substrate at solder joints such as a PCB, said method comprising:
(a) exposing at least a substantial portion of the surface of the PCB to bombardment by infra red energy to heat the board to a temperature appropriate to effect a substantially even temperature rise causing melting of the solder securing said components;
(b) controlling the temperature of the PCB by maintaining a controlled flow of air across a surface of the PCB; and
(c) thereafter removing the selected components from the board.

4,270,261

METHOD OF FORMING FIXING HEADS ON TENSION SPRINGS AND TENSION SPRINGS MANUFACTURED BY THIS METHOD

Johann Martin, Bielhausen, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 30, 1979, Ser. No. 34,524
Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819700
Int. Cl.³ B22D 19/00; F16F 9/54
U.S. Cl. 29—527.2 **6 Claims**



1. A method of forming a respective fixing head on an end each of two tension springs formed from a continuous coil of spring wire, comprising
expanding the coil over at least two turns at an area where two ends are to be formed, and
molding a mass of synthetic material about said at least two turns.

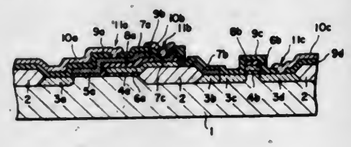
4. A chain of tension springs, each spring having a synthetic material fixing head enveloping the respective spring ends, adjoining ends of successive springs being interconnected by bridges of synthetic material, said fixing heads and bridges being molded over and between said spring ends.

4,270,262

SEMICONDUCTOR DEVICE AND PROCESS FOR MAKING THE SAME

Ryoichi Hori, Tokyo; Masaharu Kubo, Hachioji; Norikazu Hashimoto, Tokorozawa; Shigeru Nishimatsu, Kokubunji, and Kiyoo Itoh, Higashi-kurume, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 23, 1978, Ser. No. 880,618
Claims priority, application Japan, Mar. 4, 1977, 52-22681
Int. Cl.³ H01L 21/70, 21/90
U.S. Cl. 29—571 **15 Claims**



1. A process for making a semiconductor device having at least two semiconductor circuit elements formed on a single semiconductor substrate, comprising:
(a) a step of forming a first conductivity type semiconductor substrate which contains a first conductivity type active impurity;

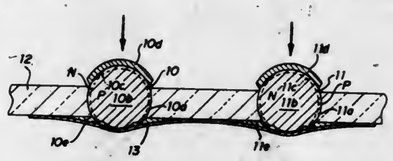
(b) a step of forming a first field-effect circuit element in the surface region of said semiconductor substrate,
said step including forming a first gate insulating layer in a first part of the surface region of said substrate forming a first gate electrode made of a first conductive layer on said first gate insulating layer, and forming a first inter-layer insulating layer on said first gate electrode;
(c) a step of providing a first penetrant opening in a first part of said first inter-layer insulating layer;
(d) a step of forming a second field-effect circuit element in the surface region of said semiconductor substrate, said step including forming a second gate insulating layer in a second part of the surface region of said substrate, forming a second gate electrode made of a second conductive layer so that a first part of said second gate electrode overlies said second gate insulating layer and a second part of said second gate electrode overlies a second part of said first inter-layer insulating layer different from said first part of said first inter-layer insulating layer;
(e) a step of inserting a subsidiary interconnection conductive layer into said first opening in a manner to be connected with said first electrode and to be isolated from said second electrode;
(f) a step of forming a second inter-layer insulating layer on said second electrode;
(g) a step of forming a third inter-layer insulating layer on said subsidiary interconnection conductive layer;
(h) a step of forming a second penetrant opening in said second inter-layer insulating layer;
(i) a step of forming a third penetrant opening in said third inter-layer insulating layer;
(j) a step of filling said second opening with a first interconnection conductor in a manner to be connected with said second electrode; and
(k) a step of filling said third opening with a second interconnection conductor in a manner to be connected with said subsidiary interconnection conductive layer.

4,270,263

GLASS SUPPORT LIGHT ENERGY CONVERTER

Elwin L. Johnson; Jack S. Kilby, both of Dallas, Tex.; Jay W. Lathrop, Clemson, S.C.; John S. McFerren, Dallas, and David J. Myers, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 768,187, Feb. 14, 1977, Pat. No. 4,173,494.
This application Aug. 10, 1978, Ser. No. 932,671
Int. Cl.³ H01L 7/24
U.S. Cl. 29—590 **8 Claims**



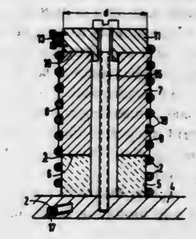
1. The method of forming a distributed semiconductor unit which comprises:
(a) forming semiconductor particles of substantially uniform size, each having a central body portion inside a surface layer and a PN junction therebetween;
(b) casting said particles as a monolayer in a sheet of glass slurry of thickness corresponding to about the thickness of said particles;
(c) fusing said glass to rigidify the glass as a sheet with said particles distributed thereon with the surface layers of said particles exposed on one side of said sheet and the body portion exposed on the other side of said sheet; and
(d) applying a metal layer on one side of said sheet in contact with the body portion of each of said particles and isolated from the junction between said surface layer and said body portion.

4,270,264

METHOD FOR ESTABLISHING AN ELECTRICAL CONTACT BETWEEN A NORMALLY CONDUCTING CONTACT ELEMENT AND AT LEAST ONE SUPERCONDUCTOR

Hans-Jörg Weisse, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 18, 1979, Ser. No. 76,662
Claims priority, application Fed. Rep. of Germany, Sep. 18, 1978, 2840526
Int. Cl.³ H01V 11/00
U.S. Cl. 29—599 **12 Claims**



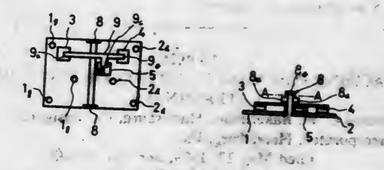
1. A method for establishing an electrical contact in a magnet coil, between a contact body consisting of normally conducting material and the end section of at least one superconductor of an intermetallic compound which is formed by in situ appealing of an intermediate conductor product, comprising:
(a) placing the corresponding end section of the intermediate conductor product, prior to the anneal, on a form of heat resistant material which does not react with the elements of the intermediate conductor product during the anneal; and
(b) after the annealing, replacing the form with a contact body of corresponding shape.

4,270,265

METHOD OF MANUFACTURING HYBRID INTEGRATED CIRCUIT ASSEMBLIES

Yoshihiko Ikeda, Shizuoko, and Hiroyasu Nitou, Fuji, both of Japan, assignors to Kokusan Denki Co., Ltd., Numazu, Japan

Filed Mar. 19, 1979, Ser. No. 22,039
Claims priority, application Japan, Apr. 28, 1978, 53-50107
Int. Cl.³ H05K 3/34
U.S. Cl. 29—840 **4 Claims**



1. A method of manufacturing a hybrid integrated circuit assembly wherein a plurality of electronic components are mounted on an electrically conductive mounting board and a connecting conductor means is disposed on the electronic components to electrically connect the electronic components to each other, comprising the steps of:
(a) interposing layers of solder between said mounting board and first electrodes respectively provided on first surfaces of said electronic components to be connected to said mounting board, and between second electrodes respec-

tively provided on second surfaces of said electronic components opposite to said first surfaces thereof and said connecting conductor means for connecting said second electrodes to each other, said mounting board comprising at least two relatively thin conductive and solderable plates and a coupling means for mechanically connecting said plates to each other;

(b) placing said electronic components between said mounting board and a jig plate for positioning said electronic components with respect to said mounting board and for positioning said connecting conductor means with respect to said electronic components, and placing said connecting conductor means between said electronic components and said jig plate;

(c) holding said electronic components and said connecting conductor means between said mounting board and said jig plate to form a semi-assembly of said mounting board, electronic components and connecting conductor means;

(d) heating said semi-assembly to melt said layers of solder to simultaneously form the electrical and mechanical connection of said first electrodes to said mounting board and the electrical and mechanical connection of said second electrodes to said connecting conductor means, to thereby form said hybrid integrated circuit assembly;

(e) removing said jig plate from said hybrid integrated circuit assembly; and

(f) cutting said coupling means to electrically and mechanically separate said mounting board into at least two sections.

4,270,266

METHOD OF MAKING A DIELECTRIC CONTAINING MATERIAL FOR RF SUPPRESSION

Ronald G. Lanzi, Mt. Clemens, and Peter Vernia, Rochester, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Sep. 14, 1978, Ser. No. 942,425
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—875 **3 Claims**

1. A method of making a dielectric containing material for suppressing radio frequency interference when incorporated in a conductive metal distributor rotor electrode, said method comprising:

melting a mixture comprising by weight at least half copper oxide and a minor portion of silicon oxide;

thereafter chemically reducing said copper oxide to copper metal without reducing said silicon oxide, the fused material in its solid state then being characterized by a first phase of lacy structured dielectric silica bodies mechanically interlocked with a second phase of reduced copper metal; and

dispersing said fused material throughout a metal electrode such that the dielectric silica bodies comprise about 0.5 to 5 weight percent thereof.

4,270,267

MACHINE FOR MASS INSERTION OF ELECTRICAL TERMINALS

Johannes C. W. Bakermans, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 17, 1979, Ser. No. 39,933
Int. Cl.³ H01R *43/00*
U.S. Cl. 29—881 **12 Claims**

1. An application machine for effecting mass insertion of electrical terminals into preformed apertures in housings, printed circuit boards, and the like in a closely spaced, high density array, the terminals each having one end adapted to form an interference fit in a respective preformed aperture and the other end detachably secured, to depend in two parallel spaced rows from a flexible carrier tape, said machine comprising:

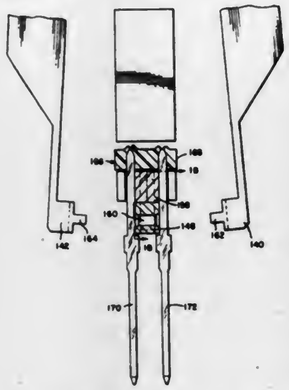
a substantially closed housing defining a cavity therein;

a first assembly slidably mounted within said cavity;

a second assembly slidably mounted concentrically within said first assembly;

a shuttle assembly having a fixed mandrel with a detachable shuttle member positioned within said cavity to lie between said rows of terminals;

a gripping assembly mounted in said second assembly for gripping each said row of terminals against an adjacent side of said shuttle member and releasing said terminals after insertion;



drive means for imparting reciprocal motion to said first and second assemblies and movement to said gripping assembly;

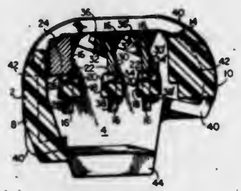
whereby said tape carried terminals are fed between said gripping assembly and an adjacent side of said shuttle assembly and grasped therebetween, stripped from said tape, transported to and inserted into said preformed apertures, and released by said gripping assembly which returns said shuttle member to its original position.

4,270,268

RAZOR BLADE ASSEMBLY

Chester F. Jacobson, Southboro, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Dec. 7, 1979, Ser. No. 101,101
Int. Cl.³ B26B *21/06, 21/22*
U.S. Cl. 30—47 **11 Claims**



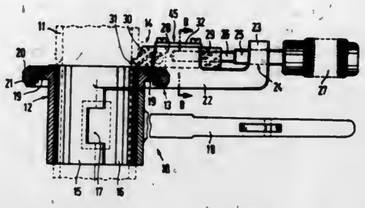
1. A razor blade assembly comprising a body member, a guard member fixed to said body member for movement thereon, blade means mounted on said body member for movement thereon, said guard member and said blade means being independently moveable in response to forces encountered during a shaving operation, and spring finger biasing means integral with said body portion and exercising a bias against said guard member and said blade means.

4,270,269

COMBINATION PIPE-CUTTER AND DEBURRING TOOL

Manfred Weil, Frankfurt-Zeilsheim, and Günter Rotheaberger, Bad Homburg, both of Fed. Rep. of Germany, assignors to Firma Rotheaberg GmbH & Co., Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 29, 1979, Ser. No. 31,908
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 7811884[U]
Int. Cl.³ B23D *21/10*
U.S. Cl. 30—102 **4 Claims**



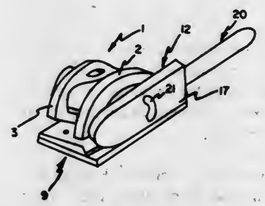
1. A pipe-cutter comprising: housing means positionable around a pipe to be cut, cutting means and spindle drive means having a grip handle for radially adjusting the cutting means in relation to the housing means, said grip handle being transversely divided, one part thereof facing the cutting means having a longitudinal bore, and the other part separable therefrom and comprising a manipulator for a deburring tool and having cranked scraper means rotatably mounted therein and telescopable into said bore together with at least part of the length of the manipulator.

4,270,270

COMBINATION POWER SAW AND CHAIN SAW AND ADAPTER DEVICE AND METHODS OF MAKING AND USING THE SAME

Ellis R. Loyd, Rte. 2, Box 474A Shackelford Rd., Florissant, Mo. 63034

Continuation-in-part of Ser. No. 761,274, Jan. 21, 1977, Pat. No. 4,121,336. This application Oct. 23, 1978, Ser. No. 953,755
Int. Cl.³ B27B *17/00*
U.S. Cl. 30—122 **3 Claims**



1. A circular saw adapter to convert a circular saw provided with housing means, and motor means including a motor driven blade supporting shaft and a surface plate substantially parallel to said shaft into a chain saw, comprising,

frame means operably mounted to said surface plate, said frame means comprising,

plate means,

chain saw housing means mounted on said plate means, and provided with an aperture therein which when said plate is secured to said surface plate in a parallel relationship said aperture will be disposed in alignment with said shaft and said shaft will extend through said aperture, said housing provided with a removable frame plate which when mounted thereon forms a chain saw chamber within said frame means which communicates to the exterior through an opening in said frame means, said chain saw housing means provided with a bearing housing,

guide bar adjust means operably mounted on said frame plate

mounting means operably mounted on said shaft, said mounting means (operated) which is mounted on said shaft comprising bearing means provided with sprocket means mounted thereon,

securing means to secure said sprocket and mounting means to said shaft,

a chain saw guide bar operably mounted to said frame means, and

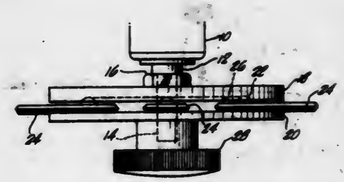
handle means.

4,270,271

TRIMMING HEAD FOR VEGETATION

Robert I. Feldman, Agoura, and Dana F. Thomas, Torrance, both of Calif., assignors to Versatool, Inc., Encino, Calif.

Filed Aug. 13, 1979, Ser. No. 67,148
Int. Cl.³ A01D *50/00*
U.S. Cl. 30—276 **8 Claims**



1. A trimming head for cutting vegetation, comprising

a first circular plate having a first circular surface and a center bore for attachment of said first circular plate to a rotary drive;

a second circular plate having a second circular surface and a center bore for attachment of said second circular plate to the rotary drive;

a plurality of pins positioned symmetrically about said first surface at a first radius from the center of said first circular surface;

receiving means recessed into said second surface for receiving said pins including a circular channel on said second surface at said first radius; and

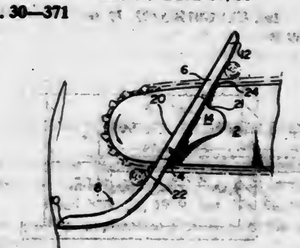
blades pivotally mounted on said pins between said first and second surfaces.

4,270,272

BRUSH CUTTING ATTACHMENT FOR CHAIN SAW

William W. Graham, 1755 Woodward Dr., Ottawa, Ontario, Canada (K2C OP9)

Filed Jan. 25, 1980, Ser. No. 115,364
Int. Cl.³ B27B *17/00*
U.S. Cl. 30—371 **9 Claims**



1. An attachment for a direct drive gasoline or electric powered chain saw comprising a rigid bar of round cross-section to be secured to the blade of the chain saw at a point

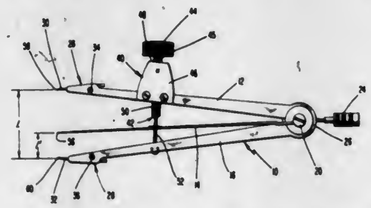
spaced a short distance towards the handle from the tip of the blade, the bar, when so secured substantially lying in a plane parallel to the plane of the blade and having a straight portion traversing the blade at an angle to the longitudinal axis of the blade forwardly and downwardly extending with respect thereto and projecting upwardly and rearwardly in a straight line beyond the upper edge of the blade; the bar having another portion projecting beyond the lower edge of the blade, this other portion being gradually curved through an arc ending in an direction substantially parallel to the longitudinal axis of the blade slightly forwardly of the blade, and means positioned on the bar substantially centrally between its ends to secure the bar to the blade.

4,270,273

MEASURING INSTRUMENT

Brian E. Berger, Richmond, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.

Filed Oct. 30, 1979, Ser. No. 89,297
Int. Cl.³ B43L *9/08*
U.S. Cl. 33—150 **6 Claims**



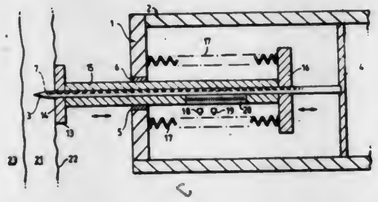
1. A measuring instrument comprising first and second outer legs, a single intermediate leg disposed therebetween, said outer legs being arranged to pivot about a common axis to enable the distance between outer ends thereof to be manually varied, means for preventing movement of said intermediate leg in a direction parallel to the common pivot axis of said outer legs, proportioning means for maintaining an outer end of said intermediate leg at a constant ratio of the distance between said outer legs, said proportioning means including a manual adjusting screw having a first end rotatably supported by one of the outer legs and having a first section threadedly connected to the other of said outer legs to vary the distance between said outer legs upon being rotated, and a second section threadedly engaging said intermediate leg, the pitch of said first section being different from that of said second section and the ratio between the pitches being the same as said constant ratio.

4,270,274

ANIMAL FAT INDICATOR

John B. Hennessy, Aburoa, North Auckland, New Zealand

Filed Feb. 15, 1980, Ser. No. 122,069
Claims priority, application New Zealand, Feb. 16, 1979, 189675
Int. Cl.³ G01B *5/02, 11/06*
U.S. Cl. 33—169 B **7 Claims**



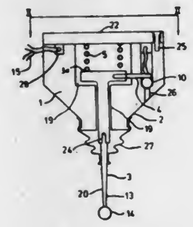
1. An indicator for measureing the fat layer depth of an animal carcass comprising a base, a probe, means fixedly securing said probe with respect to said base, said probe extending from said base and insertable into an animal carcass, a first reference point defined as part of said probe and disposed proximate the probe and remote from said base, a contact member having defined thereon a second reference point, display means for providing an indication of the distance between said first and second reference points, and elastic means connected between said base and said contact member for elastically opposing increased separation of said first and second reference points, said contact member being positioned to contact said animal carcass upon insertion of said probe into said carcass to a predetermined depth, the elasticity of said elastic means being selected so that in use said contact member, upon contacting the carcass, compresses the carcass fat layer to a depth which is substantially equal to the expected shrinkage of the carcass fat layer before said probe can be further inserted into the carcass.

4,270,275

PROBES

David R. McMurtry, Bristol, England, assignor to Rolls-Royce Limited, London, England

Continuation of Ser. No. 739,139, Nov. 5, 1976, Pat. No. 4,153,998, which is a continuation of Ser. No. 550,634, Feb. 18, 1975, abandoned, which is a continuation of Ser. No. 398,831, Sep. 19, 1973, abandoned. This application Apr. 18, 1979, Ser. No. 31,149
Claims priority, application United Kingdom, Sep. 21, 1972, 43659/72; Jun. 14, 1973, 28260/73; Aug. 3, 1973, 37067/73
The portion of the term of this patent subsequent to May 15, 1996, has been disclaimed.
Int. Cl.³ G01B *7/28*
U.S. Cl. 33—174 L **5 Claims**



1. A device for mounting a stylus in position-determining apparatus wherein said device and an object are movable relative to each other for providing a signal when said stylus engages said object thereby indicating the position thereof, said device comprising:

a fixed member,

a movable member to which said stylus is connectable, said movable member being supportable on said fixed member at a plurality of spaced-apart locations, one of the movable and fixed members having at each of said locations a pair of mutually convergent surfaces and the other one of said members being engageable with said convergent surfaces,

bias means for urging said movable member into contact with said fixed member so that all of said convergent surfaces are engaged thereby positively defining a rest position for said movable member, said movable member being removed from said rest position in opposition to said bias means when a force is applied to said stylus, said bias means and convergent surfaces cooperating, on cessation of said force, to return said movable member to said rest position, and

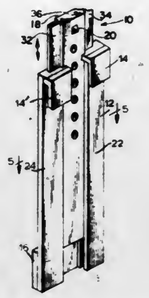
means for providing said signal when said stylus engages the object.

4,270,276

METAL WORKING TOOL

Martin C. Skura, 7206 Forest Blvd., North Lauderdale, Fla. 33068

Filed Oct. 17, 1979, Ser. No. 85,690
Int. Cl.³ G01B *5/14*; B23B *49/02*
U.S. Cl. 33—189 **3 Claims**



1. A workpiece layout tool for locating points or a workpiece for marking, comprising:

a slide housing;

a slide bar moveably mounted within said slide housing such that said slide bar can be moved in longitudinal relation to said slide housing, said slide bar having a plurality of marking apertures disposed therethrough in a predetermined spaced apart relationship;

a workpiece engaging means connected to said housing in a constant, relative position with said workpiece,

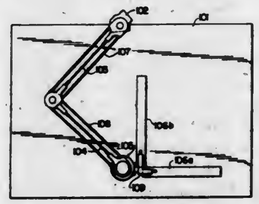
said workpiece engaging means including two L-shaped lips fixed to the outer end of said housing, sized for slidably receiving said workpiece.

4,270,277

UNIVERSAL PARALLEL RULER WITH CONVERTED DISPLAY OF DISPLACEMENT

Masao Koenuma, Tokyo, Japan, assignor to Asahi Seimitsu Kabushiki Kaisha, Tokyo-to, Japan

Division of Ser. No. 28,353, Apr. 9, 1979, Pat. No. 4,221,056. This application Dec. 19, 1979, Ser. No. 105,140
Claims priority, application Japan, Apr. 12, 1978, 53-42022; May 1, 1978, 53-52482
Int. Cl.³ B43L *13/02*
U.S. Cl. 33—439 **3 Claims**



1. An arm type universal parallel ruler with a converted display of displacement and having a first base fixed to a drawing board, a first arm rotatably supported at one end by said first base, a second base mounted on the opposite end of said first arm and connected by a translation mechanism to said first base, a second arm rotatably supported at one end by said second base, a head mounted on the opposite end of said second arm and connected by a translation mechanism to said second base and scales rotatably and fixably mounted on said head so that said scales may be displaced in a parallel fashion on the drawing board, said universal parallel ruler comprising:

a first reader means for reading a rotation angle θ_1 of the first arm relative to one of said bases; a second reader means for reading a rotation angle θ_2 of the second arm relative to the second base and the head;

a third reader means for reading a tilt angle θ of the scales relative to the head;

an arithmetic unit means for determining a parallel displacement amount of the scales based on the rotation angles θ_1, θ_2 and the tilt angle θ read by said reader means; and

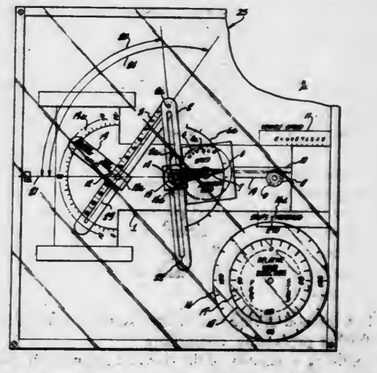
display means for displaying the parallel displacement amount of the scales in a digital manner.

4,270,278

WIND VECTOR RESOLUTION DEVICE

Robert G. Metzner, 916 N. Foothill, Beverly Hills, Calif. 90210

Continuation of Ser. No. 901,594, May 1, 1978, abandoned. This application Dec. 12, 1979, Ser. No. 102,778
Int. Cl.³ B43L *7/06*
U.S. Cl. 33—457 **5 Claims**



1. A vector resolution apparatus for resolving a known apparent wind velocity vector and a known vehicle velocity vector into a true wind velocity vector, comprising

a frame;

a block assembly mounted to said frame for linear translational movement relative to said frame, said block and frame being calibrated such that the position of said block on said frame represents vehicle speed;

an adjustable engagement means on said block and frame for adjustment and retention of the position of said block relative to said frame and including a vehicle speed knob fixed to said adjustable engagement means for effecting said adjustment;

a guide member rotatably mounted to said frame;

a rack carrier slidably mounted to said guide member for linear translational movement and rotational movement relative to said frame, to represent the apparent wind vector; and

a graduated member pinned at a first point to said rack carrier and slidably pinned at a distance from said first point to said block to represent the true wind vector.

4,270,279

METHOD FOR DRYING AND STERILIZING SEWAGE SLUDGE

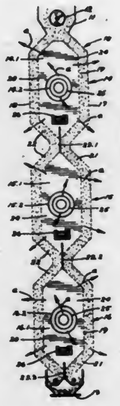
Hanns E. Roediger, Stuttgart, Fed. Rep. of Germany, assignor to Techtransfer GmbH, Stuttgart, Fed. Rep. of Germany

Filed Nov. 21, 1979, Ser. No. 96,266
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850607
Int. Cl.³ F26B *3/00, 7/00*
U.S. Cl. 34—9 **6 Claims**

1. A method of sterilizing and further dehydrating a sheet of partially dehydrated sewage sludge having a solid matter con-

tent in the range of 15 to 35%, said method comprising only the steps of breaking up the sludge sheet into particles and then dusting only the surfaces of the particles with quicklime to form a granular fertilizer product which can be scattered by conventional fertilizer spreader, said method being carried out without any external heating.

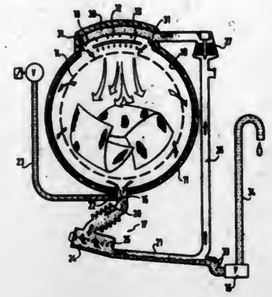
4,270,280
RICE DRYING MACHINE
Jay L. McClaren, Dassel, Minn. 55325
Filed Feb. 26, 1979, Ser. No. 14,928
Int. Cl.³ F26B 3/06
U.S. Cl. 34—30 19 Claims



1. A method drying rice or the like to be suitable for storing or further processing, comprising,
confining a quantity of the rice in a chamber through which air may be passed,
heating and pressurizing air at one side of the chamber and causing the heated air to once pass through the entire quantity of confined rice in the chamber, and
sensing the wet bulb temperature of the air prior to passing the air through the chamber, and
sensing the dry bulb temperature of the air prior to passing the air through the chamber and comparing the dry bulb temperature of the air wjth the wet bulb temperature of the air, and regulating the heating of the air to maintain a predetermined differential between the dry bulb and wet bulb temperatures of the air.

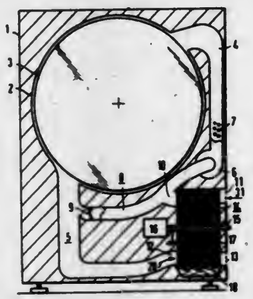
4,270,281
COMBINED DRUM WASHER AND DRYING ARRANGEMENT
Franz Müller, Troisdorf, Fed. Rep. of Germany, assignor to August Lepper Maschinen- und Apparatebau GmbH, Bad Honnef, Fed. Rep. of Germany
Filed Dec. 3, 1979, Ser. No. 99,752
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1978, 2852449
Int. Cl.³ F26B 11/04
U.S. Cl. 34—75 6 Claims

1. A drum-type washing and drying machine having a heating element fitted in the upper part of a washing liquid container in a recess in front of a reflector so as to provide for direct irradiation of a washing-drum mounted within the container; a circulating-air conduit extending between a drain-opening in the bottom of the container and a heat exchange space situated above said reflector, said circulating air conduit including a suction-pressure-impeller, the pressure side of which opens into said heat-exchange space; a condenser adapted to be supplied with cold water; said heat-exchange space being connected with the washing liquid container by way of circulating-air nozzles at the edge of the reflector, said nozzles serving to conduct circulating-air in the form of an air curtain obliquely inwards onto the exterior of the washing-



drum in such a way that the circulating-air essentially flows into the interior of the washing-drum in the region under the reflector.

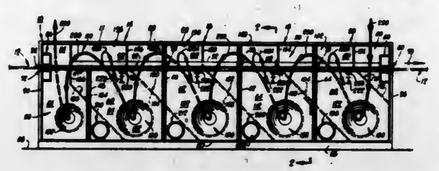
4,270,282
HOUSED CLOTHES DRYER
Helmut Lotz, Giengen, Fed. Rep. of Germany, assignor to Bosch-Siemens Hausgeräte GmbH, Stuttgart, Fed. Rep. of Germany
Filed Nov. 16, 1978, Ser. No. 961,230
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1977, 2751284
Int. Cl.³ F26B 11/04
U.S. Cl. 34—86 13 Claims



1. In a housing, a clothes dryer wherein dampness in washed clothes is expelled by warm air sweeping therethrough, the air being drawn in at least partly from the environment through openings formed in the housing and heated and, after absorbing the dampness, exhausted at least partly back into the environment, the air drawn in from the environment and exhausted to the environment being conducted through two channels of a heat exchanger with a solid-body regenerator alternatingly contacted in part by the drawn-in air and the exhausted air, the improvement therein comprising non-hygroscopic storage material received in the regenerator and absorbing thermal energy as loss-free as possible, storing the absorbed thermal energy as loss-free as possible and subsequently surrendering the thermal energy as loss-free as possible, the regenerator being air-permeable in axial direction thereof and being mounted in the drawn-in and exhausted air channels for rotation in a manner that every region of the regenerator is alternatingly introduced into the drawn-in air channel and into the exhaust air channel during the rotation, the regenerator comprising an air-permeable array of metal sheets disposed in axial

direction of the regenerator and held substantially radially symmetrically in a hollow cylinder, said metal sheets being formed of a helical sheetmetal coil having winding cross sections disposed at an angle to the axis of the regenerator.

4,270,283
AIR RECYCLING APPARATUS FOR DRYING A TEXTILE WEB
James F. Ellis, P.O. Box 21160, Chattanooga, Tenn. 37421
Filed Jan. 10, 1979, Ser. No. 2,443
Int. Cl.³ F26B 13/02, 21/04
U.S. Cl. 34—212 17 Claims



1. An air recycling dryer apparatus for removing entrained moisture from a porous carpet web, the dryer apparatus comprising:
a first housing assembly defining a first drying region, the first housing assembly having a carpet web entry opening and a carpet web exit opening such that the carpet web can travel through the first drying region of the first housing assembly, the carpet web traveling through the first housing assembly dividing the first drying region into a first zone on a first side of the carpet web and into a second zone on a second side of the carpet web;
a second housing assembly defining a second drying region, the second housing assembly having a carpet web entry opening and a carpet web exit opening such that the carpet web exiting the first drying region of the first housing assembly can travel through the second drying region of the second housing assembly, the carpet web traveling through the second housing assembly dividing the second drying region into a first zone on the first side of the carpet web and into a second zone on the second side of the carpet web;
first air means for maintaining a differential fluid pressure across the carpet web between the first and second zones of the first drying region of the first housing assembly to establish air flow through the carpet web traveling through the first drying region;
second air means for maintaining a differential fluid pressure across the carpet web between the first and second zones of the second drying region of the second housing assembly to establish air flow through the carpet web traveling through the second drying region;
first air flow channel means interconnecting the first and second housing assemblies such that the second zone of the second drying region of the second housing assembly is in fluid communication with the first zone of the first drying region, the first air flow channel dividing the air flow from the second air means such that a portion of the air flow in the second housing assembly is passed to the first zone of the first housing assembly and a portion of the air flow of the second air means passes through the carpet web traveling through the second drying region of the second housing assembly;
first heater means for heating the air in the second drying region;
air inlet means providing fluid communication to the first zone of the second drying region for supplying inlet air thereto; and
exhaust conduit means providing fluid communication from the second zone of the first drying region for exhausting air therefrom.

4,270,284
COLOR LANGUAGE TEACHING METHOD AND DISPLAY AND PROCESS FOR CREATING THE DISPLAY
Edmund Skellings, 600 NE. 2nd Pl., Dania, Fla. 33004
Filed Sep. 19, 1978, Ser. No. 943,687
Int. Cl.³ G09B 17/00
U.S. Cl. 434—156 8 Claims

PETER PIPER PICKED A PECK
OF PICKLED PEPPERS
A PECK OF PICKLED PEPPERS
DID PETER PIPER PICK

1. A cathode ray tube generated graphic material display using at least one color pair assignment of portions of the material for teaching at least one of the following: linguistic, literary, semantic, related and stylistic features of said material including at least one of the following: text, language, symbols and numbers by emphasizing said portions by coloring said portions of at least one of the following such as indicia, words, grammar, syntax, meter, rhythm, and poetic devices by use of color assignments on at least one of the following: material indicia, aura around indicia, block around indicia, and background on a display comprising:
(a) at least one cathode ray tube generated display frame having said material and said portions on a background,
(b) said material on said display frame including at least one color pair assignment in at least one color from the red, green, blue primary colors, and combinations thereof,
(c) said material including at least two of said portions color paired to one another to provide said color pair assignment, said color pair assignment emphasized by a similar color different from the other portions of said material and background to display at least one of the following features of said material; linguistic, literary, semantic, related and stylistic features,
(d) each said portion colored to include at least one of the following areas: indicia, aura, block, and background portions of the display, whereby the display in a single frame with the color pair assignments provides for better display of linguistic feature of said material, literary feature of said material, semantic feature of said material, related feature of said material or stylistic features of said material by comparatively identifying heretofore subliminal patterns.

4,270,285
ADJUSTABLE AND FLEXIBLE SHOE CLOSURE ASSEMBLY AND ELASTIC GORE
Anthony J. Antonious, 205 E. Joppa Rd., Towson, Md. 21204
Filed Jan. 8, 1979, Ser. No. 1,737
Int. Cl.³ A43B 11/00
U.S. Cl. 36—50 32 Claims



1. A shoe with a sole and uppers including a vamp and quarters having a collar utilizing elastic gore means connecting said quarters at the frontal collar position in combination with

an adjustable and flexible closure assembly which overlays both the instep portion and the upper vamp of the shoe, said closure assembly comprising:

a flexible, multi-adjustable, separable fastener means having first and second fastening members including arrays of complementary, coacting, flexible gripping elements for securing said closure assembly;

a fastener strap secured to said uppers on one side of said shoe, said fastener strap having a fixed portion and a free end, said free end including said first fastening member, said second fastening member positioned adjacent said fixed portion of said fastener strap; and

an anchor strap secured to said uppers on the opposite side of said shoe, said anchor strap having a free end with an opening through which said free end of said fastener strap passes permitting adjustment to the precise desired tautness of said closure assembly to fasten said shoe.

4,270,286

TOOL SUSPENSION WITH SUPPLY MEANS FOR HYDRAULIC MEDIUM

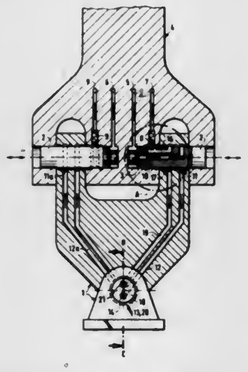
Rolf Mieger, Kirchdorf-Iller, Fed. Rep. of Germany, assignor to Liebherr-Hydraulikbagger GmbH, Kirchdorf, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,968

Claims priority, application Fed. Rep. of Germany, Dec. 28, 1978, 2856556

Int. Cl.³ E03B *3/00*

U.S. Cl. 37—103 **2 Claims**



1. A tool suspension for hydraulically operable replaceable tools on a tool shaft of a hydraulic excavator or crane, said suspension comprising a supply of hydraulic medium, wherein coupling is effected by introducing a pivotable fork member in a connecting member of the tool shaft and the pivotable connection of the fork is by means of pins, characterised in that the pressure medium can be fed to the tool through a supply comprising a pressure conduit (5) in the connecting member (4) of the tool shaft, a valve (3) operable in response to displacement of the pin (2) of the connecting member, a longitudinal bore (10) in the pin (2) communicating with an annular passage (11) in the aperture of the fork (1) receiving the pin (2) of the connecting member (4), a bore (12) in the fork (1), an annular passage (13) in the aperture for the pin (18) for pivotably attaching the tool, and a bore with orifice (14) in the pin (18) of the tool, and can be discharged to a collecting tank through an outlet comprising an orifice (14*a*) in the pin (18) of the tool, appropriate bores and annular passages, and a conduit (6).

4,270,287

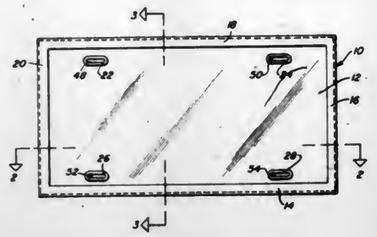
FRAMED PICTURE HOLDER

R. Keith Gimbel, 456 Parlin St., Philadelphia, Pa. 19116

Filed Jan. 4, 1979, Ser. No. 971

Int. Cl.³ G09F *01/12*

U.S. Cl. 40—152 **9 Claims**



1. In a picture holder, the combination of

a first cover of water-resistant, relatively stiff, clear material, the first cover being provided with a first mounting opening therethrough;

a second cover of water-resistant material in registry with the first cover,

the first and second covers being of the same size and configuration,

the second cover being provided with a second mounting opening, the second mounting opening being in registry with the first mounting opening;

peripheral frame peripherally joining the first and second covers;

first means for sealing the peripheral junction of the first and second covers, said first means for sealing is within the peripheral frame and is water resistant; and

second means for sealing the periphery of the registered first and second mounting openings to prevent the entrance of moisture into the area defined between the first and second covers, said second means for sealing is water resistant,

the second means for sealing comprising a hollow, resilient, water resistant grommet, the grommet lining the periphery of the first and second mounting openings, the hollow portion of the grommet defining a mounting opening therethrough.

4,270,288

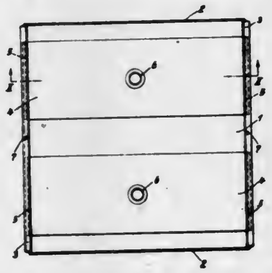
PICTURE FRAMES

Ernst Sulzer, Obere Geerenstrasse 48, 8044 Geeren, Kt. Zürich, Switzerland

Continuation of Ser. No. 862,876, Dec. 21, 1977, abandoned. This application Dec. 17, 1979, Ser. No. 104,634

Int. Cl.³ G09F *1/12*

U.S. Cl. 40—156 **1 Claim**



1. A picture frame comprising:

(a) a transparent substantially rigid synthetic frame plate of one thickness having an inside surface against which a picture to be framed is locatable, said frame plate comprises an arcuate surface for the support of said picture,

(b) angle pieces disposed along two mutually remote sides of said frame plate and formed integrally therewith, said angle pieces extending at the inside surface and inclining towards each other in the extending direction, said frame plate has two further mutually remote sides and has stiffening means comprising further edge angled pieces integral with said frame plate on said two mutually remote sides, the angled pieces of the frame plate include with the frame plate an acute angle of approximately 70°,

(c) a flexible clamping plate of a thickness substantially less than the thickness of the frame plate having an area substantially less than the area of the frame plate and having a length just shorter than the distance between said angle pieces so as to permit location of said clamping plate between said angle pieces, stiffening means on said clamping plate extending longitudinally therealong, whereby in the unassembled condition of the frame the clamping plate resides in an arcuate form said further angle pieces of said clamping plate include an angle of approximately 70°, and

(d) further angle pieces extending along the ends of said clamping plate and formed integrally with said clamping plate, said further angle pieces extending at an exterior surface of said clamping plate and inclining towards each other in the extending direction,

wherein upon entry of the clamping plate into the frame plate the clamping plate is depressed by the user substantially in a direction perpendicular to the frame plate whereupon as the clamping plate enters the frame plate the clamping plate temporarily deforms into a curved shape and after entry assumes a position lying adjacent the frame plate, with the picture disposed between said frame plate and clamping plate, and with said further angle pieces of said clamping plate engaging the angle pieces of said frame plate, said clamping plate being removable from said frame plate by finger force acting substantially perpendicular to the frame plate to once again temporarily deform the clamping plate.

4,270,289

CARD HOLDER

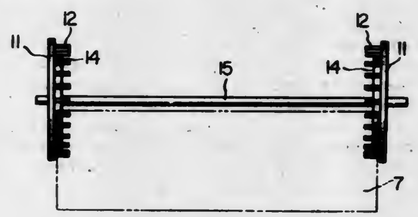
Yoshimi Kimura, Nagareyama, Japan, assignor to Kabushiki Kaisha Fuji Seisakusho, Nagaretana, Japan

Filed Dec. 13, 1979, Ser. No. 103,240

Claims priority, application Japan, Dec. 18, 1978, 53-172148[U]; Jun. 30, 1979, 54-90440[U]

Int. Cl.³ G09F *11/08*

U.S. Cl. 40—379 **4 Claims**



1. In a card holder for a rotary type information retrieving device, wherein a plurality of information-containing card cases are hangingly supported between a pair of mutually spaced rotary discs, a combination which comprises:

(a) a plurality of pins arranged on one surface of each of said pair of rotary discs around the circumference thereof and at an equal space interval provided among them;

(b) a concentric raised part provided on the same surface of said pair of rotary discs at a position inward of said train of pins; and

(c) a plurality of information-containing card cases, each being formed by folding a single sheet of film material into a folder shape with the bent portion being made a pin insertion engagement part so that each of said card cases may be hangingly supported between said pair of rotary discs by said oppositely arranged pins on the circumference of said discs, one of said folded flaps of said card case being further bent at its edge opposite to said bent portion toward the other flap to constitute a slip-preventive section for the information card inserted between the two folded flaps of said card case.

4,270,290

REVOLVING SELF-SERVICE DISPLAY STAND

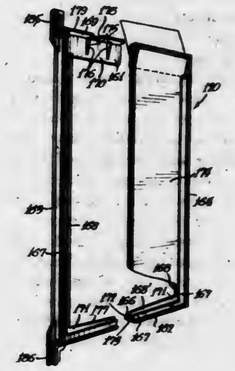
Ronald P. Eckert, Northbrook, Ill., assignor to DLM, Inc., Niles, Ill.

Continuation-in-part of Ser. No. 703,958, Jul. 9, 1976, Pat. No. 4,102,069. This application Jun. 26, 1978, Ser. No. 919,235

The portion of the term of this patent subsequent to Jul. 25, 1995, has been disclaimed.

Int. Cl.³ B42F *17/20*; G09F *11/02*

U.S. Cl. 40—389 **2 Claims**



1. A frame for holding a plurality of flexible display panels comprising a molded plastic outer frame having on three sides thereof an inwardly opening channel which is C-shaped in cross section, the fourth side of the frame having a T-shape in cross section with the leg of the "T" projecting inwardly toward the center of the frame, a divider molded integrally with the back of the C-shaped channel and projecting inwardly from between the two legs of the C-shaped channel, said divider joining with said leg of the "T" to divide the frame into two pockets with several of said flexible display panels being capable of being nested in each of said pockets, a cut out notch formed in at least one side edge of the head of the "T" to expose the outer edges of the plurality of flexible display panels in said adjacent pocket, and guide means extending between the head of the "T" and the leg of the "T," said outermost flexible display panel may be grasped through said cut out notch and peeled forward and guided out of said adjacent pocket.

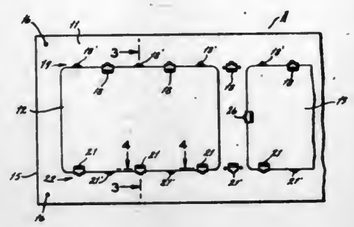
4,270,291
SIGN CONSTRUCTION
Marion G. Babberl, San Mateo, Calif., assignor to Rapid Mounting & Finishing Company, Chicago, Ill.
Filed May 14, 1980, Ser. No. 149,677
Int. Cl.³ G09F 7/00
U.S. Cl. 40—594 14 Claims



1. For use with a light-transmitting windowpane, a sign construction comprising:
a mounting panel having a front face, a rear face, and a lower edge portion;
holding means on the front face for holding the panel with the front face in facial juxtaposition to a windowpane and with the lower edge portion lowermost;
a selective information-conveying sign structure including an upper panel portion and a lower panel portion, the upper panel portion having a front face, a rear face, a lower edge portion, and an upper edge portion, the lower panel portion having a front face, a rear face, a lower edge portion, and an upper edge portion;
connecting means connecting said upper edge portion of the upper panel portion to said lower edge portion of the mounting panel;
hinge means hingedly connecting said upper edge portion of the lower panel portion to said lower edge portion of the upper panel portion for selectively (a) hanging said lower panel portion downwardly from the upper panel portion so as to have said front faces of the mounting panel, upper panel portion, and lower panel portion facially juxtaposed to the windowpane for viewability therethrough, and (b) carrying the lower panel portion on said lower edge portion of the upper panel with the lower panel portion extending upwardly therefrom so as to be disposed between said upper panel portion and windowpane substantially aligned with said mounting panel and so as to have said rear face of the lower panel and front face of the mounting panel concurrently viewable through the windowpane; and
information-conveying means on a plurality of said faces.

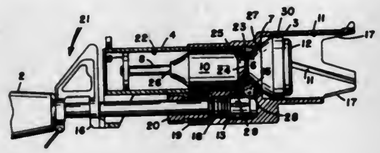
4,270,292
SIGN WITH CHANGEABLE INSERTS
Keith S. Eckberg, II, St. Louis County, Mo., assignor to Stout Industries, Inc., St. Louis, Mo.
Filed Apr. 7, 1980, Ser. No. 138,227
Int. Cl.³ G09F 7/02
U.S. Cl. 40—611 10 Claims

1. A sign for carrying changeable inserts, said sign comprising a metal base plate of resilient materials, a plurality of clips formed in said base plate for gripping engagement of an insert of sheet material to carry said insert upon a surface of said base plate, characterized by said clips each comprising a tab integrally formed with said base plate and extending above said surface and opening onto said surface, said tab resiliently bearing against portions of said insert sheet material for gripping engagement of said insert, said tab being joined to said base plate by a zone of merger having compound curvature for nonlinear distribution of bending forces upon bending, of said tab, said base sheet comprising first and second circular protrusions located on opposite sides of each said tab for coacting



with said tab to deform the margin of said insert sheet material for more secure engagement thereof.

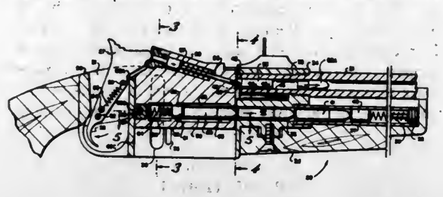
4,270,293
DEVICE FOR LAUNCHING NON-LETHAL RING AIRFOIL PROJECTILES
Roy D. Plumer, Santa Barbara, Calif., and Donald N. Olson, Lutherville, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Apr. 5, 1979, Ser. No. 27,438
Int. Cl.³ F41C 27/06
U.S. Cl. 42—1 F 10 Claims



1. A device for launching annular projectiles, which device is attachable to a rifle for firing with a blank cartridge, comprising:
a housing having an opening at one end thereof;
a sabot member open at one end and defining an annular recess for receiving the annular projectile substantially flushly thereinto, the sabot member being received within the housing, with the open end of said sabot member facing the open end of the housing;
a piston rod mounted at one end thereof to a closed rear portion of the sabot member, the piston rod extending longitudinally within the housing;
a pressure plate connected to the opposite end of the piston rod; energy absorbing means for said pressure plate; and
means for directing expanding gases from firing to project said sabot member and projectile forwardly within the housing toward the open end of the housing, said pressure plate bearing against said energy absorbing means and thereby cushioning said sabot member in said housing, with the projectile maintaining the momentum imparted thereto on acceleration of the sabot member and thereby being projected from the open end of the housing.

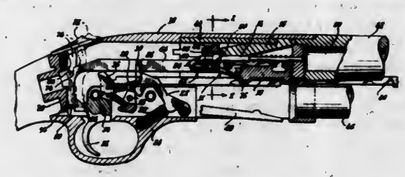
4,270,294
FIREARMS
Robert Compton, 5355 Atlantic, San Angelo, Tex. 76901
Filed Apr. 2, 1979, Ser. No. 26,009
Int. Cl.³ F41C 11/04
U.S. Cl. 42—24 17 Claims

1. A firearm comprising:
a barrel;
a vertically slidable block mounted behind said barrel, said block having a firing pin mounted in the upper portion thereof, and further having at least one cylindrical cartridge holding chamber in the lower portion thereof;
a vertically oriented slide for holding said slidable block against horizontal movement while permitting selective vertical movement of the block between an intermediate position in which said firing pin is generally aligned with



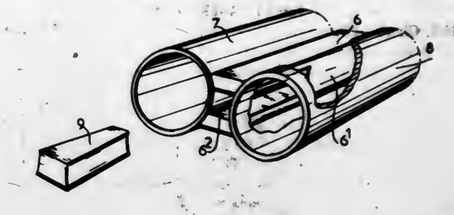
said barrel, an upper position in which said cartridge-holding chamber is aligned with said barrel, and a lower position in which said block is below the end of said barrel;
hammer means positioned behind said slide; and
spent cartridge ejector means mounted on said slide adjacent the rear end of said barrel, but forward of said slidable block.

4,270,295
FIRING-PIN BLOCKING DEVICE FOR FIREARMS
William H. Grohl, Wallingford, Conn., assignor to O. F. Mossberg & Sons, Inc., North Haven, Conn.
Filed Aug. 20, 1979, Ser. No. 67,951
Int. Cl.³ F41C 17/04
U.S. Cl. 42—70 F 6 Claims



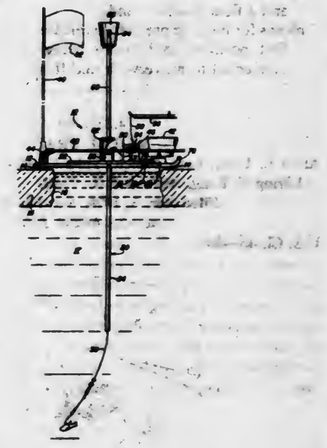
1. In a firearm having a receiver, a breech-bolt for reciprocation within said receiver, a firing pin carried by said breech-bolt for movement into and out of a firing position, a safety device for blocking movement of said firing pin into its firing position comprising,
a firing-pin blocking member mounted on the breech-bolt for movement into and out of a blocking position with respect to said firing pin,
a safety bar carried by said receiver for movement to and from a safe position and
a finger-piece disposed externally of said receiver for moving said safety bar into and out of its safe position,
said safety bar having an actuating portion disposed for engagement with said blocking member when said breech-bolt is in battery, such that when said safety bar is in its safe position said blocking member is positively held thereby in blocking relationship with said firing pin,
said actuating portion of said safety bar being adapted and arranged to cooperate with said breech-bolt and with said firing-pin blocking member to allow reciprocation of said breech-bolt.

4,270,296
POINT OF IMPACT ADJUSTMENT MEANS FOR FIREARM BARRELS
Paul Chapuis, rue de la Châtelaine, 42380 Saint Bonnet le Chateau, Loire, France
Filed Dec. 15, 1978, Ser. No. 969,999
Claims priority, application France, Dec. 29, 1977, 77 39942
Int. Cl.³ F41C 21/08
U.S. Cl. 42—76 R 7 Claims



1. A profiled band for sporting guns having barrel tubes, allowing accurate adjustment of the barrel tubes, characterized in that the band extends along the entire length of the barrel tubes with a longitudinally flattened and profiled section, and is provided along its lateral faces with symmetrical recesses to be centered and fitted in the external profile of the barrel tubes and between the barrel tubes along the common horizontal axis thereof, the band being recessed axially and transversely at the front end to allow by its opening the engagement and the adjustment of the barrel tubes.

4,270,297
APPARATUS FOR ICE FISHING
Lance W. Yates, 6006 W. 29th St., Cicero, Ill. 60650
Filed Mar. 28, 1980, Ser. No. 134,934
Int. Cl.³ A01K 97/12
U.S. Cl. 43—4 12 Claims



1. Apparatus for use in fishing through a hole cut in a layer of ice overlying a body of water, comprising
an elongated, narrow tube having openings at the top and bottom thereof,
a fish line extending through said tube,
said tube containing a liquid having a specific gravity and a freezing point substantially below the specific gravity and freezing points of said water, and
support means supported by said layer of ice for holding said

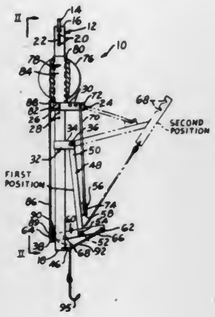
tube in said hole with the lower end submerged in said body of water and said upper end disposed above the surface of the water in said hole.

4,270,298

FISHING APPARATUS

Vincent B. Hodshire, 2701 NE. Adams St., Peoria, Ill. 61603

Continuation-in-part of Ser. No. 930,875, Aug. 3, 1978, abandoned. This application Jul. 6, 1979, Ser. No. 55,494
Int. Cl.³ A01K 97/00
U.S. Cl. 43—15 5 Claims



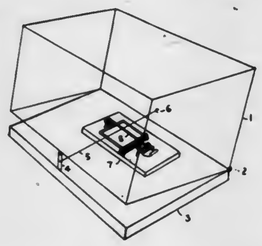
1. A fishing apparatus comprising:
a main support member;
a first member connected to said main support and movable between first and second positions;
a trigger member connected to said first member;
means for retaining said trigger and said first member in said first position;
means for resiliently urging said trigger and said first member toward said second position;
a float connected for movement between a gravity position and a float position; and
means for limiting premature release of said trigger from said first position, said means being substantially rigid and connected to move with said float.

4,270,299

MOUSE TRAP

Alvin L. Long, Long Ranch, Yuba County, Calif., assignor to Loring C. Long, Beale A.F.B., Calif.

Filed Apr. 5, 1979, Ser. No. 27,315
Int. Cl.³ A01M 1/10
U.S. Cl. 43—58 8 Claims



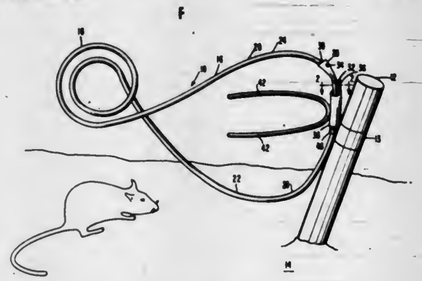
1. A mouse trap comprising; a spring urged pivotal striker element; striker element hold down means; bait holder means releasably attached to said hold down for actuating the pivotal striker element; cover means for covering the striker element, said hold down means and bait holder means and the surrounding vicinity; releasable prop means for holding at least a portion of the cover means above the surface upon which the cover means is set; string means attached at one end to the prop means and at the other end to a surface of the cover on the far side of the striker element opposite the prop means, the string means being strung across the striker element and in the pivotal path thereof, such that a mouse upon entering the area beneath the propped cover means and upon disturbing the bait holder means will actuate the hold down means; striker element and the prop means and if not caught by the striker element will be trapped by the falling cover means as the striker element hold down means hits the string means which dislodges the prop means causing the cover means to fall and trap the mouse.

4,270,300

ANIMAL TRAP AND TRIGGER MECHANISM

Daryl A. Schultz, R.R. 2, Box 92-A, Rensselaer, Ind. 47979

Filed Sep. 28, 1979, Ser. No. 79,732
Int. Cl.³ A01M 23/24
U.S. Cl. 43—82 13 Claims



1. An animal trap comprising:
first and second legs each having first and second ends,
spring means proximate said first ends of said first and second legs for urging said legs together,
a blocking means capable of maintaining said legs in spaced apart relation, wherein said blocking means is mounted on said second end of said first leg and is movable from a first position to a second position, said first position preventing said legs from moving together and said second position allowing such movement, and
a sleeve rotatably mounted on said first leg and having a trigger arm transverse to said sleeve, said sleeve rotatable from a first orientation to a second orientation in response to an animal moving said trigger arm, said first orientation preventing the movement of said blocking means from said first position to said second position and said second orientation allowing such movement.

4,270,301

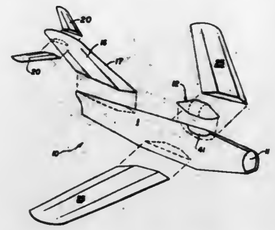
MODEL AIRPLANE AND BLANK THEREFORE

Donald J. Meek, 3503 Hanks St., Sacramento, Calif. 95826

Filed Jan. 22, 1979, Ser. No. 5,577
Int. Cl.³ A63H 27/02
U.S. Cl. 46—1 L 1 Claim

1. The blanks for constructing a model airplane to be formed entirely from preprinted flat sheet material that serves as patterns and also as skin structure of the parts of the airplane comprising in combination:
a fuselage blank having score lines outlining a widened central portion, an inwardly tapering leading portion, and an inwardly tapering trailing portion in which the severity of the taper is greater for the trailing end of the fuselage blank, tab members joined to said fuselage blank along said score lines at opposed lateral extremities of said fuselage blank, whereby when said fuselage blank is rolled, and opposed ones said tab portions placed in registry and mutually affixed, said fuselage is thereby formed,

pairs of wing blanks adapted to form forward and rearward wings, each said wing blank comprising: two panels separated by a score line adapted to define the leading edge of the completed wing, a first of said panels being adapted to form a top wing surface and having a greater area than the second panel so as to provide an arcuate camber on the wing then folded along said score line, a marginal portion at the extremity of said second panel remote from the leading edge score line, a second score line associated with said marginal portion which, in the completed wing,



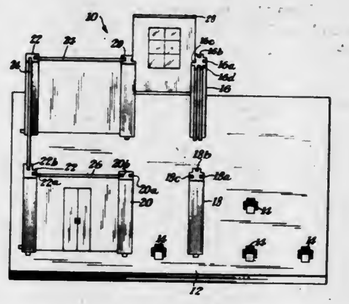
locates a trailing edge of said wing about which said marginal portion may be folded whereby said marginal portion can fasten to the first panel, a face portion at an end of said wing blank extending between termini of said first and second score lines for forming a root face to be used in adhering said wing to the airplane, said first and second panels having different lengths as measured from the wing blank portion that is adapted to form the wing tip to said root face portion so as to provide dihedral to the wing.

4,270,302

CONSTRUCTION TOY

Ghulam M. Dandia, 1324 NE. 127 St., Miami, Fla. 33161

Continuation of Ser. No. 763,047, Jan. 27, 1977, abandoned. This application Dec. 4, 1978, Ser. No. 966,319
Int. Cl.³ A63H 33/08
U.S. Cl. 46—19 4 Claims



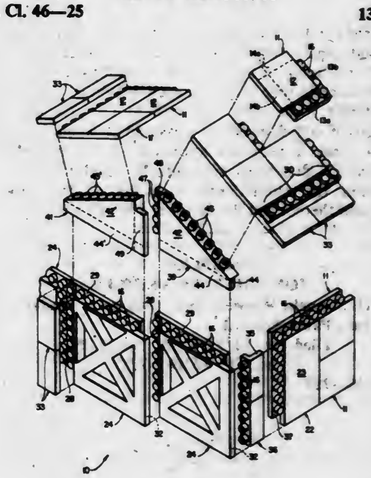
1. A toy construction set useful for the erection of toy buildings of various designs, the toy comprising:
a first rigid, planar board having an array of apertures disposed on one planar surface of said board;
a plurality of pillars, each of said pillars having a lateral cross-sectional configuration sized to be fitably received into any of said apertures of said array, each of said pillars having at least two longitudinally disposed side grooves therein;
a plurality of wall panels connectable within said pillar longitudinal grooves along said panel sides for forming a wall structure of a building;
an upper floor panel utilized for forming an additional floor in conjunction with said pillars, said upper floor panel having an aperture disposed therein for receiving a stairwell, said upper floor panel having a plurality of tabs disposed around its perimeter, said tabs being receivable within the longitudinal grooves within said pillars for mounting said upper floor panel in a spaced relationship above said planar surface;
a plurality of steps, each of said steps being pie-shaped and including a protruding peg vertically disposed on one side and an aperture on an opposite side aligned with said vertically protruding peg, whereby said steps are mounted together forming a spiral staircase disposable beneath said aperture disposed in said upper floor panel, said spiral staircase being mounted on said planar surface.

4,270,303

CONSTRUCTION TILES FOR MAKING TOY WALL PANELS

Piritheos G. Xanthopoulos, San Jose, and Lloyd W. Stewart, Lafayette, both of Calif., assignors to Artzan Corporation, Lafayette, Calif.

Filed Apr. 30, 1979, Ser. No. 34,244
Int. Cl.³ A63H 33/08
U.S. Cl. 46—25 13 Claims



1. A tile unit for use in constructing toy structure, said unit being formed to comprise a surface configuration adapted to provide a building panel, pairs of adjacent edge margins on both the top and bottom of the panel, said pairs being mutually displaced with respect to each other diagonally of said panel to define offset pairs of edge margins, protruding means carried along each of the first offset pair of edge margins on one side of said tile, and an elongate opening formed along each of the other offset pair of edge margins on the other side of said tile for receiving and engaging said protruding means of another of said tiles for interlocking a plurality of tiles together in a common plane to form a wall-like structure.

4,270,304

FLUSH-FITTING TOY BUILDING BLOCKS

Nancy C. Sofer, P.O. Box 6764, Jerusalem, Israel

Filed Nov. 17, 1978, Ser. No. 961,667
Claims priority, application Israel, Dec. 2, 1977, 53519
Int. Cl.³ A63H 33/06, 33/08
U.S. Cl. 46—28 11 Claims

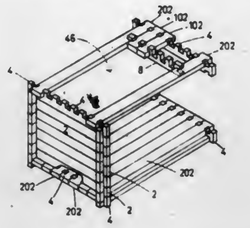
1. A toy building set especially adapted to facilitate the construction of integral plan horizontal and stepped surfaces in vertical building structures comprising:
a plurality of rectangularly-shaped prismatic elements hav-

ing a height, a length and a width dimension and each having a rectangular cross-section along at least a portion of their length;

the height of each said elements being twice their width;

at least two notches cut into said elements in the direction of the height of the element and spaced from each other along the axis in the direction of the axial length of each said prismatic elements;

said two notches being positioned adjacent the respective ends of each said element; and,



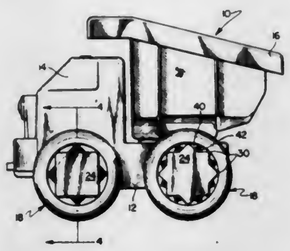
each said notch having a length along the length dimension of said element substantially equal to the width and height with dimension of half said width multiplied by a multiplier wherein with regard to each individual element said multiplier is the same and equal to 1 or 3 wherein the length of said elements, as measured between the centerlines of said at least two notches is a factor multiplied by the width dimension substantially equal to the factor wherein the width dimension is the whole number or fraction thereof and the factor is a whole number.

4,270,305

TOY WHEELED VEHICLE

Donald H. Samuels, Warwick, R.I., assignor to Hasbro Industries, Inc., Pawtucket, R.I.

Filed Feb. 12, 1979, Ser. No. 11,551
Int. Cl.³ A63H *17/26*
U.S. Cl. 46—221 3 Claims



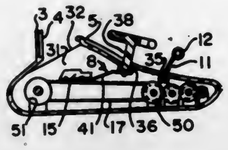
1. A wheel assembly for a toy vehicle and the like, comprising an axle having an outer portion of a predetermined non-circular geometric shape, and a matching wheel easily mountable thereon and separable therefrom, said wheel having an outer surface and a front annular recess defining an inner axle supporting surface and terminating in a rearwardly offset wall, said wall including an opening corresponding both in size and shape to the predetermined shape of said axle outer portion such that said axle outer portion may pass through said wall for disposition in said annular recess when said wheel is mounted to said axle and wherein said axle outer portion contacts said inner wheel surface so as to support said wheel thereon, said wheel assembly comprising a plurality of such assemblies mounted on said toy vehicle, at least two of such wheel assemblies being characterized by a different geometric shape wherein a child must match the wheel having a particular shape wall opening within the similarly shaped axle portion in order to mount said wheel assemblies upon said toy.

4,270,306

TOY DRIVING SIMULATOR WITH BRAKE

Ronald R. Klawitter, Hermann, Mo., assignor to Steven Manufacturing Company, Hermann, Mo.

Filed Jan. 3, 1980, Ser. No. 109,231
Int. Cl.³ A63H *17/00*; G09B *9/02*; A63B *67/00*; A63F *9/00*
U.S. Cl. 46—248 2 Claims



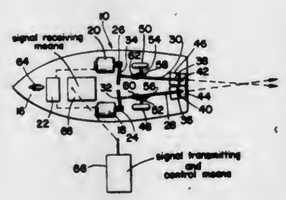
1. A toy driving simulator comprising a hollow body in the form of a vehicle having a windshield with a reflective inner surface, a steering mechanism rotatably mounted on and having a part extending within said body, a miniature vehicle mounted within said body and connected to be moved laterally of said body by means of said steering mechanism; a belt, one reach of which extends beneath said miniature vehicle, said belt having on its outer surface representation of a path aong which the said miniature vehicle is to be directed; means for driving said belt, and brake means having a lever extending through and pivotally mounted in said body, said brake means being selectively engagable with a part of said belt driving means by manipulation of said lever, both said miniature vehicle and said upper surface of said belt being observable in said reflecting surface by one manipulating the steering mechanism.

4,270,307

REMOTE CONTROLLED STEERABLE AMPHIBIOUS TOY

Fujio Arigaya, Tanashi, Japan, assignor to Takara Co., Ltd., Katsushika, Japan

Filed Oct. 16, 1979, Ser. No. 85,237
Int. Cl.³ A63H *30/04, 23/02, 23/04*; B63H *5/08*
U.S. Cl. 46—254 12 Claims



1. A steerable self-propelling toy vehicle capable of moving on a solid support surface and on water, the vehicle comprising:

a hull having sufficient buoyancy to keep the vehicle afloat on water, and having a general longitudinal axis;

a first variable speed motor and a second variable speed motor incorporated in the hull;

a first and second axle connected respectively to the first and second motor and extending at inclined angles to the longitudinal axis;

a power source operatively connected to the first and second motors;

a first and second wheel mounted to the hull for driving the vehicles on the solid support surface when the vehicle is operated as a land going vehicle, the first wheel being positioned offset to one side of the vehicle relative to the general longitudinal axis of the hull and being operatively connected to the first axle of the first motor to be driven thereby, the second wheel being positioned offset to the other side of the vehicle relative to the general longitudinal axis of the hull and being operatively connected to the second axle of the second motor to be driven thereby;

a first screw propeller and a second screw propeller mounted to the hull for contact with water when the vehicle is operated on water, the first screw propeller being positioned offset to one side of the vehicle relative to the general longitudinal axis of the hull and operatively connected to the first axle of the first motor to be driven thereby, the second screw propeller being positioned offset to the other side of the vehicle relative to the general longitudinal axis of the hull, and operatively connected to the second axle of the second motor to be driven thereby, the first and second screw propellers are positioned to provide respective thrust force vectors which converge and substantially cross one another outside of the hull and behind the vehicle, and

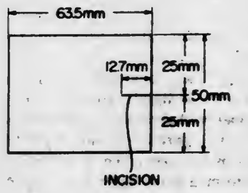
control means operatively connected to the power source and the first and second motors for continuously and differentially varying, at the option of an operator, the levels of power supplied from the power source respectively to the first and second motors to vary the relative rotation of respectively the first and second wheels and the first and second screw propellers whereby the operator steers the vehicle both on the solid surface and on water by manipulating the control means to drive a predetermined wheel or screw propeller at a greater relative rotational speed to effectuate steering.

4,270,308

GREENHOUSE

Yukio Mitsuishi, Machida; Shigeru Shiozaki, and Kinji Hasegawa, both of Sagamihara, all of Japan, assignors to Teijin Limited, Osaka, Japan

Continuation of Ser. No. 820,033, Jul. 28, 1977, abandoned, which is a continuation of Ser. No. 616,899, Sep. 25, 1975, abandoned. This application Mar. 5, 1979, Ser. No. 17,538
Claims priority, application Japan, Sep. 27, 1974, 49/110428; Dec. 23, 1974, 49/146713; Jan. 28, 1975, 50/10953; Feb. 12, 1975, 50/16919; Mar. 5, 1975, 50/26053; Apr. 16, 1975, 50/45125; Jul. 1, 1975, 50/80484
Int. Cl.³ B29C *25/00*
U.S. Cl. 47—17 1 Claim



1. In a greenhouse for protecting plants from weather exposure, including a framework and a single layer of polyethylene terephthalate film stretched over the framework, the improvement wherein said polyethylene terephthalate film is a biaxially oriented film having:

a refractive index in the oriented direction of 1.59–1.75,

a refractive index in the thickness direction of 1.485–1.56,

a density of 1.350–1.382 g/cm³,

an intrinsic viscosity of 0.52–0.71, and

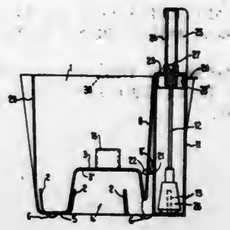
a thickness of 50–500 microns.

4,270,309

PLANT RECEIVING VESSEL FOR INSERTION IN A HYDROPONIC VESSEL

Gerhard Baumann, Berne, Switzerland, assignor to Interhydro AG, Berne, Switzerland

Filed Mar. 24, 1976, Ser. No. 669,747
Claims priority, application Fed. Rep. of Germany, Mar. 24, 1975, 2512296; Switzerland, Oct. 16, 1975, 13417/75
Int. Cl.³ A01G *31/02, 9/02*
U.S. Cl. 47—59 5 Claims



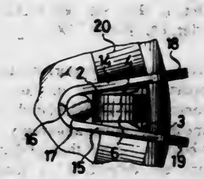
1. An assembly for use in the hydroculture of plants, comprising a plant receiving vessel of thin-walled material, an outwardly extending flange at the upper rim of said vessel, apertures in the wall of the vessel for exchange of nutritive solution, at least one ancillary instrument instruments being a water level indicator having a tube and a float coupled with an indicating member within said tube, at least one opening in said flange of the vessel, said opening being adapted for sliding insertion of said water level indicator through it, a retaining pin on said tube of the water level indicator and a hole in the wall of said vessel adapted to receive said retaining pin, said water level indicator being thus removably attachable to said vessel by inserting its tube into said opening of said flange and its retaining pin into said hole of said vessel wall.

4,270,310

SUPPORT DEVICE FOR AN UPSTANDING PLANT SUPPORT ROD IN A PLANT POT

Gerhard M. Fischer, Maxstrasse 55, 8580 Bayreuth, Fed. Rep. of Germany

Filed Aug. 2, 1979, Ser. No. 63,136
Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2835939
Int. Cl.³ A01G *9/12*
U.S. Cl. 47—70 10 Claims



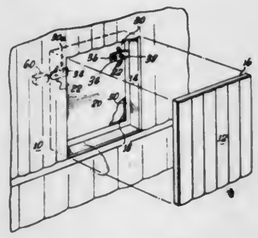
1. A support device for a potted plant support rod in a plant pot comprising,

a rod support body portion extending inwardly from the top rim portion of a plant pot,

the plant pot having a vertical axis of symmetry, said rod support body portion having a channel therethrough bounded at the inner end by a support groove substantially parallel with the axis of symmetry of the plant pot and at the outer end by the inner side of the plant pot, an upstanding plant support rod adapted to be positioned in said support groove, separate wedge means for insertion in said channel from the top thereof between said support

rod and the inner side of the plant pot to anchor said support rod in said support groove, said separate wedge means comprising a pair of spaced leg portions one of which is adapted to engage the inner side of the plant pot and the other of which is adapted to engage said support rod, and a resilient bight portion connecting said pair of leg portions at the tops thereof and biasing said pair of leg portions away from one another.

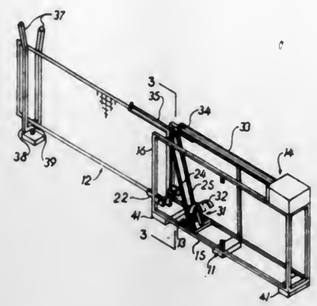
4,270,311
ESCAPE HATCH FOR DWELLINGS
Chester J. Palomar, 1401 W. 9th St., Sp. 81, Pomona, Calif. 91766
Filed May 18, 1979, Ser. No. 40,300
Int. Cl.³ E05C 15/02, 21/02
U.S. Cl. 49—141 **8 Claims**



1. An improved escape hatch assembly for a dwelling having an opening in an external wall, comprising:
a hatch panel adapted to closely fit within said opening and being like said wall in thickness; and
a plurality of latch assemblies, each comprising a pair of blades respectively disposed on opposite faces of said hatch panel, said blades being pivotable about a pivot pin extending through the panel and joined together by a guide pin extending through an arcuate slot centered on the pivot pin, whereby the blades are pivotable together between a first position wherein they entirely overlie the panel and a second position wherein portions thereof overlie the wall.

4,270,312
GATE ASSEMBLY
Thomas M. Courtis, and Carl E. Donelson, both of Red Lodge, Mont., assignors to Red Lodge Manufacturing Company, Red Lodge, Mont.
Filed Oct. 9, 1979, Ser. No. 82,543
Int. Cl.³ E05D 7/00
U.S. Cl. 49—385 **16 Claims**

1. A gate assembly including support means, gate means carried by said support means and movable with respect thereto, and gate control means associated with said gate means; said support means including a plurality of frame members, said gate means having one end thereof disposed adjacent to said support means and extending outwardly therefrom, pivot means connecting a lower part of said gate means to an adjacent lower portion of said support means, said pivot means including a rotatable shaft and shaft carrier means, said gate control means including at least one coil spring member, one end of said spring member being attached to an upper part of said gate means adjacent to said support means and the opposite end of said spring member being affixed to said support means at a point spaced from said pivot means, fulcrum means disposed adjacent the end of said spring member affixed to said support means, said fulcrum means being disposed on the side of said spring member remote from said pivot means, said fulcrum means including an arcuate spring-engaging section disposed in substantially the same vertical plane as said spring member, whereby said gate means is movable about said pivot means in a vertical plane with the movement thereof being controllable by said spring member throughout its path as said



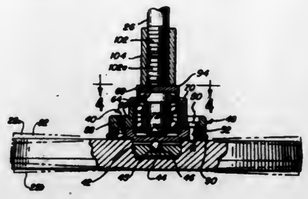
spring member moves into contact with said spring-engaging section of said fulcrum means.

4,270,313
LOUVER LOCK
Salvatore A. Dalia, 2125 W. 234th St., Torrance, Calif. 90501
Filed Aug. 29, 1979, Ser. No. 70,912
Int. Cl.³ E06B 7/08
U.S. Cl. 49—403 **6 Claims**



1. The combination of a bracket liner and an interengaging retainer for use with a generally rectangular, flatfaced louver panel when such panel is disposed in a jalousie opening by means of a pair of aligned end brackets each positioned to engage opposite faces of the panel along respective end margins thereof
said bracket liner comprising an elongated, generally flat strip having a slightly greater length than the height of said panel, with a panel-abutment ledge disposed along an intermediate portion of said length for engagement with an end of the panel, the strip having opposite end segments formed as mutually facing, open, U-shape channels, each with a U-channel arm overlying said flat strip and thus adapted for reception of an edge of the panel there under and subsequent insertion of the panel and end-mounted liners into said end brackets, the upper end of each of said U-channels thus having its inward and downwardly directed U-channel arm disposable in planar juxtaposition with an adjacent surface of said end bracket along an inner side of said jalousie opening and in such position said bracket surface and U-channel arm being jointly disposed to transversely receive lock means comprising a separate retainer clasp for effecting tight engagement of the U-channel arm and the juxtaposed bracket surface.

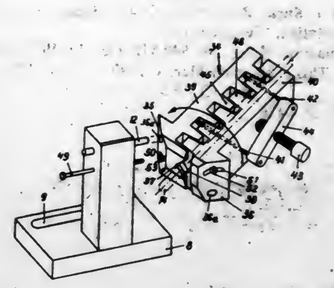
4,270,314
BEARING MOUNT FOR LAPPING MACHINE PRESSURE PLATE
Joseph V. Cesna, Niles, Ill., assignor to Speedfam Corporation, Des Plaines, Ill.
Filed Sep. 17, 1979, Ser. No. 76,306
Int. Cl.³ B24B 7/04
U.S. Cl. 51—131.4 **6 Claims**



1. For use in a lapping machine having a lap wheel rotated about a fixed axis and at least one pressure plate supported on a shaft disposed generally parallel to the lap wheel axis but laterally offset therefrom, an improved bearing mount between the pressure plate and shaft that accommodates both axial compression and lifting loads between the shaft and pressure plate while yet allows free rotation and swiveling of the pressure plate relative to the shaft, the combination comprising a bearing housing block and means nonrotatably keying the bearing housing block coaxially of the pressure plate while yet allowing the pressure plate to move axially and wobble slightly relative to the bearing housing block, bearing means rotatably supporting the bearing housing block coaxially of the shaft, said bearing means having inner races disposed on the shaft and having outer races disposed in the bearing housing block and means engaging the inner and outer races of the bearings units for holding them on the shaft and in the bearing housing block respectively, and a self-aligning axial thrust ball bearing coaxially disposed between and engaged by the bearing housing block and the pressure plate under the axial compression loads of the shaft.

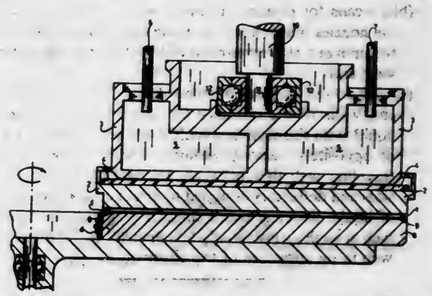
4,270,315
FIXTURE FOR HOLDING A TWIST DRILL TO BE REGROUND
Reinhold Reiling, Gründeltorstrasse 9, and Karl Reiling, Pforzheimer Strasse 28, both of D-7531 Kämpfelbach-Ersingen, Fed. Rep. of Germany
Filed Jul. 9, 1979, Ser. No. 56,093
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833420; Apr. 18, 1979, 2915601
Int. Cl.³ B24B 3/26
U.S. Cl. 51—219 R **15 Claims**

1. A fixture for holding a twist drill to be reground, comprising:
a baseplate,
a carriage slidably mounted on said baseplate and longitudinally guided thereon in a predetermined direction,
an angle bracket slidably and pivotally mounted on and adapted to be fixed to said carriage and guided thereon transversely to said predetermined direction,
a crosspin mounted on said angle bracket and adapted to extend transversely to said predetermined direction, and
a drill holder adapted to hold a twist drill, and detachably fitted on said crosspin to be pivotally movable thereon and extending laterally of said angle bracket at an angle to said predetermined direction,
said drill holder being longitudinally split to form two jaws for gripping a twist drill, and including tightening means for forcing said jaws against said twist drill, said tightening means comprising a tightening bar which extends on the outside of one of said jaws and carries transverse guide pins slidably extending through said one jaw and secured to the other of said jaws, and said jaws being comblike and provided with interfitting teeth which have mutually



oppositely-directed conical recesses for engaging said twist drill.

4,270,316
PROCESS FOR EVENING OUT THE AMOUNT OF MATERIAL REMOVED FROM DISCS IN POLISHING
Hans Krämer, and Helmuth Kirschner, both of Burghausen, Fed. Rep. of Germany, assignors to Wacker-Chemitronic Gesellschaft für Elektronik-Grundstoffe mbH, Burghausen, Fed. Rep. of Germany
Filed Feb. 23, 1979, Ser. No. 14,458
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809274
Int. Cl.³ B24B 7/22
U.S. Cl. 51—283 R **4 Claims**

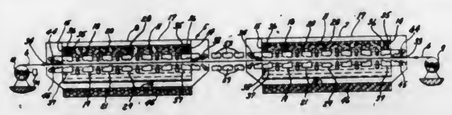


1. In a process for evening out the amount of material removed from discs in a polishing operation performed with a polishing machine equipped with a polishing plate covered with a polishing cloth, at least one carrier plate having a side which faces the polishing plate on which the discs to be polished are cemented and at least one pressure piston which presses the carrier plate against the polishing plate covered by the polishing cloth, the improvement comprising
placing inserts comprising soft elastic bodies having pressure-equalization cells between said pressure piston and the back of the carrier plate.

4,270,317
APPARATUS USED IN THE TREATMENT OF A CONTINUOUS STRIP OF METAL AND METHOD OF USE THEREOF

Eugene J. Kurie, Bridgewater, N.J., assignor to Midland-Ross Corporation, Cleveland, Ohio

Continuation of Ser. No. 949,872, Oct. 10, 1978, abandoned. This application Mar. 4, 1980, Ser. No. 126,937
Int. Cl.³ B24C 3/12, 7/00
U.S. Cl. 51—426 27 Claims



1. An apparatus used in the treatment of a traveling web, comprising:

(a) a tank having a horizontally elongated chamber enclosed therein, the chamber being free of any rollers for contacting the web traveling therethrough and having a pair of opposing end walls having therein, openings which are horizontally aligned and elongated and through which the traveling web enters and exits the chamber in a horizontal pathway;

(b) means for supporting the web on turbulent streams of liquid as the web travels through the chamber, including two parallel rows of treatment nozzles extending longitudinally of and within the chamber and positioned to sandwich the traveling web therebetween, each row of nozzles including a number of transversely oriented elongated nozzles relative to the direction of travel of the web through the chamber, at least a majority of the nozzles each having:

(I) a longitudinally extending compartment with an inlet therein;

(II) a single continuous slot disposed in the surface of the nozzle confronting the traveling web, the slot being in communication with the compartment and extending transversely across the web;

(III) a deflector adjacent the slot for directing a continuous stream of liquid, under pressure, from the slot angularly against the traveling web at an angle substantially less than 90° to the plane of the web;

(bb) means for circulating liquid, under pressure, through the nozzles which coact with the liquid circulating means to impinge turbulent streams of liquid against the traveling web; and

(c) a liquid seal disposed adjacent each of the openings in the end walls of the chamber for preventing the escape of liquid from the chamber, each of the seals including a pair of oppositely disposed sealing nozzles sandwiching the traveling web therebetween, the sealing nozzles having slots and deflectors designed to direct converging streams of liquid, under pressure, angularly against the traveling web at angles substantially less than 90° to the plane of the web in the direction of the chamber.

4,270,318
FIRE RESISTANT FITTING FLOOR HOLES

James C. Carroll, Hamilton, Ohio; Donald L. Chapman, Liberty, Ind., and Gilbert A. McGoldrick, Hamilton, Ohio, assignors to Square D Company, Palatine, Ill.

Filed Nov. 15, 1978, Ser. No. 961,089
Int. Cl.³ E04N 9/00
U.S. Cl. 52—1 11 Claims

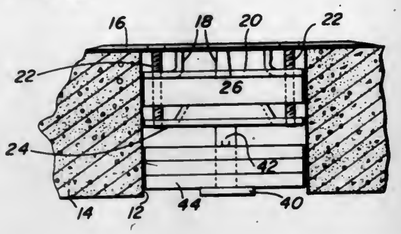
1. A fitting assembly for insertion in a floor passage extending through a floor, the improvement comprising;

a top plate;

a bottom plate; said top and bottom plates each having a periphery shaped and dimensioned to be received in said floor passage,

an expandable rubber ring between said top and bottom plates;

securing means extending through said top plate and engaged in said bottom plate for positioning said top plate with respect to said bottom plate and for moving said bottom plate towards said top plate to expand said ring between said plates for securing said assembly within said floor passage;



said top and bottom plates, said rubber ring and said securing means comprising a sub-assembly,

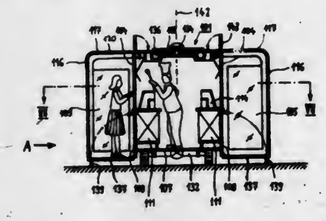
an expandable fire resistant material carried by said sub-assembly on the side of said bottom plate opposite from the side on which said top plate is located, said material being adapted to swell upon exposure to heat to seal said floor passage, and

carrying means for carrying said material on the side of said bottom plate opposite from the side on which said top plate is located.

4,270,319
MOBILE VENDING BOOTH

Ratko Spasojevic, Sandbergerstrasse 36, D-7000 Stuttgart 1, Fed. Rep. of Germany

Filed Oct. 22, 1978, Ser. No. 87,045
Claims priority, application Fed. Rep. of Germany, Oct. 24, 1978, 2846272
Int. Cl.³ E04B 7/16, 3/43; B60P 3/025
U.S. Cl. 52—36 23 Claims

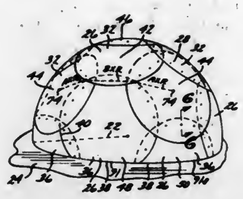


1. A mobile vending booth with a vending opening at at least one long-side and with a chassis floor, characterised by at least one roller shutter for shutting at least the vending opening and by at least one roller shutter guideframe, which is slidingly supported within the vending booth and is able to be pulled out for making the vending booth broader, as necessary for vending, along one full long-side of the vending booth.

4,270,320
FRAMELESS SUBSTANTIALLY SPHERICAL BUILDING STRUCTURE

Craig Chamberlain, P.O. Box 5854, Huntington Beach, Calif. 92646

Filed Jul. 25, 1979, Ser. No. 60,604
Int. Cl.³ E04B 1/32
U.S. Cl. 52—81 22 Claims



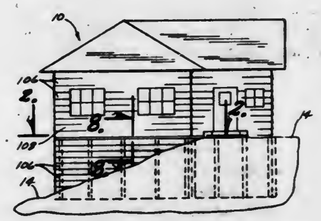
1. A building having substantially the shape of a sphere cut-off by a truncation plane, the sphere having a geometrical radius defining a radius of the building, the building comprising:

a plurality of panel members attached to one another in partially overlapping configurations, each panel member having a substantially spherical exterior surface having a curvature defined by the radius of the building the panel members including panel members of a first kind which are substantially circular segments of a sphere and the panel members further including panel members of a second kind which are partial circular segments of the sphere, the partial circular segments having a circumferential first edge which comprises a truncation line of the domed shaped building, the first edge substantially in contact with a support surface upon which the building rests.

4,270,321
METHOD AND MEANS OF INSULATING A BUILDING FOUNDATION WALL

Thomas E. Fisher, 21 Crestwood Dr., Council Bluffs, Iowa 51501

Filed Feb. 19, 1980, Ser. No. 122,572
Int. Cl.³ E04B 1/80; E02D 19/18
U.S. Cl. 52—97 13 Claims



6. In combination with a building having a foundation wall disposed at least partially below grade, said foundation wall having interior and exterior surfaces, a system for securing a plurality of panels of insulation material to the exterior surface of the building, comprising,

a plurality of panels of insulation material arranged relative to said foundation wall to substantially cover the exterior surface thereof,

a plurality of flanged retaining members secured to the exterior surface of said foundation wall, each retaining member including an elongated base portion interposed between adjacent edges of adjacent panels, and a pair of flanges laterally extended from said base portion so as to at least partially overlie the exterior surfaces of said adjacent panels for retaining said panels in position against the foundation wall,

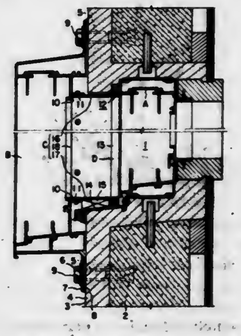
means for securing said base portion to said exterior wall surface whereby said pair of flanges are operative to retain said panels against said exterior wall surface, and

an elongated rain shield secured to said exterior wall surface at a position in engagement with the top edge of said panels and including a downwardly and outwardly inclined top surface for directing water, foreign matter and the like exteriorly of said panels and retaining members.

4,270,322
DOUBLE-GLAZED WINDOW STRUCTURE

Kinji Ishida, Toyama, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Mar. 29, 1979, Ser. No. 25,265
Int. Cl.³ E04B 3/26
U.S. Cl. 52—98 3 Claims

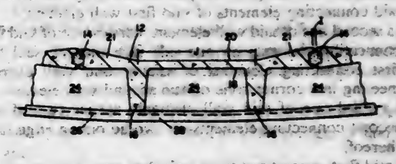


1. A double-glazed window structure which comprises a ready-built window frame fixed to a window opening of a building, an add-on window frame fixed to the exterior surface of the wall of the building around the window opening, an intermediate frame connected to the inboard periphery of the add-on window frame to enter the window opening closely reaching the outboard periphery of the ready-built window frame, and a joint formed by filling the gap between the intermediate frame and the ready-built window frame with a sealing material, wherein the intermediate frame is formed with an upper cross-member, a lower cross-member, a right upright and a left upright, each of the cross-members and the uprights being provided with a plurality of ditches running in parallel longitudinally with regular intervals engraved on the back surface of the inboard peripheral portion thereof, along which the intermediate frame can be readily broken to remove excessive length so as to adjust the depth of the intermediate frame.

4,270,323
CONCRETE TANK

Francis X. Crowley, 24 Lenark Rd., Wellesley, Mass. 02181

Filed May 3, 1979, Ser. No. 35,615
Int. Cl.³ E04H 12/16
U.S. Cl. 52—224 14 Claims



1. A prestressed concrete tank, comprising:

a wall of precast concrete panels,

a plurality of discrete, cast-in-place, precompressed, horizontal, collar-shaped beams surrounding said wall of panels,

said beams being vertically spaced from each other along said wall,

the total circumferential area of said beams being less than the circumferential area of said wall of panels, and

means for precompressing said beams and panels during construction of said tank.

4,270,324

ASSEMBLY OF WALL ELEMENTS

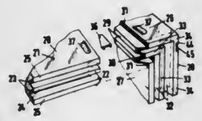
Rudolf Schaefer, Brauerstrasse 35, 4100 Duisburg, Fed. Rep. of Germany

Filed Oct. 31, 1978, Ser. No. 956,428

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1977, 2749874; Jul. 19, 1978, 2831652

Int. Cl.³ E04B *5/00*

U.S. Cl. 52—285 **17 Claims**



1. In a wall assembly formed of a plurality of wall elements each having opposite side faces and edge faces interconnecting said side faces; first connecting elements formed along peripheral zones of at least some of the wall elements; second connecting elements formed along peripheral zones of at least some of the wall elements; adjoining wall elements being joined together by a groove-and-tongue connection each formed of one of the first connecting elements and one of the second connecting elements; one of the first and second connecting elements forming each groove-and-tongue connection comprising a tongue formed on one wall element and the other of the first and second connecting elements forming each groove-and-tongue connection comprising a grooved part formed on another, adjoining wall element; the tongue and the grooved part of each groove-and-tongue connection being in an interfitting relationship with one another; the improvement wherein

(a) a first one of said wall elements carries one of said first connecting elements extending on a side face thereof and one of said second connecting elements extending on an edge face thereof; said first connecting element of said first wall element being at an angle other than zero with respect to and merging into said second connecting element of said first wall element in a corner zone of said first wall element; further wherein the tongue constituting one of said connecting elements of said first wall element has a slanted end portion of 45°; said end portion forming a transition into the grooved part constituting the other of said connecting elements of said first wall element;

(b) a second one of said wall elements carries two of said first connecting elements on one side face thereof; said two first connecting elements of said second wall element meeting in a corner zone of said second wall element;

(c) a third one of said wall elements carries two of said second connecting elements on two adjoining edge faces thereof;

(d) said first, second and third wall elements are in an adjoining relationship with one another;

(e) said first connecting element of said first wall element and one of said two second connecting elements of said third wall element together form a first one of said groove-and-tongue connections;

(f) said second connecting element of said first wall element and one of said two first connecting elements of said second wall element together form a second one of said groove-and-tongue connections; and

(g) the other of said two first connecting elements of said second wall element and the other of said two second connecting elements of said third wall element together form a third one of said groove-and-tongue connections.

4,270,325

DEVICE FOR INSTALLING TILES

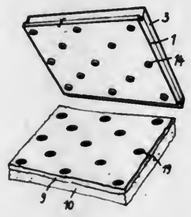
Luigi Mandelli, Via Ponti, Monteveglio, Province of Bologna, Italy

Filed Mar. 19, 1979, Ser. No. 21,537

Claims priority, application Italy, Mar. 21, 1978, 3367 A/78

Int. Cl.³ E04F *13/08*

U.S. Cl. 52—391 **3 Claims**



1. A device for installing tiles on a surface to be lined, comprising a support having a front side on which a tile is attached with the interposition of adhesives and a rear side provided with coupling means, anchoring means mounted on the surface to be lined and co-operating with said coupling means for detachably holding said support with the tile attached thereon, wherein according to the improvement said coupling means comprises tubular projections in spaced apart relation and said anchoring means comprises cup-like elements embedded in the surface to be lined and having a flange wherefrom a pair of concentrical rings project, said rings defining an annular interspace.

4,270,326

FIREPROOF DOOR FOR HOTELS, SKYSCRAPERS AND THE LIKE

Heinz Hölter, Gladbeck; Heinz Gresch, Dortmund-Derne, and Heinrich Igelbuscher, Gladbeck, all of Fed. Rep. of Germany, assignors to Industrie-Wert Beteiligungsgesellschaft mbH, Fed. Rep. of Germany

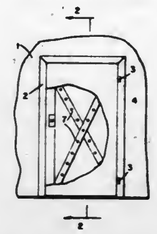
Filed Aug. 7, 1979, Ser. No. 64,599

Claims priority, application Fed. Rep. of Germany, Aug. 21, 1979, 2836489; Sep. 11, 1979, 2839499

Int. Cl.³ E04B *1/74*

U.S. Cl. 52—404 **12 Claims**

1. Fireproof door, especially for hotels, skyscrapers, or similar buildings consisting of a metal frame with metal fittings and an insulation layer made of fireproof material arranged inside the metal frame as well as a facing attached to the metal frame, wherein the insulation layer is made of an elastic, flexible, fireproof fabric made of ceramic fibers and the layer is fixed to the metal frame.



4,270,327

PANEL CARRIER AND PANEL CONSTRUCTION INCORPORATING SUCH CARRIER

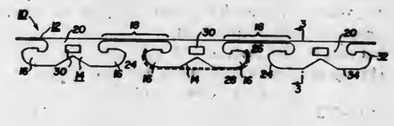
Paul Van Leeuwen, Kirkland, Canada, assignor to Hunter Douglas International N.V., Curaco, Netherlands Antilles

Filed Nov. 16, 1978, Ser. No. 961,266

Claims priority, application Canada, Oct. 31, 1978, 315365

Int. Cl.³ E04B *5/52*; E04C *2/42*

U.S. Cl. 52—488 **16 Claims**



1. A carrier for panels, the carrier capable of being secured to a support, comprising:

an elongated, generally planar strip-like base being bendable transverse to its length so as to generally follow the contour of the support; the generally planar strip-like base having connected thereto substantially a plurality of panel engaging elements connected to and extending outwardly from the base in spaced apart relation therealong; each said panel engaging element including a pair of panel engaging prongs, the panel engaging elements being disposed substantially in a common plane, each panel engaging element being so constructed that the distance between the prongs of each said pair remains the same and the engaging elements of the carrier remain generally co-planar when said base is bent.

4,270,328

FASTENER MEANS FOR INTERIOR TRIM PANEL

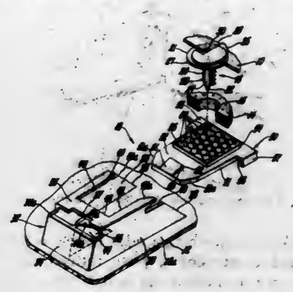
Norman B. Page, Sterling Heights, and Leslie W. Bursott, Utica, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 19, 1979, Ser. No. 105,276

Int. Cl.³ E04C *1/40*

U.S. Cl. 52—511 **3 Claims**

1. A fastener means to effect the attachment together of a first panel, having the shank of a push-in stud extending outward from one side thereof, and a second panel, said fastener means including a retainer base adapted to be fixed on said second panel, said retainer base having a fastener receiving opening therein for reception of the push-in stud, said opening being substantially larger than the maximum outside diameter of the shank of the stud; and, a multi-holed retainer having opposed inboard and outboard surfaces thereon and mounting means adjacent to its outer edges adapted to effect attachment of said multi-holed retainer to said retainer base so that said outboard surface faces away from the second panel with said multi-holed retainer positioned so as to overlie said enlarged opening in said retainer base while still permitting limited movement of said multi-holed retainer on said retainer base in a plane parallel to and spaced from the second panel, said multi-holed retainer having a plurality of spaced apart stud receiving holes therethrough of a size for the normal reception of the stud, said holes being grouped in the central portion of said multi-holed retainer and arranged in a pattern to overlie substantially the entire area of said enlarged fastener receiving opening, said stud receiving holes being spaced closely adjacent to each other so as to define a honeycomb cellular structure having a thin core wall separating adjacent said stud receiving holes, each said core wall adjacent to said outboard surface being tapered so as to define a substantially sharp edge at said outboard surface whereby to effect guiding of the shank of the push-in stud into an associated said hole during assembly of the second panel to the first panel and so as to permit the shank of the stud to effect movement of said multi-holed retainer as the push-in stud is inserted into the associated said stud receiving hole to effect substantially alignment of the stud therewith.



4,270,329

INSULATED WALL AND WALL PART

Alvin E. Moore, 8712 Manisi Way, Diamondhead, Bay St. Louis, Miss. 39520

Filed Apr. 26, 1979, Ser. No. 33,723

Int. Cl.³ E04C *1/06*

U.S. Cl. 52—576 **4 Claims**



1. A transportable wall panel, including:

a can-supporting element;

at least two bars, positioned at opposite edge portions of said can-supporting element, at angles with respect to said element;

a first tier of cans on said can-supporting element, between said bars;

a second tier of cans, superposed on said first tier;

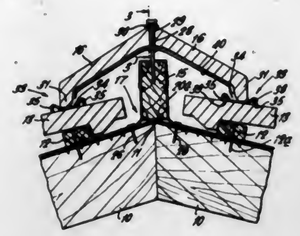
at least one other tier of cans superposed on said second tier;

the top tier of cans being spaced downward and inward from the top edges of said bars;

insulating material on said top tier, between said bars, in the space between the top cans and said top edges of said bars; and

a substantially planar, panel-reinforcing element over said insulating material, and connected to upper edge portions of said bars.

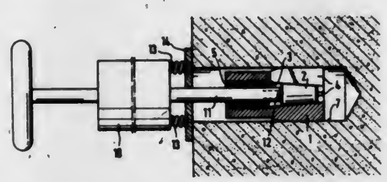
4,270,330
RIDGE BATTEN BRACKET
Roger Townsend, Reigate, England, assignor to Redland Roof Tiles Limited, Reigate, England
Filed Aug. 21, 1979, Ser. No. 69,101
Claims priority, application United Kingdom, Aug. 25, 1978, 34626/78
Int. Cl.³ E04B 1/38
U.S. Cl. 52—712 4 Claims



1. A bracket for attaching a ridge batten to rafters of a roof structure and comprising a plate formed to provide two aligned first portions extending in opposite directions from a center line of the bracket, and including means for fixing said first portions to rafters, and two second portions offset from one another and extending in opposite directions from the center line one on each side of and substantially parallel to the first portions, the second portions including integrally formed pointed tangs and in which the second portions are bent in situ to engage at spaced locations at least three sides of the ridge batten and are secured thereto by the tangs.

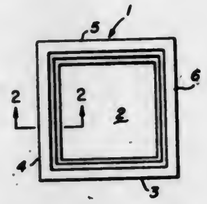
2. A bracket as claimed in claim 1 in which the second portions each engage all four sides of the ridge batten.

4,270,331
METHOD OF SECURING AN EXPANSION DOWEL INCLUDING A METALLIC EXPANSION SLEEVE
Gusztav Lang, Munich, and Peter Mauthe, Neu-Ulm, both of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Furstentum, Liechtenstein
Filed Mar. 8, 1979, Ser. No. 18,852
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1978, 2810503
Int. Cl.³ E04B 1/49; E21D 20/00
U.S. Cl. 52—744 18 Claims



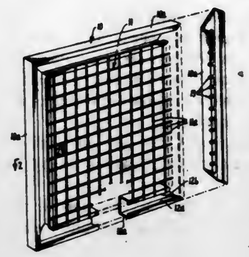
1. Method of securing an expansion dowel in a borehole in a receiving material where the expansion dowel comprises an axially elongated metal expansion sleeve having a leading end which is inserted first into the borehole and a trailing end, the sleeve has an axially extending bore therethrough axially extending slots are formed in the sleeve extending radially outwardly from the bore to the outside surface of the sleeve with the slots extending from the leading end of the sleeve to a plane extending transversely of the axis of the sleeve intermediate the leading and trailing ends, the bore is cylindrically shaped and threaded from the trailing end for a portion of the axial length of the bore and the bore extending from the leading end is frusto-conically shaped toward the cylindrically shaped portion and the diameter of the frusto-conically shaped portion increases from the leading end to the diameter of the cylindrically shaped portion, a frusto-conically shaped expanding cone is positioned in the frusto-conically shaped portion of the bore and the cone has a maximum diameter smaller than the diameter of the cylindrically shaped part of the bore and is shaped complementary to the frusto-conically shaped portion of the bore, the method comprising the steps of inserting the sleeve into the borehole and inserting the cone into the frusto-conically shaped portion of the bore and displacing the cone axially through the bore toward the leading end and expanding the portion of the sleeve containing the slots radially outwardly into holding engagement with the surface of the borehole with the portion of the sleeve located axially rearwardly of the frusto-conically shaped portion remaining in spaced relationship from the surface of the borehole, injecting a flowable substance into the bore in the sleeve so that the substance flows outwardly through the slots into the open spaces between the outside surface of the sleeve and the juxtaposed surface of the borehole, wherein the improvement comprises using a corrosion prevention material as at least a part of the flowable substance and depositing an enclosing layer of the material for protecting the expansion sleeve against corrosion, and using a pressure generating injection member having an outlet opening between the trailing end of the cone and the trailing end of the sleeve for injecting the flowable substance, and introducing the outlet opening into the bore within the expansion sleeve rearwardly of the cone.

4,270,332
WINDOWS AND METHOD OF MAKING THE SAME
George W. Montrouil, Palo Alto, Calif., assignor to Montrouil Enterprises, Inc., Palo Alto, Calif.
Division of Ser. No. 603,046, Aug. 8, 1975, Pat. No. 4,115,964.
This application Dec. 30, 1976, Ser. No. 755,642
Int. Cl.³ E04C 1/34
U.S. Cl. 52—772 12 Claims



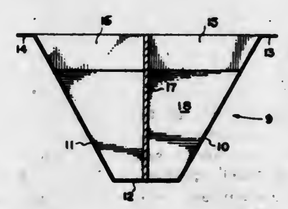
1. A window frame assembly comprising:
a U-shaped sub-framing member;
a T-shaped main framing member;
an L-shaped facing member;
a rod member;
a rod bearing member having a hole for receiving and supporting said rod member such that said rod member is free to rotate therein;
a U-shaped glazing stop;
a non-removable snap-on cover;
means including screw means in said glazing stop for attaching said L-shaped facing member to said main framing member of forming a first U-shaped channel, said first U-shaped channel being adapted for placement over said U-shaped sub-framing member;
means including screw means in said glazing stop for attaching said U-shaped glazing stop to said main framing member for forming a second U-shaped channel; said second U-shaped channel being adapted for retaining a glazing product;
means for placing rod bearing block member at a selected location in said second U-shaped channel; and
means for non-removably inserting said snap-on cover between the legs of said U-shaped glazing stop.

4,270,333
SECURITY SCREEN
Richard M. Singer, Lafayette, Calif., and Charles H. Seidl, Kane, Pa., assignors to Kane Manufacturing Corporation, Kane, Pa.
Division of Ser. No. 19,344, Mar. 12, 1979, Pat. No. 4,221,038.
This application Apr. 3, 1980, Ser. No. 136,942
Int. Cl.³ B23P 15/12; E04C 2/38
U.S. Cl. 52—818 3 Claims



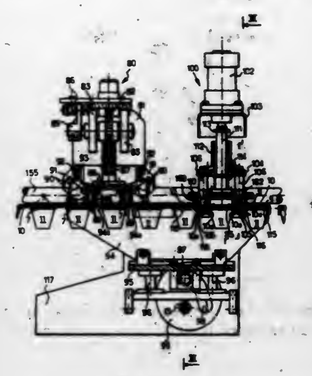
1. A screen product comprising:
a rectangular frame formed with parallel upper and parallel lower side members, each side member having a substantially rectangular cross section defined by a front wall, parallel inner and outer side walls and a pair of flanges, each flange extending inwardly from one side wall toward the other flange and being substantially parallel to said front wall, said pair of flanges defining an opening therebetween, the inner side wall and one flange connected thereto being formed with a plurality of slots spaced equal distances apart along the side member; and an interlacing of wire rods, said rods being interlaced on a center-to-center distance equal to the spacing between slots formed in the inner side walls and connected flanges of said side members.

4,270,334
REINFORCING STRUCTURE
Fredrick L. Bender, Saginaw, Mich., assignor to Bender's Sales & Service, Inc., Saginaw, Mich.
Filed Aug. 6, 1979, Ser. No. 64,013
Int. Cl.³ E04C 2/34
U.S. Cl. 52—828 7 Claims



1. A reinforcing structure for attachment to one side of a member to be reinforced, said structure comprising an elongate, trough-like, uniform width body independent of said member, said body having a base and side walls diverging outwardly from opposite edges of said base and terminating in co-planar free ends; an elongate strut fixed to said base between said edges of said base and extending outwardly from said base between said side walls, said struf having a free edge flush with the free ends of said side walls; a plurality of ribs fixed to said side walls and to said strut and spaced along the length of said body; and means carried by said body for attaching the latter to said member.

4,270,335
METHOD OF AUTOMATIC PACKAGING OF MATERIALS IN CONTAINERS AND MACHINE FOR CARRYING OUT THE SAID METHOD
Edgar Dardaine, Sorel-Mousel, France, assignor to E. P. Remy et Cie, Dreux, France
Filed Jan. 21, 1979, Ser. No. 50,793
Claims priority, application France, Jan. 23, 1978, 78 18871
Int. Cl.³ B65B 61/26
U.S. Cl. 53—411 15 Claims

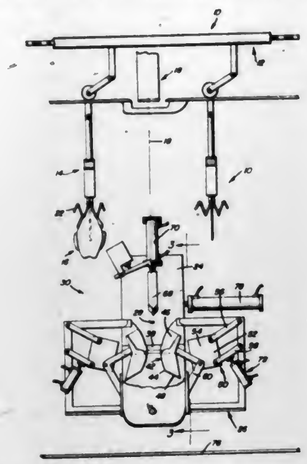


1. A method of automatically packaging materials into containers, the method including conveying a plurality of flat horizontally disposed retainer blanks in sequence along a predetermined path, each retainer blank having a plurality of container-supporting apertures therein; inserting containers into the apertures of each retainer blank; filling the containers with a product material; individually closing each container; and bending down two opposed marginal portions of each retainer blank to form substantially vertical sides, wherein the improvement comprises:
marking at least one of said two marginal portions before said bending step.

4,270,336
DISTRIBUTED PLURAL STATION BAGGING SYSTEM FOR POULTRY
William F. Altenpohl, and Paul J. Altenpohl, both of High Point, N.C., assignors to W. F. Altenpohl, Inc., High Point, N.C.
Continuation-in-part of Ser. No. 956,994, Oct. 31, 1978, Pat. No. 4,221,106, which is a continuation-in-part of Ser. No. 845,231, Oct. 25, 1977. This application Feb. 8, 1979, Ser. No. 10,595
Int. Cl.³ B65B 5/00
U.S. Cl. 53—493 6 Claims

1. In combination with a conveyor establishing a common path of travel through a plurality of stations at which continuously moving products suspended from the conveyor are released in response to detection by a sensor at each of the stations and means at each of the stations for bagging the released products during an operational cycle of predetermined duration activated by the sensor, each of said bagging means having an element movable during the operational cycle activated by the sensor, a system for distributing the products for release amongst said stations to effect said bagging at a maximum rate, including an activity sensing lock-out device located at each of said stations engageable with the movable element for preventing operation of the sensor associated with a station at which the operational cycle of the bagging means is activated, whereby a product is conveyed along the path of travel of the

conveyor to a following station at which the bagging means is inactive, said movable element being a product packing ram



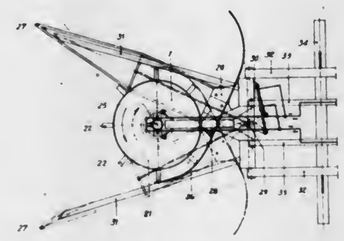
displaceable from a retracted position engaging the lock-out device to an extended position during said operational cycle.

4,270,337

HARVESTER OF SUGAR CANE OR SIMILAR PRODUCTS

Luiz A. C. D. R. Pinto, Ribeirao Preto, Brazil, assignor to Santal Equipamentos S.A. Comercio E. Industria, Brazil

Filed Aug. 8, 1979, Ser. No. 64,793
Claims priority, application Brazil, Aug. 17, 1978, 7805293[U]
Int. Cl.³ A01D *45/10*
U.S. Cl. 56—13.9 **13 Claims**



1. A harvester for sugar cane or the like comprising:

a frame;

suspension and steering means, including steering wheels, associated with the frame supporting the same for movement in a longitudinal direction;

rotary topping means mounted on said frame for cutting the cane tops;

feeding means mounted on said frame for feeding the cane in the longitudinal direction, said feeding means including inclined rotary cylinders having helicoidal protrusions formed thereon;

base cutter means mounted on said frame for cutting the cane bases, said base cutter means including a pair of rotary members, each being provided with knives along its periphery;

intermediate transport means mounted in said frame for transporting the cane including at least two cooperating rollers mounted for rotation about respective transversely extending axes;

chopping and elevating means mounted on said frame for chopping and then elevating the cane, said chopping and elevating means including a single shaft mounted for rotation about a substantially horizontal axis located in a vertical plane of substantial symmetry of the harvester and which extends in the longitudinal direction, at least one knife and an equal number of radially extending vanes mounted on said single shaft for rotation in respective planes transverse to said shaft axis of rotation, a substantially cylindrical member enclosing at least a portion of said single shaft having a cane inlet formed in a front wall thereof located below the axis of rotation of said single shaft and a cane outlet formed on an upper wall thereof, a directional duct member located over said cane outlet and mounted for rotation about a substantially vertical axis, said directional duct defining a substantially closed passageway which is inclined upwardly and towards a lateral side of the harvester;

cleaning means mounted on said frame proximate to said directional duct for extracting trash from the cane being cut; and

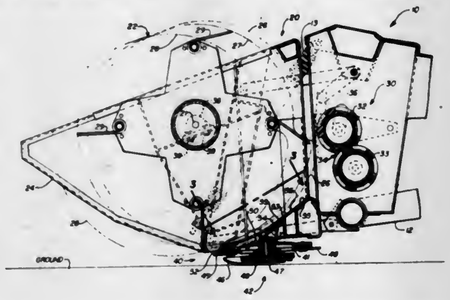
means for driving said harvester and the components thereof including an engine, at least one hydraulic pump, drive transmission means and driving mechanisms.

4,270,338

CROP HARVESTING MACHINE

Lawrence M. Halls, New Holland, Pa., assignor to Sperry Corporation, New Holland, Pa.

Filed Dec. 10, 1979, Ser. No. 102,180
Int. Cl.³ A01D *14/00*
U.S. Cl. 56—14.4 **18 Claims**



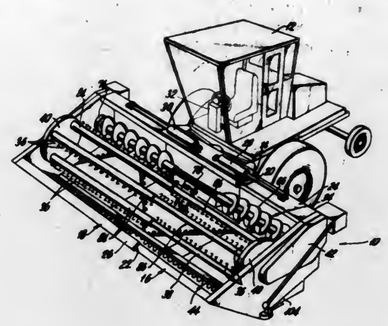
1. In a crop harvesting machine having a mobile frame adapted for movement over a field; a transverse cutterbar supported by said frame, said cutterbar having a plurality of rotatable cutter units; a rotatable crop conditioning means mounted on said frame rearwad of said cutterbar for conditioning severed crop material; a reel mounted on said frame above and forward of said cutterbar, said reel including an axis of rotation forward of said cutterbar, said reel having a plurality of tines rotatable about said axis of rotation, said reel being positionable such that said tines can engage crop material to pull it rearwardly toward said cutterbar and convey severed crop material towards said crop conditioning means; and drive means for rotating said reel, said conditioning means and each said cutter unit, the improvement wherein each said cutter unit comprises a bottom driven rotary disc cutter, said cutterbar including a generally concave shield, relative to said reel, forming a substantially continuous guide surface extending over each said disc cutter toward said crop conditioning means to cooperate with said reel in conveying severed crop material thereto, each said disc cutter including at least one cutter blade which, upon rotation of said disc cutter, extends forwardly beyond said arcuate shield.

4,270,339

VARIABLE WIDTH TOOL ATTACHMENT FOR USE WITH A VEHICLE

Hunter Wolfe, 121 Yardley Ave., Fallsington, Pa. 19054

Filed Feb. 9, 1978, Ser. No. 876,313
Int. Cl.³ D01H *13/00*; E01H *5/00*
U.S. Cl. 56—95 **2 Claims**



1. A variable width tool attachment for use with a vehicle comprising an overall tool formed by two tool portions, said two tool portions being slidably mounted for mutual relative movement in the direction generally normal to the direction of intended vehicle travel, means operatively associated with said overall tool to move said two tool portions relative to each other in the direction generally normal to the direction of intended vehicle travel, said two tool portions being slidably movable from a first position forming an overall tool of minimum width to a second position forming an overall tool of maximum width, said two tool portions being aligned generally coincidently and formed with means for storing at least a part of one said tool portion within the other said tool portion when said overall tool is in said first position of minimum width, said two tool portions being formed and aligned to present, in both said first position and said second position, an overall tool having a substantially continuous and uninterrupted lower lip for scooping matter immediately contiguous the earth surface over which the vehicle is driven, finger gathering means comprising a driven rotatable drum having telescoping bars freely rotating therein and revolving thereon, said bars comprising concentric cylindrical members being C-shaped in cross section and formed with fingers extending radially outwardly from the opened portion of each C-shaped cross section, the fingers of one portion of each telescoping bar being positioned to fit within said space portion of the remaining part of the telescoping bar upon the compression of one bar within the other.

4,270,340

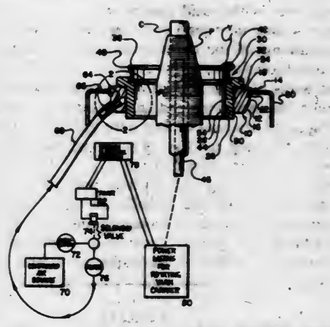
ROTATING RING YARN SPINNING OR TWISTING APPARATUS AND METHOD

Joe B. Bascom, and James E. Donnelly, both of Gastonia, N.C., assignors to Spin-O-Magic, Inc., Gastonia, N.C.

Filed Jan. 19, 1979, Ser. No. 4,710
Int. Cl.³ D01H *7/56, 1/24*
U.S. Cl. 57—75 **12 Claims**

1. An air-bearing supported spinning or twisting ring apparatus comprising a ring holder formed with an axially extending circular wall portion and a generally radially extending wall portion, a ring member freely rotatably mounted within said ring holder and having a circular wall portion and a radial wall portion disposed in closely spaced relation to said circular wall and said radial wall, respectively, of said ring holder to form communicating narrow axial and radial annular spacings therebetween to receive air for rotatably supporting said ring member in said ring holder, thereby forming said air-bearing supported apparatus, at least one of said circular wall portions having an annular plenum cavity disposed in generally open, unencumbered, and substantially continuous communication with said narrow axial spacing, means for admitting pressurized air to said cavity, and a yarn traveler mounted on said ring member for sliding movement therearound.

7. An air-bearing supported spinning or twisting ring apparatus comprising a rotatable yarn carrier for receiving yarn thereon, power means for rotating said yarn carrier, means for selectively de-energizing said power means, a freely rotatable ring member disposed around said yarn carrier and having a yarn traveler slidably carried on said ring member for engagement and sliding rotation thereabout by said yarn, air-bearing means for rotatably supporting said ring member, means for



supplying air to said air-bearing means for said supporting including selectively operable means for reducing the flow of air to said air-bearing means for said supporting, and control means interconnecting said de-energizing means and said air flow reducing means for operation of said air flow reducing means after said de-energizing of said power means, said control means including selectively adjustable timer means for delaying the operation of said air flow reducing means for a predetermined time after said de-energizing means has been operated to cause said rotating ring member and said rotating yarn carrier to decelerate in predetermined relation to one another whereby suitable tension is maintained in said yarn by said traveler throughout said deceleration.

4,270,341

METHOD OF MAKING A SHAPE-STRANDED ROPE

Mikhail F. Glushko, prospekt Shevchenko, 15/5, kv. 17; Viktor K. Skalatsky, ulitsa Zhukovskogo, 5, kv. 25; Anatoly D. Zakhryamin, ulitsa Yaroslavskogo, 45, kv. 14, and Gennady F. Shamrai, prospect Shevchenko, 15/5, kv. 17, all of Odessa, U.S.S.R.

Filed Dec. 15, 1978, Ser. No. 969,890
Int. Cl.³ D07B *5/10, 1/16*
U.S. Cl. 57—215 **9 Claims**



1. A method of making a shape-stranded rope, including:

providing a core with a sheathing of a deformable material;

twisting round wires into strands by winding these round wires in at least one layer about said core with the sheathing of the deformable material;

subjecting the strand thus formed to plastic drawing until each said round wire acquires a wedge-like profile, said plastic drawing forcing the wires adjoining the sheathing of said core to become partly embedded in this sheathing, and the strand attains a substantially smooth peripheral surface; following said plastic drawing, compacting the strand thus obtained into a shaped profile, said compacting of the strand into the shaped profile is effected until some of the wires embedded in said sheathing engage said core; and

twisting the strands thus obtained into the rope.

6. A shape-stranded rope comprising

strands of a shaped profile;

a core of each said strand with a sheathing of a deformable material thereabout, said core including wire members enclosed within said sheathing;

wires wound in at least one layer about said core with said sheathing of the deformable material and forming said strand jointly with said core;

said wires of each said strand having a wedge-like profile with the narrowing end facing said core, the wires adjoining said sheathing of said core being partly embedded in said sheathing and having points of engagement with said wire members of said core;

said wires having straightline portions in cross-section thereof and in said strands owing to their wedge-like cross-sectional shape, engaging one another along helical surfaces and jointly presenting a substantially smooth peripheral surface of the respective strand.

4,270,342

METHOD OF OPERATING A GAS TURBINE PLANT

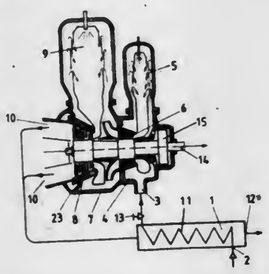
Paul Zaugg, Baden, Switzerland, assignor to BBC Brown, Boveri & Co. Ltd., Baden, Switzerland

Filed Feb. 5, 1979, Ser. No. 9,531

Claims priority, application Switzerland, Jun. 16, 1978, 6573/78

Int. Cl.³ F02C 6/00

U.S. Cl. 60—39.04 **2 Claims**



1. In a method of operating a gas turbine plant having a turbine incorporating a high-pressure section having a high-pressure housing and a low-pressure section having a low-pressure housing, each of which has operatively connected therewith a respective high-pressure combustion chamber and low-pressure combustion chamber, and wherein the combustion air is preheated in a pre-heater, the improvement comprising the steps of:

initially heating the combustion air in the pre-heater prior to entry thereof into the high-pressure combustion chamber;

flushing the inner walls of the housing of the high-pressure section of the turbine by means of the air which is pre-heated in the pre-heater before such air enters the high-pressure combustion chamber, in order to thereby heat-up such inner walls of the housing to a predetermined temperature;

expelling exhaust gases from the high-pressure section of the turbine into the low-pressure section; and

flushing by means of said expelled exhaust gases the low-pressure housing of the turbine prior to entry of such exhaust gases into the low-pressure combustion chamber.

4,270,343

METHOD AND APPARATUS FOR RECOVERY OF ENERGY FROM BLAST FURNACE EXHAUST GAS

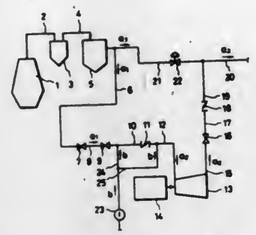
Takeshi Shirato, Tokyo, Japan, assignor to Mitsui Engineering & Shipbuilding Co., Ltd., Tokyo, Japan

Filed Sep. 19, 1978, Ser. No. 943,796

Claims priority, application Japan, Dec. 5, 1977, 52-145188

Int. Cl.³ F02C 7/00

U.S. Cl. 60—39.05 **7 Claims**



1. A method for recovering energy from high pressure exhaust gases containing dust by utilizing an axial-glow turbine, said method comprising saturating a high pressure exhaust gas containing dust with water vapor, adding additional water maintained at a temperature lower than the temperature of the saturated gas to said saturated gas by continuous spraying in an amount corresponding to 0.5 to 5% by weight of the flow rate of the saturated gas upstream of an axial-flow turbine to cool the saturated gas and form a sufficient amount of mists in the gas by condensation of water vapor, and feeding the gas to the axial-flow turbine.

4,270,344

HYBRID DUAL SHAFT GAS TURBINE WITH ACCUMULATOR

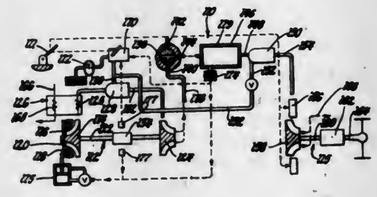
Mason K. Yu, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 907,894, May 19, 1978, Pat. No. 4,173,121. This application Jul. 18, 1979, Ser. No. 58,685

The portion of the term of this patent subsequent to Nov. 6, 1996, has been disclaimed.

Int. Cl.³ F02C 3/10

U.S. Cl. 60—39.16 R **1 Claim**



1. An automotive gas turbine engine comprising: a gasifier spool having a compressor on one end thereof and a gasifier turbine on the opposite end thereof, means including a variable area inlet for controlling air flow to said compressor during operation of said gasifier spool, a power turbine, a primary burner receiving air from said compressor and operative to produce motive fluid for driving said gasifier turbine, means including a thermally insulated accumulator and a secondary burner to receive exhaust flow from said gasifier turbine, means including a variable area nozzle to control flow from said accumulator and said secondary burner to said power turbine, control means operative on engine starting to open said variable area inlet and to direct fuel to said primary burner until the gasifier turbine increases its speed to produce a first predetermined charge pressure in said accumulator, said control means including a pressure sensor operative following attainment of said predetermined accumulator pressure to close said inlet and cut back fuel flow to a predetermined idle level in said primary burner, said idle fuel flow level to said primary combustor being selected to maintain said gasifier spool at eighty-five to ninety-five percent of its full design speed, said control means including a manual operator concurrently controlling said variable area nozzle to direct a controlled amount of motive fluid from said accumulator to said power turbine to meet the vehicle power requirements, said control means further being operative to control fuel flow to said secondary burner to maintain a desired power turbine inlet temperature schedule to meet the driver demanded vehicle output power, and said pressure sensor detecting the pressure level in said accumulator during road operation and operative when the pressure level in said accumulator falls below the maximum predetermined charge pressure to open said variable area inlet and to add fuel to said primary burner whereby the gasifier spool will accelerate to recharge the accumulator to maintain the maximum predetermined pressure level therein whereby optimized gasifier section fuel consumption is attained and increased power turbine pressure ratios are maintained, a regenerator having a compressed air pass receiving all engine air for preheat prior to its entry into said primary burner, and a hot side gas pass in said regenerator receiving all exhaust gas from said power turbine for preheating air flow through said compressed air pass whereby exhaust heat energy recovery is placed in the cycle prior to control of fuel flow entry into either said primary burner or said secondary burner to optimize engine thermal efficiency.

4,270,345

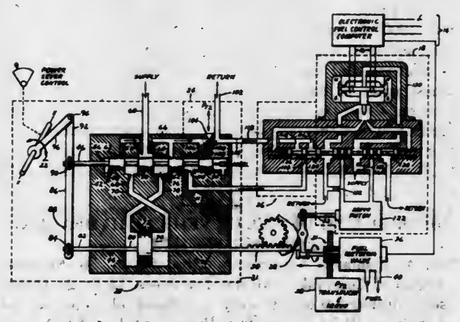
INTEGRATED CONTROL SYSTEM FOR A GAS TURBINE ENGINE

Howard B. Kast, Fairfield, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Sep. 15, 1978, Ser. No. 942,738

Int. Cl.³ F02C 9/04

U.S. Cl. 60—39.28 R **5 Claims**



1. An improved integrated control system for a gas turbine engine which includes:

fuel control means for metering the flow of fuel to said engine;

position signal generating means comprising a backup control means for providing a position signal to said fuel control means, said fuel control means operating to meter the flow of fuel to said engine in accordance with said position signal;

biasing means comprising a primary control means for providing a bias signal for biasing said position signal during a normal mode of operation when said biasing means is in an operative condition;

wherein the improvement comprises:

said backup control means comprises a servounit which is connected to a source of fluid under pressure and is in fluid communication with a power piston, said power piston moving in response to fluid received from said servounit to provide said position signal, said servounit also including a plurality of independent fluid return conduits;

said primary control means includes a fail-fixed servovalve connected in series with one or more of said independent fluid return conduits;

interfacing means for automatically limiting the rate of change of said position signal to limit the rate at which the flow of fuel to said engine may be changed during a failed mode of operation when said biasing means is in an inoperative condition with said servovalve acting as said interfacing means when said primary control means is in said inoperative condition to block one or more of said independent fluid return conduits in order to limit the rate of fluid return flow out of said servounit, thereby limiting the rate of movement of said power piston.

4,270,346

FUEL CONTROL SYSTEMS FOR GAS TURBINE ENGINES

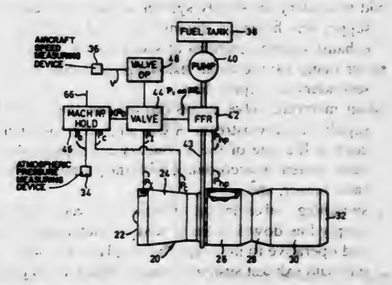
Lindsay G. Dawson, Loughborough, England, assignor to Rolls-Royce Limited, London, England

Continuation of Ser. No. 808,346, Jun. 20, 1977, abandoned. This application Jun. 27, 1979, Ser. No. 52,661

Claims priority, application United Kingdom, Jun. 24, 1976, 26317/76

Int. Cl.³ F02K 3/00; F02C 9/04

U.S. Cl. 60—243 **8 Claims**



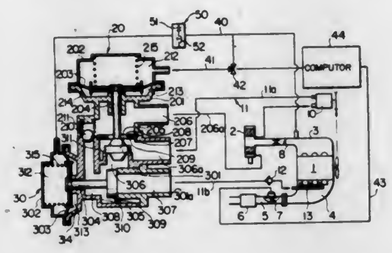
1. A fuel control system for a gas turbine engine having predetermined engine parameters and used with an aircraft, said fuel control system comprising: a fuel flow regulator for varying flow of fuel to the engine in accordance with certain of the predetermined engine parameters, said fuel flow regulator having a normal mode of operation in which said regulator varies flow of fuel in accordance with a first set of the engine parameters supplied thereto to produce a thrust level from the engine which is constant or increases with increasing aircraft speed, said first set including a parameter whose value varies with aircraft speed, and said regulator having a cruise mode of operation in which said regulator varies flow of fuel in accordance with a second set of engine parameters supplied thereto to produce a thrust level from the engine which decreases with increasing aircraft speed, said second set including a parameter whose value does not vary with aircraft speed and which replaces said parameter whose value varies with aircraft speed; and control means for selectively supplying one of said first and second set of engine parameters to said fuel flow regulator to provide for said normal or said cruise mode of operation.

4,270,347

EXHAUST GAS PURIFICATION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Akio Fukuba, Kariya; Michio Morishita; Kenji Tanaka, both of Toyota; Toshinobu Nishi, Nagoya, and Hideaki Ouchi, Oobu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Jul. 23, 1979, Ser. No. 60,631
Claims priority, application Japan, Jul. 21, 1978, 53-100875[U]
Int. Cl.³ F01N 3/10
U.S. Cl. 60—276 9 Claims



1. An exhaust gas purification system for an internal combustion engine comprising:

a secondary air supply system for supplying a secondary air into the exhaust system of the engine,

an air-fuel ratio sensor disposed in the engine exhaust system to detect the oxygen content of the engine exhaust gases and emit an electric output signal representative of the oxygen content of the exhaust gases thus detected, and

a three-way catalyst means disposed in the exhaust system for facilitating purification of the exhaust gases,

said secondary air supply system including a secondary air supply line having a downstream end connected to said exhaust system upstream of said catalyst means,

an air pump having an air discharge port connected to said secondary air supply line,

an air metering valve means disposed in said secondary air supply line downstream of said air pump and operative to control the rate of the secondary air supply into the exhaust system in accordance with the outputs of the air-fuel ratio sensor, and

a switching valve means disposed in said secondary air supply line downstream of said air metering valve means and operative to interrupt the supply of the secondary air into said exhaust system during a high load engine operation,

wherein said air metering valve means includes a first valve member and a first valve actuator operatively associated therewith,

said switching valve means includes a second valve member and a second valve actuator operatively associated therewith, and

said air metering valve means and said switching valve means have a common valve housing structure disposed in said secondary air supply line, and

wherein said valve housing structure defines therein a first air passage forming a part of said secondary air supply line and comprising an air inlet port, a first air outlet port and a chamber therebetween,

said valve housing structure also defining therein a second air passage having an upstream end connected to said chamber and terminating in a second air outlet port,

said second air passage including a check valve disposed therein to permit only the flow of air from said chamber to said second air outlet,

said valve housing structure further defining therein a third air passage interconnecting said air inlet port and said second air passage downstream of said check valve,

said first valve member being disposed in said valve housing structure between said chamber and said third air passage to control the communication between said air inlet port and said chamber and the communication between said air inlet port and said third air passage,

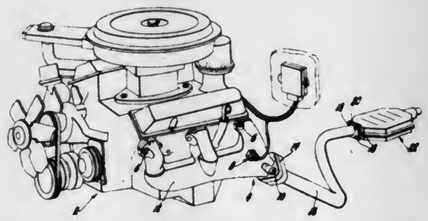
said second valve member being disposed in said chamber to interrupt the communication between said chamber and said first air outlet port and communicate said chamber with said second air passage during a high load engine operation.

4,270,348

MATERIALS AND METHOD FOR PREVENTING HIGH TEMPERATURE SEIZE BETWEEN METAL PARTS

Robert F. Winberg, Burton, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 23, 1979, Ser. No. 59,644
Int. Cl.³ F01M 7/10; C10M 1/10, 3/02, 5/02
U.S. Cl. 60—323 4 Claims



3. In an internal combustion powered automotive vehicle comprising an engine block, a manifold mechanically fastened thereto for collecting exhaust gases, and exhaust conduit components downstream of the manifold, it being desired to prevent seize between relatively stationary components after extended operation at elevated temperatures of up to about 1000° C., a method comprising interposing a layer of discrete particles between the mating surfaces of adjacent components, which particles are initially carried in a polymeric binder medium and are comprised of one or more members taken from the group consisting of glass having a fusion point above about 1000° C., copper oxide, aluminum oxide, and silicon oxide, and said particles being in the size range of about 2 to 100 microns, and said particles being substantially inert to exhaust gases at elevated temperatures below their fusion points but above the temperature at which the binder medium is destroyed such that the particles provide antiseize characteristics to said components after said extended operation.

4,270,349

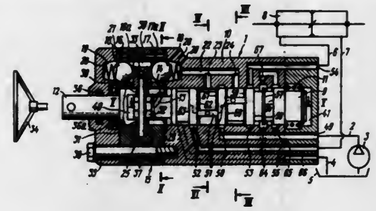
DISTRIBUTING DEVICE OF VEHICLE HYDRAULIC CONTROL SYSTEM

Boris A. Ljubimov, Verkhnyaya ulitsa, 18, kv. 30, Moscow; Evgeny N. Chervyakov, Mozhaiskoe shosse, 38, kv. 36, Odintsovo Moskovskoi oblasti; Jury I. Sudakov, ulitsa akademika Komarova, 10, kv. 45; Iraida S. Pogorelova, Uralskaya ulitsa, 5, kv. 138, both of Moscow; Petr Y. Pritsker, prospekt Lenina, 39, kv. 11, Minsk; Igor I. Kandrusev, ulitsa D. Serdina, 24, kv. 45, Minsk, and Zilek B. Liberfarb, ulitsa Karla Marxa, 25, kv. 41, Minsk, all of U.S.S.R.

Filed Mar. 14, 1978, Ser. No. 886,773
Int. Cl.³ F16D 31/02
U.S. Cl. 60—384 3 Claims

1. A hydraulic steering system of a transport vehicle, comprising a hydraulic distributor connected by hydraulic lines to a servomotor, a pump and a tank, and having a hydraulic distributor control member connected by a screw and ball

transmission with a steering drive shaft, a hydraulic machine having working chambers, said hydraulic machine connected by hydraulic lines with the hydraulic distributor and employing a rotary member which serves to alter the volume of the working chambers of said hydraulic machine and said rotary machine being further mechanically connected by means with the control member of the hydraulic distributor and with the steering drive shaft for joint rotation and axial displacement of said control member, the steering drive shaft being capable of rotating relative to the rotary member of the hydraulic machine within a gap defining a degree of play ensuring a required displacement of the control member of the hydraulic distributor prior to actuation of said rotary member, and a pressure line connecting said pump with said servomotor, the improvement comprising said hydraulic machine including



two cylinder blocks with pistons, whose cylinders are arranged circumferentially in opposing pairs and having working chambers of the oppositely arranged cylinders on one side of the pistons in communication with each other via passage means and coupled in fluid communication with the hydraulic distributor, the rotary member of the hydraulic machine being disposed between the cylinder blocks and comprising a disk having profiled cams arranged in opposing pairs on the opposite end faces of the disk and engaging their respective pistons on the other side of said pistons, said disk being connected with the control member of the hydraulic distributor by means of a pin extending through the steering drive shaft, and the cylinder blocks and the end faces of the control member of the distributing device are formed with interconnected spaces therebetween.

4,270,350

APPARATUS AND METHOD FOR CONVERTING SOLAR ENERGY

Donald M. Chevalier, 248 - 15th Ave. South, Great Falls, Mont. 59405

Filed Oct. 25, 1978, Ser. No. 954,364
Int. Cl.³ F01K 27/00, 25/10
U.S. Cl. 60—516 18 Claims

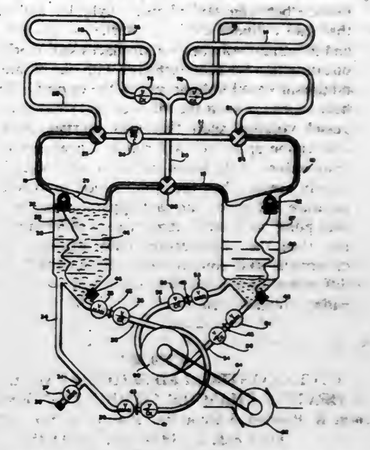
1. In an apparatus for converting solar energy to mechanical energy including first and second tubing members in which a refrigerant composition is alternately vaporized and condensed by alternate exposure of said tubing members to the sun's heating rays, the improvement comprising:

(a) first and second liquid containing reservoirs,

(b) a hydraulic motor driven by liquid passing between said first and second reservoirs,

(c) liquid conduit members extending between each of said reservoirs and said hydraulic motor for directing liquid therethrough,

(d) gas conduit members extending between each of said first and second tubing members and said first and second reservoirs for directing gas therebetween, and



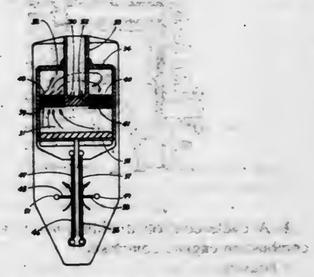
(e) valve means cooperating with said gas conduit members for limiting the flow of gas to one of said reservoirs from one of said tubing members at a time.

4,270,351

HEAT ENGINE AND THERMODYNAMIC CYCLE

John P. Kuhns, 1332 Kathryn St., Hurst, Tex. 76053

Filed Nov. 13, 1978, Ser. No. 960,233
Int. Cl.³ F01B 15/06
U.S. Cl. 60—517 4 Claims



1. A thermodynamic energy conversion apparatus comprising:

a. a variable volume, pressure tight vessel consisting essentially of a single cylinder and slidable, mating piston therewithin;

b. a plunger slidably and sealingly penetrating through a wall of said vessel to the outside;

c. at least a first heat exchanger mounted within said vessel on said plunger;

d. conduits through said plunger and sealingly connected with said first heat exchanger for heat transport between said heat exchanger and its respective external caloric reservoir serving as a first source for heat exchange;

e. check valve means to allow uni-directional flow of a working fluid past said heat exchanger responsive to relative movement between said plunger, cylinder and piston to transfer heat between said working fluid and said first heat exchanger at a first time in a cycle;

f. a second means for exchanging heat with a second source at an opposite time in said cycle from said heat exchange with said first heat exchanger and for preventing said

working fluid from exchanging heat with both said sources at the same time;

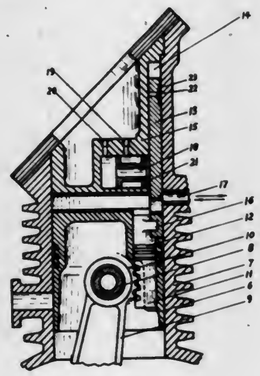
g. coordinated interconnecting means for effecting relative motion between said plunger, cylinder and piston such that said cylinder cyclicly alternates between maximum and minimum volumes and displaces said working fluid in one direction for heat exchange with one of said sources at minimum vessel volume and in the opposite direction for heat exchange with the other of said sources at maximum vessel volume; such that said thermodynamic energy conversion apparatus will run as a heat engine when the temperature differences between said sources is sufficiently greater than the compression ratio adiabatic temperature difference and said apparatus can be driven as a heat pump to create a temperature difference equal to or less than the compression ratio adiabatic temperature difference; said compression ratio adiabatic temperature difference being a function dependent on said vessel alternating volume cycle.

4,270,352

CYCLE-CONTROLLED SLIDING-VALVE IN A HEATING-CHAMBER COMBUSTION ENGINE

George K. Buergel, 6 Stone Rd., Plainview, N.Y. 11803

Filed Feb. 13, 1979, Ser. No. 11,856
Int. Cl.³ F02G 1/00
U.S. Cl. 60—517 15 Claims



1. A cycle controlled sliding valve in a heating chamber combustion engine, comprising:

a housing;

a cylinder defined within said housing;

a piston disposed for movement within said cylinder;

a piston-extension disposed for movement within said cylinder;

a connecting rod having an end pivotally connected to said piston;

a pinion carried by said end of said connecting rod;

a rack positioned within said cylinder and slidable therein, said pinion engaging said rack, and said rack engaging said piston-extension;

a heating chamber;

a path within said housing in communication with said heating chamber; and

an opening within said piston-extension positioned such that said path and said opening are aligned, thereby connecting the cylinder and the heating chamber, at least at some point during a working cycle of said piston,

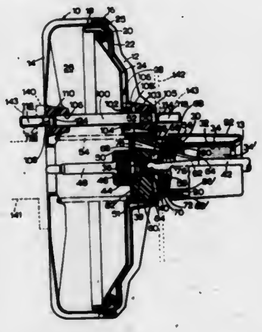
whereby said piston and piston-extension are capable of moving axially within said cylinder in a reciprocal manner during the working cycle of said piston, and said piston-extension is capable of moving axially within said cylinder relative to said piston as said connecting rod swings and causes said pinion to move the rack axially within said cylinder, said rack causing said piston-extension to move axially relative to said piston.

4,270,353

SERVO BOOSTERS FOR VEHICLE BRAKE SYSTEMS

Alfred W. Thomas, Saarbrucken, and Ulrich W. Danne, Bendarf-Sayn, both of Fed. Rep. of Germany, assignors to Girling Limited, Birmingham, England

Filed Aug. 24, 1978, Ser. No. 936,512
Claims priority, application United Kingdom, Oct. 20, 1977, 43644/77
Int. Cl.³ B60T 13/00
U.S. Cl. 60—547 R 26 Claims



1. In a servo booster assembly for vehicle brake systems comprising a housing having opposed walls, a movable wall positioned between said housing walls and dividing the interior of said housing into two chambers, an output member having an operative connection with said movable wall and operable through one of said housing walls, a control valve assembly having an operative connection with said housing, and an input member for operating said control valve assembly for controlling a supply of differential pressure to opposite sides of said movable wall, the invention comprising stationary force transmitting means extending through said movable wall from one to the other of said housing walls, means sealing said movable wall to said force transmitting means, and means for connecting said housing to a relatively fixed vehicle bulkhead in a position adjacent said force transmitting means with said force transmitting means being located to transmit substantially directly to said bulkhead reaction forces and substantially relieve said housing walls from said forces upon operation of said booster assembly, said housing walls being of a thickness and material which in the absence of said force transmitting means are incapable of accommodating the stresses of said reaction forces without excessive axial deformation.

4,270,354

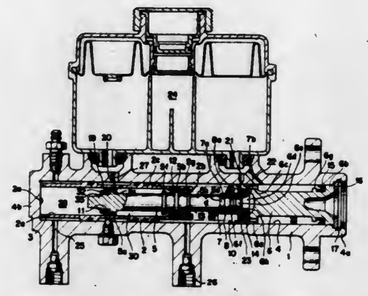
MASTER CYLINDER

Naganori Koshimizu, Yokohama, Japan, assignor to Tokico Ltd., Kanagawa, Japan

Filed Aug. 17, 1978, Ser. No. 934,592
Claims priority, application Japan, Aug. 19, 1977, 52/99353
Int. Cl.³ F15B 7/00
U.S. Cl. 60—581 4 Claims

1. A master cylinder construction comprising a cylinder having two piston chambers of different diameters, the smaller diameter piston chamber of said different diameter piston chambers comprising a cylindrical sleeve slidably received in said cylinder, a first piston and a second piston slidably disposed respectively in the smaller diameter piston chamber and the larger diameter piston chamber of said piston chambers, reduced diameter stems projecting from the opposing end portions of the pistons, respectively, a flange formed around

the outer periphery of each of said stems, a split sleeve consisting of at least two cooperating elements and having inwardly projecting portions on the inner circumferential surface thereof at the opposite ends respectively, said split sleeve being around said reduced diameter stems with the inwardly projecting portions engaging behind the respective flanges, a sleeve member around the outer circumference of the split sleeve portions for retaining the split sleeve portions in a cylindrical shape, said sleeve member having an annular outwardly extending flange at one end thereof, said one end of said sleeve member having transmitting means between said sleeve member and said second piston in the larger diameter piston cham-



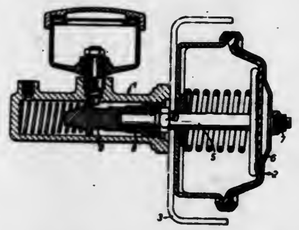
ber for transmitting a force to said second piston in the larger diameter piston chamber, a spring abutment projection located on the outer wall of said cylindrical sleeve which comprises the smaller diameter portion chamber of said piston chambers, said cylindrical sleeve further having an inwardly extending projection at the end adjacent said split sleeve for holding said first piston therein, a spring disposed around said sleeve member abutting against said annular outwardly extending flange and against said spring abutment projection for holding said cylindrical sleeve in said cylinder and said sleeve member on said split sleeve portions, and for causing said first and second pistons to return to a normal position after having been actuated.

4,270,355

MASTER CYLINDER AND ACTUATOR ASSEMBLIES

Martin Green, Birmingham, England, assignor to Girling Midland Rees Air Actuation Limited, Birmingham, England

Filed Jul. 20, 1978, Ser. No. 926,493
Claims priority, application United Kingdom, Jul. 20, 1977, 30541/77
Int. Cl.³ F15B 15/18
U.S. Cl. 60—593 8 Claims



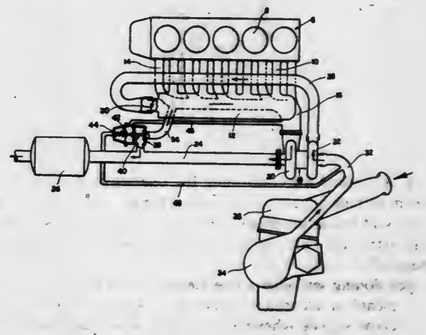
1. A master cylinder and actuator assembly for a vehicle comprising mounting means interposed between adjacent ends of said cylinder and said actuator assembly for mounting said master cylinder and actuator in operative relationship with respect to each other, a push rod extending from the actuator through the mounting means and being moveable between retracted and extended position, said push rod being engageable with a piston working in the master cylinder when moved towards its extended position, and stop means comprising a lateral projection on the push rod which is engageable with the mounting means for limiting the retracted movement of said push rod relative to the mounting means, said stop means being so located on said push rod relative to said mounting means that when the piston of the master cylinder is in its inoperative position and said push rod is in its retracted position, there is a clearance between the piston and the adjacent end of the push rod.

4,270,356

TURBOCHARGED ENGINE AND METHOD OF OPERATING SAME

Heinz-Dieter Will; Werner Dommes, and Hans-Werner Pölzl, all of Ingolstadt, Fed. Rep. of Germany, assignors to Audi NSU Auto Union AG, Neckarsulm, Fed. Rep. of Germany

Filed Sep. 19, 1978, Ser. No. 943,816
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1977, 2742251; Oct. 7, 1977, 2745153
Int. Cl.³ F02B 37/00
U.S. Cl. 60—602 7 Claims



1. An engine system comprising:

an internal-combustion engine having an air intake and an exhaust-gas output;

an exhaust-gas turbine connected to said exhaust-gas output and drivable by the pressure therein at a speed generally proportional to the exhaust-gas pressure;

a supercharger driven by said turbine and connected to said air intake of said engine to feed air to said engine at a pressure generally proportional to the turbine speed;

a valve connected across said turbine and openable to shunt engine exhaust gases around said turbine and thereby reduce said turbine speed and therewith the pressure at which said supercharger feeds air to said engine, said valve having

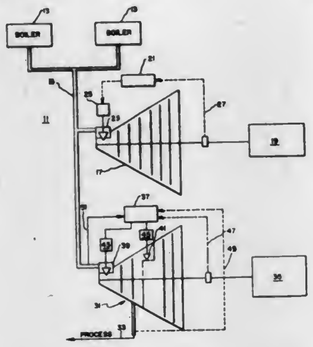
a valve seat having an inner edge defining a predetermined flow cross-sectional area, said seat being formed with a tapered region, and

a valve body having an end face engageable over said seat, of an area substantially greater than said flow cross-sectional area, and having an outer edge lying outside said inner edge of said seat and closely adjacent said tapered region when said valve is closed, said body being movable in a closing direction toward said seat and in an opening direction away from said seat, said outer edge forming with said tapered region an increasingly large flow cross section as said end face pulls away from said seat on displacement of said body in said opening direction, whereby the overall flow cross-section of said valve is uniformly increased as said valve opens; and

means responsive to engine speed, connected to said valve, and including a spring urging said valve body in said closing direction, said means being for opening said valve

above a predetermined engine speed and for generally proportionally decreasing said exhaust-gas pressure with increasing engine speed above said predetermined engine speed.

4,270,357
TURBINE CONTROL
Anthony J. Rossi, Leominster, and Donald F. Behringer, Ashburnham, both of Mass., assignors to General Electric Company, Lynn, Mass.
Filed Oct. 10, 1979, Ser. No. 83,345
Int. Cl.³ F01K 13/02
U.S. Cl. 60—660 6 Claims



1. A method for controlling the operation of an extraction steam turbine in accordance with a minimum inlet steam pressure; said extraction steam turbine including inlet valve means and extraction valve means; and, said method comprising the steps of:

positioning said inlet valve means and said extraction valve means in accordance with speed and extraction pressure error signals whenever the inlet steam pressure exceeds the minimum inlet steam pressure;

positioning said inlet valve means in accordance with an inlet pressure signal whenever the inlet steam pressure falls below the minimum inlet steam pressure; and,

positioning said extraction valve means in accordance with an inlet pressure signal and a speed signal whenever the inlet steam pressure falls below the minimum inlet steam pressure.

4,270,358
APPARATUS AND METHODS OF COOLING A HOT FLUID STREAM
Matloob Husain, Wheaton; Ban-Yen Lai, Willowbrook, and Richard L. Schmitt, Batavia, all of Ill., assignors to Chicago Bridge & Iron Company, Oak Brook, Ill.
Filed May 25, 1979, Ser. No. 42,364
Int. Cl.³ F28B 7/00, 1/02, 9/06
U.S. Cl. 60—693 27 Claims

1. Apparatus comprising:

a first heat exchanger sized to cool and/or condense a hot fluid stream passed into contact therewith by rejection of heat to a first cooling fluid up to an average predetermined temperature and flow of the first cooling fluid, with said heat exchanger having inadequate cooling capacity during peak cooling conditions,

means to pass the hot fluid stream through the first heat exchanger in indirect heat exchange with the first cooling fluid,

a second heat exchanger for cooling the hot fluid stream when heat rejection therefrom to the first cooling fluid alone provides inadequate cooling of the hot fluid stream in the first heat exchanger,

the second heat exchanger being arranged to be in a series or parallel position with respect to the first heat exchanger,

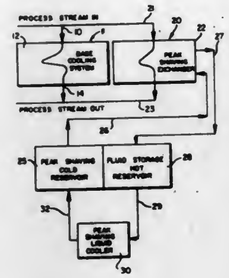
means to pass the hot fluid stream through the second heat exchanger,

a hot reservoir for a secondary cooling liquid when hot,

a cold reservoir for the secondary cooling liquid when cold,

the capacities of the hot and cold reservoirs being adequate to hold the entire volume of secondary cooling liquid for the peak cooling conditions,

a conduit from the cold reservoir to the second heat exchanger for supplying cold secondary cooling liquid in



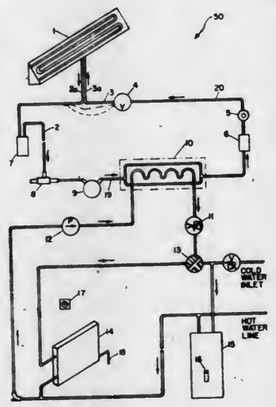
indirect heat exchange to the hot fluid stream passed through the second heat exchanger,

a conduit for withdrawing hot secondary cooling liquid from the second heat exchanger and delivering it to the hot reservoir,

a conduit communicating with the hot reservoir and a cooler for delivering hot secondary cooling liquid from the hot reservoir to the cooler to be cooled, and

a conduit communicating with the cooler and the cold reservoir for delivering cold secondary cooling liquid from the cooler to the cold reservoir.

4,270,359
SOLAR HEATING SYSTEM
Steven L. Hummel, 2403 N. Corona, Colorado Springs, Colo. 80907
Filed Dec. 7, 1978, Ser. No. 967,417
Int. Cl.³ F25B 27/00, 27/02, 13/00
U.S. Cl. 62—2 10 Claims



1. A closed circuit heating apparatus which is capable of extracting both solar and non-solar heat energy from the surrounding atmosphere and using such energy to heat air, water or other fluids, the apparatus comprising

a first heat exchanger means positioned outdoors so as to be capable of absorbing both non-solar heat from the surrounding atmosphere and solar heat directly from the sun's rays on a sunny day, said first heat exchanger including fluid flow channels through which a volatile fluid flows,

a compressor,

a first fluid flow conduit means connecting said first heat exchanger means with said compressor,

a second heat exchanger means, said second heat exchanger being capable of heating air, water, or other fluid,

a second fluid flow conduit means connecting said compressor with said second heat exchanger,

an expansion valve,

a third fluid flow conduit means connecting said second heat exchanger with said expansion valve,

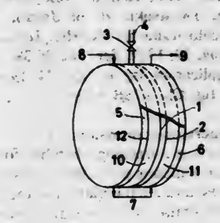
a fourth fluid flow conduit means connecting said expansion valve with said first heat exchanger, and wherein

portions of said first fluid flow conduit means and said fourth fluid flow conduit means nearest said first heat exchanger means are positioned sufficiently proximate to one another to provide for heat transfer therebetween.

8. In a method of extracting heat energy from outdoors and using it to heat air, water or other fluid, the method including circulating a volatile fluid through a first heat exchanger located outdoors wherein said fluid is changed from a liquid-vapor mixture to a heated vapor, passing said vapor through a first fluid flow conduit means to a compressor wherein it is further heated, passing said heated vapor through a second fluid flow conduit means to a second heat exchanger wherein it is used to heat air, water or some other fluid and is concurrently changed to a liquid, passing said liquid through a third fluid flow conduct means to an expansion valve wherein it is changed to a liquid-vapor mixture, and then passing said liquid-vapor mixture through a fourth fluid flow conduit means to the first heat exchanger,

the improvement comprising positioning said first heat exchanger so that it will be capable of being contacted by the sun's rays on a sunny day, and positioning portions of said first and fourth fluid flow conduit means near said first heat exchanger in close enough proximity that heat transfer between the fluids passing through each can occur.

4,270,360
DEVICE FOR STORAGE OF HYDROGEN
Masanori Nakane, Takatsuki; Yasuaki Osumi, Minoo; Hiroshi Suzuki, Ikeda, and Aakihiko Kato, Matsubara, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan
Filed Jan. 29, 1980, Ser. No. 116,481
Claims priority, application Japan, Mar. 19, 1979, 54/32937
Int. Cl.³ F17C 11/00
U.S. Cl. 62—48 6 Claims



1. A device for the storage of hydrogen, which comprises:

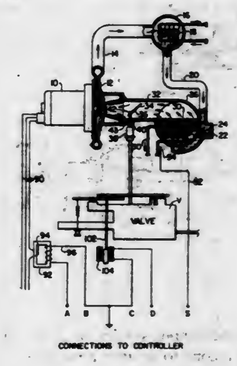
a container,

two porous plates opposed parallelly to each other across a fixed distance within the container and fastened to the inner wall of the container so as to divide the interior of the container,

two heating/cooling members disposed one each outside the porous plates and separated from the corresponding porous plates by a fixed distance, and

an alloy capable of storing hydrogen placed in the spaces intervening between the porous plates and the heating-/cooling members.

4,270,361
ENERGY MANAGEMENT CONTROLLER FOR CENTRIFUGAL WATER CHILLER
Michael A. La Barge, 3135 Bruce Dr., Fremont, Calif. 94538
Filed Mar. 14, 1979, Ser. No. 20,590
Int. Cl.³ G05D 23/32; F25B 41/04
U.S. Cl. 62—158 12 Claims



1. In the combination of a system for cooling including a loop for providing a flow of cooling fluid to a body to be cooled;

a heat exchanger for cooling said fluid supplied to said loop;

a compressor powered refrigeration cycle for cooling said exchanger having a flowing fluid for passing at least to an inlet from said exchanger to a compressor, a compressor outflow having thermal connection to a heat sink to dissipate heat from said loop and an inlet to said exchanger; and,

means for throttling the inlet to said compressor to adjust the power required to operate said compressor, and a control for changing said means for throttling, the improvement in said control comprising:

means for measuring the power output of said compressor in precisely predetermined increments of the full power output of the full power rating of said compressor;

means for measuring the temperature of cooling fluid in said loop connected to said loop;

thermostat means for determining whether the temperature in said loop is above or below a selected level and emitting respective above or below signals, said thermostat means connected to said means for measuring temperature;

a first timer having a setting for a sequential timed interval for periodically communicating therethrough above and below signals from said thermostat means at the end of timed intervals;

circuit means operable through said timer at the end of each said interval to select from said means for measuring the power output a greater incremental power setting in response to said above signal and a lower power setting in response to a below signal in said means for measuring the power; and,

means operably connected between said power measuring means and said means for throttling the inlet to said compressor for restricting the flow of refrigerant fluid to said

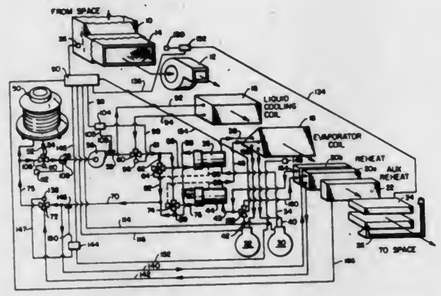
compressor to maintain the power of said compressor at the selected increment of full power.

4,270,362

CONTROL SYSTEM FOR AN AIR CONDITIONING SYSTEM HAVING SUPPLEMENTARY, AMBIENT DERIVED COOLING

Frederick N. Lancia; Albert O. Kesterson, both of Columbus; Edward K. Feeney, and Ralph C. Liebert, both of Worthington, all of Ohio, assignors to Liebert Corporation, Columbus, Ohio

Continuation-in-part of Ser. No. 779,744, Apr. 29, 1977, abandoned. This application Mar. 19, 1979, Ser. No. 21,638
Int. Cl.³ F25B *29/00, 41/00*
U.S. Cl. 62—173 32 Claims



1. In an air conditioning system of a variety treating air circulated within a zone to achieve a predetermined temperature within said zone and having a refrigeration system including operatively associated evaporator coil means, condenser means and one or more compressors, said condenser means being associated in heat exchange relationship, by fluid within input and output conduit means, with heat exchanger means situated within an ambient environment remote from said zone, said system further including cooling coil means positioned to effect the cooling of air directed to said evaporator coil means and connected with said conduit means through valve means for selectively receiving said fluid, said valve means being actuable to be selectively positioned in orientations between fully open and closed positions by voltage level responsive actuator means, and humidity sensor means for generating a signal representing a humidity level of said air with respect to a predetermined level, the improved control system comprising:

first temperature sensing means for deriving a first output signal representing the temperature of said air;

comparison network means responsive to said first output signal for deriving a second output singal having a value corresponding with the temperature difference between said predetermined temperature and a higher temperature of said air;

level responsive switching means coupled with said comparison network means for energizing a first said compressor when said second output signal is at a predetermined level corresponding with a said temperature difference of first predetermined magnitude to activate said refrigeration system;

valve control means coupled with said comparison network means and said voltage level responsive actuator means for effecting the actuation of said valve means by said actuator means in substantial proportion with said temperature differences when said differences are less than a second predetermined magnitude; and

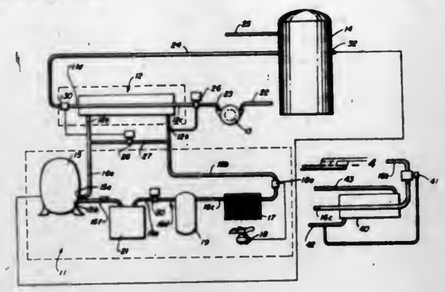
said second predetermined magnitude is less than said first predetermined magnitude.

4,270,363

REFRIGERATING MACHINE INCLUDING ENERGY CONSERVING HEAT EXCHANGE APPARATUS

Oscar M. Maring, Clear Lake, and Kenneth W. Schneider, Mason City, both of Iowa, assignors to Schneider Metal Manufacturing Company, Mason City, Iowa

Filed Apr. 16, 1979, Ser. No. 30,700
Int. Cl.³ F25D *17/06*
U.S. Cl. 62—179 7 Claims



3. In a combined refrigerating and water-heating machine including an automated control system for same comprising:

a closed circuit refrigerant system serially including:

a refrigerant compressor including a low pressure inlet port and a high pressure outlet port;

a first portion of a refrigerant to water condenser downstream of said compressor outlet port;

refrigerant expansion means downstream of said condenser;

an evaporator downstream of said expansion means and upstream of said compressor inlet port; and

a water heating system including:

a second portion of said refrigerant-to-water condenser being in heat exchange relation with said refrigeration system;

a water pump upstream of said second portion of said condenser;

hot water storage means positioned downstream of said second portion of said condenser; and

an automated control system including:

a pressure sensor adapted to determine a pressure at a refrigerant outlet of said condenser; and

a water flow regulating valve in said water heating apparatus downstream of said pump and upstream of said second condenser portion, said water flow valve responding to said pressure sensor for controlling water moving through said condenser while maintaining a pre-determined refrigerant pressure range in said refrigerant system.

4,270,364

FREEZING REFRIGERATOR

Toshiyuki Oonishi, Takatsuki; Takeshi Motoyama, Osaka, and Kiyoshi Hatanaka, Takatsuki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 19, 1979, Ser. No. 95,386
Claims priority, application Japan, Nov. 24, 1978, 53-145675
Int. Cl.³ F25B *41/00*
U.S. Cl. 62—198 15 Claims

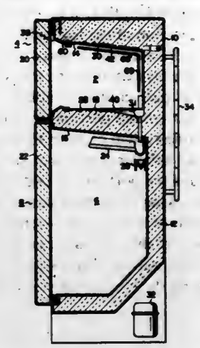
1. A freezing refrigerator comprising:

a freezing box, forming a freezing chamber for storing objects to be frozen, which is provided with side plates, top and bottom plates, and a back plate, the top plate having the inner surface slanted downwardly toward the back plate;

first cooling means provided on the outer surface of said bottom plate for cooling said bottom plate thereby to cool the space within said freezing chamber;

second cooling means provided on the outer surface of said top plate for cooling said top plate at lower temperature than that of said bottom plate thereby to cool the space within said freezing chamber;

heating means provided on the outer surface of said top plate for melting the frost attached onto the inner surface of said top plate;



means for draining off water produced from the slanted inner surface of said upper plate and flowing on the inner surface of said top plate and the inner surface of said back plate; and

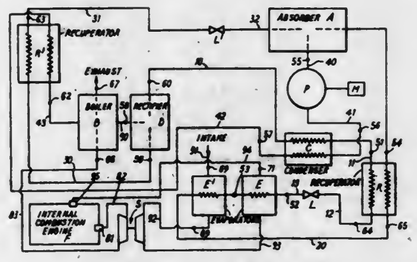
means for supplying coolant to said first and second cooling means.

4,270,365

REFRIGERATION APPARATUS

Achilles C. Sampietro, P.O. Box 2484, Delray Beach, Fla. 33444

Filed Jul. 24, 1979, Ser. No. 60,130
Int. Cl.³ F25B *27/02*; B60H *3/04*
U.S. Cl. 62—238.3 13 Claims



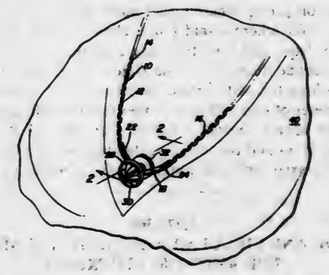
1. In an automotive vehicle having an internal combustion engine including an air intake duct and an exhaust duct, the improvement which is a refrigeration system comprising first and second fluids, the second fluid being of greater volatility than the first fluid and the natures and relative concentrations of the fluids being such that they are mutually unreactive and mutually soluble, an absorber for combining the two fluids to form a mixture, said absorber being adapted to reject heat to the atmosphere, a boiler in heat-receiving relationship with the exhaust duct for heating the mixture in said boiler, a rectifier connected to said boiler for receiving heated mixture therefrom to separate said heated mixture into a liquid residue and a vapor of the second fluid, an evaporator in said air intake duct, said evaporator being arranged for heat transfer from intake air of said engine to fluid in said evaporator, a first path for conveying the second fluid from the rectifier to the evaporator, a second path for conveying the second fluid from the evaporator to the absorber, a third path for conveying the residue from the rectifier to the absorber and a fourth path for conveying the mixture from the absorber to the boiler, the first path comprising, in series, an expansion stage of a feed pump, said feed pump having a compression stage powered by expansion of fluid in said expansion stage, first cooling means for condensing vapor of the second fluid and first expansion means for expanding the condensed fluid into the evaporator, the first cooling means comprising at least one heat exchanger for rejecting heat to at least one of the second and fourth paths, the third path comprising, in series, second cooling means for rejecting heat from the liquid residue and second expansion means for expanding the liquid residue into the absorber, the second cooling means comprising at least one heat exchanger for rejecting heat to said mixture in the fourth path, the fourth path including said compression stage of said feed pump for pumping mixture in the fourth path from the absorber to the boiler.

4,270,366

ROTATABLE MOUNTING FOR NECKLACE GEM STONE

James W. Green, P.O. Box 208, Roxboro, N.C. 27573

Filed May 8, 1980, Ser. No. 147,556
Int. Cl.³ A44C *25/00, 17/02*
U.S. Cl. 63—2 9 Claims



1. A necklace including an elongated flexible support member for encircling the neck of a wearer and including a predetermined portion thereof adapted to overlie the central chest portion of the wearer below the neck, said predetermined portion including means defining a journal, an axially short shank member extending and rotatably received through said journal and including first and second ends adapted to extend in forward and rearward directions, respectively, when said support member is being worn as a necklace, gem stone means mounted on said first end of said shank member, the second end of said shank member including lever means comprising radially outwardly extending structure supported therefrom and adapted to frictionally engage opposing clothing or skin of the wearer and to thereby effect angular displacement of said shank member and said gem stone means relative to said journal responsive to lateral displacement of said predetermined portion relative to said underlying clothing or skin.

4,270,367

SPRING LOADED ADJUSTABLE COUPLING

Michael Santore, 1000 Eastwind Ave., Toms River, N.J. 08753

Continuation-in-part of Ser. No. 883,203, Mar. 3, 1978, abandoned. This application Mar. 5, 1979, Ser. No. 17,463
Int. Cl.³ F16D *3/06*
U.S. Cl. 64—23 2 Claims

1. A coupling for drivably connecting a drive shaft and driven shaft comprising:

a. a hollow cylinder adapted at one end to receive a drive shaft;

b. two longitudinally extending grooves formed internally of said hollow cylinder for nearly the entire length thereof;

c. a slideable member for insertion into the other end of said hollow cylinder;

d. two ribs formed on the outside diameter of said slideable

member and extending longitudinally thereof for cooperating with said two longitudinally extending grooves formed internally of said hollow cylinder;

e. a coil spring disposed in said hollow cylinder and compressable by said slideable member;

f. driven shaft receiving means disposed in an end of said slideable member distant from said coil spring for receiving said drive shaft;

g. said hollow cylinder further comprising two axially extending slots formed therein 180° apart for receiving two guide clips formed on one end of said slideable member to position the coil spring in place and to prevent the slide-



able member from becoming disengaged from said hollow cylinder and allowing said slideable member to move axially relative to said hollow cylinder for compressing said coil spring wherein said guide clips are located 180° apart and wherein said guide clips are each located 90° away from said longitudinally extending ribs formed on the outside diameter of said slideable member; and,

h. two longitudinally extending ribs formed on the outside diameter of said hollow cylinder and extending nearly the entire length thereof wherein said ribs are formed 90° away from said two axially extending slots and which ribs are co-axial with said longitudinally extending grooves.

4,270,368

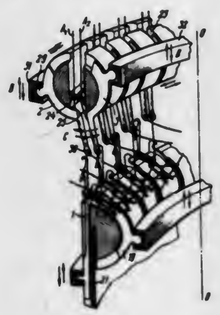
METHOD AND CIRCULAR WARP KNITTING MACHINE FOR KNITTING STOCKINGS

Igor V. Ragoza, Moskovsky prospekt, 7, kv. 114; Petr M. Beguнov, ulitsa Shirokaya, 30, kv. 5; Petr J. Vasiljuk, ulitsa Chkalova, 11, korpus 12, kv. 79; Dina N. Tonikian, and Robert T. Tonikian, both of ulitsa Chkalova, 11, korpus 10, kv. 92, all of Vitebsk, U.S.S.R.

Filed Sep. 4, 1979, Ser. No. 72,102

Int. Cl.³ D04B 9/44, 9/12, 9/14, 9/16

U.S. Cl. 66—13 **12 Claims**



1. A method for knitting stockings on a circular warp knitting machine, comprising: laying two systems of warp threads on knitting needles of the machine by means of two sets of guide needles which are caused to move along the front of and between the knitting needles; knitting a continuous hose consisting of a plurality of stockings of given length from said systems of warp threads under the action of a general draw-off force; each stocking of said continuous hose being made by knitting in a sequence, an overturned welt with one bar tricot stitch from one system of warp threads, and a cylindrical portion of the leg, a tapering portion, an instep, a heel portion, a sole with a tubular toe and pull courses with two-bar tricot stitch from the two systems of warp threads; knitting, in each stocking, after the pull courses are knit, a garterband portion with two-bar tricot stitch from the two systems of warp threads, with the loop length at least equal to the loop length of the cylindrical portion of the leg; knitting between said sole portion and said pull courses at least two courses with one-bar tricot stitch from one system of warp threads to form a boundary portion of the pull courses; knitting between said pull courses and said garterband portion two courses with one-bar tricot stitch from one system of warp threads to form a boundary portion of said tubular toe; maintaining, in knitting said welt and said boundary portions of said pull courses and said tubular toe of a stocking from one system of warp threads, the feed of warp threads of the second system to the stitch forming zone and the action of the general draw-off force; cutting said continuous hose into individual stockings across said boundary portions; and closing the toe in each stocking in a known per se manner.

4,270,369

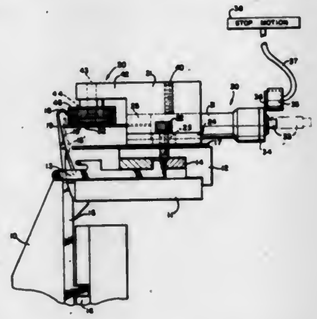
DEVICE FOR DETECTING BROKEN HEADS OF KNITTING MACHINE NEEDLES

Earl R. Quay, Orangeburg, S.C., and Gerhard Jauch, West Lawn, Pa., assignors to Mayer, Rothkopf Industries, Inc., Orangeburg, S.C.

Filed Jan. 22, 1980, Ser. No. 114,233

Int. Cl.³ D04B 35/10

U.S. Cl. 66—157 **11 Claims**



1. A device for detecting broken knitting machine needles during operation of the knitting machine, comprising

(a) needle sensing means having a retractable needle sensor element adapted to contact the needles when said sensor is in advanced position,

(b) a bracket for supporting the needle sensing means on a knitting machine proximate the needles,

(c) needle deflecting means mounted on the bracket for deflecting unbroken needles away from the needle sensor element and

(d) mounting means for mounting the bracket on a knitting machine to locate the needle deflecting means and the needle sensor element, when said element is in its advanced position, to contact the needles during machine operation, whereby broken needles not deflected by the needle deflecting means are sensed by the needle sensing means.

4,270,370

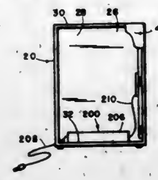
RADIO OPERATED LATCH DEAD-BOLTING SYSTEM

Phil C. Oftelie, 3215 Golden Blvd., Omaha, Nebr. 68123

Filed Nov. 20, 1978, Ser. No. 962,090

Int. Cl.³ E05B 63/14

U.S. Cl. 70—118 **4 Claims**



1. A lock system comprising a vending machine container and a container locking system using both primary lock and radio controlled lock, the system comprising a container having a door jamb, a door moveably mounted in said door jamb, catch means on said door jamb, a primary latch moveably mounted on said door and moving into and out of latching relationship with said catch means on the door, a primary lock assembly having a primary lock mounted on said door, said primary lock assembly being operably correlated with said primary latch and capable of transferring latching and unlatching motions to said primary latch when said primary lock has been unlocked, and a radio lock assembly comprising a radio transmitter outside of said container, a radio receiver inside of said container, a solenoid inside of said container, a power source connected to said solenoid and to said radio receiver in a manner such that said solenoid is operated when said receiver receives a signal from said transmitter, and a dead-bolt operably correlated with said solenoid and with said primary latch so that said dead-bolt prevents unlatching of said primary latch except at times when said solenoid is operated by said transmitter and receiver whereby a thief who has a way of opening said primary lock without force cannot open said door without forceable entry which would cause greater likelihood of detection, said primary lock having a keyhole visible from the outer side of said vending machine container.

4,270,371

DEVICE FOR UNLOCKING AND LOCKING OF DOORS, PARTICULARLY OF MOTOR VEHICLE DOORS

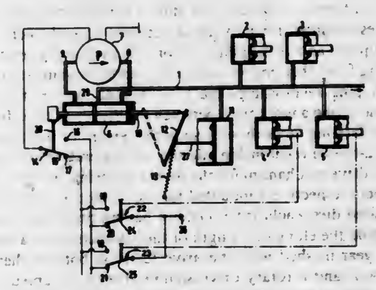
Heinz Kalk, Neu-Isenburg, Fed. Rep. of Germany, assignor to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 6, 1979, Ser. No. 9,987

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1978, 2805004

Int. Cl.³ E05B 65/38

U.S. Cl. 70—264 **5 Claims**



1. In a device for unlocking and locking of doors, particularly of motor vehicle doors, with a pump delivering below atmospheric pressure and high pressure connectable via a two-way valve and a pneumatic line (which valve is actuatable upon each unlocking and locking operation, respectively), with single chamber pneumatic positioning elements which act or a door locking mechanism and with electrical switches for switching the pump on and off, respectively, via a reversing switch, the electrical switches being actuatable by means of a door key and arranged in the lockable doors, respectively, the reversing switch being able to be switched-over by means of a delayed-responding actuating means, the improvement wherein

an additional single chamber pneumatic positioning element constitutes the delayed-responding actuating means,

said additional positioning element is connected to an output of the two-way valve, and via said valve to the pump,

said additional pneumatic positioning element constitutes means for actuating the two-way valve as well as the reversing switch,

said means for actuating the two-way valve as well as the reversing switch is for switching said valve and said reversing switch from one condition into another.

4,270,372

KEY AND LOCK SYSTEM

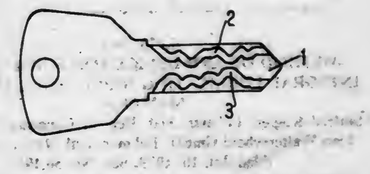
Benno Voulanthen, Messen, and Robert Walther, Zollikofen, both of Switzerland, assignors to R. Berchtold AG, Zollikofen, Switzerland

Filed Aug. 20, 1979, Ser. No. 67,663

Claims priority, application Switzerland, Aug. 22, 1978, 8100178

Int. Cl.³ E05B 19/06

U.S. Cl. 70—406 **5 Claims**



1. In a lock and key system including a lock cylinder having a plurality of tumbler shafts with associated tumbler pins of predetermined dimensions and a key having grooves with predetermined width and depth dimensions provided in each side face for engaging said pins, the improvement wherein said key comprises:

a first pair of identical grooves located in opposite side faces of said key symmetrically about the central longitudinal axis of said key for engaging a first set of tumbler pins;

a second pair of identical grooves located in opposite side faces of said key symmetrically about the central longitudinal axis of said key for engaging a second set of tumbler pins; and

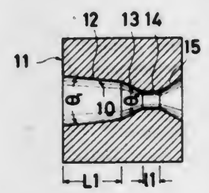
one of the width and depth dimensions of said first pair of grooves and the dimensions of said first set of pins are unequal to the width and depth dimensions of said second pair of grooves and the dimensions of said second set of pins, whereby the lock can only be opened by a key having grooves of similar width and depth dimensions and cannot be opened by a key having grooves of different dimensions.

4,270,373

APPARATUS AND PROCESS FOR THE FLUID LUBRICATION DRAWING OF COMPOSITE METAL WIRES

Motoshiro Hirato, Sakegawa-cho 4-18-26; Hazime Kawagoe, Narusawa-cho 4-3-3; Kazuo Abe, Takasuzu-cho 1-21-12, all of Hitachi-shi, Ibaragi-ken; Tsuyoshi Sato, Oaza Kamitetsuna 1113, Takahagi-shi, Ibaragi-ken; Yasuhiko Miyake, Nishinarusawa-cho 4-29-14; Masahiro Nagai, Higashi-cho 4-5-6, both of Hitachi-shi, Ibaragi-ken; Katsuhisa Furuichi, Korokudai Takano 215, Matsudo-shi, Chiba-ken, and Kiyoshi Shimojima, Ogitsu-cho 3679, Hitachi-shi, Ibaragi-ken, all of Japan

Filed May 30, 1979, Ser. No. 43,817
Int. Cl.³ B21C *9/00, 3/00*
U.S. Cl. 72—41 18 Claims



1. A process for the fluid lubrication drawing of a rod in the form of a composite metal wire consisting of a harder metal core and a softer metal cladding surrounding the core comprising the steps of:

preparing a die having an approach which includes a first frustoconical opening having an included angle between 0° and 5° (exclusive of 0°) and a succeeding second frustoconical opening having an included angle between 6° and 20°,

introducing the rod into said die together with a lubricant, and

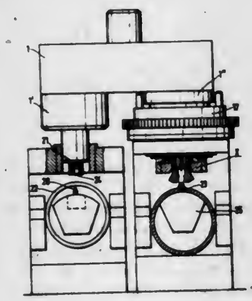
drawing the rod under fluid lubrication while pressurizing the lubricant in said first frustoconical opening of the die approach.

4,270,374

METHOD OF AND DEVICE FOR FORMING AN INTEGRAL LUBRICATING NIPPLE ON A TUBULAR MEMBER

Manfred Kugler, Lohmar, Fed. Rep. of Germany, assignor to Jean Walterscheid GmbH, Lohmar, Fed. Rep. of Germany

Filed Jul. 10, 1979, Ser. No. 56,195
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1978, 2831187
Int. Cl.³ B21C *37/15;* B21D *22/18;* B21C *37/28*
U.S. Cl. 72—68 7 Claims



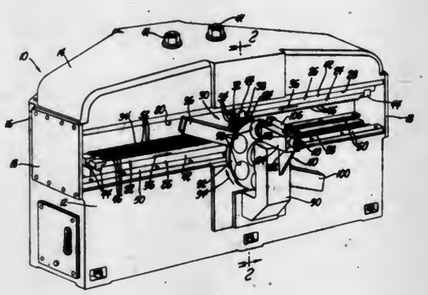
1. Method of forming a lubricating nipple with a conically shaped head on a tubular member, such as an outer bearing tube, comprising the steps of deep drawing the wall of the tubular member outwardly by pressing a portion of the wall outwardly into a die and forming a hollow conically shaped lug with a conical tip projecting outwardly from the outside surface of the tubular member, shaping the outside surface of the conically shaped lug without any material removed therefrom including shaping the surface inwardly of the conical tip and forming a hemispherically shaped surface converging inwardly from the inner end of the conical tip and spaced outwardly from the outside surface of the tubular member and from the inner end of the hemispherically shaped surface forming a bottle-necked surface from the inner end of the hemispherically shaped surface to the outside surface of the tubular member, forming the bottle-necked shaped surface with generally conically shaped outside surfaces diverging in the direction from the hemispherically shaped surface to the outside surface of the tubular member, the step of shaping the outside surface of the conically shaped lug comprising applying the surface of a shaped member which surface has a configuration complementary to the desired outside finished surface of the lubricating nipple into contact with the outside surface of the conically shaped lug, rotating the shaped member relative to the lug, and opening the tip of the lug for forming a passageway into the hollow interior of the lug during the shaping of the outside surface of the conically shaped lug so that the combination of the passageway and the hollow interior form a lubricating bore.

4,270,375

FORMING MACHINE INCLUDING ROTARY DRIVE MECHANISM

Harald N. Jungesjo, Rochester, Mich., assignor to Anderson-Cook, Inc., Fraser, Mich.

Filed Jul. 10, 1979, Ser. No. 56,362
Int. Cl.³ B21C *37/30;* B21D *53/28*
U.S. Cl. 72—88 7 Claims



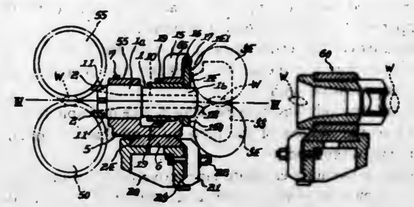
1. In a forming machine including a pair of elongated forming dies mounted for movement between an end-to-end relationship and an overlapping relationship and having respective forming faces that oppose each other upon movement into the overlapping relationship, and a workpiece support for rotatably mounting a workpiece between the dies so as to be formed by the forming faces thereof upon movement of the dies from the end-to-end relationship into the overlapping relationship, a rotary drive mechanism for the dies comprising: a pair of drive members respectively mounted for movement with the pair of elongated dies; each drive member having drive teeth spaced alongside the elongated length of the associated die; a toothed drive gear meshed with the drive teeth on both of the drive members; and a rotary drive spindle directly coupled to the drive gear to move the drive members and the dies under the impetus of driving torque transmitted through the drive gear to thereby form a workpiece mounted between the dies.

4,270,376

TWIST ROLLER GUIDE DEVICE FOR ROLLING MILL USE

Hiroaki Shimada, Sapporo, Japan, assignor to Kotobuki Sangyo Kabushiki Kaisha, Sapporo, Japan

Filed Mar. 12, 1979, Ser. No. 19,777
Int. Cl.³ B21B *39/28*
U.S. Cl. 72—231 3 Claims



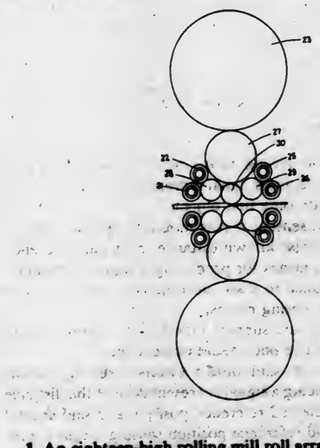
1. A twist roller guide device to be arranged between each two adjacent rolling mills in a set of aligned rolling mills and of the type including a pair of upper and lower twist rollers 34 and a twist guide member 1 having a guide bore 10 formed therein with two diametrally opposite helically extending wall surfaces 10*a* effective to preliminarily twist the stock as the latter proceeds through the guide bore, said device being characterized in that said pair of twist rollers are journaled on respective bearing plates 33 provided on a hollow cylindrical roller holder 14 mounted on a guide box and that the tubular body of said twist guide member is fitted in said guide box with a body portion of said twist guide adjacent to the exit end thereof directly fitted in the cylindrical hollow of said roller holder so that the exit of said twist guide is held in closely spaced opposite relation to said pair of twist rollers; and eccentrically mounted positioning shafts 32, 38 for said twist rollers, and screw type connecting means 36, 37 operably connecting said shafts for symmetrical vertical displacement of said shafts 32 and, hence, of said twist rollers 34.

4,270,377

EIGHTEEN HIGH ROLLING MILL

Robert C. Verbicken, Wolcott, and John W. Turley, Oxford, both of Conn., assignors to T. Sendzimir, Inc., Waterbury, Conn.

Continuation-in-part of Ser. No. 907,502, May 19, 1978, abandoned. This application Apr. 16, 1979, Ser. No. 30,368
Int. Cl.³ B21B *29/00*
U.S. Cl. 72—242 5 Claims



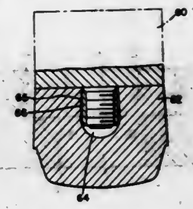
1. An eighteen-high rolling mill roll arrangement, consisting of an upper and lower nine-roll cluster, each of said clusters consisting of a work roll, intermediate roll and back-up roll arranged in the same vertical plane, two side intermediate rolls, one contacting each side of said work roll, and with each of said side intermediate rolls being contacted by two side back-up rolls.

4,270,378

EXTRUSION PUNCH

Thomas A. Brown, Greensburg, and Joseph B. Huber, Acme, both of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Division of Ser. No. 644,642, Dec. 29, 1975. This application Dec. 4, 1978, Ser. No. 963,927
Int. Cl.³ B21C *26/00, 23/18*
U.S. Cl. 72—267 4 Claims



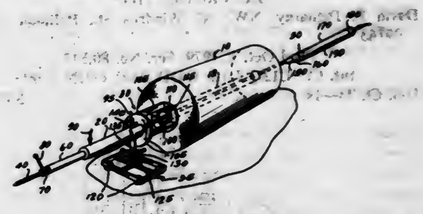
1. A cylindrical end cap for an extrusion punch and formed of a cemented hard metal carbide material which comprises a first face portion for engagement with material to be extruded in a die means and a second face portion for abutting engagement with one end of a cylindrical member, said second face portion having substantially the same outside diameter as the cylindrical member, a central cavity means in said second face portion of said end cap for receiving a reduced diameter portion on the cylindrical member, said cavity having a reverse tapered section and a metal ring fixedly held in said cavity and having internal threads for threaded engagement with the reduced diameter portion.

4,270,379

ROLL STRAIGHTENING TOOL

James Van Gompel, Fremont, Ind., assignor to Brunnell, Inc., Angola, Ind.

Filed May 3, 1979, Ser. No. 35,606
Int. Cl.³ B21D *39/08*
U.S. Cl. 72—392 6 Claims



1. In a roll straightening apparatus with a bullet having an expansion shoe mounted thereon, a hydraulic cylinder mechanically mounted within said bullet; and a common hydraulic connection at one end of the bullet wherein the expansion shoe moves laterally in response to hydraulic fluid being supplied to said hydraulic cylinder by means of the common hydraulic connection an improvement comprising: smooth, curved, exterior surfaces on said shoe and on said bullet, a drawbar arranged with a mechanical mating means at one end to connect with the opposite end of said bullet; a hollow piston hydraulic ram with a hollow movable piston adapted to move said drawbar horizontally, having means for mechanical support with respect to a work surface such that the distance between said hollow piston and the work surface is adjustable;

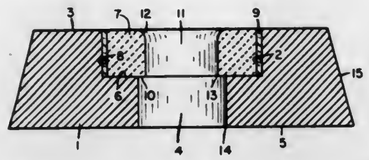
and wherein said means for mechanical support includes an annular shaped restraining member removably mounted and positionable adjacent an end of a hollow core of the roll to be straightened to apply force to the roll to prevent telescoping as said bullet is pulled into the roll from the opposite end by horizontal movement of said drawbar.

4,270,380

METAL SHAPING DIE ASSEMBLY

Suresh T. Gulati, Elmira, and Henry E. Hagy, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed May 25, 1979, Ser. No. 42,581
Int. Cl.³ B21C *3/02*
U.S. Cl. 72—467 **9 Claims**



1. In a die assembly for shaping metal by extrusion, drawing, ironing and the like, which comprises

a ceramic die nib having at least one aperture therein for passage of metal therethrough to work same whereby the shape and/or cross-section of the metal entering and exiting said nib is dissimilar, the nib having an outer annular surface with a coating thereon, and

steel casing means to support the nib against axial displacement in the direction of the aperture and against tensile failure in use, the casing means having an inner annular surface shrink-fitted onto and around the coated outer annular surface of the nib,

wherein the improvement comprises

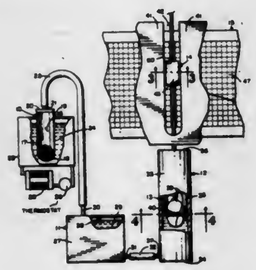
the coating being composed of all-crystalline ceramic material having a heating liquidus temperature within the range of 500°-570° C. and which does not become softened or plastic or subject to noticeable creep when reheated in use of the die assembly for and by shaping hot metal.

4,270,381

RECORDING INSTRUMENT TO MEASURE MICROBAL GAS PRODUCTION

David E. Demaray, NW. 140 Windrus St., Pullman, Wash. 99163

Filed Oct. 1, 1979, Ser. No. 80,513
Int. Cl.³ C12Q *1/00*; G01D *9/00*; G01N *7/00*
U.S. Cl. 73—19 **5 Claims**



1. A measuring instrument to provide a continuous record of the gas production of at least one microbal sample as a function of time, comprising, in combination:

at least one sample container defining an enclosed chamber with means of ingress and egress thereto carrying a microbal sample and communicating for gas transmission with

a fluid reservoir providing an enclosed chamber filled with fluid and communicating in its lowermost portion for fluid transmission with

a vertical measuring cylinder having a vertical height and defining a contained volume greater than the vertical height and contained volume of said fluid reservoir and positioned with its uppermost part vertically above the uppermost part of the fluid reservoir;

a float carried for vertical motion in response to fluid variations within the measuring cylinder and mechanically communicating with

a marker structure having a marking device movable responsive to the motion of the float by a mechanical linkage therebetween; and

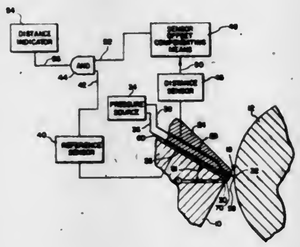
a recorder having a elongate tape movable perpendicularly to the motion of the marker and positioned in operative contact therewith to be marked upon by the marker to make a tracing upon the tape indicating the vertical position of the marker relative thereto.

4,270,382

GAP MEASUREMENT APPARATUS

Daniel T. Kamman, Westport, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 31, 1979, Ser. No. 108,347
Int. Cl.³ G01B *13/12*
U.S. Cl. 73—37.5 **7 Claims**



1. Apparatus for measuring the distance between spaced objects, comprising:

a support member;

a reference position sensing means mounted on said support member for producing a signal representative of a selected reference position on a first object;

an object distance sensing means mounted on said support member at a precise known distance from said reference position sensing means for producing a signal representative of the distance to a second object spaced from said object distance sensing means;

means for aligning said support member in a known direction with respect to one of said objects; and

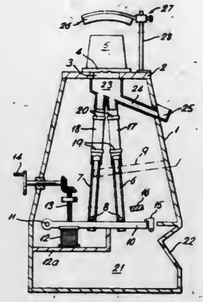
means responsive to said object distance sensing means signal for producing a signal representative of the distance between said selected reference position and said second object when said reference position sensing means is producing a signal representative of said selected reference position.

4,270,383

METHOD AND APPARATUS FOR MEASURING STRENGTH CHARACTERISTICS

Alfred R. E. Singer, Sketty, and Russell W. Evans, Caswell, both of Wales, assignors to National Research Development Corporation, London, England

Filed Nov. 13, 1979, Ser. No. 93,498
Claims priority, application United Kingdom, Nov. 15, 1978, 44575/78
Int. Cl.³ G01N *3/48*
U.S. Cl. 73—82 **14 Claims**



1. Apparatus to measure strength characteristics of a specimen, comprising:

means to support a specimen;

means to launch at least two projectiles at different speeds towards said specimen, so that said projectiles strike said specimen at different striking speeds and so make different indentations upon it, and

means to ascertain said striking speeds,

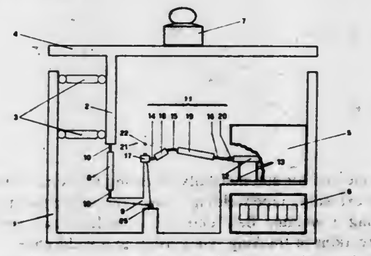
whereby said characteristics may then be determined by calculations including said striking speeds and the dimensions of said indentations.

4,270,384

MASS AND FORCE METER

Kaspar Saner, Dübendorf; Johannes Wirth, and Mario Gallo, both of Zurich, all of Switzerland, assignors to Wirth, Gallo & Co., Zurich, Switzerland

Filed Dec. 15, 1978, Ser. No. 969,818
Claims priority, application Switzerland, Jan. 26, 1978, 835/78
Int. Cl.³ G01L *1/10*
U.S. Cl. 73—862.59 **2 Claims**



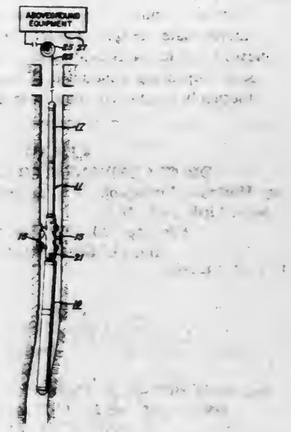
2. In a mass and force meter, a frame, a load support, a measuring system locking the meter, a force transmission channel with a load-dependent force transmission ration comprising a number of elements, at least one of said elements being swivel lever, said swivel lever being connected to at least one adjacent element by means of a link, said link being fitted to said swivel lever, said force transmitted by said force transmission channel having an action line, said link extending at least partly outside said action line, said link being a flat traction band, said band comprising a flattened fixation part, a middle part, a section with a reduced width, and an elongated end part.

4,270,385

TOOL FOR TESTING EARTH FORMATIONS IN BOREHOLES

Bobby J. Hallmark, Fort Worth, Tex., assignor to Geehart Owen Industries, Inc., Fort Worth, Tex.

Filed May 25, 1979, Ser. No. 42,431
Int. Cl.³ E21B *49/00*
U.S. Cl. 73—155 **5 Claims**



1. A tool for testing earth formations in boreholes, comprising:

a first elongated tool body section containing formation isolation means including hydraulically controlled extendable and retractable seal pad means and backup pad means, electrically powered means controllable at aboveground equipment for generating and applying hydraulic setting pressure to extend and set said seal pad means and said backup means to accomplish isolation of the formation at the seal pad location, and means for generating signals to be transmitted to aboveground equipment, which signals are a measure of said hydraulic pressure;

said seal pad means and backup pad means being disposed adjacent the lower end portion of said first elongated tool body section;

a second elongated tool body section containing a formation sample chamber;

pivot structure connecting the lower end portion of said first elongated tool body section to the upper end portion of said second elongated tool body section for limited pivoting movement, with the axis of the pivoting movement being normal to the direction of movement of said seal pad means for extension and retraction.

4,270,386

INDIRECTLY HEATED THERMAL FLOWMETER

Charles E. Hawk, Newport News, and Dewey K. Livingston, Hampton, both of Va., assignors to Teledyne, Inc., Los Angeles, Calif.

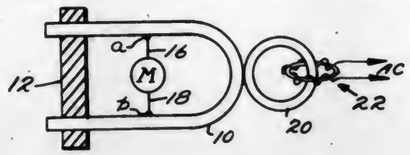
Filed Aug. 23, 1979, Ser. No. 69,247
Int. Cl.³ G01F *1/68*
U.S. Cl. 73—204 **18 Claims**

1. A fluid flowmeter comprising:

a segment of electrically and thermally conductive conduit adapted to permit a flow of fluid therethrough, said conduit having ends coupled to a heat sink;

a pair of thermoelectric sensors operatively associated with said conduit at spaced points along the segment;

a loop of thermally and electrically conductive material joined to said conduit so as to establish a metal to metal,



thermally conductive joint between said loop and conduit intermediate the spaced points; and

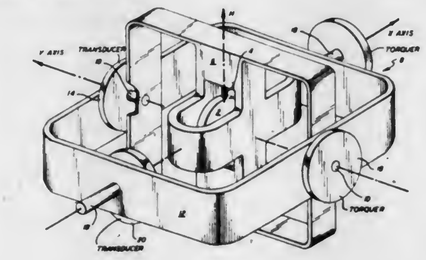
means for inductively heating said loop, the heat induced in said loop being conducted through the metal to metal, thermally conductive joint from the loop to the conduit.

4,270,387

DRIFT COMPENSATED GYROSCOPE

Jay Hoffman, Livingston, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed Apr. 30, 1979, Ser. No. 34,109
Int. Cl.³ G01C *19/14, 19/42*
U.S. Cl. 73—504 **4 Claims**



1. A drift compensated gyroscope including:

an inertial angle rate sensor comprising a fluid filled annulus mounted for rotation about an axis perpendicular to the axis of rotation of the sensor on the inner of a double set of gimbals and having an output signal proportional to the angular rate of the sensor, means for rotating the sensor about the axis of rotation of the sensor;

means for resolving the output signal into components related to the gimbal axes and applying substantially equal and opposite rates proportional to the components to the gimbal axes to cancel out the effects of drift, and

means for measuring the gimbal inertial angles.

4,270,388

METHOD AND APPARATUS EMPLOYING ZERO ORDER RAMAN-NATH DIFFRACTION INFORMATION TO VISUALIZE LONGITUDINAL CHARACTER OF AN ACOUSTIC WAVE FIELD

Reginald C. Eggleton, Indianapolis, Ind., assignor to Indianapolis Center for Advanced Research, Indianapolis, Ind.

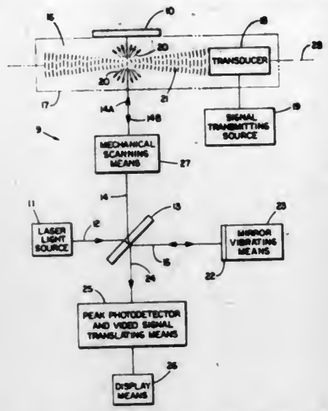
Filed Feb. 12, 1979, Ser. No. 11,447
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—603 **20 Claims**

1. A method employing zero order diffraction information to visualize the longitudinal character of an acoustic field, comprising the steps of:

(a) directing a first portion of a beam of coherent light at normal incidence to a rigid reflective surface from in front thereof;

(b) propogating an acoustic field to interact with the first portion of the beam;

(c) detecting signals derived from the phase change information in the reflected zero order diffraction component of



the first portion of the beam after its double pass through the acoustic field; and

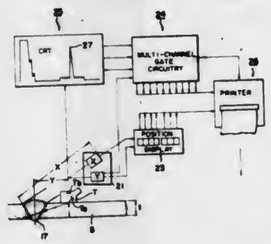
(d) generating a two-dimensional representation of the acoustic field from the detected signals.

4,270,389

METHOD AND APPARATUS FOR THE AUTOMATIC ULTRASONIC FLAW DETECTION

Toshio Shiraiwa; Hisao Yamaguchi; Shigeaki Matsumoto, all of Amagasaki; Masatoshi Tomabechi, and Kimio Nakajima, both of Osaka, all of Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan

Continuation of Ser. No. 849,408, Nov. 7, 1977, abandoned, which is a continuation-in-part of Ser. No. 815,823, Jul. 14, 1977, abandoned. This application Aug. 6, 1979, Ser. No. 63,837
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—612 **12 Claims**



1. A method for automatically detecting flaws in circumferentially extending pipe welding zones, comprising the steps of:

moving a welding flaw detector in at least two different directions in tracking relationship to a weld zone;

subdividing the width of said weld zone into a plurality of areas;

transmitting pulsed energy obliquely to said weld zone from a first transmitter, and alternately periodically transmitting pulsed energy perpendicularly to said weld zone from a second transmitter;

periodically calibrating the flaw detection using the energy transmitted from said second pulse transmitter;

generating output signals from a plurality of gate circuits each respectively responsive to the echo signals produced by said pulsed energy from a specified one of said areas;

generating position signals representative of the position of said flaw detector from a reference point; and

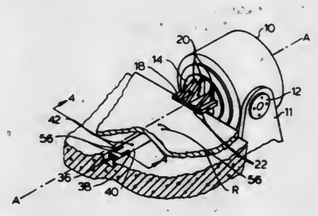
displaying said output signals and said position signals in associated relationship to indicate any welding flaws and their respective positions in each one of said plurality of areas of the weld zone.

4,270,390

VIBRATION TEST BEARING TABLE APPARATUS AFFORDING A SINGLE DEGREE OF FREEDOM TEST PIECE PATH

David V. Kimball, Monrovia, and Daniel L. Baughn, Pomona, both of Calif., assignors to Kimball Industries, Inc., Monrovia, Calif.

Filed May 7, 1979, Ser. No. 36,343
Int. Cl.³ B06B *1/10*
U.S. Cl. 73—663 **14 Claims**



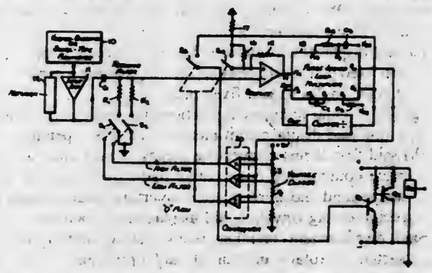
1. In a vibration test, bearing table apparatus, comprising a support block having a surface slidably supporting a test-piece-carrying slip plate intended to oscillate along a single predetermined test axis at a desired test frequency responsive to shaker head driving of the slip plate, wherein said driving tends to impart spurious cross-axis pitch, jaw and roll test piece motions relative to the intended test axis, the improvement comprising means within the locus of sliding engagement including a shaft and a bearing assembly comprising a coaxial series of bearings depending from the underside of said slip plate in journaling relation to said shaft distributively coupling said slip plate and support block together in a manner maintaining said test piece on a single degree of freedom path coincident with said intended test axis in test piece spurious yaw, pitch and roll motion blocking relation.

4,270,391

FREQUENCY-RESPONSIVE FILTER FOR FLOWMETER TRANSMISSION SYSTEM

Peter J. Herzl, Morrisville, Pa., assignor to Fischer & Porter Co., Warminster, Pa.

Filed Aug. 24, 1979, Ser. No. 69,361
Int. Cl.³ G01F *1/32*
U.S. Cl. 73—861.22 **9 Claims**



1. A transmission system for a vortex-shedding or swirl-type flowmeter whose meter frequency lies in a low-frequency range and is a function of the flow rate of the fluid being metered, said system comprising:

A. an input amplifier responsive to the meter signal to yield an amplified signal which depends on the frequency vs. gain characteristics of the amplifier;

B. circuit means including a frequency multiplier to convert said amplified signal to an output signal which lies in a high frequency range, said circuit means also yielding a voltage which is an analog of said meter frequency;

C. a tracking filter interposed between said amplifier and said circuit means to characterize the amplifier response to reduce the amplification gain thereof below a selected frequency level; and

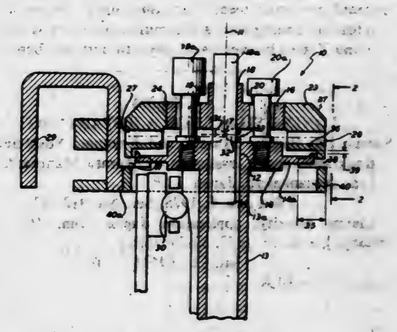
D. a comparator assembly coupled to said filter to compare said analog voltage with a series of progresively increased reference voltages each of which represents a predetermined frequency level, the assembly functioning to render the filter operative in a stepwise manner whereby when the meter frequency reaches any one of the predetermined levels, the filter then acts effectively to reduce the amplification gain to attenuate frequencies below that level.

4,270,392

LOW COST FLEXURE ASSEMBLY

Walter J. Krupick, Succasunna, N.J., assignor to The Singer Company, Little Falls, N.J.

Continuation of Ser. No. 716,602, Aug. 23, 1976, abandoned. This application Sep. 13, 1978, Ser. No. 941,990
Int. Cl.³ G01C *19/18*
U.S. Cl. 74—5 F **6 Claims**



1. A two axis flexure assembly for a two axis, tuned, rotor gyro comprising:

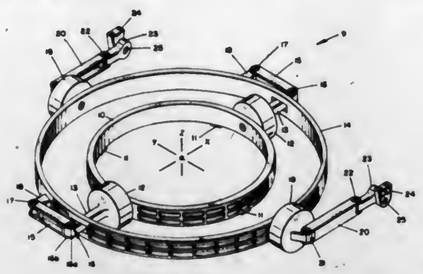
first means having only two flexures separated by 180° from each other for tilting said gyro rotor in a first flexure plane perpendicular to the spin axis plane of said gyro,

second means nested within a central opening of said first means and having only two flexures separated 180° from each other, said flexures of said second means being also separated 90° from said flexures of said first means, said second means tilting said gyro rotor in a second flexure plane orthogonal to both said first flexure plane and said gyro spin axis plane, said first and second flexure planes being axially spaced by a predetermined distance from each other;

means mounted on said second means for adjusting the unbalance and inertia of said gyro; and

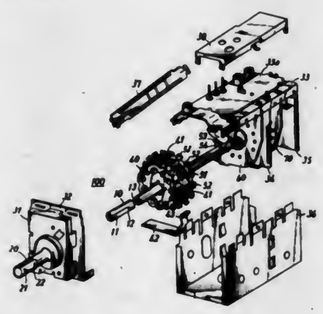
a transverse slot in said first means below each of said two flexures.

4,270,393
ISOLATION SYSTEM
Norman A. Osborne, Englewood, and Robert L. Gates, Littleton, both of Colo., assignors to Martin Marietta Corporation, Bethesda, Md.
Filed Mar. 12, 1979, Ser. No. 19,680
Int. Cl.³ G01C 19/16
U.S. Cl. 74—5 F 5 Claims



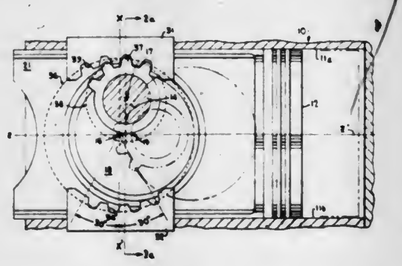
1. Apparatus for mounting a payload on a base, said apparatus being oriented with respect to arbitrary X, Y and Z axes with said axes being mutually perpendicular and meeting at a common center, and said payload containing a torque-producing device which spins about said X axis, wherein the torque generated about the X axis in the payload is communicated to the base through a stiff linkage in the rotational degree of freedom about the X axis comprising:
first and second support frames,
means for mounting said payload on said first support frame,
means for mounting said first support frame on said second support frame, and
means for mounting said second support frame on said base, said mounting means including linear dampening means for dampening forces communicated linearly along the Y and Z axes between said payload and said base.

4,270,394
TONING SHAFT FOR A ROTARY SWITCH
Katsuo Ito; Bunjiro Murata, and Kazunori Yoshimura, all of Kanazawa, Japan, assignors to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan
Filed Jun. 5, 1978, Ser. No. 912,767
Claims priority, application Japan, Jun. 16, 1977, 52-79635[U]; Jun. 16, 1977, 52-79636[U]
Int. Cl.³ F16H 35/18
U.S. Cl. 74—10 R 34 Claims



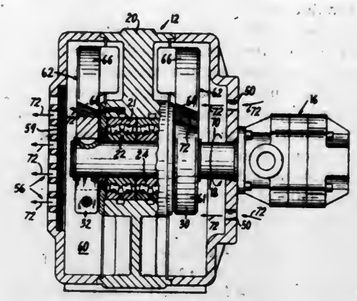
1. A rotary shaft for use in a television tuner having a shield casing and a rotary switch including a plurality of electronic switching portions disposed therein along said rotary shaft, said shaft adapted to rotate said switching portions of said rotary switch for the selection of a plurality of television channels, said shaft comprising:
an elongated solid rod circular in section and molded of a synthetic resin material, said rod having a flat at one end thereof lying along a chord of the cross section of said shaft in a plane substantially prallel to the longitudinal axis of said shaft with an arcuate transitional surface joining said flat to the remainder of said shaft, said flat adapted to engage a control knob;
said shield casing supporting said shaft and being partitioned into a plurality of compartments, each enclosing an individual switching portion of said rotary switch;
said rotary shaft extending through each said plurality of compartments.

4,270,395
MOTION TRANSLATING MECHANISM
Reed H. Grundy, 4081 W. Benden Dr., Murrysville, Pa. 15668
Division of Ser. No. 811,529, Jun. 30, 1977, Pat. No. 4,173,151.
This application Jun. 13, 1979, Ser. No. 48,278
Int. Cl.³ F16H 21/18
U.S. Cl. 74—49 13 Claims



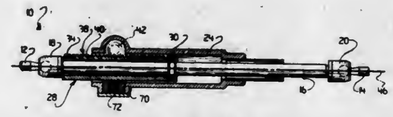
1. A reciprocating to rotary motion mechanism including in combination
(a) a crankshaft having a crank arm with an eccentric pin integrally secured to said crank arm, said crankshaft mounted so that said crank arm and said eccentric pin rotate about a crankshaft axis,
(b) a circular linkpiece having a center axis parallel to said crankshaft axis, said circular linkpiece having an opening positioned eccentric to said circular linkpiece center axis,
said crank arm eccentric pin positioned within said circular linkpiece eccentric opening in a manner that allows relative rotary movement between said eccentric pin and said circular linkpiece in a path in a fixed plane,
(c) at least one first thrust converting means secured to said circular linkpiece for rotation therewith,
(d) a displacement member mounted in a sliding abutting relationship between a pair of walls for reciprocating motion therebetween,
(e) said walls containing internally projecting second and third thrust converting means,
(f) said displacement member having a circular opening in said fixed plane, said circular opening having a central axis at right angles to said fixed plane,
(g) said circular linkpiece is positioned in mating relationship within said displacement members circular opening,
(h) said first thrust converting means of said circular linkpiece coming into consecutive mating engagement with said second and third thrust converting means during the reciprocating travel of said displacement member,
said displacement member reciprocating motion is converted to rotary motion of said crankshaft about said crankshaft axis through the relative motion of said displacement member, said circular linkpiece and said integrally secured eccentric pin of said crankshaft.

4,270,396
VIBRATOR
John Fallows, Little Rock, Ark., assignor to Global Manufacturing, Inc., Little Rock, Ark.
Filed May 23, 1979, Ser. No. 41,638
Int. Cl.³ B06B 1/16
U.S. Cl. 74—87 8 Claims



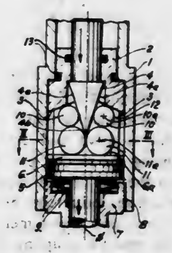
1. A rotary vibrator comprising a housing, a shaft mounted on bearing means in said housing and rotatable about its longitudinal axis, means for rotating said shaft about said axis, at least one eccentric weight in said housing, each said eccentric weight having a hub portion mounted on said shaft for rotation therewith and an eccentric portion extending outwardly from said hub portion generally in a plane perpendicular to said axis, each said eccentric portion having a leading edge extending generally radially with respect to said axis, air inlet and outlet passages in said housing, and means on said leading edges for forcing air axially through said housing upon rotation of said eccentric weight for drawing air in through said air inlet passages and pushing said air out through said outlet passages thereby to ventilate and cool the vibrator bearing means.

4,270,397
ROTATABLE SLEEVE RACK
Frederick J. Adams, Clevedon, England, assignor to Cam Gears Limited, Hitchin, England
Filed Mar. 13, 1978, Ser. No. 886,142
Int. Cl.³ F16H 27/02, 1/04; B62D 1/20
U.S. Cl. 74—89.18 5 Claims



1. An apparatus for use in transmitting force with variable ratio gearing, said apparatus comprising a housing, a rotatable drive member mounted in the housing, said rotatable drive member being displaceable along its axis of rotation and relative to the housing; a rack gear comprising an array of helically formed teeth disposed on said drive member; a rotatable pinion gear mounted in the housing and engaging with the rack gear to effect axial displacement of said drive member upon rotation of the pinion gear; a cam track disposed on said drive member, at least a portion of said cam track being co-extensive with said rack gear in the direction of the axis of rotation of said drive member; follower means disposed in engagement with said cam track for effecting rotational movement of said drive member relative to said pinion gear upon axial displacement of said drive member; each of said rack gear teeth extending only part way around the periphery of the drive member to an extent that the rack gear maintains engagement with the pinion gear throughout the intended rotational movement of the drive member; a side surface disposed on said drive member to be substantially co-extensive with said rack gear and being provided by the part periphery of the drive member into which said rack gear teeth do not peripherally extend, and support means for at least partially supporting said drive member, said support means being mounted by the housing and slidably engaging the side surface substantially in a plane which extends radially of the drive member and which includes the region of engagement between the rack gear and the pinion gear.

4,270,398
MECHANICAL AMPLIFIER
Franz Arnold, Spatzenweg 20, D-8960 Kempten, Fed. Rep. of Germany
Filed Oct. 3, 1979, Ser. No. 81,701
Claims priority, application Fed. Rep. of Germany, Oct. 11, 1978, 7830221[U]
Int. Cl.³ B25B 1/14; F16H 21/44
U.S. Cl. 74—110 13 Claims



1. In a mechanical amplifier comprising a wedge-shaped primary member which is displaceable along a plane of symmetry between a first pair of two rollers which are arranged in mirror-image relation with respect to said plane of symmetry and a secondary member which is displaceable in the same direction, the improvement comprising wherein each of the rollers of said first pair of rollers is freely movable and bears both against a stationary first bearing surface and on a parallel freely moveable roller of a second pair of rollers which is arranged between said first pair of rollers and said secondary member, wherein said rollers of said second pair bear against co-operating second bearing surfaces of the secondary member, wherein at least one of the bearing surfaces for the rollers on one side of said plane of symmetry makes with the plane of symmetry an angle of inclination which is smaller than 90°, wherein centering surfaces for said second rollers are arranged in mirror-image relation with respect to said plane of symmetry and between the rollers of said second pair for centering said second pair of rollers in an initial position of said amplifier, and wherein the rollers which are in contact with each other and their said bearing surfaces are held in continuous engagement by a spring assembly which acts on said secondary member and the roller diameters, the angles of inclination of the bearing surfaces and the taper angle of said primary member are so selected that, in all operating positions of said amplifier, the axes of two rollers which are in contact with each other always lie on the side of the connecting line between the contact lines of said rollers with their respective said bearing surfaces which is toward said plane of symmetry.

4,270,399
COUNTER DRIVE MECHANISM
Enno A. Knief, Watertown, Wis., assignor to Eaton Corporation, Cleveland, Ohio
Filed Jun. 15, 1979, Ser. No. 48,900
Int. Cl.³ F16H 27/02
U.S. Cl. 74—129 21 Claims
1. A drive mechanism for converting reciprocating motion

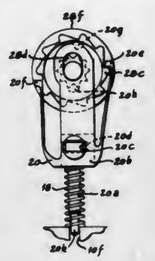
of a drive member to intermittent progressive motion of a driven member comprising:

a driven member comprising first and second ratchets, each including a series of ratchet teeth;

a reciprocating drive member operable to execute an impulse stroke followed by a return stroke in response to actuation thereof;

means for actuating said drive member;

and said drive member comprising a first driving pawl en-



gaging said first ratchet for driving said driven member a first increment during the first part of said impulse stroke and a second driving and stopping pawl that engages said second ratchet to drive said driven member a second increment during the second part of said impulse stroke terminating at the end of said impulse stroke in firm engagement of said second ratchet by said driving and stopping pawl to hold said driven member in a stop position whereby to increase the coupling efficiency between said drive member and said driven member.

4,270,400

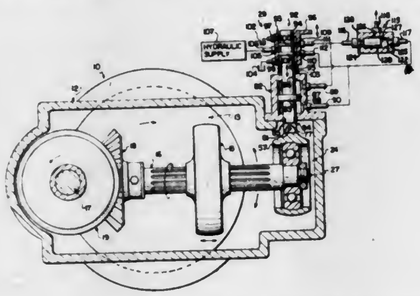
CONTINUOUSLY VARIABLE TRACTION DRIVE TRANSMISSION

Eben V. Fodor, 3611 35th St., NW., Washington, D.C. 20016

Filed Feb. 21, 1980, Ser. No. 123,730

Int. Cl.³ F16H *15/08*

U.S. Cl. 74—194 16 Claims



1. In a continuously variable transmission of the type having

a frame;

a disc having a planar face;

a first shaft rigidly coupled to said disc;

means for coupling said first shaft to said frame for rotation about a fixed axis;

a second shaft;

a roller coupled to said second shaft for rotation therewith, said roller being axially movable along said second shaft;

means, coupled to said frame, for rotatably supporting said second shaft, said roller thereon being in frictional contact with said planar face;

a third shaft rotatably mounted to said frame; and

means for transmitting rotation between said second shaft and said third shaft;

the improvement wherein

said means for rotatably supporting said second shaft includes

first means for supporting an end of said second shaft for pivotal movement about a transverse axis thereof, which transverse axis is perpendicular to the planar face of said disc; and

second means for supporting the other end of said second shaft for selective translation in directions to pivot said second shaft about said transverse axis; and

motive means, coupled to said means for rotatably supporting, for selectively translating said other end in directions to pivot said second shaft about said transverse axis,

such translation causing said roller to move axially of said second shaft, and radially of said disc, thereby varying the relative rotational speeds of said first and third shafts.

4,270,401

GEAR TEETH

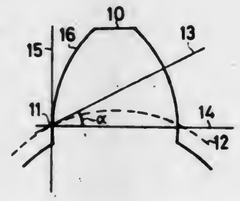
Robert Davidson, Hadlow No. 4, R.D., Timaru, New Zealand

Filed Sep. 12, 1978, Ser. No. 941,788

Claims priority, application New Zealand, Sep. 16, 1977, 185199

Int. Cl.³ F16H *55/08, 1/28*

U.S. Cl. 74—462 5 Claims



1. A gear assembly comprising a first gear and a second gear surrounding said first gear in meshed engagement therewith, said first gear having teeth for engaging corresponding root portions in said second gear, said first and second gears defining pitch circles about their centers of rotation, each of said teeth having active faces defined by first circular arcs, the centers of curvature of said first arcs being on the pitch circle of said first gear, said active faces intersecting the pitch circle of said first gear to define an angle of slew such that the angle of slew (α) is a function of the radius (r) of the first gear pitch circle divided by the radius (R) of the second gear pitch circle.

4,270,402

SPEED CHANGING DEVICE FOR A BICYCLE

Masashi Nagano, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

Filed Sep. 28, 1978, Ser. No. 946,725

Claims priority, application Japan, Oct. 5, 1977, 52/120603; Oct. 5, 1977, 52/120604

Int. Cl.³ B60K *20/00*

U.S. Cl. 74—473 R 4 Claims

1. A bicycle speed changing device for controlling a front and a rear derailleur comprising:

a base member having a pivot arm;

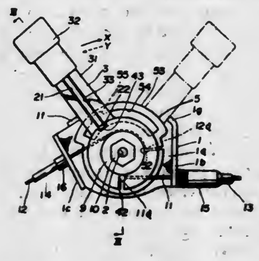
one control lever rotatably supported to said pivot arm;

a first and a second winding body independently rotatable on said pivot arm and positioned axially of said control lever,

a first control wire carried by said first winding body and connecting said first winding body with said front derailleur, a second control wire carried by said second winding body and connecting said second winding body with said rear derailleur; and

coupling means for selectively coupling said control lever with one of said first and second winding bodies such that turning rotation of said control lever is imparted to said one selected winding body,

said coupling means comprising a first and a second engaging portion respectively provided at said first and second winding bodies and at least one retainer supported to said lever so as to be movable radially of each of said winding bodies and rotating integrally with said control lever and engageable selectively with one of said engaging portions for causing one of said winding bodies to rotate integrally with said control lever, said first winding body having a circular outer periphery in which said first engaging por-



tion is included, and said second winding body having a swollen portion larger in diameter than said first winding body, said larger diameter portion providing an elongate slot in the shape of a circular arc extending along the rotation direction of said retainer, said slot having at the inner surface thereof said second engaging portion which is engageable with said retainer, said slot also having a radially outward inner surface having a larger diameter than an outer diameter of said first winding body to provide an interval between said radially outward inner surface of said slot and the outer periphery of said first winding body which is larger than the thickness of said retainer, said interval extending radially of said winding body and providing a neutral zone in which said retainer is not engaged with said first and second engaging portions.

4,270,403

PUSH-PULL CABLE MOTOR TRUCK REMOTE GEAR SHIFT SYSTEM AND TWO-DIMENSIONAL MOTION CONVERSION AND TRANSMISSION APPARATUS THEREIN

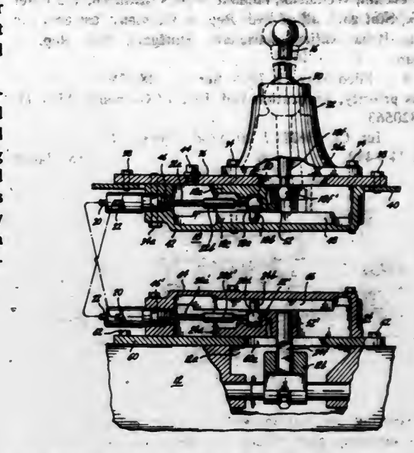
Harold H. West, Seattle, Wash., assignor to Cablecraft, Inc., Tacoma, Wash.

Filed Feb. 26, 1979, Ser. No. 14,842

Int. Cl.³ G05G *9/16*; F16C *1/12*

U.S. Cl. 74—473 R 11 Claims

1. Motion conversion, transmitting and reconversion apparatus comprising a master unit and a remote slave unit each including a translator member guided therein for rotational motion about an axis and for lineally defined translational motion in a motion plane perpendicular to said axis, means to actuate the master unit translator member to execute such motions, motion transmitting means comprising a pair of flexible push-pull cables interconnecting said translator members at respective spaced locations on each for effecting rotational and translational motions of the slave unit translator member substantially duplicative of such motions of the master unit translator member, and output coupler means on the slave unit translator member.



4,270,404

X-Y MOVEMENT MECHANISM

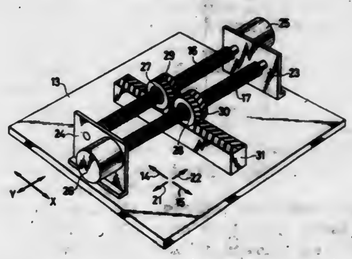
Makoto Murakoshi, and Tomoto Yoshizawa, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara, Japan

Filed Apr. 24, 1979, Ser. No. 32,823

Claims priority, application Japan, Apr. 27, 1978, 53/50396

Int. Cl.³ G05G *11/00*; F16H *25/20*

U.S. Cl. 74—479 13 Claims



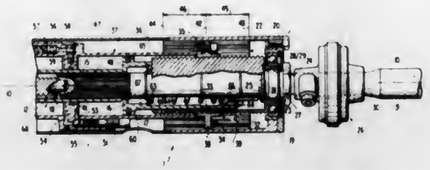
1. An X-Y movement mechanism, comprising a right-handed screw and a left-handed screw arranged in parallel with each other; drive means for individually rotating said lead screws; gear means mounted on said screws; a base plate; a stage movable with respect to said base plate, and a rack fixedly provided on said stage to engage said gear means wherein said gear means operate as a gear transmission mechanism permitting said rack to move in a direction perpendicular to the direction of the axes of said screws or in the direction of the axes of said screws.

4,270,405

STEERING MECHANISM WITH TIME DERIVATION

Klaus Niemann, Welzheim; Helmut Wulf, Ostfildern, and Peter Hauck, Stuttgart, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed May 11, 1979, Ser. No. 38,278
Claims priority, application Fed. Rep. of Germany, May 11, 1978, 2820563
Int. Cl.³ B62D 1/20, 5/06; F16H 1/45
U.S. Cl. 74—499 15 Claims



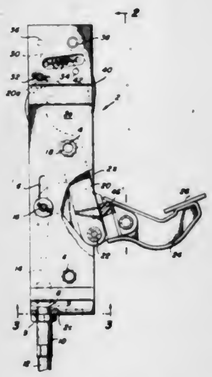
1. A steering mechanism with time-rate action which includes a summing gear means for operatively connecting a servo means dependent upon an angular velocity of a steering spindle means with a servo means dependent upon an angle of turning of the steering spindle and with a servo means dependent upon an angle of turning of steered vehicle wheels, and a resilient supporting means for supporting a gear member of the summing gear means associated with the servo means dependent upon the angular velocity, characterized in that means are provided for positively turning off the servo means dependent upon the angular velocity with respect to the summing gear means if the steering spindle means is turned through an angle greater than a predetermined limiting angle.

4,270,406

BRAKE CABLE OPERATING MEANS AFFORDING A MECHANICAL ADVANTAGE

Eugene C. Lipshield, and Billy G. Boyer, both of Moberly, Mo., assignors to Orscheln Co., Moberly, Mo.

Filed Jan. 15, 1979, Ser. No. 3,132
Int. Cl.³ G05G 1/04, 5/06
U.S. Cl. 74—516 7 Claims



1. Apparatus for axially displacing an inner cable member (14) of a parking brake assembly (12) relative to a coaxially arranged outer cable member (10), comprising

(a) a housing (2) including a pair of opposed parallel spaced side walls (2a, 2b) containing opposed generally longitudinally extending guide slots (6), respectively, said housing being adapted for connection at one end with said outer cable member;

(b) a brake cable pin (16) extending between, and generally normal to, said side walls, said brake cable pin having end portions extending within said guide slots, respectively, said pin being adapted for connection with one end of the inner cable member;

(c) means for laterally displacing said brake cable pin in parallel relation in a direction longitudinally of said guide slots from an initial brake-released position toward a brake-engaged position, including

(1) a ratchet link (20) pivotally connected intermediate its ends with said housing for movement about a fixed first pivot axis (18);

(2) an operating lever (24) pivotally connected intermediate its ends with one end of said ratchet link for pivotal movement about a second pivot axis (22), said operating lever being connected at one end with said brake cable pin, said first and second pivot axes being parallel with, and arranged generally on opposite sides of, the axis of said brake cable pin, respectively, whereby the distance between the first and second pivot axes is greater than the distance between the brake cable pin axis and the first pivot axis; and

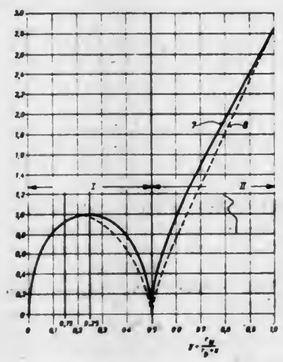
(3) pawl and ratchet means (30, 20a) associated with the other end of said ratchet link for normally preventing pivotal movement of said ratchet link toward the brake-released position, whereby during pivotal movement of said operating lever about the second pivot axis toward the brake-engaged position the second pivot axis is displaced by the simultaneous pivotal movement of said ratchet link to increase the mechanical advantage applied to said brake cable pin by said operating lever.

4,270,407

CAMS FOR ACTUATING THE VALVES OF A RECIPROCATING MACHINE

Gerhard Deschler; Hans Gebhardt, and Dieter Wittmann, all of Nuremberg, Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Filed May 30, 1978, Ser. No. 910,743
Int. Cl.³ F16H 53/06, 25/16
U.S. Cl. 74—569 2 Claims



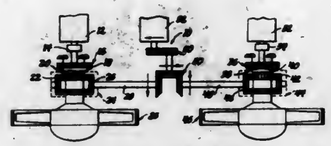
1. A cam for actuating valves of reciprocating machines in which the valve is opened by a sliding contact flat face cam follower riding on said cam in opposition to the force of a closing spring and which will provide an optimum load carrying lubricating film on the nose of the cam and increase the life of the cam so that it approaches that of a roller comprising a cam body having an outer peripheral cam surface bearing on said flat face of the valve, said cam surface curvature being such that it has a hydrodynamic rating indexy in the range $0.15 \leqq \gamma \leqq 0.25$, where said hydronamic rating index is calculated from the formula $r_N/(r_g+Z)$ where r_N is the radius of curvature of the cam; r_G is the base circle radius of the cam and Z is the respective cam lift.

4,270,408

GEAR DRIVE FOR GAS TURBINE ENGINE

Douglas A. Wagner, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 13, 1978, Ser. No. 951,751
Int. Cl.³ F16H 37/06, 35/08, 57/00
U.S. Cl. 74—661 2 Claims



1. In a multiple engine drive system having first and second engines with an output shaft connected to drive a load and including a load sharing cross-over drive between each of the engine output shafts to maintain power transfer to each of the loads when one of the engines is disconnected from the system, the improvement comprising:

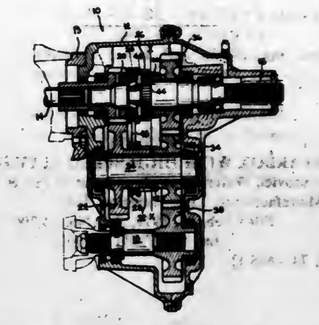
a right angle gear box assembly connecting each of the output shafts to the cross-over drive, each gear box assembly having an input gear connected to one of the output shafts and an output gear connected to the cross-over drive, bearing means to support said input gear and said output gears for limited axial movement, said input gear and said output gear defining a first torque loop and having meshed gear teeth thereon with a tooth geometry to produce an outboard thrust on said input gear during normal drive between the input and output gears, means for limiting outboard axial movement of said input gear in response to the output thrust imposed thereon during power transfer from the engine to the gear box assembly and the cross-over drive, idler gears in said gear box each having gear teeth thereon in meshed engagement with said gear teeth on said input and output gears respectively to define a second torque loop to split torque transfer from each of the output shafts to each cross-over drive during transfer of torque from the input gear to the output gear in response to normal engine operation, each of said right angle gear box assemblies having a reverse torque imposed thereon when the engine connected thereto is disconnected from the system wherein power is transferred from a cross-over drive to an output gear to drive it in a reverse direction and to impose a reverse torque and drive on the input gear, said input and output gear teeth geometry including means responsive to the reversal of torque through said right angle gear box assembly to produce a reverse thrust on the input gear to shift it inboard of the gear box assembly to maintain a continued drive mesh between the input, output and idler gears to maintain a reverse load carrying gear path from the output gear to the input gear and a reverse load carrying path from the output gear through the idler gears thence to the input gear whereby load sharing is maintained in both directions of torque transfer through the gear box assembly thereby to enable use of reduced weight component parts in the gear box assembly to transfer power from each of the engines to their respective output shafts during both normal engine operation and disconnected engine operation wherein power is tranferred to both of the engine loads from one of the engines.

4,270,409

TORQUE TRANSFER MECHANISM

Jack G. Glass, 1209 Roby, Stoughton, Wis. 53589, and Robert B. Overbeek, 105 N. Pontiac, Janesville, Wis. 53545

Filed Jan. 18, 1978, Ser. No. 870,532
Int. Cl.³ F16H 37/06; B60K 17/34
U.S. Cl. 74—665 GA 6 Claims



1. A torque transfer mechanism having a high speed power path and a low speed power path, said mechanism comprising:

a rotatable input shaft;

a first rotatable output shaft coaxial with said input shaft;

an intermediate shaft radially spaced from said input shaft;

an input gear set including a drive gear connected to said input shaft and a driven gear supported for rotation on said intermediate shaft and in constant meshing engagement with said drive gear;

an output gear set including a first output gear supported for rotation on said first output shaft and an intermediate gear supported for rotation on said intermediate shaft and in constant meshing engagement with said first output gear;

first clutch means for establishing the high speed power path including clutch teeth on said drive gear, clutch teeth on said first output shaft and clutch teeth on said first output gear, and a first axially shiftable clutch collar in constant engagement with said first output shaft clutch teeth and slidably engageable with said drive gear clutch teeth and said first output gear clutch teeth;

second clutch means for establishing the low speed power path including clutch teeth on said drive gear and clutch teeth on said intermediate gear, and a second axially shiftable clutch collar in constant engagement with said driven gear clutch teeth and slidably engageable with said intermediate gear clutch teeth;

operating means connected to said first and second shiftable clutch collars for shifting said clutch collars simultaneouly in the same axial direction;

said driven gear clutch teeth having an end portion adjacent said intermediate gear substantially radially aligned with an end portion of said output shaft clutch teeth adjacent said first output gear;

an end portion of said output gear clutch teeth adjacent said output shaft clutch teeth substantially radially aligned with an end portion of said intermediate gear clutch teeth adjacent said driven gear;

said first and second clutch collars having a first position wherein said first clutch collar is engaged with said drive gear clutch teeth for establishing the high speed power path between said input shaft and said first output shaft and wherein said second clutch collar is disengaged with said intermediate gear clutch teeth;

said first and second clutch collars having a second position wherein said first clutch collar is engaged with said first output gear clutch teeth and said second clutch collar is disengaged with said intermediate gear clutch teeth; and

said first and said second clutch collars having a third posi-

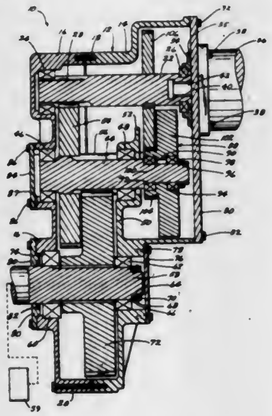
tion wherein said first clutch collar is engaged with said first output gear clutch teeth and said second clutch collar is engaged with said intermediate gear clutch teeth for establishing the low speed power path between said input shaft and said first output shaft.

4,270,410

GEARBOX WITH HIGH SPEED FLYWHEEL

Saul Herscovici, Waterloo, Iowa, assignor to Power Engineering and Manufacturing, Ltd., Waterloo, Iowa

Filed Feb. 23, 1979, Ser. No. 14,700
Int. Cl.[3] F16H *37/06*
U.S. Cl. 74—665 Q 8 Claims



1. A speed reducer gearbox comprising,

a housing means,

an input shaft rotatably mounted in said housing means and adapted to be connected to a power source, said input shaft having a toothed gear means thereon,

an intermediate shaft rotatably mounted in said housing means and having a first toothed gear means thereon which is in mesh with said toothed gear means on said input shaft, said intermediate shaft having a second toothed gear means thereon,

an output shaft rotatably mounted in said housing means and adapted to be connected to a driven member, said output shaft having a toothed gear means thereon which is in mesh with said second toothed gear means of said intermediate shaft,

a flywheel,

means for rotatably mounting said flywheel in said housing means,

said flywheel including a flywheel portion and a toothed gear portion rotatable in unison, and

additional toothed gear means on one of said shafts, said additional toothed gear means being in mesh with said flywheel toothed gear portion and of such relative size that said flywheel is rotated at a higher angular velocity than said one shaft,

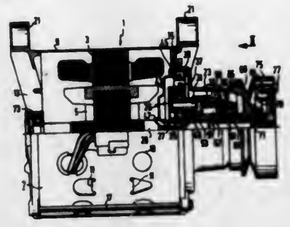
said flywheel being rotatably supported on another one of said shafts.

4,270,411

WASHING MACHINE DRIVE ASSEMBLY

Giuseppe Pengo, Pordenone, Italy, and Hans J. Schwerdhöfer, Schweinfurt, Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany and S.O.I.E. Societa Opitergina Lavorazioni Elettroplastiche S.p.A., Oderzo, Italy

Filed Apr. 17, 1979, Ser. No. 30,857
Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817349
Int. Cl.[3] F16H *3/74*; F16D *47/00*
U.S. Cl. 74—752 E 19 Claims



1. A washing machine drive mechanism comprising: a variable speed electric motor including a motor shaft; a hollow shaft coaxial with said motor shaft and rotatably supported relative thereto; planetary gearing located adjacent said electric motor and including a sun gear affixed with said motor shaft and a carrier gear rotatably supported on said hollow shaft; a driven member drivingly connected with said hollow shaft; clutch means for selectively drivingly engaging said motor shaft with said driven member directly as well as through said planetary gearing and said hollow shaft, said clutch means including centrifugal friction clutch means operatively interposed between said motor shaft and said driven member to effect said direct drive therebetween and overrunning clutch means to effect driving of said driven member by said motor shaft through said planetary gearing and said hollow shaft; a motor housing for said electric motor including motor housing flange means extending from said motor housing and enclosing said planetary gearing, said motor housing flange means being constructed as a gearing housing for said planetary gearing and for said overrunning clutch means; and bearing means for supporting said motor shaft through said hollow shaft on said motor housing flange, said motor shaft being supported on one side thereof exclusively by said hollow shaft on that part of said motor housing flange means which forms said gearing housing.

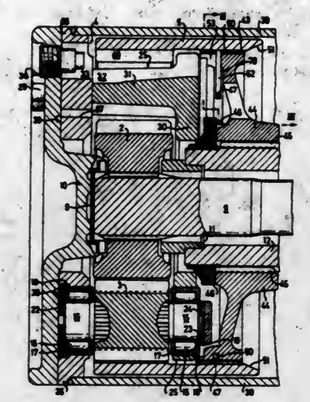
4,270,412

HUB GEAR FOR WHEELED VEHICLES

Per A. O. Beijer, Järna, and Lars O. Strandas, Södertälje, both of Sweden, assignors to Saab-Scania Aktiebolag, Sodertalje, Sweden

Filed Feb. 1, 1979, Ser. No. 8,573
Claims priority, application Sweden, Feb. 8, 1978, 7801453
Int. Cl.[3] F16H *1/28, 35/00*
U.S. Cl. 74—801 5 Claims

1. A hub gear of the planet gear type, for torque transmission between a drive shaft and a vehicle wheel, preferably for a truck, said hub gear comprising a sunwheel non-rotatably connected to the end portion of the drive shaft, a plurality of planet wheels rotatably mounted on a planet wheel holder, said planet wheel holder being non-rotatably connected to the vehicle wheel and having at least an end portion located axially inward of the sunwheel, and a gear ring non-rotatably connected to a non-rotating gear ring retainer that is located axially inward of the planet wheel holder, said sunwheel and said gear ring both meshing with said planet wheels, said gear ring being axially locked relative to said retainer by means of at least one locking means radially attached between the gear ring and the gear ring retainer, the locking means engaging a groove on the gear ring and engaging another groove on the gear ring retainer, said locking means having at least one free portion which, when acted upon in a radial direction, releases



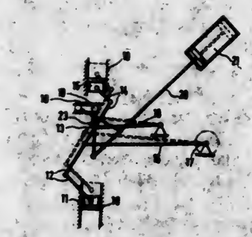
the gear ring from the gear ring retainer, said planet wheel holder having at least one axial through-passage that, when the planet wheel holder has a certain rotational position relative to the gear ring, allows access to the free portion of the locking means by a tool.

4,270,413

INTERMITTENT OPERATION ARRANGEMENT IN A NOTCHING MACHINE

Hans-Martin Dommer, Göppingen, and Otto Kurz, Hattenhofen, both of Fed. Rep. of Germany, assignors to L. Schuler GmbH, Göppingen, Fed. Rep. of Germany

Filed Feb. 2, 1979, Ser. No. 8,847
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1978, 2804390
Int. Cl.[3] F16H *21/26*
U.S. Cl. 74—828 7 Claims



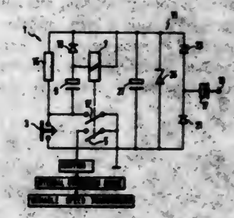
1. An arrangement for enabling an intermittent operation of a notching machine so as to provide for an operating cycle consisting of alternatingly successive notching and notch-free operational steps, the notching machine comprising a first toggle joint means having a first end articulated to a ram and having a second end connected to a central pivot means, a second toggle joint means having a first end articulated to a counterbalance mass means and having a second end nonrotatably secured to the second end of said first toggle joint means at said central pivot means, eccentric drive means operatively connected to one of said first and second toggle joint means for driving said ram, a crank means having one end mounted on a frame of the notching machine and another end operatively connected to a cylinder-piston means, said crank means having an intermediate portion thereof pivotally connected to said toggle joint means at said central pivot means such that selective positioning of said crank means by the cylinder-piston means causes adjustment of the stroke of said ram; the crank means, cylinder-piston means and toggle joint means being arranged such that the central pivot means lies along a straight line connecting the first ends of said toggle joint means for all possible positions of said crank means.

4,270,414

IGNITION CONTROL FOR BETTER GEAR SHIFTING IN AN AUTOMOTIVE VEHICLE

Rudy Tellert, Schweinfurt, Fed. Rep. of Germany, assignor to Sachs-Systemtechnik GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Sep. 19, 1978, Ser. No. 943,682
Claims priority, application Fed. Rep. of Germany, Sep. 23, 1977, 2742989
Int. Cl.[3] F02B *77/00*; B60K *41/08*; F02D *11/02*
U.S. Cl. 74—862 12 Claims



1. Device to facilitate a fast change of gears in motorcycles, comprising:

(a) an internal-combustion engine externally ignitable by means of an ignition system;

(b) a variable speed transmission coupled to the internal-combustion engine, a shifting device having a shifting lever and a shifting shaft, the transmission having gears that are changeable by the shifting lever of the gear shifting device, said lever being actuable by a driver of the motorcycle;

(c) two gear shifting members having a common rotational axis and being rotatable relative to each other around the common rotational axis, said members forming a line of force transfer from the shifting lever of the transmission, a pair of limit stops, at least one of said gear shifting members having the rotational angle of relative movement limited relative to the other by said stops, a shifting shaft, one of the gear shifting members being located closer to the transmission than the other and being non-rotatably mounted on the shifting shaft of the gear shifting device transverse to the axis of rotation of the shaft;

(d) a contactor on one of the members actuable during relative rotation of the gear shifting members; and

(e) a timing circuit actuable by activation of the contactor and which turns off when the ignition system is tripped and, after the termination of a delay of a predetermined duration, again turns on.

4,270,415

TRACTION-DRIVE TRANSMISSION WITH HYDRAULIC CONTROL

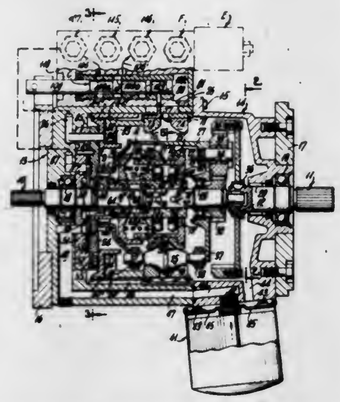
Thorn W. Dickinson, Berlin; Daniel E. McLarty, and Thomas F. Lyons, Jr., both of Plantsville, all of Conn., assignors to Textron Inc., Providence, R.I.

Filed Mar. 12, 1979, Ser. No. 19,858
Int. Cl.[3] B60K *41/14*
U.S. Cl. 74—867 40 Claims

1. A transmission comprising a housing, a drive shaft and a driven shaft journaled for rotation in said housing on a com-

mon axis, a variable-ratio coupling mechanism coupling said shafts, pressure-fluid operated control means for vaying the instantaneous coupling ratio of said mechanism, said mechanism having yieldable antirotational support in said housing, said control means including means operative in the presence of rotational displacement of said mechanism with respect to said housing in response to a change in torsional load on said mechanism, said control means being operatively connected to effectively increase the torque capacity of said coupling mechanism in response to increasing torsional load for a given ratio of said coupling mechanism.

42. A transmission comprising a housing, a drive shaft and a driven shaft journaled for rotation in said housing on a common axis, a variable-ratio coupling mechanism coupling said shafts, pressure-fluid operated control means for varying the instantaneous coupling ratio of said mechanism, said mechanism having yieldable torque-sensitive antirotational support in said housing, said torque-sensitive support including a pressure-fluid control element which is responsive to a change of yielding incremental rotation of said mechanism in the presence of a change of torsional load on said mechanism, said pressure-fluid control element being so operatively connected to said pressure-fluid operated control means as to effectively increase the torque capacity of said coupling mechanism in



response to increasing torsional load for a given ratio of said coupling mechanism.

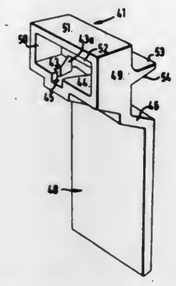
43. A traction-drive transmission, comprising a housing, a drive shaft journaled for rotation in said housing, a rolling-element planetary system including sun-wheel means keyed to said shaft, a gear-element planetary system including sun-gear means keyed to said shaft, planet wheels and planet gears respectively associated with said systems and a planet-member carrier in common for guidance of said planet wheels and planet gears in rotary orbit about the shaft axis, said rolling-element planetary system further including reaction-ring means having yieldable antirotational support in said housing, and said gear-element planetary system having ring-gear means with a transmission-output connection; and pressure-fluid operated control means operative to axially load the engagement of said sun-wheel means and of said reaction-ring means upon said planet wheels to thereby determine the drive ratio of coupling to said drive shaft to said output connection, said control means including means operative in the presence of rotational displacement of said reaction-ring means with respect to said housing in response to a change in torsional load on said transmission, said control means being operatively connected to increase the torque capacity of said transmission in response to increasing torsional load for a given ratio of said transmission.

4,270,416

SCALPEL BLADE EXTRACTOR

David K. Thompson, London, England, assignor to Jermed Limited, St. Helier, Channel Islands

Filed Apr. 20, 1979, Ser. No. 31,807
Claims priority, application United Kingdom, Apr. 21, 1978, 15886/78
Int. Cl.³ B25B 27/14; B65F 7/00
U.S. Cl. 81—3 R
5 Claims



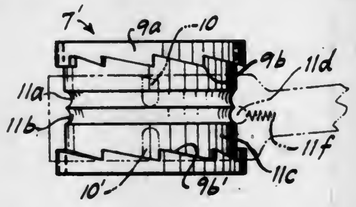
1. A device for removing a detachable blade from a scalpel or the like in which a slotted blade is received in opposed lateral grooves in a thin elongate tang with a proximal region of the blade located behind the tang in a cut-away laterally convergent region intermediate the tang and the handle, the device including a base wall over whose surface the scalpel is advanced and having laterally opposed protuberant regions over which the blade slides and a slot between the protuberant regions which can receive the tang but not the blade, a fully inserted position of the scalpel being defined by abutment between the proximal edges of the protuberant regions and said convergent region, a rear wall supported behind the slot with its lower edge spaced from the base wall to allow the scalpel and blade to be inserted therebetween and to allow a fully inserted scalpel to be pivoted about the lower edge to a tilted orientation in which the proximal end of the blade is levered away from the intermediate region clear of the tang and is retained by interference with the rear wall during removal of the scalpel handle in the titled orientation, and guide surfaces proximally of the slot for directing the scalpel blade or handle into the slot.

4,270,417

TWO-WAY RATCHET WRENCH

Joseph Tesoro, 9 Dade Rd., New City, N.Y. 10956

Filed Mar. 17, 1980, Ser. No. 130,834
Int. Cl.³ B25B 13/46
U.S. Cl. 81—62
8 Claims



1. A two-way ratchet wrench comprising in combination: a socket element having a substantially cylindrical outer circumscribing surface and shaped in the nature of a cylinder having circumscribing overhanging lips at each of opposite ends of the cylinder overhanging radially outwardly, and each of the overhanging lips having a ratchet toothed surface circumscribing said cylinder with the ratchet toothed surface at one of said overhanging lips being shaped to engage a key when the socket element is attempted to be moved in a first revolving direction and with the ratchet toothed surface at a remaining other one of said overhanging lips being shaped to engage a key when the socket element is attempted to be moved in an opposite second revolving direction opposite to said first revolving direction, and said cylinder having an outer circumscribing intermediate wall located between said circumscribing overhanging lips, and said outer circumscribing wall including an alternate position means for adjusting said cylinder axially along a longitudinal axis of the cylinder; and socket mounting means for mounting said socket element revolvably therein, including a mounting housing having a through passage of substantially circular cross-section at an inner-wall surface of the mounting housing, of a size and shape to revolvably mount and support said socket element at said outer circumscribing intermediate wall at positions between said circumscribing overhanging lips, said inner-wall surface including a portion of said alternate position means such that said socket element can be shifted between alternate first and second positions by to and fro alternate movement of said cylinder axially along said longitudinal axis, and said inner-wall surface further having mounted thereon a key means providing a first key engageable and lockable of the ratchet toothed surface of said one of said overhanging lips when said socket element is positioned in said first position and providing a second key engageable and lockable of the ratchet toothed surface of said remaining other one of said overhanging lips when said socket element is positioned in said second position, such that in said first position said socket element is locked against movement in one of clockwise and counter-clockwise directions and such that in said second position said socket element is locked against movement in a remaining other one of said clockwise and counter-clockwise directions.

4,270,418

FLUTED TOOL

Donald L. Shephard, Port Huron, Mich., assignor to Helen I. Shephard, Port Huron, Mich., a part interest

Filed Dec. 12, 1979, Ser. No. 102,927
Int. Cl.³ B25B 13/02
U.S. Cl. 81—90 D
17 Claims



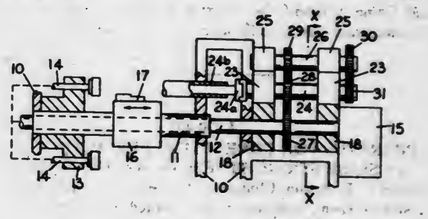
1. A tool for removing bungs and screws comprising a cylindrical shank of predetermined diameter having a longitudinal central axis, adapted for connection adjacent one end to a rotatable power drive;
a cylindrical head of increased diameter extending axially of its other end;
there being transverse axial longitudinal slots through said head extending inwardly from its end for a substantial portion of its length;
and an axial interiorally threaded bore for the length of said slots defining a plurality of flexible parallel flutes;
each flute having a first flat axial side extending substantially the length of said slots;
a radial top edge at the end of said flat side inclined outwardly and toward said shank at an acute angle;
said radial edge terminating in a flat relief surface extending at an increased acute angle toward said shank;
said relief surface terminating in a flat clearance surface extending in a further increased acute angle toward said shank;
said clearance surface terminating in a second axial flat side.

4,270,419

MULTI-SPINDLE LATHES

Geoffrey E. S. Tomlinson, Solihull, England, assignor to White-BSA Tools Ltd., Birmingham, England

Filed May 22, 1979, Ser. No. 41,485
Claims priority, application United Kingdom, May 24, 1978, 53-22139
Int. Cl.³ B23B 3/34, 21/00
U.S. Cl. 82—3
12 Claims



1. A multi-spindle machine tool comprising a frame, a main drive shaft rotatably mounted on said frame, workpiece holding means mounted on said frame and including a plurality of rotatable work spindles, a tool slide mounted on said frame for movement towards and away from said workpiece holding means and adapted to have at least one tool mounted thereon, a main mounting block fixed to said frame, a plurality of mounting surfaces on said main mounting block parallel to and disposed around said main drive shaft, at least one auxiliary mounting block each of which is removably secured to a respective one of said mounting surfaces, at least one auxiliary drive shaft rotatably supported by said at least one auxiliary mounting block for detachable drive-transmitting engagement with said at least one tool, and transmission means for transmitting drive from said main drive shaft to each said auxiliary drive shaft, said transmission means including a first part coupled to said main drive shaft and a second part coupled to each said auxiliary drive shaft, said first and second parts being detachably engaged, whereby each said auxiliary mounting block and the respective auxiliary drive shaft and second part of said transmission means can be removed as a unit from said main mounting block.

4,270,420

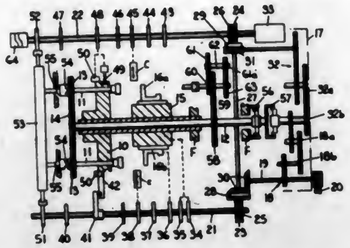
MULTI-SPINDLE LATHES

Geoffrey E. S. Tomlinson, Solihull, England, assignor to White-BSA Tools Ltd., Birmingham, England

Filed May 22, 1979, Ser. No. 41,541
Claims priority, application United Kingdom, May 24, 1978, 22134/78
Int. Cl.³ B23B 3/34, 19/02
U.S. Cl. 82—3
12 Claims

1. A multi-spindle machine tool comprising a frame, a main drive shaft rotatably mounted on said frame, a spindle carrier mounted on said frame for indexing movement relative thereto, a plurality of work spindles rotatably carried by said spindle carrier and driven from said main drive shaft, a tool slide mounted on said frame for movement towards and away from said spindle carrier, and a plurality of rotatable cams driven from said main drive shaft and operatively coupled to

said tool slide and said spindle carrier, all of said rotatable cams being mounted on at least one camshaft disposed along a side of



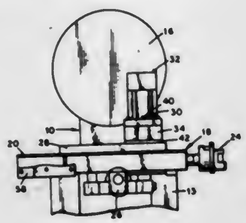
said frame adjacent the exterior thereof so that all of said rotatable cams are readily accessible for changing.

4,270,421

APPARATUS FOR CORRECTING PRECISION ERRORS IN SLIDE STRAIGHTNESS IN MACHINE TOOLS

Samuel C. Robinson, Clinton, and Howard L. Gerth, Knoxville, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 22, 1979, Ser. No. 22,898
Int. Cl.³ B23B 21/00
U.S. Cl. 82—21 A 4 Claims



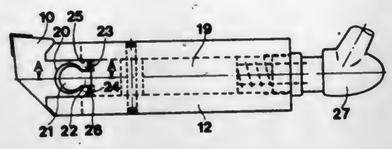
1. An improvement in a machining apparatus utilized to machine a workpiece into a desired product configuration wherein deviations in slideway straightness and roll are compensated for, comprising spindle means rotatable about an axis and adapted to support one of a workpiece and a machine tool, elongated slide means, carriage means on said slide means for displacement therealong, fixture means carried by said carriage means and adapted to support one of a workpiece and a machine tool, moving means coupled to said carriage means for effecting the displacement of the carriage means and the fixture means on said slide means along a preselected path, said improvement comprising fixture supporting means comprising a mass of metal disposed intermediate to and coupled to both said fixture means and said carriage means, hinge means in said fixture supporting means contiguous to the coupling with said carriage means for providing movement of said fixture supporting means and the fixture means coupled thereto in a plane normal to said preselected path, said hinge means comprising a pair of parallel elongated and co-extensive slots extending through the thickness of the fixture supporting means and spaced from one another by a portion of said fixture supporting means, said fixture supporting means being coupled to said carriage means at said portion, and drive means coupled to said carriage means and contacting said fixture supporting means for displacing the latter along said plane a preselected distance by bending said portion adjacent to the distal ends of said slots.

4,270,422

CUTTING TOOL

Ken G. E. Andersson, Årsunda, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden

Filed Sep. 19, 1979, Ser. No. 76,860
Claims priority, application Sweden, Sep. 26, 1978, 7810060
Int. Cl.³ B23B 29/12
U.S. Cl. 82—36 R 10 Claims



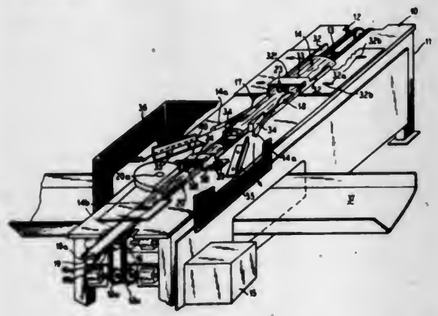
1. A cutting tool comprising an elongated holder body, and a bar movable in the holder body for clamping a tool element against the holder body, said tool element being provided with a cutting means, characterized in that the tool element is provided with a groove, the opening of said groove facing the bar, said tool element having projections at said opening into said groove from both sides thereof so as to provide the opening with a restricted cross section area, and that the bar is provided with an enlarged portion adjacent to the tool element, said groove being adapted to receive said enlarged portion, said enlarged portion and projections having complementary cam surfaces so that when pulling by means of the bar the tool element against at least one end surface on the holder body the projections are caused to expand in opposite directions, thereby forcing the projections against opposed abutting surfaces on the holder body.

4,270,423

SLAB TRIMMING APPARATUS

Frank M. Angelo, Box 847, Jonesboro, Ark. 72401

Filed May 29, 1979, Ser. No. 43,379
Int. Cl.³ B27B 7/02, 1/00
U.S. Cl. 83—102.1 2 Claims



1. A slab trimming apparatus adapted to square up slabs cut from outer sections of logs, each slab has a curved surface bounded by a straight surface, said apparatus comprising:

an elongated supporting frame with a flat top surface and a conveyor adapted to move a plurality of slabs, with straight surfaces positioned adjacent said conveyor, along said elongated dimension of said frame, the members of the plurality of slabs are spaced apart from one another by spaced apart, wedge shaped, pushing members affixed to said conveyor, each said pushing member pushes an associated slab through said elongated dimension of said frame,

first and second powered rotary saws selectively positioned near a first end of said frame, said saws rotate in planes perpendicular to said flat top surface and are spaced apart laterally from one another on a common axis of rotation with said conveyor therebetween, said lateral spacing determines a width dimension of the squared up slabs which are pushed by said conveyor through said saws,

first and second elongated wedge shaped trim deflecting members affixed to said flat top surface adjacent output sides of said first and second saws with said conveyor passing therebetween, said first and second wedge shaped members are adapted to laterally deflect pieces trimmed from each slab by said first and second saws,

first and second elongated right-angle members affixed to said flat top surface a selected distance away from said first and second trim directing members and oriented laterally outwardly with respect thereto, said first and second right angle members are adapted to further deflect laterally and off of said frame the pieces trimmed from each side of each slab,

a third circular, rotary, powered saw positioned near a second end of said frame with an axis of rotation perpendicular to said flat top surface, said third saw is spaced vertically above said top surface, over a section of said conveyor, a selected distance corresponding to a desired height dimension of the squared up slabs, said pushers push each slab past said third saw thereby trimming a top portion from each slab producing a board with a rectangular cross section,

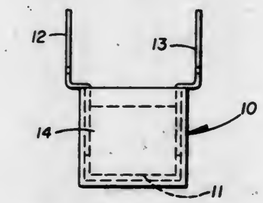
an elongated planar deflection member located on an output side of said third saw and adapted to deflect the trimmed top portion from each squared up slab.

4,270,424

METHOD AND APPARATUS FOR CUTTING AND RACKING LEAD FRAME STRIPS OF BOXED CAPACITORS

Donald K. Sandmore, Oak Lawn, Ill., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,372
Int. Cl.³ B23D 33/02; B26D 7/18
U.S. Cl. 83—167 8 Claims



1. An apparatus for advancing sections of a carrier strip having spaced feed holes into chambers of a multi-chamber magazine, which comprises:

T-shaped dividers defining the chambers and having top sections spaced apart to provide feed slots;

means for cyclically advancing sections of the carrier strip into a chamber of the magazine;

means rendered effective upon advance of a predetermined length of the strip into a chamber for severing the strip;

auxiliary means including a feed pin rendered effective upon completion of operation of the severing means for engaging the feed pin within a carrier strip feed hole and advancing the pin through and along a feed slot to move the severed section of strip completely within the chamber of the magazine; and

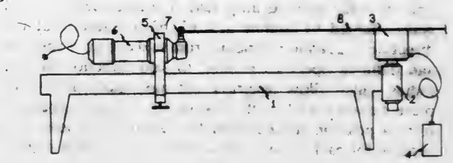
means rendered effective upon completion of operation of the auxiliary advancing means for moving the magazine to present another chamber in position to receive a subsequently advanced section of the carrier strip.

4,270,425

CIRCLE CUTTING ATTACHMENT

Luther D. Albertson, Jr., 3310 Ridgewood Dr., New Albany, Ind. 47150

Filed Dec. 13, 1978, Ser. No. 969,216
Int. Cl.² B23D 27/00
U.S. Cl. 83—411 R 1 Claim



1. A circle cutting apparatus utilized as an attachment to hand type power metalworking shears and nibblers for the purpose of cutting precision circles comprising;

a. A ridged support frame upon which is mounted a yoke and clamp assembly for holding and positioning a shear or nibbler along said support frame;

b. A shaft and bearing assembly rigidly connected to one end of said support frame;

c. A electro-magnet attached to one end of shaft of said shaft and bearing assembly for holding a workpiece magnetically in position while being rotated 360 deg. by hand;

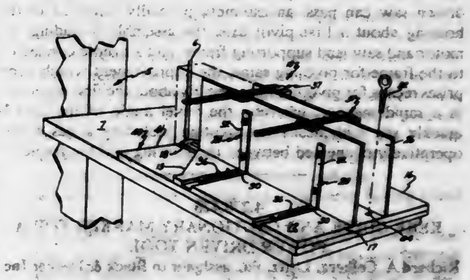
d. A AC to DC current rectifier electrically connected to said electromagnet with on-off switch for control.

4,270,426

ROTATABLE CUTTING GUIDE

Rouchdy B. Raphael, 508 Lyon St., NE., Grand Rapids, Mich. 49503

Filed Feb. 22, 1979, Ser. No. 14,260
Int. Cl.³ B27B 13/04; B26D 7/06, 3/10
U.S. Cl. 83—411 R 25 Claims



1. A cutting guide for supporting and guiding a work piece such as flexible foam material or the like during cutting of an arc or curved path in the work piece comprising;

a base;

a rotatable member rotatably mounted on said base for rotation about a center;

rigid, upstanding, support means on said rotatable member for supporting a work piece to be cut in an arc or curved path; and

pivot means on said base and rotatable member for providing and fixing a center of rotation of said rotatable member with respect to said base, said rotatable member being rotatable about said pivot means to guide the cutting of a precise circular arc or curve in a work piece when said cutting blade is located adjacent a cutting apparatus such as a band or other type saw and a work piece is supported by said support means;

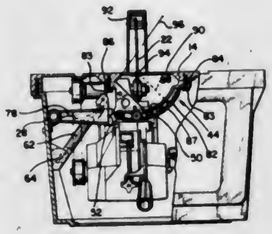
said upstanding support means including a pair of spaced, upright walls secured atop said rotatable member, said walls adapted to confine a work piece laterally of the direction of a radius extending from said center of rotation and defining openings parallel to said direction of said radius which allow insertion and movement of a work piece between said walls toward the cutting apparatus from a position spaced from that location, at least one support for each of said walls, said supports each including securing means for securing said supports at various positions on said rotatable member whereby the spacing between said walls is adjustable laterally of said radial direction to support different sized work pieces and to support work pieces at different positions with respect to said center of rotation.

4,270,427

BEVEL ANGLE SETTING MEANS FOR A POWER TOOL APPARATUS

Richard A. Colberg, Lititz, and William T. Heary, Jr., Lancaster, both of Pa., assignors to Black & Decker Inc., Newark, Del.

Filed Feb. 4, 1980, Ser. No. 118,571
Int. Cl.³ B27B 5/24
U.S. Cl. 83—473 **8 Claims**



2. In a power tool apparatus including a housing equipped with a table top having an opening through which a motor-driven saw can pass, an assembly pivotally mounted in the housing about a first pivot axis, the assembly including the motor and saw, and supporting frame, and a handle connected to the frame for pivoting same, the improvement which comprises means for pivoting the assembly about the first pivot axis in a rapid manner, whereby the bevel angle of the tool is quickly set, said means for pivoting including a gas spring operatively connected between the housing and the frame.

4,270,428

KERF GUIDE AND CAUTIONARY MARKER FOR A POWER DRIVEN TOOL

Richard A. Colberg, Lititz, Pa., assignor to Black & Decker Inc., Newark, Del.

Filed Jul. 25, 1979, Ser. No. 60,380
Int. Cl.³ B27B 5/22
U.S. Cl. 83—477.2 **8 Claims**

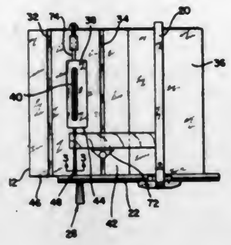
1. A power tool apparatus having a housing, drive means mounted in the housing, and a tool connected to the drive means, comprising:

(a) a table top having a front edge mounted on the housing, and having a first surface lying in a plane,

(b) a linear groove formed in the first surface,

(c) a tool opening having an insert aperture through which the tool is extendable, formed in the first surface and intersecting the groove,

(d) cautionary material inserted in the groove and having a second surface lying in the plane of the first surface,



(e) the second surface capable of receiving a scribe mark and having a color contrasting with the color of the table top adjacent the groove, whereby a workpiece may be aligned with the tool along the second surface and an operator is alerted to the tool's cutting path,

(f) the linear groove extends to the front edge, and

(g) the second surface extends the length of the groove.

4,270,429

ATTENUATED VIBRATION CIRCULAR SAW

Ernest W. Brown, Gresham, Oreg., assignor to International Paper Company, New York, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,822
Int. Cl.³ B27B 33/08
U.S. Cl. 83—851 **11 Claims**

1. A circular saw having improved vibration characteristics comprising:

a circular saw plate;

a multiplicity of saw teeth circumferentially disposed around said saw plate;

said saw teeth being positioned in a plurality of generally equal angular segments around said saw plate each segment including a plurality of said saw teeth the majority of which are randomly spaced from each other, each said segment including a first angular zone which is generally stiffer than the balance of said segment, and wherein the quantity of said segments around said saw plate is an odd number;

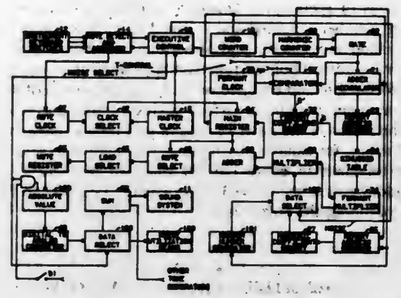
whereby as said saw is rotated said segments tend to induce a nodal vibration whose period corresponds to two of said segments and periodic reinforcement of said nodal vibration tends to be avoided by an out-of-phase relationship of the vibration excursion occurring at the beginning of one revolution of said saw with respect to the vibration excursion occurring at the end of said revolution.

4,270,430

NOISE GENERATOR FOR A POLYPHONIC TONE SYNTHESIZER

Ralph Deutsch, Sherman Oaks, Calif., assignor to Kawai Musical Instrument Mfg. Co., Ltd., Hamamatsu, Japan

Filed Nov. 19, 1979, Ser. No. 95,896
Int. Cl.³ G10H 1/08, 5/00
U.S. Cl. 84—1.23 **11 Claims**



1. A musical instrument utilizing a noise-like signal generator comprising;

a random number generator for creating a sequence of random data values,

a means for computing a noise master data set responsive to said sequence of random data values during each computation cycle of a sequence of computation cycles,

a first memory means for writing said noise master data set to be thereafter read out,

a second memory means for writing input data to be thereafter read out,

means for reading said noise master data set from first memory means and for writing said noise master data set in said second memory means,

means for repetitiously and sequentially reading out data stored in said second memory means,

absolute value means for generating the absolute values of data read out from said second memory means, and

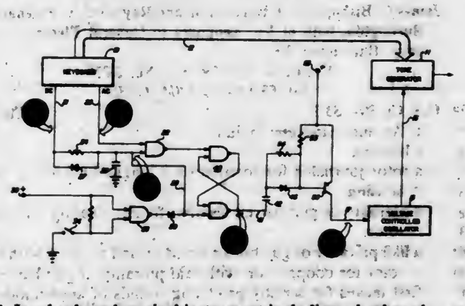
means for converting wherein said generated absolute values of data are converted to provide said noise-like signal.

4,270,431

GLIDE CIRCUIT FOR ELECTRONIC MUSICAL INSTRUMENT

James S. Southard, Union, Mich., and Eric R. Bean, South Bend, Ind., assignors to Kimball International, Inc., Jasper, Ind.

Filed Jan. 13, 1978, Ser. No. 869,321
Int. Cl.³ G10H 1/02
U.S. Cl. 84—1.24 **11 Claims**



1. In a keyboard musical instrument including a keyboard, a tone generator and a controlled reference oscillator for supplying a reference frequency signal to the tone generator,

means for determining when a second key has been activated subsequent to the activation of a first key of the keyboard and during the time that the first key remains activated,

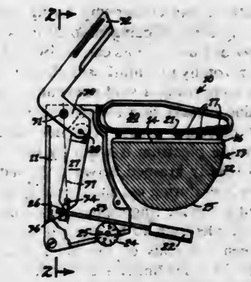
means connected to the determining means and to the controlled oscillator for detuning the tone generator, said detuning means producing a transient control signal in response to the determination of the determining means of the activation of a second key subsequent to the activation of a first key and during the time that the first key remains activated, the determining means being connected between the keyboard and the detuning means, the transient control signal automatically returning to its initial state within a predetermined time interval, the control signal when applied to the controlled oscillator detuning the tone generator and causing the tone generator automatically to glide back into tune as the control signal returns to its initial state.

4,270,432

CAPO

James W. Wilkerson, Highway 64 East, Savannah, Tenn. 38372

Filed Oct. 29, 1979, Ser. No. 89,158
Int. Cl.³ G10D 3/04
U.S. Cl. 84—318 **3 Claims**



1. A capo for attachment to the neck of a stringed musical instrument, said neck having a longitudinal axis, opposite sides, a top surface and a bottom surface, transverse frets disposed on said top surface and a plurality of strings disposed parallel to said longitudinal axis, comprising:

(a) a frame,

(b) an elongated top pressure bar projecting from said frame and adapted to extend transversely to said longitudinal axis over said top surface and to engage said strings when said frame is located along one side of said neck in operative position,

(c) a mounting arm having a remote end terminating in a bottom pressure bar, a proximal end, and an intermediate portion between said remote end and said proximal end,

(d) means supporting the intermediate portion of said mounting arm for pivotal movement about an axis parallel to said longitudinal axis for movement of said bottom pressure bar between an operative position engaging the bottom surface of the neck of a musical instrument and an inoperative position away from said bottom surface,

(e) a manual lever terminating in a toggle arm, having a free end,

(f) a journal member connecting said toggle arm to said frame above said mounting arm and between said free end and said manual lever, for pivotal movement about an axis parallel to said longitudinal axis,

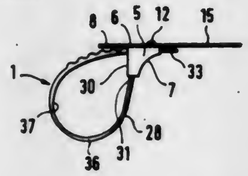
(g) a link bar having upper and lower ends,

(h) a connector member connecting the lower end of said link bar to the proximal end of said mounting arm,

(i) a hinge pin member pivotally connecting the free end of said toggle arm to the upper end of said link bar, whereby

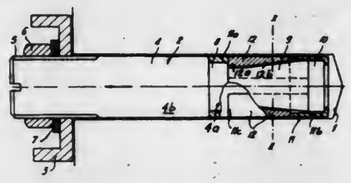
said hinge pin member is adapted to move past a dead-center line extending through said journal member and said connector member, when said manual lever moves to its operative position, causing said bottom pressure bar to move to its operative position and said top pressure bar to engage and force said strings against a fret.

4,270,433
FINGER RING WITH PLECTRUM
Robert Adamec, Georgenstrasse 49, 8450 Amberg, Fed. Rep. of Germany
Filed Oct. 17, 1979, Ser. No. 86,016
Claims priority, application Fed. Rep. of Germany, Mar. 24, 1979, 2911696; Aug. 14, 1979, 2932882
Int. Cl.³ G10D 3/16
U.S. Cl. 84—322 17 Claims



1. A plectrum ring comprising a ring element and a plectrum, said ring element being adapted to be worn around the middle finger of a user, a boss carried by said ring element, and stud means pivotally mounting said plectrum on said boss, said stud means comprising a stud element having an axis which passes outside of said ring element such that the axis about which said plectrum pivots does not intersect said middle finger when the plectrum is worn by the user, whereby said plectrum is readily grasped between the index finger and the thumb of the user during use and is readily pivotable about said stud element while the ring element is still on the middle finger to permit the plectrum to be pivoted to a position removed from between the ends of the index finger and thumb to thereby free the index finger and thumb to pluck the strings of an instrument or the like while the plectrum is still retained on the middle finger.

4,270,434
STRADDLING DOWEL
Josef Bucheli, Herrliberg, Switzerland, assignor to Tuflex AG, Switzerland
Filed Nov. 17, 1978, Ser. No. 961,649
Claims priority, application Switzerland, Dec. 20, 1977, 15713/77
Int. Cl.³ F16B 13/10
U.S. Cl. 411—21 5 Claims



1. A dowel construction for anchoring an element in a borehole of a wall comprising a metallic bolt adapted to be received in the borehole, said bolt having a cylindrical shank portion of uniform diameter corresponding to the diameter of the borehole, a conical portion having an angle of conicity of from 3° to 10° and conically expanding toward an end of the bolt adapted to be received in the borehole, an inner cylindrical portion of a diamter smaller than the diameter of said shank portion and greater than the smallest diameter of the conical portion connecting said shank portion and said conical portion and a cylindrical end portion connected to said conical portion, a tubular cage element mounted on said bolt about said conical portion and having a rear annular portion arranged on said inner cylindrical portion and abutting said shank portion and a front annular portion overlapping and abutting the front face of cylindrical end portion of said bolt, said tubular cage element being plastic and having a plurality of circumferentially spaced apertures between said rear and front annular portions of rectangular shape, a metallic shell-shaped straddling member mounted and retained in each of said apertures for radial movement, said straddling member abutting said inner cylindrical bolt portion having an interior conical surface conforming to and engaged on said conical portion of said bolt and an outer cylindrical surface having a radius corresponding to the radius of the outer surface of said tubular cage member, and means for axially moving said bolt relative to said tubular cage element to cause radially outward movement of said straddling member to wedgingly engage said bolt to the surface defining the borehole.

4,270,435
DESENSITIZED PRIMARY EXPLOSIVES
Gerald L. Hurst, Austin, Tex., assignor to Atlas Powder Company, Dallas, Tex.
Filed May 16, 1979, Ser. No. 39,351
Int. Cl.³ C06B 37/00; F42B 3/10
U.S. Cl. 86—1 R 20 Claims

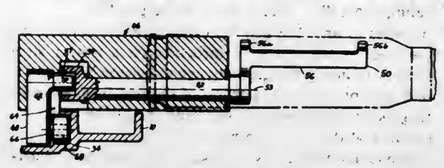
1. A method of desensitizing and resensitizing explosive metal fulminate primary explosives comprising:
(a) contacting the explosive metal fulminate with an effective amount of desensitizing agent selected from the group consisting of aliphatic amines, aromatic amines and ammonia to desensitize the explosive metal fulminate; and
(b) subsequently contacting the explosive metal fulminate with a Lewis acid in an amount effective to thereby recapture the impact sensitivity of the explosive metal fulminate.

5. A method for packaging silver fulminate containing explosive articles wherein the danger of shock detonation of a bulk quantity of said silver fulminate is substantially eliminated, comprising:
(a) desensitizing a bulk quantity of silver fulminate by contacting said silver fulminate with an effective amount of a desensitizing agent selected from the group consisting of aliphatic amines, aromatic amines and ammonia;
(b) depositing said desensitized silver fulminate on a substrate material;
(c) packaging discrete portions of said substrate deposited bulk quantities of desensitized silver fulminate;
(d) resensitizing said packaged discrete portions of silver fulminate by contacting said silver fulminate with an effective amount of a resensitizing agent.

4,270,436
AMMUNITION FEED AND EJECT MECHANISM
James C. Bishop, South Burlington, and Raymond A. Pateenade, Burlington, both of Vt., assignors to General Electric Company, Burlington, Vt.
Filed Jan. 8, 1979, Ser. No. 2,039
Int. Cl.³ F41D 7/04, 11/30
U.S. Cl. 89—33 R 5 Claims

1. An automatic gun including:
a housing;
a rotor journaled for rotation on a longitudinal axis in said housing;
a plurality of gun barrels secured to and rotating with said rotor;
a like plurality of gun bolts carried by and rotating with said rotor for cooperation with said plurality of gun barrels;
first means for serially providing rounds of ammunition to said gun bolts;

second means for serially receiving fired cases from said gun bolts;
a like plurality of round control means each carried by and rotating with said rotor, and each journaled for movement with respect to said rotor about a respective axis which is parallel to said longitudinal axis of said rotor, each for cooperating with a respective gun bolt, for progressively



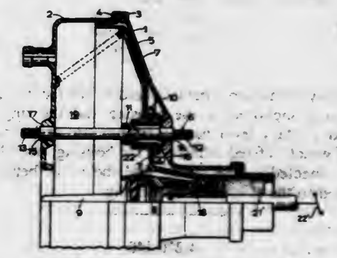
guiding the transfer of a round of ammunition from said first means to a respective gun bolt and for performing the transfer of a fired case from said respective gun bolt to said second means; and
additional control means fixed to said housing and coupled to said plurality of round control means for causing the movement of each of said round control means.

4,270,437
GAS OPERATED AUTOMATIC WEAPON
John S. Donovan, 16503 Santa Rosa, Detroit, Mich. 48221
Continuation-in-part of Ser. No. 916,961, Jun. 19, 1978, abandoned, which is a continuation-in-part of Ser. No. 874,114, Feb. 1, 1978, Pat. No. 4,210,068, which is a continuation-in-part of Ser. No. 829,716, Sep. 1, 1977, abandoned. This application Mar. 15, 1979, Ser. No. 20,679
Int. Cl.³ F41D 5/04
U.S. Cl. 89—192 10 Claims



1. A gas operated automatic weapon comprising:
a receiver frame;
a barrel having a bore and chamber formed therein and secured to said receiver frame;
a bolt assembly slidably mounted within said receiver;
a feed mechanism feeding cartridges into said receiver frame through a breech opening formed in said receiver frame and ejecting spent cartridge casings from said receiver frame;
actuating means for causing said bolt assembly to move rearwardly to allow said ammunition to be fed into said receiver frame into a position aligned with said bolt assembly and further causing said bolt assembly to move so as to ram said round to ammunition into said chamber;
means locking said bolt in said position with said round seated in said firing chamber;
means locking said bolt during firing of said firearm and releasing said bolt for said rearward movement after firing of said round;
trigger means selectively operable to cause a round positioned in said chamber to be fired;
said means for actuating said bolt including power cylinder means including at least one piston and cylinder and including means for communicating gas pressure existing in said barrel bore to one side of said piston to create a force on said piston by said gas pressure generated in the bore by firing of said round;
said means further including a bolt extraction spring compressed by said piston and means for retracting said bolt by said compressed bolt extraction spring after firing of said cartridge and unlocking of said bolt assembly;
said feed mechanism including a feed slider moved rearwardly by said bolt assembly and returned by said means causing said bolt assembly to ram rounds of ammunition into said chamber, said feed slider including portions located to the front and the rear of said bolt extraction spring and portions extending therebetween, and further including means feeding said cartridges into said receiver frame by successive movements of said feed slider.

4,270,438
SERVO BOOSTERS FOR VEHICLE BRAKING SYSTEMS
Alfred W. Thomas, Koblenz, and Lutz E. A. Op den Camp, Koblenz-Moselweiss, both of Fed. Rep. of Germany, assignors to Lucas Industries Limited, Birmingham, England
Filed Jul. 6, 1979, Ser. No. 55,483
Claims priority, application United Kingdom, Jul. 8, 1978, 29253/78
Int. Cl.³ F15B 13/02
U.S. Cl. 91—49 11 Claims

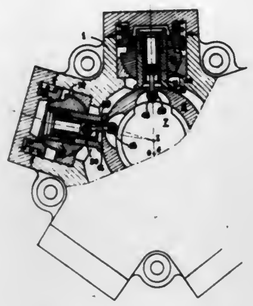


1. A servo booster for a vehicle braking system comprising a housing, a pedal-operated input member and an output member, a movable wall dividing the interior of said housing into two chambers, a valve assembly controlling the differential pressure between said chambers in response to movement of said input member, a main diaphragm and a diaphragm support plate of said movable wall, first and second housing walls disposed on opposite sides of said movable wall, a stationary tie extending through said support plate from said first to said second housing wall, a tubular extension co-axial with said tie, means rigidly connecting said tubular extension to said support plate, and a rolling diaphragm, a first end of said rolling diaphragm being sealed to said tubular extension, and a second end of said rolling diaphragm being sealed to said tie.

4,270,439
FLUID ROTARY MACHINE
Jean-Luc Ponchaux, La Cure de Peteuse, 87590 L'Hermenault (Vendée), France
Filed Jun. 21, 1978, Ser. No. 917,569
Claims priority, application France, Jun. 24, 1977, 77 19378; Canada, Jun. 27, 1977, 281419
Int. Cl.³ F01B 1/04
U.S. Cl. 91—495 2 Claims

1. A fluid rotary machine having radial pistons and a shaft with an eccentric cam having a rotational movement relative to the housing, the cam mounting a ring on the exterior thereof and the pistons abutting against the exterior surface of the ring with each piston mounted for sliding movement in the interior of a cylinder, the ring being associated with the distribution of the fluid of the machine to the pistons and cylinders, means immobilizing the ring against rotation relative to the housing and subjugating the ring to an essentially circular translation movement relative to the rotational movement of the eccentric cam on which the ring is mounted, characterized by the fact that the means for maintaining the ring in such a position comprises a plurality of elastic members connecting predetermined points of the ring to anchor points immobilized with the ring, these elastic members being sufficiently strong to oppose

the tendency of the ring to rotate with the cam, but on the other hand, having sufficient elasticity to be adaptable to different eccentricities of the cam when the actual displacement of the machine is being changed, said elastic members being such that their flexion is only a fraction of the value of the



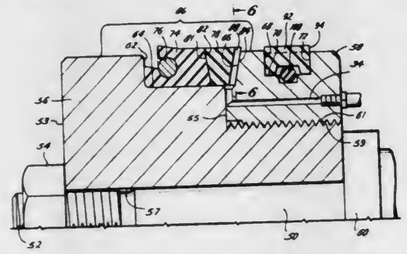
eccentricity of the cam, characterized by the fact that, between each spring anchored to the housing and the ring, there is provided a rotary lever having asymmetric arms and the fulcrum of which is fixed relative to the housing, one of the arms being connected to the spring and the other being slidably connected to the pivot axis of the ring.

4,270,440

HIGH PRESSURE PISTON AND SEAL

Edwin C. Lewis, II, Houston, Tex., assignor to Weatherford/DMC, Houston, Tex.

Filed Feb. 22, 1979, Ser. No. 14,016
Int. Cl.³ F01B 31/00
U.S. Cl. 92—87 13 Claims



1. In a reciprocating mud pump having a cylinder liner and a piston rod, a piston slidably received within the liner comprising

a. a main body having a substantially cylindrical outer surface and a substantially cylindrical threaded surface of a smaller radius than the outer surface,

b. a rear support having a substantially cylindrical outer surface extending radially outwardly approximately equally to the outer surface of the main body around an axis and having a threaded inner surface compatible with the threaded surface of the main body so that said rear support is threadedly received by the main body to form a piston body around an axis said piston body having an outer surface of less diameter than that of the liner,

c. a means to secure the piston body to the piston rod,

d. a first annular recess disposed within the outer cylindrical surface of the piston body, said recess extending longitudinally from a front surface to a rear surface,

e. an elastomeric seal disposed substantially within a portion of the first annular recess and extending radially outwardly of the piston body, said seal having a diverging rear surface and at least a portion of said seal abutting at least a portion of the front surface of the first annular recess,

f. a means to urge the seal into sealing contact with the liner,

g. a gap filler having a diverging front face abutting the diverging rear surface of the seal, and a diverging rear face which carries a plurality of water channels communicating generally radially through the gap filler,

h. a means to urge the gap filler into intimate contact with the liner as the piston reciprocates on a power stroke thereby reducing the gap between the piston body and the liner and preventing a portion of the seal from extruding to a location between the liner and the piston body,

i. a source of fluid under pressure,

j. a second annular recess disposed within the outer surface of the rear support of the piston body, said second annular recess spaced apart from the first annular recess by a portion of the piston body,

k. an annular wearband substantially displacing the second annular recess, the peripheral surface of said wearband extending radially outwardly equidistantly with the gap filler into sliding contact with the liner, said wearband including a plurality of flowpaths traversing the wearband at an angle from the piston axis and,

l. a means to bias the wearband radially outwardly.

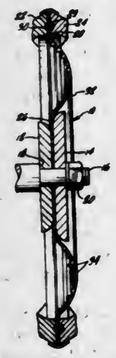
m. a means to communicate the source of fluid under pressure (i) through the piston and thence through the channels in the gap filler onto a portion of the liner which is disposed substantially between the gap filler and the wearband, and thence through the flowpaths in the wearband so that on the power stroke the seal is in sliding contact with the liner, the axial forces of the mud upon the seal urges the seal against the gap filler, the diverging front and rear faces of the gap filler permit the gap filler to be urged into sliding contact with the liner to eliminate extrusion of the seal between the liner and the gap filler, the wearband is in sliding contact with the liner, and the fluid under pressure passes through the channels in the gap filler, contacts the liner between the gap filler and the wearband, and through the angled flowpaths in the wearband thereby inducing a vortex washing action on a portion of the liner disposed rearward of the wearband.

4,270,441

PUMP DIAPHRAGM

Alan D. Tuck, Jr., Upland, Calif., assignor to Wilden Pump & Engineering Co., Colton, Calif.

Continuation-in-part of Ser. No. 956,189, Oct. 30, 1978. This application Mar. 1, 1979, Ser. No. 16,426
Int. Cl.³ F01B 19/00
U.S. Cl. 92—102 4 Claims



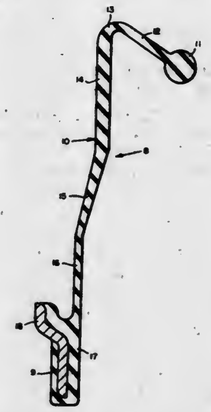
1. A pump assembly including an air chamber housing, a liquid chamber housing and a diaphragm positioned therebetween, said air chamber housing having an air sealing means adjacent said diaphragm for sealing the joint between said air chamber housing and said diaphragm, said liquid chamber housing having an annular channel adjacent to said diaphragm and said diaphragm having a convex annular member to mate with said annular channel wherein the improvement comprises a continuous ridge on the convex annular member, said ridge being inwardly of the center line of said convex annular member.

4,270,442

DISC BRAKE BOOT

Dean R. Bainard, Bethel Township, York County, S.C., and Martin Benjamin, E. Gastonia, N.C., assignors to Garlock Inc., Longview, Tex.

Continuation of Ser. No. 875,765, Feb. 7, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 109,894
Int. Cl.³ F16J 15/18, 15/52
U.S. Cl. 92—168 15 Claims



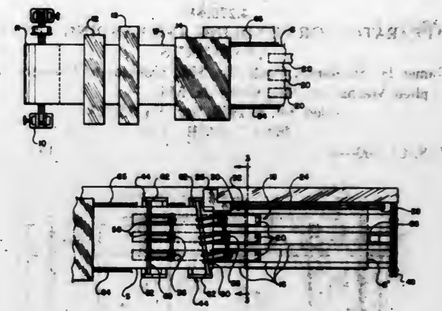
1. A flexible elongated sealing boot for sealing an annular space between a wall of a cylinder defining a bore and a relatively axially movable piston in the bore, said sealing boot comprising an annular, molded, one-piece, elastomeric sleeve that is collapsible from an extended as-molded condition to a collapsed, convoluted condition, said sleeve having a sealing bead portion at one end thereof and a cylinder sealing portion at the other end thereof, said bead portion having a smaller as-molded inner diameter than that of said cylinder sealing portion, said sleeve comprising seven distinct wall portions of a plurality of different thicknesses serially connected together and comprising in order from said bead portion: said sealing bead portion, an upper boot wall, an upper flex wall, a stabilizing wall, an outwardly tapered frusto-conical rolling wall, a lower flex and rolling wall, and said cylinder sealing portion, said sealing bead and said upper boot wall being located in the as-molded shape of said sleeve radially inwardly from said stabilizing wall and being connected thereto by said upper flex wall, and said lower flex and rolling wall and said cylinder sealing portion being located in the as-molded shape of said sleeve radially outwardly from said stabilizing wall and being joined thereto by said outwardly tapered frusto-conical rolling wall.

4,270,443

CONVOLUTE PAPER TUBE FORMING APPARATUS AND METHOD

Thomas L. McSwiney, Rock Hill, S.C.; George S. Bonar, La Fayette, and Oran W. Johnson, Calhoun, both of Ga., assignors to Star Paper Tube, Inc., Rock Hill, S.C.

Filed Jul. 11, 1978, Ser. No. 923,673
Int. Cl.³ B31C 3/00
U.S. Cl. 493—287 29 Claims



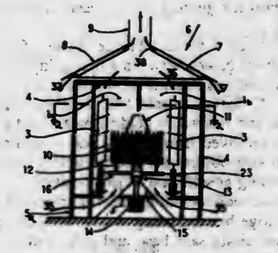
1. A convolute paper tube forming apparatus comprising elongated means for engagement of the full length of an edge of a sheet of paper and means for rotating said elongated means for winding said sheet onto said elongated means about the longitudinal axis thereof to form a tube, and continuously-advancing conveying means disposed adjacent said elongated means for causing said sheet to be moved generally parallel to the axis of said winding by relatively slidable frictional contact of said sheet with said conveying means for axial movement of said sheet edge longitudinally and progressively into said full length winding engagement.

4,270,444

SPIT ROASTER

Robert Geissmann, 153 Rue de l'Universite, 75007 Paris, France

Filed Sep. 6, 1978, Ser. No. 940,085
Int. Cl.³ A47J 37/04
U.S. Cl. 99—421 V 9 Claims



1. A spit roaster comprising a horizontally disposed table, mounted for rotation about a first axis, a body member mounted centrally on said table, and a grid mounted along the periphery of said table to define with said body member an area for location of a source of heat, a sleeve mounted for rotation about said central axis, conjointly with said table, a plurality of radially extending hollow arms projecting from said sleeve, a rod member slidably positioned in each of said arms and selectively securable in any desired extended relation radial therewith, a spit rotatably mounted on the free end of each of said rods for rotation about a second axis spaced from said first axis and rotatable conjointly with said table about said first axis, first motor means to rotate said table and spits about said first

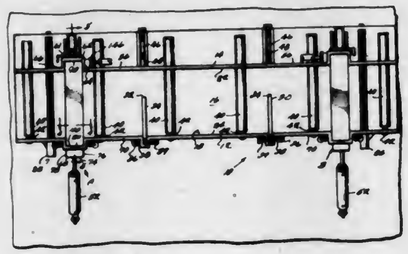
axis, and second motor means to rotate said spits about said second axis, a stirrup carried by each of said rods, a coupling sleeve secured to each said stirrup extending longitudinally thereof, and an electric motor mounted at one end of each said stirrup having a motor shaft thereof insertable into one end of the coupling sleeve, the other end of each said coupling sleeve being adapted to receive one of the mounting shafts of the spit for operative connection with the motor.

4,270,445

APPARATUS FOR BUNDLING AND BANDING A STACK OF OBJECTS

James H. Stubbings, Rockville, Md., assignor to Potomac Applied Mechanics, Inc., Bethesda, Md.

Filed Jul. 6, 1979, Ser. No. 55,368
Int. Cl.³ B65B *13/04*
U.S. Cl. 100—4 15 Claims



1. An apparatus for bundling and banding objects together comprising:

a bundler structure including a base and first and second opposing side walls having opposing inside surfaces extending upward from the inside surface of said base, said side walls having upper edges defining an opening for vertically receiving said objects onto said base at a first position on said base, said base and side walls having means for releasably guiding at least one band downward along the inside surface of one of said walls, beneath said objects to be banded and upward along the inside surface of the other of said walls when said objects are in said first object position; and

bridge means for guiding said at least one band across said opening;

means, connected to said bridge means, for moving said bridge guide means between a first guide position whereat said guide means extends substantially across said opening in spaced relation to said base in planar alignment with said wall and releasably guiding means and a second guide position removed from at least one of said two side walls whereat said objects may be vertically received through said opening at said first object position;

said first side wall including banding means for banding said objects together including means for feeding said at least one band along said base and side walls and along said bridge guiding means to complete a planar path about said objects to be banded;

tightening means for releasing said at least one band from said releasable guide means and tightening said at least one band about said objects to be banded;

said side surface upper edges being parallel aligned and defining a longitudinal direction, and wherein the bundler structure is open-ended;

said walls and base being pivotable about an axis parallel to said longitudinal direction into a tilted position so that said objects to be banded may be jointly supported by said base and said second side wall;

said base further including first roller means for rolling said objects in said longitudinal direction thereon, out an open end; and

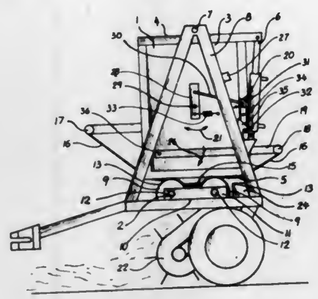
said second side wall further including second roller means for rolling said objects in said longitudinal direction thereon, out an open end.

4,270,446

BALE FORMING APPARATUS

Joseph Molitorisz, 624 81st Ave., NE., Bellevue, Wash. 98004

Continuation-in-part of Ser. No. 923,829, Jul. 12, 1978, Pat. No. 4,175,487. This application Aug. 16, 1979, Ser. No. 67,187
Int. Cl.³ B65B *13/20*; B30B *15/32*
U.S. Cl. 100—8 5 Claims



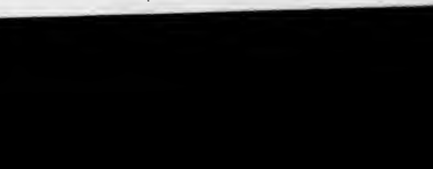
1. A bale forming apparatus to compress loose fibrous materials such as agricultural crops and industrial products into substantially rectangular bales which are held together by twine, wire or the like, said bale forming apparatus comprising; a structural frame, a substantially rectangular bale forming chamber, and a feeder-compactor mechanism, said substantially rectangular bale forming chamber having its bottom boundary surface as an open intake port to receive the fibrous material, and being mounted on the structural frame of the apparatus allowing its reversing oscillating motion in a vertical plane relative to said feeder-compactor mechanism, suitable power transmission means to oscillate the said substantially rectangular bale forming chamber, said feeder-compactor mechanism consisting of; a plurality of feeder-compactor roller assemblies to receive, partially compress and transfer the loose fibrous material into said bale forming chamber, said bale forming chamber and said feeder-compactor mechanism remaining in sufficiently close vicinity relative to each other during the reversing oscillating relative motion of said bale forming chamber to assure the transfer, deposition and compression of said fibrous material in said bale forming chamber in folded-like layers, each of said feeder-compactor roller assemblies comprising; a shaft rotatably mounted on a common frame, and a substantially cylindrical axially extending roller body securely mounted on said shaft to receive rotational drive, said shafts of said feeder-compactor roller assemblies being held subetantially parallel to each other and subetantially perpendicular to the direction of said reversing oscillating relative motion between said bale forming chamber and said feeder-compactor mechanism, a power transmission means connecting and operating said shafts of said feeder-compactor roller assemblies to cause the simultaneous rotation of each of said feeder-compactor roller assemblies in identical directions, said bale forming chamber and said feeder-compactor roller assemblies being interconnected by a plurality of flexible members to cause the simultaneous and reversing rotational motion of said feeder-compactor roller assemblies as said bale forming chamber performs its reversing oscillating motion, said plurality of flexible members being extended between properly selected structural members of said bale forming chamber and the rotational boundary surfaces of said feeder-compactor roller assemblies nearest to the point of attachment of said flexible members to said structural member of said bale forming chamber, said plurality of flexible members parially covering said intake port of said bale forming chamber to prevent the undesirable exiting of said fibrous material already deposited in said bale forming chamber, a tying mechanism to tie together the fibrous material deposited in the bale, before this said compressed fibrous material is discharged from said bale forming chamber through said intake port, after the release of at least one set of said plurality of flexible members, a latching mechanism and a linkage system, both secured to the said substantially rectangular bale forming chamber and which are operated together to cause the release of said selected structural member of said bale forming chamber to thereby cause the said release of at least one set of the plurality of flexible members.

4,270,447

MOBILE INSTALLATION FOR THE COLD TREATMENT OF REFUSE

Dragutin Gregorovic, qual Marcellis 1, 4020 Liege, Belgium

Filed Aug. 24, 1979, Ser. No. 69,554
Claims priority, application Belgium, Nov. 20, 1978, 872.140
Int. Cl.³ B30B *15/30*
U.S. Cl. 100—70 R 7 Claims



1. A transportable complete installation for the cold treatment of refuse, in particular household refuse, comprising:

a transportable elongated platform having in a central portion and extending over approximately half the length of said platform an elongated water basin, means for supplying water to said basin to provide a water bath therein,

a belt conveyor extending along the whole length of the bottom of said basin to a first end of said basin and then upwards to transport heavier elements of said refuse which sink to the bottom of said basin, out of said basin and to an elevated location above a first end portion of said platform,

first treating means on said first end portion of said platform comprising magnetic separating means positioned to act on said heavier elements to remove magnetic materials therefrom, means for crushing non-magnetic heavier elements discharged from said belt conveyor, first means for supplying additive material, first means for mixing said crushed elements with said additive material to form a first mixture, means for pressing said first mixture of heavier non-magnetic elements and additive material into blocks,

means for moving to the second end of said basin lighter elements of said refuse which do not sink, transport means for removing said lighter elements from said second end of said basin and raising said lighter elements to an elevated position above a second end portion of said platform, and

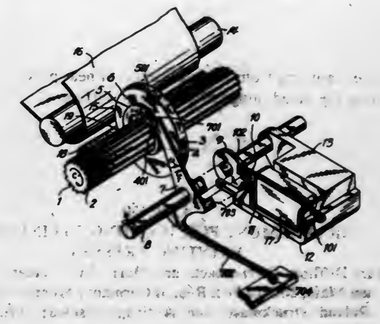
second treating means on said second end portion of said platform comprising second means for supplying additive material, means for mixing said lighter elements with said additive material to form a second mixture, and an extrusion press receiving said second mixture of lighter elements and additive material from said mixing means and compacting and extruding said second mixture.

4,270,448

PRINTING DEVICE

Chikao Tezuka, and Hitoshi Mikoshiba, both of Shinjiri, Japan, assignors to Kabushiki Kaisha Suwa Seikosha and Shinshu Seiki Kabushiki Kaisha, both of Tokyo, Japan

Filed Jul. 5, 1978, Ser. No. 922,132
Claims priority, application Japan, Jul. 6, 1977, 52-80699
The portion of the term of this patent subsequent to Sep. 5, 1995, has been disclaimed.
Int. Cl.³ B41J *1/44*
U.S. Cl. 101—99 8 Claims



1. A printing device, comprising:

at least one character ring having printing characters on the periphery thereof;

a first rotatable shaft for supporting said character ring;

engaging means on said character ring for selectively operatively engaging said character ring with said first rotatable shaft for rotating a selected character on said ring from a stand-by position to a printing position and from said printing position to said stand-by position;

selection means for activating said engaging means into engagement with said first rotatable shaft and for deactivating said engaging means out of engagement with said first rotatable shaft and thereby initiating and terminating rotation of said character ring, respectively;

drive means including a second shaft having a magnetic disc mounted thereon, said drive means for rotating said magnetic disc for activating said selection means; and

electro-magnet means including a fixed coil and a moveable iron core adjacent to said disc, said iron core being free to slide within said fixed coil for making frictional contact with said disc and means for selectively activating the fixed coil for sliding said iron core into frictional contact with said disc to be moved thereby, said iron core cooperating with a portion of said selection means for actuating the engaging means into engagement with said first rotatable shaft for rotating said character ring.

4,270,449

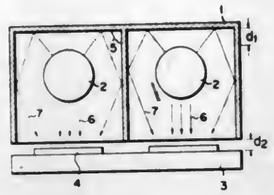
METHOD OF PRINTING PLASTIC SURFACES

Yoshiyuki Ito, Yono; Takeo Sakurai, Tokorozawa, and Yoshinobu Sawada, Tokyo, all of Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Filed Feb. 14, 1979, Ser. No. 12,079
Claims priority, application Japan, Mar. 2, 1978, 53-23731; Oct. 3, 1978, 53-121694; Oct. 3, 1978, 53-121695; Oct. 12, 1978, 53-125543; Dec. 29, 1978, 53-162102
Int. Cl.³ G03G *13/14*; B41M *7/00*
U.S. Cl. 101—129 16 Claims

1. A method of printing a plastic surface which comprises the steps of drawing an image on the plastic surface, using an ink composition containing a coloring material, enclosing the plastic surface in a cover wherein there is placed a flash discharge tube, causing the flash discharge tube to emit light

beams; irradiating heat pulses on the plastic surface; applying pressure to the plastic surface due to the expansion of air in the



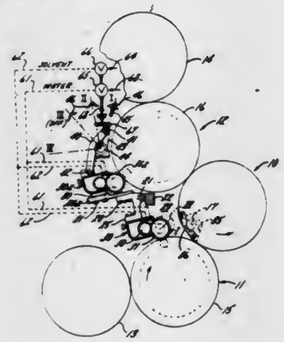
cover resulting from the application of heat pulses: and firmly fixing the inked image of the plastic surface.

4,270,450

ARRANGEMENT FOR WASHING CYLINDERS ON PRINTING PRESSES

Kurt Difflipp, Dietzenbach, and Harry M. Greiner, Offenbach am Main, both of Fed. Rep. of Germany, assignors to M.A.N.-Roland Druckmaschinen Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,661
Int. Cl.³ B41F 35/06, 9/01
U.S. Cl. 101—142 10 Claims



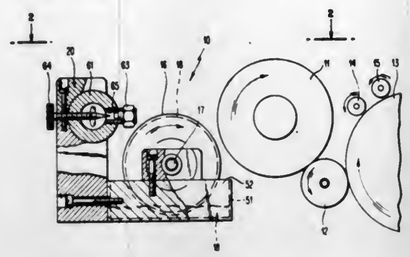
1. In a lithographic press the combination comprising a blanket cylinder and an impression cylinder, a washing assembly having a frame, the washing assembly including a washing roller journaled in the frame as well as a source of pressurized cleaning fluid for the roller, the roller having a porous resilient surface layer for carrying a charge of cleaning fluid, the frame having means for mounting the same for rocking movement from a disengaged position to a first washing position in which the washing roller is engaged with the surface of the blanket cylinder and a second washing position in which the washing roller is engaged with the surface of the impression cylinder for rotation at the same surface speed free of slippage, means for positively driving the washing roller at a differential surface speed while it is in its first washing position resulting in slippage at the engaged surfaces, manually actuated means for moving the frame successively into its washing positions, and means for causing said washing roll to be in a relatively less wet condition when it is in its second washing position, said means including an automatically engaged valve for turning on the source as the frame approaches its first washing position and for turning off the source as the frame leaves its first washing position.

4,270,451

ZONE CONTROLLED DAMPENING MEANS

Frank Perretta, Ass. Rte. 2, Marlboro, N.Y. 12542

Filed Apr. 12, 1979, Ser. No. 29,195
Int. Cl.³ B41F 7/30; B41L 25/06
U.S. Cl. 101—148 4 Claims



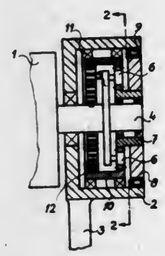
1. A dampening means for use in a printing press having a plate cylinder, a dampener roller adjacent the plate cylinder for applying a dampening solution thereto, an oscillating roller adjacent the dampener roller, said dampening means comprising; a plurality of circumferentially grooved, longitudinally spaced discs, axially aligned and positioned adjacent to said oscillating roller; a dampening solution source; the grooved circumferences of said discs so positioned as to be rotatable through said dampening solution source; and, a plurality of individually actuable means each adapted to direct air under pressure at one of the grooved circumferences of said discs towards said oscillating roller thereby distributing dampening solution from said circumferential groove into a fine spray onto the periphery of a section of said oscillating roller.

4,270,452

DUCTOR DRIVE

Peter Gertsch, and Robert Imhof, both of Berne, Switzerland, assignors to Maschinenfabrik Wifag, Switzerland

Filed Nov. 28, 1979, Ser. No. 98,029
Claims priority, application Switzerland, Dec. 14, 1978, 12886/78
Int. Cl.³ B41F 7/40, 31/14; B41L 25/16, 27/16
U.S. Cl. 101—148 2 Claims



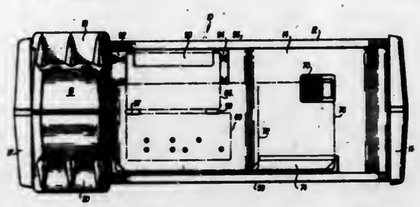
1. An apparatus for cyclically decelerating and accelerating a ductor roller which has a journal which is mounted in a bearing head of a swing arm for rotation and which is movable with the swing arm to selectively and alternatively engage the ductor roller with first and second additional rotatable rollers in a liquid transfer unit of a printing press, comprising, a free rotating element located in the bearing head for free rotation, a planetary gear mechanism connected to the journal and to said free rotating element, controllable brake means disposed between the bearing head and said planetary gear mechanism for stopping rotation of a portion of the planetary gear mechanism and tensionable spring means disposed between said free rotating element and said journal which is tensionable upon application of the brake to stop the planetary gear mechanism by the continued rotation of said free rotating element.

4,270,453

BIDIRECTIONAL IMPRINTER

Heinz F. Strohschneider, Plymouth, Mass., assignor to Dymo Industries Inc., Garden City, N.Y.

Filed Feb. 22, 1977, Ser. No. 770,628
Int. Cl.³ B41F 3/04
U.S. Cl. 101—269 7 Claims



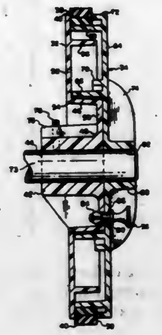
1. An imprinter comprising
a print bed having a support therefor;
first and second printing members disposed in printing relationship with respect to said print bed, each of said printing members having raised printing indicia thereon;
a document overlying said first and second printing members;
a print roller carriage moveably mounted with respect to said print bed, said carriage having sidewalls respectively disposed adjacent opposite sides of said print bed and a first pair of slots respectively disposed in said sidewalls and slanted in a first angular orientation with respect to said print bed and a second pair of slots respectively disposed in said sidewalls and slanted in a second angular orientation opposite to said first angular orientation of the first pair of slots;
a first shaft, the ends of which are slidingly disposed respectively within said first pair of slots;
a second shaft, the ends of which are slidingly disposed within said second pair of slots;
a first print roller axially mounted on said first shaft so as to co-act only with said first printing member; and
a second print roller axially mounted on said second shaft so as to co-act only with said second printing member;
whereby movement of said carriage over said print bed in a first direction causes (a) said first print roller to so co-act with said first printing member and the document portion lying thereover that said first shaft is forced down said first pair of slots to thereby effect imprinting of the indicia on said first printing member onto said document and (b) said second print roller to so co-act with said second printing member and the document portion lying thereover that said second shaft is forced up said second pair of slots so that said second print roller rolls over said last-mentioned document portion without generating sufficient pressure to imprint the indicia from said second printing member onto said document and
whereby movement of said carriage in the direction opposite said first direction causes (a) said second print roller to so co-act with said second printing member and the document portion lying thereover that said second shaft is forced down said second pair of slots to thereby effect imprinting of the indicia on said second printing member onto said document and (b) said first print roller to so co-act with said first printing member and the document portion lying thereover that said first shaft is forced up said first pair of slots so that said first print roller rolls over said last-mentioned document portion without generating sufficient pressure to imprint the indicia from said first printing member onto said document.

4,270,454

INKER RING WHEEL

Bernard J. Gill, Dundee; Burton L. Siegal, Skokie, and Randy P. Goettsche, Highland Park, all of Ill., assignors to Kiwi Coders Corporation, Wheeling, Ill.

Filed Nov. 5, 1979, Ser. No. 91,457
Int. Cl.³ B41F 31/26; B41L 27/28
U.S. Cl. 101—348 11 Claims



1. An inker wheel for transferring ink to a printing member in a rolling contact engagement and adapted to be mounted on a shaft for rotation therewith, said inker wheel comprising:
a pair of axially mateable molded disc members formed of rigid machinable plastics material and releasably coupled together axially to define a hub and a recessed peripheral mounting rim for receiving a flexible inking ring engaged therein extending partially outward thereof, means for coupling said disc members together coaxially, said disc members comprising a driving member and a mounting member, each of said members having hub defining portions including a central axial passage, means to adjust said inker wheel to accommodate said inking rings of various widths comprising at least a first pair of axially extending, unitary annular rims provided on at least one of said disc members at different distances from and concentric with the axial passage thereof, the outermost one of said rims being narrower than the innermost rim, said rims and the adjacent outer disc portion together defining the inking ring receiving recess of the peripheral mounting rim with the inner one of said rims seating the inking ring, said means to adjust enabling said inking wheel to be adjusted to receive any inking ring which is no wider than said innermost rim and at least as wide as the difference in widths of said inner and outer rims by making at least the outermost one of said first pair of rims capable of selective reduction in width to increase the usable width of said recess so as to accommodate a wider inking ring.

4,270,455

BLASTING CAP BOOSTER ASSEMBLY

Florian B. Janoski, Allentown, Pa., assignor to Atlas Powder Company, Dallas, Tex.

Filed Jan. 2, 1979, Ser. No. 273
Int. Cl.³ C06C 7/00
U.S. Cl. 102—318 13 Claims

1. A water-proof blasting cap booster adapted to allow insertion of a blasting cap therein that will not detonate when subjected to fire or excessive heat comprising:
(a) an elongated shell having an open end and a closed end, said open end being adapted to permit the insertion and frictional engagement of the end of the blasting cap with said open end;
(b) a detonable explosive contained with said shell;
(c) a thermoplastic plug having a softening point temperature between the decomposition and initiation tempera-

tures of said explosive, coaxially mated within the open end of said elongated shell to provide a water-tight confinement of said explosives under normal conditions but



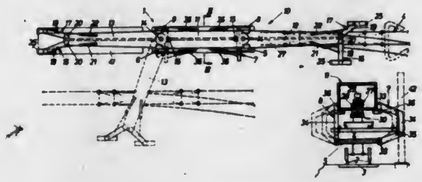
where said plug deforms and said confinement terminates when said blasting cap booster is subjected to a temperature that causes at least 5% of the explosive to decompose.

4,270,456

MOBILE APPARATUS FOR RECEIVING AND LAYING AN ASSEMBLED TRACK SECTION

Josef Theurer, Vienna, and Friedrich Oellerer, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen Industriegesellschaft m.b.H., Vienna, Austria

Filed Apr. 10, 1978, Ser. No. 895,271
Claims priority, application Austria, Apr. 21, 1977, 2808/77; Jun. 30, 1977, 4681/77
Int. Cl.³ E01B 29/02
U.S. Cl. 104—3 10 Claims



1. A mobile apparatus for receiving and laying an assembled track section consisting of rails fastened to ties, which comprises

(a) a transport vehicle movable along a track supported on a ballast bed, the vehicle having respective ends and longitudinally extending sides between the ends,

(b) an elongated overhead girder extending above the vehicle and having longitudinally extending sides, the girder defining a transport plane and being comprised of

(1) a main carrier extending substantially along the entire length of the vehicle and

(2) two carrier arms projecting beyond respective ones of the vehicle ends, the carrier arms having inner and outer ends and being pivotal in the transport plane,

(c) means pivotally mounting the inner ends of the carrier arms on the main carrier so as to avoid obstructing a neighboring track in a curve when a respective one of the carrier arms projects into the neighboring track,

(d) power drive means for pivoting the carrier arms in the transport plane,

(e) a guide track extending in the transport plane along the overhead girder,

(f) a trolley mounted on the guide track for movement therealong, the trolley including

(1) vertically adjustable hoisting means for lifting and lowering a respective one of the assembled track sections and for conveying the assembled track section along the guide track in the transport plane

(g) gantry supports for the overhead girder and adjustable between selected lateral positions respectively projecting beyong the longitudinally extending sides and leaving therebetween a wide enough space extending transversely to the track to permit the passage of an assembled track switch section therethrough, respective ones of the gantry supports being disposed at the respective vehicle ends and at the respective outer ends of the projecting carrier arms,

(1) the gantry supports including supports connecting the overhead girder to the vehicle for mounting the girder on the vehicle and vertically adjustable support means, the girder bridging the gantry supports and each support means including an arm member having two ends, a vertical support member extending from one of the arm member ends, means vertically adjustably supporting the vertical support member, and a substantially vertical pivot mounting the other arm member end on the outer carrier arm end, and

(h) means for laterally adjusting each one of the gantry supports independently substantially transversely to the elongation of the overhead girder and in a plane substantially parallel to the transport plane into the selected lateral positions.

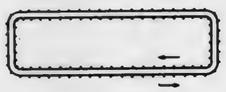
4,270,457

STAGGERED ACCESS TO ENDLESS LOOP CABLE TRANSIT SYSTEMS

David Kerber, 168 Beach 140 St., Belle Harbor, N.Y. 11694

Filed May 31, 1979, Ser. No. 44,199
Int. Cl.³ B61B 9/00, 13/14
U.S. Cl. 104—25 1 Claim





1. A method of access to a transportation system in which an endless rope or cable draws a series of evenly spaced cabins or transport modules attached thereto in an endless loop comprising the steps of,

(a) stopping the endless rope and attached cabins at a given location to permit passenger transfer;

(b) driving the endless rope and attached cabins a short interval to another passenger transfer location;

(c) stopping the endless rope after said short interval of travel to permit passenger transfer;

(d) driving the endless rope and attached cabins a long interval to another passenger transfer location;

(e) stopping the endless rope after said long interval of travel to permit passenger transfer;

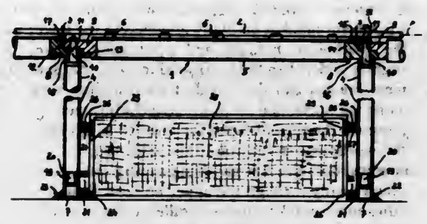
(f) repeating steps (b)–(e).

4,270,458

OVERHEAD TRACK ASSEMBLY FOR AMUSEMENT-PARK RIDE

Anton Schwartzkopf, Münsterhausen, Fed. Rep. of Germany, assignor to Firma Anton Schwartzkopf Stahl- und Fahrzeugbau, Münsterhausen, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,888
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832990
Int. Cl.³ B61B 5/02
U.S. Cl. 104—124 15 Claims



1. A disassemblable overhead track assembly for an amusement-park ride, said assembly comprising:

a plurality of bases adapted to rest on the ground in a longitudinally extending row;

respective upright posts standing on said bases and each having an upper end having a support surface and a pin projecting upwardly therefrom;

respective spacer means extending longitudinally between said posts and secured to same and to the respective bases for releasably connecting said posts longitudinally together and thereby establishing fixed longitudinal spacings between the respective posts and bases in said row;

respective track sections above the respective spacer means and each including

a central hollow beam having one end formed with an upper eye and another end formed with a lower eye;

a pair of generally parallel rails flanking said beam and adapted to guide a car longitudinally along said beam, and

transverse members interconnecting said rails and said beam rigidly; and

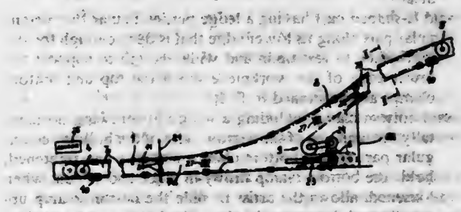
holding means for releasably securing said sections in a continuous row one behind the other to said upper ends of said posts with each of said pins extending upwardly through the lower eye of one respective beam and through the upper eye of another respective beam.

4,270,459

CHAIN-TYPE ASCENT SYSTEM FOR ROLLER COASTER

Anton Schwarzkopf, Münsterhausen, Fed. Rep. of Germany, assignor to Firma Anton Schwarzkopf Stahl- u. Fahrzeugbau, Münsterhausen, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,889
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832991
Int. Cl.³ B63G 17/38, 15/00
U.S. Cl. 104—172 B 10 Claims



1. A roller-coaster startup drive system comprising:

an at least partially inclined track section having a low upstream end and a high downstream end relative to a predetermined direction of travel therealong, whereby a roller-coaster car can travel along said track section from said upstream to said downstream end;

respective upstream and downstream wheels at said upstream and downstream ends;

a pair of profile beams forming a guide and having juxtaposed flanges defining a slot extending between said upstream and downstream wheels and along said track section;

a pair of substantially parallel and endless chains reeved over said wheels and extending along said guide between said beams;

a multiplicity of shoes spaced apart along said chains and each bridging transversely between said chains, each shoe riding on said flanges in said slot, said chains being supported from said shoes at said slot inside said guide; and

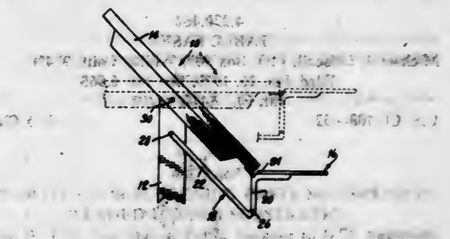
means for advancing said chains and thereby displacing said shoes along said beams from said upstream end to said downstream end.

4,270,460

LINKAGE DEVICE FOR DRAFTING TABLES

Richard R. Hinson, 310 Riverside Dr., Room #1904, New York, N.Y. 10025

Filed Jan. 8, 1979, Ser. No. 1,682
Int. Cl.³ A47F 5/12
U.S. Cl. 108—3 13 Claims



1. A drafting table which comprises:

a base;

a drafting board pivotally mounted on said base to permit tilting movement of said drafting board between substantially horizontal and substantially vertical positions;

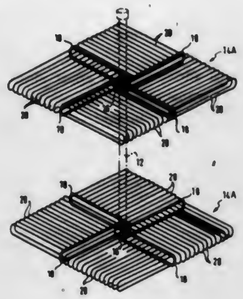
a shelf adapted for attachment to said drafting board;

an L-shaped bracket hingedly attached at the apex of said L-shaped bracket to said drawing board, one leg of said L-shaped bracket being substantially horizontal and having said shelf attached thereto and the other leg of said L-shaped bracket being substantially vertical;

a straight bracket one end of which is pivotally attached to the end of said substantially vertical leg of said L-shaped bracket; and

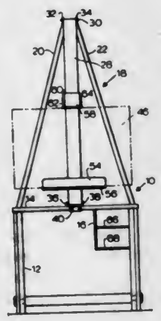
a U-shaped bracket having arms of unequal length, the shorter arm being pivotally attached to the opposite end of said straight bracket from the end of said straight bracket pivotally attached to said L-shaped bracket, and the longer arm being fixedly attached to said base at the point where said drafting board is pivotally mounted on said base.

4,270,461
PRESENTATION STANDS FOR THE SORTED EXHIBITION OF GOODS
Werner Schramm, Munich, Fed. Rep. of Germany, assignor to PFP-Anstalt fur Produktentwicklung und Verwertung
Filed Mar. 19, 1979, Ser. No. 21,903
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812066; Feb. 22, 1979, 2906939
Int. Cl.³ A47B 41/04
U.S. Cl. 108—31 16 Claims



1. A display stand for the sorted exhibition of goods in upright positions comprising:
an upright support;
a plurality of goods holders attached to and extending from said support in superimposed relation; and
a plurality of spaced yokes attached to and projecting from each holder with the yokes of adjacent superimposed holders being circumferentially offset so that goods positioned in the spaces formed between upper yokes will be supported on the adjacent, offset lower yokes.

4,270,462
TABLE EASEL
Michael J. Driscoll, P.O. Box 989, Willits, Calif. 95490
Filed Jan. 26, 1979, Ser. No. 6,565
Int. Cl.³ A47B 41/04
U.S. Cl. 108—32 1 Claim

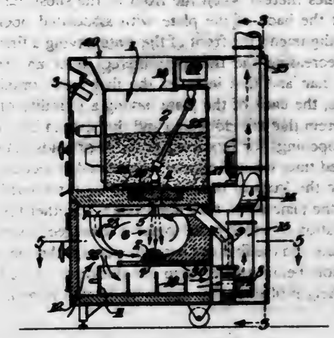


1. A table easel wherein the workpiece can be held in a multiplicity of positions above the table on which the easel is mounted, said table easel comprising:
vertically disposed workpiece holding and positioning means for engaging and holding a generally flat and rectangular workpiece above the table on which the easel is mounted;
vertical support means fastened to the rear edge of the table top and extending upwardly from it to an attachment location where the said workpiece holding and positioning means is attached;
a flat horizontal track fixed securely to the table at both the front and rear major edges of the table top and adjacently spaced above it, the horizontal surfaces of said track being positioned parallel to the upper surface of the table top and substantially perpendicular to its front and rear edge, and said track being spaced high enough above said table top to allow the adjustment bracket which is pivotally attached to the lower end of said holding and positioning means to move forwardly and rearwardly along said track;
said workpiece holding and positioning means including an adjustment bracket pivotally attached to the lower end of the workpiece holding and positioning means, being slightly wider than the horizontal track so that said adjustment bracket can slide freely forwardly and backwardly along the horizontal track when said adjustment bracket is loosened thereby allowing the artist to adjust the angle of the workpiece in relation to the table top;
said adjustment bracket including a wing nut which screws downwardly through the upper horizontal surface of said adjustment bracket that is parallel to the horizontal track and upper table top surface, which, when tightened, holds the bracket securely in place on the horizontal track thereby fastening the workpiece holding and positioning means securely in place, and which, when loosened, allows the adjustment bracket to slide forwardly and rearwardly along the horizontal track thereby allowing the artist to adjust the angle of the workpiece in relation to the table top;
said holding and positioning means including a top clamp comprising a hollow rectangular part enclosing the holding and positioning means and slightly larger than said holding and positioning means so that it can slide freely upwardly and downwardly, and a flat part attached to said rectangular piece on its outer side parallel to the major upper surface of the holding and positioning means;
said top clamp including a wing nut screwing horizontally through one of the narrow sides of the hollow rectangular part of said top clamp, which, when tightened holds the top clamp securely in place on the holding and positioning means and which, when loosened, allows the artist to slide the top clamp upwardly and downwardly along the holding and positioning means, thereby changing the distance between the top clamp and the bottom clamp to accommodate workpieces of various shapes and sizes as well as adjusting the distance between the table top and the workpiece;
said top clamp having a plurality of small sharp pins projecting from the lower edge of the flat piece attached to the front side of the rectangular piece which penetrate the workpiece while it is on the easel and which, in conjunction with the ledge or L-shaped part of the bottom clamp; hold the workpiece in place;
said holding and positioning means including a bottom clamp comprised of a hollow rectangular part identical to the hollow rectangular part of the top clamp, and an L-shaped part attached to said rectangular part on the outer side of the hollow rectangular part and parallel to the major upper surface of the holding and positioning means;
said L-shaped part having a ledge perpendicular the rectangular part along its lower edge that is deep enough for the workpiece to rest upon and wide enough to support the lower edge of the workpiece when the top and bottom clamps are positioned to fit it;
said bottom clamp including a wing nut screwing horizontally through one of the narrow sides of the hollow rectangular part of said bottom clamp, which, when tightened, holds the bottom clamp firmly in place and which, when loosened, allows the artist to slide the bottom clamp upwardly and downwardly along the holding and positioning means thereby allowing the distance between the bottom clamp and the top clamp to be changed to accommodate workpieces of various sizes and shapes as well as allowing the adjustment of the distance between the table top and the workpiece;
a table top with a flat surface perpendicular to said fixed vertical support means attached to its rear edge, having at least one storage compartment attached to its underside, having the said flat horizontal track attached to its front and rear edges, and being supported by a base; and
a base on which the table top is securedly mounted.

4,270,463
DISPLAY STAND WITH EASILY ADJUSTED SHELVES
Edward S. Kerzos, Beacon Falls, Conn., assignor to Dura Plastics of New York, Inc., Bridgeport, Conn.
Filed Jul. 18, 1979, Ser. No. 58,614
Int. Cl.³ A47B 57/06
U.S. Cl. 108—96 2 Claims

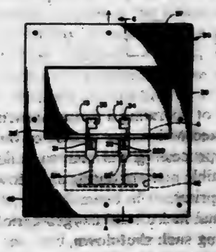
1. A display stand for displaying flowers, plants, articles and the like, comprising:
first and second frame members each made of an elongated, round, rigid member that is bent at its center region to form two upwardly extending legs with an integral horizontal portion therebetween;
the legs of each frame member being inclined toward each other with the top portions closer together than the bottom portions, said horizontal portions having flat contact surface areas;
said frame members being positioned parallel to each other with corresponding legs of the two members spaced from each other;
rigid bracing means secured between each pair of corresponding parallel legs of said first and second frame members at or near the bottom of said legs;
a rigid, load supporting platform having a flat horizontal underside secured to the horizontal portion of said frame members;
a plurality of rigid, load supporting shelf members extending between corresponding and parallel legs of said two frame members, whereby said stand has the appearance of a ladder;
each shelf member having first and second round apertures extending through an edge region thereof, each aperture receiving a respective leg of a frame member in a sliding engagement, thereby to permit a shelf to be slid along a pair of legs of the frame;
a pair of elastomeric grommets tightly fitting on the respective legs of the frame members under each shelf for supporting said shelf in a cantilevered, load bearing manner between a respective pair of legs; and
said shelves having a sufficient thickness and said apertures having sufficient radii to cause edges around said apertures to engage said legs in a manner to prevent said shelves from rotating from their desired horizontal positions when a load is placed on the shelves.

4,270,464
SMOKE GENERATOR FOR SMOKING FOOD PRODUCTS
Siegfried Kerres, Im Lerchenberg, D 7057, Winnenden-5, Fed. Rep. of Germany
Filed Jan. 25, 1979, Ser. No. 6,875
Int. Cl.³ F23K 3/00
U.S. Cl. 110—102 3 Claims



1. Apparatus for continuously generating smoke for use in smoking food products, which apparatus comprises:
a housing containing a chamber for holding sawdust and a chamber in which smoke is generated; and
means for continuously feeding dry sawdust at a desired rate from said sawdust chamber into said smoke generating chamber, and
heating means within said smoke generating chamber to ignite the dry sawdust fed thereinto, and
means for supplying excess fresh air into said smoke generating chamber to the dry sawdust sufficient to maintain said dry sawdust glowing at a temperature just below the flame point, and
duct means for exhausting the smoke produced in said smoke generating chamber from said chamber and for feeding the smoke to a smokehouse,
thereby providing apparatus for continuously smoking food products.

4,270,465
APPARATUS FOR SCREENING PASTE SOLDER ONTO LEADED HYBRID SUBSTRATES
Linda W. Lim, San Mateo, Calif., assignor to GTE Automatic Electric Laboratories, Inc., Northlake, Ill.
Filed May 4, 1979, Ser. No. 35,953
Int. Cl.³ F23J 3/00
U.S. Cl. 110—127 3 Claims



1. A stencil for squeegee screening of paste solder onto a first plurality of component pads in a first area that is spaced from a second area containing a second plurality of lead pads, the pads being arranged in prescribed patterns on the front of a leaded substrate having lead tines on associated lead pads that

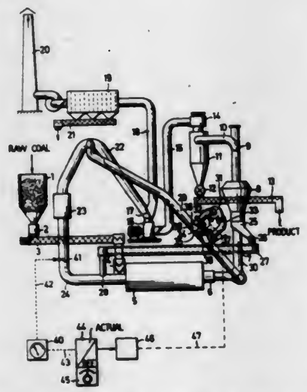
are proximate one edge of the substrate, comprising a plate having a thickness that is greater than the height that the tines project above the front of the substrate, and having pluralities of first and second openings extending through the plate and arranged in associated spaced apart areas in the prescribed patterns of the component and lead pads, respectively, so that associated openings and pads are in correspondence; said second openings being dimensioned for receiving associated ones of the tines therein when the front of the substrate is moved adjacent the back of the plate with associated openings and pads in alignment; the front of the plate having a first recess in it for decreasing the thickness thereof over an area that is greater than and that includes the first area containing first openings; the back of the plate having a plurality of adjacent slots therein that are elongated and that extend into associated second openings for receiving portions of leads connected to associated tines when the latter are located in second openings to enable the front of the substrate to be juxtaposed with the back of the plate when they are brought together for a screening operation in which paste solder is squeegeed over the front of the plate and the first and second openings therein, the depth of the slots being greater than the thickness of lead portions and/or height of tines that are to be located herein.

4,270,466

METHOD AND APPARATUS FOR RENDERING AN IGNITABLE FUEL-OXYGEN MIXTURE INERT

Jakob Ansen; Helmut Duill, both of Cologne; Heinz Fasbender, Krefeld, and Rupprecht Graf, Cologne, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,486
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845980
Int. Cl.³ F23N 5/24
U.S. Cl. 110—193 12 Claims



1. In a method of operating a process in which combustible solid particles mixed with air are circulated through a plurality of stages during processing and tend to build up an oxygen-enriched combustible mixture during shut-down, the improvement which comprises:

adding additional fuel to said oxygen-enriched combustible mixture during such shut-down,

burning the resulting mixture in a combustion zone separate from said plurality of stages, and

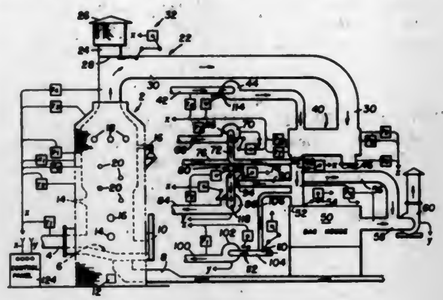
introducing the flue gas from said combustion zone back into said plurality of stages to thereby provide an inert gas therein.

4,270,467

LOW MASS FLOW WASTE FUEL INCINERATOR

Dale E. Drake, Concrete, Wash., assignor to Enertherm, Inc., Mount Vernon, Wash.

Filed Jan. 14, 1980, Ser. No. 111,877
Int. Cl.³ F23J 3/00
U.S. Cl. 110—216 10 Claims



1. A low mass flow incineration system for combusting waste fuel and extracting heat energy therefrom, comprising; incinerator means for consuming waste fuel by combustion, a source of waste fuel, said incinerator means including fuel inlet means connecting said source of fuel with said incinerator means, exhaust conduit means connected with said incinerator means for transmitting exhaust products therefrom, a source of primary air for supporting combustion of said waste fuel in said incinerator means, primary air inlet means for transmitting said primary air to said incinerator means, heat exchanger means for transferring heat energy from said exhaust products to a second medium, said exhaust conduit means including regenerative branch means connecting said incinerator means to said heat exchanger means, said incinerator means including coolant inlet means for supplying coolant medium to said incinerator means for reducing the temperature of said exhaust products during the process of combustion, inlet conduit means for supplying said second medium to said heat exchanger means, outlet conduit means for transmitting said second medium from said heat exchanger means, coolant supply conduit means connecting said outlet conduit means with said coolant inlet means for supplying said second medium to said incinerator means subsequent to passage of said second medium through said heat exchanger means, ambient air supply conduit means for supplying ambient air to said coolant inlet means, cooling fluid control means for controlling the flow of cooling fluid to said coolant inlet means and for selectively regulating the proportions of ambient air to said second medium reaching said coolant inlet means, said cooling fluid control means including valve means for selectively mixing said ambient air with said second medium or blocking the flow of either of said ambient air or said second medium to said coolant inlet means.

4,270,468

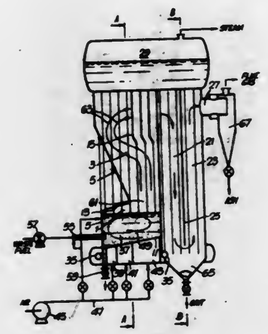
DISPOSAL OF WASTE PRODUCTS BY COMBUSTION

Edwin Robinson, Darlington, and David Buckle, Billingham, both of England, assignors to Deborah Fluidised Combustion Limited, Peterlee, England

Filed May 30, 1979, Ser. No. 43,926
Claims priority, application United Kingdom, May 31, 1978, 25698/78
Int. Cl.³ F22B 1/02; F23C 11/02; F23G 7/00
U.S. Cl. 110—245 7 Claims

1. A method for disposing of waste tar products such as waste products from the re-refining of oil, the method comprising forming in the combustion chamber of a membrane wall water tube boiler a particulate material bed including a base which is inclined upwardly from a first end thereof to a second opposite end thereof, feeding air to said bed to effect fluidisation of said material and circulation of said material by movement thereof from said first end to said second end in an upper region of the bed and from said second end to said first end in a lower region of the bed, deflecting the fluidised material above the first end of the bed to assist the circulation of the fluidised material, heating the bed to a temperature in a range from about 850° C. to about 900° C., and feeding waste tar products to a position within the bed adjacent said first end.

4. A membrane wall water tube boiler comprising: a combustion chamber including means for receiving a bed of particulate material, said bed having opposite first and second ends



and a base which is inclined upwardly from said first end to said second end, means for feeding air to said bed to effect fluidisation of said material and circulation of said material by movement thereof from said first end to said second end in an upper region of the bed and from said second end to said first end in a lower region of the bed, deflection means located over the bed adjacent said first end to assist said circulation of the bed material, means for heating the bed, while fluidised, to a temperature of from about 850° C. to about 900° C., and means for feeding waste tar products such as waste products from the re-refining of oil to a position within the bed adjacent said first end.

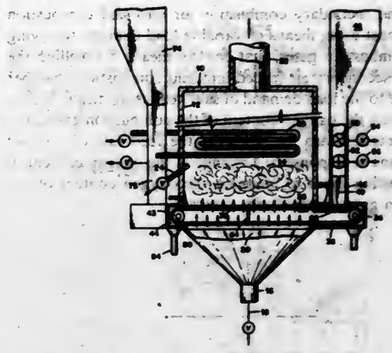
4,270,469

COAL-FEEDING MECHANISM FOR A FLUIDIZED BED COMBUSTION CHAMBER

Robert L. Gall, Morgantown, W. Va., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 13, 1979, Ser. No. 65,771
Int. Cl.³ F23G 5/00
U.S. Cl. 110—245 4 Claims

1. A fuel feeding apparatus for a fluidized bed combustion system comprising an elongate vertically oriented combustion chamber, air inlet means at lower end of said chamber for supplying combustion supporting air into said chamber, discharge means at the upper end of said chamber for exhausting products of combustion from said chamber, the plurality of endless conveyor belts disposed transversely in said chamber in a side-by-side relationship with one another and with each conveyor belt projecting across the entire cross section of said chamber, each conveyor belt projecting into a compartment therefor disposed at a location laterally offset from said combustion chamber and opposite ends of adjacently disposed conveyor belt, discrete drive means coupled to each of said conveyor belts for driving adjacently disposed conveyor belts in opposite directions, discrete fuel supply means for each conveyor belt comprising a chute in registry with each said compartment, valve means associated with each chute to control the flow of fuel through the latter for providing the conveyor belt in registry therewith with a preselected quantity of fuel and for effecting delivery of said fuel into the combustion chamber from opposite sides thereof upon displacement of the oppositely moving conveyor belts by said drive means, and



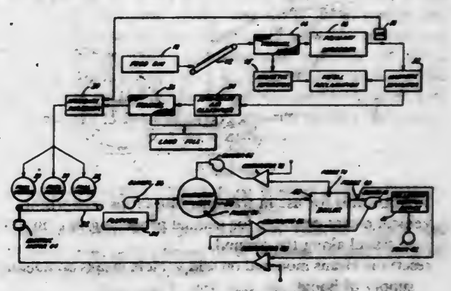
passageways through each of said conveyor belts for placing said air inlet means in registry with said combustion chamber to effect the displacement of fuel from the conveyor belts into said combustion chamber upon passage of air through said passageways.

4,270,470

COMBUSTION SYSTEM AND METHOD FOR BURNING FUEL WITH A VARIABLE HEATING VALUE

William O. Barnett, 38 Valentine La., Levittown, Pa. 19054, and William K. Barnett, 38 Deanna Dr. #112, South Somerville, N.J. 08876

Filed Apr. 27, 1979, Ser. No. 33,573
Int. Cl.³ F23G 5/00
U.S. Cl. 110—346 13 Claims



1. A method of providing useful heat energy from a fuel having variable heating value to meet a varying load demand of a heat using means comprising the following steps:

feeding said fuel having variable heating value into a preheated combustion chamber;

forcing combustion air at a controlled rate into said combustion chamber whereby the fuel burns and is converted into hot combustion gases;

discharging the combustion gases to the heat using means;

measuring the load demand of the heat using means;

varying the feed of combustion air in accordance with changes in the load demand of the heat using means;

measuring the oxygen content of the combustion gases;

and adjusting the feed rate of the fuel to the combustion chamber in accordance with change of the oxygen content of the combustion gases to maintain the oxygen content of the combustion gases substantially constant.

8. A system for providing useful heat energy from a fuel having variable heating value to meet a varying load demand

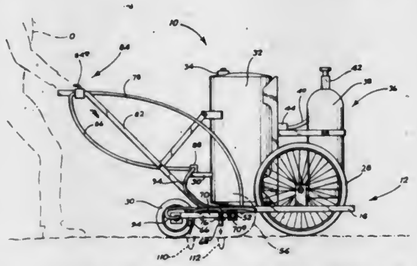
of a heat using means, said system comprising: storage means for storing a volume of fuel having a variable heating value, a combustion chamber in which said fuel can be burned and converted into combustion gases, feeder means for feeding the fuel to the combustion chamber, blower means for forcing primary and secondary combustion air into said combustion chamber, heat using means of variable load demand receiving the hot combustion gases, first control means controlling the amount of secondary air forced into said combustion chamber in response to the load demand of said heat using means, means for measuring the oxygen content of the combustion gases, and second control means for adjusting the feed rate of the fuel feeder means in response to a change in the oxygen content of the combustion gases to maintain the oxygen content of the combustion gases substantially constant.

4,270,471

MANUALLY PROPELLED APPARATUS FOR USE IN TRANSPLANTING CROPS

Gene B. Talbott, Box 173-D, Rte. 1, Banks, Oreg. 97106

Filed Apr. 2, 1979, Ser. No. 25,867
Int. Cl.[3] A01C *23/02, 11/02*
U.S. Cl. 111—6 6 Claims



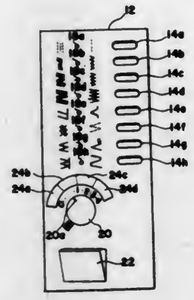
1. Apparatus for use in transplanting crops comprising:
vehicle means operable for manual propelling in a direction of travel along the ground;
reservoir means mounted on said vehicle means containing a supply of liquid;
pressurizing means for imparting fluid pressure against the liquid contained in said reservoir means, said pressurizing means including a vessel containing a fluid under pressure, said vessel being detachably connected to said reservoir means and removably mounted on said vehicle means;
boom means carried on said vehicle means extending generally transversly to the direction of travel, said boom means spanning above the ground;
dispensing means mounted on said vehicle means for receiving liquid under pressure from said reservoir means and injecting the liquid into the ground to form crop-receiving cavities, said dispensing means including a plurality of spaced-apart and liquid injecting nozzles mounted on said boom means; and
adjustable means mounted on said boom means for carrying preselected ones of said nozzles, said adjustable means being selectively positionable along the longitudinal axis of said boom means for predetermining lateral spacing of said nozzles.

4,270,472

INDICATION ARRANGEMENT FOR USE IN A SEWING MACHINE

Kazuo Suzuki, Higashiosaka; Hirokazu Koda, Gose; Kenichi Nakamura, Nara; Syuich Yoshikawa, Yamatokooriyama, and Naoki Ohara, Toyota, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka and Aisin Seiki Kabushiki Kaisha, Aichi, both of, Japan

Filed Jun. 12, 1979, Ser. No. 47,707
Claims priority, application Japan, Jun. 13, 1978, 53-71714
Int. Cl.[3] D05B *79/00, 3/02*
U.S. Cl. 112—158 E 11 Claims



1. A sewing machine having a thread carrying needle which is reciprocated in an axial direction thereof and is jogged in a lateral direction, a cloth advancing mechanism for advancing a cloth in a direction perpendicular to the lateral direction at a predetermined pitch after every one stitch for forming a predetermined pattern of stitches, said sewing machine comprising:
a plurality of individual pattern information carrying means each provided for controlling the lateral movement of the thread carrying needle;
means for selecting any one of said pattern information carrying means;
means for producing a selected signal having a value indicative of the selected pattern information carrying means;
means for adjusting the pitch of cloth advance;
a plurality of illumination elements aligned along the pitch adjusting means; and
circuit means connected between the signal producing means and the illumination elements for lighting at least one predetermined illumination element upon receipt of the selected signal, said lighted illumination element indicating an available range of the pitch for the selected pattern information carrying means;
some of the possible values of said selection signal lighting more than one of said predetermined illumination elements.

4,270,473

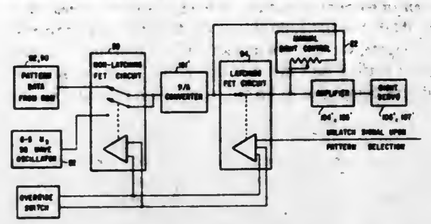
STITCH PATTERN VISUALIZATION

Michael J. Brienza, Ridgewood, N.J., assignor to The Singer Company, Stamford, Conn.

Filed May 15, 1980, Ser. No. 150,255
Int. Cl.[3] D05B *3/02*
U.S. Cl. 112—158 E 11 Claims

5. A sewing machine having stitch forming instrumentalities at least one of which partaking of a first vibratory motion in one plane and a second vibratory motion in another plane for forming lockstitches, the first vibratory motion being independent of the second vibratory motion, wherein the amplitude of said first and second vibratory motions influence the appearance of said stitches: control means for independently regulating the amplitude of said first and second vibratory motions; and vibratory means for independently effecting said first and second vibratory motions so that said at least one of said stitch

forming instrumentalities will provide a visual representation of the actual amplitude of one of said first and second vibratory



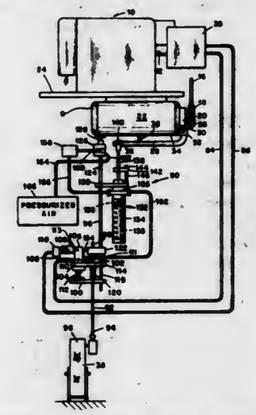
motions while the other of said first and second vibratory motions is suspended.

4,270,474

DUAL POSITION NEEDLE POSITIONER FOR STITCHING MACHINES

William A. Tice, 3620 N. Fountaincrest Dr., Knoxville, Tenn. 37918

Filed Aug. 17, 1979, Ser. No. 67,626
Int. Cl.[3] D05B *69/22*
U.S. Cl. 112—276 4 Claims



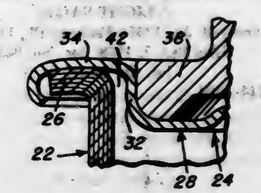
1. A pneumatic powered dual position needle positioner for a stitching machine including pedal means, a stitching mechanism comprising a reciprocatable needle and a drive shaft, comprising air motor means drivingly connected to said drive shaft of said stitching mechanism for rotation of said drive shaft upon actuation of said motor means, a source of pressurized fluid, means connecting said source of pressurized fluid to said air motor means, means selectively restraining rotation of said shaft means away from preselected rotation positions of said shaft, said last mentioned means including a least first and second piston-cylinder means each of which is interposed between said source of pressurized fluid and said air motor means and each of which is disposed adjacent to said drive shaft and each piston of which includes a portion exposed externally of said cylinder whereby movement of said piston within said cylinder in response to the admission of pressurized fluid into said cylinder functions to establish a limit to rotation of said drive shaft, valve means interposed between said source of pressurized fluid and said cylinder means, said valve means including an inlet port and first and second outlet ports, said inlet port being connected in fluid communication with said source of pressurized fluid and said outlet ports being connected in fluid communication with respective ones of said piston-cylinder means for selectively directing the flow of pressurized fluid to a respective one of said cylinder means, and means operatively connected between said pedal means and said valve means comprising a pitman assembly including a first pitman rod connected at one of its ends to said pedal means and at its other end operatively engageable with said valve means whereby selection of the position of said pedal determines the flow of pressurized fluid to said cylinders.

4,270,475

METHOD OF FORMING A FLUSH-SIDED CONTAINER

Wade D. Fletcher; Edward H. McMahon, and Dwight D. Grady, all of Hartsville, S.C., assignors to Sonoco Products Company, Hartsville, S.C.

Filed Jul. 19, 1979, Ser. No. 58,747
Int. Cl.[3] B21D *51/00*
U.S. Cl. 113—120 K 6 Claims



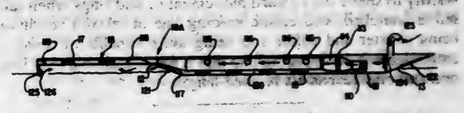
1. A method of seaming a metallic end cover to a tubular composite can body comprising the steps of providing a metallic end cover having a cup shaped projecting central pin of an external diameter sufficiently less than that of the internal diameter of the can body to define an annular space therebetween upon a central positioning of the central pin within one end portion of the can body, said metallic end cover further including an annular outwardly directed flange peripherally about said central pin, positioning said end cover over an end of the can body with the cover flange resting directly on said can body end and with the central pin received within the end portion of the can body in inwardly spaced relation to the surrounding can body, rolling said flange downwardly and inwardly into seam forming engagement with the can body end portion and substantially simultaneously inwardly deforming the formed seam and inwardly necking the end portion of the can body into the defined space and into intimate contact with the central pin of the end cover circumferentially thereabout.

4,270,476

BARGE CONSTRUCTION FOR WARM AIR CANOPY ICE-FREE ZONE

J. Cam O'Rourke; G. Roger Pilkington, both of Calgary, and Frank G. Berche, Cochrane, all of Canada, assignors to Dome Petroleum Limited, Canada

Filed Jul. 5, 1979, Ser. No. 54,661
Int. Cl.[3] B63B *35/08*
U.S. Cl. 114—40 12 Claims



1. A barge comprising:
(a) a hull including a bow, a stern, a pair of sides, a flat bottom and a deck, said hull comprising a hull stabilization system including a lattice framework filled with solid insulation material;
(b) a cantilevered section extending forwardly from said bow and including longitudinally extending duct means, said cantilevered section including a skirt depending from the forward edge of said cantilevered section to below the waterline of said barge, said skirt comprising an outside

depending portion to project below the surface of the water and a shorter inside depending portion to terminate above the surface of the water, to define a hot gas chamber therebetween, said hot gas chamber being connected to said longitudinally extending duct means; and

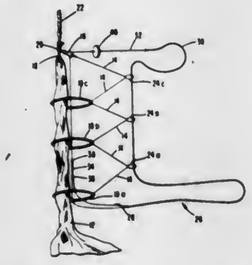
(c) a liquid/gas heat exchange system located within said hull for heating said gas with said liquid and projecting said gas into said longitudinally extending duct means, whereby said hot gas is projected towards said surface of said water through said hot gas chamber and the formation of ice is prevented thereby.

4,270,477

DEVICE FOR THE ACCELERATED LAUNCHING OF LIGHT SAILS

Jack W. Fretwell, Jr., 13354 Feldman Pl., Herndon, Va. 22070

Filed Sep. 7, 1978, Ser. No. 940,166
Int. Cl.[3] B63H 9/10
U.S. Cl. 114—104 8 Claims



1. In a device for launching a light sail connected to the mast of a sailing vessel comprising at least two rings spaced from each other along the length of said sail and encircling said sail in furled condition, each said ring being of a size which, when positioned on the sail in the furled condition, provides upwardly slideable engagement with the sail, the lowermost ring engaging the lower portions of the sail, the uppermost ring engaging the upper portions of the sail and any intermediate ring or rings engaging intermediate portions of the sail when in the furled condition to retain said sail in furled condition, spacing line attached to each ring and the ring above it for positioning the rings at desired spaced apart positions along said sail in furled condition, and means for raising the lowermost ring into engagement with the next ring above it to raise said next ring and successively to raise all rings to slide said rings upwardly along said sail to disengage all rings from the sail and thereby launch the sail, the improvement wherein said spacing line is elastic and its length in stretched condition is at least one and one quarter times its relaxed length, said elastic spacing line being in stretched condition when said rings are in said desired spaced apart positions and urging said rings upwardly to speed the upward movement of said rings when said sail is launched, said elastic spacing line in relaxed condition being shorter and stiffer and being more capable of resisting entanglement than spacing line that is not stretchable to at least one and one quarter its relaxed length.

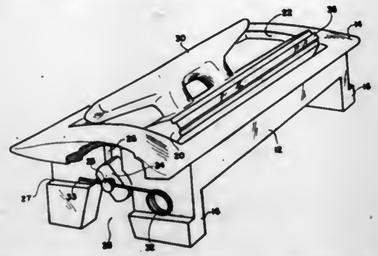
4,270,478

DISAPPEARING CLEAT OR FITTING

Charles F. Kafka, Bradenton, and Robert S. Kafka, Maitland, both of Fla., assignors to Meacham Marine Products, Inc., Sarasota, Fla.

Filed Mar. 28, 1979, Ser. No. 24,790
Int. Cl.[3] B63B 21/04
U.S. Cl. 114—218 19 Claims

1. A rotatable device for marine use, comprising a housing adapted to be embedded in the deck of the boat, said housing having an opening defined therein in which is mounted a rotatable member, said rotatable member comprising a plate substantially flat on one side, and having affixed on its other side an upstanding fixture, said member being rotatably supported by a pair of parallel, oppositely extending shafts, at least one of which shafts has flattened side edges that are closely received in an elongate, vertical slot in a wall of said housing, bias means normally biasing said member upwardly in its housing, said bias means being able to be overcome such that said member



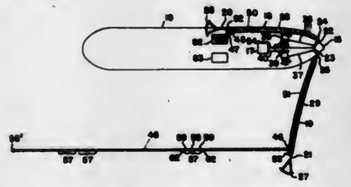
can be moved downwardly in its housing, this causing said oppositely extending shafts to be moved downwardly in their respective slots in said housing, said slots being enlarged at bottom locations to permit said member to be rotated 180° in either direction, such that either the fixture or the flat plate may be selected to reside in contact with the upper surface of the deck.

4,270,479

TORPEDO GUARDS

Judd O. Baker, Medford Lakes, N.J.; Jerome J. O'Brien, San Francisco, Calif.; Westley F. Curtis, Carderock, Md., and Frederick M. Varney, Washington, D.C., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 24, 1947, Ser. No. 793,660
Int. Cl.[3] B63G 9/00
U.S. Cl. 114—240 A 13 Claims



11. In a torpedo guard, a cable, a series of explosive units strung on the cable, and individual proximity fuses positioned on said cable for each of said explosive units, the proximity fuse for any given explosive unit being adapted to fire said given unit upon the approach of a torpedo within a predetermined distance from said given unit.

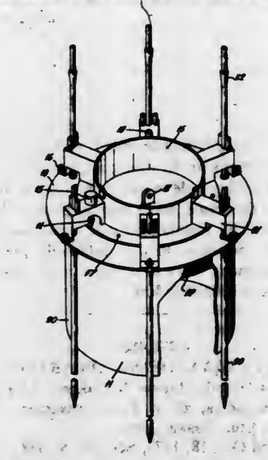
4,270,480

PINNED SUCTION ANCHORS

Roger H. Y. Hancock, East Kilbride, and Neil Kerr, Aberdeen, both of Scotland, assignors to The Secretary of State for Industry in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Nov. 14, 1978, Ser. No. 960,719
Claims priority, application United Kingdom, Nov. 14, 1977, 47354/77
Int. Cl.[3] B63B 21/27
U.S. Cl. 114—296 13 Claims

1. A suction anchor for establishing an anchorage in a bed material comprising a top plate, a skirt member depending from said top plate and having a lower edge engageable with said bed material to enclose an internal space, suction means for embedding said skirt member in said bed material by evacuating said space, and means for increasing the pull-out resistance of said anchor including a plurality of pin members positioned in spaced apart relation around the circumferential region of said top plate, pin drive means mounted on said top plate in fixed special relationship thereto and engageable with said plurality of pin members, for driving said plurality of pin members through said top plate into the bed material externally of said skirt member, and engagement means for holding said plurality of pin members to said top plate when said plurality of pin members have been driven into said bed material.



6. A suction anchor for establishing an anchorage in a bed material comprising a top plate, a skirt member depending from said top plate and having a lower edge engageable with said bed material to enclose an internal space, suction means for embedding said skirt in said bed material by evacuating said space, means for increasing the pull-out resistance of said anchor including pin drive means for driving at least one pin member into the bed material wherein said at least one pin member is housed within said skirt member, said skirt member having an aperture formed therein, said pin drive means further comprising means for driving said pin member through said aperture into the bed material after said skirt member is embedded in said bed material.

4,270,481

LEVER OPERATING DEVICE FOR GEAR-SHIFTING MEANS OF A BICYCLE OR THE LIKE

Etsuyoshi Watarai, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Apr. 24, 1978, Ser. No. 899,294
Claims priority, application Japan, Apr. 23, 1977, 52-52018[U]
Int. Cl.[3] B60K 20/06; F16C 1/10
U.S. Cl. 116—28.1 11 Claims

1. A lever operating device for a gear-shifting means of a bicycle comprising:

a fixed member fixed to a frame of the bicycle;

a shaft supported to said fixed member;

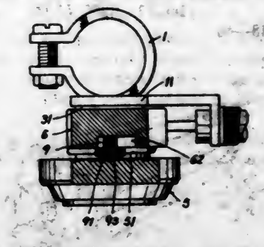
a lever supported rotatably with respect to said shaft;

a movable control wire for a gear shift having one end directly connected to one end of said lever;

an outer sheath covering for said control wire having one end corresponding to said one end of said control wire supported to said fixed member;

a cover mounted stationarily to said fixed member covering a boss of said lever and having marks thereon representing speed-change stages; said lever having an indicator for indicating the position of said lever, said indicator being movable in a given range with respect to said lever in the same direction as the turning of said lever;

means for providing a prescribed resistance against movement of said indicator; and,



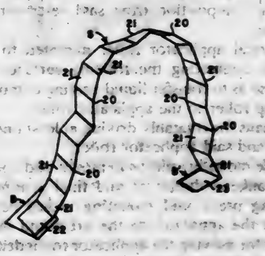
means responsive to the turning of said lever for causing said indicator to remain stationary during a predetermined amount of movement of said lever and for thereafter causing said indicator to follow the turning of said lever lagging behind it a constant distance.

4,270,482

DROP MARKER

Robert J. Forsyth, College Place, Wash., assignor to North American Industries, Inc., Walla Walla, Wash.

Filed Jan. 12, 1978, Ser. No. 868,806
Int. Cl.[2] G09F 9/00
U.S. Cl. 116—209 10 Claims



1. A drop marker, comprising:

a first base member;

a second base member;

an elongated streamer having transverse pleats folded accordion-style between the longitudinal ends thereof;

one longitudinal end of said streamer being fixed to said first base member;

the opposite longitudinal end of said streamer being fixed to said second base member;

the total area of said streamer being substantially greater than the total area of said first and second base members combined;

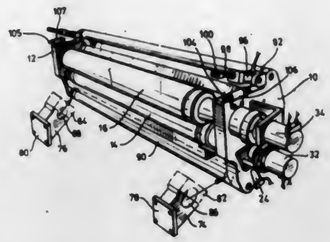
the weight per unit area of each of said first and second base members being greater than the weight per unit area of said streamer; and

said streamer being foldable to a first condition in which it is stored flat between said base members with the base members substantially parallel to one another for reception in an ejection device for ejecting said marker from an aircraft into the air, with unfolding to a second condition in which the streamer is extended longitudinally with the base members at the respective ends thereof disposed at positions below the portion of the streamer to which attached.

4,270,483
PRINTING COATER

Denton G. Butler, 23 Halladier Pl., Islington, Ontario, Canada (M9B 2H4), and Andrew W. Lester, 30 Innis Cresc., Richmond Hill, Ontario, Canada (L4C 5K2)

Filed Dec. 26, 1978, Ser. No. 972,688
Int. Cl.³ B05C 11/00
U.S. Cl. 118—46 6 Claims



1. An in-line coating apparatus for attachment to and use in conjunction with an offset lithographic printing press which has a final printing stage including plate, blanket and impression cylinders, said blanket cylinder engaging with said impression cylinder to print a sheet passing between the blanket and impression cylinders, said apparatus being adapted for continuous surface coating of items printed by said press and passing in contact with said blanket cylinder of the final printing stage thereof, the coating apparatus comprising:

a reservoir structure for receiving liquid coating compositions;

a cylindrical pick-up roller adapted to receive on its surface coating composition from said reservoir structure as it rotates;

a cylindrical applicator roller mounted to rotate with its surface contacting the rotating surface of said pick-up roller so as to transfer liquid coating composition from the pick-up roller to the applicator roller;

drive means for rotatably driving at least one of said pick-up roller and said applicator roller;

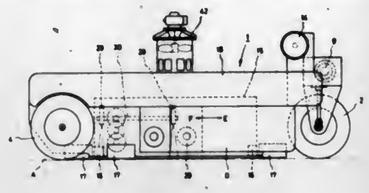
releasable mounting means to mount said apparatus adjacent the blanket cylinder of said final printing stage of said printing press, said mounting means being effective to secure the apparatus to the press and including control means for moving the applicator roll independently of said blanket cylinder so that the blanket cylinder remains in engagement with said impression cylinder, between a first, operative position in which said applicator roll is in engagement with the blanket cylinder of the final printing stage of said press and a second, inoperative position in which said applicator roll is disengaged from said blanket cylinder, said control means constituting means permitting said final stage optionally to be used as a printing stage and as a coating stage.

4,270,484
MACHINE FOR UNDERWATER PAINTING

Shirou Shimatani; Ryohji Orita, both of Tamano, and Tsuneo Obokata, Tokyo, all of Japan, assignors to Mitsui Engineering & Shipbuilding Co., Ltd., Tokyo, Japan

Filed May 24, 1979, Ser. No. 42,086
Claims priority, application Japan, Oct. 7, 1978, 53-123987
Int. Cl.³ B05B 15/04
U.S. Cl. 118—305 6 Claims

1. In a machine for underwater painting of a metal surface of ships and offshore constructions which includes a frame, an open bottom painting chamber connected to the frame, pneumatic tire wheels on the frame operatively supporting the frame, an annular inflatable sealing tube surrounding the periphery of the open bottom of the painting chamber, electromagnets disposed on the frame about the painting chamber, one buoyancy tank fitted to the frame, and paint jetting nozzles disposed within the painting chamber, the improvement of the machine further comprising a further buoyancy tank symmetrically disposed on the frame on an opposite side from the one buoyancy tank, a ballast tank centrally disposed on the frame, means for maneuvering at least one of the wheels through a limited angular range, and means for moving the paint jetting

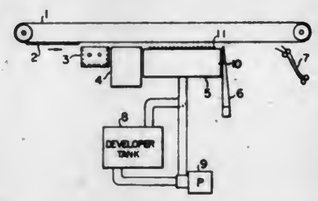


nozzles around in the painting chamber; and wherein the electromagnets each comprise an iron core, a coil wound about said iron core, a bolting hole in said iron core for affixing said electromagnet to the frame, and a magnet plate welded to said iron core hermetically sealing said coil in said core whereby the depth of the magnetic field is relatively great and the attenuation of magnetic force to increase in the distance from the metal surface is relatively low.

4,270,485
LIQUID DEVELOPING APPARATUS

Sadao Murasawa, Itami; Hajime Murakami, Moriyama, and Hiroshi Ichida, Shiga, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

Filed Oct. 18, 1979, Ser. No. 86,038
Claims priority, application Japan, Oct. 23, 1978, 53-130276
Int. Cl.³ G03G 15/10
U.S. Cl. 118—648 4 Claims

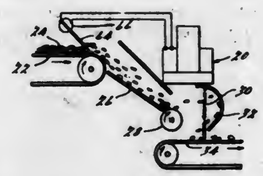


1. A liquid developing apparatus for electrophotography comprising means for horizontally moving an electrophotographic photoreceptor bearing a latent electrostatic image on its surface at a rate of 1 to 15 cm/sec while holding the photoreceptor with the latent image-bearing surface facing down underneath said means; a developing bath for a liquid developer for contacting the undersurface of the photoreceptor with a liquid developer contained in the bath when the photoreceptor passes over the bath, said developing bath being positioned under the above moving means; and a number of horizontally spaced developing electrodes in the form of bars disposed in the bath so that when the photoreceptor passes over the developing bath the upper surfaces of the electrodes are very near the undersurface of the photoreceptor, characterized in that the developing electrodes are placed horizontally and parallel to one another at an angle of 45° to 90° to the direction of movement of the photoreceptor; the upper surface of each electrode is substantially flat; the leading edge of said upper surface of each of the electrodes in relation to the direction of movement of the photoreceptor faces the undersurface of the photoreceptor at a constant distance of 0.2 to 1 mm; each of the bar-like developing electrodes has a vertical cross-section, the shape of which is a tetragon or its modified shape which can be inscribed in a rectangle having a width of 0.2 to 10 mm and a height of 1 to 20 mm, the upper side of the rectangle being parallel to the undersurface of the photoreceptor; and the distance between any two adjacent electrodes is 0.4 to 5 mm.

4,270,486
POWDER DISPENSING APPARATUS

Melvin E. Lovercas, St. Clair, Mich., assignor to Diamond Crystal Salt Co., St. Clair, Mich.

Continuation-in-part of Ser. No. 39,262, May 16, 1979, abandoned. This application Jan. 28, 1980, Ser. No. 115,672
Int. Cl.³ B05C 19/00
U.S. Cl. 118—679 18 Claims



1. A dispensing apparatus for dispensing a particulated material on the surfaces of articles comprising a framework, discharge means for discharging a particulated material in the form of a transversely extending generally vertically oriented curtainous stream, slinger means disposed upstream of said curtainous stream for dispersing and propelling the articles through the upper section of said stream, and deflector means disposed downstream of said curtainous stream for intercepting and directing the articles back through an intermediate section of said stream to the upstream side thereof.

4,270,487
DEVELOPER REGULATING DEVICE IN DEVELOPING APPARATUS

Isamu Terashima; Toshio Twuboki, and Masayasu Anzai, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 19, 1978, Ser. No. 952,735
Claims priority, application Japan, Oct. 27, 1977, 52/128990; Jun. 7, 1978, 53/67659
Int. Cl.³ G03G 15/06
U.S. Cl. 118—690 8 Claims



1. In developing apparatus having a developer container which receives a magnetic developer, conveyance means for conveying the developer from the developer container and bringing it into contact with a surface to-be-developed to develop an electrostatic latent image, and a developer sensor which is disposed at a predetermined position of the developer container, a quantity of the developer within the developer container being detected in accordance with an output of the developer sensor,

developing apparatus characterized by comprising:

an electric coil which is included in said developer sensor,

an oscillator circuit which includes said electric coil as one circuit element thereof,

means for mounting said developer sensor on said developer container so that an oscillating condition of said oscillator circuit may hold by sensing the developer of at least a predetermined level in said developer container and that the oscillating condition may fail to hold by sensing the developer below said predetermined level, and

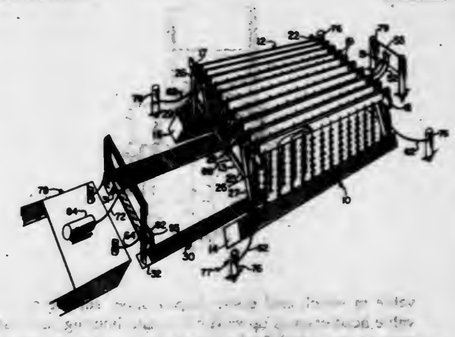
means for detecting the quantity of said developer within said developer container in dependence on the presence or absence of an oscillation output of said oscillator circuit, wherein

said developer sensor has a moveable electric conductor at a position at which it is electromagnetically coupled with a coil conductor.

4,270,488
SYSTEM AND APPARATUS FOR CULTIVATING AND HARVESTING OYSTERS

George D. Kennedy, Rte. 2, Box 312, Palm Bay, Fla. 32905

Continuation-in-part of Ser. No. 839,125, Oct. 3, 1977, abandoned. This application Feb. 6, 1979, Ser. No. 10,079
Int. Cl.³ A01K 61/00
U.S. Cl. 119—4 6 Claims



1. A system for cultivating and harvesting oysters comprising an aquatic oyster cultivating apparatus having a pair of elongated pontoons that are laterally spaced apart and arranged in parallel, and a superstructure that is supported by said pontoons for suspending cultch material in the space between the pontoons, and a system for floating and submerging the cultivating apparatus, said superstructure being arranged to support the cultch material above the water surface when said apparatus is floating thereon and to support the cultch material above the water bottom when the apparatus is submerged and resting thereon, each of said pontoons having an elongated fore compartment and an elongated aft compartment, and said floating and submerging system having an air control system that is connected to the fore compartments of said pontoons and controllable to simultaneously flood or blow said fore compartments and further connected to the aft compartments of said pontoons and controllable to simultaneously flood or blow said aft compartments, said superstructure comprising a section bridging the space between said pontoons, said section having a pair of foot portions that straddle the respective pontoons, and said cultivating apparatus comprises flexible means engaging said foot portions and yieldably securing said section to said pontoons.

4,270,489
FISH-OPERATED AQUARIUM FEEDER

Osmo K. Jeroson, 204-450 Simcoe St., Victoria, B. C., Canada (V8V1L4)

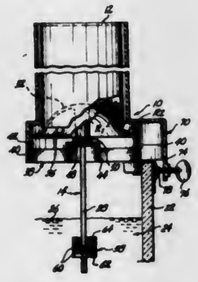
Filed Sep. 6, 1979, Ser. No. 73,138
Int. Cl.³ A01K 61/02
U.S. Cl. 119—51 R 6 Claims

1. A fish-actuated feeder for dispensing substantially con-

trolled quantities of stored fish food into a water-filled container that houses fish, said feeder comprising:

a valve including a valve head having the upper surface thereof configured to define an upwardly-projecting, dome-shaped central region and an annular flange region that surrounds said dome-shaped central region, said annular flange including a plurality of circumferentially spaced apart grooves extending radially inward from the outer edge of said annular flange to the outer edge of said dome-shaped central region, each groove within said plurality of grooves having a width dimensioned to permit flow of a relatively small quantity of said stored food when fish food is supplied thereto, said valve further including an actuator rod extending downwardly from the lower portion of said valve head at a point in substantial alignment with the center of said domed upper surface of said valve head;

a housing including support means for positioning said valve with said valve head above the surface of the water containing said fish to be fed with a portion of said actuator rod extending downwardly into said water, said support means and said valve being cooperatively configured and arranged to establish a single equilibrium position of said



valve in which said dome-shaped upper surface of said valve head extends upwardly into said housing, said support means being further configured and arranged for pivotable movement of said valve head to rotate said dome-shaped upper surface relative to said housing when said actuator rod is subjected to angular deflection; and

a food container for containing said stored fish food, said food container including a substantially cylindrical wall, a closed end and an open end, said food container being dimensioned and arranged for placement on said valve head with said open end of said food container facing downwardly with that portion of said cylindrical wall adjacent said opening resting on said valve head, said dome-shaped upper surface of said valve head being symmetrically disposed within said opening of said food container when said valve is in said equilibrium position to prevent escapement of stored fish food, said dome-shaped upper surface of said valve head being rotated to move a portion of said valve head annular flange inwardly beneath said cylindrical wall of said food container to supply said fish food to at least one of said circumferentially spaced apart grooves when said actuator rod is angularly deflected in a predetermined direction.

4,270,490

ANIMAL FEED BOWLS

Larry F. Kopp, P.O. Box 265, Tofino, British Columbia, Canada

Filed Mar. 5, 1979, Ser. No. 17,189
Int. Cl.³ A01K 5/00
U.S. Cl. 119—61 3 Claims

1. A pair of animal feed bowls for holding and protecting food for an animal, comprising:

(a) a first open end feed bowl, comprising:

(i) a base;

(ii) a peripheral rim at said open end; and,

(iii) a peripheral side wall having an exterior surface extending upwardly from said base to said rim;

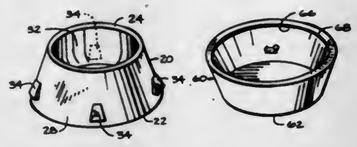
and,

(b) a second open end feed bowl for additionally acting as a cover for said first feed bowl, comprising:

(i) a bottom wall; and,

(ii) a flexible resilient peripheral side wall having an interior surface extending upwardly from said bottom wall to the open end of said second feed bowl,

the bottom wall and interior surface of said second feed bowl being shaped to permit said second feed bowl to be inverted and placed as a closely covering cover over said first feed bowl, such that the bottom wall of said second feed bowl lies substantially flush with the rim of said first feed bowl, and the interior surface of said second feed bowl extends downwardly towards the base of said first feed bowl closely covering a substan-



tial portion of the exterior surface of said first feed bowl; and,

(c) cooperating means on said first and second feed bowls for releasably securing said second feed bowl in said inverted position as a closely covering cover over said first feed bowl, said cooperating means comprising:

(i) a flange forming an inwardly extending peripheral rim at the open end of said second feed bowl; and,

(ii) a plurality of wedge-shaped tabs disposed at spaced intervals on the exterior surface of the peripheral side wall of said first feed bowl, each of said tabs including an upper end and a lower end, the upper end merging with said exterior surface, the lower end extending downwardly from the lower part of said exterior surface for engaging the under side of said flange to releasably secure said second feed bowl to said first bowl in said inverted position as a closely covering cover over said first feed bowl.

4,270,491

ANIMAL LEASH

Jack R. Cox, P.O. Box 1104, Myrtle Beach, S.C. 29577

Filed Oct. 16, 1979, Ser. No. 85,430
Int. Cl.³ A01K 27/00
U.S. Cl. 119—109 1 Claim



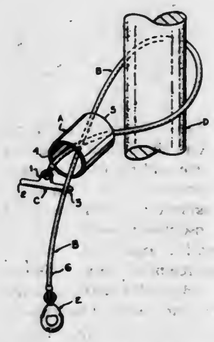
1. An animal leash comprising an adjustable figure-8 body portion including a first loop serving as a noose for the neck of an animal and a second loop serving as a handle, said body portion having two end loop terminals, a free sliding adjusting ring on the body portion and being attached to said end loop terminals, an adjustable stop element on the first loop serving as a noose, and a spring adjuster on the body portion on one side of said adjusting ring and being engageable with the adjusting ring to slide the latter along the body portion when the spring adjuster is in a released state, the spring adjuster being biased into frictional locking engagement with the body portion and being released from said locking engagement by the application of manual pressure to opposite sides of the spring adjuster, the spring adjuster being unitary and having forward and rear bars and at least two intermediate bars in parallel relationship with the forward and rear bars, all of said bars having apertures of sufficient size to receive the body portion slidably therethrough, the spring adjuster further comprising converging side bars both connected with the forward bar of the adjuster and one connected with the rear bar and one of the intermediate bars and the other connected with the other intermediate bar, whereby the application of said manual pressure to opposite sides of said adjuster will move the apertures of the intermediate bars into alignment with the apertures of the forward and rear bars, the spring adjuster when in a relaxed state having the aperture of at least one intermediate bar laterally unaligned with the apertures of the forward and rear bars.

4,270,492

QUICK HITCH FOR ANIMALS OR THE LIKE

Eugene E. Gobeen, 22169 S. Garden Ave., Hayward, Calif. 94541

Filed Aug. 3, 1979, Ser. No. 63,394
Int. Cl.³ A01K 3/00
U.S. Cl. 119—118 2 Claims



1. A device of the type described, comprising:

(a) a cylinder open at both ends;

(b) a rope with both ends extending through said cylinder and projecting from a first end thereof, the portion of rope projecting from the second end of said cylinder forming a loop and adapted to encircle an object to be hitched;

(c) a catch swingably connected to a first end of said rope and having rigid handles aligned with each other and projecting equally beyond the point of connection with the rope end so that their total length is greater than the cylinder diameter; this first rope end being adapted to be pulled for bringing the handles into contact with said cylinder first end and then the rope loop being tightened about the object to bring the cylinder second end into contact therewith; and

(d) a second rope end being adapted to be secured to an anchoring member, said catch being capable of being freed from said cylinder first end by being swung so the handles thereof substantially parallel the cylinder axis and permit the catch to move through said cylinder for releasing the device from said object.

4,270,493

STEAM GENERATING HEAT EXCHANGER

Henry J. Blaskowski, West Simsbury, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jan. 8, 1979, Ser. No. 1,621
Int. Cl.³ F28D 7/00; C10K 1/02
U.S. Cl. 122—7 R 3 Claims

1. A steam generating heat exchanger of modular design for cooling a high pressure, hot combustible gas laden with molten ash particles, comprising:

a. a first convective cooler comprising a vertically orientated cylindrical pressure containment vessel having a gas inlet in the top thereof, a gas outlet in the side thereof and located near the top thereof, and means disposed between the gas inlet and the gas outlet and extending along the axis of the first convective cooler for establishing a U-shaped gas pass therein so that the hot gas passes from the gas inlet down the first leg of the gas pass and up the second leg of the gas pass to the gas outlet;

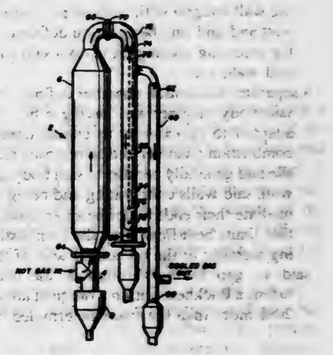
b. a plurality of heat exchange tubes lining the interior of said first convective cooler;

c. a first in-line tube bundle disposed in the first gas pass of said first convective cooler;

d. a second in-line tube bundle disposed in the second gas pass of said first convective cooler;

e. means for receiving ash particles precipitating out of the hot gas flowing thru said first cooler, said means disposed beneath, secured to and opening into the bottom of said first convective cooler;

f. a radiant cooler comprising a cylindrical pressure containment vessel disposed upstream with respect to gas flow of said first vessel, having a gas inlet at the bottom thereof, a gas outlet at the top thereof;



g. a plurality of heat exchange tubes lining the interior of said radiant cooler thereby defining a radiant cooling chamber for cooling the hot gas;

h. means for conveying the gas from the gas outlet of said radiant cooler to the gas inlet of said first convective cooler;

i. a second convective cooler comprising a cylindrical pressure containment vessel disposed downstream with respect to gas flow of said first convective cooler, having a gas inlet at the top thereof, and a gas outlet at the bottom thereof;

j. means for conveying the gas from the gas inlet of said second convective cooler being connected to the gas outlet of said first convective cooler;

k. a third in-line tube bundle disposed in the gas pass of said second convective cooler; and

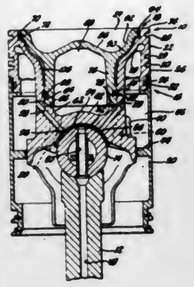
l. means for receiving ash particles precipitating out of the hot gas flowing thru said second convective cooler, said means disposed beneath, secured to and opening into the bottom of said second convective cooler.

4,270,494

INSULATED OIL COOLED PISTON ASSEMBLY

Robert F. Garter, Dearborn; Nshan Hamparian, Brighton, and Litton T. Lee, Canton Township, Wayne County, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 11, 1979, Ser. No. 2,539
Int. Cl.³ F01P 1/04
U.S. Cl. 123—41.35 2 Claims



1. An oil cooled piston assembly for a diesel engine, said assembly comprising

a body member having an outer generally cylindrical ring belt section connected near its upper edge with a supporting wall integral with a piston pin connecting section, said wall and said ring belt section defining a cooling oil space for receiving cooling oil to cool said ring belt section and said wall, and

a separate combustion chamber defining member secured to said body member and having a hot wall with one side adapted to be exposed to engine combustion gases in a combustion chamber and an opposite side extending opposite and generally parallel to said body member supporting wall, said walls cooperating and being spaced apart intermediate their ends to define an enclosed insulating air gap that limits heat flow from the combustion chamber defining member to the oil cooled wall of the body member,

said air gap having throughout the major portion of its extent a thickness within a range of about 20% less than to 20% more than the value determined by the formula

$$b = \left(\frac{1500\,\nu^2}{\beta\, r\,\omega^2\,\Delta T}\right)^{\frac{1}{3}}$$

where:

b=air gap thickness
ν=kinematic viscosity of the air in the gap
β=the coefficient of thermal expansion of the air in the gap
r=radius of crank to which the piston is connected
ω=selected crank rotational speed in radians per second
ΔT=differential temperature across the air gap at said selected speed to minimize the combined effects of conductive and convective heat transfer and thus provide a maximum insulating effect through maintenance of an essentially stagnant air condition within the gap.

4,270,495

VARIABLE DISPLACEMENT PISTON ENGINE

Ferdinand Freudenstein, Riverdale, N.Y., and E. Roland Maki, Rochester, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 31, 1979, Ser. No. 44,265
Int. Cl.³ F02B 75/26; F01B 31/14
U.S. Cl. 123—54 B 4 Claims

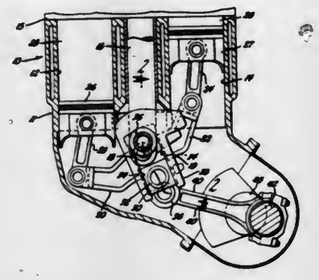
1. A balanceable variable displacement reciprocating piston engine comprising

a crank having a fixed longitudinal axis and a pair of longitudinally spaced crank arms extending in angularly opposite directions from said axis,

a pair of rockers pivotable on a rocker axis parallel with said crank axis and pivotally connected at points equally spaced from the rocker axis one each with couplers each connected with one of said crank arms,

said crank, couplers, and rockers forming a pair of equivalent four-bar crank and rocker linkages having opposing phase orientations,

a pair of oscillating links pivotable on a link axis parallel with said rocker axis along a control plane and adjustable in said control plane which passes through the rocker axis, said links each having a portion slidably engaging one of said rockers at points spaced from said link and rocker



axes so as to cause concurrent oscillation of the associated links and rockers about their respective axes, wherein a distance between said points of engagement of said links with their respective rockers and said rocker axis is adjusted by adjustment of said link axis in said control plane such that an oscillation angle traversed by said links is varied by such link axis adjustment,

a pair of pistons reciprocable in cylinders on parallel axes spaced from and parallel with said control plane, and

piston rods connecting each of said pistons with an extending arm of one of said oscillating links,

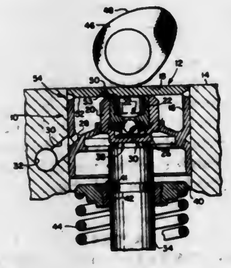
whereby rotation of said crank reciprocates said pistons in opposite phase relation and said adjustment of said link axis varies the piston stroke.

4,270,496

WELDED ARTICLE AND METHOD OF MAKING SAME

Sundaram L. Narasimhan, and Jay M. Larson, both of Marshall, Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 26, 1978, Ser. No. 973,058
Int. Cl.³ F01L 1/14
U.S. Cl. 123—90.51 20 Claims



1. A cam follower for an internal combustion engine, comprising:

(a) a base portion formed of an iron-carbon alloy having a carbon content in the range of about 0.05% to about 0.20%;

(b) a reaction portion having a wear resistant outer surface, said reation portion formed of a ferrous-carbon alloy having a carbon content in the range of about 0.60% to about 1.00%; and

(c) a weld zone joining said base and reaction portions, said weld zone including,

(i) a fusion product zone in which portions of said base and reaction portion are alloyed in a first composition,

(ii) a first heat effected zone in said base portion and adjacent said fusion product zone, said first heat effected zone characterized by a second alloy composition,

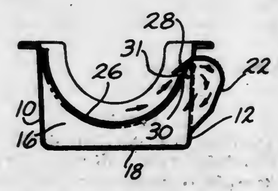
(iii) a second heat effected zone intermediate said reaction portion and said fusion product zone and characterized by a third alloy composition, said first and second heat effected zones having a transverse thickness substantially less than the width of said fusion product zone.

4,270,497

OIL PAN FOR INTERNAL COMBUSTION ENGINES

Robert M. Valerio, 6208 Selkirk, North Madison, Ohio 44057

Filed Aug. 22, 1979, Ser. No. 68,659
Int. Cl.³ F16N 31/00
U.S. Cl. 123—195 C 7 Claims



1. An oil pan for an internal combustion engine having a piston—piston rod—crankshaft assembly and having a pressurized engine lubrication system, said oil pan comprising; an elongated open-top housing having side and end walls and a bottom wall, said housing also having a main sump disposed in the bottom wall of the housing for containing oil therein, said housing also having a side sump disposed in and formed as a part of one side wall of the housing and in fluid flow communication with said main sump, an elongated windage tray open at both longitudinal ends semi-circular in cross-section and secured to and positioned longitudinally in the housing adjacent the side sump with the convex side down and spaced above the housing bottom wall, and a coacting elongated skimmer bar secured to and formed as a part of said side sump and positioned above and spaced from an upper edge of said tray adjacent the side sump for channeling oil skimmed off the tray into the side sump and thence into the main sump in controlled flow,

wherein said side sump is an outwardly bulging cavity formed in said one side wall and is configured in transverse section to effect a controlled orderly flow of oil received from the skimmer bar into the main sump, and

wherein said windage tray is coated with an oil repellant coacting to reduce friction.

4,270,498

INTERNAL COMBUSTION ENGINE

Sergio Occella; Giulio Arietti, and Giampiero Borello, all of Turin, Italy, assignors to Centro Ricerche Fiat S.p.A., Turin, Italy

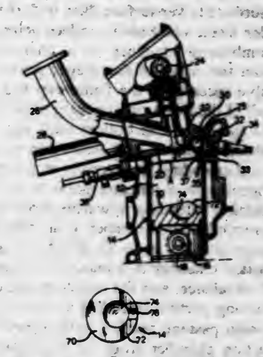
Filed Apr. 17, 1979, Ser. No. 30,807
Claims priority, application Italy, Apr. 18, 1978, 67872 A/78; Mar. 26, 1979, 67615 A/79
Int. Cl.³ F02B 19/10
U.S. Cl. 123—276 13 Claims

1. An internal combustion engine of the type having a cylinder block, a number of cylinders therein, a cylinder head, fuel injectors for injecting fuel into each cylinder, a piston in each cylinder having a combustion chamber defined largely by a cavity recessed in the crown of the piston and spark ignition means having electrodes in communication with said combustion chamber; the improvements comprising:

the fuel injector for each cylinder is situated in a side wall of the cylinder in proximity to the cylinder head;

the cavity recessed into the piston is concentrated in one part of the crown of the piston so as to form squish areas for the combustible mixture between the crown of the piston and the cylinder head;

an insert containing an ignition pre-chamber, with which the electrodes of the spark ignition means communicate, is located in the side of the cylinder head opposite the fuel injector, said pre-chamber having in its lower part a mouth communicating with the interior of the cylinder;



the insert within which the pre-chamber is recessed has a baffle which projects substantially in the direction of the cylinder axis into the cylinder and which is superimposed in the top dead centre position of the piston on a part of the piston cavity, said baffle having an impingement surface facing towards the fuel injector, the mouth of the ignition pre-chamber being located adjacent the baffle but displaced towards the axis of the cylinder with respect to the impingement surface of said baffle; and

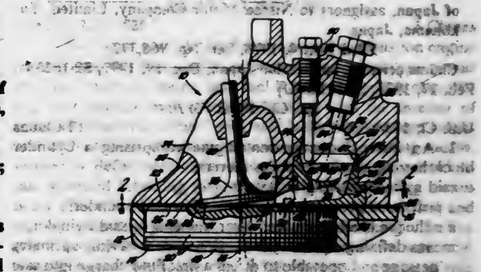
the fuel injector having means to direct a single fuel jet of narrow divergence onto said impingement surface while being arranged with the axis thereof substantially perpendicular to said impingement surface so that the impact of the jet against said impingement surface causes fine atomization of the fuel in the region of the cylinder in front of the mouth of the ignition pre-chamber.

4,270,499

DIESEL ENGINE PRECOMBUSTION CHAMBERS

Arthur R. Freland, Okemos, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed May 3, 1979, Ser. No. 35,533
Int. Cl.³ F02B 19/18
U.S. Cl. 123—293 8 Claims



1. In combination in a diesel engine, means defining a cylin-

der having an axis, a piston reciprocably carried in the cylinder and a cylinder head having a generally flat lower surface closing the end of the cylinder and defining in cooperation with the piston a main combustion chamber at the end of the cylinder, said cylinder head having adjacent inlet and exhaust ports opening to the combustion chamber and closed by poppet valves having heads and movable on axes inclined upwardly away from and on the same side of a plane passing through the cylinder axis such that the valve heads are canted with respect to the lower surface of the cylinder head so as to form, in closed position, wedge shaped valve recesses in the cylinder head surface, a precombustion chamber formed in the cylinder head on the side of the inlet and exhaust ports opposite the inclination of the valve axes and defined by a recess in the cylinder head closed by a flame cup having a bottom wall with an unbroken lower surface flush with the lower surface of the cylinder head, said valve recesses being connected with said precombustion chamber by a channel extending outwardly from the edges of the deeper portions of the wedge shaped valve recesses to the flame cup and a passage in the bottom wall of the flame cup, opening to said channel through the side of the flame cup bottom wall and extending to the precombustion chamber, said flame cup passage including a main portion extending transversely in the bottom wall from the side opening to a junction point in the wall, a primary opening portion extending upwardly from the junction point into the precombustion chamber at an obtuse angle with the main passage portion so as to direct the gas flow into the precombustion chamber in a manner to control the resulting swirl and turbulence, and the improvement comprising a secondary opening portion extending upwardly at an acute angle with the main passage portion with respect to flow into the precombustion chamber from an intermediate point of said main passage portion between its side opening and the junction point to an interior zone from which to receive the initial outflow of combustion gases passing through said gas passage.

8. A flame cup adapted for installation in a diesel engine cylinder head to form part of a precombustion chamber in said head, said flame cup comprising a floor with upper and lower surfaces, the upper surface defining an interior chamber portion, and a gas passage through the floor and connecting with the interior chamber portion, said gas passage comprising a main portion having a lower opening to the exterior of the floor and extending transversely between the upper and lower surfaces to a primary opening portion extending to the interior of the chamber, and a secondary opening portion extending only upwardly at an acute angle with the main passage portion with respect to flow into the chamber from an intermediate point of the main passage portion, the secondary opening portion extending into the chamber at an interior zone from which to receive an initial outflow of combustion gases into the gas passage.

4,270,500

INTERNAL COMBUSTION ENGINE WITH DUAL INDUCTION SYSTEM

Yasuhiko Nakagawa, Kamakura; Yukihiro Etoh, Yokohama; Meroji Nakai, Yokosuka, and Ryoji Nakajima, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 4, 1978, Ser. No. 966,372

Claims priority, application Japan, Dec. 19, 1977, 52-152551; Feb. 17, 1978, 53-19113[U]

Int. Cl.³ F02B 75/18

U.S. Cl. 123—308 **12 Claims**

1. An internal combustion engine comprising a cylinder block having a cylinder form therein;

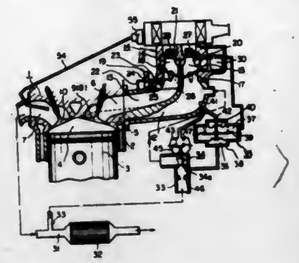
said cylinder having an axis;

a piston reciprocably mounted within said cylinder;

a cylinder head positioned over one end of said cylinder;

means defining a primary induction system having a primary passage and operable to direct a first fluid charge into said cylinder in a direction tangential with respect to the wall of said cylinder so as to cause said charge to swirl in said cylinder with said axis as the center of rotation, (fluid charge into said cylinder to swirl therein about said cylinder axis) under all of the operating conditions of the engines; and

means defining a secondary induction system having a secondary passage and operable to direct the second fluid



charge into said cylinder in such a direction as to impede the swirling motion of the first fluid charge and to provide a swirling about said axis which is sufficiently low to thereby maintain the volumetric efficiency of the engine at a sufficiently high level under predetermined operating conditions of the engine.

4,270,501

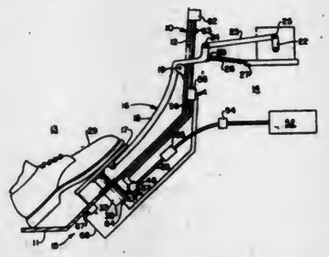
BEHAVIORAL FUEL-SAVING METHOD AND APPARATUS FOR A MOTOR VEHICLE

William C. Breen, 507 Greenwood Ave., Akron, Ohio 44320, and Richard E. Schulman, 105 Catherine St., Kalamazoo, Mich. 49007

Filed Dec. 18, 1978, Ser. No. 970,384

Int. Cl.³ F02B 11/08

U.S. Cl. 123—350 **14 Claims**



1. An energy conservation system for a powered vehicle in which the fuel supplied is controlled by the operator depressing and releasing a foot pedal member in an operating range from a fully depressed position to an extended position comprising movement resisting means engageable with said pedal member within said operating range to resist the depression of said pedal member by the operator's foot, velocity measuring means, control means connected to said velocity measuring means and to said movement resisting means, said control means actuating discrete incremental preselected adjustments to said movement resisting means for changing resistance to depression of said pedal member within said operating range in response to communications from said velocity measuring means at predetermined vehicle velocities, said adjustments to said movement resisting means differentially increasing the effort required to depress said pedal member at higher velocities and differentially decreasing the effort required to depress said pedal member at lower velocities within said operating range so that the operator is constrained to reduce the occurrence and duration of vehicle operation at velocities over a predetermined vehicle velocity.

4,270,502

FUEL INJECTION PUMPING APPARATUS

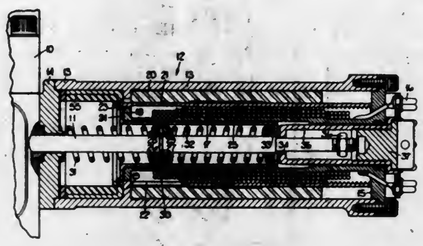
Alec H. Scilly, North Wembley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed May 4, 1979, Ser. No. 36,011

Claims priority, application United Kingdom, Jun. 10, 1978, 26656/78

Int. Cl.³ F02D 11/10; F02M 59/24

U.S. Cl. 123—357 **16 Claims**



1. A fuel injection pumping apparatus comprising an injection pump operable in use, in timed relationship with an associated engine to deliver fuel to a combustion space of the engine, a movable control member the axial setting of which determines the amount of fuel supplied at each injection stroke by the injection pump, a linear stepper motor including an output member coupled to the control member, a lost motion connection positioned between the output member and the control member whereby the output member can move to a new position even if movement of the control member is temporarily prevented, said stepper motor further including a housing, a sleeve mounted with the housing, said output member comprising a hollow cylindrical armature located within the sleeve and guided for axial movement thereby, an annular stator extending within the armature, electrical windings carried by the stator member and which can be selectively arranged to alter the relative axial setting of the armature and stator member, a tubular member located within the stator member, means coupling the armature to the tubular member, said control member extending through the tubular member, a first abutment defined on the internal surface of the tubular member and a second abutment defined on the control member, a pair of spring abutments slidable on the control member and located on the opposite sides of said first abutment, and a pair of resilient means acting on said pair of abutments respectively to maintain the spring abutments in engagement with said first and second abutments.

4,270,503

CLOSED LOOP AIR/FUEL RATIO CONTROL SYSTEM

Allen J. Pomerantz, Bancroft, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 17, 1979, Ser. No. 85,747

Int. Cl.³ F02G 3/00; F02M 7/00

U.S. Cl. 123—438 **3 Claims**

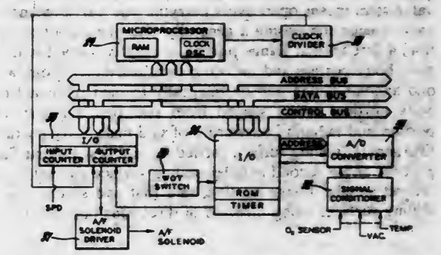
1. A fuel controller for a vehicle internal combustion engine having an intake space into which air and fuel are supplied and combustion space into which the air/fuel mixture from the intake space is supplied to undergo combustion, including, in combination:

supply means effective to supply a mixture of air and fuel to the intake space of the engine;

a sensor effective to supply a sensor signal representing at least the sense of deviation of the air/fuel ratio from a predetermined ratio;

a memory having a first group of memory locations addressable in accordance with specific values of an engine operating condition when the engine is accelerating and a second group of memory locations addressable in accord with said specific values of the engine operating condition when the engine is decelerating, each memory location in the first group addressed by the value of the engine condition having a number stored therein having a value determined to adjust the supply means to produce the predetermined ratio in the combustion space during engine acceleration and each memory location in the second group addressed by the value of the engine condition having a number stored therein having a value determined to adjust the supply means to produce the predetermined ratio in the combustion space during vehicle deceleration; and

control means effective to control the air/fuel ratio to the predetermined ratio, the control means including (a) means responsive to the sensor signal effective to adjust



the air/fuel ratio of the mixture supplied by the supply means to the intake space at a predetermined rate in the direction tending to produce the predetermined ratio and (b) means effective to preset the air/fuel ratio adjustment to the value of the number stored in the memory at the location in the first group addressed by the value of the engine operating condition when the change in the engine operating condition represents vehicle acceleration and at the location in the second group addressed by the value of the engine operating condition when the change in the engine operating condition represents vehicle deceleration, whereby the control means is preset to the value for producing the predetermined ratio in the combustion space during vehicle acceleration and deceleration substantially instantaneously to thereby compensate for variations in the air/fuel ratio of the mixture supplied by the supply means during engine transient conditions.

4,270,504

FUEL BOWL VENT

Robert Sciotti, Warren, and Michael Dougherty, East Detroit, both of Mich., assignors to Colt Industries Operating Corp., New York, N.Y.

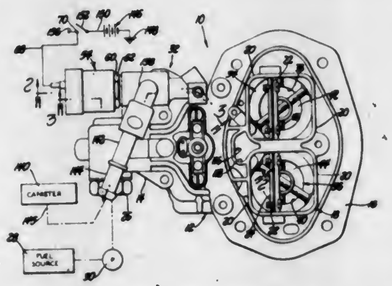
Continuation of Ser. No. 942,303, Sep. 14, 1978. This application Jul. 1, 1980, Ser. No. 164,982

Int. Cl.³ F02M 37/00

U.S. Cl. 123—520 **3 Claims**

1. A fuel bowl vent system for an internal combustion engine having metered fuel supply means, induction passage means and fuel reservoir means, said fuel bowl vent system comprising vent passage means communicating with the interior of said fuel reservoir means with said induction passage means and with associated canister means, solenoid actuating means, resiliently deflectable valve means operatively connected to said solenoid actuating means, said solenoid actuating means being effective to move said valve means to at least first and second operating positions, said valve means being effective when in said first operating position to terminate said vent passage means communication as between said interior of said fuel reservoir means and said induction passage means, and said valve means also being effective when in said second

operating position to terminate said vent passage means communication as between said interior of said fuel reservoir means and said associated canister, said metered fuel supply means comprising carburetor means, said carburetor means comprising carburetor-defining body means, said induction passage means extending through said body means, said fuel reservoir means comprising a fuel chamber formed in said body means, said vent passage means comprising first conduit means formed in said body means and communicating with said fuel chamber, first chamber means formed in said body means and communicating with said first conduit means, second conduit means formed in said body means and communicating with said first chamber means and leading to said induction passage means, third conduit means formed in said body means and communicating with said first chamber means and leading to said canister means, said valve means being contained within said first chamber means, said solenoid actuating means comprising valve stem means operatively carrying said valve means, said valve means comprising a generally disc like main body portion, a first annular flange portion integrally formed with said main body portion and radiating outwardly therefrom, a second annular flange portion integrally formed with said main body portion axially spaced from said first annular flange portion and radiating outwardly of said main body portion, a first annular sealing surface carried by said first annular flange portion, and a second annular sealing surface carried by said second annular flange portion, said first and second annular sealing surfaces being directed in directions opposite to each



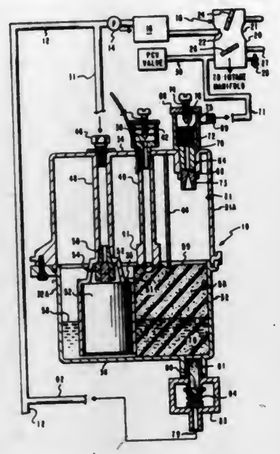
other, said third conduit means comprising second chamber means, said valve stem means extending through said second chamber means, at least a portion of said second chamber means being of a tapered configuration as to have a relatively smaller end, said relatively smaller end being situated generally nearer said first chamber means, said first annular flange portion defining a first outer periphery of relatively small diameter, said second annular flange portion defining a second outer periphery of relatively large diameter, said first annular sealing surface being disposed radially inwardly from said first outer periphery of said first annular flange portion, said second annular sealing surface being disposed radially inwardly from said second outer periphery of said second annular flange portion, said first relatively small diameter permitting said first annular flange portion to undergo at most limited resilient deflection thereof by said second chamber means as said valve means is being inserted into and through said second chamber means to thereby prevent damage to said first annular sealing surface, said second relatively large diameter permitting frictional engagement as between said second annular flange portion and said second chamber means as to thereby cause resilient deflection of said second annular flange portion as said valve means is being inserted into and through said second chamber means to thereby preclude damage to said second annular sealing surface, said second annular flange portion when received in said first chamber means resiliently moving radially outwardly to a normal condition wherein said second annular sealing surface generally circumscribes said second chamber means.

4,270,505

FUEL VAPORIZER SYSTEM

Randall W. Johnson, Hurst, Tex., assignor to Auto-Miser International Manufacturing Corp., Richardson, Tex.

Filed Mar. 16, 1979, Ser. No. 21,259
Int. Cl.³ F02M 17/22
U.S. Cl. 123—522 **14 Claims**



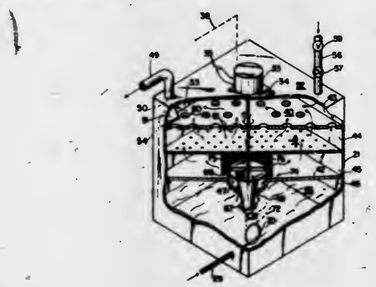
1. A fuel distribution system comprising:
(a) a carburetor including a throttle valve and connected to the intake manifold of an internal combustion engine;
(b) fuel supply means for supplying fuel to said carburetor including a fuel reservoir, a pump, a first fuel line connecting said reservoir and said pump and a second fuel line connecting said pump and said carburetor;
(c) conduit means connected between said intake manifold downstream from said throttle valve and a PCV valve;
(d) a fuel vaporizer having fuel inlet means, air inlet means and vapor outlet means, said vaporizer comprising:
(i) a top wall, a bottom wall and side walls defining a sealed enclosure;
(ii) a fuel conduit depending internally from the top wall of said enclosure, the lower end of said fuel conduit containing an orifice defining a valve seat, said valve seat being positioned substantially equidistant from said top and bottom walls and a substantial distance from any side wall, the upper end of said fuel conduit communicating with said fuel inlet means;
(iii) float means supporting a needle valve aligned with and adapted for mating with said valve seat and preventing fuel flow therethrough when a predetermined fuel level is contained in the lower portion of said enclosure;
(iv) cage means defining a housing coaxial with said valve seat surrounding the vertical sides of said float means and extending below said predetermined fuel level, thereby preventing lateral movement of said float means with respect to said valve seat and damping vertical movement of said float means;
(v) a body of foraminous material having a relatively high ratio of surface area to volume positioned within said enclosure to cover a substantial portion of said bottom wall and extending above said predetermined fuel level;
(vi) check valve means controlling fluid flow through said vapor outlet means, said check valve means preventing fluid flow into said enclosure through said vapor outlet means and permitting fluid flow from said enclosure through said vapor outlet means only when there is a predetermined pressure differential across said check valve means; and
(vii) a divider extending from the top wall of said enclosure to the top surface of said body of foraminous material between said air inlet means and said vapor outlet means whereby all air passing through said vaporizer must pass through said body of foraminous material;
(e) first conduit means for conducting fuel from said first fuel line to said fuel inlet means; and
(f) second conduit means for conducting fluid from said check valve into said conduit means connected between said intake manifold downstream from said throttle valve and said PCV valve.

4,270,506

GENERATING VAPOR OF A VOLATILE NORMALLY LIQUID FUEL AND OPERATING AN INTERNAL COMBUSTION ENGINE THEREWITH

Charles L. Lowe, Laurel, Miss., assignor to Jacob H. Grayson, Hattiesburg, Miss., a part interest

Filed May 1, 1979, Ser. No. 35,264
Int. Cl.³ F02M 17/16
U.S. Cl. 123—523 **35 Claims**



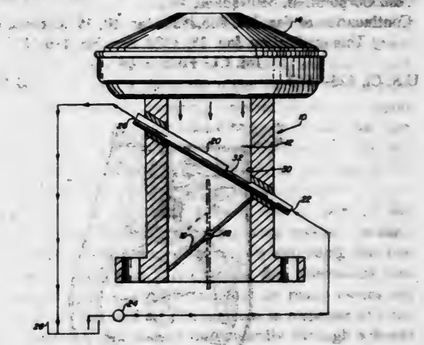
1. In apparatus for generating vapor of a volatile liquid fuel for an internal combustion engine and operating an internal combustion engine therewith, the said apparatus including vessel means containing the said fuel vapor thus generated in the interior thereof and an internal combustion engine, the internal combustion engine having a plurality of cylinders for combustion of the fuel vapor and air-fuel vapor supply means for supplying a combustible admixture of air and fuel vapor to the cylinders in response to reduced pressure within the cylinders, the said air-fuel vapor supply means including an intake manifold means in communication with the interior of the cylinders, air-fuel vapor conduit means in communication with the interior of the said intake manifold means and throttle means in the said air-fuel vapor conduit means upstream of the said manifold means whereby suction is applied to the said air-fuel vapor conduit means and a combustible admixture of air and fuel vapor is supplied to the cylinders as needed for operating the internal combustion engine at varying speeds controlled by the said throttle means,
the improvement which comprises air-fuel vapor conduit means having first and second end portions, the said first end portion being in communication with the interior of the intake manifold means and the said second end portion being in communication with a first portion of the interior of the said vessel means containing the fuel vapor whereby when the internal combustion engine is operating the said air-fuel vapor supply means supplies fuel vapor to the cylinders and suction is applied to the said air-fuel vapor conduit means which causes fuel vapor to be withdrawn from the first portion of the said vessel means by suction and passed through the air-fuel vapor conduit means to the said intake manifold means, the interior of the said vessel means being maintained under a pressure no greater than the ambient atmospheric pressure and the contents thereof being unheated by an extraneous source of heat, means in a second portion of the interior of the said vessel means for vaporizing volatile normally liquid fuel for an internal combustion engine to thereby produce additional fuel vapor in the said vessel means, the said vaporizing means being effective for vaporizing unheated volatile liquid fuel at a pressure not exceeding the ambient atmospheric pressure and with the resulting fuel vapor phase in the said first portion being free of suspended liquid fuel droplets whereby the fuel vapor contained in the said first portion of the said vessel means is unheated by an extraneous source of heat, is under a pressure no greater than the ambient atmospheric pressure and is free of suspended finely divided liquid fuel, the said vaporizing means including means for withdrawing said unheated liquid fuel from a body thereof and introducing an excess of the resultant withdrawn liquid fuel into the said second portion of the vessel means, means including rotary means for producing through the action of centrifugal force a plurality of relatively large particles of liquid fuel from the said withdrawn liquid fuel, and means for further subdividing through an impact action the said relatively large particles of liquid fuel into a plurality of finely divided dispersible liquid fuel particles and dispersing the same in the said second portion of the vessel means to thereby vaporize a portion of the said withdrawn liquid fuel and produce fuel vapor, diaphragm means for dividing the interior of the said vessel means into the said first and second portions, the diaphragm means having a plurality of openings therein of a size to allow passage of the fuel vapor produced in the said second portion into the said first portion of the vessel means, the said openings in the diaphragm being of a size to retain the said relatively large and finely divided particles of liquid fuel in the said second portion of the vessel means, and means for withdrawing the said excess of liquid fuel from the said second portion of the vessel means.

4,270,507

CHARGE FORMING APPARATUS

Ronald R. Ralston, Elmhurst, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Jul. 23, 1979, Ser. No. 59,871
Int. Cl.³ F02M 7/14, 7/12
U.S. Cl. 123—523 **2 Claims**



1. In a charge forming apparatus where fuel is supplied to one end of a generally tubular member positioned across a housing passageway having a generally cylindrical wall and where said tubular member has a generally upwardly directed slot over which air flows and strips fuel therefrom, excess fuel flowing from the other end of the tubular member to a return and to a fuel source, and where the quantity of air flowing across the slot is controlled by a butterfly valve having a pivoting vane spaced from the tubular member, the improvement comprising:
locating said tubular member across said passageway at an

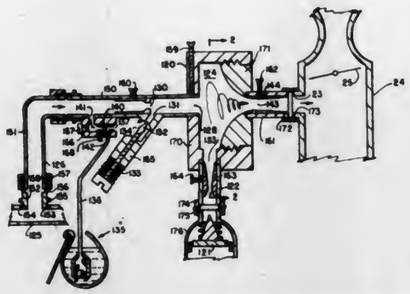
acute angle to said housing wall with said slot at the lowermost and supply end and closely adjacent to said wall.

4,270,508

COMBUSTION CONTROL SYSTEM

John E. Lindberg, Berkeley, Calif., assignor to U.S.A. 161 Developments Ltd., Berkeley, Calif.

Filed Oct. 12, 1979, Ser. No. 84,412
Int. Cl.³ F02B 47/08; F02M 25/06
U.S. Cl. 123—568 20 Claims



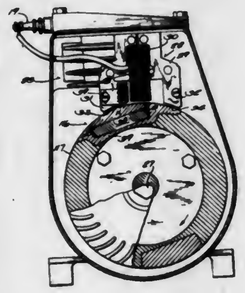
1. A combustion control system for an engine having an intake manifold with a throttle, a PCV gas inlet opening into said intake manifold, and an exhaust, including in combination:
a vortex device having a vortex chamber with a tangential inlet, a second inlet, and a axial outlet connected to said PCV gas inlet opening of said intake manifold, said tangential inlet of said vortex being connected to a supply of gas at substantially atmospheric pressure, and
an exhaust gas conduit connecting the other said inlet of said vortex device to said engine exhaust.

4,270,509

BREAKERLESS IGNITION SYSTEM

Paul A. Tharman, Milwaukee, Wis., assignor to Briggs & Stratton Corporation, Milwaukee, Wis.

Continuation of Ser. No. 885,398, Mar. 10, 1978, abandoned.
This application Jan. 25, 1980, Ser. No. 115,547
Int. Cl.³ F02P 3/04
U.S. Cl. 123—647 3 Claims



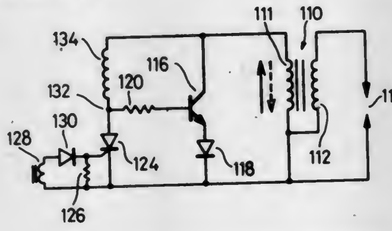
1. In an ignition system having a main core which supports a primary winding and a secondary winding and which includes a pair of leg portions which present a pair of spaced main pole faces that are positioned adjacent the orbit of a magnet which is carried by a rotating portion of an engine, the improvement therein comprising:
electronic switch means connected in circuit with the primary winding and being operable in response to a control signal to control the flow of current in said primary winding; and
a biasing coil connected to generate a control signal to said electronic switch means and wound on a separate core element which is mounted between said leg portions of said main core and which provides a pole face that is positioned adjacent the orbit of said magnet and immediately alongside one of said main pole faces and in which said separate core element, biasing coil and electronic switch means are mounted on a bracket which is fastened to said main core.

4,270,510

IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Hirotoshi Naanjo, and Toshikazu Tsuji, both of Susono, Japan, assignors to Kokusan Denki Co., Ltd., Shizuoka, Japan

Filed Jul. 20, 1979, Ser. No. 59,331
Claims priority, application Japan, Jul. 28, 1978, 53/103057[U]
Int. Cl.³ F02P 1/08
U.S. Cl. 123—648 13 Claims



1. An ignition system for an internal combustion engine comprising an igniting exciter coil; an ignition coil including a primary winding and a secondary winding; a transistor switch means having a base current input terminal and connected across the primary winding of the ignition coil, the transistor switch means being made coinductive when a base current is supplied from the igniting exciter coil to the base current input terminal; a semiconductor switch connected to by-pass a base current to be supplied to the transistor switch means from the base current input terminal when the semiconductor switch is turned on; and a turn-on signal generating circuit for supplying a turn-on signal to the semiconductor switch at an igniting position of the engine;
characterized by further comprising a coil through which said base current input terminal of said transistor switch means is connected to the igniting exciter coil, so that the base current is supplied through said coil to said base current input terminal.

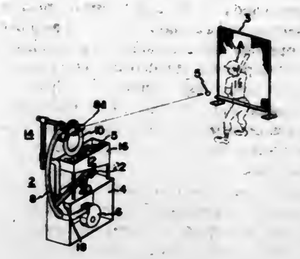
4,270,511

APPARATUS FOR SHOOTING A CURVE BALL

Goro Ebana, Fukuoka, Japan, assignor to Sun Sports Yohin Co., Ltd., Nagasaki, Japan

Filed Oct. 12, 1979, Ser. No. 84,240
Claims priority, application Japan, Oct. 14, 1978, 53-126402
Int. Cl.³ F41D 11/00
U.S. Cl. 124—81 7 Claims

1. In an apparatus which shoots a ball through a flexible hose by means of air pressure, the improvement is characterized in that said apparatus further comprises,
(1) a circular loop holder which holds a shooting end portion of said flexible hose in a loop shape, formed by looping the flexible hose back adjacent to its self, and by passing said hose therethrough substantially perpendicular to a flat plane formed by said loop holder,
(2) a first loop-holder support means rotatably supporting said circular loop holder on the axis of said loop holder, and
(3) a second loop-holder supporting means tiltably supporting said loop holder relative to an axis which is perpendicular to the axis of said loop holder,



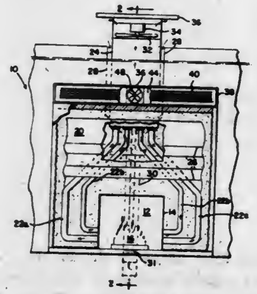
whereby along with the rotating of said holder on the axis of said loop holder and the tilting of said loop holder relative to said vertical plane, a variety of spins may be imparted to a ball to be shot.

4,270,512

HEAT STORING FIREPLACE

Robert E. Van Der Maas, 2020 NE. 127th St., Seattle, Wash. 98125

Filed Mar. 6, 1978, Ser. No. 883,651
Int. Cl.³ F24B 7/00
U.S. Cl. 126—121 4 Claims



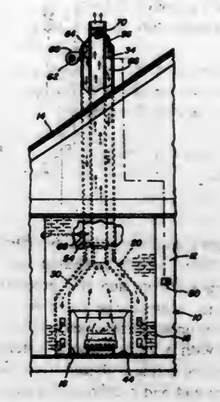
1. A heat storing fireplace, comprising:
a firebox at least partially enclosing a combustion area;
a heat storage medium having a relatively high specific heat surrounding said firebox, said heat storage medium including a plurality of heat conductive bags containing a material having a high specific heat;
an exhaust outlet extending upwardly above said storage medium;
a plurality of heat conducting conduits positioned between said firebox and exhaust outlet in a circuitous route within said heat storage medium with said heat conductive bags stacked around said firebox and said heat conducting conduits such that heat from exhaust gases flowing through said conduits is stored in said heat storage medium; and
ventilation means allowing heat transfer from said storage medium such that heat may be generated during a relatively brief period and utilized over a relatively long period.

4,270,513

FIREPLACE FLUE HEAT EXCHANGER AND CONTROL

Mark M. Mitchelson, 1066 Bond St., Neosho, Mo. 64850

Filed Aug. 22, 1979, Ser. No. 68,769
Int. Cl.³ F24B 7/00
U.S. Cl. 126—121 3 Claims



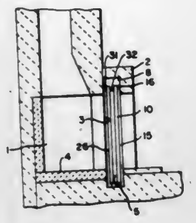
1. A fireplace heat exchanger and control for installation in a fireplace and the fireplace flue, said heat exchanger including means defining an open sided firebox including an upwardly tapering upper bonnet portion, an upstanding flue pipe including a lower end opening downwardly into the interior of said bonnet portion and an upper end portion for projecting above the roof line of a building containing said fireplace, a multi-walled outer housing enclosing said firebox and including a front wall having an opening therein through which said open side of said firebox opens, the upper portion of said housing tapering in transverse cross section and loosely enclosing said bonnet therein, and an upstanding flue liner loosely receiving said fire pipe therein, including a lower end opening downwardly into said upper portion of said housing and also including an upper end sealed about the upper portion of flue pipe, first air pump means for pumping ambient air into the upper portion of the interior of said liner exteriorly of said flue pipe, downwardly through said liner about said flue pipe and into the interior of said housing upper portion, at least one of the walls of said housing having outlet openings therein for exhausting heated air from said housing into a room of said building, said fireplace heat exchanger being enclosed within a fireplace structure including an upwardly extending flue passage through which said liner extends, first thermostat controlled actuating structure for said first air pump means and operative to actuate said air pump means in response to a rise in the temperature air passing downwardly through a lower portion said flue liner exteriorly of said flue pipe above a predetermined temperature, second air pump means operatively associated with said flue pipe for pumping flue gases upwardly therethrough, the first air pump means having a greater capacity for pumping air than the second air pump means, a control assembly for actuating said second air pump means, said control assembly including a room thermostat operative to actuate said second air pump means responsive to the temperature of room air dropping below a predetermined temperature, said first air pump means having a higher operational airflow capacity rating than the operational airflow capacity rating of said second air pump means.

4,270,514

FIREPLACE WITH SLIDING DOORS

Clifford D. Berry, Jr., 215 S. Mecca St., Cortland, Ohio 44410

Filed Jun. 1, 1979, Ser. No. 44,579
Int. Cl.³ F24C 15/10
U.S. Cl. 126—140 3 Claims



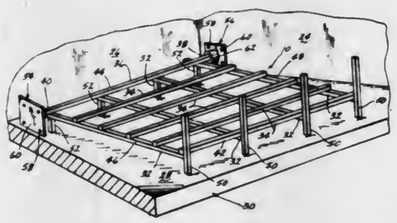
1. A fireplace comprising a heating chamber having a hearth and an open front, a wall extending laterally and upwardly from said fireplace front and also projecting farther forward than the hearth, a horizontal track disposed in front of the hearth below its upper surface, said wall being provided beside the fireplace with a vertical recess extending laterally away from the fireplace in line with said track, the recess being open at its fireplace end and receiving the adjacent end portion of the track, the recess also extending upwardly above the level of the open front of the fireplace, the wall above the fireplace front being provided with a downwardly opening slot extending laterally into the upper end of said recess, a frameless glass door normally located in front of the fireplace and extending up into said slot and part way into said recess, a metal channel receiving the bottom of said door, a pair of rollers on said track spaced lengthwise of said channel, means connected to the back of said channel rotatably supporting the rollers behind it, whereby the door is offset forward of said track, the door being supported by said rollers and movable along the track to retracted position in said recess, a vertical sealing strip mounted between the front surface of said recess and the door in engagement with both, a horizontal sealing strip mounted between the front surface of said slot and the door in engagement with both, the forwardly offset door pressing against said sealing strips, and a rigid horizontal rod mounted in said slot and recess behind the door and engaging the door near its top.

4,270,515

FIREPLACE HAVING INTEGRAL GRATE

Leonard J. Gordon, and Frank A. Myers, both of Auburn, Ala., assignors to Vega Industries, Inc., Des Moines, Iowa

Filed Oct. 11, 1979, Ser. No. 83,673
Int. Cl.³ F23H 3/04
U.S. Cl. 126—164 5 Claims



1. An improvement in a fireplace comprising a hearth, having sides, a forward edge and a rear edge; side walls; and a back wall, said improvement comprising:

a pair of brackets, each of which is rigidly attached to one of said side walls adjacent said rear wall,

said brackets each having a cylindrical sleeve projecting perpendicularly inwardly from said sidewalls and terminating in an open cylindrical end, the cylindrical axes of said sleeves being in registered alignment;

a grate comprised of a plurality of first members extending in one direction and a plurality of second members extending in the opposite direction and being attached to said first members to provide a matrix configuration,

at least two upstanding members attached to said matrix configuration and extending above and below said matrix configuration adjacent said forward edge of said hearth;

said grate being pivotally and removably mounted within said brackets,

said grate having at least two stub shafts extending laterally outwardly in opposite directions and being loosely fitted within said sleeves to provide a horizontal hinge axis for said grate, said sleeves completely surrounding said stub shafts,

said stub shafts terminating in outwardly presented ends, the distance between said outwardly presented ends being greater than the distance between said open cylindrical ends of said sleeves,

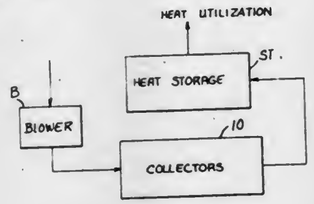
said sleeves each having a closed outer end, the distance between said outwardly presented ends of said stub shafts being less than the distance from said closed end of one of said sleeves to said open end of the other of said sleeves.

4,270,516

SOLAR ENERGY COLLECTOR

Thomas P. Hopper, Durham, and Everett M. Barber, Jr., Guilford, both of Conn., assignors to Sunworks, Inc., Guilford, Conn.

Filed Nov. 23, 1977, Ser. No. 854,153
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 6 Claims



1. A solar energy collector of the air heat exchange type comprising a rectangular housing, an absorber assembly within said housing, said absorber assembly comprising an upper wall, side walls and a bottom wall defining a closed duct through said housing, means thermally insulating said duct from said housing, openings defined in said housing at the ends of said duct, said upper wall comprising an absorber panel, a heat transfer member having high and low areas repeatedly extending between said upper and lower walls, and means bonding said heat transfer means to said absorber at said high areas and to said lower wall at said low areas to establish heat transfer paths from said top wall to said bottom wall, said heat transfer means being effective to transfer heat to air passing through said duct, said heat transfer means being in the form of a honeycomb defining a multiplicity of air passages through said duct.

2. A solar energy collector of the air heat exchange type comprising a rectangular housing, an absorber assembly within said housing, said absorber assembly comprising an upper wall, side walls and a bottom wall defining a closed duct through said housing, means thermally insulating said duct from said housing, openings defined in said housing at the ends of said duct, said upper wall comprising an absorber panel, a heat transfer member having high and low areas repeatedly extending between said upper and lower walls, and means bonding said heat transfer means to said absorber at said high areas and to said lower wall at said low areas to establish heat transfer paths from said top wall to said bottom wall, said heat transfer means being effective to transfer heat to air passing through said duct, said heat transfer means being in the form of a corrugated sheet with upper and lower ridges thereof bonded to said absorber, said ridges being disposed transverse to the direction of air flow through said duct, said sheet having a plurality of openings defined therein between said ridges with a tab from said openings extending in the direction of air flow through said duct.

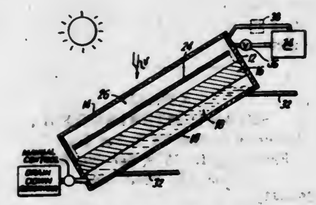
3. A solar energy collector of the air heat exchange type comprising a rectangular housing, an absorber assembly within said housing, said absorber assembly comprising an upper wall, side walls and a bottom wall defining a closed duct through said housing, means thermally insulating said duct from said housing, openings defined in said housing at the ends of said duct, said upper wall comprising an absorber panel, a heat transfer member having high and low areas repeatedly extending between said upper and lower walls, and means bonding said heat transfer means to said absorber at said high areas and to said lower wall at said low areas to establish heat transfer paths from said top wall to said bottom wall, said heat transfer means being effective to transfer heat to air passing through said duct, said heat transfer means being formed with upper and lower rows of corrugations struck from the plane of a sheet, said rows of corrugations being interrupted to form individual corrugation elements along a row, each of said elements having a surface bonded to one of said absorber and said bottom wall.

4,270,517

FLUID OPTICAL SWITCH FOR A SOLAR COLLECTOR

Richard B. Stephens, New Providence, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Apr. 4, 1979, Ser. No. 27,075
Int. Cl.³ F24J 3/02; G05D 25/00
U.S. Cl. 126—422 9 Claims



1. A fluid optical switching means to provide controllable reflection of incident light, said switching means comprising:

a photoreceptive layer responsive to incident photon energy;

a relatively thin optical scattering layer interposed between said photo-receptive layer and a source of light energy, said scattering layer comprising a highly dispersed, multisurfaced layer of an essentially transparent material having a predetermined index of refraction dispersed in a second light transmitting media having an index of refraction differing from the index of refraction for said material;

a layer of optically transparent fluid media, contiguous to said multisurfaced scattering layer and contacting essentially all surfaces thereof, said fluid media having an index of refraction about equal to the refractive index of said scattering surface, whereupon contacting said scattering layer with said fluid of matched refractive index, said layer is rendered transparent;

container means having at least one light transparent window, said container means retaining said fluid media contiguous to said scattering surface and maintaining an interpositioning of the scattering layer between said absorbing surface and said transparent window;

fluid extracting means for controllably removing the optical fluid media from said container and further from contacting said multisurfaced scattering layer, whereupon removing said fluid from contacting said scattering layer, light incident at virtually any angle relative to said scattering layer is diffusely reflected from said multisurfaced scattering layer.

2. A solar thermal energy converter having fluid optical switching means providing temperature limitation to said converter, said converter comprising:

solar radiation absorbing means to collect incident sunlight energy and convert said sunlight energy into heat energy;

thermal transfer means for conductance of heat energy from the collector;

a relatively thin optical scattering layer interposed between said photo-receptive layer and a source of light energy, said scattering layer comprising a highly dispersed, multisurfaced layer of an essentially transparent material having a predetermined index of refraction dispersed in a second light transmitting media having an index of refraction differing from the index of refraction for said material;

a layer of optically transparent fluid media, contiguous to said multisurfaced scattering layer and contacting essentially all surfaces thereof, said fluid media having an index of refraction about equal to the refractive index of said scattering surface, whereupon contacting said scattering layer with said fluid of material refractive index, said layer is rendered transparent;

container means having at least one light transparent window, said container means retaining said fluid media contiguous to said scattering layer between said absorbing surface and said transparent window;

fluid extracting means for controllably removing the optical fluid media from said container and further from contacting said multisurfaced scattering layer, whereupon removing said fluid from contacting said scattering layer;

light incident at virtually any angle relative to said scattering layer is diffusely reflected from said multisurfaced scattering layer;

fluid replenishing means for controllably replacing the optical fluid media extracted from said contain means.

4,270,518

CONTROLLER FOR CONDENSER-SIDE-STORAGE SOLAR HEAT-PUMP SYSTEMS

Richard C. Bourne, Davis, Calif., assignor to The Board of Regents of the University of Nebraska Regents Hall, Lincoln, Nebr.

Filed Apr. 30, 1979, Ser. No. 34,734
Int. Cl.³ F24J 3/02
U.S. Cl. 126—422 33 Claims

16. Apparatus for controlling a condenser-side-storage solar heat-pump system comprising:

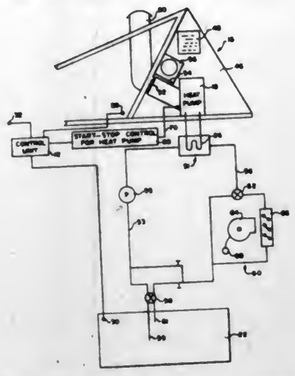
a solar collector;

a storage medium;

means for periodically withdrawing heat from the solar collector and transferring it to the storage medium;

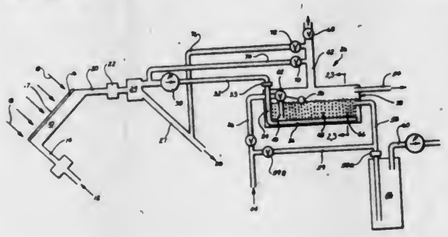
said means for periodically withdrawing heat including heat-pump means for transferring the heat from the solar collector to the storage medium periodically; and

said heat-pump means including control means for operating the heat pump more as one of the temperature difference



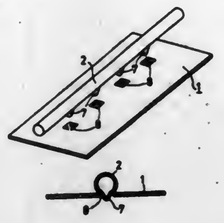
between the collector and outdoors decreases and storage temperature decreases.

4,270,519
SOLAR HEATING SYSTEM
Charles Haynes, 765 W. Broadway, Vancouver, B.C., Canada (V5Z 1J5)
Filed Jan. 22, 1979, Ser. No. 5,246
Int. Cl.³ F24J 3/02
U.S. Cl. 126—430 3 Claims



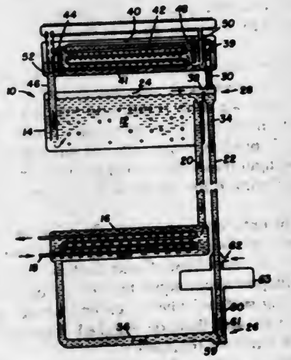
1. A solar energy heating system adapted to provide pre-heated water and/or air to a building structure, comprising:
a. a heat absorptive surface defining an air heating chamber having a cool air inlet and a hot air outlet end, positioned at a first location at said building structure to receive radiant heat from solar energy,
b. a heat exchange tank at a second location at said building structure removed from said first location, said tank defining an enclosure therein and adapted to contain a quantity of cool water to be heated therein,
c. conduit means connecting said air heating chamber and said heat exchange tank to transmit heated air from said chamber to said tank,
d. means to discharge heated air from said air heating chamber as bubbles into said heat exchange tank,
e. first and second valve means positioned at said cool air inlet end and said hot air outlet end of said air heating chamber, said valve means being adapted to be opened and closed responsive to pressure changes in said air heating chamber, such that said first valve means at said cool air inlet end opens to admit ambient air and said second valve means at said hot air outlet end opens to permit outflow of heated air under pressure,
whereby hot air may be pumped from said air heating chamber to said heat exchange tank by the expansion of air within said air heating chamber and subsequent release of said heated air through said second valve means.

4,270,520
SOLAR COLLECTOR COMPRISING AN EVAPORATION/CONDENSATION SYSTEM
Faramarz Mahdjuri, Bergamo, Italy; George A. A. Asselman, and Johan C. de Grijs, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 23, 1979, Ser. No. 5,735
Claims priority, application Fed. Rep. of Germany, Feb. 2, 1978, 2804411
Int. Cl.³ F24J 3/02
U.S. Cl. 126—433 1 Claim



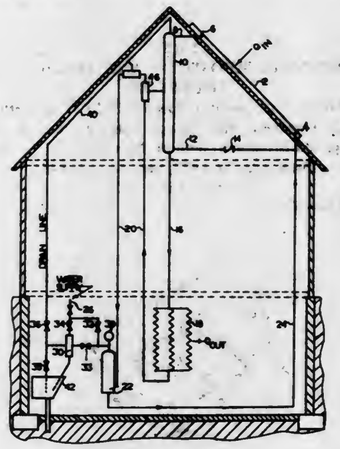
1. A solar collector which comprises a flat metal absorber for solar radiation; a separate closed elongate metal tube containing a vaporizable heat transport medium, said metal tube having an evaporation zone in direct thermal contact with the flat metal absorber and a condensation zone arranged at a higher level than the evaporation zone, the heat transport medium being vaporized in the evaporation zone and the resulting vapours being condensed in the condensation zone during operation; recesses formed in said flat metal absorber adjacent said metal tube, said recesses being spaced from each other longitudinally of the metal tube; a number of hollow protrusions extending outwardly and downwardly from the evaporation zone of the metal tube and respectively projecting into said recesses, said protrusions being spaced along the length of the evaporation zone and providing traps for the collection of heat transport medium condensate returning to the evaporation zone under the influence of gravity; and an evacuated envelope of a transparent material surrounding and accommodating the flat metal absorber and the evaporation zone of the metal tube.

4,270,521
SOLAR HEATING SYSTEM
Carroll E. Brekke, P.O. Box 1875, San Jose, Calif. 95109
Filed Aug. 15, 1979, Ser. No. 66,525
Int. Cl.³ F24J 3/02
U.S. Cl. 126—433 22 Claims



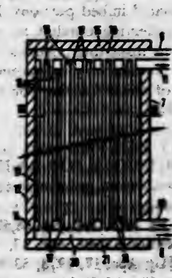
1. A liquid containing a solar heating system having a higher level having a solar heat collector and a lower level having a heat exchanger below said collector, said system having a liquid therein, said exchanger extracting heat from said liquid and thereby forming a cooled liquid, an improvement comprising:
pressure maintaining means for maintaining said collector at a pressure such that said liquid therein boils and produces a vapor at a temperature below the boiling temperature of water at atmospheric pressure;
a conduit having a top portion and a bottom portion and communicating said lower level in said system with said higher level in said system, said conduit having a column of said liquid therein;
a lift tube in liquid flow communication with said top portion of said conduit;
means for bubbling said vapor upwardly through said lift tube in response to solar heating of said solar heat collector for producing a force for lifting said cooled liquid from said heat exchanger to an elevation above said collector;
condenser means for receiving said cooled liquid after it has been lifted by said force and for condensing said vapor; and
conducting means for conducting said liquid from said condenser means to said collector.

4,270,522
SOLAR HEAT COLLECTION AND TRANSFER SYSTEM
Leonard B. Vandenberg, 710 Sanders Ave., Scotia, N.Y. 12302
Filed Oct. 19, 1978, Ser. No. 953,130
Int. Cl.³ F24J 3/02
U.S. Cl. 126—434 2 Claims



1. A system for collecting and transferring heat in a fluid heat transfer medium from a heat source to a remote point of heat discharge, including:
a solar energy collector to add heat to said heat transfer medium, said collector including front and back panels defining a cavity therebetween, an absorber sheet disposed in said cavity and defining a plurality of flow channels for said heat transfer medium, said absorber sheet being of an elastomeric material so as to be deformable under external pressure on said panels to enhance the separation of said flow channels, and inlet and outlet fluid passages for the flow of said heat transfer medium into and out of said collector,
an accumulator to hold a quantity of said heat transfer medium and including a hot fluid inlet passage and a cold fluid outlet passage,
said collector and said accumulator being operatively connected to form a continuous heat accumulation loop for natural circulation of said heat transfer medium from said collector to said accumulator and from said accumulator to said collector,
heat discharge means to discharge heat from said heat transfer medium, said discharge means defining a passage for the flow of said heat transfer medium therethrough and including a hot fluid inlet passage and a cold fluid outlet passage,
said collector, said accumulator, and said heat discharge means being operatively connected to form a continous heat transfer loop for circulation of said heat transfer medium from said collector successively to said accumulator, said heat discharge means, and back to said collector,
an injector pump operatively disposed in said heat transfer loop to circulate said heat transfer medium around said heat transfer loop against the gravitational tendency of said medium, said injector pump further operatively connected by a vapor line to said heat accumulation loop to extract motive vapor therefrom, and
pressure control means to establish the pressure within said system to bring the vaporization temperature of said heat transfer medium within the temperature range of said collector.

4,270,523
HEAT STORAGE APPARATUS AND HEAT EXCHANGER ELEMENT FOR USE THEREIN
Joannes M. van Heel, Rotterdam, Netherlands, assignor to Stichting Bouwcentrum, Rotterdam, Netherlands
Filed Mar. 9, 1979, Ser. No. 19,661
Claims priority, application Netherlands, Mar. 23, 1978, 7803171
Int. Cl.³ F24J 3/02; F28D 21/00
U.S. Cl. 126—435 27 Claims

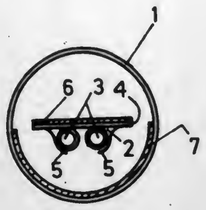


1. An apparatus for storing solar heat comprising:
at least one solar collector having means for passing a first heat transfer fluid therethrough;
a housing;
a plurality of heat exchange elements disposed within said housing, each of said heat exchange elements comprising a heat storage medium disposed centrally therein and occupying at least a portion of said housing;
means for circulating said first heat transfer fluid from said solar collector through said heat exchange elements in heat exchange relationship with said heat storage medium;
means for returning said first heat transfer fluid from each of said heat exchange elements to said solar collector; and
means for passing a second heat transfer fluid through each of said heat exchange elements in heat exchange relationship with said storage medium and for thereafter discharging said second heat transfer fluid from said apparatus, said first and second heat transfer fluids being isolated from each other.

4,270,524
SOLAR COLLECTOR

Emil Büchli, Hauptstrasse 156, 5403 Endingen, Switzerland

Filed Aug. 31, 1978, Ser. No. 938,710
Claims priority, application Switzerland, Sep. 24, 1977, 011694/77
Int. Cl.³ F24J 3/02
U.S. Cl. 126—443 4 Claims

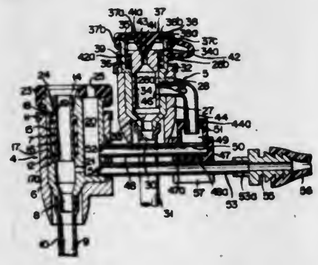


1. A solar collector comprising:
a plurality of transparent, hollow cover tubes being arranged substantially parallel to each other and having at least partially evacuated insulating portions;
at least one absorber arranged substantially centrally within each of said cover tubes and spaced from side walls of each of said cover tubes so that no heat bridges are formed between the absorber and said side walls;
a reflection layer at least partially covering an inner surface of each of said cover tubes;
said absorber including:
at least one liquid-conducting conduit;
a holder member having a plate means for holding said liquid-conducting conduit;
a selective layer provided for said holder member; and
a collecting conduit which has an at least partially evacuated portion that insulates a collecting pipe and which has at least partially evacuated infeed portions that operatively extend from said collecting conduit to each individual cover tube so that the insulating portions of said plurality of cover tubes are continuously interconnected with the insulating portions of said collecting conduit.

4,270,525
SUCTION CONTROL DEVICE FOR AN ENDOSCOPE

Hiroyuki Furihata, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 10, 1979, Ser. No. 28,678
Claims priority, application Japan, Apr. 17, 1978, 53-44161; Apr. 17, 1978, 53-50500[U]; Apr. 17, 1978, 53-50501[U]
Int. Cl.³ A61B 1/00
U.S. Cl. 128—4 10 Claims

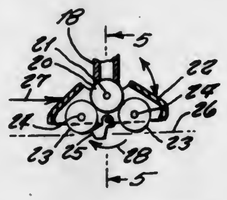


1. In an elongated endoscope having two ends and two channels extending through the endoscope, each of said channels having two ends, a suction control device communicating with one of said channels and for communication with a suction device disposed externally of the endoscope, said suction control device comprising:
an adaptor comprising an adaptor body provided on one end of the endoscope, a cylindrical communication chamber formed in the adaptor body and having two ends, one end of said chamber communicating with one end of one of said channels and the other end being open to the atmosphere, a hollow cylindrical slider slidable axially in the communication chamber, an urging means disposed in the communicating chamber for urging the slider toward the other end of the communication chamber, and a lid, said lid having means for pushing the slider toward said one end of the communication chamber when the lid covers the other end of the communication chamber;
air conducting means provided on said one end of the endoscope and including an air chamber communicating with the atmosphere;
communication means disposed between the air conducting means and the communication chamber for allowing the air chamber to communicate with said one end of the communication chamber when the lid covers the other end of the communication chamber and pushes the slider toward said one end of the communication chamber; and
a suction pipe disposed between the air conducting means and the suction device for allowing the air chamber to communicate with the suction device.

4,270,526
LINIMENT COMPOSITION AND APPLICATOR THEREFOR

Juan C. Morales, c/o George Spector, 3615 Woolworth Building, 233 Broadway, and George Spector, 3615 Woolworth Building, 233 Broadway, both of, New York, N.Y. 10007

Filed Aug. 18, 1978, Ser. No. 934,840
Int. Cl.³ A61H 7/00
U.S. Cl. 128—67 1 Claim

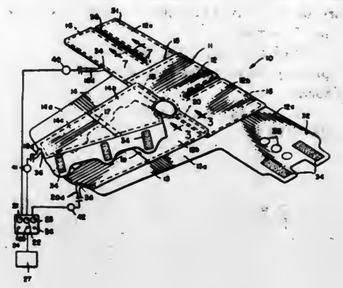


1. Body treatment apparatus comprising in combination a liniment and an applicator for applying said liniment, said applicator including a pair of rollers wetted with said liniment for rolling across a persons skin and a massaging bar pivotally mounted between said rollers that exerts opposite sideward pressure against said skin as said applicator travels reciprocally back and forth including a container for said liniment securable to said applicator cooperating with said rollers to distribute liniment on said rollers wherein the ingredients forming said liniment are contained in separate bottles of a kit that includes a graduated bottle into which said ingredients are mixed, a funnel for filling a neck of said graduated bottle, wherein said bottle is said container wherein said applicator includes a spout for affixing to said bottle neck, a rotatable roller at an end of said spout engaging said pair of rollers which are supported on a pivotable hood supported on said spout, said massaging bar being supported on said hood, and including a pair of faces each having angular extending ribs in different directions.

4,270,527
INFLATABLE TROUSER FOR MEDICAL USE

John R. Peters, Chicago, and Warren G. Armstrong, Northbrook, both of Ill., assignors to Armstrong Industries, Inc., Northbrook, Ill.

Filed Aug. 9, 1979, Ser. No. 65,094
Int. Cl.³ A61F 5/04
U.S. Cl. 128—87 R 16 Claims

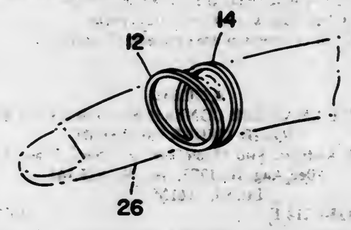


1. An inflatable trouser for medical use, comprising a panel of flexible material having an abdominal section and a pair of leg sections, each of said sections having double walls defining a pocket therein, and an inflatable bladder disposed in each of said pockets, wherein the improvement comprises said pockets of said leg sections and the pocket of said abdominal section being disposed in limited overlapping relation with portions of said walls separating the interior of the pocket of said abdominal section from the interiors of the pockets of said leg sections, and said bladders within said pockets of said leg sections being disposed in limited overlapping relation with respect to the bladder in the pocket of said abdominal section.

4,270,528
FINGER RING SPLINT

Catherine F. Hanson, 3199 Claudia Dr., Concord, Calif. 94519

Filed Oct. 29, 1979, Ser. No. 89,254
Int. Cl.³ A61F 5/04
U.S. Cl. 128—87 A 6 Claims

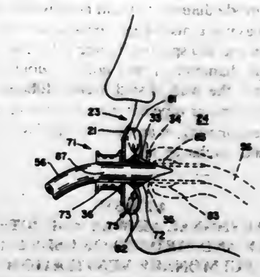


1. A finger splint for preventing hyperextension of a finger joint while permitting free flexion of the finger joint, comprising a first ring member adapted to encircle the finger and disposed rearwardly of the finger joint, said first ring member being generally circular and adapted to be closely fitted about the finger, a second ring member adapted to encircle the finger forwardly of the finger joint and directly adjacent thereto, said ring members extending from a common apex, the portion of said second ring member distal from said apex adapted to impinge on the forward portion of said joint during full extension thereof to prevent hyperextension thereof.

4,270,529
ENDOTRACHEAL TUBE STABILIZER

Rudolph Muto, 24 Williams St., Andover, Mass. 01801

Continuation-in-part of Ser. No. 23,652, Mar. 26, 1979. This application Aug. 13, 1979, Ser. No. 66,029
Int. Cl.³ A61M 15/00
U.S. Cl. 128—200.26 4 Claims

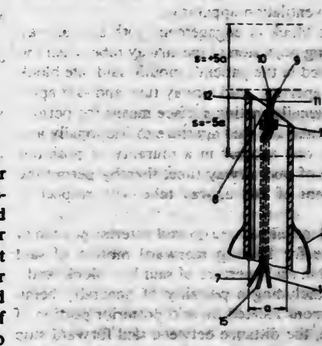


1. An endotracheal tube stabilizer for retention of a tube of compressible material having a predetermined, substantially uniform, outside diameter, said stabilizer comprising:
a mouthpiece having an elongated, straight generally tubular, body with an axial bore of predetermined diameter for receiving said tube, said mouthpiece having;
an integral, annular fixation flange in an intermediate portion of the length thereof, projecting outwardly therearound, an elongated bite block portion in rear of said flange and an elongated guide portion in front of said flange;
said mouthpiece having a laterally open slot extending the full length thereof from said bit block portion through said flange and intermediate portion and to said guide portion and flaring from an outer opening in said flange of greater dimension than the outer diameter of said tube to an inner opening, at said bore, of less dimension than the outer diameter of said tube; and
tape holes in said fixation flange and tape in said holes fixing said mouthpiece in the mouth of a patient.

4,270,530
TRACHEAL TUBE

Marcel Baum, Vienna, Austria; Horst Frankenberger, Bad Schwartau, and Erik Schwambom, LUML,n/ bock, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 86,949
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1978, 2847681
Int. Cl.³ A61M 25/02
U.S. Cl. 128—204.25 7 Claims



1. A tracheal tube comprising, a hollow tubular body having

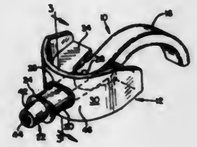
a bore with an open tube end, an inflatable sealing cuff disposed around said tubular body adjacent said tube end, at least one small diameter tube adjacent the wall of said hollow tubular body having a nozzle portion terminating in a discharge jet centrally within the bore adjacent said open tube end for use in jet ventilation at high frequencies above 600 cycles per minute, said small diameter tube having a diameter of between 0.4 to 0.05 times the inside diameter of said hollow tubular body, said discharge jet having a discharge opening which is fixed relative to the open end at a spacing having a dimension within five times the inside diameter of said hollow tubular body, and a test line adjacent the wall of said hollow tubular body alongside said small diameter tube having a portion extending out of the wall and terminating in an open mouth in the bore spaced upstream of said discharge jet.

4,270,531

OROPHARYNGEAL AIRWAY AND BITE BLOCK ASSEMBLY AND METHOD OF USE FOR CLOSED PULMONARY VENTILATION

Paul H. Blachly, deceased, late of Portland, Oreg., and By Beverly J. Blachly, executor, 3348 NW. Skyline Blvd., Portland, Oreg. 97229

Filed Dec. 11, 1978, Ser. No. 967,902
Int. Cl.[3] A61M *16/00*
U.S. Cl. 128—207.14 2 Claims



1. A combination oropharyngeal airway and bite block assembly for use in providing closed pulmonary ventilation of a patient, comprising:

(a) an oropharyngeal airway tube having means defining a curved tubular posterior portion, for introduction through the mouth into the upper throat of a patient, a tubular anterior portion connected to said posterior portion and tubular connector means connected to said anterior portion for detachably and sealingly connecting said airway tube to a closed ventilation apparatus;

(b) a U-shaped bite block in engagement with said airway tube for preventing occlusion of the airway tube when the assembly is inserted in the patient's mouth, said bite block having a central aperture, said airway tube and said aperture having frictionally mating surface means for permitting said airway tube and said aperture to frictionally and sealingly engage one another in a plurality of positions along the length of said airway tube, thereby permitting slidable adjustment of said airway tube with respect to said bite block;

(c) positioning stop means located on said anterior portion of said airway tube for limiting rearward motion of said airway tube within said aperture of said bite block; and

(d) detent means including a plurality of generally hemispherical protrusions located on said posterior portion of said airway tube, the distance between said forward stop means and detent means being greater than the thickness of said bite block from front to back along said central aperture, whereby said detent means limits the forward movement of said airway tube within said aperture of said bite block.

4,270,532

DEVICE FOR THE PRE-PROGRAMMABLE INFUSION OF LIQUIDS

Manfred Franetzki, Uttenreuth; Klaus Gegauer, Bubenreuth, and Karl Prestele, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 13, 1978, Ser. No. 969,200
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1977, 2758368
Int. Cl.[3] A61M *5/20*
U.S. Cl. 128—213 R 1 Claim



1. In a system for the pre-programmable infusion of liquids into a patient's body, the system has a microdosing unit adapted to controllably infuse a liquid into the patient's body based on signals received from a patient carriable control unit, the control unit is contained in a housing which includes a memory for storing a dosage control program to control the infusion of liquid by the microdosing unit, an improvement comprising:

a socket part of a two-part means for connection affixed to the housing of the control unit,

data transmission means within the control unit adapted to receive a dosage control program from said socket part of said two-part means for connection and write said program into said memory;

programming means separate from the control unit, said programming means including:

a housing,

a plug part of said two-part means for connection affixed to said housing such that a region of said housing partly surrounds said plug part,

self-containing manually setable means for establishing another dosage control program which extends over a twenty-four hour period, and

means for transmitting said another established dosage control program to said plug part of said two-part means for connection and then to said socket on the control unit only when said socket and plug parts of said two-part means for connection are connected together.

4,270,533

MULTIPLE CHAMBER CONTAINER FOR DELIVERING LIQUID UNDER PRESSURE

Joseph M. Andreas, Two Maple Ter., Newbury, Mass. 01950

Filed Aug. 16, 1977, Ser. No. 825,143
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 F 10 Claims

1. A pressure infusion chamber for administering parenteral liquids into a patient comprising:

A. first and second outer wall members of a flexible material,

B. a first intermediate, flexible wall member interposed between said first and second outer wall members in a peripherally sealed relationship,

C. a second intermediate, flexible wall member interposed between said first intermediate member and one of said outer wall members,

D. said first and second intermediate wall members dividing said container into three separate chambers which include a fluid pressure chamber, a parenteral liquid infusion chamber and an intermediate chamber separating the aforesaid chambers,

E. first and second port means connected to said fluid pressure chamber and said parenteral fluid chamber respectively for providing fluid passages into said chambers, and

F. venting port means communicating with said intermediate chamber formed by said intermediate wall members whereby when said fluid pressure chamber is expanded



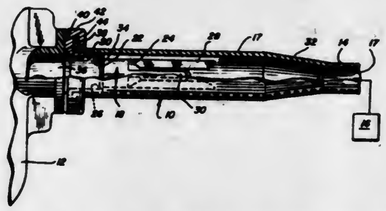
under pressure, said parenteral liquid chamber is compressed thereby infusing parenteral liquid to a patient through said liquid port means, said vented intermediate chamber serving to prevent introduction of air or fluid into the patient in the event of rupture of said pressure chamber.

4,270,534

FRANGIBLE VALVE ASSEMBLY FOR BLOOD BAGS AND THE LIKE

Elvis E. Adams, Downers Grove, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Aug. 8, 1979, Ser. No. 64,952
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—214 D 4 Claims



1. In a valve assembly, a flexible tube, and valve means positioned in said tube, said valve means comprising: a tubular portion having a closed end, an elongated, generally rigid member carried on the exterior of said closed end and positioned within said flexible tube, and frangible means to permit the opening of said tubular portion by rupture of an area of weakness by manual manipulation of the elongated member from outside of the flexible tube, the improvement comprising, in combination, said flexible tube defining an inner end flange, said tubular portion of the valve means defining, at its end opposite to said closed end, a retention flange, said retention flange including a cylindrical wall positioned generally coaxially with said tube and surrounding the periphery of said inner end flange, said cylindrical wall carrying an annular closure flange enclosing and retaining said inner end flange between said closure flange and retention flange.

4,270,535

DOUBLE LUMEN CATHETERS

Benford A. Bogue, Littleton, Colo., and Stephan A. Gregoire, Mattens, Switzerland, assignors to Hospal Medical Corp., Littleton, Colo.

Filed Oct. 18, 1979, Ser. No. 86,043
Int. Cl.[3] A61M *5/14*
U.S. Cl. 128—214.4 7 Claims



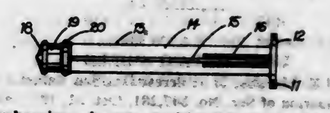
1. In a double lumen single needle intravenous catheter device having a hub means including first and second spaced apart fluid conduit means, an inner lumen in fluid communication at its proximal end with the first conduit means, an outer lumen in fluid communication at its proximal end with the first conduit means, an outer lumen in fluid communication at its proximal end with the second conduit means the lumens being in concentric relationship to one another, at least one aperature being provided in the wall of the outer lumen at its distal end region, the improvement which comprises a substantially frustroconical tip element of plastics material having a bore defining an extension of the inner lumen and having an annular base section providing an annular seal between the outer surface of the distal end region and the inner lumen and the adjacent interior surface of the distal end region of the outer lumen, wherein the distal end of the outer lumen has an inwardly directed annular flange which mates with a corresponding recess in the base portion of the tip to secure the tip in fluid tight relationship with the inner and outer lumens, whereby an annular passage is defined between the inside surface of the outer lumen and the outside surface of the inner lumen which communications between the aperature and the second conduit means and which is sealed from the passage provided by the bore of the tip element and the inner lumen which communicates with the first conduit means, and whereby the substantially frustroconical surface of the tip element provides for ease of entry of the catheter into a blood vessel or fistula.

4,270,536

DISPOSABLE SYRINGE

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Filed Oct. 1, 1979, Ser. No. 80,562
Int. Cl.[3] A61M *5/00*
U.S. Cl. 128—218 N 6 Claims



1. A hypodermic syringe comprising in combination:

a syringe cylinder which is open at one end and closed at the other,

a hypodermic needle secured to the closed end of the cylinder and communicating with its interior for receiving a liquid forced through the cylinder,

piston means, including an elongated shank for supporting said piston means, and slidably supported within said cylinder,

the end of said shank opposite said piston means having an increased diameter portion permitting it to be engaged by the thumb of a hand of a person utilizing said syringe,

an elongated cavity formed in the central portion of said increased diameter portion and extending into said shank, said elongated cavity being of sufficient depth to receive

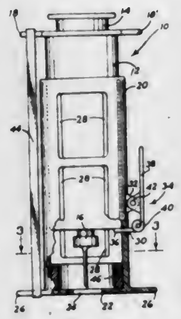
substantially the entire portion of said hypodermic needle protruding from the end of the syringe cylinder and of such a diameter as to retain said needle against lateral displacement therein of a degree which would prevent the breakage of said needle so as to permit the bending and breaking of said needle while disposed within said cavity.

4,270,537

AUTOMATIC HYPODERMIC SYRINGE

Richard A. Romaine, 475 SW. View Crest Dr., Gresham, Oreg. 97030

Filed Nov. 19, 1979, Ser. No. 95,402
Int. Cl.[3] A61M 5/00
U.S. Cl. 128—218 A 7 Claims



1. An automatic hypodermic syringe assembly comprising, in combination:

(a) a syringe, comprising a barrel, a reciprocating plunger within the barrel, and a needle attached to the bottom of the barrel; and

(b) an insertion mounting therefor, the mounting comprising:

(1) a hollow cylinder, open at the top, dimensioned to receive the syringe barrel in longitudinal sliding relationship, and having a base at the bottom with a hole therein dimensioned to pass the needle,

(2) trip means engaging the cylinder and the syringe, operable to releasably support the syringe barrel within the cylinder,

(3) resilient drive means interconnecting the syringe barrel and the cylinder, and operable to advance the barrel in the cylinder upon release of the trip means, thereby extending the needle, and

(4) interchangeable penetration limiting means, operable to predetermine the maximum extension of the needle.

4,270,538

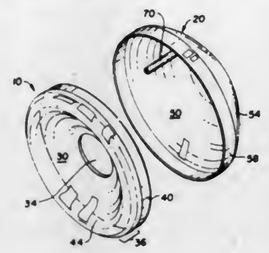
BREAST SHIELD

Michael K. Murphy, 21 Hillcrest Dr., San Rafael, Calif. 94901

Continuation of Ser. No. 847,281, Oct. 31, 1977, abandoned.
This application Sep. 6, 1979, Ser. No. 72,954
Int. Cl.[3] A61M 1/08; A41C 3/00
U.S. Cl. 128—282 2 Claims

1. In a generally circular breast shield for nursing women, said breast shield including a substantially round base having a first concave breast-confronting surface, a second convex chamber-defining surface, and a first peripheral lip surrounding said convex chamber-defining surface, said base having a centrally located nipple-receiving aperture communicating between said first breast-confronting surface and said second chamber-defining surface, said base having a cylindrical symmetry axis that is generally horizontal when said breast shield is in use on a non-reclining woman, said breast shield also including a substantially round cover having a first concave chamber defining surface, a second peripheral lip surrounding said first concave chamber-defining surface, and a second outer convex surface, said cover having a non-centrally located orifice communicating between said first chamber defining surface and said outer surface, said base and said cover being connectable by engagement of said peripheral lips to provide an inner milk receiving chamber, said breast shield in use on a non-reclining woman being disposed generally vertically with said orifice at an elevation above said aperture, the improvement comprising:

a straight tube sealingly mounted to said cover and surrounding said orifice, said tube extending away from said



first concave chamber defining surface of said cover into said chamber in a direction generally parallel to said cylindrical symmetry axis said tube having sufficient length to prevent milk accumulated within said chamber from flowing through said orifice when said breast shield is tilted horizontally so that said milk surrounds said orifice, said orifice being positioned sufficiently close to the periphery of said chamber to allow a major portion of said milk to flow through said tube and said orifice when said breast shield is vertically disposed with said orifice at an elevation below said aperture.

4,270,539

URINE COLLECTION APPARATUS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of, and Roger B. Michaud, League City, Tex.

Filed Apr. 27, 1979, Ser. No. 34,531
Int. Cl.[3] A61F 5/44
U.S. Cl. 128—295 34 Claims



1. A urine collection device for human females comprising:

an interface body having an interface surface for engagement with the user's body, said interface body comprising a forward portion defining a urine-receiving bore having an inlet in said interface surface adapted to be disposed in surrounding relation to the urethral opening of the user, said interface body further comprising a rear portion integrally adjoining said forward portion and having a vaginal seal including an elevated lip portion on said interface surface for sealing the vagina of the user from communication with said urine-receiving bore;

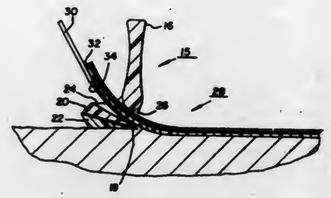
and an absorbent pad removably supported on said interface body and extending laterally therefrom.

4,270,540

LAMINATED STRIP FOR SKIN THICKNESS CONTROL FOR USE WITH DERMATOME APPARATUS AND METHOD OF USING THE SAME

Boris Schwartz, 625 Lafayette Ave., Hawthorne, N.J. 07506

Filed Apr. 16, 1980, Ser. No. 140,827
Int. Cl.[3] A61B 17/322
U.S. Cl. 128—305.5 10 Claims



10. A dermatome apparatus which utilizes an improved plastic strip and adapted for the removal of a selected area of skin of a determined thickness from a patient, this dermatome having a blade holder and means for moving the holder in and with a reciprocating motion, said blade having a sharpened edge and carried in and by said holder and movable with the holder as it is moved, said reciprocating motion being parallel to said sharpened blade and with said dermatome having a guideway providing a selected opening in the blade holder and with the sharpened edge of the blade projecting toward the guideway and establishing with the holder a determined spaced opening, said holder providing a guideway portion and defining a side of the guideway into which said cutting edge of the blade enters, the cutting edge of the blade being substantially parallel to the guideway, and in association with the dermatome, an improved plastic strip includes: (a) a tongue end which is tapered to provide an easy entering portion into and through said guideway in the blade holder, the strip having a midportion of plastic and of determined width, length and thickness, this width of the midportion being substantially less than the length of the guideway in the blade holder as that reciprocation of the blade holder can occur while the plastic strip is in the guideway; (b) an adhesive surface applied to this midportion of the plastic strip and on one side thereof to provide an adhesive attraction to that portion of skin to be removed by a cutting action of the blade; (c) a release sheet applied to the surface and providing a protection for said adhesive surface until removed for placing the adhesive face of the strip on the skin to be removed from the patient; (d) a laminated assembly of plastic strip, said midportion strip and the layered laminated strips so structured and adhered that the plastic strip exposed and opposite the adhesive surface for retaining the skin is smooth and provides a sliding surface over and on which the curved portion of the holder slides, and (e) means for engaging and manipulating the removal of a selected laminate to provide a determined thickness of plastic strip so that the cutting of and removal of the outer skin may be accomplished by a reciprocating movement of the blade holder and blade after threading the tongue of the plastic strip through the guideway of the blade holder and after pressing the adhesively coated portion of the strip to the skin of the patient with the holder positioned with the blade edge toward the adhered plastic strip on the skin and with the adhered skin lifted whereby a cutting motion of the blade allows the plastic strip and thickness of adhered, removed skin to be pulled through the guideway, the combination of the laminated plastic strip and removed skin being of a thickness equal to the spaced opening in the guideway.

4,270,541

INSTRUMENT FOR INDUCTION OF LABOR

Tadao Okamoto; Eisuke Obata, both of Tokyo, and Yutaka Enomoto, Kawaguchi, all of Japan, assignors to Fuji Latex Co., Ltd., Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,908
Int. Cl.[3] A61M 29/02
U.S. Cl. 128—344 4 Claims



1. A method for inducing labor comprising providing an instrument having a tubular member with a leading end and a trailing end, said tubular member being closed at the extremity of its leading end and open at its trailing end, an elongate fluid inflatable bag enclosing the leading end portion of said tubular member having its opposite end portions secured in a fluid-proof manner upon said tubular member spacedly from the trailing end thereof, said bag having a side wall portion tapering inwardly at the opposite ends thereof and with the maximum dimension of said bag being lengthwise, said tubular member being open at its trailing end and with there being means for effecting fluid flow between the interior of said tubular member and the interior of said inflatable bag, inserting the bag-carrying leading end portion of said instrument through the cervical canal of the patient and thence into the uterus for disposition between the uterine wall and the amniotic membrane then causing the introduction of a predetermined quantity of fluid into said tubular member and thence into said bag for inflation of the latter, permitting the bag in inflated state to remain within the uterus for a predetermined period of time to produce dilatation of the cervical orifice, then permitting the instrument to drop from the uterus, through the cervical canal and into the vagina for removal for permitting completion of dilatation of the cervical orifice.

4,270,542

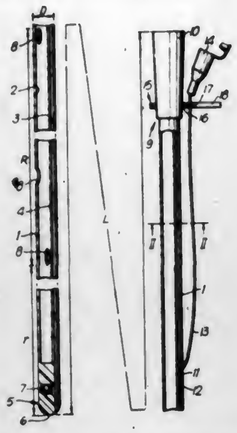
GASTRO-INTESTINAL TUBES

Peter F. Plumley, 8 Wealden Way, Bexhill, Sussex, England

Filed Oct. 2, 1979, Ser. No. 81,242
Claims priority, application United Kingdom, Oct. 9, 1978, 39848/78
Int. Cl.[3] A61M 27/00
U.S. Cl. 128—350 R 9 Claims

1. A gastro-intestinal tube having: a first bore for enabling fluid to be removed from the stomach and oesophagus of a patient, said first bore extending to, and being closed at, one end of said tube; a multiplicity of apertures in the wall of said tube through which said first bore opens, said apertures being spaced apart from one another over a region along the length of said tube, the first aperture in said region being spaced from said one end of said tube by a first distance of at least 10 cm and said region extending for a second distance substantially equal to said first distance; and a second bore for enabling fluid to be supplied to the duodenum of the patient, said second bore extending to, and opening at, the said one end of said tube such

that when said tube is located with its said one end in the region of the duodenum some of said apertures are located in



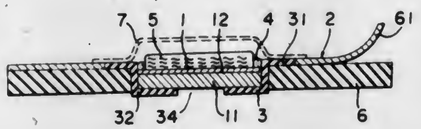
a lower part of the oesophagus and others of said apertures are located in an upper part of the stomach.

4,270,543

SILVER-SILVER CHLORIDE ELECTRODE

Katsuhiko Tabuchi; Toshiaki Kato, and Kearyo Namba, all of Tokyo, Japan, assignors to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 82,660
Claims priority, application Japan, Oct. 6, 1978, 53-122706; Nov. 17, 1978, 53-140954
Int. Cl.³ A61B 5/04
U.S. Cl. 128—639 6 Claims



1. A non-polarizable skin electrode for detecting electrical signals generated by biopotential phenomena, which comprises an electrode layer comprising silver grains, silver chloride grains and particles of glass frit bonded on their surfaces to form a matrix, the grains being interspersed throughout the matrix, the electrode layer being coated upon a substrate.

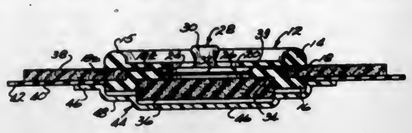
4,270,544

MEDICAL ELECTRODE HAVING IMPROVED ADHERENCE CHARACTERISTICS

Sheldon J. Gilden, Sharon, and Robert H. Robichaud, Attleboro, both of Mass., assignors to Texas Instruments Incorporated, Attleboro, Mass.

Filed May 21, 1979, Ser. No. 40,839
Int. Cl.³ A61B 5/04
U.S. Cl. 128—640 8 Claims

1. A medical electrode unit comprising a dielectric body having a cavity therein which is open at one end, a conductive electrode element mounted on the body, the electrode element having a surface disposed in the cavity, the electrode element having means for permitting electrical connection to be made to the electrode element, a resilient, foam pad having pores extending therethrough secured to the body within the cavity, the foam pad having a surface extending adjacent the open cavity end, a selected quantity of electrolyte gel disposed in the cavity and saturating the foam pad and means for securing the dielectric body to a patient including a flexible ring secured around the periphery of the body in surrounding relation to the open cavity end, the ring having a top and bottom surface, the



bottom surface being adjacent the open cavity end, an adhesive layer provided on the bottom surface and a plurality of slits formed in the ring extending from the top to the bottom surface, each slit extending continuously between an outer annular portion of the ring adjacent the outer periphery of the ring and an inner annular portion of the ring adjacent the outer periphery of the body.

4,270,545

APPARATUS FOR EXAMINING BIOLOGICAL BODIES WITH ELECTROMAGNETIC FIELDS

Hans Rodler, Pehamweg 3-5, Graz-Neuhart, Austria

Continuation-in-part of Ser. No. 787,974, Apr. 15, 1977, abandoned. This application Sep. 11, 1978, Ser. No. 940,990
Claims priority, application Austria, Apr. 20, 1976, 2874/76
Int. Cl.³ A61B 5/05
U.S. Cl. 128—653 6 Claims

1. Apparatus for measuring physiological processes in a biological body, comprising, in combination, transmitting means for generating a primary electromagnetic field adapted to induce currents in said body, said currents creating a secondary field, said transmitting means comprising a plurality of spools coupled by a ferrite core forming a hollow body, and primary energizing means for energizing said transmitting spools; and pick-up means coupled to said secondary field for furnishing measurement signals indicative of the value of a predetermined characteristic of said secondary field, but substantially indepedent of said primary field, said pick-up means comprising display means for furnishing a display of said measurement signals; wherein said pick-up means comprises a pick-up spool located within said hollow body; and further comprising a compensation spool coupled to said pick-up spool and surrounding said pick-up spool, and phase shift means and amplitude control means for connecting said compensation to said primary energizing means.

4,270,546

DEVICE FOR ULTRASONIC EXAMINATION OF BIOLOGICAL STRUCTURES

Jean R. Perilhou, Bourg-la-Reine, and Roger H. Coursant, Paris, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

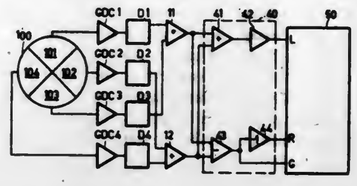
Filed Nov. 8, 1978, Ser. No. 958,768
Claims priority, application France, Dec. 5, 1977, 77 36507
Int. Cl.³ A61B 10/00
U.S. Cl. 128—660 2 Claims

1. A device for examining biological structures by means of ultrasonic waves which are reflected by those structures, comprising:

an electroacoustic converter, said converter comprising at least four transducers, at least some of said transducers being grouped into pairs, each pair consisting of transducers which are diametrically situated with respect to the center of the converter;

a plurality of adders, each adder being connected to sum output signals from one pair of transducers;

arithmetic circuit means, connected to receive output signals from said adders, which function to form a first signal representative of the sum of the signals produced by all of the transducers pair and a number of second signals which are representative of the difference between the signals generated by different transducer pairs or groups of pairs; and



display means connected to receive the first and second signals from the arithmetic circuit and to display images such that the first signal determines the brightness of points in the image and the second signals determine color information at points in the image, whereby the image is a characterization on tissue types in the biological structures.

4,270,548

ALLERGY TESTING METHOD

Louis G. Brennan, Stockton, Calif., assignor to Aller-Screen, Inc., Stockton, Calif.

Division of Ser. No. 939,442, Sep. 5, 1979, Pat. No. 4,205,689.
This application Dec. 11, 1979, Ser. No. 102,305
Int. Cl.³ A61B 10/00
U.S. Cl. 128—743 16 Claims



1. A skin testing method for in vivo intracutaneous use which comprises the steps of:

providing applicator means comprising a plurality of individual injection units, each of said injection units comprising a handle portion, a hilt portion and a scarifier portion comprising a skin piercing intradermal point and having means for carrying testing substances, each of said units carrying biological or chemical substances for skin testing, at least one injection unit of said applicator means carrying a plurality of different antigens in admixture;

depositing said substances intracutaneously by piercing the skin with each unit to predetermined depth; and

observing the pierced skin for response to said substances and dermographia.

4,270,547

VITAL SIGNS MONITORING SYSTEM

Dale A. Steffen, Aurora; Ronald E. Sturm, and George A. Rinard, both of Denver, all of Colo., assignors to University Patents, Inc., Norwalk, Conn.

Filed Oct. 3, 1978, Ser. No. 948,139
Int. Cl.³ A61B 5/02
U.S. Cl. 128—671 37 Claims



1. A system for monitoring vital physiological signs, said system comprising:

a plurality of sensing means for sensing predetermined vital physiological signs and responsive thereto providing output signals indicative thereof;

a plurality of signal processing means connected with different ones of said sensing means to receive said output signals therefrom, each of said processing means including data output circuitry means having tri-state output latch register means for providing BCD data output on four data lines; and

indicating means connected to receive said BCD data output on said four data lines and indicating said predetermined vital physiological signs sensed by said sensing means.

4,270,549

METHOD FOR IMPLANTING CARDIAC ELECTRODES

Marlin S. Heilman, Gibsonia, Pa., assignor to Mieczyslaw Mirowski, Owings Mills, Md.

Filed Apr. 30, 1979, Ser. No. 34,733
Int. Cl.³ A61N 1/04
U.S. Cl. 128—784 10 Claims



1. A method of implanting a cardioverting electrode proximate to the human heart,

making a skin incision in the upper abdominal wall,

separating tissue planes by means of a hand-held instrument, creating a tunnel inside the thorax and outside the pleural cavity, through the soft tissues surrounding the heart, said tunnel originating at the skin incision and terminating at the heart,

inserting at least one electrode into said skin incision,

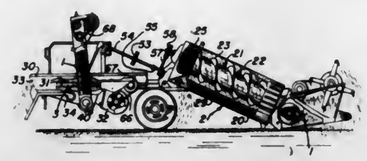
progressively advancing said at least one electrode through said tunnel in the direction of the heart, and

locating said electrode proximate the exterior surface of the heart.

4,270,550
COMBINE HARVESTER

José T. daSilva, 1354 D. Luiz do Amaral Mousinho St., Ribeirao Preto, Sao Paulo, Brazil

Continuation-in-part of Ser. No. 839,612, Oct. 5, 1977, abandoned. This application Feb. 23, 1979, Ser. No. 15,606
Claims priority, application Brazil, Oct. 5, 1976, 7606713
Int. Cl.³ A01F *12/18*
U.S. Cl. 130—27 T 10 Claims



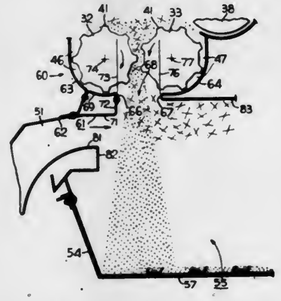
1. A mobile combine harvester comprising:
a reaping assembly comprising a platform extending horizontally transversely of the direction of movement of said harvester, a cutter bar at the forward edge of said platform, a reel above said cutter bar and rotatable to deliver grain cut by said cutter bar to said platform, and a conveyor at the rear of said platform for conveying cut grain laterally to a delivery point,
a thrashing assembly receiving cut grain directly from said delivery point of said reaping assembly and comprising a cylindrical casing which is inclined upwardly and rearwardly from said reaping assembly with a forward end connected with said reaping assembly and a rear end elevated, a cylindrical screen in said casing, a rotor rotatable in said cylindrical screen and comprising a cylindrical portion and a continuous vane extending helically around said cylindrical portion and carrying thrashing projections at its periphery, a first radial fan coaxial with said rotor at its rear end for drawing air rearwardly through said casing and discharging it with straw from which grain has been separated at the rear of said casing, a longitudinally extending grain-collecting trough portion in said casing below said cylindrical screen to receive grain, and a screw conveyor in said trough portion for moving said grain rearwardly and upwardly to the rear end of said thrashing assembly, said casing providing a discharge for said fan,
a cleaning assembly receiving said grain directly from said thrashing assembly comprising a reciprocating screen, a second radial fan for blowing air up through said screen to carry off chaff or other light waste and a collecting pan below said reciprocation screen, and
a grain handling assembly comprising a grain elevator and transport means for conveying grain from said collecting pan to the lower end of said grain elevator.

4,270,551
AIR BAFFLE FOR HARVESTER ACCELERATOR ROLLS

David K. Johnston, Blue Springs, Mo., and Donald A. Suderman, Manhattan, Kans., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 22, 1979, Ser. No. 87,162
Int. Cl.³ A01D *41/12*
U.S. Cl. 130—27 H 1 Claim

1. A harvester having a threshing area, a cleaning area of predetermined width disposed below the threshing area, an accelerator precleaner including a pair of equal diameter side-by-side accelerator rolls driven in opposite directions at the same speed, said rollers having axially extending teeth and being disposed beneath the threshing area and above and substantially coextensive with the width of the cleaning area, means for driving the rolls whereby threshed material is accelerated downwardly to the cleaning area and a source of pressurized air, characterized by
a pair of cylindrical walls in said precleaner complimentary to the horizontally outer peripheries of said accelerator rolls and curving downwardly and thence horizontally toward one another terminating in edges defining a downwardly open discharge slot, said edges lying in parallel, vertical transverse planes spaced horizontally inwardly of the axes of said rolls, the width of said slot being greater than the radius of said rolls and less than three-fourths the diameter of said rolls,
a cleaning air duct connected to said source of pressurized air having upper, lower and side walls defining an air discharge passage whose width is substantially coextensive to the length of said accelerator rolls and cleaning area, said discharge passage directing a horizontal layer of air across said downwardly accelerated threshed material, said upper wall of said duct having a terminal portion which is substantially horizontal and disposed below said



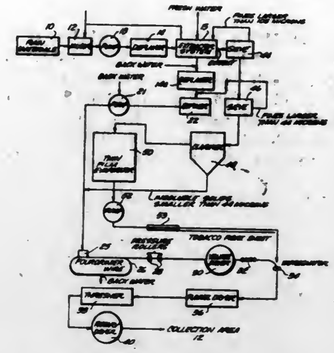
rolls a vertical distance at least as great as one-half the radius of said rolls,
a vertical wall lying in one of said vertical transverse planes and interconnecting one of said edges of said slot and said upper wall of said duct, said one vertical transverse plane being spaced horizontally from the axis of one of said rolls in the direction toward said other roll a distance at least one-third the radius of said rolls, and
a generally horizontal upper wall defining in part said cleaning area and terminating at the other of said edges, said horizontal upper wall of said cleaning area being disposed at an elevation above said upper wall of said air duct, whereby air discharged by said duct is directed in a horizontal direction and below said upper wall of said cleaning section.

4,270,552
PROCESS AND APPARATUS FOR PRODUCING PAPER RECONSTITUTED TOBACCO

John M. Jenkins, High Wycombe; Christopher T. Pedder, Tottington, and Neil G. D. Robertson, Marlow Bottom, all of England, assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Continuation-in-part of Ser. No. 839,309, Oct. 4, 1977, abandoned. This application Jul. 20, 1979, Ser. No. 58,971
Int. Cl.³ A24B *3/14, 3/18, 15/24*
U.S. Cl. 131—290 24 Claims

1. A process for producing reconstituted tobacco by a papermaking process comprising; mixing a predetermined amount of tobacco material with at least one of water and aqueous tobacco extract to wet the tobacco material, feeding the resulting slurry to at least one peg-mill deflaker in which the bundles of tobacco fibers are reduced to small fiber bundles, directing the slurry to an extraction stage, separating the water soluble and fibrous components of the slurry at the extraction stage, passing the fibrous material in the form of a slurry through a refining means to further separate the fiber bundles, diluting the fibrous material slurry and passing it to a papermaking machine, and processing the fibrous material in the papermaking machine to form a base sheet of reconstituted tobacco and

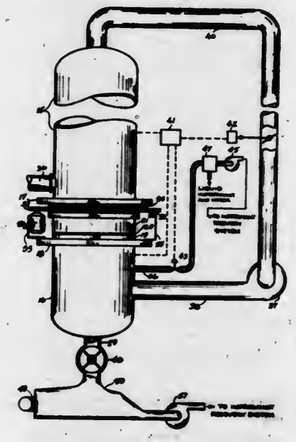


impregnating the sheet with a concentrate of the water soluble component separated in the extraction stage.

4,270,553
PROCESS AND APPARATUS FOR EXPANDING TOBACCO

Lucas J. Conrad, Winston-Salem, and Jackie L. White, Pfafftown, both of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Nov. 13, 1978, Ser. No. 960,416
Int. Cl.³ A24B *3/18*
U.S. Cl. 131—291 47 Claims

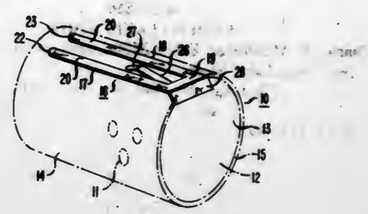


1. A process for expanding tobacco impregnated with an expansion agent which comprises introducing the impregnated tobacco into a fluidized bed of hot inert solid particles to effect rapid vaporization or expansion of said expansion agent with concomitant expansion of the tobacco, said particles having maximum and minimum dimensions in the range of 0.10 to 5 millimeters, and separating the expanded tobacco from the fluidized bed.

4,270,554
HAIR FASTENER CLIP FOR HAIR ROLLER

Philip T. Lazzaro, 54 Manning St., Edison, N.J. 08817

Filed Oct. 27, 1978, Ser. No. 955,156
Int. Cl.³ A45D *2/00*
U.S. Cl. 132—40 10 Claims



1. An arrangement for forming a curl in a head of hair comprising:
a hollow cylindrical hair roller (10) having a hollow interior (12) defined by an inner wall (13) and an exterior wall (14) defining a surface onto which hair is rolled, and
means for clamping the hair rolled on said exterior surface wall (14) onto said roller,
characterized in that
said clamping means (16, 29) comprises
a pair of spaced apart legs (17, 18 and 31, 32) each having a first end, a second end and a surface (21, 40) between said first and second ends for clamping said rolled hair on said exterior surface wall (14),
said pair of legs comprising interior facing surfaces (17', 18') extending between said first and second ends of said legs and having an increasing spacing between said facing surfaces (17', 18') at said second ends of said legs,
a member (19,33) joining said legs (17, 18 and 31, 32) together at the first ends thereof, and
another leg (24, 38) shorter in length than said pair of legs and extending downwardly from said pair of legs and in a plane therebetween for engaging said inner wall (13) of said hair roller (10).

4,270,555
MULTI-STAGE HAIR CURLER

Mildred C. Punte, 9028 Hines Rd., Baltimore, Md. 21234

Filed Apr. 15, 1980, Ser. No. 140,489
Int. Cl.³ A45D *2/00*
U.S. Cl. 132—40 10 Claims



1. A method for curling human hair comprising, inserting a retention means in a slotted holder so that the retention means extends approximately equally on both sides of said slotted holder, bending said retention means upward to form a "U" shaped configuration, placing the ends of a portion of said human hair between upstanding legs of said "U" shaped configuration of said retension means, rolling a length of said hair and said retention means around and upon said slotted holder, inserting the rolled hair on said slotted holder into a tube-like means to hold the rolled hair in place, the tube-like means being slotted to permit passage of the portion of the hair growing from the head, rolling an additional length of hair around said tube-like means, inserting the rolled hair on said tube-like

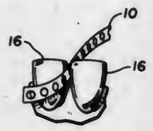
means into a second tube-like means in a manner similar to the foregoing and thereafter rolling an additional length of hair upon said second tube-like means, and securing the rolled hair in place and maintaining the assemblage together as a unit be external means affixed at each end of said slotted holder.

4,270,556

PROPHYLAXIS STRIP

Charles B. McAllister, Edina, Minn., assignor to Twelve West, Inc., Long Lake, Minn.

Filed Apr. 24, 1980, Ser. No. 143,185
Int. Cl.³ A61C 15/00
U.S. Cl. 132—89 15 Claims



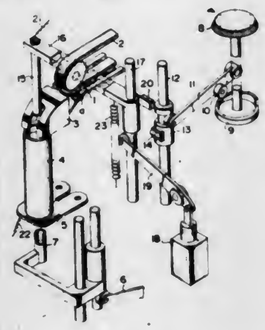
1. A prophylaxis strip for cleaning interproximal surfaces and contact areas between teeth, comprising: a length of thin, flexible, perforated strip, the material of which is softer than tooth enamel and hard enough to abrade plaque, calculus, stains and the like on teeth, the perforations of which are spacedly formed in the lateral surfaces of the strip, each perforation including a raised, peripheral scaling edge means on one of the lateral strip surfaces, the overall thickness of the strip being of a dimension which fits between the teeth.

4,270,557

INCORRECTNESS DETECTING DEVICE FOR DETECTING COIN PILING CONDITION IN PILING CYLINDER OF COIN PACKAGING MACHINE

Kenkichi Watanabe, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Jul. 17, 1979, Ser. No. 58,307
Claims priority, application Japan, Jul. 18, 1978, 53/98659[U]
Int. Cl.³ G07D 9/06
U.S. Cl. 133—8 D 3 Claims



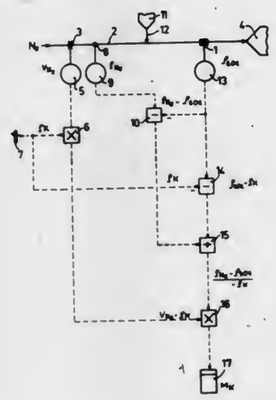
1. An incorrectness detecting device for detecting the coin piling condition in a piling cylinder, comprising: a sensor made coactive with a coin kind selecting dial for having its height varied in accordance with the height corresponding to a preset number of coins piled; a detecting element adapted to be brought downwardly into contact with the upper side of the uppermost one of the piled coins, when the preset number of coins are piled in said piling cylinder, for making an electric circuit through the piled coins; and a sensor element made coactive with said detecting element and corresponding to said sensor, whereby the coin piling condition is detected in response to both the signal, which is generated by the interaction between said sensor and said sensor element, and the signal which is generated by said electric circuit.

4,270,558

PROCESS FOR MONITORING THE FLOW OF FINE GRAINED SOLID FUEL FOR USE IN GASIFIERS

Manfred Förster; Adolf Linke, both of Essen, and Ulrich Geidies, Waltrop, all of Fed. Rep. of Germany, assignors to Krupp-Koppers GmbH, Essen, Fed. Rep. of Germany

Filed Dec. 11, 1978, Ser. No. 970,124
Claims priority, application Fed. Rep. of Germany, Dec. 21, 1977, 2757032
Int. Cl.³ F17D 3/00; G01F 1/00
U.S. Cl. 137—2 3 Claims



1. A process for automatically monitoring a flow of fine-grained solid fuels and dust-like solid fuels which are suspended in a gaseous carrier medium through a conduit, comprising:

determining a specific weight ρ_K of the fuel;

determining a density ρ_{N2} of the gaseous carrier medium;

determining a total density ρ_{tot} of the fuel and gaseous carrier medium together;

determining a flow volume V_{N2} of the gaseous carrier medium;

computing a flowing mass M_K of the fuel according to an equation in which

$$M_K = V_{N2}\rho_K(\rho_{N2}-\rho_{tot})/(\rho_{tot}-\rho_K);$$

generating a control signal representing M_K; and

controlling the flow in the conduit in accordance with the control signal.

4,270,559

METHOD FOR INSTALLING AN ADJUSTABLE FLOW RESTRICTING VALVE MEMBER IN A TUBULAR PIPE, AND A VALVE DEVICE FOR UTILIZATION OF THE METHOD

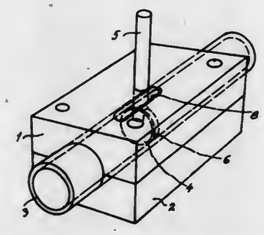
Kurt-Åke Wallberg, Lindholmens Trädgårdsstad, Valsatuna, Sweden (S-186 00)

Filed May 3, 1979, Ser. No. 35,906
Claims priority, application Sweden, May 8, 1978, 7805232
Int. Cl.³ F16L 55/07; B23P 15/00; F16K 1/22
U.S. Cl. 137—15 12 Claims

1. A method of installing an adjustable flow restricting valve in a tubular pipe, comprising, cutting an elongated slot having major and minor axes through the pipe, the major axis extending parallel to the longitudinal axis of the pipe, providing a valve member having a flat face and a peripheral surface configuration corresponding to the interior of said pipe, providing

an elongated stem on said valve member, aligning said valve member with said slot with the flat face parallel to said major axis, inserting said valve member through said slot to a position surrounded by said pipe, with said stem extending through said slot to facilitate a rotary movement of said valve member between a position in contact throughout substantially its entire peripheral surface with the internal peripheral wall surface of said pipe, thus preventing a media flow therethrough, to desired adjustable positions in relation to the length axis of the pipe thus restricting a media flow to a desired extent through the pipe and sealing the area between said slot and said stem.

5. An adjustable flow restricting rotary valve for use with a tubular pipe conducting a fluid, comprising at least two housing members connected together to form a unitary housing body completely enclosing a length section of said pipe, means for connecting said housing members together, each of said housing members having a groove in the surface which faces another housing member, said grooves having a configuration



conforming to the exterior configuration of said pipe to form a tubular bore which closely embraces said pipe section, a valve member positioned in one of said grooves in one of said housing members, a valve stem extending through said one of said housing members in rotatable relationship therewith and being connected at its inner end to said valve member, said valve member being substantially flat and having a peripheral surface configuration conforming to the inner peripheral configuration of said pipe so that said valve may be rotated by said stem into varying flow restricting positions in said tubular pipe, said valve member being in contact throughout substantially its entire peripheral surface with said inner peripheral configuration of said pipe when in closed position, an elongted slot in said pipe slightly larger than and having a configuration conforming to the largest cross-section of said valve member, the longer dimension of said slot being parallel with the longitudinal axis of said pipe, so that when assembled said valve member is insertable through said slot and positioned within said pipe, and means to seal said slot.

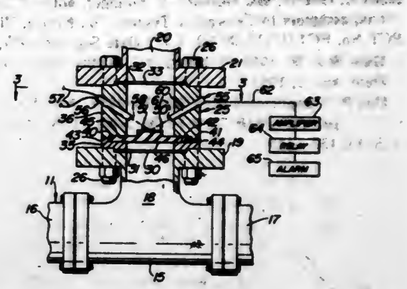
4,270,560

PHOTO-ELECTRIC BURST DISC INDICATOR

John G. Kearney, 2624 Hamilton Blvd., South Plainfield, N.J. 07080

Filed Nov. 19, 1979, Ser. No. 95,597
Int. Cl.³ F16K 13/04
U.S. Cl. 137—68 R 8 Claims

1. A pressure relief for a fluid system comprising a housing having an opening connected in fluid communication with the system and a vent spaced from the opening, a diaphragm extending in closing relation across said housing for closing the housing to the passage of fluid, said diaphragm rupturing under a predetermined pressure to vent said system, reflective means on said diaphragm remote from said opening, and photo-electric means optically associated with said reflective means for sensing the rupture of said diaphragm.

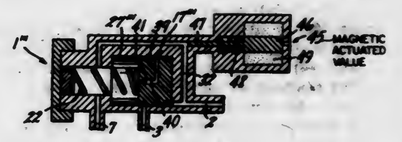


4,270,561

VALVE FOR A BURNER SYSTEM

Curt A. Bjorklund, Box 99, Ulricehamn, Sweden

Continuation-in-part of Ser. No. 481,841, Jun. 21, 1974, Pat. No. 3,987,810, Ser. No. 204,623, Dec. 3, 1971, abandoned, and Ser. No. 702,076, Jul. 2, 1976, abandoned. This application Jan. 10, 1979, Ser. No. 2,327
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1970, 7045109 [U]; Sweden, Mar. 17, 1971, 3410/71
Int. Cl.³ F23D 11/28; F16K 11/00
U.S. Cl. 137—107 2 Claims



1. Device for incorporation into a fuel system, comprising;

a fuel valve having a housing defining a valve chamber, a fuel supply conduit connecting the valve chamber, in use, to a liquid fuel supply under pressure, a burner conduit connecting the valve chamber, in use, to a burner, an evacuation channel extending through the housing and connected to the burner conduit during a period when the fuel valve is being closed, a movable valve piston member disposed in the valve chamber;

electromagnetic solenoid means energized for enabling the valve piston member to perform an opening movement from a closing position of the valve piston member, wherein it closes the supply conduit, to a working position of the valve piston member, wherein it opens the supply conduit for a flow of liquid fuel from the fuel supply to the burner;

means for effecting a closing return movement of the valve piston member from the working position to the closing position upon deenergization of the electromagnetic solenoid means; and

vacuum means, including a vacuum chamber disposed in the housing varied in volume by said piston valve member and increased in volume when said piston valve member returns to said closing position and connected with the evacuation chamber, for developing a low pressure in the vacuum chamber in response to the closing return movement of said piston valve member and for thereby sucking fuel back from the burner conduit during the closing return movement of the valve piston member.

4,270,562

FLUID SEQUENCE BYPASS APPARATUS

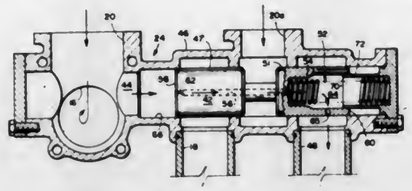
Hans G. Oberth, and Gerhard A. Aminger, both of Graz, Austria, assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00799, § 371 Date Sep. 28, 1979, § 102(e) Date Sep. 28, 1979 PCT Pub. No. WO81/00081, PCT Pub. Date Apr. 2, 1981

This PCT application filed Sep. 28, 1979, Ser. No. 93,076

Int. Cl.³ F01P *7/14*; F01M *5/00*; F16N *13/22*

U.S. Cl. 137—115 5 Claims



1. In a system (10) having a pressurized fuel source (14), a sump (50), and a main (16) and at least one secondary (18) receptor to which pressurized fluid is supplied from said source (14), the improvement comprising:

a body (46) having a bore (44) therein;

a piston (42) reciprocally mounted in said bore (44), said piston (42) having a first end (58), a second end (60) and a tunnel (56) therethrough from said first end (58) to said second end (60);

biasing means (52) for biasing said piston (42) into a first position in said bore (44), said biasing means (52) including a spring (54) acting to motivate said piston (42) towards said first position in said bore (44) and a restricted orifice (62) for communicating the fluid via said tunnel (56) to said sump (50) via an exit orifice (65);

means (66) for motivating said piston (42) in opposition to said biasing means (52) and into a second position in said bore (44) in response to a pressure in said main receptor (16) reaching an initiating value (A), said motivating means (66) motivating said piston (42) into a third position in response to said pressure in said main receptor (16) reaching a selected value (D) above said initiating value (A);

means (47) for blocking delivery of said pressurized fluid to said secondary receptor (18) in response to said piston (42) being in said first position and for allowing said delivery in response to said piston (42) being in said second position, said delivery blocking and allowing means (47) allowing delivery of said pressurized fluid to said secondary receptor (18) in response to said piston (42) being in said third position;

means (20a) for communicating fluid flow from said source (14) to said body (46);

means (51) for passing said fluid flow through said body (46) to said sump (50) in response to said piston (42) being in said third position and for not passing said fluid to said sump (50) in response to said piston (42) being in said first and second positions; and

additional biasing means (68), additive to said biasing means (52), for blocking said exit orifice (65) as said piston (42) moves from said second position towards said third position.

4,270,563

PRESSURE ACTUATED SAFETY DEVICE

Karl Holzinger, Nussbaumen, Switzerland, assignor to BBC Brown, Boveri & Co. Ltd., Baden, Switzerland

Filed Jun. 28, 1979, Ser. No. 53,045

Claims priority, application Switzerland, Oct. 7, 1978, 7457/78

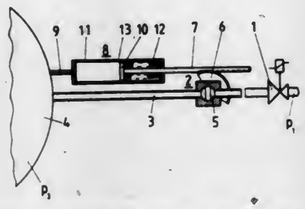
Int. Cl.³ G05D *11/00*

U.S. Cl. 137—116.5 3 Claims

1. In a gas blast circuit breaker of the type having a low pressure reservoir for compressed gas, a source of gas at high pressure and supply means for conducting gas through a feed line from the high pressure source to the low pressure reservoir, said feed line ending at said reservoir, a safety device for preventing overpressures in the low pressure reservoir comprising:

safety valve means for interrupting a flow of the compressed gas through said feed means, which safety valve means includes a spherical stopcock, said spherical stopcock including a cock connected to a rotatable, toothed segment; and

actuating means for actuating said safety valve means in response to a pressure within said low pressure reservoir



exceeding a predetermined pressure, said actuating means including:

a cylinder in pressure communication with said low pressure reservoir, which cylinder senses a pressure in said low pressure reservoir through a line which is independent from said feed line;

a spring-biased piston arranged within said cylinder;

and

a toothed rack connected to said piston and projecting from said cylinder, the rack having teeth which mesh with the teeth of the toothed segment of the spherical stopcock.

4,270,564

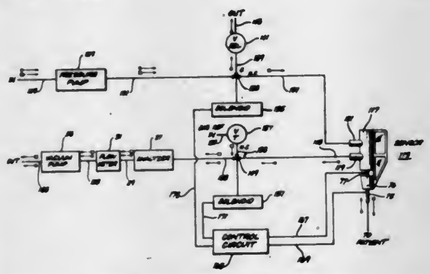
PURGING SYSTEM

Wayne E. Blackburn; Max D. Liston, both of Irvine, and William A. Stark, Costa Mesa, all of Calif., assignors to Liston Scientific Corp., Newport Beach, Calif.

Filed Jul. 24, 1978, Ser. No. 927,372

Int. Cl.³ A61B *5/08*

U.S. Cl. 137—240 11 Claims



1. A purging system for removing foreign matter from a fluid conducting conduit, comprising:

a sensor adapted to be connected in a fluid conducting conduit for sensing foreign matter therein, said sensor having an output terminal at which an electrical output signal is generated when foreign matter is present;

timer means having an input terminal connected to said sensor output terminal, said timer means having an output terminal at which an output signal is generated for an adjustable duration of time when said input terminal receives an electrical signal, said timer means having means for adjusting said duration of time; and

pump means electrically connected to said timer means output terminal and being adapted to be connected to the same conduit in which said sensor is connected, said pump means being activated by said timer means output signal for said adjustable duration of time to purge the conduit to remove foreign matter therefrom.

4,270,565

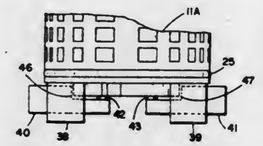
INLINE DISPERSAL VALVE

Lloyd H. King, Sr., 311 Blake Rd., Hopkins, Minn. 55343

Continuation-in-part of Ser. No. 958,167, Nov. 6, 1978. This application May 29, 1979, Ser. No. 42,762

Int. Cl.³ B01F *1/00*

U.S. Cl. 137—268 3 Claims



1. An inline dispersal valve for controllably releasing material into a fluid line comprising:

a housing having a means for attachment to a pressurized fluid line, said housing having an opening therein operable for fluid coupling with fluid in a fluid line;

a porous container slidably mounted in opening in said housing;

means for controllably raising or lowering said container into the pressurized fluid line to allow fluid to flow through said container to thereby dissolve soluble solid in said container and transport said dissolved material into the fluid stream;

a retractable stop operable for inward and outward motion, said retractable stop operable for holding said container in said housing and for retraction to permit release of said container from said housing;

a rotatable member for actuating said retractable stop; and

resilient means for maintaining said container in contact with said means for controllably raising or lowering said container.

4,270,566

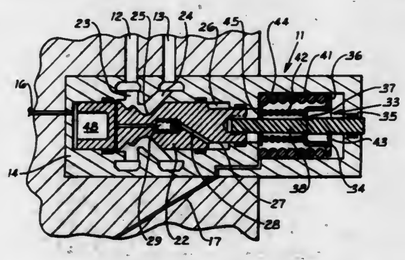
SELF-RESTRICTING SHUTOFF VALVE

David A. Struessel, St. Louis, Mo., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 12, 1979, Ser. No. 102,701

Int. Cl.³ F16K *31/34*

U.S. Cl. 137—492.5 3 Claims



1. In combination with a fluid leak detector, a self-restricting shut-off valve comprising,

a first source of fluid under pressure,

a second source of fluid under pressure lesser in value than the pressure value of said first source of fluid,

a valve body having a bore,

an inlet line connecting said valve body to said first source of fluid under pressure and an outlet line connecting said valve body to an operable fluid system having lines subject to rupture,

a valve spool having a recess and a restrictor land, said valve spool being slidable positionable in said bore to a full-flow position, a partial-flow position and a no-flow position,

first and second fluid cavities, one each between each end of said valve spool and said valve body,

spring means biasing said valve spool to a partial-flow position whereby said restrictor land limits fluid flow from said first source through said recess to said outlet line,

a first passage connecting said first cavity with said first source of fluid whereby fluid in said first cavity biases said valve spool to a full-flow position, and

a second passage normally connecting said second cavity with said second source of fluid and switchably connectable with said first source of fluid by said leak detector to move said valve spool to a no-flow position when said leak detector detects a loss of said first source of fluid under pressure.

4,270,567

CONTROL VALVE FOR USE IN HYDRAULIC APPARATUS

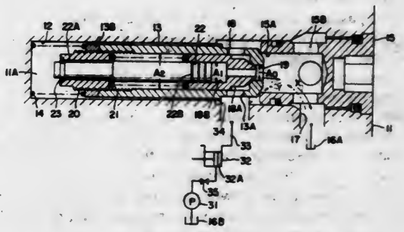
Toshiaki Tsukimoto, Zama, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,392

Claims priority, application Japan, Jan. 12, 1979, 54/2351[U]

Int. Cl.³ F16K *17/196*

U.S. Cl. 137—493.5 3 Claims



1. A control valve operating as a combined release and make-up valve for use in hydraulic apparatus comprising:

a valve housing provided with a cylindrical blind hole, a first opening connected to an external hydraulic supply device and a second opening connected to a hydraulic tank;

a valve seat tightly engaged with the inlet of said blind hole to close said inlet and provided with an inner recess communicated with said second opening;

a cylindrical hollow make-up poppet slidably inserted into said blind hole, said make-up poppet having a bottom end at one end provided with an opening communicated with said inner recess of said valve seat and having a hole communicated with said first opening;

a first resilient member disposed between the bottom of said blind hole and the other end of said make-up poppet so as to resiliently urge the make-up poppet towards said valve seat;

a cylindrical release poppet slidably inserted within said make-up poppet and provided with an inner cylindrical hole which communicates with said inner recess of said valve seat, an inner diameter of said inner cylindrical hole of said relief poppet being predetermined to be larger than the diameter of said end opening of said make-up poppet;

screw means adjustably engaged with the inner surface of the other end of said make-up poppet;

a cylindrical resilient member disposed within said make-up

poppet between said serew means and said relief poppet; and

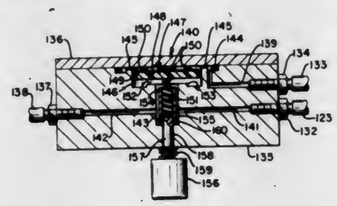
a balanced poppet having one end tightly inserted into said inner cylindrical hole of said relief poppet and the other end connected to a piston rod which is engaged with said screw means.

4,270,568

SENSOR WITH ADJUSTABLE PRESSURE RESPONSIVE DETECTION AND CONTROL

Tommy L. Gray, Dallas, Tex., assignor to Span Instruments, Inc., Plano, Tex.

Division of Ser. No. 797,914, May 18, 1977, Pat. No. 4,173,150.
This application Feb. 21, 1979, Ser. No. 13,668
Int. Cl.[3] F16K *31/12*; G01L *7/04*
U.S. Cl. 137—498 6 Claims



1. A fluid pressure relay comprising:

a relay body;

first chamber means in said body;

second chamber means in said body having an opening into said first chamber means;

a first passage in said body for external connection in communication with said first chamber means;

at least one additional passage in said body for external connection and in communication with said second chamber means;

relay valve means in said chamber means responsive to a differential pressure between said first and second chamber means resulting from a fluid flow from said additional passages greater than through the opening to move said relay valve means between an open state to a closed state where the open state allows communication between said first and second chambers and in the closed state closes the opening between said chamber to allow communication between said additional passages and block communication with said first passage, said valve means being actuated from said open state to said closed state by predetermined pressure differential between said first and second chamber means; and

manual reset means for actuating said valve means from the closed state to the open state by reducing the pressure differential below the predetermined level.

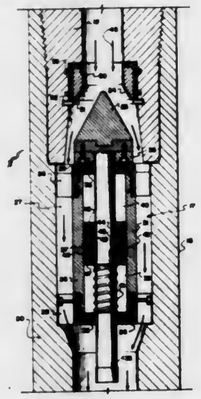
4,270,569

VALVE ASSEMBLY FOR THE REMOTE CONTROL OF FLUID FLOW HAVING AN AUTOMATIC TIME DELAY

Robert G. Reay, and Ronald Rachuk, both of Rocky Mountain House, Canada, assignors to Christensen Inc., Salt Lake City, Utah

Filed Oct. 16, 1978, Ser. No. 951,344
Int. Cl.[3] F16K *15/06, 21/10*
U.S. Cl. 137—514.7 8 Claims

1. A float valve assembly for the remote control of the fluid flow comprising in combination a cylindrical casing, a fluid passageway extending axially through said casing and a valve assembly within said passageway dividing said passageway into one portion above said valve assembly and another portion below said valve assembly, said valve assembly including a valve seat in said passageway, a valve normally engaging said valve seat and sealing said passageway, spring means normally maintaining said valve upon said seat until a predetermined pressure of fluid through said passageway from said one portion thereof, moves said valve from said seat against the pressure of said means, means to control the movement of said valve from said seat and time delay means to control the movement of said valve onto said seat when back pressure of fluid from said other portion of said passageway below said valve is greater than the pressure of fluid within said one portion of said passageway above said valve seat, a stem extending from said valve towards said other portion of said passageway, a fluid containing cylinder having closed ends, mounted axially within said other portion of said passageway, said valve stem extending axially through said cylinder and being in sealing



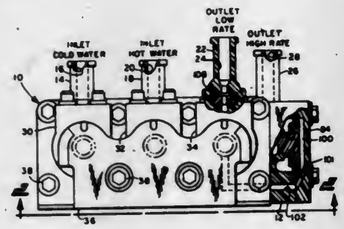
reciprocal relationship with the closed ends of said cylinder, said means to control the movement of said valve and said time delay means both being situated within said cylinder and a dashpot type housing secured to said valve stem and reciprocal within said cylinder thereby dividing said cylinder into a first part and a second part, said means to control the movement of said valve from said seat including a bore hole extending through said housing and communicating between said first and second part of said cylinder, and a one-way valve operatively mounted in said bore hole, said one-way valve opening when said first mentioned valve is moving away from said valve seat thereby transferring fluid between said first and second part of said cylinder at a predetermined rate of flow.

4,270,570

VALVE ASSEMBLY

Lawrence A. Kolze, Beneaville, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 15, 1979, Ser. No. 84,957
Int. Cl.[3] F16K *19/00*
U.S. Cl. 137—597 5 Claims



1. A mixing and flow control valve comprising:

(a) body means including structure defining:

(i) a fluid mixing chamber;

(ii) a first fluid inlet passage communicating with said chamber, said passage having an inlet port adapted for connection to a source of unheated fluid, said passage including a first valve seating surface;

(iii) a second fluid inlet passage communicating with said chamber, said passage having an inlet port adapted for connection to a source of heated fluid, said passage including a second valve seating surface;

(iv) a first or high rate fluid outlet passage communicating with said mixing chamber and defining a third valve seating surface;

(v) a second or low rate fluid outlet passage communicating with said mixing chamber and defining a fourth valve seating surface;

(b) valve means and a movable valve member disposed adjacent each of said first through fourth valve seats, each valve member being movable from a position connecting the respective adjacent valve seats to block fluid flow thereover and a position spaced from the respective adjacent valve seat to permit fluid flow thereover, wherein said valve means adjacent said third valve seat includes pressure responsive means defining, in cooperation with said body means, a pressure bias chamber;

(c) said body means further defines a bleed passage communicating with said pressure bias chamber directly with said second fluid outlet port;

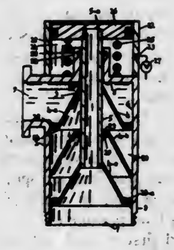
(d) individual actuator means connected respectively to each of said first, second and fourth valve means, said actuator means being individually operable upon energization to move the respective individual valve members to a position spaced from its respective valve seat, each of said first, second and fourth actuator means including means operable to bias its respective valve means to the fluid flow preventing position, wherein, upon energization respectively of the valve actuator means for said first, said second or said first and second valve means hot, cold or both hot and cold fluid is delivered to said mixing chamber and, in the absence of energization of said actuator for said fourth valve means, fluid pressure in said mixing chamber causes said pressure responsive means to move said third valve to the flow preventing position and prevent discharge through said first or high rate flow outlet, and upon energization of said actuator means for said third valve means, flow discharges through said second or low rate outlet and the fluid pressure therein is applied to said pressure bias chamber through said bleed passage and the pressure in said bias chamber acts on said pressure responsive member to move said third valve means to contact said third valve seat surface and prevent flow to said first (high rate) outlet.

4,270,571

HIGH PRESSURE LETDOWN VALVE

Richard S. Paulukonis, 6660 Greenbriar Dr., Cleveland, Ohio 44130

Filed Jul. 6, 1979, Ser. No. 55,470
Int. Cl.[3] F16K *47/04*
U.S. Cl. 137—614.11 6 Claims



1. A throttle valve for pressure letdown comprising: a pressure reducing valve section and a valve operating section, including means for interconnecting said first with said second valve sections in an operable relationship therebetween so as to enable a simultaneous pressure reducing while valving high pressure fluid therethrough in a tortureous pathway with large pressure reduction and exhaust at substantially lower fluid pressures,

said pressure reducing valve section including a valving means comprising an elongated valve housing with a first bore passing therethrough open to serve as low pressure fluid exhaust port means and a second smaller coaxial bore adjacent said second valve operating section and interconnecting said first and second valve sections, a central stem of a valving assembly housed inside said pressure reducing valve section and slidably received in said second bore and including operating means for operating said valving means, said valving assembly being disposed centrally in essentially coaxial elongated relationship with said first and second bores,

a side port entering perpendicularly through a housing wall and communicating with said first bore,

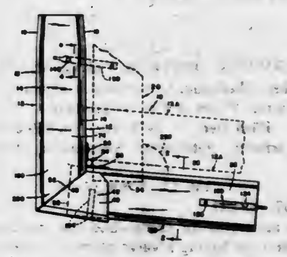
said valving assembly further including a plurality of conical baffles attached to said first bore and said stem, alternately, said alternately attached baffles respectively sealing on said bore and said stem when said valving means is closed and spaced along the axial length of said central stem between said fluid side port and said first bore so as to provide an alternating valve and baffle flow structure with a multitude of flow reversals accompanied by alternatingly occurring flow directional changes.

4,270,572

HINGING DOWNSPOUT ASSEMBLY

Clifford J. Jarzynka, 802 N. Harvard St., Harvard, Nebr. 68944

Filed Sep. 26, 1979, Ser. No. 78,912
Int. Cl.[3] F16L *27/00*
U.S. Cl. 137—615 6 Claims



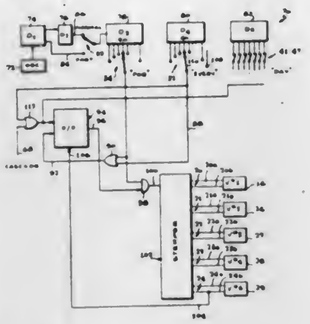
1. A hinging down-spout assembly comprising first and second elongated sections disposed when said second section is in use at substantially a right angle to each other, said sections each having a first side a second side and a right side and a left side, a hinge assembly having a hinge axis and attaching first sides of said first and second sections together in a manner whereby said first and second sections can be hinged into storage position in parallelism with each other, said axis being at one end of said first section, said first section having its said one end inclining substantially at an acute angle with respect to the elongation of said first section, a lapping section attached to said first section and having a connecting portion disposed on the opposite side of said second section from said hinge, said lapping section having right and left side portions spaced apart along a line parallel with said axis and disposed transverse to said axis in substantial parallelism with each other and extending adjacent right and left sides respectively of said second section and serving as a trough to direct water flowing between said first and second sections.

4,270,573

CONTROLLER FOR FLUID FLOW SYSTEMS

Oded E. Sturman, and Benjamin Grill, both of Northridge, Calif., assignors to Hydronic Systems, Inc., Woodland Hills, Calif.

Division of Ser. No. 927,942, Jul. 25, 1978. This application Sep. 17, 1979, Ser. No. 76,121
Int. Cl.[1] A01G 25/00
U.S. Cl. 137—624.2 7 Claims



1. A fluid flow controller comprising:
a clock means which generates clock signals;
a timing circuit having an input connected to said clock means and having at least one output, said timing circuit including a dividing means, for generating a valve opening signal on an output after a predetermined settable number of clock signals to turn on a valve, and for generating a valve closing signal on an output after another predetermined settable second number of clock signals to turn off the valve; and selector means coupled to said clock means for operating it at a plurality of different frequencies, whereby to enable different speed automatic cycling of a system at a predetermined setting.

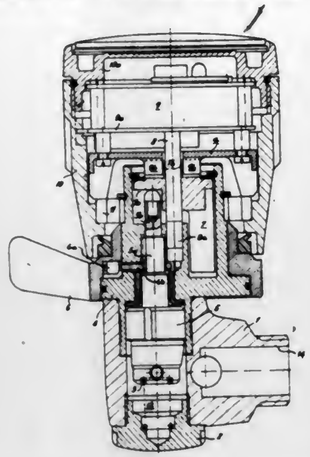
4,270,574

CLOCKWORK CONTROL VALVE MECHANISM

Heinz Graber, Oberkulm, Switzerland, assignor to Aktiengesellschaft Karrer, Weber & Cie, Switzerland

Filed Dec. 14, 1978, Ser. No. 969,688
Claims priority, application Switzerland, Dec. 28, 1977, 16112/77
Int. Cl.[3] F16K 31/48
U.S. Cl. 137—624.11 8 Claims

1. In an apparatus for controlling the operation of a fluid mixer of the type having a valve member to open and close a valve passage in a valve housing and a clockwork mechanism for timing the opening and closing of the valve member, the housing having a valve chamber with a valve outlet passage, the improvement comprising an elongated valve member axially movable in the chamber, said elongated valve member having an axially extending follower portion, a cam plate rotatably mounted in said housing adjacent one end of said follower portion and engaged with said follower portion for the controlled movement of said valve member, spring means for biasing said valve member towards said cam plate to engage said follower portion with said cam plate, said cam plate having a control surface acting on said follower portion to move said valve member axially during a portion of rotation of said cam plate, a sleeve member rotatably mounted on said housing operatively connected to the clockwork mechanism, said sleeve member being rotatably operative to wind the clockwork mechanism during a first portion of the rotational movement of said sleeve member, interengaging means for engaging said clockwork mechanism and said cam plate which are disengaged during said first portion of the rotational movement and which are engaged during a further rotational movement of said sleeve member to drive said cam plate during said further rotational movement while winding of said clockwork



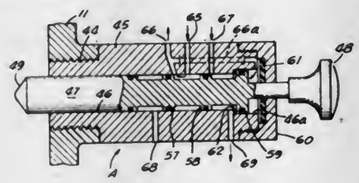
mechanism continues during said further rotational movement, and said interengaging means being operative to drive said cam member oppositely upon release of said sleeve member.

4,270,575

SPOOL VALVE ASSEMBLY

Frank A. Reed, deceased, late of South El Monte, Calif., and Paul M. Diemert, executor, 1639 Vallejo Way, Upland, Calif. 91786, assignors to Paul M. Diemert, San Antonio, Tex.

Division of Ser. No. 885,621, Mar. 13, 1978, Pat. No. 4,176,987.
This application Mar. 23, 1979, Ser. No. 23,131
Int. Cl.[3] F15B 13/04
U.S. Cl. 137—625.69 5 Claims



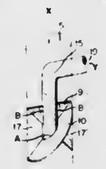
1. A flow control valve comprising:
(a) main body having a central bore open at each end;
(b) a two-position spool valve having no neutral operating position slidably supported in said bore for movement between first and second operating positions and adapted to be actuated in one axial direction to said second position via the open end of said central bore;
(c) means at one end of said spool valve for actuating the same from said second position to said first position;
(d) said spool valve having only first, second, third and fourth annular grooves separated by first, second and third annular lands;
(e) said main body having (1) a pressurized fluid supply passage continuously in communication with said second groove, (2) separate fluid venting passages for venting only unpressurized fluid from a respective one of said first and third grooves and in continuous communication therewith, (3) a fluid passage in selective communication with either said first or said second groove depending upon the position of said spool valve axially of said bore, and in communication with said fourth groove when in communication with said second groove, and (4) a fluid passage in communication with either said second or said third groove depending upon the position of said spool valve axially of said bore; and
(f) means at the other end of said spool valve for actuating the same to said second position.

4,270,576

SELF-CONTAINED FLUID JET-MIXING APPARATUS AND METHOD THEREFOR

Masahiro Takeda, and Kenjiro Takeda, both of No. 16-14, 4-chome, Shimouma, Setagaya-ku, Tokyo, Japan (13)

Filed Jun. 19, 1979, Ser. No. 49,913
Claims priority, application Japan, Jun. 20, 1978, 53/83671[U]
Int. Cl.[3] F16K 19/00
U.S. Cl. 137—888 5 Claims



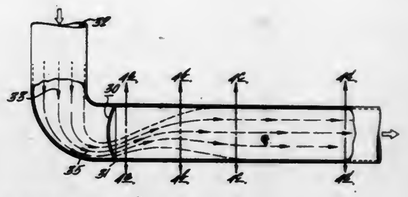
1. In a self-contained fluid jet-mixing apparatus for promoting mixing and contact actions between first fluids such as a gas, a liquid, a fluidized solid and/or a mixture thereof in a fluid flow deflecting system including cylindrical fluid passageway means defining a cylindrical fluid path; means for providing said first fluid with appropriate flow velocity and pressure conditions in a given direction within said cylindrical fluid passageway means; fluid flow deflecting means disposed centrally in said fluid passageway means and adapted to cause a flow of said first fluid to be deflected in a spiral or whirling flow state at a predetermined angle of inclination toward downstream of said fluid, thereby to cause said first fluid to be accelerated and distributed at a predetermined flow configuration within said passageway means; said flow deflecting means being guide vane means which comprise a partition member of an inverted triangle shape with at least two equal sides, with the base thereof extending diametrally with respect to said cylindrical passageway means and with the inverted apex pointed in coincidence with the central axis of said cylindrical passageway means, and a set of planar panel members having a generally semi-elliptic shape, each panel member extending at the major axis thereof from one side of said triangle-shaped partition member other than the base thereof in opposite directions toward an inner wall surface of said passageway means and in symmetrical relationship with respect to the central axis of said cylindrical passageway means in such a manner that said semi-elliptic panel members are inclined with each other at the apex angle of said triangle partition member toward downstream of said first fluid flow, and at the outer circumferential edges thereof joining closely with said inner wall surface of said passageway, thereby defining a spiral flow path for said first fluid along said central axis thereof, the improvement which further comprises fluid conduit means having a straight-through opening therein and extending centrally and in the longitudinal direction along said axis of said passageway means, thereby to define a straight-through opening or passageway independent from said fluid passageway means and adapted to allow second fluid or fluids outside of said passageway means to be withdrawn or introduced into said passageway means for admixing the said first fluid under the negative pressure created by said flow deflecting means.

4,270,577

AIR FLOW DEVICE

Carlton E. Brown, and Walter A. Tatham, both of Tucson, Ariz., assignors to Environmental Air Products, Inc., Tucson, Ariz.

Filed Nov. 29, 1979, Ser. No. 98,678
Int. Cl.[3] F15D 1/02; G01F 15/02
U.S. Cl. 138—39 2 Claims



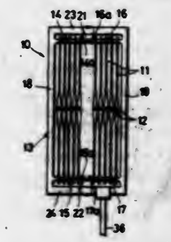
1. A device
(a) for insertion in an air duct having
(1) air flow, and
(2) a longitudinal center line,
(b) to reduce turbulence and provide uniform cross-sectional air flow downstream of the device,
comprising
(a) a honeycomb material having a plurality of passages, wherein
(b) the honeycomb material is in the form of a spherical segment, and
(c) the passages focus at a point on the duct center line downstream of the device when inserted in a duct.

4,270,578

HARNESS FOR LOOMS

Hisai Nishiyama, Hayahoshi, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan

Filed Jun. 26, 1979, Ser. No. 52,250
Claims priority, application Japan, Jul. 13, 1978, 53-96429
Int. Cl.[3] D03C 9/06
U.S. Cl. 139—92 8 Claims



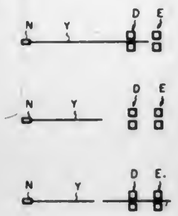
1. A harness for looms comprising, in combination:
(a) a plurality of heddles;
(b) a rectangular heddle frame including first and second pairs of bars projecting from opposed vertical sides of said rectangular frame toward and terminating short of each other, said heddles being divided into two groups carried separately by said first and second pairs of bars at opposite ends of each heddle; and
(c) a pair of connectors each connecting and bridging one of said first pair of bars and one of said second pair of bars at their free ends, each said connector having a snap hook engageable with one of said first pair of bars and one of said second pair of bars.

4,270,579

SENSOR WEFT MECHANISM FOR FLUID JET LOOMS

Masakazu Nakanishi, Kanazawa, Japan, assignor to Tsudakoma Kogyo Kabushiki Kaisha, Japan

Filed Apr. 3, 1979, Ser. No. 26,673
Claims priority, application Japan, Apr. 4, 1978, 53-044614
Int. Cl.³ D03D 51/34
U.S. Cl. 139—370.2 5 Claims



1. An improved weft sensor mechanism for a fluid jet loom, comprising:

first weft sensor means for determining when a weft has been properly inserted into the loom;

additional weft sensor means for determining when a weft inserted into the loom has been broken; and

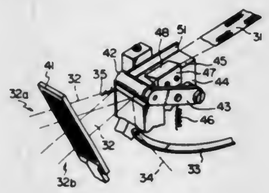
circuit means cooperating with said weft sensor means to form a detection circuit for determining whether the weft has been properly or improperly inserted and whether it has been broken, and for stopping the loom when a weft has been inserted into the loom improperly or has been broken or both.

4,270,580

METHOD AND APPARATUS FOR WEAVING WEB

Kiyoshi Nakada, Nyuzen, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Oct. 1, 1979, Ser. No. 80,704
Claims priority, application Japan, Oct. 9, 1978, 53-124291
Int. Cl.³ D03D 47/42
U.S. Cl. 139—431 2 Claims



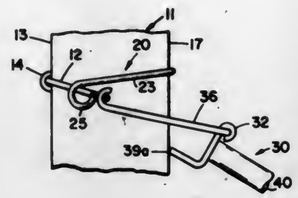
1. A needle loom including a member defining a table on which a woven web is supported; a filling carrier disposed at one side of the table defining member so as to swing through successive sheds formed by warp ends in the upstream of the woven web; and a latch needle disposed at the other side of the table defining member, said filling carrier and latch needle being so adapted that a segment of a filling is extended through each shed from said one side to the other and picked up by said latch needle there and then back to said one side, characterized in that a ramp is formed on said table for biasing the woven web to the latch needle, said ramp inclining in the direction perpendicular to the feeding direction of the woven web so that it descends as it goes toward the latch needle.

4,270,581

VINEYARD TRELLIS WIRE RETENTION

Gerald L. Claxton, and Darrell C. Horn, both of Fresno, Calif., assignors to Up-Right, Inc., Berkeley, Calif.

Filed Mar. 26, 1979, Ser. No. 23,751
Int. Cl.³ B21F 29/02
U.S. Cl. 140—57 4 Claims



1. Apparatus for the retention of a horizontal trellis wire against the front of a vertical post, said post having a given front-to-back thickness and a side-to-side width at the back thereof, said apparatus comprising:

a retaining clip consisting of a single piece of wire bent into a substantially U-shape, with a generally straight mid-portion and generally straight arms extending from the ends of said mid-portion and diverging away from each other, said mid-portion having a length substantially equal to said side-to-side width of the post at the back side thereof, said arms having a length substantially less than said front-to-back thickness of said post, said arms each having a hook at the free end thereof for hooking engagement with said trellis wire, said hooks each being greater than three-quarters of a helical turn to form an eye at the free ends of the arms, said eyes being open in a direction towards said mid-portion of said retaining clip, the helical turn on one retainer clip arm being opposite to and extending in a direction away from the helical turn on the other retainer clip arm,

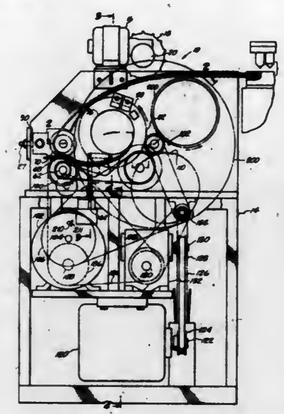
an installing tool having a head member, a single piece of wire bent into a substantially U-shape and having a straight mid-portion and a pair of parallel arms bent at generally right angles to said mid-portion, said mid-portion being mounted on said head member for pivotal movement relative to said head member and about the axis of said mid-portion, each of said installing tool arms extending away from said head member and having a hook at the free end thereof for hooking engagement with said trellis wire, said head member having a bearing member and a fulcrum surface, said bearing member and said fulcrum surface being spaced from each other and simultaneously engageable with the back of said post, said fulcrum surface being parallel to and spaced from said axis of pivotal movement of said installing tool arms, an elongaged handle fixed at one end thereof to said head member, said handle lying in a plane perpendicular to said axis of pivotal movement of said installing tool arms, said installing tool arms each having a length approximately equal to said front-to-rear thickness of said post for enabling said arms to be hooked onto said trellis wire when said bearing surface engages said back of the post, said installing tool arms being spaced apart by an amount greater than the greatest distance between said retainer clip arms, the distance between said axis of pivotal movement of said installing tool arms and said fulcrum surface being greater than the difference between the lengths of said retainer clip and installing tool arms.

4,270,582

SPRING NESTING APPARATUS

Harry H. Norman, Dana-Point, Calif., assignor to Eleven States Mfg. Corp., South Gate, Calif.

Filed May 17, 1979, Ser. No. 39,884
Int. Cl.³ B21F 35/04
U.S. Cl. 140—71 R 12 Claims



1. An elongated element nesting apparatus, said apparatus comprising;

a housing,

a primary cage within said housing,

a secondary cage coaxial with said primary cage and laterally displaced therefrom,

a means for longitudinally loading an elongated element into said primary cage,

a means for laterally forcing said elongated element from said primary cage into said coaxial secondary cage,

a means for controlling the number of elongated elements forced into said secondary cage,

a plurality of secondary cages having their axes parallel and laterally displaced from said secondary cage,

a means for rotating said plurality of secondary cages into consecutive coaxial relationship with said primary cage, and

a means for forcing said elongated elements from said secondary cage.

4,270,583

CONCRETE PIPE REINFORCEMENT SPACER BAR PROCESS

Wilbur E. Tolliver, 364 Hamilton Dr., Holland, Mich. 49423

Filed Jul. 11, 1979, Ser. No. 56,592
Int. Cl.³ B21F 15/06, 17/00
U.S. Cl. 140—92.1 44 Claims



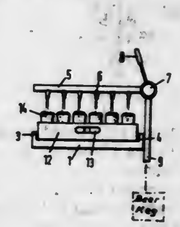
1. A method for assembling inner and outer generally cylindrical pipe reinforcing cages, each cage including a plurality of longitudinal wire strands joined to a plurality of circumferential wire strands, said method comprising: providing a spacer bar having a tie rod and a plurality of links joined to and spaced along the length of said tie rod, said links being generally parallel to one another and each including a hook spaced from said tie rod a distance approximately equal to the desired spacing between said inner and outer cages; inserting said links through one of said cages until said tie rod engages said one cage and then hooking said hooks over one or more wire strands in the other cage to thereby hold the two cages together.

4,270,584

PROCESS FOR SUPPLYING BEVERAGES

Marinus W. van Lieshout, Made, Netherlands, assignor to Skol Brouwerijen N.V., Breda, Netherlands

Continuation of Ser. No. 881,505, Feb. 27, 1978, abandoned.
This application Oct. 9, 1979, Ser. No. 82,943
Claims priority, application Netherlands, Feb. 25, 1977, 7702042
Int. Cl.³ B65B 3/22
U.S. Cl. 141—11 1 Claim



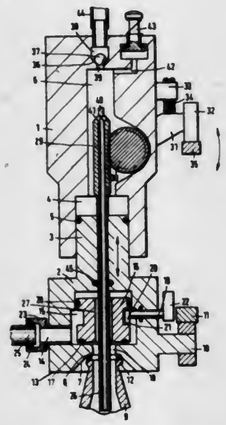
1. The process for dispensing beverages by beverage tapping directly from a keg under pressure into open cups for better taste and retaining of foam, comprising in combination the steps of arranging said cups in a plurality of rows in each of a plurality of containers, the containers being movable closely together transversely of said rows along a transporting surface formed by a top part of an endless conveyor belt, dispensing a beverage continuously from a plurality of nozzles in a row above said cups, said nozzles corresponding in number to the number of cups in each row, each nozzle being positioned above an open cup in a row, said cups in each row being closely adjacent cups in successive rows, continuously moving said containers and cups transversely of said rows to position the cups of each row under the row of nozzles, opening a manually operated beverage tapping valve controlling the flow of beverage to all said nozzles simultaneously by way of a projecting cantilever manifold without need to close the tap valve after filling all cups in a row and continuously dispensing a beverage under pressure from said row of nozzles and progressively moving said row of cups in said plurality of containers successively under said continuously dispensing nozzles to dispense said beverage, maintaining the dispensing direction adjustment and thereby dispensing said beverage from each nozzle against the wall of each cup, so that said rows of cups are filled successively as said containers with said rows of cups are moved under said nozzles with only negligible loss of beverage and with said beverage consequently retaining required froth collar of foam in the cups during beverage tapping by maintaining proper temperature and pressure of the beverage during said continuous dispensing of the beverage.

4,270,585

FILLING DEVICE HAVING AN AIR RETURN PIPE FOR FILLING CONTAINERS WITH GAS-CONTAINING LIQUID

Manfred Mette, Hamburg, Fed. Rep. of Germany, assignor to Ortmann & Herbst GmbH, Hamburg, Fed. Rep. of Germany; Rogers Corporation, Rogers, Conn. and Rogers Corporation, Rogers, Conn.

Filed Feb. 26, 1979, Ser. No. 15,284
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1978, 2808345
Int. Cl.³ B65B 31/00
U.S. Cl. 141—37 6 Claims



1. A device for filling gas-pressurized liquid into containers, comprising a housing having a lower section provided with an opening adapted to communicate with containers to be filled, and an upper section provided with an air return chamber; an air return pipe reciprocably mounted in said housing between a lower position in which it partly enters a container to be filled, and an upper position in which it is upwardly retracted from the container, said air return pipe having an upper portion located in said air return chamber and axially spaced pipe openings which are permanently open to the first mentioned opening and to said air return chamber, respectively; and means for raising and lowering said air return pipe between said positions thereof, including a rack on said upper portion and a direction-reversible rotary drive shaft sealingly extending through a wall bounding said air return chamber and having an inner portion located therein, said inner portion having a pinion meshing with said rack.

4,270,586

CONTINUOUS FELLING OF TREES

Bruce Hyde, and Wayne Tyndall, both of Prince Albert, Canada, assignors to Prince Albert Pulpwood Ltd., Saskatchewan, Canada

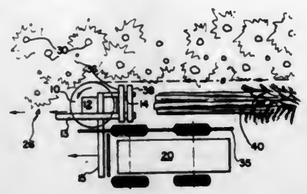
Filed Mar. 22, 1977, Ser. No. 780,043
Int. Cl.³ A01G 23/08
U.S. Cl. 144—309 AC 2 Claims

1. A method of continuously felling trees comprising the steps of:

moving a power driven tree cutting means along a path through a stand of trees by means of a mobile power unit;

severing trees with said tree cutting means in said path from their root portions in a plane substantially parallel with the ground as said tree cutting means moves continuously forwardly along said path;

applying a force with said tree cutting means on the butt ends of the cut trees to move the butt ends forwardly in the direction of travel of the mobile power unit, said force being of sufficient magnitude so as to move the butt ends of the trees forwardly at a rate which causes the bodies of the severed trees to fall rearwardly in a substantially parallel direction along the path of movement of said mobile power unit; and



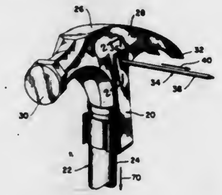
successively snagging the base ends of a plurality of successively cut trees and pulling said snagged ends forward with said cutting means until a bunch of cut trees has been formed, and then dropping each resulting bunch.

4,270,587

NAIL HOLDER FOR HAMMERS

Andrew W. Lady, 17 Sherwood Way, Landing, N.J. 07850

Filed Aug. 2, 1979, Ser. No. 63,052
Int. Cl.³ B25C 1/00
U.S. Cl. 145—30 R 8 Claims



1. A nail holder for gently holding a nail, having a head and a shank, juxtaposed with the head of a hammer for the purpose of starting the nail, especially in relatively soft materials, and selectively releasing the nail without disturbing the started purchase, said nail holder comprising:

a first cantilever member of resilient spring material extending between opposite first and second ends and having a notch including an entrance opening at the first end and extending along the first cantilever member for a relatively short distance in a longitudinal direction toward the second end for receiving the shank of the nail and locating the nail closely adjacent the first end of the first cantilever member;

a second cantilever member of resilient spring material extending generally coextensive with the first cantilever member between opposite first and second ends, the first end of the second cantilever member being juxtaposed with the first end of the first cantilever member and including a portion overlapping the notch therein, said first ends being resiliently biased toward one another by virtue of the resiliency of the spring material of the cantilever members such that the head of the nail whose shank is received in the notch will be clamped gently between the first ends, and the shank will project in a given direction generally perpendicular to the cantilever members;

the first and second cantilever members being joined at the second ends thereof, the cantilever members each having a length great enough to provide sufficient flexibility to enable relatively free movement of the first ends relative to the second ends and relative to one another in the given direction in which the nail shank projects; and

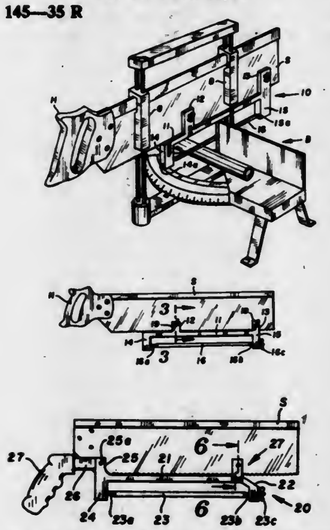
attachment means at the second ends for attaching the cantilever members to the hammer, with the second ends located below the hammer head and the cantilever members extending upwardly to place the first ends in juxtaposition with the hammer head, whereby movement of the hammer head in a direction parallel to the given direction will enable starting of the nail and movement of the hammer head downwardly in the direction parallel to the longitudinal direction of extent of the notch will enable selective release of the nail head from between the first ends without disturbing the started purchase of the nail.

4,270,588

MITER SAW ATTACHMENT

Charles H. Neft, 3432 Emerson Ave. S., Minneapolis, Minn. 55408

Filed Jun. 6, 1979, Ser. No. 45,968
Int. Cl.³ B27B 21/00
U.S. Cl. 145—35 R 4 Claims



1. An attachment device for attaching a second cutting blade to a miter saw, said attachment device including:

a. a longitudinally extending frame member;

b. a pair of spaced apart, upstanding link members arranged on the respective ends of said frame member, each of said link members including a pair of bifurcated arms to receive the blade of the miter saw therebetween;

c. means for clamping said bifurcated arms to the blade of the miter saw to positively hold the frame member directly therebelow;

d. a pair of downwardly directed leg members arranged on said frame member; and,

e. means for attaching the second cutting blade between said leg members such that the same is positioned directly below and in alignment with the blade of the miter saw.

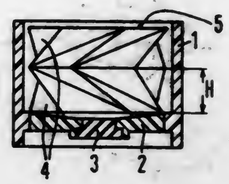
4,270,589

CONTAINER OF VARIABLE VOLUME

Joachim Heinzl, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,586
Claims priority, application Fed. Rep. of Germany, Jul. 20, 1978, 2831999
Int. Cl.³ B65D 1/40, 7/42, 83/00
U.S. Cl. 150—0.5 5 Claims

1. A closed variable volume container with stable wall components connected by fold lines accomodating uniform folding of the wall components to collapse the container to a substantially no volume enclosure which comprises a pair of opposed end walls of equilateral polygonal shape positioned in parallel planes, one of said end walls being rigid and having a dispensing outlet, an intermediate peripheral wall connecting said end walls adapted to fold to bring the pair of end walls together, said peripheral wall having a plurality of axially stacked rows each formed from a plurality of congruent triangular walls equal to twice the number of sides of the polygonal end walls, each row having opposite ends formed by base lines of half of



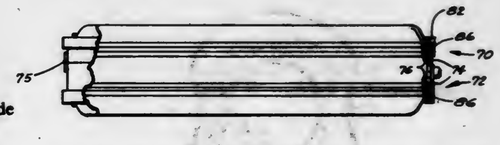
the triangular walls, fold lines connecting the two sides of each triangular wall to the sides of two adjacent triangular walls with the base lines defining spaced parallel polygonal area and each triangular wall having a corner point opposite its base line offset laterally from the base line to turn as the container is collapsed and effect folding of the triangular walls on their fold lines.

4,270,590

CASE WITH A CHANGEABLE EXTERNAL APPEARANCE

Joseph F. Marshall, 1533 1/2 Centinella, Inglewood, Calif. 90302

Filed Sep. 24, 1979, Ser. No. 78,489
Int. Cl.³ A45C 3/02, 3/08
U.S. Cl. 150—1.6 4 Claims



1. A case with a changeable external appearance comprised of mating sections hinged along one edge, each section having a rigid framework with at least one releasable fastener, and each section is provided with a plurality of side coverings formed as nested shells compressed together; each shell having an outer surface for exterior exposure, and each shell being selectively positionable for external exposure, and said shells of each section are captured by said rigid framework and releasably held by said fastener, whereby each of said outer surfaces of said shells of said plurality of side coverings is selectively positionable for external exposure to thereby conceal therebeneath the outer surfaces of the other shells of the same section.

4,270,591

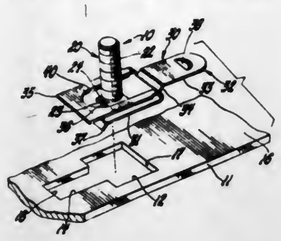
FASTENER ASSEMBLY

Donald H. Gill, St. Clair Shores; Joseph A. MacRae, Troy, and Compton J. Cottrill, Sterling Heights, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 29, 1979, Ser. No. 25,288
Int. Cl.³ F16B 39/00
U.S. Cl. 411—112 2 Claims

1. A fastener assembly for use with a support panel having an opening therethrough and a slot extending from the opening, said fastener assembly including a bolt and an attaching clip, said bolt having a threaded shank with a head on one end thereof, said head being wider than the slot; said attaching clip of resilient material including a base portion of a size to pass

through the opening and wider than the slot for abutment against one side of the support panel adjacent to the slot, an upturned end portion for positioning on the opposite side of the panel and having a tab extending therefrom for abutting relation with the edge of the support panel defining the opening at a location opposite the slot, and a return bent portion, having a slot aperture therein extending over said base portion for



abutment with the opposite side of the panel from said base portion, said base portion having an aperture therethrough aligned with said slot aperture; said bolt being positioned to have said threaded shank thereof extending through said aperture and said slot aperture whereby said head is positioned to abut against said base portion on the side thereof opposite said return bent portion.

4,270,592

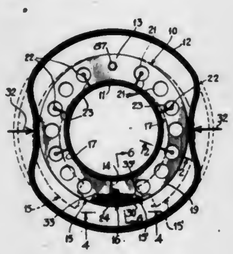
UNITARY RUN-FLAT SYSTEMS FOR INFLATABLE TIRES AND LOCK MEANS

Theodore C. Patecell, 33-52 156th St., Flushing, N.Y. 11354

Continuation of Ser. No. 774,762, Mar. 7, 1977, abandoned. This application Mar. 8, 1979, Ser. No. 18,853

Int. Cl.³ B60C *17/04*

U.S. Cl. 152—158 **24 Claims**



1. A run-flat insert for inflatable tires of the tubeless type wherein beads at the inner periphery of the tire are adapted to sealably engage side flanges of a mounting rim, said insert comprising a single joint, unitary ring member, split at one circumferential point to provide normally spaced end portions capable of relative planar and circumferential movement, said end portions having interfitting contours adapted to assure mating and alignment thereof, lock means on said end portions automatically engageable by movement of said end portions toward each other to thereby secure together said end portions to form a closed ring having an outer periphery protruding beyond said rim flanges and an inner periphery having firm and substantially continuous engagement circumferentially of said rim between said flanges in a manner to be rotatable on the rim when load-bearing, said split ring member having a continuous outer periphery of solid cross section and means providing expansive capability at the inner periphery thereof, said expansive capability being such as to provide sufficient planar flexibility to permit the forced spiral feed of said ring member into a tire, and sufficient circumferential flexibility to permit forced spreading of said end portions in passage of said ring member over a rim flange, and to finally permit radial compression to engage said lock means, said automatic lock means being the only circumferential joining of said end portions and consisting of resiliently engaged lock parts requiring resilient manual disengagement when removal of the insert from the mounting rim is desired, said lock means being so positioned and structured as to enable said resilient manual disengagement to be effected by access to only one side of said insert, and the means providing expansive capability at the inner periphery of said split ring comprising, at least in part, the employment of suitably deformable construction material.

4,270,593

METHOD OF CHANGING THE CROSS SECTIONAL FORMAT OF A STRAND AND A PLATE MOULD FOR CARRYING OUT THE METHOD

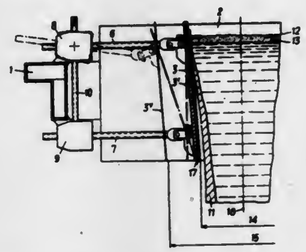
Ernst Bachner, Linz, Austria, assignor to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Jun. 7, 1979, Ser. No. 46,480

Claims priority, application Austria, Jun. 14, 1978, 4326/78

Int. Cl.³ B22D *11/04*

U.S. Cl. 164—82 **14 Claims**



1. In a method of increasing and decreasing, respectively, the cross-sectional format of a continuously cast strand formed by a mould having oppositely arranged mould side walls, which method includes displacing at least one of these mould side walls relative to the oppositely arranged mould side wall and changing the inclination of said mould side wall, said mould side wall including an upper rim region and a lower rim region, the improvement which is characterized in that displacement of said at least one mould side wall is effected during casting, at a particular casting speed such that the strand is out of contact with the mould side wall closely below the casting level, by step-wise changing of its inclination in a manner so as to displace, in a first step, said lower rim region or said upper rim region, depending on whether the cross section is being increased or decreased, respectively, in a certain direction, i.e. outwardly or inwardly, respectively; and to displace, in a second step, the respective other rim region of said at least one mould side wall into the same direction.

4,270,594

METHOD AND APPARATUS FOR PRODUCING DIRECTIONALLY SOLIDIFYING CAST PIECES

Vasily A. Chumakov, ulitsa Belozerskaya, 3-a, kv. 58, Moscow, U.S.S.R.

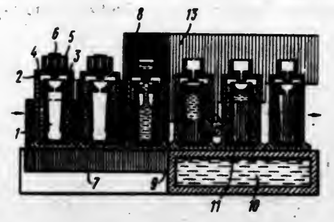
Filed Nov. 2, 1978, Ser. No. 956,842

Int. Cl.³ B22D *27/20, 25/06*

U.S. Cl. 164—127 **6 Claims**

1. A method for producing directionally solidifying cast pieces, comprising the steps of providing a bottom plate mould guide madeup of a heated section adjoining a cooled section, heating a foundry mould on said heated section to a temperature above the melting temperature of a metal, pouring the metal into the foundry mould cavity, moving the foundry mould with molten metal through a crystallization zone creating a heat front diminishing in the travelling direction of the foundry mould with metal, and subjecting the foundry mould with metal to complete cooling, wherein said foundry mould is

heated throughout its surface area inclusive of the base bottom portion thereof prior to pouring the metal into the foundry mould cavity, with said bottom portion of the foundry mould



being brought into contact with said cooled section as soon as the foundry mould is fed to the crystallization zone with said diminishing heat front.

4,270,595

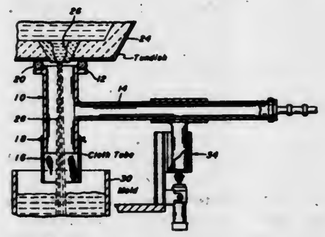
SHROUD WITH REPLACEABLE EXTENSION

Michael D. Coward, Murrells Inlet, S.C., assignor to Georgetown Steel Corporation, Georgetown, S.C.

Filed Sep. 8, 1978, Ser. No. 940,905

Int. Cl.³ B22D *11/10*

U.S. Cl. 164—415 **12 Claims**



1. In a shrouding apparatus for protecting a molten metal pouring stream between a bottom pour vessel nozzle and a hot metal receiving vessel, including a rigid first tubular member positionable between said nozzle and the top of said receiving vessel and adapted for a liquid pouring stream to pass therethrough, and means for supporting said first tubular member and holding it in an operative position beneath said nozzle and spaced above said receiving vessel, the improvement comprising:

a second tubular member removably attached to the exterior of the bottom of said first tubular member and extending downwardly therefrom into said receiving vessel, said second tubular member being a flexible, high-temperature heat-resistant, refractory cloth tube open at its lower end; and retaining means for holding said second tubular member in place on said rigid first tubular member.

4,270,596

TUBE MAT HEAT EXCHANGER

Michael F. Zins; Steven E. Krulick, and Ronald W. Leonard, all of Spring Glen, N.Y., assignors to Bio-Energy Systems, Inc., Ellenville, N.Y.

Filed Mar. 5, 1979, Ser. No. 17,728

Int. Cl.³ F28F *7/00*; F24J *3/02*

U.S. Cl. 165—1 **28 Claims**

1. In a heat exchanger wherein a plurality of parallel fluid-conducting tubes of elastomeric material are formed in an elongated mat with flexible webs connecting adjacent pairs of the tubes, pairing means for subsections of said mat comprising:

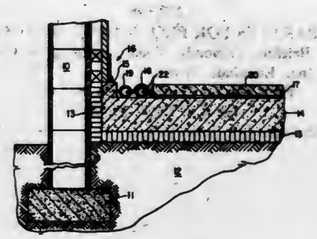
(a) a central mat section between said subsections being free of said webs between the tubes with the tubes remaining uninterrupted and integral;

(b) said subsections being arranged substantially coplanar with the free tubes of the central section;

(c) first and second hollow manifolds; and

(d) opposite end portions of all of the tubes remote from the central mat section being free of said webs and being connected to the respective hollow manifolds through respective holes in the manifold walls.

10. A method of installing a radiant heat exchanger in a building structure, said heat exchanger including a plurality of elongated mats of elastomeric material, each mat defining a



plurality of fluid-conducting tubes with flexible webs joining adjacent pairs of tubes, said tubes being connected to respective manifolds, comprising:

(a) removing said webs from between said tubes in a central section of the mat and leaving the tubes uninterrupted and integral;

(b) removing said webs from between said tubes at end portions of the mats for connection to the manifolds;

(c) locating said mats in place on the building structure so that subsections thereof to each side of the central section are substantially coplanar; and

(d) covering said mats with a structural matrix.

4,270,597

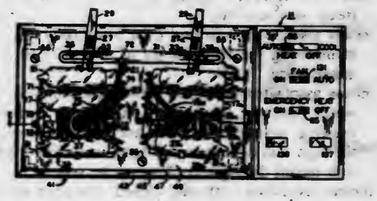
THERMOSTAT AND CIRCUIT

Dana W. Denny, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Filed Feb. 26, 1979, Ser. No. 15,053

Int. Cl.³ F25B *29/00*

U.S. Cl. 165—27 **27 Claims**



2. A thermostat adapted for operation in a heating mode and a cooling mode so as to regulate the temperature of a space in which the thermostat may be located, the thermostat comprising:

a pair of means selectively movable to respective ones of adjusted positions and adapted for sensing the temperature of the space within a preselected temperature range, respectively;

a pair of sets of at least three switching means associated with said sensing means and conjointly movable therewith for operation between a pair of switching positions during the heating and cooling mode operation of the thermostat, respectively; and

at least three means disposed in heat transfer relation with one of said sensing means and energized in response to the

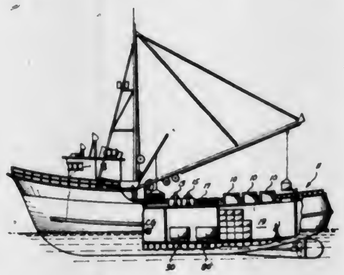
operation of said at least three switching means to one of said sets to one of the switching positions thereof for supplying anticipation heat to said one sensing means only during the heating mode operation of the thermostat, respectively, said at least three anticipation heat supplying means being respectively connected in series circuit relation with said at least three switch means and two of said at least three anticipation heat supplying means being connected in series circuit relation with each other with said two heat anticipation heat supplying means being connected in parallel circuit relation with another one of said at least three anticipation heat supplying means.

4,270,598

APPARATUS FOR PROCESSING SEAFOOD

Robert E. Britton, Edmonds, Wash., assignor to Cloudy and Britton, Inc., Edmonds, Wash.

Filed Feb. 6, 1978, Ser. No. 875,416
Int. Cl.[3] F25B *29/00*
U.S. Cl. 165—61 11 Claims



1. In a fishing vessel, an apparatus for processing of seafoods comprising:
a closed container having an opening and a fluid-tight closure to cover said opening;
means associated with said container for pressurizing said container to a predetermined level above atmospheric pressure
hot water reservoir means for storing cooking water;
means associated with said hot water reservoir means for maintaining the temperature of said cooking water at a predetermined level;
cold brine reservoir means for storing cold brine used to freeze said seafood;
means associated with said cold brine reservoir means for maintaining the temperature of said brine at a predetermined level;
means associated with said closed container and said hot water reservoir means for continuously circulating said cooking water from said hot water reservoir means through said container and back to said hot water reservoir means during a cooking cycle; and
means associated with said closed container and said cold brine reservoir means for continuously circulating said cold brine from said cold brine reservoir means through said container and back to said cold brine reservoir means during a freezing cycle.

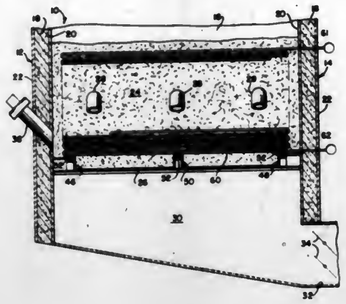
4,270,599

TUBE SUPPORT STRUCTURE FOR A FLUIDIZED BED HEAT EXCHANGER

John M. Connell, Mt. Lakes, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Sep. 29, 1978, Ser. No. 946,937
Int. Cl.[3] F28D *13/00*
U.S. Cl. 165—104.16 17 Claims

1. A fluidized bed heat exchanger comprising a housing, a grid plate supported in said housing for receiving a bed of particulate material at least a portion of which is combustible, at least one perforated support pier means formed by bending portions of said grid plate and projecting out from the surface of said grid plate, means for passing air through said grid plate, said pier means and said material to fluidize said material, and



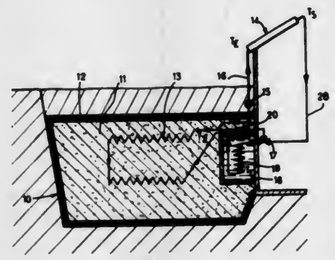
at least one heat exchange tube extending within said housing and supported by said pier means so that the air passing through said pier means also passes over said tube, said pier means including a support beam extending within said bent portions of said grid plate and having a flange projecting outwardly for receiving said tube.

4,270,600

ACCUMULATOR OF ENERGY FOR CONVERSION TO HEAT

Francis Bourdin, Tournan-En-Brie, France, assignor to Saint-Gobain Industries, Neuilly-sur-Seine, France

Filed Jun. 15, 1979, Ser. No. 49,204
Claims priority, application France, Jun. 16, 1978, 78 18121
Int. Cl.[3] F28D *21/00*
U.S. Cl. 165—104.31 3 Claims



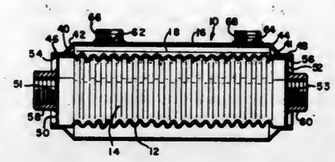
1. A storage for storing calorific energy, as may derive from a solar pickup including an insulating casing, a filling agent comprising at least partially a gel of an acrylic acid derivative base, heat-carrying fluid circuit means extending within said casing in thermal contact with said filling agent, said heat-carrying fluid circuit means comprising a primary circuit and a secondary circuit of conduits, one of which is for a heat-carrying fluid and the other of which is for a fluid to be heated, an auxiliary water storage, said heat-carrying fluid circuit means also in contact with water in said water storage, and valve means for circulating said heat-carrying fluid in said storage and/or auxiliary storage as a function of the respective temperatures of said heat-carrying fluid and said storages.

4,270,601

HEATER FOR PRE-HEATING FUEL WITH A HEATED LIQUID

Arthur Lancaster, Lafayette Hill, Pa., assignor to The Budd Company, Troy, Mich.

Filed Jan. 7, 1980, Ser. No. 110,329
Int. Cl.[3] F28D *7/10*; F02M *31/00*
U.S. Cl. 165—154 3 Claims



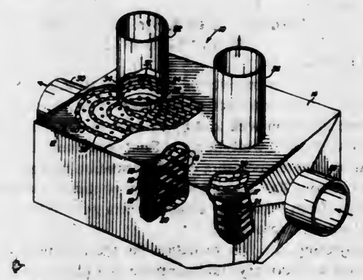
1. A pre-heater for heating fuel with a heated liquid comprising:
a. a corrugated tubing forming a first chamber to receive said heated liquid therethrough;
b. an outer cylinder forming a jacket around said corrugated tubing and connected towards the ends of said corrugated tubing to form a second chamber to receive said fuel therethrough:
c. inlet and outlet means connected to said corrugated tubing to pass said heated liquid therethrough.
d. second inlet and outlet means connected to said second chamber to pass said fuel therethrough:
e. said corrugated tubing and said cylindrical member each include flat circular overlapping extensions at the ends thereof secured together and extending to the outside of the pre-heater and away from the fuel in said chamber and the heating liquid in said corrugated tubing; and
f. enclosures having flat circular portions extending in the same directions as said overlapping extensions and secured within the extensions at the ends of said corrugated tubing, said enclosures having centrally disposed openings leading to said inlet and outlet means for passing said heated liquid therethrough;
whereby heat from said heating liquid is transmitted through said corrugated tubing to heat said fuel in said chamber.

4,270,602

HEAT EXCHANGER

Berry W. Foster, Redondo Beach, Fla., assignor to The Garrett Corporation, Los Angeles, Calif.

Filed Aug. 30, 1978, Ser. No. 938,135
Int. Cl.[3] F28D *9/00*
U.S. Cl. 165—167 23 Claims



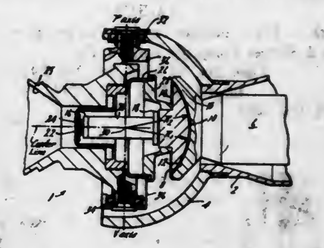
1. A heat exchanger comprising a plurality of plates each including spaced rows of semi-tubular channels with periodic recessed constrictions, said plates being connected in inverted pairs with their semi-tubular channels aligned to form tubular channels defining a first flow path for a first fluid; and a plurality of depressed dimples on each of said plates, said connected pairs of plates being arranged in stacked relation with said dimples on each plate supportively received within aligned ones of the recessed constrictions of an adjacent plate to space the connected pairs of plates from each other to form relatively open flow regions between said connected pairs of plates defining a second flow path for a second fluid.

4,270,603

NON-CONTACTING THERMAL ENERGY TRANSFER ASSEMBLY

Elias Reisman, Orange; David S. Goodsell, and Fred S. Manino, both of Costa Mesa, all of Calif., assignors to Ford Aerospace & Communications Corp., Detroit, Mich.

Filed Dec. 6, 1978, Ser. No. 966,972
Int. Cl.[3] F28F *7/00*; F25B *21/02*
U.S. Cl. 165—185 16 Claims



1. A heat transfer device including:
means for producing heat energy;
means for removing heat from said producing means and transferring said heat to a first heat conducting path element;
a heat sink mounted to receive said heat from said first heat conducting path element;
means for mounting said heat producing means, said removing means and said first heat conducting path element for movement and variable orientation with respect to said heat sink; and
means for providing a continuous non-contacting low thermal resistivity path between said first heat conducting path element and said heat sink.

4,270,604

HEAT SINK

Masakazu Nakamura, Amagasaki, Japan, assignor to Sumitomo Precision Products Co. Ltd., Amagasaki, Japan

Filed Nov. 14, 1979, Ser. No. 94,096
Claims priority, application Japan, Nov. 17, 1978, 53/139302[U]
Int. Cl.[3] H01L *23/36*
U.S. Cl. 165—185 5 Claims



1. An improved heat sink comprising:
a plurality of corrugated fins having opposed edges;
a plurality of separator sheets having edges at opposite sides thereof, the edges of said sheets being spaced further apart than said edges of said fins;
said fins and said sheets being stacked in alternating relation-

ship with said edges of all said fins and all of said sheets on opposite sides of the stack and with the edges of each of the fins disposed inwardly of the stack relative to the edges of all of the sheets;

a plurality of side bars, each having opposed outer and inner edges, there being a respective side bar for each said edge of each fin, the inner edge of each bar being disposed in contacting relationship to the corresponding fin edge,

the outer edges of said bars and the edges of said sheets forming a flat, smooth surface on at least one of said opposite sides of said stack, said surface having a heat source mounted thereon; and

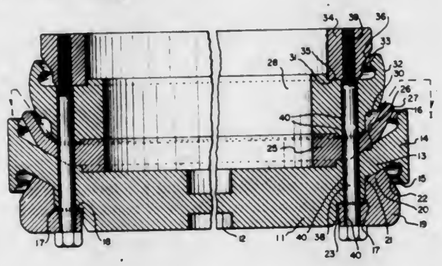
brazing means for interconnecting said fins, sheets and bars together for efficient heat conductivity.

4,270,605

BLADDER HOLDER ASSEMBLY FOR TIRE MAKING MACHINE

Kenneth C. Drew, Indiana County, Pa., assignor to McCreary Tire & Rubber Company, Indiana, Pa.

Filed Jan. 23, 1979, Ser. No. 5,923
Int. Cl.³ B29H 17/16, 17/22
U.S. Cl. 156—401 7 Claims



1. In an inner and outer bladder holder assembly for a tire making machine comprising an inner bladder bead ring and an outer bladder bead ring, a bladder spacing ring position between the inner and outer bladder bead rings, an inner bladder clamp ring positioned on the other side of the inner bladder bead ring, and an outer bladder clamp ring positioned on the other side of the outer bladder bead ring, the improvement comprising a plurality of detachable fasteners fastening all the said rings together into a unitary assembly, each fastener comprising a single fastener extending through all said rings and accessible for insertion and withdrawal from the outer bladder clamp ring, a second plurality of detachable fasteners fastening some, but not all of the rings together through holes therein into sub-assemblies, and dowel means positioning the outer bladder bead ring, the bladder spacing ring, the inner bladder bead ring and the inner bladder clamping ring only with respect to each other, those holes being counterbored so that the second plurality of detachable fasteners therein clear overlying rings, whereby the second plurality of detachable fasteners may be tightened to permit limited movement between adjoining rings prior to tightening of the fasteners extending through all rings.

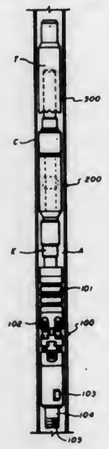
4,270,606

APPARATUS FOR SELECTIVE DISENGAGEMENT OF A FLUID TRANSMISSION CONDUIT AND FOR CONTROL OF FLUID TRANSMISSION FROM A WELL ZONE

David M. McStravick, Houston, and William M. Roberts, Deer Park, both of Tex., assignors to Baker International Corporation, Orange, Calif.

Filed Mar. 14, 1979, Ser. No. 20,306
Int. Cl.³ E21B 33/129, 34/12
U.S. Cl. 166—181 50 Claims

39. In an apparatus for the selective disengagement of a fluid transmission conduit insertable through a second conduit for communication to a zone within a well bore, and for control of fluid transmission from said zone upon disengagement of said fluid transmission conduit, including sealing means having a flow passageway communicating with the interior of said fluid transmission conduit and for isolating an annular area between said fluid transmission conduit and said second conduit and above said zone, and valve means having a flow passageway communicating with said fluid transmission conduit and with the flow passageway of said sealing means, said valve means being responsive to isolation of said fluid transmission conduit



to manipulate said valve means between open and closed positions to selectively isolate fluid flow through the passageway of said sealing means to said fluid transmission conduit, the improvement comprising: conduit disengaging means above said valve means and having a flow passageway communicating with and carriable by said fluid transmission conduit, said conduit disengaging means being responsive to rotation of said fluid transmission conduit after manipulation of said valve means to closed position to disengage said fluid transmission conduit.

4,270,607

EMULSION OIL RECOVERY PROCESS USABLE IN HIGH TEMPERATURE, HIGH SALINITY FORMATIONS

Ricardo L. Cardenas; Bobby G. Harnsberger, and Jim Maddox, Jr., all of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed May 1, 1978, Ser. No. 901,386
Int. Cl.³ E21B 43/22
U.S. Cl. 166—273 19 Claims

1. A method for recovering petroleum from a subterranean, permeable, petroleum-containing formation penetrated by at least one injection well and by at least one spaced-apart production well, both wells being in fluid communication with the formation, the temperature of the formation being from about 70° F. to about 300° F., said formation containing water having a salinity from 30,000 to 220,000 parts per million total dissolved solids, comprising:

(1) injecting into the formation via the injection well a viscous oil recovery fluid comprising a phase-stable surfactant-containing emulsion comprising:

(a) a continous, saline aqueous phase containing

(1) from 0.5 to 5.0 percent by weight of a water soluble and/or dispersible alkylpolyalkoxyalkylene sulfonate or alkylarlypolyalkoxyalkylene sulfonate surfactant having the following formula:

$$RO(R'O)_xR''SO_3^-M^+$$

wherein R is an alkyl or alkylaryl group, linear or branched having from 8 to 24 carbon atoms in the alkyl chain, R′ is ethylene or a mixture of ethylene and propylene having relatively more ethylene than propylene, x is a number from 1 to 20, R″ is ethylene, propylene, hydroxypropylene or butylene, and M^+ is a monovalent cation;

(2) a phase stabilizing amount in the range of from 0.01 to 1.0 percent by weight of an organic sulfonate which is water soluble and/or dispersible, the concentration of organic sulfonate being from 1 to 30 percent of the concentration of the alkylpolyalkoxyalkylene sulfonate or alkylarylpolyalkoxyalkylene sulfonate, said organic sulfonate being selected from the group consisting of water soluble and/or dispersible sodium, potassium or ammonium salts of petroleum sulfonate whose mean equivalent weight is from 325 to 485, and water soluble alkyl or alkylaryl sulfonate salts having the following formula:

$$RSO_3M$$

wherein R and M have the same meaning as above; and

(3) said aqueous phase having a salinity from about 45 to 95 percent of the formation water salinity; and

(b) a dispersed hydrocarbon phase;

(2) thereafter injecting brine into the formation after the emulsion, the salinity of the brine being initially from 45 to 100 percent of the formation water salinity and decreasing the salinity of the brine to a value less than 1000 parts per million total dissolved solids over the time of injecting from 0.5 to 1.0 pore volume of brine, said emulsion and brine displacing petroleum through the formation toward the production well; and

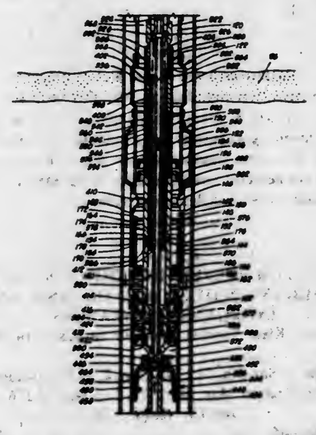
(3) recovering petroleum displaced by the emulsion and brine from the formation via the production well.

4,270,608

METHOD AND APPARATUS FOR GRAVEL PACKING MULTIPLE ZONES

James D. Hendrickson, Carrollton; Pat M. White, Lewisville; Odie R. S. Davis, Humble; Nolan M. Workman, Lewisville, all of Tex.; Eugene E. Baker, and David D. Szarka, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Dec. 27, 1979, Ser. No. 107,751
Int. Cl.³ E21B 43/04, 43/10
U.S. Cl. 166—278 44 Claims



1. Apparatus for circulating fluid to at least one formation in a well bore comprising:

seal means to isolate said at least one formation from said well bore above said at least one formation;

pipe means disposed in said well bore;

crossover means depending from said pipe means and adapted to direct fluid in one direction between said pipe means and fluid passage means depending from said crossover means, and further adapted to direct fluid in the opposite direction between said fluid passage means and the well bore adjacent said crossover means, said adjacent bore being separated from the well bore below said crossover by packer means, said fluid passage means adapted to carry fluid between said crossover means and said at least one formation in isolation from said well bore; and

circulation means in communication with said fluid passage means and adapted to circulate fluid from said fluid passage means in one direction to said at least one formation and back to said fluid passage means, and to receive fluid in the reverse direction from said fluid passage means and return it thereto without moving fluid in contact with said at least one formation.

36. A method of gravel-packing at least one zone pierced by a well bore, comprising:

circulating a gravel slurry from the surface to a level above said at least one zone;

circulating said gravel slurry from said level to said at least one zone;

depositing the gravel from said slurry across said at least one zone in the form of a pack and returning slurry-free fluid to said level above said at least one zone;

returning said slurry-free fluid to the surface;

reverse circulating a clean fluid from the surface to said level above at least said one zone, thence to a location proximate said at least one zone and back to said level above at least one zone, thence to the surface;

preventing fluid movement in the well bore below said level above said at least one zone except at said at least one zone during said circulating, said depositing and said returning; and

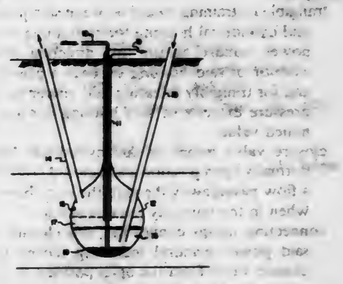
preventing fluid movement in the well bore below said level above said at least one zone during said reverse circulating.

4,270,609

TAR SAND EXTRACTION PROCESS

G. Lew Choules, 1095 S. McClelland St., Salt Lake City, Utah 84105

Filed Sep. 12, 1979, Ser. No. 74,868
Int. Cl.² E21B 43/24, 43/27; C10G 1/00
U.S. Cl. 166—303 18 Claims



1. A process for separating bitumen from bitumen containing formations comprising:

(a) contacting the bitumen containing formation with an aqueous solution containing an effective amount of a floating agent, an effective amount of a transfer agent and an effective amount of a strong monovalent base at an elevated temperature causing the bitumen to separate from inorganic materials contained in said formation and

(b) separating the bitumen from the solution.

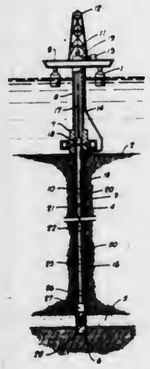
17. A method for the in situ separation of bitumen from a tar sand deposit which comprises:
(a) injecting concurrently into the tar sand deposit steam and a heated aqueous solution containing effective amounts of (1) a floating agent, (2) a transfer agent and (3) a strong monovalent base
(b) causing said steam and aqueous solution to liquify a portion of the tar sand deposit forming an in situ chamber containing the aqueous solution in which bitumen separates from the tar sand in the aqueous solution and
(c) separating bitumen from the aqueous solution.

4,270,610

ANNULUS PRESSURE OPERATED CLOSURE VALVE WITH IMPROVED POWER MANDREL

Burchus Q. Barrington, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Jan. 15, 1980, Ser. No. 112,210
Int. Cl.³ E21B *34/08*
U.S. Cl. 166—317 54 Claims



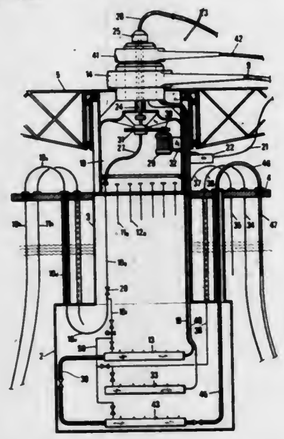
1. An apparatus for use in a well, comprising:
a cylindrical housing having an open bore therethrough, and a power port and a circulating port through the walls thereof;
a power mandrel in said open bore having an annular piston for moving said power mandrel in a first direction responsive to fluid pressure exterior of said cylindrical housing communicated to said annular piston through said power port;
frangible restraining means between said power mandrel and said cylindrical housing for restraining movement of said power mandrel in the first direction until the pressure exterior of said housing exceeds a predetermined value, and for frangibly releasing said power mandrel when said pressure exterior of said housing exceeds said predetermined value;
closure valve means in said cylindrical housing having a normally open position and a closed position for providing a flow passageway through the open bore in said housing when in the normally open position;
connecting means connecting said closure valve means to said power mandrel including means for moving said closure valve from the open position to a closed position responsive to movement of said power mandrel in the first direction;
first releasing means in said connecting means for selectively releasing said connecting means from said power mandrel after said power mandrel has moved a predetermined distance in the first direction;
circulation valve means in said housing having a normally closed position closing said circulating port and an open position opening said circulating port, said circulation valve means being adapted for movement from the closed position to the open position in response to movement of said power mandrel in the first direction; and
interior pressure balance means for balancing an interior pressure of said open bore, and a longitudinal force caused thereby, across said frangible restraining means to prevent longitudinal loading of said frangible restraining means due to said interior pressure.

4,270,611

MOORING STATION AND TRANSFER TERMINAL FOR OFFSHORE HYDROCARBON PRODUCTION

Marcel Arnaudeau, and Pietrus Verschure, both of Paris, France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jan. 2, 1979, Ser. No. 618
Claims priority, application France, Dec. 30, 1977, 77 39849
Int. Cl.³ E21B *7/12*
U.S. Cl. 166—344 12 Claims



12. A mooring station and transfer terminal for the production of hydrocarbons from a plurality of offshore underwater wells, said mooring station and transfer terminal comprising a watertight caisson, a rotatable arm above said watertight caisson, said arm supporting at least one loading pipe, said watertight caisson housing at least one production manifold means connecting said plurality of underwater wells to said at least one loading pipe, and at least one circulation and safety manifold means connecting said plurality of underwater wells to a circulation and safety pipe means supported at the water surface by said rotatable arm above said watertight caisson, said at least one production manifold means and said at least one circulation and safety manifold means each being equipped with valve means, said at least one production manifold means, and said at least one circulation and safety manifold means each being connected to said plurality of underwater offshore wells through individual flexible pipelines.

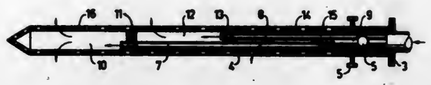
4,270,612

METHOD FOR PREVENTING THE SPONTANEOUS COMBUSTION OF STORED ORGANIC AND INORGANIC SUBSTANCES

Carl Larsson, Kisa, Sweden, assignor to Kisa Tra AB, Kisa, Sweden

Continuation of Ser. No. 719,928, Sep. 2, 1976, abandoned. This application Mar. 26, 1979, Ser. No. 24,176
Int. Cl.³ A62C *2/00*
U.S. Cl. 169—45 16 Claims

1. A method for controlling conditions within the interior of a stack of combustible solid materials so as to prevent spontaneous combustion of said materials, said method comprising the steps of:
(1) sensing the temperature of selected areas within said stack; and
(2) injecting a control medium into those of said selected areas of said stock in which temperature falls without a preselected temperature range so as to modify the environment within said selected areas, said control medium being injection into selected areas in said stack via at least



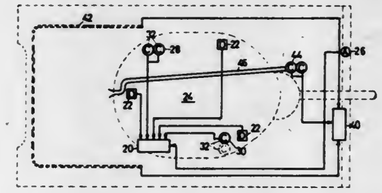
one delivery tube means inserted into said stack, said tube means (a) being divided into a number of axially separated chambers, and (b) having a number of exit orifices over at least part of its length which communicate with respective of said chambers and including pipe means connecting each of said chambers to a source of said control medium, and a valve means associated with each chamber of said delivery tube means, and including the step of controlling said valve means whereby to feed said control medium into said selected areas in said stack.

4,270,613

FIRE AND EXPLOSION DETECTION AND SUPPRESSION SYSTEM

Dov Spector, 36 Har Dafna St., Savion, and Yechiel Spector, 5 Avner St., Zahala - Tel-Aviv, both of Israel

Filed May 3, 1978, Ser. No. 902,608
Claims priority, application Israel, Feb. 27, 1978, 54138
Int. Cl.³ A62C *37/18*
U.S. Cl. 169—61 11 Claims



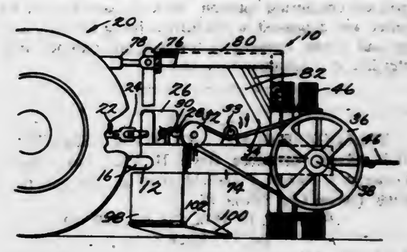
1. A fire and explosion suppression system, comprising:
a first detector for sensing ultraviolet radiation in a volume to be protected excluding radiation in the visible spectrum and providing an output indication I in response to receipt of such radiation;
a second detector for sensing infrared radiation in said volume to be protected excluding radiation in the visible spectrum and providing an output indication II in response to receipt of such radiation;
logic means for ANDing said output indications I and II and providing an output indication III of simultaneous receipt of radiation by said first and second detectors;
extinguishing agent distribution means operative for discharging an extinguishing agent into said volume to be protected in response to an actuation indication; and
actuation means operative in response to said output indication III for providing said actuation indication to said distribution means;
said system being operative for suppressing an explosion within 100 milliseconds of the existence of a high energy ignition and within 200 milliseconds of the existence of a low energy ignition, and
wherein said actuation means also receives an indication of the pressurized state of various elements of the extinguishing agent distribution means and a confirmation of the discharge thereof, and wherein said actuation means is operative in response to said indication and confirmation to actuate additional elements of said extinguishing agent distribution means when certain ones thereof are not properly pressurized or fail to discharge.

4,270,614

STONE RAKE AND GROUND CONDITIONING MACHINE

James W. Judy, Box 236, Middletown, Va. 22645

Filed Dec. 16, 1977, Ser. No. 861,367
Int. Cl.³ A01B *43/00*
U.S. Cl. 171—63 31 Claims



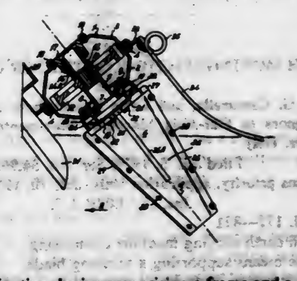
1. A combination stone rake and ground conditioning machine comprising:
(a) a frame, said frame having at least two out-wardly extending arms and means adapted for mounting said frame on a tracter hitch which provides means for vertical adjustment of said frame in relation to the ground;
(b) a rotary member rotatably mounted and supported by said at least two outwardly extending arms disposed on said frame;
(c) three or more plates circumferentially spaced and extending along the axial length of said rotary member;
(d) a plurality of resilient tines mounted on said three or more plates disposed on said rotary member to provide in operation a penetration of the ground of about ½ of an inch to about 3 inches; and
(e) a slip clutch drive means for rotating said rotary member which in combination with said three of more plates, said rotary member and said resilient tines provide a resilient raking and ground conditioning action which removes small stones while conditioning the ground for planting.

4,270,615

SOIL CULTIVATING DEVICES

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Filed Nov. 24, 1978, Ser. No. 963,175
Claims priority, application Netherlands, Nov. 30, 1977, 7713196; Nov. 30, 1977, 7713197
Int. Cl.³ A01B *33/06*
U.S. Cl. 172—49 13 Claims



1. A soil cultivating device comprising a frame and a plural-

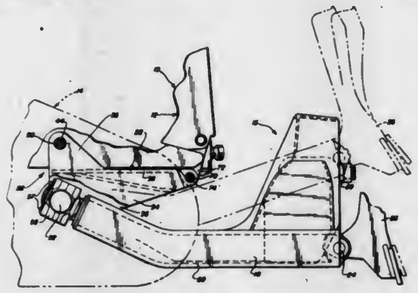
ity of rotatable plough bodies journalled for rotation on said frame, said bodies being arranged in a row that extends transverse to the direction of travel and driving means connected to rotate neighboring bodies in relative opposite directions, each body being mounted for rotation about an axis that extends forwardly and upwardly at an inclined angle with respect to the normal direction of travel, said body comprising an elongated downwardly tapering support member having a longitudinal axis which co-extends with the rotary axis thereof, said support member having a generally flat central part with angled side edge parts, each side part extending straight and at an angle substantially less than 90° with respect to the plane of said central part, which extends beyond said support member, said side parts mounting soil cutting blades that extend substantially along the entire length of the side parts, whereby lumps of soil are cut during rotation, raised by said plough bodies, inverted and deposited in the furrow being formed, said side parts and blades converging towards one another and said center line in a downward direction.

4,270,616

BULLDOZER BLADE MOUNTING ASSEMBLY

Carl P. Adams, Metamora; Royce D. Allen, East Peoria, and Frederick L. Kokaly, Plainfield, all of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Oct. 10, 1978, Ser. No. 949,589
Int. Cl.³ E02F 3/76
U.S. Cl. 172—811 9 Claims



1. A mounting assembly for mounting a bulldozer blade (26) to a tractor frame (12), a C-frame (18) connected to said bulldozer blade and having arms (20,20) extending rearward therefrom, a pair of mounting brackets (30,30, 130,130), means (32,132) below said tractor frame (12) for interconnecting said brackets (30,30, 130,130), an upper portion (35,37, 135,137) of each bracket (30,130) being pinned (50,150) to said tractor frame, a sidewardly extending trunnion (52,152) mounted on a lower portion of each bracket, means (55,155) for pivotally connecting the arms (20,20) of said C-frame (18) to said trunnions (52,152), and means (74,186) lying in a plane transverse to a longitudinal axis of the tractor frame for supporting a remote portion (60,162) of each bracket on said tractor frame to permit fore and aft movement of said bracket relative to said tractor frame without applying shear forces therebetween.

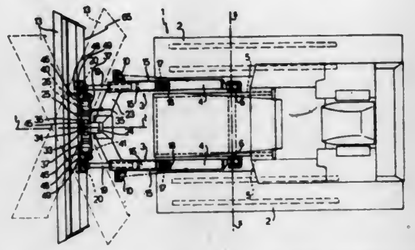
4,270,617

EARTH MOVING MACHINE OF THE SCRAPING BLADE TYPE

Bruno G. Castarella, and Carlo Cecchi, both of Turin, Italy, assignors to Fiat-Allis Macchine Movimento Terra S.p.A., Lecce, Italy

Filed Jul. 5, 1979, Ser. No. 54,965
Claims priority, application Italy, Jul. 10, 1978, 68322 A/78
Int. Cl.³ E02F 3/76
U.S. Cl. 172—821 9 Claims

1. An earth moving machine comprising
frame means supporting a scraping blade,
said scraping blade being coupled to said frame means by mounting means for movement about a first axis normal to the longitudinal axis of the machine,
second support means coupling the scraping blade to the frame means for movement about a second axis extending vertically and normal to the first axis,
hydraulic means coupled to the frame means and the scraping blade to effect selective rotation of the scraping blade about said first and second axis,
hydraulic actuator means further coupling the scraper blade to the frame means to transmit at least part of the forces applied to the scraping blade during operation to the frame means and to permit rotation of the scraping blade about a third axis normal to said first and second axis,



said hydraulic actuator including a chamber member and a piston member movable in an axial horizontal direction therein in response to the application of fluid pressure applied thereto,
said scraping blade being rigidly coupled to said chamber member,
said frame means including support means projecting vertically upward from said frame means and disposed substantially in the vertical center plane of the frame means, and said piston is further coupled to said support means by hinge means.

4,270,618

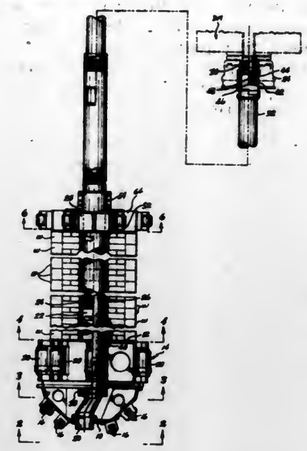
EARTH BORING APPARATUS

Lloyd J. Owens, Kirkland, Wash., assignor to The Robbins Company, Seattle, Wash.

Filed Apr. 20, 1979, Ser. No. 31,856
Int. Cl.³ E21B 10/26, 17/10
U.S. Cl. 175—57 20 Claims

17. A method of forming a large diameter bore hole in the ground with a stabilizer frame connected to the lower end of a powered drill string, comprising the steps of:
connecting a blind bore forming cutterhead to the stabilizer frame;
rotating and advancing the stabilizer frame and attached cutterhead to form a blind bore of a desired length;
retracting the stabilizer frame and attached cutterhead;
forming an enlarged cavity at the end of the blind bore;
removing the cutterhead from the stabilizer frame and replacing the cutterhead with an adjustable diameter reamer;
advancing the stabilizer frame and attached reamer to the end of the bore hole;

expanding the reamer within the enlarged cavity at the end of the bore hole; and



simultaneously rotating and retracting the stabilizer frame and attached reamer to form a larger diameter hole.

4,270,619

DOWNHOLE STABILIZING TOOL WITH ACTUATOR ASSEMBLY AND METHOD FOR USING SAME

Jimmy D. Base, Rt. 1, Box 40M, Stillwater, Okla. 74074

Filed Oct. 3, 1979, Ser. No. 81,547
Int. Cl.³ E21B 7/08
U.S. Cl. 175—61 49 Claims



1. A downhole stabilizing tool for directional drilling and adapted to be used with a fluid conductive drill string in a borehole, comprising:
a tool housing adapted to be connected with the fluid conductive drill string and in fluid communication therewith, said tool housing formed having a tool housing bore therein;
a sleeve assembly mounted for movement within said tool housing bore for movement between selected positions, said sleeve assembly formed having camming means therewith;
stabilization pad means mounted with said tool housing for selective movement laterally of said tool housing for engagement with the borehole, said stabilization pad means having cam engaging means therewith for engaging said camming means of said sleeve assembly for moving said stabilization pad means radially in response to movement of said sleeve assembly between said selected positions;
pawl means mounted with said tool housing bore and adapted to cooperate with said sleeve assembly for limiting movement of said sleeve assembly to said selected positions; and,
pawl engaging means with said sleeve assembly for engaging said pawl means for limiting movement of said sleeve assembly to said selected positions.

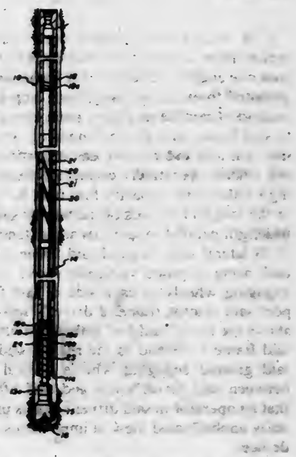
43. A method for actuating plural stabilization pads of a downhole stabilizing tool for moving the stabilization pads between preselected lateral positions for directional drilling, the downhole stabilizing tool adapted to be used with a fluid conductive drill string in a borehole, comprising the steps of:
selecting a predetermined distance between an upper end and an actuator detent of a sleeve assembly of the stabilizing tool;
mounting the stabilizing tool with the fluid conductive drill string;
preprogramming an actuator assembly to correspond with the predetermined distance of said selecting;
running the actuator assembly through the fluid conductive string adjacent to the stabilizing tool;
selectively engaging the stabilizing tool with the actuator assembly as a result of said preprogramming; and
expanding by fluid pressure action the stabilization pads of the stabilizing tool outwardly into the borehole after said selectively engaging.

4,270,620

CONSTANT BOTTOM CONTACT TOOL

James D. Lawrence, Course, Tex., assignor to Dailey Oil Tools, Inc., Houston, Tex.

Filed Jan. 12, 1979, Ser. No. 3,045
Int. Cl.³ E21B 17/07
U.S. Cl. 175—322 8 Claims



1. An arrangement for urging a drill bit on a drill string into substantially constant contact with a well bore bottom as it is rotated in drilling the well bore comprising:
(a) a mandrel;
(b) a drill bit on one end thereof;
(c) cooperating means supporting said mandrel telescopically within the lower end of the drill string whereby rotation of the drill string may be imparted to said mandrel and drill bit thereon while accommodating relative rota-

tion and longitudinal movement between said mandrel and the drill string, said cooperating means including:

left hand helical groove means extending longitudinally on said mandrel;

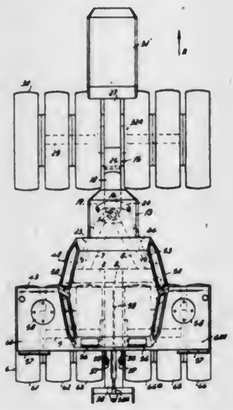
roller means supported on the drill string and engaged in said helical groove means; and spring means abutting the drill string at one end and said mandrel at the other end to tend to extend said mandrel longitudinally out of the drill string and into engagement with the well bore bottom.

4,270,621

ARTICULATED TRACTOR POWERED BY TANDEM ENGINES

Cornelis van der Lely, 7, Brunchenrain, Zug, Switzerland

Division of Ser. No. 703,652, Jul. 8, 1976, Pat. No. 4,181,315.
This application Jan. 17, 1979, Ser. No. 4,188
Claims priority, application Netherlands, Jul. 8, 1975, 7508091
Int. Cl.³ B60K *15/08, 5/08*
U.S. Cl. 180—54 C 18 Claims



1. A tractor for extended agricultural operations at sites remote from sources for refueling which comprises a frame, at least one engine carried by said frame, ground engaging wheels mounted to extend outwardly on opposite sides of said frame to support said frame from a front axle and rear axle connected to said frame, said ground engaging wheels being mounted on said rear axle in a row, at least a portion of said ground engaging wheels operatively connected to said engine, at least one high volumetric capacity fuel tank having a width transverse to the longitudinal axis of the tractor substantially greater than its length parallel to said axis and extending outwardly on each of its lateral sides beyond said frame, at least part of said fuel tank being disposed vertically above said row of said ground engaging wheels on each side of said frame provided to support said tractor frame, a driver's seat arranged immediately above the top of said fuel tank, and a lifting device mounted on said frame to extend to the rear of said tractor from between said ground engaging wheels of said row, the relationship between said driver's seat and said lifting device being such that an operator in said driver's seat is provided with a substantially unobstructed view of implements mounted on said lifting device.

4,270,622

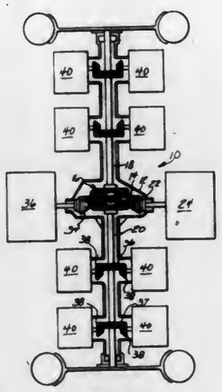
DRIVE AXLE FOR ELECTRIC VEHICLE

James M. Travis, 3704 Oakshire, Pontiac, Mich. 48054

Filed Jun. 27, 1979, Ser. No. 52,626
Int. Cl.³ B60K *1/00*
U.S. Cl. 180—65 C 4 Claims

1. In an electric powered vehicle of the type having a battery power source, a first electric motor, a drive axle rotatably driven by the motor, a housing, a ring gear, a first pinion gear for rotating the ring gear, and a differential carried by the ring gear, the differential driving a pair of axle shafts for rotatably driving a pair of drive wheels rotatably supported by the housing, the improvement comprising:

a second pinion gear rotatably engaging the ring gear, a second electric motor/generator rotatably connected to the second pinion;



a bevel gear affixed to one of the axle shafts for rotation therewith;

a pair of opposed bevel gears rotatably engaging the bevel gear; and

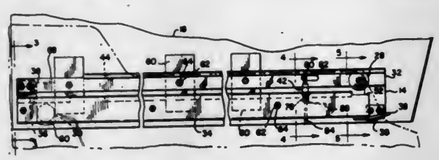
a third and fourth electric motor generator supported by the housing and rotatably connected to the opposed bevel gears for rotation therewith.

4,270,623

TRACTOR HOOD

Michael C. Brandl, Westmont; David T. Katsoka, Berwyn; Jagdish C. Khanna, Downers Grove, and Frank J. Zwettler, Jr., Bollingbrook, all of Ill., assignors to International Harvester Company, Chicago, Ill.

Filed Jan. 22, 1979, Ser. No. 5,050
Int. Cl.³ B62D *25/10*
U.S. Cl. 180—69 R 4 Claims



1. In a tractor having a hood and frame with a latch to establish a closed position of said hood, the improvement, including in combination:

at least two frame tracks secured to opposite sides of said frame;

at least two hood tracks secured to opposite sides of said hood;

at least two hood guides secured to opposite sides of said hood, said hood guides engaged with and movable on said frame tracks;

at least two frame guides secured to opposite sides of said frame and located at opposite ends of said hood from said hood guides when said hood is in said closed position, said frame guides engaged with and movable on said hood tracks; and

a first set of at least two ramps secured to said hood and a second set of at least two ramps secured to said frame, said second set slideably engaging said first set when said hood is in said closed position to automatically rigidly connect said hood to said frame by increasing the engaging force transmitted between said guides and said tracks, with one ramp from each set of said ramps in close horizontal proximity to each of said guides when said hood is in said closed position.

3. In a ground supported tractor having a hood, a frame, and a latch to establish a close position of said hood, said hood being sequencially movable by the tractor operator from said closed position through a primary open position and a secondary open position to a removed position after said operator disengages said latch, the improvement including, in combination:

at least one pair of frame tracks secured to opposite sides of said frame, each of said frame tracks having fore and aft ends;

at least one pair of hood tracks secured to opposite sides of said hood, each of said hood tracks having fore and aft ends;

at least one pair of frame guides secured to opposite sides of said frame, each of said frame guides being in close proximity to said fore end of one of said frame tracks and being engaged with and movable on said hood tracks;

at least one pair of hood guides secured to opposite sides of said hood, each of said hood guides being in close proximity to said aft end of one of said hood tracks and being engaged with and movable on said frame tracks;

a pair of cutouts in each of said hood and frame tracks, said cutouts sized to allow passage of the guide engaging said one track;

one of a stop and a detent in one of said hood tracks and said frame tracks, the other of said frame tracks and said hood tracks includes the remainder of said stop and said detent, said stop located forward of said frame guide when said stop is on said frame track and located rearward of said hood guide when said stop is on said hood track, and said detent located rearward of said frame guide when said detent is on said frame track and located forward of said hood guide when said detent is on said hood track;

one of said frame guides and said hood guides establishes one of said primary open and said secondary open position, the remainder of said primary open position and said secondary open position being established by the other of said frame guides and said hood guides, and said removed position being established by said ground supporting said hood;

said primary open position being established by said hood and track guides supporting said hood and said one guide engaging said detent;

said secondary open position being established by said other guide contacting said stop, said engaging guide aligning with said pair of cutouts in one of said hood guides or frame guides and said operator pivoting said hood about said engaging guide until said hood contacts said ground;

said removed position being established by said operator pivoting said hood about said ground engagement, passing said engaging guide through said pair of cutouts in said other of said hood guides or frame guides until said hood is fully supported by said ground; and

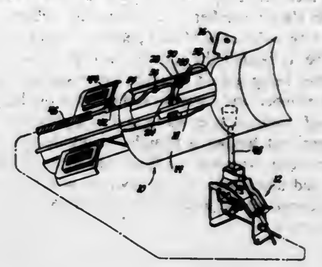
said frame guides, said hood guides, said frame tracks, said hood tracks and said ground thereby cooperate to support the majority of the weight of said hood in each and during the movement between each of said positions, whereby said operator primarily supplies a horizontal motor force for said hood movement and only a minor portion of said hood weight during said hood movement.

4,270,624

STEERING COLUMN LOCK INHIBITOR FOR A FLOOR MOUNTED TRANSMISSION CONTROL

Michael E. Jessup, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 11, 1979, Ser. No. 56,776
Int. Cl.³ B60R *25/02*
U.S. Cl. 180—287 3 Claims



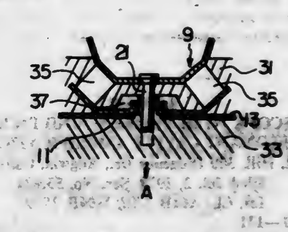
1. A steering column lock inhibitor for use in a vehicle having a floor mounted transmission shift mechanism movable to a "Park" position, and an ignition lock mechanism movable to a "Lock" position said lock inhibitor comprising; a rack gear linearly movable by said ignition lock mechanism and having a recess formed therein; a manual rod guided in the steering column for manual linear movement to a locking position; a pawl member responsive to the linear movement of said manual rod and being moved thereby transversely to said rack gear into said recess so that said lock mechanism cannot be moved to the "Lock" position unless said manual rod has been moved to the locking position; means for removing said pawl member from said recess when said lock mechanism is moved to said "Lock" position; and a drive transmitting means operatively connected between the floor mounted transmission shift mechanism and said manual rod for preventing said manual rod from being moved to said locking position until said transmission shift mechanism is moved to the "Park" position.

4,270,625

ENGINE MOUNT FOR A VEHICLE

Yutaka Nishimura, and Kazuyuki Gemmo, both of Okazaki, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jun. 21, 1979, Ser. No. 50,560
Claims priority, application Japan, Mar. 12, 1979, 54-30354[U]
Int. Cl.³ B60L *5/02*
U.S. Cl. 180—291 1 Claim



1. A device for mounting a longitudinally extending rear extension portion of an engine to a transversely extending rear support member of a vehicle body, said device comprising:

a transversely extending first plate member arranged along the lower surface of said rear extension portion, said first plate member being fixedly connected to said rear extension portion,

a transversely extending second plate member arranged below said first plate member, said second plate member being provided with means for fixedly connecting said second plate member to said rear support member, said second plate member defining at the center thereof an opening, a pair of first elastic members arranged on each side of said opening for elastically connecting said first plate member to said second plate member,

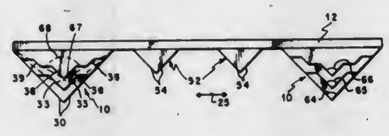
a second elastic member of a substantially tubular shape, in which an inner edge of said opening of said second plate member is located, the upper surface of said second elastic member being spaced from the lower surface of said first plate member, and a stopper rod which is on the upper end thereof fixedly connected to said first plate member, said stopper rod having a straight longitudinally extending bottom end extended out from said second elastic member, said inner edge of said opening which is located in said second elastic member having an upwardly directed lip portion.

4,270,626

COUPLING MEANS FOR HORIZONTAL VIBRATOR

William C. Pritchett, Plano, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 28, 1979, Ser. No. 108,206
Int. Cl.[3] G01V 1/047
U.S. Cl. 181—113 6 Claims



1. In a transducer for inducing shear waves in an elastic medium including a horizontally movable support means adapted to couple the energy of a transducer into said medium, the improvement comprising a plurality of inverted, wedge-shaped cleat means depending from said support means for engaging the surface of said medium, each of said cleat means having a pair of lateral surfaces downwardly convergent from said support means to form a cleat edge adapted to extend horizontally and transversely to the direction of horizontal transducer motion, the lateral surfaces of at least some of said cleat means consisting of interspersed sloping and horizontal faces.

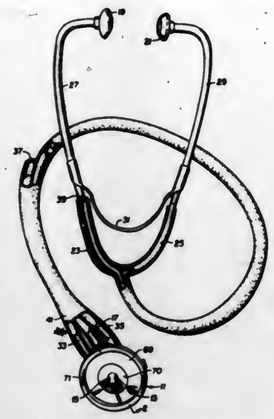
4,270,627

STETHOSCOPE WITH PROBE SOUND PICK-UP AND RESONANT CAVITY AMPLIFICATION

Raymond R. Hill, 300 Diogenes Dr., Angwin, Calif. 94508

Filed Jul. 2, 1979, Ser. No. 53,924
Int. Cl.[3] A61B 7/02; H04R 25/00
U.S. Cl. 181—131 24 Claims

1. In a stethoscope having a sound pick-up head and at least one ear piece that are connected at opposite ends of an enclosed sound transmission passage therebetween, the improvement comprising an elongated resonant cavity of a given volume connected at one end to said enclosed sound transmission passage in the vicinity of said pick-up head and opened to the atmosphere at its other end, thereby allowing sound waves from said pick-up head to simultaneously pass through both the resonant cavity and the enclosed passage, whereby said resonant cavity causes sound frequencies within a given resonant



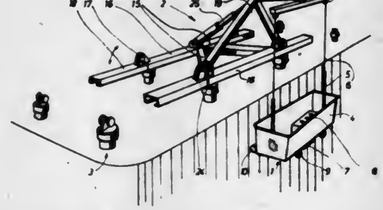
frequency range to be amplified between the pick-up head and said ear piece.

4,270,628

ELEVATOR DEVICE PREFERABLY AN ELEVATOR FOR BUILDING FACADES

Leif Anderson, Bögatan 39 A, S-412 72 Göteborg, Sweden

Filed Mar. 23, 1978, Ser. No. 889,538
Claims priority, application Sweden, Mar. 25, 1977, 7703425
Int. Cl.[3] E04G 3/10
U.S. Cl. 187—6 4 Claims



1. In an elevator device having a lifting arm carried by trolley means displaceable along support means provided on an elevated foundation such as a building roof to displace a lift in the vertical and horizontal directions, the improvement comprising at least three independent support elements arranged respectively, in at least two generally parallel rows and parallel to a face of the building, the support elements of each row being disposed at a predetermined maximum spacing from each other, said trolley means being provided with rail means corresponding in number of said rows and being of a length corresponding at least to twice said maximum spacing of each respective row, said rail means being arranged to be supported by the respective support elements in a displaceable manner so that when the trolley is moved along said support elements the distance between a pair of adjacent support elements of each row is bridged by the respective rail means, and in which the rail means on the trolley is provided with outer portions which can be pivoted upwardly and serve the purpose of reducing space for the trolley, and the support elements of each row are spaced from one another respectively by a distance smaller than said maximum spacing and at most corresponding to one

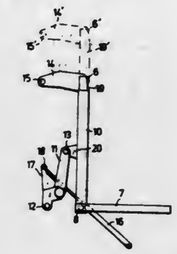
half of the distance between the end of the remaining operative portion of the corresponding rail means after the outer portions have been pivoted upwardly, whereby the need for a generally continuous track on said foundation is avoided.

4,270,629

LINKAGE SYSTEM FOR LOAD-LIFTING ARRANGEMENTS

Karl T. Bergling, Körsbärsvägen 4 A, Stockholm, Sweden S-114 23

Filed Mar. 22, 1979, Ser. No. 22,850
Claims priority, application Sweden, Apr. 4, 1978, 7803807
Int. Cl.[3] B66B 9/20
U.S. Cl. 187—9 E 7 Claims



1. A linkage system for load-lifting arrangements comprising a frame and a link whose one end is pivotally connected to a link arm at a location between one end of the link arm and the other end of said link arm and whose other end is pivotally connected to the frame, said one end of the link arm being provided with load-carrying means and said other end being journalled in a guide which is arranged to guide said other end of the link arm substantially linearly and horizontally during a lifting or lowering operation, characterized by a lifting means comprising at least one linear motor which is connected between the frame and an intermediate point on the link and is arranged to cause the link to rotate about its bearing on the frame so as to enable during a lifting or lowering operation, the end of the link arm having the load-carrying means to be moved vertically from a height position below said guide to a height position above said guide, or vice versa, whilst simultaneously moving the end of the link arm which is mounted in the guide substantially horizontally, said linkage system comprising part of a vehicle-carried lifting arrangement comprising two parallel operating systems one on each side of the vehicle, characterized in that the other end of the link is pivotally mounted on the vehicle, and in that the lifting means acts between the frame of the vehicle and the link.

4,270,630

AUTOMATIC LIFT ASSEMBLY

Lawrence E. Karkau, Lansing, Mich., assignor to Collins Industries, Inc., Hutchinson, Kans.

Continuation-in-part of Ser. No. 855,288, Nov. 28, 1977, Pat. No. 4,164,292. This application Aug. 1, 1979, Ser. No. 62,788
Int. Cl.[3] B66B 9/20; B62B 1/06
U.S. Cl. 187—9 R 3 Claims

1. In an improved automatic lift assembly for use in vehicle or building doorways comprising:

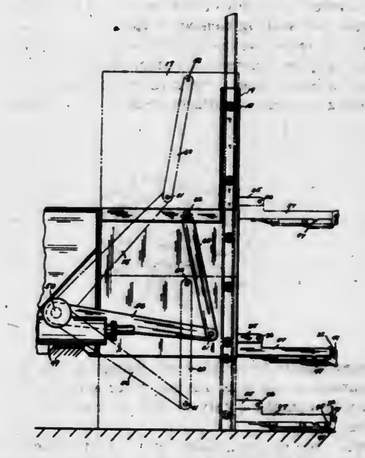
a lift carriage movably positioned within a doorway opening, said lift carriage having a substantially U-shaped configuration wherein the base of the lift carriage is adapted to form a lower step portion;

a movable upper step pivotally positioned within said lift carriage in a normally retracted stowed step use position above and to the rear of said lower step portion, said upper step selectively extendable forwardly and downwardly so as to form a co-planar platform extension of said lower step portion;

a movable riser provided in pivotal engagement with said upper step so as to selectively extend downwardly to said lower step portion when said upper step is in its retracted stowed step use position within the lift carriage, said riser selectively extendable upwardly and outwardly to form a loading ramp extension from said extended upper step;

upper step and riser actuating means to selectively extend said upper step forwardly and downwardly so as to form a co-planar platform extension of said lower step portion and to selectively pivotally extend said riser upwardly and outwardly to form a loading ramp extension from said extended upper step;

lift carriage actuating means to selectively lower said lift carriage to a lowered ground level position and to selectively raise said lift carriage to a raised interior floor level position;



a safety guard barrier plate provided in pivotal engagement with said movable riser, said safety guard barrier plate adapted to storably retract against said riser along the outer longitudinal edge portion thereof, said safety guard barrier plate selectively extendable to a substantially vertical safety guard position along the outer longitudinal edge of said riser when said riser is actuated to form a horizontal co-planar platform extension of said lower step and movable extended upper step; and

riser and safety barrier guard plate actuating means in association with said riser and said barrier guard plate so as to automatically raise said safety guard barrier plate to its vertical safety guard position in response to moving said riser to form a horizontal co-planar extension of said lower and upper steps.

4,270,631

MODULAR CALIPER BRAKE ASSEMBLY

Jacob Kobelt, 6110 Oak St., Vancouver, B. C., Canada (V6M 2W2)

Filed Feb. 13, 1979, Ser. No. 11,872
Int. Cl.[3] F16D 55/224
U.S. Cl. 188—72.9 9 Claims

1. A modular caliper-brake assembly, comprising:

a pair of generally similar one-piece yoke elements, each said yoke element having a body portion with a pair of oppositely disposed faces and a pair of yoke arms extending in a similar direction from said body portion, each said yoke arm being disposed oppositely to a corresponding yoke arm of the other of said yoke elements;

a one-piece spacer element having a pair of oppositely dis-

posed faces, each said spacer element face being adapted to cooperate with one of said yoke element faces with said spacer element sandwiched between said pair of yoke elements;

a one-piece mounting element cooperating with at least one of said yoke elements and said spacer element for mounting to said brake assembly;

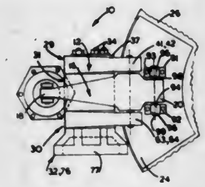
brake body securing means cooperating with said yoke elements, said spacer element and said mounting element for holding said elements together, said elements thereby forming a modular brake body having a plurality of discreet one-piece separable elements;

a pair of caliper arms having inner ends and outer ends, said yoke arms having journalling means for journalling said caliper arms;

an actuator cooperating with said inner ends of said caliper arms;

lug members pivotably connected to said caliper arm outer ends, each said lug member having a surface facing away from its respective caliper arm, said lug member surfaces having three-dimensional surface profiles;

a pair of brake shoes connected to said lug members and having connection surfaces located on the sides of said



shoes remote from the brake linings of said shoes, said connection surfaces having three-dimensional surface profiles complementary to said lug member surface profiles;

a brake shoe spacer member of a predetermined thickness positioned between each said lug member and its respective brake shoe for adjusting the distance between each said lug member and its respective brake shoe to accommodate a brake disc of a particular thickness, each said brake shoe spacer member having a first surface with a three-dimensional surface profile complementary to its respective lug member surface profile for interengaging said lug member surface and for thereby engaging said brake shoe spacer member and its respective lug member in interlocking relationship, said brake shoe spacer member also having a second surface opposite said first surface with a three-dimensional surface profile complementary to its respective brake shoe connection surface profile for interengaging said brake shoe connection surface and for thereby engaging said brake shoe spacer member and its respective brake shoe in interlocking relationship; and,

lug securing means for holding together each said lug member and its respective brake shoe and brake shoe spacer member.

4,270,632

INTERNAL SHOE DRUM BRAKES

Albert Langert, Neuwied, Fed. Rep. of Germany, assignor to Girling Limited, Birmingham, United Kingdom

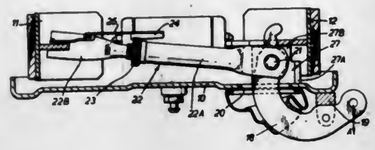
Filed Jan. 30, 1979, Ser. No. 7,836

Claims priority, application United Kingdom, Feb. 1, 1978, 3993/78

Int. Cl.³ F16D 65/56

U.S. Cl. 188—79.5 P **7 Claims**

1. An internal shoe drum brake comprising a pair of brake shoes, an adjustable length strut extending between the shoes and having a ratchet, movement of which adjusts the length of the strut, a cross-pull actuating lever pivotally connected to one end of the strut and engaging one shoe, the lever being so arranged that a cross-pull force acting on one end thereof in a direction generally parallel to the drum axis rotates said lever to exert a force on said one shoe and a reaction force through the intermediary of said strut and an abutting engagement thereof with said other shoe to urge said shoes apart, and a pawl engageable with said ratchet, said pawl being pivotally mounted on said other shoe and being rotatable about said



pivot to move the ratchet and thereby adjust the length of the strut when there is excess wear of the shoes, wherein a portion of said strut engages a surface portion of the back plate or a member mounted on the back plate, said surface portion being substantially parallel with a straight line joining the pivot point of the lever and strut and the point of abutment of the strut with said other shoe.

4,270,633

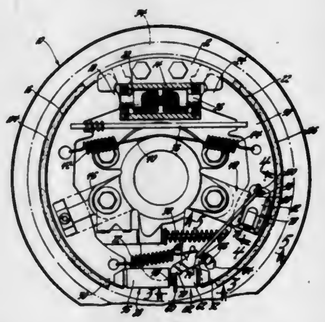
AUTOMATIC BRAKE ADJUSTER WITH AUTOMATICALLY ADJUSTED STEADY POINT

James L. Coulter, Fraser, and Harald H. Loresz, Orchard Lake, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 16, 1980, Ser. No. 112,162

Int. Cl.³ F16D 51/52

U.S. Cl. 188—79.5 GC **3 Claims**



1. In a duo servo drum brake having a primary brake shoe and a secondary brake shoe, brake shoe adjusting mechanism comprising:

an adjusting strut between adjacent ends of said brake shoes;

an adjusting lever pivotally mounted on said secondary brake shoe adjacent to said strut for adjusting said strut during reverse braking release as necessary because of brake wear;

means pivotally attached to said adjusting lever and to said secondary brake shoe and providing fixed reaction for said adjusting lever during reverse braking;

and means responsive to movement of said secondary brake shoe during forward braking application to move the effective point of pivotal attachment of said reaction means to said secondary brake shoe in accordance with secondary brake shoe wear to adjust the effective point of fixed reaction for said adjusting lever.

4,270,634

AUTOMATIC/MANUAL ADJUSTER FOR DRUM BRAKE

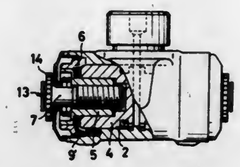
Takashi Matsuzaki, Tokyo, Japan, assignor to Akebono Brake Industry Co. Ltd., Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 94,897

Claims priority, application Japan, Nov. 24, 1978, 53-161656[U]

Int. Cl.³ F16D 65/40

U.S. Cl. 188—196 M **6 Claims**



1. An automatic/manual adjuster for a drum brake comprising:

a body;

a piston which is disposed within said body and is slidably arranged to push a brake shoe against a drum;

an adjuster nut which is rotatable within said piston and is arranged to be movable together with said piston, said adjuster nut being provided with teeth which are formed on the outer circumferential part of the adjuster nut;

an adjuster screw which is screwed to said adjuster nut and has one end thereof engaged with said brake shoe;

a lever having a middle part which is pivotally connected to said body;

a spring means arranged to engage said teeth with a first claw part provided at one end of the lever; and

a second claw part arranged at the other end of said lever to come to engage with said teeth when said first claw part is disengaged from said teeth by a swaying movement of said lever.

4,270,635

SHOCK ABSORBER FOR VEHICLES

Felix Wissner, Schweinfurt, Fed. Rep. of Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Apr. 5, 1979, Ser. No. 27,355

Claims priority, application Fed. Rep. of Germany, Apr. 13, 1978, 109683[U]

Int. Cl.³ F16F 9/32

U.S. Cl. 188—322 **13 Claims**

1. Shock absorber for vehicles comprising

(a) an axially elongated cylinder having a first end and a second end,

(b) a piston rod guide secured in the first end of said cylinder,

(c) an axially elongated piston rod extending through and guided by said piston rod guide into said cylinder and having a first end located within said cylinder and a second end located outwardly from said piston rod guide in the first end of said cylinder, said piston rod being axially displaceable relative to said cylinder and piston rod guide between two end positions, a first end position in which the first end of said piston rod is close to said second end of said cylinder, and a second end position in which said first end of said piston rod is more remote from said second end of said cylinder than in said first end position,

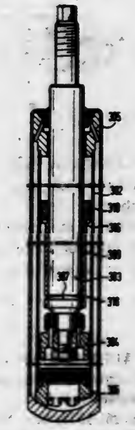
(d) a damping piston secured to the first end of said piston rod within said cylinder,

(e) stop means arranged within said cylinder and located between said damping piston and said piston rod guide, said stop means including

1. an axially elongated rigid sleeve unit coaxial with and closely encircling said piston rod and being tensioned in the circumferential direction for tightly gripping said piston rod, said elongated sleeve unit having a first end closely spaced from said damping piston and a second end more remote from said damping piston and closer to said piston rod guide,

2. said sleeve unit including support means encircling said piston rod at the first end of said elongated sleeve unit for securing said elongated sleeve unit against axial movement relative to said piston rod towards said damping piston,

3. a resilient ring encircling said piston rod and located between the second end of said elongated sleeve unit and said piston rod guide,



wherein said piston rod adjacent the first end thereof has a groove formed in and extending around the circumferential surface thereof, said groove being closely spaced from said damping piston in the range of 2 to 10 mm therefrom, said support means including at least one projection formed on said sleeve unit and extending inwardly therefrom into said groove for securing said sleeve unit to said piston rod, and wherein said elongated sleeve unit pushes said resilient ring against said piston rod guide in the second end position of said piston rod, the distance between said damping piston and said piston rod guide being in the range of 100 to 200 mm in said second end position of said piston rod.

4,270,636

LOCK-UP CONTROL SYSTEM FOR A TORQUE CONVERTER INCLUDING A TIMING ARRANGEMENT

Yoshio Sunohara, and Kunio Oikawa, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 23, 1979, Ser. No. 23,472

Claims priority, application Japan, Apr. 4, 1978, 53-38853

Int. Cl.³ F16H 47/00

U.S. Cl. 192—3.31 **2 Claims**

1. In an automatic transmission for a vehicle, the automatic transmission having at least two forward gear ratios and including a torque converter with a lock-up mechanism including a lock-up chamber and cooperating clutch elements which move toward each other and into a fully engaged position in response to a decrease in pressure within the lock-up chamber;

a lock-up control system for the torque converter comprising:

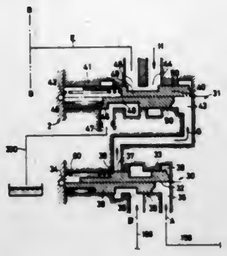
a source of pressurized fluid;

a fluid reservoir;

a valve communicating with the lock-up chamber, said source of pressurized fluid and said fluid reservoir for selectively establishing communication between the lock-up chamber and said source of pressurized fluid to pressur-

ize the lock-up chamber and communication between the lock-up chamber and said fluid reservoir to exhaust the lock-up chamber; and

a flow restrictor fluidly disposed between said valve and said fluid reservoir to restrict flow of fluid exhausted from said



lock-up chamber via said valve toward said fluid reservoir to control the speed at which pressure is decreased within said lock-up chamber;

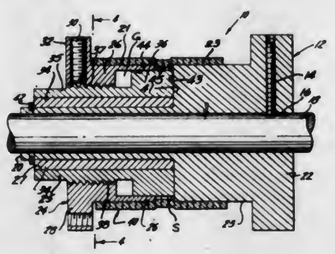
whereby the speed at which the cooperating clutch elements move toward each other and into the fully engaged position is determined by the size of said flow restrictor.

4,270,637

ADJUSTABLE SPRING CLUTCH

Robert D. Lowery, Willowick, Ohio, assignor to Marquette Metal Products, Fountain Inn, S.C.

Filed Feb. 26, 1979, Ser. No. 14,865
Int. Cl.³ F16D *13/04, 13/08*
U.S. Cl. 192—41 S 8 Claims



1. An adjustable spring clutch of the type to provide an intermittent rotary output in one direction comprising:

(a) an input clutch drum supported for reciprocal rotation and connected to a source of reciprocative rotative power so as to be driven by the latter, first in one direction and then the other;

(b) an output clutch drum supported for rotation independent of said input drum so that the input and output drums are free to rotate relative to each other;

(c) said input clutch drum and output clutch drum being constructed and supported to provide an annular gap between said input and output drums;

(d) a coil spring positioned coaxially with respect to said input and output clutch drums and spanning said gap and being connected to said input and output drums for gripping said input and output drums; and

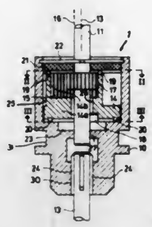
(e) adjustable means for varying the size of said annular gap and thereby vary the amount of relative rotative movement between said input drum and output drum before torque is transmitted from the input drum to the output drum.

4,270,638

APPARATUS FOR TRANSFERRING TORQUE FROM A DRIVING SHAFT TO A DRIVEN SHAFT

Kari Sassi, Helsinki, Finland, assignor to Konejukka Oy, Finland

Filed Mar. 14, 1979, Ser. No. 20,414
Int. Cl.³ F16D *15/00*
U.S. Cl. 192—45.1 14 Claims



1. Apparatus for transferring torque from a driving shaft to a driven shaft comprising: an outer coupling body defining an interior cylindrical cavity having a first axis colinear with the axis of the driving shaft, said outer coupling body being mounted for relative movement between idling and coupling positions with respect to the driving and driven shafts; an inner coupling body located within said cavity having an upper surface, a lower surface and an interior curved coupling surface having a second axis which is offset from said first axis and a cylindrical outer surface concentrically located within said cavity having a third axis which is colinear with said first axis, the diameter of said cylindrical outer surface being slightly less than the diameter of said cylindrical cavity, said driven shaft being attached to said outer coupling body; a first coupling member fixed to the driving shaft adapted to be in coupling engagement with said interior curved coupling surface at least when said outer coupling body is in said coupling position; a second coupling member affixed to said driving shaft; means provided on said inner coupling body for couplingly engaging said second coupling member to said inner coupling body when said outer coupling body is in said idling position so that said inner coupling body is rotatable therewith around said third axis and for disengaging said inner body member from said second coupling member when said outer coupling body is in said coupling position so that said inner body has a tendency to rotate about said second axis; whereby when said outer coupling body is in the idling position, said second coupling member is engaged with said engaging means and said inner coupling body rotates within said cavity around said third axis and when said outer coupling body is in the coupling position, said second coupling member is disengaged from said engaging means and said inner coupling body tends to rotate within said cavity about said second offset axis through engagement between said first coupling member and said interior curved coupling surface of said inner coupling body, whereupon said outer coupling body is rotated by said inner coupling body thereby transmitting torque to said driven shaft.

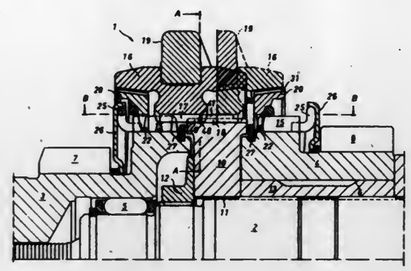
4,270,639

SYNCHRONIZING ARRANGEMENT FOR A MOTOR VEHICLE GEAR BOX

Tage R. W. Johnsson, Goteborg, Sweden, assignor to Saab-Scania AB, Södertälje, Sweden

Filed Nov. 8, 1978, Ser. No. 958,865
Claims priority, application Sweden, Nov. 11, 1977, 7712765
Int. Cl.³ F16D *23/06*
U.S. Cl. 192—53 F 8 Claims

1. In a synchronising arrangement for a motor vehicle gear box including a shaft, an externally toothed hub locationally fixed in the axial direction on the said shaft, and an internally toothed synchronising sleeve which is: (1) concentric with said shaft, and (2) axially displaceable relative to said shaft, the improvement comprising said external teeth on said hub having a different tooth shaping in a lower and in an upper part of the tooth respectively, said hub tooth shaping in said upper part being wider than an extension of said hub tooth shaping in said lower part up to the maximum diameter of said hub, said tooth shaping in said upper part being such as to enable said hub teeth to fit into the grooves between the teeth on said hub



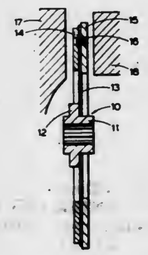
sleeve, said hub tooth upper part having a smaller axial length than said lower part and a tooth flank in the transition between said lower and upper parts, said hub teeth lower parts coacting with said sleeve teeth and said tooth flanks of said hub teeth upper parts occupying a position outside the profile of the tooth grooves on said sleeve, whereby to prevent axial displacement of said sleeve into engagement with said hub teeth upper parts, when said sleeve is axially displaced in relation to said hub and torque is transmitted.

4,270,640

FRICTION CLUTCH DRIVEN PLATES

David A. Davies, Leamington Spa, England, assignor to Automotive Products Limited, Leamington Spa, England

Filed May 24, 1979, Ser. No. 42,111
Claims priority, application United Kingdom, May 24, 1978, 21998/78
Int. Cl.³ F16D *13/72*
U.S. Cl. 192—70.14 5 Claims



1. A clutch driven plate for releasable clamped engagement between opposed driving surfaces and comprising:

a clutch hub member;

an annular friction facing carrier co-axial with and carried by the hub member;

an engine flywheel side annular friction facing provided co-axially on one side of said carrier; and

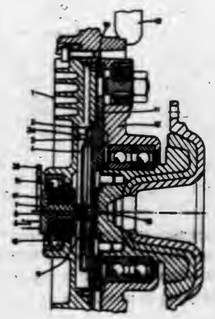
a clutch cover pressure plate side friction facing provided co-axially on the opposite side of said carrier, said friction facings being continuous annular rings for a major part of both radially co-extensive and said pressure plate side facing being a greater superficial area than said flywheel side facing.

4,270,641

FLUID-FILLED FRICTION CLUTCH

Manfred Nonnenmann, Schwieberdingen, and Werner Hummel, Waiblingen, both of Fed. Rep. of Germany, assignors to Süddeutsche Kühlerfabrik Julius Fr. Behr GmbH & Co. KG, Stuttgart, Fed. Rep. of Germany

Filed Jan. 30, 1979, Ser. No. 7,792
Claims priority, application Fed. Rep. of Germany, Feb. 4, 1978, 2804859
Int. Cl.³ F16D *27/01, 27/10, 35/00*
U.S. Cl. 192—82 T 3 Claims



1. A fluid friction clutch, especially for driving the cooling fan of an internal combustion engine, said friction clutch having a frontal portion and including rotary drive means, a housing disposed coaxially with said drive means and capable of relative rotation therewith, said housing having a separating wall which defines a drive chamber and a fluid reservoir chamber, said rotary drive means being provided with a drive disc located in said drive chamber, and wherein said separating wall has a passage which provides communication between said drive chamber and said fluid reservoir chamber, and said clutch further includes a valve assembly for opening and closing said passage and a D.C. powered stationary electromagnet for actuating said valve assembly under the control of a thermal switch, the improvement wherein said stationary electromagnet is disposed in said frontal portion of said clutch, said valve assembly includes a valve lever, and further comprising a permanent magnet, disposed coaxially to the clutch and on top of said valve lever, the polarity of said permanent magnet being opposite to the polarity of the field established by said electromagnet when energized, resulting in relative magnetic repulsion of said electromagnet and said permanent magnet moving said valve to its valve-closed position and turning off the clutch, the minimum distance between said electromagnet and said permanent magnet being limited by a stop which limits the displacement of said valve assembly.

4,270,642

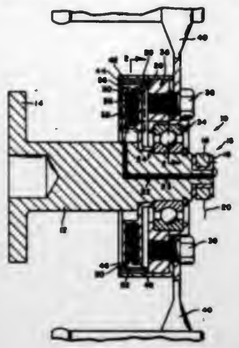
CASTELLATED SPOOL FOR ELECTROMAGNETIC BAND CLUTCH

Ulrich O. Densow, Chatham, Canada, assignor to Canadian Fram Limited, Chatham, Canada

Filed Jan. 8, 1979, Ser. No. 1,855
Int. Cl.³ F16D *27/02*
U.S. Cl. 192—84 T 7 Claims

1. In a clutch, a pair of coaxial, relatively rotatable members comprising a driving member and a driven member, a band for drivingly interconnecting said members when the clutch is engaged, means for drivingly engaging one end of the band with one of said members, the other member carrying a spool, said spool comprising a pair of circumferentially extending, axial offset pole piece portions cooperating with said band to define a magnetic circuit, said pole piece portions having uninterrupted, circumferentially extending edges facing said band

for engagement thereby when the clutch is engaged, means carried by said spool for generating magnetic flux for forcing said band into driving engagement with said edges, said edges having axially projecting portions cooperating with one another to define a segmented gap therebetween, said projecting portions having an outer surface facing said band for engagement by the latter when the clutch is engaged, said edges and said outer surfaces being disposed in a common circumferential plane.

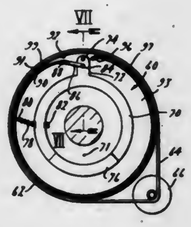


4,270,643

ACCELERATION RESPONSIVE CLUTCH

Dante S. Giardini, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 13, 1978, Ser. No. 968,946
Int. Cl.[3] F16D *23/10*
U.S. Cl. 192—103 C 14 Claims



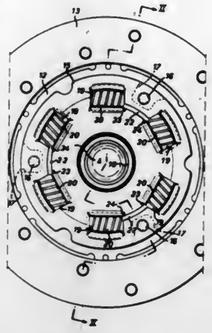
1. An acceleration responsive clutch comprising:
a rotatable input member,
a rotatable output member mounted coaxially with respect to said input member,
torque transmitting means connected to said rotatable input member and constructed for selective movement between a first engaged position such that a torque is transmittable from said input member to said output member and a second disengaged position such that torque is not transmittable from said input member to said output member,
an inertia member attached to said torque transmitting means;
biasing means for biasing said inertia member to move said torque transmitting means to one of said first and second positions; and
said inertia member being constructed to overcome said biasing means in response to a predetermined rate of angular acceleration of said input member to move said torque transmitting means to the other of said first and second positions.

4,270,644

TORSION SHOCK ABSORBER DEVICE SUITABLE FOR A CLUTCH FRICTION PLATE

René Billet, Lamorlaye, France, assignor to Societe Anonyme Francaise du Ferodo, Paris, France

Filed Sep. 19, 1978, Ser. No. 943,626
Claims priority, application France, Oct. 13, 1977, 77 30810
Int. Cl.[3] F16D *3/14*
U.S. Cl. 192—106.2 7 Claims



1. A torsion shock absorber device of the kind comprising two parts mounted for relative rotation with limited angular displaceability and rotationally coupled by shock absorbing elastic means, the said angular displaceability being controlled on the one hand by the said shock absorbing elastic means and on the other hand by friction between the said parts, which effect is adjusted by elastic axial gripping, one of the said parts comprising a disc and the other part comprising two guide washers fastened to one another and disposed one on each side of the said disc, the disc and the guide washers having openings, of which at least some serve to position the aforesaid elastic means, and wherein slot means are provided in at least one of the two guide washers leading into openings in the said washer in such a manner as to free in the latter at least one axially flexible region effecting the elastic axial gripping which adjusts the frictional effect between the two said parts, said slot means comprising at least one slot having two ends by which it leads respectively into two openings.

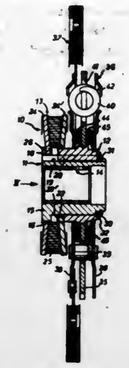
4,270,645

TORSION DAMPING CENTER AND A CLUTCH PLATE ASSEMBLY HAVING SUCH A TORSION DAMPING CENTER

Carlo Beccaris, Santena, Italy, assignor to Societe Anonyme Francaise Du Ferodo, Paris, France

Filed Nov. 1, 1978, Ser. No. 956,790
Claims priority, application France, Nov. 8, 1977, 77 33540
Int. Cl.[3] F16D *3/14*
U.S. Cl. 192—106.1 8 Claims

1. A torsion damping center comprising a first hub, a second hub coaxial to said first hub, said first and second hubs being mounted for relative angular displacement and having means for defining limits of their relative angular displacement, and a damper ring operatively interposed between said hubs for a range of relative angular displacement within the defined limits, said damper ring comprising two annular plates, means for connecting one said annular plate for rotation with said first hub and means for connecting said other annular plate for rotation with said second hub, and elastic damper pad means axially disposed between and bonded to said annular plates, said annular plates being identical with each other.

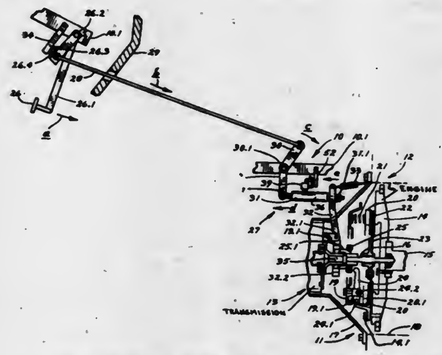


4,270,646

SELF-ADJUSTING AUTOMOTIVE CLUTCH LINK

Paul D. Norcross, Des Plaines, Ill., assignor to Thexton Manufacturing Company, Minneapolis, Minn.

Filed Jan. 25, 1979, Ser. No. 6,562
Int. Cl.[3] F16D *11/00, 65/74*
U.S. Cl. 192—111 A 24 Claims



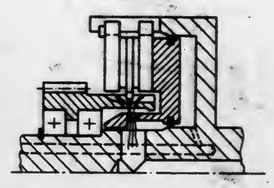
1. Clutch operating apparatus accommodating progressive rearward tilting of the release fingers toward the throw out bearing as the clutch disc wears, comprising
an operating linkage including a manual control and being connected to the throw out bearing,
the linkage being movable between a rest position wherein the clutch is engaged and a shifted position wherein the throw out bearing has moved against and has forwardly tilted the release fingers to effect disengagement of the clutch, and
the linkage also including a length adjustable, hydraulic fluid filled link, and
hydraulic fluid flow control means connected to said link and operating in response to pressure exerted on the linkage in rest position by such rearward tilting of the release fingers as the clutch disc wears, and said control means operating to change the length of said link to relieve such pressure.

4,270,647

LUBRICATING OIL FLOW CONTROL DEVICE, ESPECIALLY FOR A SPEED-CHANGE TRANSMISSION OPERATING IN AN OIL BATH

Fritz Leber, Friedrichshafen, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrich-Shafen Aktiengesellschaft, Friedrichshafen, Fed. Rep. of Germany

Filed Jan. 19, 1979, Ser. No. 4,980
Claims priority, application Fed. Rep. of Germany, Jan. 28, 1978, 2802676
Int. Cl.[3] F16D *13/60*
U.S. Cl. 192—113 B 1 Claim



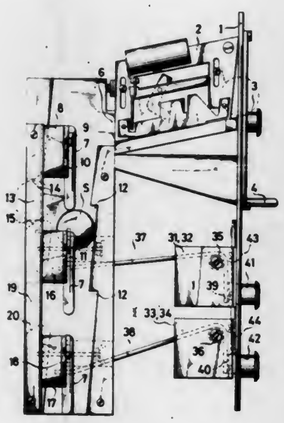
1. In a lubricating-oil flow-control device for a shiftable clutch operating in an oil bath and comprising: a shaft formed with a lubricating-oil passage; an annular drive and forming an annular actuating cylinder pressurizable with a liquid medium; an annular piston slidably received in said cylinder and rotatable with said shaft while being axially shiftable upon pressurization of said cylinder relative to said shaft; a gear rotatably mounted on said shaft and having a gear sleeve extending axially toward said flange but peripherally spaced from said shaft; a lamella stack surrounding said sleeve and compressible by said piston upon axial displacement thereof upon pressurization of said cylinder by said medium to couple said gear with said flange; a bore formed transversely in said shaft and opening at the periphery of said shaft while communicating with said passage for discharging lubricating oil,
the improvement wherein said device comprises:
a control sleeve formed on said piston and extending axially along said shaft within said gear sleeve and of a length sufficient to cover said bore in all positions of said control sleeve, said control sleeve having an internal edge delimiting an annular compartment formed between said control sleeve and the periphery of said shaft, said edge forming a valve partially obstructing said bore in a nonpressurized condition of said cylinder and permitting free flow from said bore upon pressurization of said cylinder with said medium to compress said lamella stack;
a plurality of uniformly spaced radial bores formed in said control sleeve distributing lubricating oil from said compartment outwardly to said gear sleeve;
a plurality of radial bores formed in cais gear sleeve for delivering lubricating oil to said lamella stack;
the bores of said shaft and said sleeve being substantially coplanar in an actuated position of said clutch with said cylinder pressurized by said medium; and
a further passage formed in said shaft and communicating with said cylinder for delivering said medium thereto independently of the supply of lubricating oil through the first-mentioned passage.

4,270,648

COIN OPERATING MECHANISM PROVIDING CONTROLLED PLAY OF MULTIPLE GAMES FROM A SINGLE COIN

Xaver F. Leonhart, 8381 Harburg, near 8385 Pilsting/Ndb., Del.X

Filed Nov. 15, 1979, Ser. No. 94,359
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1978, 2849647
Int. Cl.³ G07F 5/22
U.S. Cl. 194—1 C 10 Claims



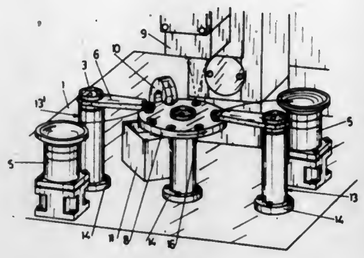
1. A coin operating mechanism for coin operated games and the like comprising, a coin channel (6) having side wall portions, end wall portions a top opening adapted to receive coin means and a bottom opening through which said coin means can be discharged, a plurality of switch means (8,16,17) spaced from each other along the length of said coin channel the number of which corresponds to the number of games provided by said coin means, said coin channel (6) having an opening through said side wall portions adjacent each of said switch means, a switch operator (7) for each of said switch means projecting through the corresponding opening into said coin channel into the path of travel of the coin means, a coin support lever (11,18) connected adjacent each switch means except for the uppermost switch means of said plurality of switch means, and projecting through the corresponding opening into said coin channel into the path of travel of the coin means and adapted to support the coin means sideways so the coin means tips toward one end wall portion (12) of the coin channel, said coin support lever (11,18) connected to pivot relative to said coin channel out of the corresponding opening, manually operable means (37 to 42) for each coin support lever (11,18) and operable to pivot the corresponding coin support lever out of said coin channel, and a coin discharge channel (13,19) through the other end wall portion of the coin channel (6) spaced above each coin support lever, each coin discharge channel (13,19) having a bottom wall (15,20) spaced above the corresponding coin support lever (11,18) by an amount such that the bottom wall constitutes an extension of the circumference of the sideways tipped coin means on the coin support lever, whereby a newly inserted coin is adapted to be deflected by the edge of the coin means on the coin support lever and directed through the coin discharge channel (13,19).

4,270,649

METHOD FOR CONTROLLING OPERATING PROCESSES

Herbert E. Mayer, Eschen, Liechtenstein, assignor to CENSOR Patent- und Versuchs-Anstalt, Vaduz, Liechtenstein

Filed Dec. 4, 1978, Ser. No. 966,333
Int. Cl.³ B65G 43/08, 43/10
U.S. Cl. 198—341 1 Claim



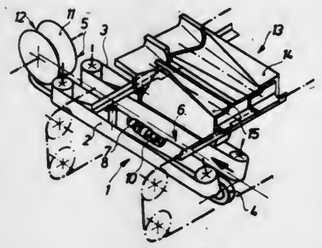
1. An improved method for controlling a system comprising a number of operating stations during the processing of particles by a common pre-set cycle; at least one of said operating stations employing a feeding device, and sensor means for detecting a fault in one of said operating stations to thereby retain said pre-set cycle for initiating a correcting process, the improved method comprising: taking up one of said particles by said feeding device and conveying said particle to a receiving tool and moving said feeding device back into its original position, said particle being retained during operation of the feeding device at reduced pressure; monitoring said reduced pressure by a first of said sensor means, whereupon indication of a deviation from said reduced pressure stops the cycle of said feeding device, and after which, independent of said common, pre-set cycle, immediately repeating said cycle of said feeding device from the beginning to initiate a correction process; said taking up and deposition of one of said particles being carried out by lifting and lowering motion of said feeding device, monitoring the extent of said lifting and lowering motion by a second sensor means which senses deviation from a pre-set extent, a correcting process also being initiated independently of said common pre-set cycle upon sensing of a deviation by said second sensor means.

4,270,650

PROCESS AND APPARATUS FOR THE ALIGNING OF FISH

Manfred Kroha, Bad Schwartau, Fed. Rep. of Germany, assignor to Nordischer Maschinenbau Rud. Baader GmbH & Co. KG, Lübeck, Fed. Rep. of Germany

Filed Dec. 20, 1979, Ser. No. 105,640
Int. Cl.³ B65G 15/14, 47/24
U.S. Cl. 198—388 11 Claims



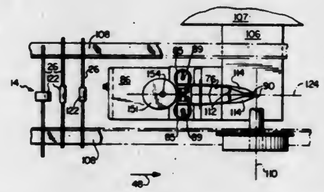
1. A method for aligning beheaded fish, in particular fish with a cross-section approximating to circular shape such as fish of the various *gadidae* species, in respect of the position of its plane of symmetry, with conveying support of the fish body at its belly, back and flanks, wherein the support at the belly of the fish is performed by inwardly arching the abdominal walls enclosing the abdominal cavity up to nearly the bearing of their insides against the undersides of the vertebral projections.

4,270,651

TAPED BELT ELECTRONIC COMPONENT CENTERING DEVICE

Phillip A. Ragard, and Frank J. Orzelek, both of Binghamton, N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.

Filed Jan. 17, 1979, Ser. No. 4,214
Int. Cl.³ B65G 47/26
U.S. Cl. 198—456 3 Claims



1. In an electronic component centering and guiding device for centering components on a conveyor, said centering device including a support base and a pair of juxtaposed, elongated blades suitable to be centered with respect to said conveyor and oriented in the direction of travel of said components on said conveyor, means for pivotally attaching a first end of each of said blades to said base the other end of said blades swingable apart in unison and in symmetric motion in opposition to means for biasing said blades into contact with a component, whereby said blades center said component by translating said component transversely to said direction of travel of said component, the improvement comprising: a driven rotatable cam for opening said blades before reception and pass-through of said components and for controlling the rate of closure of said blades onto said component and reopening during pass-through, said cam contacting at least one of said first ends of said blades.

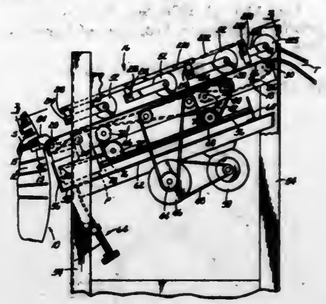
4,270,652

AUTOMATIC COLLATOR UNLOADER

Roger F. Lay, Schaumburg; John S. Jarecki, Villa Park, and Robert M. Koch, Wheaton, all of Ill., assignors to AM International, Inc., Los Angeles, Calif.

Filed Aug. 17, 1977, Ser. No. 825,355
Int. Cl.² B65G 47/52
U.S. Cl. 198—486 12 Claims

1. A sheet handling apparatus comprising: a collator including a series of sheet holding bins for holding separate stacks of sheets, a conveyor for transporting stacks of sheets from said collator serially to a subsequent operation, and a gripper coacting between said collator and said conveyor for removing said stacks serially from said collator and transferring them to said conveyor, said gripper comprising a housing, means for reciprocably moving said housing along a linear pathway between a first position where a stack of sheets in a bin in said collator is gripped, and a second position where said stack of sheets is released to said conveyor, stack gripping means carried by the housing, means for actuating said gripping means at said first position to a stack gripping condition, and separate means for actuating said gripping means to a releasing condition in said second position, said stack gripping means including a pair of jaws and means coacting therewith for opening and closing said jaws, said jaw opening and closing means including a four-bar linkage, one of said jaws being carried by a link in said four-bar linkage and the other by said housing, said four-bar linkage including a crank link pivotally mounted in the housing, and said actuating means including means coacting between said crank link and said means for reciprocably moving said housing along a linear pathway for toggling said four-bar linkage to a gripping position.

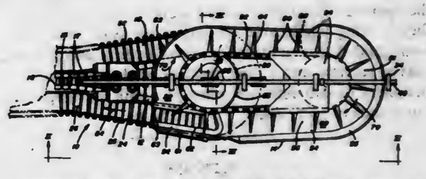


4,270,653

CONVEYOR FEED APPARATUS

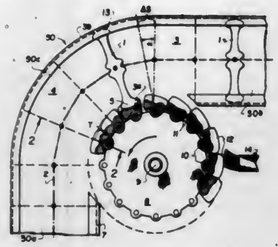
Neal W. Densmore, Franklin, Pa., assignor to Joy Manufacturing Company, Pittsburgh, Pa.

Continuation of Ser. No. 795,270, May 9, 1977, abandoned. This application Jan. 18, 1979, Ser. No. 4,623
Int. Cl.³ B65G 47/18
U.S. Cl. 198—554 7 Claims



1. A material conveying means for conveying solid material comprising: a bin for receiving and containing such solid material therein; a conveying element including laterally spaced apart upstanding sidewall portions extending longitudinally thereof to partially define an elongated pocket adapted to receive and contain such solid material therein; said pocket being movable in the direction of the longitudinal extent thereof through a predetermined path of travel with respect to said bin; said bin including feed aperture means overlying said pocket for feeding such material from said bin into seriatim portions of said pocket during continuous movement of said seriatim portions of said pocket along said path and past said feed aperture means; material transporting means cooperable with said bin for transporting material contained in said bin to said feed aperture means for feeding of such material into said seriatim portions of said pocket; and feed chute means depending from said feed aperture means and internally overlapping said sidewall portions of said pocket to control feeding of such material through said aperture means and into said pocket independently of the rate at which such material is moved to said aperture means for such feeding thereof.

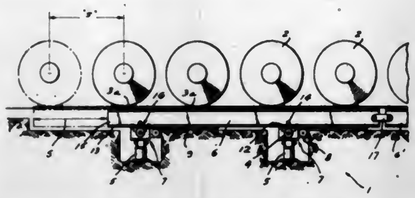
4,270,654
SINGLE CHAIN SCRAPER CONVEYOR
Ernst Braun, Hofackerstr. 12b, and Gert Braun, Hofackerstr. 12a, both of 43 Essen-Heisingen, Fed. Rep. of Germany
Filed Oct. 13, 1978, Ser. No. 951,038
Claims priority, application Fed. Rep. of Germany, Oct. 22, 1977, 2747505
Int. Cl.³ B65G 19/00, 23/00
U.S. Cl. 198—729 2 Claims



1. A scraper conveyor, comprising a trough having first and second straight sections disposed at angles to each other, and an intermediate curved section between and joining said first and second straight sections, said intermediate section having an inner curved edge and an outer curved edge, said trough having an opening along said inner curved edge, an endless chain centered in and movable along said trough, a plurality of flights secured to said chain at spaced locations along the length thereof and extending transversely of said chain and having an outer end which moves around adjacent the outer edge of said intermediate section and an opposite inner end which moves around said inner curved edge, a deflector wheel rotatably mounted about an axis adjacent said intermediate section so that a portion of its periphery moves parallel to said inner curved edge of said intermediate curved section, a plurality of heads pivotally mounted on said deflector wheel adjacent the periphery thereof at spaced circumferential locations around its periphery and having outer ends extending through the opening of said intermediate section, said inner ends of said flights being engageable on respective head outer ends and being guided around the inner curved edge of said intermediate curved section, and a reset mechanism disposed adjacent the periphery of said deflector wheel in a path to engage over the outer ends of said heads.

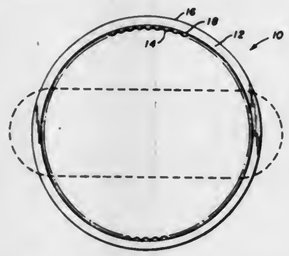
4,270,655
WALKING-BEAM CONVEYER
Oskar Noe, Mülheim, Fed. Rep. of Germany, assignor to BWG Bergwerk- und Walzwerk-Maschinenbau GmbH, Duisburg, Fed. Rep. of Germany
Continuation of Ser. No. 868,339, Jan. 10, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 102,277
Claims priority, application United Kingdom, May 19, 1977, 21060/77
Int. Cl.³ B65G 25/00
U.S. Cl. 198—774 6 Claims

1. A walking-beam conveyer for the intermittent advance of articles along a horizontal transport path, comprising:
- fixed rests alongside said transport path for temporarily receiving the articles to be advanced;
- at least two actuating stations at spaced-apart locations along said transport path;
- a horizontal beam member spanning said actuating stations;
- a vertically reciprocable supporting head at each of said actuating stations provided with roller means engaging said beam member for guiding same horizontally along said transport path;
- first drive means at each of said actuating stations engaging said supporting head for alternately raising and lowering same together with said beam member;
- a rack on said beam member overlying at least one of said actuating stations;
- a pinion on said supporting head of said one of said actuating stations in mesh with said rack; and



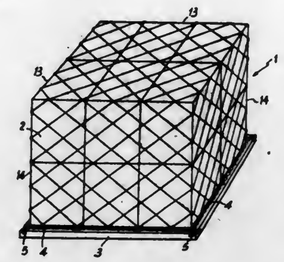
- second drive means on the last-mentioned supporting head coupled with said pinion and operable in timed relationship with said first drive means for linearly advancing said beam member, upon elevation thereof above the level of said rests, and retracting said beam member after a lowering thereof below said level whereby articles lifted off said rests by said beam member are redeposited thereon at a more forward location.

4,270,656
RUBBER AND FABRIC FEED BELT
Alec D. Chesmer, and Joseph Turner, both of Windham Center, Conn., assignors to Rogers Corporation, Rogers, Conn.
Filed Oct. 11, 1977, Ser. No. 840,590
Int. Cl.³ B65G 15/34
U.S. Cl. 198—847 9 Claims



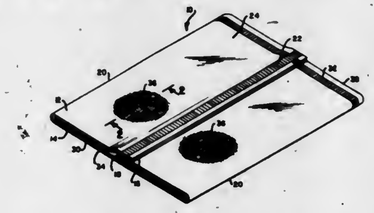
1. A feed belt comprising:
- an endless band of elastomeric material having an inner surface and an outer surface;
- reinforcing means embedded in said band of elastomeric material, said reinforcing means comprising fabric material positioned at the pitch line of the belt;
- a plurality of teeth spaced about said inner surface of said belt, said teeth being formed from said elastomeric material and being integral with said band, said reinforcing means being exposed in the spaces between said teeth; and
- a surface layer on said teeth, said surface layer being formed from said elastomeric material and having a coefficient of friction which is less than the coefficient of friction of the outer surface of said band of elastomeric material.

4,270,657
HOLDING NET, PARTICULARLY FOR THE STOWING OF LOADS ON PALLETS AND THE LIKE
Patrice M. Bayon, Avrillé, France, assignor to L'Aiglon, Maine et Loire, France
Filed Jun. 11, 1979, Ser. No. 47,782
Claims priority, application France, Jun. 12, 1978, 78 17535
Int. Cl.³ B65D 19/00
U.S. Cl. 206—386 12 Claims



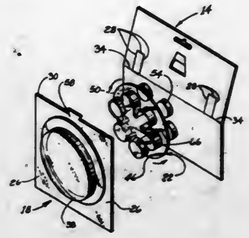
1. A holding net made from a plurality of individual straps each having a plurality of openings passing therethrough along its length and, each being interwoven by passage through said openings to form a diamond-shaped mesh row,
- the improvement wherein each alternate diamond-shaped mesh row of the net is formed of two lengths of a single strap connected together at the free ends thereof, alternate diamond-shaped mesh rows being formed of different individual straps and diamond-shaped mesh rows therebetween being formed by adjacent, different straps.

4,270,658
BREATHABLE, STERILIZABLE RECEPTACLES FOR STORING ARTICLES IN STERILE CONDITION
Samuel J. Schuster, 617 Vallombrosa, Pasadena, Calif. 91107
Continuation-in-part of Ser. No. 955,221, Oct. 27, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 87,053
Int. Cl.³ A61B 17/06; B65D 73/00; B32B 3/10
U.S. Cl. 206—439 7 Claims



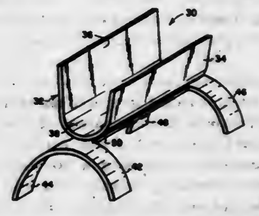
1. A receptacle for storing an article in sterile condition comprising a pair of opposed walls joined about a portion of their peripheries, at least one of the walls comprising a laminated wall including an outer layer of a material impermeable to microorganisms but highly permeable to sterilizing vapor and an inner layer of polymeric material, at least a portion of the laminated wall having breathers for the introduction and removal of sterilizing vapor, each breather comprising a discrete, delaminated portion of the wall, the delaminated portion of the inner layer comprising a ruptured, blister-like projection.

4,270,659
RECLOSABLE DISPENSING BLISTER CARD PACKAGE
Morris W. Kuchenbecker, Neenah, Wis., assignor to American Can Company, Greenwich, Conn.
Filed Dec. 14, 1979, Ser. No. 103,849
Int. Cl.³ B65D 83/04, 85/56
U.S. Cl. 206—538 12 Claims



1. A reclosable blister package having an opening end defined thereon comprising: a backing board; a blister; and an insert; said blister being secured to one surface of said backing board by means of a substantially peripheral blister flange, said blister having a cavity therein; said board and said blister being so cooperatively arranged and configured that said board may be rotated away from said cavity to expose said cavity; said insert being generally circular and having an array of pockets for containing products, said cavity and said insert being adapted and configured such that said insert is rotatable within said cavity.

4,270,660
TACO HOLDERS
Arthur G. Putt, 5901 Cornell Blvd., North Ridgeville, Ohio 44039
Filed Feb. 14, 1979, Ser. No. 12,062
Int. Cl.³ A47F 7/00
U.S. Cl. 211—13 3 Claims

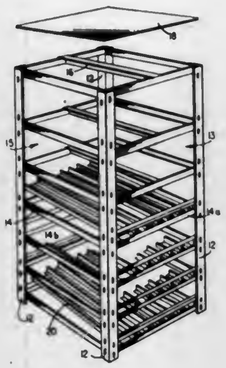


1. A holder for comestible products such as tacos or the like, comprising:
- (a) an elongate, trough-like carrier, the carrier being generally U-shaped when viewed from the end and having relatively tall front and rear walls; and
- (b) a stand atop which the carrier is secured, the stand including a plurality of legs of generally equal length, at least one leg being disposed near lower corner portions of the carrier, the stand also including an elongate member having a length equal to, or greater than, the length of the carrier, the elongate member being secured to the carrier near the lowermost portion of the carrier, the elongate member including attachment points for the legs which are included as part of the stand, the attachment points being located laterally outwardly of the carrier.

4,270,661
BATTERY STORAGE RACK

Phillip Rosenband, Hammond, Ind., assignor to Parsteel Products & Services Company, Inc., Chicago Heights, Ill.

Filed May 3, 1979, Ser. No. 35,740
Int. Cl.³ A47F 5/10
U.S. Cl. 211—49 D 15 Claims



1. In a storage rack assembly of the type having a plurality of vertically disposed corner posts and a plurality of horizontally disposed beams interconnected between the corner posts for defining a box-like structure having a front face and a rear face, said corner posts each including a plurality of spaced apertures defining a central area and a pair of opposed narrower end areas arranged in coaxial alignment with said posts, said beams each including at least one load carrying tab projecting from one end thereof and characterized by a central portion spaced from the beam, a pair of connecting arms extending from opposite sides of the central portion to the beam and a pair of opposed ear portions extending from the central portion and spaced from the beam, said apertures and tabs mating for interconnecting the beams and posts wherein one of said connecting arms bears against one of said end areas with said opposed ear portions contacting the post adjacent said aperture,

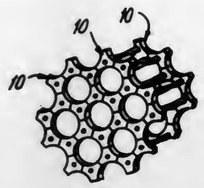
the improvement comprising a plurality of elongate partition members interconnected in spaced parallel relationship between a first beam forming part of said front face and a second beam forming part of said rear face, each of said partition members comprising a horizontally disposed base portion extending between said first and second beams, a leg portion extending upwardly from the center and longitudinally of said base portion, a guide bar horizontally disposed along the length of the edge of said leg portion opposite said base portion, said guide bar including two vertically disposed guide surfaces extending laterally from opposite sides of said leg portion and a pair of shoulders extending upwardly from each edge and longitudinally of said base portion to a height less than the height which said leg portion extends above said base portion whereby, each two adjacent ones of said plurality of partition members defines a channel for receiving an item of inventory, said channel comprising

the center legs of each of said adjacent partition members for guiding said item of inventory therebetween and one of said shoulders of each of said adjacent partition members on which said item of inventory is slidable between said first beam and said second beam.

4,270,662
MODULAR BOTTLE SUPPORT RACK

Jesus C. Gonzalez, Parque de San Francisco, 3 Burgos, Spain

Filed Aug. 7, 1978, Ser. No. 931,352
Claims priority, application Spain, Aug. 8, 1977, 230325
Int. Cl.³ A47B 73/00
U.S. Cl. 211—74 8 Claims



1. A modular support rack comprising at least two coupled identical members, each said member having:

a first portion, each said first portion includes a plurality of circumferentially spaced bottle craddling surfaces and a plurality of first portion connecting members circumferentially and symmetrically spaced on said first portion, each said connecting member being intermediate a pair of bottle craddling surfaces,

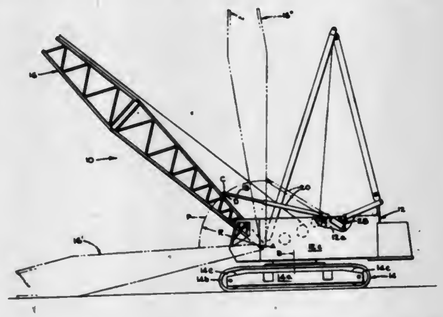
a second portion extending from said first portion and forming a projecting member, said projecting member extending from the center of said symmetrical spacing and being symmetrically positioned relative to said craddling surfaces and said first portion connecting members; and

latching means, each said projecting member having latching means at its extended end for joining together with the projecting member of another of said at least two identical modular members whereby to form a pair of spaced bottle craddling surfaces from each coupled pair for supporting a bottle at spaced intervals along the bottle surface.

4,270,663
STOP FOR CRANE BOOM

Gerald P. Berger, Cedar Rapids, Iowa, assignor to FMC Corporation, San Jose, Calif.

Continuation of Ser. No. 952,163, Oct. 17, 1978, abandoned, which is a continuation of Ser. No. 650,340, Jan. 19, 1976, abandoned. This application Nov. 14, 1979, Ser. No. 93,953
Int. Cl.³ B66C 23/06, 13/48
U.S. Cl. 212—222 5 Claims



1. In a crane having a body and having a boom pivotally mounted to the body at a first location for swinging movement in a vertical plane, and further having

boom stop mechanism connected between the body and boom to arrest further swinging movement of said boom when it reaches an upper extreme position, the improvement therein comprising:

a first rigid member defining an elongated sleeve open at both ends, said sleeve having a pivot connection fixed thereto adjacent one open end thereof and disposed in laterally spaced relation to said sleeve open end thereat whereby said open end is unobstructed by said pivot connection,

a second rigid member defining an elongated rod slidably received in said sleeve and extending outwardly from the other open end of said sleeve to terminate in a pivot connection, said rod having a length greater than said sleeve so as to be enabled to slide therein to entend outwardly from said one sleeve end,

a pivotal mounting on said body at a second location spaced from said first location and having a horizontal pivot axis fixed with respect to said body,

a pivotal mounting on said boom having a horizontal pivot axis fixed with respect to said boom,

a pivot pin interconnecting said body pivotal mounting and the pivot connection on one of said members for swinging movement of said member about said body fixed axis,

a pivot pin interconnecting said boom pivotal mounting and the pivot connection on the other of said members for swinging movement of said member about said body fixed axis, said rigid members constituting the sole interconnection between said pivotal mounting, and,

a stop unit rigidly affixed to said body in a predetermined position thereon,

said stop unit having an elongated receiving means, abutment means disposed in said receiving means and mounted for axial movement therein, and cushion means interconnecting said receiving means and said abutment means,

said stop means being mounted in spaced relation to said one end of said sleeve to permit said sleeve to pivot relative thereto as said boom swings, said abutment means being axially aligned with said sleeve when said boom reaches an upper extreme position thereby to receive said rod sliding outwardly from said one open sleeve end into abutting relation with said abutment means.

4,270,664
ONE PIECE CHILD RESISTANT CAP

Caetano Bruno, Staten Island, N.Y., assignor to Van Blarcom Closures, Inc., Brooklyn, N.Y.

Filed Dec. 28, 1979, Ser. No. 108,043
Int. Cl.³ B65D 55/02
U.S. Cl. 215—216 2 Claims



1. One piece child resistant cap for containers comprising:

a container having a neck with a thread on its external surface,

a first group of teeth arranged in a line on said neck below the lower end of said thread,

a second group of teeth arranged in a line on said neck opposite said first group of teeth,

a cap of flexible material having a cap thread adapted to engage the container thread,

a third group of teeth on the inside of the lower portion of the cap spaced below the cap threads,

a fourth group of teeth on the inside of the lower portion of the cap and opposite the third group of teeth,

all the cap teeth and the container teeth being located along a spiral parallel to said thread,

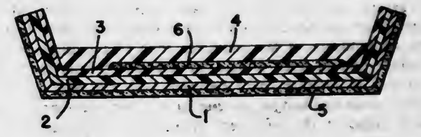
whereby when the cap is screwed on to the container the cap teeth will engage the container teeth so that the cap cannot be unscrewed in conventional manner so that the cap must be squeezed to release the engagement of the cap teeth and the container teeth,

and whereby the cap may be tightly closed to eliminate leakage if the container is tipped over.

4,270,665
PEELABLE ADHESIVE STRUCTURE AND METHOD FOR ITS MANUFACTURE

Go Kunimoto, and Fumio Mori, both of Yokahama, Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Filed Jun. 22, 1979, Ser. No. 50,864
Int. Cl.³ B65D 41/12; B32B 15/08
U.S. Cl. 215—347 25 Claims



1. A peelable adhesive structure comprising a plurality of articles, including at least one metal article, bonded together through a composite coating layer, the composite coating layer comprising adjacent first and second coating layers, the first coating layer containing vinyl resin and having a thickness ranging from about 0.5 to about 100 mg/m², the second coating layer containing epoxy resin without vinyl resin and having a thickness ranging from about 0.5 to about 100 mg/m² at least one of the coating layers comprising:

(a) a peeling imparter at a concentration of between about 50 and 200 parts by weight per 100 parts by weight of resin, and

(b) a substantially linear saturated polyester wetting improver at a concentration of between about 2 and 50 parts by weight per 100 parts by weight of resin and having a molecular weight of between about 5,000 and about 50,000,

the plurality of articles having a peeling strength between about 0.05 and 5 kg/cm between the first and the second coating layers.

16. A peelable adhesive structure comprising a plurality of articles, including at least one metal article, bonded together through a composite coating layer, the composite coating layer comprising adjacent first and second coating layers, the first coating layer containing vinyl resin and having a thickness ranging from about 0.5 to about 100 mg/m², the second coating layer containing epoxy resin without vinyl resin and having a thickness ranging from about 0.5 to about 100 mg/m², at least one of the coating layers comprising:

a hydrocarbon or natural resin having a softening point less than 180° C. and having

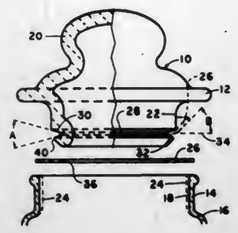
a concentration between about 50 and 200 parts by weight per 100 parts by weight of resin,

the vinyl resin or the epoxy resin being in the form of a continuous phase, the hydrocarbon or natural resin being in the form of a dispersed phase whose particles are less than 100 microns in diameter, and the plurality of articles having a peeling streagth between about 0.05 and 5 kg/cm between the first and second coating layers.

4,270,666
CLOSURE SEAL FOR CONTAINERS

Glenn B. Beckman, Dover, Pa., assignor to Susquehanna Broadcasting Company, York, Pa.

Filed Jan. 18, 1980, Ser. No. 113,304
Int. Cl.³ B65D 39/00
U.S. Cl. 215—364 4 Claims



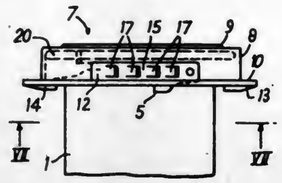
1. A container comprising in combination, a jar having a neck provided with a substantially cylindrical inner surface, a closure having a body provided with a laterally extending rim of greater diameter than the diameter of said cylindrical inner surface of said neck of said jar, a substantially cylindrical wall on said closure of less diameter than said cylindrical inner surface of said neck of said jar depending from said rim to provide an annular space between said wall and cylindrical inner surface of said jar, an annular grooved seat formed in said wall adjacent the outer end thereof, a flexible initially flat circular sealing gasket of less thickness than said annular space and an inner diameter less than the innermost diameter of said seat and the outer diameter being substantially greater than the diameter of the cylindrical inner surface of said neck of said jar and the inner edge of said gasket being disposed in said seat to connect the same to said closure and also stretch said inner edge portion of said gasket to distort said flat gasket into a generally frusto-conical shape in which said gasket projects outward and upward toward said rim of said closure at an angle of between approximately 30° and 45° to a plane perpendicular to said cylindrical wall and outward a greater distance than the diameter of said cylindrical inner surface of said neck of said jar, whereby when said closure is in closed position in said neck of said jar the outermost portion of said sealing gasket has an inner surface extending upward and outward so as to be spaced from the cylindrical wall of said closure to provide limited floating and flexible wiping contact with the entire circumference of the inner surface of the neck of said jar, thus effectively to seal the interior of said jar in air-tight manner and also compensate for limited variations in the manufactured diameters of the necks of similar jars and/or covers, as well as variations in roundness of said jar necks and/or covers.

4,270,667
CONVERSION RING FOR FILLERS

Michel Neiman, Paris, France, assignor to Societe de Diffusion NEIMAN, Courbevoie, France

Filed Jul. 27, 1979, Ser. No. 61,121
Claims priority, application France, Jul. 28, 1978, 78 22346; Jul. 28, 1978, 78 22347; Jul. 28, 1978, 78 22348
Int. Cl.³ B65D 41/06; F16L 55/00
U.S. Cl. 220—86 R 4 Claims

1. A conversion ring for fillers of tanks, said fillers being of the kind having an external flange formed with two diametrically opposed cut-away portions with inclined faces, said ring being formed by a cylindrical wall and a flange inwardly extending from said wall and shaped to receive a filler cap, comprising a first locking means for cooperation with said external flange to prevent axial displacement of the ring in relation to the filler, and a second locking means constituted by at least one appropriately orientated depressed portion provided at the annular wall of the ring, this depressed portion being intended to cooperate with the inclined face of at least one of the two diametrically opposed cut-away portions of the external flange

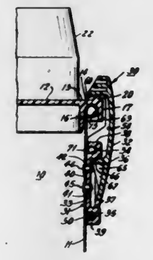


to prevent rotation of the ring in relation to the filler once the ring is placed on the filler.

4,270,668
BUCKLE OR LATCH FOR HOLDING LID TO CONTAINER

Robert C. Berfield, Jersey Shore, Pa., assignor to Shop-Vac Corporation, Williamsport, Pa.

Filed Feb. 5, 1980, Ser. No. 118,786
Int. Cl.³ B65D 45/16
U.S. Cl. 220—324 18 Claims



1. A latch or buckle for latching a lid to a container, wherein said buckle comprises:

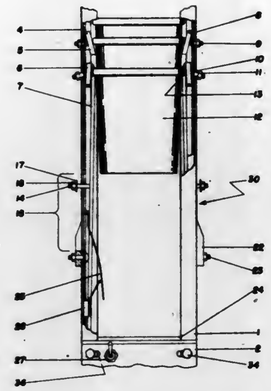
a mounting bracket for being secured to the wall of the container, said mounting bracket including an abutment thereon extending to a position where said bracket abutment will engage a cooperating abutment of the buckle upon attempted separation of the container and the lid;

a buckle element which is relatively movably connected to said mounting bracket at a location on said mounting bracket that is further from the lid to be held by said buckle than said mounting bracket abutment; said buckle element including a lid engaging portion positioned such that when said buckle element is moved to a first position thereof, said lid engaging element is in engagement with a lid of the container, and when said buckle element is moved to a second position thereof, said engaging element is out of engagement with that lid over the container; the aforesaid cooperating abutment being on said buckle element and moving therewith and being so shaped and so positioned on said buckle element that when said buckle element is in said first position thereof, said buckle element cooperating abutment is in engagement with said bracket abutment such that the engagement between said buckle element abutment and said bracket abutment obstructs such movement of said buckle element in a manner that would permit lifting of the lid off the container, whereby forces which are directed toward separating the lid from the container are generally absorbed between the cooperating said abutments, rather than at said movable connection between said bracket and said buckle element.

4,270,669
POT SEPARATOR

Virgil E. Lake, 4217 McCann Rd., Vancouver, Wash. 98665

Filed Jul. 27, 1978, Ser. No. 928,610
Int. Cl.³ B65G 59/06
U.S. Cl. 221—13 5 Claims



1. An apparatus specifically adapted for separating and dispensing nested nursery pots, having radially extending flange members, from a stack of such pots, said apparatus comprising:

a frame constructed to receive a stack of nested nursery pots to be separated and to define a path for pot travel axially of the stack;

positioning means for maintaining said stack in a fixed position with one end thereof at a predetermined location along said path;

a separation mechanism adapted to move a first pot at said one end of said stack to a dispensing location on said path away from said stack, said mechanism including at least one elongated member that:

a. is located to extend alongside and substantially parallel to said path,

b. is mounted to said frame for movement in a direction substantially parallel to said path, and

c. defines a detent which faces said path and which is positioned at a location along said elongated member so that movement of said elongated member toward said stack causes said first pot to be pulled away from said stack causes a flange member, extending radially from said first pot, to be received and retained by said detent and so that subsequent movement of said elongated member away from said stack and to be carried and supported by said elongated member for at least a portion of the distance between said predetermined location and said dispensing location;

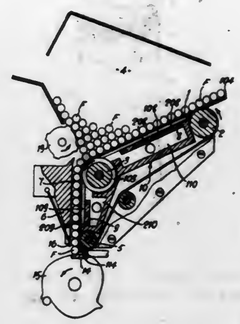
drive means for imparting reciprocating motion to said elongated member; and

release means for moving at least a portion of said elongated member radially outwardly from said first pot as said pot approaches said dispensing location so that said flange member is released from said detent and said first pot ceases to be carried and supported by said elongated member.

4,270,670
DEVICE FOR THE HIGH SPEED FEEDING OF ROD-LIKE ARTICLES

Athos Cristiani, Bologna, and Gianluigi Gherardi, Medicina, both of Italy, assignors to CIR S.p.A. Divisione Sasib, Bologna, Italy

Filed Mar. 26, 1979, Ser. No. 24,079
Claims priority, application Italy, Mar. 29, 1978, 12534 A/78; Apr. 28, 1978, 12584 A/78
Int. Cl.³ B65H 3/12
U.S. Cl. 221—211 4 Claims



1. A device for the high speed feeding of rod-like articles such as cigarette filter rods from a magazine containing a bulk supply of such articles, through a chute having an upper inlet end, a lower outlet end and spaced apart walls to define a flow path for a single row of articles, to pick-up means which sequentially pick up the articles individually the one after the other operative association with the outlet end of the said chute, wherein the improvement resides in the fact that there are provided forced-feeding means for positively feeding the said articles from the bottom of the magazine, where the said chute opens with its inlet end, through the said inlet end of the chute, said forced-feeding means comprising: an endless suction belt which defines at least an upper portion of a side wall of the chute, and at least an adjoining portion of the bottom wall of the magazine; and means driving said belt at a speed sufficient to propel articles downwardly through the chute, starting from the upper portion thereof, with an acceleration greater than that produced by the force of gravity.

4,270,671
DISPENSER FOR BULK PARTICULATE MATERIAL

John B. Arnold, Salina, Kans., assignor to Archer Daniels Midland Company, Decatur, Ill.

Filed Sep. 25, 1978, Ser. No. 945,294
Int. Cl.² B65D 47/04
U.S. Cl. 222—58 3 Claims

1. An apparatus for dispensing bulk, particulate material in a controlled, choked flow, comprising a conduit leading from a supply of the bulk material to a vertically depending hopper through a directional change in the conduit adapted to absorb a substantial amount of kinetic energy from the moving stream of particulate material immediately prior to the location where the particulate material falls into said hopper, closure means comprising a pair of pivotally operated clam shell members at the bottom of the hopper adjustable to any position from closed to wide open based on the weight of particulate material in the hopper, greater weight causing a larger opening, a vertically extensible bellows connection between the hopper and

the conduit upstream of the hopper, and a counterbalance weight providing an upwardly directed force on said hopper to



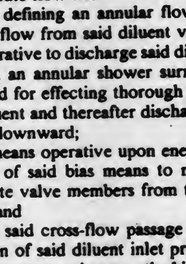
maintain the closure means in a closed position until a given weight of particulate material is in said hopper.

4,270,672
DISPENSING HOLDER FOR A COLLAPSIBLE TUBE
Ralph Kraals, 551 Evergreen Dr., Pasadena, Calif. 91105
Filed Jul. 26, 1979, Ser. No. 60,957
Int. Cl.³ B65D 35/28
U.S. Cl. 222—95 **13 Claims**



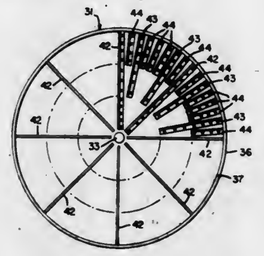
1. A dispensing holder for a collapsible tube, said holder comprising:
- a carrier formed to receive a collapsible tube of the type having a relatively flat rear end and a conical front end and terminating in a rigid neck;
- a seat extending substantially normal to, the front of said carrier;
- said carrier being formed with a recessed front portion connected to said seat whereby said seat and carrier define a continuous aperture at least a continuous portion of which is at least as wide as the neck of a collapsible tube of said type and extends across the connection between said seat and carrier so that the conical front end of the tube of said type can be received through said seat and then pivoted downwardly through said connection to be received in said recess and through said carrier; and
- means for progressively collapsing a collapsible tube that may be disposed on said carrier to a position adjacent said aperture through said carrier whereby to permit the conical front end of a collapsible tube of said type to be pivoted downwardly through said connection thereby facilitating emptying of said tube.

4,270,673
ELECTRIC GRAVITY DISPENSING VALVE
Joseph J. Rodth, Swansea, Mass., assignor to Alco Foodservice Equipment Company, Miami, Fla.
Filed Jul. 24, 1978, Ser. No. 927,435
Int. Cl.³ B67D 5/56
U.S. Cl. 222—129.3 **3 Claims**



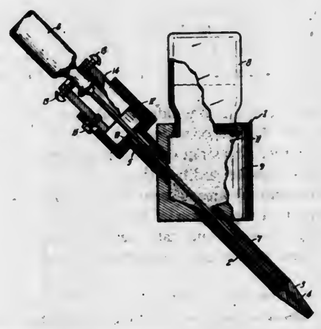
1. An electrically operated valve assembly for dispensing a beverage mixed from a gravity supply of liquid concentrate containing pulp and a supply of pressurized diluent, said valve assembly comprising:
- (a) body means defining
  - (i) a concentrate valving chamber having an inlet adapted for connection to said pulp supply and an outlet, said chamber having a valving surface provided therein;
  - (ii) a diluent valving chamber having an inlet adapted for connection to said diluent supply and an outlet, said chamber having a valving surface provided therein; and
  - (iii) means defining a cross-flow passage connecting said diluent and pulp passages upstream of said valving surfaces;
- (b) a concentrate valve member disposed within said concentrate valving chamber movable between an open position spaced from and a closed position contacting said diluent valving surface;
- (c) a diluent valve member disposed within said diluent valving chamber and movable between an open position spaced from and a closed position contacting said diluent valving surface;
- (d) means biasing said diluent and concentrate valves to the closed position;
- (e) pressure responsive means operative to move said concentrate valve member in response to the pressure differential between said concentrate valving chamber inlet and outlet;
- (f) nozzle means including
  - (i) means receiving flow by gravity from said concentrate outlet passage and operative to discharge said concentrate vertically downward by gravity and including means defining a knife edge orifice for metering said concentrate flow and
  - (ii) means defining an annular flow passage disposed to receive flow from said diluent valving chamber outlet and operative to discharge said diluent vertically downward in an annular shower surrounding said concentrate and for effecting thorough mixing of concentrate and diluent and thereafter discharging the mixture vertically downward;
- (g) power means operative upon energization to overcome the force of said bias means to move said diluent and concentrate valve members from the closed to the open position; and
- (h) wherein said cross-flow passage is operative to permit application of said diluent inlet pressure to said pressure responsive means to increase the bias on said pulp concentrate valve means, and upon opening of said diluent valve, said cross-flow passage permitting bleed-off of the pressure in said pulp concentrate passage inlet to relieve said pressure bias on said pulp concentrate valve member for permitting opening of said pulp concentrate valve by said power means.

4,270,674
INTEGRAL HEATER FOLLOWER PLATE
Leo M. Moore, Richmond, Va., assignor to Industrial Machine Service Co., Inc., Richmond, Va.
Continuation of Ser. No. 726,790, Sep. 27, 1976, abandoned. This application Jun. 18, 1979, Ser. No. 49,571
Int. Cl.³ B67D 5/62; F16K 49/00
U.S. Cl. 222—146 HE **8 Claims**



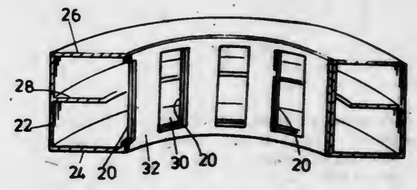
1. An integrally fabricated heater follower plate comprising:
- a plate having a top surface, a bottom surface and a peripheral edge surface;
- an aperture cut through said plate;
- wiper means secured around said peripheral edge surface, said wiper means extending slightly beyond said peripheral edge surface of said plate;
- at least one spiral groove cut into said bottom surface of said plate;
- a spiral heater wire embedded into said at least one spiral groove; and
- a plurality of heat conducting fins secured in intimate heat contact to said bottom surface of said plate.

4,270,675
POWDER FEED APPARATUS
Ruel E. Wicks, Manchester, and Herbert A. Tourtellotte, East Hartford, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Oct. 29, 1979, Ser. No. 88,807
Int. Cl.³ B65G 65/40, 69/00
U.S. Cl. 222—196 **2 Claims**



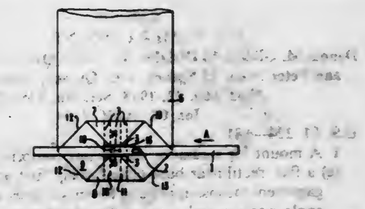
1. An apparatus for feeding powder at a controlled constant rate consisting of:
- a. a powder reservoir;
- b. a downwardly sloping powder feed tube which terminates in a nozzle and which contains a passage which communicates between the powder reservoir and the nozzle;
- c. vibrating means for generating axial mechanical vibrations, said means being located external of the powder reservoir and powder feed tube;
- d. a drive rod connected to the vibrating means, said rod being located within the powder feed tube and ending in proximity to the nozzle, (without passing into or through the nozzle) and being adapted to reciprocate, in the direction of its length, relative to the powder feed tube.

4,270,676
FEED DISTRIBUTORS
Basil W. Green, Boksburg, South Africa, assignor to Fraser & Chalmers Equipment Limited, Johannesburg, South Africa
Filed Jun. 15, 1979, Ser. No. 48,774
Claims priority, application South Africa, Jun. 16, 1978, 78/3467
Int. Cl.³ B28C 5/04
U.S. Cl. 222—485 **5 Claims**



1. A slurry feed distributor for sedimentation apparatus comprising two annular channels extending around a zone of distribution, at least one aperture along the length of each channel from which slurry fed along the channel flows into the zone, means to feed slurry into the two channels in opposite directions, and means for adjusting the size of the opening of each aperture.

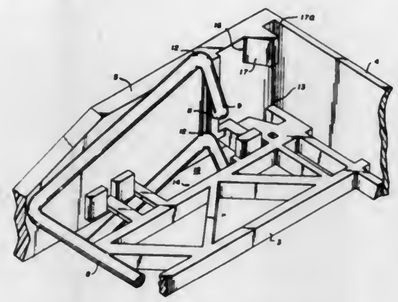
4,270,677
RECLOSABLE CROSS-BOTTOM SACK
Horst Schmidt, Kattenvenne, Fed. Rep. of Germany, assignor to Windmöller & Hölscher, Lengerich, Fed. Rep. of Germany
Filed Sep. 5, 1979, Ser. No. 72,679
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838859
Int. Cl.³ B65D 30/12, 83/00
U.S. Cl. 222—561 **4 Claims**



1. A reclosable cross-bottom sack consisting of a tube section having a pulled-open base square defined by spaced apart corner folds, the base square being closed by folding over and adhering side flaps formed by the corner folds, a base cover sheet adhered to the side flaps to form a cross-bottom, an internal lock connected to confronting inner edges of the corner folds, confronting edges of the folded-over side flaps being spaced apart so that a channel is formed between end

faces of the side flap edges, the internal lock and the base cover sheet, and a strip of material having a hole in its central region forming a closure lock inserted in said channel to project beyond both ends of the cover sheet.

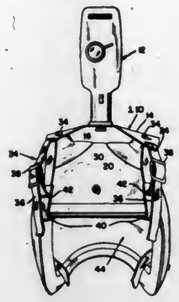
4,270,678
BREAD CARRIER
Clarence H. Drader, Box 18, R.R. #2, South Edmonton, Alberta, Canada (T6C 4E6)
Filed Jan. 31, 1980, Ser. No. 117,275
Int. Cl.[3] B65D *21/02, 6/18*
U.S. Cl. 294—169 3 Claims



1. A carrier for bread and the like comprising:
a plastic rectangular tray having floor means, spaced upstanding side walls and spaced upstanding end walls;
a pair of metal carrying bails pivotally connected to the side walls and extending along the oppositely disposed end walls, each of the bails being moveable between an upright position and a folded position;
each of the bails comprising a pair of spaced generally L-shaped leg members having upper and lower legs, the lower leg of each leg member being pivotally connected to the tray at a point spaced inwardly from the end wall such that the heel of the leg member, when the bail is in the upright position, is nested in a corner of the tray and, when the bail is in the folded position, protrudes above the upper edges of the side and end walls, said bail further comprising a horizontal handle member interconnecting the upper legs of the pair of leg members;
slot means in the floor means of the tray for receiving the upwardly protruding heels of the leg members of a second carrier stacked therebelow in a folded position wherby the peripheral walls of one carrier rest on the peripheral walls of the other; and
locking means on the tray for releasably locking the bails in the upright position.

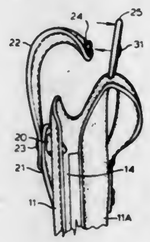
4,270,679
CAMERA MOUNT
Dennis M. Gildea, 45 Division St., North Quincy, Mass. 02169, and Peter Nota, 15 Spence Ave., Quincy, Mass. 02169
Filed Aug. 22, 1978, Ser. No. 935,857
Int. Cl.[3] A45C *1/04*
U.S. Cl. 224—181 2 Claims

1. A mount for a camera, the mount comprising:
(a) a flat, rectilinear base plate having first and second engagement means, upper and lower surfaces, a plane, a first angle portion and a second angle portion, the first and second angle portions being bent at an angle to the plane of the base plate, and spaced from each other, the first angle portion having the first engagement means associated therewith and the second angle portion having the second engagement means associated therewith, the lower surface having attachment means associated therewith, the attachment means comprising suction cups, each suction cup adapted to engage the exterior surface of protective headgear having a cup portion and a stem portion and a suction cup attached to the first angle portion and another suction cup attached to the second angle portion,
(b) affixation means associated with the base plate having means for engaging a camera and extending above the plane of the base plate, and



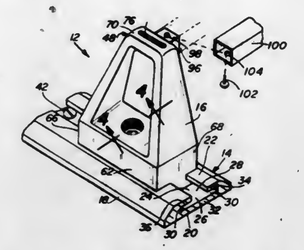
(c) adjustable connection means associated with the first and second engagement means whereby the affixation means is adapted to engage a camera and the connection means is adapted to engage the edge of the protective headgear near the open end thereby fixing the camera in spaced relation to the headgear when the headgear is worn by a human.

4,270,680
THUMB BREAK HOLSTER
John E. Bianchi, 1601 Wilt Rd., Fallbrook, Calif. 92029
Filed Oct. 10, 1979, Ser. No. 83,359
Int. Cl.[3] B23P *11/02*
U.S. Cl. 224—193 6 Claims



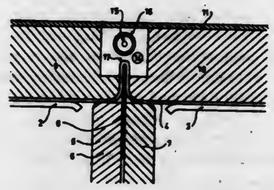
1. A thumb break front opening holster comprising:
a body of leather or leatherlike material folded to define a handgun receiving cavity including a top opening for receiving a handgun and a front opening for drawing the handgun;
a belt loop secured to one side of said body for mounting the holster on the belt of a wearer;
a handgun retaining strap secured at one end to the body on the side opposite said belt loop;
relatively rigid tab means separate from said body pivotally secured to a top region of said body adjacent to the top opening thereof, said tab means mounted for pivotal movement toward and away from the top opening of said body;
fastening means comprising a pair of mating parts, one of said parts attached to said tab means and the other of parts secured to said strap; and
said fastening means separable by movement of the wearer's thumb forward on drawing of the handgun.

4,270,681
SLIDABLE BRACKET FOR ARTICLE CARRIER
Charles E. Ingram, Warren, Mich., assignor to Four Star Corporation, Troy, Mich.
Continuation-in-part of Ser. No. 836,966, Sep. 27, 1977, Pat. No. 4,132,335. This application Dec. 8, 1978, Ser. No. 967,568
The portion of the term of this patent subsequent to Jan. 2, 1996, has been disclaimed.
Int. Cl.[3] B60R *7/00*
U.S. Cl. 224—321 1 Claim



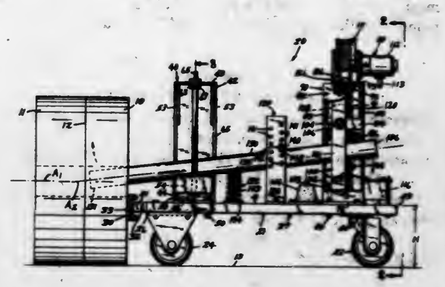
1. A tie-down bracket for an automotive vehicle mounted carrier having at least one slat affixed to the vehicle, the improvement comprising:
(a) a base section engageable with the slat;
(b) an upper section for facilitating securement of articles on the carrier;
(c) the upper section being interconnected to the base section;
(d) a slot formed in said upper section;
(e) a disc disposed entirely within said slot;
(f) a member for releasably engaging said track;
(g) a threaded shaft connected to said member and projecting upwardly therefrom, said shaft extending through a bore in the base section, the bore in communication with the slot formed in the upper section;
(h) said disc being threadably interconnected to the shaft, said disc having a tool engaging aperture formed therein; and
(i) said upper section having a through-bore in communication with said tool aperture permitting access of a tool to said aperture whereby said disc may be rotated to move the shaft mounted member into locking engagement with the slat.

4,270,682
SHEET RUPTURING
Yves Lavoisey, Asnieres, and Jean Nierlich, Antony, both of France, assignors to Saint-Gobain Industries, Neuilly-sur-Seine, France
Filed May 7, 1979, Ser. No. 36,654
Claims priority, application France, May 12, 1978, 78 14142
Int. Cl.[3] B26F *3/06*
U.S. Cl. 225—1 23 Claims



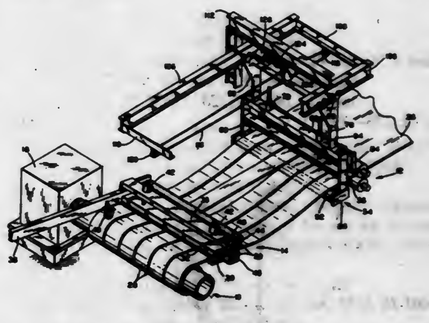
11. Cutting apparatus for cutting a sheet formed of at least one layer of plastic material comprising a thin rigid blade, means for creating stress on a small zone of the sheet by folding the sheet about the blade, and heating means disposed in spaced relation to said stress zone for selectively applying heat to said zone.

4,270,683
PORTABLE PAPER ROLL BREAKING MACHINE
David Crosby, P.O. Box 427, International Falls, Minn. 56649
Filed Oct. 1, 1979, Ser. No. 80,511
Int. Cl.[3] B26F *3/00*
U.S. Cl. 225—103 7 Claims



6. Roll breaking apparatus comprising, in combination:
a main lever having a first end, for insertion into one end of a paper roll to be broken from an axially abutting roll, and a second end remote therefrom;
a fulcrum arranged to support said main lever as a lever of the first class, the distance of said fulcrum from said first end of said main lever being less than its distance from said second end;
means enabling vertical adjustment of said fulcrum;
means resiliently supporting said second end of said lever;
means limiting the upward movement of said second end of said main lever;
and a striker assembly arranged to impact said second end of said lever downwardly at a site remote from said fulcrum, to suddenly apply upward force to said first end of said lever.

4,270,684
APPARATUS FOR HANDLING SHEET STEEL OR THE LIKE
Ford B. Cauffiel, 1400 Hastings Ave., Toledo, Ohio 43607
Filed Sep. 27, 1979, Ser. No. 79,384
Int. Cl.[3] B65H *17/36*
U.S. Cl. 226—162 4 Claims



3. Apparatus for engaging and moving leading edges of ribbons slit from an elongate sheet of steel from a slitter to a recoiler along a slitter line, said apparatus comprising a carriage having a frame, two elongate jaws mounted on said frame, one above the other, and extending transversely of the

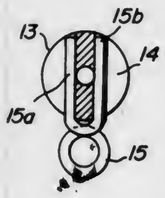
ribbons, with the length of said jaws exceeding the width of the ribbons, a lower surface of the upper jaw being parallel to an upper surface of the lower jaw, means for moving the upper one of said jaws toward and away from the lower one to clamp the leading edges of the ribbons therebetween, means located above the lower jaw for supporting said carriage for movement between a position adjacent the slitter and a position adjacent the recoiler, power means for moving said carriage between the two positions of the slitter line, a roller carried by said frame immediately downstream of said lower jaw, said roller being parallel to said lower jaw, and having its uppermost peripheral surface in substantially a common horizontal plane with the upper surface of said lower jaw.

4,270,685

CAPSTAN BEARING DEVICE

Kazuyasu Motoyama, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 968,979, Dec. 13, 1978, abandoned.
This application Feb. 29, 1980, Ser. No. 125,786
Claims priority, application Japan, Dec. 14, 1977, 52-150132; Dec. 16, 1977, 52-169129
Int. Cl.³ B65H *17/20*; G11B *23/04*
U.S. Cl. 226—194 **1 Claim**



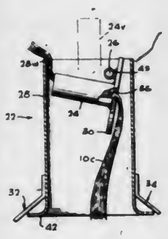
1. A capstan bearing device for a tape recorder adapted to operatively engage therein a tape cassette comprising a chassis, a capstan shaft having flywheel means operatively attached thereto, a bearing member secured to said chassis for rotatably supporting said capstan shaft, said bearing including an extended part thereof arranged to extend into said tape cassette in operative engagement therewith, said extended part being formed partially of metal and partially of an oilless metal, a pair of opposed grooves formed in said bearing member, an annular groove formed in said capstan shaft adjacent said opposed grooves in said bearing member, and a coupling pin extending into said opposed grooves into engagement with said annular groove in said capstan shaft to absorb axial thrust in said capstan shaft.

4,270,686

ROVING BRAKE

Robert L. Smith, 435 Fair Dr., Costa Mesa, Calif. 92626

Filed Dec. 5, 1977, Ser. No. 857,229
Int. Cl.³ B65H *23/28, 23/08, 59/12*
U.S. Cl. 226—195 **3 Claims**



1. A roving brake for controlling the movement of roving from a coil thereof that lies in a box, to a largely overhead guide, comprising:

a support which includes a cylinder for extending along a vertical axis, said cylinder having an outwardly flared lower end, a pair of bars on opposite sides of the cylinder, said bars having upper bar ends connected to said cylinder and lower bar ends for extending into the corners of the coil-holding box, and a pair of clamps on the outer sides of the bars for clamping to the box; and

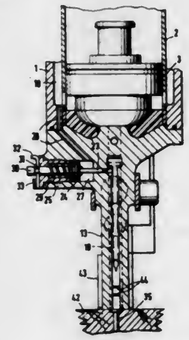
a tube pivotally mounted on said cylinder between a vertical position wherein said tube is oriented with its axis largely parallel to the axis of the cylinder, and a tilted position wherein the upper end of the tube is tilted from said vertical position.

4,270,687

APPARATUS FOR DRIVING FASTENERS

Werner Maurer, Nuertingen, Fed. Rep. of Germany, assignor to Karl M. Reich Maschinenfabrik GmbH, Nuertingen, Fed. Rep. of Germany

Filed Aug. 23, 1979, Ser. No. 68,746
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838194
Int. Cl.³ B25C *1/04*
U.S. Cl. 227—113 **7 Claims**



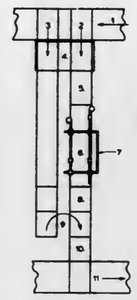
1. A driving apparatus for driving fasteners having shafts into a work piece, comprising housing means, fastener driving means in said housing means, said fastener driving means comprising driving rod means and ejector channel means, said driving rod means being movable in said ejector channel means between a rest position and a driving position, said apparatus further comprising magazine means operatively connectable to said housing means for supplying fasteners into said ejector channel means, separator means operatively arranged relative to said magazine means and said ejector channel means, said separator means including a separator member movable between a fastener stop position and a fastener releasing position, said apparatus further comprising holding means so positioned relative to said ejector channel means and relative to said separator means as to hold a fastener released by said separator member in said ejector channel means, said apparatus further comprising pressurized air storage means operatively connected to said fastener driving means for temporarily storing air under pressure resulting from a driving movement of said driving rod means for returning said driving rod means into said rest position with the aid of said air under pressure, and separator control means comprising cylinder means operatively connected to said pressurized air storage means and piston means in said cylinder means, said piston means being operatively connected to said separator member.

4,270,688

APPARATUS FOR MANUFACTURING GLAZING PANELS

Theo Janssens, Mol, and Victor Willems, Retie, both of Belgium, assignors to B. F. G. Glasgroup, Paris, France

Filed May 29, 1979, Ser. No. 43,029
Claims priority, application United Kingdom, Jun. 14, 1978, 26975/78
Int. Cl.³ C03C *27/08*
U.S. Cl. 228—5.1 **25 Claims**



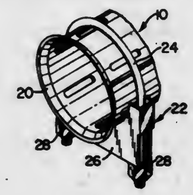
1. Apparatus for use in manufacturing a glazing panel including a pair of glazing sheets separated by an intervening marginal spacer frame formed to a required size and shape from strip material and marginally secured between the pair of sheets, comprising a frame forming mechanism which includes guide means defining at least two paths for feeding required lengths of such strip material, stop means defining a position for the leading ends of such strip material as it is fed, a plurality of bending stations arranged to bend such strip material on at least one said path to form frame corner angles at required distances from said stop means, and means for joining the ends of spacer strip material which has been fed along said paths and bent, thereby to form the frame.

4,270,689

METHOD OF FORMING A TUBE STRUCTURE FOR USE IN A LAP JOINT

Ray E. Canfield, Grinnell, Iowa, assignor to Donaldson Company, Inc., Minneapolis, Minn.

Division of Ser. No. 922,689, Jul. 7, 1978, abandoned, which is a continuation of Ser. No. 773,848, Mar. 3, 1977, abandoned. This application Sep. 14, 1979, Ser. No. 75,651
Int. Cl.³ B23K *31/06*
U.S. Cl. 228—152 **6 Claims**



1. A method of forming a tube structure for use in a lap joint for the exhaust system of an internal combustion engine, comprising the steps of:

(a) forming a plurality of apertures in a single row along a straight edge of a predetermined length of substantially flat steel stock, the apertures passing entirely through the steel stock, and the steel stock entirely surrounding each aperture in closed relation;

(b) rolling the length of substantially flat steel stock into a tubular form which defines at least one free end with the closed apertures disposed adjacent the free end, the rolled tube defining a longitudinal seam;

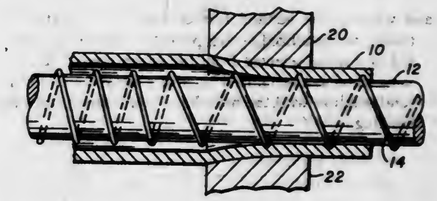
(c) and welding the rolled steel stock along the longitudinal seam to define a closed tube the free end of which is adapted to receive the free end of a smaller tube in overlapping relation and to define a lap joint therewith.

4,270,690

METHOD OF FORMING VARIABLY RIFLED TUBES

Thomas L. Mabery, East Ridge, and Francis B. Jackson, Chattanooga, both of Tenn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Sep. 10, 1979, Ser. No. 73,968
Int. Cl.³ B23P *15/26*
U.S. Cl. 228—173 F **10 Claims**



1. A method for forming variable rifling in the inner wall of a tubular member comprising the steps of:

a. providing a mandrel having a lesser diameter than the internal diameter of the tubular member;

b. wrapping a wire-like member around the circumference of the mandrel so as to establish a predetermined pattern on the external surface of the mandrel corresponding to the pattern of variable rifling to be formed in the inner wall of the tubular member;

c. inserting the mandrel with the wire-like member wrapped thereon into the interior of the tubular member;

d. effecting a reduction in the diameter of the tubular member so as to cause the wire-like member to become embedded in the inner wall of the tubular member; and

e. withdrawing the mandrel from the interior of the tubular member thereby leaving the wire-like member embedded in the inner wall of the tubular member such that the embedded wire-like member functions to provide the inner wall of the tubular member with a pattern of variable rifling.

4. A method as set forth in claim 1 further including the step of attaching the ends of the wire-like member to the inner wall of the tubular member to prevent the ends of the wire-like member from becoming dislodged from the inner wall of the tubular member.

4,270,691

METHOD OF JOINING CERAMIC MEMBERS AND ITS APPLICATION TO OXYGEN SENSOR ELEMENT MANUFACTURE

Shinya Ishii, Toyoake; Takaharu Saito, Nagoya; Masahiko Sugiyama, and Takashi Kamo, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

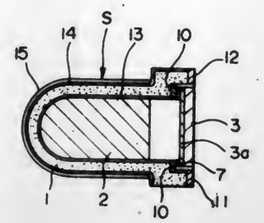
Filed Jan. 22, 1979, Ser. No. 5,459
Claims priority, application Japan, Aug. 18, 1978, 53-100691
Int. Cl.³ B23K *20/16*
U.S. Cl. 228—194 **8 Claims**

1. Method of forming an air-tight joint between ceramic members, comprising the steps of:

forming a metallized layer by metallizing treatment on each surface of ceramic members to be joined;

aligning the so formed metallized layers of the ceramic members; and,

diffusion-bonding said ceramic members by pressing them together under high pressure and high temperature conditions;



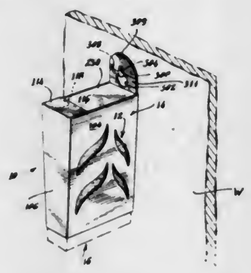
and wherein the method further comprises inserting between the metallized layers, prior to diffusion-bonding, a foil of a metal selected from the group consisting of the same metal as a metallized layer or a metal which forms a solid solution with the metallized layer during diffusion-bonding.

4,270,692

AIR DIFFUSER

George Webinger, Minneapolis, Minn., assignor to Champion International Corporation, Stamford, Conn.

Filed Jan. 17, 1980, Ser. No. 112,922
Int. Cl.³ B65D *5/38, 13/06*
U.S. Cl. 229—11 17 Claims



1. A carton having a plurality of adjustable air passages comprising:

(a) a first tapered sleeve forming an outer carton unit, said first sleeve having a plurality of spaced openings therein and a plurality of panels forming a stop;

(b) a second tapered sleeve forming an inner carton unit, said second sleeve being nested within said first sleeve and being slidable between a first position and a second position, said second sleeve being closed at opposite ends and having a plurality of spaced openings therein arranged complementary to said spaced openings in said outer carton unit to align with the openings therein when said inner carton unit is in said first position in abutment with the stop in said first sleeve, and to align with the spaces between said openings in said outer carton unit when said inner carton unit is in said second position; and

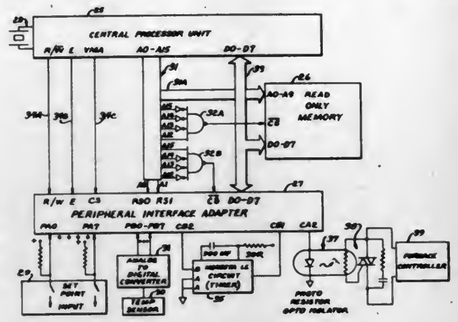
(c) means shiftably mounted on at least one of said first and second tapered sleeves for selectively blocking sliding movement of said second tapered sleeve from said second position thereof to said first position thereof.

4,270,693

ELECTRONIC THERMOSTAT WITH HEAT ANTICIPATION AND CONTROL METHOD INCORPORATING SAME

Thomas E. Hayes, Goshen, Ind., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Filed Aug. 13, 1979, Ser. No. 66,484
Int. Cl.³ F16C *1/24;* F23N *5/20*
U.S. Cl. 236—46 F 20 Claims



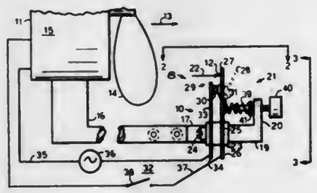
1. Thermostat apparatus comprising: sensor circuit means responsive to ambient temperature for generating a digital electrical temperature signal representative of ambient temperature; set point means for generating a digital electrical set point signal representative of a desired temperature set point; data processor means receiving said temperature and set point signals for generating a composite signal from one of said temperature and set point signals comprising a first component signal representative of said one signal, a second offset component signal having a sense to reinforce the state of said output signal, and a third component signal comprising a time-varying signal having a slope opposite to the sense of said offset signal, said data processor means comparing said composite signal with the other of said set point and temperature signals for generating an output control signal when said composite signal reaches a predetermined value relative to said other signal; and control circuit means responsive to said output control signal for controlling a source of energy.

4,270,694

FLUID FLOW REGULATING SYSTEMS

Berthold A. Knauth, P.O. Box 2742, Daytona Beach, Fla. 32015

Division of Ser. No. 853,470, Nov. 21, 1977, Pat. No. 4,174,065, which is a continuation-in-part of Ser. No. 838,676, Sep. 30, 1977, abandoned, which is a continuation of Ser. No. 692,845, Jun. 4, 1976, abandoned. This application Jan. 29, 1979, Ser. No. 7,562
Int. Cl.³ F04B *49/00;* F24F *11/04*
U.S. Cl. 236—49 13 Claims



1. A fluid flow regulating system comprising an electrically powered motor, a fluid impeller which is drivingly connected to and driven by the motor, said motor having a continuously energized operating speed, and a system for controlling the

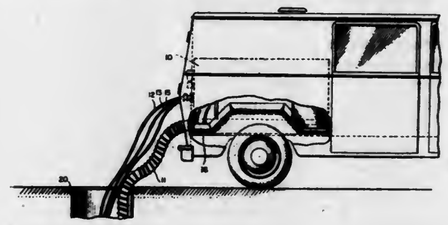
speed of the motor to regulate the flow of fluid delivered by the impeller, said controlling system comprising an electric circuit connected to and for energizing the motor, said circuit having switching means for opening and closing the circuit to deenergize and energize the motor, a dynamic force sensing member which is movably mounted in the path for a stream of fluid delivered by the impeller to detect dynamic fluid flow forces applied to the member by fluid flowing into contact therewith, said switching means being automatically responsive to a movement of the member which reflects an applied dynamic fluid flow force in excess of a predetermined force level to open the circuit and deenergize the motor and to another movement of the member which reflects an applied dynamic fluid flow force less than said predetermined force level to close the circuit and energize the motor, said motor being acceleratable to a speed productive of an applied dynamic fluid flow force having said predetermined force level and being productive of an applied fluid flow force in excess of said predetermined force level at said continuously energized operating speed, whereby the motor is controlled to cyclically accelerate and decelerate in a speed range below said continuously energized operating speed and the impeller continuously delivers the fluid at a flow rate regulated in accord with the controlled speed of the motor.

4,270,695

UNDERGROUND SERVICE MODULE

Miles T. Carson, 2390 W. Dartmouth at S. Zuni, Englewood, Colo. 80110

Continuation-in-part of Ser. No. 968,790, Dec. 12, 1978. This application Jul. 30, 1979, Ser. No. 62,021
Int. Cl.³ F24D *1/04*
U.S. Cl. 237—12.1 9 Claims



1. A service module, comprising:

a liquid cooled internal combustion engine;

a liquid cooled air compressor driven by said internal combustion engine;

an exhaust conduit for removing exhaust gases from said liquid cooled internal combustion engine;

a liquid reservoir;

a liquid circuit coupling liquid between said liquid cooled internal combustion engine, said liquid cooled air compressor and said liquid reservoir;

a heat exchange gas duct positioned in said liquid reservoir in heat exchange relationship with said liquid; and

an exhaust gas deflector positioned in said exhaust conduit responsive to the temperature of said liquid exiting said liquid cooled internal combustion engine for selectively deflecting exhaust gas through said heat exchange gas duct.

4,270,696

DRIP IRRIGATOR FOR HANGING BASKETS

Odell Pointer, Jr., 1317 Finch St., Houston, Tex. 77009

Filed Sep. 4, 1979, Ser. No. 72,348
Int. Cl.³ A01G *9/02*
U.S. Cl. 239—38 5 Claims

1. A drip irrigator for a hanging basket plant container of the type adapted to be suspended from a hook or bracket and to hold aqueous solutions, said irrigator comprising a reservoir and a distributor disposed below the reservoir, said reservoir being of generally conical contour disposed with its small end upward and tapering downwardly to a broad bottom end having no openings therethrough other than a central opening which is flow connected to said distributor in a first position of the distributor, the distributor being disposed below and adjacent said reservoir and being in the general form of a relatively



thick disc having lateral dimensions approximately the same as said bottom end of the reservoir, said distributor having a central connector portion extending upwardly into the central opening of the reservoir in sealing relationship therewith, said distributor also having a bottom or base containing a multiplicity of small openings therethrough for the dripping of liquids, such multiplicity of small openings being disposed over a broad circular area of said base whereby their exudations wet a like size circular area of a hanging basket below

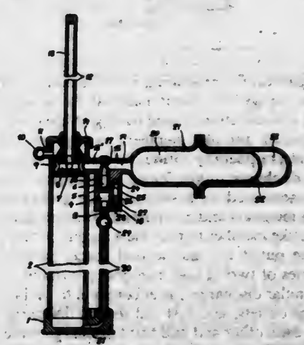
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4,270,697

IMPULSE-TYPE SINKING HYDRANT

Veselin Y. Georgiev, and Vladimir S. Mednikarov, both of Sofia, Bulgaria, assignors to Institute Po Mechanika I Biomechanika, Sofia, Bulgaria

Filed Apr. 12, 1979, Ser. No. 29,679
Claims priority, application Bulgaria, Apr. 17, 1978, 39446
Int. Cl.³ B05B *1/08*
U.S. Cl. 239—99 3 Claims



1. An impulse-type sinking hydrant comprising:

an upright cylindrical housing;

a closely-fitted piston in said cylindrical housing and movable between an upper and a lower position, said piston having at least one radial passageway;

an upright stem on said piston formed with a throughgoing first passageway communicating with said radial passageway, said stem extending above said housing in the upper position of said piston;

a pressure-accumulative reservoir provided at an upper end of said cylindrical housing and having a horizontal conduit formed with a secondary passageway communicating

with the interior thereof and which lies in axial alignment with said radial passageway in the upper position of said piston;

a first supply conduit communicating with said reservoir for feeding water under pressure thereto through a third passageway feeding into said second passageway and to the interior of said housing through a fourth passageway feeding into a lower end of said housing beneath said piston for displacing said piston into said upper position; and

a valve member movable independently of said piston vertically disposed in a chamber in said third passageway and displaceable by the water pressure from said first supply conduit into a radial passageway blocking position for allowing said water to feed into said reservoir, said valve member being displaceable by a lowering of the water supply pressure into a first supply conduit blocking position for allowing the water from said reservoir to feed into said radial passageway.

4,270,698

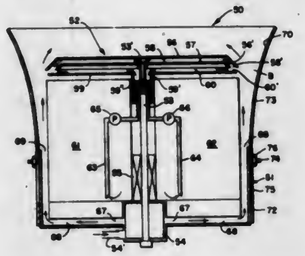
AEROSOL FORMING DEVICE

Karl Bisa, and Thomas Bisa, both of Am Wilzenberg 32, 5949 Grafschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 856,008, Nov. 30, 1977, abandoned, which is a continuation-in-part of Ser. No. 823,327, Aug. 10, 1977, abandoned, which is a continuation of Ser. No. 722,573, Sep. 13, 1976, abandoned, which is a division of Ser. No. 581,847, May 29, 1975, abandoned. This application Nov. 30, 1979, Ser. No. 98,835

Int. Cl.³ B64D *1/18*; B05B *3/08*

U.S. Cl. 239—171 **9 Claims**



1. Apparatus for producing aerosols comprising means providing a supply for fluent material to be dispersed, means defining a distribution device having at least two first substantially parallel disc-like members axially separated by a first space and peripherally formed to provide a first substantially annular discharge outlet for said first space, a third disc-like member separated by a second space from one of said first disc-like members and peripherally formed to coact with said one disc-like member to provide a second substantially annular discharge outlet for said second space, means including the peripheries of two of said members providing a third substantially annular discharge outlet common to said first and second discharge outlets, said first and second discharge outlets being close to each other and said third discharge outlet surrounding said first and second discharge outlets, and said first, second and third discharge outlets having a substantially common axis, nozzle means for providing an annular stream of air moving axially substantially parallel to the said common axis of said discharge outlets and past said third discharge outlet, means defining an air feed passage to said second space whereby during operation air under pressure may be continually fed into said second space to provide a continuous substantially radially directed air stream through said second discharge outlet, means defining a material feed passage between said supply and said first space whereby during operation said material may be continually fed into said first space and transported through said first discharge outlet into said radially directed air stream to form a combined stream of air and material which in turn is substantially radially directed outwardly through said third discharge outlet into and through said axially moving air stream, and an annular baffle surface circumferentially surrounding said third discharge outlet and extending longitudinally therebeyond in the direction of flow of said axial air stream, said baffle surface being disposed in such radial outward location with respect to the third discharge outlet as to be in the direct path of and be impacted by the said stream of air and material thrown outwardly from said distribution device, and said baffle surface being an outwardly flared smooth surface providing an axial passage of changing cross section surrounding said third discharge outlet.

4,270,699

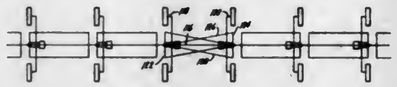
LATERALLY MOBILE IRRIGATION SYSTEM

David A. Siekmeier, 4616 60th St.; Glen L. Andersen, Box 1159, both of Columbus, Nebr. 68601; Arthur L. Zimmerer, deceased, late of Lindsay, Nebr.; by First National Bank & Trust Co., joint executor, Columbus, Nebr. 68644; by Bernadette Zimmerer, joint executor, Lindsay, Nebr. 68601, and William P. Zimmerer, 555 Westmont #144, San Luis Obispo, Calif. 93401

Filed Oct. 30, 1978, Ser. No. 955,941

Int. Cl.³ A01G *25/09*

U.S. Cl. 239—184 **39 Claims**



1. In a linearly mobile irrigation system having a pipe string with sprinkler units thereon, supported at intervals by mobile towers, motor means on the towers for propelling them in a direction perpendicular to the pipe string, means for activating the tower motors in response to misalignment between segments in the pipe string; an improved method of steering said mobile irrigation unit comprising the steps of:

(1) independently driving at least two master towers at equal primary rates according to a prechosen program;

(2) dependently driving all other slave towers by activating the slave tower motors at such times as required to maintain the pipe string substantially in a straight line;

(3) sensing the overall location of the system with reference to a designated path;

(4) generating a correction signal when the system strays from the path;

(5) utilizing the correction signal to alter the primary rate of advancement of at least one master tower thus establishing differential rates for the master towers which cause the entire system to pivot in the desired direction; and

(6) releasing the correction signal to return the altered master tower to its primary rate as soon as the system begins to return to the designated path.

4,270,700

SECTORAL WATER SPRINKLER

Gerhard Brandl, Leonhardstrasse 79, A-80109 Graz, Austria

Filed Jul. 11, 1979, Ser. No. 56,779

Claims priority, application Austria, Jul. 18, 1978, 5214/78

Int. Cl.³ B05B *3/04*

U.S. Cl. 239—231 **1 Claim**

1. A sectoral water sprinkler comprising

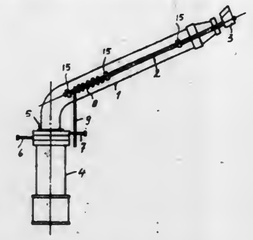
(a) a substantially vertical standpipe arranged to receive a stream of water under pressure,

(b) a pair of abutments projecting from the standpipe and adjustable for defining therebetween a changeable angle determining a sector,

(c) a water transmitting pipe mounted rotatably on, and in communication with, the standpipe for rotation in a substantially horizontal plane, the water transmitting pipe having a section extending from the standpipe in a plane oblique to the horizontal plane and being driven in a forward direction towards a first one of the abutments by the water pressure,

(d) a water spray nozzle mounted on an outer end of the water transmitting pipe section and dispensing a jet of water when the stream of water under pressure is received in the standpipe and transmitted through the water transmitting pipe,

(e) a shifting rod rotatably mounted on the water transmitting pipe and extending therealong for rotation about an axis transverse to the vertical standpipe, the shifting rod



having an inner end and an outer end projecting beyond the water spray nozzle,

(f) a return blade mounted on the outer shifting rod end, and

(g) a spring element having one end affixed to the inner end of the shifting rod, said one end being a coil spring wound about the inner shifting rod end, and another, free end forming a lever arm extending from the shifting rod into the sector determined by the pair of abutments whereby a sectoral sweep of the water transmitting pipe and nozzle is defined, the return blade being configurated and arranged to pass into and out of the path of the water jet during each sweep between the abutments.

4,270,701

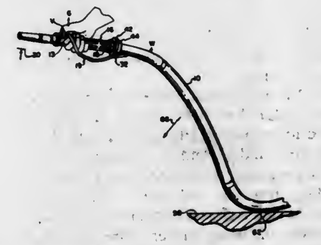
BUMPER

Valentine Hechler, IV, 26 Meadow View Rd., Northfield, Ill. 60093

Filed May 29, 1979, Ser. No. 43,457

Int. Cl.³ B05B *15/06*

U.S. Cl. 239—288.5 **1 Claim**



1. The combination of a rigid, elongated, manually controlled liquid dispensing means having an inlet end and an outlet end, an elongated flexible liquid supply hose of substantially greater length than said liquid dispensing means which is adapted to extend from a horizontal support surface spaced beneath said liquid dispensing means to said inlet end when said liquid dispensing means is manually supported above said support surface, rigid coupling means extending between said liquid supply hose and said liquid dispensing means to rigidly, coaxially but releasably couple one end of said liquid supply hose to the inlet end of said liquid dispensing means, and a resilient bumper ring surrounding and extending over said rigid coupling means in the area where said rigid coupling means contacts said supply hose and abutting the inlet end of said liquid dispensing means when said liquid dispensing means is coupled to said supply hose, said resilient bumper ring having a major radial dimension which is greater than that of said liquid dispensing means and at least three times the diameter of the supply hose extending away from said coupling means and which is positioned closer to the center of gravity of said liquid dispensing means than to the center of gravity of the section of said supply hose adjacent said coupling means, the resilient bumper ring including a first circular section of said major radial dimension closely adjacent the inlet end of said liquid dispensing means and a second section of a lesser radial dimension than said first section but of a greater axial extent extending to a point adjacent said supply hose to supplement with said hose an opposing resilient weight leverage relation upon the bumper ring for urging the liquid dispensing means to reverse its downward movement and tilt upwardly about the major dimension of said first section when said first section contacts said support surface, the supply hose adjacent said coupling means in combination with said resilient bumper ring being of sufficient weight relative to the weight of said liquid dispensing means to pivot said liquid dispensing means about the fulcrum provided by said resilient bumper ring when said bumper ring initially contacts said support surface after said liquid dispensing means is allowed to free fall from a position above said support surface to move the outlet end thereof upwardly away from said support surface.

4,270,702

ADJUSTABLE ORIFICE AIR KNIFE

Charles B. Nicholson, Glens Falls, N.Y., assignor to Albany International Corp., Menands, N.Y.

Filed Apr. 26, 1978, Ser. No. 900,141

Int. Cl.³ B05B *1/32*

U.S. Cl. 239—455 **9 Claims**



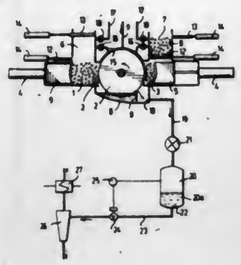
1. An adjustable orifice fluid knife comprising; a supporting structure adapted to be connected to a source of fluid, a passage network on the supporting structure terminating in an opening for transmittal of fluid from the fluid source and out of the opening, a nozzle assembly on the supporting structure in alignment with the opening for directing the flow of fluid therefrom in a controlled high velocity stream capable of acting as a knife, the nozzle assembly including a fixed plate on one side of the opening at the predetermined angle with respect to the opening and a bar assembly on the opposite side of the opening and including an adjustable blade of very thin highly flexible spring-like material on the blade assembly responsive to adjustment means at closely spaced points to be angularly substantially flexed with respect to the opening and the fixed plate to a variety of different positions at the same time at different closely spaced points to provide an adjustable variable gap along its length with each point being adjustable independent of other points along the length thereby providing simultaneously for a non-uniform range of orifice sizes between open and closed position along the length of the blade and within a short portion thereof in alignment with the opening for passage of fluid therethrough.

4,270,703

METHOD OF AND A GRINDER FOR DISCHARGING GROUNDWOOD STOCK WHEN GRINDING WOOD UNDER PRESSURE

Pekka O. Haikkala, Tampere, Finland, assignor to Oy Tampella Ab, Tampere, Finland

Filed Jan. 24, 1979, Ser. No. 6,155
Claims priority, application Finland, Feb. 16, 1978, 780515
Int. Cl.³ B02C 23/24
U.S. Cl. 241—18 2 Claims



1. A method of continuously processing wood, comprising the steps of substantially continuously grinding the wood in the presence of water by means of a grinder which comprises a rotating grinding means disposed in a pressurized gas-filled grinding chamber and thereby forming a primary groundwood stock in the grinding chamber under superatmospheric pressure, passing the primary groundwood stock from the grinding chamber to a stick crusher while maintaining the stock under superatmospheric pressure, employing the stick crusher to crush sticks present in the primary groundwood stock, while maintaining the stock under superatmospheric pressure, thereby to produce a secondary groundwood stock under superatmospheric pressure, passing the secondary groundwood stock to a valve, while maintaining the stock under superatmospheric pressure, and continuously discharging secondary groundwood stock through the valve while preserving a hydraulic seal of secondary groundwood stock upstream of said valve.

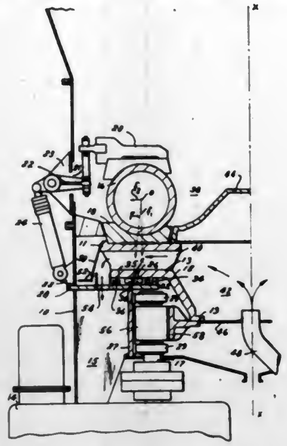
4,270,704

CRUSHER

Alain Chielens, Marcq-en-Baroeul, and Bernard Boussekey, Lille, both of France, assignors to Fives-Cail Babcock, Paris, France

Filed Dec. 12, 1978, Ser. No. 968,725
Claims priority, application France, Dec. 13, 1977, 77 37446; Apr. 28, 1978, 78 12614
Int. Cl.³ B02C 15/04
U.S. Cl. 241—122 10 Claims

1. A crusher comprising
(a) a casing frame having a vertical axis and including
(1) a support affixed to the frame and extending radially inwardly from the frame,
(b) a table mounted on the support for rotation about the vertical axis, the table having arranged thereon
(1) an annular track, the frame support extending in a plane below the annular track,
(c) crushing elements rollingly supported on the track,
(d) means mounted on the casing frame for pressing the crushing elements against the track,
(e) a first series of bearings supporting the table on the frame support and
(f) a second series of bearings disposed substantially at the same level as the first series of bearings
(1) the table having a skirt defining a cylindrical surface coaxial with the annular track and the second series of bearings bearing against the cylindrical surface and



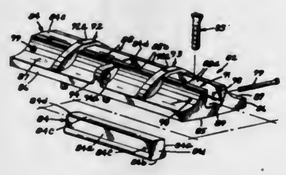
thereby maintaining the table in a stable lateral position with respect to the axis of rotation.

4,270,705

SHELL LINER ASSEMBLY FOR ORE GRINDING MILLS

Darrell R. Larsen, Salt Lake City, Utah, assignor to Minneapolis Electric Steel Castings Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 932,711, Aug. 11, 1978. This application Sep. 27, 1979, Ser. No. 79,382
Int. Cl.³ B02C 17/22
U.S. Cl. 241—183 21 Claims



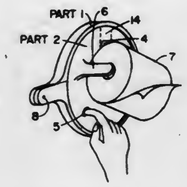
1. An improved liner assembly for the shell of an ore grinding machine having a predetermined rotational axis, the liner assembly comprising:
a plurality of longitudinal holder segments having first and second ends and each defining a mounting surface constructed for mounting engagement with the inner surface of said shell, and a grinding surface;
each holder segment further defining a longitudinal channel extending from one end to the other, said longitudinal channel having a closed bottom and opening at the grinding surface, and being further defined by longitudinal sides that converge at least in part toward the grinding surface;
a plurality of mounting openings formed in each holder segment and extending from the bottom of said channel to the mounting surface of the holder segments;
connecting means passing through the mounting openings for connecting each of said holder segments directly to the shell;
a plurality of longitudinal wear inserts for the holder segments, each insert being one piece and sized for lengthwise insertion into one of the longitudinal channels and having a cross section that substantially fills the channel so that the insert protectively overlies the connecting means, and each insert further comprising longitudinal sides that converge at least in part in conformance with the channel sides so that the insert is retained within the channel independently of the shell;
the holder segments being arranged in the assembly with the longitudinal channels and wear inserts extending axially of the shell.

4,270,706

REVERSIBLE TOILET PAPER HOLDER

Gene P. Robinson, 4661 Larson Way, Sacramento, Calif. 95822

Continuation-in-part of Ser. No. 35,326, May 2, 1979, Pat. No. 4,241,885. This application Jun. 16, 1980, Ser. No. 159,863
Int. Cl.³ B65H 19/02
U.S. Cl. 242—55.2 7 Claims



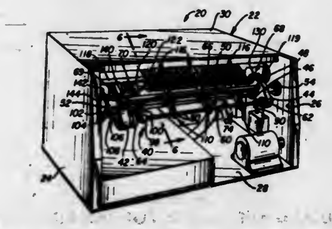
1. A rotatable dispenser suitable for wall or other surface mounting for holding a roller and toilet paper or other rolled material comprising, a turntable, said turntable having two spaced supporting arms for receiving the roller for the rolled material for rotation about the axis of the roller, means for rotatably retaining said turntable with freedom to rotate about an axis perpendicular to the axis of said roller in assembled position and latch means for holding said turntable in a desired dispensing position relative to said retaining means.

4,270,707

TYPEWRITER RIBBON SPOOL CORE SHAFT ADAPTER

Roger C. Sharlow, Plano, Tex., assignor to Liquid Paper Corporation, Dallas, Tex.

Filed Jul. 30, 1979, Ser. No. 62,013
Int. Cl.³ B65H 19/04
U.S. Cl. 242—56.9 24 Claims



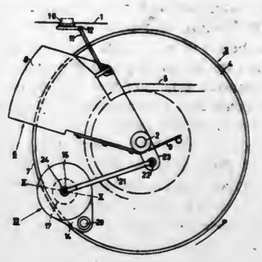
1. A system for driving a plurality of typewriter ribbon spool cores having irregular apertures therethrough, comprising:
a shaft supported for rotation,
a plurality of spacers keyed to said shaft for rotation therewith, and
a plurality of adapters separated by said spacers and having a bore therethrough for mating engagement on said shaft and an outer surface corresponding to the irregular aperture through the spool core for receiving the core thereon.

4,270,708

CABLE WINDER

Klaas Vonk, Hoogeveen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 5, 1979, Ser. No. 91,298
Claims priority, application Netherlands, Dec. 12, 1978, 7812061
Int. Cl.³ B65H 75/48
U.S. Cl. 242—107.3 1 Claim



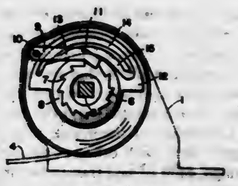
1. A cable winder, which comprises a casing, a cable drum mounted in the casing for rotation relative thereto, a spiral spring secured between the casing and the drum for automatically winding the cable on the drum, mechanism for latching the drum to prevent its rotation in a winding direction, means to deactivate said latching mechanism, a brake housing, a disc journalled in said brake housing, brake blocks pivotally mounted on said disc for engagement with said brake housing, a friction wheel coupled to said disc and drivable by the drum, said brake housing being rotatable about a pin disposed eccentrically relative to the disc and mounted in the casing, and means coupling the brake housing to the latching mechanism whereby the friction wheel is driven by the drum when the latching mechanism is deactivated.

4,270,709

DEVICE FOR PREVENTING EXCESSIVE TIGHTNESS OF SEATBELTS

Mitsuo Inukai, Nagoya, Japan, assignor to Kabushiki Kaisha Tokai-Rika-Denki Seisakusho, Aichi, Japan

Filed Sep. 23, 1976, Ser. No. 725,874
Claims priority, application Japan, Sep. 29, 1975, 50-133031
Int. Cl.³ A62B 35/00; B65H 75/48
U.S. Cl. 242—107.7 5 Claims



1. A seatbelt retractor comprising:
a frame;
a seatbelt pick-up spool rotatably coupled to said frame;
means for applying rotational torque to said spool in a winding-up direction;
a seatbelt wound on said spool;
at least one ratchet gear coupled to said spool;
a pawl pivotably coupled to said frame and engagable with said ratchet gear such that said spool is prevented from winding-up said seatbelt when said pawl engages with said ratchet gear;
a pin member provided on said pawl; and

means for selectively disengaging and engaging said pawl from said ratchet gear whenever said seatbelt is in a predetermined position, said means for selectively disengaging and engaging said pawl comprising a cam plate frictionally coupled to said ratchet gear and rotatable therewith, said cam plate having:

a first guide cam formed in said cam plate for guiding said pawl to move in the direction of disengagement when the cam plate rotates in the unwinding direction of said belt;

a second guide cam for guiding said pawl formed in said cam plate and continuous with said first guide cam, said second guide cam holding said pawl in a disengaged position when said belt is wound in the winding-up direction; and

a third guide cam for guiding said pawl formed in said cam plate continuous with said first and second guide cams, said third guide cam guiding said ratchet towards engagement with said ratchet gear;

said first, second and third guide cams comprising first, second and third grooves disposed on a surface of said cam plate adjacent said pawl and said pin member cooperates with said first, second and third grooves so as to selectively move said pawl.

4,270,710

RESILIENTLY COMPRESSIBLE BOBBIN

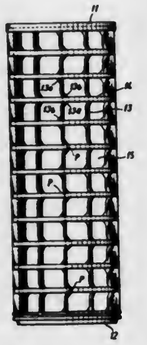
Nobutaka Ono, Ashiya, Japan, assignor to Osaka Bobbin Kabushiki Kaisha, Osaka, Japan

Filed Sep. 4, 1979, Ser. No. 72,531

Claims priority, application Japan, Apr. 27, 1979, 54/57924[U]

Int. Cl.³ B65H *75/14*

U.S. Cl. 242—118.11 **3 Claims**



1. A resiliently compressible bobbin comprising two end rings disposed opposite to one another and spaced a required distance apart from one another, a plurality of rectilinear longitudinal frames connecting the end rings which longitudinal frames are equidistantly distributed around the circumference of said end rings and are parallel with the central axis of the end rings, and a plurality of transverse ring frames equidistantly spaced apart from each other in parallel with and between the end rings, each of said transverse ring frames being annular and interconnecting the longitudinal frames, wherein said rectilinear longitudinal frames have inner and outer peripheral surfaces flush with the inner and outer peripheral surfaces of the end rings, respectively, and have a thickness gradient tapering, in a cross-sectional plane parallel with the end ring, from the radial center toward the outer periphery thereof, and are subdivided by the transverse ring frames into a number of longitudinal frame sections which each extend between an adjacently disposed end ring and transverse ring frame or between adjacently disposed transverse ring frames, wherein each said longitudinal frame section is, at the portions close to the connections thereof with said adjacently disposed end ring and transverse ring frame or with said adjacently disposed transverse ring frames, progressively increased in thickness in symmetrically opposite directions toward said connections and the midportion of said longitudinal frame section is narrowed between said portions, any contiguous two of said longitudinal frame sections having an intervening transverse ring frame therebetween are, at the respective portions on opposite sides of the intervening transverse ring frame, thickened increasingly in the same direction relative to said intervening transverse ring frame and wherein any contiguous two of said longitudinal ring frame sections that have therebetween an intervening transverse ring frame disposed adjacent to an end ring or located every two transverse ring frames from a said transverse ring frame adjacent to an end ring jointly define a V-shaped bend at the respective increasingly thickened portions on opposite sides of said intervening transverse ring frame, thereby providing a middle point between buckling-bending points when said bobbin is compressed.

4,270,711

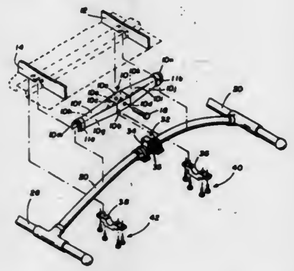
HELICOPTER LANDING GEAR WITH CROSSTUBE PIVOT

Wesley L. Cresap, Fort Worth, and Alan W. Myers, Burleson, both of Tex., assignors to Textron, Inc., Providence, R.I.

Filed Jan. 29, 1979, Ser. No. 7,313

Int. Cl.³ B64C *25/52*

U.S. Cl. 244—17.17 **7 Claims**



1. In a helicopter having a pair of crosstubes forming a part of a landing gear where a first of the crosstubes is fixed to the helicopter's fuselage at a pair of laterally spaced points, the improvement comprising:

(a) a structural bridge fixed to said fuselage at a pair of laterally spaced points above the second of said crosstubes, and

(b) a pivotal connection between said structural bridge and the second of the crosstubes including a pin substantially parallel to the fore-aft axis of the helicopter and pivotally engaging said structural bridge and the second of the crosstubes, said connection of the structural bridge being at a point intermediate of the points of connection of said bridge to said fuselage to provide for pivotal action of said structural bridge about a median fore-aft axis of the helicopter.

4,270,712

METHOD AND APPARATUS FOR ROLLING CONTROL OF AIRPLANES BY MEANS OF SPOILERS

Jan von der Decken, and Heinz Max, both of Friedrichshafen, Fed. Rep. of Germany, assignors to Dornier GmbH, Fed. Rep. of Germany

Filed Jul. 13, 1979, Ser. No. 57,447

Claims priority, application Fed. Rep. of Germany, Mar. 9, 1979, 2909244

Int. Cl.³ B64C *9/32, 13/32*

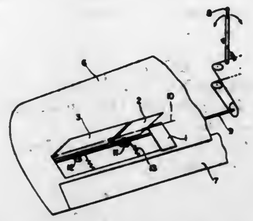
U.S. Cl. 244—90 A **4 Claims**

1. An apparatus for rolling control of an airplane by means of spoilers mounted at lift surfaces, comprising spoiler means

subdivided into at least three separate individual partial spoiler surfaces in succession in a span direction,

and means for suddenly adjusting said partial spoiler surfaces independently of each other from a zero position to a defined operative position, whereby a plurality of fixed, ladder-like control steps are effected.

3. A method for rolling control of an airplane by means of



spoilers mounted at lift surfaces, which comprises subdividing the entire control range into a plurality of fixed, ladder-like control steps,

and adjusting the individual control steps by suddenly adjusting a series of different partial spoiler surfaces, actuatable in dependence upon each other either individually or in combination, into at least two defined effective positions for the purpose of producing a rolling moment.

4,270,713

AIRPLANE WITH A BOAT-SHAPED FUSELAGE

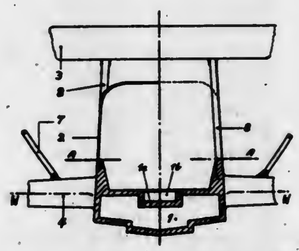
Claudius Dornier, Bruuhausstrasse 21, 8000 Munich 60, Fed. Rep. of Germany

Continuation of Ser. No. 809,210, Jun. 23, 1977. This application Jul. 7, 1978, Ser. No. 922,618

Claims priority, application Fed. Rep. of Germany, Sep. 4, 1976, 2639982

Int. Cl.³ B64C *35/02*

U.S. Cl. 244—106 **10 Claims**



1. In a flying boat having a boat-like fuselage,

the improvement comprising a substantially horizontal separation of the fuselage above the water line, extending in the longitudinal direction essentially from the nose to the tail, into two structural parts which may be separately manufactured,

one of said parts being dish-shaped at the bottom and open and recessed at the top and being a complete boat body and the supporting part of the flying boat,

the other of said parts being dish-shaped at the top and open at the bottom, including a cabin part, and forming a roof for said fuselage,

and means securing said parts prefinished as units together to form a closed fuselage.

4,270,714

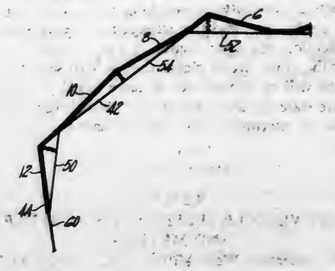
PARACHUTE CANOPY

Domina C. Jalbert, 170 NW. 20th St., Boca Raton, Fla. 33432

Continuation of Ser. No. 903,634, May 8, 1978, abandoned, which is a continuation of Ser. No. 469,836, Apr. 11, 1974, abandoned. This application Nov. 13, 1979, Ser. No. 93,528

Int. Cl.³ B64D *17/02*

U.S. Cl. 244—145 **12 Claims**



4. A parachute canopy with a skirt and crown having a plurality of gores; said gores having three types of construction, a first gore having a plurality of panels along its length from the skirt to the crown, a second gore on each side of the parachute canopy having a space at its rearward edge with respect to its adjacent gore to achieve rotational control, and a third gore having an opening means directed rearwardly to direct air from said parachute canopy to achieve directional stability; each gore having an identical top panel for forming the crown, each top panel including a built-in pocket to provide a built-in crown without the use of central shroud lines, each built-in pocket having a length extending along the length of the gore, each built-in pocket having a fixed built-in location of maximum camber along its length, each built-in pocket having its fixed built-in location of maximum camber located at a point outwardly from the center of its length and in a direction toward the skirt, said built-in crown being built-in inverted with each built-in pocket having its fixed built-in location of maximum camber located above the center of the crown.

4,270,715

RAILWAY CONTROL SIGNAL INTERLOCKING SYSTEMS

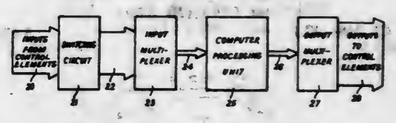
David J. Norton, and Christopher R. Brown, both of Chippenham, England, assignors to Westinghouse Brake & Signal Co., London, England

Filed May 23, 1979, Ser. No. 41,628

Claims priority, application United Kingdom, Jun. 10, 1978, 26665/78

Int. Cl.³ B61L *27/00*

U.S. Cl. 246—5 **9 Claims**



1. A control system comprising:

a plurality of remote elements operative to alternative states by control signals,

status indicating means connected to each remote element and arranged to provide a status signal indicative of the state occupied by the element,

a plurality of signal paths each having an input end and an output end, each input end being connected to a status indicating means to carry the status signal therefrom,

input circuit means connected between the output ends of

the signal paths and a control signal generating means for generating the control signals for operating the remote elements, and

switching means comprising a plurality of signal switches, each connected in a respective signal path and arranged to be operated in accordance with a signal from an oscillating signal source, for, when operated, forcing the signal carried by said signal path into a predetermined test state,

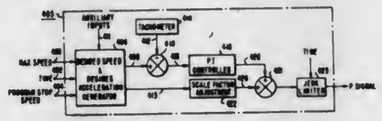
said control signal generating means including means for detecting intermittent switching of an input signal path into a safe state, and the arrangement being such that by connection of a signal switch in a signal path in front of at least the input circuit means then at least said input circuit means will be proved not to have failed to a potentially unsafe state by detection by the control signal generating means of intermittent switching of said path into said safe state.

4,270,716

TRANSIT VEHICLE SPEED CONTROL APPARATUS AND METHOD

Larry W. Anderson, West Mifflin, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 30, 1979, Ser. No. 25,512
Int. Cl.[3] B61L 3/06
U.S. Cl. 246—182 B 12 Claims



1. In speed control apparatus for a transit vehicle having an actual speed signal and operative with a track having a speed command signal, the combination of

first means comprising an open loop acceleration controller for providing a predetermined desired acceleration signal in response to said speed command signal,

second means for providing a desired speed signal in response to said speed command signal,

third means comprising a closed loop speed controller for providing a speed control signal in response to the difference between said desired speed signal and said actual speed signal, and

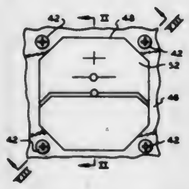
fourth means responsive to the sum of said desired acceleration signal and said speed control signal for controlling the speed of said transit vehicle.

4,270,717

ELASTOMERIC INSTRUMENT CLAMP

Neil R. Upham, Jackson, Mich., assignor to Aeroquip Corporation, Jackson, Mich.

Filed Aug. 17, 1979, Ser. No. 67,275
Int. Cl.[3] G12B 9/00
U.S. Cl. 248—27.1 3 Claims



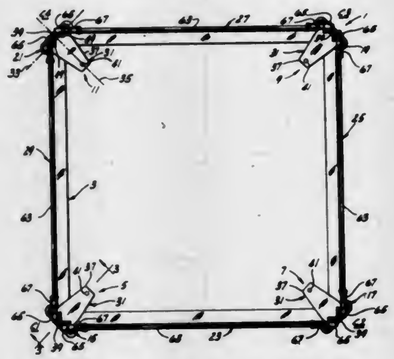
1. A clamp for mounting instruments within a panel comprising, in combination, an annular housing having an inner surface having an axis and defining an opening for receiving an instrument casing, a plurality of elongated elastomer elements mounted on said housing spaced about the periphery of said opening and adjacent said inner surface and having their lengths disposed substantially parallel to said housing inner surface axis, and individual compression means associated with each elastomer element for selectively compressing and expanding the associated element to deform the element inwardly of said inner surface into engagement with an instrument casing within said housing opening for resiliently supporting the instrument casing within said housing.

4,270,718

FOUR-POINT SUSPENSIONS

William R. Conner, Jr., Shelbyville, Tenn., assignor to Kellwood Company, St Louis, Mo.

Filed Feb. 15, 1979, Ser. No. 12,281
Int. Cl.[3] F16M 11/24
U.S. Cl. 248—188.3 6 Claims



1. A four-point suspension for a load comprising:

first, second, third and fourth support means for the load, said support means being located at the corners of a quadrilateral, said support means being adapted to bear on a supporting surface at four points for supporting the load above said surface;

each support means having an individual connection with the load for transmission of force from the load to said supporting surface, each connection permitting relative up and down movement of the load and the respective support means at the respective corner,

the first and third support means being located at two opposite corners of the quadrilateral and the second and fourth support means being located at the other two opposite corners of the quadrilateral,

first means interconnecting the first and second support means for transmitting force from the first to the second support means on movement of the first support means in one direction relative to the load and for transmitting force from the second support means to the first support means on movement of the second support means in one direction relative to the load,

second means interconnecting the second and third support means for transmitting force from the second to the third support means on movement of the second support means in one direction relative to the load and for transmitting force from the third support means to the second support means on movement of the third support means in one direction relative to the load,

third means interconnecting the third and fourth support means for transmitting force from the third to the fourth support means on movement of the third support means in one direction relative to the load and for transmitting force from the fourth support means to the third support means on movement of the fourth support means in one direction relative to the load,

and fourth means interconnecting the fourth and first support means for transmitting force from the fourth to the first support means on movement of the fourth support means in one direction relative to the load and for transmitting force from the first support means to the fourth support means on movement of the first support means in one direction relative to the load,

said first, second, third, and fourth interconnecting means each comprising a link extending along a respective side of the quadrilateral, and acting on upward movement of any support means relative to the load to effect upward movement of the support means at the opposite corner of the quadrilateral and downward movement of the other two support means relative to the load for four-point support of the load,

each of said individual connections comprising a pivotal connection between the respective support means and the load,

each link interconnecting the support means at the ends of the respective side of the quadrilateral,

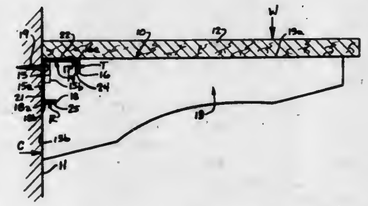
the said pivotal connection at each corner of the quadrilateral being on an axis extending along a line perpendicular to a vertical plane bisecting the angle formed by the two sides of the quadrilateral intersecting at the corner.

4,270,719

SHELF BRACKET

Harlan F. Kellogg, 1617 Sprucewood, Rockford, Ill. 61107

Filed Aug. 1, 1979, Ser. No. 62,700
Int. Cl.[3] A47G 29/02
U.S. Cl. 248—235 2 Claims



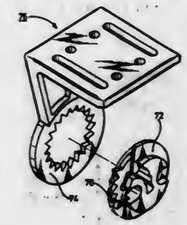
1. In a shelf bracket adapted for mounting at the rear end thereof on an upright support surface, the shelf bracket including an elongated shelf bracket member having spaced side faces and a top shelf supporting surface and a rear abutment surface extending perpendicular to the top shelf supporting surface adjacent the lower rear portion of the shelf bracket member, the shelf bracket member having a rear recessed surface above and offset forwardly from the rear abutment surface, the shelf bracket member having a first notch extending downwardly from the top shelf supporting surface and spaced forwardly from the rear recessed surface and defining inner and outer opposed notch walls extending between the side faces of the shelf bracket member, the shelf bracket member having a second notch extending forwardly from the rear abutment surface and spaced below the top shelf supporting surface and defining upper and lower opposed notch walls extending between the side faces of the shelf bracket member, a shelf attaching bracket ipcluding a rear leg and an upper leg arranged in a generally L-shaped configuration, the rear leg having an upper mounting plate portion spaced rearwardly from said rear recessed surface and a keyhole shaped opening in said upper mounting plate portion for receiving a headed mounting fastener, said upper leg extending forwardly from the upper end of the rear leg in overlying relation to the bracket member and having a first depending tongue at its forward end adapted to extend into said first notch, a second forwardly extending tongue on the lower end of said rear leg adapted to extend into said second notch in the shelf bracket member, said first and second tongues being generally flat and having a thickness less than the spacing between the opposed notch walls of the respective first and second notches, the improvement wherein the first tongue has a protrusion on the side engageable with the outer notch wall of the first notch at a location below the upper leg to press the first tongue against the inner notch wall of the first notch and the second tongue having a protrusion on the side engageable with the lower notch wall at a location forwardly of the rear leg to press the second tongue against the upper notch wall of the second notch whereby to inhibit bending of the first and second tongues relative to the respective upper and rear legs of the shelf bracket attaching member and to inhibit movement of the shelf bracket member laterally of the shelf attaching bracket after assembly thereof.

4,270,720

BRACKET UNIT

Shigeki Fukuchi, Tokyo, Japan, assignor to Metako Kigyo Co., Ltd., Tokyo, Japan

Filed Sep. 12, 1979, Ser. No. 74,751
Claims priority, application Japan, Sep. 12, 1979, 53/125937[U]
Int. Cl.[3] A47H 1/10
U.S. Cl. 248—269 8 Claims



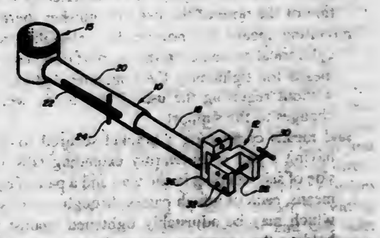
1. A suspension assembly for the shaft of a window shade or the like, comprising an arrangement of plate like elements coaxially secured about a central axis in side by side relationship with one another, consisting of a base element, a peripherally toothed element and a shaft receiver element having a slot extending from its periphery generally arcuately toward the central axis, and; a bracket adapted to be secured to a fixed support, said bracket having a plate like portion in which is formed an aperture having an internal edge of a diameter and tooth configuration conforming to that of the peripherally toothed element to receive the same coaxially therein, in any position of rotation about the central axis.

4,270,721

INSTRUMENT SUPPORT

Ross F. Mainor, Jr., P.O. Box 104, Logansport, Ind. 46947

Filed Sep. 22, 1978, Ser. No. 944,959
Int. Cl.[3] E04G 3/00
U.S. Cl. 248—285 4 Claims



1. Apparatus for releasably attaching a surveying instrument to a vertical column, comprising:

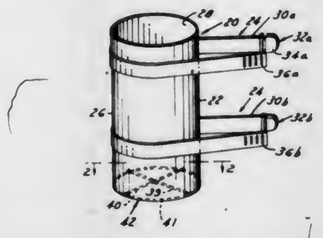
(a) a tubular arm having an outer sleeve, an inner sleeve slidable within said outer sleeve, and a locking mechanism for fixing said outer sleeve relative to said inner sleeve;
(b) clamping means at one end of said arm, said clamping means including a generally U-shaped base including a pair of legs, an adjustable clamping screw threadedly engaging one of said legs;
(c) universal joint coupling means connecting said arm to said clamping means, said universal joint including locking means for holding said arm in fixed orientation;
(d) means carried by said arm remote from said clamping means for connecting a surveying instrument thereto;
(e) a level indicator carried by said arm; and
(f) a clamping member adapted for releasably attachment to a massive vertical column and carrying a projecting flange adapted for engagement by said clamping means.

4,270,722

FIRE EXTINGUISHER HOLDER

Leonard E. Batchelder, 21111 22 Mile Rd., Mount Clemens, Mich. 48044

Filed Mar. 20, 1978, Ser. No. 888,012
Int. Cl.³ A47F 5/00
U.S. Cl. 248—310 4 Claims



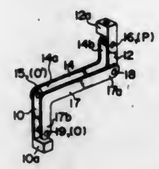
1. The fire extinguisher holder to be positioned against a support comprising:
an impact resistant cylindrical container open at each end for receiving a fire extinguisher loosely therein where said container has a length greater than its width and a construction similar to that of the fire extinguisher to be placed therein to provide protection for the fire extinguisher from impacts;
fire extinguisher within said container;
supporting means comprising a base integrally secured to one end of the cylindrical container for supporting the fire extinguisher within the cylindrical container and having triangular openings with the apex of the triangle directed radially inward;
said cylindrical container having an opening in the wall of said container extending vertically downward from the end without the support and is sufficiently wide for insertion of the hose of the fire extinguisher therethrough;
mounting means for non-fixedly releasably retaining the cylindrical container to the support comprising adjustable means for tightening the container against a fixed part without requiring the use of bolt holes, welds, or other changes to the support;
said means comprising a bracket secured to the container having a pair of outwardly extending tabs, one on each side of said opening in the wall and a pair of elongated rod means, each of which passes through one of said tabs and which may be adjustably tightened against said tab for holding the container against the support while directing said wall opening toward a recess in the support.

4,270,723

PANTOGRAPH MECHANISM

Naoyuki Takahashi, Hino, and Toshihiko Kadota, Hachioji, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 10, 1979, Ser. No. 2,247
Claims priority, application Japan, Feb. 18, 1978, 53/17132
Int. Cl.³ F16M 13/00
U.S. Cl. 248—421 4 Claims



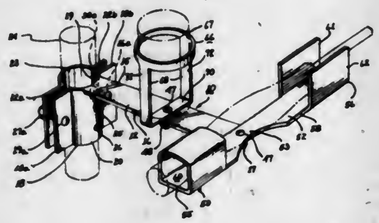
1. A pantograph mechanism, comprising:
a first generally planar leg member comprising a first L-shaped link, a holding member and a first pivot joint, said first pivot joint connecting one end of said first L-shaped link and one end of said holding member so they are rotatable with respect to each other about said pivot joint in a generally coplanar manner; said first member having another end adapted to hold an object mounted thereon:
a second generally planar leg member comprising a second L-shaped link identical in size and shape to said first L-shaped link, a support member and a second pivot joint, said second pivot joint joining one end of said support member and one end of said second L-shaped link so that said second L-shaped link and said support member are rotatable with respect to each other about said second pivot joint in a generally coplanar manner; said support member having another end adopted to be mounted on a stationary support;
a third pivot joint connecting the other end of said first L-shaped link with a portion of said support member near said other end of said support member; a fourth pivot joint connecting the other end of said second L-shaped link to said holding member near said other end of said holding member; and
said pantograph mechanism being moveable into a position in which said first and second leg members oppose each other face-to-face along substantially the entire length of each.

4,270,724

HOLDING DEVICE

Donald A. McMullen, 2143 Hulton Rd., Verona, Pa. 15147

Filed May 24, 1979, Ser. No. 42,018
Int. Cl.³ F16M 13/00
U.S. Cl. 248—534 4 Claims



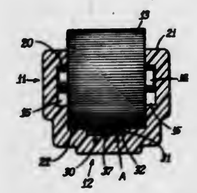
1. For attachment to a portable chair having a leg of fixed thickness and width, a holding device comprising a bracket having an elongated body portion and a flange portion integrally formed with said body portion and disposed generally normal thereto, said body portion having, along the axial length thereof, a plurality of apertures disposed transversely therethrough in spaced relationship to each other; a plate member generally conforming in size and shape to said flange portion and cooperative therewith to engage said leg therebetween; connecting means detachably securing said bracket to said plate to secure said device to the leg interposed therebetween and support said body portion therefrom; and holder means adapted to support one or more preselected objects in space relationship to said leg, said holder means comprising a base plate having a first end, a second end, locator means formed in said base plate intermediate said ends and extending downwardly therefrom for cooperative engagement in one of said apertures for detachably securing said holder means to said body portion, an inverted U-shaped bracket secured to said base plate adjacent said first end, and a pair of upstanding flanges secured in spaced generally parallel relationship to each other adjacent said second end, said locator means comprising an aperture defined through said base plate on the axial centerline thereof substantially midway between said first and said second end, and a detachably securable bolt extendible through said aperture and one of said apertures in said body portion to attach said holder means to said body portion while permitting the selective pivotal action of said holder relative thereto.

4,270,725

ROLLER CLAMP FOR DEFINING A FLOW LUMEN IN TUBING

James W. Scott, Lindenhurst; Joseph A. Bancsi, Vernon Hills, both of Ill., and Jean Kersten, Villers St Amand, Belgium, assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Nov. 27, 1979, Ser. No. 98,220
Int. Cl.³ F16L 55/14
U.S. Cl. 251—6 7 Claims



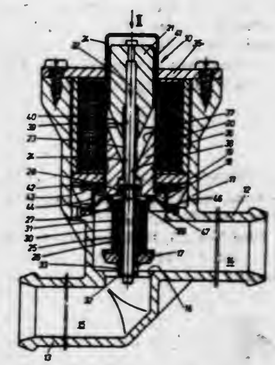
1. In a roller clamp for controlling fluid flow through flexible tubing, the clamp having an elongated U-shaped body with rigid opposite upstanding walls joined by a base, a cylindrical roller having an axle mounted at its opposite ends in tracks formed in the walls, the tracks having axle bearing surfaces extending coplanar with one another and parallel to said base, the improvement comprising:
a roller bearing surface in said base spaced uniformly below the axle bearing surfaces of the track a distance to obtain a biased fit between the roller and roller bearing surface by the axle snugly engaging the axle bearing surface on the body to substantially prevent movement of the roller perpendicular to said base and to permit only longitudinal movement of the roller upon application of a manual force to the roller in a direction along the body;
surfaces forming a tube-compression slot in said base including a lower wall spaced uniformly below the level of said roller bearing surface along the body, the tube-compression slot having at least one shoulder joining the lower wall of the slot to the roller bearing surface;
surfaces forming a channel in the lower wall of the tube-compression slot, the channel receiving a portion of the tubing to form a controlled lumen having a cross-sectional configuration substantially the same as that of the cross-sectional configuration of the channel; and
said channel further having a cross-sectional area which varies progressively from one position along the base to another in the direction of said longitudinal movement, thereby enabling adjustment of liquid flow through the lumen of the tubing confined within the tube-compression slot and said channel depending on the position of the roller along the body, from the large flow to no flow, substantially without unintended perpendicular movement of the roller along the body and with minimal change in flow over time at any selected position of the roller.

4,270,726

VALVE ARRANGEMENT, ESPECIALLY FOR CONTROLLING FLOW OF HOT WATER THROUGH A HEATING DEVICE FOR MOTOR VEHICLES

Wilhelm Hertfelder, Steinenbronn; Erich Junginger, Stuttgart, and Ernst Linder, Mühlacker, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 28, 1979, Ser. No. 16,062
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 2810211
Int. Cl.³ F16K 31/02
U.S. Cl. 251—30 11 Claims



1. A valve arrangement, especially for controlling flow of hot water through a heating device for motor vehicles, comprising a housing having an inlet chamber and an outlet chamber communicating with each other through an opening forming a valve seat; a valve member movable between an open position spaced from said valve seat and a closed position engaging said valve seat; means for moving said valve member between said positions thereof and comprising an electromagnet having a magnet coil coaxial with said valve seat, a dip armature axially movable within said coil in valve closing direction upon energizing of said coil, spring means cooperating with the armature and biasing the same in valve opening direction, a rod coaxially fixed to said armature and extending through and beyond said valve member, a sleeve arranged with radial clearance about a portion of said rod to be axially movable with respect thereto and having a lower end portion to the outer periphery of which said valve member is fixed and an upper end portion forming an auxiliary annular valve set, a flexible membrane having an inner peripheral portion fixed to the outer periphery of said upper end portion of said sleeve and an outer peripheral portion fixed to said housing to form to one side of said inlet chamber a control chamber, an auxiliary valve member to said rod between said armature and said sleeve and engaging during movement of said rod in valve closing direction said auxiliary valve seat before said valve member engages said valve seat; a throttle opening in said member providing communication between said control chamber and said inlet chamber and having an open cross section dimensioned so that during movement of said valve member to said closed position

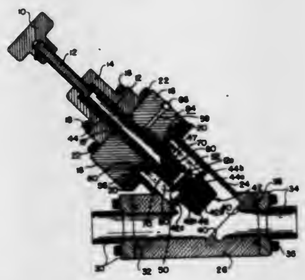
a quick flow of water from said inlet chamber into said control chamber and therewith a pressure equalization between said two chambers will be produced and so that during movement of the valve member to said open position with preceding movement of said auxiliary valve member away from said auxiliary valve seat more water will flow out of said control chamber through said clearance between said sleeve and said rod into said outlet chamber than can flow from said inlet chamber into said control chamber through said throttle opening; an insert mounted in said housing between said armature and said membrane, said insert being provided with a bore through which said rod extends with clearance, said spring abutting with one end against said insert and with its other end against said armature; a bushing in said housing, said armature and said insert being located in said bushing, said bushing having an outer closed end and an inner peripheral surface coaxial with said armature and guiding the latter for movement in axial direction, the interior of said bushing communicating with said control chamber and being filled with water, said bushing having at its end facing said membrane an annular flange and spaced from said flange a radially outwardly extending annular shoulder, said housing having a radially inwardly extending annular portion spaced from said shoulder; an annular pressure plate resting on said shoulder; and means for pressing said annular flange fluid-tightly against the corresponding annular portion of said membrane and comprising spring means between said pressure plate and said radially inwardly extending annular portion of said housing so as to press the annular flange of said bushing against said annular portion of said membrane by simultaneously fluid-tightly sealing the water filled interior space formed by said bushing and said membrane.

4,270,727

SPRING LOADED PLUG VALVE

Arthur E. Norman, Northridge, Calif., assignor to Torr Vacuum Products, Inc., Van Nuys, Calif.

Filed Nov. 13, 1978, Ser. No. 959,940
Int. Cl.³ F16K *31/50, 31/122*
U.S. Cl. 251—63.4 12 Claims



1. A valve assembly including: a housing defining an inlet and an outlet, and further defining a seat positioned within the housing between the outlet and the inlet; a poppet valve mounted in the housing and movable between an open position displaced from said seat and a closed position; a plastic plug member secured to said poppet valve for engaging said seat in sealed relationship therewith when the poppet valve is closed; an elongated member reciprocally movable in said housing along a linear axis; first means coupling one end of said elongated member to said poppet valve; second means coupled to said elongated member for pulling said poppet valve to its open position and for moving said poppet valve to its closed position; and resilient means coupled to said poppet valve for maintaining a positive force on said poppet valve when said poppet valve is in its closed position in the presence of any deformation of said plastic plug said elongated member comprises a sleeve, said second means includes a stem movably mounted in said housing and extending through said sleeve in coaxial relationship with said sleeve, said stem has an enlarged end section for coupling said stem to said one end of said sleeve to enable the stem to pull the poppet valve to its open position, the movement between the end of the sleeve and the enlarged section provides lost motion, and the enlarged section abuts the end of said sleeve to lock said poppet valve in said closed position.

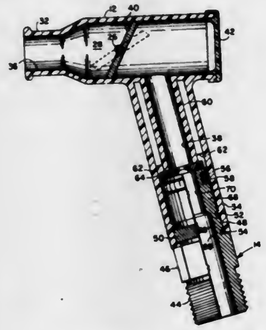
10. The valve assembly defined in claim 1, and which includes cylinder means, a piston coupled to said elongated member and movable in said cylinder means, and means for introducing pressurized fluid into the cylinder means for causing said elongated member to move within the valve housing.

4,270,728

BLOCK MOUNTED AUTOMOTIVE HEATER CONTROL VALVE

Kirk Peloza, Glen Ellyn, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 19, 1979, Ser. No. 76,892
Int. Cl.³ F16K *51/00*
U.S. Cl. 251—143 5 Claims



1. A fluid valve mountable to an engine block of an internal combustion engine, said valve comprising:

(a) housing means, said housing means defining a fluid passageway having an inlet portion and an outlet portion;

(b) valve means operably connected to said housing means for valving fluid flow through said fluid conduit;

(c) said inlet portion having a hollow end section formed of a heat deformable material;

(d) means for mounting said fluid valve to said engine block, said mounting means including a metallic tubular member, said tubular member having a first portion adapted for connection to said engine block and a second portion received in said hollow end section of said conduit inlet portion, said second portion having a heat receiving zone and a heat sink zone adjacent said heat receiving zone, said heat receiving zone having a mass substantially less than said heat sink zone, said heat receiving zone including external surface means which have the material of said inlet portion deformed and received therein and engaging with said hollow end section for connecting said hollow end section to said mounting means; and

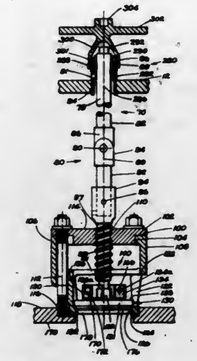
(e) seal means disposed intermediate the external surface of said heat sink zone and the internal surface of said hollow end section for effecting fluid pressure sealing therefrom.

4,270,729

TOP OPERATED TANK CAR CLAPPER VALVE

Gunter R. Behle, and David P. Hillstead, both of St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Dec. 13, 1978, Ser. No. 969,024
Int. Cl.³ F16K *27/03*
U.S. Cl. 251—144 8 Claims



1. A top operated tank car lading valve assembly including a railway tank car; a top rod extending to the top of the tank; said rod attached to a valve stem in the lower portion of the tank; said stem being externally threaded and engaging a horizontally extending internally threaded valve sleeve; said sleeve engaging a generally vertically extending valve cage and vertically extending fasteners holding said sleeve in engagement with said cage; said cage extending above a tank car bottom outlet mounting flange; said flange having a flange opening therein; said flange located in an opening in the tank bottom; said cage having vertically extending legs and circumferentially spaced openings between said legs for lading flow; a valve seat for a vertically movable valve closure located within said cage; said valve closure movable between open and closed positions relative to said seat; said closure having at least a pair of laterally spaced vertical projections extending upwardly into said cage; a pair of formed stem retainer members each having a pair of slots at opposite ends to receive one of said projections, and a semi-circular center slot to receive said valve stem; fastening means extending through said retaining members and said projections to hold said projections in place within said retainer members; said semi-circular slots defining a cavity to receive and engage a cylindrical slightly smaller lower end portion of said stem; said fastening means further holding said stem retainers in abutting relation to said projections with a fit sufficiently tight that substantially eliminates horizontal and angular movement of the stem relative to the valve closure.

4,270,730

MEANS TO RETAIN A VALVE STEM

John M. Hinrichs, Bryan, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

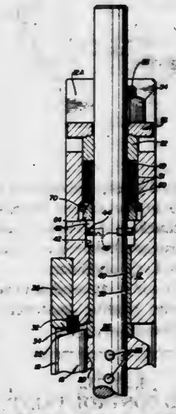
Filed May 29, 1979, Ser. No. 43,554
Int. Cl.³ F16K *1/22*
U.S. Cl. 251—214 8 Claims

8. In a butterfly valve structure having a valve body defining a valve chamber and a movable valve member mounted in the valve chamber for rotative movement between open and closed positions, a stem mounted within a bore in the valve body communicating with the valve chamber, said stem being connected to the movable valve member and having an outer end portion extending outwardly of the valve body, and means operatively connected to the outer end portion of the stem to rotate the valve member between open and closed positions;

an improved means mounted within said bore to retain the stem in the valve body comprising:

a stop member on said stem extending radially outwardly from the outer periphery of the stem, a packing in the bore positioned axially outward of the stop member adjacent the outer periphery of the stem, an adjustable packing retainer engaging the packing to compress the packing, said bore having an intermediate diameter enlarged bore portion receiving said stop member and a large diameter enlarged bore portion receiving said packing;

an annular groove formed in said bore at the juncture of the intermediate and large diameter enlarged bore portions axially and radially outwardly of said stop member between said stop member and said packing, said annular



groove being of a diameter greater than the large diameter enlarged bore portion and defining an outer peripheral wall surface and upper and lower shoulders adjacent said peripheral wall surface, a wedge ring mounted in said groove and seated on said lower annular shoulder, said wedge ring being of an outer diameter less than the diameter of said large diameter enlarged bore portion for fitting therein; and

ring retaining means mounted in the groove between the wedge ring and the upper annular shoulder defined by the groove to retain the wedge ring within the groove, whereby upon an outer axial movement of the stem said stop member contacts said wedge ring and said wedge ring is wedged tightly against said ring retaining means to restrain the outer axial movement of the stem.

4,270,731

VALVE WITH NON-BINDING SPOOL

George J. Jackson, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Apr. 30, 1979, Ser. No. 34,322
Int. Cl.³ F16K *11/07*
U.S. Cl. 251—309 4 Claims

1. In a hydraulic assembly including a valve, the combination of:

a body (40);

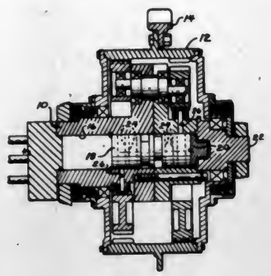
an elongated chamber (42) having a wall and a conduit (60) in said body;

a valve spool (44) movable within said chamber;

means (48) for moving said spool within said chamber;

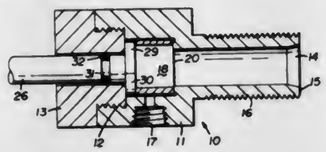
an elongated sleeve (60) within said chamber and spaced from the wall thereof, said sleeve movably receiving said spool in substantially fluid tight relation and having at least one port (52) for fluid flow with flow through the port being controlled by the position of the spool within said sleeve;

resilient means (56) spacing said sleeve from said wall and yieldably supporting said sleeve within said chamber;
yieldable means (62,64,66,68,70,72) establishing fluid communication between said port in said sleeve and said conduit in said body;
said yieldable means including a pipe (64), flanged at one end (66), connected at its other end (68) to said port and having said flanged end extending into said conduit in spaced



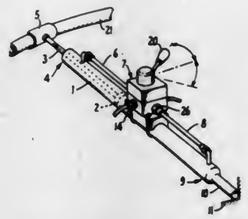
relation to the sides thereof, said conduit having an annular shoulder (70) facing but spaced from, said flanged end and disposed intermediate the ends of said pipe; and
a resilient seal (72) disposed between and sealingly engaging said flanged end and said shoulder;
whereby deflection in said body need not cause deflection in said sleeve whereby binding tendencies between said spool and said sleeve are avoided.

4,270,732
FLUID CONTROL VALVE
James C. Redman, 847 Cleveland Ave., Amherst, Ohio 44001
Filed Sep. 17, 1979, Ser. No. 76,215
Int. Cl.³ F16K 5/04
U.S. Cl. 251—310 3 Claims



1. A fluid control valve consisting of:
a cylindrical housing having a longitudinal bore and a radial bore;
a resilient expandable split sleeve having end edges and side edges and being continuous between said edges, said side edges being spaced from each other to define a split oriented longitudinally of said sleeve, said split being large relative to the diameter of said sleeve and extending for the entire length of said sleeve, said sleeve being progressively thicker circumferentially from one side edge to the other side edge with said one side edge being the thickest portion of said sleeve and said other side edge being the thinnest portion of said sleeve, said sleeve including notches defined in one of said end edges and having an external diameter at least as great as the internal diameter of said longitudinal bore, said sleeve being positioned within said longitudinal bore to be coaxial with said longitudinal bore and rotatable about a longitudinal centerline of said sleeve;
a control stem longitudinally positiond partially within said longitudinal bore, said stem having tabs on one end thereof, said tabs extending radially of said longitudinal bore, said tab being engaged with said notches so that rotation of said stem causes corresponding rotation of said sleeve;
a support means holding said stem in said housing;
said split in said sleeve fluidly connecting said longitudinal bore with said radial bore and being the only means of such fluid communication whereby the control valve is shut off when said split is not in communication with said radial bore.

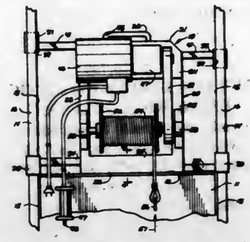
4,270,733
CABLE RACKING SYSTEM
Harold F. DePue, Novato, Calif., assignor to Hydraulic Energy Company, San Rafael, Calif.
Filed Nov. 3, 1978, Ser. No. 957,544
Int. Cl.³ B66F 3/24
U.S. Cl. 254—93 R 1 Claim



1. A cable racking system comprising
a double acting hydraulic cylinder having a piston, a packed rod-end and blind-end;
a piston rod connected at one end to the position and extending through the packed rod-end of the cylinder;
a cable seat mounted on the other end of the piston rod outside of said cylinder;
said seat being generally arcuately channel shaped and further defining a curved surface generated from a point axially inward from the rod end outside of said cylinder for supporting and retaining a section of cable in a curve while said rod is being extended;
an elongated foot mounted to the blind end of said cylinder for bracing said cylinder against an anchor;
first conduit means communicating hydraulic fluid to and from the cylinder on the rod-end side of the piston; second conduit means communicating hydraulic fluid to and from the cylinder on the blind-end side of the piston; a hydraulic system including pump means providing pressured hydraulic fluid at high pressure level and reservoir means for the hydraulic fluid at a lower pressure level;
control valve means mounted on the cylinder in one mode supplying high pressure hydraulic fluid to the cylinder at one side of the piston and simultaneously exhausting fluid from the other side of the piston to said reservoir in order to move said piston and piston rod assembly and in another mode holding existing pressure on both sides of the piston in order to maintain the condition of extension of the piston and piston rod assembly.

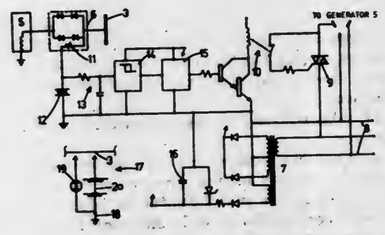
4,270,734
PORTABLE WIRE PULLER
Larry A. Straight, N. 2815 Pittsburg, Spokane, Wash. 99207
Filed Mar. 14, 1980, Ser. No. 130,360
Int. Cl.³ E21C 29/16
U.S. Cl. 254—134.3 R 8 Claims

1. A portable wire puller for pulling electrical wire in a prescribed direction substantially parallel to two spaced elongated supports with each support having a forwardly facing surface and an oppositely facing back surface, said wire puller comprising:
a rigid frame having opposed sides joined by spaced ends in which the distance between the opposed sides is less than the distance between the elongated supports to enable the rigid frame to fit between the spaced elongated supports;
a first pair of support engaging brackets mounted to the frame adjacent one frame end and adapted to extend laterally outward from the opposed sides to engage the spaced supports along the forwardly facing surfaces thereof;
a second pair of support engaging brackets mounted to the



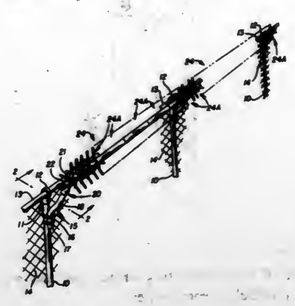
frame adjacent the other frame end and adapted to extend laterally outward from the opposed sides to engage the spaced supports along the back surfaces thereof;
winch means on the frame having a winch drum located thereon between the first and second pairs of brackets and spaced forwardly from the frame sides beyond the bracket pairs, for payingout and taking up an elongated winchline and for producing a clamping force on the support members as the winchline is taken up to pull electrical wire in the prescribed direction.

4,270,735
ELECTRIFIED FENCE SWITCHING DEVICE
Bruce M. Gavin, 88 Joseph St., Invercargill, New Zealand, assignor to Bruce Malcolm Gavin and Nelson James Hubber, both of Invercargill, New Zealand
Filed Oct. 24, 1979, Ser. No. 88,104
Int. Cl.³ H05C 1/00
U.S. Cl. 256—10 4 Claims



1. An electrified fence generator switching device comprising a physically separate D.C. pulse means and a switching circuit said switching circuit comprising a D.C. detector feeding a bistable switch circuit in parallel with a storage capacitor provided to temporarily maintain the state of the bistable circuit when the generator is switched OFF, said bistable switch circuit controlling a switching means control coupled to or adapted for control coupling to the generator, an input to the detector adapted for connection to the fence being coupled for electrification by the generator and incorporating a voltage integrator A.C. filter means and a D.C. voltage isolation means to isolate the generator from the fence when connected as aforesaid to the device.

4,270,736
CLIMB INHIBITING RAIL
Fred O. Burch, 3024 Avenue N, Plano, Tex. 75074
Filed Sep. 17, 1979, Ser. No. 75,942
Int. Cl.³ E04H 17/00
U.S. Cl. 256—12 1 Claim

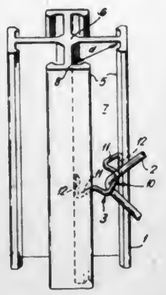


1. A climbing inhibitor assembly for a fence structure of the type having a top rail member (13) supported between a pair of upstanding, laterally spaced posts (10), said climbing inhibitor assembly comprising:
a tubular bearing member (22) mountable on adjacent fence posts (10) in offset-parallel relation to the top rail member (13) of said fence structure;
a series of turn cylinders (24A) mounted for rotation on said tubular bearing member (22), said turn cylinders (24A) being disposed in end-to-end relation, the length of each turn cylinder (24A) being relatively short as compared with the length of the tubular bearing member 22 whereby frictional forces and binding caused by curvature or sagging of the tubular bearing member (10) will be minimized; and,
a plurality of separate spine-like members (26) integrally molded with and extending radially outwardly the surface of each turn cylinder (24A), said spine-like members (26) each comprising a yieldable material having a relatively short enlarged base portion for structural integrity and a relatively long, narrow, flexible portion having a relatively rounded tip (27) for causing discomfort but avoiding injury to the limb of a climber engaged with said spine-like members (26).

4,270,737
SECURING FENCING MATERIAL TO POSTS
Julian R. H. Binns, and Kenneth H. Grange, both of London, England, assignors to Binns Fencing Limited, London, England
Filed Nov. 13, 1979, Ser. No. 94,185
Claims priority, application United Kingdom, Nov. 21, 1978, 45437/78
Int. Cl.³ B21F 27/00
U.S. Cl. 256—48 9 Claims

1. Fencing comprising a fence post having an opening, fencing material, and securing means securing the fencing material to the post, the said securing means comprising a resiliently-deformable clip which is inserted into said opening in the post and rotated through an angle to snap into a stable position in which it resists rotation and also resists being pulled out of the opening, said clip being generally 'S'-shaped and comprising (a) a central portion, (b) two connecting arms which extend

from opposite ends of the central portion in opposite but generally parallel directions, and (c) two end arms which extend one



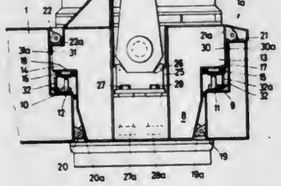
from each of the connecting arms, the two end arms being generally parallel to each other.

4,270,738

CASTING LADLE MOUNTING FOR STEEL STRAND CASTING PLANTS

Siegfried Dangeleit, Krefeld, and Klaus Neumann, Duisburg, both of Fed. Rep. of Germany, assignors to DeMag Aktiengesellschaft, Fed. Rep. of Germany

Continuation of Ser. No. 823,635, Aug. 11, 1977, abandoned.
This application Jun. 25, 1979, Ser. No. 51,870
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1976, 2636658
Int. Cl.³ C21B 3/00
U.S. Cl. 266—99 12 Claims



1. In a mounting for a casting ladle, particularly for use in a steel strand casting plant with a support column and a revolving turret on said column, and having

(a) one or more ladle mountings cantilevered from said turret;

(b) each said ladle mounting having a recess for a casting ladle;

(c) each recess having opposed support recesses for loading crane loops on said ladles;

the improvement in each said ladle mounting characterized by

(d) the said ladle mounting being U-shaped with a body and opposed legs forming said recess;

(e) a longitudinally extending weighing frame for a ladle mounted in opposed positions on each of said legs;

(f) a dynamic test cell positioned between each end of each weighing frame and said ladle mounting;

(g) said dynamic test cells supporting their respective weighing frame in a vertical direction on said legs;

(h) a plurality of positioning and guiding connections between each said weighing frame and said ladle mounting preventing relative horizontal movement therebetween; and

(i) each said weighing frame having one said crane loop support recess;

(j) said plurality of positioning and guiding connections including a plurality of cooperating projections disposed between each said weighing frame and said ladle mounting;

(k) said projections disposed in at least two horizontal planes vertically spaced from each other; and

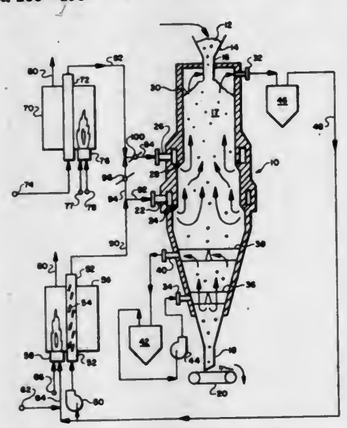
(l) positioning means disposed between said projections and said legs permitting frictionless relative vertical displacement of said weighing frames on said legs while preventing relative horizontal displacement.

4,270,739

APPARATUS FOR DIRECT REDUCTION OF IRON USING HIGH SULFUR GAS

William A. Ahrendt, and Donald Beggs, both of Charlotte, N.C., assignors to Midrex Corporation, Charlotte, N.C.

Filed Oct. 22, 1979, Ser. No. 86,980
Int. Cl.³ F27B 9/12
U.S. Cl. 266—156 4 Claims



1. Apparatus for direct reduction of iron oxides to a metallized iron product, said apparatus comprising:

(a) a generally vertical shaft furnace;

(b) means for charging particulate iron oxide material to the upper portion of said furnace to form a burden therein, and means for removing metallized iron product from the bottom of said furnace, whereby a continuous gravitational flow of said burden can be established through the furnace;

(c) a first hot reducing gas inlet intermediate the ends of the furnace;

(d) a second hot reducing gas inlet intermediate said first reducing gas inlet and the upper end of the furnace;

(e) a reacted gas outlet at the upper end of said furnace;

(f) means communicating with said reacted gas outlet for cooling and scrubbing reacted gas;

(g) a reformer furnace with catalyst-containing tubes therein, for the formation of gaseous reductants, an inlet to said reformer communicating with said cooling and scrubbing means, an outlet from said reformer, a first conduit communicating with said reformer outlet and said first reducing gas inlet, and a second conduit communicating with said reformer outlet and said second hot reducing gas inlet;

(h) a process gas heater;

(i) a source of process gas communicating with said heater; and

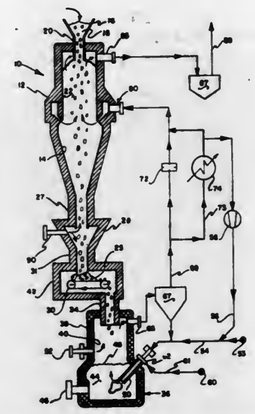
(j) a third conduit communicating with said heater and said second reducing gas inlet.

4,270,740

APPARATUS FOR PRODUCING MOLTEN IRON BY SUBMERGED COMBUSTION

Charles W. Sanzenbacher, Charlotte, N.C., and John C. Scarlett, Toledo, Ohio, assignors to Midrex Corporation, Charlotte, N.C.

Division of Ser. No. 58,037, Jul. 16, 1979, Pat. No. 4,238,226.
This application Jan. 5, 1980, Ser. No. 156,850
Int. Cl.³ F27B 15/00
U.S. Cl. 266—157 10 Claims



1. Apparatus for reducing particulate iron oxide and producing molten iron comprising:

(a) a generally vertical shaft furnace having means for admitting particulate burden material at the top thereof and means for removing particulate material from the bottom thereof, means intermediate the ends of the furnace for introducing a hot reducing gas to the burden therein, and means for withdrawing spent reducing gas from the top thereof;

(b) a melter-gasifier vessel having a molten metal bath therein, means for admitting particulate materials to the top thereof, heating means for melting said particulates in said vessel and means for withdrawing molten product from said vessel, said vessel being in sealed relationship with the discharge end of said shaft furnace;

(c) conduit means for introducing oxygen and fossil fuel into said bath beneath the surface of said bath;

(d) gas humidifying means in the wall of said vessel above the molten metal bath for cooling and humidifying gases from said bath within said vessel; and

(e) a gas passageway communicating with said vessel and said hot gas introducing means in said furnace.

4,270,741

DOOR VISE

Paul N. Hurst, 5125 Colorado Blvd., Fort Worth, Tex. 76118

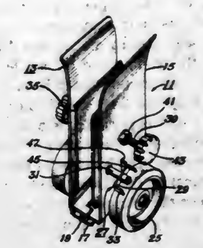
Filed Dec. 26, 1979, Ser. No. 106,472
Int. Cl.³ B25B 11/00
U.S. Cl. 269—17 6 Claims

1. An improved vise for supporting and transporting a thin object, such as a door, in an upright position, comprising in combination:

a pair of jaws, each jaw having an upright member and a base extending at an angle with respect to the upright member;

a hinge securing the jaws together at the bases, allowing the upright members to pivot toward and away from each other;

spring means for urging the upright members away from each other, the thin object adapted to be carried on an edge between the upright members, the weight of the thin object overcoming the spring means and drawing the upright members toward each other to support the thin object; and



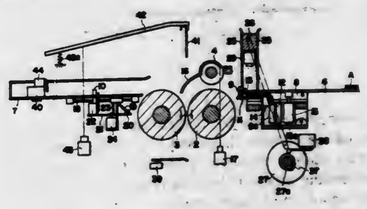
a wheel mounted to each jaw for rolling contact with a floor to transport the thin object.

4,270,742

PAPER STACK BINDING AND FOLDING DEVICE

Hiroshi Kobayashi, No. 35-22, 3-chome, Shimorenjaku, Mitaka-City, Tokyo, Japan

Filed Oct. 27, 1978, Ser. No. 955,195
Claims priority, application Japan, Mar. 27, 1978, 53/35156; Mar. 28, 1978, 53/34974
Int. Cl.³ B41L 43/12
U.S. Cl. 270—37 5 Claims



1. In a paper stack binding and folding device comprising a paper stack feed table inclined so as to dispose the upper edge rearwardly of the lower edge of said table and having a paper abutment ruler at said lower edge, said table further having a horizontal slit in the center of the table;

a paper stack feed mechanism mounted on said table and having a paper stack feed pawl adapted to extend above said table and retract below the table through said slit for feeding paper stacks in a feed direction toward a leading end of said feed table;

a stapling mechanism positioned at the leading end of said table and including stapler guns to eject staples to a paper stack and a cauking member for cauking free ends of said staples ejected from said stapler guns;

a binding position control stop means positioned adjacent and downstream of said stapling mechanism in the feed direction of said paper stack for holding said paper stack fed from said feed table in a predetermined binding position;

a paper stack folding mechanism positioned downstream of said stop means in the feed direction of said paper stack and having a pair of parallel and spaced folding rolls to define a gap located below the plane of said feed table therebetween and a paper stack folding piece positioned above said gap to push said bound paper stack into said gap to thereby fold the bound paper stack; and

a paper stack folding position control stop means positioned downstream of said paper stack folding mechanism in the feed direction of said paper stack for holding said bound paper stack in a predetermined folding position, character-

ized by said paper stack feed table inclines at an angle over 60° with respect to the horizon, a paper stack folding position control table disposed in substantially the same inclined plane as said paper stack feed table, said paper stack binding and folding position control stop means are disposed in succession on said paper stack folding position control table, said stapling mechanism is positioned at and extends from the leading end of said feed table and said pair of folding rolls are positioned between and inclined at the same angle as the feed and folding position control table, whereby said paper stack is bound when the paper stack is positioned over the folding rolls and held in position by said binding position control stop means and after the binding operation the bound paper stack is pushed into said gap between the folding rolls to be folded while being held in position by said folding position control stop means.

4,270,743

FORWARD NUMBERING OR UNDERLAP SHEET DELIVERY

Charles P. Crampton, Hamilton, Ohio, assignor to Hamilton Tool Company, Hamilton, Ohio

Filed Jun. 29, 1978, Ser. No. 920,364
Int. Cl.³ B65H *39/06*
U.S. Cl. 270—58 **14 Claims**



1. A device for delivering in underlap echelon relationship a plurality of similar size, flat, sheet-like articles onto the upper reach of an endless conveyor wherein the forward portion of each succeeding article is located beneath the rear portion of each preceding article, comprising:

means for continuously and sequentially providing a plurality of individual, similar size, flat, sheet-like articles of uniform length adjacent the upstream end of an endless conveyor;

means in advance of the upstream end of said conveyor for accelerating the rate of travel of each individual article toward the upstream end of said conveyor and depositing it on an upper reach thereof;

means between said last mentioned means and the upstream end of said conveyor for elevating the trailing edge of that individual article whose leading edge and forward portion has been last deposited onto the upper reach of said conveyor such that the leading edge of the next succeeding article is deposited on the upstream end of the upper reach of said conveyor beneath the elevated trailing edge of the preceding article; and

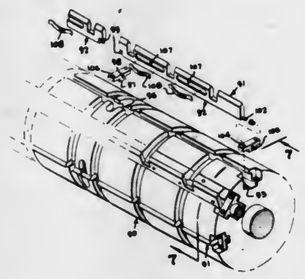
a rotatably driven slow down roll at the upstream end of the conveyor for limiting the amount by which the leading edge of each succeeding article is advanced under and relative to the undersurface of the preceding article last deposited on the conveyor, the periphery of the slow down roll being operative to exert pressure against the upper surface of the last article deposited on the conveyor, intermediate the length of said article to provide an abutment transversely of said article which is engaged by the leading edge of the next succeeding article as it is advanced beneath and forwardly of the trailing edge of the preceding article, the slow down roll being movable toward and away from the upstream end of the conveyor for varying the degree to which the leading edge of the next succeeding article is deposited on the upstream end of the upper reach of said conveyor beneath the elevated trailing edge of the preceding article.

4,270,744

TUCKERS ON MECHANICAL FOLDING ROLLS

John F. Trogan, Ashland, Wis., assignor to C. G. Bretting Mfg. Co. Inc., Ashland, Wis.

Filed Jun. 15, 1979, Ser. No. 49,035
Int. Cl.³ B65H *45/16*
U.S. Cl. 493—430 **2 Claims**



1. In a paper folding machine for towels, paper napkins and the like, having a width, said paper folding machine including a frame, a pair of first and second co-acting oppositely rotating rolls supported in said frame, means for rotating said rolls in opposite directions relative to one another, cam means operatively connected to each of said rolls, each of said rolls including cooperating tuckers and grippers, said grippers, including a stationary jaw and a movable jaw, the tuckers and grippers on said rolls being arranged in alternate locations relative to each other along the periphery of said rolls;

the improvements which comprise including in said machine;

a plurality of longitudinally extending recesses in each of said rolls;

gripper shafts mounted in said recesses, each said movable jaw being mounted on one of said gripper shafts;

each of said stationary jaws being disposed in the trailing portion of one of said longitudinally extending recesses, facing one of said movable jaws, each of said stationary jaws being provided with a bevelled surface opposed to a working face on said movable jaw;

longitudinally extending L-shaped grooves on each of said rolls between each of said longitudinally extending recesses, each of said tuckers being mounted in one of said L-shaped grooves;

each of said tuckers terminating in a tip having an inclined face along its trailing edge;

spring means to resiliently urge said inclined face toward the bevelled portion of said fixed jaw when said tucker and said gripper are brought into engagement by rotation of said oppositely rotating rolls;

each of said tuckers including a tucker blade comprising individual segments, each of which has a length equal to the width of the paper article to be folded;

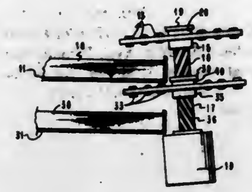
and wherein said segments are provided with slots, and including a pair of leaf springs received in said slots exerting pressure on said segments to pivot the same.

4,270,745

MULTIPLE STACK ROLL-WAVE SHEET SEPARATOR APPARATUS

Harrold R. Woodard, Georgetown, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,647
Int. Cl.³ B65H *3/06, 3/44*
U.S. Cl. 271—9 **11 Claims**



2. Sheet separating apparatus comprising:

means for supporting a first and a second stack of sheets,

sheet separating means mounted adjacent to said stacks comprising:

a rotatable shaft,

a first helical peripheral thread coaxial with said shaft formed along a portion of said shaft proximate said first stack,

a second helical peripheral thread coaxial with said shaft formed along another portion of said shaft proximate said second stack and having a direction opposite to that of said first thread,

a first follower rotatable about the axis of said shaft following said first thread,

a second follower rotatable about the axis of shaft following said second thread, and

means for rotating the shaft in a selected one of two directions,

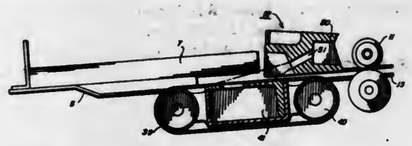
whereby said first follower is driven into engagement with an outermost sheet in said first stack when said shaft is rotating in a selected one of said two directions and the second follower is driven into engagement with an outermost sheet in said second stack when the shaft is rotating in a selected direction.

4,270,746

SHEET SEPARATOR

Thomas J. Hamlin, Macedon, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 3, 1979, Ser. No. 81,497
Int. Cl.³ B65H *1/06, 3/12*
U.S. Cl. 271—98 **1 Claim**



1. A bottom sheet separator-feeder for separating and forwarding sheets seriatim comprising:

a stack tray adapted for supporting a stack of sheets to be fed, said stack tray having a "U" shaped pocket formed therein;

a plurality of vacuum feed belts disposed in said pocket beneath said tray adapted to pull the bottom sheet in the stack into the pocket and feed the sheet from beneath the sheet stack;

a portion of the center belt of said vacuum feed belts being spaced approximately 0.117 inches above the remainder of said belts such that when the bottom sheet in the stack is forced into contact with said belts, a temporary corrugation is formed in the sheet; and,

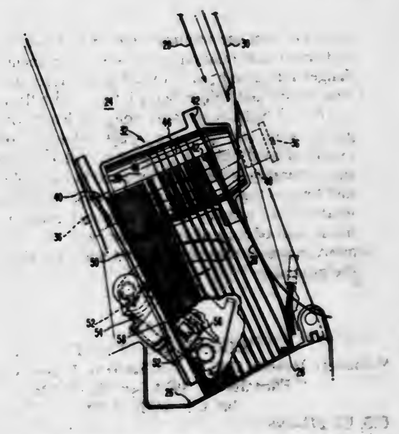
an air knife disposed at an angle of approximately 21° to the plane of said stack tray adjacent the front of said tray to inject air between the bottom sheet in the stack, said air knife having a plurality of spaced discharge orifices therein, said air knife being located relative to the front edge of the sheet stack such that the discharge orifices are spaced approximately 0.500 inches above the plane of the vacuum feed belts and approximately 0.950 inches from the lead edge of the sheet stack for optimum separation of the bottom sheet from the remainder of the sheets in the stack.

4,270,747

DOCUMENT PACKING SYSTEM

William B. Templeton, Howell, Mich., assignor to Burroughs Corporation, Detroit, Mich.

Filed Dec. 31, 1979, Ser. No. 108,599
Int. Cl.³ B65H *29/42*
U.S. Cl. 271—179 **10 Claims**



1. A document packing system for closely packing sorted documents into a pocket of a document sorting system having many pockets, comprising:

a hollow, cylindrical auger having multiple, discontinuous, raised helicies to initially engage documents sorted into the pocket;

a stationary means, within the hollow cylindrical auger, for rotating the auger;

means, integral with the auger, for secondarily engaging and packing the sorted documents into the pocket; and

means within each pocket, resiliently responsive to the packing of documents into the pocket, for supporting sorted documents within the pocket.

4,270,748

MODULARIZED SLIDE

Sammie Ray, Litchfield, Mich., assignor to Game Time, Inc., Fort Payne, Ala.

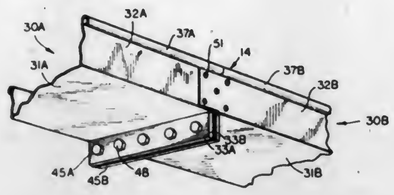
Continuation of Ser. No. 932,768, Aug. 11, 1978, Pat. No. 4,211,400. This application May 21, 1980, Ser. No. 152,068
The portion of the term of this patent subsequent to Jul. 8, 1997, has been disclaimed.
Int. Cl.³ A63G *21/02*
U.S. Cl. 272—56.5 R **9 Claims**

8. A playground slide, comprising:

a plurality of bedway sections and an exit section each having an upwardly facing bedway floor and laterally spaced

sidewalls each having inwardly facing surfaces and a rounded upper edge;

modularized connecting means for connecting said plurality of bedway sections into an end-to-end relation and said exit section to the lowermost one of said bedway sections along the length of said playground slide, said connecting means each including integral flange means at the opposite longitudinal ends of each of said bedway sections which are identical to each other to facilitate the interchanging of said end-to-end order of said bedway sections, said flange means including at least a pair of flanges defined by an integral, longitudinal extension of said sidewalls beyond the opposite terminal ends of said bedway section, said end-to-end relation comprising the placement of said flanges into side-by-side overlapping relation, the innermost one of said flanges being integral with the uppermost one of said bedway sections along the length of said playground slide and fastening means defining a plurality of axially aligned holes in each of said side-by-side flanges and a plurality of fasteners received in said holes to fasten said flanges together, the portion of said fasteners on the inside of said bedway having a smooth contour along the inside wall of each of said flanges; and



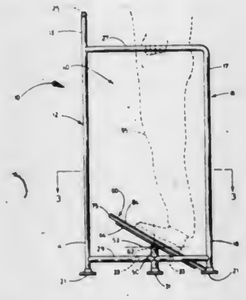
support means for supporting said bedway sections above the ground.

4,270,749

EXERCISING DEVICE

William D. Hebera, 1145 W. Griffith Way, Fresno, Calif. 93705

Filed Jul. 16, 1979, Ser. No. 57,725
Int. Cl.[3] A63B *23/04*
U.S. Cl. 272—96 1 Claim



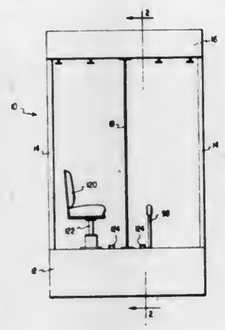
1. An exercising device comprising a substantially parallelipiped frame having a pair of erect forward posts, a pair of erect rearward posts, lower side rails interconnecting the lower end portions of corresponding forward and rearward posts, spacers interconnecting the lower side rails, opposite substantially horizontal, parallel, upper side rails interconnecting the upper end portions of corresponding forward and rearward posts, and a substantially horizontal rear rail interconnecting the upper end portions of the rearward posts, defining a stall having upper and lower ends and a front access opening; a treadle; and means mounting the treadle on the lower side rails for rocking movement in a predetermined path about a substantially horizontal axis disposed substantially transversely of the upper side rails in inwardly spaced relation to the access opening, said treadle being substantially planar and the axis being in downwardly spaced adjacent relation to the treadle, the spacers being located below the treadle and in the path of the treadle to limit the rocking movement thereof.

4,270,750

STATIONARY ROPE CLIMB EXERCISE DEVICE

Roger J. Malcolm, 1701 28th Ave., Birmingham, Ala. 35209

Filed Aug. 24, 1978, Ser. No. 936,401
Int. Cl.[3] A63B *21/04*
U.S. Cl. 272—136 10 Claims



1. A rope climb exercise device comprising:

a base;

a housing;

column means supporting said housing above said base;

a first winding drum journalled within said housing;

a second winding drum journalled within said base;

a rope connected at one end to said first drum and at its opposite end to said second drum and of such length as to be alternately would on said first and second drums;

tensioning means mounted in said housing and connected to said first winding drum and operative to apply progressively increasing tension to said rope as it is unwound from said upper drum; and

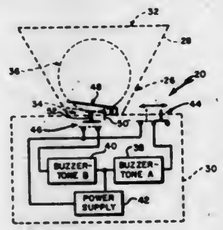
means for rotating said second winding drum to wind said rope thereon.

4,270,751

GOLF PUTTING AID APPARATUS FOR THE VISUALLY HANDICAPPED

Stephen D. Lowy, 8 Spruce Rd., Monsey, N.Y. 10952

Filed Sep. 12, 1979, Ser. No. 74,796
Int. Cl.[3] A63B *57/00, 69/36*
U.S. Cl. 273—34 R 11 Claims



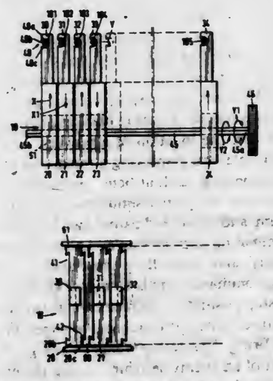
1. A golf putting aid apparatus for a visually handicapped person capable of use with a standard type golf cup, said putting aid comprising a housing insertable in said golf cup, said housing having a golf ball receiving portion and an audible electronic sound emitting portion, said ball receiving portion having an entrance portion alignable in said golf cup for receiving a golf ball putted thereinto, said audible electronic sound emitting portion comprising an audible alarm means capable of providing at least two different independently selectable audibly distinguishable electronic sound emissions, a power supply operatively connected to said electronic alarm means for providing power thereto, bistable switch means having a first open circuit state and a second closed circuit state, said bistable switch means arming said audible alarm means in said second state for providing a first independently selectable audibly distinguishable electronic sound emission for audibly indicating to said visually handicapped person the location of the golf cup in which said housing has been inserted, and spring biased golf ball activated switch means having a first state and a second state for providing a different second independently selectable audibly distinguishable electronic sound emission for audibly indicating to said visually handicapped person that a putt has been successfully completed, said first state being a stable state in which said ball activated switch means is in a resiliently biased normal open circuit condition with no ball in said ball receiving portion, said second state being a state in which said ball activated switch means is in a closed circuit condition with a ball resting in said ball receiving portion, said ball activated switch means comprising a resiliently biased member normally resiliently biased to said open circuit condition by a predetermined resilient bias force, said resilient bias force being selected to be less than the force exerted by a received ball due to the weight of the ball, said resiliently biased member being disposed in said ball receiving portion for enabling pressure contact with a ball received therein for enabling the weight of said received ball to overcome said resilient bias force to place said ball activated switch means into said second state, said ball activated switch means arming said audible alarm means in said second state for providing said second audibly distinguishable electronic sound emission, whereby when said bistable switch is armed said golf cup is initially uniquely audibly located for a subsequent putt whose successful completion is subsequently uniquely audibly indicated when said ball activated switch is armed.

4,270,752

REVERSER APPARATUS FOR TENNIS RACKETS

Edgar Strelow, Holsteinischer Kamp 64, 2000 Hamburg 76, Fed. Rep. of Germany

Filed Apr. 6, 1979, Ser. No. 27,814
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1978, 2843824
Int. Cl.[3] A63B *51/41*
U.S. Cl. 273—73 A 11 Claims



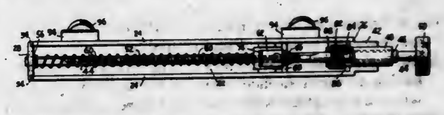
1. In a device for stringing tennis rackets, said rackets being strung with longitudinally extending strings and cross strings, apparatus for alternately raising and lowering the longitudinal strings strung in a frame of said racket in order to provide spaces therebetween for insertion of said cross string, said apparatus comprising: a plurality of planar support bodies arranged in alignment adjacent each other in interfacing relationship to enable relative movement therebetween in directions extending transversely to said longitudinal strings; string holding devices arranged on each of said support bodies for engaging said longitudinal strings to enable said string to be alternately moved out of a common plane by movement of said support bodies; wall means defining an oblong hole extending through each of said support bodies, with the oblong holes of each of said support bodies being adapted to be placed in general alignment with each other when said plurality of support bodies are arranged in alignment adjacent each other; and actuator means for alternately moving adjacent support bodies in opposed directions in order to alternately separate longitudinal strings engaged in said string holding devices, said actuator means comprising a plurality of discs eccentrically mounted relative to a common axis of rotation, each of said discs being engaged with an oblong hole of one of said support bodies in engaging relationship with said wall means to effect said alternate movement of adjacent support bodies in opposed directions upon rotation of said discs about said common axis.

4,270,753

GOLF CLUB SWING INDICATOR

Arthur M. Maroth, and Sybil Maroth, both of 1101 SW. 13th Pl., Boca Raton, Fla. 33432

Filed Nov. 21, 1979, Ser. No. 96,326
Int. Cl.[3] A63B *69/36*
U.S. Cl. 273—186 A 8 Claims



1. A golf club swing-force indicator comprising, in combination:

(a) an elongate turnable shaft having a lateral abutment spaced inwardly from one of its ends,

(b) a finger piece rigid with the shaft and carried by said one end,

(c) said shaft having a bearing area between the rigid finger piece and the abutment,

(d) a pair of bearings for the shaft,

(e) one of said bearings engaging and supporting said bearing area of the shaft between said finger piece and lateral abutment, and the other bearing engaging and supporting the other end of the shaft,

(f) a torsion spring encircling the shaft at a location inwardly of said one bearing, one end of said spring engaging the abutment on the shaft and the other end of the spring reacting against said one bearing, thereby to bias the shaft for turning in said one bearing,

(g) a weight member having an indicator, slidable along the shaft,

(h) a compression spring on the shaft, engaging the weight member to bias the latter toward one end of the shaft,

(i) said weight member having a pawl and said shaft having a row of teeth cooperable with the pawl to hold the weight member in various adjusted positions against the action of said compression spring,

(j) said shaft having a smooth track on which the pawl can alternately ride when the shaft is turned against the action of said torsion spring, thereby to enable return of the weight to a starting position under the action of said compression spring, and

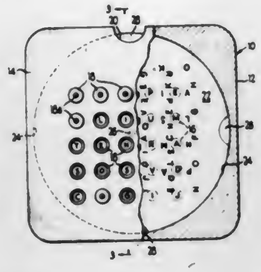
(k) a housing carrying said bearings and enclosing the said shaft, weight and springs.

4,270,754

AMUSEMENT DEVICE

Alex Imatt, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.

Continuation of Ser. No. 855,352, Nov. 28, 1977, abandoned. This application May 23, 1979, Ser. No. 41,615
Int. Cl.³ A63F 3/00
U.S. Cl. 273—273 10 Claims



1. An amusement device in the form of a spelling education game comprising:
a base having a playing board with a cylindrical recess on the underside thereof and a plurality of tapered openings on the top arranged in an orthogonal matrix of parallel rows and parallel columns normal to said rows;
a manually removable plug for covering each of said openings, each plug having a tapered base portion shaped to seat within an opening and including handle means to facilitate manual withdrawal and reseating in said opening;
means defining an axis of rotation offset from the center of the rows and columns of said matrix; and
a disc mounted for rotation on said axis relative to said base having an upper surface viewable through said openings when said plugs are withdrawn, said upper surface having a plurality of generally smaller orthogonal matrices thereon comprising indicia arranged in parallel rows and parallel columns normal to said rows, the indicia of each matrix including four characters oriented with one character in each of four orthogonal directions, each of said matrices positioned by said axis to align the indicia thereof below said matrix of openings when said disc is in one of several rotative indexing positions relative to said base and each character appearing alone in an opening of said base in one of said indexed positions when the associated plug is removed.

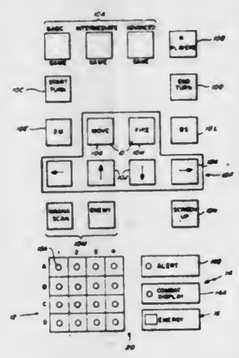
4,270,755

STRATEGY BASED ELECTRONIC COMBAT GAME

Joseph W. Willhide, 17 Crown Ridge Rd., Wellesley, Mass. 02181, and Henry L. Viarengo, Woburn, Mass., assignors to Joseph Willhide, Wellesley, Mass.

Filed Feb. 1, 1979, Ser. No. 8,284
Int. Cl.³ A63F 9/02
U.S. Cl. 273—313 23 Claims

1. An electronic strategy game comprising:
a console adapted to be passed between players of the game,
a Keyboard on the console having a plurality of keys each for representing a different command,
a display on the console including a plurality of indicators representing a galaxy and arranged in a matrix, one of said indicators representing the players starship and at least one other of said indicators at least at some time representing a planet, and another indicator representing an enemy starship,
less than all of said indicators being illuminated for each player,
said display being a priviledged information display wherein the location of a player's starship is hidden from the other players,
said console having means for selectively initiating each turn,
said display also including means for displaying a remaining energy readout,
each said player having a different display arrangement corresponding to its own starship location,
and control means having communication lines intercoupling with the display and keyboard and including means for receiving command signals from the keyboard for controlling the starship position by movements in any one of a number of different directions with each move expending at least one energy unit, and means for receiving command signals to fire the starships weapons along different courses, each hit on an enemy starship costing the enemy player at least one energy unit and each firing costing the player at least one energy unit,
said control means also including means for controlling the display indicators to simultaneously represent said player's starship and planet in a visually distinguishable manner, and means for controlling the display indicators to simultaneously represent the planet and enemy starship in a visually indistinguishable manner.



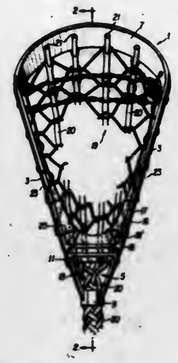
23. An electronic strategy game and corresponding method of play comprising the steps of; providing a console adapted to be passed between players of the game, providing a keyboard on the console having a plurality of keys, each for representing a different command including move and fire commands, displaying at some place on the console with a plurality of indicators representing a galaxy and arranged in a matrix, the indicators being displayed representing the player's starship, at least one enemy starship, and at least one other indicator representing a planet, or less than all of said indicators being illuminated for each player, said display being a privileged information display wherein information blanking occurs at the end of each turn so that the location of a player's starship is hidden from the other players, displaying a remaining energy readout, with a corresponding readout being provided in turn for each of the players in the game, simultaneously illuminating said enemy starship and planet indicators indistinguishably, simultaneously illuminating said starship and planet indicators visually distinguishably, and controlling the display via the keyboard by receiving command signals from the keyboard for controlling the starship position by movements in any one of a number of different directions with each move expending at least one energy unit, firing the starship weapons along different courses with each hit of an enemy starship costing the enemy player at least one energy unit and each firing expending at least one energy unit of the present player.

4,270,756

LACROSSE STICK HEAD

Carl B. Ahlenfeld, 6010 Westchester Park Dr., College Park, Md. 20740, and James D. Macey, 3483 Olympia Rd., Davidsonville, Md. 21035

Filed Apr. 6, 1979, Ser. No. 27,981
Int. Cl.³ A63B 65/12
U.S. Cl. 273—326 6 Claims



1. A lacrosse stick head comprising:
(a) a frame including a pair of sidewalls joined at their lower ends forming a throat, and said sidewalls diverging in a generally V-shaped manner;
(b) means for receiving a handle in said throat;
(c) a top portion joining the top of said sidewalls;
(d) a cross member extending between said sidewalls in the throat;
(e) a resilient generally U-shaped cushion having legs and a bight positioned in the head, the legs of the U-shaped cushion extending upwardly along said sidewalls and said bight extending along said cross member;
(f) a plurality of substantially coextensive holes in said cushion and in said frame; and
(g) webbing supported on said frame and extending through said holes in said bight and cross member.

2. A lacrosse stick head comprising:
(a) a frame including a pair of sidewalls joined at their lower ends forming a throat, and said sidewalls diverging in a generally V-shaped manner;
(b) means for receiving a handle in said throat;
(c) a top portion joining the top of said sidewalls;
(d) a cross member extending between said sidewalls in the throat;
(e) a resilient generally U-shaped cushion having legs and a bight positioned in the head, the legs of the U-shaped cushion extending upwardly along said sidewalls and said bight extending along said cross member;
(f) a plurality of substantially coextensive holes in said cushion and in said frame; and
(g) webbing supported on said frame and extending through said holes in said legs and sidewalls.

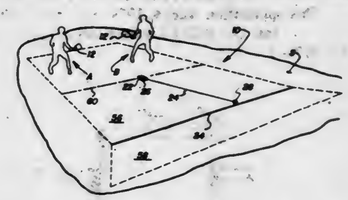
4,270,757

TETHERED BALL GAME AND APPARATUS

Samuel B. Ligon, Dallas, Tex., assignor to Jokari/U.S., Inc., Dallas, Tex.

Filed Apr. 2, 1979, Ser. No. 26,284
Int. Cl.³ A63B 67/00
U.S. Cl. 273—411 12 Claims

1. Game apparatus for playing simulated racquetball on an open playing surface by one or more players using racquets, which comprises:
line means positioned on the playing surface for defining a bounce zone and a playing zone separated by a substantially straight boundary line of predetermined length, said boundary line means having a midpoint;
said boundary line means separating the playing zone in which the players move during the game, and the bounce zone on the playing surface;
a base positioned on the playing surface in predetermined spaced apart relationship in a direction substantially normal to the midpoint of said boundary line means, said base being located within the playing zone;
an elastic tether cord of predetermined length in relaxed condition substantially equal to the distance between said base and boundary line means, said tether cord having two ends;
swivel means for rotatably connecting one end of said tether cord to said base;
a resilient ball having a hollow interior and a radial aperture extending between substantially spherical inside and outside surfaces;



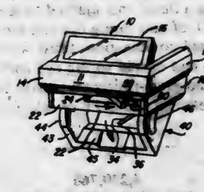
an inelastic loop positioned in the aperture of said ball and having inside and outside ends, the outside end of said loop being connected to the other end of said tether cord; and
plug means secured to the inside end of said loop within said ball for preventing separation of said loop from said ball;
said ball having bounce characteristics similar to a standard racquetball and being suitable for repeated bouncing and hitting by racquets held by the players;
said ball, tether cord and boundary line means cooperating such that said ball, when struck with a racquet and hit over said boundary line means, bounces in the bounce zone and is returned by said tether cord and caused to bounce in the playing zone in a manner simulating that in which a free racquetball rebounds from the walls of a conventional enclosed racquetball court.

4,270,758

LEVER OPERATED STYLUS GUARD FOR PHONOGRAPH PICK-UP CARTRIDGE

Joseph D. Kehl, Chicago, Ill., assignor to Shure Brothers, Inc., Evanston, Ill.

Filed Dec. 5, 1979, Ser. No. 100,420
Int. Cl.³ G11B 21/00, 3/10
U.S. Cl. 369—170 10 Claims



1. A stylus holder and guard for use with sound recordings comprising
a main body member,
a movable stylus guard member mounted on a main body member for pivotal movement in a first plane,
a stylus,

a stylus grip member to retain the stylus in a position to engage with a recording, also attached to said main body member,

a manually rotatable lever member secured to the main body member for pivotal movement in a second plane perpendicular to the first plane, and

means on said rotatable lever member and said movable stylus guard member to cause movement of the guard member to one position wherein the stylus cannot contact the recording and into another postion wherein the stylus is in a position to be able to contact the recording.

4,270,759

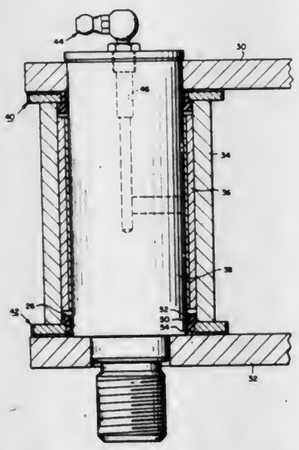
COMBINATION THRUST WASHER AND SEAL ARTICLE, APPARATUS AND METHOD

Dennis N. Denton, Gaston County, and Martin E. Benjamin, Gastonia, both of N.C., assignors to Garlock Inc., Longview, Tex.

Division of Ser. No. 768,070, Feb. 14, 1977, Pat. No. 4,175,756. This application Apr. 4, 1979, Ser. No. 27,004

Int. Cl.³ B62D *55/08*; F16S *15/24*

U.S. Cl. 277—1 **8 Claims**



1. A method for preventing contaminants from entering the bushing-pin area of a spring shackle bracket assembly including a pair of spaced-apart brackets, a spring eye positioned between said brackets, a bushing inside of said spring eye, and a pin extending between said brackets and inside of said bushing, said method comprising the steps of: bonding an annular elastomeric seal body to an annular ring-shaped metal thrust washer adapted for use in said assembly to provide a combination thrust washer and seal article, providing said seal body with a sealing lip having a proximal end adjacent the I.D. of the washer and extending axially therefrom away from said washer and having a distal end adapted to sealingly contact at least one of the I.D. of said spring eye and the O.D. of said pin, installing one of said combination thrust washer and seal articles between each end of said spring eye and the adjacent one of said brackets, and press-fitting said distal end of said sealing lip in the space between the O.D. of said pin and the I.D. of said spring eye.

4,270,760

SEALING ASSEMBLY

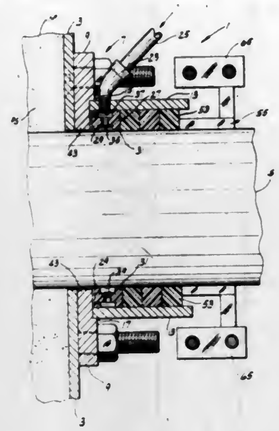
Myrl H. W. Greiman, 5100 Wise Ave., St. Louis, Mo. 63110

Filed Oct. 15, 1979, Ser. No. 84,835

Int. Cl.³ F16J *15/26, 15/40*

U.S. Cl. 277—3 **41 Claims**

1. An assembly for sealing clearance space around a shaft between the shaft and a surrounding member comprising a housing adapted to be mounted adjacent said clearance space in fixed position relative to the shaft, the latter extending through the housing, a relatively rigid sealing ring mounted in the housing around the shaft and having a clearance fit therewith, means for securing the ring in fixed position relative to the housing, an annular recess opening radially inwardly



around the shaft at the side of the ring toward said clearance space, passaging in the ring communicating with said recess, and an inlet in the housing for delivery of gas under pressure via said passaging to said recess, the gas flowing along the shaft and into said clearance space for inhibiting escape through the clearance space of material tending to move therethrough in a direction opposite to said gas flow.

4,270,761

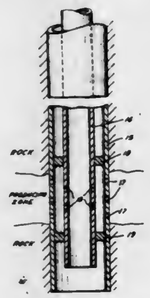
SEAL FOR GEOTHERMAL WELLS AND THE LIKE

Daniel L. Hertz, Jr., Red Bank, N.J., assignor to Seals Eastern Inc., Red Bank, N.J.

Filed Dec. 3, 1979, Ser. No. 99,278

Int. Cl.³ E21B *33/124*; F16J *15/12*

U.S. Cl. 277—12 **6 Claims**



1. A seal for use in a high temperature environment, such as a geothermal well, the seal including a ring-shaped element of a polymer which is substantially crystalline at room temperature and has a molecular weight of at least about 400,000, the polymer having a crystalline melting temperature above 500° F. and a melting point above 650° F., and the polymer being characterized by molecular chain entanglements to the extent of an average of at least about ten physical entanglements per chain when the polymer is in an amorphous state, the element expanding in response to being heated, by the contents of a well, to a temperature between the crystalline melting temperature and the melting pont of the polymer.

4,270,762

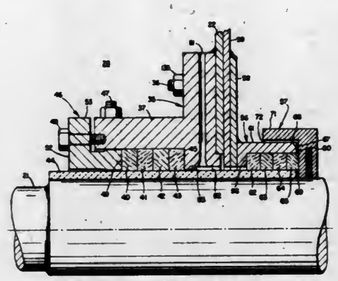
DISPERSER SEAL AND METHOD

Robert T. Johnston, Dearborn Heights, Mich., assignor to Coaltek Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 793,450, May 3, 1977, abandoned. This application Jul. 25, 1978, Ser. No. 927,766

Int. Cl.³ F16J *15/40, 15/26*

U.S. Cl. 277—59 **16 Claims**



1. A seal for a shaft of a disperser crusher adapted to pulverize hot coal particles that are conveyed by hot gases to the crusher, said crusher being in a casing having a wall through which the shaft extends to a drive motor, said seal adapted to maintain a higher than atmospheric pressure established by the hot gases within the casing, comprising interior and exterior packings enclosed within interior and exterior packing housings fixed on and respectively inside and outside of said casing wall and each packing in abutting relationship with a high temperature resistant low friction coefficient sleeve on said shaft, means for urging each of the packings against said sleeve on said shaft to establish a seal between said sleeve and the casing wall, said packings being fabricated of a material capable of withstanding the elevated temperatures on the surface of the shaft, conduit means for supplying gas to the interior packing in a direction to urge the interior packing longitudinally of the shaft away from the casing wall, said conduit means in fluid flow relationship with means for establishing a tortuous path for the coal particles from the interior of the casing to the interior packing, wherein the tortuous path terminates in a generally annular nozzle for the gas, said nozzle directing the gas back over the interior packing housing toward a casing wall portion adjacent the seal, said gas being inert with the coal particles and having a pressure greater than the pressure inside of the casing whereby coal particles are continuously biased away from the packings by the gas emitted from the nozzle.

4,270,763

SPLIT-JAW LATHE CHUCK WITH LOCKABLE INNER JAW PARTS

Günter H. Röhm, Hinrich-Röhm-Strasse 50, 7927 Sontheim, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,272

Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821851

Int. Cl.³ B23B *5/22, 31/16*

U.S. Cl. 279—123 **10 Claims**

1. A lathe chuck comprising:

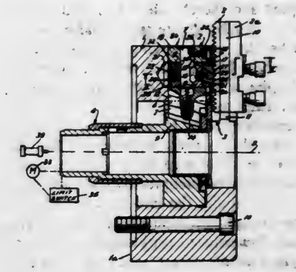
a chuck body rotatable about an axis and formed with a plurality of angularly spaced and radially extending inner guides and with a plurality of angularly spaced and radially extending outer guides, each of said inner guides in turn having a respective axially forwardly directed and radially extending blocking surface and a respective axially forwardly opening recess at the respective blocking surface;

respective inner jaw parts radially displaceable in said chuck body in said inner guides;

means including at least one operating element engageable with said inner jaw parts for radially displacing same in said chuck body in the respective inner guides between radially inner and radially outer positions;

respective outer jaw parts projecting axially from said chuck body and radially displaceable therein in said outer guides;

respective coupling members between said inner jaw parts and the respective outer jaw parts and each engageable only in a predetermined radial position of the respective



inner jaw part in the respective recess, said members when not engaged in the respective recesses riding on the respective blocking surfaces and being in a coupling position engaging both of the respective parts and coupling same together for joint radial displacement and being axially displaceable only when aligned axially with the respective recesses from said coupling position into a decoupling position engaged at least partially in the respective recesses for relative displacement of the respective jaw parts; and

means for displacing said members between the coupling and decoupling positions only when said members are aligned with the respective recesses in said predetermined radial positions of the respective inner jaw parts.

4,270,764

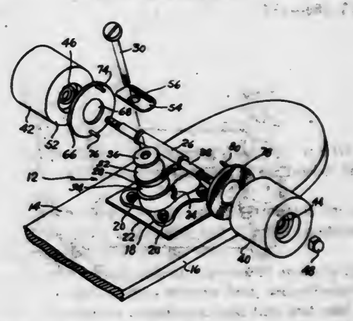
NOISEMAKER FOR SKATEBOARD

Carl S. Yamada, 1415 Victoria St., Apt. 308, Honolulu, Hi. 96822

Filed Nov. 3, 1978, Ser. No. 957,362

Int. Cl.³ A63C *17/02*

U.S. Cl. 280—87.04 A **7 Claims**



3. A noisemaker for a toy having a wheel and means for supporting said wheel for rotation, which comprises:

plate means connected to said supporting means; and

projection means connected to said wheel for rotating therewith and adapted to contact and thereby flex said plate means at least once per revolution to thereby create noise, wherein said plate means comprises a thin, substantially planar metallic plate positioned substantially parallel to the axis of rotation of said wheel, forward and rear substantially parallel edges, and a substantially linear side edge connecting said forward and rear edges and being substantially perpendicular to said axis, said side edge positioned so as to be intercepted and thereby flexed by said projection means, and

wherein said toy includes a second wheel rotating about said axis and having second projection means connected thereto, said plate including a second side edge substantially parallel to the other side edge and positioned so as to be intercepted and thereby flexed by said second projection means to thereby create additional noise.

4. A noisemaker for a toy having a wheel and means for supporting said wheel for rotation, which comprises:

a substantially planar flexible single plate connected to said supporting means; and

projection means connected to said wheel for rotating therewith and adapted to contact and thereby flex said plate at least once per revolution to thereby create noise,

wherein said wheel is mounted for rotation about an axle and includes a substantially flat end surface perpendicular to said axle, said projection means being mounted to said end surface, and wherein said projection means comprises at least one pin extending from said end surface a distance just sufficient to intercept and thereby flex the edge of said plate upon rotation of said wheel;

wherein said projection means further comprises a substantially flat base member fastened to said end surface of said wheel and including a central aperture through which said axle extends, said at least one pin extending from the outer surface of said flat base member; and

wherein said base member further includes a plurality of pins extending from said outer surface, each of which is adapted to intercept said single plate once per revolution of said wheel,

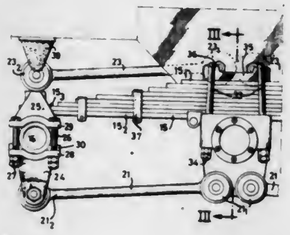
wherein said toy includes a second wheel mounted for rotation about said axle and being substantially identical to the outer wheel, a second projection means being connected to the end surface of said second wheel so as to intercept said plate at least one time per revolution of said second wheel.

4,270,765

CHASSIS-CAB AUTOMOTIVE VEHICLE WITH A DOUBLE REAR AXLE

Paul Legueu, 85 av. de Mazy, 44380 Pornichet, France

Filed Sep. 7, 1979, Ser. No. 73,388
Claims priority, application France, Mar. 26, 1979, 79 07511
Int. Cl.³ B60P 9/00
U.S. Cl. 280—137 13 Claims



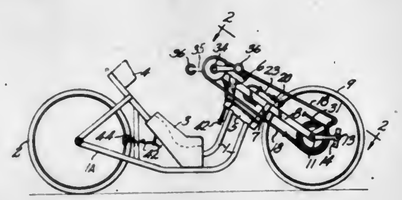
1. In an automotive vehicle comprising a single unit chassis supported in the front by an axle and associated wheels and in the rear by two longitudinally spaced axles and associated wheels, a stack of leaf-springs coupled to and extending between both rear axles on one side of the vehicle and another stack of leaf-springs coupled to and extending between both rear axles on the other side of the vehicle, each stack of leaf-springs being carried in its transverse median plane by an equalizer mechanism pivotally mounted on an end of a pivot shaft, the pivot shaft being fixed against rotation and rigid with an equalizer support fixed to the chassis of the vehicle, the two rear axles being located on each side of and at equal distances from the pivot shaft and being movably connected to the equalizer mechanism by at least one upper and at least one lower reaction link for each stack, the improvement comprising for each stack of leaf-springs a sleeve fixed to the chassis, an end of the pivot shaft extending into the sleeve and being rigidly connected thereto and supported therein, the sleeve including a downwardly extending portion to which one end of the lower reaction link for the respective stack is connected, an equalizer support surmounting the sleeve, the equalizer support being fixed to the chassis and receiving one end of the upper reaction link for a respective stack, an additional support non-rotatably connected to each rear axle to which is coupled the free end of the upper and lower reaction links for a respective stack, and a base pivotally connected to the pivot shaft, the respective stack of leaf-springs being connected to the respective base to pivot about the pivot shaft.

4,270,766

ARM AND LEG POWERED DRIVE SYSTEM FOR A VEHICLE

John C. Thomas, 1557 McKinley St., Eugene, Oreg. 97402

Filed Aug. 10, 1979, Ser. No. 65,458
Int. Cl.³ B62M 1/12
U.S. Cl. 280—234 10 Claims



1. A drive system for a vehicle enabling use of an operator's arms and legs to provide a source of motive power, jointly or individually, to a powered vehicle wheel, said system comprising,

a live axle and sprocket combination adapted for rotation by the operator's legs,

a hub and wheel rotatably journaled on said axle,

a hand crankshaft adapted for rotation by the operator's arms,

a torque tube assembly including a torque tube concentric with said hand crankshaft and having driving and driven sprockets thereon, unidirectional clutch means interposed between said torque tube and said hand crankshaft and having clutch components engageable during rotation of said hand crankshaft in one direction and thereby operable to impart powered rotation to the torque tube while permitting an overrunning of clutch components in an opposite direction of rotation,

means directly coupling the live axle and sprocket combination to the torque tube driving sprocket, and

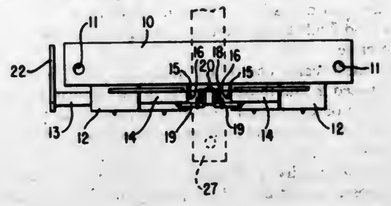
power transmission means interconnecting a torque tube driven sprocket and said axle journaled hub to impart rotation to same.

4,270,767

DEVICE FOR CONTROLLING SWINGING DRAWBAR OF FARM TRACTOR

L. Louis Schilling, Box 28, Little Rock, Iowa 51243

Filed Oct. 1, 1979, Ser. No. 80,427
Int. Cl.³ B60D 1/00
U.S. Cl. 280—477 5 Claims



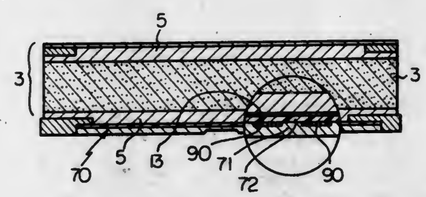
1. A drawbar controlling device to be used in connection with a tractor having a drawbar, said drawbar being laterally swingable but having a normal, longitudinally aligned, pulling position; comprising a cross member adapted to be fastened to said tractor adjacent said drawbar, shaft means including a shaft rotatably mounted on said cross member, tab means individually rotatably mounted on said shaft, said tab means including tabs adapted to embrace said drawbar to constrain it from swinging away from its longitudinally aligned position, means on said tabs and on said shaft engageable to provide a normal position for said tabs on said shaft, means engaged between said tab means and said shaft to bias said tabs to their normal position, and means controlling said shaft means whereby the shaft may be rotated to carry said tabs away from the position in which they embrace said drawbar.

4,270,768

SKI AND A PROCESS FOR MANUFACTURING SAME

Tatsuo Nakanishi, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed Jul. 26, 1978, Ser. No. 928,380
Claims priority, application Japan, Aug. 1, 1977, 52/91376; Aug. 16, 1977, 52/97970
Int. Cl.³ A63C 5/12
U.S. Cl. 280—610 8 Claims



1. An improved ski comprising

a main body;

a sole board bonded to the bottom of said main body; and at least a pattern provided within said sole board;

said sole board being made up of a transparent polyethylene sheet defining the bottom surface of said ski, and a thermoplastic synthetic resin composite sheet sandwiched between said main body and said polyethylene resin sheet; said composite sheet contains polyethylene resin, ethylene-vinyl acetate copolymer resin and filler;

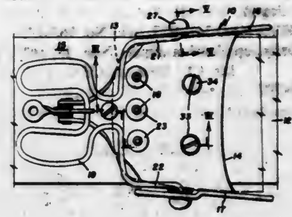
said pattern is formed on the mating surface of said composite sheet with said polyethylene sheet.

4,270,769

SKI BINDING

Henry P. Barlied, Jr., Main Street, West Concord, Mass. 01781

Division of Ser. No. 844,784, Oct. 25, 1977, Pat. No. 4,145,070.
This application Feb. 9, 1979, Ser. No. 10,708
The portion of the term of this patent subsequent to Mar. 20, 1996, has been disclaimed.
Int. Cl.³ A63C 9/20
U.S. Cl. 280—615 2 Claims



1. Cross-country ski binding for fixing the toe of a boot to a ski, comprising:

(a) a sheet metal base adapted to be fixed to the upper horizontal surface of the ski, the plate having integral flanges extending vertically on either side for engaging the sides of the boot,

(b) a plurality of hollow pins extending upwardly from the plate for engaging suitable apertures in the boot, each pin being integrally formed from the plate, and

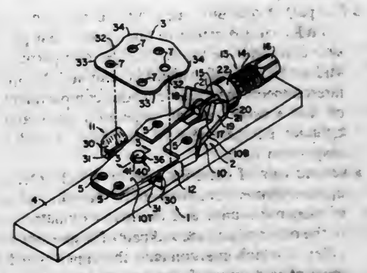
(c) a plurality of upwardly-directed bosses, one for each pin, each boss being integrally formed with its respective pin and extending from the base plate, each boss having a flat upper surface below its respective pin and extending outwardly a substantial distance from the pin.

4,270,770

STEP-IN SKI BINDING

Richard G. Spademan, Box 6410, Incline Village, Nev. 89450

Filed Dec. 7, 1978, Ser. No. 967,226
Int. Cl.³ A63C 9/08
U.S. Cl. 280—624 19 Claims



1. A step-in ski binding for securing a ski boot to a ski rearward of the toe and forward of the rear of the heel of the ski boot comprising:

an engaging member having an opened condition for disengaging the ski boot and the ski and a closed condition for engaging the ski boot and the ski;

a step-in member changeable in response to an entry of said ski boot into said binding betwen first, second and third separate and distinct conditions, said first and said third conditions corresponding to said closed condition of said engaging member and said second condition corresponding to said open condition of said engaging member; and

means coupling said step-in member and said engaging mem-

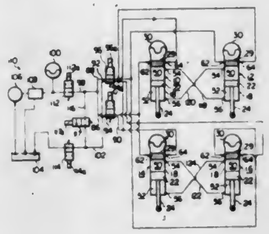
ber for changing said engaging member from said closed condition to said open condition when said step-in member is changed from its first to its second condition, and for changing said engaging member from said open condition to said closed condition when said step-in member is changed from said second to said third condition.

4,270,771

HYDROPNEUMATIC SUSPENSION SYSTEM

Masayuki Fujii, No. 3-5, Kami-oboka-nishi, Konan-ku, Yokohama City, Japan

Filed Nov. 24, 1978, Ser. No. 963,471
Claims priority, application Japan, Nov. 25, 1977, 52-140596
Int. Cl.³ B60G 11/28
U.S. Cl. 280—707 5 Claims



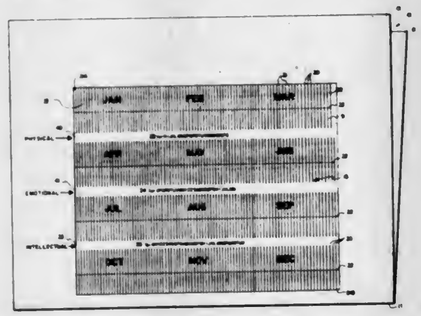
1. A hydropneumatic suspension system for a wheeled vehicle comprising:
a source of hydraulic fluid under pressure;
a hydraulic fluid reservoir;
first and second pairs of hydropneumatic suspension units disposed between a body and wheel supporting means of the vehicle, each of said suspension units including a cylinder body having a cylinder chamber, a piston slidably accommodated in the cylinder chamber and dividing the cylinder chamber into upper and lower cylinder compartments and self-levelling valve means operative to alternatively communicate said source and said reservoir to said upper cylinder compartment through inlet and outlet ports of the suspension units for thereby maintaining the level of the vehicle body above the ground substantially constant;
a first pair of conduits, one of which interconnects the upper cylinder compartment of one of said first pair of suspension units and the lower cylinder compartment of one of said second pair of suspension units and the other of which interconnects the upper cylinder compartment of said one of said second pair of suspension units and the lower cylinder compartment of said one of said first pair of suspension units;
a second pair of conduits, one of which interconnects the upper cylinder compartment of the other of said first pair of suspension units and the lower cylinder compartment of the other of said second pair of suspension units and the other of which interconnects the upper cylinder compartment of said other of said second pair of suspension units and the lower cylinder compartment of said other of said first pair of suspension units;
a first fluid supply passageway communicating with the inlet ports of said first pair of suspension units;
a second fluid supply passageway communicating with the inlet ports of said second pair of suspension units;
a third fluid supply passageway hydraulically connecting said first and second fluid supply passageways to said source;
a first drain passageway communicating with the outlet ports of said first pair of suspension units;
a second drain passageway communicating with the outlet ports of said second pair of suspension units;
a third drain passageway hydraulically connecting said first and second drain passageways to said reservoir;
first electrically controlled normally open valve means disposed in said first fluid supply and drain passageways and operative to obstruct fluid flow through said first fluid supply and drain passageways when actuated to close;
second electrically controlled normally open valve means disposed in said second fluid supply and drain passageways and operative to obstruct fluid flow through said second fluid supply and drain passageways when actuated to close;
third electrically controlled normally open valve means disposed in said third fluid supply passageway and operative to obstruct communication between said source and said first and second fluid supply passageways when actuated to close;
fourth electrically controlled normally open valve means disposed in said third drain passageway and operative to obstruct communication between said reservoir and said first and second drain passageway when actuated to close;
a shunt passageway interconnecting said third fluid supply passageway and said third drain passageway in such a manner that the junction between said shunt passageway and said third fluid supply is located upstream of said third valve means and that the junction between said shunt passageway and said third drain passageway is located downstream of said fourth valve means;
electrically controlled normally closed valve means disposed in said shunt passageway and operative to allow fluid flow through said shunt passageway when actuated to open; and
in which said electrically controlled valve means are actuated such that hydraulic fluid under pressure is supplied to the upper cylinder compartments of the first and second pairs of suspension units through the outlet ports thereof from said source and thereafter hydraulic fluid in the upper cylinder compartments of one of the first and second pairs of suspension units is supplied to the lower cylinder compartments of the other pair.

4,270,772

ADJUSTABLE BIORHYTHM DISPLAY ASSEMBLY

Errol G. Bodily, 9789 Sandridge Dr., Sandy, Utah 84070

Filed Jul. 26, 1979, Ser. No. 60,983
Int. Cl.³ B42D 15/00; G06C 3/00
U.S. Cl. 283—1 A 8 Claims



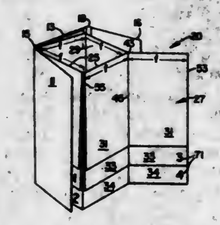
1. An adjustable biorhythm display assembly, comprising:
a graphing background presenting a neutral reference line in association with indicia spaced along said reference line at abscissa locations in correspondence to the days within an interval of time;
a set of transparent overlays, each imprinted with a visible sine wave with a selected periodicity corresponding to a number of said indicia equal to the number of days included within a significant human biorhythm cycle positionable over said background format so that each period of each said sine wave begins and ends on said neutral reference line;
means for holding said set of overlays in association with said background format so that all of said sine waves are visible against said reference line with each intersecting said reference line from negative to positive at abscissa locations selected an integral number of its periods counted from a preselected date of birth; including
a cover folded into a front leaf and a back leaf, wherein the inside surface of said back leaf is printed with said graphing background and said front leaf includes a window through which said graphing background is visible, said overlays being positionable between said leaves.

4,270,773

PERMANENTLY FOLDED MAP IN BOOK FORM

Ralph R. Gaetano, Bethel Park, Pa., assignor to Think, Inc., Morgantown, W. Va.

Filed Dec. 7, 1978, Ser. No. 967,517
Int. Cl.³ G09B 29/04
U.S. Cl. 283—34 33 Claims



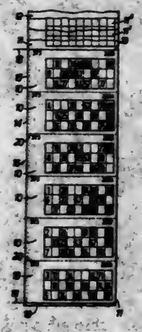
1. A permanently mounted map in book form which comprises:
A. a unitary cover, having a longitudinal hinge between a front cover and a back cover, an upper edge, a lower edge, and a length therebetween; and
B. said map in permanently folded form, having:
(1) a bottom edge and a top edge,
(2) at least four lateral folds, comprising:
(a) an inwardly folded first lateral fold which is spaced from said bottom edge of said map by a distance that is less than said length of said cover to define a bottom strip extending across the entire width of said map,
(b) an outwardly folded second lateral fold which is spaced from said first lateral fold by less than said distance,
(c) an inwardly folded third lateral fold which is juxtaposed to said first lateral fold to form a lateral pleat, having said second lateral fold equidistant between said first and third lateral folds, that extends across the entire width of said map,
(d) an inwardly folded final lateral fold which is spaced from said top edge of said map to form a lateral flap and which defines at least one lateral strip, between said third and final lateral folds, that extends across the entire width of said map, whereby at least three offset strips are available for indexing, and
(3) at least seven longitudinal folds which are alternately folded inwardly and outwardly to form at least three double leaves and a pair of single leaves in flanking relationship to said double leaves,
(4) slits, in alternate longitudinal folds, from said first lateral fold to said third lateral fold and from said final lateral fold to said top edge, whereby said lateral flap and said lateral pleat are slit along the outer edges of said double leaves, and
(5) attachment of said lateral strip and said bottom strip within said single leaves to the inside of said front cover and to the inside of said back cover, while said first and third lateral folds are juxtaposed, so that said final lateral fold is approximately adjacent to said upper edge of said cover.

4,270,774

METHOD OF MAKING BINGO OR TOMBOLA TICKETS AND ARTICLE PRODUCED THEREBY

Gerald W. Barnes, Ipswich, England, assignor to W. S. Cowell Limited, Ipswich, England

Filed Mar. 29, 1979, Ser. No. 25,003
Claims priority, application United Kingdom, Apr. 8, 1978, 13869/78
Int. Cl.³ B42D 15/00
U.S. Cl. 283—62 15 Claims



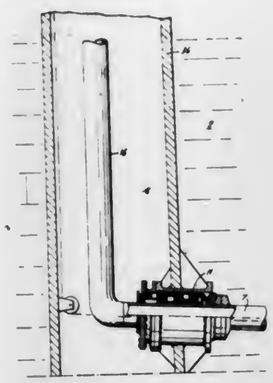
1. A method of making a set of bingo tickets in final, completed form, ready for point of purchase retailing, each ticket having a combination of playing numbers thereon which is different from the combination on the other tickets of the set, each combination being a unique selection of playing numbers from a predetermined plurality of playing numbers callable in a game, comprising grouping the combinations for printing successively such that each group, consisting of a plurality of combinations, contains all the playing numbers callable in a game, printing the combinations on at least one side of a single web strip to form a set consisting of a single strip of printed tickets all connected one to another, and then folding the web strip transversely at spaced intervals along its length to form said strip into a fan-folded configuration, the folds occurring between selected adjacent tickets whereby between each adjacent pair of folds is a plurality of tickets forming an integral number of ticket groups, there being at least one such group, and at view in the tickets in said at least one group are all the numbers which may be called during a game, each number appearing once only in said ticket group.

8. A set of bingo tickets in final, completed form, ready for point of purchase retailing, consisting of a single web strip of tickets, each ticket being printed with a combination of playing numbers, the number combination of each ticket being different from the number combinations of all the other tickets in the set, wherein said combinations are printed on at least one side of said single web strip, said tickets are arranged in successive groups, each group comprising a plurality of tickets and all the playing numbers callable in a game appear once only in said each group, said wherein said single web strip is folded transversely at regular intervals along its length into a fan folded configuration, there being an integral number of groups lying between each adjacent fold, there being at least one such group between each said adjacent fold.

4,270,775
DEVICE FOR SEALING THE PLACE OF PENETRATION OF A PIPELINE IN THE WALL OF A SUBMERGED STRUCTURE

Nick Noensie, Lexington, Ky.; John N. Stanfield, Oslo, and Paal Pettersen, Bergen, both of Norway, assignors to A/S Akers Mek. Verksted, Oslo, Norway

Division of Ser. No. 941,731, Sep. 12, 1978. This application May 10, 1979, Ser. No. 37,662
Claims priority, application Norway, Sep. 21, 1977, 773240; Feb. 24, 1978, 780649
Int. Cl.³ F16L 35/00
U.S. Cl. 285—24 12 Claims



1. A connecting system for sealing the penetration point at which a pipeline passes through a hole in a wall of a structure located beneath the surface of a body of water, said hole including a penetration sleeve sealingly passing therethrough, and the pipeline having a fixed annular ring positioned thereabout near the hole in the wall, said system including:

a hollow outer cylindrical connection sleeve which is extendable through the hole in said wall of said structure and within said penetration sleeve, one end of said outer connection sleeve including an outwardly extending flange means sealingly connected to said penetration sleeve and the other end including an inwardly extending flange means,

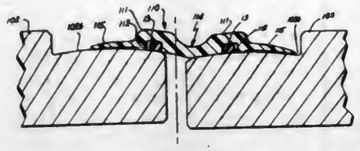
a hollow inner cylindrical sleeve positioned within said outer cylindrical sleeve, said inner cylindrical sleeve being connected to said inwardly extending flange means of said outer cylindrical connection sleeve, and

an axially flexible sealing device connected to said inwardly extending flange means of said outer cylindrical sleeve and positioned to extend inbetween said outer cylindrical sleeve and said inner cylindrical sleeve, said sealing device comprising at least one annular member, each annular member including an axially extending inner cylindrical member, at least one outer cylindrical member and a flexible ring member connecting each said outer cylindrical member to said inner cylindrical member, each said outer cylindrical member being positioned about said inner cylindrical member such that with each said flexible ring member in an untensioned state, each said outer cylindrical member will be separated from one another and will have a portion which extends in an axial direction beyond the adjacent end of said inner cylindrical member, the outer cylindrical member of said annular member located farthest from said inwardly extending flange means of said outer cylindrical sleeve including an inwardly extending stop means for sealing abutment with said fixed annular ring of said pipeline.

4,270,776
FLEXIBLE PIPE JOINT FOR NON-INTERENGAGING PIPE SECTIONS

Wilbur E. Tolliver, 364 Hamilton Dr., Holland, Mich. 49423

Filed May 17, 1979, Ser. No. 39,846
Int. Cl.³ F16L 21/00
U.S. Cl. 285—235 5 Claims

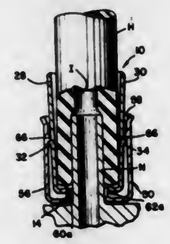


1. A flexible pipe joint comprising: first and second non-interengaging pipe sections and a cylindrical collar extending between and joining the ends of said pipe sections; said collar including an annular pipe engaging portion at each end thereof, each engaging an end of one of said pipe sections, and a mid-section between said pipe engaging portions which is relatively more flexible than said pipe engaging portions and which is sufficiently flexible to allow some misalignment of said pipe sections relative to one another, yet which is sufficiently rigid that said pipe sections do not readily shift relative to one another during installation of one pipe section into another and during the back filling operation; each annular pipe engaging portion of said collar including a shoulder which is enlarged with respect to the wall thickness of said flexible collar mid-section and rigid relative thereto; each enlarged shoulder including an annular channel on the inside, pipe-facing surface thereof, and a sealing means seated in said channel for sealing the juncture between said collar and the respective pipe end; each shoulder further including an annular, pipe-engaging skirt extending outwardly therefrom in a direction away from said collar mid-section; and each skirt being flexibly resilient, and biasing radially inwardly, without the aid of external force to frictionally abut against the outer surface of the respective pipe section end thereby retaining said pipe section ends within said collar.

4,270,777
RELEASABLE HOSE FITTING

Charles K. Fisher, Belford, N.J., assignor to TRW Inc., Cleveland, Ohio

Filed Nov. 9, 1978, Ser. No. 959,289
Int. Cl.³ F16L 33/22
U.S. Cl. 285—242 14 Claims



1. A fitting for releasably securing a flexible hose defining an internal channel to a hose-receiving nipple dimensioned to fit within the channel, said fitting comprising:

A. a male fitting member for mounting to an end of the hose and including

i. an end portion defining an opening therethrough for mounting adjacent the end of the hose, said opening being adapted to expose the hose channel,

ii. means for gripping the hose and for retaining said male fitting member on the hose, and

iii. a pair of relatively resilient, inwardly deflectible wings projecting from said end portion for extending along the sides of the hose, each of said wings including outwardly projecting locking means; and

B. a female fitting member formed as a unitary component from a resilient material for mounting to the hose-receiving nipple and including

i. a base portion defining an opening therethrough for receiving the nipple,

ii. means for retaining the female fitting member on the nipple, and

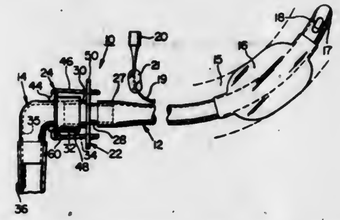
iii. a wall portion projecting from said base portion for surrounding the nipple, said wall portion defining an entrance opening opposite said base portion;

whereby when said male fitting member is inserted within said female fitting member, the nipple is received within the hose channel and said locking means resiliently grip said wall portion to secure the hose on the nipple, and whereby said male fitting member is releasable from said female fitting member by deflecting said wings inwardly toward the hose to disengage said locking means from said wall portion.

4,270,778
TUBE CONNECTOR WITH SECURITY MEANS

Richard G. Brownell, Greenwich, N.Y., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed May 3, 1979, Ser. No. 35,864
Int. Cl.³ F16L 37/12
U.S. Cl. 285—305 3 Claims

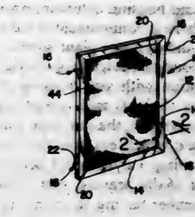


1. Medical fluid connection means for releasably connecting a tracheal tube adapted to be intubated in a patient to a fluid coupling adapter of gas supply equipment having slip-fit connection means comprising a single-piece connector having a bore therethrough and with the distal end thereof connectible with the proximal end of a tracheal tube to connect the tube in fluid communication with said bore, said connector having an integral slip-fit coupler at the proximal end thereof connectible with the slip-fit connection means for connecting the adapter in fluid communication with said bore and the tracheal tube, and radially extending flange means having a pair of diametrically disposed slots extending inwardly from the radially outer periphery thereof, each of said slots having a radially outer entrance portion of less width than an inner portion thereof, and an elastic security member having diametrically opposed free ends and an integral intermediate portion between said opposed free ends, said intermediate portion being capable in use of extending at least partially around a part of an adapter, said intermediate portion including a closed loop portion forming an opening adapted to encircle a portion of an adapter, and a pair of arms integral with and extending diametrically in opposite directions from said loop portion and integrally connected respectively to said free ends, each of said arms having a portion thereof movable into one of said slots and having a width greater than the width of said entrance portion of the slot, each of said free ends having a width greater than the width of said inner portion of each of said slots and the width of said portions of said arms and engageable with said flange means on the distal side thereof to hold the ends of the elastic member in place whereby said elastic member resiliently resists the fluid coupling adapter and said connector from moving apart when in use.

4,270,779
LOCKING DEVICE FOR REMOVABLE FRAME STRUCTURES

John R. Watts, 18 Hammond St., Brighton, 3186, Australia

Filed May 18, 1979, Ser. No. 40,322
Int. Cl.³ E05C 1/04
U.S. Cl. 292—175 4 Claims



1. A locking device for fly screen and like frame structures comprising a pin member adapted to be spring-biased within a frame section of said frame structure, said pin defined by an elongated shank member of a predetermined diameter and a head member having at least one radially extended protrusion projecting from the side of said head, said head having a diameter larger than that of said shank member, and including a biasing spring means adapted to force said head member into a locking position and extending outwardly from said frame section, wherein said spring means includes a coil spring in which said spring has a longitudinal axis which is of a curved configuration in the undeformed state, whereby the forces created thereby maintain said spring in a substantially straightened configuration providing frictional force between said spring and said shank, thus preventing longitudinal motion therebetween prior to said pin and said spring being assembled within said frame section.

4,270,780
DOOR FASTENER

Pierre J. Bernard, Versailles, France, assignor to La Telemecanique Electrique, France

Filed Jan. 21, 1979, Ser. No. 30,857
Claims priority, application France, Jan. 21, 1978, 78 18517
Int. Cl.³ E05B 13/10, 65/06; E05C 3/04, 3/06
U.S. Cl. 292—282 8 Claims



1. A fastening device for a door having inner and outer wall surfaces and an opening therethrough, said fastening device comprising: a bearing having a cylindrical body passing through the said opening, said cylindrical body having an internal diameter, first and second end portions and an annular collar integral with the said cylindrical body at the first end portion thereof, said cylindrical body having a threaded outer surface portion at the second end portion thereof and a nut cooperating with the said threaded surface portion, the said

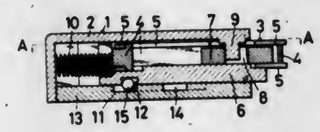
collar having a peripheral cutout extending over an angular sector thereof, the said nut engaging the said inner wall surface and securing the bearing in engagement with the said outer wall surface; an operating handle having a base plane wall portion and an opposite plane surface portion parallel to the base plane wall portion, the said base plane wall portion having a cylindrical opening which has an axis of symmetry at right angles with the said parallel surface portion, the diameter of the said cylindrical opening being substantially the same as the said internal diameter, the said handle further having a cylindrical housing coaxial with the said cylindrical opening and having a diameter which is larger than the diameter of the said cylindrical opening, said housing extending from the said base plane wall portion where it communicates with the said cylindrical opening to the said opposite plane surface portion where it opens; first and second slit-shaped cutouts provided in said handle in communication with said housing at two diametrically opposed regions thereof, said cutouts opening at said opposite plane surface portion, the said base plane wall portion having an inner surface which engages the said collar; a lock operating member having a cylindrical body pivoted in the said internal diameter of the bearing, said cylindrical body of the lock operating member having an inner end portion which projects from the second end of the said bearing; a latching member secured to the said inner end portion; and actuation means cooperating with the said lock operating member for rotating the said lock operating member through manual action.

4,270,781

OPENING AND CLOSING APPARATUS FOR DOORS AND THE LIKE

Tamotsu Nishimura, Osaka, Japan, assignor to Futaba Kinzoku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 30, 1979, Ser. No. 43,644
Claims priority, application Japan, Feb. 28, 1979, 54-26071[U]
Int. Cl.³ E05C 19/16
U.S. Cl. 292—251.5 3 Claims



1. An opening and closing apparatus for doors and the like, said apparatus comprising:

a hollow casing having an opening at one end; said casing adapted for mounting on a cabinet adjacent a door of said cabinet;

a sliding member positioned inside said casing for sliding into and for extending out of said casing;

magnetic means attached to said casing on the inside of said casing, said sliding member comprising metal plates located superposed on each side of said magnetic means for having a magnetic field transferred thereto; said metal plates having cutaway portions for allowing a maximum overlap with said magnetic means when said sliding member is positioned within said casing and a minimum overlap when said sliding member is positioned extending out of said casing;

an engaging member having said sliding member mounted thereon, said engaging member being slidably received within said casing;

spring means positioned within said casing adjacent said engaging member for urging said engaging member out from said casing;

lock means operatively associated with said engaging member for holding said engaging member within said casing when it is first manually pushed against the direction of urging of said spring means and for allowing said engaging member to slide and project from said casing when it is pushed manually a second time against the direction of urging of said spring means, said lock means comprising retaining means for holding at least a portion of said engaging member within said casing when said engaging member projects out from said casing with said sliding member; and

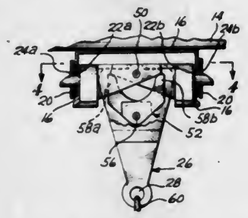
a magnetically attractable element adapted for mounting on the door of a cabinet for contacting said sliding member when the door is closed whereby the door can be held closed by closing the door and pushing said sliding member into said casing for having said lock means hold said engaging member in said casing thereby causing said metal plates to have a maximum overlap with said magnetic means and a maximum magnetic force transferred thereto for holding said magnetically attractable element against said sliding member, said door being opened by pushing said sliding member into said casing a second time for causing said lock means to release said engaging member thereby having said spring means move said sliding member out from said casing and reducing the overlap of said metal plates with said magnetic means for reducing the magnetic force acting on said magnetically attractable element for allowing said door to open.

4,270,782

DIRECTIONAL RELEASE TOGGLE LATCH

Richard J. LaCoste, Auburn, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 4, 1979, Ser. No. 72,385
Int. Cl.³ E05C 19/18
U.S. Cl. 292—288 7 Claims



1. A directional release toggle latch comprising: a pair of cooperating blocks each having an outwardly extending pin and an inwardly extending arm, a yoke shaped latch body to which the arms of the blocks are pivotally connected, means for preventing the blocks from rotating toward the latch body, and means for preventing the blocks from rotating away from the latch body with said body aligned perpendicular to the outward extending pins while permitting such rotation with the latch body aligned at an angle from perpendicular.

4,270,783

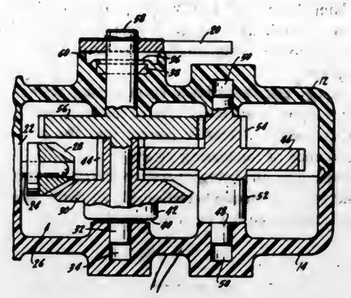
DOOR LOCK ACTUATOR

Ronald L. Sorensen, Rollingstone, Minn., and Dwight Whitfield, Bloomfield, Mich., assignors to Lake Center Industries, Winona, Minn.

Filed Jan. 24, 1979, Ser. No. 6,040
Int. Cl.³ E05C 13/04
U.S. Cl. 292—336.3 12 Claims

1. In an actuator for use with vehicle door locks or the like, a housing, an electric motor in said housing, a first shaft journaled in said housing and extending outwardly therefrom, a door lock actuator member attached to said first shaft outside of said housing,

a first gear fast on said shaft, a second shaft journaled in said housing parallel to said first shaft, a dual gear rotatable with said second shaft and in driving relation with said first gear, a second gear freely rotatable on said first shaft and in driving relation with said electric motor, and a drive connection between said second gear and dual gear, rotation of said motor causing respective rotation of said second gear, dual gear, first gear and shaft thereby providing rotation of said actuator member.

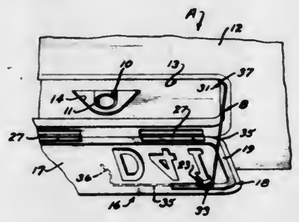


4,270,784

PROP MEANS FOR FACILITATING THE FUELING OF VEHICLES

Everett R. Vanover, 6700 Peachtree Industrial Blvd., Apt. M-8, Atlanta, Ga. 30360

Filed Apr. 21, 1978, Ser. No. 898,551
Int. Cl.³ E05C 17/12
U.S. Cl. 292—338 2 Claims



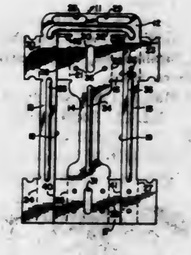
1. Prop means for use in association with a vehicle having a body portion, a fuel tank provided with a conduit having an intake end for fueling said fuel tank, said vehicle body portion having a cavity providing access to said intake end of said fuel tank conduit, a cover-like member for concealing said cavity and said intake end of said conduit which opens thereinto, said cover-like member comprising a license plate carrying bracket having a license plate attached thereto, hinge means for attachment of said license plate carrying bracket to said vehicle body portion in a normally closed position with said cover-like member concealing said intake end of said fuel tank conduit and for movement thereof to an open position exposing said intake end of said fuel tank conduit for access thereto, and spring means urging said license plate carrying bracket to a normally closed position, said prop means comprising a substantially rigid elongated body portion having a butt end and a mounting end, said butt end being conformed for abutment with one said vehicle body portion and said cover-like member in positioning of said prop means in a juxtaposed relation thereto, and mounting means for attachment of said mounting end of said prop means to one said vehicle body portion and said cover-like member for pivotal movement of said prop means to an operative position of abutment of said butt end of said prop means to the other of said one said vehicle body portion and said cover-like member from the one having said mounting end of said prop means attached thereto and with said prop means extending between said vehicle body portion and said cover-like member in juxtaposed relation for maintaining said cover-like member in an open position to expose said intake end of said fuel tank conduit for facile access thereto and for pivotal movement of said prop means to an inoperative position to enable said cover-like member to move in a closed position concealing said intake end of said fuel tank conduit, said body portion of said prop means comprising an elongated rod, said mounting end thereof comprising a bight portion of said rod having a leg extending outwardly from and in a direction substantially normal to said body portion thereof, said leg being journalled for pivotal movement within said mounting means with the axis of said leg comprising the pivot axis of said prop means for pivotal movement thereof, and said butt end thereof comprising a sinuous leg of said rod extending in a direction substantially normal to said body portion thereof and in the same plane as said leg of said bight portion of said rod, said mounting means including fastener means for attachment thereof to said license plate carrying bracket and which also comprises a fastener means for attachment of said license plate to said license plate carrying bracket, said cavity of said vehicle body portion has a substantially rectangular peripheral configuration and along one side of which is attached said license plate carrying bracket, said rod being of a length for abutment of a concavity of said sinuous leg of said butt end of said rod at a corner of said substantially rectangular periphery of said cavity remote from the side thereof along which said license plate carrying bracket is mounted in said operative position of pivotal movement of said prop means.

4,270,785

TAPERED VEHICLE BUMPER SHIM AND METHOD

Robert G. Farnam, Stevens Point, Wis., assignor to F. D. Farnam Co., Necedah, Wis.

Filed Jul. 17, 1978, Ser. No. 925,857
The portion of the term of this patent subsequent to Jul. 10, 1996, has been disclaimed.
Int. Cl.³ B60R 19/02
U.S. Cl. 293—1 9 Claims



1. A tapered shim for automobile bumpers and the like comprising:

a body portion having three parallel tines, two outer and one central tine, projecting therefrom and separated by elongated slots for the reception of mounting bolts;

front and rear load bearing areas on each of said tines;

each of said load bearing areas including a bent over flap integral with said body portion; and

metal inserts secured to two adjacent tines in the load bearing areas thereof by the adjacent flaps, the insert for the outer tine being of greater thickness than that of the center tine.

4,270,786

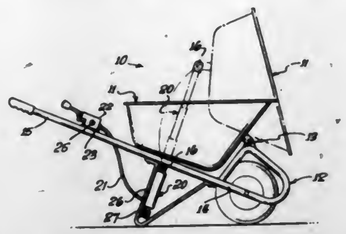
DUMPING WHEELBARROW

McKinley Mattox, 4910 Gratias, Los Angeles, Calif. 90022

Continuation-in-part of Ser. No. 923,599, Jul. 11, 1978. This application Aug. 3, 1979, Ser. No. 63,189
Int. Cl.³ B62B 1/24
U.S. Cl. 298—3 4 Claims

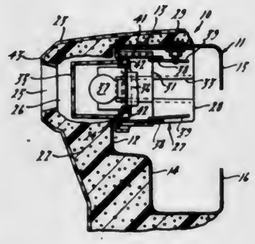
1. A dumping wheelbarrow capable of providing a forward tilt to the barrow while maintaining the legs of the wheelbarrow on the ground, said dumping wheelbarrow comprising:

a frame member having first and second arms terminating in a pair of handles integral therewith;
a wheel held to said frame at the opposite end of the frame from the handle;
a barrow having a sloping front side, a bottom surface and back side, said barrow being pivotally attached at a forward barrow pivot to said frame near the mid point of its sloping front side, the pivot point of said barrow being adjacent said sloping front side near the mid point thereof;



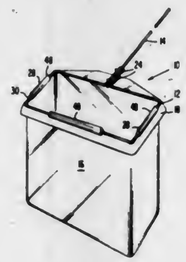
hydraulic piston means affixed at its lower end to said frame and its upper end to said barrow near the longitudinal central axis of the bottom surface nearer to the back than to the front side thereof;
hydraulic pump means affixed to the frame and having hydraulic line means connected to said hydraulic piston; and
handle means affixed to the pump means whereby the movement of said handle means causes hydraulic fluid to flow into said piston when it is in a retracted position causing said piston to extend thereby causing said barrow to pivot upwardly in a dumping action.

4,270,787
DISPLACEABLE LAMP
Charles L. Savell, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Mar. 3, 1980, Ser. No. 126,926
Int. Cl.³ B60R 19/08
U.S. Cl. 293—121 4 Claims



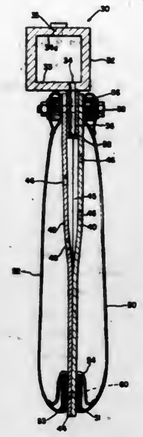
1. In combination, a vehicle bumper comprising a hollow rigid support beam having a resiliently deformable impact energy absorbing body extending over the impact face of the beam;
the impact face of the beam and the energy absorbing body covering the same having axially aligned openings therethrough;
and a lamp assembly mounted within the bumper;
the lamp assembly comprising a housing secured to the beam interiorly of the latter in axial alignment with the opening therein;
a lamp body;
the housing and lamp body being telescopically slidable relative to one another;
a lens mounted on the lamp body;
and a biasing means between the housing and the lamp body normally maintaining the two telescopically extended;
the lamp body and lens when in telescopically extended relation to the housing projecting through the impact face of the support beam into the opening in the energy absorbing body;
the energy absorbing body upon impact deflection toward the support beam in the area of the lamp body causing the lamp body and lens to retract into the housing against resistance of the biasing means;
the biasing means being operative to restore the lamp body and lens to extended relationship to the housing after the deflecting load has been removed.

4,270,788
BAG HOLDING DEVICE
Ronald Overholt, 220 Winding Way, Morrisville, Pa. 19067
Filed Mar. 10, 1980, Ser. No. 129,008
Int. Cl.³ A47F 13/08
U.S. Cl. 294—55 11 Claims



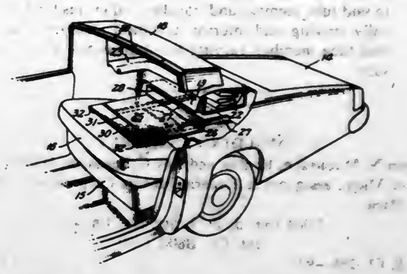
1. A bag holding device, for holding a bag in an open position, which comprises:
(a) a frame means in a generally loop-shaped configuration including a gripping surface adapted to receive and hold the opening of a bag thereover and hold the bag in an open position;
(b) a handle means attached with respect to said frame means and extending outward therefrom to facilitate holding of the open bag in the desired orientation;
(c) a flexible means secured along at least a portion of said gripping surface of said frame means and protruding outwardly therefrom, said flexible means adapted to resiliently flex inwardly toward said gripping surface responsive to a bag being pulled downwardly thereover and responsive to resiliently reflex to a position protruding outwardly from said gripping surface when the bag is removed therefrom; and
(d) a retaining means being detachably securable with respect to said frame means along said gripping surface thereof to selectively retain the bag in an open orientation extending over said flexible means, said retaining means including a gripping means adapted to abut said gripping surface during securement with respect thereto to pull the bag along said gripping surface in opposite directions to compress said flexible means inwardly toward said frame means by similar inwardly directed force exerted thereagainst by the bag.

4,270,789
AIRBAG SETTER
Jack Cline, Clarksville, Ark., assignor to Clarksville Machine Works, Inc., Clarksville, Ark.
Filed Oct. 9, 1979, Ser. No. 82,871
Int. Cl.³ B66C 1/46
U.S. Cl. 294—63 A 3 Claims



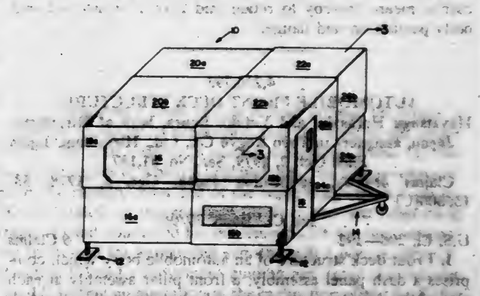
1. In a brick setting apparatus of the type having a vertically and horizontally movable frame, a plurality of spaced gripper members depending from said frame and between which spaced rows of brick are gripped, then lifted and moved the improvement whereby each of said spaced gripper members comprises:
(a) a tubular member extending above and parallel to the space between two adjacent rows of brick and forming a manifold connecting a source of positive and negative air pressure with the gripping member therebelow;
(b) a pair of plate members depending from said tubular member and extending along a path substantially parallel to and equal in length to the rows of bricks being lifted, means for separating said plate members at the top thereof adjacent said manifold, said plate members converging and secured together at the bottom thereof;
(c) an attachment strip removably secured to the outer surface of each of said plate members along the bottom edge thereof;
(d) a separate sheet of air impervious flexible material having the bottom edge thereof positioned intermediate each of said attachment strips and the corresponding surface of each of said plate members, said sheet protruding from the space between said attachment strip and said plate member, means for attaching the upper edge of said sheet to the upper edge of said plate member, the corresponding side edges of each of said separate sheets being secured together thereby forming an air bag on either side of said plate members;
(e) cooperating openings in said plate member separating means and said plate members for providing an air path between the source of positive and negative air pressure and the interior of each of said air bags;
(f) whereby said air bags may be expanded to a gripping position by introduction of air into said air bags and relaxed to a release position by evacuation of air from said air bags while maintaining control of the bag shape.

4,270,790
CONVERTIBLE SEAT AND STORAGE DEVICE FOR AUTOMOBILES
Richard L. Carotte, Sayerville, N.J., assignor to Stutz Motor Car of America, Inc., New York, N.Y.
Filed Sep. 7, 1979, Ser. No. 73,280
Int. Cl.³ B60N 3/12
U.S. Cl. 296—37.16 10 Claims



1. In a vehicle body construction wherein a seat-back element has a hinged mounting enabling said seat-back element to be selectively moved between an upward generally vertical position at the rear of a generally horizontal seat element and a downwardly folded generally horizontal lower position in at least partial overlap with said seat element and wherein storage space exists within the body to the rear of said seat and seat-back elements, the improvement wherein body-mounted generally horizontal guide means extends rearward within said storage space and in proximity to said seat and seat-back elements, wherein a tray member has generally longitudinally movable support via said guide means, and wherein a connection from said tray member to said seat-back element above and offset from the hinge axis determines forward tray-member displacement upon downward folding displacement of said seat-back element and rearward tray-member displacement upon upward positioning displacement of said seat-back element.

4,270,791
EXPANSIBLE ENCLOSURE
Robert L. Tana, 4 Colony Blvd., Apt. 406, Wilmington, Del. 19802
Filed Oct. 25, 1978, Ser. No. 954,529
Int. Cl.³ B65P 3/32
U.S. Cl. 296—171 8 Claims



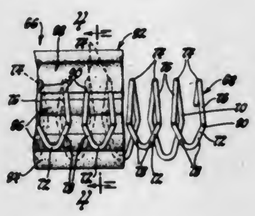
1. An expansible enclosure comprising:
a box-like structure having six sides interconnected at their respective peripheries, said sides arranged in opposed pairs, four of said sides being expansible, two opposed sides being fixed in lateral dimensions; and
at least two telescoping frame means, said frame means being perpendicular to each other, and each of said frame means being integral and co-planar with an expansible side

of said box-like structure, each of said frame means interconnecting a pair of opposed sides, each of said frame means telescoping to move their respective pairs of opposed sides, interconnected by said frame means, toward and away from each other for varying the dimensions of said enclosure in two dimensions, wherein each of said frame means includes a substantially longitudinal tube member and a complimentary substantially longitudinal interior structural member telescopically movable relative to said tube member and translational means for telescopically moving said interior structural member relative to said tube member varying the dimensions of said enclosure.

4,270,792
MOLDING ASSEMBLY

John N. Mathieson, Romeo, and Roy C. Spranger, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Dec. 5, 1979, Ser. No. 100,498
Int. Cl.[3] B60J 1/00
U.S. Cl. 296—93 3 Claims



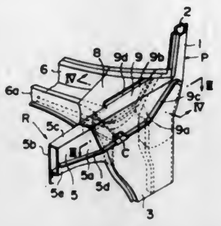
1. In a vehicle body having a window opening of predetermined planar configuration with a flange disposed in said plane and a window panel having a planat configuration corresponding to said plane of said window opening and disposed in said opening parallel to said plane but spaced therefrom by a gap, an improved molding assembly comprising: a decorative body portion, carrier means having a first portion encapsulated in said body portion and a second portion projecting from said body portion, said carrier means being disposed on said flange with said second portion being located in said gap and said first and said second portions straddling said flange thereby to mount said body portion adjacent said window opening, and a bead of cured material in said gap between said window panel and said flange operative to retain said window panel on said body and to encapsulate a part of said second portion of said carrier means thereby to retain said carrier means and said body portion on said flange.

4,270,793
AUTOMOBILE FRONT DECK STRUCTURE

Hayatsugu Harasaki, and Yutaka Imura, both of Hiroshima, Japan, assignors to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Oct. 2, 1979, Ser. No. 81,187
Claims priority, application Japan, Oct. 2, 1978, 53-135800[U]
Int. Cl.[3] B60K 20/08
U.S. Cl. 296—192 6 Claims

1. Front deck structure of an automobile body which comprises a dash panel assembly, a front pillar assembly at each side of the dash panel assembly and a longitudinally extending reinforcement assembly, said front pillar assembly including lower and upper pillar structures which are connected together with an overlapped relationship, said front pillar assembly having outer and inner panels respectively providing an outer surface and an inner surface of said front pillar assembly, said dash panel assembly including a dash panel extending transversely and having a side edge adjacent to the outer surface of each front pillar assembly, said longitudinal reinforcement assembly including outer and inner panels which respectively have rearward extensions having rear edges adjacent to the dash panel, said outer panel of the front pillar assembly and said extension of the outer panel of the longitudinal reinforcement assembly being formed with outwardly bent flanges which are welded together with the side edge of the dash panel interposed therebetween, said inner panel of the

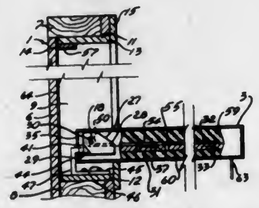


front pillar assembly and said extension of the inner panel of the longitudinal reinforcement assembly being formed with laterally bent flanges which are welded to the dash panel so that the inner panel of the pillar assembly is substantially opposite to the extension of the inner panel of the longitudinal reinforcement assembly with the dash panel interposed therebetween.

4,270,794
RETRACTABLE SEAT STRUCTURE

Dale E. Lewis, 328 E. Canal, Brookfield, Mo. 64628

Filed Aug. 27, 1979, Ser. No. 70,140
Int. Cl.[3] A47C 9/06
U.S. Cl. 297—14 4 Claims



1. A retractable seat structure for movement between an open, extended position and a folded, retracted position and comprising:

(a) a frame for mounting within a wall and having spaced, upright end members and upper and lower members;

(b) an elongate rod member extending across said frame and having opposite ends secured to said spaced end members and positioned above said lower member;

(c) spaced seat support brackets respectively including arm portions and flange portions extending normally from said arm portions, said arm portions having apertures with said rod members extending therethrough whereby said brackets are swingably suspended from said rod member;

(d) a seat assembly having a seat panel member with upper and lower surfaces and front, rear and opposite end margins forming front and rear corner portions, the panel member being secured to said brackets and swingable therewith with said rear corner portions received in respective said brackets and said flange portion secured to said lower surface; the upper surface having a cushion covering providing a seating surface;

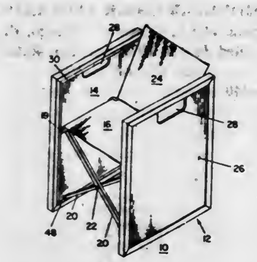
(e) spaced stop members for limiting swinging movement of said seat assembly relative to said frame and mounted on said frame lower member respectively adjacent said brackets and having leg portions extending upwardly and outwardly extending arm portions positioned to engage said bracket flange portions whereby said stop members prevent further downward swinging of said seat panel member when said seat assembly is in an open, extended position; and

(f) a coil spring member sleeved on said rod member and having a first end portion non-rotatably affixed to said rod member and a second end portion extending laterally outward from said rod member and affixed to a surface of said panel member; the coil spring being torsionally responsive to relative movement between said seat assembly and said frame and of a torsional strength relative to the weight of said seat assembly whereby said seat assembly, when folded upwardly into a retracted position, remains in said retracted position and, when swung downwardly into said extended position, remains in said extended position.

4,270,795
FOLDING CHAIR

Joseph V. Warren, 517 15th St., Huntington Beach, Calif. 92648

Filed Dec. 13, 1978, Ser. No. 968,977
Int. Cl.[3] A47C 4/28
U.S. Cl. 297—45 8 Claims



1. A chair having two rectangular side members having grooves therein, a folding seat the opposite sides of which slide vertically in said grooves, pivoting cross member supports for the seat, the upper ends of each support carrying the opposite sides of the seat and the lower ends of each being rotatably affixed to the side members, and a folding back comprising means rotatably connecting the folding back adjacent its opposite upper extremities to each of the rectangular side members, and means for securing the folding back at its opposite lower extremities to the seat at a predetermined angle.

4,270,796
RECLINING CHAIR WITH LEG REST OPERATING MECHANISM

William B. Preston, 3620 Stewart Rd., Monroe, Mich. 48161

Filed Jun. 12, 1979, Ser. No. 47,714
Int. Cl.[3] A47C 1/02
U.S. Cl. 297—69 10 Claims

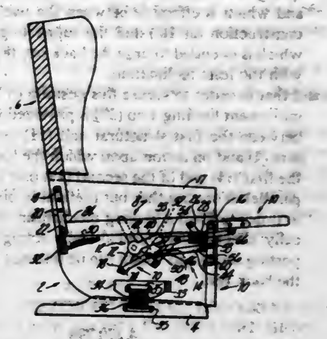
1. In a reclining chair having a frame, a chair back pivotally mounted on the frame for movement from an upright sitting position to a reclining position, a chair seat supported by the frame and having a rear end pivotally interconnected with the back, whereby the seat moves substantially horizontally relative to the frame with the back as the latter moves between its positions, the improvement comprising:

a leg rest pivotally connected to the front end of the seat;

linkage means supported by and movable with said seat and connected to said leg rest for moving the leg rest between a retracted position and an extended, horizontal position;

drive means mounted on said frame and connected to the linkage means for actuating the linkage means to move the leg rest; and

lost motion means comprising part of the linkage means and connected to the drive means for permitting movement of

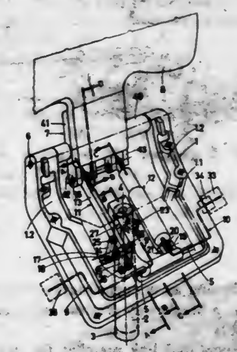


the seat relative to the frame independently of the functioning of the drive means and the position of the leg rest.

4,270,797
ERGONOMIC CHAIR

Egon Brüning, Weil am Rhein, Fed. Rep. of Germany, assignor to Protoned B.V., Amsterdam, Netherlands

Filed Oct. 12, 1979, Ser. No. 84,232
Claims priority, application Switzerland, Oct. 20, 1978, 10888/78
Int. Cl.[3] A47C 1/032
U.S. Cl. 297—300 4 Claims



1. An ergonomic chair having a chair column (3) which is adjustable in height, a supporting arm (4) fitted to the upper end of the chair column, a seating supporting frame (1), the front end region of which is articulated for vertical pivoting (at 5) on the radially outer end of the supporting arm, a backrest (8) articulated on the rear end (at 6) of the seat supporting frame (1) and connected for movement with the seat supporting frame and the supporting arm through a connection construction (7) and a movement guiding and return mechanism (11, 12) so that an alteration in the inclination of the back rest automatically causes a proportional alteration in the inclination of the seat supporting frame, characterized in that the movement guiding and return mechanism is composed of

(a) a first structural unit (11) having a two-armed steering lever which is connected at its rear end (at 16) to the back-rest connection construction (7), and the pivot point (25) of which is connected through a first pair of links (14) to said supporting arm (4) and the front end of which (at

26) is connected through a second pair of links (15) to the seat supporting frame (1), and

(b) a second structural unit in the form of a compression-spring device (12) which can be adjusted by reaction force and which is effective between the back-rest connection construction (at 16') and the supporting arm (at 21) and which is intended to urge the back rest (8) into the position with the least inclination;

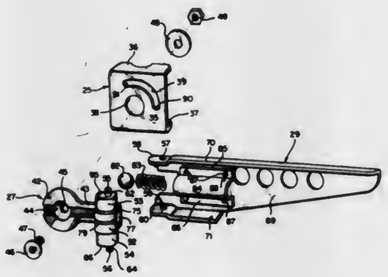
and that in order to secure this position of least inclination a movement limiting stop (27) is provided which is effective between the first structural unit (11) and the supporting arm (4) and on action upon which the longitudinal axes of the first (14) and of the second (15) pair of links lie at least parallel to one another but preferably diverging upwards, in order to form a locking mechanism which is automatically effective for vertical loads acting on the seat supporting frame and which can be released by swinging back the back rest.

4,270,798

BREAKAWAY ARM FOR SEAT

Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach & Car Equipment Corporation, Elk Grove Village, Ill.

Filed Jul. 10, 1979, Ser. No. 56,330
Int. Cl.³ A47C 7/54
U.S. Cl. 297—417 7 Claims



1. In a seat having an occupant-supporting portion, a back and rigid frame, a breakaway armrest unit comprising:

a link member;

means mounting said link member for pivotal movement relative to said rigid seat frame, through a vertical first plane, between horizontal and vertical dispositions of the link member;

an armrest;

means connecting said armrest to said link member for unitary movement of the armrest with the link member about the pivotal axis of the link member;

said connecting means also comprising means mounting said armrest for arcuate movement through a second plane, transverse to said first plane, and about a pivotal axis transverse to the pivotal axis of said link member, between a first position, in which said armrest constitutes an extension of said link member, and a second position in which the armrest is folded back alongside said link member;

said armrest comprising gravity means for urging said link member toward its horizontal disposition when the armrest is in its first position and for urging the link member toward its vertical disposition when the armrest is in its second position;

a bearing element on said link member, adjacent said armrest;

said bearing element having an arcuate bearing race corresponding to the arc of movement of said armrest as it pivots between its first and second positions, said arcuate bearing race having a pair of opposite ends;

a bearing ball associated with said armrest;

means on said armrest for urging said bearing ball against said arcuate bearing race;

a first socket on said bearing element, at one end of said arcuate bearing race, for receiving said ball when the armrest is in its first position;

a second socket on the bearing element, at the other end of the arcuate bearing race, for receiving said ball when the armrest is in its second position;

and groove means on said bearing race, between said first and second sockets, for guiding said bearing ball between said sockets;

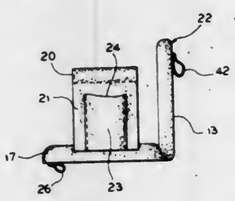
said urging means comprising means normally holding said bearing ball in a socket and for permitting said bearing ball to be displaced from said socket in response to a predetermined unlocking force in the direction of said arcuate movement.

4,270,799

MODULAR CHAIR APPARATUS

Dennis M. Flaum, 260 E. Chestnut, Chicago, Ill. 60610

Filed Jun. 8, 1979, Ser. No. 46,611
Int. Cl.³ A47C 7/00
U.S. Cl. 297—440 6 Claims



1. A modular disassemblable chair apparatus comprising:

an integrated tubular frame,

said frame having an independent first side frame member and an independent second side frame member assemblable one to the other to form said frame,

each said frame member, having a horizontal base segment,

an upwardly extending leg segment integral with said base portion,

an arm segment integral with and extending rearward from said leg segment, and

a back segment integral with said arm segment and extending generally coplanar with said arm segment;

said frame, when assembled, having said leg segments oppositely disposed one from the other, and said arm segments oppositely disposed one from the other;

a frame brace extending generally horizontally between said first and second leg segments;

means to removably secure said brace to said leg segments; and

a chair upholstery assembly,

said upholstery assembly having a generally quadrilateral seat portion having four edges,

a pair of side wing segments extending from an opposed pair of said edges,

a seat back segment extending from a third of said edges; and

means terminating each said wing segment and integral with said wing segment to suspend each said wing segments from one said arm segment of said frame,

means to secure said back segment of said seat assembly to said back frame segment, and

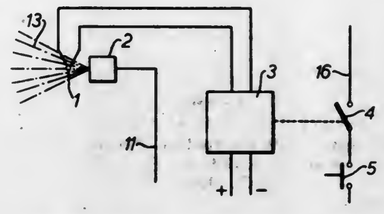
means to removably secure said seat portion to said frame brace proximate the fourth of said edges.

4,270,800

PRE-START WARNING DEVICE FOR A MACHINE

Michael J. Barry, Pontefract, England, assignor to Dresser Europe S.A., Brussels, Belgium

Filed Apr. 2, 1979, Ser. No. 26,207
Claims priority, application United Kingdom, Apr. 12, 1978, 14436/78
Int. Cl.³ E21C 35/04
U.S. Cl. 299—1 6 Claims



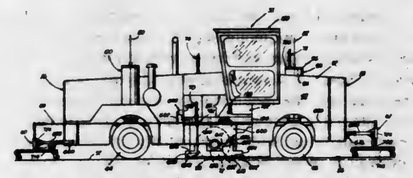
1. A machine pre-start warning device comprising a water spray nozzle, a temperature dependent resistor located with respect to the nozzle to lie in a water jet emitted in use by the nozzle, a control circuit connected to the temperature dependent resistor to be actuated thereby upon the resistor sensing a water jet and means to enable machine start-up to occur in response to actuation of the control circuit and to prevent machine start-up from occurring unless the circuit is actuated.

4,270,801

STEERING AND CUTTER DRUM POSITIONING IN A PAVED ROADWAY PLANING MACHINE

George W. Swisher, Jr., Oklahoma City; Donald W. Smith, Edmond, and Larry W. Teel, Yukon, all of Okla., assignors to CMI Corporation, Oklahoma City, Okla.

Filed Aug. 14, 1979, Ser. No. 66,336
Int. Cl.³ E01C 23/12
U.S. Cl. 299—1 23 Claims



1. A construction machine for doing work on a work surface, comprising:

a chassis, having a forward end, a rear end and opposing first and second sides extending generally between the forward end and the rear end;

a plurality of transporters attached to the chassis for supporting the chassis above the work surface and moving the construction machine therealong, wherein the transporters are pivotally connected to the chassis for pivotation about axes generally perpendicular to the work surface;

a hydraulic pump mounted on the chassis;

means for operating the hydraulic pump;

a hydraulic ram connected between the chassis and each transporter, each ram connectable to the pump for turning the transporters about said axes;

a steering mechanism carried by the chassis;

a normally closed valve for each hydraulic ram carried by the chassis, each valve being hydraulically connected between its respective ram and the pump, whereby each valve is associated with a specific one of the transporters;

a representation member for each transporter, each representation member being pivotally mounted on the chassis and each representation member carrying the valve associated with the representation member's respective transporter;

means connecting the steering mechanism to the valves for opening the valves selective amounts when the steering mechanism is operated; and

feedback means connected between each transporter and its respective representation member for pivoting the representation members so as to progressively close the valves as the transporters are turned about said axes to bring said valves to closed positions when the respective transporters are turned about said axes the desired amounts.

4,270,802

PERMEABILITY RESTORATION AND LOWERING OF URANIUM LEAKAGE FROM LEACHED ORE BEDS

David C. Grant, Pittsburgh, and Herbert A. Burgoon, Marrysville, both of Pa., assignors to The United States of America as represented bythe Secretary of the Interior, Washington, D.C.

Filed Jan. 3, 1980, Ser. No. 109,361
Int. Cl.³ E21B 43/28
U.S. Cl. 299—5 6 Claims

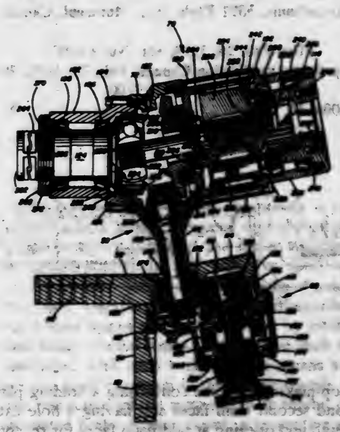
1. In a process for the in-situ mining of uranium comprising the steps of injecting an alkaline leach solution containing an oxidant into a subterranean uranium ore bed, pumping to the surface leach solution containing uranium values in solution, and continuing said injecting and pumping operations until mining is no longer practical because of the reduced permeability of said ore bed, the improvement comprising the steps of injecting into the leached ore bed an aqueous ammonium sulfite or bisulfite solution to improve the permeability of said bed, and thereafter injecting alkaline leach solution containing an oxidant into said ore bed to recover additional uranium values from said ore bed.

4,270,803

CUTTER DRUM DRIVE ASSEMBLY FOR CANTED END SECTIONS

Gerald L. Baum, Belleville, Ill., assignor to National Mine Service Company, Pittsburgh, Pa.

Filed Sep. 20, 1979, Ser. No. 77,323
Int. Cl.³ E21C 27/24
U.S. Cl. 299—76 22 Claims



1. A continuous mining machine comprising,

a body portion having a longitudinal axis,

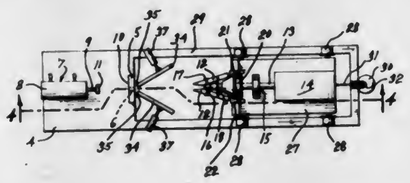
propelling means supporting said body portion for advancing said body portion,
a boom member pivotally secured to said body portion and extending forwardly therefrom,
a drum member rotatably mounted on the front of said boom member transversely to said body portion, said drum member having cutting elements extending therefrom,
said cutting elements being arranged on said drum member to provide a continuous cutting pattern along the length of said drum member,
said drum member having an intermediate drum section and a pair of canted end drum sections,
said pair of canted end drum sections extending angularly from the ends of said intermediate drum section respectively,
said pair of canted end drum sections being spaced from said intermediate drum section to form a pair of openings between said intermediate drum section and said respective canted end drum sections,
power means mounted on said body portion for rotating said drum member,
drive means for transmitting rotation from said power means to said drum member,
said drive means including input drive shaft means for transmitting rotation to said canted end drum sections,
said input drive shaft means extending from said power means angularly relative to said body portion longitudinal axis through said pair of openings,
output drive means drivingly connected to said input drive shaft means for transmitting rotation from said canted end drum sections to said intermediate drum section,
said input drive shaft means including a first input shaft and a second input shaft,
said first and second input shafts each including a first end portion and a second end portion,
said first input shaft first end portion being drivingly connected to said power means,
said second input shaft first end portion being drivingly connected to a respective one of said canted end drum sections,
said first and second input shaft second end portions being drivingly connected to each other,
a helical gear nonrotatably connected to said second end portion of each of said first and second input shafts, and
said helical gear of said first input shaft meshing with said helical gear of said second input shaft.

4,270,804

PUFF DUSTER AND MOP-MAKING MACHINE

Nicolas Boulachanis, 5391 Park Ave., Montreal, Canada (H2V 4G9)

Filed Feb. 26, 1979, Ser. No. 15,093
Claims priority, application Canada, Feb. 28, 1978, 297846
Int. Cl.³ A46D 9/00
U.S. Cl. 300—16 8 Claims



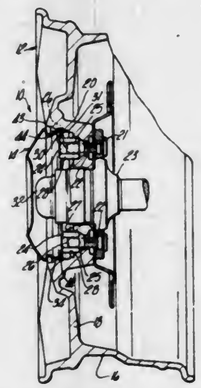
1. A mop-making machine comprising a holding plate having first and second main faces and having a hole extending therethrough and opening at said main faces for receiving the legs of a U-shape wire having flexible mop strands extending transversely between said legs and placed against the bight of the U-shape wire and with said bight protruding from said first main face and with said legs protruding from said second main face, pusher means mounted opposite said first main face of said holding plate and operable to engage said bight and push the same towards said holding plate to cause said bight to press said transversely-extending strands against said first main face of said holding plate with sufficient pressure to prevent rotation of said bight and strands relative to said holding plate during twisting of the wire legs, rotatable pincer means disposed opposite the second main face of said holding plate and rotatable about an axis in alignment with said hole and removably clamping the free ends of the legs of said U-shape wire to cause twisting of said wire legs during rotation of said pincer means, and means to rotate said pincer means about said axis.

4,270,805

WHEEL AND HUB CAP ASSEMBLY

Edward G. Spisak, 35700 Oakwood La., Westland, Mich. 48185

Filed Apr. 6, 1979, Ser. No. 27,871
Int. Cl.³ B60B 7/06
U.S. Cl. 301—37 TP 7 Claims



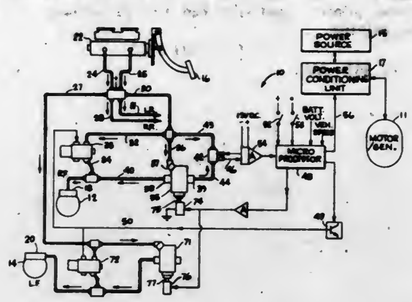
1. A wheel and hub cap assembly comprising: a cast metal wheel including a tire mounting rim, a hub portion including wheel mounting holes uniformly spaced on a circle coaxial with said wheel, a generally disc-shaped spider portion extending between said tire mounting rim and said hub portion and formed integrally therewith, said hub portion forming an axially extending recess with a substantially cylindrical wall radially outwardly of said bolt circle and forming an access opening adjacent an outboard edge of said wheel, a continuous annular groove formed in said wall and opening radially inwardly relative to the axis of said wheel, said groove being disposed axially outwardly of said wheel mounting opening and axially inwardly of said access opening, a hub cap for closing said access opening, said hub cap having circumferentially spaced and radially extending resilient retaining elements disposed in said groove, a rigid guide surface between said groove and the outer end of said recess, said guide surface being adapted to engage said retaining elements for gradually deflecting the latter radially inwardly upon axial movement of said cap relative to said wheel to permit displacement of said retaining elements radially inwardly and entry into said groove upon attachment of said hub cap to said wheel, said retaining elements simultaneously engaging the axially inner and outer walls of said groove to limit axial inward and outward movement relative to said wheel and maintaining the remainder of said hub cap in close spaced relation to said access opening to substantially close said recess.

4,270,806

COMBINED HYDRAULIC AND REGENERATIVE BRAKING SYSTEM

Rama R. Venkatapuramal, Troy, and Gerald E. Mericle, Mount Clemens, both of Mich., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 9, 1979, Ser. No. 65,033
Int. Cl.³ B60T 13/74
U.S. Cl. 303—3 7 Claims



1. A combined hydraulic and regenerative braking system, comprising:
a first wheel;
a brake assembly for said wheel;
a hydraulic brake line connected to said assembly;
means for creating increased pressure in said brake line for application to said brake assembly for actuating said brake assembly to brake said wheel;
a motor generator rotatably connected to said wheel; and
means responsive to a predetermined level of said created pressure for controlling the degree of hydraulic braking and for controlling said motor generator to be driven as a generator by said wheel,
said responsive means being responsive to hydraulic pressure in said brake line to control braking of said wheel to be completely hydraulic up to a first level of said created pressure, to control braking to be partially hydraulic at a constant hydraulic braking force and partially regenerative at a linearly increasing regenerative braking force from the first level of created pressure to a higher second level of said created pressure, to control braking to be partially hydraulic at a linearly increasing hydraulic braking force and partially regenerative at a linearly decreasing regenerative braking force from the second level of said created pressure to a third and still higher level of said created pressure, and to control braking to be completely hydraulic at a linearly increasing hydraulic braking force from the third level to all higher levels of said created pressure.

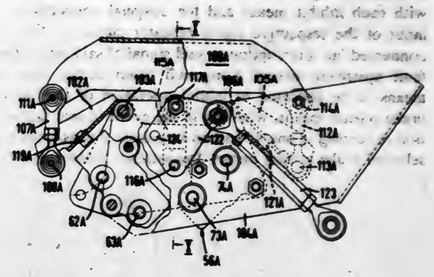
4,270,807

VEHICLE FLUID PRESSURE BRAKING SYSTEMS AND LEVER MECHANISMS FOR USE THEREIN

Alastair J. Young, Kenilworth, England, assignor to Automotive Products Limited, Leamington Spa, England

Filed Mar. 1, 1979, Ser. No. 16,300
Claims priority, application United Kingdom, Mar. 2, 1978, 08250/78
Int. Cl.³ B60T 8/18
U.S. Cl. 303—22 R 10 Claims

1. A variable ratio lever mechanism comprising:
a frame;
a lever having means for transmitting one load, a first pivotal connection for transmitting another load and a second pivotal connection for reacting the loads transmitted by the lever onto the frame;
a control link connected to the lever by one of said pivotal connections;
and a reaction link of substantially the same effective length as the control link pivoted on the frame and operatively connected to the control link; the arrangement being such that the control link has a longitudinal axis which normally intersects a perpendicular line joining the axes of the



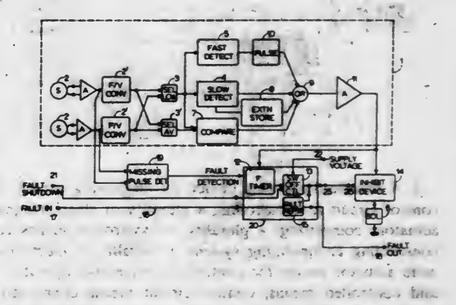
pivotal connections at an angle which is substantially less than 90°, which angle is variable by pivotal movement of the control link to vary the effective moment arm which said other load makes with the second pivotal connection, and such that the reaction link has a longitudinal axis which lies substantially parallel to the longitudinal axis of the control link over the normal operating range of pivotal moment of the control link.

4,270,808

ANTI-LOCK BRAKE CONTROL SYSTEMS FOR MULTI-AXLE VEHICLES

Malcolm Brearley, Solihull, England, assignor to Girling Limited, Birmingham, United Kingdom

Filed Apr. 16, 1979, Ser. No. 30,433
Claims priority, application United Kingdom, Apr. 22, 1978, 16005/78
Int. Cl.³ B60T 8/04
U.S. Cl. 303—92 5 Claims



1. A multi-axle wheeled vehicle comprising a respective brake for each axle, a respective speed sensor associated with each axle, a respective brake release means associated with each axle and responsive to the respective speed sensor to release the respective brake on the occurrence of a skid condition at that axle, a respective inhibit means associated with each brake release means and being operable by inhibit operation of that brake release means, a respective fault detection circuit associated with each brake release means and being responsive to a fault condition in that brake release means to operate the respective inhibit means so as to inhibit operation of the associated brake release means, a respective signal repeater circuit associated with each brake release means and having an input and an output, means connecting the inputs and outputs of the signal repeater circuits in series to form a

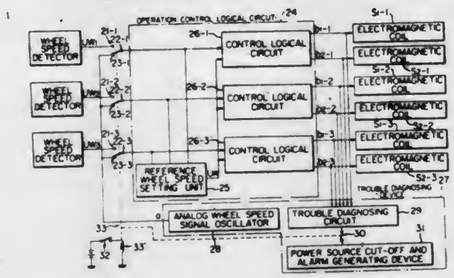
chain so that a signal applied to the input of the first repeater circuit in said chain will normally be propagated along said chain to the output of the last repeater circuit in said chain, each signal repeater circuit being responsive to the respective fault detection circuit so as to interrupt the passage of said signal along said chain upon the occurrence of said fault condition, and a respective shutdown connection means associated with each inhibit means and for optional connection to the input of the respective signal repeater circuit so that, when connected, an interruption in said signal at said input due to a fault upstream thereof along said chain causes said inhibit means to be operated to inhibit operation of the associated brake release means, whereby in the event of said fault condition occurring in one of said brake release means, operation of selected brake release means downstream thereof is inhibited.

4,270,809

DEVICE FOR DIAGNOSING TROUBLE IN A CONTROL CIRCUIT FOR ELECTROMAGNETIC ACTUATORS

Taiji Ohmori, Kawagoe, and Makoto Sato, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 3, 1979, Ser. No. 35,539
Int. Cl.³ B60T 17/22
U.S. Cl. 303—92 14 Claims



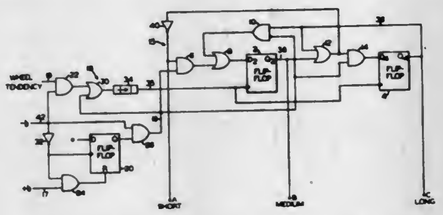
1. A trouble diagnosing device for diagnosing trouble in a control circuit for controlling a plurality of electromagnetic actuators comprising: a plurality of controlled means each constituting an operating system; a plurality of electromagnetic actuator means for controlling respective operation of said controlled means; control circuit means connected to receive a plurality of mutually independent input signals representative of the same information supplied to said respective controlled means for producing a plurality of paired output signals for individually controlling the operations of said electromagnetic actuator means; analog signal oscillator means for feeding a trouble diagnosing analog signal to said control circuit means; analog signal producing logical circuits each including a logical exclusive OR circuit adapted to receive the paired output signals of said control circuit means and produce, after logical processing of said paired output signals, a single output signal; and a trouble discriminating logical circuit connected to said analog signal producing logical circuits for producing an output signal indicative of trouble in said control circuit means when said output signals of said logical exclusive OR circuits includes an abnormal signal.

4,270,810

CIRCUIT FOR INFLUENCING THE BRAKE-PRESSURE RELEASE AND/OR BRAKE-PRESSURE HOLDING PHASES FOR ANTILOCKING VEHICLE BRAKE SYSTEMS

Gerhard Rahnau; Wolfgang Gudat; Klaus Lindemann, and Manfred Saba, all of Hanover, Fed. Rep. of Germany, assignors to WABCO Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,571
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1978, 2819102
Int. Cl.³ B60T 8/02
U.S. Cl. 303—106 15 Claims



1. A switching circuit arrangement for controlling the brake pressure exhausting phase and brake pressure holding phase for antiskid vehicle braking apparatus when the measured velocity change differs from a given velocity change during controlled braking wherein the velocity change is obtained by measuring and forming different velocity values at the intervening limits of an assigned time Δt, characterized by, switching means having a plurality of inputs for accommodating acceleration and deceleration control signals as well as a signal representing the starting tendency signal of a monitored wheel of the vehicle, and bidirectional shift register means responsive to the switching means for establishing the assigned time Δt dependent upon the particulars of the acceleration and deceleration control signals and as a function of the wheel tendency signal.

4,270,811

BUCKLE PROOF WEAR RESISTANT ENDLESS TRACTION BAND

Wolfgang Trautwein, Huntsville, Ala., assignor to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Oct. 4, 1979, Ser. No. 81,928
Int. Cl.³ B62D 55/20, 55/24
U.S. Cl. 305—11 6 Claims



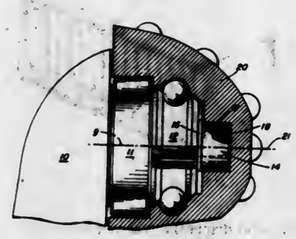
1. Traction apparatus for a vehicle comprising first and second roller chains, means for supporting said roller chains on said vehicle for movement on parallelly spaced apart congruent paths which paths include a linear portion beneath the vehicle, a resilient endless band having a length corresponding to that of said roller chains and a width such as to span the space between said roller chains, said band having a convex outer surface and a concave inner surface and being resiliently deformable in response to loads imposed thereon, means for attaching respective side edges of said band to respective said roller chains so that in response to movement of said roller chains along said paths said band will correspondingly move, and a plurality of flexible tension resistant members having opposite ends fixed to said roller chains and extending therebetween on the concave side of said endless band, said tension members being obliquely oriented and being substantially uniformly distributed along said roller chains to resist forces imposed on the concave surface of said band.

4,270,812

DRILL BIT BEARING

Robert D. Thomas, 104 N. Plum, Tonkawa, Okla. 74653

Continuation-in-part of Ser. No. 813,891, Jul. 8, 1977, abandoned. This application Feb. 2, 1979, Ser. No. 8,745
Int. Cl.³ F16C 33/06, 21/00; E21B 10/22
U.S. Cl. 308—8.2 3 Claims



1. In a rock bit having a leg, a bearing surface extending from said leg for journaling a roller cutter bit, said bearing surface including fluid cooling openings and a cylindrically-shaped bearing having a hard-metal face thereon and an end, an improvement in hard-facing said cylindrical bearing surface comprising a disc and a sleeve means formed of said hard-metal, said disc and said sleeve means having a prefinished interior and exterior surface; and, means including brase material for attaching said disc and sleeve means to said cylindrical bearing surface by dimensioning the external diameter of said bearing and the internal diameter of said prefinished interior of said sleeve means to allow insertion of said sleeve means over said bearing without substantial force and with a separation sufficient to cause said molten braze material to flow by capillary action, and positioning said disc over the end of said bearing, filling the space between said bearing and the interior surface of said sleeve means and under said disc, thereby causing said sleeve means to self-center on said bearing and said disc to attach to said end.

4,270,813

BEARING POSITIONING RETAINER

Noel D. Wiggins, Chillicothe, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

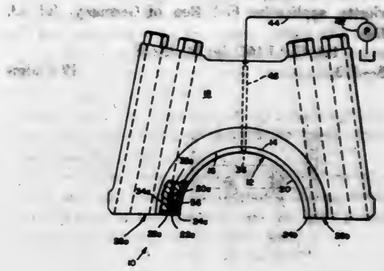
PCT No. PCT/US79/00641, § 371 Date Aug. 23, 1979 § 102(e) Date Aug. 23, 1979, PCT Pub. No. WO81/00604, PCT Pub. Date Mar. 5, 1981
This PCT application filed Aug. 23, 1979, Ser. No. 99,141
Int. Cl.³ F16C 3/10
U.S. Cl. 308—23 3 Claims

1. In an apparatus (10) wherein a generally semicylindrical bearing shell (12) is mounted with a radially outwardly facing semicylindrical surface (14) thereof against a mating radially inwardly facing semicylindrical surface (16) of an associated member (18) with the ends (24*a*, 24*b*) of the shell (12) forming a generally continuous surface (26*a*, 26*b*) with said member (18) and with a radially inwardly facing surface (20) of the shell (12) positioned to receive a relatively rotating shaft, the improvement comprising:

a first pair of indentations (22*a*, 22*b*) in said outwardly facing semicylindrical surface (14) of said shell (12), one at each end (24*a*, 24*b*) thereof and communicating with said generally continuous surface (26*a*, 26*b*);

a second pair of abutting indentations (28*a*, 28*b*) in said inwardly facing semicylindrical surface (16) of said member (18), each of said second indentations (28*a*, 28*b*) abutting a respective one of said first indentations (22*a*, 22*b*) and communicating with said generally continuous surface (26*a*, 26*b*); and

a pair of plugs (30'*a*, 30'*b*), each being sized and shaped to fit in said first indentations (22*a*, 22*b*) and said second indentations (28*a*, 28*b*), each of said plugs (30'*a*, 30'*b*) having a periphery (50) of a construction to exert a radial spring pressure against said respective first indentations (22*a*, 22*b*) and said second indentations (28*a*, 28*b*) sufficient to hold each of said plugs (30'*a*, 30'*b*) therein.

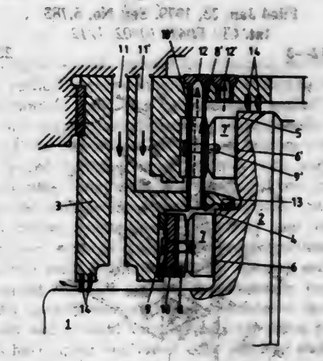


4,270,814

THRUST BEARING

Hans Bellati, Wettingen, Switzerland, assignor to BBC Brown, Boveri & Co. Ltd., Baden, Switzerland

Filed Aug. 27, 1979, Ser. No. 70,105
Claims priority, application Switzerland, Oct. 2, 1978, 10217/78
Int. Cl.³ F16C 17/10
U.S. Cl. 308—160 6 Claims



1. A thrust bearing in combination with a rotating shaft comprising:

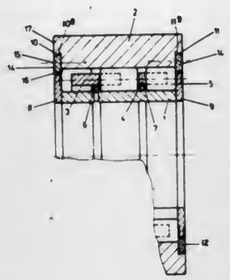
a bearing body;

a thrust collar on the shaft arranged in steps with radially inside and outside bearing surfaces offset axially with respect to one another; and

a plurality of bearing segments distributed over the circumference of the inside bearing surface and a plurality of bearing segments distributed over the outside bearing surface, with each bearing segment being disposed between the thrust collar and the bearing body; and

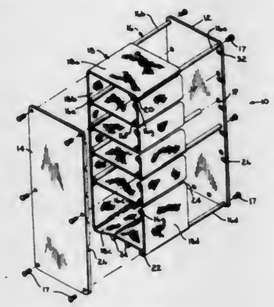
means flexibly mounting each of said bearing segments on said bearing body.

4,270,815
ROLLER BEARING
Armin Olschewski, Schweinfurt; Manfred Brandenstein, Essenheim; Lothar Walter, Schweinfurt; Horst M. Ernst, Eltingshausen, and Heinrich Kunkel, Schweinfurt, all of Fed. Rep. of Germany, assignors to SKF Kugellagerfabriken GmbH, Schweinfurt, Fed. Rep. of Germany
Filed Jun. 28, 1979, Ser. No. 52,729
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830818
Int. Cl.³ F16C 19/24, 33/58
U.S. Cl. 308—213 19 Claims



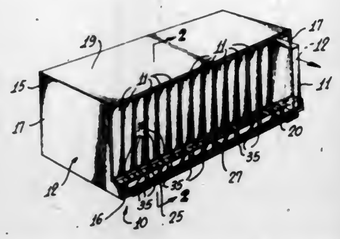
1. An edge ring adapted to be mounted in an annular groove in at least one of the bearing rings of a roller bearing, said edge ring being slit in at least one location about its periphery to define a separation joint and an insert member disposed between the confronting ends of the separation joint of the edge ring connected to the bearing ring and operable to seat the edge ring in the annular groove.

4,270,816
FURNITURE HAVING PRESTRESSED FABRIC PANELS
David L. Erickson, and Leonard W. Kitts, both of Milwaukee, Wis., assignors to Interface Design Group, Inc., Milwaukee, Wis.
Filed Jan. 23, 1979, Ser. No. 5,785
Int. Cl.³ E04H 10/02, 1/12
U.S. Cl. 312—3 23 Claims



1. A piece of furniture comprising:
a pair of spaced, rigid side plates having dimensions which define first and second dimensions of the piece of furniture;
a plurality of rods extending between said spaced side plates, said rods comprising the sole means for establishing and maintaining the third dimension of the piece of furniture, said rods being so located on said plates that pairs of rods demarcate the location of generally planar panel elements of the piece of furniture; and
a sheet of fabric stressed only in tension in a direction parallel to said side plates, said sheet being affixed solely to at least a pair of said rods for forming a generally planar panel element of the piece of furniture.

4,270,817
CASSETTE STORAGE AND DISPENSING DEVICE
William P. McRae, 22 Lincoln Court, Buena Park, Calif. 90620
Filed Feb. 23, 1979, Ser. No. 14,420
Int. Cl.³ A47B 81/06
U.S. Cl. 312—15 7 Claims

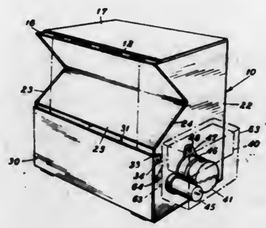


1. A storage and dispensing cabinet for articles such as tape and film cassettes and the like comprising:
a box-like plastic enclosure having a floor, two end walls, a back wall and a top, and having an open front;
a plastic base disposed within said enclosure and mounted on said floor, said base including a raised platform to support said articles within said enclosure and, first and second grooves extending along opposite sides of said platform, a plurality of equally spaced partitions projecting upwardly from said base and dividing said enclosures into a plurality of open-ended slots each adapted to slidably receive one of said articles, a plurality of openings each adjacent said open end of said slots, and indicia imprinted thereon identifying said slots;
a first elongated attachment strip disposed within said first groove and secured to said base;
a plurality of retention members integrally formed with said first attachment strip as a single plastic piece, each of said retention members comprising a resilient tab extending substantially perpendicularly from said first attachment strip and an upstanding abutment formed on said tab, and extending upwardly through one of said openings to engage the leading edge of one of said articles, the fee ends of said tabs forming exposed actuator portions adjacent said indicia by which said tabs can be manually depressed to disengage said abutments from said articles;
a second elongated attachment strip disposed within said second groove and secured to said base; and
a plurality of drive fingers of generally Z-shaped profile integrally formed with said second attachment strip as a single plastic piece, each of said drive fingers extending upwardly into one of said slots, said drive fingers being biased for movement toward relaxed positions in which they extend toward said retaining members to eject said articles from said slots upon selective release of said articles by said abutments.

4,270,818
POWER WINDING PAPER TOWEL DISPENSER
Stanley G. McCabe, 4630 55th Dr. #185, Lubbock, Tex. 79414
Filed Apr. 2, 1979, Ser. No. 26,040
Int. Cl.³ B65H 19/00
U.S. Cl. 312—38 10 Claims

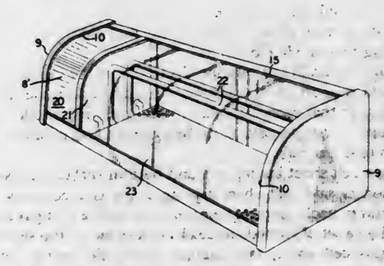
1. In a dispenser for roll paper toweling,
a cabinet having an upper clean towel compartment and a lower spent towel compartment separated from said clean towel compartment,

said cabinet also having front and rear walls and parallel side walls,
a slot at the upper front portion of said cabinet for the withdrawal of clean toweling from said clean towel compartment,
a slot spaced downwardly of said first slot for the insertion of spent toweling into said spent towel compartment,
a recess for substantial depth between said slots to accommodate the grasping of clean toweling by the hands to withdraw clean toweling from said clean towel compartment,
a spindle extending between said side walls across said spent towel compartment,
means accommodating the attachment of spent paper toweling onto said spindle,



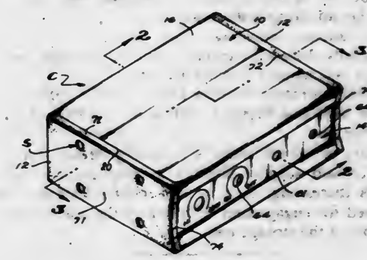
a motor and a drive connection from said motor to said spindle,
an energizing circuit for said motor deenergized by tension on the paper and energized as the paper toweling is withdrawn from said first slot for use,
said energizing circuit including time delay switch means holding said motor from operation prior to winding spent toweling on said spindle for a time sufficient to accommodate drying of the spent paper toweling,
said time delay switch having a switch arm adjacent said second slot and engaged by the paper as long as there is tension on the paper sufficient to maintain the paper taut across said recess.

4,270,819
COLD DISPLAY CASE
Morihei Ooho, 303-1, Ohaza Honjo, Yahata Nishi-ku, Kitakyushu, Fukuoka Prefecture, Japan
Filed May 16, 1979, Ser. No. 39,557
Claims priority, application Japan, Jul. 21, 1978, 53/101228[U]
Int. Cl.³ A47F 3/04
U.S. Cl. 312—116 6 Claims



1. A cold display case, wherein the frames thereof are constructed of steel pipes and connectors for assembling said pipes so that said frames can be easily and quickly constructed without necessitating other connecting means like welding;
wherein said pipes are generally rectangular and said connectors each have a main body and a plurality of engaging arms which engage said pipes and cross at right angles to each other;
and wherein said case comprises;
a bottom plate supporting frame,
a sliding glass door frame;
said frames being constructed with generally rectangular pipes and connectors, and said connectors each having a main body and a plurality of engaging arms crossing at right angles to each other,
packings attached along the upper surface of a front rectangular pipe of said bottom plate supporting frame and along the front surface of an upper rectangular pipe of said sliding glass door frame,
a curved glass plate supported by said packings by inserting the upper and lower ends thereof into grooves formed on said packings, and
side cover plates for covering the ends of both said glass plate and said frames, interposed packings between said cover plates on the one hand and said glass plate and said frames respectively on the other hand.

4,270,820
ELECTRIC COMPONENT CABINET
James P. McMullan, and Albert Stevens, both of 2630 Seaman Ave., El Monte, Calif. 91733
Filed Mar. 20, 1979, Ser. No. 22,192
Int. Cl.³ H02B 1/00; A47B 43/00
U.S. Cl. 312—242 5 Claims



1. An elongate box-like cabinet for electrical devices comprising like vertically spaced longitudinally extending horizontal top and bottom walls, like longitudinally spaced vertical end walls and vertical, laterally spaced longitudinally extending front and rear panels, said like top and bottom walls have vertically spaced opposing inner surfaces with vertical inwardly projecting longitudinally extending front, rear and laterally spaced intermediate flanged projections, the flanged projections define longitudinally outwardly and vertically opening grooves, a pair of adjacent flanged projections on the top and bottom walls define horizontally opening and opposing longitudinal channels defining longitudinally outwardly and inwardly opening ways at the inner surfaces of the top and bottom walls, said vertical longitudinally extending front and rear panels have upper and lower edge portions slidably engaged in and retained by related opposing grooves in the front and rear flanged projections on the top and bottom walls, said like vertical end walls have longitudinally inwardly disposed inner surfaces in stopped engagement with opposing related ends of the top and bottom walls, longitudinally inwardly projecting retaining flanges engaged with the inner surfaces of said top and bottom walls and screw fasteners carried by the end walls and threadedly engaged into the ends of the grooves in said intermediate projections on said top and bottom walls, said intermediate flanged projections have inwardly disposed supporting edges to support parts arranged within the cabinets, said grooves in the intermediate flanged projections accommodate mounting parts and fastening means for parts arranged within the cabinet, said channels cooperatively receive mount-

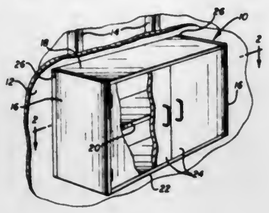
ing parts for electrical components and parts positioned within the cabinet between the projections.

4,270,821

CABINET AND SHELF WALL MOUNTING APPARATUS

Joseph T. Verdesca, 6504 Lobello Dr., Dallas, Tex. 75261

Filed Jul. 2, 1979, Ser. No. 53,944
Int. Cl.³ A47G 29/02
U.S. Cl. 312—245 7 Claims



1. Apparatus for mounting a storage unit on a wall, said storage unit being provided with a plurality of apertured connectors, which comprises:

an elongate rigid support member having substantially flat front and rear sides;

a plurality of first fasteners extending through the wall and the rear side of said support member at longitudinally spaced intervals therealong for connecting said support member to the wall such that substantially the entire rear side thereof engages the wall;

said first fasteners including:

an externally threaded member extending through the rear side of said support member and the wall;

an internally threaded member located on the opposite side of the wall and engaged with said externally threaded member; and

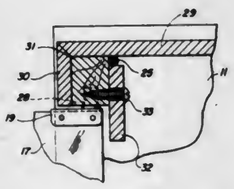
a plurality of second fasteners extending through the front side of said support member at longitudinally spaced points therealong, each of said second fasteners being adapted for engagement with one of the apertured connectors of the storage unit.

4,270,822

CABINET AND DOOR ASSEMBLY

Walter Gusdorf, Creve Coeur, Mo., assignor to Gusdorf Corporation, St. Louis, Mo.

Filed May 21, 1979, Ser. No. 40,504
Int. Cl.³ A47B 47/00
U.S. Cl. 312—265 2 Claims



1. In a cabinet assembly the improvement of: spaced vertical side members; vertically spaced top and bottom horizontal shelf members extending between and separating said side members, said side and shelf members framing the open front of the cabinet assembly; a plurality of tension elements extending between said side members adjacent said bottom shelf member and also adjacent said top shelf member, said tension elements operatively drawing said vertical side members into assembly abutment with the shelf members; rail-forming means along the front of said spaced shelf members; hinge socket means carried by each of said rail-forming means so as to be in vertically spaced and aligned facing positions; closure means for the open front of the cabinet assembly; first hinge means on said closure means engageable in said socket means carried by said rail-forming means along the front of said bottom shelf member; second hinge means on said closure means in position to engage in said socket means carried by said rail-forming means along the front of said top shelf member, one of said tension elements being disposed adjacent said socket means carried by said rail-forming means for said top shelf member; and stop means adjacent said rail-forming means on said top shelf member in position to provide a portion thereof to position said closure means in closed position at the cabinet front and said stop means providing an abutment to engage said one tension element and block upward displacement of said top shelf member relative to said side members.

4,270,823

METHOD OF FORMING CONDUCTORS IN SLOTS IN A PLATE

Philip Kuznetzoff, Bridgewater, N.J., assignor to Burroughs Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 938,927, Sep. 1, 1978, abandoned. This application Oct. 1, 1979, Ser. No. 81,000
Int. Cl.³ H01J 9/18, 17/16
U.S. Cl. 316—19 1 Claim



1. A method of making a display panel comprising:

providing a glass support plate having a top surface and having a plurality of parallel slots formed in said top surface and varying in depth beneath said top surface,

completely filling all of said slots with the same filling material comprising a carrier medium including metal and glass frit particles,

permitting said metal and glass frit particles to settle through said medium to the bottom of each of said slots,

removing said medium to leave a film of metal and glass frit particles as an electrode at the base of each of said slots,

fusing said glass frit to fix said electrodes in place in said slots,

using the top surface of said plate as a guide, removing surface portions of said electrode so that the top surfaces of all of said electrodes become uniformly spaced below the top surface of the support plate, said electrodes comprising first anode electrodes,

mounting a plurality of cathode electrodes on the top surface of said support plate transverse to said first anode electrodes, so that each cathode crosses each first anode and defines a first gas cell, there being rows and columns of such first gas cells,

seating a cell sheet having top and bottom surfaces on said cathodes, said cell sheet having rows and columns of apertures, each aperture being aligned with a first gas cell,

providing a set of second anode electrodes on the top surface of said cell sheet, said second anode electrodes being disposed transverse to said cathode electrodes and defining rows and columns of second gas cells therewith,

hermetically sealing a viewing face plate to said support plate to form an envelope enclosing said first and second anode electrodes, said cathode electrodes and said cell sheet, and

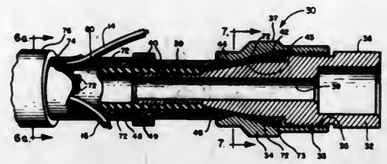
filling said envelope with an ionizable gas.

4,270,824

ELECTRICAL CLAMP

Milton W. Erickson, Crete, Ill., assignor to Dover Corporation, New York, N.Y.

Filed Mar. 30, 1979, Ser. No. 25,569
Int. Cl.³ H01R 4/50
U.S. Cl. 339—15 16 Claims



1. A clamp for securing the end section of an electrical cable, said clamp comprising:

an inner clamping member defining a tapered inner clamping surface;

an annular outer clamping member defining a tapered outer clamping surface sized to telescope over the inner clamping surface, said outer clamping surface having a greater angle of convergence than said inner clamping surface; and

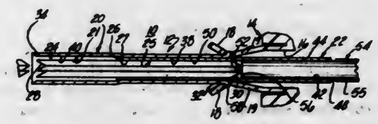
means for securing the inner clamping member to the outer clamping member such that the outer clamping surface is secured near the inner clamping surface to create an annular space therebetween for receiving and clamping the end section of an electrical cable, said annular space having a throat region and an end region wherein the end region is nearer the end of the cable than the throat region when the clamp is secured to the cable, and the annular space defines a smaller cross sectional area at the throat region than the end region.

4,270,825

ELECTRICAL CONNECTOR ASSEMBLY

Edward K. Marsh, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Oct. 9, 1979, Ser. No. 82,439
Int. Cl.³ H01R 4/10, 13/422
U.S. Cl. 339—47 R 1 Claim



1. An electrical connector assembly adapted for a mating with a second electrical connector assembly in terminating an electrically conducting body, the assembly comprising:

a housing having a housing passage formed therethrough;

an elongated body having an axial body passage extending completely therethrough between first and second ends, wherein the elongated body comprises an electrically conducting member and wherein the axial body passage includes first and second end portions that terminate in openings at the respective first and second ends of said body and an interior passage portion, the first end portion of said body passage having a cross-sectional area larger than the cross-sectional area of the interior passage portion, the first end of said electrically conducting member including a radially outwardly flared annular retaining flange;

an elongated electrically conductive member having an axial member passage extending completely therethrough, said axial member passage including first and second end portions and an interior passage portion medial the end portions thereof, the second end portion of the member passage terminating in an opening at the second end of said member, the second end portion of said member passage having a cross-sectional area greater than the cross-sectional area of the interior passage portion of said member, said member first end being axially aligned and axially mounted within the axial body passage of the body so that said member second end extends beyond the second end of said elongated body and into said housing passage;

several electrical conducting wires axially aligned and axially mounted within the first end portion of the member passage, each of said wires including an end portion which terminates in an acutely angled surface, the ends of the wires being disposed at a position medially the second portion and the interior passage portion for engagement by the electrically conducting body, wherein a second end portion of said member passage is adapted to receive the electrically conducting body therein for engaging the ends of said wires in electrical circuit relationship, said wires being mounted in said interior passage portion of said first member being a pair of axially spaced crimp joints of said first member, said second member and said first member being connected to said wires in electric relationship at the crimp joints; and

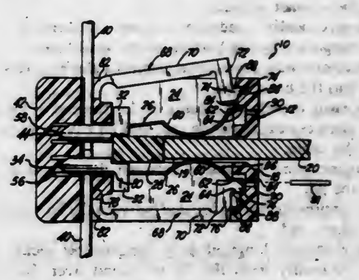
retaining means coupled to said housing for releasably securing said contact within said housing passage, said retaining means securing the contact within the housing passage at said retaining flange and including at least one radially deflectable contact retaining finger integrally connected to said housing for abuttingly engaging said electrically conducting member at said retaining flange.

4,270,826

ZERO INSERTION FORCE CONNECTOR

Ronald S. Narozny, Panorama City, Calif., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Feb. 1, 1979, Ser. No. 8,544
Int. Cl.³ H01R 13/62
U.S. Cl. 339—75 MP 18 Claims



1. A zero insertion force type connector for receiving a printed circuit board or the like and making selective electrical contact with the electrical circuitry thereon, said connector comprising:

a housing having one side thereof with an opening for insertion of the printed circuit board therein;

a plurality of individual conductors supported within said housing, each of said individual conductors being movable between a contact position in which said conductor is adapted to engage an associated contact portion on said printed circuit board, and a noncontact position in which said conductor is spaced from said printed circuit board when said printed circuit board is in the housing, said individual conductors being biased toward said noncontact position so that the printed circuit board may be inserted into said housing with a minimal force;

a corresponding individual selectively operable actuator member for each of said individual conductors, each of

said actuator members being independently movable in any desired sequence between a first position in which said actuator member is restrained from movement and urges its corresponding conductor into its said contact position and a second position in which its corresponding conductor is free to assume its said noncontact position, each said actuator member being biased toward said second position; and

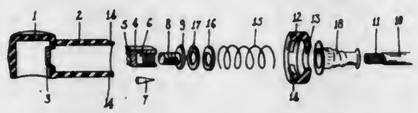
release means for each said actuator member in said first position permitting release of such movement restraint and enabling biased movement individually of each said actuator member to said second position thereof.

4,270,827

BATTERY CABLE CONNECTOR

Maurice S. Potgieter, 8122 E. 65th St., Tulsa, Okla. 74133

Filed Mar. 7, 1979, Ser. No. 18,236
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1978, 7807069[U]
Int. Cl.³ H01R *4/54, 11/20, 11/24*
U.S. Cl. 339—95 B 5 Claims



1. A battery cable connector for motor vehicle batteries having substantially cylindrical connecting lugs comprising,

a cap of electrically insulating material for the lug,

a radial sleeve-like extension piece projecting from the cap in communication through a noncircular aperture with the interior of the cap,

an electrical contact piece of complementary shape to the aperture and having a toothed contact surface for engagement with the lug,

a blind threaded hole in the end of the contact piece opposite the contact surface,

an electrically conductive conical element with its base supported by the bottom of the blind hole,

an electrically conductive clamping sleeve screw threaded into the blind hole,

an easily detachable closure lid for the end of the extension piece remote from the cap, said lid having an opening for the cable,

bayonet joint formations between the extension piece and the lid,

a compression spring located between the lid and the contact piece, and

an elastically longitudinally compressible socket extending outwardly from the lid to extend over the cable, said socket being so formed that its end distal from the lid does not grip the cable too tightly so that the socket can be pushed together elastically in the direction of the lid.

4,270,828

IMPROVED CAPACITOR LEAD CLIPS

George T. Thurston, Glens Falls, N.Y., assignor to General Electric Company, Hudson Falls, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,848
Int. Cl.³ H01R *4/24*
U.S. Cl. 339—95 R 10 Claims

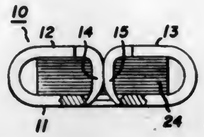
1. A clip type connector adapted to connect a plurality of electrical conductor laminae together comprising,

(a) a metal strip having a central aperture therethrough,

(b) said strip having at its opposite ends formed with piercing tang members projecting therefrom,

(c) said strip having opposite end portions thereof folded upwardly as upstanding arm members which provide a generally triangular configuration to define a base member having said central aperture therein,

(d) said piercing tang members being folded inwardly towards said aperture in said base member and abutting each other to form a V section,



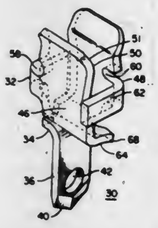
(e) whereby when a plurality of conductor laminae are inserted into said triangular configuration a crimping tool forces said piercing tangs through said laminae and said aperture to be clinched to said member.

4,270,829

JUMPER SOCKET

Albert H. Wilson, Los Angeles, Calif., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Aug. 28, 1979, Ser. No. 70,436
Int. Cl.³ H01R *13/115*
U.S. Cl. 339—96 9 Claims



1. A circuit board socket comprising in combination: a base member; a tail member coupled to said base member for engagement with the defining walls of a plated-through aperture in a circuit board; and a pair of upstanding, generally parallel spaced apart arm members coupled to said base member for receipt therebetween of an electrical conductor to provide an electrically continuous path between such electrical conductor and a circuit board, said arm members having first free ends outwardly directed to aid in the insertion of an electrical conductor between said arm members, second free ends of said arm members being inwardly directed to engage one another to limit any separation of said arm members as an electrical conductor is inserted therebetween, said arm members being inwardly directed intermediate said ends thereof to provide a restriction to limit the withdrawl of an electrical conductor inserted therebetween.

4,270,830

WIRE CONNECTOR

Stanley Brenner, Massapequa, N.Y., assignor to Perfect-Line Manufacturing Corp., Lindenhurst, N.Y.

Filed Jan. 11, 1980, Ser. No. 111,289
Int. Cl.³ H01R *11/20*; E04G *7/08*
U.S. Cl. 339—99 R 1 Claim

1. A wire connector comprising:

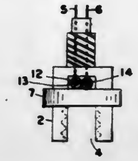
a body member having a lower hollow internally threaded portion and an upper portion,

a slot in said lower portion,

a pair of spaced electrodes mounted in said upper portion, the lower ends of said electrodes being pointed and extending into the area of said slot,

a ring member having a central portion bridging the ring member, said ring member being slidably mounted on the lower portion of said body member,

an externally threaded member threadedly connected to the internally threaded hollow portion of said body member,



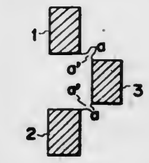
whereby an insulated two conductor cable may be inserted through said slot between the lower ends of said electrodes and said ring member and the externally threaded member may be screwed into the body member to force the electrode points through the insulation of said cable and causing each electrode point into contact with one of the conductors of said cable.

4,270,831

ELECTRIC TERMINAL FOR PRESS-IN CONNECTION WITH CONDUCTORS

Toru Takahashi, Yokohama, Japan, assignor to Yamaichi Electric Mfg. Co., Ltd., Tokyo, Japan

Filed Sep. 20, 1979, Ser. No. 77,371
Claims priority, application Japan, Oct. 19, 1978, 53-127870
Int. Cl.³ H01R *4/24*
U.S. Cl. 339—99 R 7 Claims



1. An electrical connector for press-in connection with a conductor, said connector comprising:

a base;

a first rectangular tine, a second rectangular tine and a third rectangular tine, each extending upward from said base, said first rectangular tine and said second rectangular tine located adjacent and spaced sideways from each other and said third rectangular tine located displaced laterally away from a line which extends between said first and second rectangular tines and adjacent the center of the space between said first and second rectangular tines, the front surfaces of said first and second rectangular tines facing in the direction in which said third rectangular tine is laterally displaced and opposite the direction of facing of the front surface of said third rectangular tine, and said first, second and third rectangular tines positioned so that the side surfaces of said first and third rectangular tines, which are closest each other, define an x_1 axis, the side surfaces of said third and second rectangular tines, which are closest each other, define an x_2 axis which is parallel to said x_1 axis, and the front surfaces of said first, second and third rectangular tines are aligned to define a y axis which is perpendicular, in the same plane, to said x_1 and x_2 axes;

a first bevel surface on said first rectangular tine at the corner closest said third rectangular tine, a third bevel surface on said third rectangular tine at the corner closest said first rectangular tine, said first and third bevel surfaces being spaced from and facing each other for defining a first space for receiving a conductor therein;

a second bevel surface on said second rectangular tine at the corner closest said third rectangular tine, a fourth bevel surface on said third rectangular tine at the corner closest and said second rectangular tine, said second and fourth bevel surfaces being spaced from and facing each other for defining a second space for receiving a conductor therein; and

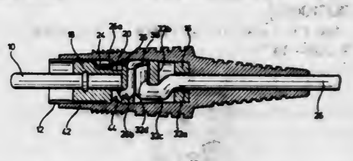
whereby a conductor can be inserted into said first and second spaces between said bevel surfaces for establishing a physical and electrical connection between said terminal and the conductor through direct contact between the conductor and said bevel surfaces.

4,270,832

PIN PLUG

Shigeru Tanabe, No. 3-10-15, Kita-Koiwa, Edogawa-ku, Tokyo, Japan

Filed Apr. 25, 1979, Ser. No. 33,315
Claims priority, application Japan, Oct. 23, 1978, 53/145688[U]
Int. Cl.³ H01R *13/58*
U.S. Cl. 339—105 5 Claims



1. A pin plug for attachment to the lead wire of a connecting cord comprising a bar electrode and a cap electrode and a base for holding said bar electrode and said cap electrode coaxially and insulatedly from each other and a flexible sleeve for coating said base, said base including a head section for supporting said cap and bar electrodes and a body section provided in its circumference with at least one continuous groove for receiving the lead wires of a connecting cord, said continuous groove comprising at least three tandemly arranged groove portions, at least one of said groove portions extending axially and one of said groove portions extending radially of said base, said axial and radial groove portions alternating with each other, said base being formed with an annular space between said head and body sections for connection of one of said lead wires to said cap electrode and a stem portion coupling said head and body sections, and through which said bar electrode extends for connection of the other lead wire and at least one hole in communication with the last radial groove for passing the lead wire to said stem portion to be connected to the bar electrode.

4,270,833

REINFORCED ELECTRICAL CONNECTOR JUNCTION MEANS

Glenn E. Storck, Long Valley, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed May 25, 1979, Ser. No. 42,535
Int. Cl.³ H02G *3/08*; H01R *13/60*
U.S. Cl. 339—121 7 Claims



1. Electrical connector junction means for use with flat

conductor cable lying along a floor, said electrical connector junction means comprising:

a base having a substantially flat support surface for mounting of said base on a floor adjacent a flat conductor cable;

a housing for said base, said housing having an upper wall and depending side walls defining an interior space above said base for receiving the flat conductor cable and a second conductor for electrical connection together; and

a central upstanding reinforcing supporting member affixed to and extending upwardly above the center of said base, said reinforcing supporting member comprising a longitudinally extending rib and a pair of spaced laterally extending arms interconnected by said longitudinally extending rib for supporting said upper wall of said housing when said housing is positioned over said base and said supporting member.

4,270,834

ELECTRIC CONTACT FOR A BATTERY-OPERATED INSTRUMENT

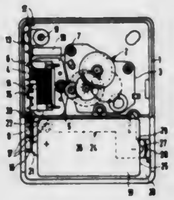
Robert Wolber, and Roland Maurer, both of Lauterbach, Fed. Rep. of Germany, assignors to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 68,590

Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 7827030[U]

Int. Cl.³ G04C 10/00; H01R 13/50; H05K 1/11

U.S. Cl. 339—147 R **9 Claims**



1. A contact arrangement for a battery-operated instrument of the type comprising a plastic housing having a battery-receiving recess and a first support rib, and a circuit board insertable within said housing, said contact arrangement comprising a bus portion having at one end a first resilient leg for engagement with one terminal of a battery seated within the recess and at another end a second leg having a knife-edge in contact with a circuit path on said circuit board, said circuit board being disposed between said legs such that said second leg engages said circuit path on a side of said circuit board opposite said first leg and presses against said circuit board in a direction parallel to and opposite the direction in which said first leg presses against said one battery terminal, and urges said circuit board into supportive engagement with said first support rib of said housing.

4,270,835

RAIL-MOUNTED ELECTRICAL TERMINALS

Hans-Herbert Kordt, Osterode, and Paul P. Stenz, Detmold, both of Fed. Rep. of Germany, assignors to C. A. Weidmuller KG, Detmold, Fed. Rep. of Germany

Filed Jul. 25, 1979, Ser. No. 60,700

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 7822789[U]; Oct. 19, 1978, 2845532

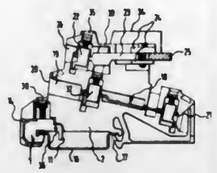
Int. Cl.³ H01R 4/66, 9/22

U.S. Cl. 339—198 GA **8 Claims**

1. An electrical terminal block for mounting on a support rail of channel section with outwardly directed flanges, comprising

(a) an insulating housing provided with means for gripping one of said flanges; and

(b) electrical terminals in said housing including an earth terminal provided with a first member arranged to engage under the other of said flanges of said support rail with a second member arranged to engage an internal side surface of the channel-section support rail adjacent to said



other flange, and with a clamping screw arranged to clamp the said other flange against the said first member and to clamp an earth conductor in the earth terminal.

4,270,836

HOLDER FOR ELECTRICAL COMPONENT

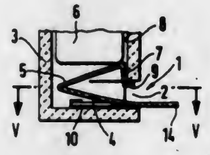
Manfred Adam, Witten, Fed. Rep. of Germany, assignor to Wickmann-Werke AG, Witten, Fed. Rep. of Germany

Filed May 31, 1979, Ser. No. 44,027

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1978, 2825317

Int. Cl.³ H01R 13/432

U.S. Cl. 339—213 R **14 Claims**



1. In a holder for holding an electrical component of the type having a socket-like housing of electrically insulating material adapted to be closed at its top end by a cap and having a springy foot-contact in the bottom thereof, the improvement wherein said foot-contact comprises a one-piece sheet metal tongue having two slits running in the longitudinal direction thereof dividing said tongue into a central arm and two legs one on either side of said central arm, and having a bent back springy contact arm connected to said central arm, and said housing has means defining an opening therein, said foot-contact being so constructed that, with said contact arm resiliently compressed toward said central arm, said foot-contact can be inserted into said housing through said opening and secured in said housing by said contact arm springing back away from said central arm.

4,270,837

PERISCOPIC VIEWFINDER SYSTEM FOR USE IN PHOTOGRAPHIC CAMERAS

James G. Baker, Bedford, N.H., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 2, 1979, Ser. No. 26,086

Int. Cl.³ G03B 13/02

U.S. Cl. 350—54 **14 Claims**

1. An afocal, elongated viewfinder optical system for use in a photographic camera to provide a final erect image of a scene at an accessible exit pupil, said viewfinder system comprising:

a first pair of equi-convex, aspheric lens elements structured to provide both an objective lens function and a field lens function;

a second pair of equi-convex aspheric lens elements also structured to provide both an objective lens function and a field lens function, the second lens element of said first

pair of equi-convex lens elements being spaced from the first lens element of said second pair of equi-convex lens elements by a predetermined distance;

a central aperture stop located between said first and second pairs of equi-convex lens elements;

a first negative lens element associated with said second element of said first pair of equi-convex lens elements and structured so that the net focal length of the combination of said first negative lens element and said second element of said first pair of equi-convex lens elements is increased, said first pair of equi-convex lens elements in combination with said first negative lens element operating to provide an image of said central aperture stop in object space, said central aperture stop image defining the entrance pupil to said viewfinder system;

a second negative lens element associated with the first element of said second pair of equi-convex lens elements and structured so that the net focal length of the combination of said second negative lens element and said first lens element of said second pair of equi-convex lens elements is increased, said second pair of equi-convex lens elements in combination with said second negative lens element operating to provide an image of said central aperture stop in image space which image defines the exit pupil of said viewfinder system; and

central positive lens means located adjacent said central aperture stop and structured to reimage image bearing rays over said predetermined distance separating said first and second pairs of equi-convex lens elements, the focal length of said central positive lens means exceeding one-fourth said predetermined distance separating said first and second pairs of equi-convex lens elements, said first and second negative lens elements, and said positive lens means being further structured to optically cooperate to provide the final erect scene image at said exit pupil of said viewfinder system.

4,270,838

MICROMANIPULATOR FOR A MICROSCOPE

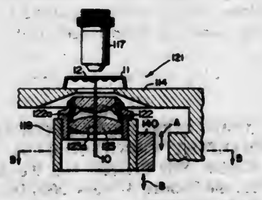
Mitsuru Furusawa, Nishinomiya; Fumiichiro Yamamoto, Osaka, and Makoto Yoshinaga, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 14, 1979, Ser. No. 38,715

Claims priority, application Japan, Jun. 5, 1978, 53/67461

Int. Cl.³ G02B 21/32

U.S. Cl. 350—81 **5 Claims**



1. Apparatus including a microscope and a micromanipulator mounted thereon, comprising:

a microscope including an objective lens having an optical axis;

said microscope including a movable member mounted on said microscope for movement in the direction of said optical axis;

said movable member including a lens;

a miniature operating tool; and

said miniature operating tool being mounted on the lens of said movable member for movement in the direction of said optical axis.

4,270,839

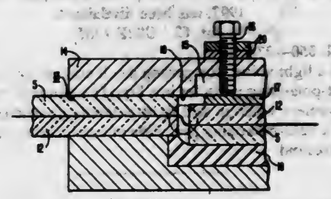
DIRECTIONAL OPTICAL FIBER SIGNAL TAPPING ASSEMBLY

Michael A. Cross, Severna Park, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 29, 1979, Ser. No. 7,460

Int. Cl.³ G02B 5/14

U.S. Cl. 350—96.15 **2 Claims**



1. A directional optical fiber signal tapping assembly comprising:

(a) first and second light pipes each including a groove;

(b) an optical fiber positioned in the grooves in said light pipes;

(c) a support member having a first opening therein with said first light pipe being fixed rigidly in said opening, said support member also having a second opening therein with positioning means supporting said second light pipe in said second opening such that said light pipes can be selectively displaced from each other in a longitudinal direction thereby selectively bending said optical fiber thereby changing the amount of light which is coupled into said light pipes due to leakage from said optical fiber.

4,270,840

GLASS FIBERS FOR OPTICAL TRANSMISSION

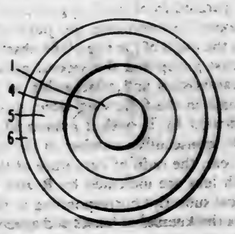
Naoya Uchida, Mito; Shigeyuki Seikai, Nishi; Keso Yoshimura, and Toru Yamanishi, both of Yokohama, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo and Sumitomo Electric Industries, Ltd., Osaka, both of, Japan

Filed May 25, 1979, Ser. No. 42,649

Claims priority, application Japan, May 25, 1978, 53-63158

Int. Cl.³ D02G 3/00; G02B 5/14

U.S. Cl. 350—96.34 **13 Claims**



1. A reinforced glass fiber for use in optical transmission comprising an optical fiber having provided thereon (1) a coating of a first curable organopolysiloxane composition having a refractive index higher than the glass which forms the outermost layer of the glass fiber, said first curable organo-

polysiloxane composition being baked to cure the same, and (2) a coating of a second organopolysiloxane composition which can be the same as or different from the first curable organopolysiloxane composition, said second curable organopolysiloxane composition then being provided on the first curable organopolysiloxane and being baked to cure the same, wherein at least one of the first and second curable organopolysiloxane compositions has a stress absorbing effect and a Young's modulus lower than 2.0 kg/mm^2 at room temperature.

4,270,841

LIGHT VALVE CONTAINING SUSPENSION OF PERHALIDE OF ALKALOID ACID SALT

Robert L. Saxe, New York, N.Y., assignor to Research Frontiers Incorporated, Plainview, N.Y.

Filed Oct. 31, 1978, Ser. No. 956,418
The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.
Int. Cl.^{3} G02F *1/01*
U.S. Cl. 350—374 12 Claims

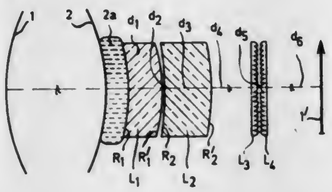
1. In a light valve, comprising a cell containing a suspension of light-polarizing particles in a liquid suspending medium, the improvement wherein said light polarizing particles are particles of a light-polarizing perhalide of a polycarboxylic acid salt of an alkaloid.

4,270,842

OPTICAL SYSTEM FOR FORMING AN IMAGE OF THE RETINA

Franz Muchel, Königsbronn, and Werner Böhning, Oberkochen, both of Fed. Rep. of Germany, assignors to Carl Zeiss Stiftung, Oberkochen, Fed. Rep. of Germany

Filed Apr. 12, 1978, Ser. No. 895,689
Claims priority, application Fed. Rep. of Germany, Apr. 15, 1977, 2716614
Int. Cl.^{3} G02B *3/08*; A61B *3/10*
U.S. Cl. 350—452 1 Claim



1. An optical system for forming an image of the retina of an eye, comprising a first lens group and a second lens group, the two groups cooperating with each other to form the image, the first lens group being substantially in contact with the eye to be examined through an interposed liquid film, the second lens group being separated from the first group by an air space and being dimensioned to conjugate the pupil of the eye being examined with the pupil of the eye of the observer, wherein the lenses of the first group and the second group have substantially the characteristics and relationship to each other indicated by the data in the following table, in which individual lenses are indicated by L with a numerical subscript corresponding to the consecutive number of the lens as numbered from front to rear, the radii of curvature of the front and rear surface of each lens are indicated by R and R', respectively, with a numerical subscript corresponding to the number of the lens, the vertex thicknesses of lenses and spaces between lenses are indicated by d with a numerical subscript corresponding to the numbering of the thicknesses and spacings in a single numerical series, the focal length of the Fresnel lenses L_3 and L_4 is indicated by f, all linear dimensions being expressed in millimeters, the index of refraction of certain of the lenses is given in the column headed n_d, and the index of dispersion or Abbe number of certain of the lenses, expressed with respect to the yellow d-line of the helium spectrum with a wavelength of 5876 Angstrom units, is given in the column headed ν_d:

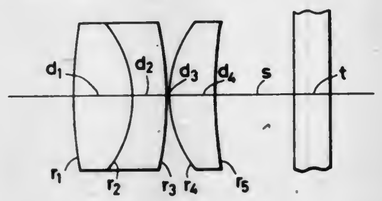
Lens	Radii	Vertex thicknesses and spacings	n_d	ν_d
	R_1 = 7,8298 mm			
		d_1 = 1,50 mm	1.52249	59.48
L_1	R_1' = 6,9783 mm			
		d_2 = 0,05 mm		
	R_2 = 12,785 mm			
		d_3 = 2,00 mm	1.73350	51.65
L_2	R_2' = 10,100 mm			
		d_4 = 21,8 mm		
		d_5 = 0,1 mm		
		d_6 = 7 mm		
L_3				
	(Fresnel) f = 55 mm			
L_4				

4,270,843

OBJECTIVE FOR VIDEO DISKS

Atsuo Goto, Tachikawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 18, 1979, Ser. No. 49,411
Claims priority, application Japan, Jan. 26, 1978, 53/77220
Int. Cl.^{3} G02B *9/06*
U.S. Cl. 350—480 5 Claims



1. An objective for video disks comprising a first and second lens components, said first lens component being a positive cemented oublet consisting of a positive lens and negative lens, said second lens component bieng a positive meniscus lens arranged concave toward the image side, said objective for video disks satisfying the following conditions:

(1) $-1.46/f<n_2/n_1\cdot 1/r_2<-1.1/f$

(2) $1.7f<(n_3-1)r_5<2.4f$

wherein reference symbol r_2 represents the radius of curvature of the cemented surface of the first lens component, reference symbol r_5 represents the radius of curvature of the surface on the image side of the second lens component, reference symbols n_1, n_2 and n_3 respectively represent refractive indices of respective lenses at the wavelength of 632.8 nm, and reference symbol f represents the focal length of the lens system as a whole.

4,270,844

OMNI-DIRECTIONAL COMPOUND PARABOLOID-HYPERBOLOID RADIATION DEVICE

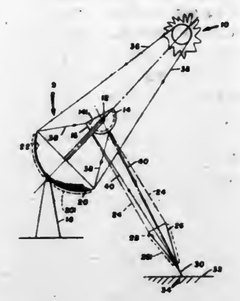
Milan H. Cobble, 2019 Crescent Dr.; Wendell C. Hull, 1860 Myrtle St., and Richard A. Hays, 3006 Devondale, all of Las Cruces, N. Mex. 88001

Filed Oct. 9, 1979, Ser. No. 83,046
Int. Cl.^{3} G02B *5/10, 17/06*
U.S. Cl. 350—294 10 Claims

1. An omni-directional compound paraboloid-hyperboloid radiation device, comprising:

a paraboloid having an internal reflecting surface for tracking a source of radiation; and

a hyperboloid having an external reflecting surface, said hyperboloid being movably mounted with respect to said



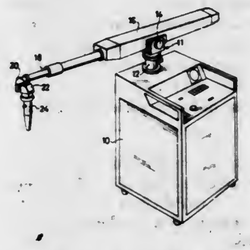
paraboloid reflecting surface for redirecting the radiation reflected from said internal reflecting surface of said paraboloid to a location remote from said paraboloid and concentrating the reflected radiation at said remote location.

4,270,845

LASER APPARATUS FOR OPERATIONS

Toshiaki Takizawa, Tokyo; Kazumasa Takeuchi, Chofu, and Takashi Togo, Tokyo, all of Japan, assignors to Mochida Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jul. 9, 1976, Ser. No. 703,744
Claims priority, application Japan, Jan. 7, 1976, 51-947; Jan. 12, 1976, 51-2123
Int. Cl.^{3} G02B *5/08*
U.S. Cl. 350—299 20 Claims



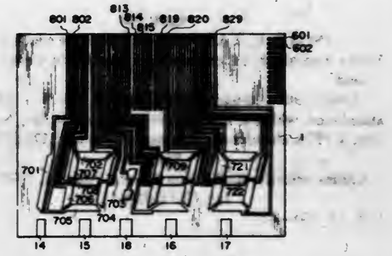
1. A laser apparatus for operations comprising a power case containing a power supply, a laser tube container head mounted directly on and located over the power case, means for supporting the laser tube container head in a manner to enable seesaw motion in a vertical plane about a horizontal axis, a longitudinally telescoping light guide device attached to the laser tube container head, the light guide device being movable between fully extended and fully retracted positions, mirror joints connected with the light guide device and a manipulator connected with the mirror joints, the laser tube container head being supported by means located at the center of gravity thereof when the light guide device is in the fully extended position whereby when the light guide device is in the fully retracted position the means for supporting the laser tube container head will act as a fulcrum and there will be a downward force exerted by the laser tube container head on the side of the means for supporting the laser tube container head that is remote from the manipulator such that the manipulator with the light guide device will always tend to move in an upwardly direction and will tend to remain in the elevated position absent a force being applied thereto in the downward direction.

4,270,846

ELECTRO-OPTICAL DISPLAY DEVICE

Masao Miyamoto, Tokyo, Japan, assignor to Kabushiki Kaisha Deini Seikosha, Tokyo, Japan

Filed Dec. 21, 1978, Ser. No. 971,824
Claims priority, application Japan, Dec. 26, 1977, 52-159152
Int. Cl.^{3} G02F *1/133*
U.S. Cl. 350—336 13 Claims



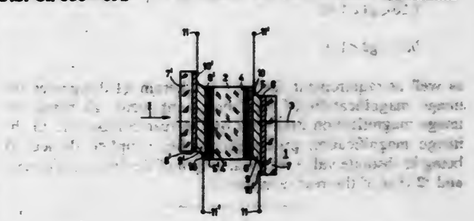
1. In an electro-optical display device comprising a transparent first substrate having a transparent first electrode, a second substrate having a second electrode, and an electro-optical material sandwiched between the first and second electrodes; the improvement wherein one of said first and second electrodes comprises a segment display electrode part having a plurality of 7-segment digits each of which forms the figure 8, and a dot matrix display electrode part having many parallel linear electrodes, at least a part of the leads of said 7-segment digits comprising at least some of said dot matrix display electrodes; and wherein the other of said first and second electrodes comprises a counter electrode part corresponding to said segment display electrode part, and another counter electrode part having many parallel linear electrode perpendicularly intersecting said parallel linear electrodes of said dot matrix display electrode part; both the segment display and the dot matrix display being arranged for multiplex drive.

4,270,847

ELECTRO-OPTICAL LIGHT MODULATION ELEMENT

Herbert Meyer, Quickborn, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 31, 1980, Ser. No. 117,180
Claims priority, application Fed. Rep. of Germany, Feb. 1, 1979, 2903838
Int. Cl.^{3} G02F *1/03*
U.S. Cl. 350—392 12 Claims



1. An electro-optical light modulation element comprising:

an electro-optical crystal having at least two flat sides, said sides being substantially parallel to each other;

two intermediate layers, each layer being transparent to the light to be modulated, one layer being provided on each flat side; and

two first electrodes, each electrode being transparent to the

light to be modulated, one such electrode being disposed on each transparent intermediate layer;

characterized in that the element further comprises:

two layers of cement, each layer of cement being transparent to the light to be modulated, one cement layer being provided on each first electrode; and

two second electrodes, each second electrode being transparent to the light to be modulated, one second electrode being provided on each cement layer, each of said second electrodes having an electrical conductivity which is greater than that of each of the first electrodes for equal transparencies of the electrodes.

4,270,848

IMAGE ENLARGING OPTICAL VARIATOR

Pierre Angenieux, 31, chemin des Hauts Crets, Geneva, Switzerland

Continuation-in-part of Ser. No. 856,084, Nov. 30, 1977, abandoned, which is a continuation-in-part of Ser. No. 730,712, Oct. 8, 1976, abandoned. This application Oct. 17, 1978, Ser. No. 952,061

Claims priority, application France, Nov. 21, 1975, 75 35613

Int. Cl.³ G02B *15/18*

U.S. Cl. 350—427 27 Claims



1. An optical image enlarging variator comprising two coaxial components and adapted, from a fixed virtual image disposed at the rear of the front component, to give a fixed real image located behind the rear component, the magnification varying as a function of the relative position of the two components, wherein:

said two components are movable in relation to each other and to the fixed position of the diaphragm;

and the front component, which is divergent, comprises four lenses, namely in the front to rear direction: a first negative power meniscus having its convexity directed towards the front, a second negative power lens, third and fourth lenses cemented to constitute a doublet in which the front lens is biconcave and the rear lens is a positive power lens;

the rear component comprises four lenses and has at its front end a compound lens, said compound lens including a negative element, and wherein the rear component includes positive lenses located behind said compound lens;

the two components have a relative position in which $g1=g2=G=1$ and, irrespective of the relative positions of said components, the following requirements are met:

$0.20<g1<1.60$

$0.25<g2<1.50$

as well as requirement $f2/f1<1.2$, wherein g1 designates the image magnification of the front component, g2 being the image magnification produced by the rear component, G the image magnification produced by the complete device, f1 being in absolute value the focal length of the front component and f2 that of the rear component.

4,270,849

ROTARY VALVE ACTUATOR CONSTRUCTION

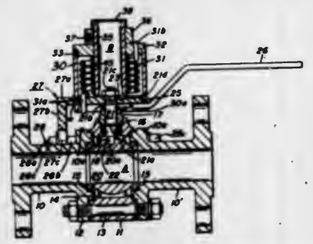
Adolphe W. Kalbfleisch, P.O. Box 64, Jeannette, Pa. 15644

Filed Apr. 12, 1979, Ser. No. 29,319

Int. Cl.³ F16K *31/00*

U.S. Cl. 251—292 5 Claims

1. In a valve actuator construction for a rotative valve unit having a housing whose wall defines a fluid flow passageway therethrough, having a boss open through the wall of the valve housing, and having an operating stem adapted to latch-engage within the ball valve and extend outwardly through the boss for rotating the valve within the passageway, the improvement which comprises: an actuator housing adapted to be secured in an endwise-extending and spaced-apart relation on the valve housing, said actuator housing having a tubular endwise extending side wall and a front end wall fixedly secured to close-off a front end of said side wall, a back end closure wall member rotatably positioned with respect to the back end of said side wall, a tubular guide member having its back end secured to said rotatable back end wall and extending forwardly therefrom in a spaced-apart operating-chamber-defining relation with respect to said tubular side wall, said tubular guide member at its forward end extending rotatably within said front end



wall for rotation with said back end wall and with respect to said side wall, convoluted spring means operatively positioned in a spaced relation within and along said operating chamber between said side wall and said tubular guide member and at its back end being secured to said rotatable back end wall and at its front end being secured to said fixed end wall for resisting turning movement of the valve stem in one direction, operating means connected to said rotatable back end wall for rotating it and said tubular guide member with respect to said actuator housing for turning the valve stem to a valve operating position against tension exerted by said spring means, and said spring means being constructed and operatively positioned to smoothly and without interferring with rotation of said tubular guide member return said valve stem to an initial starting position upon release of force exerted by said operating means.

4,270,850

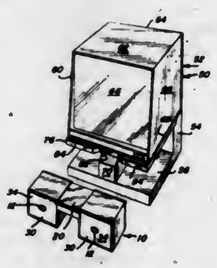
MICROIMAGE STORAGE AND RETRIEVAL APPARATUS

Arnis E. Peters, LaCrosse, Wis., assignor to Realist, Inc., Menomonee Falls, Wis.

Continuation of Ser. No. 861,523, Dec. 19, 1977, Pat. No. 4,203,658. This application Aug. 3, 1979, Ser. No. 63,247

Int. Cl.³ G03B *23/08, 21/11*

U.S. Cl. 353—27 R 4 Claims



1. In a viewer of microimages arranged upon an elongated filmstrip in columns along the length of the filmstrip and in

rows transverse to said columns, wherein the viewer includes a source of illumination, means for projecting the illumination along an optical axis that intersects the filmstrip, and then projects an illuminated image from the filmstrip, enlarges same, and displays the enlarged image upon a viewing screen; the improvement comprising, in combination:

a support base; a viewing module that includes said viewing screen, means mounting said module in spaced relation from said support base to define a recess between said module and base; an enclosure on said base spaced from and below said viewing module to define an elongated passageway between said enclosure and the viewing module; track means on the module; a carriage suspended and supported from and movable manually along said track means, within said elongated passageway; a filmstrip-carrying, U-shaped cassette with a light transmitting bight portion supported from the carriage with said bight portion of the cassette movable in said elongated passageway; illuminating means in said enclosure projecting light along an optical axis that projects through the bight portion of the cassette and to enter the viewing module; motor means on the carriage for selectively moving the film within the cassette in directions transverse to said optical axis and parallel to the columns of microimages on the filmstrip; and the cassette and carriage being constructed to be selectively manually movable along said track means, even simultaneously with motorized movement of film within said cassette in directions parallel to columns of microimages, for moving the cassette with film therein transverse to the optical axis and parallel to the rows of microimages on the filmstrip.

4,270,851

AUTOMATIC FILM SENSITIVITY SETTING SYSTEM FOR CAMERA

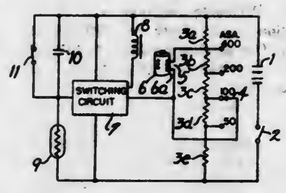
Yuzuru Takazawa, and Shinji Nagaoka, both of Yotsukaido, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 19, 1979, Ser. No. 50,127

Claims priority, application Japan, Jul. 18, 1978, 53-90983[U]

Int. Cl.³ G03B *7/83*

U.S. Cl. 354—21 9 Claims



1. In a camera exposure control circuit of the type including a switching circuit responsive to an electrical brightness signal representative of the brightness of a subject to be photographed and responsive to an input trigger signal for controlling exposure according to the brightness signal and the trigger signal, and trigger signal generating means for generating the trigger signal and for applying the trigger signal to the switching circuit, the improvement comprising: said trigger signal generating means comprising first means manually operable for selecting the value of the trigger signal generated by said trigger signal generating means; and said trigger signal generating means comprising second means cooperative with a camera film holder for setting the value of the trigger signal generated by said trigger signal generating means to a predetermined value, and said second means being effective to render said first means inoperative when said second means cooperates with a film holder to determine the value of the trigger signal.

4,270,852

SOUND DEVICE INCORPORATED CAMERA

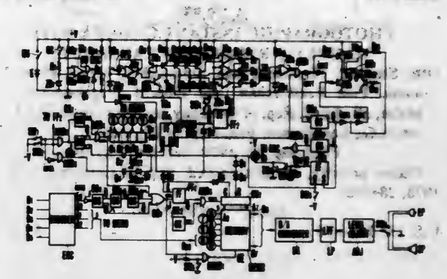
Ryoichi Suzuki, Kawasaki; Isao Hariguya, and Takashi Uchiyama, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1979, Ser. No. 9,821

Claims priority, application Japan, Feb. 9, 1978, 53-14336; Feb. 16, 1978, 53-17215

Int. Cl.³ G03B *17/18, 29/00*; G08B *3/10, 23/00*

U.S. Cl. 354—23 D 10 Claims



1. A photographic camera comprising:

(a) warning signal source means for generating a first warning signal indicating an abnormal exposure value, and a second warning signal indicating an abnormal condition of a power source circuit;

(b) priority means connected to the warning signal source means to generate an electrical signal corresponding to the warning signals applied from the warning signal source means, said priority means being designed to generate preferentially the second warning signal when the two warning signals are simultaneously generated from the warning signal source means; and

(c) sound producing means functionally connected to the priority means for converting the electrical signal from the priority means to an audible signal.

4,270,853

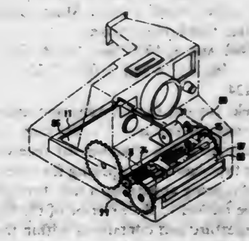
SOUND-RECORDING INSTANT-PRINTING FILM AND CAMERA THEREFOR

Kotaro Hatada; Masaru Higuchi, both of Toyonaka, and Hiroshi Iwata, Ikoma, all of Japan, assignors to West Electric Company, Ltd., Osaka, Japan

Filed Mar. 21, 1979, Ser. No. 22,930

Int. Cl.³ G03B *29/00*

U.S. Cl. 354—76 16 Claims



1. In combination:

an instant-printing film including:

a surface layer,

a back sheet,

a photo-sensitive emulsion layer in between said surface layer and said back sheet,

a frame surrounding the periphery of said surface layer, back sheet and photo-sensitive emulsion layer,

a bag of developing solution disposed on a part of said frame, and

a magnetic recording band disposed on at least one side of said frame of said instant-printing film; and

a film pack case adapted to receive said film and to be disposed in an instant-printing camera said case including means defining a recording opening through which a magnetic head may touch said recording band.

4,270,854

PHOTOGRAPHIC INSTANT CAMERA WITH MAGNETIC RECORDING CAPABILITY

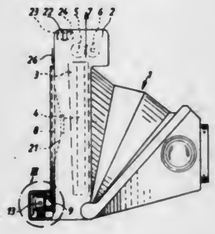
Otto Stemme, Munich; Frank Staudacher, Haas; Peter Lermann, Post Feldkirchen, and Eduard Wagensonner, Aschheim, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 74,121

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1978, 2840051

Int. Cl.³ G03B *29/00*

U.S. Cl. 354—76 **5 Claims**



1. In a photographic instant camera, a combination comprising a housing adapted to hold a film pack composed of a plurality of self-developing film sheets each having a margin provided with a magnetizable portion, said housing including a wall provided with a slot into which only said margin is insertable; magnetic recording means in said housing and including a magnetic recording head mounted for movement along said slot and a film sheet margin inserted therethrough, for magnetically recording information onto said magnetizable portion of the respective film sheet; and amplifier means for transmitting electrical signals to the movably mounted magnetic recording head.

4,270,855

CAMERA FOR TAKING MULTIPLE EXPOSURES ON A SINGLE SHEET OF FILM

Lawrence M. Douglas, South Easton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 4, 1978, Ser. No. 893,487

Int. Cl.³ G03B *1/00, 17/52*

U.S. Cl. 354—124 **18 Claims**

1. A hand held camera for exposing successive portions of the same light sensitive surface of a film unit, comprising:

means for defining a film chamber for receiving a film cassette of the type having an opening for receiving a portion of a film advancing apparatus, a slot through which a film unit may be moved to the exterior of the film cassette, an exposure aperture and containing within the film cassette at least one film unit which is adapted to be aligned with the exposure aperture;

means for positioning the film cassette at a first location within said film chamber such that a first predetermined area of the film unit is located in position for exposure;

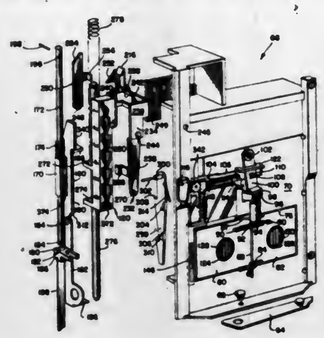
means for releasably retaining said positioning means at said first location;

an exposure system for exposing the first predetermined area of the film unit;

means for actuating said exposure system so as to expose at least a portion of the first predetermined area;

means, responsive to the manual operation of said actuating means which completes the exposure of the first predetermined area, for automatically moving said retaining means to a position wherein said positioning means automatically moves the film cassette to a second location within said film chamber so as to locate a second predetermined area of the film unit in position for exposure;

film advancing means adapted to extend into the opening in



the film cassette and engage the film unit subsequent to the last portion of the film unit being exposed and move it at least partially through the slot in the film cassette;

manually operative means coupled to said film advancing means for driving the latter so as to move the film unit at least partially through the slot; and

means for rendering said manually operative means inoperative to drive said film advancing means until the last portion of the film unit has been exposed whereby the film unit may only be moved by said film advancing means after it has been fully exposed.

4,270,856

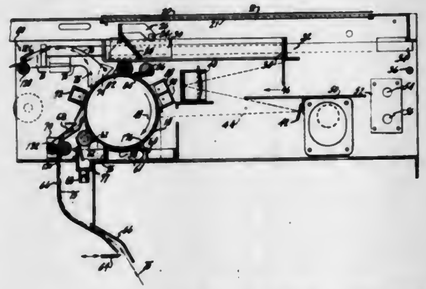
CONVERSION KIT FOR PHOTOCOPYING MACHINE

John H. Goida, Princeton, N.J., assignor to Applied Copy Technology, Inc., Princeton Junction, N.J.

Continuation-in-part of Ser. No. 799,398, May 23, 1978, abandoned. This application Jan. 16, 1979, Ser. No. 3,887

Int. Cl.³ G03G *15/00*

U.S. Cl. 355—3 R **12 Claims**



1. A conversion apparatus for converting a conventional, Olivetti ® brand, prior art, coated paper, roll fed, positive liquid toner photocopying machine of the type including at least a large console-like chassis, and air blower means, a coin feed mechanism, an electronic control system, a power supply, a photosensitive drum, a negative voltage transfer means, an optical system, a paper roll feed mechanism including a paper spindle, a paper cutting knife means, reflector and lamp assemblies, a liquid toner pump, a liquid toner reservoir, a conveyor, a transport, turn-around guide elements, a corona bracket, a motor, processor and toner tray, a flap and solenoid assembly, and a heater element into a negative liquid toner, plain paper, roll fed photocopying machine, said conventional prior art photocopying machine retaining at least said chassis, said paper roll feed mechanism, said paper cutting knife means, said liquid toner pump, said liquid toner reservoir and said coin feed mechanism, said conversion apparatus comprising a combination of the following elements:

a frame receivable for mounting in the chassis of said conventional photocopying machine;

an image projection system for projecting an image of the object to be duplicated, said image projection system being mounted on said frame;

a drum means mounted on said frame for receiving said image;

a drum drive means;

a liquid pump system including a toner delivery tray for providing negatively charged liquid toner to said drum, said tray being attached to said frame and connected to said liquid toner pump and said liquid toner reservoir;

a positive voltage transfer means mounted on said frame for transferring negatively charged toner from said drum to paper from said paper roll feed mechanism; and,

an electronic control circuit means for controlling the elements of the converted machine,

wherein said foregoing elements of said conversion apparatus are installed as a unit in said chassis of said conventional photocopying machine.

4,270,857

COPYING APPARATUS FOR SHEET ORIGINALS AND THICKER ORIGINALS

Shigehiro Komori; Hisashi Sakamaki, both of Yokohama; Hiroyuki Hattori, Mitaka, all of Japan; Toshihide Iida, late of Tokyo, Japan; Koichi Miyamoto, Tokyo, and Kazumi Umezawa; Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 860,457, Dec. 14, 1977, which is a continuation of Ser. No. 588,228, Jun. 19, 1975, abandoned, which is a division of Ser. No. 583,247, Jun. 3, 1975, Pat. No. 4,009,955, which is a continuation of Ser. No. 461,104, Apr. 15, 1974, abandoned, which is a continuation of Ser. No. 258,820, Jun. 1, 1972, Pat. No. 3,804,512. This application Apr. 5, 1978, Ser. No. 893,825

Claims priority, application Japan, Jun. 3, 1971, 46-38917; Jun. 3, 1971, 46-38918; Jun. 9, 1971, 46-48632; Jun. 10, 1971, 46-41195; Jun. 10, 1971, 46-41197; Jun. 10, 1971, 46-41198; Jun. 21, 1971, 46-44611; Aug. 30, 1971, 46-66740

The portion of the term of this patent subsequent to Apr. 16, 1991, has been disclaimed.

Int. Cl.³ G03G *15/28, 15/30*

U.S. Cl. 355—8 **25 Claims**

1. A copying apparatus comprising:

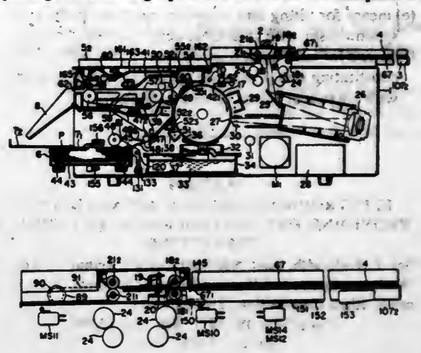
a rotatable photosensitive medium;

means for forming an image on said photosensitive medium, said image forming means including a reciprocable member for scanning an original to be copied through a slit as said reciprocable member moves along a predetermined path;

means for transferring the image onto transfer material;

means for feeding transfer material to said transferring means; and

means for reciprocating said reciprocating member a preset number of times to obtain the preset number of copies, wherein said rotatable photosensitive medium completes at least two rotations for each reciprocation of said reciprocable member, said reciprocating means including advancing means for moving the reciprocable member in a first direction along said path for scanning operation during the first rotation of the photosensitive medium in response to switch means representing a position of said reciprocable member, and returning means for moving the reciprocable member in the opposite direction after completing the scanning operation to return the reciprocable



member to a starting position during the last rotation of the photosensitive medium.

4,270,858

SCANNING AND PROJECTING DEVICE

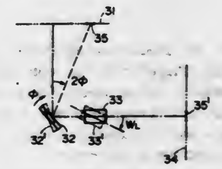
Kazuo Minoura, Yokohama; Mucharu Segiura, Tokyo; Setsuo Minami, Kawasaki, and Tadashi Sato, Kokubunji, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

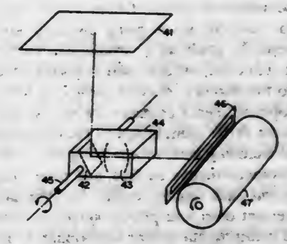
Filed Oct. 17, 1979, Ser. No. 85,493

Claims priority, application Japan, Oct. 20, 1978, 53-129734

Int. Cl.³ G03G *15/28*

U.S. Cl. 355—8 **8 Claims**





1. A scanning and projecting device comprising:

(a) a first fixed plane, the surface of which is subjected to scanning;

(b) a second plane, on which an image of the first plane is projected;

(c) a deflector interposed between said first plane and second plane for reflecting a partial image of said first plane onto a predetermined position of said second plane with lapse of time;

(d) a projecting optical system interposed between said deflector and said second plane for rendering said first and

second planes in an optically conjugative positional relationship;

(e) means for tilting said overall projecting optical system in synchronism with rotational action of said deflector; and

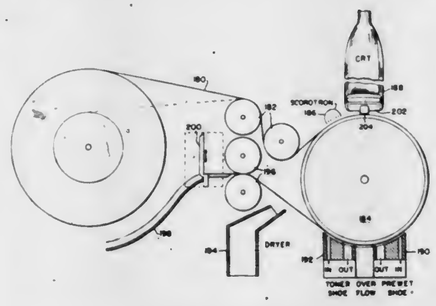
(f) means for moving at least one part of the optical elements constituting said projecting optical system in synchronism with rotational action of said deflector.

4,270,859

ELECTROPHOTOGRAPHIC APPARATUS FOR PROVIDING DRY DEVELOPED OUTPUT FROM A TYPESETTER

Wiley E. Galbraith, East Northport, N.Y.; Arthur L. Kaufman, Westport, Conn., and Herbert Klepper, Mineola, N.Y., assignors to Eltra Corporation, Toledo, Ohio

Filed May 10, 1979, Ser. No. 37,698
Int. Cl.³ G03G *15/10*
U.S. Cl. 355—10 **62 Claims**



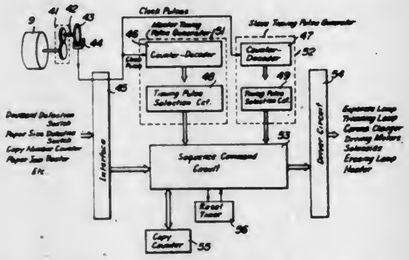
1. Apparatus for electrophotographically producing a graphic arts quality image for further reproduction including a support and transport means, means for mounting an image receiving medium on said support means, said medium being a substrate having a photoconductive surface, means for charging the photoconductive surface, means for exposing the photoconductive layer to produce a latent image, means for developing the latent image and means for removing the substrate substantially without contacting the photoconductive surface, and wherein said photoconductive substrate is mounted with said photoconductive surface facing away from the support means, said charging means being disposed adjacent to said support means for applying a substantially uniform charge to the photoconductive surface, said exposing means directing radiation to the photoconductive surface to form a latent image, development means adjacent the said support means for applying toner to the latent image on the said photoconductive surface and including means for moving the toner into contact with the photoconductive surface, and prewetting means disposed adjacent said support means for depositing a second liquid dispersant onto said photoconductive surface after exposing and charging but before developing, to provide a barrier between said toner particles and said photoconductive surface to hold said toner away from said surface until directed, by the electrostatic forces between said toner particles and said latent image, to said surface, to develop said latent image, and means disposed adjacent to said support means for removing excess liquid toner on the photoconductive surface and drying said surface as said surfaces emerges from said development means, and whereby said substrate is mounted and transported past said charging, exposing, prewet, developing, drying means, and removing means, without physical contact to said surface, to produce said graphic arts quality image.

4,270,860

ELECTROPHOTOGRAPHIC APPARATUS EMPLOYING A CONTROL ASSEMBLY FOR CONTROLLING SUCCESSIVE DUPLICATION OF A DOCUMENT

Hiroshi Tsuda, Mitaka; Kiyoshi Miyashita; Masaji Nishikawa, both of Hachioji; Akira Shimizu, Fuchu, and Museo Kasuga, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 16, 1979, Ser. No. 30,628
Claims priority, application Japan, Apr. 18, 1978, 53-46185
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 R **14 Claims**



14. In an electrophotographic apparatus for forming at least one duplicated copy of a document comprising: a photosensitive member, said photosensitive member is movably arranged; means for substantially uniformly charging said photosensitive member; means for projecting an optical image of the document to be duplicated onto the uniformly charged photosensitive member so as to form an electrostatically charged latent image thereon corresponding to the document; means for developing the electrostatically charged latent image with toner particles to form a toner image; means for transferring the developed toner image onto a record paper at a transfer section; means for feeding the record paper through the transfer section; means for fixing the transferred toner image to form a duplicated copy; a control assembly for controlling the operation of the various aforesaid means during a duplicating operation comprising; means for producing clock pulses having a given repetition rate; first and second timing pulse generators for receiving said clock pulses to generate timing pulses at least necessary for forming a single duplicated copy in synchronism with the duplicating operation; receiving means for receiving the timing pulses from the first and second timing pulse generators to produce various control signals necessary for controlling the operation of said various means, and duplicating control means for taking over the control of the duplicating operation to form a single copy, from the first timing pulse generator to the second timing pulse generator, to thusly start the duplicating operation for forming a next copy responsive to the control of the first timing pulse generator.

4,270,861

PHOTOSENSOR CIRCUIT FOR PHOTOGRAPHIC PRINTER

Gregg S. Beckman, St. Louis Park, Minn., assignor to Pako Corporation, Minneapolis, Minn.

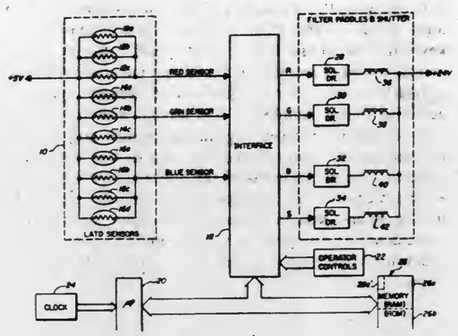
Filed Sep. 6, 1979, Ser. No. 73,105
Int. Cl.³ G03B *27/73, 27/80*
U.S. Cl. 355—38 **7 Claims**

5. In a photographic printer having photosensor means for providing an analog photosignal which is a function of light received, and having digital processor means for controlling exposures, the improvement comprising:

means for providing a gate signal in response to an enable signal from the digital processor means, the gate signal having a first state and a second state and having a duration in the second state which is a function of the analog photosignal;

means for providing clock signals of predetermined frequency;

counter means for counting in response to the clock signals when the gate signal is in its second state, whereby a count of the counter means after the gate signal changes from its



second state to its first state is a function of the duration of the gate signal in its second state; and

means for providing a signal to the digital processor means indicating completion of counting by the counter means;

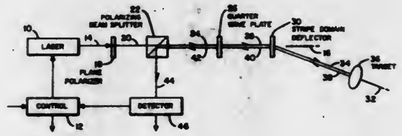
wherein the digital processor means controls exposures as a function of the count of the counter means.

4,270,862

MAGNETO-OPTIC LIGHT DEFLECTOR SYSTEM

Frederick G. Hewitt, Eagan, Minn., assignor to Sperry Corporation, New York, N.Y.

Filed Jan. 29, 1979, Ser. No. 7,071
Int. Cl.³ G01P *3/36*; G02B *5/18*
U.S. Cl. 356—5 **7 Claims**



1. An optic system, comprising:

a source of a coherent, plane polarized, first light beam that is directed along a first optic axis;

beam splitter means, quarter wave plate means and deflector means, all aligned along said first optic axis;

said quarter wave plate means converting said plane polarized first light beam to a circularly polarized second light beam that is directed along said first optic axis and normally incident upon said deflector means;

said deflector means formed of a thin ferromagnetic film having a plurality of parallel stripe domains therein for forming a diffraction grating and directing said second light beam along a second optic axis different than said optic axis;

target means oriented along said second optic axis for intercepting said second light beam and reflecting said second light beam back along said second optic axis and upon said deflector means as a circularly polarized third light beam, the rotation direction of which is reversely rotated with respect to that of said second light beam;

said deflector means directing said third light beam back along said first optic axis and upon said quarter wave plate means and said beam splitter means;

said quarter wave plate reconverting said circularly polarized third light beam back to a linearly polarized fourth light beam the plane of polarization of which is rotated 90° with respect to that of said first light beam and which is directed upon said beam splitter means;

detector means;

said beam splitter means deflecting said fourth light beam out of said first optic axis and upon said detector means; and,

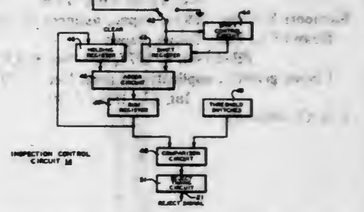
control means coupled to said detector means and the source of said first light beam for determining the time of transmission between said deflector means and said target means.

4,270,863

METHOD AND APPARATUS FOR INSPECTING OBJECTS FOR DEFECTS

Raymond L. Tregido, Perrysburg, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Nov. 1, 1979, Ser. No. 90,215
Int. Cl.³ G06K *9/68*; G01N *21/47*
U.S. Cl. 356—71 **20 Claims**



1. In an apparatus for the automatic comparison of an object with a reference representing selected points on a standard object including a light source for illuminating a surface of the object including the selected points and a photo-sensitive detector for generating a gray scale brightness intensity level signal for each of the selected points, the improvement comprising:

means for storing a maximum and a minimum intensity level for each of the selected points;

means for generating a difference signal for each of the selected points representing the difference between the intensity level signal and said maximum intensity level when the intensity level signal is greater than said maximum intensity level and representing the difference between said minimum intensity level and the intensity level signal when the intensity level signal is less than said minimum intensity level;

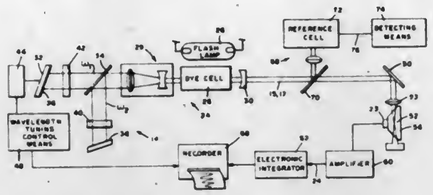
means for weighting said difference signals in accordance with the magnitudes thereof; and

means for summing said difference signals to generate an indication of the comparison of the object with the reference.

4,270,864
PHOTOACOUSTIC ROTATIONAL RAMAN SPECTROSCOPY

Joseph J. Barrett, Morris Plains, and Gary A. West, Denville, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Mar. 14, 1979, Ser. No. 20,380
The portion of the term of this patent subsequent to Mar. 7, 1995, has been disclaimed.
Int. Cl.³ G01J 3/44
U.S. Cl. 356—301 14 Claims

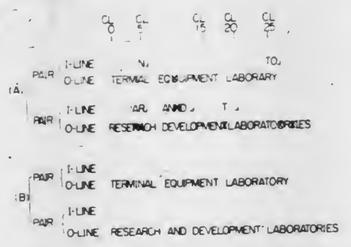


1. Apparatus for analyzing material, comprising:
a. radiation source means for generating two coherent beams of monochromatic light;
b. tuning means for adjusting the frequency difference between said beams of radiation to equal substantially the rotational frequency of a preselected constituent of said material;
c. projecting means for detecting said beams of light through said material to increase molecular energy of a preselected species of said material and thereby produce a detectable signal in the form of a pressure wave;
d. detecting means for indicating the magnitude of said signal.

4,270,865
EDITING PRINTER

Kazunori Konishi, Tokyo, Japan, assignor to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Dec. 8, 1977, Ser. No. 858,839
Claims priority, application Japan, Dec. 8, 1976, 51-146591
Int. Cl.³ B41J 5/30
U.S. Cl. 400—63 2 Claims

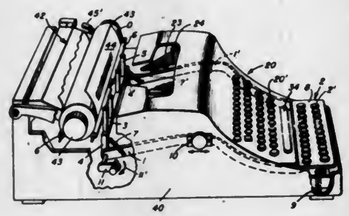


1. An editing printer comprising a printing unit capable of printing characters at a given position either on an ordinary line or on an insertion line by operation of a keyboard, with a string of characters on the insertion line from the first character to the last character just before an insertion end signal comprising data to be inserted in the ordinary line as correction data, a first random access memory for storing the input characters to be printed on an ordinary line by the operation of said keyboard, a second addressable random access memory for storing the input characters to be printed on an insertion line by the operation of said keyboard, wherein the designated address of said first memory is related to a printing position on a printing line and is the same as that of said second memory except for the insertion operation, wherein only the address of said second memory is incremented by the operation of said keyboard, and a control means for controlling said memories such that the characters printed on the insertion line including the first character and the last character before the insertion end signal are inserted in the ordinary line at the position defined by said first character, said control means including logic circuit means, pulse generator means coupled to said keyboard and to said logic circuit means, ordinary character detecting means coupled to said second memory for detecting ordinary character stored in said second memory, insertion end detecting means coupled to said second memory means for detecting the insertion end signal, coincidence detecting means coupled to the inputs of said first and second memories for detecting the coincidence of the addresses of said first and second memories, the outputs of said ordinary character detecting means, said insertion end detecting means and said coincidence detecting means being coupled to said logic circuit means for controlling the printing of characters by said editing printer.

4,270,866
PLATEN POSITIONING ATTACHMENT FOR TYPEWRITERS FOR TYPEWRITING MUSICAL NOTATION

Guido Pasqualini, Piazza San Paolo 6, Albano Laziale, Italy

Filed May 12, 1978, Ser. No. 905,134
Claims priority, application Italy, May 20, 1977, 49491 A/77
Int. Cl.³ B41J 3/34
U.S. Cl. 400—117 6 Claims

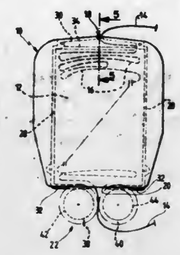


1. In a type bar typewriter including a carriage mounted for reciprocation, an elongated cylindrical platen means journaled in the carriage for rotation about a longitudinal axis for receiving sheet material to be imprinted, disengageable means for effecting step-wise rotation of the platen means, a primary character keyboard and character type bar means for imprinting characters on the sheet material, the improvement comprising platen positioning means operable during disengagement of the platen step-wise rotation means for incrementally rotating the platen means for advancing the sheet material to a desired type bar imprinting location relative to a musical staff imprinted on the sheet material, said platen positioning means comprising frame means, means mounted said frame means on the typewriter for pivotal movement, said frame means including a pair of spaced generally parallel coextensive supports, a bridging member secured to said supports at one end thereof, a secondary musical notation keyboard means secured to said supports at the other end thereof and including a plurality of depressible keys, each key representing a different imprinting location, roller means in driving relation to said platen means, said bridging member including means for rotating the roller means and the platen means in response to depression of a secondary musical notation keyboard means.

4,270,867
INK RIBBON MAGAZINE FOR ENDLESS INK RIBBON CARTRIDGE

Johannes Haftmann, Borchen-Doerenhagen, Fed. Rep. of Germany, assignor to Nixdorf Computer AG, Paderborn, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,498
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 7826639[U]
Int. Cl.³ B41J 33/14
U.S. Cl. 400—207 11 Claims



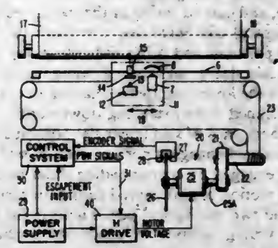
1. A replaceable endless ink ribbon magazine for use with a printing unit of the type having a printing mechanism and ink ribbon drive means for feeding an endless ink ribbon through said printing mechanism, and being removable from said printing unit independently of said drive means comprising:
first and second planar members disposed in spaced parallel relationship to each other;
first and second sidewalls inter-connecting said first and second planar members to form an enclosure having an inlet end and an outlet end, each of said sidewalls extending longitudinally from said inlet end to said outlet end;
first and second spaced apart transverse walls disposed at said outlet end of said enclosure and extending between said first and second sidewalls to form an outlet opening therebetween in said enclosure;
said enclosure including an inlet opening therein at said inlet end thereof for removably receiving said ink ribbon drive means therewithin;
said ink ribbon drive means including a pair of rollers having spaced parallel axes of rotation adjacent the magazine when in the printing unit, each roller having a circumferential groove formed therein; and
first and second stationary elongate members extending toward each other from said first and second sidewalls at the inlet end of said enclosure and being received within the groove in said rollers for guiding said ribbon from said drive means into the enclosure and for retaining said ribbon within said enclosure, each of said elongate members being interposed between and spaced from said first and second planar members, whereby said elongate members automatically strip the ribbon from the drive rollers and properly align the magazine with said drive rollers.

4,270,868
DIGITAL PULSE-WIDTH MODULATED PRINTER ESCAPEMENT CONTROL SYSTEM

David B. Morgan; Robert F. Pan; Paul A. Quinn, Jr., and Glenn S. Westerman, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 24, 1978, Ser. No. 954,374
Int. Cl.³ B41J 19/00
U.S. Cl. 400—320 21 Claims

1. In a printer having a carrier on which is disposed implements for printing indicia on a print receiving medium, an improved drive system for effecting relative motion between said carrier and said print receiving medium, said drive system comprising;
a motor operatively connected to at least one of said carrier and print receiving medium to effect relative motion therebetween;
means for generating a series of pulses having a time interval between adjacent pulses inversely proportional to the speed of said relative motion;
means for measuring the time interval between adjacent pulses and for subtracting a predetermined time interval

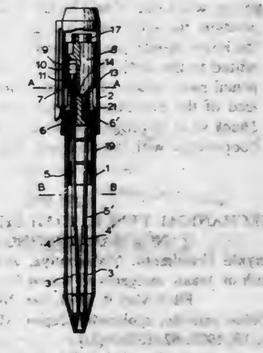


therefrom for generating a first digital output signal representative of the difference between the actual time interval between adjacent pulses and said predetermined time interval;
and means for generating from said first digital output signal a signal output to said motor having a duty cycle directly proportional to said first digital output signal to effect changes in the speed of relative motion.

4,270,869
COMPOSITE WRITING INSTRUMENT

Kazuhiko Sekiguchi, Tokyo, Japan, assignor to Zebra Co., Ltd., Tokyo, Japan

Filed Sep. 10, 1979, Ser. No. 74,404
Int. Cl.³ B43K 27/20
U.S. Cl. 401—30 2 Claims



1. A composite writing instrument comprising:
a lower tubular casing having openings at the upper and lower ends thereof;
a guide sleeve fixed in the opening at the upper end of said lower tubular casing and having two longitudinal guide grooves therein located diametrically opposite each other, and further having a shaft head at the top thereof and a stop on the periphery of said head;
two mechanical pencil units within said lower tubular casing at diamterically opposite positions and having writing tips directed toward the opening in the lower end of said lower tubular casing, a slider at the other end of each pencil unit engaged in a corresponding one of said two guide grooves in said guide sleeve, each of said mechanical pencil units having a pencil casing having a pencil tip

mouth piece, a rod accommodated within said pencil casing and shiftable in the axial direction thereof and a connecting sleeve coupled with said rod, a split pawl chuck for gripping a lead on said connecting sleeve at the tip thereof, said chuck having a clamping ring which is engaged with and cooperates with said chuck in a defined range of movement therewith;

a curved casing having on the top portion thereof a segment-shaped stop engageable with said stop on said guide sleeve, said curved casing further being reciprocally rotatable around said guide sleeve between two extreme rotational positions and being shiftable in the axial direction along said sleeve, said curved casing further having a cam face on the lower end thereof having an upper flat portion and inclined faces extending downwardly symmetrically from both ends of said upper flat portion and converging in a notched engaging portion, each of said inclined faces being engaged by corresponding slider units during rotational motion of said curved casing for respectively shifting said two mechanical pencil units in the axial direction to a writing position in which the writing tip thereof projects from said lower tubular casing and a retracted position at the respective extreme positions of said limited rotational motion, the units at the intermediate point in said rotational motion being accommodated within said lower casing at a neutral position, and said guide grooves terminating below said upper flat portion for stopping said pencil units in the retracted positions at a position below the cam face to leave a clearance permitting axially downward shifting of said curved casing without contact with the retracted pencil unit;

an upper tubular casing mounted on and covering said curved casing and shielding the upper end of said lower tubular casing and rotatable and axially shiftable with said curved casing;

said stop on the guide sleeve and said segment-shaped stop on the curved casing being engageable with each other at the extreme rotational positions for limiting the reciprocal rotation of said curved casing around the axis thereof with respect to said sleeve to approximately 180°;

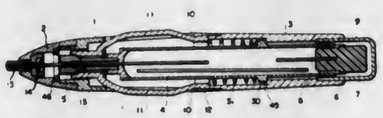
whereby when one of said pencil units is shifted to a writing position, the upper tubular casing can be shifted toward the lower tubular casing and said shifting motion is transmitted to the slider, the rod, the coupling sleeve and the pencil pawl chuck of the one pencil unit for nipping the lead of the mechanical pencil unit to acutate said pawl chuck so as to project the lead by means of said chuck in cooperation with the clamping ring of the one pencil unit.

4,270,870

MECHANICAL PENCIL WITH CHUCK CLOSING BY NORMAL WRITING GRIP

Yasuyuki Hashimoto, Nishinomiya, and Osamu Torii, Kyoto, both of Japan, assignors to Ancos Co., Ltd., Osaka, Japan

Filed May 9, 1978, Ser. No. 904,154
Claims priority, application Japan, May 22, 1977, 52/59157; Nov. 15, 1977, 52/152939[U]
Int. Cl.³ B43K 21/22, 24/10
U.S. Cl. 401—93 8 Claims



1. A mechanical pencil, comprising:

(a) a hollow elongated body having at least one axial slot therein disposed in the normal finger gripping area of the body,

(b) a slotted resilient chuck disposed in said body for gripping a pencil lead when closed and for releasing said lead when open, said chuck being selfbiased to an open state,

(c) a chuck closing collar disposed in said body for cammingly engaging said chuck to close same,

(d) a depressable member disposed in said slot and biased to extend radially outwardly through said slot, and

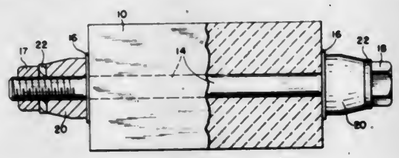
(e) means for converting the radially inward depression of said member into linear axial relative movement between said chuck and said collar, whereby the normal gripping of said pencil pursuant to the commencement of writing inherently inwardly depresses said member to thereby cause the chuck to grip the lead.

4,270,871

EXPANSION JOINT

Frederick G. J. Grise, P.O. Box 186, Osterville, Mass. 02655

Filed Dec. 27, 1977, Ser. No. 864,708
Int. Cl.² F16B 1/00
U.S. Cl. 403—29 2 Claims



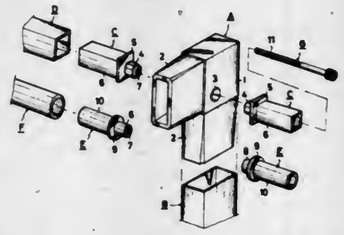
1. An expansion joint comprising a heat accepting brick, a bolt therein, a connection on the bolt against the adjacent face of the brick, means to hold the connection tightly to the brick, said means including a collar on the bolt, the coefficients of expansion of the brick, bolt, and collar being such as to balance the expansion of the brick, bolt, and collar to hold the connection tight under conditions of heat.

4,270,872

STRUCTURAL JOINT

Kenzomi Kiyosawa, 2-22-1, Minamiaoyama, Minato-ku, Tokyo, Japan

Filed Apr. 10, 1979, Ser. No. 28,729
Claims priority, application Japan, Jan. 29, 1979, 54/9087[U]
Int. Cl.³ F16B 9/00
U.S. Cl. 403—170 5 Claims



1. A structural joint formed of a plurality of selectively interconnected components, said components including:

a connector (A) comprising a base portion (1) and a joint rod (2) protruding from the base portion, the base portion having an opening (3) passing therethrough;

a pipe (B) having a portion thereof engageable with said joint rod to thereby connect the pipe with said connector;

a first spacer (C) for interconnecting a rectangular pipe (D) to said connector, said spacer having an internally threaded leg (4) insertable into said opening, a flange (5) abutting with said connector upon insertion of said leg into said opening, and a skirt part (6) projecting away from said connector upon insertion of said leg into said opening;

a rectangular pipe (D) having a portion thereof engageable with said skirt part to thereby connect said rectangular pipe to said connector;

a second spacer (E) for interconnecting a round pipe (F) to said connector, said second spacer having an internally threaded leg (8) insertable into said opening, a flange (9) abutting with said connector upon insertion of said leg of said second spacer into said opening, and a skirt part (10) projecting away from said connector upon insertion of said leg of said second spacer into said opening;

a round pipe (F) having a portion thereof engageable with said skirt part of said second spacer to thereby connect said round pipe to said connector; and

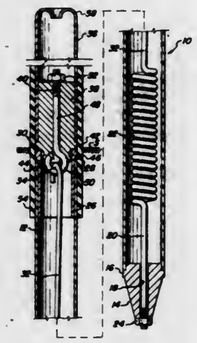
a bolt (G) insertable through said opening and having a threaded portion (11) engageable with the internally threaded portion of the leg of one of said first and said second spacers to thereby secure the engaged spacer to said connector.

4,270,873

PIVOTABLE DELINEATOR POST

Peter Lacky, and Stefan A. Deg, both of Aspen, Colo., assignors to Rapidgate, Inc., Aspen, Colo.

Filed Apr. 13, 1979, Ser. No. 29,737
Int. Cl.³ E01F 9/00
U.S. Cl. 404—10 5 Claims



1. A delineator post held in position by a support structure and which pivots due to an impacting force from any direction, said post comprising:

an elongated, hollow pole lower segment having a first and second end and held in the support structure;

a tip portion having an opening and extending vertically beyond said first end of said pole lower segment while connected to an inner surface of said pole lower segment, said tip portion facilitating the insertion of said pole lower segment into the support structure;

spring means having a first and second end and contained completely within said pole lower segment;

a shank having a frist and second end, said shank first end connected to said first end of said spring means and said shank second end threadedly inserted through said tip portion opening so that the amount of tension in said spring means can be adjusted;

locking means for securing said shank second end in said tip portion opening;

a rod having a hooked end and being connected to said second end of said spring means;

a first socket fixedly held contiguous with the inner surface of said pole lower segment adjacent said second end thereof and having a hollow center portion and a peripheral lip portion with a rounded edge extending vertically beyond said pole lower segment;

a pole upper segment having a first and second end and being axially alignable with said pole lower segment;

a second socket having an opening and fixedly held contiguous with an inner surface of said pole upper segment adjacent said first end thereof and having a protruding center portion extending beyond said pole so as to be inserted within said hollow portion of said first socket;

said protruding center portion having a flanged outer circumferential edge and a concave groove on the side of the flange which will contact said lip;

an eye bolt fixedly held through said second socket opening and having a pivot eye inserted through said flange slot to engage said hooked end of said rod and thereby operably connect said pole upper segment to said pole lower segment;

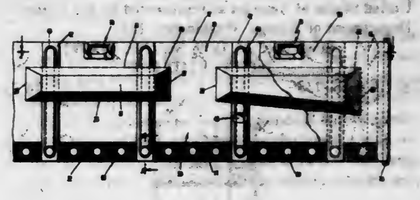
whereby, upon application of a force of sufficient magnitude against said pole upper segment, said pole upper segment pivots away from axial alignment with said pole lower segment and said spring means extends substantially coaxial with the longitudinal axis of said pole lower segment while portions of said rounded edge slidably hook against said concave groove of said flange to retain contact between the segments so that upon release of said force, said rounded edge of said first socket and said grooved flange of said second socket cooperate to connect and guide said pole upper segment into axial alignment with said pole lower segment and said spring means returns to its original condition.

4,270,874

BOTTOM TENSION FENCE-TYPE WATER BUOYANT CONTAINMENT BOOM

Frank A. March, Reston, and Louis S. Brown, Jr., Stevens City, both of Va., assignors to Seaward International, Inc., Falls Church, Va.

Filed Nov. 3, 1978, Ser. No. 957,562
Int. Cl.³ E02B 15/04
U.S. Cl. 405—63 20 Claims



1. A fence-type containment boom for containing and gathering water-borne pollutants on the surface of a body of water, comprising:

(a) a continuous, elongated, flexible panel having top and bottom edges and two ends;

(b) a plurality of floats secured by adhesive to both sides of said panel, said floats being centrally located and uniformly spaced on a line substantially parallel to the longitudinal axis of said panel and adapted to support said panel buoyantly upon the surface of water with part of said panel extending above the water surface;

(c) a bottom-edge reinforcing belt of flexible, continuous, elongated, closely spaced, substantially high modulus, aramid fibers adhesively secured to one side of said panel proximate the bottom edge for reinforcing the bottom edge of said panel, said reinforcing belt being longitudinally continuous and coextensive in length with said panel

and permitting application of longitudinal stresses to said bottom

(d) a plurality of elongated stiffening battens adhesively secured to one side of said panel normal to its longitudinal axis, said battens being uniformly spaced and extending substantially from the top to the bottom edges of said panel;

(e) an oil resistant; polyurethane elastomer coating uniformly covering both sides of said panel, said floats, said battens and said reinforcing means;

(f) a plurality of ballast weights attached to said panel proximate said bottom edge and uniformly spaced on a line substantially parallel to the longitudinal axis of said panel; and

(g) means at the ends of said panel for attachment to a means for towing said panel through the water to gather the oil on the surface for removal.

4,270,875

METHOD OF CREATING LANDFILL FROM RED MUD

Akio Kainuma, Tomakomai, Japan, assignor to Nippon Light Metal Company Limited, Tokyo, Japan

Continuation-in-part of Ser. No. 960,018, Nov. 13, 1978, abandoned. This application Jun. 3, 1980, Ser. No. 155,951

Claims priority, application Japan, Apr. 24, 1978, 53/47887

Int. Cl.³ B09B 5/00; G21F 9/00

U.S. Cl. 405—129 **4 Claims**

1. In a method of reclaiming land in which a landfill material is deposited to a sufficient thickness over the land to be reclaimed and mechanically compacted, the improvement wherein said landfill material comprises red mud cake obtained by mechanically compressing red mud slurry produced as a by-product in the Bayer process for extracting alumina from bauxite, to a voids ratio in the range of about 1.0–1.5 whereby the red mud cakes require only light compaction to impart thereto a useful density as landfill and the compacted landfill is strongly resistant to disintegration and permeation by rainfall.

4,270,876

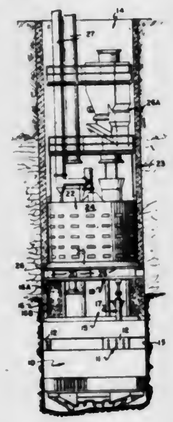
METHOD OF LINING A VERTICAL MINE SHAFT WITH CONCRETE

James D. Eklund, Mattawa; Joseph M. Halter, Richland; Donald E. Rasmussen, Spokane; Robert G. Sullivan, Richland, and Robert B. Moffat, Federal Way, all of Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Dec. 27, 1979, Ser. No. 107,792

Int. Cl.³ E21D 9/00

U.S. Cl. 405—133 **26 Claims**



1. Apparatus for forming contiguous sections of a concrete liner in a vertical shaft in cooperation with a boring machine comprising:

retainer form means including an expandable cylindrical form having first and second overlapping edges;

first power means for moving said expandable form selectively between a first position of expanded circumference and a second position of contracted circumference;

curb means including sealing means at the bottom of said expandable form for forming a lower edge of a concrete section poured between said form and the wall of said shaft;

gripper means for frictionally engaging the wall of said shaft for supporting said retainer form means independently of said boring machine;

adjusting means for adjusting said panel means relative to said gripper means for rotational and translational motion, whereby said gripper means can be placed in gripping relation with the wall of said shaft and said panel means can be adjusted relative to said gripper means; and

advancing means interconnecting said gripper means and said boring machine for lowering said form means toward said boring machine while supporting the weight of said form means on said boring machine.

4,270,877

WORKING PLATFORM

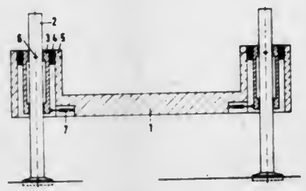
Adrianus J. Post, Heiloo, Netherlands, assignor to Steven Baggeren V.V., Beverwijk, Netherlands

Filed Nov. 21, 1978, Ser. No. 962,617

Claims priority, application Netherlands, Dec. 9, 1977, 7713674

Int. Cl.³ E02B 17/08

U.S. Cl. 405—198 **7 Claims**



1. Floating apparatus for performing operations such as drilling and dredging in the bed of a body of water subject to turbulent movement, the apparatus including a working platform, a plurality of legs for supporting said platform from the bed of the body of water, means for supporting each leg for vertical movement with respect to the platform, and means for vertically adjusting each leg according to the depth of the bed from the surface of the water, wherein the improvement comprises:

means for pivotally connecting each leg support means to the platform at a first level of the platform and

means extending between each leg support means of at least a pair of said legs and the platform in two mutually orthogonal directions at a second level of the platform, spaced vertically from the first level, for resiliently damping pivotal movement between said legs and the platform; and

said means for vertically adjusting each leg comprises means for selectively resiliently damping vertical movement of the leg with respect to the platform.

4,270,878

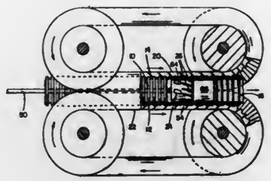
CORRUGATED DRAINAGE TUBING AND METHOD AND APPARATUS FOR MAKING DRAINAGE TUBING WITH HELICALLY ARRANGED DRAINAGE OPENINGS

David E. Fales, Springfield, Ill., assignor to Rainer Isolierrohrfabrik Max Drossbach, Rain am Lech, Fed. Rep. of Germany

Division of Ser. No. 838,367, Sep. 30, 1977, Pat. No. 4,163,619. This application Jan. 22, 1979, Ser. No. 5,448

Int. Cl.³ B23D 5/00; B26D 3/00; B23B 5/00

U.S. Cl. 409—143 **9 Claims**



1. Cutting apparatus comprising a cutting tool for internally cutting drainage openings in the bases of valleys in corrugated thermoplastic drainage tubing characterized in that said tool comprises a body rotatably mounted on a shaft, said body adapted to fit within the tubing and having a plurality of radially projecting cutters equidistantly spaced about said body and extending outwardly therefrom, and means for rotating said body which means comprises a plurality of guides spaced apart and extending helically on said body so that said guides project radially to engage the interior of the valleys as the tubing is moved axially thereby rotating said body so that said cutters cut the bases of the valleys.

4,270,879

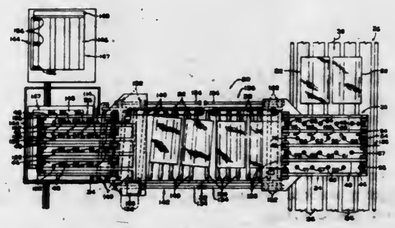
SHEET STACKING APPARATUS

Kenneth J. Kacirek, Fresno, Calif., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 11, 1979, Ser. No. 39,064

Int. Cl.³ B65H 29/32, 29/46, 31/10, 31/22

U.S. Cl. 414—35 **11 Claims**



1. Apparatus for stacking sheets, comprising:

a stacking position;

a porous plate member having a major surface with a portion of the major surface of said plate member over said stacking position;

a pair of spaced belts;

means for moving said pair of spaced belts over the major surface of said plate member along a sheet movement path;

stop means mounted in the movement path adjacent said stacking position;

means for applying a vacuum at least between said pair of spaced belts to bias a sheet to be stacked against said belts;

means mounted upstream of said stop means for biasing portions of the sheet away from said belts;

means for actuating said biasing means;

means responsive to the movement of the sheet for energizing said actuating means, said actuating means including a time delay such that operation of said means responsive to the movement of the sheet causes said actuating means to actuate said biasing means a predetermined time period after the sheet engages said stop means; and

means responsive to the sheet moving away from said belts for deactivating said vacuum means.

4,270,880

LOAD TRANSFER SYSTEM

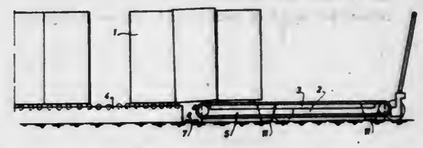
Pierre Allard, Brive-la-Gaillarde, France, assignor to Allard S.a.r.l., Brive-la-Gaillarde, France

Filed Apr. 7, 1978, Ser. No. 894,547

Claims priority, application Fed. Rep. of Germany, Sep. 9, 1977, 2740775

Int. Cl.³ B65G 47/64

U.S. Cl. 414—391 **5 Claims**



1. A system in particular for transferring loads from a wheeled transporter on which they are carried on a pallet in a palletised condition, to a roller conveyor on which they are to be disposed in a loose condition, comprising:

two transfer conveyor means arranged in alignment with said roller conveyor, said two transfer conveyor means being parallel to the longitudinal axis of said roller conveyor and movable to the same height as said roller conveyor, and said two transfer conveyor means being mutually spaced at a distance sufficient to permit the passage therebetween of said wheeled transporter carrying the palletised loads;

strips on said wheeled transporter forming a conventional platform portion for the loads carried in the palletised condition, said strips having therebetween spaces, a series of bars adapted to be received in said spaces, said two transfer conveyor means being intended to co-operate with said series of bars which, before the transfer step, are slid below the loads, into said spaces between said strips forming said platform portion of the pallets which carry the loads, and

means varying the relative height between said transporter and said two transfer conveyor means, the length of said bars being such that they project laterally from the pallet and that they can come into a position of bearing onto said two transfer conveyor means after the relative height as between the wheeled transporter and said two transfer conveyor means has been suitably varied.

4,270,881

PRODUCE HANDLING SYSTEM

Benjamin R. Baker, Rte. 1, Norman Park, Ga. 31771, and Mickey C. Baker, Rte. 2, Moultrie, Ga. 31768

Division of Ser. No. 876,887, Feb. 13, 1978, Pat. No. 4,173,422. This application Oct. 29, 1979, Ser. No. 88,980

Int. Cl.³ B65G 67/08, 15/08

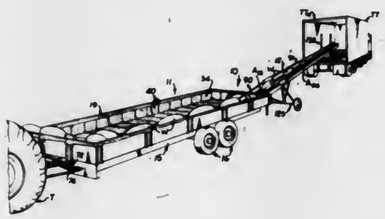
U.S. Cl. 414—398 **8 Claims**

1. In a produce handling system for relatively heavy fragile

produce such as watermelons, cantaloupes and the like, a free standing conveyor comprising:

an infeed section including a first pair of spaced apart longitudinally extending side members defining a first conveyor channel therebetween along the length of said infeed section, a plurality of transversely extending first cross members connecting said first side members at longitudinally spaced positions, and a first support pan extending along the length of said infeed section between said first side members over said first cross members and having a generally V-shaped cross-sectional configuration transversely of said first conveyor channel so that said first support pan extends across the transverse width of said first conveyor channel;

an outfeed section including a second pair of spaced apart, longitudinally extending side members defining a second conveyor channel therebetween along the length of said outfeed section, a plurality of transversely extending second cross members connecting said second side members at longitudinally spaced positions, and a second support pan extending along the length of said outfeed section between said second side members over said second cross members and having a generally V-shaped cross-sectional configuration transversely of said second conveyor channel so that said second support pan extends across the transverse width of said second conveyor channel;



connection means connecting one end of said infeed section to one end of said outfeed section so that the longitudinal axes of said infeed and outfeed sections are generally laterally aligned;

an idler unit at one end of said free standing conveyor;

a drive unit at the opposite end of said free standing conveyor; and

an endless conveyor belt extending along the length of said first V-shaped pan, along the length of said second V-shaped pan, around said drive unit, and around said idler unit so that said first and second support pans support said conveyor belt along opposite edges thereof when said conveyor belt is unloaded with said conveyor belt forming a natural catenary shape not in contact with said V-shaped pans between the opposed edges of said conveyor belt to cushion the produce being placed on said conveyor belt as conveyor belt moves the produce along said first and second conveyor channels so that said first and second support channels support those portions of said conveyor belt between the opposed edges of said conveyor belt distorted out of the catenary shape by the weight of the produce thereon to prevent damage to the produce as said conveyor belt supports and moves the produce along said free standing conveyor.

4,270,882

MOLECULAR PUMP OR, RESPECTIVELY, GAS-TIGHT SEALING ARRANGEMENT FOR A BODY PLACED IN A HOUSING AND RAPIDLY ROTATING ABOUT AN AXIS

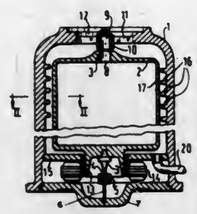
Waltherus J. Th. H. Luijten, Eindhoven, and Joost Smid, Alkmaar, both of Netherlands, assignors to Ultra-Centrifuge Nederland N.V., The Hague, Netherlands

Filed Dec. 15, 1977, Ser. No. 860,777

Claims priority, application Netherlands, Feb. 25, 1977, 7702017

Int. Cl.[2] F04B *3/02*; F01B *1/34*

U.S. Cl. 415—72 6 Claims



1. In a high vacuum gas tight sealing assembly: a body of revolution mounted for rotation within a housing with a gap between the inside surface of said housing and the outside surface of said body, one of said surfaces at the location of the gap being provided with at least one continuous helical groove which forms a salient helical dam, the ratio between the dam dimension in the circumferential direction and the groove dimension also measured in the circumferential direction is smaller than 0.8 and larger than 0.3, and means elastically supporting said body so that said body can adjust itself laterally.

4,270,883

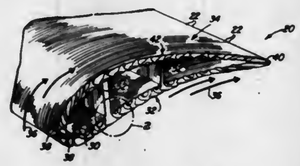
LAMINATED AIRFOIL

Charles E. Corrigan, Tempe, Ariz., assignor to The Garrett Corporation, Los Angeles, Calif.

Division of Ser. No. 789,371, Apr. 20, 1977, Pat. No. 4,221,539. This application Feb. 5, 1979, Ser. No. 9,201

Int. Cl.[3] F01D *5/18*

U.S. Cl. 416—97 A 7 Claims



1. An airfoil for use in turbomachinery comprising a plurality of thin, stacked laminae bonded together to form a major portion of said airfoil;

each lamina having a relatively large central cavity for receiving cooling fluid flow, and a peripheral wall forming a segment of an external surface of said airfoil adapted to be arranged in momentum exchange relationship with fluid flow in said turbomachinery;

each lamina having a plurality of separate recesses in said peripheral wall spaced substantially regularly along the length of the associated segment of said external surface;

each recess including a pair of parallel legs opening separately into said central cavity, a bight communicating with both of said legs and extending therebetween generally parallel to the associated segment of said external surface, and a single exhaust port section extending from approximately the center of said bight outwardly to open onto said associated segment of the external surface.

4,270,884

WASTE GAS RECOVERY SYSTEM

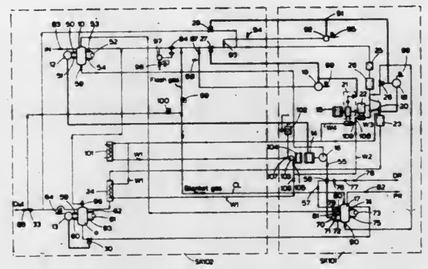
Robert F. Lintonbon, Weybridge, and David Shore, Maidenhead, both of England, assignors to Ferakarn Limited, London, England

Filed Nov. 7, 1979, Ser. No. 92,029

Claims priority, application United Kingdom, Nov. 10, 1978, 43961/78

Int. Cl.[3] F04B *49/00*

U.S. Cl. 417—15 19 Claims



1. A waste gas recovery system comprising a main inlet for receiving raw waste gas for processing, a compressor connected to the main inlet to receive and compress the waste gas, a main outlet for discharging the compressed waste gas, means for sensing the temperature of the gas at the outlet of the compressor, temperature control means responsive to the temperature sensing means and operable on the gas fed to the compressor to reduce the temperature of the gas at the outlet of the compressor in the event of a sensed temperature rise, a plurality of pressure-sensing means for individually sensing the pressure of the gas being fed to the compressor, means for driving the compressor at a selectively-variable speed under control of a first of said pressure-sensing means, an adjustable throttle valve for further regulating the flow of gas to the compressor under control of said first pressure-sensing means and shut-off means for isolating the compressor from the main inlet when the pressure sensed by the collective pressure-sensing means falls below minimum safety threshold level.

4,270,885

UNLOADING MEANS FOR A GAS COMPRESSOR

Robert W. Shaffer, and Henry W. Morse, both of Campbellsville, Ky., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed May 7, 1979, Ser. No. 36,349

Int. Cl.[3] F04B *49/00*

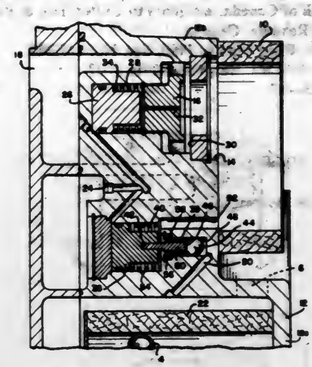
U.S. Cl. 417—279 15 Claims

1. Unloading means, for a gas compressor having a compressed gas receiver, comprising:

means defining a gas-conducting channel;

said channel having one end thereof open for communication with the atmosphere, and an opposite end open for communication thereof with a gas compressor inlet port; and

valving means, interposed in said channel, and movable between first and second positions within said channel, having means which opens said channel to gas conduct therethrough when in said second position, and which substantially closes said channel to gas conduct when in said first position; wherein said valving means comprises means which, when said valving means is in said first position, provides for a minute, bleed-type, fluid-flow communication between said one and opposite ends of said channel.



4,270,886

FIFE COUPLINGS

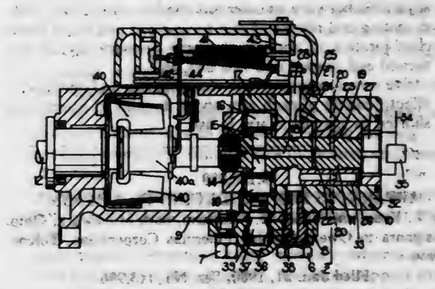
Robert T. J. Skinner, High Wycombe, England, assignor to Lucas Industries Limited, Birmingham, England

Filed May 30, 1979, Ser. No. 43,827

Claims priority, application United Kingdom, Jul. 18, 1978, 30195/78

Int. Cl.[3] F04B *19/22, 29/00*; F16L *15/00*

U.S. Cl. 417—462 2 Claims



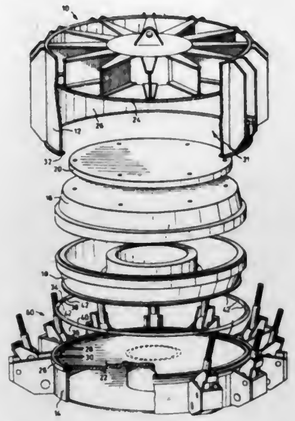
1. In a fuel pumping apparatus comprising a body part, a pump component having a pumping chamber and pumping means movable within a bore in the body part, the body part comprising inner and outer sleeves, the outer sleeve being located about the inner sleeve and shrunk thereon to impose a compressive stress thereon, a passage formed in and extending through said sleeves to the periphery of the body part with the portion of the passage in the outer sleeve being provided with the screw thread, means for the delivery of fuel from said chamber to said passage, and the outer end portion of said passage which is provided with a screw thread receiving in use, a complementary threaded pipe fitting, wherein the body part of the apparatus is cut away about said passage by between one-third and one-half of the thickness of the outer sleeve to define a boss which acts to minimize the stressing of the body part when the pipe fitting is tightened.

4,270,887

CLOSURE MECHANISM FOR TIRE CURING PRESS

David L. Tsang, Cobourg, and Wlodzimierz I. Majewicz, Toronto, both of Canada, assignors to United Tire & Rubber Co. Limited, Rexdale, Canada

Filed May 6, 1980, Ser. No. 147,340
Int. Cl.³ B29H 5/02
U.S. Cl. 425—47 9 Claims



1. A tire curing press comprising,

(a) a housing which comprises a base member and a cover member adapted to cooperate with one another to form a tire curing chamber therein,

(b) a plurality of clamping arms located at spaced intervals about the periphery of said housing, each of said clamping arms having a first end pivotably mounted on one of said members and a second end adapted to be releasably connected to the other of said members, each of said arms being adapted to bend upon itself about a joint located between said first and second ends so as to be length adjustable between an extended configuration to facilitate mounting and release of said second end and a shortened configuration to apply a clamping pressure urging said second end toward said first end, and

(c) drive means engaging each clamping arm and operable to effect bending of each arm about its joint to extend and shorten its associated arm in use.

4,270,888

APPARATUS FOR PRODUCING FILAMENTS

John L. Kane, and Vikas M. Nadkarni, both of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 21, 1980, Ser. No. 113,996
Int. Cl.³ D01D 5/00
U.S. Cl. 425—66 9 Claims

1. Apparatus for producing filaments comprising:

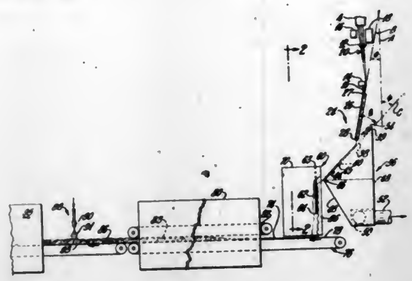
feeder means for supplying a plurality of streams of filament formable material;

attenuation means for supplying a stream of fluid to attenuate said streams of material into filaments, said filaments being entrained in said stream of fluid moving from said attenuation means along an after-defined first surface according to the Coanda effect;

a first surface extending from said attenuation means adapted to guide said stream of fluid and filaments entrained therein, said first surface having a distal end;

a housing having a fixed, foraminous surface positioned adjacent said distal end of said first surface, said foraminous surface having a first end and a second end;

flow means for establishing a vacuum within said housing, said foraminous surface, said first surface and said flow means being adapted to direct a first portion of said fluid through said foraminous surface and a second portion of said fluid to move said filaments along said foraminous surface; and



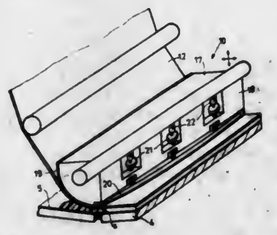
collection means adapted to collect said filaments advancing from said foraminous surface.

4,270,889

EQUIPMENT FOR THE CONTINUOUS PRODUCTION OF FOAM BOARDS

Erwin Hoffmann, Leverkusen; Kurt Krippl, Monheim; Karl J. Kraft, Leverkusen; Gerd Gabrysch, Odenthal-Neschen, and Frank Redmer, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 18, 1979, Ser. No. 86,105
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1979, 2924185
Int. Cl.³ B29D 27/04
U.S. Cl. 425—115 8 Claims



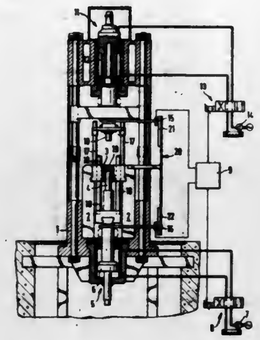
1. An apparatus for the continuous production of foam boards, comprising (i) a conveyor, (ii) a foam mixture application device located at or near one end of the conveyor, and (iii) a transverse foam mixture distribution device located downstream of said application device and above said conveyor which is adapted to transversely distribute the foam mixture to form a uniformly thick layer, the space between said distribution device and said conveyor varying over the width of the apparatus and said distribution device extending the full width of the foam board to be produced.

4,270,890

APPARATUS FOR CONTROLLING THE HEIGHT OF PRESSED WORKPIECES OF CERAMIC POWDER OR OTHER MATERIAL IN A PRESS

Hartmut Öttl, Kochel a. See, Fed. Rep. of Germany, assignor to Dorst-Keramikmaschinen-Bau, Fed. Rep. of Germany

Filed Jun. 17, 1980, Ser. No. 160,294
Claims priority, application Fed. Rep. of Germany, Jun. 19, 1979, 2924704
Int. Cl.³ B30B 11/00, 15/16
U.S. Cl. 425—150 1 Claim



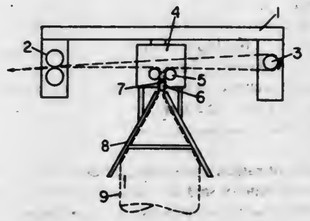
1. In a press with tool parts and with an apparatus for controlling the height of pressings to be made by said press from powder and other material, said apparatus having a frame, a plate fixedly supported in said frame and supporting one of said tool parts, other of said tool parts being able to be moved in relation to said plate, and a length measuring system, said measuring system being made up of first measuring elements fixed in relation to said moving tool parts and of second measuring elements fixed in relation to said press and designed for working with said first measuring element, the invention that said second measuring elements fixed to said press are fixed to the plate or to a support supporting said plate.

4,270,891

TAKE-OFF APPARATUS FOR FORMED TUBULAR PLASTIC FILM

Stephen M. Hopper, 7290 Starlawn Rd., Perrysburg, Ohio 43551

Filed Aug. 16, 1979, Ser. No. 67,049
Int. Cl.³ B29F 3/00
U.S. Cl. 425—296 4 Claims



1. A cutting and take-off apparatus for handling formed tubing of plastic material extruded from a forming die comprising a main frame mounting means and thereon fastened:

a reversingly rotatable sub-assembly having flattening means,

a cutting assembly,

paired turning rods, said sub-assembly adapted to be reversingly rotated through an angle about the axis of the extruded tubing,

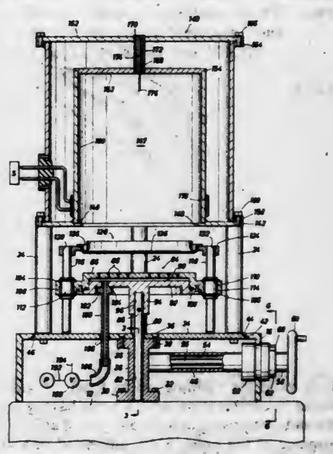
a means of collecting the two sheets of material, wherein the apparatus is assembled so that the formed tubing is collapsed by said flattening means and a cutting means is provided to but in a variable helical path about said longitudinal axis of said formed tubing resulting from a turning of said tubing about its longitudinal axis because of the induced tensil stresses imparted by the sub-assembly's rotations through an angle.

4,270,892

APPARATUS FOR MANUFACTURING DENTAL LAMINANT VENEERS

Frank R. Faunce, 215 Edinburg Ct., Castlewood, Rte. 4, Jackson, Miss. 39208

Filed Sep. 21, 1979, Ser. No. 80,851
Int. Cl.³ B29C 17/04
U.S. Cl. 425—388 5 Claims



1. Apparatus for use in conjunction with a mold for heat and vacuum induced forming of objects such as dental laminant veneers adapted to be bonded to the teeth of dental patients, said apparatus comprising:

a base support structure;

a heating chamber having a closed top wall, closed side walls and a bottom wall defining a heating opening;

electrically energized heating means for heating said heating chamber;

support means establishing substantially fixed interconnection of said heating chamber to said base support structure;

a mold support structure being movably interconnected with said base support structure, said mold support structure defining a vacuum chamber and defining a plurality of apertures communicating with said vacuum chamber;

a source of vacuum being selectively communicated with said vacuum chamber;

means for imparting movement to said mold support structure to transport said mold support structure to a position of juxtaposed relation with said heating opening such that a mold positioned on said mold support structure will be positioned within said heating chamber;

a diaphragm adapted to be yieldably moved by said source of vacuum into cooperation with a mold positioned on said mold support structure;

diaphragm support means being movably interconnected with said mold support structure and supporting said diaphragm in interposed relation between said mold support structure and said bottom wall of said heating chamber, said diaphragm support element being transported along with said mold support structure; and

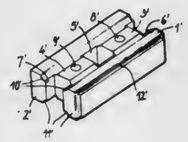
a resilient diaphragm element being secured in assembly with said diaphragm support means.

4,270,893

MOLD FOR MOLDING HQLLOW BRICKS BY MEANS OF A PRESS

Rodiero Alieri, Via Liverani, 7, Imola (Bologna), Italy

Filed Jul. 2, 1979, Ser. No. 54,521
Claims priority, application Italy, Jul. 7, 1978, 3489 A/78
Int. Cl.³ B29C 3/00
U.S. Cl. 425—415 2 Claims



1. A mold for molding bricks from a blank of plastic clay material in combination with a press having a movable crosspiece and comprising at least one punch affixed to the movable crosspiece of the press, a die supported in a yielding manner vertically with respect to the press base and provided with at least one cavity for containing the material to be pressed and engageable by said punch during the pressing step, at least one counterpunch constituting the bottom of said cavity and being movable between a position where it rests on the press base and a position where it ejects the molded brick, wherein according to the improvement the mold further comprises layers of elastic rubber-like material, coating the opposite surfaces of said punch and counterpunch, shoulders rigid with said movable crosspiece and effective to engage with said die after said punch has engaged the material containment cavity and abutments extending from said base and defining the lower stop form said die after the latter has been engaged by the shoulders.

4,270,894

COMBINATION FLUE AND VENT DAMPER

Henry J. Moore, Jr., Los Angeles, and Myron E. Deneau, Malibu, both of Calif., assignors to Mor-Flo Industries, Inc., Santa Monica, Calif.

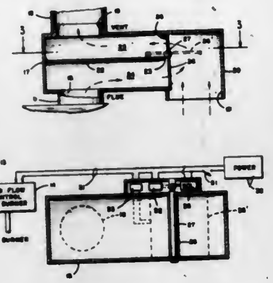
Filed Jun. 4, 1979, Ser. No. 45,084
Int. Cl.³ F23N 3/00
U.S. Cl. 431—20 3 Claims

1. A flue and vent damper in combination with a gas heater system having a gas flow control valve, flue pipe outlet and an overhead vent pipe inlet, including:

(a) a housing having at one end a flue pipe inlet on its underside for connection to said flue pipe outlet and a vent pipe outlet on its upper side for connection to said vent pipe inlet and at its other end, an ambient atmosphere inlet opening on its underside;

(b) a horizontal partition in said housing extending from said one end to pass between said flue pipe inlet and vent pipe outlet and terminating short of said other end of the housing to divide the one end of the housing into lower and upper duct passages;

(c) a single damper member pivoted to said housing for swinging movement from a first closed position in which said damper member is in a generally vertical plane normal to the extending end of said partition to close off the ends of both said lower and upper duct passages so that said flue outlet and vent inlet are isolated from each other and from ambient atmosphere to a second generally horizontal position to place said flue outlet and vent inlet in communication with each other and the ambient atmosphere; and



(d) a switch control connected in series with the circuit to said control valve, said switch control being responsive to closing of said damper means to open the circuit to said gas control valve so that no gas can pass through said control valve when said damper member is in said closed position.

4,270,895

SWIRL PRODUCER

Joel Vatsky, Millburn, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Division of Ser. No. 920,295, Jun. 29, 1978, Pat. No. 4,206,712.
This application Oct. 2, 1979, Ser. No. 81,182
Int. Cl.³ F23M 9/00; F23K 5/00
U.S. Cl. 431—183 5 Claims

1. A flow control apparatus for use with a burner to provide a swirling flow of fluid to maintain controlled turbulence of the burner fuel combustion flame, comprising:

a flow duct adapted to be disposed concentrically about the outlet portion of the burner;

coupling means connecting said flow duct to a source of fluid;

a plurality of radially extending guide elements disposed on the outlet side of said flow duct for directing the flow of fluid from said duct in a swirling configuration;

a second duct disposed concentrically about the flow duct;

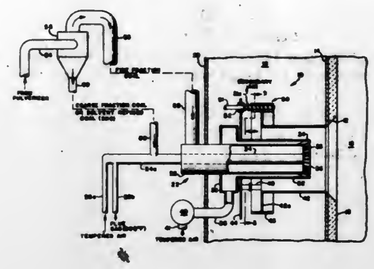
a pair of substantially parallel, spaced members operatively connected to said second duct, said spaced members defining therebetween a flow passage;

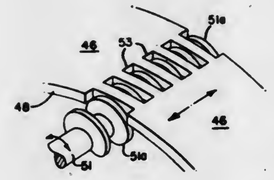
a tubular sleeve slidably disposed on said spaced members and movable to vary the size of the flow passage;

means for selectively slidably moving said tubular sleeve; said means for slidably moving said tubular sleeve includes

a plurality of spaced perforations disposed on said tubular sleeve; and

screw means rotatably disposed in operative engagement with said perforations.





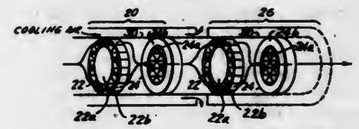
whereby rotation of said screw means causes movement of said tubular sleeve axially relative to the longitudinal axis of said sleeve.

4,270,896

CATALYST SYSTEM

Leon M. Polinski, North Plainfield; George W. Roberts, Westfield, and Saul G. Hindin, Mendham, all of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Iselin, N.J.

Division of Ser. No. 607,775, Aug. 26, 1975, Pat. No. 4,089,654.
This application May 15, 1978, Ser. No. 905,920
Int. Cl.³ F23D 13/12; B01D 50/00
U.S. Cl. 431—328 6 Claims



1. A method for maintaining substantially constant low ignition temperature start-up combustion characteristics in a catalytically supported thermal combustion system operating essentially adiabatically at downstream temperatures above about 815° C., comprising effecting combustion by contacting a vaporous fuel and air mixture upstream and downstream in said combustion system with a catalyst system comprising:

(a) a catalyst configuration consisting of at least a downstream honeycomb catalyst portion and an upstream honeycomb catalyst portion protected therefrom, each honeycomb portion comprising as support a porous unitary solid refractory skeletal structure having upstream and downstream faces and having a plurality of unobstructed gas flow channels extending therethrough;

(b) means to secure said upstream and downstream portions substantially free of continuous thermal conduction paths through solid material between the upstream face of said downstream portion and the downstream face of said upstream portion to substantially minimize thermal conduction between said portions; and

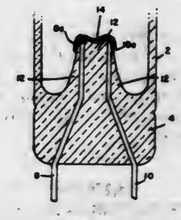
(c) means positioned with respect to said upstream and downstream portions to substantially reduce radiant heat transfer from said downstream portion to said protected upstream portion; said upstream portion being adapted and allowed to operate at relatively substantially lower temperatures than is said downstream portion by said means to minimize thermal conduction therebetween and by said means to reduce radiant heat transfer therebetween; said upstream portion being formulated to have a higher catalytic activity than does said downstream portion but to be thermally less stable if heated substantially above said relatively lower temperatures.

4,270,897

PHOTOFLASH LAMP CONSTRUCTION AND METHOD OF MAKING SAME

Donald E. Armstrong, Williamsport; Ronald E. Sindlinger, Muncy, and William J. Harvey, Trout Run, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Dec. 21, 1978, Ser. No. 971,775
Int. Cl.³ F21K 5/02
U.S. Cl. 431—362 5 Claims



1. A photoflash lamp comprising:

an hermetically sealed, light-transmitting glass envelope;

a quantity of filamentary combustible material, located within said envelope;

a combustion-supporting gas in said envelope; and

ignition means disposed in said envelope in operative relationship with respect to said filamentary combustible material, said ignition means including a pair of spaced-apart metal lead-in wires sealed in one end of said glass envelope, said glass-sealed pair of lead-in wires extending inside said envelope with the metal termination of each of said lead-in wires within said envelope being bare of said sealing glass, said termination of each of said lead-in wires within the envelope having the configuration of a transverse cut with a substantially flat end surface, each of said flat end surfaces of the metal lead-in wire terminations being bare of glass and flush with the surrounding glass surface, and primer material coated about the inner end of the glass-sealed extension of said lead-in wires in a manner covering and bridging said bare metal terminations.

4,270,898

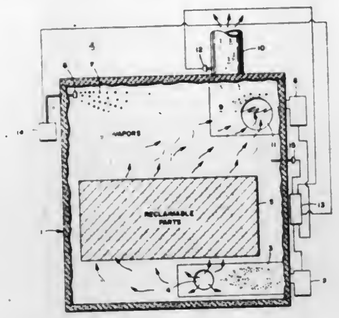
CONTROL METHOD FOR A RECLAMATION FURNACE

Stephen B. Kelly, Dallas, Tex., assignor to Pollution Control Products Co., Dallas, Tex.

Filed Jul. 16, 1979, Ser. No. 57,728
Int. Cl.³ F27D 7/00, 9/00
U.S. Cl. 432—19 4 Claims

1. In a reclamation furnace having a lower heat input burner connected to a combustion chamber, structure within the furnace above the combustion chamber for supporting reclaimable parts, an upper burner connected to an afterburner chamber having a vent-stack, said upper burner and afterburner chamber together comprising an afterburner, the afterburner chamber being located within the furnace above the structure for supporting reclaimable parts, a method for preventing fires and explosions, including heating contaminate materials with the input burner and burning volatile gases given off by the contaminate materials in the afterburner while sensing the

temperature in the vent-stack with the temperature sensing means actuating a valve assembly connected to a source of water, open and closed, responsive to the temperature of the discharge through the vent-stack; so that if a high volatile emission rate causes a predetermined temperature to be exceeded, the valve assembly opens, and actuates a spray nozzle which sprays water on the reclaimable parts to cool them and decrease the volatile emission rate until the valve assembly closes, and another temperature sensing means controls the heat input burner on and off through control means responsive to a preset temperature.

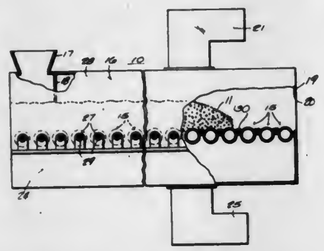


4,270,899

ROLLER GRATE MATERIAL BED TRANSPORTING AND HEAT EXCHANGE APPARATUS

Bobby P. Faulkner, New Berlin; George T. Lee, West Allis; Peter L. Schumacher, Oak Creek, and Michael H. Weinecke, Greenfield, all of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 21, 1979, Ser. No. 105,982
Int. Cl.[3] F27B *15/00*; F26B *19/00*
U.S. Cl. 432—58 9 Claims



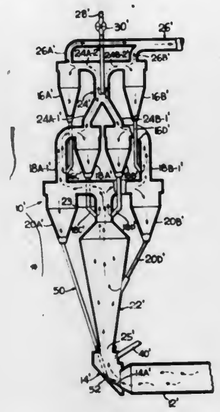
1. Roller grate apparatus for simultaneously transporting, agitating, and exchanging heat with a bed of discrete solid mineral particles comprising, in combination, a plurality of parallel horizontal elongated cylindrical rollers mounted for rotation about their longitudinal axes, elongated filler members disposed in the nip between adjacent rollers above their longitudinal axes, drive means for rotating said plurality of rollers in the same direction, said rollers together with said filler members forming a generally horizontal surface having continually moving portions which are adapted to agitate said particles and transport said bed across said surface in a direction transverse to the longitudinal axes of said rollers at a velocity which is a minor fraction of the circumferential velocity of said rollers, said rollers having gas passage apertures therein which permit a gas stream to pass therethrough in a direction transverse to their longitudinal axes, and means for passing a heat transfer gas stream in a generally vertical direction through said apertures and said bed while it is being transported and said particles are being agitated by said rollers.

4,270,900

SUSPENSION PREHEATER

James L. Shy, East Troy, and Paul D. Hess, Brookfield, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jan. 7, 1980, Ser. No. 110,255
Int. Cl.[3] F27B *15/00, 7/02*
U.S. Cl. 432—58 3 Claims



1. A particulate material furnacing system including:

(a) a tubular rotary kiln (12) defining on one end thereof a circular opening for admitting feed material to said kiln and discharging exhaust gases from said kiln;

(b) a stationary feed end housing (14) with an opening surrounding the feed inlet end of said kiln with a feed ramp (14A) mounted within said housing to slope downwardly to a lower end adjacent to a lower portion of said feed inlet end of said kiln;

(c) a suspension preheater (10) mounted on top of said feed end housing (14) with said preheater having a hollow shaft (22) arranged with a central axis therethrough in a vertical position and the lower end (25) of the shaft connected to the feed end housing (14);

(d) a bypass pipe (40) communicating with the interior of feed end housing (14) through an opening in the kiln facing side of said housing and spaced above the feed inlet end of said kiln to bypass a portion of the exhaust gas discharged from upper regions within said kiln (12) around said preheater (10);

(e) a material preheating stage comprising a pair of cyclone separators (20A, 20B) and having gas flow conduit means (23) connected to deliver gas from the top of said shaft (22) to each of said separators (20A, 20B);

(f) particulate material delivery means (18C) connected to discharge material into said conduit means (23);

(g) a first particulate material delivery pipe (20D) connecting a material discharge opening of one of said pair of cyclone separators (20B) to the interior of the shaft (22) intermediate its upper and lower ends; and the improvement comprising:

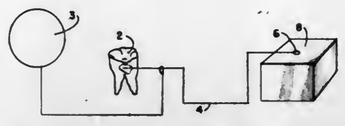
(h) a second particulate material delivery pipe (50) connecting a material discharge opening of the other of said pair of cyclone separators (20A) to the housing (14) with said second pipe (50) terminating at an opening (52) in said housing located adjacent the upper surface of said feed ramp (14A') and spaced both horizontally away from said kiln (12) and vertically below said bypass pipe (40) to discharge feed material on to said feed ramp (14A') and into the kiln (12) below and away from the upper layers of kiln gases passing into said bypass pipe (40), to minimize feed material loss through said bypass pipe (40).

4,270,901

DENTAL ARTICULATOR

John E. Comparetto, Star Rte., Box 66, Machipongo, Va.

Filed Aug. 9, 1978, Ser. No. 932,110
Int. Cl.[3] A61C *19/00*
U.S. Cl. 433—54 6 Claims



1. A dental articulator apparatus for forming a three-dimensional solid cam temporomandibular joint excursion model for reproducing human jaw movements within an internal solid cavity cam model, further comprising

means for making the three-dimensional solid cam model wherein human jaw movements are recorded, comprising following means for following movements of the human jaw and duplicating movements of the human jaw with said internal cavity,

a mandibular frame member connected to the three-dimensional solid cam model and to the means for making the three-dimensional solid cam model for recording human jaw movement within said internal cavity solid cam model,

guide means mounted on a mandibular frame for directing means for making the three-dimensional solid cam for recording human jaw movements within said internal cavity solid cam model,

holding means for positioning a human jaw connected to the mandibular frame for permitting the means for making the three-dimensional solid cam model to record human jaw movements

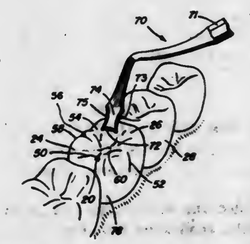
and forming means for forming a three-dimensional solid cam model external replica of human jaw movements within said internal cavity solid cam model.

4,270,902

METHOD AND APPARATUS FOR CARVING AND CONTOURING DENTAL RESTORATIONS

Lawrence Wiland, 144-15 41st Ave., Flushing, N.Y. 11355

Filed Dec. 18, 1978, Ser. No. 970,362
Int. Cl.[3] A61C *3/02*
U.S. Cl. 433—144 4 Claims



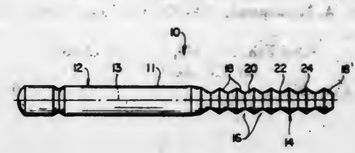
1. An occlusal-incisal dental carving instrument comprising a handle and a flattened head carried by said handle, the head terminating in a concave distal edge and having a pair of concave side edges, the longitudinal direction of said side edges being substantially perpendicular to the longitudinal direction of said distal edge, the length of said distal and side edges being substantially the same, said distal and side edges utilized for carving of a dental restoration on the occlusal surface of a tooth.

4,270,903

ABRASIVE DENTAL TOOL

John E. Nash, Downington, Pa., assignor to Syntex Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 873,748, Jan. 30, 1978, abandoned. This application Sep. 17, 1979, Ser. No. 76,102
Int. Cl.[3] A61C *3/05*
U.S. Cl. 433—165 7 Claims



1. A dental tool of unitary construction for use with a dental handpiece comprising:

an elongate shank having a first operative end and a second end adapted to engage a chuck of a dental handpiece, any cross-section of said operative end perpendicular to the longitudinal axis of said shank being substantially circular, said operative end having a plurality of adjacent, continuous, substantially V-shaped annular grooves being devoid of cutting edges extending about said end, each of said grooves being formed by a pair of inclined side surfaces intersecting to form a substantially circular, lower junction lying in a plane perpendicular to the longitudinal axis of said shank, said lower junction encircling the longitudinal axis of said shank, said side surfaces intersecting side surfaces of adjacent grooves to form crests of said grooves, the included angle formed between said intersecting side surfaces being about 60° to 150°, the distance between crests of adjacent grooves being about 0.02 to 0.06 inch, and the distance from the longitudinal axis of said shank to said lower junction being greater than about 0.010 inch, and

an abrasive material covering at least a portion of the surfaces defining said grooves and having a particle size of less than about 0.006 inch,

said tool being adapted to generate by abrasion a relatively smooth surface upon the manual tracking and scanning thereof across the surface of a tooth.

4,270,904

METHOD FOR REPAIRING DENTAL PROSTHESIS AND SIMILAR

Jean-Pierre Bogaert, 512, Av. Louise, 1050 Brussels, Belgium

Filed Oct. 9, 1979, Ser. No. 82,897
Claims priority, application Belgium, Oct. 11, 1978, 191050
Int. Cl.[3] A61C *13/00*
U.S. Cl. 433—167 8 Claims



1. Method for repairing a split or broken dental prosthesis, which comprises fastening the corresponding break surfaces of

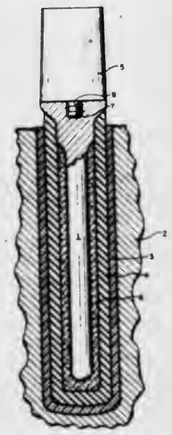
the prosthesis to one another by means of a non-toxic fast-setting adhesive having an affinity for the material the prosthesis is made of, and then forming on the lingual surface of said prosthesis facing said break surface fastened to one another, a butt-strip from polyacrylic resin having some width, said strip being fastened to the lingual surface on either side of said break surfaces.

4,270,905

REPLACEMENT SYSTEM FOR DENTAL AND OTHER BONE IMPLANTS

M. Hamdi A. Mohammed, 3236 SW. 62nd La., Gainesville, Fla. 32601

Filed Feb. 21, 1979, Ser. No. 13,064
Int. Cl.³ A61C 8/00
U.S. Cl. 433—201 9 Claims



7. A bone implant having a core providing a central shaft having a lower end, an outer component adapted to be positioned in a socket formed in a bone surrounding the central shaft and spaced therefrom to define a gap therewith, an intermediate component disposed in the gap, and means securing the intermediate component both to the central shaft and to the surrounding wall of the outer component, the outer component having a modulus of elasticity approximately that of bone, the intermediate component having a lower modulus of elasticity than either the central shaft or the outer component to permit axial movement of the central shaft relative to the outer component, said central shaft being non-convergent toward its lower end so that axial movement of the central shaft relative to the outer component imparts tensile stresses in said intermediate component which tend to contract said outer component thereby to impart tensile stresses in the surrounding portions of the supporting bone.

4,270,906

BELT TENSIONER CONSTRUCTION

Derald H. Kraft, Canton, and Daniel M. Rinaldo, Akron, both of Ohio, assignors to Dyneer Corporation, Canton, Ohio

Filed Nov. 5, 1979, Ser. No. 90,883
Int. Cl.³ F16H 7/12, 21/44
U.S. Cl. 474—135 20 Claims

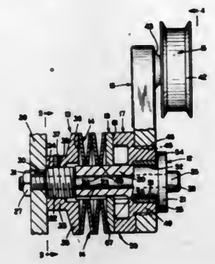
1. An improved belt tensioner construction for tensioning an endless drive belt of the drive system for vehicle accessories, said construction including:

(a) a shaft adapted to be mounted in a fixed position adjacent the drive belt;

(b) a lever rotatably mounted on the shaft and extending outwardly therefrom and movable in a belt tensioning direction;

(c) an idler pulley mounted on the lever for tensioning engagement with the drive belt when the lever is moved in the belt tensioning direction;

(d) first cam means rotatably mounted on the shaft and operatively engaged with the lever for rotating said lever;



(e) second cam means slidably mounted on the shaft and engageable with the first cam means; and

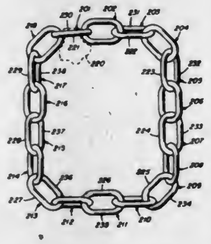
(f) spring means biasing the second cam means into camming engagement with the first cam means to rotate said first cam means and the lever to move the idler pulley in a belt-tensioning direction.

4,270,907

LINK CHAIN FOR POWER DRIVES

Manuel Rodriguez-Perazza, Winchester, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Sep. 10, 1979, Ser. No. 74,353
Int. Cl.³ F16G 13/02
U.S. Cl. 474—200 11 Claims



1. A power drive including sprockets capable of engaging a standard link chain, and an endless standard link chain closed with a quarter-turn twist to increase its contact length by a factor of four, and thus extend its life when used on said power drive utilizing said sprockets.

4,270,908

APPARATUS FOR THE STACKING AND CONNECTION OF SYNTHETIC-RESIN FOIL OR SHEET BAGS

Hans Lehmacher, 5215 Niederkassel-Mondorf, Fed. Rep. of Germany

Filed May 4, 1979, Ser. No. 36,085
Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819563
Int. Cl.³ B31B 1/98
U.S. Cl. 493—204 7 Claims

1. An apparatus for stacking and joining a succession of plastic bags which are separate from one another, said apparatus comprising:

a stacking device adapted to receive said separate bags in succession for stacking same and including:

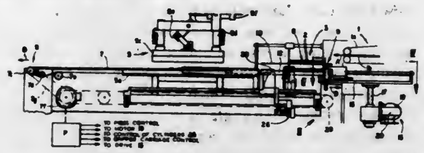
a transfer grate having spaced-apart bars extending in a direction of displacement of stacks to be formed in said device,

a stacking rake having tines receivable between said bars,

a mechanism for shifting said rake from an upper position wherein said rake overlies said bars to receive and stack a succession of bags on the rake into a lower position below the upper surfaces of said bars whereby the stack on said rake is deposited on said bars, and

at least one stop cooperating with said rake in said upper position thereof for aligning leading edges of bags deposited on said rake;

a press for bonding the bags of a stack into at least one block, said press being fixed at a location spaced from said stacking device in said direction;



a transfer device having gripper tongs disposed in at least some spaces between said bars and engageable with a stack deposited on said bars by said rake for entraining the latter stack into said press; and

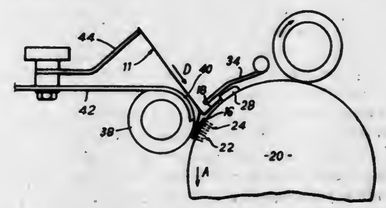
a conveyor adapted to receive a stack within said press for entraining the pressed stacks in the direction of a discharge end of the apparatus in said direction, said mechanism being constructed and arranged to draw said rake from below said surface in a direction opposite the first-mentioned direction and raise same to the level of its original position above said bars prior to feeding said rake into said original position, said mechanism feeding said rake into said original position at a speed substantially corresponding to the speed at which bags are fed to said rake.

4,270,909

DEVICE AND METHOD FOR FOLDING SELF-SEALING ENVELOPE FLAPS

Roger H. Ireland, Bristol, England, assignor to DRF (UK) Limited, Bristol, England

Filed Jun. 12, 1979, Ser. No. 47,806
Claims priority, application United Kingdom, Jun. 19, 1978, 27294/78
Int. Cl.³ B31B 1/56
U.S. Cl. 493—245 4 Claims



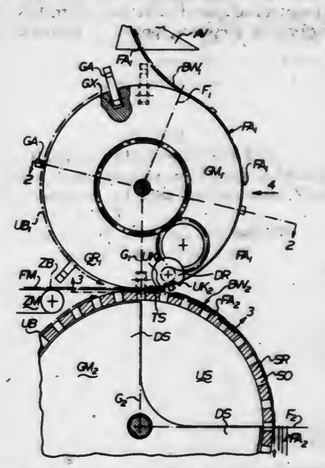
1. In or for a machine for producing self-sealing envelopes of the type including a main flap located at the top of the front panel of the envelope and a secondary flap located at the top of the back panel of the envelope, a device for folding the main and secondary flaps of an envelope into an inoperative condition wherein the flaps do not provide sealing of the envelope, the flaps having been previously coated with adhesive and the flaps being foldable into an operative condition wherein the adhesive on the respective flaps is brought into contact to provide sealing of the envelope; the device comprising a roller for receiving a succession of envelopes with their bottom edges leading and their front panels in contact with the roller; first stop means on the roller for arresting the bottom edge of an envelope and thereby defining the position of the envelope on the roller, suction means on the roller spaced from the first stop means so as to apply suction to the main flap of the envelope and thereby secure the main flap to the surface of the roller, abutment means adjacent the surface of the roller for engaging the front panel of the envelope as the front panel lifts from the surface of the roller and temporarily arresting the movement of the front panel with the roller whereby the main flap, on being carried around with the roller, folds relative to the front panel, and for initially supporting the envelope in a position relative to the surface of the roller so that as the main flap is carried around with the roller the upper edge of the secondary flap bears slidably upon the surface of the roller, and second stop means on the roller for arresting the upper edge of the secondary flap when in said sliding engagement with the roller so as to carry the secondary flap around the roller and thereby fold the secondary flap relative to the back panel.

4,270,910

APPARATUS FOR SEPARATING PORTIONS OF FLAT MATERIAL CUT-OUT FROM A WEB OR SHEET

Fritz Himmelsbach, Sel Papierwarenfabrik, CH-6317 Oberwil, Switzerland

Filed Jul. 18, 1978, Ser. No. 925,875
Claims priority, application Fed. Rep. of Germany, Jul. 20, 1977, 2732837; Aug. 10, 1977, 2736030
Int. Cl.³ B31B 49/00; B65H 29/64, 29/42
U.S. Cl. 493—373 14 Claims



1. Apparatus for the separation of first and second portions of a web or sheet of flat material, the first and second portions being defined by cut lines on said material, said apparatus comprising first and second gripper means for engaging respectively with the first and second cut portions of material, said respective gripper means being rotatable about parallel spaced axes to define a point of separation, and being arranged to move the first and second portions in respective paths which diverge from said point of separation, conveyor means for feeding said flat material to said gripper means, the motions of said conveyor means and said gripper means being synchronized with one another, and a rotatable roller member to separate the first and second portions of material, said roller member having on its circumference an edge conforming to at least a portion of the cut lines defining said second precut portion of material, said edge being provided by a recess formed in the circumference of said roller member, said roller member being rotatable about an axis parallel to and spaced from said axes of

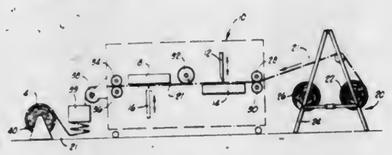
said gripper means and adjacent the path of the first precut portion of material and said point of separation, and said roller member being rotatable in synchronism with said gripper means whereby said edge moves along a circular path and contacts the second portion of material adjacent a cut line defining the second precut portion of material to separate said first and second precut portions.

4,270,911

METHOD AND SYSTEM FOR PROVIDING ELONGATED Z-FOLD COPY PAPER

Thomas A. McNew, 4229 Royal Avenue, Oklahoma City, Okla. 73108

Filed Dec. 17, 1979, Ser. No. 104,445
Int. Cl.³ B65H *45/00, 45/20*
U.S. Cl. 493—410 **11 Claims**



1. A method for producing elongated Z-fold 16–32 pound bond copy paper having indicia emplaced thereon by xerographic reproduction comprising:

transversely scoring and crimping an elongated sheet of copy paper at longitudinally spaced intervals therealong with longitudinal spaced score lines alternately originated by perforating pressures applied to alternately opposed respective sides of the paper sheet to thereby form the sheet with panels on opposite sides of the spaced score lines, said sheet being at least partially fan-folded so that respective panels on opposite sides of a score line extend at an angle of less than 180° with respect to one another; subsequently,

rolling the scored and crimped paper sheet into a cylindrical roll; and

feeding the scored paper sheet from the roll through a copying machine concurrently with the placement of an original document in the copying machine to transfer indicia from the original document to the sheet of copy paper.

9. A roll of elongated, pre-stressed, perforated xerographic copy paper comprising:

a series of integrally formed, interconnected panels, the panels of each adjacent pair of panels having a pre-stressed zone between the two panels in the respective pair, each zone having an elastic memory which causes adjacent panels to rotate about an axis in said zone in one of two directions wherein said panels in each of the pairs of panels extend at an angle of less than 180° with respect to one another when the paper is in an unrolled, substantially untensioned state, successive memories in the series of interconnected panels alternating in their direction of stress-force application causing said panels to collectively form a fan-fold configuration in the copy paper when said substantially untensioned state; and

score lines each including a line of spaced perforations, and each extending transversely across the elongated copy paper at the line of intersection between the panels in each pair of adjacent panels said paper roll being in a coiled cylindrical configuration.

4,270,912

STABILIZED TANNING COMPOSITION COMPRISING A REACTION PRODUCT OF (A) POLYALDEHYDE (B) SECONDARY AMINE AND (C) AN ALCOHOL AND METHOD

William C. Prentiss, New Britain, Pa., assignor to Seton Company, Newark, N.J.

Filed Jun. 26, 1979, Ser. No. 52,217
Int. Cl.³ C14C *3/06, 3/16, 3/18*
U.S. Cl. 8—94.26 **43 Claims**

1. A leather tanning composition comprising a sufficient amount of the reaction product of:

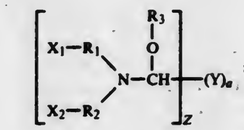
(a) a polyaldehydic compound;

(b) a secondary amine; and

(c) an alcohol,

to increase the shrinkage temperature of a hide.

11. A composition comprising a compound represented by the structural formula:



wherein Z is greater than 1, Y is a polyvalent hydrocarbon residue, R_1 and R_2 are alkylene and may be the same or different and X_1 and X_2 are hydrogen or OH and may be the same or different, "a" is equal to 0 or 1, and R_3 is an alkyl radical or hydrogen; a sufficient amount of R_3 is alkyl to impart stability to said composition.

4,270,913

PILL-RESISTANT POLYESTER FABRICS

Patrick S. Tse, Charlotte, N.C., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 6, 1979, Ser. No. 55,244
Int. Cl.³ D06M *5/02, 3/04, 3/12, 5/10*
U.S. Cl. 8—115.6 **20 Claims**

1. An improved process for reducing the pilling propensity of a fabric comprising by weight at least 50 percent polyester staple fibers having tenacities in the range of about 2 to 6 gpd, deniers less than 3 d.p.f. and lengths of 2 inches and less, without significantly affecting either the grab strength of the fabric or the fabric dyeability or the absence of sheen in the fabric, comprising (a) atomizing an aqueous solution comprising at least 5 percent by weight of sodium hydroxide into a spray of fine particles having sizes up to 130μ; (b) applying said particles onto at least one surface of an undyed polyester fabric comprising by weight at least 50 percent polyester staple fibers having tenacities in the range of 2 to 6 gpd, deniers less than 3 d.p.f. and lengths of 2 inches and less, in an amount of said particles up to 40 cc per square meter of fabric; and, (c) applying heat to said sprayed fabric at a temperature within the range from about 115° C. to about 165° C. for a period of from about 10 seconds to about 90 seconds, to saponify, in part, said polyester fiber; wherein the improvement comprises:

applying a solid deposition of about 0.5 to 4 grams sodium hydroxide flakes (76% Na_2O) per square yard of fabric to said untreated polyester fibers having tenacities in the range of about 2 to 6 gpd, in the absence of a swelling agent;

and applying dry heat;

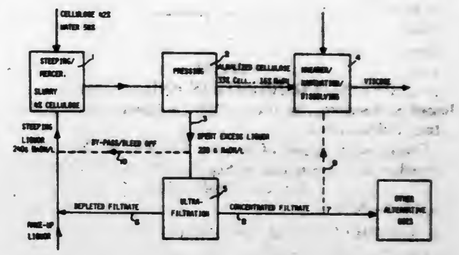
whereby said treated fabric has a pilling performance rating of at least 4 as measured by the Random Tumble Pilling Test (ASTM D 3512) after 30 minutes and after 60 minutes.

4,270,914

PROCESS FOR CONTROLLING HEMICELLULOSE CONCENTRATION DURING THE MERCERIZATION OF CELLULOSE

Birger Dahl, Valsetkjold, Norway, assignor to Borregaard Industries Limited, Sarpsborg, Norway

Filed Oct. 26, 1979, Ser. No. 88,576
Int. Cl.³ D06M *1/02*
U.S. Cl. 8—125 **4 Claims**



1. A continuous process for the mercerization of cellulose, comprising

(a) treating cellulose with a strong aqueous solution of sodium hydroxide;

(b) removing the excess liquor containing dissolved hemicellulose;

(c) passing said liquor through ultrafiltration to remove all or part of the dissolved hemicellulose; and

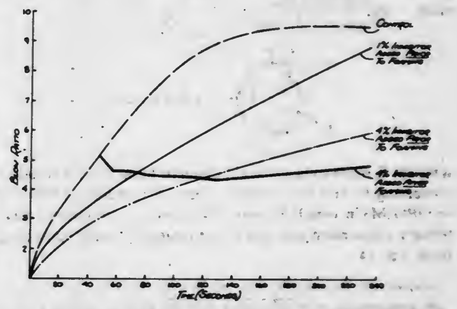
(d) returning the portion of the sodium hydroxide liquor depleted of dissolved hemicellulose to treatment step (a) and removing for other uses the ultrafiltrate portion which is high in hemicellulose content.

4,270,915

FABRIC PRINTING PROCESS

John D. Johnson, North Augusta, and Connie D. Mixon, Aiken, both of S.C., assignors to United Merchants and Manufacturers, Inc., New York, N.Y.

Filed Sep. 19, 1978, Ser. No. 943,828
Int. Cl.³ D06P *5/00, 1/44*
U.S. Cl. 8—477 **4 Claims**



1. A process for preparing a foam composition suitable for printing on a fabric comprising the steps of:

forming a foamable fabric printing composition comprised of a fabric coloring agent and a foaming agent in a liquid medium;

foaming the composition to a blow ratio in the range of from about 2:1 to about 10:1 by incorporating an inert gas therein to provide a foamed fabric printing composition having a foam density in the range of from about 0.1 gm/cc to about 0.5 gm/cc; and

introducing into the foamed fabric printing composition a

foam growth inhibiting agent when said foamed composition is at a predetermined blow ratio, said inhibiting agent being introduced in an amount to substantially maintain the volume of the foamed composition and substantially restrict further foaming thereof thereby maintaining said foamed composition at a substantially constant blow ratio after introduction of said foam growth inhibiting agent therein.

4,270,916

DYEING COMPOSITION AND METHOD

Joseph S. Racciato, San Diego, Calif., assignor to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 819,906, Jul. 28, 1977, abandoned. This application Sep. 6, 1978, Ser. No. 940,050
Int. Cl.³ D06P 67/00
U.S. Cl. 8—527 5 Claims

1. A dyeing or printing aqueous composition comprising (a) an anionic polymer which is algin, xanthan gum, S-7 heteropolysaccharide gum, polyacrylic acid, or polymethacrylic acid; (b) a cationic dye which normally causes gelation or precipitation when mixed with said anionic polymer; and (c) a nonionic surfactant, an amphoteric surfactant, or an anionic surfactant other than napthalene sulfonate condensates.

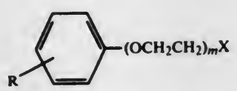
4,270,917

STABILIZED AQUEOUS DYESTUFF DISPERSIONS

Terence E. Heald, and Roy Porter, both of Manchester, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 2, 1979, Ser. No. 81,057
Claims priority, application United Kingdom, Oct. 16, 1978, 40703/78
Int. Cl.³ D06P 67/00
U.S. Cl. 8—527 8 Claims

1. Storage-stable aqueous dispersions of disperse dyestuffs which are susceptible to crystal growth of the dyestuff particles in the dispersion, the aqueous dispersions containing from 1% to 100% by weight based on the weight of dyestuff of a phosphated alkylphenol ethoxylate having the general formula:



wherein R represents a straight chain or branched alkyl radical containing from 5 to 20 carbon atoms, X represents OPO_3HM or OPO_3M_2 in which M is an alkali metal, ammonium or quaternary ammonium ion, and m is an integer having an average from 1 to 14.

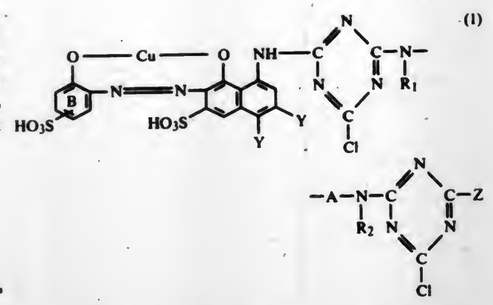
4,270,918

REACTIVE DYES, PROCESSES FOR THEIR PRODUCTION AND USE THEREOF

Karl Seitz, Oberwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 22, 1978, Ser. No. 972,621
Claims priority, application Switzerland, Jan. 6, 1978, 143/78
Int. Cl.³ C09B 62/06
U.S. Cl. 8—549 14 Claims

1. A reactive dye of the formula



wherein one Y is hydrogen and the other Y is sulfo, R_1 and R_2 are hydrogen or the group $—N(R_1)—A—N(R_2)—$ is a piperazine radical, A is $C_{2\text{-}6}$-alkylene, cyclohexylene or phenylene unsubstituted or substituted by halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, acylamino of 1 to 6 carbon atoms, ureido, nitro, carboxyl or sulfo, wherein A as phenylene radical does not contain more than 1 sulfo group, and 2 is an amino, alkoxy or alkylthio group, and the benzene ring B is not further substituted or is substituted by halogen, nitro, acetylamino, methyl, cyano, carboxyl or sulfo.

4,270,919

PROCESS FOR ASSESSING THE PRESENCE OF OXIDIZING AGENTS ON OF KERATIN FIBERS

Pierre Bore, Montfermeil, and Arnaud De Labbey, Aulnay-Sous-Bois, both of France, assignors to L'Oreal, Paris, France

Filed Jul. 6, 1979, Ser. No. 55,229
Claims priority, application France, Jul. 12, 1978, 78 20847
Int. Cl.³ G01N 31/22, 33/40, 33/52
U.S. Cl. 23—230 B 10 Claims

1. Process for determining by test the relative amount of residual oxidizing agent present in keratin fibers which have been subjected to treatment with an oxidizing composition that is at least partially comprised of a bromate material so as, by deductive rationalization therefrom, to be enabled to assess the apparent state of surface oxidation existant in said treated fibers, which process comprises:

(a). applying to a wet sample of the fibers to be tested a pre-impregnated porous support of given and generally substantially light coloration; said support having been previously impregnated with

(a'). an oxidation indicator solution comprised of: (i) iodide ions having a normality in said solution of between about 0.2 N and about 10 N and (ii) solubilized starch in effectively buffered acid medium containing a concentration in said solution of between about 20 and about 200 grams per liter of said starch; then

(b). with and while said porous support in (a) is maintained in contact with said wet fibers being tested, applying to said support a solution of a strong acid as a developer; and subsequently

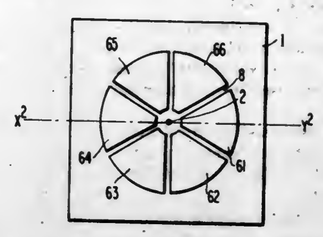
(c). removing said support and examining same to see if there has been any discernable change whatsoever in and of the initial coloration of the support.

4,270,920

INTEGRATED MATERIAL FOR CHEMICAL ANALYSIS AND A METHOD OF USING THE SAME

Asaji Kondo; Fuminori Arai, and Masao Kitajima, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 31, 1979, Ser. No. 71,618
Claims priority, application Japan, Aug. 31, 1978, 53-106850
Int. Cl.³ G01N 33/52, 33/62, 33/66, 33/72
U.S. Cl. 23—230 B 26 Claims



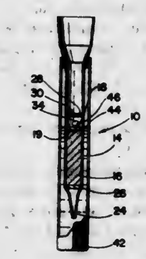
1. An integrated material for chemical analysis comprising three or more reagent layer units on a support and a porous spreading layer, said units containing reagents for different chemical analyses and being proximately arranged on a support such that approximately equal portions thereof are within a spreading circle defined by the diffusion of a liquid sample as it passes through the porous spreading layer.

4,270,921

MICROCHROMATOGRAPHIC DEVICE AND METHOD FOR RAPID DETERMINATION OF A DESIRED SUBSTANCE

Joseph E. Grass, 10527 Caminito Glenellen, San Diego, Calif. 92126

Filed Sep. 24, 1979, Ser. No. 78,145
Int. Cl.³ G01N 33/66, 33/72, 31/08, 21/00
U.S. Cl. 23—230 B 32 Claims



1. A microchromatographic device for use in a rapid quantitative measurement of a desired substance, the device comprising the combination of:

a microcolumn having exterior walls and containing a packing of a set amount of absorbent material, said absorbent material being contained within a predetermined intermediate portion of the microcolumn, the microcolumn containing space for accommodating liquid above an upper boundary of the intermediate portion of the microcolumn;

an eluent contained in the microcolumn, a first part of the total volume of the eluent permeating the packing of the absorbent material and being contained in the intermediate portion of the microcolumn, a second part of the eluent comprising the remainder of the total volume of the eluent, said second part of the eluent being contained in the space above the intermediate portion of the microcolumn and including a predetermined volume which is capable of selectively eluting the desired substance from the absorbent material, the second part of the eluent being at least as much as the predetermined volume of the eluent;

means located on the microcolumn below the intermediate portion for sealing the packing of absorbent material in the microcolumn but allowing for outflow of the eluent from the microcolumn at the option of an operator, and

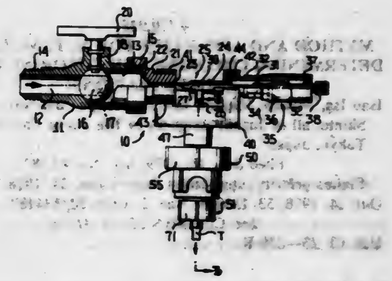
a centrifuge tube having inner walls, the microcolumn being at least partially inserted into the centrifuge tube wherein it is removably but fixedly held in an upright position, a void space being disposed between the inner walls of the centrifuge tube and the exterior walls of the microcolumn, a portion of the void space equalling in volume the predetermined volume of the eluent; the relative dimensions of the microcolumn, of the intermediate portion of the microcolumn, of the centrifuge tube, and of the second part of the total volume of the eluent being selected in such a manner that upon passage of the predetermined volume of the eluent through the microcolumn into the centrifuge tube the level of eluent in the centrifuge tube coincides with the level of the eluent remaining in the microcolumn, said level being disposed not substantially lower than the upper boundary of the intermediate portion of the microcolumn wherein the absorbent material is contained, whereby a centrifugation of the assembled microcolumn and centrifuge tube causes the passage of the predetermined volume of the eluent into the centrifuge tube and whereby the desired substance is eluted from the absorbent material into the centrifuge tube and said desired substance is dissolved in the predetermined volume of the eluent.

4,270,922

INTEGRATING CORROSION MONITOR

William B. Kerfoot, Falmouth, Mass., assignor to K-V. Associates, Inc., Falmouth, Mass.

Filed Nov. 30, 1979, Ser. No. 98,874
Int. Cl.³ G01N 17/00
U.S. Cl. 23—230 C 20 Claims



1. A method of determining the rate of solution corrosion of metal by liquid flowing through a metallic pipe comprising the steps of

(a) continuously bleeding off a portion of the liquid from the pipe at a predetermined rate of flow for a predetermined period of time,

(b) continuously filtering from the bled-off liquid portion heavy metals during said predetermined period of time, and

(c) determining the rate of solution corrosion of the metal by the liquid from the amount of heavy metals filtered from the liquid during the predetermined time period at the predetermined flow rate.

4,270,923

PRETREATMENT AGENT FOR SUBJECT FLUID IN PREGNANCY TEST

Koichi Kondo, Osaka; Isamu Yoshida, Takatsuki, and Takashi Kobayashi, Hikari, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Dec. 26, 1979, Ser. No. 107,179
Claims priority, application Japan, Dec. 25, 1978, 53-160762
Int. Cl.³ G01N 33/76
U.S. Cl. 23—230 B 6 Claims

1. A method for pretreating a subject fluid for a pregnancy test by means of an immunologic assay of human chorionic gonadotropin, which comprises removing the interfering components and turbidity from the subject fluid by contacting the subject fluid with a carboxylic acid-type cation exchange resin fiber having a cation exchange capacity of about 5 to 8 meq/g or a siliconized glass fiber prepared by impregnating a glass fiber with a solution of dimethylpolysiloxane and heating the fiber.

4,270,924

DIAGNOSTIC METHOD FOR DETECTING CANCER

Stanley T. Crooke, 110 Scottholm Blvd., Syracuse, N.Y. 13224, and Louis Galvan, 6211 Pincay Oaks Dr., Houston, Tex. 77088

Continuation-in-part of Ser. No. 28,732, Apr. 10, 1979, abandoned. This application Mar. 13, 1980, Ser. No. 124,961
Int. Cl.³ G01N 33/54, 33/68
U.S. Cl. 23—230 B 3 Claims

1. A method for detecting cancer in humans which comprises the steps of

(a) obtaining a blood sample from a patient to be screened for cancer;

(b) determining the concentration of inhibitor protein X in said sample; and

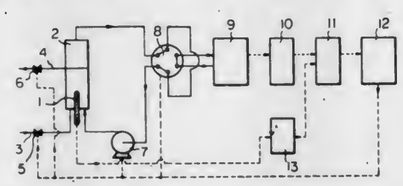
(c) comparing said concentration as determined in step (b) with the norm inhibitor protein X concentration associated with serum of cancer-free patients, whereby a significant reduction of inhibitor protein X concentration relative to the norm concentration indicates the probability of cancer.

4,270,925

METHOD AND APPARATUS FOR AUTOMATICALLY DETERMINING CHLORINE AND CHLORINE DIOXIDE CONCENTRATIONS

Isao Isa, Misato; Makoto Ebisawa, Kiryu, and Noriyuki Goto, Shinto, all of Japan, assignors to The Japan Carlit Co., Ltd., Tokyo, Japan

Filed Jun. 15, 1979, Ser. No. 49,187
Claims priority, application Japan, Jun. 24, 1978, 53/75956; Oct. 24, 1978, 53/130036; Nov. 2, 1978, 53/134487
Int. Cl.³ G01N 33/18, 31/08
U.S. Cl. 23—230 R 6 Claims



1. A method for automatically determining the respective concentrations of chlorine and chlorine dioxide in an aqueous solution comprising the following steps:

(a) feeding a portion of a chlorine and chlorine dioxide containing aqueous solution into a gas-liquid phase equilibrator at 0° C. to 40° C. and measuring the temperature of the liquid phase in said gas-liquid phase equilibrator by a temperature sensing means;

(b) feeding the gas phase of said gas-liquid phase equilibrator through a sample valve into a gas-liquid chromatograph;

(c) separating the gas phase in said gas-liquid chromatograph into air, chlorine and chlorine dioxide by a column which comprises a support selected from the group consisting of diatomaceous earth, activated alumina and polyfluorocarbon beads and a stationary liquid selected from the group consisting of polyfluorocarbon oil, silicone oil and polychlorobiphenyl;

(d) determining the respective thermal conductivities of said separated air, chlorine and chlorine dioxide with a thermal conductivity detector, and generating electrical signals which respectively correspond to said thermal conductivities;

(e) passing said electrical signals through a variable gain amplifier for amplifying said electrical signals to substantially similar levels, and thereafter through an A/D converter;

(f) feeding the outputs of said A/D converter and said temperature sensing means to a micro-computer which calculates the respective concentrations of chlorine and chlorine dioxide in aqueous solution utilizing a correction factor determined from the output of said temperature sensing means; and

(g) regulating the feeding of such aqueous solution into said equilibrator and also said variable gain amplifier by said micro-computer.

4,270,926

PROCESS FOR REMOVAL OF SULFUR AND ASH FROM COAL

Emmett H. Burk, Jr., Glenwood; Jui-Yuan Sun, South Holland, and Lloyd A. Baillie, Homewood, all of Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Jun. 19, 1979, Ser. No. 50,262
Int. Cl.³ C10L 9/00, 9/02
U.S. Cl. 44—1 SR 31 Claims

1. A process for reducing the sulfur and ash content of coal comprising the steps of:

(a) providing an aqueous slurry of coal particles containing ash and pyritic sulfur mineral matter;

(b) adding to the slurry and minor amount of hydrocarbon oil sufficient to effect aggregation of the coal particles;

(c) separating the coal-oil aggregates from the aqueous slurry by dissolved gas flotational means; and

(d) recovering coal-oil aggregates of reduced sulfur.

10. The process of claim 1 wherein the coal particles are minus 24 mesh, and the gas flotation means is a gas dissolved in the aqueous slurry under super-atmospheric pressure and the aqueous slurry is introduced to a flotation chamber such that at least a portion of the coal-oil aggregates float.

11. The process of claim 10 wherein the coal particles are minus 48 mesh the gas dissolved in the aqueous slurry is selected from the group consisting of air, carbon dioxide, nitrogen and methane under a pressure of from 1 to 200 psig.

18. The process of claim 1 wherein, prior to aggregation, the slurried coal particles are contacted with a promoting amount of at least one conditioning agent capable of modifying or altering the existing surface characteristics of the ash and pyritic sulfur mineral matter under conditions whereby there is effected modification or alteration of at least a portion of the contained ash and pyritic sulfur mineral matter.

4,270,927

PROCESS FOR REMOVAL OF SULFUR AND ASH FROM COAL

Emmett H. Burk, Jr., Glenwood; Jui-Yuan Sun, South Holland, both of Ill., and Nestor J. Troncoso, Thousand Oaks, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Jun. 19, 1979, Ser. No. 50,264
Int. Cl.³ C10L 9/00, 9/02
U.S. Cl. 44—1 SR 31 Claims

1. A process for reducing the sulfur and ash content of coal comprising the steps of:

(a) providing an aqueous slurry of coal particles containing ash and pyritic sulfur mineral matter;

(b) adding to the slurry a minor amount of hydrocarbon oil sufficient to effect aggregation of the coal particles, whereby the effective particle size of the coal particles is enlarged;

(c) separating the size-modified coal-oil aggregates from the aqueous slurry; and

(d) recovering coal-oil aggregates wherein the coal has reduced sulfur content.

11. The process of claim 1 wherein the density-modified coal-oil aggregates are separated from the aqueous slurry by spiral classification means.

12. The process of claim 1 wherein the coal-oil aggregates are separated from the aqueous slurry, and a recovered lean aqueous slurry is reprocessed to effect substantially complete recovery of coal heating values.

18. The process of claim 1 wherein, prior to aggregation, the slurried coal particles are contacted with a promoting amount of at least one conditioning agent capable of modifying or altering the existing surface characteristics of the ash and pyritic sulfur mineral matter under conditions whereby there is effected modification or alteration of at least a portion of the contained ash and pyritic sulfur mineral matter.

4,270,928

DESULFURIZATION OF CARBONACEOUS MATERIALS

Robert W. Frischmuth, Huntington Beach, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 939,702, Sep. 5, 1978, abandoned. This application Dec. 12, 1979, Ser. No. 102,811
Int. Cl.³ C10L 9/04, 9/08; C10B 57/00
U.S. Cl. 44—1 SR 19 Claims

1. A process for desulfurizing a solid carbonaceous material comprising:

a. treating a fresh solid carbonaceous material comprising both organic sulfur compounds and metal compounds and a recycle sulfurized solid carbonaceous material in a first desulfurization zone maintained at an elevated temperature with a gas comprising steam to produce a first solid carbonaceous material of lower sulfur content than the sulfur content of said fresh solid carbonaceous material;

b. treating a first portion of said first solid carbonaceous material from said first desulfurization zone with a first gas comprising hydrogen in a conversion zone maintained at an elevated temperature to transform said organic sulfur to inorganic sulfur in said first portion of said first solid carbonaceous material and to produce a converted solid carbonaceous material and an effluent gas comprising hydrogen sulfide;

c. separating said converted solid carbonaceous material from said effluent gas in a first separation zone;

d. treating said converted solid carbonaceous material from said first separation zone in a second desulfurization zone to remove at least a portion of the inorganic sulfur thereof and to produce a second solid carbonaceous material of lower sulfur content than the sulfur content of said converted solid carbonaceous material;

e. contacting a second portion of said first solid carbonaceous material from said first desulfurization zone in an adsorption zone with said effluent gas from said first separation zone to remove said hydrogen sulfide from said effluent gas and to produce a sulfurized solid carbonaceous material and a second gas comprising hydrogen of lower hydrogen sulfide content than said effluent gas;

f. separating said sulfurized solid carbonaceous material from said second gas in a second separation zone;

g. recycling to and utilizing in said first desulfurization zone said sulfurized solid carbonaceous material from said second separation zone as said recycle sulfurized solid carbonaceous material treated in said first desulfurization zone; and

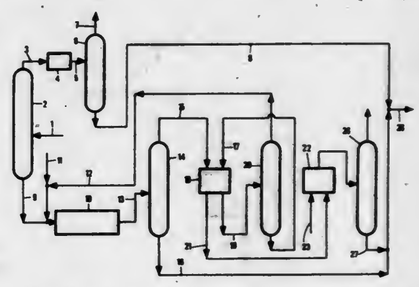
h. recycling to and utilizing in said conversion zone said second gas from said second separation zone as at least a part of said first gas comprising hydrogen required to transform said organic sulfur to inorganic sulfur.

4,270,929

PROCESS FOR PRODUCING GASOLINE OF HIGH OCTANE NUMBER, IN PARTICULAR LEAD-FREE GASOLINE

Quang Dang Vu, Paris; Yves Chauvin, Le Pecq; Jean Gaillard, Lyons; Bernard Torck, Boulogne sur Seine, and Michel Hellin, Andresy, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Aug. 31, 1979, Ser. No. 71,503
Claims priority, application France, Aug. 31, 1978, 78 25359
Int. Cl.³ C10L 1/02
U.S. Cl. 44—56 9 Claims



1. A process for producing a blended high octane gasoline, comprising the steps of:

(a) oligomerizing an olefinic C_3 cut comprising propylene, and recovering an oligomerizate boiling in the gasoline range;

(b) contacting a mixture of methanol and an olefinic C_4 cut comprising isobutene, isobutane and at least one n-butene with an acid catalyst under isobutene etherification conditions to produce methyl tert.-butyl ether and unreacted C_4 hydrocarbons;

(c) fractionating the effluent from step (b) and separately recovering a methyl tert.-butyl ether fraction and an unreacted C_4 hydrocarbon fraction comprising said at least one n-butene;

(d) subjecting the unreacted C_4 hydrocarbon fraction from step (c) to aliphatic alkylation conditions, and recovering an alkylate boiling in the gasoline range; and

(e) blending at least a portion of said oligomerizate with at least a portion of said methyl tert.-butyl ether fraction and at least a portion of said alkylate, and recovering a blended high octane gasoline.

4,270,930

CLEAN COMBUSTION CHAMBER FUEL COMPOSITION

Curtis B. Campbell, Pinole, and Richard J. Peyla, Emeryville, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Dec. 21, 1979, Ser. No. 106,348
Int. Cl.³ C10L 1/18, 1/22
U.S. Cl. 44—71 10 Claims

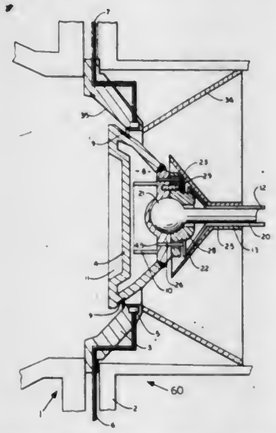
1. A fuel composition comprising a major amount of hydrocarbons boiling in the gasoline range and from 0.3 to 3 percent by weight of a hydrocarbyl poly(oxyalkylene) aminocarbamate of molecular weight from about 600 to about 10,000 having at least one basic nitrogen atom, and wherein said hydrocarbyl group contains from 1 to about 30 carbon atoms.

4,270,931

COOLING ARRANGEMENT FOR THE LOCKING DEVICE IN PRESSURE GASIFICATION REACTORS

Peter Jaschke, Ossling; Eckhard Mönch, and Roland Weber, both of Hoyerswerda, all of German Democratic Rep., assignors to VEB Gaskombinat Schwarze Pumpe, Schwarze Pumpe, German Democratic Rep.

Continuation-in-part of Ser. No. 61,309, Jul. 27, 1979, abandoned. This application May 22, 1980, Ser. No. 152,576
Claims priority, application German Democratic Rep., Jul. 7, 1978, 206576
Int. Cl.³ C10J 3/30
U.S. Cl. 48—86 R 11 Claims



1. A cooling arrangement, for cooling a locking device arranged in a fuel feed opening of a pressure gasification generator for gasification of solid fuel, the combination comprising a lock seat connected to the generator; a lock cone having a lowermost area positioned in a close relationship with the generator; drive means operatively connected to said lock cone to provide a linear movement of said lock cone with respect to said lock seat for opening and closing the fuel feed opening; a supply line to provide a cooling medium to said lock cone; said supply line having an end portion; a discharge line to drain the cooling medium after the latter is heated in heat exchange with the lock device components, said discharge line having an end portion, said lock-cone being formed as a hollow body to form a cooling chamber, said cooling chamber being connected to said end portions of said supply line and said discharge line respectively; and guide means arranged within said cooling chamber and extending toward said lowermost area to direct the cooling medium into contact with said lowermost area of said lock cone, wherein said supply line and said discharge line are pipe lines and said drive means includes support means for supporting said pipe lines for their respective movement along with said lock cone in said linear movement thereof, and wherein said pipe lines are provided with torsion loop portions to preclude said pipe lines from damage when the latter are deformed during the movement of the lock cone.

4,270,932

POLISHING OF SILVER-PLATED ARTICLES

Lawrence M. Perovetz, Stanmore, and Harold J. Stern, Hammersmith Grove, both of England, assignors to H.L.P. Imports Ltd., London, England

Filed Mar. 9, 1979, Ser. No. 18,938
Claims priority, application United Kingdom, Apr. 24, 1978, 16047/78
Int. Cl.³ B24D 17/00
U.S. Cl. 51—293 17 Claims

1. A method of polishing and restoring a silver-plated, in particular an electroplated silver article, comprising the steps of making up a paste by the addition of water to a dry powder free of any toxic components and therefore usable in the home and in hotels, said powder consisting essentially of at least one silver generating component selected from the group consisting of silver oxide, silver nitrate, silver chloride, silver carbonate, silver acetate and silver phosphate, together with at least one reducing component for said silver-generating component, said reducing component being selected from the group consisting of potassium hydrogen tartrate, sodium potassium tartrate, sodium sulfite, sodium metabisulfate and sodium thiosulfate; said silver generating component and said reducing component being in powdered form; applying said paste to at least part of the surface of the silver-plated article; allowing the paste to remain on the surface to which it has been applied for a period of at least a few seconds; and thereafter removing the paste by the application to the coated article of a fabric, the removal of the paste being accompanied by the rubbing of the coated portions of the surface with said fabric.

4,270,933

REGENERATIVE, FLUID FILTER

Allan H. Meny, 1 Hoover St., North Arlington, N.J. 07032, and Dennis L. Palmer, 61 Douglas Dr., Towaco, N.J. 07082

Filed Mar. 19, 1980, Ser. No. 131,703
The portion of the term of this patent subsequent to Oct. 14, 1997, has been disclaimed.
Int. Cl.³ B01D 39/16
U.S. Cl. 55—279 9 Claims

1. An improved, regenerative fluid filter, for removing components such as sublimated solids, particulate materials, particulate-aerosol combinants, and the like, from gas streams, said filter having a matrix formed from at least one material taken from a group of materials consisting of metal, and natural fibers such as cotton, wool, linen, flax and the like, wherein the improvement comprises:

at least one means mated to said matrix material for hardening, strengthening, and toughening said matrix material, for enhancing components-release from said filter, whereby said filter is rendered readily regenerative; and wherein

said means mated to said matrix comprises a coating and a filler agent.

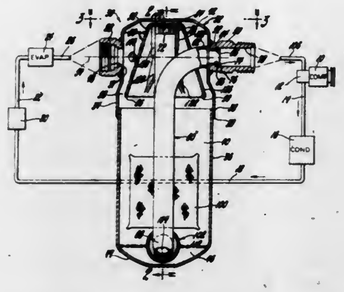
4,270,934

UNIVERSAL INTERNAL TUBE ACCUMULATOR

Richard E. Widdowson, Dayton; James B. Connolly, Springfield; Earl S. Schlotterbeck, Lewisburg, and J. D. Livesay, Tipp City, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Continuation of Ser. No. 912,462, Jun. 5, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,697
Int. Cl.³ B01D 50/00
U.S. Cl. 55—316 3 Claims

1. In an accumulator-dehydrator assembly for an air conditioning system and of the type having a casing comprised of upper and lower portions which are each closed at one end and open at the other end and are adapted to be sealingly joined together at their open ends and wherein the upper casing portion has both an inlet fitting and an outlet fitting for connection respectively to an evaporator and a compressor in the system, the improvement comprising a subassembly having a U-shaped tube and a baffle and a desiccant element which are securable as a unit in said casing and at a single point to said upper casing portion prior to joining of said lower casing portion therewith, said tube having a pair of leg portions adapted to extend substantially the length of said casing and a bight portion with a port therethrough adapted to be located adjacent the closed end of said lower casing portion, said desiccant element being formed so as to be wholly retained by



said tube by said bight portion, one of said leg portions having an open end located adjacent said closed end of said upper casing portion, said baffle being wholly supported by said tube and adapted to be interposed between said open end of said one leg portion and said inlet fitting on said upper casing portion, and an open end of said other leg portion and said outlet fitting on said upper casing portion having cooperating connector means for permitting said open end of said other leg portion to be inserted in said outlet fitting from the interior of said upper casing portion and then providing for permanent attachment therebetween whereby said subassembly is fixed in said outlet fitting from the interior of said upper casing portion prior to joining of said lower casing portion thereto and whereafter said subassembly remains secured in place in said casing independent of any attachment to said casing except for the attachment thereto at said outlet fitting.

4,270,935

FILTER ASSEMBLY FOR HIGH TEMPERATURE GLASS FIBER FILTER MEDIA

Thomas V. Reinauer, Summit, N.J., assignor to United States Filter Corporation, New York, N.Y.

Continuation of Ser. No. 810,099, Jun. 27, 1977, abandoned. This application May 14, 1979, Ser. No. 38,789
Int. Cl.³ B01D 46/02
U.S. Cl. 55—379 10 Claims

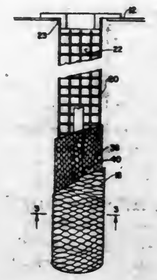
1. An improved filter assembly for separating particulate matter from a carrier gas stream when such carrier gas stream is directed through permeable fabric filter material in its passage from a dirty air plenum to a clean air plenum otherwise separated by a gas impervious tube sheet having at least one aperture therein providing fluid communication between the dirty and clean air plenums comprising:

an elongate rigid cylindrical open framework retainer means depending from the tube sheet into the dirty air plenum and having one end mounted in said aperture in the tube sheet and a longitudinal axis;

a flexible mesh sleeve means disposed in surrounding relation with the retainer means which together with the retainer means compositely form a highly porous structure for supporting the permeable fabric filter material;

the permeable fabric filter material formed to provide an elongate tubular bag sized to be slidably disposed in surrounding relation on the flexible mesh sleeve; and

removably insertable elongate means which when disposed substantially parallel to the longitudinal axis of the retainer means and intermediate the retainer means and the elongate tubular bag of permeable fabric filter material increases the circumference around which the tubular bag of permeable fabric filter material is fitted whereby the tubular bag of permeable fabric filter material is maintained in a substantially taut, smooth and unwrinkled condition.

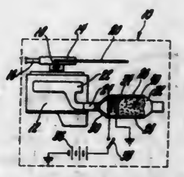


4,270,936

COILED FIBROUS METALLIC MATERIAL AND COATING FOR DIESEL EXHAUST PARTICULATE TRAP

Gandur S. Mann, Flint, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 18, 1980, Ser. No. 113,223
Int. Cl.³ B01D 46/10
U.S. Cl. 55—520 4 Claims



1. A fibrous filter element for a diesel engine exhaust particulate trap or the like, said element comprising a mass of coiled wire coil of flattened cross section compacted into a small passage gas pervious body, said wire being formed of a metallic material and coated with a titanate ceramic, said wire and coating being capable of withstanding temperatures of up to 1800 degrees F. without damage to the element.

4,270,937

GAS SEPARATION PROCESS

Robert J. Adler, Shaker Hts.; Coleman B. Brosilow, Cleveland Hts.; William R. Brown, Brecksville, and Nelson C. Gardner, Cleveland Hts., all of Ohio, assignors to CNG Research Company, Cleveland, Ohio

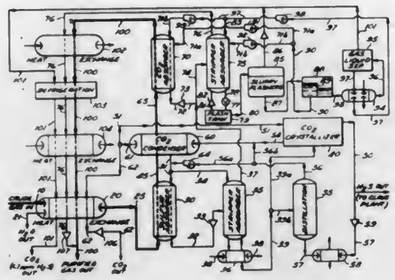
Continuation-in-part of Ser. No. 746,662, Dec. 1, 1976, abandoned. This application Apr. 18, 1979, Ser. No. 31,318
Int. Cl.³ F25J 3/00
U.S. Cl. 62—17 46 Claims

1. A process for separating one or more relatively high boiling point gases from a gas mixture also containing one or more lower boiling point gases, comprising the steps of con-

tacting the gas mixture first with one and then with the other of the following two sorbents:

(a) liquid carbon dioxide, and

(b) particulate solids having a temperature below the triple point temperature of carbon dioxide, said particulate solids being caused to undergo a change of phase, in whole or in part, during contact with said gas mixture;



and, after each such contact, separating sorbent together with relatively high boiling point gas sorbed thereby from a residual portion of said gas mixture; and, in each instance, separating sorbent from the sorbed gas for reuse of the sorbent in the process.

4,270,938

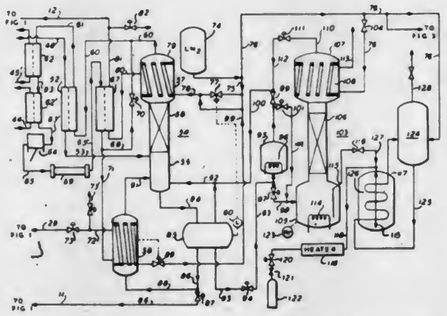
PROCESSES FOR DECONTAMINATING NUCLEAR PROCESS OFF-GAS STREAMS

Wallace B. Schmidt, Warren; William W. Lewis, Green Brook; Alex Edmiston, Sparta, and Gernot Klauser, North Plainfield, all of N.J., assignors to Airco, Inc., Montvale, N.J.

Filed Dec. 4, 1978, Ser. No. 966,447

Int. Cl.³ F25J 3/08

U.S. Cl. 62—22 **11 Claims**



1. A process for recovering krypton from a feed gas stream comprised of krypton, hydrogen, nitrogen, less than 0.1 ppm oxygen and one or more inert gases from the group consisting of argon, helium and neon comprising the steps of:

(a) continuously contacting said feed gas stream in a primary distillation column with a reflux liquid to produce a bottoms liquid-vapor containing up to about 5% krypton;

(b) continuously passing said primary column bottoms liquid and vapor to a storage vessel wherein said liquid and vapor phase are separated;

(c) intermittently withdrawing a portion of said liquid from said storage vessel and passing said withdrawn liquid as a batch to an evaporator;

(d) partially evaporating said liquid batch in said evaporator to increase the krypton fraction; and

(e) passing said remaining partially evaporated liquid to a second distillation column to produce a bottoms liquid comprised of at least 90% krypton.

4,270,939

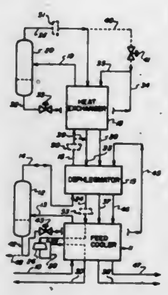
SEPARATION OF HYDROGEN CONTAINING GAS MIXTURES

Howard C. Rowles, Center Valley, and Donald W. Woodward, New Tripoli, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Aug. 6, 1979, Ser. No. 64,232

Int. Cl.³ F25J 3/02

U.S. Cl. 62—22 **8 Claims**



1. The method of separating a multicomponent hydrogen-containing feed gas mixture comprising methane and at least one low-boiling gas from the group consisting of nitrogen, argon and carbon monoxide which comprises:

(a) introducing the feed gas mixture at superatmospheric pressure into a feed cooling zone in indirect heat exchange with cooler product stream(s),

(b) precooling the feed gas mixture in said cooling zone to a temperature near its dew point or sufficient to condense a minor portion of said feed gas stream,

(c) flowing the uncondensed portion of said gas upwardly through a number of passages in a dephlegmation zone in indirect heat exchange with refrigerant supplied to said passages, whereby said gas is caused to partially condense on the walls of said passages forming a reflux liquid, such that interaction takes place between the upwardly flowing gas stream and the stream of cooler downwardly flowing liquid condensate, whereby due to resulting rectification, said liquid is progressively enriched in methane,

(d) withdrawing said liquid as a methane-enriched fuel gas product,

(e) introducing the uncondensed vapor from said dephlegmation zone into a condensing zone wherein the uncondensed vapor is cooled to a temperature at least sufficient to condense a portion of said low-boiling gas present therein,

(f) withdrawing from said condensing zone a mixed vapor-liquid stream,

(g) separating said mixed vapor-liquid stream to provide a vapor portion comprising a hydrogen-rich stream and a liquid portion composed chiefly of gas from the group consisting of nitrogen, argon, carbon monoxide and mixtures thereof,

(h) passing said separated vapor portion through said condensing and/or dephlegmation zones as additional coolant in heat exchange with the precooled feed gas passed upwardly through said zones,

(i) discharging said additional coolant from said dephlegmation zone and passing the so discharged coolant through said feed cooling zone in indirect heat exchange with the warmer feed gas,

(j) withdrawing the thus warmed coolant as a hydrogen-rich gas product essentially free of methane; and

(k) employing the separated liquid portion from step (g) as refrigerant for cooling the uncondensed vapors introduced into said condensing zone from said dephlegmation zone.

4,270,940

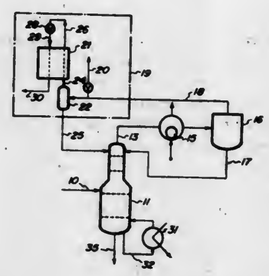
RECOVERY OF C_2 HYDROCARBONS FROM DEMETHANIZER OVERHEAD

Howard C. Rowles, Center Valley, and Tsun-chin Tsao, Macungie, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Nov. 9, 1979, Ser. No. 92,894

Int. Cl.³ F25J 3/02

U.S. Cl. 62—28 **10 Claims**



1. The method of obtaining enhanced recovery of C_2 hydrocarbons from the vapor overhead of a demethanizer column charged with a composition containing C_2 hydrocarbons in admixture with hydrogen, methane and C_3+ hydrocarbons, which comprises the steps of condensing a portion of said overhead vapors, returning the condensate as main reflux to the demethanizer column, introducing the uncondensed vapors as a stream containing residual C_2 hydrocarbons into a dephlegmation zone for upward flow therein in indirect heat exchange with refrigerant supplied to passages in said dephlegmator, thereby effecting condensation on the walls of said passages of components of said stream including said C_2 hydrocarbons, said condensed components forming a reflux liquid such that interaction takes place between the upwardly flowing vapors and the downwardly flowing liquid such that the liquid becomes enriched in C_2 hydrocarbons, withdrawing the thus formed downwardly flowing liquid for recovery of the C_2 hydrocarbons contained therein in the liquid bottoms withdrawn from said demethanizer column, reducing the pressure of an uncondensed portion of said upwardly flowing vapors, and introducing the cold fluid stream from the pressure reduction of said uncondensed portion into the passages in said dephlegmation zone to serve as the only refrigerant supplied to said passages.

4,270,941

APPARATUS FOR PROCESSING HEAT SOFTENED MINERAL MATERIAL

William M. Babbitt, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 888,052, Mar. 20, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,834

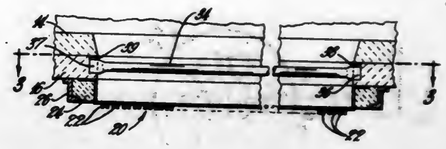
Int. Cl.³ C03B 37/02

U.S. Cl. 65—1 **9 Claims**

1. Apparatus for forming molten mineral material into fibers comprising:

(a) an assembly comprising an electrically heated bushing having openings through which molten mineral material flows as streams and an entrance passage for flow of molten material into the bushing;

(b) a heat pipe within the assembly for thermally conditioning the material such that material supplied adjacent the openings in the bushings is generally of a uniform temperature throughout; and



(c) means for thermally isolating the heat pipe from the assembly such that the heat pipe does not substantially act as a heat sink from the material to the assembly.

4,270,942

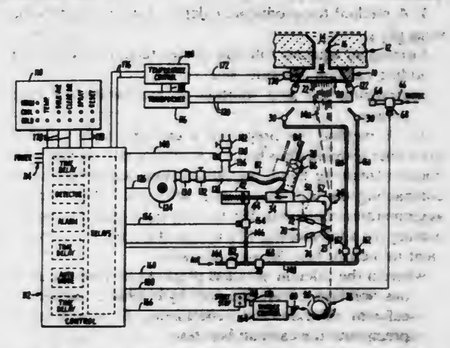
APPARATUS AND METHOD FOR DRAWING OF GLASS FIBER

Charles H. Coggin, Jr., Upland, and John L. Jones, Jr., Baldwin Park, both of Calif., assignors to Nitto Boseki Co. Ltd., Japan

Division of Ser. No. 865,961, Dec. 30, 1977, Pat. No. 4,169,865. This application Jan. 25, 1979, Ser. No. 6,383

Int. Cl.³ C03B 37/02; B05B 1/16

U.S. Cl. 65—11 W **5 Claims**



1. An improved nozzle for use in directing bulk gas against a bushing used for the drawing of glass fiber, and nozzle comprising: a body having a chamber therein; inlet means to provide for the introduction of gas into the chamber; a plurality of conduits communicating with the chamber to provide for the discharge of gas therefrom; and slide valves disposed within at least some of said conduits, said valves being selectively adjustable to vary the flow through the respective conduits, said valves each including a cylindrical valve core arranged for longitudinal and rotational movement and having a passage extending transversely therethrough for select alignment and misalignment with the conduit associated therewith, and lock means to selectively lock the core in a position wherein the passage in the core is misaligned relative to the conduit to completely close the conduit, and means to lock the core being selectively operable to lock or release the core and, in the released condition, functioning to longitudinally guide the core.

4,270,943

ROTARY FIBER FORMING SPINNER

John M. Riddell, Newark, Ohio, and William W. Schultz, Evanston, Ill., assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

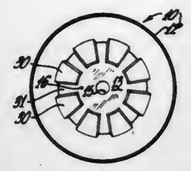
Filed Dec. 31, 1979, Ser. No. 109,006

Int. Cl.³ C03B 37/04

U.S. Cl. 65—15 **6 Claims**

3. A spinner for the centrifugal production of fiber comprising an apertured circumferential wall, a bottom wall and a

centrally positioned support means, the bottom wall being adapted with a plurality of projections in the form of truncated



pyramids, having outwardly curved bases and forming a plurality of paths therebetween.

4,270,944

METHOD FOR PRODUCING CALCIUM BORATES

Walter L. Eastes, Granville, and Anna Tarantino, Columbus, both of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 11, 1980, Ser. No. 111,437
Int. Cl.³ C03B 1/00
U.S. Cl. 65—27 13 Claims

1. A method for producing calcium borates comprising the steps of:

forming an aqueous solution of ulexite and mineral acid;

adding calcium chloride; and

neutralizing the acid solution to precipitate the calcium borates.

12. A method for preparing a calcium borate-containing glass fiber forming glass batch comprising introducing calcium borate-containing batch ingredients into a compacting zone, compacting the ingredients with sufficient water to produce agglomerates containing 5% to 20% by weight of water, and heating the agglomerates to a temperature and for a time sufficient to melt or fuse the agglomerates;

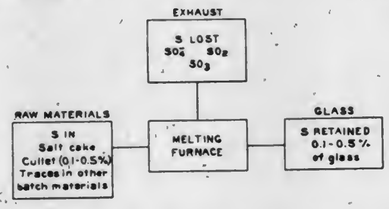
wherein the calcium borate is prepared by forming an aqueous solution of ulexite and hydrochloric acid; adding calcium chloride; and neutralizing the acid solution to precipitate the calcium borates.

4,270,945

METHOD OF MELTING FLAT GLASS USING NITRATES TO SUPPRESS SULFUROUS EMISSIONS

Alan G. Amrhein, Fresno, Calif.; Joseph J. Hammel, O'Hara Township, Allegheny County, and Larry J. Shelestak, Bairdford, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 3, 1979, Ser. No. 99,276
Int. Cl.³ C03B 1/00, 18/02
U.S. Cl. 65—99 A 10 Claims



1. In the method of melting soda-lime-silica glass wherein a pool of molten glass is maintained within an elongated furnace, and glass batch materials and cullet are fed into the furnace at one end and melted glass is withdrawn at the opposite end and formed into a flat glass ribbon, wherein sources of Si, Na, Ca, Mg, Al, and Fe in the batch and cullet are proportioned to yield a glass composition comprising, by weight:

69–75 percent SiO_2
12–16 percent Na_2O
0–2 percent K_2O
8–12 percent CaO
2–5 percent MgO
0–2 percent Al_2O_3
0–7 percent Fe measured as Fe_2O_3 as the sole essential colorant;

and the interior of the furnace is maintained at sufficient temperatures and conditions to melt and react the batch and cullet to yield said glass composition; wherein the batch and cullet also include sources of sulfur, a portion of which is retained in the glass and additionally comprises 0.10 percent to 0.5 percent by weight of the product glass composition as SO_3 and the remainder of which is volatilized and escapes from the pool of molten glass as gaseous products of reaction, said volatilization and escape of part of the sulfur serving as essentially the sole fining agent to reduce gaseous inclusions in the glass to no more than one seed per square foot of formed glass ribbon, the improvement comprising: determining the sulfur content of the product glass withdrawn from the furnace and accordingly controlling the input rate of sulfur in the batch and cullet being fed into the furnace to no more than 1.4 times the output rate of sulfur being withdrawn in the melted glass product stream; feeding into the furnace at a rate of at least 0.1 percent of the batch on a dry weight basis an oxidizing agent comprising an inorganic nitrate salt; and maintaining the batch and cullet feed stream essentially free from carbon and organic materials; whereby the rate of sulfur-containing emission from the furnace is reduced while maintaining the requisite fining of the glass.

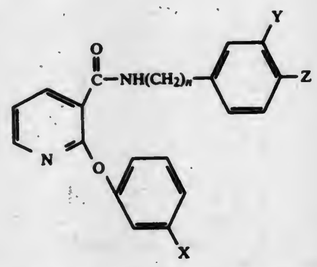
4,270,946

N-ARYL,2-PHENOXY NICOTINAMIDE COMPOUNDS AND THE HERBICIDAL USE THEREOF

Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Oct. 1, 1979, Ser. No. 80,971
Int. Cl.³ A01N 43/40
U.S. Cl. 71—94 13 Claims

1. A method for controlling undesirable vegetation comprising applying to the vegetation or the locus thereof a herbicidally effective amount of a compound having the formula



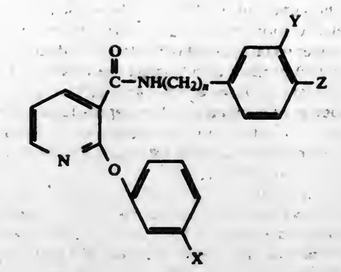
in which n is 0 or 1; X is halogen, C_1–C_3 alkyl, trifluoromethyl or carboethoxy; Y and Z are independently hydrogen, lower alkyl, halo-lower alkyl, thio(halo-lower alkyl), lower alkoxy, nitro, cyano or halogen; provided that:

if X is carboethoxy, Z is halogen and Y is hydrogen or halogen; and

if Y and Z are both halogen, X is halogen, trifluoromethyl or carboethoxy.

12. A herbicidal composition comprising:

(a) a herbicidally effective amount of a compound having the formula



in which n is 0 or 1; X is halogen, C_1–C_3 alkyl, trifluoromethyl or carboethoxy; Y and Z are independently hydrogen, lower alkyl, halo-lower alkyl, thio(halo-lower alkyl), lower alkoxy, nitro, cyano or halogen; provided that:

if X is carboethoxy, Z is halogen and Y is hydrogen or halogen; and

if Y and Z are both halogen, X is halogen, trifluoromethyl or carboethoxy; and

(b) a herbicidally suitable inert carrier or diluent.

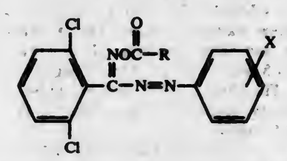
4,270,947

α-(PHENYLAZO)-2,6-DICHLOROBENZALDIMINO ESTERS AND THEIR USE AS HERBICIDES

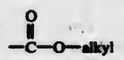
Arnold D. Gutman, Berkeley, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Jul. 2, 1979, Ser. No. 54,323
Int. Cl.³ A01N 33/26; C07C 107/06; A01N 47/12
U.S. Cl. 71—98 17 Claims

1. A compound having the following structural formula



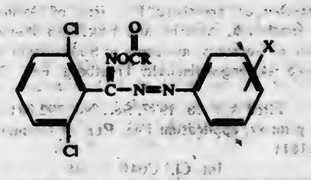
wherein R is alkyl having 1 to 4 carbon atoms; cycloalkyl having 3 to 6 carbon atoms; haloalkyl having 1 to 4 carbon atoms; alkenyl having 2 to 4 carbon atoms; alkylthio having 1 to 4 carbon atoms; alkoxy having 1 to 4 carbon atoms; —N-H—alkyl having 1 to 4 carbon atoms;



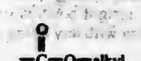
having 1 to 4 carbon atoms; phenyl or monohalophenyl; and X is hydrogen; alkyl having 1 to 4 carbon atoms; monohalo; dihalo, or nitro.

17. A composition of matter comprising:

a. a herbicidally effective amount of a compound having the structural formula



wherein R is alkyl having 1 to 4 carbon atoms; cycloalkyl having 3 to 6 carbon atoms; haloalkyl having 1 to 4 carbon atoms; alkenyl having 2 to 4 carbon atoms; alkylthio having 1 to 4 carbon atoms; alkoxy having 1 to 4 carbon atoms; —N-H—alkyl having 1 to 4 carbon atoms;



having 1 to 4 carbon atoms; phenyl or monohalophenyl; and X is hydrogen; alkyl having 1 to 4 carbon atoms; monohalo; dihalo or nitro; and

b. an inert carrier therefor.

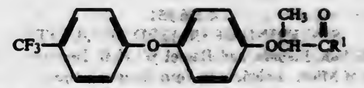
4,270,948

HERBICIDAL COMPOUND, HERBICIDAL COMPOSITION CONTAINING THE SAME, AND METHOD OF USE THEREOF

Ryohei Takahashi, Kusatsu; Koichi Fujikawa, Kyoto; Isao Yokomichi, Kusatsu; Sizuo Sameya, Kusatsu, and Nobuyuki Sakashita, Kusatsu, all of Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

Continuation of Ser. No. 893,861, Apr. 6, 1978, abandoned, which is a division of Ser. No. 596,784, Jul. 17, 1975. This application Oct. 17, 1979, Ser. No. 86,119
Claims priority, application Japan, Jul. 17, 1974, 49/82403; Jul. 17, 1974, 49/82404; Oct. 14, 1974, 49/117847
Int. Cl.³ A01N 37/10; C07C 153/11
U.S. Cl. 71—100 4 Claims

1. A compound having the formula:



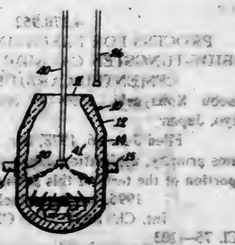
wherein R^1 is an ethylthio group.

4,270,949

MAKING OF STEEL BY THE BOF PROCESS

Edward J. Esposito, Cortland, and Matthew J. Blair, Niles, both of Ohio, assignors to United Refractories, Inc., Warren, Ohio, by said Edward J. Esposito and Republic Steel Corporation, Cleveland, Ohio, by said Matthew J. Blair

Filed Jan. 24, 1979, Ser. No. 6,204
Int. Cl.² C21C 5/44; F27D 1/16; C21C 7/00
U.S. Cl. 75—60 8 Claims



1. The combination of a BOF vessel used in the making of steel, said vessel being refractory lined and movable about a substantially horizontal axis to and from an upright position, and adapted to receive a charge of iron scrap and molten iron, and an oxygen lance and means for moving said lance into said vessel at predetermined times when said vessel is in upright position, said lance performing its normal function of delivering oxygen under pressure from the nozzle of the lance and onto the metallic charge within said vessel to refine the metal, the improvement for coating areas of said vessel lining with refractory material, comprising:

a coating lance separate from said oxygen lance and having

an outlet nozzle and an inlet connected to a source of flowable refractory material,

means for moving said coating lance into said vessel while the latter is in an upright position to dispose its nozzle in cooperative relation with any lining area in need of repair, and

means for holding said oxygen lance in standby, inoperative position when said coating lance is within said vessel.

4,270,950

MACHINABLE FERRITE STAINLESS STEELS

Tatsuo Fujiwara, Nagoya; Shozo Abeyama; Kiyohito Ishida, both of Agui, and Sadayuki Nakamura, Chita, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan

Division of Ser. No. 942,138, Sep. 13, 1978. This application Feb. 8, 1980, Ser. No. 119,846

Claims priority, application Japan, Sep. 20, 1977, 52-112158

Int. Cl.³ C22C *38/22, 38/60, 39/16*

U.S. Cl. 75—126 L 1 Claim

1. Machinable ferrite stainless steels consisting of not more than 0.030% of C, not more than 0.050% of N, not more than 0.012% of O, not more than 0.8% of Si, not more than 1.6% of Mn, 0.05–0.40% of S, 16–22% of Cr, 1–3% of Mo, and at least one of 0.03–0.25% of Pb, 0.03–0.20% of Se and 0.01–0.15% of Te, the remainder being Fe, provided that the sum of C and N is not more than 0.060% and Mn/S is 2–5, characterized in that Cr content based on 100 parts by weight of sulfide inclusions formed in the said steels is 10–50 parts by weight.

4,270,951

SINTERING OF COATED BRIQUETTE

Sang K. Suh, Livonia, and Daniel W. Hall, Dearborn Heights, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 8, 1978, Ser. No. 967,926

Int. Cl.³ B22F *3/00*

U.S. Cl. 75—200 7 Claims

1. A method of making sintered powder metal parts from selected metal powders having a predetermined size, comprising:

(a) after having compacted the powder into a preform at substantially ambient temperature conditions, coating said preform with a thin shell of a chemically inactive radiation absorbing material under ambient conditions,

(b) sintering said coated preform in a furnace chamber by predominantly radiation heating.

4,270,952

PROCESS FOR PREPARING TITANIUM CARBIDE-TUNGSTEN CARBIDE BASE POWDER FOR CEMENTED CARBIDE ALLOYS

Yoshinobu Kobayashi, 3599-73, Honmachida, Machida-shi, Tokyo, Japan

Filed Jun. 26, 1978, Ser. No. 918,946

Claims priority, application Japan, Jul. 1, 1977, 52-79394

The portion of the term of this patent subsequent to May 30, 1995, has been disclaimed.

Int. Cl.³ B22F *3/00*; C22C *29/00*

U.S. Cl. 75—203 6 Claims

1. A process for preparing a titanium carbide-tungsten carbide base powder for cemented carbide alloys comprising the steps of molding a mixture of TiC powder starting material, an amount of binder metal powder required for sintering the TiC material and WC powder in an amount of 65–30 parts by weight per 35–70 parts by weight of TiC, the TiC material having a combined carbon content lower than the theoretical value; sintering the molded mixture by heating the mixture at a high temperature of 1550° to 2500° C. under conditions inert to TiC and WC to dissolve the WC particles in the TiC particles; maintaining the sintered product at the high temperature to fully remove the resulting oxide from the surface of the TiC particles and to thereby render the TiC particles highly compatible with the binder metal, causing the binder metal to fully fuse onto the surface of the TiC particles while permitting the binder metal to form pores by its partial pressure within the resulting binder metal phase of the sintered product; and crushing the sintered product after cooling the product to thereby obtain a powder composed of TiC particles having the highest possible content of combined carbon approximate to the theoretical value, provided with the binder metal fused to the surface of the particles with high strength and exhibiting high amenability to sintering.

5. A process for preparing a titanium carbide-tungsten carbide base powder for cemented carbide alloys comprising the steps of molding a mixture of TiC powder starting material, an amount of binder metal powder required for sintering the TiC material, WC powder in an amount of 65–30 parts by weight per 35–70 parts by weight of TiC, and a sintering reaction accelerating agent, the TiC material having a combined carbon content lower than the theoretical value; sintering the molded mixture by heating the mixture at a high temperature of 1550° to 2500° C. under conditions inert to TiC and WC to dissolve the WC particles in the TiC particles; maintaining the sintered product at the high temperature to fully remove the resulting oxide from the surface of the TiC particles and to thereby render the TiC particles highly compatible with the binder metal, causing the binder metal to fuse onto the surface of the TiC particles while permitting the binder metal to form pores by its partial pressure within the resulting binder metal phase of the sintered product; and crushing the sintered product after cooling the product to thereby obtain a powder composed of TiC particles having the highest possible content of combined carbon approximate to the theoretical value, provided with the binder metal fused to the surface of the particles with high strength and exhibiting high amenability to sintering.

4,270,953

TWO COMPONENT ANTIFOULING PAINT

Keizo Nakagawa; Katsushi Yamano; Takashi Watanabe; Kunio Yamamoto, and Shigeo Inomata, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Amagasaki, Japan

Filed Mar. 6, 1979, Ser. No. 18,049

Claims priority, application Japan, Mar. 9, 1978, 53-27512; Jun. 9, 1978, 53-68958

Int. Cl.³ C09D *5/14*

U.S. Cl. 106—16 35 Claims

1. In an antifouling paint comprising an organotin polymer, an antifoulant copper compound and a vehicle resin, the improvement wherein said paint comprises Component A containing said organotin polymer, and Component B containing said copper compound and said vehicle resin, and said Component A is in a first package separate from component B, and said Component B is in a second and separate package, said first and second packages being adapted to permit mixing of said Components A and B within two weeks prior to application of said paint to a substrate, with the proviso that said Component A does not contain any of said copper compound, and said Component B does not contain any of said organotin polymer.

4,270,954

INORGANIC FIBERS

Alois Aignesberger, Trostberg, Fed. Rep. of Germany; Walter Lukas, Innsbruck, Austria, and Ekkehard Weinberg, Stein, Fed. Rep. of Germany, assignors to Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft, Trostberg, Fed. Rep. of Germany

Filed Apr. 28, 1977, Ser. No. 792,081

Claims priority, application Fed. Rep. of Germany, May 14, 1976, 2621611

Int. Cl.² C04B *31/04*

U.S. Cl. 106—47 R 6 Claims

1. Inorganic fibers based on calcium sulfate dihydrate or calcium sulfate aluminate hydrate, or their dehydration products, having a ratio of average length to diameter of more than 100:1 and a length of at least 0.2 mm.

4,270,955

TREATMENT FOR REDUCING THE DUSTING OF TREATED ZINC OXIDE

Donald M. Eshelman, Perry, Ohio, assignor to The New Jersey Zinc Company, Nashville, Tenn.

Filed Apr. 29, 1980, Ser. No. 145,008

Int. Cl.³ C09C *1/04*

U.S. Cl. 106—296 32 Claims

1. A treatment for reducing the dusting of a particulate zinc oxide which has been treated with propionic acid for incorporation in rubbers and plastics, comprising treating said particulate zinc oxide with a phosphate selected from the group consisting of trialkyl phosphates, tributoxyethyl phosphate, tricresyl phosphate and mixtures thereof in an amount sufficient to reduce the dusting index thereof.

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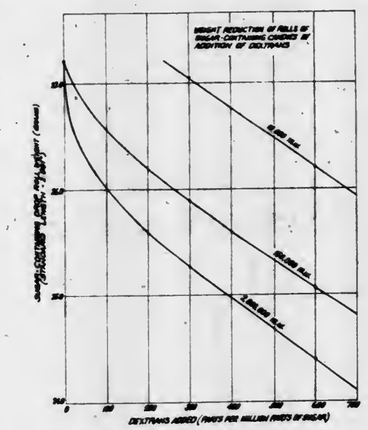
METHOD FOR CONTROLLING WEIGHT OF SUGAR-CONTAINING SOLID SHAPES AND PRODUCT

Walter Vink, Purdys Station; Leonard Spooner, Port Chester, and Donald A. M. Mackay, Pleasantville all of N.Y., assignors to Life Savers, Inc., New York, N.Y.

Filed Feb. 15, 1980, Ser. No. 121,945

Int. Cl.³ C13F *3/00*; A23G *3/00*

U.S. Cl. 127—29 14 Claims



1. A method for controlling distortion of and for controlling the weight and thus the size of sugar-containing solid pieces, which comprises controlling the amount of dextrans having a given molecular weight in the sugar-containing solid pieces to thereby reduce the weight and size of the sugar-containing solid pieces to a desired degree.

4,270,957

METHOD FOR CLEANING ALUMINUM ARTICLES

William A. Dennkowski, Dearborn Heights, and John R. Morgan, Southfield, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 803,208, Jun. 3, 1977, Pat. No. 4,157,941. This application Oct. 25, 1978, Ser. No. 954,800

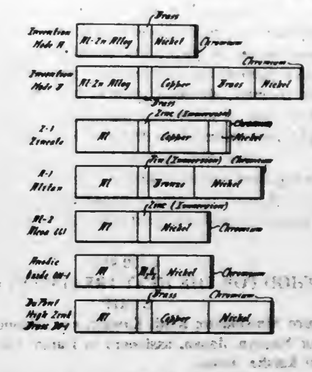
The portion of the term of this patent subsequent to Nov. 21, 1995, has been disclaimed.

Int. Cl.³ C23G *1/12, 1/22*

U.S. Cl. 134—2 1 Claim

1. A method of pretreating an aluminum article for plating, comprising:

(a) cleaning said aluminum article to be substantially free of oxide, said cleaning consisting of soaking the article in a first cleaning solution at 140°–180° F. for 1–4 minutes, said first cleaning solution containing 8 oz./gal. of water of a powder additive comprising 2.5–3.5% sodium metasilicate, 17.5–18.5% sodium pyrophosphate, and 31.0–32% sodium tetraborate;



(b) wash the article in a second solution at 110°–130° F., consituted the same as the first cleaning solution, by use of a power spray for 1–3 minutes at 16 psig;

(c) rinse the soaked and sprayed article with water for about 1 minute at room temperature;

(d) dip the article by immersion in a third water solution for about 15 seconds consisting of 50% HNO_3 and then water rinse.

4,270,958

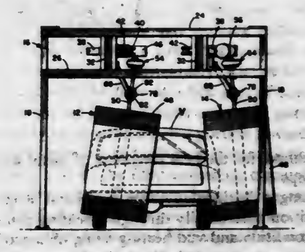
METHOD FOR BRUSHING VEHICLES

George T. Eanis, Playa del Rey, Calif., assignor to N/S Car Wash Enterprises, Inc., Sharon, Pa.

Division of Ser. No. 916,001, Jun. 15, 1978, Pat. No. 4,198,722, which is a continuation-in-part of Ser. No. 883,514, Mar. 6, 1978, Pat. No. 4,225,995. This application Sep. 7, 1979, Ser. No. 73,490

Int. Cl.³ B08B *1/04*

U.S. Cl. 134—6 2 Claims



1. A method for washing one or more of the front, side and rear surfaces of a vehicle as it moves relative to a vehicle washing apparatus, said vehicle washing apparatus having a frame, a brush support arm pivotably mounted on said frame and a brush which is coupled by a flexible plastic brush shaft to said brush support arm, said brush being initially positioned near the center line of the vehicle, the method comprising the steps of:

engaging the front end of the vehicle with said brush;

rotating said brush in a direction which causes said brush to walk along the surfaces of the vehicle due to the reactive force between the surfaces of the vehicle and said brush;

tilting said brush by flexing said flexible plastic shaft upon engagement with the front end of the vehicle;

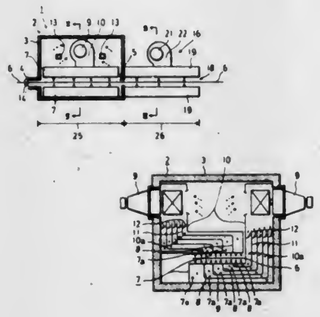
turning the brush around the front corner of the vehicle in response to the combined action of the reactive force between the brush and the surfaces of the vehicle and the flexing of said flexible plastic shaft; engaging the side of the vehicle with said brush.

4,270,959

METHOD FOR THE HEAT TREATMENT OF METAL STRIP

Masahiro Matsumoto; Kenji Kawate, and Hideaobu Jinnouchi, all of Nagoya, Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Japan

Filed Aug. 3, 1979, Ser. No. 63,508
Claims priority, application Japan, Aug. 6, 1978, 53-95626
Int. Cl.³ C22F 1/04; C21D 9/46
U.S. Cl. 148—153 5 Claims



1. A method, for the heat treatment of metal strip, comprising the steps of:

(i) passing a horizontally-disposed metal strip in floating condition horizontally through a heating zone, said floating condition and said heating being obtained by blowing heating gases towards the strip from a pair of plenum chambers arranged respectively above and below the strip, the quantities of gases blown towards a part of the length of the strip in which a thermal stress greater than an anti-buckling stress is produced in said heating zone being respectively larger for portions close to the central portion widthwise of the metal strip than for both edges widthwise of the metal strip, such that said central portion widthwise of the strip is higher in temperature than said both edges thereof,

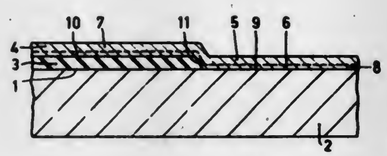
(ii) after said strip has passed through said heating zone, passing said strip in floating condition through a cooling zone.

4,270,960

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE UTILIZING A MONO-POLYCRYSTALLINE DEPOSITION ON A PREDEPOSITED AMORPHOUS LAYER

Lambertus J. M. Bollen, and Jan Goorissen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 3, 1979, Ser. No. 81,754
Claims priority, application Netherlands, Oct. 23, 1978, 7810549
Int. Cl.³ H01L 21/205, 21/441
U.S. Cl. 148—175 9 Claims



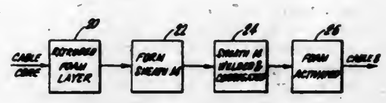
1. A method of manufacturing a semiconductor device comprising the steps of forming a masking layer on a part of a surface of a monocrystalline semiconductor body, and subjecting said surface to a gaseous phase epitaxial treatment so that an epitaxial layer is deposited on said surface, said epitaxial layer on uncovered portions of said surface being monocrystalline and said epitaxial layer on said masking layer being polycrystalline, characterized in that prior to said epitaxial treatment, an amorphous or polycrystalline layer is deposited both on said masking layer and on said uncovered portions of said surface at a temperature lower than that at which said epitaxial layer is deposited, said amorphous or polycrystalline layer portion on said uncovered portions of said surface changing into a monocrystalline state upon thermal treatment preceding said step of epitaxial treatment.

4,270,961

METHOD OF MANUFACTURING A SEALED CABLE EMPLOYING AN EXTRUDED FOAM BARRIER

John G. Farasetta, Rocky Hill, and Robert G. Feller, West Milford, both of N.J., assignors to The Okonite Company, Ramsey, N.J.

Filed Oct. 10, 1979, Ser. No. 83,540
Int. Cl.³ H01B 13/14, 13/18, 13/22
U.S. Cl. 156—51 4 Claims



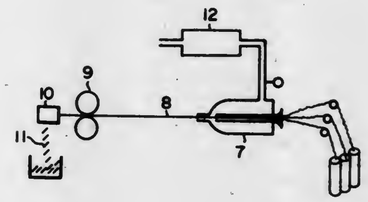
1. A method for producing sheathed, non-vapor propagating cable comprising the steps of extruding a layer of a foamable material around an insulated conductor, said foamable material being of the closed cell type after activation by the application of heat; forming an outer metal sheath about said insulated conductor and said foam; corrugating said outer metal sheath and applying heat to activate said foamable material and seal the space between said insulated conductor and said outer metal sheath.

4,270,962

PROCESS AND APPARATUS FOR THE PREPARATION OF BAR FORM FIBROUS MOLDING

Taiso Sugihara, Moriyamashi, and Hiromu Sanada, Shigaken, both of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Nov. 6, 1979, Ser. No. 92,054
Claims priority, application Japan, Nov. 15, 1978, 53-140709
Int. Cl.³ B29H 9/02
U.S. Cl. 156—180 8 Claims



1. A process which comprises

(a) bringing together a plurality of separate fibers in the form of a fibrous bundle, at least 20% by weight of said fibers being heat adhesive composite fibers,

(b) transporting said fibrous bundle through an elongated transporting zone that has a cross sectional area which approximately corresponds to the cross sectional area of the fibrous bundle,

(c) introducing a stream of pressurized and heated gas into a heating zone, said heating zone surrounding said transporting zone so that the outlet end of said transporting zone is in open communication with the interior of said heating zone and the inlet end of said transporting zone communicates with the exterior of said heating zone,

(d) establishing a flow of said pressurized and heated gas through said transporting zone countercurrent to the movement of said fibrous bundle through said elongated transporting zone and then out of said transporting zone to a point outside of said heating zone, whereby the heated gas introduced into said heating zone will impart heat to said fibrous bundle both (1) by the indirect heat applied from points exterior of said elongated transporting zone and (2) by direct heat by the hot gas passing through the interior of said elongated transporting zone, said hot gas having a temperature of about 100° C.–250° C. and being under a pressure of about 0.5–10 kg/cm²(G),

(e) transporting said fibrous bundle from the outlet aperture of said elongated transporting zone across an open space within said heating zone and then out through a die outlet aperture from said heating zone, the interval that said fibrous bundle is exposed to heating in said open space being between 10% and 30% of the entire interval that the fibrous bundle is in said heating zone, and

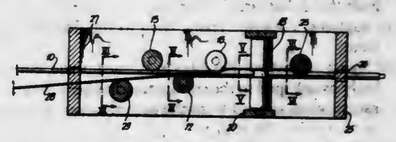
(f) withdrawing a fibrous bundle from said heating zone with the fibers adhered together into bar form by said heat adhesive composite fibers that have been activated by said heat treatment.

4,270,963

WRAPPING ARTICLES OF INDEFINITE LENGTH

Robert J. Howat, Kingston, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Sep. 17, 1979, Ser. No. 76,298
Int. Cl.³ B31F 1/00
U.S. Cl. 156—201 4 Claims



1. A method of wrapping an optical fibre of indefinite length comprising:

(a) providing a creasable wrapping tape having an adhesive on one surface;

(b) locating the tape with said one surface facing the fibre, and with the fibre at substantially ambient temperature,

(c) disposing the tape alongside the fibre and, solely by the use of at least one rolling and forming surface pressing onto the tape, bringing a first longitudinally extending portion of the tape into substantially intimate and adhering engagement with the fibre at a first part of contact;

(d) turning a second longitudinally extending portion of the tape laterally adjacent to the first portion towards and into substantially intimate and adhering contact with a peripheral surface part of the fibre extending circumferentially from the first part of contact by pressing said second portion solely between the peripheral surface part of the fiber and another rolling and forming surface substantially conforming to the peripheral surface part;

(e) repeating the turning process upon successive longitudinally extending portions of the tape to bring them into intimate and adhering contact with successive peripheral parts of the fibre, turning of the tape being in step-by-step manner from one longitudinally extending portion to another; and

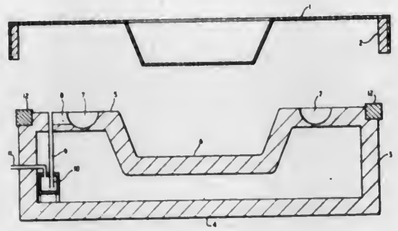
(f) by the sole use of at least one further rolling and forming surface, overlapping side edges of the tape with the adhesive on the outer edge sticking the side edges together.

4,270,964

METHOD AND APPARATUS FOR REINFORCING A LAYER OF PLASTICS MATERIAL

Peter J. Flaskett, Whitley Bay, England, assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Mar. 23, 1979, Ser. No. 23,375
Claims priority, application United Kingdom, Mar. 29, 1978, 12226/78
Int. Cl.³ B29C 17/00; B32B 31/00
U.S. Cl. 156—228 15 Claims



1. A method of reinforcing a layer of plastics material by means of an apparatus comprising a base with a support thereon, which support has a dished surface having a female configuration when viewed from the top bounded at least in part by a gutter having at least one channel communicating with at least one outlet provided in the body of said support, said outlet connected to vacuum means and at least one seal bounding said gutter and outlet, the plastics material being correspondingly shaped to said surface and gutter, the method comprising the steps of:

(a) applying the layer of plastics material to the support,

(b) applying at least one layer of fibrous reinforcement to at least the dished area of the plastics material,

(c) applying a polymerizable resin to the fibrous reinforcement,

(d) laying at least one flexible plastic membrane, correspondingly pre-shaped to the surface and having a male configuration when viewed from the bottom, over the support so as to overlap the seal,

(e) drawing air from the outlet so as to form an at least partial vacuum between the membrane and the surface and to impregnate the reinforcement with the resin,

(f) polymerizing the resin, or allowing it to polymerize, and resin surplus to that required to impregnate the fibrous reinforcement being received by the gutter in the plastics material, and

(g) removing the flexible membrane from the resin impregnated reinforcement.

9. An apparatus wherein fibrous reinforcement may be applied to a layer of plastics material and bonded thereto by the polymerization of non-foamble resin distributed through the reinforcement, which apparatus comprises:

(i) a base bearing

(ii) a support having a dished surface and having a female configuration when viewed from the top bounded at least in part by a gutter having at least one channel communicating with at least one outlet provided in the body of said support, said outlet connected to vacuum means, the support accepting in use the layer of plastics material which has a shape corresponding to the surface and gutter, the gutter in the plastics material being for receiving any resin surplus to that required to impregnate the fibrous reinforcement,

(iii) at least one flexible plastics membrane positioned above said support on a moveable frame and correspondingly pre-shaped to the surface of said support and which, when laid over the support, will overlap said gutter and a seal (iv), said membrane having a male configuration when viewed from the bottom, and said membrane removed from the bonded fibrous reinforcement after each molding operation;

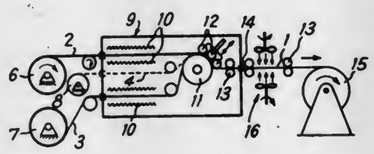
(v) at least one seal bounding the gutter and outlet of the support so that when air is drawn from the outlet an at least partial vacuum is formed between the membrane and the surface.

4,270,965

PRODUCTION OF STERILE PACKAGES

Roland M. Torterotot, "Le Petit Chaillot", 78730 Rochefort-en-Yvelines, and Jean R. L. Nasica, 19, avenue Emile Deschanel, 75007 Paris, both of France

Division of Ser. No. 837,750, Sep. 29, 1977, Pat. No. 4,160,852. This application Mar. 19, 1979, Ser. No. 21,961
Claims priority, application France, Oct. 6, 1976, 76 30144; Jun. 1, 1977, 77 16772
Int. Cl.³ B29C 19/00; B32B 3/02
U.S. Cl. 156—244.11 15 Claims



1. A process for the manufacture of a multi-layered composite packaging laminate which is internally sterile and which is intended for the sterile packing of products, preferably in liquid and/or paste form, between layers of the laminate but which is without such products between layers of the laminate, said laminate comprising at least two individual strips, one of which comprises thermoplastic material and each of which being made of a material which is impermeable to at least some fluids, said strips being adhered together in a fluid-tight manner at least at their edges, whereby the adjacent surfaces of the two strips lie in opposed, facing relationship, and said adjacent surfaces being sterile and being readily separable from each other under the action of pulling forces applied to the individual strips in divergent directions at a temperature which is, at most, equal to the softening temperature of the thermoplastic material, said process comprising:

advancing said strips with said surfaces facing each other;

adhesively securing the strips to each other with a fluid-tight seal at least at their edges with a sterile material which permits the strips to be readily separable from each other under the action of pulling forces applied in divergent directions at a temperature which is, at most, equal to the softening temperature of the thermoplastic material, whereby the strips may be readily separated after they have been secured together to permit enclosing a product by at least one of said strips; and

sterilizing at least said surfaces during the advance of the strips so that the surfaces are sterile when the adhesive securing of the strips to each other is completed.

4,270,966

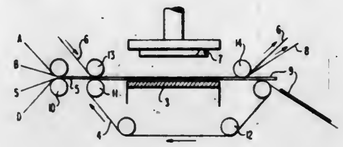
PROCESS FOR PRODUCING A SHOE

Sueo Kihara, Habikino, Japan, assignor to Kihara Sangyo Kabushiki Kaisha, Osaka and Kureha Kagaku Kogyo Kabushiki Kaisha, Nihonbashi, both of, Japan

Division of Ser. No. 25,689, Mar. 30, 1979. This application Aug. 8, 1979, Ser. No. 64,701
Claims priority, application Japan, Mar. 31, 1978, 53-36739
Int. Cl.³ A43B 13/30; B32B 31/00; B29C 19/02; B32B 31/20
U.S. Cl. 156—251 1 Claim

1. A process for producing a shoe insole which comprises: laminating (A) a coarse mesh-like woven cloth backing made of monofilaments of a vinylidene chloride-type polymer, (B) a honeycomb-woven cloth intermediate layer made of monofila-

ments of said vinylidene chloride-type polymer, (S) a sheet prepared by coating a latex containing activated carbon powder, copper powder and magnetic powder on a non-woven cloth made of staple fibers of said vinylidene chloride-type polymer and/or a vinyl chloride-type polymer and heat-treating the coated cloth, and (D) a fine-woven cloth surface layer made of monofilaments of said vinylidene chloride-type polymer in order to form a laminate, placing an insulating buffering material comprising a laminate of a paper sheet having a thickness of about 0.1 to 0.5 mm and a polyester film having a thickness of about 0.02 to 0.1 mm on a flat plate-like lower



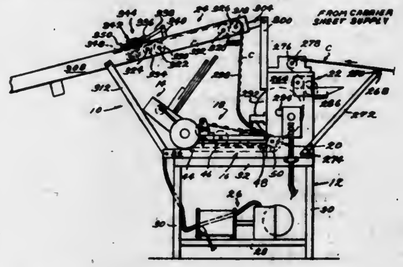
electrode of a high-frequency welding machine, placing said laminate on top of the buffering material, superimposing a polyester film having a thickness of 0.01 to 0.02 mm on said laminate, causing an upper electrode whose peripheral portion is sharpened by inclining projections at the lower end thereof to descend toward the lower electrode 3 to press the buffering material, laminate and polyester film between the two electrodes, passing a high frequency current across the two electrodes to simultaneously weld and cut off the peripheral portion of the laminate, and then exposing said product to a magnetic field to magnetize it.

4,270,967

GLUING MACHINE

Clendon W. Cone, 22 Haviland Ave., Glens Falls, N.Y. 12801

Filed Mar. 12, 1979, Ser. No. 19,332
Int. Cl.³ B65H 9/14, 29/66, 29/68
U.S. Cl. 156—299 22 Claims



6. A process as in claim 6 wherein the documents are moved by at least two groups of spaced apart drive belts where a first group moves at a first rate and a second group moves at a second faster rate.

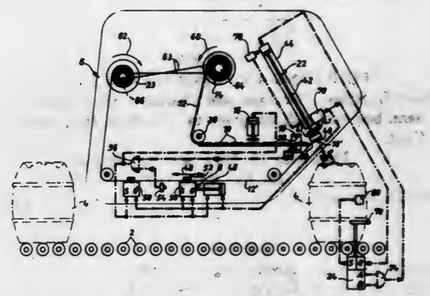
4,270,968

LABELLING DEVICE

Windfried Dudzik, Drosselweg 13, 7441 Neckartailfingen, and Joachim Dudzik, Vor dem Klingler 1, 7440 Nürtingen, both of Fed. Rep. of Germany

Filed Jun. 2, 1980, Ser. No. 127,313
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909655
Int. Cl.³ B32B 1/00
U.S. Cl. 156—361 12 Claims

1. Labelling device, with a ribbon having self-adhesive labels removably arranged therein in spaced relationship and which can be pulled from a pull-off roll over a dispensing edge, an automatically tripped advancing mechanism arranged downstream of the dispensing edge in the advancing direction and movable in the forward advancing direction and in opposite return direction, a sensing device for controlling said advancing mechanism in response to control markings, such as holes, in said label ribbon, and a take-up roll for the empty label ribbon wherein the improvement compriscs that said advancing mechanism includes a ribbon clamping device movable a greater distance in the advancing direction than the spacing between labels in the ribbon and holds the ribbon during the forward advancing motion and is open during the return motion, a switching member is located in the path of movement of and is actuated by said mobile ribbon clamping device and limits the movement of said ribbon clamping device in the forward advancing direction, an OR-logic circuit having inputs arranged to receive the output signals of said switching member and said sensing device through which output signals it is possible to trip the opening of said mobile ribbon clamping device, and a ribbon tensioning mechanism connected to said take-up roll acting in winding direction and a return stop for said take-up roll.

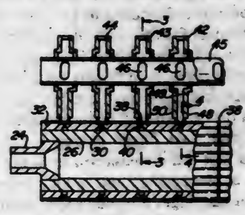


4,270,969

FINGERLESS SINGLE FACER

Lawrence R. Kelley, Philadelphia, Pa., assignor to Molins Machine Company, Inc., Cherry Hill, N.J.

Filed Feb. 20, 1980, Ser. No. 122,952
Int. Cl.³ B31F 1/28
U.S. Cl. 156—473 6 Claims



5. In a single facer machine having first and second corrugating rolls provided with longitudinally extending meshing flutes for corrugating a web of material passing therebetween, and suction means for retaining the corrugated web on approximately one-half the perimeter of said second roll, the improvement comprising:

a. said second roll having a central hollow core for receiving a heated fluid,

b. a sleeve surrounding and secured to said hollow core, means defining a plurality of circumferential grooves at spaced locations along the interface of said core and sleeve, said sleeve having a plurality of spaced annular slots in the perimeter thereof, the longitudinally extending flutes of the second roll being on the perimeter of said

sleeve, said sleeve having a plurality of passages extending from each of said annular slots to one of said grooves.

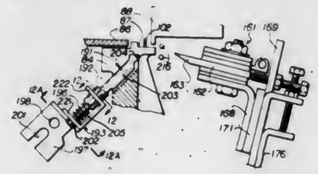
c. said suction means applying suction to said second corrugating roll by way of said grooves, slots and passages to hold the corrugated web on said one-half of the perimeter of said second corrugating roll, said suction means including a plurality of hoods disposed diametrically opposite said one-half perimeter, said hoods having edges extending into sealing grooves on the outer periphery of said second corrugating roll, and a suction manifold communication with each of said hoods.

4,270,970

PUNCHING AND BINDING MACHINE

Elmer G. Szanto, Saratoga, and Charles J. Ulrich, Santa Barbara, both of Calif., assignors to Velo-Bind, Inc., Sunnyvale, Calif.

Filed May 15, 1980, Ser. No. 149,984
Int. Cl.³ B32B 1/00
U.S. Cl. 156—477 B 4 Claims



1. An apparatus for binding apertured sheets together using a first strip, a plurality of thermoplastic studs projecting from and spaced longitudinally along said first strip and a second strip formed with holes spaced longitudinally of said second strip at intervals complementary to said studs, said apparatus being of the type having a frame having a pair of spaced sides and a platen formed to receive said second strip and to support said sheets with their apertures aligned with said holes with said first strip above said sheets with said studs extending through said apertures and said holes and protruding below said second strip, means for severing said studs to length and heating the studs of said studs,

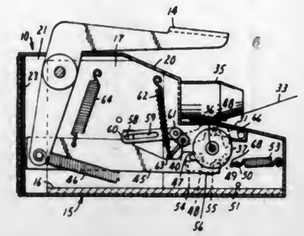
the improvement which comprises a transverse, slanted channel, means for moving said channel from an inoperative position upwardly-rearwardly to an operative position, said channel formed with first non-circular holes in its lower flange and with second non-circular holes in its upper flange, a plurality of fingers detachably held in said channel, each said finger having a first non-circular cross-section at a first end of said finger complementary to said first hole, each said finger having a first non-circular portion at a first end dimensioned to fit through said first hole when in one position and to lock behind said lower flange when said finger is turned approximately 90°, a first round portion above said first non-circular portion and dimensioned to turn in said first hole, a second non-circular portion above said first round portion dimensioned to slide in said second hole and when in said second hole to restrain rotation of said finger, a second round portion above said second non-circular portion dimensioned to turn in said second hole and an operative portion above said second round portion and a spring surrounding part of each said finger, said spring bearing against said second flange and said second non-circular portion whereby when said finger is inserted in said holes and twisted 90° said finger is captured in said channel, said spring permit said finger to yield when encountering resistance and restore said finger to projected position when resistance to movement terminates.

4,270,971

APPLICATOR FOR A DOUBLE COATED TAPE STRIP

Walter C. Pearson, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 17, 1979, Ser. No. 85,726
Int. Cl.³ B32B 31/04
U.S. Cl. 156—510 1 Claim



1. A definite length tape applicator for applying cut lengths of double-coated tape comprising

a frame,

first means on said frame for supporting a convolutely wound roll of double-coated pressure-sensitive adhesive tape for rotation about an axis,

a feed roller mounted on an axis parallel to the axis of said first means for the roll of tape and comprising

a plurality of spaced circular disc-like members, and

an axially spaced drive wheel for said feed roller,

said feed roller having a plurality of circumferentially spaced notches extending generally radially of said peripheral surfaces of said disc-like members,

a knife pivotally mounted on said frame and movable toward and away from said feed roller for cutting a tape wrapped upon said feed roller,

second means biasing said knife to a position away from said feed roll,

a plurality of spaced tape-applying fingers disposed one between each pair of said disc-like members for lifting the tape from the surface of said feed roller and applying the same to a receptor surface, said fingers being mounted for movement about an axis parallel to the axis of said feed roller and biased to a position with their tape engaging surface radially inward from the peripheral surface of the feed roller,

a handle pivotally mounted on said frame for movement relative thereto, and

third means connected to said handle and movable in response to relative movement of said handle with respect to said frame for moving said knife against the bias of said second means to sever a length of tape on said feed roller drawn from said supply of tape, for advancing said fingers from between said disc-like members to a position lifting said tape from said feed roller; and for rotating said feed roll upon return of said handle to said original position.

4,270,972

METHOD FOR CONTROLLED DOPING SEMICONDUCTOR MATERIAL WITH HIGHLY VOLATILE DOPANT

Allen G. Crouse, Tustin, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

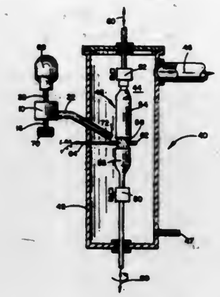
Filed Mar. 31, 1980, Ser. No. 135,385
Int. Cl.³ C30B 13/10, 13/12
U.S. Cl. 156—605 4 Claims

1. A method of doping semiconductor material with a highly volatile dopant in a float-zone crystal grower, the crystal grower comprising a gas impermeable housing, an induction heating coil disposed within the housing, and means for transporting a rod of the semiconductor material through the coil, said method comprising the steps of:

(a) disposing a holder for storing solid pieces of said dopant outside the housing, wherein said holder comprises a rotatable cylinder having a plurality of distinct chambers;

(b) providing feed means for propelling the dopant from one of said chambers through an exit port of said holder and into the housing in the vicinity of the coil whereby said dopant may enter a melted zone of said rod of semiconductor material;

(c) distributing a plurality of solid pieces of said dopant into said chambers;



(d) rotating said cylinder until a selected chamber is positioned adjacent said exit port;

(e) delivering inert gas under pressure into the interior of said holder and into said selected chamber;

(f) expelling the dopant from said selected chamber through said feed means into the melted zone of said rod of semiconductor material;

(g) rotating said cylinder until a different selected chamber is positioned adjacent said exit port; and

(h) repeating steps (e) through (g) until said rod of semiconductor material is doped.

4,270,973

GROWTH OF THALLIUM-DOPED SILICON FROM A TIN-THALLIUM SOLUTION

Joseph L. Schmit, Hopkins, and M. Walter Scott, Minnetonka, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation of Ser. No. 900,447, Apr. 27, 1978, abandoned.
This application Apr. 28, 1980, Ser. No. 144,738
Int. Cl.³ C30B 19/02
U.S. Cl. 156—605 5 Claims

1. A method for epitaxially growing a thallium-doped silicon crystal which exhibits an infrared photoconductive response from a metallic solution, comprising the steps of:

heating and melting a mixture of tin and thallium in an ampoule to thereby provide a liquid metal solvent of tin and thallium;

providing at a first location in said solvent a silicon source;

placing at a second location separate from the first location a silicon seed crystal; and,

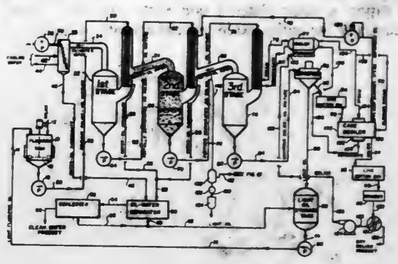
providing a temperature gradient in said solution from the silicon source first location in said solution to said second location in said solution with the temperature of the solution at said silicon source first location being hotter than at said second location whereby a thallium-doped silicon crystal grows at said second location.

4,270,974

PROCESS AND APPARATUS FOR RECOVERING CLEAN WATER AND SOLIDS FROM AQUEOUS SOLIDS

Charles Greenfield, Matray Hill; Robert E. Casperson, Boonton, and Anthony J. Bonanno, Parsippany, all of N.J., assignors to Hanover Research Corporation, East Hanover, N.J.

Filed Sep. 1, 1976, Ser. No. 719,515
Int. Cl.³ B01D 1/14
U.S. Cl. 159—16 S 24 Claims



15. An apparatus for recovering clean water and substantially dry, fluidizing oil-free solids from aqueous solids dehydrated in a light fluidizing oil medium, said apparatus comprising (1) a tank adapted to receive a stream of said aqueous solids and provided with a stirring or mixing mechanism, (2) a light fluidizing oil reservoir, (3) means for transmitting light fluidizing oil from said light oil reservoir to said tank wherein said light fluidizing oil and aqueous solids may be mixed, (4) an evaporator, (5) a conduit extending from said tank to said evaporator wherethrough may flow a stream of aqueous solids admixed with light fluidizing oil from said tank into the evaporating region of said evaporator, (6) a condenser, (7) a conduit extending from said evaporator to said condenser through which may flow a mixture of water vapor and light oil vapor formed as a result of heating of said aqueous solids and light fluidizing oil mixture, (8) an oil-water separating means, (9) a conduit extending from said condenser to said oil-water separating means wherethrough may flow a mixed condensate of water and light oil, (10) means for separately withdrawing light oil and clean water from said oil-water separating means, (11) a conduit extending from said withdrawing means to said light fluidizing oil reservoir wherethrough may flow a stream of light oil, (12) a liquid-solid separating means, (13) a conduit extending from said evaporator to said liquid-solid separating means wherethrough may flow a stream of a slurry of substantially anhydrous solids in light fluidizing oil, (14) a deoiler means, (15) a conduit extending from said liquid-solid separating means to said deoiler means wherethrough may flow a stream of solids carrying residual light fluidizing oil, and (16) a conduit extending from said liquid-solid separating means to said light fluidizing oil reservoir wherethrough may flow a stream of light oil.

4,270,975

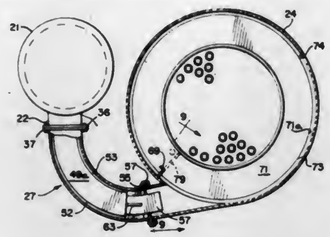
LIQUID-VAPOR SEPARATION DEVICE AND METHOD

Richard C. Bennett, Park Forest, Ill., assignor to Whiting Corporation, Harvey, Ill.

Filed Nov. 27, 1979, Ser. No. 97,639
Int. Cl.³ B01D 1/06
U.S. Cl. 159—27 A 17 Claims

8. An improved evaporator apparatus, comprising a generally cylindrical body defining a shell side in said apparatus, a plurality of tubes mounted in said apparatus extending through said shell side, a tube side inlet in said apparatus communicating with one end of said tubes, a tube side outlet in said apparatus communicating with the other end of said tubes, means for passing a liquid feed to be heated into said inlet and from said inlet through said tubes, an inlet and outlet in said shell side for passing a heating medium through said shell side in surround-

ing relation to said tubes for heating and at least partially vaporizing at least a portion of a liquid feed which is passed through said tubes to produce a liquid-vapor mixture which is discharged through said tube side outlet, a liquid-vapor separation device directly connected to said tube side outlet, said liquid-vapor separation device including a generally horizontally disposed elongated body which defines an arcuate passageway, an inlet at one end of said body for receiving said liquid-vapor mixture, an end wall at the other end of said body, an outlet in said end wall for discharge of a substantially liquid-free vapor, a floor plate in said body extending along and substantially the entire extent of said arcuate passageway, said



floor plate being spaced above a bottom wall of said elongated body to define a liquid collection chamber in said body between the floor plate and the bottom wall of said elongated body, said floor plate being spaced away from at least one side wall of said elongated body a sufficient distance to permit drainage of liquid droplets which collect on said side wall into said liquid collection chamber, a liquid outlet in said bottom wall for removal of liquid which accumulates in said liquid collection chamber, a skirt axially extending into said passageway from said end wall in surrounding relation to said outlet, and baffle means in surrounding relation to said skirt for substantially eliminating vapor swirl adjacent said outlet.

4,270,976

METHOD OF PRODUCING PEROXIDE BLEACHED PULP

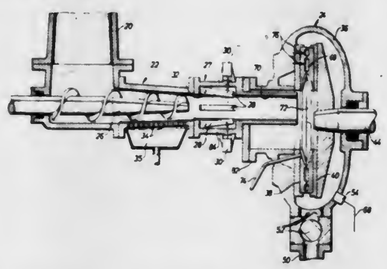
Åke O. Sandstrom, Täby; Bo G. Falk, Järfälla, and H. S. Ingemar Bystedt, Daderyd, all of Sweden, assignors to Defibrator AB, Stockholm, Sweden

Continuation of Ser. No. 852,542, Nov. 17, 1977, abandoned. This application Jul. 25, 1979, Ser. No. 60,614

Claims priority, application Sweden, Nov. 23, 1976, 7613088; Mar. 18, 1977, 7703137

Int. Cl.³ D21B *1/16*

U.S. Cl. 162—26 **7 Claims**



1. In the method of producing peroxidebleached pulp in a defibrating apparatus in which ligno-cellulosic raw material such as wood chips impregnated with a peroxide-containing bleaching solution is disintegrated in a grinding space defined between a pair of grinding discs which discs rotate relatively to one another under axial pressure within a closed defibrator housing in an environment of pressurized steam at a temperature above 100° C., the raw material being compressed at a temperature below 100° C., while being conveyed into an inlet to the defibrator housing and accelerated radially outwards in the grinding space by the centrifugal force created by the rotating discs, the resultant grist being discharged from the defibrator housing through valve means which are controlled to maintain a predetermined pressure within the housing, the improvement comprising:

(a) compressing the raw material into a steam-tight plug at the inlet to said defibrator housing while advancing it into said defibrator housing;

(b) breaking up said steam-tight plug into fiber bundles after said steam-tight plug has entered into said grinding space; and

(c) introducing the peroxide-containing bleaching solution into said grinding space without substantial contact with the steam environment in the defibrator housing to react with the raw material during its accelerated radial progression through said grinding space so as to provide a relatively short reaction time betweeen said peroxide-containing bleaching solution and said raw material for achieving a favorable relation between the bleaching action and the decomposition of the peroxide.

4,270,977

PROCESS FOR PREPARING WATER SORPTIVE PRODUCTS

Daniel F. Herman, Princeton, and Uno Kruse, Neptune, both of N.J., assignors to NL Industries, Inc., New York, N.Y.

Filed Nov. 1, 1979, Ser. No. 90,207

Int. Cl.³ D21H *3/44*; D21D *3/00*; C08F *220/20*

U.S. Cl. 162—168 R **9 Claims**

1. A process for preparing a water sorptive product which comprises:

(1) forming an aqueous suspension comprising a slurry of a potentially water swellable, water-insoluble polymer component and a fibrous component in water wherein the polymer component comprises the reaction product of:

(a) from about 15% to about 50% by weight of an olefinically-unsaturated carboxylic acid;

(b) from about 49.07% to about 82% by weight of an alkyl acrylate wherein the alkyl group has from 1 to 6 carbon atoms; and

(c) from about 0.03% to about 3.0% by weight of a cross-linkihg agent, said reaction product having carboxyl groups present therein which when coverted to their salt form maintains the polymer water-insoluble and imparts the capability of said polymer component of sorbing water upon contact therewith; and

wherein the fibrous component comprises at least 50% cellulose material, and the weight ratio of said polymer component to said fibrous component is controlled to from about 90:10 to about 5:95;

(2) forming a composite product from said suspension;

(3) partially drying said composite product to reduce the moisture content thereof to between about 3 and about 25%, by weight, based on the weight thereof;

(4) contacting said partially dried composite product with an amount of an aqueous solution of a base sufficient to achieve a degree of salting of the polymer component of said composite product of from about 100 to about 120% and thereby netralize the carboxylic groups present thereon and in a manner sufficient to prevent the weight ratio of the dry neutralized composite product to water sorbed therein from exceeding 1:10 without solubilizing the polymer salt; and

(5) drying said neutralized composite product to reduce the moisture content thereof to not greater than about 25% by weight.

4,270,978

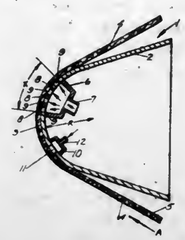
POSITIVE PRESSURE FELT DEWATERING AND CLEANING DEVICE AND METHOD

Eugene Floravanti, Averill Park, N.Y., assignor to Hayck Corporation, Wake Forest, N.C.

Filed Jul. 30, 1979, Ser. No. 62,451

Int. Cl.³ D21F *3/32*; B08B *1/02*

U.S. Cl. 162—199 **7 Claims**



1. A positive pressure dewatering device for papermaker's felts comprising a hollow shoe having a rounded nose adapted to contact and deflect the felt being dewatered, said nose having a radius of from about 2" to about 4" and an arc which is greater than 90° but less than 180°, an elongated lengthwise orifice in said nose having an effective width of from about 1" to about 4", and means within said shoe in communication with said orifice for discharging air under pressure therethrough.

4,270,979

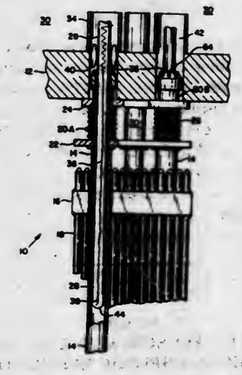
PARALLEL FLOW COLLAR FOR REDUCING VIBRATION OF A ROD WITHIN A DIFFUSER

Frank Bevilacqua, Windsor, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Dec. 18, 1978, Ser. No. 970,694

Int. Cl.³ G21C *3/30*, *7/08*

U.S. Cl. 176—78 **12 Claims**



1. A flow collar for reducing the flow induced oscillation of a rod within a tube that abruptly opens into a diffuser region downstream of the rod tip, comprising:

a sleeve rigidly attached with respect to the tube, the sleeve circumferentially surrounding the rod at the diffuser entrance and extending upstream thereof, for partitioning the flow entering the diffuser into a relatively low velocity flow immediately adjacent to the rod and a higher flow entering the diffuser laterally of and in a direction substantially parallel to the rod.

4,270,980

METHOD FOR RECOVERING AND UTILIZING HEAT OF COKE-OVEN GAS

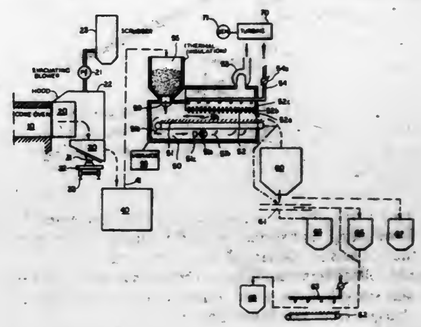
Teruo Shimotsuma; Kazuo Kunioka; Hiroshi Nishio, all of Yokohama, and Yasuo Okuyama, Kawasaki, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed May 3, 1979, Ser. No. 35,457

Claims priority, application Japan, May 26, 1978, 53-62183

Int. Cl.³ C10B *49/02*, *51/00*, *55/02*, *57/10*

U.S. Cl. 201—28 **3 Claims**



1. A method for recovering and utilizing heat of a coke-oven gas, which comprises the steps of:

introducing at least a part of a high-temperature coke-oven gas generated from a coke oven battery and containing vaporized coal tar, vaporized low boiling point substances and dust into a drying and preheating chamber, while supplying a blended raw material coal fine to be charged into coking ovens of said coke-oven battery into said drying and preheating chamber;

drying and preheating said coal fine through heat exchange with said coke-oven gas in said drying and preheating chamber, while causing most of the vaporized coal tar contained in said coke-oven gas to condense and deposit onto the particle surfaces of said coal fine, thereby recovering and utilizing sensible heat and condensation heat of said coke-oven gas and substances contained therein; and,

charging said coal fine, dried and preheated in said drying and preheating chamber and onto the particle surfaces of which coal tar has deposited, into coking ovens of said coke oven battery.

4,270,981

SOLAR DISTILLATION APPARATUS

Virgil Stark, New York, N.Y., assignor to North American Utility Construction Corp., New York, N.Y.

Filed Jan. 13, 1978, Ser. No. 915,881

Int. Cl.³ C02F *1/14*

U.S. Cl. 202—172 **31 Claims**

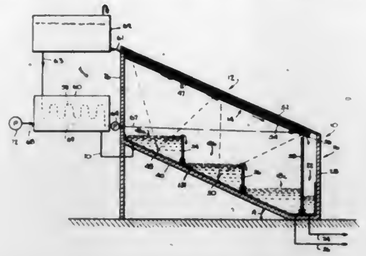
1. Apparatus for distilling a liquid such as water using solar energy comprising:

means for containing the liquid to be distilled;

lens means disposed above said containing means for concentrating the solar energy in said liquid to be distilled;

elongated conduit means disposed between said lens means and said containing means for condensing evaporated liquid thereon, said conduit means being transparent at least in part so as to allow solar energy concentrated by said lens means to pass therethrough and reach said containing means, said conduit means including means for admitting fluid to and withdrawing fluid from said conduit means such that a fluid can be passed through said conduit means, said conduit means including a substantially smooth surface disposed above the containing means and positioned such that rising liquid vapor impinges upon

said surface and is condensed thereon, said smooth surface being operative to transmit at least in part the heat of condensation released by evaporated liquid condensing thereon to the interior of said conduit means where such heat may be absorbed by the fluid in said conduit means and thereby may be recovered, said smooth surface having a vertically lower portion such that condensed liquid flows along said surface to said vertically lower portion thereof and is discharged therefrom, and



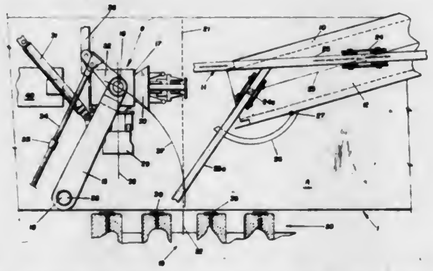
liquid collecting means disposed below said lower portion of said smooth surface for collecting condensed liquid discharged from said lower portion.

4,270,982

TURRET TYPE, SINGLE SPOT COKE OVEN DOOR MACHINE AND GUIDE

Ira Lakin, Volant, and Gilbert Blair, Coraopolis, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Sep. 22, 1980, Ser. No. 189,085
Int. Cl.³ C10B *25/14, 43/04, 33/14*
U.S. Cl. 202—241 **21 Claims**



1. An apparatus for servicing a coke oven battery comprising:

(a) a car mounted on wheels for movement along its longitudinal axis in a direction substantially parallel to the face of a coke oven battery;

(b) at least one support member mounted at one end about a primary vertical axis located in a fixed position on the car for pivotal movement in a horizontal plane about said primary axis;

(c) a turret having affixed thereto at least one coke oven servicing device mounted at the free end of said at least one support member for rotational movement in a horizontal plane about a secondary vertical axis such that pivotal movement of said at least one support member about the primary axis extends and retracts the turret toward and away from a selected coke oven in the battery along an arc defined by the pivotal movement of said at least one support member;

(d) means to pivot said at least one arm about the primary vertical axis; and

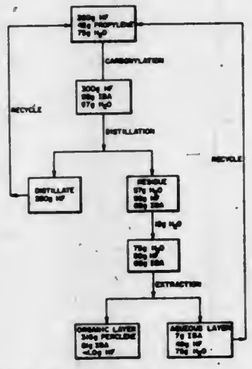
(e) means for rotating said turret about the secondary vertical axis in coordination with the pivotal movement of said at least one support member about the primary axis, said means including therein a means for rotating said turret about the secondary vertical axis independently of the pivotal movement to provide a first selected rotational position relative to the selected coke oven in which the servicing device is presented to the coke oven, said first selected position being maintained during at least part of the travel of the turret along the arc by said coordinating means for rotating said turret wherein for a first pivotal position of the support member the turret is adjacent the oven face for servicing the same and for a second pivotal position the turret is distal from the selected oven.

4,270,983

LIQUID-LIQUID EXTRACTION OF ISOBUTYRIC ACID FROM AQUEOUS HF SOLUTIONS THEREOF

Bhupendra C. Trivedi, Worthington; Dace Grote, and Thomas O. Mason, both of Columbus, all of Ohio, assignors to Ashland Oil, Inc., Ashland, Ky.

Filed Feb. 4, 1980, Ser. No. 118,359
Int. Cl.³ C07C *51/44, 51/48*
U.S. Cl. 203—43 **4 Claims**



1. In a method for the recovery of isobutyric acid prepared by the carbonylation of propylene in a reaction medium of about 80% hydrogen fluoride and 20% water; the improvement comprising distilling the resultant carbonylation reaction mixture to remove anhydrous hydrogen fluoride to the extent whereby the residual hydrogen fluoride content of said reaction medium is between about 60 and 35% and thereupon extracting the isobutyric acid content thereof with an immiscible organic solvent.

4,270,984

CATALYST SURFACES FOR THE CHROMOUS/CHROMIC REDOX COUPLE

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Jose D. Giner, and Kathleen J. Cahill, both of Waltham, Mass.

Division of Ser. No. 964,754, Nov. 29, 1978, Pat. No. 4,192,910. This application Jul. 27, 1979, Ser. No. 61,555
Int. Cl.³ H01M *10/44*
U.S. Cl. 204—2.1 **18 Claims**

1. A method of making a REDOX cell of the type having an ion permeable membrane separating anode and cathode fluids comprised of water, HCl and chromium and iron chloride salts, respectively, and including the additional steps of adding lead chloride to the anode fluid and then charging the cell to

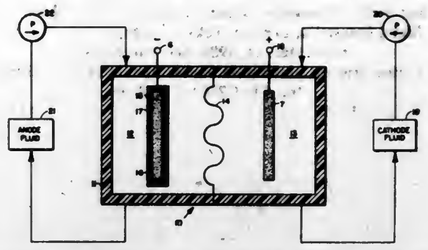


plate lead onto an electrically conductive inert electrode disposed in the anode fluid.

4,270,985

SCREEN PRINTING OF PHOTOPOLYMERIZABLE INKS

Melvin A. Lipson, Fullerton, and Dale W. Knoth, Norwalk, both of Calif., assignors to Dynachem Corporation, Tustin, Calif.

Continuation of Ser. No. 927,065, Jul. 21, 1978, abandoned, which is a continuation of Ser. No. 858,312, Dec. 7, 1977, abandoned, which is a continuation of Ser. No. 663,048, Nov. 18, 1975, abandoned, which is a division of Ser. No. 473,236, May 24, 1974, Pat. No. 3,953,214. This application Apr. 12, 1979, Ser. No. 29,249
Int. Cl.² B05D *3/06*
U.S. Cl. 204—15 **14 Claims**

1. A process for treating a substrate which comprises:

A. Screen printing on the surface of the substrate a solvent free liquid photopolymerizable ink which comprises:

(i) 25 to 50% by weight of a photopolymerizable monomeric material containing at least 20 weight percent hydroxyalkyl acrylate or methacrylate;

(ii) 20 to 60% by weight of a polyester binder having a molecular weight of from 500 to 50,000;

(iii) 5 to 10% by weight of a free radical generating addition polymerizing initiating system;

said ink having a viscosity of from 5,000 to 200,000 centipoises, an acid number of from 0 to 120 and a thixotropic index of from 1.00 to 4.00; thereby leaving on the surface of said substrate an image corresponding to the image on said silk screen;

B. Exposing the photopolymerizable ink film on said substrate to actinic radiation to cure said ink and to form a resist;

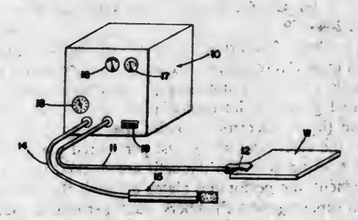
C. Permanently modifying the exposed areas on the substrate which are unprotected by the resist.

4,270,986

METHOD FOR SOLDERING ALUMINUM

Gary W. Smith, Brookpark, Ohio, assignor to Sifco Industries, Inc., Cleveland, Ohio

Filed Jul. 12, 1979, Ser. No. 56,832
Int. Cl.³ C25F *1/00, 3/00*; C25D *5/44*
U.S. Cl. 204—48 **9 Claims**



1. A method of soldering aluminum with soft solder which includes the steps of removing surface soil from the aluminum surfaces to be soldered, subjecting the surfaces to be soldered to an electrocleaning operation by making the surface the cathode in an electrolytic circuit embodying an alkaline electrolyte, electroetching the electrocleaned surface by making the surface the anode in an electrolytic circuit embodying an acid electrolyte and brush electroplating a layer of nickel having a thickness of from about 0.000030 inch to about 0.000050 inch on the previously cleaned and etched aluminum surfaces and thereafter soldering the surfaces by applying a soft solder and a non-corrosive flux thereto, and heating the solder sufficiently to fuse the same on the nickel-plated surfaces.

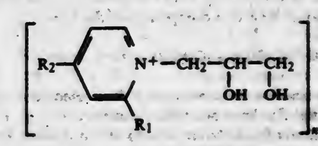
4,270,987

ACID GALVANIC NICKEL BATHS CONTAINING N-(2,3-DIHYDROXYPROPYL)-PYRIDINIUM SULFATES

Wolf-Dieter Willmund, Düsseldorf, and Heinz Wagner, Hilden, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holth enen, Fed. Rep. of Germany

Division of Ser. No. 66,568, Aug. 15, 1979, abandoned. This application Feb. 27, 1980, Ser. No. 125,246
Claims priority, application Fed. Rep. of Germany, Aug. 21, 1978, 2836581
Int. Cl.³ C25D *3/18*
U.S. Cl. 204—49 **5 Claims**

1. An aqueous acid galvanic nickel bath composition having lustering and wetting agents, characterized in that the bath contains as a leveling agent an N-(2,3-dihydroxypropyl)-pyridinium sulfate of the formula



wherein R_1 and R_2, which may be the same or different, are a hydrogen atom or a methyl radical; X is the acid radical $SO_4^{=}$ or HSO_4^{-}; and n is a digit sufficient to satisy the valence of X.

4,270,988

CADMIUM PLATING BATHS AND METHODS FOR ELECTRODEPOSITING BRIGHT CADMIUM DEPOSITS

William E. Eckles, Cleveland Heights, and Valerie M. Canaris, Parma, both of Ohio, assignors to Robco, Inc., Cleveland, Ohio

Filed Sep. 24, 1979, Ser. No. 78,139
Int. Cl.³ C25D *3/26*
U.S. Cl. 204—50 R **12 Claims**

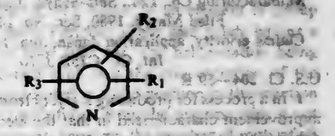
1. An aqueous electroplating bath for the electrodeposition of cadmium comprising

(a) cadmium ions

(b) a free acid

(c) at least one anionic compound selected from the group consisting of aromatic or aliphatic sulfonic acids, aliphatic sulfates, or bath-soluble salts thereof, and

(d) at least one pyridine brightener composition having the formula



wherein R_1, R_2 and R_3 are each independently hydrogen,

alkyl, alkoxy, alkene, mercapto, amino, halogen, aryl, arylalkyl, aminoalkyl, hydroxy, hydroxyalkyl, cyano, dialkylamide, aldoxime, or pyrolidinyl groups and the corresponding N-oxide compounds.

4,270,989

CADMIUM PLATING BATHS AND METHODS FOR ELECTRODEPOSITING BRIGHT CADMIUM DEPOSITS

William E. Eckles, and Charles W. McFarland, both of Cleveland Heights, Ohio, assignors to Rohco, Inc., Cleveland, Ohio

Filed Dec. 21, 1979, Ser. No. 106,094
Int. Cl.³ C25D 3/26
U.S. Cl. 204—50 R 28 Claims

1. An aqueous electroplating bath for the electrodeposition of cadmium comprising
(a) cadmium ions,
(b) a free acid, and
(c) at least one phosphate, carboxylate, or sulfate compound containing one or more alkylene oxide groups and wherein the alkylene group contains 2 or 3 carbon atoms, and at least one of the alkylene oxide groups in the sulfates is attached to an aryl group.

4,270,990

ACIDIC ELECTROPLATING BATHS WITH NOVEL SURFACTANTS

Jaan J. Fong, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Jun. 7, 1979, Ser. No. 46,378
Int. Cl.³ C25D 3/22, 3/32, 3/38
U.S. Cl. 204—55 R 2 Claims

1. An acidic electroplating bath comprising metal ions, an electrolyte, and at least one compound of the formula:

$$R—Ar—O—(C_3H_6O)_n—(C_2H_4O)_m—H$$

wherein Ar is benzene or naphthalene; R is selected from the group consisting of at least one halide, amine, carboxyl, ketone and mixtures thereof; n is from zero to 10, m is from zero to 100, and m+n is greater than zero.

4,270,991

ANODIC OXIDATION OF ALUMINUM AND ALUMINUM ALLOYS WITH A LIGNIN ELECTROLYTE SOLUTION

Jack L. Woods, 1517 Ninth, Ogden, Utah 84404

Filed May 20, 1977, Ser. No. 799,010
Int. Cl.³ C25D 11/08, 11/10
U.S. Cl. 204—58 8 Claims

1. An electrolyte process for hard anodizing aluminum and aluminum alloys which comprises making an aluminum or aluminum alloy article anode in an acid electrolyte solution containing between 0.50 and 5.0 grams per liter of electrolyte solution of a lignin selected from the group consisting of lignin, a ligno sulfonic acid and a ligno sulfonate salt and an acid concentration between 60 and 350 grams per liter at a temperature between the freezing point of the electrolyte solution and 10° C.

4,270,992

PROCESS FOR PRODUCING GLYCOL

Mitsutaka Saito, Tokuyama, Japan, assignor to Toyo Soda Manufacturing Co., Ltd., Shin-nanyo, Japan

Filed May 8, 1980, Ser. No. 147,959
Claims priority, application Japan, Jun. 1, 1979, 52/67511
Int. Cl.³ C25B 3/10
U.S. Cl. 204—59 R 4 Claims

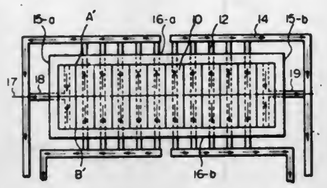
1. In a process for producing a glycol from formaldehyde, an improvement characterized in that the electrolysis of formaldehyde is carried out in an alkaline solution by using a carbon type electrode as a cathode.

4,270,993

METHOD OF STABILIZING AN ALUMINUM METAL LAYER IN AN ALUMINUM ELECTROLYTIC CELL

Youji Arita, Yokohama, Japan, assignor to Mitsubishi Light Metal Industries, Limited, Tokyo, Japan

Filed Mar. 21, 1980, Ser. No. 132,627
Claims priority, application Japan, Apr. 2, 1979, 54/39540
Int. Cl.³ C25C 3/06, 3/16
U.S. Cl. 204—67 4 Claims



1. A method of stabilizing an aluminum metal layer in an aluminum electrolytic cell where, in the interior of a rectangular container of an aluminum electrolytic cell, cell currents supplied from anode buses in the upper part of said electrolytic cell are drawn out through plural collector bars provided parallel to the end walls of said container, characterized by directing the direction of currents flowing through said collector bars to the longitudinal center line from the side walls of said container in the neighborhood of said end walls and to said side walls from said longitudinal center line in the longitudinal central part of said container.

4,270,994

ELECTROCHEMICAL DEHYDROGENATION OF STEROIDAL $\Delta^{3,5}$ ENOL ETHERS UNDER BASIC CONDITIONS TO PROVIDE STEROIDAL $\Delta^{4,6}$ DIENONES

James R. Behling, Lindenhurst, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Feb. 20, 1980, Ser. No. 122,938
Int. Cl.³ C25B 3/02
U.S. Cl. 204—78 23 Claims

1. An electrochemical process for dehydrogenating steroidal $\Delta^{3,5}$enol ethers to provide the corresponding $\Delta^{4,6}$ dienone comprising the steps of reacting a steroidal $\Delta^{3,5}$ enol ether in the present of a high potential catalyst, under basic conditions, with a suitable electolyte solution, at an applied voltage sufficient so that current passes, phenol is oxidized, the $\Delta^{3,5}$ enol remains inert to the anode and the reaction proceeds to completion, and thereafter recovering the steroidal $\Delta^{4,6}$ dienone from the reaction mixture.

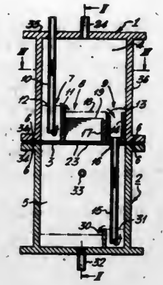
4,270,995

ELECTROCHEMICAL CELL AND PROCESS

Francis Goodridge, and Raymond E. Plimley, both of Newcastle-upon-Tyne, England, assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jul. 13, 1979, Ser. No. 57,489
Int. Cl.³ C25B 3/02, 3/06, 9/00, 15/08
U.S. Cl. 204—79 26 Claims

7. A method of carrying out an electrochemical process or reaction in an electrochemical reactor comprising (I) a plurality of cells, each cell comprising (i) electrodes disposed over a perforated generally horizontal plate and (ii) an electrolyte inlet and (iii) an electrolyte outlet spaced apart on opposite sides of the electrodes across the perforated plate, and (II) a reactor housing in which the cells are stacked in a columnar arrangement, the perforated plates dividing the reactor housing into superimposed chambers, each perforated plate being disposed over a gas-supply chamber for passing gas up through perforations in the plate to bubble through electrolyte on the plate and collect in the chamber thereabove and which (except for that of the top cell) forms the gas-supply chamber for the cell above, the method comprising flowing electrolyte down



the columnar reactor from one cell to the next and across the perforated plate of each cell, and passing gas up through the perforations in the successive plates so that the gas bubbles through the electrolyte on each plate.

4,270,997

LASER PHOTOCHEMICAL SYNTHESIS OF Si_3N_4

James A. Merritt, Pulaski, Tenn., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 87,115, Oct. 22, 1979, Pat. No. 4,227,987.
This application Apr. 7, 1980, Ser. No. 137,887
Int. Cl.³ B01J 19/12
U.S. Cl. 204—157.1 R 1 Claim

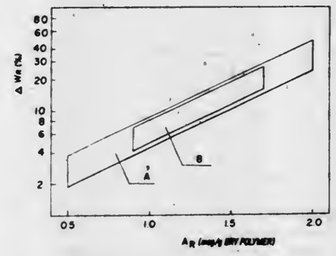
1. A method of producing Si_3N_4 by laser photochemical reaction initiated by irradiating the reactant gases in a controlled atmosphere laser reaction chamber, said method comprising:
(a) introducing into a laser reaction chamber that is provided with a salt window transparent to laser radiation, a controlled atmosphere of the reactant gases of SiX_4 and NX_3, wherein X is selected from hydrogen and fluorine, said gases maintained in a controlled atmosphere at pressures between about 10 and about 200 torr in a molar volume ratio of about 3 of said SiX_4 to about 4 of said NX_3;
(b) irradiating said controlled atmosphere with the P(36) line of a CO_2 laser to produce said Si_3N_4 as a powdery solid; and,
(c) separating and removing said powdery solid of Si_3N_4 from said laser reaction chamber.

4,270,996

CATION EXCHANGE MEMBRANE OF FLUORINATED POLYMER FOR ELECTROLYSIS AND ELECTROLYSIS USING THE MEMBRANE

Manabu Sahara; Shoziro Goto, and Kiyotaka Arai, all of Yokohama, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Sep. 26, 1979, Ser. No. 79,198
Claims priority, application Japan, Sep. 26, 1978, 53/117474
Int. Cl.³ C25B 1/34, 13/08
U.S. Cl. 204—98 12 Claims



1. A cation exchange membrane fabricated from a fluorinated polymer and useful for the electrolysis of an alkali metal chloride prepared by a process, comprising: treating a cation exchange membrane having ion exchange groups of the formula: —COOM, wherein M is hydrogen, an alkaline earth metal or an alkali metal or groups convertible to said —COOM group and having an ion exchange capacity (A_R) of 0.5 to 2.0 meq/g dry polymer in a hydrolyzed form in an aqueous medium of a base or a slat at a concentration of 1 to 20 wt. % at the temperature of 0° to 60° C. after hydrolysis or at the time of hydrolysis, said treated membrane exhibiting a weight gain percent (ΔW_R) in the range of $\Delta W_R = 1.6e^{1.7AR}$ on the upper side; $\Delta W_R = 0.8e^{1.7AR}$ on the lower side; $A_R = 0.5$ on the left side and $A_R = 2.0$ on the right side shown in FIG. 1 (log scale on ordinate).

4,270,998

PROCESS FOR THE PREPARATION OF OPTIONALLY SUBSTITUTED ACETONITRILES MONOHALOGENATED IN THE α-POSITION

Rüdiger Schubert, Berg.-Gladbach, and Rudolf Braden, Odenthal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 26, 1979, Ser. No. 78,989
Claims priority, application Fed. Rep. of Germany, Oct. 11, 1978, 2844200; Feb. 10, 1979, 2905082
Int. Cl.³ B01J 19/12
U.S. Cl. 204—158 HA 9 Claims

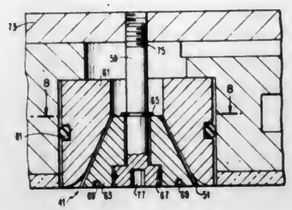


1. A process for the preparation of monohalogenated acetonitrile which comprises contacting acetonitrile with halogen at elevated temperatures in the liquid phase under the action of UV light in the presence of a halide of an element of group III-VI of the Mendeleeff Periodic Table, said halide having a vapor pressure of at least 0.05 bar, the halogenation being carried out to an extent such that the concentration of the acetonitrile monohalogenated in the α position in the reaction mixture continuously withdrawn from the reaction zone is not more than 33 mol percent, based on the number of mols of all the substances contained in the reaction mixture so withdrawn.

4,270,999
METHOD AND APPARATUS FOR GAS FEED CONTROL IN A DRY ETCHING PROCESS

Javathu K. Hassan, Hopewell Junction, and John A. Paivanas, Hyde Park, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 28, 1979, Ser. No. 79,759
Int. Cl.³ C23F 1/00; C23C 15/00
U.S. Cl. 204—192 E 13 Claims

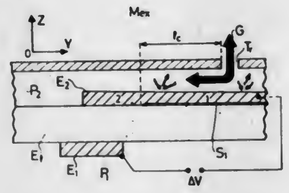


1. A method for dry etching in a uniform gaseous molecular field under high vacuum conditions comprising providing a source of a reactant gas, introducing said gas into a manifold, said manifold feeding at least one nozzle, passing said gas through said manifold and through said nozzle into a chamber maintained under vacuum conditions, causing said gas to exit from said nozzle into said chamber under vacuum at sonic velocity within said nozzle, creating plasma from said reactant gas adjacent said objects and etching said objects.

4,271,000
ELECTROCHEMICAL SENSOR FOR MEASURING RELATIVE CONCENTRATIONS OF REACTIVE SPECIES IN A FLUID MIXTURE

Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 6, 1979, Ser. No. 91,757
Claims priority, application France, Nov. 7, 1978, 78 31438
Int. Cl.³ G01N 27/58
U.S. Cl. 204—195 S 9 Claims

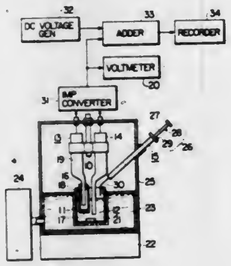


1. An electrochemical sensor for measuring relative concentrations of reactive species contained in a fluid mixture, comprising:
an electrochemical cell having a flat structure which is sensitive to an excess quantity of one of the reactive species with respect to stoichiometry of the reaction; and
an enclosure which communicates with the fluid mixture to be analyzed through a first orifice and with said electrochemical cell through a second orifice,
wherein said cell comprises:
a first electrode in contact with said enclosure,
a second electrode isolated from said enclosure and in contact with a reference medium, and
a solid electrolyte which is an ionic conductor for the species to be analyzed or for an ion which is capable of reacting with said species, said electrolyte being in contact with said two electrodes of the electrochemical cell,
said enclosure being in the form of a duct which is parallel along its greatest dimension to the plane of said first electrode of the electrochemical cell, and
wherein said first electrode is formed of catalytic material, said catalytic material being also deposited on the bottom wall of said enclosure,
said first electrode being also divided into two zones such that the first zone constitutes with said second electrode and said solid electrolyte of the electrochemical cell a measurement zone which is sensitive to the species to be analyzed while the second zone extends over a predetermined distance of said duct in the direction of the aforesaid orifice for providing a communication with said fluid mixture to be analyzed and constitutes a zone for catalysis of said mixture, and
wherein the surface of the second zone of said first electrode is provided with a corrugated structure in order to increase the surface area in contact with said fluid mixture to be analyzed.

4,271,001
APPARATUS FOR MEASURING MEMBRANE CHARACTERISTICS OF VESICLES

Hiroshi Imafuku; Takeo Kimura, and Hidehiko Kobayashi, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Mar. 15, 1979, Ser. No. 20,688
Claims priority, application Japan, Mar. 23, 1978, 53-32338; Mar. 5, 1979, 54-25251
Int. Cl.³ G01N 27/42
U.S. Cl. 204—195 B 7 Claims

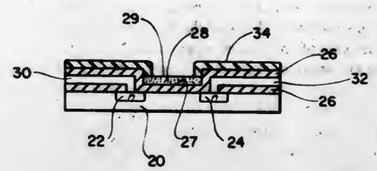


1. An apparatus for measuring membrane characteristics of vesicles and comprising:
vessel means for containing vesicles and a solution of lipophilic ion;
electrode means, selectively responsive only to the lipophilic ion, for producing an output indicative of lipophilic ion concentration;
arithmetic unit means, electrically connected with said electrode means, for calculating the time-change rate of the detected output from said electrode means and also for calculating the permeability coefficient of the vesicular membrane for the lipophilic ion and/or the membrane potential of the vesicular membrane from said output of said electrode means, from said time-change rate, and from the following input data: the volume and temperature of the solution, and the total volume and the total surface area of the vesicles suspended in the solution; and
input means for inputting said input data to said arithmetic unit means.

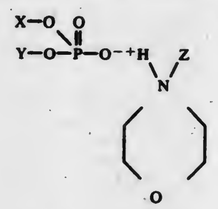
4,271,002
CALCIUM ION-SELECTIVE ELECTRODES AND MEMBRANE FOR USE THEREIN

John J. Hawkins, Santa Ana, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Continuation-in-part of Ser. No. 52,639, Jun. 27, 1979, which is a continuation-in-part of Ser. No. 880,908, Feb. 24, 1978, abandoned. This application Dec. 26, 1979, Ser. No. 107,031
Int. Cl.³ G01N 27/46
U.S. Cl. 204—195 M 75 Claims



1. A membrane for use in the determination of calcium ion concentration in an aqueous solution, said membrane being of the type comprising a calcium ion selective component and a carrier material, characterized in that said calcium ion selective component is a compound having a formula



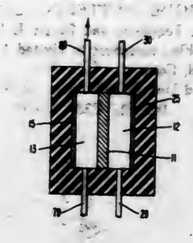
wherein
X and Y are selected from a group consisting of aryl, alkyl(aryl) alkenyl, cycloalkenyl, and alkynyl radicals wherein said alkyl moiety of said alkyl(aryl) radical consists of 1–12 carbon atoms; each alkenyl and alkynyl moiety of said alkenyl(aryl) and alkynyl(aryl) radicals, respectively, consists of 2–12 carbon atoms; each aryl moiety consists of 6, 10, 12, or 14 carbon atoms; and each alkyl, cycloalkyl, alkenyl, cycloalkenyl, and alkynyl radical consists of 6 to 14 carbon atoms; and
Z is selected from a group consisting of alkyl radicals containing 1–12 carbon atoms; alkenyl and alkynyl radicals containing 4–12 carbon atoms; and cycloalkyl and cycloalkenyl radicals containing 6 to 12 carbon atoms.

4,271,003
CHEMOELECTRIC CELL

Olle B. Lindstrom, Taby, Sweden, assignor to AB Olle Lindstrom, Taby, Sweden

Division of Ser. No. 881,606, Feb. 27, 1978, Pat. No. 4,181,776, which is a continuation of Ser. No. 696,925, Jun. 17, 1976, abandoned. This application Aug. 16, 1979, Ser. No. 67,142
Claims priority, application Sweden, Jun. 18, 1975, 7507041
The portion of the term of this patent subsequent to Jan. 1, 1997, has been disclaimed.
Int. Cl.³ C25B 1/10, 1/26
U.S. Cl. 204—265 2 Claims

1. A chemoelectric cell for producing hydrochloric acid and alkali in the electrolysis of brine comprising:
a positive electrode for the production of hydrochloric acid comprising a hydrogen electrode, a negative electrode for the production of alkali spaced from said positive electrode to define an interspace therebetween for conducting electrolyte,
one of said electrodes comprising a gas electrode having one side facing said interspace,
a porous separator disposed in said interspace and abutting against said side of said gas electrode,
said separator defining passageways open toward said side of said gas electrode for conducting gaseous substance from an inlet end to an outlet end of said interspace,
portions of said side of said gas electrode located along said passageways being coated with electrolyte repellant material,

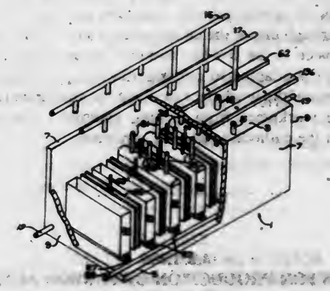


means for delivering electrochemically active gaseous substance into said passageways for travel along and reaction with said portions of said side of said gas electrode that are coated by said electrolyte repellant material, and
means for delivering liquid electrolyte to said interspace to impregnate said separator so that electrolyte is in contact with areas of said side of said gas electrode which are abutted by said separator.

4,271,004
SYNTHETIC SEPARATOR ELECTROLYTIC CELL

Hugh Cunningham, and Carl W. Raetzsch, both of Corpus Christi, Tex., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jul. 11, 1979, Ser. No. 56,580
Int. Cl.³ C25B 9/04, 11/03, 13/04
U.S. Cl. 204—266 9 Claims



1. An electrolytic cell comprising:
(a) an electrolyte tank having a top, a bottom, and sidewalls;
(b) planar first electrodes, substantially parallel to, spaced from, and electrically in parallel with each other, in said electrolyte tank;
(c) hollow second electrodes of opposite polarity to and interleaved between said planar first electrodes, said hollow second electrodes being substantially parallel to, spaced from, and electrically in parallel with each other;
(d) ion permeable separator means on the external surfaces of said hollow second electrodes between said planar first electrodes and said hollow second electrodes; and
(e) first bus bar means above said electrolyte tank, electrically and mechanically in series with said planar first electrodes through the electrolyte tank top, and second

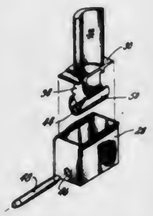
bus bar means above said electrolyte tank, electrically and mechanically in series with said hollow second electrodes through the electrolyte tank top.

4,271,005

WORKPIECE SUPPORT APPARATUS FOR USE WITH CATHODE SPUTTERING DEVICES

Robert J. Wright, Tequesta, and Ralph J. Hecht, North Palm Beach, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 3, 1979, Ser. No. 99,246
Int. Cl.³ C23C 15/00
U.S. Cl. 204—298 5 Claims



1. Apparatus for supporting within a cathode sputtering device a workpiece having an attachment section, a platform section and an airfoil section and for shielding the attachment section of the workpiece from coating material to be deposited on airfoil and platform surfaces of the workpiece during a sputtering process, the apparatus comprising:

a clip which is adapted to engage the attachment section of the workpiece to be supported and which has an open ended tube;

a box-like member having one open side into which the attachment section of a workpiece engaged by one of said clips is insertable and having five closed sides; and

a pin which is at least partially insertable into said tube of the clip through one of the closed sides of said box to hold the workpiece in the box-like member wherein said box-like member is adapted to circumscribe the periphery of the platform of the workpiece to shield the attachment section of the workpiece from coating material to be applied within the cathode sputtering apparatus.

4,271,006

PROCESS FOR PRODUCTION OF CARBON ARTIFACT PRECURSOR

Ghazi Dickakian, Scotch Plains, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Apr. 23, 1980, Ser. No. 143,136
Int. Cl.³ C10C 1/20, 1/18
U.S. Cl. 208—40 9 Claims

1. A process for preparing a ptich suitable for carbon artifact manufacture comprising:

providing a cat cracker bottom fraction boiling in the range of from about 200° C. to about 550° C.;

treating said cat cracker bottom fraction to remove at least a portion of said fraction which boils below about 400° C.;

heat soaking the so-treated cat cracker bottom in an inert atmosphere at temperatures in the range of about 390° C. to about 450° C. for times ranging from about ½ to 10 hours to provide a carbonaceous pitch.

4,271,007

METHOD AND APPARATUS FOR THE PREVENTION OF SOLIDS DEPOSITS IN A TUBULAR REACTOR BY PULSED FLOW

Frank Soukrada, Weston, and Buenaventura B. Galvez, Islington, both of Canada, assignors to Gulf Canada Limited, Toronto, Canada

Filed Nov. 23, 1979, Ser. No. 97,011
Int. Cl.³ C10G 9/16, 9/18, 47/36
U.S. Cl. 208—48 R 12 Claims

1. A method for processing a liquid which is to flow through a tubular vessel at a rate that produces primarily laminar flow conditions therein and from which solids can form and deposit onto the wall of the vessel, comprising:

(a) maintaining a continuous feed of the liquid into the inlet of the vessel at a rate that causes laminar flow of the liquid as it moves to the outlet of the vessel;

(b) applying regularly varying pressure pulses to the flow of the liquid at a location in the flow near one end of the vessel;

(c) maintaining, by means of said pulses, a positive displacement of the liquid to and from a surge chamber adapted to receive and discharge the liqud and connected to the flow near the opposite end of the vessel from the point of application of the varying pressure pulses;

(d) controlling the frequency and amplitude of the pressure pulses effectively so that the flow conditions in the liquid in the vessel between the point of application of the pulses and the surge chamber reach, during the cycles, a peak instantaneous Reynolds number in the turbulent region; and

(e) substantially continuously discharging liquid from an outlet downstream from the surge chamber.

3. An apparatus for processing liquids having a tendency to deposit solids on tubular reactor walls, comprising:

(a) a tubular reactor in which the processing is carried out;

(b) a pulsating mechanism near one end of said reactor comprising a chamber in open communication with the reactor and a means to induce continuous sub-audio oscillation in the liquid being processed of frequency and amplitude sufficient to achieve during each oscillation a peak instantaneous Reynolds number in the turbulent flow region;

(c) a means near the opposite end of said reactor from said pulsating mechanism to contain the surges of liquid produced by the oscillating flow;

(d) a means to ensure a substantially continuous feed to the reactor system, which reactor system consists of the reactor, the pulsating mechanism and means to contain the surges; and

(c) a means at the outlet of the reactor system to maintain pressure inside the reactor system.

4,271,008

PRODUCTION OF ETHYLENE

Wilhelm Vogt, Hürth, and Hermann Glaser, Erftstadt, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 29, 1979, Ser. No. 98,609
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1978, 2852314
Int. Cl.³ C10C 9/16; C07C 4/04, 11/04
U.S. Cl. 208—48 R 5 Claims

2. A process for making ethylene by subjecting a gas mixture containing hydrocarbons, hydrogen, carbon monoxide, carbon dioxide and steam to a hydropyrolysis reaction, which comprises heating the gas mixture to temperatures higher than 800° C. and maintaining the heated gas mixture under a pressure of less than 5 bars inside a reaction zone having metal walls coated with an overlayer of at least one metal selected from copper and aluminum, said overlayer being applied to the metal walls via the gas phase with the use of at least one halogen compound as a transporting agent.

4,271,009

METHOD FOR REDUCING THE NITROGEN CONTENT OF SHALE OIL

Carole S. Stover, Van Nuys; Leslie E. Compton, Claremont, and Eugene G. Youngerman, Downey, all of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Jun. 27, 1979, Ser. No. 52,637
Int. Cl.³ C10G 17/04, 17/07; G10G 21/18
U.S. Cl. 208—254 R 12 Claims

1. A method for reducing the nitrogen content of shale oil by removing nitrogen-containing compounds from shale oil, comprising the steps of:

(a) reducing the viscosity of the shale oil by mixing the shale oil with a miscible non-polar diluent selected from the group consisting of ethers, chloroform, carbon tetrachloride and halocarbons;

(b) extracting nitrogen-containing compounds from the shale oil with a selective solvent system for the nitrogen-containing compounds consisting essentially of from about one to about fifty percent by weight water and an organic acid selected from the group consisting of formic acid, acetic acid, trichloracetic acid and mixtures thereof; and,

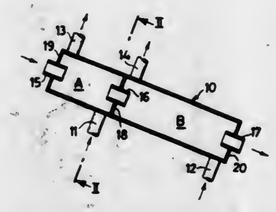
(c) separating the solvent phase containing nitrogen-containing compounds from the shale oil phase having a reduced nitrogen content.

4,271,010

CYLINDRICAL SEPARATOR APPARATUS FOR SEPARATING MIXTURES OF SOLIDS OF DIFFERENT SPECIFIC GRAVITIES, PARTICULARLY FOR THE MINING INDUSTRY

Massimo Guarascio, Via Urbana 12/C, Rome, Italy

Filed Sep. 5, 1978, Ser. No. 939,684
Claims priority, application Italy, Sep. 6, 1977, 27291 A/77
Int. Cl.³ B04C 3/04
U.S. Cl. 209—211 12 Claims



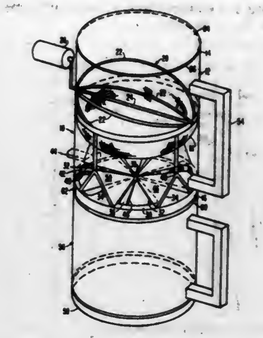
1. A cylindrical separator apparatus for the separation of mixtures of solids of different specific gravities, particularly for the mining industry, comprising a hollow cylindrical body that is divided by a partition wall into two consecutive first and second respective uppermost and lowermost chambers communicating with each other through an axial pipe provided in said partition wall, a front wall of said first chamber opposite to said partition wall being provided with an axial inlet pipe and a front wall of the second chamber opposite to the partition wall being provided with an axial outlet pipe, the first chamber being moreover provided with a tangential inlet pipe in the vicinity of the partition wall and with a tangential outlet pipe in the vicinity of its front wall, and the second chamber, being moreover provided with a tangential inlet pipe in the vicinity of its front wall and with a tangential outlet pipe in the vicinity of the partition wall.

4,271,011

FLOUR SIFTER

Patricia J. Spencer, 805 Valley View Rd., Ft. Collins, Colo. 80524; Carrie P. DeRoeck, and Robert L. DeRoeck, both of 345 Keith Dr., Colorado Springs, Colo. 80916

Filed Jul. 7, 1980, Ser. No. 166,756
Int. Cl.³ B07B 1/02
U.S. Cl. 209—236 6 Claims



1. A flour sifter comprising:

an upright cylinder;

a screen disposed generally transversely across the interior of said cylinder intermediate the length thereof;

an agitator disposed immediately above and movable over said screen to effect the sifting of flour therethrough;

a first plate affixed across the lower end of said cylinder and including means defining a circumferentially-spaced first series of openings successively separated by respectively interposed first panels;

a second plate juxtaposed with said first plate, movable about an axis extending centrally of said cylinder and including means defining a circumferentially-spaced second series of openings successively separated by respectively interposed second panels, said second openings being alignable with said first openings upon movement of said second plate to one position and being alignable with said first panels upon movement of said second plate to another position;

and means included on each of the panels of the uppermost one of said plates defining a smooth surface which slants upwardly from the adjacent margin of a corresponding opening in said one plate toward the adjacent margin of the next successive opening in said one plate beyond the upper terminus of said surface.

4,271,012

AUTOMATIC EMBOSSING SYSTEM

Richard J. LaManna, Whippany; Jacob H. Drillick, Hawthorne, both of N.J., and Michael D. Poled, Mendota, Minn., assignors to Data Card Corporation, Minnetonka, Minn.

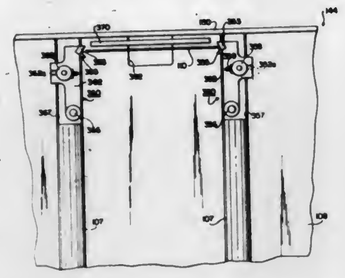
Division of Ser. No. 835,406, Sep. 21, 1977, Pat. No. 4,180,338, which is a division of Ser. No. 720,071, Sep. 2, 1976. This application Mar. 7, 1979, Ser. No. 18,279
Int. Cl.³ B07C 9/00
U.S. Cl. 209—653 7 Claims

1. An output stacker mechanism for receiving processed documents and selectively stacking same in accept and reject portions thereof, comprising:

resilient engaging means defining first and second channels for receiving first and second edges of a document deposited in said output stacker at a position intermediate said accept and reject portions thereof,

deflection means selectively positionable initially at one of first and second opposite sides of said resilient engaging

means and selectively movable in first and second opposite directions to the respectively opposite said side,
means for displacing said deflection means to a first of said two sides prior to deposit of a document therein and means for energizing said deflection means to deflect said deposited document in said first direction beyond said resilient engaging means and into said accept portion of said output hopper and, in response to an error indication, displacing said deflection means to said second side prior to depositing a document in said output hopper and there-



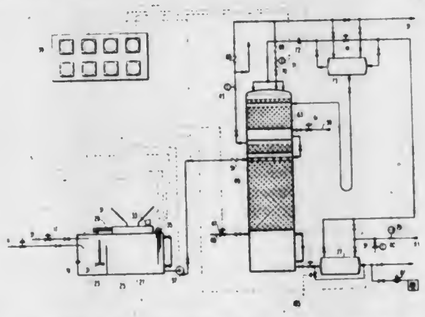
after energizing said deflection means to deflect said document deposited in said resilient engagement means in said second direction, beyond said resilient engaging means and into said reject hopper, thereby to physically separate the transported documents at said output stacker into said accept and reject portions, a pair of guide rails are provided, said resilient engaging means including a pair of movable detent mechanisms for providing the first and second channels, and each of the movable detent mechanisms are pivotally mounted on a guide rail.

4,271,013

METHOD AND APPARATUS FOR REMOVING BIODEGRADABLE COMPOUNDS FROM WASTEWATER

Aniruddha Bhattacharyya, West Seneca, N.Y., assignor to Republic Steel Corporation, Cleveland, Ohio and The Hanna Furnace Corporation, Buffalo, N.Y.

Continuation-in-part of Ser. No. 13,679, Feb. 21, 1979. This application Apr. 24, 1979, Ser. No. 32,897
Int. Cl.³ C02F 3/08, 1/04
U.S. Cl. 210—617 15 Claims



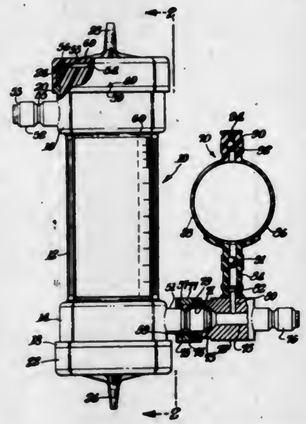
1. A method for removing biodegradable compounds selected from the group comprising: oils, volatile organics, phenolics free and fixed ammonia compounds, thiosulfates, thiocyanates, cyanides, sulfides and the like from a feed wastewater comprising the steps of:
(a) distilling said wastewater to remove said free ammonia compounds, oils and volatile organics;
(b) adding soda ash to said wastewater and steam distilling said wastewater to remove said fixed ammonia compounds;
(c) treating said wastewater of step (b) by means of an activated sludge treatment in a single stage sludge reactor comprising biological solids, said solids reactor further comprising particulate solids selected from the group comprising clay, fly ash, powdered activated carbon, or the like adapted to improve the settling characteristics of said sludge and running said reactor at a solids retention time of about 100–1000 days, said activated sludge exhibiting substantially no net biological growth to produce an effluent comprising biological and particulate solids;
(d) separating said biological and particulate solids from said solids containing effluent of steps (c); and
(e) recycling substantially all of said separated solids from said settling tank to said activated sludge reactor whereby substantially no solids wasting occurs.

4,271,014

DIALYSIS APPARATUS AND TECHNIQUE

James D. Ald, St. Petersburg, Fla., and Kyu H. Lee, King of Prussia, Pa., assignors to Extracorporeal Medical Specialties, Inc., King of Prussia, Pa.

Continuation-in-part of Ser. No. 827,565, Aug. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 799,582, May 23, 1977, abandoned. This application May 7, 1979, Ser. No. 36,406
Int. Cl.³ B01D 31/00
U.S. Cl. 210—86 13 Claims



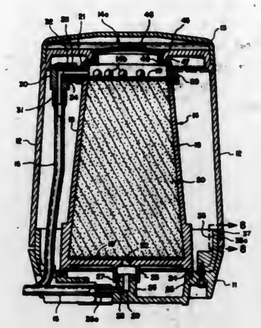
8. A dialyzer having a one-piece elongated casing shaped to provide a dialysis chamber and integrally with the chamber an externally viewable transparent passageway for dialyzate downstream of and in series with that chamber, said passageway being entirely devoid of solid contents and having a substantially uniform cross-sectional area throughout its length and being connected to convey all of the dialyzate flowing out of the chamber, the cross-sectional area of said passageway being from about ½ to about 3 square centimeters for each square meter of dialysis membrane surface in the chamber, said casing further containing measuring indicia indicating spaced liquid levels in the passageway.

4,271,015

WATER TREATMENT APPARATUS

Roger S. Moore, 1990 Olivera Rd., Concord, Calif. 94520

Filed Jan. 22, 1979, Ser. No. 5,312
Int. Cl.³ B01D 27/02
U.S. Cl. 210—94 4 Claims



1. A water treatment apparatus comprising
a housing including
a base having a flexible discharge tube connected thereinto and a flexible inlet tube extending therethrough, and
a cover having a viewing opening in one end thereof, said base and said cover having mating locking means thereon to interlock said cover to said base;
a disposable filter cartridge having a casing with a transparent top cover;
a filter element in said casing, spaced from said transparent top cover;
a filter inlet opening nipple projecting from the casing between the filter element and below the transparent top cover;
a discharge opening from the casing below the filter element;
means positioning the filter cartridge to the base whereby the discharge opening is coupled to the flexible base discharge tube;
means coupling the protruding filter inlet opening to the flexible filter inlet tube;
means on the cover for securing the filter cartridge to the base when the cover is locked to the base whereby the transparent top cover of the filter cartridge is visible through the viewing opening of the cover; and
valve means for directing a flow of water through said flexible inlet tube, said filter cartridge, said flexible base discharge tube and back through said valve means to be discharged therefrom.

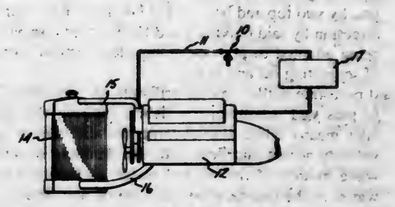
4,271,016

SEDIMENT INDICATOR FOR LIQUID CIRCULATORY SYSTEM

Robert V. Albertson, 2100 Shadywood Rd., Wayzata, Minn. 55391

Filed Apr. 30, 1979, Ser. No. 34,267
Int. Cl.³ B01D 21/00
U.S. Cl. 210—94 3 Claims

1. A sediment indicator to provide visual indicia of the amount of sediment contained in the fluid medium of a fluid circulatory system having a fluid flow line, comprising:
a generally T-shaped member with a first elongate leg comprised as a transverse open ended tubular member defining an unobstructed fluid flow passage having opposed open ends to be insertable in a fluid flow line of a fluid circulating system with said fluid flow passage disposed in a normal circulatory flow path of fluid in the circulatory system when the tubular member is inserted in said fluid flow line, said unobstructed passage having a diameter substantially the same as said flow line so as to minimize disruption of normal flow line flow,
said T-shaped member having a second leg including a neck extending from the tubular member and having an unobstructed connecting passage open to said fluid flow passage of the tubular member;
said connecting passage having a diameter substantially equal to that of said flow passage;
an enlarged cylindrical head extending from said neck;
a cylindrical housing connected to the head and having a cylindrical sediment depository chamber open to said



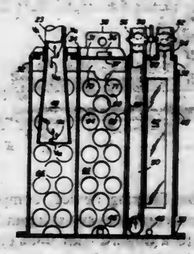
fluid flow passage of the tubular member such that at least some sediment in fluid circulating through the fluid flow line is capable of entering the chamber through said unobstructed, full diameter passages;
said housing having a side wall at least partially transparent to permit viewing into the chamber from without the housing to determine the amount of sediment collected in the chamber,
and means detachably connecting said housing to said T-shaped member in sealed relation thereto by interengagement with the enlarged head of said second leg of said T-shaped member to abut a portion of said housing against said enlarged head.

4,271,017

OIL SEPARATOR

Jerome H. Milgram, Cambridge, Mass., assignor to Offshore Devices, Inc., Peabody, Mass.

Filed Mar. 30, 1979, Ser. No. 25,620
Int. Cl.³ E02B 15/04
U.S. Cl. 210—95 8 Claims



1. A separator for separating oil from water at the scene of an oil spill, comprising:
a tank with a top end bottom,
said tank being sealed for pressurized flow therethrough,
at least one upright, imperforate bulkhead extending from top to bottom of said tank and dividing said tank into a folded, horizontal flow path, said bulkhead preventing cross communication between upstream and downstream portions of the folded flow path,
inlet means at one end of said path for receiving a pressurized mixture including oil, water, and debris,
said inlet means having an inlet diameter that establishes a maximum size debris that can enter said tank,

oil outlet means at the other end of said path for permitting outflow of oil from the top of said tank,

water outlet means at the other end of said path for permitting outflow of water from the bottom of said tank,

valve means for adjusting the relative proportion of water and oil outflowing from said tank through said outlet means, thereby allowing the heights of separated oil and water at said other end to be maintained constant,

indicating means for providing an indication to an operator of said heights of separated oil and water, and

a plurality of horizontally-spaced, upright perforate baffles extending across said flow path and dividing said path into a plurality of compartments bounded in the vertical direction by said top and bottom and bounded in the horizontal direction by said bulkhead and baffles, said compartments being adapted to provide unimpeded vertical movement of separating oil and water,

said perforate baffles having perforations preselected in size to pass said maximum-size debris entering through said inlet means while also evening out differences in flow velocity across said flow path and damping sloshing and wave motion of the oil and water, including interfacial waves at the interface between the oil and water,

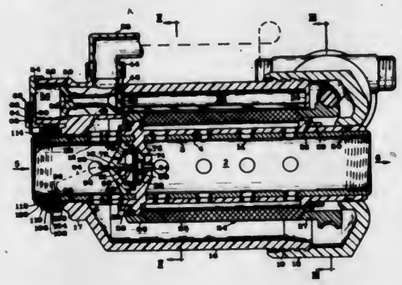
said tank, said upright bulkhead, said perforate cross baffles, and vertically-unimpeded compartments enabling an inclined oil-water separating interface to be established over the length of said flow path as separating water progressively settles and separating oil progressively rises while the pressurized total flow proceeds toward the respective oil and water outlet means at the downstream end of said path.

4,271,018

BACKWASHABLE FLUID FILTERS

Mordeki Drori, 89 Zahal Street, Kiron, Israel

Filed Sep. 11, 1979, Ser. No. 74,525
Claims priority, application Israel, Sep. 22, 1978, 55622
Int. Cl.³ B01D *33/06*
U.S. Cl. 210—107 8 Claims



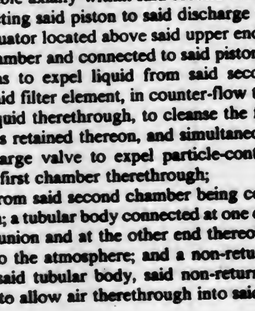
1. A backwashable filtering device, comprising a housing including an inlet connectable to an upstream fluid pipe, and an outlet connectable to a downstream fluid pipe; a filter body disposed within the housing and having an upstream surface on the housing inlet side thereof to intercept dirt particles in the fluid flowing in the forward direction through the filter body from the housing inlet to the housing outlet; and a backwash nozzle having an inlet opening disposed adjacent to said upstream surface of the filter body for backwashing the filter body; characterized in that: said backwash nozzle is fixed with respect to said housing, said filter body being mounted for rotation with respect to the backwash nozzle and including teeth annularly disposed around one end thereof, a rotor within said housing and having blades in the path of the fluid flowing through the nozzle so as to be rotated thereby, and gear means within said housing and coupling said rotor to said teeth on the filter body to rotate said filter body relative to said nozzle to enable the nozzle inlet opening to scan substantially the complete upstream surface of the filter body.

4,271,019

FILTER UNIT FOR USE IN LIQUID PURIFICATION APPARATUS

Alfonso Galletti, Turin, Italy, assignor to Gi. Pi. S.n.c. di Galletti Alfonso & C., Turin, Italy

Filed Aug. 13, 1979, Ser. No. 66,101
Claims priority, application Italy, Oct. 13, 1978, 69365 A/78
Int. Cl.³ B01D *23/26*
U.S. Cl. 210—108 2 Claims



1. A filter unit for filtering a particle-containing liquid, comprising:

a casing, arranged with its axis vertical, and defining a first closed chamber and an inlet for said particle-containing liquid;

a normally-closed discharge valve located in a lower part of said casing and arranged to discharge liquid from said first chamber;

a perforated cylindrical wall located within, and coaxial with, said casing;

a non-perforated cylindrical wall having a diameter less than said perforated cylindrical wall coaxially disposed within said perforated cylindrical wall and projecting above said perforated cylindrical wall and said casing;

an annular wall closing the upper end of said casing and an annular chamber portion between said cylindrical walls;

upper and lower end walls defining with said perforated cylindrical wall, said non-perforated cylindrical wall and said annular wall a second chamber, said non-perforated wall defining an outlet for liquid filtered by said filter unit;

a filter element covering said perforated cylindrical wall and arranged to retain particles in said particle-containing liquid fed into the first chamber through the inlet and to allow substantially particle-free liquid to flow therethrough into the second chamber to be discharged through said outlet;

a piston slidable axially within said second chamber;

a rod connecting said piston to said discharge valve; and

a control actuator located above said upper end wall of said second chamber and connected to said piston to drive the latter so as to expel liquid from said second chamber through said filter element, in counter-flow to the normal flow of liquid therethrough, to cleanse the filter element of particles retained thereon, and simultaneously to open said discharge valve to expel particle-containing liquid from said first chamber therethrough;

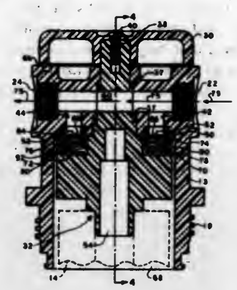
said outlet from said second chamber being connected to a pipe union; a tubular body connected at one end thereof to said pipe union and at the other end thereof to define an opening to the atmosphere; and a non-return valve provided in said tubular body, said non-return valve being openable to allow air therethrough into said pipe union.

4,271,020

VALVE FOR FILTER DEVICE

Arch Van Meter, Barrington, Ill., assignor to Ryder International Corporation, Arab, Ala.

Filed Oct. 22, 1979, Ser. No. 87,419
Int. Cl.³ B01D *27/10, 35/14*
U.S. Cl. 210—133 Q 3 Claims



1. A valve assembly for use in a filter, said valve assembly comprising, a valve housing having an axially extending open end to which a filter arrangement comprised of a filter housing and a filter member maybe affixed, said valve housing further including inlet passage means and outlet passage means, each said inlet and outlet passage means being spaced from the other and each including a bore portion extending generally axially of said open end, with a resilient sealing member disposed about the open end of each said bore portion, a valve member rotatably carried by said valve housing, said valve member including first and second generally axially extending channels, and a third channel disposed transversely of said first and second channels, said first axially extending channel adapted to be aligned with the bore portion of said inlet passage means, and said second axially extending channel adapted to align with the bore portion of said outlet passage means when the valve member is in a first position, such that fluid entering said inlet will pass into a filter arrangement attached to said valve, and from said filter arrangement through the second channel to said outlet passage means, said third channel being out of engagement with said passage means when said valve member is in said first position, but being disposed such that upon movement of the valve member to a second position, said third channel will establish direct communication between said inlet and said outlet passage means thereby bypassing said filter arrangement, with said first and second channels being out of alignment with said bore portions when the valve member is in said second position, and auxiliary sealing means for sealing said valve assembly against leakage past the open ends of said bore portions when said valve member is in said second position, thereby permitting a filter arrangement to be removed from said valve housing, said auxiliary sealing means comprising a pair of chambers formed in said valve member and opening axially toward the open ends of said bore portions, said chambers being spaced to align with said open ends of the bore portions when said valve member is in the second position, a resilient cup shaped seal member disposed in each said chamber, and biasing means in each said chamber urging the associated cup shaped seal member toward the open end of the adjacent bore portion for engagement with the resilient seal disposed about said open end of the bore portion, and a through aperture formed in each cup shaped seal communicating with the associated chamber, and the surface area of each said cup shaped seal member presented to its chamber being greater than the surface area of said seal member presented to the associated bore means, whereby the fluid entering and charging said chamber through said aperture means will force said seal member axially against the annular seal member disposed about the open end of the associated bore portion.

4,271,021

PROCESS FOR INCREASING THE RESISTANCE TO WATER OF PRE-COATED PREPARATIONS FOR CHROMATOGRAPHY

Heinz E. Hauck, Frankfurt am Main, Fed. Rep. of Germany, assignor to Merck Patent Gesellschaft mit Beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed Dec. 5, 1979, Ser. No. 100,330
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856056
Int. Cl.³ B01D *15/08*
U.S. Cl. 210—198.3 12 Claims

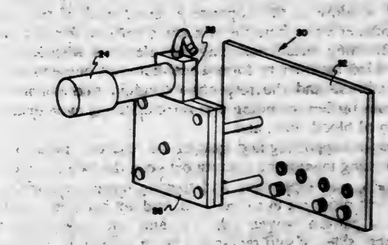
1. A process for increasing the resistance to water and decreasing the organic and inorganic impurity content of a chromatographic sorbent layer which is coated onto a support and which comprises a binder consisting essentially of at least one salt of a polyacrylic acid, a polymethacrylic acid, or a mixture thereof, the process comprising treating the supported sorbent layer with an acid whereby the salt form of the polyacrylic acid, polymethacrylic acid, or a mixture thereof, is essentially converted to the corresponding free acid form, and the sorbent layer is cleansed from the organic and inorganic impurities; then washing the acid treated layer, whereby further cleansing from impurities is effected; and drying the acid treated layer.

4,271,022

DETECTION UNIT WITH SOLUTE DETECTOR AND TRANSPORT SYSTEM

Jack B. Dixon, Georgetown, and Randall C. Hall, Round Rock, both of Tex., assignors to Purdue Research Foundation, West Lafayette, Ind.

Filed Dec. 18, 1978, Ser. No. 970,324
Int. Cl.³ B01D *15/08*
U.S. Cl. 210—198.2 18 Claims



1. In a liquid chromatography device, a transport system for transporting effluents having a liquid state carrier between predetermined operational areas including an effluent application area and an effluent treatment area, said transport system comprising:

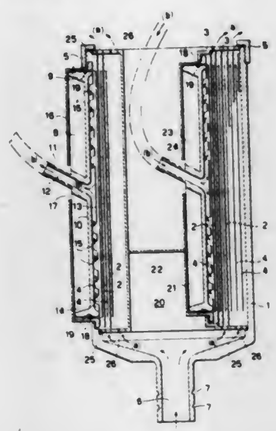
a porous conveyor for receiving said effluents having said liquid state carrier at said effluent application area; and

a rotatable disc substantially less porous than said conveyor and having said conveyor mounted on the periphery thereof to thereby effectively maintain said effluents and liquid carrier thereof on said porous conveyor at the periphery of said disc so that rotation of said disc causes said effluents and liquid carrier thereof applied to said conveyor at said effluent application area to be moved therefrom through said effluent treatment area.

4,271,023
SPIRAL-SHAPED DIALYSIS AND ULTRAFILTER DEVICE, ESPECIALLY FOR EXTRACORPOREAL HAEMODIALYSIS

Sergio Giovannetti, Pisa; Giuliano Barsotti, Lido Di Camaiore, and Giovanni Donati, Cecigliano Alto, all of Italy, assignors to Tecnodial, S.P.A., Montevarchi, Italy

Continuation of Ser. No. 774,625, Mar. 4, 1977, abandoned. This application Jun. 7, 1979, Ser. No. 46,492
Int. Cl.³ B01D 31/00
U.S. Cl. 210—321.3 14 Claims



1. A dialyzing and ultrafiltering device of the spiral type for extracorporeal dialysis having an outer container and a removable central coil for winding the tubular dialyzing membrane, comprising:

an inlet and an outlet conduit for blood from the container;

connecting means for connecting said membrane to said inlet and outlet conduits, said connection means for the inlet conduit being housed in a longitudinal window formed in the body of the central coil and said connecting means for the outlet conduit being slidably receivable by a longitudinal window in the opposite external wall of the outer container away from the window formed in the coil, each connecting means including two elements adapted to be coupled together to form a seal between one end of the membrane and the respective conduit, said connecting means further including means for effecting even distribution of blood flow; and

means for supporting and spacing the adjacent spirals of the dialyzing membrane running between the two connecting means, said supporting and spacing means comprising a woven mesh net in rolled form, said net being in a rectangular pattern woven one-over and one-under with the longer sides of said rectangles being parallel to the direction of blood flow to increase turbulence in the flow of the dialyzing fluid and minimize hindrance to the blood flow, the initial end of said net being anchored to the central coil.

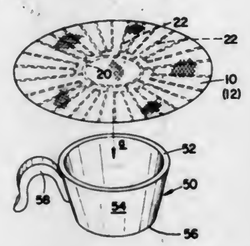
4,271,024
LIQUID FILTER

Raymond P. Kawolics, Solon, and Donald R. Basel, Garfield Heights, both of Ohio, assignors to Meyer Dairy Products, Co., Cleveland, Ohio

Filed May 23, 1979, Ser. No. 41,711
Int. Cl.³ B01D 35/38
U.S. Cl. 210—474 19 Claims

1. A permanent, reuseable beverage filter which is self-folding between a first generally flat storage condition and a second generally cup-shaped filtering condition as it is inserted into a generally cup-shaped filter support, said filter comprising:

a thin flexible filter material having opposed faces, an outer peripheral edge and a porosity adapted to filter a beverage passing therethrough to a desired extent; and, a support skeleton affixed to one face of said filter material for giving support thereto in said first condition while allowing selective folding thereof between said first and second conditions, said support skeleton including a central portion generally centrally disposed on said filter material and configured to define a filter bottom area when said filter is received in said filter support and further including a

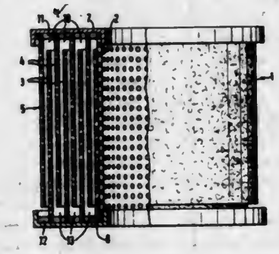


plurality of skeleton ribs at spaced intervals around said central portion extending outwardly thereof toward said filter material outer peripheral edge, said ribs providing support for said filter material outwardly of said skeleton central portion and adapted to provide a generally cup-shaped configuration therefor when said filter is inserted into said filter support, a plurality of adjacent ones of said ribs being connected with one another along the length thereof outwardly of said central portion only by said filter material and not by any portions of said skeleton for providing free movement of such adjacent ribs toward one another when said filter is formed into said cup-shaped condition from said generally flat condition.

4,271,025
LAYERED FILTER CARTRIDGE WITH INTERNAL BYPASS CHANNELS

Hans Erdmannsdörfer, Ludwigsburg, Fed. Rep. of Germany, assignor to Filterwerk Mann & Hummel GmbH, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 25, 1980, Ser. No. 115,237
Claims priority, application Fed. Rep. of Germany, Feb. 9, 1979, 2904858
Int. Cl.³ B01D 29/06
U.S. Cl. 210—487 6 Claims



1. A filter cartridge for a liquid-straining filter assembly comprising in combination:

a perforated central sleeve serving as a support member;

first and second filtering strips overlying one another and surrounding the central sleeve in the form of two inter-

meshing spiral members which form a filter body with a plurality of filtering layers constituted alternatingly by one or the other filtering strip; and

two end discs covering the axial ends of the filter body, at least one end disc having a central opening which, in cooperation with the central sleeve, forms a flow passage for a radial flow of the liquid through the filter body; and

wherein

the material of at least one filtering strip is creped transversely to its longitudinal direction so that the ridges and grooves of overlying layers form flow channel portions through which can take place an axial flow between the filtering strips;

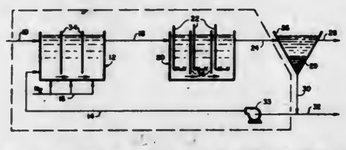
the intermeshing spiral members formed by the first and second filtering strips are offset from one another in the axial sense so that the spiral edge of each filtering strip protrudes axially towards one end disc while being recessed from the other; and

the axially protruding spiral edges of the filtering strips are in sealing contact with the two end discs so that a continuous zigzag-shaped flow channel is formed between the overlying layers of filtering strip and the end discs and direction-reversing bypass flow gaps are formed between the axially recessed spiral edges of the filtering strips and the end discs.

4,271,026
CONTROL OF ACTIVATED SLUDGE WASTEWATER TREATING PROCESS FOR ENHANCED PHOSPHOROUS REMOVAL

Michael S. Chen, Macungie; Eugene J. Greskovich, and Marshall L. Spector, both of Allentown, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 9, 1979, Ser. No. 83,196
Int. Cl.³ C02F 3/30
U.S. Cl. 210—605 26 Claims

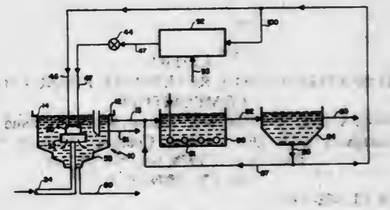


1. In an activated biomass process which inhibits the proliferation of filamentous biomass and effects the storage of phosphates in the biomass by first mixing recycled activated biomass with a phosphate- and BOD-containing influent to form a mixed liquor having both liquid and solid components and initially treating the mixed liquor under anaerobic conditions such as to be substantially free of oxygen and oxidizing agents and to contain a concentration of less than about 0.7 ppm dissolved oxygen; thereby effecting selective production of nonfilamentous microorganisms capable of sorbing BOD under both anaerobic and oxidizing conditions and capable of accumulating phosphates under oxidizing conditions; subjecting the anaerobically treated mixed liquor to a subsequent oxygenating treatment by contact with oxygen-containing gas admitted to said treatment under oxic conditions such as to have maintained in the treatment a dissolved oxygen content of at least about 1 ppm to oxidize BOD in the mixed liquor to cause further removal of BOD from the liquid component and to cause accumulation of phosphates in the solid biomass component; subsequently separating the oxically treated mixed liquor into supernatant liquid and biomass; and returning a portion of the separated biomass to an initial anaerobic treatment to provide the activated biomass admixed therein with the influent; the improvement which comprises maintaining within the process system encompassing the initial anaerobic treatment and extending through the process up to, but not including, the separating step and including any internal recycle streams, a BOD_5 to phosphorous (BOD/P) ratio from about 5:1 up to about 50:1, wherein BOD_5 is expressed as milligrams of soluble BOD_5, exclusive of BOD attributable to ammonia, per liter of influent and P is soluble phosphate expressed as milligrams of elemental phosphorous per liter of influent, and a food to biomass (F/M) ratio from about 0.09 up to an upper limit of about 1.4 wherein F is the total weight of soluble BOD_5 introduced into the process per 24 hour day, and M is the weight of volatile suspended solids in the process system.

4,271,027
SEWAGE TREATMENT SYSTEM AND PROCESS

Earl M. Kelly, Hillsborough, Calif., assignor to Envirotech Corporation, Menlo Park, Calif.

Continuation-in-part of Ser. No. 859,768, Dec. 12, 1977, Pat. No. 4,173,534, which is a continuation-in-part of Ser. No. 728,480, Sep. 20, 1976, Pat. No. 4,082,671. This application Apr. 2, 1979, Ser. No. 25,894
The portion of the term of this patent subsequent to Apr. 4, 1995, has been disclaimed.
Int. Cl.³ C02B 3/00; B01D 21/10
U.S. Cl. 210—609 21 Claims



1. An apparatus for the concomitant treatment of raw sewage and secondary sewage sludge from a secondary clarifier comprising:

a. a tank having an open top and a generally upstanding sidewall to contain a body of liquid;

b. an upper feedwell mounted in said tank;

c. pressurized aeration means connected in liquid flow communication with said upper feedwell for forming a stream of aerated liquid at superatmospheric pressure and for introducing the aerated liquid into said upper feedwell;

d. first feed means connected in liquid flow communication between the secondary clarifier and said upper feedwell for introducing secondary sludge thereinto for mixing with the aerated liquid and distribution by said upper feedwell into said tank;

e. a lower feedwell mounted in said tank below said upper feedwell and second feed means connected in liquid flow communication between a source of raw sewage and said lower feedwell for introducing raw sewage thereinto for distribution by said lower feedwell into said tank below the aerated secondary sludge introduced through said upper feedwell;

f. a continuous, upstanding partition wall mounted in said tank generally concentric and radially outward of said upper feedwell to define a confined liquid zone surrounding said upper feedwell and to define a generally annular space between said partition wall and said tank sidewall;

g. means mounted on said sidewall for drawing liquid from the surface of the body of liquid contained in said annular space to maintain a predetermined liquid level in said tank;

h. float collection means mounted within said confined liquid zone for collecting solids floating on the surface of the liquid within said confined zone; and

i. sediment collection means connected in communication with the bottom of said tank for collecting and discharging sediment from said tank.

4,271,028

PROCESS FOR PURIFYING EFFLUENTS CONTAINING PROTEINS

Hans-Rudolf Marfurt, and August Zarrer, both of Marly, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 12,673, Feb. 15, 1979, abandoned, which is a continuation of Ser. No. 808,763, Jun. 22, 1977, abandoned. This application Nov. 30, 1979, Ser. No. 99,233
Claims priority, application Switzerland, Jul. 2, 1976, 8504/76
Int. Cl.³ C02F 1/56
U.S. Cl. 210—727 9 Claims

1. A process for purifying effluents containing proteins which process comprises treating said effluent with a basic water-soluble aminoplast flocculant which is a formaldehyde-dicyandiamide condensation product, to flocculate said proteins, agglomerating the resulting flocculated proteins by electrolysis in the presence of a sacrificial aluminum or aluminum alloy anode and an electrically conductive cathode, and removing the resulting agglomerated and flocculated proteins from said effluent.

4,271,029

HYDRATED $MG(NO_3)_2$ REVERSIBLE PHASE CHANGE COMPOSITIONS

George A. Lane, and Harold E. Rossow, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 2, 1979, Ser. No. 90,730
Int. Cl.³ C09K 5/06
U.S. Cl. 252—70 17 Claims

1. A reversible liquid/solid phase change composition comprising hydrated $Mg(NO_3)_2$ and as a nucleating additive, one or more of $MgSO_4$, $CaSO_4$, $CuSO_4$, $NiSO_4$, $CoSO_4$ or $ZnSO_4$, added to the composition in an amount effective to suppress average supercooling of the hydrated $Mg(NO_3)_2$ liquid phase to about 2° C. or less.

4,271,030

POURABLE LIQUID COMPOSITIONS

John M. Brierley, Wirral; John S. Parsons, Deeside; James R. Trueman, and Robert A. Jones, both of Wirral, all of England, assignors to Lever Brothers Company, New York, N.Y.

Filed Nov. 17, 1978, Ser. No. 961,793
Claims priority, application United Kingdom, Nov. 18, 1977, 48108/77; Jun. 16, 1978, 27176/78
Int. Cl.³ C11D 3/14, 3/395, 11/04, 17/08
U.S. Cl. 252—98 18 Claims

1. An aqueous colored liquid bleach composition, having a pH of at least 9.8 and having a yield stress value of less than 1 dyne per square centimeter at 20° C., comprising a chlorine bleach compound in an amount of 1–15% by weight of available chlorine, from 0.01–0.2% by weight of a particulate bleach-stable pigment having a particle size within the range of 0.1–50 microns, which is maintained in suspension by a flocculate dispersed in an aqueous medium, the flocculate filling at least 50% of the volume of the aqueous medium, said flocculate being obtained from 0.05–20% by weight of the composition of a precipitated organic floc-structure forming detergent active material, selected from the group consisting of a precipitated C_{10}–C_{18} alkylsulfate, a precipitated C_{10}–C_{18} alkane sulfonate, a precipitated C_{12}–C_{18} alkylbenzene sulfonate, a precipitated calcium fatty acid soap, and mixtures thereof.

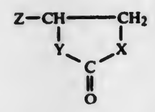
4,271,031

COLOR STABILIZED NONIONIC SURFACTANTS AND ALKALINE CLEANSER FORMULATIONS CONTAINING THESE SURFACTANTS

Knut Oppenlaender, 23 Otto-Dill-Strasse, 6700 Ludwigshafen; Rainer Strickler, 14 Schroederstrasse, 6900 Heidelberg; Johannes Perner, 19 B Kiesstrasse, 6730 Neustadt 1, and Wolfgang Trieselt, 1 Alwin-Mittasch-Platz, 6700 Ludwigshafen, all of Fed. Rep. of Germany

Filed Mar. 5, 1980, Ser. No. 127,469
Claims priority, application Fed. Rep. of Germany, Mar. 16, 1979, 2910402
Int. Cl.³ C09K 15/22; C11D 1/72, 3/28, 3/395
U.S. Cl. 252—156 2 Claims

1. A color-stabilized nonionic surfactant which contains chemically bonded poly(alkylene oxide) groups with terminal hydroxyl groups, wherein the color stabilizer is from 0.1 to 5% by weight, based on surfactant, of one or more compounds of the formula



where X is O, CH_2, C_2H_4 or C_3H_6, Y is O or NH and Z is H, CH_3 or CH_2OH.

2. A strongly alkaline cleanser containing a color-stabilized surfactant as claimed in claim 1 as the active ingredient.

4,271,032

POLYCARBOXYLIC ACIDS AND ESTERS IN DETERGENT FORMULATIONS AND THEIR USE

Jack H. Kolaian, Wappingers Falls, and Richard F. Love, Fishkill, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,729
Int. Cl.³ C11D 3/20
U.S. Cl. 252—174.19 3 Claims

1. A process for removing the soil from soiled cellulosic fabric in an aqueous laundering environment consisting essentially of contacting the soiled fabric to be cleaned in the aqueous environment with a detergent composition having as its active components:

from about 0.05 to 5 parts by weight of at least one saturated linear aliphatic carbon-carbon backbone polycarboxylic acid

selected from the group consisting of 1, 2, 4-cyclopentane tricarboxylic acid and 2, 3, 5-tricarboxycyclopentane acetic acid,

and at least one member selected from the group consisting of

(a) from about 0 to 5 parts by weight of a builder material, and

(b) from about 1 to 10 parts by weight of detergent additive material and

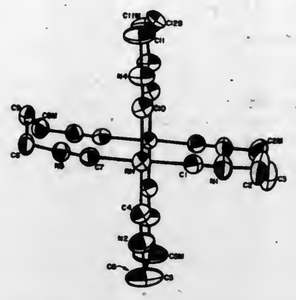
continuing said contact of the soiled fabric with the aqueous laundering environment until substantially all of the soil has been removed from said soiled fabric.

4,271,033

TRANSITION METAL COMPLEX CATALYSTS

Harry B. Gray, Pasadena, Calif., and Kent R. Mann, Roseville, Minn., assignors to California Institute of Technology, Pasadena, Calif.

Filed Aug. 20, 1979, Ser. No. 68,100
Int. Cl.³ C07D 301/04; B07D 301/22
U.S. Cl. 252—188.3 R 19 Claims



1. An oxidizing reagent comprising the combination of a dimeric, dinuclear transition metal complex containing four binucleating diisocyanide bridge ligands and a secondary oxidant which is a stronger oxidizing agent than the complex.

4,271,034

PROCESS OF DENITRATION OF HIGHLY RADIO-ACTIVE WASTE SOLUTIONS

Franz-Josef Gattys, Neu-Isenburg, Fed. Rep. of Germany, assignor to F. J. Gattys Ingenieurbüro, Neu-Isenburg, Fed. Rep. of Germany

Filed Feb. 21, 1979, Ser. No. 13,296
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1978, 2807324; Jan. 8, 1979, 2900478
Int. Cl.³ G21F 9/06
U.S. Cl. 252—301.1 W 5 Claims

1. In a process for the denitration of highly radioactive waste solutions by reacting the solution with a reducing agent, the improvement which comprises carrying out the reaction with paraformaldehyde as the reducing agent.

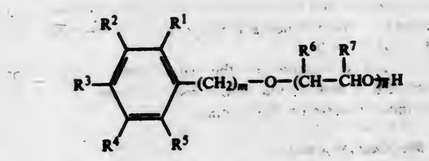
4,271,035

LIQUID SCINTILLATOR SOLUTION

Tomoo Saito, Sagamihara; Yumiko Nishiyama, Hatano; Kazuo Watanabe, Yokohama; Naoko Taki, Kawasaki, and Naotake Morikawa, Tokyo, all of Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 94,994
Claims priority, application Japan, Nov. 16, 1978, 53/140501
Int. Cl.³ C09K 11/06
U.S. Cl. 252—301.17 5 Claims

1. A liquid scintillator solution which consists of a polyalkylene glycol derivative of the formula:



wherein R^1 to R^5 are each a hydrogen atom, a straight chain or branched chain alkyl group having 1 to 10 carbon atoms or a cyclohexyl group, R^6 and R^7 are each a hydrogen atom or a methyl group provided that both R^6 and R^7 are not methyl groups, m is 0 or 1 and n is a value between 2 and 15; and a scintillator.

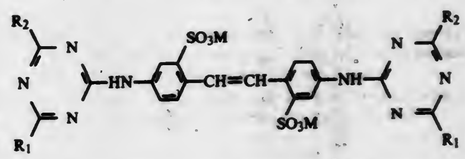
4,271,036

COLORLESS FORMULATIONS OF OPTICAL BRIGHTENERS FROM THE SERIES OF BIS-TRIAZINYLAMINO-STILBENE-DISULFONIC ACID COMPOUNDS

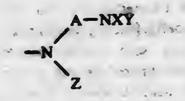
Klaus Uhl, Bad Soden am Taunus; Hans Friechhorn, Hofheim am Taunus, and Thomas Martini, Bad Soden am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 23, 1980, Ser. No. 114,665
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1979, 2902965
Int. Cl.³ C09K 11/06
U.S. Cl. 252—301.23 5 Claims

1. Colorless formulation of optical brighteners of the formula



in which R_1 denotes C_1–C_5-alkoxy, anilino, halogenoanilino or morpholino, R_2 denotes C_1–C_5-alkoxy, morpholino or a group of the formula $-NR_3R_4$, R_3 denotes C_2–C_4-hydroxyalkyl, R_4 denotes C_1–C_5-alkyl or C_2–C_4-hydroxyalkyl, or R_2 denotes a group of the formula



in which A denotes C_2–C_6-alkylene, X denotes a group of the formula $-COR_5$ or $-SO_2R_5$, R_5 denotes C_1–C_5-alkyl, C_4–C_8-cycloalkyl, phenyl, or tolyl, Y denotes hydrogen or C_1–C_5-alkyl and Z denotes hydrogen, C_1–C_5-alkyl, C_4–C_8-cycloalkyl or a group of the formula —A—NXY, and M denotes an alkali metal atom or hydrogen atom, which are obtainable by heating a brightener of the above formula together with an oxyalkylate of the formula

$$R-X(C_2H_4O)_y(C_3H_6O)_zH$$

in which R denotes C_8–C_{20}-alkyl or -alkenyl or mono-, di- or tri-C_1–C_{12}-alkylphenyl, X denotes an oxygen atom or a group of the formula $=N-(C_2H_4O)_y(C_3H_6O)_zH$, —CONH— or —COO— and y and z denote numbers, the sum of which is 1 to 100, or R—X together denote the hydroxyl group and y and z denote numbers, the sum of which is 1 to 500, preferably 1 to 40.

4,271,037

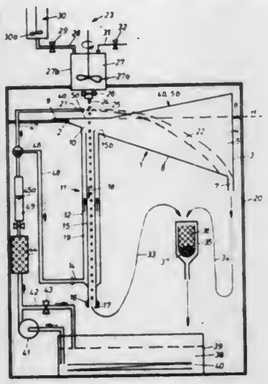
DEVICE FOR THE PRODUCTION OF SOL-GEL GLOBULES IN COARSE AND FINE FRACTIONS

Werner A. Haemmerle, Staefa, Switzerland, assignor to Gesellschaft zur Forderung der Forschung an der Eidgenoessischen Technischen Hoeschschule, Zurich, Switzerland

Filed Mar. 19, 1980, Ser. No. 131,819
Int. Cl.³ B01J 19/06
U.S. Cl. 252—359 R 5 Claims

1. A device for the production of sol-gel globules, especially green sol-gel globules for sphere-pac nuclear fuel, in at least one each coarse and fine globule fraction, by dripping a sol-liquid into a vertical gelling stream for the coarse fraction and

scattering of at least one sol-liquid jet in a horizontal gelling stream for the fine fraction in optional subsequent processes, the device comprising a support, a ribbon nozzle mounted on said support for the formation of a horizontal gelling stream, a vat horizontally mounted on said structure for the reception of said gelling stream, said vat having a narrow first end wall and a narrow second end wall interconnected by spaced side walls and a bottom wall declining from said first to said second end walls, said first end wall lying in the vicinity of said ribbon nozzle and said bottom wall having an outlet adjacent said second end wall, a vertical gelling column depending from said bottom wall in open communication with said vat and lying near said nozzle, a tubular spout on said column for feeding



gelling liquid into said column and downwardly therethrough as a vertical gelling stream, means connected to said ribbon nozzle and to said spout for optionally feeding gelling liquid thereto from a gelling liquid supply, said column having a bottom outlet for the removal of the vertical gelling stream, a sol-liquid feed device mounted on said structure above said column and above said ribbon nozzle, said feed device including nozzle means for optionally delivering sol-liquid droplets from a sol-liquid supply onto the vertical gelling stream when the gelling liquid is fed through said spout for thereby forming coarse sol-gel globules, and for delivering jets of fine sol-liquid from the sol-liquid supply to the horizontal gelling stream when the gelling liquid is fed through said ribbon nozzle for thereby forming fine sol-gel globules.

4,271,038

CATALYSTS FOR THE HYDROFORMYLATION OF OLEFINICALLY UNSATURATED COMPOUNDS

Frederick A. Pesa, Aurora, and Thomas A. Haase, University Heights, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed Dec. 17, 1979, Ser. No. 104,644

Int. Cl.³ B01J *31/22*

U.S. Cl. 252—428 **9 Claims**

1. A catalyst composition comprising cobalt carbonyl and a porphyrin promoter ligand, wherein the molar ratio of the cobalt carbonyl to the porphyrin promoter is in the range of about 0.1:1 to about 20:1.

4,271,039

CATALYST AND DEHYDROGENATION PROCESS

Robert J. Statz, and James K. Doty, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 24,858, Mar. 28, 1979, Pat. No. 4,232,174. This application Jan. 28, 1980, Ser. No. 115,755

Int. Cl.³ B01J *27/14*

U.S. Cl. 252—435 **3 Claims**

1. A catalyst of the general formula:

$$Me_aCr_bFePb_cP_dO_e$$

wherein Me is an alkali metal selected from the group consisting of lithium, sodium, potassium, rubidium, and cesium, a is about from 0.01 to 0.3, b is about from 0.05 to 0.4, c is about from 0.6 to 1.0, d is about from 1.0 to 6.0 and e is sufficient to provide oxygen to satisfy the oxidative states of the remaining components.

4,271,040

CATALYST AND PROCESS FOR PRODUCING METHACRYLIC ACID

Sargis Khoobiar, Kinnelon, N.J., assignor to Halcon Research and Development Corp., New York, N.Y.

Continuation-in-part of Ser. No. 973,354, Dec. 26, 1978, Ser. No. 972,745, Dec. 26, 1978, Ser. No. 972,743, Dec. 26, 1978, Ser. No. 973,495, Dec. 26, 1978, Ser. No. 27,632, Apr. 6, 1979, Ser. No. 27,633, Apr. 6, 1979, Ser. No. 27,634, Apr. 6, 1979, Ser. No. 27,635, Apr. 6, 1979, and Ser. No. 47,860, Jun. 12, 1979. This application Oct. 3, 1979, Ser. No. 81,406

Int. Cl.³ B01J *27/18, 23/28, 23/18*

U.S. Cl. 252—437 **19 Claims**

1. A catalyst suitable for the vapor-phase oxidation of methacrolein to methacrylic acid consisting essentially of the composition expressed by the formula:

$$Mo_{12}Cu_aP_bSb_cA_dB_eO_x$$

where: a=0.05–3; b=0.1–5; c=0.01–3; d=0.1–3; e=0.01–3; and x=a value determined by the valence and proportions of the other elements of the formula, where A is Cs and/or Ca and B is one more elements selected from the group consisting Ni, Zn, Ru, Rh, Pd, Pt, As, K, Rb, Sr, Ba, Cr, V, Nb, W, Mn, Re, and rare earth metals including La.

10. A catalyst suitable for the vapor-phase oxidation of methacrolein to methacrylic acid consisting essentially of the composition expressed by the formula:

$$Mo_{12}Cu_aP_bSb_cCs_dO_x$$

where: a=0.05–3; b=1–2; c=0.01–3; d=0.1–3; and x=a value determined by the valence and proportions of the other elements of the formula.

13. A catalyst suitable for the vapor-phase oxidation of methacrolein to methacrylic acid consisting essentially of the composition expressed y the formula:

$$Mo_{12}Cu_aP_bSb_cCa_dO_x$$

where: a=0.05–3; b=1–2; c=0.01–3; d=0.1–3; and x=a value determined by the valence and proportions of the other elements of the formula.

4,271,041

HIGH SURFACE AREA MOLYBDENUM OXYCARBIDE CATALYSTS

Michel Boudart, Portola Valley, Calif., and Lucien E. Leclercq, Poitiers, France, assignors to The Board of Trustees of Leland Stanford Junior University, Stanford, Calif.

Filed Feb. 8, 1979, Ser. No. 936,822

Int. Cl.³ B01J *21/18, 27/24*; C01B *31/00*

U.S. Cl. 252—438 **16 Claims**

1. The product prepared by carburizing molybdenum oxycarbide having a carbon content less than the stoichiometric carbon content of the compound Mo_2C, a specific surface area greater than about 20 m^2/g, and a face-centered cubic lattice.

8. The product prepared by nitriding molybdenum oxycarbide having a carbon content less than the stoichiometric carbon content of the compound Mo_2C, a specific surface area greater than about 20 m^2/g, and a face-centered cubic lattice.

13. Process for preparing a molybdenum oxycarbide of high specific surface area comprising:

(a) vaporizing molybdenum hexacarbonyl in a reducing atmosphere at low pressure,

(b) reacting the product of (a) with the reducing atmosphere at a temperature in the range of 1373° K. to 2073° K. and a pressure in the range of 20 Torr to 100 Torr, and

(c) condensing the vapors in a substantially nonoxidizing atmosphere.

4,271,042

PROCESS FOR DEMETALATION AND DESULFURIZATION OF PETROLEUM OILS

Stephen M. Oleck, Moorestown; Howard S. Sherry, Cherry Hill, both of N.J.; Ronald H. Fischer, Oakton, Va., and Donald Milstein, Cherry Hill, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 862,306, Dec. 20, 1977, abandoned, which is a division of Ser. No. 807,764, Jun. 17, 1977, Pat. No. 4,089,774, which is a continuation-in-part of Ser. No. 608,604, Aug. 28, 1975, abandoned. This application Aug. 10, 1979, Ser. No. 65,707

Int. Cl.³ B01J *27/02, 23/16, 23/85, 24/04*

U.S. Cl. 252—439 **7 Claims**

1. A method for preparing a hydrodemetalation-desulfurization catalyst which comprises: converting a gamma type alumina or alumina hydrate of the Boehmite variety to an alumina comprising Delta and/or Theta phase alumina, said conversion induced by a first calcination; intimately mixing said converted alumina with 40% to 125% of its weight of technical grade Boehmite; recalcining in a second calcination the composite to transform said admixed Boehmite to gamma alumina whereby forming a catalyst support consisting essentially of an intimate mixture of gamma alumina with Delta and/or Theta phase alumina, compositing with said catalyst support, in one or more steps, a Group VIB metal and an iron group metal in amounts effective to confer hydroprocessing activity to said support; and, recovering a catalyst having at least 45% of its pore volume in pores 30 to 150 A diameter, at least 10% of its pore volume in pores less than 30 A diameter, at least 15% of its pore volume in pores greater than 300 A diameter, a surface area of 125 to about 210 m^2/g, and a total pore volume of 0.4 to 0.65 cc/gm.

4,271,043

PILLARED INTERLAYERED CLAY PRODUCTS

David E. W. Vaughan, Columbia; Roger J. Lussier, and John S. Magee, Jr., both of Ellicott City, all of Md., assignors to W. R. Grace & Co., New York, N.Y.

Continuation-in-part of Ser. No. 71,987, Sep. 4, 1979, and a continuation-in-part of Ser. No. 885,408, Mar. 10, 1978, Pat. No. 4,176,090, which is a continuation-in-part of Ser. No. 885,672, Jan. 13, 1977, abandoned, which is a continuation-in-part of Ser. No. 704,358, Jul. 12, 1976, abandoned, which is a continuation-in-part of Ser. No. 633,853, Nov. 18, 1975, abandoned. This application Oct. 1, 1979, Ser. No. 80,999

Int. Cl.³ B01J *21/16*

U.S. Cl. 252—455 R **12 Claims**

1. A process for preparing a pillared interlayered clay product having a high degree of ion exchange capacity which comprises:

(a) reacting a smectite clay with a mixture of a polymeric cationic hydroxy metal complex selected from the group consisting of polymeric cationic hydroxy aluminum and zirconium complexes and water to obtain a pillared interlayered smectite;

(b) calcining said interlayered smectite to obtain an interlayered clay product having greater than 50% of its surface area in pores less than 30 A in diameter; and

(c) reacting said calcined interlayered clay product with a base to increase the ion exchange capacity thereof.

4,271,044

CARRIER MATRIX FOR CATALYSTS AND PROCESS FOR ITS PRODUCTION

Gerhard Fratzer; Bernhard Beck, both of Rheinfelden; Erwin Dold, Wyhlen, and Hans Klebe, Rheinfelden, all of Fed. Rep. of Germany, assignors to Deutsche Gold-und Silber Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,581

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2853547

Int. Cl.³ B01J *21/04, 23/10, 23/86, 35/02*

U.S. Cl. 252—462 **46 Claims**

1. A carrier matrix for catalysts with flow-channels passing there through, with cross-flow effect as well as with enlarged geometric surface and improved retaining capacity as compared to catalysis-promoting carrier materials present in dip dispersion, comprising alternately smooth and corrugated, superposed layers of high temperature resistant and scale-resistant steel, wherein a layer of corrugated sheet metal alternates with a layer of smooth screen cloth, or one layer of smooth sheet metal alternates with a layer of corrugated screen cloth, or a layer of corrugated screen cloth alternates with a layer of smooth screen cloth.

4,271,045

ELECTRICALLY CONDUCTIVE LAYER AND METHOD FOR ITS PRODUCTION

Wolf-Erhard Steigerwald, Gesthestrasse 1, 6740 Bad Neustadt, Saale; Peter Ambros, Johannesstrasse 6, 8741 Hohenroth, and Hermann Geyer, Eckart-Reder-Str. 13, 8709 Oberbach, all of Fed. Rep. of Germany

Filed Jun. 13, 1978, Ser. No. 914,307

Int. Cl.³ H01B *1/06*

U.S. Cl. 252—511 **19 Claims**

1. Electrically conductive composition comprising 10 to 95% by weight of a uniform mixture of minute electrically conductive particles in an electrically non-conductive, curable polymer, said electrically conductive particles comprising a semi-conductive material formed by pyrolysis of a carbon-containing compound and doped and/or coated with Group III--VIII elements of the Periodic Table, said elements being taken from the group consisting essentially of boron, silicon, germanium, phosphorous, aluminum, titanium, zirconium,

vanadium, chromium, tungsten, iron, cobalt, nickel, molybdenum, or mixtures thereof.

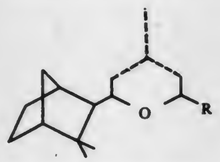
4,271,046

NOVEL NORCAMPHANYL-SUBSTITUTED PYRANS, METHOD FOR THEIR SYNTHESIS AND USE THEREOF IN PERFUMERY

Brian J. Willis, Bergenfield, N.J., and John W. Dittrick, Flushing, N.Y., assignors to Fritzsche Dodge & Olcott, Inc., New York, N.Y.

Division of Ser. No. 950,598, Oct. 12, 1978. This application Sep. 13, 1979, Ser. No. 75,222
Int. Cl.³ A61K 7/46
U.S. Cl. 252—522 R **3 Claims**

1. A perfume composition comprising from about 0.001 to about 80 weight percent of a norcamphanyl-substituted pyran of the formula:



wherein the dashed lines represent either a carbon-carbon single bond or a carbon-carbon double bond such that two of the three dashed lines represent carbon-carbon single bonds; and wherein R is either hydrogen or a methyl group in admixture with at least one perfume ingredient.

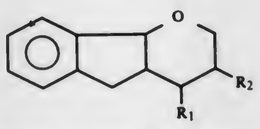
4,271,047

HYDROGENATED INDENOPYRANS AND THEIR USE IN AROMATIC COMPOSITIONS

Jens Conrad, Hilden; Horst Upadek, Erkrath, and Klaus Bruns, Krefeld-Traar, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,254
Claims priority, application Fed. Rep. of Germany, Jan. 8, 1979, 2900421
Int. Cl.³ C07D 311/78; C11B 9/00; A61K 7/46
U.S. Cl. 252—522 R **8 Claims**

1. A compound of the formula



wherein R_1 and R_2 are each independently hydrogen or a methyl radical, with the proviso that only one of R_1 and R_2 is a methyl radical.

3. An aromatic composition consisting essentially of from about 0.1 to 20% by weight, based on the total weight of the composition, of a compound of claim 1 and the remainder customary constituents of aromatic compositions.

4,271,048

9-HYDROXY-UNDECA-4,10-DIEN-1-AL

George H. Büchi, and Hans Wüest, both of Cambridge, Mass., assignors to Firmenich, S.A., Geneva, Switzerland

Filed Aug. 11, 1980, Ser. No. 176,790
Int. Cl.³ A61K 7/46; C11B 9/00
U.S. Cl. 252—522 R **3 Claims**

1. 9-Hydroxy-undeca-4,10-dien-1-al.

4,271,049

ELASTOPLASTIC COMPOSITIONS OF CURED DIENE RUBBER AND POLYPROPYLENE

Aubert Y. Coran, and Raman Patel, both of Akron, Ohio, assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 10, 1979, Ser. No. 75,371
Int. Cl.³ C08L 7/00, 23/00
U.S. Cl. 260—4 R **32 Claims**

1. An elastoplastic composition comprising a blend of crystalline polypropylene, in an amount sufficient to impart thermoplasticity to the composition, and cured rubber selected from the group consisting of natural or synthetic polyisoprene rubber, polybutadiene rubber and styrene-butadiene rubber comprising a copolymer of butadiene and up to about 25 weight percent of styrene or α-methylsytrene, the rubber being in an amount sufficient to impart rubberlike elasticity to the composition, which rubber is in the form of dispersed particles of a size small enough to maintain strength and thermoplasticity of the composition and wherein the rubber is cured with rubber curative selected from the group consisting of phenolic curative, urethane curative, and sulfur-donor curative comprising 0.2 parts of free sulfur or less per 100 parts of rubber in an amount sufficient so that the properties of the blend are such that the product of the true stress at break (TSB) times elastic recovery (R) is at least 70 megapascals (MPa).

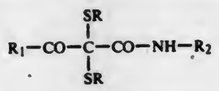
4,271,050

VULCANIZABLE RUBBER COMPOSITIONS INHIBITED FROM PREMATURE VULCANIZATION BY METHYLENE THIOETHERS

Otto W. Maender, and Eiichi Morita, both of Copley, Ohio, assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 23, 1979, Ser. No. 97,089
Int. Cl.³ C08F 8/34
U.S. Cl. 260—5 **46 Claims**

1. A vulcanizable composition comprising sulfur-vulcanizable rubber, sulfur-vulcanizing agent, organic vulcanization accelerating agent and, in an amount effective to inhibit premature vulcanization, an inhibitor of the formulas



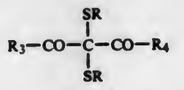
(I)

in which R is alkyl of 1–20 carbon atoms, cycloalkyl of 5–12 carbon atoms, benzyl, α-methylbenzyl, phenyl, or substituted phenyl wherein the substituents are lower alkyl, lower alkoxy, or halo, R_1 is R or anilino or substituted anilino wherein the substituents are lower alkyl, lower alkoxy or halo, and R_2 is phenyl or substituted phenyl as above,



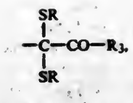
(II)

in which R is the same as above and X is o-phenylene or straight or branched alkylene of 2–4 chain carbon atoms,

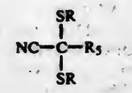


(III)

in which R is the same as above, R_3 is lower alkyl or lower alkoxy, and R_4 is carboalkoxy of 1–5 carbon atoms or

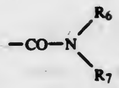


or R_4 may be lower alkyl provided that the vulcanization accelerating agent is 2-mercaptobenzothiazole, and



(IV)

in which R is the same as above and R_5 is cyano, carboalkoxy of 1–5 carbon atoms, substituted carbamoyl of the formula



in which R_6 is hydrogen or R, R_7 is R or carboalkoxy of 1–5 carbon atoms, or R_6 and R_7 together is alkylene or oxydialkylene of 4–8 carbon atoms which along with the nitrogen atom forms a heterocycle, or R_5 may be carbamoyl provided that the vulcanization accelerating agent is 2-mercaptobenzothiazole.

4,271,051

MODIFIED ALKYD RESINS AND THEIR USE AS LACQUER BINDERS

Helmut Eschwey, Düsseldorf-Benrath, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Sep. 28, 1979, Ser. No. 79,964
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842919; Jun. 1, 1979, 2922370
Int. Cl.³ C08L 67/00, 67/08; C09D 3/64
U.S. Cl. 260—22 M **10 Claims**

1. A process for the production of alkyd resin modified to contain free hydroxyl groups which comprises reacting alkyd resin having an acid number of from about 40 to 180 with glycide, glycerol, or a mixture thereof, until the acid number of the alkyd resin is from about 5 to 35 and the alkyd resin contains from about 5 to 30 percent by weight, based on the weight of the alkyd resin, of 2,3-dihydroxypropyl groups.

4,271,052

CARBOXYLATED NITRILE RUBBER VULCANIZATES

George C. Blackshaw, Sarnia, Canada, assignor to Polysar Limited, Sarnia, Canada

Filed Jun. 18, 1979, Ser. No. 49,110
Claims priority, application Canada, Jul. 17, 1978, 307575
Int. Cl.³ C08L 9/02, 13/00
U.S. Cl. 260—23.7 N **8 Claims**

1. Improved vulcanizates consisting essentially of a carboxylated butadiene-acrylonitrile polymer having a molecular weight within the Mooney range (ML 1+4 at 100° C.) of about 40 to about 80 compounded with (a) at least one filler, (b) vulcanization active agents and (c) from about 2.5 to about 30 parts by weight of an epoxidized hydrocarbyl compound per 100 parts by weight of carboxylated butadiene-acrylonitrile polymer.

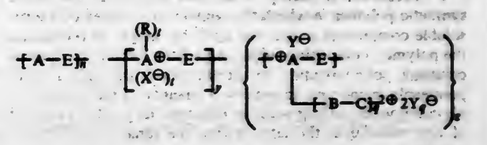
4,271,053

QUATERNARY AMMONIUM GRAFT COPOLYMERS FOR USE AS FLOCCULANTS AND METHOD OF PREPARING SAME

Donald R. Kelsey, and Russell L. Kroeger, both of Hillsborough, N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,193
Int. Cl.³ C08L 63/00; C02B 1/56
U.S. Cl. 260—29.2 EP **20 Claims**

1. A quaternary ammonium graft copolymer which comprises polymeric units characterized by the general formula:



wherein n, y and z represent the relative molar equivalent fractions of each of the respective polymeric units in the graft copolymer, the sum of n, y and z being 1.0, the value of n varying from 0.00 to 0.99, the value of y varying from 0.00 to 0.99 and the value of z varying from 0.01 to 0.99; q is an integer greater than 1; A is the unit derived from at least one difunctional amine selected from the group consisting of primary amines and di(secondary)amines; t is an integer varying from 1 to 2; E is the unit obtained from a compound selected from the group consisting of epihalohydrins and diepoxides after its reaction with said difunctional amine; R is an organic radical derived from a quaternizing agent having the general formula RX, where X is the residual counter ion formed after quaternization; B is the unit derived from an organic dihalide having the general formula BY_2, where Y is Cl^-, Br^- or I^- with the proviso that such halogens are not attached to the same carbon atom; and C is the unit derived from an organic di(tertiary)amine after its reaction with said organic dihalide.

4,271,054

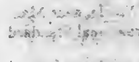
PREPARATION OF FURAN POLYMERS

Young D. Kim, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Mar. 19, 1980, Ser. No. 131,563
Int. Cl.³ C08L 61/06
U.S. Cl. 260—29.3 **34 Claims**

1. A process for preparing a water-compatible furan polymer which comprises:

providing a composition containing at least one saturated aliphatic monohydric alcohol having 1–3 carbon atoms, water, furfuryl alcohol, aldehyde, phenolic compound, and a nitrogen-containing compound containing at least one



subjecting said composition condensation reaction at basic pH in the presence of a basic catalyst until the free aldehyde content of said composition is about 10 to 16%, and then subjecting the composition to condensation reaction at an acidic pH for a time sufficient to provide a polymer composition having a viscosity of about 0.5 to about 5 stokes at 25° C., and thereby obtaining said water-compatible furan polymer.

4,271,055

PROCESS FOR PREPARING AN AQUEOUS LATEX BINDER FOR MANUFACTURING NONWOVENS EMPLOYING ULTRAFILTRATION TO FORM A LATEX HAVING LOW HYDROSOLUBLES

Jean-Claude Daniel, Fontenay-sous-Bois; Jacques Grossoleil, Paris, and Robert Roullet, Lyons, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Apr. 21, 1978, Ser. No. 898,954
Claims priority, application France, Apr. 22, 1977, 77 12161
Int. Cl.³ D04H 1/64; C08F 6/16
U.S. Cl. 260—29.6 TA 3 Claims

1. Process for preparing an aqueous latex base binder of a synthetic polymer in which the content in the latex of hydrosoluble compounds is less than 0.5% by weight in relation to the polymer, comprising subjecting a latex formed by aqueous emulsion polymerization to ultrafiltration, through a semipermeable membrane, to remove a quantity of the hydrosoluble compounds, adding water to maintain the ponderal content of dry material in the latex within the range of 5–70% by weight.

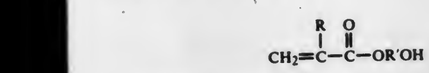
4,271,056

HYDROPHILIC ACRYLONITRILE POLYMERS FOR MELT-SPINNING

Denis Coleman, Stamford, Conn., and Anthony Koroscil, Pensacola, Fla., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 67,247, Sep. 17, 1979, abandoned, which is a continuation-in-part of Ser. No. 13,776, Feb. 21, 1979, abandoned. This application May 14, 1980, Ser. No. 149,780
Int. Cl.³ C08L 33/20
U.S. Cl. 260—29.6 AN 7 Claims

1. A melt-spinnable fiber-forming acrylonitrile polymer composition comprising from about 5 to 30 weight percent of water and, correspondingly, from about 95 to 70 weight percent of a polymer consisting of the polymerization reaction product of from about 80 to about 95 weight percent of acrylonitrile, from about 4 to 19 weight percent of a hydrophobic monomer copolymerizable with acrylonitrile and from about 1 to about 10 weight percent of a hydrophilic copolymerizable monomer of the structure:



wherein R is hydrogen or methyl and R' is alkylene of 1 to 3 carbon atoms, said polymer having a kinematic molecular weight value in the range of about 30,000 to about 60,000, said molecular weight value being obtained from the relationship $\mu = 1/A(M_k)$ wherein μ is the average effluent time in seconds for a solution of 1 gram of polymer in 100 milliliters of 50 weight percent aqueous sodium thiocyanate solvent at 40° C. multiplied by the viscometer factor, A is the solution factor derived from a polymer of known molecular weight and M_k is the kinematic molecular weight.

4,271,057

WATER SETTING ION-POLYMER CEMENTS

Cyril F. Drake, Harlow, and Neil R. Adams, Wincle, near Macclesfield, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Nov. 6, 1979, Ser. No. 91,915
Claims priority, application United Kingdom, Nov. 8, 1978, 43601/78
Int. Cl.³ C08K 3/40
U.S. Cl. 260—29.6 M 7 Claims

1. A method of controlling the setting characteristics of an aqueous polycarboxylic acid cement mixture, the cross-linking agent comprising or being provided by a crushed glass composition selected from the group consisting of zinc oxide/boric oxide/alumina and fluoroaluminoborosilicate, the method including incorporating in said mixture a phosphate material by treating the surface of said crushed glass with sufficient phosphorus pentoxide in vapor phase or coating the surface of said crushed glass with sufficient alkaline metal phosphate salt selected from the group consisting of orthophosphate, metaphosphate, pyrophosphate and polyphosphate so as to extend the working time without substantially extending the setting time of the acid material.

4,271,058

STABLE AQUEOUS SOLUTIONS OF CERTAIN VINYL COPOLYMERS

Hans Trabitzsch, Seeheim; Josef Frieser, Welterstadt; Achim Koechik, and Hermann Plainer, both of Darmstadt, all of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,894
Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 2829018
Int. Cl.³ C08L 33/02
U.S. Cl. 260—29.6 M 10 Claims

1. An aqueous solution comprising
(1) 20 to 99 percent by weight of water;
(2) 0.5 to 79 percent by weight of a water-soluble vinyl copolymer comprising
(A) 10 to 90 mol percent of units of an α,β-unsaturated carboxylic acid,
(B) 10 to 90 mol percent of units of a cationic vinyl monomer containing ammonium groups, and
(C) 0 to 80 mol percent of units of one or more further non-ionic comonomers copolymerizable with monomers (A) and (B); and
(3) 0.5 to 79 percent by weight of at least one water-soluble ionic or ionizable compound having a precipitating effect on an aqueous solution of polyacrylic acid.

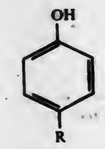
4,271,059

COLOR-DEVELOPING COMPOSITION FOR PRESSURE-SENSITIVE RECORDING SHEET MATERIAL AND PROCESS FOR THE PREPARATION THEREOF CONTAINING PHENOLIC RESIN AND HINDERED PHENOL

Makoto Asano; Saburo Kawashima; Kenichi Sugimoto, and Tadashi Kobayashi, all of Yokohama, Japan, assignors to Mitsui Toatsu Chemicals Inc., Tokyo, Japan

Division of Ser. No. 4,770, Jan. 19, 1979. This application May 14, 1980, Ser. No. 149,637
Claims priority, application Japan, Jan. 19, 1979, 54-4770
Int. Cl.³ C08G 8/12, 8/18, 8/24; C08K 5/13
U.S. Cl. 260—31.2 T 14 Claims

1. A color-developing composition for pressure-sensitive recording sheet material of the self-contained type comprising (A) a copolymer obtained by reacting at least one p-alkylphenol selected from the group consisting of compounds having the general formula



(I)

where R is an alkyl radical containing from 1 to 12 carbon atoms, and phenol with formaldehyde and (B) from 1 to 20 parts by weight based on 100 parts by weight of (A) of a hindered phenolic compound selected from the group consisting of phenols having an alkyl, alkylene or hydroxyl substituent radical in at least the 2- or 6-position, or both, of the benzene ring and derivatives thereof, the copolymer and the hindered phenolic compound being homogeneously dissolved in mutual solution.

4,271,060

SOLUTION POLYMERIZATION PROCESS

John S. Hubby, Brussels, Belgium, assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 17, 1979, Ser. No. 76,184
Int. Cl.³ C08K 5/01
U.S. Cl. 260—33.6 A 5 Claims

1. A process for producing solution polymerized polymer comprising:
(a) contacting in a contacting zone under polymerization conditions the reaction mixture comprising:
(1) polymerizable diolefin monomer,
(2) a volatile inert hydrocarbon diluent having 3 to 5 carbon atoms per molecule, and
(3) a hydrocarbon solvent having 6 to 10 carbon atoms per molecule;
(b) removing from the contacting zone a reaction mixture effluent; and
(c) flashing said reaction mixture effluent under conditions to vaporize at least a portion of the diluent and solvent thereby concentrating the polymer product.

4,271,061

EPOXY RESIN COMPOSITIONS FOR SEALING SEMICONDUCTORS

Hideto Suzaki; Shunichi Hayashi, and Takahiro Yoshioka, all of Ibaraki, Japan, assignors to Nitto Electric Industrial Co., Ltd., Ibaraki, Japan

Filed Mar. 6, 1980, Ser. No. 127,719
Claims priority, application Japan, Mar. 6, 1979, 54/26530; Jul. 31, 1979, 54/98380
Int. Cl.³ C08K 63/00
U.S. Cl. 260—37 EP 20 Claims

1. In an epoxy resin composition for sealing a semiconductor element containing about 50 to 85% by weight of an inorganic filler, the improvement wherein the inorganic filler comprises at least a silica powder and a calcium silicate powder, and the amount of said calcium silicate powder is about 20 to 75% by weight and the amount of the silica powder is about 25 to 80% by weight, based on the total weight of the silica powder and calcium silicate powder.

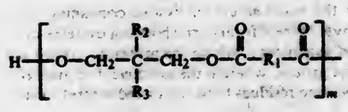
4,271,062

PIGMENT-CONTAINING COATING COMPOSITION HAVING A HIGH SOLIDS CONTENT

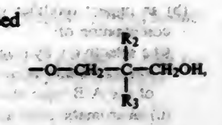
Ritse E. Boomgaard, Oegstgeest; Roelof Buter, Dieren, and Alcidus A. Kiffen, Angerlo, all of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Apr. 15, 1980, Ser. No. 140,574
Claims priority, application Netherlands, Apr. 19, 1979, 7903057
Int. Cl.³ C08K 3/12; C08L 67/08
U.S. Cl. 260—39 P 9 Claims

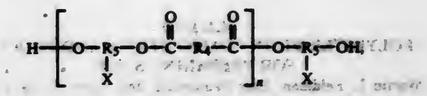
1. A pigment-containing high solids coating composition prepared from a blend of ester diols as binder and a curing agent for the binder, characterized in that an ester diol there is used a mixture of (a) 20–80 mole % of a compound having the general formula:



-continued



where R_1 represents the group formed by abstraction of the two carboxyl groups from maleic acid and/or fumaric acid and/or a cycloaliphatic and/or aromatic dicarboxylic acid having 8 to 20 carbon atoms and R_2 and R_3 may be the same or different and represent a hydrogen atom and/or a hydrocarbon group having 1 to 9 carbon atoms, and m is a number of 1–4, and of (b) 80–20 mole % of a compound having the general formula



where R_4 represents the group formed by abstraction of the two carboxyl groups from maleic acid and/or fumaric acid and/or a cycloaliphatic and/or aromatic dicarboxylic acid having 8 to 20 carbon atoms, and R_5 represents the group formed by abstraction of 3 hydroxyl groups from a tri- or tetravalent hydroxy compound having 3 to 8 carbon atoms in the main chain, and X represents an aliphatic acyloxy group having 6–25 carbon atoms, and n is a number of 1–4.

4,271,063

THERMOPLASTIC MOLDING COMPOSITIONS

Willem F. H. Borman, and Richard W. Campbell, both of Evansville, Ind., assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 26, 1978, Ser. No. 972,888
Int. Cl.³ C08L 67/02
U.S. Cl. 260—40 R 35 Claims

1. A thermoplastic molding composition having improved physical properties, th composition comprising an intimate admixture of
(a) high molecular weight polyester resin;
(b) from about 0.1 to about 25% by weight, based on the total weight of the composition, of a copolymer consisting of ethylene and vinyl acetate; and
(c) a filler;
said intimate admixture of components (a), (b) and (c) having been provided by melt-blending the components and post-reacting the resultant blend in the solid state by heating the solid blend to a temperature below the melting temperature of the blend in a vacuum or in a stream of inert gas.

4,271,064

MODIFIED POLYESTER COMPOSITIONS

Ronald L. Dieck, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Jan. 8, 1979, Ser. No. 1,535
Int. Cl.³ C08K 3/16, 3/40; C08L 67/06
U.S. Cl. 260—40 R 14 Claims

1. A thermoplastic composition consisting essentially of:
(a) a polyester composition consisting essentially of:
(i) a poly(1,4-butylene terephthalate) resin;
(ii) a blend of a poly(1,4-butylene terephthalate) resin and a poly(ethylene terephthalate) resin;
(iii) a block copolyester of poly(1,4-butylene terephthalate) and an aromatic/aliphatic or aliphatic polyester;
(iv) a blend of (iii) and a poly(ethylene terephthalate) resin; or
(v) a blend of (iii) and a poly-(1,4-butylene terephthalate) resin; and

(b) an impact modifier therefor consisting essentially of a combination of:

(i) a selectively hydrogenated block copolymer resin of a vinyl aromatic monomer (A) and a conjugated diene (B) of the A-B type; and

(ii) an aromatic polycarbonate resin, in an amount of up to 60 parts per 100 parts by weight of (a) and (b) together.

10. A composition as defined in claim 1 which also includes (c) a filler, reinforcing agent or a mixture thereof in an amount of from about 1 to about 60 parts by weight per 100 parts by weight of (a), (b) and (c) together.

4,271,065

POLYESTER RESIN COMPOSITIONS AND PROCESS FOR PREPARING SAME

Martin L. Feldman, East Brunswick, and James T. De Groff, Oldwick, both of N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Division of Ser. No. 119,719, Feb. 8, 1980, which is a division of Ser. No. 44,725, Jun. 1, 1979. This application Jul. 23, 1980, Ser. No. 171,624

Int. Cl.³ C08L 67/00

U.S. Cl. 260—40 R 16 Claims

1. A polyester resin composition that comprises

(a) an unsaturated polyester resin formed by condensing a saturated dicarboxylic acid and an unsaturated dicarboxylic acid with a dihydric alcohol;

(b) an unsaturated monomer capable of reacting with the unsaturated polyester resin to form cross-linkages; and

(c) a thickening agent comprising

(1) 25% to 70% by weight of a thickener that is a Group II-A metal oxide or hydroxide and

(2) 30% to 75% by weight of an unsaturated polyester vehicle comprising an unsaturated polyester that is the product of the reaction of a dicarboxylic acid component containing 80 to 90 mole % of at least one unsaturated aliphatic dicarboxylic acid having 4 to 8 carbon atoms and 10 to 20 mole % of at least one saturated aromatic dicarboxylic acid with an alcohol component containing 40 to 60 mole % of at least one glycol having 2 to 6 carbon atoms and 40 to 60 mole % of at least one monohydric alcohol having 6 to 12 carbon atoms, in the amount of 0.4 mole to 0.6 mole of the dicarboxylic acid component per mole of the alcohol component.

4,271,066

PROCESS FOR DISPROPORTIONATING ROSIN, POLY-UNSATURATED FATTY ACIDS AND MIXTURES THEREOF

Kohtaro Matsuo, Mino; Satoshi Kawamura, Takatsuki, and Tatsumi Toshine, Yawata, all of Japan, assignors to Arakawa Kagaku Kogyo Kabushiki Kaisha, Japan

Filed Nov. 5, 1979, Ser. No. 91,490

Int. Cl.³ C09F 1/04, 7/08; B01J 27/02, 27/08

U.S. Cl. 260—97.5 5 Claims

1. A process for disproportionating resin, poly-unsaturated fatty acid or mixture thereof, which comprises conducting a disproportionation reaction in the presence of a catalyst comprising (A) at least one iodide selected from the group consisting of sodium iodide and potassium iodide and (B) at least one iron compound selected from the group consisting of iron, iron oxides, iron hydroxides and iron sulfides.

4,271,067

GLYCOPEPTIDE

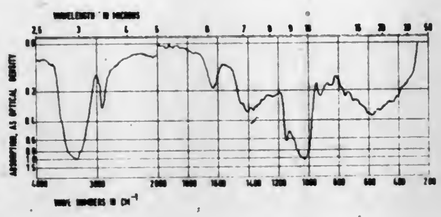
Andre Belloc, Vanves; Jean Florent, Boulogne-Billancourt; Jean Lunel, Paris; Denise Mancy, Charenton, and Jean-Claude Palla, Thiais, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Jan. 21, 1977, Ser. No. 760,978

Claims priority, application France, Jan. 22, 1976, 76 01647

Int. Cl.³ C12P 21/00; A61K 37/00

U.S. Cl. 260—112 R 11 Claims



1. The glycopeptide herein designated 31,177 RP, which has the following characteristics: it is soluble in water to the extent of more than 1,000 g/l; its solubility decreases rapidly in aqueous-alcoholic and aqueous-acetone mixtures and drops to less than 0.1 g/l in anhydrous alcohols, acetone, hexane, ethyl acetate, diethyl ether and chlorinated solvents;

analysis of the products of acid hydrolysis shows principally lysine and glucose;

it contains carbon, hydrogen, oxygen, nitrogen and sulphur, the relative proportions being approximately: C=46.2% H=6.05% O=46.11% N=1.44% S=0.20%;

its molecular weight is between 10,000 and 20,000;

its optical rotation (c=0.4, water) is:

$[\alpha]_D^{20} = +149.5° \pm 2.5°$

$[\alpha]_{436}^{20} = +295° \pm 4.0°$

$[\alpha]_{365}^{20} = +448° \pm 5.5°$

it does not exhibit a characteristic absorption in the ultraviolet spectrum between 220 and 400 nm; and

its infra-red spectrum (determined on tablets of a mixture with KBr) shows principal absorption bands as follows: 3470 shoulder, 3400 shoulder, 3350 very strong, 3270 shoulder, 3100 shoulder, 3050 shoulder, 3000 shoulder, 2980 shoulder, 2930 strong, 2900 shoulder, 2830 shoulder, 2780 shoulder, 2540 shoulder, 2350 very weak, 2100 very weak, 1985 very weak, 1945 very weak, 1900 very weak, 1850 very weak, 1760 very weak, 1630 medium, 1450 shoulder, 1410 strong, 1370 weak, 1335 shoulder, 1305 shoulder, 1240 weak, 1160 strong, 1100 shoulder, 1075 shoulder, 1030 very strong, 935 shoulder, 920 medium, 850 medium, 785 shoulder, 770 shoulder, 760 medium, 720 shoulder, 700 medium, 640 shoulder, 610 shoulder, 580 medium, 525 weak, 440 shoulder, 410 shoulder and 370 shoulder cm^{-1}.

4,271,068

PROCESS FOR THE MANUFACTURE OF CYSTINE-CONTAINING PEPTIDES

Bruno Kamber, and Werner Rittel, both of Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 296,406, Oct. 10, 1972, which is a continuation-in-part of Ser. No. 818,109, Apr. 21, 1969, abandoned. This application May 13, 1976, Ser. No. 685,857

Int. Cl.² C07C 103/52

U.S. Cl. 260—112.5 R 9 Claims

1. Process for the manufacture of cystine-containing peptides and derivatives thereof from corresponding cysteine-containing aminoacid sequences in which the mercapto groups are protected by trityl groups, wherein the aminoacid sequence(s) containing the cysteine residues to be combined is (are) treated with iodine in a solvent in which both iodine and the peptide are at least partically soluble.

4,271,069

BETA-HCG PREPARATION AND METHOD

Yun-Yen Tsong, North Caldwell, N.J.; Gursaran P. Talwar, New Delhi, India; Samuel Koide, Dobbs Ferry, and Sheldon J. Segal, Hartsdale, both of N.Y., assignors to Population Council, Inc., New York, N.Y.

Filed Sep. 26, 1978, Ser. No. 946,098

Int. Cl.² C07C 103/52; H61K 37/00

U.S. Cl. 260—112.5 R 10 Claims

1. A method of purifying a preparation of a beta sub-unit of chorionic gonadotropin which includes steps of:

a. preparing an insolubilized anti chorionic gonadotropin alpha sub-unit serum, and

b. contacting a preparation of the beta sub-unit of chorionic gonadotropin with the insolubilized anti chorionic gonadotropin alpha sub-unit serum of step (a) under conditions permitting binding of said insolubilized alpha sub-unit with contaminants in the preparation of the beta sub-unit, the contaminants including chorionic gonadotropin and an alpha sub-unit thereof, and

c. separating the insolubilized material from the preparation of the beta sub-unit of chorionic gonadotropin.

4,271,070

CHEMICALLY-MODIFIED FIBER COLLAGEN HEMOSTATIC AGENTS

Teruo Miyata, Tokyo, Japan; Albert L. Rubin, and Kurt H. Stenzel, both of Englewood, N.J., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed May 5, 1980, Ser. No. 147,063

Int. Cl.³ C07G 7/00; C08L 89/06

U.S. Cl. 260—123.7 10 Claims

1. An improved collagen hemostatic agent comprising native crosslinked fiber collagen of regularly staggered quaternary structure having a minimum molecular length of 7000 A°, a minimum molecular diameter of 20 A°, a minimum periodicity of 670–700 A°, and whose residual lysyl and carboxyl groups have been subjected respectively to at least one reaction selected from the group consisting of guanidination, esterification and guanidination-esterification to greatly enhance the net positive electrostatic charge of the fiber collagen.

4,271,071

HETEROCYCLIC MONOAZO COMPOUNDS FROM ALKYL-3-(PHENYLAMINO)BUTYRATES

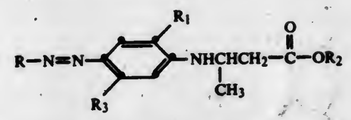
Gary T. Clark, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 2, 1979, Ser. No. 63,642

Int. Cl.³ C07C 29/08

U.S. Cl. 260—157 11 Claims

1. A compound of the formula



wherein

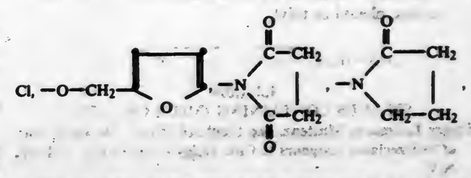
R is a heterocyclic radical which may be substituted, selected from 2-thiazolyl, 2-benzothiazolyl, 3-benzoisothiazolyl, 1,3,4-thiadiazol-2-yl, 1,2,4-thiadiazol-5-yl, 3-pyrazolyl, 2-thienyl, and 5-isothiazolyl;

R_1 is hydrogen, lower alkyl, or lower alkoxy;

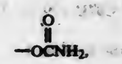
R_2 is lower alkyl, cyclohexyl, benzyl, or phenyl;

R_3 is hydrogen, lower alkyl, lower alkoxy, alkanoylamino wherein the alkanoyl moiety is either straight or branched lower alkyl aroylamino, or cyclohexyl carbonylamino; and

wherein each of the alkyl moieties may be substituted with 1–3 of lower alkoxy, —O—C_2H_4—O—C_2H_4O—lower alkyl,



phenyl, phenoxy, cyclohexyl, cyclohexyloxy, NHCO—lower alkyl, —N(lower alkyl)$_2$, acyloxy,



—S—lower alkyl, or —SO_2 lower alkyl.

4,271,072

AZO DYESTUFFS CONTAINING -$SO_2CH_2CH_2OSO_3H$ AND -$N(CH_2CH_2OSO_3H)_2$ GROUPS

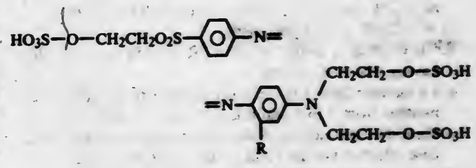
Johann Wenghoefer, East Greenwich; Dennis Mesnier, and James Thompson, both of Coventry, all of R.I., assignors to American Hoechst Corporation, Somerville, N.J.

Continuation of Ser. No. 862,317, Dec. 20, 1977, abandoned. This application Aug. 13, 1979, Ser. No. 65,791

Int. Cl.³ C09B 29/01, 29/085, 29/26, 62/51

U.S. Cl. 260—207.3 2 Claims

1. A water soluble dyestuff having, in the form of the free acid, the formula:



wherein R is halogen; or salts thereof.

4,271,073

6-SUBSTITUTED-9-(2-HYDROXYETHYL)-1,2,3,4-TETRAHYDRO CARBAZOL-1-ONE

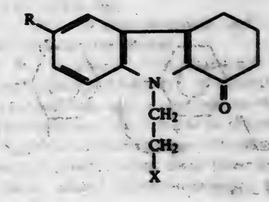
Heinz Bender; Rudi Beyerle, both of Frankfurt am Main; Karl-Heinz Keil, Offenbach am Main; Heinz G. Greve, and Kuno Reh, both of Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main-Fechenheim, Fed. Rep. of Germany

Filed Nov. 29, 1979, Ser. No. 98,498

Int. Cl.³ C07D 209/88, 241/38

U.S. Cl. 260—315 3 Claims

1. 6,7-disubstituted 1,2,3,4-tetrahydrocarbazol-1-one of the formula II

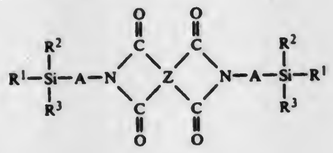


(II)

wherein
R represents an alkyl or alkoxy group having 1 to 4 carbon atoms, a fluorine, chlorine or bromine atom and
X means —OH or a radical of the formula —O—SO_2R', wherein R' stands for an alkyl radical having 1 to 3 carbon atoms, phenyl or tolyl.

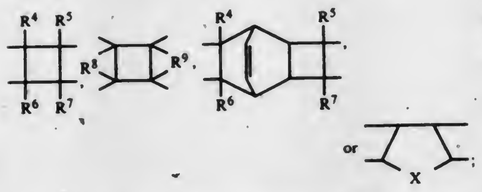
4,271,074
SILANES CONTAINING IMIDE GROUPS
Dieter Lohmann, Muttenz, and Siegfried Wyler, Dornach, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Aug. 20, 1979, Ser. No. 67,864
Claims priority, application Switzerland, Aug. 30, 1978, 9154/78
Int. Cl.³ C07D *209/94*; B32B *9/04*
U.S. Cl. 260—326.26 **6 Claims**

1. A compound of the formula I

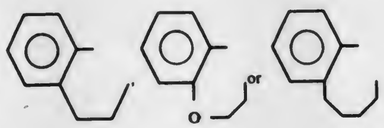


(I)

wherein
R^1 and R^2 independently of one another are methyl, ethyl, phenyl, vinyl, chlorine or a group —OR, R^3 is chlorine or —OR, R is alkyl having 1–10 C atoms, cycloalkyl having 5–8 C atoms or phenyl;
A is one of the divalent radicals $—(CH_2)_a—$, $—C(R^{10})_2—CH(R^{11})—$, $—(CH_2)_b—G—(CH_2)_c—$, phenylene—(CH_2)hd d—G—$(CH_2)_c—$ or phenylene-$(CH_2)_d$;
G is —CH(R")— or phenylene;
R^{10} is hydrogen, methyl or ethyl, R^{11} is hydrogen or alkyl having 1 to 10 C atoms;
a is a number from 1 to 10, b is a number from 1 to 6, c is a number from 1 to 6 and d is a number from 0 to 6;
in these divalent radicals A the bond to the Si atom is in each case effected via the bond on the right-hand side,
Z is one of the groupings



R^4, R^5, R^6 and R^7 independently of one another are hydrogen, methyl, phenyl, —CN or halogen, R^8 and R^9 independently of one another are alkylene having 3 or 4 C atoms, oxaalkylene having 3 or 4 C atoms or are one of the radicals



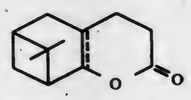
X is $—CH_2—$ or —O—.

4,271,075
PROCESS FOR PRODUCING 3,3-BIS-(4-DIMETHYLAMINOPHENYL)-6-DIMETHYLAMINOPHTHALIDE
Mitsuru Nagata, and Kazuyuki Wakasugi, both of Yokohama, Japan, assignors to Hodogaya Chemical Co., Ltd., Tokyo, Japan
Filed Jan. 29, 1980, Ser. No. 116,383
Claims priority, application Japan, Feb. 14, 1979, 54-15002
Int. Cl.³ C07D *307/88*
U.S. Cl. 260—343.4 **5 Claims**

1. In a process for producing 3,3-bis-(4-dimethylaminophenyl)-6-dimethylaminophthalide which comprises oxidizing an alkali metal salt of 2-[4,4'-bis-(dimethylamino)-benzhydryl]-5-dimethylaminobenzoic acid in an aqueous solution at pH of 8 to 14 with hydrogen peroxide, oxygen or air the improvement wherein said reaction is carried out in the presence of a catalyst comprising a cobalt complex soluble in aqueous alkaline solution.

4,271,076
TRICYCLIC LACTONES
Joseph J. Becker, Geneva, and Günther Ohloff, Bernex, both of Switzerland, assignors to Firmenich, S.A., Geneva, Switzerland
Filed Jul. 14, 1980, Ser. No. 168,149
Claims priority, application Switzerland, Aug. 31, 1979, 7899/79
Int. Cl.³ C07D *311/74*
U.S. Cl. 260—343.21 **3 Claims**

1. A compound of the formula

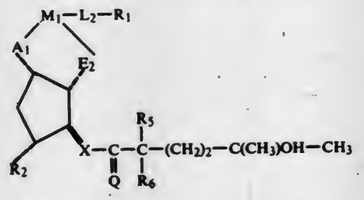


(I)

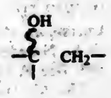
possessing a single or a double bond in the position indicated by the dotted line.

4,271,077
19-HYDROXY-19-METHYL-6-HYDROXY-7A-HOMO-PGI$_1$ COMPOUNDS
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,510
Int. Cl.³ C07D *311/02*
U.S. Cl. 260—345.2 **2 Claims**

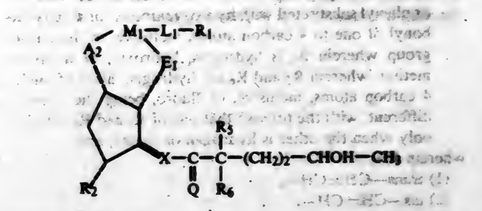
1. A prostacyclin-type compound of the formula



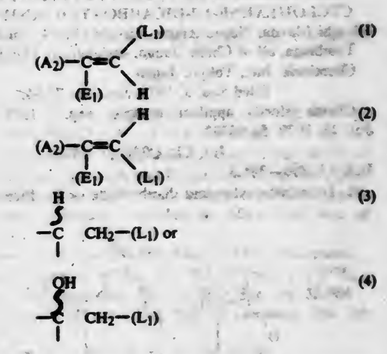
wherein A_1 is —O— (oxa) and E_2 is $—CH_2CH_2—$;
wherein L_2 is
(1) $—(CH_2)_j—$, wherein j is one to 4, inclusive,
(2) $—(CH_2)_q—CF_2—$, wherein q is one, 2, or 3; or
(3) —CH=CH—;
wherein M_1 is



wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_1 is
(1) $—COOR_3$,
(2) $—CH_2OH$,
(3) $—CH_2N(R_7)(R_8)$,
(4) $—CO—N(R_7)(R_8)$,
(5) $—CO—NH—SO_2—R_{15}$, or
(6) tetrazolyl,
wherein R_3 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;
(g) —(Ph)—CO—CH_3,
(h) —(p-Ph)—NH—CO—(p-Ph)—NH—CO—CH_3,
(i) —(p-Ph)—NH—CO—(p-Ph),
(j) —(p-Ph)—NH—CO—CH_3,
(k) —(p-Ph)—NH—CO—NH_2,
(l) —(p-Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) $—CH_2—CO—R_{16}$,
wherein —(Ph)— is inter-phenylene and —(p-Ph) is inter-para-phenylene or para-phenyl;
wherein R_{16} is phenyl, p-bromophenyl, p-bisphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different, and wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl-substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of 2 to 4 carbon atoms, inclusive,
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and
wherein X is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) $—CH_2CH_2—$.



wherein A_2 is $—CH_2O—$ with $—CH_2$ bonded to the cyclopentane ring and E_1 is $—CH_2—$;
wherein L_1 is
(1) $—(CH_2)_n—$, wherein n is one to 5, inclusive,
(2) $—(CH_2)_p—CF_2—$, wherein p is 2, 3, or 4; or
(3) $—CH_2—CH=CH—$;
wherein M_1 is



(1)
(2)
(3)
(4)

wherein Q is oxo, α-H:β-H, α-OH:β-R_4, or α-R_4:β-OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive;
wherein R_1 is
(1) $—COOR_3$,
(2) $—CH_2OH$,
(3) $—CH_2N(R_7)(R_8)$,
(4) $—CO—N(R_7)(R_8)$,
(5) $—CO—NH—SO_2—R_{15}$, or
(6) tetrazolyl,
wherein R_3 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;
(g) —(Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) $—CH_2—CO—R_{16}$,
wherein —(Ph)— is inter-phenylene and —(p—Ph) is inter-para-phenylene or para-phenyl;
wherein R_{16} is phenyl, p-bromophenyl, p-bisphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different, and wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl-substituted with one, 2, or 3

4,271,078
19-HYDROXY-6,9α-EPOXYMETHANO-PGF COMPOUNDS
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 54,811, Jul. 5, 1979, Pat. No. 4,225,508. This application Mar. 3, 1980, Ser. No. 126,478
Int. Cl.³ C07D *311/02*
U.S. Cl. 260—345.2 **6 Claims**

1. A prostacyclin-type compound of the formula

chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive, in the alkoxy group wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl, wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and

wherein X is

(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) $—CH_2CH_2—$.

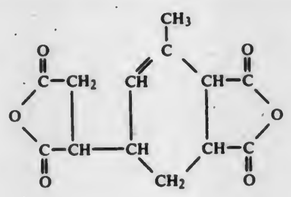
4,271,079

5-(2,5-DIOXOTETRAHYDROFURYL)-3-METHYL-3-CYCLOHEXENE-1,2-DICARBOXYLIC ANHYDRIDE

Hiroshi Maeda; Nagao Ariga; Hiroshi Oikawa, and Hidemitsu Tominaga, all of Chiba, Japan, assignors to Dainippon Ink & Chemicals, Inc., Tokyo, Japan

Filed Sep. 5, 1979, Ser. No. 72,642
Claims priority, application Japan, Sep. 7, 1978, 53-109115; Jul. 26, 1979, 54-94307
Int. Cl.³ C07D *307/89*
U.S. Cl. 260—346.3 1 Claim

1. Tetracarboxylic acid dianhydride of the formula:



4,271,080

PROCESS FOR THE PREPARATION OF TETRAHYDROFURAN

Jawad H. Murib, Cincinnati, Ohio, assignor to National Distillers and Chemical Corp., New York, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,977
Int. Cl.³ C07D *307/08*
U.S. Cl. 260—346.11 10 Claims

1. A process for preparing tetrahydrofuran which comprises reacting a 1,4-dihalobutane with water in the vapor phase in the presence of a solid acid catalyst.

4,271,081

PROCESS FOR THE PREPARATION OF TETRAHYDROFURAN

Jawad H. Murib, and John M. Inskeep, both of Cincinnati, Ohio, assignors to National Distillers and Chemical Corp., New York, N.Y.

Filed Jun. 16, 1980, Ser. No. 159,978
Int. Cl.³ C07D *307/08*
U.S. Cl. 260—346.11 16 Claims

1. A process for preparing tetrahydrofuran which comprises reacting a 1,4-dihalobutane with water in the presence of a catalytically effective amount of strong acid to provide tetrahydrofuran.

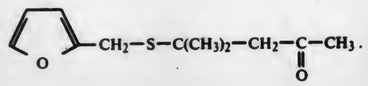
4,271,082

4-METHYL-4-FURFURYLTHIO-PENTANONE-2

Reinerus J. Kleipool, Amersfoort, Netherlands, assignor to Naarden International N.V., Naarden-Bussum, Netherlands

Division of Ser. No. 967,596, Dec. 8, 1978, abandoned, which is a continuation of Ser. No. 776,763, Mar. 11, 1977, abandoned.
This application Nov. 19, 1979, Ser. No. 95,546
Claims priority, application Netherlands, Mar. 15, 1976, 7602689
Int. Cl.³ C07D *307/38*
U.S. Cl. 260—347.2 1 Claim

1. The compound having the formula



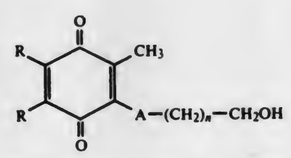
4,271,083

6-HYDROXY-1,4-BENZOQUINONE COMPOUNDS

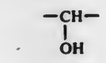
Hiroshi Morimoto, Hyogo; Isuke Imada, Osaka; Masazumi Watanabe, Noborimachi, and Mitsuru Kawada, Osaka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Division of Ser. No. 573,158, Apr. 30, 1975, Pat. No. 4,139,545.
This application Nov. 15, 1978, Ser. No. 961,021
Claims priority, application Japan, May 2, 1974, 49-50003
Int. Cl.³ C07C *50/28*
U.S. Cl. 260—396 R 10 Claims

1. A compound of the formula



wherein R represents alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms, A represents $—CH_2—$, —CO— or



and n represents an integer of 1 to 8, or its ester.

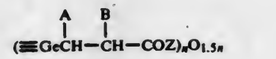
4,271,084

GERMANIUM-CONTAINING ORGANIC POLYMER AND THE PROCESS FOR THE PRODUCTION OF THE SAME

Akira Ishikawa, Tokyo; Yukihito Ishida, Fujisawa; Shiro Ikegami, Funabashi; Hiroshi Satoh, Tokyo, all of Japan; Ryuichi Sato, 2310, Kamikoizumi, Oizumicho, Ora-gun, Gunma-ken, Japan; Setsuo Tomisawa, Tokyo, and Shigeru Toyoshima, Tokyo, both of Japan, assignors to Ryuichi Sato, Gunma, Japan

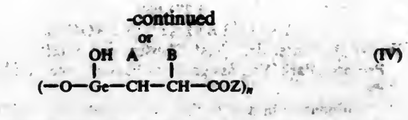
Filed Feb. 14, 1979, Ser. No. 12,151
Claims priority, application Japan, Mar. 1, 1978, 53-21992; Mar. 1, 1978, 53-21993
Int. Cl.³ C07F *7/30*
U.S. Cl. 260—429 R 8 Claims

1. A germanium-containing organic polymer represented by the formula:



-continued

or

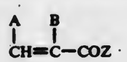


wherein A represents a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, —COOH, —COOR (wherein R is an alkyl group having 1 to 3 carbon atoms),

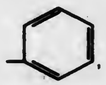


B represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms; Z represents a hydroxy group, an alkoxy group having 1 to 3 carbon atoms or an alkyl group having 1 to 3 carbon atoms; and n is an integer greater than 3, inclusive.

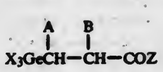
4. A process for producing germanium-containing organic polymer represented by the formula (III) or (IV) as given in claim 1 which comprises reacting a halogermanium-phosphoric acid complex obtained by treating germanium dioxide with hypophosphorous acid or a salt thereof in hydrohalogenic acid with a compound (I) represented by the formula:



wherein A is a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, —COOH, —COOR (wherein R is an alkyl group having 1 to 3 carbon atoms),



B is a hydrogen atom or an alkyl group having 1 to 3 carbon atoms and Z is a hydroxy group, an alkoxy group having 1 to 3 carbon atoms or an alkyl group having 1 to 3 carbon atoms, to obtain a compound (II) represented by the formula:



wherein A, B and Z have the same meanings as defined above, and X is a halogen atom; and then dissolving said compound (II) in an organic solvent and adding water to the solution thus obtained so as to obtain a white needle crystalline polymer.

4,271,085

CIS-PLATINUM (II) AMINE LACTATE COMPLEXES

Alan R. Amundsen, Somerville, and Eric W. Stern, Mountainside, both of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Iselin, N.J.

Filed Jun. 20, 1979, Ser. No. 50,235
Int. Cl.³ C07F *15/00*
U.S. Cl. 260—429 R 7 Claims

1. A complex of the general formula:

$cis\text{-}[Pt(II)A_2(C_3H_5O_3)_2]$

wherein the platinum, Pt, is in valence state II and is coordinated to A in a cis configuration; A is ammonia or a monodentate alkylamine; A_2 is a bidentate alkylamine; and $C_3H_5O_3$ is the lactate anion.

4,271,086

PRODUCTION OF METHANOL

Emil Supp, Dietzenbach; Heinz Jeckel, Klein-Gerau; Gerhard Cornelius, Bergen-Enkheim, and Friedmann Marschner, Oberursel, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 856,565, Dec. 1, 1977, abandoned, which is a continuation of Ser. No. 724,832, Sep. 17, 1976, abandoned. This application May 4, 1979, Ser. No. 35,964
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1976, 2603291
Int. Cl.³ C07C *29/15, 27/06, 31/04*
U.S. Cl. 518—704 2 Claims

1. In the production of methanol from gaseous hydrocarbons having a lower C/H ratio than is stoichiometrically required to produce methanol the improvement comprising the steps of:

(a) mixing said hydrocarbons with water vapor and a carbon dioxide containing gas, the mixture being at a temperature of an inlet temperature of at least about 400° C.,
(b) feeding said mixture into a tubular reaction zone and catalytically reacting the mixture therein at about 830° to 930° C. and about 5 to 30 bars to produce a synthesis gas consisting essentially of hydrogen and oxides of carbon, said mixture being heated while being catalytically reacted,
(c) transferring heat from the hot syntheses gas to said mixture by withdrawing the synthesis gas through a convoluted or corrugated tube within the catalyst of each tubular member of said reaction zone in countercurrent and with indirect heat exchange to said mixture,
(d) cooling said synthesis gas and withdrawing condensate therefrom,
(e) catalytically converting said synthesis gas in a methanol synthesis zone at about 230° to 280° C. and about 30 to 150 bars,
(f) separating methanol from the product of said synthesis zone and withdrawing an exhaust gas, from said synthesis zone, said exhaust gas containing hydrogen, carbon dioxide and methane,
(g) thereafter adsorbing from said exhaust gas the carbon containing gaseous constituents, desorbing said constituents and mixing them with the hydrocarbons in step (a) before the latter are cracked, scrubbing the residual methanol synthesis exhaust gas with scrubbing liquor to dissolve the carbon dioxide, separating the carbon dioxide from the used scrubbing liquor and mixing it with the hydrocarbons in step (a) before they are cracked and (h)

the heat consumption per 1000 kg of pure methanol being in the range of 7.16 to 7.62 million kcal.

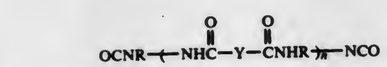
4,271,087

CARBAMYLBIURET-MODIFIED POLYISOCYANATES

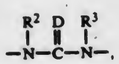
Donald L. Christman, Grosse Ile, and Peter T. Kan, Plymouth, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Nov. 8, 1979, Ser. No. 92,479
Int. Cl.³ C07C 127/24
U.S. Cl. 260—453 AB 7 Claims

1. A carbamylbiuret-modified polyisocyanate of the formula:



wherein n is an integer of from about 1 to about 20; R is a divalent hydrocarbon radical containing from about 1 to about 18 carbon atoms; and Y is the divalent radical



wherein D is selected from the group consisting of O, S, and NH; R^2 and R^3 are independently selected from the group consisting of aryl of from about 6 to about 18 carbon atoms, alkyl containing from about 1 to about 6 carbon atoms, and cycloalkyl containing from about 3 to about 7 carbon atoms, provided that each of R^2 and R^3 differs from R.

4,271,088

HIGH SELECTIVITY CYANOALKYLATION PROCESS

Walter A. Butte, Jr., West Chester, and Wesley R. Cherry, Prospect Park, both of Pa., assignors to Suntech, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 916,394, Jun. 16, 1978, Pat. No. 4,171,322. This application May 18, 1979, Ser. No. 40,248
The portion of the term of this patent subsequent to Oct. 16, 1996, has been disclaimed.
Int. Cl.³ C07C 120/00
U.S. Cl. 260—465.6 10 Claims

1. In a process for cyanoalkylation of an organic compound having a labile hydrogen atom and selected from the group consisting of monohydric alcohol, polyhydric alcohol, and phenols and wherein the compound is contacted with a cyanoalkene selected from the group consisting of crotononitrile, beta-vinylacrylonitrile and $CH_2{=}C(R)CN$ wherein R is a C_1–C_5 hydrocarbon radical and the contacting is under cyanoalkylation conditions in a reaction zone and wherein the reaction tends to be accompanied by polymerization of the cyanoalkene with resulting decrease in yield and purity of the desired cyanoalkylation product, the improvement which comprises terminating the reaction when a total of about 60–96% of the cyanoalkene required for complete cyanoalkylation of said compound has been converted to cyanoalkylated products, polymers, and unknowns, whereby the amount of polymers and unknowns is less than that obtained in the cyanoalkylation of said compounds in which the conversion of the cyanoalkene exceeds the above recited upper limit of about 96%, and separating cyanoalkylation product in the reaction product from unreacted cyanoalkene.

4,271,089

CYANOALKYLATION PROCESS

Walter A. Butte, Jr., West Chester, and Wesley R. Cherry, Prospect Park, Pa., assignors to Suntech, Inc., Philadelphia, Pa.

Continuation-in-part of Ser. No. 916,393, Jun. 16, 1978, abandoned. This application Jul. 5, 1979, Ser. No. 54,771
Int. Cl.³ C07C 120/00
U.S. Cl. 260—465.6 11 Claims

1. In a process for cyanoalkylation of a compound having a labile hydrogen atom selected from the group consisting of monohydric alcohol, polyhydric alcohol, water and phenol which comprises contacting said compound at a cyanoalkylation temperature with a cyanoalkene selected from the group consisting of acrylonitrile, alpha-methyl acylonitrile, crotononitrile, and beta-vinyl-acrylonitrile, and a cyanoalkylation catalyst in a reaction zone to form a cyanoalkylated product and by-products wherein the reaction is accompanied by undesired production of by-products with resulting reduction in selectivity for the desired cyanoalkylated product, the improvement which comprises conducting the reaction in the presence of about 1 to 9 volumes of the cyanoalkylated product in addition to that which is formed is situ by reaction of the compound and said cyanoalkene, whereby production of by-products is reduced.

4,271,090

NOVEL 2-BROMOETHYL TELLURIUM BROMIDES

Anthony N. Naglieri, Pine Brook, and Nabil Rizkalla, River Vale, both of N.J., assignors to Halcon Research and Development Corp., New York, N.Y.

Filed Oct. 29, 1979, Ser. No. 88,998
Int. Cl.³ C07C 165/00
U.S. Cl. 260—550 7 Claims

1. Bis (2-bromoethyl) tellurium dibromide.

2. 2-Bromoethyl tellurium tribromide.

3. A process for preparing a 2-bromoethyl tellurium bromide selected from the group consisting of bis (2-bromoethyl) tellurium tribromide, 2-bromoethyl tellurium tribromide and mixtures thereof which comprises contacting ethylene with a source of tellurium tetrabromide in liquid medium in the presence of a polar organic solvent for the reaction which is inert under the conditions of the reaction, at a temperature of less than about 125° C. and in the substantial absence of molecular oxygen, to form the 2-bromoethyl tellurium bromide.

4,271,091

VAPOR PHASE CATALYTIC OXIDATION AND/OR AMMOXIDATION OF CYCLOHEXANONE AND/OR CYCLOHEXANOL TO PHENOL AND/OR ANILINE

Robert K. Grasselli, Chagrin Falls, and Dev D. Suresh, Macedonia, both of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Filed Jun. 17, 1978, Ser. No. 916,669
Int. Cl.³ C07C 85/06, 7/144, 7/12
U.S. Cl. 564—305 19 Claims

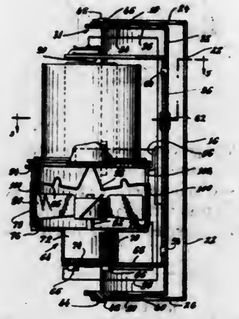
1. A process comprising contacting a cycloaliphatic ketone or alcohol in which the oxygen atom is directly connected to a ring carbon atom, or mixtures thereof, and molecular oxygen with an oxidation catalyst comprising an oxide or oxide complex containing Mo, W, Sb, V or mixtures thereof in a reaction zone, the amount of oxygen fed to said reaction zone being such that the ratio of the amount of oxygen to the amount of said ketone or alcohol is 0.1/1 to 20/1 on a molar basis.

4,271,092

APPARATUS FOR INDUCING AIR FLOW PAST A PRODUCT CAPABLE OF BEING VAPORIZED

William E. Sullivan; O. Murray Mestze, Jr., both of Columbia, S.C., and Richard H. Seager, Manchester, Conn., assignors to Risdon Enterprises, Inc., Columbia, S.C.

Continuation of Ser. No. 732,137, Oct. 13, 1976, abandoned. This application Feb. 16, 1979, Ser. No. 12,793
Int. Cl.³ A61L 9/04
U.S. Cl. 261—30 7 Claims



1. In a dispenser for a product capable of being vaporized including a housing having air intake openings and air discharge openings therein, a fan mounted in said housing for drawing air through said air intake openings to establish an air stream through said housing, a cartridge removably mounted in said housing and including a compartment for receiving a product capable of being vaporized therein, and duct means for directing the air stream of said fan through said compartment past said product therein and out through the air discharge openings; the improvement wherein said housing comprises:

an inner housing shell having an axis, said fan and said duct means being mounted with said inner housing shell and said cartridge being removably mounted with said inner housing shell;

an outer housing shell; and

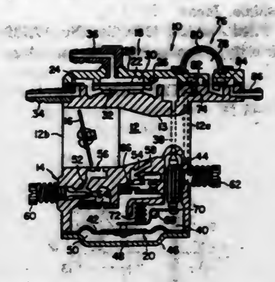
hinge means for mounting said inner housing shell within said outer housing shell for shiftable, pivoted movement substantially on said axis between a closed operating position complementary to said outer housing shell and an open servicing position nested within said outer housing shell, said outer housing shell cooperating with said inner housing shell in the closed position thereof to enclose said fan, said duct means and said cartridge, said outer housing shell cooperating with said inner housing shell in the open position thereof to render said fan, said duct means and said cartridge accessible for removal and replacement and servicing, at least one of said inner and outer housing shells being formed with said air intake openings at one end thereof and at least one of said inner and outer housing shells being formed with said air discharge openings at the axially opposed end thereof, said inner and outer housing shells thereby cooperating with said duct means to direct said air stream axially through said housing and through said compartment of said cartridge whereby said housing, said fan, said duct means and said cartridge are arranged so that the dispenser is operable in all orientations of said housing.

4,271,093

CARBURETOR

Takeshi Kobayashi, Kawasaki, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

Filed Nov. 1, 1979, Ser. No. 90,425
Claims priority, application Japan, Nov. 20, 1978, 53-142177
Int. Cl.³ F02M 1/16
U.S. Cl. 261—34 R 1 Claim



1. In a diaphragm carburetor having a body with a fuel supply port, a diaphragm chamber open to said fuel supply port formed in said body for supplying fuel to an internal combustion engine through main and idle fuel jets in the carburetor, a diaphragm controlled fuel inlet valve in said body connected to said fuel supply port, a pump chamber in said body, one side of which is formed by the body and the other side of which is formed by a manually compressible resilient dome sealed peripherally against said body and accessible from the outside of said body, a first passage in said body leading from the diaphragm chamber to said pump chamber having a first one-way valve opening in the direction from said diaphragm chamber to said pump chamber, a second passage in said body leading from said pump chamber to an outlet port open to atmosphere having a second one-way valve opening in the direction from said pump chamber to said outlet port,

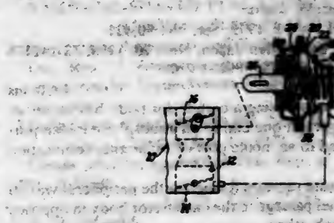
said dome being manually compressible to create a suction in said diaphragm chamber to draw a starting charge of fuel into said diaphragm chamber when said engine is not operating, said first one-way valve serving to block flow through said first passage when said carburetor is operating normally with the engine running.

4,271,094

MALLEABLE STOP FOR ENGINE CONTROL ELEMENT

L. Kirk Walters, Rochester, Mich.; Richard K. Judd, and Terrance J. Atkins, both of Rochester, N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 30, 1978, Ser. No. 938,078
Int. Cl.³ F01B 11/02; F02M 1/00; F16F 1/36
U.S. Cl. 261—39 B 19 Claims



1. In an internal combustion engine having a choke valve controlling operation of the engine and an actuating member for moving said choke valve and a stop engagable between said actuating member and a base member to establish a stopped position for said choke valve, the improvement provided by forming said stop with a malleable portion which

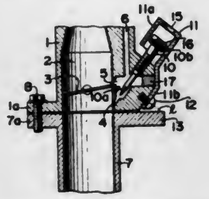
plastically deforms slightly upon engagement between said members and thus gradually changes said stopped position to compensate for changes in engine operating characteristics over an extended period of engine operation.

4,271,095

IDLE ADJUSTING DEVICE FOR A CARBURETOR

Tooru Maeda, Hiroshima, Japan, assignor to Toyo Kogyo Co., Ltd., Hiroshima, Japan

Filed Aug. 20, 1979, Ser. No. 67,909
Claims priority, application Japan, Aug. 21, 1978, 53/114805[U]
Int. Cl.³ F02M 3/08
U.S. Cl. 261—41 D 11 Claims



1. Intake means for an internal combustion engine comprising intake passage means including mounting flange means, carburetor means mounted on said mounting flange means of said intake passage means for providing a supply of intake air-fuel mixture to the intake passage means, externally adjustable idle adjust means provided in said carburetor means and having adjusting head means projecting externally from said carburetor means so that said adjusting head means can readily be actuated even when the carburetor means is mounted on the intake passage means, cover means including a first portion encircling said idle adjust means so as to prevent ready access thereto and a second portion adapted for attachment to said carburetor means, said second portion being made inaccessible by said mounting flange means on the intake passage means when the carburetor means is mounted on said intake passage means and made accessible when the carburetor means is removed from the intake passage means, said cover means being attached to the carburetor means by means of at least one screw threaded fastener which is inserted through said second portion into the carburetor means and has a longitudinal axis which is so directed that an extension thereof intersects the mounting flange means of said intake passage means when the carburetor means is mounted on said intake passage means whereby the fastener is prevented from being driven.

4,271,096

CARBURETOR

Hiroto Kobayashi, Kamakura, Japan, assignor to Walbro Far East, Inc., Kawasaki, Japan

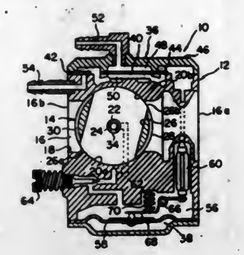
Filed Nov. 1, 1979, Ser. No. 90,424
Claims priority, application Japan, Nov. 20, 1978, 53-142176
Int. Cl.³ F02M 9/08
U.S. Cl. 261—44 G 2 Claims

1. A carburetor comprising a carburetor body having an air and fuel passage open at one end to an atmosphere intake port and at the other end to an intake port of an internal combustion engine,

(a) a pair of arcuate recesses formed in the peripheral wall of said air and fuel passage in the carburetor body in opposed relation to each other,

(b) a barrel type rotary throttle valve rotatably disposed within said carburetor body supported for rotation in said opposed arcuate recesses and having a cylindrical venturi hole transverse to the axis of rotation of said valve, said venturi hole being open to the atmosphere intake port and to the engine intake port when the throttle is in open position and being essentially closed to said ports in an idle position,

(c) a fuel nozzle disposed in said venturi hole on the axis of said valve to discharge liquid fuel into the venturi hole of said barrel valve, and



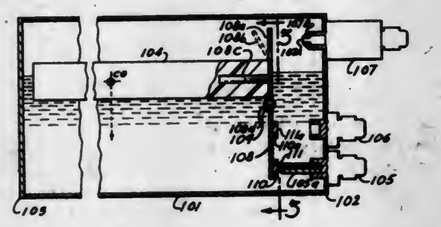
(d) a shallow surface groove passage extending circumferentially around the entire circumference of the barrel valve in the area of said atmospheric and engine ports wherein air and fuel may pass through said carburetor to the engine intake port regardless of the position of said barrel valve.

4,271,097

GAS AND LIQUID AD-MIXING SYSTEM

Bruce Garrard, 126 Montgomery Ferry Dr. NE., Atlanta, Ga. 30309

Filed Sep. 20, 1979, Ser. No. 77,301
Int. Cl.³ B01F 3/04
U.S. Cl. 261—64 D 13 Claims



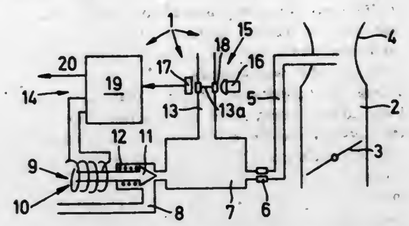
1. A continuous flow carbonator for mixing inlet carbonating gas and inlet water continously while carbonated water is being dispensed, the inlet flow rate of gas and water being equal to the outlet flow rate of water and gas mixture, said inlet water having an inherent capacity to produce an impact force of magnitude F, equal to the product of its mass flow rate and velocity, on a surface normal to its velocity, said carbonator comprising a tank, a float assembly in said tank responsive to the level of liquid in the tank and a surface on the assembly receptive to and responsive to the impact of at least a portion of said inlet water, regulator means in said tank, including an orifice and closure, for controlling the flow of said inlet gas and the static pressure in the tank responsive to a resultant force delivered to said regulator means to bias said closure against said orifice, the greater the force the greater the restriction and the less said static pressure, said force being the resultant of a weight force due to float weight less the weight of water it displaces and of an impact force due to impact of inlet water on said surface of the float assembly, and mechanical connecting means for delivering said resultant force from said float assembly to said regulator means, said impact force being diminished in its delivered amount to said regulator means to an amount less than magnitude F, and said weight force being undiminished in its delivered amount to said regulator means.

4,271,098

CARBURETOR FOR INTERNAL COMBUSTION ENGINES

Hans J. Henning, Neuss, and Heinz Holzem, Moenchen-Gladbach, both of Fed. Rep. of Germany, assignors to Pierburg Luftfahrtgeräte Union GmbH, Neuss, Fed. Rep. of Germany

Filed Nov. 29, 1978, Ser. No. 964,579
Claims priority, application Fed. Rep. of Germany, Dec. 19, 1977, 2756546
Int. Cl.³ F02M 17/02
U.S. Cl. 261—66 19 Claims



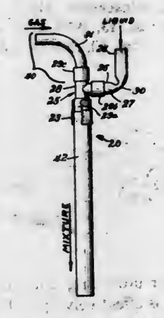
1. In a carburetor for an internal combustion engine, said carburetor comprising control means for maintaining the pressure of fuel supplied through said carburetor constant, said control means including a sensing device, a fuel feed valve and means operatively connecting said sensing device to said fuel feed valve to operate said fuel feed valve and control the rate of supply of fuel to said carburetor, the improvement wherein said sensing device includes signal producing means, instantaneous flow rate indicating means and means operatively connecting said signal producing means to both said valve and said flow rate indicating means whereby said signals operate said valve and cause said instantaneous flow rate indicating means to provide an indication of the instantaneous rate of flow of fuel through said carburetor.

4,271,099

APPARATUS FOR THOROUGH MIXTURE OF A LIQUID WITH A GAS

Thomas S. Kukla, 2616 N. Merrimac, Chicago, Ill. 60639

Filed Oct. 1, 1979, Ser. No. 80,387
Int. Cl.³ B01F 3/04
U.S. Cl. 261—76 18 Claims



1. An apparatus for intermixture of a liquid and a gas, comprising:

(a) a liquid intake conduit having an intake portion, a discharge portion and an intermediate bend portion formed such that the intake and discharge portions are substantially normal to one another, said liquid intake conduit intermediate bend portion having a restriction therein;

(b) a mixing chamber adjacent to and downstream of said discharge portion;

(c) a gas intake conduit connected to said discharge portion, whereby the liquid from said liquid intake conduit and the gas from said gas intake conduit are thoroughly mixed in said mixing chamber; and

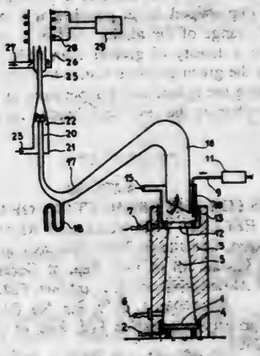
(d) a gas and liquid discharge conduit attached to said mixing chamber downstream of said mixing chamber, said gas and liquid discharge conduit having an interior cross-sectional area greater than any cross-sectional area along the mixing chamber.

4,271,100

APPARATUS FOR PRODUCING AN AEROSOL JET

Christian Transy, Villeurbanne, France, assignor to Instruments S.A., Paris, France

Filed Jun. 17, 1980, Ser. No. 160,421
Claims priority, application France, Jun. 18, 1979, 79 15575
Int. Cl.³ B05B 1/28
U.S. Cl. 261—78 A 1 Claim



1. Apparatus for producing an aerosol jet comprising a means for atomising the substance to be transported, with the creation of a flow of carrier gas to entrain the particles formed, characterised in that downstream of the actual atomising means, the conduit for carrying the aerosol formed by the carrier gas and the particles in a state of suspension constitutes the central passage (20) of a double nozzle (21) whose annular passage (22) receives another dry gas flow thereby to form, in the conduit for carrying the whole towards the position of use, a central flow of aerosol which is externally sheathed by a flow of dry gas, the flow rates and the relative positioning of the annular and central passages of the nozzle being so determined that the flow patterns of the two flows remain laminar and at adjacent speeds, and that the axis of the nozzle (20) and the conduit (25) between the outlet of the nozzle and the position of use is vertical or only very slightly inclined.

4,271,101

PROCESS FOR THE PRODUCTION OF SPHERICAL-SHAPED FUEL ELEMENTS FOR HIGH TEMPERATURE REACTORS

Milan Hrovat, Rodenbach, and Gerhard Spanor, Hanau, both of Fed. Rep. of Germany, assignors to HOBEG Hochtemperaturreaktor-Brennelement GmbH, Hanau, Fed. Rep. of Germany

Continuation of Ser. No. 855,452, Nov. 28, 1977, abandoned.
This application Sep. 13, 1979, Ser. No. 75,186
Claims priority, application Fed. Rep. of Germany, Dec. 2, 1976, 2654535
Int. Cl.³ G21C 21/00
U.S. Cl. 264—0.5 6 Claims

1. A process of preparing nearly isotropic spherical fuel elements of high strength and high heavy metal content for gas cooled high temperature reactors consisting essentially of a fissile and fertile fuel material containing nucleus and a fuel free shell comprising preliminary compressing a molding pow-

der consisting essentially of (1) a mixture of natural graphite and binder resin, (2) a mixture of synthetic graphite and binder resin or (3) a mixture of both natural and synthetic graphites and binder resin together with (1) coated fissile fuel particles, (2) coated fertile fuel material particles of (3) a mixture of coated fissile fuel particles and coated fertile fuel material particles and a lubricant in a rubber mold having a cavity with the shape of an ellipsoid of revolution with elongated axis at low molding pressure three dimensionally to perform the nucleus of the fuel element, embedding the preformed nucleus in a molding powder for the shell in a second rubber mold with a cavity with the shape of an ellipsoid of revolution with elongated axis, preliminarily molding at a pressure below 200 kp/cm^2 three dimensionally to such an extent that the green graphite matrix of the so formed compact with the shape of an ellipsoid of revolution with elongated axis has a density of more than 65% of the theoretical density and subsequently final molding to form a sphere in a single dimension the preliminarily molded fuel element body in a steel die between semispherical cup shaped metal punches at a temperature within the plastic range of the binder resin at a pressure below 200 kp/cm^2 to a density of greater than 95% of the theoretical density of the green graphite matrix to form a sphere and then heat treating the sphere at a temperature up to 2000° C. sufficient to carbonize the resin and thereby form a spherical fuel element.

4,271,102

PROCESS FOR THE PRODUCTION OF CERAMIC FUEL PELLETS FOR NUCLEAR REACTORS

Milan Hrovat, Rodenbach; Hans Huschka, and Lothar Rachor, both of Hanau, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,323

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842402

Int. Cl.^{3} G21C *21/00*

U.S. Cl. 264—0.5 12 Claims

1. In a process for the production of ceramic fuel pellets for nuclear reactors containing fissionable material, fertile material or a mixture of fissionable and fertile materials in the form of the oxide or carbide by heating to a temperature above 1300° C. the rough molded fuel articles compacted to 30 to 60% of theoretical density at room temperature, compacting in a die and ejection from the die the improvement comprising carrying out the heating, compacting and ejecting in a vacuum and carrying out the compacting and ejection in a combined time of 3 to 300 milliseconds.

4,271,103

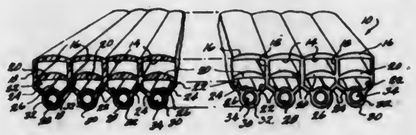
PLASTIC SOLAR PANEL STRUCTURE AND METHOD FOR MAKING THE SAME

Roy E. McAlister, 5285 Red Rock North, Phoenix, Ariz. 85018

Filed Jan. 26, 1979, Ser. No. 6,754

Int. Cl.^{3} B29C *17/07*; B29D *23/04*

U.S. Cl. 264—1 27 Claims



1. A method of making a panel structure of plastic material having a uniform cross-sectional configuration throughout its longitudinal extent and a multiplicity of parallel passages extending longitudinally therethrough defined by a multiplicity of longitudinally extending integrally interconnected exterior and interior thin wall sections, each of said interior thin wall sections defining parts of two adjacent passages, each of said passages being defined at least in part by an interior thin wall section, said panel structure being operable in a radiant energy heat exchange system with certain of the exterior thin wall sections constituting the operative exterior of the panel structure and certain exterior thin wall sections being opposite thereto, said method comprising the steps of

continuously feeding plastic material at an elevated temperature sufficient to render the plastic material flowable to a die having an extrusion outlet defined by a multiplicity of interconnected slots corresponding generally in number and position to said multiplicity of thin wall sections at a pressure sufficient to cause the heated plastic material to continuously move longitudinally outwardly of said extrusion outlet so that the interconnecting slots thereof form the heated plastic material into said multiplicity of interconnected thin wall sections,

reducing the temperature of the plastic material moving longitudinally away from said extrusion outlet through the slots defining the exterior thin wall sections by exterior heat exchange while controlling the exterior configuration thereof for a time period sufficient to enable the moving exterior thin wall sections to be self-sustaining in said configuration, and

continuously feeding fluid through fluid outlets in said die between the interconnected slots of the extrusion outlet thereof so as to continuously flow longitudinally outwardly of said fluid outlets into each passage defined by the thin wall sections moving longitudinally away from said extrusion outlet while separately maintaining a relative differential fluid pressure acting within adjacent passages on opposite sides of said interior thin wall sections so as to control the position thereof relative to said exterior thin wall sections until the temperature thereof is reduced by heat exchange sufficiently to enable said moving interior thin wall sections to be self-sustaining.

4,271,104

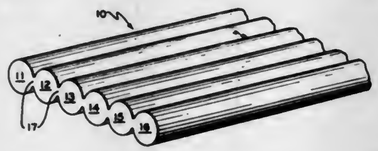
HOT ROLLING AND EXTRUSION OF OPTICAL FIBER RIBBON CABLE

Rogers H. Anderson, Bloomington; Enrique Bernal G., Minnetonka, and Di Chen, Hopkins, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 13, 1979, Ser. No. 103,247

Int. Cl.^{3} B29D *11/00*

U.S. Cl. 264—1.5 6 Claims



1. A method for producing a unitary ribbon like sheet of optic fiber which is effectively optically separated into a plurality of parallel optical paths, the method including the steps of:

providing a source of optically transparent material heated to a plastic consistency;

forming the optically transparent material into a ribbon like sheet; and,

causing a reducing of the index of refraction along parallel narrow strips of the ribbon like sheet to thereby effectively divide the sheet into a plurality of optical fiber paths wherein said index is reduced by the strain induced effect.

4,271,105

METHOD FOR THE MANUFACTURE OF PARTICLE BOARD

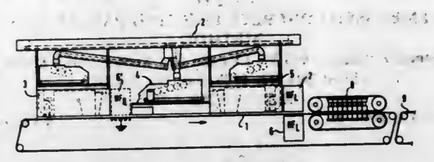
Albert de Metz, Rosselaare, Belgium, and Harry Neuhauer, Springe, Fed. Rep. of Germany, assignors to Bison-Werke, Bähre & Greten GmbH & Co. KG, Springe, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,986

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1979, 2829817

Int. Cl.^{3} B29H *5/26*

U.S. Cl. 264—26 11 Claims



1. A method for manufacturing particle board from particulate material comprising at least one binder material admixed with particles containing at least one material selected from cellulose and ligno-cellulose, the method comprising the steps of:

(a) forming a mat of said particulate material by distributing the same onto an endless transport band in a forming station, said mat comprising a bottom layer, an intermediate layer and a top layer, and being in the form of a continuous mat or a series of individual mat sections,

(b) selectively warming at least said bottom layer and at most said bottom and top layers by high frequency a.c. field means whereby to increase the stability of the mat during subsequent transport thereof; and

(c) transporting said mat on at least one further endless band to a prepress zone, and subsequently to a finishing press for final pressing to produce a board of compressed particles.

4,271,106

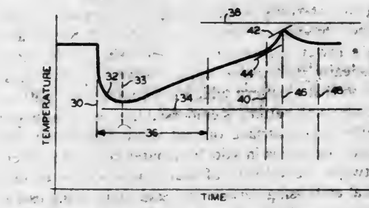
METHOD FOR CONTROLLING AN EXOTHERMIC MOLDING PROCESS

Rodney J. Greleau, Williamsburg, Mich., assignor to Control Process, Inc., Plantsville, Conn.

Division of Ser. No. 49,284, Jun. 18, 1979. This application Feb. 19, 1980, Ser. No. 122,586

Int. Cl.^{3} B29C *3/06*

U.S. Cl. 264—40.5 5 Claims



1. A method of controlling the opening of a molding machine at the end of a curing cycle comprising the steps of:

a. charging a mold with a resin that cures exothermically;

b. sensing the temperature of the resin in the mold;

c. detecting when the rate of change of the sensed temperature exceeds a first reference rate;

d. after the first reference rate has been exceeded, detecting when the rate of change of the sensed temperature falls below a second reference rate that is at least as high as the lowest to which the rate of change of temperature falls after the resin in the mold has cured; and

e. opening the mold at a time determined by the time at which the rate of change of temperature falls below the second reference rate.

4,271,107

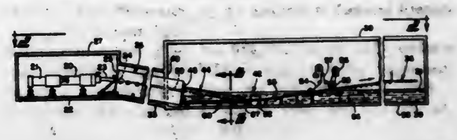
FOAM EXTRUSION APPARATUS AND METHOD

Arthur L. Phipps, Los Osos, Calif., assignor to Condec Corporation, Old Greenwich, Conn.

Filed Nov. 5, 1979, Ser. No. 91,116

Int. Cl.^{3} B29D *27/00*

U.S. Cl. 264—51 47 Claims



1. In a method of extruding foam products through an inclined barometric leg with the foam product exiting a pool of water at the lower end of such leg, the step of minimizing the pressure head of water on the product as it exits the leg to reduce the density of the product.

4,271,108

METHOD AND APPARATUS FOR THE DISCONTINUOUS PRODUCTION OF A FOAMED BLOCK

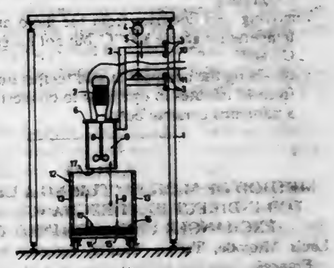
Gerd Reffelmann, Overath, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Jan. 2, 1980, Ser. No. 108,992

Claims priority, application Fed. Rep. of Germany, Jan. 13, 1979, 2901177

Int. Cl.^{3} B29D *27/04*

U.S. Cl. 264—51 12 Claims



1. A method for the discontinuous production of free rise foam comprising:

(A) positioning a mold consisting of a rigid material, the interior bottom of said mold containing a flexible elastic layer on which is arranged a plastic film; beneath a vertically movable mixing unit comprising a bottomless cylindrical shell having one closed end, a stirring means and component feed lines;

(B) vertically moving said mixing unit into said mold until the open end of said cylindrical shell depresses said flexible elastic layer and becomes seated on the bottom of said mold;

(C) introducing into the volume defined by said cylindrical shell seated on the bottom of said mold a foam forming mixture by means of said component feed lines and stirring the mixture with said stirring means;

(D) vertically withdrawing said mixing unit from said mold

allowing completion of the foaming reaction within said mold, and

(E) removing the foam from said mold.

4,271,109

METHOD OF MANUFACTURING A CERAMIC ARTICLE

Walter A. Boyce, Glen Ridge, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 354,618, Apr. 25, 1973, abandoned, which is a division of Ser. No. 126,485, Mar. 22, 1971, Pat. No. 3,941,604. This application Aug. 16, 1977, Ser. No. 825,125

Int. Cl.³ C04B 33/26

U.S. Cl. 264—63 13 Claims



1. The method of manufacturing a dense impervious ceramic article of predetermined configuration and dimensions, which method comprises:

mixing (a) from about 25% to 45% by weight of ball clay, (b) from about 10% to 25% by weight of wollastonite, (c) from about 25% to 45% by weight of a pulverized scrap glass which is selected from the group consisting of lime glass, lead glass, and soda-lime silicate glass, and (d) from 0% to about 5% by weight of bentonite to provide a finely divided raw-mix composition that consists essentially of said materials,

placing a measured quantity of said raw-mix composition in a mold and subjecting it to a pressure within a range of from about 1,000 to 7,000 pounds per square inch to form a compact,

removing said compact from the mold and heating it to a temperature above 800° C. but not exceeding about 1050° C., and

maintaining the compact at said temperature for a period of from 10 minutes to one hour to convert the compact into a hardened ceramic body.

4,271,110

METHOD OF MANUFACTURING A CERAMIC UNIT FOR INDIRECT HEAT EXCHANGE AND A HEAT EXCHANGER UNIT OBTAINED THEREBY

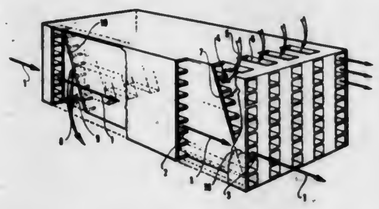
Louis Minjolle, Tarbes, France, assignor to Ceraver, Paris, France

Filed Sep. 17, 1979, Ser. No. 76,103

Claims priority, application France, Sep. 22, 1978, 78 27187

Int. Cl.³ B29D 23/04

U.S. Cl. 264—67 7 Claims



1. A method of manufacturing a ceramic unit for indirect heat exchange, said method comprising an initial step of extruding a raw ceramic material in a parallel duct configuration, the improvement comprising two inlet/outlet forming steps of:

obliquely cutting every other row of ducts whose ends are to be closed to form inlet or outlet orifices which are perpendicular to the common direction of the ducts, and

closing said rows of ducts whose ends are cut in the plane of at least one of the ends of the extruded unit, and

firing the unit, the firing step taking place later than said step of closing the ends of said rows of ducts.

4,271,111

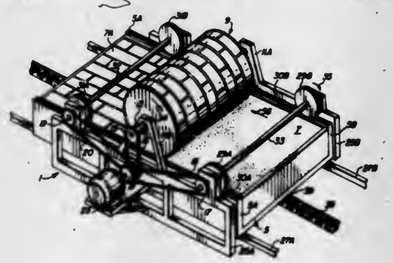
EMBOSSED CONCRETE BUILDING PANELS AND METHOD

Thomas F. Sheber, 640 W. Chapala Dr., Tucson, Ariz. 85704

Filed Nov. 13, 1978, Ser. No. 960,041

Int. Cl.³ B28B 1/08

U.S. Cl. 264—71 8 Claims



1. A method for making prefabricated reinforced concrete panels, said method comprising the steps of:

a. placing rigid reinforcing material in a horizontal, portable mold so that said reinforcing material is supported above the bottom of said horizontal mold, wherein said method includes providing a plurality of tapered rib cavities in said mold for shaping reinforcing ribs in said prefabricated concrete panels, said method further comprising the step of placing nailing strips in the bottoms of said cavities before said placing of said moist concrete in said mold, said nailing strips having upwardly extending anchors therein for anchoring said nailing strips into said respective ribs of said prefabricated concrete wall panels;

b. pouring moist concrete in said horizontal mold, said moist concrete being sufficiently moist to flow around and completely surround said reinforcing material;

c. curing said moist concrete until an upper surface of said moist concrete becomes plastically deformable;

d. rotating an embossing roller having a cylindrical embossing surface having an embossing pattern thereon and pressing a lower portion of said embossing surface into said plastically deformable upper surface of said moist concrete so that a pattern which is a complement pattern of said embossing pattern is embossed into said plastically deformable upper surface of said moist concrete while said moist concrete is in said horizontal mold, the difference between the velocity of said lower portion of said cylindrical embossing surface and said mold being essentially zero to avoid smearing of said plastically deformable upper surface of said moist concrete, wherein said cylindrical embossing surface is provided by wrapping a plastic sheet having said embossing surface thereon around said embossing roller;

e. curing said moist concrete in each of said horizontal molds for a predetermined amount of time, whereby said moist concrete hardens to form said prefabricated concrete panels; and

f. separating said prefabricated concrete panels from said molds.

4,271,112

PROCESS FOR THE MANUFACTURE OF ROTATIONALLY-SYMMETRICAL COMPONENTS FROM SHORT-FIBERED MOLDING MATERIAL

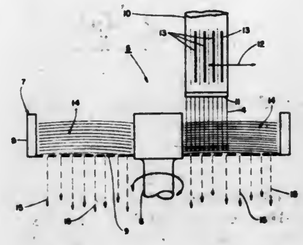
Axel Rossman, Karlsfeld, and Herbert Zech, Neubiberg, both of Fed. Rep. of Germany, assignors to Motoren-und Turbinen-Union, Fed. Rep. of Germany

Filed Jun. 21, 1979, Ser. No. 50,539

Claims priority, application Fed. Rep. of Germany, Jun. 24, 1978, 2827829

Int. Cl.³ D04H 1/74; B29J 1/02

U.S. Cl. 264—86 7 Claims



1. In a process for the manufacture of predominantly rotationally-symmetrical components of high strength from short fibers which are suspended in a liquid, the improvement comprising:

(a) forming said liquid from solvents,

(b) producing a preform by feeding the suspended fiber material through a flat nozzle moving radially outwardly into a rotating rotationally-symmetrical container having a sieve wall, the inner shape of said container being similar to the final component shape but larger by the amount of volume reduction occurring during subsequent pressing,

(c) producing a crosswise pattern of fibers by alternately moving the nozzle radially outwardly and inwardly including the step of producing layers of fiber with each layer having a desired fiber alignment with a desired fiber flow direction by selectively radially moving the nozzle relative to the rotating container such that the composite movements of the nozzle and the rotating container result in a desired fiber flow alignment in a fiber layer,

(d) thereafter impregnating the preform with a resin-hardener matrix,

(e) and pressing the preform into a final shape in a die while effecting simultaneous hardening thereof.

4,271,113

PROCESS FOR FORMING A PASSAGEWAY IN AN OSMOTIC DEVICE

Joseph G. Luschen, Los Gatos, Calif., assignor to ALZA Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 896,801, Apr. 17, 1978, abandoned. This application Jul. 30, 1979, Ser. No. 61,767

Int. Cl.³ D04H 1/20

U.S. Cl. 264—112 15 Claims



1. A process for forming an osmotic delivery device comprising:

(a) compressing a drug formulation into a solid mass;

(b) forming an indentation having predetermined dimensions in the solid mass; and

(c) thereafter coating the solid mass with a wall forming material which in final form is an osmotic membrane which covers the solid mass and is permeable to aqueous and biological fluids and substantially impermeable to the drug formulation, whereby the predetermined dimensions of the indentation are selected such that a passageway is formed from the solid mass through the formed wall to the exterior of the osmotic delivery service.

4,271,114

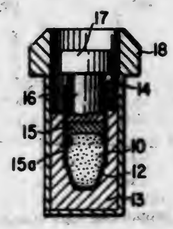
METHOD OF COMPACTING DRY POWDER INTO SHAPES

John M. Ohno, Plymouth, Mich., assignor to General Electric Company, Detroit, Mich.

Continuation-in-part of Ser. No. 815,873, Jul. 14, 1977, which is a continuation of Ser. No. 713,569, Aug. 11, 1976, abandoned, which is a continuation of Ser. No. 337,581, Mar. 2, 1973, abandoned. This application Mar. 17, 1980, Ser. No. 131,113

Int. Cl.³ B22F 3/06

U.S. Cl. 264—114 7 Claims



1. A method of making shaped articles from sinterable powder which comprises:

(a) introducing said powder into a cup mold composed of destructible organic polymeric material selected from the group consisting of nylon, cellulose acetate, poly(methyl methacrylate), polypropylene or polyethylene, with an inner surface configuration corresponding to the outer surface configuration desired in the shaped article, said cup mold being supported by a metal mold support,

(b) positioning a metal plunger, having a shank contoured to have a snug fit in said cup mold so as to make contact with the powder,

(c) subjecting the powder, the cup mold, the mold support, and the plunger to centrifugal force to compress the powder against the inner wall of said cup mold,

(d) removing said polymeric mold with shaped compressed powder from said metal mold support,

(e) heating said mold and compressed powder to vaporize said mold, and

(f) further heating to sinter said shaped compressed powder.

4,271,115

METHOD OF PRODUCING A PRE-WET, DUST-FREE FORM OF ASBESTOS SHORT FIBERS

Phillip C. Georgeau, Kalamazoo, Mich., assignor to Magnold Chemical Corporation, Kalamazoo, Mich.

Filed Aug. 9, 1979, Ser. No. 65,321

Int. Cl.³ B01J 2/12

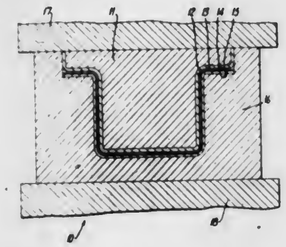
U.S. Cl. 264—117 9 Claims

1. A method of producing pre-wet, dust-free, agglomerated short fiber asbestos granules comprising:

admixing from about 60 percent to about 90 percent by weight asbestos short fibers and from about 10 percent to about 40 percent by weight agglomerating liquid, said agglomerating liquid comprising a wetting solvent and a binder, said wetting solvent being generally volatile at the anticipated storage temperature for said granules and said

binder being generally involatile at the anticipated storage temperature for said granules;
continuing mixing the admixture to circulate the composition and roll the wetted fibers upon themselves until granules are formed; and
thereafter allowing the granules to rest from about 24 to about 72 hours to yield stable, non-friable granules.

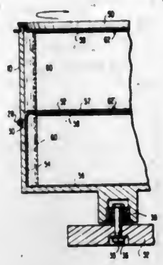
4,271,116
COMPOSITE STRUCTURE
William R. Jones, Heage, England, assignor to Rolls-Royce Limited, London, England
Filed Jan. 24, 1980, Ser. No. 114,961
Claims priority, application United Kingdom, Feb. 20, 1979, 05927/79
Int. Cl.³ B29C 1/02
U.S. Cl. 264—221 15 Claims



1. A method of manufacturing a composite fiber reinforced resin structure comprising the steps of:
(a) making a solid former from a low melting point material;
(b) coating said former with at least one layer of a substantially imprevious elastic material;
(c) applying at least one layer of fiber upon said elastic layer to form a fiber-reinforced resin material assembly, said fiber being provided with resin thereon;
(d) placing the assembly within a heatable mold;
(e) increasing the temperature of the mold and the assembly such that the former melts and expands to consolidate the fiber reinforced material against the mold walls;
(f) maintaining said temperature of the mold and assembly to at least pre-cure the resin, and
(g) removing the composite fiber reinforced resin structure from the mold.

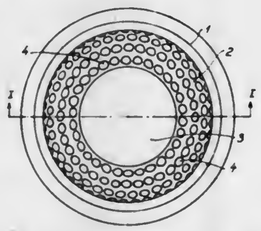
4,271,117
ROTATIONAL MOLDING OF CYLINDRICAL OBJECTS HAVING SWIRLED TEXTURED OUTER SURFACES
Fred K. Lyon, 4507 New Hope Ave., Pascagoula, Miss. 39567, and Ralph E. Lyon, Rte. 3, Box 463, Laurel, Miss. 39440
Filed Aug. 15, 1978, Ser. No. 933,839
Int. Cl.³ B29C 5/04
U.S. Cl. 264—275 13 Claims

1. A method for molding a cylindrical object having an outer surface which exhibits a swirling texture comprising:
providing a cylindrical container having a base and means for rotating said container about its axis;
injecting a liquid into said container onto the base while rotating said container at a velocity sufficient to coat the inner surface of the walls of said container surrounding the axis of rotation with said liquid by centrifugal force;
providing molten material to be molded having a specific gravity less than said liquid and injecting a predetermined quantity of said molten material into said container while rotating said container at said velocity so that the centrifugal force of said rotating container will cause said material to climb the inner surface of the liquid coating and cover said surface; permitting said material to cool and solidify



against said liquid coating while rotating said container to thereby form said object.

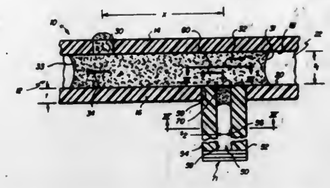
4,271,118
METHOD OF PRODUCING A CLAY PIGEON
Ib Schreiner-Hansen, Aaso, DK-5953 Tranekaer, Denmark
Continuation-in-part of Ser. No. 882,389, Mar. 1, 1978, abandoned. This application Sep. 4, 1979, Ser. No. 72,336
Claims priority, application Denmark, Jan. 3, 1978, 19/78
Int. Cl.³ C04B 11/14
U.S. Cl. 264—333 13 Claims



1. A method of producing a clay pigeon which comprises: subjecting a mixture comprising plaster ($CaSO_4.\frac{1}{2}H_2O$), an amount of water constituting at least 100% by weight excess in relation to the amount necessary for setting the plaster, calcium carbonate and one or more additives selected from the group consisting of surfactants, organic binders, release agents, set-controlling agents, and brittleness-promoting agents to compression in a clay pigeon mould heated to a temperature in the range of 100° to 160° C. such that at least part of the excess amount of water in relation to the amount necessary for setting the plaster is driven off from the mould; and subsequently removing the clay pigeon from the mould.

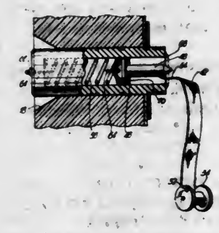
4,271,119
CAPILLARY TRANSPORT DEVICE HAVING CONNECTED TRANSPORT ZONES
Richard L. Columbus, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Continuation-in-part of Ser. No. 59,816, Jul. 23, 1979, abandoned, which is a continuation-in-part of Ser. No. 954,689, Oct. 25, 1978. This application Apr. 23, 1980, Ser. No. 142,942
Int. Cl.³ G01N 1/00, 27/46, 31/22
U.S. Cl. 422—50 10 Claims

1. In a liquid transport device comprising
(a) a first pair of opposing surfaces spaced apart a distance effective to induce capillary flow of introduced liquid and to create a first zone of intended capillary liquid transport between said surfaces, and
(b) liquid access means permitting introduction of liquid into said first zone, whereby introduced liquid flows downstream from said access means by capillary attraction;
the improvement comprising at least a second pair of opposing surfaces spaced apart a distance effective to induce capillary flow of introduced liquid and to provide a second zone of intended capillary liquid transport, said second pair of surfaces extending from only one of said first pair of surfaces, and



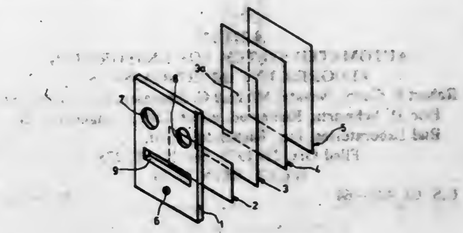
diverting means in said one surface for directing a portion of the liquid away from said first zone into said second zone while the remainder of the liquid continues flowing in said first zone, said diverting means being
(i) located downstream from said access means at a predetermined location and
(ii) configured to insure complete wetting of said second pair of surfaces downstream from said one surface by the liquid moving therepast, and to provide a cross-sectional flow-through area greater than about 0.2 mm^2.

4,271,120
CORROSIVE FLUID DETECTOR
Louis M. Michaud, Port Elgin, Canada, assignor to Nova Scotia Research Foundation Corporation, Nova Scotia, Canada
Filed Jan. 7, 1980, Ser. No. 109,930
Claims priority, application Canada, Jan. 11, 1979, 319452
Int. Cl.³ G01N 17/00
U.S. Cl. 422—53 17 Claims



1. A device for detecting and indicating the presence of a corrosive fluid in a volume substantially at atmospheric pressure, comprising:
a hollow housing having open inner and outer ends;
primary indicating means movably mounted in said housing between a stored position in said housing and an indicating position outside of said housing;
compression spring means, in said housing adjacent and coupled to said primary indicating means, for projecting said primary indicating means from said housing to said indicating position; and
corrodable link means for holding said spring means in compression and said primary indicating means in said stored position;
whereby, when said link means is severed through corrosion thereof, said spring means forcibly projects said primary indicating means to said indicating position outside of said housing.

4,271,121
PLAQUE FOR MEASURING THE DOSE OF REACTIVE GASES
Werner Diller, Leverkusen; Eckard Drope, Cologne; Günther Ellendt, and Ernst Reichold, both of Krefeld all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Sep. 13, 1979, Ser. No. 75,376
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2841991
Int. Cl.³ G01N 1/48, 21/06
U.S. Cl. 422—56 2 Claims



1. A plaque for the rapid recognition of a dose of reactive gases comprising: a front wall having at least three windows therein; a rear wall having the same outer configuration as the front wall; an impregnated indicator strip between the front wall and the rear wall configured to overlie all of the windows and capable of undergoing a color change upon exposure to a gas; and superposed membrane layers disposed between the front wall and the indicator strip and configured such that the indicator strip is directly exposed to the atmosphere at a first window, is masked with a single membrane layer at a second window and is masked with two superimposed membrane layers at the third window to produce fields of stepwise graded sensitivity on the indicator strip whereby a rapid correlation to given ranges of doses can be achieved by a combined visual examination of the individual indicator fields.

4,271,122
CONTROL PLASMA
Rudolf Striesle, Riehen, and Hans Zaugg, Frenkendorf, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Apr. 19, 1979, Ser. No. 31,657
Claims priority, application Switzerland, Apr. 27, 1978, 4582/78
Int. Cl.³ C09K 3/00; G01N 33/48
U.S. Cl. 422—61 15 Claims

1. A process for the preparation of a control plasma for monitoring oral anti-coagulant therapy in humans, characterized in that mammals are treated with an anticoagulant selected from the group consisting of coumarin and coumarin derivatives until the blood plasma of said mammals is, adjusted to and stabilized at a value in the therapeutic range by means of monitoring the Quick value or thromboplastin time ratio; and, thereafter, the blood is withdrawn into an agent which prevents spontaneous blood coagulation, the plasma obtained by centrifugation, and a buffer is added to theobtained plasma to adjust the plasma to a physiological pH-value.

7. Control plasma of non-human origin having a Quick value in the range of from 10 to 35 percent for the monitoring of oral anticoagulant therapy in humans prepared by treating mammals with an anti-coagulant selected from the group consisting of coumarin and coumarin derivatives until the blood plasma of said mammals is adjusted to and stabilized at a value in the therapeutic range by means of monitoring the Quick value or thromboplastin time ratio, and, thereafter, withdrawing the blood into an agent which prevents spontaneous blood coagulation, obtaining the plasma by centrifugation, and adding a

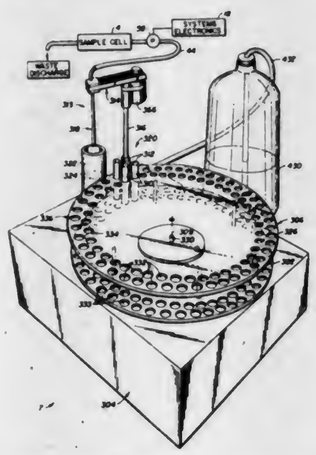
buffer to the obtained plasma to adjust the plasma to a physiological pH-valve.

4,271,123

AUTOMATED SYSTEM FOR PERFORMING FLUORESCENT IMMUNOASSAYS

Robert E. Carry, Novato; Michael G. Simonsen, San Rafael, and Eric D. Schwartz, Richmond, all of Calif., assignors to Bio-Rad Laboratories, Inc., Richmond, Calif.

Filed Oct. 22, 1979, Ser. No. 87,275
Int. Cl.[3] G01N *33/54*
U.S. Cl. 422—64 51 Claims



1. A fluorescence immunoassay system for sequentially quantitating relatively small amounts of a clinically significant composition in a multiplicity of independent liquid samples, the samples including fluorescent particles, comprising:

transparent means defining a hollow cell for holding the sample;

a light source for generating a stable light beam directed onto the sample;

whereby the light beam causes fluorescent emissions by the particles in the sample, the intensity of the emissions being a function of the intensity of the light beam and the quantity of fluorescent particles in the sample;

means in optical communication with the transparent means for detecting photons resulting from fluorescent emissions by the particles when excited by the light beam;

whereby the number of photons detected by the photon detecting means is a function of the number of fluorescent particles in the sample;

sampler means for sequentially aspirating a liquid from a multiplicity of upwardly open vials, each vial holding one sample;

means for flowing the aspirated liquid to the cell; and

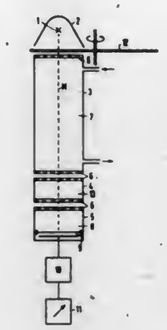
means for agitating the sample in the vial prior to aspirating the sample from the vial to ensure a uniform distribution of fluorescent particles in the aspirated liquid.

4,271,124

NON-DISPERSIVE INFRARED GAS ANALYZER FOR TESTING GASES CONTAINING WATER-VAPOR

Winfried Specter, Herzheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 14,432
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2808033
Int. Cl.[3] G01N *7/00, 27/62;* G02B *5/24*
U.S. Cl. 422—68 8 Claims



1. A non-dispersive infrared gas analyzer for detecting a predetermined component of a first gas mixture which is free of sulfur hexafluoride, one such component gas the gas analyzer being of the type which contains a source of infrared radiation for producing a beam of infrared radiation and a measurement cell for holdng the first gas mixture in the path of the beam of infrared radiation;

CHARACTERIZED IN THAT there are further provided

(a) a first chamber disposed in the path of the beam of infrared radiation containing a second gas containing sulfur hexafluoride, said sulfur hexafluoride having an infrared energy absorption characteristic corresponding to that of water vapor, so as to absorb energy from said beam of infrared radiation in preselected spectral energy bands; and

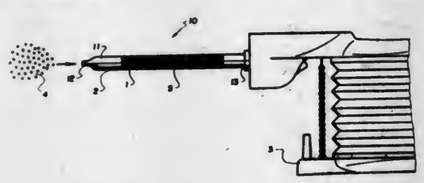
(b) detector means responsive to said beam of infrared radiation for producing an electric signal responsive to variations in the beam of infrared radiation.

4,271,125

INDICATOR DEVICE FOR THE QUANTITATIVE DETERMINATION OF METAL CYANIDES IN AEROSOL FORM

Kurt Leichnitz, Gross Grönau, Fed. Rep. of Germany, assignor to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 13, 1979, Ser. No. 93,874
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854421
Int. Cl.[3] G01N *31/22*
U.S. Cl. 422—86 8 Claims



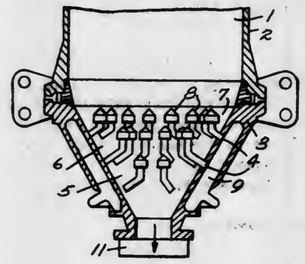
1. An indicator device for the quantitative determination of metal cyanides in aerosol form, comprising, a tube having a bore extending therethrough from an entrance end for receiving the metal cyanides to an exit end, gas-permeable means within said bore adjacent said entrance end, said gas-permeable means including a carrier member and an acid impregnated in said carrier member, and indicating means within said bore intermediate said gas-permeable means and said exit end, said indicator means having a carrier member impregnated with mercuric chloride and methyl red.

4,271,126

FLUIDIZED BED REACTOR FOR WORKING UP CARBON COATED PARTICLES

Michael Marschollek, Duren; Wolfgang Simon, Flörsheim, and Carl Walter, Hanau, all of Fed. Rep. of Germany, assignors to Nukem GmbH, Hanau, Fed. Rep. of Germany

Filed May 9, 1978, Ser. No. 904,223
Claims priority, application Fed. Rep. of Germany, May 11, 1977, 2721182
Int. Cl.[2] B01J *6/00;* C10B *1/00*
U.S. Cl. 422—143 7 Claims



1. A fluidized bed reactor for processing carbon coated particles, such as nuclear fuel or fertile material particles, comprising an upper cylindrical portion, a lower frustoconical portion attached to said cylindrical portion, said frustoconical portion including at least three levels of gas distributor heads on its interior with the lowermost level having at least four heads, the middle level having at least 12 heads, and the uppermost level having at least 13 heads, said frustoconical portion also having an exterior common gas distributor space with each head of each level connected to said common gas distributor space, and with said heads of each level being symmetrically located about the central axis of said frustoconical portion, said common gas distributor space having a plurality of spaced apart gas supply conduits attached thereto.

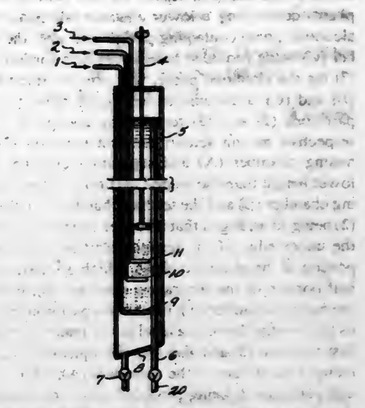
4,271,127

APPARATUS FOR THE CONTINUOUS PRECIPITATION OF URANIUM PEROXIDE

Paul Borner, 18 Goethestrasse, 6463 Freigericht 1; Hans-Jorg Isensee, 20 Raiffeisenstrasse, 6454 Bruchkobel 4, and Horst Vietzke, 19 Burgstrasse, 6457 Maintal 4, all of Fed. Rep. of Germany

Division of Ser. No. 801,245, May 27, 1977, Pat. No. 4,152,395. This application Oct. 30, 1978, Ser. No. 955,606
Claims priority, application Fed. Rep. of Germany, May 28, 1976, 2623977
Int. Cl.[3] C09K *3/00;* G21C *19/42, 21/02;* G21F *9/06*
U.S. Cl. 422—199 2 Claims

1. An apparatus for the continuous precipitation of uranium peroxide consisting essentially of a container, a stirrer therein having a rotor cage about ½ as large in diameter as the diameter of said container, a first conduit (1) including a first annular nozzle (9) in the container connected to a source of uranyl nitrate, a second conduit (2) including a second annular nozzle (10) in the container connected to a source of ammonia gas-air mixture, and a third conduit (3) including a third annular nozzle (11) in the container connected to a source of aqueous hydrogen peroxide, said second nozzle being located in the container at a distance of 80 to 120 mm above said first nozzle



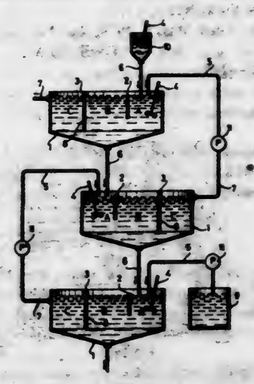
and said third nozzle being located in the container at a distance of 40 to 60 mm above said second nozzle.

4,271,128

APPARATUS FOR RECOVERING ALCOHOLIC PHOSPHORIC ACID SOLUTIONS FROM ACID PHOSPHATES

Klaus Schrödter, Cologne; Wolfgang Schelhitz, Hürth-Knapsack, and Klaus-Peter Ehlers, Erftstadt-Lechenich, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 945,501, Sep. 25, 1978, Pat. No. 4,203,956, which is a continuation of Ser. No. 765,639, Feb. 4, 1977, abandoned. This application Sep. 4, 1979, Ser. No. 72,856
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1976, 2605106
Int. Cl.[3] B01D *11/04;* B01F *3/08;* B01J *19/24*
U.S. Cl. 422—189 3 Claims



1. An apparatus for making alcoholic phosphoric acid solutions from acid phosphates or phosphate mixtures in the presence of water and a strong mineral acid by extraction with an alcohol, comprising a plurality of mixing settlers (1) subdivided into a mixing chamber (A), a separating chamber (B) and a settling chamber (C), each of the individual mixing settlers (1) being so subdivided by means of partitions (2) and (3) which extend vertically upwards in, and across the entire width of, the respective mixing settler (1); the mixing chamber (A) being provided with an agitator (4), a feed pipe (5) for an alcohol/-mineral acid-mixture, and a feeder (6) for an aqueous phosphate solution or suspension for mixing the alcohol/mineral

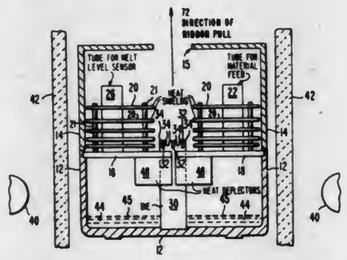
acid-mixture with the phosphate solution or suspension; the separating chamber (B) receiving the mixture coming from the mixture chamber (A), separating said mixture into two liquid phases comprising a lower aqueous salt phase and an upper alcoholic phase containing phosphoric acid; the settling chamber (C) being provided in its upper half portion with an outlet (7) for the alcoholic phase, whereby the three chambers (A), (B) and (C) communicate with each other through the two partitions (2) and (3) terminating above the bottom of the respective mixing settler; the first partition (2) between the mixing chamber (A) and separating chamber (B) having a lower height than the second partition (3) between the separating chamber (B) and the settling chamber (C); the first partition (2) being so arranged that its upper edge is at a level lower than the upper edge of the second partition (3) so as to permit a portion of the alcoholic phase, which is separated in the upper half portion of the separating chamber (B), to be returned to the mixing chamber (A); the second partition (3) reaching with its lower edge down to a level lower than the lower edge of the first partition (2) and also into the aqueous salt phase accumulating downstream of the chambers (A), (B) and (C); the second partition (3) being provided with a passageway (8) above the phase separation line of the two liquid phases separated from one another in the separating chamber (B); the individual mixing settlers (1) being so arranged serially one upon another that a bottom outlet for aqueous salt phase of each mixing settler (1), except that of the lowest mixing settler, simultaneously serves as the feeder (6) for the next mixing settler placed immediately downstream thereof; and the outlet (7) of each individual mixing settler, except that the uppermost mixing settler, being connected to the feed pipe (5) of the next following mixing settler.

4,271,129

HEAT RADIATION DEFLECTORS WITHIN AN EFG CRUCIBLE

Samuel Berkman, Florham Park; Robert Metzl, Hamilton Square; Richard E. Novak, E. Windsor, all of N.J., and David L. Patterson, Mountaintop, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 6, 1979, Ser. No. 18,040
Int. Cl.³ C30B 35/00
U.S. Cl. 422—246 7 Claims



1. In an EFG crystal growth crucible assembly having an EFG die structure disposed at least partially within the crucible, the improvement comprising:

radiation deflecting means disposed within said crucible;

said radiation deflecting means positioned to deflect from its path in the absence of said deflecting means at least some of the radiation within the crucible in order to change the quantity of radiation impinging on at least some portion of the die in order to control the relative intensity of the radiation heating received by different portions of the die as an aid in the establishment of a desired thermal profile in the vicinity of the growth surface of the die.

4,271,130

PROCESS FOR THE PREPARATION OF ZEOLITE A FROM KAOLIN

Robert Endres, Cologne; Heinz Drave, Leverkusen; Manfred Mansmann, Leverkusen, and Lothar Puppe, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,750
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1978, 2852674
Int. Cl.³ C01B 33/28; C02F 1/42; C11D 3/12
U.S. Cl. 423—118 6 Claims

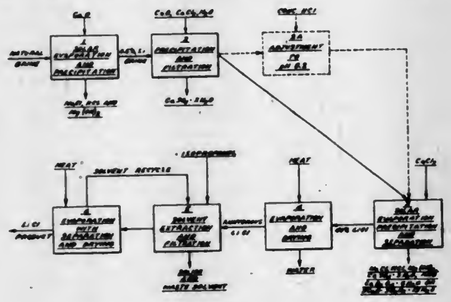
1. A process for the production of zeolite A from kaolin which comprises converting the kaolin into meta-kaolin at temperatures of between 700° and 950° C. in the presence of 0.1 to 10% by weight of alkaline earth compounds calculated as oxides, 0.1 to 10% by weight of an uncolored halide or halogen, and 0.1 to 10% by weight of an alkali metal compound, and reacting the meta-kaolin in an aqueous alkaline medium, wherein the conversion of the kaolin into metakaolin is carried out by flash heating at temperatures of between 600° and 1000° at a residence time of 0.01 to 5 seconds and subsequent annealing at temperatures between 700° and 950° C.

4,271,131

PRODUCTION OF HIGHLY PURE LITHIUM CHLORIDE FROM IMPURE BRINES

Patrick M. Brown, Exton; Susan R. Jacob, Royersford, and Daniel A. Boryta, Downingtown, all of Pa., assignors to Foote Mineral Company, Exton, Pa.

Filed Apr. 11, 1979, Ser. No. 28,973
Int. Cl.³ C01D 15/04
U.S. Cl. 423—179.5 7 Claims



1. An integrated process for producing highly pure lithium chloride from a brine containing at least about 100 ppm lithium in the form of lithium chloride as well as sodium, potassium, magnesium, sulfate and boron as impurities which comprises subjecting said brine to a first solar evaporation in a first pond system consisting of a series of shallow ponds of relatively large surface area to obtain a first brine concentrate containing at least about 3% by weight lithium chloride and to precipitate sodium and potassium chlorides, slaked lime being added to said brine during said first evaporation to precipitate magnesium as magnesium hydroxide, adding slaked lime and calcium chloride to said first brine concentrate to convert any remaining magnesium to magnesium hydroxide, sulfate to calcium sulfate dihydrate, and boron to a calcium borate hydrate, separating precipitated calcium sulfate dihydrate from said brine, subjecting said brine to a second solar evaporation in a second pond system consisting of a series of shallow ponds of relatively large surface area to increase the concentration of lithium chloride to at least about 25% by weight, and to precipiate magnesium hydroxide, calcium sulfate dihydrate and calcium borate hydrate, evaporating additional water from said brine to increase the concentration of lithium chloride therein to at least about 40% by weight, heating said more concentrated brine at a temperature above about 101° C. to produce anhydrous lithium chloride, heating said lithium chloride to a temperature above about 200° C., cooling said lithium chloride to ambient temperatures, extracting said lithium chloride with isopropanol, separating the liquid phase from the solid phase, removing said isopropanol from the liquid phase, and recovering a solid lithium chloride product of high purity.

4,271,132

METHOD AND COMPOSITIONS FOR REMOVING ACID GASES FROM GASEOUS MIXTURES

Allen G. Eickmeyer, 8126 El Monte, Prairie Village, Kans. 66208

Division of Ser. No. 22,505, Mar. 25, 1970, abandoned, and a continuation-in-part of Ser. No. 432,334, Feb. 12, 1965, abandoned, which is a continuation-in-part of Ser. No. 291,532, Jun. 28, 1963, abandoned, which is a continuation-in-part of Ser. No. 231,963, Oct. 22, 1962, abandoned, which is a continuation-in-part of Ser. No. 209,221, Jul. 11, 1962, abandoned, said Ser. No. 22,505, is a continuation-in-part of Ser. No. 523,926, Feb. 1, 1966, abandoned. This application Mar. 15, 1971, Ser. No. 124,413
The portion of the term of this patent subsequent to Nov. 26, 1991, has been disclaimed.
Int. Cl.³ B01D 53/34
U.S. Cl. 423—223 7 Claims

1. An absorption-desorption process for removing acid gases such as CO_2 or H_2S from gaseous mixture containing such acid gases, comprising the step of:

contacting said gaseous mixture with a hot aqueous solution comprising from about 15 to 40% by weight of a potassium salt selected from the group consisting of potassium carbonate, potassium borate and mixtures thereof and a minor amount of an amine selected from the group consisting of the alkanolamines and the ethylene polyamines in an absorption stage to thereby catalyze the absorption of said acid gases from said gaseous mixture;

maintaining the aqueous solution at an elevated temperature of at least about 56° C. during contact with said gaseous mixture;

regenerating the hot aqueous solution containing said absorbed acid gas in a regeneration stage by steam stripping at least a portion of said acid gas therefrom; and

recycling at least a portion of said regenerated solution for further contact with said gaseous mixture while maintaining said solution at a temperature of at least 56° C.

4,271,133

PROCESS FOR REMOVING HYDROGEN CYANIDE FROM GASEOUS STREAMS

Cyril Tellis, Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,779
Int. Cl.³ B01D 53/34
U.S. Cl. 423—230 10 Claims

7. A process for purifying a gaseous stream containing hydrogen cyanide, carbonyl sulfide, hydrogen sulfide and hydrogen chloride as impurities therein which comprises:

(a) providing an adsorbent bed wherein the adsorbent comprises zinc oxide and contains no more than 5%, by weight, of an oxide of an alkali or alkaline earth metal, and

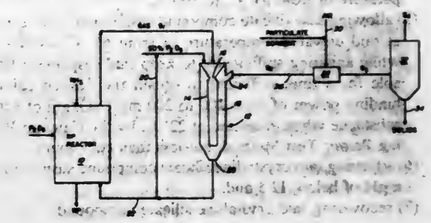
(b) contacting said process stream with said adsorbent bed at a temperature of from about ambient to about 350° C. for a period of time sufficient to reduce the concentrations of each of said impurities to the desired value.

4,271,134

TREATMENT OF EFFLUENT GASES FROM THE MANUFACTURE OF FERTILIZER

Aaron J. Teller, Westboro, Mass., assignor to Teller Environmental Systems, Inc., Worcester, Mass.

Continuation of Ser. No. 18,485, Mar. 8, 1979, abandoned. This application Jun. 18, 1980, Ser. No. 160,441
Int. Cl.³ B01D 53/34
U.S. Cl. 423—238 8 Claims



1. A process for treating ammonia containing effluent gases from a nitrogen phosphate fertilizer reactor which comprises:

washing the effluent gases with concentrated phosphoric acid containing between about 34–55 weight percent of P_2O_5 to remove ammonia;

forming a product gas containing acid gases and particulates including NH_4F and $NH_4F.HF$;

contacting subsequently the product gas with finely divided alkaline target particles of solid sorbent material to capture contaminating particulates in the acid gases;

separating the particulates and target particles from the product gas; and,

maintaining the effluent gases and the product gas during separation at a dry bulb temperature of at least about 20° F. above dew point.

4,271,135

PREPARATION OF FINELY-DIVIDED, WATER-INSOLUBLE SILICATE CATION-EXCHANGERS WITH A NARROW PARTICLE SIZE SPECTRA

Willi Wuest, Ratingen-Hoesel; Guenther Just, Hilden, and Bernd W. Peters, Solingen, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen and Deutsche Gold- und Silber-Scheideanstalt Vormals Roessler, Frankfurt am Main, both of, Fed. Rep. of Germany

Continuation of Ser. No. 926,866, Jul. 24, 1978, abandoned. This application Oct. 4, 1979, Ser. No. 81,824
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1977, 2734296
Int. Cl.³ C01B 33/28
U.S. Cl. 423—329 18 Claims

1. A method for the preparation of finely-divided, water-insoluble, aluminosilicate cation-exchangers with a narrow particle size spectra suitable for detergent formulations having a grain size distribution with 96% less than 10μ and a maximum size range of from 3 to 5μ comprising:

(1) agitating a water-dissolved alkali metal silicate at a temperature of from 60° C. to 85° C.,

(2) mixing therewith at a temperature of from 60° C. to 85° C. over a period of from three seconds to five minutes with vigorous agitation, a water-dissolved alkali metal aluminate, in the presence of an excess of alkali to give a suspension of a silicate compound containing bound water, and having the formula, bound water not shown,

$$(M_2O)_{0.8\text{-}1.3}.Al_2O_3.(SiO_2)_{1.75\text{-}2.0}$$

wherein M represents an alkali metal, wherein said reactant solutions when mixed have a composition corresponding to the desired AL_2O_3 and SiO_2 amounts of the

above formula, with a ratio of from 3.5 to 4 mols M_2O/-mol Al_2O_3 and a ratio of from 75 to 80 mols of water/mol Al_2O_3,

(3) maintaining said silicate compound suspension after said mixing step is completed, for a period of from two to twenty minutes under the agitation and temperature conditions of said mixing step,

(4) rapidly heating said silicate compound suspension at least 5° C. above the temperature of said mixing step to a temperature of from 65° C. to 100° C.,

(5) allowing said silicate compound suspension to crystallize at said elevated temperature of from 65° C. to 100° C. while agitating sufficiently to keep said suspension flowable for a time sufficient to obtain the desired calcium binding power of from 100 to 200 mg CaO/gm of active substance when measured at 22° C. by the Calcium Binding Power Test Method, but less than two hours,

(6) adjusting said crystalline silicate compound suspension to a pH of below 12.5 and

(7) recovering said crystalline silicate compound.

4,271,136

PROCESS FOR THE PRODUCTION OF AMMONIA

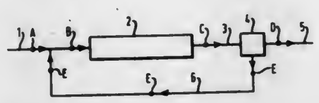
Stephen R. Tennison, Weybridge, England, assignor to The British Petroleum Company Limited, London, England

Filed Oct. 2, 1979, Ser. No. 81,131

Claims priority, application United Kingdom, Oct. 12, 1978, 40384/78

Int. Cl.³ C01C *1/04*

U.S. Cl. 423—362 11 Claims



1. A continuous process for the production of ammonia which process includes a start-up stage and a subsequent stage, said process comprising passing a feedstock containing hydrogen and nitrogen over a catalyst during both said start-up stage and said subsequent stage, the nitrogen and hydrogen being supplied at said start-up stage so that nitrogen is in stoichiometric excess and thereafter supplying make up feedstock of nitrogen and hydrogen in stoichiometric proportions, said catalyst comprising (i) as support a graphite-containing carbon having (a) a basal plane surface area of at least 100 m^2/g, (b) a ratio of BET surface area to basal plane surface area of not more than 8:1, and (c) a ratio of basal plane surface area to edge surface area of at least 2:1, and (ii) as active component (a) 0.1 to 50% by weight of a transition metal of the 4th, 5th and 6th horizontal periods of Groups VB, VIB, VIIB and VIII of the Periodic Table, expressed as % by weight of total catalyst, and (b) 0.1 to 4 times by weight of (a) of a modifying metal ion selected from Groups IA or IIA of the Periodic Table or the lanthanides or actinides, the modifying metal ion being actively associated with the transition metal rather than the support, under conditions of temperature, pressure and space velocity such that conversion to ammonia is effected, separating unreacted hydrogen and nitrogen from product ammonia, recycling the unreacted hydrogen and nitrogen to said subsequent stage with the nitrogen in stoichiometric excess, and supplying make-up feedstock of hydrogen and nitrogen to said subsequent stage in stoichiometric proportions.

4,271,137

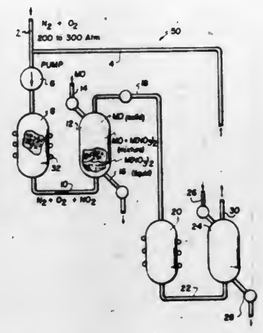
FIXATION OF NITROGEN

Paul Harteck, Troy, N.Y., assignor to Rensselaer Polytechnic Institute, Troy, N.Y.

Filed Sep. 17, 1979, Ser. No. 76,377

Int. Cl.³ C01B *21/48;* C01F *11/38*

U.S. Cl. 423—395 11 Claims



1. A process for the fixation of nitrogen comprising: combining gaseous nitrogen and oxygen at a total pressure of above 100 atmospheres and at a working pressure range, with a solid metal oxide; initially heating the combination to a working temperature range sufficient to form a nitrate and below the dissociation pressure of the nitrate corresponding to the working temperature and pressure ranges; the nitrogen and oxygen reacting to form nitrogen oxides and the nitrogen oxides and solid metal oxide reacting to form the nitrate with the overall reaction being substantially isothermic; thermally insulating the reaction to maintain the working temperature range; the temperature range being near thermal equilibrium for the nitrogen and oxygen to nitrogen oxides reaction; extracting the nitrate from the reacting combination to form a product of nitrate and to leave a remaining reacting combination; and adding additional solid metal oxide nitrogen and oxygen as needed to replace that consumed to the remaining reaction combination.

4,271,138

PROCESS FOR PRODUCING ALUMINUM OXYCHLORIDE SOLUTIONS FROM LOW MOLECULAR WEIGHT ALUMINUM ALKOXIDES

Eugene F. Kennedy, and Bruce E. Leach, both of Ponca City, Okla., assignors to Conoco, Inc., Ponca City, Okla.

Filed Apr. 21, 1980, Ser. No. 142,494

Int. Cl.³ C01B *11/00*

U.S. Cl. 423—462 12 Claims

1. A single phase process for producing aluminum oxychloride solution comprising

(a) adding HCl to aluminum alkoxides where the alkoxide units contain from 1 to 5 carbon atoms to form chloride-containing alkoxides, wherein from about 0.2 to about 1.0 moles of HCl per mole of aluminum alkoxide is used;

(b) hydrolyzing the reaction product of (a) to form alcohols and aluminum oxychlorides; then

(c) removing alcohols and recovering aluminum oxychloride.

4,271,139

SCINTILLATION PROXIMITY ASSAY

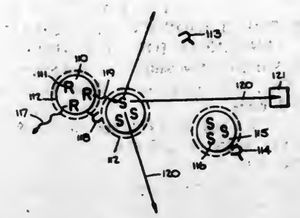
Hiram Hart, 3450 Wayne Ave., Bronx, N.Y. 10467

Filed Mar. 27, 1978, Ser. No. 890,325

Int. Cl.³ G01N *33/48;* A61K *43/00;* G01T *1/00*

U.S. Cl. 424—1 10 Claims

1. In an improved non-destructive method of biological fluid assay, the improvement wherein the biological linking material being assayed links fluid suspensions of both a plurality of tritiated-particulates and potentially scintillating-particulates within activating range one to the other, each of said linked scintillating-particulates emitting detectable light-pulses upon



activation responsive to bombardment of energy from each of said linked tritiated-particulates within said range, said light-pulses being quantitatively correlative to the concentration of said biological-linking material in said fluid.

4,271,140

METHOD AND COMPOSITION FOR DOUBLE RECEPTOR, SPECIFIC BINDING ASSAYS

James R. Bunting, Washington, D.C., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Continuation-in-part of Ser. No. 871,478, Jan. 23, 1978, abandoned. This application Aug. 1, 1978, Ser. No. 930,130

Int. Cl.³ G01N *33/48;* G01T *1/00;* A61K *43/00*

U.S. Cl. 424—1 45 Claims

1. In a double receptor, specific binding assay for sample ligand wherein a first receptor is bound by a second receptor, the improvement comprising substituting for said double receptor a complex of the structure:

$$A_{BL}(BL)_nA_1$$

wherein BL is a binding ligand, A_{BL} is an unlabelled receptor specific for said binding ligand, A_1 is a receptor, n is at least one, BL is covalently bound to A_1 and A_{BL} is reversibly bound to BL.

4,271,141

RADIOIMMUNOLOGICAL METHOD OF DETERMINING THE THYROID FUNCTION BY AN IN VITRO TEST IN BLOOD SERUM

Wilhelmus T. Goedemans, Schoorl, Netherlands, assignor to Byk-Mallinckrodt CIL B.V., Petten, Netherlands

Filed Dec. 11, 1978, Ser. No. 968,591

Claims priority, application Netherlands, Dec. 16, 1977, 7713952

Int. Cl.³ G01N *33/48;* G01T *1/00;* A61K *43/00*

U.S. Cl. 424—1 5 Claims

1. In a method for determining the thyroid function by an in vitro test using blood serum, in which test

(a) a patient's blood serum sample is mixed with a solution containing radioactive thyroxine with a compound which liberates thyroxine from thyroxine-binding globulin;

(b) the resulting test mixture is thereafter buffered with a buffering agent;

(c) an antiserum is added to provide antibodies which bind a portion of the thyroxine present via a thyroxine-binding immunoreaction;

(d) unbound thyroxine is thereafter separated from the thyroxine bound to antibodies; and

(e) the relative quantities of unbound and bound thyroxine are thereafter determined by measurement of radioactivity;

the improvement which comprises adding to the test mixture after buffering an additional sample of the patient's blood serum, said additional sample being smaller in quantity than that of the patient's blood serum sample initially utilized.

4,271,142

PORTABLE LIQUID ANTACIDS

Wayne J. Puglia, Bellerose Village; Frank Witsil, Spring Valley, and Donald A. M. Mackay, Pleasantville, all of N.Y., assignors to Life Savers, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 49,535, Jun. 18, 1979, abandoned. This application Jul. 21, 1980, Ser. No. 170,469

Int. Cl.³ A61K *9/24, 9/28, 9/42, 33/06*

U.S. Cl. 424—14 18 Claims

1. An antacid piece consisting essentially of a center portion and an outer portion surrounding said center portion, said center portion consisting essentially of an antacid in the form of a liquid, cream or gel, and optionally a flavorant to mask the grittiness of the antacid and enhance the textural qualities of the antacid piece, and said outer portion consisting essentially of a fat containing material comprising a chocolate which is resistant to air and moisture for protecting said center portion and masking the grittiness of the antacid.

4,271,143

SUSTAINED RELEASE OPHTHALMIC DRUG DOSAGE

Ronald D. Schoenwald, and Robert E. Rooker, both of Fort Worth, Tex., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Continuation of Ser. No. 872,474, Jan. 25, 1978, abandoned. This application May 9, 1979, Ser. No. 37,314

Int. Cl.³ A61K *31/74, 31/78, 31/71, 31/35*

U.S. Cl. 424—78 29 Claims

1. An ophthalmic dosage of an aqueous gel for application to the conjunctival sac of the eye, said gel comprising an ophthalmic drug and a gel-forming high molecular weight carboxy vinyl polymer, said polymer having a molecular weight in excess of 1,000,000, said ophthalmic drug being present at a level of from about 0.03 to about 15 percent by weight, said polymer being present at a level of from about 2 to about 8 percent by weight, said gel having a viscosity of from about 40,000 to about 300,000 cps and a yield value of from about 5,000 to about 20,000 dyne/cm^2.

4,271,144

DEXTRAN COMPOSITION FOR CONTROLLING CORNEAL HYDRATION

Frank J. Holly, Lubbock, Tex., assignor to Hollos Laboratories, Inc., Cohasset, Mass.

Filed Jun. 6, 1979, Ser. No. 46,188

Int. Cl.³ A61K *31/74, 31/70, 31/245, 31/155*

U.S. Cl. 424—78 9 Claims

1. An ophthalmic solution for corneal dehydration in a human or animal eye comprising an aqueous solution of hydrophilic nonviscous dextran with an average molecular weight of between about 40,000 and about 150,000 said polymer being present at a colloidal osmolality between about 40 and about 200 torr.

4,271,145

PROCESS FOR PRODUCING ANTIBODIES TO HEPATITIS VIRUS AND CELL LINES THEREFOR

Jack R. Wands, Waban, Mass., and Vincent R. Zurawski, Jr., West Chester, Pa., assignors to The Massachusetts General Hospital, Boston, Mass.

Filed Oct. 22, 1979, Ser. No. 86,947

Int. Cl.³ A61K *39/00, 39/42;* C12N *1/36*

U.S. Cl. 424—85 19 Claims

1. A process for preparing an antibody to a human viral hepatitis antigen which comprises intraperitoneally administering to an animal a first dosage of a hepatitis antigen in the amount of between approximately 1 and 50 μg/animal, intravenously administering a second dosage of the hepatitis anti-

gen to said animal at least about 3 weeks after administering said first dosage, recovering lymphocyte cells producing antibody from said animal, forming cell hybrids by fusing said lymphocyte cells to a myeloma cell, culturing said hybrids and collecting said antibody as a product of said hybrids.

9. A compositon comprising a hybrid continuous cell line that produces antibody to a viral hepatitis antigen which comprises a cell hybrid of a BALB/c mouse spleen cell immunized with viral hepatitis antigen fused to a mouse myeloma and a culture medium for said hybrid.

4,271,146

METHODS OF USING CHLAMYDIA VACCINE FOR PREVENTING AND TREATING BOVINE AND OVINE DISEASES

Albert C. Seawell, 1047 Carol Ave., Ripon, Wis. 54971

Continuation-in-part of Ser. No. 73,004, Sep. 6, 1979. This application Jan. 30, 1980, Ser. No. 163,985
Int. Cl.³ A61K 39/118
U.S. Cl. 424—89 16 Claims

1. A method of immunizing and treating ovines against *Chlamydia Psittaci* which comprises parenterally administering modified live Chlamydia Feline Pneumonitis Vaccine to the ovines to stimulate the production of antibodies therein.

4,271,147

PROCESS FOR THE ISOLATION OF MEMBRANE PROTEINS FROM *NEISSERIA MENINGITIDIS* AND VACCINES CONTAINING SAME

Torsten B. Helting, Perchtoldsdorf, Austria, and Gerhard Guthöhrlein, Marburg an der Lahn, Fed. Rep. of Germany, assignors to Behringwerke Aktiengesellschaft, Marburg an der Lahn, Fed. Rep. of Germany

Filed Jan. 10, 1980, Ser. No. 110,945
Int. Cl.³ A61K 39/095; C07C 103/52
U.S. Cl. 424—92 7 Claims

1. A method for isolating membrane proteins from *Neisseria meningitidis*, which method comprises extracting *Neisseria meningitidis* organisms at least once for 15 minutes to 24 hours with an aqueous solution containing a detergent in a concentration from 0.1 to 2 percent weight/volume and then separating and recovering the supernatant extract which now contains said membrane proteins.

7. A vaccine against meningitis cerebrospinalis epidemica, said vaccine comprising an immunologically effective amount of membrane proteins isolated by the method of claim 1.

4,271,148

PROCESS FOR PREPARING LIVER FOR USE AS THERAPEUTIC AGENT

Walter W. Keeling, Roanoke & Market Sts., Amsterdam, Va. 24175

Continuation-in-part of Ser. No. 956,395, Oct. 31, 1978, abandoned. This application Sep. 25, 1979, Ser. No. 78,890
Int. Cl.³ A61K 35/407, 35/413
U.S. Cl. 424—106 6 Claims

1. A process for producing a highly palatable liver product having a substantially reduced bulk, but without the loss of any of its essential ingredients and which, in such form, is effective for use in providing a source of said ingredients, said process comprising the steps of soft cooking the liver in a pressure vessel at a temperature between about 212° to 235° F. at about 15 pounds per square inch to 18 pounds per square inch for a period of about 15 minutes; chilling said vessel and liver to a temperature of about 0° F.; evacuating said vessel to about 18 inches of mercury and maintaining this vacuum for about 30 minutes; grinding the resulting liver into finely divided rice size granules; subjecting said rice size granules to a further vacuum treatment of about 20 inches of mercury and for a period of time of about 30 minutes; further reducing the size of said rice size granules by grinding same to finely divided particulates approximating that of granulated sugar crystals, said crystals having a length of between about 1 to 5 millimeters; subjecting said finely divided liver particulates to a high vacuum on the order of about 20 inches of mercury and for a period of about 30 minutes; and recovering the resulting product.

4,271,149

GERMICIDAL IODINE COMPOSITIONS WITH ENHANCED IODINE STABILITY

Murray W. Wisicov, Woodside, N.Y., and Michael Oberlander, Kansas City, Mo., assignors to West Agro-Chemical, Inc., Westwood, Kans.

Filed Sep. 21, 1979, Ser. No. 77,787
Int. Cl.³ A01N 59/12; A61K 31/74, 31/79, 33/18
U.S. Cl. 424—150 10 Claims

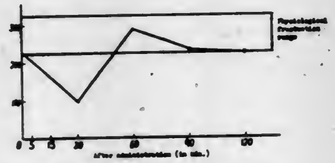
1. A germicidal iodine composition comprising an aqueous solution of elemental iodine in a germicidally effective amount not exceeding about 1.0% and at least one organic substance which slowly reacts with iodine selected from the group consisting of iodine complexing polymers, surface active agents, alcohols, polyols and water soluble solvents, said organic substance constituting 1 to 50% by weight of said composition, wherein iodine loss during extended storage due to such reaction is controlled by providing in said composition balanced sources of iodide ion in the range of about 0.025% to 0.5% and iodate ion in the range of about 0.005% to 0.2% while maintaining a pH within the range of pH 5–7.

4,271,150

UROKINASE PREPARATION FOR ORAL ADMINISTRATION

Koji Sasaki, Omiya, and Yasukazu Harada, Tokyo, both of Japan, assignors to Zeria-Shinyaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 7, 1979, Ser. No. 18,239
Int. Cl.³ A61K 37/00
U.S. Cl. 424—177 2 Claims



1. A method for treating thrombosis which comprises orally administering to a patient in need of such treatment an effective amount of urokinase in admixture with an effective urokinase stabilizing amount of a glycoprotein selected from the group consisting of mucins and mucoids which amount is effective in stabilizing urokinase against deactivation and in enhancing urokinase absorption from the gastrointestinal tract and a pharmaceutical carrier.

4,271,151

PROTEIN-BOUND POLYSACCHARIDES

Tetsuya Hotta, Tokyo; Satoru Enomoto, Fujisawa; Chikao Yoshikumi, Kunitachi; Minoru Ohara, Tokyo, and Saburo Ueno, Ichigayadai, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 40,105, May 18, 1979, which is a continuation-in-part of Ser. No. 755,142, Dec. 29, 1976, abandoned. This application Feb. 13, 1980, Ser. No. 121,142
Claims priority, application Japan, Jan. 1, 1976, 51-318
Int. Cl.³ A23J 1/00; A61K 31/71, 31/73, 37/02
U.S. Cl. 424—177 12 Claims

1. An antitumor agent suitable for oral administration to a mammal having cancer, said antitumor agent being capable of retarding the growth of said cancer, which comprises an effective amount of a protein-bound polysaccharide obtained by extraction of a mycelium or fruit body of a Coriolus of Polyporaceae of Basidiomycetes and having a molecular weight within the range of 5,000 to 300,000 as measured with ultracentrifugation and which gives a positive color reactions characteristic of saccharides with α-naphthol-sulfuric acid, indolesulfuric acid, anthrone-sulfuric acid, phenol-sulfuric acid, and tryptophane-sulfuric acid, a positive ninhydrin color reaction characteristic of amino acids after hydrochloric acid hydrolysis and a positive color reaction in the Lowry-Folin test characteristic of peptide linkage, said protein-bound polysaccharide having absorption regions, as measured by proton nuclear magnetic resonance spectra, at 0.9±0.1 ppm, 1.2±0.1 ppm, 2.0±0.1 ppm, 4.5±0.1 ppm and 4.7±0.1 ppm, with broad absorption at 3.0–4.4 ppm, said protein-bound polysaccharide having a polysaccharide portion/protein portion ratio within the range of 55/45 to 95/5 provided that the proton strength of the protein portion is at 0.5–2.5 ppm and that of the polysaccharide portion is at 2.5–6.0 ppm, and said polysaccharide portion being composed of β-glucan, showing no absorption attributed to α-glucan at 4.9–6.0 ppm, said protein portion being composed of aspartic acid, threonine, serine, glutamic acid, proline, glycine, alanine, cysteine, valine, methionine, isoleucine, leucine, tyrosine, tryptophane, phenylalanine, lysine, histidine and arginine, said polysaccharide being present in an amount sufficient to retard the growth of cancer.

4,271,152

PSYCHO-PHARMACOLOGICAL PEPTIDES

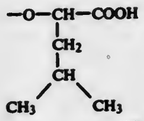
David de Wied, Biethoven, and Hendrik M. Greven, Heesch, both of Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Feb. 20, 1980, Ser. No. 123,060
Claims priority, application Netherlands, Feb. 21, 1979, 7901348
Int. Cl.³ A61K 37/00; C07C 103/52
U.S. Cl. 424—177 10 Claims

1. Peptide of the formula:

A-R-L-Ser-R_1-L-Thr-L-Pro-L-Leu-L-Val-L-Thr-B

wherein
R represents the amino acid residue L-Lys or L-Arg,
R_1 represents the amino acid residue L-Glu or L-Gln,
B represents one of the following amino acid or peptide-radicals:
L-Leu-OH, (α-dehydro) Leu-OH
D-Leu-OH
L-Leu-L-Phe-OH
L-Leu-L-Phe-L-Lys-OH
L-MeLeu-OH
or the radical



and A represents one of the following radicals or residues:
hydrogen
H-L-Glu
Z_1-L-Glu
Z_2-L-Ser-L-Glu-
H-Q_1-L-Thr-L-Ser-L-Glu-
Q_2-L-Thr-L-Ser-L-Glu-
Z_3-Q_1-L-Thr-L-Ser-L-Glu- or
H_2N-ALK-CO-L-Phe-Q_1-L-Ser-L-Glu-
in which
Z_1 represents H-L-Ser, H-D-Ser, desamino-Set, 2,3-dihydroxy propanoyl or H_2N-ALK-CO-,
Z_2 represents H-L-Thr, H-D-Thr, desamino-Thr, 2,3-dihydroxybutanoyl or H_2N-ALK-CO-,
Q_1 represents L-Met, L-Met (O), L-Met (O_2) or L-Leu
Q_2 represents H-D-Met, H-D-Met (O), H-D-Leu, H-D-Met (O_2), desamino MET, desamino Met (O), desamino Met (O_2), desamino Leu, 2-hydroxy-4-methylthiobutanoyl, 2-hydroxy-4-methylpentanoyl or the radical H_2N-ALK-CO-,
Z_3 represents H-L-Phe, H-D-Phe, desamino Phe, 2-hydroxy-3-phenyl-propanoyl and H_2N-ALK-CO-,
and ALK represents an alkylene or alkylidene group with 1–6 carbon atoms,
as well as derivative thereof selected from acid addition salts, metal salts, aliphatic esters having from 1 to 18 carbon atoms in the alkanol moiety, unsubstituted amides, mono- or di-alkyl substituted amides, wherein the alkyl group contains from 1 to 6 carbon atoms, N-acyl derivatives wherein the acyl group contains from 1 to 6 carbons atoms, N-alkyl or N,N-dialkyl derivatives wherein the alkyl group has from 1 to 6 carbon atoms, and metal complexes.

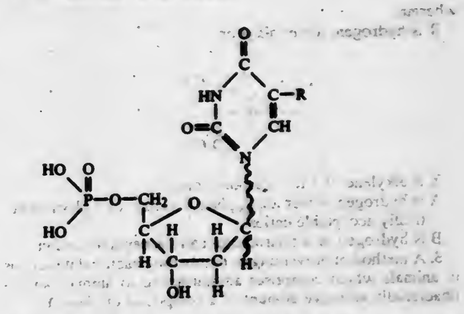
4,271,153

NOVEL MONOPHOSPHATES

Kailash K. Gauri, Leutkirchen, Fed. Rep. of Germany, assignor to Robugen GmbH Pharmazeutische Fabrik, Esslingen-Zell, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,852
Claims priority, application Fed. Rep. of Germany, Sep. 26, 1978, 2841898
Int. Cl.³ A61K 31/70; C07H 19/10
U.S. Cl. 424—180 12 Claims

1. A compound of the formula



wherein R is lower alkyl of 2 to 6 carbon atoms.

9. A method of preventing or treating herpes viral infections in warm-blooded animals comprising administering to warm-blooded animals an herpes antivirally effective amount of at least one compound of claim 1.

4,271,154

OINTMENT FOR TREATMENT OF ARTHRITIS

Lewis Richards, R.D. 2, Box 126, Whitehouse Station, N.J. 08889

Filed Sep. 11, 1978, Ser. No. 940,908
Int. Cl.³ A61K 35/78
U.S. Cl. 424—195 7 Claims

1. A method for producing a composition of reacted ingredients, comprising in combination: admixing petroleum jelly with red pepper sufficiently and for an interval of time sufficient to obtain a first composition characterized by infra-red analysis indicative of infra-red absorption at 3200 CM-1 and a sharp band at 1647 CM-1 and a new band at 1027 CM-1, and thereafter admixing therewith a lead-free gasoline with said first composition sufficiently to obtain a semi-solid ointment characterized by infra-red analysis indicative of new bands at 1072 and 1034 CM-1 not present in individual components and

more intense than bands in red pepper analysis, and further indicative of hydroxyl absorption at 3289 CM-1 and a carbonyl absorption band at 1715 CM-1.

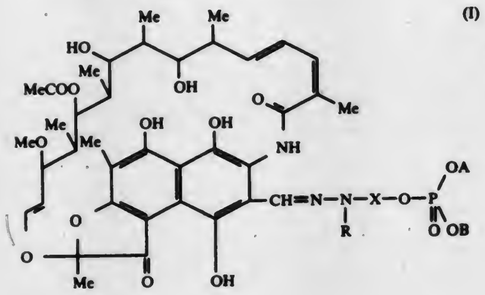
4,271,155

WATER SOLUBLE HYDRAZONES OF 3-FORMYLRIFAMYCIN SV, ANTIBACTERIAL COMPOSITIONS THEREOF AND METHOD OF USE THEREOF

Renato Cricchio, Varese, Italy, assignor to Gruppo Lepetit S.p.A., Milan, Italy

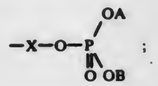
Filed Jan. 19, 1980, Ser. No. 160,799
Claims priority, application United Kingdom, Jan. 28, 1979, 22461/79
Int. Cl.³ C07D *491/06*; A61K *31/395*
U.S. Cl. 424—200 6 Claims

1. A rifamycin compound of the formula



(I)

wherein
R is hydrogen, lower alkyl or



;

X is alkylene of 1 to 5 carbon atoms;
A is hydrogen, lower alkyl, phenyl, benzyl or a pharmaceutically acceptable cation;
B is hydrogen or a pharmaceutically acceptable cation.

5. A method of preventing or combatting bacterial infections in animals which comprises administering to animals an antibacterially effective amount of a compound of claim 1.

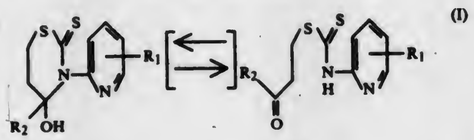
4,271,156

PERHYDRO-1,3-THIAZINE DERIVATIVES

Jean-Dominique Bourzat, Paris; Daniel Farge, Thiais; Andre Leger, Paris, and Gerard Pousinet, Sucy-en-Brie, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Nov. 14, 1979, Ser. No. 94,335
Claims priority, application France, Nov. 16, 1978, 78 32387
Int. Cl.³ A61K *31/44*; C07D *213/71*, *409/04*
U.S. Cl. 424—246 25 Claims

1. A compound of the general formula:



(I)

(A) (B)

wherein R_1 represents hydrogen or halogen in the 4-, 5- or 6-position of the pyridyl radical and R_2 represents hydrogen, straight- or branched-chain alkyl of 1 to 4 carbon atoms or phenyl.

25. A method of treating or preventing a helminth or filarial infection which comprises administering to a mammal suffering from or subject to a said infection an effective amount of a compound as claimed in claim 1.

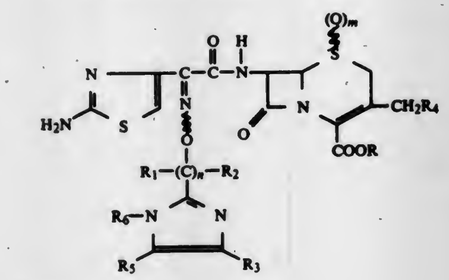
4,271,157

IMIDAZOLE DERIVATIVES OF 7-[(2-AMINO-4-THIAZOLYL)-OXIMINO] CEPHALOSPORINS

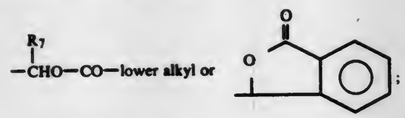
Theodor Dennel, Regensburg, and Hermann Bruser, Schoenhofen, both of Fed. Rep. of Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Feb. 28, 1980, Ser. No. 125,801
Int. Cl.³ A61K *31/545*; C07D *501/56*
U.S. Cl. 424—246 12 Claims

1. A compound of the formula

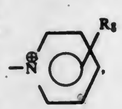


wherein
R is hydrogen, alkali metal,

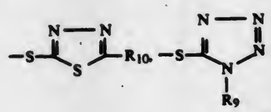


;

R_1 is hydrogen or methyl;
R_2 is hydrogen or methyl;
R_3 is hydrogen or methyl;
R_4 is hydrogen, $-OCONH_2$,

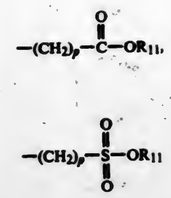


,



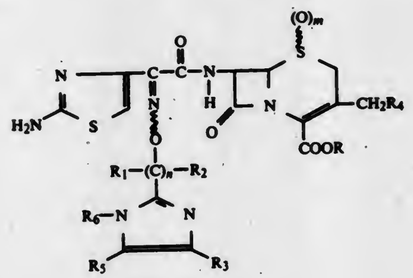
or $-O-\overset{O}{\overset{\|}{C}}-$lower alkyl;

R_5 is hydrogen or methyl;
R_6 is hydrogen, methyl, benzyl or acetyl;
R_7 is hydrogen or lower alkyl;
R_8 is hydrogen or $-CONH_2$;
R_9 is hydrogen, lower alkyl,

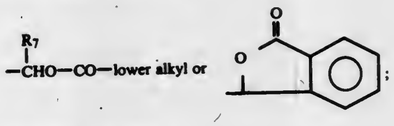


or $-(CH_2)_p-N-$(lower alkyl)$_2$;
R_{10} is hydrogen or lower alkyl;
R_{11} is hydrogen, sodium or potassium;
n is 1, 2, 3 or 4;
m is 0, 1 or 2;
p is 1, 2, 3 or 4.

8. An antibacterial pharmaceutical composition comprising a pharmaceutically acceptable carrier and an effective amount of one or more antibacterially active compounds of the formula

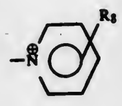


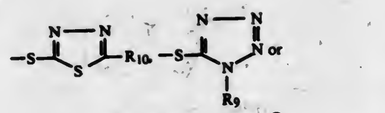
wherein
R is hydrogen, alkali metal,



;

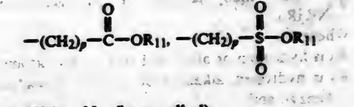
R_1 is hydrogen or methyl;
R_2 is hydrogen or methyl;
R_3 is hydrogen or methyl;
R_4 is hydrogen, $-OCONH_2$,





or $-O-\overset{O}{\overset{\|}{C}}-$lower alkyl;

R_5 is hydrogen or methyl;
R_6 is hydrogen, methyl, benzyl or acetyl;
R_7 is hydrogen or lower alkyl;
R_8 is hydrogen or $-CONH_2$;
R_9 is hydrogen, lower alkyl,



or $-(CH_2)_p-N-$(lower alkyl)$_2$;
R_{10} is hydrogen or lower alkyl;
R_{11} is hydrogen, sodium or potassium;
n is 1, 2, 3 or 4;
m is 0, 1 or 2;
p is 1, 2, 3 or 4.

4,271,158

VASODILATING OR ANTIDEPRESSANT PHENALKANOLAMINOALKYL-SUBSTITUTED IMIDAZOLIDINONES

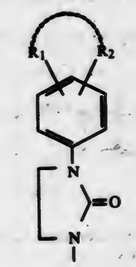
Anton Mentrup, Mainz-Kastel; Kurt Schromm, Ingelheim; Ernst-Otto Reuth, Ingelheim, and Richard Reichl, Ingelheim, all of Fed. Rep. of Germany, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Del.X

Division of Ser. No. 26,688, Apr. 3, 1979, which is a continuation-in-part of Ser. No. 773,394, Mar. 2, 1977, Pat. No. 4,154,829. This application Dec. 13, 1979, Ser. No. 102,904
Claims priority, application Fed. Rep. of Germany, Mar. 9, 1976, 2609645
Int. Cl.³ A61K *31/535*; C07D *233/36*
U.S. Cl. 424—248.5 4 Claims

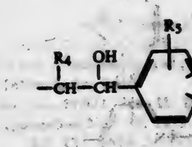
1. A racemic or optically active compound of the formula

$$Q-C_nH_{2n}-NH-R$$

wherein
Q is



where
R_1 is hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, trifluoromethyl or amino;
R_2 is hydrogen, halogen, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms or trifluoromethyl; and
R_1 and R_2, together, are methylenedioxy or ethylenedioxy;
n is an integer from 2 to 6, inclusive; and
R is



where
R_4 is hydrogen, methyl or ethyl;
R_5, R_6 and R_7, which may be identical to or different from each other, are each hydrogen, halogen, hydroxymethyl, trifluoromethyl, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, nitro, cyano, $-CONHR_3$, $-CONHOH$, $-COOR_3$, R_9O-, methyl-

sulfonylmethyl or, when one or two of R_5 through R_7 are other than halogen or trifluoromethyl, also $-NR_3R_9$,

where

R_3 is hydrogen or alkyl of 1 to 4 carbon atoms,

R_8 is hydrogen, alkanoyl of 1 to 20 carbon atoms, or benzyl, and

R_9 is hydrogen, lower alkanoyl, methanesulfonyl, carbamoyl, dimethylsulfamoyl, or alkoxycarbonyl of 2 to 5 carbon atoms, and

R_5 and R_6, together are $-O-CH_2-O-$, $-O-CH_2-CH_2-O-$, $-CH=CH-CH=CH-$, $-O-CH_2-CONH-$, $-CH_2-CH_2-CONH-$ or $-O-CO-NH-$,

or a non-toxic, pharmacologically acceptable acid addition salt thereof.

4. The method of dilating the blood vessels or relieving depression in a warm-blooded animal in need thereof, which comprises perorally, parenterally or rectally administering to said animal an effective vasodilating or anti-depressant amount of a compound of claim 1.

4,271,159

7-N-HETEROCYCLYL-2-SUBSTITUTED 1-OXADETHIA-CEPHALOSPORINS

John Hannah, Matawan, N.J., assignor to Merck & Co., Inc., Rahway, N.J.

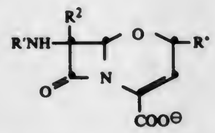
Filed Aug. 1, 1979, Ser. No. 62,829

The portion of the term of this patent subsequent to Mar. 10, 1998, has been disclaimed.

Int. Cl.[3] A61K *31/44*; C07D *498/00*; A61K *31/47*, *31/535*

U.S. Cl. 424—248.51 9 Claims

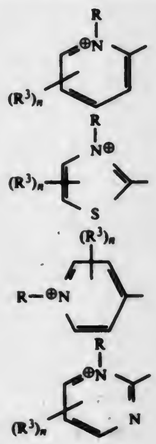
1. A compound having the structural formula:



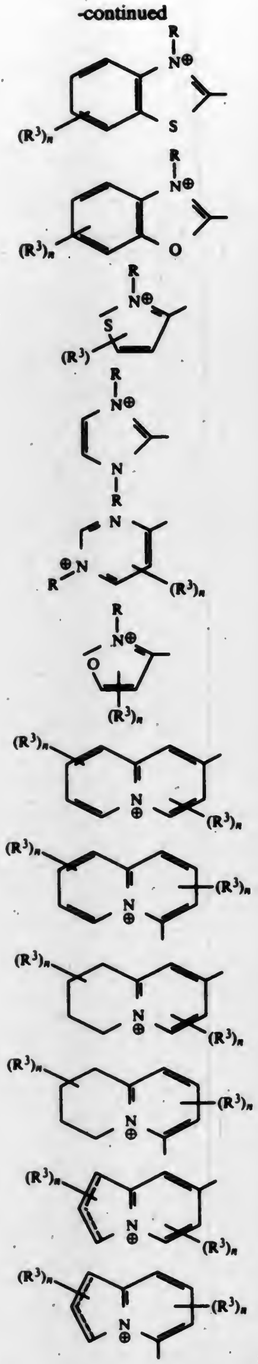
and the pharmaceutically acceptable salts and esters thereof wherein: R* is H or CH_3;

R^2 is hydrogen or methoxyl;

R' is selected from the group consisting of:



-continued



wherein the dotted line indicates both saturated and unsaturated rings; and

wherein:

R is alkyl having from 1–6 carbon atoms, substituted alkyl having from 1–6 carbon atoms wherein the substituent is chloro, fluoro, hydroxyl, alkoxyl (C_{1-6}), carboxyl, amino, sulfo and mono- and dialkylamino wherein each alkyl has 1–6 carbon atoms substituted and unsubstituted: phenylalkyl and phenylalkenyl having 7–12 carbon atoms wherein the substituent is selected from chloro, fluoro, carboxyl, amino, cyano, hydroxyl and sulfo;

R^3 is chloro, fluoro, hydroxyl, carboxyl, sulfo, cyano, amino, mono- and dialkylamino, alkoxyl, alkyl having from 1–6 carbon atoms, substituted alkyl having 1–6 carbon atoms wherein the substituent is carboxyl, cyano, alkoxy having 1–6 carbon atoms, phenyl and phenyloxy;

n is an integer selected from 0 to 3; and

R^7 is hydrogen, alkyl having 1–6 carbon atoms, phenylalkyl having 7 to 10 carbon atoms, or formyl.

8. An antibiotic pharmaceutical composition comprising a therapeutically effective amount of a compound according to claim 1 and a pharmaceutical carrier therefor.

4,271,160

SUBSTITUTED MORPHOLINE DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS

Piero Melloni, Brusso; Arturo Della Torre, Gallarate; Giovanni C. Caraiel, and Alessandro Rossi, both of Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Division of Ser. No. 1,604, Jan., 1979, Pat. No. 4,229,449. This application Jan. 20, 1980, Ser. No. 161,509

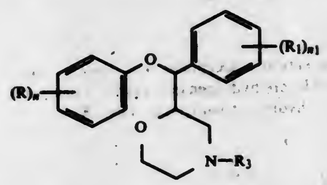
Claims priority, application Italy, Jan. 20, 1978, 19449 A/78; Jan. 20, 1978, 19450 A/78; Dec. 5, 1978, 30533 A/78; Dec. 5, 1978, 30534 A/78; Dec. 5, 1978, 30535 A/78

Int. Cl.[3] A61K *31/535*; C07D *265/30*

U.S. Cl. 424—248.54 8 Claims

1. A compound having the following formula (I)

(I)



wherein

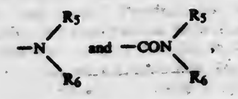
n and n_1 are, independently, 1, 2 or 3;

one or more of the groups R and R_1, which may be the same or different, is $-NO_2$ or

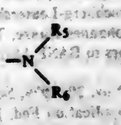


wherein R_5 and R_6 are, independently, hydrogen or C_1–C_6 alkyl, or two adjacent R groups or two adjacent R_1 groups, taken together, form the $-O-CH_2-O-$ radical; and the remainder of the groups R and R_1 are hydrogen;

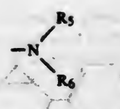
R_3 is (a') hydrogen; (b') C_1–C_6 alkyl unsubstituted or substituted by one or more substituents chosen from the group consisting of halogen, hydroxy, C_1–C_6 alkoxy,



where R_5 and R_6 are as defined above; (c') C_2–C_4 alkenyl; C_2–C_4 alkynyl; (d') phenyl-C_1–C_6 alkyl, in which the phenyl group may be unsubstituted or substituted by one or more substituents chosen from the group consisting of C_1–C_6 alkyl, halogen, halo-C_1–C_6 alkyl, hydroxy, C_1–C_6 alkoxy, and



wherein R_5 and R_6 are as defined above; (e') C_3–C_7 cycloalkyl unsubstituted or substituted by one or more C_1–C_6 alkyl, halogen, halo-C_1–C_6 alkyl, hydroxy, C_1–C_6 alkoxy and



where R_5 and R_6 are as defined above;

and the pharmaceutically acceptable salts thereof.

8. An antidepressant composition comprising an antidepressant effective amount of a compound according to any one of claims 1–7 and a pharmaceutically acceptable carrier and/or diluent.

4,271,161

INDANE-ACETIC ACID AMINOESTERS, THEIR PREPARATION AND THEIR USE IN THERAPY

Jean M. Teulon, La Celle Saint Cloud, France, assignor to Hexachimie, France

Filed Jul. 9, 1979, Ser. No. 55,907

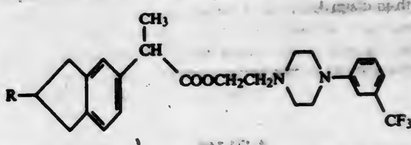
Claims priority, application France, Jul. 24, 1978, 78 21849; May 28, 1979, 79 13532

Int. Cl.[3] C07D *295/10*, *295/08*

U.S. Cl. 424—250 8 Claims

1. Indane esters of the formula (I):

(I)



in which R represents an ethyl or isopropyl group and their addition salts with acids.

5. A pharmaceutical composition comprising an analgesic effective amount of a compound claimed in claim 1 together with a pharmaceutically acceptable carrier.

4,271,162

ANTIVIRAL COMBINATIONS

Donald C. DeLong, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 49,671, Jun. 18, 1979, Pat. No. 4,210,647. This application Nov. 19, 1979, Ser. No. 95,804

Int. Cl.[3] A61K *31/495*, *31/13*

U.S. Cl. 424—250 1 Claim

1. A method of suppressing influenza virus infections in mammals which comprises administering by the oral route to a mammal exposed to influenza virus a virus-suppressing amount of a combination containing from 0.5–5 mg./kg. of ethyl 6,7-dichloro-4-dihydro-3-oxoquinoxaline carboxylate and from 0.3–3 mg./kg. of 1-aminoadamantane.

4,271,163

NOVEL 3,4-DIAZA-BICYCLO[4.1.0]HEPT-2-EN-5-ONES, THEIR PREPARATION, AND THERAPEUTIC AGENTS CONTAINING THESE COMPOUNDS

Marco Thyes, Ludwigshafen; Josef Gries, Wachenheim; Hans D. Lehmann, Hirschberg-Leutershausen; Dieter Lenke, Ludwigshafen, and Johannes Kunze, Triftern, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

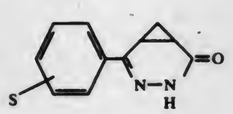
Filed Nov. 30, 1979, Ser. No. 98,854

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854475

Int. Cl.³ C07D 237/26; A61K 31/50

U.S. Cl. 424—250 17 Claims

1. A 2-aryl-3,4-diaza-bicyclo[4.1.0]hept-2-en-5-one of the formula I



(I)

where S is p-alkyl of 1 to 4 carbon atoms, p-cycloalkyl of 4 to 6 carbon atoms in the ring, p-alkoxy of 1 to 3 carbon atoms, p-phenyl, p-halogen, p- or m-amino, m-nitro, p- or m-cyano, p- or m-(pyrrol-1-yl) or p- or m-acylamino of the formula —NH-COR¹, where R¹ is hydrogen, alkyl of 1 to 8 carbon atoms, which is unsubstituted or substituted by from one to six halogen atoms, cycloalkyl of 3 to 8 carbon atoms in the ring, which is unsubstituted or substituted by from one to four halogen atoms and/or alkyl radicals of 1 to 4 carbon atoms, alkenyl of 2 to 8 carbon atoms or phenyl which is unsubstituted or substituted by alkyl of 1 to 3 carbon atoms, by alkoxy of 1 to 3 carbon atoms or by a halogen atom.

10. A therapeutic agent for reducing hypertension and inhibiting thrombocyte aggregation in mammals which consists essentially of a pharmaceutically acceptable carrier or diluent and as an active compound an effective amount of a compound set forth in claim 1.

4,271,164

6-SUBSTITUTED-ARYLPYRIDO[2,3-d]PYRIMIDIN-7-AMINES AND DERIVATIVES

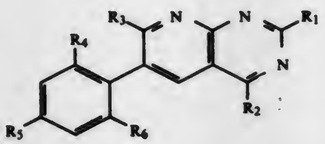
Clifton J. Blankley, Ann Arbor, and Lawrence R. Bennett, Chelsea, both of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 30,195, Apr. 16, 1979, abandoned. This application Mar. 11, 1980, Ser. No. 123,781

Int. Cl.³ C07D 471/04; A61K 31/495

U.S. Cl. 424—251 24 Claims

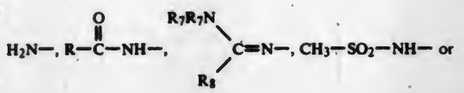
1. A compound having the formula

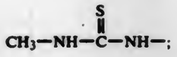


and pharmaceutically acceptable acid addition salts thereof;

-continued

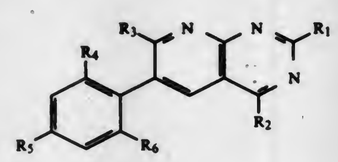
where R_1 and R_2 are hydrogen or alkyl; R_4 is halogen or alkyl; R_5 and R_6 are hydrogen, halogen, or alkyl; R_3 is



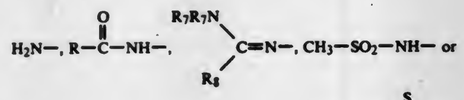


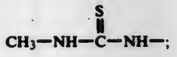
R is hydrogen, alkyl, haloalkyl, alkoxy, alkoxymethylene, mono- and dialkylamino, trifluoromethyl, furyl, pyridyl, or phenyl; R_7 is hydrogen or alkyl; R_8 is hydrogen or alkylamino; wherein alkyl and alkoxy have 1 to 3 carbon atoms; with the provisos that when R_3 is NH_2; R_2, R_5 and R_6 are hydrogen and (a) R_1 is hydrogen, R_4 is not chlorine; (b) R_1 is methyl, R_4 is not fluoro, iodo or ethyl; (c) R_1 is ethyl, R_4 is not chloro or methyl; when R_8 is hydrogen, R_7 is not hydrogen.

21. A pharmaceutical composition for treating hypertension in mammals comprising an effective amount of a compound having the formula:



or a pharmaceutically acceptable acid addition salt thereof; where R_1 and R_2 are hydrogen or alkyl; R_4 is halogen or alkyl; R_5 and R_6 are hydrogen, halogen or alkyl; R_3 is





R is hydrogen, alkyl, haloalkyl, alkoxy, alkoxymethylene, mono- and dialkylamino, trifluoromethyl, furyl, pyridyl or phenyl; R_7 is hydrogen or alkyl; and R_8 is hydrogen or alkylamino; wherein alkyl and alkoxy have 1 to 3 carbon atoms; with the privisos that when R_3 is NH_2; R_2, R_5 and R_6 are hydrogen and (a) R_1 is hydrogen, R_4 is not chlorine; (b) R_1 is methyl, R_4 is not fluoro, iodo or ethyl; (c) R_1 is ethyl, R_4 is not chloro or methyl; when R_8 is hydrogen, R_7 is not hydrogen.

4,271,165

Patent Not Issued For This Number

4,271,166

N-(1,3,4-THIADIAZOL-2-YL)BENZAMIDES

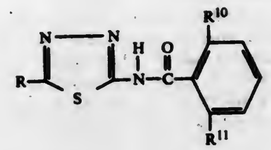
John S. Ward, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 824,687, Aug. 15, 1977, Pat. No. 4,141,984, which is a continuation-in-part of Ser. No. 760,166, Nov. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 656,552, Feb. 9, 1976, abandoned. This application Nov. 24, 1978, Ser. No. 963,659

Int. Cl.³ A01N 43/40; C07D 275/02, 417/04

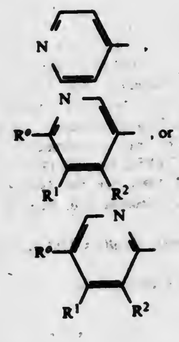
U.S. Cl. 424—263 11 Claims

1. A compound of formula



(I)

wherein R represents



wherein

R^0, R^1 and R^2 independently represent hydrogen, chloro or bromo, provided that at least one of R^0, R^1 and R^2 represents chloro or bromo;

R^{10} and R^{11} independently represent methyl or methoxy.

4,271,167

HYDROXYALKYL PYRID-2-YL DITHIOCARBAMATES, THEIR PREPARATION AND THEIR USE

Jean-Dominique Bourzat, Paris; Daniel Farge, Thiais; Andre Lage, Paris, and Gerard Pesnelle, Sucy-en-Brie, all of France, assignors to Rhone-Poulenc Industries, Paris, France

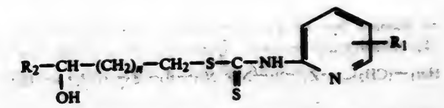
Filed Nov. 14, 1979, Ser. No. 94,208

Claims priority, application France, Nov. 16, 1978, 78 32308

Int. Cl.³ K61K 31/44; C07D 213/71

U.S. Cl. 424—263 9 Claims

1. A compound of the formula:



wherein R_1 represents a hydrogen atom and either

(1) n is equal to 0 and R_2 represents a hydrogen atom, a hydroxymethyl, methylthiomethyl or phenyl radical, or

(2) n is equal to 1 and R_2 represents a hydrogen atom or a phenyl radical; or R_1 represents a chlorine atom in the 5-position, n is equal to 0 or 1 and R_2 represents a hydrogen atom or a methyl, phenyl, fluorophenyl or methylphenyl radical, and when they exist, the optical isomers of the aforesaid compound.

8. A pharmaceutical composition useful as an anthelmintic comprising an effective amount of a compound as claimed in claim 1 in association with a compatible, pharmaceutically acceptable diluent or adjuvant.

4,271,168

SELECTED 3-ACYLAMINO-5-[4(OR 3)-PYRIDINYL]-2(1H)-PYRIDINONES

George Y. Lesher, and Chester J. Opalka, Jr., both of Rensselaer, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Dec. 26, 1979, Ser. No. 106,764

Int. Cl.³ A61K 31/44; C07D 213/57

U.S. Cl. 424—263 10 Claims

1. 3-Acylamino-5-[4-(or 3)-pyridinyl]-2(1H)-pyridinone, where acyl is 2-acetoxypropanoyl, acetoacetyl or acetoxyacetyl, or pharmaceutically-acceptable acid-addition salt thereof.

8. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering orally or parenterally in a solid or liquid dosage form to such patient an effective amount of a cardiotonic 3-acylamino-5-[4(or 3)-pyridinyl]-2(1H)-pyridinone, where acyl is 2-acetoxypropanoyl, acetoacetyl or acetoxyacetyl, or pharmaceutically-acceptable acid-addition salt thereof.

4,271,169

N-HETEROCYCLIC ALKYL-N'-PYRIDYL ALKYLTHIOUREAS, UREAS AND GUANIDINES

Graham J. Durant, and Clarke R. Ganellin, both of Welwyn Garden City, England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

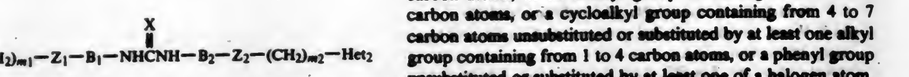
Division of Ser. No. 5,052, Jan. 22, 1979, Pat. No. 4,215,128, which is a division of Ser. No. 770,538, Feb. 22, 1977, Pat. No. 4,152,443, which is a division of Ser. No. 640,825, Dec. 15, 1975, Pat. No. 4,025,527, which is a continuation-in-part of Ser. No. 461,716, Jan. 21, 1974, abandoned. This application Dec. 28, 1979, Ser. No. 106,699

Claims priority, application United Kingdom, Jan. 13, 1978, 33428/73; Nov. 12, 1976, 46732/76

Int. Cl.³ A61K 31/44; C07D 401/12, 403/12, 413/12

U.S. Cl. 424—263 10 Claims

1. A compound of the formula:



wherein one of Het_1 and Het_2 is pyridine and the other is imidazole, thiazole, isothiazole, oxazole, isoxazole, triazole or thiadiazole, said Het_1 and Het_2 being optionally substituted by lower alkyl, hydroxyl, halogen or amino; Z_1 and Z_2 are sulphur or a methylene group; B_1 is $(CH_2)_{n1}$ and B_2 is $(CH_2)_{n2}$; m_1 and m_2 are 0, 1 or 2 and n_1 and n_2 are 2 or 3, provided that the sum of m_1 and n_1 and the sum of m_2 and n_2 are from 2 to 4; and X is sulphur, oxygen or NY wherein Y is hydrogen, cyano, $CONH_2$ or SO_2R_1 wherein R_1 is lower alkyl or phenyl, provided that when X is NH, at least one of Z_1 or Z_2 is sulphur, and that when X is NH the sum of m_1 and n_1 is 3 or 4 if Het_1 is imidazole and the sum of m_2 and n_2 is 3 or 4 if Het_2 is imidazole, or a pharmaceutically acceptable acid addition salt thereof.

10. A method of inhibiting H-2 histamine receptors which comprises administering to an animal in an effective amount to inhibit said receptors a compound of claim 1.

4,271,170

PYRIDINE DERIVATIVES

Tadao Tanouchi, Takatsuki; Masanori Kawamura, Ibaraki, and Masaki Hayashi, Takatsuki, all of Japan, assignors to Ono Pharmaceutical Co., Ltd., Osaka and Kissei Pharmaceutical Co., Ltd., Matsumoto, both of, Japan

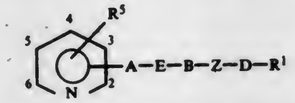
Filed Dec. 20, 1979, Ser. No. 105,672

Claims priority, application Japan, Dec. 28, 1978, 53/161966; Aug. 7, 1979, 54/100377

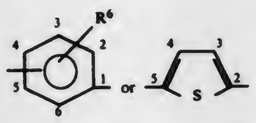
Int. Cl.³ A61K 31/44; C07D 213/55, 409/06

U.S. Cl. 424—263 76 Claims

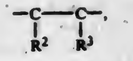
1. A pyridine derivative of the general formula



wherein A represents an alkylene group containing from 1 to 5 carbon atoms unsubstituted or substituted by a hydroxy group, B represents a single bond, or an akylene group containing from 1 to 5 carbon atoms, D represents a single bond, or an alkylene group containing from 1 to 5 carbon atoms, B represents a grouping of the formula:



in which R^6 represents a hydrogen atom, or an alkyl group containing from 1 to 4 carbon atoms, 2 represents a single bond, or an ethynylene group, or a grouping of the formula:



in which R^2 represents a hydrogen atom, or an alkyl group containing from 1 to 4 carbon atoms, R^3 represents a hydrogen, bromine or chlorine atom, or an alkyl group containing from 1 to 4 carbon atoms, the symbol ═ represents a single or double bond, the carbon atom attached to R^2 binds to B, and the carbon atom attached to R^3 binds, to D, R^1 represents a grouping of the formula: -$COOR^4$ or -$COSR^4$ in which R^4 represents a hydrogen atom, or an alkyl group containing from 1 to 12 carbon atoms, or an aralkyl group containing from 7 to 13 carbon atoms, or a cycloalkyl group containing from 4 to 7 carbon atoms unsubstituted or substituted by at least one alkyl group containing from 1 to 4 carbon atoms, or a phenyl group unsubstituted or substituted by at least one of a halogen atom, a trifluoromethyl group, an alkyl or alkoxy or alkylthio group, each containing from 1 to 4 carbon atoms, a nitro group or a phenyl group, R^5 represents a hydrogen atom, or an alkyl group containing from 1 to 4 carbon atoms, with the proviso that B, Z and D do not simultaneously each represent a single bond, and with the proviso that the pyridine ring is substituted by A at the 3- or 4-position thereof and non-toxic acid addition salts thereof and, when R^1 represents a carboxy or thiocarboxy group, non-toxic salts thereof.

76. A pharmaceutical composition which comprises, as an active ingredient, an effective amount of at least one pyridine derivative as claimed in claim 1 and a non-toxic acid addition salt thereof and, when R^1 represents a carboxy or thiocarboxy group, a non-toxic salt thereof, in association with a pharmaceutical carrier or coating.

4,271,171

AROYLUREAS

Annegrit Baumann, Mannheim; Karl Kiehs, Lampertheim; Heinrich Adolphi, Limburgerhof, and Karl-Heinz Koenig, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 71,552, Aug. 30, 1979. This application May 2, 1980, Ser. No. 146,091

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1978, 2839462

Int. Cl.³ A01N 46/40; C07D 213/82, 333/38

U.S. Cl. 424—266 3 Claims

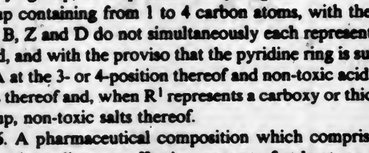
1. An aroylurea of the formula



I,

where A denotes a thienyl or pyridyl-3 radical which is mono- or polysubstituted by halogen, linear or branched alkyl of 1 to 4 carbon atoms, or linear or branched alkoxy of 1 to 4 carbon atoms, R denotes linear or branched alkyl of 1 to 4 carbon atoms or linear or branched alkoxy of 1 to 4 carbon atoms, and n denotes one of the integers 0,1 and 2.

3. A process for combating insects and mites, wherein an effective amount of an aroylurea of the formula



I,

where A denotes a phenyl, thienyl or pyridyl-3 radical which is mono- or polysubstituted by halogen, linear or branched alkyl of 1 to 4 carbon atoms, or linear or branched alkoxy of 1 to 4 carbon atoms, R denotes linear or branched alkyl of 1 to 4 carbon atoms or linear or branched alkoxy of 1 to 4 carbon atoms, and n denotes one of the integers 0,1 and 2, is allowed to act on the insects or mites, or on their habitat.

4,271,172

6-AMINO-SPIRO[PENAM-2,4'-PIPERIDINE]-3-CARBOXYLIC ACIDS, ANTIBACTERIAL COMPOSITIONS THEREOF AND METHOD OF USE THEREOF

Ludovic Rodrigues, Brussels; Jacques Leclercq, Braine l'Alleud; Pierre Ykman, and Eric Cassiman, both of Brussels, all of Belgium, assignors to U C B Societe Anonyme, Saint-Gilles-lez-Bruxelles, Belgium

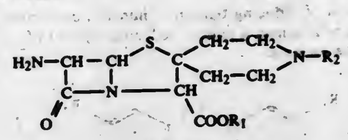
Filed Jun. 24, 1980, Ser. No. 162,616

Claims priority, application United Kingdom, Jun. 25, 1979, 22054/79

Int. Cl.³ C07D 499/76; A61K 31/43; C07D 499/74, 499/58

U.S. Cl. 424—267 6 Claims

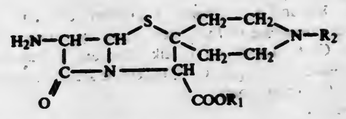
1. A 6-amino-spiro[penam-2,4'-piperidine]-3-carboxylic acid of the formula



(I)

wherein R_1 is a hydrogen atom, benzyl or an alkali metal or ammonium ion and R_2 is a methyl, phenyl or benzyl or a pharmaceutically acceptable acid addition salt thereof.

6. A method of treating infectious diseases caused by Gram-positive and Gram-negative bacteria in warm-blooded animals, which comprises administering to said animals an antibacterially effective amount of a 6-amino-spiro[penam-2,4'-piperidine]-3-carboxylic acid of the formula



wherein R_1 is a hydrogen atom, benzyl or an alkali metal or ammonium ion and R_2 is a methyl, phenyl or benzyl radical or a pharmaceutically acceptable acid addition salt thereof.

4,271,173

6-AMINO-SPIRO[PENAM-2,4'-PIPERIDINE]-3-CARBOXYLIC ACID, ANTIBACTERIAL COMPOSITIONS THEREOF AND METHOD OF USE THEREOF

Ludovic Rodrigues, Brussels; Jacques Leclercq, Braine l'Alleud; Pierre Ykman, and Eric Cassiman, both of Brussels, all of Belgium, assignors to U C B, Societe Anonyme, Saint-Gilles-lez-Brussels, Belgium

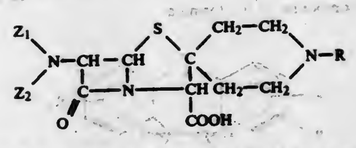
Filed Jun. 24, 1980, Ser. No. 162,615

Claims priority, application United Kingdom, Jun. 25, 1979, 22055/79

Int. Cl.³ C07D 499/32; A61K 31/425, 31/43

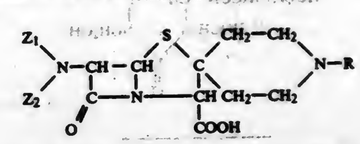
U.S. Cl. 424—267 10 Claims

1. A 6-amino-spiro[penam-2,4'-piperidine]-3-carboxylic acid having the formula



wherein R is a methyl, phenyl or benzyl, Z_1 is a hydrogen atom and Z_2 is a radical selected from the group consisting of phenylacetyl, 2-amino-2-phenylacetyl, 5-methyl-3-phenyl-4-isoxazolecarbonyl and 2,6-dimethoxybenzoyl, or Z_1 and Z_2 together represent (hexahydro-1H-azepin-1-yl)methylene, or a therapeutically acceptable non-toxic salt thereof.

10. A method of treating infectious diseases caused by Gram-positive and Gram-negative bacteria in warm-blooded animals, which comprises administering to said animals an antibacterially effective amount of a 6-amino-spiro[penam-2,4'-piperidine]-3-carboxylic acid of the formula



wherein R is a methyl, phenyl or beazyl, Z_1 is a hydrogen atom and Z_2 is a radical selected from the group consisting of phenylacetyl, 2-amino-2-phenylacetyl, 5-methyl-3-phenyl-4-isoxazolecarbonyl and 2,6-dimethoxybenzoyl, or Z_1 and Z_2 together represent (hexahydro-1H-azepin-1-yl)methylene, or a therapeutically acceptable non-toxic salt thereof.

4,271,174

CONTROL OF SHIPPING FEVER

David R. Bright, and Robert D. Williams, both of Terre Haute, Ind., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed May 29, 1980, Ser. No. 154,551

Int. Cl.³ A61K 31/42

U.S. Cl. 424—272 3 Claims

1. A method for therapeutically treating mammals for the bacterial aspects of shipping fever caused by Pasteurella species, during incubation or during the symptomatic phase comprising parenterally administering to the mammal cycloserine in a dose sufficient to alleviate symptoms of shipping fever.

4,271,175

METHOD OF USING 2-[N-(2,6-DICHLORO-PHENYL)-N-ALLYL-AMINO]-2-IMIDAZOLINE AND SALTS THEREOF AS BRADYCARDIACS

Helmut Stilbe; Herbert Kläpe; Werner Kummer, all of Ingelheim am Rhein; Dietrich Arndts, Appenheim, all of Fed. Rep. of Germany; Walter Kobinger, Vienna, Austria; Christian Lillie, Vienna, Austria, and Ludwig Pichler, Vienna, Austria, assignors to Boehringer Ingelheim GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,966

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1979, 2831190

Int. Cl.³ A61K 31/415

U.S. Cl. 424—273 R 2 Claims

1. The method of slowing the heart rate of a warm-blooded animal in need thereof, which comprises perorally or parenterally administering to said animal an effective bradycardiac amount of 2-[N-(2,6-dichloro-phenyl)-N-allyl-amino]-2-imidazoline or a non-toxic, pharmacologically acceptable acid addition salt thereof.

4,271,176

N-(HYDROXYMETHYL)-N-(1,3-DIHYDROXYMETHYL-2,5-DIOXO-4-IMIDAZOLIDINYL)-N'-(HYDROXYMETHYL)UREA USED AS A PRESERVATIVE AGENT

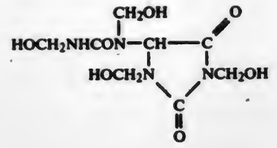
Philip A. Berke, Madison, and William E. Rosen, Summit, both of N.J., assignors to Sutton Laboratories, Inc., Chatham, N.J.

Filed Aug. 28, 1979, Ser. No. 70,502

Int. Cl.³ A61K 31/415

U.S. Cl. 424—273 R 2 Claims

1. A method of protecting a product susceptible to microbial contamination by yeast and/or mold, comprising incorporating in said product an effective amount of a condensation product of formaldehyde and allantoin in the proportion of four moles of formaldehyde to one mole of allantoin, having the structural formula:



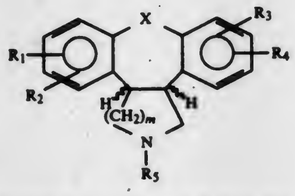
4,271,177

2,3,3A,12B-TETRAHYDRO-1H-DIBENZO[2,3;6,7]-THIEPINO[4,5-C]PYRROLES AND PHARMACEUTICAL USE THEREOF

Willem J. van der Burg, Heesch, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.

Division of Ser. No. 798,222, May 18, 1977, Pat. No. 4,145,434.
This application Jun. 26, 1978, Ser. No. 918,981
Claims priority, application Netherlands, May 24, 1976, 7605526
Int. Cl.³ A61K 31/38; C07D 409/02
U.S. Cl. 424—274 27 Claims

1. A compound of the formula:



or a pharmaceutically acceptable non-toxic salt or nitrogen oxide thereof, wherein:

R_1, R_2, R_3, and R_4 each represent a member selected from the group consisting of hydrogen, hydroxy, halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, and trifluoromethyl;

R_5 represents hydrogen, C_1–C_6 alkyl or aralkyl having from 7 to 10 carbon atoms;

X represents sulfur;; and

m represents the number 1.

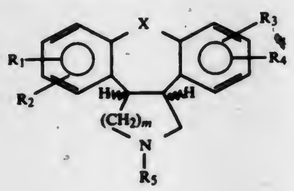
4,271,178

1,2,3,3A,8,12B-HEXAHYDRO-DIBENZO[B,F]PYRROLO[3,4-D]AZEPINES AND PHARMACEUTICAL USE THEREOF

Willem J. van der Burg, Heesch, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.

Division of Ser. No. 798,222, May 18, 1977, Pat. No. 4,134,434.
This application Jun. 26, 1978, Ser. No. 919,196
Claims priority, application Netherlands, May 24, 1976, 7605526
Int. Cl.³ A61K 31/55; C07D 403/02
U.S. Cl. 424—274 27 Claims

1. A compound of the formula:



or a pharmaceutically acceptable non-toxic salt or nitrogen oxide thereof, wherein;

R_1, R_2, R_3, and R_4 each represent a member selected from the group consisting of hydrogen, hydroxy, halogen, C_1–C_6 alkyl, C_1–C_6 alkylthio, and trifluoromethyl;

R_5 represents hydrogen, C_1–C_6 alkyl or aralkyl having from 7 to 10 carbon atoms;

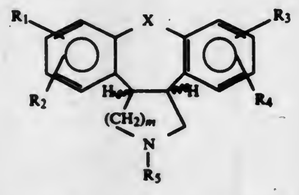
X represents



wherein R_6 is a hydrogen or C_1–C_6 alkyl; and

m represents the number 1.

27. Method of reducing tension in humans, comprising administering to a human a tension reducing amount of a compound of the formula:



or a pharmaceutically acceptable non-toxic salt or nitrogen oxide thereof; wherein:

R_1, R_2, R_3, and R_4 represent a member selected from the group consisting of hydrogen, hydroxy, halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, and trifluoromethyl;

R_5 represents hydrogen, C_1–C_6 alkyl or aralkyl having from 7 to 10 carbon atoms;

X represents



wherein R_6 is a hydrogen or C_1–C_6 alkyl; and

m represents the number 1.

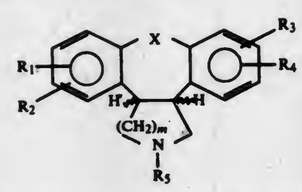
4,271,179

1,2,3,3 a,8,12b-HEXAHYDRO-DIBENZO[1,2;5,6]CYCLOHEPTA[3,4-c]PYRROLES AND PHARMACEUTICAL USE THEREOF

Willem J. van der Burg, Heesch, Netherlands, assignor to Akzona Incorporated, Asheville, N.C.

Division of Ser. No. 798,222, May 18, 1977, Pat. No. 4,145,434.
This application Jun. 26, 1978, Ser. No. 923,606
Claims priority, application Netherlands, May 24, 1976, 7605526
Int. Cl.³ A61K 31/40; C07D 209/94
U.S. Cl. 424—274 30 Claims

1. A compound of the formula



or a pharmaceutically acceptable non-toxic salt or nitrogen oxide thereof,

R_1, R_2, R_3, and R_4 each represent a member selected from

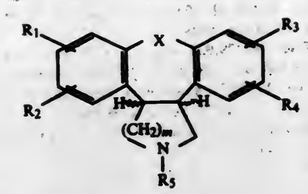
the group consisting of hydrogen, hydroxy, halogen C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, and trifluoromethyl;

R_5 represents hydrogen, C_1–C_6 alkyl or aralkyl having from 7 to 10 carbon atoms;

X represents $—CH_2—$; and

m represents the number 1.

30. Method of reducing tension in humans, comprising administering to a human a tension reducing amount of a compound of the formula:



or a pharmaceutically acceptable non-toxic salt or nitrogen oxide thereof;

wherein:

R_1, R_2, R_3, and R_4 represent a member selected from the group consisting of hydrogen, hydroxy, halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio, and trifluoromethyl;

R_5 represents hydrogen, C_1–C_6 alkyl or aralkyl having from 7 to 10 carbon atoms;

X represents CH_2; and

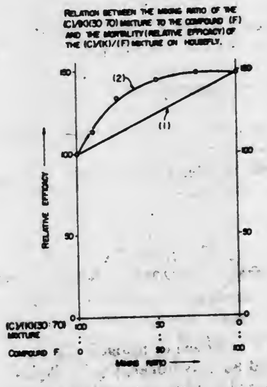
m represents the number 1.

4,271,180

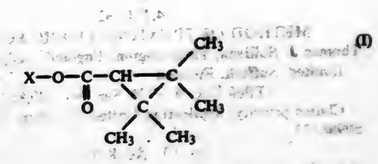
SYNERGISTIC MIXTURE OF THREE PYRETHROID SERIES INSECTICIDAL COMPOUNDS

Takashi Yamaguchi, Nishinomiya; Goro Shinjo, and Yoshitoshi Okuno, both of Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 17, 1979, Ser. No. 58,159
Claims priority, application Japan, Jul. 19, 1978, 53/88854
Int. Cl.³ A01N 43/36, 43/08, 37/00, 37/08
U.S. Cl. 424—274 12 Claims

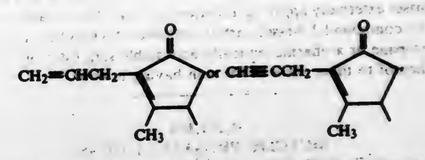


1. An insecticidal composition which contains an inert carrier and, as active ingredient, an insecticidally effective amount of a mixture comprising a pyrethroid series compound of the formula (I),

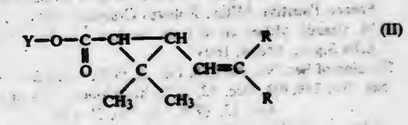


(I)

wherein X is

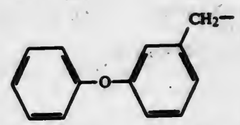


a pyrethroid series compound of the formula (II),

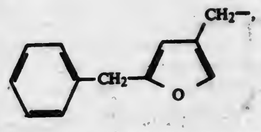


(II)

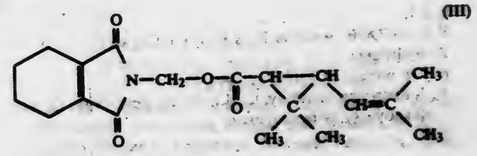
wherein when Y is



R is a methyl group or chlorine atom, and when Y is



R is a methyl group, and a pyrethroid series compound of the formula (III),



(III)

wherein a mixture of (I) and (III) in a ratio of 95:5 to 5:95 is mixed with (II) in a ratio of 90:10 to 40:60.

4,271,181

SYNERGISTIC INSECTICIDAL COMBINATIONS COMPRISING ENDOSULFAN AND 2-DIHALOVINYL-3,3-DIMETHYLCYCLOPROPANECARBOXYLATES

Paul H. Eastburg, Cherry Hill, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Dec. 22, 1976, Ser. No. 753,040
Int. Cl.³ A01N 43/24, 37/00, 37/08, 37/06
U.S. Cl. 424—276 8 Claims

1. A synergistic insecticidal composition consisting essentially of about 10 parts endosulfan per 1 part 3-phenoxybenzyl 2-(2,2-dichlorovinyl)-3,3-dimethylcyclopropanecarboxylate.

4,271,182
METHOD OF TREATING ATOPIC ECZEMA

Thomas J. Sullivan, Thrussington, England, assignor to Fisons Limited, Suffolk, England

Filed Dec. 9, 1974, Ser. No. 530,853
Claims priority, application United Kingdom, Dec. 19, 1973, 58986/73
Int. Cl.³ A61K 31/35
U.S. Cl. 424—283 1 Claim

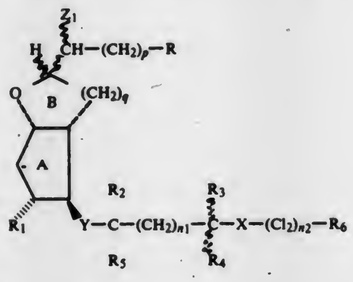
1. A method for treating atopic eczema in man which comprises externally applying a therapeutically effective amount of the compound 1,3-bis(2-carboxychromon-5-yloxy)-2-hydroxypropane or a pharmaceutically acceptable salt, ester or amide thereof to those areas of the skin having eczema.

4,271,183
BICYCLIC PROSTAGLANDINS

Carmelo Gandolfi, Milan; Carlo Passarotti, Gallarate; Alessandro Andreoni, Cologno Monzese; Angelo Fumagalli, Monza; Franco Faustini, Milan; Roberto Ceserani, Milan, and Maria M. Usardi, Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

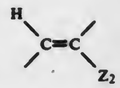
Division of Ser. No. 965,268, Dec. 1, 1978, which is a division of Ser. No. 859,703, Dec. 12, 1977, abandoned. This application Apr. 13, 1979, Ser. No. 29,924
Claims priority, application Italy, Dec. 31, 1976, 31401 A/76; Jan. 14, 1977, 19283 A/77; Mar. 14, 1977, 21171 A/77; Mar. 21, 1977, 21412 A/77; Mar. 31, 1977, 21863 A/77
Int. Cl.³ A61K 31/557; C07D 307/935
U.S. Cl. 424—285 18 Claims

1. A compound of formula (I)



(I)

where
q is 1;
R is —COOR$_c$ wherein R$_c$ is H or C$_1$–C$_{12}$ alkyl;
Z$_1$ hydrogen;
p is an integer of 1 to 7;
R$_1$ is hydrogen, hydroxy, C$_1$–C$_6$ alkoxy, benzyloxy, C$_2$–C$_{12}$ alkanoyloxy or benzoyloxy;
Y is



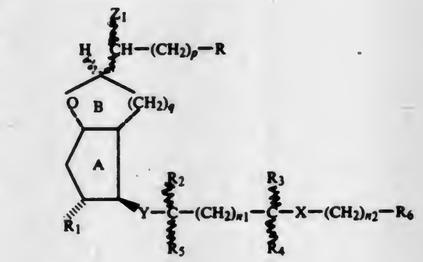
(trans), wherein Z$_2$ is halogen; one of R$_2$ and R$_5$ is hydrogen, C$_1$–C$_6$ alkyl, C$_2$–C$_6$ alkenyl,
C$_2$–C$_6$ alkynyl or phenyl, α-naphthyl or β-naphthyl, and the other is hydroxy, C$_1$–C$_6$ alkoxy, or benzyloxy; each of R$_3$ and R$_4$, which are the same or different, may be hydrogen, C$_1$–C$_6$ alkyl or fluorine;
n$_1$ is zero;
n$_2$ is zero or an integar of 1 to 6;
X is —(CH$_2$)$_m$—, wherein
m is zero or 1;
R$_6$ is:
(a') hydrogen; or
(b') methyl
and the pharmaceutically or veterinarily acceptable salts thereof.

4,271,184
BICYCLIC PROSTAGLANDINS

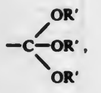
Carmelo Gandolfi, Milan; Carlo Passarotti, Callarate; Alessandro Andreoni, Cologne Monzese; Angelo Fumagalli, Monza; Franco Faustini, Milan; Roberto Ceserani, Milan, and Maria M. Usardi, Milan, all of Italy, assignors to Farmitalia Carlo Erba S.p.A., Milan, Italy

Division of Ser. No. 29,921, Apr. 13, 1979, which is a division of Ser. No. 920,166, Jun. 29, 1978, which is a division of Ser. No. 859,703, Dec. 12, 1977, abandoned. This application Nov. 30, 1979, Ser. No. 98,963
Claims priority, application Italy, Dec. 31, 1976, 31041 A/76; Jan. 14, 1977, 19283 A/77; Mar. 14, 1977, 21171 A/77; Mar. 21, 1977, 21412 A/77; Mar. 21, 1977, 21863 A/77
Int. Cl.³ A61K 31/557; C07D 307/935
U.S. Cl. 424—285 21 Claims

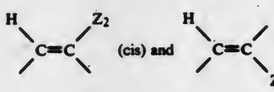
1. A compound of formula (I)



wherein
R is a member selected from the group consisting of (a) —COOR$_c$ wherein R$_c$ is hydrogen, C$_1$–C$_{12}$ alkyl or C$_2$–C$_{12}$ alkenyl; or
(b)



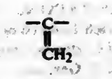
wherein each of the R' groups, which are the same or different, is C$_1$–C$_6$ alkyl or phenyl;
Z$_1$ is hydrogen or halogen;
p is zero or an integer of 1 to 7;
q is 1;
R$_1$ is hydrogen, hydroxy, C$_1$–C$_6$ alkoxy, benzyloxy, C$_2$–C$_{12}$ alkanoyloxy or benzoyloxy;
Y is a member selected from the group consisting of —CH$_2$—CH$_2$—, —C≡C—,



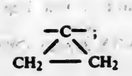
(cis) and

(trans),

wherein Z$_2$ is hydrogen or halogen;
one of R$_2$ and R$_5$ is hydrogen, C$_1$–C$_6$ alkyl, C$_2$–C$_6$ alkenyl, C$_2$–C$_6$ alkynyl or phenyl, α-naphthyl or β-naphthyl, and the other is hydroxy, C$_1$–C$_6$ alkoxy, benzyloxy, or R$_2$ and R$_5$, taken together, form an oxo group;
each of R$_3$ and R$_4$, which are the same or different, may be hydrogen, C$_1$–C$_6$ alkyl or fluorine or R$_3$ and R$_4$, taken together, with the carbon atom to which they are linked, form the radical



or the radical



each of n$_1$ and n$_2$, which are the same or different, is zero or an integer of 1 to 6;
X is a member selected from the group consisting of —O—, —S— and —(CH$_2$)$_m$—, wherein m is zero or 1;
R$_6$ is a saturated or unsaturated pentatomic heteromonocyclic ring containing one oxygen atom, or a heterobicyclic ring containing one oxygen atom selected from the group consisting of 2-oxa-bicyclo [3.3.0] octyl, 2-oxa-bicyclo [3.4.0] nonyl and their aromatic analogs, said heteromonocyclic and heterobicyclic rings being unsubstituted or substituted by one or more substituents selected from the group consisting of halogen, halo-C$_1$–C$_6$-alkyl, C$_1$–C$_6$ alkyl and C$_1$–C$_6$ alkoxy, and the pharmaceutically or veterinarily accepted salts thereof.

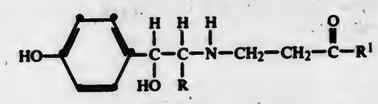
14. A pharmaceutical or veterinary composition, suitable for use as an anti-aggregating agent, said composition comprising a therapeutically effective amount of a compound as claimed in claim 5, 6, 7, 8, 9, 10 or 11, and a pharmaceutically and/or veterinarily acceptable carrier and/or diluent.

4,271,185
HETEROCYCLYL 2-(2-(4-HYDROXYPHENYL)-2-HYDROXY-1-METHYL)ETHYLAMINO)ETHYL KETONES AS LIPOGENESIS INHIBITORS

George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 25, 1980, Ser. No. 115,464
Int. Cl.³ A61K 31/34, 31/38
U.S. Cl. 424—285 1 Claim

1. A method of inhibiting lipogenesis in a mammal, which comprises administering, to a mammal in need of said treatment, orally or parenterally a lipogenesis inhibiting effective amount of a compound of the formula:



(I)

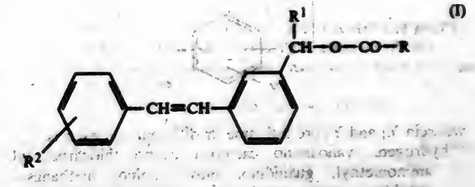
wherein R is methyl and R^1 is furanyl or benzofuranyl or their physiologically acceptable acid addition salts.

4,271,186
STILBENE COMPOUNDS AND INSECTICIDAL/ACARICIDAL COMPOSITIONS

Heinz Förster; Rainer Fuchs, both of Wuppertal; Ingeborg Hammann, Cologne, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

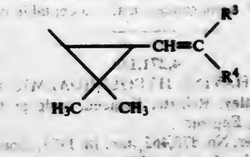
Filed Jun. 29, 1979, Ser. No. 53,562
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832213
Int. Cl.³ A01N 37/34, 53/00; C07C 69/743, 121/66
U.S. Cl. 424—304 13 Claims

1. Stilbene compound of the formula



(I)

wherein
R is the radical



wherein
R^1 is hydrogen, cyano or ethynyl;
R^2 is hydrogen, halogen or alkyl;
R^3 is hydrogen, methyl, chlorine or bromine; and
R^4 is methyl, chlorine, bromine or optionally halogen-substituted phenyl,
or wherein
R^3 and R^4 together are C$_2$–C$_6$-alkanediyl.

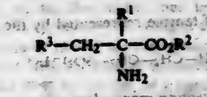
13. A method of combating arthropods which comprises applying to the arthropods or their habitat a stilbene compound, in an effective amount, and wherein said compound is selected from
2,2-dimethyl-3-dichlorovinylcyclopropanecarboxylic acid 3'-(2-phenylvinyl)-benzyl ester
2,2-dimethyl-3-dibromovinyl-cyclopropanecarboxylic acid 3'-(2-phenylvinyl)-benzyl ester,
2,2-dimethyl-3-dichlorovinyl-cyclopropanecarboxylic acid 3'-(2-phenylvinyl)-alpha-cyano-benzyl-ester
2,2-dimethyl-3-dibromovinyl-cyclopropanecarboxylic acid 3'-(2-phenylvinyl)alpha-cyanobenzyl ester, and alpha-isopropyl-4-tricfuoromethoxy-acetic acid 3-(2-phenylvinyl)-alpha-cyanobenzyl ester.

4,271,187
SUBSTITUTED PHENYL ALANINE ANTIHYPERTENSIVE AGENTS

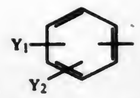
Joseph G. Atkinson, Montreal; Clarence S. Rooney, Beaconsfield; Yves Girard, Dollard Des Ormeaux, all of Canada, and Edward L. Engelhardt, Gwynedd Valley, Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 912,593, Jun. 5, 1978, Pat. No. 4,206,216, which is a division of Ser. No. 828,843, Aug. 16, 1977, Pat. No. 4,153,715, which is a division of Ser. No. 667,827, Feb. 13, 1976, Pat. No. 4,065,572. This application Sep. 18, 1979, Ser. No. 76,650
Int. Cl.³ A61K 31/24; C07C 79/46, 125/04, 101/30
U.S. Cl. 424—309 5 Claims

1. A compound of the formula



wherein R^2 is hydrogen and R^1 is lower alkyl and R^3 is a substituted benzene ring of the formula



wherein Y_1 and Y_2 are the same or different and each is hydrogen, cyanoamino, carboxyl, cyano, thiocarbamoyl, aminomethyl, guanidino, nitro, amino, methanesulfonyloxy or carboxymethoxy, provided that Y_1 and Y_2 are not both hydrogen.

2. A composition for treating hypertension comprising a therapeutically effective amount of a compound of claim 1 in combination with a pharmaceutically acceptable carrier.

4,271,188

COMPOUNDS HAVING HYPOLIPIDAEMIC ACTIVITY

Richard M. Hindley, Reigate, England, assignor to Beecham Group Limited, England

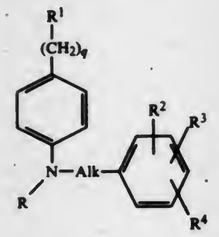
Continuation of Ser. No. 870,462, Jan. 18, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,418

Claims priority, application United Kingdom, Jan. 22, 1977, 2659/77

Int. Cl.³ A61K *31/245, 31/24;* C07C *101/447, 101/60*

U.S. Cl. 424—309 20 Claims

1. A compound of formula (II):



(II)

wherein

R^1 represents carboxylic acid or a salt or ester thereof;

q is zero or an integer from 1 to 12;

Alk represents straight or branched chain alkylene;

R^2 and R^3 are the same or different and each is hydrogen, halogen, C_{1-8} alkyl, C_{1-8} alkoxy;

R^4 is hydrogen, halogen, C_{1-8} alkoxy, hydroxy or acylamino, or any two of groups R^2, R^3, R^4 represent a fused benzene ring; and R is methyl.

17. A pharmaceutical composition for the treatment or control of hyperlipidaemia comprising a pharmaceutically acceptable carrier together with a hypolipidaemically effective amount of a compound as claimed in claim 1.

4,271,189

LITHIUM DERIVATIVES OF TAURINE HAVING REINFORCED NEURO-MUSCULAR ACTIVITY

Jean P. Durlach, Paris, France, assignor to Les Laboratoires Meram, Paris, France

Continuation-in-part of Ser. No. 888,202, Mar. 20, 1978, Pat. No. 4,199,601. This application Dec. 14, 1979, Ser. No. 103,729

Claims priority, application France, Mar. 23, 1977, 77 08692

Int. Cl.³ C07C *143/155;* A61K *31/195*

U.S. Cl. 424—315 6 Claims

1. A derivative of taurine represented by the formula:

$$(CH_3—CO—NH—CH_2—CH_2—SO_3)^-Li^+.$$

6. A method of treating manic-depressive psychosis by administering an effective amount of a compound as recited in claim 1.

4,271,190

GUANIDINIUM SALTS, PROCESSES FOR THEIR MANUFACTURE AS WELL AS MICROBICIDAL PREPARATIONS CONTAINING THESE COMPOUNDS

Günter Bertelmann; Ulrich Holtschmidt, and Arnold Laqua, all of Essen, Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

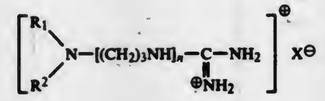
Continuation of Ser. No. 16,409, Mar. 1, 1979, abandoned. This application Apr. 17, 1980, Ser. No. 141,184

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1978, 2808943

Int. Cl.³ A61K *31/205;* C07C *129/12*

U.S. Cl. 424—316 14 Claims

1. A compound having the formula



in which the substituents

R^1 and R^2 are the same or different and represent linear alkyl residues with 8 to 16 carbon atoms,

X is an anion, and

n is 1 or 2.

13. A microbicidal preparation containing a microbicidally effective amount of the compound of claim 1 and a carrier therefor.

14. A method for sterilizing a substrate comprising applying a microbicidally effective amount of a composition composed of the compound of claim 1 and a carrier therefor.

4,271,191

METHOD OF TREATING HYPERURICEMIA AND GOUT

France Mazoyer, Castres, France, assignor to Pierre Fabre S.A., Paris, France

Filed Dec. 19, 1979, Ser. No. 105,420

Int. Cl.³ A61K *31/19, 31/505, 31/165*

U.S. Cl. 424—317 7 Claims

1. A method for the treatment of hyperuricemia which comprises orally administering to a hyperuricemic subject in need thereof an effective hypouricemic amount of a compound selected from the group consisting of 2-methylene 4-oxo 4-(4'-ortho-chlorophenylphenyl)-butyric acid and a therapeutically-acceptable salt thereof.

4,271,192

PROCESS FOR TREATMENT AND PREVENTION OF VENTRICULAR FIBRILLATION

Richard J. Wurtman, Boston, and Bernard Lown, Chestnut Hill, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Feb. 19, 1980, Ser. No. 122,422

Int. Cl.³ A61K *31/195, 31/49, 31/44, 31/415*

U.S. Cl. 424—319 2 Claims

1. The process for reducing the risk of ventricular fibrillation in an animal having a condition associated with ventricular fibrillation which comprises administering tyrosine to said animal in an amount effective to reduce the risk of ventricular fibrillation.

4,271,193

N1-BENZOYL-N2-PHENYLDIAMINOPROPANOLS AND PHARMACEUTICAL COMPOSITIONS THEREOF, AND PROCESSES FOR THEIR PREPARATION

Hans Liepmann; Rolf Haeschen, both of Hanover; Wolfgang Milkowski, Burgdorf; Horst Zeugner; Henning Heinemann, both of Hanover; Klaus-Ulrich Wolf, Hoenigsen; Inos Heil, and Reinhard Hempel, both of Hanover, all of Fed. Rep. of Germany, assignors to Kali-Chemie Pharma GmbH, Hanover, Fed. Rep. of Germany

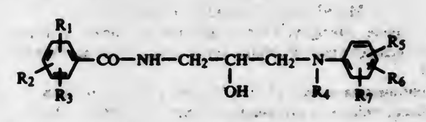
Filed Jan. 22, 1979, Ser. No. 51,227

Claims priority, application Fed. Rep. of Germany, Jan. 24, 1978, 2827801

Int. Cl.³ A61K *31/335, 31/36, 31/165*

U.S. Cl. 424—324 24 Claims

1. A method for treating and prophylaxis of acute and chronic gastritis in larger mammals, which comprises the step of orally administering to a larger mammal an effective amount of at least one compound said compound being selected from the group of N_1-benzoyl-N_2-phenyl-1,3-diaminopropan-2-ols having the formula I



I

wherein

R_1, R_2 and R_3 are the same or different from each other and each represents hydroxy, benzyloxy, chlorbenzyloxy or alkoxy containing 1 to 4 carbon atoms, or

R_1 is as defined above and R_2 and R_3 together represent methylenedioxy and ethylenedioxy, or

R_1 and R_2 represent methoxy and R_3 represents allyloxy or propargyloxy;

R_4 represents hydrogen, alkyl containing 1 to 4 carbon atoms, β-hydroxytehyl, or β-methoxyethyl, and

R_5, R_6 and R_7 are the same or different from each other and R_5 and R_6 each represents hydrogen, fluorine, chlorine, bromine, iodine, alkyl containing 1 to 4 carbon atoms, or alkoxy containing 1 to 4 carbon atoms; or

R_5 and R_6 together represent methylenedioxy or ethylenedioxy, and R_7 represents hydrogen, fluorine, chlorine, bromine, iodine, alkyl containing 1 to 4 carbon atoms, alkoxy containing 1 to 3 carbon atoms, trifluoromethyl or nitro;

with the proviso that if R_1, R_2 and R_3 each represents methoxy and is situated in 3, 4 and 5 position and R_4 is methyl, no more than 2 of the substituents R_5, R_6 and R_7 represent hydrogen,

and pharmaceutically acceptable salts thereof.

4,271,194

SEDATIVE COMPOSITIONS CONTAINING (3,4-DICHLOROPHENYLSULPHINYL)-ACETAMIDOXIME AND ITS ADDITION SALTS AND METHOD OF USE

Victor Lafon, Paris, France, assignor to Laboratoire L. Lafon, Maisons-Alfort, France

Continuation of Ser. No. 899,860, Apr. 25, 1978, abandoned. This application Jun. 13, 1979, Ser. No. 48,179

Claims priority, application France, Apr. 29, 1977, 77 13043

Int. Cl.³ A61K *31/155;* C07C *123/00*

U.S. Cl. 424—326 2 Claims

1. A therapeutic sedative composition useful in the treatment of aggressiveness which contains, together with a physiologically acceptable excipient, at least one compound chosen from (3,4-dichlorophenyl-sulphinyl)-acetamidoxime and its pharmaceutically acceptable acid addition salts.

4,271,195

CERTAIN N-(β-PHENYL-β-HYDROXYETHYLAMINO)PROPIOPHENONES AS LIPOLYSIS PROMOTERS

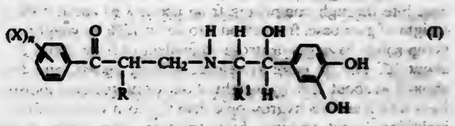
Hugh H. Keasling, Modesto, Calif., assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 14, 1980, Ser. No. 111,735

Int. Cl.³ A61K *31/135*

U.S. Cl. 424—330 2 Claims

1. A method of promoting lipolysis in swine which comprises administering, to a pig in need of such treatment, orally or parenterally, an effective dosage of a compound of the formula:



(I)

wherein n is zero, one or two, X is hydroxy, alkoxy of from one to four carbon atoms, chlorine or nitro, and R and R^1 each is hydrogen or methyl, and their physiologically acceptable acid addition salts.

4,271,196

PHARMACEUTICAL COMPOSITIONS FOR PARENTERAL OR LOCAL ADMINISTRATION

Dieter Schmidt, Basel, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 16, 1979, Ser. No. 94,813

Claims priority, application Switzerland, Nov. 21, 1978, 11921/78

Int. Cl.³ A61K *31/685, 47/00*

U.S. Cl. 424—358 7 Claims

1. An aqueous colloidal composition which comprises a combination of dihexanoyl lecithin and non-hemolytic lipid selected from the group consisting of egg lecithin, soya lecithin, dipalmitoyl lecithin, dimyristoly lecithin, phosphatidyl inositol, monoolein and monolinolein, wherein the concentration of the combination ranges from about 50 mg per ml to about 200 mg per ml of the aqueous colloidal composition and wherein the mole ratio of dihexanoyl lecithin to non-hemolytic lipid ranges from about 1:3 to about 1:1.

4,271,197

CHEWING GUM CONTAINING SUGAR SUBSTITUTE

Walter Hopkins, 175 Hobart Ave., Greenwich, Conn. 06830; Dominick R. Friello, King St., Danbury, Conn. 06810; Subramaan R. Cherukuri, 3 Mendes Rd., Danbury, Conn. 06810; Raymond L. Roy, 38 Grammer School Dr., Danbury, Conn. 06810, and Donald A. M. Mackay, 135 Deerfield La., Pleasantville, N.Y. 10570

Filed Jun. 21, 1979, Ser. No. 50,573

Int. Cl.³ A23G *3/30*

U.S. Cl. 426—3 20 Claims

1. A chewing gum having improved softness retention and flexibility and excellent extrudability consisting essentially of from about 8 to about 50% by weight of gum base, from about 2 to about 70% by weight of a hydrogenated starch hydrolysate the solids portion of which comprises from about 4 to about 20% sorbitol, from about 5 to about 65% hydrogenated disaccharides, from about 15 to about 75% tri- to hepta-hydrogenated saccharides, and from about 10 to about 65% hydrogenated saccharides higher than hepta, and further including from 0 to about 85% by weight sorbitol in addition to said sorbitol present in said hydrogenated starch hydrolysate, from 0 to about 20% by weight mannitol, optionally xylitol, from 0 to about 90% by weight of a natural sugar, optionally artificial sweeteners in addition to sorbitol and the hydrogenated starch hydrolysate, from 0 to about 15% by weight calcium carbonate, from 0 to about 2% by weight lecithin,

from 0 to about 8.4% by weight gum arabic, from 0 to about 4% by weight glycerin, and flavor.

4,271,198

CHEWING GUM HAVING A SOFT TEXTURE

Subraman R. Cherukuri; Dominick R. Friello, both of Danbury, Conn.; Walter Jewell, Mamaroneck, and Donald A. M. Mackay, Pleasantville, both of N.Y., assignors to Life Savers, Inc., New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,069
Int. Cl.³ A23G 3/30
U.S. Cl. 426—3 11 Claims

1. A chewing gum having a soft discontinuous texture and easy bite through comprising from about 8 to about 50% by weight of gum base, from about 2 to about 15% by weight corn syrup solids having a dextrose equivalent of from about 20 to about 95, one or more sweetener-bulking agents, and from about 5 to about 25% by weight of one or more liquid moisturizers which are less hygroscopic than the corn syrup solids and including liquid sorbitol, high fructose corn syrup, invert sugar, sugar syrup or water, or mixtures thereof, said liquid moisturizers being at least initially separated from the corn syrup solids, the chewing gum having an initially hard consistency which upon standing changes to a soft consistency as the liquid from the liquid moisturizer is absorbed by the corn syrup solids.

4,271,199

SUGAR-CONTAINING CHEWING GUM HAVING SMOOTH TEXTURE AND LONG-LASTING SWEETNESS

Subraman R. Cherukuri, Danbury, Conn.; Walter Vink, Purdys Station, N.Y.; Dominick R. Friello, Danbury, Conn., and Donald A. M. Mackay, Pleasantville, N.Y., assignors to Life Savers, Inc., New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 96,961
Int. Cl.³ A23G 3/30
U.S. Cl. 426—5 15 Claims

1. A chewing gum having long-lasting sweetness, a soft and smooth consistency, an amorphous bite through, and non-stick properties, which comprises from about 8 to about 50% by weight gum base; and from about 40 to about 85% by weight of a preformed recrystallized sweetener combination formed of one or more solid sweeteners and one or more liquid sweeteners which coat said solid sweeteners, said combination comprising at least two natural sweeteners which have been recrystallized as a mixture, and dispersed as said recrystallized mixture in said gum base; and one or more flavors dispersed in said gum base; whereby crystals of solid sweetener in said preformed recrystallized sweetener combination are reduced in size, becoming more round, more smooth and slippery, due to the interaction with said liquid sweeteners present in said combination, thereby contributing to soft easy bite through and imparting a fondant-like structure to the chewing gum.

4,271,200

METHOD OF PREPARING A FROZEN PIZZA

Walter L. Hempenius, Cary, and June E. Yantis, Barrington, both of Ill., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Aug. 6, 1979, Ser. No. 63,997
Int. Cl.³ A21D 8/00
U.S. Cl. 426—27 3 Claims

1. A method of manufacturing a frozen pizza product, said method comprising preparing a leavened bread dough formulation from which a pizza crust may be formed, forming at least a portion of said dough into an individual dough ball, positioning said dough ball within a forming apparatus which includes a flat central portion and an at least partially vertically directed, circumferentially extending peripheral sidewall, permitting said dough portion to rise, exerting a first downward force on said dough ball with a first pressing platen unit having a given diameter and a flat, downwardly directed surface portion, thereby forming a thin flat dough sheet of substantially uniform density, with the outer periphery of said dough sheet extending sufficiently outwardly so as to lie closely adjacent said peripheral sidewall, permitting said flat sheet to undergo additional rising, subsequently exerting a second downward force on said dough sheet with a second pressing platen, said second pressing platen having a reduced diameter in respect to said given diameter of said first platen, said second platen also having a flat, downwardly directed surface, thereby depressing a central portion of said flat dough sheet to increase the density of said center section and to permit the outer margin of said sheet to rise naturally while confined only by said sidewall, and substantially immediately after depressing said central portion of said sheet, removing said sheet from said forming apparatus and at least partially baking said sheet while said center section remains depressed so as to create a pizza crust having a high density center section of reduced height and a raised margin of reduced density, adding to said pizza crust a pizza sauce filling preparation, and freezing said combination crust and filling portion into a frozen pizza product.

4,271,201

MANUFACTURE OF CHEESES

Pierre Stenne, Marigny, France, assignor to Societe d'Assistance Technique pour Produits Nestle S.A., Lausanne, Switzerland

Continuation-in-part of Ser. No. 940,012, Sep. 6, 1978, abandoned, which is a continuation of Ser. No. 758,825, Jan. 12, 1977, abandoned. This application Jan. 23, 1979, Ser. No. 5,730
Claims priority, application France, Feb. 4, 1976, 76 03119
Int. Cl.³ A23C 19/02, 21/00
U.S. Cl. 426—40 9 Claims

1. A process for treating curd in preparation for producing cheeses comprising:

(a) subjecting a milk having a total serum protein content to partial ultrafiltration wherein before, during, or after this ultrafiltration step, heat denatured serum proteins are added to the milk;

(b) treating the partially ultrafiltered milk with rennet and/or acid;

(c) coagulating the rennetted and/or acidified milk to form a curd containing 15 to 30 parts of total serum proteins to 50 parts of casein wherein from ¼ to ½ of the total serum proteins now contained in the curd are said heat denatured serum proteins; and

(d) draining the curd to remove whey therefrom, said whey containing soluble proteins therein wherein the amount of total serum protein contained in the curd is substantially equal to the total serum protein content of the starting milk.

4,271,202

PARTICULATE LACTOSE-STARCH HYDROLYSATE BASED FLAVORING MATERIALS AND METHOD OF PRODUCING SAME

Thomas H. Giel, Cincinnati, Ohio, assignor to Mallinckrodt, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 853,526, Nov. 21, 1977, abandoned, which is a continuation-in-part of Ser. No. 640,189, Dec. 12, 1975, abandoned. This application Aug. 6, 1979, Ser. No. 64,053
Int. Cl.³ A23L 1/221
U.S. Cl. 426—96 12 Claims

1. A particulate flavoring material comprising a flavoring oil fixed in a particulate matrix, said particulate matrix consisting essentially of lactose and a partially hydrolyzed starch having a Dextrose Equivalent from about 1 to about 20 wherein the ratio of lactose to starch hydrolysate is on the order of about 40–70% by weight lactose to about 60–30% by weight starch hydrolysate and at least about 30% flavoring oil per total particulate material is entrapped in the matrix with less than about 4% by volume flavoring oil per total particulate material unentrapped on the surface of said particulate matrix.

4,271,203

MICROWAVE PROOFING AND BAKING BREAD UTILIZING METAL PANS

Robert F. Schiffmann, Manhatten; Alfred H. Mirman, Nanuet, and Richard J. Grillo, Hawthorne, all of N.Y., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Continuation of Ser. No. 700,942, Jun. 29, 1976, abandoned. This application Jan. 20, 1979, Ser. No. 50,396
Int. Cl.³ A21D 8/06
U.S. Cl. 426—243 2 Claims

1. A method for processing bread comprising the steps of:

forming a plurality of one pound loaves from a bread dough mixture;

placing each of said plurality of loaves in a different one of a plurality of metal baking pans;

partially proofing said plurality of loaves in said baking pans in a hot air oven at 85° F. to 120° F. with a relative humidity of 40% to 85% for a first time period of 20 to 40 minutes;

finish proofing said partially proofed plurality of loaves utilizing microwave energy having a frequency equal to 915 MHz and 2450 MHz simultaneously, a power of 75 to 107 watts per pound loaf divided between said two frequencies and a flux density of from 5 to 10 watt hours per pound for a second time period of 3 to 10 minutes; and

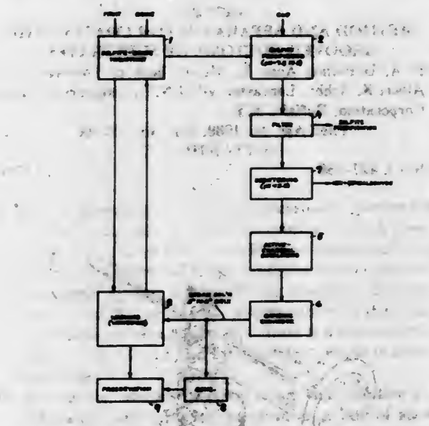
baking said finish proofed plurality of loaves in a combined hot air and microwave oven at an air temperature of 415° F. to 440° F. and with microwave energy having a frequency equal to 915 MHz and 2450 MHz simultaneously, a power of 50 to 100 watts per pound loaf divided between said two frequencies and a flux density of from 5 to 10 watt hours per pound for a third time period of 11 to 13 minutes to achieve bake out and crust color.

4,271,204

SULFITE TREATMENT OF CHERRIES

Henri C. P. Julien, Vaucluse, France, assignor to APTUNION Union des Fabricants de Fruits Confits, Vaucluse, France

Filed Aug. 10, 1979, Ser. No. 65,624
Claims priority, application France, Aug. 30, 1978, 78 25672
Int. Cl.³ A23L 1/277; A23B 7/14
U.S. Cl. 426—299 3 Claims



1. A method of preserving cherries, containing natural sugars, which comprises the steps of:

(a) storing the cherries in a sulfite brine;

(b) removing the cherries from the sulfite brine;

(c) removing from the sulfite brine in sequential order sulfite, taste-embittering substances including amygdalin and coloring substances, and further removing minerals by passing the treated brine through a cationic exchange resin fortified with acid to result in a purified sugar solution;

(d) washing the cherries resulting from step (b) with a first portion of the purified sugar solution so that during the washing the purified sugar solution and the cherries have substantially the same sugar level of 5° to 6° Brix; and

(e) recycling the resulting sugar solution used in washing step (d) to the sulfite brine used to initially remove sugar from the cherries.

4,271,205

METHOD FOR MANUFACTURING QUICKLY COOKABLE DRY AND POROUS NOODLES

Yoshio Kaneko, Kofu, Japan, assignor to Toyo Suisan Kaisha, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 964,295, Nov. 28, 1978, abandoned. This application Jan. 13, 1979, Ser. No. 48,888
Claims priority, application Japan, Dec. 23, 1977, 52/155183
Int. Cl.³ A23L 1/16
U.S. Cl. 426—451 6 Claims

1. A method for manufacturing dry and porous alpha-type noodles which can be cooked in about three minutes by boiling water which is poured into a container containing said dry and porous noodles comprising

continuously passing masses of steamed wet noodles substantially horizontally into and through a substantially sealed drying chamber,

blowing in said drying chamber superheated steam at a temperature of 105° C. to 180° C. at atmospheric pressure onto and through said masses of steamed wet noodles as said noodle masses pass through said drying chamber for 5 to 10 minutes, whereby water vapor is evolved in a boiling state from the interior of the steamed wet noodles thereby forming dry and porous noodles, and said evolved water vapor in a boiling state is heated and circulated in said chamber at a temperature of 105° C. to 180° C. to constitute said superheated steam; and

discharging the dry and porous noodles from the substantially sealed drying chamber; and cooling the discharged dry and porous noodles in atmospheric air to provide said dry and porous alpha-type noodles.

4,271,206

GASIFIED CANDY HAVING A PREDETERMINED SHAPE

Harry F. Farial, Suffern, N.Y.; Marvin J. Rudolph, Bethel; Richard B. Hyman, New Fairfield, both of Conn.; Prodip K. Roy, Yorktown, and Fredric Kleiner, New City, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,720
Int. Cl.³ A23G 3/00
U.S. Cl. 426—872 11 Claims

1. A method of preparing a confection of discrete and uniform predetermined shaped pieces of gasified, hard candy which comprises:

(a) preparing a melt of sugar between about 280°–320° F.,

(b) gasifying the melt under superatmospheric pressure of 35–500 psig, while the melt is uniformly agitated,

(c) forming the melt into discrete and predetermined shaped pieces under superatmospheric pressure,

(d) solidifying the pieces under superatmospheric pressure so as to retain the gas under superatmospheric pressure within the pieces, and

(e) recovering the solidified predetermined shaped pieces, said pieces of gasified candy having a uniform shape and having retained therein from 0.25 to 5.0 cc of gas per gram of candy, said gas being distributed through the candy as fine bubbles, more than 50% of said bubbles having a diameter below 60 microns and said gas being at superatmospheric pressure, said uniform pieces giving a prolonged sizzling sensation when permitted to dissolve in the mouth.

4,271,207

PROCESS FOR THE COATING OF PARTICLES FOR THE PRODUCTION OF FUEL AND/OR ABSORBING ELEMENTS FOR NUCLEAR REACTORS AND APPARATUS THEREFOR

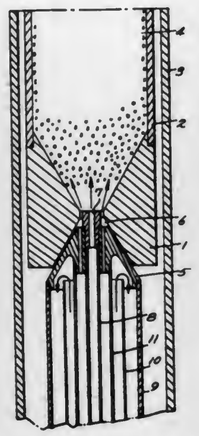
Harald Löser, Kahl; Gerhard Schmidt, Gelnhausen; Wolfgang Warzawa, and Klaus Wegner, both of Hanau, all of Fed. Rep. of Germany, assignors to HOBEG Hochtemperaturreaktor-Brennelement GmbH, Hanau, Fed. Rep. of Germany

Filed Jun. 10, 1977, Ser. No. 805,452

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1976, 2626446

Int. Cl.³ C23C 11/02

U.S. Cl. 427—6 5 Claims



1. In a process for coating particles of fuel, fertile material, absorber material or mixtures thereof which can be employed in nuclear reactors wherein thermally cleavable gases are introduced into a reaction space heated above 1000° C. of a fluidized bed unit provided with a gas inlet nozzle having an elongated inlet tube and cooled with a cooling medium, the cleavable gases are decomposed after leaving said nozzle and the decomposition products are deposited on said fuel, fertile material or absorber particles present in the fluidized bed, the improvement comprising employing as the cooling medium one which is solely gaseous and only cooling the axially inner lying portion of the feed conduit for the nozzle tip of the gas inlet nozzle and reducing the heat flow from the outside by a heat insulating material.

4,271,208

METHOD FOR COATING A METALLIC SQUEEZE-OUT TUBE

Tsutomu Itoh, Tokyo; Nobuo Furuya, and Kenji Ohuchi, both of Chiba, all of Japan, assignors to Onoda Cement Co., Ltd., Onoda, Japan

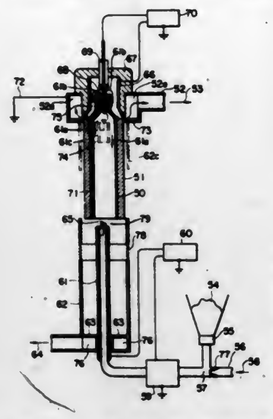
Division of Ser. No. 827,890, Aug. 26, 1977, Pat. No. 4,213,541, which is a continuation of Ser. No. 762,504, Jan. 26, 1977, Pat. No. 4,112,869. This application Jan. 29, 1979, Ser. No. 7,390

Claims priority, application Japan, Feb. 3, 1976, 51-10005; Mar. 8, 1976, 51-24867

Int. Cl.³ B05D 1/04, 1/06

U.S. Cl. 427—28 16 Claims

1. A method for coating portions of an uncoated, metallic squeeze-out tube with a synthetic resin coating film comprising the steps of supporting an uncoated, metallic squeeze-out tube, said tube having two ends, a reduced diameter neck with an opening therein at one end, a neck end surface, inner and outer neck surfaces, and an opening in the second end of said tube, said second end being opposite said neck end; ejecting electrically-charged synthetic resin powder from a powder feeding means inserted within said tube through said second end, feeding such powder along the length of the interior of the metallic squeeze-out tube with said powder feeding means while applying an electrical voltage differential between said tube and said feeding means such that said powder is drawn by electrostatic force to and covers at least portions of the interior surfaces of said tube and forms a synthetic resin powder layer thereon, and directing electrically-charged synthetic resin powder through said neck with an air flow with suction by drawing air through said neck and across the entirety of said neck end surface with an electrode surrounding but spaced from the neck end and



outer neck surfaces and disposed concentrically of said neck opening; providing an electric field for urging powder to said neck with said electrode by applying an electrical voltage differential between said electrode and neck such that said powder is drawn by electrostatic force to said neck and covers the inner neck surface and said entire neck end surface; and baking the powder layer on said tube with a heating device whereby said powder is caused to form a continuous, solidified, synthetic resin coating film tightly adhered to the said interior and neck end surface portions of said tube.

4,271,209

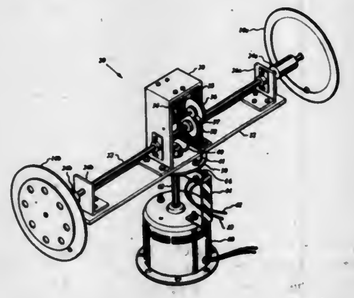
METHOD AND APPARATUS FOR COATING THE GROOVED BOTTOMS OF SUBSTRATES

Vito A. DePalma; Anne E. Meyer, both of Tonawanda, and Albert K. Ashby, Lancaster, all of N.Y., assignors to Calspan Corporation, Buffalo, N.Y.

Filed Apr. 16, 1980, Ser. No. 140,906

Int. Cl.³ B05D 5/12

U.S. Cl. 427—58 18 Claims



1. A method of coating a substrate having at least one groove in a face thereof, including the steps of:

(1) applying a fluent coating material to said substrate,

(2) spinning the substrate about an axis perpendicular to the face thereof at a first rate,

(3) simultaneously rotating said substrate about an axis perpendicular to said first mentioned axis at a second rate that is much greater than said first rate, and

(4) scraping excess coating material from the face of the substrate.

14. A spin/centrifuge apparatus for use in a coating process and including:

at least one pair of arms mounted for rotation about a vertical axis;

shaft means supported by said arms for rotation therewith about said vertical axis;

means for independently spinning said shaft means about a horizontal axis;

mounting means at the ends of each of said shaft means for securing the objects to be coated whereby said objects are subject to centrifugal forces due to rotation about said vertical axis which forces a coating material into contact with said objects and whereby said objects are simultaneously subject to spin forces due to said horizontal axis spin to uniformly spread the coating material.

4,271,210

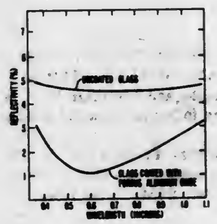
METHOD OF FORMING TRANSMISSIVE, POROUS METAL OXIDE OPTICAL LAYER OF A VITREOUS SUBSTRATE

Bulent E. Yoldas, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 88,280, Oct. 25, 1979, abandoned. This application Jan. 28, 1980, Ser. No. 116,329

Int. Cl.³ B05D 1/18, 3/02

U.S. Cl. 427—169 3 Claims



1. Method of forming a substantially transparent, porous thin layer of aluminum oxide on a vitreous substrate, which aluminum oxide layer has an index of refraction substantially less than that of the vitreous substrate, which method comprises:

(a) preparing a clear solution from aluminum alkoxide, which solution is peptized or polymerized with the aluminum maintained in a clear soluble form in a concentration of about 1 to 3% based on the equivalent weight of aluminum oxide;

(b) dipping the vitreous substrate in the clear solution and withdrawing the substrate therefrom at a rate of about seven centimeters per minute to deposit a layer of the clear solution on the vitreous substrate;

(c) pyrolyzing the layer on the substrate by heating to a temperature of from 300°-500° C. to form the porous aluminum oxide layer of low index of refraction, a porosity of greater than 40%, and pore size of less than about 100 angstroms, and a layer thickness of approximately an optical quarter wave.

4,271,211

PROCESS FOR MAKING PLASTIC RESIN-DYESTUFF CONCENTRATES FOR USE IN THE DYEING OF PLASTIC RESINS

Siegfried Knapper, Radevormwald, Fed. Rep. of Germany, assignor to Karl Fluko OHG, Wuppertal-Barmen, Fed. Rep. of Germany

Filed Jan. 8, 1978, Ser. No. 913,864

Claims priority, application Fed. Rep. of Germany, Mar. 18, 1978, 2811922

Int. Cl.³ B05D 3/00

U.S. Cl. 427—195 5 Claims

1. A process of coloring particulate thermoplastic resins, consisting in the steps of:

mixing a particulate dye with a particulate wax which is solid at room temperature but liquefies at temperatures of about 35° C.;

heating a particulate thermoplastic resin to a temperature between about 35° C. and 160° C. at which it softens but remains in particulate state;

adding the mixture of particulate dye and particulate wax to the heated thermoplastic resin, so that the wax becomes liquefied due to the heated condition of the thermoplastic resin;

mixing the resulting composite so that the liquefied wax coats the resin particles and adheres dye to them; and

thereafter cooling the composite to below the liquefying point of the wax to obtain a pourable agglomerate.

4,271,212

METHOD OF COATING HOT GLASS CONTACTING SURFACES

Edward J. Stengle, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed May 21, 1979, Ser. No. 41,213

Int. Cl.³ B05D 5/08

U.S. Cl. 427—283 9 Claims

1. The method of coating a metallic substrate for long-term use in handling hot glass charges or articles comprising the steps of thoroughly cleaning the metallic substrate, applying a primer coating of monomeric/polymeric first silicone resin to said substrate and air drying the same, applying a coating of solventless curable thermosetting second silicone resin binder over said primer coating, depositing at least one layer of granular heat-resistant solid lubricant carbonaceous material over said binder coating and allowing said binder to wet and embed said granular carbonaceous material to firmly retain the same, and heat-curing said binder into thermoset further-hardened condition to permanently affix said granular carbonaceous material to said substrate.

4,271,213

FUSED, THERMOPLASTIC PARTITIONING AGENT AND PREPARATION OF CRUMB RUBBER COATED THEREWITH

Donald C. Grimm, Tallmadge, and Hanford L. Gunnerson, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 675,482, Apr. 9, 1976, abandoned. This application Jan. 11, 1980, Ser. No. 111,183

Int. Cl.³ B44D 1/02

U.S. Cl. 427—222 16 Claims

1. The process of producing an elastomeric crumb, coated with a fused resinous partitioning agent which adheres to the crumb without substantial cohesion of the coated particles to one another, which process comprises coating a tacky polymer crumb, the particles of which measure 1 to 50 mm across, using a latex blend of 0.1 to 10 percent solids content which is a blend of (a) 50 to 80 parts by weight of a styrene-butadiene copolymer resin with a styrene content of substantially 80 to 99 percent and (b) 50 to 20 parts by weight of a polymethyl methacrylate resin, the weight of the resin blend being 1 to 25

percent of the weight of the elastomeric crumb, using sufficient of the latex blend at a temperature substantially as high as 85° C. to coat the crumb, adding the resin latex blend containing a coagulant to a slurry of the rubber particles in water at a temperature of 90°–95° C. to coagulate the blend, and drying the coated crumb at a final temperature of at least 85° C. and not more than 95° C. whereby the coating adheres to the crumb without substantial cohesion of the coated particles.

4,271,214

METHOD FOR RECOVERING ACRYLIC RESIN FROM EXCESS OF SPRAYED POWDER COATING COMPOSITION BY USING AROMATIC SOLVENTS

Katsuo Miki, Oomiya, and Kazutoshi Abe, Yokohama, both of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed Aug. 29, 1979, Ser. No. 70,585
Claims priority, application Japan, Sep. 7, 1978, 53-109117
Int. Cl.³ B08B 3/08
U.S. Cl. 427—345 5 Claims

1. A method for recovering an acrylic resin component from an excess of a sprayed powder coating composition containing acrylic resin, a pigment and a curing agent which is not deposited onto an article to be coated and is recovered in an apparatus for coating an article with a powder coating composition, comprising the steps of:

(a) treating the excess powder coating composition with an aromatic hydrocarbon solvent, whereby the acrylic resin component is dissolved in the solvent which has a solubility for the curing agent of not more than 0.1 g curing agent per 100 g of solvent;

(b) separating insoluble or non-dissolved components including the pigment and the curing agent from the resin solution obtained in step (a), and;

(c) removing the solvent from the resin solution to thereby recover the acrylic resin component.

4,271,215

METHOD FOR RELEASING FROZEN WATER

Delbert L. Coon, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Oct. 31, 1979, Ser. No. 89,438
Int. Cl.³ B05D 3/02
U.S. Cl. 427—387 4 Claims

1. A method for treating a water-impermeable surface to facilitate the release of frozen water therefrom, said method comprising applying to said water-impermeable surface a coating composition obtained by mixing components consisting essentially of

(A) 15 to 70 parts by weight of a carboxy-functional siloxane fluid having the formula

$$R'(CH_3)_2SiO\{(CH_3)_2SiO\}_x\{(CH_3)RSiO\}_ySi(CH_3)_2R'$$

wherein R denotes a carboxy-functional radical bonded to silicon by a silicon-carbon bond, R' denotes a methyl radical or an R radical, x has an average value of from 25 to 400 and y has an average value of from 0 to 25, there being an average of at least two carboxy-functional radicals per molecule of said siloxane fluid,

(B) 0.1 to 5 parts by weight of a titanate having the formula $Ti(OR'')_4$ wherein each R'' is an aliphatic radical or a hydroxylated aliphatic radical having 1 to 12 carbon atoms and

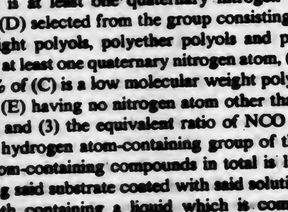
(C) 25 to 80 parts by weight of a volatile diluent, the total of (A)+(B)+(C) being 100 parts by weight and thereafter drying the applied coating composition.

4,271,216

METHOD FOR COATING A CYLINDRICAL CAN BODY

Hiromichi Shimizu, Sagamihara, Japan, assignor to Daiwa Can Company, Limited, Tokyo, Japan

Filed Mar. 18, 1980, Ser. No. 131,683
Claims priority, application Japan, Apr. 5, 1979, 54/41421
Int. Cl.³ B05D 1/28
U.S. Cl. 427—428 2 Claims



1. A method of applying a given amount of white paint by rolls to all the outer surface of a cylindrical can body which is transported along a passageway as it is supported by a supporting element extending in a direction perpendicular to said passageway, wherein all the said outer surface of the cylindrical can body is brought into contact with a first rotating application roll being close to said passageway and carrying white paint, thereby transferring the white paint in a part of said given amount from said first application roll onto said outer surface of the can body to coat said surface, said coated outer surface of the can body then being brought into contact with a second rotating application roll carrying white paint, being close to said passageway and positioned downstream of the first application roll in the advancing direction of the can, thereby transferring the white paint in the rest of said given amount from said second application roll onto the coated outer surface of the can to coat said surface.

4,271,217

PROCESS FOR PRODUCING POLYURETHANE RESINS AND SHEET MATERIALS

Itsuya Tanaka, Kyoto, and Toshikazu Fujii, Neyagawa, both of Japan, assignors to Sanyo Chemical Industries, Ltd, Kyoto, Japan

Filed Mar. 13, 1979, Ser. No. 20,057
Claims priority, application Japan, Mar. 31, 1978, 53/38640
Int. Cl.³ B32B 27/40; D03D 27/00; D04H 11/00; D05C 17/00
U.S. Cl. 428—96 31 Claims

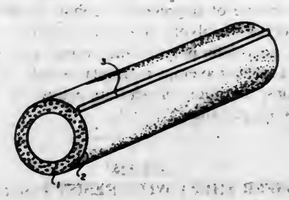
16. A sheet material having improved physical properties and improved dyeabilities which comprises a layer formed by applying to a substrate a solution of a water-insoluble, water-nondispersable polyurethane resin having a quaternary nitrogen atom content of 0.05–0.23% by weight, obtained by reacting an organic diisocyanate (A) with active hydrogen atom-containing compounds comprising a macromolecular polyol (B) and a low-molecular weight polyfunctional compound (C), wherein (1) part of the active hydrogen atom-containing compounds is at least one quaternary nitrogen atom-containing polyol (D) selected from the group consisting of low-molecular weight polyols, polyether polyols and polyester polyols having at least one quaternary nitrogen atom, (2) 40–100 equivalent % of (C) is a low molecular weight polyfunctional compound (E) having no nitrogen atom other than the functional group, and (3) the equivalent ratio of NCO group of (A) to active hydrogen atom-containing group of the active hydrogen atom-containing compounds in total is 1:0.9–1.1, and immersing said substrate coated with said solution in a coagulating bath containing a liquid which is compatible with the solvent and is a non-solvent for the polyurethane resin.

4,271,218

PIPE INSULATING JACKET

Klaus Heckel, Weinheim; Friedemann Klaffke, Gorxheimertal-Unter-Flockenbach; Walter Umann, Weinheim, and Volker Schwarz, Hirschberg, all of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim, Fed. Rep. of Germany

Filed Feb. 16, 1979, Ser. No. 12,923
Claims priority, application Fed. Rep. of Germany, Feb. 18, 1978, 2807036
Int. Cl.³ B32B 3/04; B29C 19/00
U.S. Cl. 428—36 9 Claims



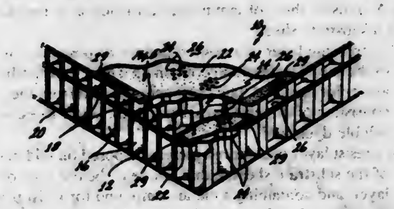
1. A pipe insulating jacket consisting of a hollow cylinder made of a soft closed cell foamed cross-linked polyolefin, and outer sleeve of aluminum foil with abutting edges parallel to the axis of the pipe, and a polyester further foil about 5 to 20μ thick on the outside of the aluminum foil, the aluminum foil carrying a thermoplastic coating on its inside, the coating being welded throughout to the surface of the soft foamed material and in proximity to the abutting edges being welded to itself along its upwardly bent edges.

4,271,219

METHOD OF MANUFACTURING AN ADHESIVE BONDED ACOUSTICAL ATTENUATION STRUCTURE AND THE RESULTING STRUCTURE

William D. Brown, Riverside, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Oct. 2, 1979, Ser. No. 81,267
Int. Cl.³ B32B 3/12
U.S. Cl. 428—116 6 Claims



1. A method of manufacturing adhesive bonded acoustical attenuation structure, the structural components comprising a first and second honeycomb cores with a multiplicity of endwise directed cells, an imperforate facing sheet, a first and second perforated sheets, a first and second thin sheets of porous fibrous material, said method comprising the steps of:

(a) cleaning and degreasing the components to be assembled into said acoustical attenuation structure;

(b) applying a solvent base first adhesive coating to one surface of each of said perforate sheets for bonding thereto one of said first and second thin sheets of porous fibrous material;

(c) removing the solvent from said solvent base first adhesive;

(d) stacking said first perforated sheet with said first thin sheet of porous fibrous material and said second perforated sheet with said second thin sheet of porous fibrous material, applying a positive pressure between the components of each stack and curing said first adhesive;

(e) applying a coating of a maskant material to the perforation exposed surface of the now combined perforate sheets and thin sheets of porous fibrous material;

(f) applying an anti-wetting solution to the fibers of the thin sheets of porous fibrous material and the adjacent attached surface of the perforate sheets;

(g) removing the coating of maskant of step (e);

(h) applying a layer of a second adhesive between each core and its adjacent components; and

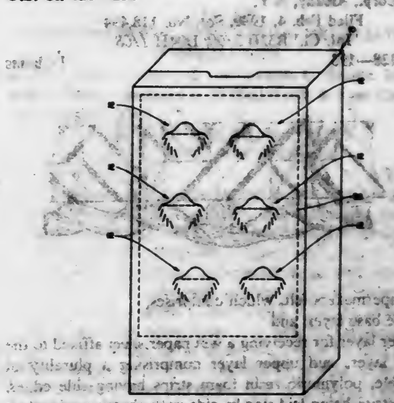
(i) stacking the various components in the following sequence, first said imperforate facing sheet, then said first honeycomb core, then the now combined first perforated sheet and first thin sheet of porous fibrous material with the perforated surface adjacent the open core of said first honeycomb core, said second honeycomb core positioned on said first thin sheet of porous fibrous material and then the combined second perforated sheet and second thin sheet of porous fibrous material with said second thin sheet of porous fibrous material as the outermost surface, applying a positive pressure between the outer components toward the center and curing the first and second adhesives.

4,271,220

LAMINATED STRUCTURE INCORPORATING EXPANDABLE POCKETS

Michael J. Otto, Kalamazoo, and George C. Ray, Battle Creek, both of Mich., assignors to General Foods Corporation, White Plains, N.Y.

Filed Sep. 10, 1979, Ser. No. 74,196
Int. Cl.³ B32B 3/10, 7/06, 7/12
U.S. Cl. 428—134 15 Claims



1. A laminated structure of packaging material comprising an inner wall constituted of a relatively rigid material, an outer wall of relatively thin, generally pliant material, at least one perforation configuration comprising slits penetrating through said pliant outer wall material and arranged in a pattern defining at least one displaceable area constituting the outer wall panel of an object-receiving pocket intermediate said inner and outer walls, and a laminating adhesive interposed between said inner and outer walls for joining said walls to each other except in areas substantially coextensive with the area of said pocket to facilitate the insertion of an object into said pocket, said slits including a series thereof spaced apart in offset overlapping relation to one another along the peripheral edge of said panel and defining therebetween a series of pliable strips interconnecting said panel with the surrounding area of said outer wall adhesively joined to said inner wall, said panel being displaceable outwardly from a flush or a spaced parallel relation with said inner wall by flexure of said strips in response to insertion of an object into said object-receiving pocket.

4,271,221
COATING COMPOSITION FOR DECORATIVE LAMINATES

William A. Hoomer, Cape Elizabeth, Me., assignor to Scott Paper Company, Philadelphia, Pa.

Filed Aug. 1, 1979, Ser. No. 62,728
Int. Cl.³ C08L 61/10, 61/28; B32B 23/12, 27/42
U.S. Cl. 428—172 14 Claims

1. An aqueous coating composition comprising a pigment, a pigment binder, and an uncoalesced dispersion of a urea-formaldehyde resin condensate or a melamine-formaldehyde resin condensate.

5. A decorative sheet suitable for saturation and consolidation with one or more other laminae to form a heat and pressure consolidated decorative laminate, the decorative sheet comprising a porous sheet material coated on at least one side with the coating composition of claim 1, the coating composition being dried and the resin condensate being in an uncoalesced, particulate state.

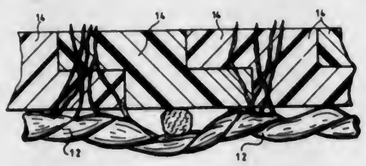
7. The decorative sheet according to claim 5, further including as an additional component in the coating composition a thermoplastic resin which has been dried without forming a film.

10. The decorative sheet according to claim 7, wherein the decorative sheet is embossed.

4,271,222
PAPERMAKERS FELT AND METHOD OF MANUFACTURE

Edward R. Hahn, Neenah, Wis., assignor to Albany International Corp., Albany, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,494
Int. Cl.³ B32B 3/00; D04H 1/08
U.S. Cl. 428—193 7 Claims



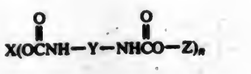
1. A papermakers felt, which comprises;
a textile base layer; and
an upper layer for receiving a wet paper sheet affixed to the base layer, said upper layer comprising a plurality of flexible, polymeric resin foam strips having side edges, said strips being laid side by side with abutting side edges and with the lengthwise direction of the strips fixed at an angle to the direction of both the machine direction and the cross-machine direction yarns in the base layer.

4,271,223
PLASTIC FILM LABEL STOCK

Richard J. Lambert, Eau Galle Township, St. Croix County, Wis., and John A. Martens, Lino Lakes Township, Anoka County, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 957,238, Nov. 2, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 81,177
Int. Cl.³ B32B 3/00; C08F 2/46
U.S. Cl. 428—287 17 Claims

1. Label stock comprising a flexible plastic film backing and a thin adhesive layer, said plastic film backing having a thickness of 25–150 micrometers and comprising a polymer of the urethane oligomer

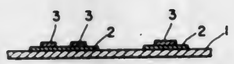


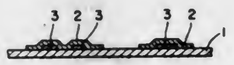
wherein
Z is an end-capping addition-polymerizable moiety comprising acrylyl methacrylyl, allyl or vic-epoxy groups,
Y is the divalent residue of an organic diisocyanate, Y(NCO)$_2$, Y being an alkylene group with 4 to 13 carbon atoms, a cycloalkylene group or an arylene group,
X is the residue of oligomeric alcohol, X(OH)$_n$, selected from polyester polyols, polyether polyols, polyacrylate polyols, polyolefin polyols, and polysiloxane polyols and having a number average molecular weight of 500 to 5000 and a glass transition temperature below 250° K., and
n has an average value of 1 to 4.

4,271,224
TRANSFER SHEET WITH RESIST PORTIONS

Shogo Mizuno, Toride; Takao Suzuki, Kawagoe; Sadanobu Kawasaki, and Hideichiro Takeda, both of Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 864,486, Dec. 27, 1977, abandoned. This application Feb. 1, 1980, Ser. No. 117,798
Claims priority, application Japan, Dec. 26, 1976, 51-158772
Int. Cl.³ B32B 7/00; D06P 5/00
U.S. Cl. 428—207 35 Claims





1. A transfer sheet of laminated construction comprising:
(1) a substrate sheet;
(2) a coloring layer of a desired pattern disposed on one side of the substrate sheet and containing a heat transferable dye as a coloring agent, said dye being selected from the group consisting of disperse dyes, basic dyes, acidic dyes, and oil soluble dyes; and
(3) a resist layer of a desired pattern disposed on said one side of the substrate sheet, either above or below the coloring layer, and containing a metal compound for resist printing by chemical action and a binder, wherein the metal compound for resist printing is a compound consisting of one metal selected from chromium, iron, copper, nickel, and cobalt combined with one radical selected from the radicals of hydrochloric acid, nitric acid, acetic acid, formic acid, and oxalic acid, the metal compound for resist printing being capable of causing the coloring agent to lose its heat transferability.

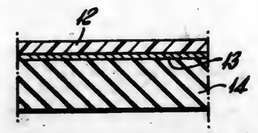
4,271,225
PLOW PROTECTIVE MEMBER

Thomas M. Camilleri, 277 Ave. W, Brooklyn, N.Y. 11223

Filed Dec. 13, 1978, Ser. No. 968,754
Int. Cl.³ A63D 9/00; B32B 27/34, 25/00
U.S. Cl. 428—215 8 Claims

1. A protective member for the metal plow of an automatic pinspotter bowling machine which comprises a laminate formed of a pin contacting outer layer of wear-resistant, low coefficient of friction material, an intermediate layer of high tensile strength reinforcing material and an inner layer of

cushioning material not penetrating the intermediate layer to contact the outer layer, the protective member conforming to



the shape of the plow and adapted to be permanently affixed thereto.

4,271,226
INSULATING LAYERS FOR ELECTRICAL CABLES

Alain M. Herbreteau, Pau, France, assignor to Compagnie Francaise des Petroles, Paris, France

Filed Dec. 5, 1977, Ser. No. 857,841
Claims priority, application France, Dec. 3, 1976, 76 36451; Jan. 25, 1977, 77 02037
Int. Cl.³ D03D 13/00; H01B 13/06
U.S. Cl. 428—220 4 Claims

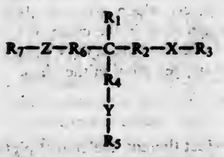
1. An electrical conductor having thereon a synthetic non-impregnated insulating structure consisting essentially of a tape comprising a biaxially oriented film of a thickness of less than 200 microns, a tensile resistance of higher than 5 DAN/mm^2, and comprising an isotactic stereo-regular olefin polymer of a weight average molecular weight of between 200,000 and 700,000, and a crystallinity between 40% and 90%, said tape having been subjected to a flat biaxial orientation at a stretching ratio between 3 and 7, said tape when wound on an electrical conductor under a tension not less than 0.4 DAN/mm^2 clinging to itself and providing an insulating structure of a coherent, self-cohesive nature, said insulating structure being in the form of a plurality of layers of said tape on top of each other in intimate non-sliding contact with each other, each of said layers being a length of said tape wound so as to at least partially overlap an underlying wrap of said length of tape, each of said layers comprising a plurality of said at least partially overlapping wraps.

4,271,227
TRANSPARENT FIBROUS SHEETS AND PROCESS FOR MAKING

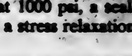
Peter Muller, and Henry Mastacchi, both of Port Washington, N.Y., assignors to Andrews Paper & Chemical Co., Inc., Port Washington, N.Y.

Filed Apr. 26, 1979, Ser. No. 33,801
Int. Cl.³ B32B 23/10, 27/10; D21B 3/00
U.S. Cl. 428—264 20 Claims

1. The method of transparentizing fibrous cellulosic sheets, which comprises:
providing a sheet of fibrous cellulosic material for transparentizing and which comprises a plurality of discrete cellulosic fibers which are disposed so that at least a portion of said fibers are bonded together at cross-over points, forming voids between the fibers at non-crossover points;
applying to a surface of the sheet a monomer of the formula:



wherein R_1 is selected from the group consisting of hydrogen, alkyl, aralkyl, hydroxyalkyl and carboxyl; R_2, R_4 and R_6 each represent alkylene; R_3, R_5 and R_7 each represent a monovalent moiety selected from those of the formula: —CH=CH$_2$,



and —CH=CH—R_8 wherein R_8 is selected from the group consisting of alkyl and phenyl; and X, Y and Z each represent a divalent moiety of the formula:



wherein B is selected from oxygen and a group of the formula —NH—;
in admixture with a thermopolymerization catalyst;
evenly distributing the applied mixture of monomer and catalyst so as to fill voids in the sheet with the mixture of monomer and catalyst by wet-packing the applied to sheet in a roll under tension for a period of time sufficient to achieve said distributing; and
thermally polymerizing the monomer in the voids by heating the wet-packed roll to a temperature sufficient to activate the catalyst and dissipating excessive heat of polymerization into the environment of fibrous material to prevent spontaneous polymerization from overheating.

19. The product of the process of claim 1.

4,271,228
SHEET MATERIAL CONTAINING EXPOLIATED VERMICULITE

Richard P. Foster, Norwood, and Gregory C. Brodin, Foxboro, both of Mass., assignors to Hollingsworth & Vose Company, East Walpole, Mass.

Filed Feb. 4, 1980, Ser. No. 117,986
Int. Cl.³ D04D 1/08; B32B 5/02
U.S. Cl. 428—281 5 Claims

1. A sheet material adapted for use as heat resistant gaskets, heat insulation, electrical insulation, and supporting media for dehumidifiers and heat exchangers, said material being in the form of a fibrous web comprising organic fiber, organic binder, and a blend of completely exfoliated vermiculite free from asphalt with another inorganic asbestos-free particulate filler, said blend having a particle size to pass a No. 80 screen, the amount of said fiber being from 1 to 30% by weight and the amount of said blend being from 70 to 99% by weight, the amount of binder being from 3 to 30% by weight, all based on the total weight of fiber and blend, and the amount of vermiculite being from 25 to 70% by weight of said blend, said sheet material having a density of 0.64 to 1.92 g per cc, a tensile strength of at least 500 psi, a compression of 7 to 50% and a recovery of 20 to 70% at 1000 psi, a scalability of 30 cc/hr maximum at 500 psi, and a stress relaxation of 50% maximum at 212° F.

4,271,229
SIZING COMPOSITION TO YIELD SIZED GLASS FIBERS WITH IMPROVED UV STABILITY

Chester S. Temple, McKees Rocks, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sept. 4, 1979, Ser. No. 72,392
Int. Cl.³ D04H 1/58
U.S. Cl. 428—288 24 Claims

1. A sizing composition for glass fibers to produce sized glass fibers having improved UV stability, comprising:
(a) one or more thermoplastic, predominantly aliphatic, elastomeric, curable polyurethane polymers,
(b) one or more ureidofunctional silanes, and
(c) one or more aminofunctional silanes.

4,271,230
FOAMED URETHANE COMPOSITE

Hajime Sakano, Hirakata; Fumio Nakai, Shiga, and Yukio Tomari, Toyonaka, all of Japan, assignors to Sumitomo Naugatuck Co., Ltd., Japan

Filed Aug. 17, 1979, Ser. No. 67,631
Claims priority, application Japan, Aug. 17, 1978, 53-100717; Aug. 17, 1978, 53-100718
Int. Cl.³ B32B 5/18
U.S. Cl. 428—315 3 Claims

1. A foamed urethane composite which is prepared by
(1) coating a covering material with
(A) an organic solvent solution or aqueous emulsion comprising
(A-1) at least one member selected from the group consisting of flexible urethane resins, starting materials for the preparation of flexible urethane resins, and vinyl chloride resins, and then with
(B) an organic solvent solution comprising
(B-1) a copolymer of one or more carboxyl group containing ethylenically unsaturated monomers and one or more monomers selected from the group consisting of acrylic and methacrylic esters and
(B-2) at least one member selected from the group consisting of blocked isocyanate compounds, poly-N-alkoxymethylmalamine compounds, polyepoxy compounds, polyoxazoline compounds, polydihydrooxazine compounds and reactive polyamide compounds,
(2) subjecting the coated covering material to crosslinking under heating, and
(3) contacting the coated covering material with a foamed urethane compound.

4,271,231
PROCESS FOR SECURING BULK LOADS IN MOTOR COASTERS AND OCEAN-GOING VESSELS AGAINST SHIFTING

Guenter Hansen, Frankenthal; Hermann Pottgiesser, and Walter Schlindwein, both of Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,217
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1978, 2842714
Int. Cl.³ B32B 5/16; C09J 5/00
U.S. Cl. 428—323 17 Claims

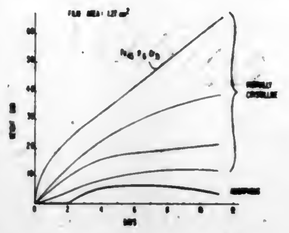
1. A process for securing particulate bulk loads in motor coasters and ocean-going vessels against shifting as a result of list or pitching, which comprises:
bonding the surface layer of particles of the trimmed bulk load by uniformly applying thereto an aqueous solution or dispersion of a polymeric binder and drying to form a consolidated surface layer.

4,271,232
AMORPHOUS MAGNETIC FILM

Neil D. Heiman, Morgan Hill; Robert L. White, Los Altos Hills; Robert I. Potter, and Paul A. Albert, both of San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 28, 1978, Ser. No. 937,686
Int. Cl.³ H01F 10/07
U.S. Cl. 428—332 7 Claims

1. A thin film magnetic material for use as magnetic recording media comprising an amorphous iron-nitride film having a coercivity of at least about 200 oersteds and high corrosion resistance and wherein the atomic percent of of Fe in said material is from about 70 to >40% and the atomic percent of N in said material is from about 30 to <60%, said atomic



percent being based upon the total atoms of Fe and N in the material.

4,271,233
CRIMPED POLYAMIDE FILAMENT

LeMoyne W. Pilschke, and William M. Baggett, both of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

Filed Nov. 2, 1979, Ser. No. 90,824
Int. Cl.³ D02G 3/00
U.S. Cl. 428—370 4 Claims

1. A melt spun crimped side-by-side bicomponent filament consisting essentially of a polyamide and CaF_2 and having a crimp level of at least 5 crimps per inch, wherein said CaF_2 is uniformly dispersed in one of the components at a concentration of at least 200 parts per million by weight of said one component and the weight ratio of the CaF_2-containing component to the other component is between 5:95 and 70:30.

4,271,234
IRON OXIDE MAGNETIC PIGMENTS FOR THE PRODUCTION OF MAGNETIC COATINGS

Eduard Schlaefinger, Ludwigshafen; Paul Deigner, Weisenheim; Manfred Ohlinger, Frankenthal; Helmut Jakusch, Ludwigshafen; Jürgen Amort, Troisdorf-Sieglar; Heinz Nestler, Troisdorf-Eschmar; Claus-Dietrich Seiler, Rheinfelden, and Otto Ambros, Mannheim, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Division of Ser. No. 848,437, Nov. 3, 1977, Pat. No. 4,169,912, which is a continuation of Ser. No. 729,445, Oct. 4, 1976, abandoned. This application Jan. 31, 1979, Ser. No. 8,146
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1975, 2543962
The portion of the term of this patent subsequent to Nov. 2, 1996, has been disclaimed.
Int. Cl.³ B32B 5/16, 9/04
U.S. Cl. 428—405 23 Claims

1. An iron oxide pigment having a coating of a silane of the formulla

$$R_nSi(OR')_{4-n}$$

wherein
R is a straight line or branched alkyl group having 1 to 18 carbon atoms or a straight or branched alkenyl group of 2 to 18 carbon atoms which alkyl or alkenyl group can contain an oxygen atom in the chain or an aryl group
R′ is a straight or branched chain C_1–C_{18} alkyl group which can contain an oxygen atom in the chain

n=1 to 3

or a hydrolysis product thereof, the coated pigment produced by a process consisting essentially of suspending said iron oxide pigment in a composition consisting essentially of an organic or aqueous medium which medium contains a C_1–C_4 alcohol, a ketone or a chlorinated hydrocarbon, said medium also containing a silane of the formula

$$R_nSi(OR')_{4-n}$$

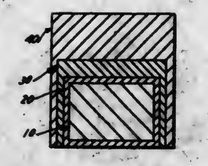
wherein
R is a straight or branched alkyl group having 1 to 18 carbon atoms or a straight or branched alkenyl group of 2 to 18 carbon atoms which alkyl or alkenyl group can contain an oxygen atom in the chain or an aryl group
R′ is a straight or branched chain C_1–C_{18} alkyl group which can contain an oxygen atom in the chain
n=1 to 3

or its hydrolysis product, until at least a portion of the surface of said iron pigment is coated with said silane or its hydrolysis product, and thereafter drying the so-treated iron oxide pigment at 50°–200° C.

4,271,235
METHOD OF OBTAINING POLYCRYSTALLINE SILICON AND WORKPIECE USEFUL THEREIN

Lawrence Hill, 33 Wellington Ave., Short Hills, N.J. 07078; Dennis Garbis, 31 Benaire Dr., Dix Hills, Long Island, N.Y. 11746, and Robert Heller, 5 Silversmith La., Levittown, Long Island, both of N.Y. 11756

Division of Ser. No. 37,864, May 10, 1979. This application Dec. 26, 1979, Ser. No. 106,767
Int. Cl.³ B32B 9/00
U.S. Cl. 428—408 8 Claims



1. A workpiece useful in the chemical vapor deposition of polycrystalline silicon comprising:
(A) a solid substrate body having a substantially planar upper face and a sidewall;
(B) a base coating disposed over at least said substrate body face, said base coating being selected from the group consisting of oxide, nitride and oxynitride compositions, and
(C) a substantially pinhole-free and scratch-free layer of carbon disposed over at least the face of said base coating and adapted to receive polycrystalline silicon thereon.

4,271,236
AIR FIREABLE END TERMINATION COMPOSITIONS FOR MULTILAYER CAPACITORS BASED ON NICKEL BORIDES

Alfred A. D'Addieco, Grand Island, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 29, 1979, Ser. No. 88,942
Int. Cl.³ B32B 15/02; H01B 1/02, 1/06
U.S. Cl. 428—426 12 Claims

10. A thick film air fireable conductive composition consisting essentially of:
(A) 80–95 parts by weight, based on the weight of (A) plus (B), of Ni_2B, and containing 0–80 parts by weight, based on the weight of (A) of nickel metal;
(B) 20–5 parts by weight, based on the weight of (A) plus (B), of a glass containing at least approximately 90% by weight of the component oxides having reduction potentials less than approximately −0.5 volt, the glass having softening point below approximately 600° C.; and
(C) an organic vehicle wherein the ratio of (A) plus (B) to the vehicle is in the range of 19:1 to 1:9 by weight.

4,271,237
ACRYLATE-ACETOACETAMIDE POLYMERS

John S. Heckles, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

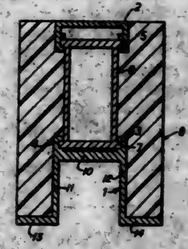
Division of Ser. No. 916,967, Jun. 19, 1978. This application Aug. 9, 1979, Ser. No. 65,129
Int. Cl.³ B32B 27/00
U.S. Cl. 428—520 8 Claims

1. A thermoplastic floor covering coated with a wear layer composition, said composition comprising a crosslinked acrylate-acetoacetamide polymer produced by the reaction of at least one polyfunctional acrylate with at least one diacetoacetamide in the presence of a catalyst capable of promoting the reaction between the polyfunctional acrylate and the diacetoacetamide.

4,271,238
STRUCTURAL MEMBERS FOR INSULATED VEHICLE BODIES

Albert A. Braithwaite, Binfield, and Tony S. Smith, Nostishead, both of England, assignors to Freigh Beneflack Limited, Norfolk, England

Filed Nov. 13, 1978, Ser. No. 960,245
Claims priority, application United Kingdom, Nov. 21, 1977, 48464/77
Int. Cl.³ B62D 25/02, 33/04
U.S. Cl. 428—542 7 Claims



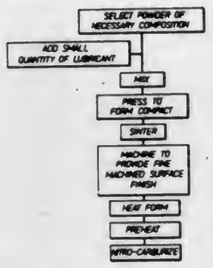
1. A structural load bearing member for use in constructing an insulated body for a commercial vehicle, said member comprising:
an elongate inner metallic frame element having a first pair of laterally open grooves which face inwardly towards one another;
an elongate outer metallic frame element having a second pair of laterally open grooves which face inwardly towards one another;
a plurality of rigid synthetic plastic spacer elements extending between the inner and outer frame elements in load bearing relation therewith, each spacer element having a box-shaped transverse cross-section and being provided with a first pair of ribs engaging in a mechanical interfit relation with the first pair of laterally open grooves and a second pair of ribs engaging in a mechanical interfit relation with the second pair of laterally open grooves, the spacing of the ribs of each said pair of ribs being rigidly fixed by a respective wall of said box section; and a mass of in situ cured rigid load bearing foam completely embedding each spacer element therewithin and bonded to the frame elements in load bearing relation therewith.

4,271,239

SINTERED METAL ARTICLES AND PROCESS FOR THEIR MANUFACTURE

Percival E. Warner, Coventry; Paul Smith, Birmingham, and Terence M. Cadle, Coventry, all of England, assignors to Brico Engineering Limited, Coventry, Great Britain

Filed Jul. 19, 1978, Ser. No. 926,037
Claims priority, application United Kingdom, Jul. 20, 1977, 30360/77
Int. Cl.³ B22F 3/24
U.S. Cl. 428—547 11 Claims



1. An iron-based sintered metal article for use in products requiring wear resistance and good tensile strength and which has been pressed so that after compacting it has a density which is at least 88.5% of the theoretical density, has a fine machined surface finish comprising turning with at least 360 cuts per inch, and has a nitrocarburized surface or white layer which is not found at a depth exceeding about 250 microns from the surface of the article.

7. A process for the manufacture of an iron-based sintered metal article for use in products requiring wear-resistance and good tensile strength, comprising:

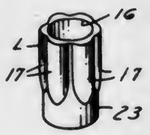
(a) pressing an iron-based metal powder to a density of at least 88.5% of the theoretical density to form a compact;
(b) sintering the compact;
(c) fine machining the surface of the sintered article, comprising turning with at least 360 cuts per inch; and
(d) nitrocarburizing the machined article to provide a hardened surface or white layer on said surface at a depth from the surface of the article which does not exceed about 250 microns.

4,271,240

LOBED PREPARATORY BLANK FOR COLD EXTRUDING A CUP-SHAPED ARTICLE WITH HOLLOW POLYGONAL INTERIOR

Frederick W. Braun, Bloomfield Hills, Mich., assignor to Braun Engineering Company, Detroit, Mich.

Division of Ser. No. 864,544, Dec. 27, 1977, Pat. No. 4,166,373.
This application Feb. 2, 1979, Ser. No. 9,263
Int. Cl.³ B21C 1/00; B32B 9/04
U.S. Cl. 428—580 4 Claims



1. As an article of manufacture, an externally lobed preparatory blank useful for subsequent extrusion into an elongated, cup-shaped final product having a hollow end portion having a cylindrical outer surface and a polygonal interior surface and an opposite solid end portion having a cylindrical outer surface of smaller diameter than the cylindrical surface at the hollow end thereof, said cup-shaped blank having at one end a thin walled hollow end portion provided with a smooth cylindrical inner surface truly circular in inner cross-section and extending for the complete 360° inner circumference, the outer surface of said hollow end portion being made up of a plurality of convexly curved longitudinally extending lobes circumferentially spaced about the axis of said blank corresponding in number and circumferential arrangement to the flat sides of a desired polygonal interior surface of said final extruded product, the other end of said preparatory blank being a solid closed end having a cylindrical exterior surface.

4,271,241

RESEALABLE VENT VALVE FOR CONTAINERS SUCH AS BATTERIES

John W. Hooke, Gainesville, and Paul E. Pate, Branford, both of Fla., assignors to General Electric Company, Gainesville, Fla.

Filed Feb. 5, 1980, Ser. No. 118,767
Int. Cl.³ H01M 2/12
U.S. Cl. 429—54 10 Claims



1. A resealable pressure relief valve capable of relieving the excessive build-up of internal pressure within the closed container of an energy cell by venting gas from within the container to the atmosphere and resealing the container after venting, said valve comprising:

an outer rigid plate;
an inner flexible disc forming part of the interior of the container which contains one or more vent holes;
a compressible rubber gasket positioned in partially compressed condition between the outer rigid plate and the inner flexible disc and situated over each of said vent holes;

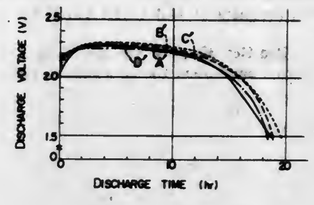
wherein said outer plate is bound to the inner disc by means passing through an open area of the gasket interconnecting the upper surface of the inner disc and the lower surface of the outer plate; and wherein said valve is capable of venting gas when the internal pressure of the container exceeds a predetermined limit which excessive pressure causes the inner disc to flex upward yielding a non-uniform gap between the surfaces of the inner disc and outer plate transmitting a non-uniform compression to the rubber gasket including reduced compression of the gasket in the area of said vent holes causing the gasket to break its seal over the vent holes providing a vent path for the venting of gas from the container.

4,271,242

ACTIVE MATERIAL FOR POSITIVE ELECTRODE OF BATTERY

Yoshinori Toyoguchi, Osaka; Takeshi Iijima, Hirakata, and Masataro Fukuda, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Continuation of Ser. No. 916,528, Jun. 19, 1978, abandoned.
This application Dec. 14, 1979, Ser. No. 103,675
Claims priority, application Japan, Jun. 24, 1977, 52-75763
Int. Cl.³ H01M 6/14
U.S. Cl. 429—194 1 Claim



1. In a battery having a nonaqueous electrolyte, a fluorinated carbon cathode and a lithium anode, the improvement which comprises using as the cathode a carbon fluoride produced by fluorinating carbon having a lattice constant of 3.40 to 3.50 Å in its (002) planes.

4,271,243

POSITIVE ACTIVE MATERIAL FOR AN ELECTRICAL CELL

Michel Broussely, and Sylvie Baudry, both of Poitiers, France, assignors to Saft Leclanche, Poitiers, France

Filed Feb. 1, 1980, Ser. No. 117,793
Claims priority, application France, Feb. 14, 1979, 79 03773; Jan. 16, 1980, 80 00898
Int. Cl.³ H01M 4/62
U.S. Cl. 429—194 9 Claims

1. An electric cell having a negative electrode, a positive electrode, and a non-aqueous electrolyte which is liquid at ordinary temperatures and pressures, said positive electrode comprising an active material consisting of a vitreous composition of a small quantity of silica and at least one electrochemically reducible metal oxide.

4,271,244

HIGH SPECIFIC ENERGY BATTERY HAVING AN IMPROVED POSITIVE ACTIVE MATERIAL

Jean-Paul Gabano, and Michel Broussely, both of Poitiers, France, assignors to Saft-Societe des Accumulateurs Fixes et de Traction, Romainville, France

Continuation of Ser. No. 942,292, Sep. 14, 1978, abandoned. This application Oct. 25, 1979, Ser. No. 87,926
Int. Cl.³ H01M 6/16
U.S. Cl. 429—197 8 Claims

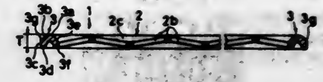
1. A battery having a negative electrode composed of lithium, an electrolyte solution of which the solvent is an aprotic composition, and a positive electrode including a positive active material composed of an oxide of lead having the formula PbO_x, wherein the improvement comprises said positive active material being composed of uniformly homogeneous particles of an oxide of lead wherein x is within the range of 1.5 to 1.87.

4,271,245

GRID BASE PLATE FOR AN ELECTRODE PLATE FOR A STORAGE BATTERY AND METHOD OF MANUFACTURE THEREOF

Yuichi Suzuki, and Ichiro Sano, both of Yokohama, Japan, assignors to Furukawa Denchi Kabushiki Kaisha, and Furukawa Denki Kogyo Kabushiki Kaisha, both of Yokohama, Japan

Filed Mar. 13, 1980, Ser. No. 129,837
Claims priority, application Japan, Aug. 17, 1979, 54-104942
Int. Cl.³ H01M 4/74
U.S. Cl. 429—243 5 Claims



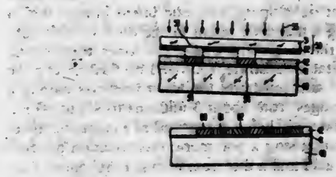
1. A grid base plate for an electrode plate for a storage battery comprising a sheet of material formed with a grid region having a plurality of openings and a peripheral frame region surrounding said grid region, said peripheral frame region being upwardly bent to form an upwardly projecting portion defining, with said grid region, a space filled with an active material of a thickness determined by the height of the upwardly projecting portion of said peripheral frame, said upwardly projecting portion having an outer bend region with an edge surface constituting a peripheral edge of said frame, said upwardly projecting portion having an inner region joined to said grid region, said inner region having a lower surface in the vicinity of the juncture of said inner region and said grid region, said edge surface facing laterally outwards, said outer bend region having a lower surface disposed in the same horizontal plane as said lower surface of said inner region whereby when the base plate is placed on a horizontal planar surface, the peripheral frame region will rest on said horizontal surface along two lines of contact respectively at the bottom of said edge surface and at the lower surface of said inner region.

4,271,246

METHOD FOR PRODUCING A MULTICOLOR OPTICAL FILTER

Masamichi Sato, and Kenji Matsumoto, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 28, 1979, Ser. No. 52,704
Claims priority, application Japan, Jun. 28, 1978, 53-78313
Int. Cl.³ G03C 5/04, 5/00, 7/00
U.S. Cl. 430—7 20 Claims



1. A method of producing a multicolor optical filter, which comprises exposing a photographic material comprising a support and one black-and-white silver halide emulsion layer to light through a first pattern; developing the exposed emulsion layer with a first coupler-containing color developer to form a pattern of a first dye; then exposing an unexposed portion of said emulsion layer to light through a second pattern; developing the exposed area with a second coupler-containing color developer to form a pattern of a second dye; optionally repeating exposure and development to form patterns containing dyes of third and subsequent colors, thereby

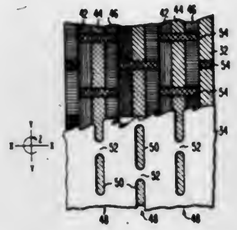
to form color patterns of at least two colors; and subjecting the product to a silver removal treatment after the final color development step.

4,271,247

COLOR PICTURE TUBE WITH SCREEN HAVING LIGHT ABSORBING AREAS

Albert M. Morrell, Lancaster, Pa., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 912, Jun. 2, 1979, abandoned. This application Aug. 7, 1980, Ser. No. 176,250
Int. Cl.³ G03C 5/00
U.S. Cl. 430—24 9 Claims



1. In a photo method of making light absorbing areas of a color picture tube screen wherein the tube includes a cathodoluminescent line screen and a slit aperture mask wherein the slits are arranged in columns and the slits in each column are separated by web portions of the mask, the improvement comprising

photoexposing a photosensitive material on a faceplate of a tube utilizing the mask as a photomaster, with light projected from at least two separated points, a straight line connecting the points being perpendicular to the longitudinal dimension of the slits in the mask whereby the said screen is provided with said light absorbing areas consisting of patches in alignment with the said web portions of the mask.

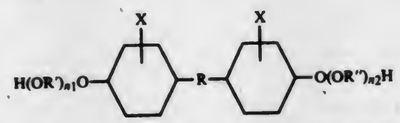
4,271,248

MAGNETIC LATENT IMAGE TONER MATERIAL AND PROCESS FOR ITS USE IN FLASH FUSING DEVELOPING

Stephen L. Gandioso, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 28, 1980, Ser. No. 115,973
Int. Cl.³ G03G 11/00, 13/20
U.S. Cl. 430—39 20 Claims

1. A method for developing magnetic latent images which comprises forming a magnetic latent image on a suitable substrate, contacting the image with a magnetic toner, transferring the image to a suitable substrate, followed by flash fusing the magnetic toner to said substrate, the toner particles having a pile height that ranges from about 3 microns to about 30 microns, the magnetic toner being comprised of a magnetic material and a resin comprising a polymeric esterification product of a dicarboxylic acid and a diol comprising a diphenol of the following formula:



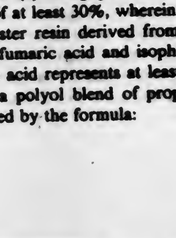
wherein R is selected from the group consisting of alkylene radicals having from 2 to 12 carbon atoms, alkylidene radicals having from 1 to 12 carbon atoms and cycloalkylidene radicals having from 3 to 12 carbon atoms; R' and R'' are selected from the group consisting of alkylene radicals having from 2 to 12 carbon atoms and alkylene arylene radicals having from 8 to 12 carbon atoms; X and X' are selected from the group consisting of hydrogen and alkyl radicals having from 1 to 4 carbon atoms; and n_1 and n_2 are each at least 1 and the average sum of n_1 and n_2 is less than 21.

4,271,249

COMPOSITION OF MATTER AND METHOD FOR ELECTROSTATIC IMAGE DEVELOPMENT

Yvan K. Gilliams, Hever, and Pierre R. De Roo, Schoten, both of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Oct. 30, 1979, Ser. No. 89,385
Claims priority, application United Kingdom, Oct. 31, 1978, 42515/78
Int. Cl.³ G03G 13/08
U.S. Cl. 430—101 8 Claims



1. In a method for developing an electrostatic charge pattern of positive charge sign which comprises the steps of:

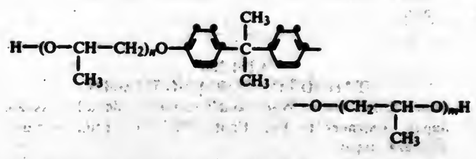
(a) imparting a positive electrostatic charge pattern to an electrically insulating medium,

(b) providing powder particles,

(c) forcing said powder particles by friction through a gap defined by a contacting means and a moving applicator means which carries on its surface the powder particles passing through the gap in layer form into at least close proximity with said charge pattern, wherein the applicator means has at least its surface contacting the powder particles composed of a silicone rubber, a polyurethane, a polyamide resin or a polyamide resin cross-linked with a compound containing epoxy groups and the contacting means having at least the surface containing the powder particles composed of a polyester resin, a polyurethane or a polyamide resin cross-linked with a compound containing epoxy groups, the surface of said applicator means having a Shore A hardness below 90 and being substantially smaller than the Shore A hardness of the powder particles, and

(d) delivering the powder particles present in layer form on the applicator surface into at least close proximity with said charge pattern to allow at least part of the powder particles to be electrostatically attracted onto the area of the electrostatically insulating medium carrying the positive charge pattern, the improvement wherein said powder particles have a Shore A hardness higher than 90 and contain, in addition to a colouring substance, in excess of 80% of their weight a mixture consisting of the following substances (1) and (2), or (1) and (3) or (1), (2) and (3), with substance (1) being present in said mixture in a weight ratio of at least 30%, wherein:

(1) is a polyester resin derived from fumaric acid or a mixture of fumaric acid and isophthalic acid wherein the fumaric acid represents at least 95 mole % of the acids, and a polyol blend of propoxylated bisphenol characterized by the formula:



wherein m and n are integers with the proviso that the average sum of m and n is from 2 to 7, said polyester resin being obtained from amounts of acid to polyol such that the ratio of carboxyl groups to hydroxyl groups is in the range of 1.2:1 to 0.8:1,

(2) is a copolymer of ethylene, maleic acid and/or maleic anhydride containing 50 to 70 mol % of ethylene repeating units, and

(3) is a wax of the group consisting of castor wax and montan wax.

4,271,250

FIBROUS ELECTROPHOTOGRAPHIC SHEET WITH A CELLULOSE NITRATE COATING

Colin H. Lewinton, Montreal, Canada, and Joseph Savit, Glencoe, Ill., assignors to Domtar Inc., Montreal, Canada

Division of Ser. No. 7,493, Jan. 29, 1979, abandoned. This application Nov. 23, 1979, Ser. No. 96,943
Int. Cl.³ G03G 5/00, 5/08
U.S. Cl. 430—127 1 Claim

1. Process for the preparation of electrophotographic sheet material which comprises: coating a fibrous base material with a solution of cellulose nitrate, removing solvent from said solution on said base material so as to form a continuous film consisting of cellulose nitrate, coating a layer of photoconductive material on said film of cellulose nitrate; said film of cellulose nitrate comprising between ¼ and 6 lb. per ream (3,300 sq.ft) of said sheet material and said photoconductive material comprises zinc oxide.

4,271,251

PHOTOSENSITIVE COMPOSITIONS

Yoshimasa Aoimi; Hiroshi Miu, both of Minami-ashigara, and Akira Nagashima, Shizuoka, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Oct. 19, 1979, Ser. No. 86,622
Claims priority, application Japan, Oct. 19, 1978, 53-128086
Int. Cl.³ G03C 1/52, 1/68
U.S. Cl. 430—195 21 Claims

1. In a photosensitive composition comprising a leuco dye and a photooxidizing agent forming an oxidizing agent capable of oxidizing the leuco dye upon exposure of said composition to radiation, the improvement wherein the composition additionally contains 2,4-dihydroxybenzaldoxime in an amount sufficient to restrain the occurrence of a dark heat reaction during storage of said composition.

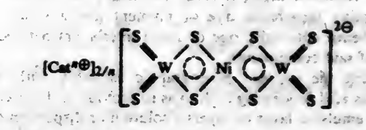
4,271,252

METHOD OF STABILIZING ORGANIC SUBSTRATE MATERIALS INCLUDING PHOTOGRAPHIC DYE IMAGES TO LIGHT AND A PHOTOGRAPHIC MATERIAL SO STABILIZED

Hiroshi Hara, Ataka; Kotaro Nakamura, and Yoshiaki Suzuki, both of Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Division of Ser. No. 969,518, Dec. 14, 1978. This application May 15, 1980, Ser. No. 150,120
Claims priority, application Japan, Dec. 14, 1977, 52-150346
Int. Cl.³ G03C 1/40, 1/84, 1/10
U.S. Cl. 430—216 2 Claims

1. A diffusion transfer color photographic material comprising a photosensitive element and an image-receiving element, said image-receiving element comprising a support having thereon a mordanting layer containing a complex of the formula (I)



(I)

wherein Cat represents a divalent cation when n is 2 or a monovalent cation when n is 1.

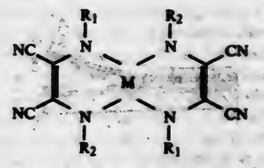
4,271,253

METHOD FOR STABILIZING ORGANIC SUBSTRATE MATERIALS INCLUDING PHOTOGRAPHIC DYE IMAGES TO LIGHT AND PHOTOGRAPHIC MATERIAL SO STABILIZED

Hiroshi Hara, Asaka; Kotaro Nakamura, and Yoshiaki Suzuki, both of Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Division of Ser. No. 969,518, Dec. 14, 1978. This application May 15, 1980, Ser. No. 150,028
Claims priority, application Japan, Dec. 14, 1977, 52-150344
Int. Cl.³ G03C 1/10, 1/40, 1/84
U.S. Cl. 430—216 2 Claims

1. A diffusion transfer color photographic material comprising a photosensitive element and an image receiving element said image receiving element comprising a support having thereon a mordanting layer containing a complex of the formula I



(I)

wherein M represents Ni, Pd or Pt; R_1 and R_2, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, an alkylsulfonyl group, an arylsulfonyl group or a carbamoyl group.

4,271,254

PROCESS FOR PRODUCING PHOTOGRAPHIC IMAGES

Leslie F. A. Mason, Brentwood; Robert S. Cook; David Kitcat, both of Billericay, all of England; Matthias Schellenberg, and Christoph Chylewski, both of Marly, Switzerland, assignors to Ciba-Geigy AG, Basel, Switzerland

Continuation-in-part of Ser. No. 954,251, Oct. 24, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,314
Claims priority, application Switzerland, Oct. 28, 1977, 13144/77; United Kingdom, Oct. 28, 1977, 44894/77; Nov. 18, 1977, 48611/77
Int. Cl.³ G03C 7/00, 5/54, 1/40, 1/10
U.S. Cl. 430—239 42 Claims



1. Process for the production of photographic images which comprises the steps of:

(a) imagewise exposing a photographic assembly which

contains at least during the silver halide developing step, in order optionally a supercoat layer, at least one silver halide emulsion layer, a layer containing a preformed substantive bleachable dye or pigment and a support, there being optionally one or more interlayers between each of said components,

(b) treating the exposed photographic assembly with an aqueous acid processing bath so as to provide in the silver halide emulsion layer or layers a solution or dispersion of a bleach developer compound which is either a reduced silver dye bleach catalyst which is an azine compound or is a salt of a metallic ion or a complex of a metallic ion with a suitable ligand which is capable of acting as a silver halide developing agent, thereby to develop the latent silver image in the silver halide emulsion(s), and

(c) in the non-latent image areas allowing the bleach developer compound to diffuse in a counter-imagewise manner from the silver halide emulsion layer(s) to the layer containing the bleachable dye and there to bleach the bleachable dye or pigment to form a photographic image.

4,271,255

METHOD FOR THE PREPARATION OF PLANOGRAPHIC PRINTING PLATES

Kenji Cho, Tokyo; Minoru Takamizawa, and Yoshio Inoue, both of Asaka, all of Japan, assignors to Dai Nippon Printing Co. Ltd. and Shin-Etsu Chemical Co. Ltd., both of Tokyo, Japan

Filed Mar. 27, 1980, Ser. No. 134,435
Claims priority, application Japan, Apr. 5, 1979, 54-41416
Int. Cl.³ G03C 11/12; G03F 7/02
U.S. Cl. 430—253 4 Claims



1. A method for the preparation of a planographic printing plate suitable for printing without supply of dampening water which comprises the steps of

(a) laminating a base plate provided on one surface thereof with successive layers of a first adhesive agent and a photocurable organopolysiloxane composition, the adhesive bonding strength of the first adhesive agent to the organopolysiloxane composition being increased with the exposure dose to light, and a sheet which is transparent to ultraviolet light and provided on one surface thereof with a layer of a second adhesive agent in such a manner that the layer of the photocurable organopolysiloxane composition and the layer of the second adhesive agent are in direct contact with each other, the adhesive bonding strength of the second adhesive agent to the photocurable organopolysiloxane composition being increased with the exposure dose to light and the second adhesive agent being imparted with a stronger adhesive bonding strength to the photocurable organopolysiloxane composition than the first adhesive agent with the exposure dose to light being the same,

(b) subjecting the laminate obtained in the step (a) to imagewise exposure to light through an image pattern opaque to ultraviolet light provided on said sheet,

(c) separating said sheet apart from said base plate by peeling so as that the layer of the organopolysiloxane composition photocured in the areas exposed to light is carried by the sheet and the layer of the uncured organopolysiloxane composition in the unexposed areas is left on the base plate, and

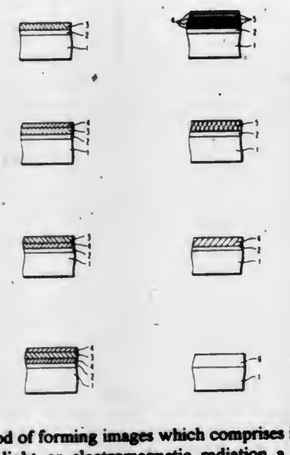
(d) subjecting the base plate bearing the layer of the uncured organopolysiloxane composition to exposure to light to effect photocuring of the organopolysiloxane composition.

4,271,256

METHOD FOR FORMING IMAGES

Keishiro Kido; Minoru Wada, and Tomoaki Ikeda, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 943,901, Sep. 19, 1978, abandoned. This application Jan. 20, 1980, Ser. No. 161,533
Claims priority, application Japan, Sep. 19, 1977, 52/112402
Int. Cl.³ G03C 5/54
U.S. Cl. 430—253 22 Claims



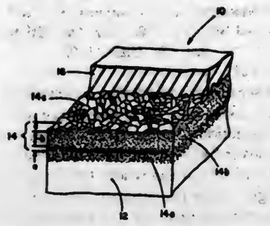
1. A method of forming images which comprises imagewise exposing to light or electromagnetic radiation a recording element comprising a support having directly or on a subbing layer thereon, as a recording layer, a vacuum deposited layer consisting essentially of at least about 20% by volume of an organic substance having good stability which is solid at less than about 40° C. and which is capable of being vacuum deposited and at least one of indium, tin or bismuth and an inorganic compound which is a metal sulfide selected from the group consisting of CrS, CrS_2, Cr_2S_3, MoS_2, FeS, FeS_2, CoS, NiS, Ni_2S, Cu_2S, Ag_2S, ZnS, In_2S_3, In_2S_2, GeS_x wherein x is a positive number of 2.5 or less, SnS, SnS_2 and mixtures thereof, a metal fluoride selected from the group consisting of MgF_2, CaF_2, RhF_3 and mixtures thereof, a metal oxide selected from the group consisting of MoO_3, InO, In_2O, In_2O_3, GeO, and mixtures thereof, or a halide selected from the group consisting of AgI, AgBr, AgCl, PbI_2, $PbBr_2$, $PbCl_2$, PbF_2, SnI_2, $SnCl_2$, CuI, CuBr, CuCl, KI, KCl and mixtures thereof, for light absorption to increase optical density and recording sensitivity, adhering a strippable film on the surface of said recording layer either prior to or after said imagewise exposure and peeling apart said strippable film from said recording layer after said imagewise exposure, whereby the exposed areas of said recording layer remain on the support and the non-exposed areas are transferred onto said strippable film, wherein said organic substance is at least one compound selected from the group consisting of higher fatty acids, aromatic carboxylic acids, polycarboxylic acids, abietic acid, salts of said acids, aromatic sulfonic acids, polymethacrylic acid, polystyrene, polyamides, polyvinyl alcohol, polyethylene glycol, methyl cellulose, polyvinyl butyral, poly(methyl methacrylate), poly(isobutyl methacrylate), polyethylene, rosin resin, thioureas, thiosemicarbazides, thiocarbamic acids, thiobenzophenones, imidazoles, triazoles, tetrazoles, thiazoles, basic dyes, acidic dyes, vat dyes, mordant dyes, sulfur dyes, oil-soluble dyes, disperse dyes, phthalocyanine pigments, anthraquinone type pigments and quinoline type pigments.

4,271,257

IMAGING FILM OF BISMUTH OR BISMUTH ALLOY

Harvey H. Wacks; Masatsugu Izu, both of Birmingham, and Donald J. Sarrach, Novi, all of Mich., assignors to Energy Conversion Devices, Inc., Troy, Mich.

Division of Ser. No. 724,993, Sep. 20, 1976, Pat. No. 4,138,262.
This application Jan. 8, 1979, Ser. No. 1,965
Int. Cl.² G03C 1/78, 5/00, 1/94
U.S. Cl. 430—276 4 Claims



1. An imaging film useful in the graphic arts comprising a substrate formed of a flexible, clear, plastic sheet material, a continuous, image-forming layer of bismuth or a bismuth alloy on a surface of the plastic sheet material, said layer consisting essentially of (1) an interfacial layer of bismuth or a bismuth alloy having a thickness of about 5 to about 100 angstroms, a portion at least of the atoms of the bismuth or bismuth alloy of the interfacial layer being embedded in the surface of the plastic sheet material substrate, and, (2) an outer layer of bismuth or a bismuth alloy on the interfacial layer, the outer layer having a roughened surface, the thickness of the image-forming layer of bismuth or bismuth alloy being about 1500 to about 3500 angstroms and having an optical density of about 3.5 to about 7, and a layer of a photosensitive, latent image forming organic material on the roughened surface of the outer layer of the image-forming bismuth or bismuth alloy layer, said photosensitive material layer having a hardness of at least 3.5 on the Mohs scale and a spectral sensitivity over the wave length range of from about 300 to about 500 nanometer, said photosensitive material layer being characterized in that it acts as a photoresist for the imaging film and as a protective coating for the image-forming bismuth, or bismuth alloy layer of the film and is capable upon the application of radiant energy thereto of changing between two states, one of which is a state in which the photosensitive material is substantially soluble with respect to a given solvent, and the other being a state in which the photosensitive material is substantially insoluble with respect to said solvent, thereby enabling a latent image corresponding to a preselected pattern to be formed therein, said imaging film being characterized in that the side thereof on which the photosensitive material layer is located has a black, non-shiny appearance, and the opposite side thereof has a shiny, metallic appearance thereby enabling the photosensitive material side of the imaging film to be readily distinguished from the substrate side of the film.

4,271,258

PHOTOPOLYMERIZABLE INK COMPOSITIONS

Kiyoomi Watarigachi, Iruma, Japan, assignor to Tamura Kaken Co., Ltd., Iruma, Japan

Filed Jul. 22, 1980, Ser. No. 171,053
Claims priority, application Japan, Jun. 11, 1980, 55-77686
Int. Cl.³ G03C 1/68
U.S. Cl. 430—284 7 Claims

1. A photopolymerizable ink composition mainly composed of a vehicle containing as essential ingredients

A. a diacrylate of an epoxy resin made of bisphenol A and epichlorohydrin, which has an average molecular weight of from about 1,000 to about 4,000;

B. a photosensitive resin having an average molecular weight of from about 1,000 to about 10,000, which has two or more acryloyl groups at the terminal through urethane bonds;

C. a urethane bond-free bifunctional photopolymerizable methacrylate monomer or oligomer;

D. a urethane bond-free polyfunctional photopolymerizable acrylate monomer or oligomer; and

E. a photo-initiator;

wherein the weight ratios between ingredients A, B, C, D and E are in the following ranges:

A:B=9:5–10:90

C:D=95:5–10:90

(A+B):(C+D)=15:85–70:30,

E being present in a ratio of from 0.3 to 8% by weight based on the entire ink composition.

4,271,259

PHOTOSENSITIVE COMPOSITIONS CONTAINING A PHOTOOXIDIZABLE COMPONENT

David S. Breslow, and David A. Simpson, both of Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 758,746, Jan. 12, 1977, abandoned, which is a continuation-in-part of Ser. No. 644,237, Dec. 24, 1975, abandoned, which is a division of Ser. No. 405,192, Oct. 10, 1973, abandoned. This application Jan. 11, 1980, Ser. No. 158,198
Int. Cl.³ G03C 1/68
U.S. Cl. 430—286 4 Claims

1. A photosensitive composition comprising (1) from about 5% to about 98% of a free radical polymerizable ethylenically unsaturated component selected from ethylenically unsaturated monomers, ethylenically unsaturated polymers and mixtures thereof; capable of forming a high molecular weight polymer by addition polymerization or cross-linking, (2) a photooxidizable component, different from the said polymerizable ethylenically unsaturated component, in an amount which will contribute to the photosensitive composition at least 1.0×10^{-3} moles per 1000 cc. of the composition of olefinic unsaturation of the type in which there is no more than one hydrogen on each of the double bond carbons and in which there is at least one allylic hydrogen on at least one of the carbons adjacent to the double bond carbons, which allylic hydrogen is not on a bridgehead carbon, and (3) a photooxygenation sensitizer.

4,271,260

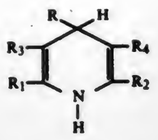
POSITIVE NONSILVER WASHOUT SYSTEMS CONTAINING DIHYDROPYRIDINES AND PHOTOOXIDANTS

Werner Abele, Neu-Isenburg; Mario Grossa, Dreieich, and Otto Pilz, Langen, all of Fed. Rep. of Germany, assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 971,663, Dec. 21, 1978, abandoned. This application Apr. 7, 1980, Ser. No. 137,625
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1977, 2758210
Int. Cl.³ G03C 5/00
U.S. Cl. 430—292 14 Claims

1. A process for the preparation of positive images which comprises exposing imagewise to actinic radiation a photosensitive element which comprises a support bearing a photosensitive layer comprising at least one alkali-soluble polymeric binder and a photosensitive system consisting essentially of

I. at least one dihydropyridine compound of the formula



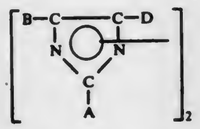
wherein

R is alkyl, alkenyl of 3 to 11 carbon atoms, phenyalkyl, phenylalkenyl, unsubstituted aryl of 6 to 10 carbon atoms and unsubstituted heteroaryl,

R_1 and R_2, which can be the same or different, are alkyl, and

R_3 and R_4, which can be the same or different, are COOR', COR', CN, R' is alkyl; and

II. at least one hexaarylbiimidazole compound of the formula



wherein the radicals A, B and D are either identical or different and are optionally substituted aryl groups derived from carbocyclic or heterocyclic compounds, and developing by washing out the exposed areas of the image.

4,271,261

DEVELOPER COMPOSITION FOR LITHOGRAPHIC PRINTING PLATES

Shigeki Shimizu, Tokyo, and Hiroshi Ide, Yokohama, both of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

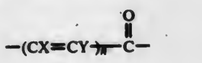
Filed Dec. 21, 1979, Ser. No. 106,010

Claims priority, application Japan, Dec. 25, 1978, 53-159658

Int. Cl.³ G03C 5/00, 5/24

U.S. Cl. 430—325 **10 Claims**

1. A method of developing an image in a light exposed photosensitive coating of a lithographic printing plate, said coating composed of a photosensitive polymer having in the main chain thereof groups of the formula:



wherein X and Y independently represent hydrogen, halogen, cyano or nitro, and n in an integer of one or two, comprising: washing the exposed portions of said exposed photosensitive coating from said plate with a developer solution comprising ethylene glycol monophenyl ether and at least one acid selected from the group consisting of a mineral acid, an organic carboxylic acid and an organic sulfonic acid.

4,271,262

PHOTOIMAGING PROCESS WHICH USES SULFIDE CONTAINING POLYMERIC FILMS

Roland J. Kern, Chesterfield, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 928,323, Jul. 26, 1978, which is a continuation-in-part of Ser. No. 756,034, Dec. 30, 1976, abandoned. This application Aug. 15, 1980, Ser. No. 178,423

Int. Cl.³ G03C 5/00

U.S. Cl. 430—325 **37 Claims**

1. An imaging process comprising

providing a photoimageable polymeric substrate containing photooxidizable organic sulfide functionality,

selectively exposing said substrate to radiation in the presence of oxygen and a photooxidation sensitizer to oxidize said organic sulfide functionality in the exposed regions to produce a latent image in said exposed regions, and

developing said latent image.

4,271,263

THERMALLY DEVELOPABLE PHOTOSENSITIVE COMPOSITIONS CONTAINING ACUTANCE AGENTS

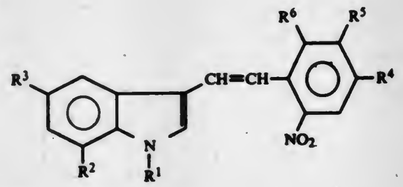
Edward J. Goettert, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 15, 1980, Ser. No. 150,403

Int. Cl.³ G03C 1/02

U.S. Cl. 430—522 **12 Claims**

1. A light-sensitive composition comprising an intimate mixture of a substantially light-insensitive silver compound which upon reduction gives a visible change and a sufficient quantity of a silver halide to catalyze said reduction to give a visible change in those areas where the silver halide has been exposed to light when the intimate mixture is heated in the presence of a reducing agent for silver ion, the intimate mixture including as an acutance dye a compound of the general formula:



wherein:

R^1 represents hydrogen, an alkyl group of 1 to 18 carbon atoms or an aryl group of 6 to 10 carbon atoms, the alkyl or aryl group optionally substituted by halogen, by an alkoxy group of 1 to 6 carbon atoms or by an aryl group of 6 to 10 carbon atoms;

R^2 and R^3 independently represent hydrogen, an alkyl group having 1 to 6 carbon atoms, an alkoxy group having 1 to 6 carbon atoms, or halogen;

R^4 represents hydrogen, nitro, cyano, a carbalkoxy group having 1 to 6 carbon atoms, or halogen;

R^5 is hydrogen;

R^6 represents hydrogen, nitro, cyano, a carbalkoxy group having 1 to 6 carbon atoms, or halogen; or

R^5 and R^6 together constitute a benzo group.

4,271,264

STABILIZED LIQUID ENZYME AND COENZYME COMPOSITIONS

Ivan E. Modrovich, 1043 Mesa Dr., Camarillo, Calif. 93010

Continuation-in-part of Ser. No. 722,565, Sep. 13, 1976, abandoned. This application Dec. 19, 1977, Ser. No. 862,106

Int. Cl.³ C12Q 1/54; C12N 9/96

U.S. Cl. 435—14 **42 Claims**

1. A stabilized liquid enzyme and coenzyme composition used in biological diagnostic determinations of glucose and which enzyme and coenzyme are normally unstable in an aqueous media, said composition comprising:

(a) at least 30% v/v of an aqueous vehicle,

(b) at least a sufficient amount of nicotinamide-adenine dinucleotide coenzyme or a coenzyme having nicotinamide-adenine dinucleotide as a moiety thereof to perform a determination dissolved in said aqueous vehicle,

(c) a nucleotide cooperating with the coenzyme or an enzyme in a determination reaction and which nucleotide has an adenosine moiety and a phosphate moiety,

(d) at least 100 I.U. of at least one enzyme dissolved in said aqueous vehicle including at least hexokinase or glucose

-6-phosphate dehydrogenase, and both said enzyme and coenzyme cooperating in a determination reaction such that glucose in a determination reaction can react with the nucleotide and ultimately permit generation of a further nicotinamide-adenine dinucleotide compound or a compound having nicotinamide-adenine dinucleotide as a moiety thereof which can be measured to enable a determination of glucose,

(e) a non-reactive aqueous miscible polyol organic solvent dissolved in said aqueous vehicle and which is liquid at least at room temperature in said aqueous vehicle and present in an amount of about 5% to about 25% v/v based on the total composition, and which solvent is effective to stabilize the enzyme and the coenzyme and nucleotide in the presence of each other and in the presence of an aqueous vehicle,

(f) and said composition having a pH from about 6.0 to about 8.5, such that the enzyme and coenzyme are stabilized.

4,271,265

METHOD AND REAGENT FOR THE DETERMINATION OF GLUTAMATE-OXALACETATE TRANSAMINASE AND GLUTAMATE-PYRUVATE TRANSAMINASE

Ulfert Deneke, Peissenberg; Peter Stahl, Beraried, and Walter Schneider, Wolfratshausen, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Jul. 20, 1979, Ser. No. 59,368

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1978, 2834706

Int. Cl.³ C12Q 1/32, 1/52

U.S. Cl. 435—16 **13 Claims**

1. In a method for the determination of glutamate-oxalacetate transaminase or of glutamate-pyruvate transaminase by the reaction of oxalacetate or pyruvate with glutamate with the formation of α-Ketoglutarate in buffered solution, the improvement comprising reacting the α-Ketoglutarate formed with γ-aminobutyrate in the presence of γ-aminobuyrate transaminase to form succinate semialdehyde, reducing NADP with said succinate semialdehyde in the presence of succinate semialdehyde dehydrogenase to form NADPH and measuring the NADPH as a measure of the glutamate transaminase component initially present.

4,271,266

PROCESS FOR PREPARING LINCOMYCIN

Malcolm E. Burgy; John H. Coats, and Vedpal S. Malik, all of Kalamazoo, Mich., assignors to The Upjohn Manufacturing Company, Wilmington, Del.

Filed Jan. 10, 1974, Ser. No. 477,766

Int. Cl.³ C12P 19/64

U.S. Cl. 435—73 **4 Claims**

1. A novel process for preparing the antibiotic lincomycin which comprises cultivating *Streptomyces vellosus*, having the identifying characteristics of NRRL 8037, and lincomycin-producing mutants thereof, in an aqueous nutrient medium under aerobic conditions until substantial antibiotic activity is imparted to said medium by the production of lincomycin.

4,271,267

PREPARATION OF L-TRYTOPHAN BY FERMENTATION

Hideaki Yukawa; Kazuoki Ozumi; Terukatsu Nara, and Yoshihiro Takayama, all of Ami, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 101,041

Claims priority, application Japan, Dec. 11, 1978, 53-152052

Int. Cl.³ C12P 13/22

U.S. Cl. 435—108 **1 Claim**

1. A process for preparing L-tryptophan by fermentation which comprises

cultivating on a medium containing ethanol as the main carbon source a microorganism of the strain *Serratia marcescens* MT-5 that utilizes ethanol and has the ability to produce L-tryptophan, and

recovering the accumulated L-tryptophan from the culture.

4,271,268

PROCESS FOR PRODUCING D-ARABITOL

Akiko Fujiwara, Kamakura, and Setsuko Maeda, Yokohama, both of Japan, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Sep. 8, 1978, Ser. No. 940,690

Claims priority, application Luxembourg, Sep. 12, 1977, 78114

Int. Cl.³ C12P 7/18

U.S. Cl. 435—158 **14 Claims**

1. A process for producing D-arabitol comprising cultivating a micro-organism of the species *Pichia haplophila* or mutants thereof in a nutrient medium containing a carbon source selected from the group consisting of a hydrocarbon and ethyl alcohol.

4,271,269

REGENERATION OF AN ENZYME IMMOBILIZATE

Gisellher Franzmann, Witten, and Hans-Leo Hillmann, Wetter, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed May 15, 1979, Ser. No. 39,482

Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821890

Int. Cl.³ C12N 11/14

U.S. Cl. 435—176 **6 Claims**

1. A method for regeneration of an enzyme immobilizate comprising an amorphous siliceous support to which there is bonded by adsorption via an amino alkoxy silane containing an amino alkyl or amino aryl group an inactivated enzyme which comprises desorbing said inactivated enzyme from said immobilizate by contacting said immobilizate with a solution of inorganic ammonium sulfate or a primary, secondary, tertiary or quaternary C_1 to C_6 alkyl or hydroxy alkyl ammonium sulfate having a concentration of 10 to 40 weight percent and a pH in the range of 5 to 11 and thereafter reactivating the so-treated immobilizate by contacting the same with fresh enzyme solution to adsorb fresh enzyme to said support.

4,271,270

APPARATUS FOR CULTURING AND EXAMINING FUNGI

Patricia A. Lukacsek, 4014 W. Naval Dr., Phoenix, Ariz. 85021

Division of Ser. No. 845,097, Oct. 27, 1977, which is a continuation-in-part of Ser. No. 789,773, Apr. 22, 1977, abandoned. This application Aug. 6, 1979, Ser. No. 63,952

Int. Cl.³ C12M 1/28

U.S. Cl. 435—294 **6 Claims**



1. An apparatus for culturing and examining fungi comprising:

(a) a base of optically clear material and configured with a planar top surface and a compartment formed therein so as to open upwardly onto the top planar surface thereof, the

compartment of said base being formed with square corners and flat surfaces to allow the passage of light rays with minimal refraction;

(b) a culture nutrient medium in jelled form within the compartment of said base and disposed to present a planar top surface which is flush with the planar top surface of said base;

(c) membrane means removably affixed on the top planar surface of said base so as to span the compartment thereof in contiguous engagement with the top surface of said culture nutrient medium to preserve the sterile state and moisture content thereof until ready for use;

(d) a cover slip supported on the top planar surface of said base adjacent the compartment thereof, said cover slip having a surface area which is larger than the open top of the compartment formed in said base and is movable into a position which spans the compartment and is in contiguous engagement with the top surface of said culture nutrient medium subsequent to removal of said membrane means; and

(e) a base cover of optically clear material demountably positioned on said base.

4,271,271

FIRE-RETARDANT MONOCARBOXLYLIC ACID AMIDE COPOLYMERS

Adolph V. DiGiulio, and Jack N. Bauer, both of Pittsburgh, Pa., assignors to Arco Polymers, Inc., Philadelphia, Pa.

Filed May 7, 1980, Ser. No. 147,036
Int. Cl.³ C08J 9/12
U.S. Cl. 521—82 7 Claims

1. A process for making fire-retardant foams consisting of blending a mixture of (a) a copolymer of 50 to 95 mole percent of a monovinyl aromatic monomer and 50 to 5 mole percent of an ethylenically unsaturated monocarboxylic acid amide monomer; (b) from 0.5 to 10 percent by weight of water; (c) from 10 to 20 parts per hundred parts of copolymer of an at least tri-brominated diphenylether; and (d) 4 to 8 parts per hundred parts of copolymer of a metal oxide synergist for the ether until an intimate blend is obtained; heating the blend to a temperature of between 125° and 190° C. under sufficient pressure to prevent foaming of the blend; releasing the pressure to allow the blend to expand to a foam of density between 1 and 10 pounds per cubic foot; and cooling the resultant foam to room temperature.

4,271,272

POLYURETHANE SPONGES MANUFACTURED WITH ADDITIVE DISPERSED THEREIN

Robert L. Strickman, 729 Handwerg Dr., River Vale, N.J. 07675, and Melvyn B. Strickman, Academy St., Shiloh, N.J. 08353

Division of Ser. No. 305,870, Nov. 13, 1972, abandoned. This application Oct. 30, 1978, Ser. No. 955,880
Int. Cl.³ C08G 18/14, 18/16
U.S. Cl. 521—110 7 Claims

1. A resilient polyurethane foam sponge product comprising an amount of a lotion of at least 4 percent by weight of the product sponge dispersed uniformly within the cellular structure of the synthetic polyurethane sponge, said sponge product produced by reaction of a component selected from the group consisting of polyesters and polyethers with an organic polyisocyanate in the presence of a catalyst to obtain a foam forming mass, the lotion being dispersed in the reaction mass prior to the onset of foam formation.

4. A resiljent polurethane foam sponge product comprising an amount of a pesticide of at least 4 percent by weight of the product sponge dispersed uniformly within the cellular structure of the synthetic polyurethane sponge, said sponge product produced by reaction of a component selected from the group consisting of polyesters and polyethers with an organic polyisocyanate in the presence of a catalyst to obtain a foam forming mass, the pesticide being dispersed in the reaction mass prior to the onset of foam formation.

4,271,273

RIGID ISOCYANURATE POLYURETHANE FOAMS AND METHOD FOR PREPARING SAME

Jerome B. Biranowski, New York, N.Y.; Donald H. Lorenz, Basking Ridge, and Simon W. Kantor, Ridgewood, both of N.J., assignors to GAF Corporation, New York, N.Y.

Filed Jun. 25, 1979, Ser. No. 51,352
Int. Cl.³ C08G 18/14, 18/32, 18/76
U.S. Cl. 521—110 11 Claims

1. Thermally stable, rigid cellular isocyanurate polyurethane foam comprising the post cured reaction product of reacting in the presence of a blowing agent and trimerization catalyst:

(a) polyol comprising at least about 14 wt% 2-butene,-1,4-diol; and

(b) aromatic polyisocyanate in an amount such that the active hydrogen groups present in the polyol are less than 50% of the number of isocyanate groups present in the polyisocyanate of the reaction mixture.

4,271,274

FLAMEPROOFED POLYESTERS OF IMPROVED VISCOSITY

Werner Schmidt, St. Augustin, and Rüdiger Minke, Troisdorf, both of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Filed May 14, 1979, Ser. No. 39,034
Claims priority, application Fed. Rep. of Germany, May 16, 1978, 2821292
Int. Cl.³ C08L 63/00
U.S. Cl. 525—111 17 Claims

1. A composition comprising a polyester, a brominated flameproofing agent for said polyester which is polymeric brominated acrylate and 0.5 to 20 percent by weight of an epoxy resin based on the total weight of the composition, said composition free of crosslinking agent or hardener.

4,271,275

FLUOROELASTOMER COMPOSITION CONTAINING OXIRANE ACID ACCEPTOR

James D. MacLachlan, Kennett Square, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 14, 1979, Ser. No. 103,957
Int. Cl.³ C08L 63/00
U.S. Cl. 525—112 5 Claims

1. A peroxide curable fluoroelastomer composition comprising:

(A) a fluoroelastomer selected from the group consisting of:

(1) a copolymer whose interpolymerized units consist essentially of

(a) up to 3 mole %, based on the total moles of components (a) and (b), of units derived from a compound selected from the group: bromotrifluoroethylene and 4-bromo-3,3,4,4-tetrafluorobutene-1, with the proviso that enough of such units are present to provide at least 0.05 weight % bromine in the copolymer, and

(b) enough units derived from component (b-1) (b-2) or (b-3) as follows to make up the remainder of the copolymer;

b-1. tetrafluoroethylene and a perfluoroalkyl perfluorovinyl ether wherein the alkyl group contains 1–5 carbon atoms,

b-2. about 45–65 mole % of tetrafluoroethylene, about 20–55 mole % of a C_2–C_4 olefinic hydrocarbon and from 0 to about 30 mole % vinylidene fluoride, or

b-3. vinylidene fluoride, at least one fluorine-containing olefin copolymerizable therewith, and optionally said perfluoroalkyl perfluorovinyl ether, said olefin being a compound which contains 2–7 carbon atoms, contains no bromine atom, and contains at least as many fluorine atoms as carbon atoms, and

(2) a blend of 10–95 weight percent of the copolymer (1) with 5–95 weight percent of a non-crosslinked fluoroelastomer comprising a copolymer of vinylidene fluoride and at least one other fluoroolefin,

(B) an organic peroxide curing agent,

(C) an unsaturated co-agent, and

(D) 0.5–10 parts per 100 parts of the fluoroelastomer composition of an oxirane.

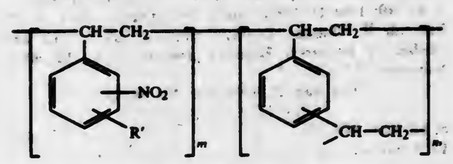
4,271,276

METHOD FOR PREPARING CROSS-LINKED VINYLAROMATIC POLYMERS CONTAINING NITRO GROUPS

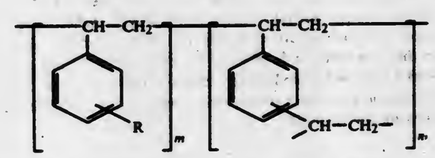
Serafima B. Makarova, Leningradsky prospekt, 57, kv. 117; Jury A. Lelkin, ulitsa Grishina, 8, kv. 103; Anatoly V. Smirnov, Zelenodolskaya ulitsa, 32, korpus 2, kv. 7, all of Moscow; Valery Y. Semeny, ulitsa Navoi, 57, kv. 27, Kiev; Eleonora M. Pakhomova, ulitsa Volgina, 25, korpus 2, kv. 10, Moscow; Galina I. Korelskaya, ulitsa Pekhtina, 60, kv. 206, Moscow; Antonia P. Pelikarpova, Volzhsky bulvar, 36, kv. 17, Moscow; Andrei A. Ilinsky, Botanicheskaya ulitsa, 27, kv. 7, Moscow; Olga N. Vlasovskaya, Profsojuznaya ulitsa, 100, korpus 4, kv. 24, Moscow, and Ljudmila A. Tikhonova, Domodedovskaya ulitsa, 11, korpus 1, kv. 191, Moscow, all of U.S.S.R.

Filed Feb. 28, 1977, Ser. No. 772,473
Int. Cl.³ C08F 8/30
U.S. Cl. 525—340 6 Claims

1. A method for preparing cross-linked vinylaromatic polymers containing nitro groups having the general formula



where R' is selected from the group consisting of H, NO_2, COOH, SO_3H, $P(O)(OH)_2$, P(O)H(OH), m is from 60 to 99, and n is from 40 to 1, consisting in that the cross-linked polymers having the general formula



where R is selected from the group consisting of H, COOH, SO_3H, $P(O)(OH)_2$ and P(O)H(OH), m is from 60 to 99 and n is from 40 to 1, are treated, at a temperature of from −5° to 95° C., with a mixture of an alkali metal nitrate and an acid agent selected from the group consisting of sulphuric acid, polyphosphoric acid, glacial acetic acid, and acetic anhydride, the alkali metal nitrate being taken in the quantity from 0.1 to 8 moles per mole of the starting cross-linked polymer.

4,271,277

CURING CATALYST FOR THERMOSETTING POWDER PAINTS

Robert F. Golowata, Northfield, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed Oct. 9, 1979, Ser. No. 82,715
Int. Cl.³ C08L 61/28, 61/26, 63/00
U.S. Cl. 525—351 7 Claims

1. A thermosetting powder paint composition containing reactive polymer having a reactive carboxyl, hydroxyl and/or amide groups adapted to be cross-linked upon heating with an aminoplast resin, the improvement comprising:

said reactive polymer having a molecular weight between 1,000 and 10,000 and selected from epoxy polymer, polyester polymer, acrylic polymer, phenolic polymer, and vinyl polymer said reactive polymer having a melt temperature between 80° C. and 200° C.; and

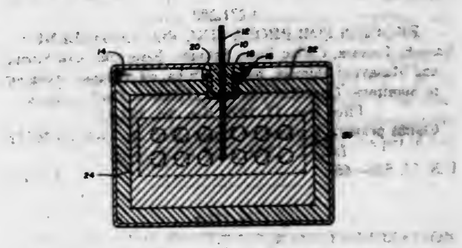
said powder paint composition containing by weight at least about 0.25% of a heat curing catalyst of an amine salt of cyclohexyl sulfamic acid, whereby said powder paint compositions are adapted to cure as a paint coating substantially free of surface pin-holes.

4,271,278

CATHODE MATERIALS

Gary M. Phillips, St. Paul, and Darrel F. Untereker, Cedar, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 951,862, Oct. 16, 1978, Pat. No. 4,223,110. This application Sep. 10, 1979, Ser. No. 74,153
Int. Cl.³ C08F 8/18, 8/22
U.S. Cl. 525—356 15 Claims



1. A cell including an anode and a cathode wherein the cathode is prepared by a method comprising the steps of mixing polymeric material selected from the group consisting of P2VP, P4VP, and mixtures thereof with a quantity of iodine and heating the resultant mixture in a sealed container in the presence of a protective atmosphere at a temperature of at least about 150° C.

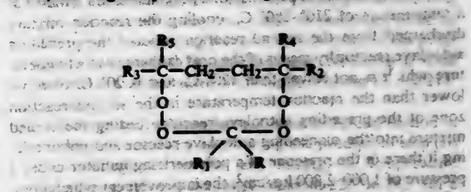
4,271,279

CYCLIC PERKETALS AND THEIR USE FOR CROSS-LINKING HIGH DENSITY POLYETHYLENE

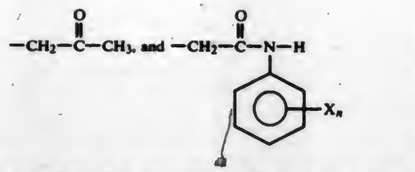
Ronald L. Pasternac, Larkspur; Roger N. Lewis, Martinez, both of Calif., and Charles B. Abess, assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Continuation-in-part of Ser. No. 591,783, Jun. 30, 1975, abandoned. This application May 21, 1976, Ser. No. 688,874
Int. Cl.² C08F 8/06
U.S. Cl. 525—387 21 Claims

1. A composition for making cross-linked high density polyethylene comprising: high density polyethylene blended with an effective amount of an organic peroxide for the crosslinking thereof, said organic peroxide having the formula:



wherein each of R_2, R_3, R_4 and R_5 is selected from alkyl having from 1–4 carbon atoms; each of R and R_1 is selected from alkyl, hydroxy alkyl and alkyl carboxylate ester groups having up to about 10 carbon atoms,



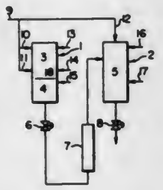
where n=0 to 3 and X is lower alkyl or alkoxy of up to about 5 carbon atoms; provided that when all of R_2, R_3, R_4 and R_5 are methyl not more than one of R and R_1 is methyl and the other of R and R_1 is larger than ethyl when it is alkyl.

4,271,280

PROCESS FOR PRODUCING POLYETHYLENE

Yasuaki Tomura, Chiba; Fujio Sakuma, Kisaraza; Seiji Suzuki, and Masayuki Shimizu, both of Chiba, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 17, 1979, Ser. No. 103,923
Claims priority, application Japan, Dec. 26, 1978, 53-161710
Int. Cl.³ C08F 2/02, 4/28, 10/02
U.S. Cl. 526—65 5 Claims



1. In a process for polymerizing ethylene at a high temperature and a high pressure using two autoclave reactors connected in a series through a heat exchanger, by using the preceding autoclave reactor partitioned into a first and second reaction zone, feeding the major part of the starting ethylene into the first reaction zone of the preceding autoclave reactor, feeding the remaining starting ethylene into the succeeding autoclave reactor, polymerizing the ethylene fed into the first reaction zone of the preceding autoclave reactor in the presence of a polymerization initiator under a pressure of 1,000–2,800 kg/cm² at a temperature of 130°–200° C., introducing the reaction mixture thus obtained into the second reaction zone of the preceding autoclave reactor, polymerizing the reaction mixture in the presence of a polymerization initiator at a temperature of 210°–280° C., cooling the reaction mixture discharged from the second reaction zone of the preceding autoclave reactor by means of the heat exchanger to a temperature which is not lower than 120° C. and is 20° C. or more lower than the reaction temperature in the second reaction zone of the preceding autoclave reactor, feeding the cooled mixture into the succeeding autoclave reactor and polymerizing it there in the presence of a polymerizing initiator under a pressure of 1,000–2,800 kg/cm², the improvement which comprises using a reactor having one reaction zone as the succeeding autoclave reactor and polymerizing the mixture fed into the succeeding autoclave reactor at a temperature of 210°–280° C.

4,271,281

PROCESS FOR PREPARING STYRENIC POLYMER PARTICLES

Donald J. Kelley; David J. Williams, both of Lunenburg, and Stephen V. Slovenkai, Leominster, all of Mass., assignors to American Hoechst Corporation, Somerville, N.J.

Filed May 29, 1980, Ser. No. 154,184
Int. Cl.³ C08F 2/20
U.S. Cl. 526—80 15 Claims

1. In a suspension polymerization process for preparing styrenic polymer particles which comprises providing a stirred, aqueous suspension of polymeric seed particles, adding gradually to the suspension styrenic monomer, polymerizing the monomer in the suspension in the presence of suspension polymerization initiator, and continuing the addition of monomer to the suspension as the polymerization proceeds, the improvement which comprises introducing the styrenic monomer below the surface of the suspension.

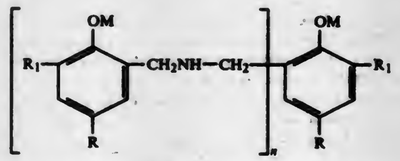
4,271,282

PROCESS FOR PRODUCING CARBO-CHAIN HOMO-POLYMERS, BLOCK- AND RANDOM COPOLYMERS OF CONJUGATED DIENES WITH VINYL-AROMATIC MONOMERS

Viktor P. Judin, pereulok Mendeleeva, 7, kv. 71; Valentin P. Shatalov, ulitsa Geroev Stratosfery, 1, kv. 4; Leonid V. Kovtunenko, Leninsky prospekt, 13, kv. 46; Valeria G. Shalganova, ulitsa Koltsovskaya, 54, kv. 57; Nadezhda K. Kashkina, ulitsa Skladskaya, 2, kv. 25; Lidia N. Mistjukova, ulitsa Merkulova, 4, kv. 53; Neonila M. Semenova, ulitsa Tsiolkovskogo, 7/2, kv. 56; Zinaida N. Korbanova, ulitsa Mendeleeva, 3, kv. 10; Ivan P. Mitin, ulitsa Rostovskaya, 46/6, kv. 7; Vladimir V. Moiseev, Leninsky prospekt, 63, kv. 12, and Vladimir V. Kosovtsev, Leninsky prospekt, 13, kv. 13,, all of Voronezh, U.S.S.R.

Filed Aug. 22, 1979, Ser. No. 68,520
Int. Cl.³ C08F 4/48
U.S. Cl. 526—174 7 Claims

1. A process for producing carbo-chain homopolymers, block- and random copolymers of conjugated dienes with vinylaromatic monomers comprising polymerization of monomers selected from the group consisting of dienes, vinylaromatic monomers and divinylaromatic monomers, or copolymerization thereof in a medium of a hydrocarbon solvent at a temperature ranging from −30° to +150° C. in the presence of an organolithium catalyst of the formula $R(Li)_x$, wherein R is selected from the group consisting of a hydrocarbon radical and a diene polymer; x is selected from the group of integers, of from 1 to 4; and a modifying additive comprising a product of interaction between a phenolamine resin and an alkali metal and having the formula:



wherein n is selected from the group of integers of from 1 to 10; M is selected from the group consisting of sodium and potassium; R is selected from the group consisting of an alkyl with a number of carbon atoms of from 2 to 20 and an arylalkyl with a number of carbon atoms of from 7 to 20; R_1 is selected from the group consisting of an alkyl with a number of carbon atoms of from 1 to 6, and an arylalkyl with a number of carbon atoms of from 7 to 9, and a hydrogen; said modifying additive being taken in an amount of from 0.07 g/equiv. per one g/equiv. of active lithium of said organolithium catalyst.

4,271,283

SUSPENSION POLYMERIZATION PROCESS FOR PRODUCING LARGE POLYMER PARTICLES

Heino Pahk, North Olmsted, Ohio, assignor to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 954,553, Oct. 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 889,169, Mar. 23, 1978, abandoned. This application Aug. 2, 1979, Ser. No. 63,345
Int. Cl.³ B32B 27/30; C08F 220/04, 220/06, 220/20
U.S. Cl. 526—317 4 Claims

1. An aqueous suspension polymerization process for producing suspension polymer particles by polymerizing a mixture of ethylenically unsaturated monomers in an aqueous medium under suspension polymerization conditions to produce polymer particles greater than about 150 microns, the improvement comprising:

providing a monomer mixture comprising by weight between about 25% and 50% pentaerythritol triacrylate, 1% and 10% ethylenically unsaturated monocarboxylic acid monomer, and the remainder being other ethylenically unsaturated monomer.

4,271,284

PROCESS FOR THE PRODUCTION OF POLY(AMINE ALLYL HALIDE HALOHYDRIN SILICATE) COPOLYMER AND THEIR REACTION PRODUCTS

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 862,020, Dec. 19, 1977, Pat. No. 4,157,438, which is a continuation-in-part of Ser. No. 757,239, Jan. 6, 1977, Pat. No. 4,069,391, which is a continuation of Ser. No. 622,525, Oct. 15, 1975, Pat. No. 4,020,299. This application Jan. 19, 1979, Ser. No. 4,683
Int. Cl.³ C08G 61/12, 65/24, 77/00; C08F 30/08
U.S. Cl. 528—28 12 Claims

1. The process for the production of a poly(allyl halide amine halohydrin silicate) resinous product by mixing the following components:

(a) an allyl halide,
(b) an amine,
(c) an oxidated silicon compound,
(d) an alkali catalyst,
(e) a polyfunctional halohydrin compound

then the mixture is agitated for 10 to 60 minutes between ambient temperature and the boiling temperature of the reactants.

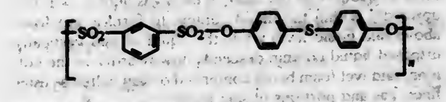
4,271,285

ARYL SULFIDE/SULFONATE POLYMER

Hans Dressler, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Nov. 30, 1979, Ser. No. 98,920
Int. Cl.³ C08G 75/24
U.S. Cl. 528—175 1 Claim

1. A linear aryl sulfide/sulfonate polymer having improved thermal stability consisting essentially of units of the formula:



wherein n is an integer of from 3 to about 250.

4,271,286

PROCESS FOR THE PREPARATION OF ETHERIFIED METHYLOLAMINOTRIAZINES

Walter Michel; Hans Hänel, both of Frankfurt am Main; Manfred Schön, Dudenhofen, and Wolfgang Kaiser, Hessen, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 2, 1980, Ser. No. 136,416
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915315
Int. Cl.³ C08G 12/30
U.S. Cl. 528—254 9 Claims

1. In the process for the preparation of methylolaminotriazines etherified with alkanols and having per mol of the aminotriazine, an analytically determined average of 0.6 n to 2 n methylol groups, which are etherified to the extent of 30 to 60%, n being the number of amino groups in the aminotriazine, wherein an aminotriazine is warmed to 80° to 130° C. with 0.7 n to 3 n mols of formaldehyde, 2 n to 10 n mols of an alkanol or a mixture of alkanols having 1 to 8 carbon atoms, the carbon chain of which, if having more than 2 carbon atoms, can also be interrupted by an oxygen atom, and 0 to 5 n mols of water, per mol of the aminotriazine for 0.2 to 20 minutes, under elevated pressure, wherein the improvement comprises said aminotriazine being first heated to a temperature of 60°–90° C. in the presence of the formaldehyde and 0 to 30% by weight of the total amount of alkanol or alkanol mixture for 1 to 30 minutes at a pH 8 to 11 whereupon the remainder of the alkanol or alkanol mixture is added and the mixture is subsequently heated to 80° to 130° C. under elevated pressure at a pH of 3 to 8, for 0.2 to 20 minutes.

4,271,287

PROCESS FOR THE CONTINUOUS POLYMERIZATION OF POLYETHYLENE TEREPHTHALATE IN THE SOLID PHASE

Nipun M. Shah, Fayetteville, N.C., assignor to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 79,669, Sep. 28, 1979. This application Jul. 28, 1980, Ser. No. 173,286
Int. Cl.³ C08G 63/26
U.S. Cl. 528—272 4 Claims

1. In a process for the continuous production of high molecular weight polyethylene terephthalate by polycondensation in the solid phase from a dried granulated polyethylene terephthalate in which the granulated polyethylene terephthalate is first at least partially crystallized following which the partially crystallized material is subjected to polycondensation, the improvement which comprises:

(A) first preheating said polymer under forced motion to a temperature in the range of about 180° C. to 200° C. without substantial increase in the intrinsic viscosity of said polymer and while maintaining the crystallinity below about 40%;

(B) at least partially crystallizing said preheated polymer in a fixed bed crystallizer by feeding said polymer into said fixed bed at a temperature in the range of about 180° to 200° C., maintaining it in said bed for a time sufficient to raise the crystallization to a value in the range of 40 to 60% while maintaining the intrinsic viscosity of the polymer below about 0.75, and thereafter removing it from said bed at a temperature in the range of about 195° to 215° C.; and

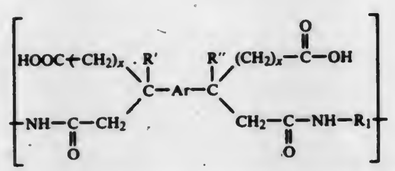
(C) effecting said polycondensation under forced motion in an agitated reactor by introducing the product of step (B) into said agitator reactor and raising the temperature thereof to a value in the range of about 220° to 245° for a period of time sufficient to raise the intrinsic viscosity of the polymer to a value of at least 0.70 up to about 1.4, steps (B) and (C) being conducted under a non-reactive gas atmosphere.

4,271,288
NOVEL POLYAMIC ACID POLYMERS AND POLYIMIDE DERIVATIVES THEREOF

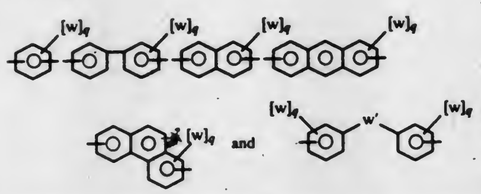
Edmund P. Woo, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 53,670, Jul. 2, 1979, abandoned. This application Jan. 21, 1980, Ser. No. 113,892
Int. Cl.³ C08G 73/10, 73/14
U.S. Cl. 528—353 15 Claims

1. A polyamic acid polymer comprising recurring units at least some of which comprise the structural formula:



wherein Ar is a C_{6-20} arylene radical selected from the group consisting of:



wherein w in each occurrence is halo, nitro, or a C_{1-10} radical selected from alkyl, aryl, alkaryl, aralkyl, haloalkyl, haloaryl, aryloxy and alkoxy; q is an integer from zero to 4; and w' is oxygen, sulfur, alkylene, oxyalkylene, alkylenedioxy or polyoxyalkylene; R', R'' individually are hydrogen or alkyl, aryl, aralkyl or alkaryl radicals containing up to 10 carbon atoms, both x's are either zeros or ones; and R_1 is each occurrence a divalent organic radical remnant of a diamine containing at least 2 carbon atoms, and any remainder being polyamic acid monomeric units formed by reaction of a tetracarboxylic acid dianhydride and a diamine.

4,271,289
OXYGEN-CURABLE MERCAPTO-FUNCTIONAL ORGANIC COMPOUND COMPOSITIONS CATALYZED BY METAL CARBONYL COMPOUNDS AND METHOD OF FORMING HIGHER MOLECULAR WEIGHT PRODUCTS THEREFROM

Gary R. Homan, and Chi-long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,282
Int. Cl.³ C08G 75/04
U.S. Cl. 528—374 22 Claims

1. A composition, stable in the absence of oxygen, which consists essentially of a product obtained by mixing the following substantially in the absence of oxygen

(A) 100 parts by weight of at least one mercapto-functional organic compound which contains an average of at least two mercapto groups per molecule and is free of silicon atoms, aliphatic unsaturation and radicals which are reactive with mercapto groups at room temperature;

(B) 0 to 200 parts by weight of at least one filler; and

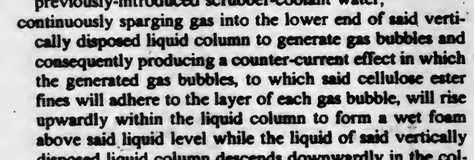
(C) a catalytic amount of a metal carbonyl compound selected from the group consisting of $Fe(CO)_5$, $Fe_2(CO)_9$, $Fe_3(CO)_{12}$, dicyclopentadienyldiiron tetracarbonyl, butadieneiron tricarbonyl, cyclohexadieneiron tricarbonyl, $Ni(CO)_4$, dicyclopentadienyldinickel dicarbonyl, $Mn_2(CO)_{10}$, methylcyclopentadienylmanganese tricarbonyl and cyclopentadienylcobalt dicarbonyl.

4,271,290
3,4-XYLIDINE-N-RIBITYL

Guy Farges, Montlucon, and Anne-Marie Michard, Commentry, both of France, assignors to A.E.C. Societe de Chimie Organique et Biologique, Commentry, France

Filed Jun. 13, 1979, Ser. No. 48,099
Claims priority, application France, Jun. 15, 1978, 78 17905
Int. Cl.³ C07H 5/06
U.S. Cl. 536—22 2 Claims

1. N-[2,3-(O-Isopropylidene)-(D)-ribityl]-3,4-xylidine of the formula

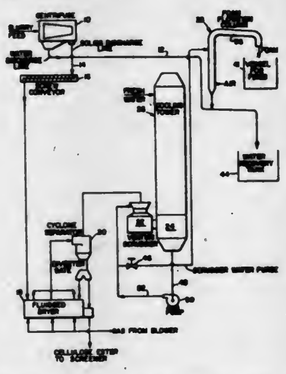


2. N-[2,3-(O-Isopropylidene)-ribofuranoside]-3,4-xylidine.

4,271,291
PROCESS FOR RECOVERING CELLULOSE ESTER FINES

Bradley H. Dayvolt, Chuckey, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 28, 1980, Ser. No. 172,911
Int. Cl.³ C08B 3/26
U.S. Cl. 536—65 5 Claims



1. A process for recovering cellulose ester fines from scrubber-coolant water in which the cellulose ester fines are suspended, the process comprising:

continuously introducing said scrubber-coolant water into a vertically disposed column of liquid adjacent the upper end thereof at a location just below the liquid level of the liquid column, the liquid in the column being comprised of previously-introduced scrubber-coolant water;

continuously sparging gas into the lower end of said vertically disposed liquid column to generate gas bubbles and consequently producing a counter-current effect in which the generated gas bubbles, to which said cellulose ester fines will adhere to the layer of each gas bubble, will rise upwardly within the liquid column to form a wet foam above said liquid level while the liquid of said vertically disposed liquid column descends downwardly in the column, said wet foam being comprised of said cellulose ester fines, gas and portions of said liquid;

continuously forming said wet foam to form a flow of wet foam, thereby forcing the resulting flowing wet foam upwardly and away from said liquid level;

guiding said resulting flowing wet foam along a straight-line path extending generally in a horizontal plane above, to one side of, and away from said liquid column, said path being pitched downwardly from said horizontal plane;

removing liquid from said wet foam while guiding said flowing wet foam along said downwardly pitched straight-line path to form a drier foam comprised of about 25 to about 60% cellulose ester fines and about 75 to about 40% liquid, as measured on a gas-free basis; and

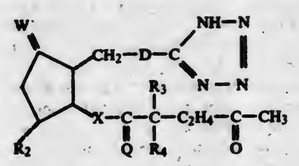
then introducing said drier foam into a vessel and dissolving said cellulose ester fines.

4,271,292
2-DECARBOXY-2-TETRAZOLYL-19-KETO-PG COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,879, Apr. 2, 1979, abandoned. This application Mar. 20, 1980, Ser. No. 132,225
Int. Cl.³ C07C 177/00; C07D 257/06
U.S. Cl. 542—429 5 Claims

1. A compound of the formula



wherein D is

(1) cis-CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis-CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(3) cis-CH_2—CH=CH—CH_2—CH_2—,
(4) trans—$(CH_2)_3$—CH=CH—,
(5) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,
(6) —$(CH_2)_3$—CH_2—CF_2—,
(7) —$(CH_2)_3$—O—CH_2—,
(8) —(CH_2)—O—$(CH_2)_2$—,
(9) —CH_2—O—$(CH_2)_3$—,
(10) —(m-Ph)—$(CH_2)_2$—, or
(11) —(m-Ph)—O—CH_2—,

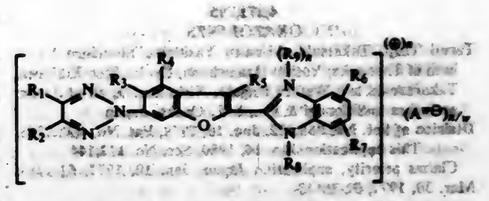
wherein —(m-Ph)— is inter-meta-phenylene and
wherein g is zero, one, two, or three;
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and
wherein X is cis- or trans—CH=CH—, —C≡C— or —CH_2CH_2—.

4,271,293
BENZOFURANYL-BENZIMIDAZOLES

Josef Bremen, Leverkusen; Bernhard Wehling, Cologne, and Carl-Wolfgang Schellhammer, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 11, 1979, Ser. No. 38,309
Claims priority, application Fed. Rep. of Germany, May 13, 1978, 2821116
Int. Cl.³ C07D 405/14
U.S. Cl. 542—435 3 Claims

1. A compound of the formula



in which

R_1 is alkyl with 1 to 12 carbon atoms, alkoxy with 1–4 carbon atoms, benzyl, styryl, or phenyl optionally be substituted by alkyl with 1–4 C atoms, phenyl, alkoxy with 1–4 C atoms or chlorine,

R_2 is hydrogen cyano, carboxyl, C_1–C_4-alkylcarbonylamino, benzoylamino or R_1, or

R_1 and R_2 together are a fused naphthalene ring or benzene ring optionally substituted by alkyl with 1 to 4 carbon atoms and/or alkoxy with 1 to 4 carbon atoms,

R_3 and R_4 each independently is hydrogen, methyl, ethyl, methoxy or chlorine,

R_5 is hydrogen, alkyl with 1 to 4 carbon atoms, or phenyl optionally substituted by methyl and/or methoxy,

R_6 is hydrogen, alkyl with 1 to 4 carbon atoms, methoxy, chlorine, alkylsulphonyl with 1 to 4 carbon atoms, cyano, sulpho or carboxyl,

R_7 is hydrogen, methyl, methoxy or Cl,

R_8 is alkyl with 1 to 4 carbon atoms, hydroxyalkyl with 2 to 4 carbon atoms, cyanoethyl, or phenyl, cyclohexyl of benzyl optionally substituted by chlorine, methyl or methoxy,

R_9 is alkyl with 1 to 4 carbon atoms optionally substituted by hydroxyl or alkoxy with 1 to 4 carbon atoms, benzyl optionally substituted by chlorine or methoxy, or —CH_2CN, —CH_2CONH_2 or —CH_2COOR,

R is alkyl with 1 to 4 carbon atoms,

n is 0 or 1,

$A^{\ominus}$ is a colorless anion of an organic or inorganic acid, and

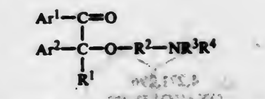
w is the valence of A.

4,271,294
AMINOALKOXY DERIVATIVES OF AROMATIC KETONES

Louis Felder, Basel; Rudolf Kirchmayr, Aesch, and Rinaldo Kisker, Binningen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 968,889, Dec. 13, 1978, abandoned. This application Mar. 13, 1980, Ser. No. 129,876
Claims priority, application Switzerland, Dec. 22, 1977, 15883/77
Int. Cl.³ C07C 97/10; C07D 265/30, 241/04, 211/08
U.S. Cl. 544—87 6 Claims

1. A compound of formula I



(I)

wherein Ar^1 and Ar^2, each independently of the other, represent phenyl or phenyl which is substituted by C_1–C_4-alkyl, C_1–C_4-alkoxy or halogen, R^1 represents a group —O—R^2-$N(R^3)(R^4)$, R^2 represents C_2–C_4-alkylene, R^3 represents hydrogen, C_1–C_{12}-alkyl, allyl, benzyl, cyclohexyl, C_2–C_4-hydroxyalkyl or C_3–C_6-alkoxyalkyl, and R^4 represents C_1–C_{12}-alkyl, allyl, C_2–C_4-hydroxyalkyl, C_3–C_6-alkoxyalkyl, cyclohexyl, benzyl or phenyl, or R^3 and R^4 together represent alkylene of 4 to 5 carbon atoms, 3-oxapentamethylene, or a group —CH_2—CH_2—NR_5—CH_2—CH_2— and R^5 represents hydrogen or C_1–C_4-alkyl.

4,271,295

OXAZOLINES

Teruji Tsuji, Takatsuki; Mitsuru Yoshioka; Shoichiro Uyeo, both of Toyonaka; Yoshio Hamashima, Kyoto; Ikuo Kikkawa, Takarazuka, and Wataru Nagata, Nishinomiya, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

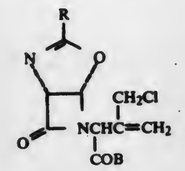
Division of Ser. No. 868,422, Jan. 10, 1978, Pat. No. 4,220,766. This application Jan. 14, 1980, Ser. No. 112,144

Claims priority, application Japan, Jan. 10, 1977, 52-1760; Mar. 30, 1977, 52-36613

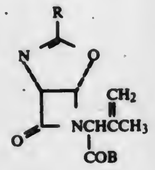
Int. Cl.³ C07D 498/04, 401/14, 413/14

U.S. Cl. 544—182 1 Claim

1. A process for preparing a compound of the formula



which comprises reacting a compound of the formula



with 1 to 2 mole equivalents of chlorine or sulfuryl chloride in 5 to 50 volumes by weight of aromatic hydrocarbon or ester solvent at a temperature of from about −20° C. to 30° C., wherein in the above formulas R represents (a) 1–6 C alkyl, (b) 7–15 C aralkyl, (c) 7–15 C heterocyclicalkyl, (d) 7–9 C aryloxyalkyl, (e) 7–9 C heterocyclicoxyalkyl, (f) 6–10 C aryl, (g) 6–10 C heterocyclic, (h) 1–6 C alkoxy, (i) 7–15 C aralkoxy, (j) 7–15 C heterocyclicalkoxy, (k) 6–10 C aryloxy, (l) 6–10 C heterocyclicoxy, (m) carbamoyl, or (n) 2–7 C carbalkoxy, each of said groups being unsubstituted or substituted by hydroxy, 1–6 C alkanoyloxy, 1–3 C alkoxy, 7–9 C aralkoxy, 6–8 C aryloxy, oxo, amino, 1–3 C alkylamino, 1–5 C alkanoylamino, nitro, 1–3 C alkyl, 6–10 C aryl, carboxy, protected carboxy, cyano or halo, and COB is carboxy or protected carboxy.

4,271,296

OXAZOLINES

Teruji Tsuji, Takatsuki; Mitsuru Yoshioka; Shoichiro Uyeo, both of Toyonaka; Yoshio Hamashima, Kyoto; Ikuo Kikkawa, Takarazuka, and Wataru Nagata, Nishinomiya, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

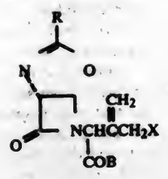
Division of Ser. No. 868,422, Jan. 10, 1978, Pat. No. 4,220,766. This application Jan. 14, 1980, Ser. No. 112,145

Claims priority, application Japan, Jan. 10, 1977, 52-1760; Mar. 30, 1977, 52-36613

Int. Cl.³ C07D 498/04, 401/14, 413/14

U.S. Cl. 544—182 6 Claims

1. A compound of the following formula:



wherein

R represents (a) 1–6C alkyl, (b) 7–15C aralkyl, (c) 7–15C heterocyclicalkyl, (d) 7–9C aryloxyalkyl, (e) 7–9C heterocyclicoxyalkyl, (f) 6–10C aryl, (g) 6–10C heterocyclic, (h) 1–6C alkoxy, (i) 7–15C aralkoxy, (j) 7–15C heterocyclicalkoxy, (k) 6–10C aryloxy, (l) 6–10C heterocyclicoxy, (m) carbamoyl, or (n) 2–7C carbalkoxy, each of said groups being unsubstituted or substituted by hydroxy, 1–6C alkanoyloxy, 1–3C alkoxy, 7–9C aralkoxy, 6–8C aryloxy, oxo, amino, 1–3C alkylamino, 1–5C alkanoylamino, nitro, 1–3C alkyl, 6–10C aryl, carboxy, protected carboxy, cyano or halo,

X represents (a) halo, (b) hydroxy, (c) up to 5C acyloxy selected from the group of nitrooxy, sulfurous acyloxy, formyloxy, acetoxy, propionyloxy, trifluoroacetoxy, β-hydroxypropionyloxy, α-haloacetyloxy, benzyloxy, nicotinoyloxy, carbamoyloxy, methoxycarbonyloxy, aminopropionyloxy, sulfenyloxy and sulfinyloxy, (d) 1–6C alkoxy, (e) thiocarbamoylthio, (f) 1–5 C alkylthio, (g) 6–9C arylthio, (h) 6–9C heterocyclicthio, or (i) 1–6C sulfinyl, the aryl portion of the groups R and X and the substituents thereof being selected from the group of phenyl and naphthyl and the heterocyclic portion of the groups R and X being selected from the group consisting of furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, oxadiazolyl, oxatriazolyl, thiazolyl, isothiazolyl, thiadiazolyl, thiatriazolyl, pyrazolyl, imidazolyl, triazolyl, tetrazolyl, pyridyl, pyrimidyl, pyrazinyl, as-triazinyl, quinolyl, isoquinolinyl, and 2-benzothiazolyl, and COB is carboxy or protected carboxy conventional in the chemistry of penicillins and cephalosporins.

4,271,297

PROCESS FOR THE PRODUCTION OF SUSPENSION OR SOLUTIONS OF CYANURIC CHLORIDE IN ORGANIC SOLVENTS (I)

Klaus Heutschel, Kelsterbach, Belgium; Friedrich Bittner, Bad Soden, and Gerd Schreyer, Hanau, both of Fed. Rep. of Germany, assignors to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,872

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850308

Int. Cl.³ C07D 251/28

U.S. Cl. 544—190 9 Claims

1. A process for the production of a suspension or solution of cyanuric chloride in a water containing organic solvent comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from the upper portion of a vertical tubular zone closed at the top thereof to contact and mix with water containing organic solvent which forms a liquid layer defining, said tubular zone, constricting said layer in breast-shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening, discharging water containing organic solvent as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top above said constriction and point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed in the breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,271,298

PROCESS FOR THE PRODUCTION OF SUSPENSIONS OR SOLUTIONS OF CYANURIC CHLORIDE IN WATER

Klaus Heutschel, Kelsterbach, Belgium; Friedrich Bittner, Bad Soden, and Gerd Schreyer, Hanau, both of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,875

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850242

The portion of the term of this patent subsequent to Jan. 2, 1998, has been disclaimed.

Int. Cl.³ C07D 251/28

U.S. Cl. 544—190 4 Claims

1. A process for the production of a suspension or solution of cyanuric chloride in water comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from upper portion of a vertical tubular zone closed at the top thereof to contact and mix with said water which forms a liquid layer defining said tubular zone, constricting said layer in breast-shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening, discharging said water as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top above said constriction and below the point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed in the breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,271,299

PROCESS FOR THE PRODUCTION OF 2-ALKOXY-4,6-DICHLORO-S-TRIAZINES

Klaus Heutschel, Kelsterbach, Belgium, and Friedrich Bittner, Bad Soden, Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 15, 1979, Ser. No. 94,679

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850339

Int. Cl.³ C07D 251/26

U.S. Cl. 544—218 7 Claims

1. A process for the production of 2-alkoxy-4, 6-dichloro-s-triazine by reacting cyanuric chloride with an alcohol or alcoholate in the presence of an acid binding agent comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from the upper portion of a vertical tubular zone closed at the top thereof to contact and mix with the other reactant or reactants which form a liquid layer defining said tubular zone, constricting said layer in a breast-shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening, discharging said other reactant or reactants as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top above said constriction and below the point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed in the breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,271,300

METHOD FOR PRODUCING 6,7-DIMETHOXY-4-AMINO-2-[4-(2-FUROYL)-1-PIPERAZINYL] QUINAZOLINE HYDROCHLORIDE HAVING AN ANTIHYPERTENSIVE EFFECT

Erkki J. Honkanen, Helsinki; Aino K. Piippari, Espoo; Pekka J. Kairisalo, Helsinki; Heinrich Thesler, Espoo; Marja K. Koivisto, Helsinki, and Sirpa A. Tuomi, Helsinki, all of Finland, assignors to Orion-yhtyma Oy, Finland

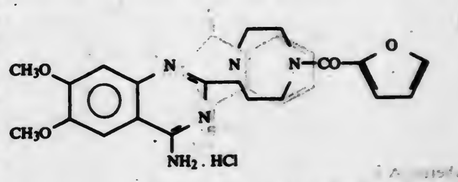
Filed Jan. 9, 1980, Ser. No. 110,809

Claims priority, application Finland, Jan. 31, 1979, 790320

Int. Cl.³ C07D 405/14

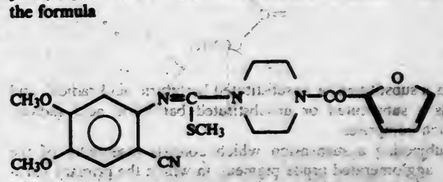
U.S. Cl. 544—291 4 Claims

1. A method for producing 6,7-dimethoxy-4-amino-2-[4-(2-furoyl)-1-piperazinyl]quinazoline hydrochloride having an antihypertensive effect and having the formula



I

comprising reacting methyl-N-(3,4-dimethoxy-6-cyano-phenyl)-[4-(2-furoyl)-1-piperazinyl]thioformamidate having the formula



II

at an elevated temperature with an excess of the stoichiometric amount of ammonium chloride in a polar solvent.

4,271,301

PREPARATION OF PIGMENTARY FORM ISOINDOLINE

Wolfgang Lotsch, Beindersheim, and Peter Hilbert, Bobenheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

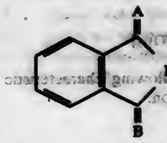
Filed Jan. 8, 1979, Ser. No. 1,272

Claims priority, application Fed. Rep. of Germany, Jan. 10, 1978, 2800815

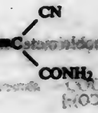
Int. Cl.³ C09B 57/04

U.S. Cl. 544—296 11 Claims

1. A process for the preparation of a brilliant, easily dispersible and high-hiding pigmentary form of an isoindoline pigment of the formula



wherein A is



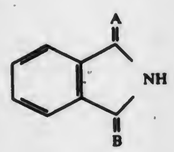
or is a substituted or unsubstituted barbituric acid radical, and B is a substituted or unsubstituted barbituric acid radical, which comprises

subjecting a suspension which consist essentially of the agglomerated crude pigment, in which the primary particles have a mean particle size of ≦0.1 μm to shearing forces in water in the presence of grinding media or in a kneader,

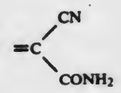
thereafter refluxing the resulting aqueous suspension at from 90° to 160° C. in the presence or absence of a surfactant for 10-30 hours, and

isolating the resulting pigment.

11. A process for the preparation of a brilliant, easily dispersible and high-hiding pigmentary form of an isoindoline pigment of the formula:



wherein A is



or is a substituted or unsubstituted barbituric acid radical, and B is a substituted or unsubstituted barbituric acid radical, which comprises:

subjecting a suspension which consists essentially of the agglomerated crude pigment, in which the primary particles have a mean particle size of ≦0.1 μm to shearing forces in water in the presence of grinding media or in a kneader,

thereafter heating the resulting aqueous suspension for from 3 to 20 hours at from 110° to 140° C. under pressure in the presence or absence of a surfactant, and

isolating the resulting pigment.

4,271,302

SUPPORTED HETERONUCLEAR NOBLE METAL CLUSTER CATALYSTS AND METHOD FOR PREPARING SAME

Gary B. McVicker, Westfield, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 924,161, Jul. 13, 1978, Pat. No. 4,217,249. This application Dec. 10, 1979, Ser. No. 101,423

Int. Cl.³ C07F 15/00; B01J 23/62, 23/82

U.S. Cl. 546—2 4 Claims

1. A heteronuclear noble metal cluster complex of the formula:

$$(\text{pyridine})_2\text{Pt}[\text{Ir}_6(\text{CO})_{15}]$$

which exhibits the following characteristic infrared pattern (cm^{-1}) in THF solution:

2044 m
2022 sh
2011 vs
1987 sh
1975 vs
1785 m
1733 m.

2. A heteronuclear noble metal carbonyl cluster complex of the formula:

$$(\text{pyridine})_2\text{Pt}[\text{IR}_2(\text{CO})_7]$$

which exhibits the following characteristic infrared pattern (cm^{-1}) in THF solution:

2035 sh
2009 sh
1983 vs
1938 sh
1785 sh
1732 m-s.

3. A heteronuclear noble metal carbonyl cluster complex of the formula:

$$(\text{pyridine})_2\text{Pt}[\text{Rh}(\text{CO})_2(\text{P}(\text{C}_6\text{H}_5)_3)_2]_2.$$

4. A heteronuclear noble metal carbonyl cluster complex of the formula:

$$(\text{pyridine})_2\text{Pt}[\text{Ru}_3(\text{CO})_{12}]$$

which exhibits the following characteristic infrared pattern (cm^{-1}) in THF solution:

2050 sh
1999 vs
1977 sh
1962 sh
1945 m
1804 vw, br
1763 w.

4,271,303

HETEROCYCLIC COMPOUNDS

Christos Vamvakaris, Kallstadt; Peter Neumann, Wiesloch, and Manfred Patsch, Wachenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

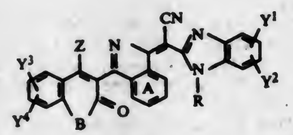
Filed Jul. 19, 1979, Ser. No. 58,838

Claims priority, application Fed. Rep. of Germany, Jul. 19, 1978, 2831673

Int. Cl.³ C09B 57/04

U.S. Cl. 546—155 2 Claims

1. A heterocyclic compound which in one of the possible tautomeric forms corresponds to the formula (I):



(I)

where (a) B is oxygen, sulfur, NH or



(b) R is C_1–C_8-alkyl which may or may not be interrupted by oxygen and is unsubstituted or substituted by hydroxyl, phenoxy, cyano, C_1–C_4-alkoxycarbonyl, hydroxycarbonyl, C_1–C_4-alkanoyloxy, —$CONH_2$, —$CONHCH_3$, —$CONHC_2H_5$, —$CONHC_3H_7$ or phenyl; or

is phenyl which is unsubstituted or substituted by chlorine, bromine, methyl, ethyl, methoxy or ethoxy; or

is C_1–C_4-alkoxycarbonyl or cyano; or

is —$CONH_2$, $CONHCH_3$, —$CONHC_2H_5$, —$CONHC_4H_9$ or $CONHC_6H_5$; or

if B is sulfur, NH or



may also be hydrogen,

(c) R^1 is C_1–C_4-alkyl or benzyl;

(d) Y^1 is hydrogen, chlorine, bromine, C_1–C_4-alkyl, methoxy, ethoxy, phenoxy, phenyl, nitro or SO_2T;

(e) T is hydroxyl or C_1–C_4-alkoxy; or is phenoxy which is unsubstituted or substituted by chlorine, bromine, C_1–C_4-alkyl, methoxy or ethoxy; or

is NH_2, $NHCH_3$, NHC_2H_5, NHC_3H_7, NHC_4H_9, NHC_6H_{13}, $N(C_2H_5)_2$, $N(C_4H_9)_2$, $NHCHCH_2OCH_3$, $NHC_2H_4OC_2H_5$, $NH(CH_2)_3OC_2H_5$, $NH(CH_2)_3N(CH_3)_2$, $NH(CH_2)_3N(C_4H_9)_2$, $NHC_2H_4N(CH_3)_2$, NHC_6H_5, CH_3, C_2H_5, C_4H_9, C_6H_5, $C_6H_4CH_3$, CH_2CH_2OH, $CH_2CH_2OCH_3$, $CH_2CH_2N(CH_3)_2$, $CH_2CH(OH)CH_2Cl$ or $CH_2CH(OH)CH_2OH$;

(f) Y^2 is hydrogen, chlorine, bromine, C_1–C_4-alkyl, methoxy or ethoxy;

(g) Y^3 is hydrogen, chlorine, bromine, C_1–C_4-alkyl, hydroxyl, methoxy or ethoxy,

(h) Y^4 hydrogen, chlorine, bromine, C_1–C_4-alkyl, methoxy, ethoxy, hydroxyl, phenoxy, pheayl, or Y^3 and Y^4 together are a fused benzo ring;

(i) Z is hydroxyl, amino or —NHR^1; and the ring A may additionally be monosubstituted or polysubstituted by chlorine, bromine, nitro, C_1–C_4-alkyl, C_1–C_4-alkoxy, phenoxy, amino, C_1–C_4-alkylamino, di-C_1–C_4-alkylamino, formylamino, acetylamino, propionylamino, benzoylamino, chlorobenzoylamino, methylbenzoylamino, methylchlorobenzoylamino or phenyl.

4,271,304

PYRIDINE DERIVATIVES

Edwin T. Edington, Cookham, and Alan C. White, Windsor, both of England, assignors to John Wyeth & Brother, Ltd., Taplow, England

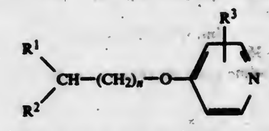
Filed May 9, 1979, Ser. No. 37,594

Claims priority, application United Kingdom, May 30, 1978, 24123/78

Int. Cl.³ C07D 213/68, 213/89

U.S. Cl. 546—290 6 Claims

1. A compound selected from those having the formula



and their N-oxides and pharmaceutically acceptable acid addition salts, wherein R^1 and R^2 are independently selected from unsubstituted phenyl and naphthyl and phenyl and naphthyl substituted by one to two substituents selected from halogen, lower alkyl, lower alkoxy, lower alkylenedioxy and trifluoromethyl, excluding sterically impossible embodiments thereof; R^3 is selected from hydrogen and lower alkyl and n is selected from 0, 1 and 2.

4,271,305

THIAZOLINOAZETIDINONES AND PROCESS THEREFOR

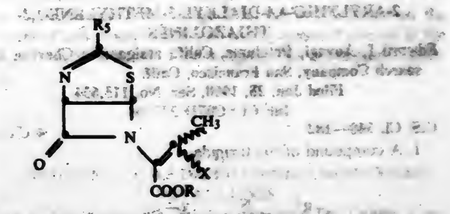
Lowell D. Hatfield, Bargersville; Larry C. Blaszczak, and Jack W. Fisher, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 8,647, Feb. 1, 1979. This application Dec. 14, 1979, Ser. No. 103,813

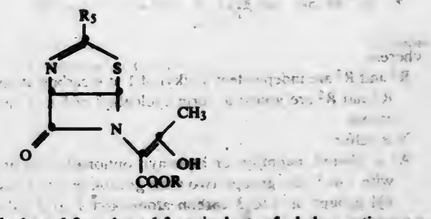
Int. Cl.³ C07D 277/60

U.S. Cl. 548—153 20 Claims

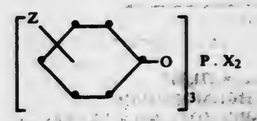
1. The process for preparing a compound of the formula



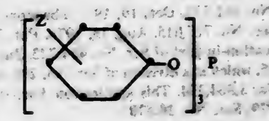
which comprises reacting a compound of the formula



with about 1.0 to about 1.3 equivalents of a halogenating compound of the formula



which is the kinetically controlled product of the reaction, in a substantially anhydrous inert organic solvent, of equivalent amounts of a triaryl phosphite of the formula



and chlorine or bromine,

in a substantially anhydrous inert organic solvent at a temperature below about 30° C. wherein in the above formulas

X is Cl or Br;

Z is hydrogen, halo, C_1–C_4 alkyl or C_1–C_4 alkoxy;

R is carboxylic acid protecting group;

R_5 is

(a) hydrogen, C_1–C_4 alkyl or halo(C_1–C_4 alkyl);

(b) a group R_6 wherein R_6 is phenyl or phenyl substituted by 1 or 2 groups selected from the group consisting of fluoro, chloro, bromo, iodo, nitro, cyano, C_1–C_4 alkyl, C_1–C_4 alkoxy, protected hydroxy, carbamyl, trifluoromethyl and methanesulfonamido;

(c) a group of the formula

$R_6(O)_mCH_2$—

wherein m is 1 or 0 and R_6 is defined above;

(d) a group of the formula

$R_{6a}CH_2$—

wherein R_{6a} is cyclohexadienyl, 2-furyl, 2-thienyl, or 3-thienyl; or

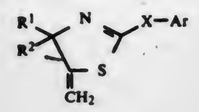
(e) a group of the formula —COOR wherein R is as defined above.

4,271,306
2-ARYLTHIO-4,4-DIALKYL-5-METHYLENE-1,3-THIAZOLINES

Edward I. Aoyagi, Petaluma, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jan. 28, 1980, Ser. No. 115,654
Int. Cl.³ C07D 277/08
U.S. Cl. 548—182 4 Claims

1. A compound of the formula



(I)

wherein

R^1 and R^2 are independently alkyl of 1 to 4 carbon atoms or R^1 and R^2 are joined to form cycloalkyl of 5 to 8 carbon atoms;

X is sulfur;

Ar is phenyl, naphthyl or biphenyl, optionally substituted with 1 to 5 halo groups, two nitro groups, or 1 to 5 haloalkyl groups of 1 to 3 carbon atoms and 1 to 7 halogen atoms.

4,271,307
BICHROMOPHORIC BENZOTRIAZOLE-BENZOXAZOLE ULTRAVIOLET STABILIZERS AND THEIR USE IN ORGANIC COMPOSITIONS

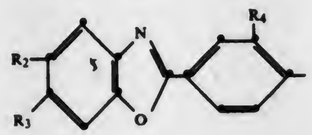
Gether Irick, Jr.; Charles A. Kelly, both of Kingsport, and James C. Martin, Johnson City, all of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 861,739, Dec. 19, 1977, abandoned, which is a division of Ser. No. 715,015, Aug. 16, 1976, Pat. No. 4,076,687, and a continuation-in-part of Ser. No. 484,723, Jul. 1, 1974, Pat. No. 3,988,295, which is a division of Ser. No. 298,040, Oct. 16, 1972, Pat. No. 3,864,354. This application Apr. 16, 1979, Ser. No. 30,670
Int. Cl.³ C07D 413/10
U.S. Cl. 548—224 22 Claims

1. A compound having the formula:

A—B—C

wherein A is a group having the structure

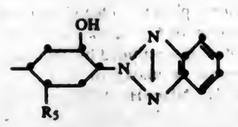


wherein

R_2 is a member of the group consisting of hydrogen, methyl, chloro and methoxy; R_3 is a member of the group consisting of hydrogen, chloro, methyl and cyclohexyl; and R_4 is a member of the group consisting of hydrogen, chloro or methyl;

wherein B is oxyethyleneoxy, oxyisopropyleneoxy, oxy, carbonyloxy, carbonyloxyisopropyleneoxy, methyleneoxy, oxymethylene, oxymethylene phenylmethyleneoxy, and thio; and

wherein C is a group having the formula



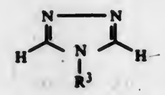
wherein R_5 is a member of the group consisting of hydrogen, methoxy, chloro, methyl, tertiary butyl, and phenyl.

4,271,308
4-ALKYL-1,2,4-4H-TRIAZOLE DERIVATIVES

Michael C. Seidel, Chalfont, Pa.; William C. von Meyer, Charlotte, N.C., and Stanley A. Greenfield, Ambler, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 924,467, Jul. 14, 1978, which is a continuation-in-part of Ser. No. 267,766, Jun. 30, 1972, Pat. No. 4,120,864, which is a continuation-in-part of Ser. No. 67,198, Aug. 26, 1970, abandoned, which is a continuation-in-part of Ser. No. 847,481, Jul. 3, 1969, Pat. No. 3,701,784, which is a continuation-in-part of Ser. No. 757,490, Sep. 4, 1968, Pat. No. 3,769,411. This application Jan. 14, 1979, Ser. No. 48,426
Int. Cl.³ A01N 43/64; C07D 249/08
U.S. Cl. 548—262 6 Claims

1. A compound of the formula:



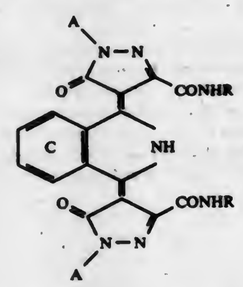
wherein R^3 is selected from the group consisting of n-pentyl, n-hexyl, n-octyl, n-decyl and n-dodecyl.

4,271,309
ISOINDOLINE COLORANTS

Wolfgang Letsch, Beindersheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 4, 1980, Ser. No. 127,145
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909567
Int. Cl.³ C07D 401/14
U.S. Cl. 548—364 4 Claims

1. An isoindoline colorant of the formula:



where

A is hydrogen or phenyl; and

R is hydrogen, C_1–C_4-alkyl or phenyl; and

the phenyl radicals in A and R and the ring C, independently of one another, do not carry further substituents or are substituted by groups which do not confer solubility selected from the group consisting of chlorine, bromine, carbamyl, sulfamyl, C_2–C_4-alkanoylamino and benzoylamino; and

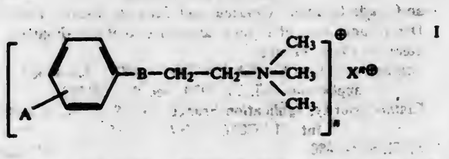
the two A's being identical or different.

4,271,310
METHOD OF DETERMINING CHOLINESTERASE ACTIVITY AND CHOLINE DERIVATIVES FOR USE IN THE METHOD

Katsuyuki Watanabe, Tokyo; Tadatoshi Hayashi, Machida, both of Japan; Hiroshi Hayashi, deceased, late of Saitama, Japan; by Atsuko Hayashi, heir; by Yuko Hayashi, heir, both of Wako, Japan; Toshio Tatano, Numazu, and Yoshiaki Shimizu, Shizuoka, both of Japan, assignors to Kyowa Hakko Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 12, 1979, Ser. No. 29,517
Claims priority, application Japan, Apr. 17, 1978, 53-44122; Apr. 17, 1978, 53-45097
Int. Cl.³ C07C 69/88, 69/76
U.S. Cl. 560—71 21 Claims

1. A method of determining cholinesterase activity which comprises reacting the cholinesterase with a compound of the formula:



I

(wherein A represents a hydrogen atom or a C_{1-5} alkyl or alkoxy group and B represents a group of the formula —R—COO— (in which —R— represents an alkenyl group with 2 to 6 carbon atoms); or A represents a hydroxy group in either or both o-positions of the benzene ring or a C_{1-5} alkyl group and B represents a group of the formula —COO—; X represents a stabilising anion and n represents the charge on the anion) and determining the cholinesterase activity by means of the choline and/or acid thereby obtained by titrometric or calorimetric techniques.

4,271,311
ESTERIFICATION OF PHENOL CATALYZED WITH A STRONG BASE PLUS BORON

William W. Knickmeyer, Aurora; James Spanswick, Wheaton, and James R. Stephens, Naperville, all of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jul. 13, 1979, Ser. No. 57,198
Int. Cl.³ C07C 69/773, 69/353, 69/035
U.S. Cl. 560—96 8 Claims

1. The process of esterification of phenolic compounds which comprises reacting a phenolic compound and an aromatic carboxylic acid using a catalyst consisting essentially of an alkali metal compound and a boron compound wherein said alkali metal compound is at least one member selected from the group consisting of alkali metal salts of boric acid, alkali metal polyborates, alkali metal hydroxides, and alkali metal borohydrides and said boron compound is at least one member selected from the group consisting of boric acid, boric anhydride, alkali metal polyborates, alkali metal salts of boric acid and alkali metal borohydrides.

4,271,312
SUPPRESSION OF DIGLYCOL ETHER ESTER IN CHROMIUM (III) CATALYZED ETHYLENE OXIDE REACTION WITH AROMATIC CARBOXYLIC ACIDS

Wilford J. Zimmerschied, and Delbert H. Meyer, both of Naperville, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Apr. 7, 1971, Ser. No. 132,206
Int. Cl.³ C07C 67/26
U.S. Cl. 560—93 5 Claims

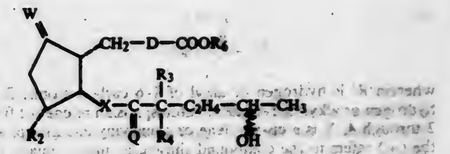
1. A process for the preparation of 2-hydroxyethyl esters of aromatic carboxylic acids which comprises reacting at a temperature in the range of 100° to 160° C. substantially equivalent proportions of an aromatic carboxylic acid and ethylene oxide or 1,2-propylene oxide in the presence of chromium (III) octanoate and triethylamine, wherein chromium octanoate is present in an amount in the range from 0.5 to 2% based on the weight of said aromatic acid and triethylamine is present in the range from 50 to 100% of the weight of the chromium octanoate.

4,271,313
19-HYDROXY-CIS-4,5-DIDEHYDRO-13,14-DIHYDRO-PG$_1$ ANALOGS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,899, Apr. 2, 1979, Pat. No. 4,220,104. This application Oct. 26, 1979, Ser. No. 88,748
Int. Cl.³ C07C 177/00
U.S. Cl. 560—121 2 Claims

1. A compound of the formula



wherein D is cis-CH_2-CH=CH-CH_2-CH_2-,

wherein Q is α-OH:β-R_5 or α-R_5:β-OH,

wherein R_5 is hydrogen or methyl, wherein R_6 is

(a) hydrogen,

(b) alkyl of one to 12 carbon atoms, inclusive,

(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,

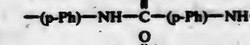
(d) aralkyl of 7 to 12 carbon atoms, inclusive,

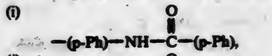
(e) phenyl,

(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;

(g) 

(h) 

(i) 

(j) 

(k) 

(l) 

(m) β-naphthyl,

(n) $-CH_2-CO-R_{28}$,

wherein (p-Ph) is para-phenyl or inter-para-phenylene, and R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or

(o) a pharmacologically acceptable cation; wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;

wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH;

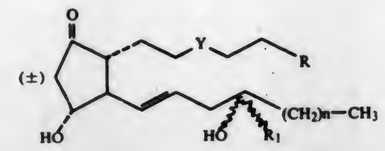
and wherein X is $-CH_2CH_2-$; with the proviso that R_6 is not H or alkyl of one to 12 carbon atoms, inclusive, when R_2 is hydroxy, R_3 and R_4 are hydrogen, Q is α-OH:β-H, W is oxo or α-OH:β-H.

4,271,314
4,5-UNSATURATED PROSTANOIC ACID DERIVATIVES

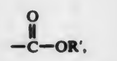
Paul W. Collins, Deerfield, and Raphael Pappo, Skokie, both of Ill., assignors to G. D. Searle & Co., Skokie, Ill.

Filed Nov. 28, 1979, Ser. No. 98,290
Int. Cl.³ C07C 177/00
U.S. Cl. 560—121 7 Claims

1. A compound of the formula



wherein R is

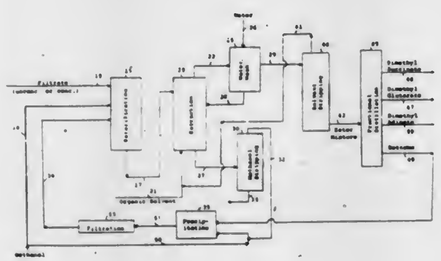


wherein R' is hydrogen or alkyl of 1–6 carbon atoms; R_1 is hydrogen or alkyl of 1–6 carbon atoms; n is an integer of from 2 through 4; Y is a cis-vinylene or trans-vinylene group; and the (+) refers to the compound shown, its mirror image and the mixture of racemates.

4,271,315
TREATMENT OF WASTE STREAM FROM ADIPIC ACID MANUFACTURE

Norbert F. Cywinski, Odessa, Tex., assignor to El Paso Products Company, Odessa, Tex.

Filed Nov. 15, 1979, Ser. No. 94,427
Int. Cl.³ B01D 3/34; C07C 67/00
U.S. Cl. 560—204 13 Claims



1. In a process for producing methyl esters of C_4–C_6 carboxylic acid components contained in an aqueous filtrate, which filtrate is a waste byproduct stream derived from the production of adipic acid by nitric acid oxidation of cyclohexanone/-cyclohexanol, wherein the said process comprises the steps of admixing the filtrate byproduct stream with methanol and heating the admixture to form methyl esters of the C_4–C_6 carboxylic acid components, extracting the methyl ester components by contacting the esterification medium with a water-immiscible organic solvent, and separating the immiscible organic solvent phase and aqueous phase, the improvement which comprises (1) distilling the said organic solvent phase to yield dimethyl esters of succinic acid, glutaric acid and adipic acid, and a residual bottoms fraction; (2) admixing the said bottoms fraction with methanol to dissolve C_4–C_6 carboxylic acids and methyl esters and to precipitate heavy organic components which are methanol-insoluble; and (3) separating the methanol solution phase and recycling it to the esterification step of the process.

4,271,316
PROCESS FOR THE CONTINUOUS REARRANGEMENT OF ALKALI METAL SALTS OF AROMATIC CARBOXYLIC ACIDS

Jean-Claude Choulet, Meyzieu, and Jacques Nouvel, Tassin la Demi-Lune, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 858,274, Dec. 7, 1977, abandoned. This application Jul. 20, 1979, Ser. No. 59,383
Claims priority, application France, Dec. 9, 1976, 76 37838
Int. Cl.³ C07C 51/347, 51/353
U.S. Cl. 562—480 17 Claims

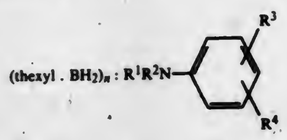
1. A process for the continuous rearrangement of an alkali metal salt of an aromatic carboxylic acid comprising continuously introducing a suspension of an alkali metal salt of an aromatic carboxylic acid in an inert organic diluent into a reaction zone via a feeding circuit comprising a feeding device including means for preheating the suspension, under an atmosphere of carbon dioxide, said carbon dioxide being introduced at a point in the feeding circuit where the temperature is lower than the temperature required to initiate the rearrangement reaction.

4,271,317
ALKYLBORANE COMPLEXES

Andrew Pelter, Swansea, Wales, and David J. Ryder, Chesham, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 31, 1979, Ser. No. 90,085
Claims priority, application United Kingdom, Nov. 7, 1978, 44265/78
Int. Cl.³ C07C 87/28
U.S. Cl. 564—8 9 Claims

1. A complex of the formula:



I

wherein R^1 and R^2 are the same or different (1-4C)-alkyl radicals, or together with the adjacent nitrogen atom constitute a morpholino, piperidino or pyrrolidino radical; R^3 and R^4 are independently selected from hydrogen, (1-4C)-alkyl, (1-4C)-alkoxy, di-(1-4C)-alkylamino, morpholino, piperidino and pyrrolidino radicals; thexyl is a 1,1,2-trimethylpropyl radical; and n is the integer 1 when R^3 and R^4 are other than nitrogen containing radicals, or the integer 1 or 2 when one of R^3 and R^4 is a nitrogen containing radical, or the integer 1, 2 or 3 when both R^3 and R^4 are nitrogen containing radicals.

4,271,318
PROCESS FOR PREPARING AMINO SCHIFF BASE OR CORRESPONDING DIAMINO KETONE

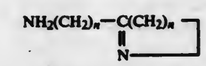
Tsutomu Setsuda, Ogaki; Hideyuki Aizawa, Aichi, and Takeshi Kimura, Nagoya, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Sep. 28, 1979, Ser. No. 79,830
Int. Cl.³ C07C 85/12, 85/147, 85/153, 85/20
U.S. Cl. 564—468 11 Claims

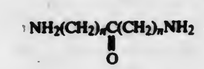
1. In a process for preparing an amino Schiff base, from a starting material selected from the group consisting of ω-lactams having chain lengths of about 4–12 carbon atoms, oligomers thereof, ring-opened polymers thereof and ω-amino carboxylic acids corresponding thereto, the steps which comprise:

(a) heating said starting material with water and a carbonate of a metal selected from the group consisting of lithium, calcium and barium in a reaction container heated at a temperature of about 60°–350° C. and discharging carbon dioxide produced, thereby preparing a metal salt of an ω-amino carboxylic acid,

(b) heating the resulting metal salt of said ω-amino carboxylic acid at a temperature of about 250°–550° C., thereby converting it to an amino Schiff base and/or a diamino ketone corresponding thereto, said Schiff base being represented by the following formula (I), and the diamino ketone being represented by the formula (II)



(I)



(II)

wherein n is an integer from 3–11, and also producing a carbonate compound of a metal selected from the group consisting of lithium, calcium and barium, and

(c) recycling the metal carbonate compound produced in said heating step (b) to said heating step (a) for further use.

4,271,319
PHENYL BETA-CHLORO-ALPHA-HYDROXY-BETA-(3-TRIFLUOROMETHYLPHENYL)ETHYL KETONE AND PROCESS FOR ITS PRODUCTION

David Y. Tang, Eggertsville, and Arthur M. Foster, Snyder, both of N.Y., assignors to Hooker Chemicals & Plastics Corp., Niagara Falls, N.Y.

Filed May 14, 1979, Ser. No. 38,764
Int. Cl.³ C07C 45/58, 49/245
U.S. Cl. 568—312 5 Claims

1. Phenyl beta-chloro-alpha-hydroxy-beta-(3-trifluoromethylphenyl)ethyl ketone.

2. The process of producing phenyl beta-chloro-alpha-hydroxy-beta-(3-trifluoromethylphenyl)ethyl ketone which comprises the steps of:

(a) condensing 3-trifluoromethylbenzaldehyde with acetophenone under basic conditions to produce a substituted chalcone, phenyl (3-trifluoromethyl)-alpha-styryl ketone,

(b) epoxidizing said substituted chalcone by reaction with hydrogen peroxide under basic conditions to produce the corresponding epoxide, phenyl alpha, beta-epoxy-beta-(3-trifluoromethylphenyl)ethyl ketone, and

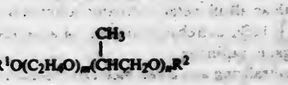
(c) reacting said epoxide with stannic chloride or hydrogen chloride to form a chlorohydrin, phenyl beta-chloro-alpha-hydroxy-beta-(3-trifluoromethylphenyl)ethyl ketone.

4,271,320
PROCESS FOR PRODUCING A HIGHER CARBONYL COMPOUND

Yasuo Tokitoh; Noriaki Yoshimura, and Masahiko Tamura, all of Kurashiki, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Aug. 31, 1979, Ser. No. 71,670
Claims priority, application Japan, Sep. 5, 1978, 53-109237; Sep. 5, 1978, 53-109238
Int. Cl.³ C07C 45/34, 45/36, 29/136, 29/14, 45/27
U.S. Cl. 568—426 13 Claims

1. A process for producing a carbonyl compound which comprises: oxidizing under aqueous Wacker oxidation conditions a monoolefinic hydrocarbon or a non-conjugated diolefinic hydrocarbon having 6 to 25 carbon atoms in an aqueous medium containing palladium or a salt thereof as a catalyst and a copper salt as a redox promoter in the presence of a water-soluble polyoxyalkylene compound of the formula



(I)

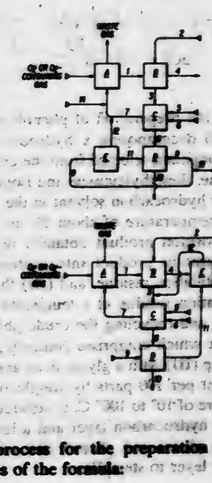
wherein

each of R^1 and R^2 represents either a hydrogen atom or a hydrocarbon radical having 1 to 8 carbon atoms; m is an integer greater than zero and n is zero or an integer greater than zero, such that $m+n \geq 4$ and $m > 3n$, said polyoxyalkylene compound being used in a proportion of about ¼ to about 3 parts by weight per one part by weight of water in the reaction system; and recovering a carbonyl compound corresponding in number of carbon atoms to the starting olefinic hydrocarbon.

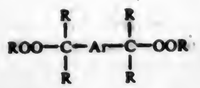
4,271,321
PROCESS FOR THE PREPARATION OF ARALIPHATIC DIHYDROPEROXIDES

Heinz W. Vogel, Dorsten, Fed. Rep. of Germany, assignor to Chemische Werke Huls Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,661
Claims priority, application Fed. Rep. of Germany, Oct. 9, 1978, 2843857
Int. Cl.³ C07C 179/047
U.S. Cl. 568—569 12 Claims



1. In a process for the preparation of araliphatic dihydroperoxides of the formula:



(I)

wherein Ar is benzene and R is hydrogen or a C_1–C_4 alkyl, the process comprising the steps of:

(1) oxidizing a hydrocarbon of the formula:



(II)

with oxygen or an oxygen-containing gas;

(2) extracting the resulting dihydroperoxide of formula (I) with an alkali metal hydroxide solution of a concentration of 1–12%, thereby producing an aqueous extract and an organic raffinate;

(3) neutralizing any alkali metal hydroxide remaining in said organic raffinate with CO_2 thereby producing alkali metal carbonate or bicarbonate in said raffinate; and

(4) washing the alkali metal carbonate or bicarbonate remaining in said raffinate with wash-water, the improvement which comprises:

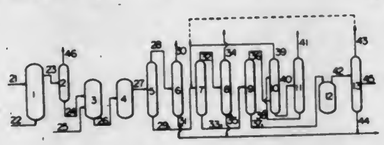
(5) extracting from the wash water used in step (4) any dissolved hydroperoxides reamining therein with a hydrocarbon solvent.

4,271,322

PROCESS FOR PREPARATION OF PHENOLS

Fujihisa Matsunaga, and Hirohiko Nambu, both of Iwakuni, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,214
Claims priority, application Japan, Jan. 11, 1979, 54-1012
Int. Cl.³ C07C 37/08, 37/74
U.S. Cl. 568—798 6 Claims



1. In a process for the preparation of phenols which comprises the steps of (I) decomposing a hydroperoxide of an isopropyl aromatic compound selected from the group consisting of cumene, cymene, dimethylcumene and isopropyl naphthalene in a ketone or hydrocarbon solvent in the presence of an acid catalyst at a temperature of about 50° to 80° C., (II) distilling the decomposition product obtained in step (I) to separate the decomposition product into acetone, phenols, hydrocarbons and distillation residue, and (III) thermally decomposing the distillation residue at a temperature of about 200° to about 300° C. and recycling the crude phenol to step (II), the improvement which comprises contacting the crude phenol obtained in step (III) with a glycol in an amount of 100 to 300 parts by weight per 100 parts by weight of the crude phenol at a temperature of 10° to 100° C. to separate the crude phenol into an upper hydrocarbon layer and a lower extract layer comprising the glycol and phenol, and recycling the phenol in said extract layer to step (II).

4,271,323

PROCESS FOR HYDROGENATING UNSATURATED COMPOUNDS

Daniel Durand, Rueil-Malmaison; Gerard Hillion, Francouville; Christian Lassau, Villepreux, and Lucien Sajus, Croissy sur Seine, all of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Continuation-in-part of Ser. No. 467,900, May 8, 1974, abandoned. This application Oct. 10, 1975, Ser. No. 621,416
Claims priority, application France, May 8, 1973, 73 16619; Jul. 13, 1973, 73 25933; Nov. 5, 1973, 73 39290
Int. Cl.³ C07C 5/10, 5/02, 85/12, 29/19
U.S. Cl. 568—816 21 Claims

1. In a process for hydrogenating an hydrogenizable compound having an unsaturated hydrogenatable bond, said compound being an aromatic hydrocarbon, a saturated aldehyde, an unsaturated aldehyde, an unsaturated alcohol, an unsaturated ether, a saturated nitrile, an unsaturated nitrile, an unsaturated amine, a phenol, a polyolefinic hydrocarbon, or vinylacetylene by means of hydrogen, in the homogeneous liquid phase in an inert solvent or in the compound to be hydrogenated in the liquid phase, under hydrogenation conditions at 0°–300° C. and under a pressure of 0.1 to 100 bars, in the presence of a hydrogenation catalyst, said catalyst being soluble in heptane in catalytic quantities and obtained by reacting a metal compound with a reducing agent of the formula $Al\ R_3$ wherein each R is an alkyl group of 1–12 carbon atoms, the improvement wherein said metal compound is used as a mixture in synergistic proportions, of (a) at least one alkoxide, acetylacetonate or carboxylate of a metal selected from iron, zinc, zirconium, manganese and molybdenum and (b) at least one alkoxide, acetylacetonate or carboxylate of a metal selected from nickel and cobalt, the ratio of the atomic amount of metal (a) to metal (b) being within about 10:1 to 0.01:1, and the process being conducted under such conditions that the rate of hydrogenation is disproportionately higher compared to the use of (a) or (b) compound taken alone.

4,271,324

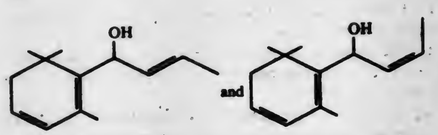
2,6,6-TRIMETHYL-α-(ISO)PROPENYL-1,3-CYCLOHEXADIENE-1-METHANOLS

Richard A. Wilson, Westfield; William L. Schreiber, Jackson; Braja D. Mookherjee, Holmdel, all of N.J.; Jacob Kiwala, Brooklyn, N.Y.; Joaquin F. Vinals, Red Bank, N.J.; Manfred H. Vock, Locust, N.J.; Gilbert Stork, Englewood, N.J., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

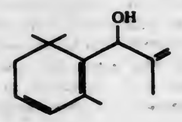
Division of Ser. No. 39,361, May 15, 1979. This application Feb. 8, 1980, Ser. No. 119,804
Int. Cl.³ C07C 33/14
U.S. Cl. 568—824 3 Claims

1. A 2,6,6-trimethyl-alpha-propenyl-1,3-cyclohexadiene-1-methanol substance selected from the group consisting of:

(a) a mixture of compounds having the structures:



(b) a compound having the structure:



4,271,325

PROCESS FOR THE MANUFACTURE OF 1,1-DIHALO-4-METHYL-1,3-PENTADIENES

Harold M. Pitt, Lafayette, Calif., assignor to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 742,801, Nov. 18, 1976, abandoned. This application Jan. 9, 1978, Ser. No. 867,866
Int. Cl.³ C07C 21/19
U.S. Cl. 570—228 7 Claims

1. A process for the manufacture of a 1,1-dichloro-4-methyl-1,3-pentadiene which comprises contacting a 1,1,1,3-tetrachloro-4-methylpentane in the liquid phase with a catalytic amount of liquid stannic chloride at a temperature between about 120° C. and about 200° C., and recovering the product therefrom.

4,271,326

METHOD OF PROCESSING ORGANIC WASTE INTO USEFUL PRODUCTS

Ronald M. Mago, P.O. Box 325, Leechburg, Pa. 15656

Filed Sep. 24, 1979, Ser. No. 77,988
Int. Cl.³ C07C 4/00
U.S. Cl. 585—240 14 Claims

1. A method of treating organic waste comprising:

A. slurrying the organic waste in water with a member selected from the group consisting of ammonium nitrate and ammonium nitrite;

B. heating the slurry;

C. distilling volatile hydrocarbons from the heated mixture;

D. collecting the volatile hydrocarbons; and

E. recovering the residue from the distillation.

4,271,327

DEHYDROGENATION OF CYCLOHEXANES

Toshio Ishikawa, Tokyo; Shuichi Niwa, Kunio; Shoko Yamadaya, Tokyo, and Yoshio Orito, Musashino, all of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

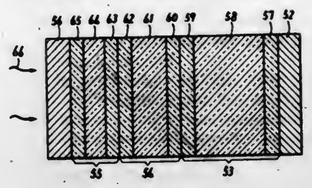
Division of Ser. No. 20,181, Mar. 13, 1979, Pat. No. 4,221,678. This application Mar. 5, 1980, Ser. No. 127,381
Claims priority, application Japan, Sep. 27, 1978, 53-118761
Int. Cl.³ C07C 5/41
U.S. Cl. 585—440 2 Claims

1. A method for dehydrogenation of cyclohexane and alkyl-substituted cyclohexanes, which comprises bringing at least one compound selected from the group consisting of cyclohexane and alkyl-substituted cyclohexanes into contact with a catalyst which comprises an aluminum sponge and a noble metal of Group 8 of the Periodic Table of the Elements carried on said aluminum sponge, in conjunction with hydrogen, at temperatures of from 290° to 620° C.

4,271,328
PHOTOVOLTAIC DEVICE

Yoshihiro Hamakawa, 17-4,Minamihanayashiki 3-chome, Kawanishi-shi, Hyogo-ken; Hiroshi Okamoto, Kobe; Yoshiteru Nitta, Osaka, and Toshio Adachi, Toyonaka, all of Japan, assignors to Yoshihiro Hamakawa, Kawanishi, Japan

Filed Mar. 14, 1980, Ser. No. 130,536
Claims priority, application Japan, Mar. 20, 1979, 54/32993
Int. Cl.³ H01L 31/06
U.S. Cl. 136—249 19 Claims



1. A photovoltaic device, comprising:
a substrate comprising an electrically conductive material, said substrate having a surface;
a plurality of photoelectric converting unit cells laminated in succession on the surface of said substrate,
each of said plurality of photoelectric converting unit cells including amorphous silicon layers comprising a p type layer, an i type layer and an n type layer; and
an electrically conductive layer formed on the one of said plurality of photoelectric converting unit cells which is furthest from the surface of said substrate,
one of said substrate and said electrically conductive layer comprising a radiation incident surface adapted for receiving radiation.

4,271,329
FUSIBLE TEXTILE DEVICE ADAPTED TO BE PLACED BETWEEN A THERMO-RETRACTIBLE ELEMENT AND ELECTRICAL CONDUCTORS OR COMPONENTS TO PROVIDE A FLUID TIGHT COUPLING

Michel Perelmuter, Paris, France, assignor to Compagnie Francaise des Isolants, France

Filed Jul. 6, 1977, Ser. No. 813,366
Claims priority, application France, Jul. 6, 1976, 76 20557
Int. Cl.³ H01R 4/70, 4/20
U.S. Cl. 174—84 R 13 Claims



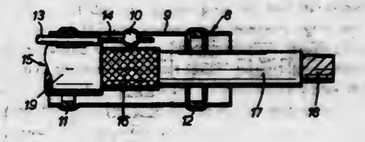
1. A device, for interposing between electrically conductive means and a thermo-retractible protective element disposed about said electrically conductive means, to effect electrically-insulating fluid-tight connection between said thermo-retractible protective element and said electrically conductive means, said device comprising a portion of a fabric having first and second inter-engaged threads, said first and second threads each being constituted of a respective fusible synthetic resinous material which is different from that of the other of said threads, the synthetic resinous material of which said first thread is constituted being selected to undergo polymerisation or cross-linking upon the application of heating by interaction with the material of which said second thread is constituted.

11. In combination, for the production of an electrically-insulating fluid-tight protective covering about an electrically-conducting means:
(i) a protective sheath for placing about said electrically-conducting means, said sheath being made of a material selected, upon the application of heating at a predetermined temperature, to be thermo-retractible, and
(ii) a sleeve for interpositioning between said sheath and said electrically-conducting means, said sleeve being of a fabric having first and second interengaged threads, said first and second threads each being constituted of a respective fusible synthetic resinous material which is different from that of the other of said threads, the synthetic resinous material of which said first thread is constituted being selected to undergo polymerisation or cross-linking upon the application of heating at said predetermined temperature and in the presence of a catalyst, the synthetic resinous material of which said second thread is constituted being selected to provide said catalyst.

4,271,330
HEAT-RECOVERABLE ARTICLES

Didier J. M. M. Watine, Maisons-Laffitte, and Christian P. Nadal, Magny en Vexin, both of France, assignors to Raychem Pontoise S.A., Saint Ouen l'Aumone, France

Filed May 22, 1979, Ser. No. 41,308
Claims priority, application United Kingdom, May 23, 1978, 21327/78; Sep. 21, 1978, 37692/78
Int. Cl.³ H01R 4/02
U.S. Cl. 174—84 R 40 Claims

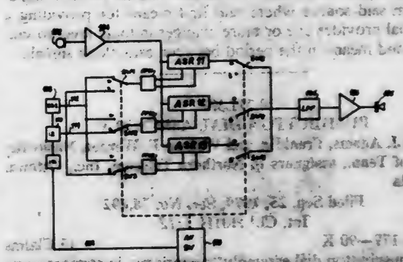


1. An article which comprises a heat-shrinkable sleeve open at at least one end, and a quantity of solder positioned eccentrically within the sleeve and held by the sleeve, the solder being such that it does not extend round the entire inner circumference of any cross-section of the sleeve.

4,271,331
ANALOG PROCESSING SYSTEM FOR REAL-TIME CONVERSION OF THE FREQUENCY OF ANALOG SIGNALS

Arie Kalkstein, Herzlia, Israel, assignor to In-Mar Electronics, Tel Aviv, Israel, a part interest

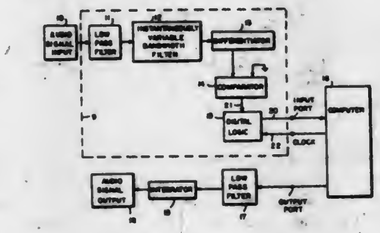
Filed Jan. 27, 1979, Ser. No. 52,818
Int. Cl.³ G06F 5/06; H04J 3/18
U.S. Cl. 179—1 SH 5 Claims



1. An analog signal processing system, comprising:

(a) three analog shift registers each capable of storing, under the control of loading clock pulses, an analog signal in the form of a plurality of analog samples, and of outputting them under the control of unloading clock pulses;
(b) a source of high-frequency clock pulses;
(c) a source of lower-frequency clock pulses;
(d) an input circuit connected to the input end of all the analog shift registers in parallel;
(e) an output circuit selectively connectable to the output ends of the analog shift registers; and
(f) cyclically operable switching means effective:
(i) during a first phase, to unload one register at the high-frequency clock pulse rate while loading a second and a third register at the low-frequency clock pulse rate.
(ii) during a second phase, to unload said second register at the high-frequency clock pulse rate, while loading said first and third registers at the low-frequency clock pulse rate; and
(iii) during a third phase, to unload said third register at the high-frequency clock pulse rate, while loading said first and second registers at the low-frequency clock pulse rate.

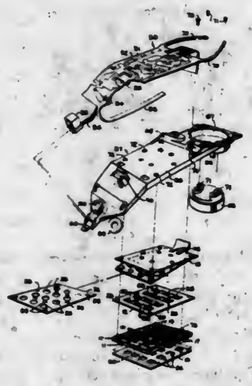
4,271,332
SPEECH SIGNAL A/D CONVERTER USING AN INSTANTANEOUSLY-VARIABLE BANDWIDTH FILTER
James C. Anderson, 1 Mohegan Rd., Acton, Mass. 01720
Filed Jun. 4, 1979, Ser. No. 45,282
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1.5 A 6 Claims



1. An audio signal digitization circuit comprising:
means for instantaneously limiting the bandwidth of said audio signal to provide a greater bandwidth for audio signals above a predetermined amplitude,
first means for providing a signal whose logic level is responsive to the polarity of the slope of the output signal from said bandwidth limiting means,
a source of clock signals,
second means for providing an approximate digital output signal whose logic level changes in response to said logic level signal from said first means and to a clock signal from said source where said first means for providing a signal provides one or more changes in logic level to said second means in the period between said clock signals.

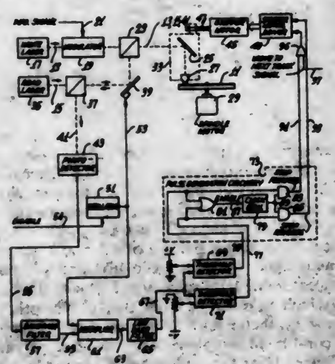
4,271,333
PUSHBUTTON DIAL ASSEMBLY
William J. Adams, Franklin, and William F. Wernet, Nashville, both of Tenn., assignors to Northern Telecom, Inc., Ottawa, Canada
Filed Sep. 25, 1979, Ser. No. 78,692
Int. Cl.³ H01H 3/12
U.S. Cl. 179—90 K 15 Claims

1. A pushbutton dial assembly, comprising, in sequence and in a sandwich formation; a pushbutton member having a plurality of pushbuttons; a flexible transfer member in contact with a back surface of the pushbutton member, the transfer member having a plurality of cantilevered actuating members, one for each pushbutton, each actuating member having a domed portion extending from a back surface of the transfer member; a flexible contact member having a plurality of domed areas comprised of a plastic material extending from a front surface, each domed area of the contact member aligned with a domed portion of an actuating member and in contact therewith, each domed area having an electrically conductive surface on a back, concave surface, and electrical conductors on a back surface of the contact member connecting to said electrically conductive surfaces; a flexible electrically insulating spacer



member having apertures aligned with the domed areas; and a circuit member having a plurality of contact areas, a contact area aligned with each domed area, and an electrical circuit pattern connected to said contact areas; the arrangement being such that pressure on a pushbutton depresses an actuating member, the domed portion on the actuating member pressing on and deforming the related doned area, the domed area snapping down to contact the related contact area on the circuit member.

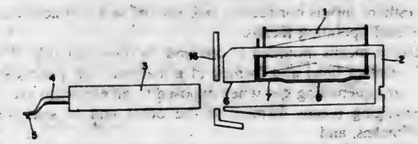
4,271,334
APPARATUS FOR CORRECTING FOR TEMPERATURE-INDUCED TRACKING ERRORS IN A SYSTEM FOR RECOVERING INFORMATION FROM A RECORDING DISC
Raymond Yardy, Rancho Palos Verdes, Calif., assignor to Discovision Associates, Costa Mesa, Calif.
Filed Apr. 6, 1979, Ser. No. 27,794
Int. Cl.³ G11B 7/00
U.S. Cl. 369—41 12 Claims



1. Tracking apparatus for aligning a beam of radiation with respect to a selected one of a plurality of substantially circular and concentrically arranged information tracks on a rotatable

information recording disc, said beam of radiation being reflected in a prescribed manner by the recording disc, to produce a reflected beam of radiation having an average intensity that varies according to the deviation of the beam of radiation from the centerline of the selected information track, said tracking apparatus comprising:
carriage means for directing the beam of radiation at the disc as the disc is rotated with respect thereto, said carriage means being controllably movable along a generally radial axis relative to the disc;
photodetector means for detecting the reflected beam of radiation and producing an information signal that corresponds to the intensity thereof;
oscillator means for producing a periodic dither signal;
means, responsive to the dither signal, for causing the beam of radiation to oscillate along an axis transverse to the axis of the selected information track, thereby causing a corresponding oscillation in the average intensity of the reflected beam of radiation and in the average magnitude of the information signal;
beam deviation sensing means for comparing the oscillation in the average magnitude of the information signal to the periodic dither signal, thereby producing an intermediate signal, said intermediate signal being indicative of both the magnitude and direction of any deviation of the beam of radiation from the centerline of the selected information track;
means for low pass filtering the intermediate signal to remove signal variations having a frequency comparable to the angular velocity of the recording disc;
control pulse signal means, responsive to the low pass filtered intermediate signal, for producing a corresponding control pulse signal; and
stepper motor means, responsive to the control pulse signal, for moving said carriage means along the generally radial axis, a prescribed plurality of steps of said stepper motor means corresponding to the spacing between adjacent information tracks, whereby the beam of radiation is positioned in substantial alignment with the centerline of the selected information track.

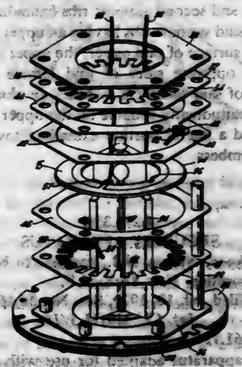
4,271,335
PICKUP CARTRIDGE HAVING A RESILIENT BIASING MEMBER FOR HOLDING AN ELONGATED STYLUS HOLDER AGAINST A SUPPORT SURFACE THEREOF
Kenji Okura, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan
Filed Aug. 3, 1978, Ser. No. 930,630
Claims priority, application Japan, Aug. 3, 1977, 52-92482; Sep. 16, 1977, 52-110455
Int. Cl.³ H04R 11/12
U.S. Cl. 369—136 6 Claims



1. A pickup cartridge comprising a stylus assembly having a stylus, a cantilever carrying the stylus on an end portion thereof, and an elongated holder for resiliently holding said cantilever; a cartridge body case of magnetic material, said cartridge body case having an opening for the insertion of the elongated holder therethrough; pole piece means positioned inside of said cartridge body case, said pole piece means having at least two coils wound thereabout and leg portions to pick up a signal and transmit the signal to the coils and to define a socket space of substantially a square cross-section, said socket space being in alignment with the opening in the cartridge body case to receive the inserted elongated holder therein; a base member of non-magnetic and non-conductive material, said base member being adapted to rigidly support the pole piece means in position in the cartridge body case; and resilient support means of electro-conductive non-magnetic material, said resilient support means being rigidly supported by the base member within the cartridge body case and projecting into said socket space to support the inserted elongated holder of the stylus assembly and wherein the resilient support means is grounded.

6. In a pickup cartridge comprising a stylus assembly having a cantilever carrying a stylus on its one end portion, and an elongated holder for holding said cantilever at its other end portion; a cartridge including an L-shaped base member consisting of a horizontal section and a vertical section, said vertical section having an aperture at a lower portion where the horizontal section and the vertical section intersect, said horizontal section having a V-shaped groove at its center line portion extending from said aperture, said V-shaped groove defining a socket space and having guide grooves in both slopes thereof; a pair of first pole pieces extending substantially in parallel with the horizontal section and each first pole piece having one end fixed in the vertical section; a pair of coils engaged around the first pole pieces; a pair of second pole pieces, each pole piece being U-shaped and having one leg inserted into one of the two guide grooves and the other leg inserted in one of the coils: the improvement wherein said cartridge is provided with a resilient member extending for the whole length of the holder socket space and having at least one leg portion protruding downward to resiliently press the inserted holder for securing a fit of the stylus assembly.

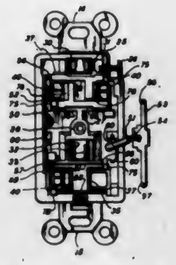
4,271,336
ELECTRICAL SLIP RING AND BRUSH RING ASSEMBLY
Arie Shitrit, Ramaana, Israel, assignor to Israel Aircraft Industries Limited, Ben Gurion International Airport, Israel
Filed Jan. 24, 1979, Ser. No. 6,246
Claims priority, application Israel, Jan. 30, 1978, 53913
Int. Cl.³ H01H 19/00
U.S. Cl. 200—24 10 Claims



1. An electrical current transfer assembly including a slip ring and a brush ring having an annular array of contact elements engaging the slip ring as one ring rotates with respect to the other, characterized in that said brush ring is divided into a plurality of equal sectors each carrying a group of the contact elements, the contact elements being interfaced with respect to

length among the plurality of groups to provide a distributed balance engagement of the contact elements with the slip ring.

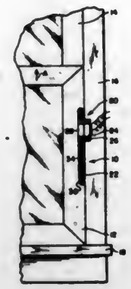
4,271,337
SAFETY RECEPTACLE
Emanuel E. Barkas, Hamden, Conn., assignor to Harvey Hubbell Incorporated, Orange, Conn.
Filed Sep. 17, 1979, Ser. No. 76,245
Int. Cl.³ H01R 33/30
U.S. Cl. 200—51.09 6 Claims



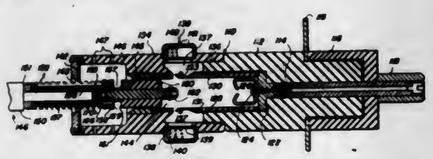
1. An improved electrical receptacle of the type having a housing, at least two electrically conductive female elements supported in said housing for receiving and making electrical contact with blades of a cooperating plug, a cover for said housing having openings therethrough aligned with said elements, first and second conductor means for electrically connecting each of said elements to a source of electrical power, first and second normally open switches, each of said switches being in series circuit relationship between one of said elements and one of said conductor means, first and second independently movable operating members each having a portion lying in a plane between said cover and said female elements, each of said members being elongated, electrically nonconductive and substantially rigid, each of said portion having a cam surface between one of said elements and its aligned cover opening so that a body inserted through one of said openings contacts a cam surface on one of said members and moves said member to close the one of said switches associated with the element aligned with the other opening before the body contacts the element behind said one opening, said housing including, first and second support ribs extending toward said cover, each of said support ribs having an upper surface spaced from the inner surface of said cover, the upper surfaces of said ribs being on opposite sides of said female elements, and wherein each of said members includes an elongated portion resting and longitudinally slidable on the upper surface of one of said ribs and a lateral portion extending toward the other one of said members.

4,271,338
SECURITY APPARATUS
William J. Rakocy, Nutley, N.J., assignor to North American Philips Corporation, New York, N.Y.
Filed Jul. 10, 1979, Ser. No. 56,168
Int. Cl.³ H01H 3/16
U.S. Cl. 200—61.71 9 Claims

1. Security apparatus adapted for use with a slidable-type window or the like, which comprises a two-part electrical contact switch, one of said switch parts being electrically connectible to an alarm system; means to attach said one switch part to the molding surrounding a window frame; a linearly extending bracket; and means to attach said bracket on the window frame so that the bracket is adjacent said one switch part, said second switch part being mounted on said bracket so as to be slidable with respect thereto, whereby the window frame can be slid open or slid closed, without activation of the alarm system, by holding the two switch parts in electrical contact with each other.

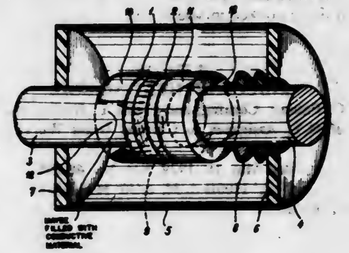


4,271,339
HIGH VOLTAGE CIRCUIT SWITCH ARRANGEMENT
Otto Meister, Arlington Heights, and Thomas J. Tobin, Morton Grove, both of Ill., assignors to S&C Electric Company, Chicago, Ill.
Continuation of Ser. No. 693,290, Jun. 7, 1976, abandoned. This application Nov. 23, 1977, Ser. No. 854,125
Int. Cl.³ H01H 33/08
U.S. Cl. 200—144 C 24 Claims



1. A high voltage circuit interrupting switch arrangement for initiating and interrupting current flow between a first point and a second point of an electrical circuit comprising:
a hollow housing;
a stationary electrical contact positioned within the housing and connectable to the first point of the electrical circuit;
a movable contact means including:
operating means for reciprocating said movable contact means, said operating means being connectable to the second point of the electrical circuit,
a contact head dimensioned to electrically engage with said stationary contact, said contact head having a gas vent opening formed therein,
resilient means connecting one side of said contact head to said operating means,
trailer means mounted at one end on the other side of said contact head and formed of a material that produces an arc quenching gas when exposed to an electrical arc, and
engaging means formed on the other end of said trailer means; and
detent means mounted within said housing for engaging said engaging means and retaining said contact head in engagement with said stationary contact as said operating means moves in a direction to open said contacts until said resilient means is loaded to provide sufficient force to overcome engagement of said detent means with said engaging means so that said contact head rapidly disengages said stationary contact;
said gas vent opening providing reduced area pressure relief so that when said operating means is moved in a direction to close said contact head and said stationary contact and a pre-strike arc is formed therebetween, said arc quenching gas, confined between said contact head and said trailer means, applies a net force to said trailer means, thereby forcing said contact head into rapid engagement with said stationary contact.

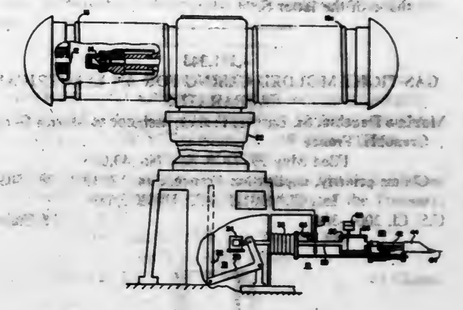
4,271,340
ELECTRICAL VACUUM SWITCH HAVING MEANS FOR GENERATING AN AXIAL MAGNETIC FIELD BETWEEN THE CONTACT FACES
Bertus Grissen, Hengelo (O), Netherlands, assignor to Hazemeijer B.V., Hengelo (O), Netherlands
Filed Dec. 1, 1978, Ser. No. 965,409
Claims priority, application Netherlands, Dec. 5, 1977, 7713436
Int. Cl.³ H01H 33/66
U.S. Cl. 200—144 B 7 Claims



1. An electrical vacuum switch within a vacuum switch enclosure, comprising:
two contact members movable in and out of engagement with one another; and
at least one magnetically permeable yoke partially surrounding each of said two contact members in a region proximate to the tangent plane of contact between said two contact members, each of said yokes including a part having a low magnetic permeability, said part having a low magnetic permeability of each of said yokes being positioned with respect to an axis through said two contact members at a location opposite to the location of said part having a low magnetic permeability of the other yoke, such that upon the passage of current through the vacuum switch each of said yokes is magnetized and the flux lines emanating from each yoke at the tangent plane of contact between the two contact members traverses substantially to the other yoke.

4,271,341
CIRCUIT BREAKER OPERATING MECHANISM
Thomas N. Meyer, Murrysville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Continuation of Ser. No. 762,542, Jan. 26, 1977, abandoned. This application Sep. 25, 1978, Ser. No. 945,369
Int. Cl.³ H01H 33/88
U.S. Cl. 200—148 A 3 Claims

1. A compressed-gas puffer type circuit interrupter comprising in combination:
(a) means defining a gas-compressing piston part;
(b) means defining a gas-compressing cylinder part;
(c) means defining a relatively stationary contact;
(d) means defining a cooperable relatively-movable contact cooperable with said relatively stationary contact to establish an arc therebetween during the opening operation of the puffer type circuit interrupter;
(e) means defining a hollow movable orifice member to assist in directing compressed gas against said established arc;
(f) means attaching said hollow movable orifice member and also said relatively movable contact with one of said gas-compressing parts;
(g) operating means utilizing explosive detonating means for operating said compressed gas puffer type circuit interrupter and thereby effecting relative motion between said two gas-compressing parts for thereby compressing gas therebetween and thus forcing said compressed gas through said hollow movable orifice and into engagement



with the established arc to quickly effect the latter's extinction;
(h) the detonating means comprising a propellant charge of solid expulsive material, a burnable igniter for the charge, a primer for the igniter, and ignition means for producing an electric charge in the primer; and
(i) the ignition means comprising an ignition line for detecting an overcurrent or fault in the circuit of the separable contacts.

4,271,342
LOCK-ON TRIGGER SWITCH WITH INTEGRAL RETURN SPRING
James R. Sietaro, Pickens, S.C., assignor to The Singer Company, Stamford, Conn.
Filed May 15, 1980, Ser. No. 150,286
Int. Cl.³ H01H 3/02, 9/06
U.S. Cl. 200—157 4 Claims



1. In a portable appliance having an outer housing such as a portable motor driven tool, or the like, an operator actuatable control means for controlling an electric switch comprising:
a. a finger actuatable slide member of integral one piece construction having an outwardly extending resilient spring portion, said slide member adapted for manually actuated motion with respect to said appliance;
b. a guide means attached to said appliance for constraining said motion of said slide member to a linear motion in a predetermined direction;
c. wherein said spring portion is cantilevered from said slide member and formed approximately perpendicular to said direction of said linear motion, said spring portion being of rectangular cross section and having an extremity terminating in a generally cylindrical shaped portion; and
d. an abutting means for engaging said spring portion so that a biasing force is effected in opposition to said manually actuated motion comprising a flat surface formed in said

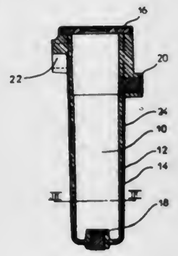
outer housing approximately perpendicular to said direction of said linear motion and a boss in said housing having a curved surface and arranged in pressing contact with said spring portion at a point a finite distance away from said extremity so that said cylindrical shaped portion is in pressing contact with said flat surface whereby when said slide member is actuated by the operator's finger said cylindrical shaped portion will slide to-and-fro on said flat surface and said spring portion will assume the general shape of the letter S.

4,271,343

GAS-TIGHT MOLDED CASING FOR AN ELECTRICAL APPARATUS

Maxime Daschin, St. Egreve, France, assignor to Merlin Gerin, Grenoble, France

Filed May 29, 1979, Ser. No. 43,036
Claims priority, application France, Jun. 12, 1978, 78 18032
Int. Cl.³ H01H 9/02; H05K 5/00
U.S. Cl. 200—304 5 Claims



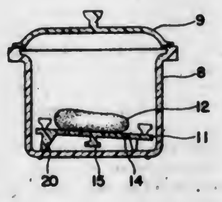
1. A gas-tight molded casing having a wall of an insulating molded synthetic resin for housing an electrical compressed gas apparatus comprising a sack shaped net, embedded in said wall, said net being of a resilient insulating material so designed as to retain the casing fragments in case of an accidental explosion of the casing under said compressed gas pressure and to allow the compressed gas to escape.

4,271,344

HIGH FREQUENCY HEATING OVEN WITH COOKING VESSEL

Masao Horiuchi, Tsuri; Makiko Miyake, Ikoma, and Chizuko Yoshida, Takaichi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 806,071, Jun. 13, 1977, abandoned.
This application Sep. 12, 1978, Ser. No. 941,636
Claims priority, application Japan, Jun. 16, 1976, 51/79546
Int. Cl.³ H05B 6/80
U.S. Cl. 219—10.55 E 1 Claim



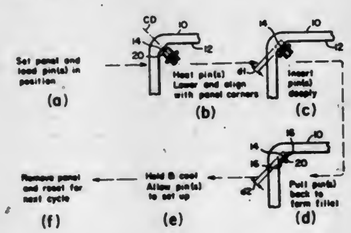
1. A cooking vessel for use in a high frequency heating oven comprising: a cylindrical body having a bottom; and a combination weighting plate and foodstuff support positioned in said cylindrical body with a space between the inside surface of the cylindrical body and the outside periphery of the combination weighting plate and foodstuff support, said cylindrical body and bottom and said combination weighting plate and foodstuff support both being made of an electromagnetic wave permeable material and having a specific gravity greater than 1, said combination weighting plate and foodstuff support having a plurality of vapor escapement holes therein and a plurality of projections on one surface thereof, one of said projections having a height greater than that of the remaining projections and further having at least one auxiliary knob on the surface opposite the surface with said projections thereon, said auxiliary knob being positioned adjacent the periphery of said combination weighting plate and foodstuff support, whereby said combination weighting plate and foodstuff support can be turned with the projections extending down and be used as an inclined support for foodstuff and can be lifted by said auxiliary knob with the foodstuff thereon, and said combination weighting plate and foodstuff support can be turned with the projections extending up and be placed as a weighting plate on foodstuff being cooked in said vessel.

4,271,345

INDUCTION HEATING COIL

Wilbur C. Palmer, Corning, and Frank L. Rasby, Horseheads, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed May 18, 1979, Ser. No. 40,295
Int. Cl.³ H05B 6/36, 6/10; H01J 9/18
U.S. Cl. 219—10.79 7 Claims



1. An induction coil for heating a support pin in a confined location comprising: a primary coil assembly having a selected number of respective inner and outer turns,

a cylindrical tube having an axial extent substantially the same as an axial extent of the primary coil disposed concentrically between said inner and outer turns, said outer turns being spaced apart near an axially central location of said primary coil, at least two integral annular surface portions extending radially outwardly of said cylindrical tube and being spaced substantially equidistant to either side of the axial central location, for forming boundaries of the space in said primary coil,

a secondary coil located in the space near the axial central location and supported by said cylindrical tube, said secondary coil including input leads and outrigger leads at each free end thereof, and an output loop located at a free end of said outrigger leads, said output loop being spaced from and off axis of said primary coil and forming at least a one turn secondary coil, said primary coil having an offset outer turn electrically isolated from the secondary coil and to bridge the space provided in said primary coil, and the spacing of said annular surface portions is at least equal to the width of one turn of said secondary coil and said annular surface portions extend radially outwardly at least a distance sufficient to electrically insulate the primary and secondary coils, and

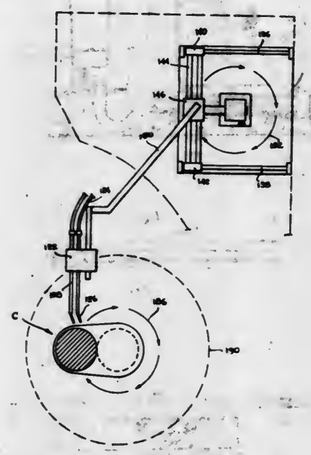
an insulating shim located between said outrigger leads for insuring electrical isolation of one lead to the other, the primary and secondary coils being electrically coupled by induction, said primary coil being adapted to be energized by AC power and said secondary being responsive to induced current produced thereby to produce a resulting strong electrical output in the vicinity of said output loop, said output loop being sized so as to be capable of close proximate relation within relatively closely spaced locations.

4,271,346

WELDING APPARATUS CAPABLE OF WELDING AXIALLY OFFSET PORTIONS

Jay C. Hardy, Santa, Calif., assignor to Hardy Welded Products, Inc., Camarillo, Calif.

Filed Nov. 2, 1978, Ser. No. 957,318
Int. Cl.³ B23K 9/04, 9/12, 37/04
U.S. Cl. 219—76.14 54 Claims



19. Apparatus capable of applying weld material to a metal part, said apparatus comprising:

(a) frame means,

(b) first and second spaced apart releasable clamping means on said frame means for engaging the ends of a part and supporting the part in rotatable manner with respect to said frame means,

(c) a drive motor,

(d) a drive shaft powered for rotation by said motor and being connected to said first clamping means for causing rotation of said first clamping means and a metal part retained thereby, said drive shaft having a central bore extending therethrough,

(e) bolt means extendable through a portion of the central bore of said drive shaft and said first clamping means and capable of being releasably coupled to said drive shaft to releasably retain same in said first clamping means, said metal part being primarily supported by said clamping means and said bolt means being located to perform a primary function of aligning said metal part, and

(f) a welding torch operatively associated with said frame means and having a weld material feeding end locatable in proximity to said part for applying a weld material thereto.

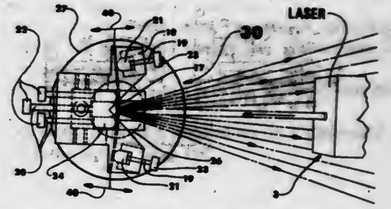
35. In a welding apparatus for applying weld material to a crankshaft having journals and crankpins forming a part thereof and which apparatus comprises a means for rotatably supporting said crankshaft with respect to said frame means and a drive means capable of being coupled to a crankshaft for causing rotation of said crankshaft, and a carriage shiftable in a path generally parallel to a longitudinal axis of said crankshaft and carrying a welding torch having a weld material application end in proximity to said crankshaft, an improvement comprising an X-Y position torch coordinating mechanism mounted on and movable with said carriage having a member capable of being individually movable in each of a pair of generally mutually perpendicular paths said capable of being movable simultaneously in each of said pair of mutually perpendicular paths thereby defining a substantially accurate circular path, said torch being operatively connected to said member for movement in a substantially accurate circular orbit conforming substantially to said circular path so that the application end of said torch can follow in close proximity the rotable movement of the journals and crankpins of said crankshaft.

4,271,347

METHOD AND APPARATUS FOR ACCELERATING CHEMICAL REACTIONS USING A SPREAD BEAM DEFLECTOR WITH SINGLE OR MULTIPLE REFLECTORS

Hardy C. Svenson, Arlington, Va., assignor to The United States of America as represented by the Secretary of the Treasury, Washington, D.C.

Filed Oct. 18, 1978, Ser. No. 952,886
Int. Cl.³ B23K 27/00
U.S. Cl. 219—121 L 11 Claims



1. Laser apparatus comprising a laser source which produces a beam of coherent radiation having a substantially circular outline, and a stationary optical system arranged to disperse and thereby spread said beam in a controlled manner into an elongated elliptical band of radiation having substantially uniform energy density across the expanded dimension of said beam, said optical system including at least one deflecting means arranged to intercept and deflect said beam across one tranverse dimension so that said beam is converted into a spread band of substantially uniform radiation having an elongated elliptical cross-section of greater area than the cross-section of the impinging circular beam of radiation.

4,271,348

ELECTRON BEAM WELDING METHOD AND APPARATUS THEREFOR

Takeaiten Nakazaki; Hisaaso Kita, and Yoji Akutsu, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 15, 1979, Ser. No. 48,883
Claims priority, application Japan, Jun. 16, 1978, 53-72131
Int. Cl.³ B23K 15/00
U.S. Cl. 219—121 ED 6 Claims

1. An apparatus for electron beam welding, comprising:

electron gun means for emitting electron beams from its tip;

magnetic shielding means mounted on the tip of the electron gun and surrounding emitted electron beams with a spacing therebetween, for shielding stray magnetic fields from the electron beams that will pass from the tip of the shielding means opposite from said gun means to a welding area;

means provided around the tip of the magnetic shielding means for removing metal deposit accumulated on the magnetic shielding means during welding while said electron gun means is emitting electron beams without interrupting welding and without interrupting the electron beams; and

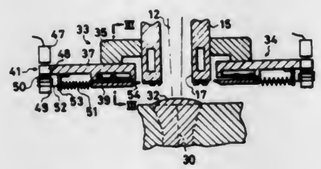
the means for removing metal deposit comprising a pair of knife edges with a passage between them in a closed posi-

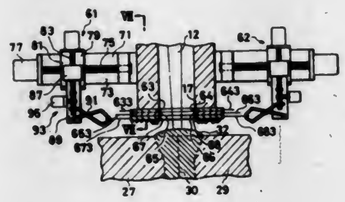
tion for emitted electron beams, and driving means for driving the pair of knife edges along a surface of the tip of the magnetic shielding means towards each other to the closed position, and away from each other and away from the electron beam to an open position, to cut off metal deposit accumulated on the surface of the tip of the magnetic shielding means while moving towards each other to the closed position.

6. A method of welding two metals by an electron beam welding apparatus, comprising the steps of:

providing an electron beam gun and a magnetic field shield aligned with the electron beam gun to provide a passage of the electron beam from the gun through the shield toward a welding area;

supporting two metals to be welded in the welding area so that an abutment of the two metals will align with the passage of the electron beam from the electron gun through the shield to the welding area, and spacing the two metals from the adjacent end of the shield a predetermined distance;





simultaneously emitting electron beams from the electron gun through the magnetic field shield to the abutment of the two metals within the welding area to thereby weld the two metals together, which will result in metal depositing on the adjacent end of the magnetic field shield;

removing the metal deposit accumulated on the adjacent end of the magnetic field shield during the welding of the two metals without interrupting the step of emitting and without interrupting the welding of the two metals; and

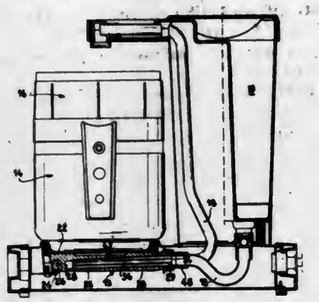
said step of removing including providing a plurality of plates stacked in the direction of the passage of the electron beam at the adjacent end of the magnetic field shield so as to accumulate the metal deposit on the plates exposed to and facing the two metals being welded, and removing the plates on which the metal deposit has accumulated from the weld area so as to expose the next plates in the stack of plates to the welding area to thereafter accumulate the metal deposit on said next plates while continuing the step of emitting and welding throughout the step of removing.

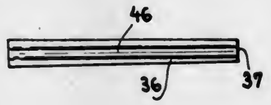
4,271,349

WATER HEATER

François H. J. Hamon, Alencon, France, assignor to Moulinex, Societe Anonyme, Bagnolet, France

Filed Jun. 4, 1979, Ser. No. 45,328
Claims priority, application France, Jun. 9, 1978, 78 17259
Int. Cl.³ F24H 1/16
U.S. Cl. 219—283 3 Claims







1. A water heater comprising a horizontally supported hot plate made in a single piece by casting metal and having upper and lower spaced faces extending substantially parallel to one another and a peripheral face, an electrical resistance arranged to heat said plate, a flattened cavity formed within said plate and having the shape of a pocket extending in a direction substantially parallel to the upper and lower faces from an oblong open end located on said peripheral face to a closed end located within the plate, said cavity having integral substantially planar upper and lower internal walls and a peripheral wall of generally parabolic shape with the horizontal width of the open end greater than the horizontal width of the section of the cavity near its closed end, and a partition inserted in the cavity between the upper and lower walls thereof transversely of the open end and extending from said open end towards said closed end, said partition defining together with the walls of the cavity a substantially U-shaped free space which extends around the internal free end of said partition and which constitutes within the cavity a circulation passage for water to be heated.

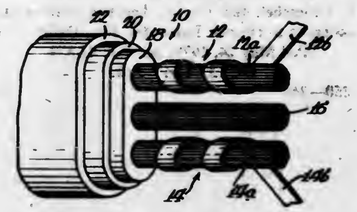
4,271,350

BLANKET WIRE UTILIZING POSITIVE TEMPERATURE COEFFICIENT RESISTANCE HEATER

George C. Crowley, Chicago, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed May 19, 1980, Ser. No. 150,873
Int. Cl.³ H05B 3/54
U.S. Cl. 219—549 6 Claims

1. A self-limiting electric heating element adapted for use in flexible heated products such as electric heating pads, electric blankets and the like comprising a pair of spaced elongated conductors each of which include a flexible insulating core supporting a conducting wire helically wound thereon, an envelope of positive temperature coefficient material extruded over said spaced conductors to surround said conductors and providing a conducting path between said resistance wires through said material, a thermoplastic coating enclosing said positive temperature coefficient material, said coating having a



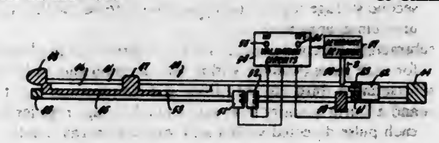
melting point above the melting point of said material to maintain the shape during an annealing operation at a temperature above the melting point of said material and below the melting point of said thermoplastic coating, an insulating spacer positioned in said extruded material between said conductors to prevent contact and maintain substantial spacing between said wires during extrusion or annealing, a coating of insulating material surrounding said thermoplastic coating.

4,271,351

CASH REPLACEMENT SYSTEM AND COMPONENTS

William T. Bloodworth, 24W631 Hobson Rd., Oak Brook, Ill. 60540

Filed Aug. 17, 1979, Ser. No. 67,569
Int. Cl.³ G06K 7/08, 19/06
U.S. Cl. 235—375 13 Claims



13. A card reader for a cash replacement system utilizing consumable transaction cards, each card including a body portion bearing machine readable ideatification and validity codes and a plurality o sequentially severable transaction segments each bearing the identification code, the card reader comprising:

a first sensor for sensing the codes on the body portion of one of the cards;

a validation data store having a validation code recorded therein;

validity comparison means for comparing the validation code from the validation data store with a validation code output from the first sensor to determine the presence of a validity match;

a second sensor for sensing the presence of a transaction segment on the card;

transaction approval means, connected to the validity comparison means and the second sensor, responsive to the combination of a validity match and the presence of a transaction segment, for approving a transaction;

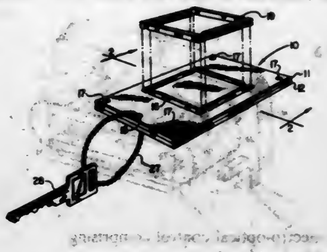
and segment severing means, actuated by the transaction approval means, for severing a transaction segment from the card.

4,271,352

LOST PERSONAL ACCESSORY RETURN METHOD AND ARTICLE

Lon G. Thomas, 1314 N. Floyd Rd., Richardson, Tex. 75080

Filed May 7, 1979, Ser. No. 36,987
Int. Cl.³ G06F 15/20; G06K 19/02
U.S. Cl. 235—375 13 Claims



1. A method for confidential return of a lost personal accessory item to its owner, comprising the steps of:

(a) printing generally applicable finder's return instructions on at least one surface of a holder,

(b) incorporating coded credit, expenditure, authorization, address, and personal accessory item classification information into the holder,

(c) attaching the holder to a personal accessory item subject to loss,

(d) accessing the coded information to a distributed data processing system when lost.

4,271,353

X-RAY SPECTROSCOPE

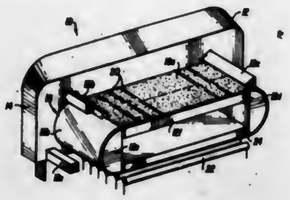
Nobuo Ohtsuki, Ibaraki; Eiji Yamada, Kyoto, and Takashi Utaka, Takatsuki, all of Japan, assignors to Rigaku Industrial Corporation, Takatsuki, Japan

Filed Jun. 27, 1979, Ser. No. 52,943
Claims priority, application Japan, Feb. 19, 1979, 54-17272
Int. Cl.³ G01N 23/20
U.S. Cl. 250—276 9 Claims



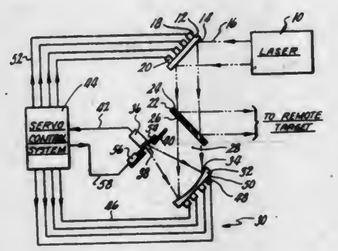
1. An X-ray spectroscope comprising a means for causing emission of characteristic X-rays from a sample to be analyzed, a pair of soller slits disposed such that one end of each faces said sample, a pair of total reflection mirrors disposed such that one end of each faces the other end of said respective soller slits and that the reflecting surfaces thereof face each other and an X-ray detector disposed at a position at which X-rays reflected by said total reflection mirrors intersect each other, with said total reflection mirrors making a predetermined angle with respect to X-rays passed through said respective soller slits.

4,271,354
MANUAL BELT ELECTRO-OPTICAL CONTROL
Richard H. Shellenberger, Asheville, N.C., assignor to SHS Research Labs, Inc., Asheville, N.C.
Filed Aug. 9, 1979, Ser. No. 65,249
Int. Cl.³ G02F 1/01; H01J 40/14
U.S. Cl. 250—211 K 7 Claims



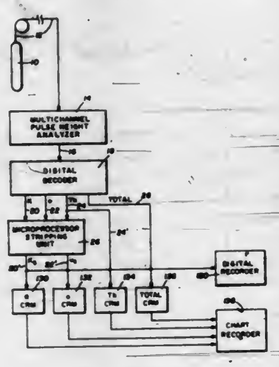
1. An electro-optical control comprising:
a housing;
a source of light;
a photocell;
an endless belt having a substantially planar run reversibly, intermittently, and manually alone movable with a finger applied to the exterior of the belt, said belt having portions of different light penetrability from each other over its extent;
guide means on the housing holding the belt in an extended position and guiding it in an endless path when the one run of the belt is manually moved;
either said light source or said photocell being within the belt and the other of said light source and said photocell being exterior of and adjacent to the belt.

4,271,355
METHOD FOR MITIGATING 2πN AMBIGUITY IN AN ADAPTIVE OPTICS CONTROL SYSTEM
George R. Winner, Deep River, and Robert M. Elkow, Manchester, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Aug. 30, 1979, Ser. No. 71,510
Int. Cl.³ G01J 1/20
U.S. Cl. 250—201 4 Claims



1. An improved adaptive optics control system of the type in which phase distortions in a beam of radiation are corrected by impressing dither signals on at least a portion of the beam with dither actuators attached to a dither mirror and the dither beam is focused with focusing optics through an aperture to a detector to provide electrical input signals which are synchronously processed in a servo system with electrical signals provided to the dither actuators to provide electrical correction signals to corrector actuators on a phase correction mirror to provide phase corrections to the beam of radiation wherein the improvement comprises:
a field stop having an aperture with a variable diameter disposed between the detector and the focusing optics substantially at the Fourier transform plane of the focusing optics; and
means for varying the diameter of the aperture slowly compared to the bandwidth of the control system.

4,271,356
METHOD AND APPARATUS FOR NATURAL GAMMA RAY SPECTRUM ANALYSIS USING MICROPROCESSOR STRIPPER
Vernon E. Groeschel, and Jorg A. Angehrn, both of Houston, Tex., assignors to Dresser Industries, Inc., Dallas, Tex.
Filed May 24, 1979, Ser. No. 41,859
Int. Cl.³ G01V 5/00
U.S. Cl. 250—262 7 Claims

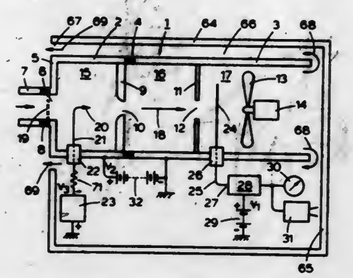


7. A method for determining the amounts of natural gamma radiation from potassium, uranium and thorium in earth formations, comprising the steps of:
detecting natural gamma radiation pulses within energy bands corresponding to potassium, uranium and thorium;
adding a first quantity to a first storage register for each pulse detected within said potassium energy band and to a second storage register for each pulse detected within said uranium energy band;
subtracting a second quantity from said first storage register for each pulse detected within said uranium energy band;
subtracting a third quantity from said first storage register and a fourth quantity from said second storage register for each pulse detected within said thorium energy band;
comparing the quantity in said first storage register to a fifth quantity and the quantity in said second storage register with a sixth quantity;
generating a pulse indicative of gamma radiation corresponding to potassium when said first storage register quantity exceeds said fifth quantity;
generating a pulse indicative of gamma radiation corresponding to uranium when said second storage register quantity exceeds said sixth quantity; and
recording indications of gamma radiation corresponding to potassium, uranium and thorium.

4,271,357
TRACE VAPOR DETECTION
Robert F. D. Bradshaw, Markyate, and Alec Kraicer, Edgeware, both of England, assignors to Pye (Electronic Products) Limited, Cambridge, England
Filed Mar. 8, 1979, Ser. No. 18,801
Claims priority, application United Kingdom, May 26, 1978, 23040/78; May 31, 1978, 24764/78
Int. Cl.³ B01D 59/44; H01J 49/00
U.S. Cl. 250—287 23 Claims

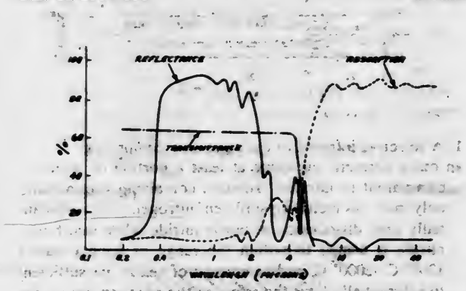
1. An apparatus for detecting trace quantities of chemical species in an oxygen-containing gaseous mixture comprising:

a hollow body having serially an input region, a first internal region, a second internal region, a third internal region, and an outlet region;
means for flowing an oxygen-containing gaseous mixture including trace quantities of chemical species through said hollow body;
means in said first internal region for ionizing at least a portion of molecules of said gaseous mixtures including said chemical species;
means for selecting ions of one polarity for travel into said second internal region;



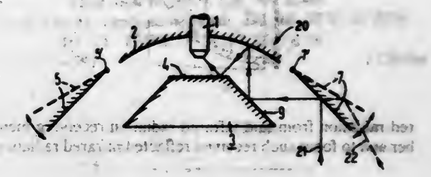
means between said first internal region and said second internal region for inducing flow of a substantially uniform velocity jet of at least a sample portion of said ionized gaseous mixture and said ionized chemical species through said second internal region into said third internal region;
means for directing an ion repulsive electric field with respect to non-selected species in an opposite direction to said flow of said sample portion in said second internal region; and
means in said third internal region for collecting ions of said one polarity which have ionic mobilites of a value permitting travel into said third internal region.

4,271,358
SELECTIVE INFRARED DETECTOR
Frank Schwarz, 156 Thunderhill Dr., Stamford, Conn. 06902
Filed Nov. 13, 1979, Ser. No. 93,899
Int. Cl.³ G01J 1/00; G02B 5/22
U.S. Cl. 250—338 6 Claims



1. An infrared detector substantially insensitive to short wave radiation, such as radiation in the visible, and responsive to infrared radiation at least in the range longer than 7μ, which comprises, in combination, a thermal detector coated with a thin film of a white material having a very high diffusely reflective power in the visible and absorbing in the longer infrared, whereby the detector is capable of giving responses in the longer infrared and at the same time reflects strongly in the short wave radiation, preventing false responses from short wave radiation, such as visible light.

4,271,359
OPTICAL ARRANGEMENT FOR A PASSIVE INFRARED MOTION DETECTOR
Thomas Herwig, Schlangenbad, and Gerhard Deenges, Taunusstein, both of Fed. Rep. of Germany, assignors to Heimann GmbH, Fed. Rep. of Germany
Filed Apr. 7, 1980, Ser. No. 137,846
Claims priority, application Fed. Rep. of Germany, Apr. 25, 1979, 2916768
Int. Cl.³ G08B 1/00
U.S. Cl. 250—347 6 Claims

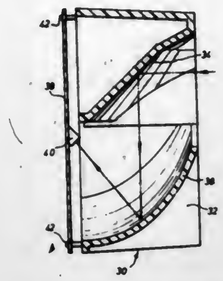


1. An optical arrangement for a passive infrared motion detector for monitoring a space, said infrared motion detector including detector means for forming a signal from a characteristic change of the detected infrared radiation, said arrangement including mirror means for directing radiation from at least one field of vision onto the detector means, each field of vision forming an optically effective curtain to define at least a boundary of a space to be monitored, said mirror means including at least one planar directional mirror, a body with the shape of a conical frustum, and one concave mirror, said concave mirror being disposed to centrically surround the detector means in the same direction of view, said body being arranged opposite the detector means on the optical axis thereof with a planar mirror surface facing the detector means and extending in a plane perpendicular to the axis of said detector means, said body having a conical reflecting surface extending from said planar mirror surface and facing said concave mirror, each of the planar directional mirrors facing the conical reflecting surface of said body, and being capable of being rotated about an edge facing away from the direction of view with respect to the optical axis of the concave mirror to change the position of the field of view.

4,271,360
INFRA-RED SURVEILLANCE SYSTEMS USING MULTI-FACETED MIRROR
Brooke A. Ward, Reading, England, assignor to Intruvion Microwave Electronics Limited, East Molesey, England
Filed Dec. 22, 1978, Ser. No. 972,330
Claims priority, application United Kingdom, Dec. 22, 1977, 53426/77
Int. Cl.³ G01J 1/00; G02B 5/08
U.S. Cl. 250—353 5 Claims

1. An infrared surveillance system which comprises:
a main body integrally formed of a plastic material and having side walls, said main body including an infrared radiation receiving member and a focusing member disposed in spaced relationship between said side walls, said infrared radiation receiving member being formed of a plurality of mirrored facets, each of said mirrored facets being angularly disposed to thereby define an area of surveillance divided into monitored zones and unmonitored zones, said facets being of varying area whereby facets of larger areas provide an increased aperture to be

responsive to movement of more distant objects, said focusing member being disposed to receive reflected infra-



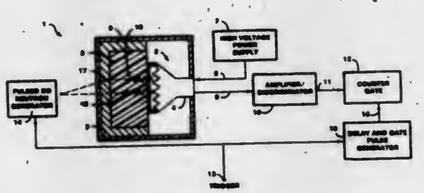
red radiation from said infrared radiation receiving member and to focus such received reflected infrared radiation.

4,271,361

ARSENIC ACTIVATION NEUTRON DETECTOR

Eddy L. Jacobs, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 115,867
Int. Cl.³ G01T 3/00
U.S. Cl. 250—390 8 Claims



1. A neutron detector comprising: a layer of arsenic for receiving fast neutrons and emitting gamma radiation with a half-life of about 17 milliseconds when activated by the fast neutrons; and means positioned adjacent said arsenic layer for detecting and indicating the gamma radiation.

4,271,362

METHOD AND APPARATUS FOR DETECTING A DISTANT OBJECT USING GAMMA RADIATION

Leonard R. Stone, South Euclid; Steven J. Aron, Jr., Parma, and Robert A. Kemmerling, Cleveland Heights, all of Ohio, assignors to Republic Steel Corporation, Cleveland, Ohio

Division of Ser. No. 537,458, Dec. 30, 1974, Pat. No. 4,033,885.
This application Oct. 15, 1976, Ser. No. 732,594
The portion of the term of this patent subsequent to Jul. 5, 1994, has been disclaimed.
Int. Cl.³ G21F 5/02
U.S. Cl. 250—496 19 Claims

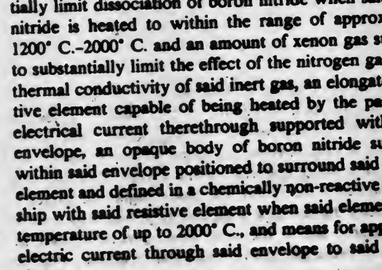
1. A system for determining the presence of an object in an atmosphere subject to conditions which block the transmission of light and infra red radiation comprising:

(a) a radioactive energy source having a radiating face for providing a radiation signal;

(b) source collimator means adjacent said energy source for collimating said radiation signal to provide a highly collimated beam of radiation having relatively constant intensity and substantially parallel rays over a predetermined distance r on the order of tens of feet, said source collimator means having a plurality of elongated parallel members of generally equal length and cross-sectional areas which are secured together into a rigid assembly to define a multitude of elongated parallel passages among said assembled members, a plurality of ends of said assembled members being transversely supported from and substantially shielding said source radiation face; and,

(c) a detector disposed in continuous alignment with the collimator means and at or within the predetermined distance r and in the path of said beam, said predetermined distance substantially characterized by

$$r=(L\ D)/d$$



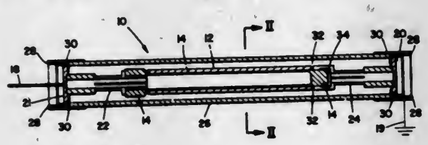
wherein L is the length of said assembled members, D is the diametrical extent of said detector, and d is the diametrical extent of one of said elongated passages wherein L is much larger than d and D is larger than the overall diametrical extent of the beam as it emerges from the parallel passages such that the rays of said beam are substantially within the area confines of the detector at distances within said predetermined distance r.

4,271,363

APPARATUS AND METHOD FOR SELECTIVELY GENERATING INFRARED RADIATION

Norman C. Anderson, San Jose, Calif., assignor to ILC Technology, Inc., Sunnyvale, Calif.

Filed Mar. 12, 1979, Ser. No. 19,467
Int. Cl.³ G01J 1/00; H01K 1/26
U.S. Cl. 250—504 R 7 Claims



1. A selective infrared radiation source comprising:

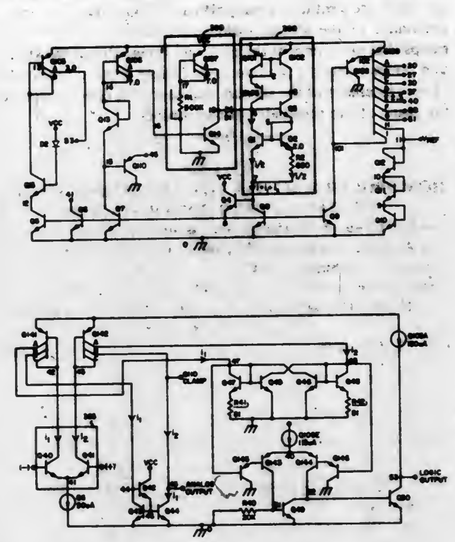
an outer hermetic envelope at least a portion of which is transparent to infrared radiation containing substantially only inert gas including sufficient nitrogen gas to substantially limit dissociation of boron nitride when said boron nitride is heated to within the range of approximately 1200° C.-2000° C. and an amount of xenon gas sufficient to substantially limit the effect of the nitrogen gas on the thermal conductivity of said inert gas, an elongated resistive element capable of being heated by the passage of electrical current therethrough supported within said envelope, an opaque body of boron nitride supported within said envelope positioned to surround said resistive element and defined in a chemically non-reactive relationship with said resistive element when said element is at a temperature of up to 2000° C., and means for applying an electric current through said envelope to said resistive element.

4,271,364

BISTABLE HYSTERETIC INTEGRATED CIRCUIT

Mark Leonard, Los Altos, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 27, 1978, Ser. No. 963,724
Int. Cl.³ H03K 5/24
U.S. Cl. 307—355 10 Claims



1. A bistable hysteretic integrated circuit comprising:

current reference means including a first resistor for providing a reference current;

signal means coupled to the current reference means for producing, in response to first and second input signals applied thereto, first and second signal currents having a sum responsive to the reference current; and

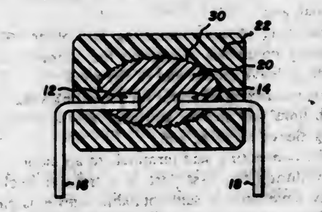
hysteretic switch means including a second resistor and being coupled to the signal means for providing a logical switched state representative of the first and second signal currents, the first and second signal currents differing one from another by a preselected factor determined by a ratio of the first and second resistors.

4,271,365

OPTOCOUPLER HAVING IMPROVED ISOLATION

Norbert Adams, Syracuse, N.Y., assignor to General Electric Company, Auburn, N.Y.

Filed Feb. 25, 1980, Ser. No. 124,596
Int. Cl.³ G02B 27/00
U.S. Cl. 250—551 16 Claims



1. In an electrical device having separately formed inner and outer insulative portions having a boundary therebetween, said boundary interecting an input and an output terminal, the improvement for increasing the breakdown voltage of the device comprising:

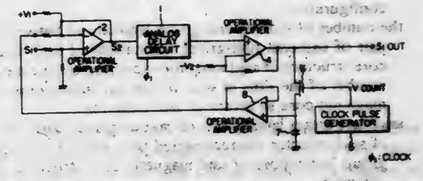
a layer of breakdown voltage enhancing material between said inner an outer insulative portions for increasing the dielectric strength of said device along said boundary.

4,271,366

ANALOG SIGNAL DELAY CIRCUIT

Takaro Isayama, Tokyo; Takeshi Takemoto; Tsutomu Sato, both of Yokohama, and Takao Fukazawa, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Jan. 18, 1979, Ser. No. 4,484
Claims priority, application Japan, Jan. 18, 1978, 53-3839
Int. Cl.³ H03K 5/159, 17/16, 17/687
U.S. Cl. 307—591 3 Claims



1. An analog signal delay circuit having means for compensating D.C. drift, comprising:

an input DC amplifier having input terminal means and an output terminal;

analog delay circuit means having (i) an input terminal coupled to said input DC amplifier output terminal, and (ii) an output terminal;

an output DC amplifier having input terminal means coupled to the output terminal of said analog delay circuit means and an output terminal;

first switching means for (i) disconnecting an analog input signal from the input terminal means of said input DC amplifier during recurrent blanking intervals, and for (ii) connecting a DC reference signal to said input terminal means of said input DC amplifier only during said blanking intervals;

means for storing a zero offset DC drift compensation signal;

second switching means for connecting the output terminal of said output DC amplifier to said storing means only during said blanking intervals; and

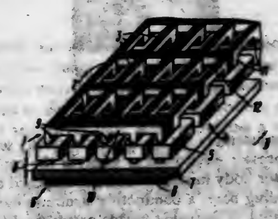
summing means coupled between said input terminal means and said storing means for combining said zero offset DC drift compensation signal with said analog input signal.

4,271,367

LINEAR INDUCTION MOTOR

Alexandr D. Popov, pereulok Rynochny, 44; Vladimir A. Solomin, ulitsa Duchnaya, 14, kv. 31; Sergei S. Khantimirov, pereulok Bocvoi, 4, and Alexandr A. Shirokov, ulitsa Petrashevskogo, 48, kv. 23, all of Rostov-na-Donu, U.S.S.R.

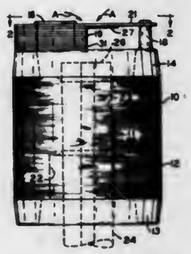
Filed Feb. 11, 1980, Ser. No. 120,041
Int. Cl.³ H02K 41/04
U.S. Cl. 310—13 2 Claims



1. A linear induction motor comprising:

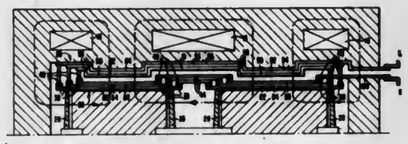
an inductor;
a magnetic core structure of said inductor;
a polyphase concentrated winding of said inductor;
coils of said polyphase concentrated winding of said inductor arranged in a plurality of rows;
first-group laminations of said magnetic core structure of said inductor extended in one direction;
rods of each of said first-group laminations of said magnetic core structure of said inductor;
each of said first-group laminations having at least four slots adapted to receive said coils of said polyphase concentrated winding of said inductor;
second-group laminations of said magnetic core structure of said inductor extended in another direction transversely of the first direction; rods of each of said second-group laminations of said magnetic core structure of said inductor;
each of said second-group laminations of said magnetic core structure of said inductor having an inverted U-shape configuration;
the number of said second-group laminations between each pair of adjacent first-group laminations of said magnetic core structure of said inductor exceeding by one piece the number of the slots in said first-group laminations of said magnetic core structure of said inductor;
said first-group laminations of said magnetic core structure of said inductor interconnected by means of said second-group laminations of said magnetic core structure of said indicator;
each said coil of said polyphase concentrated winding of said inductor encompassing one of said rods of at least one of said first-group laminations and one of said rods of at least one of said second-group laminations;
said coils of said polyphase concentrated winding of said inductor in each said row extended in the first direction having a forward phase rotation up to the middle of each said row and a reverse phase rotation thereafter;
said coils of said polyphase concentrated winding of said inductor in each said row extended in the second direction having a forward phase rotation;
a secondary element;
a magnetically conductive base of said secondary element;
an electrically conductive part of said secondary element arranged on said magnetically conductive base of said secondary element.

4,271,368
ROTOR ASSEMBLY HAVING SHROUD WITH REPLACEABLE KNOCK-OUTS
Richard D. Burns, Holland, Mich., assignor to General Electric Company, Fort Wayne, Ind.
Filed Oct. 25, 1978, Ser. No. 954,663
Int. Cl.³ H02K *15/00*
U.S. Cl. 310—42 **10 Claims**



1. In a rotor assembly for use in a hermetically sealed regrigeration compressor environment wherein the rotor assembly includes a rotor body having a centrally disposed and longitudinally extending bore, a conductive structure carried by the body, a plurality of fastening means extending longitudinally from the conductive structure, and a shroud held in assembled relationship with the rotor body by the fastening means, the improvement wherein: said shroud includes means removably secured thereto for preventing gases from moving longitudinally therepast and toward the longitudinally extending bore; said means removably secured to said shroud including a plug attached to and forming a part of said shroud; said plug being attached to the remainder of said shroud by at least two tabs that each are a unitary structural part of both the plug and the remainder of the shroud, said at least two tabs establishing ramps that interconnect the plug and remainder of the shroud, said ramps lying at a predetermined angle relative to the plane of the remainder of the shroud, and said plug being offset from the plane of the remainder of the shroud.

4,271,369
HOMOPOLAR MACHINE FOR REVERSIBLE ENERGY STORAGE AND TRANSFER SYSTEMS
Roy E. Stillwagon, Ruffsdale, Pa., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Continuation-in-part of Ser. No. 585,642, Jun. 10, 1975, Pat. No. 4,110,648. This application Feb. 10, 1978, Ser. No. 876,817
Int. Cl.² H02K *31/00*
U.S. Cl. 310—178 **5 Claims**



1. A homopolar generator-motor comprising:
a base supporting a stator and a rotor arranged to rotate therein;
said rotor comprising multiple modular hollow sleeves supported by internal arms extending radially outward from hubs centrally positioned in opposite ends of each sleeve;
sleeve support means extending upwardly from said base on which each of said hubs are respectively mounted to permit independent sleeve rotation;
means connecting a terminal to an end of one of said sleeves;
nonrotating conductors between the ends of adjacent sleeves;
current-collecting means supported on but insulated from said stator;
said current-collecting means separately connecting the ends of said rotatable sleeves with said nonrotating conductors to thereby provide a series connection in said rotor including the sleeves and nonrotating conductors when the current-collecting means engages their respective sleeves;
stationary conductor means extending the length of said stator and being mounted on but electrically insulated from the stator inner surface, a terminal on one end of the stationary conductor means located adjacent the sleeve terminal, and
interconnecting means connecting the other end of said stationary conductor means on the stator to the corresponding sleeve on the end of the rotor;
excitation means on said stator for providing a magnetic field which links said sleeves and generates a voltage therein during sleeve rotation; and
means for connecting said terminals to an inductive load;
whereby during the first part of a transfer cycle, kinetic energy developed in said rotatable sleeves is electrically transferred to said load, and during the second part of the cycle, electrical energy returned from the load establishes a second magnetic field which links the sleeves and coacts with the excitation means magnetic field to accelerate the rotatable sleeves and thereby create kinetic energy therein for repetition of the transfer cycle.

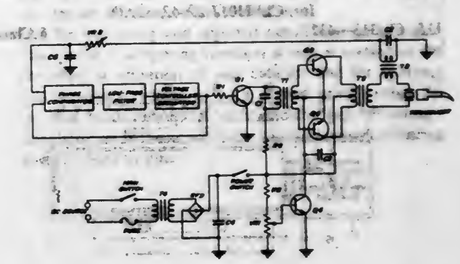
4,271,370
DOUBLE AIR GAP PRINTED CIRCUIT ROTOR
Frank N. DiMeo, Drexel Hill, Pa., assignor to Litton Systems, Inc., Clifton Heights, Pa.
Filed Sep. 21, 1979, Ser. No. 77,853
Int. Cl.³ H02K *1/22*
U.S. Cl. 310—266 **4 Claims**



1. A coil structure for use in an electric motor, the coil structure comprising:
a cylindrical drum comprising a length of flexible non-conducting substrate material rolled into a plural layer hollow tube-like shape,
a plurality of side-by-side coils printed on both sides of the substrate material, the plurality of coils comprising nine coils on one side of the substrate and ten coils on the opposite side, the drum having a circumference equal to the width of four and three-quarters of a single printed coil,
first means for coupling said coils to an external source of excitation, said first means comprising lower tabs positioned beneath and outside of each of said side-by-side coils, the lower tabs being printed integrally with the side-by-side coils,
second means for coupling non-adjacent coils to one another in order to form a wave winding,
plated through holes extending from one side of the substrate to the other comprising a portion of the second means, and
jumper means connecting the first three coils on the substrate with the last three coils on the substrate comprising the remainder of the second means.

4,271,371
DRIVING SYSTEM FOR AN ULTRASONIC PIEZOELECTRIC TRANSDUCER
Shuhei Furuichi, and Takahiko Nose, both of Miyazaki, Japan, assignors to Kobushiki Kaisha Morita Seisakusho, Kyoto, Japan
Filed Sep. 26, 1979, Ser. No. 79,286
Int. Cl.³ H01L *41/08*
U.S. Cl. 310—316 **13 Claims**

1. A driving circuit for ultrasonic tools which uses a piezoelectric transducer to convert ultrasonic electric signals into ultrasonic mechanical vibrations comprising:
a voltage-controlled oscillator which produces an output signal at a frequency that is proportional to an input voltage;
a power amplifier stage having its input coupled to the output of the voltage-controlled oscillator, said power amplifier stage comprising:
an output transformer which couples the output of the power amplifier stage to said piezoelectric transducer, said power output transformer further acting as both an insulating transformer and a boosting transformer for the power amplifier stage; and
a feedback transformer coupled in series with a secondary side of said output transformer and said piezoelectric transducer, said feedback transformer having a secondary side through which a current flows which is proportional to the current flowing through said piezoelectric transducer;



a phase comparator which blocks high frequency difference between two signals applied to two inputs of said phase comparator, said two inputs being respectively coupled to output signal of said voltage controlling oscillator and said secondary side of said feedback transformer; and
a low pass filter which blocks high frequency components of an input signal and allows only low frequency components to pass therethrough connected between an output of said phase comparator and said input of said voltage controlled oscillator.

4,271,372
ROTATABLE ANODE FOR AN X-RAY TUBE COMPOSED OF A COATED, POROUS BODY
Ernst Goldner, Roetgen; Rudolf Friedel, Kleinmaischeid, and Klaus Heberrocker, Neunkirchen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Filed Mar. 16, 1977, Ser. No. 777,916
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1976, 2618235
Int. Cl.³ H01J *35/08, 35/04*; B32B *3/26*
U.S. Cl. 313—330 **6 Claims**

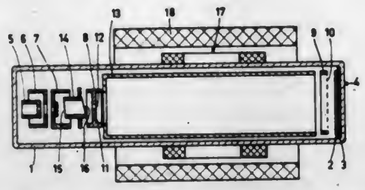


1. A rotatable anode for an X-ray tube, said anode having an anode plate comprising a single body composed of a porous, difficult to melt material, said body being enclosed in a sealed fashion within an enveloping layer of difficult to melt material, a portion of said enveloping layer providing a target for impinging electrons, said porous body being of a material having a good thermal conductivity and a good thermal capacity, and said porous body having its pores filled with a filler material having a good thermal conductance and being a good conductor of heat.

4,271,373
CATHODE RAY TUBE WITH INCLINED ELECTROSTATIC FIELD LENS

Erich E. Himmelbauer, and Joseph M. Koemans, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 23, 1979, Ser. No. 32,432
Claims priority, application Netherlands, Apr. 27, 1978, 7804518
Int. Cl.³ H01J 29/62, 31/38
U.S. Cl. 313—432 6 Claims

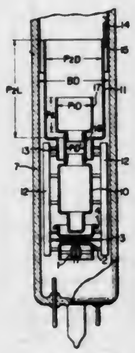


1. A cathode ray tube, comprising a tubular envelope, a target on one end of the envelope, cathode means on the other end of the envelope for emitting an electron beam, a group of three tubular electrodes arranged in series between the cathode and the target, each of the electrodes having end faces, at least two of the end faces being so shaped that potential differences between the first and second electrodes and between the second and third electrodes form an inclined, electrostatic lens field between the first and second electrodes that deflects the electron beam away from the tube axis and forms an inclined, electrostatic lens field between the second and third electrodes that deflects the electron beam in the opposite direction toward the axis, a diaphragm in said third electrode, said diaphragm being provided with an aperture therethrough, the geometry of the electrodes being such that in the absence of said potential differences therebetween most of the electron beam from said cathode is intercepted by said diaphragm with a minor portion of the beam passing through the aperture, and in the presence of said potential differences most of the electron beam is concentrated in the aperture and passes therethrough at an angle to the tube axis.

4,271,374
ELECTRON GUN FOR CATHODE-RAY TUBE

Masamichi Kimura, Ibaraki, Japan, assignor to Matsushita Electronics Corporation, Osaka, Japan

Filed Sep. 12, 1979, Ser. No. 75,035
Claims priority, application Japan, Sep. 19, 1978, 53-115523
Int. Cl.³ H01J 29/56
U.S. Cl. 313—449 4 Claims



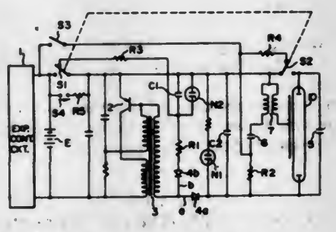
1. An electron gun for a cathode-ray tube of the type wherein a cathode, a control grid electrode, an accelerating electrode, a first cylindrical electrode and a second cylindrical electrode are disposed in the order named in the neck portion of an envelope and are supported and electrically insulated from each other by electrically insulating supporting rods, whereby a main electron lens is formed between said first and second cylindrical electrodes, CHARACTERIZED in that one end of said second cylindrical electrode which is closer to said cathode is reduced in diameter and is supported by one end of said supporting rods; and said first cylindrical electrode has

a neck portion which is extended through said reduced end portion of said second cylindrical electrode coaxially thereof in radially spaced apart relationship therewith, and an enlarged diameter front portion which is extended from the front end of said neck portion coaxially thereof into the enlarged diameter portion of said second cylindrical electrode contiguous with said reduced diameter end portion thereof.

4,271,375
FLASH LIGHT DISCHARGE DEVICE

Tsutomu Hosono, Tokyo, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Continuation of Ser. No. 788,606, Apr. 18, 1977, Pat. No. 4,163,178. This application Jul. 2, 1979, Ser. No. 53,772
Claims priority, application Japan, Apr. 16, 1976, 51-43316; May 15, 1976, 51-61502
The portion of the term of this patent subsequent to Jul. 31, 1996, has been disclaimed.
Int. Cl.³ H05B 41/32
U.S. Cl. 315—241 P 1 Claim



1. A flash discharge device comprising:

a blocking oscillator;

a first rectifier connected to said blocking oscillator to receive output signals therefrom and polarized to rectify output signals in one polarity;

a strobe circuit connected to said first rectifier and comprising a strobe tube and a main capacitor connected thereto to store electric charge supplied through said first rectifier to operate said strobe tube;

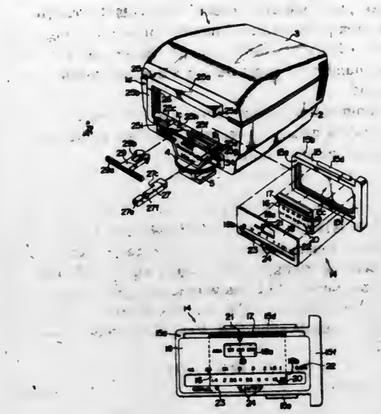
a second rectifier connected to the output of said blocking oscillator to receive output signals therefrom and polarized oppositely from said first rectifier to rectify in the opposite polarity said blocking oscillator output signals applied to said second rectifier; and

voltage indicating means for indicating that said main capacitor is being charged connected to said second rectifier to be energized by the oppositely polarized rectified signals therefrom.

4,271,376
ELECTRONIC FLASH

Mitsuo Kawazoe, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 17, 1979, Ser. No. 67,541
Claims priority, application Japan, Sep. 15, 1978, 53/112963
Int. Cl.³ H05B 41/32
U.S. Cl. 315—241 P 15 Claims

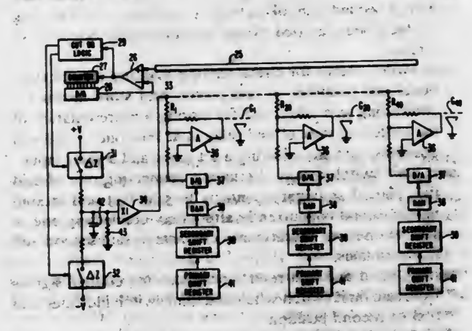


1. An improved flash having a selectively energizable source of illumination, means for controlling said source of illumination according to a plurality of operational modes including an automatic control mode and a manual control mode and a housing enclosing said source of illumination and said means for controlling, wherein the improvement comprises, frame means mounted upon an outer surface of said housing, and indicator panel means removably mounted within said frame means, said indicator panel means having front and rear surfaces and being selectively mounted within said frame means to externally expose selectively either said front or rear surface thereof, one of said front and rear surfaces of said indicator panel means having means for calculating a diaphragm value disposed thereon.

4,271,377
SYSTEM FOR COMPENSATING FOR CATHODE VARIATIONS IN DISPLAY DEVICES UTILIZING LINE CATHODES

Robert A. Gange, Belle Mead, and Frank J. Marlowe, Kingston, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Oct. 9, 1979, Ser. No. 82,531
Int. Cl.³ H01J 29/52
U.S. Cl. 315—366 22 Claims



1. In a multielectron gun cathodoluminescent display device having a grid for modulating the electron beams of said electron guns and a line cathode for providing electrons for said electron guns, a system for compensating for vibration of said line cathode comprising:

means for sensing electron beam current at a selected one of said electron guns;

means for setting the cutoff voltage of said selected electron gun;

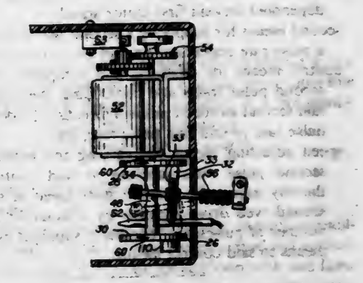
means for adjusting said cutoff voltage proportionally to said sensed electron beam current; and

means for weighting said adjusted cutoff voltage in accordance with a weighting function which is related to the envelope of vibration of said cathode and for applying said weighted voltage to each of said grids so that the electron beam current of each electron gun is compensated relative to the actual cathode displacement occuring at each electron gun.

4,271,378
TOY WITH REVERSIBLE DRIVEN HOIST

Robert J. Kaneff, 819 N. Gardner St., W. Hollywood, Calif. 90046

Filed Dec. 28, 1978, Ser. No. 973,896
Int. Cl.³ H02P 15/00
U.S. Cl. 318—10 5 Claims



1. A reversible drive for a model or toy, which comprises:

a first rotatable shaft having a central reduced diameter;

a motor coupled to rotate said first rotatable shaft;

a pair of spaced apart drive discs fixedly mounted on said first rotatable shaft and having parallel opposed faces embracing said central reduced diameter thereof;

a second rotatable shaft disposed at a right angle to said first rotatable shaft and having a loosely mounted end remote from said first rotatable shaft;

a driven disc fixedly mounted on said second rotatable shaft in a plane at a right angle to said parallel spaced apart drive discs;

a lever for selectively biasing the circumferential edge of said driven disc against one of the opposed faces of said drive discs in one direction of rotation, and against the other opposing face of said drive discs to drive said driven disc in the opposite direction, said lever being pivotally connected to said second rotatable shaft remote from the loosely mounted end of said second shaft;

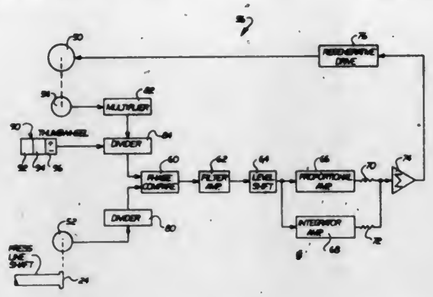
a fulcrum for said lever remote from said second rotatable shaft;

and means for pivotally biasing the loosely mounted second rotatable shaft having said driven disc mounted thereon into centered engagement with said central reduced diameter portion of said first rotatable shaft.

4,271,379
WEB FED PRINTING PRESS MOTOR CONTROL

Edward H. Eckelmeyer, Neenah, Conn., assignor to Harris Corporation, Melbourne, Fla.

Filed Dec. 29, 1978, Ser. No. 974,541
Int. Cl.³ H02P 5/46
U.S. Cl. 318—77 9 Claims



1. In a web fed printing press having at least one printing unit including first web driving means driven by a first motor means for imparting motion to a web and downstream from said printing unit a second web driving means driven by a second motor means for receiving and imparting motion to said web prior to it being directed to utilization means, motor control means for controlling the web speed relationship at said two motor driven means comprising:

first means for supplying a first pulse train of pulses at a pulse dependent on said first motor speed;

second means for supplying a second pulse train of pulses at a pulse rate dependent on said second motor speed;

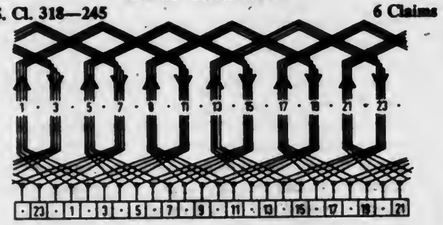
control means for receiving and comparing said first and second pulse trains and controlling energization of only said second motor means in a direction to lock said second pulse rate to said first pulse rate; and,

speed adjusting means for varying the pulse rate of said second pulse train supplied to said control means to thereby adjust the relative web speed at said first and second web driving means by effectively changing the number of pulses per revolution supplied by said second means to said control means.

4,271,380
ELECTRIC TWO-MOTOR DRIVE

Peter Bradler, Lengfeld, and Jaroslav Stepina, Kaiserslautern, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 29, 1978, Ser. No. 946,862
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1977, 2744422
Int. Cl.³ H02K 23/64
U.S. Cl. 318—245 6 Claims



1. A motor drive adapted to function selectably as a commutator motor having a first predetermined number of poles comprising,

(a) a stator core including

(i) first stator winding means for producing the first predetermined number of poles for commutator motor functioning and having a first pole pitch, and

(ii) second stator winding means for producing the second predetermined number of poles for induction motor functioning, and having a second pole pitch;

(b) a rotor core including

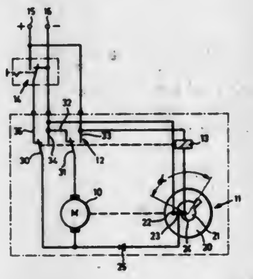
first rotor phase winding means for selectably responding to the first predetermined number of poles during commutator motor operation and to the second predetermined number of poles during induction motor operation; and

(c) first commutator means connected to said first rotor phase winding means for receiving electric power during commutator motor functioning.

4,271,381
WINDSHIELD WIPER MOTOR CIRCUIT

Joachim Munz, Gemmrigheim; Hans Prohaska, and Horst Rachner, both of Bietigheim-Bissingen, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 97,914
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2851727
Int. Cl.³ B60S 1/04
U.S. Cl. 318—282 9 Claims



1. A windshield wiper circuit arrangement comprising:

an electric drive motor which is reversible with respect to the direction of rotation;

a voltage source having first and second terminals each of a different polarity;

a reversing switch interposed between said motor and said voltage source and having a first changeover bridging contact in cooperative switching relationship with a first pair of stationary contacts, and a second changeover bridging contact in cooperative switching relationship with a second pair of stationary contacts, said bridging contacts being carried by and simultaneously operable by a relay;

limit switch means for characterizing first and second rotational end positions of said motor; and store means for controlling said relay, and for storing a representation of the switching state of said relay in at least one of said end positions, said store having a set input and a reset input;

said limit switch means alternately connecting one of said first pair of stationary contacts to said first and second terminals and concurrently alternately connecting one of said second pair of stationary contacts to said second and first terminals;

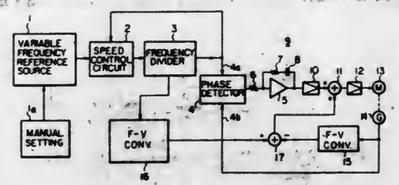
said set input and said reset input receiving control signals from said limit switch when said limit switch indicates said first or second position;

the other of said stationary contacts being connected to the same terminal of said voltage source.

4,271,382
SPEED CONTROL CIRCUIT FOR PHASE-LOCKED LOOP MOTOR DRIVE SYSTEMS

Toshinobu Maeda, and Yoshifumi Matsuoka, both of Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 25, 1979, Ser. No. 51,855
Claims priority, application Japan, Jun. 27, 1978, 53-78153
Int. Cl.³ H02P 5/16
U.S. Cl. 318—318 7 Claims

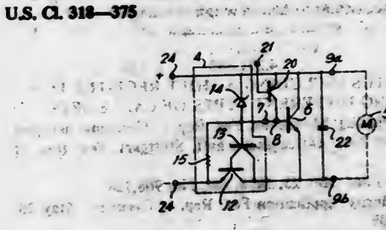


1. An oscillator circuit having fine frequency adjustment control comprising a pulse generator for generating pulses at high and low frequencies; a frequency divider having an input responsive to the pulse generator for dividing said pulses; a bistable circuit responsive to an output signal from said frequency divider to generate a first binary state signal; a programmable counter having a resettable count value for counting said low frequency pulses in response to the occurrence of said first binary state signal to cause said bistable circuit to generate a second binary state signal when said count value is reached thereby defining a desired period; means for selectively generating a speed increment and a speed decrement command signal; means for normally applying said low frequency pulses to said frequency divider; means responsive to said speed increment command signal for applying a train of said high frequency pulses in place of said low frequency pulses to said frequency divider during said defined period and means responsive to said speed decrement command signal for inhibiting the input of said frequency divider during said defined period.

4,271,383
DC MOTOR CONTROL CIRCUIT

Takeshi Endo, Shiojiri, Japan, assignor to Shinshu Seiki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 4, 1977, Ser. No. 821,874
Claims priority, application Japan, Aug. 6, 1976, 51-106134
Int. Cl.³ H02P 3/12
U.S. Cl. 318—375 12 Claims

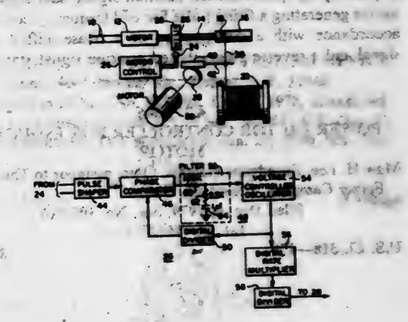


1. In a DC motor control circuit comprising a DC motor adapted to be driven in response to an operating voltage applied thereto and braking means defining a current path coupled in parallel with said DC motor for selectively braking said DC motor in response to a control signal applied thereto, the improvement comprising DC supply means for producing a DC signal, constant voltage means coupled intermediate said DC supply means and the parallel connection of said braking means and DC motor for selectively applying a constant operating voltage to said DC motor, said constant voltage means being adapted, in response to a control signal applied thereto, to cut-off the application of a constant operating voltage to said DC motor, and control means coupled directly to said constant voltage means and directly to said braking means for coincidentally applying a control signal to said constant voltage means and to said braking means to coincidentally brake said DC motor and cut-off the application of said operating voltage to said DC motor.

4,271,384
SYNCHRONOUS MOTOR DRIVE

Thomas E. Boling, Saxonville, and Leopold Bele, Braintree, both of Mass., assignors to Sigma Instruments, Inc., Braintree, Mass.

Filed Nov. 10, 1977, Ser. No. 850,201
Int. Cl.³ H02P 5/50; G05B 19/40
U.S. Cl. 318—685 21 Claims



1. For a synchronous motor capable of reaching a given speed within a predetermined time, a motor drive operable from a voltage source repetitively variable at a frequency corresponding to the given speed, comprising:

a phase detector for responding to the source,

a filter,

a voltage controlled oscillator,

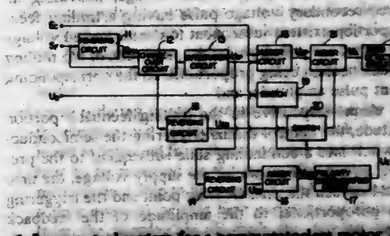
feedback means,

said phase detector, said filter, said voltage controlled oscillator, and said feedback means being connected successively to each other in a phase locked loop with said filter including integrating means having a time constant corresponding to the predetermined time.

4,271,385
CONTROL SYSTEM FOR COMMUTATORLESS MOTOR

Noboru Azuma, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 21, 1978, Ser. No. 935,596
Claims priority, application Japan, Aug. 22, 1977, 52-99569
Int. Cl.³ H02P 5/16
U.S. Cl. 318—722 7 Claims



1. In a control system for a commutatorless motor, comprising a synchronous motor having a polyphase armature winding and a field winding, a frequency converter for supplying AC

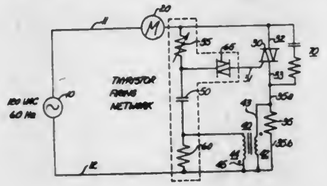
current of variable frequency to said armature winding, a speed detector for detecting the rotational speed of said synchronous motor and for producing a speed signal different in polarity depending on the rotational direction of said motor, and a position detector means for detecting a position signal based on the rotational speed of said synchronous motor; the improvement comprising phase-shifting circuit means including integrator circuit means for integrating said speed signal in synchronism with said position signal and adapted to shift the phase of said position signal by the maximum of 180 degrees both in the lead and lag direction in response to a phase control signal and an integrated signal delivered from said integrator circuit means, and logic circuit means supplied with a phase-shifted position signal delivered from said phase-shifting circuit means and including reversing circuit means for producing a reverse phase-shifted position signal resulting from reversing in polarity the phase-shifted position signal, said logic circuit means generating a firing pulse for said frequency converter in accordance with a combination of a phase-shifted position signal and a reverse phase-shifted position signal.

4,271,386

POWER FACTOR CONTROLLER FOR INDUCTION MOTOR

Maw H. Lee, Broadview Heights, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio

Filed Dec. 5, 1979, Ser. No. 100,516
Int. Cl.³ H02P 5/40
U.S. Cl. 318—729 8 Claims



1. An electronic controller for regulating power applied by an AC supply to an AC induction motor, comprising:

a gate-controlled semiconductor AC switching means connected in electrical series relationship with the AC supply and the induction motor, power being applied to the motor via the AC switching means;

means for detecting alternating direction load current pulses through the motor when the AC switching means is in a conducting state, the means for detecting including a resistor means in series with the motor, the resistor means providing a proportional voltage pulse for each load current pulse;

a transformer means having a primary side and a nonlinearly responding secondary side, the proportional voltage pulse provided by the resistor means being impressed across the primary side, the nonlinearly responding secondary side, in response to the proportional voltage, providing an induced secondary voltage pulse having a trailing feedback portion existent subsequent to the impressed voltage pulse across the primary side, the amplitude of the trailing feedback portion being proportional to the corresponding current pulse amplitude; and

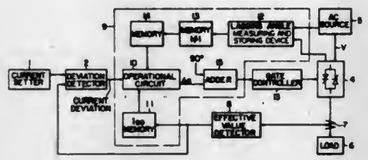
control means responsive to the trailing feedback portion amplitude, the control means triggering the semiconductor switch into a conducting state subsequent to the preceding zero crossing point of the supply voltage, the time period between the zero crossing point and the triggering being poroportional to the amplitude of the feedback portion, the switching means switching to a nonconducting state generally at the trailing edge of each load current pulse.

4,271,387

METHOD AND SYSTEM OF CONTROLLING EFFECTIVE VALUE OF ALTERNATING CURRENT

Kuniaki Mukai, Hachioji, and Kouichi Hyodo, Chofu, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Apr. 13, 1979, Ser. No. 29,938
Claims priority, application Japan, Apr. 20, 1978, 53-47078; Apr. 25, 1978, 53-48977
Int. Cl.³ G05F 1/455
U.S. Cl. 323—241 5 Claims



1. In a method of controlling the effective value of alternating current supplied to a load from a source of alternating current through controlled semiconductor switching elements which are connected in parallel opposition, wherein the effective value of the alternating current is controlled by comparing a reference current with an effective value of the load current actually measured, the improvement which comprises the steps of:

producing data $(\Delta I/\Delta\alpha)/I_{90}$

where ΔI represents an increment of the load current, $\Delta\alpha$ an increment of the ignition angle α of said controlled semiconductor switching elements and I_{90} the effective value of the load current at an ignition angle of 90°,

calculating $\Delta\alpha$ according to an equation

$$\Delta\alpha = \frac{\text{current deviation} \times K}{I_{90} \times (\Delta I/\Delta\alpha)/I_{90}}$$

where K is a constant smaller than 1,

adding said $\Delta\alpha$ to an ignition angle α_1 in a preceding half cycle to determine a new ignition angle, and

controlling said controlled semiconductor switching elements according to said new ignition angle.

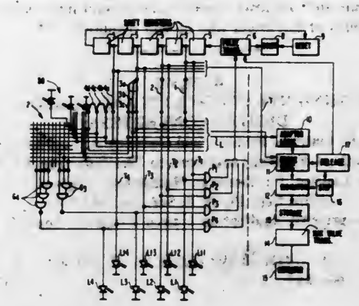
4,271,388

APPARATUS INCLUDING A SHIFT REGISTER FOR TESTING DIFFERENT TYPES OF CABLE SETS

Wolfgang Schilling, Mannheim, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed May 23, 1978, Ser. No. 908,728
Claims priority, application Fed. Rep. of Germany, May 25, 1977, 2723536
Int. Cl.³ G01R 31/02
U.S. Cl. 324—51 12 Claims

1. An apparatus for testing different cable sets having several conductor means comprising shift register means providing one output each for each individual conductor means, synchronizing line means associated with each individual conductor means, each output of the shift register means being coupled with an input of the associated individual conductor means and an input of the associated synchronizing line means, and means coupled to an output of the individual conductor means and an output of the associated synchronizing line means for indicating proper operation of the individual conductor means in response to the shift register means providing an output to the associated individual conductor means and the associated synchronizing line means for testing of the cable sets, each individual conductor means including at least one of an individual conductor and a group of interconnected conductors, a respective one of the synchronizing line means being associated with each of the individual conductors and with each group of interconnected conductors, the shift register means providing one output for each respective individual conductor and one output for each respective group of interconnected



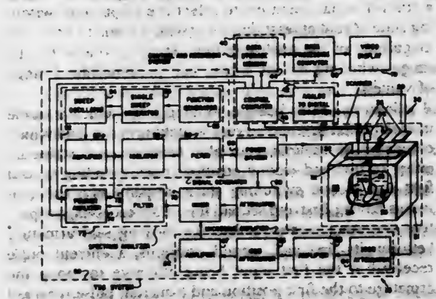
conductors, and wherein each of the group of interconnected conductors is arranged for having an input thereof coupled with the respective output of the shift register means, and further comprising matrix means with one cross-over point for at least each output of each conductor of the group of interconnected conductors, logic gate circuit means being connected with each cross-over point corresponding to a respective group of interconnected conductors for providing an output indicative of proper operation of the group of interconnected conductors.

4,271,389

METHOD AND APPARATUS FOR PHYSIOLOGIC FACSIMILE IMAGING OF BIOLOGIC TARGETS WITHOUT MULTIPATH CONTAMINATION USING REMOTE MICROWAVE INTERROGATION

John H. Jacobi, Bowie, and Lawrence E. Larsen, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 41,374, May 22, 1979, which is a continuation-in-part of Ser. No. 891,256, Oct. 14, 1977, which is a continuation-in-part of Ser. No. 842,137, Oct. 14, 1977, Pat. No. 4,135,131. This application Jan. 4, 1979, Ser. No. 45,442
Int. Cl.³ G01R 27/04
U.S. Cl. 324—58.5 A 19 Claims



1. A microwave imaging method of producing a physiologic facsimile image of a biological target on an image display device in which multipath contamination is minimized, comprising the steps of:

(a) for each one of a plurality of sample locations which are spaced so as to define a two-dimensional array, producing a time delay spectrum wherein the frequency of each spectral ordinate represents the instantaneous differential propagation delay between a first microwave signal which has been propagated through the target and a second microwave signal, initially corresponding to said first microwave signal, which has been propagated through means having a predetermined propagation delay, and measuring the amplitude of the spectral ordinate corresponding to the direct ray path of propagation through the target, so as to obtain a set of data;

(b) processing said set of data to obtain a corresponding set of control signals for the display device; and

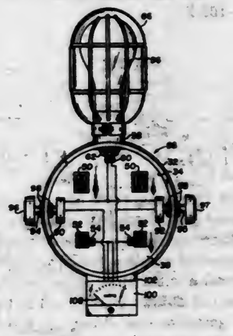
(c) producing a two-dimensional image array on the display device using said set of control signals, and thereby obtaining the facsimile image.

4,271,390

ELECTRIC WATT-HOUR METER TESTING DEVICE

John C. Cass, 4045 Delmar Dr., Laurel, N.Y. 11948

Continuation of Ser. No. 948,693, Oct. 5, 1978, abandoned, which is a continuation-in-part of Ser. No. 841,660, Oct. 13, 1977, abandoned. This application Jan. 29, 1980, Ser. No. 116,533
Int. Cl.³ G01R 11/32
U.S. Cl. 324—74 5 Claims



1. A device to check the accuracy of a watt-hour meter at its operational site in which the meter has electric supply line contacts and electric load contacts and is adapted to be detachably supported on a supporting socket in electrical engagement with respective electric supply line contacts and electric load contacts on the supporting socket such that the electric supply line contacts of the supporting socket and meter are electrically connected with an electric supply line and the electric load contacts of the meter and supporting socket are connected with the load of the operational site;

said device comprising a dielectric base that is adapted to be detachably supported on the supporting socket to be interposed between the meter and the supporting socket,

electric supply line contacts on said base for electrical conducting engagement with the electric supply line contacts on the supporting socket and for electric conducting engagement with the electric supply line contacts of the meter,

electric isolating contact means on said base for receiving the electric load contacts of the meter such that when the meter is detached from the supporting socket to enable the base to be mounted on the supporting socket so that the meter is then able to be mounted on the base, said electric supply contacts on said base complete an electric circuit from the supply line through the electric supply line contacts of the supporting socket, through said base, and then through the meter with said electric isolating contact means fully electrically isolating the electric load contacts of the meter from the electric load of the operational site

and also from preventing electrical contact between the load contacts of the meter and the electric load contacts of the supporting socket such that said base insulates the meter from the supporting socket and from the load of the operational site,

electrical load means having a predetermined wattage rating at a rated line voltage connected to said load contacts of said meter,

and electrical measuring means connected to said load contacts of said meter for determining the power consumed by said electrical load means,

the arrangement being such that when said device is mounted on said supporting socket and said meter is mounted on said base, only said electrical load means and said electrical measuring means are connected to said load contacts of said meter.

4,271,391

DIGITAL VOLTMETER WITH ELECTRO-OPTICAL INDICATION OF THE WAVEFORM

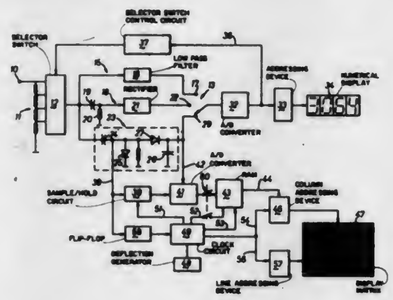
Allan R. Kmetz, Chatham, N.J., assignor to BBC Brown, Boveri & Co. Ltd., Baden, Switzerland

Filed Nov. 1, 1979, Ser. No. 90,104

Claims priority, application Switzerland, Nov. 24, 1978, 12047/78

Int. Cl.³ G01R 19/16, 15/08

U.S. Cl. 324—103 P 10 Claims



1. A digital voltmeter device with an electro-optical display of an input waveform, comprising:

peak detector means coupled to receive said input waveform for determining the peak-to-peak voltage of said input waveform;

first analog-to-digital converter means coupled to receive the output of said peak detector means for converting said output from analog form to digital form;

first addressing means coupled to receive the digital output signal from said analog-to-digital converter means for converting said digital output signal into a numerical address signal;

liquid crystal numerical display means for receiving said numerical address signal, and for converting said numerical address signal into a visible display;

sample and hold circuit means coupled to receive said input waveform, for sampling said input waveform at a controlled rate;

second analog-to-digital converter means coupled to receive the sampling signal output of said sample-and-hold circuit means and to receive the output of said peak detector means, for converting said sampling signal into digital form, said second analog-to-digital converter means utilizing the output of said peak detector means as a scale factor;

second addressing means coupled to receive the digital output signal of said second analog-to-digital converter means, for converting said digital output signal into a line address signal and a column address signal; and

electro-optical display means coupled to receive said line and column address signals from said second addressing means for converting said addressing signals into a visible display, said display means including a plurality of liquid crystal elements arranged in lines and columns;

said digital voltmeter device displaying said input waveform such that the upper peak value of said input waveform appears at the upper line of said electro-optical display means and the lower peak value of said input waveform appears at the lower line of said display.

4,271,392

LATCHING RELAY CIRCUITS AND ANALOG TO DIGITAL CONVERTERS

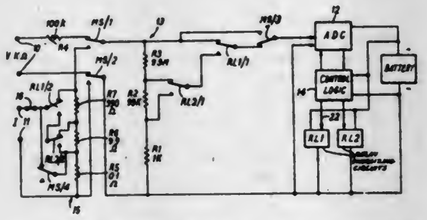
Stephen H. Outram, Frimley, and Geoffrey A. Lackhurst, Yateley, both of England, assignors to The Solartron Electronic Group Limited, Farnborough-Hampshire, England

Filed Sep. 18, 1978, Ser. No. 943,028

Claims priority, application United Kingdom, Sep. 29, 1977, 40573/77

Int. Cl.³ G01R 15/08; H01H 51/22; H03K 13/02

U.S. Cl. 324—115 6 Claims



1. An auto-ranging analog-to-digital converter, comprising:

a range-swiching input circuit for receiving an analog input signal to be converted and for producing, in response to said analog input signal, an analog output signal whose magnitude lies within a predetermined range of values and is representative of the magnitude of the analog input signal, said range-switching circuit including at least one relay having first and second switching states;

an analog-to-digital conversion circuit connected to receive the analog output signal produced by the range-switching circuit, for converting said analog output signal into a digital signal representative of the magnitude of the analog input signal; and

a control circuit responsive to said digital signal to produce a control signal operative to select the respective switching state of said at least one relay which tends to bring the magnitude of the analog output signal produced by the range-switching circuit within said predetermined range of values;

said at least one relay being a latching relay which is stable in each of said first and second switching states, and which comprises an armature movable between, and stable in, either of first and second positions corresponding to said first and second switching states respectively, and coil means having first and second inputs for receiving respective operating current pulses for moving said armature between its first and second positions, a current pulse received at the first input being effective to move the armature to the first position and a current pulse received at the second input being effective to move the armature to the second position; and

said control circuit including pulse generator means for producing control pulses and a relay operating circuit responsive to said control pulses and said control signal to produce said operating current pulses and to apply them to a respective one of the first and second inputs of the coil means in dependence upon said control signal.

4,271,393

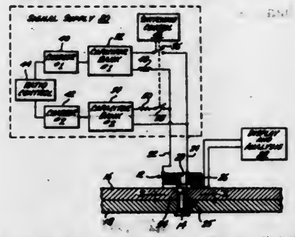
APPARATUS AND METHOD FOR EDDY CURRENT DETECTION OF SUBSURFACE DISCONTINUITIES IN CONDUCTIVE BODIES

Karl A. Hanson, and Iver G. Hendrickson, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 29, 1978, Ser. No. 974,356

Int. Cl.³ G01R 33/12

U.S. Cl. 324—240 15 Claims



1. Eddy current inspection apparatus for detecting the presence of subsurface regions within a body wherein the region to be detected is of a different electrical conductivity than portions of said body that surround said region to be detected, said eddy current inspection apparatus comprising:

drive coil means positionable on the surface of said body to be inspected, said drive coil means being configured for inducing a magnetic field that is directed inwardly into an inspected region of said body in response to an applied drive signal;

electrical signal supply means interconnected with said drive coil for supplying said drive signal, said electrical signal supplying means including means for supplying said drive signal as a current pulse having a relatively long rise time and a substantially shorter fall time; and

magnetic flux detection means positionable on said surface of said body being inspected at a location proximate to said drive coil means, said magnetic flux detection means for supplying a signal representative of the eddy currents produced in said body by that portion of said drive current exhibiting said short fall time.

4,271,394

AMPLIFIER CIRCUIT

Arthur J. Leidich, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,987

Int. Cl.³ H03F 3/45

U.S. Cl. 330—258 19 Claims

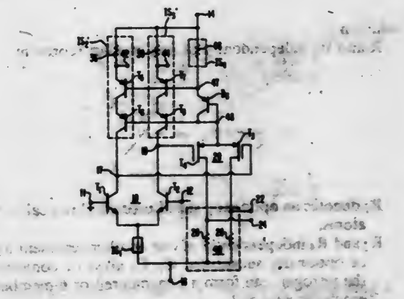
1. Circuitry in combination with first and second bipolar transistors having matched conduction characteristics being connected in a first long-tailed-pair configuration, and having respective base electrodes for receiving an input signal therebetween, said circuitry for obtaining substantially the maximum voltage gain available from said first long-tailed-pair configuration while introducing substantially no additional source of input offset potential error between the respective base electrodes of said first and second transistors, said circuitry comprising:

first and second supply terminals for receiving an operating voltage therebetween;

first current supply means, included in said first long-tailed-pair configuration, for supplying combined, quiescent emitter currents, connected at one of its ends to an interconnection between the emitter electrodes of said first and second transistors and connected at the other of its ends to said first supply terminal;

second current supply means comprising first and second constant current generator means connected at respective first ones of their ends for supplying currents to the collector electrode of said first transistor and to the collector electrode of said second transistor, respectively, and connected at respective second ones of their ends to said second supply terminal, said first and second constant current generator means having respective source resistances which are high compared to the collector resistances of said first and second transistors;

third and fourth, field-effect transistors of like conductivity type to each other having respective gate electrodes to which the collector electrodes of said first and second transistors respectively connect, having respective source and drain electrodes, and exhibiting respective gate input resistances which are high compared to the collector resistances of said first and second transistors;



means for connecting said third and fourth transistors in a second long-tailed-pair configuration including means for supplying their combined source currents connected at one of its ends to an interconnection between the respective source electrodes of said third and fourth transistors and connected at the other of its ends to one of said first and second supply terminals, and including

means for connecting the drain electrodes of said third and fourth transistors to the other of said first and second supply terminals; and

means for adjusting the relative levels of the output currents of said first and second current supply means including

means for generating a feedback signal responsive to the common-mode potentials at the collector electrodes of said first and second transistors, and

means for applying said feedback signal to one of said first and second current supply means to complete a degenerative feedback circuit.

4,271,395

DYESTUFF LASER

Uwe Brinkmann; Helmut Falle, both of Cologne, and Roderich Raue, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

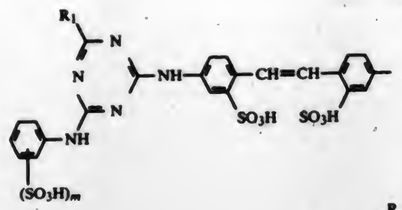
Filed Jan. 3, 1978, Ser. No. 866,521

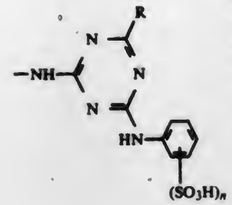
Claims priority, application Fed. Rep. of Germany, Jan. 5, 1977, 2700293

Int. Cl.² H01S 3/20

U.S. Cl. 331—94.5 L 4 Claims

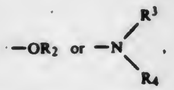
1. Dyestuff laser consisting of a reservoir, with a laser dyestuff solution contained therein, and a pump light source connected thereto, which is capable of exciting the dyestuff solution to produce an emission, characterized in that the dyestuff solution contains a dyestuff which, in the form of the free acid corresponds to the general formula





wherein

R and R_1 independently of one another represent



R_2 denotes an optionally substituted alkyl radical with 1–4 C atoms,

R_3 and R_4 independently of one another represent hydrogen or optionally substituted C_1–C_4 alkyl or conjointly with the nitrogen can form a 5-membered or 6-membered heterocyclic ring and

m and n denote 1 or 2, and

wherein

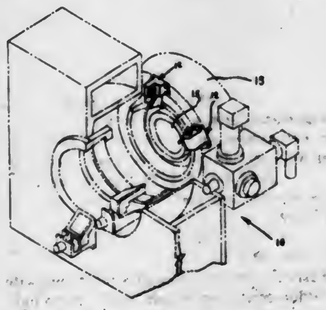
the aromatic radicals contained in the formula can be further substituted, in a solvent which does not interfere with the emission, at a concentration, which emits laser beams, of, preferably, 10^{-2} to 10^{-5} mols/liter.

4,271,396

INCIDENT RADIATION ABSORBER/REFLECTOR ASSEMBLY

Donald G. Brown, Newbury Park, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 5, 1979, Ser. No. 1,330
Int. Cl.³ H07S 3/08
U.S. Cl. 331—94.5 C **9 Claims**



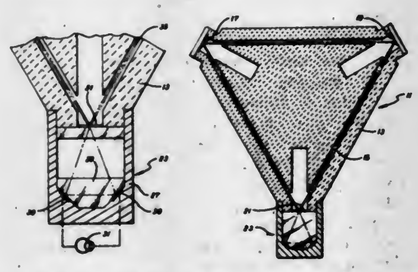
1. An incident radiation absorber/reflector assembly comprising a mounting housing, an absorber body, said body being made of a radiation absorbing material and having a cylindrical cavity formed substantially in the center thereof, an entrance opening formed within said body connected to said cylindrical cavity by a tapered passageway offset from the longitudinal axis of said cylindrical cavity, a reflector element, said reflector element protruding from said body at a predetermined angle so as to reflect incident radiation into said entrance opening, said body and said reflector element being adjustably secured to said mounting housing whereby said incident radiation is intercepted by said reflector element and directed by said reflector element into said cavity where it is substantially absorbed by said absorber body, and a plurality of cooling channels located about said cylindrical cavity, a cooling passageway located within said reflector element and means located within said mounting housing for feeding coolant to said cooling channels.

4,271,397

NONRECIPROCAL PHASE SHIFTER FOR A RING LASER GYRO

John C. Stiles, Morris Plains, N.J., and Hubert F. Elbert, Tucson, Ariz., assignors to The Singer Company, Little Falls, N.J.

Filed Aug. 9, 1979, Ser. No. 65,388
Int. Cl.³ H01S 3/10
U.S. Cl. 331—94.5 C **12 Claims**



1. A nonreciprocal phase shifting apparatus for a ring laser gyro, said gyro including a block having a ring resonator cavity having at least three corners, and including primary and secondary and tertiary reflecting corner mirrors disposed respectively in said three corners, said primary mirror being adapted to pass therethrough a part of each of said beams, said primary and secondary and tertiary mirrors having planes arranged to support a main clockwise beam and a main counter clockwise beam in said cavity, said phase shifting apparatus comprising:

(a) an optical resonator directing the part of each of the beams passing through said primary mirror in a closed path, directing a portion thereof back through the primary mirror into its respective main beam; and

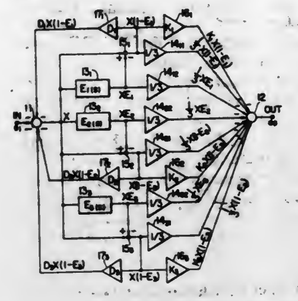
(b) a nonreciprocal phase shifter inserted in said closed path; and wherein said optical resonator comprises a substrate for supporting said primary mirror; first and second planar mirrors, the planes thereof intersecting said plane of said primary mirror with equal internal angles, said angle being such that a part of the respective beam passing through said primary mirror will strike one of said first and second mirrors, be reflected to the other and from the other back through said primary mirror and into said respective main beam.

4,271,398

TONE CONTROL DEVICE

Ryoei Higashi, and Hiroyuki Hirano, both of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,090
Claims priority, application Japan, Nov. 30, 1978, 53 147222; Dec. 8, 1978, 53-150956
Int. Cl.³ H03H 7/03, 11/06; H04B 3/04
U.S. Cl. 333—28 T **4 Claims**



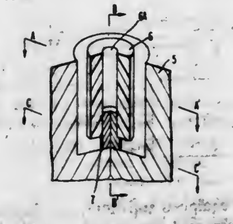
1. A tone control device comprising: a plurality of bandpass filter having different center frequencies from one another and having variable characteristics for tone control; a signal sum circuit for summing output signals of said bandpass filters and an input signal, an output signal from said sum circuit being coupled to inputs of said bandpass filters; and a signal sum and difference circuit, outputs of said bandpass filters being coupled to inverting input terminals of said sum and difference circuit and said output signals from said sum circuit being coupled to a non-inverting input terminal of said sum and difference circuit, an output signal from said sum and difference circuit forming the output signal of said device.

4,271,399

DIELECTRIC RESONATOR FOR VHF TO MICROWAVE REGION

Hideo Morita, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 24, 1979, Ser. No. 32,822
Claims priority, application Japan, Apr. 24, 1978, 53/48954
Int. Cl.³ H01P 7/10
U.S. Cl. 333—219 **5 Claims**



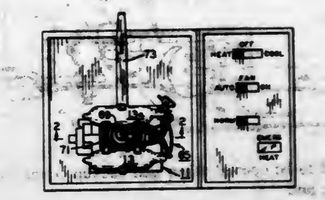
1. A dielectric resonator comprising: an elongated dielectric member axially hollow at least in part of its cross section; a conductor surrounding said dielectric member; and a metal rod inserted into the hollow part of said dielectric member and coupled to said conductor, said metal rod having a length shorter than said hollow part, leaving a part of the overall length of said dielectric member without said rod inserted, so that resonance is supported in the TEM mode and the TE_{10g} mode (g is a positive number) at said part of said overall length.

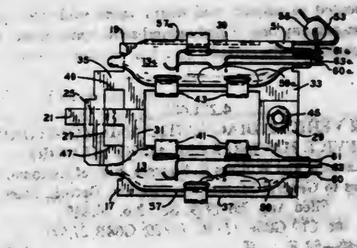
4,271,400

CRADLE ASSEMBLY FOR USE IN A THERMOSTAT

Dana W. Denny, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Continuation-in-part of Ser. No. 750,279, Dec. 13, 1976, abandoned. This application Aug. 28, 1978, Ser. No. 937,909
Int. Cl.³ H01H 37/04
U.S. Cl. 337—380 **19 Claims**





19. A cradle assembly for use in a thermostat comprising a plurality of switch means respectively adapted for switching operation at predetermined switch points, a plurality of leg means for supporting said switch means and including a pair of generally opposite end portions with an adjacent one of said opposite end portions of each of said leg means being pivotally arranged with respect to each other so that said leg means are pivotally movable toward adjusted positions to establish the predetermined switch points of said switch means, respectively, the adjacent other of said opposite end portions of said each leg means including at least one integral part conjointly pivotally movable with a respective one of said leg means into abutting engagement with another of said at least one integral part on another of said other opposite end portions so as to positively limit the pivotal movement of said leg means toward their respective adjusted positions, and said another of said at least one integral part including a pair of means predeterminately spaced apart for the abutting engagement with said at least one integral part.

4,271,401

SAFETY TRAILER HITCH

Santino D. Mee, Oakland, Calif., assignor to Tri Delta Industries, Inc., Hayward, Calif.

Filed Aug. 9, 1979, Ser. No. 65,287
Int. Cl.³ B60D 1/12; G08B 19/00
U.S. Cl. 340—52 D **4 Claims**

1. A device for coupling a trailer to a tow vehicle comprising:

A. means for mechanically connecting said trailer to said tow vehicle including a releasable latch to secure said mechanical connection means;

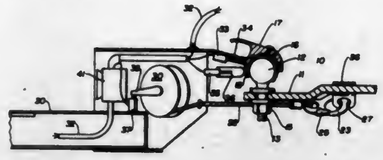
B. a backup connection between said trailer and said tow vehicle which is adapted to releasably secure said trailer to said tow vehicle;

C. an alarm adapted to be connected to a source of electric energy;

D. first switch means which is normally open and is positioned to be closed wherein said trailer is mechanically coupled to said tow vehicle;

E. second switch means which is normally closed and is positioned to be opened when said latch is closed to secure said mechanical connection means;

F. third switch means which is normally closed and is positioned to be opened when said backup connection is secured; and



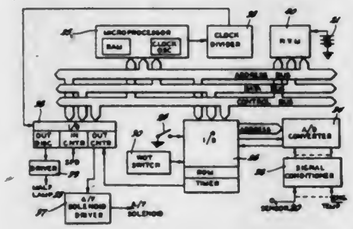
G. said second switch means and said third switch means connected in parallel and in series with said first switch means and said alarm, and said source of electric energy connected to actuate said alarm when said first switch means and any one of said second switch means and third switch means are closed.

4,271,402

MOTOR VEHICLE DIAGNOSTIC AND MONITORING DEVICE HAVING KEEP ALIVE MEMORY

John L. Kastura, and William R. Stewart, both of Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 29, 1979, Ser. No. 70,885
Int. Cl.[3] G06F 11/30, 15/20; G08B 21/00
U.S. Cl. 340—52 F 3 Claims



1. A diagnostic monitoring system for monitoring the conditions of predetermined parameters in a motor vehicle having a driving compartment comprising, in combination:

a memory nonvolatile as to engine operation having locations for storing detected fault conditions;

fault indicating means in the vehicle driving compartment effective to signal the occurrence of a fault condition;

means effective to (a) detect fault conditions in the predetermined parameters, (b) energize the fault indicating means during detected fault conditions, and (c) store the fault conditions detected in respective locations in the nonvolatile memory;

means effective to respond to a diagnostic interrogation signal for identifying the specific faulted conditions stored in the nonvolatile memory; and

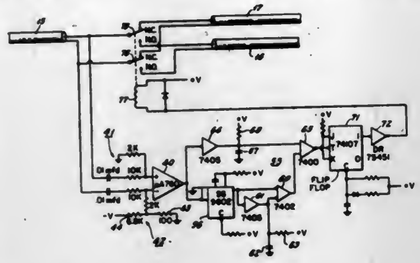
timer means effective to clear from the nonvolatile memory locations at least the stored detected fault conditions for which the timed period since the last detected fault condition exceeds a time that spans a substantial number of engine operating events since detection of a fault condition, whereby old nonrecurring self-correcting faults are cleared from memory and accordingly are not indicated in response to a diagnostic interrogation signal.

4,271,403

COAXIAL CABLE SWITCHING CIRCUIT

Verne L. Severson, Minneapolis, and Charles E. Tomfohrde, Minnetonka, both of Minn., assignors to Data 100 Corporation, Minnetonka, Minn.

Filed Feb. 21, 1978, Ser. No. 879,744
Int. Cl.[3] H04Q 9/00; H04N 5/22
U.S. Cl. 340—147 C 3 Claims



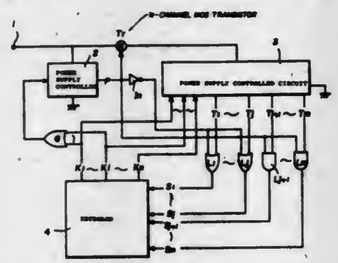
1. A high input impedance pulse detecting circuit for receiving signals, comprising a coaxial cable having an outer conductor and a shield, said outer conductor and shield forming first and second input terminals respectively, differential comparator means having first and second inputs, separate high input impedance means connecting said input terminals to said inputs and having substantially the same impedance, each of said input impedance means comprising a series capacitor and a shunt resistor and a source of direct current connected to offset the direct current level at one of said inputs with respect to the other said input.

4,271,404

POWER SUPPLY CONTROLLER IN A KEYBOARD-EQUIPPED APPARATUS SUCH AS AN ELECTRONIC CALCULATOR

Shinichi Tanaka, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 22, 1978, Ser. No. 888,865
Claims priority, application Japan, Mar. 29, 1977, 52/36657
Int. Cl.[3] G06F 3/02, 1/00
U.S. Cl. 340—365 S 5 Claims



1. In a keyboard equipped apparatus, said keyboard including a plurality of keys, said apparatus including a central processing unit for processing data introduced via said keyboard, a display for displaying the results of the processing of the data introduced via said keyboard, and a power source means for energizing said central processing unit, said central processing unit being precluded from receiving power energy from said power source means when said keyboard equipped apparatus is not utilized after a predetermined time period, the improvement comprising:

connecting means responsive to actuation of a selected one of said keys on said keyboard for connecting said central processing unit and said display to said power source means thereby supplying power from said power source means to said central processing unit in response to actuation of said one of said keys on said keyboard, said one of said keys also introducing a portion of said data for processing by said central processing unit upon actuation thereof, said connecting means including,

means responsive to the absence of power energy supplied to said central processing unit from said power source means for generating control logic signals in response thereto, one of said control logic signals passing through said one of said keys on actuation thereof,

means responsive to said control logic signals, to said power energy supplied from said power source means, and to actuation of said one of said keys on said keyboard for generating an enabling signal in response thereto, and

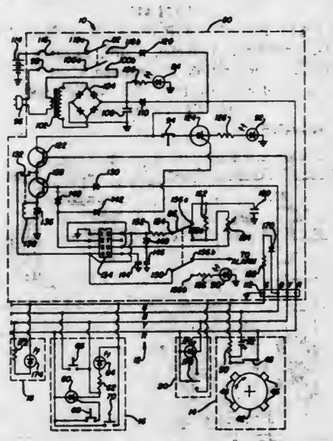
switching means responsive to said enabling signal for connecting said power source means to said central processing unit, said control processing unit generating a plurality of strobe signals in response thereto, each of said strobe signals passing through said keys on said keyboard in response to each actuation thereof thereby uniquely identifying each of said keys on said keyboard.

4,271,405

ALARM CONTROL SYSTEM

Lawrence P. Kitterman, 7112 Joe Will, Grapevine, Tex. 76051

Filed Jan. 3, 1978, Ser. No. 866,377
Int. Cl.[3] G08B 13/12, 29/00
U.S. Cl. 340—512 26 Claims



1. In a premises having at least one port of entry, an improved alarm control system for activating an alarm device comprising:

a master control station;

a bus line originating from said master control station and having a first conductor, a second conductor and a third conductor, said first conductor energizing said second conductor when the system is armed;

at least one sensor means connected to said bus line, each for sensing an alarm condition and transmitting an alarm signal through said bus line by momentarily energizing said third conductor;

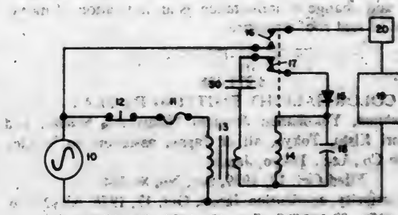
said master control station comprising first means actuated upon energization of said first and second conductors, second means actuated upon actuation of said first means and energization of said third conductor, switch means actuated upon actuation of said second means in response to the transmitted alarm signal for activating the alarm device and timer means responsive to actuation of the switch means for deactuating said second means and said switch means to deactivate the alarm device and thereby reinitialize the entire system after an adjustable, predetermined time interval established by the timer means following each actuation of said switch means.

4,271,406

BED WETTING TATTLER

Reginald D. Wilson, 2001 Roslyn Ave., Baltimore, Md. 21216

Filed Jul. 31, 1979, Ser. No. 62,089
Int. Cl.[3] G08B 21/00
U.S. Cl. 340—604 11 Claims



1. A moisture sensing apparatus, comprising:

a latching relay including a coil, a set of normally open electrical contacts, and a set of normally closed electrical contacts;

a source of electrical current;

a first electrode electrically connected to said source of electrical current;

a second electrode electrically connected to said relay coil via said normally closed set of relay contacts;

said first and second electrodes fabricated from magnetic material with one of said contacts permanently magnetized;

said first and second electrodes positioned adjacent to each other but electrically separated by a spacer creating a space therebetween which may be electrically closed by the presence of an electrolyte; and

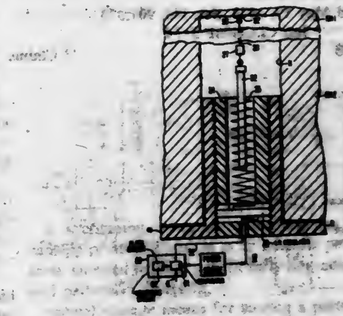
an alarm means responsively connected to said set of normally open contacts.

4,271,407

TUNNEL ROOF MONITOR EMPLOYING AN INDUCTION COIL EXTENSOMETER

Robert F. Kahrman, Louisville; Arnold J. Parstad; Michael G. Gibbons, both of Boulder, and David L. Swigart, Fort Collins, all of Colo., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 13, 1979, Ser. No. 93,334
Int. Cl.[3] G08B 21/00
U.S. Cl. 340—690 8 Claims



1. Apparatus for detecting the movement of a tunnel roof structure to warn of potential roof collapse, comprising:

a detector means including a core element positioned within and inductively coupled to a coil element, said detector means being positioned within a borehole in the roof structure of a tunnel, said core element being secured within a first rock formation and said coil element being secured within a second rock formation such that movement of either of said rock formations with respect to the other results in a relative displacement of said core element with respect to said coil element, said displacement producing a change in the inductance of said detector means, and

means operatively connected to said detector means to monitor said change of inductance as an indication of movement of said roof structure.

4,271,408

COLORED-LIGHT EMITTING DISPLAY

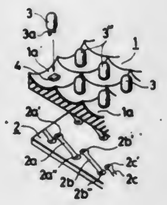
Toru Teshima, Yokohama; Jun-ichi Nishizawa, Sendai, and Yasunori Kishi, Tokyo, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Filed Oct. 12, 1979, Ser. No. 84,384

Claims priority, application Japan, Oct. 17, 1978, 53-127726; Oct. 17, 1978, 53-127727; Oct. 17, 1978, 53-127728; Oct. 17, 1978, 53-127729

Int. Cl.³ G08B 5/36

U.S. Cl. 340—702 20 Claims



1. A colored light emitting display device comprising:

a substrate carrying thereon electric connection wirings;

a reflector member disposed on said substrate and having thereon a plurality of unit mirror sections of a similar shape; and

a plurality of light-emitting diodes disposed on at least part of all of said unit mirror sections and connected to form a display circuit through said electric connection wirings.

4,271,409

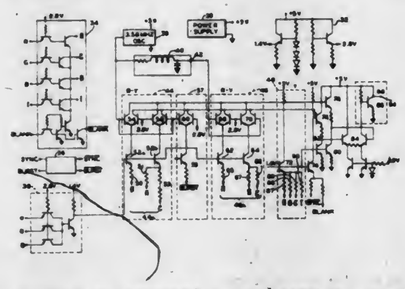
APPARATUS FOR CONVERTING DIGITAL DATA INTO A VIDEO SIGNAL FOR DISPLAYING CHARACTERS ON A TELEVISION RECEIVER

Paul D. Filliman, Fort Wayne, Ind., assignor to The Magnavox Company, Knoxville, Tenn.

Filed May 19, 1978, Ser. No. 907,373

Int. Cl.³ G06F 3/14

U.S. Cl. 340—703 3 Claims



1. Apparatus for generating a video signal in a standard NTSC format from a digital signal source, said source providing a first group of binary words for indicating the red, green and blue signal components of a picture detail, and a second group of binary words for indicating the occurrence of a horizontal synchronization interval, vertical synchronization interval, a blanking interval, and a burst signal, comprising:

(a) matrix means for converting said first group of binary words representing the red, green and blue components of said picture detail into a d.c. voltage, said d.c. voltage representing the luminance level of said picture detail;

(b) a signal source for providing first and second signals at 3.58 mHz, said signals having a phase difference of 90°;

(c) a first balanced modulator for receiving said first signal, said modulator having an output signal determined by said first group of binary words;

(d) a second balanced modulator for receiving said second signal and controlling the magnitude of said second signal, said balanced modulator providing a signal having a magnitude proportionally controlled by said first group of binary words;

(e) means for modifying said luminance signal when said digital signal source indicates a synchronization signal or a blanking signal are to occur; and

(f) means for combining the output of said modulators and said matrix whereby a video signal is produced specifying the brightness and color of said picture detail in accordance with an NTSC format.

4,271,410

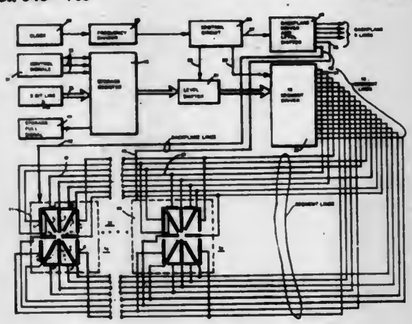
LCD DATA PROCESSOR DRIVER AND METHOD

Donald G. Crawford, Anaheim, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 10, 1978, Ser. No. 932,590

Int. Cl.³ G08B 5/36

U.S. Cl. 340—765 7 Claims



1. A liquid crystal device multiplex driver circuit capable of operating arrays of many characters comprised of a plurality of segments each with each character having a backplane, comprising:

means for developing first, second, and third levels of backplane voltages, characterized by:

a reference level backplane voltage;

a higher than reference level backplane voltage;

a lower than reference level backplane voltage;

means for developing high and low segment voltages respectively having levels between said reference backplane voltage and said higher than reference backplane voltage and between said reference backplane voltage and said lower than reference backplane voltage;

said higher than reference and said lower than reference voltages being alternating polarity voltages and said high and low segment voltages being alternating polarity voltages;

means electrically connecting corresponding segments of the respective characters together;

means applying the backplane voltages to the character backplanes;

means selectively applying the segment voltages to the segments whereby coincidence of application of backplane voltage of one polarity to a given backplane and segment voltage of opposite polarity to a segment of said given backplane causes energization of the liquid crystal therebetween;

means for cyclically reversing the polarities of the voltages applied to the backplanes and segments;

said means selectively applying comprising storage register means for temporarily storing data for display;

level shifter means connected to the storage register means; and

segment driver means connected between the level shifter means and the segments;

said means applying the backplane voltages comprising means for shifting the voltage level of the backplane voltages;

said means selectively applying further comprising means for shifting the voltage level of the segment voltages;

said means selectively applying still further comprising a pair of 8 bit latches each having a capacity of one byte; and

each character comprising two bytes whereby 16 bits may respectively control 16 segments per character to form the characters; and,

said means for cyclically reversing comprising backplane select means for sequentially supplying backplane voltages for the backplanes, and cycle complete control means responsive to the backplane select means to produce a cycle complete signal after all backplanes have received backplane voltage for automatically re-initializing the backplane select means.

4,271,411

DETECTOR FOR DOPPLER DEVICE

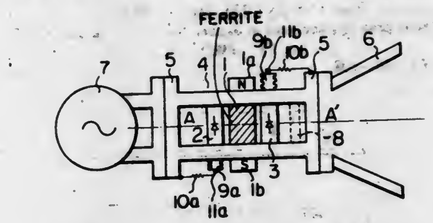
Iwata Takashi, Chiba, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed May 29, 1979, Ser. No. 42,751

Claims priority, application Japan, May 31, 1978, 53/65169

Int. Cl.³ G01S 13/58

U.S. Cl. 343—5 DD 7 Claims



1. A doppler detector comprising;

(a) a rectangular waveguide having a pair of H plane walls and a pair of E plane walls and a pair of flanges at both the extreme ends of said walls, one of said flanges being connected to a microwave oscillator, and the other flange being connected to an antenna,

(b) an elongated ferri-magnetic body inserted between a pair of H planes of said waveguide, said ferri-magnetic body being positioned perpendicular to the path of the doppler signal, and said body being magnetized in the axial direction of the same by a permanent magnet,

(c) a pair of diodes each inserted between H planes of said waveguide on the linear line along the path of the doppler signal, the first diode being positioned to be symmetrical with the second diode concerning the lateral plane including the center axis of said ferri-magnetic body, and the outputs of the doppler detector being provided from the outputs of said diodes.

4,271,412

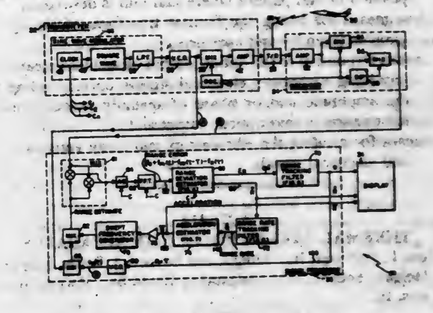
RANGE TRACKER UTILIZING SPECTRAL ANALYSIS

Jeremy M. Glass, Sudbury; George G. Lampke, Acton, and Roger L. St. Germain, Marlboro, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Oct. 15, 1979, Ser. No. 84,491

Int. Cl.³ G01S 13/32

U.S. Cl. 343—5 FT 10 Claims



1. An echo measurement system comprising:

means for transmitting a signal to a target, said transmitting means providing a replica of said signal, said signal including a modulation of a frequency thereof with a periodic modulation pattern;

means for receiving said signal as reflected from said target, said receiving means including means for modifying said replica to compensate for the effects of target movement on the frequency spectrum of said signal; and

wherein said modifying means includes means for multiplying said replica by said signal, analyzer means for providing a set of spectral lines of a product of said multiplying means, and means responsive to the differences among spectral lines of said product for modifying said replica with a compensating signal to null the effects of said target movement, said compensating signal having range data therein.

4,271,413

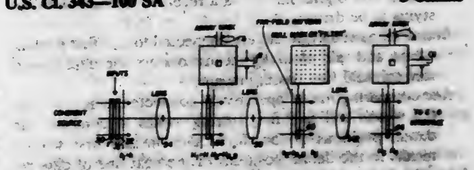
NULL MASK

James S. Shreve, Fairfax, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 12, 1979, Ser. No. 47,676

Int. Cl.³ H02Q 3/34

U.S. Cl. 343—100 SA 3 Claims



1. A coherent optical processor antenna controller which is capable of inserting nulls in an antenna pattern emitted by an array antenna without significantly degrading the remainder of said pattern, comprising,

optical storage means for storing a pattern which varies in transmittance in accordance with the directivity of the antenna pattern,

means for directing coherent light through said storage

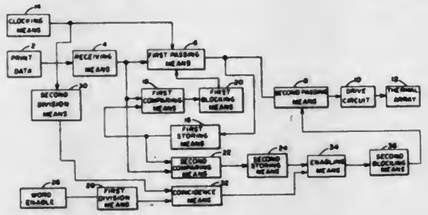
means thus forming a resultant beam containing information corresponding to said antenna pattern,
means for band-limiting said information in said beam, thus providing a band-limited beam,
means for optically forming the antenna pattern at a plane,
null mask means at said plane for taking spatially displaced samples of said band-limited beam, said mask means comprising a substrate having a matrix of regularly spaced sampling apertures wherein at least one of said regularly spaced apertures is blocked off or non-existent, said blocked off or non-existent aperture being located at the position in said pattern where said null is desired,
lens means for taking the Fourier transform of the set of samples taken by said apertures,
means responsive to the optical output of said lens means for providing respective electrical signals corresponding to the amplitude and/or phase of spatially spaced optical information in said optical output and,
means for exciting the elements of said array antenna with said electrical signals.

4,271,414

THERMAL ARRAY PROTECTION APPARATUS

Glenn L. Williams, Bay Village, and Edward J. Reilly, Mayfield Heights, both of Ohio, assignors to Gould Inc., Rolling Meadows, Ill.

Filed Sep. 4, 1979, Ser. No. 72,544
Int. Cl.[3] G01D *15/10*
U.S. Cl. 346—76 PH 19 Claims



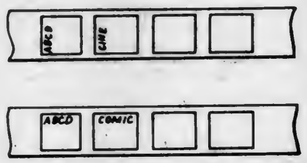
1. A thermal array protection apparatus for use in thermal imaging apparatuses of the type in which a linear array of heat-generating resistive elements is used to place marks on thermal sensitive recording media during imaging operations, said apparatus comprising:
receiving means to receive an incoming digital line of data comprising a plurality of individual datum positions;
first passing means operatively connnected to said receiving means to pass the digital line of data received;
clocking means operatively connected to said first passing means to position and synchronize the individual data within said digital line of data received to the individual stylus to be driven;
first storing means operatively connected to said first passing means and said clocking means to store the data passed through said first passing means;
first comparing means operatively connected to said receiving means and said first storing means to compare the datum positions of the stored data in said first storing means to the datum positions of the next line of data received by said receiving means and determine when data exists in corresponding positions;
first blocking means operatively connected to said first comparing means to block the passing by said first passing means of the individual data from said next line of data received for those positions which said first comparing means determined the existence of said corresponding data;
second passing means operatively connected to said first passing means to pass the digital line of data passed by said first passing means to a driving means for current driving the thermal array stylii;
second comparing means operatively connected to said first storing means and said receiving means to compare the datum position in said first storing means to the datum positions of another line of data received by said receiving means and determine when data exist in corresponding positions;
second storing means operatively connected to said second comparing means and said clocking means to store data for those positions which said second comparing means determined the existence of corresponding data;
word enable means to generate digital HIGH signal of a duration corresponding to the length of a digital line of data received;
first division means operatively connected to said word enable means to divide the word enable means frequency by four;
second division means operatively connected to said clocking means to divide the clock frequency by two;
coincidence means operatively connected to both first and second division means to produce an EXCLUSIVE-OR signal of the two divided frequencies;
enabling means operatively connected to said second storing means and said coincidence means to provide an enabling signal when the coincidence signal produces a signal or when the second storing means has data in the position presently being clocked by said clocking means; and
second blocking means operatively connected to said enabling means and said second passing means to block the passing by said second passing means of the individual data from the following lines of data received for those positions which said enabling means produces a signal.

4,271,415

LASER COM DEVICE

Makoto Murakoshi, and Shigenori Ozeaka, both of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Oct. 25, 1979, Ser. No. 88,422
Claims priority, application Japan, Nov. 7, 1978, 53-136965
Int. Cl.[3] G01D *9/42*
U.S. Cl. 346—108 5 Claims



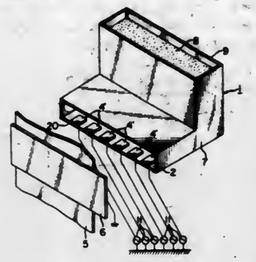
1. A laser COM device comprising a platen secured to a base plate for supporting a strip-shaped recording film means for delivering said recording film to said platen and a laser optical system capable of recording micro-picture images on the recording film supported by said platen by scanning with modulated laser light in a two-dimensional pattern, said platen being supported so that a scan surface of the recording film is scanned by the laser light, and the platen being rotatable with respect to the base plate so that, alternatively, the delivery direction of the record film is parallel to a main scan direction of the laser optical system or the delivery direction and the auxiliary scan direction of the optical system are parallel to each other.

4,271,416

SLIT TYPE INK RECORDING APPARATUS

Toshio Shimizu, Yokosuka; Susumu Ichinose, Yokohama, and Yuji Ooba, Yokosuka, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation, Tokyo, Japan

Filed Oct. 3, 1979, Ser. No. 81,337
Claims priority, application Japan, Oct. 18, 1978, 53-127412; Jun. 15, 1979, 54-74700; Jun. 22, 1979, 54-78094
Int. Cl.[3] G01D *15/16*
U.S. Cl. 346—140 R 12 Claims



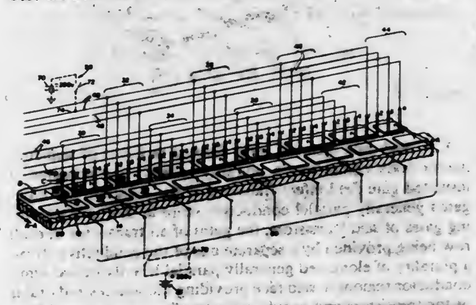
1. A slit type ink recording apparatus comprising a head having a slit-like ink issuing opening in communication with an ink supply tank, a plate disposed adjacent said opening and parallel to the direction of ink travel therefrom, a plurality of divided electrodes formed on the surface of said plate in close proximity to said issuing opening, said divided electrodes being disposed in very closely spaced apart relationship, one or more opposite ink attracting electrodes disposed in the vicinity of a recording medium, and means for applying an ink attracting voltage between one or more of said divided electrodes and said opposite electrode, so that ink in said slit-like ink issuing opening may be issued from the vicinity of said selected divided electrode and caused to move toward said recording medium.

4,271,417

ELECTROGRAPHIC IMAGING WITH NON-SEQUENTIAL ELECTRODE ACTUATION

John Blumenthal, Wickliffe, and Chad Z. Moore, Brecksville, both of Ohio, assignors to Gould Inc., Rolling Meadows, Ill.

Filed Nov. 24, 1978, Ser. No. 963,405
Int. Cl.[3] G01D *15/06*; G11B *9/08*
U.S. Cl. 346—154 9 Claims



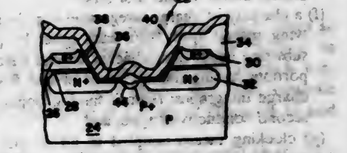
1. An electrographic recording system for recording on a record medium having a charge retentive surface, said system comprising:
a plurality of recording electrodes preferably mounted linearly and in close proximity to said record medium;
circuit means operatively connecting said plurality of recording electrodes into a plurality of separate array groups, each group preferably containing an equal number of recording electrodes;
a plurality of complementary electrode pairs preferably mounted in a linear arrangement having two end pairs and mounted in close proximity to said record medium, said complementary electrode pairs positioned so that said plurality of recording electrodes are located therebetween and wherein each separate array group is centered between two adjacent complementary electrode pairs, each of said complementary electrode pairs being shared by two adjacent, separate array groups except for said end pairs;
means for applying a first voltage pulse of one polarity and magnitude to at least one selected recording electrode in a first selected array group;
means for applying a first contemporaneous voltage pulse of opposite polarity from and of essentially equal magnitude with said first voltage pulse to the two adjacent complementary electrode pairs in which said first selected array group is centered; and
means for controlling all subsequent voltage pulses to the recording electrodes in other selected array groups and to control the corresponding contemporaneous voltage pulses to the complementary electrode pairs such that no recording electrodes in adjacent separate array groups will be pulsed by consecutive voltage pulses, thus preventing a shared, single complementary electrode pair from being pulsed by consecutive contemporaneous voltage pulses.

4,271,418

VMOS MEMORY CELL AND METHOD FOR MAKING SAME

William R. Hiltpold, San Jose, Calif., assignor to American Microsystems, Inc., Santa Clara, Calif.

Filed Oct. 29, 1979, Ser. No. 89,612
Int. Cl.[3] H01L *29/78*
U.S. Cl. 357—23 6 Claims



1. An integrated circuit semiconductor device having a memory core with an array of memory cells, said core comprising
a substrate of crystalline silicon whose upper surface is in a <100> crystal plane;
an epitaxial layer on said substrate;
a series of parallel, elongated regions having the opposite conductivity from said substrate and located at spaced-apart intervals in said epitaxial layer to form bit lines;
a series of buried source regions located at aligned spaced-apart locations in said substrate, spaced-below said having the same conductivity type as said elongated regions;
a series of V-shaped recesses formed at spaced-apart locations between pairs of parallel bit lines, each end of each recess being contiguous with one side of a bit line, which also forms a drain region, and each end of each said recess extending downwardly into said buried source region located below said contiguous bit line;
a thin gate dielectric layer covering the inner walls at both ends of each said recess;
means forming a channel stopping region having the same conductivity of higher doping from said substrate and located between the ends of each said recess;
gate means located on said thin dielectric layer;

an insulating layer covering said epitaxial layer and said bit lines; and

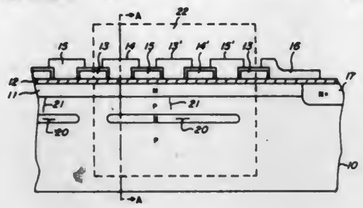
a plurality of conductive word line means extending generally perpendicular to said bit lines, each interconnecting said gate means of a series of aligned recesses.

4,271,419

SERIAL READOUT STRATIFIED CHANNEL CCD

Larry J. Hornbeck, Van Alstyne, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 16, 1978, Ser. No. 869,399
Int. Cl.³ H01L 29/78, 27/14, 31/00; G11C 19/28
U.S. Cl. 357—24 8 Claims



1. A charge coupled device comprised of:

(a) a semiconductor substrate having dopant atoms of a first conductivity type and a first surface;

(b) a charge transfer channel lying in said substrate near said first surface and having dopant atoms of a second conductivity type opposite to said first type;

(c) an insulating layer lying over said charge transfer channel;

(d) a plurality of phase electrodes serially disposed on said insulating layer transversely to said charge transfer channel;

(e) a barrier region in said substrate lying under and adjacent to said charge transfer channel, said barrier region having dopant atoms of said first type;

(f) a plurality of charge integration regions in said substrate lying spaced apart from each other by portions of said substrate under and adjacent to said barrier region, said portions having dopant atoms of said first type and said charge integration regions having dopant atoms of said second conductivity type; and

(g) clocking means coupled to all of said electrodes for applying first voltages to selected ones of said electrodes to enable charge transfer from said charge integration regions to the portions of said charge transfer channel underlying said selected electrodes, and for applying second voltages to all of said electrodes for propagating charge along said charge transfer channel.

4,271,420

SOLID-STATE IMAGE PICKUP DEVICE

Takao Chikamura, Osaka; Kazufumi Ogawa, Neyagawa; Yasuaki Terui, Neyagawa; Shinji Fujiwara, Neyagawa, and Masakazu Fukai, Nishinomiya, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 6, 1980, Ser. No. 119,187
Claims priority, application Japan, Feb. 13, 1979, 54-15746
Int. Cl.³ H01L 27/14, 29/78
U.S. Cl. 357—30 2 Claims

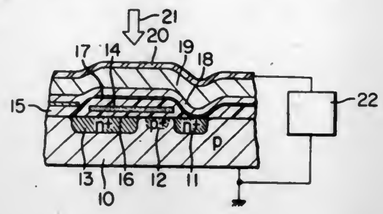
1. A solid-state image pickup device characterized by the provision of

(a) a semiconductor substrate having a first region of one conductive type and more than one second region of the other conductive type formed within the bulk of said semiconductor substrate,

(b) a charge transfer type unit cell or an element capable of X-Y addressing formed within the bulk of said semiconductor substrate exterior of said second region of the other conductivity type,

(c) a gate electrode for reading the signal charge stored in said second region of the other conductivity into said charge transfer type unit cell or said element capable of X-Y addressing,

(d) an insulating layer formed over said semiconductor substrate and said gate electrode except a predetermined portion of said second region of the other conductivity type,



(e) a first electrode selectively formed on said insulating layer and electrically connected to said second region of the other conductivity,

(f) a photoconductive layer overlaying said first electrode and said insulating layer,

(g) a second electrode formed over said photoconductive or photosensitive layer, and

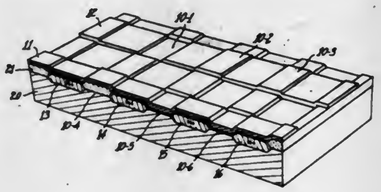
(h) a voltage application means for applying to said second electrode a voltage in proportion to the amount of incident light.

4,271,421

HIGH DENSITY N-CHANNEL SILICON GATE READ ONLY MEMORY

David J. McElroy, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 762,612, Jan. 26, 1977, Pat. No. 4,151,020.
This application Feb. 12, 1979, Ser. No. 11,735
Int. Cl.³ H01L 27/04, 29/78; G11C 11/40
U.S. Cl. 357—41 10 Claims



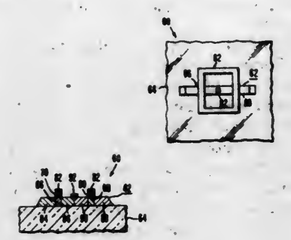
1. A read only memory array formed in a face of semiconductor body comprising a plurality of rows and columns of insulated gate field effect transistor areas, a plurality of elongated generally parallel conductive strips at said face providing gates of said transistors, the gates of all transistors in each row being provided by a separate one of the conductive strips, a plurality of elongated generally parallel heavily-doped semiconductor regions in said face providing the sources and drains of the transistors and providing output lines and ground lines for the array, all of the sources or drains of all transistors in each column being provided by a separate one of said semiconductor regions, thick field oxide being provided between said semiconductor regions and extending into said face substantially below the upper surface of said semiconductor regions, selected areas of thin gate oxide underlying the conductive strips between said semiconductor regions where thick oxide has been removed at a plurality of positions of the array where transistors exist, the remaining positions of the array having thick oxide underlying the conductive strips where transistors do not exist.

4,271,422

CMOS SOS WITH NARROW RING SHAPED P SILICON GATE COMMON TO BOTH DEVICES

Alfred C. Ipri, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Division of Ser. No. 852,931, Nov. 18, 1977, abandoned. This application Sep. 21, 1978, Ser. No. 944,340
Claims priority, application United Kingdom, Feb. 28, 1977, 8264/77
Int. Cl.³ H01L 27/12, 29/78, 21/22, 21/28
U.S. Cl. 357—42 2 Claims



1. A semiconductor device comprising:

a substrate of an insulating material;

an island of semiconductor material on the substrate, the island being in the shape of an elongated rectangle having two connected portions, each portion having drain, source and channel regions, the drain and source regions of one of the portions being of one conductivity type and the drain and source regions the other of the portions being of an opposite conductivity type;

a strip of oxide on and extending across each of the channel regions of the semiconductor island; and

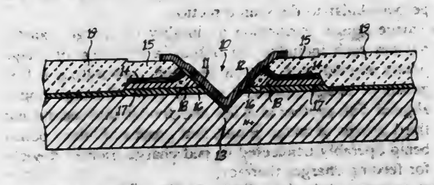
a narrow strip of P-type polycrystalline silicon extending across the substrate and on each oxide strip, the polycrystalline silicon strip being in an enclosed form and insulated from the island by each strip of oxide.

4,271,423

V-GROOVE SEMICONDUCTOR DEVICE WITH BURIED CHANNEL STOP

S. Daniel Kang, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 5, 1979, Ser. No. 1,096
Int. Cl.³ H01L 29/06
U.S. Cl. 357—55 10 Claims



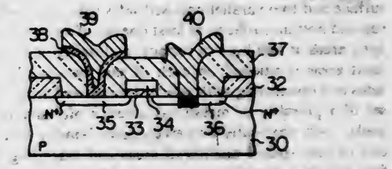
1. A semiconductor device comprising a V-shaped groove in a face of a semiconductor body, a thin insulating coating on said face in said groove, a conductive layer over said coating, a thick insulating coating on the face spaced from the groove, and a buried impurity-doped region in said face extending along the face parallel thereto but spaced therefrom, said thick insulating coating extending into said face to said buried region so the buried region is underlying said thick insulating coating, the v-shaped groove extending into said face deeper than said buried region so the buried region forms parts of walls of the groove.

4,271,424

ELECTRICAL CONTACT CONNECTED WITH A SEMICONDUCTOR REGION WHICH IS SHORT CIRCUITED WITH THE SUBSTRATE THROUGH SAID REGION

Katsuyuki Inayoshi, Hiyoshi, and Kazutoshi Miyao, Edamachi, both of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Continuation of Ser. No. 913,868, Jun. 8, 1978, abandoned. This application May 5, 1980, Ser. No. 146,220
Claims priority, application Japan, Jun. 9, 1977, 52/68135
Int. Cl.³ H01L 23/48, 29/46, 29/62
U.S. Cl. 357—67 25 Claims



1. A semiconductor device which comprises:

a semiconductor substrate of a first conductivity type;

first and second regions of a second conductivity type opposite to said first conductivity type extending into said substrate from a surface of said substrate;

an insulating film selectively covering said surface of the substrate including said first and second regions, said insulating film having first and second electrode windows to selectively expose said first and second regions, respectively;

a first electrode, comprising a metal layer which forms an alloy with said semiconductor substrate, formed to contact said first region through said first electrode window, and to form a short circuit with said substrate through said first region as a result of formation of said alloy;

a second electrode, comprising an upper metal layer and a lower metal layer for preventing an alloy formation between said upper metal layer and said substrate, formed to contact said second region through said second electrode window;

whereby said first electrode is ohmically connected to said substrate.

4,271,425

ENCAPSULATED ELECTRONIC DEVICES AND ENCAPSULATING COMPOSITIONS HAVING CROWN ETHERS

Ching-Ping Wong, Lawrence Township, Mercer County, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Nov. 2, 1979, Ser. No. 90,797
Int. Cl.³ C08G 77/04; C08K 5/05; C03C 17/28; C08G 77/38
U.S. Cl. 357—72 7 Claims

1. An electronic device comprising a circuit element, and an encapsulant therefor wherein said encapsulant is a polymeric material having dissolved therein a crown ether selected from the group consisting of a 12-crown-4 ether, a 15-crown-5 ether and derivatives thereof.

4,271,426

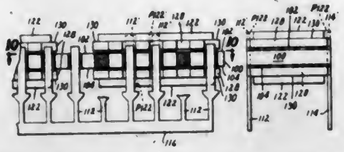
LEADED MOUNTING AND CONNECTOR UNIT FOR AN ELECTRONIC DEVICE

Billy M. Hargis, Hugo, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 932,609, Aug. 10, 1978. This application Jul. 2, 1979, Ser. No. 52,601

Int. Cl.³ H01L 23/02, 23/12, 59/02

U.S. Cl. 357—74 7 Claims



1. A leaded mounting and connector structure including a first mounting and connecting unit having a top and bottom surface and two parallel opposed sides extending between said top and bottom surfaces, at least one set of a plurality of metallized areas at said bottom surface, a plurality of spaced metallized areas positioned on each of said two parallel opposed sides and connecting with selected metallized areas of said one set of a plurality of metallized areas, a plurality of terminal leads, each physically and electrically bonded to a different one of said spaced metallized areas and extending from said first unit in a direction away from said bottom surface; a second mounting and connector unit having a multi-level first surface and an opposed second surface, said second surface having a plurality of metallized areas corresponding to and physically and electrically bonded to said one set of a plurality of metallized areas at said bottom surface of said first unit, said second unit having two parallel opposed sides extending between said first and second surfaces, each of said last-mentioned opposed sides having at least one locating protrusion received between two adjacent terminal leads of said plurality of terminal leads serving to locate said second unit relative to said bottom surface of said first unit prior to physical bonding of said metallized areas at said bottom surface of said first unit to said metallized areas at said second surface of said second unit.

4,271,427

CIRCUIT FOR DECODING CHROMINANCE SIGNALS IN THE SECAM TELEVISION SYSTEM AND A TELEVISION RECEIVER COMPRISING THIS CIRCUIT

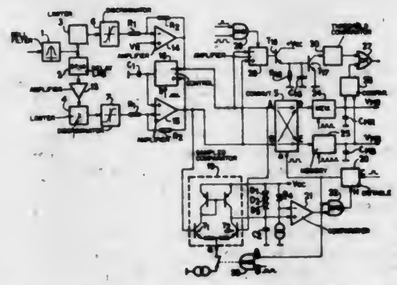
Michel Van Den Driessche, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Jan. 5, 1979, Ser. No. 45,765

Claims priority, application France, Jun. 9, 1978, 78 17280

Int. Cl.³ H04N 9/40

U.S. Cl. 358—40 8 Claims



1. A circuit for decoding the chrominance signals (R-Y) and (B-Y) carried by the composite videofrequency signal of a Secam television system, comprising:

a "bell" input filter for extracting a color sub-carrier signal from said composite videofrequency signal;

direct and delayed chrominance channels adapted to receive said color sub-carrier signal from said "bell" input filter, each of said direct and delayed chrominance channels having an output;

a commutator having a first input coupled to said output of said direct chrominance channel, and a second input coupled to said output of said delayed chrominance channel, and having (R-Y) and (B-Y) outputs;

said direct and delayed chrominance channels together including a regulated differential amplifier stage for providing, at the beginning of each line, stable identification voltages, corresponding to red and blue identification frequency signals, to said first and second inputs of said commutator;

a color identification circuit, coupled to said input terminals of said commutator for controlling said commutator responsive to the difference in signal level between said first and second inputs; and

a "keeper" circuit including means for recognizinig a Secam-type transmission and noise detecting means, said means for recognizing and noise detecting means together providing for the decoding of the colors to be displayed and the inhibiting of color display for non-Secam-type transmissions or parasitized transmissions.

4,271,428

ARRANGEMENT FOR COLOR PICTURE SCANNING

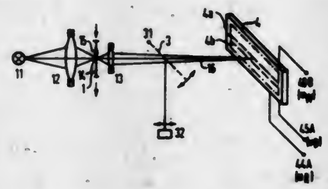
Heiner Herbst, Haar, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 57,000

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2838098

Int. Cl.³ H04N 9/04

U.S. Cl. 358—54 16 Claims



1. Apparatus for scanning a color picture line-wise with a projecting light beam, comprising:

shift means operable to shift the projected color picture perpendicular to the scan direction;

an image sensor comprising a plurality of charge transfer devices each including an output, a first row of image points aligned with a scan line and constituting a first group of image points, a second row of image points aligned with another scan line and divided into second and third groups of image points, said groups of image points being operably connected to said charge transfer devices for feeding charges thereto;

first, second and third types of color filters, each type covering a specific spectrum range, located in front of said first, second and third groups of image points to accumulate corresponding image signals as charges;

first charge transfer means operable to conduct and transfer charges between image points and the respective charge transfer devices; and

second charge transfer means connected to said charge transfer devices and operable to sequentially transfer the charges stored therein to the respective outputs as image signals.

4,271,429

ARRANGEMENT FOR COLOR PICTURE SCANNING

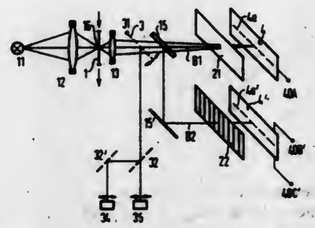
Heiner Herbst, Haar, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 57,001

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1978, 2838099

Int. Cl.³ H04N 9/04

U.S. Cl. 358—54 18 Claims



1. An arrangement for scanning a color picture with light beams, comprising:

photoelectric receiving means including at least one charge transfer device image sensor having a row of image points receiving light from a line of the color picture, a plurality of charge transfer devices operably connected to said image points;

color filter means located in the light path including a plurality of color filters each located in front of a respective image point, said plurality of color filters being serially arranged with respect to one another in a row and having different spectrum ranges which repeat in a serial pattern so as to project a corresponding pattern of light on the respective image points;

shift means for shifting the color images on said image points;

said image sensor including output means for providing sequential read-out of sensor signals.

4,271,430

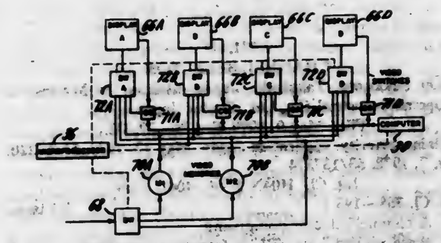
MICROFILM DISPLAY APPARATUS

Gerald E. O'Brien, Atlanta, Ga., assignor to Computer Microfilm International Corporation, Atlanta, Ga.

Filed Apr. 10, 1978, Ser. No. 895,153

Int. Cl.³ H04N 5/22

U.S. Cl. 358—102 2 Claims



1. In a video processing apparatus, means, responsive to a supplied analog video signal for selectively reversing the polarity of said signal, comprising an amplifier having first and second output terminals providing video signals of opposite polarity, a first pair of oppositely facing diodes connected in series between said first amplifier output terminal and a video output terminal, and a second pair of oppositely facing diodes similarly oriented as said first diodes and connected in series between said second amplifier output terminal and said video output terminal, and means, responsive to a supplied polarity control signal, and connected to terminals between the diodes of said first and second diode pairs, for forward biasing the diode of one of said pairs and reverse biasing the diodes of the other of said pairs in response to a first condition of said polarity control signal, and for reversing the biasing of said diodes in response to a second condition of said polarity control signal.

4,271,431

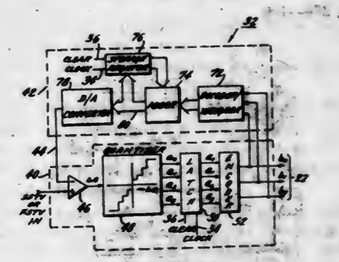
SCAN CONVERTER UTILIZING DISCRETE DIFFERENTIALLY CODED SIGNALS

George R. Stetter, Mequon, Wis., assignor to Star Systems, Inc., Farmingdale, N.Y.

Filed Oct. 11, 1978, Ser. No. 950,465

Int. Cl.³ H04N 5/02, 7/12; H04L 25/16

U.S. Cl. 358—140 14 Claims



1. A scan rate converter, comprising:

(A) input section means operable in both a fast scan conversion and a slow scan conversion mode, said input section means for:

(1) sampling an input FSTV signal at a fast scan rate when said input section means is operated in said fast scan conversion mode, said input FSTV signal including a plurality of lines of video information;

(2) sampling an input SSTV signal at a slow scan rate when said input section means is operated in said slow scan conversion mode, said input SSTV signal including a plurality of lines of video information; and

(3) generating a discrete differential coded signal responsive to each said sampling of said input FSTV and input SSTV signals when said input section means is operated in said fast scan and slow scan modes of operation, respectively, such that each line of video information being sampled is divided into a plurality of discrete differential coded signals, each of said discrete differential coded signals having a magnitude determined by the difference between the actual magnitude of the FSTV or SSTV signal being sampled at the sampling instant corresponding to the discrete differential coded signal in question and a predicted magnitude of the FSTV or SSTV signal being sampled at the sampling instant corresponding to the discrete differential coded signal in question, the value of said predicted magnitude of the FSTV or SSTV signal being sampled being reset to a predetermined value at each sampling instant corresponding to the first discrete differential coded signal in a line of video information being sampled,

(B) memory section means operable in a read and a write mode of operation, said memory section means for:

(1) storing each of said discrete differential coded signals generated by said input section means when said memory section means is operated in said write mode, and

(2) reading said discrete differential coded signals stored in said memory section means out of said memory sec-

tion means when said memory section means is operated in said read mode, said discrete differential coded signals stored in said memory section means being read out of said memory section means at both said fast scan and said slow scan sampling rates in a time multiplexed manner; and

(C) output section means for:

(1) converting said discrete differential coded signals read out of said memory section means at said fast scan rate into an output FSTV signal; and

(2) converting said discrete differential coded signals read out of said memory section means at said slow scan rate into an output SSTV signal.

4,271,432

POWER SUPPLY CONTROL APPARATUS FOR A TELEVISION RECEIVER

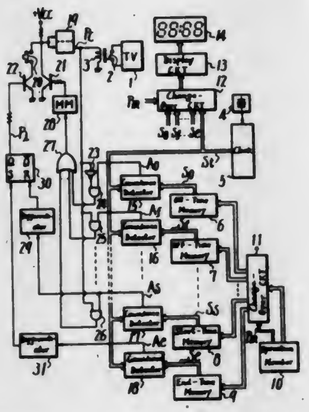
Tadahiko Suzuki; Tomoaki Miyasaka, and Toshio Amano, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,338

Claims priority, application Japan, Jan. 12, 1979, 54-2785

Int. Cl.³ H04N 5/44

U.S. Cl. 358—190 **6 Claims**



1. Power supply control apparatus for a television receiver having a power supply with ON and OFF states, comprising:

manually-actuable power switch means for switching the power supply of the television receiver between said ON and OFF states;

timing means for generating a time code representing the current time;

key input means for generating a start-time code representing a programmable start time and for generating an end-time code representing a programmable end time;

memory means for storing said start-time code and end-time code;

first coincidence detector means for detecting coincidence between the generated time code and said start-time code stored in said memory means and providing a first coincidence output when such coincidence is detected;

second coincidence detector means for detecting coincidence between said generated time code and said end-time code stored in said memory means and providing a second coincidence output when such a coincidence is detected; and

conditioning means for conditioning said power switch means into an enabled condition in which said power switch means is manually actuable for said switching of said power supply and into a disabled condition in which said power switch means is prevented from said switching of said power supply, including means responsive to said first coincidence output for conditioning said power switch means into one of said enabled and disabled conditions and responsive to said second coincidence output for conditioning said power switch means into the other of said enabled and disabled conditions.

4,271,433

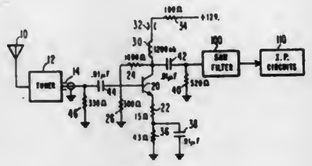
SAW FILTER PREAMPLIFIER

Gerald E. Theriault, Hopewell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 23, 1979, Ser. No. 97,041

Int. Cl.³ H04N 5/44

U.S. Cl. 358—191.1 **19 Claims**



1. In a television receiver including a tuner for receiving radio frequency television signals and producing intermediate frequency signals at an output at a first impedance level, and a surface acoustic wave filter, having an input, and exhibiting a characteristic response defining an intermediate frequency passband including desired ones of said intermediate frequency signals and having a given input impedance; a preamplifier coupled between the output of said tuner and the input of said surface acoustic wave filter comprising:

a transistor having base, emitter, and collector electrodes;

a degeneration resistor coupled between said emitter electrode and a point of reference potential;

an inductor coupled between a source of supply potential and said collector electrode;

a load resistor coupled between the collector electrode of said transistor and a point of signal reference potential;

a feedback resistor coupled between said collector and base electrodes;

a fourth resistor coupled between said base electrode and a point of reference potential;

means for coupling said base electrode to the output of said tuner for receiving said intermediate frequency signals; and

means for coupling said collector electrode to the input of said surface acoustic wave filter,

wherein said resistors bias said transistor so as to amplify said intermediate frequency signals in a substantially distortionless manner and said preamplifier exhibits an input impedance which substantially matches said first impedance and an output impedance which is substantially less than said given input impedance of said surface acoustic wave filter.

4,271,434

CHANNEL SELECTOR

Yoichi Sakamoto, Takatsuki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 9, 1979, Ser. No. 37,332

Claims priority, application Japan, May 17, 1978, 53/59220; Nov. 7, 1978, 53/137574

Int. Cl.³ H04N 5/44; H04B 1/34

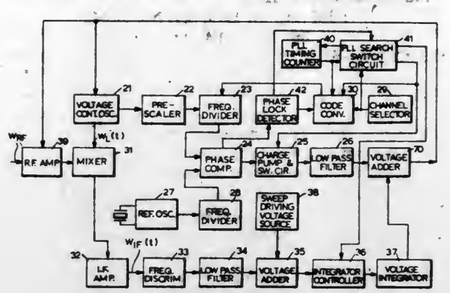
U.S. Cl. 358—193.1 **8 Claims**

1. A channel selector comprising:

a phase locked loop (PLL) frequency synthesizer which synthesizes a local oscillation frequency corresponding to a closely determined frequency to a transmitting signal of a desired receiving channel;

a search tuning system;

means for adding an output of a voltage integrator of said search tuning system which is in sweeping state to an output of a low pass filter of said PLL; means for causing said PLL to be an open loop, when an added voltage obtained by said means reaches a voltage corresponding



to said closely determined frequency; and means thereafter for searching said transmitting signal by said search tuning system for causing said search tuning system to be in search tuning state.

4,271,435

SCANNING TYPE READOUT DEVICE

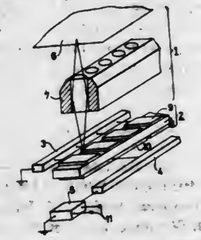
Mutsuo Takenouchi; Shunsuke Tomiyama, and Takashi Ozawa, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Dec. 8, 1978, Ser. No. 967,757

Claims priority, application Japan, Dec. 8, 1977, 52-146588

Int. Cl.³ H04M 3/14

U.S. Cl. 358—213 **10 Claims**



1. A scanning type readout device comprising, a photoelectric conducting layer, electrode segments arranged one-dimensionally on a first surface of the photoelectric conducting layer, said electrode segments being electrically insulated from each other and each having a size equal to one image element; opposite electrodes arranged on a second surface of the photoelectric conducting layer opposite said first surface so that each of the opposite electrodes is in opposition to a number of said electrode segments; first semiconductor switch means connected respectively to the opposite electrodes; second semiconductor switch means connected respectively to said electrode segments, a common load resistor and a power source connected between said first and second semiconductor switch means, and scan-controlling means for opening and closing said first and second semiconductor switch means in a predetermined sequence thereby to apply a voltage sequentially between said electrode segments and said opposite electrodes wherein the electrode segments are scanned one-dimensionally; at least either said electrode segments or said opposite electrodes being transparent; and a light image is projected on the photoelectric conducting layer from the side of said transparent electrodes.

4,271,436

DIGITAL COPYING MACHINE

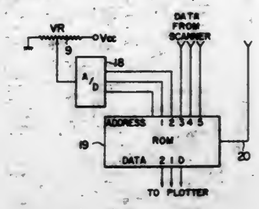
Morio Kurose, Yokohama; Koichi Ejiri, Chiba, and Mamoru Maeda, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Filed Apr. 25, 1979, Ser. No. 33,268

Claims priority, application Japan, May 2, 1978, 53-52343

Int. Cl.³ H04N 1/22

U.S. Cl. 358—296 **6 Claims**



1. A digital copying machine which comprises:

a scanner system for outputting an image in the form of digital data;

a data processing and transferring system for processing and transferring said digital data;

a plotter system for outputting data from said data processing and transferring system;

a control system for controlling said scanner system, data processing and transferring system and plotter system; and

density correcting control means provided on the control panel of said digital copying machine, said control means being manually adjustable,

said data processing and transferring system comprising analog-to-digital converter means for converting the output of said control means into a digital value, and a read-only memory employing as address data a value obtained by combining said digital value provided by said analog-to-digital converter means and a digitalized density value for said scanner system, said digital value provided by said analog-to-digital converter means being a low address for said read-only memory, said digitized density value from said scanner system being a high address for said read-only memory, wherein a density signal added by a degree of correction is applied to said plotter system by storing density values corrected in correspondence to said address data in said read-only memory.

4,271,437

TIME LAPSE VIDEOTAPE EDITOR/CONTROLLER

Xenophon Scott, 2 Whitby Rd., Cherry Hill, N.J. 08003

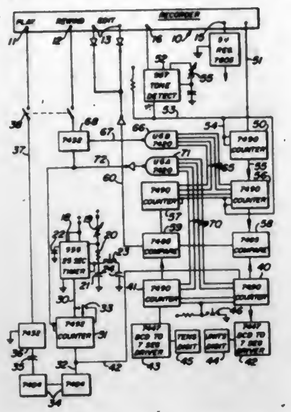
Filed Jan. 6, 1979, Ser. No. 45,969

Int. Cl.³ H04N 5/78; G11B 27/02

U.S. Cl. 360—9 **8 Claims**

1. A time lapse videotape editor/controller for a recorder having play, rewind, and edit controls; comprising timer means for connection to the play control to energize the latter at a desired frequency of sampling cycles; first counter means for counting the number of beginnings of sampling cycles effected by energizing of said play control; second counter means for repeatedly indicating a desired length of sample to be recorded; said desired sample length being shorter than the period of said frequency; third counter means for counting the number of said desired sample lengths subsequent to each cycle beginning; comparitor means for comparing said first and third counter means and adapted to connection to the edit control of the recorder to operate the latter when the count of said third counter means equals a predetermined relation to that of said first counter means; and rewind control operating means for connection between said third counter and rewind control effecting rewind to the beginning of the tape responsive to a predetermined count of sample lengths subsequent to each

cycle beginning, whereby a tape is rewound to await energizing of said play control responsive to said first timer means and



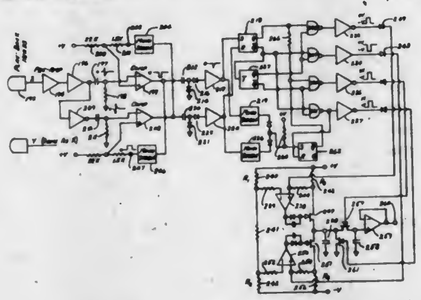
initiate editing for the sample length when the tape passes previously edited samples plus one sample.

4,271,438

RECOVERY AND DEMODULATION OF A PULSE WIDTH MODULATION ENCODED SIGNAL RECORDED ON MAGNETIC TAPE

William D. Cornell, 907 Camargo Dr., Ballwin, Mo. 63011

Division of Ser. No. 837,377, Sep. 28, 1977. This application Jul. 5, 1979, Ser. No. 54,705
Int. Cl.³ G11B 5/00, 5/02
U.S. Cl. 360—32 6 Claims



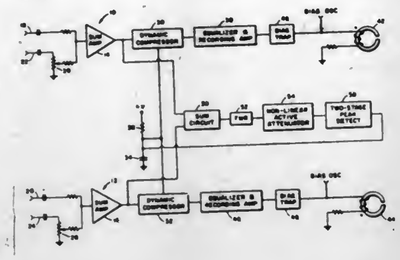
1. A method for reconstructing an original pulse width modulation that was differentiated and recorded on magnetic tape from the play-back signal which consists of alternately initially positive-going and initially negative-going bipolar pulses comprising the steps of generating a second signal which is an inverse of said play-back signal by an inverter responsive to said play-back signal, first and second identical initially positive-going bipolar pulse descriminator and zero-crossing detectors, coupling said first descriminator and zero-crossing detector to be responsive to said play-back signal and coupling said second descriminator and zero-crossing detector to be responsive to said second signal, coupling the set input of a memory circuit to be responsive to said first descriminator and zero-crossing detector and coupling its reset input to be responsive to said second descriminator and zero-crossing detector, said memory circuit having an output producing the reconstruction of said original pulse width modulation.

4,271,439

ELECTRONIC GAIN AND NOISE CONTROL FOR RECORDING OF ANALOG INFORMATION

William R. Wray, Sudbury, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 24, 1979, Ser. No. 32,942
Int. Cl.³ G11B 5/45, 5/02
U.S. Cl. 360—65 10 Claims



1. In apparatus for analog recording on a storage medium and having dynamic compressor means for amplifying an analog input signal to be recorded with a gain that varies in response to an applied control signal, an improvement for limiting the gain for analog input signals which exceed a first select amplitude without exceeding a second select amplitude greater than the first select amplitude comprises:

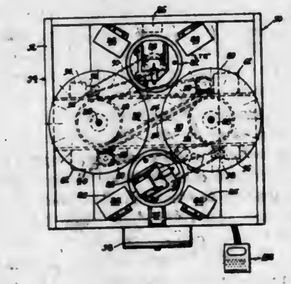
limiter means for introducing a gain-reducing influence to the applied control signal in accordance with a measure of the analog input signal amplitude in excess of the first select amplitude, and for controlling said gain-reducing influence to provide a compressor gain that is substantially a single-valued function of the analog input signal for analog input signals having an amplitude within a range between the first select amplitude and the second select amplitude, said limiter means further comprising a nonlinear active attenuator for providing said measure in response to a nonlinear variation of the analog input signal amplitude.

4,271,440

AUTOMATIC TAPE CARTRIDGE HANDLING SYSTEM

John P. Jenkins, Towanda; Rodney M. Sabick, Normal, and William W. Kidd, Bloomington, all of Ill., assignors to International Tapetronics Corporation, Bloomington, Ill.

Filed Apr. 6, 1979, Ser. No. 27,800
Int. Cl.³ G11B 15/68, 23/04
U.S. Cl. 360—92 39 Claims



1. A tape cartridge handling system comprising:

a frame;

at least one cartridge storage drum, at least one stack of cartridge transducing machines, a loading chute, an unloading chute, and a cartridge transfer mechanism mounted on the frame;

the cartridge drum having a cylindrical configuration with cartridge storage compartments arranged in columns about its circumference and in rows along its axis and being rotatably movable to discrete operative positions to move the respective columns to positions aligned with the transfer mechanism;

power rotating means for rotatably moving the drum to its operative positions;

the transfer mechanism including a cage and a platform supported thereon mounted for swinging movement to discrete operative positions aligned with the drum, the stack of transducing machines, the loading chute, and the unloading chute respectively;

power swinging means for swingably moving the transfer mechanism to its operative positions;

the platform and the drum being relatively movable parallel to the axis of the drum to discrete operative positions in which the platform is aligned with the respective rows of storage compartments on the drum;

power traversing means for relatively moving the platform and drum parallel to the axis of the drum to the operative positions in which the platform is aligned with the respective rows on the drum;

a cartridge holding member supported on the platform for movement between a retracted position on the platform and an extended position transversely thereof;

power moving means for moving the holding member between its retracted and extended positions;

power activated cartridge gripping means supported on the holding member and selectively activatable and deactivatable to grip and release a cartridge; and

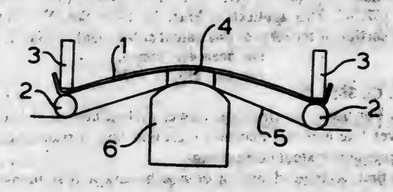
control means for monitoring movements of the various movable members and activating the various power means in a predetermined sequence to move a cartridge automatically from the loading chute to the unloading chute via the drum, transfer mechanism, and stack of transducing machines.

4,271,441

INTEGRAL SHIELD AND BIAS ELEMENT FOR MAGNETIC TAPE CASSETTES

Joachim Greiner, Ebenhausen, and Albrecht Magir, Rodenbach, both of Fed. Rep. of Germany, assignors to Vacuumschmelze GmbH, Hanau, Fed. Rep. of Germany

Filed Jul. 26, 1979, Ser. No. 60,995
Claims priority, application Fed. Rep. of Germany, Aug. 12, 1978, 2835459
Int. Cl.³ G11B 15/60
U.S. Cl. 360—130.33 11 Claims



1. In a magnetic tape cassette of the type having upper and lower cassette housing parts with side walls, the front wall provided with an entry aperture for a magnetic head associated with a recording/playback apparatus and, facing this aperture, a magnetic screening shield and a tape biasing means comprising:

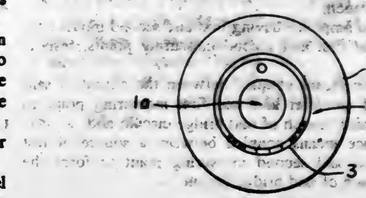
a single magnetic element of uniformly resilient, "soft" magnetic alloy with an elastic limit of at least 300 N/mm², whereby the uniform alloy element is both a magnetic shield and a tape biasing means.

4,271,442

PLANE MAGNETIC RECORDING MEDIUM

Yoshio Mikami, Tokyo, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Mar. 29, 1979, Ser. No. 25,074
Claims priority, application Japan, Apr. 10, 1978, 53-41856
Int. Cl.³ G11B 21/10
U.S. Cl. 360—131 2 Claims



1. A magnetic recording system comprising:

a plane magnetic recording medium having a plurality of parallel tracks of a predetermined width, said tracks being spaced from one another by predetermined spacings;

a magnetic head having a predetermined width, said width of said head being greater than said width of one of said tracks and less than the sum of the widths of one of said tracks and one of said spacings;

means for positioning said head adjacent one of said tracks; and

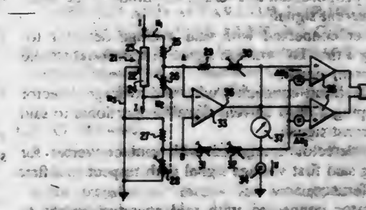
means for moving one of said medium and said head relative to the other to form a tracing, said tracing having a path substantially identical to the length of said tracks and a width equal to said width of said head, the maximum variations between the length of said one of said tracks and the path of said tracing being less than the excess in the width of said head over the width of said one of said tracks, whereby said length of said one of said tracks is always entirely within said width of said tracing.

4,271,443

QUENCH DETECTOR

Gernot Nöther, Karlsruhe, Fed. Rep. of Germany, assignor to Kernforschungszentrum Karlsruhe, Karlsruhe, Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,487
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1978, 2839787
Int. Cl.³ H02H 3/28
U.S. Cl. 361—19 8 Claims



1. A quench detector for monitoring a superconducting coil for changes in its conductivity and for monitoring the leads connected to said coil, said superconducting coil being divided into first and second coil elements by a tap located between said coil elements, comprising

first and second resistance means, each having means coupling one end to a first measuring point, the other ends of each of said first and second resistance means being connected to corresponding opposite ends of said superconducting coil, the first and second coil elements of said

superconducting coil and said first and second resistance means forming the first branch of a bridge circuit;

third and fourth resistance means, each having means coupling one end to a second measuring point, the other ends of each of said third and fourth resistance means being connected to the tap on said superconducting coil, said third and fourth resistance means forming the second branch of said bridge circuit having a resistance corresponding to the resistive component of the impedance of said first branch;

an operational amplifier having first and second inputs coupled to said first and second measuring points, respectively;

fifth resistance means coupled between the output of said operational amplifier and said first measuring point to form the third branch of said bridge circuit; and

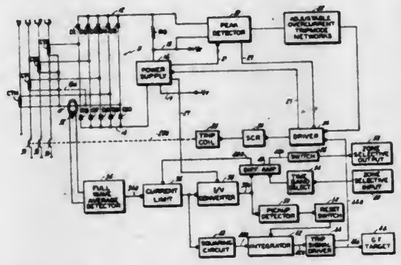
sixth resistance means coupled between a source of test voltage and said second measuring point to form the fourth branch of said bridge circuit.

4,271,444

GROUND FAULT TRIP MODE NETWORK FOR STATIC TRIP CIRCUIT BREAKERS

Edward K. Howell, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,387
Int. Cl.³ H02H 3/16
U.S. Cl. 361—48 **18 Claims**



1. A ground fault trip mode network operative to trip a circuit interrupting device in the event of a ground fault on an AC power distribution circuit, said network comprising, in combination:

A. means for deriving a first AC ground fault current signal proportional to ground fault current flowing from the power distribution circuit;

B. a rectifying average detector connected with said deriving means for developing a second DC current signal of a magnitude proportional to average amplitude of the rectified first current signal;

C. a converter connected with said average detector for developing a first DC voltage signal proportional to said second current signal;

D. a squaring circuit connected with said average detector for developing a third current signal proportional to said second current signal;

E. a pickup detector connected with said converter for monitoring said first voltage signal with respect to a first voltage reference;

F. an integrator connected with said squaring circuit to integrate said third current and thus develop a second voltage signal whose magnitude varies with time, said integrator being enabled by said pickup detector to integrate said third current signal while said first voltage signal exceeds said first voltage reference in one sense and disabled by said pickup detector while said first voltage signal exceeds said first reference voltage in the opposite sense; and

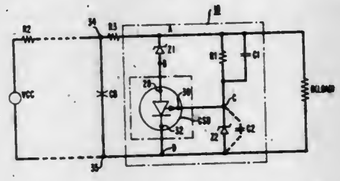
G. a trip signal driver connected with said integrator to generate a trip signal initiating tripping of the interrupting device when said second voltage signal achieves a predetermined magnitude.

4,271,445

SOLID-STATE PROTECTOR CIRCUITRY USING GATED DIODE SWITCH

Adrian R. Hartman, New Providence; Robert S. Scott, Mountainside, and Peter W. Shackle, Bridgewater, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 20, 1978, Ser. No. 972,055
Int. Cl.³ H02H 3/22
U.S. Cl. 361—56 **4 Claims**



1. Circuitry to be connected to first and second terminals (A,B) across a load (R(Load)) to be protected including a pair of diodes (Z1,Z2) each having the characteristic that it passes little current therethrough below a threshold applied voltage and experiences a relatively constant voltage drop thereacross for increasing current therethrough and a gated diode switch (GDS) having an anode (28), a cathode (32), and a gate (30) terminal, and a resistor (R1) CHARACTERIZED IN THAT:

the first diode (Z1) is connected between the first circuit terminals (A) and the anode of the gated diode switch (GDS);

the second diode (Z2) is connected between the gate (30) of the switch (GDS) and the second terminal;

the cathode of the switch (GDS) is connected to the second circuit terminal (B); and

the resistor (R1) is connected between the first circuit terminal (A) and the gate (30) of the switch (GDS).

4,271,446

TRANSIENT VOLTAGE SUPPRESSION SYSTEM

Wilford K. Comstock, 8152 S. Danish Rd., Sandy, Utah 84070

Continuation-in-part of Ser. No. 810,078, Jun. 27, 1977, Pat. No. 4,152,743. This application Mar. 26, 1979, Ser. No. 23,655
The portion of the term of this patent subsequent to May 1, 1996, has been disclaimed.
Int. Cl.³ H02H 9/04
U.S. Cl. 361—56 **9 Claims**

1. For use in an electrical power system having at least one power line and one neutral or ground line, a transient signal suppression system comprising

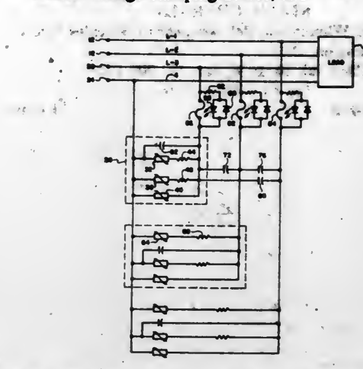
a first voltage clamping device having a first breakdown voltage rating,

a switching resistance means thermally coupled to said first voltage clamping device and operable to become substantially nonconductive at a certain threshold temperature,

means for coupling the first voltage clamping device and switching resistance means in series to the neutral line,

a second voltage clamping device coupled in parallel with the series connections of the first voltage clamping device and switching resistance means, said second voltage clamping device having a second breakdown voltage rating which is higher than said first rating,

fuse means coupled to said power line and in series with said second voltage clamping device, and



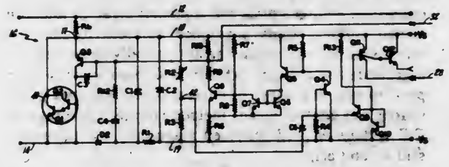
light-emitting means and resistance means coupled in series with each other and in parallel with said fuse means.

4,271,447

POWER SUPPLY FOR CIRCUIT BREAKER STATIC TRIP UNIT

Edward K. Howell, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,388
Int. Cl.³ H02H 3/08
U.S. Cl. 361—93 **8 Claims**



1. In a circuit breaker electronic trip unit connected to receive rectified current inputs from individual phase current sensing transformers and including a burden resistor across which is developed a signal voltage proportional to the magnitude of the input current magnitude, a peak detector responsive to the signal voltage, at least one trip mode network processing the signal output of the peak detector pursuant to issuing a trip signal, and a driver circuit responsive to the trip signal for initiating energization of a trip coil operating no effect opening of breaker contacts, a power supply circuit for providing operating power for the peak detector, trip mode network, driver circuit and trip coil, said power supply circuit including, in combination:

A. a power transistor connected between first and second regulated voltage buses;

B. at least one storage capacitor connected between said first and second buses;

C. a potential divider connected between said first and second buses for developing at a terminal thereof a monitoring voltage proportional to the regulated voltage across said buses;

D. voltage threshold means responsive to said monitoring voltage;

E. a regenerative trigger circuit operating under the control of said threshold means to maintain the voltage across said buses in regulation by switching said power transistor off when the regulated voltage falls below its regulated level to direct the input current flowing through the burden resistor into said storage capacitor to increase the charge thereon and by switching said power transistor on when the regulated voltage rises above its regulated level to shunt input current flowing through the burden resistor from said storage capacitor; and

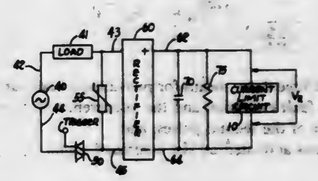
F. a diode serially connected in one of said first and second buses to prevent said storage capacitor from discharging through said power transistor while it is on.

4,271,448

ELECTRONIC PROTECTION CIRCUIT FOR SOLID STATE SWITCHES ENERGIZING AC LOADS

Robert J. Pond, Doylestown, Ohio, assignor to Acme Cleveland Corporation, Highland Heights, Ohio

Filed Nov. 13, 1979, Ser. No. 93,218
Int. Cl.³ H02H 9/02
U.S. Cl. 361—93 **9 Claims**



1. In a circuit having in electrical series relationship an AC source, an AC load, and a load-energizing semiconductor switch, a short circuit protector comprising:

an overcurrent sensing circuit responsive to unidirectional current flowing through it, the sensing circuit being connected in electrical series relationship with the source, the load, and the semiconductor switch, the sensing circuit switching from a low impedance state to a high impedance state when the unidirectional current through it exceeds a predetermined current amplitude, the sensing circuit maintaining the high impedance state to limit current through the switch until the voltage across the sensing circuit decreases to a predetermined voltage amplitude;

a full wave rectifier means connected between the AC source and the sensing circuit for converting AC current through the load to a generally equivalent amount of unidirectional load current sensed by and routed through the sensing circuit; and

capacitor means for maintaining the voltage across the sensing circuit above the predetermined voltage amplitude to hold the sensing circuit at the high impedance state subsequent to sensing an overcurrent condition.

4,271,449

METHOD AND APPARATUS FOR PROTECTING ALTERNATING CURRENT CIRCUITS

Martin L. Gregus, Marion, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Apr. 4, 1979, Ser. No. 27,129
Int. Cl.³ H02H 3/093
U.S. Cl. 361—94 **4 Claims**

1. An apparatus for protecting a circuit from excessive current flow, comprising:

sense transformer means for sensing the current flow through the circuit;

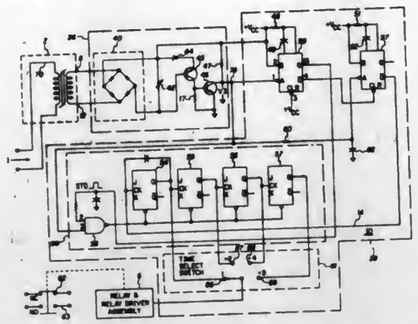
pulse shaping means for generating a sense pulse whose width is related to the rate of current flow into the sense transforming means;

1st single shot multivibrator means for generating a reference period at the occurrence of each sense pulse;

2nd single shot multivibrator means for providing a second pulse each time a sense pulse occurs;

comparator means for providing an existing command as long as the sense pulse's width is greater than the reference period and to provide a reset at a first condition

when the sense pulse's width is less than the reference period;



selectable time delay means for providing a command signal after a fault condition and the occurrence of a selectable number of the second pulses; and

relay means activated by the command signal.

4,271,450

CIRCUIT ARRANGEMENTS FOR THE CONTROL OF A BISTABLE RELAY

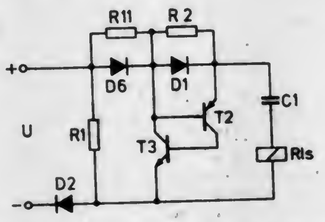
Hiromi Nishimura, and Hideki Fukuzono, both of Osaka, Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan and SDS-Electro GmbH, Deisenhofen, Fed. Rep. of Germany

Filed Jun. 15, 1979, Ser. No. 48,890

Claims priority, application Japan, Jun. 15, 1978, 53-73063; Jun. 15, 1978, 53-73067; Jun. 15, 1978, 53-73069; Sep. 25, 1978, 53-132113[U]; Oct. 19, 1978, 53-129378

Int. Cl.³ H01H *47/00, 47/32*

U.S. Cl. 361—155 16 Claims



1. A circuit arrangement for controlling a bistable relay in monostable fashion by the application and removal, respectively, of an excitation voltage, comprising

(a) a series circuit connected across the excitation voltage and including the relay coil, a capacitor and first and second diodes poled in forward direction with respect to the excitation voltage,

(b) ohmic resistors connected in parallel to each of said first and second diodes, and

(c) trigger switching means connected in parallel to said series-connected relay coil and capacitor, said trigger switching means being rendered conductive by a reverse voltage occurring across said second diode when said excitation voltage is removed.

4,271,451

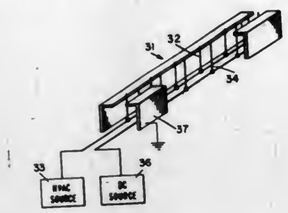
METHOD AND APPARATUS FOR CONTROLLING STATIC CHARGES

Bruce E. Metz, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Filed Jul. 20, 1976, Ser. No. 707,142

Int. Cl.³ H01T *19/00*

U.S. Cl. 361—213 1 Claim



1. Apparatus for controlling static charges on dielectric material comprising:

an ionizing member; and

power source and control means for applying sufficient AC high voltage to said ionizing member for producing an ionized field and for controlling the balance and magnitude of the directional conductivity of the ionized field to impart static charges of predetermined magnitude and polarity to said material, said ionized field being spaced from said ionizing member such that the dielectric material can be freely moved therethrough in contact only with the ionized field;

wherein said ionizing member includes a first array of interconnected emitter points and a second array of interconnected emitter points positioned adjacent to said first array, said first and second arrays partially surrounded by a grounded shield, and wherein AC high voltage is applied to said first array of emitter points and said power source and control means includes means for applying a DC voltage of predetermined magnitude and polarity to said second array.

4,271,452

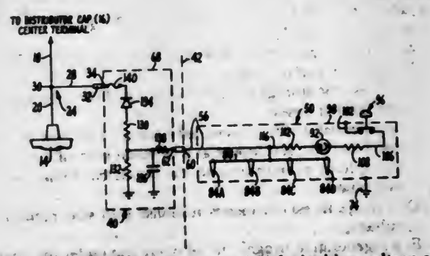
AUTOMOTIVE AIR CONDITIONING APPARATUS

Jimmy L. Lee, 2430 Stanwell Dr., Suite 190, Concord, Calif. 94520

Filed Jan. 22, 1979, Ser. No. 5,676

Int. Cl.³ H01T *19/00*

U.S. Cl. 361—231 16 Claims



1. A voltage converter for converting the ignition voltage of the engine of an automobile to a lower voltage suitable for operating an air anion generator located in the passenger compartment of said automobile, comprising:

voltage reducing circuit means having a high voltage terminal, electrical connecting means adapted to be connected to the circuit providing said ignition voltage to connect the same to said high voltage terminal, and a low voltage terminal; and

current limiting means having a first terminal, a second terminal, and electrical connecting means adapted to interconnect said second terminal and said air anion generator;

said first terminal of said current limiting means being connected to said low voltage terminal of said voltage reducing circuit means.

4,271,453

IGNITER WITH COUPLING STRUCTURE

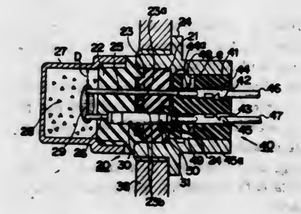
Tadashi Yajima, Akigawa; Makoto Yagi, Ohme; Masayoshi Katoh, Kawagoe; Takashi Ishii, Tokyo; Haruki Maruizumi, Hidaka, and Tadahiko Nagaoka, Sayama, assignors to Nissan Motor Company, Limited and Japan Aviation Electronics Industry, Limited, both of, Japan

Filed Jun. 18, 1979, Ser. No. 49,463

Claims priority, application Japan, Jul. 1, 1978, 53/79245

Int. Cl.³ F23Q *7/00*

U.S. Cl. 361—248 4 Claims



1. In an igniter having a heat generator responsive to an ignition signal from an ignition signal source for igniting powder in a container, the combination comprising:

a first connector which includes a first pair of electrical conductors and first insulating support means for supporting said first pair of electrical conductors, one end of each of said first pair of conductors being connected to said heat generator, the other end of each of said first pair of electrical conductors being structurally adapted to electrically connect to a second pair of electrical conductors on a second connector;

filter means in electrical circuit with one of said first pair of electrical conductors for passing substantially only an ignition signal electrically fed through said one of said first pair of conductors;

resilient means electrically connecting said first pair of electrical conductors with each other, said resilient means resiliently contacting at least one of said first pair of electrical conductors;

a second connector which includes a second pair of electrical conductors and second insulating support means for supporting said second pair of electrical conductors, one end of each of said second pair of conductors being connected to said ignition signal source, the other end of each of said second pair of electrical conductors being structurally adapted to electrically connect to said first pair of electrical conductors when said second connector is connected to said first connector; and

means for engaging said second connector with said first connector so that said second pair of conductors electrically engages said first pair of conductors and said resilient means is removed from contact with said first pair of conductors.

4,271,454

CAPACITOR OF DISK SHAPE WITH LIQUID COOLING

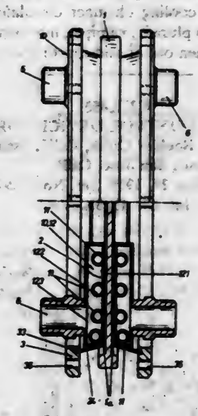
Alois Knobl, Silz; Alfred Zeltner, Hohenberg; Helmut Kreckow, Hof, and Hermann Schinzel, Selb, all of Fed. Rep. of Germany, assignors to Draloric Electronic GmbH, Fed. Rep. of Germany

Filed Mar. 5, 1979, Ser. No. 16,985

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1978, 7807683[U]; Apr. 27, 1978, 7812819[U]; Jul. 22, 1978, 7822053[U]; Oct. 20, 1978, 7831244[U]

Int. Cl.³ H01G *1/08*

U.S. Cl. 361—274 5 Claims



1. A water cooled capacitor, comprising:

(A) a disk made of a dielectric material, said disk having first and second opposed flat main surfaces;

(B) first and second electrodes located on said first and second main surfaces, respectively, so as defined opposed electrodes of said capacitor;

(C) first and second cooling chambers connected to said first electrode at radially opposite locations of said disk;

(D) third and fourth cooling chambers connected to said second electrode at radially opposed locations of said disk;

(E) a first plurality of pipes extending from said first cooling chamber to said second cooling chamber, said first plurality of pipes each defining an arc of a respective circle which is co-axial with said disk, said first plurality of pipes being in contact with said first electrode and providing a fluid path extending between said first and second cooling chambers;

(F) a second plurality of pipes extending from said second cooling chamber to said first cooling chamber, said second plurality of pipes each defining an arc of a respective circle which is co-axial with said disk, said second plurality of pipes being in contact with said first electrode and providing a fluid path extending between said second and first cooling chambers;

(G) a third plurality of pipes extending from said third cooling chamber to said fourth cooling chamber, said third plurality of pipes each defining an arc of a respective circle which is co-axial with said disk, said third plurality of pipes being in contact with said second electrode and providing a fluid path extending between said third and fourth cooling chambers;

(H) a fourth plurality of pipes extending from said fourth cooling chamber to said third cooling chamber, said fourth plurality of pipes each defining an arc of a respective circle which is co-axial with said disk, said fourth plurality of pipes being in contact with said second electrode and providing a fluid path extending between said fourth and third cooling chambers;

(I) a first connection coupled to said first cooling chamber for enabling cooling liquid to be pumped into said first

cooling chamber and a second connection coupled to said second cooling chamber for enabling cooling liquid to leave said second cooling chamber whereby liquid pumped into said first cooling chamber circulates through said first and second plurality of pipes, into said second cooling chamber and then out of said second cooling chamber; and

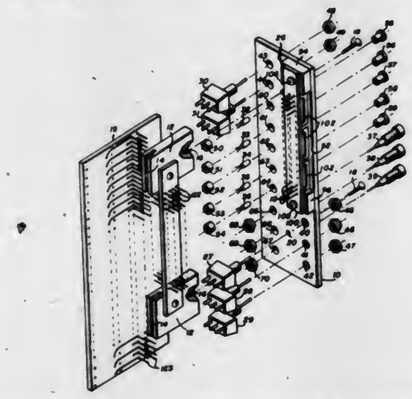
(J) a third connection coupled to said third cooling chamber for enabling cooling liquid to be pumped into said third cooling chamber and a fourth connection coupled to said fourth cooling chamber for enabling cooling liquid to leave said fourth cooling chamber whereby liquid pumped into said third cooling chamber circulates through said third and fourth plurality of pipes, into said fourth cooling chamber and then out of said fourth cooling chamber.

4,271,455

INDICATOR AND CONTROL DEVICE FOR PC BOARDS

Ralph J. McComas, Boulder Creek, Calif., assignor to Perception Electronics, Inc., San Jose, Calif.

Filed Sep. 24, 1979, Ser. No. 77,924
Int. Cl.³ H05K 7/06
U.S. Cl. 361—331 12 Claims



1. An indicator and control device for PC boards and the like comprising:

an elongated generally rectangular component mounting plate having a front surface, a rear surface and a longitudinal axis, said plate being provided with at least one elongated aperture lying parallel to and laterally offset from said longitudinal axis, and at least one other aperture;

an elongated indicator means affixed to said rear surface so as to be viewable through said elongated aperture;

a manually operable electrical component mounted within said other aperture;

a pair of insulating standoff members disposed along said longitudinal axis and provided with slots for receiving an edge of a circuit board;

means attaching said standoff members to the rear surface of said mounting plate,

a first terminal board attached to one side of said standoff members and having biasing elements mounted thereon;

a second terminal board attached to the opposite side of said standoff members; and

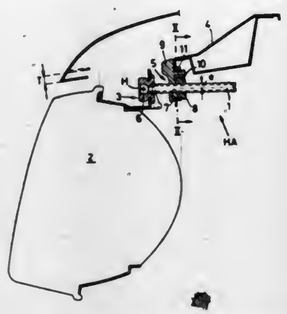
means for electrically interconnecting said indicator means, said electrical component, the biasing elements of said first terminal board and said second board, whereby said indicator and control device may be attached to a PC board by lodging an edge thereof within the slots of said standoff members, and may be electrically connected thereto by wiring said second terminal board to the electrical circuits of said PC board.

4,271,456

ADJUSTING APPARATUS FOR MOTOR VEHICLE HEADLAMPS

Heinz Dick, Odenthal, Fed. Rep. of Germany, assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 10, 1979, Ser. No. 65,402
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1978, 2847990
Int. Cl.³ B60Q 1/06
U.S. Cl. 362—66 3 Claims



1. An adjusting apparatus for motor vehicle headlamps, wherein a headlamp is supported on a vehicle body through one fixed point and two adjusting devices,

at least one of said adjusting devices including an adjusting screw coupled at one of its ends to the headlamp and threaded intermediate its ends in a threaded bore of a retaining device,

the retaining device having a substantially cylindrical body that is rotatably journalled in a housing orifice in a vehicle body panel,

the threaded bore receiving said adjusting screw having its axis eccentrically parallel to the axis of rotation of the cylindrical body of the retaining device,

positioning means on the retaining device for rotating the latter to cause the adjusting screw to be swung laterally of the axis of rotation of the cylindrical body to adjust the vertical position of the headlamp,

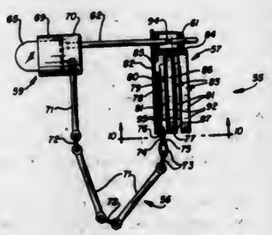
and coacting means on the retaining device and vehicle body panel engageable to hold the retaining device in adjusted position.

4,271,457

INTERMITTENT LIGHT CIRCUIT BODY MOVEMENT ACTUATED JEWELRY

Danny W. Martin, 2704 Brookridge La., St. Charles, Mo. 63301

Filed Mar. 20, 1979, Ser. No. 22,196
Int. Cl.³ F21L 15/08; A44C 7/00; H01H 35/02
U.S. Cl. 362—104 8 Claims



1. In an article of jewelry having intermittent lighting for use as an earring worn in pierced ears: light means mounted on

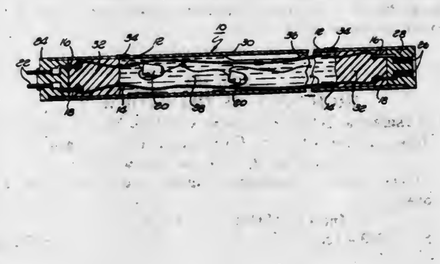
structure including an earring post; said earring post being electrically conductive and electrically connected to one terminal of said light means; electrically conductive earring clip member adapted to be removably affixed to the end of said earring post opposite said light means with said earring post extendable through a wearer's earlobe; said earring clip member comprising a battery carrier means; battery means mounted in said battery carrier means; said earring post with said clip member-battery carrier means affixed thereto providing electrical connection between one terminal of said battery means and said one terminal of said light means; and, circuit completing and breaking means of an articulating electrically conductive material interconnect linkage for electrically connecting the other terminal of said battery means and the other terminal of said light means and being subject to intermittent circuit opening and closing with body movements of said wearer producing intermittent actuation of said light means.

4,271,458

DECORATIVE LIGHT TUBING

Benjamin B. George, Jr., Santa Ana, Calif., assignor to Tivoli Industries, Inc., Santa Ana, Calif.

Filed Mar. 10, 1980, Ser. No. 128,349
Int. Cl.³ F21V 15/00, 23/00, 31/00; F21P 1/02
U.S. Cl. 362—236 4 Claims



1. An improved low voltage decorative tubing wherein strings of miniature unbased lamps are connected in parallel between a pair of spaced electrical wire conductors within a hollow transparent tube, the improvement comprising:

a viscous dielectric liquid substantially filling the interior of the tube; and,

means for forming a fluid type seal at opposite ends of the tube to prevent the escape of said liquid.

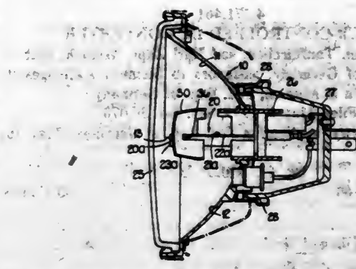
4,271,459

VEHICLE HEADLAMP ASSEMBLY

Haydn James, Rugeley, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Jan. 17, 1979, Ser. No. 4,234
Int. Cl.³ F21V 7/00
U.S. Cl. 362—346 9 Claims

1. A vehicle headlamp assembly comprising a reflector having upper and lower reflective portions separated by a split line, and a filament shield, said filament shield comprising a pair of plate portions disposed on opposite sides of a location at which a lamp filament is located in use, each plate portion being substantially aligned with the split between the upper and lower reflective portions and extending forwardly of the headlamp assembly substantially axially of the reflector, and said shield permitting light to pass from said location for reflection off both reflective portions of the reflector but preventing light passing from said location for reflection off the split line



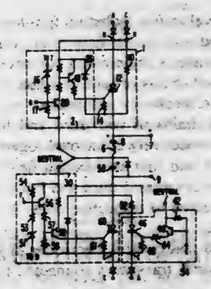
and also preventing light reflected from the envelope of a bulb mounted with its filament at said location from passing for reflection off said upper reflective portion.

4,271,460

SOFT TURN-ON POWER

Richard H. Baker, Bedford, Mass., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Feb. 22, 1979, Ser. No. 14,108
Int. Cl.³ H02H 7/10
U.S. Cl. 363—49 10 Claims



1. A dual DC voltage power supply providing positive and negative DC voltages including soft turn-on circuitry to limit inrush current to substantially uncharged capacitive loads, said power supply comprising:

a plurality of rectifier circuits providing at least one positive DC voltage level and at least one negative DC voltage level from at least one AC input voltage;

a plurality of power terminals for receiving said rectified voltage;

an output terminal for each said DC voltage level;

a reference terminal for connection to a point of reference potential;

control means for each said DC voltage level, said control means being coupled in parallel relation with said capacitive load and responsive to the voltage developed across said load attaining a predetermined value whereupon said control means provides a firing signal;

turn-on current suppression means for each DC voltage level, said suppression means having a relatively high impedance connected between one of said power terminals and said output terminal, wherein said impedance limits the magnitude of current supplied to said load in the absence of said control firing signal; and

switching means having a main current conduction path coupled in parallel with each said suppression impedance, said switching means being responsive to said control

firing signal to provide a low impedance by-pass across said suppression impedance.

4,271,461

CLOCK-CONTROLLED DC CONVERTER

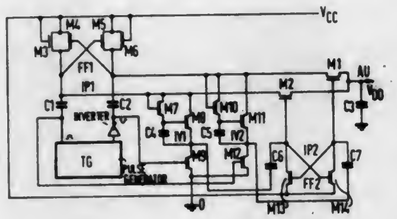
Kurt Hoffmann, Taufkirchen, and Karl Zapf, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 4, 1979, Ser. No. 36,070

Claims priority, application Fed. Rep. of Germany, May 16, 1978, 2821418

Int. Cl.³ H02P 13/22

U.S. Cl. 363—60 33 Claims



1. A clock-controlled d.c. converter, comprising:

a pair of clock pulse inputs each adapted to receive clock pulse trains which are inverted with respect to one another;

a first pulse level shifter including flip-flop comprising first, second, third and fourth field effect transistors each including a source, a drain and a control electrode,

said sources and drains of said first and second field effect transistors respectively connected together, and said sources and drains of said third and fourth field effect transistors respectively connected together,

said sources of said first and second field effect transistors and said sources of said third and fourth field effect transistors connected to respective ones of said pair of clock pulse inputs,

said drains and said control electrodes of said first, second, third and fourth transistors connected to a supply potential,

said sources of said first and second field effect transistors constituting a first output of said first pulse level shifter and said sources of said third and fourth field effect transistors constituting a second output of said first pulse level shifter, said first and second outputs carrying level shifted pulse trains which are inverted with respect to each other;

fifth and sixth field effect transistors each having a source-drain path connected to a respective output of said first pulse level shifter and connected to the source-drain path of the other constituting an output for said converter, and each having a control electrode,

first and second voltage doublers each including first and second inputs and an output, said first input of said first voltage doubler connected to receive the inverted clock pulses and said second input of said first voltage doubler connected to said first output of said first pulse level shifter, said first input of said second voltage doubler connected to receive non-inverted clock pulses and said second input connected to said second output of said first pulse level shifter, said voltage doublers operable to supply double voltage clock pulses at their outputs;

a second pulse level shifter including a bistable flip-flop having first and second inputs connected to respective outputs of said voltage doublers, and first and second outputs connected to respective control electrodes of said fifth and sixth field effect transistors.

4,271,462

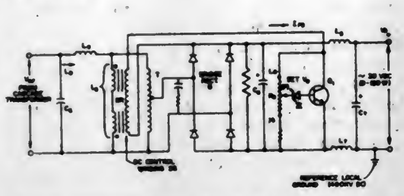
POWER CONVERTER AND REGULATION APPARATUS

Philip H. Peters, Greenwich, N.Y., assignor to Electric Power Research Institute, Palo Alto, Calif.

Filed Sep. 20, 1978, Ser. No. 944,089

Int. Cl.³ H02P 13/26

U.S. Cl. 363—94 6 Claims



1. Power converter and regulation apparatus for supplying a DC load comprising: inverter means for producing a radio frequency (RF) voltage; an inductive voltage divider including first inductor means of the saturable reactor type in series with a second inductor said RF voltage being imposed across said voltage divider; RF cascade transformer means for connecting said inverter means to said voltage divider but conductively isolating them; rectifier means connected across said first inductor means for providing a DC output voltage; voltage level sensing means for comparing said dc output voltage with a reference voltage and providing an error signal, said first inductor means including a control winding responsive to said error signal to change said division of said RF voltage to compensate for changes in said load the windings of said first inductor means being connected relative to said control winding so that the RF current in said first inductor means does not couple to said control winding.

4,271,463

HIGH VOLTAGE TRANSFORMER

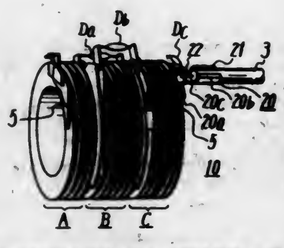
Ken Tanimura, Tokyo, and Toshio Onodera, Kamakura, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 20, 1979, Ser. No. 68,084

Claims priority, application Japan, Aug. 24, 1978, 53-115842[U]

Int. Cl.³ H02M 7/00; H01F 15/10

U.S. Cl. 363—126 5 Claims



1. A high voltage transformer comprising a magnetic core, a primary winding, a bobbin, a secondary winding of fine wire wound on said bobbin, a relatively heavy lead wire extending out from said secondary winding, a projection of resilient insulating material attached to said bobbin and one end of said secondary winding connected thereto, a diode with two leads and one lead attached to said one end of said secondary winding on said projection, an insulating connector mounted on said bobbin and having one end connected to the other lead of said diode, said connector formed with a longitudinal gap extending lengthwise thereof and being of a size large enough to receive the end of said heavy wire snapped thereinto and said heavy lead wire and said other lead of said diode electrically connected together.

4,271,464

SWITCHING ARRANGEMENT FOR THE INPUT OF INTERRUPT COMMANDS AND THE OUTPUT OF INTERRUPT ACKNOWLEDGMENT FOR COMPUTER SYSTEMS

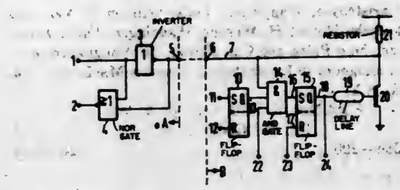
Richard W. MacMillan, Kolbermoor, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 29, 1978, Ser. No. 947,111

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1977, 2744111

Int. Cl.³ G06F 3/04, 9/00

U.S. Cl. 364—200 9 Claims



1. A switching arrangement for a computer system for receiving interrupt command signals and providing interrupt acknowledgment signals over a common line having a single input/output terminal, said switching arrangement comprising:

an interrupt generator including an input for receiving an interrupt command signal of a first logic level, an inverter for inverting the interrupt signal to a second logic level, a first output connected to said single input/output terminal of the common line, and a second output;

a controllable switch connected to the common line and including an input; and

an interrupt command logic including an input connected to the common line to receive the second logic level, control inputs for receiving control signals to switch through the second logic level, and an output connected to said input of said controllable switch for causing operation of said controllable switch to place an interrupt acknowledgment signal of the first logic level on the common line and at said single input/output terminal,

said interrupt generator further including a gate having a first input connected to said input of said interrupt generator, a second input connected to said single input/output terminal of the common line and an output for providing an output signal in response to the interrupt command and interrupt acknowledgment signals.

4,271,465

INFORMATION HANDLING UNIT PROVIDED WITH A SELF-CONTROL TYPE BUS UTILIZATION UNIT

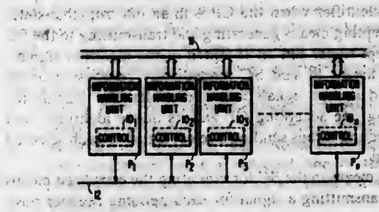
Toshinori Ohtsuka, and Takashi Toyokura, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Oct. 3, 1978, Ser. No. 948,272

Claims priority, application Japan, Oct. 3, 1977, 52-118879

Int. Cl.³ G06F 3/04

U.S. Cl. 364—200 9 Claims



1. An information handling unit comprising:

a bus terminal coupled to a common signal bus for transferring and receiving an information signal to and from said common bus;

an internal signal bus;

an address signal generator generating an own name address signal;

a single control terminal coupled to a single control signal line separate from said common signal bus for transferring and receiving to and from said single control line a control signal indicating non-utilization of said common signal bus by an information handling unit;

a bus available signal generator directly coupled to said single control terminal and generating a bus available signal indicating availability of the common signal bus utilization in response to said control signal received from said single control terminal and when said information handling unit needs to utilize said common signal bus;

a gate coupled between said address signal generator and said bus terminal, said gate transferring said own name address signal to said bus terminal in response to said bus available signal generated by said bus available signal generator;

a transfer line connected to said bus terminal and transferring a name address signal received at said bus terminal;

a comparison means coupled to said address signal generator and said transfer line for comparing said own name address signal with said name address signal received via said transfer line;

means for generating a grant signal indicating grant of the common signal bus utilization in response to the result of a comparison in said comparison means; and

a control signal generator generating the own control signal indicating non-utilization of said common signal bus by the own information handling unit when said grant signal is not generated, the output of said control signal generator being directly coupled to said single control terminal, whereby said single control signal line always indicates utilization or nonutilization condition of said common signal bus by any information handling unit, and said bus available signal generator always detects the condition of said single control signal line.

4,271,466

DIRECT MEMORY ACCESS CONTROL SYSTEM WITH BYTE/WORD CONTROL OF DATA BUS

Mitsuru Yamamoto, Kawasaki; Jun Arai, Yokosuka; Takao Isegawa, and Izumu Hasebe, both of Yokohama, all of Japan, assignors to Panafacom Limited

Continuation-in-part of Ser. No. 658,854, Feb. 19, 1976, abandoned. This application Nov. 21, 1978, Ser. No. 962,647

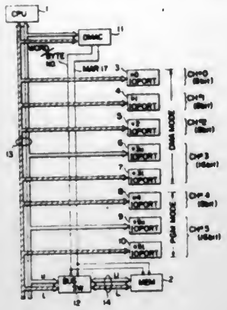
Claims priority, application Japan, Feb. 20, 1975, 50-21242; Feb. 20, 1975, 50-21243; Feb. 20, 1975, 50-21244; Feb. 20, 1975, 50-21245

Int. Cl.³ G06F 13/00

U.S. Cl. 364—200 21 Claims

1. A direct memory access control system comprising at least a central processing unit, a plurality of input/output control ports, and a memory, said central processing unit and said plurality of input/output control ports being connected to a data bus, said plurality of input/output control ports being directly accessible to said memory, said memory being capable of storing and providing data in a selectively designated one of several predetermined formats including word unit transfer and byte unit transfer, said word unit comprising upper byte information and lower byte information, said system further comprising a direct memory access control unit for supplying a word/byte designating signal and a signal designating a byte position at the time of byte designation, and a bus switching unit connecting said memory to said data bus, and connected to said direct memory access control unit for receiving therefrom said word/byte designating signal and said signal designating a byte position, and responsive thereto for controlling direct access to said memory by alternately providing said upper byte information and said lower byte information in said word unit

when said byte unit transfer is selectively designated, and by providing said upper byte information and said lower byte information when said word unit transfer is selectively designated.

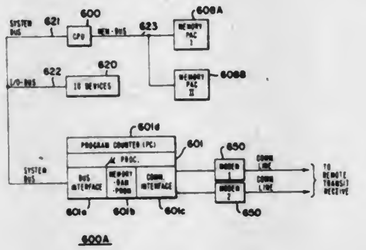


4,271,467

I/O PRIORITY RESOLVER

Thomas O. Holtey, Newton, Mass., assignor to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 2, 1979, Ser. No. 477
Int. Cl.[3] G06F 9/18
U.S. Cl. 364—200 4 Claims



1. A communication subsystem having a microprocessor and a plurality of communication lines coupled to a U-bus, an M-Bus coupled to said U bus, at least one memory coupled to said M-bus, and I-bus coupled to said U-bus, a plurality of registers coupled to said I-bus, and a priority resolving mechanism coupled to said microprocessor and said communication lines for resolving priority of requesting signal generated by said microprocessor and said plurality of communication lines for requesting access to said at least one memory, said priority resolving mechanism comprising:

(a) first means for storing first channel nunber signal indicative of said microprocessor or one of said communication lines being currently accessing said at least one memory;

(b) programmable read only memory means with a predetermined number of address locations for storing second channel number signals indicative of a next of said microprocessor or one of said communication lines to access said at least one memory, wherein address terminals of said programmable read only memory means are coupled to said microprocessor, said communication lines and said first means for receiving said requesting signals as address signals for addressing one of said predetermined number of address locations;

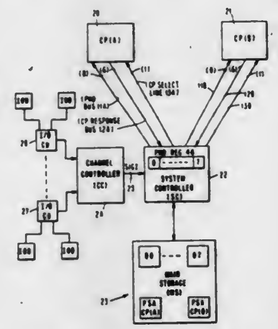
(c) third means coupled to said programmable read only memory means for receiving said second channel signals from said one of said predetermined address locations for storage in said first means when said currently operating microprocessor or said one of said communication lines has finished accessing said at least one memory.

4,271,468

MULTIPROCESSOR MECHANISM FOR HANDLING CHANNEL INTERRUPTS

Neal T. Christensen, Wappingers Falls; William C. Van Loo, Poughkeepsie; Robert H. Werner, Wappingers Falls; Joseph A. Wetzel, New Paltz, and Carl Zeitler, Jr., Poughkeepsie, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Nov. 6, 1979, Ser. No. 91,902
Int. Cl.[3] G06F 15/00
U.S. Cl. 364—200 26 Claims



1. I/O interrupt handling means in a multiprocessor system including a shared main storage (MS), plural central processors (CPs), at least one input/output processor (IOP) capable of communicating plural levels of pending I/O interrupt requests (I/O IRs), each I/O IR requiring execution of an interruption handling program by any one of said plural CPs, and a system I/O interrupt controller in a system controller (SC), the I/O interrupt handling means comprising

an I/O interrupt pending register associated with said SC and having a plurality of positions respectively settable by plural levels of I/O IRs from the IOP, said positions each providing an empty/non-empty state signal for a respective queue in MS, each queue containing I/O IRs associated with a given I/O IR level,

broadcast means connecting the outputs of the positions of the pending register to each of the CPs,

accepting means in each CP connected to the broadcast means for accepting a highest-priority-unmask non-empty state position from the broadcast means as an accepted queue identifier when the CP is in an interruptable state, the accepting means generating and transmitting to the SC an accept signal and an accepted queue identifier signal,

selecting means in said SC immediately responsive to all received accept signals and queue identifier signals for selecting one accepting CP and its queue identifier, and the selecting means sending a select signal to each selected CP, and

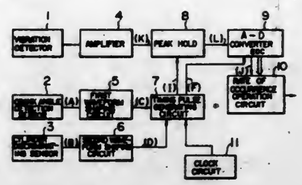
inhibiting means in the SC for inhibiting the broadcast means from transmitting a signal for each pending register position associated with each selected queue identifier to all CPs except the CP selected for the selected queue identifier.

4,271,469

METHOD FOR DETECTING KNOCKING IN INTERNAL COMBUSTION ENGINE

Hisasi Kawai, Toyohashi; Toshimitsu Ito, Toyota; Masakatsu Sanada, Susono, and Kazuo Iwase, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Mar. 28, 1979, Ser. No. 24,772
Claims priority, application Japan, Apr. 24, 1978, 53/49095
Int. Cl.[3] G06F 15/20; G01M 15/00
U.S. Cl. 364—431 4 Claims



3. Apparatus for detecting engine knocking comprising:

means for monitoring vibrations of an internal combustion engine during the rotation of said engine;

means for sampling, during a predetermined interval close to the top dead center position of a piston of said engine, a peak magnitude of said monitored vibrations;

means for counting a predetermined number of rotations of said engine;

means for accumulating said sampled peak magnitude; for said predetermined number of rotations;

means for dividing said accumulated peak magnitude by said predetermined number of rotations to derive an average peak magnitude of vibrations;

means for dividing each of said sampled peak magnitude by said average peak magnitude to derive a magnitude ratio of each of said sampled peak magnitude relative to said average peak magnitude;

means for comparing each of said magnitude ratio with a predetermined reference ratio to produce a comparison output indicative of said magnitude ratio being in excess of said predetermined reference ratio;

means for counting a number of said comparison output;

means for dividing said counter number of said comparison output by said predetermined number of rotations to derive an average counter number; and

means for generating a knock signal indicative of the presence of knocking in said engine when said average counted number exceeds a predetermined value.

4,271,470

SERIAL DATA BUS FOR USE IN A MULTIPROCESSOR PARCEL POSTAGE METERING SYSTEM

Daniel F. Dlugos, Huntington, Conn., and Donald D. Harenberg, Placentia, Calif., assignors to Pitney Bowes Inc., Stamford, Conn. and Rockwell Intl. Corp., El Segundo, Calif.

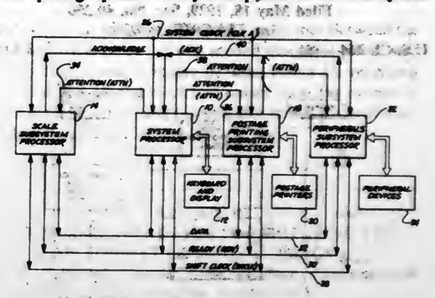
Filed Feb. 21, 1979, Ser. No. 13,757
Int. Cl.[3] G06F 15/20; G06G 19/40
U.S. Cl. 364—466 3 Claims

1. For controlling the transfer of data in a multiprocessor postage metering system including a system processor, a scale subsystem processor for providing scale weight and status data and a postage printing system processor for accepting postage printer setting data and for providing printer status data, a data communications system comprising:

attention lines connecting the system processor to the scale subsystem processor and the postage printer subsystem processor for enabling the system processor to initiate communications with a selected one of the subsystem processors by transmission of an attention signal to the selected processor;

acknowledgement lines connecting the scale subsystem processor and the postage printer system processor to the system processor to enable a selected one of the subsystem processors to acknowledge receipt of an attention signal from said system processor;

ready lines connecting the scale subsystem processor, and the postage printer subsystem processor to the system



processor for conditioning a selected processor to accept data transmitted from another selected processor; and

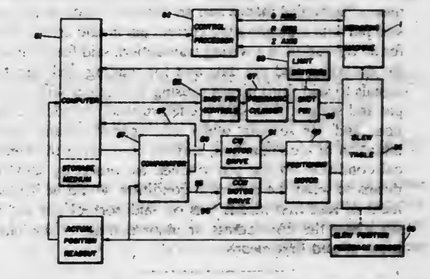
a serial data bus common to all of the processors in the system for carrying data between communicating processors.

4,271,471

METHOD OF OPERATING A REMOTELY CONTROLLED TOOL POSITIONING TABLE

Raymond P. Castner, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 28, 1978, Ser. No. 974,159
Int. Cl.[3] G05D 3/00; B65G 47/96
U.S. Cl. 364—474 8 Claims



1. A method of servicing a steam generator tubesheet with an end effector mounted on the free end of a rotatable slew table cantilevered from a carriage movable along a rotatable arm which rotates in a plane parallel to the tubesheet where the end effector cannot be positioned under all the holes solely by adjusting the positions of said rotatable arm and said carriage on said rotatable arm, said method comprising the steps of:

determining the angle that said cantilevered slew table must make relative to the carriage in order for said end effector to be positioned under a selected hole in the tubesheet;

driving the rotatable arm and the carriage on the arm to a slewing area where said cantilevered slew table can be rotated without interference to said determined angle relative to the carriage;

slewing the cantilevered slew table to said determined angular position; and

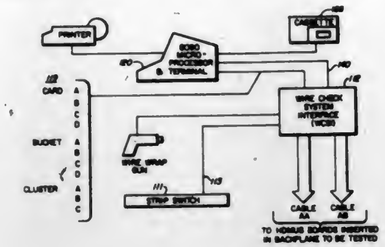
driving the rotatable arm and the carriage to the angular and longitudinal positions respectively that place the said effector under the selected hole taking into account the offset of the slew table.

4,271,472

WIRE WRAP OPERATOR CHECK SYSTEM

Robert C. Saunders; Dean T. Au; W. Ray Williams, and Donald Zarek, all of Phoenix, Ariz., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed May 18, 1979, Ser. No. 40,250
Int. Cl.³ G01R 31/02
U.S. Cl. 364—481 3 Claims



1. A wire check apparatus for verifying correct placement of a wire wrap tool on a pin in an array of wire wrap pins on a logic board comprising:

(a) a first means for wrapping and unwrapping a wire from any pin in said array of pins and for sensing the electrical condition on said pin;

(b) a second means for signalling when said verification is to be made;

(c) a third means for making electrical contact with said pins on said logic board and for subjecting a selectable correct pin in said array to a predetermined electrical condition, said selection of said correct pin being made by selection signals supplied to said third means;

(d) a fourth means connected to said first means, said second means, said third means and an outside source of pin data said pin data indicating the correct pin in said array of pins for an operation in a wiring transaction, said fourth means for decoding said pin data and for sending said selection signals to said third means causing it to select said correct pin and subject it to said predetermined electrical condition, and for sensing when said second means signals initiation of a comparison, and for comparing the electrical condition on the pin touched as sensed by said first means to what the electrical condition would be if placement of said first means was on said correct pin and for signalling the correctness or incorrectness of the placement of said first means.

4,271,473

CONTROL OF PARALLEL OPERATED TURBINES IN COGENERATION

Charles W. Ross, Hatboro, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.

Filed Sep. 27, 1979, Ser. No. 79,278
Int. Cl.³ G06F 15/46; F01D 17/00
U.S. Cl. 364—494 2 Claims

1. A control system for turbines in the utility part of an industrial plant using cogeneration, said control system being operable to control the relative quantities of steam supplied from a plurality of steam turbines to a common steam header which supplies process steam at a predetermined pressure while maintaining the electrical generation from generators connected to and driven by said turbines at a maximum consistent with the maintenance of an adequate control range for a header pressure control on those turbines assigned to maintain header pressure, comprising:

means for measuring header pressure,

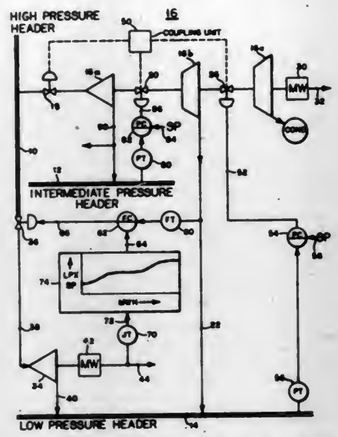
means for controlling a steam flow from a first turbine to the header so as to control the header pressure toward a set point;

means for measuring a quantity indicative of said flow from said first turbine; and

means for controlling the steam flow from another turbine supplying said header so as to maintain a predetermined relationship between the steam flow in said first and said other turbine,

said means including,

a throttle valve for controlling the steam flow to said header through said other turbine,



a function generator receiving as an input a signal indicative of the flow of steam from said other turbine to said header and producing as an output a set point value indicative of the desired flow of steam from said first turbine to said header, and

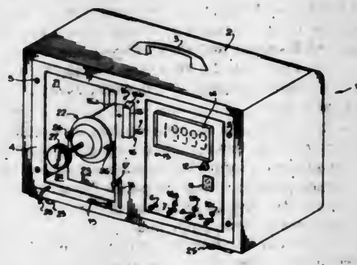
a controller responsive to the difference between said set point value and said measured steam flow from said first turbine for controlling said throttle valve to proportion the flow from said first and said other turbine as determined by the characteristic of said function generator.

4,271,474

APPARATUS FOR DETECTING AND MEASURING THE HYDROGEN CONTENT IN A LIQUID SUBSTANCE

Guy Belanger, and Gilles Mimeau, both of St-Bruno, Canada, assignors to Hydro-Quebec, Quebec, Canada

Filed Nov. 24, 1978, Ser. No. 963,518
Claims priority, application Canada, Sep. 18, 1978, 311484
Int. Cl.³ G01N 27/46
U.S. Cl. 364—500 16 Claims



1. An apparatus for measuring the concentration of gaseous hydrogen dissolved in a liquid substance, comprising:

an electrochemical detection device for determining said concentration of hydrogen in said liquid substance, and generating a current having a value proportional to said concentration; said detection device comprises: first and second electrodes; an electrolyte means, separating said electrodes for causing a reaction of oxidation of the hydrogen diffused through a polymeric membrane at said first electrode, and a reaction of reduction of an oxygen-containing gas at said second electrode so as to generate said current proportional to the concentration of gaseous hydrogen; and a polymeric membrane permeable to hydrogen, separating said liquid substance from said first electrode;

a device connected to said detection device to drain therefrom said liquid substance;

a display device for displaying the concentration detected by said detection device;

a circuit for amplifying a voltage corresponding to said current proportional to said concentration when said current flows through a load resistance mounted across the input of said amplifying circuit;

potentiometers acting on the amplifying circuit for controlling calibration and zero-setting of said display device; and

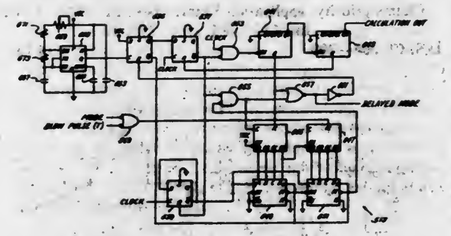
a control circuit for governing the operation sequence of said detection device, said drain device and said display device in accordance with a predetermined operating sequence, said control circuit comprising an oscillator-divider generating a signal corresponding to an adjustable unit time interval of said predetermined operation sequence; a divider receiving said unit time interval signal and feeding a first decoder, said first decoder energizing a display unit displaying a state of said predetermined sequence, and feeding a second decoder defining actuation instants of said drain device and said display device, said second decoder controlling, according to the state of the sequence defined by said divider, the time of setting into memory in said display device of a measure supplied by said detection device, and the time of starting and stopping said drain device said second decoder also generates a signal for blocking said oscillator-divider when said predetermined sequence is terminated.

4,271,475

APPARATUS FOR MEASURING THE FALL HEIGHT OF A PILE DRIVER RAM

Steven L. Sabaldak, Brunswick, Ohio, assignor to Pileco, Inc., Houston, Tex.

Filed May 7, 1979, Ser. No. 36,713
Int. Cl.³ G06F 15/20
U.S. Cl. 364—906 11 Claims



1. An apparatus for providing a digital indication of the stroke of the second of two consecutive blows delivered by a pile driving hammer where each of such consecutive blows produces a discrete sound, the apparatus comprising:

detection means for converting the sound produced by the first of such consecutive blows into a first electrical pulse and for converting the sound produced by the second of such consecutive blows into a second electrical pulse such that the time differential between said first and second electrical pulses is substantially equal to the time differential between the first of such consecutive blows and the second of such consecutive blows, said detection means including an output at which said first and second electrical pulses are provided;

computing means for calculating the value of x where

$$x = 4.01\ t^2 - 0.3$$

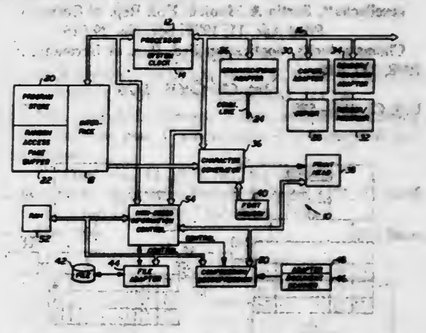
and where t is the time differential in seconds between the first electrical pulse and the second electrical pulse, said computing means including (i) input means for receiving the first and second electrical pulses from the output of said detector means and (ii) indicator means for providing a digital indication of x.

4,271,476

METHOD AND APPARATUS FOR ROTATING THE SCAN FORMAT OF DIGITAL IMAGES

Jeffrey B. Lotspiech, Boulder, Colo., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 17, 1979, Ser. No. 58,321
Int. Cl.³ G06F 15/20; H04N 5/02
U.S. Cl. 364—515 20 Claims



1. A machine implementable method of changing the direction of scan of a digital image comprising the steps of:

storing a digital image having a first scan direction;

logically dividing the digital image into a plurality of sections;

removing the sections from the digital image, one at a time;

changing the scan direction of each section upon removal from the digital image, the scan direction being changed from the first scan direction to a different second scan direction; and

combining the sections into the digital image having the second scan direction.

4,271,477

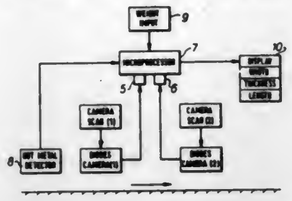
DETERMINING THE DIMENSIONS OF WORKPIECES

Gerald B. Williams, Port Talbot, Wales, assignor to British Steel Corporation, London, England

Filed May 21, 1979, Ser. No. 41,072
Claims priority, application United Kingdom, May 17, 1978, 20208/78
Int. Cl.³ G01B 11/04
U.S. Cl. 364—563 22 Claims

10. Apparatus for measuring the width and/or thickness of a workpiece comprising a pair of imaging devices located at two positions displaced perpendicularly, from the workpiece and laterally with respect to each other, said imaging devices being disposed so as to avoid obstruction of one of the images by the other image, the devices being focussable to provide images of a width plan of the workpiece, means for producing electrical signals representative of the image widths apparent at these

positions, means for processing said signals to provide signal components having the apparent widths in product and differ-



ence terms, and means for determining from the components the actual width and/or the thickness of the workpiece.

4,271,478

METHOD AND APPARATUS FOR MEASURING THE TRANSMISSION CHARACTERISTICS IN ELECTRICAL COMMUNICATION SYSTEMS

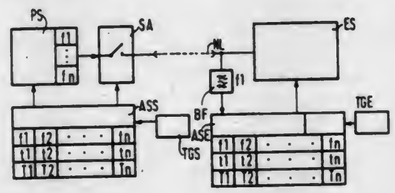
Helmuth Fink, Munich, and Karel Van der Gucht, Deisenhofen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,015

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1978, 2817646

Int. Cl.³ G06F *15/20*

U.S. Cl. 364—580 **7 Claims**



1. A method for measuring the characteristics of a transmission line in electrical communication systems, comprising the steps of, consecutively producing in a transmitter individual frequencies (f_1 through f_n) as measuring signals which are different in frequency, supplying said signals to the transmission line and emitting said consecutively produced individual frequencies (f_1 through f_n) according to a predetermined time program, receiving said emitted signals at the receiver, filtering out at least one of said received individual frequencies and using the time of arrival of said one selected individual frequency as a start signal from which a time program is initiated at the receiver which has the same time arrangement as the time program for the transmitting of the frequencies at the transmitter and measuring the transmission characteristics at the receiver for the individual frequencies (f_1 through f_n) according to the time program at the receiver.

4,271,479

DISPLAY TERMINAL WITH MODULARLY ATTACHABLE FEATURES

Harry Chesolka, Saugerties; William F. Nemecek, Kingston, and Dean A. Stockwell, Albany, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 20, 1977, Ser. No. 844,151

Int. Cl.³ G06F *9/18*

U.S. Cl. 364—900 **10 Claims**

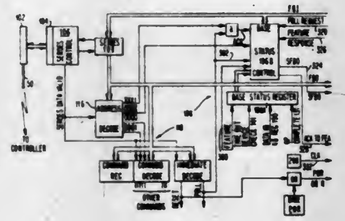
1. A display terminal including a base unit and feature units electrically attached to said base unit,

said base unit comprising a display and being characterized by having, within said base unit,:

an input-output interface for connection to a controller external to said terminal,

a bus-out and a bus-in connected to the interface to receive commands and data from said controller and to transmit data to said controller,

decoder means connected to said bus-out responsive to commands from the controller on said bus-out variously according to whether they are one of a plurality of classes, one of the classes being a general poll directed to the base and feature units in common, and another of said classes being characterized by containing a base or feature address,



base status means to indicate operative conditions in said base unit,

and base priority means responsive to said base status means and to status of said feature units, said priority means acting to register said operative conditions for first establishing an order of priority of resulting status within said base unit and, as a function of that status, to proceed in the absence of that base status to examine status of said feature units as a group, said bus-out and bus-in extending to said feature units to comprise electrical attachment of said base unit thereto.

4,271,480

APPARATUS ENABLING THE TRANSFER OF DATA BLOCKS OF VARIABLE LENGTHS BETWEEN TWO MEMORY INTERFACES OF DIFFERENT WIDTHS

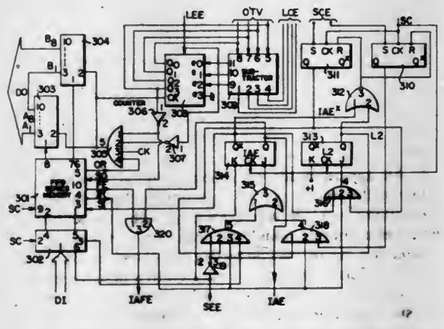
Daniel Vinot, Sucy-en-Brie, France, assignor to Compagnie Internationale pour l'Informatique CII-Honeywell Bull, Paris, France

Continuation of Ser. No. 753,493, Dec. 22, 1976, abandoned. This application Apr. 14, 1978, Ser. No. 896,189

Claims priority, application France, Dec. 31, 1975, 75 40362

Int. Cl.³ G06F *3/00, 13/00*

U.S. Cl. 364—900 **14 Claims**



1. Apparatus for transferring data words between a first external device and a second external device, the two external devices having respective interfaces which transfer data in

data word blocks having respective different numbers of data words each, said apparatus comprising:

a source of clock pulses;

an apparatus ready output (IAE) for indicating when said apparatus is ready to receive new input data from one of the external devices;

an apparatus input (SEE) for receiving a signal indicating input data (DI) is available from said one of the external devices;

a series first-in-first-out (FIFO) memory type, said FIFO memory having a plurality of registers and operable when a data word is entered in its first register to transfer the data word to its last register, and operable to transfer each subsequently entered data word to a register which precedes the register in which the last word was entered;

a first storage means having a storage capacity of m data words and adapted for connecting to said one of the external devices for receiving and temporarily storing successive input data blocks of m words each, where m is set to equal the number of data words in each data word block transferred through the interface of whichever external device said first storage means is connected to;

means connecting said first storage means to the input of said FIFO memory for serially entering successive data words in the first register of said FIFO memory from said first storage means;

said FIFO memory having an input ready output (IR) for indicating when said first FIFO register is empty;

control circuitry responsive to said source of clock pulses and arranged, when said apparatus input data available input (SEE) receives a signal indicating data is available, to enable said first storage means for the clocking in of data and, upon a subsequent clock pulse, to enable said FIFO memory to clock in data from said first storage means; and, including control means responsive to said FIFO memory input ready output (IR) indicating the first FIFO register is empty and the external input data available signal (SEE) is not present, to provide an apparatus ready output signal (IAE);

a second storage means having a storage capacity of n data words for serially receiving and temporarily storing successive input data words in response to clock pulses until n data words have been stored, thereby forming output data blocks of n data words, and said second storage means adapted for connection to the other of the external devices for outputting data blocks of n data words to the other external device, where n is set to equal the number of data words in each data word block transferred through the interface of whichever external device said second storage means is connected to;

means connecting the input of said second storage means to the output of said FIFO memory for serially transferring successive data words from the last register of said FIFO memory until n data words have been transferred; and

counting and control circuitry for determining when said second storage means contains n data words ready for output to the other of the external devices, said counting and control circuitry, in such event, inhibiting data output from said FIFO memory and providing an apparatus output data ready output.

4,271,481

MICRO COMPUTERIZED ELECTRONIC POSTAGE METER SYSTEM

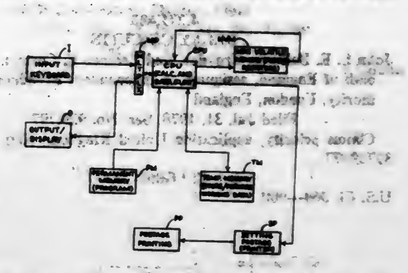
Frank T. Check, Jr., Orange; Alton B. Eckert, Jr., Norwalk, and Joseph R. Warren, Stamford, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Division of Ser. No. 694,813, Jun. 10, 1976, which is a continuation of Ser. No. 536,248, Dec. 23, 1974, Pat. No. 3,978,457. This application Apr. 26, 1978, Ser. No. 900,089

Int. Cl.³ G06F *15/24*

U.S. Cl. 364—900 **15 Claims**

1. In an electronic postage meter including postage printing means and input means for receiving data relating to an amount of postage to be printed, said printing means including a source of data signals corresponding to postage being printed; the improvement comprising integrated circuit digital electronic data processing means physically positioned within said meter



and including storage means for storing postage data and storage means for storing instructions for controlling processing steps for said meter, said processing means being coupled to receive said data and data signals and having an output coupled to control said printer.

4,271,482

DATA PROCESSING SYSTEM WHICH PROTECTS THE SECRECY OF CONFIDENTIAL DATA

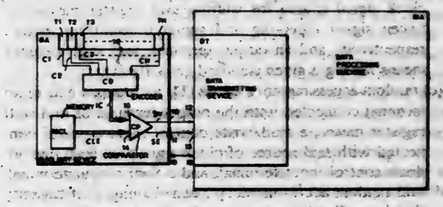
Georges J. L. Girard, Le Vesinet, France, assignor to Compagnie Internationale pour l'Informatique -CII-Honeywell Bull, Paris, France

Filed May 12, 1978, Ser. No. 905,453

Claims priority, application France, May 26, 1977, 77 16098

Int. Cl.³ G06F *7/04*; G06K *7/00*

U.S. Cl. 364—900 **10 Claims**



1. In combination with a data processing system which protects the secrecy of confidential information including a data processing machine with which an operator may carry on a confidental dialogue, the data processing machine being provided with a data transmitting device for communicating with the machine, and said system including an auxiliary device, the auxiliary device having contacts adapted for electrical connection to the data transmitting device, the auxiliary device further having memory means for the permanent storage of a code key for controlling access to the machine and means for comparing this code key with a predetermined confidential code to authorize access to the machine, the improvement comprising said auxiliary device having:

a plurality of key entering contact members entirely separate from the contacts for electrical connection to the data transmitting device of the data processing machine and not connectable to the data processing machine;

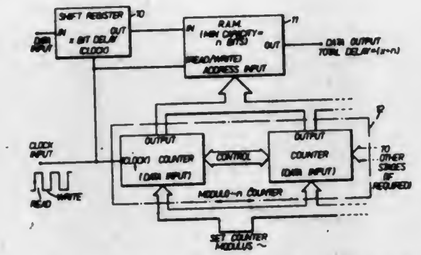
integrated connection means respectively connecting the key entering contact members to the code key comparing means; and

contact means external to said auxiliary device for generating, as a result of external contact with a predetermined number of said key entering contact members, a set of basic items of information to form said predetermined confidential code for comparison with said code key;

whereby surreptitious detection of the basic items of infor-

mation by monitoring the electrical connection between the auxiliary device and the date transmitting device is prevented.

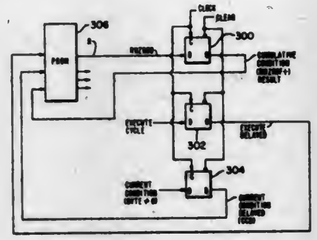
4,271,483
DELAY CIRCUITS
John L. E. Baldwin, Croydon, and Terence E. Corbyn, London, both of England, assignors to Independent Broadcasting Authority, London, England
Filed Jul. 31, 1978, Ser. No. 929,797
Claims priority, application United Kingdom, Aug. 4, 1977, 32769/77
Int. Cl.³ G06F 13/00
U.S. Cl. 364—900 2 Claims



1. Digital delay apparatus for delaying digital signals by a fixed time equivalent to x+n bits of information, comprising
(a) a source of clock signals;
(b) shift register means (10) including a data input terminal adapted for connection with a digital signal source, a clock input terminal adapted for connection with said clock signal source for shifting said register means between signal receiving and signal transmitting modes, respectively, and an output terminal, said shift memory means having a given standard capacity (x);
(c) random access memory means (11) including a data input terminal connected with the output terminal of said shift register means, a read/write control input terminal connected with said source of clock signals, at least one address control input terminal, and a final output terminal, said random access memory means having a bit capacity that is small relative to that of said shift register means; and
(d) addressing means (12) including a variable modulus counter connected with said address control input terminal for controlling the address locations of information stored in said random access memory means, said variable modulus counter having a clock input terminal connected with said source of clock signals, and a data input terminal for setting the counter modulus to a desired delay value (n), said random access memory means and said addressing means being operable by said clock signals to cause the total delay of the output signal appearing at the output terminal of said memory means to equal the sum of the storage capacities of said shift register means and the set delay capacity of said random access memory means.

4,271,484
CONDITION CODE ACCUMULATOR APPARATUS FOR A DATA PROCESSING SYSTEM
Arthur Peters, Sudbury, and Virendra S. Negi, Pepperell, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.
Filed Jan. 3, 1979, Ser. No. 841
Int. Cl.³ G06F 11/30
U.S. Cl. 364—900 11 Claims

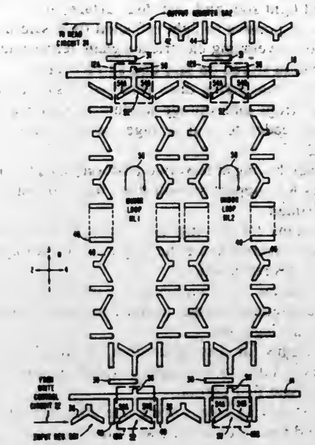
1. Apparatus for signalling the generation of predetermined condition codes in a data processing system, said apparatus comprising:
A. first means for receiving a first signal having either a first state or a second state indicative of a predetermined condition code;
B. second means for receiving a cycle timing signal;
C. first storage means having a plurality of inputs and an output;
D. second storage means having an input and an output, said input of said second storage means coupled to said output of said first storage means and said output of said second storage means coupled to a first of said inputs of said first storage means;
E. means for coupling said first and second means for receiving to a second and third of said inputs respectively of said first storage means;



F. third means for receiving a clock signal;
G. means, included in said first storage means and responsive to the receipt of said clock signal and said cycle timing signal, as indicated by said third and second means for receiving, respectively, for supplying a signal at the output of said first storage means to cause the state of said second storage means to be set to the state of said first signal; and
H. means also included in said first storage means for inhibiting a change in state of said second storage means when said second storage means is set to the second state of first signal, whereby said second storage means provides an indication of the past occurrence of said predetermined condition code.

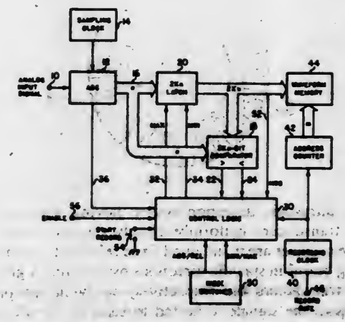
4,271,485
BUBBLE DOMAIN STORAGE USING IMPROVED TRANSFER SWITCH
George S. Almasi, Katonah; Wilhelm E. Bogholtz, Wappingers Falls, and George E. Keefe, Montrose, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 709,388, Jul. 28, 1976, abandoned. This application Aug. 28, 1978, Ser. No. 937,612
Int. Cl.³ G11C 19/08
U.S. Cl. 365—16 24 Claims

15. A transfer switch for selectively moving magnetic bubble domains in two different directions in a magnetic medium, comprising:
propagation means for moving bubble domains along paths which define a Y, one propagation path being from one arm of the Y to and along the other arm of the Y, and a second propagation path being from one arm of said Y to and along the stem of said Y, where the angle α between the propagation paths along the arms of the Y is greater than 0° but less than 180°, and the angle β between a propagation path along one arm of the Y and a propagation path along the stem of the Y is greater than 90° but less than 180°,
current-carrying conductor means for producing a potential well along the stem of said Y and below the intersection of the paths along the arms of the Y in order to determine whether said bubble domains follow said first or second path through said transfer switch, said current carrying conductor being located between said magnetic medium and said Y propagation means and having a width less than the length of the stem of said Y propagation means,



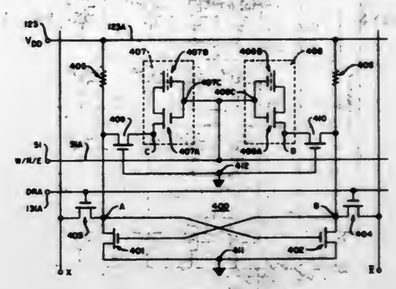
means for producing a reorienting magnetic field for moving said domains along said propagation means while said potential well is being produced.

4,271,486
WAVEFORM STORAGE SYSTEM
Thomas P. Dagostino, Portland, and Lois J. Navarro, Beaverton, both of Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.
Filed Jul. 30, 1979, Ser. No. 61,720
Int. Cl.³ G11C 13/00
U.S. Cl. 365—45 10 Claims



1. A waveform storage system, comprising:
a waveform memory;
means for converting an analog signal to successive digital data representative of instantaneous signal values at a predetermined first rate;
means for receiving said successive digital data from said conversion means and detecting therefrom digital data representative of maximum signal deviation values occurring over an interval determined by a second rate; and
means for storing said detected digital data in said waveform memory at said second rate,
wherein said first rate is greater than or equal to said second rate.

4,271,487
STATIC VOLATILE/NON-VOLATILE RAM CELL
Donald G. Craycraft, Spring Valley; George C. Lockwood, Dayton, and Darrel D. Donaldson, Kettering, all of Ohio, assignors to NCR Corporation, Dayton, Ohio
Filed Nov. 13, 1979, Ser. No. 93,780
Int. Cl.³ G11C 11/40
U.S. Cl. 365—189 6 Claims

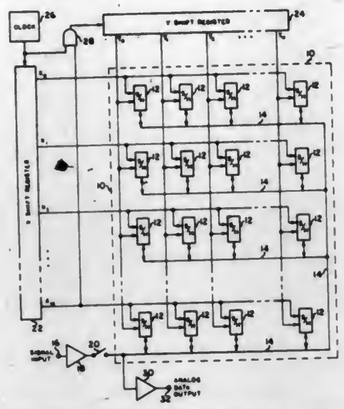


1. A memory cell having both volatile and non-volatile binary data storage capability comprising a bistable multivibrator having selectable first and second stable, volatile operating states and including a pair of output terminals having voltages thereon representing the operating state thereof and a pair of non-volatile, threshold-alterable capacitors each coupled to an associated one of said output terminals with its gate electrode independent of said associated output terminal and adapted to receive write, restore and erase voltage signals, said multivibrator being constructed with low supply voltage, n-channel SIS device technology and further comprising a pair of field effect transistor of a depletion or enhancement type each coupled between one of said non-volatile capacitors and an associated output terminal to form a pair of nodes therebetween, the gates of said transistors being adapted to receive a prearranged bias voltage such that, upon receipt by said gate electrodes of said non-volatile capacitors of a write voltage signal at least several times greater in magnitude than said supply voltage, the voltage on one of said pair of nodes bootstraps to a magnitude substantially greater than said supply voltage, thereby providing effective channel shielding in the associated non-violatile capacitor while isolating said bootstrapped voltage from said output nodes.

4,271,488
HIGH-SPEED ACQUISITION SYSTEM EMPLOYING AN ANALOG MEMORY MATRIX
Charles L. Seitz, Beaverton, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Apr. 13, 1979, Ser. No. 29,887
Int. Cl.³ G11C 13/00
U.S. Cl. 365—230 8 Claims

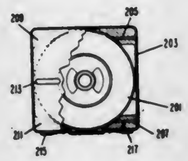
1. A high-speed acquisition system, comprising:
analog signal input means and analog output means;
an analog bus coupled to said input means and said output means;
a plurality of analog memory means disposed in M rows and N columns, said analog memory means being coupled to said analog bus; and
means for activating said analog memory means in a predetermined manner to provide store and readout operations, said means for activating said analog memory means comprising an X shift register having M outputs and a Y shift register having N outputs, M row control lines connected to the outputs of said X register, N column control lines connected to the outputs of said Y register, and means for operating said X shift register at at least one predetermined rate and for operating said Y shift register at a rate 1/M times the rate at which said X register is operated.

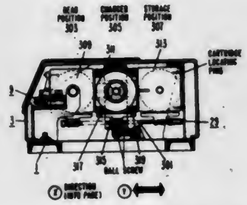
wherein said row and column control lines form an M×N matrix of electrical intersections each of which corresponds to an analog memory means, each of said analog



memory means being connected to both a predetermined row control line and a predetermined column control line for activation thereby.

4,271,489
OPTICAL DISC PLAYER SYSTEM
Bohdan W. Siryj, Cinnaminson, and Alan P. Gilson, Collingswood, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed May 23, 1979, Ser. No. 41,583
Int. Cl.[3] G11C *13/04*
U.S. Cl. 369—38 4 Claims





1. In a data storage system for optically reading information stored on an optical disc, a high speed storage and retrieval apparatus, comprising:

a storage module, including:

a. a stationary storage structure having a plurality of storage locations along the length thereof; and

b. a plurality of discs having information stored therein, each of said discs being enclosed in a protective cartridge, said protective cartridge being arranged in said storage locations of said storage structure;

a reader, including:

a. means for providing a beam of coherent light;

b. means for placing one of said protective cartridges having one of said discs enclosed therein in a reading position of said reader;

c. means for focusing said light beam to a spot on a surface of said disc in said reading position;

d. means for establishing relative motion between said focused light spot and said disc surface; and

e. means, responsive to light reflected from said disc surface, for developing electrical signals representative of information stored on said disc surface; and

a changer for transferring discs enclosed in said protective cartridges from said storage module to said reader and from said reader to said storage module, said changer including:

a. a carriage having at least two positioning and retracting carriers for supporting said discs being transferred by said changer

b. first means for driving said carriage such that said carriage traverses along the length of said storage module to a desired position;

c. second means for driving one of said at least two carriers in a direction normal to the direction of movement of said carriage; and

d. third means for driving another of said at least two carriers in a direction parallel to the direction of movement of said first carrier;

e. said first driving means being operated simultaneously with said second driving means when said one of said at least two carriers is not supporting a disc and with said third driving means when said another of said at least two carriers is not supporting a disc.

4,271,490
ULTRASONIC DETECTION SYSTEM
Kiyomi Misohara; Akira Sugiyama; Hiroshi Nakai; Masajiro Iida; Hideharu Morimatsu, and Yuzo Kobayashi, all of Nishinomiya, Japan, assignors to Furuno Electric Co., Ltd., Nagasaki, Japan
Filed Dec. 12, 1978, Ser. No. 968,710
Claims priority, application Japan, Dec. 16, 1977, 52-152195
Int. Cl.[3] G01S *3/86*
U.S. Cl. 367—122 17 Claims

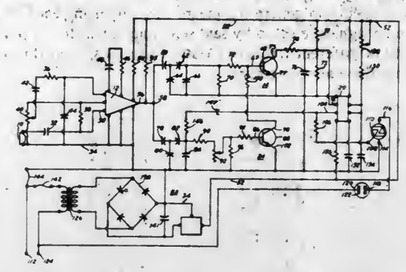


1. In an ultrasonic detection system having a plurality of ultrasonic transducers uniformly closely disposed such that their active surfaces are maintained fixed relative to each other for forming beams in specific directions by selecting a group of ultrasonic transducers and respectively applying appropriate phase-shifts to the signals to be fed to each of the ultrasonic transducers, the improvement comprising a magnetic or electrically conductive shield between any two adjacent transducers for suppressing sidelobes in said beam pattern.

4,271,491
INTRUDER ALARM SYSTEM
Ronald R. Simpson, 7062 Wolff, Westminster, Colo. 80030
Filed Nov. 20, 1978, Ser. No. 962,243
Int. Cl.[3] G08B *13/00*
U.S. Cl. 367—136 3 Claims

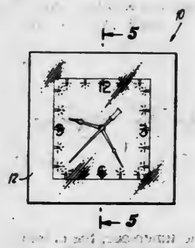
1. In an intruder alarm system which comprises at least one electromechanical transducer means providing electrical signals in response to vibrations incident on said transducer, first amplifier means having an input and an output connected to

receive and amplify signals from the transducer, first detection and storage means responsive to relatively short term signals connected to the output of the first amplifier means and to the input of a second amplifier means having an output, a second detection and storage means responsive to relatively long term signals connected to the output of the first amplifier means and



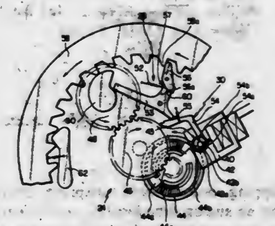
to the input of a third amplifier means having an output connected to alter the signal response of said second amplifier means to effectively subtract the relatively long term signals from the output of said second amplifier means and alarm means connected to said output of said second amplifier means and responsive to the relatively short term signal output to indicate an alarm condition.

4,271,492
SOUND ACTUATED CLOCK-MIRROR
Anthony M. Battista, 2126 Pierce St., Hollywood, Fla. 33020
Filed Jan. 17, 1980, Ser. No. 112,728
Int. Cl.[3] G04B *47/00, 19/30*
U.S. Cl. 368—10 10 Claims



1. A sound actuated clock-mirror comprising, in combination, peripheral housing having front and back ends, a partially silvered flat mirror secured to and enclosing the front end of said housing, a flat clockwork support panel fixed within said peripheral housing in spaced relation with respect to said half-silvered mirror, a clockwork supported by said support panel and having its hands located within the space between said clockwork panel and said half-silvered mirror for reading against the inner surface of said support panel and for selective observation through said mirror, electrical lighting means within the space between said half-silvered mirror and said clockwork support panel, and an energization circuit for said electrical lighting means, said energization circuit comprising a sound-actuated electronic switch for selectivly energizing said lighting means upon the creation of a pre-determined sound.

4,271,493
ELECTRONIC TIMEPIECE
Munetaka Tamaru, No. 22-18, 2-chome, Kami, Sugenami-ku, Tokyo, and Toshikazu Hatase, No. 23-15, 4-chome, Shibaura-bo-cho, Tanashi-shi, Tokyo, both of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 883,576, Mar. 4, 1978, abandoned. This application Jan. 19, 1979, Ser. No. 50,109
Claims priority, application Japan, Mar. 8, 1977, 52/24418
Int. Cl.[3] G04B *19/24*
U.S. Cl. 368—28 4 Claims



1. In an electronic timepiece powered by a battery and having a first display device to provide a display of current time information and a second display device to provide a display of additional information other than said current time information, the improvement comprising:

an oscillator circuit providing a relatively high frequency signal;

a frequency divider circuit responsive to said relatively high frequency signal to provide a plurality of low frequency signals;

a control circuit responsive to said plurality of low frequency signals to provide an output signal, said control circuit being also responsive to said low frequency signals to provide a control signal every 24 hours;

a driver circuit normally responsive to said output signal to provide a first drive signal, said driver circuit being also responsive to said control signal to provide a second drive signal;

an electro-mechanical transducer responsive to said first drive signal to actuate said first display device in one direction to provide said display of current time information, said electro-mechanical transducer being also responsive to said second drive signal to rotate in another direction;

a wheel train driven by said electro-mechanical transducer to actuate said first display device;

an auxiliary driving source drivably connected to said wheel train, said auxiliary driving source including means for accumulating energy by the action of said wheel train;

locking means for normally holding said auxiliary driving source in a locked state, said locking means being released by said electro-mechanical transducer when it is rotated in said another direction in response to said second drive signal, for thereby releasing energy of said auxiliary driving source;

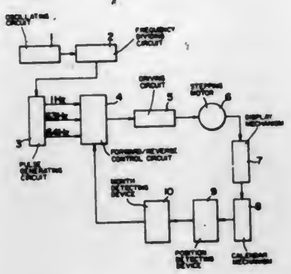
drive means powered by said auxiliary driving source and actuating said second display device when said auxiliary driving source is released by said locking means.

4,271,494

CORRECTING DEVICE FOR CALENDAR IN AN ANALOG TYPE ELECTRONIC WATCH

Joichi Miyazaki, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Oct. 5, 1978, Ser. No. 948,783
Claims priority, application Japan, Oct. 6, 1977, 52/120302
Int. Cl.³ G04B 19/24
U.S. Cl. 368—34 16 Claims



1. A stepping motor driven timepiece, comprising: a stepping motor; an analog time display mechanism driven by said stepping motor; a calendar display mechanism driven by said time display mechanism and including a 31-day date indicating member and a date driving wheel for driving said 31-day date indicating member when said date driving wheel is driven in a forward direction, and said date driving wheel being ineffective to drive said date indicating member when said date driving wheel is driven in a reverse direction; controllable motor driving means including a time standard oscillator for driving said stepping motor and normally operative to drive the time display mechanism and the calendar display mechanism forward at normal time and date advancing speed; and a month change detecting device including means for detecting a month change from an even days month to an odd days month, said month change detecting device including control circuit means cooperative with said calendar display mechanism and said means for detecting a month change for controlling said motor driving means to return said date driving wheel to a starting date advancement position at which said date driving wheel starts to advance at the end of an even days month, for then controlling said motor to rotate at high speed in the forward direction until the date displayed by said date indicating member has rapidly passed through a position displaying the 31st day of the month to a position displaying the first day of the month and said date driving wheel is at an advance completed position, and for thereafter allowing said motor to drive said calendar display mechanism at the normal speed, when the time displayed is normal time.

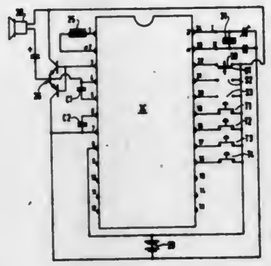
4,271,495

ELECTRONIC CLOCK WITH A CHIME SYSTEM

Bernhard Scherzinger, Esslingen, and Hans Flaig, Schramberg, both of Fed. Rep. of Germany, assignors to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,239
Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850286
Int. Cl.³ G04C 21/12; G04B 47/00; G10F 1/00; G10H 1/02
U.S. Cl. 368—75 12 Claims

1. An electronic clock having a chime system for electronically reproducing predetermined tone signal sequences at predetermined instances in time, comprising:
a source of a standard frequency signal;
a time indicating device operated at a rate corresponding to said standard frequency signal;
a memory circuit having data representing at least one tone signal sequence stored therein;
means for recalling the tone signal sequence data stored in said memory circuit synchronously with real time;
means responsive to said standard frequency signal for producing a plurality of different tone signals;
means responsive to the tone signal sequence data recalled from said memory circuit for selecting certain ones of said plurality of different tone signals;
audio-spectrum generating means for converting each of the tone signals selected by said selecting means into a plurality of different frequency output signals spaced throughout the audio-spectrum;



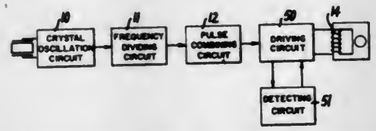
means for mixing said plurality of output signals for each selected tone signal and producing a signal having a voltage representative of the plurality of different frequencies;
means for decaying the voltage signal in accordance with a predetermined function;
means for combining the decaying voltage signals corresponding to the various selected tone signals; and
means for converting the combined signals into an audible signal.

4,271,496

ELECTRONIC WATCH

Masaharu Shida; Akira Toriumi; Makoto Ueda; Masaki Mandai; Katsuhiko Sato, and Kazuhiro Asano, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Apr. 20, 1978, Ser. No. 898,396
Claims priority, application Japan, Apr. 23, 1977, 52-47095
Int. Cl.³ G04B 19/04; G04C 3/00
U.S. Cl. 368—80 5 Claims



3. In an electronic timepiece, the combination comprising:
an oscillator circuit for generating an oscillating time standard signal;
pulse generating means for dividing the time standard signal and for generating output pulse signals comprised of pulses having different pulse widths;
a stepping motor comprised of a stator, a rotor and a coil;
drive circuit means responsive to pulse signals from said pulse generating means for periodically applying electrical driving pulses to said motor coil to rotate said rotor at a normal periodic rate and responsive to a control signal for energizing said motor coil to rotate said rotor at a rate different from the normal periodic rate; and
detecting means for detecting whether or not said rotor had rotated in response to a driving pulse and for applying a control signal to said drive circuit means to control said drive circuit means to energize said motor coil and rotate said rotor at a rate different from said normal periodic rate to indicate that the electrical driving pulse was ineffective to rotate said rotor.

4,271,497

QUADRI-BALANCED DIGITAL TIME DISPLAYS

Berj A. Terzian, 330 Madison Ave., New York, N.Y. 10017

Continuation-in-part of Ser. No. 861,115, Dec. 16, 1977. This application Mar. 13, 1978, Ser. No. 886,121
Int. Cl.³ G04C 19/00, 17/00; G09F 9/00
U.S. Cl. 368—82 32 Claims



18. A quadri-balanced digital time keeping method which comprises:
(a) displaying the digit value of an hour,
(b) displaying during a first portion of the hour, minute digit values in a readout position which trails the displayed hour and which comprises a relatively upper part of that trailing position,
(c) displaying during a second portion of the hour, minute digit values in a readout position which trails the displayed hour and which comprises a relatively lower part of that trailing position,
(d) displaying during a third portion of the hour, minute digit values in a readout position which leads the displayed hour and which comprises a relatively lower part of that leading position; and
(e) displaying during a fourth portion of the hour, minute digit values in a readout position which leads the displayed hour and which comprises a relatively upper part of that leading position.

4,271,498

WATCH

Roberto Zafferri; Ali Schaeiter, and Rene Besson, all of Neuchatel, Switzerland, assignors to Ebauches S.A., Neuchatel, Switzerland

Filed Nov. 7, 1978, Ser. No. 958,408
Claims priority, application Switzerland, Nov. 7, 1977, 13629/77
Int. Cl.³ G04C 21/16; G04B 37/00, 39/00
U.S. Cl. 368—250 20 Claims



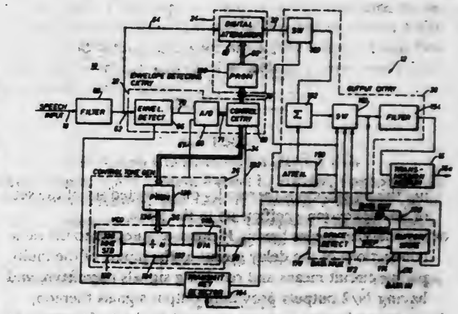
1. A watch comprising:
a casing including a supporting member,
a crystal having a plane and including an edge portion at the periphery of the plane by which the crystal is coupled to the supporting member,
an electro-mechanical transducer coupled to the crystal, and
a resilient annular connecting member coupling the crystal to the supporting member, the connecting member including: A. an outer portion secured to the supporting member, B. an inner portion rigidly connected with the edge portion of the crystal and C. a free portion having a width and thickness and coupling together the outer and inner portions, the free portion having a ratio of its width and thickness sufficient to allow the connecting member to work in flexion so that the crystal is movable perpendicular to its plane and is operable as a vibration transmitting member.

4,271,499

METHOD AND APPARATUS FOR DIGITALLY IMPLEMENTING A LINKED COMPRESSOR-EXPANDER TELECOMMUNICATIONS SYSTEM

J. Howard Levesque, Harper's Ferry, W. Va., assignor to H.F. Communications Corporation, Frederick, Md.

Filed Jul. 12, 1978, Ser. No. 923,959
Int. Cl.³ H04J 3/18
U.S. Cl. 370—7 46 Claims



1. A digital speech modulator for modulating syllables of a speech signal onto a transmission medium, the modulator including a digital compressor circuit comprising:
(a) voltage attenuator circuit means for controllably attenuating a given syllable of the speech signal by a value determined in response to a first plurality of binary input signals;
(b) means for generating said first plurality of binary input signals collectively to be representative of the amplitude variance of said syllable;
(c) control tone generator circuit means for producing a control tone signal where frequency is representative of the amplitude variance of said syllable; and
(d) output circuit means for combining the compressed speech signal and the control tone signal for transmission onto said transmission medium.

4,271,500

DEVICE FOR CONVERTING A NON-UNIFORMLY SAMPLED SIGNAL WITH SHORT-TIME SPECTRUM TO A UNIFORMLY SAMPLED SIGNAL

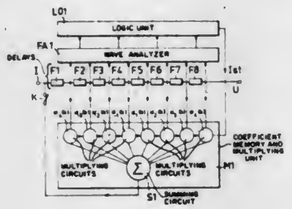
Tore Fjällbrant, Hägersten, pl 67, 430 80 Hovas, Sweden

Filed Feb. 1, 1979, Ser. No. 8,616
Claims priority, application Sweden, Feb. 13, 1978, 7801614; Jan. 19, 1979, 7900408
Int. Cl.³ G10L 1/06; G06G 7/19, 7/30
U.S. Cl. 370—23 5 Claims

1. A device for converting a non-uniformly sampled signal with a short-time spectrum to a uniformly sampled signal, the device comprising:
a delay chain including an input to which the non-uniformly sampled signal is applied, an output from which the uniformly sampled signal is supplied, N number of delay means each having an input and output and providing a time delayed output signal of the signal applied to the

input thereof, the delay means being connected together in series at N number of connections;

a multiplying unit including summing circuit means having inputs and an output for providing an output signal which is the sum of the input signals applied thereto, N number of multiplying circuit means each having an input and output, each input being connected to one connection between the serially connected delay means and receiving a signal therefrom and the outputs being connected to the inputs of the summing circuit means and applying output signals thereto, and store means for storing a plurality of multiplication coefficients sets for use in the multiplying circuit means, the multiplying circuit means for multiply-



ing the signals input thereto by one selected set of the sets of multiplication coefficients in the store;

wave analyzer means having N inputs connected to the same connections of the delay means as the inputs of the multiplying circuit means and receiving signals therefrom, and having N/2 outputs providing output signals thereon;

logic means having inputs connected to the N/2 outputs of the wave analyzer means for outputting a control signal to the store means of the multiplication unit in response to a comparison of the amplitude of the signals output from the wave analyzer means to select one of the sets of multiplication coefficients for use in the multiplying circuit means;

the wave analyzer means providing output signals from the input signals according to the formulae;

$$y_i = \left[\sum_{k=-N/2}^{N/2} x_k \cos\left((|k| - 0{,}5)(i - 0{,}5)\cdot\frac{2\pi}{N}\right)\right]^2 + \left[\sum_{k=-N/2}^{N/2} x_k \sin\left(\frac{k}{|k|}(|k| 0{,}5)(i - 0{,}5)\frac{2\pi}{N}\right)\right]^2$$

where $k \neq 0$ and $1 \leq i \leq \frac{N}{2}$ N for N even and

$$y_i = \left[\sum_{k=\frac{-N+1}{2}}^{\frac{N-1}{2}} x_k \cos\left(k\cdot i\cdot\frac{2\pi}{N}\right)\right]^2 + \left[\sum_{k=\frac{-N+1}{2}}^{\frac{N-1}{2}} x_k \sin\left(k\cdot i\cdot\frac{2\pi}{N}\right)\right]^2$$

where $1 \leq i \leq \frac{N-1}{2}$ for N odd

where x_k with $-N/2 \leqq k \leqq N/2$ are the signals from the N connections of the delay chain, and y_1 through $y_{N/2}$ are the output signals from the wave analyzer means to the inputs of the logic means; and

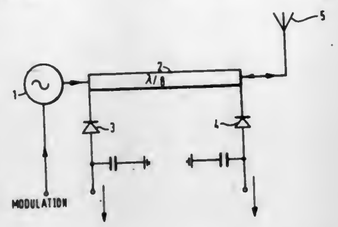
switch means for connecting the output of the summing circuit means to the input of the delay chain when samples are lacking in the non-uniformly sampled signal, to provide the uniformly sampled signal.

4,271,501

SPLITTER/COMBINER NETWORK

Ian A. W. Vance, Newport, and Michael R. Overy, Alton, both of England, assignors to International Standard Electric Corporation, New York, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,744
Claims priority, application United Kingdom, Nov. 14, 1978, 44368/78
Int. Cl.³ H04B 7/24; H04J 15/00
U.S. Cl. 370—24 2 Claims



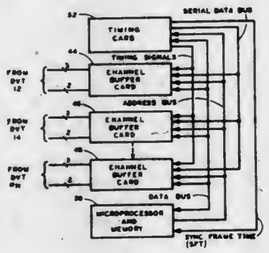
1. A splitter/combiner network for connection between a source of frequency modulated carrier wave signals and an antenna, the network comprising a length of transmission line having a pair of similar diode detectors connected thereto one at each end and with the same polarity with respect to the line the electrical length of which is one eighth of a wavelength at the carrier frequency.

4,271,502

DIGITAL VOICE CONFERENCER

Michel M. H. Goutmann, Fort Washington, and Robert C. Harper, Oreland, both of Pa., assignors to Magnavox Government and Industrial Electronics Co., Fort Wayne, Ind.

Filed Jan. 19, 1979, Ser. No. 50,030
Int. Cl.³ H04M 3/56
U.S. Cl. 370—62 5 Claims



1. Apparatus for digitally conferencing a plurality of voice digitizer signals, each of the signals forming a series of bit sequences each having a predetermined number of bits and a uniquely positioned sync bit therein, each of the sequences being representative of encoded vocal information exchangeable among respective ones of a corresponding plurality of conferees, comprising:

means adapted to receive the digitizer signals for detecting the sync bit, said sync bit being indicative of the beginning of the associated bit sequence;

means connected to said detecting means for commonly aligning said bit sequences within one period of a repetitive time interval, each of said aligned bit sequences being associated with respective ones of the conferees; and

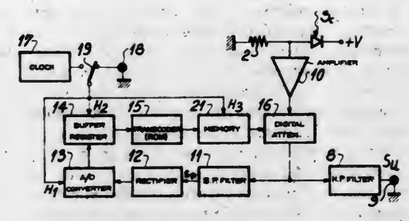
means connected to receive said aligned bit sequences for predeterminedly selecting at least one of said bit sequences during each of said time intervals for distribution to selected remaining ones of the conferees for providing a conference.

4,271,503

AUTOMATIC CONTROL DEVICE FOR A RECEIVER USING A PILOT

Gregoire Esmurian, and Jean-Pol Levan, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 15, 1978, Ser. No. 960,779
Claims priority, application France, Nov. 15, 1977, 77 34240
Int. Cl.³ H04J 1/02
U.S. Cl. 370—74 5 Claims



1. A device for automatically controlling the gain of a receiving channel carrying high-frequency message signals from a transmission path to a load, said message signals being subjected to varying degrees of attenuation in passing over said transmission path and being accompanied by a pilot oscillation of predetermined frequency having a constant amplitude level at the point of origin, comprising:

digitally settable attenuation means in said receiving channel;

filter means connected to said receiving channel for extracting said pilot oscillation therefrom;

rectifying means connected to said filter means for producing a continuous voltage of a magnitude varying with the amplitude of the received pilot oscillation;

an analog/digital converter connected to said rectifying means for translating the magnitude of said voltage into bit combinations; and

transcoding means including a read-only memory connected to said analog/digital converter for emitting predetermined binary words in response to being addressed by said bit combinations, said binary words being fed to a control input of said attenuation means for establishing therein a step-down factor complementing the degree of attenuation experienced on said transmission path.

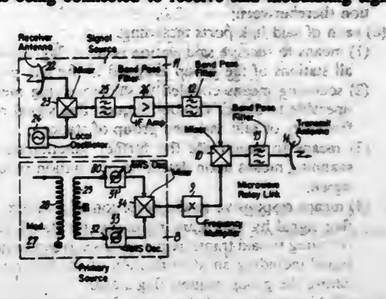
4,271,504

FREQUENCY MODULATORS FOR USE IN MICROWAVE LINKS

Pierre C. Brossard, 9, Rue des Fleurs, Montigny-le-Bretonneux, France (78190), and Jeannine L. G. Henaff, 3 Ter, Place Marquis, Clamart, France (92140)

Continuation of Ser. No. 837,527, Sep. 29, 1977, abandoned. This application Nov. 17, 1978, Ser. No. 961,482
Claims priority, application France, Oct. 7, 1976, 76 30685
Int. Cl.³ H04J 1/04, 1/08, 1/14
U.S. Cl. 370—76 8 Claims

1. A frequency modulator comprising two separate oscillator means having center frequencies separated by a predetermined frequency value, means for controlling each of said oscillator means responsive to a modulating signal applied individually to an input terminal on each of said two oscillator means in opposite phases respectively, first means for mixing output signals from said two oscillator means for delivering a frequency modulated signal centered around a frequency corresponding to said predetermined frequency value, each of said oscillator means including a quadripole ASW (acoustic surface wave) oscillator having a feedback branch extending from an output transducer to an input transducer, said feedback branch including a conventional amplifier means and a voltage controlled variable phase shifter, two input terminals on each of said voltage controlled variable phase shifters, one of said input terminals being connected to receive said modulating signal



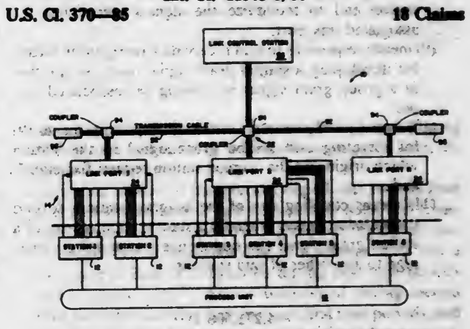
and the other of said input terminals being connected to receive said feedback from said output transducer of said ASW oscillator, and second means for mixing the output of said first mixing means with a source of signals in a microwave telephone transmission system.

4,271,505

PROCESS COMMUNICATION LINK

Robert Menot, North Easton; Robert E. Willard, Foxboro; Paul D. Griess, Medway, and Guy E. Devine, Plainville, all of Mass., assignors to The Foxboro Company, Foxboro, Mass.

Filed Jul. 2, 1979, Ser. No. 54,201
Int. Cl.³ H04J 6/00
U.S. Cl. 370—85 18 Claims



18. In a system for controlling a complex industrial process of the type having a large number of process conditions, such as temperature, fluid flow rate, and so forth, which conditions are to be maintained at respective set point magnitudes alterable in accordance with certain changeable process requirements, said control system comprising a plurality of separate but interactive stations organized in a number of preselected groups, each of said stations developing station request flag signals when communication is required by any of said stations with another of said stations; at least some of said stations being arranged to be coupled to corresponding process control unit means including control units of the type which are responsive to condition measurement signals and are operable to produce control signals for respective process devices such as flow control valves functioning to adjust process variables to maintain corresponding process conditions at selected set-point values;

said process control system further including a process communication link providing communication between any one of said stations developing a request flag signal and a second station to which a message is to be directed by said requesting station; said process communication link comprising:

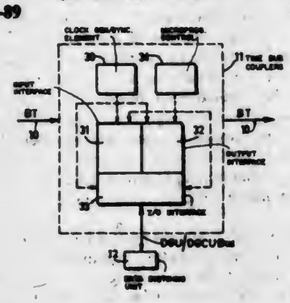
(a) a plurality of link ports each assigned to a corresponding one of said preselected groups of stations;
(b) transmission means interconnecting all of said link ports and including means to provide bi-directional communication therebetween;
(c) each of said link ports including:
(1) means to receive said station request flag signals from all stations of the group assigned to the link port;
(2) scanning means coupled to said receiving means and operable to detect a station request flag signal received from any of said assigned group of stations;
(3) means to deactivate the further functioning of said scanning means upon detection of a station request flag signal;
(4) means responsive to the detection of a station request flag signal by said scanning means for developing and coupling to said transmission means a group request flag signal including an identification of the link port originating the group request flag signal;
(d) a link control coupled to said transmission means and including:
(5) means to receive all of the group request flag signals from said link ports;
(6) scanning means coupled to said receiving means (5) and operable to detect a group request flag signal received from any of said link ports;
(7) means responsive to the detection of a group request flag signal for developing and coupling to said transmission means a group grant signal including an identification of the link port for the station to be granted communication access to said transmission means;
(e) all of said link ports further including:
(8) means coupled to said transmission means to receive all of the group grant signals produced by said link control station and to recognize the signals identifying the associated link port;
(9) means responsive to said receiving a recognition means for developing a station grant signal upon recognition of a group grant signal identifying the associated link port;
(10) means jointly operable with said responsive means (9) for directing said station grant signal to the station which originated the original station request flag signal; and
(11) means coupling any of the assigned stations to said transmission means whereby a station upon receipt of a station grant signal can commence transmitting a message to any other of said stations.

4,271,506

HIGH SPEED DATA SWITCHING NODE

Guillaume Broc, Paris, and Edouard Asseo, Sainte Genevieve des Bois, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 30, 1979, Ser. No. 62,194
Claims priority, application France, Aug. 3, 1978, 78 22966
Int. Cl.³ H04J 3/02
U.S. Cl. 370—89 11 Claims



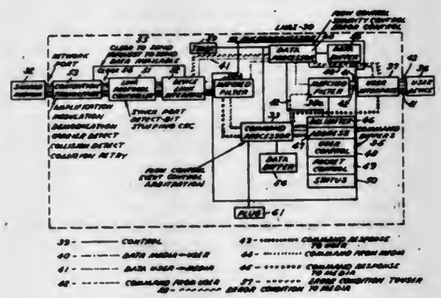
1. A data switching node for switching data originating from a plurality of source data switching units to a plurality of destination data switching units connected by means of time bus connectors to a looped unidirectional time bus wherein the total information carrying capacity ofsaid time bus is time division multiplexed into a plurality of separate data channels comprising data switching control unit means for the connection of said source and destination data switching units, characterized in that the system further comprises means to simultaneously switch data on said time bus between a plurality of said sources and destinations, said switching means being incorporated in said time bus connectors, each of which comprises:
(a) source data storage means for data received directly from source data switching units,
(b) destination address storage means for destination addresses corresponding to said stored source data, said destination address storage being organised in a specified manner corresponding to the sequence in which said source data is to be transmitted on said time bus,
(c) channel storage means wherein the channel numbers and destination addresses corresponding to data channels currently transmitting said source data are recorded, and
(d) destination data storage means whereby data received from said time bus data channels is buffered before transmission to the specified destination data switching unit.

4,271,507

COMMUNICATION BROADCAST CHANNEL INTERFACE

Melvin G. Gable, Ypsilanti; Richard H. Sherman, Plymouth, and Vadivelu Jeyabalan, Ann Arbor, all of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 7, 1979, Ser. No. 46,578
Int. Cl.³ H04J 6/00
U.S. Cl. 370—94 16 Claims



1. A data communication network comprising:
a shared broadcast communication medium for carrying packet switched information;
a plurality of user devices, such as data terminal equipment, for using said communication medium;
a plurality of device interface means for coupling user devices to said communication medium, receiving user information from a user device for assembly into data packets for transmission on said communication medium, receiving data packets from said communication medium for disassembly into data to be transmitted to a user device, each of said interface means having a user port coupled to at least one of said user devices and a network port coupled to said communication medium, and including data transfer means for transmitting and receiving information over said medium; and
each of said interface means including a command means for defining parameters of communication control which determine by their values the packet assembly and disassembly operations, packet addressing functions, type of packet service, start/stop user device characteristics and

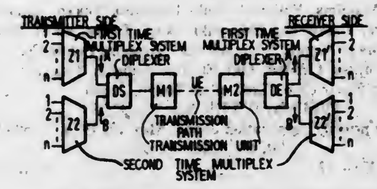
error reporting functions for use in conjunction with a user, said command means being responsive to a plurality of said users for the purpose of altering the parameters of communication control.

4,271,508

METHOD FOR TRANSMITTING DATA

Erwin Schenk, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 18, 1979, Ser. No. 58,554
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832855
Int. Cl.³ H04J 3/06
U.S. Cl. 370—106 4 Claims



1. A circuit arrangement for transmitting data between two time multiplex systems via a common transmission path, comprising: first and second transmitter side time multiplex systems producing binary characters, and first and second receiver side time multiplex systems; a transmitter side diplexer means connected to outputs of the transmitter side first and second time multiplex systems for alternately switching through to the transmission path via a transmission unit frames of binary characters of the first and of the second time multiplex systems, frames of the first system having a first synchronization word and frames of the second system having a second synchronization word; a receiver side transmission unit connected to the transmission path; a receiver side diplexer means connected at an output of the receiver side transmission unit for alternately assigning the binary character frames to the receiver side first and second time multiplex systems, said receiver side diplexer means after recognition of the first synchronization word in one of the receiver side time multiplex systems producing a correct assignment of the binary character frames relative to the first and second receiver side time multiplex system; and
said receiver side diplexer means including means for exchanging the binary character frames being received by the first and second receiver side time multiplex systems when the receiver side second time multiplex system recognizes the first synchronization word.

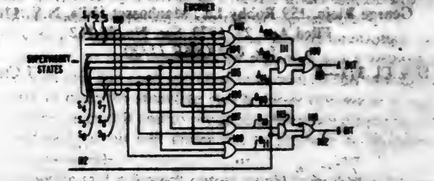
4,271,509

SUPERVISORY SIGNALING FOR DIGITAL CHANNEL BANKS

Stephen J. Brolin, Livingston, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 13, 1979, Ser. No. 57,333
Int. Cl.³ H04J 3/12
U.S. Cl. 370—110 10 Claims

1. In a digital transmission system in which information signals are transmitted as a serial pulse stream and in which regularly recurring time slots of said pulse stream are reserved for supervisory signaling, a supervisory state signaling system characterized by
means for utilizing alternate supervisory time slots to represent one bit position of a two bit position supervisory signaling channel,
means for assigning any one of at least three bit patterns to said one bit position, and



means for combining bit patterns in said alternate and in intermediate supervisory time slots to represent a plurality of distinguishable supervisory states.

4,271,510

SHIFT-REGISTER TRANSMITTER FOR USE IN A HIGH SPEED, LOW NOISE DIGITAL DATA COMMUNICATION SYSTEM

Floyd W. Leuschen, Laguna Beach, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 883,302, Mar. 3, 1978, Pat. No. 4,225,752.
This application Jul. 19, 1979, Ser. No. 58,907
Int. Cl.³ H04J 3/12; H04L 25/45
U.S. Cl. 370—110 8 Claims

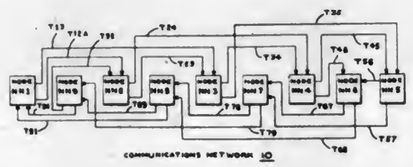


1. In a digital data transmission system for communicating digital data over a plurality of individual transmission lines, the combination comprising:
transmitting means for transmitting digital data over at least first and second ones of said transmission lines, said transmitting means being operative for transmitting digital data over said first transmission line in a manner such that a first type of data is transmitted during first time periods and a second type of data is transmitted during second time periods occurring between said first time periods, and said transmitting means also being operative for transmitting a clock over said second transmission line concurrently with transmission of said first and second types of data over said first transmission line and in a manner such that said clock has a first repetition rate during said first time periods and a second repetition rate during said second time periods;
said transmitting means including shift register means having a plurality of data inputs, at least one data output, a clock input, and a plurality of control inputs, said first and second types of data being applied to said data inputs of said shift register means, said first transmission line being coupled to said data output of said register means, and said clock being coupled to said clock input of said shift register means;
said transmitting means also including transmitter logic means for providing control signals to the control inputs of said shift register means such that said shift register means is operative in response to said clock and control signals to cause said first and second types of data to be serially coupled via the shift register means data output to said first transmission line during respective first and second time periods.

4,271,511
COMMUNICATIONS NETWORK

Solomon Manber, Hoffstot La., Sands Point, N.Y. 11050, and George Klein, 159 Robby La., Manhasset Hills, N.Y. 11040

Filed Apr. 25, 1979, Ser. No. 33,162
Int. Cl.³ G06F 11/20
U.S. Cl. 371—8 7 Claims

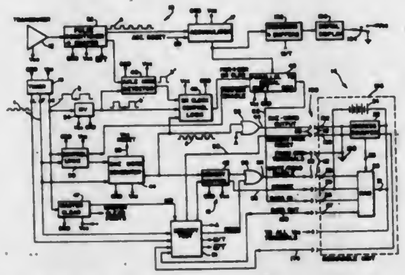


1. A communication network comprising a plurality of nodes, arranged along a looplike path, each of said nodes including a transmitting means for transmitting signals and two receiving means and a signalling means for transferring to the associated transmitting means one kind of signal when signals are received by both associated receiving means and another kind of signal when only one of the receiving means receives a signal, and means for connecting the transmitting means of each node to one of the receiving means of two different successive nodes, said connections being such that each node receives signals from two different nodes remote from it in one direction along the path and transmits signals to two different nodes remote from it in the opposite direction along the path.

4,271,512
INFORMATION COLLECTION AND STORAGE SYSTEM WITH MEMORY TEST CIRCUIT

Arian J. Lyhus, 12416 Hooper Ct., Fulton, Md. 20759

Filed Mar. 30, 1979, Ser. No. 25,489
Int. Cl.³ G01R 31/28
U.S. Cl. 371—21 5 Claims

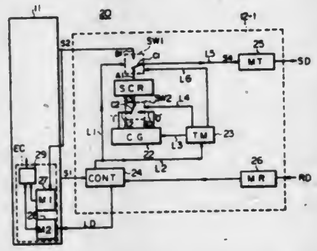


1. In an information recording system having means for supplying a plurality of serially occurring electrical pulses in which the number of said pulses is indicative of certain information, a memory storage unit having an integrated circuit memory containing a plurality of binary storage locations for storing binary data, an electrical circuit, and means providing for the detachable connection of said memory storage unit to said electrical circuit to enable said storage unit to be selectively connected to said circuit and also to be selectively disconnected from said electrical circuit and removed from said information recording system, said electrical circuit being connected to said pulse supplying means and including means for counting said pulses to obtain a pulse count and for writing into said memory binary data resulting from the pulse count, and said memory being capable of storing a pre-selected code before said storage unit is connected to said electrical circuit, the improvement comprising further means forming a part of said electrical circuit and connected to said memory when said unit is connected to said electrical circuit for interrogating the logic bit state in each of said storage locations to determine if the logic states conform to said pre-selected code, and means rendered effective by said interrogating means for signalling an operator of the information recording system whenever the logic state in any one of said storage locations fails to conform to said code.

4,271,513
METHOD AND APPARATUS FOR CARRYING OUT LOOPBACK TEST

Hiroshi Maejima, Fujimi; Noriaki Fujimura, Tokyo; Takahiro Shibuya, Tokyo, and Shigeyuki Akagi, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Public Corporation; Fujitsu Limited; Oki Electric Industry Co., Ltd. and Nippon Electric Co., Ltd., all of Tokyo, Japan

Filed May 9, 1979, Ser. No. 37,383
Claims priority, application Japan, May 19, 1978, 53-59073
Int. Cl.³ G06F 11/00
U.S. Cl. 371—22 15 Claims



1. A method for carrying out a loopback test in a data communication system having a first data communication station, a second data communication station and a transmission path connected therebetween, comprising the steps of:

(a) generating, in order, a first pseudo-random noise signal, a loopback test signal, and a second pseudo-random noise signal in the first data communication station;

(b) transmitting, in order, said first pseudo-random noise signal, said loopback test signal, and said second pseudo-random noise signal from the first data communication station to the second data communication station by way of the transmission path;

(c) receiving, in order, said first pseudo-random noise signal, said loopback test signal, and said second pseudo-random noise signal, at the second data communication station;

(d) detecting the first pseudo-random noise signal at the second data communication station and creating a loopback signal transmission path therein;

(e) transmitting the loopback test signal from the second data communication station to the first data communication station by means of the loopback signal transmission path and the transmission path;

(f) receiving, at the first data communication station, the loopback test signal transmitted from the second data communication station, and comparing the received loopback test signal with the generated loopback test signal;

(g) detecting the second pseudo-random noise signal at the second data communication station, and deactivating the loopback signal transmission path, thereby finishing the loopback test.

4,271,514
LOOPBACK TEST FOR DATA TRANSMISSION PATHS

Karlheinz Parras, Nuremberg; Edgar Bader, Rückersdorf, and Helmut Dupont, Eckental, all of Fed. Rep. of Germany, assignors to Te Ka De, Felten & Guilleaume, Fernmeldeanlagen GmbH, Nuremberg, Fed. Rep. of Germany

Filed Aug. 29, 1979, Ser. No. 70,843
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838816
Int. Cl.³ H04L 1/14
U.S. Cl. 371—22 2 Claims

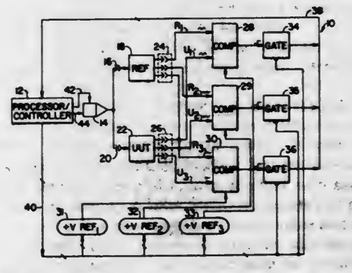


1. In combination with a data transmission path comprising a first and a second station, a first data transmission channel operative for synchronously transmitting data from the first to the second station in synchronism with a predetermined clocking schedule and at a respective first maximum data transmission rate, and a second data transmission channel for asynchronously transmitting data from the second to the first station at a respective second maximum data transmission rate, the first maximum data transmission rate being at least several times higher than the second maximum data transmission rate, a testing system which comprises: means applying to the first station a test waveform for transmission to the second station along said first data transmission channel, the test waveform presenting a data transmission rate at least approximately equal to said first maximum data transmission rate; loopback means at the second station connected to receive the test waveform and applying a return waveform to the second station for transmission to the first station along said second data transmission channel, the loopback means including selector circuit means having an input and an output, the selector circuit means receiving the test waveform at its input and being operative for transmitting to its output only every p-th waveform element of the test waveform, p being at least approximately equal to the ratio of said first to said second maximum data transmission rate, the shortest waveform-element duration of the waveform produced at the output of the selector circuit means at least approximately corresponding to said second maximum data transmission rate.

4,271,515
UNIVERSAL ANALOG AND DIGITAL TESTER

Clyde R. Axtell, III, Sunnyvale, and Richard B. Drabing, Santa Clara, both of Calif., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed Mar. 23, 1979, Ser. No. 23,370
Int. Cl.³ G01R 31/28; G06F 11/00
U.S. Cl. 371—25 11 Claims



1. For use in a comparison-type automatic electronic circuit test apparatus capable of generating stimulus signals having controlled parameters, a method for verifying that analog signals generated by a circuit in a device under test are within specified limits comprising the steps of repetitively:

providing a selected stimulus signal having controlled parameters to input terminals of a known good reference circuit unit and corresponding unknown circuit unit under test in order to stimulate synchronous operation of said reference circuit unit to produce a reference output signal and said circuit unit under test to produce an unknown output signal;

subtracting said reference output signal from said unknown output signal to produce an analog error signal representative of the amplitude difference between said reference output signal and said unknown output signal;

comparing said error signal against a limit window defined by an upper amplitude limit signal and a lower amplitude limit signal;

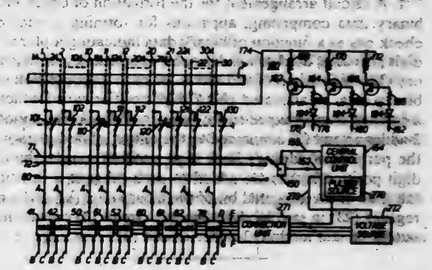
generating a digital level signal of a first state whenever said error signal is within said limit window in response to said stimulus signal and generating a digital level signal of a second state whenever said error signal is outside said limit window in response to said stimulus signal; and

selectively propagating said digital level signal to a digitally responsive apparatus in synchronism with said stimulus signal for indicating the failure of said unknown circuit unit.

4,271,516
AUTOMATIC TESTING OF ELECTRICAL CIRCUITRY

Anthony J. Smith, Penn, England, assignor to Racal Automation Limited, Berkshire, England

Filed Aug. 23, 1979, Ser. No. 69,043
Claims priority, application United Kingdom, Aug. 25, 1978, 34571/78
Int. Cl.³ G06F 11/00; G01R 15/12
U.S. Cl. 371—25 12 Claims



1. Apparatus for the automatic testing of electrical and electronic circuitry, comprising

a base member,

a plurality of contact means mounted in predetermined physical relationship with each other on the base member for making respective and simultaneous contact with predetermined terminals on a circuit to be tested,

a plurality of switching means each connected to a respective one of the contact means and being selectively operable to enable test signals to be applied to at least some predetermined ones of the terminals via the respective contact means and to enable a resultant output signal from at least one predetermined one of the terminals to be picked up by the respective contact means,

test circuit means connected to the switching means for simultaneously applying the test signals to the predetermined ones of the terminals via the selectively operated switching means for a predetermined length of time which is insufficient in relation to the magnitude of the test signals to cause damage to other circuits which may be connected to the terminals of the circuit under test, and

means connected to the switching means for monitoring the

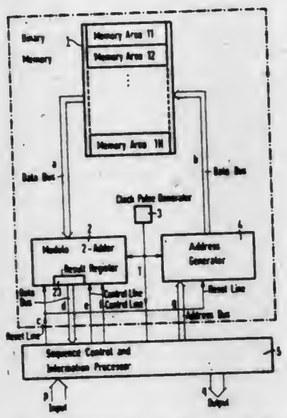
or each resultant output signal to determine whether the circuit under test is operating correctly or not.

4,271,517

CIRCUIT ARRANGEMENT FOR THE FORMATION OF CHECK BITS FOR BINARY DATA

Karl-Heinz Krauss, Planegg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 19, 1978, Ser. No. 971,029
Claims priority, application Fed. Rep. of Germany, Dec. 30, 1977, 2758952
Int. Cl.³ G06F 11/10
U.S. Cl. 371—37 4 Claims



1. A circuit arrangement for the formation of check bits for binary data comprising, apparatus for forming a number of check bits as a function of binary data indicating a plurality of digit positions, used in a linear code, comprising a binary memory (1) which receives and stores for each digit position of the binary data, an allocated check digit position word which has a position number equal to the number of check bits, a modulo-2-adder circuit (2) connected to the output of said memory for the purpose of adding check digit position words, the check digit position words are added to each other as a function of the state of the allocated bit of the binary data (k), and a result register (23) in said modulo-2-adder circuit (2) containing the output of said modulo-2-adder circuit (2).

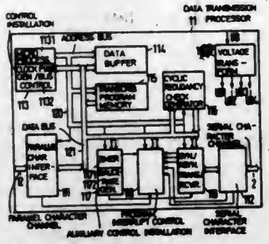
4,271,518

DATA TRANSMISSION/RECEPTION INSTALLATION WITH PARALLEL/SERIAL AND SERIAL/PARALLEL CHARACTER CONVERSION FOR DATA EXCHANGE BETWEEN COMMUNICATING DATA PROCESSING SYSTEMS

Paul Birzele, and Gerhard Geitz, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 23, 1979, Ser. No. 23,306
Claims priority, application Fed. Rep. of Germany, Mar. 28, 1978, 2813383
Int. Cl.³ G06F 11/10
U.S. Cl. 371—37 6 Claims

1. A data transmission/reception installation with parallel/-serial and serial/parallel character conversion for data exchange with an external data processing system comprising: a data transmission processor means for parallel/serial and serial/parallel character conversion arranged with an internal data processing installation within a data processing system, said data transmission processor means being connected between said internal data processing installation and a data modem means terminating a data line for controlling data transmission and/or reception procedure; said data transmission processor means having at least one microprocessor connecting by an address bus to a transcribable program memory, and a cyclic redundancy check generator means connected by a data bus to the transcribable program memory for monitoring a data transmission and/or reception according to a stored test program; a data buffer means having a memory with random access connected by the address bus to the microprocessor for intercepting data back-ups occurring upon data transmission and/or reception; and a timer means connected to the data bus and program interrupt control for generation of procedure supervision times, and a baud-rate generator means connected to the timer means for adjustment of a respectively optimum transmission speed by means of said timer means.

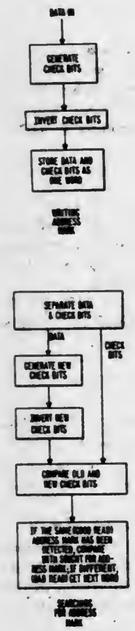


4,271,519

ADDRESS MARK GENERATION AND DECODING METHOD

James B. Hall, Louisville, Colo., assignor to Storage Technology Corporation, Louisville, Colo.

Filed Jul. 26, 1979, Ser. No. 61,028
Int. Cl.³ G06F 11/10, 13/00
U.S. Cl. 371—38 12 Claims



7. Method for generating and detecting an address mark for indicating an end of a data record comprising words,

wherein said method for generating an address mark comprises the step of:

during the writing of a record onto a storage medium, performing a reversible operation on preselected bits of at least one word of said record to generate an address mark and

wherein said method for detecting said mark comprises the steps of:

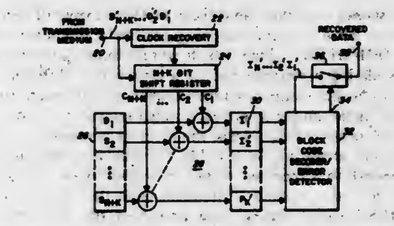
reading each word of a record, performing the reverse of said operation on each word of said record and providing an error signal at all times during the reading of said record except when said address mark is read.

4,271,520

SYNCHRONIZING TECHNIQUE FOR AN ERROR CORRECTING DIGITAL TRANSMISSION SYSTEM

Daniel J. Coombes, Winfield, Ill., and John H. Saugster, Short Hills, N.J., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 25, 1979, Ser. No. 51,938
Int. Cl.³ G06F 11/10; H04L 7/02
U.S. Cl. 371—42 8 Claims



1. In a digital communication system for the transmission and reception of a data bit stream, the improvement comprising:

an encoder for processing said data bit stream, said encoder comprising:

error correction encoder means for receiving said data bit stream and producing an error correctable encoded bit stream corresponding thereto;

encoder storage means having a predetermined sequence of sync bits stored therein, said sync bit sequence being selected to optimize, at the decoder site, detection of an out of sync condition; and

encoder combining means for predeterminedly combining said encoded bit stream with said sync bit sequence to thereby produce a transmission bit stream; and

a decoder for processing said transmission bit stream comprising:

decoder storage means having said predetermined sync bit sequence stored therein;

decoder combining means for predeterminedly combining said transmission bit stream with said sync bit sequence thereby regenerating, for the condition of the decoder being in synchronization with said transmission bit stream, said error correctable encoded bit stream;

data storage means, coupled to the decoder combining means, for storing the regenerated error correctable encoded bit stream;

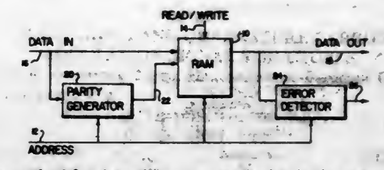
error correction detector means, coupled to the data storage means, for monitoring the contents of the data storage means, thereby monitoring the output of said decoder combining means, and producing a first output, indicative of the decoder being in synchronization with said transmission bit stream, in response to the number of detected errors being less than a predetermined value and producing a second output, indicative of the decoder being out of synchronization with said transmission bit stream, in response to the number of detected errors being greater than or equal to said predetermined value.

4,271,521

ADDRESS PARITY CHECK SYSTEM

Kamal A. Mahmood, El Paso, Tex., assignor to The Anaconda Company, Greenwich, Conn.

Filed Jul. 9, 1979, Ser. No. 55,631
Int. Cl.³ G06F 11/10
U.S. Cl. 371—51 5 Claims



1. A method for detecting errors occurring in the process of writing data words into selected memory locations and reading data from said memory locations comprising;

assigning a parity to each memory location as a function of memory address,

receiving a data word for storing in a preselected memory location,

generating a parity bit for said data word as a function of the parity of said data word and the parity assigned to the preselected memory location,

storing said data word and said parity bit in said preselected memory location,

reading said data word and parity bit stored in said preselected memory location,

detecting the parity of said data word and parity bit, and

comparing the detected parity to the parity assigned to said memory location to determine if an error has been made in either addressing said location or in transferring data.

4,271,522

METHOD OF AND APPARATUS FOR DETERMINING ERRORS READ FROM A MAGNETIC RECORDING MEDIUM

M. Jacques Droux, Montfermeil, France, and Claude R. Cardot, Lexington, Mass., assignors to Compagnie Internationale pour l'Informatique CII-Honeywell Bull, Paris, France

Filed May 25, 1979, Ser. No. 42,299
Claims priority, application France, May 26, 1978, 78 15764
Int. Cl.³ G06F 11/30
U.S. Cl. 371—57 30 Claims

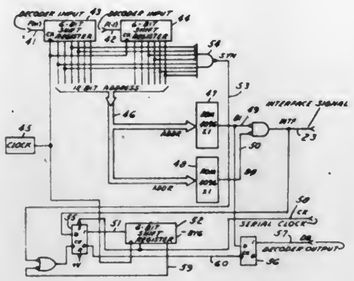


2. A method of determining errors in signals derived from cells of a reference zone read by a transducer for a magnetic recording medium, the transducer normally producing a waveform that exceeds a threshold value in a particular direction only once during each cell, comprising determining whether the waveform derived by the transducer exceeds a threshold determined by the threshold value at an incorrect time during a cell of the reference zone.

4,271,523
CONTENTION INTERFERENCE DETECTION IN DATA COMMUNICATION RECEIVER

Melvin G. Gable, Ypsilanti, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Jun. 7, 1979, Ser. No. 46,579
Int. Cl.³ H04Q 9/00
U.S. Cl. 371—57 5 Claims



1. A synchronous digital data communication receiver adapted to be connected to a communication medium shared by a plurality of other synchronous data communication receivers, said communication receiver having inputs for receiving a plurality of input signals representing input states, each input state being encoded with code redundancy into a unique one of a plurality of canonical forms transmitted over said communication medium, said digital data receiver comprising:

a first coupling means for providing an interfacing connection between said communication medium and said communication receiver;

a clock means for providing a train of pulses having a predetermined spacing;

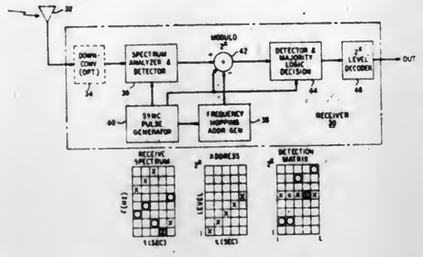
a decoding means coupled to said clock means and said first coupling means for extracting signal information from input signals from said communication medium and providing a decoded output in one of a plurality of output states corresponding to said input states and classifying signals not of canonical form into one of the plurality of output states, such that said one of the plurality of output states has a minimum coding distance between the canonical forms and said input signals and said classified input signals represent an error of a correctible form, the number of said output states being equal to the number of said input states, said decoding means extracting signal information from the code redundancy of said input signals and generating as an output a contention interference detection signal, said contention interference detection signal being derived from unclassifiable ones of said input signals which have a coding distance which is equidistant from all canonical forms, and said unclassifiable input signals represent an error of a noncorrectable form, said decoding means including a means for detecting the presence of an error of a noncorrectible form, and said decoding means including a means for generating a signal identifying contention interference upon detection of an error of a noncorrectable form; and

a second coupling means coupled to said decoding means for providing an interfacing buffer connection between said decoding means and a device using information received by said communication receiver.

4,271,524
SPREAD SPECTRUM FH-MFSK RECEIVER

David J. Goodman, Aberdeen Township, Monmouth County; Paul S. Henry, and Vasant K. Prabhu, both of Holmdel, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 25, 1980, Ser. No. 124,564
Int. Cl.³ H04J 6/00; H04B 15/00
U.S. Cl. 375—1 7 Claims



1. A spread spectrum radio receiver (30) capable of receiving one or more frequency-hopping, multilevel frequency shift keyed (FH-MFSK) signals which were remotely transmitted by modulating a separate one of a plurality of different L-length frequency-hopping address sequences with each user's separate signal sample where each signal sample is encoded as one of 2^K possible frequencies; the receiver comprising:

spectrum analyzing means (36) capable of generating, in reponse to a received signal, an output signal indicating each of the possible 2^K frequencies in the received FH-MFSK signal during each period of the L-length sequence;

frequency-hopping address generating means (38) capable of generating an L-length frequency-hopping address sequence associated with a particular user in synchronism with the received L-length signal;

means (42) capable of demodulating the output signal from the spectrum analyzing means with the address sequence from the frequency-hopping address generating means to generate a set of signals forming a 2^K level by L-length detection matrix of received demodulated message signals

CHARACTERIZED IN THAT

the receiver further comprises:

majority logic determination means (44, 46) capable of determining which of the 2^K levels of the matrix generated by the demodulating means have a maximum value for the decoded message signals and for generating an output signal representative of the originally encoded message signal indicated by one of such 2^K determined maximum value levels under conditions where the determined maximum value is equal to or less than a predetermined absolute value and one or more of such maximum value levels have been found.

4,271,525
ADAPTIVE DIVERSITY RECEIVER FOR DIGITAL COMMUNICATIONS

Kojiro Watanabe, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

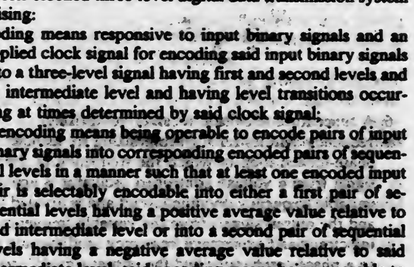
Filed Feb. 15, 1980, Ser. No. 121,771
Claims priority, application Japan, Feb. 21, 1979, 54-19367
Int. Cl.³ H04L 1/02; H04B 1/12
U.S. Cl. 375—14 5 Claims

1. An adaptive diversity receiver for digital communication for processing transmitted data signals received in a plurality of diversity channels to minimize interference caused between symbols constituting said data signals, said receiver comprising:

a plurality of transversal filters for receiving said data signals, each of said transversal filters having tap gains, and each of said transversal filters corresponding to one of said diversity channels;

means for linearly combining the outputs of said transversal filters to provide a combined output;

a decision feedback equalizer having tap gains, said equalizer minimizing said interference and responsive to said combined output to provide an equalized output;



means responsive to said equalized output for producing detected data representing an estimated value of said transmitted data;

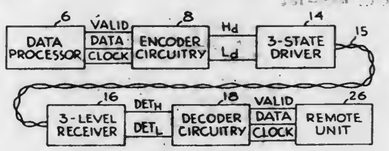
means for updating said tap gains of said transversal filters, responsive to said detected data and said data signals from said diversity channels so as to provide an adaptive matched filter for each of said diversity channels; and

means responsive to said detected data and said equalized output of said decision feedback equalizer, for updating said tap gains of said decision feedback equalizer.

4,271,526
THREE-LEVEL, SELF-CLOCKED DATA TRANSMISSION SYSTEM

Laurence P. Flora, Covina, Calif., assignor to Burroughs Corporation, Detroit, Mich.

Division of Ser. No. 16,976, Mar. 2, 1979. This application Jan. 5, 1979, Ser. No. 45,805
Int. Cl.³ H04L 25/40, 3/00
U.S. Cl. 375—17 8 Claims



1. A self-clocked three-level digital data transmission system comprising:

encoding means responsive to input binary signals and an applied clock signal for encoding said input binary signals into a three-level signal having first and second levels and an intermediate level and having level transitions occurring at times determined by said clock signal;

said encoding means being operable to encode pairs of input binary signals into corresponding encoded pairs of sequential levels in a manner such that at least one encoded input pair is selectably encodable into either a first pair of sequential levels having a positive average value relative to said intermediate level or into a second pair of sequential levels having a negative average value relative to said intermediate level, said encoding means being operable to select said first or second pair in a manner so as to seek a predetermined average level for the encoded three-level signal relative to said intermediate level;

a transmission line;

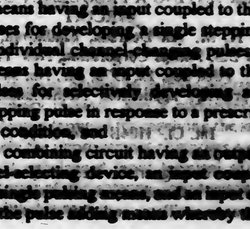
driving means for coupling the encoded three-level signal to one end of said transmission line for transmission thereby; and

receiving and decoding means coupled to the other end of said transmission line for receiving the transmitted three-level signal, deriving said clock signal therefrom, and employing the derived clock signal for decoding the received three-level signal into binary form.

4,271,527
DOUBLE SIDE BAND-QUADRATURE CARRIER MODULATION SIGNAL STRUCTURES

Thomas R. Armstrong, Largo, Fla., assignor to Paradyne Corporation, Largo, Fla.

Filed Aug. 31, 1979, Ser. No. 71,734
Int. Cl.³ H04L 3/00
U.S. Cl. 375—39 5 Claims



1. A method for mapping in the complex plane the point constellation of a double side band-quadrature carrier modulation system wherein each symbol conveys M bits (M being an integer) of information comprising the steps of:

a. Mapping the points in a constellation composed of N×N points (N being an integer) having 90° symmetry about the origin;

b. Omitting any point appearing at the origin;

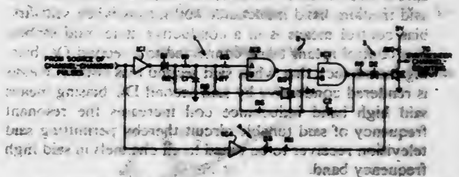
c. Omitting any points in excess of 2^M; and

d. Relocating the point in each quadrant further spaced from the origin than any other point to a point closer to the origin than it previously occupied.

4,271,528
VARIABLE PULSE TUNING SYSTEM

Timothy W. Brown, Williamsville, N.Y., assignor to GTE Products Corporation, Stamford, Conn.

Filed Sep. 17, 1979, Ser. No. 76,018
Int. Cl.³ H04B 1/16
U.S. Cl. 455—179 15 Claims



1. In a tuning system including a source of channel-changing pulses for operating a channel-selecting device, a variable pulse rate tuning circuit comprising:

single pulsing means having an input coupled to the channel-changing pulses for developing a single stepping pulse in response to individual channel-changing pulses;

pulse adding means having an input coupled to the channel changing pulses for selectively developing at least an additional stepping pulse in response to a prescribed channel-changing condition; and

a stepping pulse combining circuit having an output coupled to the channel-selecting device, an input coupled to the output of the single pulsing means, and an input coupled to the output of the pulse adding means whereby the channel

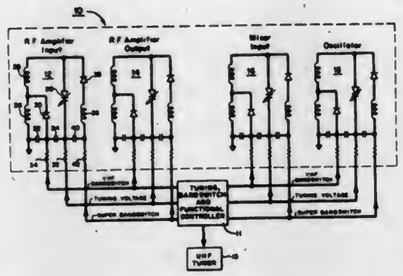
selecting device incrementally changes channels in response to the stepping pulse.

4,271,529

TUNABLE RESONANT CIRCUITS FOR A MULTI-BAND VHF/UHF/CATV TUNER

Peter Strammello, Jr., Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Mar. 20, 1980, Ser. No. 132,348
Int. Cl.³ H04B 1/16
U.S. Cl. 455—180
7 Claims



1. In a tuner for tuning a television receiver to any one of several channels in a plurality of frequency bands, each of said frequency bands having a maximum and minimum frequency, a plurality of tunable resonant circuits, each of said tunable resonant circuits comprising:

low frequency band inductance coil means;

medium frequency band inductance coil means, said medium band inductance coil means connected serially to said low band inductance coil means through a node;

a voltage controlled variable reactance device, said variable reactance device coupled in parallel across said low and medium frequency band inductance coil means and coupled to a variable voltage source;

first bias control means coupled between said node and a first DC biasing means for tuning to said medium band when said first bias control means is rendered conducting and for tuning to said low band when said first bias control means is rendered nonconducting by said first DC biasing means;

high frequency band inductance coil means; and

second bias control means connected serially to said high band inductance coil means and, in combination with said high band inductance coil means, coupled in parallel across said variable reactance device in combination with said medium band inductance coil means when said first bias control means is in a conductive state, said second bias control means being connected to a second DC biasing means such that when said second bias control means is rendered conductive by said second DC biasing means said high band inductance coil increases the resonant frequency of said tunable circuit thereby permitting said television receiver to be tuned to all channels in said high frequency band.

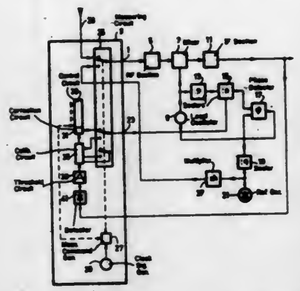
4,271,530

RECEIVER HAVING A FREQUENCY SYNTHESIZING CIRCUIT

Theodorus H. M. van Deursen, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 12, 1978, Ser. No. 941,370
Claims priority, application Netherlands, Oct. 26, 1977, 7711714
Int. Cl.³ H04B 1/26; H03J 7/02
U.S. Cl. 455—182
3 Claims

1. A receiver having a radio-frequency section, an intermediate section and a frequency synthesising circuit comprising both a reference oscillator and a local oscillator for tuning said receiver to one of several transmitter frequencies for reception thereof, the local oscillator being tunable, independently from the frequency of a received signal, to a frequency, determined by a tuning datum, which deviates the intermediate frequency from a frequency value corresponding to the frequency of a transmitter to be received, wherein the receiver comprises a measuring circuit having means for applying a measuring signal, instead of a signal to be received, to an input of the



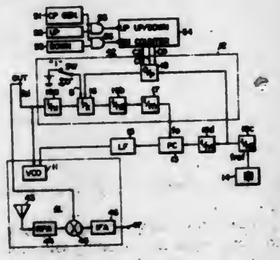
radio-frequency section of the receiver, means for changing the frequency of the local oscillator signal independently from the frequency of the signal to be received and means for measuring the center frequency at the output of the intermediate-frequency section, the receiver furthermore comprising a correction circuit for processing the measured frequency, to which the intermediate-frequency section is tuned, into the tuning datum for the frequency synthesising circuit.

4,271,531

FREQUENCY SYNTHESIZER

Ken-Ichi Torii, Yokohama, and Takashi Shima, Sagamihara, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 15, 1979, Ser. No. 48,984
Claims priority, application Japan, Jan. 19, 1978, 53/73874
Int. Cl.³ H04B 1/16; H03L 7/18
U.S. Cl. 455—182
7 Claims



6. A tuner for a television receiver comprising:

a frequency synthesizer for synthesizing frequencies with a phase-locked loop in which the frequency of the output signal from a voltage controlled oscillator is applied to a variable frequency dividing circuit and is divided thereby and the output signals from the variable frequency dividing circuit and a reference frequency oscillator are applied to a phase comparator and the output signal corresponding to the result of the phase comparison is fed back to the voltage controlled oscillator, wherein

said variable frequency dividing circuit is comprised of:

a first variable frequency divider for frequency-dividing the frequency of the output signal from the voltage controlled oscillator into a 1/K−1, 1/K or 1/K+1 frequency (K is a fixed integer);

means for designating one of frequency division ratios (K−1, K, K+1) of the first variable frequency divider;

a second variable frequency divider for further frequency dividing the frequency of the output signal from the first variable frequency divider into a 1/m frequency (m is a variable integer);

means for applying a frequency signal as a reference frequency signal being used in the phase locked loop;

a signal generating means which receives an output signal of said reference signal applying means and generates Q pulses (Q is an integer between 0 to P−1 where P is an integer) when received P pulses;

means for varying the value Q between 0 to P−1;

means for controlling the operation of the first variable frequency divider in accordance with an output of the frequency division ratio designation means and the output signal from said signal generating means;

means for applying the output signal from said second variable frequency divider to the phase comparator;

a tuner portion for forming an intermediate frequency signal by using the output frequency signal from said frequency synthesizer as a local oscillation frequency signal of the television receiver; and

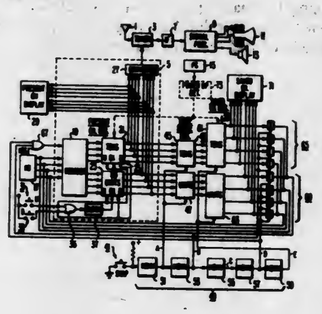
means for supplying a control signal to said signal generating means in order to finely adjust the frequency of the output signal from said frequency synthesizer.

4,271,532

RECEIVER WITH A CHANNEL SWAPPING APPARATUS

Charles M. Wine, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,229
Int. Cl.³ H04B 1/26
U.S. Cl. 455—186
6 Claims



1. In a receiver, tuning apparatus responsive to a tuning signal for tuning said receiver to channels selected by a user in response to a tuning signal, comprising:

channel selection means for generating groups of encoded binary signals corresponding to respective selected channels, said channel selection means including present channel register means for storing the encoded binary signals corresponding to a presently selected channel;

conversion means for converting binary signals stored in said present channel register means into said tuning signal for tuning said receiver to a selected channel;

saved channel register means for storing binary signals corresponding to a previously selected channel;

swap function means for generating a swap signal only when operated by a user;

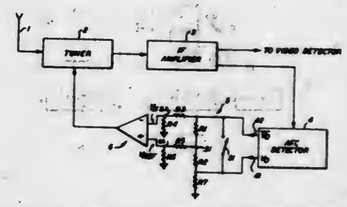
transfer means for exchanging the contents of said present channel register means and said saved channel register means only in response to said swap signal whereby the contents of said saved channel register are not affected when a new channel is selected.

4,271,533

AFC INTERFACE CIRCUIT

Wilfred L. Hand, Clarence, and Victor J. Jacob, Leroy, both of N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 56,569, Jul. 11, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 164,198
Int. Cl.³ H04B 1/16
U.S. Cl. 455—192
10 Claims



1. An AFC interface circuit coupled to first and second differential outputs of a differential AFC detector, said circuit having an AFC reference output and an AFC control output, said outputs coupled to a tuning means, the circuit comprising:

bridging means coupled between the first and second differential outputs for providing at its output a substantially unchanging signal,

referencing means coupled between the output of the bridging means and the AFC reference output for providing an appropriate AFC reference signal at the AFC reference output, and

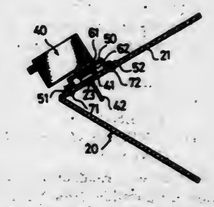
dividing means coupled between the first differential output and the AFC control output for providing an appropriate AFC control signal at the AFC control output.

4,271,534

MICROWAVE RECEIVER

Akira Takayama, Soma, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1979, Ser. No. 76,154
Claims priority, application Japan, Sep. 22, 1978, 53-130689[U]
Int. Cl.³ H04B 1/06
U.S. Cl. 455—270
4 Claims

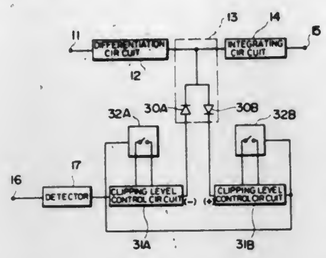


1. A microwave receiver having an antenna constituted by a reflector and a primary radiator, and a converter provided with an unbalanced input terminal for receiving the signal from said antenna, wherein the improvement comprises a conductor extending from said unbalanced input terminal of said converter into said reflector of said antenna, so as to constitute said primary radiator of said antenna.

4,271,535
NOISE ELIMINATING SYSTEM

Hiroshige Fukuhara, and Norio Fujiki, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Aug. 21, 1979, Ser. No. 68,482
Claims priority, application Japan, Aug. 31, 1978, 53-118488[U]; Nov. 17, 1978, 53-157395[U]
Int. Cl.³ H04B 15/00, 1/10
U.S. Cl. 455—309 4 Claims



1. A noise eliminating system for use in a radio receiver for receiving an electric field, comprising:

a detector circuit for detecting the strength of the received electric field and developing a signal corresponding thereto;

a differentiation circuit for differentiating said detector signal;

a clipper circuit for limiting the amplitude of an output signal from said differentiation circuit below a clipping level;

a selector circuit for selecting one of a plurality of different constants in accordance with the strength of the received electric field;

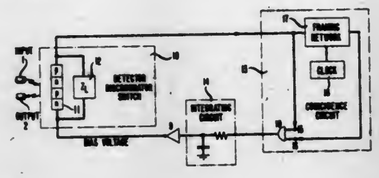
a control circuit for varying the clipping level in proportion to the product of the selected constant and the strength of the received electric field; and

an integrating circuit for integrating an output signal from said clipper circuit.

4,271,536
DISCRIMINATOR THRESHOLD LEVEL CONTROL CIRCUIT FOR A DIGITAL TRANSMISSION SYSTEM

John A. Copeland, Fair Haven, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 30, 1978, Ser. No. 956,059
Int. Cl.³ H04B 9/00
U.S. Cl. 455—619 2 Claims



1. In a digital communication system in which there is transmitted, along with the data pulses, reference pulses whose amplitude is intermediate that of the data "0" and "1" pulses, a receiver comprising:

a detector-discriminator circuit including a switch (11) having a switching threshold level that is variable as a function of the bias applied thereto;

characterized in that said receiver further includes:

means (13) for gating out reference pulses received at said receiver and detected by said switch (11); and

means (14) for averaging said gated reference pulses over a prescribed period of time to produce a feedback signal for changing the bias applied to said switch so as to change the switching threshold in response to changes in the amplitude of said received reference pulses.

DESIGN PATENTS

GRANTED JUN. 2, 1981

ERRATA

For CLASS	See PATENT NO.
D99–044	259,400

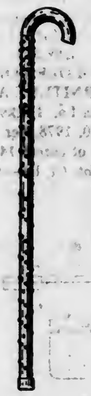




259,370
BRASSIERE
Hinda S. Schreiber; Eugenie Z. Lindahl, both of Burlington, Vt., and Polly P. Smith, New York, N.Y., assignors to Jogbra, Inc., Burlington, Vt.
Filed Dec. 12, 1978, Ser. No. 970,130
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—24



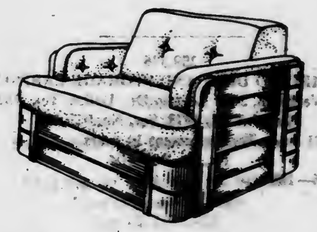
259,371
CANE
Lawrence O. Boehm, 2002 Lowery St., Poplar Bluff, Mo. 63901
Filed Sep. 6, 1978, Ser. No. 940,580
Term of patent 14 years
Int. Cl. D3—*03*
U.S. Cl. D3—7



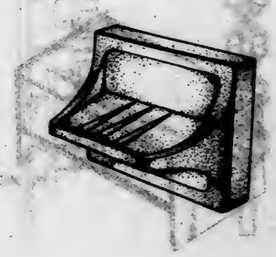
259,372
GOLF SHOE TOOL
George Copia, 3369 Quentin Dr., Youngstown, Ohio 44511
Filed Dec. 29, 1978, Ser. No. 974,628
Term of patent 14 years
Int. Cl. D4—*01*
U.S. Cl. D4—86



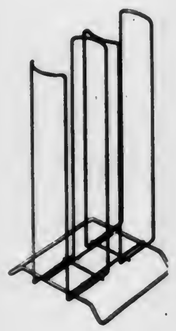
259,373
SEAT
Richard G. Brown, High Point, N.C., assignor to Null Manufacturing Corporation, Malden, N.C.
Filed Apr. 16, 1979, Ser. No. 30,134
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—71



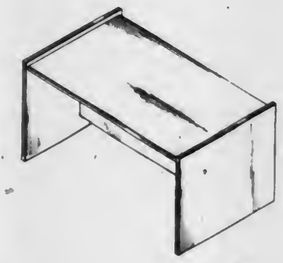
259,374
SOAP DISH
Douglas M. Crowe, Richmond Hill, Canada, assignor to Smith & Stone Limited, Toronto, Canada
Filed Aug. 7, 1979, Ser. No. 64,636
Claims priority, application Canada, Feb. 20, 1979, 282879
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D6—90



259,375
RACK FOR HOLDING DISPOSABLE CUPS AND LIDS THEREFOR
Conrad D. Mastrud, Jr., 2921 Sheridan Rd., Evanston, Ill. 60202, and Jon D. Poulos, 1651 Mount Pleasant, Northfield, Ill. 60093
Filed Nov. 5, 1979, Ser. No. 91,479
Term of patent 14 years
Int. Cl. D6—*04*; D7—*06*
U.S. Cl. D6—157

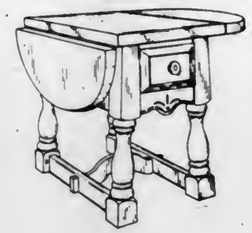


259,376
COMBINED DESK AND STORAGE CABINET
Joseph T. Verdesca, 5604 Lobello Dr., Dallas, Tex. 75229
Filed Jul. 17, 1978, Ser. No. 925,319
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—168

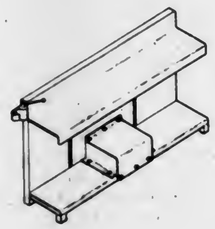




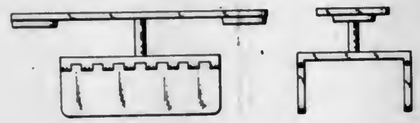
259,377
EXTENSIBLE END TABLE
Melbourne F. Smith, Jr., Hickory, N.C., assignor to Broyhill Furniture Industries, Inc., Lenoir, N.C.
Filed Oct. 12, 1978, Ser. No. 950,705
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—179



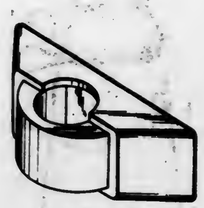
259,378
DRAPERY WORK TABLE
Frances Amaro, and Max Amaro, both of 1129 Lorna Dr., El Cajon, Calif. 92020
Filed Apr. 30, 1979, Ser. No. 34,456
Term of patent 14 years
Int. Cl. D06—*03*
U.S. Cl. D6—179

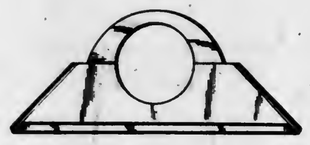


259,379
PORTABLE GLASS HOLDER FOR ATTACHMENT TO A FURNITURE ARM
Gladys Eisenstat, 47 Arch La., Hicksville, N.Y. 11801
Filed Oct. 10, 1978, Ser. No. 950,222
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—191



259,380
CORNER STRUCTURE FOR SHELVING
John H. Welsch, Moscow, and Charles W. Nicely, Dallas, both of Pa., assignors to Metropolitan Wire Corporation, Wilkes-Barre, Pa.
Filed Apr. 4, 1979, Ser. No. 26,926
Term of patent 14 years
Int. Cl. D06—*06*
U.S. Cl. D6—191

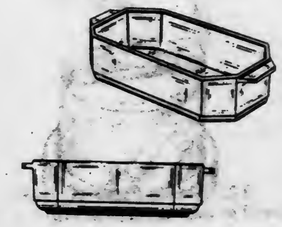




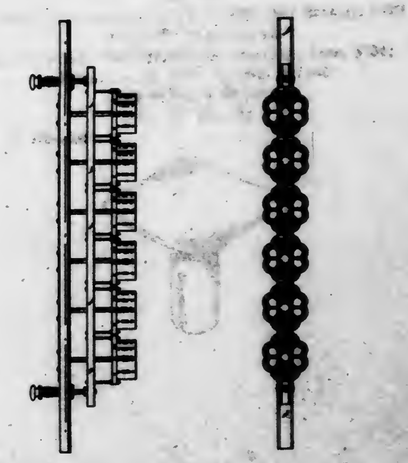
259,381
PILLOW OR THE LIKE
Robert F. Smith, 3210 Winter St., Fort Wayne, Ind. 46806
Filed Oct. 3, 1977, Ser. No. 839,107
Term of patent 14 years
Int. Cl. D6—*09*
U.S. Cl. D6—200



259,382
PAN
David L. Painter, Glenview, Ill., and Robert C. Zbikowski, West Bend, Wis., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 8, 1979, Ser. No. 18,009
The portion of the term of this patent subsequent to Sep. 2, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—21



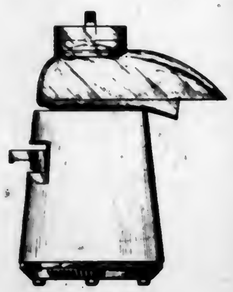
259,383
ROSETTE IRON
Michael J. Sommerfeld, 1126 Dennis St., Chippewa Falls, Wis. 54729
Filed Sep. 20, 1978, Ser. No. 945,176
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—43

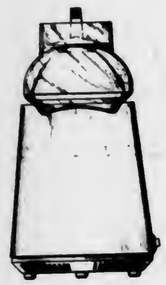


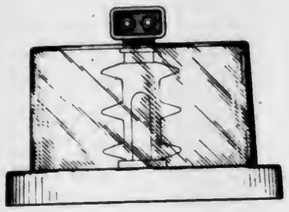
259,384
ELECTRIC FRANKFURTER COOKER
Monte L. Levin, New York, N.Y., assignor to Scovill Inc., Waterbury, Conn.
Filed May 30, 1978, Ser. No. 910,375
Term of patent 14 years
Int. Cl. D07—02
U.S. Cl. D7—85



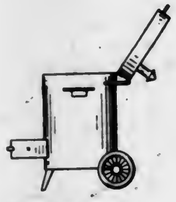
259,385
ELECTRIC CORN POPPER
Monte L. Levin, New York, N.Y., assignor to Scovill Inc., Waterbury, Conn.
Filed May 14, 1979, Ser. No. 38,544
Term of patent 14 years
Int. Cl. D7—02; D15—08
U.S. Cl. D7—94



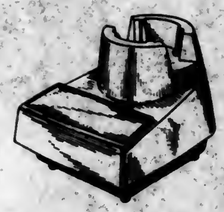


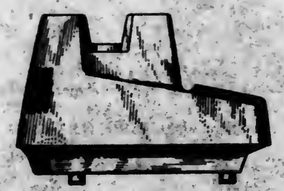


259,386
COMBINED BARBEQUE AND SMOKER
Kenneth W. Mulder, 4707 Cherokee Rd., Tampa, Fla. 33609
Filed Sep. 18, 1978, Ser. No. 943,539
Term of patent 14 years
Int. Cl. D7—02
U.S. Cl. D7—108



259,387
KITCHEN BLENDER BASE
Monte L. Levin, New York, N.Y., assignor to Scovill Inc., Waterbury, Conn.
Filed Jun. 21, 1979, Ser. No. 50,765
Term of patent 14 years
Int. Cl. D07—04
U.S. Cl. D7—154





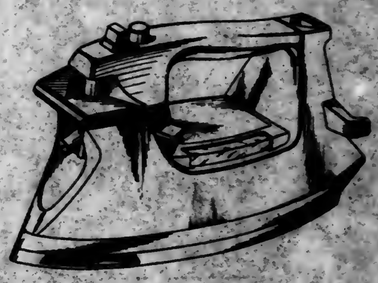
259,388
FLOOR SWEEPER
Elio Marioni, Milan, Italy, assignor to Emer S.a.c., Milan, Italy
Filed Jan. 18, 1978, Ser. No. 870,495
Claims priority, application United Kingdom, Jul. 7, 1977, 28687/77
Term of patent 14 years
Int. Cl. D7—05; D15—05
U.S. Cl. D7—175



259,389
FEED HOOD FOR A GRANULATOR AND THE LIKE
Richard J. Robbins, Derby, and Robert W. Bee, Wichita, both of Kans., assignors to Lesoram Corp., Warwick, R.I.
Filed Dec. 11, 1978, Ser. No. 968,573
Term of patent 14 years
Int. Cl. D7—07
U.S. Cl. D7—194



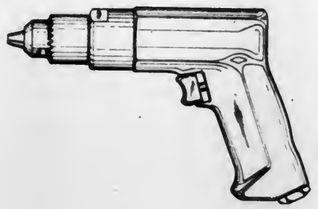
259,390
IRON OR SIMILAR ARTICLE
John C. Shalvoy, Fairfield, Conn., assignor to General Electric Company, New York, N.Y.
Filed Nov. 1, 1978, Ser. No. 956,734
Term of patent 14 years
Int. Cl. D7—05
U.S. Cl. D7—202



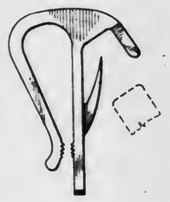
259,391
COMBINED MIXING AND CARRYING BOARD FOR PLASTIC MATERIAL
Jimmie D. Scott, 6923 Bardel Cir., Harrison, Tenn. 37341
Filed Nov. 16, 1978, Ser. No. 961,145
Term of patent 14 years
Int. Cl. D8—05
U.S. Cl. D8—14



259,392
PNEUMATIC DRILL
Heino Elmesaar; Ronald J. Landberg, and Stig R. Zernell, all of Stockholm, Sweden, assignors to Atlas Copco AB, Nacka, Sweden
Filed Jul. 18, 1977, Ser. No. 816,888
Claims priority, application Sweden, May 18, 1977, 770106
Term of patent 14 years
Int. Cl. D8—*01*
U.S. Cl. D8—68



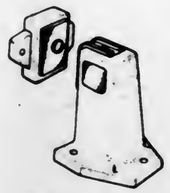
259,393
SUPPORT CLIP FOR A LOUVER OR THE LIKE
Ago Kuru, 62 Roborough Ave., Mt. Eliza, 3930, Victoria, Australia
Filed Jul. 13, 1978, Ser. No. 924,217
Claims priority, application Australia, May 15, 1978, 74746
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—388



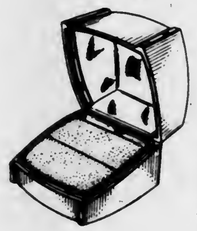
259,394
DISTRIBUTOR CLAMP
Richard J. Smith, Middleburgh Hts., Ohio, assignor to W. R. Grace & Co., New York, N.Y.
Filed Aug. 7, 1978, Ser. No. 931,410
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—394



259,395
COMBINED MAGNETIC DOOR STOP AND STRIKING PLATE
Michio Sugasawara, Tokyo, Japan, assignor to Sugatsune Industrial Co., Ltd., Tokyo, Japan
Filed Nov. 27, 1978, Ser. No. 963,785
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—402



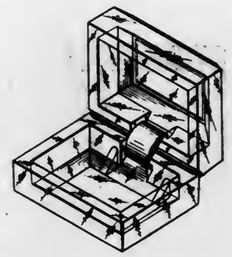
259,396
JEWELRY CASE
Jerome Shiffman, Scarsdale, N.Y., assignor to Rocket Jewelry Box, Inc., Bronx, N.Y.
Filed Sep. 20, 1978, Ser. No. 943,952
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—420



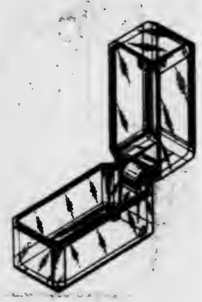
259,397
SQUEEZE DISPENSER
Gertrude Y. Kerns, 28820 Grant St., Clair Shores, Mich. 48081
Filed Nov. 4, 1977, Ser. No. 848,452
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—352



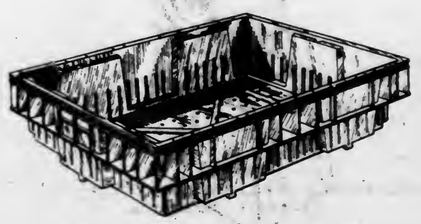
259,398
JEWELRY CASE
Jerome Shiffman, Scarsdale, N.N., assignor to Rocket Jewelry Box, Inc., Bronx, N.Y.
Filed Sep. 20, 1978, Ser. No. 943,951
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—423



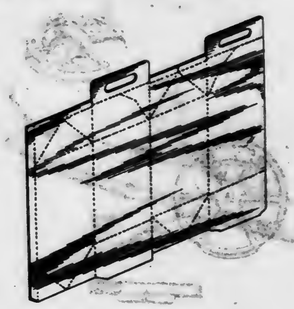
259,399
JEWELRY CASE
Jerome Shiffman, Scarsdale, N.Y., assignor to Rocket Jewelry Box, Inc., Bronx, N.Y.
Filed Sep. 20, 1978, Ser. No. 943,953
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—423



259,400
TOTE BOX FOR FRUIT OR THE LIKE
James C. Carroll; Victor D. Johns, and Lewis T. Johnson, all of Hopkinsville, Ky., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Feb. 21, 1978, Ser. No. 879,569
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D99—44



259,401
CARTON BLANK
James F. Manning, Strongsville, Ohio, assignor to Champion International Corporation, Stamford, Conn.
Filed Oct. 27, 1978, Ser. No. 955,513
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



259,402
CONTAINER FOR BULK MATERIALS
Frank Nattrass, Knaresborough, England, assignor to Lolift Limited, England
Filed Sep. 8, 1977, Ser. No. 831,695
Claims priority, application United Kingdom, Mar. 22, 1977, 979346/77
Term of patent 14 years
Int. Cl. D9—04
U.S. Cl. D9—432



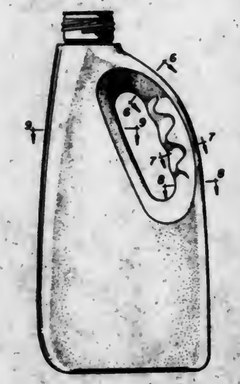
259,403
CONTAINER LID WITH NONREMOVABLE TAB CLOSURE FOR DRINK OPENING
Eddie B. Frazier, Jr., P.O. Box 1272 B, Rockville, Md. 20850
Filed Nov. 9, 1978, Ser. No. 959,398
Term of patent 14 years
Int. Cl. D09—99
U.S. Cl. D9—438



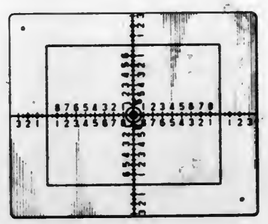
259,404
CONTAINER
Ian B. Jones, Knaresborough, England, assignor to Beizona Molecular Metalife Limited, North Yorkshire, England
Filed Aug. 14, 1978, Ser. No. 933,773
Claims priority, application United Kingdom, Jul. 31, 1978, 985,706/78
Term of patent 14 years
Int. Cl. D9—01
U.S. Cl. D9—370



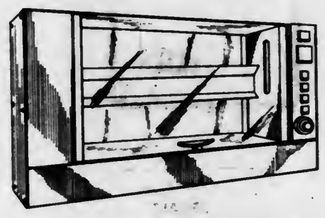
259,405
BOTTLE
Archie G. Drummond, Palatine, Ill., assignor to The Clorox Company, Oakland, Calif.
Filed Nov. 27, 1978, Ser. No. 963,930
Term of patent 14 years
Int. Cl. D9—01
U.S. Cl. D9—376



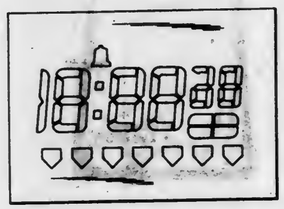
259,406
COLLIMATOR TEST TARGET
Donald R. Jacobson, Middleton, Wis., assignor to Radiation Measurements, Inc., Middleton, Wis.
Filed Dec. 20, 1978, Ser. No. 971,422
Term of patent 14 years
Int. Cl. D10—04
U.S. Cl. D10—46



259,407
CORROSION TESTING INSTRUMENT
Danny A. Pierce, Columbus, Ohio, assignor to IPM Corporation, Columbus, Ohio
Filed Dec. 11, 1978, Ser. No. 968,055
Term of patent 14 years
Int. Cl. D10—04
U.S. Cl. D10—81



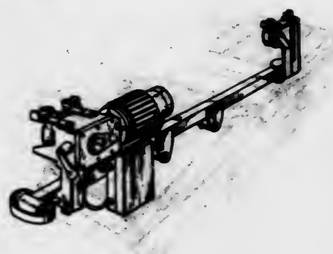
259,408
ELECTRO-OPTIC DISPLAY FOR A TIMEPIECE WITH ALARM
Philip R. Wright, San Jose, and James J. Hallcho, Sunnyvale, both of Calif., assignors to Timex Corporation, Waterbury, Conn.
Filed Apr. 12, 1979, Ser. No. 29,186
Term of patent 14 years
Int. Cl. D10—07
U.S. Cl. D10—125



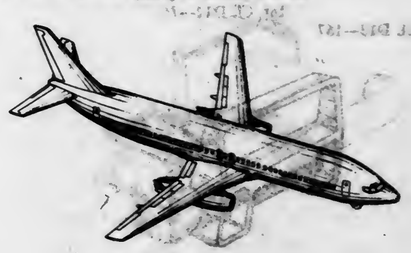
259,409
FIGURINE OF A PEKINGESE
Jesús A. C. Santa Eulalia, and Javier B. C. Santa Eulalia, both of Montevideo, Uruguay, assignors to John J. Madison Company, Inc., Irvine, Calif.
Filed Sep. 20, 1978, Ser. No. 947,248
Term of patent 14 years
Int. Cl. D11—02
U.S. Cl. D11—158



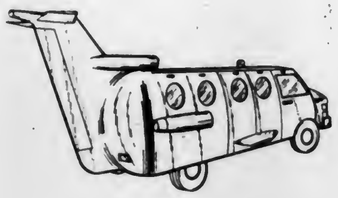
259,410
SELF-PROPELLED TROLLEY FOR SUSPENDED MONORAIL CONVEYERS
Gaetano di Rosa, Pino Torinese, Italy, assignor to F.A.T.A. -Fabbrica Apparecchi di Sollevamento E Trasporto Ed Affini S.p.A., Turin, Italy
Filed Sep. 28, 1978, Ser. No. 946,922
Claims priority, application Italy, Apr. 7, 1978, 53156/78[U]
Term of patent 14 years
Int. Cl. D12—05
U.S. Cl. D12—60



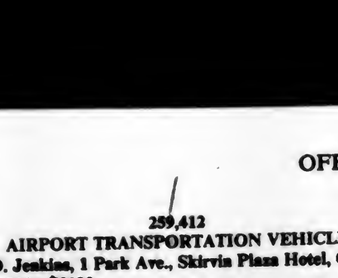
259,411
AIRPLANE
Douglas S. Miller, and David J. Nielsen, both of Bellevue, Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Dec. 12, 1977, Ser. No. 859,899
Term of patent 14 years
Int. Cl. D12—07
U.S. Cl. D12—341



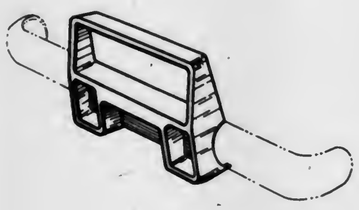
259,412
AIRPORT TRANSPORTATION VEHICLE
Louis D. Jenkins, 1 Park Ave., Skirvin Plaza Hotel, Oklahoma City, Okla. 73102
Filed Feb. 1, 1979, Ser. No. 8,231
Term of patent 14 years
Int. Cl. D12—*08*
U.S. Cl. D12—83



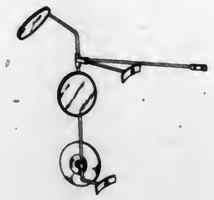
259,413
TOOL BOX FOR A VEHICLE OR THE LIKE
John Rehkopf, 1050 Leith, Maumee, Ohio 43537
Filed Jul. 3, 1978, Ser. No. 921,876
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—157



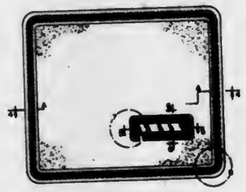
259,414
MOTOR VEHICLE BUMPER GUARD
Jack V. Miller, 700 N. Auburn Ave., Sierra Madre, Calif. 91024
Filed Aug. 24, 1978, Ser. No. 936,473
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—167



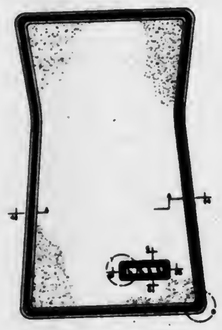
259,415
BACK-UP REAR VIEW MIRROR FOR TRUCKS AND LIKE VEHICLES
Toshio Watanabe, 24007 S. Broad St., Carson, Calif. 90745
Filed Jun. 7, 1979, Ser. No. 46,302
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



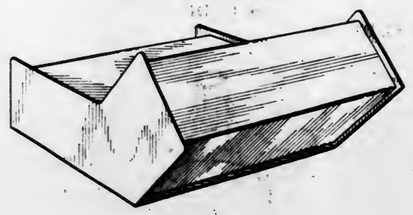
259,416
AUTOMOBILE FLOOR MAT
Ted A. Bell, Coshocton, and Daniel F. Lehner, W. Lafayette, both of Ohio, assignors to Pretty Products, Inc., Coshocton, Ohio
Filed Nov. 9, 1978, Ser. No. 958,965
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—203



259,417
AUTOMOBILE FLOOR MAT
Ted A. Bell, Coshocton, and Daniel F. Lehner, W. Lafayette, both of Ohio, assignors to Pretty Products, Inc., Coshocton, Ohio
Filed Nov. 9, 1978, Ser. No. 958,966
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—203



259,418
MODULAR ELECTRONIC EQUIPMENT CASE
James L. Allen, Ellicott City, Md., assignor to G.S.B. Rail Ltd., Silver Spring, Md.
Filed Oct. 6, 1978, Ser. No. 949,359
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—41



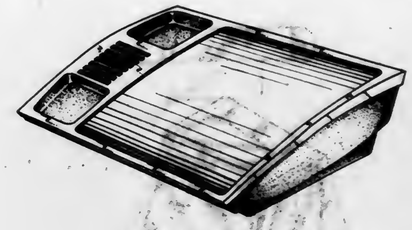
259,419
TELEPHONE INSTRUMENT
Ronald D. Carter, Warwick, England, assignor to The Post Office, London, England
Filed Apr. 5, 1978, Ser. No. 893,629
Claims priority, application United Kingdom, Oct. 12, 1977, 981881/77
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



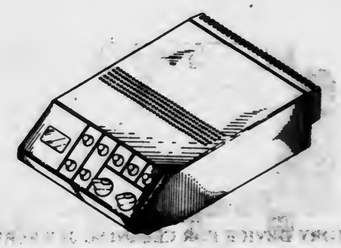
259,420
TELEPHONE STAND
Donald M. Genaro, Haworth, N.J., and John N. McGarvey, Drexel Hill, Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 25, 1978, Ser. No. 936,701
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60



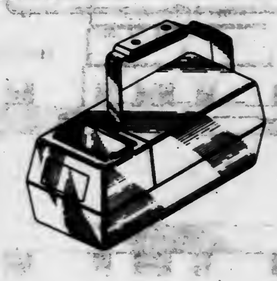
259,421
TELEPHONE INSTRUMENT BASE
George M. Janda, Westchester, Ill., assignor to GTE Automatic Electric Labs Inc., Northlake, Ill.
Filed Sep. 22, 1978, Ser. No. 944,827
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60



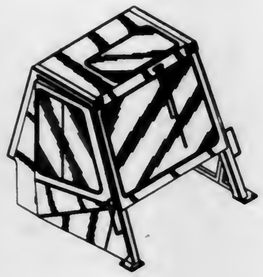
259,422
TWO-WAY MARINE RADIO OR SIMILAR ARTICLE
Terrance N. Taylor, Cary, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Nov. 15, 1978, Ser. No. 961,085
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68



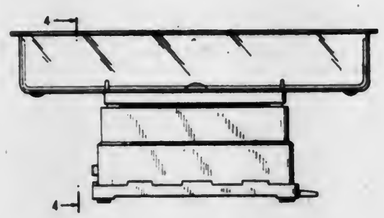
259,423
HOUSING FOR A HAND HELD TRANSMITTER-RECEIVER
James A. Root, Orlando, and Arleigh B. Baker, Longwood, both of Fla., assignors to Scope Incorporated, Reston, Va.
Filed Jan. 18, 1979, Ser. No. 4,494
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—95



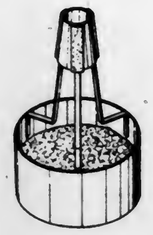
259,424
VEHICLE CAB
Terry L. Puig, Salem, Oreg., assignor to Townotor Corporation, Mentor, Ohio
Filed Jul. 9, 1979, Ser. No. 55,589
Term of patent 14 years
Int. Cl. D15—*04*
U.S. Cl. D15—30



259,425
VIBRATORY DEVICE FOR CLEANING JEWELRY AND THE LIKE
John S. Doyel, 404 W. 20th St., New York, N.Y. 10011
Filed Oct. 10, 1978, Ser. No. 949,533
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—34



259,426
MUTE FOR A BRASS MUSICAL INSTRUMENT OR THE LIKE
Leonard Baldwin, 62 Bincote Rd., Enfield, Middlesex, United Kingdom
Filed Jun. 15, 1979, Ser. No. 49,196
Claims priority, application United Kingdom, Jan. 12, 1979, 98807/79
Term of patent 14 years
Int. Cl. D17—*02*
U.S. Cl. D17—13



259,427
Patent Not Issued For This Number

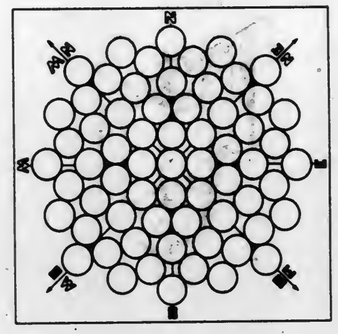
259,428
LETTER TRAY
William Macowski, Caldwell, N.J., assignor to Ketcham & McDougall, Inc., Roseland, N.J.
Filed May 18, 1978, Ser. No. 907,379
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—92



259,429
ELECTRONIC PYRAMID TOY
Thomas J. Sullivan, 8024 Grand Ave., Fair Oaks, Calif. 95628
Filed Jan. 2, 1979, Ser. No. 287
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—37



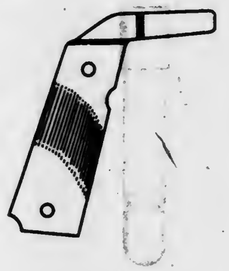
259,430
GAME BOARD
Emile B. LeCorte, II, 9 Germain Ave., Bradford, Mass. 01830
Continuation-in-part of Ser. No. 903,948, Mar. 3, 1978, abandoned. This application Nov. 23, 1979, Ser. No. 96,890
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—35



259,431
GOLF PUTTER
Ronald F. Swenson, 2719 N. Legrun Cir., Woodlands, Tex. 77380
Filed Dec. 18, 1978, Ser. No. 970,715
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—219



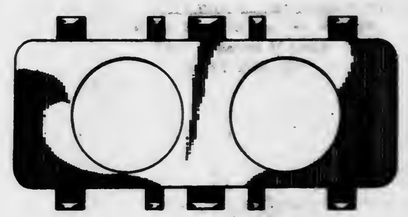
259,432
HANDGUN SUPPORT CLIP
Cecil O. Pharr, Jr., 2272 La Vista Woods Dr., Tucker, Ga. 30084
Filed Aug. 28, 1978, Ser. No. 937,491
Term of patent 14 years
Int. Cl. D22—*01*
U.S. Cl. D22—7



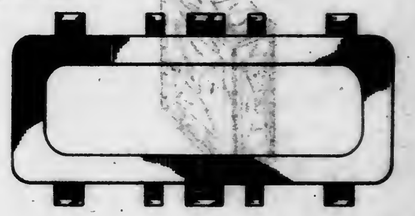
259,433
REVOLVER SUPPORT CLIP
Cecil O. Pharr, Jr., 2272 La Vista Woods Dr., Tucker, Ga. 30084
Filed Sep. 18, 1978, Ser. No. 943,662
Term of patent 14 years
Int. Cl. D22—*01*
U.S. Cl. D22—7



259,434
VENT FOR LOBSTER TRAP
Emile A. P. Plante, 74 Badgers Island, Kittery, Me. 03904
Filed Aug. 8, 1979, Ser. No. 64,890
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—18



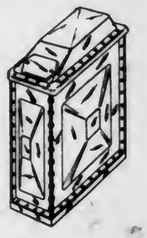
259,435
LOBSTER TRAP VENT
Emile A. P. Plante, 74 Badgers Island, Kittery, Me. 03904
Filed Aug. 8, 1979, Ser. No. 64,913
Term of patent 14 years
Int. Cl. D22—*18*
U.S. Cl. D22—18



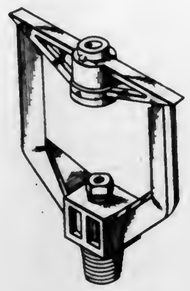
259,436
COMBINED SELF-RIGHTING SINKER AND LURE SUPPORT WITH TRAILING LEGS
Robert J. Dickinson, 501 S. Wisconsin, and James L. Wagner, 515 E. Fourth, both of, Mitchell, S. Dak. 57301
Filed Jun. 6, 1979, Ser. No. 45,997
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—30



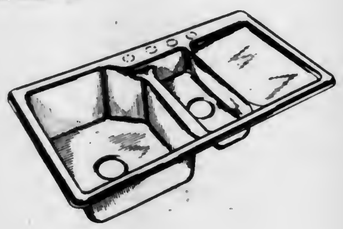
259,437
STORAGE TANK FOR LIQUIDS OR THE LIKE
Keisaku Koga, Ibaraki, and Takeshi Iseda, Yahata, both of Japan, assignors to Sekisui Koji Kabushiki Kaisha, Japan
Filed Oct. 13, 1978, Ser. No. 951,290
Claims priority, application Japan, May 10, 1978, 53-19124
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—2



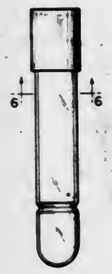
259,438
SPRINKLER HEAD
Larry P. Meyer, Walla Walla, Wash., assignor to Nelson Irrigation Corporation, Walla Walla, Wash.
Filed May 28, 1980, Ser. No. 154,071
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—35



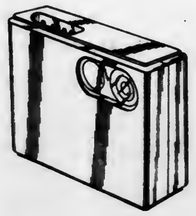
259,439
FOOD PREPARATION SINK
Donald W. Doman, Janesville, Wis., assignor to Kohler Co., Kohler, Wis.
Filed May 3, 1979, Ser. No. 35,775
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—62



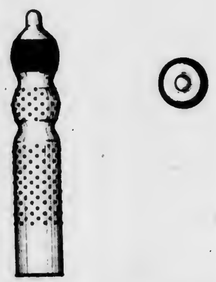
259,440
CULTURE TUBE OR SIMILAR ARTICLE
Mary Jo Martin, Toledo, and Edward W. Metz, Sylvania, both of Ohio, assignors to Owens-Illinois, Inc., Toledo, Ohio
Filed Jul. 3, 1978, Ser. No. 922,001
Term of patent 14 years
Int. Cl. D24—*02, 99*
U.S. Cl. D24—56



259,441
CONTACT LENS DISINFECTING UNIT
Stephen G. Hauser, 4133 Aleman Dr., Tarzana, Calif. 91364
Filed Jun. 11, 1979, Ser. No. 46,997
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—9



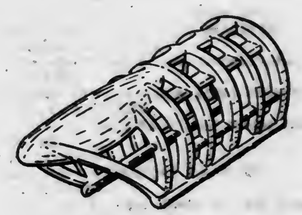
259,442
PROPHYLACTIC DEVICE
Tadao Okamoto, 12-8, 1-chome, Kohinata, Bunkyo-ku, Tokyo, Japan
Continuation-in-part of Ser. No. 943,122, Sep. 18, 1978, Pat. No. Des. 253,009. This application May 17, 1979, Ser. No. 39,815
Term of patent 14 years
Int. Cl. D24—*04, 99*
U.S. Cl. D24—99



259,443
WALL PANEL JOINTURE POST
Donald R. James, 1835 S. 7th St., San Jose, Calif. 95112
Filed Oct. 27, 1977, Ser. No. 846,269
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—77



259,444
FINGERNAIL GUARD
Yvonne L. Wood, 7272 Florey st., San Diego, Calif. 92122
Filed Jul. 27, 1978, Ser. No. 928,724
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—56



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.E.C. Societe de Chimie Organique et Biologique: *See*—
Farges, Guy; and Michard, Anne-Marie, 4,271,290, Cl. 536-22.000.

A. H. Robins Company, Inc.: *See*—
Berger, Brian E., 4,270,273, Cl. 33-150.000.

A/S Akers Mek. Verksted: *See*—
Noonan, Nick; Stanfield, John N.; and Pettersen, Paal, 4,270,775, Cl. 285-24.000.

AB Olle Lindstrom: *See*—
Lindstrom, Olle B., 4,271,003, Cl. 204-265.000.

Abe, Kazuo: *See*—
Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhisa; and Shimojima, Kiyoshi, 4,270,373, Cl. 72-41.000.

Abe, Kazutoshi: *See*—
Miki, Katsuo; and Abe, Kazutoshi, 4,271,214, Cl. 427-345.000.

Abele, Werner; Grossa, Mario; and Pilz, Otto, to Du Pont de Nemours, E. I., and Company. Positive nonsilver washout systems containing dihydropyridines and photooxidants. 4,271,260, Cl. 430-292.000.

Abeyama, Shozo: *See*—
Fujiwara, Tatsuo; Abeyama, Shozo; Ishida, Kiyohito; and Nakamura, Sadayuki, 4,270,950, Cl. 75-126.00L.

Abma, Charles B.: *See*—
Pastorino, Ronald L.; Lewis, Roger N.; and Abma, Charles B., 4,271,279, Cl. 525-387.000.

ACF Industries, Incorporated: *See*—
Behle, Gunter R.; and Hillstead, David P., 4,270,729, Cl. 251-144.000.
Hinrichs, John M., 4,270,730, Cl. 251-214.000.

Acme Cleveland Corporation: *See*—
Pond, Robert J., 4,271,448, Cl. 361-93.000.

Adachi, Toshio: *See*—
Hamakawa, Yoshihiro; Okamoto, Hiroaki; Nitta, Yoshiteru; and Adachi, Toshio, 4,271,328, Cl. 136-249.000.

Adam, Manfred, to Wickmann-Werke AG. Holder for electrical component. 4,270,836, Cl. 339-213.00R.

Adamec, Robert. Finger ring with plectrum. 4,270,433, Cl. 84-322.000.

Adams, Carl P.; Allen, Royce D.; and Kokaly, Frederick L., to Caterpillar Tractor Co. Bulldozer blade mounting assembly. 4,270,616, Cl. 172-811.000.

Adams, Elvis E., to Baxter Travenol Laboratories, Inc. Frangible valve assembly for blood bags and the like. 4,270,534, Cl. 128-214.00D.

Adams, Frederick J., to Cam Gears Limited. Rotatable sleeve rack. 4,270,397, Cl. 74-89.180.

Adams, Neil R.: *See*—
Drake, Cyril F.; and Adams, Neil R., 4,271,057, Cl. 260-29.6SM.

Adams, Norbert, to General Electric Company. Optocoupler having improved isolation. 4,271,365, Cl. 250-551.000.

Adams, William J.; and Wernet, William F., to Northern Telecom, Inc. Pushbutton dial assembly. 4,271,333, Cl. 179-90.00K.

Adler, Robert J.; Broaslow, Coleman B.; Brown, William R.; and Gardner, Nelson C., to CNG Research Company. Gas separation process. 4,270,937, Cl. 62-17.000.

Admiral Weschbend Co., Inc.: *See*—
Meyerson, Stanley; and Hauser, Seymour, 4,270,249, Cl. 24-241.0PP.

Adolphi, Heinrich: *See*—
Baumann, Annegrit; Kiehs, Karl; Adolphi, Heinrich; and Koenig, Karl-Heinz, 4,271,171, Cl. 424-266.000.

Aerogap Corporation: *See*—
Upham, Neil R., 4,270,717, Cl. 248-27.100.

Agency of Industrial Science & Technology: *See*—
Ishikawa, Toshio; Niwa, Shuichi; Yamadaya, Shoko; and Orito, Yoshio, 4,271,327, Cl. 585-440.000.
Nakane, Masanori; Ozumi, Yasuki; Suzuki, Hiroshi; and Kato, Aakihiko, 4,270,360, Cl. 62-48.000.

AGFA-Gevaert, A.G.: *See*—
Siemens, Otto; Staudacher, Frank; Lermann, Peter; and Wagenseaner, Eduard, 4,270,854, Cl. 354-76.000.

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Gilliams, Yvan K.; and De Roo, Pierre R., 4,271,249, Cl. 430-101.000.

Ahlenfeld, Carl B.; and Macey, James D. Lacrosse stick head. 4,270,756, Cl. 273-326.000.

Ahrendt, William A.; and Beggs, Donald, to Midrex Corporation. Apparatus for direct reduction of iron using high sulfur gas. 4,270,739, Cl. 266-156.000.

Aid, James D.; and Lee, Kyu H., to Extracorporeal Medical Specialties, Inc. Dialysis apparatus and technique. 4,271,014, Cl. 210-86.000.

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Air Products and Chemicals, Inc.: *See*—
Chen, Michael S.; Grunkovich, Eugene J.; and Spector, Marshall L., 4,271,026, Cl. 210-605.000.
Rowles, Howard C.; and Woodward, Donald W., 4,270,939, Cl. 62-22.000.
Rowles, Howard C.; and Tseo, Tsae-chie, 4,270,940, Cl. 62-24.000.

Airco, Inc.: *See*—
Schmidt, Wallace B.; Lewis, William W.; Edminson, Alex; and Klauser, Gernot, 4,270,938, Cl. 62-22.000.

Aisin Seiki Kabushiki Kaisha: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuichi; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.

Aizawa, Hideyuki: *See*—
Setsuda, Tsutomu; Aizawa, Hideyuki; and Kimura, Takashi, 4,271,318, Cl. 564-468.000.

Akagi, Shigeyuki: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.

Akashi, Shunji, to Yoshida Kogyo K.K. Slide fastener with bottom stop. 4,270,248, Cl. 24-205.11R.

Akebono Brake Industry Co. Ltd.: *See*—
Matsuzaki, Takashi, 4,270,634, Cl. 188-196.00M.

Aktiengesellschaft Karrer, Weber & Cie: *See*—
Graber, Heinz, 4,270,574, Cl. 137-624.110.

Akutsu, Yoji: *See*—
Nakazaki, Takamitsu; Kita, Hisanao; and Akutsu, Yoji, 4,271,348, Cl. 219-121.0ED.

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Boomgaard, Rinse E.; Buter, Roelof; and Kiffen, Aleidus A., 4,271,062, Cl. 260-39.00P.
de Wied, David; and Greven, Hendrik M., 4,271,152, Cl. 424-177.000.

Akzona Incorporated: *See*—
van der Burg, Willem J., 4,271,177, Cl. 424-274.000.
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Albany International Corp.: *See*—
Hake, Edward R., 4,271,222, Cl. 428-193.000.
Nicholson, Charles B., 4,270,702, Cl. 239-455.000.

Albert, Paul A.: *See*—
Heiman, Neil D.; White, Robert L.; Potter, Robert L.; and Albert, Paul A., 4,271,252, Cl. 428-352.000.

Albertson, Luther D., Jr. Circle cutting attachment. 4,270,425, Cl. 83-411.00R.

Albertson, Robert V. Sediment indicator for liquid circulatory system. 4,271,016, Cl. 210-94.000.

Alco Foodservice Equipment Company: *See*—
Roth, Joseph J., 4,270,673, Cl. 222-129.300.

Alcon Laboratories, Inc.: *See*—
Schoenwald, Ronald D.; and Rosher, Robert E., 4,271,143, Cl. 424-78.000.

Alieri, Rodiero. Mold for molding hollow bricks by means of a press. 4,270,893, Cl. 425-415.000.

Allard, Pierre, to Allard S.a.r.l. Load transfer system. 4,270,880, Cl. 414-391.000.

Allard S.a.r.l.: *See*—
Allard, Pierre, 4,270,880, Cl. 414-391.000.

Allen, Royce D.: *See*—
Adams, Carl P.; Allen, Royce D.; and Kokaly, Frederick L., 4,270,616, Cl. 172-811.000.

Aller-Screen, Inc.: *See*—
Brennan, Louis G., 4,270,548, Cl. 128-743.000.

Allied Chemical Corporation: *See*—
Barrett, Joseph J.; and West, Gary A., 4,270,844, Cl. 356-301.000.
Harrison, David M.; Watson, Walter R., III; Moore, Maurice S.; and Jernyn, Roger E., 4,270,252, Cl. 29-250.000.

Allis-Chalmers Corporation: *See*—
Faulkner, Bobby P.; Lee, George T.; Schumacher, Peter L.; and Weinecke, Michael H., 4,270,899, Cl. 432-58.000.
Johnston, David K.; and Sudermann, Donald A., 4,270,391, Cl. 130-27.80H.
Sky, James L.; and Hess, Paul D., 4,270,900, Cl. 432-58.00B.

Almasi, George S.; Bosboltz, Wilhelm E.; and Kaub, George E., to International Business Machines Corporation. Bubble domain storage using improved transfer switch. 4,271,485, Cl. 365-16.000.

Alps Electric Co., Ltd.: *See*—
Takayama, Akira, 4,271,534, Cl. 455-270.000.

Altenpohl, Paul J.: *See*—
Altenpohl, William F.; and Altenpohl, Paul J., 4,270,326, Cl. 53-493.000.

Altenpohl, William F.; and Altenpohl, Paul J., to W. F. Altenpohl, Inc. Distributed plural station bagging system for poultry. 4,270,336, Cl. 53-493.000.

ALZA Corporation: *See*—
Luschen, Joseph G., 4,271,113, Cl. 264-112.000.

AM International, Inc.: *See*—
Lay, Roger F.; Jarecki, John S.; and Koch, Robert M., 4,270,652, Cl. 198-486.000.

Amano, Toshio: *See*—
Suzuki, Tadahiko; Miyasaka, Tomoaki; and Amano, Toshio, 4,271,432, Cl. 358-190.000.

Ambros, Otto: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

Ambros, Peter: *See*—
Steigerwald, Wolf-Erhard; Ambros, Peter; and Geyer, Hermann, 4,271,045, Cl. 252-511.000.

American Can Company: *See*—
Kuchenbecker, Morris W., 4,270,659, Cl. 206-538.000.

American Clearwater Corp.: *See*—
Wolfe, Henry S., 4,270,227, Cl. 2-87.000.

American Cyanamid Company: *See*—
Coleman, Denis; and Koroscil, Anthony, 4,271,056, Cl. 260-29.6AN.

American Hoechst Corporation: *See*—
Kelley, Donald J.; Williams, David J.; and Slovenkai, Stephen V., 4,271,281, Cl. 526-80.000.
Wenghoefer, Johann; Messier, Dennis; and Thompson, James, 4,271,072, Cl. 260-207.300.

American Microsystems, Inc.: *See*—
Hiltpold, William R., 4,271,418, Cl. 357-23.000.

Aminger, Gerhard A.: *See*—
Oberth, Hans G.; and Aminger, Gerhard A., 4,270,562, Cl. 137-115.000.

Amort, Jurgen: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

AMP Incorporated: *See*—
Bakermans, Johannes C. W., 4,270,267, Cl. 29-881.000.

Amrhein, Alan G.; Hammel, Joseph J.; and Shelestak, Larry J., to PPG Industries, Inc. Method of melting flat glass using nitrates to suppress sulfurous emissions. 4,270,945, Cl. 65-99.00A.

Amundsen, Alan R.; and Stern, Eric W., to Engelhard Minerals & Chemicals Corporation. Cis-platinum (II) amine lactate complexes. 4,271,085, Cl. 260-429.00R.

Anaconda Company, The: *See*—
Mahmood, Kamal A., 4,271,521, Cl. 371-51.000.

Ancos Co., Ltd.: *See*—
Hashimoto, Yasuyuki; and Torii, Osamu, 4,270,870, Cl. 401-93.000.

Andersen, Glen L.: *See*—
Siekmeier, David A.; Andersen, Glen L.; Zimmerer, Arthur L., deceased; First National Bank & Trust Co., joint executor; Zimmerer, Bernadette, joint executor; and Zimmerer, William P., 4,270,699, Cl. 239-184.000.

Anderson-Cook, Inc.: *See*—
Jungesjo, Harald N., 4,270,375, Cl. 72-88.000.

Anderson, James C. Speech signal A/D converter using an instantaneously-variable bandwidth filter. 4,271,332, Cl. 179-1.50A.

Anderson, Larry W., to Westinghouse Electric Corp. Transit vehicle speed control apparatus and method. 4,270,716, Cl. 246-182.00B.

Anderson, Leif. Elevator device preferably an elevator for building facades. 4,270,628, Cl. 187-6.000.

Anderson, Norman C., to ILC Technology, Inc. Apparatus and method for selectively generating infrared radiation. 4,271,363, Cl. 250-504.00R.

Anderson, Rogers H.; G., Enrique Bernal; and Chen, Di, to Honeywell Inc. Hot rolling and extrusion of optical fiber ribbon cable. 4,271,104, Cl. 264-1.500.

Andersson, Ken G. E., to Sandvik Aktiebolag. Cutting tool. 4,270,422, Cl. 82-36.00R.

Andreas, Joseph M. Multiple chamber container for delivering liquid under pressure. 4,270,533, Cl. 128-214.00F.

Andreoni, Alessandro: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,184, Cl. 424-285.000.

Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., to Westinghouse Electric Corp. Method of retubing a steam generator. 4,270,258, Cl. 29-157.400.

Andrews Paper & Chemical Co., Inc.: *See*—
Muller, Peter; and Mustacchi, Henry, 4,271,227, Cl. 428-264.000.

Angehrn, Jorg A.: *See*—
Groeschel, Vernon E.; and Angehrn, Jorg A., 4,271,356, Cl. 250-262.000.

Angelo, Frank M. Slab trimming apparatus. 4,270,423, Cl. 83-102.100.

Angenieux, Pierre. Image enlarging optical variator. 4,270,848, Cl. 350-427.000.

Ansen, Jakob; Duill, Helmut; Fasbender, Heinz; and Graf, Rupprecht, to Klockner-Humboltd-Deutz AG. Method and apparatus for rendering an ignitable fuel-oxygen mixture inert. 4,270,466, Cl. 110-193.000.

Anstalt fur Stromungsmaschinen Gesellschaft mbH: *See*—
Bergloff, Dag; Wohlfarter, Alois; Heissenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, 4,270,254, Cl. 29-148.40D.

Anton Schwartzkopf Stahl- und Fahrzeugbeu, Firma: *See*—
Schwartzkopf, Anton, 4,270,458, Cl. 104-124.000.

Anton Schwarzkopf Stahl- u. Fahrzeugbau, Firma: *See*—
Schwarzkopf, Anton, 4,270,459, Cl. 104-172.00B.

Antonious, Anthony J. Adjustable and flexible shoe closure assembly and elastic gore. 4,270,285, Cl. 36-50.000.

Anzai, Masayasu: *See*—
Terashima, Isamu; Twubaki, Toshio; and Anzai, Masayasu, 4,270,487, Cl. 118-690.000.

Aotani, Yoshimasa; Misu, Hiroshi; and Nagashima, Akira, to Fuji Photo Film Co., Ltd. Photosensitive compositions. 4,271,251, Cl. 430-195.000.

Aoyagi, Edward I., to Chevron Research Company. 2-Arylthio-4,4-dialkyl-5-methylene-1,3-thiazolines. 4,271,306, Cl. 548-182.000.

Applied Copy Technology, Inc.: *See*—
Goida, John H., 4,270,856, Cl. 355-3.00R.

APTUNION Union des Fabricants de Fruits Confits: *See*—
Julien, Henri C. P., 4,271,204, Cl. 426-259.000.

Arai, Fuminori: *See*—
Kondo, Asaji; Arai, Fuminori; and Kitajima, Masao, 4,270,920, Cl. 23-230.00B.

Arai, Jun: *See*—
Yamamoto, Mitsuru; Arai, Jun; Isogawa, Takao; and Hasebe, Isamu, 4,271,466, Cl. 364-200.000.

Arai, Kiyotaka: *See*—
Suhara, Manabu; Goto, Shoziro; and Arai, Kiyotaka, 4,270,996, Cl. 204-98.000.

Arakawa Kagaku Kogyo Kabushiki Kaisha: *See*—
Matsuo, Kohtaro; Kawamura, Satoshi; and Toshine, Tatsumi, 4,271,066, Cl. 260-97.500.

Archer Daniels Midland Company: *See*—
Arnold, John B., 4,270,671, Cl. 222-58.000.

Arco Polymers, Inc.: *See*—
DiGiulio, Adolph V.; and Bauer, Jack N., 4,271,271, Cl. 521-82.000.

Argus Chemical Corporation: *See*—
Pastorino, Ronald L.; Lewis, Roger N.; and Abma, Charles B., 4,271,279, Cl. 525-387.000.

Arietti, Giulio: *See*—
Occella, Sergio; Arietti, Giulio; and Borello, Giampiero, 4,270,498, Cl. 123-276.000.

Ariga, Nagao: *See*—
Maeda, Hiroshi; Ariga, Nagao; Oikawa, Hiroshi; and Tominaga, Hidemitsu, 4,271,079, Cl. 260-346.300.

Arigaya, Fujio, to Takara Co., Ltd. Remote controlled steerable amphibious toy. 4,270,307, Cl. 46-254.000.

Arita, Youji, to Mitsubishi Light Metal Industries, Limited. Method of stabilizing an aluminum metal layer in an aluminum electrolytic cell. 4,270,993, Cl. 204-67.000.

Armstrong Cork Company: *See*—
Heckles, John S., 4,271,237, Cl. 428-520.000.

Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., to GTE Products Corporation. Photoflash lamp construction and method of making same. 4,270,897, Cl. 431-362.000.

Armstrong Industries, Inc.: *See*—
Peters, John R.; and Armstrong, Warren G., 4,270,527, Cl. 128-87.00R.

Armstrong, Thomas R., to Paradyne Corporation. Double side band-quadrature carrier modulation signal structures. 4,271,527, Cl. 375-39.000.

Armstrong, Warren G.: *See*—
Peters, John R.; and Armstrong, Warren G., 4,270,527, Cl. 128-87.00R.

Arnaudeau, Marcel; and Verschure, Pietrus, to Institut Francais du Petrole. Mooring station and transfer terminal for offshore hydrocarbon production. 4,270,611, Cl. 166-344.000.

Arndts, Dietrich: *See*—
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Arnold, Franz. Mechanical amplifier. 4,270,398, Cl. 74-110.000.

Arnold, John B., to Archer Daniels Midland Company. Dispenser for bulk particulate material. 4,270,671, Cl. 222-58.000.

Aron, Steven J., Jr.: *See*—
Stone, Leonard R.; Aron, Steven J., Jr.; and Kemmerling, Robert A., 4,271,362, Cl. 250-496.000.

Artzan Corporation: *See*—
Xanthopoulos, Piritheos G.; and Stewart, Lloyd W., 4,270,303, Cl. 46-25.000.

Asahi Glass Company, Ltd.: *See*—
Suhara, Manabu; Goto, Shoziro; and Arai, Kiyotaka, 4,270,996, Cl. 204-98.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
Imafuku, Hiroshi; Kimura, Takeo; and Kobayashi, Hidehiko, 4,271,001, Cl. 204-195.00B.

Asahi Seimitsu Kabushiki Kaisha: *See*—
Koenuma, Masao, 4,270,277, Cl. 33-439.000.

Asano, Kazuhiro: *See*—
Shida, Masaharu; Torisawa, Akira; Ueda, Makoto; Mandai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, 4,271,496, Cl. 368-80.000.

Asano, Makoto; Kawashima, Saburo; Sugimoto, Kenichi; and Kobayashi, Tadashi, to Mitsui Toatsu Chemicals Inc. Color-developing composition for pressure-sensitive recording sheet material and process for the preparation thereof containing phenolic resin and hindered phenol. 4,271,059, Cl. 260-31.20T.

Ashby, Albert K.: *See*—
DePalma, Vito A.; Meyer, Anne E.; and Ashby, Albert K., 4,271,209, Cl. 427-58.000.

Ashland Oil, Inc.: *See*—
Kim, Young D., 4,271,054, Cl. 260-29.300.
Trivedi, Bhupendra C.; Grote, Dace; and Mason, Thomas O., 4,270,983, Cl. 203-43.000.

Asselman, George A. A.: *See*—
Mahdjuri, Faramarz; Asselman, George A. A.; and de Grijs, Johan C., 4,270,520, Cl. 126-433.000.

Asseo, Edouard: *See*—
Broc, Guillaume; and Asseo, Edouard, 4,271,506, Cl. 370-89.000.

Atkins, Terrance J.: *See*—
Walters, L. Kirk; Judd, Richard K.; and Atkins, Terrance J., 4,271,094, Cl. 261-39.00B.

Atkinson, Joseph G.; Rooney, Clarence S.; Girard, Yves; and Engelhardt, Edward L., to Merck & Co., Inc. Substituted phenyl alanine antihypertensive agents. 4,271,187, Cl. 424-309.000.

Atlantic Richfield Company: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Baillie, Lloyd A., 4,270,926, Cl. 44-1.0SR.
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., 4,270,927, Cl. 44-1.0SR.
Pritchett, William C., 4,270,626, Cl. 181-113.000.

Atlas Powder Company: *See*—
Hurst, Gerald L., 4,270,435, Cl. 86-1.00R.
Janoski, Florian B., 4,270,455, Cl. 102-318.000.

Au, Dean T.: *See*—
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,271,472, Cl. 364-481.000.

Audi NSU Auto Union AG: *See*—
Will, Heinz-Dieter; Dommes, Werner; and Polzl, Hans-Werner, 4,270,356, Cl. 60-602.000.

August Lepper Maschinen- und Apparatebau GmbH: *See*—
Muller, Franz, 4,270,281, Cl. 34-75.000.

Auto-Mixer International Manufacturing Corp.: *See*—
Johnson, Randall W., 4,270,505, Cl. 123-522.000.

Automotive Products Limited: *See*—
Davies, David A., 4,270,640, Cl. 192-70.140.
Young, Alastair J., 4,270,807, Cl. 303-22.00R.

Axtell, Clyde R., III; and Drabing, Richard B., to John Fluke Mfg. Co., Inc. Universal analog and digital tester. 4,271,515, Cl. 371-25.000.

Azusawa, Noboru, to Hitachi, Ltd. Control system for commutatorless motor. 4,271,385, Cl. 318-722.000.

B. F. G. Glasgroup: *See*—
Janssens, Theo; and Willems, Victor, 4,270,688, Cl. 228-5.100.

Babberl, Marion G., to Rapid Mounting & Finishing Company. Sign construction. 4,270,291, Cl. 40-594.000.

Babbitt, William M., to Owens-Corning Fiberglas Corporation. Apparatus for processing heat softened mineral material. 4,270,941, Cl. 65-1.000.

Bachli, Emil. Solar collector. 4,270,524, Cl. 126-443.000.

Bachner, Ernst, to Voest-Alpine Aktiengesellschaft. Method of changing the cross sectional format of a strand and a plate mould for carrying out the method. 4,270,593, Cl. 164-82.000.

Bader, Edgar: *See*—
Parras, Karlheinz; Bader, Edgar; and Dupont, Helmut, 4,271,514, Cl. 371-22.000.

Baggett, William M.: *See*—
Plischke, LeMoyne W.; and Baggett, William M., 4,271,233, Cl. 428-370.000.

Baillie, Lloyd A.: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Baillie, Lloyd A., 4,270,926, Cl. 44-1.0SR.

Bainard, Dean R.; and Benjamin, Martin, to Garlock Inc. Disc brake boot. 4,270,442, Cl. 92-168.000.

Baker, Benjamin R.; and Baker, Mickey C. Produce handling system. 4,270,881, Cl. 414-398.000.

Baker, Eugene E.: *See*—
Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., 4,270,608, Cl. 166-278.000.

Baker International Corporation: *See*—
McStravick, David M.; and Roberts, William M., 4,270,606, Cl. 166-181.000.

Baker, James G., to Polaroid Corporation. Periscopic viewfinder system for use in photographic cameras. 4,270,837, Cl. 350-54.000.

Baker, Judd O.; O'Brien, Jerome J.; Curtis, Westley F.; and Varney, Frederick M., to United States of America, Navy. Torpedo guards. 4,270,479, Cl. 114-240.00A.

Baker, Mickey C.: *See*—
Baker, Benjamin R.; and Baker, Mickey C., 4,270,881, Cl. 414-398.000.

Baker, Richard H., to Exxon Research and Engineering Company. Soft turn-on power. 4,271,460, Cl. 363-49.000.

Bakermans, Johannes C. W., to AMP Incorporated. Machine for mass insertion of electrical terminals. 4,270,267, Cl. 29-881.000.

Baldwin, John L. E.; and Corbyn, Terence E., to Independent Broadcasting Authority. Delay circuits. 4,271,483, Cl. 364-900.000.

Ballew, Ray D. Thermal pool cover. 4,270,232, Cl. 4-498.000.

Balog, Leonard J.: *See*—
Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., 4,270,258, Cl. 29-157.400.

Bancsi, Joseph A.: *See*—
Scott, James W.; Bancsi, Joseph A.; and Kersten, Jean, 4,270,725, Cl. 251-6.000.

Barber, Everett M., Jr.: *See*—
Hopper, Thomas P.; and Barber, Everett M., Jr., 4,270,516, Cl. 126-417.000.

Barkas, Emanuel E., to Harvey Hubbell Incorporated. Safety receptacle. 4,271,337, Cl. 200-51.000.

Barnes, Gerald W., to W. S. Coswell Limited. Method of making bingo or tombola tickets and article produced thereby. 4,270,774, Cl. 283-62.000.

Barnett, William K.: *See*—
Barnett, William O.; and Barnett, William K., 4,270,470, Cl. 110-346.000.

Barnett, William O.; and Barnett, William K. Combustion system and method for burning fuel with a variable heating value. 4,270,470, Cl. 110-346.000.

Barrett, Joseph J.; and West, Gary A., to Allied Chemical Corporation. Photoacoustic rotational raman spectroscopy. 4,270,864, Cl. 356-301.000.

Barrington, Barchus Q., to Halliburton Company. Annulus pressure operated closure valve with improved power mandrel. 4,270,610, Cl. 166-317.000.

Barry, Michael J., to Dresser Europe S.A. Pre-start warning device for a machine. 4,270,900, Cl. 299-1.000.

Barsotti, Giuliano: *See*—
Giovannetti, Sergio; Barsotti, Giuliano; and Donati, Giovanni, 4,271,023, Cl. 210-321.300.

Base, Jimmy D. Downhole stabilizing tool with actuator assembly and method for using same. 4,270,619, Cl. 175-61.000.

Basel, Donald R.: *See*—
Kawolics, Raymond P.; and Basel, Donald R., 4,271,024, Cl. 210-474.000.

BASF Aktiengesellschaft: *See*—
Baumann, Annegrit; Kiehs, Karl; Adolphi, Heinrich; and Koenig, Karl-Heinz, 4,271,171, Cl. 424-266.000.
Hansen, Guenter; Pottgiesser, Hermann; and Schlindwein, Walter, 4,271,231, Cl. 428-323.000.
Lotsch, Wolfgang; and Hilbert, Peter, 4,271,301, Cl. 544-296.000.
Lotsch, Wolfgang, 4,271,309, Cl. 548-364.000.
Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Leske, Dieter; and Kunze, Johannes, 4,271,163, Cl. 424-250.000.
Vamvakaris, Christos; Neumann, Peter; and Patsch, Manfred, 4,271,303, Cl. 546-155.000.

BASF Wyandotte Corporation: *See*—
Christman, Donald L.; and Kan, Peter T., 4,271,087, Cl. 260-453.0AB.

Batchelder, Leonard E. Fire extinguisher holder. 4,270,722, Cl. 248-310.000.

Battista, Anthony M. Sound actuated clock-mirror. 4,271,492, Cl. 368-10.000.

Bascom, Joe B.; and Donnelly, James E., to Spin-O-Magic, Inc. Rotating ring yarn spinning or twisting apparatus and method. 4,270,340, Cl. 57-75.000.

Baudry, Sylvie: *See*—
Broussely, Michel; and Baudry, Sylvie, 4,271,243, Cl. 429-194.000.

Bauer, Jack N.: *See*—
DiGiulio, Adolph V.; and Bauer, Jack N., 4,271,271, Cl. 521-82.000.

Baughn, Daniel L.: *See*—
Kimball, David V.; and Baughn, Daniel L., 4,270,390, Cl. 73-663.000.

Baum, Gerald L., to National Mine Service Company. Cutter drum drive assembly for canted end sections. 4,270,803, Cl. 299-76.000.

Baum, Marcel; Frankenberger, Horst; and Schwanborn, Erik, to Draegerwerk Aktiengesellschaft. Tracheal tube. 4,270,530, Cl. 128-204.250.

Baumann, Annegrit; Kiehs, Karl; Adolphi, Heinrich; and Koenig, Karl-Heinz, to BASF Aktiengesellschaft. Aroylurea. 4,271,171, Cl. 424-266.000.

Baumann, Gerhard, to Interhydro AG. Plant receiving vessel for insertion in a hydroponic vessel. 4,270,309, Cl. 47-59.000.

Baxter Travenol Laboratories, Inc.: *See*—
Adams, Elvin E., 4,270,534, Cl. 128-214.00D.
Busting, James R., 4,271,140, Cl. 424-1.000.
Scott, James W.; Bancsi, Joseph A.; and Kersten, Jean, 4,270,725, Cl. 251-6.000.

Bayer Aktiengesellschaft: *See*—
Bremen, Josef; Wehling, Bernhard; and Schellhammer, Carl-Wolfgang, 4,271,293, Cl. 542-435.000.
Brinkmann, Uwe; Telle, Helmut; and Rawe, Roderich, 4,271,395, Cl. 331-94.50L.
Diller, Werner; Drope, Eckard; Ebendt, Gunther; and Reichold, Ernst, 4,271,121, Cl. 422-56.000.
Endres, Robert; Drave, Heinz; Mannmann, Manfred; and Poppe, Lothar, 4,271,130, Cl. 423-318.000.
Forster, Heinz; Fuchs, Rainer; Hammann, Ingeborg; and Steudel, Wilhelm, 4,271,186, Cl. 424-304.000.
Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redmer, Frank, 4,270,889, Cl. 425-115.000.
Reffelmann, Gerd, 4,271,105, Cl. 264-51.000.
Schubart, Rudiger; and Braden, Rudolf, 4,270,994, Cl. 204-158.0HA.

Bayon, Patrice M., to L'Aiglon. Holding net, particularly for the stowing of loads on pallets and the like. 4,270,657, Cl. 206-386.000.

BBC Brown, Boveri & Co. Ltd.: *See—*
Bellati, Hans, 4,270,814, Cl. 308-160.000.
Holzinger, Karl, 4,270,563, Cl. 137-116.500.
Kmetz, Allan R., 4,271,391, Cl. 324-103.00P.
Zaugg, Paul, 4,270,342, Cl. 60-39.040.

Bean, Eric R.: *See—*
Southard, James S.; and Bean, Eric R., 4,270,431, Cl. 84-1.240.

Beccaris, Carlo, to Societe Anonyme Francaise Du Ferodo. Torsion damping center and a clutch plate assembly having such a torsion damping center. 4,270,645, Cl. 192-106.100.

Beck, Bernhard: *See—*
Fratzer, Gerhard; Beck, Bernhard; Dold, Erwin; and Klebe, Hans, 4,271,044, Cl. 252-462.000.

Becker, Joseph J.; and Ohloff, Gunther, to Firmenich, S.A. Tricyclic lactones. 4,271,076, Cl. 260-343.210.

Beckman, Glenn B., to Susquehanna Broadcasting Company. Closure seal for containers. 4,270,666, Cl. 215-364.000.

Beckman, Gregg S., to Pako Corporation. Photosensor circuit for photographic printer. 4,270,861, Cl. 355-38.000.

Beckman Instruments, Inc.: *See—*
Hawkins, John J., 4,271,002, Cl. 204-195.00M.

Beecham Group Limited: *See—*
Hindley, Richard M., 4,271,188, Cl. 424-309.000.

Beer, Robert W.: *See—*
Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., 4,270,258, Cl. 29-157.400.

Beggs, Donald: *See—*
Ahrendt, William A.; and Beggs, Donald, 4,270,739, Cl. 266-156.000.

Begunov, Petr M.: *See—*
Ragoza, Igor V.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Dina N.; and Tonikian, Robert T., 4,270,368, Cl. 66-13.000.

Behle, Gunter R.; and Hillstead, David P., to ACF Industries, Incorporated. Top operated tank car clapper value. 4,270,729, Cl. 251-144.000.

Behling, James R., to G. D. Searle & Co. Electrochemical dehydrogenation of steroidal $\Delta^{3,5}$ enol ethers under basic conditions to provide steroidal $\Delta^{4,6}$ dienones. 4,270,994, Cl. 204-78.000.

Behringer, Donald F.: *See—*
Rossi, Anthony J.; and Behringer, Donald F., 4,270,357, Cl. 60-660.000.

Behringwerke Aktiengesellschaft: *See—*
Helting, Torsten B.; and Guthohrlein, Gerhard, 4,271,147, Cl. 424-92.000.

Beijer, Per A. O.; and Strandas, Lars O., to Saab-Scania Aktiebolag. Hub gear for wheeled vehicles. 4,270,412, Cl. 74-801.000.

Belanger, Guy; and Missout, Gilles, to Hydro-Quebec. Apparatus for detecting and measuring the hydrogen content in a liquid substance. 4,271,474, Cl. 364-500.000.

Beling, Thomas E.; and Bric, Leopold, to Sigma Instruments, Inc. Synchronous motor drive. 4,271,384, Cl. 318-685.000.

Bell Telephone Laboratories, Incorporated: *See—*
Brolin, Stephen J., 4,271,509, Cl. 370-110.000.
Copeland, John A., 4,271,536, Cl. 455-619.000.
Goodman, David J.; Henry, Paul S.; and Prabhu, Vasant K., 4,271,524, Cl. 375-1.000.
Hartman, Adrian R.; Scott, Robert S.; and Shackle, Peter W., 4,271,445, Cl. 361-56.000.

Bellati, Hans, to BBC Brown, Boveri & Co. Ltd. Thrust bearing. 4,270,814, Cl. 308-160.000.

Belloc, Andre; Florent, Jean; Lunel, Jean; Mancy, Denise; and Palla, Jean-Claude, to Rhone-Poulenc Industries. Glycopeptide. 4,271,067, Cl. 260-112.00R.

Bender, Fredrick L., to Bender's Sales & Service, Inc. Reinforcing structure. 4,270,334, Cl. 52-828.000.

Bender, Heinz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, to Cassella Aktiengesellschaft. 6-Substituted-9-(2-hydroxyethyl)-1,2,3,4-tetrahydro carbazol-1-one. 4,271,073, Cl. 260-315.000.

Bender's Sales & Service, Inc.: *See—*
Bender, Fredrick L., 4,270,334, Cl. 52-828.000.

Bendix Corporation, The: *See—*
Marsh, Edward K., 4,270,825, Cl. 339-47.00R.

Beneke, Wolfgang, to Trutzschler GmbH & Co. KG. Carding flat arrangement. 4,270,246, Cl. 19-113.000.

Benjamin, Martin: *See—*
Bainard, Dean R.; and Benjamin, Martin, 4,270,442, Cl. 92-168.000.

Benjamin, Martin E.: *See—*
Denton, Dennis N.; and Benjamin, Martin E., 4,270,759, Cl. 277-1.000.

Bennett, Lawrence R.: *See—*
Blaskley, Clifton J.; and Bennett, Lawrence R., 4,271,164, Cl. 424-251.000.

Bennett, Richard C., to Whiting Corporation. Liquid-vapor separation device and method. 4,270,975, Cl. 159-27.00A.

Bercha, Frank G.: *See—*
O'Rourke, J. Cam; Pilkington, G. Roger; and Bercha, Frank G., 4,270,476, Cl. 114-40.000.

Berfield, Robert C., to Shop-Vac Corporation. Buckle or latch for holding lid to container. 4,270,668, Cl. 220-324.000.

Berger, Brian E., to A. H. Robins Company, Inc. Measuring instrument. 4,270,273, Cl. 33-150.000.

Berger, Gerald P., to FMC Corporation. Stop for crane boom. 4,270,663, Cl. 212-222.000.

Bergling, Karl T. Linkage system for load-lifting arrangements. 4,270,629, Cl. 187-9.00E.

Bergloff, Dag; Wohlfarter, Alois; Heisenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, to Anstalt fur Stromungsmaschinen Gesellschaft mbH. Method for making grooved rollers for dehydrating runs of materials. 4,270,254, Cl. 29-148.4OD.

Bergy, Malcolm E.; Coats, John H.; and Malik, Vedpal S., to Upjohn Manufacturing Company, The. Process for preparing lincomycin. 4,271,266, Cl. 435-73.000.

Berke, Philip A.; and Rosen, William E., to Sutton Laboratories, Inc. N-(Hydroxymethyl)-N-(1,3-dihydroxymethyl-2,5-dioxo-4-imidazolidinyl)-N'-(hydroxymethyl)urea used as a preservative agent. 4,271,176, Cl. 424-273.00R.

Berkman, Samuel; Metzl, Robert; Novak, Richard E.; and Patterson, David L., to RCA Corporation. Heat radiation deflectors within an EFG crucible. 4,271,129, Cl. 422-246.000.

Berlied, Henry P., Jr. Ski binding. 4,270,769, Cl. 280-615.000.

Bernard, Pierre J., to La Telemecanique Electrique. Door fastener. 4,270,780, Cl. 292-202.000.

Berry, Clifford D., Jr. Fireplace with sliding doors. 4,270,514, Cl. 126-140.000.

Bertelmann, Gunter; Holtschmidt, Ulrich; and Laqua, Arnold, to Th. Goldschmidt AG. Guanidinium salts, processes for their manufacture as well as microbicidal preparations containing these compounds. 4,271,190, Cl. 424-316.000.

Besson, Rene: *See—*
Zafferri, Roberto; Schneiter, Ali; and Besson, Rene, 4,271,498, Cl. 368-250.000.

Bevilacqua, Frank, to Combustion Engineering, Inc. Parallel flow collar for reducing vibration of a rod within a diffuser. 4,270,979, Cl. 176-78.000.

Beyerle, Rudi: *See—*
Bender, Heinz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, 4,271,073, Cl. 260-315.000.

Bhattacharyya, Aniruddha, to Republic Steel Corporation; and Hanna Furnace Corporation, The. Method and apparatus for removing biodegradable compounds from wastewater. 4,271,013, Cl. 210-617.000.

Bianchi, John E. Thumb break holster. 4,270,680, Cl. 224-193.000.

Billet, Rene, to Societe Anonyme Francaise du Ferodo. Torsion shock absorber device suitable for a clutch friction plate. 4,270,644, Cl. 192-106.200.

Binns Fencing Limited: *See—*
Binns, Julian R. H.; and Grange, Kenneth H., 4,270,737, Cl. 256-48.000.

Binns, Julian R. H.; and Grange, Kenneth H., to Binns Fencing Limited. Securing fencing material to posts. 4,270,737, Cl. 256-48.000.

Bio-Energy Systems, Inc.: *See—*
Zinn, Michael F.; Krulick, Steven E.; and Leonard, Ronald W., 4,270,596, Cl. 165-1.000.

Bio-Rad Laboratories, Inc.: *See—*
Curry, Robert E.; Simonsen, Michael G.; and Schwartz, Eric D., 4,271,123, Cl. 422-64.000.

Biranowski, Jerome B.; Lorenz, Donald H.; and Kantor, Simon W., to GAF Corporation. Rigid isocyanurate polyurethane foams and method for preparing same. 4,271,273, Cl. 521-110.000.

Birzele, Paul; and Geitz, Gerhard, to Siemens Aktiengesellschaft. Data transmission/reception installation with parallel/serial and serial/parallel character conversion for data exchange between communicating data processing systems. 4,271,518, Cl. 371-37.000.

Bisa, Karl; and Bisa, Thomas. Aerosol forming device. 4,270,698, Cl. 239-171.000.

Bisa, Thomas: *See—*
Bisa, Karl; and Bisa, Thomas, 4,270,698, Cl. 239-171.000.

Bishop, James C.; and Patenaude, Raymond A., to General Electric Company. Ammunition feed and eject mechanism. 4,270,436, Cl. 89-33.00R.

Bison-Werke, Bahre & Greten GmbH & Co. KG: *See—*
de Mets, Albert; and Neubauer, Harry, 4,271,105, Cl. 264-26.000.

Bittner, Friedrich: *See—*
Heatsche, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,271,297, Cl. 544-190.000.
Hentschel, Klaus; Bittner, Friedrich; and Sohreyer, Gerd, 4,271,298, Cl. 544-190.000.
Heatschel, Klaus; and Bittner, Friedrich, 4,271,299, Cl. 544-218.000.

Bjorklund, Curt A. Valve for a burner system. 4,270,561, Cl. 137-107.000.

Blachly, Beverly J., executor: *See—*
Blachly, Paul H., deceased; and Blachly, Beverly J., executor, 4,270,531, Cl. 128-207.140.

Blachly, Paul H., deceased; and by Blachly, Beverly J., executor. Oropharyngeal airway and bite block assembly and method of use for closed pulmonary ventilation. 4,270,531, Cl. 128-207.140.

Black & Decker Inc.: *See—*
Colberg, Richard A.; and Henry, William T., Jr., 4,270,427, Cl. 83-473.000.
Colberg, Richard A., 4,270,428, Cl. 83-477.200.

Blackburn, Wayne E.; Liston, Max D.; and Stark, William A., to Liston Scientific Corp. Purging system. 4,270,564, Cl. 137-240.000.

Blackshaw, George C., to Polysar Limited. Carboxylated nitrile rubber vulcanizates. 4,271,052, Cl. 260-23.70N.

Blair, Gilbert: *See—*
Lakin, Ira; and Blair, Gilbert, 4,270,982, Cl. 202-241.000.

Blair, Matthew J.: *See—*
Esposito, Edward J.; and Blair, Matthew J., 4,270,949, Cl. 75-60.000.

Blankley, Clifton J.; and Bennett, Lawrence R., to Warner-Lambert Company. 6-Substituted-arylpyrido[2,3-d]pyrimidin-7-amines and derivatives. 4,271,164, Cl. 424-251.000.

Blaskowski, Henry J., to Combustion Engineering, Inc. Steam generating heat exchanger. 4,270,493, Cl. 122-7.00R.

Blaszczak, Larry C.: *See—*
Hatfield, Lowell D.; Blaszczak, Larry C.; and Fisher, Jack W., 4,271,305, Cl. 548-153.000.

Blomgren, Roland A.: *See—*
Shallenberg, Robert L.; and Blomgren, Roland A., 4,270,238, Cl. 15-321.000.

Bloodworth, William T. Cash replacement system and components. 4,271,351, Cl. 235-375.000.

Blount, David H. Process for the production of poly(amine allyl halide halohydrin silicate) copolymer and their reaction products. 4,271,284, Cl. 528-28.000.

Blumenthal, John; and Moore, Chad Z., to Gould Inc. Electrographic imaging with non-sequential electrode actuation. 4,271,417, Cl. 346-154.000.

Bodily, Errol G. Adjustable biorhythm display assembly. 4,270,772, Cl. 283-1.00A.

Boehringer Ingelheim GmbH: *See—*
Mentrup, Anton; Schroman, Kurt; Reath, Ernst-Otto; and Reichl, Richard, 4,271,158, Cl. 424-248.500.
Stahle, Helmut; Koppe, Herbert; Knumer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Boehringer Mannheim GmbH: *See—*
Deneke, Ulfert; Stahl, Peter; and Schneider, Walter, 4,271,265, Cl. 435-16.000.

Boeing Company, The: *See—*
Hansen, Karl A.; and Hendrickson, Iver G., 4,271,393, Cl. 324-240.000.
LeConte, Richard J., 4,270,782, Cl. 292-288.000.

Bognert, Jean-Pierre. Method for repairing dental prosthesis and similar. 4,270,904, Cl. 433-167.000.

Bogholtz, Wilhelm E.: *See—*
Almasi, George S.; Bogholtz, Wilhelm E.; and Keefe, George E., 4,271,485, Cl. 365-16.000.

Bogue, Beuford A.; and Gagneux, Stephen A., to Hospal Medical Corp. Double lumen catheters. 4,270,535, Cl. 128-214.400.

Bohning, Werner: *See—*
Muchel, Franz; and Bohning, Werner, 4,270,842, Cl. 350-452.000.

Bollen, Lambertus J. M.; and Goorissen, Jan, to U.S. Philips Corporation. Method of manufacturing a semiconductor device utilizing a mono-polycrystalline deposition on a predeposited amorphous layer. 4,270,960, Cl. 148-175.000.

Bomar, George S.: *See—*
McSwiney, Thomas L.; Bomar, George S.; and Johnson, Oran W., 4,270,443, Cl. 493-287.000.

Bonanno, Anthony J.: *See—*
Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., 4,270,974, Cl. 159-16.00S.

Boomgaard, Ritse E.; Buter, Roelof; and Kiffen, Aleidus A., to Akzo N.V. Pigment-containing coating composition having a high solids content. 4,271,062, Cl. 260-39.00P.

Bore, Pierre; and De Labbey, Arnaud, to L'Oreal. Process for assessing the presence of oxidizing agents on of keratin fibers. 4,270,919, Cl. 23-230.00B.

Borello, Giampiero: *See—*
Occella, Sergio; Arietti, Giulio; and Borello, Giampiero, 4,270,498, Cl. 123-276.000.

Borg-Warner Corporation: *See—*
Klimek, Edmund J., 4,270,255, Cl. 29-156.50A.
Ralston, Ronald R., 4,270,507, Cl. 123-523.000.

Borman, Willem F. H.; and Campbell, Richard W., to General Electric Company. Thermoplastic molding compositions. 4,271,063, Cl. 260-40.00R.

Borner, Paul; Isensee, Hans-Jorg; and Vietzke, Horst. Apparatus for the continuous precipitation of uranium peroxide. 4,271,127, Cl. 422-159.000.

Borregaard Industries Limited: *See—*
Dahl, Birger, 4,270,914, Cl. 8-125.000.

Boryta, Daniel A.: *See—*
Brown, Patrick M.; Jacob, Susan R.; and Boryta, Daniel A., 4,271,131, Cl. 423-179.500.

Bosch-Siemens Hausgerate GmbH: *See—*
Lotz, Helmut, 4,270,282, Cl. 34-86.000.

Boudart, Michel; and Leclercq, Lucien E., to Leland Stanford Junior University, The Board of Trustees of. High surface area molybdenum oxycarbide catalysts. 4,271,041, Cl. 252-438.000.

Boulachanis, Nicolas. Puff duster and mop-making machine. 4,270,804, Cl. 300-16.000.

Bourdin, Francis, to Saint-Gobain Industries. Accumulator of energy for conversion to heat. 4,270,600, Cl. 165-104.310.

Bourne, Richard C., to University of Nebraska Regents Hall, The Board of Regents of the. Controller for condenser-side storage solar heat-pump systems. 4,270,518, Cl. 126-422.000.

Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Poussinet, Gerard, to Rhone-Poulenc Industries. Perhydro-1,3-thiazine derivatives. 4,271,156, Cl. 424-246.000.

Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Poussinet, Gerard, to Rhone-Poulenc Industries. Hydroxyalkyl pyrid-2-yl dithiocarbamates, their preparation and their use. 4,271,167, Cl. 424-263.000.

Boussckey, Bernard: *See—*
Cikelens, Alain; and Boussckey, Bernard, 4,270,704, Cl. 241-122.000.

Boyce, Walter A., to Westinghouse Electric Corp. Method of manufacturing a ceramic article. 4,271,109, Cl. 264-63.000.

Boyer, Billy G.: *See—*
Lipshield, Eugene C.; and Boyer, Billy G., 4,270,406, Cl. 74-516.000.

Braden, Rudolf: *See—*
Schubert, Rudiger; and Braden, Rudolf, 4,270,998, Cl. 204-158.0HA.

Bradler, Peter; and Stepina, Jaroslav, to Siemens Aktiengesellschaft. Electric two-motor drive. 4,271,380, Cl. 318-245.000.

Bradshaw, Robert F. D.; and Kraicer, Alec, to Eye (Electronic Products) Limited. Trace vapor detection. 4,271,357, Cl. 250-357.000.

Braga, Alphonse M., to Radion Corporation. Process for slaughtering of animals by bleeding. 4,270,241, Cl. 17-1.00C.

Braithwaite, Albert A.; and Smith, Tony S., to Freigh Bonallack Limited. Structural members for insulated vehicle bodies. 4,271,236, Cl. 428-542.000.

Brammall, Inc.: *See—*
Van Gompel, James, 4,270,378, Cl. 72-392.000.

Brandenstein, Manfred: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, 4,270,815, Cl. 308-213.000.

Brandl, Gerhard. Sectoral water sprinkler. 4,270,700, Cl. 239-231.000.

Brandl, Michael C.; Kataoka, David T.; Khanna, Jagdish C.; and Zwettler, Frank J., Jr., to International Harvester Company. Tractor hood. 4,270,623, Cl. 180-69.00R.

Braun Engineering Company: *See—*
Braun, Frederick W., 4,271,240, Cl. 428-580.000.

Braun, Ernst; and Braun, Gert. Single chain scraper conveyor. 4,270,654, Cl. 198-729.000.

Braun, Frederick W., to Braun Engineering Company. Lobed preparatory blank for cold extruding a cup-shaped article with hollow polygonal interior. 4,271,240, Cl. 428-580.000.

Braun, Gert: *See—*
Braun, Ernst; and Braun, Gert, 4,270,654, Cl. 198-729.000.

Brauning, Egon, to Protoned B.V. Ergonomic chair. 4,270,797, Cl. 297-300.000.

Brearley, Malcolm, to Girling Limited. Anti-lock brake control systems for multi-axle vehicles. 4,270,808, Cl. 303-92.000.

Breen, William C.; and Schulman, Richard E. Behavioral fuel-saving method and apparatus for a motor vehicle. 4,270,501, Cl. 123-350.000.

Breeze, Marvin M., Jr.; and Wood, Virgil W., to Western Electric Company, Inc. Portable apparatus for assembling nuts and washers on threaded studs. 4,270,237, Cl. 10-155.00R.

Brekke, Carroll E. Solar heating system. 4,270,521, Cl. 126-433.000.

Bremen, Josef; Wehling, Bernhard; and Schellhammer, Carl-Wolfgang, to Bayer Aktiengesellschaft. Benzofuranyl-benzimidazoles. 4,271,293, Cl. 542-435.000.

Brennan, Louis G., to Aller-Screen, Inc. Allergy testing method. 4,270,548, Cl. 128-743.000.

Brenner, Stanley, to Perfect-Line Manufacturing Corp. Wire connector. 4,270,830, Cl. 339-99.00R.

Breslow, David S.; and Simpson, David A., to Hercules Incorporated. Photosensitive compositions containing a photooxidizable component. 4,271,259, Cl. 430-286.000.

Breuer, Hermann: *See—*
Denzel, Theodor; and Breuer, Hermann, 4,271,157, Cl. 424-248.000.

Bric, Leopold: *See—*
Beling, Thomas E.; and Bric, Leopold, 4,271,384, Cl. 318-685.000.

Brico Engineering Limited: *See—*
Warner, Percival E.; Smith, Paul; and Cadle, Terence M., 4,271,239, Cl. 428-547.000.

Brienza, Michael J., to Singer Company, The. Stitch pattern simulation. 4,270,473, Cl. 112-158.00E.

Brierley, John M.; Parsons, John S.; Trueman, James R.; and Jones, Robert A., to Lever Brothers Company. Pourable liquid compositions. 4,271,030, Cl. 252-98.000.

Briggs & Stratton Corporation: *See—*
Tharman, Paul A., 4,270,509, Cl. 123-647.000.

Bright, David R.; and Williams, Robert D., to International Minerals & Chemical Corp. Control of shipping fever. 4,271,174, Cl. 424-272.000.

Brinkmann, Uwe; Telle, Helmut; and Rau, Roderich, to Bayer Aktiengesellschaft. Dyestuff laser. 4,271,395, Cl. 331-94.5H.

British Petroleum Company Limited, The: *See—*
Tennico, Stephen R., 4,271,136, Cl. 423-362.000.

British Steel Corporation: *See—*
Williams, Gerald B., 4,271,477, Cl. 364-563.000.

Britton, Robert E., to Cloudy and Britton, Inc. Apparatus for processing seafood. 4,270,598, Cl. 165-61.000.

Broc, Guillaume; and Anso, Edouard, to U.S. Philips Corporation. High speed data switching node. 4,271,506, Cl. 370-89.000.

Brodin, Gregory C.: *See—*
Foster, Richard P.; and Brodin, Gregory C., 4,271,228, Cl. 428-281.000.

Brolin, Stephen J., to Bell Telephone Laboratories, Incorporated. Supervisory signaling for digital channel banks. 4,271,509, Cl. 370-110.000.

Brosilow, Coleman B.: *See—*
Adler, Robert J.; Brosilow, Coleman B.; Brown, William R.; and Gardner, Nelson C., 4,270,937, Cl. 62-17.000.

Brossard, Pierre C.; and Henaff, Jeannine L. G. Frequency modulators for use in microwave links. 4,271,504, Cl. 370-76.000.

Broussely, Michel; and Baudry, Sylvie, to Saft Leclanche. Positive active material for an electrical cell. 4,271,243, Cl. 429-194.000.

Broussely, Michel: *See*—
Gabano, Jean-Paul; and Broussely, Michel, 4,271,244, Cl. 429-197.000.

Brown, Carlton E.; and Tatham, Walter A., to Environmental Air Products, Inc. Air flow device. 4,270,577, Cl. 138-39.000.

Brown, Christopher R.: *See*—
Norton, David J.; and Brown, Christopher R., 4,270,715, Cl. 246-5.000.

Brown, Donald G., to United States of America, Air Force. Incident radiation absorber/reflector assembly. 4,271,396, Cl. 331-94.50C.

Brown, Ernest W., to International Paper Company. Attenuated vibration circular saw. 4,270,429, Cl. 83-851.000.

Brown, Louis S., Jr.: *See*—
March, Frank A.; and Brown, Louis S., Jr., 4,270,874, Cl. 405-63.000.

Brown, Patrick M.; Jacob, Susan R.; and Boryta, Daniel A., to Foote Mineral Company. Production of highly pure lithium chloride from impure brines. 4,271,131, Cl. 423-179.500.

Brown, Thomas A.; and Huber, Joseph B., to Kennametal Inc. Extrusion punch. 4,270,378, Cl. 72-267.000.

Brown, Timothy W., to GTE Products Corporation. Variable pulse tuning system. 4,271,528, Cl. 455-179.000.

Brown, William D., to Rohr Industries, Inc. Method of manufacturing an adhesive bonded acoustical attenuation structure and the resulting structure. 4,271,219, Cl. 428-116.000.

Brown, William R.: *See*—
Adler, Robert J.; Brosilow, Coleman B.; Brown, William R.; and Gardner, Nelson C., 4,270,937, Cl. 62-17.000.

Brown & Williamson Tobacco Corporation: *See*—
Jenkins, John M.; Pedder, Christopher T.; and Robertson, Neil G. D., 4,270,552, Cl. 131-290.000.

Brownell, Richard G., to Sherwood Medical Industries Inc. Tube connector with security means. 4,270,778, Cl. 285-305.000.

Bruns, Klaus: *See*—
Conrad, Jens; Upadek, Horst; and Bruns, Klaus, 4,271,047, Cl. 252-522.00R.

Bucheli, Josef, to Tuflex AG. Straddling dowel. 4,270,434, Cl. 411-21.000.

Buchi, George H.; and Wuest, Hans, to Firmenich, S.A. 9-Hydroxyundeca-4,10-dien-1-al. 4,271,048, Cl. 252-522.00R.

Buckle, David: *See*—
Robinson, Edwin; and Buckle, David, 4,270,468, Cl. 110-245.000.

Budd Company, The: *See*—
Lancaster, Arthur, 4,270,601, Cl. 165-154.000.

Buergel, George K. Cycle-controlled sliding-valve in a heating-chamber combustion engine. 4,270,352, Cl. 60-517.000.

Bunting, James R., to Baxter Travenol Laboratories, Inc. Method and composition for double receptor, specific binding assays. 4,271,140, Cl. 424-1.000.

Buono, Caetano, to Van Blarcom Closures, Inc. One piece child resistant cap. 4,270,664, Cl. 215-216.000.

Burch, Fred O. Climb inhibiting rail. 4,270,736, Cl. 256-12.000.

Burgman, Herbert A.: *See*—
Grant, David C.; and Burgman, Herbert A., 4,270,802, Cl. 299-5.000.

Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Baillie, Lloyd A., to Atlantic Richfield Company. Process for removal of sulfur and ash from coal. 4,270,926, Cl. 44-1.0SR.

Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., to Atlantic Richfield Company. Process for removal of sulfur and ash from coal. 4,270,927, Cl. 44-1.0SR.

Burns, Richard D., to General Electric Company. Rotor assembly having shroud with replaceable knock-outs. 4,271,368, Cl. 310-42.000.

Burroughs Corporation: *See*—
Flora, Laurence P., 4,271,526, Cl. 375-17.000.
Kuznetzoff, Philip, 4,270,823, Cl. 316-19.000.
Looschen, Floyd W., 4,271,510, Cl. 370-110.000.
Templeton, William B., 4,270,747, Cl. 271-179.000.

Bursott, Leslie W.: *See*—
Page, Norman B.; and Bursott, Leslie W., 4,270,328, Cl. 52-511.000.

Buter, Roelof: *See*—
Boomgaard, Ritse E.; Buter, Roelof; and Kiffen, Aleidus A., 4,271,062, Cl. 260-39.00P.

Butler, Denton G.; and Lester, Andrew W. Printing coater. 4,270,483, Cl. 118-46.000.

Butte, Walter A., Jr.; and Cherry, Wesley R., to Suntech, Inc. High selectivity cyanoalkylation process. 4,271,088, Cl. 260-465.600.

Butte, Walter A., Jr.; and Cherry, Wesley R., to Suntech, Inc. Cyanoalkylation process. 4,271,089, Cl. 260-465.600.

BWG Bergwerk- und Walzwerk-Maschinenbau GmbH: *See*—
Noe, Oskar, 4,270,655, Cl. 198-774.000.

Byk-Mallinckrodt CIL B.V.: *See*—
Goedemans, Wilhelmus T., 4,271,141, Cl. 424-1.000.

Bystedt, H. S. Ingemar: *See*—
Sandstrom, Ake. O.; Falk, Bo G.; and Bystedt, H. S. Ingemar, 4,270,976, Cl. 162-26.000.

C. A. Weidmuller KG: *See*—
Kordt, Hans-Herbert; and Stenz, Paul P., 4,270,835, Cl. 339-198.0GA.

C. G. Bretting Mfg. Co. Inc.: *See*—
Trogan, John F., 4,270,744, Cl. 493-430.000.

Cablecraft, Inc.: *See*—
West, Harold H., 4,270,403, Cl. 74-473.00R.

Cadle, Terence M.: *See*—
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Cahill, Kathleen J.: *See*—
United States of America, National Aeronautics and Space Administration; Giner, Jose D.; and Cahill, Kathleen J., 4,270,984, Cl. 204-2.100.

California Institute of Technology: *See*—
Gray, Harry B.; and Mann, Kent R., 4,271,033, Cl. 252-188.30R.

Calspan Corporation: *See*—
DePalma, Vito A.; Meyer, Anne E.; and Ashby, Albert K., 4,271,209, Cl. 427-58.000.

Cam Gears Limited: *See*—
Adams, Frederick J., 4,270,397, Cl. 74-89.180.

Camilleri, Thomas M. Plow protective member. 4,271,225, Cl. 428-215.000.

Campbell, Curtis B.; and Peyla, Richard J., to Chevron Research Company. Clean combustion chamber fuel composition. 4,270,930, Cl. 44-71.000.

Campbell, Richard W.: *See*—
Borman, Willem F. H.; and Campbell, Richard W., 4,271,063, Cl. 260-40.00R.

Canadian Fram Limited: *See*—
Densow, Ulrich O., 4,270,642, Cl. 192-84.00T.

Canaris, Valerie M.: *See*—
Eckles, William E.; and Canaris, Valerie M., 4,270,988, Cl. 204-50.00R.

Canfield, Ray E., to Donaldson Company, Inc. Method of forming a tube structure for use in a lap joint. 4,270,689, Cl. 228-152.000.

Canon Kabushiki Kaisha: *See*—
Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, 4,270,857, Cl. 355-8.000.
Minoura, Kazuo; Sugiura, Muneharu; Minami, Setsuo; and Sato, Tadashi, 4,270,858, Cl. 355-8.000.
Suzuki, Ryoichi; Harigaya, Isao; and Uchiyama, Takashi, 4,270,852, Cl. 354-23.00D.

Cantarella, Bruno G.; and Cecchi, Carlo, to Fiat-Allis Macchine Movimento Terra S.p.A. Earth moving machine of the scraping blade type. 4,270,617, Cl. 172-821.000.

Canu, John C. Electric watt-hour meter testing device. 4,271,390, Cl. 324-74.000.

Cardenas, Ricardo L.; Harnsberger, Bobby G.; and Maddox, Jim, Jr., to Texaco Inc. Emulsion oil recovery process usable in high temperature, high salinity formations. 4,270,607, Cl. 166-273.000.

Cardot, Claude R.: *See*—
Droux, M. Jacques; and Cardot, Claude R., 4,271,522, Cl. 371-57.000.

Carl Freudenberg, Firma: *See*—
Heckel, Klaus; Klaffke, Friedemann; Umann, Walter; and Schwarz, Volker, 4,271,218, Cl. 428-36.000.

Carl Zeiss Stiftung: *See*—
Muchel, Franz; and Bohning, Werner, 4,270,842, Cl. 350-452.000.

Carniel, Giovanni C.: *See*—
Melloni, Piero; Della Torre, Arturo; Carniel, Giovanni C.; and Rossi, Alessandro, 4,271,160, Cl. 424-248.540.

Carroll, James C.; Chapman, Donald L.; and McGoldrick, Gilbert A., to Square D Company. Fire resistant fitting floor holes. 4,270,318, Cl. 52-1.000.

Carson, Miles T. Underground service module. 4,270,695, Cl. 237-12.100.

Casparian, Robert E.: *See*—
Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., 4,270,974, Cl. 159-16.00S.

Cassella Aktiengesellschaft: *See*—
Bender, Heinz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, 4,271,073, Cl. 260-315.000.
Michel, Walter; Honel, Hans; Schon, Manfred; and Kaiser, Wolfgang, 4,271,286, Cl. 528-254.000.

Castner, Raymond P., to Westinghouse Electric Corp. Method of operating a remotely controlled tool positioning table. 4,271,471, Cl. 364-474.000.

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Adams, Carl P.; Allen, Royce D.; and Kokaly, Frederick L., 4,270,616, Cl. 172-811.000.
Jackson, George J., 4,270,731, Cl. 251-309.000.
Oberth, Hans G.; and Aminger, Gerhard A., 4,270,562, Cl. 137-115.000.
Wiggins, Noel D., 4,270,813, Cl. 308-23.000.

Cauffiel, Ford B. Apparatus for handling sheet steel or the like. 4,270,684, Cl. 226-162.000.

Cecchi, Carlo: *See*—
Cantarella, Bruno G.; and Cecchi, Carlo, 4,270,617, Cl. 172-821.000.

Celanese Corporation: *See*—
Tse, Patrick S., 4,270,913, Cl. 8-115.600.

CENSOR Patent- und Versuchs-Anstalt: *See*—
Mayer, Herbert E., 4,270,649, Cl. 198-341.000.

Centro Ricerche Fiat S.p.A.: *See*—
Occella, Sergio; Arietti, Giulio; and Borello, Giampiero, 4,270,498, Cl. 123-276.000.

Ceraver: *See*—
Minjolle, Louis, 4,271,110, Cl. 264-67.000.

Ceserani, Roberto: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
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Cesna, Joseph V., to Speedfam Corporation. Bearing mount for lapping machine pressure plate. 4,270,314, Cl. 51-131.400.

Chamberlain, Craig. Frameless substantially spherical building structure. 4,270,320, Cl. 52-81.000.

Champion International Corporation: *See*—
Webinger, George, 4,270,692, Cl. 229-11.000.

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Chapuis, Paul. Point of impact adjustment means for firearm barrels. 4,270,296, Cl. 42-76.00R.

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Check, Frank T., Jr.; Eckert, Alton B., Jr.; and Warren, Joseph R., to Pitney Bowes Inc. Micro computerized electronic postage meter system. 4,271,481, Cl. 364-900.000.

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Voges, Heinz W., 4,271,321, Cl. 568-569.000.

Chen, Di: *See*—
Anderson, Rogers H.; G., Enrique Bernal; and Chen, Di, 4,271,104, Cl. 264-1.500.

Chen, Michael S.; Greskovich, Eugene J.; and Spector, Marshall L., to Air Products and Chemicals, Inc. Control of activated sludge wastewater treating process for enhanced phosphorous removal. 4,271,026, Cl. 210-605.000.

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Butte, Walter A., Jr.; and Cherry, Wesley R., 4,271,088, Cl. 260-465.600.
Butte, Walter A., Jr.; and Cherry, Wesley R., 4,271,089, Cl. 260-465.600.

Cherukuri, Subraman R.; Friello, Dominick R.; Jewell, Walter; and Mackay, Donald A. M., to Life Savers, Inc. Chewing gum having a soft texture. 4,271,198, Cl. 426-3.000.

Cherukuri, Subraman R.; Vink, Walter; Friello, Dominick R.; and Mackay, Donald A. M., to Life Savers, Inc. Sugar-containing chewing gum having smooth texture and long-lasting sweetness. 4,271,199, Cl. 426-5.000.

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Hopkins, Walter; Friello, Dominick R.; Cherukuri, Subraman R.; Roy, Raymond L.; and Mackay, Donald A. M., 4,271,197, Cl. 426-3.000.

Chervyakov, Evgeny N.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Inaida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Cheselka, Harry; Nemecek, William F.; and Stockwell, Dean A., to International Business Machines Corporation. Display terminal with modularly attachable features. 4,271,479, Cl. 364-900.000.

Chesmer, Alec D.; and Turner, Joseph, to Rogers Corporation. Rubber and fabric feed belt. 4,270,656, Cl. 198-847.000.

Chevalier, Donald M. Apparatus and method for converting solar energy. 4,270,350, Cl. 60-516.000.

Chevron Research Company: *See*—
Aoyagi, Edward I., 4,271,306, Cl. 548-182.000.
Campbell, Curtis B.; and Peyla, Richard J., 4,270,930, Cl. 44-71.000.

Chicago Bridge & Iron Company: *See*—
Husain, Matloob; Lai, Ban-Yen; and Schmitt, Richard L., 4,270,358, Cl. 60-693.000.

Chiclens, Alain; and Boussekey, Bernard, to Fives-Cail Babcock. Crusher. 4,270,704, Cl. 241-122.000.

Chikamura, Takao; Ogawa, Kazufumi; Terai, Yasuaki; Fujiwara, Shinji; and Fukai, Masakazu, to Matsushita Electric Industrial Co., Ltd. Solid-state image pickup device. 4,271,420, Cl. 357-30.000.

Chiso Corporation: *See*—
Sugihara, Taizo; and Sonoda, Hiromu, 4,270,962, Cl. 156-180.000.

Cho, Kenji; Takenitzawa, Minoru; and Inoue, Yoshio, to Dai Nippon Printing Co. Ltd.; and Shin-Etsu Chemical Co. Ltd. Method for the preparation of planographic printing plates. 4,271,255, Cl. 430-253.000.

Choules, G. Lew. Tar sand extraction process. 4,270,609, Cl. 166-303.000.

Choulet, Jean-Claude; and Nouvel, Jacques, to Rhone-Poulenc Industries. Process for the continuous rearrangement of alkali metal salts of aromatic carboxylic acids. 4,271,316, Cl. 562-480.000.

Christensen Inc.: *See*—
Reay, Robert G.; and Rachut, Ronald, 4,270,569, Cl. 137-514.700.

Christensen, Neal T.; Van Loo, William C.; Wetzer, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., to International Business Machines Corp. Multiprocessor mechanism for handling channel interrupts. 4,271,468, Cl. 364-200.000.

Christman, Donald L.; and Kan, Peter T., to BASF Wyandotte Corporation. Carbamylated modified polyisocyanates. 4,271,087, Cl. 260-453.0AB.

Chumakov, Vasily A. Method and apparatus for producing directionally solidifying cast pieces. 4,270,594, Cl. 164-127.000.

Chylewski, Christoph: *See*—
Mason, Leslie F. A.; Cook, Robert S.; Kilcast, David; Schellenberg, Matthias; and Chylewski, Christoph, 4,271,254, Cl. 430-239.000.

Ciba-Geigy AG: *See*—
Mason, Leslie F. A.; Cook, Robert S.; Kilcast, David; Schellenberg, Matthias; and Chylewski, Christoph, 4,271,254, Cl. 430-239.000.

Ciba-Geigy Corporation: *See*—
Felder, Louis; Kirchmayr, Rudolf; and Kesler, Rinaldo, 4,271,294, Cl. 544-87.000.
Kamber, Bruno; and Rittel, Werner, 4,271,068, Cl. 260-112.50R.
Lohmann, Dieter; and Wyler, Siegfried, 4,271,074, Cl. 260-326.260.
Marfurt, Hans-Rudolf; and Zarrer, August, 4,271,028, Cl. 210-727.000.
Seitz, Karl, 4,270,918, Cl. 8-549.000.
Zarbuchen, Jacques; and Lustenegger, Willi, 4,270,236, Cl. 8-159.000.

CIR S.p.A. Divisione Sasib: *See*—
Cristiani, Athos; and Gherardi, Gianluigi, 4,270,670, Cl. 221-211.000.

Citizen Watch Co., Ltd.: *See*—
Tamaru, Munetaka; and Hatase, Toshikazu, 4,271,493, Cl. 368-28.000.

Clark, Gary T., to Eastman Kodak Company. Heterocyclic mercapto compounds from alkyl-3-(phenylamino)butyrates. 4,271,071, Cl. 260-157.000.

Clark, Robert E.: *See*—
Tichy, Brian N.; and Clark, Robert E., 4,270,259, Cl. 29-402.060.

Clarksville Machine Works, Inc.: *See*—
Cline, Jack, 4,270,789, Cl. 294-63.00A.

Claxton, Gerald L.; and Horn, Darrell C., to Up-Right, Inc. Vineyard trellis wire retention. 4,270,581, Cl. 140-57.000.

Cline, Jack, to Clarksville Machine Works, Inc. Airbag setter. 4,270,789, Cl. 294-63.00A.

Cloudy and Britton, Inc.: *See*—
Britton, Robert E., 4,270,598, Cl. 165-61.000.

CMI Corporation: *See*—
Swisher, George W., Jr.; Smith, Donald W.; and Teel, Larry W., 4,270,801, Cl. 299-1.000.

CNG Research Company: *See*—
Adler, Robert J.; Brosilow, Coleman B.; Brown, William R.; and Gardner, Nelson C., 4,270,937, Cl. 62-17.000.

Coach & Car Equipment Corporation: *See*—
Harder, Arthur J., Jr., 4,270,798, Cl. 297-417.000.

Coaltek Corporation: *See*—
Johnston, Robert T., 4,270,762, Cl. 277-59.000.

Coats, John H.: *See*—
Bergy, Malcolm E.; Coats, John H.; and Malik, Vedpal S., 4,271,266, Cl. 435-73.000.

Cobble, Milan H.; Hull, Wendell C.; and Hays, Richard A. Omni-directional compound paraboloid-hyperboloid radiation device. 4,270,844, Cl. 350-294.000.

Coggin, Charles H., Jr.; and Jones, John L., Jr., to Nitto Boseki Co. Ltd. Apparatus and method for drawing of glass fiber. 4,270,942, Cl. 65-11.00W.

Colberg, Richard A.; and Heary, William T., Jr., to Black & Decker Inc. Bevel angle setting means for a power tool apparatus. 4,270,427, Cl. 83-473.000.

Colberg, Richard A., to Black & Decker Inc. Kerf guide and cautionary marker for a power driven tool. 4,270,428, Cl. 83-477.200.

Coleman, Denis; and Koroscil, Anthony, to American Cyanamid Company. Hydrophilic acrylonitrile polymers for melt-spinning. 4,271,056, Cl. 260-29.6AN.

Collins Industries, Inc.: *See*—
Karkau, Lawrence E., 4,270,630, Cl. 187-9.00R.

Collins, Paul W.; and Pappo, Raphael, to G. D. Searle & Co. 4,5-Unsaturated prostanoic acid derivatives. 4,271,314, Cl. 560-121.000.

Colt Industries Operating Corp.: *See*—
Sciotti, Robert; and Dougherty, Michael, 4,270,504, Cl. 123-520.000.

Columbus, Richard L., to Eastman Kodak Company. Capillary transport device having connected transport zones. 4,271,119, Cl. 422-50.000.

Combustion Engineering, Inc.: *See*—
Bevilacqua, Frank, 4,270,979, Cl. 176-76.000.
Blaskowski, Henry J., 4,270,493, Cl. 122-7.00R.
Mabery, Thomas L.; and Jackson, Francis B., 4,270,690, Cl. 228-173.00F.

Compagnie Francaise des Isolants: *See*—
Perchaluter, Michel, 4,271,329, Cl. 174-84.00R.

Compagnie Francaise des Petroles: *See*—
Herbreteau, Alain M., 4,271,226, Cl. 428-220.000.

Compagnie Internationale pour l'Informatique CII-Honeywell Bull: *See*—
Droux, M. Jacques; and Cardot, Claude R., 4,271,522, Cl. 371-57.000.
Giraud, Georges J. L., 4,271,482, Cl. 364-900.000.
Vinot, Daniel, 4,271,480, Cl. 364-900.000.

Components, John E. Dental articulator. 4,270,901, Cl. 433-54.000.

Compton, Leslie E.: *See*—
Stover, Carole S.; Compton, Leslie E.; and Youngerman, Eugene G., 4,271,009, Cl. 208-254.00R.

Compton, Robert. Firearms. 4,270,294, Cl. 42-34.000.

Computer Microfilm International Corporation: *See*—
O'Brien, Gerald E., 4,271,430, Cl. 358-102.000.

Comstock, Wilford K. Transient voltage suppression system. 4,271,446, Cl. 361-56.000.

Condec Corporation: *See*—
Phipps, Arthur L., 4,271,107, Cl. 264-51.000.

Cone, Clendon W. Gluing machine. 4,270,967, Cl. 156-299.000.

Connell, John M., to Foster Wheeler Energy Corporation. Tube support structure for a fluidized bed heat exchanger. 4,270,599, Cl. 165-104.160.

Conner, William R., Jr., to Kellwood Company. Four-point suspensions. 4,270,718, Cl. 248-188.300.

Connolly, James B.: *See*—
Widdowson, Richard E.; Connolly, James B.; Schlotterbeck, Earl S.; and Livesay, J. D., 4,270,934, Cl. 55-316.000.

Conoco, Inc.: *See*—
Kennedy, Eugene F.; and Leach, Bruce E., 4,271,138, Cl. 423-462.000.

Conrad, Jens; Upadek, Horst; and Bruns, Klaus, to Henkel Kommanditgesellschaft auf Aktien. Hydrogenated indenopyrans and their use in aromatic compositions. 4,271,047, Cl. 252-522.00R.

Conrad/ Lucas J.; and White, Jackie L., to R. J. Reynolds Tobacco Company. Process and apparatus for expanding tobacco. 4,270,553, Cl. 131-291.000.

Control Process, Inc.: *See*—
Groleau, Rodney J., 4,271,106, Cl. 264-40.500.

Cook, Robert S.: *See*—
Mason, Leslie F. A.; Cook, Robert S.; Kilcast, David; Schellenberg, Matthias; and Chylewski, Christoph, 4,271,254, Cl. 430-239.000.

Coombes, Daniel J.; and Sangster, John H., to Motorola, Inc. Synchronizing technique for an error correcting digital transmission system. 4,271,520, Cl. 371-42.000.

Coon, Delbert L., to Dow Corning Corporation. Method for releasing frozen water. 4,271,215, Cl. 427-387.000.

Copeland, John A., to Bell Telephone Laboratories, Incorporated. Discriminator threshold level control circuit for a digital transmission system. 4,271,536, Cl. 455-619.000.

Coran, Aubert Y.; and Patel, Raman, to Monsanto Company. Elastoplastic compositions of cured diene rubber and polypropylene. 4,271,049, Cl. 260-4.00R.

Corbyn, Terence E.: *See*—
Baldwin, John L. E.; and Corbyn, Terence E., 4,271,483, Cl. 364-900.000.

Cornelius, Gerhard: *See*—
Supp, Emil; Jockel, Heinz; Cornelius, Gerhard; and Marschner, Friedmann, 4,271,086, Cl. 518-704.000.

Cornell Research Foundation, Inc.: *See*—
Miyata, Teruo; Rubin, Albert L.; and Stenzel, Kurt H., 4,271,070, Cl. 260-123.700.

Cornell, William D. Recovery and demodulation of a pulse width modulation encoded signal recorded on magnetic tape. 4,271,438, Cl. 360-32.000.

Corning Glass Works: *See*—
Gulati, Suresh T.; and Hagy, Henry E., 4,270,380, Cl. 72-467.000.
Palmer, Wilbur C.; and Rusby, Frank L., 4,271,345, Cl. 219-10.790.

Corrigan, Charles E., to Garrett Corporation, The. Laminated airfoil. 4,270,883, Cl. 416-97.00A.

Cossement, Eric: *See*—
Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cossement, Eric, 4,271,172, Cl. 424-267.000.
Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cossement, Eric, 4,271,173, Cl. 424-267.000.

Cottrill, Compton J.: *See*—
Gill, Donald H.; MacRae, Joseph A.; and Cottrill, Compton J., 4,270,591, Cl. 411-112.000.

Coulter, James L.; and Lorenz, Harald H., to General Motors Corporation. Automatic brake adjuster with automatically adjusted steady point. 4,270,633, Cl. 188-79.5GC.

Coursant, Roger H.: *See*—
Perilhou, Jean R.; and Coursant, Roger H., 4,270,546, Cl. 128-660.000.

Courtis, Thomas M.; and Donelson, Carl E., to Red Lodge Manufacturing Company. Gate assembly. 4,270,312, Cl. 49-385.000.

Coward, Michael D., to Georgetown Steel Corporation. Shroud with replaceable extension. 4,270,595, Cl. 164-415.000.

Cox, Jack R. Animal leash. 4,270,491, Cl. 119-109.000.

Crampton, Charles P., to Hamilton Tool Company. Forward numbering or underlap sheet delivery. 4,270,743, Cl. 270-58.000.

Crawford, Donald G., to Rockwell International Corporation. LCD Data processor driver and method. 4,271,410, Cl. 340-765.000.

Craycraft, Donald G.; Lockwood, George C.; and Donaldson, Darrel D., to NCR Corporation. Static volatile/non-volatile ram cell. 4,271,487, Cl. 365-189.000.

Cresap, Wesley L.; and Myers, Alan W., to Textron, Inc. Helicopter landing gear with crosstube pivot. 4,270,711, Cl. 244-17.170.

Cricchio, Renato, to Gruppo Lepetit S.p.A. Water soluble hydrazones of 3-formylrifamycin SV, antibacterial compositions thereof and method of use thereof. 4,271,155, Cl. 424-200.000.

Cristieni, Athos; and Gherardi, Gianluigi, to CIR S.p.A. Divisione Sasib. Device for the high speed feeding of rod-like articles. 4,270,670, Cl. 221-211.000.

Crooke, Stanley T.; and Galvan, Louis: Diagnostic method for detecting cancer. 4,270,924, Cl. 23-230.00B.

Crosby, David. Portable paper roll breaking machine. 4,270,683, Cl. 225-103.000.

Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Electrochemical sensor for measuring relative concentrations of reactive species in a fluid mixture. 4,271,000, Cl. 204-195.00S.

Cross, Michael A., to Westinghouse Electric Corp. Directional optical fiber signal tapping assembly. 4,270,839, Cl. 350-96.150.

Crouse, Allen G., to Rockwell International Corporation. Method for controlled doping semiconductor material with highly volatile dopant. 4,270,972, Cl. 156-605.000.

Crowley, Francis X. Concrete tank. 4,270,323, Cl. 52-224.000.

Crowley, George C., to Sunbeam Corporation. Blanket wire utilizing positive temperature coefficient resistance heater. 4,271,350, Cl. 219-549.000.

Cunningham, Hugh; and Raetzach, Carl W., to PPG Industries, Inc. Synthetic separator electrolytic cell. 4,271,004, Cl. 204-266.000.

Curotto, Richard L., to Stutz Motor Car of America, Inc. Convertible seat and storage device for automobiles. 4,270,790, Cl. 296-37.160.

Curry, Robert E.; Simonsen, Michael G.; and Schwartz, Eric D., to Bio-Rad Laboratories, Inc. Automated system for performing fluorescent immunoassays. 4,271,123, Cl. 422-64.000.

Curtis, Westley F.: *See*—
Baker, Judd O.; O'Brien, Jerome J.; Curtis, Westley F.; and Varney, Frederick M., 4,270,479, Cl. 114-240.00A.

Cywinski, Norbert F., to El Paso Products Company. Treatment of waste stream from adipic acid manufacture. 4,271,315, Cl. 560-204.000.

D'Addieco, Alfred A., to Du Pont de Nemours, E. I., and Company. Air fireable end termination compositions for multilayer capacitors based on nickel borides. 4,271,236, Cl. 428-426.000.

Dag, Stefan A.: *See*—
Laehy, Peter; and Dag, Stefan A., 4,270,873, Cl. 404-10.000.

Dagostino, Thomas P.; and Navarro, Luis J., to Tektronix, Inc. Waveform storage system. 4,271,486, Cl. 365-45.000.

Dahl, Birger, to Borregaard Industries Limited. Process for controlling hemicellulose concentration during the mercerization of cellulose. 4,270,914, Cl. 8-125.000.

Dai Nippon Insatsu Kabushiki Kaisha: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,271,224, Cl. 428-207.000.

Dai Nippon Printing Co. Ltd.: *See*—
Cho, Kenji; Takamizawa, Minoru; and Inoue, Yoshio, 4,271,255, Cl. 430-253.000.

Daido Tokushuko Kabushiki Kaisha: *See*—
Fujiwara, Tatsuo; Abeyama, Shozo; Ishida, Kiyohito; and Nakamura, Sadayuki, 4,270,950, Cl. 75-126.00L.
Matsumoto, Masahiro; Kawate, Kenji; and Jinnouchi, Hidenobu, 4,270,959, Cl. 148-153.000.

Dailey Oil Tools, Inc.: *See*—
Lawrence, James D., 4,270,620, Cl. 175-322.000.

Daimler-Benz Aktiengesellschaft: *See*—
Niemann, Klaus; Wulf, Helmut; and Hauck, Peter, 4,270,405, Cl. 74-499.000.
Schaling, Wolfgang, 4,271,388, Cl. 324-51.000.

Dainippon Ink & Chemicals, Inc.: *See*—
Maeda, Hiroshi; Ariga, Nagao; Oikawa, Hiroshi; and Tominaga, Hidemitsu, 4,271,079, Cl. 260-346.300.

Daiwa Can Company, Limited: *See*—
Shimizu, Hiromichi, 4,271,216, Cl. 427-428.000.

Dalia, Salvatore A. Louver lock. 4,270,313, Cl. 49-403.000.

Danchin, Maxime, to Merlin Gerin. Gas-tight molded casing for an electrical apparatus. 4,271,343, Cl. 200-304.000.

Dandia, Ghulam M. Construction toy. 4,270,302, Cl. 46-19.000.

Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, to Institut Francais du Petrole. Process for producing gasoline of high octane number, in particular lead-free gasoline. 4,270,929, Cl. 44-56.000.

Dangeleit, Siegfried; and Neumann, Klaus, to DeMag Aktiengesellschaft. Casting ladle mounting for steel strand casting plants. 4,270,738, Cl. 266-99.000.

Daniel, Jean-Claude; Grossoleil, Jacques; and Roullet, Robert, to Rhone-Poulenc Industries. Process for preparing an aqueous latex binder for manufacturing nonwovens employing ultrafiltration to form a latex having low hydrosolubles. 4,271,055, Cl. 260-29.6TA.

Danne, Ulrich W.: *See*—
Thomas, Alfred W.; and Danne, Ulrich W., 4,270,353, Cl. 60-547.00R.

Dardaine, Edgar, to E. P. Remy et Cie. Method of automatic packaging of materials in containers and machine for carrying out the said method. 4,270,335, Cl. 53-411.000.

daSilva, Jose T. Combine harvester. 4,270,550, Cl. 130-27.00T.

Data Card Corporation: *See*—
LaManna, Richard J.; Drillick, Jacob H.; and Polad, Michael D., 4,271,012, Cl. 209-653.000.

Data 100 Corporation: *See*—
Severson, Verne L.; and Tomfohrde, Charles E., 4,271,403, Cl. 340-147.00C.

Davidson, Robert. Gear teeth. 4,270,401, Cl. 74-462.000.

Davies, David A., to Automotive Products Limited. Friction clutch driven plates. 4,270,640, Cl. 192-70.140.

Davis, Odie R. S.: *See*—
Headrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., 4,270,608, Cl. 166-278.000.

Dawson, Lindsay G., to Rolls-Royce Limited. Fuel control systems for gas turbine engines. 4,270,346, Cl. 60-243.000.

Dayvolt, Bradley H., to Eastman Kodak Company. Process for recovering cellulose ester fines. 4,271,291, Cl. 536-65.000.

Deborah Fluidised Combustion Limited: *See*—
Robinson, Edwin; and Buckle, David, 4,270,468, Cl. 110-245.000.

Defibrator AB: *See*—
Sandstrom, Ake O.; Falk, Bo G.; and Bystedt, H. S. Ingemar, 4,270,976, Cl. 162-26.000.

de Grijs, Johan C.: *See*—
Mahdjuri, Farnamarz; Asselman, George A. A.; and de Grijs, Johan C., 4,270,520, Cl. 126-433.000.

De Groff, James T.: *See*—
Feldman, Martin L.; and De Groff, James T., 4,271,065, Cl. 260-40.00R.

Degussa Aktiengesellschaft: *See*—
Hrovat, Milan; Haschka, Hans; and Rachor, Lothar, 4,271,102, Cl. 264-0.500.

Deigner, Paul: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

De Labbey, Arnaud: *See*—
Bore, Pierre; and De Labbey, Arnaud, 4,270,919, Cl. 23-230.00B.

Della Torre, Arturo: *See*—
Mellone, Piero; Della Torre, Arturo; Carniel, Giovanni C.; and Rossi, Alessandro, 4,271,160, Cl. 424-248.540.

DeLong, Donald C., to Eli Lilly and Company. Antiviral combinations. 4,271,162, Cl. 424-250.000.

DeMag Aktiengesellschaft: *See*—
Dangeleit, Siegfried; and Neumann, Klaus, 4,270,738, Cl. 266-99.000.

Demaray, David E. Recording instrument to measure microbal gas production. 4,270,381, Cl. 73-19.000.

de Mets, Albert; and Neubauer, Harry, to Bison-Werke, Bahre & Greten GmbH & Co. KG. Method for the manufacture of particle board. 4,271,105, Cl. 264-26.000.

Deneau, Myron E.: *See*—
Moore, Henry J., Jr.; and Deneau, Myron E., 4,270,894, Cl. 431-20.000.

Denecke, Ulfert; Stahl, Peter; and Schneider, Walter, to Boehringer Mannheim GmbH. Method and reagent for the determination of glutamate-oxalacetate transaminase and glutamate-pyruvate transaminase. 4,271,265, Cl. 435-16.000.

Denny, Dana W., to General Electric Company. Thermostat and circuit. 4,270,597, Cl. 165-27.000.

Denny, Dana W., to General Electric Company. Cradle assembly for use in a thermostat. 4,271,400, Cl. 337-380.000.

Densmore, Neal W., to Joy Manufacturing Company. Conveyor feed apparatus. 4,270,653, Cl. 198-554.000.

Denson, Ulrich O., to Canadian Fram Limited. Castellated spool for electromagnetic band clutch. 4,270,642, Cl. 192-84.00T.

Denton, Dennis N.; and Benjamin, Martin E., to Garlock Inc. Combination thrust washer and seal article, apparatus and method. 4,270,759, Cl. 277-1.000.

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DePalma, Vito A.; Meyer, Anne E.; and Ashby, Albert K., to Calspan Corporation. Method and apparatus for coating the grooved bottoms of substrates. 4,271,209, Cl. 427-58.000.

DePue, Harold F., to Hydraulic Energy Company. Cable racking system. 4,270,733, Cl. 254-93.00R.

DeRoeck, Carrie P.: *See*—
Spencer, Patricia J.; DeRoeck, Carrie P.; and DeRoeck, Robert L., 4,271,011, Cl. 209-236.000.

DeRoeck, Robert L.: *See*—
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De Roo, Pierre R.: *See*—
Gilliams, Yvan K.; and De Roo, Pierre R., 4,271,249, Cl. 430-101.000.

Deschler, Gerhard; Gebhardt, Hans; and Wittmann, Dieter, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Cams for actuating the valves of a reciprocating machine. 4,270,407, Cl. 74-569.000.

Deutsch, Ralph, to Kawai Musical Instrument Mfg. Co., Ltd. Noise generator for a polyphonic tone synthesizer. 4,270,430, Cl. 84-1.230.

Deutsche Gold-und Silber Scheideanstalt vormals Roessler: *See*—
Fratzer, Gerhard; Beck, Bernhard; Dold, Erwin; and Klebe, Hans, 4,271,044, Cl. 252-462.000.
Hentsche, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,271,297, Cl. 544-190.000.
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Wnest, Willi; Just, Guenther; and Peters, Bernd W., 4,271,135, Cl. 423-329.000.

Devine, Guy E.: *See*—
Menot, Robert; Willard, Robert E.; Griem, Paul D.; and Devine, Guy E., 4,271,305, Cl. 370-85.000.

de Wied, David; and Greven, Hendrik M., to Akzo N.V. Psycho-pharmacological peptides. 4,271,152, Cl. 424-177.000.

Diamond Crystal Salt Co.: *See*—
Leverenz, Melvin E., 4,270,486, Cl. 118-679.000.

Diamond Shamrock Corporation: *See*—
Goodridge, Francis; and Pinsley, Raymond E., 4,270,995, Cl. 204-79.000.

Dick, Heinz, to Ford Motor Company. Adjusting apparatus for motor vehicle headlamps. 4,271,456, Cl. 362-66.000.

Dickakian, Ghazi, to Exxon Research and Engineering Company. Process for production of carbon artifact precursor. 4,271,006, Cl. 208-40.000.

Dickinson, John M. C.: *See*—
Stewart, David B.; Stewart, William R.; and Dickinson, John M. C., 4,270,245, Cl. 19-85.000.

Dickinson, Thorn W.; McLarty, Daniel R.; and Lyons, Thomas F., Jr., to Textron Inc. Traction-drive transmission with hydraulic control. 4,270,415, Cl. 74-867.000.

Dieck, Ronald L., to General Electric Company. Modified polyester compositions. 4,271,064, Cl. 260-40.00R.

Diemert, Paul M.: *See*—
Reed, Frank A., deceased; and Diemert, Paul M., executor, 4,270,575, Cl. 137-625.690.

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Difflipp, Kurt; and Greiner, Harry M., to M.A.N.-Roland Druckmaschinen Aktiengesellschaft. Arrangement for washing cylinders on printing presses. 4,270,450, Cl. 101-142.000.

DiGialio, Adolph V.; and Bauer, Jack N., to Arco Polymers, Inc. Fire-retardant monocarboxylic acid amide copolymers. 4,271,271, Cl. 521-82.000.

Diller, Werner; Drope, Eckard; Ellendt, Gunther; and Reichold, Ernst, to Bayer Aktiengesellschaft. Plaque for measuring the dose of reactive gases. 4,271,121, Cl. 422-56.900.

DiMeo, Frank N., to Litton Systems, Inc. Double air gap printed circuit rotor. 4,271,370, Cl. 310-266.000.

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Yardy, Raymond, 4,271,334, Cl. 369-41.000.

Dittrick, John W.: *See*—
Willis, Brian J.; and Dittrick, John W., 4,271,046, Cl. 252-522.00R.

Dixon, Jack B.; and Hall, Randall C., to Purdue Research Foundation. Detection unit with solute detector and transport system. 4,271,022, Cl. 210-198.200.

DLM, Inc.: *See*—
Eckert, Ronald P., 4,270,290, Cl. 40-389.000.

Dlugos, Daniel F.; and Harenberg, Donald D., to Pitney Bowes Inc.; and Rockwell Intl. Corp. Serial data bus for use in a multiprocessor parcel postage metering system. 4,271,470, Cl. 364-466.000.

Doenges, Gerhard: *See*—
Herwig, Thomas; and Doenges, Gerhard, 4,271,339, Cl. 250-347.000.

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Dome Petroleum Limited: *See*—
O'Rourke, J. Cam; Pilkington, G. Roger; and Bercha, Frank G., 4,270,476, Cl. 114-40.000.

Dommer, Hans-Martin; and Kurz, Otto, to L. Schuler GmbH. Intermittent operation arrangement in a notching machine. 4,270,413, Cl. 74-828.000.

Dommes, Werner: *See*—
Will, Heinz-Dieter; Dommes, Werner; and Polzl, Hans-Werner, 4,270,356, Cl. 60-602.000.

Domtar Inc.: *See*—
Lewinton, Colin H.; and Savit, Joseph, 4,271,250, Cl. 430-127.000.

Donakowski, William A.; and Morgan, John R., to Ford Motor Company. Method for cleaning aluminum articles. 4,270,957, Cl. 134-2.000.

Donaldson Company, Inc.: *See*—
Canfield, Ray E., 4,270,689, Cl. 228-152.000.

Donaldson, Darrel D.: *See*—
Craycraft, Donald G.; Lockwood, George C.; and Donaldson, Darrel D., 4,271,487, Cl. 365-189.000.

Donati, Giovanni: *See*—
Giovannetti, Sergio; Barzotti, Giuliano; and Donati, Giovanni, 4,271,023, Cl. 210-321.300.

Donelson, Carl E.: *See*—
Courtis, Thomas M.; and Donelson, Carl E., 4,270,312, Cl. 49-385.000.

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Bascom, Joe B.; and Donnelly, James E., 4,270,340, Cl. 57-75.000.

Donovan, John S. Gas operated automatic weapon. 4,270,437, Cl. 89-192.000.

Dornier, Claudius. Airplane with a boat-shaped fuselage. 4,270,713, Cl. 244-106.000.

Dornier GmbH: *See*—
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Dorst-Keramikmaschinen-Bau: *See*—
Ottl, Hartmut, 4,270,890, Cl. 425-150.000.

Doty, James K.: *See*—
Stutz, Robert J.; and Doty, James K., 4,271,039, Cl. 252-435.000.

Dougherty, Michael: *See*—
Sciotti, Robert; and Dougherty, Michael, 4,270,904, Cl. 123-520.000.

Douglas, Lawrence M., to Polaroid Corporation. Camera for taking multiple exposures on a single sheet of film. 4,270,855, Cl. 354-124.000.

Dover Corporation: *See*—
Erickson, Milton W., 4,270,424, Cl. 339-15.000.

Dow Chemical Company, The: *See*—
Lane, George A.; and Bossow, Harold E., 4,271,029, Cl. 252-70.000.
Woo, Edmund P., 4,271,288, Cl. 528-353.000.

Dow Corning Corporation: *See*—
Coon, Delbert L., 4,271,215, Cl. 427-387.000.
Homan, Gary R.; and Lee, Chi-long, 4,271,289, Cl. 528-374.000.
Drabing, Richard B.: *See*—
Axtell, Clyde R., III; and Drabing, Richard B., 4,271,515, Cl. 371-25.000.
Drader, Clarence H. Bread carrier. 4,270,678, Cl. 294-169.000.
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Baum, Marcel; Frankenberger, Horst; and Schwanbom, Erik, 4,270,530, Cl. 128-204.250.
Leichnitz, Kurt, 4,271,125, Cl. 422-86.000.
Drake, Cyril F.; and Adams, Neil R., to International Standard Electric Corporation. Water setting ion-polymer cements. 4,271,057, Cl. 260-29.60M.
Drake, Dale E., to Enertherm, Inc. Low mass flow waste fuel incinerator. 4,270,467, Cl. 110-216.000.
Draloric Electronic GmbH: *See*—
Knobl, Alois; Zeitner, Alfred; Krockow, Helmut; and Schmaus, Hermann, 4,271,454, Cl. 361-274.000.
Drave, Heinz: *See*—
Endres, Robert; Drave, Heinz; Mansmann, Manfred; and Puppe, Lothar, 4,271,130, Cl. 423-118.000.
Dravo Corporation: *See*—
Lakin, Ira; and Blair, Gilbert, 4,270,982, Cl. 202-241.000.
Dresser Europe S.A.: *See*—
Barry, Michael J., 4,270,800, Cl. 299-1.000.
Dresser Industries, Inc.: *See*—
Groeschel, Vernon E.; and Angehrn, Jorg A., 4,271,356, Cl. 250-262.000.
Dressler, Hans, to Koppers Company, Inc. Aryl sulfide/sulfonate polymer. 4,271,285, Cl. 528-175.000.
Drew, Kenneth C., to McCreary Tire & Rubber Company. Bladder holder assembly for tire making machine. 4,270,605, Cl. 156-401.000.
DRF (UK) Limited: *See*—
Ireland, Roger H., 4,270,909, Cl. 493-245.000.
Drillick, Jacob H.: *See*—
LaManna, Richard J.; Drillick, Jacob H.; and Polad, Michael D., 4,271,012, Cl. 209-653.000.
Driscoll, Michael J. Table easel. 4,270,462, Cl. 108-32.000.
Drope, Eckard: *See*—
Diller, Werner; Drope, Eckard; Ellendt, Gunther; and Reichold, Ernst, 4,271,121, Cl. 422-56.000.
Drori, Mordeki. Backwashable fluid filters. 4,271,018, Cl. 210-107.000.
Droux, M. Jacques; and Cardot, Claude R., to Compagnie Internationale pour l'Informatique CII-Honeywell Bull. Method of and apparatus for determining errors read from a magnetic recording medium. 4,271,522, Cl. 371-57.000.
Dudzik, Joachim: *See*—
Dudzik, Windfried; and Dudzik, Joachim, 4,270,968, Cl. 156-361.000.
Dudzik, Windfried; and Dudzik, Joachim. Labelling device. 4,270,968, Cl. 156-361.000.
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Abele, Werner; Grossa, Mario; and Pilz, Otto, 4,271,260, Cl. 430-292.000.
D'Addieco, Alfred A., 4,271,236, Cl. 428-426.000.
MacLachlan, James D., 4,271,275, Cl. 525-112.000.
Statz, Robert J.; and Doty, James K., 4,271,039, Cl. 252-435.000.
Dupont, Helmut: *See*—
Parras, Karlheinz; Bader, Edgar; and Dupont, Helmut, 4,271,514, Cl. 371-22.000.
Dura Plastics of New York, Inc.: *See*—
Korzon, Edward S., 4,270,463, Cl. 108-96.000.
Durand, Daniel; Hillion, Gerard; Lassau, Christian; and Sajus, Lucien, to Institut Francais du Petrole. Process for hydrogenating unsaturated compounds. 4,271,323, Cl. 568-816.000.
Durant, Graham J.; and Ganellin, Charon R., to Smith Kline & French Laboratories Limited. N-Heterocyclic alkyl-N'-pyridyl alkylthioureas, ureas and guanidines. 4,271,169, Cl. 424-263.000.
Duriach, Jean P., to Les Laboratoires Meram. Lithium derivatives of taurine having reinforced neuro-muscular activity. 4,271,189, Cl. 424-315.000.
Dymo Industries Inc.: *See*—
Strohschneider, Heinz F., 4,270,453, Cl. 101-269.000.
Dynachem Corporation: *See*—
Lipson, Melvin A.; and Knoth, Dale W., 4,270,985, Cl. 204-15.000.
Dynamit Nobel Aktiengesellschaft: *See*—
Franzmann, Giselher; and Hulsmann, Hans-Leo, 4,271,269, Cl. 435-176.000.
Schmidt, Werner; and Minke, Rudiger, 4,271,274, Cl. 525-111.000.
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.
Dyneer Corporation: *See*—
Kraft, Derald H.; and Rinaldo, Daniel M., 4,270,906, Cl. 474-135.000.
E. P. Remy et Cie: *See*—
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E. R. Squibb & Sons, Inc.: *See*—
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Eastburg, Paul H., to FMC Corporation. Synergistic insecticidal combinations comprising endosulfan and 2-dihalovinyl-3,3-dimethylcyclopropanecarboxylates. 4,271,181, Cl. 424-276.000.
Eastes, Walter L.; and Tarantino, Anna, to Owens-Corning Fiberglas Corporation. Method for producing calcium borates. 4,270,944, Cl. 65-27.000.
Eastman Kodak Company: *See*—
Clark, Gary T., 4,271,071, Cl. 260-157.000.
Columbus, Richard L., 4,271,119, Cl. 422-50.000.
Dayvolt, Bradley H., 4,271,291, Cl. 536-65.000.
Irick, Gether, Jr.; Kelly, Charles A.; and Martin, James C., 4,271,307, Cl. 548-224.000.
Eaton Corporation: *See*—
Knief, Enno A., 4,270,399, Cl. 74-129.000.
Kolze, Lawrence A., 4,270,570, Cl. 137-597.000.
Narasimhan, Sundaram L.; and Larson, Jay M., 4,270,496, Cl. 123-90.510.
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Eckberg, Keith S., II, to Stout Industries, Inc. Sign with changeable inserts. 4,270,292, Cl. 40-611.000.
Eckelmeyer, Edward H., to Harris Corporation. Web fed printing press motor control. 4,271,379, Cl. 318-77.000.
Eckert, Alton B., Jr.: *See*—
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Eckert, Ronald P., to DLM, Inc. Revolving self-service display stand. 4,270,290, Cl. 40-389.000.
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Eckles, William E.; and McFarland, Charles W., to Rohco, Inc. Cadmium plating baths and methods for electrodepositing bright cadmium deposits. 4,270,989, Cl. 204-50.00R.
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Edmiston, Alex: *See*—
Schmidt, Wallace B.; Lewis, William W.; Edmiston, Alex; and Klauser, Geraot, 4,270,938, Cl. 62-22.000.
Eggleton, Reginald C., to Indianapolis Center for Advanced Research. Method and apparatus employing zero order Raman-Nath diffraction information to visualize longitudinal character of an acoustic wave field. 4,270,388, Cl. 73-603.000.
Eglinton, Edmund C.: *See*—
Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., 4,270,258, Cl. 29-157.400.
Ehama, Goro, to Sun Sports Yohin Co., Ltd. Apparatus for shooting a curve ball. 4,270,511, Cl. 124-81.000.
Ehlers, Klaus-Peter: *See*—
Schrodter, Klaus; Scheibitz, Wolfgang; and Ehlers, Klaus-Peter, 4,271,128, Cl. 422-189.000.
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Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., to United States of America, Energy. Method of lining a vertical mine shaft with concrete. 4,270,876, Cl. 405-133.000.
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Elbert, Hubert F.: *See*—
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Hatfield, Lowell D.; Blaszczak, Larry C.; and Fisher, Jack W., 4,271,305, Cl. 548-153.000.
Ward, John S., 4,271,166, Cl. 424-263.000.
Elkow, Robert M.: *See*—
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Ellendt, Gunther: *See*—
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Ellis, James F. Air recycling apparatus for drying a textile web. 4,270,283, Cl. 34-212.000.
Eltra Corporation: *See*—
Galbraith, Wiley E.; Kaufman, Arthur L.; and Klepper, Herbert, 4,270,859, Cl. 355-10.000.
Endo, Takeshi, to Shinshu Seiki Kabushiki Kaisha. DC Motor control circuit. 4,271,383, Cl. 318-375.000.
Endres, Robert; Drave, Heinz; Mansmann, Manfred; and Puppe, Lothar, to Bayer Aktiengesellschaft. Process for the preparation of zeolite A from kaolin. 4,271,130, Cl. 423-118.000.
Energy Conversion Devices, Inc.: *See*—
Wacks, Harvey H.; Izu, Masatsugu; and Sarrach, Donald J., 4,271,257, Cl. 430-276.000.

Enertherm, Inc.: *See*—
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Engelhard Minerals & Chemicals Corporation: *See*—
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Polinski, Leon M.; Roberts, George W.; and Hindin, Saul G., 4,270,896, Cl. 431-328.000.
Engelhardt, Edward L.: *See*—
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Ennis, George T., to N/S Car Wash Enterprises, Inc. Method for brushing vehicles. 4,270,958, Cl. 134-6.000.
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Brown, Carlton E.; and Tatham, Walter A., 4,270,577, Cl. 138-39.000.
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Kelly, Earl M., 4,271,027, Cl. 210-609.000.
Erdmannsdorfer, Hans, to Filterwerk Mann & Hummel GmbH. Layered filter cartridge with internal bypass channels. 4,271,025, Cl. 210-487.000.
Erickson, David L.; and Kitts, Leonard W., to Interface Design Group, Inc. Furniture having prestressed fabric panels. 4,270,816, Cl. 312-3.000.
Erickson, Milton W., to Dover Corporation. Electrical clamp. 4,270,824, Cl. 339-15.000.
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Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, 4,270,815, Cl. 308-213.000.
Eschwey, Helmut, to Henkel Kommanditgesellschaft auf Aktien. Modified alkyd resins and their use as lacquer binders. 4,271,051, Cl. 260-22.00M.
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Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,270,500, Cl. 123-308.000.
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Evans, Russell W.: *See*—
Singer, Alfred R. E.; and Evans, Russell W., 4,270,383, Cl. 73-82.000.
Ewing, Bruce A., to General Motors Corporation. Manufacture of composite turbine rotors. 4,270,256, Cl. 29-156.80R.
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Aid, James D.; and Lee, Kyu H., 4,271,014, Cl. 210-86.000.
Exxon Research and Engineering Company: *See*—
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Dickakian, Ghazi, 4,271,006, Cl. 208-40.000.
McVicker, Gary B., 4,271,302, Cl. 546-2.000.
Stephens, Richard B., 4,270,517, Cl. 126-422.000.
F. D. Farnam Co.: *See*—
Farnam, Robert G., 4,270,785, Cl. 293-1.000.
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Gattys, Franz-Josef, 4,271,034, Cl. 252-301.10W.
Fales, David E., to Rainer Isolierrohrfabrik Max Drossbach. Corrugated drainage tubing and method and apparatus for making drainage tubing with helically arranged drainage openings. 4,270,878, Cl. 409-143.000.
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Fallows, John, to Global Manufacturing, Inc. Vibrator. 4,270,396, Cl. 74-87.000.
Farinetta, John G.; and Feller, Robert G., to Okonite Company, The. Method of manufacturing a sealed cable employing an extruded foam barrier. 4,270,961, Cl. 156-51.000.
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Meiloni, Piero; Della Torre, Arturo; Carniel, Giovanni C.; and Rossi, Alessandro, 4,271,160, Cl. 424-248.540.
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Farstad, Arnold J.: *See*—
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Ansen, Jakob; Duill, Helmut; Fasbender, Heinz; and Graf, Ruprecht, 4,270,466, Cl. 110-193.000.
Faulkner, Bobby P.; Lee, George T.; Schumacher, Peter L.; and Weinecke, Michael H., to Allis-Chalmers Corporation. Roller grate material bed transporting and heat exchange apparatus. 4,270,899, Cl. 432-58.000.
Faunce, Frank R. Apparatus for manufacturing dental laminant veneers. 4,270,892, Cl. 425-388.000.
Faustini, Franco: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,184, Cl. 424-285.000.
Feeney, Edward K.: *See*—
Lancia, Frederick N.; Kesterson, Albert O.; Feeney, Edward K.; and Liebert, Ralph C., 4,270,362, Cl. 62-173.000.
Felder, Louis; Kirchmayr, Rudolf; and Kusler, Rinaldo, to Ciba-Geigy Corporation. Aminoalkoxy derivatives of aromatic ketones. 4,271,294, Cl. 544-87.000.
Feldman, Martin L.; and De Groff, James T., to Tenneco Chemicals, Inc. Polyester resin compositions and process for prepering same. 4,271,065, Cl. 260-40.00R.
Feldman, Robert I.; and Thesman, Dana F., to Versatool, Inc. Trimming head for vegetation. 4,270,271, Cl. 30-276.000.
Feller, Robert G.: *See*—
Farinetta, John G.; and Feller, Robert G., 4,270,961, Cl. 156-51.000.
Ferakarn Limited: *See*—
Lintonbon, Robert F.; and Shore, David, 4,270,884, Cl. 417-15.000.
Fiat-Allis Macchine Movimento Terra S.p.A.: *See*—
Cantarella, Bruno G.; and Cecchi, Carlo, 4,270,617, Cl. 172-821.000.
Fichtel & Sachs AG: *See*—
Pengo, Giuseppe; and Schwerdhofer, Hans J., 4,270,411, Cl. 74-752.00E.
Woesner, Felix, 4,270,635, Cl. 188-322.000.
Filliman, Paul D., to Magnavox Company, The. Apparatus for converting digital data into a video signal for displaying characters on a television receiver. 4,271,409, Cl. 340-703.000.
Filterwerk Mann & Hummel GmbH: *See*—
Erdmannsdorfer, Hans, 4,271,025, Cl. 210-487.000.
Fink, Helmuth; and Van der Gucht, Karel, to Siemens Aktiengesellschaft. Method and apparatus for measuring the transmission characteristics in electrical communication systems. 4,271,478, Cl. 364-580.000.
Fioravanti, Eugene, to Huyck Corporation. Positive pressure felt dewatering and cleaning device and method. 4,270,978, Cl. 162-199.000.
Firmenich, S.A.: *See*—
Becker, Joseph J.; and Ohloff, Gunther, 4,271,076, Cl. 260-343.210.
Buchi, George H.; and Wuest, Hans, 4,271,048, Cl. 252-522.00R.
First National Bank & Trust Co., joint executor: *See*—
Sielkmeier, David A.; Andersen, Glen L.; Zimmerer, Arthur L., deceased; First National Bank & Trust Co., joint executor; Zimmerer, Bernadette, joint executor; and Zimmerer, William P., 4,270,699, Cl. 239-184.000.
Fischer, Gerhard M. Support device for an upstanding plant support rod in a plant pot. 4,270,310, Cl. 47-70.000.
Fischer & Porter Co.: *See*—
Herzl, Peter J., 4,270,391, Cl. 73-861.220.
Fischer, Ronald H.: *See*—
Oleck, Stephen M.; Sherry, Howard S.; Fischer, Ronald H.; and Milstein, Donald, 4,271,042, Cl. 252-439.000.
Fisher, Charles K., to TRW Inc. Releasable hose fitting. 4,270,777, Cl. 285-242.000.
Fisher, Jack W.: *See*—
Hatfield, Lowell D.; Blaszczak, Larry C.; and Fisher, Jack W., 4,271,305, Cl. 548-153.000.
Fisher, Thomas E. Method and means of insulating a building foundation wall. 4,270,321, Cl. 52-97.000.
Fisons Limited: *See*—
Sullivan, Thomas J., 4,271,182, Cl. 424-283.000.
Fives-Cail Babcock: *See*—
Chicleau, Alain; and Boussekey, Bernard, 4,270,704, Cl. 241-122.000.
Fjallbrant, Tore. Device for converting a non-uniformly sampled signal with short-time spectrum to a uniformly sampled signal. 4,271,500, Cl. 370-23.000.
Flaig, Hans: *See*—
Scherzinger, Bernhard; and Flaig, Hans, 4,271,695, Cl. 368-75.000.
Flaskett, Peter J., to Rohm and Haas Company. Method and apparatus for reinforcing a layer of plastics material. 4,270,964, Cl. 156-228.000.
Flaum, Dennis M. Modular chair apparatus. 4,270,799, Cl. 297-440.000.

Fletcher, Wade D.; McMahon, Edward H.; and Grady, Dwight D., to Sonoco Products Company. Method of forming a flush-sided container. 4,270,475, Cl. 113-120.00K.

Flora, Laurence P., to Burroughs Corporation. Three-level, self-clocked data transmission system. 4,271,526, Cl. 375-17.000.

Florent, Jean: *See*—
Belloc, Andre; Florent, Jean; Lunel, Jean; Mancy, Denise; and Palla, Jean-Claude, 4,271,067, Cl. 260-112.00R.

Florian, Roy S.: *See*—
Evans, Ralph K.; and Florian, Roy S., 4,270,251, Cl. 24-277.000.

FMC Corporation: *See*—
Berger, Gerald P., 4,270,663, Cl. 212-222.000.
Eastburg, Paul H., 4,271,181, Cl. 424-276.000.

Fodor, Eben V. Continuously variable traction drive transmission. 4,270,400, Cl. 74-194.000.

Fong, Jaan J., to Minnesota Mining and Manufacturing Company. Acidic electroplating baths with novel surfactants. 4,270,990, Cl. 204-55.00R.

Foote Mineral Company: *See*—
Brown, Patrick M.; Jacob, Susan R.; and Boryta, Daniel A., 4,271,131, Cl. 423-179.500.

Ford Aerospace & Communications Corp.: *See*—
Reisman, Elias; Goodsell, David S.; and Masino, Fred S., 4,270,603, Cl. 165-185.000.

Ford Motor Company: *See*—
Dick, Heinz, 4,271,456, Cl. 362-66.000.
Donakowski, William A.; and Morgan, John R., 4,270,957, Cl. 134-2.000.
Gable, Melvin G.; Sherman, Richard H.; and Jeyabalan, Vadivelu, 4,271,507, Cl. 370-94.000.
Gable, Melvin G., 4,271,523, Cl. 371-57.000.
Giardini, Dante S., 4,270,643, Cl. 192-103.00C.
Savell, Charles L., 4,270,787, Cl. 293-121.000.
Suh, Sang K.; and Hall, Daniel W., 4,270,951, Cl. 75-200.000.

Forster, Heinz; Fuchs, Rainer; Hammann, Ingeborg; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Stilbene compounds and insecticidal/acaricidal compositions. 4,271,186, Cl. 424-304.000.

Forster, Manfred; Linke, Adolf; and Geidies, Ulrich, to Krupp-Koppers GmbH. Process for monitoring the flow of fine grained solid fuel for use in gasifierr. 4,270,558, Cl. 137-2.000.

Forsyth, Robert J., to North American Industries, Inc. Drop marker. 4,270,482, Cl. 116-209.000.

Foster, Arthur M.: *See*—
Tang, David Y.; and Foster, Arthur M., 4,271,319, Cl. 568-312.000.

Foster, Berry W., to Garrett Corporation, The. Heat exchanger. 4,270,602, Cl. 165-167.000.

Foster, Richard P.; and Brodin, Gregory C., to Hollingsworth & Vose Company. Sheet material containing exfoliated vermiculite. 4,271,228, Cl. 428-281.000.

Foster Wheeler Energy Corporation: *See*—
Connell, John M., 4,270,599, Cl. 165-104.160.
Vatsky, Joel, 4,270,895, Cl. 431-183.000.

Four Star Corporation: *See*—
Ingram, Charles E., 4,270,681, Cl. 224-321.000.

Foxboro Company, The: *See*—
Menot, Robert; Willard, Robert E.; Griem, Paul D.; and Devine, Guy E., 4,271,505, Cl. 370-85.000.

Franetzki, Manfred; Gagneur, Klaus; and Prestele, Karl, to Siemens Aktiengesellschaft. Device for the pre-programmable infusion of liquids. 4,270,532, Cl. 128-213.00R.

Frankenberger, Horst: *See*—
Baum, Marcel; Frankenberger, Horst; and Schwanbom, Erik, 4,270,530, Cl. 128-204.250.

Franz Plasser Bahnbaumaschinen Industriegesellschaft m.b.H.: *See*—
Theurer, Josef; and Oellerer, Friedrich, 4,270,456, Cl. 104-3.000.

Franzmann, Gieelher; and Hulsmann, Hans-Leo, to Dynamit Nobel Aktiengesellschaft. Regeneration of an enzyme immobilizate. 4,271,269, Cl. 435-176.000.

Fraser & Chalmers Equipment Limited: *See*—
Green, Basil W., 4,270,676, Cl. 222-485.000.

Fratzer, Gerhard; Beck, Bernhard; Dold, Erwin; and Klebe, Hans, to Deutsche Gold-und Silber Scheideanstalt vormals Roessler. Carrier matrix for catalysts and process for its production. 4,271,044, Cl. 252-462.000.

Freedom, John. Clasp. 4,270,247, Cl. 24-30.50R.

Freigh Bonallack Limited: *See*—
Braithwaite, Albert A.; and Smith, Tony S., 4,271,238, Cl. 428-542.000.

Frelund, Arthur R., to General Motors Corporation. Diesel engine precombustion chambers. 4,270,499, Cl. 123-293.000.

Fretwell, Jack W., Jr. Device for the accelerated launching of light sails. 4,270,477, Cl. 114-104.000.

Freudenstein, Ferdinand; and Maki, E. Roland, to General Motors Corporation. Variable displacement piston engine. 4,270,495, Cl. 123-54.00B.

Friedel, Rudolf: *See*—
Geidaer, Ernst; Friedel, Rudolf; and Haberrecker, Klaus, 4,271,372, Cl. 313-330.000.

Friello, Dominick R.: *See*—
Cherukuri, Subraman R.; Friello, Dominick R.; Jewell, Walter; and Mackay, Donald A. M., 4,271,198, Cl. 426-3.000.
Cherukuri, Subraman R.; Vink, Walter; Friello, Dominick R.; and Mackay, Donald A. M., 4,271,199, Cl. 426-5.000.
Hopkins, Walter; Friello, Dominick R.; Cherukuri, Subraman R.; Roy, Raymond L.; and Mackay, Donald A. M., 4,271,197, Cl. 426-3.000.

Frieser, Josef: *See*—
Trabitzsch, Hans; Frieser, Josef; Koschik, Achim; and Plainer, Hermann, 4,271,058, Cl. 260-29.60M.

Frischkorn, Hans: *See*—
Uhl, Klaus; Frischkorn, Hans; and Martini, Thomas, 4,271,036, Cl. 252-301.230.

Frischmuth, Robert W., to Occidental Research Corporation. Desulfurization of carbonaceous materials. 4,270,928, Cl. 44-1.0SR.

Fritzsche Dodge & Olcott, Inc.: *See*—
Willis, Brian J.; and Dittrick, John W., 4,271,046, Cl. 252-522.00R.

Fuchs, Rainer: *See*—
Forster, Heinz; Fuchs, Rainer; Hammann, Ingeborg; and Stendel, Wilhelm, 4,271,186, Cl. 424-304.000.

Fuji Latex Co., Ltd.: *See*—
Okamoto, Tadao; Obata, Eisuke; and Enomoto, Yutaka, 4,270,541, Cl. 128-344.000.

Fuji Photo Film Co., Ltd.: *See*—
Aotani, Yoshimasa; Misu, Hiroshi; and Nagashima, Akira, 4,271,251, Cl. 430-195.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,252, Cl. 430-216.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,253, Cl. 430-216.000.
Kido, Keishiro; Wada, Minoru; and Ikeda, Tomoaki, 4,271,256, Cl. 430-253.000.
Kondo, Asaji; Arai, Fuminori; and Kitajima, Masao, 4,270,920, Cl. 23-230.00B.
Murakoshi, Makoto; and Yoshizawa, Tamotu, 4,270,404, Cl. 74-479.000.
Murakoshi, Makoto; and Ooaka, Shigenori, 4,271,415, Cl. 346-108.000.
Sato, Masamichi; and Matsumoto, Kenji, 4,271,246, Cl. 430-7.000.

Fuji Photo Optical Co., Ltd.: *See*—
Hosono, Tsutomu, 4,271,375, Cl. 315-241.00P.

Fuji Xerox Co., Ltd.: *See*—
Takenouchi, Mutsuo; Tomiyama, Shunsuke; and Ozawa, Takashi, 4,271,435, Cl. 358-213.000.

Fujii, Masayuki. Hydropneumatic suspension system. 4,270,771, Cl. 280-707.000.

Fujii, Toshikazu: *See*—
Tanaka, Itsuya; and Fujii, Toshikazu, 4,271,217, Cl. 428-96.000.

Fujikawa, Kanichi: *See*—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,270,948, Cl. 71-100.000.

Fujiki, Norio: *See*—
Fukuhara, Hiroshige; and Fujiki, Norio, 4,271,535, Cl. 455-309.000.

Fujimura, Noriaki: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.

Fujitsu Limited: *See*—
Inayoshi, Katsuyuki; and Miyao, Kazutoshi, 4,271,424, Cl. 357-67.000.
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.

Fujiwara, Akiko; and Masuda, Setsuko, to Hoffmann-La Roche Inc. Process for producing D-arabitol. 4,271,268, Cl. 435-158.000.

Fujiwara, Shinji: *See*—
Chikamura, Takao; Ogawa, Kazufumi; Terui, Yasuaki; Fujiwara, Shinji; and Fukai, Masakazu, 4,271,420, Cl. 357-30.000.

Fujiwara, Tatsuo; Abeyama, Shozo; Ishida, Kiyohito; and Nakamura, Sadayuki, to Daido Tokushuko Kabushiki Kaisha. Machinable ferrite stainless steels. 4,270,950, Cl. 75-126.00L.

Fukai, Masakazu: *See*—
Chikamura, Takao; Ogawa, Kazufumi; Terui, Yasuaki; Fujiwara, Shinji; and Fukai, Masakazu, 4,271,420, Cl. 357-30.000.

Fukazawa, Takao: *See*—
Inayama, Takuro; Takemoto, Takeshi; Sato, Tsutomu; and Fukazawa, Takao, 4,271,366, Cl. 307-591.000.

Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, to Nippondenso Co., Ltd.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Exhaust gas purification system for an internal combustion engine. 4,270,347, Cl. 60-276.000.

Fukuchi, Shigeki, to Metako Kigyo Co., Ltd. Bracket unit. 4,270,720, Cl. 248-269.000.

Fukuda, Masataro: *See*—
Toyoguchi, Yoshinori; Iijima, Takashi; and Fukuda, Masataro, 4,271,242, Cl. 429-194.000.

Fukuhara, Hiroshige; and Fujiki, Norio, to Nissan Motor Company, Limited. Noise eliminating system. 4,271,535, Cl. 455-309.000.

Fukunaga, Shoichi: *See*—
Kimata, Kei; and Fukunaga, Shoichi, 4,270,257, Cl. 29-157.10R.

Fukuzono, Hideki: *See*—
Nishimura, Hiromi; and Fukuzono, Hideki, 4,271,450, Cl. 361-155.000.

Fumagalli, Angelo: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,184, Cl. 424-285.000.

Furihata, Hiroyuki, to Olympus Optical Co., Ltd. Suction control device for an endoscope. 4,270,525, Cl. 128-4.000.

Furuichi, Katsuhisa: *See*—
Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhisa; and Shimojima, Kiyoshi, 4,270,373, Cl. 72-41.000.

Furuichi, Shohei; and Nose, Takahiko, to Kabushiki Kaisha Morita Seisakusho. Driving system for an ultrasonic piezoelectric transducer. 4,271,371, Cl. 310-316.000.

Furukawa Denchi Kabushiki Kaisha: *See*—
Suzuki, Yuichi; and Sano, Ichiro, 4,271,245, Cl. 429-243.000.

Furukawa Denki Kogyo Kabushiki Kaisha: *See*—
Suzuki, Yuichi; and Sano, Ichiro, 4,271,245, Cl. 429-243.000.

Furuno Electric Co., Ltd.: *See*—
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Furusawa, Mitsuru; Yamamoto, Fumiichiro; and Yoshinaga, Makoto, to Olympus Optical Co., Ltd. Micromanipulator for a microscope. 4,270,838, Cl. 350-81.000.

Furuya, Nobuo: *See*—
Itoh, Tsutomu; Furuya, Nobuo; and Ohuchi, Kenji, 4,271,208, Cl. 427-28.000.

Futaba Kinzoku Kogyo Kabushiki Kaisha: *See*—
Nishimura, Tamotsu, 4,270,781, Cl. 292-251.500.

G. D. Searle & Co.: *See*—
Behling, James R., 4,270,994, Cl. 204-78.000.
Collins, Paul W.; and Pappo, Raphael, 4,271,314, Cl. 560-121.000.

G., Enrique Bernal: *See*—
Anderson, Rogers H.; G., Enrique Bernal; and Chen, Di, 4,271,104, Cl. 264-1.500.

Gabano, Jean-Paul; and Broussely, Michel, to Saft-Societe des Accumulateurs Fixes et de Traction. High specific energy battery having an improved positive active material. 4,271,244, Cl. 429-197.000.

Gable, Melvin G.; Sherman, Richard H.; and Jeyabalan, Vadivelu, to Ford Motor Company. Communication broadcast channel interface. 4,271,507, Cl. 370-94.000.

Gable, Melvin G., to Ford Motor Company. Contention interference detection in data communication receiver. 4,271,523, Cl. 371-57.000.

Gabrysch, Gerd: *See*—
Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redmer, Frank, 4,270,889, Cl. 425-115.000.

Gaetano, Ralph R., to Think, Inc. Permanently folded map in book form. 4,270,773, Cl. 283-34.000.

GAF Corporation: *See*—
Biranowski, Jerome B.; Lorenz, Donald H.; and Kantor, Simon W., 4,271,273, Cl. 521-110.000.

Gagneur, Klaus: *See*—
Franetzki, Manfred; Gagneur, Klaus; and Prestele, Karl, 4,270,532, Cl. 128-213.00R.

Gagneux, Stephan A.: *See*—
Bogue, Benford A.; and Gagneux, Stephan A., 4,270,535, Cl. 128-214.400.

Gaillard, Jean: *See*—
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,270,929, Cl. 44-56.000.

Gaiser, Conrad J. Hand cover. 4,270,228, Cl. 2-158.000.

Galbraith, Wiley E.; Kaufman, Arthur L.; and Klepper, Herbert, to Eltra Corporation. Electrophotographic apparatus for providing dry developed output from a typesetter. 4,270,859, Cl. 355-10.000.

Gall, Robert L., to United States of America, Energy. Coal-feeding mechanism for a fluidized bed combustion chamber. 4,270,469, Cl. 110-245.000.

Galletti, Alfonso, to Gi. Pi. S.a.c. di Galletti Alfonso & C. Filter unit for use in liquid purification apparatus. 4,271,019, Cl. 210-108.000.

Gallo, Mario: *See*—
Saner, Kaspar; Wirth, Johannes; and Gallo, Mario, 4,270,384, Cl. 73-862.590.

Galvas, Louis: *See*—
Crooke, Stanley T.; and Galvan, Louis, 4,270,924, Cl. 23-230.00B.

Galvez, Buenaventura B.: *See*—
Souhrada, Frank; and Galvez, Buenaventura B., 4,271,007, Cl. 208-48.00R.

Gamano, Kazuyuki: *See*—
Nishimura, Yutaka; and Gamano, Kazuyuki, 4,270,625, Cl. 180-291.000.

Game Time, Inc.: *See*—
Ray, Sunnie, 4,270,748, Cl. 272-56.50R.

Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., to Farmitalia Carlo Erba S.p.A. Bicyclic prostaglandins. 4,271,183, Cl. 424-285.000.

Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., to Farmitalia Carlo Erba S.p.A. Bicyclic prostaglandins. 4,271,184, Cl. 424-285.000.

Gasellin, Charon R.: *See*—
Durant, Graham J.; and Gasellin, Charon R., 4,271,169, Cl. 424-263.000.

Gange, Robert A.; and Marlowe, Frank J., to RCA Corporation. System for compensating for cathode variations in display devices utilizing line cathodes. 4,271,377, Cl. 315-366.000.

Garbis, Dennis: *See*—
Hill, Lawrence; Garbis, Dennis; and Heller, Robert, 4,271,235, Cl. 428-408.000.

Gardner, Nelson C.: *See*—
Adler, Robert J.; Brostlow, Coleman B.; Brown, William R.; and Gardner, Nelson C., 4,270,937, Cl. 62-17.000.

Garlock Inc.: *See*—
Bainard, Dean R.; and Benjamin, Martin, 4,270,442, Cl. 92-168.000.
Denton, Dennis N.; and Benjamin, Martin E., 4,270,759, Cl. 277-1.000.

Garrard, Bruce. Gas and liquid ad-mixing system. 4,271,097, Cl. 261-64.00D.

Garrett Corporation, The: *See*—
Corrigan, Charles E., 4,270,883, Cl. 416-97.00A.
Foster, Berry W., 4,270,602, Cl. 165-167.000.

Garter, Robert F.; Hamparian, Nahas; and Lee, Litton T., to General Motors Corporation. Insulated oil cooled piston assembly. 4,270,494, Cl. 123-41.350.

Gates, Robert L.: *See*—
Osborne, Norman A.; and Gates, Robert L., 4,270,393, Cl. 74-5.00F.

Gattys, Franz-Josef, to F. J. Gattys Ingenieurburo. Process of denitration of highly radio-active waste solutions. 4,271,034, Cl. 252-301.10W.

Gaudioso, Stephen L., to Xerox Corporation. Magnetic latent image toner material and process for its use in flash fusing developing. 4,271,248, Cl. 430-39.000.

Gauri, Kailash K., to Robugen GmbH Pharmazeutische Fabrik. Novel monophosphates. 4,271,153, Cl. 424-180.000.

Gavin, Bruce M., to Gavin, Bruce Malcolm; and Hubber, Nelson James. Electrified fence switching device. 4,270,735, Cl. 256-10.000.

Gavin, Bruce Malcolm: *See*—
Gavin, Bruce M., 4,270,735, Cl. 256-10.000.

Gearhart Owen Industries, Inc.: *See*—
Hallmark, Bobby J., 4,270,385, Cl. 73-155.000.

Gebhardt, Hans: *See*—
Deschler, Gerhard; Gebhardt, Hans; and Wittmann, Dieter, 4,270,407, Cl. 74-569.000.

Gebruder Junghans GmbH: *See*—
Scherzinger, Bernhard; and Flaig, Hans, 4,271,495, Cl. 368-75.000.
Wolber, Robert; and Maurer, Roland, 4,270,834, Cl. 339-147.00R.

Geidies, Ulrich: *See*—
Forster, Manfred; Linke, Adolf; and Geidies, Ulrich, 4,270,558, Cl. 137-2.000.

Geinzmann, Robert. Spit roaster. 4,270,444, Cl. 99-421.00V.

Geitz, Gerhard: *See*—
Birzele, Paul; and Geitz, Gerhard, 4,271,518, Cl. 371-37.000.

Geldner, Ernst; Friedel, Rudolf; and Haberrecker, Klaus, to Siemens Aktiengesellschaft. Rotatable anode for an X-ray tube composed of a coated, porous body. 4,271,372, Cl. 313-330.000.

General Electric Company: *See*—
Adams, Norbert, 4,271,365, Cl. 250-551.000.
Bishop, James C.; and Patenaude, Raymond A., 4,270,436, Cl. 89-33.00R.
Borman, Willem F. H.; and Campbell, Richard W., 4,271,063, Cl. 260-40.00R.
Burns, Richard D., 4,271,368, Cl. 310-42.000.
Denny, Dana W., 4,270,397, Cl. 165-27.000.
Denny, Dana W., 4,271,400, Cl. 337-380.000.
Dieck, Ronald L., 4,271,064, Cl. 260-40.00R.
Hooke, John W.; and Pate, Paul E., 4,271,241, Cl. 429-54.000.
Howell, Edward K., 4,271,444, Cl. 361-48.000.
Howell, Edward K., 4,271,447, Cl. 361-93.000.
Kast, Howard B., 4,270,345, Cl. 60-39.28R.
Ohno, John M., 4,271,114, Cl. 264-114.000.
Rossi, Anthony J.; and Behringer, Donald F., 4,270,357, Cl. 60-660.000.
Thurston, George T., 4,270,828, Cl. 339-95.00R.

General Foods Corporation: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hyneon, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,271,206, Cl. 426-572.000.
Otto, Michael J.; and Ray, George C., 4,271,220, Cl. 428-134.000.

General Motors Corporation: *See*—
Coulter, James L.; and Lorenz, Harald H., 4,270,633, Cl. 188-79.5GC.
Ewing, Bruce A., 4,270,256, Cl. 29-156.80R.
Frelund, Arthur R., 4,270,499, Cl. 123-293.000.
Freudenstein, Ferdinand; and Maki, E. Roland, 4,270,495, Cl. 123-54.00B.
Garter, Robert F.; Hamparian, Nahas; and Lee, Litton T., 4,270,494, Cl. 123-41.350.
Gill, Donald H.; MacRae, Joseph A.; and Cottrill, Compton J., 4,270,591, Cl. 411-112.000.
Jessop, Michael E., 4,270,624, Cl. 180-287.000.
Kastura, John L.; and Stewart, William R., 4,271,402, Cl. 340-52.00F.
Lanzi, Ronald G.; and Verma, Peter, 4,270,266, Cl. 29-875.000.
Mann, Gunder S., 4,270,936, Cl. 55-528.000.
Mathieson, John N.; and Sprenger, Roy C., 4,270,793, Cl. 296-93.000.
Page, Norman R.; and Barnett, Leslie W., 4,270,328, Cl. 52-514.000.
Pomerantz, Allen J., 4,270,503, Cl. 123-438.000.
Wagner, Douglas A., 4,270,408, Cl. 74-661.000.
Walters, L. Kirk; Judd, Richard K.; and Atkins, Terrance J., 4,271,094, Cl. 261-39.00B.
Widdowson, Richard E.; Connolly, James R.; Schlosterbeck, Earl S.; and Livesay, J. D., 4,270,934, Cl. 55-316.000.
Wisberg, Robert F., 4,270,348, Cl. 60-323.000.
Yu, Mason K., 4,270,344, Cl. 60-39.16R.

George, Benjamin B., Jr., to Tivoli Industries, Inc. Decorative light tubing. 4,271,458, Cl. 362-236.000.

Georgeau, Phillip C., to Megaloid Chemical Corporation. Method of producing a pre-wet, dust-free form of asbestos short fibers. 4,271,115, Cl. 264-117.000.

Georgetown Steel Corporation: *See*—
Coward, Michael D., 4,270,595, Cl. 164-415.000.

Georgiev, Veselin Y.; and Mednikarov, Vladimir S., to Institute Po Mechanika I Biomechanika. Impulse-type sinking hydrant. 4,270,697, Cl. 239-99.000.

Gerth, Howard L.: *See*—
Robinson, Samuel C.; and Gerth, Howard L., 4,270,421, Cl. 82-21.00A.

Gertsch, Peter; and Imhof, Robert, to Maschinenfabrik Wifag. Ductor drive. 4,270,452, Cl. 101-148.000.

Gesellschaft zur Forderung der Forschung an der Eidgenoessichen Technischen Hoschachule: *See*—
Hausmann, Werner A., 4,271,037, Cl. 252-359.00R.

Geyer, Hermann: *See*—
Steigerwald, Wolf-Erhard; Ambros, Peter; and Geyer, Hermann, 4,271,045, Cl. 252-511.000.

Gherardi, Gianluigi: *See*—
Cristiani, Athos; and Gherardi, Gianluigi, 4,270,670, Cl. 221-211.000.

Gi. Pi. S.n.c. di Galletti Alfonso & C.: *See*—
Galletti, Alfonso, 4,271,019, Cl. 210-108.000.

Giardini, Dante S., to Ford Motor Company. Acceleration responsive clutch. 4,270,643, Cl. 192-103.00C.

Gibbons, Michael G.: *See*—
Kehrman, Robert F.; Farstad, Arnold J.; Gibbons, Michael G.; and Swigert, David L., 4,271,407, Cl. 340-690.000.

Giel, Thomas H., to Mallinckrodt, Inc. Particulate lactose-starch hydrolysate based flavoring materials and method of producing same. 4,271,202, Cl. 426-96.000.

Gildea, Dennis M.; and Nota, Peter. Camera mount. 4,270,679, Cl. 224-181.000.

Gilden, Sheldon J.; and Robichaud, Robert H., to Texas Instruments Incorporated. Medical electrode having improved adherence characteristics. 4,270,544, Cl. 128-640.000.

Gill, Bernard J.; Siegal, Burton L.; and Goettsche, Randy P., to Kiwi Coders Corporation. Inker ring wheel. 4,270,454, Cl. 101-348.000.

Gill, Donald H.; MacRae, Joseph A.; and Cottrill, Compton J., to General Motors Corporation. Fastener assembly. 4,270,591, Cl. 411-112.000.

Gillette Company, The: *See*—
Jacobson, Chester F., 4,270,268, Cl. 30-47.000.

Gilliams, Yvan K.; and De Roo, Pierre R., to AGFA-GEVAERT N.V. Composition of matter and method for electrostatic image development. 4,271,249, Cl. 430-101.000.

Gilson, Alan P.: *See*—
Siryj, Bohdan W.; and Gilson, Alan P., 4,271,489, Cl. 369-38.000.

Gimbel, R. Keith. Framed picture holder. 4,270,287, Cl. 40-152.000.

Giner, Jose D.: *See*—
United States of America, National Aeronautics and Space Administration; Giner, Jose D.; and Cahill, Kathleen J., 4,270,984, Cl. 204-2.100.

Giovannetti, Sergio; Barsotti, Giuliano; and Donati, Giovanni, to Tecnodial, S.P.A. Spiral-shaped dialysis and ultrafilter device, especially for extracorporeal haemodialysis. 4,271,023, Cl. 210-321.300.

Girard, Yves: *See*—
Atkinson, Joseph G.; Rooney, Clarence S.; Girard, Yves; and Engelhardt, Edward L., 4,271,187, Cl. 424-309.000.

Giraud, Georges J. L., to Compagnie Internationale pour l'Informatique -CII-Honeywell Bull. Data processing system which protects the secrecy of confidential data. 4,271,482, Cl. 364-900.000.

Girling Limited: *See*—
Brearley, Malcolm, 4,270,808, Cl. 303-92.000.
Langert, Albert, 4,270,632, Cl. 188-79.50P.
Thomas, Alfred W.; and Danne, Ulrich W., 4,270,353, Cl. 60-547.00R.

Girling Midland Ross Air Actuation Limited: *See*—
Green, Martin, 4,270,355, Cl. 60-593.000.

Glaser, Hermann: *See*—
Vogt, Wilhelm; and Glaser, Hermann, 4,271,008, Cl. 208-48.00R.

Glass, Jeremy M.; Lampke, George G.; and St. Germain, Roger L., to Raytheon Company. Range tracker utilizing spectral analysis. 4,271,412, Cl. 343-5.0FT.

Glaze, Jack G.; and Overbeek, Robert B. Torque transfer mechanism. 4,270,409, Cl. 74-665.0GA.

Global Manufacturing, Inc.: *See*—
Fallows, John, 4,270,396, Cl. 74-87.000.

Glushko, Mikhail F.; Skalatsky, Viktor K.; Zakhryamin, Anatoly D.; and Shamrai, Gennady F. Method of making a shape-stranded rope. 4,270,341, Cl. 57-215.000.

Goedemans, Wilhelmus T., to Byk-Mallinckrodt CIL B.V. Radioimmunological method of determining the thyroid function by an in vitro test in blood serum. 4,271,141, Cl. 424-1.000.

Goettert, Edward J., to Minnesota Mining and Manufacturing Company. Thermally developable photosensitive compositions containing acutance agents. 4,271,263, Cl. 430-522.000.

Goettsche, Randy P.: *See*—
Gill, Bernard J.; Siegal, Burton L.; and Goettsche, Randy P., 4,270,454, Cl. 101-348.000.

Goheen, Eugene E. Quick hitch for animals or the like. 4,270,492, Cl. 119-118.000.

Goida, John H., to Applied Copy Technology, Inc. Conversion kit for photocopying machine. 4,270,856, Cl. 355-3.00R.

Golownia, Robert F., to SCM Corporation. Curing catalyst for thermosetting powder paints. 4,271,277, Cl. 525-351.000.

Gonzalez, Jesus C. Modular bottle support rack. 4,270,662, Cl. 211-74.000.

Goodman, David J.; Henry, Paul S.; and Prabhu, Vasant K., to Bell Telephone Laboratories, Incorporated. Spread spectrum FH-MFSK receiver. 4,271,524, Cl. 375-1.000.

Goodridge, Francis; and Plimley, Raymond E., to Diamond Shamrock Corporation. Electrochemical cell and process. 4,270,995, Cl. 204-79.000.

Goodsell, David S.: *See*—
Reisman, Elias; Goodsell, David S.; and Masino, Fred S., 4,270,603, Cl. 165-185.000.

Goodyear Tire & Rubber Company, The: *See*—
Grimm, Donald C.; and Gunnerson, Hanford L., 4,271,213, Cl. 427-222.000.

Goorissen, Jan: *See*—
Bollen, Lambertus J. M.; and Goorissen, Jan, 4,270,960, Cl. 148-175.000.

Gordon, Leonard J.; and Myers, Frank A., to Vega Industries, Inc. Fireplace having integral grate. 4,270,515, Cl. 126-164.000.

Goto, Atsuo, to Olympus Optical Co., Ltd. Objective for video disks. 4,270,843, Cl. 350-480.000.

Goto, Noriyuki: *See*—
Isa, Isao; Ebisawa, Makoto; and Goto, Noriyuki, 4,270,925, Cl. 23-230.00R.

Goto, Shoziro: *See*—
Suhara, Manabu; Goto, Shoziro; and Arai, Kiyotaka, 4,270,996, Cl. 204-98.000.

Gould Inc.: *See*—
Blumenthal, John; and Moore, Chad Z., 4,271,417, Cl. 346-154.000.
Williams, Glenn L.; and Reilly, Edward J., 4,271,414, Cl. 346-76.0PH.

Goutmann, Michel M. H.; and Harper, Robert C., to Magnavox Government and Industrial Electronics Co. Digital voice conferencer. 4,271,502, Cl. 370-62.000.

Graas, Joseph E. Microchromatographic device and method for rapid determination of a desired substance. 4,270,921, Cl. 23-230.00B.

Graber, Heinz, to Aktiengesellschaft Karrer, Weber & Cie. Clockwork control valve mechanism. 4,270,574, Cl. 137-624.110.

Grady, Dwight D.: *See*—
Fletcher, Wade D.; McMahon, Edward H.; and Grady, Dwight D., 4,270,475, Cl. 113-120.00K.

Graf, Rupprecht: *See*—
Ansen, Jakob; Duill, Helmut; Fasbender, Heinz; and Graf, Rupprecht, 4,270,466, Cl. 110-193.000.

Graham, William W. Brush cutting attachment for chain saw. 4,270,272, Cl. 30-371.000.

Grange, Kenneth H.: *See*—
Binns, Julian R. H.; and Grange, Kenneth H., 4,270,737, Cl. 256-48.000.

Grant, David C.; and Burgman, Herbert A., to United States of America, Interior. Permeability restoration and lowering of uranium leakage from leached ore beds. 4,270,802, Cl. 299-5.000.

Grasselli, Robert K.; and Suresh, Dev D., to Standard Oil Company. Vapor phase catalytic oxidation and/or ammoxidation of cyclohexanone and/or cyclohexanol to phenol and/or aniline. 4,271,091, Cl. 564-305.000.

Gray, Harry B.; and Mann, Kent R., to California Institute of Technology. Transition metal complex catalysts. 4,271,033, Cl. 252-188.30R.

Gray, Tommy L., to Span Instruments, Inc. Sensor with adjustable pressure responsive detection and control. 4,270,568, Cl. 137-498.000.

Grayson, Jacob H.: *See*—
Lowe, Charles L., 4,270,506, Cl. 123-523.000.

Green, Basil W., to Fraser & Chalmers Equipment Limited. Feed distributors. 4,270,676, Cl. 222-485.000.

Green, James W. Rotatable mounting for necklace gem stone. 4,270,366, Cl. 63-2.000.

Green, Martin, to Girling Midland Ross Air Actuation Limited. Master cylinder and actuator assemblies. 4,270,355, Cl. 60-593.000.

Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., to Hanover Research Corporation. Process and apparatus for recovering clean water and solids from aqueous solids. 4,270,974, Cl. 159-16.00S.

Greenfield, Stanley A.: *See*—
Seidel, Michael C.; von Meyer, William C.; and Greenfield, Stanley A., 4,271,308, Cl. 548-262.000.

Gregorovic, Dragutin. Mobile installation for the cold treatment of refuse. 4,270,447, Cl. 100-70.00R.

Grehl, William H., to O. F. Mossberg & Sons, Inc. Firing-pin blocking device for firearms. 4,270,295, Cl. 42-70.00F.

Greiman, Myrl H. W. Sealing assembly. 4,270,760, Cl. 277-3.000.

Greiner, Harry M.: *See*—
Difflipp, Kurt; and Greiner, Harry M., 4,270,450, Cl. 101-142.000.

Greiner, Joachim; and Mager, Albrecht, to Vacuumschmelze GmbH. Integral shield and bias element for magnetic tape cassettes. 4,271,441, Cl. 360-130.330.

Gresch, Heinz: *See*—
Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, 4,270,326, Cl. 52-404.000.

Greskovich, Eugene J.: *See*—
Chen, Michael S.; Greskovich, Eugene J.; and Spector, Marshall L., 4,271,026, Cl. 210-605.000.

Greve, Heinz G.: *See*—
Bender, Heinz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, 4,271,073, Cl. 260-315.000.

Grevea, Hendrik M.: *See*—
de Wied, David; and Greven, Hendrik M., 4,271,152, Cl. 424-177.000.

Griem, Paul D.: *See*—
Menot, Robert; Willard, Robert E.; Griem, Paul D.; and Devine, Guy E., 4,271,505, Cl. 370-85.000.

Gries, Josef: *See*—
Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Lenke, Dieter; and Kunze, Johannes, 4,271,163, Cl. 424-250.000.

Griesen, Bertus, to Hazemeijer B.V. Electrical vacuum switch having means for generating an axial magnetic field between the contact faces. 4,271,340, Cl. 200-144.00B.

Grill, Benjamin: *See*—
Sturman, Oded E.; and Grill, Benjamin, 4,270,573, Cl. 137-624.200.

Grillo, Richard J.: *See*—
Schiffmann, Robert F.; Mirman, Alfred H.; and Grillo, Richard J., 4,271,203, Cl. 426-243.000.

Grimm, Donald C.; and Gunnerson, Hanford L., to Goodyear Tire & Rubber Company, The. Fused, thermoplastic partitioning agent and preparation of crumb rubber coated therewith. 4,271,213, Cl. 427-222.000.

Grise, Frederick G. J. Expansion joint. 4,270,871, Cl. 403-29.000.

Groeschel, Vernon E.; and Angehrn, Jorg A., to Dresser Industries, Inc. Method and apparatus for natural gamma ray spectrum analysis using microprocessor stripper. 4,271,356, Cl. 250-262.000.

Grogan, Martin L., to Rockwell International Corporation. Method and apparatus for protecting alternating current circuits. 4,271,449, Cl. 361-94.000.

Groleau, Rodney J., to Control Process, Inc. Method for controlling an exothermic molding process. 4,271,106, Cl. 264-40.500.

Gross, Meyer A., to New York Toy Corporation. Interlock support structure. 4,270,239, Cl. 16-112.000.

Grossa, Mario: *See*—
Abele, Werner; Grossa, Mario; and Pilz, Otto, 4,271,260, Cl. 430-292.000.

Grosssoleil, Jacques: *See*—
Daniel, Jean-Claude; Grossoleil, Jacques; and Roullet, Robert, 4,271,055, Cl. 260-29.6TA.

Grote, Dace: *See*—
Trivedi, Bhupendra C.; Grote, Dace; and Mason, Thomas O., 4,270,983, Cl. 203-43.000.

Grundy, Reed H. Motion translating mechanism. 4,270,395, Cl. 74-49.000.

Gruppo Lepetit S.p.A.: *See*—
Cricchio, Renato, 4,271,155, Cl. 424-200.000.

GTE Automatic Electric Laboratories, Inc.: *See*—
Lim, Linda W., 4,270,465, Cl. 110-127.000.

GTE Laboratories Incorporated: *See*—
Rodriguez-Perazza, Manuel, 4,270,907, Cl. 474-200.000.

GTE Products Corporation: *See*—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,270,897, Cl. 431-362.000.
Brown, Timothy W., 4,271,528, Cl. 455-179.000.
Hand, Wilfred L.; and Jacek, Victor J., 4,271,533, Cl. 455-192.000.

Guarascio, Massimo. Cylindrical separator apparatus for separating mixtures of solids of different specific gravities, particularly for the mining industry. 4,271,010, Cl. 209-211.000.

Gudat, Wolfgang: *See*—
Ruhnau, Gerhard; Gudat, Wolfgang; Lindemann, Klaus; and Saba, Manfred, 4,270,810, Cl. 303-106.000.

Gulaskey, Joseph W.: *See*—
Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., 4,270,258, Cl. 29-157.400.

Gulati, Suresh T.; and Hagy, Henry E., to Corning Glass Works. Metal shaping die assembly. 4,270,380, Cl. 72-467.000.

Gulf Canada Limited: *See*—
Soukrada, Frank; and Galvez, Buenaventura B., 4,271,007, Cl. 208-48.00R.

Gunnerson, Hanford L.: *See*—
Grimm, Donald C.; and Gunnerson, Hanford L., 4,271,213, Cl. 427-222.000.

Gusdorf Corporation: *See*—
Gusdorf, Walter, 4,270,822, Cl. 312-265.000.

Gusdorf, Walter, to Gusdorf Corporation. Cabinet and door assembly. 4,270,822, Cl. 312-265.000.

Guthohrlein, Gerhard: *See*—
Helting, Torsten B.; and Guthohrlein, Gerhard, 4,271,147, Cl. 424-92.000.

Gutman, Arnold D., to Stauffer Chemical Company. N-Aryl,2-phenoxy nicotinamide compounds and the herbicidal use thereof. 4,270,946, Cl. 71-94.000.

Gutman, Arnold D., to Stauffer Chemical Company. α-(Phenylazo)-2,6-dichlorobenzaldimino esters and their use as herbicides. 4,270,947, Cl. 71-98.000.

Gutmann, Gordon L. Arm support pillow. 4,270,235, Cl. 5-431.000.

H.F. Communications Corporation: *See*—
Leveque, J. Howard, 4,271,499, Cl. 370-7.000.

H.L.P. Imports Ltd.: *See*—
Perovich, Lawrence M.; and Stern, Harold J., 4,270,932, Cl. 51-293.000.

Haase, Thomas A.: *See*—
Pess, Frederick A.; and Haase, Thomas A., 4,271,038, Cl. 252-428.000.

Haberrecker, Klaus: *See*—
Geldner, Ernst; Friedel, Rudolf; and Haberrecker, Klaus, 4,271,372, Cl. 313-330.000.

Haftmann, Johannes, to Nixdorf Computer AG. Ink ribbon magazine for endless ink ribbon cartridge. 4,270,867, Cl. 400-207.000.

Hagy, Henry E.: *See*—
Gulati, Suresh T.; and Hagy, Henry E., 4,270,380, Cl. 72-467.000.

Hahn, Edward R., to Albany International Corp. Papermakers felt and method of manufacture. 4,271,222, Cl. 428-193.000.

Haikkala, Pekka O., to Oy Tampella Ab. Method of and a grinder for discharging groundwood stock when grinding wood under pressure. 4,270,703, Cl. 241-18.000.

Halcon Research and Development Corp.: *See*—
Khoobiar, Sargis, 4,271,040, Cl. 252-437.000.
Naglieri, Anthony N.; and Rizkalla, Nabil, 4,271,090, Cl. 260-550.000.

Hall, Daniel W.: *See*—
Suh, Sang K.; and Hall, Daniel W., 4,270,951, Cl. 75-200.000.

Hall, James B., to Storage Technology Corporation. Address mark generation and decoding method. 4,271,519, Cl. 371-38.000.

Hall, Randall C.: *See*—
Dixon, Jack B.; and Hall, Randall C., 4,271,022, Cl. 210-198.200.

Halliburton Company: *See*—
Barrington, Burchus Q., 4,270,610, Cl. 166-317.000.
Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Searka, David D., 4,270,608, Cl. 166-278.000.

Hallmark, Bobby J., to Gearhart Owen Industries, Inc. Tool for testing earth formations in boreholes. 4,270,385, Cl. 73-155.000.

Halls, Lawrence M., to Sperry Corporation. Crop harvesting machine. 4,270,338, Cl. 56-14.400.

Halter, Joseph M.: *See*—
Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., 4,270,876, Cl. 405-133.000.

Hamakawa, Yoshihiro; Okamoto, Hiroaki; Nitta, Yoshiteru; and Adachi, Toshio, to Hamakawa, Yoshihiro. Photovoltaic device. 4,271,328, Cl. 136-249.000.

Hamashima, Yoshio: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,296, Cl. 544-182.000.

Hamilton Tool Company: *See*—
Crampton, Charles P., 4,270,743, Cl. 270-58.000.

Hamlin, Thomas J., to Xerox Corporation. Sheet separator. 4,270,746, Cl. 271-98.000.

Hammann, Ingeborg: *See*—
Forster, Heinz; Fuchs, Raiser; Hammann, Ingeborg; and Steudel, Wilhelm, 4,271,186, Cl. 424-304.000.

Hammel, Joseph J.: *See*—
Amrhein, Alan G.; Hammel, Joseph J.; and Sheiestad, Larry J., 4,270,945, Cl. 65-99.00A.

Hamon, Francois H. J., to Moulinex, Societe Anonyme. Water heater. 4,271,349, Cl. 219-283.000.

Hamparian, Nahas: *See*—
Garter, Robert F.; Hamparian, Nahas; and Lee, Litton T., 4,270,494, Cl. 123-41.350.

Hancock, Roger H. Y.; and Kerr, Neil, to Secretary of State for Industry in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, The. Pinned suction anchors. 4,270,480, Cl. 114-296.000.

Hand, Wilfred L.; and Jacek, Victor J., to GTE Products Corporation. AFC Interface circuit. 4,271,533, Cl. 455-192.000.

Hanna Furnace Corporation, The: *See*—
Bhattacharyya, Aniruddha, 4,271,013, Cl. 210-617.000.

Hannah, John, to Merck & Co., Inc. 7-N-Heterocyclyl-2-substituted 1-oxadethia-cephalosporins. 4,271,159, Cl. 424-248.510.

Hanover Research Corporation: *See*—
Greenfield, Charles; Casparian, Robert E.; and Bonanno, Anthony J., 4,270,974, Cl. 159-16.00S.

Hansen, Guenter; Pottgiesser, Hermann; and Schlaadwein, Walter, to BASF Aktiengesellschaft. Process for securing bulk loads in motor coasters and ocean-going vessels against shifting. 4,271,231, Cl. 428-323.000.

Hansen, Karl A.; and Hendrickson, Iver G., to Boeing Company, The. Apparatus and method for eddy current detection of subsurface discontinuities in conductive bodies. 4,271,393, Cl. 324-240.000.

Hanson, Catherine F. Finger ring splint. 4,270,528, Cl. 128-87.00A.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Method of stabilizing organic silicone materials including photographic dye images to light and a photographic material so stabilized. 4,271,252, Cl. 430-216.000.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Method for stabilizing organic silicone materials including photographic dye images to light and photographic material so stabilized. 4,271,253, Cl. 430-216.000.

Harada, Yasukazu: *See*—
Sasaki, Koji; and Harada, Yasukazu, 4,271,198, Cl. 424-177.000.

Haraguchi, Hayatsugu; and Imura, Yuichi, to Toyo Kogyo Co., Ltd. Automobile front deck structure. 4,270,793, Cl. 296-192.000.

Harder, Arthur J., Jr., to Couch & Car Equipment Corporation. Breakaway arm for seat. 4,270,798, Cl. 297-417.000.

Hardy, Jay C., to Hardy Welded Products, Inc. Welding apparatus capable of welding axially offset portions. 4,271,346, Cl. 219-76.140.

Hardy Welded Products, Inc.: *See*—
Hardy, Jay C., 4,271,346, Cl. 219-76.140.

Harenberg, Donald D.: *See*—
Dlugos, Daniel F.; and Harenberg, Donald D., 4,271,470, Cl. 364-466.000.

Hargis, Billy M., to Minnesota Mining and Manufacturing Company. Leaded mounting and connector unit for an electronic device. 4,271,426, Cl. 357-74.000.

Harigaya, Isao: *See*—
Suzuki, Ryoichi; Harigaya, Isao; and Uchiyama, Takashi, 4,270,852, Cl. 354-23.00D.

Harnsberger, Bobby G.: *See*—
Cardenas, Ricardo L.; Harnsberger, Bobby G.; and Maddox, Jim, Jr., 4,270,607, Cl. 166-273.000.

Harper, Robert C.: *See*—
Goutmann, Michel M. H.; and Harper, Robert C., 4,271,502, Cl. 370-62.000.

Harris Corporation: *See*—
Eckelmeyer, Edward H., 4,271,379, Cl. 318-77.000.

Harrison, David M.; Watson, Walter E., III; Moore, Maurice S.; and Jermyn, Roger E., to Allied Chemical Corporation. Apparatus to count and control crimps in a moving tow of yarn. 4,270,252, Cl. 28-250.000.

Hart, Hiram. Scintillation proximity assay. 4,271,139, Cl. 424-1.000.

Harteck, Paul, to Rensselaer Polytechnic Institute. Fixation of nitrogen. 4,271,137, Cl. 423-395.000.

Hartman, Adrian R.; Scott, Robert S.; and Shackle, Peter W., to Bell Telephone Laboratories, Incorporated. Solid-state protector circuitry using gated diode switch. 4,271,445, Cl. 361-56.000.

Harvey Hubbell Incorporated: *See*—
Barkas, Emanuel E., 4,271,337, Cl. 200-51.090.

Harvey, William J.: *See*—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,270,897, Cl. 431-362.000.

Hasbro Industries, Inc.: *See*—
Samuels, Donald H., 4,270,305, Cl. 46-221.000.

Hasebe, Isamu: *See*—
Yamamoto, Mitsuru; Arai, Jun; Isogawa, Takao; and Hasebe, Isamu, 4,271,466, Cl. 364-200.000.

Hasegawa, Kinji: *See*—
Mitsuishi, Yukio; Shiozaki, Shigeru; and Hasegawa, Kinji, 4,270,308, Cl. 47-17.000.

Hashimoto, Norikazu: *See*—
Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,270,262, Cl. 29-571.000.

Hashimoto, Yasuyuki; and Torii, Osamu, to Ancos Co., Ltd. Mechanical pencil with chuck closing by normal writing grip. 4,270,870, Cl. 401-93.000.

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Hatada, Kotaro; Higuchi, Masaru; and Iwata, Hiroshi, to West Electric Company, Ltd. Sound-recording instant-printing film and camera therefor. 4,270,853, Cl. 354-76.000.

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Oonishi, Toshiyuki; Motoyama, Takeshi; and Hatanaka, Kiyoshi, 4,270,364, Cl. 62-198.000.

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Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, 4,270,857, Cl. 355-8.000.

Hatuse, Toshikazu: *See*—
Tamaru, Munetaka; and Hatuse, Toshikazu, 4,271,493, Cl. 368-28.000.

Hauck, Heinz E., to Merck Patent Gesellschaft mit Beschrankter Haftung. Process for increasing the resistance to water of pre-coated preparations for chromatography. 4,271,021, Cl. 210-198.300.

Hauck, Peter: *See*—
Niemann, Klaus; Wulf, Helmut; and Hauck, Peter, 4,270,405, Cl. 74-499.000.

Hauser, Seymour: *See*—
Meyerson, Stanley; and Hauser, Seymour, 4,270,249, Cl. 24-241.0PP.

Hausmann, Werner A., to Gesellschaft zur Forderung der Forschung an der Eidgenossischen Technischen Hoschschule. Device for the production of sol-gel globules in coarse and fine fractions. 4,271,037, Cl. 252-359.00R.

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Hayashi, Tadatoshi: *See*—
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Griesen, Bertus, 4,271,340, Cl. 200-144.00B.

Heald, Terence E.; and Porter, Roy, to Imperial Chemical Industries Limited. Stabilized aqueous dyestuff dispersions. 4,270,917, Cl. 8-527.000.

Hebern, William D. Exercising device. 4,270,749, Cl. 272-96.000.

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Hecht, Ralph J.: *See*—
Wright, Robert J.; and Hecht, Ralph J., 4,271,005, Cl. 204-298.000.

Heckel, Klaus; Klaffke, Friedemann; Umann, Walter; and Schwarz, Volker, to Carl Freudenberg, Firma. Pipe insulating jacket. 4,271,218, Cl. 428-36.000.

Heckles, John S., to Armstrong Cork Company. Acrylate-acetoacetamide polymers. 4,271,237, Cl. 428-520.000.

Heilman, Marlin S., to Mirowski, Mieczyslaw. Method for implanting cardiac electrodes. 4,270,549, Cl. 128-784.000.

Heiman, Neil D.; White, Robert L.; Potter, Robert I.; and Albert, Paul A., to International Business Machines Corporation. Amorphous magnetic film. 4,271,232, Cl. 428-332.000.

Heimann GmbH: *See*—
Herwig, Thomas; and Doenges, Gerhard, 4,271,359, Cl. 250-347.000.

Heinemann, Henning: *See*—
Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Heinzl, Joachim, to Siemens Aktiengesellschaft. Container of variable volume. 4,270,589, Cl. 150-0.500.

Heissenberger, Otto: *See*—
Bergloff, Dag; Wohlfarter, Alois; Heissenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, 4,270,254, Cl. 29-148.40D.

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Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Heller, Robert: *See*—
Hill, Lawrence; Garbis, Dennis; and Heller, Robert, 4,271,235, Cl. 428-408.000.

Hellin, Michel: *See*—
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,270,929, Cl. 44-56.000.

Helting, Torsten B.; and Guthohrlein, Gerhard, to Behringwerke Aktiengesellschaft. Process for the isolation of membrane proteins from *Neisseria meningitidis* and vaccines containing same. 4,271,147, Cl. 424-92.000.

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Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

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Brossard, Pierre C.; and Henaff, Jeannine L. G., 4,271,504, Cl. 370-76.000.

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Hansen, Karl A.; and Hendrickson, Iver G., 4,271,393, Cl. 324-240.000.

Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., to Halliburton Company. Method and apparatus for gravel packing multiple zones. 4,270,608, Cl. 166-278.000.

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Conrad, Jens; Upadek, Horst; and Bruns, Klaus, 4,271,047, Cl. 252-522.00R.
Eschwey, Helmut, 4,271,051, Cl. 260-22.00M.
Willmund, Wolf-Dieter; and Wagner, Heinz, 4,270,987, Cl. 204-49.000.
Wuest, Willi; Just, Guenther; and Peters, Bernd W., 4,271,135, Cl. 423-329.000.

Hennessy, John B. Animal fat indicator. 4,270,274, Cl. 33-169.00B.

Henning, Hans J.; and Holzem, Heinz, to Pierburg Luftfahrtgerate Union GmbH. Carburetor for internal combustion engines. 4,271,098, Cl. 261-66.000.

Henry, Paul S.: *See*—
Goodman, David J.; Henry, Paul S.; and Prabhu, Vasant K., 4,271,524, Cl. 375-1.000.

Henry, William T., Jr.: *See*—
Colberg, Richard A.; and Henry, William T., Jr., 4,270,427, Cl. 83-473.000.

Hentache, Klaus; Bittner, Friedrich; and Schreyer, Gerd, to Deutsche Gold-und Silber-Scheideanstalt vormals Roessler. Process for the production of suspension or solutions of cyanuric chloride in organic solvents (I). 4,271,297, Cl. 544-190.000.

Hentschel, Klaus; Bittner, Friedrich; and Schreyer, Gerd, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of suspensions or solutions of cyanuric chloride in water. 4,271,298, Cl. 544-190.000.

Hentschel, Klaus; and Bittner, Friedrich, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Process for the production of 2-alkoxy-4,6-dichloro-s-triazines. 4,271,299, Cl. 544-218.000.

Herb, Eugen; and Leibinger, Berthold, to Trumpf America, Inc. Apparatus for simultaneous machining of a stack of plate-like workpieces. 4,270,253, Cl. 29-26.00A.

Herbreteau, Alain M., to Compagnie Francaise des Petroles. Insulating layers for electrical cables. 4,271,226, Cl. 428-220.000.

Herbst, Heiner, to Siemens Aktiengesellschaft. Arrangement for color picture scanning. 4,271,428, Cl. 358-54.000.

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Hercules Incorporated: *See*—
Breslow, David S.; and Simpson, David A., 4,271,259, Cl. 430-286.000.
Metz, Bruce E., 4,271,451, Cl. 361-213.000.

Herman, Daniel F.; and Kruse, Uno, to NL Industries, Inc. Process for preparing water sorptive products. 4,270,977, Cl. 162-168.00R.

Herscovici, Saul, to Power Engineering and Manufacturing, Ltd. Gearbox with high speed flywheel. 4,270,410, Cl. 74-665.00Q.

Hertfelder, Wilhelm; Junginger, Erich; and Linder, Ernst, to Robert Boach GmbH. Valve arrangement, especially for controlling flow of hot water through a heating device for motor vehicles. 4,270,726, Cl. 251-30.000.

Hertz, Daniel L., Jr., to Seals Eastern Inc. Seal for geothermal wells and the like. 4,270,761, Cl. 277-12.000.

Herwig, Thomas; and Doenges, Gerhard, to Heimann GmbH. Optical arrangement for a passive infrared motion detector. 4,271,359, Cl. 250-347.000.

Herzl, Peter J., to Fischer & Porter Co. Frequency-responsive filter for flowmeter transmission system. 4,270,391, Cl. 73-861.220.

Hess, Paul D.: *See*—
Shy, James L.; and Hess, Paul D., 4,270,900, Cl. 432-58.000.

Hewitt, Frederick G., to Sperry Corporation. Magneto-optic light deflector system. 4,270,862, Cl. 356-5.000.

Hewlett-Packard Company: *See*—
Leonard, Mark, 4,271,364, Cl. 307-355.000.

Hexachimie: *See*—
Teulon, Jean M., 4,271,161, Cl. 424-250.000.

Higashi, Ryozi; and Hirano, Hiroyuki, to Pioneer Electronic Corporation. Tone control device. 4,271,398, Cl. 333-28.00T.

Higuchi, Masaru: *See*—
Hatada, Kotaro; Higuchi, Masaru; and Iwata, Hiroshi, 4,270,853, Cl. 354-76.000.

Hilbert, Peter: *See*—
Lotsch, Wolfgang; and Hilbert, Peter, 4,271,301, Cl. 544-296.000.

Hill, Lawrence; Garbis, Dennis; and Heller, Robert. Method of obtaining polycrystalline silicon and workpiece useful therein. 4,271,235, Cl. 428-408.000.

Hill, Raymond R. Stethoscope with probe sound pick-up and resonant cavity amplification. 4,270,627, Cl. 181-131.000.

Hillion, Gerard: *See*—
Durand, Daniel; Hillion, Gerard; Lassau, Christian; and Sajus, Lucien, 4,271,323, Cl. 568-816.000.

Hillstead, David P.: *See*—
Behle, Gunter R.; and Hillstead, David P., 4,270,729, Cl. 251-144.000.

Hilti Aktiengesellschaft: *See*—
Lang, Gustav; and Mauthe, Peter, 4,270,331, Cl. 52-744.000.

Hiltpold, William R., to American Microsystems, Inc. VMOS Memory cell and method for making same. 4,271,418, Cl. 357-23.000.

Himmelbauer, Erich E.; and Koemans, Joseph M., to U.S. Philips Corporation. Cathode ray tube with inclined electrostatic field lens. 4,271,373, Cl. 313-432.000.

Himmelsbach, Fritz. Apparatus for separating portions of flat material cut-out from a web or sheet. 4,270,910, Cl. 493-373.000.

Hindin, Saul G.: *See*—
Polinski, Leon M.; Roberts, George W.; and Hindin, Saul G., 4,270,896, Cl. 431-328.000.

Hindley, Richard M., to Beecham Group Limited. Compounds having hypolipidaemic activity. 4,271,188, Cl. 424-309.000.

Hinrichs, John M., to ACF Industries, Incorporated. Means to retain a valve stem. 4,270,730, Cl. 251-214.000.

Hirano, Hiroyuki: *See*—
Higashi, Ryozi; and Hirano, Hiroyuki, 4,271,398, Cl. 333-28.00T.

Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhiko; and Shimojima, Kiyoshi. Apparatus and process for the fluid lubrication drawing of composite metal wires. 4,270,373, Cl. 72-41.000.

Hitachi, Ltd.: *See*—
Azuswa, Noboru, 4,271,385, Cl. 318-722.000.
Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,270,262, Cl. 29-571.000.
Nakazaki, Takamitsu; Kita, Hisataro; and Akutsu, Yoji, 4,271,348, Cl. 219-121.0ED.
Terashima, Isamu; Twatsuki, Toshio; and Aazai, Masayasu, 4,270,487, Cl. 118-690.000.

HOBEG Hochtemperaturreaktor-Brennelement GmbH: *See*—
Hrovat, Milan; and Spener, Gerhard, 4,271,101, Cl. 264-0.500.
Loser, Harald; Schmidt, Gerhard; Warzawa, Wolfgang; and Wegner, Klaus, 4,271,207, Cl. 427-6.000.

Hodogaya Chemical Co., Ltd.: *See*—
Nagata, Mitsuru; and Wakasugi, Kazuyuki, 4,271,075, Cl. 260-343.400.

Hodshire, Vincent B. Fishing apparatus. 4,270,298, Cl. 43-15.000.

Hoechst Aktiengesellschaft: *See*—
Schrodter, Klaus; Scheibitz, Wolfgang; and Ehlers, Klaus-Peter, 4,271,128, Cl. 422-189.000.
Uhl, Klaus; Friedkora, Hans; and Martini, Thomas, 4,271,036, Cl. 252-301.230.
Vogt, Wilhelm; and Glaser, Hermann, 4,271,008, Cl. 208-48.00R.

Hoffman, Jay, to Singer Company, The. Drift compensated gyroscope. 4,270,387, Cl. 73-504.000.

Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redner, Frank, to Bayer Aktiengesellschaft. Equipment for the continuous production of foam boards. 4,270,889, Cl. 425-115.000.

Hoffmann, Kurt; and Zapf, Karl, to Siemens Aktiengesellschaft. Clock-controlled DC converter. 4,271,461, Cl. 363-60.000.

Hoffmann-La Roche Inc.: *See*—
Fujiwara, Akiko; and Maeda, Setsuko, 4,271,268, Cl. 435-158.000.
Schmidt, Dieter, 4,271,196, Cl. 424-358.000.
Straesle, Rudolf; and Zaugg, Hans, 4,271,122, Cl. 422-61.000.

Holles Laboratories, Inc.: *See*—
Holly, Frank J., 4,271,144, Cl. 424-78.000.

Hollingsworth & Vose Company: *See*—
Foster, Richard P.; and Brodin, Gregory C., 4,271,228, Cl. 428-281.000.

Holly, Frank J., to Holles Laboratories, Inc. Dextran composition for controlling corneal hydration. 4,271,144, Cl. 424-78.000.

Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, to Industrie-Wert Beteiligungsgesellschaft mbH. Fireproof door for hotels, skyscrapers and the like. 4,270,326, Cl. 52-404.000.

Holtey, Thomas O., to Honeywell Information Systems Inc. I/O Priority resolver. 4,271,467, Cl. 364-200.000.

Holtschmidt, Ulrich: *See*—
Bertelmann, Gunter; Holtschmidt, Ulrich; and Laqua, Arnold, 4,271,190, Cl. 424-316.000.

Holzem, Heinz: *See*—
Henning, Hans J.; and Holzem, Heinz, 4,271,098, Cl. 261-66.000.

Holzinger, Karl, to BBC Brown, Boveri & Co. Ltd. Pressure actuated safety device. 4,270,563, Cl. 137-116.500.

Homan, Gary R.; and Lee, Chi-long, to Dow Corning Corporation. Oxygen-curable mercapto-functional organic compound compositions catalyzed by metal carbonyl compounds and method of forming higher molecular weight products therefrom. 4,271,289, Cl. 528-374.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Okmori, Taiji; and Seto, Makoto, 4,270,809, Cl. 303-92.000.

Hosel, Hans: *See*—
Michel, Walter; Hosel, Hans; Schon, Manfred; and Kaiser, Wolfgang, 4,271,286, Cl. 528-254.000.

Honeywell Inc.: *See*—
Anderson, Rogers H.; G., Enrique Bernal; and Chen, Di, 4,271,104, Cl. 264-1.500.
Schmit, Joseph L.; and Scott, M. Walter, 4,270,973, Cl. 156-605.000.

Honeywell Information Systems Inc.: *See*—
Holtey, Thomas O., 4,271,467, Cl. 364-200.000.
Peters, Arthur; and Negi, Virendra S., 4,271,484, Cl. 364-900.000.
Saunders, Robert C.; An, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,271,472, Cl. 364-481.000.

Honkanen, Erkki J.; Pippuri, Aimo K.; Kairisalo, Pekka J.; Thaler, Heinrich; Kaivisto, Matti K.; and Tuomi, Stepa A., to Orion-yhtyma Oy. Method for producing 6,7-dimethoxy-4-amino-2-[4-(2-furoyl)-1-piperazinyl] quinazoline hydrochloride having an antihypertensive effect. 4,271,300, Cl. 544-291.000.

Hooke, John W.; and Pate, Paul E., to General Electric Company. Resealable vent valve for containers such as batteries. 4,271,241, Cl. 429-54.000.

Hooker Chemicals & Plastics Corp.: *See*—
Tang, David Y.; and Foster, Arthur M., 4,271,319, Cl. 568-312.000.

Hopkins, Walter; Priello, Dominick R.; Chavakuri, Subramani R.; Roy, Raymond L.; and Mackay, Donald A. M. Chewing gum containing sugar substitute. 4,271,197, Cl. 426-3.000.

Hopper, Stephen M. Take-off apparatus for formed tubular plastic film. 4,270,891, Cl. 425-296.000.

Hopper, Thomas P.; and Barber, Everett M., Jr., to Sunworks, Inc. Solar energy collector. 4,270,516, Cl. 126-417.000.

Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, to Hitachi, Ltd. Semiconductor device and process for making the same. 4,270,262, Cl. 29-571.000.

Horiuchi, Masao; Miyake, Michiko; and Yoshida, Chikuto, to Matsushita Electric Industrial Co., Ltd. High frequency heating oven with cooking vessel. 4,271,344, Cl. 219-10.55E.

Horn, Darrell C.: *See*—
Claxton, Gerald L.; and Horn, Darrell C., 4,270,581, Cl. 140-57.000.

Hornbeck, Larry J., to Texas Instruments Incorporated. Serial readout stratified channel CCD. 4,271,419, Cl. 357-24.000.

Hosmer, William A., to Scott Paper Company. Coating composition for decorative laminates. 4,271,221, Cl. 428-172.000.

Hosono, Tsutomu, to Fuji Photo Optical Co., Ltd. Flash light discharge device. 4,271,375, Cl. 315-241.00P.

Hospal Medical Corp.: *See*—
Bogue, Beuford A.; and Gagneux, Stephan A., 4,270,535, Cl. 128-214.400.

Hotta, Tetsuya; Enomoto, Satoru; Yoshikumi, Chikao; Ohara, Minoru; and Ueno, Saburo, to Kureha Kagaku Kogyo Kabushiki Kaisha. Protein-bound polysaccharides. 4,271,151, Cl. 424-177.000.

Howat, Robert J., to Northern Telecom Limited. Wrapping articles of indefinite length. 4,270,963, Cl. 156-201.000.

Howell, Edward K., to General Electric Company. Ground fault trip mode network for static trip circuit breakers. 4,271,444, Cl. 361-48.000.

Howell, Edward K., to General Electric Company. Power supply for circuit breaker static trip unit. 4,271,447, Cl. 361-93.000.

Hrovat, Milan; and Spener, Gerhard, to HOBEG Hochtemperaturreaktor-Brennelement GmbH. Process for the production of spherical-shaped fuel elements for high temperature reactors. 4,271,101, Cl. 264-0.500.

Hrovat, Milan; Huschka, Hans; and Rachor, Lothar, to Degussa Aktiengesellschaft. Process for the production of ceramic fuel pellets for nuclear reactors. 4,271,102, Cl. 264-0.500.

Hubber, Nelson James: *See*—
Gavin, Bruce M., 4,270,735, Cl. 256-10.000.

Hubby, John S., to Phillips Petroleum Company. Solution polymerization process. 4,271,060, Cl. 260-33.60A.

Huber, Joseph B.: *See*—
Brown, Thomas A.; and Huber, Joseph B., 4,270,378, Cl. 72-267.000.

Hueschens, Rolf: *See*—
Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Hull, Wendell C.: *See*—
Cobble, Milan H.; Hull, Wendell C.; and Hays, Richard A., 4,270,844, Cl. 350-294.000.

Hulsmann, Hans-Leo: *See*—
Franzmann, Giselher; and Hulsmann, Hans-Leo, 4,271,269, Cl. 435-176.000.

Hummel, Steven L. Solar heating system. 4,270,359, Cl. 62-2.000.

Hummel, Werner: *See*—
Nonnenmann, Manfred; and Hummel, Werner, 4,270,641, Cl. 192-82.00T.

Hunter Douglas International N.V.: *See*—
Van Leeuwen, Paul, 4,270,327, Cl. 52-488.000.

Hurst, Gerald L., to Atlas Powder Company. Desensitized primary explosives. 4,270,435, Cl. 86-1.00R.

Hurst, Paul N. Door vise. 4,270,741, Cl. 269-17.000.

Husain, Matloob; Lai, Ban-Yen; and Schmitt, Richard L., to Chicago Bridge & Iron Company. Apparatus and methods of cooling a hot fluid stream. 4,270,358, Cl. 60-693.000.

Huschka, Hans: *See*—
Hrovat, Milan; Huschka, Hans; and Rachor, Lothar, 4,271,102, Cl. 264-0.500.

Husson, Richard R. Linkage device for drafting tables. 4,270,460, Cl. 108-3.000.

Huyck Corporation: *See*—
Fioravanti, Eugene, 4,270,978, Cl. 162-199.000.

Hyde, Bruce; and Tyndall, Wayne, to Prince Albert Pulpwood Ltd. Continuous felling of trees. 4,270,586, Cl. 144-309.0AC.

Hydraulic Energy Company: *See*—
DePue, Harold F., 4,270,733, Cl. 254-93.00R.

Hydro-Quebec: *See*—
Belanger, Guy; and Missout, Gilles, 4,271,474, Cl. 364-500.000.

Hydrosic Systems, Inc.: *See*—
Sturman, Oded E.; and Grill, Benjamin, 4,270,573, Cl. 137-624.200.

Hynson, Richard B.: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,271,206, Cl. 426-572.000.

Hyodo, Kouichi: *See*—
Mukai, Kuniaki; and Hyodo, Kouichi, 4,271,387, Cl. 323-241.000.

Ichida, Hiroshi: *See*—
Murasawa, Sadao; Murakami, Hajime; and Ichida, Hiroshi, 4,270,485, Cl. 118-648.000.

Ichinose, Susumu: *See*—
Shimizu, Toshio; Ichinose, Susumu; and Ooba, Yuji, 4,271,416, Cl. 346-140.00R.

Ide, Hiroshi: *See*—
Shimizu, Shigeki; and Ide, Hiroshi, 4,271,261, Cl. 430-325.000.

Igelbuscher, Heinrich: *See*—
Holter, Heinz; Gresch, Heinz; and Igelbuscher, Heinrich, 4,270,326, Cl. 52-404.000.

Iida, Masajiro: *See*—
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Iida, Toshihide: *See*—
Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, 4,270,857, Cl. 355-8.000.

Iijima, Takashi: *See*—
Toyoguchi, Yoshinori; Iijima, Takashi; and Fukuda, Masataro, 4,271,242, Cl. 429-194.000.

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Anderson, Norman C., 4,271,363, Cl. 250-504.00R.

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Heald, Terence E.; and Porter, Roy, 4,270,917, Cl. 8-527.000.
Pelter, Andrew; and Ryder, David J., 4,271,317, Cl. 564-8.000.

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Moore, Leo M., 4,270,674, Cl. 222-146.0HE.

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Murib, Jawad H.; and Inskeep, John M., 4,271,081, Cl. 260-346.110.

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Arnaudeau, Marcel; and Verschure, Pietrus, 4,270,611, Cl. 166-344.000.
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Georgiev, Vesselin Y.; and Mednikarov, Vladimir S., 4,270,697, Cl. 239-99.000.

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Trassy, Christian, 4,271,100, Cl. 261-78.00A.

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Baumann, Gerhard, 4,270,309, Cl. 47-59.000.

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Cheselka, Harry; Nemecek, William F.; and Stockwell, Dean A., 4,271,479, Cl. 364-900.000.
Christensen, Neal T.; Van Loo, William C.; Werner, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., 4,271,468, Cl. 364-200.000.
Hassan, Javathu K.; and Paivanas, John A., 4,270,999, Cl. 204-192.00E.
Heiman, Neil D.; White, Robert L.; Potter, Robert L; and Albert, Paul A., 4,271,232, Cl. 428-332.000.
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Woodard, Harrold R., 4,270,745, Cl. 271-9.000.

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Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.

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Brandl, Michael C.; Kataoka, David T.; Khanna, Jagdish C.; and Zwettler, Frank J., Jr., 4,270,623, Cl. 180-69.00R.

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Bright, David R.; and Williams, Robert D., 4,271,174, Cl. 424-272.000.

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Brown, Ernest W., 4,270,429, Cl. 83-851.000.

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Drake, Cyril F.; and Adams, Neil R., 4,271,057, Cl. 260-29.60M.
Vance, Ian A. W.; and Overy, Michael R., 4,271,501, Cl. 370-24.000.

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Schiffmann, Robert F.; Mirman, Alfred H.; and Grillo, Richard J., 4,271,203, Cl. 426-243.000.

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Borner, Paul; Isensee, Hans-Jorg; and Vietzke, Horst, 4,271,127, Cl. 422-159.000.

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Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,271,084, Cl. 260-429.00R.

Ishihara Sangyo Kaisha Ltd.: *See*—
Murasawa, Sadao; Murakami, Hajime; and Ichida, Hiroshi, 4,270,485, Cl. 118-648.000.
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,270,948, Cl. 71-100.000.

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Israel Aircraft Industries Limited: *See*—
Shitrai, Arie, 4,271,336, Cl. 200-24.000.

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Kawai, Hitaei; Ito, Toshimitsu; Sanada, Masakatsu; and Iwase, Kazuo, 4,271,469, Cl. 364-431.000.

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Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,270,262, Cl. 29-571.000.

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Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,271,381, Cl. 318-282.000.

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Kawai, Hitaei; Ito, Toshimitsu; Sanada, Masakatsu; and Iwase, Kazuo, 4,271,469, Cl. 364-431.000.

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Hatada, Kotaro; Higuchi, Masaru; and Iwata, Hiroshi, 4,270,853, Cl. 354-76.000.

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Wacks, Harvey H.; Izu, Masatsugu; and Sarrach, Donald J., 4,271,257, Cl. 430-276.000.

Jacek, Victor J.: *See*—
Hand, Wilfred L.; and Jacek, Victor J., 4,271,533, Cl. 455-192.000.

Jackson, Francis B.: *See*—
Mabery, Thomas L.; and Jackson, Francis B., 4,270,690, Cl. 228-173.00F.

Jackson, George J., to Caterpillar Tractor Co. Valve with non-binding spool. 4,270,731, Cl. 251-309.000.

Jacob, Susan R.: *See*—
Brown, Patrick M.; Jacob, Susan R.; and Boryta, Daniel A., 4,271,131, Cl. 423-179.500.

Jacobi, John H.; and Larsen, Lawrence E., to United States of America, Army. Method and apparatus for physiologic facsimile imaging of biologic targets without multipath contamination using remote microwave interrogation. 4,271,389, Cl. 324-58.50A.

Jacobs, Eddy L., to United States of America, Energy. Arsenic activation neutron detector. 4,271,361, Cl. 250-390.000.

Jacobson, Chester F., to Gillette Company, The. Razor blade assembly. 4,270,268, Cl. 30-47.000.

Jakusch, Helmut: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

Jalbert, Donna C. Parachute canopy. 4,270,714, Cl. 244-145.000.

James, David R., to James Investments Limited. Net-type beds. 4,270,234, Cl. 5-81.00R.

James, Hayda, to Lucas Industries Limited. Vehicle headlamp assembly. 4,271,459, Cl. 362-346.000.

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James, David R., 4,270,234, Cl. 5-81.00R.

Janoski, Florian B., to Atlas Powder Company. Blasting cap booster assembly. 4,270,455, Cl. 102-318.000.

Janssens, Theo; and Willems, Victor, to B. F. G. Glasgroep. Apparatus for manufacturing glazing panels. 4,270,688, Cl. 228-5.100.

Japan Aviation Electronics Industry, Limited: *See*—
Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, 4,271,453, Cl. 361-248.000.

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Isa, Isao; Ebisawa, Makoto; and Goto, Noriyuki, 4,270,925, Cl. 23-230.00R.

Jarecki, John S.: *See*—
Lay, Roger F.; Jarecki, John S.; and Koch, Robert M., 4,270,652, Cl. 198-486.000.

Jarzynka, Clifford J. Hinging downspout assembly. 4,270,572, Cl. 137-615.000.

Jaschke, Peter; Monch, Eckhard; and Weber, Roland, to VEB Gaskombinat Schwarze Pumpe. Cooling arrangement for the locking device in pressure gasification reactors. 4,270,931, Cl. 48-86.00R.

Jauch, Gerhard: *See*—
Quay, Earl R.; and Jauch, Gerhard, 4,270,369, Cl. 66-157.000.

Jean Walterscheid GmbH: *See*—
Kugler, Manfred, 4,270,374, Cl. 72-68.000.

Jenkins, John M.; Pedder, Christopher T.; and Robertson, Neil G. D., to Brown & Williamson Tobacco Corporation. Process and apparatus for producing paper reconstituted tobacco. 4,270,552, Cl. 131-290.000.

Jenkins, John P.; Sabick, Rodney M.; and Kidd, William W., to International Tapetronics Corporation. Automatic tape cartridge handling system. 4,271,440, Cl. 360-92.000.

Jermed Limited: *See*—
Thompson, David K., 4,270,416, Cl. 81-3.00R.

Jermyn, Roger E.: *See*—
Harrison, David M.; Watson, Walter E., III; Moore, Maurice S.; and Jermyn, Roger E., 4,270,252, Cl. 28-250.000.

Jessop, Michael E., to General Motors Corporation. Steering column lock inhibitor for a floor mounted transmission control. 4,270,624, Cl. 180-287.000.

Jewell, Walter: *See*—
Cherukuri, Subramaa R.; Friello, Dominick R.; Jewell, Walter; and Mackay, Donald A. M., 4,271,198, Cl. 426-3.000.

Jeyabalan, Vadivelu: *See*—
Gable, Melvin G.; Sherman, Richard H.; and Jeyabalan, Vadivelu, 4,271,507, Cl. 370-94.000.

Jinnouchi, Hidenobu: *See*—
Matsumoto, Masahiro; Kawate, Kenji; and Jinnouchi, Hidenobu, 4,270,959, Cl. 148-153.000.

Jockel, Heinz: *See*—
Sapp, Emil; Jockel, Heinz; Cornelius, Gerhard; and Marschner, Friedmann, 4,271,086, Cl. 518-704.000.

John Fluke Mfg. Co., Inc.: *See*—
Axtell, Clyde R., III; and Drabing, Richard B., 4,271,515, Cl. 371-25.000.

John Wyeth & Brother, Ltd.: *See*—
Edington, Edwin T.; and White, Alan C., 4,271,304, Cl. 546-290.000.

Johnson Controls, Inc.: *See*—
Hayes, Thomas E., 4,270,693, Cl. 236-46.00F.

Johnson, Elwin L.; Kilby, Jack S.; Lathrop, Jay W.; McFerren, John S.; and Myers, David J., to Texas Instruments Incorporated. Glass support light energy converter. 4,270,263, Cl. 29-590.000.

Johnson, John D.; and Mixon, Connie D., to United Merchants and Manufacturers, Inc. Fabric printing process. 4,270,915, Cl. 8-477.000.

Johnson, Oran W.: *See*—
McSwiney, Thomas L.; Bomar, George S.; and Johnson, Oran W., 4,270,443, Cl. 493-287.000.

Johnson, Randall W., to Auto-Miser International Manufacturing Corp. Fuel vaporizer system. 4,270,505, Cl. 123-522.000.

Johnsson, Tage R. W., to Saab-Scania AB. Synchronizing arrangement for a motor vehicle gear box. 4,270,639, Cl. 192-53.00F.

Johnston, David K.; and Suderman, Donald A., to Allis-Chalmers Corporation. Air baffle for harvester accelerator rolls. 4,270,551, Cl. 130-27.00H.

Johnston, Robert T., to Coaltek Corporation. Disperser seal and method. 4,270,762, Cl. 277-59.000.

Jokari/U.S., Inc.: *See*—
Ligon, Samuel B., 4,270,757, Cl. 273-411.000.

Jones, John L., Jr.: *See*—
Coggin, Charles H., Jr.; and Jones, John L., Jr., 4,270,942, Cl. 65-11.00W.

Jones, Robert A.: *See*—
Brierley, John M.; Parsons, John S.; Trueman, James R.; and Jones, Robert A., 4,271,030, Cl. 252-98.000.

Jones, William R., to Rolls-Royce Limited. Composite structure. 4,271,116, Cl. 264-221.000.

Joronen, Osmo K. Fish-operated aquarium feeder. 4,270,489, Cl. 119-51.00R.

Joy Manufacturing Company: *See*—
Densmore, Neal W., 4,270,653, Cl. 198-554.000.

Judd, Richard K.: *See*—
Walters, L. Kirk; Judd, Richard K.; and Atkins, Terrance J., 4,271,094, Cl. 261-39.00B.

Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V. Process for producing carbo-chain homo-polymers, block- and random copolymers of conjugated dienes with vinyl-aromatic monomers. 4,271,282, Cl. 526-174.000.

Judy, James W. Stone rake and ground conditioning machine. 4,270,614, Cl. 171-63.000.

Julien, Henri C. P., to APTUNION Union des Fabricants de Fruits Confits. Sulfite treatment of cherries. 4,271,204, Cl. 426-259.000.

Jungesjo, Harald N., to Anderson-Cook, Inc. Forming machine including rotary drive mechanism. 4,270,375, Cl. 72-88.000.

Junginger, Erich: *See*—
Hertfelder, Wilhelm; Junginger, Erich; and Linder, Ernst, 4,270,726, Cl. 251-30.000.

Just, Guenther: *See*—
Wuest, Willi; Just, Guenther; and Peters, Bernd W., 4,271,135, Cl. 423-329.000.

K-V. Associates, Inc.: *See*—
Kerfoot, William B., 4,270,922, Cl. 23-230.00C.

Kabushiki Kaisha Daini Seikosha: *See*—
Miyazaki, Joichi, 4,271,494, Cl. 368-34.000.
Shida, Masaharu; Torisawa, Akira; Ueda, Makoto; Mandai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, 4,271,496, Cl. 368-80.000.

Kabushiki Kaisha Deini Seikosha: *See*—
Miyamoto, Masao, 4,270,846, Cl. 350-336.000.

Kabushiki Kaisha Fuji Seisakusho: *See*—
Kimura, Yoshimi, 4,270,289, Cl. 40-379.000.

Kabushiki Kaisha Morita Seisakusho: *See*—
Furuichi, Shuhei; and Nose, Takahiko, 4,271,371, Cl. 310-316.000.

Kabushiki Kaisha Suwa Seikosha: *See*—
Tezuka, Chikao; and Mikoshiba, Hitoshi, 4,270,448, Cl. 101-99.000.

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Inukai, Mitsuo, 4,270,709, Cl. 242-107.700.

Kacirek, Kenneth J., to PPG Industries, Inc. Sheet stacking apparatus. 4,270,879, Cl. 414-35.000.

Kadota, Toshihiko: *See*—
Takahashi, Naoyuki; and Kadota, Toshihiko, 4,270,723, Cl. 248-421.000.

Kafka, Charles F.; and Kafka, Robert S., to Meacham Marine Products, Inc. Disappearing cleat or fitting. 4,270,478, Cl. 114-218.000.

Kafka, Robert S.: *See*—
Kafka, Charles F.; and Kafka, Robert S., 4,270,478, Cl. 114-218.000.

Kainuma, Akio, to Nippon Light Metal Company Limited. Method of creating landfill from red mud. 4,270,875, Cl. 405-129.000.

Kairisalo, Pekka J.: *See*—
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.

Kaiser, Wolfgang: *See*—
Michel, Walter; Hosel, Hans; Schon, Manfred; and Kaiser, Wolfgang, 4,271,286, Cl. 528-254.000.

Kalbfleisch, Adolphe W. Rotary valve actuator construction. 4,270,849, Cl. 251-292.000.

Kali-Chemie Pharma GmbH: *See*—
Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Kalk, Heinz, to VDO Adolf Schindling AG. Device for unlocking and locking of doors, particularly of motor vehicle doors. 4,270,371, Cl. 70-264.000.

Kalkstein, Arie, to In-Mar Electronics, a part interest. Analog processing system for real-time conversion of the frequency of analog signals. 4,271,331, Cl. 179-1.0SH.

Kamber, Bruno; and Rittel, Werner, to Ciba-Geigy Corporation. Process for the manufacture of cystine-containing peptides. 4,271,068, Cl. 260-112.50R.

Kamman, Daniel T., to Polaroid Corporation. Gap measurement apparatus. 4,270,382, Cl. 73-37.500.

Kamo, Takashi: *See*—
Ishii, Shinya; Saito, Takaharu; Sugiyama, Masahiko; and Kamo, Takashi, 4,270,691, Cl. 228-194.000.

Kan, Peter T.: *See*—
Christman, Donald L.; and Kan, Peter T., 4,271,087, Cl. 260-453.0AB.

Kandrusev, Igor I.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Kane, John L.; and Nadkarni, Vikas M., to Owens-Corning Fiberglas Corporation. Apparatus for producing filaments. 4,270,888, Cl. 425-66.000.

Kane Manufacturing Corporation: *See*—
Singer, Richard M.; and Seidl, Charles H., 4,270,333, Cl. 52-818.000.

Kaneko, Yoshio, to Toyo Suisan Kaisha, Ltd. Method for manufacturing quickly cookable dry and porous noodles. 4,271,205, Cl. 426-451.000.

Kang, S. Daniel, to Texas Instruments Incorporated. V-groove semiconductor device with buried channel stop. 4,271,423, Cl. 357-55.000.

Kansai Paint Co., Ltd.: *See*—
Nakagawa, Keizo; Yamano, Katsushi; Watanabe, Takashi; Yamamoto, Kunio; and Inomata, Shigeo, 4,270,953, Cl. 106-16.000.

Kantor, Simon W.: *See*—
Biranowski, Jerome B.; Lorenz, Donald H.; and Kantor, Simon W., 4,271,273, Cl. 521-110.000.

Karkau, Lawrence E., to Collins Industries, Inc. Automatic lift assembly. 4,270,630, Cl. 187-9.00R.

Karl Finke OHG: *See*—
Knepper, Siegfried, 4,271,211, Cl. 427-195.000.

Karl M. Reich Maschinenfabrik GmbH: *See*—
Maurer, Werner, 4,270,687, Cl. 227-113.000.

Kashkina, Nadezhda K.: *See*—
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Kast, Howard B., to General Electric Company. Integrated control system for a gas turbine engine. 4,270,345, Cl. 60-39.28R.

Kastura, John L.; and Stewart, William R., to General Motors Corporation. Motor vehicle diagnostic and monitoring device having keep alive memory. 4,271,402, Cl. 340-52.00F.

Kasuga, Muneo: *See*—
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,270,860, Cl. 355-14.00R.

Kataoka, David T.: *See*—
Brandl, Michael C.; Kataoka, David T.; Khanna, Jagdish C.; and Zwettler, Frank J., Jr., 4,270,623, Cl. 180-69.00R.

Kato, Aakihiko: *See*—
Nakane, Masanori; Osumi, Yasuaki; Suzuki, Hiroshi; and Kato, Aakihiko, 4,270,360, Cl. 62-48.000.

Kato, Toshiaki: *See*—
Tabuchi, Katsuhiko; Kato, Toshiaki; and Namba, Kearyo, 4,270,543, Cl. 128-639.000.

Katoh, Masayoshi: *See*—
Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, 4,271,453, Cl. 361-248.000.

Kaufman, Arthur L.: *See*—
Galbraith, Wiley E.; Kaufman, Arthur L.; and Klepper, Herbert, 4,270,859, Cl. 355-10.000.

Kawada, Mitsuru: *See*—
Morimoto, Hiroshi; Imada, Isuke; Watanabe, Masazumi; and Kawada, Mitsuru, 4,271,083, Cl. 260-396.00R.

Kawagoe, Hazime: *See*—
Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhisa; and Shimojima, Kiyoshi, 4,270,373, Cl. 72-41.000.

Kawai, Hisasi; Ito, Toshimitsu; Sanada, Masakatsu; and Iwase, Kazuo, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Method for detecting knocking in internal combustion engine. 4,271,469, Cl. 364-431.000.

Kawai Musical Instrument Mfg. Co., Ltd.: *See*—
Deutsch, Ralph, 4,270,430, Cl. 84-1.230.

Kawamura, Masanori: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,271,170, Cl. 424-263.000.

Kawamura, Setoshi: *See*—
Matsuo, Kohtaro; Kawamura, Setoshi; and Toshine, Tatsumi, 4,271,066, Cl. 260-97.500.

Kawasaki, Sadanobu: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,271,224, Cl. 428-207.000.

Kawashima, Saburo: *See*—
Asano, Makoto; Kawashima, Saburo; Sugimoto, Kenichi; and Kobayashi, Tadashi, 4,271,059, Cl. 260-31.20T.

Kawate, Kenji: *See*—
Matsumoto, Masahiro; Kawate, Kenji; and Jimouchi, Hideaobu, 4,270,959, Cl. 148-153.000.

Kawazoe, Mitsuo, to Olympus Optical Co., Ltd. Electronic flash. 4,271,376, Cl. 315-241.00P.

Kawolics, Raymond P.; and Basel, Donald R., to Meyer Dairy Products, Co. Liquid filter. 4,271,024, Cl. 210-474.000.

Kearney, John G. Photo-electric burst disc indicator. 4,270,560, Cl. 137-68.00R.

Keasling, Hugh H., to Shell Oil Company. Certain N-(β-phenyl-β-hydroxyethylamino)propiophenones as lipolysis promoters. 4,271,195, Cl. 424-330.000.

Keefe, George E.: *See*—
Almasi, George S.; Bogholtz, Wilhelm E.; and Keefe, George E., 4,271,485, Cl. 365-16.000.

Keeling, Walter W. Process for preparing liver for use as therapeutic agent. 4,271,148, Cl. 424-106.000.

Kehl, Joseph D., to Shure Brothers, Inc. Lever operated stylus guard for phonograph pick-up cartridge. 4,270,758, Cl. 369-170.000.

Kehrman, Robert F.; Farstad, Arnold J.; Gibbons, Michael G.; and Swigert, David L., to Westinghouse Electric Corp. Tunnel roof monitor employing an induction coil extensometer. 4,271,407, Cl. 340-690.000.

Keil, Karl-Heinz: *See*—
Beader, Heiaz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, 4,271,073, Cl. 260-315.000.

Kelley, Donald J.; Williams, David J.; and Slovenkai, Stephen V., to American Hoechst Corporation. Process for preparing styresic polymer particles. 4,271,281, Cl. 526-80.000.

Kelley, Lawrence R., to Molins Machine Company, Inc. Fingerless single facer. 4,270,969, Cl. 156-473.000.

Kellogg, Harlan F. Shelf bracket. 4,270,719, Cl. 248-235.000.

Kellwood Company: *See*—
Conner, William R., Jr., 4,270,718, Cl. 248-188.300.

Kelly, Charles A.: *See*—
Irick, Gether, Jr.; Kelly, Charles A.; and Martin, James C., 4,271,307, Cl. 548-224.000.

Kelly, Earl M., to Envirotech Corporation. Sewage treatment system and process. 4,271,027, Cl. 210-609.000.

Kelly, Stephen B., to Pollution Control Products Co. Control method for a reclamation furnace. 4,270,898, Cl. 432-19.000.

Kelsey, Donald R.; and Kreeger, Russell L., to Union Carbide Corporation. Quaternary ammonium graft copolymers for use as flocculants and method of preparing same. 4,271,053, Cl. 260-29.2EP.

Kemmerling, Robert A.: *See*—
Stone, Leonard R.; Aron, Steven J., Jr.; and Kemmerling, Robert A., 4,271,362, Cl. 250-496.000.

Kennametal Inc.: *See*—
Brown, Thomas A.; and Huber, Joseph B., 4,270,378, Cl. 72-267.000.

Kennedy, Eugene F.; and Leach, Bruce E., to Conoco, Inc. Process for producing aluminum oxychloride solutions from low molecular weight aluminum alkoxides. 4,271,138, Cl. 423-462.000.

Kennedy, George D. System and apparatus for cultivating and harvesting oysters. 4,270,488, Cl. 119-4.000.

Kerber, David. Staggered access to endless loop cable transit systems. 4,270,457, Cl. 104-25.000.

Kerfoot, William B., to K-V. Associates, Inc. Integrating corrosion monitor. 4,270,922, Cl. 23-230.00C.

Kern, Roland J., to Monsanto Company. Photoimaging process which uses sulfide containing polymeric films. 4,271,262, Cl. 430-325.000.

Kernforschungszentrum Karlsruhe: *See*—
Nother, Gernot, 4,271,443, Cl. 361-19.000.

Kerr, Neil: *See*—
Hancock, Roger H. Y.; and Kerr, Neil, 4,270,480, Cl. 114-296.000.

Kerres, Siegfried. Smoke generator for smoking food products. 4,270,464, Cl. 110-102.000.

Kersten, Jean: *See*—
Scott, James W.; Bascsi, Joseph A.; and Kersten, Jean, 4,270,725, Cl. 251-6.000.

Kesterson, Albert O.: *See*—
Lancia, Frederick N.; Kesterson, Albert O.; Feeney, Edward K.; and Liebert, Ralph C., 4,270,362, Cl. 62-173.000.

Khanna, Jagdish C.: *See*—
Brandl, Michael C.; Kataoka, David T.; Khanna, Jagdish C.; and Zwettler, Frank J., Jr., 4,270,623, Cl. 180-69.00R.

Khantimirov, Sergei S.: *See*—
Popov, Alexandr D.; Solomin, Vladimir A.; Khantimirov, Sergei S.; and Shirokov, Alexandr A., 4,271,367, Cl. 310-13.000.

Khoobiar, Sargis, to Halcon Research and Development Corp. Catalyst and process for producing methacrylic acid. 4,271,040, Cl. 252-437.000.

Kidd, William W.: *See*—
Jenkins, John P.; Sebick, Rodney M.; and Kidd, William W., 4,271,440, Cl. 360-92.000.

Kido, Keishiro; Wada, Minoru; and Ikeda, Tomoaki, to Fuji Photo Film Co., Ltd. Method for forming images. 4,271,256, Cl. 430-253.000.

Kiehs, Karl: *See*—
Bozmann, Annegrit; Kiehs, Karl; Adolphi, Heinrich; and Koenig, Karl-Heinz, 4,271,171, Cl. 424-266.000.

Kiffen, Alcidus A.: *See*—
Boomgaard, Ritse E.; Buter, Roelof; and Kiffen, Alcidus A., 4,271,062, Cl. 260-39.00P.

Kihara Sangyo Kabushiki Kaisha: *See*—
Kihara, Sueo, 4,270,966, Cl. 156-251.000.

Kihara, Sueo, to Kihara Sangyo Kabushiki Kaisha; and Kureha Kagaku Kogyo Kabushiki Kaisha. Process for producing a shoe. 4,270,966, Cl. 156-251.000.

Kikkawa, Ikuo: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,296, Cl. 544-182.000.

Kilby, Jack S.: *See*—
Johnson, Elwin L.; Kilby, Jack S.; Lathrop, Jay W.; McFerren, John S.; and Myers, David J., 4,270,263, Cl. 29-590.000.

Kilcast, David: *See*—
Mason, Leslie F. A.; Cook, Robert S.; Kilcast, David; Schollenberg, Matthias; and Chylewski, Christoph, 4,271,254, Cl. 430-239.000.

Kim, Young D., to Ashland Oil, Inc. Preparation of furan polymers. 4,271,054, Cl. 260-29.300.

Kimata, Kei; and Fukunaga, Shoichi, to NTN Toyo Bearing Co. Ltd. Method for manufacturing a fuel injection valve. 4,270,257, Cl. 29-157.10R.

Kimball, David V.; and Baughn, Daniel L., to Kimball Industries, Inc. Vibration test bearing table apparatus affording a single degree of freedom test piece path. 4,270,390, Cl. 73-663.000.

Kimball Industries, Inc.: *See*—
Kimball, David V.; and Baughn, Daniel L., 4,270,390, Cl. 73-663.000.

Kimball International, Inc.: *See*—
Southard, James S.; and Bean, Eric R., 4,270,431, Cl. 84-1.240.

Kimura, Masanichi, to Matsushita Electronics Corporation. Electron gun for cathode-ray tube. 4,271,374, Cl. 313-449.000.

Kimura, Takeo: *See*—
Imafuku, Hiroshi; Kimura, Takeo; and Kobayashi, Hidehiko, 4,271,001, Cl. 204-195.00B.

Kimura, Takeshi: *See*—
Setsuda, Tsutomu; Aizawa, Hideyuki; and Kimura, Takeshi, 4,271,318, Cl. 564-468.000.

Kimura, Yoshimi, to Kabushiki Kaisha Fuji Seisakusho. Card holder. 4,270,289, Cl. 40-379.000.

King, Lloyd H., Sr. Inline dispersal valve. 4,270,565, Cl. 137-268.000.

Kirchmayr, Rudolf: *See*—
Felder, Louis; Kirchmayr, Rudolf; and Kusler, Rinaldo, 4,271,294, Cl. 544-87.000.

Kirschner, Helmuth: *See*—
Kramer, Hans; and Kirschner, Helmuth, 4,270,316, Cl. 51-283.00R.

Kisa Tra AB: *See*—
Larsson, Carl, 4,270,612, Cl. 169-45.000.

Kishi, Yasunori: *See*—
Teshima, Toru; Nishizawa, Jun-ichi; and Kishi, Yasunori, 4,271,408, Cl. 340-702.000.

Kissei Pharmaceutical Co., Ltd.: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,271,170, Cl. 424-263.000.

Kita, Hisanao: *See*—
Nakazaki, Takamitsu; Kita, Hisanao; and Akutsu, Yoji, 4,271,348, Cl. 219-121.0ED.

Kitajima, Masao: *See*—
Kondo, Atsuji; Arai, Fuminori; and Kitajima, Masao, 4,270,920, Cl. 23-230.00B.

Kitterman, Lawrence P. Alarm control system. 4,271,405, Cl. 340-512.000.

Kitts, Leonard W.: *See*—
Erickson, David L.; and Kitts, Leonard W., 4,270,816, Cl. 312-3.000.

Kiwala, Jacob: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Brajo D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmidt, Frederick L., 4,271,324, Cl. 568-424.000.

Kiwi Coders Corporation: *See*—
Gill, Bernard J.; Siegal, Burton L.; and Goettsche, Randy P., 4,270,454, Cl. 101-348.000.

Kiyosawa, Kenzoni. Structural joint. 4,270,872, Cl. 403-170.000.

Klaffke, Friedemann: *See*—
Heckel, Klaus; Klaffke, Friedemann; Ummen, Walter; and Schubert, Volker, 4,271,218, Cl. 428-36.000.

Klauser, Gernot: *See*—
Schmidt, Wallace B.; Lewis, William W.; Edmiston, Alan; and Klauser, Gernot, 4,270,938, Cl. 62-22.000.

Klawitter, Ronald R., to Steven Manufacturing Company. Toy driving simulator with brake. 4,270,306, Cl. 46-248.000.

Klebe, Hans: *See*—
Fretzer, Gerhard; Beck, Bernhard; Dold, Erwin; and Klebe, Hans, 4,271,044, Cl. 252-462.000.

Klein, George: *See*—
Mamber, Solomon; and Klein, George, 4,271,511, Cl. 371-4.000.

Kleiner, Fredric: *See—*
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,271,206, Cl. 426-572.000.

Kleipool, Reinerus J., to Naarden International N.V. 4-Methyl-4-furfurylthio-pentanone-2. 4,271,082, Cl. 260-347.200.

Klepper, Herbert: *See—*
Galbraith, Wiley E.; Kaufman, Arthur L.; and Klepper, Herbert, 4,270,859, Cl. 355-10.000.

Klimek, Edmund J., to Borg-Warner Corporation. Method of manufacturing a swash plate assembly. 4,270,255, Cl. 29-156.50A.

Klockner-Humboldt-Deutz AG: *See—*
Ansen, Jakob; Duill, Helmut; Fasbender, Heinz; and Graf, Ruprecht, 4,270,466, Cl. 110-193.000.

Kmetz, Allan R., to BBC Brown, Boveri & Co. Ltd. Digital voltmeter with electro-optical indication of the waveform. 4,271,391, Cl. 324-103.00P.

Knauff, Robert J. Toy with reversible driven hoist. 4,271,378, Cl. 318-10.000.

Knauth, Berthold A. Fluid flow regulating systems. 4,270,694, Cl. 236-49.000.

Knepper, Siegfried, to Karl Finke OHG. Process for making plastic resin-dyestuff concentrates for use in the dyeing of plastic resins. 4,271,211, Cl. 427-195.000.

Knickmeyer, William W.; Spanswick, James; and Stephens, James R., to Standard Oil Company (Indiana). Esterification of phenol catalyzed with a strong base plus boron. 4,271,311, Cl. 560-86.000.

Knief, Enno A., to Eaton Corporation. Counter drive mechanism. 4,270,399, Cl. 74-129.000.

Knobl, Alois; Zeitner, Alfred; Krockow, Helmut; and Schmaus, Hermann, to Draloric Electronic GmbH. Capacitor of disk shape with liquid cooling. 4,271,454, Cl. 361-274.000.

Knoth, Dale W.: *See—*
Lipson, Melvin A.; and Knoth, Dale W., 4,270,985, Cl. 204-15.000.

Kobayashi, Hidehiko: *See—*
Imafuku, Hiroshi; Kimura, Takeo; and Kobayashi, Hidehiko, 4,271,001, Cl. 204-195.00B.

Kobayashi, Hiroshi. Paper stack binding and folding device. 4,270,742, Cl. 270-37.000.

Kobayashi, Hiroto, to Walbro Far East, Inc. Carburetor. 4,271,096, Cl. 261-44.00G.

Kobayashi, Tadashi: *See—*
Asano, Makoto; Kawashima, Saburo; Sugimoto, Kenichi; and Kobayashi, Tadashi, 4,271,059, Cl. 260-31.20T.

Kobayashi, Takashi: *See—*
Kondo, Koichi; Yoshida, Isamu; and Kobayashi, Takashi, 4,270,923, Cl. 23-230.00B.

Kobayashi, Takeshi, to Walbro Far East, Inc. Carburetor. 4,271,093, Cl. 261-34.00R.

Kobayashi, Yoshinobu. Process for preparing titanium carbide-tungsten carbide base powder for cemented carbide alloys. 4,270,952, Cl. 75-203.000.

Kobayashi, Yuzo: *See—*
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Kobelt, Jacob. Modular caliper brake assembly. 4,270,631, Cl. 188-72.900.

Kobinger, Walter: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Koch, Robert M.: *See—*
Lay, Roger F.; Jarecki, John S.; and Koch, Robert M., 4,270,652, Cl. 198-486.000.

Koda, Hirokazu: *See—*
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.

Koemans, Joseph M.: *See—*
Himmelbauer, Erich E.; and Koemans, Joseph M., 4,271,373, Cl. 313-432.000.

Koenig, Karl-Heinz: *See—*
Baumann, Annegrit; Kiehs, Karl; Adolphi, Heinrich; and Koenig, Karl-Heinz, 4,271,171, Cl. 424-266.000.

Koenuma, Masao, to Asahi Seimitsu Kabushiki Kaisha. Universal parallel ruler with converted display of displacement. 4,270,277, Cl. 33-439.000.

Koide, Samuel: *See—*
Tsong, Yun-Yen; Talwar, Gursaran P.; Koide, Samuel; and Segal, Sheldon J., 4,271,069, Cl. 260-112.50R.

Koivisto, Maija K.: *See—*
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.

Kokaly, Frederick L.: *See—*
Adams, Carl P.; Allen, Royce D.; and Kokaly, Frederick L., 4,270,616, Cl. 172-811.000.

Kokussi Denshin Denwa Co., Ltd.: *See—*
Kouishi, Kazunori, 4,270,865, Cl. 400-63.000.

Kokusan Denki Co., Ltd.: *See—*
Ikeda, Yoshihiko; and Nitou, Hiroyasu, 4,270,265, Cl. 29-840.000.
Nanjo, Hirotoshi; and Tsuji, Toshikazu, 4,270,510, Cl. 123-648.000.

Kolaian, Jack H.; and Love, Richard F., to Texaco Inc. Polycarboxylic acids and esters in detergent formulations and their use. 4,271,032, Cl. 252-174.190.

Kolze, Lawrence A., to Eaton Corporation. Valve assembly. 4,270,570, Cl. 137-597.000.

Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, to Canon Kabushiki Kaisha. Copying apparatus for sheet originals and thicker originals. 4,270,857, Cl. 355-8.000.

Kondo, Asaji; Arai, Fuminori; and Kitajima, Masao, to Fuji Photo Film Co., Ltd. Integrated material for chemical analysis and a method of using the same. 4,270,920, Cl. 23-230.00B.

Kondo, Koichi; Yoshida, Isamu; and Kobayashi, Takashi, to Takeda Chemical Industries, Ltd. Pretreatment agent for subject fluid in pregnancy test. 4,270,923, Cl. 23-230.00B.

Konejukka Oy: *See—*
Sassi, Kari, 4,270,638, Cl. 192-45.100.

Konishi, Kazunori, to Kokusai Denshin Denwa Co., Ltd. Editing printer. 4,270,865, Cl. 400-63.000.

Kopp, Larry F. Animal feed bowls. 4,270,490, Cl. 119-61.000.

Koppe, Herbert: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Koppers Company, Inc.: *See—*
Dressler, Hans, 4,271,285, Cl. 528-175.000.

Korbanova, Zinaida N.: *See—*
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Kordt, Hans-Herbert; and Stenz, Paul P., to C. A. Weidmuller KG. Rail-mounted electrical terminals. 4,270,835, Cl. 339-198.0GA.

Korelskaya, Galina I.: *See—*
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Korosil, Anthony: *See—*
Coleman, Denis; and Korosil, Anthony, 4,271,056, Cl. 260-29.6AN.

Korzon, Edward S., to Dura Plastics of New York, Inc. Display stand with easily adjusted shelves. 4,270,463, Cl. 108-96.000.

Koschik, Achim: *See—*
Trabitzsch, Hans; Frieser, Josef; Koschik, Achim; and Plainer, Hermann, 4,271,058, Cl. 260-29.60M.

Koshimizu, Naganori, to Tokico Ltd. Master cylinder. 4,270,354, Cl. 60-581.000.

Kosovtsev, Vladimir V.: *See—*
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Kotobuki Sangyo Kabushiki Kaisha: *See—*
Shimada, Hiroaki, 4,270,376, Cl. 72-231.000.

Kovtunenko, Leonid V.: *See—*
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Kraak, Ralph. Dispensing holder for a collapsible tube. 4,270,672, Cl. 222-95.000.

Kraft, Derald H.; and Rinaldo, Daniel M., to Dyneer Corporation. Belt tensioner construction. 4,270,906, Cl. 474-135.000.

Kraft, Karl J.: *See—*
Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redmer, Frank, 4,270,889, Cl. 425-115.000.

Kraicer, Alec: *See—*
Bradshaw, Robert F. D.; and Kraicer, Alec, 4,271,357, Cl. 250-287.000.

Kramer, Hans; and Kirschner, Helmuth, to Wacker-Chemitronic Gesellschaft fur Elektronik-Grundstoffe mbH. Process for evening out the amount of material removed from discs in polishing. 4,270,316, Cl. 51-283.00R.

Krauss, Karl-Heinz, to Siemens Aktiengesellschaft. Circuit arrangement for the formation of check bits for binary data. 4,271,517, Cl. 371-37.000.

Kreeger, Russell L.: *See—*
Kelsey, Donald R.; and Kreeger, Russell L., 4,271,053, Cl. 260-29.2EP.

Krippl, Kurt: *See—*
Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redmer, Frank, 4,270,889, Cl. 425-115.000.

Krockow, Helmut: *See—*
Knobl, Alois; Zeitner, Alfred; Krockow, Helmut; and Schmaus, Hermann, 4,271,454, Cl. 361-274.000.

Krohn, Manfred, to Nordischer Maschinenbau Rud. Baader GmbH & Co. KG. Process and apparatus for the aligning of fish. 4,270,650, Cl. 198-388.000.

Krueger, Ellison F. Method for the salvage and restoration of integrated circuits from a substrate. 4,270,260, Cl. 29-403.400.

Krulick, Steven E.: *See—*
Zinn, Michael F.; Krulick, Steven E.; and Leonard, Ronald W., 4,270,596, Cl. 165-1.000.

Krupick, Walter J., to Singer Company, The. Low cost flexure assembly. 4,270,392, Cl. 74-5.00F.

Krupp-Koppers GmbH: *See—*
Forster, Manfred; Linke, Adolf; and Geidies, Ulrich, 4,270,558, Cl. 137-2.000.

Kruse, Uno: *See—*
Herman, Daniel F.; and Kruse, Uno, 4,270,977, Cl. 162-168.00R.

Kubo, Masaharu: *See—*
Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,270,262, Cl. 29-571.000.

Kuchenbecker, Morris W., to American Can Company. Reclosable dispensing blister card package. 4,270,659, Cl. 206-538.000.

Kugler, Manfred, to Jean Walterscheid GmbH. Method of and device for forming an integral lubricating nipple on a tubular member. 4,270,374, Cl. 72-68.000.

Kuhns, John P. Heat engine and thermodynamic cycle. 4,270,351, Cl. 60-517.000.

Kukla, Thomas S. Apparatus for thorough mixture of a liquid with a gas. 4,271,099, Cl. 261-76.000.

Kummer, Werner: *See—*
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Kunimoto, Go; and Mori, Fumio, to Toyo Seikan Kaisha, Ltd. Peelable adhesive structure and method for its manufacture. 4,270,665, Cl. 215-347.000.

Kunioka, Kazuo: *See—*
Shimotsuma, Teruo; Kunioka, Kazuo; Niahio, Hiroaki; and Okuyama, Yasuo, 4,270,980, Cl. 201-28.000.

Kunkel, Heinrich: *See—*
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, 4,270,815, Cl. 308-213.000.

Kunze, Johannes: *See—*
Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Lenke, Dieter; and Kunze, Johannes, 4,271,163, Cl. 424-250.000.

Kuraray Co., Ltd.: *See—*
Tokitoh, Yasuo; Yoshimura, Noriaki; and Tamura, Masuhiko, 4,271,320, Cl. 568-426.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See—*
Hotta, Tetsuya; Enomoto, Satoru; Yoshikumi, Chikao; Ohara, Minoru; and Ueno, Saburo, 4,271,151, Cl. 424-177.000.
Kihara, Sueo, 4,270,966, Cl. 156-251.000.

Kurie, Eugene J., to Midland-Ross Corporation. Apparatus used in the treatment of a continuous strip of metal and method of use thereof. 4,270,317, Cl. 51-426.000.

Kuroae, Morio; Ejiri, Koichi; and Maeda, Mamoru, to Ricoh Co., Ltd. Digital copying machine. 4,271,436, Cl. 358-296.000.

Kurz, Otto: *See—*
Dommer, Hans-Martin; and Kurz, Otto, 4,270,413, Cl. 74-828.000.

Kusler, Rinaldo: *See—*
Felder, Louis; Kirchmayr, Rudolf; and Kusler, Rinaldo, 4,271,294, Cl. 544-87.000.

Kuznetzoff, Philip, to Burroughs Corporation. Method of forming conductors in slots in a plate. 4,270,823, Cl. 316-19.000.

Kyowa Hakko Kogyo Kabushiki Kaisha: *See—*
Watanabe, Katsuyuki; Hayashi, Tadatoshi; Hayashi, Hiroaki, deceased; Hayashi, Atsuko, heir; Hayashi, Yuko, heir; Tatano, Toshio; and Shmizu, Yoshiaki, 4,271,310, Cl. 560-71.000.

L. Schuler GmbH: *See—*
Dommer, Hans-Martin; and Kurz, Otto, 4,270,413, Cl. 74-828.000.

La Telemecanique Electrique: *See—*
Bernard, Pierre J., 4,270,780, Cl. 292-202.000.

La Barge, Michael A. Energy management controller for centrifugal water chiller. 4,270,361, Cl. 62-158.000.

Laboratoire L. Lafon: *See—*
Lafon, Victor, 4,271,194, Cl. 424-326.000.

LaCoste, Richard J., to Boeing Company, The. Directional release toggle latch. 4,270,782, Cl. 292-288.000.

Laehy, Peter; and Dag, Stefan A., to Rapidgate, Inc. Pivotable delineator post. 4,270,873, Cl. 404-10.000.

Lafon, Victor, to Laboratoire L. Lafon. Sedative compositions containing (3,4-dichlorophenylsulphinyl)-acetamidoxime and its addition salts and method of use. 4,271,194, Cl. 424-326.000.

Lai, Ban-Yen: *See—*
Husain, Matloob; Lai, Ban-Yen; and Schmitt, Richard L., 4,270,358, Cl. 60-693.000.

L'Aiglon: *See—*
Bayon, Patrice M., 4,270,657, Cl. 206-386.000.

Lake Center Industries: *See—*
Sorensen, Ronald L.; and Whitfield, Dwight, 4,270,783, Cl. 292-336.300.

Lakin, Ira; and Blair, Gilbert, to Dravo Corporation. Turret type, single spot coke oven door machine and guide. 4,270,982, Cl. 202-241.000.

LaManna, Richard J.; Drillick, Jacob H.; and Polad, Michael D., to Data Card Corporation. Automatic embossing system. 4,271,012, Cl. 209-653.000.

Lambert, Richard J.; and Martens, John A., to Minnesota Mining and Manufacturing Company. Plastic film label stock. 4,271,223, Cl. 428-207.000.

Lampke, George G.: *See—*
Glass, Jeremy M.; Lampke, George G.; and St. Germain, Roger L., 4,271,412, Cl. 343-5.00FT.

Lancaster, Arthur, to Budd Company, The. Heater for pre-heating fuel with a heated liquid. 4,270,601, Cl. 165-154.000.

Lancia, Frederick N.; Kesterson, Albert O.; Feeney, Edward K.; and Liebert, Ralph C., to Liebert Corporation. Control system for an air conditioning system having supplementary, ambient derived cooling. 4,270,362, Cl. 62-173.000.

Lane, George A.; and Ronsow, Harold E., to Dow Chemical Company, The. Hydrated $Mg(NO_3)_2$ reversible phase change compositions. 4,271,029, Cl. 252-70.000.

Lang, Gustav; and Mauthe, Peter, to Hilti Aktiengesellschaft. Method of securing an expansion dowel including a metallic expansion sleeve. 4,270,331, Cl. 52-744.000.

Langert, Albert, to Girling Limited. Internal shoe drum brakes. 4,270,632, Cl. 188-79.50P.

Lanzi, Ronald G.; and Vernia, Peter, to General Motors Corporation. Method of making a dielectric containing material for RF suppression. 4,270,266, Cl. 29-875.000.

Laqua, Arnold: *See—*
Bertelmann, Gunter; Holtschmidt, Ulrich; and Laqua, Arnold, 4,271,190, Cl. 424-316.000.

Larsen, Darrell R., to Minneapolis Electric Steel Castings Company. Shell liner assembly for ore grinding mills. 4,270,705, Cl. 241-185.000.

Larsen, Lawrence E.: *See—*
Jacobi, John H.; and Larsen, Lawrence E., 4,271,389, Cl. 324-58.50A.

Larson, Jay M.: *See—*
Narasimhan, Sundaram L.; and Larson, Jay M., 4,270,496, Cl. 123-90.510.

Larsson, Carl, to Kisa Tra AB. Method for preventing the spontaneous combustion of stored organic and inorganic substances. 4,270,612, Cl. 169-45.000.

Lassau, Christian: *See—*
Durand, Daniel; Hillion, Gerard; Lassau, Christian; and Sajus, Lucien, 4,271,323, Cl. 568-816.000.

Lathrop, Jay W.: *See—*
Johnson, Elwin L.; Kilby, Jack S.; Lathrop, Jay W.; McFerren, John S.; and Myers, David J., 4,270,263, Cl. 29-590.000.

Laurel Bank Machine Co., Ltd.: *See—*
Watanabe, Kenkichi, 4,270,557, Cl. 133-8.00D.

Lavoisey, Yves; and Nierlich, Jean, to Saint-Gobain Industries. Sheet rupturing. 4,270,682, Cl. 225-1.000.

Lawrence, James D., to Dailey Oil Tools, Inc. Constant bottom contact tool. 4,270,620, Cl. 175-322.000.

Lay, Roger F.; Jarecki, John S.; and Koch, Robert M., to AM International, Inc. Automatic collator unloader. 4,270,652, Cl. 198-486.000.

Lazzaro, Philip T. Hair fastener clip for hair roller. 4,270,554, Cl. 132-40.000.

Leach, Bruce E.: *See—*
Kennedy, Eugene F.; and Leach, Bruce E., 4,271,138, Cl. 423-462.000.

Leber, Fritz, to Zahnradfabrik Friedrich-Sheftes Aktiengesellschaft. Lubricating oil flow control device, especially for a speed-change transmission operating in an oil bath. 4,270,647, Cl. 192-113.00B.

Leclercq, Jacques: *See—*
Rodriguez, Ludovic; Leclercq, Jacques; Yknaan, Pierre; and Cosement, Eric, 4,271,172, Cl. 424-267.000.
Rodriguez, Ludovic; Leclercq, Jacques; Yknaan, Pierre; and Cosement, Eric, 4,271,173, Cl. 424-267.000.

Leclercq, Lucien E.: *See—*
Boudart, Michel; and Leclercq, Lucien E., 4,271,041, Cl. 252-438.000.

Lee, Chi-long: *See—*
Homan, Gary R.; and Lee, Chi-long, 4,271,289, Cl. 528-374.000.

Lee, George T.: *See—*
Faulkner, Bobby P.; Lee, George T.; Schumacher, Peter L.; and Weinecke, Michael H., 4,270,899, Cl. 432-58.000.

Lee, Jimmy L. Automotive air conditioning apparatus. 4,271,452, Cl. 361-231.000.

Lee, Kyu H.: *See—*
Aid, James D.; and Lee, Kyu H., 4,271,014, Cl. 210-86.000.

Lee, Litton T.: *See—*
Carter, Robert F.; Hamparian, Nahan; and Lee, Litton T., 4,270,494, Cl. 123-41.350.

Lee, Maw H., to Scott & Fetzer Company, The. Power factor controller for induction motor. 4,271,386, Cl. 318-729.000.

Leeds & Northrup Company: *See—*
Ross, Charles W., 4,271,473, Cl. 364-494.000.

Leger, Andre: *See—*
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Poussiet, Gerard, 4,271,156, Cl. 424-246.000.
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Poussiet, Gerard, 4,271,167, Cl. 424-263.000.

Legues, Paul. Chassis-cab automotive vehicle with a double rear axle. 4,270,765, Cl. 280-137.000.

Lehmacher, Hans. Apparatus for the stacking and connection of synthetic-resin foil or sheet bags. 4,270,908, Cl. 493-204.000.

Lehmann, Hans D.: *See—*
Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Lenke, Dieter; and Kunze, Johannes, 4,271,163, Cl. 424-250.000.

Leibinger, Berthold: *See—*
Herb, Eugen; and Leibinger, Berthold, 4,270,253, Cl. 29-26.00A.

Leichsnitz, Kurt, to Dragerwerk Aktiengesellschaft. Indicator device for the quantitative determination of metal cyanides in aerosol form. 4,271,125, Cl. 422-86.000.

Leidich, Arthur J., to RCA Corporation. Amplifier circuit. 4,271,394, Cl. 330-258.000.

Leikin, Jury A.: *See—*
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Leland Stanford Junior University, The Board of Trustees of: *See*—
Boudart, Michel; and Leclercq, Lucien E., 4,271,041, Cl. 252-438.000.

Lemelson, Jerome H. Disposable syringe. 4,270,536, Cl. 128-218.00N.

Lenke, Dieter: *See*—
Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Lenke, Dieter; and Kunze, Johannes, 4,271,163, Cl. 424-250.000.

Leonard, Mark, to Hewlett-Packard Company. Bistable hysteretic integrated circuit. 4,271,364, Cl. 307-355.000.

Leonard, Ronald W.: *See*—
Zinn, Michael F.; Krulick, Steven E.; and Leonard, Ronald W., 4,270,596, Cl. 165-1.000.

Leonhart, Xaver F. Coin operating mechanism providing controlled play of multiple games from a single coin. 4,270,648, Cl. 194-1.00C.

Lermann, Peter: *See*—
Stemme, Otto; Staudacher, Frank; Lermann, Peter; and Wagensonner, Eduard, 4,270,854, Cl. 354-76.000.

Les Laboratoires Meram: *See*—
Durlach, Jean P., 4,271,189, Cl. 424-315.000.

Lesher, George Y.; and Opalka, Chester J., Jr., to Sterling Drug Inc. Selected 3-acylamino-5-[4(or 3)-pyridinyl]-2(1H)-pyridinones. 4,271,168, Cl. 424-263.000.

Lester, Andrew W.: *See*—
Butler, Denton G.; and Lester, Andrew W., 4,270,483, Cl. 118-46.000.

Leutenegger, Willi: *See*—
Zurbuchen, Jacques; and Leutenegger, Willi, 4,270,236, Cl. 8-159.000.

Levan, Jean-Pol: *See*—
Eumurian, Gregoire; and Levan, Jean-Pol, 4,271,503, Cl. 370-74.000.

Leveque, J. Howard, to H.F. Communications Corporation. Method and apparatus for digitally implementing a linked compressor-expander telecommunications system. 4,271,499, Cl. 370-7.000.

Lever Brothers Company: *See*—
Brierley, John M.; Parsons, John S.; Trueman, James R.; and Jones, Robert A., 4,271,030, Cl. 252-98.000.

Leverenz, Melvin E., to Diamond Crystal Salt Co. Powder dispensing apparatus. 4,270,486, Cl. 118-679.000.

Lewinton, Colin H.; and Savit, Joseph, to Domtar Inc. Fibrous electrophotographic sheet with a cellulose nitrate coating. 4,271,250, Cl. 430-127.000.

Lewis, Dale E. Retractable seat structure. 4,270,794, Cl. 297-14.000.

Lewis, Edwin C., II, to Weatherford/DMC. High pressure piston and seal. 4,270,440, Cl. 92-87.000.

Lewis, Eugene J. Poultry breast splitting apparatus. 4,270,243, Cl. 17-11.000.

Lewis, Roger N.: *See*—
Pastorino, Ronald L.; Lewis, Roger N.; and Abma, Charles B., 4,271,279, Cl. 525-387.000.

Lewis, William W.: *See*—
Schmidt, Wallace B.; Lewis, William W.; Edmiston, Alex; and Klauser, Gernot, 4,270,938, Cl. 62-22.000.

Liberfarb, Zilek B.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Liebert Corporation: *See*—
Lancia, Frederick N.; Kesterson, Albert O.; Feeney, Edward K.; and Liebert, Ralph C., 4,270,362, Cl. 62-173.000.

Liebert, Ralph C.: *See*—
Lancia, Frederick N.; Kesterson, Albert O.; Feeney, Edward K.; and Liebert, Ralph C., 4,270,362, Cl. 62-173.000.

Liebherr-Hydraulikbagger GmbH: *See*—
Mieger, Rolf, 4,270,286, Cl. 37-103.000.

Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Henning; Wolf, Klaus-Ulrich; Hell, Insa; and Hempel, Reinhard, to Kali-Chemie Pharma GmbH. N1-Benzoyl-N2-phenyldiaminopropanols and pharmaceutical compositions thereof, and processes for their preparation. 4,271,193, Cl. 424-324.000.

Life Savers, Inc.: *See*—
Cherukuri, Subraman R.; Friello, Dominick R.; Jewell, Walter; and Mackay, Donald A. M., 4,271,198, Cl. 426-3.000.
Cherukuri, Subraman R.; Vink, Walter; Friello, Dominick R.; and Mackay, Donald A. M., 4,271,199, Cl. 426-5.000.
Puglia, Wayne J.; Witzel, Frank; and Mackay, Donald A. M., 4,271,142, Cl. 424-14.000.
Vink, Walter; Spooner, Leonard; and Mackay, Donald A. M., 4,270,956, Cl. 127-29.000.

Ligon, Samuel B., to Jokari/U.S., Inc. Tethered ball game and apparatus. 4,270,757, Cl. 273-411.000.

Lillie, Christian: *See*—
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.

Lim, Linda W., to GTE Automatic Electric Laboratories, Inc. Apparatus for screening paste solder onto leaded hybrid substrates. 4,270,465, Cl. 110-127.000.

Lindberg, John E., to U.S.A. 161 Developments Ltd. Combustion control system. 4,270,908, Cl. 123-568.000.

Lindemann, Klaus: *See*—
Ruhnau, Gerhard; Gudat, Wolfgang; Lindemann, Klaus; and Saba, Manfred, 4,270,810, Cl. 303-106.000.

Linder, Ernst: *See*—
Hertfelder, Wilhelm; Jungjager, Erich; and Linder, Ernst, 4,270,726, Cl. 251-30.000.

Lindstrom, Olle B., to AB Olle Lindstrom. Chemoelectric cell. 4,271,003, Cl. 204-265.000.

Linke, Adolf: *See*—
Forster, Manfred; Linke, Adolf; and Geidies, Ulrich, 4,270,558, Cl. 137-2.000.

Lintonbon, Robert F.; and Shore, David, to Ferakarn Limited. Waste gas recovery system. 4,270,884, Cl. 417-15.000.

Lipschutz, Charles, to Louisville Manufacturing Co., Inc. Method of surface ornamented cap. 4,270,229, Cl. 2-195.000.

Lipshield, Eugene C.; and Boyer, Billy G., to Orschein Co. Brake cable operating means affording a mechanical advantage. 4,270,406, Cl. 74-516.000.

Lipson, Melvin A.; and Knoth, Dale W., to Dynachem Corporation. Screen printing of photopolymerizable inks. 4,270,985, Cl. 204-15.000.

Liquid Paper Corporation: *See*—
Sharlow, Roger C., 4,270,707, Cl. 242-56.900.

Liston, Max D.: *See*—
Blackburn, Wayne E.; Liston, Max D.; and Stark, William A., 4,270,564, Cl. 137-240.000.

Liston Scientific Corp.: *See*—
Blackburn, Wayne E.; Liston, Max D.; and Stark, William A., 4,270,564, Cl. 137-240.000.

Litton Systems, Inc.: *See*—
DiMeo, Frank N., 4,271,370, Cl. 310-266.000.

Livesay, J. D.: *See*—
Widdowson, Richard E.; Connolly, James B.; Schlotterbeck, Earl S.; and Livesay, J. D., 4,270,934, Cl. 55-316.000.

Livingston, Danny K.: *See*—
Hawk, Charles E.; and Livingston, Danny K., 4,270,386, Cl. 73-204.000.

Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B. Distributing device of vehicle hydraulic control system. 4,270,349, Cl. 60-384.000.

Lo Biondo, Joseph V.: *See*—
Lo Biondo, Salvatore J.; and Lo Biondo, Joseph V., 4,270,244, Cl. 17-52.000.

Lo Biondo, Salvatore J.; and Lo Biondo, Joseph V. Method and apparatus for macerating meat. 4,270,244, Cl. 17-52.000.

Lockheed Missiles & Space Company, Inc.: *See*—
Trautwein, Wolfgang, 4,270,811, Cl. 305-11.000.

Lockwood, George C.: *See*—
Craycraft, Donald G.; Lockwood, George C.; and Donaldson, Darrel D., 4,271,487, Cl. 365-189.000.

Lohmann, Dieter; and Wyler, Siegfried, to Cibe-Geigy Corporation. Silanes containing imide groups. 4,271,074, Cl. 260-326.260.

Long, Alvin L., to Long, Loring C. Mouse trap. 4,270,299, Cl. 43-58.000.

Long, Loring C.: *See*—
Long, Alvin L., 4,270,299, Cl. 43-58.000.

Looschen, Floyd W., to Burroughs Corporation. Shift-register transmitter for use in a high speed, low noise digital data communication system. 4,271,510, Cl. 370-110.000.

L'Oreal: *See*—
Bore, Pierre; and De Labbey, Arnaud, 4,270,919, Cl. 23-230.00B.

Lorenz, Donald H.: *See*—
Biranowski, Jerome B.; Lorenz, Donald H.; and Kantor, Simon W., 4,271,273, Cl. 521-110.000.

Lorenz, Harald H.: *See*—
Coulter, James L.; and Lorenz, Harald H., 4,270,633, Cl. 188-79.5GC.

Loser, Harald; Schmidt, Gerhard; Warzawa, Wolfgang; and Wegner, Klaus, to HOBEG Hochtemperaturreaktor-Brennelement GmbH. Process for the coating of particles for the production of fuel and/or absorbing elements for nuclear reactors and apparatus therefor. 4,271,207, Cl. 427-6.000.

Loth, Kjeld; and Loth, Peter. Apparatus for automatic evisceration of killed poultry. 4,270,242, Cl. 17-11.000.

Loth, Peter: *See*—
Loth, Kjeld; and Loth, Peter, 4,270,242, Cl. 17-11.000.

Lotsch, Wolfgang; and Hilbert, Peter, to BASF Aktiengesellschaft. Preparation of pigmentary form isoindoline. 4,271,301, Cl. 544-296.000.

Lotsch, Wolfgang, to BASF Aktiengesellschaft. Isoindoline colorants. 4,271,309, Cl. 548-364.000.

Lotspiech, Jeffrey B., to International Business Machines Corporation. Method and apparatus for rotating the scan format of digital images. 4,271,476, Cl. 364-515.000.

Lotz, Helmut, to Bosch-Siemens Hausgerate GmbH. Housed clothes dryer. 4,270,282, Cl. 34-86.000.

Louisville Manufacturing Co., Inc.: *See*—
Lipschutz, Charles, 4,270,229, Cl. 2-195.000.

Love, Richard F.: *See*—
Kolsian, Jack H.; and Love, Richard F., 4,271,032, Cl. 252-174.190.

Lowe, Charles L., to Grayson, Jacob H., a part interest. Generating vapor of a volatile normally liquid fuel and operating an internal combustion engine therewith. 4,270,506, Cl. 123-523.000.

Lowery, Robert D., to Marquette Metal Products. Adjustable spring clutch. 4,270,637, Cl. 192-41.00S.

Lown, Bernard: *See*—
Wurtman, Richard J.; and Lown, Bernard, 4,271,192, Cl. 424-319.000.

Lowy, Stephen D. Golf putting aid apparatus for the visually handicapped. 4,270,751, Cl. 273-34.00R.

Loyd, Ellis R. Combination power saw and chain saw and adapter device and methods of making and using the same. 4,270,270, Cl. 30-122.000.

Lucas Industries Limited: *See*—
James, Haydn, 4,271,459, Cl. 362-346.000.
Scilly, Alec H., 4,270,502, Cl. 123-357.000.
Skinner, Robert T. J., 4,270,886, Cl. 417-462.000.
Thomas, Alfred W.; and Op den Camp, Lutz E. A., 4,270,438, Cl. 91-49.000.

Luckhurst, Geoffrey A.: *See*—
Outram, Stephen H.; and Luckhurst, Geoffrey A., 4,271,392, Cl. 324-115.000.

Ludy, Andrew W. Nail holder for hammers. 4,270,587, Cl. 145-30.00R.

Luijtea, Waltherus J. Th. H.; and Smid, Joost, to Ultra-Centrifuge Nederland N.V. Molecular pump or, respectively, gas-tight sealing arrangement for a body placed in a housing and rapidly rotating about an axis. 4,270,882, Cl. 415-72.000.

Lukacsek, Patricia A. Apparatus for culturing and examining fungi. 4,271,270, Cl. 435-294.000.

Lukas, Walter: *See*—
Aignesberger, Alois; Lukas, Walter; and Weinberg, Ekkehard, 4,270,954, Cl. 106-47.00R.

Luke, Virgil E. Pot separator. 4,270,669, Cl. 221-13.000.

Lunel, Jean: *See*—
Belloc, Andre; Florent, Jean; Lunel, Jean; Mancy, Denise; and Palla, Jean-Claude, 4,271,067, Cl. 260-112.00R.

Luschen, Joseph G., to ALZA Corporation. Process for forming a passageway in an osmotic device. 4,271,113, Cl. 264-112.000.

Lussier, Roger J.: *See*—
Vaughan, David E. W.; Lussier, Roger J.; and Magee, John S., Jr., 4,271,043, Cl. 252-455.00R.

Lyhus, Arlan J. Information collection and storage system with memory test circuit. 4,271,512, Cl. 371-21.000.

Lynell Medical Technology Inc.: *See*—
Poler, Stanley, 4,270,230, Cl. 3-13.000.

Lyon, Fred K.; and Lyon, Ralph E. Rotational molding of cylindrical objects having swirled textured outer surfaces. 4,271,117, Cl. 264-275.000.

Lyon, Ralph E.: *See*—
Lyon, Fred K.; and Lyon, Ralph E., 4,271,117, Cl. 264-275.000.

Lyons, Thomas F., Jr.: *See*—
Dickinson, Thorn W.; McLarty, Daniel R.; and Lyons, Thomas F., Jr., 4,270,415, Cl. 74-867.000.

M.A.N.-Roland Druckmaschinen Aktiengesellschaft: *See*—
Dilfipp, Kurt; and Greiner, Harry M., 4,270,450, Cl. 101-142.000.

Mabery, Thomas L.; and Jackson, Francis B., to Combustion Engineering, Inc. Method of forming variably rifled tubes. 4,270,690, Cl. 228-173.00F.

Macey, James D.: *See*—
Ahlenfeld, Carl B.; and Macey, James D., 4,270,756, Cl. 273-326.000.

Mackay, Donald A. M.: *See*—
Cherukuri, Subraman R.; Friello, Dominick R.; Jewell, Walter; and Mackay, Donald A. M., 4,271,198, Cl. 426-3.000.
Cherukuri, Subraman R.; Vink, Walter; Friello, Dominick R.; and Mackay, Donald A. M., 4,271,199, Cl. 426-5.000.
Hopkins, Walter; Friello, Dominick R.; Cherukuri, Subraman R.; Roy, Raymond L.; and Mackay, Donald A. M., 4,271,197, Cl. 426-3.000.
Puglia, Wayne J.; Witzel, Frank; and Mackay, Donald A. M., 4,271,142, Cl. 424-14.000.
Vink, Walter; Spooner, Leonard; and Mackay, Donald A. M., 4,270,956, Cl. 127-29.000.

MacLachlan, James D., to Du Pont de Nemours, E. I., and Company. Fluoroelastomer composition containing oxirane acid acceptor. 4,271,275, Cl. 525-112.000.

MacMillan, Richard W., to Siemens Aktiengesellschaft. Switching arrangement for the input of interrupt commands and the output of interrupt acknowledgment for computer systems. 4,271,464, Cl. 364-200.000.

MacRae, Joseph A.: *See*—
Gill, Donald H.; MacRae, Joseph A.; and Cottrill, Compton J., 4,270,591, Cl. 411-112.000.

Maddox, Jim, Jr.: *See*—
Cardenas, Ricardo L.; Harnsberger, Bobby G.; and Maddox, Jim, Jr., 4,270,607, Cl. 166-273.000.

Maeda, Hiroshi; Ariga, Nagao; Oikawa, Hiroshi; and Tominaga, Hidemitsu, to Dainippon Ink & Chemicals, Inc. 5-(2,5-Dioxotetrahydrofuryl)-3-methyl-3-cyclohexene-1,2-dicarboxylic anhydride. 4,271,079, Cl. 260-346.300.

Maeda, Mamoru: *See*—
Kurose, Morio; Ejiri, Koichi; and Maeda, Mamoru, 4,271,436, Cl. 358-296.000.

Maeda, Tooru, to Toyo Kogyo Co., Ltd. Idle adjusting device for a carburetor. 4,271,095, Cl. 261-41.00D.

Maeda, Toshinobu; and Matsuoka, Yoshifumi, to Matsushita Electric Industrial Co., Ltd. Speed control circuit for phase-locked loop motor drive systems. 4,271,382, Cl. 318-318.000.

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Deschler, Gerhard; Gebhardt, Hans; and Wittmann, Dieter, 4,270,407, Cl. 74-569.000.

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Gertsch, Peter; and Imhof, Robert, 4,270,452, Cl. 101-148.000.

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Nishimura, Hiromi; and Fukuzono, Hideki, 4,271,450, Cl. 361-155.000.

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Miyasaka, Tomoaki: *See—*
Suzuki, Tadahiko; Miyasaka, Tomoaki; and Amano, Toshio, 4,271,432, Cl. 358-190.000.

Miyashita, Kiyoshi: *See—*
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,270,860, Cl. 355-14.00R.

Miyata, Teruo; Rubin, Albert L.; and Stenzel, Kurt H., to Cornell Research Foundation, Inc. Chemically-modified fiber collagen hemostatic agents. 4,271,070, Cl. 260-123.700.

Miyazaki, Joichi, to Kabushiki Kaisha Deini Seikosha. Correcting device for calendar in an analog type electronic watch. 4,271,494, Cl. 368-34.000.

Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, to Dai Nippon Insatsu Kabushiki Kaisha. Transfer sheet with resist portions. 4,271,224, Cl. 428-207.000.

Mobil Oil Corporation: *See—*
Oleck, Stephen M.; Sherry, Howard S.; Fischer, Ronald H.; and Milstein, Donald, 4,271,042, Cl. 252-439.000.

Mochida Pharmaceutical Co., Ltd.: *See—*
Takizawa, Touhiaki; Takeuchi, Kazumasa; and Togo, Takashi, 4,270,845, Cl. 350-299.000.

Modrovich, Ivan E. Stabilized liquid enzyme and coenzyme compositions. 4,271,264, Cl. 435-14.000.

Moffat, Robert B.: *See—*
Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., 4,270,876, Cl. 405-133.000.

Mohammed, M. Hamdi A. Replacement system for dental and other bone implants. 4,270,905, Cl. 433-201.000.

Moiseev, Vladimir V.: *See—*
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Molins Machine Company, Inc.: *See—*
Kelley, Lawrence R., 4,270,969, Cl. 156-473.000.

Molitoriez, Joseph. Bale forming apparatus. 4,270,446, Cl. 100-8.000.

Monch, Eckhard: *See—*
Jaschke, Peter; Monch, Eckhard; and Weber, Roland, 4,270,931, Cl. 48-86.00R.

Monsanto Company: *See—*
Coran, Aubert Y.; and Patel, Raman, 4,271,049, Cl. 260-4.00R.
Kera, Roland J., 4,271,262, Cl. 430-325.000.
Maender, Otto W.; and Morita, Eiichi, 4,271,050, Cl. 260-5.000.

Plischke, LeMoyne W.; and Baggett, William M., 4,271,233, Cl. 428-370.000.

Montrouil Enterprises, Inc.: *See*—
Montrouil, George W., 4,270,332, Cl. 52-772.000.

Montrouil, George W., to Montrouil Enterprises, Inc. Windows and method of making the same. 4,270,332, Cl. 52-772.000.

Mookherjee, Braja D.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.

Moore, Alvin E. Insulated wall and wall part. 4,270,329, Cl. 52-576.000.

Moore, Chad Z.: *See*—
Blumenthal, John; and Moore, Chad Z., 4,271,417, Cl. 346-154.000.

Moore, Henry J., Jr.; and Deneau, Myron E., to Mor-Flo Industries, Inc. Combination flue and vent damper. 4,270,894, Cl. 431-20.000.

Moore, Leo M., to Industrial Machine Service Co., Inc. Integral heater follower plate. 4,270,674, Cl. 222-146.0HE.

Moore, Maurice S.: *See*—
Harrison, David M.; Watson, Walter E., III; Moore, Maurice S.; and Jermyn, Roger E., 4,270,252, Cl. 28-250.000.

Moore, Roger S. Water treatment apparatus. 4,271,015, Cl. 210-94.000.

Mor-Flo Industries, Inc.: *See*—
Moore, Henry J., Jr.; and Deneau, Myron E., 4,270,894, Cl. 431-20.000.

Morales, Juan C.; and Spector, George. Liniment composition and applicator therefor. 4,270,526, Cl. 128-67.000.

Morgan, David B.; Pan, Robert F.; Quinn, Paul A., Jr.; and Westerman, Glenn S., to International Business Machines Corporation. Digital pulse-width modulated printer escapement control system. 4,270,868, Cl. 400-320.000.

Morgan, John R.: *See*—
Donakowski, William A.; and Morgan, John R., 4,270,957, Cl. 134-2.000.

Mori, Fumio: *See*—
Kunimoto, Go; and Mori, Fumio, 4,270,665, Cl. 215-347.000.

Morikawa, Naotake: *See*—
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, 4,271,035, Cl. 252-301.170.

Morimatsu, Hideharu: *See*—
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Morimoto, Hiroshi; Imada, Isuke; Watanabe, Masazumi; and Kawada, Mitsuru, to Takeda Chemical Industries, Ltd. 6-Hydroxy-1,4-benzoquinone compounds. 4,271,083, Cl. 260-396.00R.

Morishita, Michio: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.

Morita, Eiichi: *See*—
Maender, Otto W.; and Morita, Eiichi, 4,271,050, Cl. 260-5.000.

Morita, Hideo, to Nippon Electric Co., Ltd. Dielectric resonator for VHF to microwave region. 4,271,399, Cl. 333-219.000.

Morrell, Albert M., to RCA Corporation. Color picture tube with screen having light absorbing areas. 4,271,247, Cl. 430-24.000.

Morse, Henry W.: *See*—
Shaffer, Robert W.; and Morse, Henry W., 4,270,885, Cl. 417-279.000.

Motoren-und Turbinen-Union: *See*—
Rcasman, Axel; and Zech, Herbert, 4,271,112, Cl. 264-86.000.

Motorola, Inc.: *See*—
Coombes, Daniel J.; and Sangster, John H., 4,271,520, Cl. 371-42.000.

Motoyama, Kazuyasu, to Olympus Optical Co., Ltd. Capstan bearing device. 4,270,685, Cl. 226-194.000.

Motoyama, Takeshi: *See*—
Oonishi, Toshiyuki; Motoyama, Takeshi; and Hatanaka, Kiyoshi, 4,270,364, Cl. 62-198.000.

Moulinex, Societe Anonyme: *See*—
Hamon, Francois H. J., 4,271,349, Cl. 219-283.000.

Muchel, Franz; and Bohning, Werner, to Carl Zeiss Stiftung. Optical system for forming an image of the retina. 4,270,842, Cl. 350-452.000.

Muhlhauser, Martin: *See*—
Bergloff, Dag; Wohlfarter, Alois; Heissenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, 4,270,254, Cl. 29-148.40D.

Mukai, Kuniaki; and Hyodo, Kouichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Method and system of controlling effective value of alternating current. 4,271,387, Cl. 323-241.000.

Muller, Franz, to August Lepper Maschinen- und Apparatebau GmbH. Combined drum washer and drying arrangement. 4,270,281, Cl. 34-75.000.

Muller, Peter; and Mustacchi, Henry, to Andrews Paper & Chemical Co., Inc. Transparent fibrous sheets and process for making. 4,271,227, Cl. 428-264.000.

Mulligan, Jack E. Obstetric bed. 4,270,233, Cl. 5-68.000.

Munz, Joachim; Prohaska, Hans; and Rachner, Horst, to ITT Industries, Inc. Windshield wiper motor circuit. 4,271,381, Cl. 318-282.000.

Murakami, Hajime: *See*—
Murasawa, Sadao; Murakami, Hajime; and Ichida, Hiroshi, 4,270,485, Cl. 118-648.000.

Murakoshi, Makoto; and Yoshizawa, Tamotu, to Fuji Photo Film Co., Ltd. X-Y Movement mechanism. 4,270,404, Cl. 74-479.000.

Murakoshi, Makoto; and Oosaka, Shigenori, to Fuji Photo Film Co., Ltd. Laser COM device. 4,271,415, Cl. 346-108.000.

Murasawa, Sadao; Murakami, Hajime; and Ichida, Hiroshi, to Ishihara Sangyo Kaisha Ltd. Liquid developing apparatus. 4,270,485, Cl. 118-648.000.

Murata, Bunjiro: *See*—
Ito, Katsuo; Murata, Bunjiro; and Yoshimura, Kazunori, 4,270,394, Cl. 74-10.00R.

Murata Manufacturing Co., Ltd.: *See*—
Ito, Katsuo; Murata, Bunjiro; and Yoshimura, Kazunori, 4,270,394, Cl. 74-10.00R.

Murib, Jawad H., to National Distillers and Chemical Corp. Process for the preparation of tetrahydrofuran. 4,271,080, Cl. 260-346.110.

Murib, Jawad H.; and Inskeep, John M., to National Distillers and Chemical Corp. Process for the preparation of tetrahydrofuran. 4,271,081, Cl. 260-346.110.

Murphy, Michael K. Breast shield. 4,270,538, Cl. 128-282.000.

Mustacchi, Henry: *See*—
Muller, Peter; and Mustacchi, Henry, 4,271,227, Cl. 428-264.000.

Muto, Rudolph. Endotracheal tube stabilizer. 4,270,529, Cl. 128-200.260.

Myers, Alan W.: *See*—
Cresap, Wesley L.; and Myers, Alan W., 4,270,711, Cl. 244-17.170.

Myers, David J.: *See*—
Johnson, Elwin L.; Kilby, Jack S.; Lathrop, Jay W.; McFerren, John S.; and Myers, David J., 4,270,263, Cl. 29-590.000.

Myers, Frank A.: *See*—
Gordon, Leonard J.; and Myers, Frank A., 4,270,515, Cl. 126-164.000.

N/S Car Wash Enterprises, Inc.: *See*—
Ennis, George T., 4,270,958, Cl. 134-6.000.

Naarden International N.V.: *See*—
Kleipool, Reinerus J., 4,271,082, Cl. 260-347.200.

Nadal, Christian P.: *See*—
Watine, Didier J. M. M.; and Nadal, Christian P., 4,271,330, Cl. 174-84.00R.

Nadkarni, Vikas M.: *See*—
Kane, John L.; and Nadkarni, Vikas M., 4,270,888, Cl. 425-66.000.

Nagai, Masahiro: *See*—
Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhisa; and Shimojima, Kiyoshi, 4,270,373, Cl. 72-41.000.

Nagano, Masashi, to Shimano Industrial Company, Limited. Speed changing device for a bicycle. 4,270,402, Cl. 74-473.00R.

Nagaoka, Shinji: *See*—
Takazawa, Yuzuru; and Nagaoka, Shinji, 4,270,851, Cl. 354-21.000.

Nagaoka, Tadahiko: *See*—
Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, 4,271,453, Cl. 361-248.000.

Nagashima, Akira: *See*—
Aotani, Yoshimasa; Misu, Hiroshi; and Nagashima, Akira, 4,271,251, Cl. 430-195.000.

Nagata, Mitsuru; and Wakasugi, Kazuyuki, to Hodogaya Chemical Co., Ltd. Process for producing 3,3-bis-(4-dimethylaminophenyl)-6-dimethylaminophthalide. 4,271,075, Cl. 260-343.400.

Nagata, Wataru: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,296, Cl. 544-182.000.

Naglieri, Anthony N.; and Rizkalla, Nabil, to Halcon Research and Development Corp. Novel 2-bromoethyl tellurium bromides. 4,271,090, Cl. 260-550.000.

Nakada, Kiyoshi, to Yoshida Kogyo K.K. Method and apparatus for weaving web. 4,270,580, Cl. 139-431.000.

Nakagawa, Keizo; Yamano, Katsushi; Watanabe, Takashi; Yamamoto, Kunio; and Inomata, Shigeo, to Kansai Paint Co., Ltd. Two component antifouling paint. 4,270,953, Cl. 106-16.000.

Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, to Nissan Motor Company, Limited. Internal combustion engine with dual induction system. 4,270,500, Cl. 123-308.000.

Nakai, Fumio: *See*—
Sakano, Hajime; Nakai, Fumio; and Tomari, Yukio, 4,271,230, Cl. 428-315.000.

Nakai, Hiroshi: *See*—
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Nakai, Meroji: *See*—
Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,270,500, Cl. 123-308.000.

Nakajima, Kimio: *See*—
Shiraiwa, Toshio; Yamaguchi, Hisao; Matsumoto, Shigeaki; Tomabechi, Masatoshi; and Nakajima, Kimio, 4,270,389, Cl. 73-612.000.

Nakajima, Ryoji: *See*—
Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,270,500, Cl. 123-308.000.

Nakamura, Kenichi: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.

Nakamura, Kotaro: *See*—
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,252, Cl. 430-216.000.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,253, Cl. 430-216.000.

Nakamura, Masakazu, to Sumitomo Precision Products Co. Ltd. Heat sink. 4,270,604, Cl. 165-185.000.

Nakamura, Sadayuki: *See*—
Fujiwara, Tatsuo; Abeyama, Shozo; Ishida, Kiyohito; and Nakamura, Sadayuki, 4,270,950, Cl. 75-126.00L.

Nakane, Masanori; Osumi, Yasuaki; Suzuki, Hiroshi; and Kato, Aakihiko, to Agency of Industrial Science & Technology; and Ministry of International Trade & Industry. Device for storage of hydrogen. 4,270,360, Cl. 62-48.000.

Nakanishi, Masakazu, to Tusdakoma Kogyo Kabushiki Kaisha. Sensor weft mechanism for fluid jet looms. 4,270,579, Cl. 139-370.200.

Nakanishi, Tatsuo, to Nippon Gakki Seizo Kabushiki Kaisha. Ski and a process for manufacturing same. 4,270,768, Cl. 280-610.000.

Nakazaki, Takamitsu; Kita, Hisanao; and Akutsu, Yoji, to Hitachi, Ltd. Electron beam welding method and apparatus therefor. 4,271,348, Cl. 219-121.0ED.

Namba, Kenryo: *See*—
Tabuchi, Katsuhiko; Kato, Toshiaki; and Namba, Kenryo, 4,270,543, Cl. 128-639.000.

Nambu, Hirohiko: *See*—
Matsunaga, Fujihisa; and Nambu, Hirohiko, 4,271,322, Cl. 568-798.000.

Nanjo, Hirotoshi; and Tsuji, Toshikazu, to Kokusan Denki Co., Ltd. Ignition system for an internal combustion engine. 4,270,510, Cl. 123-648.000.

Nara, Terukatsu: *See*—
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukatsu; and Takayama, Yoshihiro, 4,271,267, Cl. 435-108.000.

Narasimhan, Sundaram L.; and Larson, Jay M., to Eaton Corporation. Welded article and method of making same. 4,270,496, Cl. 123-90.510.

Narozny, Ronald S., to Thomas & Betts Corporation. Zero insertion force connector. 4,270,826, Cl. 339-75.0MP.

Nash, John E., to Syntex Inc. Abrasive dental tool. 4,270,903, Cl. 433-165.000.

Nasica, Jean R. L.: *See*—
Torterotot, Roland M.; and Nasica, Jean R. L., 4,270,965, Cl. 156-244.110.

National Distillers and Chemical Corp.: *See*—
Murib, Jawad H., 4,271,080, Cl. 260-346.110.
Murib, Jawad H.; and Inskeep, John M., 4,271,081, Cl. 260-346.110.

National Mine Service Company: *See*—
Baum, Gerald L., 4,270,803, Cl. 299-76.000.

National Research Development Corporation: *See*—
Singer, Alfred R. E.; and Evans, Russell W., 4,270,383, Cl. 73-82.000.

Navarro, Luis J.: *See*—
Dagostino, Thomas P.; and Navarro, Luis J., 4,271,486, Cl. 365-45.000.

NCR Corporation: *See*—
Craycraft, Donald G.; Lockwood, George C.; and Donaldson, Darrel D., 4,271,487, Cl. 365-189.000.

Neft, Charles H. Miter saw attachment. 4,270,588, Cl. 145-35.00R.

Negi, Virendra S.: *See*—
Peters, Arthur; and Negi, Vireadra S., 4,271,484, Cl. 364-900.000.

Neiman, Michel, to Societe de Diffusion NEIMAN. Conversion ring for fillers. 4,270,667, Cl. 220-86.00R.

Nemecek, William F.: *See*—
Chesselka, Harry; Nemecek, William F.; and Stockwell, Dean A., 4,271,479, Cl. 364-900.000.

Nestler, Heinz: *See*—
Schoenafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

Neubauer, Harry: *See*—
de Meis, Albert; and Neubauer, Harry, 4,271,105, Cl. 264-26.000.

Neumann, Klaus: *See*—
Dangeleit, Siegfried; and Neumann, Klaus, 4,270,738, Cl. 266-99.000.

Neumann, Peter: *See*—
Vamvakaris, Christos; Neumann, Peter; and Patsch, Manfred, 4,271,303, Cl. 546-155.000.

New Jersey Zinc Company, The: *See*—
Eshelman, Donald M., 4,270,955, Cl. 106-296.000.

New York Toy Corporation: *See*—
Gross, Meyer A., 4,270,239, Cl. 16-112.000.

Nicholson, Charles B., to Albany International Corp. Adjustable orifice air knife. 4,270,702, Cl. 239-455.000.

Nickson Industries, Inc.: *See*—
Evans, Ralph K.; and Florian, Roy S., 4,270,251, Cl. 24-277.000.

Niemann, Klaus; Wulf, Helmut; and Hauck, Peter, to Daimler-Benz Aktiengesellschaft. Steering mechanism with time derivation. 4,270,405, Cl. 74-499.000.

Nierlich, Jean: *See*—
Lavoisey, Yves; and Nierlich, Jean, 4,270,682, Cl. 225-1.000.

Nippon Electric Co., Ltd.: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.
Morita, Hideo, 4,271,399, Cl. 333-219.000.
Ohtsuka, Toshinori; and Toyohuku, Takashi, 4,271,465, Cl. 364-200.000.
Watanabe, Kojiro, 4,271,525, Cl. 375-14.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See*—
Nakanishi, Tatsuo, 4,270,768, Cl. 280-610.000.

Nippon Kokan Kabushiki Kaisha: *See*—
Shimotsuma, Teruo; Kunioka, Kazuo; Nishio, Hiroaki; and Okuyama, Yasuo, 4,270,980, Cl. 201-28.000.

Nippon Light Metal Company Limited: *See*—
Kainuma, Akio, 4,270,875, Cl. 405-129.000.

Nippon Paint Co., Ltd.: *See*—
Miki, Katsuo; and Abe, Kazutoshi, 4,271,214, Cl. 427-345.000.

Nippon Soken, Inc.: *See*—
Kawai, Hisai; Ito, Toshimitsu; Sasada, Masakatsu; and Iwase, Kazuo, 4,271,469, Cl. 364-431.000.

Nippon Telegraph and Telephone Public Corporation: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.
Shimizu, Toshio; Ichinose, Susumu; and Oobi, Yuji, 4,271,416, Cl. 346-140.00R.
Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yasunishi, Toru, 4,270,840, Cl. 350-96.340.

Nippondenso Co., Ltd.: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.

Nishi, Toshinobu: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.

Nishikawa, Masaji: *See*—
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,270,860, Cl. 355-14.00R.

Nishimatsu, Shigeru: *See*—
Hori, Ryoichi; Kubo, Masaharu; Hashimoto, Norikazu; Nishimatsu, Shigeru; and Itoh, Kiyoo, 4,270,262, Cl. 29-571.000.

Nishimura, Hiromi; and Fukuzono, Hideki, to Matsushita Electric Works, Ltd.; and SDS-Electro GmbH. Circuit arrangement for the control of a bistable relay. 4,271,450, Cl. 361-155.000.

Nishimura, Tamotsu, to Futaba Kinzoku Kogyo Kabushiki Kaisha. Opening and closing apparatus for doors and the like. 4,270,781, Cl. 292-251.500.

Nishimura, Yutaka; and Gamano, Kazuyuki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Engine mount for a vehicle. 4,270,625, Cl. 180-291.000.

Nishio, Hiroaki: *See*—
Shimotsuma, Teruo; Kunioka, Kazuo; Nishio, Hiroaki; and Okuyama, Yasuo, 4,270,980, Cl. 201-28.000.

Nishiyama, Hisai, to Yoshida Kogyo K. K. Harness for looms. 4,270,578, Cl. 139-92.000.

Nishiyama, Yumiko: *See*—
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, 4,271,035, Cl. 252-301.170.

Nishizawa, Jun-ichi: *See*—
Teshima, Toru; Nishizawa, Jun-ichi; and Kishi, Yasunori, 4,271,408, Cl. 340-702.000.

Nissan Motor Company, Limited: *See*—
Fukuhara, Hiroshige; and Fujiki, Norio, 4,271,535, Cl. 455-309.000.
Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,270,500, Cl. 123-308.000.
Sunohara, Yoshio; and Ohtsuka, Kunio, 4,270,636, Cl. 192-3.310.
Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, 4,271,453, Cl. 361-248.000.

Nitou, Hiroyasu: *See*—
Ikeda, Yoshihiko; and Nitou, Hiroyasu, 4,270,265, Cl. 29-840.000.

Nitta, Yoshiteru: *See*—
Hamakawa, Yoshihiro; Okamoto, Hiroaki; Nitta, Yoshiteru; and Adachi, Tohio, 4,271,328, Cl. 136-249.000.

Nitto Boseki Co. Ltd.: *See*—
Coggin, Charles H., Jr.; and Jones, John L., Jr., 4,270,942, Cl. 65-11.00W.

Nitto Electric Industrial Co., Ltd.: *See*—
Suzuki, Hideto; Hayashi, Shunichi; and Yoshioka, Takahiro, 4,271,061, Cl. 260-37.0EP.

Niwa, Shuichi: *See*—
Ishikawa, Toshio; Niwa, Shuichi; Yamadaya, Shoko; and Orito, Yoshio, 4,271,327, Cl. 585-440.000.

Nixdorf Computer AG: *See*—
Haftmann, Johannes, 4,270,867, Cl. 400-207.000.

NL Industries, Inc.: *See*—
Herman, Daniel F.; and Kruse, Uno, 4,270,977, Cl. 162-168.00R.

Noe, Oskar, to BWG Bergwerk- und Walzwerk-Maschinenbau GmbH. Walking-beam conveyor. 4,270,655, Cl. 198-774.000.

Noessie, Nick; Staufield, John N.; and Pettersen, Paal, to A/S Akers Mek. Versted. Device for sealing the place of penetration of a pipeline in the wall of a submerged structure. 4,270,775, Cl. 285-24.000.

Nonnenmann, Manfred; and Hammel, Werner, to Suddeutsche Kabelfabrik Julius Fr. Behr GmbH & Co. KG. Fluid-filled friction clutch. 4,270,641, Cl. 192-82.00T.

Norcross, Paul D., to Thexton Manufacturing Company. Self-adjusting automotive clutch link. 4,270,646, Cl. 192-111.00A.

Nordischer Maschinenbau Rud. Baader GmbH & Co. KG. *See*—
Krohn, Manfred, 4,270,690, Cl. 198-388.000.

Norman, Arthur E., to Torr Vacuum Products, Inc. Spring loaded plug valve. 4,270,727, Cl. 251-63.400.

Norman, Harry H., to Eleven States Mfg. Corp. Spring nesting apparatus. 4,270,582, Cl. 140-71.00R.

North American Industries, Inc.: *See*—
Forsyth, Robert J., 4,270,482, Cl. 116-209.000.

North American Philips Corporation: *See*—
Rakocy, William J., 4,271,338, Cl. 200-61.710.

North American Utility Construction Corp.: *See*—
Stark, Virgil, 4,270,981, Cl. 202-172.000.
Northern Telecom, Inc.: *See*—
Adams, William J.; and Wernet, William F., 4,271,333, Cl. 179-90.00K.
Northern Telecom Limited: *See*—
Howat, Robert J., 4,270,963, Cl. 156-201.000.
Norton, David J.; and Brown, Christopher R., to Westinghouse Brake & Signal Co. Railway control signal interlocking systems. 4,270,715, Cl. 246-5.000.
Nose, Takahiko: *See*—
Furuichi, Shuhei; and Nose, Takahiko, 4,271,371, Cl. 310-316.000.
Nota, Peter: *See*—
Gildea, Dennis M.; and Nota, Peter, 4,270,679, Cl. 224-181.000.
Nother, Gernot, to Kernforschungszentrum Karlsruhe. Quench detector. 4,271,443, Cl. 361-19.000.
Nouvel, Jacques: *See*—
Choulet, Jean-Claude; and Nouvel, Jacques, 4,271,316, Cl. 562-480.000.
Nova Scotia Research Foundation Corporation: *See*—
Michaud, Louis M., 4,271,120, Cl. 422-53.000.
Novak, Richard E.: *See*—
Berkman, Samuel; Metzl, Robert; Novak, Richard E.; and Patterson, David L., 4,271,129, Cl. 422-246.000.
NTN Toyo Bearing Co. Ltd.: *See*—
Kimata, Kei; and Fukunaga, Shoichi, 4,270,257, Cl. 29-157.10R.
Nukem GmbH: *See*—
Marschollek, Michael; Simon, Wolfgang; and Walter, Carl, 4,271,126, Cl. 422-143.000.
O. F. Mossberg & Sons, Inc.: *See*—
Grehl, William H., 4,270,295, Cl. 42-70.00F.
Obata, Eisuke: *See*—
Okamoto, Tadao; Obata, Eisuke; and Enomoto, Yutaka, 4,270,541, Cl. 128-344.000.
Oberlander, Michael: *See*—
Winicov, Murray W.; and Oberlander, Michael, 4,271,149, Cl. 424-150.000.
Oberth, Hans G.; and Aminger, Gerhard A., to Caterpillar Tractor Co. Fluid sequence bypass apparatus. 4,270,562, Cl. 137-115.000.
Obokata, Tsuneo: *See*—
Shimatani, Shirou; Orita, Ryohji; and Obokata, Tsuneo, 4,270,484, Cl. 118-305.000.
O'Brien, Gerald E., to Computer Microfilm International Corporation. Microfilm display apparatus. 4,271,430, Cl. 358-102.000.
O'Brien, Jerome J.: *See*—
Baker, Judd O.; O'Brien, Jerome J.; Curtis, Westley F.; and Varney, Frederick M., 4,270,479, Cl. 114-240.00A.
Occella, Sergio; Arietti, Giulio; and Borello, Giampiero, to Centro Ricerche Fiat S.p.A. Internal combustion engine. 4,270,498, Cl. 123-276.000.
Occidental Research Corporation: *See*—
Frischmuth, Robert W., 4,270,928, Cl. 44-1.0SR.
Stover, Carole S.; Compton, Leslie E.; and Youngerman, Eugene G., 4,271,009, Cl. 208-254.00R.
Oellerer, Friedrich: *See*—
Theurer, Josef; and Oellerer, Friedrich, 4,270,456, Cl. 104-3.000.
Offshore Devices, Inc.: *See*—
Milgram, Jerome H., 4,271,017, Cl. 210-95.000.
Oftelie, Phil C. Radio operated latch dead-bolting system. 4,270,370, Cl. 70-118.000.
Ogawa, Kazufumi: *See*—
Chikamura, Takao; Ogawa, Kazufumi; Terui, Yasuaki; Fujiwara, Shinji; and Fukai, Masakazu, 4,271,420, Cl. 357-30.000.
Ohara, Minoru: *See*—
Hotta, Tetsuya; Enomoto, Satoru; Yoshikumi, Chikao; Ohara, Minoru; and Ueno, Saburo, 4,271,151, Cl. 424-177.000.
Ohara, Naoki: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.
Ohlinger, Manfred: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.
Ohloff, Gunther: *See*—
Becker, Joseph J.; and Ohloff, Gunther, 4,271,076, Cl. 260-343.210.
Ohmori, Taiji; and Sato, Makoto, to Honda Giken Kogyo Kabushiki Kaisha. Device for diagnosing trouble in a control circuit for electromagnetic actuators. 4,270,809, Cl. 303-92.000.
Ohno, John M., to General Electric Company. Method of compacting dry powder into shapes. 4,271,114, Cl. 264-114.000.
Ohtsuka, Kunio: *See*—
Sunohara, Yoshio; and Ohtsuka, Kunio, 4,270,636, Cl. 192-3.310.
Ohtsuka, Toshinori; and Toyohuku, Takashi, to Nippon Electric Co., Ltd. Information handling unit provided with a self-control type bus utilization unit. 4,271,465, Cl. 364-200.000.
Ohtsuki, Nobuo; Yamada, Eiji; and Utaka, Tadashi, to Rigaku Industrial Corporation. X-ray spectroscope. 4,271,353, Cl. 250-276.000.
Ohuchi, Kenji: *See*—
Itoh, Tsutomu; Furuya, Nobuo; and Ohuchi, Kenji, 4,271,208, Cl. 427-28.000.
Oikawa, Hiroshi: *See*—
Maeda, Hiroshi; Ariga, Nagao; Oikawa, Hiroshi; and Tominaga, Hidemitsu, 4,271,079, Cl. 260-346.300.
Okamoto, Hiroaki: *See*—
Hamakawa, Yoshihiro; Okamoto, Hiroaki; Nitta, Yoshiteru; and Adachi, Toshio, 4,271,328, Cl. 136-249.000.
Okamoto, Tadao; Obata, Eisuke; and Enomoto, Yutaka, to Fuji Latex Co., Ltd. Instrument for induction of labor. 4,270,541, Cl. 128-344.000.
Oki Electric Industry Co., Ltd.: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.
Okonite Company, The: *See*—
Faranetta, John G.; and Feller, Robert G., 4,270,961, Cl. 156-51.000.
Okuno, Yoshitoshi: *See*—
Yamaguchi, Takashi; Shinjo, Goro; and Okuno, Yoshitoshi, 4,271,180, Cl. 424-274.000.
Okura, Keniti, to Pioneer Electronic Corporation. Pickup cartridge having a resilient biasing member for holding an elongated stylus holder against a support surface thereof. 4,271,335, Cl. 369-136.000.
Okuyama, Yasuo: *See*—
Shimotsuma, Teruo; Kunioka, Kazuo; Nishio, Hiroaki; and Okuyama, Yasuo, 4,270,980, Cl. 201-28.000.
Oleck, Stephen M.; Sherry, Howard S.; Fischer, Ronald H.; and Milstein, Donald, to Mobil Oil Corporation. Process for demetalation and desulfurization of petroleum oils. 4,271,042, Cl. 252-439.000.
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, to SKF Kugellagerfabriken GmbH. Roller bearing. 4,270,815, Cl. 308-213.000.
Olson, Donald N.: *See*—
Plumer, Roy D.; and Olson, Donald N., 4,270,293, Cl. 42-1.00F.
Olympus Optical Co., Ltd.: *See*—
Furihata, Hiroyuki, 4,270,525, Cl. 128-4.000.
Furusawa, Mitsuru; Yamamoto, Fumiichiro; and Yoshinaga, Makoto, 4,270,838, Cl. 350-81.000.
Goto, Atsuo, 4,270,843, Cl. 350-480.000.
Kawazoe, Mitsuo, 4,271,376, Cl. 315-241.00P.
Motoyama, Kazuyasu, 4,270,685, Cl. 226-194.000.
Takahashi, Naoyuki; and Kadota, Toshihiko, 4,270,723, Cl. 248-421.000.
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,270,860, Cl. 355-14.00R.
Ono, Nobutaka, to Osaka Bobbin Kabushiki Kaisha. Resiliently compressible bobbin. 4,270,710, Cl. 242-118.110.
Ono Pharmaceutical Co., Ltd.,: *See*—
Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, 4,271,170, Cl. 424-263.000.
Onoda Cement Co., Ltd.: *See*—
Itoh, Tsutomu; Furuya, Nobuo; and Ohuchi, Kenji, 4,271,208, Cl. 427-28.000.
Onodera, Toshio: *See*—
Tanimura, Ken; and Onodera, Toshio, 4,271,463, Cl. 363-126.000.
Ooba, Yuji: *See*—
Shimizu, Toshio; Ichinose, Susumu; and Ooba, Yuji, 4,271,416, Cl. 346-140.00R.
Ooho, Morihei. Cold display case. 4,270,819, Cl. 312-116.000.
Oonishi, Toshiyuki; Motoyama, Takeshi; and Hatanaka, Kiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Freezing refrigerator. 4,270,364, Cl. 62-198.000.
Oosaka, Shigenori: *See*—
Murakoshi, Makoto; and Oosaka, Shigenori, 4,271,415, Cl. 346-108.000.
Op den Camp, Lutz E. A.: *See*—
Thomas, Alfred W.; and Op den Camp, Lutz E. A., 4,270,438, Cl. 91-49.000.
Opalka, Chester J., Jr.: *See*—
Lesher, George Y.; and Opalka, Chester J., Jr., 4,271,168, Cl. 424-263.000.
Oppenlaender, Knut; Strickler, Rainer; Perner, Johannes; and Trieselt, Wolfgang. Color stabilized nonionic surfactants and alkaline cleanser formulations containing these surfactants. 4,271,031, Cl. 252-156.000.
Orion-yhtyma Oy: *See*—
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.
Orita, Ryohji: *See*—
Shimatani, Shirou; Orita, Ryohji; and Obokata, Tsuneo, 4,270,484, Cl. 118-305.000.
Orito, Yoshio: *See*—
Ishikawa, Toshio; Niwa, Shuichi; Yamadaya, Shoko; and Orito, Yoshio, 4,271,327, Cl. 585-440.000.
O'Rourke, J. Cam; Pilkington, G. Roger; and Bercha, Frank G., to Dome Petroleum Limited. Barge construction for warm air canopy ice-free zone. 4,270,476, Cl. 114-40.000.
Orscheln Co.: *See*—
Lipahield, Eugene C.; and Boyer, Billy G., 4,270,406, Cl. 74-516.000.
Ortmann & Herbst GmbH: *See*—
Mette, Manfred, 4,270,585, Cl. 141-37.000.
Orzelek, Frank J.: *See*—
Ragard, Phillip A.; and Orzelek, Frank J., 4,270,651, Cl. 198-456.000.
Osaka Bobbin Kabushiki Kaisha: *See*—
Ono, Nobutaka, 4,270,710, Cl. 242-118.110.
Osborne, Norman A.; and Gates, Robert L., to Martin Marietta Corporation. Isolation system. 4,270,393, Cl. 74-5.00F.
Osumi, Kazuoki: *See*—
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukatsu; and Takayama, Yoshihiro, 4,271,267, Cl. 435-108.000.

Osumi, Yasuaki: *See*—
Nakane, Masanori; Osumi, Yasuaki; Suzuki, Hiroshi; and Kato, Aakihiko, 4,270,360, Cl. 62-48.000.
Ottl, Hartmut, to Dorst-Keramikmaschinen-Bau. Apparatus for controlling the height of pressed workpieces of ceramic powder or other material in a press. 4,270,890, Cl. 425-150.000.
Otto, Michael J.; and Ray, George C., to General Foods Corporation. Laminated structure incorporating expandable pockets. 4,271,220, Cl. 428-134.000.
Ouchi, Hideaki: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.
Outram, Stephen H.; and Luckhurst, Geoffrey A., to Solartron Electronic Group Limited, The. Latching relay circuits and analog to digital converters. 4,271,392, Cl. 324-115.000.
Overbeek, Robert B.: *See*—
Glaze, Jack G.; and Overbeek, Robert B., 4,270,409, Cl. 74-665.0GA.
Overholt, Ronald. Bag holding device. 4,270,788, Cl. 294-55.000.
Overy, Michael R.: *See*—
Vasce, Ian A. W.; and Overy, Michael R., 4,271,501, Cl. 370-24.000.
Owens-Corning Fiberglas Corporation: *See*—
Babbitt, William M., 4,270,941, Cl. 65-1.000.
Eastes, Walter L.; and Tarantino, Anna, 4,270,944, Cl. 65-27.000.
Kane, John L.; and Nadkarni, Vikas M., 4,270,888, Cl. 425-66.000.
Riddell, John M.; and Schultz, William W., 4,270,943, Cl. 65-15.000.
Owens-Illinois, Inc.: *See*—
Stengle, Edward J., 4,271,212, Cl. 427-203.000.
Trogdon, Raymond L., 4,270,863, Cl. 356-71.000.
Owens, Lloyd J., to Robbins Company, The. Earth boring apparatus. 4,270,618, Cl. 175-57.000.
Oy Tampella Ab: *See*—
Haikkala, Pekka O., 4,270,703, Cl. 241-18.000.
Ozawa, Takashi: *See*—
Takenouchi, Mutsuo; Tomiyama, Shunsuke; and Ozawa, Takashi, 4,271,435, Cl. 358-213.000.
Page, Norman B.; and Burnott, Leslie W., to General Motors Corporation. Fastener means for interior trim panel. 4,270,328, Cl. 52-511.000.
Paivanas, John A.: *See*—
Hassan, Javathu K.; and Paivanas, John A., 4,270,999, Cl. 204-192.00E.
Pakhomova, Eleonora M.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Politkarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.
Pako Corporation: *See*—
Beckman, Gregg S., 4,270,861, Cl. 355-38.000.
Palla, Jean-Claude: *See*—
Belloc, Andre; Florent, Jean; Lunel, Jean; Mancy, Denise; and Palla, Jean-Claude, 4,271,067, Cl. 260-112.00R.
Palmer, Dennis L.: *See*—
Meny, Allan H.; and Palmer, Dennis L., 4,270,933, Cl. 55-279.000.
Palmer, Wilbur C.; and Rusby, Frank L., to Corning Glass Works. Induction heating coil. 4,271,345, Cl. 219-10.790.
Palomar, Chester J. Escape hatch for dwellings. 4,270,311, Cl. 49-141.000.
Pan, Robert F.: *See*—
Morgan, David B.; Pan, Robert F.; Quinn, Paul A., Jr.; and Westerman, Glenn S., 4,270,868, Cl. 400-320.000.
Panafacom Limited: *See*—
Yamamoto, Mitsuru; Arai, Jun; Isogawa, Takao; and Hasebe, Isamu, 4,271,466, Cl. 364-200.000.
Pappo, Raphael: *See*—
Collins, Paul W.; and Pappo, Raphael, 4,271,314, Cl. 560-121.000.
Paradyne Corporation: *See*—
Armstrong, Thomas R., 4,271,527, Cl. 375-39.000.
Parras, Karlheinz; Bader, Edgar; and Dupont, Helmut, to Te Ka De, Felten & Guilleaume, Fernmeldeanlagen GmbH. Loopback test for data transmission paths. 4,271,514, Cl. 371-22.000.
Parsons, John S.: *See*—
Brierley, John M.; Parsons, John S.; Trueman, James R.; and Jones, Robert A., 4,271,030, Cl. 252-98.000.
Parsteel Products & Services Company, Inc.: *See*—
Rosenband, Phillip, 4,270,661, Cl. 211-49.00D.
Pasqualini, Guido. Platen positioning attachment for typewriters for typewriting musical notation. 4,270,866, Cl. 400-117.000.
Passarotti, Carlo: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,184, Cl. 424-285.000.
Pastorino, Ronald L.; Lewis, Roger N.; and Abna, Charles B., to Argus Chemical Corporation. Cyclic perketals and their use for cross-linking high density polyethylene. 4,271,279, Cl. 525-387.000.
Pate, Paul E.: *See*—
Hooke, John W.; and Pate, Paul E., 4,271,241, Cl. 429-54.000.
Patecell, Theodore C. Unitary run-flat systems for inflatable tires and lock means. 4,270,592, Cl. 152-158.000.
Patel, Raman: *See*—
Coran, Aubert Y.; and Patel, Raman, 4,271,049, Cl. 260-4.00R.
Patenaude, Raymond A.: *See*—
Bishop, James C.; and Patenaude, Raymond A., 4,270,436, Cl. 89-33.00R.
Patsch, Manfred: *See*—
Vamvakaris, Christos; Neumann, Peter; and Patsch, Manfred, 4,271,303, Cl. 546-155.000.
Patterson, David L.: *See*—
Berkman, Samuel; Metzl, Robert; Novak, Richard E.; and Patterson, David L., 4,271,129, Cl. 422-246.000.
Pauliukonis, Richard S. High pressure letdown valve. 4,270,571, Cl. 137-614.110.
Pearson, Walter C., to Minnesota Mining and Manufacturing Company. Applicator for a double coated tape strip. 4,270,971, Cl. 156-510.000.
Pedder, Christopher T.: *See*—
Jenkins, John M.; Pedder, Christopher T.; and Robertson, Neil G. D., 4,270,552, Cl. 131-290.000.
Peloza, Kirk, to Eaton Corporation. Block mounted automotive heater control valve. 4,270,728, Cl. 251-143.000.
Pelter, Andrew; and Ryder, David J., to Imperial Chemical Industries Limited. Alkylborane complexes. 4,271,317, Cl. 564-8.000.
Pengo, Giuseppe; and Schwerdhofer, Hans J., to Fichtel & Sachs AG; and S.O.L.E. Societa Opitergina Lavorazioni Elettroplastiche S.p.A. Washing machine drive assembly. 4,270,411, Cl. 74-752.00E.
Perception Electronics, Inc.: *See*—
McComas, Ralph J., 4,271,455, Cl. 361-331.000.
Perelmuter, Michel, to Compagnie Francaise des Isolants. Fusible textile device adapted to be placed between a thermo-retractible element and electrical conductors or components to provide a fluid tight coupling. 4,271,329, Cl. 174-84.00R.
Perfect-Line Manufacturing Corp.: *See*—
Brenner, Stanley, 4,270,830, Cl. 339-99.00R.
Perilhou, Jean R.; and Coursant, Roger H., to U.S. Philips Corporation. Device for ultrasonic examination of biological structures. 4,270,546, Cl. 128-660.000.
Perner, Johannes: *See*—
Oppenlaender, Knut; Strickler, Rainer; Perner, Johannes; and Trieselt, Wolfgang, 4,271,031, Cl. 252-156.000.
Perovetz, Lawrence M.; and Stern, Harold J., to H.L.P. Imports Ltd. Polishing of silver-plated articles. 4,270,932, Cl. 51-293.000.
Perretta, Frank. Zone controlled dampening means. 4,270,451, Cl. 101-148.000.
Pesa, Frederick A.; and Haase, Thomas A., to Standard Oil Company. Catalysts for the hydroformylation of olefinically unsaturated compounds. 4,271,038, Cl. 252-428.000.
Peters, Arnis E., to Realist, Inc. Microimage storage and retrieval apparatus. 4,270,850, Cl. 353-27.00R.
Peters, Arthur; and Negi, Virendra S., to Honeywell Information Systems Inc. Condition code accumulator apparatus for a data processing system. 4,271,484, Cl. 364-900.000.
Peters, Bernd W.: *See*—
Wuest, Willi; Just, Guenther; and Peters, Bernd W., 4,271,135, Cl. 423-329.000.
Peters, John R.; and Armstrong, Warren G., to Armstrong Industries, Inc. Inflatable trouser for medical use. 4,270,527, Cl. 128-87.00R.
Peters, Philip H., to Electric Power Research Institute. Power converter and regulation apparatus. 4,271,462, Cl. 363-84.000.
Petschauer, Franz: *See*—
Bergloff, Dag; Wohlfarter, Alois; Heisenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, 4,270,254, Cl. 29-148.40D.
Pettersen, Paal: *See*—
Noensie, Nick; Stanfield, John N.; and Pettersen, Paal, 4,270,775, Cl. 285-24.000.
Peyla, Richard J.: *See*—
Campbell, Curtis B.; and Peyla, Richard J., 4,270,930, Cl. 44-71.000.
PFP-Anstalt fur Produktentwicklung und Verwertung: *See*—
Schramm, Werner, 4,270,461, Cl. 108-31.000.
Phillips, Gary M.; and Untereker, Darrel F., to Medtronic, Inc. Cathode materials. 4,271,278, Cl. 525-356.000.
Phillips Petroleum Company: *See*—
Hubby, John S., 4,271,060, Cl. 260-33.60A.
Phipps, Arthur L., to Coadec Corporation. Foam extrusion apparatus and method. 4,271,107, Cl. 264-51.000.
Pichler, Ludwig: *See*—
Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kobinger, Walter; Lillie, Christian; and Pichler, Ludwig, 4,271,175, Cl. 424-273.00R.
Pierburg Luftfahrtgerate Union GmbH: *See*—
Henning, Hans J.; and Holzem, Heinz, 4,271,098, Cl. 261-66.000.
Pierre Fabre S.A.: *See*—
Mazoyer, France, 4,271,191, Cl. 424-317.000.
Pileco, Inc.: *See*—
Sahajdak, Steven L., 4,271,475, Cl. 364-506.000.
Pilkington, G. Roger: *See*—
O'Rourke, J. Cam; Pilkington, G. Roger; and Bercha, Frank G., 4,270,476, Cl. 114-40.000.
Pilz, Otto: *See*—
Abele, Werner; Gross, Mario; and Pilz, Otto, 4,271,260, Cl. 430-292.000.
Pinto, Luiz A. C. D. R., to Santal Equipamentos S.A. Comercio E. Industria. Harvester of sugar cane or similar products. 4,270,337, Cl. 56-13.900.
Pioneer Electronic Corporation: *See*—
Higuchi, Ryozi; and Hirase, Hiroyuki, 4,271,398, Cl. 333-28.00T.
Okura, Keniti, 4,271,335, Cl. 369-136.000.

Pippuri, Aino K.: *See*—
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.

Pitney Bowes Inc.: *See*—
Check, Frank T., Jr.; Eckert, Alton B., Jr.; and Warren, Joseph R., 4,271,481, Cl. 364-900.000.
Dlugos, Daniel F.; and Harenberg, Donald D., 4,271,470, Cl. 364-466.000.

Pitt, Harold M., to Stauffer Chemical Company. Process for the manufacture of 1,1-dihalo-4-methyl-1,3-pentadienes. 4,271,325, Cl. 570-228.000.

Pittasch, Willi: *See*—
Zernig, Ernst; and Pittasch, Willi, 4,270,240, Cl. 16-148.000.

Plainer, Hermann: *See*—
Trabitzsch, Hans; Frieser, Josef; Koschik, Achim; and Plainer, Hermann, 4,271,058, Cl. 260-29.60M.

Plimley, Raymond E.: *See*—
Goodridge, Francis; and Plimley, Raymond E., 4,270,995, Cl. 204-79.000.

Plischke, LeMoyne W.; and Baggett, William M., to Monsanto Company. Crimped polyamide filament. 4,271,233, Cl. 428-370.000.

Plumer, Roy D.; and Olson, Donald N., to United States of America, Army. Device for launching non-lethal ring airfoil projectiles. 4,270,293, Cl. 42-1.00F.

Plumley, Peter F. Gastro-intestinal tubes. 4,270,542, Cl. 128-350.00R.

Pogorelova, Iraida S.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Pointer, Odell, Jr. Drip irrigator for hanging baskets. 4,270,696, Cl. 239-38.000.

Polad, Michael D.: *See*—
LaManna, Richard J.; Drillick, Jacob H.; and Polad, Michael D., 4,271,012, Cl. 209-653.000.

Polaroid Corporation: *See*—
Baker, James G., 4,270,837, Cl. 350-54.000.
Douglas, Lawrence M., 4,270,855, Cl. 354-124.000.
Kamman, Daniel T., 4,270,382, Cl. 73-37.500.
Wray, William R., 4,271,439, Cl. 360-65.000.

Poler, Stanley, to Lynell Medical Technology Inc. Intraocular lens. 4,270,230, Cl. 3-13.000.

Polikarpova, Antonin P.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Polinski, Leon M.; Roberts, George W.; and Hindin, Saul G., to Engelhard Minerals & Chemicals Corporation. Catalyst system. 4,270,896, Cl. 431-328.000.

Pollution Control Products Co.: *See*—
Kelly, Stephen B., 4,270,898, Cl. 432-19.000.

Polysar Limited: *See*—
Blackshaw, George C., 4,271,052, Cl. 260-23.70N.

Polzl, Hans-Werner: *See*—
Will, Heinz-Dieter; Dommes, Werner; and Polzl, Hans-Werner, 4,270,356, Cl. 60-602.000.

Pomerantz, Allen J., to General Motors Corporation. Closed loop air/fuel ratio control system. 4,270,503, Cl. 123-438.000.

Ponchaux, Jean-Luc. Fluid rotary machine. 4,270,439, Cl. 91-495.000.

Pond, Robert J., to Acme Cleveland Corporation. Electronic protection circuit for solid state switches energizing AC loads. 4,271,448, Cl. 361-93.000.

Ponsinet, Gerard: *See*—
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Ponsinet, Gerard, 4,271,156, Cl. 424-246.000.
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Ponsinet, Gerard, 4,271,167, Cl. 424-263.000.

Popov, Alexandr D.; Solomin, Vladimir A.; Khantimirov, Sergei S.; and Shirokov, Alexandr A. Linear induction motor. 4,271,367, Cl. 310-13.000.

Population Council, Inc.: *See*—
Tsong, Yun-Yen; Talwar, Gursaran P.; Koide, Samuel; and Segal, Sheldon J., 4,271,069, Cl. 260-112.50R.

Porter, Roy: *See*—
Heald, Terence E.; and Porter, Roy, 4,270,917, Cl. 8-527.000.

Post, Adrianus J., to Steven Baggeren V.V. Working platform. 4,270,877, Cl. 405-198.000.

Potgieter, Maurice S. Battery cable connector. 4,270,827, Cl. 339-95.00B.

Potomac Applied Mechanics, Inc.: *See*—
Stubbings, James H., 4,270,445, Cl. 100-4.000.

Potter, Robert I.: *See*—
Heiman, Neil D.; White, Robert L.; Potter, Robert I.; and Albert, Paul A., 4,271,232, Cl. 428-332.000.

Pottgiesser, Hermann: *See*—
Hansen, Guenter; Pottgiesser, Hermann; and Schlindwein, Walter, 4,271,231, Cl. 428-323.000.

Power Engineering and Manufacturing, Ltd.: *See*—
Herscovici, Saul, 4,270,410, Cl. 74-665.00Q.

PPG Industries, Inc.: *See*—
Amrhein, Alan G.; Hammel, Joseph J.; and Shelestak, Larry J., 4,270,945, Cl. 65-99.00A.
Cunningham, Hugh; and Raetzsch, Carl W., 4,271,004, Cl. 204-266.000.
Kacirek, Kenneth J., 4,270,879, Cl. 414-35.000.
Temple, Chester S., 4,271,229, Cl. 428-288.000.

Prabhu, Vasant K.: *See*—
Goodman, David J.; Henry, Paul S.; and Prabhu, Vasant K., 4,271,524, Cl. 375-1.000.

Prentiss, William C., to Seton Company. Stabilized tanning composition comprising a reaction product of (a) polyaldehyde (b) secondary amine and (c) an alcohol and method. 4,270,912, Cl. 8-94.260.

Prestele, Karl: *See*—
Franetzki, Manfred; Gagneur, Klaus; and Prestele, Karl, 4,270,532, Cl. 128-213.00R.

Preston, William B. Reclining chair with leg rest operating mechanism. 4,270,796, Cl. 297-69.000.

Prince Albert Pulpwood Ltd.: *See*—
Hyde, Bruce; and Tyndall, Wayne, 4,270,586, Cl. 144-309.0AC.

Pritchett, William C., to Atlantic Richfield Company. Coupling means for horizontal vibrator. 4,270,626, Cl. 181-113.000.

Pritsker, Petr Y.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Prohaska, Hans: *See*—
Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,271,381, Cl. 318-282.000.

Protoned B.V.: *See*—
Brauning, Egon, 4,270,797, Cl. 297-300.000.

Puglia, Wayne J.; Witzel, Frank; and Mackay, Donald A. M., to Life Savers, Inc. Portable liquid antacids. 4,271,142, Cl. 424-14.000.

Puhk, Heino, to SCM Corporation. Suspension polymerization process for producing large polymer particles. 4,271,283, Cl. 526-317.000.

Punte, Mildred C. Multi-stage hair curler. 4,270,555, Cl. 132-40.000.

Puppe, Lothar: *See*—
Endres, Robert; Drave, Heinz; Mansmann, Manfred; and Puppe, Lothar, 4,271,130, Cl. 423-118.000.

Purdue Research Foundation: *See*—
Dixon, Jack B.; and Hall, Randall C., 4,271,022, Cl. 210-198.200.

Putt, Arthur G. Taco holders. 4,270,660, Cl. 211-13.000.

Pye (Electronic Products) Limited: *See*—
Bradshaw, Robert F. D.; and Kraicer, Alec, 4,271,357, Cl. 250-287.000.

Quaker Oats Company, The: *See*—
Hempenius, Walter L.; and Yantis, June E., 4,271,200, Cl. 426-27.000.

Quay, Earl R.; and Jauch, Gerhard, to Mayer, Rothkopf Industries, Inc. Device for detecting broken heads of knitting machine needles. 4,270,369, Cl. 66-157.000.

Quinn, Paul A., Jr.: *See*—
Morgan, David B.; Pan, Robert F.; Quinn, Paul A., Jr.; and Westerman, Glenn S., 4,270,868, Cl. 400-320.000.

R. Berchtold AG: *See*—
Vonlanthen, Beano; and Walther, Robert, 4,270,372, Cl. 70-406.000.

R. J. Reynolds Tobacco Company: *See*—
Conrad, Lucas J.; and White, Jackie L., 4,270,553, Cl. 131-291.000.

Racal Automation Limited: *See*—
Smith, Anthony J., 4,271,516, Cl. 371-25.000.

Racciato, Joseph S., to Merck & Co., Inc. Dyeing composition and method. 4,270,916, Cl. 8-527.000.

Rachner, Horst: *See*—
Munz, Joachim; Prohaska, Hans; and Rachner, Horst, 4,271,381, Cl. 318-282.000.

Rachor, Lothar: *See*—
Hrovat, Milan; Huschka, Hans; and Rachor, Lothar, 4,271,102, Cl. 264-0.500.

Rachuk, Ronald: *See*—
Reay, Robert G.; and Rachuk, Ronald, 4,270,569, Cl. 137-514.700.

Radian Corporation: *See*—
Braga, Alphonse M., 4,270,241, Cl. 17-1.00C.

Raetzsch, Carl W.: *See*—
Cunningham, Hugh; and Raetzsch, Carl W., 4,271,004, Cl. 204-266.000.

Ragard, Phillip A.; and Orzelek, Frank J., to Universal Instruments Corporation. Taped belt electronic component centering device. 4,270,651, Cl. 198-456.000.

Ragoza, Igor V.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Dina N.; and Tonikian, Robert T. Method and circular warp knitting machine for knitting stockings. 4,270,368, Cl. 66-13.000.

Rainer Isolierrohrfabrik Max Drossbach: *See*—
Fales, David E., 4,270,878, Cl. 409-143.000.

Rakocy, William J., to North American Philips Corporation. Security apparatus. 4,271,338, Cl. 200-61.710.

Ralston, Ronald R., to Borg-Warner Corporation. Charge forming apparatus. 4,270,507, Cl. 123-523.000.

Raphael, Rouchdy B. Rotatable cutting guide. 4,270,426, Cl. 83-411.00R.

Rapid Mounting & Finishing Company: *See*—
Babberl, Marion G., 4,270,291, Cl. 40-594.000.

Rapidgate, Inc.: *See*—
Lachy, Peter; and Dag, Stefan A., 4,270,873, Cl. 404-10.000.

Rasmussen, Donald E.: *See*—
Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., 4,270,876, Cl. 405-133.000.

Raue, Roderich: *See*—
Brinkmann, Uwe; Telle, Helmut; and Raue, Roderich, 4,271,395, Cl. 331-94.50L.

Ray, George C.: *See*—
Otto, Michael J.; and Ray, George C., 4,271,220, Cl. 428-134.000.

Ray, Sunnie, to Game Time, Inc. Modularized slide. 4,270,748, Cl. 272-56.50R.

Raychem Pontoise S.A.: *See*—
Watine, Didier J. M. M.; and Nadal, Christian P., 4,271,330, Cl. 174-84.00R.

Raytheon Company: *See*—
Glass, Jeremy M.; Lampke, George G.; and St. Germain, Roger L., 4,271,412, Cl. 343-5.0FT.

RCA Corporation: *See*—
Berkman, Samuel; Metzl, Robert; Novak, Richard E.; and Patterson, David L., 4,271,129, Cl. 422-246.000.
Gange, Robert A.; and Marlowe, Frank J., 4,271,377, Cl. 315-366.000.
Ipri, Alfred C., 4,271,422, Cl. 357-42.000.
Leidich, Arthur J., 4,271,394, Cl. 330-258.000.
Morrell, Albert M., 4,271,247, Cl. 430-24.000.
Siryj, Bohdan W.; and Gilson, Alan P., 4,271,489, Cl. 369-38.000.
Theriault, Gerald E., 4,271,433, Cl. 358-191.100.
Wine, Charles M., 4,271,532, Cl. 455-186.000.

Realist, Inc.: *See*—
Peters, Arnis E., 4,270,850, Cl. 353-27.00R.

Reay, Robert G.; and Rachuk, Ronald, to Christensen Inc. Valve assembly for the remote control of fluid flow having an automatic time delay. 4,270,569, Cl. 137-514.700.

Red Lodge Manufacturing Company: *See*—
Courtis, Thomas M.; and Donelson, Carl E., 4,270,312, Cl. 49-385.000.

Redland Roof Tiles Limited: *See*—
Townsend, Roger, 4,270,330, Cl. 52-712.000.

Redman, James C. Fluid control valve. 4,270,732, Cl. 251-310.000.

Redmer, Frank: *See*—
Hoffmann, Erwin; Krippl, Kurt; Kraft, Karl J.; Gabrysch, Gerd; and Redmer, Frank, 4,270,889, Cl. 425-115.000.

Reed, Frank A., deceased; and Diemert, Paul M., executor, to Diemert, Paul M. Spool valve assembly. 4,270,575, Cl. 137-625.690.

Reffelmann, Gerd, to Bayer Aktiengesellschaft. Method and apparatus for the discontinuous production of a foamed block. 4,271,108, Cl. 264-51.000.

Reh, Kuno: *See*—
Bender, Heinz; Beyerle, Rudi; Keil, Karl-Heinz; Greve, Heinz G.; and Reh, Kuno, 4,271,073, Cl. 260-315.000.

Reichl, Richard: *See*—
Mentrup, Anton; Schromm, Kurt; Renth, Ernst-Otto; and Reichl, Richard, 4,271,158, Cl. 424-248.500.

Reichold, Ernst: *See*—
Diller, Werner; Drope, Eckard; Ellendt, Gunther; and Reichold, Ernst, 4,271,121, Cl. 422-56.000.

Reiling, Karl: *See*—
Reiling, Reinhold; and Reiling, Karl, 4,270,315, Cl. 51-219.00R.

Reiling, Reinhold; and Reiling, Karl. Fixture for holding a twist drill to be reground. 4,270,315, Cl. 51-219.00R.

Reilly, Edward J.: *See*—
Williams, Glenn L.; and Reilly, Edward J., 4,271,414, Cl. 346-76.0PH.

Reinauer, Thomas V., to United States Filter Corporation. Filter assembly for high temperature glass fiber filter media. 4,270,935, Cl. 55-379.000.

Reisman, Elias; Goodsell, David S.; and Masino, Fred S., to Ford Aerospace & Communications Corp. Non-contacting thermal energy transfer assembly. 4,270,603, Cl. 165-185.000.

Rensselaer Polytechnic Institute: *See*—
Harteck, Paul, 4,271,137, Cl. 423-395.000.

Renth, Ernst-Otto: *See*—
Mentrup, Anton; Schromm, Kurt; Renth, Ernst-Otto; and Reichl, Richard, 4,271,158, Cl. 424-248.500.

Republic Steel Corporation: *See*—
Bhattacharyya, Aniruddha, 4,271,013, Cl. 210-617.000.
Esposito, Edward J.; and Blair, Matthew J. (said Matthew J. Blair assors. to), 4,270,949, Cl. 75-60.000.
Stone, Leonard R.; Aron, Steven J., Jr.; and Kemmerling, Robert A., 4,271,362, Cl. 250-496.000.

Research Frontiers Incorporated: *See*—
Saxe, Robert L., 4,270,841, Cl. 350-374.000.

Rhone-Poulenc Industries: *See*—
Belloc, Andre; Florent, Jean; Lunel, Jean; Mancy, Denise; and Palla, Jean-Claude, 4,271,067, Cl. 260-112.00R.
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Ponsinet, Gerard, 4,271,156, Cl. 424-246.000.
Bourzat, Jean-Dominique; Farge, Daniel; Leger, Andre; and Ponsinet, Gerard, 4,271,167, Cl. 424-263.000.
Choulet, Jean-Claude; and Nouvel, Jacques, 4,271,316, Cl. 562-480.000.
Daniel, Jean-Claude; Grossoleil, Jacques; and Roullet, Robert, 4,271,055, Cl. 260-29.6TA.

Richard Heinze GmbH & Co. KG: *See*—
Zernig, Ernst; and Pittasch, Willi, 4,270,240, Cl. 16-148.000.

Richards, Levie. Ointment for treatment of arthritis. 4,271,154, Cl. 424-195.000.

Ricoh Co., Ltd.: *See*—
Isayama, Takuro; Takemoto, Takeshi; Sato, Tsutomu; and Fukazawa, Takao, 4,271,366, Cl. 307-591.000.
Kurose, Morio; Ejiri, Koichi; and Maeda, Masoru, 4,271,436, Cl. 358-296.000.

Riddell, John M.; and Schultz, William W., to Owens-Corning Fiberglas Corporation. Rotary fiber forming spinner. 4,270,943, Cl. 65-15.000.

Rigaku Industrial Corporation: *See*—
Ohtsuki, Nobuo; Yamada, Eiji; and Utaka, Tadashi, 4,271,353, Cl. 250-276.000.

Rinaldo, Daniel M.: *See*—
Kraft, Derald H.; and Rinaldo, Daniel M., 4,270,906, Cl. 474-135.000.

Rinard, George A.: *See*—
Steffen, Dale A.; Sturm, Ronald E.; and Rinard, George A., 4,270,547, Cl. 128-671.000.

Risdon Enterprises, Inc.: *See*—
Sullivan, William E.; Meetze, O. Murray, Jr.; and Seager, Richard H., 4,271,092, Cl. 261-30.000.

Rittel, Werner: *See*—
Kamber, Bruno; and Rittel, Werner, 4,271,068, Cl. 260-112.50R.

Rizkalla, Nabil: *See*—
Naglieri, Anthony N.; and Rizkalla, Nabil, 4,271,090, Cl. 260-550.000.

Robbins Company, The: *See*—
Owens, Lloyd J., 4,270,618, Cl. 175-57.000.

Robert Bosch GmbH: *See*—
Hertfelder, Wilhelm; Jungjager, Erich; and Linder, Ernst, 4,270,726, Cl. 251-30.000.

Roberts, George W.: *See*—
Polinski, Leon M.; Roberts, George W.; and Hindin, Saul G., 4,270,896, Cl. 431-328.000.

Roberts, William M.: *See*—
McStravick, David M.; and Roberts, William M., 4,270,606, Cl. 166-181.000.

Robertson, Neil G. D.: *See*—
Jenkins, John M.; Pedder, Christopher T.; and Robertson, Neil G. D., 4,270,552, Cl. 131-290.000.

Robichaud, Robert H.: *See*—
Gilden, Sheldon J.; and Robichaud, Robert H., 4,270,544, Cl. 128-640.000.

Robinson, Edwin; and Buckle, David, to Deborah Fluidised Combustion Limited. Disposal of waste products by combustion. 4,270,468, Cl. 110-245.000.

Robinson, Gene P. Reversible toilet paper holder. 4,270,706, Cl. 242-55.200.

Robinson, Samuel C.; and Gerth, Howard L., to United States of America, Energy. Apparatus for correcting precision errors in slide straightness in machine tools. 4,270,421, Cl. 82-21.00A.

Robugen GmbH Pharmazeutische Fabrik: *See*—
Gauri, Kailash K., 4,271,153, Cl. 424-180.000.

Rockwell International Corporation: *See*—
Crawford, Donald G., 4,271,410, Cl. 340-765.000.
Crouse, Allen G., 4,270,972, Cl. 156-605.000.
Grogan, Martin L., 4,271,449, Cl. 361-94.000.

Rockwell Intl. Corp.: *See*—
Dlugos, Daniel F.; and Harenberg, Donald D., 4,271,470, Cl. 364-466.000.

Rodler, Hans. Apparatus for examining biological bodies with electromagnetic fields. 4,270,545, Cl. 128-653.000.

Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cosement, Eric, to U C B Societe Anonyme. 6-Amino-4spiro[penam-2,4'-piperidine]-3-carboxylic acids, antibacterial compositions thereof and method of use thereof. 4,271,172, Cl. 424-267.000.

Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cosement, Eric, to U C B, Societe Anonyme. 6-Amino-spiro[penam-2,4'-piperidine]-3-carboxylic acid, antibacterial compositions thereof and method of use thereof. 4,271,173, Cl. 424-267.000.

Rodriguez-Perazza, Manuel, to GTE Laboratories Incorporated. Link chain for power drives. 4,270,907, Cl. 474-200.000.

Rodth, Joseph J., to Alco Foodservice Equipment Company. Electric gravity dispensing valve. 4,270,673, Cl. 222-129.300.

Roediger, Hanns E., to Techtransfer GmbH. Method for drying and sterilizing sewage sludge. 4,270,279, Cl. 34-9.000.

Roehrs, Robert E.: *See*—
Schoenwald, Ronald D.; and Roehrs, Robert E., 4,271,143, Cl. 424-78.000.

Rogers Corporation: *See*—
Chesmer, Alec D.; and Turner, Joseph, 4,270,656, Cl. 198-847.000.
Mette, Manfred, 4,270,585, Cl. 141-37.000.
Mette, Manfred, 4,270,585, Cl. 141-37.000.

Rohco, Inc.: *See*—
Eckles, William E.; and Canaris, Valerie M., 4,270,988, Cl. 204-50.00R.
Eckles, William E.; and McFarland, Charles W., 4,270,989, Cl. 204-50.00R.

Rohm GmbH: *See*—
Trabitzsch, Hans; Frieser, Josef; Koschik, Achim; and Plainer, Hermann, 4,271,058, Cl. 260-29.60M.

Rohm, Gunter H. Split-jaw lathe chuck with lockable inner jaw parts. 4,270,763, Cl. 279-123.000.

Rohm and Haas Company: *See*—
Flaskett, Peter J., 4,270,964, Cl. 156-228.000.
Seidel, Michael C.; von Meyer, William C.; and Greenfield, Stanley A., 4,271,308, Cl. 548-262.000.
Shah, Nipun M., 4,271,287, Cl. 528-272.000.

Rohr Industries, Inc.: *See*—
Brown, William D., 4,271,219, Cl. 428-116.000.

Rolls-Royce Limited: *See*—
Dawson, Lindsay G., 4,270,346, Cl. 60-243.000.

Jones, William R., 4,271,116, Cl. 264-221.000.
McMurtry, David R., 4,270,275, Cl. 33-174.00L.
Romaine, Richard A. Automatic hypodermic syringe. 4,270,537, Cl. 128-218.00A.
Rooney, Clarence S.: *See*—
Atkinson, Joseph G.; Rooney, Clarence S.; Girard, Yves; and Engelhardt, Edward L., 4,271,187, Cl. 424-309.000.
Rosen, William E.: *See*—
Berke, Philip A.; and Rosen, William E., 4,271,176, Cl. 424-273.00R.
Rosenband, Phillip, to Parsteel Products & Services Company, Inc. Battery storage rack. 4,270,661, Cl. 211-49.00D.
Ross, Charles W., to Leeds & Northrup Company. Control of parallel operated turbines in cogeneration. 4,271,473, Cl. 364-494.000.
Rossi, Alessandro: *See*—
Melloni, Piero; Della Torre, Arturo; Carniel, Giovanni C.; and Rossi, Alessandro, 4,271,160, Cl. 424-248.540.
Rossi, Anthony J.; and Behringer, Donald F., to General Electric Company. Turbine control. 4,270,357, Cl. 60-660.000.
Rossman, Axel; and Zech, Herbert, to Motoren-und Turbinen-Union. Process for the manufacture of rotationally-symmetrical components from short-fibered molding material. 4,271,112, Cl. 264-86.000.
Rossow, Harold E.: *See*—
Lane, George A.; and Rossow, Harold E., 4,271,029, Cl. 252-70.000.
Rothenberg GmbH & Co., Firma: *See*—
Weil, Manfred; and Rothenberger, Gunter, 4,270,269, Cl. 30-102.000.
Rothenberger, Gunter: *See*—
Weil, Manfred; and Rothenberger, Gunter, 4,270,269, Cl. 30-102.000.
Roullet, Robert: *See*—
Daniel, Jean-Claude; Grossoleil, Jacques; and Roullet, Robert, 4,271,055, Cl. 260-29.6TA.
Rowles, Howard C.; and Woodward, Donald W., to Air Products and Chemicals, Inc. Separation of hydrogen containing gas mixtures. 4,270,939, Cl. 62-22.000.
Rowles, Howard C.; and Tsao, Tsun-chiu, to Air Products and Chemicals, Inc. Recovery of C_2 hydrocarbons from demethanizer overhead. 4,270,940, Cl. 62-28.000.
Roy, Pradip K.: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,271,206, Cl. 426-572.000.
Roy, Raymond L.: *See*—
Hopkins, Walter; Friello, Dominick R.; Cherukuri, Subraman R.; Roy, Raymond L.; and Mackay, Donald A. M., 4,271,197, Cl. 426-3.000.
Rubin, Albert L.: *See*—
Miyata, Teruo; Rubin, Albert L.; and Stenzel, Kurt H., 4,271,070, Cl. 260-123.700.
Rudolph, Marvin J.: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,271,206, Cl. 426-572.000.
Ruhnau, Gerhard; Gudat, Wolfgang; Lindemann, Klaus; and Saba, Manfred, to WABCO Fahrzeugbremsen GmbH. Circuit for influencing the brake-pressure release and/or brake-pressure holding phases for antilocking vehicle brake systems. 4,270,810, Cl. 303-106.000.
Rusby, Frank L.: *See*—
Palmer, Wilbur C.; and Rusby, Frank L., 4,271,345, Cl. 219-10.790.
Ryder, David J.: *See*—
Pelter, Andrew; and Ryder, David J., 4,271,317, Cl. 564-8.000.
Ryder International Corporation: *See*—
Van Meter, Arch, 4,271,020, Cl. 210-133.00Q.
S&C Electric Company: *See*—
Meister, Otto; and Tobin, Thomas J., 4,271,339, Cl. 200-144.00C.
S.O.L.E. Societa Opitergina Lavorazioni Elettroplastiche S.p.A.: *See*—
Pengo, Giuseppe; and Schwerdhofer, Hans J., 4,270,411, Cl. 74-752.00E.
Saab-Scania AB: *See*—
Johnsson, Tage R. W., 4,270,639, Cl. 192-53.00F.
Saab-Scania Aktiebolag: *See*—
Beijer, Per A. O.; and Strandas, Lars O., 4,270,412, Cl. 74-801.000.
Saba, Manfred: *See*—
Ruhnau, Gerhard; Gudat, Wolfgang; Lindemann, Klaus; and Saba, Manfred, 4,270,810, Cl. 303-106.000.
Sabick, Rodney M.: *See*—
Jenkins, John P.; Sabick, Rodney M.; and Kidd, William W., 4,271,440, Cl. 360-92.000.
Sachs-Systemtechnik GmbH: *See*—
Tellert, Rudy, 4,270,414, Cl. 74-852.000.
Saft Leclanche: *See*—
Broussely, Michel; and Baudry, Sylvie, 4,271,243, Cl. 429-194.000.
Saft-Societe des Accumulateurs Fixes et de Traction: *See*—
Gabano, Jean-Paul; and Broussely, Michel, 4,271,244, Cl. 429-197.000.
Sagami Chemical Research Center: *See*—
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, 4,271,035, Cl. 252-301.170.
Sahajdak, Steven L., to Pileco, Inc. Apparatus for measuring the fall height of a pile driver ram. 4,271,475, Cl. 364-506.000.
St. Germain, Roger L.: *See*—
Glass, Jeremy M.; Lampke, George G.; and St. Germain, Roger L., 4,271,412, Cl. 343-5.0FT.
Saint-Gobain Industries: *See*—
Bourdin, Francis, 4,270,600, Cl. 165-104.310.
Lavoisey, Yves; and Nierlich, Jean, 4,270,682, Cl. 225-1.000.
Saito, Mitsutaka, to Toyo Soda Manufacturing Co., Ltd. Process for producing glycol. 4,270,992, Cl. 204-59.00R.
Saito, Takaharu: *See*—
Ishii, Shinya; Saito, Takaharu; Sugiyama, Masahiko; and Kamo, Takashi, 4,270,691, Cl. 228-194.000.
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, to Sagami Chemical Research Center. Liquid scintillator solution. 4,271,035, Cl. 252-301.170.
Sajus, Lucien: *See*—
Durand, Daniel; Hillion, Gerard; Lassau, Christian; and Sajus, Lucien, 4,271,323, Cl. 568-816.000.
Sakamaki, Hisashi: *See*—
Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, 4,270,857, Cl. 355-8.000.
Sakamoto, Yoichi, to Matsushita Electric Industrial Co., Ltd. Channel selector. 4,271,434, Cl. 358-193.100.
Sakano, Hajime; Nakai, Fumio; and Tomari, Yukio, to Sumitomo Naugatuck Co., Ltd. Foamed urethane composite. 4,271,230, Cl. 428-315.000.
Sakashita, Nobuyuki: *See*—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,270,948, Cl. 71-100.000.
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Tomura, Yasushi; Sakuma, Fujio; Suzuki, Seiji; and Shimizu, Masayuki, 4,271,280, Cl. 526-65.000.
Sampietro, Achilles C. Refrigeration apparatus. 4,270,365, Cl. 62-238.300.
Samuels, Donald H., to Hasbro Industries, Inc. Toy wheeled vehicle. 4,270,305, Cl. 46-221.000.
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Sandmore, Donald K., to Western Electric Company, Inc. Method and apparatus for cutting and racking lead frame strips of boxed capacitors. 4,270,424, Cl. 83-167.000.
Sandstrom, Ake O.; Falk, Bo G.; and Bystedt, H. S. Ingemar, to Defibrator AB. Method of producing peroxide bleached pulp. 4,270,976, Cl. 162-26.000.
Sandvik Aktiebolag: *See*—
Andersson, Ken G. E., 4,270,422, Cl. 82-36.00R.
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Sangster, John H.: *See*—
Coombes, Daniel J.; and Sangster, John H., 4,271,520, Cl. 371-42.000.
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Suzuki, Yuichi; and Sano, Ichiro, 4,271,245, Cl. 429-243.000.
Santal Equipamentos S.A. Comercio E. Industria: *See*—
Pinto, Luiz A. C. D. R., 4,270,337, Cl. 56-13.900.
Santore, Michael. Spring loaded adjustable coupling. 4,270,367, Cl. 64-23.000.
Sanyo Chemical Industries, Ltd: *See*—
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Sarrach, Donald J.: *See*—
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Sasaki, Koji; and Harada, Yasukazu, to Zeria-Shinyaku Kogyo Kabushiki Kaisha. Urokinase preparation for oral administration. 4,271,150, Cl. 424-177.000.
Sassi, Kari, to Konejukka Oy. Apparatus for transferring torque from a driving shaft to a driven shaft. 4,270,638, Cl. 192-45.100.
Sato, Katsuhiko: *See*—
Shida, Masaharu; Torisawa, Akira; Ueda, Makoto; Mandai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, 4,271,496, Cl. 368-80.000.
Sato, Makoto: *See*—
Ohmori, Taiji; and Sato, Makoto, 4,270,809, Cl. 303-92.000.
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Sato, Ryuichi: *See*—
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,271,084, Cl. 260-429.00R.
Sato, Tadashi: *See*—
Minoura, Kazuo; Sugiura, Muneharu; Minami, Setsuo; and Sato, Tadashi, 4,270,858, Cl. 355-8.000.
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Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,271,084, Cl. 260-429.00R.
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, to Honeywell Information Systems Inc. Wire wrap operator check system. 4,271,472, Cl. 364-481.000.

Savell, Charles L., to Ford Motor Company. Displaceable lamp. 4,270,787, Cl. 293-121.000.
Savit, Joseph: *See*—
Lewinton, Colin H.; and Savit, Joseph, 4,271,250, Cl. 430-127.000.
Sawada, Yoshikatsu: *See*—
Ito, Yoshiyasu; Sugiura, Takeo; and Sawada, Yoshikatsu, 4,270,449, Cl. 101-129.000.
Saxe, Charles L., to Tektronix, Inc. High-speed acquisition system employing an analog memory matrix. 4,271,488, Cl. 365-230.000.
Saxe, Robert L., to Research Frontiers Incorporated. Light valve containing suspension of perhalide of alkaloid acid salt. 4,270,841, Cl. 350-374.000.
Scarlett, John C.: *See*—
Sanzenbacher, Charles W.; and Scarlett, John C., 4,270,740, Cl. 266-157.000.
Schaefer, Rudolf. Assembly of wall elements. 4,270,324, Cl. 52-285.000.
Schaling, Wolfgang, to Daimler-Benz Aktiengesellschaft. Apparatus including a shift register for testing different types of cable sets. 4,271,388, Cl. 324-51.000.
Scheibitz, Wolfgang: *See*—
Schrodter, Klaus; Scheibitz, Wolfgang; and Ehlers, Klaus-Peter, 4,271,128, Cl. 422-189.000.
Schellenberg, Matthias: *See*—
Mason, Leslie F. A.; Cook, Robert S.; Kilcast, David; Schellenberg, Matthias; and Chylewski, Christoph, 4,271,254, Cl. 430-239.000.
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Bremen, Josef; Wehling, Bernhard; and Schellhammer, Carl-Wolfgang, 4,271,293, Cl. 542-435.000.
Schenk, Erwin, to Siemens Aktiengesellschaft. Method for transmitting data. 4,271,508, Cl. 370-106.000.
Scherzinger, Bernhard; and Flaig, Hans, to Gebruder Junghans GmbH. Electronic clock with a chime system. 4,271,495, Cl. 368-75.000.
Schiffmann, Robert F.; Mirman, Alfred H.; and Grillo, Richard J., to International Telephone and Telegraph Corporation. Microwave proofing and baking bread utilizing metal pans. 4,271,203, Cl. 426-243.000.
Schilling, L. Louis. Device for controlling swinging drawbar of farm tractor. 4,270,767, Cl. 280-477.000.
Schlindwein, Walter: *See*—
Hansen, Guenter; Pottgiesser, Hermann; and Schlindwein, Walter, 4,271,231, Cl. 428-323.000.
Schlotterbeck, Earl S.: *See*—
Widdowson, Richard E.; Connolly, James B.; Schlotterbeck, Earl S.; and Livesay, J. D., 4,270,934, Cl. 55-316.000.
Schmaus, Hermann: *See*—
Knobl, Alois; Zeitner, Alfred; Krockow, Helmut; and Schmaus, Hermann, 4,271,454, Cl. 361-274.000.
Schmidt, Dieter, to Hoffmann-La Roche Inc. Pharmaceutical compositions for parenteral or local administration. 4,271,196, Cl. 424-358.000.
Schmidt, Gerhard: *See*—
Loser, Harald; Schmidt, Gerhard; Warzawa, Wolfgang; and Wegner, Klaus, 4,271,207, Cl. 427-6.000.
Schmidt, Horst, to Windmoller & Holscher. Reclosable cross-bottom sack. 4,270,677, Cl. 222-561.000.
Schmidt, Wallace B.; Lewis, William W.; Edmiston, Alex; and Klauser, Gernot, to Airco, Inc. Processes for decontaminating nuclear process off-gas streams. 4,270,938, Cl. 62-22.000.
Schmidt, Werner; and Minke, Rudiger, to Dynamit Nobel Aktiengesellschaft. Flameproofed polyesters of improved viscosity. 4,271,274, Cl. 525-111.000.
Schmit, Joseph L.; and Scott, M. Walter, to Honeywell Inc. Growth of thallium-doped silicon from a tin-thallium solution. 4,270,973, Cl. 156-605.000.
Schmitt, Frederick L.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.
Schmitt, Richard L.: *See*—
Husain, Matloob; Lai, Ban-Yen; and Schmitt, Richard L., 4,270,358, Cl. 60-693.000.
Schneider, Kenneth W.: *See*—
Maring, Oscar M.; and Schneider, Kenneth W., 4,270,363, Cl. 62-179.000.
Schneider Metal Manufacturing Company: *See*—
Maring, Oscar M.; and Schneider, Kenneth W., 4,270,363, Cl. 62-179.000.
Schneider, Walter: *See*—
Deneke, Ulfert; Stahl, Peter; and Schneider, Walter, 4,271,265, Cl. 435-16.000.
Schneiter, Ali: *See*—
Zafferri, Roberto; Schneiter, Ali; and Besson, Rene, 4,271,498, Cl. 368-250.000.
Schoenwald, Ronald D.; and Roehrs, Robert E., to Alcon Laboratories, Inc. Sustained release ophthalmic drug dosage. 4,271,143, Cl. 424-78.000.
Schon, Manfred: *See*—
Michel, Walter; Honel, Hans; Schon, Manfred; and Kaiser, Wolfgang, 4,271,286, Cl. 528-254.000.
Schon, Otmar. Clamping ring for tubular members. 4,270,250, Cl. 24-263.00A.
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, to Dynamit Nobel Aktiengesellschaft. Iron oxide magnetic pigments for the production of magnetic coatings. 4,271,234, Cl. 428-405.000.
Schramm, Werner, to PFP-Anstalt fur Produktentwicklung und Verwertung. Presentation stands for the sorted exhibition of goods. 4,270,461, Cl. 108-31.000.
Schreiber, William L.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.
Schreiner-Hansen, Ib. Method of producing a clay pigeon. 4,271,118, Cl. 264-333.000.
Schreyer, Gerd: *See*—
Hentsche, Klaus; Bittner, Friedrich; and Schreyer, Gerd, 4,271,297, Cl. 544-190.000.
Schrodter, Klaus; Scheibitz, Wolfgang; and Ehlers, Klaus-Peter, to Hoechst Aktiengesellschaft. Apparatus for recovering alcoholic phosphoric acid solutions from acid phosphates. 4,271,128, Cl. 422-189.000.
Schromm, Kurt: *See*—
Mentrup, Anton; Schromm, Kurt; Renth, Ernst-Otto; and Reichl, Richard, 4,271,158, Cl. 424-248.500.
Schubart, Rudiger; and Braden, Rudolf, to Bayer Aktiengesellschaft. Process for the preparation of optionally substituted acetonitriles monohalogenated in the α-position. 4,270,998, Cl. 204-158.0HA.
Schulman, Richard E.: *See*—
Breen, William C.; and Schulman, Richard E., 4,270,501, Cl. 123-350.000.
Schultz, Daryl A. Animal trap and trigger mechanism. 4,270,300, Cl. 43-82.000.
Schultz, William W.: *See*—
Riddell, John M.; and Schultz, William W., 4,270,943, Cl. 65-15.000.
Schumacher, Peter L.: *See*—
Faulkner, Bobby P.; Lee, George T.; Schumacher, Peter L.; and Weinecke, Michael H., 4,270,899, Cl. 432-58.000.
Schuster, Samuel J. Breathable, sterilizable receptacles for storing articles in sterile condition. 4,270,658, Cl. 206-439.000.
Schwanbom, Erik: *See*—
Baum, Marcel; Frankenberger, Horst; and Schwanbom, Erik, 4,270,530, Cl. 128-204.250.
Schwartz, Boris. Laminated strip for skin thickness control for use with dermatome apparatus and method of using the same. 4,270,540, Cl. 128-305.500.
Schwartz, Eric D.: *See*—
Curry, Robert E.; Simonsen, Michael G.; and Schwartz, Eric D., 4,271,123, Cl. 422-64.000.
Schwartzkopf, Anton, to Anton Schwartzkopf Stahl- und Fahrzeugbau, Firma. Overhead track assembly for amusement-park ride. 4,270,458, Cl. 104-124.000.
Schwarz, Frank. Selective infrared detector. 4,271,358, Cl. 250-338.000.
Schwarz, Volker: *See*—
Heckel, Klaus; Klaffke, Friedemann; Umann, Walter; and Schwarz, Volker, 4,271,218, Cl. 428-36.000.
Schwarzkopf, Anton, to Anton Schwarzkopf Stahl- u. Fahrzeugbau, Firma. Chain-type ascent system for roller coaster. 4,270,459, Cl. 104-172.00B.
Schwerdhofer, Hans J.: *See*—
Pengo, Giuseppe; and Schwerdhofer, Hans J., 4,270,411, Cl. 74-752.00E.
Sciotti, Robert; and Dougherty, Michael, to Colt Industries Operating Corp. Fuel bowl vent. 4,270,504, Cl. 123-520.000.
SCM Corporation: *See*—
Golownia, Robert F., 4,271,277, Cl. 525-351.000.
Puhk, Heino, 4,271,283, Cl. 526-317.000.
Scott & Fetzer Company, The: *See*—
Lee, Maw H., 4,271,386, Cl. 318-729.000.
Scott, James W.; Beacsi, Joseph A.; and Kersten, Jean, to Baxter Travenol Laboratories, Inc. Roller clamp for defining a flow lumen in tubing. 4,270,725, Cl. 251-6.000.
Scott, M. Walter: *See*—
Schmit, Joseph L.; and Scott, M. Walter, 4,270,973, Cl. 156-605.000.
Scott Paper Company: *See*—
Hosmer, William A., 4,271,221, Cl. 428-172.000.
Scott, Robert S.: *See*—
Hartman, Adrian R.; Scott, Robert S.; and Shackle, Peter W., 4,271,445, Cl. 361-56.000.
Scott, Xenophon. Time lapse videotape editor/controller. 4,271,437, Cl. 360-9.000.
SDS-Electro GmbH: *See*—
Nishimura, Hiromi; and Fukuzono, Hideki, 4,271,450, Cl. 361-155.000.
Seager, Richard H.: *See*—
Sullivan, William E.; Meetze, O. Murray, Jr.; and Seager, Richard H., 4,271,092, Cl. 261-30.000.
Seals Eastern Inc.: *See*—
Hertz, Daniel L., Jr., 4,270,761, Cl. 277-12.000.
Seaward International, Inc.: *See*—
March, Frank A.; and Brown, Louis S., Jr., 4,270,874, Cl. 405-63.000.
Seawell, Albert C. Methods of using Chlamydia vaccine for prevention and treating bovine and ovine diseases. 4,271,146, Cl. 424-89.000.
Secretary of State for Industry in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, The: *See*—
Hancock, Roger H. Y.; and Kerr, Neil, 4,270,480, Cl. 114-296.000.

Segal, Sheldon J.: *See*—
Tsong, Yun-Yen; Talwar, Gursaran P.; Koide, Samuel; and Segal, Sheldon J., 4,271,069, Cl. 260-112.50R.

Seidel, Michael C.; von Meyer, William C.; and Greenfield, Stanley A., to Rohm and Haas Company. 4-alkyl-1,2,4-4H-triazole derivatives. 4,271,308, Cl. 548-262.000.

Seidl, Charles H.: *See*—
Singer, Richard M.; and Seidl, Charles H., 4,270,333, Cl. 52-818.000.

Seikai, Shigeyuki: *See*—
Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yamanishi, Toru, 4,270,840, Cl. 350-96.340.

Seiko Koki Kabushiki Kaisha: *See*—
Takazawa, Yuzuru; and Nagaoka, Shinji, 4,270,851, Cl. 354-21.000.

Seiler, Claus-Dietrich: *See*—
Schonafinger, Eduard; Deigner, Paul; Ohlinger, Manfred; Jakusch, Helmut; Amort, Jurgen; Nestler, Heinz; Seiler, Claus-Dietrich; and Ambros, Otto, 4,271,234, Cl. 428-405.000.

Seilly, Alec H., to Lucas Industries Limited. Fuel injection pumping apparatus. 4,270,502, Cl. 123-357.000.

Seitz, Karl, to Ciba-Geigy Corporation. Reactive dyes, processes for their production and use thereof. 4,270,918, Cl. 8-549.000.

Sekiguchi, Kazuhiko, to Zebra Co., Ltd. Composite writing instrument. 4,270,869, Cl. 401-30.000.

Semenova, Neonila M.: *See*—
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Semeny, Valery Y.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Service Master Industries, Inc.: *See*—
Shallenberg, Robert L.; and Blomgren, Roland A., 4,270,238, Cl. 15-321.000.

Seton Company: *See*—
Prentiss, William C., 4,270,912, Cl. 8-94.260.

Setsuda, Tsutomu; Aizawa, Hideyuki; and Kimura, Takeshi, to Toray Industries, Inc. Process for preparing amino schiff base or corresponding diamino ketone. 4,271,318, Cl. 564-468.000.

Severson, Verne L.; and Tomfohrde, Charles E., to Data 100 Corporation. Coaxial cable switching circuit. 4,271,403, Cl. 340-147.00C.

Shackle, Peter W.: *See*—
Hartman, Adrian R.; Scott, Robert S.; and Shackle, Peter W., 4,271,445, Cl. 361-56.000.

Shaffer, Robert W.; and Morse, Henry W., to Ingersoll-Rand Company. Unloading means for a gas compressor. 4,270,885, Cl. 417-279.000.

Shah, Nipun M., to Rohm and Haas Company. Process for the continuous polymerization of polyethylene terephthalate in the solid phase. 4,271,287, Cl. 528-272.000.

Shalganova, Valeria G.: *See*—
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Shamrai, Gennady F.: *See*—
Glushko, Mikhail F.; Skalatsky, Viktor K.; Zakhryamin, Anatoly D.; and Shamrai, Gennady F., 4,270,341, Cl. 57-215.000.

Sharlow, Roger C., to Liquid Paper Corporation. Typewriter ribbon spool core shaft adapter. 4,270,707, Cl. 242-56.900.

Sharp Kabushiki Kaisha: *See*—
Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.
Tanaka, Shinichi, 4,271,404, Cl. 340-365.00S.

Shatalov, Valentin P.: *See*—
Judin, Viktor P.; Shatalov, Valentin P.; Kovtunenko, Leonid V.; Shalganova, Valeria G.; Kashkina, Nadezhda K.; Mistjukova, Lidia N.; Semenova, Neonila M.; Korbanova, Zinaida N.; Mitin, Ivan P.; Moiseev, Vladimir V.; and Kosovtsev, Vladimir V., 4,271,282, Cl. 526-174.000.

Sheber, Thomas F. Embossed concrete building panels and method. 4,271,111, Cl. 264-71.000.

Shelestak, Larry J.: *See*—
Amrhein, Alan G.; Hammel, Joseph J.; and Shelestak, Larry J., 4,270,945, Cl. 65-99.00A.

Shell Oil Company: *See*—
Haynes, George R., 4,271,185, Cl. 424-285.000.
Keasling, Hugh H., 4,271,195, Cl. 424-330.000.

Shellenberger, Richard H., to SHS Research Labs, Inc. Manual belt electro-optical control. 4,271,354, Cl. 250-211.00K.

Shephard, Donald L., to Shephard, Helen I., a part interest. Fluted tool. 4,270,418, Cl. 81-90.00D.

Shephard, Helen I.: *See*—
Shephard, Donald L., 4,270,418, Cl. 81-90.00D.

Sherman, Richard H.: *See*—
Gable, Melvin G.; Sherman, Richard H.; and Jeyabalan, Vadivelu, 4,271,507, Cl. 370-94.000.

Sherry, Howard S.: *See*—
Oleck, Stephen M.; Sherry, Howard S.; Fischer, Ronald H.; and Milstein, Donald, 4,271,042, Cl. 252-439.000.

Sherwood Medical Industries Inc.: *See*—
Brownell, Richard G., 4,270,778, Cl. 285-305.000.

Shibuya, Takahiro: *See*—
Maejima, Hiroshi; Fujimura, Noriaki; Shibuya, Takahiro; and Akagi, Shigeyuki, 4,271,513, Cl. 371-22.000.

Shida, Masaharu; Toriswa, Akira; Ueda, Makoto; Masdai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, to Kabushiki Kaisha Daini Seikosha. Electronic watch. 4,271,496, Cl. 368-80.000.

Shima, Takeshi: *See*—
Torii, Ken-Ichi; and Shima, Takeshi, 4,271,531, Cl. 455-182.000.

Shimada, Hiroaki, to Kotobuki Sangyo Kabushiki Kaisha. Twist roller guide device for rolling mill use. 4,270,376, Cl. 72-231.000.

Shimano Industrial Company, Limited: *See*—
Nagano, Masashi, 4,270,402, Cl. 74-473.00R.
Watarai, Etsuyoshi, 4,270,481, Cl. 116-28.100.

Shimatani, Shirou; Orita, Ryohji; and Obokata, Tsuneo, to Mitsui Engineering & Shipbuilding Co., Ltd. Machine for underwater painting. 4,270,484, Cl. 118-305.000.

Shimizu, Akira: *See*—
Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masaji; Shimizu, Akira; and Kasuga, Muneo, 4,270,860, Cl. 355-14.00R.

Shimizu, Hiromichi, to Daiwa Can Company, Limited. Method for coating a cylindrical can body. 4,271,216, Cl. 427-428.000.

Shimizu, Masayuki: *See*—
Tomura, Yasushi; Sakuma, Fujio; Suzuki, Seiji; and Shimizu, Masayuki, 4,271,280, Cl. 526-65.000.

Shimizu, Shigeki; and Ide, Hiroshi, to Mitsubishi Chemical Industries Limited. Developer composition for lithographic printing plates. 4,271,261, Cl. 430-325.000.

Shimizu, Toshio; Ichinose, Susumu; and Ooba, Yuji, to Nippon Telegraph and Telephone Public Corporation. Slit type ink recording apparatus. 4,271,416, Cl. 346-140.00R.

Shimojima, Kiyoshi: *See*—
Hirato, Motoshiro; Kawagoe, Hazime; Abe, Kazuo; Sato, Tsuyoshi; Miyake, Yasuhiko; Nagai, Masahiro; Furuichi, Katsuhisa; and Shimojima, Kiyoshi, 4,270,373, Cl. 72-41.000.

Shimotsuma, Teruo; Kunioka, Kazuo; Nishio, Hiroshi; and Okuyama, Yasuo, to Nippon Kokan Kabushiki Kaisha. Method for recovering and utilizing heat of coke-oven gas. 4,270,980, Cl. 201-28.000.

Shin-Etsu Chemical Co. Ltd.: *See*—
Cho, Kenji; Takamizawa, Minoru; and Inoue, Yoshio, 4,271,255, Cl. 430-253.000.

Shinjo, Goro: *See*—
Yamaguchi, Takashi; Shinjo, Goro; and Okuno, Yoshitoshi, 4,271,180, Cl. 424-274.000.

Shinshu Seiki Kabushiki Kaisha: *See*—
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Tezuka, Chikao; and Mikoshiba, Hitoshi, 4,270,448, Cl. 101-99.000.

Shionogi & Co., Ltd.: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
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Shiozaki, Shigeru: *See*—
Mitsuishi, Yukio; Shiozaki, Shigeru; and Hasegawa, Kinji, 4,270,308, Cl. 47-17.000.

Shiraiwa, Toshio; Yamaguchi, Hisao; Matsumoto, Shigeaki; Tomabechi, Masatoshi; and Nakajima, Kimio, to Sumitomo Metal Industries Limited. Method and apparatus for the automatic ultrasonic flaw detection. 4,270,389, Cl. 73-612.000.

Shirato, Takeshi, to Mitsui Engineering & Shipbuilding Co., Ltd. Method and apparatus for recovery of energy from blast furnace exhaust gas. 4,270,343, Cl. 60-39.050.

Shirokov, Alexandr A.: *See*—
Popov, Alexandr D.; Solomin, Vladimir A.; Khantimirov, Sergei S.; and Shirokov, Alexandr A., 4,271,367, Cl. 310-13.000.

Shitrai, Arie, to Israel Aircraft Industries Limited. Electrical slip ring and brush ring assembly. 4,271,336, Cl. 200-24.000.

Shmizu, Yoshiaki: *See*—
Watanabe, Katsuyuki; Hayashi, Tadatoshi; Hayashi, Hiroaki, deceased; Hayashi, Atsuko, heir; Hayashi, Yuko, heir; Tatano, Toshio; and Shmizu, Yoshiaki, 4,271,310, Cl. 560-71.000.

Shop-Vac Corporation: *See*—
Berfield, Robert C., 4,270,668, Cl. 220-324.000.

Shore, David: *See*—
Lintonbon, Robert F.; and Shore, David, 4,270,884, Cl. 417-15.000.

Shreve, James S., to United States of America, Army. Null mask. 4,271,413, Cl. 343-100.05A.

SHS Research Labs, Inc.: *See*—
Shellenberger, Richard H., 4,271,354, Cl. 250-211.00K.

Shure Brothers, Inc.: *See*—
Kehl, Joseph D., 4,270,758, Cl. 369-170.000.

Shy, James L.; and Hess, Paul D., to Allis-Chalmers Corporation. Suspension preheater. 4,270,900, Cl. 432-58.000.

Siegal, Burton L.: *See*—
Gill, Bernard J.; Siegal, Burton L.; and Goettsche, Randy P., 4,270,454, Cl. 101-348.000.

Siekmeier, David A.; Andersen, Glen L.; Zimmerer, Arthur L., deceased; by First National Bank & Trust Co., joint executor; by Zimmerer, Bernadette, joint executor; and Zimmerer, William P. Laterally mobile irrigation system. 4,270,699, Cl. 239-184.000.

Siemens Aktiengesellschaft: *See*—
Birzele, Paul; and Geitz, Gerhard, 4,271,518, Cl. 371-37.000.
Bradler, Peter; and Stepina, Jaroslav, 4,271,380, Cl. 318-245.000.
Fink, Helmuth; and Van der Gucht, Karel, 4,271,478, Cl. 364-580.000.
Franetzki, Manfred; Gagneur, Klaus; and Prestele, Karl, 4,270,532, Cl. 128-213.00R.
Geldner, Ernst; Friedel, Rudolf; and Haberrecker, Klaus, 4,271,372, Cl. 313-330.000.
Heinzl, Joachim, 4,270,589, Cl. 150-0.500.
Herbst, Heiner, 4,271,428, Cl. 358-54.000.
Herbst, Heiner, 4,271,429, Cl. 358-54.000.
Hoffmann, Kurt; and Zapf, Karl, 4,271,461, Cl. 363-60.000.
Krauss, Karl-Heinz, 4,271,517, Cl. 371-37.000.
MacMillan, Richard W., 4,271,464, Cl. 364-200.000.
Schenk, Erwin, 4,271,308, Cl. 370-106.000.
Speeter, Winfried, 4,271,124, Cl. 422-68.000.
Weisse, Hans-Jorg, 4,270,264, Cl. 29-599.000.

Sifco Industries, Inc.: *See*—
Smith, Gary W., 4,270,986, Cl. 204-48.000.

Sigma Instruments, Inc: *See*—
Beling, Thomas E.; and Bric, Leopold, 4,271,384, Cl. 318-685.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-6-hydroxy-7a-homo-PGI$_1$ compounds. 4,271,077, Cl. 260-345.200.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-6,9α-epoxymethano-PGF compounds. 4,271,078, Cl. 260-345.200.

Sih, John C., to Upjohn Company, The. 2-Decarboxy-2-tetrazolyl-19-keto-PG compounds. 4,271,292, Cl. 542-429.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-cis-4,5-didehydro-13,14-dihydro-PG$_1$ analogs. 4,271,313, Cl. 560-121.000.

Simon, Wolfgang: *See*—
Marschollek, Michael; Simon, Wolfgang; and Walter, Carl, 4,271,126, Cl. 422-143.000.

Simonsen, Michael G.: *See*—
Curry, Robert E.; Simonsen, Michael G.; and Schwartz, Eric D., 4,271,123, Cl. 422-64.000.

Simpson, David A.: *See*—
Brealow, David S.; and Simpson, David A., 4,271,259, Cl. 430-286.000.

Simpson, Ronald R. Intruder alarm system. 4,271,491, Cl. 367-136.000.

Sindlinger, Ronald E.: *See*—
Armstrong, Donald E.; Sindlinger, Ronald E.; and Harvey, William J., 4,270,897, Cl. 431-362.000.

Singer, Alfred R. E.; and Evans, Russell W., to National Research Development Corporation. Method and apparatus for measuring strength characteristics. 4,270,383, Cl. 73-82.000.

Singer Company, The: *See*—
Brienza, Michael J., 4,270,473, Cl. 112-158.00E.
Hoffman, Jay, 4,270,387, Cl. 73-504.000.
Krupick, Walter J., 4,270,392, Cl. 74-5.00F.
Sistare, James R., 4,271,342, Cl. 200-157.000.
Stiles, John C.; and Elbert, Hubert F., 4,271,397, Cl. 331-94.50C.

Singer, Richard M.; and Seidl, Charles H., to Kane Manufacturing Corporation. Security screen. 4,270,333, Cl. 52-818.000.

Siryj, Bohdan W.; and Gilson, Alan P., to RCA Corporation. Optical disc player system. 4,271,489, Cl. 369-38.000.

Sistare, James R., to Singer Company, The. Lock-on trigger switch with integral return spring. 4,271,342, Cl. 200-157.000.

Skalatsky, Viktor K.: *See*—
Glushko, Mikhail F.; Skalatsky, Viktor K.; Zakhryamin, Anatoly D.; and Shamrai, Gennady F., 4,270,341, Cl. 57-215.000.

Skellings, Edmund. Color language teaching method and display and process for creating the display. 4,270,284, Cl. 434-156.000.

SKF Kugellagerfabriken GmbH: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, 4,270,815, Cl. 308-213.000.

Skinner, Robert T. J., to Lucas Industries Limited. Fife couplings. 4,270,886, Cl. 417-462.000.

Skol Brouwerijen N.V.: *See*—
van Lieshout, Marinus W., 4,270,584, Cl. 141-11.000.

Skura, Martin C. Metal working tool. 4,270,276, Cl. 33-189.000.

Slovenkai, Stephen V.: *See*—
Kelley, Donald J.; Williams, David J.; and Slovenkai, Stephen V., 4,271,281, Cl. 526-80.000.

Smid, Joost: *See*—
Luijten, Walterus J. Th. H.; and Smid, Joost, 4,270,882, Cl. 415-72.000.

Smirnov, Anatoly V.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Smith, Anthony J., to Racal Automation Limited. Automatic testing of electrical circuitry. 4,271,516, Cl. 371-25.000.

Smith, Donald W.: *See*—
Swisher, George W., Jr.; Smith, Donald W.; and Teel, Larry W., 4,270,801, Cl. 299-1.000.

Smith, Gary W., to Sifco Industries, Inc. Method for soldering aluminum. 4,270,986, Cl. 204-48.000.

Smith Kline & French Laboratories Limited: *See*—
Durant, Graham J.; and Gemellin, Charon R., 4,271,169, Cl. 424-263.000.

Smith, Paul: *See*—
Warner, Percival E.; Smith, Paul; and Cadle, Terence M., 4,271,239, Cl. 428-547.000.

Smith, Robert L. Roving brake. 4,270,686, Cl. 226-195.000.

Smith, Tony S.: *See*—
Braithwaite, Albert A.; and Smith, Tony S., 4,271,238, Cl. 428-542.000.

Societe Anonyme Francaise Du Ferodo: *See*—
Beccaris, Carlo, 4,270,645, Cl. 192-106.100.
Billet, Rene, 4,270,644, Cl. 192-106.200.

Societe d'Assistance Technique pour Produits Nestle S.A.: *See*—
Stenne, Pierre, 4,271,201, Cl. 426-40.000.

Societe de Diffusion NEIMAN: *See*—
Neiman, Michel, 4,270,667, Cl. 220-86.00R.

Sofer, Nancy C. Flush-fitting toy building blocks. 4,270,304, Cl. 46-28.000.

Sohreyer, Gerd: *See*—
Hentschel, Klaus; Bittner, Friedrich; and Sohreyer, Gerd, 4,271,298, Cl. 544-190.000.

Solartron Electronic Group Limited, The: *See*—
Outram, Stephen H.; and Luckhurst, Geoffrey A., 4,271,392, Cl. 324-115.000.

Solomin, Vladimir A.: *See*—
Popov, Alexandr D.; Solomin, Vladimir A.; Khantimirov, Sergei S.; and Shirokov, Alexandr A., 4,271,367, Cl. 310-13.000.

Someya, Sinzo: *See*—
Takahashi, Ryobei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,270,948, Cl. 71-100.000.

Sonoco Products Company: *See*—
Fletcher, Wade D.; McMahon, Edward H.; and Grady, Dwight D., 4,270,475, Cl. 113-120.00R.

Sosoda, Hiromu: *See*—
Sagihara, Taizo; and Sosoda, Hiromu, 4,270,962, Cl. 156-180.000.

Sony Corporation: *See*—
Suzuki, Tadahiko; Miyazaka, Tomoaki; and Amano, Toshio, 4,271,432, Cl. 358-190.000.
Tanimura, Ken; and Onodera, Toshio, 4,271,463, Cl. 363-126.000.

Sorensen, Ronald L.; and Whitfield, Dwight, to Lake Center Industries. Door lock actuator. 4,270,783, Cl. 292-336.300.

Soubrada, Frank; and Galvez, Buenaventura B., to Gulf Canada Limited. Method and apparatus for the prevention of solids deposits in a tubular reactor by pulsed flow. 4,271,007, Cl. 208-48.00R.

Southard, James S.; and Bean, Eric R., to Kimball International, Inc. Glide circuit for electronic musical instrument. 4,270,431, Cl. 84-1.240.

Spademan, Richard G. Step-in ski binding. 4,270,770, Cl. 280-634.000.

Span Instruments, Inc.: *See*—
Gray, Tommy L., 4,270,568, Cl. 137-498.000.

Spanswick, James: *See*—
Knickmeyer, William W.; Spanswick, James; and Stephens, James R., 4,271,311, Cl. 560-96.000.

Spasojevic, Ratko. Mobile vending booth. 4,270,319, Cl. 52-36.000.

Spector, Dov; and Spector, Yechiel. Fire and explosion detection and suppression system. 4,270,613, Cl. 169-61.000.

Spector, George: *See*—
Morales, Juan C.; and Spector, George, 4,270,526, Cl. 128-67.000.

Spector, Marshall L.: *See*—
Chen, Michael S.; Greskovich, Eugene J.; and Spector, Marshall L., 4,271,026, Cl. 210-605.000.

Spector, Yechiel: *See*—
Spector, Dov; and Spector, Yechiel, 4,270,613, Cl. 169-61.000.

Speedfam Corporation: *See*—
Cusa, Joseph V., 4,270,314, Cl. 51-131.400.

Speeter, Winfried, to Siemens Aktiengesellschaft. Non-dispersive infrared gas analyzer for testing gases containing water-vapor. 4,271,124, Cl. 422-68.000.

Spencer, Patricia J.; DeRoeck, Carrie P.; and DeRoeck, Robert L. Flour sifter. 4,271,011, Cl. 209-236.000.

Spener, Gerhard: *See*—
Hrovat, Milos; and Spener, Gerhard, 4,271,101, Cl. 264-0.500.

Sperry Corporation: *See*—
Halls, Lawreance M., 4,270,338, Cl. 56-14.400.
Hewitt, Frederick G., 4,270,862, Cl. 356-5.000.

Spin-O-Magic, Inc.: *See*—
Boucon, Joe B.; and Donnelly, James E., 4,270,340, Cl. 57-75.000.

Spisak, Edward G. Wheel and hub cap assembly. 4,270,805, Cl. 301-37.01P.

Spooner, Leonard: *See*—
Vink, Walter; Spooner, Leonard; and Mackay, Donald A. M., 4,270,956, Cl. 127-29.000.

Spranger, Roy C.: *See*—
Matthiesen, John N.; and Spranger, Roy C., 4,270,792, Cl. 296-93.000.

Square D Company: *See*—
Carroll, James C.; Chapman, Donald L.; and McGoldrick, Gilbert A., 4,270,318, Cl. 52-1.000.

Stahl, Peter: *See*—
Deneke, Ulfert; Stahl, Peter; and Schneider, Walter, 4,271,265, Cl. 435-16.000.

Stahle, Helmut; Koppe, Herbert; Kummer, Werner; Arndts, Dietrich; Kohlsager, Walter; Lillie, Christian; and Pichler, Ludwig, to Boehringer Ingelheim GmbH. Method of using 2-[N-(2,6-dichloro-phenyl)-N-allyl-amino]-2-imidazoline and salts thereof as antihypertensives. 4,271,175, Cl. 424-273.00R.

Standard Oil Company: *See*—
Grasselli, Robert K.; and Suresh, Dev D., 4,271,091, Cl. 564-309.000.
Pesa, Frederick A.; and Haase, Thomas A., 4,271,088, Cl. 252-428.000.

Standard Oil Company (Indiana): *See*—
Knickmeyer, William W.; Spanswick, James; and Stephens, James R., 4,271,311, Cl. 560-86.000.
Zimmerschied, Wilford J.; and Meyer, Delbert H., 4,271,312, Cl. 560-93.000.

Stanfield, John N.: *See*—
Noensie, Nick; Stanfield, John N.; and Pettersen, Paal, 4,270,775, Cl. 285-24.000.

Stanley Electric Co., Ltd.: *See*—
Teshima, Toru; Nishizawa, Jun-ichi; and Kishi, Yasunori, 4,271,408, Cl. 340-702.000.

Star Paper Tube, Inc.: *See*—
McSwiney, Thomas L.; Bomar, George S.; and Johnson, Oran W., 4,270,443, Cl. 493-287.000.

Star Systems, Inc.: *See*—
Steber, George R., 4,271,431, Cl. 358-140.000.

Stark, Virgil, to North American Utility Construction Corp. Solar distillation apparatus. 4,270,981, Cl. 202-172.000.

Stark, William A.: *See*—
Blackburn, Wayne E.; Liston, Max D.; and Stark, William A., 4,270,564, Cl. 137-240.000.

Statz, Robert J.; and Doty, James K., to Du Pont de Nemours, E. I., and Company. Catalyst and dehydrogenation process. 4,271,039, Cl. 252-435.000.

Staudacher, Frank: *See*—
Stemme, Otto; Staudacher, Frank; Lermann, Peter; and Wagensonner, Eduard, 4,270,854, Cl. 354-76.000.

Stauffer Chemical Company: *See*—
Gutman, Arnold D., 4,270,946, Cl. 71-94.000.
Gutman, Arnold D., 4,270,947, Cl. 71-98.000.
Pitt, Harold M., 4,271,325, Cl. 570-228.000.

Steber, George R., to Star Systems, Inc. Scan converter utilizing discrete differentially coded signals. 4,271,431, Cl. 358-140.000.

Steffen, Dale A.; Sturm, Ronald E.; and Rinard, George A., to University Patents, Inc. Vital signs monitoring system. 4,270,547, Cl. 128-671.000.

Steigerwald, Wolf-Erhard; Ambros, Peter; and Geyer, Hermann. Electrically conductive layer and method for its production. 4,271,045, Cl. 252-511.000.

Stemme, Otto; Staudacher, Frank; Lermann, Peter; and Wagensonner, Eduard, to AGFA-Gevaert, A.G. Photographic instant camera with magnetic recording capability. 4,270,854, Cl. 354-76.000.

Stendel, Wilhelm: *See*—
Forster, Heinz; Fuchs, Rainer; Hammann, Ingeborg; and Stendel, Wilhelm, 4,271,186, Cl. 424-304.000.

Stengle, Edward J., to Owens-Illinois, Inc. Method of coating hot glass contacting surfaces. 4,271,212, Cl. 427-203.000.

Stenne, Pierre, to Societe d'Assistance Technique pour Produits Nestle S.A. Manufacture of cheeses. 4,271,201, Cl. 426-40.000.

Stenz, Paul P.: *See*—
Kordt, Hans-Herbert; and Stenz, Paul P., 4,270,835, Cl. 339-198.0GA.

Stenzel, Kurt H.: *See*—
Miyata, Teruo; Rubin, Albert L.; and Stenzel, Kurt H., 4,271,070, Cl. 260-123.700.

Stephens, James R.: *See*—
Knickmeyer, William W.; Spanswick, James; and Stephens, James R., 4,271,311, Cl. 560-86.000.

Stephens, Richard B., to Exxon Research and Engineering Company. Fluid optical switch for a solar collector. 4,270,517, Cl. 126-422.000.

Stepina, Jaroslav: *See*—
Bradler, Peter; and Stepina, Jaroslav, 4,271,380, Cl. 318-245.000.

Sterling Drug Inc.: *See*—
Lesher, George Y.; and Opalka, Chester J., Jr., 4,271,168, Cl. 424-263.000.

Stern, Eric W.: *See*—
Amundsen, Alan R.; and Stern, Eric W., 4,271,085, Cl. 260-429.00R.

Stern, Harold J.: *See*—
Perovetz, Lawrence M.; and Stern, Harold J., 4,270,932, Cl. 51-293.000.

Steven Baggeren V.V.: *See*—
Post, Adrianus J., 4,270,877, Cl. 405-198.000.

Steven Manufacturing Company: *See*—
Klawitter, Ronald R., 4,270,306, Cl. 46-248.000.

Stevens, Albert: *See*—
McMullan, James P.; and Stevens, Albert, 4,270,820, Cl. 312-242.000.

Stewart, David B.; Stewart, William R.; and Dickinson, John M. C., to Wm. R. Stewart & Sons (Hacklemakers) Ltd. Lag or stave assembly for Kirschner beaters. 4,270,245, Cl. 19-85.000.

Stewart, Lloyd W.: *See*—
Xanthopoulos, Piritheos G.; and Stewart, Lloyd W., 4,270,303, Cl. 46-25.000.

Stewart, William R.: *See*—
Kastura, John L.; and Stewart, William R., 4,271,402, Cl. 340-52.00F.
Stewart, David B.; Stewart, William R.; and Dickinson, John M. C., 4,270,245, Cl. 19-85.000.

Stichting Bouwcentrum: *See*—
van Heel, Joannes M., 4,270,523, Cl. 126-435.000.

Stiles, John C.; and Elbert, Hubert F., to Singer Company, The. Nonreciprocal phase shifter for a ring laser gyro. 4,271,397, Cl. 331-94.50C.

Stillwagon, Roy E., to United States of America, Energy. Homopolar machine for reversible energy storage and transfer systems. 4,271,369, Cl. 310-178.000.

Stockwell, Dean A.: *See*—
Cheselka, Harry; Nemecek, William F.; and Stockwell, Dean A., 4,271,479, Cl. 364-900.000.

Stone, Leonard R.; Aron, Steven J., Jr.; and Kemmerling, Robert A., to Republic Steel Corporation. Method and apparatus for detecting a distant object using gamma radiation. 4,271,362, Cl. 250-496.000.

Storage Technology Corporation: *See*—
Hall, James B., 4,271,519, Cl. 371-38.000.

Storck, Glenn E., to Thomas & Betts Corporation. Reinforced electrical connector junction means. 4,270,833, Cl. 339-121.000.

Stork, Gilbert: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.

Stout Industries, Inc.: *See*—
Eckberg, Keith S., II, 4,270,292, Cl. 40-611.000.

Stover, Carole S.; Compton, Leslie E.; and Youngerman, Eugene G., to Occidental Research Corporation. Method for reducing the nitrogen content of shale oil. 4,271,009, Cl. 208-254.00R.

Straight, Larry A. Portable wire puller. 4,270,734, Cl. 254-134.30R.

Strammello, Peter, Jr., to Zenith Radio Corporation. Tunable resonant circuits for a multi-band VHF/UHF/CATV tuner. 4,271,529, Cl. 455-180.000.

Strandas, Lars O.: *See*—
Beijer, Per A. O.; and Strandas, Lars O., 4,270,412, Cl. 74-801.000.

Strassle, Rudolf; and Zaugg, Hans, to Hoffmann-La Roche Inc. Control plasma. 4,271,122, Cl. 422-61.000.

Strelow, Edgar. Reverser apparatus for tennis rackets. 4,270,752, Cl. 273-73.00A.

Strickler, Rainer: *See*—
Oppenlaender, Knut; Strickler, Rainer; Perner, Johannes; and Trieselt, Wolfgang, 4,271,031, Cl. 252-156.000.

Strickman, Melvyn B.: *See*—
Strickman, Robert L.; and Strickman, Melvyn B., 4,271,272, Cl. 521-110.000.

Strickman, Robert L.; and Strickman, Melvyn B. Polyurethane sponges manufactured with additive dispersed therein. 4,271,272, Cl. 521-110.000.

Strohschneider, Heinz F., to Dymo Industries Inc. Bidirectional imprinter. 4,270,453, Cl. 101-269.000.

Struessel, David A., to United States of America, Navy. Self-restricting shutoff valve. 4,270,566, Cl. 137-492.500.

Stubbings, James H., to Potomac Applied Mechanics, Inc. Apparatus for bundling and banding a stack of objects. 4,270,445, Cl. 100-4.000.

Sturm, Ronald E.: *See*—
Steffen, Dale A.; Sturm, Ronald E.; and Rinard, George A., 4,270,547, Cl. 128-671.000.

Sturman, Oded E.; and Grill, Benjamin, to Hydronic Systems, Inc. Controller for fluid flow systems. 4,270,573, Cl. 137-624.200.

Stutz Motor Car of America, Inc.: *See*—
Curotto, Richard L., 4,270,790, Cl. 296-37.160.

Sudakov, Jury I.: *See*—
Ljubimov, Boris A.; Chervyakov, Evgeny N.; Sudakov, Jury I.; Pogorelova, Iraida S.; Pritsker, Petr Y.; Kandrusev, Igor I.; and Liberfarb, Zilek B., 4,270,349, Cl. 60-384.000.

Suddeutsche Kalkstickstoff-Werke Aktiengesellschaft: *See*—
Aignesberger, Alois; Lukas, Walter; and Weinberg, Ekkehard, 4,270,954, Cl. 106-47.00R.

Suddeutsche Kuhlerfabrik Julius Fr. Behr GmbH & Co. KG: *See*—
Nonnenmann, Manfred; and Hummel, Werner, 4,270,641, Cl. 192-82.00T.

Suderman, Donald A.: *See*—
Johnston, David K.; and Suderman, Donald A., 4,270,551, Cl. 130-27.00H.

Sugihara, Taizo; and Sonoda, Hiromu, to Chisso Corporation. Process and apparatus for the preparation of bar form fibrous molding. 4,270,962, Cl. 156-180.000.

Sugimoto, Kenichi: *See*—
Asano, Makoto; Kawashima, Saburo; Sugimoto, Kenichi; and Kobayashi, Tadashi, 4,271,059, Cl. 260-31.20T.

Sugiura, Muneharu: *See*—
Minoura, Kazuo; Sugiura, Muneharu; Minami, Setsuo; and Sato, Tadashi, 4,270,858, Cl. 355-8.000.

Sugiura, Takeo: *See*—
Ito, Yoshiyashu; Sugiura, Takeo; and Sawada, Yoshikatsu, 4,270,449, Cl. 101-129.000.

Sugiyama, Akira: *See*—
Minohara, Kiyomi; Sugiyama, Akira; Nakai, Hiroshi; Iida, Masajiro; Morimatsu, Hideharu; and Kobayashi, Yuzo, 4,271,490, Cl. 367-122.000.

Sugiyama, Masahiko: *See*—
Ishii, Shinya; Saito, Takaharu; Sugiyama, Masahiko; and Kamo, Takashi, 4,270,691, Cl. 228-194.000.

Suh, Sang K.; and Hall, Daniel W., to Ford Motor Company. Sintering of costed briquette. 4,270,951, Cl. 75-200.000.

Suhara, Manabu; Goto, Shoziro; and Arai, Kiyotaka, to Asahi Glass Company, Ltd. Cation exchange membrane of fluorinated polymer for electrolysis and electrolysis using the membrane. 4,270,996, Cl. 204-98.000.

Sullivan, Robert G.: *See*—
Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., 4,270,876, Cl. 405-133.000.

Sullivan, Thomas J., to Fisons Limited. Method of treating atopic eczema. 4,271,182, Cl. 424-283.000.

Sullivan, William E.; Meetze, O. Murray, Jr.; and Seager, Richard H., to Riadon Enterprises, Inc. Apparatus for inducing air flow past a product capable of being vaporized. 4,271,092, Cl. 261-30.000.

Sulzer, Ernst. Picture frames. 4,270,288, Cl. 40-156.000.

Sumitomo Chemical Company, Limited: *See*—
Tomura, Yasushi; Sakuma, Fujio; Suzuki, Seiji; and Shimizu, Masayuki, 4,271,280, Cl. 526-65.000.
Yamaguchi, Takashi; Shinjo, Goro; and Okuno, Yoshitoshi, 4,271,180, Cl. 424-274.000.

Sumitomo Electric Industries, Ltd.: *See*—
Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yamanishi, Toru, 4,270,840, Cl. 350-96.340.

Sumitomo Metal Industries Limited: *See*—
Shiraiwa, Toshio; Yamaguchi, Hisao; Matsumoto, Shigeaki; Tomabechi, Masatoshi; and Nakajima, Kimio, 4,270,389, Cl. 73-612.000.

Sumitomo Nangatuck Co., Ltd.: *See*—
Sakano, Hajime; Nakai, Fumio; and Tomari, Yukio, 4,271,230, Cl. 428-315.000.

Sumitomo Precision Products Co. Ltd.: *See*—
Nakamura, Masakazu, 4,270,604, Cl. 165-185.000.

Sun, Jui-Yuan: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Baillie, Lloyd A., 4,270,926, Cl. 44-1.0SR.
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., 4,270,927, Cl. 44-1.0SR.

Sun Sports Yohin Co., Ltd.: *See*—
Ehama, Goro, 4,270,511, Cl. 124-81.000.

Sunbeam Corporation: *See*—
Crowley, George C., 4,271,350, Cl. 219-549.000.

Sunohara, Yoshio; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Lock-up control system for a torque converter including a timing arrangement. 4,270,636, Cl. 192-3.310.

Suntech, Inc.: *See*—
Butte, Walter A., Jr.; and Cherry, Wesley R., 4,271,088, Cl. 260-465.600.
Butte, Walter A., Jr.; and Cherry, Wesley R., 4,271,089, Cl. 260-465.600.

Sunworks, Inc.: *See*—
Hopper, Thomas P.; and Barber, Everett M., Jr., 4,270,516, Cl. 126-417.000.

Supp, Emil; Jockel, Heinz; Cornelius, Gerhard; and Marschner, Friedmann, to Metallgesellschaft Aktiengesellschaft. Production of methanol. 4,271,086, Cl. 518-704.000.

Suresh, Dev D.: *See*—
Grasselli, Robert K.; and Suresh, Dev D., 4,271,091, Cl. 564-305.000.

Susquehanna Broadcasting Company: *See*—
Beckman, Glenn B., 4,270,666, Cl. 215-364.000.

Sutton Laboratories, Inc.: *See*—
Berke, Philip A.; and Rosen, William E., 4,271,176, Cl. 424-273.00R.

Suzuki, Hideto; Hayashi, Shunichi; and Yoshioka, Takahiro, to Nitto Electric Industrial Co., Ltd. Epoxy resin compositions for sealing semiconductors. 4,271,061, Cl. 260-37.0EP.

Suzuki, Hiroshi: *See*—
Nakane, Masanori; Osumi, Yasuaki; Suzuki, Hiroshi; and Kato, Aakihiko, 4,270,360, Cl. 62-48.000.

Suzuki, Kazuo; Koda, Hirokazu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, to Sharp Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Indication arrangement for use in a sewing machine. 4,270,472, Cl. 112-158.00E.

Suzuki, Ryoichi; Harigaya, Isao; and Uchiyama, Takashi, to Canon Kabushiki Kaisha. Sound device incorporated camera. 4,270,852, Cl. 354-23.00D.

Suzuki, Seiji: *See*—
Tomura, Yasushi; Sakuma, Fujio; Suzuki, Seiji; and Shimizu, Masayuki, 4,271,280, Cl. 526-65.000.

Suzuki, Tadahiko; Miyasaka, Tomoaki; and Amano, Toshio, to Sony Corporation. Power supply control apparatus for a television receiver. 4,271,432, Cl. 358-190.000.

Suzuki, Takao: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,271,224, Cl. 428-207.000.

Suzuki, Yoshiaki: *See*—
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,252, Cl. 430-216.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,271,253, Cl. 430-216.000.

Suzuki, Yuichi; and Sano, Ichiro, to Furukawa Denchi Kabushiki Kaisha; and Furukawa Denki Kogyo Kabushiki Kaisha. Grid base plate for an electrode plate for a storage battery and method of manufacture thereof. 4,271,245, Cl. 429-243.000.

Svenson, Hardy C., to United States of America, Treasury. Method and apparatus for accelerating chemical reactions using a spread beam deflector with single or multiple reflectors. 4,271,347, Cl. 219-121.00L.

Swigert, David L.: *See*—
Kehrman, Robert F.; Farstad, Arnold J.; Gibbons, Michael G.; and Swigert, David L., 4,271,407, Cl. 340-690.000.

Swisher, George W., Jr.; Smith, Donald W.; and Teal, Larry W., to CMI Corporation. Steering and cutter drum positioning in a paved roadway planing machine. 4,270,801, Cl. 299-1.000.

Syntex Inc.: *See*—
Nash, John E., 4,270,903, Cl. 433-165.000.

Szanto, Elmer G.; and Ulrich, Charles J., to Velo-Bind, Inc. Punching and binding machine. 4,270,970, Cl. 156-477.00B.

Szarka, David D.: *See*—
Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., 4,270,608, Cl. 166-278.000.

T. Sendzimir, Inc.: *See*—
Verbickas, Robert C.; and Turley, John W., 4,270,377, Cl. 72-242.000.

Tabuchi, Katsuhiko; Kato, Toshiaki; and Namba, Kenryo, to TDK Electronics Co., Ltd. Silver-silver chloride electrode. 4,270,543, Cl. 128-639.000.

Takahashi, Naoyuki; and Kadota, Toshihiko, to Olympus Optical Co., Ltd. Pantograph mechanism. 4,270,723, Cl. 248-421.000.

Takahashi, Ryohei; Fujikawa, Kenichi; Yokonishi, Isso; Someya, Sinzo; and Sakashita, Nobuyuki, to Ishihara Sangyo Kaisha Ltd. Herbicidal compound, herbicidal composition containing the same, and method of use thereof. 4,270,948, Cl. 71-100.000.

Takahashi, Toru, to Yamaichi Electric Mfg. Co., Ltd. Electric terminal for press-in connection with conductors. 4,270,831, Cl. 339-99.00R.

Takamizawa, Minoru: *See*—
Cho, Kenji; Takamizawa, Minoru; and Inoue, Yoshio, 4,271,255, Cl. 430-253.000.

Takara Co., Ltd.: *See*—
Arigaya, Fujio, 4,270,307, Cl. 46-254.000.

Takashi, Iwata, to TDK Electronics Co., Ltd. Detector for doppler device. 4,271,411, Cl. 343-5.0DD.

Takayama, Akira, to Alps Electric Co., Ltd. Microwave receiver. 4,271,534, Cl. 455-270.000.

Takayama, Yoshihiro: *See*—
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukatsu; and Takayama, Yoshihiro, 4,271,267, Cl. 435-108.000.

Takazawa, Yuzuru; and Nagaoka, Shinji, to Seiko Koki Kabushiki Kaisha. Automatic film sensitivity setting system for camera. 4,270,851, Cl. 354-21.000.

Takeda Chemical Industries, Ltd.: *See*—
Kondo, Koichi; Yoshida, Isamu; and Kobayashi, Takashi, 4,270,923, Cl. 23-230.00B.
Morimoto, Hiroshi; Imada, Isuke; Watanabe, Masazumi; and Kawada, Mitsuru, 4,271,083, Cl. 260-396.00R.

Takeda, Hideichiro: *See*—
Mizuno, Shogo; Suzuki, Takao; Kawasaki, Sadanobu; and Takeda, Hideichiro, 4,271,224, Cl. 428-207.000.

Takeda, Kenjiro: *See*—
Takeda, Masahiro; and Takeda, Kenjiro, 4,270,576, Cl. 137-888.000.

Takeda, Masahiro; and Takeda, Kenjiro. Self-contained fluid jet-mixing apparatus and method therefor. 4,270,576, Cl. 137-888.000.

Takemoto, Takeshi: *See*—
Isayama, Takuro; Takemoto, Takeshi; Sato, Tsutomu; and Fukazawa, Takao, 4,271,366, Cl. 307-591.000.

Takenouchi, Mutsuo; Tomiyama, Shusuke; and Ozawa, Takashi, to Fuji Xerox Co., Ltd. Scanning type readout device. 4,271,435, Cl. 358-213.000.

Takeuchi, Kazumasa: *See*—
Takizawa, Toshiaki; Takeuchi, Kazumasa; and Togo, Takashi, 4,270,845, Cl. 350-299.000.

Taki, Naoko: *See*—
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, 4,271,035, Cl. 252-301.170.

Takizawa, Toshiaki; Takeuchi, Kazumasa; and Togo, Takashi, to Mochida Pharmaceutical Co., Ltd. Laser apparatus for operations. 4,270,845, Cl. 350-299.000.

Talbott, Gene B. Manually propelled apparatus for use in transplanting crops. 4,270,471, Cl. 111-6.000.

Talwar, Gursaran P.: *See*—
Tsong, Yun-Yen; Talwar, Gursaran P.; Koide, Samuel; and Segal, Sheldon J., 4,271,069, Cl. 260-112.50R.

Tamaru, Munetaka; and Hatano, Toshikazu, to Citizen Watch Co., Ltd. Electronic timepiece. 4,271,493, Cl. 368-28.000.

Tamura Kaiken Co., Ltd.: *See*—
Watariguchi, Kiyosumi, 4,271,258, Cl. 430-284.000.

Tamura, Masuhiko: *See*—
Tokitoh, Yasuo; Yoshimura, Noriaki; and Tamura, Masuhiko, 4,271,320, Cl. 568-426.000.

Tanabe, Shigeru. Pin plug. 4,270,832, Cl. 339-105.000.

Tanaka, Itsuya; and Fujii, Toshikazu, to Sanyo Chemical Industries, Ltd. Process for producing polyurethane resins and sheet materials. 4,271,217, Cl. 428-96.000.

Tanaka, Kenji: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.

Tanaka, Shinichi, to Sharp Kabushiki Kaisha. Power supply controller in a keyboard-equipped apparatus such as an electronic calculator. 4,271,404, Cl. 340-365.00S.

Tang, David Y.; and Foster, Arthur M., to Hooker Chemicals & Plastics Corp. Phenyl beta-chloro-alpha-hydroxy-beta-(3-trifluoromethylphenyl)ethyl ketone and process for its production. 4,271,319, Cl. 568-312.000.

Tanimura, Ken; and Onodera, Toshio, to Sony Corporation. High voltage transformer. 4,271,463, Cl. 363-126.000.

Tasa, Robert L. Expansible enclosure. 4,270,791, Cl. 296-171.000.

Tanouchi, Tadao; Kawamura, Masanori; and Hayashi, Masaki, to Ono Pharmaceutical Co., Ltd.; and Kissei Pharmaceutical Co., Ltd. Pyridine derivatives. 4,271,170, Cl. 424-263.000.

Tarantino, Anna: *See*—
Eastes, Walter L.; and Tarantino, Anna, 4,270,944, Cl. 65-27.000.

Tatano, Toshio: *See*—
Watanabe, Katsuyuki; Hayashi, Tadatoshi; Hayashi, Hiroaki, deceased; Hayashi, Atsuko, heir; Hayashi, Yuko, heir; Tatano, Toshio; and Shmizu, Yoshiaki, 4,271,310, Cl. 560-71.000.

Tatham, Walter A.: *See*—
Brown, Carlton E.; and Tatham, Walter A., 4,270,577, Cl. 138-39.000.

TDK Electronics Co., Ltd.: *See*—
Mikame, Yoshio, 4,271,442, Cl. 360-131.000.
Tabuchi, Katsuhiko; Kato, Toshiaki; and Namba, Kenryo, 4,270,543, Cl. 128-639.000.
Takashi, Iwata, 4,271,411, Cl. 343-5.0DD.

Te Ka De, Felten & Guilleaume, Fernmeldeanlagen GmbH: *See*—
Parras, Karlheinz; Bader, Edgar; and Dupont, Helmut, 4,271,514, Cl. 371-22.000.

Techtransfer GmbH: *See*—
Roediger, Hanns E., 4,270,279, Cl. 34-9.000.

Tecnodial, S.P.A.: *See*—
Giovannetti, Sergio; Barsotti, Giuliano; and Donati, Giovanni, 4,271,023, Cl. 210-321.300.

Teel, Larry W.: *See*—
Swisher, George W., Jr.; Smith, Donald W.; and Teel, Larry W., 4,270,801, Cl. 299-1.000.

Teijin Limited: *See*—
Mitsuishi, Yukio; Shiozaki, Shigeru; and Hasegawa, Kinji, 4,270,308, Cl. 47-17.000.

Tektronix, Inc.: *See*—
Dagostino, Thomas P.; and Navarro, Luis J., 4,271,486, Cl. 365-45.000.
Saxe, Charles L., 4,271,488, Cl. 365-230.000.

Teledyne, Inc.: *See*—
Hawk, Charles E.; and Livingston, Danny K., 4,270,386, Cl. 73-204.000.

Telle, Helmut: *See*—
Brinkmann, Uwe; Telle, Helmut; and Raue, Roderich, 4,271,395, Cl. 331-94.50L.

Teller, Aaron J., to Teller Environmental Systems, Inc. Treatment of effluent gases from the manufacture of fertilizer. 4,271,134, Cl. 423-238.000.

Teller Environmental Systems, Inc.: *See*—
Teller, Aaron J., 4,271,134, Cl. 423-238.000.

Tellert, Rudy, to Sachs-Systemtechnik GmbH. Ignition control for better gear shifting in an automotive vehicle. 4,270,414, Cl. 74-852.000.

Tellis, Cyril, to Union Carbide Corporation. Process for removing hydrogen cyanide from gaseous streams. 4,271,133, Cl. 423-230.000.

Temple, Chester S., to PPG Industries, Inc. Sizing composition to yield sized glass fibers with improved UV stability. 4,271,229, Cl. 428-288.000.

Templeton, William B., to Burroughs Corporation. Document packing system. 4,270,747, Cl. 271-179.000.

Tenneco Chemicals, Inc.: *See*—
Feldman, Martin L.; and De Groff, James T., 4,271,065, Cl. 260-40.00R.

Tennison, Stephen R., to British Petroleum Company Limited, The. Process for the production of ammonia. 4,271,136, Cl. 423-362.000.

Terashima, Isamu; Twubaki, Toshio; and Anzai, Masayasu, to Hitachi, Ltd. Developer regulating device in developing apparatus. 4,270,487, Cl. 118-690.000.

Terui, Yasuaki: *See*—
Chikamura, Takao; Ogawa, Kazufumi; Terui, Yasuaki; Fujiwara, Shinji; and Fukai, Masakazu, 4,271,420, Cl. 357-30.000.

Terzian, Berj A. Quadri-balanced digital time displays. 4,271,497, Cl. 368-82.000.

Teshima, Toru; Nishizawa, Jun-ichi; and Kishi, Yasunori, to Stanley Electric Co., Ltd. Colored-light emitting display. 4,271,408, Cl. 340-702.000.

Tesoro, Joseph. Two-way ratchet wrench. 4,270,417, Cl. 81-62.000.

Teulon, Jean M., to Hexachimie. Indane-acetic acid aminoesters, their preparation and their use in therapy. 4,271,161, Cl. 424-250.000.

Texaco Inc.: *See*—
Cardenas, Ricardo L.; Harnsberger, Bobby G.; and Maddox, Jim, Jr., 4,270,607, Cl. 166-273.000.
Kolaian, Jack H.; and Love, Richard F., 4,271,032, Cl. 252-174.190.

Texas Instruments Incorporated: *See*—
Gilden, Sheldon J.; and Robichaud, Robert H., 4,270,544, Cl. 128-640.000.
Hornbeck, Larry J., 4,271,419, Cl. 357-24.000.
Johnson, Elwin L.; Kilby, Jack S.; Lathrop, Jay W.; McFerren, John S.; and Myers, David J., 4,270,263, Cl. 29-590.000.
Kang, S. Daniel, 4,271,423, Cl. 357-55.000.
McElroy, David J., 4,271,421, Cl. 357-41.000.

Textron, Inc.: *See*—
Cresap, Wesley L.; and Myers, Alan W., 4,270,711, Cl. 244-17.170.
Dickinson, Thorn W.; McLarty, Daniel R.; and Lyons, Thomas F., Jr., 4,270,415, Cl. 74-867.000.

Tezuka, Chikao; and Mikoshiba, Hitoshi, to Kabushiki Kaisha Suwa Seikosha; and Shinshu Seiki Kabushiki Kaisha. Printing device. 4,270,448, Cl. 101-99.000.

Th. Goldschmidt AG: *See*—
Bertelmann, Gunter; Holtschmidt, Ulrich; and Laqua, Arnold, 4,271,190, Cl. 424-316.000.

Thaler, Heinrich: *See*—
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.

Tharman, Paul A., to Briggs & Stratton Corporation. Brushless ignition system. 4,270,509, Cl. 123-647.000.

Theriault, Gerald E., to RCA Corporation. SAW Filter preamplifier. 4,271,433, Cl. 358-191.100.

Thesman, Dana F.: *See*—
Feldman, Robert L; and Thesman, Dana F., 4,270,271, Cl. 30-276.000.

Theurer, Josef; and Oellerer, Friedrich, to Franz Plasser Bahnbaumaschinen Industriegesellschaft m.b.H. Mobile apparatus for receiving and laying an assembled track section. 4,270,456, Cl. 104-3.000.

Thexton Manufacturing Company: *See*—
Norcross, Paul D., 4,270,646, Cl. 192-111.00A.
Tichy, Brian N.; and Clark, Robert E., 4,270,259, Cl. 29-402.060.

Think, Inc.: *See*—
Gaetano, Ralph R., 4,270,773, Cl. 283-34.000.

Thomas, Alfred W.; and Danne, Ulrich W., to Girling Limited. Servo boosters for vehicle brake systems. 4,270,353, Cl. 60-547.00R.

Thomas, Alfred W.; and Op den Camp, Lutz E. A., to Lucas Industries Limited. Servo boosters for vehicle braking systems. 4,270,438, Cl. 91-49.000.

Thomas & Betts Corporation: *See*—
Narozny, Ronald S., 4,270,826, Cl. 339-75.0MP.
Storck, Glenn E., 4,270,833, Cl. 339-121.000.
Wilson, Albert H., 4,270,829, Cl. 339-96.000.

Thomas, John C. Arm and leg powered drive system for a vehicle. 4,270,766, Cl. 280-234.000.

Thomas, Lon G. Lost personal accessory return method and article. 4,271,352, Cl. 235-375.000.

Thomas, Robert D. Drill bit bearing. 4,270,812, Cl. 308-8.200.

Thompson, David K., to Jermed Limited. Scalpel blade extractor. 4,270,416, Cl. 81-3.00R.

Thompson, James: *See*—
Wenghoefer, Johann; Messier, Dennis; and Thompson, James, 4,271,072, Cl. 260-207.300.

Thomson-CSF: *See*—
Croset, Michel; and Velasco, Gonzalo, 4,271,000, Cl. 204-195.00S.
Eumurian, Gregoire; and Levan, Jean-Pol, 4,271,503, Cl. 370-74.000.
Van Den Driessche, Michel, 4,271,427, Cl. 358-40.000.

Thurston, George T., to General Electric Company. Improved capacitor lead clips. 4,270,828, Cl. 339-95.00R.

Thyes, Marco; Gries, Josef; Lehmann, Hans D.; Lenke, Dieter; and Kunze, Johannes, to BASF Aktiengesellschaft. Novel 3,4-diaza-bicyclo[4.1.0]hept-2-en-5-ones, their preparation, and therapeutic agents containing these compounds. 4,271,163, Cl. 424-250.000.

Tice, William A. Dual position needle positioner for stitching machines. 4,270,474, Cl. 112-276.000.

Tichy, Brian N.; and Clark, Robert E., to Thexton Manufacturing Company. Method and apparatus for rebuilding advance weights. 4,270,259, Cl. 29-402.060.

Tikhonova, Ljudmila A.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonin P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Tivoli Industries, Inc.: *See*—
George, Benjamin B., Jr., 4,271,458, Cl. 362-236.000.

Tobin, Thomas J.: *See*—
Meister, Otto; and Tobin, Thomas J., 4,271,339, Cl. 200-144.00C.

Togo, Takashi: *See*—
Takizawa, Toshiaki; Takeuchi, Kazumasa; and Togo, Takashi, 4,270,845, Cl. 350-299.000.

Tokico Ltd.: *See*—
Koshimizu, Naganori, 4,270,354, Cl. 60-581.000.

Tokitoh, Yasuo; Yoshimura, Noriaki; and Tamura, Masuhiko, to Kuraray Co., Ltd. Process for producing a higher carbonyl compound. 4,271,320, Cl. 568-426.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Mukai, Kuniaki; and Hyodo, Kouichi, 4,271,387, Cl. 323-241.000.
Oonishi, Toshiyuki; Motoyama, Takeshi; and Hatanaka, Kiyoshi, 4,270,364, Cl. 62-198.000.
Torii, Ken-Ichi; and Shima, Takeshi, 4,271,531, Cl. 455-182.000.

Tolliver, Wilbur E. Concrete pipe reinforcement spacer bar process. 4,270,583, Cl. 140-92.100.

Tolliver, Wilbur E. Flexible pipe joint for non-interengaging pipe sections. 4,270,776, Cl. 285-235.000.

Tomabechi, Masatoshi: *See*—
Shiraiwa, Toshio; Yamaguchi, Hisao; Matsumoto, Shigeaki; Tomabechi, Masatoshi; and Nakajima, Kinsio, 4,270,389, Cl. 73-612.000.

Tomari, Yukio: *See*—
Sakano, Hajime; Nakai, Fumio; and Tomari, Yukio, 4,271,230, Cl. 428-315.000.

Tomfohrde, Charles E.: *See*—
Severson, Verne L.; and Tomfohrde, Charles E., 4,271,403, Cl. 340-147.00C.

Tominaga, Hidemitsu: *See*—
Maeda, Hiroshi; Ariga, Nagao; Oikawa, Hiroshi; and Tominaga, Hidemitsu, 4,271,079, Cl. 260-346.300.

Tomisawa, Setsuo: *See*—
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,271,084, Cl. 260-429.00R.

Tomiyama, Shunsuke: *See*—
Takenouchi, Mutsuo; Tomiyama, Shunsuke; and Ozawa, Takashi, 4,271,435, Cl. 358-213.000.

Tomlinson, Geoffrey E. S., to White-BSA Tools Ltd. Multi-spindle lathes. 4,270,419, Cl. 82-3.000.

Tomlinson, Geoffrey E. S., to White-BSA Tools Ltd. Multi-spindle lathes. 4,270,420, Cl. 82-3.000.

Tomura, Yasushi; Sakuma, Fujio; Suzuki, Seiji; and Shimizu, Masayuki, to Sumitomo Chemical Company, Limited. Process for producing polyethylene. 4,271,280, Cl. 526-65.000.

Tonikian, Dina N.: *See*—
Ragoza, Igor V.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Dina N.; and Tonikian, Robert T., 4,270,368, Cl. 66-13.000.

Tonikian, Robert T.: *See*—
Ragoza, Igor V.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Dina N.; and Tonikian, Robert T., 4,270,368, Cl. 66-13.000.

Toppan Printing Co., Ltd.: *See*—
Ito, Yoshiyashu; Sugiura, Takeo; and Sawada, Yoshikatsu, 4,270,449, Cl. 101-129.000.

Toray Industries, Inc.: *See*—
Setsuda, Tsutomu; Aizawa, Hideyuki; and Kimura, Takeshi, 4,271,318, Cl. 564-468.000.

Torck, Bernard: *See*—
Dang Vu, Quang; Chauvin, Yves; Gaillard, Jean; Torck, Bernard; and Hellin, Michel, 4,270,929, Cl. 44-56.000.

Torii, Ken-Ichi; and Shima, Takeshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Frequency synthesizer. 4,271,531, Cl. 455-182.000.

Torii, Osamu: *See*—
Hashimoto, Yasuyuki; and Torii, Osamu, 4,270,870, Cl. 401-93.000.

Torisawa, Akira: *See*—
Shida, Masaharu; Torisawa, Akira; Ueda, Makoto; Mandai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, 4,271,496, Cl. 368-80.000.

Torr Vacuum Products, Inc.: *See*—
Norman, Arthur E., 4,270,727, Cl. 251-63.400.

Torterotot, Roland M.; and Nasica, Jean R. L. Production of sterile packages. 4,270,965, Cl. 156-244.110.

Toshiba Kikai Kabushiki Kaisha: *See*—
Tsukimoto, Toshiaki, 4,270,567, Cl. 137-493.500.

Toshine, Tatsumi: *See*—
Matsuo, Kohtaro; Kawamura, Satoshi; and Toshine, Tatsumi, 4,271,066, Cl. 260-97.500.

Tourtellotte, Herbert A.: *See*—
Wicks, Ruel E.; and Tourtellotte, Herbert A., 4,270,675, Cl. 222-196.000.

Townsend, Roger, to Redland Roof Tiles Limited. Ridge batten bracket. 4,270,330, Cl. 52-712.000.

Toyo Kogyo Co., Ltd.: *See*—
Harasaki, Hayatsugu; and Imura, Yutaka, 4,270,793, Cl. 296-192.000.
Maeda, Tooru, 4,271,095, Cl. 261-41.00D.

Toyo Seikan Kaisha, Ltd.: *See*—
Kunimoto, Go; and Mori, Fumio, 4,270,665, Cl. 215-347.000.

Toyo Soda Manufacturing Co., Ltd.: *See*—
Saito, Mitsutaka, 4,270,992, Cl. 204-59.00R.

Toyo Suisan Kaisha, Ltd.: *See*—
Kaneko, Yoshio, 4,271,205, Cl. 426-451.000.

Toyoguchi, Yoshinori; Iijima, Takashi; and Fukuda, Masatard, to Matsushita Electric Industrial Co., Ltd. Active material for positive electrode of battery. 4,271,242, Cl. 429-194.000.

Toyohuku, Takashi: *See*—
Ohtsuka, Toshinori; and Toyohuku, Takashi, 4,271,465, Cl. 364-200.000.

Toyoshima, Shigeru: *See*—
Ishikawa, Akira; Ishida, Yukihito; Ikegami, Shiro; Satoh, Hiroshi; Sato, Ryuichi; Tomisawa, Setsuo; and Toyoshima, Shigeru, 4,271,084, Cl. 260-429.00R.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Fukuba, Akio; Morishita, Michio; Tanaka, Kenji; Nishi, Toshinobu; and Ouchi, Hideaki, 4,270,347, Cl. 60-276.000.
Ishii, Shinya; Saito, Takaharu; Sugiyama, Masahiko; and Kamo, Takashi, 4,270,691, Cl. 228-194.000.
Kawai, Hisasi; Ito, Toshimitsu; Sanada, Masakatsu; and Iwase, Kazuo, 4,271,469, Cl. 364-431.000.
Nishimura, Yutaka; and Gamano, Kazuyuki, 4,270,625, Cl. 180-291.000.

Trabitzsch, Hans; Frieser, Josef; Koschik, Achim; and Plainer, Hermann, to Rohm GmbH. Stable aqueous solutions of certain vinyl copolymers. 4,271,058, Cl. 260-29.60M.

Trassy, Christian, to Instruments S.A. Apparatus for producing an aerosol jet. 4,271,100, Cl. 261-78.00A.

Trautwein, Wolfgang, to Lockheed Missiles & Space Company, Inc. Buckle proof wear resistant endless traction band. 4,270,811, Cl. 305-11.000.

Travis, James M. Drive axle for electric vehicle. 4,270,622, Cl. 180-65.00C.

Tri Delta Industries, Inc.: *See*—
Meo, Santino D., 4,271,401, Cl. 340-52.00D.

Trieselt, Wolfgang: *See*—
Oppenlaender, Knut; Strickler, Rainer; Perner, Johannes; and Trieselt, Wolfgang, 4,271,031, Cl. 252-156.000.

Trivedi, Bhupendra C.; Grote, Dace; and Mason, Thomas O., to Ashland Oil, Inc. Liquid-liquid extraction of isobutyric acid from aqueous HF solutions thereof. 4,270,983, Cl. 203-43.000.

Trogan, John F., to C. G. Bretting Mfg. Co. Inc. Tuckers on mechanical folding rolls. 4,270,744, Cl. 493-430.000.

Trogdon, Raymond L., to Owens-Illinois, Inc. Method and apparatus for inspecting objects for defects. 4,270,863, Cl. 356-71.000.

Troncoso, Nestor J.: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., 4,270,927, Cl. 44-1.0SR.

Trueman, James R.: *See*—
Brierley, John M.; Parsons, John S.; Trueman, James R.; and Jones, Robert A., 4,271,030, Cl. 252-98.000.

Trumpf America, Inc.: *See*—
Herb, Eugen; and Leibinger, Berthold, 4,270,253, Cl. 29-26.00A.

Trutzschler GmbH & Co. KG: *See*—
Beneke, Wolfgang, 4,270,246, Cl. 19-113.000.

TRW Inc.: *See*—
Fisher, Charles K., 4,270,777, Cl. 285-242.000.

Tsang, David L.; and Majewicz, Wlodzimierz L, to United Tire & Rubber Co. Limited. Closure mechanism for tire curing press. 4,270,887, Cl. 425-47.000.

Tsao, Tsun-chiu: *See*—
Rowles, Howard C.; and Tsao, Tsun-chiu, 4,270,940, Cl. 62-28.000.

Tse, Patrick S., to Celanese Corporation. Pill-resistant polyester fabrics. 4,270,913, Cl. 8-115.600.

Tsong, Yun-Yen; Talwar, Gursaran P.; Koide, Samuel; and Segal, Sheldon J., to Population Council, Inc. Beta-hCG preparation and method. 4,271,069, Cl. 260-112.50R.

Tsuda, Hiroshi; Miyashita, Kiyoshi; Nishikawa, Masuji; Shimizu, Akira; and Kasuga, Muneo, to Olympus Optical Co., Ltd. Electrophotographic apparatus employing a control assembly for controlling successive duplication of a document. 4,270,860, Cl. 355-14.00R.

Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, to Shionogi & Co., Ltd. Oxazolines. 4,271,295, Cl. 544-182.000.

Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, to Shionogi & Co., Ltd. Oxazolines. 4,271,296, Cl. 544-182.000.

Tsuji, Toshikazu: *See*—
Nanjo, Hirotoshi; and Tsuji, Toshikazu, 4,270,510, Cl. 123-648.000.

Tsukimoto, Toshiaki, to Toshiba Kikai Kabushiki Kaisha. Control valve for use in hydraulic apparatus. 4,270,567, Cl. 137-493.500.

Tuck, Alan D., Jr., to Wilden Pump & Engineering Co. Pump diaphragm. 4,270,441, Cl. 92-102.000.

Tuflex AG: *See*—
Bucheli, Josef, 4,270,434, Cl. 411-21.000.

Tuomi, Sirpa A.: *See*—
Honkanen, Erkki J.; Pippuri, Aino K.; Kairisalo, Pekka J.; Thaler, Heinrich; Koivisto, Maija K.; and Tuomi, Sirpa A., 4,271,300, Cl. 544-291.000.

Turley, John W.: *See*—
Verbickas, Robert C.; and Turley, John W., 4,270,377, Cl. 72-242.000.

Turner, Joseph: *See*—
Chesmer, Alec D.; and Turner, Joseph, 4,270,656, Cl. 198-847.000.

Tusdakoma Kogyo Kabushiki Kaisha: *See*—
Naknishi, Masakazu, 4,270,579, Cl. 139-370.200.

Twelve West, Inc.: *See*—
McAllister, Charles B., 4,270,556, Cl. 132-89.000.

Twubaki, Toshio: *See*—
Terashima, Isamu; Twubaki, Toshio; and Anzai, Masayasu, 4,270,487, Cl. 118-690.000.

Tyndall, Wayne: *See*—
Hyde, Bruce; and Tyndall, Wayne, 4,270,586, Cl. 144-309.0AC.

U C B Societe Anonyme: *See*—
Rodriguez, Ludovic; Leclercq, Jacques; Yknan, Pierre; and Cossement, Eric, 4,271,172, Cl. 424-267.000.
Rodriguez, Ludovic; Leclercq, Jacques; Yknan, Pierre; and Cossement, Eric, 4,271,173, Cl. 424-267.000.

U.S.A. 161 Developments Ltd.: *See*—
Lindberg, John E., 4,270,508, Cl. 123-568.000.

Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yamanishi, Toru, to Nippon Telegraph and Telephone Public Corporation; and Sumitomo Electric Industries, Ltd. Glass fibers for optical transmission. 4,270,840, Cl. 350-96.340.

Uchiyama, Takashi: *See*—
Suzuki, Ryoichi; Harigaya, Isao; and Uchiyama, Takashi, 4,270,852, Cl. 354-23.00D.

Ueda, Makoto: *See*—
Shida, Masaharu; Torisawa, Akira; Ueda, Makoto; Mandai, Masaaki; Sato, Katsuhiko; and Asano, Kazuhiro, 4,271,496, Cl. 368-80.000.

Ueno, Saburo: *See*—
Hotta, Tetsuya; Enomoto, Satoru; Yoshikawa, Chikao; Ohara, Minoru; and Ueno, Saburo, 4,271,151, Cl. 424-177.000.

Uhl, Klaus; Frischkorn, Hans; and Martini, Thomas, to Hoechst Aktiengesellschaft. Colorless formulations of optical brighteners from the series of bis-triazinylamino-stilbene-disulfonic acid compounds. 4,271,036, Cl. 252-301.230.

Ulrich, Charles J.: *See*—
Szasto, Elmer G.; and Ulrich, Charles J., 4,270,970, Cl. 156-477.00B.

Ultra-Centrifuge Nederland N.V.: *See*—
Luijten, Waltherus J. Th. H.; and Smid, Joost, 4,270,882, Cl. 415-72.000.

Umana, Walter: *See*—
Heckel, Klaus; Klaffke, Friedemann; Umana, Walter; and Schwarz, Volker, 4,271,218, Cl. 428-36.000.

Umezawa, Kazumi: *See*—
Komori, Shigehiro; Sakamaki, Hisashi; Hattori, Hiroyuki; Iida, Toshihide; Miyamoto, Koichi; and Umezawa, Kazumi, 4,270,857, Cl. 355-8.000.

Union Carbide Corporation: *See*—
Kelsey, Donald R.; and Kreeger, Russell L., 4,271,053, Cl. 260-29.2EP.
Tellis, Cyril, 4,271,133, Cl. 423-230.000.

United Merchants and Manufacturers, Inc.: *See*—
Johnson, John D.; and Mixon, Connie D., 4,270,915, Cl. 8-477.000.

United Refractories, Inc.: *See*—
Esposito, Edward J.; and Blair, Matthew J. (said Edward J. Esposito assors. to), 4,270,949, Cl. 75-60.000.

United States Filter Corporation: *See*—
Reinauer, Thomas V., 4,270,935, Cl. 55-379.000.

United States of America
Air Force: *See*—
Brown, Donald G., 4,271,396, Cl. 331-94.50C.

Army: *See*—
Jacobi, John H.; and Larsen, Lawrence E., 4,271,389, Cl. 324-58.50A.
Merritt, James A., 4,270,997, Cl. 204-157.10R.
Plumer, Roy D.; and Olson, Donald N., 4,270,293, Cl. 42-1.00F.
Shreve, James S., 4,271,413, Cl. 343-100.0SA.

Energy: *See*—
Eklund, James D.; Halter, Joseph M.; Rasmussen, Donald E.; Sullivan, Robert G.; and Moffat, Robert B., 4,270,876, Cl. 405-133.000.
Gall, Robert L., 4,270,469, Cl. 110-245.000.
Jacobs, Eddy L., 4,271,361, Cl. 250-390.000.
Robinson, Samuel C.; and Gerth, Howard L., 4,270,421, Cl. 82-21.00A.
Stillwagon, Roy E., 4,271,369, Cl. 310-178.000.
Venkataperumal, Rama R.; and Mericle, Gerald E., 4,270,806, Cl. 303-3.000.

Interior: *See*—
Grant, David C.; and Burgman, Herbert A., 4,270,802, Cl. 299-5.000.

National Aeronautics and Space Administration; administrator; with respect to an invention of:
Giner, Jose D.; and Cahill, Kathleen J. Catalyst surfaces for the chromous/chromic REDOX couple. 4,270,984, Cl. 204-2.100.
Michaud, Roger B. Urine collection apparatus. 4,270,539, Cl. 128-295.000.

Navy: *See*—
Baker, Judd O.; O'Brien, Jerome J.; Curtis, Westley F.; and Varney, Frederick M., 4,270,479, Cl. 114-240.00A.
Struessel, David A., 4,270,566, Cl. 137-492.500.

Treasury: *See*—
Svenson, Hardy C., 4,271,347, Cl. 219-121.00L.

U.S. Philips Corporation: *See*—
Bollen, Lambertus J. M.; and Goorissen, Jan, 4,270,960, Cl. 148-175.000.
Broc, Guillaume; and Asseo, Edouard, 4,271,506, Cl. 370-89.000.
Himmelbauer, Erich E.; and Koemans, Joseph M., 4,271,373, Cl. 313-432.000.
Mahdjuri, Faramarz; Asselman, George A. A.; and de Grijs, Johan C., 4,270,520, Cl. 126-433.000.
Martin, Johann, 4,270,261, Cl. 29-527.200.
Meyer, Herbert, 4,270,847, Cl. 350-392.000.
Perilhou, Jean R.; and Coursant, Roger H., 4,270,546, Cl. 128-660.000.
van Deursen, Theodorus H. M., 4,271,530, Cl. 455-182.000.
Vonk, Klaas, 4,270,708, Cl. 242-107.300.

United Technologies Corporation: *See*—
Wicks, Ruel E.; and Tourtellotte, Herbert A., 4,270,675, Cl. 222-196.000.
Wisner, George R.; and Elkow, Robert M., 4,271,355, Cl. 250-201.000.
Wright, Robert J.; and Hecht, Ralph J., 4,271,005, Cl. 204-298.000.

United Tire & Rubber Co. Limited: *See*—
Tsang, David L.; and Majewicz, Wlodzimierz I., 4,270,887, Cl. 425-47.000.

Universal Instruments Corporation: *See*—
Ragard, Phillip A.; and Orzelek, Frank J., 4,270,651, Cl. 198-456.000.

University of Nebraska Regents Hall, The Board of Regents of the: *See*—
Bourne, Richard C., 4,270,518, Cl. 126-422.000.

University Patents, Inc.: *See*—
Steffen, Dale A.; Sturm, Ronald E.; and Rinard, George A., 4,270,547, Cl. 128-671.000.

Untereker, Darrel F.: *See*—
Phillips, Gary M.; and Untereker, Darrel F., 4,271,278, Cl. 525-356.000.

Up-Right, Inc.: *See*—
Claxton, Gerald L.; and Horn, Darrell C., 4,270,581, Cl. 140-57.000.

Upadek, Horst: *See*—
Conrad, Jens; Upadek, Horst; and Bruns, Klaus, 4,271,047, Cl. 252-522.00R.

Upham, Neil R., to Aeroquip Corporation. Elastomeric instrument clamp. 4,270,717, Cl. 248-27.100.

Upjohn Company, The: *See*—
Sih, John C., 4,271,077, Cl. 260-345.200.
Sih, John C., 4,271,078, Cl. 260-345.200.
Sih, John C., 4,271,292, Cl. 542-429.000.
Sih, John C., 4,271,313, Cl. 560-121.000.

Upjohn Manufacturing Company, The: *See*—
Bergy, Malcolm E.; Coats, John H.; and Malik, Vedpal S., 4,271,266, Cl. 435-73.000.

Usardi, Maria M.: *See*—
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,183, Cl. 424-285.000.
Gandolfi, Carmelo; Passarotti, Carlo; Andreoni, Alessandro; Fumagalli, Angelo; Faustini, Franco; Ceserani, Roberto; and Usardi, Maria M., 4,271,184, Cl. 424-285.000.

Utaka, Tadashi: *See*—
Ohtsuki, Nobuo; Yamada, Eiji; and Utaka, Tadashi, 4,271,353, Cl. 250-276.000.

Uyeo, Shoichiro: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,296, Cl. 544-182.000.

Vacuumschmelze GmbH: *See*—
Greiner, Joachim; and Mager, Albrecht, 4,271,441, Cl. 360-130.330.

Valerio, Robert M. Oil pan for internal combustion engines. 4,270,497, Cl. 123-195.00C.

Vamvakaris, Christos; Neumann, Peter; and Patsch, Manfred, to BASF Aktiengesellschaft. Heterocyclic compounds. 4,271,303, Cl. 546-155.000.

Van Blarcom Closures, Inc.: *See*—
Buono, Caetano, 4,270,664, Cl. 215-216.000.

Vance, Ian A. W.; and Overy, Michael R., to International Standard Electric Corporation. Splitter/combiner network. 4,271,501, Cl. 370-24.000.

Vandenberg, Leonard B. Solar heat collection and transfer system. 4,270,522, Cl. 126-434.000.

Van Den Driessche, Michel, to Thomson-CSF. Circuit for decoding chrominance signals in the Secam television system and a television receiver comprising this circuit. 4,271,427, Cl. 358-40.000.

van der Burg, Willem J., to Akzona Incorporated. 2,3,3a,12b-Tetrahydro-1H-dibenzo[2,3;6,7]thiepino[4,5-c]pyrroles and pharmaceutical use thereof. 4,271,177, Cl. 424-274.000.

van der Burg, Willem J., to Akzona Incorporated. 1,2,3,3a,8,12b-Hexahydro-dibenzo[b,f]pyrrolo[3,4-d]azepines and pharmaceutical use thereof. 4,271,178, Cl. 424-274.000.

van der Burg, Willem J., to Akzona Incorporated. 1,2,3,3a,8,12b-Hexahydro-dibenzo[1,2;5,6]cyclohepta[3,4-C]pyrroles and pharmaceutical use thereof. 4,271,179, Cl. 424-274.000.

Van der Gucht, Karel: *See*—
Fink, Helmuth; and Van der Gucht, Karel, 4,271,478, Cl. 364-580.000.

van der Lely, Cornelis. Soil cultivating devices. 4,270,615, Cl. 172-49.000.

van der Lely, Cornelis. Articulated tractor powered by tandem engines. 4,270,621, Cl. 180-54.00C.

Van Der Maas, Robert E. Heat storing fireplace. 4,270,512, Cl. 126-121.000.

van Deursen, Theodorus H. M., to U.S. Philips Corporation. Receiver having a frequency synthesizing circuit. 4,271,530, Cl. 455-182.000.

Van Gompel, James, to Brammall, Inc. Roll straightening tool. 4,270,379, Cl. 72-392.000.

van Heel, Joannes M., to Stichting Bouwcentrum. Heat storage apparatus and heat exchanger element for use therein. 4,270,523, Cl. 126-435.000.

Van Leeuwen, Paul, to Hunter Douglas International N.V. Panel carrier and panel construction incorporating such carrier. 4,270,327, Cl. 52-488.000.

van Lieshout, Marinus W., to Skol Brouwerijen N.V. Process for supplying beverages. 4,270,584, Cl. 141-11.000.

Van Loo, William C.: *See*—
Christensen, Neal T.; Van Loo, William C.; Werner, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., 4,271,468, Cl. 364-200.000.

Van Meter, Arch, to Ryder International Corporation. Valve for filter device. 4,271,020, Cl. 210-133.00Q.

Vanover, Everett R. Prop means for facilitating the fueling of vehicles. 4,270,784, Cl. 292-338.000.

Varney, Frederick M.: *See*—
Baker, Judd O.; O'Brien, Jerome J.; Curtis, Westley F.; and Varney, Frederick M., 4,270,479, Cl. 114-240.00A.

Vasiljuk, Petr J.: *See*—
Ragoza, Igor V.; Begunov, Petr M.; Vasiljuk, Petr J.; Tonikian, Dina N.; and Tonikian, Robert T., 4,270,368, Cl. 66-13.000.

Vatsky, Joel, to Foster Wheeler Energy Corporation. Swirl producer. 4,270,895, Cl. 431-183.000.

Vaughan, David E. W.; Lussier, Roger J.; and Magee, John S., Jr., to W. R. Grace & Co. Pillared interlayered clay products. 4,271,043, Cl. 252-455.00R.

VDO Adolf Schindling AG: *See*—
Kalk, Heinz, 4,270,371, Cl. 70-264.000.

VEB Gaskombinat Schwarze Pumpe: *See*—
Jaschke, Peter; Monch, Eckhard; and Weber, Roland, 4,270,931, Cl. 48-86.00R.

Vega Industries, Inc.: *See*—
Gordon, Leonard J.; and Myers, Frank A., 4,270,515, Cl. 126-164.000.

Velasco, Gonzalo: *See*—
Croset, Michel; and Velasco, Gonzalo, 4,271,000, Cl. 204-195.00S.

Velo-Bind, Inc.: *See*—
Szanto, Elmer G.; and Ulrich, Charles J., 4,270,970, Cl. 156-477.00B.

Venkataperumal, Rama R.; and Mericle, Gerald E., to United States of America, Energy. Combined hydraulic and regenerative braking system. 4,270,806, Cl. 303-3.000.

Verbickas, Robert C.; and Turley, John W., to T. Sendzimir, Inc. Eighteen high rolling mill. 4,270,377, Cl. 72-242.000.

Verdesca, Joseph T. Cabinet and shelf wall mounting apparatus. 4,270,821, Cl. 312-245.000.

Vernia, Peter: *See*—
Lanzi, Ronald G.; and Vernia, Peter, 4,270,266, Cl. 29-875.000.

Versatool, Inc.: *See*—
Feldman, Robert I.; and Thesman, Dana F., 4,270,271, Cl. 30-276.000.

Verschure, Pietrus: *See*—
Arnaudeau, Marcel; and Verschure, Pietrus, 4,270,611, Cl. 166-344.000.

Viarengo, Henry L.: *See*—
Willhide, Joseph W.; and Viarengo, Henry L., 4,270,755, Cl. 273-313.000.

Vietzke, Horst: *See*—
Borner, Paul; Isensee, Hans-Jorg; and Vietzke, Horst, 4,271,127, Cl. 422-159.000.

Vinals, Joaquin F.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.

Vink, Walter; Spooner, Leonard; and Mackay, Donald A. M., to Life Savers, Inc. Method for controlling weight of sugar-containing solid shapes and product. 4,270,956, Cl. 127-29.000.

Vink, Walter: *See*—
Cherukuri, Subraman R.; Vink, Walter; Friello, Dominick R.; and Mackay, Donald A. M., 4,271,199, Cl. 426-5.000.

Vinot, Daniel, to Compagnie Internationale pour l'Informatique CII-Honeywell Bull. Apparatus enabling the transfer of data blocks of variable lengths between two memory interfaces of different widths. 4,271,480, Cl. 364-900.000.

Vlasovskaya, Olga N.: *See*—
Makarova, Serafima B.; Leikin, Jury A.; Smirnov, Anatoly V.; Semeny, Valery Y.; Pakhomova, Eleonora M.; Korelskaya, Galina I.; Polikarpova, Antonia P.; Ilinsky, Andrei A.; Vlasovskaya, Olga N.; and Tikhonova, Ljudmila A., 4,271,276, Cl. 525-340.000.

Vock, Manfred H.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,271,324, Cl. 568-824.000.

Voest-Alpine Aktiengesellschaft: *See*—
Bachner, Ernst, 4,270,593, Cl. 164-82.000.

Voges, Heinz W., to Chemische Werke Huls Aktiengesellschaft. Process for the preparation of araliphatic dihydroperoxides. 4,271,321, Cl. 568-569.000.

Vogt, Wilhelm; and Glaser, Hermann, to Hoechst Aktiengesellschaft. Production of ethylene. 4,271,008, Cl. 208-48.00R.

von der Decken, Jan; and Max, Heinz, to Dornier GmbH. Method and apparatus for rolling control of airplanes by means of spoilers. 4,270,712, Cl. 244-90.00A.

Vonk, Klaas, to U.S. Philips Corporation. Cable winder. 4,270,708, Cl. 242-107.300.

Vonlanthen, Benno; and Walther, Robert, to R. Berchtold AG. Key and lock system. 4,270,372, Cl. 70-406.000.

von Meyer, William C.: *See*—
Seidel, Michael C.; von Meyer, William C.; and Greenfield, Stanley A., 4,271,308, Cl. 548-262.000.

W. F. Altenpohl, Inc.: *See*—
Altenpohl, William F.; and Altenpohl, Paul J., 4,270,336, Cl. 53-493.000.

W. R. Grace & Co.: *See*—
Vaughan, David E. W.; Lussier, Roger J.; and Magee, John S., Jr., 4,271,043, Cl. 252-455.00R.

W. S. Coswell Limited: *See*—
Barnes, Gerald W., 4,270,774, Cl. 283-62.000.

WABCO Fahrzeugbremsen GmbH: *See*—
Ruhnau, Gerhard; Gudat, Wolfgang; Lindemann, Klaus; and Saba, Manfred, 4,270,810, Cl. 303-106.000.

Wacker-Chemitronic Gesellschaft fur Elektronik-Grundstoffe mbH: *See*—
Kramer, Hans; and Kirschner, Helmuth, 4,270,316, Cl. 51-283.00R.

Wacks, Harvey H.; Izu, Masatsugu; and Sarrach, Donald J., to Energy Conversion Devices, Inc. Imaging film of bismuth or bismuth alloy. 4,271,257, Cl. 430-276.000.

Wada, Minoru: *See*—
Kido, Keishiro; Wada, Minoru; and Ikeda, Tomoaki, 4,271,256, Cl. 430-253.000.

Wagensonner, Eduard: *See*—
Stemme, Otto; Staudacher, Frank; Lermann, Peter; and Wagensonner, Eduard, 4,270,854, Cl. 354-76.000.

Wagner, Douglas A., to General Motors Corporation. Gear drive for gas turbine engine. 4,270,408, Cl. 74-661.000.

Wagner, Heinz: *See*—
Willmund, Wolf-Dieter; and Wagner, Heinz, 4,270,987, Cl. 204-49.000.

Wakasugi, Kazuyuki: *See*—
Nagata, Mitsuru; and Wakasugi, Kazuyuki, 4,271,075, Cl. 260-343.400.

Walbro Far East, Inc.: *See*—
Kobayashi, Hiroto, 4,271,096, Cl. 261-44.00G.
Kobayashi, Takeshi, 4,271,093, Cl. 261-34.00B.

Wallberg, Kurt-Ake. Method for installing an adjustable flow restricting valve member in a tubular pipe, and a valve device for utilization of the method. 4,270,559, Cl. 137-15.000.

Walter, Carl: *See*—
Marscholleck, Michael; Simon, Wolfgang; and Walter, Carl, 4,271,126, Cl. 422-143.000.

Walter, Lothar: *See*—
Olschewski, Armin; Brandenstein, Manfred; Walter, Lothar; Ernst, Horst M.; and Kunkel, Heinrich, 4,270,815, Cl. 308-213.000.

Walters, L. Kirk; Judd, Richard K.; and Atkins, Terrance J., to General Motors Corporation. Malleable stop for engine control element. 4,271,094, Cl. 261-39.00B.

Walther, Robert: *See*—
Vonlanthen, Benno; and Walther, Robert, 4,270,372, Cl. 70-406.000.

Wands, Jack R.; and Zarawski, Vincent R., Jr., to Massachusetts General Hospital, The. Process for producing antibodies to hepatitis virus and cell lines therefor. 4,271,145, Cl. 424-85.000.

Ward, Brooke A., to Intrusion Microwave Electronics Limited. Infrared surveillance systems using multi-faceted mirror. 4,271,360, Cl. 250-353.000.

Ward, John S., to Eli Lilly and Company. N-(1,3,4-Thiadiazol-2-yl)benzamides. 4,271,166, Cl. 424-263.000.

Warner-Lambert Company: *See*—
Blankley, Clifton J.; and Bennett, Lawrence R., 4,271,164, Cl. 424-251.000.

Warner, Percival E.; Smith, Paul; and Cadle, Terence M., to Brico Engineering Limited. Sintered metal articles and process for their manufacture. 4,271,239, Cl. 428-547.000.

Warren, Joseph R.: *See*—
Check, Frank T., Jr.; Eckert, Alton B., Jr.; and Warren, Joseph R., 4,271,481, Cl. 364-900.000.

Warren, Joseph V. Folding chair. 4,270,795, Cl. 297-45.000.

Warzawa, Wolfgang: *See*—
Loser, Harald; Schmidt, Gerhard; Warzawa, Wolfgang; and Wegner, Klaus, 4,271,207, Cl. 427-6.000.

Watanabe, Katsuyuki; Hayashi, Tadatoshi; Hayashi, Hiroaki, deceased; by Hayashi, Atsuko, heir; by Hayashi, Yuko, heir; Tatano, Toshio; and Shimizu, Yoshiaki, to Kyowa Hakko Kogyo Kabushiki Kaisha. Method of determining cholinesterase activity and choline derivatives for use in the method. 4,271,310, Cl. 560-71.000.

Watanabe, Kazuo: *See*—
Saito, Tomoo; Nishiyama, Yumiko; Watanabe, Kazuo; Taki, Naoko; and Morikawa, Naotake, 4,271,035, Cl. 252-301.170.

Watanabe, Kenkichi, to Laurel Bank Machine Co., Ltd. Incorrectness detecting device for detecting coin piling condition in piling cylinder of coin packaging machine. 4,270,557, Cl. 133-8.00D.

Watanabe, Kojiro, to Nippon Electric Co., Ltd. Adaptive diversity receiver for digital communications. 4,271,525, Cl. 375-14.000.

Watanabe, Masazumi: *See*—
Morimoto, Hiroshi; Imada, Isuke; Watanabe, Masazumi; and Kawada, Minoru, 4,271,083, Cl. 260-396.00B.

Watanabe, Takashi: *See*—
Nakagawa, Keizo; Yamano, Katsushi; Watanabe, Takashi; Yamamoto, Kunio; and Inomata, Shigeo, 4,270,953, Cl. 106-16.000.

Watarai, Etsuyoshi, to Shimano Industrial Company Limited. Lever operating device for gear-shifting means of a bicycle or the like. 4,270,481, Cl. 116-28.100.

Watariguchi, Kiyosumi, to Tamura Kaiken Co., Ltd. Photopolymerizable ink compositions. 4,271,258, Cl. 430-284.000.

Watine, Didier J. M. M.; and Nadal, Christian P., to Raychem Pontoise S.A. Heat-recoverable articles. 4,271,330, Cl. 174-84.00R.

Watson, Walter E., III: *See*—
Harrison, David M.; Watson, Walter E., III; Moore, Maurice S.; and Jernyn, Roger E., 4,270,252, Cl. 29-250.000.

Watts, John R. Locking device for removable frame structure. 4,270,779, Cl. 292-175.000.

Weatherford/DMC: *See*—
Lewis, Edwin C., II, 4,270,440, Cl. 92-87.000.

Weber, Roland: *See*—
Jaschke, Peter; Monch, Eckhard; and Weber, Roland, 4,270,931, Cl. 48-86.00R.

Webinger, George, to Champion International Corporation. Air diffuser. 4,270,692, Cl. 229-11.000.

Wegner, Klaus: *See*—
Loser, Harald; Schmidt, Gerhard; Warzawa, Wolfgang; and Wegner, Klaus, 4,271,207, Cl. 427-6.000.

Wehling, Bernhard: *See*—
Bremen, Josef; Wehling, Bernhard; and Schaffhausser, Carl-Wolfgang, 4,271,293, Cl. 542-435.000.

Weil, Manfred; and Rothenberger, Gunter, to Rothenberg GmbH & Co., Firma. Combination pipe-cutter and deburring tool. 4,270,269, Cl. 30-102.000.

Weinberg, Ekkehard: *See*—
Aigenberger, Alois; Lakus, Walter; and Weinberg, Ekkehard, 4,270,954, Cl. 106-47.00R.

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Faulkner, Bobby P.; Lee, George T.; Schumacher, Peter L.; and Weinecke, Michael H., 4,270,899, Cl. 432-58.000.

Weisse, Hans-Jorg, to Siemens Aktiengesellschaft. Method for establishing an electrical contact between a normally conducting contact element and at least one superconductor. 4,270,264, Cl. 29-599.000.

Wenghoefer, Johann; Messier, Dennis; and Thompson, James, to American Hoechst Corporation. Azo dyestuffs containing $-SO_2CH_2CH_2OSO_3H$ and $-N(CH_2CH_2OSO_3H)_2$ groups. 4,271,072, Cl. 260-207.300.

Werner, Robert H.: *See*—
Christensen, Neal T.; Van Loo, William C.; Werner, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., 4,271,468, Cl. 364-200.000.

Wernet, William F.: *See*—
Adams, William J.; and Wernet, William F., 4,271,333, Cl. 179-90.00K.

West Agro-Chemical, Inc.: *See*—
Winicov, Murray W.; and Oberlander, Michael, 4,271,149, Cl. 424-150.000.

West Electric Company, Ltd.: *See*—
Hatada, Kotaro; Higuchi, Masaru; and Iwata, Hiroshi, 4,270,853, Cl. 354-76.000.

West, Gary A.: *See*—
Barrett, Joseph J.; and West, Gary A., 4,270,864, Cl. 356-301.000.

West, Harold H., to Cablecraft, Inc. Push-pull cable motor truck remote gear shift system and two-dimensional motion conversion and transmission apparatus therein. 4,270,403, Cl. 74-473.00R.

Westerman, Glenn S.: *See*—
Morgan, David B.; Pan, Robert F.; Quinn, Paul A., Jr.; and Westerman, Glenn S., 4,270,868, Cl. 400-320.000.

Western Electric Company, Inc.: *See*—
Breeze, Marvin M., Jr.; and Wood, Virgil W., 4,270,237, Cl. 10-155.00R.
Sandmore, Donald K., 4,270,424, Cl. 83-167.000.
Wong, Ching-Ping, 4,271,425, Cl. 357-72.000.

Westinghouse Brake & Signal Co.: *See*—
Norton, David J.; and Brown, Christopher R., 4,270,715, Cl. 246-5.000.

Westinghouse Electric Corp.: *See*—
Anderson, Larry W., 4,270,716, Cl. 246-182.00B.
Andrews, Harry N.; Eglinton, Edmund C.; Gulaskey, Joseph W.; Balog, Leonard J.; and Beer, Robert W., 4,270,258, Cl. 29-157.400.
Boyce, Walter A., 4,271,109, Cl. 264-63.000.
Castner, Raymond P., 4,271,471, Cl. 364-474.000.
Cross, Michael A., 4,270,839, Cl. 350-96.150.
Kehrman, Robert F.; Farstad, Arnold J.; Gibbons, Michael G.; and Swigert, David L., 4,271,407, Cl. 340-690.000.
Meyer, Thomas N., 4,271,341, Cl. 200-148.00A.
Yoldas, Bulent E., 4,271,210, Cl. 427-169.000.

Wetzel, Joseph A.: *See*—
Christensen, Neal T.; Van Loo, William C.; Werner, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., 4,271,468, Cl. 364-200.000.

White, Alan C.: *See*—
Edington, Edwin T.; and White, Alan C., 4,271,304, Cl. 546-290.000.

White-BSA Tools Ltd.: *See*—
Tomlinson, Geoffrey E. S., 4,270,419, Cl. 82-3.000.
Tomlinson, Geoffrey E. S., 4,270,420, Cl. 82-3.000.

White, Jackie L.: *See*—
Conrad, Lucas J.; and White, Jackie L., 4,270,553, Cl. 131-291.000.

White, Pat M.: *See*—
Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., 4,270,608, Cl. 166-278.000.

White, Robert L.: *See*—
Heiman, Neil D.; White, Robert L.; Potter, Robert I.; and Albert, Paul A., 4,271,232, Cl. 428-332.000.

Whitfield, Dwight: *See*—
Sorensen, Ronald L.; and Whitfield, Dwight, 4,270,783, Cl. 292-336.300.

Whiting Corporation: *See*—
Bennett, Richard C., 4,270,975, Cl. 159-27.00A.

Wickmann-Werke AG: *See*—
Adam, Manfred, 4,270,836, Cl. 339-213.00R.

Wicks, Ruel E.; and Tourtellotte, Herbert A., to United Technologies Corporation. Powder feed apparatus. 4,270,675, Cl. 222-196.000.

Widdowson, Richard E.; Connolly, James B.; Schlotterbeck, Earl S.; and Livesay, J. D., to General Motors Corporation. Universal internal tube accumulator. 4,270,934, Cl. 55-316.000.

Wiggins, Noel D., to Caterpillar Tractor Co. Bearing positioning retainer. 4,270,813, Cl. 308-23.000.

Wiland, Lawrence. Method and apparatus for carving and contouring dental restorations. 4,270,902, Cl. 433-144.000.

Wilden Pump & Engineering Co.: *See*—
Tuck, Alan D., Jr., 4,270,441, Cl. 92-102.000.

Wilkerson, James W. Capo. 4,270,432, Cl. 84-318.000.

Will, Heinz-Dieter; Dommes, Werner; and Polzl, Hans-Werner, to Audi NSU Auto Union AG. Turbocharged engine and method of operating same. 4,270,356, Cl. 60-602.000.

Willard, Robert E.: *See*—
Menot, Robert; Willard, Robert E.; Griem, Paul D.; and Devine, Guy E., 4,271,505, Cl. 370-85.000.

Willems, Victor: *See*—
Janssens, Theo; and Willems, Victor, 4,270,688, Cl. 228-5.100.

Willhide, Joseph: *See*—
Willhide, Joseph W.; and Viarengo, Henry L., 4,270,755, Cl. 273-313.000.

Willhide, Joseph W.; and Viarengo, Henry L., to Willhide, Joseph. Strategy based electronic combat game. 4,270,755, Cl. 273-313.000.

Wm. R. Stewart & Sons (Hacklemakers) Ltd.: *See*—
Stewart, David B.; Stewart, William R.; and Dickinson, John M. C., 4,270,245, Cl. 19-85.000.

Williams, David J.: *See*—
Kelley, Donald J.; Williams, David J.; and Slovenkai, Stephen V., 4,271,281, Cl. 526-80.000.

Williams, Gerald B., to British Steel Corporation. Determining the dimensions of workpieces. 4,271,477, Cl. 364-563.000.

Williams, Glenn L.; and Reilly, Edward J., to Gould Inc. Thermal array protection apparatus. 4,271,414, Cl. 346-76.0PH.

Williams, Robert D.: *See*—
Bright, David R.; and Williams, Robert D., 4,271,174, Cl. 424-272.000.

Williams, W. Ray: *See*—
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,271,472, Cl. 364-481.000.

Willis, Brian J.; and Dittrick, John W., to Fritzsche Dodge & Olcott, Inc. Novel norcamphanyl-substituted pyrans, method for their synthesis and use thereof in perfumery. 4,271,046, Cl. 252-522.00R.

Willmund, Wolf-Dieter; and Wagner, Heinz, to Henkel Kommanditgesellschaft auf Aktien. Acid galvanic nickel baths containing N-(2,3-dihydroxypropyl)-pyridinium sulfates. 4,270,987, Cl. 204-49.000.

Wilson, Albert H., to Thomas & Betts Corporation. Jumper socket. 4,270,829, Cl. 339-96.000.

Wilson, Reginald D. Bed wetting tattler. 4,271,406, Cl. 340-604.000.

Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. 2,6,6-Trimethyl-α-(iso)propenyl-1,3-cyclohexadiene-1-methanols. 4,271,324, Cl. 568-824.000.

Winberg, Robert F., to General Motors Corporation. Materials and method for preventing high temperature seize between metal parts. 4,270,348, Cl. 60-323.000.

Windmoller & Holscher: *See*—
Schmidt, Horst, 4,270,677, Cl. 222-561.000.

Wine, Charles M., to RCA Corporation. Receiver with a channel swapping apparatus. 4,271,532, Cl. 455-186.000.

Winicov, Murray W.; and Oberlander, Michael, to West Agro-Chemical, Inc. Germicidal iodine compositions with enhanced iodine stability. 4,271,149, Cl. 424-150.000.

Wirth, Gallo & Co.: *See*—
Saner, Kaspar; Wirth, Johannes; and Gallo, Mario, 4,270,384, Cl. 73-862.590.

Wirth, Johannes: *See*—
Saner, Kaspar; Wirth, Johannes; and Gallo, Mario, 4,270,384, Cl. 73-862.590.

Wisner, George R.; and Elkow, Robert M., to United Technologies Corporation. Method for mitigating $2\pi N$ ambiguity in an adaptive optics control system. 4,271,355, Cl. 250-201.000.

Wittmann, Dieter: *See*—
Deschler, Gerhard; Gebhardt, Hans; and Wittmann, Dieter, 4,270,407, Cl. 74-569.000.

Witzel, Frank: *See*—
Puglia, Wayne J.; Witzel, Frank; and Mackay, Donald A. M., 4,271,142, Cl. 424-14.000.

Wohlfarter, Alois: *See*—
Bergloff, Dag; Wohlfarter, Alois; Heissenberger, Otto; Muhlhauser, Martin; and Petschauer, Franz, 4,270,254, Cl. 29-148.40D.

Wolber, Robert; and Maurer, Roland, to Gebruder Junghans GmbH. Electric contact for a battery-operated instrument. 4,270,834, Cl. 339-147.00R.

Wolf, Klaus-Ulrich: *See*—
Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Heaning; Wolf, Klaus-Ulrich; Heil, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Wolfe, Henry S., to American Clearwater Corp. Articles incorporating air vents. 4,270,227, Cl. 2-87.000.

Wolfe, Hunter. Variable width tool attachment for use with a vehicle. 4,270,339, Cl. 56-95.000.

Wong, Ching-Ping, to Western Electric Company, Inc. Encapsulated electronic devices and encapsulating compositions having crown ethers. 4,271,425, Cl. 357-72.000.

Woo, Edmund P., to Dow Chemical Company, The. Novel polyamic acid polymers and polyimide derivatives thereof. 4,271,288, Cl. 528-353.000.

Wood, Virgil W.: *See*—
Breeze, Marvin M., Jr.; and Wood, Virgil W., 4,270,237, Cl. 10-155.00R.

Woodard, Harrold R., to International Business Machines Corporation. Multiple stack roll-wave sheet separator apparatus. 4,270,745, Cl. 271-9.000.

Woods, Jack L. Anodic oxidation of aluminum and aluminum alloys with a lignin electrolyte solution. 4,270,991, Cl. 204-58.000.

Woodward, Donald W.: *See*—
Rowles, Howard C.; and Woodward, Donald W., 4,270,939, Cl. 62-22.000.

Workman, Nolan M.: *See*—
Hendrickson, James D.; White, Pat M.; Davis, Odie R. S.; Workman, Nolan M.; Baker, Eugene E.; and Szarka, David D., 4,270,608, Cl. 166-278.000.

Wossner, Felix, to Fichtel & Sachs AG. Shock absorber for vehicles. 4,270,635, Cl. 188-322.000.

Wray, William R., to Polaroid Corporation. Electronic gain and noise control for recording of analog information. 4,271,439, Cl. 360-65.000.

Wright, Robert J.; and Hecht, Ralph J., to United Technologies Corporation. Workpiece support apparatus for use with cathode sputtering devices. 4,271,005, Cl. 204-298.000.

Wuest, Hans: *See*—
Buchi, George H.; and Wuest, Hans, 4,271,048, Cl. 252-522.00R.

Wuest, Willi; Just, Guenther; and Peters, Berad W., to Henkel Kommanditgesellschaft auf Aktien; and Deutsche Gold-und Silber-Scheideanstalt Vormals Roessler. Preparation of finely-divided, water-insoluble silicate cation-exchangers with a narrow particle size spectra. 4,271,135, Cl. 423-329.000.

Wulf, Helmut: *See*—
Niemann, Klaus; Wulf, Helmut; and Hauck, Peter, 4,270,405, Cl. 74-499.000.

Wurtman, Richard J.; and Lown, Bernard, to Massachusetts Institute of Technology. Process for treatment and prevention of ventricular fibrillation. 4,271,192, Cl. 424-319.000.

Wyler, Siegfried: *See*—
Lohmann, Dieter; and Wyler, Siegfried, 4,271,074, Cl. 260-326.260.

Xanthopoulos, Piritheos G.; and Stewart, Lloyd W., to Artzan Corporation. Construction tiles for making toy wall panels. 4,270,303, Cl. 46-25.000.

Xerox Corporation: *See*—
Gaudioso, Stephen L., 4,271,248, Cl. 430-39.000.
Hamlin, Thomas J., 4,270,746, Cl. 271-98.000.

Yagi, Makoto: *See*—
Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, 4,271,453, Cl. 361-248.000.

Yajima, Tadashi; Yagi, Makoto; Katoh, Masayoshi; Ishii, Takashi; Maruizumi, Haruki; and Nagaoka, Tadahiko, to Nissan Motor Company, Limited; and Japan Aviation Electronics Industry, Limited. Igniter with coupling structure. 4,271,453, Cl. 361-248.000.

Yamada, Carl S. Noisemaker for skateboard. 4,270,764, Cl. 280-87.04A.

Yamada, Eiji: *See*—
Ohtsuki, Nobuo; Yamada, Eiji; and Utaka, Tadashi, 4,271,353, Cl. 250-276.000.

Yamadaya, Shoko: *See*—
Ishikawa, Toshio; Niwa, Shuichi; Yamadaya, Shoko; and Orito, Yoshio, 4,271,327, Cl. 585-440.000.

Yamaguchi, Hisao: *See*—
Shiraiwa, Toshio; Yamaguchi, Hisao; Matsumoto, Shigeaki; Tomabechi, Masatoshi; and Nakajima, Kimio, 4,270,389, Cl. 73-612.000.

Yamaguchi, Takashi; Shinjo, Goro; and Okuno, Yoshitoshi, to Sumitomo Chemical Company, Limited. Synergistic mixture of three pyrethroid series insecticidal compounds. 4,271,180, Cl. 424-274.000.

Yamaichi Electric Mfg. Co., Ltd.: *See*—
Takahashi, Toru, 4,270,831, Cl. 339-99.00R.

Yamamoto, Fumiichiro: *See*—
Furusawa, Mitsuru; Yamamoto, Fumiichiro; and Yoshinaga, Makoto, 4,270,838, Cl. 350-81.000.

Yamamoto, Kunio: *See*—
Nakagawa, Keizo; Yamano, Katsushi; Watanabe, Takashi; Yamamoto, Kunio; and Inomata, Shigeo, 4,270,953, Cl. 106-16.000.

Yamamoto, Mitsuru; Arai, Jun; Isogawa, Takao; and Hasebe, Isamu, to Panafacom Limited. Direct memory access control system with byte/word control of data bus. 4,271,466, Cl. 364-200.000.

Yamanishi, Toru: *See*—
Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yamanishi, Toru, 4,270,840, Cl. 350-96.340.

Yamano, Katsushi: *See*—
Nakagawa, Keizo; Yamano, Katsushi; Watanabe, Takashi; Yamamoto, Kunio; and Inomata, Shigeo, 4,270,953, Cl. 106-16.000.

Yantis, June E.: *See*—
Hempenius, Walter L.; and Yantis, June E., 4,271,200, Cl. 426-27.000.

Yardy, Raymond, to Discovision Associates. Apparatus for correcting for temperature-induced tracking errors in a system for recovering information from a recording disc. 4,271,334, Cl. 369-41.000.

Yates, Lance W. Apparatus for ice fishing. 4,270,297, Cl. 43-4.000.

Ykman, Pierre: *See*—
Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cosement, Eric, 4,271,172, Cl. 424-267.000.
Rodriguez, Ludovic; Leclercq, Jacques; Ykman, Pierre; and Cosement, Eric, 4,271,173, Cl. 424-267.000.

Yokomichi, Isao: *See*—
Takahashi, Ryohei; Fujikawa, Kanichi; Yokomichi, Isao; Someya, Sinzo; and Sakashita, Nobuyuki, 4,270,948, Cl. 71-100.000.

Yoldas, Bulent E., to Westinghouse Electric Corp. Method of forming transmissive, porous metal oxide optical layer of a vitreous substrate. 4,271,210, Cl. 427-169.000.

Yoshida, Chizuko: *See*—
Horiuchi, Masao; Miyake, Makiko; and Yoshida, Chizuko, 4,271,344, Cl. 219-10.55E.

Yoshida, Isamu: *See*—
Kondo, Koichi; Yoshida, Isamu; and Kobayashi, Takashi, 4,270,923, Cl. 23-230.00B.

Yoshida Kogyo K. K.: *See*—
Nishiyama, Hisasi, 4,270,578, Cl. 139-92.000.

Yoshida Kogyo K.K.: *See*—
Akashi, Shunji, 4,270,248, Cl. 24-205.11R.

Ishida, Kinji, 4,270,322, Cl. 52-98.000.
Nakada, Kiyoshi, 4,270,580, Cl. 139-431.000.

Yoshikawa, Syuich: *See*—
Suzuki, Kazuo; Koda, Hirokuzu; Nakamura, Kenichi; Yoshikawa, Syuich; and Ohara, Naoki, 4,270,472, Cl. 112-158.00E.

Yoshikumi, Chikuo: *See*—
Hotta, Tetsuya; Enomoto, Setoru; Yoshikumi, Chikuo; Ohara, Minoru; and Ueno, Saburo, 4,271,151, Cl. 424-177.000.

Yoshimura, Kazuaori: *See*—
Ito, Katsuo; Murata, Bunjiro; and Yoshimura, Kazuaori, 4,270,394, Cl. 74-10.00R.

Yoshimura, Kozo: *See*—
Uchida, Naoya; Seikai, Shigeyuki; Yoshimura, Kozo; and Yamanishi, Toru, 4,270,840, Cl. 350-96.340.

Yoshimura, Noriaki: *See*—
Tokitoh, Yasuo; Yoshimura, Noriaki; and Tamura, Masahiko, 4,271,320, Cl. 568-426.000.

Yoshinaga, Makoto: *See*—
Furusawa, Mitsuru; Yamamoto, Fumiichiro; and Yoshinaga, Makoto, 4,270,838, Cl. 350-81.000.

Yoshioka, Mitsuru: *See*—
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,295, Cl. 544-182.000.
Tsuji, Teruji; Yoshioka, Mitsuru; Uyeo, Shoichiro; Hamashima, Yoshio; Kikkawa, Ikuo; and Nagata, Wataru, 4,271,296, Cl. 544-182.000.

Yoshioka, Takahiro: *See*—
Suzuki, Hideto; Hayashi, Shunichi; and Yoshioka, Takahiro, 4,271,061, Cl. 260-37.0EP.

Yoshizawa, Tamotu: *See*—
Murakoshi, Makoto; and Yoshizawa, Tamotu, 4,270,404, Cl. 74-479.000.

Young, Alastair J., to Automotive Products Limited. Vehicle fluid pressure braking systems and lever mechanisms for use therein. 4,270,807, Cl. 303-22.00R.

Youngerman, Eugene G.: *See*—
Stover, Carole S.; Compton, Leslie E.; and Youngerman, Eugene G., 4,271,009, Cl. 208-254.00R.

Yu, Mason K., to General Motors Corporation. Hybrid dual shaft gas turbine with accumulator. 4,270,344, Cl. 60-39.16R.

Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukatsu; and Takayama, Yoshihiro, to Mitsubishi Petrochemical Co., Ltd. Preparation of L-trytophan by fermentation. 4,271,267, Cl. 435-108.000.

Zafferri, Roberto; Schneiter, Ali; and Besson, Rene, to Ebauches S.A. Watch. 4,271,498, Cl. 368-250.000.

Zahnradfabrik Friedrich-Shafen Aktiengesellschaft: *See*—
Leber, Fritz, 4,270,647, Cl. 192-113.00B.

Zakhryamin, Anatoly D.: *See*—
Glushko, Mikhail F.; Skalatsky, Viktor K.; Zakhryamin, Anatoly D.; and Shamrai, Gennady F., 4,270,341, Cl. 57-215.000.

Zapf, Karl: *See*—
Hoffmann, Kurt; and Zapf, Karl, 4,271,461, Cl. 363-60.000.

Zaugg, Hans: *See*—
Strassle, Rudolf; and Zaugg, Hans, 4,271,122, Cl. 422-61.000.

Zaugg, Paul, to BBC Brown, Boveri & Co. Ltd. Method of operating a gas turbine plant. 4,270,342, Cl. 60-39.040.

Zebra Co., Ltd.: *See*—
Sekiguchi, Kazuhiko, 4,270,869, Cl. 401-30.000.

Zech, Herbert: *See*—
Rossman, Axel; and Zech, Herbert, 4,271,112, Cl. 264-86.000.

Zeitler, Carl, Jr.: *See*—
Christensen, Neal T.; Van Loo, William C.; Werner, Robert H.; Wetzel, Joseph A.; and Zeitler, Carl, Jr., 4,271,468, Cl. 364-200.000.

Zeitner, Alfred: *See*—
Knobl, Alois; Zeitner, Alfred; Krockow, Helmut; and Schmaus, Hermann, 4,271,454, Cl. 361-274.000.

Zenith Radio Corporation: *See*—
Strammello, Peter, Jr., 4,271,529, Cl. 455-180.000.

Zerin-Shinyaku Kogyo Kabushiki Kaisha: *See*—
Sasaki, Koji; and Harada, Yasukazu, 4,271,150, Cl. 424-177.000.

Zernig, Ernst; and Pittasch, Willi, to Richard Heinze GmbH & Co. KG. Hinge cup for furniture hinges. 4,270,240, Cl. 16-148.000.

Zeugner, Horst: *See*—
Liepmann, Hans; Hueschens, Rolf; Milkowski, Wolfgang; Zeugner, Horst; Heinemann, Heaning; Wolf, Klaus-Ulrich; Heil, Insa; and Hempel, Reinhard, 4,271,193, Cl. 424-324.000.

Zimmerer, Arthur L., deceased: *See*—
Siekmeier, David A.; Anderson, Glen L.; Zimmerer, Arthur L., deceased; First National Bank & Trust Co., joint executor; Zimmerer, Bernadette, joint executor; and Zimmerer, William P., 4,270,699, Cl. 239-184.000.

Zimmerer, Bernadette, joint executor: *See*—
Siekmeier, David A.; Anderson, Glen L.; Zimmerer, Arthur L., deceased; First National Bank & Trust Co., joint executor; Zimmerer, Bernadette, joint executor; and Zimmerer, William P., 4,270,699, Cl. 239-184.000.

Zimmerer, William P.: *See*—
Siekmeier, David A.; Anderson, Glen L.; Zimmerer, Arthur L., deceased; First National Bank & Trust Co., joint executor; Zimmerer, Bernadette, joint executor; and Zimmerer, William P., 4,270,699, Cl. 239-184.000.

Zimmerschied, Wilford J.; and Meyer, Delbert H., to Standard Oil Company (Indiana). Suppression of diglycol ether ester in chromium

(III) catalyzed ethylene oxide reaction with aromatic carboxylic acids. 4,271,312, Cl. 560-93.000.

Zinn, Michael F.; Krulick, Steven E.; and Leonard, Ronald W., to Bio-Energy Systems, Inc. Tube mat heat exchanger. 4,270,596, Cl. 165-1.000.

Zint, Frederick J. Portable male urinal with drain means. 4,270,231, Cl. 4-144.100.

Zurawski, Vincent R., Jr.: *See*—
Wands, Jack R.; and Zurawski, Vincent R., Jr., 4,271,145, Cl. 424-85.000.

Zurbuchen, Jacques; and Leutenegger, Willi, to CIBA-GEIGY Corporation. Process for the dyeing of fibre material. 4,270,236, Cl. 8-159.000.

Zurek, Donald: *See*—
Saunders, Robert C.; Au, Dean T.; Williams, W. Ray; and Zurek, Donald, 4,271,472, Cl. 364-481.000.

Zurrer, August: *See*—
Marfurt, Hans-Rudolf; and Zurrer, August, 4,271,028, Cl. 210-727.000.

Zwettler, Frank J., Jr.: *See*—
Brandl, Michael C.; Kataoka, David T.; Khanna, Jagdish C.; and Zwettler, Frank J., Jr., 4,270,623, Cl. 180-69.00R.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Christiaens Societe Anonyme: *See*—
Delarge, Jacques E.; Lapiere, Charles L.; and Georges, Andre H., Re. 30,633, Cl. 424-263.000.

Barnes, Derek, to MacMillan Bloedel Limited. Products of converted lignocellulosic materials. Re. 30,636, Cl. 428-294.000.

Breysse, Jacques; and Roget, Jean, to Rhone Poulenc, S.A. Separation apparatus. Re. 30,632, Cl. 210-236.000.

Dawson, Lindsay G., to Rolls-Royce Limited. Gas turbine engine. Re. 30,629, Cl. 60-682.000.

Delarge, Jacques E.; Lapiere, Charles L.; and Georges, Andre H., to A. Christiaens Societe Anonyme. 3-Lower alkylcarbamylsulfonamido-4-phenylaminopyridines, n-oxides, derivatives thereof and pharmaceutical compositions containing same. Re. 30,633, Cl. 424-263.000.

General Atomic Company: *See*—
Morse, David C.; and Vrable, Daniel L., Re. 30,630, Cl. 62-332.000.

Georges, Andre H.: *See*—
Delarge, Jacques E.; Lapiere, Charles L.; and Georges, Andre H., Re. 30,633, Cl. 424-263.000.

Henry, Arthur C., to Shell Oil Company. Benzyl oxime ethers. Re. 30,634, Cl. 424-327.000.

Hercules Incorporated: *See*—
Ruckdeschel, Charles B., Jr., Re. 30,631, Cl. 101-415.100.

Kuppers, Dieter; Lydtin, Hans; and Rehder, Ludwig, to U.S. Philips Corporation. Method of producing internally coated glass tubes for the drawing of fibre optic light conductors. Re. 30,635, Cl. 427-38.000.

Lapiere, Charles L.: *See*—
Delarge, Jacques E.; Lapiere, Charles L.; and Georges, Andre H., Re. 30,633, Cl. 424-263.000.

Lydtin, Hans: *See*—
Kuppers, Dieter; Lydtin, Hans; and Rehder, Ludwig, Re. 30,635, Cl. 427-38.000.

MacMillan Bloedel Limited: *See*—
Barnes, Derek, Re. 30,636, Cl. 428-294.000.

Morse, David C.; and Vrable, Daniel L., to General Atomic Company. Power plant secondary coolant circuit. Re. 30,630, Cl. 62-332.000.

Rehder, Ludwig: *See*—
Kuppers, Dieter; Lydtin, Hans; and Rehder, Ludwig, Re. 30,635, Cl. 427-38.000.

Rhone Poulenc, S.A.: *See*—
Breysse, Jacques; and Roget, Jean, Re. 30,632, Cl. 210-236.000.

Roget, Jean: *See*—
Breysse, Jacques; and Roget, Jean, Re. 30,632, Cl. 210-236.000.

Rolls-Royce Limited: *See*—
Dawson, Lindsay G., Re. 30,629, Cl. 60-682.000.

Ruckdeschel, Charles B., Jr., to Hercules Incorporated. Saddle lock-up for tab-less flexible printing plates. Re. 30,631, Cl. 101-415.100.

Shell Oil Company: *See*—
Henry, Arthur C., Re. 30,634, Cl. 424-327.000.

U.S. Philips Corporation: *See*—
Kuppers, Dieter; Lydtin, Hans; and Rehder, Ludwig, Re. 30,635, Cl. 427-38.000.

Vrable, Daniel L.: *See*—
Morse, David C.; and Vrable, Daniel L., Re. 30,630, Cl. 62-332.000.

LIST OF DESIGN PATENTEES

Allen, James L., to G.S.B. Rail Ltd. Modular electronic equipment case. 259,418, 6-2-81, Cl. D13-41.000.

Amaro, Frances; and Amaro, Max. Drapery work table. 259,378, 6-2-81, Cl. D6-179.000.

Amaro, Max: *See*—
Amaro, Frances; and Amaro, Max, 259,378, Cl. D6-179.000.

Atlas Copco AB: *See*—
Elmesaar, Heino; Lundberg, Ronald J.; and Zernell, Stig R., 259,392, Cl. D8-68.000.

Baker, Arleigh B.: *See*—
Root, James A.; and Baker, Arleigh B., 259,423, Cl. D14-95.000.

Baldwin, Leonard. Mute for a brass musical instrument or the like. 259,426, 6-2-81, Cl. D17-13.000.

Bell, Ted A.; and Lehner, Daniel F., to Pretty Products, Inc. Automobile floor mat. 259,416, 6-2-81, Cl. D12-203.000.

Bell, Ted A.; and Lehner, Daniel F., to Pretty Products, Inc. Automobile floor mat. 259,417, 6-2-81, Cl. D12-203.000.

Bell Telephone Laboratories, Incorporated: *See*—
Genaro, Donald M.; and McGarvey, John N., 259,420, Cl. D14-60.000.

Belzona Molecular Metalife Limited: *See*—
Jones, Ian B., 259,404, Cl. D9-370.000.

Boehm, Lawrence O. Cane. 259,371, 6-2-81, Cl. D3-7.000.

Boeing Company, The: *See*—
Miller, Douglas S.; and Nielson, David J., 259,411, Cl. D12-341.000.

Brown, Richard G., to Null Manufacturing Corporation. Seat. 259,373, 6-2-81, Cl. D6-71.000.

Broyhill Furniture Industries, Inc.: *See*—
Smith, Melbourne F., Jr., 259,377, Cl. D6-179.000.

Carroll, James C.; Johns, Victor D.; and Johnson, Lewis T., to Phillips Petroleum Company. Tote box for fruit or the like. 259,400, 6-2-81, Cl. D99-44.000.

Carter, Ronald D., to Post Office, The. Telephone instrument. 259,419, 6-2-81, Cl. D14-53.000.

Cepin, George. Golf shoe tool. 259,372, 6-2-81, Cl. D4-06.000.

Champion International Corporation: *See*—
Manning, James F., 259,401, Cl. D9-432.000.

Clorox Company, The: *See*—
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Crowe, Douglas M., to Smith & Stone Limited. Soap dish. 259,374, 6-2-81, Cl. D6-90.000.

Dart Industries Inc.: *See*—
Painter, David L.; and Zinkgraf, Robert C., 259,382, Cl. D7-21.000.

Dickinson, Robert J.; and Wagner, James L. Combined self-righting sinker and lure support with trailing legs. 259,436, 6-2-81, Cl. D22-30.000.

di Rosa, Gaetano, to F.A.T.A. -Fabbrica Apparecchi di Sollevamento e Trasporto Ed Affini S.p.A. Self-propelled trolley for suspended monorail conveyers. 259,410, 6-2-81, Cl. D12-60.000.

Doman, Donald W., to Kohler Co. Food preparation sink. 259,439, 6-2-81, Cl. D23-62.000.

Doyel, John S. Vibratory device for cleaning jewelry and the like. 259,425, 6-2-81, Cl. D15-34.000.

Drummond, Archie G., to Clorox Company, The. Bottle. 259,405, 6-2-81, Cl. D9-376.000.

Eisenstat, Gladys. Portable glass holder for attachment to a furniture arm. 259,379, 6-2-81, Cl. D6-191.000.

Elmesaar, Heino; Lundberg, Ronald J.; and Zernell, Stig R., to Atlas Copco AB. Pneumatic drill. 259,392, 6-2-81, Cl. D8-68.000.

Emer S.n.c.: *See*—
Merloni, Elio, 259,388, Cl. D7-175.000.

F.A.T.A. -Fabbrica Apparecchi di Sollevamento e Trasporto Ed Affini S.p.A.: *See*—
di Rosa, Gaetano, 259,410, Cl. D12-60.000.

Fee, Robert W.: *See*—
Robbins, Richard J.; and Fee, Robert W., 259,389, Cl. D7-194.000.

Frazier, Eddie B., Jr. Container lid with non-removable tab closure for drink opening. 259,403, 6-2-81, Cl. D9-438.000.

G.S.B. Rail Ltd.: *See*—
Allen, James L., 259,418, Cl. D13-41.000.

Genaro, Donald M.; and McGarvey, John N., to Bell Telephone Laboratories, Incorporated. Telephone stand. 259,420, 6-2-81, Cl. D14-60.000.

General Electric Company: *See*—
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Janda, George M., 259,421, Cl. D14-60.000.

Halicho, James J.: *See*—
Wright, Philip R.; and Halicho, James J., 259,408, Cl. D10-125.000.

Hauser, Stephen G. Contact lens disinfecting unit. 259,441, 6-2-81, Cl. D24-9.000.

IPM Corporation: *See*—
Pierce, Danny A., 259,407, Cl. D10-81.000.

Ikeda, Takeshi: *See*—
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Jacobson, Donald R., to Radiation Measurements, Inc. Collimator test target. 259,406, 6-2-81, Cl. D10-46.000.
James, Donald R. Wall panel jointure post. 259,443, 6-2-81, Cl. D25-77.000.
Janda, George M., to GTE Automatic Electric Labs Inc. Telephone instrument base. 259,421, 6-2-81, Cl. D14-60.000.
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Jones, Ian B., to Belzona Molecular Metalife Limited. Container. 259,404, 6-2-81, Cl. D9-370.000.
Kerns, Gertrude Y. Squeeze dispenser. 259,397, 6-2-81, Cl. D9-352.000.
Ketcham & McDougall, Inc.: *See*—
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Koga, Keisaku; and Iseda, Takeshi, to Sekisui Koji Kabushiki Kaisha. Storage tank for liquids or the like. 259,437, 6-2-81, Cl. D23-2.000.
Kohler Co.: *See*—
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Kuru, Ago. Support clip for a louver or the like. 259,393, 6-2-81, Cl. D8-388.000.
LaCerte, Emile B., II. Game board. 259,430, 6-2-81, Cl. D21-35.000.
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Levin, Monte L., to Scovill Inc. Electric frankfurter cooker. 259,384, 6-2-81, Cl. D7-85.000.
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Macowski, William, to Ketcham & McDougall, Inc. Letter tray. 259,428, 6-2-81, Cl. D19-92.000.
Manning, James F., to Champion International Corporation. Carton blank. 259,401, 6-2-81, Cl. D9-432.000.
Martin, Mary Jo; and Metz, Edward W., to Owens-Illinois, Inc. Culture tube or similar article. 259,440, 6-2-81, Cl. D24-56.000.
Mastrud, Conrad D., Jr.; and Poulos, Jon D. Rack for holding disposable cups and lids therefor. 259,375, 6-2-81, Cl. D6-157.000.
McGarvey, John N.: *See*—
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Merloni, Elio, to Emer S.n.c. Floor sweeper. 259,388, 6-2-81, Cl. D7-175.000.
Metropolitan Wire Corporation: *See*—
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Metz, Edward W.: *See*—
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Meyer, Larry P., to Nelson Irrigation Corporation. Sprinkler head. 259,438, 6-2-81, Cl. D23-35.000.
Miller, Douglas S.; and Nielson, David J., to Boeing Company, The. Airplane. 259,411, 6-2-81, Cl. D12-341.000.
Miller, Jack V. Motor vehicle bumper guard. 259,414, 6-2-81, Cl. D12-167.000.
Motorola, Inc.: *See*—
Taylor, Terrance N., 259,422, Cl. D14-68.000.
Mulder, Kenneth W. Combined barbeque and smoker. 259,386, 6-2-81, Cl. D7-108.000.
Nattrass, Frank, to Lolift Limited. Container for bulk materials. 259,402, 6-2-81, Cl. D9-432.000.
Nelson Irrigation Corporation: *See*—
Meyer, Larry P., 259,438, Cl. D23-35.000.
Nicely, Charles W.: *See*—
Welsch, John H.; and Nicely, Charles W., 259,380, Cl. D6-191.000.
Nielson, David J.: *See*—
Miller, Douglas S.; and Nielson, David J., 259,411, Cl. D12-341.000.
Null Manufacturing Corporation: *See*—
Brown, Richard G., 259,373, Cl. D6-71.000.
Okamoto, Tadao. Prophylactic device. 259,442, 6-2-81, Cl. D24-99.000.
Owens-Illinois, Inc.: *See*—
Martin, Mary Jo; and Metz, Edward W., 259,440, Cl. D24-56.000.
Painter, David L.; and Zinkgraf, Robert C., to Dart Industries Inc. Pan. 259,382, 6-2-81, Cl. D7-21.000.
Pharr, Cecil O., Jr. Handgun support clip. 259,432, 6-2-81, Cl. D22-7.000.
Pharr, Cecil O., Jr. Revolver support clip. 259,433, 6-2-81, Cl. D22-7.000.
Phillips Petroleum Company: *See*—
Carroll, James C.; Johns, Victor D.; and Johnson, Lewis T., 259,400, Cl. D99-44.000.
Pierce, Danny A., to IPM Corporation. Corrosion testing instrument. 259,407, 6-2-81, Cl. D10-81.000.
Plante, Emile A. P. Vent for lobster trap. 259,434, 6-2-81, Cl. D22-18.000.
Plante, Emile A. P. Lobster trap vent. 259,435, 6-2-81, Cl. D22-18.000.
Post Office, The: *See*—
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Poulos, Jon D.: *See*—
Mastrud, Conrad D., Jr.; and Poulos, Jon D., 259,375, Cl. D6-157.000.
Pretty Products, Inc.: *See*—
Bell, Ted A.; and Lehner, Daniel F., 259,416, Cl. D12-203.000.
Bell, Ted A.; and Lehner, Daniel F., 259,417, Cl. D12-203.000.
Puig, Terry L., to Towmotor Corporation. Vehicle cab. 259,424, 6-2-81, Cl. D15-30.000.
Radiation Measurements, Inc.: *See*—
Jacobson, Donald R., 259,406, Cl. D10-46.000.
Rehkopf, John. Tool box for a vehicle or the like. 259,413, 6-2-81, Cl. D12-157.000.
Robbins, Richard J.; and Fee, Robert W., to Leesona Corp. Feed hood for a granulator and the like. 259,389, 6-2-81, Cl. D7-194.000.
Rocket Jewelry Box, Inc.: *See*—
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Root, James A.; and Baker, Arleigh B., to Scope Incorporated. Housing for a hand held transmitter-receiver. 259,423, 6-2-81, Cl. D14-95.000.
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Schreiber, Hinda S.; Lindahl, Eugenie Z.; and Smith, Polly P., to Jogbra, Inc. Brassiere. 259,370, 6-2-81, Cl. D2-24.000.
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Shalvoy, John C., to General Electric Company. Iron or similar article. 259,390, 6-2-81, Cl. D7-202.000.
Shiffman, Jerome, to Rocket Jewelry Box, Inc. Jewelry case. 259,396, 6-2-81, Cl. D9-420.000.
Shiffman, Jerome, to Rocket Jewelry Box, Inc. Jewelry case. 259,398, 6-2-81, Cl. D9-423.000.
Shiffman, Jerome, to Rocket Jewelry Box, Inc. Jewelry case. 259,399, 6-2-81, Cl. D9-423.000.
Smith, Melbourne F., Jr., to Broyhill Furniture Industries, Inc. Extensible end table. 259,377, 6-2-81, Cl. D6-179.000.
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Schreiber, Hinda S.; Lindahl, Eugenie Z.; and Smith, Polly P., 259,370, Cl. D2-24.000.
Smith, Richard J., to W. R. Grace & Co. Distributor clamp. 259,394, 6-2-81, Cl. D8-394.000.
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Sugasawara, Michio, to Sugatsune Industrial Co., Ltd. Combined magnetic door stop and striking plate. 259,395, 6-2-81, Cl. D8-402.000.
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Sullivan, Thomas J. Electronic pyramid toy. 259,429, 6-2-81, Cl. D21-37.000.
Swenson, Ronald F. Golf putter. 259,431, 6-2-81, Cl. D21-219.000.
Taylor, Terrance N., to Motorola, Inc. Two-way marine radio or similar article. 259,422, 6-2-81, Cl. D14-68.000.
Timex Corporation: *See*—
Wright, Philip R.; and Halicho, James J., 259,408, Cl. D10-125.000.
Towmotor Corporation: *See*—
Puig, Terry L., 259,424, Cl. D15-30.000.
Verdesca, Joseph T. Combined desk and storage cabinet. 259,376, 6-2-81, Cl. D6-168.000.
W. R. Grace & Co.: *See*—
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Wagner, James L.: *See*—
Dickinson, Robert J.; and Wagner, James L., 259,436, Cl. D22-30.000.
Watanabe, Toshio. Back-up rear view mirror for trucks and like vehicles. 259,415, 6-2-81, Cl. D12-187.000.

Welsch, John H.; and Nicely, Charles W., to Metropolitan Wire Corporation. Corner structure for shelving. 259,380, 6-2-81, Cl. D6-191.000.
Wood, Yvonne L. Fingernail guard. 259,444, 6-2-81, Cl. D28-56.000.
Wright, Philip R.; and Halicho, James J., to Timex Corporation. Electro-optic display for a timepiece with alarm. 259,408, 6-2-81, Cl. D10-125.000.
Zernell, Stig R.: *See*—
Elmessaar, Heino; Lundberg, Ronald J.; and Zernell, Stig R., 259,392, Cl. D8-68.000.
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Painter, David L.; and Zinkgraf, Robert C., 259,382, Cl. D7-21.000.

LIST OF PLANT PATENTEES

Bennett, Cecilia L. D. Miniature rose plant. 4,730, 6-2-81, Cl. 9.000.
Mikkelsen, James C.: *See*—
Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,733, Cl. 68.000.
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Van den Berg, Cornelis P.; and Mikkelsen, James C., 4,733, Cl. 68.000.
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Stark, Paul C., Jr., to Stark Brothers Nurseries & Orchards Co. Apple tree-Goldensheen 2 cultivar. 4,731, 6-2-81, Cl. 34.000.
Van den Berg, Cornelis P.; and Mikkelsen, James C., to Mikkelsens, Inc. Impatiens plant. 4,733, 6-2-81, Cl. 68.000.
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Williams, Ernest D. Miniature rose plant. 4,729, 6-2-81, Cl. 7.000.

LIST OF DEFENSIVE PUBLICATIONS

APPLICANTS TO WHOM

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Published at the request of the applicant or owner in accordance with the Notice of Dec. 16, 1969, 869 O. G. 687.

ICI Americas Inc.: *See*—
Kuehn, Erich, T100,701, Cl. 428-422.800.
Kuehn, Erich, to ICI Americas Inc. In-mold coating compositions containing non-functional liquid copolymers and free isocyanate containing compounds. T100,701, 6-2-81, Cl. 428-422.800.

CLASSIFICATION OF PATENTS

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221 4,270,305
248 4,270,306
254 4,270,307

CLASS 47
17 4,270,308
59 4,270,309
70 4,270,310

CLASS 48
86 R 4,270,931

CLASS 49
141 4,270,311
385 4,270,312
403 4,270,313

CLASS 51
131.4 4,270,314
219 R 4,270,315
283 R 4,270,316
293 4,270,932
426 4,270,317

CLASS 52
1 4,270,318
36 4,270,319
81 4,270,320
97 4,270,321
98 4,270,322
224 4,270,323
285 4,270,324
391 4,270,325
404 4,270,326
488 4,270,327
511 4,270,328
576 4,270,329
712 4,270,330
744 4,270,331
772 4,270,332
818 4,270,333
828 4,270,334

CLASS 53
411 4,270,335
493 4,270,336

CLASS 55
279 4,270,933
316 4,270,934
379 4,270,935
520 4,270,936

CLASS 56
13.9 4,270,337
14.4 4,270,338
95 4,270,339

CLASS 57
75 4,270,340
215 4,270,341

CLASS 60
39.04 4,270,342
39.05 4,270,343
39.16 R 4,270,344
39.28 R 4,270,345
243 4,270,346
276 4,270,347
323 4,270,348
384 4,270,349
516 4,270,350
517 4,270,351
4,270,352
547 R 4,270,353
581 4,270,354
593 4,270,355
602 4,270,356
660 4,270,357
682 Re.30,629
693 4,270,358

CLASS 62
2 4,270,359
17 4,270,937
22 4,270,938
4,270,939
28 4,270,940
48 4,270,360
158 4,270,361
173 4,270,362
179 4,270,363
198 4,270,364
238.3 4,270,365
332 Re.30,630

CLASS 63
2 4,270,366

CLASS 64
23 4,270,367

CLASS 68
1 4,270,941
11 W 4,270,942
15 4,270,943
27 4,270,944
99 A 4,270,945

CLASS 66
13 4,270,368
157 4,270,369

CLASS 70
118 4,270,370
264 4,270,371
406 4,270,372

CLASS 71
94 4,270,946
98 4,270,947
100 4,270,948

CLASS 72
41 4,270,373
68 4,270,374
88 4,270,375
231 4,270,376
242 4,270,377
267 4,270,378
392 4,270,379
467 4,270,380

CLASS 73
19 4,270,381
37.5 4,270,382
82 4,270,383
155 4,270,385
204 4,270,386
504 4,270,387
603 4,270,388
612 4,270,389
663 4,270,390
861.22 4,270,391
862.59 4,270,384

CLASS 74
5 F 4,270,392
4,270,393
10 R 4,270,394
49 4,270,395
87 4,270,396
89.18 4,270,397
110 4,270,398
129 4,270,399
194 4,270,400
462 4,270,401
473 R 4,270,402
4,270,403
479 4,270,404
499 4,270,405
516 4,270,406
569 4,270,407
661 4,270,408
665 GA 4,270,409
665 Q 4,270,410
752 E 4,270,411
801 4,270,412
828 4,270,413
852 4,270,414
867 4,270,415

CLASS 75
60 4,270,949
126 L 4,270,950
200 4,270,951
203 4,270,952

CLASS 81
3 R 4,270,416
62 4,270,417
90 D 4,270,418

CLASS 82
3 4,270,419
4,270,420
21 A 4,270,421
36 R 4,270,422

CLASS 83
102.1 4,270,423
167 4,270,424
411 R 4,270,425
4,270,426
473 4,270,427
477.2 4,270,428
851 4,270,429

CLASS 84
1.23 4,270,430
1.24 4,270,431
318 4,270,432
322 4,270,433

CLASS 86
1 R 4,270,435

CLASS 89
33 R 4,270,436
192 4,270,437

CLASS 91
49 4,270,438
495 4,270,439

CLASS 92
87 4,270,440
102 4,270,441
168 4,270,442

CLASS 99
421 V 4,270,444

CLASS 100
4 4,270,445
8 4,270,446
70 R 4,270,447

CLASS 101
99 4,270,448
129 4,270,449
142 4,270,450
148 4,270,451
4,270,452
269 4,270,453
348 4,270,454
415.1 Re.30,631

CLASS 102
318 4,270,455

CLASS 104
3 4,270,456
25 4,270,457
124 4,270,458
172 B 4,270,459

CLASS 106
16 4,270,953
47 R 4,270,954
296 4,270,955

CLASS 108
3 4,270,460
31 4,270,461
32 4,270,462
96 4,270,463

CLASS 110
102 4,270,464
127 4,270,465
193 4,270,466
216 4,270,467
245 4,270,468
4,270,469
346 4,270,470

CLASS 111
6 4,270,471

CLASS 112
158 E 4,270,472
4,270,473
276 4,270,474

CLASS 113
120 K 4,270,475

CLASS 114
40 4,270,476
104 4,270,477
218 4,270,478
240 A 4,270,479
296 4,270,480

CLASS 116
28.1 4,270,481
209 4,270,482

CLASS 118
46 4,270,483
305 4,270,484
648 4,270,485
679 4,270,486
690 4,270,487

CLASS 119
4 4,270,488
51 R 4,270,489
61 4,270,490
109 4,270,491
118 4,270,492

CLASS 122
7 R 4,270,493

CLASS 123
41.35 4,270,494
54 B 4,270,495
90.51 4,270,496
195 C 4,270,497
276 4,270,498
293 4,270,499
308 4,270,500
350 4,270,501
357 4,270,502
438 4,270,503
520 4,270,504
522 4,270,505
523 4,270,506
4,270,507
568 4,270,508
647 4,270,509
668 4,270,510

CLASS 124
81 4,270,511

CLASS 126
121 4,270,512
4,270,513
140 4,270,514
164 4,270,515
417 4,270,516
422 4,270,517
4,270,518
430 4,270,519
433 4,270,520
4,270,521
434 4,270,522
435 4,270,523
443 4,270,524

CLASS 127
29 4,270,956

CLASS 128
4 4,270,525
67 4,270,526
87 A 4,270,528
87 R 4,270,527
200.26 4,270,529
206.25 4,270,530
207.14 4,270,531
213 R 4,270,532
214 D 4,270,534
214 F 4,270,533
214.4 4,270,535
218 A 4,270,537
218 N 4,270,536
282 4,270,538
295 4,270,539
305.5 4,270,540
344 4,270,541
350 R 4,270,542
639 4,270,543
640 4,270,544
653 4,270,545
660 4,270,546
671 4,270,547
743 4,270,548
784 4,270,549

CLASS 130
27 H 4,270,551
27 T 4,270,550

CLASS 131
290 4,270,552
291 4,270,553

CLASS 132
40 4,270,554
4,270,555
89 4,270,556

CLASS 133
8 D 4,270,557

CLASS 134
2 4,270,957
6 4,270,958

CLASS 136
249 4,271,328

CLASS 137
2 4,270,558
15 4,270,559
68 R 4,270,560
107 4,270,561
115 4,270,562
116.5 4,270,563
240 4,270,564
268 4,270,565
492.5 4,270,566
493.5 4,270,567
498 4,270,568
514.7 4,270,569
597 4,270,570
614.11 4,270,571
615 4,270,572
634.11 4,270,574
634.2 4,270,573
625.69 4,270,575
888 4,270,576

CLASS 138
39 4,270,577

CLASS 139
92 4,270,578
370.2 4,270,579
431 4,270,580

CLASS 140
57 4,270,581
71 R 4,270,582
92.1 4,270,583

CLASS 141
11 4,270,584
37 4,270,585

CLASS 144
309 AC 4,270,586

CLASS 145
30 R 4,270,587
35 R 4,270,588

CLASS 148
153 4,270,959
175 4,270,960

CLASS 150
0.5 4,270,589
1.6 4,270,590

CLASS 152
158 4,270,592

CLASS 156
51 4,270,961
180 4,270,962
201 4,270,963
228 4,270,964
244.11 4,270,965
251 4,270,966
299 4,270,967
361 4,270,968
401 4,270,605
473 4,270,969
477 B 4,270,970
510 4,270,971
605 4,270,972
4,270,973

CLASS 159
16 S 4,270,974
27 A 4,270,975

CLASS 162
26 4,270,976
168 R 4,270,977
199 4,270,978

CLASS 164
82 4,270,593
127 4,270,594
415 4,270,595

CLASS 165
1 4,270,596
27 4,270,597
61 4,270,598
104.16 4,270,599
104.31 4,270,600
154 4,270,601
167 4,270,602
185 4,270,603
4,270,604

CLASS 166
181 4,270,606
273 4,270,607
278 4,270,608
303 4,270,609
317 4,270,610
344 4,270,611

CLASS 169
45 4,270,612
61 4,270,613

CLASS 171
63 4,270,614

CLASS 172
49 4,270,615
811 4,270,616
821 4,270,617

CLASS 174
84 R 4,271,329
4,271,330

CLASS 175
57 4,270,618
61 4,270,619
322 4,270,620

CLASS 176
78 4,270,979

CLASS 179
1 SH 4,271,331
1.5 A 4,271,332
90 K 4,271,333

CLASS 180
54 C 4,270,621
65 C 4,270,622
69 R 4,270,623
287 4,270,624
291 4,270,625

CLASS 181
113 4,270,626
131 4,270,627

CLASS 187
6 4,270,628
9 E 4,270,629
9 R 4,270,630

CLASS 188
72.9 4,270,631
79.5 GC 4,270,633
79.5 P 4,270,632
196 M 4,270,634
322 4,270,635

CLASS 192
3.31 4,270,636
41 S 4,270,637
45.1 4,270,638
53 F 4,270,639
70.14 4,270,640
82 T 4,270,641
84 T 4,270,642
103 C 4,270,643
106.1 4,270,645
106.2 4,270,644
111 A 4,270,646
113 B 4,270,647

CLASS 194
1 C 4,270,648

CLASS 198
341 4,270,649
388 4,270,650
456 4,270,651
486 4,270,652
554 4,270,653
729 4,270,654
774 4,270,655
847 4,270,656

CLASS 200
24 4,271,336
51.09 4,271,337
61.71 4,271,338
144 B 4,271,340
144 C 4,271,339
148 A 4,271,341
157 4,271,342
304 4,271,343

CLASS 201
28 4,270,980

CLASS 202
172 4,270,981
241 4,270,982

CLASS 203
43 4,270,983

CLASS 204
2.1 4,270,984
15 4,270,985
48 4,270,986
49 4,270,987
50 R 4,270,989
55 R 4,270,990
58 4,270,991
59 R 4,270,992
67 4,270,993
78 4,270,994
79 4,270,995
98 4,270,996
157.1 R 4,270,997
158 HA 4,270,998
192 E 4,270,999
195 B 4,271,001
195 M 4,271,002
195 S 4,271,000
265 4,271,003
266 4,271,004
298 4,271,005

CLASS 206
386 4,270,657
439 4,270,658
538 4,270,659

CLASS 208
40 4,271,006
48 R 4,271,007
4,271,008
254 R 4,271,009

CLASS 209
211 4,271,010
236 4,271,011
653 4,271,012

CLASS 210
86 4,271,014
94 4,271,015
4,271,016
95 4,271,017
107 4,271,018
108 4,271,019
133 Q 4,271,020
198.2 4,271,022
198.3 4,271,021
236 Re.30,632
321.3 4,271,023
474 4,271,024
487 4,271,025
605 4,271,026
609 4,271,027
617 4,271,013
727 4,271,028

CLASS 211
13 4,270,660
49 D 4,270,661
74 4,270,662

CLASS 212
222 4,270,663

CLASS 215
216 4,270,664
347 4,270,665
364 4,270,666

CLASS 219
10.55 E 4,271,344
10.79 4,271,345
76.14 4,271,346
121 ED 4,271,348
121 L 4,271,347
283 4,271,349
549 4,271,350

CLASS 220
86 R 4,270,667
324 4,270,668

CLASS 221
13 4,270,669
211 4,270,670

CLASS 222
58 4,270,671
95 4,270,672
129.3 4,270,673
146 HE 4,270,674
196 4,270,675
485 4,270,676
561 4,270,677

CLASS 224
181 4,270,679
193 4,270,680
321 4,270,681

CLASS 225
1 4,270,682
103 4,270,683

CLASS 226
162 4,270,684
194 4,270,685
195 4,270,686

CLASS 227
113 4,270,687

CLASS 228
5.1 4,270,688
152 4,270,689
173 F 4,270,690
194 4,270,691

CLASS 229
11 4,270,692

CLASS 235
375 4,271,351
4,271,352

CLASS 236
46 F 4,270,693
49 4,270,694

CLASS 237
12.1 4,270,695

CLASS 239
38 4,270,696
99 4,270,697
171 4,270,698
184 4,270,699
231 4,270,700
288.5 4,270,701
455 4,270,702

CLASS 241
18 4,270,703
122 4,270,704
183 4,270,705

CLASS 242
55.2 4,270,706
56.9 4,270,707
107.3 4,270,708
107.7 4,270,709
118.11 4,270,710

CLASS 244
17.17 4,270,711
90 A 4,270,712
106 4,270,713
145 4,270,714

CLASS 246
5 4,270,715
182 B 4,270,716

CLASS 248
27.1 4,270,717
188.3 4,270,718
235 4,270,719
269 4,270,720
285 4,270,721
310 4,270,722
421 4,270,723
534 4,270,724

CLASS 250
201 4,271,355
211 K 4,271,354
262 4,271,356
276 4,271,353
287 4,271,357
338 4,271,358
347 4,271,359
353 4,271,360
390 4,271,361
496 4,271,362
504 R 4,271,363
551 4,271,365

CLASS 251
6 4,270,725
30 4,270,726
63.4 4,270,727
143 4,270,728
144 4,270,729
214 4,270,730
292 4,270,849
309 4,270,731
310 4,270,732

CLASS 252
70 4,271,029
98 4,271,030
156 4,271,031
174.19 4,271,032
188.3 R 4,271,033
301.1 W 4,271,034
301.17 4,271,035
301.23 4,271,036
359 R 4,271,037
428 4,271,038
435 4,271,039
437 4,271,040
438 4,271,041
439 4,271,042
455 R 4,271,043
462 4,271,044
511 4,271,045
522 R 4,271,046
4,271,047
4,271,048

CLASS 254
93 R 4,270,733
134.3 R 4,270,734

CLASS 256
10 4,270,735
12 4,270,736
48 4,270,737

CLASS 260
4 R 4,271,049
5 4,271,050
22 M 4,271,051
23.7 N 4,271,052
29.2 EP 4,271,053
29.3 4,271,054
29.6 AN 4,271,056
29.6 M 4,271,057
4,271,058
29.6 TA 4,271,055
31.2 T 4,271,059
33.6 A 4,271,060
37 EP 4,271,061
39 P 4,271,062
40 R 4,271,063
4,271,064
4,271,065
97.5 4,271,066
112 R 4,271,067
112.5 R 4,271,068
4,271,069
123.7 4,271,070
157 4,271,071
207.3 4,271,072
315 4,271,073
326.26 4,271,074
343.21 4,271,076
343.4 4,271,075
345.2 4,271,077
4,271,078
346.11 4,271,080
4,271,081
346.3 4,271,079
347.2 4,271,082
396 R 4,271,083
429 R 4,271,084
4,271,085
453 AB 4,271,087
465.6 4,271,088
4,271,089
550 4,271,090

CLASS 261
30 4,271,092
34 R 4,271,093
39 B 4,271,094
41 D 4,271,095
44 G 4,271,096
64 D 4,271,097
66 4,271,098
76 4,271,099
78 A 4,271,100

CLASS 264
0.5 4,271,101
4,271,102
1 4,271,103
1.5 4,271,104
26 4,271,105
40.5 4,271,106
51 4,271,107
4,271,108
63 4,271,109
67 4,271,110
71 4,271,111
86 4,271,112
112 4,271,113
114 4,271,114
117 4,271,115
221 4,271,116
275 4,271,117
333 4,271,118

CLASS 266
99 4,270,738
156 4,270,739
157 4,270,740

CLASS 269
17 4,270,741

CLASS 270
37 4,270,742
58 4,270,743

CLASS 271
9 4,270,745
98 4,270,746
179 4,270,747

CLASS 272
56.5 R 4,270,748
96 4,270,749
136 4,270,750

CLASS 273
34 R 4,270,751
73 A 4,270,752
186 A 4,270,753
273 4,270,754
313 4,270,755
326 4,270,756
411 4,270,757

CLASS 277
1 4,270,759
3 4,270,760
12 4,270,761
59 4,270,762

CLASS 279
123 4,270,763

CLASS 280
87.04 A 4,270,764
137 4,270,765
234 4,270,766
477 4,270,767
610 4,270,768
615 4,270,769
624 4,270,770
707 4,270,771

CLASS 283
1 A 4,270,772
34 4,270,773
62 4,270,774

CLASS 285
24 4,270,775
235 4,270,776
242 4,270,777
305 4,270,778

CLASS 292
175 4,270,779
202 4,270,780
251.5 4,270,781
288 4,270,782
336.3 4,270,783
338 4,270,784

CLASS 293
1 4,270,785
121 4,270,787

CLASS 294
55 4,270,788
63 A 4,270,789
169 4,270,678

CLASS 296
37.16 4,270,790
93 4,270,792
171 4,270,791
192 4,270,793

CLASS 297
14 4,270,794
45 4,270,795
69 4,270,796
300 4,270,797
417 4,270,798
440 4,270,799

CLASS 298
3 4,270,786

CLASS 299
1 4,270,800
4,270,801
5 4,270,802
76 4,270,803

CLASS 300
16 4,270,804

CLASS 301
37 TP 4,270,805

CLASS 303
3 4,270,806
22 R 4,270,807
92 4,270,808
4,270,809
106 4,270,810

CLASS 305
11 4,270,811

CLASS 307
355 4,271,364
591 4,271,366

CLASS 308
8.2 4,270,812
23 4,270,813
160 4,270,814
213 4,270,815

CLASS 310
13 4,271,367
42 4,271,368
178 4,271,369
266 4,271,370
316 4,271,371

CLASS 312
3 4,270,816
15 4,270,817
38 4,270,818
116 4,270,819
242 4,270,820
245 4,270,821
265 4,270,822

CLASS 313
330 4,271,372
432 4,271,373
449 4,271,374

CLASS 315
241 P 4,271,375
4,271,376
366 4,271,377

CLASS 316
19 4,270,823

CLASS 318
10 4,271,378
77 4,271,379
245 4,271,380
282 4,271,381
318 4,271,382
375 4,271,383
685 4,271,384
722 4,271,385
729 4,271,386

CLASS 323
241 4,271,387

CLASS 324
51 4,271,388
58.5 A 4,271,389
74 4,271,390
103 P 4,271,391
115 4,271,392
240 4,271,393

CLASS 330
258 4,271,394

CLASS 331
94.5 C 4,271,396
4,271,397
94.5 L 4,271,395

CLASS 333
28 T 4,271,398
219 4,271,399

CLASS 337
380 4,271,400

CLASS 339
15 4,270,824
47 R 4,270,825
75 MP 4,270,826
95 B 4,270,827
95 R 4,270,828
96 4,270,829
99 R 4,270,830
4,270,831
105 4,270,832
121 4,270,833
147 R 4,270,834
198 GA 4,270,835
213 R 4,270,836

CLASS 340
52 D 4,271,401
52 F 4,271,402
147 C 4,271,403
365 S 4,271,404
512 4,271,405
604 4,271,406
690 4,271,407
702 4,271,408
703 4,271,409
765 4,271,410

CLASS 343
5 DD 4,271,411
5 FT 4,271,412
100 SA 4,271,413

CLASS 346
76 PH 4,271,414
108 4,271,415
140 R 4,271,416
154 4,271,417

CLASS 350
54 4,270,837
81 4,270,838
96.15 4,270,839
96.34 4,270,840
294 4,270,844
299 4,270,845
336 4,270,846
374 4,270,841
392 4,270,847
427 4,270,848
452 4,270,842
480 4,270,843

CLASS 353
27 R 4,270,850

CLASS 354
21 4,270,851
23 D 4,270,852
76 4,270,853
4,270,854
124 4,270,855

CLASS 355
3 R 4,270,856
8 4,270,857
4,270,858
10 4,270,859
14 R 4,270,860
38 4,270,861

CLASS 356
5 4,270,862
71 4,270,863
301 4,270,864

CLASS 357
23 4,271,418
24 4,271,419
30 4,271,420
41 4,271,421
42 4,271,422
55 4,271,423
67 4,271,424
72 4,271,425
74 4,271,426

CLASS 358
40 4,271,427
54 4,271,428
4,271,429
102 4,271,430
140 4,271,431
190 4,271,432
191.1 4,271,433
193.1 4,271,434
213 4,271,435
296 4,271,436

CLASS 360
9 4,271,437
32 4,271,438
65 4,271,439
92 4,271,440
130.33 4,271,441
131 4,271,442

CLASS 361
19 4,271,443
48 4,271,444
56 4,271,445
4,271,446
93 4,271,447
4,271,448
94 4,271,449
155 4,271,450
213 4,271,451
231 4,271,452
248 4,271,453
274 4,271,454
331 4,271,455

CLASS 362
66 4,271,456
104 4,271,457
236 4,271,458
346 4,271,459

CLASS 363
49 4,271,460
60 4,271,461
84 4,271,462
126 4,271,463

CLASS 364
200 4,271,464
4,271,465
4,271,466
4,271,467
4,271,468
431 4,271,469
466 4,271,470
474 4,271,471
481 4,271,472
494 4,271,473
500 4,271,474
506 4,271,475
515 4,271,476
563 4,271,477
580 4,271,478
900 4,271,479
4,271,480
4,271,481
4,271,482
4,271,483
4,271,484

CLASS 365
16 4,271,485
45 4,271,486
189 4,271,487
230 4,271,488

CLASS 367
122 4,271,490
136 4,271,491

CLASS 368
10 4,271,492
28 4,271,493
34 4,271,494
75 4,271,495
80 4,271,496
82 4,271,497
250 4,271,498

CLASS 369
38 4,271,489
41 4,271,334
136 4,271,335
170 4,270,758

CLASS 370
7 4,271,499
23 4,271,500
24 4,271,501
62 4,271,502
74 4,271,503
76 4,271,504
85 4,271,505
89 4,271,506
94 4,271,507
106 4,271,508
110 4,271,509
4,271,510

CLASS 371
8 4,271,511
21 4,271,512
22 4,271,513
4,271,514
25 4,271,515
4,271,516
37 4,271,517
4,271,518
38 4,271,519
42 4,271,520
51 4,271,521
57 4,271,522
4,271,523

CLASS 375
1 4,271,524
14 4,271,525
17 4,271,526
39 4,271,527

CLASS 400
63 4,270,865
117 4,270,866
207 4,270,867
320 4,270,868

CLASS 401
30 4,270,869
93 4,270,870

CLASS 403
29 4,270,871
170 4,270,872

CLASS 404
10 4,270,873

CLASS 406
63 4,270,874
129 4,270,875
133 4,270,876
198 4,270,877

CLASS 409
143 4,270,878

CLASS 411
21 4,270,434
112 4,270,591

CLASS 414
35 4,270,879
391 4,270,880
398 4,270,881

CLASS 415
72 4,270,882

CLASS 416
97 A 4,270,883

CLASS 417
15 4,270,884
279 4,270,885
462 4,270,886

CLASS 422
50 4,271,119
53 4,271,120
56 4,271,121
61 4,271,122
64 4,271,123
68 4,271,124
86 4,271,125
143 4,271,126
159 4,271,127
189 4,271,128
246 4,271,129

CLASS 423
118 4,271,130
179.5 4,271,131
223 4,271,132
230 4,271,133
238 4,271,134
329 4,271,135
362 4,271,136
395 4,271,137
462 4,271,138

CLASS 434
1 4,271,139
4,271,140
4,271,141
14 4,271,142
78 4,271,143
4,271,144
85 4,271,145
89 4,271,146
92 4,271,147
106 4,271,148
150 4,271,149
177 4,271,150
4,271,151
4,271,152
180 4,271,153
195 4,271,154
200 4,271,155
246 4,271,156
4,271,157
248.5 4,271,158
248.51 4,271,159
248.54 4,271,160
250 4,271,161
4,271,162
4,271,163
251 4,271,164
263 Re.30,633
4,271,166
4,271,167
4,271,168
4,271,169
4,271,170
266 4,271,171
267 4,271,172
4,271,173
272 4,271,174
273 R 4,271,175
4,271,176
274 4,271,177
4,271,178
4,271,179
4,271,180
276 4,271,181
283 4,271,182
285 4,271,183
4,271,184
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304 4,271,186
309 4,271,187
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315 4,271,189
316 4,271,190
317 4,271,191
319 4,271,192
324 4,271,193
326 4,271,194
327 Re.30,634
330 4,271,195
358 4,271,196

CLASS 425
47 4,270,887
66 4,270,888
115 4,270,889
150 4,270,890
296 4,270,891
388 4,270,892
415 4,270,893

CLASS 426
3 4,271,197
4,271,198
5 4,271,199
27 4,271,200
40 4,271,201
96 4,271,202
243 4,271,203
259 4,271,204
451 4,271,205
572 4,271,206

CLASS 427
6 4,271,207
28 4,271,208
38 Re.30,635
58 4,271,209
169 4,271,210
195 4,271,211
203 4,271,212
222 4,271,213
345 4,271,214
387 4,271,215
428 4,271,216

CLASS 428
36 4,271,218
96 4,271,217
116 4,271,219
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172 4,271,221
193 4,271,222
207 4,271,223
4,271,224
215 4,271,225
220 4,271,226
264 4,271,227
281 4,271,228
288 4,271,229
294 Re.30,636
315 4,271,230
323 4,271,231
332 4,271,232
370 4,271,233
405 4,271,234
408 4,271,235
426 4,271,236
520 4,271,237
542 4,271,238
547 4,271,239
580 4,271,240

CLASS 429
54 4,271,241
194 4,271,242
4,271,243
197 4,271,244
243 4,271,245

CLASS 430
7 4,271,246
24 4,271,247
39 4,271,248
101 4,271,249
127 4,271,250
195 4,271,251
216 4,271,252
4,271,253
239 4,271,254
253 4,271,255
4,271,256
276 4,271,257
284 4,271,258
286 4,271,259
292 4,271,260
325 4,271,261
4,271,262
522 4,271,263

CLASS 431
20 4,270,894
183 4,270,895
328 4,270,896
362 4,270,897

CLASS 432
19 4,270,898
58 4,270,899
4,270,900

CLASS 433
54 4,270,901
144 4,270,902
165 4,270,903
167 4,270,904
201 4,270,905

CLASS 434
156 4,270,284

CLASS 435
14 4,271,264
16 4,271,265
73 4,271,266
108 4,271,267
158 4,271,268
176 4,271,269
294 4,271,270

CLASS 485
179 4,271,528
180 4,271,529
182 4,271,530
4,271,531
186 4,271,532
192 4,271,533
270 4,271,534
309 4,271,535
619 4,271,536

CLASS 494
135 4,270,906
200 4,270,907

CLASS 498
204 4,270,908
365 4,270,909
387 4,270,443
373 4,270,910
410 4,270,911
430 4,270,744

CLASS 518
704 4,271,086

CLASS 521
82 4,271,271
110 4,271,272
4,271,273

CLASS 525
111 4,271,274
112 4,271,275
340 4,271,276
351 4,271,277
356 4,271,278
387 4,271,279

CLASS 526
65 4,271,280
80 4,271,281
174 4,271,282
317 4,271,283

CLASS 528
28 4,271,284
175 4,271,285
254 4,271,286
272 4,271,287
353 4,271,288
374 4,271,289

CLASS 536
22 4,271,290
65 4,271,291

CLASS 542
429 4,271,292
435 4,271,293

CLASS 544
87 4,271,294
182 4,271,295
4,271,296
190 4,271,297
4,271,298
218 4,271,299
291 4,271,300
296 4,271,301

CLASS 546
2 4,271,302
155 4,271,303
290 4,271,304

CLASS 548
153 4,271,305
182 4,271,306
224 4,271,307
262 4,271,308
364 4,271,309

CLASS 549
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86 4,271,311
93 4,271,312
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CLASS 562
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CLASS 564
8 4,271,317
305 4,271,091
468 4,271,318

CLASS 568
312 4,271,319
426 4,271,320
569 4,271,321
798 4,271,322
816 4,271,323
824 4,271,324

CLASS 570
228 4,271,325

CLASS 585
240 4,271,326
440 4,271,327

CLASSIFICATION OF DESIGNS

D2—	24	259,370		43	259,383	D9—	352	259,397	D11—	158	259,409			259,421		18	259,434
D3—	7	259,371		85	259,384		370	259,404	D12—	60	259,410		68	259,422			259,435
D4—	06	259,372		94	259,385		376	259,405		83	259,412		95	259,423		30	259,436
D6—	71	259,373		108	259,386		420	259,396		157	259,413	D15—	30	259,424	D23—	2	259,437
	90	259,374		154	259,387		423	259,398		167	259,414		34	259,425		35	259,438
	157	259,375		175	259,388			259,399		187	259,415	D17—	13	259,426		62	259,439
	168	259,376		194	259,389		432	259,401		203	259,416	D19—	92	259,428	D24—	9	259,441
	179	259,377		202	259,390			259,402			259,417	D21—	35	259,430		56	259,440
		259,378	D8—	14	259,391		438	259,403		341	259,411		37	259,429		99	259,442
	191	259,379		68	259,392	D10—	46	259,406	D13—	41	259,418		219	259,431	D25—	77	259,443
		259,380		388	259,393		81	259,407	D14—	53	259,419	D22—	7	259,432	D28—	56	259,444
	200	259,381		394	259,394		125	259,408		60	259,420			259,433	D99—	44	259,400
D7—	21	259,382		402	259,395												

CLASSIFICATION OF PLANTS

P.—	7	4,729	9	4,730	34	4,731	46	4,732	68	4,733	4,734

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 889 O.G. 6877]

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PATENTS

6 :	4,270,462		4,270,680		4,271,458		4,270,905		4,271,311		4,270,323
	4,271,232		4,270,686		4,271,510		4,271,005		4,271,312		4,270,357
8 :	4,271,476		4,270,706		4,271,515		4,271,014		4,271,314		4,270,382
01 :	4,270,515		4,270,727		4,271,526		4,271,233		4,271,339		4,270,453
	4,270,750		4,270,733	08 :	4,270,359		4,271,241		4,271,350		4,270,529
	4,270,811		4,270,749		4,270,393		4,271,492		4,271,351		4,270,533
04 :	4,270,260		4,270,786		4,270,535		4,271,527		4,271,400		4,270,544
	4,270,577		4,270,795		4,270,547	13 :	4,270,243		4,271,440		4,270,673
	4,270,883		4,270,817		4,270,695		4,270,784		4,271,520		4,270,679
	4,271,103		4,270,820		4,270,873		4,270,881		4,271,529		4,270,795
	4,271,111		4,270,826		4,271,011		4,271,097	18 :	4,270,231		4,270,769
	4,271,270		4,270,829		4,271,407		4,271,430		4,270,235		4,270,855
	4,271,472		4,270,879		4,271,491	15 :	4,270,764		4,270,256		4,270,871
05 :	4,270,396		4,270,894		4,271,519	17 :	4,270,238		4,270,300		4,270,907
	4,270,423		4,270,916	09 :	4,270,251		4,270,247		4,270,379		4,270,922
	4,270,789		4,270,921		4,270,295		4,270,255		4,270,388		4,270,984
06 :	Re.30,630		4,270,928		4,270,377		4,270,290		4,270,408		4,271,017
	4,270,241		4,270,930		4,270,415		4,270,297		4,270,425		4,271,048
	4,270,271		4,270,942		4,270,463		4,270,298		4,270,661		4,271,134
	4,270,278		4,270,945		4,270,493		4,270,314		4,270,693		4,271,145
	4,270,291		4,270,946		4,270,516		4,270,358		4,270,721		4,271,192
	4,270,293		4,270,947		4,270,656		4,270,424		4,271,063		4,271,228
	4,270,299		4,270,958		4,270,675		4,270,454		4,271,064		4,271,281
	4,270,301		4,270,970		4,270,979		4,270,507		4,271,163		4,271,332
	4,270,303		4,270,972		4,271,056		4,270,527		4,271,166		4,271,384
	4,270,311		4,270,985		4,271,197		4,270,534		4,271,174		4,271,412
	4,270,313		4,271,002		4,271,198		4,270,570		4,271,305		4,271,439
	4,270,320		4,271,009		4,271,199		4,270,597		4,271,402		4,271,460
	4,270,332		4,271,015		4,271,337		4,270,616		4,271,409		4,271,467
	4,270,333		4,271,027		4,271,355		4,270,623	19 :	4,270,321		4,271,484
	4,270,361		4,271,033		4,271,358		4,270,646		4,270,363		4,271,505
	4,270,390		4,271,041		4,271,379		4,270,652		4,270,410	26 :	4,270,266
	4,270,430		4,271,107		4,271,444		4,270,701		4,270,663		4,270,328
	4,270,441		4,271,113		4,271,447		4,270,719		4,270,689		4,270,334
	4,270,465		4,271,123		4,271,470		4,270,725		4,270,767		4,270,344
	4,270,492		4,271,195		4,271,481		4,270,728		4,271,449		4,270,348
	4,270,508		4,271,219	10 :	Re.30,631		4,270,731	20 :	4,270,671		4,270,375
	4,270,518		4,271,264		4,270,791		4,270,754		4,271,132		4,270,418
	4,270,521		4,271,279		4,271,039		4,270,758	21 :	4,270,229		4,270,426
	4,270,528		4,271,284		4,271,259		4,270,760		4,270,775		4,270,431
	4,270,538		4,271,306		4,271,451		4,270,798		4,270,868		4,270,437
	4,270,548		4,271,325	11 :	4,270,400		4,270,799		4,270,885		4,270,486
	4,270,564		4,271,334		4,271,140		4,270,803	23 :	4,271,221		4,270,494
	4,270,573		4,271,346	12 :	4,270,227		4,270,813	24 :	4,270,285		4,270,496
	4,270,575		4,271,363		4,270,276		4,270,824		4,270,445		4,270,499
	4,270,581		4,271,364		4,270,284		4,270,878		4,270,555		4,270,503
	4,270,582		4,271,378		4,270,302		4,270,926		4,270,756		4,270,504
	4,270,590		4,271,396		4,270,365		4,270,927		4,270,839		4,270,583
	4,270,602		4,271,401		4,270,478		4,270,975		4,271,043		4,270,591
	4,270,603		4,271,410		4,270,488		4,270,994		4,271,389		4,270,622
	4,270,627		4,271,418		4,270,694		4,271,020		4,271,406		4,270,624
	4,270,658		4,271,452		4,270,714		4,271,099		4,271,512		4,270,630
	4,270,672		4,271,455		4,270,753		4,271,200	25 :	4,270,268		4,270,633

	4,270,643	30 :	4,270,312	35 :	4,270,844		4,270,345		4,270,601		4,270,620
	4,270,681		4,270,350		4,271,361		4,270,362		4,270,605		4,270,626
	4,270,717	31 :	4,270,370	36 :	4,270,230		4,270,497		4,270,653		4,270,696
	4,270,722		4,270,572		4,270,239		4,270,501		4,270,666		4,270,707
	4,270,747		4,270,699		4,270,249		4,270,514		4,270,668		4,270,711
	4,270,748	32 :	4,270,228		4,270,352		4,270,571		4,270,716		4,270,730
	4,270,762		4,270,232		4,270,380		4,270,637		4,270,724		4,270,736
	4,270,776		4,270,770		4,270,417		4,270,660		4,270,773		4,270,741
	4,270,787	33 :	4,270,837		4,270,451		4,270,684		4,270,788		4,270,745
	4,270,792	34 :	4,270,344		4,270,457		4,270,732		4,270,802		4,270,757
	4,270,796		4,270,317		4,270,460		4,270,743		4,270,849		4,270,818
	4,270,805		4,270,367		4,270,495		4,270,863		4,270,897		4,270,821
	4,270,806		4,270,387		4,270,522		4,270,888		4,270,903		4,270,898
	4,270,936		4,270,392		4,270,526		4,270,891		4,270,912		4,271,004
	4,270,951		4,270,473		4,270,592		4,270,906		4,270,939		4,271,022
	4,270,957		4,270,479		4,270,596		4,270,934		4,270,940		4,271,143
	4,271,029		4,270,517		4,270,651		4,270,937		4,270,969		4,271,144
	4,271,077		4,270,536		4,270,664		4,270,941		4,270,982		4,271,185
	4,271,078		4,270,540		4,270,702		4,270,943		4,271,026		4,271,315
	4,271,087		4,270,554		4,270,746		4,270,946		4,271,088		4,271,352
	4,271,094		4,270,560		4,270,751		4,270,949		4,271,089		4,271,356
	4,271,106		4,270,587		4,270,778		4,270,955		4,271,131		4,271,405
	4,271,114		4,270,599		4,270,825		4,270,983		4,271,210		4,271,419
	4,271,115		4,270,761		4,270,828		4,270,986		4,271,229		4,271,421
	4,271,164		4,270,777		4,270,830		4,270,988		4,271,237		4,271,423
	4,271,215		4,270,790		4,270,841		4,270,989		4,271,247		4,271,521
	4,271,220		4,270,823		4,270,859		4,271,024		4,271,271	49 :	4,270,609
	4,271,240		4,270,833		4,270,902		4,271,038		4,271,275		4,270,705
	4,271,257		4,270,856		4,270,924		4,271,049		4,271,285		4,270,772
	4,271,266		4,270,864		4,270,956		4,271,050		4,271,308		4,270,991
	4,271,288		4,270,895		4,270,967		4,271,054		4,271,326		4,271,446
	4,271,289		4,270,896		4,270,978		4,271,080		4,271,341	50 :	4,270,436
	4,271,292		4,270,933		4,270,981		4,271,081		4,271,369	51 :	4,270,252
	4,271,313		4,270,935		4,270,999		4,271,091		4,271,370		4,270,273
	4,271,368		4,270,938		4,271,013		4,271,202		4,271,471		4,270,386
	4,271,507		4,270,961		4,271,032		4,271,212		4,271,473		4,270,477
	4,271,523		4,270,974		4,271,119		4,271,213		4,271,502		4,270,614
27 :	4,270,259		4,270,977		4,271,137		4,271,277	44 :	4,270,305		4,270,674
	4,270,280		4,271,006		4,271,139		4,271,283		4,271,072		4,270,874
	4,270,556		4,271,012		4,271,142		4,271,362	45 :	4,270,369		4,270,901
	4,270,565		4,271,040		4,271,149		4,271,386		4,270,442		4,271,148
	4,270,588		4,271,042		4,271,168		4,271,414		4,270,443		4,271,347
	4,270,683		4,271,046		4,271,203		4,271,417		4,270,475		4,271,413
	4,270,692		4,271,053		4,271,206		4,271,448		4,270,491	53 :	4,270,381
	4,270,783		4,271,065		4,271,209		4,271,475		4,270,595		4,270,403
	4,270,861		4,271,069		4,271,225		4,271,487		4,270,915		4,270,446
	4,270,862		4,271,085		4,271,227	40 :	4,270,610		4,271,092		4,270,467
	4,270,971		4,271,090		4,271,236		4,270,619		4,271,342		4,270,482
	4,270,973		4,271,109		4,271,248		4,270,801	47 :	4,270,283		4,270,512
	4,270,990		4,271,129		4,271,273		4,270,812		4,270,421		4,270,598
	4,271,016		4,271,154		4,271,319		4,270,827		4,270,432		4,270,618
	4,271,104		4,271,159		4,271,345		4,270,911		4,270,474		4,270,669
	4,271,263		4,271,176		4,271,365		4,271,138		4,270,690		4,270,734
	4,271,278		4,271,181		4,271,390	41 :	4,270,429		4,270,718		4,270,876
	4,271,403		4,271,235		4,271,462		4,270,471		4,270,997		4,271,393
	4,271,426		4,271,272		4,271,468		4,270,531		4,271,071	54 :	4,270,469
28 :	4,270,329		4,271,302		4,271,479		4,270,537		4,271,291		4,270,782
	4,270,506		4,271,324		4,271,485		4,270,766		4,271,307		4,271,133
	4,270,892		4,271,338		4,271,497		4,271,486		4,271,333		4,271,499
	4,271,117		4,271,377		4,271,511		4,271,488	48 :	Re.30,634	55 :	4,270,399
29 :	4,270,233		4,271,391		4,271,528	42 :	4,270,258		4,270,237		4,270,409
	4,270,270		4,271,394		4,271,533		4,270,267		4,270,263		4,270,509
	4,270,292		4,271,397	37 :	4,270,336		4,270,287		4,270,294		4,270,659
	4,270,306		4,271,422		4,270,340		4,270,338		4,270,351		4,270,744
	4,270,406		4,271,425		4,270,366		4,270,339		4,270,385		4,270,785
	4,270,513		4,271,433		4,270,553		4,270,378		4,270,435		4,270,816
	4,270,551		4,271,437		4,270,739		4,270,391		4,270,440		4,270,850
	4,270,566		4,271,445		4,270,740		4,270,395		4,270,505		4,270,899
	4,270,729		4,271,489		4,270,759		4,270,427		4,270,539		4,270,900
	4,270,794		4,271,509		4,270,913		4,270,428		4,270,568		4,271,146
	4,270,822		4,271,524		4,271,287		4,270,455		4,270,606		4,271,222
	4,271,262		4,271,532		4,271,354		4,270,470		4,270,607		4,271,223
	4,271,438		4,271,536	39 :	4,270,318		4,270,549		4,270,608		4,271,431
	4,271,457										

DESIGN PATENTS

06 :	259,378	13 :	259,432	23 :	259,434		259,384		259,394	46 :	259,436
	259,408		259,433		259,435		259,385		259,401	47 :	259,391
	259,414	17 :	259,375	24 :	259,403		259,387		259,407	48 :	259,376
	259,415		259,382		259,418		259,396		259,413		259,431
	259,429		259,405	25 :	259,430		259,398		259,416	50 :	259,370
	259,441		259,421	26 :	259,397		259,399		259,417	53 :	259,411
	259,443		259,422	29 :	259,371		259,425		259,440		259,438
	259,444			34 :	259,420	37 :	259,373	40 :	259,412	55 :	259,383
09 :	259,390	18 :	259,381		259,428		259,377	41 :	259,424		259,406
12 :	259,386	20 :	259,389	36 :	259,379	39 :	259,372	42 :	259,380		259,439
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PLANT PATENTS

6 :	4,732	06 :	4,730	29 :	4,731	39 :	4,733		4,734	48 :	4,729

DEFENSIVE PUBLICATIONS APPLICATIONS

[Notice of Dec. 16, 1969, 869 O.G. 6877]

10 :	T100,701										

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Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,451,161, Re. S.N. 216,920, Filed Dec. 16, 1980, Cl. 46/241, TOY TRACK AND VEHICLE THEREFOR, Jerome H. Lemelson, Owner of Record: *Inventor,* Attorney or Agent: Kenneth J. Stempler, Ex. Gp.: 333

4,120,529, Re. S.N. 226,504, Filed Jan. 19, 1981, Cl. 296/218, REMOVABLE ROOF PANELS FOR VEHICLES, Richard R. Chrysler, Owner of Record: *Cars & Concepts, Inc., Brighton, Mich.,* Attorney or Agent: Hugh L. Fisher, et al., Ex. Gp.: 316

4,136,501, Re. S.N. 228,773, Filed Jan. 27, 1981, Cl. 53/461, ELASTIC PLASTIC NETTING, AND PALLET LOAD WRAPPING THEREWITH, Hugh R. Connolly, Owner of Record: *Bemis Co., Inc., Minneapolis, Minn.,* Attorney or Agent: Irving Powers, et al., Ex. Gp.: 324

4,137,793, Re. S.N. 231,425, Filed Feb. 4, 1981, Cl. 74/488, THROTTLE CONTROL DEVICE FOR MOTORCYCLES AND THE LIKE, William E. Sowell, Owner of Record: *Waters and Lesniak, Grand Rapids, Mich.,* Attorney or Agent: John A. Waters, et al., Ex. Gp.: 352

4,145,527, Re. S.N. 231,679, Filed Feb. 5, 1981, Cl. 536/4, NITRO AROMATIC GLYCOSIDES, Richard C. Burns, et al., Owner of Record: *E. I. du Pont de Nemours and Co., Wilmington, Del.,* Attorney or Agent: George A. Frank, Ex. Gp.: 125

4,152,924, Re. S.N. 242,247, Filed Mar. 10, 1981, Cl. 73/40.5R, SUB-SEA EQUIPMENT TEST AND ISOLATION TOOL, John H. Mayo, Owner of Record: *Inventor,* Attorney or Agent: D. Paul Weaver, Ex. Gp.: 244

4,152,986, Re. S.N. 221,036, Filed Dec. 29, 1980, Cl. 101/463, METHOD AND APPARATUS FOR PRINTING RAISED INK IMAGES, Gilbert F. Dadowski, et al., Owner of Record: *Spirit Gravure Co., Leetsdale, Pa.,* Attorney or Agent: John K. Roedel, et al., Ex. Gp.: 337

4,157,807, Re. S.N. 221,033, Filed Dec. 29, 1980, Cl. 249/177, APERTURE FORMING DEVICES, John R. McCluskey, Owner of Record: *Inventor,* Attorney or Agent: Philip Furgang, Ex. Gp.: 147

4,165,963, Re. S.N. 226,496, Filed Jan. 19, 1981, Cl. 431/354, HOT WATER HEATER BURNER ASSEMBLY, Michio B. Nozaki, Owner of Record: *Rheem Manufacturing Co., New York, N.Y.,* Attorney or Agent: George B. Newitt, et al., Ex. Gp.: 345

4,198,643, Re. S.N. 246,508, Filed Mar. 23, 1981, Cl. 346/75, JET DROP PRINTER WITH ELEMENTS BALANCED ABOUT SUPPORT PLATE IN NODAL PLANE, Charles L. Cha, et al., Owner of Record: *The Mead Corp., Dayton, Ohio,* Attorney or Agent: Nathaniel R. French, et al., Ex. Gp.: 211

4,237,863, Re. S.N. 227,510, Filed Jan. 22, 1981, Cl. 126/422, SOLAR HEATING SYSTEM, Henry Harrison, Owner of Record: *Halm Industries, Inc., Glen Head, N.Y.,* Attorney or Agent: James P. Malone, Ex. Gp.: 345

PATENT NOTICES

Certificates of Correction for the Week of June 9, 1981

Re. 30,487	4,221,260	4,241,030	4,249,323
Re. 30,491	4,222,902	4,241,048	4,249,632
Re. 30,520	4,224,334	4,241,354	4,249,962
D. 257,163	4,224,351	4,241,613	4,250,072
D. 258,174	4,224,472	4,242,464	4,250,272
4,019,039	4,224,911	4,242,476	4,250,346
4,045,176	4,227,177	4,242,555	4,250,460
4,049,678	4,228,104	4,242,929	4,250,597
4,054,674	4,228,253	4,243,426	4,250,741
4,080,262	4,228,498	4,243,441	4,251,234
4,090,115	4,229,424	4,243,616	4,251,376
4,100,355	4,231,091	4,243,633	4,251,466
4,105,710	4,231,995	4,243,669	4,251,515
4,107,191	4,232,156	4,243,758	4,251,523
4,134,879	4,233,571	4,243,828	4,251,846
4,140,783	4,234,620	4,243,903	4,252,066
4,151,260	4,234,763	4,244,203	4,252,514
4,152,425	4,235,160	4,244,251	4,252,682
4,154,116	4,235,291	4,244,280	4,252,739
4,160,801	4,235,338	4,244,791	4,252,740
4,160,925	4,235,342	4,244,838	4,252,834
4,162,331	4,235,368	4,245,063	4,252,859
4,167,589	4,235,393	4,245,214	4,253,047
4,170,825	4,235,725	4,245,245	4,253,206
4,173,993	4,236,164	4,245,337	4,253,521
4,175,509	4,236,549	4,245,827	4,253,907
4,176,236	4,236,875	4,245,861	4,254,266
4,185,511	4,237,498	4,245,988	4,254,294
4,190,873	4,237,836	4,246,276	4,254,385
4,191,411	4,237,895	4,246,315	4,254,575
4,194,602	4,238,460	4,246,563	4,254,610
4,194,932	4,238,626	4,246,746	4,255,164
4,196,216	4,238,962	4,246,848	4,255,190
4,198,662	4,239,115	4,247,390	4,255,241
4,200,551	4,239,338	4,247,403	4,255,448
4,205,431	4,239,731	4,247,519	4,255,736
4,210,777	4,239,774	4,247,825	4,256,153
4,212,120	4,240,219	4,248,694	4,256,617
4,215,928	4,240,489	4,248,700	4,257,519
4,218,845	4,240,666	4,249,190	4,257,865
4,219,813	4,240,921	4,249,243	4,258,737

Disclaimers

3,973,808.—*Roger G. Janssen,* Crookston; and *Wayne G. Schantzen,* Thief River Falls, Minn. ICE STUD FOR SNOWMOBIL TRACKS. Patent dated Aug. 10, 1976. Disclaimer filed Apr. 3, 1981, by the assignee, *James R. Musselman.*

Hereby enters this disclaimer to claims 1–36 of said patent.

3,988,586.—*Travis P. Stuart;* and *Wilbur J. Tipton,* Las Vegas, Nev. COMBINATION NEUTRON-GAMMA RAY DETECTOR. Patent dated Oct. 26, 1976. Disclaimer filed Apr. 1, 1981, by the assignee, *The United States of America as represented by the United States Energy Research and Development Administration.*

Hereby enters this disclaimer to claim 1–12 of said patent.

4,062,208.—*Anker J. Nielsen, Jr.,* Holden, Mass. LOCKING MEANS FOR GAS VALVES. Patent dated Dec. 13, 1977. Disclaimer filed Mar. 25, 1981, by the inventor.

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

4,147,054.—*Gunter Hohenberg,* Hohengehren; and *Detlef Kurr,* Waiblingen, Germany, METHOD AND APPARATUS FOR DETERMINING THE UPPER DEAD-CENTER POSITION WITH PISTON ENGINES. Patent dated Apr. 3, 1979. Disclaimer filed Apr. 7, 1981, by the assignee, *Daimler-Benz Aktiengesellschaft.*

Hereby enters this disclaimer to claims 1–19 of said patent.

4,212,373.—*Edgar Peter Scragg,* Florida, Transvaal Province, South Africa. DOSING A FLOWING FLUID. Patent dated July 15, 1980. Disclaimer filed Apr. 6, 1981, by the inventor.

Hereby enters this disclaimer to claims 9, 10 and 12 of said patent.

4,232,097.—*Howard R. Shanks; Albert J. Bersio;* and *Gordon C. Danielson,* Ames, Iowa; and *Michael Francis Weber,* Wichita, Kansas. FUEL CELL OXYGEN ELECTRODE. Patent dated Nov. 4, 1980. Disclaimer filed Apr. 1, 1981, by the assignee, *The United States of America as represented by the United States Department of Energy.*

Hereby enters this disclaimer to claims 1 through 8 of said patent.

4,232,816.—*Fred J. Johnson,* Long Beach, Calif. and *Richard L. Bell,* Glenmoore, Pa. CLAMSHELL TYPE CARTON. Patent dated Nov. 11, 1980. Disclaimer filed Apr. 6, 1981, by the assignee, *Container Corp. of America.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

Dedication

4,175,941.—*Costas C. Lagos,* Danvers; *Richardo A. Lanio,* Andover; *John L. Crowley,* Rowley, Mass., and *Norman A. Morsau,* Hampton, N.H. INTERNAL COATING PROCESS FOR GLASS TUBING. Patent dated Nov. 27, 1979. Dedication filed Mar. 23, 1981, by the assignee, *GTE Sylvania Inc.*

Hereby dedicates to the Public the remaining term of said patent.

National Technical Information Service

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Chief, Intellectual Property Division
Room 2D 444, Pentagon
Washington, D.C. 20310

Patent application 6-140,049. Preparation of Calcium Cyanamide. Filed Apr. 14, 1980.

Patent application 6-142,196. Wear Reducer. Filed Apr. 21, 1980.

Patent application 6-148,890. Electromagnetic Detection Apparatus. Filed May 12, 1980.

Patent application 6-153,467. Automatic Range Containment System. Filed May 27, 1980.

Patent application 6-153,469. Dye Marker Assembly for Rocket Practice Round. Filed May 27, 1980.

Patent application 6-207,487. Phase Linear Interferometer System and Method. Filed Nov. 17, 1980.

Patent 4,028,135. Method of Cleaning Surfaces by Irradiation with Ultraviolet Light. Filed Apr. 22, 1976. Patented June 7, 1977. Not available NTIS.

U.S. DEPARTMENT OF THE AIR FORCE
AF/JACP
1900 Half St., S.W.
Washington, D.C. 20324

Patent application 6-085,662. Ram Wing Aircraft Launch Platform System. Filed Oct. 17, 1979.

Patent application 6-191,044. Method of Implementing Uniform Background Charge Subtraction in a Radiation Sensing Array. Filed Sept. 25, 1980.

Patent application 6-192,163. Small Gas Turbofan Engine with Regenerating Diffuser. Filed Sept. 30, 1980.

Patent 4,236,819. Imagery with Constant Range Lines. Filed July 29, 1974. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,239,388. Time Domain Laser Reconnaissance Technique. Filed July 29, 1974. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,240,745. Imagery with Constant Range Lines. Filed July 29, 1974. Patented Dec. 23, 1980. Not available NTIS.

Patent 4,242,635. Apparatus and Method for Integrated Circuit Test Analysis. Filed Jan. 26, 1979. Patented Dec. 30, 1980. Not available NTIS.

U.S. DEPARTMENT OF AGRICULTURE
Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-212,298. Process for the Preparation of Tris(Aminomethyl)Phosphine Oxide and Its Ternary Salts. Filed Dec. 3, 1980.

Patent 4,239,390. Method of Obtaining High Resolution Light Scattering Spectra. Filed May 4, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,248,899. Protected Feeds for Ruminants. Filed Feb. 26, 1979. Patented Feb. 3, 1981. Not available NTIS.

U.S. DEPARTMENT OF COMMERCE
National Tech. Information Service
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Springfield, Va. 22161

Patent 4,245,169. Sampling Circuit and Method Therefor. Filed Mar. 14, 1979. Patented Jan. 13, 1981. Not available NTIS.

Patent 4,249,131. Method and Apparatus for Measuring Electrostatic Charge Density. Filed Apr. 11, 1979. Patented Feb. 3, 1981. Not available NTIS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6-202,727. Instrument for Measurement of Exposure from Laser Radiation. Filed Oct. 31, 1980.

Patent application 6-210,584. Broadband Isotropic Probe for Simultaneous Measurement of Complex E- and H-Fields. Filed Nov. 26, 1980.

Patent 4,239,755. Steroidal Cyclotriphosphazenes. Filed Jan. 28, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,247,774. Simultaneous Dual-Energy Computer Assisted Tomography. Filed June 26, 1978. Patented Jan. 27, 1981. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Council for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-127,014. Integrated Weapon Control System. Filed Mar. 4, 1980.

Patent application 6-163,001. Conjugate-Phase, Remote-Clock Synchronizer. Filed July 16, 1980.

Patent application 6-168,854. Remote Lens Focusing System for an Aerial Camera. Filed July 23, 1980.

Patent application 6-183,697. Scanning Radar System. Filed Sept. 3, 1980.

Patent application 6-186,354. A Directly Modulated Sonobuoy Transmitter Using Surface Acoustic Wave Sensor. Filed Sept. 10, 1980.

Patent application 6-195,444. System and Method for Measurement of Dynamic Angular or Linear Displacement. Filed Oct. 7, 1980.

Patent application 6-196,893. Gas Generant Propellants. Filed Oct. 14, 1980.

Patent application 6-197,736. Anti-Slosh Baffle Compartment Assembly. Filed Oct. 17, 1980.

Patent application 6-203,938. Angular Accelerometer. Filed Nov. 4, 1980.

Patent application 6-214,601. Monolithic Fully Integrated Class B Push-Pull Microwave FET. Filed Dec. 9, 1980.

Patent application 6-408,970. Site Occupancy Detector. Filed Sept. 25, 1980.

Patent 4,230,059. Noise Abating Sleeve. Filed Feb. 26, 1979. Patented Oct. 28, 1980. Not available NTIS.

Patent 4,232,314. FM Autocorrelation Fuze System. Filed Oct. 28, 1958. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,239,155. Core-Flow Rotary Jet. Filed May 30, 1979. Patented Dec. 16, 1980. Not available NTIS.

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Assistant General Counsel for Patent Matters
NASA Code GP-4
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Patent 4,119,581. Membrane Consisting of Polyquaternary Amine Ion Exchange Polymer Network Interpenetrating the Chains of Thermoplastic Matrix Polymer. Filed Feb. 23, 1977. Patented Oct. 10, 1978. Not available NTIS.

Patent 4,219,171. Device for Coupling a First Vehicle to a Second Vehicle. Filed Feb. 6, 1979. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,233,258. Method for Preparing Addition Type Polyimide Prepregs. Filed Feb. 13, 1979. Patented Nov. 11, 1980. Not available NTIS.

Patent 4,234,258. Stark Cell Optoacoustic Detection of Constituent Gases in Sample. Filed Aug. 31, 1978. Patented Nov. 18, 1980. Not available NTIS.

Patent 4,234,715. Perfluoroalkyl Polytriazines Containing Pendent Iododifluoromethyl Groups. Filed May 8, 1979. Patented Nov. 18, 1980. Not available NTIS.

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Division of Law
Muscle Shoals, AL 35660

Patent 4,239,739. Manufacture of Purified Diammonium Phosphate. Filed Nov. 6, 1979. Patented Dec. 16, 1980. Not available NTIS.

U.S. DEPARTMENT OF ENERGY
Assistant General Counsel for Patents
Washington, D.C. 20545

Patent application 6-080,725. Method for Forming Low-Resistance Ohmic Contacts on Semiconducting Oxides. Filed Oct. 1, 1979.

Patent application 6-083,484. Light Modulated Electron Beam Driven Radiofrequency Emitter. Filed Oct. 10, 1979.

Patent application 6-083,508. XeCl Avalanche Discharge Laser Employing Ar as a Diluent. Filed Oct. 10, 1979.

Patent application 6-088,223. Electron Energy Recovery System for Negative Ion Sources. Filed Oct. 25, 1979.

Patent application 6-100,664. Corneal-Shaping Electrode. Filed Dec. 5, 1979.

Patent application 6-100,665. Tissue Implantation Method and Apparatus. Filed Dec. 5, 1979.

Patent application 6-101,339. Ac Resonant Charger with Charge Rate Unrelated to Primary Power Requency. Filed Dec. 7, 1979.

Patent application 6-101,365. Energy Absorption Circuit Using a Triggered Spark GAP. Filed Dec. 11, 1979.

Patent application 6-101,367. Reflective Insulating Blinds for Windows and the Like. Filed Dec. 7, 1979.

Patent application 6-102,470. Electron Beam-Switched Discharge for Rapidly Pulsed Lasers. Filed Dec. 11, 1979.

Patent application 6-106,130. Sequenced Drive for Rotary Valves. Filed Dec. 21, 1979.

Patent application 6-106,131. Method and Apparatus for Forming Flues on Tubular Stock. Filed Dec. 21, 1979.

Patent application 6-114,446. Lanthanum-Hexaboride Carbon Composition for Use in Corrosive Hydrogen-Fluorine Environments. Filed Jan. 22, 1980.

Patent application 6-115,866. Resistive Coating for Current Conductors in Cryogenic Applications. Filed Jan. 28, 1980.

Patent application 6-119,740. Hydrogen Permeation Resistant Barrier. Filed Feb. 8, 1980.

Patent application 6-123,605. Low Pressure Pneumatic Lifter. Filed Feb. 22, 1980.

Patent application 6-123,861. Laser Cutting Apparatus for Nuclear Core Fuel Subassembly. Filed Feb. 22, 1980.

Patent 4,195,664. Surge-Damping Vacuum Valve. Filed Jan. 25, 1978. Patented Apr. 1, 1980. Not available NTIS.

Patent 4,196,176. Method and Apparatus for Controlling Accidental Releases of Tritium. Filed Aug. 3, 1978. Patented Apr. 1, 1980. Not available NTIS.

Patent 4,199,620. Method for Providing Mirror Surfaces with Protective Strippable Polymeric Film. Filed Mar. 27, 1979. Patented Apr. 22, 1980. Not available NTIS.

Patent 4,202,700. Glassy Composition for Hermetic Seals. Filed May 2, 1979. Patented May 13, 1980. Not available NTIS.

Patent 4,202,739. Electrochemical Removal of Material from Metallic Work. Filed Apr. 25, 1977. Patented May 13, 1980. Not available NTIS.

Patent 4,204,558. Valve Assembly Having Remotely Replaceable Bearings. Filed Jan. 16, 1978. Patented May 27, 1980. Not available NTIS.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

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State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
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	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 223
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1458
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 2, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; A20; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; O20 and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-17-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-11-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	12-03-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-05-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,900, inclusive
Plant Patents ..... Numbers 2,399 to 2,406, inclusive

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,637

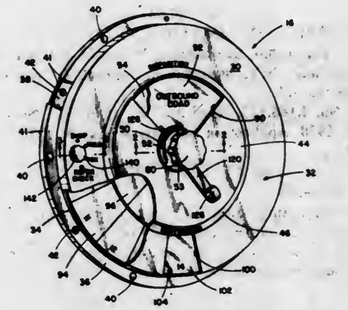
VEHICLE DISPATCH INDICATOR WITH COLOR-CODED, ALPHABETICAL AND NUMERICAL INDICIA

John H. King, 6801 S. Pulaski Rd., Chicago, Ill. 60629, and William C. Gore, P.O. Box 821, Elgin, Ill. 60120

Original No. 3,996,681, dated Dec. 14, 1976, Ser. No. 495,646, Aug. 8, 1974. Application for reissue Sep. 21, 1979, Ser. No. 77,605

Int. Cl.³ G09F *11/04, 21/04*

U.S. Cl. 40—495 6 Claims



1. A dispatch indicator designed for application to a vehicle or other merchandise-enclosing container and adapted to *assume an upright position on the vehicle and* render shipping instructions, said indicator comprising a housing having a rear wall, a front wall and an interconnecting continuous side wall, said front wall being provided with a central hub, a *horizontal* shaft mounted in said hub for rotation and also limited axial sliding movement endwise therethrough, said front wall being provided with a first viewing opening in the peripheral region thereof and with a second viewing opening in the medial portion thereof at a region displaced radially inwardly of the first viewing opening, a relatively large diameter circular rear dial plate coaxial with said shaft and *having a centrally disposed opening* through which the [latter] *shaft* loosely projects, a relatively small diameter circular front dial plate coaxial with said shaft and *having a centrally disposed opening* through which the [latter] *shaft* loosely projects, said large diameter *rear* dial *plate* presenting indicia sectors which are visible through said first viewing opening, said small diameter *front* dial *plate* presenting indicia sectors which are visible through said second viewing opening, spring means interposed between said *front and rear* dial plates *and serving* yieldingly [biasing] *to bias* the same apart, a fixed front reaction plate carried by said front wall for assimilating [the rearward] thrust of said front dial plate *in the direction of said front wall*, a fixed rear reaction plate carried by said rear wall for assimilating [the forward] thrust of the rear dial plate *in the direction of said rear wall*, each [reaction] *dial* plate being formed *in the central portion thereof* with a plurality of radially extending clutch recesses therein, a radially projecting clutch finger mounted on said shaft and designed for selective cooperation with said recesses depending upon the axial position of said shaft, means for yieldingly biasing said shaft to a medial position wherein said clutch finger is out of effective engagement with said dial plates, a circular row of detent depressions and a series of fixed cooperating detent protuberances effective between each dial plate and its associated fixed reaction plate to restrain rotational movement of such plate when an indicia sector thereon is in register with its associated viewing opening, and a control knob mounted on the forward end of said shaft exteriorly of the housing *and adapted for use in rotating and axially shifting said shaft.*

Re. 30,638

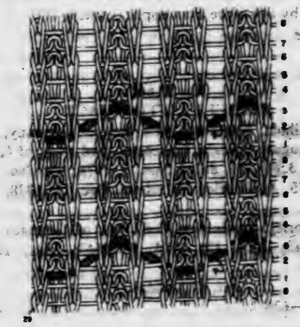
MULTI-GAUGE KNIT FABRIC WITH FLEECE INLAY YARN

David J. J. Bryars, Leicestershire, England, assignor to Austen Bryars of London, Inc., Greensboro, N.C.

Original No. 4,125,001, dated Nov. 14, 1978, Ser. No. 826,859, Aug. 19, 1977. Division of Ser. No. 640,945, Dec. 5, 1975, Pat. No. 4,043,152. Application for reissue Nov. 14, 1979, Ser. No. 94,170

Int. Cl.³ D04B *1/04*

U.S. Cl. 66—191 2 Claims



1. A double knit fabric comprising cylinder and dial wales formed from a fine denier body yarn *on a machine with two needle beds* and including a relatively heavy denier inlay yarn confined by body yarn stitches to only one surface of the fabric wherein said inlay yarn is interengaged with stitches of said body yarn only on alternate wales of the same course *defined by one needle bed* and on [consecutive] *non-consecutive* courses of the same wale and wherein every fourth consecutive cylinder and dial wale is non-knit *being defined by the deactivation of selected needles in one of said needle beds.*

Re. 30,639

PROCESS AND DEVICE FOR BENDING ELONGATED ARTICLES

Marinus J. Hofstede, Berkel; Leonardus J. C. Hermans, and Jan W. de Koe, both of Dordrecht, all of Netherlands, assignors to Cojafex B.V., Netherlands

Original No. 4,151,732, dated May 1, 1979, Ser. No. 829,483, Aug. 31, 1977. Application for reissue Feb. 1, 1980, Ser. No. 117,779

Claims priority, application Netherlands, Sep. 3, 1976, 7609864

Int. Cl.³ B21D *7/16*

U.S. Cl. 72—8 9 Claims

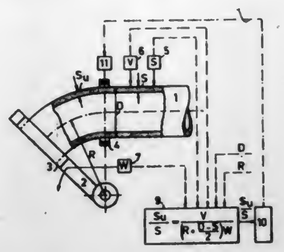
1. A process for bending elongated articles such as pipes comprising the steps of

heating the article progressively past a heating device heating a narrow annular band of said article in a heating pattern, in which band the bending is effected,

controlling the thickness of a wall portion lying at the outside of the bend including the steps of

measuring the longitudinal speed of said wall portion before it reaches the heating device,

measuring the longitudinal speed of said wall portion after it passes the heating device, and



adjusting the distribution of the temperature over the heated annular band by changing the heating pattern in dependance on the relation between said two speeds to produce a thickness of the said wall portion after bending which is reduced by not more than approximately 10% of its original value.

Re. 30,640

VEHICLE LIFTING JACK

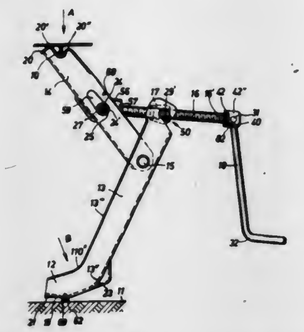
Friedrich Keilholz, Ennepetal, Fed. Rep. of Germany, assignor to Firma August Bilstein, Ennepetal, Fed. Rep. of Germany

Original No. 3,989,225, dated Nov. 2, 1976, Ser. No. 584,419, Jun. 6, 1975. Application for reissue Dec. 12, 1978, Ser. No. 968,848

Claims priority, application Fed. Rep. of Germany, Jun. 7, 1974, 2427443; Aug. 12, 1974, 2438643; Mar. 10, 1975, 7504739[U]

Int. Cl.³ B66F 3/12

U.S. Cl. 254—126 6 Claims



1. A vehicle jack comprising:

a leg formed with a straight shank having an upper end, a foot angled from and formed on a lower end of said [shanks] *shank*, a nonslip rib on the underside of said foot extending substantially over the entire width thereof, said foot having an extended locating surface extending forwardly of said rib and provided with projections, and a contact surface rearwardly of said rib *and rigid with said foot*, the upper end of said leg being formed with a notch *and being free from any ground-engaging support between said foot and said notch, said contact surface being at least twice as long as said locating surface;*

an elongated carrier arm having one end pivotally connected to said shank and another end [another end] formed with a vehicle-engaging head;

a nut pivotally mounted in said notch at said upper end of said leg;

a [thread] *threaded* elongated spindle received in said nut at an intermediate portion along its length;

a thrust bearing pivotally mounted on said arm at an intermediate location between the ends thereof and engaging one end of said spindle; and

a crank on the other end of said spindle for rotating same to thread said spindle along said nut and raise and lower said head *said nut being formed with a pair of oppositely extending journal pins, said leg being of U-cross section having side limbs formed with slots constituting said notch, said pins being received in said slots, said thrust bearing comprising a roller bearing and a counterbearing ring, receiving said roller bearing, said arm being of U-cross section and having side limbs formed with slots receiving pins of said counterbearing ring.*

Re. 30,641

LOW IRRITATING DETERGENT COMPOSITIONS

Robert J. Verdicchio, Succasunna, N.J., and Maria C. Rodon, New Rochelle, N.Y., assignors to Johnson & Johnson, New Brunswick, N.J.

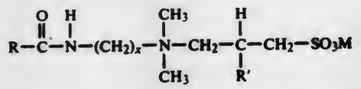
Original No. 4,186,113, dated Jan. 29, 1980, Ser. No. 892,803, Apr. 3, 1978. Application for reissue May 5, 1980, Ser. No. 146,982

Int. Cl.³ C11D 1/92, 1/94

U.S. Cl. 252—526 7 Claims

1. A low irritating liquid detergent composition wherein the active ingredients consist essentially of:

(a) from about 1 to 15% by weight of the total composition of a sulfobetaine of the formula



wherein R is an alkyl group of from 8 to 18 carbon atoms or mixtures thereof, R' is OH or H, x is an integer from 1 to 3 and M is selected from the group consisting of alkali metals, alkaline earth metals and alkanol amine salts selected from the group consisting of mono-, di- and triethanolamine salts; and

(b) from about 1 to 15% by weight of the total composition of an anionic detergent of the formula



wherein R'' is a branched or straight chain saturated or unsaturated hydrocarbon radical, alkylaromatic hydrocarbon radical or alkylaryl hydrocarbon radical containing from 6 to 20 carbon atoms, x is an integer from 1 to 5 and M is selected from the group consisting of alkali metals, alkaline earth metals and alkanol amine salts;

wherein the total of (a) and (b) does not exceed about 20% by weight of the total composition.

Re. 30,642

PROCESS FOR PREPARING MOLYBDENUM ACID SALTS

Mitchell Becker, Teaneck, N.J., assignor to Halcon Research & Development Corp., New York, N.Y.

Original No. 3,578,690, dated May 11, 1971, Ser. No. 740,975, Jun. 28, 1968. Application for reissue Jan. 23, 1980, Ser. No. 114,772

Int. Cl.³ C08H 17/36

U.S. Cl. 260—414 9 Claims

1. In a process for preparing a molybdenum carboxylate the improvement which comprises [intimately contacting] *directly reacting* a molybdenum oxide, [molybdenum halide,] alkali molybdate, alkali earth molybdate, ammonium molybdate, or a mixture of a molybdenum oxide, [molybdenum halide,] alkali molybdate or alkali earth molybdate and ammonia; with a monocarboxylic acid, at temperatures in the range of 100° to 300° C. while removing water.

Re. 30,643

METHOD OF ALUMINIZING THE INSIDE OF THE PANEL OF A TELEVISION PICTURE TUBE

Eberhard Nill, Esslingen, and Peter Schmidt, Denkendorf, both of Fed. Rep. of Germany, assignors to International Standard Electric Corporation, New York, N.Y.

Original No. 4,022,929, dated May 10, 1977, Ser. No. 620,098, Oct. 6, 1975. Application for reissue Feb. 25, 1980, Ser. No. 124,005

Claims priority, application Fed. Rep. of Germany, Oct. 25, 1974, 2450834

Int. Cl.³ H01J 29/28; C23C 13/02

U.S. Cl. 427—69 1 Claim

7. In a method of aluminizing the inside of the panel of a television picture tube wherein a lacquer forms an intermediate layer between the layer of fluorescent material and the layer of aluminum as applied thereafter by way of evaporation, the steps of applying the coat of lacquer onto the layer of fluorescent material and onto the lateral surfaces of the panel not covered by fluorescent material, drying said coat of lacquer, spraying boric acid onto said coat of lacquer and drying said boric acid, thereby roughening said coat of lacquer on the layer of fluorescent material and within the area of the lateral surfaces of the panel sufficiently to prevent the formation of blisters in the subsequently applied layer of aluminum caused by vaporization of said coat of lacquer when subsequently heated.

Re. 30,644

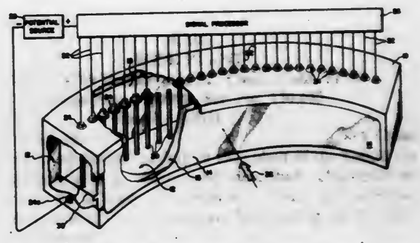
X-RAY DETECTOR

Nathan R. Whetten, Burnt Hills, and John M. Houston, Schenectady, both of N.Y., assignors to General Electric Company, Milwaukee, Wis.

Original No. 4,031,396, dated Jun. 21, 1977, Ser. No. 616,930, Sep. 26, 1975, Continuation-in-part of Ser. No. 554,171, Feb. 28, 1975, abandoned. Application for reissue Apr. 26, 1979, Ser. No. 33,794

Int. Cl.³ G01T 1/18

U.S. Cl. 250—385 34 Claims



20. An x-ray detector for detecting radiation from an x-ray source, comprising:

a gaseous medium of the type characterized as being substantially opaque to electromagnetic radiation at x-ray frequencies;

a plurality of substantially planar sheet anodes, comprising material which is characterized as being substantially opaque to electromagnetic radiation at x-ray frequencies, disposed in said gaseous medium;

a plurality of substantially planar sheet cathodes, comprising material which is characterized as being substantially opaque to electromagnetic radiation at x-ray frequencies, disposed in said gaseous medium, each of said cathodes lying approximately equi-distant between two of said anodes;

said planar sheet anodes and said planar sheet cathodes disposed substantially parallel to the direction of impingement of any radiation from the x-ray source;

means for applying direct current electric potential between said cathodes and said anodes;

means for separately measuring the electric current flow from each of said anodes connected in series between said anodes and means for applying said potential.

PLANT PATENTS

GRANTED JUNE 9, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,735
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed May 16, 1980, Ser. No. 150,624
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—11 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by salmon colored flowers developed from buds which appear bicolored and which mature into attractive open blooms with soft apricot toned centers and lighter salmon-toned outer petals.

4,736
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed May 16, 1980, Ser. No. 151,474
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—11 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by multi-orange toned flowers developing into open blooms of more general carrot red tonality borne primarily singly to a stem and which are long lasting on the plant and as cut flowers.

4,737
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed May 16, 1980, Ser. No. 150,632
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—12 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described characterized particularly by bicolor cardinal red and pale pink coloring and high centered flowers borne primarily singly to a stem, and are attractive on the plant and as cut flowers.

4,738
ROSE PLANT
O. L. Weeks, 4759 Philadelphia St., Chino, Calif. 91710
Filed May 16, 1980, Ser. No. 150,633
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—20 1 Claim

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as shown and described, characterized particularly by flowers of persistent vibrant red coloring which hold well upon aging and are long lasting on the plant and as cut flowers.

4,739
ALMOND TREE
Leonard D. James, 4017 Tully Rd., Modesto, Calif. 95350, assignor to Leonard D. James and Uldine S. James, both of Modesto, Calif.
Filed May 30, 1980, Ser. No. 155,833
Int. Cl.[3] A01H *5/03*
U.S. Cl. Plt.—30 1 Claim

1. A new and distinct variety of almond tree, substantially as illustrated and described, particularly characterized, in comparison to the Ne Plus Ultra, by a tree of greater height, having open, strong, vigorous, upright growth and a diverging branch pattern; by heavy blooming, with pink flowers, about a week later; and by the regular and heavy bearing of large, well-sealed, more symmetrical nuts in harvest two to three weeks earlier.

4,740
APPLE TREE—N.J. 49 CULTIVAR
Catherine H. Bailey, Englishtown, and L. Fredric Hough, Bloomsbury, both of N.J., assignors to Stark Brothers Nurseries & Orchards Company, Louisiana, Mo.
Filed Feb. 28, 1980, Ser. No. 125,578
Int. Cl.[3] A01H *5/03*
U.S. Cl. Plt.—34 1 Claim

1. A new and distinct variety of apple tree, substantially as illustrated and described, characterized by its general similarity to the pollen parent Mollies Delicious cultivar, but being distinct therefrom by the ability to form fruit which (1) ripens substantially earlier, (2) is of a more uniform size, and (3) is of a more attractive bright red appearance.

PATENTS

GRANTED JUN. 9, 1981

ERRATA

For CLASS	See PATENT NO.
434–289	4,271,604
037–195	4,271,617
040–112	4,271,626
738–064.63	4,271,704
411–020	4,271,747
440–113	4,271,781
157–001	4,271,884
223–015	4,272,011
493–418	4,272,066
369–077	4,272,083
283–001 B	4,272,327
202–154	4,272,344
564–503	4,272,455
570–186	4,272,456
427–047	4,272,510
423–415 A	4,272,555
369–112	4,272,651
369–139	4,272,652
528–288	4,272,725
335–213	4,272,727
365–190	4,272,811
363–129	4,272,814
365–012	4,272,817

PATENTS

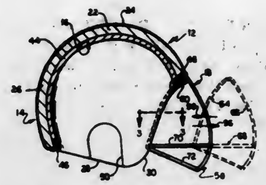
GRANTED JUNE 9, 1981

GENERAL AND MECHANICAL

4,271,537
PROTECTIVE HELMET WITH RELEASABLE FACE GUARD APPARATUS

Burton R. Bowles, El Dorado, and Gerald L. McKinney, Newton, both of Kans., assignors to Wichita Pro-Tech Inc., Newton, Kans.

Filed May 14, 1979, Ser. No. 38,652
Int. Cl.³ A42B 1/08
U.S. Cl. 2—424 10 Claims

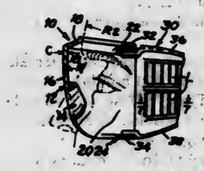


1. A protective helmet apparatus usable as a football helmet or the like to be worn by a person, comprising:
(a) a basic helmet assembly including a main helmet body;
(b) said main helmet body having a contoured shell member to conform to the general outline of a person's head;
(c) said shell member constructed of a continuous, thick, rigid foam material without any openings thereto except for the person's neck and face portions;
(d) a face guard assembly having a face shield member releasably mounted in a resilient connector assembly which, in turn,, is mounted in said shell member;
(e) said face shield member includes a main connector section of generally U-shape and fits into said resilient connector section which is also of generally U-shape mounted in said shell member about said opening for the person's face portion; and
(f) said face shield member is released from said connector assembly on a predetermined outward pulling force thereon as a safety factor to the person wearing same.

4,271,538
SAFETY SPECTACLES

Edward N. Montesi, Barrington, and John H. King, Coventry, both of R.I., assignors to Norton Company, Worcester, Mass.

Filed Mar. 24, 1980, Ser. No. 133,366
Int. Cl.³ A61F 9/02
U.S. Cl. 2—439 15 Claims

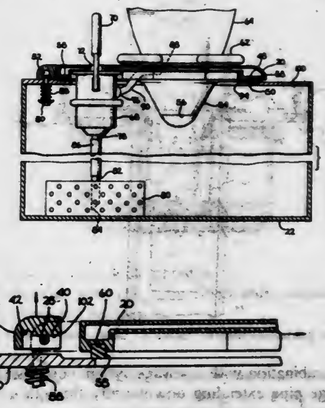


1. Safety spectacles comprising:
a single face piece including a continuous wall with an outer convex surface extending between opposite ends thereof molded of relatively tough fracture resistant plastic material adapted to protect a wearers eyes, extend in front of, around and beyond the eyes to opposite side temples of the wearer and inwardly toward facial portions adjacent the eyes and having
a transparent front wall portion including
right and left viewing zones, and a wall thickness that varies continuously in all directions across the viewing zones from a point situated in a plane between the viewing zones,
a nose piece portion including a notch between the right and left viewing zones, opposite temple side portions each having
a sidewall portion with an outer convex surface extending from the front wall portion to an opposite end of the face piece and a lower flange portion extending inwardly from the side wall to an inner surface thereof,
a continuous upper flange portion extending inwardly from the front and opposite temple side wall portions to an inner surface thereof and adapted to wrap around the wearers forehead to the temples,
temple bars pivotally hinged to the opposite temple side portions and each having
a forward sidewall portion including an outer convex surface extending from a forward edge thereof adapted to abut an opposite end surface of the face piece to a rear side wall portion adapted for engaging a side portion of the wearers head adjacent an ear and
upper and lower flange portions extending inwardly from the forward sidewall portion of the temple bar to an inner surface thereof whereby the upper and lower flanges and the forward side wall portion including the outer convex surface of the temple bars constitute extensions of the upper and lower flanges and the side wall portion including the convex surface of the opposite temple side portions of the face piece.

4,271,539
QUICK-CHANGE TOILET SYSTEM

George C. Roberts, Los Angeles, Calif., assignor to Inca-One Corporation, Los Angeles, Calif.

Filed Mar. 1, 1979, Ser. No. 16,551
Int. Cl.³ E03D 1/00, 5/016; E05D 7/10; D45D 43/12
U.S. Cl. 4—300 8 Claims



1. A convertible toilet comprising:
a waste holding tank;
a frame member disposed over said waste holding tank;
a toilet cover, said toilet cover having an opening therethrough; and
fastening means on said frame member and on said toilet cover, said fastening means being a means for manually fastening said cover to said frame member when a first

force is applied to said cover in a first direction and manually unfastening said cover from said frame member when a second force is applied to said cover in a second direction;

said fastening means comprising:

a locking bar on said frame member;

a slot in an edge of said cover for receiving said locking bar;

a pair of opposing locking pins on said cover projecting into said slot;

said locking bar defining a pair of channels for receiving said locking pins and an indentation in a surface of each channel for mating with said locking pins; and

a resilient coupling means on said locking bar and on said frame member for coupling said locking bar to said frame member with said resilient coupling means biasing said locking bar to a locking position while permitting said locking bar to be displaced from said locking position when a force is applied to said locking bar;

said resilient coupling means comprising:

at least one boss attached to said locking bar which extends downwardly through an opening in said frame member;

a stop member on said boss below said frame member; and

a resilient member disposed between said frame member and said stop member;

and wherein said toilet further comprises:

a seal mounted on the lower surface of said toilet cover and extending around the periphery of said cover;

a first fastening strip mounted on the lower surface of said cover; and

a second fastening strip mounted on the upper surface of said frame member adjacent said first fastening strip;

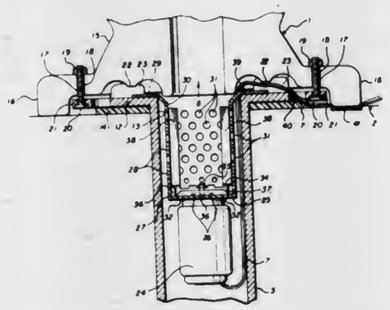
whereby when said cover is closed, said first and second fastening strips engage, thereby latching said cover in place, and whereby said seal engages the surface of said frame member.

4,271,540

SEWAGE SYSTEM WITH COMMINUTOR

Ronald M. Clifton, Rte. 2, Box 2030, Porter, Tex. 77365

Filed Apr. 26, 1979, Ser. No. 33,444
Int. Cl.³ E03D 9/10; B02C 13/00
U.S. Cl. 4—319 8 Claims



1. In combination with a sewage system comprising

a sewage pipe extending downwardly through a floor for connection to a sewer or septic tank,

said sewage pipe including an outwardly extending flange at the floor,

a toilet bowl supported on said floor over said sewage pipe and having a supporting base fitting over said outwardly extending flange, and

a sealing gasket providing a peripheral seal between said supporting base of said toilet and said outwardly extending sewage pipe flange;

an electrically powered grinding apparatus for comminuting the effluent from said toilet, including a rotary grinder and submersible electric motor therefor,

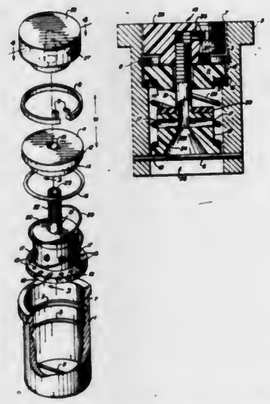
said grinding apparatus, including said grinder and said submersible electric motor, being positioned inside said sewage pipe and removably supported therein at said outwardly extending sewage pipe flange, said grinder includes a hollow housing having a plurality of openings for discharge of comminuted effluent, said housing having a peripheral flange positioned between said outwardly extending sewage pipe flange and the supporting base of said toilet and supports said apparatus in said sewage pipe to receive all the effluent from said toilet.

4,271,541

APPARATUS FOR INTERMITTENT DELIVERY OF FLUID UNDER PRESSURE

Lester R. Mathews, 9810 N. 37th St., Phoenix, Ariz. 85028

Filed Oct. 4, 1979, Ser. No. 82,182
Int. Cl.³ E04H 3/16, 3/18, 3/20
U.S. Cl. 4—490 16 Claims



1. Apparatus for intermittent delivery of a fluid under pressure from a source thereof comprising:

a. a hollow cylindrical housing;

b. a cylindrical plunger disposed within said housing comprising:

(1) a body;

(2) means defining a delivery head at one end of said body; and

(3) means defining a piston at the other end of said body;

c. means defining an axial fluid conduit communicating between the two ends of said body and defining an intake orifice in said piston end and a delivery orifice adapted to direct a flow of fluid under pressure in a selected direction from said head;

d. means for reciprocating and incrementally rotating said plunger body within said housing between a ready position wherein said head is flush with an end of said housing and a fluid delivery position wherein said head is extended out of said housing, comprising:

(1) means for simultaneously rotating and axially advancing said body responsive to pressure from said source of fluid comprising at least one rotator bore disposed in said body at an angle to the direction of flow of the fluid whereby the fluid pressure will rotate said plunger;

(2) means for limiting the length of the axial and rotary travel of said body between a ready position and a delivery position; and

(3) means for returning said body to said ready position; and

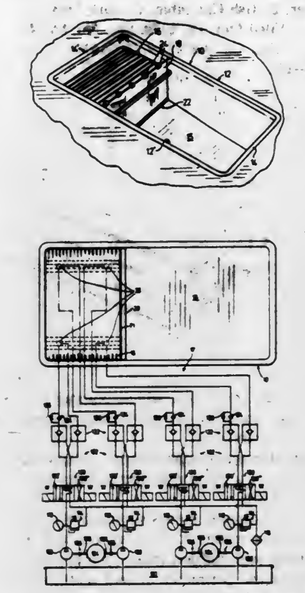
e. means for connecting said intake orifice with a source of fluid under pressure.

4,271,542

SWIMMING POOL PLATFORM AND COMPONENTS

Charles Wood, Mississauga, and Richard Fralick, Bramalea, both of Canada, assignors to DAF Indal Ltd., Mississauga, Canada

Filed Jan. 15, 1979, Ser. No. 3,218
Int. Cl.³ E04H 3/16, 3/18
U.S. Cl. 4—495 43 Claims



1. For use in a swimming pool containing water, a vertically adjustable pool platform, means to vertically raise and means to vertically lower said platform, and means connecting the pool platform to the means to vertically raise and means to vertically lower, said platform, said pool platform being rigid, buoyant and having openings therethrough so as to float on the surface of the water, and so as to be constantly urged to float to the surface when submerged under water at a predetermined level and which platform is capable of supporting people standing therein when secured for use and permits the vertical passage of water therethrough.

4,271,543

SHOWER BAR WITH SLIDING SPRAY HEAD

Jean Martin, La Barriere, France, assignor to Valentin S.A., Bourseville, France

Filed Nov. 20, 1979, Ser. No. 96,132
Claims priority, application France, Dec. 27, 1978, 78 36426
Int. Cl.³ A47K 3/22; B05B 15/06
U.S. Cl. 4—615 12 Claims

1. An adjustable shower spray head device comprising:

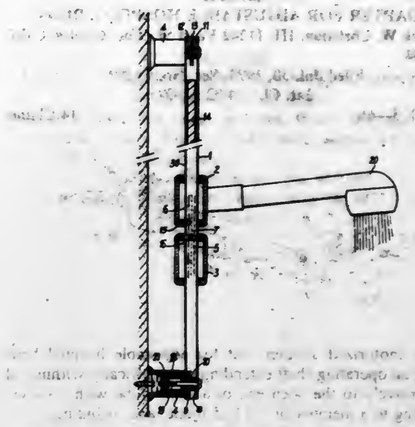
a bar, means for mounting said bar generally vertically to a surface,

a first set of pulleys rotatably mounted at one end of said bar and a second set of pulleys rotatably mounted at the other end of said bar, a pair of pulleys of one of said first and second sets connected to rotate together, and at least one pulley of the other set rotating independently,

a first chain passing over one pulley of the connected pair of said one set and the independently rotatable pulley of the other set, and a second chain passing over the other pulley of the connected pair of said one set and a pulley of said other set,

a spray head having a fluid passage slidably mounted on said bar and connected to one of said first and second chains,

a grip means slidably mounted on said bar and connected to



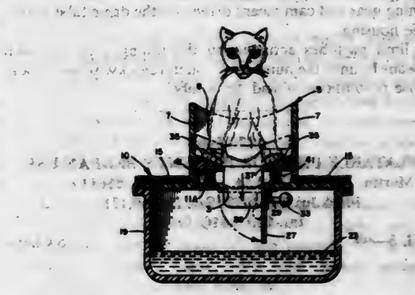
the other of said first and second chains, movement of said grip means moving said other chain and thereby rotating said connected pair of pulleys resulting in the movement of said one chain with the spray head connected thereto.

4,271,544

ANIMAL COMMODE

Larry R. Hammond, 4053 Wallace St., Apt. #1, Riverside, Calif. 92509

Filed Nov. 13, 1978, Ser. No. 959,689
Int. Cl.³ A01K 1/01
U.S. Cl. 4—661 19 Claims



1. An animal commode comprising:

a base member adapted to be removably mounted on a waste-receiving receptacle;

an opening in said base member communicating with said receptacle;

an enclosure open at the top integrally mounted on said base member, said enclosure extending upwardly from said base member and enclosing said opening;

a floor member sloped to the edge of said opening;

generally flat platform extensions integrally connected to said base member and extending laterally outwardly therefrom and from said upwardly extending enclosure to an extent to provide a step for the animal; and

material of the type cats like to scratch covering said platform extensions exterior to said enclosure, whereby the usual scratching by the animal, after excreting, takes place on the flat platform extensions outside the enclosure.

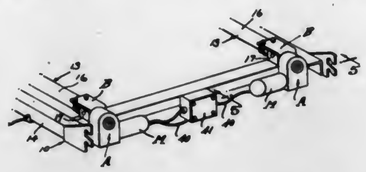
rather than inside the enclosure, to thereby enhance the sanitary conditions of the commode.

4,271,545

ADAPTER FOR ADJUSTABLE HOSPITAL BEDS

Fredrick W. Christian, III, 11242 Pearl St., Los Angeles, Calif. 90064

Filed Jul. 30, 1979, Ser. No. 61,891
Int. Cl.[3] A47C *21/00*
U.S. Cl. 5—66 14 Claims



1. A motorized adapter unit for adjustable hospital beds having an operating shaft extending concentrically within and coextensively to the open end of a cover tube with a swivel mounting to a member of the bed frame, and including;

a bracket extending over the open end of the cover tube and embracing the swivel mounting to said member of the bed frame, with clamp means anchoring the bracket to the cover tube at the side of the mounting remote from the open end of the cover tube,

a housing carried by the bracket and open to receive the end portion of the cover tube through bearing means concentric with said cover tube,

a drive tube journaled in said bearing means in telescopic engagement over the end portion of the cover tube, and having an end wall carrying a sleeve concentric therewith and entering into the cover tube and with coupling means driveably engaging the operating shaft,

a motor and gear drive carried by and revolving the drive tube within the housing,

a timing gear and cam means driven by the drive tube within the housing,

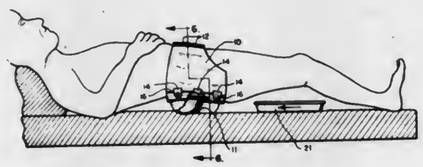
and limit switches actuated by the timing gear and cam means to limit the number of counterclockwise and clockwise revolutions of said drive tube.

4,271,546

INFLATABLE LIFT FOR PATIENT'S BEDPAN USE

Mary Martin, 710 W. Third St., Aspen, Colo. 81611

Filed Jul. 24, 1979, Ser. No. 60,171
Int. Cl.[3] A61G *9/00*
U.S. Cl. 5—90 6 Claims



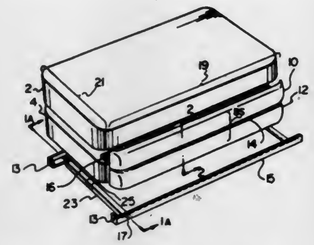
1. A lifting device for patients reclining in bed comprising a flexible belt-like strip adapted to be wrapped around the lower portion of a patient's torso with its ends attached to each other so as to be worn by the patient during a sojourn in bed, an inflatable member of flexible impervious material mounted on said belt-like strip in a position adjacent the base of the patient's spine, means for attaching said inflatable member to said belt-like strip comprising elastic connecting strips which will yield during inflation of said inflatable member and restore the inflatable member to flat condition when deflated, means connecting said inflatable member to a source of fluid under pressure and means permitting the injection of such fluid into the inflatable member to lift the patient to permit such fluid to be exhausted to lower the patient onto the surface of the bed.

4,271,547

MATTRESS AND BOXSPRING EXTENDER

Aldo Grossutti, c/o Algro Investigations Inc., P.O. Box 4704, Vancouver, British Columbia, Canada V6B 4A4

Filed Oct. 18, 1979, Ser. No. 86,241
Int. Cl.[3] A47C *19/00*; A61G *7/02*
U.S. Cl. 5—181 11 Claims



1. An extender for a bed which comprises a boxspring, a mattress resting squarely on said boxspring, and a bed frame, said extender comprising:

(a) elongated cushion means for providing extended sleeping area adjacent a portion of the perimeter of said mattress and boxspring;

(b) elongated support means substantially coextensive with said cushion means for resting on said bed frame and supporting said cushion means in a position adjacent said portion of the perimeter of said mattress and boxspring such that said extended sleeping area is provided by said cushion means;

(c) means connecting said cushion means and said support means for restraining relative movement therebetween; and,

(d) tongue means for projecting horizontally between said mattress and boxspring from said inward side of the extender and assisting to hold the inward side of said extender flushly against said mattress and boxspring,

said cushion means and said support means each having in inward side and an outward side, said inward sides together forming an inward side of the extender, said outward sides together forming an outward side of the extender.

4,271,548

MOTORBOAT TRANSOM PROTECTOR

Terrance M. Alberts, 1919 N. Clinton, Saginaw, Mich. 48602

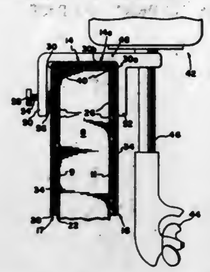
Filed Dec. 27, 1978, Ser. No. 973,698
Int. Cl.[3] B63B *17/00*
U.S. Cl. 9—1.5 12 Claims

1. A guard for protecting a motor boat transom having first and second generally upstanding, faces spaced by a top surface said guard comprising:

a one-piece pliable sheet of material having opposite end sheet sections for bearing against said first and second faces of said transom, and an intermediate sheet section, joined to said end section, urging said end sections to inoperative positions in which they lie in the same plane, but permitting movement thereof to confronting positions adapted to bear against said first and second faces of said transom;

one of said end sections of said sheet including a terminal end sheet portion of predetermined thickness and another sheet portion adjacent said intermediate sheet section of a greater predetermined thickness; and

deformable stay means, spanning said end sheet sections and said intermediate sheet section, deformable with said end sheet sections from said inoperative positions to deformed confronting positions in which said deformable stay means sets and inhibits return movement of said end sheet sections to said inoperative positions;



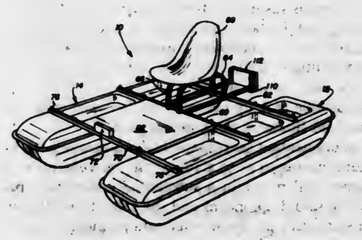
said end sheet sections including a plurality of inwardly projecting ribs thereon for bearing against said transom to inhibit movement of said end sheet sections relative to said transom.

4,271,549

CONNECTION MEANS FOR A KNOCK-DOWN BOAT

Roy L. Chandler, Arlington, Tex., assignor to Advanced Marine Concepts, Inc., Arlington, Tex.

Filed Jan. 12, 1979, Ser. No. 2,877
Int. Cl.[3] B63B *7/00*
U.S. Cl. 9—2 S 6 Claims



1. Attachment means for a knock-down boat, comprising

(a) an elongated structural member having a pair of relatively short slots in one of its sides, and each of said slots being in open communication with the opposite side of the structural member;

(b) a pair of second structural members positioned internally of a floatation member of the boat and each being adapted to be bolted to the first structural member, and there being an internally threaded bore in each second member in a position such that it can be aligned with a respective slot in the first structural member

(c) a pair of eye bolts having threads which mate with a respective one of the internally threaded bores, and each eye bolt having a ring which is sized to pass through an associated slot when centered and aligned longitudinally therewith and to hold the first structural member to a second structural member when said eye bolt is aligned transversely and

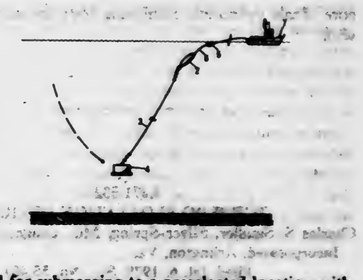
(d) means for holding each of the two eye bolts at the ends of their associated slots on the first structural member, such that the eyebolts are not centered with respect to their associated slots, whereby the eyebolts are effective to hold first and second structural members together for as long as the eyebolts remain threadably engaged with the second structural member and without regard for the orientations of the eyebolts with respect to their associated slots.

4,271,550

METHOD FOR SUBMERGING AN EQUIPMENT OF NEGATIVE BUOYANCY

Philippe Joubert, Les Loges en Josas; Pierre Durando, Paris, and Daniel Fleury, Nantes, all of France, assignors to Institut Francais du Petrole, France

Filed May 18, 1978, Ser. No. 907,192
Claims priority, application France, May 26, 1977, 77 16451
Int. Cl.[3] B63B *21/52*
U.S. Cl. 9—8 R 7 Claims



1. A method for submerging to a preselected location with respect to the water bottom a heavy equipment having in conditions of use a negative buoyancy and comprising at least one heavy element, this method comprising the steps of:

(a) connecting through a line the heavy equipment to auxiliary element means, the assembly formed by the heavy equipment and said auxiliary element means having a non-negative buoyancy, and maintaining the heavy equipment and the auxiliary element means in lateral spaced relationship,

(b) positioning said auxiliary element means substantially above said preselected location, then subjecting the heavy equipment to the action of gravity by providing negative buoyancy thereto, the length of the connecting line being so limited that the heavy equipment then becomes suspended in water under said auxiliary element means substantially above said preselected location, without reaching the water bottom,

(c) adjusting, if so required, the location of the heavy equipment with respect to said preselected location, and

(d) reducing the buoyancy of said assembly to at least a slightly negative value, until said heavy equipment reaches said preselected location.

4,271,551

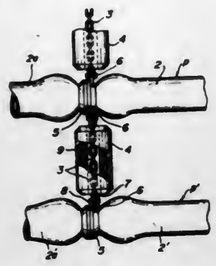
BINDING DEVICE FOR HOSES FLOATING ON WATER SURFACE

Mamoru Tanaka, Yokohama, Japan, assignor to Bridgestone Tire Co., Ltd., Tokyo, Japan

Filed Jan. 29, 1979, Ser. No. 7,537
Claims priority, application Japan, Feb. 1, 1978, 53-10809[U]
Int. Cl.[3] B63B *21/52*; F16L *55/00*
U.S. Cl. 9—8 R 6 Claims

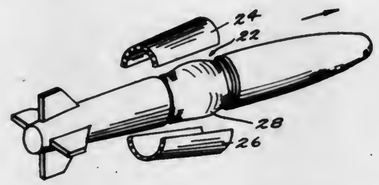
1. In a binding device for hoses floating on water surface, particularly, for a plurality of hoses arranged in parallel and floating on the water surface, the improvement comprising a chain connecting adjacent two hose lines and a resilient cylindrical cushioning body having a center bore surrounding said

chain and including buoyant means and a reinforcing element embedded therein, said chain extending through said center



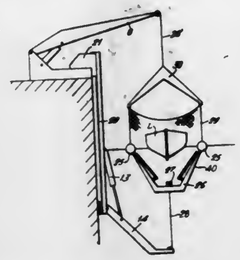
bore of said cylindrical cushioning body and assembled therewith.

4,271,552
TORPEDO FLOATATION DEVICE
Charles S. Sandler, Silver Spring, Md., assignor to Presearch Incorporated, Arlington, Va.
Filed Jul. 6, 1979, Ser. No. 55,401
Int. Cl.[3] B63B *21/52, 51/02*
U.S. Cl. 9—9 8 Claims



1. A recovery system for underwater projectiles comprising:
a generally cylindrically shaped sleeve having first and second ends for surrounding at least a portion of said projectile;
first means for clamping said first end of said sleeve circumferentially about said projectile at a first longitudinal position along said projectile so as to form a gas-tight seal between said sleeve and said projectile at said first longitudinal position;
second means for clamping said second end of said sleeve circumferentially about said projectile at a second longitudinal position along said projectile so as to form a gas-tight seal between said sleeve and said projectile at said second longitudinal position, said sleeve having a length greater than the distance between said first and second longitudinal positions such that it can be layered over itself when being secured at said first and second longitudinal positions;
third means for clamping a layered portion of said sleeve at a third longitudinal position along said projectile, said third longitudinal position further removed from said first longitudinal position than said second longitudinal position is from said first longitudinal position and along the same direction along which said second longitudinal position is located with respect to said first longitudinal position; and
means for injecting gas into the region bounded by said sleeve and said projectile for inflating said sleeve.

4,271,553
SYSTEM FOR LAUNCHING AND HAULING IN OBJECTS FROM THE SEA
Nils Korsvik, Aukra, Norway, assignor to A/S Aukra Bruk, Aukra and A/S Blehr Og Teavig, Oslo, both of, Norway
Filed Jan. 2, 1979, Ser. No. 334
Claims priority, application Norway, Jan. 6, 1978, 780060
Int. Cl.[3] B63C *9/22;* B63B *23/30*
U.S. Cl. 9—14 11 Claims



1. An apparatus for launching and hauling in objects such as boats and people from the sea, said apparatus including:
a pivotable jib means which is mountable on the top of a floating vessel or stationary platform so as to be capable of having its free end extend beyond the side of said floating vessel or stationary platform,
a stabilizing means positionable along the side of said floating vessel or stationary platform so as to be locatable below the free end of said pivotable jib means when said free end extends beyond the side of said floating vessel or stationary platform,
a yoke means suspended from the free end of said jib means,
an elongated floatable dock means suspended from said yoke means, said floatable dock means comprising a dock body and multiple floats mounted thereon so as to buoy said dock body in the water,
an adjustable pick-up net mounted between said yoke means and said floatable dock means, and
means connecting said floatable dock means with said stabilizing means so as to stabilize the movement of said dock means and maintain a substantially constant spacing between said dock means and the side of said floating vessel or stationary platform when said jib means is pivoted so as to move said dock means from a rest position on top of said floating vessel or stationary platform to a floating position in the sea and vice versa.

4,271,554
COMBINATION DRILL AND TAP TOOL
David Gresell, Laurelton, N.Y., assignor to Allen-Stevens Corp., Woodside, N.Y.
Filed Jan. 9, 1979, Ser. No. 2,221
Int. Cl.[3] B23G *5/06*
U.S. Cl. 10—152 T 5 Claims

1. A combination drill and tap tool for drilling a hole into a plastically deformable metal work piece and, without removing the tool from the hole, coining a helical thread from the metal adjacent the interior surface of the hole, said tool comprising:
an elongated rectilinear body having a leading metal drill portion with a boring tip and a coining tap portion integral with and operatively following said drill portion,
said coining tap portion having a lead-in end connected to the end of the drill portion remote from the boring tip,
said drill portion including two opposed interior chasing lands separated by circumferentially intermediate portions,
said boring tip being adapted to drill a hole of a predetermined diameter,

the diameters of said opposed lands being substantially equal to that of said hole and the diameters of said intermediate portions being less than that of said hole,
said coining tap portion being constructed to form a female thread by cold flow of the metal adjacent the surface of said drilled hole without removing the tool from the hole, said female thread having a predetermined root diameter



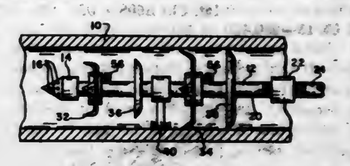
greater than said predetermined diameter of said hole, a predetermined crest diameter less than said predetermined diameter of said hole, and a predetermined pitch,
each of said opposed lands having notches so relatively spaced, positioned, dimensioned and shaped that both of said lands track the entire coined female thread and clear the crest thereof when the tool is unscrewed to completely retract the same from a drilled and tapped hole.

4,271,555
REINFORCED CONCRETE BRIDGE DECKING AND METHOD OF MAKING SAME
Joseph Mingolla, P.O. Box 112, Millbury, Mass. 01527, and John B. Stubblings, 402 Mass. Ave., Cambridge, Mass. 02139
Filed Mar. 14, 1979, Ser. No. 20,472
Int. Cl.[3] E01D *19/12*
U.S. Cl. 14—73 18 Claims



6. Deck structure for bridges or the like, comprising:
deck support means comprising a sub-decking;
a plurality of parallel, spaced apart rails extending across the deck and secured on the deck support means, said rails each having laterally projecting foot flanges and a laterally enlarged head;
a plurality of deck panels spanning the distance between adjacent rails and supported on said rails;
resilient bearing pads engaged between the panels and the foot flanges of the rails to resiliently support the panels on the rails; and
resilient locking wedges engaged between the panels and the head of the rails to retain the panels in place on the rails, said resilient bearing pads and locking wedges comprising the only connection between the panels and rails.

4,271,556
PIPE CLEANING APPARATUS
Eugene C. Farrell, Jr., 436 70th Ave., East Moline, Ill. 61265
Filed Jun. 8, 1979, Ser. No. 46,878
Int. Cl.[3] B08B *9/02*
U.S. Cl. 15—104.3 R 5 Claims



1. Apparatus for cleaning a sewer line or the like, comprising: an elongated, rigid tubular member adapted to be inserted coaxially into the line and having front and rear ends; means at the rear end of the member for connection to a source of water under pressure; means at the front end of the line for ejecting water under pressure to the line ahead of the member; rotary cutter means coaxially journaled on the member rearwardly of the water-ejecting means; a conduit disposed within the member and having a jet extending radially through the member behind the cutter, said conduit having a rear end connectible to a source of air under pressure for pressurizing the jet; and impeller means at the rear of and connected to the cutter for receiving air under pressure from the jet to rotate the cutter.

4,271,557
SHOCK ABSORBING FLOOR BRUSH ASSEMBLY
Beryl Caron, Los Angeles, Calif., assignor to Zimmerman Brush Co., Chicago, Ill.
Filed Apr. 27, 1979, Ser. No. 33,886
Int. Cl.[3] A46B *13/02*
U.S. Cl. 15—180 10 Claims



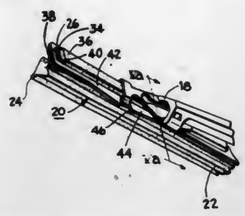
1. A brush capable of being secured to the central vertical shaft of a rotary floor cleaning machine which comprises:
a drive disk;
means for coupling said drive disk to the machine shaft;
a brush disk spaced from and in concentric, substantially parallel planar relationship to said drive disk, said brush disk having a rigid back portion having a lower surface with flexible brush elements extending outwardly from said lower surface; and,
connecting means interposed between and connected to said drive disk and said brush disk to transmit torque therebetween and to resiliently absorb vertical, horizontal and torque shocks and stresses, comprising:
resilient means interposed between said drive disk and said brush disk for absorbing shocks and stresses and urging said drive disk and said brush disk apart; and,
fastening means for securing said brush disk in spaced subtending relationship to said drive disk and limiting the resilient separation thereof by said resilient means, comprising:
a plurality of fasteners each having a first end affixed to said drive disk and a second end extending through said brush disk and limiting the outward displacement of said brush disk from said drive disk, said brush disk slidably movable on said fasteners for permitting substantial vertical limited relative movement of said brush disk towards said drive disk.

4,271,558

WINDSHIELD WIPER BLADE REFILL ASSEMBLY AND ADAPTER CLIPS

Anthony R. D'Alba, Williamsville, N.Y., assignor to Trico Products Corporation, Buffalo, N.Y.

Filed Oct. 17, 1979, Ser. No. 85,814
Int. Cl.³ B60S 1/02
U.S. Cl. 15—250.42 10 Claims



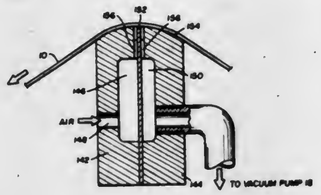
1. In a windshield wiper blade refill assembly including refill unit comprising an elongate elastomeric squeegee element having a relatively narrow wiping lip along one longitudinal edge and a relatively wide backing element of stiff resilient material adjacent the opposite longitudinal edge, the backing element being adapted to be slidably retained in a pressure-applying wiper blade superstructure having a set of depending longitudinally spaced aligned pairs of opposed claws and a set of adapter clips for fitting said refill unit to said superstructure, the improvement wherein each adapter clip of said set comprises a unitary, shaped piece of stiff, resilient sheet material formed to comprise a base portion having a pair of opposed adapter claws depending therefrom, said depending claws being spaced apart a distance sufficient to slidably receive opposite side edges of said backing element and a forwardly extending latching element for interlockingly engaging a pair of opposed claws on the superstructure and means for positively securing at least one of said clips and the backing element together.

4,271,559

TONER CLEAN-OFF HEAD

John Blumenthal, Wickliffe, Ohio, assignor to Gould Inc., Rolling Meadows, Ill.

Division of Ser. No. 903,855, May 8, 1978, Pat. No. 4,198,923.
This application Oct. 1, 1979, Ser. No. 80,898
Int. Cl.³ A47L 5/14
U.S. Cl. 15—308 2 Claims



1. An improved toner clean-off head for removing excess liquid toner from the surface of a moving record medium bearing an electrostatic image which has been developed by the application of liquid toner, comprising:

a housing having a cylindrical upper surface and an interior volume, said record medium being drawn over said cylindrical upper surface;

a slot in said upper surface extending into said interior volume;

a thin clean-off blade positioned in said slot so that the upper edge of said blade essentially forms an element of said cylindrical upper surface and that a first and a second flow passage are defined on either side of said blade; and

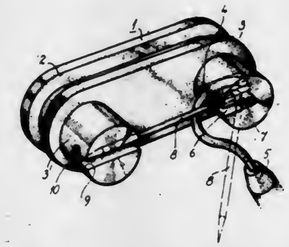
means for dividing said interior volume into an air inlet plenun and a toner exhaust plenum, said air inlet plenum being vented to the atmosphere and in communication with said first flow passage, said exhaust plenum being in communication with a vacuum means and with said second flow passage, such that air is drawn into said inlet plenum, through said first flow passage, over the upper edge of said clean-off blade to entrain excess liquid toner from said record medium, through said second flow passage and out said exhaust plenum, said record medium forming a seal against said cylindrical upper surface.

4,271,560

ARRANGEMENT FOR ATTACHING, FOLDING AND SLIDABLE SUSPENSION OF CURTAINS, DRAPERIES AND THE LIKE AT A CURTAIN ROD

Göran J. F. Hard af Segerstad, Borgmästarvägen 4, S-19030 Sigtuna, Sweden

Filed Oct. 10, 1978, Ser. No. 949,690
Claims priority, application Sweden, Oct. 7, 1977, 7711309
Int. Cl.³ A47N 15/00
U.S. Cl. 16—93 D 2 Claims



1. In a curtain clasp for attaching, folding and slidable suspension of curtains, draperies and the like at a curtain rod, having a needle slide member and means cooperating therewith to allow slidable movement of the needle slide member in a slot of a curtain rod, said needle slide member consisting of an oblong mirror-symmetrical plate provided at one of its longitudinal faces with means for maintaining and guiding the slide member in the slot of the curtain rod, and at the other of its longitudinal faces with a pair or projecting studs with open slots at the ends adapted to receive a curtain suspension pin bridging over the studs, the improvement comprising said means for maintaining and guiding the slide member in the slot of a curtain rod being a projection T-shaped in cross-section and extending along the entire longitudinal side of the slide member in the symmetry plane thereof to form a slide shoe for moving the slide member along the slot of the curtain rod with the flanges of the "T" acting as guides for the slide member during its displacement, and one of said pair of projecting studs is provided with a quarter-quadratic slot open both at right angles outward from the free end of the stud and in a direction towards the other of said pair of studs, said slot of said one stud being aligned with the symmetry plane of the slide member, and the bottom of which being located approximately at the center of the stud and branched to form a T-shaped channel system, the width of the stem and branch channels of which being chosen with respect to the curtain suspension pin so as to allow the pin with its head to be urged downwards through the open channel into pivotal engagement with the stud in the meeting point of the stem channel and its branch channels in the center of the stud; and wherein the other of said pair of projecting studs is provided with a slot extending diametrically through the stud along the symmetry plane thereof, said slot having at its bottom a widened hole extending in the longitudi-

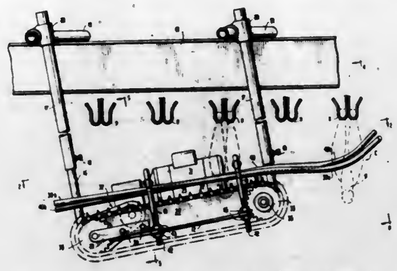
nal direction of the slide member and adapted to support and maintain the tip of the pin under the weight of the curtain.

4,271,561

POULTRY DISMEMBERING APPARATUS

Eugene J. Lewis, Rt. #1, Box 306, Demorest, Ga. 30535

Filed Sep. 11, 1979, Ser. No. 74,573
Int. Cl.³ A22C 21/00
U.S. Cl. 17—11 8 Claims



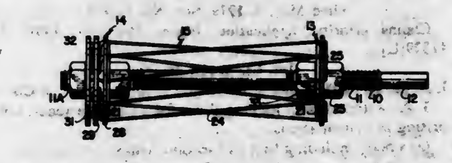
1. Poultry dismembering apparatus for disjointing and removing the leg and thigh portions from the backs of poultry leg and back carcasses pendulously supported by the legs from shackles suspended at spaced intervals from an overhead conveyor movable along a predetermined path, said apparatus comprising an elongated dismembering conveyor mounted below the level of said shackles for movement along a path diverging both horizontally and vertically at acute angles from said overhead conveyor path, said dismembering conveyor being adapted to engage one side of the carcass back and carry said backs along the dismembering conveyor path of movement and including means for moving said dismembering conveyor with engaged carcasses along said dismembering conveyor path of movement between entrance and exit ends of said dismembering conveyor in the same direction as said overhead conveyor path, and means supported in alignment with and spaced closely above said dismembering conveyor below said shackles adapted to contact the carcasses adjacent the juncture of the carcass leg thighs and the side of said carcass back opposite said one side contacted by said dismembering conveyor for retaining said backs in engagement between said dismembering conveyor and overlying retaining means and causing the engaged thigh portions immediately adjacent the backs to follow the horizontal line of motion of said dismembering conveyor as the carcass legs are carried by the shackles along a diverging path suspended below the overhead conveyor, thereby parting the legs and thighs from the backs retained between said dismembering conveyor and retaining means.

4,271,562

FISH SCALER

Nicholas Penner, Box 37, Teulon, Manitoba, Canada

Filed Dec. 10, 1979, Ser. No. 101,833
Claims priority, application Canada, Dec. 18, 1979, 318164
Int. Cl.³ A22C 25/02
U.S. Cl. 17—67 8 Claims



1. A fish scaler comprising in combination a drive spindle attachable to a source of power for rotation; comprising in combination a pair of spaced apart anchor elements on said spindle, a plurality of scaling elements extending between and held by said anchor elements in cylindrical array, a screw threaded means cooperating between at least one of said anchor elements and said spindle to move said one anchor element length-wise on said spindle relative to the other anchor element, thereby controlling the tension in said scaling elements, at least one end of said scaling elements including a double angulated end portion having an inner angulated portion extending substantially at right angles to said scaling element and an outer angulated portion extending from the end of said inner angulated portion in substantially spaced and parallel relationship thereto, to form a substantially U-shaped end engaging said one of said anchor elements, said anchor elements engaged by said outer angulated portion incuding a centrally apertured holding disc freely engaging over said spindle, means in said holding disc to receive said angulated portion of said scaling element whereby said inner angulated portion engages upon one side of said disc and said outer angulated portion engages upon the other side of said disc, a further centrally apertured disc freely engaging said spindle on the inner side of said holding disc and engaging against said inner angulated portion, said scaling elements engaging through said further disc, a centrally apertured clamping disc freely engaging said spindle on the outer side of said holding disc and engaging said outer angulated portion, and means cooperating between said spindle and said discs, upon either side of said discs, to clamp said discs together and hence clamp said inner and outer angulated portions between said holding disc and said further disc, and between said holding disc and said clamping disc, respectively.

4,271,563

SHELLFISH EXTRACTION TOOL

James L. Thesman, Katy, Tex., assignor to Markay International, Inc., Katy, Tex.

Filed Jan. 24, 1980, Ser. No. 114,907
Int. Cl.³ A22C 29/00
U.S. Cl. 17—71 6 Claims



1. A shellfish meat extraction tool comprising:

(a) a body portion for manual grasping;

(b) at least one connecting portion extending from one end of said body portion; and

(c) a first cutting means formed at the outer extremity of the one connecting portion, said first cutting means comprising curvilinear lateral extension at the extremity of the one connecting portion, with the outermost edge of said lateral extension forming a cutting edge which is inclined with respect to said one connecting portion.

4,271,564

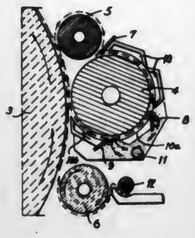
COMBER-CLEANER CARDING DEVICE

Juan B. Estebanell, Av. Dr. Fleming, 8 San Fructuoso Del Bages, Barcelona, Spain

Filed Apr. 11, 1979, Ser. No. 29,162
Claims priority, application Spain, Apr. 11, 1978, 235,283[U]
Int. Cl.² D01G 15/04
U.S. Cl. 19—100 9 Claims

1. In a carding device of the type having a large rotatable carding drum having a first direction of rotation and provided with means for carrying a fibrous web on the surface thereof, feed means for feeding the fibrous web onto the carding drum, a comber-cleaner assembly mounted for cooperating with the carding drum, the comber-cleaner assembly including stripper means for removing the web from the carding drum, worker

means and plaque segment means disposed adjacent said worker means for defining a semicircular run wherein the web is opened, cleaned and combed, the improvement which comprises plaque segment means including at least three plaque



segments disposed in a covering shell for defining at least two channels between said segments and at least two extractor blades disposed in said channels between adjacent plaque segments for removing impurities from the web.

4,271,565

METHOD AND APPARATUS FOR REGULATING OUT VARIATIONS IN THE SLIVER WEIGHT ON DEVICES FOR PROCESSING FIBRE SLIVERS

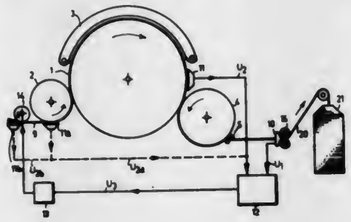
Werner Grunder, Möschaltorf, Switzerland, assignor to Zellweger Uster, Ltd., Uster, Switzerland

Filed Apr. 26, 1979, Ser. No. 33,447

Claims priority, application Switzerland, Apr. 26, 1978, 4497/78

Int. Cl.³ D01H 5/38

U.S. Cl. 19—240 40 Claims



1. A method of regulating out variations in the silver weight on a device for processing a fibre silver wherein said device has an inlet and an outlet for the fibre silver and silver processing cylinders, comprising:

making a first cross-sectional measurement of the fibre silver, and forming a first test signal corresponding to this first measurement;

making a second measurement of the relative variations in the cross-section of the fibre material which is located on said silver processing cylinders with respect to an average value for these variations formed over a predetermined period, and forming a second test signal corresponding to this second measurement, wherein said second measurement is made at a position adjacent to said silver processing cylinders and closer to the inlet of the device than the position where the first measurement is made; and

controlling at least one regulating device which regulates the cross-section of the fibre silver in accordance with said first and second test signals.

4,271,566

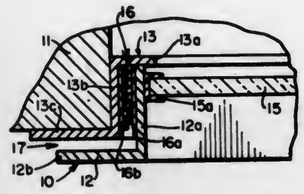
SHEAR ATTACHMENTS USING HOOK AND LOOP FASTENER ELEMENTS

Joseph Perina, Huntington, N.Y., assignor to Velcro USA Inc., New York, N.Y.

Continuation of Ser. No. 750,002, Dec. 13, 1976, which is a continuation of Ser. No. 151,744, Jun. 10, 1971. This application Jun. 4, 1979, Ser. No. 45,062

Int. Cl.³ A44B 17/00; E05C 21/02

U.S. Cl. 24—204 13 Claims



1. A fastener including upstanding mating hooking elements of the hook-type and loop-type having the property that when a plurality of such hooking elements are placed in face-to-face relation with a plurality of mating hooking elements numerous engagements of the hooking elements take place and the elements resist separation by forces substantially parallel to the interfacial plane of engagement, comprising:

(a) at least first and second fastener members, each having at least one surface containing hooking elements capable of mating with the hooking elements of the other; and

(b) substantially rigid structural members secured to said fastener members for positioning said fastener members such that said surfaces are maintained in substantially rigid parallel relation and confined in a substantially fixed spaced relationship, which space is sufficiently less than the combined height of the hooking elements upstanding from both surfaces such that at least certain of the hooking elements are brought into a hook and loop-type engaged relation by forcibly directing the hooking elements of at least one of said fastener members in a direction generally normal to the projection of said hooking elements such that interposition of a third member between said surfaces over at least a portion of the engagement area of said hooking elements without physically destroying a substantial portion of the engaged hooking elements in said area is thereby precluded, such that relative movement of the fastener members is confined generally along the direction perpendicular to the projection of said hooking elements, and attachment and detachment of the respective members is achieved only by forces substantially parallel to the respective surfaces of said fastener members in sufficient magnitude to overcome the progressive resistance of the hooking elements progressively engaging and disengaging as they are moved relative to each other.

4,271,567

AUTOMATIC LOCK SLIDER FOR SLIDE FASTENER

Tsunetaka Aoki, Kamiichi, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Mar. 6, 1979, Ser. No. 17,944

Claims priority, application Japan, Mar. 30, 1978, 53-41529[U]

Int. Cl.³ A44B 19/30

U.S. Cl. 24—205.14 R 6 Claims

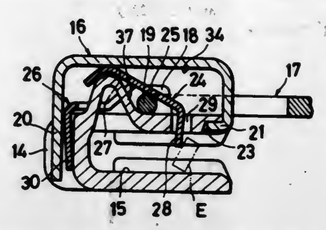
1. An automatically locking slider for a slider fastener, comprising in combination:

(a) a body including first and second wings connected at one end by a neck so as to define therebetween a generally Y-shaped guide channel;

(b) a yoke attached to said first wing;

(c) a locking spring supported on said body and concealed by said yoke, said locking spring having a locking prong movable into and out of said guide channel, a first retaining portion resting on said body, and a second retaining portion;

(d) pivot means supporting said second retaining portion in a plane above and remote from the general plane of said



first wing so as to permit said locking prong to move angularly about said pivot means, said pivot means including a pair of opposed projections on respective inner surfaces of opposite side walls of said yoke; and

(e) a pull tab connected to said locking spring for retracting said locking prong away from said guide channel against the bias of said locking spring.

4,271,568

METHOD OF CUTTING COLUMNS OF THREAD LOOPS

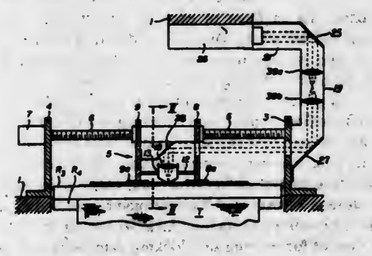
Gerard Durville, Le Lignon, Geneva; Michel Moulin, Lausanne; Serge Ramseier, Carouge, Geneva, and Erwin Zurcher, Le Lignon, Geneva, all of Switzerland, assignors to Cotonificio Cantoni S.p.A., Milan, Italy

Division of Ser. No. 844,278, Oct. 21, 1971, Pat. No. 4,159,558, which is a continuation-in-part of Ser. No. 836,094, Sep. 23, 1977, abandoned, which is a continuation of Ser. No. 641,365, Dec. 17, 1975, abandoned. This application Nov. 15, 1978, Ser. No. 960,782

Claims priority, application Switzerland, Dec. 24, 1974, 17270/74; Oct. 22, 1976, 13365/76

Int. Cl.³ D06C 13/08, 13/10

U.S. Cl. 26—9 1 Claim



1. A process for severing parallel columns of parallel yarn loops on a surface of a fabric web which comprises the steps of:

displacing said web past a cutting station in a direction parallel to the columns thereby successively disposing the thread loops at a predetermined location;

engaging in the thread loops of the column as they approach said location a guide needle having a portion disposed at said location such that the thread loops successively rest upon said needle at said location;

training a laser beam at said location with an axis inclined in a plane perpendicular to said web and to a column of thread loops advanced along said needle to said location, said axis lying to one side of a plane perpendicular to said web location.

individually focussing said laser beam successively upon a predetermined portion of each of said thread loops of the latter column at said location upon said needle for a period of time sufficient to cause combustion of at least part of the fibers forming the respective thread loop;

directing a jet of fluid outto the zone of focus of said laser beam at said location, and

retaining each thread loop at said location against an abutment on said needle and accelerating following thread loops toward said abutment whereby, in the region of said location, the successive thread loops are disposed substantially in contact with one another and encounter said laser beam without significant impingement of said laser beam upon said needle.

4,271,569

TENTER APPARATUS FOR FABRIC WEB TENTER MACHINES

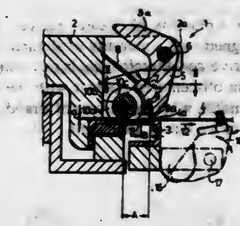
Reinhold Grün, Rudersberg-Oberndorf; Dietrich Troster, Weil der Stadt, and Bruno Gleich, Wendlingen, all of Fed. Rep. of Germany, assignors to Bruckner-Trockentechnik KG, Leonberg, Fed. Rep. of Germany

Filed Jul. 24, 1978, Ser. No. 927,378

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1977, 2737091

Int. Cl.³ D06C 3/10

U.S. Cl. 26—79 6 Claims

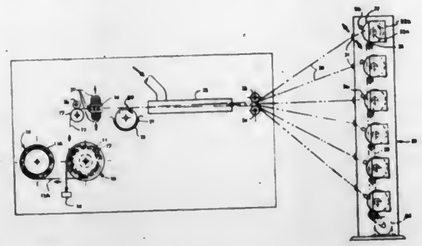


1. In tenter apparatus having a support provided with a surface at a level to support one edge of a fabric web, a body having one end thereof confronting said support surface and pivotally mounted between its ends for movement of said one end toward and away from said surface, a first clamp fixed to said body adjacent said one end of said body and comprising a rotary roller having relatively large diameter flanges joined by a relatively small diameter hub, a second clamp fixed to said body adjacent said one end and in fixed spaced relation to said first clamp, the relative positions of said first and second clamps being such that movement of said one end of said body toward said support is operable to effect positioning of said flanges at the level of said surface while said hub and said second clamp are spaced from such level, and said support having openings into which said flanges are movable to pass through the level of said surface in response to continued movement of said one end of said body toward said support, the improvement wherein said hub of said first clamp is engageable with said support to terminate movement of said one end of said body toward said support following movement of said flanges into said openings and through the level of said surface, and wherein the diameter of said hub is so related to the spacing between said first and second clamps that when movement of said one end of said body toward said support is terminated by engagement between said hub and said support surface said second clamp is adjacent but spaced from the level of said surface a minimum distance which is less than the thickness of said fabric web, thereby to limit the clamping force said second clamp may apply on said web.

4,271,570
GRAPHITE FIBER ALIGNMENT PROCESS AND APPARATUS

Frederick H. Curzio, Garden Grove, Calif., assignor to Textile Products, Inc., Anaheim, Calif.

Filed Aug. 14, 1978, Ser. No. 933,658
Int. Cl.[2] B65H 54/20
U.S. Cl. 28—290 10 Claims



1. A process for aligning graphite strands from a tape of graphitized fibers which comprises the steps of:

i. initially separating individual graphite strands from the tape;

ii. diverging the strands while separating the strands from the graphitized tape under tension;

iii. feeding each strand through a separate alignment tube; and,

iv. winding up a plurality of strands, each strand being on a separate aligned reel, a plurality of aligned reels having at least one drive rod therefor, each reel being maintained forwardly in off-centered contact with the drive rod due to strand tension, whereby release of strand tension causes the reel to move out of alignment.

4,271,571
PROCESS FOR MANUFACTURING SHADOW MASK OF BRAUN TUBE FOR COLOR TV

Takeshi Tsuda, Takatsuki; Michio Kubota, Amagasaki; Kazuhiro Takagi, Amagasaki; Masahiro Shimose, Amagasaki; Yasuo Imamura, Urawa, and Kazunori Kato, Tokyo, all of Japan, assignors to Nisshin Steel Co., Ltd. and Dai Nippon Printing Co. Ltd., both of Tokyo, Japan

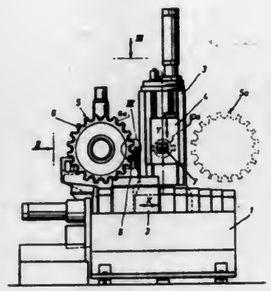
Filed Oct. 11, 1979, Ser. No. 83,635
Claims priority, application Japan, Oct. 18, 1978, 53-128031
Int. Cl.[3] H01J 9/02
U.S. Cl. 29—25.18 3 Claims

1. A process for manufacturing a shadow mask of a Braun tube for a color TV, comprising the steps of subjecting a strip of low carbon steel to a cold rolling finish with a rolling reduction of 10 to 35% to provide a steel strip material of not more than 0.2 mm in thickness, forming predetermined patterns of holes in the material by a photo-etching technique, cutting the material into individual flat masks of a predetermined dimension, annealing each flat mask at a temperature of 520° to 750° C., conditioning the annealed mask by passing it through a roller leveller, and press-forming the conditioned flat mask into a desired shape.

4,271,572
MACHINE TOOL HAVING AT LEAST ONE TOOL MAGAZINE

Willi Lipp, Witten-Annen, Fed. Rep. of Germany, assignor to Thyssen Industrie AG, Fed. Rep. of Germany

Filed Feb. 28, 1979, Ser. No. 16,074
Claims priority, application Fed. Rep. of Germany, Mar. 20, 1978, 2812200
Int. Cl.[3] B23Q 3/157
U.S. Cl. 29—26 A 4 Claims

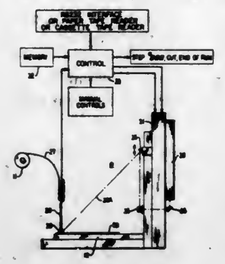


1. A machine tool comprising, a tool magazine with at least one magazine disk having a plurality of substantially semi-circular storage recesses for storing tool carriers, each storage recess having a trapezoidal projection, at least one tool carrier having a collar with a circular trapezoidal groove engageable with said trapezoidal projection of at least one of said storage recesses, a single locking member pivotably mounted on said magazine disk in front of each of said storage recesses for locking and unlocking said at least one tool carrier to at least one of said storage recesses, said locking member pivotable about an axis extending parallel to a plane of said magazine disk, spring means connected to said locking member for biasing said locking member into a locking position thereof to lock said at least one tool carrier in said at least one storage recess, said locking member having a locking cam extending in front of said tool carrier collar when said tool carrier is locked in said storage recess, said locking member including a swivel cam for pivoting said locking member into an unlocking position thereof for moving said locking cam away from said tool carrier collar to release said tool carrier, a manual actuation cam for manually releasing said tool carrier from said storage recess extending in a direction opposite from said locking cam and connected to said locking member, said locking cam and manual actuation cam extending in a direction contained in a plane extending transverse to said axis, said swivel cam extending in a direction substantially perpendicular to the plane containing the extension direction of said locking and manual actuation cams, a machine stand having a headstock thereon and a main spindle on said headstock, said main spindle having a front end face which is adapted to receive the tool carrier and which face has at least one stop cam having side edges on each side with a bevel disposed in a position to contact said swivel cam of said locking element to pivot said locking element when said tool magazine is moved in a direction substantially parallel to said axis.

4,271,573
QUICK-CONNECT INTERCONNECTION SYSTEM

Charles A. von Roesgen, Westfield, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Division of Ser. No. 892,106, Mar. 31, 1978, which is a continuation-in-part of Ser. No. 630,183, Nov. 10, 1975, abandoned. This application Jun. 13, 1979, Ser. No. 48,022
Int. Cl.[3] H05K 13/06
U.S. Cl. 29—33 M 4 Claims



1. System for electrically wiring electrical components onto a circuit board comprising:

(1) a stationary mounting surface for supporting the circuit board

(2) a wiring tool for inserting electrical wire into selected wire receptacles on the circuit board, said wiring tool comprising an elongated housing, means for feeding electrical wire along the housing, applicator means at one end of the housing for inserting electrical wire into selected wire receptacles in the circuit board,

(3) selector means for selecting receptacles in the circuit board, said selector means comprising a light source for generating a beam of light, deflector means for moving the light beam along the circuit board to illuminate selected receptacles on the circuit board, control means for positioning the deflector means, memory means connected to said control means for generating electrical command signals in a predetermined sequence and deflect the light beam in response to that sequence,

light detection means mounted on the wiring tool, for generating an electrical output signal when exposed to the light beam, and

electrical interconnection means between the light detection means and the memory means for activating the electrical command signals from the memory means.

4,271,574
MECHANICAL DRIVE FOR ROTATABLE MANTLE ROLL MOUNTED ONTO A STATIONARY AXLE, ESPECIALLY FOR A DEFLECTION-COMPENSATED ROLL MANTLE OF A PAPER MACHINE

Martti Matikainen, Ulvila, Finland, assignor to Hunt & Moscrop (Paper Machinery) Ltd., Middleton, England

Filed Apr. 27, 1979, Ser. No. 33,958
Claims priority, application Finland, Apr. 27, 1978, 781325
Int. Cl.[3] B60B 15/16; F16H 57/00, 1/28
U.S. Cl. 29—115 16 Claims

1. A mechanical drive for a rotatable mantle roll mounted on a stationary axle, said axle having an axle end region, said mechanical drive comprising:

a supporting frame, said supporting frame surrounding said axle end region;

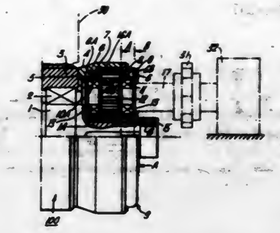
at least one shaft;

at least one driving gear driven by said shaft and journalled to said supporting frame;

an internally toothed gear ring, said gear ring being connected to said rotatable mantle roll and being driven by said at least one driving gear;

a shell member stationarily connected to said rotatable mantle roll;

bearing means mounted inside said shell member for supporting said supporting frame; and



locking means for locking said supporting frame with respect to said stationary axle;

wherein said at least one driving gear and said internally toothed gear ring are guided independently of said stationary axle.

4,271,575
CONTROLLED DEFLECTION ROLL

Rolf Lehmann, Rudolfstetten, Switzerland, assignor to Escher Wyss Limited, Zürich, Switzerland

Filed Aug. 9, 1979, Ser. No. 65,058
Claims priority, application Switzerland, Aug. 22, 1978, 8898/78
Int. Cl.[3] B30B 15/16; F16C 7/04; B21B 13/14
U.S. Cl. 29—116 AD 6 Claims



1. A controlled deflection roll comprising:

a stationary support;

a substantially tubular-shaped roll shell;

means for mounting said substantially tubular-shaped roll shell to be rotatable about said stationary support;

a plurality of hydrostatic pressure elements located between said stationary support and said roll shell;

said hydrostatic pressure elements being supported at said stationary support and serving to exert pressure upon the roll shell and being capable of urging said roll shell in the direction of a countersupport;

means providing a pressure chamber for each hydrostatic pressure element;

at least one channel provided in said stationary support;

source means for hydraulic pressurized fluid medium;

said pressurised fluid medium-source means containing a pump for the infeed of hydrolic pressurized fluid medium, by means of said at least one channel, to said hydrostatic pressure elements;

a drive motor for driving said pump;

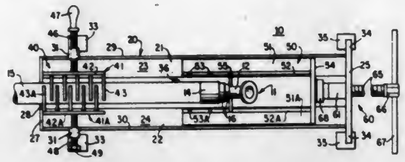
said stationary support including an end protruding out of said roll shell; and

said pump together with its drive motor being carried by said protruding end of said stationary support.

4,271,576
APPARATUS FOR APPLYING COUPLING TO HOSE

David W. Gensing, Libertyville, Ill., assignor to Anchor Coupling Co., Inc., Libertyville, Ill.

Filed Jun. 27, 1979, Ser. No. 52,460
Int. Cl.³ B23P 19/04
U.S. Cl. 29—237 5 Claims



1. Apparatus for applying a coupling to an end of a length of hose, the apparatus comprising: a longitudinally extending frame;

two clamping members carried by said frame and adapted for receiving and securing the end of the hose therebetween, each of the clamping members including a plurality of spaced parallel bearing plates, each bearing plate having formed therein a recess which defines a bearing surface adapted to engage a portion of the exterior surface of the hose, the bearing plates of one of the clamping members being disposed in alternating relationship to the bearing plates of the other clamping member, the clamping members being substantially horizontally movable in a direction substantially normal to the axis of the associated hose;

adjusting means coupled to the clamping members for effecting movement thereof toward each other and into engagement with the hose to securely hold the end of the hose in a predetermined position relative to the frame, the adjusting means including two screws, said screws being operatively associated with and adapted to horizontally move each of the clamping members;

guide means on said frame, and defined by two elongated guide tracks, one guide track being disposed on each side of the hose and extending parallel to the axis of the frame;

a coupling carriage including two runners slidably disposed for sliding movement along the guide tracks, the runners having laterally aligned notches therein, the coupling carriage being adapted to support a hose coupling co-axially with the length of hose;

a support member adapted to be received in the notches of the runners and extending between the runners, said support member having a recess formed therein for receiving the coupling carriage;

a drive mechanism associated with the coupling carriage for moving the coupling carriage along the guide tracks toward the clamped hose, the drive mechanism including a ball nut and screw assembly carried by said frame, said screw assembly including thrust bearing means adapted for non-rotational engagement of the coupling carriage when the screw is rotated, whereby the screw may be selectively rotated to move the coupling carriage axially relative to the frame for pressing the coupling onto the end of the hose.

4,271,577
ALIGNMENT DEVICE

Masao Kosugi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 24, 1979, Ser. No. 32,735
Claims priority, application Japan, Apr. 28, 1978, 53/51849
Int. Cl.³ B23P 19/04
U.S. Cl. 29—238 2 Claims

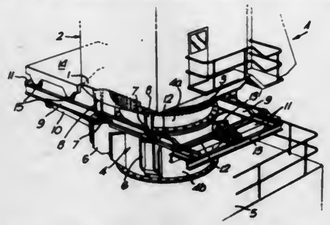
1. An alignment device wherein a relatively flexible mask and a wafer are brought into intimate contact with each other for the manufacture of a semiconductor circuit element, comprising:

a mask supporting member for supporting the mask, said mask supporting member being provided with an opening which is covered by the mask when the mask is placed for support by the mask supporting member;

a wafer supporting member, of a non-flexible material, for supporting the wafer in opposition to the bottom surface of the mask, said wafer having an area less than that of said opening of said mask supporting member;

a seal member for rendering air-tight the clearance between said mask supporting member and said wafer supporting member;

a vacuum pump for evacuating the clearance between said mask support member and said wafer supporting member



and for bringing the mask into intimate contact with the wafer;

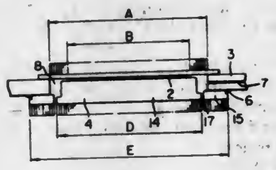
a wafer side pressure receiving surface of a predetermined effective area for receiving a load distribution corresponding to the differential between the vacuum pressure and the atmospheric pressure when said vacuum pump is operated; and

a mask side pressure receiving surface of a predetermined effective area for receiving a load distribution corresponding to the differential between the vacuum pressure and the atmospheric pressure when the mask is brought into intimate contact with the wafer by the operation of said vacuum pump, said effective area of said mask side pressure receiving surface being enough to prevent the central portion of the mask from warping away from the wafer.

4,271,578
METHOD AND APPARATUS FOR REMOVING A SLEWING RING FROM A PEDESTAL MOUNTED CRANE

Frank M. Robinson, Hedon, and Norman F. Taylor, Burstwick, both of England, assignors to Priestman Brothers Limited, Hull, England

Filed Oct. 10, 1979, Ser. No. 83,328
Claims priority, application United Kingdom, Nov. 6, 1978, 43265/78
Int. Cl.³ B66D 23/84; B23P 19/04
U.S. Cl. 29—426.3 10 Claims



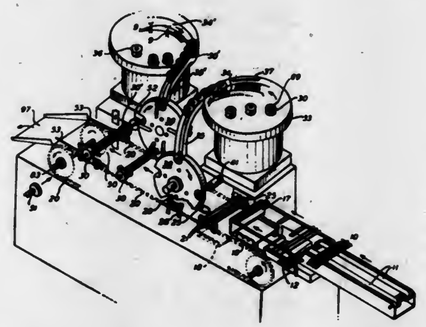
1. A method of removing a slewing ring from a pedestal-mounted crane, the method comprising the steps of positioning

a pair of elongate guide members along opposite sides of said slewing ring and substantially parallel to the plane of said slewing ring, positioning a carriage on said elongate guide members, positioning a plurality of jacks between said crane and said pedestal, extending said jacks to raise said crane relative to said pedestal, moving said carriage to a position beneath said crane, positioning said slewing ring on said carriage, and withdrawing said carriage together with said slewing ring thereon from beneath said crane along said guide members.

4,271,579
PAINT ROLLER CAGE ASSEMBLY APPARATUS AND METHOD

Walter McDonald, Landing, and Norbert J. Seitel, Gillette, both of N.J., assignors to Charles E. Green & Son, Inc., Newark, N.J.

Division of Ser. No. 874,524, Feb. 2, 1978, Pat. No. 4,170,289.
This application May 17, 1979, Ser. No. 39,795
Int. Cl.³ B23P 19/00, 21/00
U.S. Cl. 29—430 10 Claims



4. A method of assembling paint roller cages in which end caps are oriented to receive cage wires in sockets on the end caps comprising,

a. delivering end caps to end cap pockets on a rotatable turret at a receiving station,

b. rotating the turret to an end cap positioning station,

c. twisting the end cap on the turret at the cap positioning station in one direction,

d. reverse twisting the end cap in the turret at the cap positioning station in the opposite direction to a position where it will be in registration with a cluster of cage wires when the turret is rotated to the cap applying station,

e. rotating the turret to the cap applying station,

f. pushing the end cap out of the cap receiving pocket in the turret into engagement with the pre-positioned cage wire.

5. A cage assembly apparatus comprising:

a. a pair of conveyors operably mounted in parallelism with each other,

b. a pair of groups of pivotably associated links mounted on the conveyors,

c. means to intermittently drive the conveyors,

d. the links in each group normally disposed in line with each other,

e. the links in each group pivotable to dispose the end links in each group in engagement with each other,

f. a cage wire seat on each link of each pair, and defining means to hold a plurality of cage wires on each group of links in general parallelism with each other,

g. cage wire latches pivotably mounted on each of the links,

h. means to pivot the cage wire latches to hold cage wires on the seats when the normally linearly disposed links pivot to dispose the end links into engagement with each other,

i. means to pivot the links to dispose the end links of each group of links into engagement with each other, whereby cage wires on the seats are positioned to receive end caps, and

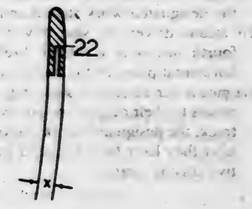
j. first means to deliver a first end cap with cage wire holes in registration with one end of the cage wires on the links,

k. means to apply the first end cap to one end of the cage wires on the links.

4,271,580
METHOD OF FORMING WIRE SUPPORT FRAME MEMBER

James F. King, Winston-Salem, and Gilbert L. Horton, Kernersville, both of N.C., assignors to Hanes Corporation, Winston-Salem, N.C.

Filed Jan. 18, 1979, Ser. No. 49,461
Int. Cl.³ B23P 11/02
U.S. Cl. 29—447 13 Claims



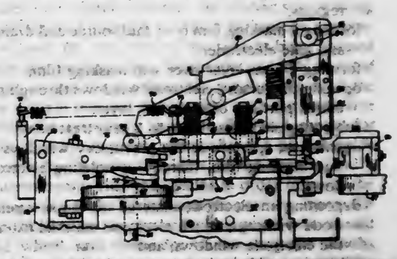
1. The method of fixedly securing a plastic end cap to an end portion of a wire frame member having a desired arcuate configuration comprising the steps of removing selected portions from a wire frame member end portion to define a shoulder and a reduced tip portion having a predetermined length selectively positioning an end cap, having an opening of rectangular cross-sectional configuration generally conforming to the rectangular cross-sectional configuration of the reduced tip portion, for snugly receiving the reduced tip portion, and adhering the end cap upon the reduced tip portion.

12. The method of forming a reinforcement frame for use in cups of brassieres and the like comprising the steps of bending a length of resilient wire having a generally rectangular cross-section into a generally U-shaped configuration, selectively positioning a protective plastic end cap, having an opening therein for snugly receiving a wire end portion, upon each end of the wire member, and adhering the end caps to the wire frame.

4,271,581
APPARATUS FOR INSERTING MULTIPLE TERMINALS INTO A HOLDER

Robert Eltzinger, Lincolnshire, Ill., assignor to Mid-West Automation, Inc., Wheeling, Ill.

Filed Sep. 24, 1979, Ser. No. 78,239
Int. Cl.³ H01R 43/00
U.S. Cl. 29—564.6 8 Claims



1. An apparatus for inserting multiple terminals into a holder

that has been indexed in a terminal receiving position comprising

(a) a driving power source for the apparatus,

(b) a first means for feeding a predetermine length of a terminal strip into the apparatus through a hollow track lying in a substantially horizontal plane,

(c) means driven by said power source for actuating said first means,

(d) second means for clamping said predetermined length of the terminal strip in a designated work station provided by the apparatus,

(e) means driven by said power source for moving said second means in a substantially vertical plane,

(f) third means for severing a predetermined number of terminals from the terminal strip positioned within the designated work station,

(g) means driven by said power source for momentarily moving said third means in a substantially vertical plane,

(h) a fourth means for projecting the severed terminals out of the designated work station and into the indexed holder,

(i) means driven by said power source for moving said fourth means in a lateral direction transversely of the horizontal plane of the hollow track,

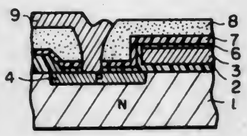
(j) means for returning said first, second, third and fourth means to their original positions relative to the horizontal track, the designated work station, and the indexed holder after they have been actuated and moved by their respective driven means.

4,271,582

PROCESS FOR PRODUCING A SEMICONDUCTOR DEVICE

Kazunari Shirai; Izumi Tanaka; Shinpei Tanaka, and Keiji Nishimoto, all of Yokohama, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Aug. 29, 1979, Ser. No. 70,610
Claims priority, application Japan, Aug. 31, 1978, 53-106761
Int. Cl.³ H01L *21/22*
U.S. Cl. 29—571 **12 Claims**



1. A process for producing a semiconductor device comprising,

a semiconductor substrate, on which a source region and a drain region are formed with a gate region positioned between said source and drain regions,

a gate insulating film formed on said gate region, and

a gate electrode formed on said gate insulating film, said process comprising the steps of:

forming said gate insulating film;

forming said gate electrode on said gate insulating film;

forming said source and drain regions in such a manner that said gate electrode is positioned between these regions;

forming a masking film over said source and drain regions and gate electrode;

forming a glass layer over said masking film;

opening precursory electrode windows through predetermined portions of said glass layer;

subjecting said glass layer to a heat treatment;

opening an aperture at the precursory windows through said masking film, thereby completing electrode windows;

depositing an electrode material on the so opened electrode windows, which electrode material extends from the electrode windows; and

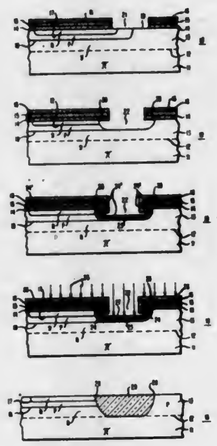
subjecting said semiconductor substrate to a heat treatment under a hydrogen atmosphere subsequent to said heat treatment step of the glass layer and prior to said depositing step of the electrode material.

4,271,583

FABRICATION OF SEMICONDUCTOR DEVICES HAVING PLANAR RECESSED OXIDE ISOLATION REGION

Dawon Kahng, Bridgewater Township, Somerset County, and Theodore A. Shankoff, Mendham, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 10, 1980, Ser. No. 128,841
Int. Cl.³ H01L *21/302*
U.S. Cl. 29—571 **11 Claims**



1. A method for fabricating semiconductor circuits in a semiconductive silicon body (10) comprising a process for forming an oxide isolation region (29) in the body (10) by thermal oxide growth in a recess region (22) in said body (10) while the rate of such growth on a sidewall of said recess region (22), as compared with growth on the bottom of said recess region (22), is reduced by a mask (24) on said sidewall, characterized in that said sidewall is coated with a thermally grown silicon dioxide layer (23) on which said mask (24) is formed prior to the oxide growth in the recess region (22), said recess region having been formed by substantially isotropic etching of a restricted portion of an originally substantially planar surface of the body (10).

4,271,584

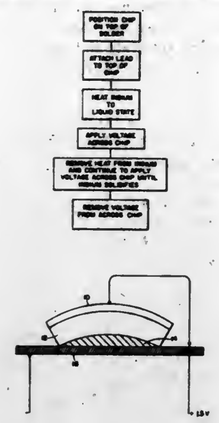
METHOD OF ATTACHING LED CHIP TO A HEADER

Guenther Zaeschmar, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 4, 1978, Ser. No. 965,811
Int. Cl.³ H01L *21/479*
U.S. Cl. 29—584 **4 Claims**

1. In a method of fabricating a light emitting diode (LED) including a LED chip and a header for supporting said chip, wherein said LED chip is soldered to a header for supporting said chip by means of a soft solder, the improvement comprising the steps of:

attaching a lead to top of chip, heating said solder to a liquid state, applying a voltage across said chip to reconfigure said LED chip into a stress free bent configuration, discontinue heating said solder while continuing to apply



said voltage across said chip until said solder solidified, and removing said voltage from across said chip.

4,271,585

METHOD OF CONSTRUCTING A SUPERCONDUCTING MAGNET

John A. Satti, Naperville, Ill., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Division of Ser. No. 965,345, Dec. 28, 1977, Pat. No. 4,189,693.
This application Aug. 22, 1979, Ser. No. 68,807
Int. Cl.³ H01V *11/00*; H01F *7/22*
U.S. Cl. 29—599 **4 Claims**



1. A method of constructing a superconducting magnet on a cylindrical bore tube having an outer surface, the method comprising the steps of:

a. forming a twisted taped cable of rectangular cross-section from an odd number of strands of matrix superconducting wire wrapped in an open spiral of a glass tape impregnated with epoxy resin;

b. wrapping the bore tube with a strip of thermally conductive material in an open spiral;

c. affixing a first pair of saddle-shaped spacers on the surface of the bore tube and the thermally conductive material;

d. placing a first pair of saddle-shaped windings about the spacers on the surface of the bore tube by wrapping the cable with a short dimension of the rectangular cross-section against the surface of the bore tube and the thermally conductive material;

e. placing spacers in and around the windings to make a cylindrical assembly;

f. clamping the cylindrical assembly in a first compression fixture;

g. heating the clamped cylindrical assembly to cure the epoxy resin;

h. removing the first compression fixture;

i. connecting the strands of the cable to a terminal to place the strands in series; and

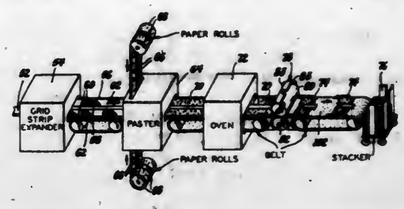
j. connecting a pair of external leads to the terminal to establish an external connection.

4,271,586

METHOD OF MAKING BATTERY PLATES

Charles P. McCartney, Jr., Yorktown, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 27, 1979, Ser. No. 69,894
Int. Cl.³ H01M *4/74*
U.S. Cl. 29—623.5 **4 Claims**



1. In the method of making battery plates comprising the principal steps of: (1) forming a length of battery grid-making stock, said stock comprising two grid-wire networks expanded laterally outwardly from an unexpanded strip at the longitudinal center of said length and two unexpanded strips at the outermost edges of said networks defining the lateral edges of said stock, said center and edge strips subsequently defining opposite borders of said plates; (2) filling said networks with battery plate reactant; and (3) cutting said filled stock into individual battery plates, the improvement comprising: severing said stock along spaced serpentine cuts transverse its length such as to segment said stock into a plurality of plates, said cuts forming at least two lugs on each plate projecting outboard said networks, the lugs for each plate being aligned with the borders and projecting from that plate's borders in the longitudinal direction of said stock and being carved out from the borders of the next adjacent plate severed from said stock.

4,271,587

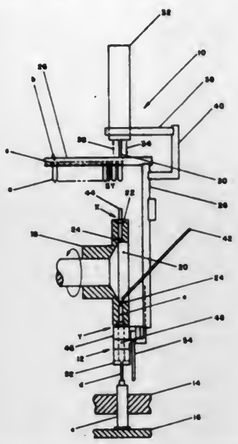
APPARATUS FOR CONTINUOUSLY INVERTING SHEATHS AND PLACING THE SHEATHS ONTO ARTICLES

Walter Shields, 181-41 Henley Rd., Jamaica, N.Y. 11432

Filed Jul. 12, 1979, Ser. No. 56,883
Int. Cl.³ B23Q *7/06*
U.S. Cl. 29—809 **3 Claims**

1. Apparatus for continuously inverting sheaths having vertically upwardly oriented open ends and annular shoulders around the open ends and for placing the sheaths onto the articles, comprising a rotationally indexing wheel having a concavity at a side surface thereof, a plurality of tapered depressions provided around the outer periphery of the wheel equally spaced from each other and a plurality of holes radially inwardly extending from the tapered depressions to said concavity for receiving therein the sheaths at a first station and transmitting the same to a second station at which the orientation of the sheaths is entirely inverted, the second station being positioned just above a location to which the articles are consecutively indexed, the shoulders of the sheaths being located in the tapered depressions when the sheaths are fully inserted into the holes, means for continuously supplyingeach of the sheaths in an upright position in alignment with the respective hole to which the respective sheath is fed, said means for supplying the sheaths consisting essentially of a pair of guide rails to support the annular shoulders of the sheaths and a pusher to intermittently push the sheaths in order to move the sheaths continuously to the desired upright position, means for transporting the sheaths supported by the guide rails to said holes of said wheel, said means for transporting the sheaths including an air cylinder having a piston therein operated by

air pressure and a piston rod connected to the piston, said air cylinder being actuable such that when operated, the piston rod enters the sheath supported in position by the guide rails and forces the sheath downwardly through said guide rails and inserting the sheath into the hole, and air ejection means for releasing the sheaths from the holes at the second station, an



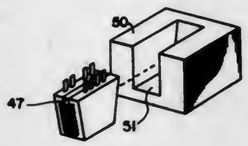
end of the air ejection means being located within said concavity at the second station and the air ejection means being intermittently actuable to eject air from the end when the holes are positioned at the second station, whereby the sheaths at the second station are consecutively released from the holes and are placed over the articles consecutively indexed to be located just below the second station.

4,271,588

PROCESS OF MANUFACTURING A ENCAPSULATED HYBRID CIRCUIT ASSEMBLY

Robert A. Nowak, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 859,424, Dec. 12, 1977. This application Jun. 18, 1979, Ser. No. 49,377
Int. Cl.[3] H01R *43/00*
U.S. Cl. 29—827 3 Claims



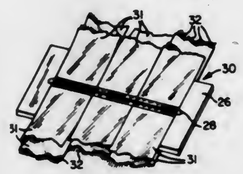
1. In the manufacture of a circuit assembly a method of manufacture comprising the steps of:
(a) providing a plurality of nonconducting substrates having conducting layers comprising a plurality of connecting pads and artwork for attaching discrete components thereto forming an integral part thereof;
(b) providing at least one discrete component and fixedly attaching said at least one discrete component to said artwork;
(c) providing a lead frame comprising external leads and at least one interconnecting lead, and fixedly attaching said external leads to said substrates for transmission of signals into and out of the assembly, and attaching said at least one interconnecting lead between at least one of said substrates and at least one other of said substrates;
(d) encapsulating said substrates, said at least one discrete component, and at least portions of said lead frame in encapsulating material in a manner that allows said substrates to be disposed in a noncoplanar configuration; and
(e) bending said at least one interconnecting lead to dispose said at least one substrate and said at least one other substrate in a noncoplanar configuration.

4,271,589

METHOD OF MANUFACTURING CHARGE PLATES

James L. Gudorf, Dayton, Ohio, assignor to The Mead Corporation, Dayton, Ohio

Division of Ser. No. 912,495, Jun. 5, 1978, Pat. No. 4,195,304. This application Aug. 6, 1979, Ser. No. 64,236
Int. Cl.[3] H01R *43/00*
U.S. Cl. 29—878 10 Claims



1. Method of producing a charge plate for an ink jet printer comprising the steps of:
(a) fabricating a master plate including a series of regularly spaced recesses,
(b) casting an elastomeric molding material against said master plate and into said recesses, thereby producing an elastomer mold comprising a base and a series of pins projecting outwardly from said base,
(c) separating said mold from said master,
(d) producing a series of electrodes by coating said pins with a transferrable coating of electrically conductive material,
(e) fabricating a rigid and durable support plate structure having a medially extending elongated slot,
(f) placing said support plate against said mold with said slot surrounding said pins,
(g) casting into said slot and against said mold and said coated pins a non-conductive plastic casting material of a type which is curably adherent to said support plate and said electrodes,
(h) curing said plastic casting material to define a plastic charge plate structure having a series of regularly spaced charging tunnels and a charging electrode adhered to and supported by the walls of each tunnel,
(i) separating said charge plate structure from said mold, and
(j) attaching electrical lead means to said electrodes.

4,271,590

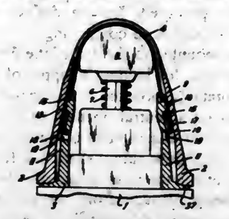
DRY SHAVING APPARATUS

Rolf Ernst, Glashütten, and Roland Ullmann, Hausen, both of Fed. Rep. of Germany, assignors to Braun Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 1, 1979, Ser. No. 80,783
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843657
Int. Cl.[3] B26B *19/04*
U.S. Cl. 30—43.92 14 Claims

1. A dry shaving apparatus, comprising a shearing foil; a blade member which is reciprocable and cooperates with said shearing foil; a pressure spring arranged to urge said blade member toward said shearing foil, said blade member and said pressure spring extending in a first direction; a shearing head frame; an elongated auxiliary frame insertable into said shearing head frame and having ends spaced from one another in a direction of elongation, said auxiliary frame mounting said

shearing foil so that the latter is convex and having at least one longitudinal side at which it is fixed to said shearing foil, said



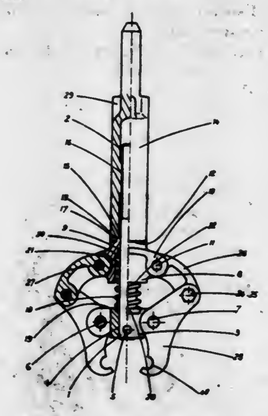
auxiliary frame being resiliently yieldable in said first direction; and means for arresting said auxiliary frame in said shearing head frame at said ends of said auxiliary frame.

4,271,591

PIPE-CUTTER WITH INTERCHANGEABLE CHAINS

Jean L. C. Aubriot, Damery, France, assignor to Virax, Epernay, France

Filed Jun. 7, 1979, Ser. No. 46,209
Claims priority, application France, Jun. 9, 1978, 78 17722
Int. Cl.[3] B23D *21/06*; B26B *27/00*
U.S. Cl. 30—100 3 Claims



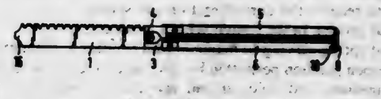
1. A chain pipe-cutter kit comprising a set of selectively-interchangeable constriction chains having two free ends and including a rotation-cutting chain and a pressure-cutting chain, and a chain tensioning system for operative actuation of any selected one of said chains in conjunction with a pipe to be cut by chain constriction, said chain tensioning system comprising:
a generally cylindrical rod having an outer threaded portion at one end thereof and a backing support member at its other end;
a slider movable along said rod between said threaded portion and backing support member thereof;
four rockers hinged to said support member at a medial point of each rocker;
two links hinged on the one hand to one end of said rockers and on the other hand to said slider;
hooks formed at the other end of said rockers and facing inwardly opposite one another, said hooks being designed for engaging firmly said two free ends of any selected one of said chains;
a rocker control rotary handle having an open end bore formed therein to house the threaded portion of said cylindrical rod, said bore having an inner threaded portion in mesh with said outer threaded portion and an open end adjacent said slider, said handle having at a part thereof remote from said slider four bosses in cruciform distribution;
a compression coil spring fitted around said cylindrical rod and extending between said backing support member and said slider to urge the same apart, and
a handle actuator device designed for removable engagement with said handle to rotate the same, and comprising operative means adapted to clutch with said cruciform bosses, and a hand-actuated member cooperating with said operative means to drive said bosses in rotation.

4,271,592

HAND TOOL WITH A BLADE ADAPTED TO BE FOLDED INTO THE HANDLE

Hans-Gerd Höptner, Gildenwerth 62, 5630 Remscheid, Fed. Rep. of Germany

Filed Feb. 5, 1980, Ser. No. 118 724
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1979, 2904279
Int. Cl.[3] B26B *5/00*
U.S. Cl. 30—153 14 Claims



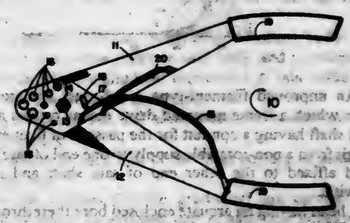
1. A hand tool comprising a tool portion, a handle portion and a tool retaining means for connecting the tool portion to the handle portion, the handle portion includes two U-shaped members of equal length, each of the U-shaped members includes a base portion and two arms interconnected by the base portion, a first pivot means for pivotally connecting free ends of the two arms of one of the U-shaped members to the retaining means, second pivot means having a pivot axis perpendicular to the pivot axis of the first pivot means for pivotally connecting the two arms of the other of the U-shaped member to the retaining means, the U-shaped members being pivotable about said pivot means so as to enable the members to form a protective housing enclosing the tool portion, characterized in that the first pivot means and second pivot means are offset with respect to each other in a longitudinal direction of the hand tool by a distance approximately corresponding to a thickness of a base portion of one of the U-shaped members.

4,271,593

WIRE CUTTER

Samuel C. Smith, 210 Hartman Rd., Newton Centre, Mass. 02159

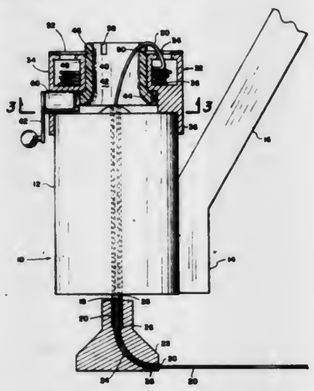
Filed Jun. 12, 1979, Ser. No. 47,791
Int. Cl.[3] B26B *13/00*
U.S. Cl. 30—233 2 Claims



1. A wire cutter for cutting wire smoothly and without burrs comprising:
a pair of pivotally connected jaws, each of said jaws having an operating handle;

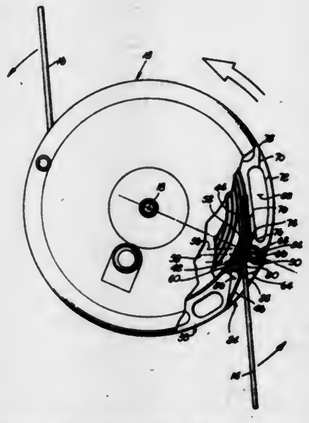
a portion of one jaw overlapping a portion of the other, said overlapping portions having a flat blade-shaped structure;
at least one hole through the overlapping portion of each of said jaws spaced forward of and apart from said pivotal connection, the hole on the outer surface of one of said jaws being countersunk;
a pin press-fitted in one of said blade-shaped jaws spaced rearward of and apart from said pivotal connection;
an arcuate slot in the other of said blade-shaped jaws spaced rearward of and apart from said pivotal connection to receive said pin;
said pin and said slot defining the range of the pivotal movement of said blade-shaped jaws, such that when said pin is stopped at one end of said slot, said holes in each of said blades overlap in complete alignment and when said pin is at the other end of said slot, said holes are in complete misalignment;
a handle extending rearward from each of said blade-shaped jaws;
a curved spring attached to one of said handles and extending toward the overlapping portions to the other of said handles;
a groove cut into the interior side of the other of said handles to receive the curved end of said spring;
said groove being coated with a lubricant;
said spring serving to maintain said handles in the maximum open position permitted by said pin and said slot, at which position said holes in said jaw blades coincide in alignment, and after closing of said handles and release of pressure returning said handles to said maximum open position.

4,271,594
FILAMENT-TYPE WEED-GRASS TRIMMER
Lauren G. Kilmer, 1927 E. 35th Pl., Tulsa, Okla. 74105
Continuation of Ser. No. 771,400, Feb. 23, 1977, abandoned. This application Nov. 7, 1978, Ser. No. 958,518
Int. Cl.³ A01D 50/00
U.S. Cl. 30—276 **4 Claims**



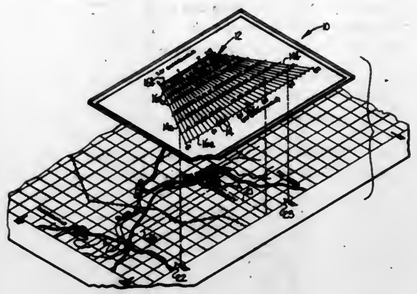
1. An improved filament-type weed-grass trimmer of the type in which a frame mounted drive means rotates a hollow output shaft having a conduit for the passage of filament therethrough from a non-rotatable supply to one end of said shaft, to a head affixed to the other end of said shaft and rotatable therewith,
said head having an arcuate enclosed bore therethrough, one end of said bore substantially aligned and in open communication with the conduit of the hollow output shaft and the other end of said bore projecting outwardly from the head;
means for positively feeding defined increments of filament from said supply through said conduit in said hollow output shaft through said bore and thence outward of said head sufficient distance for trimming,
said means for positively feeding defined increments of filament fed to said head comprising:
an annular cup mounted to the end of the fixed drive means opposite the head for holding a supply of filaments;
a distributor rotatably mounted to the center of the annular cup, and having a central opening therethrough in substantial alignment and in open communication with said one end of the hollow output shaft, and further having at least one groove in the head of said distributor for receiving and guiding filament from the annular cup to the distributor through said conduit in said hollow output shaft through said bore and thence outward of said head; and
means for rotating the distributor to allow positive feed of the defined increment of filament passing from the annular cup to the distributor.

4,271,595
HOUSING AND CUTTING LINE ASSEMBLY FOR VEGETATION CUTTING APPARATUS
Jon A. Rahe, Mission Viejo, Calif., assignor to Hawaiian Motor Company, Torrance, Calif.
Filed Jul. 26, 1979, Ser. No. 60,938
Int. Cl.³ A01D 50/00
U.S. Cl. 30—347 **16 Claims**



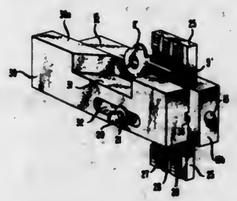
1. A housing and cutting line assembly for a vegetation cutting apparatus, comprising:
a housing rotatable about an axis;
at least one line mounted within said housing to extend exteriorly of said housing and contact and cut vegetation by rapid circular movement exteriorly of said housing during rotation of said housing; and
a metallic line guide attached to said housing for guiding the extending of said line exteriorly of said housing during said rotation by contact with said line and for conducting heat generated in said line away from said line, said line guide having,
a leading side wall bearing surface for a portion of said line during said rotation, and
a trailing side wall bearing surface for said portion of said line during said rotation, said trailing side wall bearing surface having first and second linear surface portions angularly disposed with respect to one another.

4,271,596
INSTRUMENT AND METHOD FOR DETERMINING MAP COORDINATES
G. Robert Gasis, Rte. #1, Box 267, Harrisburg, Pa. 17111
Filed Nov. 6, 1979, Ser. No. 91,796
Int. Cl.³ G01B 3/02
U.S. Cl. 33—1 C **3 Claims**



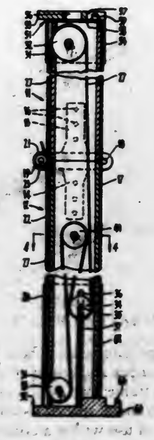
1. A method for accurately determining a geographic coordinate of a location on a map having tick marks spaced along its borders which represent specific designated coordinates, said method comprising the steps of
projecting the location in question toward the border of the map along a direction parallel to one set of the coordinates,
placing a transparent sheet over the map, with the sheet having a variable length scale disposed thereon which is defined by a plurality of straight lines radiating from a common point,
aligning the scale with respect to the border of the map such that the outermost of the radiating lines are aligned with respective ones of the tick marks between which the projected location falls and with the border of the map extending perpendicularly to a line extending medially between such outermost radiating lines, and
reading the scale above the point at which the projected location intersects the aligned scale.

4,271,597
METHOD AND APPARATUS FOR MASTERKEYING
Louis F. Fortunato, 2510 Andrey Ter., Union, N.J. 07083
Filed Jul. 31, 1979, Ser. No. 62,360
Int. Cl.³ G01B 3/00, 5/00
U.S. Cl. 33—174 F **7 Claims**



1. A device to facilitate the arrangement of tumbler pins in a cylinder lock to correspond to selected bittings on one or more test keys which comprises in combination:
a calibrated plate having at least one elongated pin groove engraved thereon and a series of calibration lines disposed transversely to the direction of said elongated pin groove;
a key-supporting platform for said test keys disposed for slidable motion to and fro against face of said calibrated plate in a direction normal to the principal direction of said at least one pin groove and constructed to be secured in a selected position to register a preselected bitting of said test key with said pin groove.

4,271,598
SURVEYING STAFFS
Donald G. Thomas, Dynnyrne, Australia, assignor to Anson Engineering Pty. Ltd., Hobart, Australia
Filed Oct. 24, 1979, Ser. No. 88,107
Claims priority, application Australia, Nov. 5, 1978, PD6614
Int. Cl.³ G01C 15/02, 15/06
U.S. Cl. 33—293 **7 Claims**

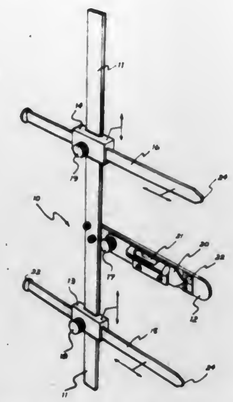


1. A levelling staff comprising:
an elongated hollow body formed of two elongated body sections each having respective front and rear walls and opposed side walls;
hinge means interconnecting adjacent ends of the body sections so that the body sections are pivotable relative to each other and movable from a folded position to an open position, said hinge means including hinge plates on each side wall of each body section, the hinge plates on each side wall having rearwardly extending portions interengaged by pivot pins and forwardly extending portions with substantially transversely movable latch pins to releasably interlock the hinge plates on each side when the body sections are in the open position;
a latch plate on the free end of one body section and a cooperating latch member on the free end of the other body section to releasably engage the latch plate when the sections are in the folded position;
a first roller mounted transversely within said body;
handle means coupled to said first roller to rotate said first roller;
brake means to releasably lock said first roller against rotation;
roller guides on the side walls of said hollow body;
a second transverse roller in said body and constrained for substantially longitudinal movement in said roller guides on the side walls of said body;
spring means to bias the second roller towards one end of said guides;
guide means at each end of the front surface of said hollow body; and
a movable, endless, flexible, graduated tape carried by said hollow body, an exposed part of said tape engaging with the front surface of said body, the tape passing over said guide means and into the interior of said body and engaged with the first and second rollers therein, said second roller maintaining a predetermined tension on said tape when the body sections are in the folded or open positions.

4,271,599
WHEEL CAMBER AND CASTOR MEASUREMENT APPARATUS

Frederick C. Pavitt, 2-54 Avoca St., Randwick, New South Wales 2031, Australia

Filed Apr. 23, 1979, Ser. No. 32,592
Int. Cl.³ G01B 5/255
U.S. Cl. 33—336 4 Claims



1. Apparatus adapted to be hand held by an operator for use in measuring the camber and castor of a motor vehicle wheel comprising: a main frame; two parallel generally co-extensive rods extending from and at spaced locations on the main frame so as to be located in use within a common generally vertical plane; clamp means selectively slidably attaching the rods to the main frame so that said rods are movable along their longitudinal axes through the clamp means and in a direction normal to the longitudinal axes of the rods so that the rods are movable relative to each other to adjust the spacing between the rods; abutment means on each rod at adjacent ends of the rods, said abutment means each having a planar end surface normal to the axes of the rods so that in use the operator positions the abutment means to engage a suspension member of the vehicle; and calibrated means mounted on the main frame to determine the inclination of the rods to the horizontal when the rods are abutting a portion of the vehicle from which the castor or camber may be determined, wherein said calibration means includes an arm fixed to said frame and extending generally within said plane defined by said rods, and a spirit level means pivotally attached to said arm to thereby enable measurement of the inclination thereof and therefore the inclination of said rods.

4,271,600
APPARATUS FOR DRYING FLAT ARTICLES OF POROUS MATERIAL UNDER VACUUM

Jean-Pierre Dubourg, Segny Gex, France, assignor to Patpan Inc., Panama

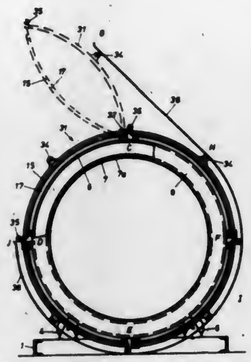
Filed Aug. 28, 1978, Ser. No. 937,589
Claims priority, application Switzerland, Sep. 2, 1977, 10706/77; United Kingdom, Jan. 26, 1978, 3132/78
Int. Cl.³ F26B 13/30
U.S. Cl. 34—92 14 Claims

1. An apparatus for drying flat articles of porous material, said apparatus comprising

a rotatably mounted cylinder having an outer annular wall, an inner annular wall, and annular end plates connecting the opposite ends of the outer annular wall and the inner annular wall so as to form a closed annular space therebetween, said annular space being capable of containing a heated fluid for heating the external surface of the outer annular wall,

at least one cover means capable of wrapping around an associated portion of the external surface of the outer annular wall of said cylinder when said cylinder is rotated so as to cover any flat, porous articles located on said associated portion, each cover means comprising a flexible, nonextensible, fluid-tight diaphragm having a porous cushion layer on the surface thereof which will face the associated portion of the external surface of the outer annular wall of said cylinder when wrapped therearound,

seal means positionable between each cover means and the associated portion of the external surface of the outer annular wall of said cylinder so as to form a hermetically-



sealed space between each cover means and the associated portion of the external surface of the outer annular wall of said cylinder when each cover means is wrapped therearound,

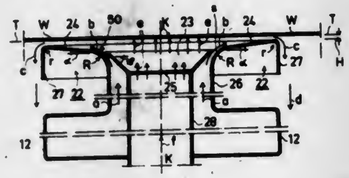
at least one orifice extending through said outer annular wall of said cylinder to communicate with each hermetically-sealed space, and

means connected to each said orifice to create a vacuum therein and thus a vacuum in each hermetically-sealed space formed when each cover means is wrapped around the associated external surface of the outer annular wall of said cylinder.

4,271,601
WEB DRYER OPERATING ON THE AIR FLOAT PRINCIPLE

Vesa Koponen, and Charles Stengard, both of Turku, Finland, assignors to Valmet Oy, Finland

Filed Sep. 11, 1979, Ser. No. 74,440
Claims priority, application Finland, Sep. 11, 1979, 782775
Int. Cl.³ F26B 13/20
U.S. Cl. 34—156 6 Claims

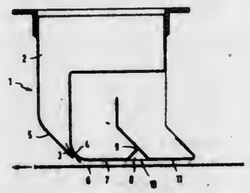


1. In apparatus for drying a web according to the air supporting principle including a plurality of nozzle members from which a gaseous drying fluid is directed into contiguity with the web to be dried and wherein the web is supported by said gaseous drying fluid, and wherein said nozzle members define a carrying surface along which the gaseous drying fluid is directed to produce the web supporting effect, the improvement comprising: a plurality of nozzle members successively located one after the other both in and transverse to the direction of travel of the web, each of said nozzle members including means defining a substantially annular slit and a carrying surface associated with said annular slit for directing gaseous drying fluid substantially contiguous with said carrying surface in a substantially radial flow field relative to said annular slit and in a direction substantially parallel to the web.

4,271,602
AIR NOZZLE FOR A JET DRYER

Friedbert Grohse, Neuss, Fed. Rep. of Germany, assignor to Jagenberg Werke Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Aug. 14, 1979, Ser. No. 66,589
Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2836183
Int. Cl.³ F26B 13/02
U.S. Cl. 34—160 9 Claims



1. In an air nozzle of the slot nozzle type for a jet dryer for the drying of moving material webs, having a nozzle slot extending transverse to the moving material web during use and having an elongated nozzle lip which together with the material web moving substantially parallel thereunder during use forms, over a considerable length, the boundary of a channel for the drying air, the improvement wherein the elongated nozzle lip has a planar portion and at least one stabilizing zone for the drying air which extends continuously over the entire width of the nozzle and which interrupts the planarity of the planar portion of the nozzle lip to form first and second planar nozzle surfaces on either side thereof, wherein the nozzle slot is configured to direct drying air unidirectionally towards the planar nozzle surfaces and in counter-current to the movement of the web and wherein each stabilizing zone includes equalizing openings for drawing off a portion of the drying air, so spaced from the nozzle slot that stabilization of the drying air flow is assured with widely varying drying air velocities.

4,271,603
COFFEE ROASTER

Thomas J. Moore, III, 8 Royal Crest Dr., Apt. 7, Nashua, N.H. 03060

Filed Aug. 17, 1979, Ser. No. 67,279
Int. Cl.³ F26B 9/08
U.S. Cl. 34—181 9 Claims

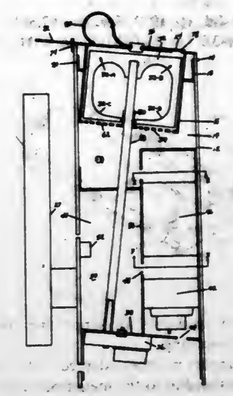
1. An apparatus for roasting coffee beans comprising

a roasting chamber having at least one perforate wall,

means for creating a continuous heated gaseous flow through said perforate wall into said roasting chamber, said means having

an exit orifice in gaseous communication with said roasting chamber for allowing said gaseous flow to exit outside of said apparatus,

means external of the roasting chamber for variably controlling the rate of flow of said heated gas through said roasting chamber, said external control means comprising a cover, said cover mounting a manually movable member for blocking at least a portion of said exit orifice,

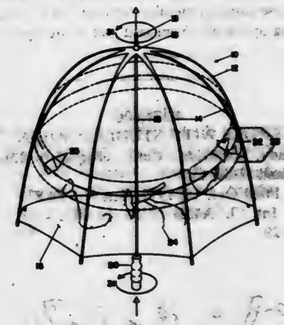


whereby said gas flow through said roasting chamber can be manually controlled.

4,271,604
PORTABLE PLANETARIUM

Luther B. Rowsey, Jr., P.O. Box 666, Friendswood, Tex. 77546

Filed Jun. 19, 1979, Ser. No. 48,822
Int. Cl.³ G09B 27/00
U.S. Cl. 434—289 11 Claims



1. A portable planetarium for ascertaining the position of the sun, the moon, the planets and their satellites, and the stars throughout the year, comprising:

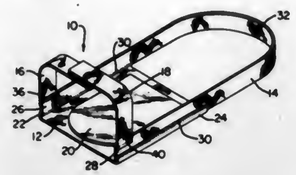
a frame having a configuration defined by a frustum of a cone with a substantially hemispherical cap attached thereon in order to accurately depict the full ecliptic path, the frustum of the cone and the hemispherical cap having inner dimensions such that a human using the planetarium may place his head within them in order to substantially simulate the perspective of the sky around the human,

a pole secured to the frame and aligned with the center axis of the frustum of the cone and extending through the top of the hemispherical cap,

a covering secured to the frame,

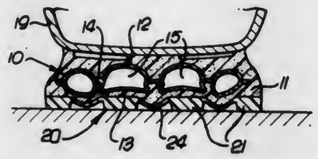
a plurality of markings selectively applied to the covering using the intersection of the pole and the top of the hemispherical cap of the frame as a point of reference representing Polaris, such that the location of the markings corresponds to the location of a plurality of the stars contained in the twelve zodiac constellations along the ecliptic.

4,271,605
FLEXIBLE FOOT SUPPORT
Edward Raczka, Aurora, Colo., assignor to Sea Gull, Denver, Colo.
Filed Jul. 16, 1979, Ser. No. 57,606
Int. Cl.[3] A43B *13/18, 1/10, 5/00*; A61F *5/00*
U.S. Cl. 36—28 11 Claims



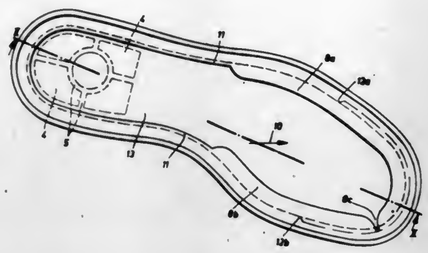
1. A foot support apparatus for supporting the metatarsal arch of the foot, comprising:
a flexible base support member adapted to be positioned in underlying relationship to the metatarsal arch of the foot forward of the heel;
a first elongated strap adapted to extend around the heel of the foot and having opposite end portions attached to opposite sides of said base support member;
a second elongated strap adapted to extend across the upper portion of the foot at the metatarsal regions, said second elongated strap having opposite end portions attached on opposite sides of said base support member to one of said base support member and said first elongated strap; and
a flexible pad secured to said base support member and adapted to underlie said metatarsal arch, a portion of one of said base support member and said first elongated strap extending upwardly from said pad along opposite sides of the foot.

4,271,606
SHOES WITH STUDDED SOLES
Marion F. Rudy, Northridge, Calif., assignor to Robert C. Bogert, Woodland Hills, Calif.
Filed Oct. 15, 1979, Ser. No. 84,879
Int. Cl.[3] A43B *13/20, 13/04, 23/28*
U.S. Cl. 36—29 17 Claims



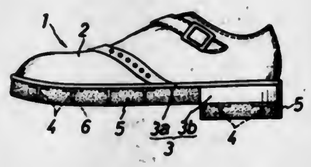
1. A structure adapted to form part of a shoe for receiving a person's foot, comprising a sealed sole member of elastomeric material providing a plurality of deformable intercommunicating chambers adapted to be inflated with a gaseous medium under pressure, an outer sole including a thin elastic deflectable web portion underlying and in load transmitting relation to said sole member and ground engaging studs spaced substantially from each other transversely of the outer sole and longitudinally of the outer sole and secured to and depending from said web portion, said web portion having a thickness of from about 0.015 inches to 0.080 inches, whereby said studs are shiftable with respect to each other and with respect to said deflectable web portion and sole member in transmitting loads between the person's foot and the ground engaged by said studs.

4,271,607
SOLE-UNIT FOR PROTECTIVE FOOTWEAR
Herbert Funck, Am Wasserbogen 43, 8032 Grafelfing-Lochham, Fed. Rep. of Germany
Filed Aug. 8, 1979, Ser. No. 64,795
Claims priority, application Fed. Rep. of Germany, Sep. 4, 1978, 2838522
Int. Cl.[3] A43B *13/12, 13/04*
U.S. Cl. 36—30 R 3 Claims



1. A prefabricated tread sole of a heat resistant plastic material, for example of nitrile rubber, for pierce-proof protective shoes, having a loosely embedded steel plate inlay in a region directly beneath the inner sole of the upper shoe, wherein: the sole region is defined by an uncoated steel plate inlay surrounded by a horizontal lip, having a horizontal groove formed as a mounting support of the periphery of the steel plate inlay, whose depth is exactly fitted in the heel and middle sole portion to the rim of the steel plate inlay and in the instep region and the sole tip of the lip being widened to the inside of the shoe and with the region of the sole tip having the groove deeper, so that the rim of the steel plate inlay is away from the bottom of the groove.

4,271,608
SPIKE SHOE
Yasushi Tomuro, No. 11-3 Tamagawa Denenchofu 2-chome, Setagaya-ku, Tokyo, Japan
Filed Jul. 11, 1979, Ser. No. 56,542
Claims priority, application Japan, Aug. 16, 1978, 53-111464[U]
Int. Cl.[3] A43C *15/00*; A43B *5/00*
U.S. Cl. 36—61 4 Claims



1. A spike shoe comprising:
a shoe upper;
a bottom base on the bottom of said upper;
a layer of resilient elastic material affixed to said bottom base;
a bottom sheet covering the bottom of said layer, said bottom sheet having high wear resistance;
a plurality of holes through said layer and said bottom sheet;
a plurality of spike pins in said plurality of holes attached to said bottom base and extending toward said layer;
each of said spike pins having a spike portion and a mounting portion, each said mounting portion being wider than its respective spike portion and being located in abutment with said bottom base and extending part way toward said bottom sheet;

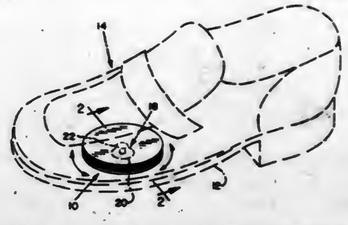
said layer having a thickness sufficient to completely contain said spike pins when said layer is in an uncompressed condition;
each of said plurality of holes being closely fitted to a respective one of said spike pins;
said layer having a resilience sufficient to permit compression thereof under the weight of a human body which is effective to extend a substantial portion of said spike portions beyond said bottom sheet;
concave portions in the upper surface of said bottom sheet, one concave portion surrounding each of said holes and each having a contour which is effective to permit its respective mounting portion to approach said bottom sheet during compression of said layer without deforming said bottom sheet;
said layer being effective to increase its thickness sufficiently when said weight is removed to cover said spike pins, such increase in thickness being effective to remove mud and other matter from said spike portions as a result of the close fit between said holes and said spike pins and leave a bottom surface of said bottom sheet without protrusion of said spike portions therepast whereby said mud and other matter may be easily scraped therefrom.

4,271,609
SNOWSHOE
Fred C. Merrifield, 8746 Overlake Dr. W., Bellevue, Wash. 98004
Filed Nov. 20, 1979, Ser. No. 95,958
Int. Cl.[3] A43B *5/04*
U.S. Cl. 36—125 6 Claims



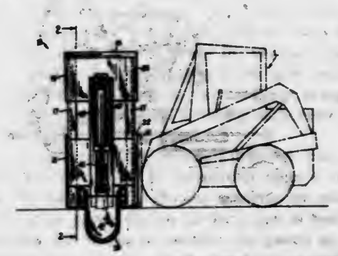
1. In a snowshoe having a rigid frame, said frame including a peripheral frame member and a rigid cross member, said cross member extending transversely across said snowshoe between side portions of said peripheral frame member and being positioned to underlie the ball of the wearer's foot, decking means secured to and enclosed by said peripheral frame member, said cross member including an upper plate portion having a substantially planar upper surface and an integral, downwardly turned portion depending from the forward edge of said upper plate portion, the improvement comprising a soleplate swingably mounted to said upper plate portion of said cross member for swinging movement between a substantially horizontal position wherein said soleplate bears flushly on said upper surface of said upper plate portion of said cross member and a forwardly tilted position wherein said soleplate is tilted forwardly about said forward edge of said cross member and disposed at an angle with respect to the upper surface thereof, spring means operating to urge said soleplate toward said forwardly tilted position, and strap binding means mounted on the upper surface of said soleplate for securing a wearer's boot to said soleplate.

4,271,610
ADHESIVELY ATTACHABLE ROTATABLE SOLE PLATE FOR SHOES
Buddy R. E. Parrent, 7207 N. Chicago, Portland, Oreg. 97203
Filed Jul. 12, 1979, Ser. No. 56,867
Int. Cl.[3] A43B *23/00*
U.S. Cl. 36—136 7 Claims



1. A pivot for attachment to the sole of a shoe for assisting in pivoting the shoe relative to a floor while dancing, comprising:
(a) Plate means having transverse dimensions which are less than the dimensions of the sole of the shoe;
(b) Antifriction means associated with said plate means for providing a relatively low coefficient of friction between said shoe and the floor to facilitate rotation of the shoe relative to the floor, wherein said plate means and said antifriction means are integral and comprise a thin, cylindrical plate formed from a low-friction material; and
(c) Adhesive attachment means associated with said plate means for adhesively attaching said plate means to the shoe.

4,271,611
TRACTOR-MOUNTED LATERALLY UNDERCUTTING TRANSPLANT DIGGING MACHINE
William F. Paul, 2200 Sangamon Ave. E., Springfield, Ill. 62702
Filed Sep. 10, 1979, Ser. No. 74,094
Int. Cl.[3] A01G *23/02*
U.S. Cl. 37—2 R 4 Claims

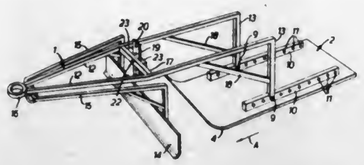


1. A between-row-movable and laterally-undercutting transplant digging machine comprising: a fore-aft-narrow frame adapted for mounting across the front or rear end of, and on the conventional accessory-attachment-receiving lift means of, a power-operated vehicle; a U-shaped under-cutter blade mounted in a rectilinear movable slide means; a guide means for said slide means; hydraulic-cylinder means for soil-penetratingly moving said blade by moving said slide means; pivotal means for swingably attaching said guide means to said frame; and hydraulic-cylinder means for swinging said guide means and thereby said blade downwardly and laterally into position for horizontal under-cutting blade movement by said first-mentioned hydraulic-cylinder means.

4,271,612
APPARATUS FOR PRODUCING SKI TRACKS FOR A SKI TRAIL

Knut O. Mellingen, Namsskogan, Norway, assignor to Komiv A/S, Namsskogan, Norway

Filed Feb. 5, 1980, Ser. No. 119,076
Claims priority, application Norway, Feb. 16, 1979, 790530
Int. Cl.³ E01H 4/00
U.S. Cl. 37—10 3 Claims

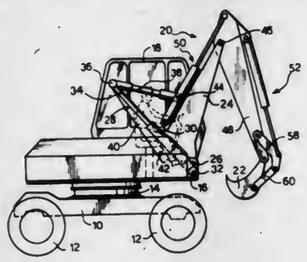


1. An apparatus for producing ski tracks for a ski trail, comprising a sliding/planing body with a flat sliding surface which curves upwardly at the forward section of said body, and spaced-apart track-forming members depending downwardly from said sliding surface, the track-forming members each comprising a bottom surface and two parallel side surfaces whose forward portions converge to form a plow portion while the bottom surface extends forward beneath said plow portion, and a drag frame pivotally attached by means of attachment members to the surface of the sliding/planing body at a distance rearward of its forward section, the axis of pivot for the frame running transversely of the direction of advancement for the sliding/planing body, characterized in that the bottom surface extends forward in full width to the tip of the plow part.

4,271,613
EXCAVATOR WITH ARTICULATED ARMS

Franca B. Ferrero, Rivoli, Italy, assignor to Brefer S.p.A., Grugliasco, Italy

Filed Oct. 10, 1979, Ser. No. 83,199
Int. Cl.³ E02F 3/62
U.S. Cl. 37—103 5 Claims

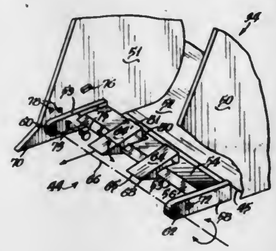


1. An excavator comprising:
a support truck or trolley;
a platform rotatably supported by the support trolley;
a first arm articulated at one end about a laterally extending pivot pin supported by the platform in the vicinity of a peripheral edge of the platform;
a second arm articulated at one end to the free end of the first arm;
an excavating member articulated to the free end of the second arm; and
means for controlling the angular movement of said first and second arms and of the excavating member about their respective articulations, said control means including means for pivoting the first arm about said lateral pivot pin comprising a jack articulated at one end to said platform at the front edge thereof adjacent to and directly below said lateral pivot pin of said first arm, two levers both articulated at one end to a common pivot pin to which is also articulated the other end of the jack, the opposite end of one of the two levers being articulated to the platform in the vicinity of said lateral pivot pin of the first arm, and the opposite end of the other of said two levers being articulated to the central portion of the first arm, the arrangement being such that when the platform is substantially horizontal and the first arm is raised to a maximum extent about said lateral pivot pin, the vertical projections of both said two levers are located inside the platform.

4,271,614
FLOATING SOIL FRACTURE TOOL

Allan J. Albrecht, Rothschild, Wis., assignor to J. I. Case Company, Racine, Wis.

Filed Oct. 22, 1979, Ser. No. 86,811
Int. Cl.³ E02F 9/28
U.S. Cl. 37—103 5 Claims



1. A soil fracture tool comprising:
(a) a bucket scoop for excavating soil, said scoop being pivoted about at least two parallel axes of rotation; and
(b) blade means, adapted to be received by said scoop along the digging edge of said scoop, for wedging into said soil to be excavated, said blade means being pivotally attached to said scoop, the pivot axis of said blade means being positioned in advance of the leading edge of said blade means relative to the digging direction of said scoop, the rotation of said scoop in soil having the effect of aligning said blade means in the general direction of digging whereby said scoop fractures said soil with the minimum necessary digging force, said blade means generally aligning tangentially to a circle whose center is at the axis of rotation of said scoop.

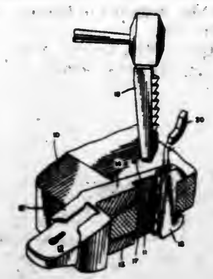
4,271,615
LOCKING DEVICE FOR EXCAVATING EQUIPMENT

Larren F. Jones, Beaverton, Oreg., assignor to ESCO Corporation, Portland, Oreg.

Filed Jan. 24, 1980, Ser. No. 115,135
Int. Cl.³ E02F 9/28
U.S. Cl. 37—142 A 11 Claims

1. A lock for releasably securing a slip over adapter to the lip of an excavating machine wherein the lip and adapter have aligned openings receiving said lock, comprising: a C-shaped clamp member and a wedge member arranged in face-to-face contacting relation when installed in said aligned openings, the confronting face of said wedge member being equipped with serrations, said clamp member being vertically elongated to define an upper end, an arcuate passage in said clamp member

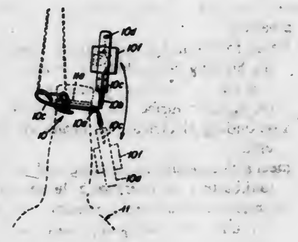
connecting said upper end with the contacting face of said clamp member, a resilient, arcuate lock mounted in said passage engaging said serrations and means in said passage for releasably mounting said lock therein.



4,271,616
CONTAINER SIGN HOLDER

Richard Boykin, 133-20 150th St., Jamaica, Queens, N.Y. 11430

Filed Oct. 17, 1978, Ser. No. 952,106
Int. Cl.³ G09F 3/18
U.S. Cl. 40—11 A 4 Claims



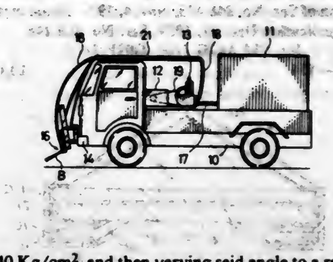
1. An apparatus for displaying signs on containers which comprises:
(a) a substantially round adjustable flexible material forming a substantially circular configuration where one end of said flexible material crosses the other and each end bends at an obtuse angle from the other end, terminating in an upward oval shape; and
(b) a coiled double spring hinge where one coil encircles and is moveably affixed to said adjustable flexible material forming about a right angle with the other coil which encircles and is moveably affixed around a pin containing a rectangular plate which spring allows the plate to be rotated in a multiplicity of directions.

4,271,617
METHOD OF REMOVING SNOW FROM GROUND SURFACE

Daisuke Yoshizawa, 449 Sakuradani, Tottori-shi, Japan

Continuation-in-part of Ser. No. 921,608, Jul. 3, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,616
Claims priority, application Japan, Jul. 4, 1977, 52-80209; Dec. 28, 1978, 53-162827
Int. Cl.³ E01H 5/10; E05B 9/02
U.S. Cl. 37—195 2 Claims

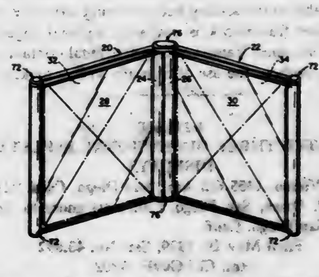
1. A method of removing a layer of snow frozen into a form of an ice plate and lying on the ground in front of a travelling vehicle, comprising initially breaking up a part of said ice plate by discharging into said ice plate high velocity water from a plurality of nozzles mounted on and extending horizontally across the front width portion of the vehicle, in a forwards and downwards direction at an angle in a range of 45° to 60° with respect to a surface of the ground and at a pressure of not less than 140 Kg/cm², and then varying said angle to a range of 20° to 30°, while continuing to discharge said water into a gap between said ice plate and said ground surface to strip said ice plate from said surface of the ground.



4,271,618
FRAME CONSTRUCTION

George F. Lyman, N. Andover, Mass., assignor to Data Packaging Corporation, Cambridge, Mass.

Filed Jan. 31, 1979, Ser. No. 7,916
Int. Cl.³ G09F 1/12
U.S. Cl. 40—152 5 Claims

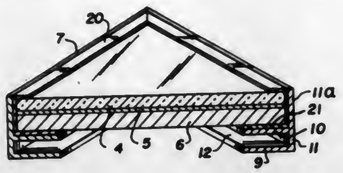


1. The picture frame comprising:
a pair of transparent plastic frame members, each of said members having a vertical panel and vertically extending semi-cylindrical grooves along the vertical edges of the panel, and both grooves facing in the same direction,
each member also having a horizontal flange along the bottom edge of the panel and extending in the same direction as the open side of the grooves,
means assembling the two members in back to back relationship with the flanges on the bottom edges of the panels and the margins of the grooves engaging one another and spacing the panels slightly so that a pair of back to back pictures can be placed between the panels so as to be viewed through the panels and be supported on the flanges,
said semi-cylindrical grooves being aligned with one another so as to form hollow columns on each vertical side of the assembled frame,
a peg registering with, extending out and closing the lower end of each column, said pegs forming feet to support the frame on a horizontal surface,
a second pair of frame members identical to the first recited pair, and secured together and having pegs like those in the first pair,
and means securing one of the pegs on one pair of frame members to a peg on the other pair enabling the assembled frames to pivot 360 degrees with respect to one another.

4,271,619
REUSABLE PICTURE FRAME

Erick Schmidt, Edmonton, Canada, assignor to General Systems Research Ltd., Edmonton, Canada

Continuation of Ser. No. 848,473, Nov. 4, 1977, abandoned. This application Dec. 27, 1979, Ser. No. 108,246
Int. Cl.³ A47G 1/06; G09F 1/10
U.S. Cl. 40—154 10 Claims

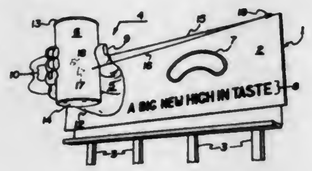


1. A front-loading reusable picture frame for retaining a stack of elements to be framed comprising:
- a rigid rectangular outer framework having means defining a forwardly facing seating and confining structure; and
- a rectangular inner framework comprising discrete side members, said side members having lower and upper inwardly projecting walls spaced apart from an upstanding wall, said walls forming a continuous inwardly open channel for receiving the stack of elements to be framed, whereby the side members may circumscribe the stack and hold the stack together;
- said inner framework being frontally visible and snugly receivable in the seating and confining structure whereby the outer framework is operative to hold together and retain the inner framework by frictional contact therebetween, without the use of frontally visible locking means.

4,271,620
ANIMATED THREE-DIMENSIONAL INFLATABLE DISPLAYS

Robert K. Vicino, 1355 6th Ave., San Diego, Calif. 92101, and Calvin P. Owen, San Diego, Calif., assignors to Robert K. Vicino, San Diego, Calif.

Filed May 29, 1979, Ser. No. 43,092
Int. Cl.³ G09F 19/02
U.S. Cl. 40—406 9 Claims

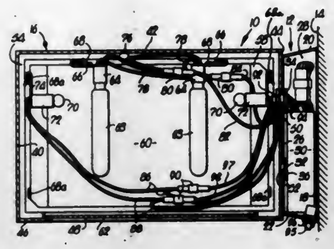


1. A three-dimensional display suitable for outdoors, roadside advertising which comprises:
- a billboard having a generally vertical, planar message-carrying surface;
- a sculptured, collapsible envelope made of soft, pliable material in a plurality of sections sewn together, said sections being shaped and dimensioned to assume the outline of a predetermined item when said envelope is inflated;
- said envelope having an opening and at least one air-bleeding hole;
- means for attaching a portion of said envelope surrounding said opening to said planar surface; and
- means mounted on said billboard for continuously blowing ambient air into said envelope at a sufficient flow rate to keep said envelope inflated.

4,271,621
CONVERSION UNIT FOR ELECTRICAL LIGHT FIXTURE

Octavio G. Garcia, Prairie Village, Kans., and Peter A. Lambert, Excelsior Springs, Mo., assignors to Devine Lighting, Incorporated, Kansas City, Mo.

Filed Apr. 6, 1979, Ser. No. 27,873
Int. Cl.³ G09F 13/04
U.S. Cl. 40—570 2 Claims

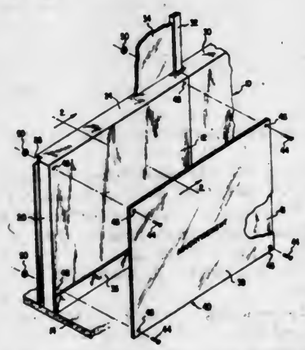


1. In an illuminated exit sign construction of the type including an elongated, hollow support housing secured to a support surface, a rectangular, exit-indicating lens unit secured to the housing and having at least one lens panel and a primary electrical illuminator behind said panel, and means for coupling said primary illuminator to a source of standard voltage electricity, the improvement which comprises:
- a battery;
- means for mounting said battery wholly within said housing, the housing being directly connected to and carrying the lens unit on one face thereof and being secured directly to the support surface on the other face thereof;
- a secondary electrical illuminator disposed within said lens unit;
- means electrically connecting said secondary illuminator to said battery for energizing the secondary illuminator; and
- an internal, transversely extending support element on said lens unit, there being clip means on said secondary illuminator for connecting the latter to the support element.

4,271,622
DASHER BOARD FOR ICE SKATING RINKS AND METHOD OF MAKING SAME

Joseph R. Tippmann, 211 West St., New Haven, Ind. 46774, and Richard G. Daugherty, 2117 Reed Rd., Fort Wayne, Ind. 46805

Filed Aug. 20, 1979, Ser. No. 67,937
Int. Cl.³ G09F 15/00
U.S. Cl. 40—606 17 Claims



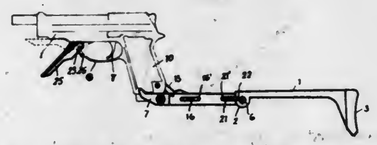
1. A dasher board for ice skating rinks comprising:

(a) a panel member having a substantially flat front portion and a flange member extending perpendicular therefrom for supporting said panel member in a vertical upright position on said rink,
(b) a window on said front portion of said panel,
(c) means for supporting indicia, said means located between said front portion of said panel and said window,
(d) means to secure said window to said panel member, and
(e) means secured to said front portion adjacent said rink for absorbing the impact of hockey pucks and the like.

4,271,623
PISTOL WITH STOCK EXTENSION AND AUXILIARY GRIP

Pier C. Beretta, Gardone V.T., Italy, assignor to Fabbrica d'Armi P. Beretta S.p.A., Gardone V.T., Italy

Filed Jan. 29, 1979, Ser. No. 7,431
Claims priority, application Italy, Feb. 10, 1978, 6920/78[U]; Feb. 10, 1978, 5128 A/78
Int. Cl.³ F41C 23/00
U.S. Cl. 42—72 7 Claims

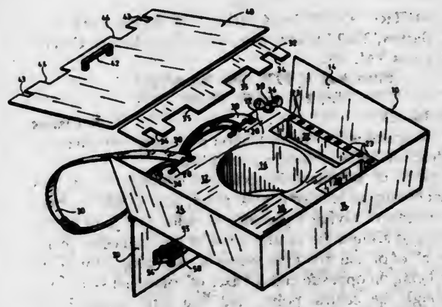


1. In a pistol including a body portion having a barrel, a stock and a handguard for protection of the trigger, the improvement comprising the combination of an elongated, foldable extension removably attached at one end thereof to the stock and extending in a direction opposite to that of the barrel of the pistol with the opposite end of said extension being T-shaped and an auxiliary handle lever pivotally coupled to the handguard, there being further included that is urged by an extendible spring biased piston for locking said auxiliary lever in a first position that is inclined downwardly with respect to said body portion, and in a second position that is substantially parallel and close to said body portion.

4,271,624
PORTABLE TACKLE AND BAIT HOLDER

Nicholas Peluso, 210 Belvedere Dr., Massapequa Park, N.Y. 11762

Filed Aug. 27, 1979, Ser. No. 70,284
Int. Cl.³ A01K 97/04, 97/06
U.S. Cl. 43—54.5 R 8 Claims

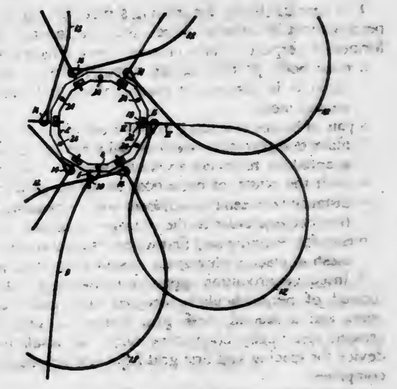


1. A portable tackle and bait holder for demountable securement on the gunwale of a boat, comprising:
- a generally box-shaped housing having a substantially flat, horizontally-disposed base wall having four sides, from three of which upwardly extend three upstanding side-walls which serve as windshields, said base wall having a multiplicity of depressions formed therein including at least one relatively deep depression which serves as a well for chum or live bait and a plurality of relatively shallow depressions which serve as receives for hooks, lures, and bait, said base wall also having formed therein a plurality of knife slits and water drainage holes as well as a cutting board mounted on said base wall; and
- means for demountably securing said housing to a gunwale of a boat.

4,271,625
OCEAN CRAB TRAP

Farley J. Archer, 11621 Holmes Point Dr., Kirkland, Wash. 98033

Filed Jul. 30, 1979, Ser. No. 61,802
Int. Cl.³ A01M 23/34
U.S. Cl. 43—87 1 Claim



1. An ocean crab trap comprising:
- a. a heavy, non-bouyant body member constituting a flat, open ring having means facilitating the securing of bait therein, and means for securing it to a fishing line for deposit in the water, whereby to sink and hold said bait against the ocean floor, and
- b. a series of free-running nooses attached to said ring at uniformly spaced angular intervals thereabout and projecting generally radially outwardly from said ring, each of said nooses being formed of a strand of flexibly resilient material having an eye formed at one end thereof, said eye being engaged for free running movement about a standing portion of said strand, whereby due to the resilience of the strand the noose normally tends to remain wide open, the opposite end of said strand being secured to said ring, said ring being provided, at the position of each said noose strands, with a radial hole in the plane of said ring, and a cross bar spaced inwardly from said hole, the associated noose strand extending inwardly in closely fitting sliding relation through said hole, whereby said strand is held securely in radially extending relation to said ring, and being secured about said cross bar, whereby to prevent turning of said strand end about its axis.

4,271,626
INSECT ELECTROCUTION APPARATUS

Dennis L. Mulee, 304 Samoset La., Schaumburg, Ill. 60172; Arthur R. Erbach, Des Plaines, and Frank Ray, Schaumburg, both of Ill., assignors to Dennis L. Mulee, Schaumburg, Ill.

Filed Sep. 10, 1979, Ser. No. 73,675
Int. Cl.³ A01M 1/22; H01B 17/00
U.S. Cl. 43—112 22 Claims



1. A spacing device for spacing a first wire mesh formed of perpendicularly crossed wires from a second wire mesh formed of perpendicularly crossed wires, which comprises:

a main body portion having a length that is substantially equal to the distance of spacing of the first mesh from the second mesh;

a pair of bosses extending axially from opposite ends of said main body portion, each of said bosses defining a slot adapted for receiving a wire from a respective wire mesh with the width of each boss being no greater than the distance between two adjacent wires extending in a direction perpendicular to the slot direction; and

means for retaining said first wire mesh and said second wire mesh in place with respect to said main body portion.

7. Insect electrocution apparatus including a first mesh grid formed of perpendicularly crossed electrically conductive wires and a second mesh grid formed of perpendicularly crossed electrically conductive wires; an insulative spacing device for spacing said first grid from said second grid, which comprises:

a main body portion having a length that is substantially equal to the distance of spacing of the first mesh grid from the second mesh grid;

a pair of bosses extending axially from opposite ends of said main body portion, each of said bosses defining a slot adapted for receiving a wire from a respective wire mesh with the width of each boss being no greater than the distance between two adjacent wires extending in a direction perpendicular to the slot direction; and

means for retaining said first mesh grid and said second mesh grid in place with respect to said main body portion.

13. Insect electrocution apparatus including a mesh grid formed of perpendicularly crossed electrically conductive wires mounted to a chassis plate which defines openings therein, the mounting means comprising:

a grid support formed of insulative material, said grid support comprising an elongated member having a first portion for connection to said grid and a second portion for connection to said chassis plate;

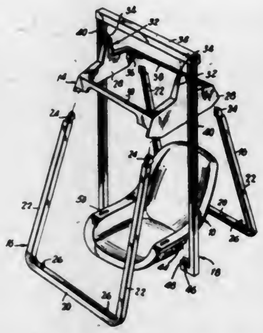
said first portion defining a pair of generally perpendicularly-oriented slots open to the outside of said first portion with the slots receiving therein adjacent, spaced, horizontal wires of said grid; and

said second portion extending through a chassis plate opening and including spring means for forming a retaining member on the side of the chassis plate opposite the grid side.

4,271,627
DOLL HIGH CHAIR AND SWING

Eugene Echterling, Brentwood, Tenn., assignor to Louis Marx & Co., Inc., Stamford, Conn.

Filed Feb. 9, 1979, Ser. No. 10,861
Int. Cl.³ A63H 3/52
U.S. Cl. 46—15 8 Claims



1. A combined doll high chair and swing comprising means formed in an upper region thereof with a pair of spaced upwardly facing support locations; a seat member formed with a pair of spaced supportable regions, said seat member supportable regions and frame means support locations being adapted for cooperation to releasably support said seat member on said upper region of said frame means, and swing means having first and second portions joined with each other, said swing means first portion being formed with a pair of spaced supportable regions adapted for cooperation with said frame means support locations to provide releasable pivotable support for said swing means on said frame means with the second portion of said swing means positioned below said first portion thereof and below said frame means support locations, said swing means second portion being formed with a pair of spaced support locations adapted for cooperation with said seat member supportable regions to support said seat member for swinging displacement below said frame means support locations, each of said support locations comprising a projecting portion, said seat member supportable regions defining sockets for receipt of the corresponding projections.

4,271,628
GEOMETRIC CONSTRUCTION TOY APPARATUS

John V. Barlow, 2289 McBain Ave., Vancouver, British Columbia, Canada V6L 3B2

Filed Aug. 6, 1979, Ser. No. 64,025
Int. Cl.³ A63H 33/10
U.S. Cl. 46—29 22 Claims

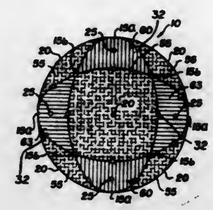
1. Toy apparatus for the formation of regular tetrahedron, octahedron and cube structures, comprising

a plurality of substantially spherical connector members each having an interior central point, each of said connector members having a plurality of radial first joint means arranged around the central point of the connector member, all of of said first joint means of each connector member being on opposite ends of axes of rotational symmetry through the central point, said first joint means being arranged symmetrically around the ends of said axes,

first locating means at each first joint means, all of the first locating means of each connector member being equidistant from the central point of said member and defining in co-axial pairs respective effective diameters thereof,

a plurality of elongate and slender connecting members each having second joint means at opposite ends thereof adapted to co-operate with the first joint means of connector members to interconnect the connector members and connecting members, and

second locating means adjacent each of the opposite ends of each connecting member, the distance between the second

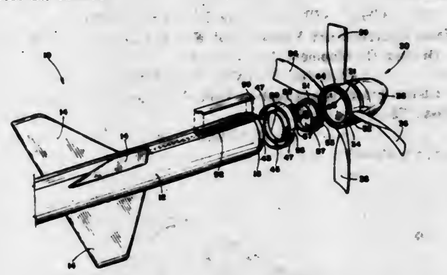


locating means of each connecting member constituting the effective length of the latter connecting member, and when connector members and connecting members are being interconnected by the first and second joint means thereof, the first and second locating means thereof cooperate to position said connecting members angularly in lines forming vertices and central intersections of regular tetrahedron, octahedron and cube structures.

4,271,629
PROPELLER DRIVEN AERIAL TOY

Barnus R. Goodwin, 5326 S. Newport, Tulsa, Okla. 74105

Filed Jun. 9, 1980, Ser. No. 157,320
Int. Cl.³ A63H 27/00
U.S. Cl. 46—78 4 Claims

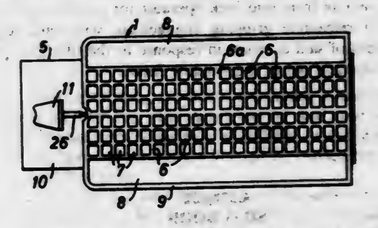


1. A propeller driven aerial toy comprising a hollow elongated cylindrical main body having a plurality of radially spaced fins mounted thereon, a front propeller assembly rotatably mounted on the forward end of said main body, said front propeller assembly having a circular propeller hub provided with a plurality of inwardly facing recessed notches along its periphery, a plurality of radially spaced propeller blades extending outwardly from the center of said propeller hub and a drive shaft mounted on said propeller hub extending inwardly through said center of said propeller hub and having a hook on its inner end which is internal of said main body; a rear propeller assembly substantially identical to said front propeller assembly rotatably mounted on the rear end of said main body in axial opposition to said front propeller assembly and counter rotating to the same; a rubber band motor disposed internally of said main body and having its ends received on the hooks of the drive shafts thus interconnecting said drive shafts and their respective propeller assemblies; a locking and firing mechanism housed internally of said main body and comprising a wheel rotatably mounted on a transverse wheel shaft, a lever employed to rotate said wheel having one end rotatably received on said wheel shaft so as to be interposed between the sides of said wheel and having its opposite end extending outwardly therefrom, a pair of elongated lock rods in longitudinal alignment with said main body having their inner ends affixed to one side of said wheel and having their outer ends adapted so as to be engageable with the recessed notches of said propeller assemblies, a spring slidably received on a portion of one of the lock rods, means for compressing said spring when said lock rods are in an extended position wherein their outer ends have engaged said recessed notches thus preventing the free rotation of said propeller assemblies, and means for retaining said lever in a perpendicular position to said main body wherein movement of said lever in a predetermined direction rotates said wheel and releases said spring thus retracting said lock rods out of said recessed notches and allowing said propeller assemblies to freely rotate.

4,271,630
SOIL SUPPORTS FOR PLANT CONTAINERS

Bernard Zeltner, Aix en Provence, and Gaston Marmounier, Marseilles, both of France, assignors to Manufacture Provencale de Matieres Plastiques SA, Marseille, France

Filed Jun. 25, 1979, Ser. No. 51,725
Int. Cl.³ A01G 27/00
U.S. Cl. 47—81 6 Claims

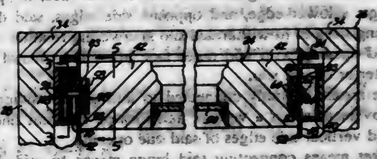


1. A soil support for a plant container having a rigid fabric support structure comprising a plurality of fabric support members defining openings between them and a layer of substantially inextensible water-permeable fabric extending across the openings in planar manner, at least two spaced apart regions of the fabric being held in a condition deformed from the plane of the fabric by at least two of the spaced-apart support members, one region to each member, to hold the planar fabric in tension between the deformed regions, and said at least two support members extending outwardly beyond the plane of the fabric to provide rigidity against deflection from said plane to support the weight of soil within a container.

4,271,631
SELF-LOCKING AUTOMATICALLY-RELEASING SASH BALANCE FOR TILTABLY-REMOVABLE SLIDING SASH WINDOWS

Donald M. Trout, 15514 Forrer Rd., Detroit, Mich. 48227

Filed Mar. 28, 1979, Ser. No. 24,872
Int. Cl.³ E05D 15/22, 13/12
U.S. Cl. 49—181 9 Claims



1. A self-locking automatically-releasing sash balance for a tiltably removable sliding sash window frame, in which an elongated channel sash guide is adapted to be mounted vertically in the window frame on opposite sides thereof, said channel sash guide having spaced substantially parallel

front and rear walls and spaced opposite side walls interconnecting said front and rear walls,

said front wall having an elongated longitudinal aperture therein with spaced parallel opposite edge portions, and

a lock carrier is reciprocably mounted in said channel sash guide, and

a sash balancing spring is mounted in said channel sash guide and having an upper portion thereof anchored to an upper portion of said sash guide and having a lower portion connected to said lock carrier, and

a locking member is movably mounted on said lock carrier for motion into and out of locking engagement with one of said sash guide walls, that improvement which comprises

a lock operator adapted to be mounted on a lower portion of one side of the sash and having a projection extending through said aperture including a pivot portion pivotally engaging said sash guide edge portions and a straight eccentric portion operatively engaging said locking member,

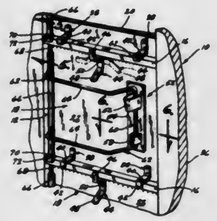
said lock operator being responsive to the tilting of the sash out of and into the window frame for moving said locking member respectively into and out of locking engagement with said one sash guide wall, and a sash keeper immovably mounted on an upper portion of said one side of the sash remote from said lock operator for motion into and out of releasable gripping engagement with said edge portions of said aperture in response to the tilting of the sash into and out of the window frame.

4,271,632

SILO DOOR

James P. Vanderloop, Rte. #4, Kaukauna, Wis. 54130

Filed Dec. 20, 1979, Ser. No. 105,941
Int. Cl.³ E05D 15/52
U.S. Cl. 49—192 11 Claims



1. A silo door for a silo having cylindrical side walls, said silo walls having inner and outer cylindrical surfaces, said silo walls having at least one opening therein defined by upper and lower horizontal edges and spaced apart vertical side edges, said door comprising:

a door member having an inner face, an outer face, an upper edge, a lower edge, and opposite side edges, said door being sized to fit within said silo in covering relation over said opening with said outer face presented toward the exterior of said silo,

hinge means movably connected to said silo for swinging movement about a vertical axis located adjacent one of said vertical side edges of said one opening,

bracket means connecting said hinge means to said door member, said bracket means being adapted to permit limited inward tilting movement of said door with respect to said hinge means about a horizontal tilt axis;

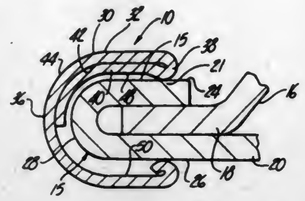
latch means for selectively detachably securing said door member to said silo in covering relation over said opening.

4,271,633

MOLDING FOR VEHICLE DOOR EDGES

Robert Adell, Bloomfield Hills, Mich., assignor to U.S. Product Development Company, Novi, Mich.

Continuation of Ser. No. 863,997, Dec. 23, 1977, abandoned.
This application Mar. 16, 1979, Ser. No. 21,085
Int. Cl.³ E04F 19/02
U.S. Cl. 49—462 4 Claims



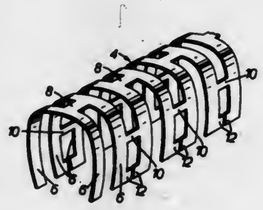
1. For a vehicle body having a sheet metal closure, such as a door, on a marginal edge of which an ornamental and protective metallic edge molding is adapted to be disposed, said molding being formed from a strip of resilient metal to form a generally U-shaped cross section having two side legs and a bottom, the thickness of which correspond to the thickness of the strip material, the improvement in said molding characterized in that there is provided an excess of material along one edge of the strip which is folded back against and along the length of one of the two side legs of the U to thereby increase the stiffness of that side of the U relative to the other side of the U.

4,271,634

CHANNEL-SHAPED SEALING STRIPS

Heinz Andrzejewski, Viersen, Fed. Rep. of Germany, assignor to Draftex Development, Switzerland

Filed Jul. 27, 1979, Ser. No. 61,255
Claims priority, application United Kingdom, Jul. 29, 1978, 31642/78
Int. Cl.³ E06B 7/16
U.S. Cl. 49—491 4 Claims



1. A channel-shaped sealing, trimming or finishing strip, or a channel-shaped window glass guide, comprising

a series of generally U-shaped metal elements arranged in side-by-side and spaced-apart relationship so as to define a channel,

each element being connected to the adjacent element on one side of it by a single first link, only, which extends from the base of that element to the base of the adjacent element and being connected to the adjacent element on its other side by two second links, only,

each second link extending from a point on a respective one of the legs of that element to a point on the corresponding leg of the adjacent element on the said other side,

each one of the pair of legs which are connected together by a said second link also carrying an extension piece which is adjacent to its distal end and which terminates in an abutment face adjacent the abutment face of the corresponding extension on the other one of those legs whereby the abutment of the abutment faces when the strip or guide is stretched limits the extent to which the distal ends of those legs can move towards each other and thus limits the extent of stretching of the strip or guide,

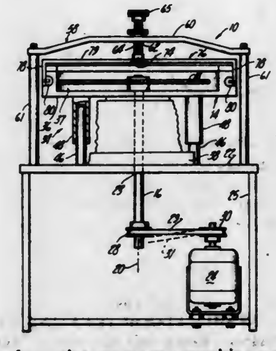
and channel-shaped flexible covering material in which the elements, links and extension pieces are embedded.

4,271,635

ICE SKATE-SHARPENING APPARATUS

John J. Szalay, 2203 Independence, Ann Arbor, Mich. 48104

Continuation of Ser. No. 964,743, Nov. 29, 1978, abandoned.
This application Jul. 21, 1980, Ser. No. 170,718
Int. Cl.³ B24B 9/04
U.S. Cl. 51—5 D 7 Claims



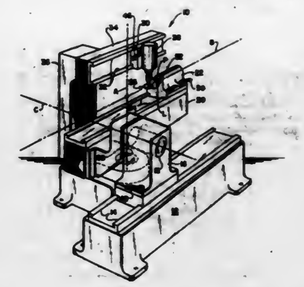
1. Ice skate-sharpening apparatus comprising means defining a horizontal work-supporting surface having an opening extending vertically therethrough, a drive shaft extending vertically through said opening and having a vertical axis of rotation, a grinding wheel positioned for rotation in a generally horizontal plane and mounted on said drive shaft for rotation therewith, a grinding wheel housing assembly supporting said grinding wheel and said drive shaft for rotation for the grinding wheel in said horizontal plane, adjustable mounting means supporting said housing assembly for vertical movement with respect to said work-supporting surface to position said grinding wheel at any one of a plurality of selected work-performing positions above said work-supporting surface, said adjustable mounting means including a hollow tubular guide member spaced radially outwardly from and enclosing said shaft and fixedly mounted on said work-supporting surface, a hollow tubular follower member telescoped with said hollow tubular member for guided vertical movement relative thereto and connected to said drive shaft for vertical movement therewith, and vertical positioning means mounted on said work-supporting surface and connected to said housing assembly for vertically positioning said housing assembly and thereby said grinding wheel relative to said work-supporting surface, a prime mover for rotating the grinding wheel, said prime mover being mounted beneath said work-supporting surface in a fixed position essentially vibrationally isolated from said grinding wheel and said adjustable mounting means, drive transmission means connecting said prime mover with said drive shaft for rotation of said drive shaft and thereby said grinding wheel in any of said plurality of selected work-performing positions, said drive transmission means being connected at one end to said drive shaft and at the other end to said prime mover, said one end being freely movable vertically together with said drive shaft, said adjustable mounting means being mounted on said work-supporting surface and on said housing assembly and being operable to adjust the vertical position of said housing assembly and thereby said grinding wheel relative to said work-supporting surface so that an ice skate blade can be supported at a fixed elevation on said work-supporting surface and the position of said grinding wheel can be adjusted relative to the blade to enable the blade to be sharpened in an optimum manner.

4,271,636

LENS GENERATING APPARATUS

W. Duane Hamilton, Middletown, R.I., assignor to American Optical Corporation, Southbridge, Mass.

Filed Sep. 21, 1979, Ser. No. 77,681
Int. Cl.³ B24B 13/00
U.S. Cl. 51—33 W 10 Claims



1. Lens generating apparatus comprising a machine base;

a work carrying arm supported by said base, said work carrying arm being pivotal relative to said base about a first axis for swinging a workpiece carried thereby about said first axis;

a cutter carrying arm also supported by said base, said cutter carrying arm being pivotal relative to said base about a second axis directed orthogonally to the direction of said first axis for swinging a cutter carried thereby about said second axis;

means for supporting a workpiece on said work carrying arm and means for supporting a fixed radius axially rotatable cutter on said cutter carrying arm, said cutter having a thin edge disposed in a plane parallel to the direction of said first axis and being rotatable about an axis parallel to the direction of said second axis;

means for selectively bringing a supported workpiece and said thin edge of said cutter to a point of working contact with each other; and

means for adjusting distances from said point of working contact to respective first and second axes according to corresponding curvatures desired to be generated on said workpiece whereby swinging of said work carrying and cutter carrying arms about respective first and second axes with simultaneous rotation of said cutter about its axis will effect a bicurve surface generation of said workpiece; said generation being toric when said distance from said working contact to first and second axes differ and spherical when said distances are alike.

4,271,637

SURFACE GRINDING MACHINE

Horst Geibel, Homberg/Ohm, Fed. Rep. of Germany, assignor to Elb-Werkzeug-und Maschinenbau GmbH, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 890,133, Mar. 27, 1978, abandoned. This application Jun. 28, 1979, Ser. No. 53,452
Int. Cl.³ B24B 7/02
U.S. Cl. 51—92 R 5 Claims

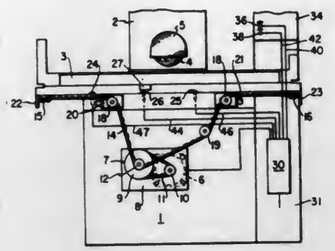
1. A surface grinding apparatus comprising

(a) a head,

(b) a grinding wheel mounted on said head,

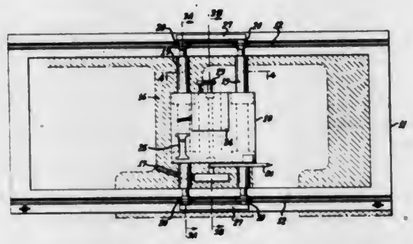
(c) a workpiece-supporting bench reciprocable along a predetermined, reciprocal path relative to said grinding wheel,

(d) a reversible drive means,
(e) said workpiece-supporting bench being mechanically coupled with said reversible drive means whereby the workpiece-supporting bench is reciprocated by said reversible drive means along side predetermined reciprocal path, the improvement characterized by
(f) a single control switch for reversing said reversible drive means to reciprocate said bench,
(g) said single control switch being centrally positioned relative to said reciprocal path of said bench,
(h) means providing communication between said control switch and said drive means,



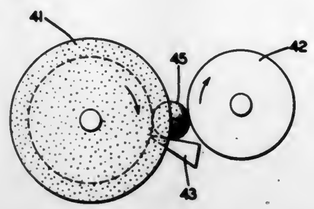
(i) a single switch actuating means associated with said control switch and mounted on said reciprocable bench,
(j) said control switch being operable upon activation by said single switch actuating means to emit a reversing signal through said communication means to said reversible drive means, and
(k) adjustable, electrical means in said communication means to delay the reversing signal from said control switch to said reversible drive means,
(l) whereby the distance traveled by said bench after actuation of said control switch and before reverse operation of said reversible drive means is varied according to the setting of said adjustable, electrical means.

4,271,638
PORTABLE SURFACE GRINDING MACHINE
William C. Creech, 1401 Kraft Rd., Jacksonville, Fla. 32218
Filed May 18, 1979, Ser. No. 40,599
Int. Cl.³ B24B 41/02
U.S. Cl. 51—241 S 7 Claims



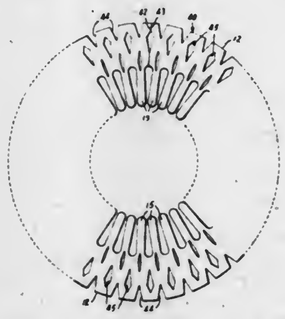
1. A portable surface grinder comprising a frame with a pair of spaced parallel tracks, a carriage movably mounted on a pair of spaced and elongated parallel shafts, each shaft terminating in a pair of spaced wheels which precisely roll in said tracks, a grinding wheel mounted on a third shaft is journalled eccentrically within a fourth shaft, all four shafts being parallel to each other, a power means mounted on said carriage for driving said third shaft, and an eccentric control for selectively rotating said fourth shaft to raise or lower the grinding surface of said grinding wheel, said eccentric control comprises a stud on said forth shaft and a length adjustable arm rotatably mounted on said carriage and rotatably connected to said stud.

4,271,639
MANUFACTURE OF SPONGE RUBBER SPHERES
Anselm Talalay, 2867 Ludlow Rd., Cleveland, Ohio 44120, and Leon Talalay, Chestnut La., Woodbridge, Conn. 06525
Filed Feb. 12, 1979, Ser. No. 11,288
Int. Cl.³ B24B 1/00, 11/08
U.S. Cl. 51—322 7 Claims



1. A process for shaping a rubber sponge article having its pores filled with gas, which process comprises freezing rubber sponge by cooling it below its glass transition temperature by contact with very cold gas, and removing excess rubber sponge material from the frozen rubber sponge by high speed machining.

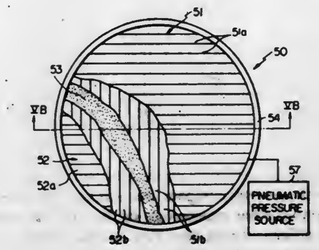
4,271,640
ROTATABLE FLOOR TREATING PAD
Richard T. Gadbois, Edina, and Richard A. Matthews, Lino Lakes Township, Anoka County, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.
Division of Ser. No. 878,703, Feb. 17, 1978, Pat. No. 4,182,616.
This application Jun. 12, 1979, Ser. No. 47,886
Int. Cl.³ B24D 11/02, 3/32
U.S. Cl. 51—400 9 Claims



1. An elongate strip of lofty nonwoven abrasive material suitable for being formed into a flat annular configuration to provide a rotatable floor treating pad comprising a conformable strip at least about 3 inches wide and being at least about ¼ inch thick of low-density lofty nonwoven abrasive material having throughout its length at least one of
(a) an expandable zone at least adjacent one side which will not permit buckling of said strip when it is formed into a flat annular shape with the expanded zone directed outward provided at least in part by a pattern of uniformly spaced slits which extend into said strip not more than about 35% of the width of said strip from said one side; and

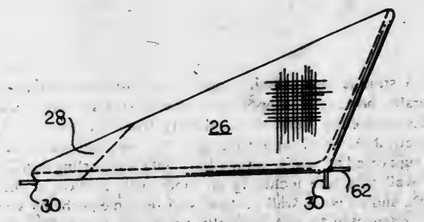
(b) a contractable zone which will not permit buckling of said strip when it is formed into a flat annular shape with the contractable zone directed inward,
yet will provide an annular shape upon forming having at least one flat floor-contacting surface derived from one of the flat faces of said strip.

4,271,641
TENSION STRUCTURE
Mamoru Kawaguchi, Tokyo, Japan, assignor to Taiyo Kogyo Company Limited, Tokyo, Japan
Filed Feb. 16, 1979, Ser. No. 12,739
Claims priority, application Japan, Mar. 6, 1978, 53-244494; Mar. 15, 1978, 53-28595
Int. Cl.³ E04B 1/34
U.S. Cl. 52—2 12 Claims



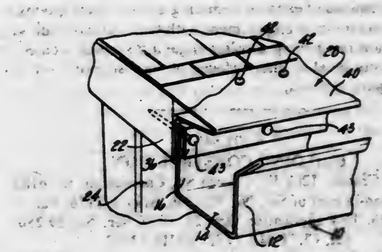
2. A tension structure comprising:
a boundary means;
a group of elongated metal strips arranged side by side substantially without means for transmitting force between the adjacent strips, each thereof being secured at opposite ends in a longitudinal direction thereof to said boundary means; and
means for applying tension of each of said metal strips substantially only in said longitudinal direction to form a stabilized continuous curved surface by said strips, said means including another group of metal strips opposing said first group to provide a space therebetween and pneumatic pressure applied to said space, said strips in both groups being partially overlying each other at their longitudinal edges.

4,271,642
TENT WITH INFLATABLE TUBE ERECTOR
Dale A. Karr, 3131 Canby St., #29, San Diego, Calif. 92110
Filed Sep. 17, 1979, Ser. No. 76,509
Int. Cl.³ E04B 1/345
U.S. Cl. 52—2 3 Claims



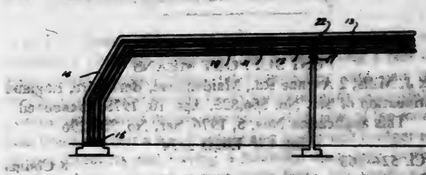
1. A tent, particularly for use by backpackers, comprising:
(a) a canopy of flexible sheet material having a sloping roof panel, opposing generally obtuse angled triangular side wall panels and a generally rectangular floor panel, connected together and capable of defining an occupancy space having a closed apex at one end of said floor panel and an enlarged front opening at the other end of the floor panel, said roof panel extending well beyond said floor panel at said opening as an overhang;
(b) said canopy having a continuous tunnel on three edges only of said floor panel and having an arched segment arching over said front opening; and
(c) a flexible inflatable tube within said tunnel and of substantially the same length as said tunnel, said tube having a natural tendency to straighten when inflated within limits imposed by said tunnel, so that said tube when inflated erects said canopy with said roof panel and adjacent portions of said side wall panels extending well beyond said floor panel at said opening as an overhang.

4,271,643
EAVES TROUGH MOUNTING ADAPTER
Ronald L. Sweers, 6165 E. Atherton, Flint, Mich. 48507
Filed Oct. 24, 1979, Ser. No. 88,051
Int. Cl.³ E04D 13/04
U.S. Cl. 52—11 5 Claims



1. An adapter for securing an eaves trough to a roof of a building, said adapter comprising,
a roof flange which abuts against an upper surface of said roof,
a channel member having a channel of a predetermined width open at one end, and
means for attaching said roof flange to said channel member so that said open end of said channel member faces downwardly while said roof flange flatly abuts against said upper surface of the roof, and
wherein said means comprises means for adjusting the angle between the plane of said roof flange and the downwardly extending plane passing through the axis of the channel while maintaining the predetermined width of said channel.

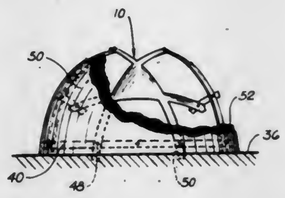
4,271,644
HALL WITH MOBILE WALL AND ROOF ELEMENTS
Philippe Rilliet, Chemin des Fleurettes 47, CH-1007 Lausanne, Switzerland
Continuation-in-part of Ser. No. 873,899, Jan. 30, 1978, abandoned. This application Oct. 26, 1978, Ser. No. 954,922
Claims priority, application Switzerland, Feb. 2, 1977, 1234/77
Int. Cl.³ E04B 1/346
U.S. Cl. 52—67 2 Claims



1. A telescoping building, comprising

lateral and intermediate support means;
elongated ways on said lateral and intermediate support means and having longitudinally spaced end portions;
at least one stationary integral wall and roof element on said support means at each of said end portions and each having a predetermined height and width;
a set of movable integral wall and roof elements at each of said portions and having a progressively different height and width, all of said elements having respective base portions and each element at one end portion having an identically dimensioned counterpart element at the other end portion; and
roller means provided on each said base portion in rolling engagement with said ways of said lateral and intermediate support means for movement and guidance of said movable elements relative to the respective stationary element to and from a telescoped- apart position, all elements at each end portion being movable towards the elements of the respective other end portions so as to meet the same substantially midway between said end portions; and at least the intermediate common rail for said movable elements extending between said end portions, such movable elements of each set including a front frame having at least one roller in engagement with said common rail, said common rail having a roller-engaging surface located at the same level as the surfaces of roof supports on said stationary element.

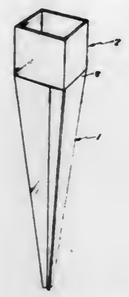
4,271,645
BUILDING CONSTRUCTION
Melvin L. Crooks, 1201 W. Church St., Champaign, Ill. 61820
Continuation-in-part of Ser. No. 903,816, May 8, 1978, Pat. No. 4,182,086. This application Oct. 29, 1979, Ser. No. 89,256
Int. Cl.³ E04B *1/32*; A63H *33/12*
U.S. Cl. 52—81 10 Claims



1. A framework for a hollow solid object comprising a plurality of basic building elements interconnected together, each of said elements being constructed of bendable resilient sheet material having a flat set and having three pairs of equally spaced connection points, each pair of connection points defining an axis extending therebetween, each of the axes of the pairs of connecting points intersecting the axes of both of the other pairs of connecting points at an angle of 60° and forming an equilateral triangle centrally of the element, the axis of each pair intersecting the axis of each of the other pairs at points spaced from the mid point between the connecting points of said axis by equal distances, a plurality of fastening means disposed at connecting points of the building elements, said fastening means securing each of said basic building elements on a plurality of other basic building elements.

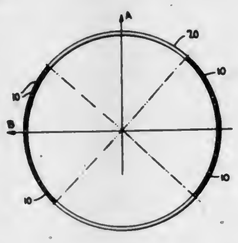
4,271,646
POST SUPPORT MEANS
Derek J. Mills, 2 Avenue Rd., Maidenhead, Berkshire, England
Continuation of Ser. No. 566,825, Apr. 10, 1975, abandoned. This application Nov. 5, 1976, Ser. No. 739,296
Int. Cl.³ E02D *5/74*
U.S. Cl. 52—165 8 Claims

1. Post support means comprising an elongate ground engaging portion of cruciform cross-section which is adapted to be driven vertically into the ground, the arms of the cruciform ground engaging portion being arranged diagonally of a rectangular plate portion attached transversely to the ground-engaging portion at one end thereof with no part of the cruciform section extending above the plate portion and no part of the cruciform section extending beyond the periphery of the plate portion, the plate portion being such that when the ground engaging portion is driven into the ground to its full length the plate portion on contacting the surface of the



ground will tend to compact the soil and provide increased resistance to further penetration of the ground engaging portion, and a vertical post-engaging portion comprising at least one flat plate member rigidly mounted on the plate portion with its plane parallel to one edge of the plate portion and extending in a direction away from the ground-engaging portion and so oriented that the axis of a post supported and engaged by the post-engaging portion is in substantial alignment with the axis of the ground engaging portion.

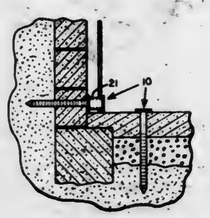
4,271,647
PRESTRESSED CONCRETE TANKS WITH SHEAR BLOCKS FOR RESISTING SHEARING FORCES
Lars Balck, Jr., Gainsville, Fla., assignor to The Crom Corporation, Gainesville, Fla.
Filed Sep. 13, 1979, Ser. No. 75,316
Int. Cl.³ E04H *7/20*; B65D *88/76*
U.S. Cl. 52—169.4 43 Claims



1. A storage tank which comprises a foundation having a generally horizontal supporting surface; at least two shear blocks projecting vertically upwardly from the top of said generally horizontal supporting surface; a vertical wall structure supported by said generally horizontal supporting surface, said wall structure including an inner wall portion, a shell means, and an outer wall portion, said shell means being sealingly connected to said generally horizontal supporting surface, said outer wall portion only partially enclosing each of the shear blocks; a first bond breaker means located between said inner wall portion and said generally horizontal supporting surface, and a second bond breaker means located between said outer wall portion and the top side of each of said shear blocks and the generally horizontal supporting surface; said

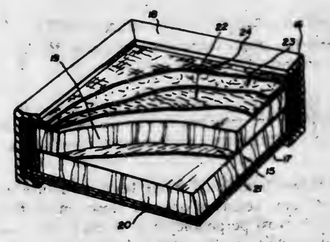
shear blocks, bond breaker means, and shell means allowing for said wall structure to be not only sealed to but radially movable on said generally horizontal supporting surface, yet providing for resistance to shearing forces caused by backfilling, earthquakes, and like occurrences.

4,271,648
SUBTERRANEAN DRAIN SYSTEM FOR BASEMENTS
David S. Johnson, 8660 Stone Bridge Trail North, Stillwater, Minn. 55082
Filed Sep. 4, 1979, Ser. No. 72,440
Int. Cl.³ E02D *19/00*
U.S. Cl. 52—169.5 3 Claims



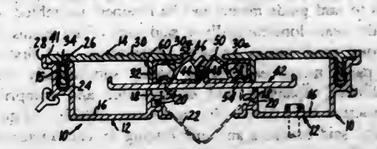
1. Apparatus for relieving static subterranean water heads surrounding subterranean walls which comprises:
(a) perforated hollow sleeve means arranged to extend through a subterranean wall and into a surrounding water head at a level below the top of the subterranean water table, and having distal and proximal ends with said perforations being generally radially extending bores formed along the length of said sleeve and with each of said bores having a predetermined area;
(b) said distal end being tapered substantially to a pointed tip axially of said hollow sleeve, with said tip being of generally solid construction; and
(c) flanged coupling means formed adjacent said proximal end for coupling water conduit internally thereof.

4,271,649
STRUCTURAL PANEL
Germain Belanger, St. Germain de Grantham, Canada, assignor to Bombardier Limited, Quebec, Canada
Filed Apr. 9, 1979, Ser. No. 28,596
Int. Cl.³ E06B *3/00*; E04C *2/34*, *2/38*
U.S. Cl. 52—309.2 8 Claims



1. A structural panel comprising laminated planar outer layers of resin bonded glass fibre arranged on opposite faces of a relatively thick, lightweight core matrix, said core matrix comprising two sheets of low density material each bonded to the glass fibre outer layers on one side of the panel, and bonded together in confronting relationship in the neutral plane of the panel, and said outer layers of glass fibre on each face of the panel comprising successively from the outermost face (a) a layer of woven roving (b) a random fibre mat and (c) at least one layer of unidirectional fibres.

4,271,650
EXPANSION JOINT COVER
David M. Lynn-Jones, Muncy, Pa., assignor to Construction Specialties, Inc., Cranford, N.J.
Filed Nov. 22, 1978, Ser. No. 962,933
Int. Cl.³ E01C *11/02*; E04F *15/14*
U.S. Cl. 52—395 9 Claims



1. An expansion joint cover for closing an expansion gap between sections of a structure comprising at least one elongated frame assembly including (1) a base member having in cross section a bridge-supporting rib adjacent the gap and a cover-supporting flange spaced laterally outwardly from the rib, the cover-supporting flange having an upwardly open groove and an abutment located laterally outwardly from the groove, relative to the expansion gap, the frame assembly further including (2) a cover member having in cross-section a web portion, a bridge-supported flange extending down from the underside of the web portion adjacent the expansion gap generally vertically above the bridge-supporting rib of the base member and a retainer rib extending down from the underside of the web portion and received in the groove of the base member, and the frame assembly further including (3) a multiplicity of longitudinally spaced-apart generally U-shaped spring clips received on the retainer rib and received in the groove of the base member and securing the cover plate to the base member against relative vertical movement with part of the web portion of the cover engaging the abutment of the base member and preventing tipping of the cover plate about the retainer rib in a direction tending to unseat the bridge-supported flange from supported position on the bridge; a bridge plate spanning the gap, supported on the bridge-supporting rib of the base member and supporting the bridge-supported flange of the cover member, and an elongated resilient filler strip supported by the bridge and spanning the expansion gap transversely.

4,271,651
BATTEN AND PANELING SYSTEM
Paul J. Sorrells, Jr., Tucker, Ga., assignor to MM Systems Corporation, Tucker, Ga.
Filed Jun. 1, 1979, Ser. No. 44,773
Int. Cl.³ E04D *1/36*
U.S. Cl. 52—460 13 Claims



1. In a panel and batten system, the combination which includes a plurality of brackets each comprising a pair of leg means, and bridger means interconnecting said pair of leg means; bodily substantially freely longitudinally expansible and contractable gutter means carried by said pairs of leg means of said brackets over a substructure and under said bridger means of said brackets and having a laterally open side, with said brackets being aligned spaced apart from one another on an axis; guide means connected with said substructure, said guide

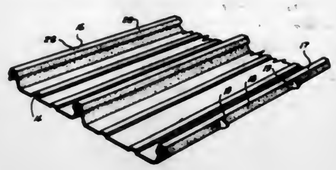
means and outer ends of said pairs of leg means of said brackets including interlocked, longitudinally relatively movable tongue and grooved portions underlying said gutter means, for said brackets movably to follow said guide means longitudinally of said guide means in interlock with said guide means laterally of said guide means and for said pairs of leg means of said brackets to transmit thrust from said bridger means of said brackets to said guide means and be retained assembled with said guide means longitudinally of said pairs of leg means; first and second panel means on said substructure, said first and second panel means each being bodily substantially freely longitudinally expansible and contractable and comprising panel structure and batten wall means raised outside said gutter means and said brackets and introducing an end adjacent to said laterally open side of said gutter means, having said gutter means and said brackets in positions intermediate said batten wall means of said first and second panel means; and bodily substantially freely longitudinally expansible and contractable batten cover means covering said laterally open side of said gutter means, said brackets and relatively movably said ends of said batten wall means of said first and second panel means and connected with said bridger means of said movably guided brackets to move with said brackets during longitudinal expansion and contraction of said batten cover means.

4,271,652
FACING
Ake Svensson, Kryddgardsvägen 83, 145 73 Norsborg, Sweden
Filed Jul. 23, 1979, Ser. No. 59,597
Int. Cl.³ E04B *1/00*
U.S. Cl. 52—478 **4 Claims**



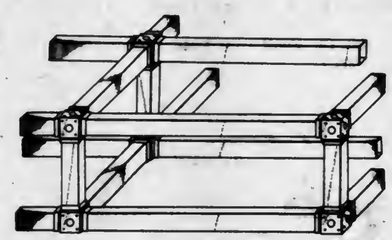
1. A facing of sheet metal for residential, factory buildings and other units, comprising facing elements (1) and attachment means (12,23) for the same, where every facing element (1) has a substantially plane upper surface (2) intended to constitute the outer surface and where a tongue (3,4) is formed from the lower and, respectively, upper short side of the facing element, which tongues (3,4) extend upward and from the upper surface (2) to form an angle with the upper surface, and where the upper and the lower tongue (3,4) are bent at their free ends, so that every tongue (3,4) together with the associated bent portion (5,6) forms a V in cross-section, at which the angle of the V is smaller than 90°, where the free legs of the bent portions (5,6) in cross-section are substantially in parallel with said upper surface (2) and intended to be attached in a U-shaped portion of the attachment means, characterized in that the attachment means (12) includes a section intended to be attached horizontally lying on a building wall (13) or the like, which section consists of bent sheet metal and has a length corresponding to a part of or to the entire horizontal length of a wall (13) or the like to be faced, and which at its (12) outer end has said portion (14) of U-shaped cross-section into which the bent portion (5) of the upper tongue (3) of a facing element (1) and the bent portion (6) of the lower tongue (4) of a facing element (1) located next above said lastmentioned facing element (1) are intended to be inserted, and that the U-shaped portion (14) of the section retains both facing elements (1) in vertical and horizontal direction when the upper surfaces (2) of the facing elements (1) are in a vertical plane.

4,271,653
CLADDING SHEETS
Peter Buchhorn, Cardiff, Australia, assignor to John Lysaght (Australia) Limited, Sydney, Australia
Filed Aug. 27, 1979, Ser. No. 70,016
Claims priority, application Australia, Oct. 26, 1978, PD6537
Int. Cl.³ E04D *3/362, 3/363*
U.S. Cl. 52—522 **1 Claim**



1. A cladding sheet of the kind having a longitudinally-shouldered female rib formation bordering one longitudinal edge of the sheet and a male rib formation bordering the other longitudinal edge, the male rib of one sheet being designed to enter the female rib formation of another similar sheet with at least a part of the free edge of a flange forming part of said male rib lockingly engaging over the shoulder of the female rib; characterised in that said free edge has a series of spaced-apart outwardly displaced abutments formed on it to such effect that when a male rib is homed in a female rib the distal edges of the abutments engage said shoulder to the exclusion of the remainder of the flange from which the abutments are displaced.

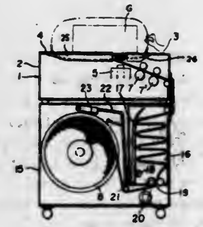
4,271,654
THREE-DIMENSIONAL STRUCTURES OF FRAME BEAMS AND MULTIPLE JOINTS
Otto Junghluth, Frankensteiner Strasse 99, 6100 Darmstadt-Eberstadt, Fed. Rep. of Germany
Filed Feb. 3, 1978, Ser. No. 874,871
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1977, 2704954
Int. Cl.³ F16B *7/18*
U.S. Cl. 52—637 **4 Claims**



1. In a three-dimentional frame beam structure made of a plurality of frame beams of open or closed metal profile steel shapes which cross perpendicularly to each other and which are interconnected at all multiple joints by means of cubic multiple joint connectors, the improvement wherein:
said frame beams each have a substantially flat face plate for connection with said cubic multiple joint connectors;
said cubic multiple joint connectors each have at least five substantially flat joining surfaces perpendicular to each other adapted to be joined with a face plate of a frame beam, said joining surfaces which are connected to a respective face plate of a beam being connected by at least two high strength bolts to its respective face plate, said at least two bolts being located within the outline of the cross-section of said frame beams; and

said frame beam structure including frame beams of hollow profile shapes, and said bolts connected to said hollow profile frame beams each having two longitudinal grooves therein, and further comprising holed tightening discs having cam means engaging with said grooves for turning said grooved bolts relative to said frame beam to which said grooved bolts are connected.

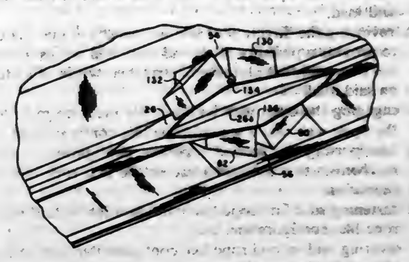
4,271,655
SEMIAUTOMATIC-AUTOMATIC STRAPPING MACHINE
Katsuhiro Nagayoshi, Yokohama, Japan, assignor to Nichiro Kogyo Co, Ltd., Yokahama, Japan
Filed Aug. 21, 1979, Ser. No. 68,335
Claims priority, application Japan, May 14, 1979, 54-63980[U]
Int. Cl.³ B65B *13/06, 67/08*
U.S. Cl. 53—201 **1 Claim**



1. A convertible automatic-semiautomatic strapping machine comprising:
a casing;
a table in said casing, said table having a receiving part and a longitudinal gap thereon for the passage of a plastic band;
a band feed roller in said casing;
a band return roller in said casing;
a band gripper in said casing;
a heat-pressing means positioned below said receiving part;
a removable arch positionable on said table, said arch including an arch guide having one portion fittable in said longitudinal gap adjacent said receiving part for taking up said band during automatic operation;
means for detachably retaining said arch on said table;
a band projection guide positionable in said longitudinal gap when said arch has been removed for semiautomatic operation, said band projection guide being positioned adjacent said receiving part in the place of said one portion of said arch guide, said band projection guide including a tapered part for projecting the end of said band above said table;
a band inserting guide positionable in said longitudinal gap adjacent said receiving part and opposite said band projection guide, said band receiving guide having a tapered part for inserting the end of said band between said receiving part and said heat pressing means during semiautomatic operation; and
means for removably retaining said band projection guide and said band inserting guide in said longitudinal gap.

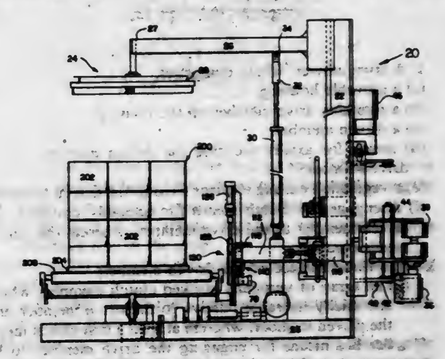
4,271,656
ENVELOPE PROCESSING MACHINE
Robert J. Russell, Medford, N.J., assignor to Mail-Ex Corporation, Skokie, Ill.
Filed Sep. 26, 1979, Ser. No. 78,920
Int. Cl.³ B65B *43/30*
U.S. Cl. 53—381 R **8 Claims**

1. An envelope processing machine comprising: a supply hopper for envelopes; an envelope processing station; means for removing envelopes from the supply hopper and for transmitting the removed envelopes to the envelope processing station; and envelope opening means at said processing station including a pair of envelope gripping means arranged for reciprocal movement to grip and separate opposite panels of an envelope to facilitate the removal of contents therefrom and each including envelope panel bending means with pivotally connected panel seizing means arranged to pivot toward each



other as the envelope panels are separated for bending their respective envelope panel proximate to the pivotal connection of said seizing means; and said seizing means including air suction means for seizing the envelope side panels and blower means for blowing air through the envelope side panels to further promote displacement of the envelope contents from the envelope panels.

4,271,657
AUTOMATIC WEB TYING APPARATUS
Patrick R. Lancaster, III, Anchorage, and William G. Lancaster, Louisville, both of Ky., assignors to Lantech Inc., Louisville, Ky.
Continuation of Ser. No. 928,236, Jul. 26, 1978, Pat. No. 4,235,062, which is a continuation of Ser. No. 911,652, Jun. 1, 1978, Pat. No. 4,204,377, which is a continuation-in-part of Ser. No. 709,957, Jul. 30, 1976, Continuation of Ser. No. 478,523, Jun. 12, 1974, abandoned. This application Mar. 16, 1979, Ser. No. 21,198
Int. Cl.³ B65B *11/04*
U.S. Cl. 53—399 **26 Claims**



1. A process for spirally wrapping a web of stretchable material around a load comprising a plurality of units to form a unitary packaged load comprising:
a. placing a roll of stretchable material on a dispenser;
b. withdrawing a leading end of said web of material from said roll and forming said leading end into a rope-like configuration having a width less than the width of the original web;
c. holding the leading rope-like end of said stretchable material adjacent a load comprising a plurality of units;
d. withdrawing said stretchable material from said roll;

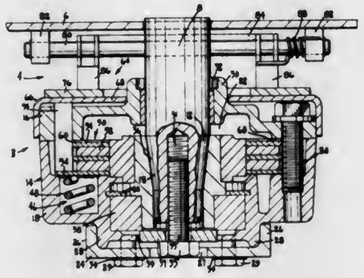
opening the web of material from its rope-like configuration as it is drawn from said roll to assume an open web configuration while causing relative movement between said roll and said load;
f. stretching said material as it is dispensed from said roll to said load;
g. moving said material in a direction along the axis of the load to form a plurality of stretched wraps of material on said load;
h. reversing the direction of said movement of said material to provide a plurality of second stretched wraps of material over said first plurality of stretched wraps of material on said load;
i. engaging the open web with a roper mechanism to form the open web into a second rope-like configuration;
j. transporting the second rope-like configuration with a mechanism to a position adjacent the first rope-like configuration;
k. fastening said first rope-like configuration to said second rope-like configuration; and
l. severing said second rope-like configuration from said roll of stretchable material.

4,271,658

CLUTCH AND BLADE BRAKE FOR LAWN MOWER

Leslie W. Foster, Wayzata, Minn., assignor to The Toro Company, Minneapolis, Minn.

Filed Mar. 10, 1980, Ser. No. 128,939
Int. Cl.³ A01D *69/08, 69/10*
U.S. Cl. 56—11.3 18 Claims



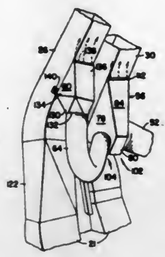
1. A lawn mower, which comprises:
(a) a movable housing;
(b) a rotatable drive member on the housing;
(c) a driven member;
(d) means for axially securing the driven member to the drive member;
(e) a vegetation cutting element fixed to the driven member;
(f) disengageable clutch means for rotatably coupling the driven member to the drive member, wherein the clutch means comprises:
(i) a thrust surface on the driven member;
(ii) an array of vertically stacked clutch members which are axially movable relative to the drive member and the driven member, wherein at least a first clutch member has means for engaging the drive member to be rotated thereby, and wherein the clutch members are stacked in an abutting face-to-face relationship in which the clutch members are driven by friction from the first clutch member;
(iii) biasing means for axially forcing the array of clutch members against the thrust surface of the driven member to couple the driven member to the drive member; and
(iv) means for overcoming the force of the biasing means to remove the array of clutch members from engagement with the thrust surface and uncouple the driven member from the drive member.

4,271,659

AIR DUCT SYSTEM FOR A COTTON HARVESTER

Kenneth C. McConnell, Ankeny, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Dec. 5, 1979, Ser. No. 100,318
Int. Cl.³ A01D *45/18*
U.S. Cl. 56—13.3 16 Claims



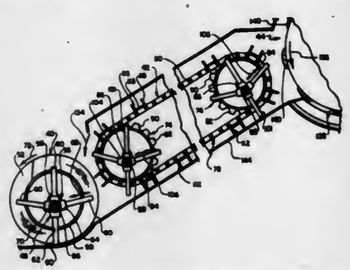
1. In a cotton harvester having at least first and second ducts with an input end for receiving harvested cotton to be conveyed and a discharge end for discharging the harvested cotton from the duct, an air blower, and air distributing means for directing the air from the blower into the ducts toward the discharge ends and causing flow of the cotton through the ducts, the improvement in the distributing means comprising:
an air distribution nozzle including an inlet port for receiving air from the blower, an outlet port, and a vent;
means for connecting the air distribution nozzle to the first duct with the vent opening into the first duct;
first conduit means connected between the inlet port and the blower for supplying air to said port, and causing air flow through the outlet port and the vent;
a nozzle member including an inlet port and a discharge port in communication with the second duct; and
second conduit means connected between the outlet port of the air distribution nozzle and the inlet port of the nozzle member for supplying air from the outlet port of the distribution nozzle to the second duct.

4,271,660

COMBINE CONVEYOR APPARATUS

Melvin L. Kloefkorn, Manchester, Okla. 73758; Earl W. Kloefkorn, deceased, late of Manchester, Okla., and by Marvin V. Green, administrator, 3211 Uvalda St., Aurora, Colo. 80011

Filed Sep. 28, 1979, Ser. No. 79,792
Int. Cl.³ A01D *57/00, 89/00*
U.S. Cl. 56—14.6 9 Claims



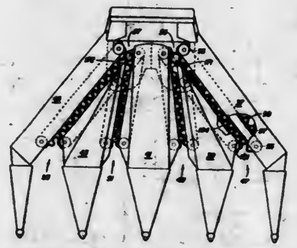
1. A combine conveyor apparatus having a new and novel combine auger conveyor apparatus contained therein, comprising:
(a) said combine conveyor apparatus includes a combine material directing and cutting apparatus to cut material and move same into said combine auger coveyor apparatus;
(b) said combine auger conveyor apparatus includes (1) a feeder auger conveyor assembly to receive the material from the combine material directing and cutting apparatus; (2) a feeder slat conveyor assembly to receive the material from the feeder auger conveyor assembly; and (3) a threshing cylinder assembly to receive the material from the feeder slat conveyor assembly;
(c) said feeder slat conveyor assembly includes a first sprocket assembly with a retractable finger assembly adjacent said threshing cylinder assembly to thrust material thereto;
(d) said feeder slat conveyor includes a second sprocket assembly connected to said first sprocket assembly by a feeder chain and slat assembly; (e) said feeder chain and slat assembly includes a spaced chain assembly to interconnect said first sprocket assembly and said second sprocket assembly and a plurality of parallel, feeder conveyor slat members interconnecting said chain assembly; and
(f) said feeder conveyor slat members act against the material to move same upwardly to said second sprocket assembly.

4,271,661

HARVESTER HEADER WITH REARWARDLY EXTENDED CROP DIVIDER

Harold E. deBuhr, Ottumwa, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Sep. 11, 1979, Ser. No. 74,567
Int. Cl.³ A01D *45/02*
U.S. Cl. 56—98 14 Claims



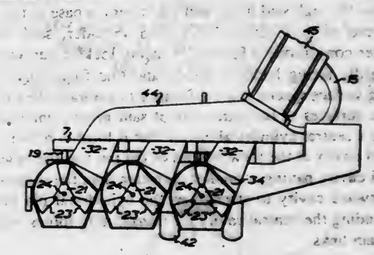
1. In a header for a row crop harvester with a crop receiving throat, said header comprising:
a plurality of generally fore-and-aft, downwardly and forwardly inclined dividers, said dividers converging at the rear ends thereof;
a plurality of crop receiving, converging passageways defined between adjacent ones of said dividers, each passageway having a crop entry and crop exit at the forward and rearward ends thereof, respectively, said exits disposed adjacent said throat;
cutter means disposed adjacent the crop entry of each passageway for severing crop;
a frame comprised of two sections;
a substantially coplanar pair of planar conveyors respectively disposed on opposite sides of each passageway for conveying severed crop along said passageway and into said throat, a first and second pair of conveyors mounted on one of said frame sections, and a third and fourth pair of conveyors mounted on the other of said frame sections, said first, second, third and fourth pairs of conveyors corresponding to, respectively, first, second, third and fourth passageways of said plurality of passageways, said first and second pairs of conveyors inclined transversely and downwardly in a direction toward the third and fourth pair of conveyors, said third and fourth pair of conveyors inclined transversely and downwardly in a direction toward said first and second pair of conveyors;
each said conveyor comprises an endless loop means extending along one side of the passageway defined in part thereby for engaging and conveying crop from the crop entry to the crop exit of said passageway in conjunction with the endless loop means extending along the other side of the passageway defined therebetween;
the endless loop means of the outer conveyors of said second and third pairs of conveyors terminating substantially forward of the endless loop means of the inner conveyors of the second and third pairs of conveyors;
the first and second passageways intersect forward of said throat and said third and fourth passageways intersect forward of said throat; and
one of said dividers housing the inner conveyor of said first pair of conveyors and the outer conveyor of said second pair of conveyors and another of said dividers housing the inner conveyor of said fourth pair of conveyors and the outer conveyor of said third pair of conveyors, wherein the improvement comprises:
each of said one and said another dividers having a rear tip extending substantially beyond the rear end of said endless loop means of said outer conveyors of said second and third pair of conveyors and terminating near the intersection of said passageways, respectively.

4,271,662

MACHINE FOR HARVESTING THE FOLIAGE OF ROW CROPS

Alf H. Andersson, Ödakra, and Nils B. Glifberg, Staffanstorp, both of Sweden, assignors to Svenska Sockerfabriks AB, Malmo, Sweden

Filed Sep. 14, 1979, Ser. No. 75,464
Claims priority, application Sweden, Sep. 21, 1978, 7809924
Int. Cl.³ A01D *23/00*
U.S. Cl. 56—121.44 5 Claims



1. Machine for harvesting the overground foliage of row crops growing in a field while advanced in the field along the row of the crop by drive means, comprising
(1) a plurality of juxtaposed stripping wheels each for a respective row of the crop,
(2) a plurality of casings each enclosing one of said stripping wheels,
(3) a plurality of obliquely upwardly directed outlets each extending from one of said casings,
(4) wings on said stripping wheels adapted to disintegrate the foliage of the row crop and to produce an air stream for discharging the disintegrated foliage through said outlet of said casing of the respective stripping wheel,
(5) an ejector pipe for collective ejection of the disintegrated foliage emanating from said stripping wheels,
(6) a collecting channel connected at one end to said ejector pipe and extending above said stripping wheel casings,
(7) said outlets of said casings extending obliquely upwards in the same direction towards said ejector pipe and opening at intervals in a succession into a lower portion of said collecting channel, and
(8) a plurality of air supply means each discharging into the

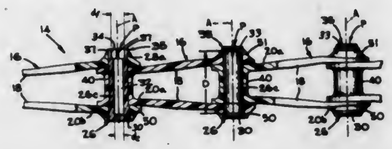
lower portion of said collecting channel at that side of said outlet of each stripping wheel casing which faces said ejector pipe for injecting additional air into said collecting channel substantially in the direction of the ejector pipe end of said collecting channel.

4,271,663

RELEASABLE LOCKING COUPLING PIN FOR CHAIN LINKS

Harry W. Templin, and Edward O. Enders, both of Indianapolis, Ind., assignors to FMC Corporation, San Jose, Calif.

Filed Jun. 22, 1979, Ser. No. 51,262
Int. Cl.³ F16G 15/00
U.S. Cl. 59—84 **2 Claims**



1. A pin for insertion through portions of adjacent chain links to couple said chain links together at a pivot joint, said pin having a longitudinal axis, said pin also having a leading or forward end and a trailing or rearward end with respect to the directional sense of axial insertion into said links, said pin having a rib defining a first shoulder adjacent the forward end of the pin, said first shoulder constituting a rearwardly facing locking surface, said pin having a tapered nose forward of said rib, said pin having an internal cavity opening on the forward end of the pin and slots extending rearwardly from the extreme forward end of said pin through said nose and beyond said rib to permit radial contraction of the forward end of the pin on insertion through said links, said pin having a base at the rearward end thereof defining a second shoulder, said second shoulder constituting a forwardly facing locking surface, said rearwardly facing locking surface and said forwardly facing locking surface spaced apart a distance to embrace the extreme outside surfaces of the outer link at said pivot joint, said pin having a central cylindrical cavity that is located between the internal cavity at the forward end of the pin and the base, said central cavity having a smaller diameter than the diameter of the forward cavity to strengthen the cylindrical pin portion surrounding the central cavity for transmitting forces between the chain links.

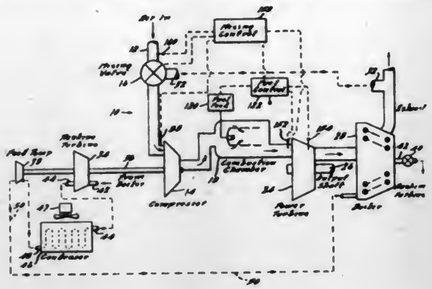
4,271,664

TURBINE ENGINE WITH EXHAUST GAS RECIRCULATION

Ernest R. Earnest, Hobe Sound, Fla., assignor to Hydragon Corporation, Lake Park, Fla.

Division of Ser. No. 817,848, Jul. 21, 1977, Pat. No. 4,204,401, which is a continuation-in-part of Ser. No. 706,811, Jul. 19, 1976. This application Apr. 5, 1979, Ser. No. 27,287
Int. Cl.³ F02C 7/08
U.S. Cl. 60—39.18 R **11 Claims**

1. An integrated Brayton cycle-Rankine cycle engine comprising a Rankine turbine and a rotary compressor driven thereby, a Brayton turbine and an intercycle heat exchanger heated by the exhaust of the Brayton turbine and delivering heat to the Rankine fluid for powering the Rankine turbine, a burner and air supply assembly for delivering air from the compressor and products of combustion from the burner to the Brayton turbine, recirculation means for recirculating a portion of the exhaust gases from the Brayton turbine into a compressor in order to increase the thermal efficiency of the engine, and control means for measuring the Brayton turbine inlet temperature, the ambient air temperature, and the compressor inlet temperature, and for adjusting the recirculating



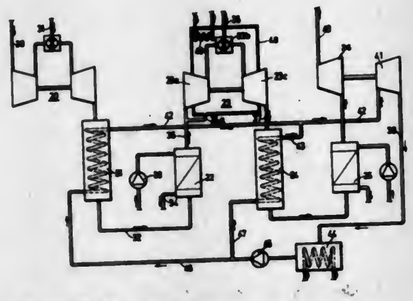
means in accordance therewith during part load operation of the engine.

4,271,665

INSTALLATION FOR GENERATING PRESSURE GAS OR MECHANICAL ENERGY

Charles Mandria, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Apr. 24, 1979, Ser. No. 32,750
Claims priority, application Switzerland, Apr. 26, 1978, 4491/78
Int. Cl.³ F02C 6/06
U.S. Cl. 60—39.18 B **13 Claims**



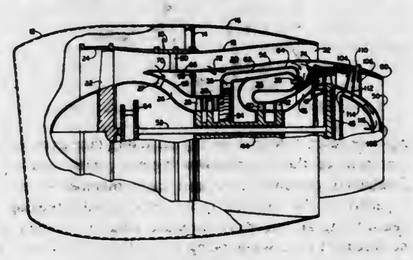
1. An installation comprising
- a first gas generator having a compression stage for intaking fresh air, at least one combustion chamber and an expansion stage for driving said compression stage and exhausting a flow of hot combustion gases;
- a steam generator for receiving the flow of hot exhaust gas from said expansion stage and a flow of water in heat exchange relation therewith to generate a flow of steam from the flow of water;
- a heat exchanger downstream of said steam generator relative to the flow of exhaust gas to cool the exhaust gas to near-environmental temperature;
- a second gas generator having a second compression stage for receiving and compressing a flow of cooled exhaust gas from said heat exchanger, at least one combustion stage and an expansion stage for driving said second combustion stage and exhausting a second flow of hot exhaust gas;
- a second steam generator for receiving the second flow of hot exhaust gas from said second gas generator and a second flow of water in heat exchange relation therewith to generate a second flow of steam from the second flow of water;
- a second heat exchanger downstream of said second steam generator relative to the second flow of exhaust gas to cool the exhaust gas to near-environmental temperature;
- a compressor downstream of said second heat exchanger relative to the second flow of exhaust gas to compress the second cooled exhaust gas to a final pressure; and
- a steam turbine connected to at least one of said steam generators to receive a flow of steam therefrom and drivingly connected to said compressor.

4,271,666

INTEGRAL INFRARED RADIATION SUPPRESSOR FOR A TURBOFAN ENGINE

John F. Hurley, Easton, and Paul L. Hoffman, Stratford, both of Conn., assignors to Avco Corporation, Stratford, Conn.

Filed Aug. 20, 1979, Ser. No. 68,304
Int. Cl.³ F02K 3/04
U.S. Cl. 60—226 R **4 Claims**



1. In a gas turbine engine having compressor, combustor, turbine and tailpipe stages arranged to sequentially receive the primary airflow of the engine, means to reduce the infrared radiation of the tailpipe and exhaust of said engine comprising:
- a generally cylindrical housing constructed to support and enclose the gas tubine engine, said housing having a closed inner cavity surrounding at least the turbine components of the engine but isolated from the primary airflow;
- means communicating with the closed cavity of the housing to allow air to enter said cavity;
- a fire shield mounted in the inner cavity of the housing to divide the airflow therein and direct a portion of said airflow toward the hotter portions of said housing to increase the cooling provided thereby; and
- a containment shroud mounted in the housing to enclose the power turbine rotor of the engine and isolate the main fluid flow from the cavity, said shroud being constructed with a passage extending between the housing cavity and the exhaust tailpipe section of the housing immediate downstream of said turbine to form an eductor to draw cooling air into the exhaust from the housing cavity.

4,271,667

APPARATUS FOR CONTROLLING THE AMOUNT OF SECONDARY AIR FED INTO AN INTERNAL COMBUSTION ENGINE

Tadao Mitsuda; Minoru Iwata, both of Susono; Masatoshi Sugiura; Shigetaka Takada, both of Obu, and Yukihiro Watanabe, Nagoya, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Aisan Industry Co., Ltd., both of Aichi, Japan

Filed Nov. 14, 1978, Ser. No. 960,654
Claims priority, application Japan, Nov. 29, 1977, 52/142162
Int. Cl.³ F01N 3/10
U.S. Cl. 60—276 **9 Claims**

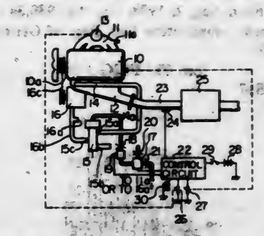
1. An apparatus for controlling the amount of secondary air fed into an internal combustion engine, said apparatus comprising:

means for generating a first electrical signal having two voltage levels which are selected in accordance with an air-fuel ratio condition of said engine;

means for generating second electrical signals having a predetermined pulse duration and having a frequency which is proportional to the rotational speed of said engine;

an air control valve having a control chamber to which a pneumatic pressure signal is applied, said valve, responding to the pressure level in said control chamber, controlling the amount of secondary air to be fed into said engine;

a single first switching valve responding to the voltage level of said first electrical signal, for generating a pneumatic



pressure signal by selectively communicating said control chamber of said air control valve with a pneumatic pressure source and with the atmosphere; and

a single second switching valve connected between said control chamber of said air control valve and said first switching valve, said second switching valve intermittently transmitting said pneumatic pressure signal from said first switching valve to said control chamber in response to said second electrical signals.

4,271,668

COUNTER-ROTATING WAVE ENERGY CONVERSION TURBINE

Michael E. McCormick, 1906 Sands Dr., Annapolis, Md. 21401

Filed Oct. 17, 1979, Ser. No. 86,010
Int. Cl.³ F03B 13/12
U.S. Cl. 60—398 **7 Claims**



1. An apparatus for converting ocean wave motion into useful energy comprising,

a pressure chamber forming a pneumatic chamber above the ocean water whereby a standing wave is maintained within the pressure chamber and transformed to a surging wave by normal wave motion thereby causing cyclic compression and suction of the air within the pressure chamber above the standing wave,

a counter-rotating turbine transforming pneumatic suction and compression pressure of the air resulting from the wave surge into mechanical energy, said turbine comprising an output shaft mounted for rotation about a vertical axis within said pressure chamber, first and second rows of stationarily mounted guide vanes, a pair of counter-rotating runners connected with said output shaft and positioned between said first and second rows of stationarily mounted guide vanes, each runner having a plurality of

arcuate turbine blades arranged so as to be rotated by moving air within said pressure chamber, and

an aperture in said pressure chamber above said counter-rotating turbine for permitting air flow to and from said counter-rotating turbine.

4,271,669

RECIPROCATING-PISTON ENGINE, ESPECIALLY HOT-GAS ENGINE OR COMPRESSOR

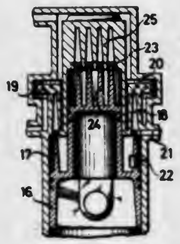
Arnulf A. Keller, and Norbert A. Keller, both of Bahnhofstrasse 20, Seefeld(Oberbayern), Fed. Rep. of Germany 8031

Filed Aug. 2, 1978, Ser. No. 930,341

Claims priority, application Fed. Rep. of Germany, Aug. 12, 1977, 2736472

Int. Cl.³ F02G 1/04

U.S. Cl. 60—517 7 Claims



1. A reciprocating-piston engine comprising, a piston cylinder having a cylinder head (3), a piston (1) connected to reciprocate in said cylinder and having a piston head, said cylinder head and piston head defining a working chamber therebetween in said cylinder adapted to contain an operating medium, housing rib means (4) connected to said cylinder head and extending into the working chamber, cooperating piston rib means (2) connected to said piston head and extending into the working chamber, said housing rib means and said piston rib means comprising thin plates which extend between one another during the entire reciprocating stroke of said piston and without mutual contact during the entire reciprocating stroke of said piston, and said cylinder head having a chamber (6) for heating or cooling medium positioned outside of the housing rib means and outside of the engagement zone of the housing rib means and piston rib means, whereby said housing rib means and piston rib means effect heat transfer between the operating medium in said working chamber and the heating or cooling medium adapted to be present in said chamber (6) in the cylinder head.

4,271,670

POWER ASSIST MECHANISM

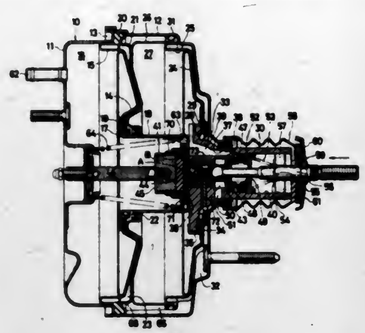
Atsushi Ohmi, Anjoshi, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Aug. 2, 1979, Ser. No. 63,263

Int. Cl.³ B60T 13/20

U.S. Cl. 60—554 4 Claims

1. A brake booster mechanism comprising a casing, at least one pressure reponsive power wall in said casing, valve mechanism means associated with said power wall and being movable relative thereto to control the differential pressure across the said power wall, actuating means connecting to a pedal for manually moving said valve mechanism means, output means for connecting the said power wall to a brake master piston, brake feel reaction means having a compressive member interposed between the said actuating means and the output means with a play clearance with respect to the actuating means in the retracted position thereof, and adjusting thread means for regulating said play clearance whereby during initial stage movement said actuating means is opposed by no brake reaction force through said compressive member until the actuating means becomes in abutment against the compressive member past the play clearance, and wherein said brake feel reaction means comprises a cage member, a head member connecting to said output means and slidably received in the cage member to define a chamber therein, said compressive member being held captive in the chamber, said actuating means being



movable relative to and having an acting face exposed against a portion of the compressive member with said clearance maintained therebetween, said cage member being axially threaded on the external face thereof, said adjusting thread means being an internally threaded ring in engagement with the threaded cage while being normally spring-biased toward abutment engagement with said power wall.

4,271,671

TWO-STEP PRESSURE INTENSIFIER SYSTEM

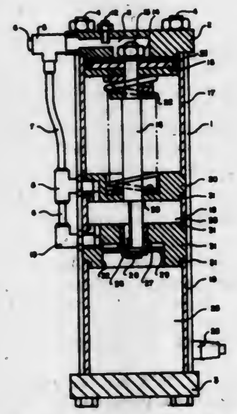
Gerard G. F. Smeets, 50 Inverlochy Blvd., Apt. 102, Thornhill, Ontario, Canada

Continuation of Ser. No. 777,965, Mar. 16, 1977, abandoned. This application Sep. 5, 1979, Ser. No. 84,184

Claims priority, application Canada, May 17, 1976, 252689

Int. Cl.³ B60T 11/08

U.S. Cl. 60—578 4 Claims



1. A two-step fluid pressure intensifier system comprising first, second and third operative piston and cylinder units arranged in coaxial alignment, the pistons of the first and second units being rigidly fixed to a common piston rod, the first piston having a greater effective working area than the second and the second piston having a greater effective working area than the third piston, a working fluid chamber located between the cylinders of the first and second units, through which the

piston rod passes, the cylinder of the second unit being provided with a fluidic connection between it and the fluid chamber, the fluid chamber and the cylinder of the second unit containing a common working fluid, the piston rod being provided with a reduced cross-section portion between the pistons of the third and second units, the reduced cross-section portion residing within the fluidic connection when the piston rod is at the unactuated position of a working cycle, in order that there be fluidic communication between the chamber and the cylinder of the second unit, the third piston and cylinder unit being constituted by the unreduced cross-section portion of the piston rod and the fluidic connection, the third piston and cylinder unit only becoming operative as such at a predetermined position of the piston rod as it moves in the working stroke direction from the unactuated position, the second piston and cylinder arrangement being provided with limited working fluid flow-by during a working stroke to allow continued movement of the piston rod, in the working stroke direction, under impetus from a fluid pressure supplied to the first piston and cylinder unit to produce a working stroke cycle, and wherein a first increase in pressure of the working fluid in the cylinder of the second unit is produced by the initial movement of the piston of that unit and after movement of the piston rod a greater distance, in the working stroke direction, than said predetermined position, the pressure of the working fluid in the cylinder of the second unit is further increased and is primarily solely determined by the third piston and cylinder unit, means being provided to utilize the pressurized working fluid in the second unit.

4,271,672

INTERNAL COMBUSTION ENGINE WITH AN EXHAUST GAS TURBOCHARGER

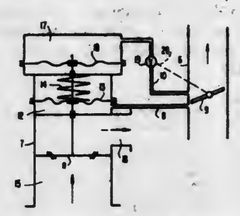
Gert Withalm, Stuttgart, and Hermann Hiereth, Esslingen, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Apr. 13, 1978, Ser. No. 896,031

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1977, 2716470

Int. Cl.³ F02B 37/12

U.S. Cl. 60—602 3 Claims



1. A mixture-compressing internal combustion engine which includes a means for forming a fuel-air mixture, and an exhaust gas turbocharger means operatively connected with an exhaust gas system of the internal combustion engine, the exhausted gas turbocharger means including a compressor means operatively connected with an inlet system of the internal combustion engine and a turbine means, characterized in that a bleeder valve means is operatively connected to the turbine means and inlet system of the internal combustion engine, the bleeder valve means includes first means responsive to a vacuum in the inlet system for by-passing exhaust gases from the exhaust gas system about the turbine means of the exhaust gas turbocharger means during a partial load operation of the internal combustion engine, the bleeder valve means includes second means responsive to a predetermined pressure in the inlet system for limiting a maximum charging pressure of the turbocharger means during a full load operation of the internal combustion engine, wherein a shifting valve means is associated with said first means for assuring the operation of said first means solely at the partial load operation.

4,271,673

STEAM TURBINE PLANT

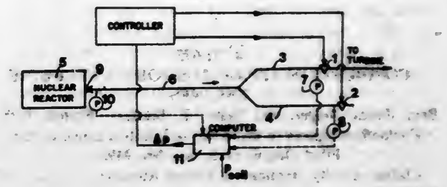
Karel Skala, Windisch, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Feb. 15, 1979, Ser. No. 12,449

Claims priority, application Switzerland, Feb. 21, 1978, 1840/78

Int. Cl.³ F01K 13/02

U.S. Cl. 60—660 3 Claims



1. A steam supply system for a steam turbine plant of the type having a turbine intake valve and a bypass valve to control the flow of steam from a steam generator, said system comprising:

(a) means for sensing steam pressure on the upstream side of said turbine intake valve;

(b) means for sensing steam pressure on the upstream side of said bypass valve;

(c) means for sensing steam pressure at said steam generator; and

(d) regulator means for controlling the operation of said valves in response to the difference between the arithmetical mean of said sensed pressures and a pressure set point.

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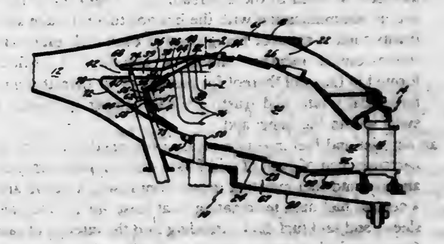
PREMIX COMBUSTOR ASSEMBLY

Richard L. Marshall, Manchester, Conn., and Kenneth A. Cushman, Scarborough, Me., assignors to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 515,750, Oct. 17, 1974, abandoned. This application Aug. 9, 1976, Ser. No. 712,575

Int. Cl.³ F23R 3/42

U.S. Cl. 60—737 12 Claims



1. An improved annular combustor for a turbine type power plant having an inner casing and outer casing defining an annular chamber, liner means closed at the forward end and opened at the rearward end which end is directly communicating with the turbine of the power plant disposed in said annular chamber defining a combustion zone, a premix passage formed adjacent the closed end of said liner by said liner and an annular wall surrounding said liner, a baffle at the downstream end of said premix passage having openings whose axis is at an angle relative to the axis of the combustion zone interconnecting said passage with said combustion zone so as to discharge a fuel/air mixture into the combustion zone in a forward to rearward direction with radial component creating local eddies on the downstream side of said openings without incurring large recirculating zones, at least one secondary fuel nozzle in said premix passage for admitting fuel upstream of

said baffle when said power plant is operating at high power, at least one primary fuel nozzle operable independently of said secondary fuel nozzle disposed in proximity to the closed end of said liner for admitting fuel in the combustion zone forwardly and radially of the openings in said baffle when said power plant is operating at low power and said secondary nozzle being disposed forwardly and radially relative to said primary nozzle.

4,271,675

COMBUSTION APPARATUS FOR GAS TURBINE ENGINES

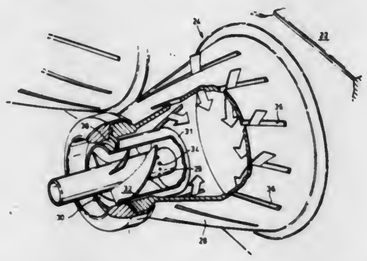
Bryn Jones, Belper, and Sidney E. Slattery, Foston, both of England, assignors to Rolls-Royce Limited, London, England

Filed Oct. 6, 1978, Ser. No. 949,077

Claims priority, application United Kingdom, Oct. 21, 1977, 43910/77

Int. Cl.³ F02C 7/22

U.S. Cl. 60—737 **13 Claims**



1. Combustion apparatus for a gas turbine engine comprising:

an annular flame tube having an upstream end and a downstream end and a primary zone adjacent the upstream end thereof;

a plurality of circumferentially spaced hollow frusto-conical members secured to the upstream end of said flame tube and in communication with the interior thereof, each said frusto-conical member being open at each end, each said frusto-conical member having a plurality of orifices formed in the wall thereof for passage of air therethrough tangentially into said frusto-conical member to impart a swirl within the same; and

an air inlet and fuel injection means positioned adjacent the narrower end of each of said frusto-conical members, said air inlet and fuel injecting means comprising a sleeve and a central fuel duct terminating in at least one nozzle, said sleeve and said fuel duct extending into the interior of said frusto-conical member, and a plurality of air swirling vanes positioned between said fuel duct and said sleeve, said air swirling vanes being arranged to impart a swirl to air from said air inlet and fuel from said nozzle in an opposite direction to the swirl of air caused by air entering through said orifices in said frusto-conical member to promote a mixing of fuel and air and a degree of swirl to the fuel and air mixture entering the primary zone of said flame tube while discouraging fuel from adhering to an interior surface of the wall of said frusto-conical member by a delay of the spread of fuel from the core of fuel and air issuing from the air inlet and fuel injecting means, thereby maintaining a relatively rich fuel and air mixture in the core and stability in burning in the primary zone of said flame tube over a complete power range of the gas turbine engine.

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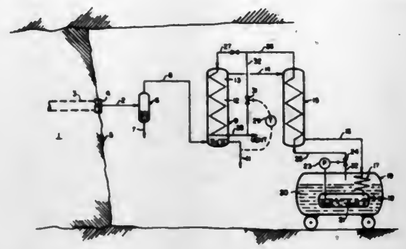
METHOD AND APPARATUS FOR RECOVERING NATURAL GAS IN A MINE

Leonard J. Hvizdos, Emmaus, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 29, 1979, Ser. No. 88,898

Int. Cl.³ F17C 7/02

U.S. Cl. 62—55 **6 Claims**



1. A method of recovering a hydrocarbon gas in a subterranean mine comprising:

(a) accumulating said hydrocarbon gas in a collection zone in said mine,

(b) withdrawing said hydrocarbon gas from said collection zone to form a gas stream,

(c) passing said stream in indirect heat exchange with cryogenic fluid selected from cryogenic liquid and vapor from cryogenic liquid to liquefy said hydrocarbon gas and form liquefied hydrocarbon gas,

(d) accumulating said liquefied hydrocarbon gas in a transportable vessel, and

(e) transporting said liquefied hydrocarbon gas out of said mine in said transportable vessel.

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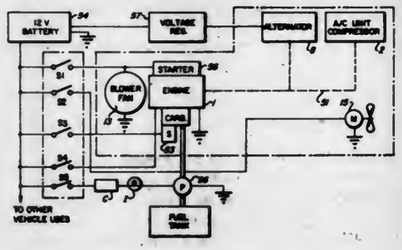
SELF-CONTAINED ROOF-MOUNTED VEHICLE AIR-CONDITIONING SYSTEM

Forrest Harr, 3244 W. Columbine Dr., Phoenix, Ariz. 85029

Filed Mar. 27, 1978, Ser. No. 890,201

Int. Cl.³ F25B 49/00; B60H 3/04

U.S. Cl. 62—127 **1 Claim**



1. A roof-mounted, self-contained air-conditioning system for cooling air drawn from the interior of a vehicle and directing said cooled air back into said vehicle, said vehicle having

a prime mover for said vehicle,

a primary electrical system, driven by said prime mover, for generating and storing electrical energy, and

a plurality of electrical accessories, powered by the electrical energy generated and stored by said primary electrical system,

said self-contained air-conditioning system including:

(a) an air refrigeration system comprising compressor, evaporator and condenser means and fan and duct means operatively associated therewith, for removing air from the interior of said vehicle, cooling said removed air and returning the cooled air to the interior of said vehicle, said duct means having intake and return vents mounted in the ceiling of said vehicle;

(b) an electrical generator;

(c) a gasoline engine, provided with a self-starter, for driving

(i) said compressor means, and

(ii) said electrical generator;

(d) pulley means for transmitting motive power from said engine to said compressor means and said electrical generator;

(e) circuit means for

(i) providing electrical power from said electrical generator to said fan means; and

(ii) providing supplemental electrical power from said electrical generator to the primary electrical system of said vehicle;

(f) means for controlling and monitoring said self-contained air conditioning system, adapted for mounting within the operator's compartment of said vehicle, said means including switch means for starting said auxiliary gasoline engine and for energizing said fan means and means for indicating the running condition of said engine; and

(g) means for warning the operator of said vehicle when preventive maintenance of said self-contained air conditioning system is required, said warning means including clock means for maintaining a cumulative record of the time said air conditioning system has been operated.

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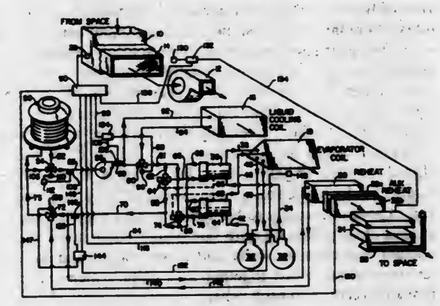
LIQUID REFRIGERATION SYSTEM FOR AN ENCLOSURE TEMPERATURE CONTROLLED OUTDOOR COOLING OR PRE-CONDITIONING

Ralph C. Liebert, Worthington, Ohio, assignor to Liebert Corporation, Columbus, Ohio

Continuation-in-part of Ser. No. 779,743, Mar. 21, 1977, abandoned. This application Apr. 3, 1979, Ser. No. 26,600

Int. Cl.³ F25B 29/00; F25D 17/02

U.S. Cl. 62—173 **11 Claims**



1. In an air conditioning system of a variety treating air within zone to achieve a predetermined temperature therewithin, said system having refrigeration components including operatively associated compressor means, condenser means and an evaporator coil, means for circulating return air from an input through said evaporator coil, a heat exchanger situated within an ambient environment remote from said zone and a liquid transfer circuit including input and output conduits for circulating a heat exchange fluid between said heat exchanger means and said condenser means, the improvement comprising:

liquid cooling coil means coupled in liquid exchange relationship within said liquid transfer circuit and situated to confront and cool said return air prior to the passage thereof through said evaporator coil;

cooling valve means coupled with said output conduit and actuable to effect a select passage of said heat exchange fluid through said liquid cooling coil means;

sensor means having an output corresponding with the temperature of said heat exchange fluid within said output conduit; and

control means responsive to the temperature of said return air and to said sensor means output for actuating said cooling valve means when the temperature of said heat exchange fluid within said output conduit is lower than the temperature of said return air, said cooling valve means being actuated to an extent wherein said liquid cooling coil means capability for cooling said confronted air is utilized when said return air temperature is above said predetermined temperature and said operatively associated compressor means, condenser means and evaporator coil means are operated to cool said air when said liquid cooling coil means' capability is inadequate to cause said return air to attain said predetermined temperature.

4,271,679

HEATING INSTALLATION

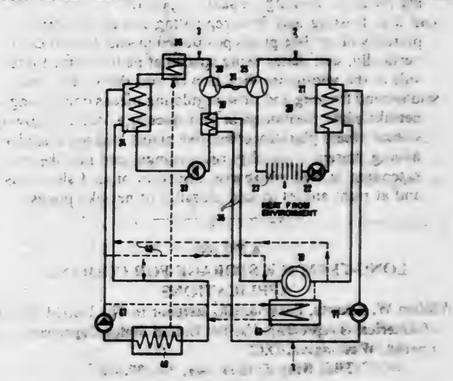
Otmar U. Schäfer, Piesenaserstrasse 9, 8000 Munich 80, Fed. Rep. of Germany

Filed Jun. 29, 1979, Ser. No. 53,285

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1978, 2829134

Int. Cl.³ F25B 27/02

U.S. Cl. 62—238.4 **17 Claims**



1. A heating installation comprising a first circuit with a first heat carrier, a second circuit for heating the first heat carrier and with a second heat carrier in the form of a low boiling coolant, said second circuit comprising a heat pump and a compressor, a prime mover for driving said compressor, a third circuit with a third heat carrier for driving said prime mover, a fourth circuit with a fourth heat carrier heatable by a heat source and for heating said third heat carrier, said second and third heat carriers being separated from each other, an evaporator provided in said second circuit, said evaporator being feedable with heat from the environment, and means adapted to establish direct heat exchange between said first and fourth heat carriers.

4,271,680

REFRIGERATED SHOW CASE

Masashi Kurashima, 88-5, Nakano, Ebina-shi, Kanagawa-ken, Japan

Filed Aug. 7, 1979, Ser. No. 64,629

Claims priority, application Japan, Jul. 3, 1979, 54-83442

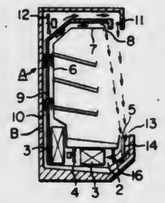
Int. Cl.² A47F 3/04

U.S. Cl. 62—256 **2 Claims**

1. In a refrigerated show case of the type wherein a cold air flow for refrigerating the interior of the show case is circulated

through a duct disposed along a bottom wall, a rear wall and a top wall of the show case and across a front opening thereof, and wherein said duct has therein an evaporator for cooling the show case, the improvement comprising:

first and second frosting and flow-regulating means, disposed in said duct upstream of said evaporator, for substantially dehumidifying said cold air flow and causing moisture in said cold air flow to frost on said first and second frosting and flow-regulating means, while substantially preventing frosting on said evaporator, and for equalizing the flow rate of said cold air flow throughout the entire transverse cross-sectional area of said duct, such that any moisture remaining in said cold air flow after the

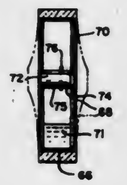


substantial dehumidification thereof by said first and second frosting and flow-regulating means will not be concentrated at any area of said evaporator, thereby preventing localized frosting on said evaporator;

said first frosting and flow-regulating means comprising a plurality of net-like plates positioned in said duct to extend vertically, said plates being spaced at pedetermined intervals in the widthwise direction of said show case; and

said second frosting and flow-regulating means comprising a net-like plate positioned in said duct at a location downstream of said plurality of net-like plates, said net-like plate having therein a plurality of openings, said net-like plate extending in said widthwise direction of said show case and at right angles to said plurality of net-like plates.

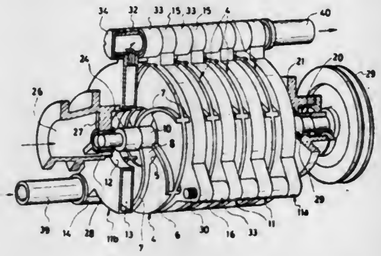
4,271,681
LONG-TERM ICE STORAGE FOR COOLING APPLICATIONS
William W. Schertz, Batavia, Ill., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed May 8, 1979, Ser. No. 37,078
Int. Cl.³ F25D *23/12*
U.S. Cl. 62—260 **8 Claims**



1. A device for cooling a material and for later utilization of this stored cool, comprising:

a tank containing a fluid, and at least one thermal diode in the form of a reflux condenser heat pipe which penetrates said tank and whose lower end is immersed in said fluid, said pipe including a low boiling point material and a wick confined to said lower end, said wick enhancing the dispersing of said low boiling material over the surface of said lower end in contact with said fluid, the upper end of said pipe extending above said tank and being exposed to the ambient environment, said pipe being responsive to the temperature of the ambient, being less than that of the fluid to transfer heat from said fluid to the ambient and said pipe being responsive to the temperature of the ambient being higher than that in the fluid to resist transfer of heat from the ambient to the fluid, and utilization means coupled to said tank for utilizing the cold stored in said fluid by action of said pipe.

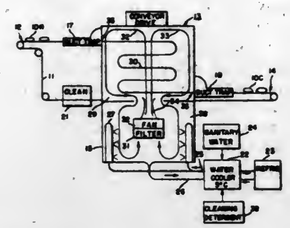
4,271,682
COOLING APPARATUS FOR VISCOUS LIQUIDS
Kunimichi Seki, Tokyo, Japan, assignor to Hiroshi Takeuchi, Tokyo, Japan
Filed Oct. 17, 1979, Ser. No. 85,710
Claims priority, application Japan, Oct. 27, 1978, 53-131709
Int. Cl.³ F25C *1/14*
U.S. Cl. 62—354 **3 Claims**



1. Cooling apparatus for viscous liquids comprising: a fixed casing having a viscous liquid inlet and a viscous liquid outlet to enable a viscous liquid to be cooled to flow through the interior of said casing; a shaft rotatably mounted on said casing and extending through the interior thereof; a plurality of generally annularly shaped impeller discs affixed to said shaft for rotation therewith and axially spaced apart along the length of said shaft; coolant chamber means sealed in fluid-tight relationship relative to the interior of said casing for passing a coolant fluid through said casing in heat-transfer relationship with said viscous liquid; said coolant chamber means comprising a plurality of coolant fluid chambers each arranged between a pair of said impeller discs, each of said coolant fluid chambers being defined between a pair of radially extending walls having planar outer surfaces, with the planar outer surfaces of adjacent ones of said coolant fluid chambers having one of said impeller discs radially extending therebetween; and a plurality of scraper blades formed on each of said impeller discs and affixed to said impeller discs for rotation therewith, said scraper blades being arranged to extend radially from said shaft and to protrude axially to both sides of said impeller discs into at least close proximity with said planar outer surfaces of said coolant fluid chamber walls; said scraper blades and said impeller discs being joined together as a unitary member and immovable relative to each other.

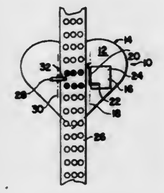
4,271,683
HIGH HUMIDITY FOOD CHILLING SYSTEM
Charles E. Williams, Moorefield, W. Va., assignor to Hester Industries, Inc., Moorefield, W. Va.
Filed Jul. 26, 1979, Ser. No. 60,987
Int. Cl.³ F25D *17/02*
U.S. Cl. 62—374 **17 Claims**

1. A cooling system for quickly cooling products such as food products and the like, comprising in combination, a chilling chamber, a continuously running conveyor belt for carrying products thereon in a pathway passing through said chilling chamber to carry warm products therethrough for cooling down to a predetermined temperature, and a cooling system for cooling the products on said conveyor belt as they pass thorugh the chilling chamber including means passing cold moist air through the chilling chamber at a low temperature and high humidity in an air flow path about the products on said conveyor thereby to contact and chill the products



quickly without dehydration, refrigeration means consisting of means for cooling water, and means for spraying the cooled water as a mist into the circulating air passed over the products downstream of the means for cooling water.

4,271,684
LOCKET ASSEMBLY
Clarence F. Tisdale, 30 Summit Ave., Goose Creek, S.C. 29445
Filed Apr. 2, 1979, Ser. No. 26,120
Int. Cl.³ A44C *1/00*
U.S. Cl. 63—19 **8 Claims**



1. A locket assembly comprising a locket body, a lid, said lid hingeably secured to said body, a plate, means securing said plate to an exterior surface of said body for pivoting between an open and a closed position with respect to said surface, means to bias one end of said plate outwardly from said exterior surface toward said open position, a bar, said bar pivotally secured to said surface, means to bias one end of said bar towards said surface, whereby said one end of said bar is adapted to clasp said one end of said plate in said closed position maintaining said one end of said plate adjacent said surface, said plate being configured to be concealed behind said lid and said body when disposed in said closed position means comprising an element for joining said body to a third element, and means on said body to removably secure said joining element to said body.

4,271,685
DOUBLE-RING UNIVERSAL JOINT
Hans Lindenthal, Heidenheim, and Martin Harz, Steinheim, both of Fed. Rep. of Germany, assignors to Voith Transmit GmbH, Fed. Rep. of Germany
Filed Mar. 7, 1979, Ser. No. 18,232
Claims priority, application Fed. Rep. of Germany, Mar. 7, 1978, 2809665; Feb. 21, 1979, 2906600
Int. Cl.³ F16D *3/26*
U.S. Cl. 64—17 R **28 Claims**

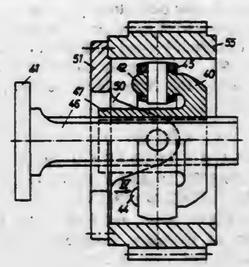
1. A universal joint subassembly for a shaft comprising:

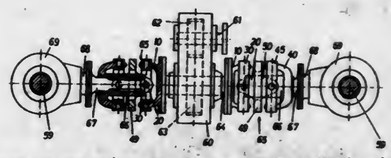
a first and a second joint yoke; each said joint yoke including two spaced apart arms;

an intermediate member, generally in the form of a ring; said intermediate member having an open area defined by the annulus of said ring; said ring having two pairs of pivots defined thereon, with each said pivot pair being defined on a respective axis extending across said intermediate member;

each said arm of a said yoke being pivotally supported at one said pivot, and the other said arm of the respective said yoke being pivotally supported on the other said pivot of the respective said pair thereof;

said first yoke including a shaft receiving hub thereon, with a shaft receiving opening defined therein, through which a shaft may be axially moved for being telescoped;

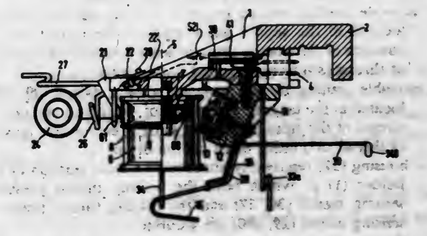




a shaft in said opening and being axially shiftable with respect to said hub; said shaft being one part of the shaft with which said subassembly is used; said hub and said one shaft part being placed such that said one shaft part extends through said ring open area;

a second part, with which said universal joint subassembly is used, being connected to said second yoke.

4,271,686
THREAD OR YARN SUPPLY APPARATUS WITH MOVABLE THREAD SUPPLY GUIDE MEANS, PARTICULARLY FOR CIRCULAR KNITTING MACHINES
Gustav Memminger, Freudenstadt, and Falk Kilka, Kiebingen, both of Fed. Rep. of Germany, assignors to Memminger GmbH, Freudenstadt, Fed. Rep. of Germany
Filed Aug. 1, 1978, Ser. No. 929,995
Int. Cl.³ D04B *15/44, 15/48*
U.S. Cl. 66—146 **25 Claims**



1. Drag compensated thread or yarn supply apparatus, particularly for a circular knitting machine in which thread (30) is supplied to the apparatus in a supply path, having

a holder (1) for assembly to the machine,

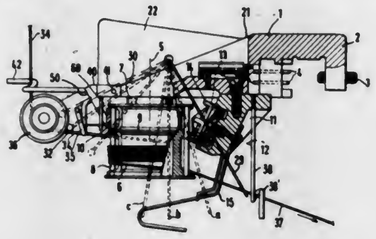
a thread supply drum (6) rotatably journalled on the holder;
a thread supply guide element (26, 27) guiding the thread (30) to the drum to wind a storage winding (31) thereon;
thread take-off guide means (15, 32) guiding thread being taken off the drum;
a thread brake element (24) located in the supply path of the thread (30) to the drum (6),
a support member (21) positioned adjacent the drum (6) in the supply path of the thread the thread brake element (24) being secured to and supported on said support member, and comprising, in accordance with the invention,
means (22) for movably securing said support member (21) to the holder for limited deflecting movement backwardly—with respect to feed of the thread—in the supply path of the thread, to permit limited deflection of said thread brake element (24) in the supply path and accomodate changes in tension of the thread in the supply path.

4,271,687

RAPID MAINTENANCE THREAD OR YARN SUPPLY APPARATUS, PARTICULARLY FOR CIRCULAR KNITTING MACHINES

Gustav Memminger, Freudenstadt, and Falk Kühn, Kiebingen, both of Fed. Rep. of Germany, assignors to Memminger GmbH, Freudenstadt, Fed. Rep. of Germany

Filed Aug. 1, 1978, Ser. No. 929,996
Int. Cl.[3] D04B *15/44, 35/14*
U.S. Cl. 66—146 24 Claims



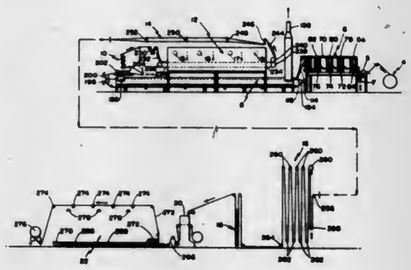
1. Rapid-maintenance thread or yarn supply apparatus, particularly for a circular knitting machine having
a holder (1) having a rear portion (2, 3) adapted for assembly to the machine;
a thread supply drum (6) rotatably journalled on the holder;
thread supply guide means (35, 36, 42) having, in operation of the machine, a predetermined position relative to the axis of rotation of the drum and guiding the thread in a supply guide path to the drum to wind a storage winding (43) thereon;
thread take-off guide means (15, 38, 291) having, in operation of the machine, a predetermined position relative to the axis of rotation of the drum and guiding thread being taken off the drum in a take-off guide path;
movable leading thread presence sensing means (30, 32) located in the supply guide path of the thread and in advance of the storage drum to sense presence and tension of thread (34) being supplied to the drum;
movable trailing thread presence sensing means (29, 290) located in the take-off guide path of the thread and downstream of the storage drum to sense presence and tension of thread (37) being taken off the drum;
a housing (22) removably attached to a front portion of the holder (1) to which both the leading thread presence sensing means (30, 32) and the trailing thread presence sensing means (29, 290) are secured;
a thread supply portion (40) forming at least part of said thread guide means, pivotally secured to the housing and pivotable about a pivot axis (41) transverse to the axis of rotation of the drum, and including a thread drag sensing means (36);
switch means (S29, S30, S40) located in said housing, operated by the respective thread presence sensing means and the thread drag sensing means;
separable and engageable connecting contact means located, respectively, on said housing and on the holder;
and relatively slidable interengaging means (24, 25) on the holder, and on the housing, respectively, to removably secure the housing, and with it said thread sensing means, said drag sensing means, and said switch means to the holder and electrically connect the switch means to a stop motion circuit connection in the holder for connection to the step motion system of the machine;
to permit separate removal of the housing and with it the thread presence and drag sensing means without disassembly of the holder (1) and the drum (6) journalled therein from the machine.

4,271,688

APPARATUS FOR TREATING PLAITED YARNS

John G. Tillotson, Dalton, Ga., assignor to Tillotson Corporation, Everett, Mass.

Continuation of Ser. No. 818,860, Jul. 25, 1975, abandoned, which is a continuation of Ser. No. 601,393, Aug. 1, 1975, abandoned, which is a continuation-in-part of Ser. No. 570,765, Apr. 23, 1975, Pat. No. 3,981,163, which is a division of Ser. No. 432,449, Jan. 11, 1974, Pat. No. 3,898,035. This application Mar. 2, 1979, Ser. No. 17,023
Int. Cl.[3] D06B *3/06, 21/00*
U.S. Cl. 68—5 D 4 Claims



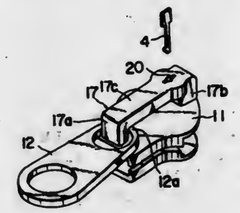
1. Apparatus for treating yarn ends comprising:
means conveying the yarn ends from a source thereof to a first roller positioned to lead the yarn ends from the source, the yarn ends being trained on the roller and the roller letting the yarn ends fall downwardly by gravity upon exit therefrom;
first restraining means positioned below the first roller to receive the yarn ends and restrain their motion as they fall downwardly;
a steam chamber for treating the yarn ends and having entrance and exit ends;
a first conveyor belt passing through said entrance end into the steam chamber and therefrom through its exit end, said conveyor belt being positioned to receive the yarn ends in overlapping plaits thereon as the yarn ends leave the first restraining means;
first nip rolls at the exit end of the steam chamber through which the conveyor belt passes, and being positioned so that the plaits of yarn pass through the nip of said rolls before leaving said conveyor belt;
means for removing the yarn ends under tension from the first nip rolls, removing the yarn ends from the belt substantially as soon as the plaits pass through said nip and equalizing their lengths;
yarn washing apparatus adjacent said nip rolls;
yarn drying apparatus adjacent said washing apparatus;
a second roller positioned to receive the yarn ends from the washing apparatus, the yarn ends being trained on the second roller and the second roller letting the yarn ends fall downwardly by gravity upon exit and therefrom;
second restraining means positioned below the second roller to receive the yarn ends and restrain their motion as they fall downwardly;
a drying chamber for drying the yarn ends and having entrance and exit ends;
a second conveyor belt passing through said lastmentioned entrance end into the drying chamber and therefrom through its exit end, the second conveyor belt being positioned to receive the yarn ends in overlapping plaits thereon as the yarn ends leave the second restraining means;
second nip rolls at the exit end of the drying chamber through which the second conveyor belt passes, and beings positioned so that the plaits of yarn pass through the nip of said rolls before leaving the second conveyor belt; and
means for removing the yarn ends under tension from the second nip rolls, removing the yarn ends from the belt substantially as soon as the plaits pass through said nip and equalizing their lengths.

4,271,689

SLIDER WITH A BUILT-IN LOCKING DEVICE IN A SLIDE FASTENER

Kazumi Kasai, Namerikawa, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Mar. 6, 1979, Ser. No. 17,977
Claims priority, application Japan, Mar. 7, 1978, 53/28757[U]
Int. Cl.[3] E05B *67/38*
U.S. Cl. 70—68 2 Claims



1. A slider with a built-in locking device in a slide fastener which comprises:
(a) a slider body with the locking device built within an element guide thereof and provided with a key hole opening in the front half of the upper surface thereof,
(b) a support member for a pull tab in a form of a shackle extending substantially over whole length of the slider body comprised of two upright leg portions positioned adjacent the rear and the front ends respectively of the upper surface of the slider body and an arm spanned between the two upright leg portions, at least one of the upright leg portions being integrally fixed to the slider body and the upright leg portion positioned in the front end of the slider body being provided with a key guide leading to the key hole, and
(c) a pull tab having a ring end portion in engagement with the support member.

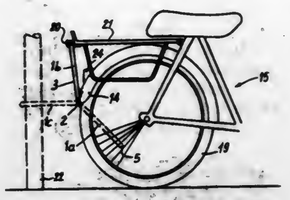
4,271,690

ANTITHEFT DEVICE FOR TWO-WHEELED VEHICLES

Christian Jaulmes, Paris, France, assignor to Ateliers de la Motobecane, Pantin, France

Filed Jun. 25, 1979, Ser. No. 51,751
Claims priority, application France, Sep. 4, 1978, 78 25385
Int. Cl.[3] B62H *5/00, 5/16*; E05B *71/00*
U.S. Cl. 70—233 8 Claims

1. An antitheft device for two-wheeled vehicles having a longitudinal plane of symmetry, the device comprising a U-shaped fork whose central portion is articulated on the vehicle about an axis substantially perpendicular to the plane of symmetry of the vehicle and whose two branches are rigid and pivot about said axis which is defined by said central portion in respective planes substantially parallel to the plane of symmetry and are located on respective sides of this plane between a first position where ends of said branches are located in vicinity of respective sides of a wheel of the vehicle, a second



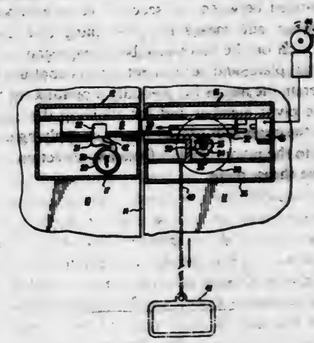
position where said ends straddle a rigid support member and a third position where said branches are positioned with their ends separated lengthwise from the vehicle so as to straddle a device independent of and spaced from the vehicle, and a locking member able to connect said ends of said branches, said locking member extending between spokes of the wheel in said first position, cooperating with said support member in said second position, and straddling a device spaced from and independent of the vehicle in said third position.

4,271,691

EMERGENCY RELEASE FOR DEADLOCKS

Emanuel L. Logan, Silver Spring, Md., assignor to Reliable Security Systems, Inc., Columbus, Ohio

Filed Nov. 13, 1979, Ser. No. 93,446
Int. Cl.[3] E05B *63/00*; E05C *13/00*
U.S. Cl. 70—422 10 Claims



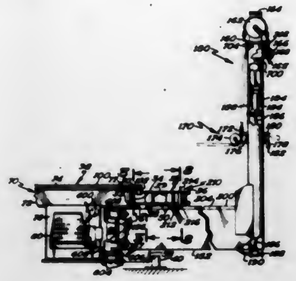
1. An emergency release device for a deadbolt wherein the deadbolt is mounted on a first member and secures the first member to a second member by spanning a gap therebetween and seating in a keeper in the second member, the device comprising;
a key lock;
a yieldable means connecting the key lock to the bolt for projecting and retracting the deadbolt upon turning a key in the key lock;
emergency operating means for moving the deadbolt from the keeper by overcoming the resistance of the yieldable means whereby, in an emergency situation, the first member can be unlocked from the second member to move with respect to the second member.

4,271,692

APPARATUS FOR PIVOTALLY INTERCONNECTING

Gerald A. Specktor, 409 Cleveland Ave. S., St. Paul, Minn. 55105

Division of Ser. No. 496,848, Sep. 12, 1974, Pat. No. 4,151,737.
This application Mar. 12, 1979, Ser. No. 19,818
Int. Cl.³ B21D 1/14
U.S. Cl. 72—447 6 Claims



1. Apparatus for pivotally interconnecting force applying means to an apparatus for repairing and straightening the body and frame of a wheeled vehicle comprising, in combination: a small cylindrical pivot member mounted to the apparatus for repairing and straightening; a connector arm extending from the force applying means to a point adjacent the pivot member; and means for pivotally mounting the connector arm to the pivot member and for allowing the counterforce applied to the connector arm by the force applying means to be conveyed to the pivot member from any direction comprising, in combination: a first clamp member pivotably connected about the pivot member; a first ring-sleeve type bearing located between the first clamp member and the pivot member; a second clamp member pivotably connected about the pivot member and spaced from the first clamp member; a second ring-sleeve type bearing located between the second clamp member and the pivot member; and means for positioning and leveling the connector arm on the pivot member comprising, in combination: a thrust plate; and adjustment screws abutting the thrust plate, wherein the means for pivotally mounting the connector arm to the pivot member and for allowing the counterforce applied to the connector arm by the force applying means to be conveyed to the pivot member from any direction operatively rests on the thrust plate.

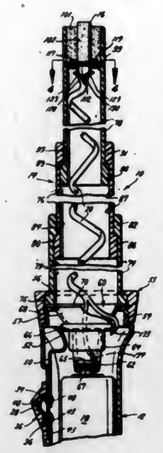
4,271,693

DEVICE FOR TESTING SMOKE DETECTOR ALARMS

Donald R. Bute, 115 W. South Ave., Flora, Ill. 62839

Filed Dec. 10, 1979, Ser. No. 101,483
Int. Cl.³ G01M 19/00; G01N 37/00
U.S. Cl. 73—1 G 6 Claims

1. A device for testing smoke detector alarms comprising:
(a) a housing;
(b) an extendable section mounted upon the housing extendable into a long position and to a short position or shorter length than the long position;
(c) a combustible member mounted on the extendable section for creating smoke by smoldering;



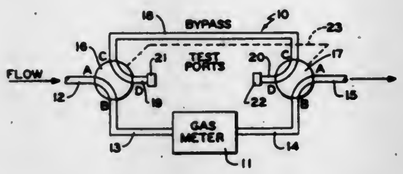
(d) means for applying heat to the combustible member to cause it to smolder, comprising an electrical heating element.

4,271,694

SYSTEM FOR IN SITU METER TESTING

A. Noel J. Pearman, 2087 Bayard Ave., St. Paul, Minn. 55116

Filed Feb. 22, 1980, Ser. No. 123,585
Int. Cl.³ G01F 25/00
U.S. Cl. 73—3 6 Claims



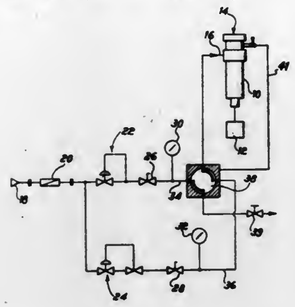
1. A method for in situ testing of fluid to flow meters comprising the steps of:
providing a pair of 4-way, dual-position valve means in fluid supply line flanking said meter;
providing a common by-pass line connecting one port of each of said valves;
providing an outlet test port at the remaining port of each of said valves;
maintaining said valves in a first position whereby flow is normally established along said fluid supply line through said meter;
simultaneously switching said valves to a second position whereby said flow is established along said supply line through said by-pass and said meter is connected across said test ports when it is desired to test said meter;
returning said valves to said first position upon completion of said testing.

4,271,695

APPARATUS FOR FEEDING CARRIER GAS TO ON-COLUMN INJECTORS

Giorgio Sisti, Melzo, Italy; Soria Trestiaux, Iselles, Belgium, and Mario Galli, Legnano, Italy, assignors to Carlo Erba Strumentazione S.p.A., Rodano, Italy

Filed Oct. 5, 1979, Ser. No. 82,252
Claims priority, application Italy, Oct. 16, 1978, 23060/78[U]
Int. Cl.³ G01N 31/08
U.S. Cl. 73—23.1 4 Claims



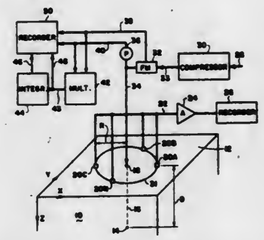
1. An apparatus for feeding with carrier gas "on-column" type injectors for gas-chromatographic columns, wherein, between the gas source and a fitting to the injector, a pressure regulating device is included to introduce gas at constant pressure and a rate regulating device to introduce gas at constant rate, said regulators being positioned in parallel and moreover a switch being provided to alternatively connect in circuit the pressure regulator during the injection of the sample or samples into the column, and the rate regulator during the subsequent processing stage inside the gas-chromatographic column.

4,271,696

METHOD OF DETERMINING CHANGE IN SUBSURFACE STRUCTURE DUE TO APPLICATION OF FLUID PRESSURE TO THE EARTH

Milton D. Wood, Portola Valley, Calif., assignor to M. D. Wood, Inc., Palo Alto, Calif.

Filed Jul. 9, 1979, Ser. No. 56,065
Int. Cl.³ G01N 19/02, 33/24
U.S. Cl. 73—37 17 Claims



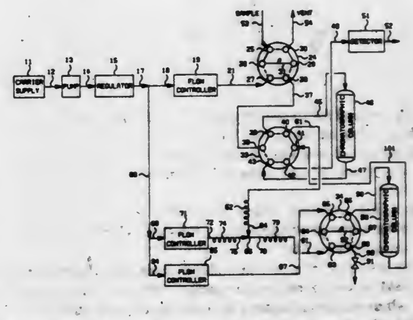
1. The method of determination of the change in subsurface structure of the earth resulting from the application of fluid pressure at a selected point, at a selected depth, on the earth, comprising the steps of:
(a) positioning in the earth, near the surface thereof, a plurality of sensors for determining the change in angle of tilt of the earth at the positions of said sensors, in a selected array, of known positions with respect to said point of application of said fluid pressure to the earth;
(b) applying fluid pressure to the earth at said selected point, at a selected pressure and flow rate; while
(c) measuring a function of the change in tilt of the earth at said positions of said sensors, and
(d) from the measured changes in tilt of the earth at the positions of said sensors, determining the structural changes in the earth resulting from said applied flow of fluid.

4,271,697

CHROMATOGRAPHIC ANALYSIS

Richard A. Mowery, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 17, 1979, Ser. No. 86,200
Int. Cl.³ G01N 31/08
U.S. Cl. 73—61.1 C 10 Claims

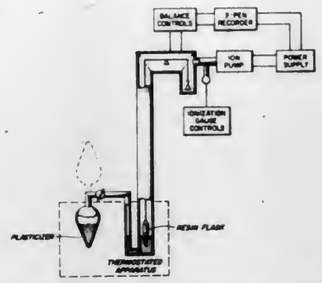


8. A method for determining the concentration of at least two components in a sample fluid wherein at least one of said components has a low value of concentration and/or detector sensitivity and at least one of said components has a high value of concentration and/or detector sensitivity, said method comprising the steps of:
passing a first stream of carrier fluid to a first chromatographic separation column means;
injecting said sample fluid into the first stream of carrier fluid flowing to said first chromatographic separation column means;
withdrawing a first effluent stream containing at least one component of said sample fluid, having said low value, from said first chromatographic separation column means and passing the thus withdrawn first effluent stream to a detector which provides at least one first response representative of the concentration of the at least one component of said sample fluid, having said low value, provided from said first chromatographic separation column means;
withdrawing a second effluent stream containing at least one component of said sample fluid, having said high value, from said first chromatographic separation column means;
diluting at least a portion of the thus withdrawn second effluent stream containing at least one component of said sample fluid having said high value;
passing a second stream of carrier fluid to a second chromatographic separation column means;
injecting the thus diluted portion into the second stream of carrier fluid flowing to said second chromatographic separation column means; and
passing the second stream of carrier fluid containing the diluted at least one component of said sample fluid, having said high value, from said second chromatographic separation column means to a detector means which provides at least one second response representative of the concentration of the diluted at least one component of said sample fluid having said high value.

4,271,698
APPARATUS TO MEASURE PLASTICIZER ABSORPTION IN POLYMER POWDERS

James A. Wingrave, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Oct. 29, 1979, Ser. No. 88,988
Int. Cl.³ G01N 5/02
U.S. Cl. 73—74 10 Claims



3. A method for measuring diffusion of liquid into solids, said method using an apparatus having

(a) an upper portion having substantially sloped walls, the lower end of said sloped walls meeting to form an aperature,

(b) solids retaining means positioned at said aperature, said means being permeable to a liquid whose absorption is being measured,

(c) a lower portion substantially cylindrical in configuration, said lower portions connected with said upper portion wherein said aperature is common to both, and wherein

(d) both upper and lower portions are operably connected to a gravimetric scale, such that the total weight of the upper and lower portions, solids retaining means, solid content, and liquid can be weighed, said method comprising

(e) placing a solid into the upper portion of said apparatus, said solids retained by said retaining means,

(f) placing liquid whose diffusion is to be measured around the lower portion of said apparatus, allowing capillary forces to draw said fluid around said solid,

(g) weighing the entire apparatus solid and liquid to obtain a first weight,

(h) waiting a sufficient length of time,

(i) recording a second weight of the entire apparatus liquid and solid, and

(j) determining the difference between the first and second weights to obtain the weight of liquid diffused into solid.

4,271,699
SHEET THICKNESS MONITORING SYSTEM AND METHOD

Harry L. Williamson, P.O. Box 1, Hwy. 1788, Franklin, Ky. 42134

Filed Dec. 7, 1979, Ser. No. 102,108
Int. Cl.³ G01B 5/06
U.S. Cl. 73—159 1 Claim

1. A method of monitoring the thickness of sheet material comprising the steps of:

moving the sheet material past a measuring station having a sheet thickness measuring means;

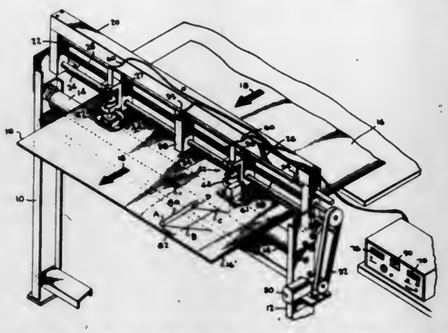
operating said sheet thickness measuring means while moving said thickness measuring means transversely with respect to the direction of sheet movement to provide an instantaneous output signal indicative of the sheet thickness adjacent said measuring means at any given moment;

directing said instantaneous output signal to averaging means for providing an average voltage signal indicative of the average value of said output signal over an immediately preceeding predetermined time period;

monitoring said average signal to actuate warning means in response to said average signal falling below or exceeding preset value.

moving the sheet material past a second sheet thickness measuring means transversely spaced from said first mentioned sheet thickness measuring means;

operating said second sheet thickness measuring means while moving said second sheet thickness measuring means transversely with respect to the direction of sheet movement in a direction opposite the direction of movement of the first mentioned sheet thickness measuring



means to provide second instantaneous output signal indicative of the sheet thickness adjacent said second sheet thickness measuring means at any given moment;

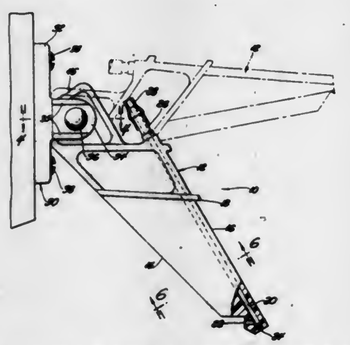
directing said second instantaneous output signal to averaging means for providing a second average voltage signal indicative of the average value of said second instantaneous output signal over an immediately preceeding predetermined time period; and

monitoring said second average signal to actuate said warning means in response to said second average signal falling below or exceeding said preset value.

4,271,700
PITOT TUBE ASSEMBLY

August E. Tschanz, Lansdale, and Robert W. Geiger, Geigertown, both of Pa., assignors to Teleflex Incorporated, Limerick, Pa.

Filed Feb. 26, 1980, Ser. No. 124,876
Int. Cl.³ G01C 21/10
U.S. Cl. 73—182 13 Claims



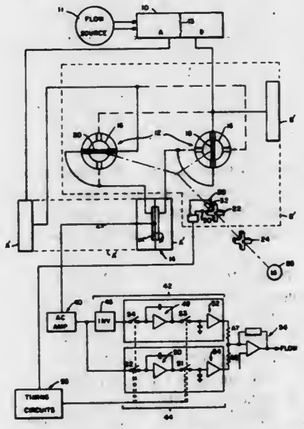
1. A pitot tube assembly for actuating a marine speedometer, comprising; an elongated blade member having a leading edge and upper and lower ends, said blade member having a passage extending between said upper and lower ends with a portion opening forwardly toward said leading edge, support bracket means rotatably supporting said blade member for impacting

water in the normal down position while allowing said blade member to rotate to a raised position in response to a predetermined force applied against said leading edge thereof, said support bracket means including an integral resilient section and said blade member includes a cam surface engaging said resilient section so that upward rotation of said blade member from said down position toward said raised position moves said cam surface into said resilient section to move the resilient section as the resilient section resists such upward rotation and urges said blade member toward said down position.

4,271,701
GAS FLOW MEASURING SYSTEM

Philip T. Dempster, and John Y. Pun, both of St. Helena, Calif., assignors to Cavitron Corporation, New York, N.Y.

Filed Mar. 15, 1978, Ser. No. 886,741
Int. Cl.³ G01F 1/38
U.S. Cl. 73—861.42 11 Claims

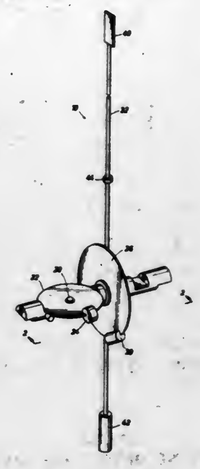


1. In a gas flow measuring system, a pneumotach including means forming a flow channel, means forming a flow restriction in said channel defining on opposite sides thereof first and second portions A, B, a pressure transducer having first and second opposite sides α, β, said pressure transducer being constructed and arranged to deliver an electric signal in response to pressure differential applied thereto, pneumatic switch means for connecting said pressure transducer to said flow channel in the sequence A to α, B to β; A to β, B to α; A to α, B to β; . . . so that said pressure transducer is alternately connected to opposite sides of said restriction, means enclosing said pressure transducer and pneumatic switch means in a sealed chamber solely connected to said pneumotach, means connected to the output of said pressure transducer for developing an electric flow signal in correspondence with the pressure difference applied thereto, means for enclosing the transducer within an enclosed volume including means forming matched chambers A, B, having equal volume on each side of said transducer, means for sampling over a predetermined substantial interval during each alternate connection of said transducer to the electric signal developed thereby and for integrating the valve thereof to develop signals a_n, b_n, means for developing a flow signal from said signals $(a_n - b_m)$.

4,271,702
GRAVITY SENSOR

Lewis A. Masson, 4602 Waring, Houston, Tex. 77027

Filed Oct. 10, 1979, Ser. No. 83,286
Int. Cl.³ G01M 19/00
U.S. Cl. 73—382 R 9 Claims



9. An instrument responsive to horizontal components of gravity acting on the instrument comprising:

(a) a central horizontal shaft;

(b) mounting means for mounting said shaft along a horizontal axis perpendicular to a vertical toward the earth;

(c) movable counterbalance means supported by said shaft and movable to adjust the center of gravity of the test instrument to a specified location vertically aligned with the horizontal axis for said shaft;

(d) an elongate arm having a pair of separated ends supported on said shaft and positioned thereby so that one of said ends is located at a remote location and is adapted to be pulled below said shaft, said end extending therefrom and positioned to rotate said shaft on horizontal variations of gravity;

(e) wherein said shaft is elongate between a pair of spaced, downwardly extending supports which supports comprise a portion of said mounting means;

(f) wherein said supports terminate at the horizontal axis; and

(g) including cooperative support receiving means aligned with the horizontal axis to receive said supports;

(h) knife edge means coinciding with the horizontal axis rotation through a specified angle relative to the horizontal axis, said knife means comprising the sole support for the test instrument and wherein said knife edge means is located on both of said downwardly extending supports.

4,271,703
HIGH TEMPERATURE SAMPLING SYSTEM FOR LIQUID CHROMATOGRAPHY

Lewis B. Roof, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 3, 1979, Ser. No. 81,606
Int. Cl.³ G01N 1/10
U.S. Cl. 73—863.11 20 Claims

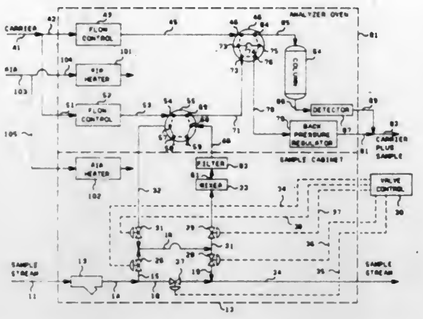
9. A method for obtaining a sample of hot liquid for analysis by liquid chromatography comprising the steps of:

filling a sample conduit means with said hot liquid;

isolating said sample conduit means from the source of said hot liquid;

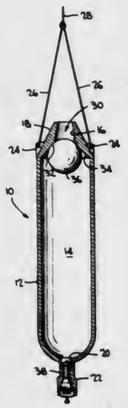
supplying carrier fluid, which is a solvent for said hot liquid, to said sample conduit means to force the portion of said

hot liquid in said sample conduit means out of said sample conduit means;
mixing said carrier fluid and said hot liquid from said sample conduit means to dilute said hot liquid;



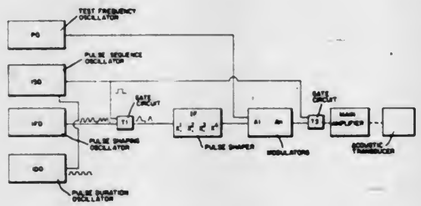
cooling the thus diluted liquid; and
chromatographically analyzing the thus cooled diluted liquid.

4,271,704
FLUID SAMPLING DEVICE AND METHOD OF SAMPLING FLUID
Beldon A. Peters, Houston, Tex., assignor to Exxon Production Research Company, Houston, Tex.
Filed Oct. 5, 1979, Ser. No. 82,341
Int. Cl.³ G01N 1/12
U.S. Cl. 73—864.63 **4 Claims**



1. A method of sampling fluid at a predetermined depth with a fluid sampling device including a body having a chamber therein and a sampling passage and control passage communicating with said chamber and a freely movable valve member disposed in said chamber and having a specific gravity less than the specific gravity of the fluid to be sampled and a control valve disposed in said control passage, said method comprising the steps of:
(a) pressurizing the chamber with a gas through said control passage to force said valve member into sealing engagement with said sampling passage, the pressure within said chamber being substantially the same as the pressure of the fluid to be sampled at the predetermined depth;
(b) lowering the fluid sampling device to the predetermined depth in the fluid to be sampled where the fluid pressure on said valve member enables said valve member to move away from said sampling passage and permit the chamber to be filled with said fluid to be sampled, said fluid forcing said valve member floating on said fluid into sealing engagement with the sampling passage when said chamber is filled;
(c) raising the fluid sampling device from the fluid to be sampled; and
(d) discharging the fluid from said chamber.

4,271,705
METHOD AND DEVICE FOR GENERATING ACOUSTIC PULSES
Horst-Artur Crostack, Dortmund, Fed. Rep. of Germany, assignor to Karl Deutsch Prüf-und Messgerite, Wuppertal, Fed. Rep. of Germany
Continuation of Ser. No. 922,801, Jul. 7, 1978, abandoned. This application Nov. 26, 1979, Ser. No. 97,832
Int. Cl.³ G01N 29/04
U.S. Cl. 73—602 **13 Claims**

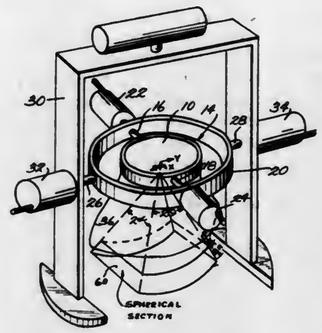


1. In a method of generating acoustic pulses, preferably in the ultrasonic region, wherein an acoustic transducer is excited by voltage pulses, said acoustic pulses subject to Fourier integral analysis to determine whether a desired frequency spectrum has been achieved, the improvement comprising the steps of:
providing a monochromatic a.c. voltage train at a desired test frequency;
providing at least one voltage pulse;
producing pulses for exciting the transducer by amplitude modulation or multiplication of said monochromatic a.c. voltage train (the fundamental oscillation) by said voltage pulse (the modulation oscillation); and
adjusting said voltage pulse to have a frequency, shape, exponent and duration so that the corresponding Fourier integral of the fundamental oscillation, the modulation oscillation, transducer characteristic and transfer terms associated with the signal path, provide a desired frequency spectrum for the acoustic signal.

4,271,706
ULTRASONIC SCANNER
Robert S. Ledley, Silver Spring, Md., assignor to Georgetown University, Washington, D.C.
Filed May 3, 1978, Ser. No. 902,740
Int. Cl.³ G01N 29/00
U.S. Cl. 73—614 **25 Claims**

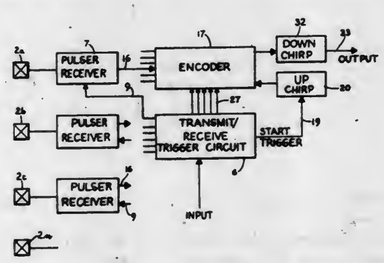
1. An ultrasonic scanner system developing a two-dimensional display of multi-valued signals representative of the varying intensities of ultrasonic signals reflected from three dimensional interfaces within a body, which intensities vary as a function of the angle of incidence of incident ultrasonic signals, said system comprising:
an ultrasonic transceiver for generating ultrasonic signals, directing said ultrasonic signals into said body along a path of predetermined disposition, and generating electrical output signals indicative of ultrasonic signals reflected back to said transceiver from said reflective interfaces;

said transceiver including scanning means for scanning said path of predetermined disposition and thus said ultrasonic signals through a predetermined volume within said body;
position means generating position signals indicative of the relative instantaneous dispositions of said ultrasonic signal path;
gating means, responsive to said position signals and to said transceiver output signals, for selectively passing only output signals representative of reflections from interfaces located within a substantial range of distances varying within predetermined minimum and maximum distances from said transceiver, which distances at any given time are a function of the instantaneous relative disposition of



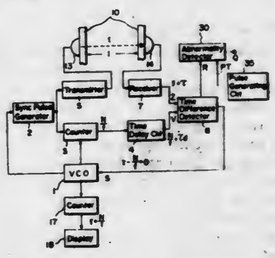
said ultrasonic signal path thereby generating gated output signals representative of reflections from interfaces within a selected volume having a predetermined contour; and
display means, responsive to said gated output signals and to said position signals providing a two-dimensional display of multi-valued signals having more than 2 values and directly representative of and correlated to the corresponding varying intensities of ultrasonic signals reflected from the three-dimensional interface surfaces in said contoured volume so as to directly present a shaded two-dimensional depiction of said three dimensional interface surfaces.

4,271,707
RECEIVED SIGNAL ENCODING AND CORRELATING SYSTEM
Kenneth M. Lakin, Palos Verdes, Calif., assignor to Northrop Corporation, Los Angeles, Calif.
Filed Nov. 16, 1979, Ser. No. 95,576
Int. Cl.³ G01N 29/04
U.S. Cl. 73—614 **13 Claims**



1. In an ultrasonic pulse-echo inspection system wherein a pulse is transmitted from each of an array of transducers at slightly delayed intervals to arrive at a small focus zone or point simultaneously, the method of encoding, correlating, and decoding the respective return signals received by said transducers from said point which comprises:
a. providing a chirp signal at least as long as the time required from the first to the last return signal received at said transducers;
b. providing a gate signal for each transducer, said gate signal being timed to coincide with the predetermined arrival time of the return signal at its corresponding transducer;
c. mixing said return, chirp and gate signals for each transducer by product means to form a time-gated chirp-modulated return signal for each transducer;
d. combining all said time-gated chirp-modulated return signals from said transducers; and
e. passing said combined signals through a dispersive transversal filter having a characteristic opposite to said chirp signal.

4,271,708
ULTRASONIC MEASURING APPARATUS
Masaru Kohno, and Yukio Nakagawa, both of Hino, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan
Filed May 3, 1979, Ser. No. 35,467
Claims priority, application Japan, May 16, 1978, 53-57820; May 22, 1978, 53-60745
Int. Cl.³ G01F 1/66
U.S. Cl. 73—861.28 **13 Claims**

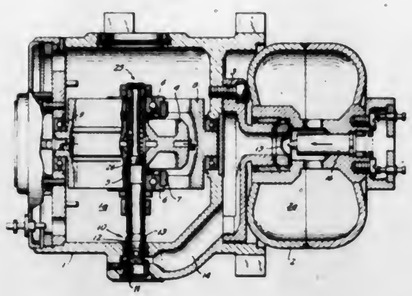


1. In an ultrasonic measuring apparatus of the type having a pair of transducers disposed oppositely on a pipe through which a fluid to be measured flows and which are so controlled alternately as to convert an input electrical signal to an acoustic signal and to convert a received acoustic signal to a received electrical signal, oscillating means for generating an oscillator output signal having a variable frequency, a counter for counting said oscillator output signal to produce a counter output signal when the count value of said counter reaches a predetermined value, a delay means for delaying said counter output signal and producing a delayed output signal, a transmitter receiving said oscillator output signal for producing said input electrical signal, a time difference detecting means for receiving said delayed output signal and said received electrical signal for detecting the time difference between said delayed output signal and the propagating time required for an ultrasonic wave to propagate through said fluid to be measured, controlling means for controlling the frequency of said oscillating means so as to make said time difference zero, and means for detecting said propagating time in accordance with the frequency of said oscillating means, said ultrasonic measuring apparatus comprising:
comparing means for comparing a voltage signal corresponding to said time difference with first and second set voltages; and
monitoring means receiving the comparison result from said comparing means for judging whether said fluid flow is propagated in said pipe in a normal condition or in an abnormal condition.

4,271,709
GAS DRIVEN GYROSCOPE

Abe Feldman, Derby, Conn., assignor to Timex Corporation, Waterbury, Conn.

Filed Aug. 20, 1979, Ser. No. 67,978
Int. Cl.³ G01C 19/12, 19/26
U.S. Cl. 74—5.12 4 Claims



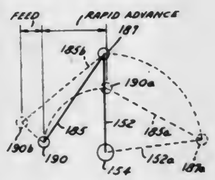
1. In a gas driven gyroscope of the type having a housing with first and second chambers, said first chamber containing a pressurized gas, said second chamber containing a rotatably mounted rotor on a hollow shaft member, said shaft member having gas admission ports and said rotor having gas reaction nozzles disposed to receive gas from the gas admission ports and spin the rotor, caging means including a conduit for selectively admitting gas from said first chamber into said hollow shaft member, and means disconnecting said caging means conduit from the shaft member after the rotor is spinning, the improvement comprising:

pressure responsive valve means disposed on the rotor shaft member, and adpated to shut off gas flow from the hollow shaft member into the rotor nozzles after said caging conduit is disconnected.

4,271,710
TOOL CARRIAGE ADVANCE AND RETRACTION CONTROL

John H. Brems, 32867 White Oaks Trail, Birmingham, Mich. 48010

Filed Aug. 7, 1979, Ser. No. 64,502
Int. Cl.³ F16H 21/02, 21/52
U.S. Cl. 74—27 47 Claims



1. In a machine tool feed system which comprises a slide base and a tool supporting sliding carriage movably mounted thereon and in which the motion pattern of said carriage comprises a first rapid advance stroke which moves the carriage and tools forward at a relatively high speed to bring the tools into close proximity to the workpiece, and a second forward feed stroke, at the end of the rapid advance stroke, with a relatively slow constant speed during which motion the tools are fed into the workpiece, and a rapid return stroke at a relatively high speed for a return stroke which is the sum of the rapid advance and feed strokes, a drive system for said carriage comprising:

(a) a first drive means mounted to said slide base to generate a smoothly accelerated-decelerated reversible output motion, said drive means being selectively coupled to said carriage to generate said rapid advance and rapid return strokes,

(b) a second drive means mounted to said slide base to generate a predetermined constant speed output motion, said second drive means being selectively coupled to said carriage to generate said feed stroke,

(c) shift means operatively associated with said carriage, said first drive means, and said second drive means, said shift means being operable to selectively and singly couple one of said drive means to said carriage,

(d) adding means operatively associated with said carriage and said first drive means comprising:

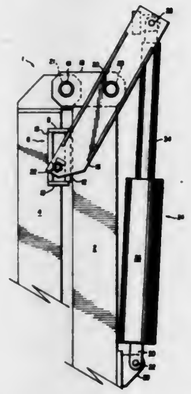
1. adder members interposed between said first drive means and said carriage to maintain an extendible connection between said first drive means and said carriage, said adder members being locked together during said rapid advance stroke and extensible during said feed stroke,

2. regenerative members operatively associated with said adder members and producing, in conjunction with said reversible first drive means, said rapid return stroke which is the sum of said previous rapid advance stroke and said previous feed stroke, said regenerative members operating on said adder members to positively return said adder members to a non-extended position during said rapid return stroke.

4,271,711
180 DEGREE FOLDING DEVICE

Gary J. Vavra, Norwich, Kans., assignor to Green Line, Inc., Harper, Kans.

Filed Feb. 28, 1979, Ser. No. 15,914
Int. Cl.³ F16H 21/44
U.S. Cl. 74—96 7 Claims



1. A folding mechanism for a ground working implement comprising:

a fixed first section and pivotable second section, said second section including a slot formed therein;

a single pivot member connecting said first and second sections;

a single lever rotatably connected to an end portion of said first section at an intermediate portion of the length of said single lever;

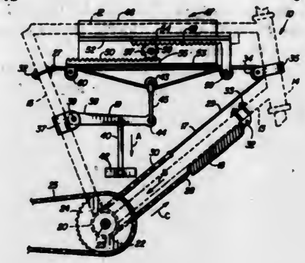
a pin member connected to a first end portion of said single lever and disposed within said slot formed in said second section; and

means directly connected to an end portion of said single lever for rotating said single lever about said first section, mounted on said first section, and for rotation of said lever about said first section so as to pivot said second section at least 180° about said single pivot member connecting said first and second section.

4,271,712
VARIABLE SPEED DRIVE UNIT

Herbert O. White, 4242 E. Wilshire Dr., Phoenix, Ariz. 85008

Filed Apr. 20, 1979, Ser. No. 31,829
Int. Cl.³ F16H 27/02
U.S. Cl. 74—141 8 Claims



1. A variable speed drive unit for translating reciprocal motion into rotary motion and for selectively changing the ratio between the amplitude of the reciprocal motion and the degree of rotation of the rotary motion while said drive unit is in operation, said variable speed drive unit comprising:

(a) a frame,

(b) an elongate flexible power transmission member having,

a. a first end secured to said frame,

b. a second end,

c. a normally straight section intermediate said ends, and

d. a drive section intermediate said straight section and said second end;

(c) biasing means interconnected between the second end of said power transmission member and said frame for exerting tension upon said member;

(d) means for angularly deflecting said straight section thereby urging reciprocal movement of said drive section;

(e) a unidirectional drive element engaged with said drive section of said power transmission member and providing a unidirectional rotary output in response to the movement of said drive section; and

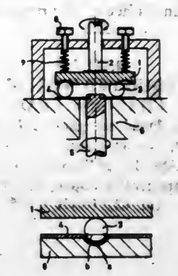
(f) control means carried by said frame for selectively varying the angular deflection of said straight section of said power transmission member.

4,271,713
SPEED- OR MOVEMENT-REDUCING DRIVE

Marinus J. J. Dona, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 25, 1979, Ser. No. 42,656
Claims priority, application Netherlands, Jul. 6, 1978, 7806175
Int. Cl.³ F16H 15/28
U.S. Cl. 74—198 5 Claims

1. A reduction drive comprising a drivable first structural member, a second structural member, an output section, a thin intermediate plate connected to the output section and supported by the second structural member, at least one body of revolution disposed between the first structural member and the intermediate plate, and means for pressing the first member toward the second member so as to press said at least one body against the intermediate plate, wherein the intermediate plate is formed of a material having a modulus of elasticity at least equal to the modulus of elasticity of the material of said second

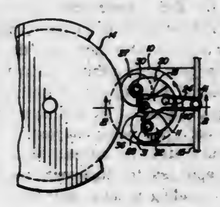


member, and said means is arranged to pess said at least one body against the plate with sufficient force to deform said plate and second member locally and elastically.

4,271,714
DRIVE MECHANISM

Hans Schmidt, Wood Dale, Ill., assignor to Matsushita Electric Corporation of America, Franklin Park, Ill.

Filed May 16, 1979, Ser. No. 39,515
Int. Cl.³ F16H 15/00, 13/00
U.S. Cl. 74—202 3 Claims



1. A drive mechanism including in combination:

a rotatable drive member having a drive shaft;

a rotatable driven member having a driven surface and mounted for rotation in a position relative to said rotatable drive member so that the driven surface thereof is spaced a predetermined distance from said drive member;

first and second idler wheels each having a circumference greater than said predetermined distance and each having a shaft;

first, second, and third lever means each having first and second ends, with the second ends of each of said first, second, and third lever means being pivotally mounted together, the first end of said first lever means having the drive shaft of said rotatable drive member extending through an opening therein, and the first end of each of said second and third lever means having the shafts respectively of said first and second idler wheels rotatably mounted therein, said second and third lever means having the first ends thereof located on opposite sides of the first end of said first lever means;

resilient spring means provided between the first ends of second and third lever means for urging said first and second idler wheels into engagement with said drive member for free pivotal movement about said drive member when said first and second idler wheels are out of engagement with said rotatable driven member; and

whereby rotation of said rotatable drive member in a first direction causes said first, second, and third lever means to rotate in a first direction until said first idler wheel engages the driven surface of said rotatable driven member and whereby rotation of said rotatable drive member in

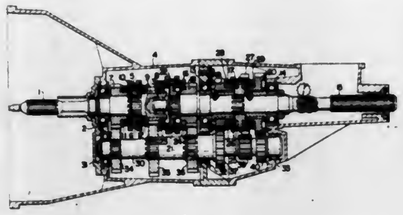
the opposite direction causes said first, second, and third lever means to rotate about said rotatable drive member in the opposite direction until said second idler wheel engages the driven surface of said rotatable driven member.

4,271,715

TRANSMISSION EQUIPPED WITH AUXILIARY SPEED CHANGING GEAR

Hajime Arai, Aichi, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Apr. 18, 1979, Ser. No. 31,135
Claims priority, application Japan, Jul. 4, 1978, 53/81239
Int. Cl.[3] F16H 3/08
U.S. Cl. 74—360 3 Claims



1. In a multiple speed transmission having an output shaft, a countershaft and pairs of meshing gears mounted on said shafts with the gears on the countershaft being non-rotatably mounted thereon and the gears on the output shaft being selectively rotatable or non-rotatable therewith, the combination of auxiliary speed changing gear means comprising:

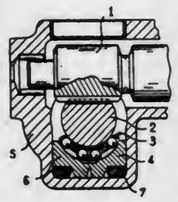
an input shaft coaxial with the output shaft; at least two pairs of meshing gears mounted on said input shaft and on the countershaft, each pair being adapted to transmit torque from said input shaft to the countershaft, one of said pairs including an input gear for high-speed range and the other of said pairs including an input gear for low-speed range, the gears of each of said pairs on the countershaft being non-rotatably mounted thereon, and the gears of each of said pairs on said input shaft being selectively rotatable or non-rotatable therewith.

4,271,716

LOADING MECHANISM FOR RACK AND PINION STEERING

Jean-Jacques Carduner, Sannois, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed May 30, 1979, Ser. No. 43,756
Claims priority, application France, May 30, 1978, 78 16019
Int. Cl.[3] F16H 19/04; B62D 3/12
U.S. Cl. 74—422 6 Claims



1. A vehicle steering mechanism including a housing, a drive pinion extending into said housing, a rack moveable within said housing and engageable with said drive pinion and a loading mechanism moveably supporting said rack within said housing, said loading mechanism comprising:

a fixed ball-bearing support having two oval-shaped longitudinal tracks;

a plurality of ball-bearings disposed in and substantially filling said tracks, said ball-bearings contacting said rack at two areas of contact on said tracks; and

a ball-bearing retainer located between said ball-bearing support and said rack, said support and said retainer forming a cradle, said ball bearing retainer including retainer tabs secured to said ball bearing support to form a pre-assembled unit;

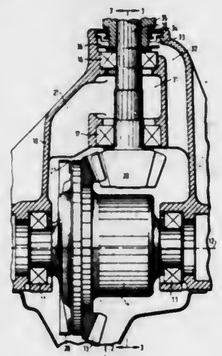
wherein said ball-bearings are alternately loaded and unloaded as they move through said areas of contact.

4,271,717

AXLE ASSEMBLIES

Thomas H. Millward, Sutton Coldfield; David G. Wylie, Erdington, and Philip C. Clarke, Dostill, all of England, assignors to GKN Axles Limited, England

Filed Jul. 10, 1979, Ser. No. 56,328
Int. Cl.[3] F16H 57/04; F01M 11/02
U.S. Cl. 74—467 2 Claims



1. An axle assembly comprising:

a housing,

a crown wheel and pinion gearing disposed in said housing,

an input element connected to said pinion, and supported in an extension of the housing by bearing means, said bearing means including spaced bearings adjacent to and remote from said pinion,

a differential gearing connected to said crown wheel, said differential gearing including rotary output elements,

said crown wheel having associated therewith a lubricant entraining element,

said housing defining a chamber through which said input element extends between the bearings thereof, and two passages each leading into said chamber and having an entrance with a lip lying close to the periphery of said lubricant entraining element for removing lubricant from a film thereof entrained by said element from a quantity of lubricant in said housing, and for directing such lubricant into the respective passage upon rotation of said lubricant entraining element in respective opposite directions,

said housing further defining in said extension thereof a space through which said element extends on the side of said remote bearing thereof opposite said chamber, and a further passage with an entrance in said space and extending substantially level with said input element to communicate with the housing part containing said crown wheel, and

the vertical dimension of said entrance of said further passage being less than the vertical dimension of said space, and the lower boundary of said entrance being above the bottom of said space, when the assembly is viewed in elevation in an orientation in which the axes of rotation of said input element and crown wheel are both substantially horizontal, whereby a quantity of lubricant is retained in said space when the assembly is at rest, for lubricating said remote bearing at start-up.

4,271,718

CABLE TENSION ADJUSTING MEANS FOR A BRAKE CABLE OPERATING LEVER

Robert D. Bopp; David P. Klosterman, and Eugene C. Lipshield, all of Moberly, Mo., assignors to Orscheln Co., Moberly, Mo.

Filed Feb. 26, 1979, Ser. No. 13,825
Int. Cl.[3] G05G 1/04; F16C 1/10
U.S. Cl. 74—522 13 Claims



1. Brake operating apparatus for applying tension to a parking brake cable for motor vehicles or the like, comprising

(a) stationary mounting plate means (6) adapted for connection with a frame of the vehicle;

(b) cable connecting means (16) connected for sliding movement axially of said mounting plate means, said cable connecting means being adapted for connection with one end of the parking brake cable;

(c) operating lever means (20) pivotally connected at one end with said mounting plate means for pivotal displacement between brake-on and brake-off positions, respectively, said operating lever means including at its other end a longitudinally extending tubular portion (20*d*);

(d) a connecting link (28) pivotally connected at one end with said cable connecting means;

(e) adjustable pivot means (30) pivotally connecting the other end of said connecting link with said operating lever means, said adjustable pivot means being mounted adjacent the pivot axis of said lever means for displacement axially of said lever means; and

(d) cable tension adjusting means for displacing said adjustable pivot means aially of said operating lever means, whereby the brake cable tension, when the brake cable is in the brake-on position, is a function of the distance between said adjustable pivot means and the pivotal connection between said operating lever and said mounting plate means, said adjusting means including

(1) a rotary screw member (36) extending axially within the tubular portion of said operating lever means, said screw member including intermediate its ends an annular collar portion (36*a*) the outer diameter of which corresponds generally with the inner diameter of said operating lever tubular portion;

(2) means defining an abutment shoulder (20*f*) within said tubular portion of said operating lever means for rotatably supporting said collar portion and said screw member against axial displacement in the direction of the pivot axis of said lever means;

(3) connecting means threadably connecting said adjustable pivot means with one end of said screw member;

(4) knob means (38) containing at one end a bore, said knob means being rotatably mounted on said operating lever with the tubular portion thereof rotatably extending within said bore, said knob means being non-rotatably connected with the other end of said screw member for rotating the same to displace said adjustable pivot means axially of said operating lever means, whereby the brake cable operating means remains functional even upon removal of the knob means from said screw member; and

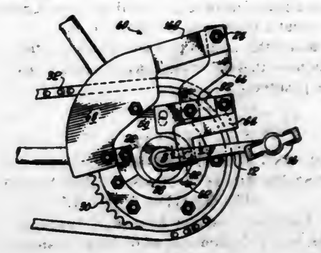
(5) internal friction means for restricting rotation of said screw member relative to said operating lever means.

4,271,719

BICYCLE LEVER ASSEMBLY

Foster King, 1149 N. Hacienda, LaPuente, Calif. 91744

Filed Jun. 13, 1979, Ser. No. 48,083
Int. Cl.[3] G05G 1/14
U.S. Cl. 74—594.2 6 Claims



1. An improved bicycle lever transmission assembly for a bicycle wherein a pedal crankshaft has a journalled portion rotatably mounted in a frame and a pair of pedal cranks with pedals extending oppositely from the journal portion, and a drive sprocket having the same rotational axis as and rotatable by the pedal cranks meshes with a drive chain to drive a wheel of the bicycle and is rotatably mounted on the cranshaft journal portion adjacent to one of the pedal cranks, said transmission assembly being intermediate the pedals and drive sprocket and comprising:

a pivot boss extending from one of the pedal cranks in spaced parallel relation with said journal crankshaft portion,

a fixed lever link affixed to the drive sprocket, the sprocket having a pitch diameter beyond which an end portion of the fixed lever link extends, and

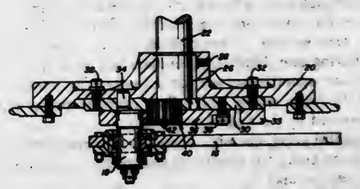
leverage transmission means including a lever linkage interconnected between the pivot boss and the extending end portion of the fixed lever, said linkage comprising at least one lever link pivotally connected with the pivot boss.

4,271,720

ADJUSTABLE-STROKE CRANK APPARATUS

Charles W. Jacob, Pittsburgh, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Filed Oct. 9, 1979, Ser. No. 83,056
Int. Cl.[3] F16C 3/04
U.S. Cl. 74—600 6 Claims



1. In a motion conversion apparatus, said apparatus including a flywheel, a crank rod, and means connecting said crank rod to the flywheel, said connecting means being adjustable so that the stroke length of the crank rod may be varied,

the improvement in said adjustable connecting means which comprises:

a first plate secured to said flywheel and having a broad face thereof adjacent a broad face of said flywheel,

a second plate having a broad face thereof adjacent the face of the first plate opposite said flywheel and means attached thereto on the broad face opposite said first plate for connecting said crank rod thereto,

a spline member mounted in fixed position on one of said

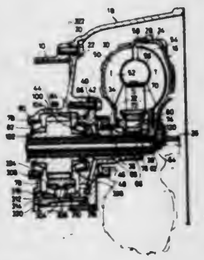
plates and having a plurality of keys protruding therefrom,
said spline member having an axis displaced from the axis of the flywheel,
the other of said plates having a grooved portion mateably engageable with said spline member at any of a plurality of rotative positions of said second plate with respect to the first about a transverse axis thereof, and
means detachably connecting said plates together at any said positions so that the stroke length of said crank rod may be made positively.

4,271,721

HOUSING FOR FRONT-DRIVE AUTOMATIC TRANSMISSION FOR TRANSVERSE ENGINE OF AUTOMOTIVE VEHICLE

Takahiro Yamamori, Tokyo; Kazuyoshi Iwanaga, and Kunio Ohtsuka, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 29, 1978, Ser. No. 947,128
Int. Cl.[3] F16H *37/08, 57/02*
U.S. Cl. 74—695 5 Claims



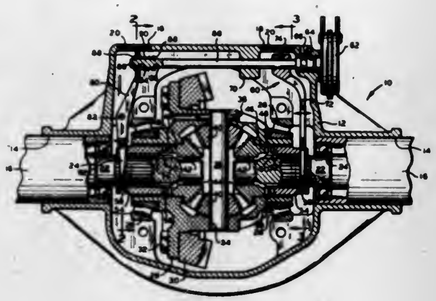
1. Means for housing
(a) a hydrokinetic unit,
(b) a planetary gear system that includes planetary gear elements, a power input element of the planetary gear system being drivably connected to the hydrokinetic unit, a power output element of said planetary gear system having an output gear, the output gear being disposed between the planetary gear elements and the hydrokinetic unit and having an inboard face facing the planetary gear elements and an outboard face facing the hydrokinetic unit, the power output element being rotatably supported by inboard and outboard bearings located respectively on the inboard and outboard sides of the output gear, clutch means for connecting together two elements of the planetary gear system for rotation in unison, brake means for anchoring one element of the planetary gear system, fluid pressure operated servos for actuating the clutch means and the brake means, and a fluid pressure pump drivably connected to the hydrokinetic unit,
(c) a control valve assembly in communication with the fluid pressure pump for supplying selectively fluid pressure to said servos, and
(d) a fluid drive unit including a differential connected to the output gear of the power output element of the planetary gear system,
said housing means comprising:
a first housing receiving therein said hydrokinetic unit; and
a second housing having a longitudinal wall and an end wall and receiving therein said planetary gear elements,
said first and second housings being connected to each other to define an interface which lies in a plane disposed outboard of said inboard face of said output gear, said first housing having a protruding portion extending across said interface into said second housing to contain said output gear and to provide the sole radial and axial support for said inboard bearing.

4,271,722

AXLE DISCONNECT

Chris A. Campbell, Janesville, Wis., assignor to Dana Corporation, Toledo, Ohio

Filed Aug. 1, 1979, Ser. No. 62,688
Int. Cl.[3] F16H *1/44, 1/40*
U.S. Cl. 74—710.5 9 Claims



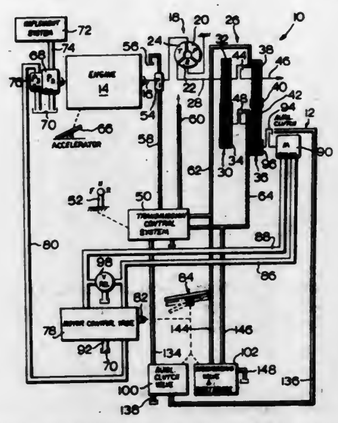
1. A differential for a motor vehicle comprising, in combination,
a housing,
a spider positioned within said housing for rotation about an axis,
a ring gear secured to said spider and disposed concentrically about said axis,
a stub shaft disposed perpendicularly to said axis and secured within said spider,
a pair of spaced apart pinion gears disposed on said stub shaft,
a pair of spaced apart side gears disposed about said axis in interengaging relationship with each of said pair of pinion gears, said side gears each including outwardly directed face coupling gear teeth,
a pair of axle shafts disposed along said axis having spaced apart termini generally disposed within said sider, said axle shafts defining a spline adjacent said termini,
a clutch collar disposed about each of said axle shafts having a complementary spline in engagement with said spline of said axle shafts, said clutch collars each including inwardly directed face coupling gear teeth, and
a control member, an actuator means for moving said control member between a first position and a second position, a control arm rigidly secured at one end to said control member and having means disposed at its opposite end for engaging and axially translating one of said clutch collars, a lever arm pivotally secured within said housing having means disposed at one end for engaging and axially translating the other of said clutch collars, and means for connecting the other end of said lever arm to said control member whereby said coupling teeth of said clutch collars and said coupling teeth of said side gears are engaged in power transmitting relationship in said first position and said coupling teeth of said clutch collars and said coupling teeth of said side gears are disposed in rotationally independent relationship in said second position.

4,271,723

POWER TRAIN WITH AN AUXILIARY CREEPER DRIVE SYSTEM

Walter M. Shaffer, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Division of Ser. No. 743,382, Nov. 19, 1976, Pat. No. 4,132,132.
This application Oct. 10, 1978, Ser. No. 949,590
Int. Cl.[3] F16H *47/02*
U.S. Cl. 74—720 14 Claims



1. An engine driven power train with an auxiliary creeper drive system comprising:
an engine;
a transmission including an input shaft connected to said engine and a first gear set coupled thereto, an output shaft and a second gear set coupled thereto, and clutch means connected to said first and second gear sets for selectively driving said output shaft through a predetermined range of forward and reverse speeds when said engine is driving said input shaft;
auxiliary motor means selectively coupled to one of said gear sets and selectively driven by said engine for driving said output shaft at a creeping speed slower than said predetermined range of speeds at the same engine speed; and
control means for disengaging at least a portion of said clutch means, disconnecting said engine from driving engagement with said one of said gear sets, and connecting said auxiliary motor means drivingly to said one of said gear sets.

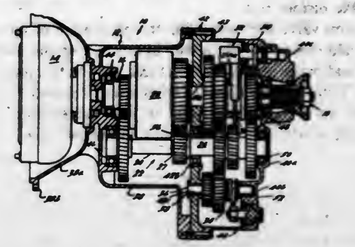
4,271,724

SYNCHRONIZED TRANSMISSION WITH TORQUE CONVERTER BY-PASS

Timothy J. Morscheck, Lathrup Village, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 26, 1978, Ser. No. 973,262
Int. Cl.[3] F16H *47/00*
U.S. Cl. 74—720 7 Claims

1. A transmission comprising:
a fluid coupling adapted to be driven by an engine;
first and second input means, said first means driven by said coupling, and said second means adapted to be driven directly by said engine;
a countershaft driven by said first means;
an output shaft;
low and intermediate speed ratio gears mounted for rotation about one of said shafts and operative when coupled to said one shaft to provide low and intermediate speed ratio changes between said first input means and said output shaft via said countershaft;
clutch means operative when engaged to couple said low speed ratio gear to said one shaft;
first and second jaw clutch members operative when engaged to couple said intermediate gear to said one shaft, said members normally rotating at different speeds during transmission upshifting and downshifting into said intermediate gear;



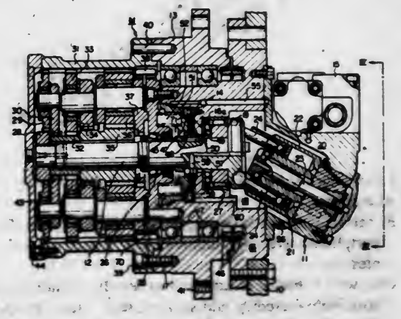
a friction clutch operative when engaged to frictionally connect said second input means directly to said output shaft, said friction clutch momentarily engageable during upshifting into said intermediate speed ratio to synchronize said jaw clutch members for engagement.

4,271,725

HYDRAULIC MOTOR UNIT

Syosuke Takao, Tokyo; Gunpei Kikuchi, Kawasaki; Masuo Sekiguchi, Kawasaki, and Shinji Kawauchi, Kawasaki, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed Sep. 26, 1978, Ser. No. 946,023
Claims priority, application Japan, Sep. 28, 1977, 52-116439
Int. Cl.[3] F16H *47/00*
U.S. Cl. 74—730 12 Claims



1. A hydraulic motor unit comprising:
a bent axis type piston motor section adapted to generate torque when hydraulic pressure is applied and including
a bent axis portion encasing a cylinder block rotatable around the axis thereof and pistons axially movable within said cylinder block;
a barrel housing adjacent said bent axis portion and having a mounting base and a cylindrical portion;
a driving shaft rotatably supported by two bearings within said barrel housing and adapted to be rotated by said bent axis portion, the axis of said shaft forming an angle relative to the axis of said cylinder block of said bent axis portion;
a barrel rotatably supported on the cylindrical portion of said barrel housing;
a planetary gear mechanism, disposed between said driving shaft and said barrel, a ring gear arranged to be rotatably coupled to said barrel to transmit the torque from said shaft to said barrel at a reduced speed;

a brake assembly disposed around said shaft between said two bearings, and having a first part stationary relative to said housing, a second part rotatable with said shaft and a brake piston movable in a direction of the axis of said shaft, said first and second parts being arranged to engage and disengage with and from each other to regulate the rotation of said shaft depending on the movement of said brake piston; and

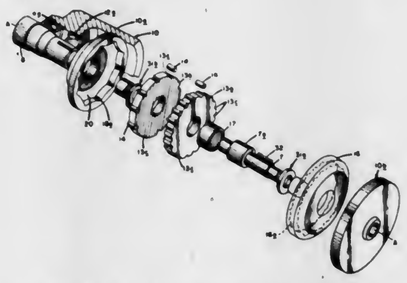
a control valve for controlling the generation of said torque in said motor section as well as controlling the movement of said brake piston, said bent axis portion forming a space by virtue of the angular relationship relative said shaft, said valve being mounted on said barrel housing at a position adjacent said base and within said space.

4,271,726

PLANETARY TRANSMISSION

Henry Ryffel, Hillsboro, N.H., assignor to Compudrive Corporation, North Billerica, Mass.

Filed Dec. 29, 1978, Ser. No. 974,310
Int. Cl.³ F16H 1/28
U.S. Cl. 74—805 12 Claims



1. An improved planetary transmission comprising

A. a housing,

B. orbiting means including a first circular plate having a peripheral array of similar sockets shaped as arcs of circles,

C. a set of similar uncaptured generally cylindrical rollers rotatively seated in said sockets, said rollers having their curved surfaces projecting beyond the periphery of said plate,

D. a first annular nonorbiting gear, said first gear having an inner surface formed with a hypo-cycloidal curvature with a number of lobes exceeding by at least one the number of sockets in said plate, said first gear encircling said plate so that its said inner surface is in rolling contact with said rollers and said rollers are free to rotate within their sockets,

E. a second annular nonorbiting gear, said second gear having surfaces in cooperating encircling engagement with said orbiting means,

F. a first shaft keyed to one of said nonorbiting gears, said first shaft being rotatively secured in and projecting from said housing, and

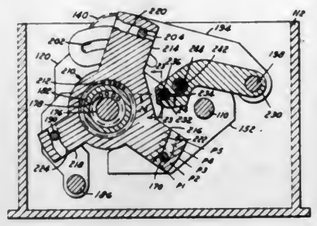
G. means including a second shaft rotatively secured in and projecting from said housing for eccentrically driving said orbiting means within said housing.

4,271,727

APPARATUS FOR CYCLOIDAL ACCELERATION AND DECELERATION WITH PARTIAL CONSTANT VELOCITY

John H. Brems, 32867 White Oaks Trail, Birmingham, Mich. 48010

Filed Jun. 11, 1979, Ser. No. 47,042
Int. Cl.³ B23B 17/00
U.S. Cl. 74—813 R 25 Claims



1. A reversible rotary indexing mechanism capable of generating large indexing angles, including those exceeding one revolution, which comprises:

(a) a frame,

(b) output means mounted for rotation in said frame,

(c) input means mounted for rotation in said frame,

(d) accelerating-decelerating drive means operatively associated with said input means and selectively engageable with said output means and, when engaged with said output means and driven by a constant predetermined velocity of said input means, drives said output means at a cyclically varying velocity accelerating from a substantially zero velocity to a predetermined maximum velocity and then decelerating to a substantially zero velocity in a repetitive cycle,

(e) constant velocity drive means operatively associated with said input means and selectively engageable with said output means, and, when engaged with said output means and driven by said constant predetermined velocity of said input means, drives said output means at a constant velocity substantially equal to said predetermined maximum velocity, and

(f) shifting means operatively associated with said accelerating-decelerating means and with said constant velocity means, and adapted to disengage said accelerating-decelerating means from said output means at its said predetermined maximum velocity and substantially simultaneously to engage said constant velocity means with said output means, and further adapted to subsequently disengage said constant velocity means from said output means and substantially simultaneously to re-engage said accelerating-decelerating means with said output means at a position in the cycle of said accelerating-decelerating means when it drives said output means at said predetermined maximum velocity.

4,271,728

AUTOMATIC TRANSMISSION SYSTEM

Hisato Wakamatsu, Toyota, Japan, assignor to Nippon Soken, Inc., Nishio, Japan

Filed Mar. 21, 1978, Ser. No. 889,658
Claims priority, application Japan, Apr. 11, 1977, 52-41237
Int. Cl.³ B60K 41/08, 20/00
U.S. Cl. 74—866 2 Claims

1. In an electronic automatic transmission system for automobiles having

control means for controlling the transmission ratio between an engine and wheels of an automobile in response to a fluid applied thereto,

a fluid source,

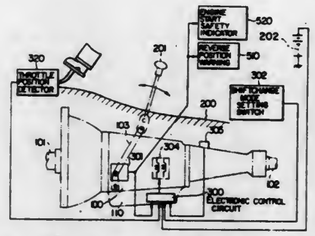
first valve means manually and remotely shifted by a shift lever located on the upper side of a floor of said automobile for changing the application mode of said fluid applied from said fluid source to said control means,

second valve means electromagnetically shifted for changing the application mode of said fluid applied from said first valve means to said control means,

a transmission body located under the floor of said automobile for encasing said control means, said fluid source, said first valve means and said second valve means therein, and

an electronic circuit for controlling the shift position of said second valve means in response to at least the shift position of said first valve means,

the improvement comprising:



a shift position detector being positioned within said transmission body for directly detecting the shift position of said first valve means and having a movable member and plurality of signal generating members,

said movable member being coupled to said first valve means to be moved in association therewith, and

said signal generating members being fixedly supported within said transmission body and effective to detect the position of said movable member indicative of the shift position of said first valve means,

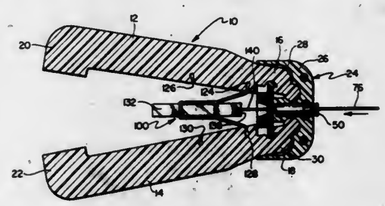
whereby the detected shift position is not affected by the relative position of the floor of said automobile and said transmission body.

4,271,729

WIRE STRIPPING DEVICE

Joseph A. Perrino, Rehoboth, Mass., and Thomas W. Perrino, Johnston, R.I., assignors to Micro Electronics, Inc., Newport, R.I.

Filed Feb. 16, 1979, Ser. No. 12,663
Int. Cl.³ H02G 1/12
U.S. Cl. 81—9.5 B 16 Claims



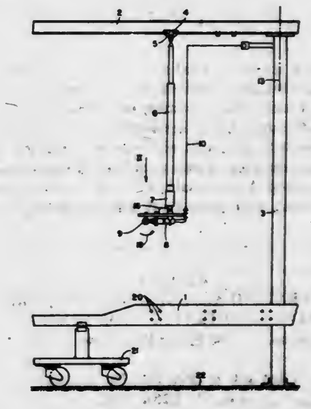
1. A device for stripping insulation from relatively small diameter electrical wire, comprising a pair of hand-held elongated grip members, a block for pivotally mounting said grip members at one end thereof, the other ends of said grip members being movable relative to each other to and from a closed stripping position, an elongated axially extending tubular guide located in said block intermediate said grip members and receiving therein in guiding relation the lead-in portion of a wire from which insulation is to be stripped, a pair of blade members located in opposed relation in said block and including exposed blade elements for severing the insulation of said wire during a wire stripping operation, said blade members being disposed in perpendicular relation to the longitudinal axis of said guide and being movable by said grip members for lateral movement relative to the longitudinal axis of said guide upon pivotal movement of said grip members to the closed stripping position, wherein said blade elements penetrate into the wire insulation, and whereafter a longitudinal retracting movement of said wire strips the insulation from the lead-in portion thereof, said block including a base, a cover plate removably mounted on said base for enclosing the pivotal ends of said grip members in said block, said cover plate having an elongated, transversely extending opening formed therein that overlies said blade members, whereby said blade members are removable from said block through said opening for replacement thereof.

4,271,730

WRENCHING DEVICE FOR INSTALLING AND TIGHTENING SCREWS TO A HIGH TORQUE

Alfred Höll, Niederroth, and Anton Wewerka, Dachau, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nuraberg Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 9, 1979, Ser. No. 55,773
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1978, 2830906
Int. Cl.³ B25B 29/00
U.S. Cl. 81—57.4 11 Claims



1. In a wrenching or torquing device for installing and tightening screws to a high torque; a power wrench; an extensible telescope strut, said wrench being attached to the lower end of said telescope strut; an overhead rail; a roller tram adapted to travel along said rail, said strut being suspended from said tram, the improvement comprising: said telescope strut being a tubular member, said power wrench being a torque-type angular power wrench, said power wrench being attached to the telescope strut in an adjacent mounting and having a shank extending approximately at a right angle to the telescope strut and being supported on the telescope strut at at least one point lying remote from the screwing axis such that the reaction torque of the wrench is transmitted to the telescope strut as an axial or transverse force.

4,271,731

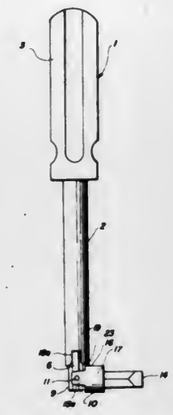
PIVOT TIP HAND TOOL

Diane Suligoy, R.R. 5, Mound Rd., Joliet, Ill. 60436, and Sharon Cook, 9704 Stacy, Union, Ill. 60180

Filed Sep. 7, 1979, Ser. No. 73,189
Int. Cl.³ B25G 1/00; B25B 13/00
U.S. Cl. 81—177 ST 2 Claims

1. A pivot tip hand tool, comprising a hand grasp member, an elongated member aligned with said hand grasp member, a

work piece shaft mounted in relation to said elongated member for relative movement therewith between a retracted position and an extended position, a pivot tip member between a first working position and a second working position, said pivot tip member being in axial alignment with said work piece shaft in said first working position, the axis of said pivot tip member being substantially normal to the longitudinal axis of said work piece shaft in said second working position, first holding means to hold said work piece shaft in said extended position, and



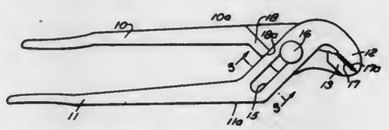
second holding means to hold said pivot tip member in said first working position in axial alignment with said work piece shaft, wherein said pivot tip member includes a socket member, an axial bore through said socket member, said axial bore being axially aligned with said work piece shaft in said first working position, a tool received in said axial bore of said socket member and extending through said bore for end-to-end abutting contact with said work piece shaft when in said first working position.

4,271,732

CAM-OPERATING ADJUSTABLE PLIER WRENCH WITH OVERTRAVEL STOP DEVICE

James E. Vaughan, Jr., 248 Fisher Rd., North Dartmouth, Mass. 02747

Filed Jul. 2, 1979, Ser. No. 54,284
Int. Cl.³ B25B 7/04
U.S. Cl. 81—414 1 Claim



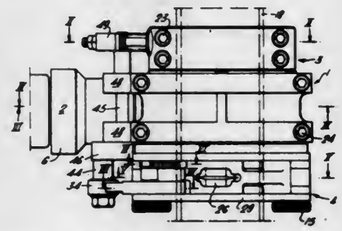
1. An adjustable jaw plier wrench comprising:
a first handle means,
a first jaw means connected to said first handle means,
a second handle means,
a second jaw means connected to said second handle means,
a pivot pin means carried by said first jaw means,
an adjustable arcuate tooth and socket means incorporated within the jaw means, spaced from and concentric with the pivot pin means, said second jaw means having a substantially rectangular portion extending at right angles to the jaw, said portion joining said jaw and handle means, said portion having a slot receiving said pivot pin for adjusting said tooth and socket means,
an overtravel stop member integrally mounted onto said first handle means on the portion thereof remote from the jaw and pivot pin to limit overtravel of said tooth in said socket of said second handle means during pivotal movement of said handles and jaws about said pivot pin, said stop member engaging the edge of said rectangular portion from the closed jaw position to fully open jaw position as said jaws are adjusted.

4,271,733

ROTARY TOOLS

Ronald L. Stone, Dorchester, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 23, 1979, Ser. No. 68,881
Claims priority, application United Kingdom, Sep. 8, 1978, 36114/78
Int. Cl.³ B23B 3/22
U.S. Cl. 82—4 C 10 Claims



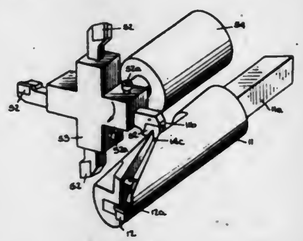
1. A rotary tool for metal working comprising a drive unit attachable to the metal to be worked, a drive detachably engageable in the drive unit and a rotary metal working unit driven by the drive unit, the drive unit including means for controlling the extent of working by the metal working unit, said means comprising means for detecting loading on the working unit and controlling working to restrict said loading to within a preselected limit.

4,271,734

APPARATUS FOR GUIDING CONTINUOUS CHIP FORMED IN LATHING

Keiichi Kimura, Yokohama, and Eimei Negishi, Kawasaki, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Division of Ser. No. 872,156, Jan. 25, 1978, Pat. No. 4,220,427.
This application Jun. 8, 1979, Ser. No. 46,835
Claims priority, application Japan, Jan. 31, 1977, 52-9439; Sep. 5, 1977, 52-105883; Sep. 12, 1977, 52-108964; Sep. 16, 1977, 52-110466; Sep. 20, 1977, 52-112201; Sep. 21, 1977, 52-112553
Int. Cl.³ B23B 25/02, 27/22
U.S. Cl. 82—34 R 8 Claims



1. Apparatus for guiding a continuous chip formed by the cutting tool of a lathe to a determined position, said cutting tool being provided with a rake face, said apparatus comprising: a tool holder, a guide member adapted to be supported on said tool holder and provided with means for guiding said continuous chip, said guiding means being provided with an inlet in the vicinity of the cutting edge of said cutting tool and with an outlet, the direction of said guiding means in the vicinity of the inlet thereof coinciding approximately with the direction of flow of said continuous chip, said guiding means comprising a groove open upwardly perpendicularly to the rake face of the cutting tool, a resilient member disposed along said groove to cover the bottom face thereof in a manner to allow passage of a chip between said resilient member and said bottom face, said resilient member being biased toward said bottom face to prevent said chip from curling vertically upwardly, and chip disposing means disposed behind said outlet, said disposing means comprising cutting means for cutting the continuous chip ejected from said outlet.

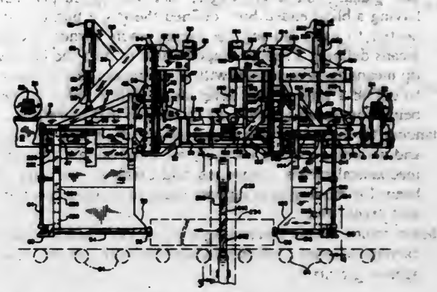
3. Apparatus for guiding a continuous chip formed by the cutting tool of a lathe to a determined position, said cutting tool being provided with a rake face, said apparatus comprising: a tool holder, a guide member adapted to be supported on said tool holder and provided with means for guiding said continuous chip, said guiding means being provided with an inlet in the vicinity of the cutting edge of said cutting tool and with an outlet, the direction of said guiding means in the vicinity of the inlet thereof coinciding approximately with the direction of flow of said contiuous chip, said guiding means comprising a groove open upwardly perpendicularly to the rake face of the cutting tool, a resilient member disposed along said groove to cover the bottom face thereof in a manner to allow passage of a chip between said resilient member and said bottom face, said resilient member being biased toward said bottom face to prevent said chip from curling vertically upwardly, and chip disposing means disposed behind said outlet, said disposing means comprising take-up means for winding said chip.

4,271,736

SAWMILL APPARATUS WITH VERTICALLY MOVABLE LOGGING DOGS

Aaron U. Jones, 1880 McLean Blvd., Eugene, Oreg. 97405

Filed Feb. 21, 1980, Ser. No. 123,170
Int. Cl.³ B27B 15/04, 29/08
U.S. Cl. 83—156 4 Claims



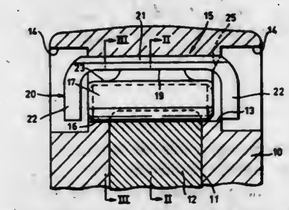
1. In a sawmill apparatus,
a bandsaw,
a first movable carriage supporting a first log engaging member,
a second movable carriage supporting a second log engaging member, said second carriage being movable relative to said first carriage for engaging the log, and being movable with said first carriage for driving said log toward said bandsaw,
conveyor means disposed below the path of said log engaging members and adjacent said bandsaw for receiving boards and cants cut from said log by said bandsaw,
means for adjusting the vertical position of said log above said conveyor means by vertically moving said log engaging members,
and side braces mounted on each said carriage and extending downwardly on each side of said log engaging members, each brace carrying a bearing member disposed in slidable relation to a side of a said log engaging member for maintaining alignment during movement thereof.

4,271,735

TOOL HOLDERS

Dennis Denman, Retford, England, assignor to Matthias Spencer & Sons Limited, Sheffield, England

Filed Sep. 21, 1979, Ser. No. 77,596
Claims priority, application United Kingdom, Sep. 21, 1978, 37581/78
Int. Cl.³ B23B 29/00; B26D 1/00; B23B 31/10
U.S. Cl. 82—36 R 10 Claims



1. A tool holder having a socket to receive the shank of a tool and a transverse bore crossing and breaking into the socket, and a tool retaining device for insertion in the transverse bore comprising a rigid retaining member and a resilient member of elastomeric material urging the retaining member sideways so that, in use, at least part of the retaining member projects into the socket to engage and locate the shank of a tool inserted therein, the retaining device also comprising, at opposite ends thereof, stop members mounted on the elastomeric material and having portions which are disposed beyond the ends of the transverse bore when the retaining device is located therein, which members are movable transversely to a longitudinal axis of the retaining device between a release position where said portions lie within the cross-section of the transverse bore, so that the retaining device may pass through the bore, and a locking position where they project outside the cross-section of the transverse bore so as to overlie surfaces of the tool holder surrounding the ends of the bore, thereby preventing longitudinal movement of the retaining device in the transverse bore.

4,271,737

MOVABLE INSULATION PUNCHER

Thomas W. Steenson, Richmond Hill, and W. Donald Paton, Aurora, both of Canada, assignors to Butler Manufacturing Company, Kansas City, Mo.

Filed Aug. 29, 1979, Ser. No. 70,784
Int. Cl.³ B26F 3/08
U.S. Cl. 83—171 8 Claims



1. A movable insulation puncher comprising:
a multi-layer panel having a layer of insulation;
a track-defining bracket surrounding said panel and including a web supporting said panel and a pair of side flanges attached to said web to be located closely adjacent the side edges of said panel, said side flanges forming tracks;
a carriage which includes wheels adapted to move along said tracks, a base beam mounted on said wheels, a bridge extending across said multi-layer panel, and a fuel tank mounted on said carriage;
insulation lacing means on said carriage, said lacing means including guide means on said carriage, a support beam

movably mounted on said guide means, a mounting plate mounted on said support beam to be movable therewith, a plurality of hollow insulation lancing tip means mounted on said plate, said lancing tip means each having an elongate flattened body portion which includes a pair of planar walls, said planar walls including lower edges, said lancing means further including a lancing tip which includes said planar wall lower edges, said lancing means each having a blind ended bore defined therein, a burner connected to each lancing tip means, each burner having means defining a needle-shaped flame to heat the lancing tip means associated therewith to a temperature sufficient to define a hole in said layer of insulation, each burner being connected to said tank to receive fuel therefrom;

lancing tip means moving means mounted on said carriage and including a crank movably mounted on said carriage, mechanical means connecting said crank to said support beam for moving said support beam in conjunction with said crank; and

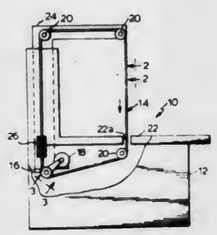
beam return means connecting said movable beam to said carriage to assist a return movement of said movable beam against gravity.

4,271,738

SAWING MACHINE

Eugene R. DeAngelis, Rte. 2, Box 795, Havana, Fla. 32333

Filed Apr. 23, 1979, Ser. No. 32,159
Int. Cl.³ B23D 53/02; B27B 13/00
U.S. Cl. 83—174 4 Claims



1. A machine for cutting hard materials, comprising:

a supporting base;

at least two pulleys connected to said supporting base; means connected to one of said pulleys for driving said pulley; and

an endless array of cutting teeth joined end-to-end along a central axis to form an endless band, each of said teeth being shaped in a truncated cone, said endless array of teeth being coupled about said pulleys;

said drive pulley connected to said means for turning said drive pulley including a recessed perimeter having recessed areas sized and shaped as said conical teeth to receive said conical teeth to prevent slippage between said endless array of teeth and said pulley.

4,271,739

MACHINE AND METHOD FOR FORMING, FILLING, AND SEALING PACKAGES OF LAMINATED SHEET MATERIAL

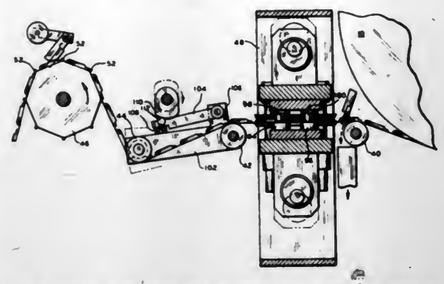
Yun H. Chung, Rossford, Ohio, assignor to International Automated Machinery, Inc., Perrysburg, Ohio

Filed Jun. 11, 1979, Ser. No. 47,203
Int. Cl.³ B26D 7/14, 5/20, 2/06
U.S. Cl. 83—175 8 Claims

1. Apparatus for forming packages of product between facing surfaces of two webs of packaging material including: means for directing a laminated web of packaging material containing spaced apart sealed cavities containing the packaged product along a path;

means for sequentially forming registering apertures in said laminated web along the length thereof in spaced relation from the cavities containing the packaged product; and

means for stretching (said laminated web) a portion of the



length of said web including at least one of said cavities at least just prior to and just after the forming of the registering apertures, to maintain a constant length of that portion of said web in which the registering apertures are formed.

4,271,740

CUTTING APPARATUS FOR POTTING MATERIAL WITH HOLLOW FIBERS EMBEDDED THEREIN

Masahiro Yamazaki, Yokohama; Takayasu Akiyama, Numazu; Yoshihiro Makuta, Fujisawa, and Toshikuni Maruoka, Yokohama, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Apr. 18, 1979, Ser. No. 31,133
Claims priority, application Japan, Apr. 26, 1978, 53/49608
Int. Cl.³ B26D 4/72
U.S. Cl. 83—592 16 Claims



1. An improved apparatus for cutting potting material with hollow fibers embedded therein, said apparatus including a cutting blade and a rotatable chassis for carrying said blade, said material being cut in such a manner that said cutting blade is rotated relative to said material, said cutting blade comprising a straight blade having a straight cutting edge, said improvement comprising:

(a) said cutting edge defined by a first blade surface to be positioned at an angle with a predetermined cutting plane of said material and a second blade surface to be positioned at a larger angle with said cutting plane of said material than that of said first blade surface; and

(b) means carried by said rotatable chassis for supporting said material as the latter is being cut by said blade, said supporting means mounted to and extending outwardly from said chassis so that said material does not contact the chassis,

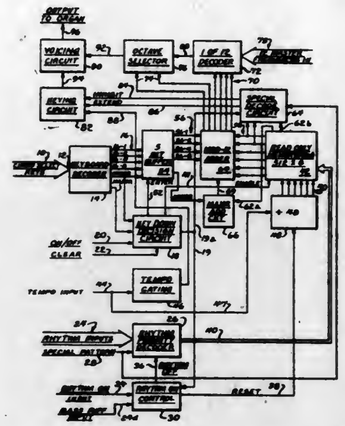
wherein on the relative rotation of said straight blade said first blade surface is so disposed as to be withdrawn from said cutting plane of said material toward said second blade surface without substantially contacting with said cutting plane, thereby achieving an extremely smooth planar cut of the potting material and hollow fibers.

4,271,741

ACCOMPANIMENT SYSTEM FOR ELECTRONIC MUSICAL INSTRUMENT

William R. Hoskinson, Geneva, Ill.; Peter E. Solender, Williamsville, N.Y., and William V. Machanian, DeKalb, Ill., assignors to The Wurlitzer Company, DeKalb, Ill.

Filed Mar. 15, 1978, Ser. No. 886,750
Int. Cl.³ G10F 1/00
U.S. Cl. 84—1.03 22 Claims



1. In an electronic musical instrument having a plurality of switch means each manually operable for selecting one of a plurality of predetermined cords, an arpeggio system selectively operable for producing arpeggio effects, comprising:

first electronic circuit means for producing a predetermined chord position signal in response to operation of each of said switch means, ROM means containing predetermined arithmetically and time related patterns of note position signals,

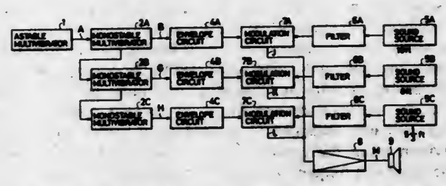
second electronic circuit means for arithmetically adding the chord position signal of the selected chord with each of selected ones of said note position signals to generate arpeggio signals, and third electronic circuit means responsive to said arpeggio signals for directing said musical instrument to sound an arpeggio effect in the musical key of the selected chord.

4,271,742

SOUND GENERATOR FOR PRODUCING ANGKLONG LIKE SOUND

Masao Sakashita, and Yoshiaki Matsuura, both of Saitama, Japan, assignors to Kabushiki Kaisha Kawai Gakki Seisakusho, Hamamatsu, Japan

Filed Nov. 9, 1979, Ser. No. 93,079
Claims priority, application Japan, Aug. 28, 1979, 54/109585
Int. Cl.³ G10H 1/02
U.S. Cl. 84—1.26 7 Claims



1. A sound generator for producing sounds similar to those of an angklong, comprising:

a circuit for generating a series of consecutive rectangular waves,

envelope circuits each providing an envelope wave having the same period as that of each said rectangular wave, a sharp rising leading edge followed by gradual decay and a given time lag relative to each other that is short when compared to a half period of said rectangular wave,

sound source circuit means incorporated for generating output signals having a waveform substantially equal to an output waveform of the angklong,

modulation circuits for modulating the output signals of the sound source circuit means with the respective envelope waveforms,

means for superposing the outputs of the modulation circuits, and

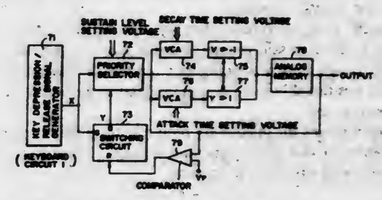
means for sounding the superposed signal from a loudspeaker as a musical sound.

4,271,743

ENVELOPE SIGNAL GENERATOR

Shigeru Uchiyama, Ageo, Japan, assignor to Kabushiki Kaisha Kawai Gakki Seisakusho, Hamamatsu, Japan

Filed Nov. 15, 1979, Ser. No. 94,633
Claims priority, application Japan, Nov. 17, 1978, 53-142044
Int. Cl.³ G10H 1/057, 1/22
U.S. Cl. 84—1.26 1 Claim



1. An envelope signal generator comprising:

a key depression/release signal generator for producing different output levels in response to key depression and key release;

an analog memory;

a switching circuit which is set to a first output level upon key depression and set to a second output level when the stored output level of said analog memory has reached a certain value;

a preset circuit for outputting at least a level setting voltage and first and second time constant setting voltages relating to an envelope;

a priority selector which is supplied with the key depression/release signal generator output, the switching circuit output and the level setting voltage and selects one of them in a predetermined order of priority;

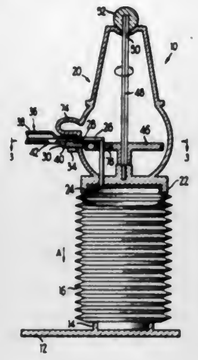
first and second voltage controlled amplifiers;

a first circuit for converting into a current the output from said first voltage controlled amplifier supplied with the output from said analog memory and controlled by the first time constant setting voltage;

a second circuit for converting into a current the output from said second voltage controlled amplifier supplied with the output from said analog memory and controlled by the second time constant setting voltage; and wherein said analog memory is connected in common to the outputs of the first and second circuits;

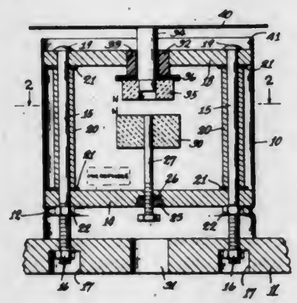
wherein the operative states of the first and second circuits are controlled in accordance with the output from the priority selector.

4,271,744
MUSICAL TOY
Ralph J. Kulesza, Chicago, Ill., assignor to Marvin Glass & Associates, Chicago, Ill.
Filed Oct. 9, 1979, Ser. No. 82,651
Int. Cl.³ G10D 7/02
U.S. Cl. 84—330 7 Claims



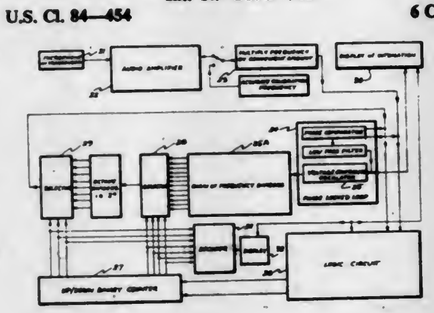
1. A musical toy comprising:
a housing in the shape of a figure including a head with a mouth opening;
a fluid pump in said housing for pressurizing a fluid;
means for conveying said pressurized fluid from said pump to said mouth opening;
a musical wind instrument slidably mounted for reciprocation relative to said mouth opening, having a plurality of side by side tone producing mechanisms of different pitch each positionable in fluid communication with said mouth opening; and
a control means for selectively reciprocating said instrument relative to said mouth opening to align different mechanisms with said mouth opening.

4,271,745
PERCUSSION INSTRUMENTS
Homer M. Shatto, 680 Rte. 322 E., East Orwell, Ohio 44034
Filed Aug. 15, 1978, Ser. No. 933,865
Int. Cl.³ G10D 13/02
U.S. Cl. 84—402 17 Claims



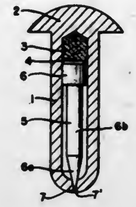
1. A percussion instrument, comprising:
a tubular shell formed of rigid, thin-wall material, having a rim defining an open end thereof,
a thin metal diaphragm disposed transversely of said open end having a peripheral portion overlying said rim, said diaphragm being adapted for striking by a drumstick or the like,
inner and outer discs held within and transversely of said shell in spaced-apart relation axially of the latter,
said outer disc having one surface directed toward said shell open end and its other surface directed toward the interior of said shell, and said outer disc having an axially arranged central opening,
means supporting said diaphragm from said shell, comprising a first rod slidable axially through said central opening and having one end extending from said outer disc one surface and connected to a central portion of said diaphragm, the opposite end of said rod extending from said outer disc other surface,
a first permanent magnet connected to said rod opposite end,
said inner disc having one surface directed toward said outer disc other surface, and having an axially-arranged central opening,
a second rod extending through said inner disc central opening, and a second permanent magnet secured to an end of said second rod,
said first and second magnets having poles in confronting relation.

4,271,746
AUTOMATIC MUSICAL TUNING DEVICE
John G. Dobbie, 15 Pleasant Ave., East Lindfield, New South Wales 2070, Australia
Continuation of Ser. No. 923,869, Jul. 12, 1978, abandoned. This application Feb. 1, 1980, Ser. No. 117,602
Claims priority, application Australia, Jul. 12, 1977, PD0804; Apr. 12, 1978, PD3987
Int. Cl.³ G10G 7/02
U.S. Cl. 84—454 6 Claims



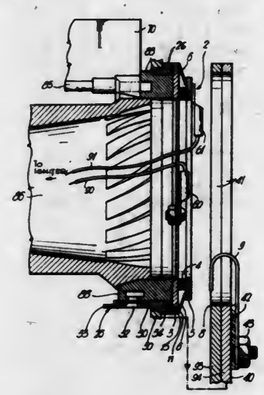
1. An automatic musical tuning device adapted to display a representation of an individual note from an incoming tone, said device comprising an input microphone, conversion circuitry connected to said microphone for amplifying and processing the input from the microphone to form a discrete waveform of frequency having a known relationship to the incoming tone, a phase locked loop having two comparator inputs, one said input being connected to the output from said conversion circuitry and the other said input being derived from an oscillator through frequency dividers controlled by logic circuitry arranged to automatically switch successive division ratios corresponding to individual notes from said oscillator and frequency dividers into said phase locked loop until said phase locked loop locks onto the input tone from said conversion circuitry, an output display comprising a visual representation of the tone locked into said phase locked loop, and output circuitry connected between said phase locked loop and said output display for enabling said output display when triggered by said phase locked loop.

4,271,747
FASTENING ELEMENT WITH A CAVITY CONTAINING AN EXPLOSIVE CHARGE
Hellmut Bendler, Furth; Axel Homburg, Taunusstein, and Horst Penner, Furth, all of Fed. Rep. of Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany
Filed Jun. 8, 1978, Ser. No. 913,685
Int. Cl.³ B23P 19/00; F16B 15/00
U.S. Cl. 411—20 21 Claims



1. A fastening element that has a cavity containing an explosive charge arranged so that due to the explosion of the explosive charge anchoring of the fastening element within a bore of a workpiece takes place automatically and that functions as a rivet-nail combination, said element comprising sleeve means defining the cavity containing the explosive charge at one end and providing an aperture at the other end, and a nail disposed within said sleeve means, said nail comprising a head, a shank, and a tip and being arranged to be driven out through the aperture formed in said other end; the head of the nail acting as a piston which can be driven by explosion of the explosive charge and as a stop which arrests the driving-out movement when the shank of the nail has passed through said aperture.

4,271,748
SHORTING AND RADIATION PROTECTION DEVICE FOR ROCKET
Frederick D. Ward, St. Foy, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ottawa, Canada
Filed Mar. 20, 1979, Ser. No. 22,107
Claims priority, application Canada, Jul. 6, 1978, 306896
Int. Cl.³ F41F 3/04
U.S. Cl. 89—1.814 4 Claims



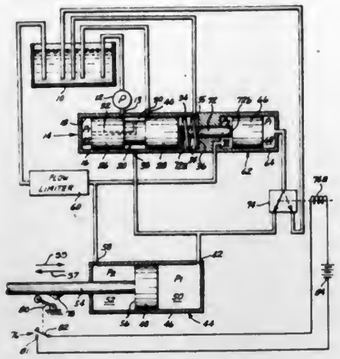
1. A rocket igniter safety device for use in conjunction with a rocket retention and ignition assembly for a rocket launcher, and for a rocket including an igniter and a retention member outwardly extending from and circumscribing the rocket body adjacent the rear end of said rocket, said retention member disconnecting from the remainder of said rocket when said rocket is fired, said assembly comprising first support means for engaging said retention member when said rocket is placed in a firing position in said rocket launcher and preventing forward displacement of said retention member from the firing position, said first support means having a loading hole formed therein to permit loading of said rocket therethrough into said rocket launcher, said hole being too small to permit passage of said retention member therethrough, second support means adapted to be detachably fixed to said first support means and adapted for engaging said retention member when said rocket is in said firing position and preventing rearward displacement of said retention member from the firing position, said second support means being removable from said first support means to permit removal of a spent retention member and loading of a rocket, said second support means having an opening formed therein, said opening being located at said rear end when said second support means engages said retention member, and a first electrical contact means attached to said second support means, said electrical contact means being electrically connected to an electrical firing means, said safety device comprising
(a) a second electrical contact means electrically connected to said igniter by means of an insulated electrical conductor to define a first part of an electrical circuit,
(b) shielding means for shielding said electrical circuit from electromagnetic radiation, said shield means being electrically connected to said igniter by means of an insulated electrical conductor, and to ground, to define a second part of said electrical circuit,
(c) insulating means between said second electrical contact means and said shielding means for electrically insulating said electrical contact means from said shielding means,
(d) electrical switch means between said shielding means and said second electrical contact means for shorting said electrical circuit by grounding said igniter when said switch means is closed, and
(e) actuating means for simultaneously opening said switch means and effecting electrical contact between said first and second electrical contact means to complete the electrical circuit between said igniter and said electrical firing means, when said rocket is placed in the firing position, wherein said safety device is adapted to be fastened to said retention member.

4,271,749
REDUCED BACK PRESSURE, ANTI-CAVITATION VALVE SYSTEM
George E. Pease, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 21, 1978, Ser. No. 971,792
Int. Cl.³ F15B 13/16, 11/10
U.S. Cl. 91—358 R 5 Claims

1. An improved valving system for regulating the pressure of the fluid within a hydraulic actuator of the type having a first hydraulic cylinder, a movable piston therein that separates the cylinder into first and second actuator chambers, said improved valving system comprising:
sensing means in fluid communication with said first and second actuator chambers for sensing the difference in fluid pressure of the fluid within said first and second actuator chambers, said sensing means including a second hydraulic cylinder having a sensing piston movably mounted therein that separates said second cylinder into first and second sensing chambers, said first sensing chamber being in fluid communication with said first actuator chamber and said second sensing chamber being in fluid communication with said second actuator chamber;
pressure regulating means in fluid communication with said first actuator chamber for regulating the pressure of the fluid within said first actuator chamber in response to said sensed difference in pressure;

means for transmitting said difference in pressure from said sensing means to said pressure regulating means;

signal producing means operably associated with said actuator for producing a first signal in response to said piston



within said first hydraulic cylinder reaching a predetermined location within said first hydraulic cylinder; and,

valve means responsive to said first signal for interrupting the fluid communication between said first sensing chamber and said first actuator chamber.

4,271,750

SERVO BOOSTERS FOR VEHICLE BRAKING SYSTEMS

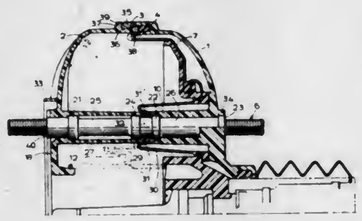
Alfred W. Thomas, Koblenz, and Lutz E. A. op den Camp, Koblenz-Moselweiss, both of Fed. Rep. of Germany, assignors to Lucas Industries Limited, Birmingham, England

Filed Jul. 6, 1979, Ser. No. 55,352

Claims priority, application United Kingdom, Jul. 8, 1978, 29255/78

Int. Cl.³ F01B *19/00*

U.S. Cl. 92—98 D **3 Claims**



1. A servo booster assembly for a vehicle braking system comprising a housing, an input member, an output member, a movable wall dividing the interior of the housing into two chambers and adapted to apply a force to said output member when the chambers are subjected to a pressure differential in response to a force applied to said input member, a flexible diaphragm and a diaphragm support plate of said movable wall, first and second housing walls of said housing on opposite sides of said movable wall, at least on tie extending through said diaphragm support plate from said first housing wall to said second housing wall, a rolling diaphragm sealing said movable wall to said tie, and a sleeve connected to said first housing wall and encasing at least part of said tie within said housing, a radially outer surface of said sleeve being arranged to support said rolling diaphragm.

4,271,751

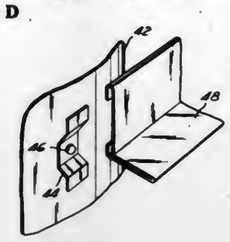
AIR DEVICE WITH FLEXIBLE MOUNTING SYSTEM

David R. Timmons, Newport Beach, Calif., assignor to Automation Industries, Inc., Greenwich, Conn.

Division of Ser. No. 892,168, Mar. 31, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,841

Int. Cl.³ F24F *7/00*

U.S. Cl. 98—40 D **5 Claims**



1. An air terminal device for connection to the end of an air duct, comprising:

(a) a rigid conduit having an inlet end and an outlet end, said inlet end being adapted for connection to an air duct and said outlet end being adapted for connection to an air discharge device;

(b) first and second support members each comprising a first portion disposed parallel to the longitudinal axis of said rigid conduit and having a pair of opposed slots formed therein for slidable attachment to said rigid conduit at any one of a plurality of positions between said support members, and a second portion disposed at an angle with respect to said first portion to enable connection of said support members to the top surfaces of two spaced building structural members thereby to provide support in space for said rigid conduit at substantially any selected location between two spaced building structural members; and

(c) first and second opposed dovetail brackets disposed on said rigid conduit to enable said slidable attachment of said pairs of slots in said first portions of said first and second support members, respectively, to said rigid conduit and to provide a positive mechanical lock therewith.

4,271,752

COFFEE MAKING ASSEMBLY

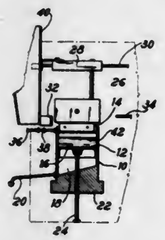
Paolo Valente, and Taddeo Piloni, both of 30, Via Noccoli, Cremeno (Como), Italy

Filed Apr. 9, 1979, Ser. No. 28,090

Claims priority, application Spain, Apr. 12, 1978, 235.333

Int. Cl.³ A47J *3/34*

U.S. Cl. 99—289 R **12 Claims**



1. Apparatus for preparing and delivering a coffee infusion comprising a fixed cylinder including a first end and a second end, said fixed cylinder including an upper rim located at said first end thereof, a first piston mounted for reciprocation within said fixed cylinder between a first position within said

cylinder and displaced from said upper rim at said first end of said cylinder so as to define a predetermined coffee dose volume between the upper face of said first piston and said upper rim of said fixed cylinder, and a second position in alignment with said upper rim of said fixed cylinder, a second piston mounted for reciprocation in the plane of said fixed cylinder between a first position at said upper rim of said fixed cylinder so as to sealingly close said predetermined coffee dose volume and a second position outside of said fixed cylinder so as to permit access to said predetermined coffee dose volume, means for supplying pressurized hot water to said predetermined coffee dose volume when said second piston is in said first position, duct means for collecting and delivering coffee produced in said predetermined coffee dose volume from said second end of said fixed cylinder, reciprocating support means for said second piston whereby said second piston may be reciprocated from said second position in said plane of said cylinder to a third position outside of said plane of said cylinder, conveyor means carried by said support means whereby when said second piston is in said third position said conveyor means is aligned with said cylinder so that a predetermined coffee dose may be conveyed to said fixed cylinder thereby, motor means, including a motor shaft, and mechanical control means for reciprocating said second piston and said reciprocating support means upon rotation of said motor shaft, said mechanical control means comprising a support wall mounted adjacent to said plane of said cylinder, said support wall including support wall guide means, a control plate pivotally mounted on said support wall, pin means connected to said second piston for guiding said piston upon rotation of said motor shaft by cooperation of said pin means with said support wall guide means and said control plate, and connection means for causing said control plate to reciprocate in response to rotation of said motor shaft.

4,271,753

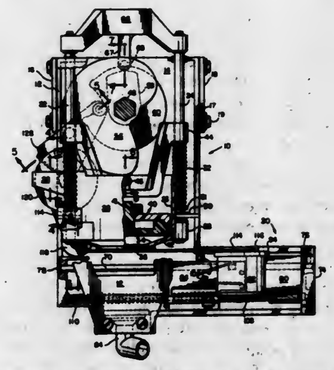
BREWING MECHANISM

Raymond J. Neely, Lansdale, Pa., assignor to Refreshment Machinery Incorporated, Warminster, Pa.

Filed Nov. 23, 1979, Ser. No. 93,881

Int. Cl.³ A47J *31/00*

U.S. Cl. 99—289 R **13 Claims**



1. A brewing mechanism comprising of frame, a vertically movable open-bottom cylinder supported by said frame, a vertically movable piston inset cylinder and supported by said frame, said piston being within said cylinder at the upper end of its stroke, first spring means biasing said piston upwardly and biasing said cylinder downwardly, means to facilitate entry of water into the cylinder below the elevation of said piston when the piston is at the upper end of its stroke, a base assembly reciprocable horizontally between a brewing position and a discharge position, said base assembly including a brewing cavity which is positionable beneath and sealed with the cylinder in the brewing position of the assembly, the second spring means biasing said assembly towards the discharge position, a camshaft driven by a motor, plurality of cams on said camshaft, a first cam follower on said piston, a second cam follower on said cylinder, each cam follower being in contact with a discreet one of said cams on said camshaft, said first spring means cooperating with one of said cams to aid said motor in moving said base assembly toward said brewing position.

4,271,754

METHOD OF AND APPARATUS FOR PRESSING OF LIQUIDS FROM SOLID MATERIALS

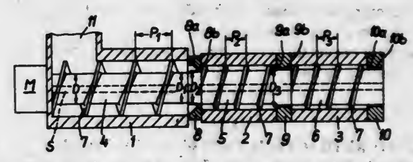
Thorsten Homann, Hamburg, Fed. Rep. of Germany, assignor to Fried. Krupp GmbH, Essen, Fed. Rep. of Germany

Filed Nov. 8, 1978, Ser. No. 958,638

Claims priority, application Fed. Rep. of Germany, Nov. 19, 1977, 2751703

Int. Cl.³ B30B *9/02*

U.S. Cl. 100—37 **7 Claims**



1. A method of pressing a liquid in the form of oil from a solid material in the form of vegetable matter which comprises the steps of:

(a) pressing said material in a first stage to a peak pressure;

(b) immediately and directly thereafter spontaneously expanding the material from said peak pressure to atmospheric pressure;

(c) disrupting the orientation and continuity of the material as formed during the pressing in step (a); and

(d) immediately and directly repeating steps (a) through (c) at least once, each sequence of steps (a) through (c) constituting a respective stage.

4,271,755

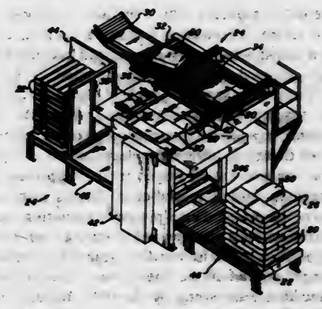
BAG HANDLING APPARATUS

Dale I. Kintgen; William J. Mylrea, and William A. Smith, all of Littleton, Colo., assignors to Master Conveyor Corporation, Englewood, Colo.

Filed Oct. 25, 1978, Ser. No. 954,546

Int. Cl.³ B65G *57/24, 15/14*; B30B *15/14*

U.S. Cl. 100—52 **38 Claims**



1. In bag handling apparatus, the combination comprising: first means for flattening and distributing the material in a bag;

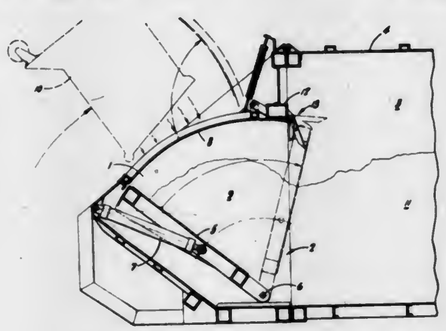
second means for metering a plurality of the bags in a series at spaced intervals at a controlled rate;
third means for turning the bags through selected angles to orient the bags for selected layer patterns, said third means rotating said said bags in increments of either 90°, 180° or 270° from any starting point;
fourth means for squaring and compacting the bags forming the selected layer pattern;
fifth means for depositing the layer pattern of bags onto a pallet;
sixth means for vertically compressing each layer as a stack of layers on the pallet after deposit onto said pallet, said sixth means for vertically compressing including a reversible electric drive motor arranged for raising and lowering the pallet with layers thereon and a control having a sensor for sensing the rate of change of current drawn by said drive motor while raising the pallet for automatically operating said motor responsive to the load on said motor resulting from a layer being compressed whereby, after a preselected compressing force is applied, said motor is stopped and reversed for applying a substantially uniform compression to each layer independently of the number of layers on the pallet; and
seventh means for providing a pallet, one at a time, for each loading cycle.

4,271,756

LOAD RETRACTION PREVENTING FINGER ARRAY

Darryl G. Bettencourt, Lodi, Calif., assignor to Blackwelders, Rio Vista, Calif.

Filed Dec. 18, 1979, Ser. No. 104,958
Int. Cl.³ B30B *15/00*
U.S. Cl. 100—220 8 Claims



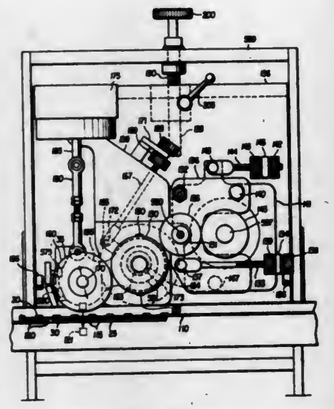
1. In a refuse compactor which includes a hopper for the reception of refuse, a container forming a packing chamber, there being a throat between the hopper and packing chamber, and a power-actuated packing blade mounted in the hopper and operative upon advance of such blade to forcefully and recurringly thrust pre-deposited refuse from the hopper, through the throat, and into the packing chamber whereby the resultant load therein is ultimately placed under compression; a load retraction preventing finger array comprising a transversely extending row of spaced-apart fingers disposed adjacent the top of the throat, means pivotally mounting the fingers of said row for forward and upward swinging from an initially depending position to a forwardly projecting position, and means arranged so that all the fingers, upon the packing blade being advanced, are so swung by the blade to said forwardly projecting position; the forwardly projecting fingers, at least in part, being engaged, and held in such projection, by the load of refuse in the packing chamber when such load is under compression and tends to expand; a number of said fingers being of greater length than others thereof, and the fingers of greater length being, at least, those which in such projection are end-engaged by the compressed load of refuse.

4,271,757

ROTARY OFFSET ARTICLE PRINTING SYSTEM

William E. Maxwell, Keene; Peter Jenness, III, Spofford, and Michael F. Potter, Keene, all of N.H., assignors to Markem Corporation, Keene, N.H.

Filed May 18, 1979, Ser. No. 40,301
Int. Cl.³ B41F *17/00*
U.S. Cl. 101—37 26 Claims



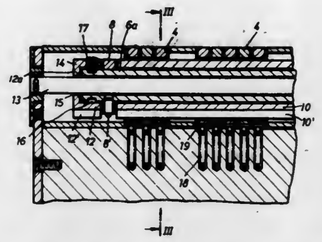
1. A rotary offset article printing system comprising:
(a) a die roll having an outside circumference to which is secured a printing die, the die roll being rotatably mounted on a first axis;
(b) means for applying ink to the printing die;
(c) an offset roll having an outside circumference which is positioned for rolling contact with the printing die to transfer from the printing die to the outside circumference of the offset roll printed indicia to be transferred to an article at a printing position, the offset roll being rotatably mounted on a second axis;
(d) means for continuously rotating the die roll and the offset roll respectively about the first and second axes, the linear velocity of the printing die and the linear velocity of the outside circumference of the offset roll being substantially identical;
(e) an article conveying means for carrying articles to be printed, the article conveying means being selectively movable at a linear velocity which is substantially identical to the linear velocity of the outside circumference of the offset roll and selectively stopped, the article conveying means accelerating from a stop to said linear velocity during the conveying of an article to be printed from a rest position to the printing position and moving uniformly at said linear velocity during the transfer of indicia from the offset roll to the article to be printed at the printing position, the rest position being located a predetermined distance from the printing position;
(f) drive means for causing the stopping and selective motion of the article conveying means at said linear velocity; and
(g) displacement means for selectively moving the offset roll between first and second positions, the outside circumference of the offset roll being out of contact with the article to be printed when the offset roll is in the first position and the article to be printed is at the rest position and the outside circumference of the offset roll being in rolling contact with the article to be printed when the offset roll is in the second position and the article to be printed isat the printing position.

4,271,758

SELECTIVE LOCKING DISPLAY WHEELS IN DIGIT PRINTERS

Klaus Osterhof, Berlin, Fed. Rep. of Germany, assignor to Maschinenbau "WAM" M. Osterhof KG, Berlin, Fed. Rep. of Germany

Filed Oct. 18, 1978, Ser. No. 952,398
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1977, 2747559
Int. Cl.³ B41J *1/60*
U.S. Cl. 101—110 4 Claims



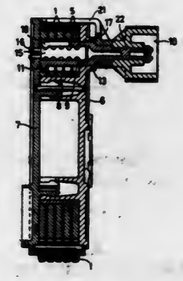
1. In a digit printer, having axially displaceable shaft means capable of assuming different axial positions, there being external means for providing rotation of the shaft means;
a set of print wheels and a set of display wheels;
a pair of spaced adjusting means on the shaft means;
one of the adjusting means of the pair being located near one end of the shaft means, and being provided for individual engagement with the display wheels, the other one of the adjusting means being located farther away from said one end and provided for individual engagement with the display wheels, whereby for each one of different axial positions of the shaft means, the one adjusting means engages different display wheels and the other adjusting means engages correspondingly different print wheels, the engagement changing upon axial displacement of the shaft means, the respective wheels being engaged by the respective adjusting means, being rotated upon rotation of the shaft means;
a first sleeve on the shaft means being located between the two adjusting means and provided for axially moving together with the shaft means
a second sleeve being located on the shaft means, on the other side of the other adjusting means, said second sleeve also provided for moving axially with the shaft means, the improvement comprising:
means for holding the first sleeve against rotation;
means on the first sleeve for holding any of the wheels located between the two adjusting means and preventing rotation of such wheels;
means for holding the second sleeve against rotation;
means on the second sleeve for holding any of the wheels upon being radially aligned therewith and preventing rotation of the wheels so held;
a locking member of the shaft means at said end and disposed next to the one adjusting means on the side opposite the first sleeve, the locking member connected for moving axially with the shaft means;
key means on the locking member having axial width for engaging and holding at least one of the display wheels upon radial alignment therewith, but said axial width being significantly less than needed to hold all display wheels;
said shaft means at said end being hollow;
a bar having a nonround cross section and traversing said locking member in keying relation and telescoping into the hollow interior of the shaft means;
means for holding the bar against rotation; and
said bar permitting axial displacement of the shaft means and the locking member relative to the bar as held by the means for holding, thereby holding the locking member against rotation due to said keying relation, whereby said locking member holds those wheels it engages.

4,271,759

PRINTING APPARATUS FOR USE WITH PRICE LABELLER OR THE LIKE

Heinrich Volk, Beerfelden, Fed. Rep. of Germany, assignor to Esselte Pendaflex Corporation, Garden City, N.Y.

Filed Aug. 30, 1979, Ser. No. 71,288
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1978, 2838964
Int. Cl.³ B41K *1/10*; B41J *1/20*
U.S. Cl. 101—110 17 Claims



6. Printing apparatus comprising
a housing having at least two oppositely disposed side walls;
a plurality of sets of juxtaposed printing elements;
a plurality of internally toothed, annular setting wheels supported with respect to said housing for respectively positioning said printing elements;
a hollow, axially shiftable, setting shaft extending at least into said annular setting wheels, said setting shaft including (a) a drive member for engaging the internal teeth of a selected one of said setting wheels and (b) a detenting member; and
a pin mounted with respect to one of said side walls, said pin extending into said hollow setting shaft and including a plurality of detent recesses longitudinally extending along the surface of said pin, the distance between at least two of said recesses corresponding to the width of at least one of said setting wheels, said detenting member of the setting shaft engaging a selected one of the recesses for axially positioning the setting shaft at the setting wheel to be driven.

4,271,760

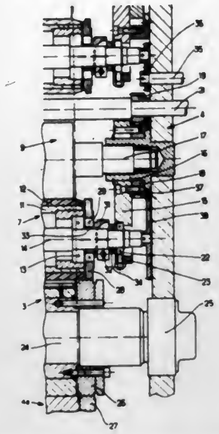
PRINTING MACHINES OF THE OFFSET TYPE

Louis G. Corse, Chaumont-sur-Tharonne, France, assignor to Machines Chambon, Orleans, France

Filed Jul. 17, 1979, Ser. No. 58,266
Claims priority, application France, Jul. 27, 1978, 78 22240
Int. Cl.³ B41F *7/04, 31/34*
U.S. Cl. 101—142 6 Claims

1. An offset printing machine comprising a plate cylinder and a blanket cylinder respectively carrying roller tracks rolling on one another and determining the center distance between the two cylinders, at least one inking roller with a supple peripheral layer, fed with ink from an inking assembly, via ink vibrator cylinders and an inking cylinder, said inking roller being carried by levers pivoted about the axis of the inking cylinder and carrying roller tracks in contact with those of the plate cylinder for controlling the pressure contact between the inking roller and the plate cylinder, and the crushing of the supple peripheral layer of the inking roller, wherein the shaft of the inking roller is mounted in its roller tracks via eccentric

hubs locked on the shaft and pivoting in the roller tracks via bearings, and one end of this shaft is fast with a gear coupled to



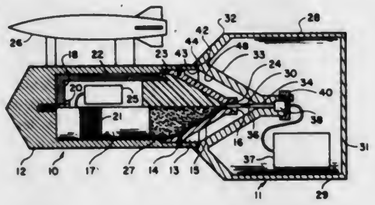
a control shaft for adjusting the pressure contact of the inking roller upon the plate cylinder.

4,271,761

HIGH ACCELERATION CABLE DEPLOYMENT SYSTEM

Thomas N. Canning, Sunnyvale; Christopher E. Barns, Mountain View; James P. Murphy; Bobby Gin, both of San Jose, and Robert W. King, Saratoga, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 23, 1979, Ser. No. 32,305
Int. Cl.[3] F42B *13/56*
U.S. Cl. 102—504 13 Claims



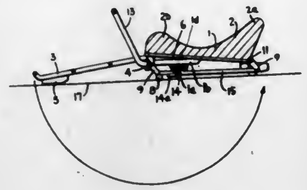
1. An umbilical cable deployment system comprising:
- a ballistic forebody with an afterbody detachably engaged thereto;
- said forebody having a supply of cable with the distal end of said cable being anchored to said afterbody;
- means within said forebody for causing said cable to be deployed in a helical pattern with rotational energy when said forebody is separated from said afterbody;
- means within said forebody for dissipating some of said cable rotational energy, said dissipating means including a member adapted to be temporarily secure a section of said cable and be abraded by said cable when said forebody is separated from said afterbody said dissipating means including a drag funnel and said member being a low density plug that tightly fits within the interior of said drag funnel and presses said section of said cable against said funnel inner surface prior to a forebody/afterbody separation; and
- means within said afterbody for dissipating some of said cable rotational energy.

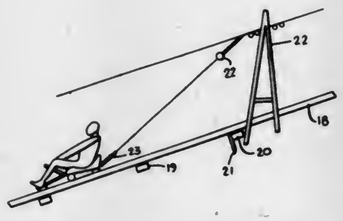
4,271,762

PLEASURE VEHICLE AND A TRANSPORTATION SYSTEM UTILIZING THE SAME

Josef Wiegand, Landstrasse 12, 6419 Rasdorf, Fed. Rep. of Germany

Filed Apr. 28, 1978, Ser. No. 900,891
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1977, 2736731; Sep. 19, 1977, 2742141
Int. Cl.[3] A63G *21/02*; B61B *9/00, 12/12*
U.S. Cl. 104—69 6 Claims





1. A pleasure vehicle for use on a downhill track, comprising in combination:
- a vehicle body,
- a leg support pivotally mounted on said vehicle body, and extending frontwardly from said vehicle body,
- support means for supporting the vehicle on the track for downward movement thereon, including respective support elements on said vehicle body and on said leg support,
- a plurality of brake shoes operative for braking said vehicle body, each mounted on said vehicle body for displacement between an extended and a retracted position,
- displacement means for simultaneously displacing said brake shoes to contact the track, and so support said vehicle body thereon so that all of said support elements of said vehicle body are out of contact with the track, while said support elements of said leg support continue to support said leg support on the track and thus guide the vehicle thereon, said displacement means including means for urging said brake shoes toward said extended positions,
- an actuating lever pivotally mounted on said vehicle body and operative for displacing said brake shoes from said extended position to said retracted position, so as to discontinue the braking by the brake of said shoes, and
- a seat mounted on said vehicle body, said urging means including transmitting means including a plurality of transmitting links articulated to said seat and to said brake shoes, respectively, for transmitting at least a part of the weight of said seat and any additional weight resting thereon to said brake shoes, to urge said brake shoes toward said extended position, and wherein said seat rises relative to said vehicle body as said actuating lever displaces said brake shoes towards said retracted position.

3. A pleasure ride arrangement, comprising in combination:
- at least one pleasure vehicle,
- a tow for towing the vehicle uphill,
- an uphill track arranged underneath said tow,
- a downhill track separate from said uphill track,

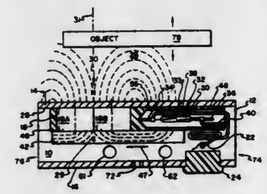
- means for connecting said vehicle to said tow, including a connecting eyelet and a connecting hook which is rapidly engageable in said eyelet at a downhill station and disengageable therefrom at an uphill station of the tow, and which has an end portion which extends beyond said eyelet in the engaged position of the connecting means, said vehicle being capable of assuming different positions on said uphill track while being towed on said uphill track by said tow,
- means for automatically disengaging said connecting means at said uphill station only in one of said different positions of said vehicle, and
- means on said uphill track at least at said uphill station for bringing said vehicle into, and maintaining said vehicle in said one position, including correction rails extending longitudinally of said uphill track and engaging said vehicle.

4,271,763

PROXIMITY DETECTOR

Philip H. Berger, 2250 Pheasant Way, Salt Lake City, Utah 84121

Filed May 15, 1978, Ser. No. 905,871
Int. Cl.[3] B61B *12/06*
U.S. Cl. 104—179 10 Claims



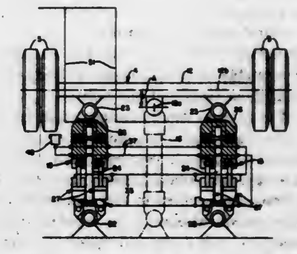
1. A detector for detecting the proximity of a ferromagnetic object comprising:
- a substantially non-ferromagnetic chassis having a front and a rear:
- magnet means comprised of a pair of substantially adjacent cylindrically shaped magnets positioned within said chassis proximte said front with the axis of each cylindrical magnet substantially normal thereto to produce a combined magnetic flux field about said magnets having an axis substantially normal to said front and wherein said magnetic flux field forms a pair of opposite magnetic poles along said axis;
- a switch having contacts operable by magnetic flux, said switch being positioned proximate said front and said magnet means within said chassis with said contacts in the portion of the magnetic flux field which is essentially parallel to the axis of said magnetic flux field for operation by said field;
- conductor means conductively connected to said switch;
- connector means conductively connected to said conductor means and positioned with respect to said chassis for external connection to external circuit means;
- shield means positioned within said chassis between the rear of said chassis and said magnet means and between the rear of said chassis and said switch to shield said magnet and said switch from extraneous magnetic fields and to focus said magnetic flux for operation of said contacts; and
- wherein said flux field is strengthened by a ferromagnetic object positioned within a predetermined distance from the front of said chassis and weakened upon positioning without said predetermined distance to cause the contacts of said switch to operate in relation to the positioning of said object and in turn send an operate signal reflective of said positioning to said external circuit via said conductor and connector means.

4,271,764

VEHICLE ADAPTED TO BE GUIDED ON TRACKS FOR THE PUBLIC LOCAL PASSENGER TRAFFIC WITH PIVOTAL REAR AXLE AND LONGITUDINAL GUIDE MEMBERS FOR SUCH AXLE

Dieter Braun, Weinstadt; Herbert Mehren, Ludwigsburg, and Helmut Wulf, Ostfildern, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 20, 1979, Ser. No. 22,108
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1978, 2813437
Int. Cl.[3] B62D *1/26*; B61F *9/00*
U.S. Cl. 104—247 33 Claims



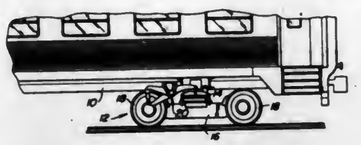
1. A vehicle adapted to be selectively operated with or without guide rails, the vehicle comprising a steerable vehicle axis means having steerable wheels mounted thereon, at least one nonsteerable vehicle axle having nonsteerable wheels mounted thereon, means for pivotally mounting the nonsteerable axle means so as to be entirely pivotable to a limited extent about a centrally positioned vertically extending pivot axis, and at least two longitudinal control arm means for determining a transverse position of the nonsteerable axle means, said longitudinal control arm means each being constructed so as to be variable in length and selectively lockable in or releasable from a predetermined length required for an exact transverse positioning of the nonsteerable vehicle axle means when the vehicle is operated without guide rails, characterized in that each of the longitudinal control arm means is provided at respective ends thereof with a mounting means, a first mounting means of the respective longitudinal control arm means being operatively connected with a bending-resistant guide rod means and a second of the mounting means being operatively connected with a guide housing means which is provided with a guide bore means for slidably receiving the guide rod means with a predetermined amount of play, at least two double-acting hydraulic piston-cylinder means are provided for each of the longitudinal control arm means, means are provided for operatively connecting each of the hydraulic piston-cylinder means to the first and second mounting means so that the hydraulic piston-cylinder means are disposed in parallel to the guide rod means, the connecting means being arranged eccentrically with respect to at least one of the guide rod means and the guide bore means, means are provided for selectively locking and releasing the longitudinal control arm means in and from an extended position of a predetermined length required for an exact transverse positioning of the nonsteerable vehicle axle means, each of the piston-cylinder means includes working chamber means, and in that means are provided for communicating the respective working chamber means of the cylinder-piston means of the respective longitudinal control arm means with each other.

4,271,765

RAILWAY CAR TILTING STABILIZING SYSTEM

William W. Dickhart, III, Fort Washington, Pa., assignor to The Budd Company, Troy, Mich.

Filed Jun. 21, 1979, Ser. No. 50,830
Int. Cl.³ B61F 3/08, 5/24, 5/50
U.S. Cl. 105—164 10 Claims



1. In combination with a railway car body and a supporting truck having a bolster connected to a pair of side frames of said truck, a tilt control system comprising:

(a) a bar structure comprising a first and a second rotatable member rotatably attached to said car body on both sides between said car body and said bolster,

(b) a pair of lever arms rigidly connected to said two rotatable members and operably connected to said bolster, and

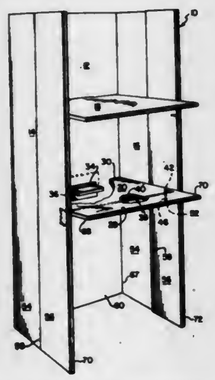
(c) a pair of driving arms having one end of one driving arm secured to said first rotatable member and one end of the other driving arm secured to said second rotatable member and the other end of each driving arm being in spaced relationship to each other and operably connected to a reversible driving means for movement toward and away from each other upon actuation of said driving means whereby tilt control is accomplished by selectively rotating said rotatable members in opposite directions and toward each other to move said lever arms to force said car body to tilt with respect to said truck.

4,271,766

COLLAPSIBLE DISPLAY SHELF

Edward A. Schmiedeler, Prairie Village, Kans., assignor to Sandy, Inc., Kansas City, Mo.

Filed Jul. 27, 1979, Ser. No. 61,284
Int. Cl.³ A47B 43/02
U.S. Cl. 108—111 5 Claims



1. A collapsible display shelf comprising:

a back wall;

a pair of opposed sidewalls extending outwardly from said back wall in perpendicular relationship to the back wall when the display shelf is in a use condition, said sidewalls each having a front section and a rear section, there being a fold line between said sections to permit collapsing of said sidewalls into overlying relationship to the back wall when the display shelf is in a storage condition;

at least one shelf disposed in a horizontal plane between said sidewalls when the display shelf is in said use condition, said shelf having a forward marginal edge and a rear marginal edge;

a wire carried by said sidewalls and spanning the distance therebetween for swingably mounting said shelf whereby it may be swung from its horizontal condition of use to a vertical storage condition overlying said collapsed sidewalls and said back wall, said wire having a central length extending through the forward marginal edge of the shelf and a portion at each end extending perpendicularly to said central length, said portions each being receivable within a recess formed in corresponding front sections of the sidewalls when the display shelf is in a condition of use; and

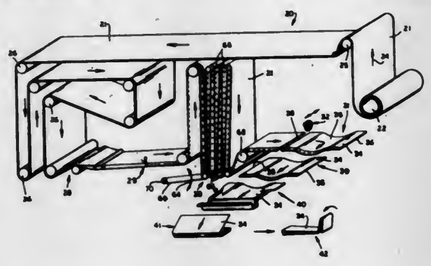
means on the rear marginal edge of the shelf for engaging the back wall, whereby to stabilize the shelf in said horizontal plane when the display shelf is in said condition of use.

4,271,767

SHEET PRODUCTION SYSTEM

Perry E. Burton, and Charles E. Brocklehurst, both of Fountain Inn, S.C., assignors to Opelika Manufacturing Corporation, Chicago, Ill.

Division of Ser. No. 956,792, Nov. 1, 1978. This application Apr. 30, 1979, Ser. No. 34,402
Int. Cl.³ D05B 21/00
U.S. Cl. 112—2 13 Claims



1. Apparatus for cutting and hemming sheet material comprising means for moving sheet material along its length from a supply toward a cutting station, first clamp means at the entrance of the cutting station for holding the sheet material, gripping means movable between the entrace of the cutting station to the other side of the cutting station, a first pair of parallel conveyor tapes positioned in said cutting station, clamp means movable toward and away from said parallel conveyor tapes for urging the segment of the sheet material in the cutting station against the conveyor tapes, and means movable into the segment of the sheet material in the cutting station for forming slack in the sheet material.

9. Apparatus for cutting and hemming sheet material comprising means for moving sheet material along its length from a supply toward a cutting station, first clamp means at the entrance of the cutting station for holding the sheet material, gripping means movable between the entrace of the cutting station to the other side of the cutting station, a first pair of parallel conveyor tapes positioned in said cutting station, clamp means movable toward and away from said parallel conveyor tapes for urging the segment of the sheet material in the cutting station against the conveyor tapes, and cutting means at the entrance of said cutting station for cutting the segment of the sheet material in the cutting station away from the supply.

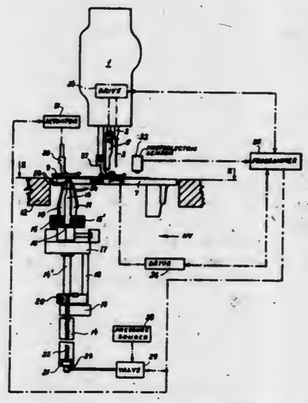
13. In a sheet cutting apparatus wherein sheet material is moved from a supply along its length to a cutting station, the improvement therein of movable support means adjacent the entrance to said cutting station for supporting the leading edge portion of the sheet material in a horizontal attitude, a gripping means comprising a lower clamp member movable into abutment with said movable support means to move the movable support means inwardly beneath the leading edge portion of the sheet material and to move the lower clamp member beneath the leading edge portion of the sheet material, and an upper clamp member positioned above said lower clamp member and means for moving said upper and lower clamp elements together about the leading edge portion of the sheet material to grip the sheet material.

4,271,768

ASSEMBLY FOR FORMING PIPED-EDGE OPENINGS IN A FABRIC WORKPIECE

Heinz Goldbeck, Bielefeld, Fed. Rep. of Germany, assignor to Dürkoppwerke GmbH, Bielefeld, Fed. Rep. of Germany

Filed Jul. 2, 1980, Ser. No. 165,398
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1979, 2932664
Int. Cl.³ D05B 3/06
U.S. Cl. 112—68 4 Claims



1. An assembly for forming a piped-edge opening in a workpiece, comprising:

a work table;

sewing means including a sewing machine on said work table for stitching a pair of parallel seams in said workpiece and in a reinforcing strip laid thereon;

first severing means mounted on said table for cutting a slit in said workpiece and said strip between said seams;

transport means mounted on said table and engageable with said workpiece and said strip for advancing same past said sewing machine and said severing means;

second severing means mounted on said table downstream of said sewing machine and said first severing means along said path for cutting a pair of angular incisions in said workpiece and said strip at opposite ends of said slit, said second severing means including two angular cutters fixed with respect to one another and facing in opposite directions, said cutters being shiftably mounted on said table for vertical reciprocation;

actuating means connected to said second severing means for reciprocating said cutters; and

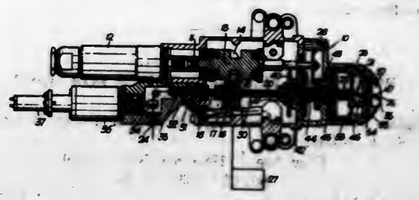
spreading means synchronized with said cutters for entering and widening said slit at said ends to enable first one and then the other of said cutters to traverse said slit upon a pair of consecutive upward strokes of said cutters, whereby same alternate in severing said workpiece and said strip.

4,271,769

MACHINE FOR PRODUCING A TEXTILE PRODUCT

William J. Barnes, Disley, England, assignor to Newroyd Limited, Oldham, England

Filed Oct. 31, 1979, Ser. No. 89,727
Claims priority, application United Kingdom, Nov. 10, 1978, 44042/78
Int. Cl.³ D05C 15/00
U.S. Cl. 112—79 FF 14 Claims



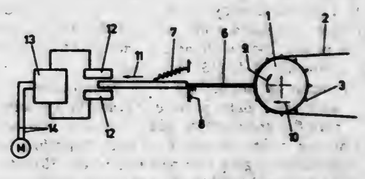
1. A machine for producing a textile product, the machine having a needle provided with a leading end portion which extends non-axially with respect to the main portion of the needle, means for reciprocating the needle, in a predetermined needle reciprocation stroke, into and out of backing material and for effecting relative traversing movement therebetween, and means for ensuring that the leading end portion is inclined away from the direction of the said relative traversing movement throughout the latter, the said leading end portion having an axial length at least as great as the length of the needle reciprocation stroke.

4,271,770

PUNCHED CARD CONTROL SYSTEM FOR EMBROIDERY MACHINE

August Heinzle, Altweg 9, A-6844 Altach, Austria

Filed Feb. 20, 1980, Ser. No. 122,846
Claims priority, application Austria, Feb. 20, 1979, 1305/79
Int. Cl.³ D05C 5/04
U.S. Cl. 112—84 5 Claims



1. A punched card control system for an embroidery machine which includes an embroidery creel and a first drive mechanism for driving the embroidery creel, comprising a number of elongated movable lifter rods each arranged to sense a different hole in successive groups of holes punched in a card, each group of holes representing an operating instruction for the embroidery machine, said lifter rods being out of contact with the first drive mechanism, feed means for advancing the card past said lifter rods while each rod is in a rest position relative to said feed means so that each group of holes in the card successively confronts corresponding ends of said lifter rods in the rest position, means for applying a bias force to each of said lifter rods to urge said lifter rods toward the rest position, means for moving said feed means to displace the card a certain distance toward said lifter rods so that those lifter rods whose ends confront holes in the card remain in the rest position and the remaining lifter rods are contacted at their ends by the card wherein said remaining lifter rods are moved from the rest position, said feed means applying a displacement force to the card sufficient to overcome said bias force applied

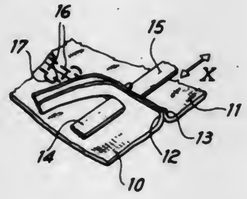
to said remaining lifter rods and to move said remaining lifter rods from the rest position, reading means including a number of electrical switching elements directly responsive to the position of each of said lifter rods for detecting the position of each of said lifter rods and providing corresponding electrical output signals over a number of line channels, and control means coupled between said channels of said reading means and the first drive mechanism for controlling the first drive mechanism to adjust the embroidery creel in accordance with the electrical output signals provided over said channels of said reading means.

4,271,771

WORKPIECE TRIMMING DEVICE FOR SEWING MACHINES

Egidio Pedone, Corsico, Italy, assignor to Rockwell-Rimoldi, S.p.A., Milan, Italy

Filed Aug. 6, 1980, Ser. No. 175,629
Int. Cl.³ D05B 37/04
U.S. Cl. 112—122 4 Claims



1. A workpiece trimming device for sewing machines of the type including a needle plate mounted on the machine's worksurface and a presser bar for supporting a presser foot for cooperation with feeddogs operatively associated with the needleplate, said trimming device compising:

(a) a fixed blade (14) horizontally mounted within the presser foot to extend perpendicular to the direction of workpiece advancement;

(b) a presser spring (34) operatively associated with the presser bar for continually urging the latter and presser foot carried thereby in the direction of the needleplate;

(c) means defining a guide passage (52) formed in one side of the presser foot in alignment with said fixed blade (14);

(d) a movable blade (15) including:

(i) means for supporting it for reciprocating movement within said guide passage (52) and in operative contact with the underside of said fixed blade (14); and

(e) biasing means mounted on said supporting means for continually urging said movable blade (15) into engagement with said fixed blade (14) and in a direction opposite to the direction of force provided by said presser spring (34) on the presser foot.

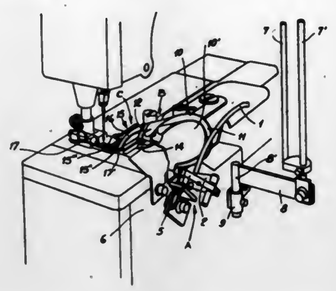
4,271,772

SEWING MACHINE ATTACHMENT FOR EDGINGS AND COLLARS

Ugo Pignatti, Via M. Buonarroti, 2, 46024 Moglia (Mantova), Italy

Filed Sep. 11, 1978, Ser. No. 940,964
Claims priority, application Italy, Sep. 14, 1977, 22209/77[U]
Int. Cl.³ D05B 35/06
U.S. Cl. 112—137 7 Claims

1. A sewing machine attachment effective to be applied to a sewing machine for sewing edgings, collars and like finishing elements to knitted outwear articles, which comprises, in the feeding direction, a pre-shaping portion fitted with a braking member applied at the lower edge of the finishing element and effective to maintain the finishing element in an exactly tensioned or stretched condition; a second portion fitted with a folding or bending member effective to fold or bend the raw edge of said finishing element opposite to said lower edge having loops to form a fold having two members, and a third portion fitted with guiding means effective to guide the folded or bent edge of said finishing element in alignment with the



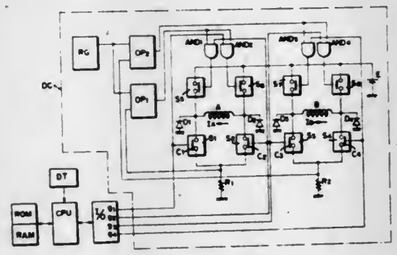
knitted article to be sewn, whereby said knitted article is interposed between said two members of said fold, wherein said braking member is formed by a curved rod, onto the bottom of which urges a blade spring and by two parallel vertical rods located upstream of said curved rod.

4,271,773

PULSE MOTOR ROTATION PHASE ADJUSTING SYSTEM OF A SEWING MACHINE

Hachiro Makabe, Fussa; Kazuo Watanabe, Hachioji; Toshiaki Kume, Tachikawa; Toshihide Kakinuma, Tokyo, and Hideaki Takenoya, Hachioji, all of Japan, assignors to Janome Sewing Machine Co., Ltd., Tokyo, Japan

Filed Mar. 8, 1979, Ser. No. 18,674
Claims priority, application Japan, Mar. 11, 1978, 53-27951
Int. Cl.³ D05B 3/02
U.S. Cl. 112—158 E 3 Claims



1. A pulse motor rotation phase adjusting system for a sewing machine, comprising a pulse motor adapted for positioning a needle of the sewing machine in accordance with the predetermined stitch coordinates of a selected pattern, said pulse motor having at least two windings each being energized to produce magnetic forces in the opposite directions, the pulse motor being set to one of the stepping rotation phases in dependence upon one or more predetermined combination of the magnetic forces of the windings; phase detector means operatively connected to said pulse motor for detecting the respective rotation phases of the pulse motor wihtin a range corresponding to the maximum needle swinging amplitude to produce a signal corresponding to said one or more predetermined combinations of the magnetic forces; and control means operative to selectively rotate the pulse motor in two opposite directions in response to said signal and reset the pulse motor to its initial position to thereby positon the needle in accordance

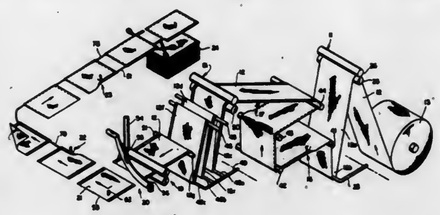
with said predetermined stitch coordinates at the time when electric power is applied to the sewing machine.

4,271,774

CUTTING AND HEMMING SYSTEM

Perry E. Burton, Atlanta, Ga., assignor to Opelika Manufacturing Corporation, Chicago, Ill.

Division of Ser. No. 799,286, May 23, 1977, Pat. No. 4,154,180.
This application Mar. 19, 1979, Ser. No. 21,792
Int. Cl.³ D05B 97/00
U.S. Cl. 112—262.1 4 Claims



1. In a method of forming folded hems in the edge portions of the sheets of cloth and the like wherein a series of sheets of cloth are moved along a path with the edge of each sheet to be hemmed extending approximately parallel to the path and the edge portion of each sheet of cloth is moved through a folder and folded over in the folder and the folded edge portion is moved through a sewing machine and is sewn, the improvement therein of prior to the step of sewing the folded edge portion moving a band member along its length into contact with each sheet of cloth at a position adjacent its folded edge portion and moving the band member along its length while in contact with each sheet of cloth adjacent the sewing machine at a linear velocity approximately the same as the rate at which the edge portions of the sheets of cloth are moved through the sewing machine, detecting the trailing edge of each sheet of cloth as the trailing edge of each sheet of cloth approaches the sewing machine, and decreasing the linear velocity of the band member in response to the detection of the trailing edge of each sheet of cloth to retard the movement of the trailing edge of the sheet of cloth at a position adjacent the folded over edge portion so that the trailing edge of the folded over edge portion becomes located ahead of the trailing edge of the sheet of cloth.

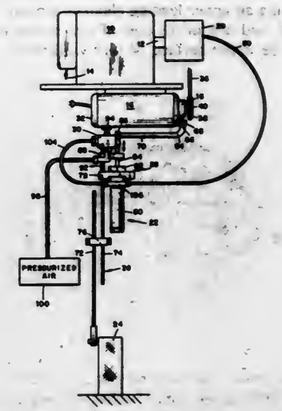
4. In apparatus for forming folded hems in the edge portions of lengths of cloth and the like including means for moving cloth lengths in sequence along a path with the edges to be hemmed extending along the path, folding means positioned at one edge of the path for folding over the edge portion of the cloth lengths, a sewing machine adjacent said folding means for sewing through the folded edge portion of each cloth length, said sewing machine including feed dogs for pulling the folded edge portion through the sewing machine, detecting means for detecting the movement of the trailing edge portions of the lengths of cloth into said sewing machine, endless band means including a lower flight movable along its length into contact with and along the path of the lengths of cloth as the lengths of cloth move through said folder and sewing machine at a position adjacent the folded edge portion of the lengths of cloth, said endless band means being responsive to said detecting means to decrease the rate of movement of its lower flight to a rate slower than the rate at which the feed dogs of the sewing machine pull the lengths of cloth through the sewing machine to retard the movement of the portion of the lengths of cloth adjacent the folded edge portion thereof as the sewing machine sews through the folded edge portion at the trailing edge portion of the lengths of cloth.

4,271,775

NEEDLE POSITIONER FOR HIGH SPEED STITCHING MACHINES

William A. Tice, Knoxville, Tenn., assignor to Tice Engineering & Sales, Inc., Knoxville, Tenn.

Filed Aug. 17, 1979, Ser. No. 67,702
Int. Cl.³ D05B 69/22
U.S. Cl. 112—276 4 Claims



1. A system for positioning the needle of a stitching machine of the high speed type which includes a main drive motor having a brake associated therewith which is actuatable by generally lineal movement of a member thereof, a needle reciprocatory mechanism including shaft means positively connected in driving and stopping relationship to said drive motor, a pneumatically powered needle positioning mechanism connected to said shaft means, a foot pedal, a pitman rod, means connecting one end of said pitman rod to said foot pedal, a piston-cylinder device secured to said pitman rod and with its piston member operatively connected to said brake actuating member, normally closed valve means secured to said pitman rod in a location adjacent a stationary member, said valve means including plunger means projecting therefrom and operable to selectively open said valve means for the flow of pressurized air therethrough or to close said valve, said plunger being disposed adjacent said stationary member whereby movement of said foot pedal to activate said drive motor and commence a stitching operation moves said valve means away from said stationary member and said plunger moves to a position which results in closing of said valve means and whereby movement of said foot pedal to a position for stopping a stitching operation moves said valve toward said stationary member to move said plunger to a position which results in opening of said valve, a source of pressurized air, conduit means connecting said source of pressurized air to said valve means, further conduit means connecting said valve means to said piston-cylinder device and to said needle positioning mechanism for providing an actuating force for each.

4,271,776

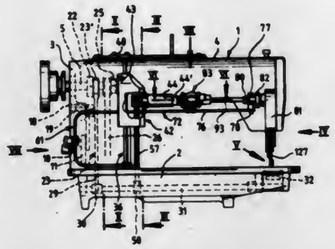
WORKPIECE FEEDING DEVICE FOR A SEWING MACHINE

Günter Landwehr, and Horst Thiele, both of Bielefeld, Fed. Rep. of Germany, assignors to Kochs Adler AG, Bielefeld, Fed. Rep. of Germany

Filed Sep. 19, 1979, Ser. No. 77,143
Int. Cl.³ D05B 27/22
U.S. Cl. 112—311 2 Claims

1. In a sewing machine having a workpiece supporting base plate, a standard and an overhanging arm carrying a presser bar, a movable needle and a longitudinally extending arm shaft for driving said needle, a workpiece feeding device having a

lower feeding means including a feed dog engaging the lower surface of a workpiece, a mechanism synchronously driven relative to said needle for imparting a four motion feeding movement to said feed dog and having regulating means for reversing said feeding movement while said sewing machine is operative or inoperative, and transmitting means connecting said mechanism with said feed dog including an oscillating shaft transmitting a partial movement of said four motion feeding movement as a feed and idling motion; an upper feeding means having an upper feeding element arranged to cooperate with said feed dog in the area of said needle in a steady contact with the upper surface of said workpiece, a bracket



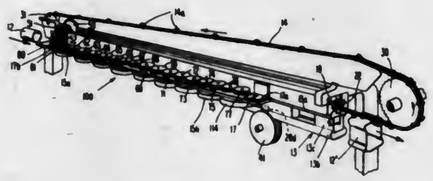
secured to said presser bar carrying said upper feeding element and means for driving said upper feeding element comprising a housing clamped to a vertical bar fastened to said standard, a first shaft pivoted in said housing, a one-way coupling received on said first shaft, a driving connection between said oscillating shaft and said one-way coupling, a second shaft pivoted on said overhanging arm and drivingly connected to said upper feeding element, and a device having a clutch element and a reversing gear means shiftably connecting said first shaft with said second shaft, and a shifting mechanism between said regulating means and said clutch element and said reversing gear means for an alternate engagement.

4,271,777

APPARATUS FOR REFORMING ROUND CANS INTO RECTANGULAR CANS

Floyd A. Collins, and Joseph L. Spychalski, both of Geneva, N.Y., assignors to American Can Company, Greenwich, Conn.

Filed May 7, 1979, Ser. No. 36,451
Int. Cl.³ B21D *5/08*
U.S. Cl. 113—1 G 3 Claims



1. Apparatus for re-shaping a round container into a rectilinear shape comprising:

a. a frame;

b. support means attached to the frame;

c. anvil means supported by said support means, said anvil extending from a container entrance end to a container exit end, said anvil being operable to receive a round container at said entrance end, said anvil means increasing in height from the entrance end to the exit end;

d. Means for conveying the container from the entrance to the exit end of the anvil means;

e. Forming means for displacing inwardly the round side of the container moved from the entrance end to the exit end of said anvil means, so as to form the round container into a generally rectilinear cross-section;

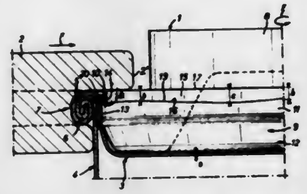
f. Paneling means to impart a permanent crease in the container along lines defining the edges of a rectilinear cross-section configuration.

4,271,778

CONTAINER SEAMING CHUCK

Lucien Le Bret, Saint-Gratien, France, assignor to Gallay, S.A., Paris, France

Filed Jul. 5, 1979, Ser. No. 54,972
Claims priority, application France, Jul. 7, 1978, 78 20321
Int. Cl.³ B21D *51/32*
U.S. Cl. 113—121 AB 13 Claims



1. In an apparatus for attaching a cup shaped end member to the end of the body member of a container by a seaming process with the end member having a side portion fitted against the internal wall surface of the body member, whereby the edges of the members are rolled into a seam to form a plurality of layers of material extending radially outwardly of the container in a first zone at the terminal end of the container and extending away from the end of the container along the outer side surface thereof in a second zone spaced from the terminal end of the container, said apparatus including a seaming chuck having a lower end disposed within the bottom of the container end member and an upper end separated from the lower end by an outer peripheral edge surface engageable within the end member along the side portion thereof for rotating the container end and body members against a radially outwardly opposed forming wheel to form the rolled seam, the improvement wherein:

(a) the seaming chuck includes a radially inwardly disposed recess extending substantially entirely around the peripheral edge surface of the chuck, said recess being vertically aligned with respect to the opposed forming wheel and facing radially outwardly at the level of said first zone to provide a space for radially inward movement of the layers of material of the container end and body members in said first zone during formation of the rolled seam.

4,271,779

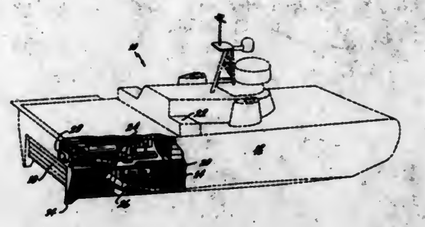
ANTI-BROACHING SIDEHULL FENCE FOR A SURFACE EFFECT SHIP

Michael A. Rickards, La Jolla, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed May 16, 1979, Ser. No. 39,658
Int. Cl.³ B60V *3/06*
U.S. Cl. 114—67 A 4 Claims

1. Improved anti-broaching sidehull fences for a surface effect ship designed to travel at high speed substantially over water surface, said surface effect ship having a stern transom, central supporting plenum chamber containing gas under pressure, said plenum chamber is defined by a pair of spaced apart rigid sidehulls with extending fences, a wet deck and bow and stern seals, the water surface below the plenum chamber being depressed below the undisturbed water surface due to the weight of the surface effect ship thereon comprising:

the water contacting surface of said sidehull fences extending downward from said sidehull at least from the bow seal to the transverse center line of said sidehull fences, the downward extending hull fence surface being substantially parallel and slightly below the depressed water surface when said surface effect ship is traversing said water surface at high speed whereby the gas under pressure is substantially confined to said central supporting plenum chamber and said sidehull fences provide minimum sealing drag within the water and the boundary of the sidehull fences relative to said undisturbed water surface is determined by the following equation:



$$\delta = \frac{PC}{\rho g}\left[0.77\cos\left(\frac{2\pi X}{L}\right) + 1.012\frac{X}{L} + 0.264\right]$$

wherein:

$$C = A\,k\sin^2\left(\frac{\pi}{2}\left(\frac{F_H}{F}\right)^{\frac{k}{2}}\right)$$

$$k = 3\cos\frac{\frac{L}{B}}{\sqrt{\frac{1}{\pi}} + \frac{2}{\pi}\left(\frac{L}{B}\right)} + 1$$

$$F_H = 0.025\,(L/B)/2 + \sqrt{\frac{1}{\pi}}$$

$$A = \pi\left[\left(1 - \left(\frac{F_H}{F}\right)\right)\sin\left(\frac{\pi(L/B)}{\frac{L}{B}+1}\right) + 1\right]$$

where

B Air plenum (cushion) beam (FT)

g Acceleration of gravity = 32.174 (FT/SEC²)

L Air plenum (cushion) length (FT)

P Air plenum (cushion) pressure (PSFG)

X Reference axis in the direction of motion with the origin at the center of pressure of the cushion planform area (mid-cushion for a rectangular pressure patch) (FT)

ρ Density of water = 1.99 (Slugs/FT³)

C Resistance (wave drag) coefficient = $(\rho gR/p^2B) = (\rho g/P)\,(z_{Sm} - Z_{Bm})$

δ Required dimensionless depth of instant invention = ρg/PC

F Froude Number based on the cushion length

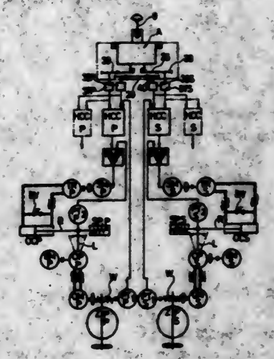
F_H Froude Number at primary hump.

4,271,780

APPARATUS FOR MANEUVERING A SHIP

Akio Etoh, Kawasaki, Japan, assignor to Niigata Engineering Co., Ltd., Tokyo, Japan

Filed Mar. 20, 1979, Ser. No. 22,140
Claims priority, application Japan, Dec. 6, 1978, 53-168279[U]
Int. Cl.³ B63H *25/00*
U.S. Cl. 114—144 E 14 Claims



1. Apparatus for maneuvering a ship having Z-type propeller structure comprising;

a generally cylindrical rotation frame rotatably supported by a stationary frame,

a rotation shaft disposed along a diametrical direction of the rotation frame;

a maneuvering handle positioned at the approximately central portion of the rotation shaft, the lower end of the maneuvering handle connected to the rotation shaft and the rotation shaft being rotated about its axis by the pivotal movement of the handle;

transducer means for converting movement of the handle into corresponding movement of said Z-type propeller structure;

a first gear transmission mechanism for transmitting the rotation of the rotation frame to the transducer means to actuate the same to thus generate signals to direct propeller shafts of the Z-type propeller structure by an equal angle and to the direction equal with each other; and

a second gear transmission mechanism for transmitting the pivotal movement of the handle to the transducer means to actuate the same to thus generate signals to direct the propeller shafts of the Z-type propeller structure by an equal angle and to the direction opposite with each other.

4,271,781

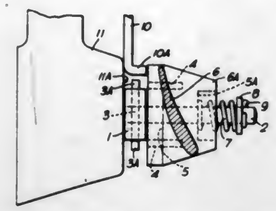
OUTBOARD MOTOR CLUTCHES

David B. Cowie, 18 Monteith Dr., Clarkston, Renfrewshire, Scotland

Filed Oct. 25, 1978, Ser. No. 955,679
Int. Cl.³ B63H *23/30*
U.S. Cl. 440—113 10 Claims

1. An outboard motor propulsion unit for a watercraft provided with a clutch between the output shaft of the unit and the propeller, said clutch comprising a thrust bearing secured to said shaft, intercengageable clutch members on the thrust bearing and on the hub of the propeller, a spring urging the propul-

ler axially along the shaft towards the thrust bearing to effect driving engagement of said members, and a manual control



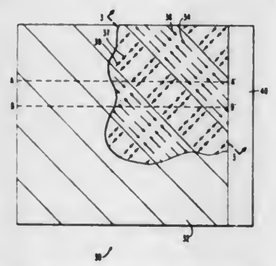
member for effecting disengagement of said members and permitting engagement.

4,271,782

APPARATUS FOR DISORIENTING MAGNETIC PARTICLES

Geoffrey Bate, Sunshine Canyon, and Larry P. Dunn, Longmont, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 912,800, Jun. 5, 1978, Pat. No. 4,208,447.
This application Oct. 23, 1979, Ser. No. 87,364
Int. Cl.[3] B05B 5/02
U.S. Cl. 118—623 6 Claims



1. An apparatus for magnetically disorienting magnetic particles in a solution coated on a substrate, said substrate moving in a plane, comprising:

a first plurality of magnetic means having a first magnetic field direction;

a second plurality of magnetic means having a second magnetic field with a second magnetic field direction, arranged so that each of said first and second plurality of magnets is juxtaposed in side-by-side relationship in alternating order; and

connecting means for supporting the combination of said first and second pluralities of magnets in said juxtaposed alternating order along the plane of the substrate in a pattern of diminishing strength in the direction of travel of the substrate, whereby an alternating sequence of diminishing fields is created along the path of travel of said substrate;

and characterized in that said first magnetic direction of said first plurality of magnetic means is at a first angle to the direction of movement of said substrate, and

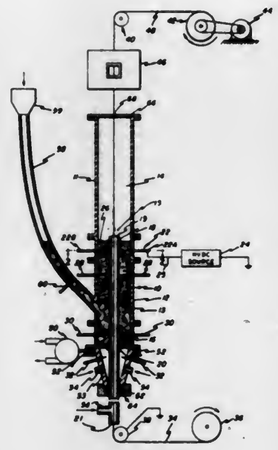
said second plurality of magnetic fields is juxtaposed to said first plurality of magnetic means so that the aforesaid second magnetic field direction is at a second angle disposed substantially perpendicular to that of the first magnetic field direction.

4,271,783

APPARATUS FOR FLUIDIZED BED-ELECTROSTATIC COATING OF INDEFINITE LENGTH SUBSTRATE

John H. Lupinski, Scotia, and Bernard Gorowitz, Clifton Park, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 871,153, Jan. 20, 1978, Pat. No. 4,188,413, which is a division of Ser. No. 733,236, Oct. 18, 1976, Pat. No. 4,100,883. This application Nov. 14, 1979, Ser. No. 93,993
Int. Cl.[3] B05B 5/02
U.S. Cl. 118—629 12 Claims



1. An apparatus for continuously coating an elongate electrical conductor, comprising:

(A) a container having a lower portion for containing a fluidized bed of electrically chargeable powder and an upper portion adjoining the lower portion for deposition of electrically charged powder onto the conductor,

(B) a hollow member disposed in the lower portion of the container and providing a passageway from the exterior of the container to the interior of the container, said hollow member having an upwardly extending portion terminating in an open upper end defining an interface between the upper and lower portions of the container,

(C) a porous member adapted to pass a gaseous medium therethrough and upwardly through the bed, said porous member disposed at a lower end of the lower portion of the container,

(D) means for vibrating the container and for cooperating with the gaseous medium to fluidize the bed to an extent such that the fluidized bed has a substantially uniform upper surface below said open upper end of said hollow member,

(E) means for advancing an elongate electrical conductor along a path through said hollow member, upwardly out of said upwardly extending hollow member portion, and through the top of the upper container portion, and

(F) electrode means operably associated with the container and operable at an electrical potential different from the electrical potential of the conductor,

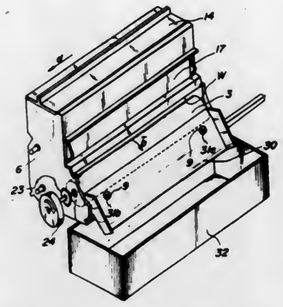
whereby charged particles are transferred from the fluidized bed to the conductor in the region of the upper portion of the container adjacently above the open upper end of said hollow member.

4,271,784

APPARATUS FOR DISCHARGING A FATIGUED DEVELOPING AGENT IN A MAGNETIC BRUSH DEVELOPING DEVICE

Osamu Ishimoto, Hachioji; Hiroshi Tsuda, Mitaka, and Kiyoshi Miyashita, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 29, 1979, Ser. No. 71,022
Int. Cl.[3] G03G 15/09, 21/00
U.S. Cl. 118—652 13 Claims



1. An apparatus for discharging a used and fatigued dry developing agent in a magnetic brush developing device for use in an electrophotographic copying machine which developing device comprises a housing forming a reservoir for the developing agent and having an opening formed therein at a position which is opposed to a charge retentive member, for retaining an electrostatic charge image to be developed; a sleeve formed of non-magnetic material arranged in the housing at a position whereby it is exposed to the charge retentive member through the opening and a magnet assembly arranged inside the sleeve; said sleeve and magnet assembly being rotatably arranged about an axis in a given direction, comprising: means for removably supporting the developing device along a direction of said axis from a first developing position in the copying machine at which the developing device develops the charge image on the charge retentive member, to a second discharging position out of the copying machine at which the developing device can be accessed; means for manually rotating the sleeve and magnet assembly together with each other, for transporting the developing agent attracted on the sleeve surface to the opening, when the developing device is in a second discharging position; and scraping means detachably securable to the housing at said opening, while the developing device is in said second discharging position, said scraping means having an edge in contact with the sleeve surface through the opening, so as to scrap the transported developing agent off the sleeve enabling discharge of the developing agent through the opening.

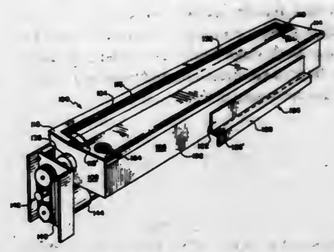
4,271,785

APPARATUS FOR DEVELOPING LATENT ELECTROSTATIC IMAGES

Samuel R. DiNallo, Sr., Framingham, and Leon K. Najarian, Milford, both of Mass., assignors to Coulter Systems Corporation, Beford, Mass.

Filed Mar. 27, 1980, Ser. No. 134,519
Int. Cl.[3] G03G 15/10
U.S. Cl. 118—661 16 Claims

1. A toning device for disposition at the toning station of an electrophotographic imaging apparatus wherein an electrophotographic member having a photoconductive coating portion on one surface thereof which carries a latent electrostatic image is translated therepast for development of said image, said toning device comprising a container of generally rectangular box-like configuration adapted to contain a liquid toner suspension therein, said container having opposite side and end walls, a bottom wall and a top wall, means defining an elongate longitudinal slot along the length of the top wall, toner feed roller means within said container along the length of the slot and extending partially therethrough, shaft means carrying said feed roller means and journal means at the opposite end walls for sealingly mounting said shaft means for rotation for rotating said feed roller means in contact with the toner suspension, collar means mounted on said shaft means interior of said container and adjacent the end walls of said container at



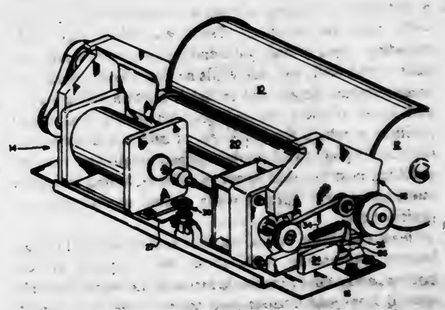
opposite ends of said feed roller means for free rotation independent of said feed roller means, said collar means having an outer diameter slightly greater than the diameter of said feed roller means and means for seating said container within said electrophotographic imaging apparatus at the toning station thereof with said feed roller means closely proximate said photoconductive surface of the electrophotographic member parallel thereto and said collar means engaged therewith along the edges thereof.

4,271,786

ELECTROPHOTOCOPIER DEVELOPER UNIT MOUNTING SYSTEM

Franklin J. Buckley, Bethel, and David W. Hubbard, Stamford, both of Conn., assignors to Pitney-Bowes, Inc., Stamford, Conn.

Filed Jun. 16, 1980, Ser. No. 159,904
Int. Cl.[3] G03G 15/09
U.S. Cl. 118—661 4 Claims



1. A mounting system for a developer unit in an electrophotocopier having a photoreceptor mounted on a drum for assuring proper alignment and pressure between the developer unit and the photoreceptor, comprising:

a fixed platform having a rectangular slot located midway between the ends thereof, said slot having a length extending perpendicular to the axis of the photoreceptor drum;

a developer unit slidably mounted at either end on said fixed platform, said developer unit having a base plate with an aperture in alignment with said rectangular slot;

a pair of spacer wheels coaxial to and slightly larger in diameter than the applicator shell on the developer unit rotatably mounted on either end of the developer unit;

means for urging said spacer wheels against the photoreceptor drum; and

a locking and guiding device removably insertable in said slot in said fixed platform, said device including

a rotatable pin having a cap portion and a shank portion, said shank portion being reciprocably slidable in both said aperture and said slot,

a compression spring located beneath the cap portion and above the base plate and surrounding the upper part of the shank portion of said pin, and

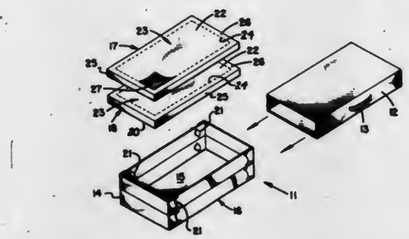
a cam-lock fixedly secured to the bottom of said shank portion having a configuration such that said cam-lock may pass through said rectangular slot and upon rotation be locked into sliding engagement with the length of said rectangular slot.

4,271,787

DISPOSABLE CONTAINER WITH LITTER FOR ANIMALS

Gary L. Wellman; Carl P. Wellman, and Naomi M. Wellman, all of 829 Orange St., Yuba City, Calif. 95991

Filed Nov. 19, 1979, Ser. No. 95,202
Int. Cl.³ A01K *29/00*
U.S. Cl. 119—1 5 Claims



1. A disposable container with litter for animals comprising:

a. a container including a base and substantially upright walls about the periphery of said base; said upright walls including a pair of end walls and a pair of side walls, said pairs of end walls and side walls having a lower portion of predetermined height and an upper portion articulated to said lower portion and movable between a first folded position in which the thickness of said container is substantially equal to said predetermined height and a second unfolded position, said upper portion including means for interlocking said upright walls in said second unfolded position; and,

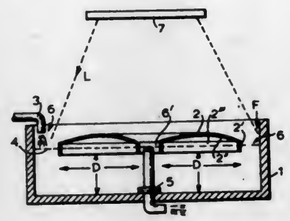
b. at least two litter boxes, each of said boxes including a bottom, upstanding walls about the periphery of said bottom, and a cover connected to said walls and vertically spaced from said bottom, said cover including a removable portion, each of said boxes being substantially filled with animal litter material, said boxes being initially disposed in stacked relation within said container so that each of said boxes is opened, used, withdrawn from said container, and disposed of in consecutive fashion, the combined height of said litter boxes being substantially equal to said predetermined height so that said litter boxes are snugly confined by said upper portion of said upright walls in said first folded position thereof, said upright walls of said container being higher than the combined height of said litter boxes in said second unfolded position so as to prevent litter material from being scattered outside said container by an animal user.

4,271,788

PROCESS AND APPARATUS FOR ACCELERATING GROWTH RATE OF SALMONOIDS AND OTHER FISH AND THE LIKE

Albert H. Knowles, Inverness-shire, Scotland, assignor to Robert Harvey Rines, Concord, N.H., a part interest

Filed Aug. 10, 1979, Ser. No. 65,617
Claims priority, application United Kingdom, Jul. 17, 1979, 24914/79
Int. Cl.³ A01K *63/00*
U.S. Cl. 119—3 28 Claims



1. A process of accelerating fish growth rate, that comprises, densely populating a pond with fish, the pond comprising a volume of water contained within boundaries; continually passing water through the pond; providing in contact with the water an opaque cover shield that is positioned relative to adjacent boundaries of the pond so as to cover a substantial area of the pond, so as to block external light from entering that area, and so as to provide a region beneath the cover shield directly and laterally shielded from light; maintaining said region as a dark region in which the fish can rest in darkness; and illuminating a region of the pond beyond said dark region for enabling visual feeding by the fish at the illuminated region.

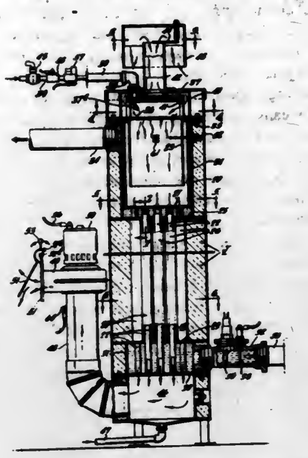
4,271,789

ENERGY CONVERSION SYSTEM

Robert B. Black, 2925 Denver St., Corpus Christi, Tex. 78404

Continuation-in-part of Ser. No. 813,667, Jul. 7, 1977, Pat. No. 4,197,831, which is a continuation of Ser. No. 620,327, Oct. 7, 1975, abandoned, which is a continuation-in-part of Ser. No. 462,094, Apr. 18, 1974, Pat. No. 4,025,291, which is a division of Ser. No. 192,262, Oct. 26, 1971, Pat. No. 3,844,270, Continuation of Ser. No. 794,044, May 5, 1977, abandoned, which is a division of Ser. No. 568,699, Apr. 16, 1975, abandoned, which is a division of Ser. No. 369,084, Jun. 11, 1973, abandoned. This application Jun. 7, 1979, Ser. No. 46,240
Int. Cl.³ F22B *5/00*
U.S. Cl. 122—16 34 Claims

1. A water heater comprising a combustion chamber, a plurality of flue tubes each with its inlet end connected with the combustion chamber toward one side thereof, and each having an outlet end for discharge of combustion gases, the inlet end of each flue tube being at least as high as the outlet end, means for introducing fuel and air into the combustion chamber in a region remote from the connection of the flue tubes, a water tube surrounding each flue tube with a water inlet end adjacent the outlet end of the flue tube and with a water outlet end adjacent the connection of the inlet end of the flue tube with the combustion chamber, a header for receiving flue gases and condensate from the discharge ends of the flue tubes and having a condensate drain at a level below the discharge ends of the flue tubes, and a discharge duct for the products of combustion connected with said header.

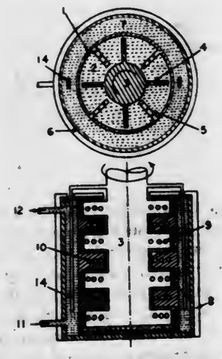


4,271,790

METHOD OF HEATING WATER USING WIND ENERGY AND APPARATUS THEREFOR

Nasser Ahmed, and Myrna M. Ahmed, both of 17 Wedgewood Dr., Danbury, Conn. 06810

Filed Nov. 23, 1979, Ser. No. 96,894
Int. Cl.³ F22B *3/06*
U.S. Cl. 122—26 6 Claims



1. A method of heating water using wind energy consisting of:

(a) Attaching a shaft containing a first set of perforated radial arms to a windmill so that the shaft with its perforated radial arms rotates with the windmill;

(b) Locating said shaft in a stationary first vessel which has a second set of perforated radial arms projecting inwards from it such that the first and second set of radial arms are staggered along an axis parallel to the axis of the said shaft, with no physical contact between first and second set of perforated radial arms as said shaft and said first set of perforated radial arms rotate with the windmill;

(c) Locating a first fluid in said first vessel, the viscosity of said first fluid so chosen that it is higher than the viscosity of water at any temperature between the freezing point and boiling point of water;

(d) Placing a second vessel with a water inlet and a water outlet such that the second vessel surrounds said first vessel;

(e) Admitting water into said second vessel;

(f) Attaching radial arms with stirrer means to the rotating shaft so that as the shaft rotates the stirrer means stir the water;

(g) Utilizing wind energy to rotate said shaft with its first set of perforated radial arms thereby causing a relative motion between the first set of rotating perforated radial arms and the stationary second set of perforated radial arms, the relative motion forcing the first viscous fluid through the perforations in the two sets of radial arms, the motion of said first viscous fluid through each perforation resulting in a pressure drop across that perforation, the pressure drop resulting in heat generation in the first viscous fluid thereby increasing its temperature and resulting in a temperature differential between said first viscous fluid and water, which temperature differential causes a heat transfer to occur from said first viscous fluid to the water through said first container, thereby increasing the temperature of the water;

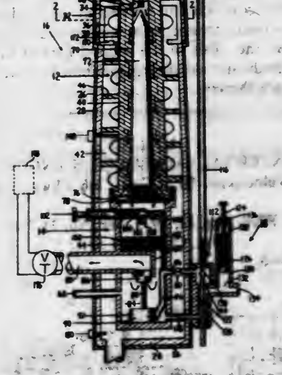
(h) Drawing the water with increased temperature from said second vessel.

4,271,791

RAPID RESPONSE STEAM GENERATOR II

Wellesley R. Kiene, 8745 Appian Way, Los Angeles, Calif. 90046

Filed Jun. 21, 1979, Ser. No. 50,820
Int. Cl.³ F22B *27/00*
U.S. Cl. 122—39 18 Claims



18. A rapid response steam generator, having a heat transfer cylinder with liquid intake means and liquid passage means through the length thereof, means for combustion of fuel circumferentially around the heat transfer cylinder for heating the liquid and generating steam within the passage means, means for collecting steam from the passage means for discharging steam for usable steam pressure, further comprising:

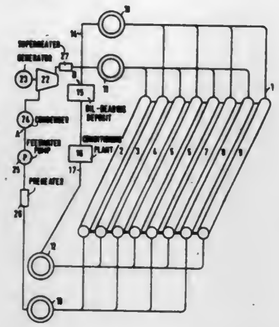
a molecular air separator for separating air into its constituent parts, molecular oxygen for increasing the heat of combustion in the combustion chamber and molecular nitrogen for blowing pulverized solid fuel into the combustion chamber; and,

means for blowing pulverized fuel into the combustion chamber with the molecular nitrogen.

4,271,792
STEAM GENERATOR FOR GENERATING STEAM FROM FEEDWATER OF REDUCED QUALITY

Eberhard Wittchow, Erlangen, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 87,878
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1978, 2847340
Int. Cl.³ F22D 7/00
U.S. Cl. 122—406 S 2 Claims

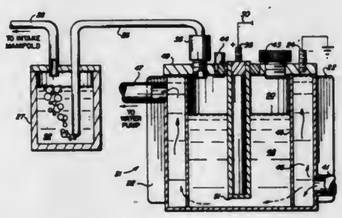


1. Steam generator for generating steam from feedwater of lower quality, having heating surfaces formed of tubes welded to one another directly or through bridges, a plurality of the tubes being connected in parallel in respective groups at the feedwater and steam sides of the generator comprising a first feedwater circulatory system with water of lower quality, a second feedwater circulatory system with water of higher quality, a first part of the group of tubes connected in parallel at the feedwater side of the generator being connected in said first feedwater circulatory system, and a second part of the group of tubes connected in parallel at the feedwater side of the generator being connected in said second feedwater circulatory system, the tubes of the second part of said group of tubes at the feedwater side being distributed between the tubes of the first part thereof.

4,271,793
INTERNAL COMBUSTION ENGINE

Joseph M. Valdespino, 5023 Golf Club Pkwy., Orlando, Fla. 32808

Filed Aug. 31, 1979, Ser. No. 71,776
Int. Cl.³ C10H 5/00
U.S. Cl. 123—3 20 Claims

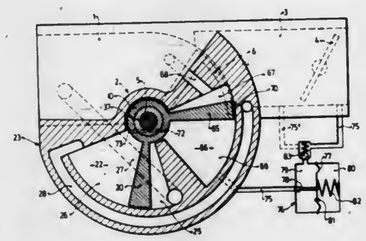


1. An improvement to internal combustion engines comprising in combination:
- an internal combustion engine having fuel feed means for feeding a fuel-air mixture to at least one combustion chamber;
- an electrical generating and storage means for generating and storing electrical energy;
- an electrolytic cell for generating hydrogen and oxygen therein and having a housing, an anode and a cathode and having an electrolyte in said housing;
- electrical connecting means connecting said electrical generator and storage means to said electrolytic cell for generating hydrogen and oxygen when said internal combustion engine is running, and disconnecting said electrical connecting means when said engine is not running;
- gas feed means connecting said electrolytic cell to said internal combustion engine fuel feed means for feeding hydrogen and oxygen to said at least one internal combustion engine combustion chamber with said fuel-air mixture being fed therein when an electrical charge is applied to said electrolytic cell; and
- pressure control valve means operatively coupled to said electrolytic cell to produce a predetermined pressure in said electrolytic cell housing when said electrolytic cell is connected to said electrical generator and storage means, whereby hydrogen and oxygen are fed to said combustion chamber only when the pressure in said electrolytic cell housing exceeds a predetermined pressure.

4,271,794
FUEL DELIVERY APPARATUS

Heinrich Knapp, Leonberg; Hermann Eisele, and Werner Kammerer, both of Vaihingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 1, 1978, Ser. No. 930,089
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1977, 2740001
Int. Cl.³ F02M 39/00
U.S. Cl. 123—454 14 Claims

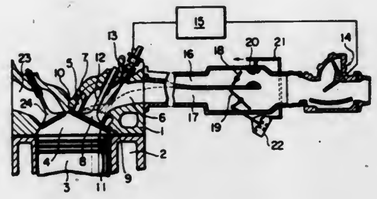


1. A fuel delivery apparatus for mixture-compressing, externally ignited internal combustion engines having an air induction tube and a fuel line, particularly those having a fuel injection point in the air induction tube, in which an air measuring element and an arbitrarily activatable throttle valve are arranged in seriatim and the air measuring element has a control body controlling the induction tube cross-sectional area, the attitude of which represents a standard for the induced air quantity and in accordance therewith the movable part of a valve positioned in the fuel line for the metering of a fuel quantity associated with the air quantity is adjusted, further characterized wherein a radial vane pivotably fixed in a work chamber and a damping vane pivotably fixed in a damping chamber are connected with said control body and the radial vane which separates the work chamber into plural chambers is acted upon on one side thereof by the upstream pressure and on the other side thereof by the downstream pressure of the control body in such a manner that a force contacts said radial vane which counters a return force and is capable of urging the control body in the direction of an enlargement of the controlled induction tube cross section; further wherein said damping vane separates said damping chamber into a pressure chamber and a throttle chamber, said pressure chamber being connected with atmospheric pressure.

4,271,795
INTERNAL COMBUSTION ENGINE WITH DUAL INDUCTION SYSTEM AND WITH FUEL INJECTION SYSTEM TO DISCHARGE FUEL INTO SECONDARY INDUCTION SYSTEM

Yasuhiko Nakagawa, Kamakura; Yukihiro Etoh, Yokohama; Meroji Nakai, Yokosuka, and Ryoji Nakajima, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Dec. 4, 1978, Ser. No. 966,373
Claims priority, application Japan, Dec. 19, 1977, 52/152553
Int. Cl.³ F02B 31/00
U.S. Cl. 123—308 2 Claims

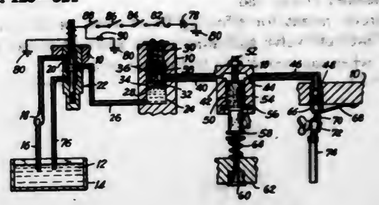


1. In an internal combustion engine including means defining a cylinder having a longitudinal axis and a piston slidably disposed in said cylinder to define a variable volume combustion chamber, a dual induction system comprising:
- an air flow meter,
- a primary induction passage leading from downstream of said air flow meter to a first valve controlled inlet port of said combustion chamber, said primary induction passage and said first inlet port being so constructed and arranged as to introduce the air flowing therethrough into said combustion chamber in a direction tangential with respect to the wall of said cylinder so that the air thereafter swirls around said axis of said cylinder,
- a fixed venturi disposed at the upstream end of said primary induction passage,
- a first throttle valve operatively disposed in said primary induction passage downstream of said venturi,
- a secondary induction passage leading from downstream of said flow meter to a second valve controlled inlet port of said combustion chamber, said secondary induction passage and said second inlet port being so constructed and arranged as to introduce air flowing therethrough into said combustion chamber in a direction which impedes the swirling of the air from said primary induction passage around said axis,
- a second throttle valve operatively disposed in said second induction passage,
- a pressure differential responsive motor which is fluidly connected with said venturi and which is operatively connected with said second throttle valve for moving said second throttle valve in response to the degree of vacuum prevailing at said venturi,
- an inlet valve which controls both said first and second inlet ports,
- a fuel injector disposed in said secondary induction passage, said fuel injector being so positioned as to inject fuel toward a head of said inlet valve so that said fuel impinges on said valve head and thereafter disperses radially outwardly, and
- means for controlling said fuel injector in response to an output of said air flow meter and in synchronism with opening of said inlet valve.

4,271,796
PRESSURE RELIEF SYSTEM FOR ENGINE BRAKE

Kenneth H. Sickler, Simsbury; Donald J. McCarthy, Wethersfield, and Raymond N. Quenneville, Suffield, all of Conn., assignors to The Jacobs Manufacturing Company, Bloomfield, Conn.

Filed Jan. 11, 1979, Ser. No. 47,499
Int. Cl.³ F02D 31/00
U.S. Cl. 123—321 11 Claims

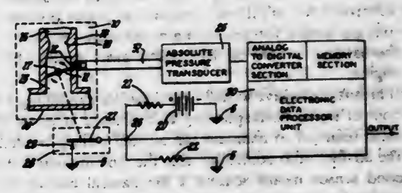


1. In an engine braking system of a gas compression relief type including an internal combustion engine having exhaust valve means and pushrod means, hydraulically actuated first piston means associated with said exhaust valve means to open said exhaust valve means at a predetermined time, second piston means actuated by said pushrod means and hydraulically interconnected with said first piston means, the improvement comprising a pressure relief system operable between a first high pressure condition and a second low pressure condition, said pressure relief system comprising a bistable ball valve located in the hydraulic system comprising said interconnected first and second piston means, said bi-stable ball valve having primary and secondary orifices and damping means associated with said ball valve to rapidly damp out vibrations of said ball valve as it moves from its closed position defining said high pressure condition to its open position defining said low pressure condition whereby the flow through said ball valve is maximized and the time required to attain the low pressure condition is minimized.

4,271,797
INTERNAL COMBUSTION ENGINE CONTROL SYSTEM

Gary P. McCarbery, Oxford, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 20, 1979, Ser. No. 105,726
Int. Cl.³ F02P 5/04
U.S. Cl. 123—412 6 Claims



1. In an internal combustion engine control system of the type that employs electrical signal representations of engine manifold pressure and atmospheric pressure to effect engine control,
- an engine intake passage through which air is supplied to said engine;
- a valve located in said intake passage that is selectively adjustable between closed and maximum open positions for controlling the amount of air flow to said engine;
- a port in said intake passage so positioned relative to said valve that said port is exposed to substantially atmospheric pressure when said valve is in said closed position and to engine manifold pressure when said valve is not in said closed position;

means for producing an electrical pressure valve indicating signal, said means including at least a single absolute pressure transducer of the type that produces an output electrical signal that is a function of absolute pressure value in operative communication with said port for sensing substantially atmospheric pressure when said valve is in said closed position and engine manifold pressure when said valve is not in said closed position;

memory means; and

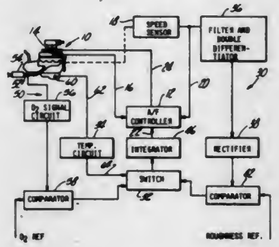
circuit means for effecting the loading of said electrical pressure valve indicating signal into said memory means when said valve is in said closed position.

4,271,798

ALTERNATE CLOSED LOOP CONTROL SYSTEM FOR AN AIR-FUEL RATIO CONTROLLER

William R. Seitz, Royal Oak, and Chun K. Leung, Farmington Hills, both of Mich., assignors to The Bendix Corporation, Southfield, Mich.

Filed Oct. 27, 1978, Ser. No. 955,728
Int. Cl.³ F02D 5/00
U.S. Cl. 123—419 **4 Claims**



1. A system for producing a control signal for an air-fuel ratio controller for an internal combustion engine comprising:

an oxygen sensor for generating a first signal indicative of the oxygen content of the exhaust gases emitted by the engine;

first means responsive to said first signal for producing a first control signal corresponding to a change in the air-fuel ratio required to maintain the air-fuel ratio provided by the air-fuel ratio controller near the stoichiometric value;

second sensor means sensing a mechanical output of the engine for generating a second signal having a value indicative of the air-fuel ratio being supplied to the engine;

second means responsive to said second signal for producing a second control signal corresponding to a change in the air-fuel ratio provided by said air-fuel ratio controller to maintain the air-fuel ratio at a predetermined value;

means for generating a third signal having a value indicative of the temperature of said oxygen sensor; and

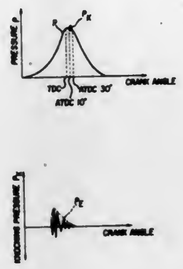
switching means responsive to said third signal for coupling said first means to said air-fuel ratio controller when said third signal is indicative of a temperature above a predetermined value and for coupling said second means to said air-fuel ratio controller when said third signal is indicative of a temperature below said predetermined value.

4,271,799

KNOCKING CONTROL DEVICE

Takayuki Kato, Aichi; Kazumasa Sumi; Hideo Arakawa, both of Nagoya; Toshimitsu Ito, Toyota, and Masakatsu Sanada, Susono, all of Japan, assignors to K.K. Toyota Chuo Kenkyusho, Nagoya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of Japan

Filed Apr. 30, 1979, Ser. No. 34,736
Claims priority, application Japan, Apr. 28, 1978, 53-51818
Int. Cl.³ F02D 5/04
U.S. Cl. 123—425 **32 Claims**



1. A knocking control device for an ignition circuit of an engine comprising:

a knocking detecting circuit for detecting, as an electrical signal, an amount of variation corresponding to an internal pressure variation within a cylinder of said engine due to a knocking of said engine,

an averaging circuit for converting said electrical signal from said knocking detecting circuit to a signal corresponding to a knocking energy,

a crank angle detecting circuit for detecting a rotation phase of said engine,

a comparison circuit for comparing said signal corresponding to said knocking energy from said averaging circuit with a reference value defining a predetermined knocking level to obtain a control signal for maintaining an engine knocking level in a predetermined range, and

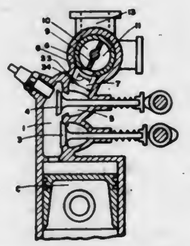
an ignition control circuit adapted to be connected to the ignition circuit, for controlling the ignition timing of the ignition circuit by said control signal from said comparison circuit.

4,271,800

APPARATUS FOR CHARGING AN INTERNAL COMBUSTION ENGINE

Pasquale Borracci, Via Benedetto da Foiano 1, Florence, Italy

Filed Jul. 11, 1979, Ser. No. 56,603
Claims priority, application Italy, Jul. 20, 1978, 9538 A/78
Int. Cl.³ F02B 17/00
U.S. Cl. 123—430 **4 Claims**



1. Apparatus for delivering a charge of relatively non-carbureted and carbureted gases to the combustion chamber of an internal combustion engine, said chamber having a movable piston in association therewith, said piston defining during a phase of its movement an intake stroke for said chamber, said apparatus comprising:

a rotary valve having at least one port therethrough, said port, during rotation of said valve, communicating between a source of non-carbureted gases and a passageway to said combustion chamber and between a source of carbureted gases and said passageway, said rotary valve including:

a rotatable, hollow cylinder having a first port through the sidewall thereof which passes into communication with said combustion chamber during rotation of said cylinder;

a generally stationary diaphragm positioned within said cylinder, said diaphragm dividing the interior of said cylinder longitudinally into a non-carbureted gas chamber and a carbureted gas chamber, the rotational position of said diaphragm being such that one edge thereof overlies said passageway;

means for supplying non-carbureted gases to said non-carbureted gas chamber;

means for supplying carbureted gases to said carbureted gas chamber; and

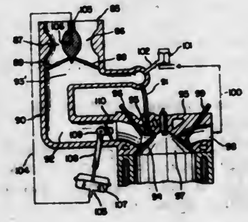
means for rotating said valve in timed relation to said engine such that such communication occurs during the intake stroke of the piston associated with said combustion chamber.

4,271,801

INTERNAL COMBUSTION ENGINE WITH TWIN INTAKE PORTS FOR EACH CYLINDER

Yoshio Yamakawa, Toyota; Toshikazu Toyoda, Numazu, and Hidetaka Nohira, Mishima, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Oct. 6, 1978, Ser. No. 949,238
Claims priority, application Japan, Oct. 12, 1977, 52/121551
Int. Cl.³ F02M 25/06
U.S. Cl. 123—432 **8 Claims**



1. An internal combustion engine comprising:

(a) a cylinder;

(b) a duplex carburetor having a pair of venturis, one of said venturis having significant air flow therethrough only at high engine speed and load;

(c) an intake manifold connected between said cylinder and said duplex carburetor, said manifold including a chamber located downstream of and communicating with said venturis, and a pair of passages, branched from said chamber and having a pair of intake ports, respectively, opening to said cylinder;

(d) a valve normally closing one of said passages; and

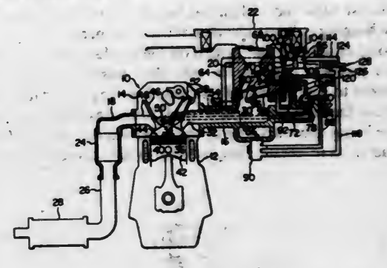
(e) control means energizable in response to a vacuum signal from said one of said venturis for actuating said valve to open said one of said passages only during operation of the engine at high speed of rotation under heavy load, whereby the flow from the venturis to the cylinder is restricted to the other of said passages except during operation of the engine at high speed of rotation under heavy load to enable strong swirls to be developed in the cylinder even at low intake flows.

4,271,802

SECONDARY INTAKE GAS CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Kenji Hori, and Yuhiko Kiyota, both of Nagasakiyo, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 14, 1979, Ser. No. 20,536
Claims priority, application Japan, Mar. 20, 1978, 53-32543
Int. Cl.³ F02M 23/04
U.S. Cl. 123—432 **8 Claims**



1. A secondary intake gas control system for a spark-ignition internal combustion engine having air-fuel mixture supply means having a throttle valve and a choke valve in a main intake passage of the engine, and a secondary intake gas supply means for injecting air or a lean air-fuel mixture into a combustion chamber in order to give a swirl and turbulence to an air-fuel mixture supplied into said combustion chamber through said air-fuel mixture supply means, said secondary intake gas supply means including an injection port opened to said combustion chamber, and secondary intake passage means communicated with said injection port through a valve which is opened at a suction stroke of the engine, said control system comprising air control valve means through which said secondary intake passage means is communicated with atmosphere upstream of the location of said choke valve in the main intake passage, said secondary intake passage means being also opened to the main intake passage downstream of the location of the choke valve, said air control valve means comprising a valve member, actuating means for actuating said valve member, means for sensing a temperature of the engine, and means for sensing a degree of opening of the throttle valve, said actuating means being operated by said means for sensing the temperature of the engine and said means for sensing the degree of opening of the throttle valve to open said valve member to communicate the secondary intake passage means with atmosphere when the degree of opening of the throttle valve is above a predetermined opening degree at a predetermined temperature range of the engine during warming-up thereof.

4,271,803

INTERNAL COMBUSTION ENGINE

Kiyoshi Nakanishi; Takashi Okamura; Ryuichi Deguchi, all of Susono, and Toshio Tanahashi, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 22, 1979, Ser. No. 41,597
Claims priority, application Japan, Jul. 28, 1978, 53-91673
Int. Cl.³ F02M 25/06
U.S. Cl. 123—432 **21 Claims**

1. An internal combustion engine comprising:

a cylinder block having a cylinder bore therein;

a cylinder head having an inner wall mounted on said cylinder block;

a first raised portion having on its lower end a flat bottom

face and being formed on the periphery of the inner wall of said cylinder head so as to project downwards;

a piston reciprocally movable in said cylinder bore and having a top face which has a flat peripheral portion approachable to said flat bottom face so as to create a first squish area therebetween at the end of the compression stroke for spouting out a first squish flow along the top face of said piston;

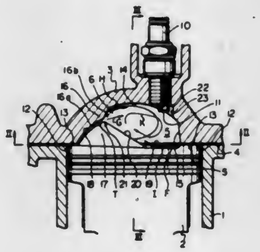
a combustion chamber defined by the inner wall of said cylinder head and the top face of said piston;

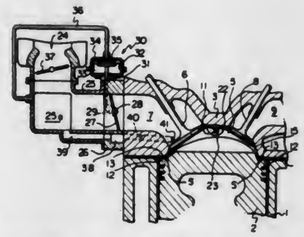
an intake valve movably mounted on said cylinder head for leading a combustible mixture into said combustion chamber;

an intake valve seat;

an exhaust valve movably mounted on said cylinder head for discharging exhaust gas into the atmosphere;

a second raised portion formed on the top face of said piston at a position opposite to said first raised portion with respect to an axis of said piston and having a rear face and a front face exposed to said combustion chamber, said rear face being approachable to the inner wall of said cylinder head so as to create a second squish area therebetween at





the end of the compression stroke for spouting out a second squish flow which moves forward in the upper interior of said combustion chamber in the direction opposite to the spouting direction of said first squish flow, said first and second squish flows cooperating with each other to create a strong swirl motion rotating about a horizontal axis in said combustion chamber;

a spark plug having a spark gap located in said combustion chamber;

an intake passage having an inlet;

an carburetor having a throttle valve arranged in the inlet of said intake passage;

secondary valve means arranged in said intake passage at a position downstream of said throttle valve, said secondary valve means being opened in accordance with a reduction in the level of vacuum produced in said intake passage; and

an auxillary intake passage having a cross-sectional area less than that of said intake passage, having an inlet which opens into said intake passage located between said throttle valve and said secondary valve means, and having an outlet directed to a valve gap formed between said intake valve and said intake valve seat when said intake valve is open.

4,271,804

METHOD AND APPARATUS FOR DETERMINING FUEL MIXTURE ADJUSTMENT VALUES FOR FUEL BURNING ENGINES

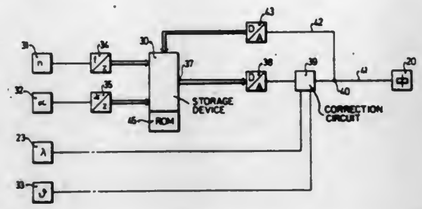
Valerio Bianchi, Hochdorf; Peter-Jürgen Schmidt, Schwieberdingen; Reinhard Latsch, Vaihingen, and Josef Wahl, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,533

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 2812442

Int. Cl.³ F02M 7/18

U.S. Cl. 123—440 **13 Claims**



1. A method for determining an adjustment value for a fuel supply device in a fuel-burning engine having an operational setting according to its construction tolerances comprising:

providing a first storage device containing permanent adjustment values for said fuel supply device according to at least one engine operating condition signal;

providing a second storage device for receiving the permanent adjustment values from said first storage device;

transmitting the permanent adjustment values from the first storage device to said second storage device upon engine startup;

continually transmitting said at least one engine operating condition signal to said second storage device;

continually transmitting stored adjustment values from the second storage device corresponding to instantaneous values of the at least one engine operating condition signal;

continually transmitting at least one additional engine operating condition signal;

correcting the adjustment values transmitted from the second storage in accordance with corresponding instantaneous values of said at least one additional engine operating condition signal, to produce corrected adjustment values;

continually transmitting an engine λ value signal;

adjusting the corrected adjustment values by multiplying the corrected adjustment values by corresponding instantaneous values of the engine λ value signal to produce final adjustment values;

transmitting the final adjustment values to the fuel supply device and to the second storage device; and

exchanging the final adjustment values with corresponding stored adjustment values in the second storage device.

4,271,805

FUEL INJECTION PUMP

Masayoshi Kobayashi; Toru Sakuranaka, and Kelichi Yamada, all of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Dec. 21, 1978, Ser. No. 971,916

Claims priority, application Japan, Dec. 29, 1977, 52-176250

Int. Cl.³ F02M 59/24

U.S. Cl. 123—459 **15 Claims**

1. In a fuel injection pump for an internal combustion engine,

including: a housing; a barrel mounted within said housing; a plunger mounted within said barrel for axial and rotary motion therein; a pump working chamber defined by the housing, the barrel and the plunger; and outlet pressure lines for connecting said pump working chamber with associated injection nozzles; the improvement which compriaes:

a port formed within said plunger, one end of said port communicating with said pump working chamber and the other end of said port terminating in an outer periphery of said plunger;

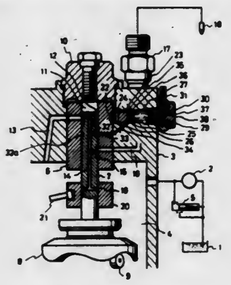
an annular groove formed in the outer periphery of said plunger and intersecting with said port;

a relief passage having one end thereof terminating in an inner peripheral wall of said barrel and the other end thereof communicating with a zone under a lower pressure, said one end of said relief passage being so arranged as to be closed by said outer periphery of said plunger or become opposite said annular groove of said plunger with a movement of said plunger;

a valve means provided with a restriction means and arranged for blocking said relief passage;

an actuating means arranged for actuating said valve means in response to a fuel supply pressure varying as a function of engine rotational speed;

said valve means comprising a bore formed within said pump housing and communicating on one side with said relief passage and on the other side with a zone under a



lower pressure; a piston slidably received within said bore, said piston having an annular groove formed in an outer periphery thereof, and a restriction passage having one end thereof radially opening in said annular groove and the other end thereof communicating with said lower pressure zone, said restriction passage of said piston comprising said restriction means of said valve means; and a spring arranged for urging said piston axially of said bore against an actuating force of said actuating means, wherein communication between said relief passage and said lower pressure zone is interrupted by displacement of said piston;

said annular groove of said plunger and said opposite end of said relief passage being placed in a relationship in width and position such that they register with each other at the beginning of each fuel delivery stroke of said plunger, in idling operation they are kept in such registered state throughout substantially the entire injection period during each delivery stroke of said plunger, and in middle and high speed ranges said opposite end of said relief passage is closed by said outer periphery of said plunger throughout the entire injection period during each delivery stroke of said plunger except at the beginning of said each delivery stroke to thereby obtain a generally sufficient injection pressure in the middle and high speed ranges; and

said actuating means being arranged to actuate said valve means to permanently keep said relief passage closed except in a predetermined low engine speed range.

4,271,806

DISTRIBUTION TYPE FUEL INJECTION PUMP

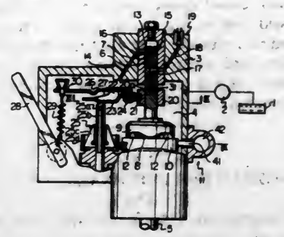
Nobuhiro Kalhara, Higashi-Matsuyama, and Masayoshi Kobayashi, Kawagoe, both of Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Jun. 29, 1978, Ser. No. 920,627

Claims priority, application Japan, Jun. 30, 1977, 52/77177; Jun. 30, 1977, 52/77178

Int. Cl.³ F02M 59/20

U.S. Cl. 123—502 **8 Claims**



1. A fuel injection pump for use in a fuel injection combustion engine, comprising:

a housing having a fuel chamber therein;

a plunger movably mounted in said housing and forming a plunger chamber over a head of said plunger;

first cam means fixedly mounted on said plunger;

second cam means turnably mounted on said housing and cooperating with said first cam means so as to cause reciprocal motion of said plunger along the axis thereof during plunger rotation with respect to said cam means, said second cam means being capable of being positioned in one of a plurality of aagular positions thereof;

fuel supply means for introducing fuel into said plunger at the suction stroke of said plunger;

a delivery port for feeding fuel to the engine from said plunger chamber at the delivery stroke of said plunger;

a leak port formed in said plunger and connected to said plunger chamber; a control sleeve slidably mounted on said plunger for normally closing said leak port and for connecting said leak port to said fuel chamber at the end of the delivery stroke to terminate the fuel injection;

a governor device actuating said control sleeve for controlling the quantity of fuel to be injected;

injection timing control means for controlling the angular position of said second cam means in response to the engine speed so as to displace said second cam means to advance the injection timing in response to an increase in engine speed, said injection timing control means comprising a first piston slidably fitted into a first cylinder and connected to said second cam means via a first rod, said first piston being urged by elasticity of a first spring to urge said second cam means towards injection timing retarding and said first piston being effected by hydraulic pressure of fuel, in response to the engine speed, introduced into a first pressure chamber to move said second cam means towards injection timing advancing against said elasticity of said spring, said first piston moving in accordance with the difference between said elasticity and said pressure in said pressure chamber, said first piston being provided with a fuel passage therethrough for communicating said first pressure chamber with said fuel chamber in said housing, said fuel passage being in communication with said fuel chamber through said housing; and

injection timing adjusting means for providing an adjusted movement of said second cam means toward a predetermined angular position to advance the injection timing at the engine start, said injection timing adjusting means comprising a pressure responsive member forming a part of the wall of said first pressure chamber of said injection

timing control means, a second rod fixedly connected to approximately the center portion of said pressure responsive member at one end thereof, the other end of said rod abutting against said first piston of said injection timing control means, and a second spring urging said rod toward said first piston, said injection timing adjusting means further including a pressure receiving area of said pressure responsive member facing said first pressure chamber, said area being larger than a pressure receiving area of said first piston also facing said first pressure chamber and further said second spring having a higher elasticity than that of said first spring in said injection timing control means and said pressure responsive member being in communication with said first pressure chamber on one side thereof and being in communication with the atmosphere on the other side thereof.

4,271,807

PUMP/NOZZLE FOR INTERNAL COMBUSTION ENGINES

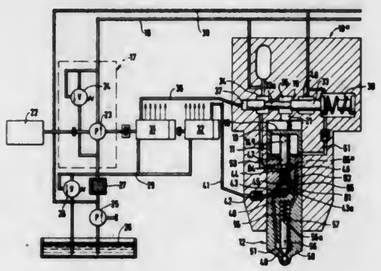
Heinz Links, Baiersbronn; Odon Kopse, and Ewald Eblen, both of Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 5, 1978, Ser. No. 966,542

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1978, 2803049

Int. Cl.³ F02M 57/02, 59/34

U.S. Cl. 123—506 6 Claims



1. In a pump/nozzle for internal combustion engines including a pump piston driven by means of a servo piston of larger diameter, said pump piston being guided in a fluid-tight manner within a cylinder bore which forms the pump work chamber, said pump piston blocking the connection from the pump work chamber to a pressure line attached in the vicinity of the wall of the cylinder bore and leading to an injection valve, said blocking taking place shortly before the end of the stroke of said pump piston, thereby terminating fuel delivery and being effected by a frontal control edge of said pump piston, whereupon, during its remaining stroke, said pump piston enters an end section of the pump work chamber serving as a filling chamber and is braked by fuel which is prevented from escaping from said filling chamber by a filling valve which is disposed in a filling line which terminates in the filling chamber and supplies the pump work chamber with the fuel which is to be injected, and having a low-pressure chamber to receive fuel from said filling chamber via a relief channel arranged within said pump piston which is opened to the pressure line at least substantially at the same time as the pressure line leading to the injection valve is closed from the pump work chamber, the improvement comprising:

throttle means, associated with said pump piston, for controlling the delayed escape of fuel from the filling chamber to a low-pressure chamber;

and wherein the relief channel is opened to the pressure line as controlled by the frontal control edge, which relief channel has a discharge point cut into the jacket surface of the pump piston in the vicinity of said frontal control edge, wherein a flow throttle defined by a throttle cross section which varies in area in accordance with the stroke and is located between an end section adjacent to said frontal control edge of said pump piston and said cylinder wall of the filling chamber so that fuel which escapes from said filling chamber via said relief channel to the chamber of lower pressure is capable of being forced out, further wherein said relief channel is first capable of being opened after said pressure line is closed.

4,271,808

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

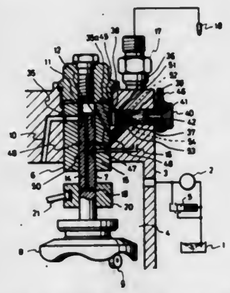
Masayoshi Kobayashi; Toru Sakuranaka, and Keiichi Yamada, all of Higashi-Matsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Jan. 4, 1979, Ser. No. 1,285

Claims priority, application Japan, Jan. 20, 1978, 53-4240; Feb. 3, 1978, 53-10563

Int. Cl.³ F02M 37/04

U.S. Cl. 123—506 9 Claims



1. A fuel injection pump for an internal combustion engine, which comprises: a housing; a suction chamber defined within said housing; a barrel mounted within said housing; a plunger mounted within said barrel for axial and rotary motion therein; a pump working chamber defined by the housing, the barrel and the plunger; outlet pressure lines for connecting said pump working chamber with associated injection nozzles; a first relief channel including a port having one end thereof communicating with said pump working chamber and the other end terminating in an outer periphery of said plunger and a communication channel having one end thereof terminating in an inner periphery of said barrel and the other end arranged for communication with a zone under a lower pressure; a second relief channel allowing fuel to flow therethrough at a restricted rate and having one end thereof opening in said pump working chamber and the other end arranged for communication with a zone under a lower pressure; a valve means provided across said first and second relief channels; and a valve actuating means arranged in communication with a pressure source supplying a pressure varying with engine r.p.m.; wherein said port and communication channel of said first relief channel are so disposed as to communicate with each other at the beginning of fuel delivery stroke of said plunger, and said valve means is arranged to be actuated by said valve actuating means responsive to a varying pressure from said pressure source for blocking both said first and second relief channels during starting of the engine, opening both of them in a predetermined low engine speed range, and opening solely said first relief channel in a higher engine speed.

4,271,809

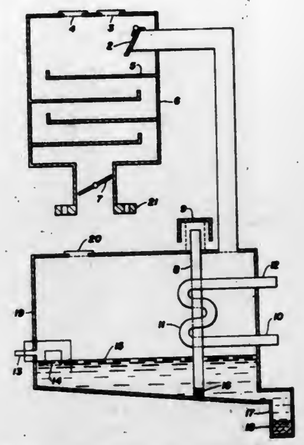
VAPORATOR

Theodore G. Moore, Sr., deceased, late of Yoncalla, Oreg.; by Theodore G. Moore, Jr., administrator, 1519 1st Ave., Rockford, Ill. 61108, and by Betty L. Moore, administrator, 509 NW. Franklin, Bend, Oreg. 97701

Filed Jun. 27, 1978, Ser. No. 876,060

Int. Cl.³ F02M 31/00

U.S. Cl. 123—522 1 Claim



1. An internal combustion engine vaporator system comprising:

a vaporator tank which provides an enclosed chamber for containing a liquid fuel,

means for supplying liquid fuel to said chamber;

float means for maintaining a specified level of liquid fuel in said vaporator tank;

an air inlet tube extending below the level of the liquid fuel;

a porous zinc catalyst device positioned completely below the level of the liquid fuel and attached to said tube;

said catalytic device being provided to separate the light gasoline ends from the heavy hydrocarbons, the lighter ends vaporizing quickly into the air bubbling up through the fuel from the air inlet tube, and the non-volatile parts collecting in a particle reservoir means on the bottom of the vaporator tank,

said reservoir being removable for cleaning,

a heating coil wrapped around the tube,

said heating coils being heated by engine coolant tapped from the engine cooling system, said heating coils enhancing the evaporation process;

an auxilliary air inlet provided in said vaporator tank and including a valve therein for controlling additional air as needed;

an air-fuel mixing chamber means;

air-fuel conduit means for connecting said vaporator tank to said air-fuel mixing chamber means;

a backfire valve device;

said air-fuel conduit means including said backfire valve device to prevent liquid fuel from being expelled from the vaporator tank in the event of a backfire;

an additional air inlet/outlet device provided for the air-fuel mixing chamber means in order to add more air and allow release of backfire pressure,

a system of baffle plates positioned in the air-fuel mixing chamber to further mix the air and gas vapor; and

a conduit connected to and extending between the air/fuel mixing chamber and the intake manifold of the engine to allow the fuel/air mixture to flow to the combustion chambers.

4,271,810

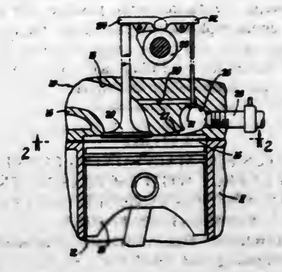
DIVIDED CHAMBER ENGINE WITH PRECHAMBER EXHAUST RECIRCULATION

David R. Lancaster, Troy, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 11, 1980, Ser. No. 111,211

Int. Cl.³ F02M 25/06

U.S. Cl. 123—868 2 Claims



1. In a divided chamber internal combustion engine having an auxiliary combustion chamber capable of being charged with a combustible fuel-air mixture and connected by a restricted passage with a main combustion chamber having intake and exhaust means and capable of being charged with a relatively leaner charge than in the auxiliary chamber, the improvement comprising recirculation means connecting the auxiliary chamber with the intake means and operative during the operating cycle to recirculate at least a portion of combustion products from the auxiliary chamber to the intake means prior to completion of the exhaust of combustion products from the main chamber to thereby limit discharge in the exhaust of residual combustion products from the auxiliary combustion chamber.

4,271,811

FEEDBACK CONTROL OF EXHAUST GAS RECIRCULATION BASED ON COMBUSTION CONDITION

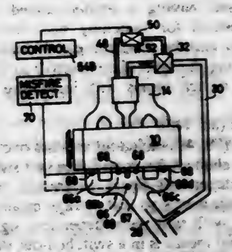
Suzuo Suzuki, Yokosuka; Yoshitaka Hata, Fujisawa, and Akihiro Ohnishi, Kashigaya, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Division of Ser. No. 825,130, Aug. 16, 1977, Pat. No. 4,186,701. This application Sep. 21, 1979, Ser. No. 77,536

Claims priority, application Japan, Aug. 23, 1976, 51-100434

Int. Cl.³ F02B 47/08

U.S. Cl. 123—571 4 Claims



1. A feedback control system for controlling the volume of exhaust gas recirculated from an exhaust passage of an internal combustion engine to the induction passage of the engine through an exhaust recirculation passage, the system comprising:

a flow control valve to vary the volume flow rate of the exhaust gas in the exhaust recirculation passage;

a sensor means for sensing the condition of combustion in a

combustion chamber of the engine and producing a first electrical signal representing the sensed combustion condition, said sensor means comprising a spark-gap disposed in the exhaust passage to detect the frequency of misfire in said combustion chamber by the frequency of a spark-discharge across said spark-gap;

a control means for producing a second electrical signal based on said first electrical signals, said second electrical signal indicating a decrease in the volume flow rate of the exhaust gas in the recirculation passage when said first electrical signal implies a decrease in the frequency of said spark-discharge in said combustion chamber; and

an actuator means for operating said control valve in response to said second electrical signal.

4,271,812

APPARATUS FOR MAINTAINING CONSTANT IGNITION ENERGY WITH INCREASING ENGINE SPEEDS IN AN IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

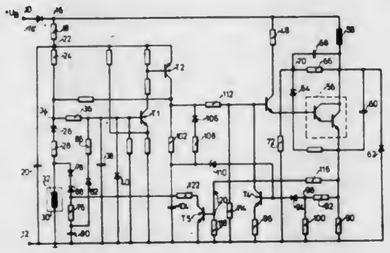
Bernd Bodig, Leinfelden; Helmut Schmied, Remshalden; Gerd Höhne, Ludwigsburg, and Adolf Fritz, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 26, 1979, Ser. No. 60,772

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833343

Int. Cl.³ F02P 3/04

U.S. Cl. 123—609 **7 Claims**



1. In an ignition system in an internal combustion engine having means (30) for generating a speed-dependent signal having an amplitude varying as a predetermined function of engine speed, an ignition coil having a primary winding (58), interrupter switch means (56) connected in series with said primary winding, and trigger circuit means connected to said speed-dependent signal generating means and said interrupter switch means and having a predetermined switch-in and switch out threshold for switching said interrupter switch means alternately into the conductive and blocked state, apparatus for increasing the ratio of conductive to blocked time of said interrupter switch means with increasing engine speed, comprising

storage means (80, 140);

circuit means (78, 40) including at least one unidirectional conducting element for connecting said storage means to said speed-dependent signal generating means and said trigger circuit means so that storage means is charged in accordance with said speed-dependent signal while said trigger circuit means is in a switched-out state and so that the so-created charge on said storage means shifts said thresholds of said trigger circuit means in a direction increasing the time said interrupter switch means is in said conductive state;

and means (88, 138) interconnected between said storage means and said speed-dependent signal generating means for delaying said charging of said storage means until said speed of said engine has reached a predetermined minimum speed.

4,271,813

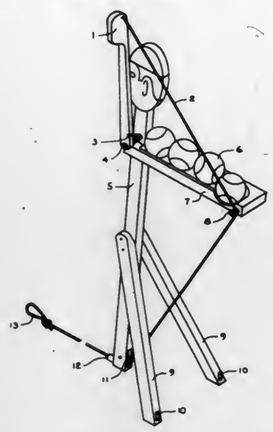
BATTER ACTUATED BASEBALL PITCHING MACHINE

David Rowe, 204 Maple St., East Haven, Conn. 06512

Filed May 11, 1977, Ser. No. 796,041

Int. Cl.³ F41B 3/02

U.S. Cl. 124—7 **3 Claims**



1. A ball throwing device comprising a one piece frame extending in an upward direction; legs attached to said frame; a ball rack attached to said frame and having a ball outlet; a shaft projecting from said frame; an arm mounted on said shaft for pivotal movement relative to said frame; a spring mounted on said shaft and biassing said arm in one direction; a cord, one end of which is attached to said arm for pivoting said arm in a direction opposite to said one direction to a position proximate said ball outlet for engagement with a ball at said outlet; means for guiding said cord; and a stop fixed to said cord for engagement with said guiding means to limit pivoting of said opposite direction.

4,271,814

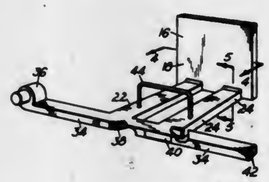
HEAT EXTRACTING APPARATUS FOR FIREPLACES

Paul M. Lister, 1803 General Anderson Ave., Vancouver, Wash. 98661

Continuation-in-part of Ser. No. 792,410, Apr. 29, 1977, abandoned. This application Jun. 9, 1978, Ser. No. 914,056

Int. Cl.³ F24B 7/00

U.S. Cl. 126—121 **2 Claims**



1. A heat extracting apparatus for fireplaces of the type having front doors, comprising

(a) an upstanding heating chamber having front and rear walls and enclosing top, bottom and side walls and arranged to be disposed adjacent a wall of a fireplace for exposure to the fire,

(b) inlet and outlet duct means connected into said heating chamber adjacent the bottom and adjacent respective opposite sides,

(c) said inlet and outlet duct means being arranged to extend substantially horizontally along the floor of a fireplace and support firewood thereon,

(d) a front cross duct connected to and communicating with said outlet duct means,

(e) an outlet opening in said cross duct on the opposite side of the connection of said duct with said outlet duct means,

(f) said opening being substantially aligned with said outlet duct means and in substantially the same horizontal plane,

(g) an extension on said cross duct extending laterally beyond its connection with said outlet duct means,

(h) said extension communicating with said outlet duct means and having an open end,

(i) said outlet opening being larger in cross sectional area than the cross sectional area of said outlet duct means and also being offset laterally towards said open end relative to said outlet duct means whereby the forced outlet of heated air through said outlet opening provides a Venturi action which draws in room air through said open end to increase air circulation in a room.

4,271,815

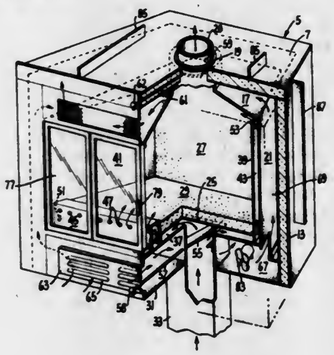
PREFABRICATED FIREPLACE FOR PERMANENT INSTALLATION

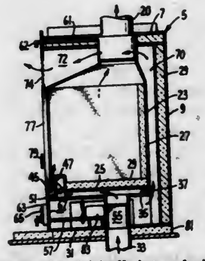
William R. Johnson, Santa Cruz, Calif., assignor to Chinook Manufacturing Co., Santa Cruz, Calif.

Filed Nov. 8, 1979, Ser. No. 92,486

Int. Cl.³ F24B 7/00; F24C 1/14

U.S. Cl. 126—121 **2 Claims**





1. A fireplace adapted to be built into a building, comprising in combination:

a. a firebox, said firebox including a combustion chamber, a double wall bottom, double wall sides, a back, and a conical top, said double wall sides being planar and having one end thereof connected to a lower wall of said double wall bottom and having an inner wall of said double wall sides spaced from but closely adjacent said conical top, said sides having fluid passages defined therein to fluidly connect said double wall sides to said double wall bottom, said walls and said bottom forming combustion air fluid passages which are located on the inside of said combustion chamber and which are fluidly connected with each other and with said combustion chamber via the top of said combustion chamber, refractory material located adjacent said combustion chamber sides and bottom,

b. an outer shell having a front wall, double wall sides, a double wall top and a bottom and surrounding said firebox on at least the bottom, back, sides and top of said firebox, said shell including refractory material in said double wall sides and said double wall top, and being spaced from said firebox at said bottom, back, top and sides to define bottom, side and top room air flow passages, said flow passages being fluidly connected together,

c. transparent doors on the front wall of said firebox, said doors being substantially airtight when in a closed condition,

d. a main combustion air intake conduit located near said firebox back and fluidly connected to said firebox double wall bottom so that combustion air from said intake travels a substantial distance in contact with said firebox bottom,

e. a damper in said main combustion air intake conduit,

f. a combustion air manifold fluidly connected to said firebox double wall bottom fluid passage to receive air therefrom, said combustion air manifold being U-shaped and opening toward said bottom lower wall and being located closely adjacent but spaced from said transparent doors, said manifold supporting that refractory material located on said firebox bottom,

g. air flow directing means on said air manifold located adjacent the bottom of said doors to direct combustion air from said manifold into said combustion chamber and onto the inside of said doors for providing combustion air for said combustion chamber and for cooling said doors,

h. room air intake openings on the bottom of said outer shell front, said intake openings being fluidly connected to said shell bottom flow passage,

i. room air exhaust openings in the top of said outer shell front and fluidly connected to said bottom flow passage so that room air flows beneath, beside, behind and on top of said firebox when passing from said intake openings to said exhaust openings,

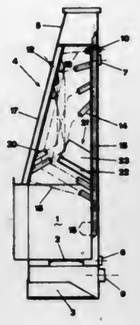
j. said shell flow passages being in direct thermal contact with said firebox fluid passages and said firebox fluid passages being in direct thermal contact with said combustion chamber so that heat from said combustion chamber is transferred to the air flowing in said fluid and said flow passages,

k. a major portion of combustion air flowing from said intake conduit following said firebox flow passage to the front of the firebox, then exhausting from said air manifold flow directing means to flow in contact with said transparent doors and then the remainder of said combustion air flowing in said firebox wall fluid passages then into the top of said firebox combustion chamber to produce secondary combustion near the top of said combustion chamber thereby assuring complete combustion without combustion products being discharged through an opening at the top of the firebox,

l. said air flowing over said transparent doors keeping said doors cool and clean, and

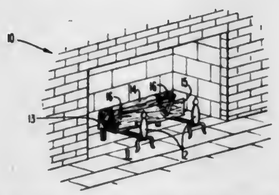
m. room air flowing in said flow passages from said intake openings to said exhaust openings contacting said firebox top and serving to heat a room in which said fireplace is located.

4,271,816
FIREPLACE
Alberto Carocci, Rome, Italy, assignor to Racia Co. Limited, St. Helier, Great Britain
Filed Jun. 7, 1978, Ser. No. 913,379
Claims priority, application Italy, Jul. 5, 1977, 50121 A/77
Int. Cl.³ F24B 9/04, 1/18
U.S. Cl. 126—132 6 Claims



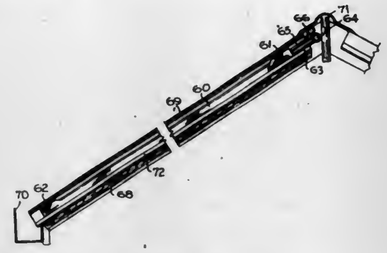
1. A combination fireplace and boiler, the combination comprising a solid fuel burning furnace and a hood, at least the interior of said hood defining a boiler through which combustion gases flow during passages from said solid fuel burning furnace to a fireplace flue, said boiler including a plurality of heat exchange tubes which rise generally vertically inside said hood in a direction substantially parallel with the path of rising combustion gases so as not to encumber draft, said tubes defining substantially vertically extending heat exchange surfaces, and said boiler being provided with compartment means for containing water to be heated and means for its connection to a hot water system, wherein said heat exchange tubes extend from said furnace to substantially the top of said hood and are substantially surrounded by said compartment means for containing water to be heated, wherein said substantially vertical heat exchange surfaces allow effective passage of water, and wherein walls of said hood and of said furnace are double walls defining intercommunicating water jackets wherein water to be heated is to be contained and circulated.

4,271,817
FIRE ARRAY AND APPARATUS
E. Arthur Thompson, P.O. Box 456, Penllyn, Pa. 19422
Filed Apr. 6, 1979, Ser. No. 27,620
Int. Cl.³ F23B 13/00
U.S. Cl. 126—298 1 Claim



1. An array for a log fire comprising andiron means adapted to support a plurality of logs in a generally horizontal position, a pair of logs supported on said andiron means in a parallel opposing relationship, implement means consisting of a fire resistant rigid structure adapted to provide a V-shaped supporting surface thereon, said implement means being supported by said pair of logs and acting to space said pair of logs apart, and a further log supported within the interior angle of the V-shaped supporting surface of the implement means, said array providing a generally V-shaped draft space between the three logs thereof.

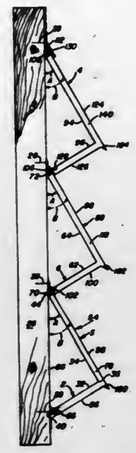
4,271,818
SOLAR HEATER ROOF-PANEL CONSTRUCTION
Peter J. Hastwell, 133 Mills Ter., North Adelaide, South Australia, Australia 5006
Filed Jun. 16, 1978, Ser. No. 916,364
Claims priority, application Australia, Jun. 20, 1977, 0509/77
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 15 Claims



1. A sloped roofing structure comprising:
(a) a plurality of roofing panels each defined by a floor and at least two upwardly extending marginal edges having upstanding ridges, the ridges of adjacent panels are fitted together and said panels are sloped to form a drain surface to shed water from a roof so formed,
(b) a plurality of independent transparent or translucent solar collector plates having flow channels therethrough for passage of a medium to be heated by solar radiation, said solar collector plates extending up the slope of said roofing structure and being disposed within said roofing panels spaced over the floor to form a clearance therebetween, whereby, solar energy which passes through the channels of the said collector plates is returned at least in part from the floor of said roofing panels to said independent solar collector plates, and
(c) transparent shielding panels, said transparent shielding panels pass solar radiation disposed over the said solar collector panels, and are sealed to and supported by said roofing panels over said collector plates, whereby said collector plates are disposed in cavities formed between said roofing panels and said shielding panels, said shielding panels form the drain surface above said cavities, and whereby said roofing panels discharge leakage from said solar collector plates through said clearance.

14. A sloped roofing structure in combination with a ridge cap and gutter, further including:
(a) a plurality of roofing panels having ridges running from said ridge cap to said gutter to thereby form cavities down which water is guided to the said gutter,
(b) thermal insulation on the underside of the said roofing panels,
(c) a plurality of independent solar collector plates having fluid flow passages therethrough disposed in at least some of the said cavities, and
(d) a transparent shielding panel which passes solar radiation closing the top of each of the said cavities in which an independent solar collector plate is disposed, whereby said roofing panels shed water to the said gutter excepting where said solar collector plates are positioned at which locality said shielding panels shed the water to said gutter outside of the said cavities, but wherein water leakage from the said solar collector plate or shielding panels is shed to the said gutter by the said roofing panels.

4,271,819
SOLAR ENERGY APPARATUS
Daniel L. Farrell, 328 Plumer Ave., Pittsburgh, Pa. 15202
Filed Mar. 19, 1979, Ser. No. 21,998
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 22 Claims

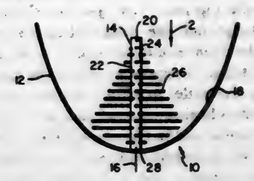


1. Apparatus for collecting radiant solar energy and forming a panel assembly comprising
substrate means for securing solar panels thereto,
an elongated translucent generally V-shaped starter panel traverse to and secured to said substrate means,
upper and lower portions of said starter panel secured to said substrate means with the apex of said panel being disposed outwardly of said substrate means,
an elongated translucent generally W-shaped main panel secured to said starter panel and having a lower generally V-shaped portion of generally complementary shape with respect to said starter panel,
said lower generally V-shaped portion of said main panel overlapping and being generally spaced outwardly from said starter panel,
end closure means cooperating with said starter panel and said lower portion of said main panel to define a first elongated closed air space,
said main panel having an upper generally V-shaped portion,
an additional translucent panel secured to said main panel and having a generally V-shaped portion disposed in overlapping generally spaced outward relationship with respect to said upper portion of said main panel,
end closure means cooperating with said main panel upper portion and said additional panel portion to define a second elongated closed air space, and
energy receiving means disposed inwardly of the panel assembly, whereby said main panel serves as the outer wall of said first closed air space and the inner wall of said second closed air space and sun's rays impinging upon said panel assembly will pass therethrough to said energy receiving means.

4,271,820
SOLAR HEAT STRUCTURE
Danforth Holley, 521 Lake Shore Rd., Grosse Pointe Shores, Mich. 48236
Filed May 16, 1979, Ser. No. 39,682
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 7 Claims

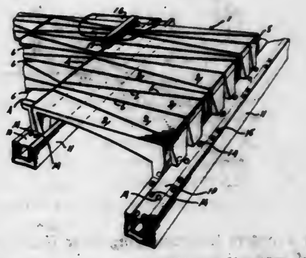
1. A diffuser for a solar collector said diffuser having an axis and comprising a plurality of elongated, narrow reflecting fingers and means for supporting the reflecting fingers axially of the diffuser with the reflecting fingers in spaced apart locations angularly and axially of the diffuser, said reflecting fingers defining the general shape of a Christmas tree and having outer tips generally defining a line diverging toward the bottom of the Christmas tree at an angle of between 30° and 60° with respect to the axis of the diffuser.

4. Solar heat structure comprising a concave solar heat collector having an axis of generation and a reflecting diffuser



positioned axially of and operably associated with the collector constructed of reflecting material in the general shape of a Christmas tree, said diffuser diverging inwardly toward the collector from the outer end of the diffuser at an angle of between 30° and 60° with respect to the axis of the collector and being constructed of a central tube having transverse openings extending therethrough and metal foil strips extending through the transverse openings in the tube.

4,271,821
SOLAR ENERGY COLLECTOR
Colin C. Kerr, Box 275, Hawkesbury, Ontario, Canada K6A 2R9
Filed Aug. 8, 1980, Ser. No. 176,532
Int. Cl.³ F24J 3/02
U.S. Cl. 126—417 4 Claims



1. A solar energy collector comprising: a panel including a top face and a plurality of solar energy collecting fluid channel units; said top face being absorbent to solar energy and each of said solar energy collecting fluid channel units having a fluid channel with an upstream end and a downstream end, having opposite lateral sides laterally spaced apart across said solar energy absorbent top face, having a solar energy absorbent top extending between the corresponding opposite lateral sides, having a width between said lateral sides decreasing from the corresponding upstream end toward the downstream end, and laterally immediately adjoining and adjacent another of the solar energy collector fluid channel units along one of the opposite lateral sides of each other.

4. A solar energy collector comprising: a panel including a top face and a plurality of solar energy collecting fluid channel units; said top face being absorbent to solar energy and each of said solar energy collecting fluid channel units having a fluid channel with an upstream end and a downstream end, having opposite lateral sides laterally spaced apart across said solar energy absorbent top face, having a solar energy absorbent top extending between the corresponding opposite lateral sides, having a width between said lateral sides decreasing from the

corresponding upstream end toward the downstream end, and laterally adjoining another of the solar energy collector fluid channel units along one of the opposite lateral sides of each other, said plurality of solar energy collecting fluid channel units including a first and a second sets of channel units, the channel units of the first set taper in opposite direction relative to the channel units of the second set, each laterally tapering solar energy collecting fluid channel unit defining a wider inlet end, a narrower outlet end, and a bottom progressively diverging relative to the top face from the wider inlet end to the narrower outlet end, one inlet manifold connected to the upstream end of the channel units of said first set, another inlet manifold connected to the upstream end of the channel units of said second set, one outlet manifold connected to the downstream end of the channel units of said second set, another outlet manifold connected to the channel units of said first set, and said one inlet manifold and one outlet manifold being positioned at the opposite end of the solar energy collecting fluid channel units relative to said another inlet manifold and another outlet manifold.

4,271,822

CONVERSION OF AVAILABLE ENERGY

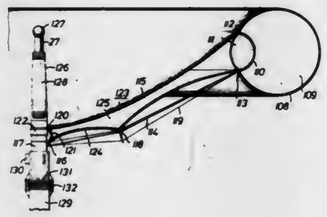
Reinhart Radebold, Quastenhornweg 14a, 1000 Berlin 22, Fed. Rep. of Germany

Division of Ser. No. 545,133, Jan. 29, 1975, Pat. No. 4,127,453. This application Oct. 13, 1978, Ser. No. 951,180

Claims priority, application Fed. Rep. of Germany, Jan. 30, 1974, 2405134

Int. Cl.³ F24J *3/02*; H01Q *15/20*; G02B *5/10*

U.S. Cl. 126—426 **12 Claims**



1. In a system for converting solar energy into different forms of energy, comprising:

a tubular, elongated housing, containing means for receiving and converting solar energy into a different form of energy;

a curved reflector of rotational symmetry, being directly exposed to solar radiation, the housing being disposed along the axis of the reflector and traversing same, so that solar energy can be focussed onto said one end of the housing;

a gas-filled custioning means for the curved reflector and being under relatively low pressure to obtain a concave contour for said reflector by external pressure acting upon the cushioning means;

means including additional pressurized chamber means serving as a support structure and acting at least in parts along a periphery of the cushioning means, without covering the reflector, to stabilize and peripherally expand the cushioning means and the reflector, and to provide the system as a whole with buoyancy for floating aboveground; and

a tube traversing the reflector, and being provided for supporting the reflector, the housing being inserted in said tube at its other end.

4,271,823

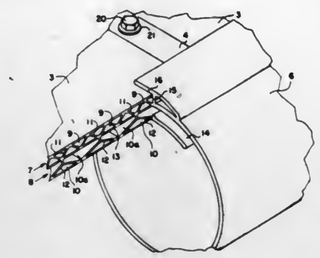
UNITARY SOLAR COLLECTOR PANEL

Robert A. Erb, Valley Forge, Pa., assignor to The Franklin Institute, Philadelphia, Pa.

Continuation-in-part of Ser. No. 645,648, Dec. 31, 1975, Pat. No. 4,114,597. This application Aug. 3, 1978, Ser. No. 930,798

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—445 **40 Claims**



1. In a unitary, coextruded solar collector panel of the type having a first heat insulation region, divided into a plurality of first channels by a plurality of first ribs extending from the top of the heat insulation region to the bottom thereof, and a second, heat absorbing region, divided into a plurality of second channels by a plurality of second ribs extending from the top of the heat absorbing region to the bottom thereof, wherein the second region is adapted to absorb heat produced by solar radiation impinging thereupon, and the first region is adapted to insulate the second region to prevent the heat absorbed by the second region from being lost to the external elements, an improved collector panel which comprises:

a heat insulating region having at least as many first channels as their are second channels in the heat absorbing region, whereby convection currents which occur within the first channels are reduced, thereby reducing the heat losses so created; and

wherein the second ribs extend along substantially the entire length of the heat absorbing region and are obliquely oriented to separate the second channels into two groups of polygonal channels that intermesh for enhancing heat transfer, the ends of said second ribs lying in substantially the same plane.

4,271,824

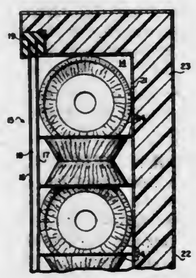
SOLAR HEATING APPARATUS

Charles R. Decker, III, Warsaw, Ill., assignor to Impac Inc., Keokuk, Iowa

Filed Jun. 10, 1977, Ser. No. 805,332

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—449 **9 Claims**



1. An energy transfer unit for a solar heater comprising

a. a pair of similar, open top metal foil pans, each pan having a flat bottom wall and an outwardly flaring, conical side wall, and the walls of each pan being covered by a black, energy-absorbing coating; and

b. means connecting the pans to each other with their bottom walls in abutment.

4,271,825

SOLAR ENERGY COLLECTOR

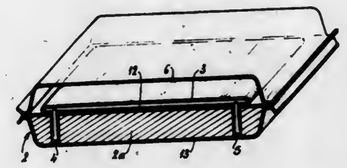
Alain L. C. Schwob, Meyzieu; Bruno J. Busschaert, Lyons, and Claude A. M. Ivorra, Decines, all of France, assignors to Phenol Engineering S.a.r.l., Villeurbanne, France

Filed Jun. 11, 1979, Ser. No. 47,784

Claims priority, application France, Jun. 9, 1978, 78 17860

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—450 **10 Claims**



1. In a solar energy collector having a carrying structure of thermally insulating material in the shape of a rectangular plane panel, an absorber supported by said structure, connecting pipes going through said structure for connection to a liquid utilization installation, and a transparent cover in the shape of a first shell defining an outside wall and positioned over said structure and housing said absorber, the improvement comprising a second shell of suitable plastic material defining an outer wall and a sheet of thermally insulating, heat-resistant material, wherein said carrying structure of thermally insulating material is made up of a phenol foam plate sandwiched between said second shell of suitable plastic material and said sheet of thermally insulating, heat-resistant material, said second shell and said first shell constituting the cover of the collector and each being provided with a respective peripheral flange, said pipes extending through said sheet of thermally insulating, heat-resistant material, said carrying structure and said second shell, said thermally insulating, heat-resistant sheet being provided with a peripheral extension positoned between said flanges of said shells, including means for fastening said first shell to said second shell along their said peripheral flanges as a single joint and means for supporting said absorber free of contact with said outside walls.

4,271,826

DEVICE FOR COLLECTING SOLAR ENERGY

Georges Duchene, Saint Bonnet Le Chateau, France, assignor to Agence Nationale de Valorisation de la Recherche (ANVAR), France

Division of Ser. No. 819,563, Jul. 27, 1977, Pat. No. 4,175,542. This application Jul. 31, 1979, Ser. No. 62,473

Claims priority, application France, Jul. 30, 1976, 76 23454

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—450 **5 Claims**

1. A device for collecting solar energy and heating a liquid therewith comprising:

a heat insulating substantially flat under support which has a downward slope from an upper end to a lower end thereof;

a mat of intermingled fibres extending longitudinally from said upper end to said lower end of said support and transversely of said support and constituting an absorbent body for the solar energy and also constituting guide means, by the effect of capillarity and gravity, for a downward free flow of said liquid therethrough;

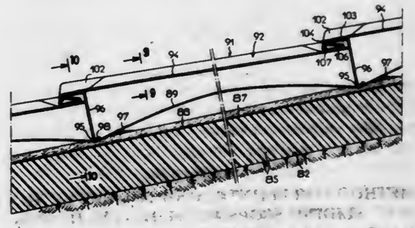
a fluidtight envelope of thin plastics material sheathing said mat and defining a lower substantially flat film bearing on said support and a translucent and flexible upper film which has a developed area larger than the area of the mat;

means adjacent said upper end of the support for supplying said liquid directly into the envelope and in direct contact with the mat in a substantially evenly distributed manner transversely of said mat;

means adjacent said lower end of the support for collecting said liquid which has flowed through the mat;

an upper roofing creating a glass house effect and comprising upper panel means which are substantially parallel to said support and spaced from the sheathed mat, and two edge wall portions upwardly extending from said support;

bearing means which depend from the panel means and extend transversely of the support and bear against the upper film so as to hold the panel means spaced away from the upper film, said bearing means exerting such bearing



force on the upper film and mat as to create small retentions of said liquid between the upper film and mat upstream of said bearing means whereby to improve distribution of said liquid transversely of the support and defining closed parts of said envelope arranged in succession from adjacent said upper end to adjacent said lower end of the support so that the upper film is free to rise between successive bearing means under the effect of expansion of vapours from said liquid within the envelope, said force exerted by said bearing means being such that said retentions of liquid are substantially just sufficient to improve said distribution of said liquid so that, in combination with a rate of flow determined by said means for collecting said liquid, said liquid merely wets the mat and flows therethrough solely under the effect of capillarity and gravity without ever filling the envelope and the pressure of said liquid within the envelope remains substantially equal to atmospheric pressure.

4,271,827

METHOD FOR PREVENTION OF GASTRO ESOPHAGEAL REFLUX

Jean P. Angelchik, 1728 W. Glendale Ave., Suite 401, Phoenix, Ariz. 85021

Filed Sep. 13, 1979, Ser. No. 75,270

Int. Cl.³ A61B *19/00*; A61F *1/00*

U.S. Cl. 128—1 R **1 Claim**



1. A method for preventing gastro esophageal reflux when

the gastro esophageal junction is positioned above the diaphragm, said method comprising:

(a) positioning a generally C-shaped cushion prosthesis around the distal esophagus, the inside diameter of said prosthesis generally corresponding to the normal outside diameter of the distal esophagus, said C-shaped member being deformable to permit adjustment of the spacing of the free ends thereof at a selected distance;

(b) adjusting said free ends of said prosthesis at a spacing to permit normal expansion of the esophagus during swallowing; and

(c) fixing said free ends of said prosthesis in said adjusted position to maintain said C-shaped cushion prosthesis in operative position around the distal esophagus generally adjacent to the gastric fundus when the gastro esophageal junction is positioned above said diaphragm and to maintain said adjusted spacing of said free ends, said prosthesis being positioned above said diaphragm free of any sutures interconnecting said prosthesis with the human body.

4,271,828

METHOD FOR MAINTAINING THE REDUCTION OF A SLIDING ESOPHAGEAL HIATAL HERNIA

Jean P. Angelchik, 1728 W. Glendale Ave., Suite 401, Phoenix, Ariz. 85021

Filed Sep. 13, 1979, Ser. No. 75,271
Int. Cl.[3] A61B *19/00*; A61F *1/00*
U.S. Cl. 128—1 R 1 Claim



1. A method for maintaining the intra-abdominal reduction of a sliding esophageal hiatal hernia whereby extension of the gastric fundus into the thoracic cavity through an enlarged esophageal hiatal is prevented, said method comprising:

(a) positioning a generally C-shaped cushion prosthesis around the distal esophagus, the inside diameter of said prosthesis generally corresponding to the normal outside diameter of the distal esophagus and the outside diameter thereof being larger than said enlarged esophageal hiatus, said C-shaped member being deformable to permit adjustment of the spacing of the free ends thereof at a selected distance and having a generally constant cross-sectional area along the entire length thereof;

(b) adjusting said free ends of said prosthesis at a spacing to permit normal expansion of the esophagus during swallowing; and

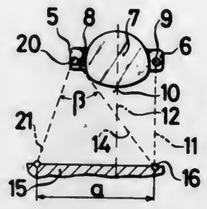
(c) fixing said free ends of said prosthesis in said adjusted position to maintain said C-shaped cushion prosthesis in operative position around the distal esophagus between the gastric fundus and the diaphragm and to maintain said adjusted spacing of said free ends, said prosthesis being maintained in said operative position free of any sutures interconnecting said prosthesis with an organ of the human body.

4,271,829

ENDOSCOPE WITH DISTANCE MEASURING DEVICE

Helmut Heckele, Kaittlingen, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

Filed Apr. 16, 1979, Ser. No. 30,452
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1978, 2818760
Int. Cl.[3] A61B *1/06*
U.S. Cl. 128—6 1 Claim



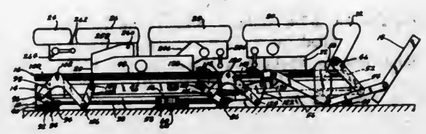
1. An endoscope equipped with an optical system including an objective lens defining a field of view of said endoscope and incorporating a device for measuring the distance between a subject and the objective lens of the optical system of the endoscope and selected lengths along the surface of a subject, said device comprising means for providing first, second and third visible light rays adjacent said objective lens, said rays being such that when projected into the field of view of the endoscope and onto a subject within the viewing range of the endoscope each ray will form a spot of light on the surface of the subject visible through said objective lens and of a diameter which is a small fraction of the portion of the surface of the subject which is within the field of view, first, second, and a third discrete reflector means for deflecting said first, second and third light rays, respectively, into the field of view of said endoscope, said first and second reflector means being spaced from one another at the distal end of said endoscope next to said objective lens of said optical system, said first reflector means deflecting said first ray into a fixed and approximately parallel position with respect to the viewing axis of said objective lens, means for moving said second reflector means such that said second ray may be moved within a plane which includes said first ray from a position parallel to the viewing axis of said objective lens to a position wherein said second ray intersects said first ray at a point within the viewing range of said endoscope, a first scale operatively associated with said means for moving said second reflector means for indicating the angle of said second ray with respect to a position parallel to the viewing axis of said objective lens, means for moving said third reflector means such that said third ray may be moved within a plane which includes said first ray from a position wherein said third ray intersects said first ray at a point within the viewing range of said endoscope towards a position wherein said third ray is parallel to the viewing axis of said objective lens, a second scale operatively associated with said means for moving said third reflector means, said second scale being based on a zero angle position defined by the position of said third ray when the surface of a subject is being viewed within the viewing range of said endoscope and said first and third rays intersect one another in the plane of the surface, said second scale indicating the distance along the surface of a subject being viewed between the spot on the surface caused by said first ray and the spot on the surface caused by said third ray.

4,271,830

CHIROPRACTIC TABLE

Derryl E. Moon, Fairmount, N. Dak. 58030

Division of Ser. No. 927,961, Jul. 26, 1978, Pat. No. 4,230,100.
This application Oct. 5, 1979, Ser. No. 82,120
Int. Cl.[3] A61F *5/00*
U.S. Cl. 128—73 7 Claims



1. A chiropractic table comprising:

an elongated pedestal frame, an elongated intermediate frame, and an elongated table frame, each having opposite ends;

a first linkage mechanism comprising a plurality of links pivotally connected to one another, one of said first mechanism links being pivotally connected to said pedestal frame and another of said first mechanism links being pivotally connected to said intermediate frame, said first linkage mechanism being movable from a collapsed position wherein said intermediate frame is parallel and adjacent said pedestal frame to a raised position wherein said intermediate frame is parallel to and spaced above said pedestal frame;

hinge means interconnecting one end of said table frame to one end of said intermediate frame for swinging movement therebetween about a horizontal axis transverse to the longitudinal centerline of said intermediate and table frames;

second linkage mechanism pivotally interconnecting said table frame with one of said intermediate and pedestal frames for causing said table frame to pivot about said horizontal axis provided by said hinge means, said second linkage mechanism comprising a lever arm fixed to said table frame, a tilt member movably mounted to said pedestal frame for longitudinal movement thereon, and a tilt link interconnecting said lever arm and said tilt member;

a lift member movably mounted to said pedestal frame for longitudinal movement thereon, said lift member being operatively connected to said first linkage mechanism for causing movement thereof and consequent lifting of said table frame in response to longitudinal movement of said lift member;

a master member movably mounted to said pedestal frame for longitudinal movement thereon, said master member being movable in a first direction to engage and move said tilt member so as to cause tilting of said table frame about said horizontal axis and said master member being movable in the opposite direction to engage and move said lift member to cause lifting of said table frame to said lifted position.

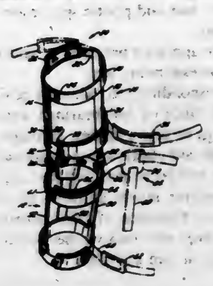
4,271,831

KNEE BRACE

Daniel T. Delbert, 813 St. Paul St. West, Montreal, Quebec, Canada

Filed Mar. 12, 1979, Ser. No. 19,342
Int. Cl.[3] A61F *5/00*
U.S. Cl. 128—80 C 18 Claims

1. In a knee brace having an upper section adapted to seat on the thigh of a wearer and a lower section adapted to seat on the lower leg portion, with a pivot means pivotally securing the upper and lower sections together the improvement wherein said lower section includes, immediately below the point of pivoting, and immediately below the knee joint of the leg of the wearer, a rigid bridge bar means adapted to partially encircle the anterior of the lower leg, flexible drawing means associated with said rigid means and adapted to encircle the posterior of the lower leg in the same region as the rigid bridge bar means, such that the drawing means is also immediately below the knee joint of the wearer, said drawing means being adjustable and adapted to draw the tibia of the lower leg forward proximate to and spaced from said rigid means, said upper section comprising drift control means having an adjustable length with respect to said upper section and encircling the anterior of the thigh immediately above the knee joint of the



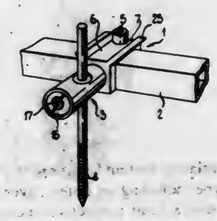
wearer, said drift control means being adapted to draw the lower portion of the thigh posteriorly for controlling the drift of the brace, said drift control means cooperating with said bridge bar means to aid in protecting posterior cruciate ligaments by at least forcing the tibia into alignment with the femur, and additional means on said upper section located above said drift control means for attaching the brace to the leg of a user.

4,271,832

POST-FRACTURE STABILITY OF LIMBS

Mervyn Evans, Kidlington, and John D. Harris, Abingdon, both of England, assignors to National Research Development Corporation, London, England

Filed Jul. 20, 1979, Ser. No. 59,201
Claims priority, application United Kingdom, Jul. 20, 1978, 30575/78
Int. Cl.[3] A61F *5/04*
U.S. Cl. 128—92 A 6 Claims



1. A splint for immobilizing a fractured bone comprising:

a rigid bar;

at least four pin clamps slidably mounted on said bar and fixable thereto;

at least four pins, each corresponding to a different one of said at least four pin clamps, each pin being capable of being lockably mounted in a different corresponding one of said at least four pin clamps and capable of engaging a part of the fractured bone;

each of said at least four pin clamps including a hollowing cylindrical portion having a cylindrical wall formed with two diametrically opposed openings, said two openings having diameters greater than the diameter of said corresponding pin, said corresponding pin extending through said two openings when lockably mounted;

each of said at least four pin clamps being structurally identical and further including:

two washers slidably fit on said corresponding pin inside said

cylinder, each washer being positioned adjacent to and having an external diameter greater than the diameter of said openings in said cylinder;

a plastic tubular spacer slidably fit on said corresponding pin between said two washers so as to hold each of said two washers against a corresponding one of said two openings;

a plurality of ball bearings contained in the space remaining in said cylinder when said corresponding pin, said two washers and said plastic spacer are disposed in said cylinder; and

means for applying pressure to said ball bearings to clamp said corresponding pin;

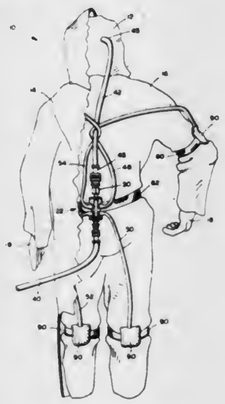
said corresponding pin, when in position to be clamped by said plurality of ball bearings, extends through said two openings in said cylinder, through said two washers and through said plastic spacer; said two washers being moveable by said corresponding pin when said means for applying pressure is not applied, to allow limited universal angular adjustment of said corresponding pin relative to said clamp; said two washers retain said plurality of ball bearings in said cylinder.

4,271,833

VENTILATING SYSTEM FOR PROTECTIVE CLOTHING

Anthony L. Moretti, San Rafael, Calif., assignor to E. D. Bullard Company, Sausalito, Calif.

Filed Jun. 25, 1979, Ser. No. 51,615
Int. Cl.³ A62B *17/00*
U.S. Cl. 128—201.29 **5 Claims**



1. In a ventilating system for use with protective body clothing of the type including an outer covering for the limbs of a user's body and a head protective enclosure, said ventilating system including a source of pressurized air, a manifold having an air inlet, a first air outlet connectable to said head protective enclosure and a plurality of second air outlets,

a plurality of flexible conduits each connectable at one end to a different one of said plurality of second air outlets, the other end of each of said conduits being adapted for mounting on a different one of said limbs of said user's body interior of said outer covering; the improvement wherein:

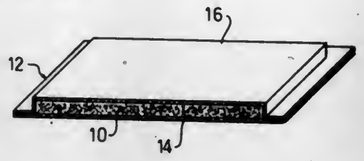
said air inlet and said first air outlet of said manifold have effective diameters which are substantially equal to each other and said plurality of second air outlets each have an effective diameter less than said effective diameters of said air inlet and first air outlet of said manifold whereby pressurized air within a limited predetermined range of air volume per unit time is delivered from said first air outlet when said air inlet is connected to a source of pressurized air having a pressure within a given predetermined pressure range regardless of the connection of said flexible conduits to said second air outlets.

4,271,834

DISPOSABLE PORTABLE MASK FOR EMERGENCY USE

Yoshio Tanaka, 2-7-6, Shibuya, Shibuya-ku, Tokyo, Japan 150

Filed Jul. 9, 1979, Ser. No. 56,039
Claims priority, application Japan, Sep. 11, 1978, 53-123721
Int. Cl.³ A62B *7/10*
U.S. Cl. 128—205.27 **6 Claims**



1. An improved disposable portable mask for use in the presence of toxic gases in emergency situations comprising,

facemask means comprising a blank piece of sponge means of size and shape for covering a user's mouth and nostrils,

an aqueous solution capable of adsorbing acidic toxic gases impregnating the sponge means for adsorption of toxic gases breathed therethrough by the user, and

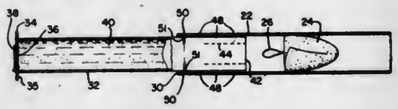
a fluid-tight container for storage of the aqueous solution-impregnated sponge means to maintain the same in moist condition.

4,271,835

FLUID-EXPANSIBLE CONTRACEPTIVE TAMPON AND APPLICATOR

Shepard Conn, Metuchen, N.J., and Arnold Kushner, Queens, N.Y., assignors to KCDP Corporation, New York, N.Y.

Filed May 17, 1978, Ser. No. 906,984
Int. Cl.³ A61F *13/20*
U.S. Cl. 128—270 **23 Claims**



1. An apparatus for intravaginally expelling an activated tampon member from said apparatus comprising:

a first member defining a receptacle receiving and storing therein said tampon member in a quiescent unactivated state, said tampon member being activated by a fluid, such fluid being a spermicide;

a second member defining a reservoir storing said fluid therein separate from and out of contact with said tampon member;

manually-activatable means for releasing said fluid upon command from the reservoir in said second member to activate the tampon member with said fluid while the tampon member is retained in said first member prior to intravaginal insertion; and

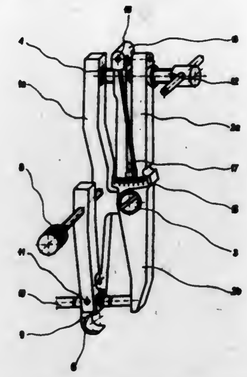
means, including the structural cooperation of said first member and said second member for intravaginally expelling said tampon member in its activated state from said applicator into a vagina.

4,271,836

APPLIANCE FOR CORRECTION OF SPINAL CURVATURES

Kazimierz Bacal, Zielona Gora, and Lech Wierusz, Swiebodzin, both of Poland, assignors to Wyzsza Szkola Inzynierska Im. Jurija Gagarina, Zielona Gora, Poland

Continuation of Ser. No. 809,047, Jun. 22, 1977, abandoned. This application May 8, 1979, Ser. No. 37,123
Claims priority, application Poland, Jun. 28, 1976, 190797
Int. Cl.³ A61B *17/00*; A61F *5/00*
U.S. Cl. 128—303 R **3 Claims**



1. An improved appliance for correction of spinal curvatures in the course of placing a surgical strut in a patient's body comprising, a first elongated arm having a first end portion and a second end portion, said second end portion of said first arm comprising means for releasably securing said first arm to a vertebral bone hook, a second elongated arm having a first end portion and a second end portion, said first arm being pivotally connected to said second arm at a point on said first arm intermediate said first and second end portions of said first arm to a point on said second arm intermediate said first and second end portions of said second arm, said pivotal connection being such that when said arms are pivoted with respect to one another, the movement of both of said arms is parallel to a single plane, said pivotal connection further being such that when said first portions of said first and and second arms are moved away from one another, said second portions of said first and second arms move towards one another, said second end portion of said second arm including a recessed portion adapted to receive the end of a surgical strut and shaped to prevent movement of the strut through, along the length of and to the sides of the second arm, said recessed portion being positioned such that it faces and is aligned with said securing means of said second end portion of said first arm, and screw adjustment means provided on said first end portion of said second arm, cooperating with said first end portion of said first arm for urging said first end portions apart from one another.

4,271,837

ELECTROSURGICAL APPARATUS

Martin Schuler, Münich, Fed. Rep. of Germany, assignor to Aesculap-Werke Aktiengesellschaft vormals Jetter & Scheerer, Tuttlingen, Fed. Rep. of Germany

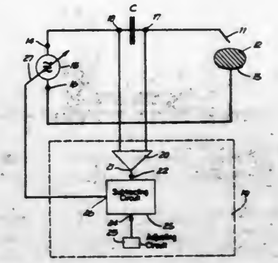
Filed Jan. 16, 1979, Ser. No. 3,929
Claims priority, application Fed. Rep. of Germany, Jan. 17, 1978, 2801833
Int. Cl.³ A61B *17/39*
U.S. Cl. 128—303.14 **9 Claims**

1. Electrosurgical apparatus for operating on an operating area of a tissue of a patient with high frequency electrical energy so that a d-c voltage is produced by rectification of the high frequency electrical energy in the operating area which rectified voltage is used to maintain an optimal temperature therein, comprising:

surgical electrode means for operating on the operating area,

first connecting means for connecting the patient to a point of reference potential,

means for generating high frequency voltage between said electrode means and said point of reference potential, and



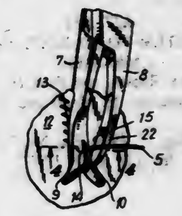
control means, responsive to said d-c voltage produced in the operating area and to a predetermined nominal d-c voltage for varying the high frequency voltage generated by said generating means to maintain said surgical electrode means at a desired temperature.

4,271,838

SUTURE CUTTER

Jeffrey I. Lasner, Yonkers, and Francisco H. Aleixo, Tarrytown, both of N.Y., assignors to Leschal Instruments Corp., North Tarrytown, N.Y.

Continuation-in-part of Ser. No. 893,582, Apr. 5, 1978, abandoned, which is a continuation-in-part of Ser. No. 872,388, Jan. 26, 1978, abandoned. This application Sep. 26, 1978, Ser. No. 945,809
Int. Cl.³ A61B *17/32*; B25F *3/00*; B26B *1/00*
U.S. Cl. 128—318 **18 Claims**



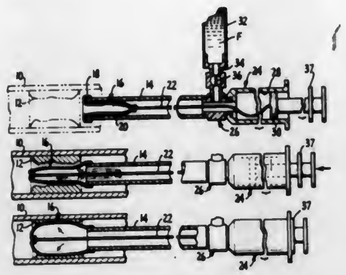
1. A suture cutter comprising:

an elongated member and an elongated blade, said blade having a knife edge for shearing a suture and a back remote from said edge,

said member having a depth and comprising an arm, an element, and a slot therebetween, said slot having a portion adapted to receive a suture but being too small to permit a knot in the suture to pass therethrough, and

means connecting said member and said blade for relative movement therebetween in a direction substantially perpendicular to said elongated member and blade, said means enabling suture-shearing contact between said member and said blade such that said blade is relatively movable across said slot for cutting the suture so as to leave a stub on the side of the suture away from the tissue in which the suture is tied substantially equal in length to the depth of said member.

4,271,839
DILATION CATHETER METHOD AND APPARATUS
Thomas J. Fogarty, 770 Welch Rd., Palo Alto, Calif. 94304, and Albert K. Chin, Stanford, Calif., assignors to Thomas J. Fogarty, Palo Alto, Calif.
Filed Jul. 25, 1979, Ser. No. 60,408
Int. Cl.³ A61M 29/02
U.S. Cl. 128—344 14 Claims



1. Apparatus for dilating a partially occluded section of a blood vessel, said apparatus comprising: an elongated flexible generally inelastic catheter having an outside diameter less than the internal diameter of the nonoccluded vessel; balloon means inverted within the catheter, said balloon means having a mouth peripherally sealed to the distal end of the catheter and being evertable out of the catheter in response to the exertion of fluid pressure within the catheter for substantially anisotropic expansion out of the catheter and through the occluded section of the vessel in advance of substantial lateral expansion and, upon eversion out of the catheter, being laterally expansible in response to the continued exertion of fluid pressure internally of the catheter to an outside diameter equal to or greater than the internal diameter of the vessel; and means to selectively impart internal pressure to the catheter.

4,271,840
RESERVOIR SYSTEM FOR A BODY IMPLANTABLE MEMBER
Gary A. Lattin, Coon Rapids, and Paul D. Sorenson, Blaine, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.
Filed Sep. 17, 1979, Ser. No. 76,401
Int. Cl.³ A61N 1/00
U.S. Cl. 128—1 R 19 Claims



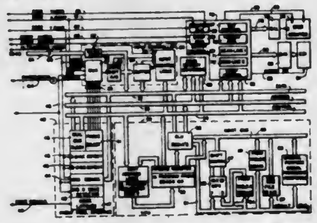
1. A container system for a flexible, elongated, body implantable member of the type which is adapted to provide communication between separated body sites which comprises body means having a cavity for accepting a portion of such member therein and tool means insertable within said cavity and engageable with a member portion therein for coiling such member within said cavity on rotation of said tool means.

4,271,841
ELECTRO-OCULAR STIMULATION SYSTEM
Harry G. Friedman, Plymouth, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.
Filed Jan. 31, 1980, Ser. No. 117,061
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 R 12 Claims



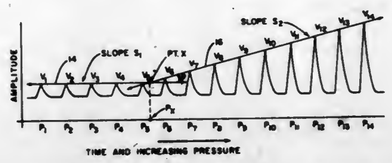
1. A system for the treatment of ocular misalignment by electrical stimulation of ocular recti which comprises body implantable means for developing an electrical stimulation signal and means for delivering said signal to an ocular rectus without restricting its contraction.

4,271,842
APPARATUS AND METHOD FOR PROVIDING MULTIPLE ULTRASONIC SECTOR IMAGE DISPLAYS
Donald F. Specht, Mountain View, and Paul R. Goldberg, Palo Alto, both of Calif., assignors to Smith Kline Instruments, Inc., Sunnyvale, Calif.
Filed Mar. 3, 1978, Ser. No. 883,171
Int. Cl.³ A61B 10/00
U.S. Cl. 128—661 15 Claims



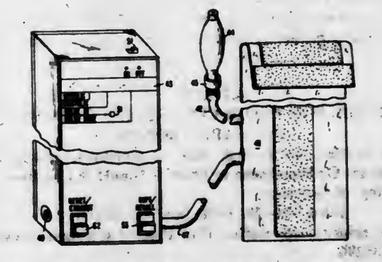
1. Apparatus for providing multiple cardiac sector image displays comprising:
input controller means connected to receive input ultrasonic echo data representing cardiac sector images of a patient occurring during one or more cardiac cycles for digitizing in real time selected ones of said images thereby representing said images in a digital format,
front panel interface means for specifying said selected ones of said images occurring during one of said cardiac cycles,
storage means for storing in real time the digitized data,
microprocessor means for controlling in real time the digitizing and storing of said input data and for enhancing said digital images, said microprocessor means including memory means for storing a predetermined program of instructions, means responsive to a first portion of said stored program for digitizing and storing said input data, means responsive to a second portion of said stored program for enhancing said digital images, and means responsive to a third portion of said stored program for converting said enhanced data into a format corresponding to an analog format,
output controller means connected to receive the converted enhanced data for converting said enhanced data to an analog format for display, and
analog strip chart recorder means connected to receive the enhanced data in said analog format for displaying said multiple sector images thereby representing a cardiac image profile.

4,271,843
METHOD AND APPARATUS FOR DIASTOLIC PRESSURE MEASUREMENT
George J. Flynn, 16 Rolling La., Medfield, Mass. 02052
Filed Oct. 10, 1978, Ser. No. 949,674
Int. Cl.³ A61B 5/02
U.S. Cl. 128—681 22 Claims



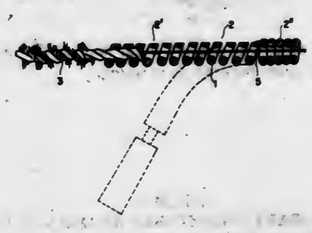
1. A method for measuring diastolic pressure of a subject comprising the steps of
A. sensing arterial pressure signals with a pressure transducer applied non-intrusively to the subject's body,
B. applying arterially-constricting pressure to the artery being sensed and changing the applied pressure value over a range of at least sub-diastolic values,
C. determining the minimum sub-diastolic value of applied pressure at which the rate of change of the portion of sensed signal corresponding to left ventricle ejection undergoes a progressive change in response to monodirectionally-changing applied pressure, and
D. producing a value indicative of diastolic pressure for the subject in response to said determined value of sub-diastolic applied pressure for that subject.

4,271,844
METHOD AND APPARATUS FOR PERFORMING NON-INVASIVE BLOOD PRESSURE AND PULSE RATE MEASUREMENTS
Michael E. Croslin, Forest Hills Gardens, N.Y., assignor to Meditek Corporation, Princeton, N.J.
Continuation-in-part of Ser. No. 499, Jan. 2, 1979, and a continuation-in-part of Ser. No. 774,970, Mar. 7, 1977. This application Aug. 6, 1979, Ser. No. 64,194
Int. Cl.³ A61B 5/02
U.S. Cl. 128—681 39 Claims



1. A method for determining systolic pressure as the occluding pressure existing in the cuff of a blood pressure measuring instrument bleeds down; said instrument including means for allowing air in said cuff to bleed out, and means for periodically sampling the instantaneous cuff pressure; comprising the steps of:
(a) utilizing successive samples taken for detecting the presence of a predetermined number of successive blood pressure pulses and the amplitude of each,
(b) registering the occluding pressure in said cuff at the onset of each blood pressure pulse,
(c) comparing the detected sequence of the relative amplitudes of said predetermined number of blood pressure pulses with a plurality of known valid sequences to determine if the detected sequence is valid, and
(d) if the detected sequence is valid, determining the systolic pressure to be the registered occluding pressure at the onset of a predetermined one of said blood pressure pulses.

4,271,845
DEVICE FOR BENDING A MEDICAL INSTRUMENT INSERTED INTO THE BODY CAVITY
Kiyoshi Chikashige, Tsurugashima, and Nagashige Takahashi, Tokyo, both of Japan, assignors to Kabushiki Kaisha Medos Kenkyusho, Tokyo, Japan
Filed Jul. 2, 1979, Ser. No. 54,115
Claims priority, application Japan, Jul. 1, 1978, 53-80039
Int. Cl.³ A61B 10/00
U.S. Cl. 128—756 6 Claims

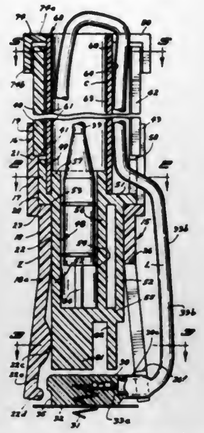


1. A device for bending a medical instrument inserted into the body cavity, comprising: a flexible cylindrical coil formed by winding an elastic thin wire and having a longitudinal axis, said flexible cylindrical coil having a coarsely wound portion at one end portion thereof, said coarsely wound portion having a first side and a second side which is diametrically opposite to said first side, said second side having a cut-out portion having a substantially flat profile substantially parallel to said longitudinal axis to thereby provide said first side with a greater torsional strength than said second side; and a pulling string fastened to said coarsely wound portion of said flexible cylindrical coil, whereby when said pulling string is operated, the turns of said flexible cylindrical coil are brought closer to each other on said first side of said coarsely wound portion greater in torsional strength than said second side to thereby bend said one end portion of said flexible cylindrical coil towards said first side of said coarsely wound portion.

4,271,846
LEAD INSTALLATION TOOL
Richard L. Little, Minneapolis, Minn., assignor to Daig Corporation, Minnetoka, Minn.
Filed Apr. 23, 1979, Ser. No. 32,661
Int. Cl.³ A61N 1/04
U.S. Cl. 128—785 39 Claims

1. A body tissue lead installation tool for clampingly holding the head of a lead for conducting electrical impulses to body tissue, comprising an electrode holder assembly having means operable between a clamping position for clampingly engaging an electrode head and a position to release the clamped head,

the clamping means having a central axis, and means mounted by the clamping means in a substantially fixed axial position on



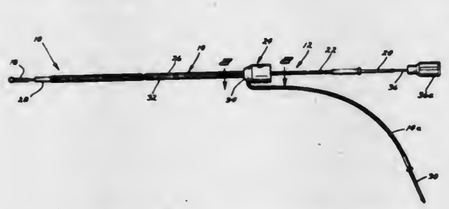
the clamping means for rotation about said axis for operating the clamping means between its positions.

4,271,847

TEMPORARY ADJUSTABLE BIPOLAR LEAD

Kenneth B. Stokes, Brooklyn Park, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 28, 1979, Ser. No. 53,001
Int. Cl.³ A61N 1/04
U.S. Cl. 128—786 3 Claims



1. An adjustable bipolar transvenous lead comprising:

an inner lead having an electrical conductor with an electrode at a first end and an electrical connection at a second end wherein said inner lead is insulated along its outer surface;

an outer lead having a ring electrode at said first end wherein a first portion of said outer lead is slideably mounted coaxial to said inner lead between said first end and a junction intermediate said first end and said second end and wherein a second portion of said outer lead is not coaxial to said inner lead; and

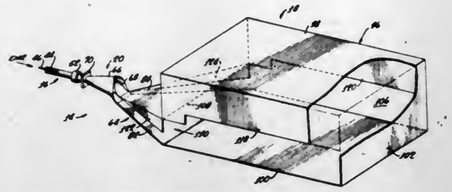
a lead introducer slideably mounted to said inner lead at said junction and fixedly mounted to said outer lead at said junction having a body with three apertures wherein said first portion of said outer lead passes through a first aperture, said second portion of said outer lead passes through a second aperture, and said inner lead passes through said third aperture at a point intermediate said junction and said second end and said third aperture is sealed by a rubber diaphragm fixedly mounted to said body through which said inner lead passes.

4,271,848

APPARATUS FOR ELECTROMAGNETIC RADIATION OF LIVING TISSUE AND THE LIKE

Paul F. Turner, North Salt Lake, and Om P. Gandhi, Holladay, both of Utah, assignors to Bio Systems Design, Corp., Salt Lake City, Utah

Filed Jan. 11, 1979, Ser. No. 2,584
Int. Cl.³ A61N 1/04
U.S. Cl. 128—804 10 Claims



1. Broadband electromagnetic radiation apparatus, for irradiating living tissue and tissue simulating matter, which comprises:

(a) a broadband electromagnetic radiation source having an output impedance substantially equal to an average impendance of living tissue and tissue simulating matter over a selected dynamic frequency range of at least about 5 to 1;

(b) transmission means connected to said source for transmitting electromagnetic waves therefrom, said transmission means having a characteristic impedance substantially equal to said average impedance throughout said frequency range;

(c) An applicator adapted for radiating electromagnetic energy into said tissue and tissue simulating matter, said applicator including parallel plate-type launching means having a characteristic impedance, when the applicator is in operative relationship with said tissue and tissue simulating matter for irradiation thereof, substantially equal to said average impedance throughout said frequency range; and,

(d) broadband transition means electrically connecting said tranmission means to said applicator for enabling substantially reflectionless transmission of electromagnetic waves from said transmission means thereto throughout said frequency range, said transition means being configured to have a charcteristic impedance substantially equal to said average impedance throughout said frequency range.

4,271,849

APPARATUS FOR PRODUCING RELIEF GROOVES IN PAN-SHAPED BONES

Günther Rehder, Stuhr, Fed. Rep. of Germany, assignor to Orthoplant Orthopadische Implantate GmbH & Co., Bremen, Fed. Rep. of Germany

Filed May 29, 1979, Ser. No. 42,808
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1978, 2834296
Int. Cl.³ A61F 5/04, 17/32
U.S. Cl. 128—92 E 17 Claims

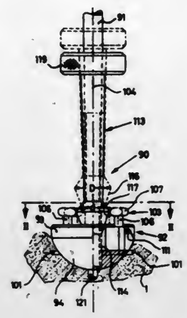
1. Apparatus for producing relief grooves in a pan-shaped bone such as the acetabulum of a human hip joint, comprising:

an elongated drive shaft having a free end;

a casing arranged at the free end of said drive shaft, said casing having an outside contour of generally hemispherical shape facing away from said drive shaft and which shape is at most coextensive with the pan contour of the bone;

cutting means arranged in said casing for movement transversely of the longitudinal axis of said drive shaft, said cutting means having a cutting edge which is movable between a first position inside said casing and a second position outside said casing in a radial direction relative to the longitudinal axis of said drive shaft, said casing having passageways to allow said cutting edge to emerge from said casing toward the second position; and

an adjusting bush threadably connected to and arranged concentrically on said drive shaft for radially moving said



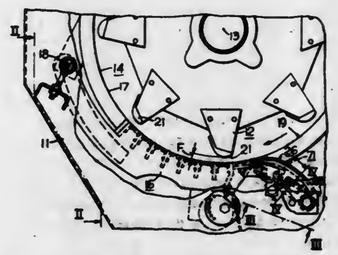
cutting means, said adjusting bush including a first section having an increasing outer diameter and a second, successively connected section have a decreasing outer diameter in the direction of the longitudinal axis of said drive shaft, the outer circumferential surfaces of said first and said second sections operatively engaging said cutting means.

4,271,850

CONCAVE SAFETY DOOR WITH SEALING AND LATCHING FEATURES

William G. Ryczek, Kansas City, Mo., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Mar. 27, 1980, Ser. No. 134,745
Int. Cl.³ A01F 12/16
U.S. Cl. 130—27 JT 10 Claims



1. A harvester having a threshing chamber, a crop inlet to the threshing chamber including transversely spaced vertical sidewalls, a rotatable threshing rotor within the threshing chamber and a concave beneath the rotor having a predetermined threshing clearance with the latter, characterized by

a safety door constituting a portion of a floor of the inlet to the threshing chamber forward of said concave, said safety door having transversely opposite ends adjacent said sidewalls and being pivotally connected at its front end to the harvester on a horizontal axis generally parallel to the axis of said threshing rotor for pivotal movement about said horizontal axis between an operating position in which the rear edge of said door is in confronting relation to the front end of said concave and a tripped position in which said door is pivoted downwardly to discharge rocks or the like, and

a seal structure between one transverse end of said door and one of said sidewalls including a fore and aft extending part having a portion disposed in overlapping complementary relation to the upper surface of said one end of said door, said seal structure staying in a fixed position when said safety door swings downwardly to its open position.

4,271,851

PROCESS FOR FABRICATING ARTICLES FROM ULTRA HIGH MOLECULAR WEIGHT POLYMER MATERIAL

Gerald P. Dubuque, 27 Oak Ave., Cataumet, Mass.

Filed Nov. 7, 1977, Ser. No. 849,529
Int. Cl. B29F 1/00
U.S. Cl. 264—328 1 Claim

1. A process for fabricating an article from ultra high molecular weight polymer material comprising in combination the steps of:

a. providing a cavity mold of the article to be fabricated, said mold having at least two sections, at least one of which is compressible against the other;

b. evacuating the air from said cavity mold;

c. melting a quantity of said polymer;

d. injecting a sufficient quantity of said melted polymer into said cavity mold to fill said mold;

e. compressing said mold sections;

f. cooling said mold and said article; and

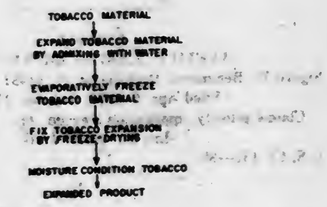
g. ejecting said article from said mold.

4,271,852

METHOD FOR INCREASING THE FILLING CAPACITY OF TOBACCO

Eugene Glock, Richmond, Va., assignor to American Brands, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 913,246, Jun. 6, 1978, Pat. No. 4,161,953, which is a continuation of Ser. No. 744,042, Nov. 22, 1976, abandoned, which is a continuation of Ser. No. 628,912, Nov. 5, 1975, abandoned, which is a continuation of Ser. No. 40,726, May 20, 1970, abandoned. This application Aug. 7, 1978, Ser. No. 931,624
Int. Cl.³ A24B 3/18
U.S. Cl. 131—292 10 Claims



1. A method for expanding tobacco tissue which consists essentially of:

(A) admixing tobacco tissue with hot water at a temperature of at least about 70° C. to the boiling point thereof, said hot water being added in an amount such that substantially all the hot water is absorbed, said tobacco tissue being expanded by the absorbed hot water;

(B) evaporatively freeze-drying the expanded tobacco tissue of step (A) under subatmospheric pressure;

(C) heating the freeze-dried expanded tobacco tissue of step (B) while under subatmospheric pressure;

(D) recovering tobacco tissue having a retained expanded condition free of an objectionable amount of tackiness

caused by hygroscopic extractives on the surface of the tobacco tissue; and

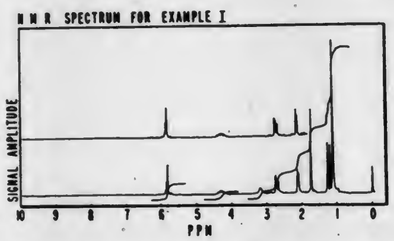
(E) moisture conditioning the evaporatively freeze-dried tobacco tissue.

4,271,853

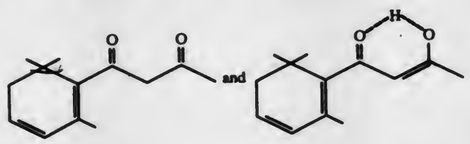
USE FOR AUGMENTING OR ENHANCING THE AROMA AND TASTE OF SMOKING TOBACCO AND SMOKING TOBACCO ARTICLES BY ADDING THERETO 1-(2,6,6-TRIMETHYL-1,3-CYCLOHEXADIEN-1-YL)-1,3-BUTANEDIONE

Braja D. Mookherjee, Holmdel; Richard A. Wilson, Westfield; Frederick L. Schmitt, Holmdel; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 887,630, Mar. 17, 1978, Pat. No. 4,157,351.
This application Nov. 17, 1978, Ser. No. 961,686
Int. Cl.³ A24B *15/36*
U.S. Cl. 131—276 **3 Claims**



1. A process for augmenting or enhancing the organoleptic properties of a consumable material selected from the group consisting of tobaccos and smoking tobacco articles comprising the steps of adding to said consumable material an organoleptic property modifying quantity of an equilibrium mixture containing coompounds having the structures:

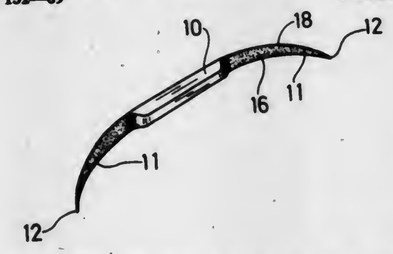


4,271,854

TEETH CLEANING IMPLEMENT

Sigurd W. Bengtsson, Brukegatan 17, 41451 Göteborg, Sweden

Filed Apr. 5, 1979, Ser. No. 27,500
Claims priority, application Sweden, Apr. 18, 1978, 7804291
Int. Cl.³ A61C *15/00*
U.S. Cl. 132—89 **5 Claims**



1. A cleaning implement, made of synthetic material, comprising:

(a) a rigid middle 4-sided gripping portion; and

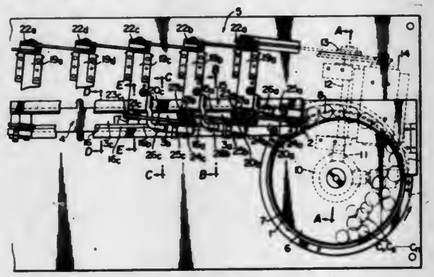
(b) a pair of solid combined picking and scraping end portions extending integrally from opposite ends of said gripping portion, each of said end portions having an isosceles triangular cross-section, the sides of which being somewhat longer than the base of the triangle, the three sides of the triangular cross-section being straight, said end portions having a gradual curvature and taper from said gripping portion to their distal ends, the curvatures being in the same direction, and one of the lateral sides of each said end portions having a roughened surface, whereby the curved portions may be selectively inserted into the interproximal interstices in the upper and in the lower jaw at both sides of the mouth with the flat base of the curved portion disposed against the gum, and in each instance with the implement extending forwardly out of the mouth.

4,271,855

COIN SELECTING APPARATUS

Nobuo Ueda, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Dec. 28, 1978, Ser. No. 973,920
Int. Cl.³ G07D *3/02*
U.S. Cl. 133—3 D **5 Claims**



1. A coin selecting apparatus for selecting mixed coins in accordance with the diameters thereof, comprising:

a selecting track having a bottom formed with a plurality of selecting holes which are arranged in a file in the flow direction of the coins and which are sized to have gradually larger widths in the downstream direction of the coin flow; and

a selecting belt mechanism for conveying the coins on said selecting track so that the coins fall into the selecting holes in the order of increasing coin diameters, said selecting belt mechanism including a plurality of belt carrying mechanisms arranged on said selecting track for carrying a corresponding number of belts such that the running directions of the belts are inclined at a preset angle with respect to the longitudinal direction of said selecting track, and such that each of the belts partially overlaps the next downstream belt;

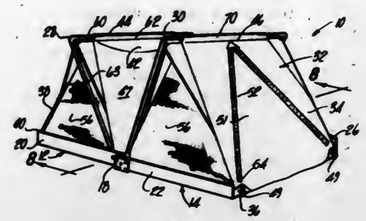
said apparatus further comprising a plurality of arms, one for each said belt carrying mechanism, normally arranged to extend substantially over each of the coins of said selecting track, and pivoting means, one for each said arm, for pivoting said each arm away from said coins so as to provide easy access to the coins being conveyed, whereby to permit easy and efficient removal of a deformed coin when a jam occurs on said selecting track due to the existence of said deformed coin.

4,271,856

FOLDING TENT

Robert W. Ferguson, 1521 Granger, Ann Arbor, Mich. 48104

Filed Nov. 5, 1979, Ser. No. 91,182
Int. Cl.³ B60D *3/32*; A45F *1/06*
U.S. Cl. 135—4 A **12 Claims**



1. In a folding tent adapted to be mounted on a vehicle top or on other suitable supporting surfaces, a frame and base assembly comprising

first and second rigid base sections hingedly secured together in a fore-and-aft direction at their respective inner ends and foldabie together with the first base section nested in the second base section so as to define a container and unfoldable laterally apart into aligned relation to define a planar platform, said base sections when in their unfolded positions having upturned forward and after edges, said first base section having a smaller fore-and-aft dimension than said second base section to facilitate nesting the base sections together, said second base section having extensions from its forward and after edges overlapping the corresponding edges of said first base section, and hinge pins extending through said extensions and said corresponding edges to provide the hinge connections between the first and second rigid base sections; and

first and second U-shaped frame members hingedly connected at their ends respectively to said first and second rigid base sections, each frame member having upright portions extending from said ends and joined by a fore-and-aft portion, the ends of said first frame member being on the inboard side of said forward and after edges of said first base sections and connected by pivot pins extending through the first base section edges adjacent to said hinge pins and laterally outward thereof, and the ends of said second frame member being on the inboard side of said forward and after edges of said second base section and connected by pivot pins extending through the second base section edges adjacent to said hinge pins and laterally outward thereof.

4,271,857

FIRE SAFE VALVE

Frederick G. Rowe, Pudsey, England, assignor to Cameron Iron Works, Inc., Houston, Tex.

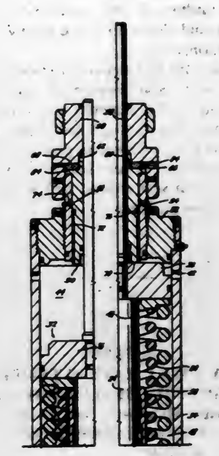
Filed Aug. 2, 1979, Ser. No. 63,157
Claims priority, application United Kingdom, Apr. 30, 1979, 14878/79
Int. Cl.³ F16K *13/00*
U.S. Cl. 137—73 **7 Claims**

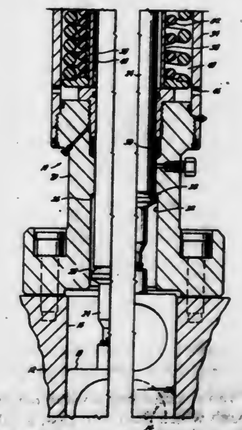
1. A fire safe valve comprising

a valve body having a flow passage therethrough and a valve chamber intersecting the flow passage,

a valve member slidable in said valve chamber to open and close flow through the flow passage,

a stem connected to the valve member and having a shoulder thereon,





a bonnet secured to said body and having a bore through which said stem extends and a seat surrounding said stem,

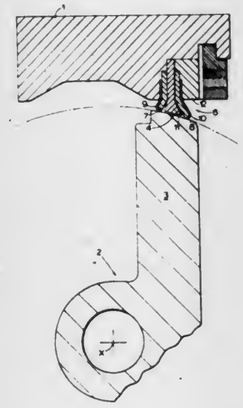
means for sealing between said stem and said bonnet bore positioned outward from said seat,

an actuator connected to said stem to optionally move said valve member axially to open and closed position,
a sleeve surrounding said stem,
a fusible material supporting said sleeve in a normal stop position to be engaged by said actuator whenever said valve member is in closed position,
melting of said fusible material responsive to fire or excess heat allowing said sleeve to move outward from its normal stop position, and
means associated with said sleeve for insuring movement of said actuator and valve member to closed position, on melting of said fusible material and movement of said sleeve, to close flow through said flow passage and to move said stem to backseated position with said stem shoulder on said bonnet bore seat to provide a fire resistant metal-to-metal seal around said stem to contain the fluids in said flow passage.

4,271,858
BUTTERFLY VALVE HAVING TEMPERATURE RESPONSIVE SEALING MEANS

Christopher J. Snape, Halesowen, and Philip J. Burton, Birmingham, both of England, assignors to Charles Winn (Valves) Limited, London, England

Filed Nov. 8, 1978, Ser. No. 958,889
Int. Cl.[3] F16K *17/00*
U.S. Cl. 137—74 1 Claim

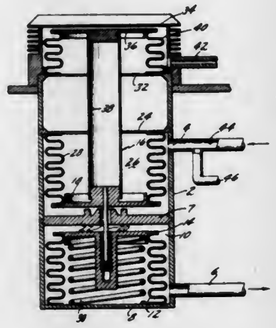


1. A butterfly valve comprising a valve housing defining a passageway through which fluid is to pass, a valve (member) disc pivotally mounted in the housing for movement between a closed position, in which it prevents the flow of fluid along the passageway, and an open position in which the flow of fluid is allowed, and an annular seal mounted on the valve housing to seal between a peripheral surface of the valve (member) disc and a wall of the passageway when the valve (member) disc is in its closed position, the seal comprising a primary sealing element and a fireproof ring, and the valve comprising first and second axially aligned shafts mounting the valve disc in the housing, the first shaft (pivotally connecting the valve member to) being mounted in a blind bore in the housing, and the second shaft being mounted for rotation in the housing for actuation of the valve and extending into a bore in the valve disc, connecting means for transmitting rotation of the second shaft to the valve (member) disc but permitting movement of the valve (member) disc radially of the second shaft, and fire-destructible locating means which prevents said radial relative movement and comprises a fire-destructible bearing sleeve (located on the) locating said first shaft in said blind bore and a fire-destructible collar locating said second shaft in said bore in the valve disc, whereby in the event of a fire that destroys the primary sealing element the bearing sleeve and the collar would also be destroyed and the valve (member) disc would become free to move radially relative to its normal pivotal axis and axially of the passageway into sealing engagement with the fire proof ring.

4,271,859
TEMPERATURE SENSOR

Joseph W. Lawsing, Windsor Locks, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Nov. 26, 1979, Ser. No. 97,584
Int. Cl.[3] G05D *16/00*
U.S. Cl. 137—85 9 Claims

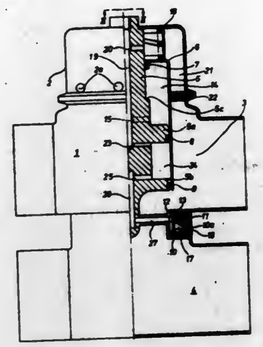


1. A pressure transducer including:
a casing having a hydraulic fluid inlet and outlet and a gas pressure inlet;
a valve plate in said casing between said fluid inlet and outlet and having a fluid passage therein;
a movable valve element in said casing cooperating with said plate to control the flow of fluid therethrough;
a pair of bellows each secured at one end to and supporting said element with one bellows on each side of the plate and responsive to the fluid pressures on opposite sides of the plate;
a second plate in said casing in parallel spaced relation to said valve plate and having an opening thereon through which a portion of the valve element extends; and
a gas sensitive bellows also secured to said element and exposed to gas pressure from said gas inlet said gas bellows being located on the side of the second plate remote from the valve plate and the pair of bellows.

4,271,860
VALVE

Erik H. O. Jeppsson, Lund, Sweden, assignor to Alfa-Laval AB, Tumba, Sweden

Filed Dec. 20, 1978, Ser. No. 971,308
Claims priority, application Sweden, Dec. 23, 1977, 7714736
Int. Cl.[3] F16K *23/00, 31/122*
U.S. Cl. 137—240 3 Claims



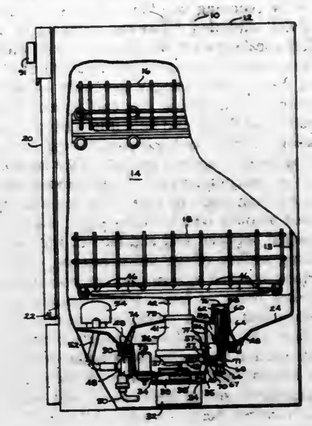
1. A valve comprising a housing having a passage with entrance and exit ports for fluids passing through said housing, stem means mounted in said housing, closure means movable along said stem means for opening and closing said fluid passage, sealing means between said closure means and said stem means, seating means including means normally maintaining said seating means in a position for engagement and disengagement by said movable closure means, means mounting said seating means for movement with said closure means when said closure means engages said seating means, spring means engaging said closure means and biasing the latter into engagement with said seating means, chamber means associated with said closure means for admission of a pressurized fluid, fluid passage means connecting with said chamber means for subjecting said closure means to fluid pressure to move said closure means to valve-open position, and seat-sealing means engaging said seating means in valve-open position, to seal sad seating means against leakage of fluid thereby, said seat-sealing means becoming engaged by said closure means as said seating means is moved by said closure means.

4,271,861
DISHWASHER FILL LEVEL CONTROL ARRANGEMENT

John G. Crawford, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 11, 1979, Ser. No. 83,911
Int. Cl.[3] F16K *31/18*
U.S. Cl. 137—387 7 Claims

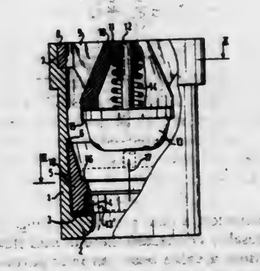
1. A dishwashing appliance comprising:
a wash chamber;
fill means for supplying liquid to said wash chamber;
a sump centrally positioned in the bottom of said wash chamber, defining the lowermost portion thereof, for accumulating liquid supplied to said wash chamber;
pump means including a housing centrally positioned within said sump for circulating liquid accumulated in said sump throughout said wash chamber;
said pump means further including impeller means rotatably mounted within said pump housing for rotation in a substantially horizontal plane; said impeller means having a bottom edge defining a dynamic prime liquid level; said impeller means being operative to prevent the liquid level in said sump from exceeding said prime liquid level until said pump means is fully primed;
float means mounted in said sump in close proximity to said pump housing for movement to a full position only when the liquid level in said sump exceeds the prime liquid level by a predetermined amount; and
fill control means responsive to the position of said float means and operative to prevent said fill means from supplying liquid to said wash chamber when said float means is in its full position;
whereby entry of liquid into the wash chamber is prevented when the liquid level in the wash chamber exceeds said prime liquid level by a predetermined amount.



4,271,862
CHECK VALVE AND METHOD OF MANUFACTURING SAID CHECK VALVE

Govert J. Snoek, Velp, Netherlands, assignor to Inter Ocean N.V., Curacao, Netherlands

Filed May 8, 1979, Ser. No. 37,040
Claims priority, application Netherlands, May 8, 1978, 7804923
Int. Cl.[3] F16K *15/06*
U.S. Cl. 137—511 4 Claims



1. In a check valve assembly, in combination:
a valve housing having a bore therethrough and having an uninterrupted integral shoulder projecting inwardly of said bore, said shoulder presenting an annular seating surface and said housing also having an integral reaction surface extending radially outwardly with respect to said bore and facing in the direction of said seating surface but spaced therefrom;
a diaphragm comprising a substantially cylindrical skirt presenting a sealing mouth at one end thereof and having a radially outwardly projecting flange spaced from said sealing mouth, said flange being engaged on said seating surface and said diaphragm being formed of thin, elastic material whereby said sealing mouth may receive and be

expanded by a check valve body to effect sealing engagement therewith while, at the same time, the diaphragm is propense to unwanted deformations if rotational clamping of its flange against said seating surface is used with sufficient force as to effect sealing thereat; and

means for clamping said flange against said seating surface without imparting rotational clamping of said flange to effect a seal between said flange and said seating surface so as to avoid said unwanted deformations of said diaphragm, said means comprising a generally cylindrical member having an end face at one end thereof adapted to bear against said flange and hold it in sealing contact with said seating surface, said member having a locking surface facing away from said one end of the member and engaging said reaction surface of said valve housing and being spaced from said one end of the member by a predetermined amount which causes said flange to be sealingly clamped between said end face of the member and said seating surface of the valve housing when said locking surface is seated against said reaction surface, said valve housing being of lesser bore diameter at said reaction surface that is said cylindrical member at said locking surface whereby said locking surface cannot engage with said reaction surface without radial deforation of one of the housing and said cylindrical member prior to such engagement, and at least one of said valve housing and said member being formed of material allowing such deformation, and said cylindrical member having a tapering surface between said one end thereof and said locking surface to facilitate the deformation necessary to allow axial insertion of said member into locked engagement within said valve housing.

4,271,863

PRESSURE TAPPING

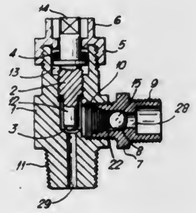
Reginald M. Bishop, Ipswich, England, assignor to Crane Limited, London, England

Filed Apr. 19, 1979, Ser. No. 31,959

Claims priority, application United Kingdom, Apr. 21, 1978, 15808/78; Dec. 11, 1978, 47912/78

Int. Cl.³ F16L *37/28, 37/10*

U.S. Cl. 137—557 2 Claims



1. In combination, a fluid pressure tapping and a probe-type adaptor releasably connected thereto, said fluid pressure tapping comprising a valve body, an inlet portion of said valve body, an external screwthread around the periphery of said inlet portion, a fluid inlet bore extending through said inlet portion coaxially with said external screwthread, said bore being small in cross section in relation to said inlet portion, an internal end of said fluid inlet bore within said valve body, a conical seating at said internal end, an internal screwthread within said valve body spaced from said internal end of said inlet bore, a cavity within said valve body between said internal screwthread within the valve body and said internal end of said inlet bore, a singe-piece elongate closure member extending into the valve body, an external screwthread around said closure member engaging said internal screwthread within said valve body, an internal end portion of said closure member extending into said cavity, a conical tip of said internal end portion to permit sealing engagement of said closure member with said conical seat, an external end portion of said closure member projecting from said valve body, at least one lateral face made on said external end to permit the latter to be held and turned, whereby said closure member is selectively operable between an open setting in which said conical tip is spaced from said conical seat, and a closed setting in which said tip and said seat are in sealing engagement, to control and shut off respectively fluid flow through said fluid inlet bore into said cavity, said tapping further comprising a shield portion connected to said valve body and surrounding said external end portion to prevent inadverent turning of said closure member attached to said valve body, connector means including a passageway in said connector means in communication with said cavity in said valve body, a ball check-valve in said connector means the ball of which is arranged to be urged into a closed position by fluid pressure acting on said ball from said cavity to stop fluid flow through said passageway in said connector means, a frustoconical spring located in said passage in said connector means and acting on said ball check-valve to urge said ball check-valve to a closed position, an annular flange on said connector means projecting into said passage of said connector means to form an abutment for an end of said coil spring whereby to hold said spring against undesired release from said connector means, a smooth cylindrical, seal-receiving bore in said connector means located downstream of said ball check-valve means to form an outlet end portion of said passageway in said connector means, an internal annular shoulder within said connector means at an internal end of said seal-receiving bore to form a stop for a probe-type adaptor when the latter has been inserted into the connector means to the correct extent, and external screwthreading on said connector means; said probe-type adaptor comprising: a probe movable in said passageway of said connector means to open said ball check-valve in said connector means, a shoulder on said probe which abuts said shoulder within the connector means, a ring rotatably carried on said probe, an internal screwthread on said ring in engagement with said external screwthreading of said connector means, and a sealing member carried by said probe to make internal contact with said seal-receiving bore, said probe-type adaptor including a bore, whereby said adaptor opens said ball check-valve to allow fluid flow from said inlet bore through said probe-adaptor bore when said valve body is open.

4,271,864

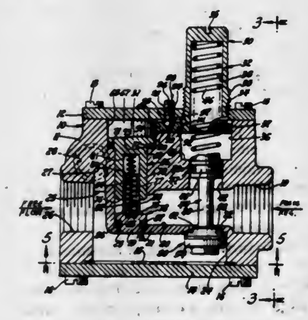
PRESSURE REGULATING VALVE

James A. Neff, Bloomfield Township, Oakland County, Mich., assignor to Mac Valves, Inc., Wixom, Mich.

Filed Mar. 31, 1980, Ser. No. 135,777

Int. Cl.³ G05D *16/10*

U.S. Cl. 137—599 8 Claims



1. A combination pressure regulating and exhaust air valve, which does not include any flow rate control valve structure, for regulating the pressure of pressurized air in a flow circuit which includes a pneumatically controlled apparatus, characterized in that the valve includes:

(a) a valve body means having an upstream pressurized air supply port for connection to a source of pressurized air, and a downstream working port for connection to a pneumatically controlled apparatus in said flow circuit, and a single flow path interconnecting said ports;

(b) an adjustable pressure regulator valve means operatively mounted in said flow path and having a regulator valve element movable between open and closed positions to provide a regulated downstream pressure, without any flow control action, at the downstream working port when pressurized air is flowing from the source of pressurized air into the upstream port and through the flow path in one direction to the downstream port, and said regulator valve element moves to a closed position when the downstream pressure reaches a predetermined reduced level; and,

(c) a non-adjustable exhaust check valve means operatively mounted in said flow path, in parallel with said adjustable pressure regulator valve means, and disposed in a closed position when pressurized air is flowing through the flow path in said one direction to the downstream port, and movable to an open position to provide a free flow of air exhausting through said flow path in the other direction to the upstream port without any flow control action.

4,271,865

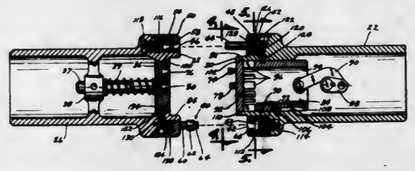
DRY BREAK COUPLING VALVE

Robert L. Galloway, 100 E. Columbus, and Charles R. Galloway, 800 N. Taylor, both of Mount Ayr, Iowa 50854

Filed May 14, 1979, Ser. No. 38,475

Int. Cl.³ F16L *37/28, 37/24*

U.S. Cl. 137—614.06 12 Claims



1. An apparatus for coupling together and uncoupling a pair of fluid conduits comprising a first housing adapted for connection to one fluid conduit, a second housing adapted for connection to the other fluid conduit,

said first and second housings having respective open end portions adapted for engagement with one another for fluid flow between said housings,

coacting connector means on said first and second housings operative to couple said housings together in response to relative rotary movement between said engaged open end portions in one direction and operative to uncouple said housings in response to relative rotary movement between said engaged open end portions in the opposite direction,

said first housing including a piston supported for axial sliding movement therein between a first position wherein fluid flow through said first housing is blocked and a second position wherein fluid is free to flow through said first housing,

said second housing including a poppet supported for axial movement therein between a first position wherein fluid flow through said second housing is blocked and a second position wherein fluid is free to flow through said second housing,

coacting stop means on said second housing and poppet, said coacting stop means being engageable when said poppet is in the first position therefor to fix the poppet in said first position,

each respective housing including means engageable by said respective end portions and responsive to said relative rotary movement in said one direction for engaging said coacting stop means and responsive to said relative rotary movement in said opposite direction for disengaging said coacting stop means.

4,271,866

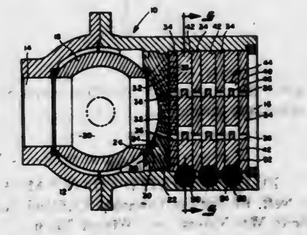
DRAG BALL VALVE INCLUDING VARIABLE PRESSURE REDUCING MEANS

Roger Bey, Illzach, France, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Apr. 2, 1979, Ser. No. 26,625

Int. Cl.³ F16K *5/06, 5/10*

U.S. Cl. 137—625.3 11 Claims



1. A ball valve comprising a housing having an inlet port and an outlet port, ball means for opening and closing said valve, feeder ring means sealably mating with said ball means for directing the flow of fluid through said valve into a plurality of passages, and labyrinth means for varying the pressure reduction of the fluid that passes through said valve by subjecting the fluid to a series of turns, said labyrinth means having the same plurality of multi-turn passages as said feeder ring means with the passages of said feeder ring means and said labyrinth means being aligned at their mating surfaces.

4,271,867

METHOD AND APPARATUS FOR HYDRAULICALLY CONTROLLING SUBSEA WELL EQUIPMENT

Lionel J. Milberger, and Albert R. Tucker, both of Spring, Tex., assignors to FMC Corporation, San Jose, Calif.

Division of Ser. No. 873,323, Jan. 30, 1978, Pat. No. 4,186,541.

This application Mar. 26, 1979, Ser. No. 23,933

Int. Cl.³ F16K *11/06*

U.S. Cl. 137—625.21 9 Claims

1. A fluid control valve comprising:

an outer housing having an inlet port, a vent port and a plurality of outlet ports;

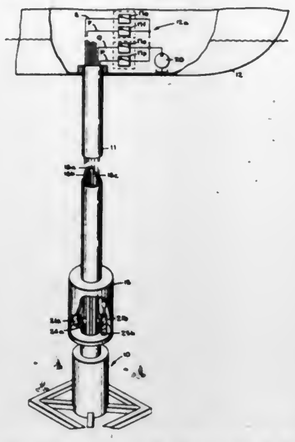
a rotor rotatably mounted in said housing, said rotor being movable to a plurality of stop positions, said rotor having a plurality of passageways at each of said stop positions;

means for connecting a predetermined set of said outlet ports to said inlet port through said passageways at each of said positions;

means for connecting a predetermined set of outlet ports to said vent port through said passageways at each of said stop positions, wherein the venting of individual outlet ports at any one of said stop positions does not affect the venting of individual outlet ports at any of the other stop positions; and

means for blocking a predetermined set of outlet ports at

each of said stop positions, wherein the blocking of individual outlet ports at any one of said stop positions does



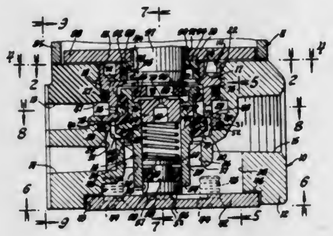
not affect the blocking of individual outlet ports at any of the other stop positions.

4,271,868

PILOT OPERATED PILOT VALVE

James A. Neff, Bloomfield Township, Oakland County, Mich., assignor to Mac Valves, Inc., Wixom, Mich.

Filed Feb. 21, 1979, Ser. No. 13,472
Int. Cl.³ F15B *13/043*
U.S. Cl. 137—625.64 8 Claims



1. A pilot operated three-way pilot valve including a valve body with a pressurized pilot air inlet port, a cylinder port, and an exhaust port, characterized in that:

(a) a first passageway means interconnects said pilot air inlet port and said cylinder port;

(b) a second passageway means interconnects said cylinder port and said exhaust port;

(c) a valve spool is movably mounted in said valve body for movement between an inoperative position and an operative position so that when the valve spool is in the inoperative position it blocks the first passageway means and opens the second passageway means, and when the valve spool is in the operative position it opens the first passageway means and blocks the second passageway means;

(d) means for normally biasing the valve spool to the inoperative position;

(e) said means for normally biasing the valve spool to the inoperative position includes a cylindrical air return chamber formed axially through the valve spool, a piston slidably mounted in one end of the air return chamber for sealingly enclosing the same, a cylindrical valve seat member fixedly mounted in the other end of the air return chamber for enclosing the same and having a valve seat formed on the exterior side thereof and a third passageway means continuously connecting the inlet port with said air return chamber in the valve spool, a fourth small diameter orifice passageway means formed through said valve seat member for connecting the air return chamber to the valve seat and to the exterior of the valve spool, a pilot air chamber in the valve body exterior to said other end of the air return chamber in the valve spool and communicating with said fourth small diameter orifice passageway means; and,

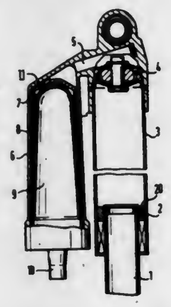
(f) means movably mounted in said pilot air chamber for controlling the flow of pilot air through said fourth small diameter orifice passageway means, and being movable to a first position to block air flow from said fourth small diameter orifice passageway means into said pilot air chamber and to exhaust said pilot air chamber to the atmosphere, and being movable to a second position to block flow from said pilot air chamber to the atmosphere and allow pilot air to flow through said small diameter orifice fourth passageway means and into said pilot air chamber to create an air pressure in said pilot air chamber for exerting a shifting force against the valve spool to shift it to the operative position.

4,271,869

HYDROPNEUMATIC PRESSURE RESERVOIR ASSEMBLY

Johann Weidl, Heidenfeld; Günter Heyer; Wilhelm Wecker, both of Schweinfurt; Gerhard Weippert, Bad Kissingen, and Paul Spichala, Schweinfurt, all of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed May 8, 1979, Ser. No. 37,126
Claims priority, application Fed. Rep. of Germany, May 17, 1978, 2821492
Int. Cl.³ F16L *55/04*
U.S. Cl. 138—30 7 Claims



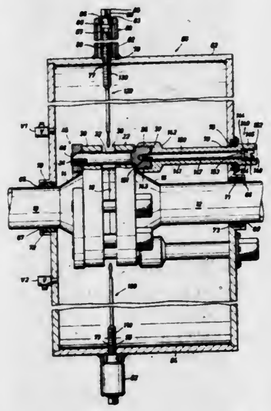
1. A hydropneumatic assembly comprising: a housing having a generally longitudinal configuration and defining an axis; a diaphragm operatively mounted within said housing and defining therein a liquid chamber on one side of said diaphragm and a gas chamber on the opposite side thereof; said liquid chamber being defined between an inner wall of said housing and said diaphragm, with said diaphragm being arranged to be urged toward said inner wall under the influence of gas pressure within said gas chamber; opening means disposed within said liquid chamber at an axial end of said longitudinal housing for permitting flow of liquid into and out of said liquid chamber; and a frame member constructed with a basket-like configuration interposed between said diaphragm and said housing inner wall within said liquid chamber and extending generally over the entire longitudinal length of the housing, said frame member being formed with a plurality of generally elongate arms distributed circumferentially about said diaphragm and extending essentially in the axial direction of said housing; said arms being spaced apart to define longitudinally extending ducts therebetween, each of said ducts being arranged to extend generally over the entire axial length of said frame member toward said opening means contiguously with the inner wall of said housing and opening throughout their length to both sides of the frame member.

4,271,870

METHOD AND APPARATUS FOR BLOCKING THE FLOW OF FLUIDS THROUGH AN ELONGATED PIPE SECTION

Johany L. Butler, 1200 Northwood, #212, Baytown, Tex. 77520, and Joe L. Valigura, Jr., P.O. Box 1286, Anahuac, Tex. 77514

Filed May 2, 1979, Ser. No. 35,309
Int. Cl.³ F16L *55/10, 55/18*
U.S. Cl. 138—94.3 22 Claims



1. In a method for blocking off the internal flowpath in a tubular pipe length formed by a plurality of pipe sections connected at flanged joints by bolts, the steps of:

(a) forming an essentially airtight chamber around the pipe length at a position around oneof the flanged joints by assembling an essentially airtight housing at that position;

(b) displacing a plurality of sockets interiorly of the housing in a direction essentially parallel to the centerline of the pipe at the joint to engage a plurality of said connecting bolts;

(c) retracting at least some of the connecting bolts by said sockets to a position out of radial alignment with the abutting edges of the pipe sections at said joint;

(d) advancing a flow cut-off blind in a direction essentially radially of the centerline of the pipe section such that the blind is displaced through the region previously obstructed by bolts prior to the performance of Step (c) and then into the interior of the pipe section to block the internal flowpath; and

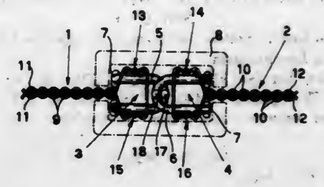
(e) tightening the bolts at said joint to clamp the blind between the abutting pipe edges.

4,271,871

WOVEN SLIDE FASTENER, METHOD AND APPARATUS FOR ITS MANUFACTURE

Carmelo Motta, Milan, Italy, assignor to Fastex s.r.l., Mouza, Italy

Division of Ser. No. 728,733, Sep. 30, 1976, which is a continuation of Ser. No. 557,272, May 14, 1975, abandoned. This application Oct. 23, 1978, Ser. No. 953,952
Claims priority, application Italy, May 14, 1974, 22681 A/74; Dec. 6, 1974, 30272 A/74
Int. Cl.³ D03D *41/00*
U.S. Cl. 139—384 B 10 Claims



1. A method for manufacturing slide fasteners comprised of the steps of:

weaving a supporting tape from warp and weft threads and simultaneously forming one edge into a two-arm edge with the two-arms being spaced apart,

feeding a synthetic monofilament which has been precrimped at regular intervals as a warp thread,

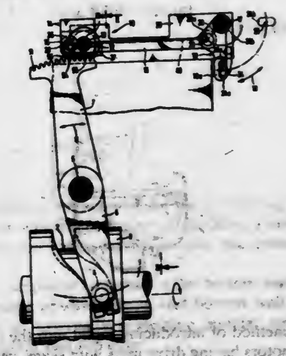
weaving the monofilament into the two-arm edge of the supporting tape by inserting a flexible core member into the sapce between the two-arms and while forming the two-arm edge bending the monofilament back and forth around the core to form the monofilament into a continuous meander configuration having rearwardly positioned returns, leg portions covered, at least in part, by the fabric forming the two-arm edge and exposed U-loops which extend outwardly beyond the two-arm edge to act as linking elements to be coupled by the slide.

4,271,872

DRIVE MECHANISM FOR A SUB-MECHANISM OF A WEAVING MACHINE

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Mar. 21, 1979, Ser. No. 22,479
Claims priority, application Switzerland, Mar. 29, 1978, 3333/78
Int. Cl.³ D03D *45/24*
U.S. Cl. 139—439 17 Claims



1. In combination,

a reciprocable sub-mechanism for movement between a pair of end positions;

a main drive; and

a transmission connected between said main drive and said sub-mechanism for driving of said sub-mechanism from said main drive; said transmission including a crank drive having a crank shaft drivingly connected to said main drive for oscillation thereby with at least one reversal point of the oscillation movement of said crank shaft in the region of a dead-center position of said crank drive.

4,271,873

PAIR OF GRIPPERS FOR WEAVING LOOMS WITHOUT SHUTTLE

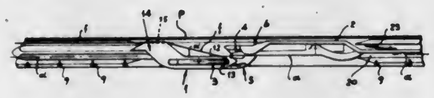
Graziano Genini, Stabio, Switzerland, assignor to Albatex A.G., Vaduz, Liechtenstein

Division of Ser. No. 913,071, Jun. 6, 1978, Pat. No. 4,235,261. This application Feb. 5, 1980, Ser. No. 119,003

Claims priority, application Switzerland, Jun. 9, 1977, 7102/77

Int. Cl.³ D03D 47/18

U.S. Cl. 139—446 1 Claim



1. In a pair of grippers for shuttleless weaving looms, of the type wherein a first gripper grasps a weft thread at one end of a loom and carries it to the center of a warp shed, while a second gripper receives the weft thread at the center of the warp shed from the carrying gripper, and transports it to the opposite end of the loom, where it abandons the same, and weft thread grasping and holding members mounted on head parts of the grippers and that cooperate between them for exchanging the weft thread; the improvement in which portions of said head parts of the grippers slide on each other over a portion of the path of the grippers immediately before and after weft thread exchange, the areas of contact between said portions of the respective grippers being disposed in only a single plane, said head portions of the grippers being disposed entirely on opposite sides of said plane for a length along each said head portion which is at least as great as the length of said portion of said path.

4,271,874

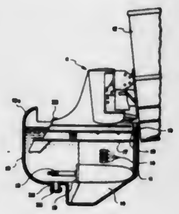
METHOD AND DEVICE FOR INTRODUCING LIQUID INTO BOAT MOTOR COOLING SYSTEMS

Darrell B. Brady, 2361 S. Redwood Rd., Salt Lake City, Utah 84119

Filed Nov. 29, 1979, Ser. No. 98,606

Int. Cl.³ B65B 3/04

U.S. Cl. 141—1 12 Claims



10. A method of introducing liquid into the cooling system of boat motors having drive units with skags, cavitation plates, propellers and water intakes, comprising the steps of placing a contoured container about at least the lower portion of the drive unit after the propeller has been removed, the lower portion of the unit extending from approximately the cavitation plate downwardly, the container being closely fitting about the skag and parts below the water intake and more loosely fitting about the water intake and above so that the container, when in place about the drive unit, will hold the liquid to be introduced into the cooling system; placing the liquid in the container; and running the motor for a period of time sufficient to distribute the liquid through the cooling system.

4,271,875

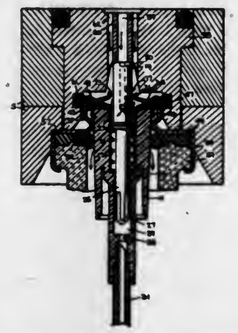
DISPENSER ADAPTED FOR FAST PRESSURE FILLING

Philip Meshberg, 2500 S. Ocean Blvd., Bldg. 3, Apt. 1-A, Palm Beach, Fla. 33480

Continuation-in-part of Ser. No. 944,401, Sep. 21, 1978, abandoned. This application Aug. 21, 1979, Ser. No. 68,429

Int. Cl.³ G01F 11/02; B65D 83/14

U.S. Cl. 141—3 25 Claims



1. In a pressurized dispenser comprising: a container; a mounting cup having a central opening therein, said mounting cup attached to said container; a dispensing means comprising a body member forming a tank and having an open top portion with a dispensing stem projecting therefrom through said central opening in said mounting cup, said body retained in said mounting cup; and a diaphragm interposed between said body and said mounting cup, sealing around said projecting stem at least when said stem is in an unoperated position, the improvement comprising:

(a) a passageway formed in said body extending across the top of and through said body, said passage in communication with the tank in the area below the diaphragm;

(b) an annular gasket interposed between said mounting cup and said container, said gasket having an opening with the same profile as the outside of said body disposed so as to seal against said body to interrupt communication between said passageway and said container; and

(c) means to permit a pressure medium to be supplied to the area of said tank below said diaphragm whereby, when a medium is supplied under high pressure to the area below said diaphragm it will have a free path across the top of said body and along the side thereof to said gasket, will deform said gasket away from the side of said body permitting flow into said container and whereby, after said medium at high pressure is removed, the pressure remaining inside said container will push said gasket upward into sealing contact with said body to prevent leakage of said medium from said container.

4,271,876

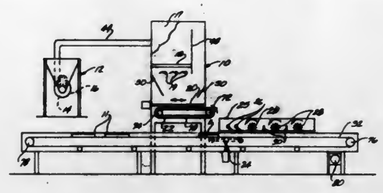
METHOD AND APPARATUS FOR FILLING HONEYCOMB PANELS WITH FIBER INSULATION

Henry R. Nash, 10659 El Poche, South El Monte, Calif. 91733, and Edgar M. Nash, 2613 Bridalpath La., Modesto, Calif. 95350

Filed Apr. 5, 1979, Ser. No. 27,251

Int. Cl.³ B65B 1/24

U.S. Cl. 141—12 26 Claims



1. An apparatus for filling panels with particulate matter comprising:

means for reducing fibrous material into a particulate composition; p1 a particulate feeder;

means for transferring the particulate from the reducing means to the particulate feeder, the particulate feeder having a particulate feeder chamber for temporarily storing the particulate transferred from the reducing means;

a reciprocating grating located within the particulate feeder chamber for uniformly passing therethrough in response to reciprocation of said grating the particulate from the particulate feeder chamber, the grating having a plurality of openings, each opening being sized marginally larger than the size of the particulate;

means, coupled to the grating, for controllably reciprocating said grating, the grating passing uniformly therethrough particulate at a rate corresponding to the rate of reciprocation of the reciprocating means;

an endless direction reversing particulate feeder belt located below the grating, said feeder belt adapted to receive the particulate passed through the grating and to discharge, at a point of belt direction reversal, said particulate in a gravity feed manner;

the belt rotating about guide roller means, said belt located below and adapted to receive particulate passing through the grating, the belt having a plurality of spaced apart ribs extending above the surface of the belt to maintain the particulate upon the belt, the particulate dropping onto said panel from the belt in a gravity feed manner at a point of belt direction reversal;

means for removing excess particulate from the panels surfaces; and

means for compacting the particulate within the panels to obtain a uniform density thereof.

4,271,877

PACKAGING MACHINE WITH FUNNEL-TYPE FILLING MECHANISM

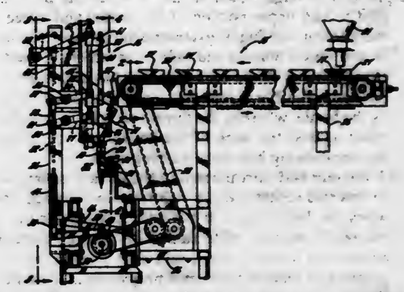
William C. Whitaker, and Allen B. Canfield, both of Sarasota, Fla., assignors to Rexham Corporation, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,458

Int. Cl.³ B65B 43/56

U.S. Cl. 141—166 10 Claims

6. A packaging machine for depositing product into upright pouches adapted to be advanced step-by-step along a predetermined path and each adapted to dwell in a filling station, said machine comprising an upright funnel mounted to move downwardly and upwardly between receiving and depositing positions, said funnel being located above said filling station when said funnel is in said receiving position and being located at least partially within a pouch dwelling in said filling station when the funnel is in said depositing position, said funnel comprising first and second plates, said first plate being disposed in a substantially vertical plane, said second plate being mounted to swing between closed and open positions relative to said first plate about a substantially horizontal axis located above the lower end of said second plate and being located in said closed position when said funnel is in said receiving position, said second plate diverging upwardly away from said first plate and retaining product in said funnel when said second plate is in said closed position, said second plate extending substantially parallel to said first plate and allowing product to be dispensed from the lower end of said funnel when said second plate is in said open position, a plunger alined vertically with said funnel and mounted to move downwardly and upwardly between raised and lowered positions, said plunger being located in said raised position and being located adjacent the upper end of said funnel when said funnel is in said receiving position, said plunger moving downwardly into said funnel when said plunger is moved to said lowered position, means for delivering product into the upper end of said funnel when said funnel is in said receiving position, means for thereafter moving said funnel downwardly to said depositing position, means for moving said second plate of said funnel to said open position as said funnel moves downwardly, and means for moving said plunger to said lowered position to shove said product out of said funnel and into the pouch in said filling station.



4,271,878

LIQUID TRANSFER DEVICE

Elvis Bologa, 146 Kennard Ave., Downsview, Canada M3H 4M5

Filed Oct. 31, 1977, Ser. No. 847,378

Int. Cl.² B65B 3/06; B67C 9/00

U.S. Cl. 141—375 3 Claims



1. The combination of: a device for use in draining ketchup and the like from a bottle having a neck defining a mouth; and a receptacle for receiving ketchup and the like drained from said bottle,

wherein the receptacle comprises a flat bottom wall, a side-wall extending upwardly from said bottom wall to a top edge, and an externally projecting annular rim which extends around said top edge;

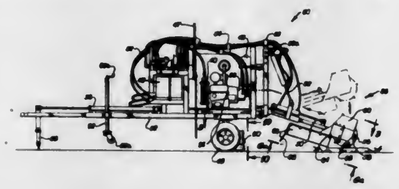
and wherein the device comprises:

an upper portion of annular shape having an opening for receiving the neck of the bottle with the bottle in an inverted position;
a generally cylindrical skirt portion extending downwardly from the outer periphery of said upper portion,
a plurality of support legs depending from said skirt portion in spaced positions and arranged to support the device in stable equilibrium on a support surface with said upper portion of the device in an elevated position in which the bottle is held clear of the support surface so that said receptacle can be placed below the mouth of the bottle for receiving drained ketchup and the like;
a plurality of fingers each having an inner end portion coupled to said upper portion of the device and a free outer end portion, the fingers extending inwardly of the opening in said upper portion and being curved downwardly for engagement with the neck of said bottle, said fingers being resiliently flexible so that they can be deflected outwardly by the bottle, whereby the fingers exert an inward biassing effect against the neck of the bottle, and are capable of accommodating bottles of varying sizes;
and wherein said skirt portion of the device is dimensioned so that said receptacle can be lifted into a storage position when the device is not in use, with said annular rim of the receptacle nested inside said skirt portion immediately below said upper portion, said skirt portion including a plurality of retaining elements projecting inwardly of said skirt portion of the device for engagement below said rim of the receptacle and arranged so that said annular rim of the receptacle can be forced over said retaining elements in bringing the receptacle into and from its storage position.

4,271,879
HYDRAULIC STUMP CUTTING AND DIGGING APPARATUS

Norman E. Shivers, Jr.; David E. Shivers, both of Los Angeles, and Paul N. Shivers, Alhambra, all of Calif., assignors to Deborah Shivers, Los Angeles, Calif.

Filed Feb. 21, 1979, Ser. No. 13,435
Int. Cl.³ A01G 23/06
U.S. Cl. 144—2 N 38 Claims

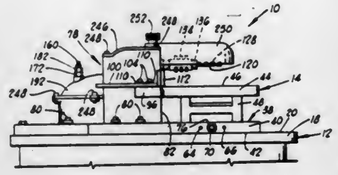


1. A hydraulic stump cutting and digging apparatus comprising in combination:
a mobile vehicle member having a main supporting frame;
a multidirectional telescopic channel frame cutter boom mounted on said main supporting frame, said cutter boom having an integral elongated channel which acts as a guide for controlling cut material;
a cutting wheel mounted on the cutter boom and longitudinally aligned with the channel for rotation about a horizontal axis transverse to said channel, said cutting wheel having a plurality of radially extending cutting teeth circumferentially mounted on the cutting wheel; and
hydraulic drive means for powering said cutting wheel mounted contiguously with said cutting wheel and having a common axis for rotation to cut and to convey the cut material through said elongated channel to said cutter boom, said elongated channel and said cutting wheel with drive means being mounted on rotatably adjustable mounting means.

4,271,880
MULTIPLE PURPOSE WOODWORKING APPARATUS

William E. Leeper, Jr., 3405 S. Independence, Oklahoma City, Okla. 73119

Continuation of Ser. No. 855,663, Nov. 29, 1977, abandoned, and a continuation-in-part of Ser. No. 686,167, May 17, 1976, Pat. No. 4,060,112. This application Jan. 30, 1980, Ser. No. 116,944
Int. Cl.³ B27C 5/02
U.S. Cl. 144—134 R 3 Claims

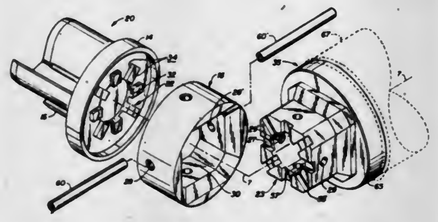


1. A horizontal cutter assembly comprising: support means including a rotary power source;
first means having a base with horizontal bottom surface supportable on the top of said support means, and having housing means including bearing housing secured on one side of said base;
a workpiece supporting table having a horizontal top surface;
means for adjustably securing said workpiece supporting table over the opposite side of said first means base adjacent to said bearing housing and at a selected vertical spacing above the base of said first means;
a power output shaft horizontally journaled in rigid affixure on said first means bearing housing in disposition to extend horizontally over said workpiece horizontal top surface;
second means for drivingly interconnecting the rotary power source and said power output shaft to transmit rotational movement to said power output shaft; and
cutter means including a selected combination of spacing collars and shaper cutters secured on said power output shaft for horizontal rotation in selected disposition relative to said workpiece supporting table.

4,271,881
DRIVING INTERFACE FOR VENEER CHUCK ASSEMBLY

George F. Hitt, Arcata, Calif., assignor to Geurt Kreutzelman, Eugene, Oreg.

Filed Aug. 10, 1979, Ser. No. 65,660
Int. Cl.³ B27C 7/04; B27L 5/00
U.S. Cl. 144—209 R 6 Claims



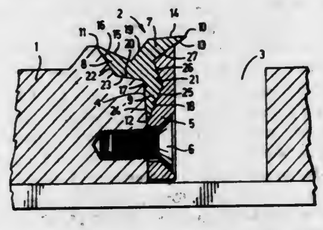
6. A chuck assembly mounted on the lathe spindle of veneer cutting lathe used to hold logs during veneer cutting operations comprising:
a spindle adapter having means for rigidly mounting said spindle adapter to the lathe spindle and a driving end;
a chuck driven by said spindle adapter having means for gripping the log and a driven end;

means for securing said chuck to said spindle adapter, said securing means being rigidly fixed to said driven end;
said securing means defining a circular aperture with splines formed therein;
said driving end being generally cylindrical with complementary spline slots for engagement with said splines whereby rotational force can be transmitted from said spindle adapter, through said securing means, to said chuck;
said driven end defining a chuck driving interface normal to the axis of rotation;
said driving end defining a spindle adapter driving interface normal to the axis of rotation; and
said driving interfaces so formed so that when said interfaces are juxtaposed, rotational driving force can be transmitted from the lathe spindle, through the spindle adapter, to the chuck whereby the log is rotated.

4,271,882
BLADE FOR A CUTTER FOR A CHIPPER OR SIMILAR WOOD REDUCING MACHINE

Antti T. Valo, PL 29, 08101 Lohja 10, Finland

Filed May 16, 1979, Ser. No. 39,626
Claims priority, application Finland, May 22, 1978, 781609
Int. Cl.³ B27G 13/08
U.S. Cl. 144—241 6 Claims

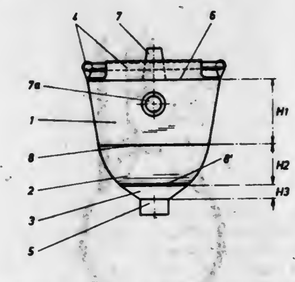


1. A blade for a cutter for a chipper or similar wood reducing machine, the blade defining equi-angularly spaced cutting edges separated by fastening surfaces, the blade having a three-horn cross-sectional shape resembling a star with the tips of the horns each forming a said cutting edge.

4,271,883
STORAGE ARRANGEMENT

Walter Krause, Am Schalkstein 11, 7121 Walheim, Wuertt., Fed. Rep. of Germany

Filed Mar. 10, 1978, Ser. No. 885,258
Int. Cl.³ B65D 30/10
U.S. Cl. 150—1 7 Claims

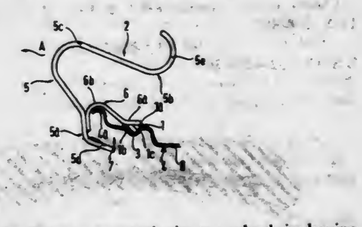


1. A storage container made from a unitary sheet of flexible material folded to form a body having a continuous periphery and further comprising an upper end and a lower end and a side wall extending therebetween and defining at said upper end a material inlet having a rectangular periphery and at said lower end a material outlet having a cylindrical periphery, said continuous periphery of said body decreasing peripherally from said upper end toward said lower end, said side wall having a geometric shape different from said upper end and said lower end and having an upper portion and a lower portion and an intermediate portion therebetween, said upper portion merging into said intermediate portion at a perimetric line formed therebetween, said intermediate portion merging into said lower portion at a perimetric line formed therebetween, said lower portion merging into said lower end and each of the portions converging in a direction downwardly towards said lower end with the angle of convergence being different in each portion, said upper portion forming a substantially conical periphery, said upper end having a height substantially smaller than the height of said upper portion; and means for suspending the container located at said upper end.

4,271,884
TIRE FITTING DEVICE

William S. Udall, and John Martin, both of Sutton Coldfield, England, assignors to Dunlop Limited, London, England

Filed Aug. 16, 1979, Ser. No. 67,107
Claims priority, application United Kingdom, Aug. 30, 1978, 34980/78
Int. Cl.³ B60C 25/00
U.S. Cl. 157—1 11 Claims



1. A device for fitting a pneumatic tire to a wheel rim having an axial outer flange, an adjacent annular bead seat with an annular groove adjacent said bead seat and a central well of smaller diameter than said bead seat, said device comprising:
a handle and an elongate strip fixed to said handle;
said handle having an attachment portion for attaching said handle to one axial outer edge of a wheel rim;
a tire engaging portion to assist in locating a tire in a wheel rim well, said strip, when in position, being in overlying abutment relationship to an annular groove in said wheel rim to prevent a tire bead from engaging that groove prior to inflation of the tire.

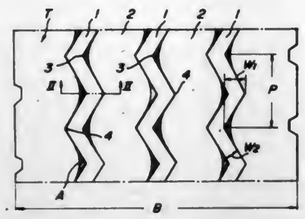
4,271,885
HEAVY DUTY PNEUMATIC RADIAL TIRE EXHIBITING LESS RAILWAY WEAR

Hiroyoshi Takigawa, Kodaira; Mitsuhisa Yahagi, Sayama, and Hiroshi Ogawa, Kodaira, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1978, Ser. No. 896,425
Claims priority, application Japan, Apr. 26, 1977, 52-90077[U]
Int. Cl.³ B60C 11/00
U.S. Cl. 152—209 R 2 Claims

1. In a heavy duty pneumatic radial tire having a tread pattern formed in a tread divided into a plurality of circumferential ribs along a widthwise direction of tire by at least two zigzag grooves extending circumferentially of said tread, said tread being reinforced with a belt layer composed of metal cords, the improvement which comprises a width, amplitude and pitch of each said zigzag groove being 4.5 to 7.5%, 0.5 to 2.0% and 2.0 to 7.0%, respectively, based on a width of said

tread; each zigzag groove having a cross section in which a side wall is substantially 90° with respect to a tread outer



surface over a height from said tread outer surface corresponding to less than 30% of a depth of said zigzag groove.

4,271,886

TREAD FOR RADIAL TIRES OF TRUCKS AND SIMILAR VEHICLES

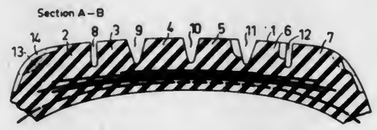
Willi Bachmann, Isernhagen; Klaus Thielemann, Hildesheim, and Klaus von der Wall, Wölpinghausen, all of Fed. Rep. of Germany, assignors to Continental Gummi-Werke Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Oct. 12, 1979, Ser. No. 84,418

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1978, 2844853

Int. Cl.³ B60C *11/06*

U.S. Cl. 152—209 R **5 Claims**



1. A tire tread extending from shoulder to shoulder, especially for radial tires of trucks and similar vehicles, comprising in combination:

a circumferential lateral profile rib for each shoulder of said tire; and

a plurality of central circumferential profile ribs including four central profile ribs left free of any further subdivision to assure stability as well as being more durable to stand rigidly and located between said lateral profile ribs, said central profile ribs being separated from one another only by central grooves extending about the circumference of said tire in a wave pattern, said lateral profile ribs having a width of about two times the width of a central profile rib, with a lateral groove located between each of said lateral profile ribs and a pertaining adjacent central profile rib and extending about the circumference of said tire in a wave pattern, said lateral grooves having a width of about ½ the width of a central groove, said central profile ribs and said lateral profile ribs being arranged symmetrically to the circumferential tread center, said grooves and said central ribs extending in a regular zigzag pattern, the width of each of said lateral grooves corresponding to about 1 to 2% of the width of said tread, and the width of each of said central grooves corresponding to about 4 to 5% of the width of said tread, each of said central profile ribs having a width corresponding to about 8 to 13% of the width of said tread, said zigzag pattern having an amplitude "A" upwardly and downwardly along an edge of a pertaining groove corresponding to about 1 to 2% of the width of said tread, said pattern being repeated after a distance of about 18 to 25% of the width of said tread.

4,271,887

TIRE CHAIN

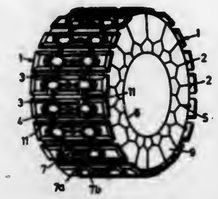
Dietmar H. Holzwarth, Vogelhofstr. 51, 7070 Schwäbisch Gmünd, and Hansjörg W. Rieger, Saarstrasse 48, 7080 Aalen, both of Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,585

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846909

Int. Cl.³ B60C *27/00*

U.S. Cl. 152—220 **18 Claims**



1. A tire chain comprising supporting members which are disposed on the tread surface of the tire and which are held by a retaining network comprising lateral strands and transversely extending network parts, said transversely extending network parts being passed through passage apertures in the supporting members for the purpose of securely joining the supporting members to the retaining network and, between the passage apertures, said transversely extending network parts extending over the outer side of the supporting members facing the roadway, characterized in that said transversely extending network parts (3) are joined together in the region of the tire tread (16) by connecting strands (11) which as well as the transversely extending network parts (3) are guides in guide hollows (7,7*a*, 7*b*) provided in the supporting members (1, 10, 15, 19 and 21) and which form holding-down means for the longitudinal edges of the supporting members (1, 10, 15, 19 and 21) which are formed from flexible material and serve to enlarge the tread surface of the tire, the number of said supporting members in the region of the ground contact surface of the tire being sufficiently large such that at least three of said supporting members are in action at any one time.

4,271,888

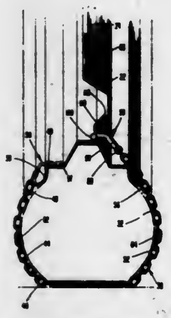
CLIP-ON SNOW CHAINS

Wade C. Robinson, 2001 Concord La., District Heights, Md. 20028

Filed Jan. 23, 1979, Ser. No. 5,850

Int. Cl.³ B60C *27/00, 27/12*

U.S. Cl. 152—234 **10 Claims**



1. An assembly for enhancing vehicle traction comprising: a wheel having two sides, connection means for facilitating attachment of the wheel to a vehicle, and bearing surface means for supporting the wheel on an underlying surface;

cross chain means for increasing traction between the bearing surface and the underlying surface, including first coupling means for connecting one end of the chain means to one side of the wheel and second coupling means for connecting a second end of the chain means to the other side of the wheel; and

the first coupling means including:

a lug defining a key, having a bottom surface mounted on the wheel, and having a tongue vertically spaced from the lug bottom surface and the wheel, and the tongue being directed away from the bearing surface, and

a socket member connected to the one end of the cross chain means, having a keyway conforming to the shape of the key and a thickness which allows the socket member to be slidably moved to a retaining position between the tongue and the wheel from a vertically aligned position of the key and keyway so as to retain the socket member relative to the wheel.

8. In a wheel having first and second sides, a periphery and operable to be supported on an underlying surface, an improved means for attaching traction enhancing chains to the wheel comprising:

a plurality of lugs circumferentially spaced around one side of the wheel, each lug being on a common radius and including a tongue spaced from the wheel and extending away from the periphery;

a corresponding plurality of radially extending slots circumferentially spaced around the wheel at a common radius, operable to retain one end of a cross chain; and

a corresponding plurality of retainer plates, each plate covering a portion of the corresponding slot and being mounted to the wheel by a spring hinge having sufficient resilience to hold the plate against the wheel when the slot is located above the wheel center.

4,271,889

TIRE WITH ASYMMETRIC RADIAL CARCASS EMPLOYING BLOCKS TO LIMIT CARCASS SWING AND CARCASS EXPANSION

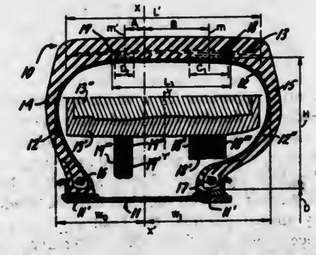
Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,108, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,026

Claims priority, application France, Mar. 10, 1978, 78 07390

Int. Cl.³ B60C *9/08, 9/20*

U.S. Cl. 152—353 R **35 Claims**



1. A tire with a radial carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement of slight meridian curvature which is parallel to the radial carcass reinforcement along a zone of a width less than or equal to that of the tread reinforcement and formed of at least two superimposed plies of wires or cables parallel in each ply and crossed from one ply to the other forming angles at most equal to 45° with the longitudinal direction of the tire, the maximum axial distance of the radial carcass reinforcement from the median plane of the beads being greater for one sidewall than for the other sidewall of the tire, the tire being mounted on a rim and inflated but not under load, characterized by the fact that parallel to the radial carcass reinforcement and between the radial carcass reinforcement and the tread reinforcement there are arranged a swing-limiting block and an expansion-limiting block which are each formed of at least one ply of wires or cables of low extensibility parallel to the longitudinal direction or preferably each formed of two superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than one-half of the smallest angle used in the tread reinforcement, the longitudinal median axis of the swing-limiting block being located axially on the side of the median plane of the beads of the tire corresponding to the sidewall in which the radial carcass reinforcement reaches its greatest maximum axial distance from the median plane of the beads, the longitudinal median axis of the expansion-limiting block being located axially on the side of the median plane of the beads corresponding to the sidewall in which the radial carcass reinforcement reaches its smallest maximum axial distance from the median plane of the beads and further characterized by the fact that the wires or cables of the limiting blocks, which are preferably of steel, have a relative elongation less than 0.2% under a load equal to 10% of their rupture load.

4,271,890

RADIAL CARCASS TIRE OF LARGE WIDTH EMPLOYING TWO AXIALLY-SPACED CARCASS EXPANSION LIMITING BLOCKS

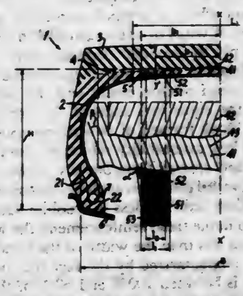
Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,183, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,029

Claims priority, application France, Mar. 10, 1978, 78 07389

Int. Cl.³ B60C *9/08, 9/20*

U.S. Cl. 152—352 R **17 Claims**



1. A tire having a ratio H/B at most equal to 0.75, H being the radial height of the tire on its rim and B the maximum axial width of the tire, with a radial carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement of slight meridian curvature which is parallel to the radial carcass reinforcement along an equatorial zone and formed of at least two superimposed plies of wires or cables parallel in each ply and crossed from one ply to the other forming angles at most equal 30° with the longitudinal direction of the tire, characterized by the fact that between the radial carcass reinforcement and the tread reinforcement there are arranged two limiting blocks parallel to the radial carcass reinforcement and in two zones spaced from the equatorial plane of the tire and included within the equatorial zone along which the tread reinforcement is parallel to the radial carcass reinforcement, each limiting block being arranged along one of said two zones and each limiting block being formed of two

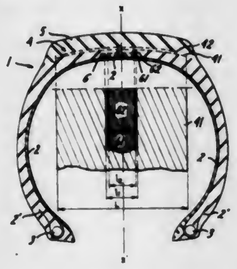
superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than one-half of the smallest angle used in the tread reinforcement and wherein the wires or cables of low extensibility of the limiting blocks have a relative elongation less than 0.2% under a load equal to 10% of their rupture load.

4,271,891

RADIAL CARCASS TIRE EMPLOYING CARCASS EXPANSION LIMITING BLOCK

Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,130, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,036
Claims priority, application France, Mar. 10, 1978, 78 07384
Int. Cl.³ B60C *9/08, 9/20*
U.S. Cl. 152—352 R **13 Claims**



1. A tire with a radial carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement which is arranged directly below the tread and which is parallel to the radial carcass reinforcement at least along an equatorial zone and which is a block formed of at least two superimposed plies of wires or cables parallel in each ply and crossed from one ply to the other forming acute angles with the longitudinal direction of the tire, characterized by the fact that between the tread reinforcement and the radial carcass reinforcement in the equatorial zone of the tire there is arranged a limiting block formed of two superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than the smallest angle used in the tread reinforcement, the width of the limiting block being less than the width of the tread reinforcement, and further characterized by the fact that the width of the limiting block is between 100% and 60% of the width of the equatorial zone along which the tread reinforcement is parallel to the radial carcass reinforcement and wherein the wires or cables of low extensibility of the limiting block have a relative elongation less than 0.2% under a load equal to 10% of their rupture load.

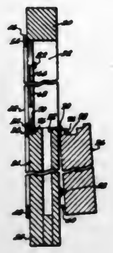
4,271,892

CONVERTIBLE DOOR STRUCTURE

H. Donald Brusseau, and Louvain M. Brusseau, both of 1803 SE. 45th St., Cape Coral, Fla. 33904

Filed Jan. 29, 1979, Ser. No. 7,385
Int. Cl.³ E06B *3/32*
U.S. Cl. 160—92 **2 Claims**

1. A door for hinged mounting to a door frame including side stile members, top end bottom cross rails, a lower fixed panel portion, an upper panel portion hinged along a lower edge thereof to a top edge of said lower panel portion for swinging movement between first and second positions, an opening in an upper portion of the door, above said lower panel portion, sized to receive said upper panel portion in a closing relation thereto in said first position, a top opening vertically extending pocket interiorly of said lower panel portion to receive a screen structure, sized for fitted reception in said opening when said upper panel portion is swung out of



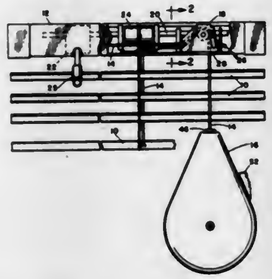
said first position to said second position comprising a depending position against an inside face of said lower panel, said pocket being sized to permit a top edge portion of said screen to project upwardly outwardly thereof to a predetermined extent and a bottom edge of said upper panel portion is longitudinally grooved to receive said top edge portion when said upper panel portion is in said first position.

4,271,893

WINDOW BLIND CORD CONTROL APPARATUS

William A. McCluskey, 1199 E. Madison Ave., El Cajon, Calif. 92021

Filed Mar. 26, 1979, Ser. No. 23,539
Int. Cl.³ E06B *9/38*
U.S. Cl. 160—178 R **6 Claims**



1. Cord control apparatus for a window blind having an elongated headrail, a plurality of spaced slats suspended below the headrail, tilt control means coupled to the slats for controlling the tilt thereof, with a tilt control rod extending longitudinally in the headrail, a plurality of cords secured to the lowermost slat and passing through the slats into the headrail at a longitudinally spaced position, the headrail having an exit opening adjacent one end, said cords extending along the headrail and collectively through said opening, locking means adjacent said opening through which the cords pass for selective frictional locking, the cord control apparatus comprising:

a headrail comb mounted adjacent the locking means with a plurality of spaced slots for receiving and guiding the cords separately into the locking means,

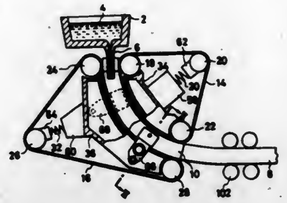
said headrail comb being a substantially U-shaped element having a pair of end walls and a connecting wall, the end wall being spaced to straddle said locking means and retain the comb against longitudinal displacement in the headrail, said slots being in one of said end walls.

4,271,894

CONTINUOUS CASTING APPARATUS

Tomoaki Kimura, and Tadashi Nishino, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,428
Claims priority, application Japan, Jun. 29, 1978, 53/79664; Mar. 16, 1979, 54/29893
Int. Cl.³ B22D *11/06*
U.S. Cl. 164—87 **13 Claims**



1. A continuous casting apparatus, including:

a mold defined by a pair of members having opposed side ends curved with a common curvature and parallel with each other to form casting wall surfaces of short latus sides of the cast piece, a first and a second flexible endless belts substantially touching the curved parallel ends of said members, means for rotating said belts in synchronism with each other, said first flexible endless belt forming one convex casting wall surface of long latus side of the cast piece, and said second flexible endless belt forming the other concave casting wall surface of long latus side of the cast piece.

12. A continuous casting method, comprising the steps of:

providing a mold defined by a pair of members having opposed side ends curved with a common curvature and parallel with each other to form casting wall surfaces of short latus sides of the cast piece;

providing a first and a second flexible endless belts substantially touching the curved parallel ends of said members;

rotating said belts in synchronism with each other;

forming one convex casting wall surface of long latus side of the cast piece with said first flexible endless belt and simultaneously forming the other concave casting wall surface of the long latus side of the cast piece with said second flexible endless belt, with both said steps of forming occurring during said step of rotating;

sealing opposite edges of each of said belts with said members by said touching along the full length of said casting walls to form a substantially sealed tubular mold having an entrance end and an exit end for the cast piece; and

pouring molten steel into said entrance end to substantially fill the mold with steel continuously during said steps of rotating and forming to continuously produce an at least partially solidified cast piece of steel from the exit end of said mold.

4,271,895

AUTOMATIC PART LOADER UNIT FOR MULTI-CAVITY ROTOR DIE AND METHOD OF OPERATION

James C. Cole, Galion, and George F. Croneawett, Mount Gilead, both of Ohio, assignors to HPM Corporation, Mount Gilead, Ohio

Filed Jan. 28, 1980, Ser. No. 115,770
Int. Cl.³ B22D *17/00, 19/04*
U.S. Cl. 164—109 **20 Claims**

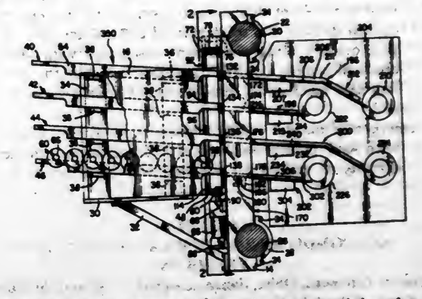
14. A method for loading preformed parts in a die casting machine and incorporating the parts in castings comprising:

providing a die cavity and parts-receiving chamber continuously in communication therewith having a transverse breech opening therein,

loading a plurality of the preformed parts in a magazine,

moving one part at a time by gravity from the magazine through an escapement mechanism and onto an inclined guide track,

moving said one part down the inclined track toward and



through the breech opening into the parts-receiving chamber and then into the die cavity, and

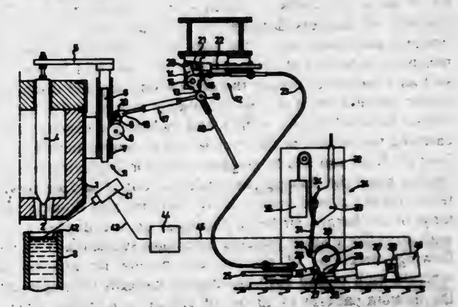
then introducing molten metal into the cavity to and around at least a portion of the part so loaded.

4,271,896

DEVICE FOR REGULATING THE FLOW THROUGH A PLUG OF A DISPENSING VESSEL IN A CONTINUOUS CASTING INSTALLATION, USING THE LEVEL OF THE METAL BATH IN THE RECEIVING INGOT MOLD

Robert Becus, Emery, France, assignor to Societe des Aciers Fins de l'Est, Hagondange, France

Filed Jun. 25, 1979, Ser. No. 51,648
Claims priority, application France, Jun. 28, 1978, 78 19391
Int. Cl.³ B22D *11/10, 11/16, 39/00, 41/10*
U.S. Cl. 164—449 **6 Claims**



1. In a continuous casting installation comprising a ladle having wall portions defining a ladle orifice through which molten metal is poured into a continuous casting mold, a bottstick carrying a bottstick plug associated with said ladle orifice for controlling the flow of metal from said ladle and an electronic optical device for sensing the level of the metal in the mold, a device for controlling the position of said bottstick plug relative to said orifice in response to the level of metal in said mold, said device comprising:

mechanical reduction means connected to said bottstick for regulating the position of said bottstick plug relative to said ladle orifice;

a purely mechanical control means adjacent said ladle and associated with said mechanical reduction means for controlling said mechanical reduction means;

rapid coupling means connected to said purely mechanical control means for connecting said mechanical reduction means to said purely mechanical control means;

mechanical remote control transmission means connected to

said purely mechanical control means for actuating said purely mechanical control means;

a remote control console means, comprising both a main manual control and a servo-jack control operating in response to level indications transmitted by said electronic optical device, said main manual control and said servo-jack control being operatively associated with said mechanical remote control transmission means for controlling said mechanical remote control transmission means, and

emergency manual control means operatively associated with said purely mechanical control means for acting directly on said purely mechanical control means.

4,271,897

AIR CONDITIONING DISPLAY SYSTEM FOR VEHICLES

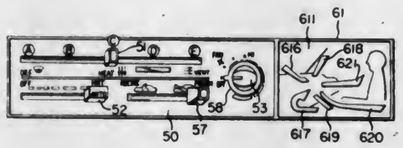
Minoru Tatemoto, Ohbu, Japan, assignor to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 28, 1978, Ser. No. 882,255

Claims priority, application Japan, Jun. 29, 1977, 52-84809[U]; Sep. 5, 1977, 52-118443[U]; Jan. 17, 1978, 53-3452

Int. Cl.³ F28F *27/00*

U.S. Cl. 165—11 R **3 Claims**



1. An air conditioning display system for a vehicle comprising a vehicle's air conditioner proper including at least a plurality of air intake ducts, a plurality of air discharge ducts, a plurality of dampers disposed in said ducts for closing and opening said ducts, and a fan unit, air conditioner actuating means for actuating at least said dampers and said fan unit in said air conditioner proper thereby introducing and discharging air into and out of said air conditioner proper, and a display device mounted in said vehicle and including a display panel carrying the picture of the vehicle body portions including at least the front seat and its neighborhood for displaying on said display panel the flowing patterns of air out of said air conditioner proper at said vehicle body portions, said flowing patterns of discharged air being displayed on said display panel with strip-like display patterns extending substantially in the flowing directions of the air and having no arrowhead, wherein each of said strip-like display patterns for displaying the flowing patterns of air out of said air conditioner proper has a width increased gradually in the direction of air flow.

4,271,898

ECONOMIZER COMFORT INDEX CONTROL

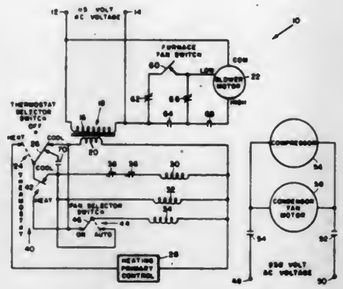
Edward M. Freeman, 3214 Leyte Dr., San Antonio, Tex. 78217

Continuation-in-part of Ser. No. 810,052, Jun. 27, 1977, Pat. No. 4,167,966. This application May 7, 1979, Ser. No. 36,514

Int. Cl.³ F25B *29/00*

U.S. Cl. 165—16 **6 Claims**

1. In a home type heating and cooling system having a blower motor with at least two speeds, a common terminal of said blower motor being connected to a first side of a line voltage, stepped-down transformer means for reducing said line voltage to thermostat control means which includes a thermostat selector switch operatively connected to a secondary winding of said stepped-down transformer, a thermostat operatively connected to said thermostat selector switch to indicate if heating or cooling is desired, a fan selector switch having automatic and ON positions and being connected to said secondary winding, contactor relay means energized by said secondary winding via said thermostat and said thermostat selector switch if both call for cooling thereby connecting a compressor means and condenser fan means to said line voltage, heating control means connected to said thermostat selector switch to operate furnace means for heating if said thermostat and said thermostat selector switch call for heating, evaporator fan relay means connected to said fan selector switch and said secondary winding, the improvement comprising:



economizer control relay coil means connected to said secondary winding and said thermostat for energization if said thermostat and said thermostat selector switch both call for cooling, said economizer control relay coil means switching said blower motor from low speed to high speed if said fan selector switch is in said ON position, and means in combination with said economizer control relay coil to control relative humidity in a conditioned air space.

4,271,899

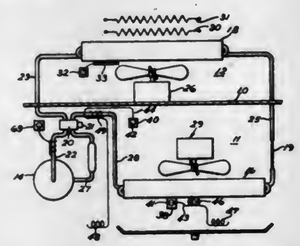
HEAT PUMP CONTROL SYSTEM

Joseph R. Noland, Crestwood, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Mar. 27, 1980, Ser. No. 134,355

Int. Cl.³ F25B *29/00*; F25D *21/02*

U.S. Cl. 165—29 **1 Claim**



1. In a self-contained air conditioning unit for heating and cooling an enclosure, a refrigerant circuit including an outdoor heat exchanger and indoor heat exchanger, a compressor, a reversing valve for selectively connecting said compressor to said heat exchangers whereby said outdoor heat exchanger functions as an evaporator during operation of said unit on the heating cycle and said indoor heat exchanger functions as an evaporator during operation of said unit on the cooling cycle, fan means for moving enclosure air through said indoor heat exchanger, fan means for moving outdoor ambient air through said outdoor heat exchanger, an air conditioner heating cycle control system comprising:

a supplemental and secondary heat means arranged in air flow relationship with said indoor heat exchanger;

a thermostat, including a first-stage switching means, operable for controlling operation of said compressor and said secondary heat means in said heating cycle for maintaining the temperature of said enclosure within a selected temperature range, and a second stage switching means operable when the temperature of said enclosure drops below said selected temperature range for energizing said supplemental heating means while said compressor is operating through said first-stage switching means;

a first frost control means including a sensing element having one portion being exposed to the surface temperature of said outdoor heat exchanger and a second portion being exposed to the drain area temperature, switch means under control of said portions including a first switch position for maintaining operation of said compressor in the heating cycle when drain area and said outdoor heat exchanger surface temperature sensed by said portions are above a preselected frost accumulation level and a second switch position operable when either of said portions senses a preselected frost accumulation level to de-energize said compressor and for energizing said secondary heat means through said first-stage thermostat switch means so that the temperature of air passing through said indoor heat exchanger is maintained at a preselected temperature by said secondary heat means when said compressor is de-energized; and

a second frost control including a sensing element having one portion being exposed to the surface temperature of a portion of said refrigerant circuit and a second portion being exposed to said ambient outdoor temperature, switch means under control of said portions for maintaining operation of said outdoor fan independent of said first control when both ambient and the line surface temperature sensed by said portions are above a frost accumulation temperature and to complete a circuit to said fan through said first control if either of the portions of said second control senses a preselected frosting temperature to de-energize said outdoor fan when said compressor is de-energized.

4,271,900

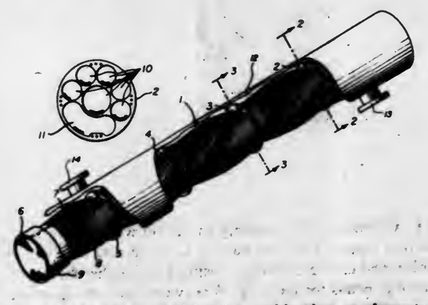
APPARATUS WITH EXPANDABLE TUBE BUNDLE

Charles F. Reitz, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 28, 1978, Ser. No. 920,122

Int. Cl.³ F28D *7/10*; F28F *9/00*

U.S. Cl. 165—162 **10 Claims**



1. In an apparatus comprising in combination an elongated bundle of flexible, relatively small diameter, thin walled, hollow, polymeric, tubular elements and a housing means therefor extending the length of said bundle, said bundle comprising a plurality of said tubular elements with open terminal portions and a lateral dimension securing means for the plurality of said tubular elements cooperating with the terminal portions of said tubular elements, said housing means entirely surrounding said elongated bundle and defining a zone for fluid passage around said bundle, said housing having inlet and outlet means and means for securing itself to said lateral dimension securing means in a fluid tight arrangement therewith, the length of said housing is selected and determined by the length of the elongated bundle, the improvement wherein the tubular elements in each bundle are of various lengths that range from 0.1–1.0 inch per foot of bundle length, said tubular elements forming an elongated bundle set in a twisted configuration, said twist amounting to from 1°–25° per foot of bundle length as measured by the angle of turn that the tubes in one terminal portion of the bundle are to the tubes in the other terminal portion the tube bundle having a length 0.5–5% greater than the housing length, said tubular elements passing through holes in circular spacers positioned substantially perpendicular to the tubular elements, having a cross sectional area substantially equal to the inside cross sectional area of the housing, further including a plurality of holes through which a portion of said tubular elements pass and an area of 20% or more of the inside cross sectional area of the housing defining one opening through which a portion of said tubular elements pass, the number of tubes passing through each hole or the opening ranging from 1–100, means for positioning said spacers at intervals of from 6–30 inches apart and wherein each spacer is rotated from 45°–315° C. with respect to the adjacent spacers.

4,271,901

OIL COOLER FOR AN INTERNAL COMBUSTION ENGINE

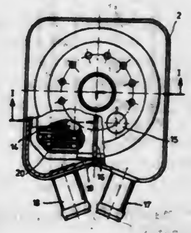
Günter Buchmüller, Wolfsburg, Fed. Rep. of Germany, assignor to Volkswagenwerk Aktiengesellschaft, Wolfsburg, Fed. Rep. of Germany

Filed Sep. 27, 1979, Ser. No. 79,493

Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843423

Int. Cl.³ F28F *3/10*

U.S. Cl. 165—165 **9 Claims**



1. An oil cooler for an internal combustion engine comprising:

a housing having an axis;

an axially disposed center fixing tube extending through said housing;

a plurality of plate-like oil chambers within said housing, each said oil chamber being formed by a pair of oppositely profiled cooling plates and being spaced apart axially along said fixing tube, the space between said oil chambers forming cooling channels for a coolant;

oil inlet means extending parallel to said fixing tube for supplying oil directly to all said oil chambers;

oil outlet means extending parallel to said fixing tube for discharging oil directly from all said oil chambers, wherein said oil inlet means and said oil outlet means, in cross-section, lie along radii from the central axis of said fixing tube which are at a first acute angle relative to one another;

partition means in said oil chambers extending radially in the acute angular space between said oil inlet means and said oil outlet means for directing oil supplied to said oil cooler tangentially around said fixing tube toward said outlet means;

coolant inflow means for introducing a coolant through a first opening in said housing into the cooling channels between said oil chambers; and

coolant outflow means for exhausting coolant through a second opening in said housing, said outflow means being

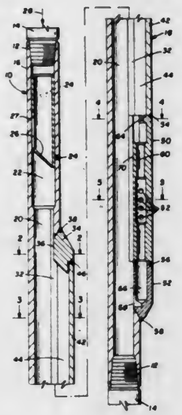
offset axially relative to said coolant inflow means, wherein said first and second openings lie along radii from said central axis which are at a second acute angle relative to one another for causing coolant introduced into said housing to flow through said cooling channels tangentially, and wherein said coolant inflow and outflow means and said oil inlet and outlet means are arranged relative to each other for causing oil and coolant introduced into said oil cooler to flow in opposite directions.

4,271,902

SELF-DISCRIMINATING SIDE POCKET MANDREL AND METHOD OF MANUFACTURING SAME

Howard H. Moore, Jr., Weimar, Tex., assignor to Perry R. Bass, Inc. and Sid W. Richardson Foundation, both of Fort Worth, Tex., part interest to each

Filed Jul. 27, 1979, Ser. No. 61,417
Int. Cl.³ E21B *23/03, 23/12, 43/12*; F04F *1/20*
U.S. Cl. 166—117.5 **31 Claims**



6. A side pocket mandrel for connection in well tubing, comprising in combination:

a cylindrical body with a cylindrical wall defining an axial main bore of circular cross section and predetermined diameter extending through the length of said body;

said body including a longitudinal slot through the wall thereof having a length less than the length of said body and having a width substantially less than the diameter of the main bore;

tubular side pocket means welded to said body over the slot for receiving a pocket device;

said side pocket means having an axial side bore therein of circular cross section and predetermined diameter substantially equal to the width of slot in said body, the side bore being defined by a semi-cylindrical wall with a longitudinal slot therein aligned with the slot in said body for access between the side bore and the main bore; and

means secured to said body for sealing the ends of said pocket means.

18. A method of manufacturing a side pocket mandrel from three sections of cylindrical metal tubing, the first section of tubing having an internal diameter to receive a well string and the second and third sections of tubing each having a smaller internal diameter of a size to receive side pocket devices therein, comprising the steps of:

(a) forming in said first section of tubing a longitudinal slot having a predetermined width narrower than the internal diameter of said first section of tubing but no wider than the internal diameter of said second and third sections of tubing, and having a shorter axial length than said first section of tubing;

(b) forming in said second section of tubing a longitudinal slot of a width corresponding to the width of the slot in said first section of tubing;

(c) forming in said third section of tubing an internal side pocket subassembly for receiving pocket devices;

(d) forming an external portion of said third section of tubing to fit into the slot of said first section of tubing and substantially match the internal diameter thereof;

(e) positioning said third section of tubing in the lower end of the slot in said first section of tubing;

(f) positioning said second section of tubing above said third section of tubing and over the upper end of the slot in said first section of tubing with the slots therein aligned to provide communication between the interiors of said first and second tubing sections;

(g) interconnecting said first, second and third sections of tubing by welds;

(h) closing the upper end of said second tubing section; and

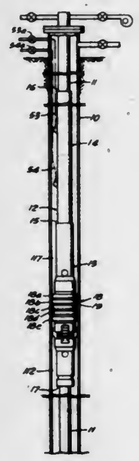
(i) forming coupling means on the ends of said first tubing section of a size and shape to allow connection of said mandrel to a tubing string.

4,271,903

RETRIEVABLE ANNULUS AND TUBING FLOW CONTROL VALVES

Grady M. Slagle, Jr., and Donald O. Thomas, Jr., both of Long Beach, Calif., assignors to Coalinga Corporation, Long Beach, Calif.

Filed Apr. 13, 1979, Ser. No. 29,855
Int. Cl.³ E21B *33/128, 34/10*
U.S. Cl. 166—129 **2 Claims**



1. A flow control assembly for an oil well having two production zones, said well having a casing and a tubing string within said casing defining a casing annulus therebetween, and packing means for packing off between said tubing string and said casing to isolate said production zones, the improvement comprising:

a valve housing and a packer housing connected in series in said tubing string, said valve housing including a pair of fluid conducting control lines extending from the surface, said valve housing having a first landing means therein, said packer housing having packing means and lateral ports situated above and below said packing means;

a first valve removably positioned in said first valve housing landing means, said first valve including tubular means disposed adjacent said packing means, said tubular means forming a flow passage communicating the lateral ports above and below said packing means thereby bypassing said packing means, said tubular means having a piston

structure for receiving fluid pressure from one of said control lines, said tubular means being thereby vertically reciprocal for selectively opening or closing said lateral ports to alter the flow of production fluid in the annulus, said first valve means further including second landing means therein;

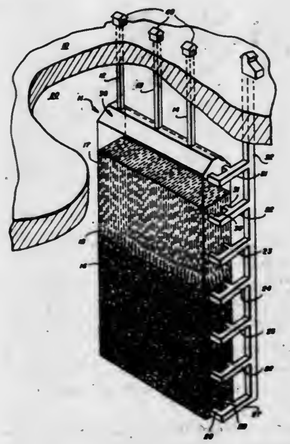
a second valve removably positioned in said first valve and received therein in said second landing means, said second valve having a piston structure movable vertically within said first valve and having a piston surface for receiving fluid pressure from the second of said control lines for imparting vertical movement to said piston structure, said second valve means including a closure element actuated by said piston structure for altering the flow of production fluid within said tubing string.

4,271,904

METHOD FOR CONTROLLING UNDERGROUND COMBUSTION

Irwin Ginsburgh, Morton Grove, and Robert D. Hall, Wheaton, both of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jul. 17, 1978, Ser. No. 925,181
Int. Cl.³ E21B *43/247*
U.S. Cl. 166—251 **2 Claims**



1. In the in-situ combustion of a subterranean carbonaceous stratum, a method of controlling an underground flame front comprising

(a) monitoring the extent and movement of said flame front to determine the location of one or more segments of the flame front which exhibit unfavorable combustion characteristics by using the Coil Method, which comprises

providing at least one stationary multi-turn coil of wire on the surface of the ground electrically connected into one or more circuits in which an electrical resonance condition is established, continuously monitoring the change in impedance characteristics in one or more of said circuits as the combustion progresses, and providing an indication of the location, speed, and vertical and lateral movement of said flame front in response to said monitored change in impedance characteristic, and

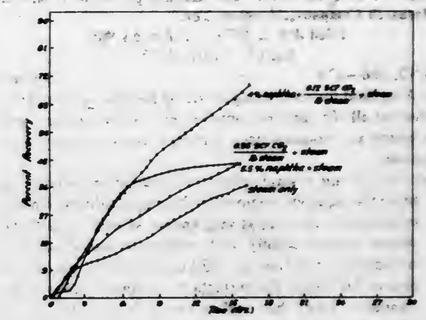
(b) injecting and controlling the flow of one or more gases into the vicinity of one or more of said segments to control and optimize the combustion in said segment.

4,271,905

GASEOUS AND SOLVENT ADDITIVES FOR STEAM INJECTION FOR THERMAL RECOVERY OF BITUMEN FROM TAR SANDS

David A. Redford, Fort Saskatchewan, and Mohsen R. Hanna, Calgary both of Canada, assignors to Alberta Oil Sands Technology and Research Authority, Edmonton, Canada

Filed Feb. 21, 1979, Ser. No. 13,551
Int. Cl.³ E21B *43/24*
U.S. Cl. 166—263 **14 Claims**



1. In a recovery process wherein hot fluid is injected into a heavy oil reservoir through a well and formation fluids, including reservoir and injected fluids, are produced either through an adjacent production well or by backflowing the injection well,

the improvement comprising:

injecting into the reservoir, at temperature and pressure greater than the formation temperature and pressure, an injection stream consisting essentially of steam, hydrocarbon diluent, and a gas, said diluent being chosen and provided in amount so as to dissolve in the heavy oil at formation temperature without vaporizing, said gas being gaseous at formation temperature and pressure and soluble in the formation fluids at the injection pressure;

terminating pressurized injection; and then

producing by presure drawdown a stream of reservoir and injected fluids.

4,271,906

OIL RECOVERY METHOD EMPLOYING ALTERNATE SLUGS OF SURFACTANT AND FRESH WATER SOLUTION OF SACRIFICIAL AGENT

Issam S. Bousaid, and Benny K-C Ho, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Aug. 30, 1979, Ser. No. 71,147
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—273 **33 Claims**

1. A method of recovering petroleum from a subterranean, petroleum-containing, permeable formation penetrated by at least one injection well and by at least one production well, said formation containing water having a salinity in excess of about 20,000 parts per million total dissolved solids, including known or determinable divalent ion concentration, comprising injecting into the formation a predetermined volume of an aqueous saline surfactant fluid, said surfactant being slightly soluble in a fluid having a salinity of from 50 to 100 percent of the salinity of the water present in the formation, and reducing interfacial tension between the petroleum and water to a value less than 100 millidynes/centimeter, said surfactant fluid being injected by the injection well and displacing petroleum in the formation toward the production from which it is recovered to the surface of the earth, wherein the improvement comprises:

injecting the surfactant fluid into the formation in from 2 to 15 separate slugs, and separating successive slugs of surfactant fluid from one another by injecting sequentially

therewith, separate isolation slugs of fluid consisting of fresh water having salinity less than 10,000 parts per million total dissolved solids, and having dissolved therein from 0.1 to 10.0 percent by weight of a sacrificial agent.

4,271,907

MICROEMULSIONS WHICH COMPATIBLY INCORPORATE VISCOSIFIERS AND THEIR USE IN ENHANCED OIL RECOVERY

Walter W. Gale, Houston, Tex., assignor to Exxon Production Research Company, Houston, Tex.

Filed Jul. 2, 1979, Ser. No. 54,380
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—274 **11 Claims**

1. A method for recovering crude oil having a characteristic equivalent alkane carbon number from a subterranean formation which also contains brine having a known salinity which comprises:

(a) formulating a single-phase microemulsion which comprises an aqueous component having a salinity which is substantially the sme as said known salinity, a surfactant whose optimal salinity with respect to said crude oil is substantially the same as said known salinity, an oil component for which the surfactant's optimal salinity is substantially higher than said known salinity and having an equivalent alkane carbon number which is from about 25% to about 300% greater than that of said crude oil, and a water soluble polymeric viscosity-increasing agent; and

(b) injecting said microemulsion into said subterranean formation to recover crude oil.

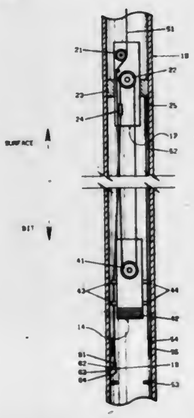
4. The method of claim 1 which includes preflushing and formation with an aqueous salt solution to result in said known salinity.

4,271,908

TRACKED CABLE GUIDE ASSEMBLY AND METHOD FOR STORING CONDUCTOR CABLE INSIDE A DRILL PIPE

Leon H. Robinson, Jr.; Adelbert Barry, and Jerry M. Speers, all of Houston, Tex., assignors to Exxon Production Research Company, Houston, Tex.

Filed Jan. 29, 1980, Ser. No. 116,517
Int. Cl.³ E21B *17/00, 47/12*
U.S. Cl. 166—315 **7 Claims**



1. A method to store an electrical conductor in a drill pipe which comprises the steps of:

(a) attaching an elongated member along the inside of the drill pipe;

(b) extending the electrical conductor cable from a subsurface location up to and around an upper cable guide, down to and around a lower cable guide, and up to the surface;

(c) mounting the upper cable guide in the drill pipe;

(d) tensioning the portion of cable which extends from the subsurface location to the upper cable guide and maintaining the portion of the cable in tension; and

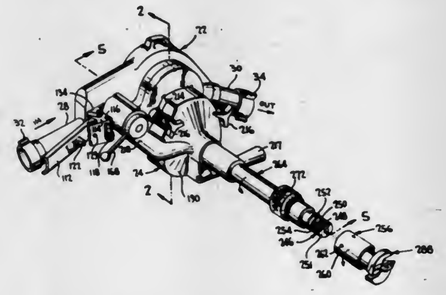
(e) paying out cable from the surface so that the lower cable guide lowers in the drill pipe to store excess conductor cable in an overlapped configuration, the axial motion of the lower cable guide being tracked on the elongated member and the tensioned portion of the cable which serve as a guide tracks to impede rotation of the lower cable guide relative to the upper cable guide and to the drill pipe.

4,271,909

MODULAR FIRE FIGHTING APPARATUS

John F. Chatfield, Jr., Easton, Conn.; Donald C. Bryant, Palm Harbor; James C. Daly, Clearwater, both of Fla., and Friedolf Kamila, Long Meadow, Mass., assignors to American Fire and Industrial Products Company, Tampa, Fla.

Filed Dec. 18, 1978, Ser. No. 970,110
Int. Cl.³ A62C *31/22*
U.S. Cl. 169—70 **35 Claims**



1. Modular fire fighting apparatus comprising

a power module including

a housing having a coupling face, a supply inlet for receiving fluid, a turbine chamber, discharge means communicating with said turbine chamber for exhausting fluid from said housing, an outlet positioned along said coupling face, and passage means establishing communication between said supply inlet and said turbine chamber and said outlet,

valve means disposed in said passage means for controlling fluid flow to said turbine chamber and said outlet, and

turbine means disposed in said housing having an impeller rotatably mounted in said turbine chamber for rotation by fluid flow in said turbine chamber, and a drive shaft secured to said impeller for rotation therewith and extending through said coupling face;

a penetrating and extinguishing tool module including

a housing having a coupling face for abutment against said coupling face of said power module housing, and an inlet for alignment with said outlet of said power module housing,

a driven member rotatably mounted in said penetrating and extinguishing tool module housing to extend through said coupling face,

coupling means for releasable rectilinear engagement of said driven member coaxial with said drive shaft,

a penetrating tool mounted on said penetrating and extinguishing tool module housing, and

drive means coupling said driven member with said penetrating tool to drive said penetrating tool; and

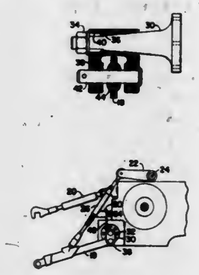
securing means for releasably mounting said penetrating and extinguishing tool module on said power module with said coupling face of said penetrating and extinguishing tool module housing in abutment against said coupling face of said power module housing to position said inlet of said penetrating and extinguishing tool module housing in communication with said outlet of said power module housing and to engage said driven member with said drive shaft whereby said penetrating and extinguishing tool module can be simply installed on and removed from said power module.

4,271,910

DRAFT SENSING DEVICE INCLUDING LOAD PIN WITH FREE END

Richard A. Schafer, Traer, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jul. 2, 1979, Ser. No. 53,913
Int. Cl.³ A01B *63/112*
U.S. Cl. 172—7 **14 Claims**



13. A draft load sensor for sensing draft loads in a draft link on a tractor having a tractor body, the sensor comprising:

a load pin having a free end and a fixable end spaced transversely from the free end, the fixable end having securing means for rigidly securing the load pin to the tractor body, the securing means for securing the load pin to the tractor body only at its fixable end;

a load arm rigidly secured to the free end of the load pin;

a draft link pivotally connected to the load arm and extending rearwardly therefrom; and

means coupled to the load arm movable in response to rearward bending and torsional distortion of the load pin caused by draft loads on the draft link, such movement being representative of the draft loads.

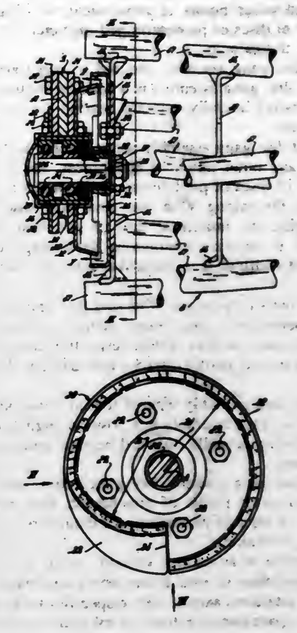
4,271,911

SOIL CULTIVATING MACHINES

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Filed Jun. 22, 1979, Ser. No. 51,129
Claims priority, application Netherlands, Jun. 22, 1978, 7806736
Int. Cl.³ A01B *33/06*
U.S. Cl. 172—68 **20 Claims**

1. A soil cultivating machine comprising a frame with cultivating means on said frame, at least one elongated roller connected to the frame at the rear thereof and said roller being positioned to provide support for said frame, the outer ends of said roller being journalled to arms with bearing means and said arms being connected to said frame, a screening hood surrounding said bearing means adjacent at least one end of said roller, said hood being dished and comprising an internal scraping element, said scraping element forming part of a profiled wall of said hood and said wall spiraling inwardly from an outer periphery of the hood, a screen on said one end of the roller and said screen being positioned adjacent said outer hood periphery, said hood, including said scraping element, being held stationary to cooperate with the rotating



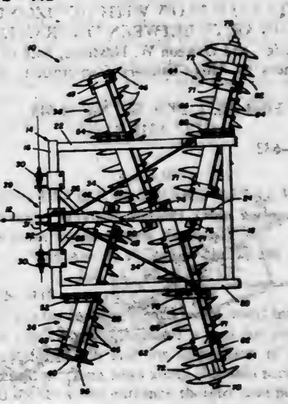
roller screen, whereby dirt is conducted out of the hood and away from said bearing means during operation.

4,271,912

DISC HARROW

John V. Frye, Dallas County, Tex., assignor to Ag-Team, Inc., Rowlett, Tex.

Continuation of Ser. No. 953,796, Oct. 23, 1978, abandoned. This application May 30, 1980, Ser. No. 154,922
Int. Cl.³ A01B *59/043*
U.S. Cl. 172—441 **12 Claims**



1. A disc harrow, comprising:

a rigid frame;

3-point hitch means for pivotally connecting said frame to a tow vehicle, said hitch means including a pair of shackles and an upstanding post located between the shackles;

a first disc gang assembly secured to said frame in a position

angling forward and extending laterally outward one side of said frame;

said first disc gang assembly being secured to said frame at inner and outer points of attachment, and including a plurality of discs of predetermined diameters mounted at intervals therealong;

a second disc gang assembly secured to said frame behind said first disc gang assembly in a position angling forward and extending laterally outward beyond the other side of said frame;

said second disc gang assembly being secured to said frame at inner and outer points of attachment, and including a plurality of discs of predetermined diameters mounted at intervals therealong with the innermost disc laterally overlapping the innermost disc of said first disc gang assembly to provide continuous harrowing across the combined width of said first and second disc gang assemblies;

the inner points of attachment of said first and second disc gang assemblies to said frame being vertically aligned with the rotational axes of their respective discs and longitudinally spaced apart a distance less than one disc diameter;

a third disc gang assembly secured to said frame behind said second disc gang assembly in a position angling rearward and extending laterally outward beyond said one side of said frame;

said third disc gang assembly being secured to said frame at inner and outer points of attachment, and including a plurality of discs of predetermined diameters mounted at intervals therealong;

the inner points of attachment of said second and third disc gang assemblies to said frame being vertically aligned with the rotational axes of their respective discs and longitudinally spaced apart a distance less than one disc diameter;

a fourth disc gang assembly secured to said frame behind said third disc gang assembly in a position angling rearward and extending laterally outward beyond said other side of said frame; and

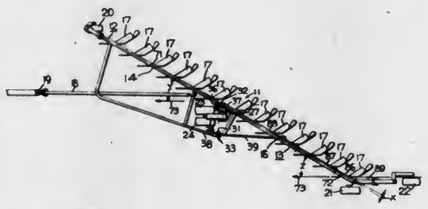
the inner points of attachment of said third and fourth disc gang assemblies to said frame being vertically aligned with the rotational axes of their respective discs and longitudinally spaced apart a distance less than one disc diameter.

4,271,913

ARTICULATED PLOW WITH HORIZONTAL ANGULARITY BETWEEN ITS FRAMES

Keith A. Wheeler, and Dawson W. Hastings, both of La Porte, Ind., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Jul. 2, 1979, Ser. No. 54,645
Int. Cl.³ A01B *65/02*
U.S. Cl. 172—633 **5 Claims**



1. An articulated plow comprising

a front section having a diagonal main frame with plow bottoms connected thereto at predetermined intervals,

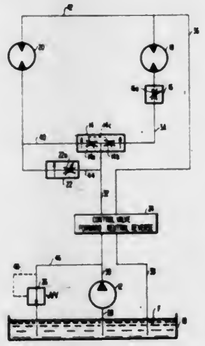
a rear section having its front end pivotally connected to the rear end of said front section on a transverse horizontal axis and having a diagonal main frame with plow bottoms connected thereto at predetermined intervals, said rear section resiliently flexing laterally and rearwardly about its connection with the front section when subject to the draft forces encountered in a plowing operation, said main frame of said rear section being disposed at a small predetermined horizontal angle to said front section main frame when not engaged in a plowing operation, said horizontal angle being large enough to substantially compensate for said resilient flexing of said rear section during a plowing operation wherein said horizontal angle is reduced thereby minimizing overcut of the plow.

4,271,914

AUTOMATIC FEED AND ROTATIONAL SPEED CONTROL SYSTEM OF A HYDRAULIC MOTOR OPERATED DRILL

Michael O. Dressel, Englewood, Colo., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Continuation-in-part of Ser. No. 746,767, Dec. 2, 1976, abandoned. This application Dec. 8, 1978, Ser. No. 968,046
Int. Cl.³ E21B *3/00*; E21C *5/00*
U.S. Cl. 173—158 **2 Claims**



1. In a hydraulic system for a hydraulically driven drill for drilling in rock material, said system comprising a source of hydraulic pressure fluid including a sump tank of hydraulic fluid and a hydraulic pump, a first hydraulic motor for rotating said drill, a second hydraulic motor for feeding said drill relative to said material being drilled, fluid flow lines means interconnecting said source and said motors, said system further comprising:

first means within said line means and between said source and said second motor for causing thrust exerted by the second motor on said drill to increase and rotational speed of the first motor to decrease as the drill encounters more difficult drillability material and vice versa, said first means including a needle valve in series with said second motor;

second means within said line means in series with said needle valve for delivering hydraulic fluid under fixed proportional flow to said motors to cause the rotational speed of the first motor to slow down in proportion to the slowing down in the speed of the second motor;

a relief valve in parallel with said pump by connections to said line means between said pump and said second means and to said tank, and

third means within said line means for connecting said source to said first motor and bypassing said second means for delivering hydraulic fluid at a fixed rate to said first motor when an increasing load is applied to said second motor as drilling meets with a higher degree of resistance to drilling to set a minimum rotational speed of said first motor;

whereby said increasing load applied to said second motor further results in an increased pressure drop across the combination of said second motor and said needle valve as increased load on said second motor exceeds pressure drop across said first motor, and in an increased pressure in said lines, means ultimately opening said relief valve wherefore fluid diverted therethrough lessens flow to said second means to thereby lessen flow to said motors and needle valve with the consequence that drill rotation is reduced and decreased pressure at said needle valve increases pressure at said second motor with greater thrust made available therefrom, and a decreasing load applied to said second motor as drilling meets with a resistance decreasing from said higher degree thereof results in a decreased pressure in said line means which ultimately obtains closing said relief valve which effectuates increased flow in said line means with increasing flow to said second means and thereby enabling increased pressure at said needle valve with concomitantly decreasing pressure drop at said second motor resulting in reducing the thrust thereof to accommodate said decreased resistance to drilling.

4,271,915

ELASTICALLY VIBRATORY LONGITUDINAL JACKETED DRILL

Albert G. Bodine, 7877 Woodley Ave., Van Nuys, Calif. 91406

Filed Aug. 6, 1979, Ser. No. 63,840
Int. Cl.³ E21B *4/02*
U.S. Cl. 175—56 **18 Claims**

1. A sonic drill suitable for drilling through hard work material comprising:

an elastic drill stem,

a drill bit connected to one end of said drill stem, said bit being biased against said work material,

an orbiting mass oscillator having an eccentrically mounted rotor and connected to said stem at a point therealong spaced from said bit, the rotation axis of said rotor being substantially parallel to the longitudinal axis of the stem,

means for rotatably driving said oscillator rotor so as to generate a rotating force vector in said stem in a plane substantially normal to the longitudinal axis of the stem, said rotor being driven at a frequency such that an elastic standing wave vibration pattern is established in said stem,

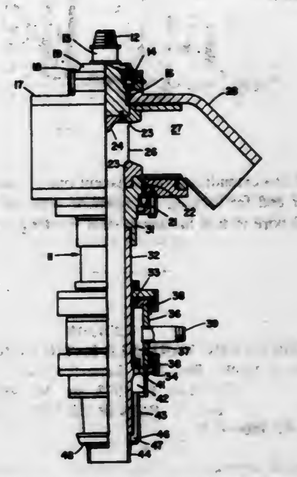
the stem being caused to cyclically stretch and compress longitudinally at the frequency of the vibration pattern so as to describe a closed orbital motion with orbital bending of the stem, the bit being nutated by the stem in rolling biased contact against the work material.

4,271,916

SYSTEM FOR ADAPTING TOP HEAD DRILLING RIGS FOR REVERSE CIRCULATION DRILLING

Paul Williams, 275 Courtney La., Reno, Nev. 89523

Filed May 4, 1979, Ser. No. 36,114
Int. Cl.³ E21B *11/12, 21/02*
U.S. Cl. 175—215 **9 Claims**



1. A system for adapting a top head drive drilling rig having a tapered threaded socket for securing threaded drill pipe to reverse circulation drilling, comprising a generally cylindrical, tubular adapter assembly having a bore extending axially therethrough, a tapered threaded member extending axially from one end of said assembly for engaging said socket of a top head drive; an annular housing disposed about a portion of said assembly, first bearing means for supporting said housing in relative rotation with said assembly, said housing including an annular chamber communicating with said bore, a discharge chute extending from said chamber to the exterior of said housing; an annular sleeve disposed about said assembly, second bearing means for supporting said sleeve in relative rotation with said assembly, pressurized fluid delivery means joined to said sleeve, threaded coupling means extending from the other end of said assembly and adapted to be joined to a section of drilling pipe having a complementary threaded coupling means at the upper end thereof, pressure tight coupling means extending between said upper end of said drilling pipe section and said other end of said assembly, and means on said assembly for connecting said pressurized fluid delivery means and said pressure tight coupling.

4,271,917

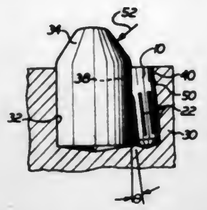
LOCKING DEVICE FOR HARD METAL INSERTS

Lloyd W. Sahley, Mayfield Heights, Ohio, assignor to Syndrill Products Joint Venture, New York, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,246
Int. Cl.³ E21B *10/52*
U.S. Cl. 175—410 **7 Claims**

1. A steel pin for locking a hard metal insert into a socket in a hardened steel working head of a tool for comminuting a hard mineral formation and for disposition in a small bore drilled into said working head along side said socket and intersecting said socket at the entrance thereto, said pin comprising a steel pin of generally cylindrical configuration having a lead end and an anvil end, one of said ends being deformable under impact in a generally radial direction into locked engagement with said small bore, an axially extending relief formed along one side of said pin from a point intermediate said lead end and said anvil end and extending toward the lead end thereof whereby said lead end has a smaller cross-section than said

anvil end to facilitate entry of said pin into said bore and a plurality of circumferentially spaced axially extending hard-



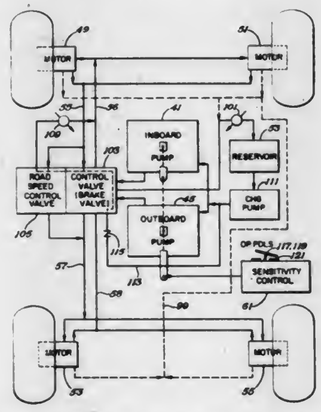
ened ribs extending from adjacent one of said ends toward the other end for locking engagement with the side wall of said small bore in said hardened steel working head.

4,271,918

HYDROSTATIC VARIABLE RATIO CONTROL SYSTEM

Lloyd A. Molby, Box 7788, Longview, Tex. 75602

Filed Oct. 11, 1978, Ser. No. 950,403
Int. Cl.³ B60K 26/02; G05G 7/04
U.S. Cl. 180—6.48 6 Claims



1. In a hydrostatic system for at least one variable displacement pump having an actuating member movable in two directions for varying displacement in at least forward and reverse directions of travel of a vehicle; a hydraulically actuatable device operable by fluid from said pump; a hydraulic reservoir; serially interconnecting supply and return lines; the improvement comprising:

a. at least one operator control member movable in two directions for moving said actuating member in its respective directions responsive to an operator; said operator control member being connected with said actuating member; and

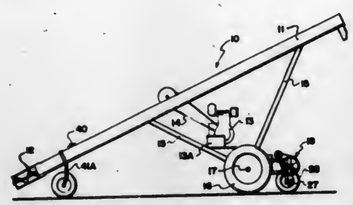
b. a sensitivity control means for setting a predetermined sensitivity of control of said operator control member; said sensitivity control means being operable from minimum to maximum in a given direction; said sensitivity control means being operatively connected intermediate said actuating member and said operator control member such that said sensitivity control means is adjustably positionable to one of a plurality of positions to control the amount said actuating member is moved by full movement of said operator control member.

4,271,919

AUGER ASSEMBLY MOVING DEVICE

Hugh R. Vaughan, Box 531, Yorkton, Saskatchewan, Canada

Filed Jun. 1, 1979, Ser. No. 44,719
Int. Cl.³ B60K 25/00
U.S. Cl. 180—16 5 Claims



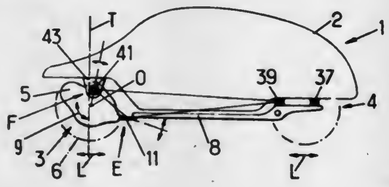
1. A drive attachment for auger assemblies which include a pair of ground engaging wheels mounted on a transverse axle and supporting an auger tube and auger flight assembly, a source of power for said auger flight assembly and a battery associated with said source of power; said drive attachment comprising in combination a drive wheel journalled for rotation adjacent said axle, means to rotate said drive wheel and means to raise and lower said drive wheel out of and into contact with the ground, said drive attachment including a supporting frame mounted upon said axle, said drive wheel being journalled for rotation within said frame, said means to raise and lower said drive wheel out of and into contact with the ground including said frame being mounted for selective vertical movement upon said axle, said means to raise and lower said drive wheel out of and into contact with the ground including a pair of guide channels secured to said axle and extending vertically therefrom, a vertical plate secured to said supporting frame and engaging with said guide channels for vertical movement therein, a gear and rack assembly on said axle operatively connected to said plate to move same vertically and a hand crank operatively engaging said gear and rack assembly to operate same.

4,271,920

AUTOMOBILE VEHICLE WITH TRANSVERSE ENGINE-DRIVE UNIT

André J. Barthelemy, Saint-Remy-les-Chevreuse, France, assignor to Societe Anonyme Automobiles Citroen and Automobiles Peugeot, both of Paris, France

Filed May 30, 1978, Ser. No. 910,673
Claims priority, application France, Jun. 3, 1977, 77 17101
Int. Cl.³ B60K 5/04
U.S. Cl. 180—55 2 Claims



1. Automobile vehicle comprising a self-supporting body to which are connected elastically the front and rear axles including a driving axle, as well as an engine-drive transmission unit arranged transversally, said engine-drive unit being fastened to the driving axle, a longitudinal sub-frame fastened to the non-driving axle, said sub-frame being rigid in its mean horizontal plane to maintain a constant geometry between the front and rear axles, said engine-drive unit being connected, on the one

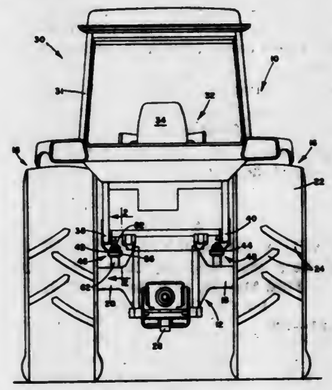
hand, with said sub-frame by means adapted to prevent any relative longitudinal movement between the unit and the sub-frame while permitting slight pivoting movements around a transverse axis and possibly vertical movements, between the unit and the sub-frame, and, on the other hand, with the body by resilient connecting devices, the means connecting the unit to the sub-frame comprise at least one flexible sleeve transverse articulation whose flexibility is practically nil in the longitudinal direction but possible in the vertical direction, two articulations being provided, namely, one on each side of the sub-frame.

4,271,921

ADJUSTABLE MOUNT FOR A TRACTOR CAB

Jon K. Ochsner, Cedar Falls, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jul. 31, 1979, Ser. No. 62,590
Int. Cl.³ B62D 23/00
U.S. Cl. 180—89.12 18 Claims



1. In a tractor having a chassis which vibrates at certain frequencies depending on the operating conditions of the tractor and a cab resiliently mounted on the chassis and vibrationally isolated therefrom by resilient mount assemblies, the cab on its mount assemblies having at least one natural frequency of vibration so that vibrations in the chassis at the natural frequency cause the cab to resonate, the improvement comprising adjustable means separate from the resilient mount assemblies connected between the chassis and the cab for selectively varying the natural frequency of the cab on its mount assemblies to avoid cab resonance for a preselected operating condition of the tractor.

4,271,922

WHEEL SUSPENSION SYSTEM

Alan R. Kiblino, Janesville, Wis., assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 4, 1978, Ser. No. 966,077
Int. Cl.³ B60K 17/30; B60G 3/08
U.S. Cl. 180—254 7 Claims

1. An independent wheel suspension system for a vehicle comprising:

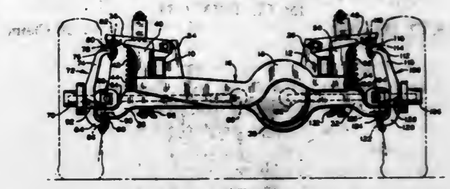
a frame;

an elongate cross member secured to said frame;

a pair of upper control arms pivotally secured to said cross member and extending in opposite directions outwardly therefrom; a pair of axle arms pivotally secured to said cross member on the same side of the vehicle center line and substantially inwardly of the pivotal securement of the respective upper control arm and extending in opposite directions outwardly therefrom below said control arms;

a pair of vertically extending wheel carrying steering knuckles;

a first set of ball-joint connection means interconnecting the outer end of said control arms to the upper end of a respective one of said steering knuckles; and



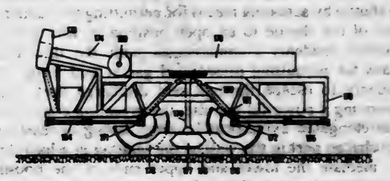
a second set of ball-joint connection means interconnecting the outer end of said axle arms to the lower end of a respective one of said steering knuckles.

4,271,923

MOBIL DEVICE FOR GENERATING ACOUSTIC SHEAR WAVES IN THE EARTH

Pierre-Claude Layotte, Les Mathes, and Andre James, Royan, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jul. 5, 1979, Ser. No. 55,895
Claims priority, application France, Jul. 5, 1978, 78 20008
Int. Cl.³ G01V 1/047, 1/053
U.S. Cl. 181—114 10 Claims



1. In a mobile device for generating acoustic shear waves in the earth, comprising: a target-member having a coupling surface adapted for coupling the target-member with the earth and having tracks thereon adapted to receive wheels; a mass for striking the target-member and means for imparting to the mass a velocity of a determined amplitude having a component parallel to the coupling surface; and a vehicle adapted to support and transport the target-member, the mass and the velocity imparting means, and having at least one axle with wheels thereon,

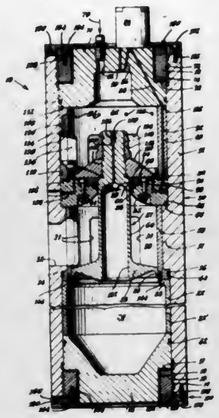
the improvement which comprises: positioning means for displacing the target-member between a raised transportation position and a lowered operational position wherein the coupling surface is in contact with the earth; and driving means for displacing said at least one axle between a first transportation position wherein its wheels are in contact with the earth and remote from the target-member and a second operational position wherein the wheels mount the lowered target-member and are received by the tracks thereon;

whereby said displacement of the axle can be effected while the vehicle is stationary, and said wheels bear down upon said target-member with at least a part of the weight of said vehicle when the target-member and the axle are both in their respective operational positions.

4,271,924
AIRGUN APPARATUS PROVIDING HIGH STRENGTH AND HIGH PRESSURE CAPABILITIES

Stephen V. Chelminski, West Redding, Conn., assignor to Bolt Associates, Inc., Norwalk, Conn.

Filed Oct. 27, 1978, Ser. No. 955,184
Int. Cl.³ G01V 1/38
U.S. Cl. 181—120 20 Claims



1. In an airgun impulsive energy source wherein gas pressure in an operating chamber is applied to the operating piston of a reciprocatable shuttle for holding the shuttle in an initial closed position for causing a firing piston of the shuttle to engage a firing seal to block access from a firing chamber to discharge port means for preventing pressurized gas in said firing chamber from escaping through said discharge port means and wherein the holding action of the gas pressure is released from the shuttle by actuating means for permitting the sudden movement of the shuttle to an open position in which said firing chamber suddenly communicates with the discharge port means for permitting pressurized gas in said firing chamber suddenly to escape through said discharge port means for generating a powerful impulse, the invention comprising:

an elongated cylindrical housing having at least one discharge port in the wall of the housing at a location intermediate the lower and upper ends of the housing and having an internal annular stop surface integral with the wall of said housing in predetermined axial position within the cylindrical housing above the discharge port and facing upwardly toward the upper end of the housing;

removable bottom closure means mountable in the lower end of said housing for closing the lower end of said housing for forming a firing chamber within the lower portion of said cylindrical housing;

removable partition means insertable down through the upper end of said cylindrical housing and having an external annular stop surface facing downwardly engageable with said internal annular stop surface for positioning said removable partition means above said discharge port in predetermined axially registered relationship with respect to the discharge port, said partition means having the shank of an axially reciprocatable shuttle extending axially therethrough with a firing piston below and an operating piston above said partition means;

an operating cylinder sleeve insertable down through the upper end of said cylindrical housing for resting on said removable partition means;

removable top closure means engageable with the upper end of said operating cylinder sleeve and mountable in the upper end of said housing for holding said sleeve firmly down against said removable partition means for holding said partition means firmly against said internal annular stop surface;

said removable top closure means and said operating cylinder sleeve defining an operating cylinder within which said operating piston can axially reciprocate;

said removable top closure means including passage means for feeding pressurized gas into said operating cylinder;

whereby said operating cylinder sleeve and said partition means can conveniently be removed from said housing by removing said top closure means; and

said elongated cylindrical housing being an integral unit extending from said top closure means to said bottom closure means for providing high strength capability in said airgun of utilizing pressurized gas of a high pressure in the range from 4,000 to 6,000 p.s.i.

18. In an airgun having a shuttle which is movable into a closed position for closing a firing chamber and which is suddenly movable into an open position for allowing pressurized gas to discharge suddenly from the firing chamber out through a discharge port, the invention comprising:

a firing seal of tough, durable, stiffly flexible material encircling said shuttle when in its closed position;

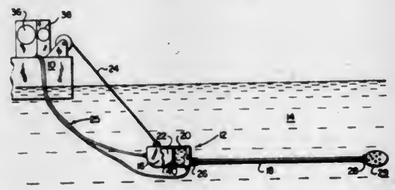
said firing seal being mounted in the wall of the firing chamber and having an inner surface protruding radially inwardly for engaging the periphery of the shuttle when the shuttle is in its closed position for sealing the firing chamber; and

the wall of the firing chamber having passages for admitting pressurized gas from the firing chamber to the radial outside surface of said firing seal for urging the firing seal radially inwardly into tight sealing engagement with the periphery of the shuttle in its closed position.

4,271,925
FLUID ACTUATED ACOUSTIC PULSE GENERATOR

Kenneth E. Burg, 4505 Bordeaux, Dallas, Tex. 75205

Filed May 29, 1979, Ser. No. 42,917
Int. Cl.³ G01V 1/133, 1/38
U.S. Cl. 181—120 24 Claims



1. A fluid actuated acoustic pulse generator for radiating acoustic energy into a surrounding body of water in response to the abrupt termination of fluid flow within said generator, said generator comprising:

a submersible elongated tubular pulse propogation member of uniform, solid wall construction having a generally uniform internal cross-sectional diameter and material construction therealong for receiving a high velocity, undisturbed fluid flow therethrough and being formed to contain a water hammer pressure pulse therein and permit the substantially unrestricted propagation thereof, longitudinally therealong, said tubular member being formed of a substantially non-compliant material having substantially the same acoustic impedance as water;

a high pressure fluid storage vessel containing fluid therein under pressure for subsequent flow through said tubular member;

means for sealably communicating said storage vessel with the fore end of said tubular member for flow transfer therebetween;

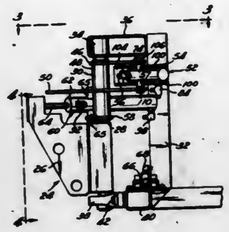
valve means secured within the aft end of said tubular member for abruptly terminating flow therein and generating a water hammer pressure pulse uniformly therealong and substantially within a predefined frequency band; and

means for communicating with said valve for the remote actuation thereof to control fluid flow within said tubular member and to remotely close said valve to abruptly terminate said fluid flow and generate said pressure pulse.

4,271,926
ROTATABLE WORK PLATFORM

Richard E. Cality, La Mirada, Calif., assignor to Mark Industries, Carson, Calif.

Filed Feb. 4, 1980, Ser. No. 118,429
Int. Cl.³ B66F 11/04
U.S. Cl. 182—2 9 Claims



1. Apparatus for the reciprocal rotation of a work platform on a boom lift comprising:

a pivot pin;

means for attaching said pin to the boom at the end thereof remote from the lift so that the pin is disposed substantially vertically;

a work platform frame;

means for attaching said work platform frame to the pin so that the platform frame is pivotally rotatable about the pin;

an idler bracket pivotally mounted on the pin;

a first idler arm mounted on said bracket so as to extent outwardly horizontally from the pin;

a first hydraulic piston and cylinder assembly of the dual actuation type, said first hydraulic cylinder having a first reservoir and a second reservoir formed within the first cylinder by the first piston and a first piston rod connected to the first piston and extending out of the first cylinder at one end thereof;

means connecting the first hydraulic assembly between the first idler arm and the work platform frame so that the first piston rod is pivotally attached to one thereof and the first cylinder is pivotally attached to the other thereof, whereby the first piston moves relative to the first cylinder in response to the application of hydraulic fluid under pressure to the first reservoir to rotate the frame in a clockwise direction to a first relative position with respect to the idler arm bracket and the piston moves relative to the cylinder in response to the application of hydraulic fluid under pressure to the second reservoir to rotate the frame in a counterclockwise direction to a second relative position with respect to the idler arm bracket, said second frame relative position being displaced counterclockwise about90° from said first frame relative position;

a second idler arm mounted on said bracket so as to be vertically offset from the first idler arm and to extend outwardly horizontally from the pin, said second idler arm being laterally offset between 90° and 120° from the first idler arm;

a second hydraulic piston and cylinder assembly of the dual actuation type, said second hydraulic cylinder having a third reservoir and a fourth reservoir formed within the second cylinder by the second piston and a second piston rod connected to the second piston and extending out of the second cylinder at one end thereof;

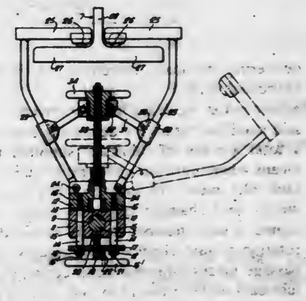
means connecting the second hydraulic assembly between the second idler arm and the boom so that the second piston rod is pivotally attached to one thereof and the second cylinder is pivotally attached to the other thereof, whereby the second piston moves relative to the second cylinder in response to application of hydraulic fluid under pressure to the third reservoir to rotate the idler arm bracket in a clockwise direction to a first relative position with respect to the boom and the piston moves relative to the second cylinder in response to the application of hydraulic fluid under pressure to the fourth reservoir to rotate the idler arm bracket in a counterclockwise direction to a second relative position with respect to the boom, said second idler arm bracket relative position being displaced counterclockwise about 90° from said idler arm bracket first relative position; and

means for selectively applying hydraulic fluid under pressure to at least one of said reservoirs to initiate the rotary movement of the frame with respect to the boom in a first predetermined direction.

4,271,927
INSPECTION OR MAINTENANCE CRADLE

George S. Brown, Sawbridgeworth, and Robert E. Hatton, Great Bardfield, both of England, assignors to Riggers (Steeplejacks) Limited, Essex, England

Filed Jun. 4, 1979, Ser. No. 44,780
Int. Cl.³ E04G 3/16
U.S. Cl. 182—36 10 Claims



1. A suspended cradle for use in the inspection and maintenance of difficulty accessible structures, said cradle including:

a frame;

a series of at least three roller assemblies mounted on said frame in horizontally spaced apart relation for suspending said frame from said structure;

each said roller assembly having rollers for running on a track provided on the structure to be inspected or maintained and thereby suspending said frame for movement along the track; and

means for rendering each said roller assembly inoperative by relieving the load on the rollers of said assembly and withdrawing the rollers from the track so that the inoperative roller assembly can move past an obstruction on the track whilst the frame remains movably supported on the track by the remaining roller assemblies.

4,271,928
LUBRICANT SUPPLY DEVICE

James Northern, Hemel Hempstead, England, assignor to Rolls-Royce Limited, London, England

Filed May 11, 1979, Ser. No. 38,228
Claims priority, application United Kingdom, Jul. 11, 1978, 29440/78
Int. Cl.³ F01M 11/12; F16D 3/46
U.S. Cl. 184—6.4 4 Claims

1. A lubricant supply device for receiving a lubricant under pressure from a lubricant supply means and delivering lubri-

cant to an apparatus to be lubricated, said lubricant supply device comprising:

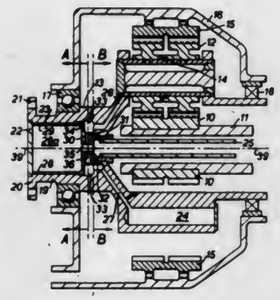
inlet means for receiving lubricant under pressure from the lubricant supply means;

a chamber rotatable about an axis of rotation, said chamber being operatively connected to and having communication with said inlet means for receiving lubricant under pressure therefrom;

manifold means operatively rotatable with said chamber and disposed radially outwardly of said inlet means;

passage means extending between said inlet means and said manifold means for delivering lubricant under pressure from said inlet means to said manifold means;

an outlet means extending from said manifold means for



delivering lubricant therefrom to the apparatus to be lubricated; and

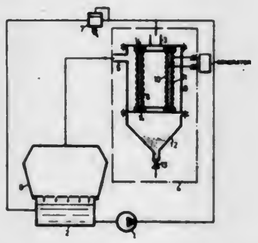
chamber outlet metering means between said chamber and said manifold means for delivering a minor proportion of a total amount of lubricant supplied to said manifold means when lubricant under pressure is being supplied by said inlet means to said chamber and to said passage means, said chamber outlet metering means being positioned in said chamber radially outwardly of said axis of rotation of said chamber and radially outwardly of said passage means whereby upon cessation of the supply of lubricant under pressure to said inlet means, any lubricant in said chamber is centrifugally pumped through said chamber outlet metering means to said manifold means and through said outlet means.

4,271,929

MACHINE LUBRICATION SYSTEM

Semyon I. Fishgal, 610-60 Mountainview Ave., Toronto, Ont. M6P 2L4, Canada

Filed Feb. 16, 1979, Ser. No. 12,592
Int. Cl.³ F01M 1/10
U.S. Cl. 184—6.24 1 Claim



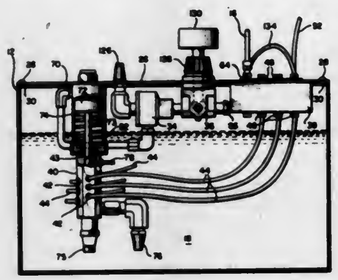
1. A machine lubrication system including an oil-lubricant pressure source communicated with a reservoir means and a porous piezoelectric ceramic ultrasonic transducer located in the flow path of the lubricant in a housing and partioning the latter into an input part and an output part.

4,271,930

ENCLOSED LUBRICATING APPARATUS

Ronald E. Thomson, Lake Mills, and David W. Hammermeister, Sun Prairie, both of Wis., assignors to Madison-Kipp Corporation, Madison, Wis.

Continuation-in-part of Ser. No. 902,908, May 5, 1978, abandoned. This application Apr. 18, 1979, Ser. No. 31,154
Int. Cl.³ F16N 7/38
U.S. Cl. 184—15 A 15 Claims



11. Lubricating apparatus for lubricating movable mechanical systems comprising:

an enclosure including a reservoir of lubricating fluid;

a pneumatically actuable pump having an inlet for receiving lubricating fluid and at least one outlet for dispensing lubricating fluid;

means mounting said pump within said enclosure including means communicating said pump inlet to said lubricating fluid in said reservoir and including lubricating fluid conduit means coupled intermediate said pump outlet and said movable mechanical system being lubricated; and

pneumatic valve trip means including an actuator adapted for mounting adjacent said movable mechanical system for actuation by a component of said system, further including an air valve pneumatically coupled intermediate said pump and a source of air pressure for supplying said air pressure to said pump in response to said actuator, thereby delivering clean shots of lubricating fluid each time said pneumatic valve trip means is actuated.

4,271,931

ELEVATOR CONTROL DEVICE

Eiki Watanabe, Inazawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 13, 1979, Ser. No. 48,110
Claims priority, application Japan, Jun. 14, 1978, 53/71835
Int. Cl.³ B66B 5/00
U.S. Cl. 187—29 R 10 Claims

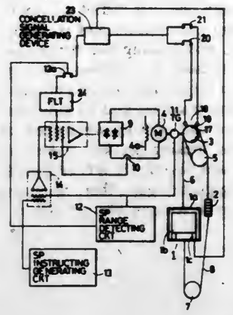
1. A control device for an elevator, comprising:

(a) rope means connected to a cage;

(b) rotary elements driven by an electric motor;

(c) position detecting means for detecting the position of at least one of said rotary elements causing vibration torque, to provide an output signal, said position detecting means comprising an upward movement position detector and a downward movement position detector, whereby said output signal is provided having different phases for upward and downward movement of said elevator;

(d) a cancellation signal generating circuit for providing a cancellation signal in response to said output signal of said position detecting means; and



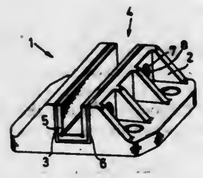
(e) a control circuit for receiving said cancellation signal to apply current necessary to cancel said vibration torque to said electric motor.

4,271,932

ELEVATOR GUIDE SHOE

Wolfgang Klein, Bergisch-Gladbach, Fed. Rep. of Germany, assignor to Acia-Werke Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 1, 1978, Ser. No. 938,900
Claims priority, application Fed. Rep. of Germany, Sep. 10, 1977, 7728040[U]
Int. Cl.³ B66B 7/02
U.S. Cl. 187—95 12 Claims



1. A guide shoe for attachment to the car of an elevator and for sliding on a guide rail in a hoistway, comprising: a holding shoe made of rigid material and having a U-shaped longitudinal recess therein, a liner of U-shaped cross-section, said liner being made of plastic material, the liner and holding shoe being secured together by pins integrally formed with said liner extending outward from said liner to engage in corresponding holes in the holding shoe, an intermediate layer of cellular elastomer between the holding shoe and the liner and said pins extending through said intermediate layer and engaging said holes whereby said pins are also effective to prevent substantial translation of said intermediate layer with respect to said liner.

4,271,933

WHEELCHAIR BRAKE ATTACHMENT

James C. Pearce, and Richard L. Williams, both of #17 Briercroft Office Park, Lubbock, Tex. 79412

Filed Jul. 18, 1977, Ser. No. 816,396
Int. Cl.³ B60T 1/04
U.S. Cl. 188—2 F 10 Claims

1. On a wheelchair having

a. a frame having frame members and an axle,

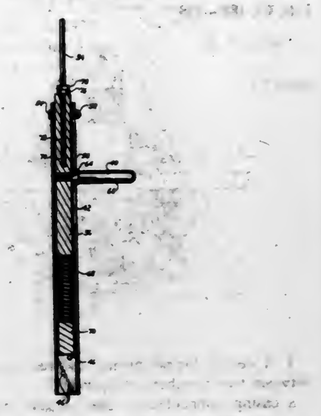
b. at least one large wheel on the axle connected to the rear of the wheelchair,

c. at least one swiveled small wheel connected to the front of the wheelchair, and

d. handgrips connected to the rear of the wheelchair vertically above the rear wheel,

e. said wheelchair being partially open at the front; the improved method of quickly attaching a braking system to the wheelchair comprising the following steps:

f. clamping a handle pivoted to a pitman to the handgrip,



g. clamping a top of a sleeve telescoped over the pitman to a frame member by a J-bolt, and

h. anchoring the sleeve by placing a hole in a plate at the bottom of the sleeve over the axle of the wheelchair, thereby

j. attaching a braking system to a wheelchair without permanently altering the wheelchair.

4,271,934

BRAKE

Pierre Gagnon, 5637 Wilderton Ave., Montreal, Canada (H3T 1S1), and Pierre Laforest, 1945 De Bruxelles St., Montreal, Canada H1L 5Z5

Filed Sep. 10, 1979, Ser. No. 74,110
Int. Cl.³ F16D 65/24
U.S. Cl. 188—170 11 Claims

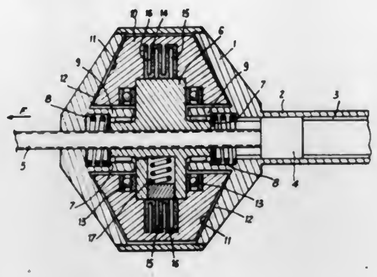


1. A brake for braking a load connected to the output shaft of a fluid-operated motor having a flexible conduit connected thereto for feeding pressurized motive fluid to said motor, said brake comprising a brake member mounted on said output shaft for rotation therewith, a brake shoe movable between a first position in braking engagement with said brake member, and a second position releasing said brake member, spring means biasing said brake shoe to said first position, said flexible conduit having a portion sandwiched between a friction surface and said brake shoe and causing movement of said brake shoe from said first to said second position when pressurized fluid is present in said conduit portion and allowing movement of said brake shoe from said second to said first position under the bias of said spring means when no pressurized fluid is present in said conduit protion.

4,271,935
INERTIAL DEVICE TO PREVENT AND PERMIT MOTION BETWEEN TWO MEMBERS

Roger P. Pelat, Paris, and Gildas Le Pierres, La Ferte Alais, both of France, assignors to International Vibration Engineering, Boutigny sur Essonne, France

Filed Apr. 3, 1978, Ser. No. 892,849
Claims priority, application France, Apr. 7, 1977, 77 10608
Int. Cl.³ B60T 8/12
U.S. Cl. 188—185 7 Claims



1. A device for permitting and restraining relative motion between two members comprising:

a casing connected to one of said members, said casing comprising two abutment surfaces,

a first element joined to the other member for sliding movement axially through said casing without rotation,

a rotative element driven in rotation by movement of said first element and opposing movement of the first element when its rotation is restrained, said rotative element being joined to said first element so as to be placed in rotation by a movement of small acceleration of the first element and to be displaced axially when the acceleration of said first element is greater,

an auxiliary member having abutment surfaces;

means mounting said auxiliary members for rotation on said rotative element and for movement axially in response to axial movement of said rotative element;

elastic means to normally maintain said rotative element in a position in which the abutment surfaces on said auxiliary member are spaced from the abutment surfaces of said casing; said elastic means deflecting in response to said greater acceleration of said first element to move said rotative element axially to a position in which one of the abutment surfaces of the auxiliary member engages one of the abutment surfaces of the casing to brake the auxiliary element;

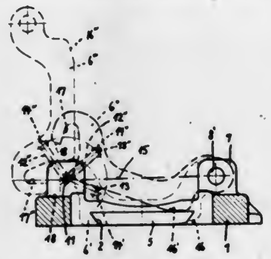
viscous material means between opposed surfaces of said rotative element and auxiliary member for driving said auxiliary member in rotation in response to rotation of the rotative element, said viscous material means permitting slow revolving of said rotative element relative to said auxiliary member with corresponding slow movement of said first element during braking of said auxiliary element.

4,271,936
CLOSURE FOR RETAINING AN INSERTABLE BRAKE LINING IN A BRAKE LINING HOLDER FOR DISK BRAKES

Wirth Xaver, Ismaning, and Schörwerth Mathias, Geretsried, both of Fed. Rep. of Germany, assignors to Knorr-Bremse GmbH, Munich, Fed. Rep. of Germany

Filed Aug. 30, 1979, Ser. No. 71,285
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1978, 2841139
Int. Cl.³ F16D 65/04
U.S. Cl. 188—244 7 Claims

1. In a lock for retaining a brake lining insertable into a brake lining support of a disk brake, brake lining support means including longitudinally extending brake lining guide means having an open end, a locking bar having first and second ends, mounting bracket means on said brake lining support means and a pin through said first end of said locking bar parallel to said brake lining guide means and received in said mounting bracket means, said locking bar being pivotable in a plane perpendicular to said brake lining guide means and into a locking position across the open end of said brake lining guide means, a locking latch on said locking bar and positionable against a face of said opening when the locking bar is in the locking position, locking bracket means on said brake lining support means and having a first bore therethrough parallel to said brake lining guide means, there being a second bore at the second end of said locking bar parallel to said brake lining



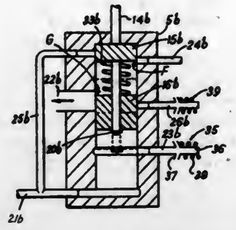
guide means and between said first bore and said first end of the locking bar, a U-shaped spring clip having a pair of substantially parallel legs with one of said legs being receivable in said first bore and the other of said legs being receivable in said second bore, said second bore at the second end of said locking bar being positioned on a locking direction side of a line extending perpendicularly between the axes of said first bore and said pin when said locking bar is in the locking position, the distance between said first and second bores when the locking bar is in the locked position being less than said distance when the locking bar is in its unlocked position such that said spring clip is stressed to exert a force in the locking direction of the locking bar when the locking bar is in the locking position and is relieved of stress when the locking bar is pivoted into the unlocking position.

4,271,937
VALVES FOR HYDRAULIC BRAKES

Donald Hatch, Whaley Bridge; Christopher R. Ellis, Chinley; Richard H. Gibbon, Chapel-en-le-Frith, and Walter R. Stirling, Buxton, all of England, assignors to Ferodo Limited, Great Britain

Continuation-in-part of Ser. No. 610,426, Sep. 4, 1975, abandoned. This application Nov. 29, 1977, Ser. No. 855,807
Claims priority, application United Kingdom, Sep. 25, 1974, 41809/74
Int. Cl.³ F16D 65/853
U.S. Cl. 188—264 F 10 Claims

1. In a hydraulically-operated friction brake of the kind comprising a casing for supporting (i) a rotatable member connectable to a vehicle propeller shaft and (ii) a retarding device which includes a pack of (a) annular friction plates drivably mounted on the rotatable member and (b) annular stator plates supported by said casing and inter-leaved with said friction plates, said pack of plates being relatively slidable axially of said rotatable member under the action of (c) hydraulically operable actuator means so as to bring said plates into contact to generate a retarding torque on said rotatable member, and including (d) means for circulating hydraulic liquid through a hydraulic circuit which includes said plates; the improvement comprising the provision of valve means operable to control the flow of hydraulic liquid to said plates so that (1) during periods of actuation of said retarding device at least a major portion of said flow is directed to said plates and (2) during periods of non-actuation of said retarding device not more than a minor portion of the flow is directed to said plates, and the volume of said hydraulic liquid contained in said brake at the maximum operating temperature thereof is less than the

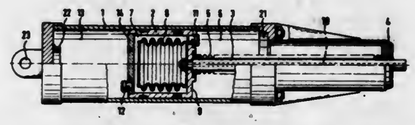


total volume of said casing including said hydraulic circuit and said actuator means, with there always being a liquid-free space within said casing so that said pack of plates will tend to empty itself of liquid into said liquid-free space during periods of non-operation of said brake.

4,271,938
HYDRAULIC SHOCK ABSORBING ARRANGEMENT FOR PIPE CONDUIT SYSTEMS

Peter W. Berger, Pforzheim, Fed. Rep. of Germany, assignor to Metallschlauch-Fabrik Pforzheim Witzenmann GmbH, Pforzheim, Fed. Rep. of Germany

Filed Apr. 27, 1978, Ser. No. 900,617
Claims priority, application Fed. Rep. of Germany, May 14, 1977, 2721890
Int. Cl.³ F16F 9/24
U.S. Cl. 188—280 3 Claims

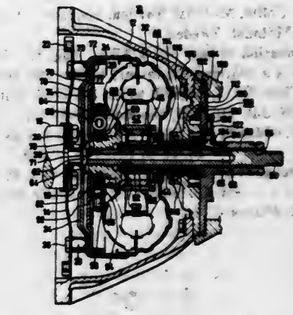


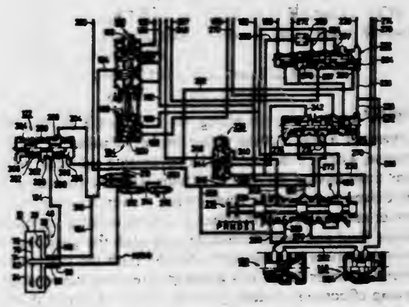
1. An hydraulic shock absorbing support for a pipe conduit system comprising: a cylinder filled with a liquid and provided at one end with a piston rod guide; a hollow piston presenting axially spaced end walls and slidably mounted in said cylinder so as to divide the interior of said cylinder into two cylinder chambers separated by said piston; a piston rod having one end connected to one end of said piston and slidable in said guide at said one end of said cylinder, the other end of said rod being arranged to be connected to a pipe of the conduit system a circularly corrugated metal sealing bellows disposed with its interior surface surrounding the outer surface of said piston rod with minimal clearance and secured in a liquid-tight manner between said one end of said piston and the surface of said guide which is located interiorly of said chamber; means for mounting said cylinder to a stationary bearing; means defining an overflow path at the interior of said piston between said cylinder chambers; normally open throttling valve assemblies communicating between each said cylinder chamber and said overflow path and each mounted in a respective piston end wall, each said assembly including a closing member mounted to undergo a closing movement in the direction opposite to a respective direction of movement of said piston during a shock absorbing stroke, under the combined action of the pressure medium in the said chamber adjacent the respective piston end wall and the mass inertia of said closing member; and an expandable compensation bellows which is disposed within said overflow path, is secured to the inner surface of said end wall at the end of said piston to which said piston rod is connected, and whose interior communicates only with the external atmosphere through an air outlet opening formed as an axial bore in said piston rod.

4,271,939
HYDRAULIC CONTROL SYSTEM FOR A HYDROKINETIC TORQUE CONVERTER

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 23, 1979, Ser. No. 5,891
Claims priority, application Japan, Sep. 5, 1978, 53-108040
Int. Cl.³ F16D 37/00
U.S. Cl. 192—3.3 9 Claims





1. A torque converter comprising

a converter cover;

a pump impeller secured to said converter cover and forming therewith a torque converter chamber;

a turbine runner within said torque converter chamber;

a clutch piston within said chamber cooperating with said converter cover to form a lock-up chamber;

a source of pressurized fluid;

a first passageway communicating with said source of pressurized fluid and with said torque converter chamber for feeding the pressurized fluid to the latter;

a second passageway communicating with said torque converter chamber for discharging the pressurized fluid from the latter;

a third passageway communicating with said lock-up chamber;

a lock-up control valve communicating with said source of pressurized fluid and with said third passageway to pressurize said third passageway with the pressure of the pressurized fluid;

said clutch piston having a lock-up position and a release position, and adapted to assume said lock-up position when the pressure in said lock-up chamber is relieved and

the pressure in said torque converter housing biases said clutch piston toward said lock up position; and

means disposed in said first passageway for ensuring the pressure prevailing in said torque converter housing is lower than the pressure which prevails in said lock-up chamber when said lock-up chamber is pressurized to bias said clutch piston toward said release position, so that said clutch piston unfailingly separates from said converter cover and moves to said release position upon pressurization of said lock-up chamber, said lower pressure ensuring means comprising a flow restrictor.

4,271,940

TWO-WAY POWER TRANSFERRING REDUCTION GEAR OF THE EPICYCLIC TYPE

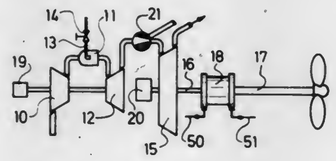
Lars T. Collin, Mölndal, Sweden, assignor to Lars Collin Consult AB, Mölndal, Sweden

Continuation of Ser. No. 829,536, Aug. 31, 1977, abandoned, which is a continuation-in-part of Ser. No. 667,341, Mar. 16, 1976, Pat. No. 4,051,679, which is a continuation of Ser. No. 595,228, Jul. 11, 1975, abandoned, which is a continuation of Ser. No. 422,845, Dec. 7, 1973, abandoned. This application May 16, 1979, Ser. No. 39,665

Claims priority, application Sweden, Dec. 8, 1972, 7216003

Int. Cl.³ B63H *23/08*; F16D *67/00*

U.S. Cl. 192—4 C **1 Claim**



1. A method for reversing the drive of a propulsion unit formed of a gas turbine prime mover capable of rotating in reverse, a driven member and a reversable epicyclic reduction gear train having drive connections with the turbine and with the driven member for transferring power between the prime mover and the driven member, the turbine being supplied with motor fluid and being connected through the gear train to the driven member in a manner whereby both the turbine and the driven member rotate in a forward direction, the method comprising effectively terminating the supply of motor fluid to the turbine, disconnecting the drive connection between the turbine and the reduction gear train, allowing the drive member and reduction gear train to rotate freely while braking the turbine and as small a part of the reversable gear as possible to at least approach a standstill condition, reversing the gear train and connecting the turbine thereto to cause the driven member, through the gear train, to rotate the turbine and said small part of the reversable gear in a reverse direction, then restoring the supply of motor fluid to the turbine thereby causing the turbine to brake fully and then to rotate in the forward direction through the gear train, causing the driven member to rotate in the reverse direction.

4,271,941

RETARDER CONTROLLED OVERRUNNING CLUTCH WITH AN AXIALLY INCLINED SLOT AND PIN

Donald L. Miller, Horseheads, N.Y., assignor to Facet Enterprises, Inc., Tulsa, Okla.

Filed Mar. 1, 1979, Ser. No. 16,585

Int. Cl.³ F16D *41/00*

U.S. Cl. 192—35 **8 Claims**

1. An overrunning clutch comprising:

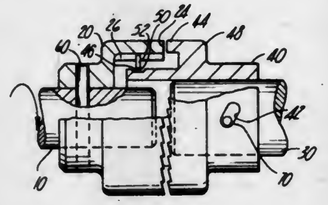
a driving shaft;

a cylindrical driving clutch member mounted coaxially with said driving shaft, said driving clutch member further being axially fixed with respect to said driving shaft, said driving clutch member further comprising first torque transmitting means formed on one end;

a driven shaft rotatably mounted in axial alignment with said driving clutch member;

a cylindrical driven clutch member slidably journalled on said driven shaft, said driven clutch member having second torque transmitting means on a lateral face thereof;

axially inclined torque transmitting means, adapted to connect said driven clutch member to said driven shaft, said axially inclined torque transmitting means moving said second torque transmitting means on said driven clutch member into and out of engagement with said first torque transmitting means on said driving clutch member for rotating said driven and driving clutch members; and



spring retarder means, mounted on said driven clutch member and adapted to engage said driving clutch member, said spring retarder means axially and rotatably moving said driven clutch member into engagement with said driving clutch member when said driving clutch member rotates at a relative speed faster than said driven clutch member, said spring retarder means further moving said driven clutch member out of engagement with said driving clutch member when said driven clutch member rotates at a relative speed faster than said driving clutch member, said spring retarder means further comprising a spring member engaging said driven clutch member and said driving clutch member.

4,271,942

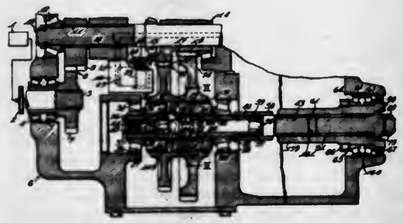
TWO-SPEED POWER TAKE-OFF

Gerardus M. Ballendux, Waukesha, Wis., assignor to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Oct. 2, 1978, Ser. No. 947,872

Int. Cl.³ F16D *21/04*

U.S. Cl. 192—48.91 **12 Claims**



1. A two-speed power take-off assembly comprising, a first and a second drive gear rotating on a common axis and driven at a high and low speed respectively, clutch teeth defined by each of said gears, a clutch collar slidably mounted for reciprocating on said common axis defining cammed surfaces, mating clutch teeth defined by said clutch collar for selectively engaging the clutch teeth on said gears, a cammed shaft rotatably and slidably mounted on said common axis and defining first and second cammed surfaces, first and second sets of clutch shifting elements mounted between and engaging said cammed surfaces on said cammed shaft and said cammed surfaces on said clutch collar, resilient means biasing said cammed shaft in one direction, an output shaft selectively biasing said cammed shaft against the force of said resilient means to selected positions for selectively and alternatively clutching of said first and second gears, said cammed surface on said cammed shaft selectively biasing said first and second sets of clutch shifting elements radially to reciprocate and clutch said clutch collar in selective engagement with each of said gears.

4,271,943

BLOCKING SYNCHRONIZATION DEVICE FOR GEAR-TYPE CHANGE-SPEED TRANSMISSIONS

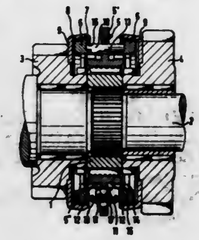
Gyösö Kuzma, Dachau, Fed. Rep. of Germany, assignor to Bayerische Motoren Werke A.G., Munich, Fed. Rep. of Germany

Filed Nov. 29, 1978, Ser. No. 964,457

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1977, 2754382

Int. Cl.³ F16D *23/08*

U.S. Cl. 192—53 F **2 Claims**



1. A blocking synchronization device for gear-type change-speed transmissions, comprising sleeve carrier means, shifting sleeve means non-rotatably but displaceably arranged on the sleeve carrier means for the connection with a gear to be engaged, two friction ring means having outer conical friction surfaces and arranged on both sides of the shifting sleeve means, spacer bolt means extending through the shifting sleeve means for holding the friction ring means at a mutual spacing and for centering the same, elastically yielding means for holding said friction ring means in a central starting position relative to the shifting sleeve means, and blocking means including inwardly directed blocking elements at the friction ring means as also blocking elements on the outside of the shifting sleeve means, characterized in that the blocking elements of the friction ring means and of the shifting sleeve means are toothed means, in that spacer bolt means engage in axial recesses of the friction ring means and in that the friction ring means are stressed axially against the spacer bolt means by drawsprings.

4,271,944

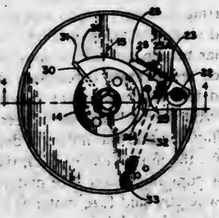
SINGLE REVOLUTION TORQUE LIMITING CLUTCH

Douglas R. Hanson, 1720 - 9th Ave. South, Anoka, Minn. 55303

Filed Feb. 12, 1979, Ser. No. 11,393

Int. Cl.³ F16D *7/00*, *27/01*

U.S. Cl. 192—56 L **13 Claims**



1. An indexing overload torque release clutch comprising a rotatable driving member, a rotatable driven member co-axially mounted with said driving member, one of said members comprising a hub rotatably mounted with respect to the other of said members, said hub having an outwardly facing surface generated around said axis comprising a cam surface extending from a first position spaced radially outwardly from said axis a first distance at a first location substantially greater than the radial spacing of said cam surface from said axis at a second location annularly spaced from said first location, a drive surface on said hub generally parallel to the axis and joining the cam surface at said first location and extending inwardly toward said axis, said other member comprising a support extending outwardly from said axis farther than the radial spacing of the cam surface, a pivot member mounted on said support and having a portion extending to engage said drive surface on said hub with the pivot member in a first drive position, magnet means acting to create a magnetic force between said pivot member and said drive surface, and resilient means tending to urge said pivot member to its first drive position, said driven member causing said drive surface and said pivot member to engage and transmit torque to said drive member through the action of said resilient means and said magnet means, and upon exceeding a predetermined amount of torque said magnet means releasing and said pivot member pivoting against the action of said resilient means to a second release position about its pivot to permit the hub to rotate past said pivot member, said resilient means being operable for reset to urge said pivot member against said cam surface to thereby tend to urge said hub to continue to rotate under cam action until the pivot member and drive surface engage.

4,271,945

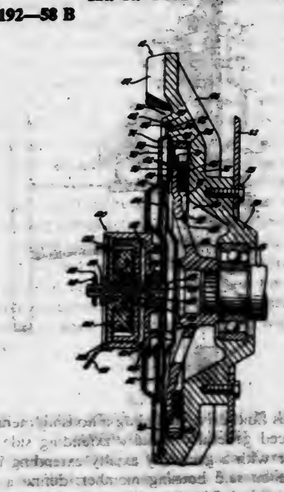
ELECTRICALLY ACTUATED VISCOUS FAN CLUTCH

John A. Budinski, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Jan. 5, 1978, Ser. No. 912,426

Int. Cl.³ F16D *35/00*

U.S. Cl. 192—58 B **2 Claims**



1. In a viscous fluid clutch including a rotatable drive shaft, driven means including a rotatable outer casing and a divider plate mounted in said casing for rotation therewith, said divider plate separating the space within said casing into a fluid reservoir chamber and an operating chamber, a clutch plate mounted on said shaft within said operating chamber for rotation with said drive shaft, opposed clutch surfaces on said clutch plate and said casing disposed in close face-to-face and spaced relationship, inlet and outlet ports formed in said divider plate, pump means carried by said divider plate and in said operating

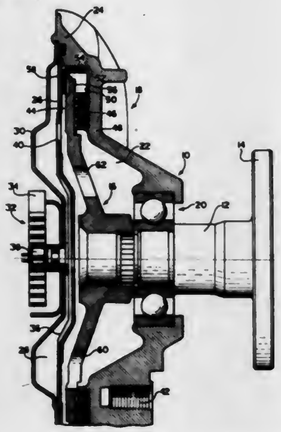
chamber for displacing a fluid medium from said operating chamber through said outlet port to said reservoir chamber, and a valve member operatively connected to said divider plate for rotation therewith for opening and closing said inlet port and thereby effecting selective communication of said fluid medium from said reservoir chamber to said operating chamber for filling the spaces between said shear surfaces to create a fluid drive coupling between said casing and said clutch plate, the improvement comprising electromagnetic means mounted exteriorly of said casing for controlling the opening and closing of said inlet port by said valve member, said electromagnetic means including bearing means mounted on said casing, a stationary electromagnetic coil housing mounted on said bearing means, an electrically energizable electromagnetic coil mounted in said coil housing, a shaft slidably and rotatably mounted relative to said coil along the axis of said coil and coil housing and extending through an opening formed in said casing into said reservoir chamber, an armature secured to said shaft movably mounted within said coil housing adjacent said coil for longitudinally sliding said shaft when said coil is energized, said valve member being directly and non-rotatably secured to the end of said shaft for axial movement therewith away from said inlet port upon energization of said coil, and spring means operatively connected to said valve member for urging said valve member toward said divider plate to close said inlet port upon deenergization of said coil.

4,271,946

PUMPING ELEMENT FOR TEMPERATURE RESPONSIVE VISCOUS FAN DRIVE

Erland T. Bridge, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 17, 1979, Ser. No. 4,095
Int. Cl.³ F16D *35/00, 43/25*
U.S. Cl. 192—58 B 9 Claims



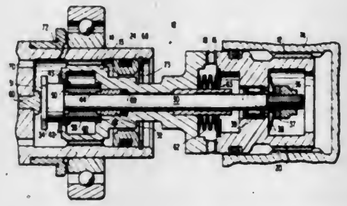
1. In a viscous fluid drive including a housing member having axially spaced generally radially extending side surfaces which, together with a generally axially extending inner peripheral surface on said housing member, define a working chamber, a reservoir defined by said housing member adjacent said working chamber, a clutch member located within said working chamber and having a pair of axially spaced generally radially extending side surfaces axially spaced from said radially extending side surfaces of said housing member and an outer generally axially extending peripheral surface spaced from said inner peripheral surface of said housing member, viscous fluid within said working chamber and said reservoir, an input shaft rotatably secured to one of said members and rotatably supporting said other member, an outlet opening having a front edge closest to the direction of fluid movement during operation of said drive and located in said housing member in the radial area of said peripheral surfaces for communicating fluid from said working chamber to said reservoir, an inlet opening in said housing member for communicating fluid from said reservoir to said working chamber, and condition responsive valve means to direct fluid between said reservoir and said working chamber through one of said openings, the improvement comprising a pump secured to said housing member and having a radially extending portion which is adjacent said outlet opening, projects axially toward said adjacent clutch side surface, and has a front edge which is substantially aligned with the rear edge of said outlet opening; and an axially extending portion circumferentially aligned with said radially extending portion, projecting radially a distance between said peripheral surfaces, and extending axially a distance between said side surfaces of said housing member to impinge fluid flowing between said peripheral surfaces and thereby direct said impinged fluid radially inwardly along said adjacent side surfaces of said members into contact at one side with said front edge of said radially extending portion and into said outlet opening.

4,271,947

THERMAL FUZE MECHANICAL DISCONNECT EUTECTIC CONTAINMENT

Fred J. Gaeckle, Erie, Pa., assignor to General Electric Company, Wilmington, Mass.

Filed Nov. 13, 1978, Ser. No. 960,023
Int. Cl.³ F16D *11/00*
U.S. Cl. 192—82 T 6 Claims



1. In a torque disconnect means having a first means for connecting to a torque supply, second means for connecting to torque receiving means, third means for providing oil lubrication between said second means and said torque receiving means, fourth means for connecting and disconnecting said first and second means in torque transmitting relationship, said fourth means including bias means, tending to force said first and second means to disconnect positions and a thermal fuze loaded in compression by said bias means, said thermal fuze including a body having opposite, parallel abutment faces to which said bias means apply the compressive load, said thermal fuze body being constructed of fuze material which remains solid up to a predetermined temperature and a plurality of columnar supporting members which extend perpendicular to and between said abutment faces, whereby said fuze material prevents columnar bending of said supporting members until the predetermined temperature is reached, at which time the compressive load fails said supporting members in columnar bending so that said thermal fuze no longer resists said bias means, thereby allowing said bias means to disconnect said first and second means, the improvement comprising:

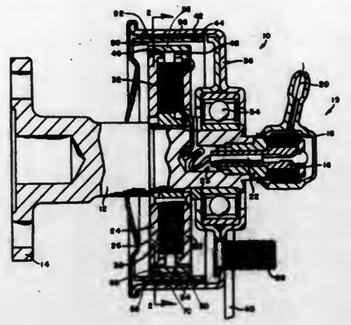
fifth means for containing said fuze material within a confined area, whereby said fuze material is prevented from contaminating said oil lubrication between said second means and said torque receiving means.

4,271,948

CLUTCH HAVING SEGMENTED BAND

Kwang Yew, Chatham, Canada, assignor to Canadian Fram Limited, Chatham, Canada

Filed Mar. 16, 1979, Ser. No. 21,041
Int. Cl.³ F16D *11/00*
U.S. Cl. 192—84 T 10 Claims



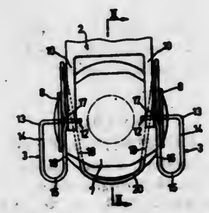
1. In a clutch, a pair of coaxial, relatively rotatable members comprising a driving member and a driven member, a band wrapped around one of said members, and electromagnetic means carried by said one member for urging said band into driving engagement with said one member, said relatively rotatable members having radially offset portions extending therefrom defining a gap therebetween, said band being located in said gap and having relatively movable inner and outer band members, one of said band members engaging the corresponding radially offset portion extending from said one relatively rotatable member when the clutch is engaged, the other band member carrying a friction surface frictionally engaging the other relatively rotatable member to establish a driving connection therewith when the clutch is engaged, said one band member comprising at least a pair of circumferentially spaced arcuate segments and a joining segment interconnecting the arcuate segments.

4,271,949

CLUTCH THRUST BEARING DEVICE

Jean P. Guerton, Maisons Alfort, and Francis Regazzoni, Paris, both of France, assignors to S.K.F. Compagnie d'Applications Mecaniques, Clamart, France

Filed Nov. 27, 1978, Ser. No. 964,007
Claims priority, application France, Dec. 2, 1977, 77 36374; Jun. 30, 1978, 78 19736
Int. Cl.³ F16D *19/00*
U.S. Cl. 192—98 12 Claims



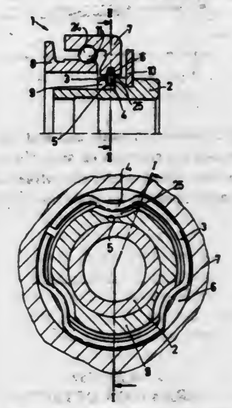
1. A clutch thrust bearing device comprising a rolling bearing provided with inner and outer races, said inner race having a radial flange, a clutch release fork having two branches connected to said rolling bearing for moving said rolling bearing axially, said fork and said bearing being capable of lateral movement relative to each other, and a unitary spring engaged with said inner race, said spring having two fork-contacting portions bearing laterally against said branches to move said fork elastically to a position which is centered relative to said rolling bearing.

4,271,950

CLUTCH MOUNTING AND ACTUATING DEVICE

Dieter Kolb, Kissingen, and Karl Müller, Poppenhausen, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jan. 25, 1979, Ser. No. 6,496
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1978, 2805045
Int. Cl.³ F16D *23/14*
U.S. Cl. 192—98 21 Claims



1. In a clutch mechanism, particularly for motor vehicles, including a roller bearing assembly composed of a rotating member, a nonrotative member and roller bodies operatively interposed therebetween, clutch releasing means operatively associated with said rotating member, a guide element having said roller bearing assembly mounted in operative association therewith and clutch control means adapted to effect clutch actuating movement of said guide element, the improvement comprising connecting means interposed between said guide element and said nonrotative member for transmitting clutch actuating forces therebetween, said connecting means being configured to maintain said guide element and said nonrotative member rotatively fixed relative to each other while simultaneously allowing radial relative movement therebetween, said connecting means comprising a resilient annular member having first and second portions radially and circumferentially displaced relative to each other, said first portions being in fixed rotative engagement with said guide element, said second portions being in fixed rotative engagement with said stationary member.

4,271,951

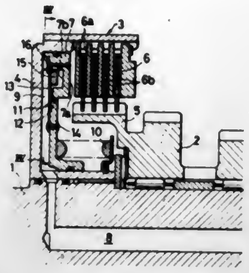
CHECK VALVE APPARATUS FOR OIL PRESSURE OPERATED CLUTCH

Sadanori Nishimura, Omiya; Yoji Yamada, Kawagoe; Takeyuki Shimizu, Kamifukuoka, and Masaru Yamashita, Higashimatsuyama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 30, 1979, Ser. No. 7,915
Claims priority, application Japan, Feb. 1, 1978, 53-9381; Feb. 14, 1978, 53-14091; Feb. 28, 1978, 53-21583
Int. Cl.³ F16D *23/10*
U.S. Cl. 192—106 F 12 Claims

1. A relief valve apparatus for an oil pressure operated clutch having an oil pressure operation chamber, said clutch effecting engagement and disengagement between a driving shaft and a driven shaft, said apparatus comprising:

a wall of said chamber having a leak opening;
a leaf spring overlying the leak opening for opening and closing the leak opening; and

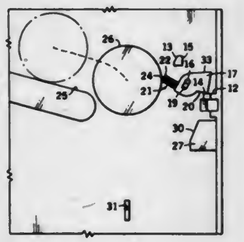


a weight in combination with said leaf spring wherein said weight is, during rotation of said clutch, subjected to a centrifugal force and, under the influence thereof, supplements a valve opening force of the spring itself.

4,271,952
SERRATION DETECTOR

Edward L. Heim, Florissant, Mo., assignor to Coin Acceptors, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 848,586, Nov. 4, 1977, Pat. No. 4,143,750. This application Apr. 3, 1978, Ser. No. 892,778
The portion of the term of this patent subsequent to Mar. 13, 1996, has been disclaimed.
Int. Cl.³ G07F 3/02, 3/04
U.S. Cl. 194—97 R 4 Claims

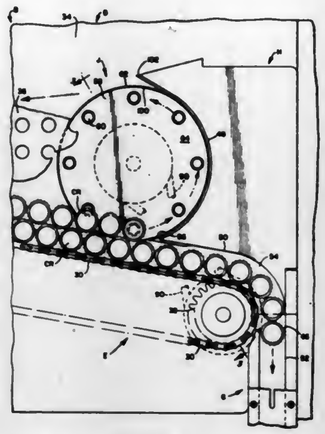


1. A serration detector in a selector assembly for serrated and non-serrated coins in a coin acceptor and located downstream of a rail on a support which directs a coin in a predetermined trajectory, the serration detector comprising:
(a) a pivotally mounted body, and
(b) a coil spring having one end attached to the body, the opposite end being provided by a coil disposed transversely to and engaging the edge of a coin moving in the predetermined trajectory, the end coil includes a portion transverse to the longitudinal axis of the coil spring engaging the serrations of a serrated coin to rotate the spring in one direction to change the trajectory and direct the serrated coin into one path, and engaging a substantially non-serrated coin to rotate the spring in the opposite direction and permit movement of the non-serrated coin in another path.

4,271,953
AUTOMATIC FEEDING HOPPER EMPLOYING AN ANTI-JAMMING MECHANISM

Donald C. Smith, Pottsville, Pa., assignor to Zapata Industries, Inc., Frackville, Pa.

Filed Sep. 11, 1978, Ser. No. 941,365
Int. Cl.³ B65G 1/02
U.S. Cl. 198—347 11 Claims



1. In apparatus for feeding disk-like objects, the apparatus including a reservoir for storing the disk-like objects, the reservoir being dimensioned to receive a plurality of substantially horizontal rows of disk-like objects in a substantially vertical plane, a conveyor adjoining the reservoir for engagement with a substantial portion of the lowermost row of objects in the reservoir and for removing the disk-like objects from the reservoir, the disk-like objects being caused by gravity to engage the conveyor, means for driving the conveyor, an exit chute adjacent the conveyor to receive the disk-like objects in a single row, and a deflecting member positioned in the reservoir near the entrance to the exit chute to maintain the flow of disk-like objects in a single row from the conveyor into the exit chute, the deflecting member having an upper concave surface intersected by a lower curved surface leading into a side of the exit chute, the surfaces meeting at an edge located a distance above the surface of the conveyor slightly more than the diameter of a disk-like object, the improvement comprising magnetic means positioned with respect to the reservoir and related to the deflecting member and the conveyor for removing disk-like objects above said lowermost row of objects, and means for moving the magnetic means along a path adjacent to a portion of said upper concave surface in order to generate a centrifugal force sufficient to cause the disk-like objects attracted by said magnetic means to be ejected by said centrifugal force out into the reservoir when the disk-like objects pass the end of said upper concave surface.

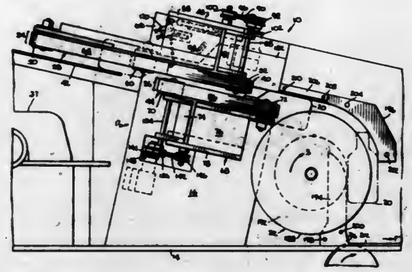
4,271,954
BOTTLE ORIENTING APPARATUS

Garrison Gosney, Stamford, Conn., assignor to New England Machinery, Inc., South Norwalk, Conn.

Filed Apr. 3, 1979, Ser. No. 26,563
Int. Cl.³ B65G 47/24
U.S. Cl. 198—399 38 Claims

1. An apparatus for moving unfilled open bottles in a first general direction and orienting said moving bottles from a first random open-end leading disposition with respect to said first direction, to an open-end trailing position with respect to said first direction and maintaining the orientation of unfilled moving bottles in a second random open-end trailing disposition with respect to said first direction comprising,

(a) means for initially dispensing said bottles in sequential order at a first predetermined rate of speed, in a tipped over position, in said first random open-end trailing disposition or said second random open-end leading disposition,
(b) first transport means for receiving and moving said initially dispensed bottles in said first and second random dispositions at a second predetermined rate of speed, said first transport means comprising a first pair of spaced endless movable belts confrontingly spaced apart a first predetermined distance,
(c) second transport means for receiving each of said bottles from said first transport means and moving each of said bottles at a third predetermined rate of speed for further



dispensation thereof, said second transport means comprising a second pair of spaced endless movable belts confrontingly spaced apart a second predetermined distance, said second pair of spaced endless belts being stepped below said first pair of spaced endless belts, and
(d) means for distinguishing between said first and second random dispositions while said bottles are moving from said first transport means to said second transport means, said distinguishing means including means for maintaining the second random disposition of said bottles and converting said first random disposition of said bottles to open-end trailing position such that all bottles dispensed by said second transport means are in said open-end trailing disposition.

4,271,955
CASSETTE CORRELATOR

Richard G. Berube, Marlborough, Mass., assignor to King Instrument Corporation, Westboro, Mass.

Filed Oct. 26, 1979, Ser. No. 88,339
Int. Cl.³ B65G 47/24
U.S. Cl. 198—460 16 Claims

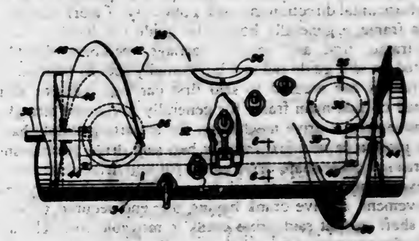


12. Apparatus for use in transporting and uniformly orienting cassettes of the type having a first relatively thick side section and a second opposite relatively thin side section, said apparatus comprising:
means for transporting cassettes so that said first and second side sections are disposed in a selected plane as they are being transported; and
cassette orienting means for (a) receiving cassettes from said transporting means at a first predetermined location, (b) orienting said cassettes so that they are oriented identically, and (c) directing said identically oriented cassettes to a second predetermined location, said cassette orienting means comprising a chute for receiving cassettes at said first predetermined location and discharging the same cassettes at said second predetermined location, first means deployed about said upper end of said chute adjacent said first location and defining a channel disposed in the path of cassettes conveyed by said transporting means, said channel being sized to accommodate the second relatively thin side section of a cassette but not the first relatively thick side section of a cassette, and second means deployed about said upper end of said chute adjacent said first location and spaced from said channel and adapted to act as a support and pivot for cassettes disposed so that their second relatively thick side sections are adjacent to but spaced from said channel, said second means being located so as to be spaced from the first relatively thick side section of a cassette having its second relatively thin side section located in said channel, whereby a cassette having its relatively thin section supported by said second means can pivot by gravity about said second means and a cassette having its second relatively thin section disposed in said channel can pivot by gravity about said first means, in order that said cassettes will emerge from said chute so that said first relatively thick sections of said cassettes lead said second relatively thin sections of said cassettes as said cassettes advance to said second predetermined location.

4,271,956
FINGER CONSTRUCTION FOR A COMBINE PLATFORM AUGER

Eugene B. Hutchinson, East Moline, and James M. Van Antwerker, Coal Valley, both of Ill., assignors to Deere & Company, Moline, Ill.

Filed Dec. 17, 1979, Ser. No. 103,985
Int. Cl.³ B65G 25/08
U.S. Cl. 198—613 5 Claims



1. In a rotatable conveying element, such as a portion of the platform auger of a gathering platform for a mobile harvester, including a hollow drum portion with a wall having a plurality of guide apertures and at least one aperture for access to the interior of the drum and a fixed finger crankshaft mounted inside the drum, the axis of the shaft being parallel and eccentric to the axis of the drum, an improved bearing arrangement accessible through the access aperture, for journalling on the shaft and carrying an elongated conveyor finger, the finger extending through one of the guide apertures so that as the conveying element rotates, the finger rotates about the shaft and alternately extends outwards and retracts with respect to the outer surface of the drum wall, comprising:

first and second bearing halves each half having:

a bearing portion having an inner semi-cylindrical bearing surface such that the first and second halves may be mated at an approximately diametric plane to define a cylindrical bore for journaling on the shaft;

a finger retaining portion extending from the bearing portion in a direction generally perpendicular to the axis of the bearing surface and approximately parallel to the diametric plane, at least one of the bearing halves including means for retaining an end of a finger between a pair of mating halves so that the finger extends generally radially with respect to the bearing surface;

a hinge portion extending from the bearing portion adjacent the bearing surface approximately diametrically opposite the finger retaining portion, each hinge portion including a hinge bore parallel to the axis of the bearing surface and disposed so that when the bearing halves are mated, the hinge bores of the respective first and second halves are co-axial;

a hinge pin for entering the hinge bores when the bearing halves are mated so that they are pivotably coupled together; and

means for holding the finger retaining portions of the first and second bearing halves together, so that a finger engaged by them is retained and so that as the conveying element is rotated the finger and bearing halves are rotated together as a unit about the finger crankshaft.

4,271,957

MECHANICAL TRANSFER BAR DRIVE ASSEMBLY

Robert L. Osborne, Mount Clemens, Mich., assignor to LaSalle Machine Tool, Inc., Troy, Mich.

Filed Sep. 12, 1979, Ser. No. 74,902
Int. Cl.³ B65G 25/12
U.S. Cl. 198—737 **3 Claims**



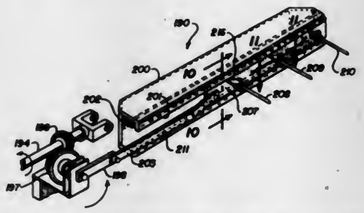
1. In a transfer mechanism for moving workpieces in a generally horizontal direction through a plurality of work stations, a main frame, a generally horizontal guide rail fixed on said main frame, first and second carriage members slidably mounted on said guide rail in a horizontally spaced relation, a first transfer bar secured to said first carriage member and mounted on said main frame for generally horizontal straight line movement, a drive mechanism for imparting simple harmonic motion to said first transfer bar, said drive mechanism comprising a drive shaft, drive means for said drive shaft operable to continuously rotate said drive shaft through full cycles of movement, a drive crank having one end secured to said drive shaft so that said drive crank is movable through full cycles of movement, a drive link pivotally mounted intermediate its ends on the other end of said drive crank, means pivotally connecting one end of said drive link to said first carriage member, coacting means on said frame and the opposite end of said drive link assuring continuous movement of said first transfer bar in one direction in response to predetermined half cycle movement of said drive crank, a second transfer bar arranged in a generally parallel side-by-side relation with said first transfer bar, said second transfer bar being secured to said second carriage member and mounted on said main frame for generally horizontal straight line movement parallel to said first transfer bar, and link means pivotally connected at one end to said drive crank and at the opposite end to said second carriage member operable to provide for movement of said second transfer bar concurrently with said continuous movement of said first transfer bar, said link means being arranged so that said transfer bars are moved through different distances in response to said predetermined half cycle of movement of said drive crank.

4,271,958

SHUTTLE CROSS CONVEYOR

H. Berton Stringfellow, Fresno, Calif., assignor to Sperry Corporation, New Holland, Pa.

Filed Aug. 8, 1979, Ser. No. 64,930
Int. Cl.³ B65G 25/10
U.S. Cl. 198—742 **8 Claims**



1. In an apparatus for transferring a bale of crop material along a predetermined path from one location to another, the bale having a bottom surface and first and second opposing sides adjacent thereto, said apparatus including an elongate support means for the bottom surface of the bale, an elongate guide means for the first side of the bale, said guide means being generally adjacent said support means, and means for engaging the second side of the bale and moving same along said support means and said guide means, the improvement wherein said means for engaging and moving comprises:

a bracket member extending substantially parallel to said predetermined path;

an elongate tine support movably affixed to said bracket member for linear movement along a line substantially parallel to said predetermined path;

a plurality of elongate tines each having a tine body with a primary axis parallel to the length thereof;

mounting means affixing said tines in linearly spaced relationship to each other to said tine support such that they extend generally towards said guide means, said mounting means permitting said tines to pivot in at least two planes relative to said tine support, said tines being operable to confer movement to the bale in directions corresponding to said at least two planes of movement of said tines and to penetrate the bale intermediate its length and to urge said bale toward said guide means; and

power means connected to said tine support for moving same reciprocably along said line, whereby a bale is engaged by said tines and moved in a succession of steps along said predetermined path.

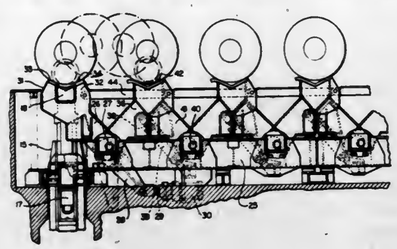
4,271,959

COIL ROTATING COOLING CONVEYOR SYSTEM

Werner W. Elbe, McCandless Township, Allegheny County, Pa., assignor to Blaw-Knox Foundry & Mill Machinery, Inc., Pittsburgh, Pa.

Filed Dec. 26, 1978, Ser. No. 972,903
Int. Cl.³ B65G 25/00
U.S. Cl. 198—777 **13 Claims**

1. A walking beam type coil conveyor for conveying hot coils of strip in the eye horizontal position along intersecting arcuate path segments normal to the coil axes comprising a plurality of first coil transfer members and a plurality of second coil transfer members, said members being pivotally positioned along the conveyor, each first member and downstream second member being pivoted about the same axis, each member having a coil supporting platform at its free end, first motive means attached to said first coil transfer membes and second motive means attached to said second coil transfer members, said first and second motive means causing said first and second coil transfer members to swing toward and away from each other through said arcuate path segments so as to transfer coils from said first coil transfer members to downstream



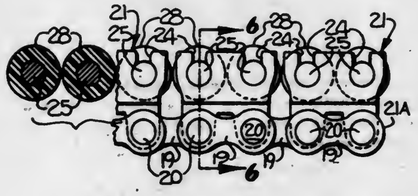
second coil transfer members in areas of path segments intermediate their intersections with adjoining path segments and to transfer coils from said second coil transfer members to downstream first coil transfer members at intersections of said path segments, whereby during at least some of said transfers coils are caused to rotate about their axes but without rolling.

4,271,960

CONVEYORS AND CHAIN

Charles Chalich, Salisbury, N.C., assignor to Taylor Manufacturing Company, Salisbury, N.C.

Continuation-in-part of Ser. No. 961,999, Nov. 20, 1978, abandoned. This application Nov. 19, 1979, Ser. No. 95,328
Int. Cl.³ B65G 17/24
U.S. Cl. 198—779 **9 Claims**



1. A low contact pressure conveyor for packages such as containers and comprising

a pair of conveyor chains, each having

a plurality of elongate, plate links,

a plurality of pins each penetrating terminal end portions of two pairs of said links for chaining said links into first and second spaced apart side length portions,

said links and said pins cooperating for bearing tensile stress imposed on said chain,

said pins defining a pitch line for said chain, and

a plurality of plastic spacer means, each penetrated by two of said pins, each having a pair of sleeve portions for enclosing respective pins and cooperating with said pins and links penetrated thereby for spacing said side length portions, and each having a carrier portion projecting laterally from said chain intermediate said side length portions and defining clips means for receiving and gripping a rod-like object to be moved with said chain,

said clip means defining a supporting surface line spaced at a predetermined distance from said pitch line of said chain,

sprocket means mounting said chains for movement along parallel, spaced apart endless paths of travel defining a horizontal upper run,

a plurality of elongate axles each spanning said endless paths of travel and having terminal end portions gripped by a spaced pair of said clip means, said axles being arranged in a parallel array defining a horizontal supporting surface and movable with said chains,

roller means encircling said axles for supporting packages to be conveyed by movement of said chains and rotatable relative to said axles for accommodating movement thereof beneath supported packages in the event of blockage of movement of such packages, said roller means having a predetermined radius no more than said predetermined distance between said pitch line and said supporting surface line for maintaining free rotatability, and

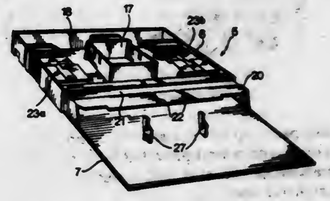
drive means operatively connected with said sprocket means for driving said chains in coordinated movement for conveying supported packages while maintaining alignment of said axles.

4,271,961

BOX FOR TOOLS AND ACCESSORIES FOR TAPE CASSETTES, ESPECIALLY FOR MAGNETIC TAPE CASSETTES

Anton Blankenmeister, Boehl-Iggelheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 74,142
Claims priority, application Fed. Rep. of Germany, Sep. 18, 1978, 7827773[U]
Int. Cl.³ B65D 85/00, 77/00, 85/67
U.S. Cl. 206—216 **8 Claims**



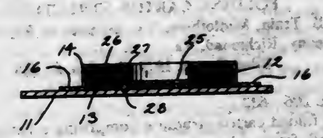
1. A box for tools and accessories for tape cassettes, especially for magnetic tape cassettes, intended for compatibility with a cassette filing system for cassettes in filing boxes, the box being substantially right parallelepipedal in shape and being provided with at least one compartment for tape material, a cutting tool and a splicing member, and small components employed in a tape cassette, wherein the box is at least of a size matching that of a tape cassette and can therefore be filed in the filing system, and contains as splicing member a splicing plate for the magnetic tape, as well as holding means for the tape cassette to be processed.

4,271,962

TAPE DISPENSER PACKAGE WITH ROLL RESTRAINING FRICTION DISC

Eugene R. Stepanski, Brown Deer, Wis., assignor to W. H. Brady Co., Milwaukee, Wis.

Filed Nov. 15, 1979, Ser. No. 94,681
Int. Cl.³ B65D 85/672; B65H 75/02, 77/00
U.S. Cl. 206—411 **2 Claims**

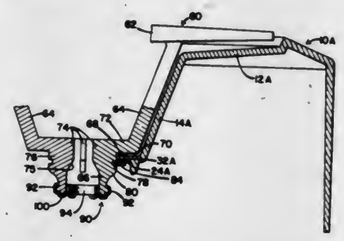


1. In a tape package of the type comprising

(a) a base member, (b) a formed cover element having a housing portion, an exit section and a peripheral flange joined to the base member, and (c) a roll of adhesive tape

carried in the housing portion with part of the tape unwound from the roll and extending through the exit section of the cover element,
the improvement wherein:
(1) the housing portion of the cover element has a top wall spaced from a bottom wall, and a vertical wall connecting the top and bottom walls, and
(2) a friction disc of compressible felt, plastic foam or paper attached to the base member and arranged to engage an end surface of the roll of tape to apply restraining force thereaginst as the roll rotates upon removal of tape from the package.

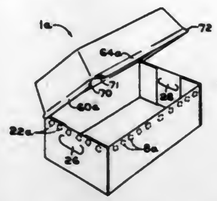
4,271,963
DISK PACK HANDLE MECHANISM
David E. Butz, Littleton, Mass., assignor to Data Packaging Corporation, Cambridge, Mass.
Filed Jun. 8, 1979, Ser. No. 46,636
Int. Cl.³ B65D 85/02
U.S. Cl. 206—444 8 Claims



1. A disk pack top cover assembly comprising:
a top cover with a well provided in its center for receiving a rotatable handle, said well including a bottom wall and a peripheral side wall,
a handle disposed in the well and having a gripping bar disposed adjacent the top of the well,
a circular opening in the well bottom and an annular collar formed as an integral part of the handle and extending through the opening,
a shoulder formed on the handle above the collar to support the handle on the upper surface of the bottom wall of the well,
a cap over the lower end of the collar and extending upwardly on both the inside and outside of the collar,
an upwardly facing shoulder formed on the portion of the cap extending into the collar for engaging the locking bearings of a spindle on the disk pack bottom cover,
a plurality of axially extending pins formed on the lower end of the cap for engaging the spindle of the bottom cover so that rotation of the handle will turn the spindle to enable it to be screwed onto the disk pack drive,
and a washer engaging the collar and bearing against the bottom surface of the well bottom wall to retain the handle in place on the cover.

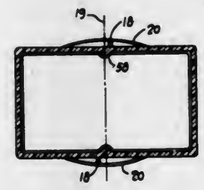
4,271,964
FOLDING CARTON STRUCTURE
David B. Train, Midlothian, Va., assignor to Reynolds Metals Company, Richmond, Va.
Filed Oct. 2, 1979, Ser. No. 81,166
Int. Cl.³ B65D 5/46, 5/54
U.S. Cl. 206—633 7 Claims

1. A folded carton structure comprising a rectangular bottom wall; front, side and rear walls perpendicular to said bottom wall; said side walls each including a handle means, said handle means each being hingedly attached along a hinge line at an upper portion thereof to one of said side walls; a rectangular top wall of lesser length and width dimensions than said bottom wall; generally trapezoidal front, rear and side connecting walls descending from said top wall, said rear connecting wall being hingedly connected to said rear wall; and opening panels connected to said front and said side connecting



walls, said side opening panels having bottom edges thereof substantially colinear with said hinge lines of said handle means to thereby reinforce said handle means.

4,271,965
CONTAINER FOR FILM PROCESSING CHEMICALS
Michael I. Brambley, Mount Laurel; Herbert J. Myers, Maple Shade, and Januario R. Rios, Jr., Cherry Hill, all of N.J., assignors to Picker Chemicals Inc., Cherry Hill, N.J.
Filed Jul. 28, 1978, Ser. No. 929,174
Int. Cl.³ B65D 25/08
U.S. Cl. 206—219 8 Claims

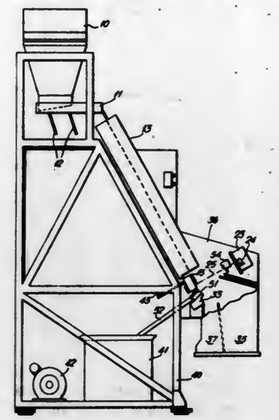


1. A container system for supplying chemicals to film processing mechanisms, comprising first and second composite containers, the first composite container including a large bottle and two smaller bottles attached to it, the three bottles shaped such that when the bottles are interconnected the exterior shape of the container approximates a rectangular prism, the second composite container including a large bottle and a smaller bottle adapted to be interconnected, the two bottles shaped such that when the bottles are interconnected the exterior shape of the container approximates at least the major portion of a rectangular prism, the containers including means for discriminating therebetween, the discriminating means comprising an exterior dimension of the first composite container which is greater than a corresponding exterior dimension of the second composite container and a groove with at least one open end formed in one surface of the first composite container, the groove being adapted to receive a projection when the container is inserted into a receiving cavity.

4,271,966
SORTING MACHINE
Kenneth H. Crowley, Northfleet, England, assignor to Gunson's Sortex Limited, London, England
Filed Jan. 11, 1979, Ser. No. 2,864
Claims priority, application United Kingdom, Jan. 11, 1978, 1069/78
Int. Cl.³ B07C 5/00
U.S. Cl. 209—576 13 Claims

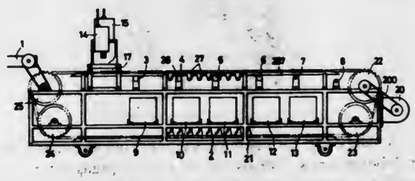
1. A sorting machine having a member a part of which has a translucent viewing area; means for passing material to be sorted adjacent to but spaced from a surface of said translucent viewing area, said surface being inclined to the horizontal so

that the material may pass thereover under gravity; viewing means for viewing light or other electromagnetic radiation passing through the translucent viewing area; ejector means, controlled by said viewing means, for separating desired and undesired material; and means for directing over said surface a



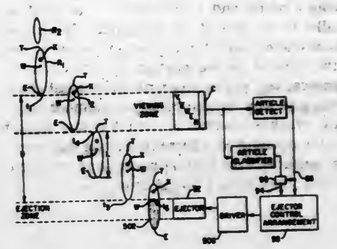
film of washing liquid which thereafter passes by surface tension to a liquid removal zone which is located on a downwardly facing surface of said member, the liquid removal zone being disposed in a position in which the ejector means does not cause the material to be wetted by the liquid.

4,271,967
SYSTEM FOR SORTING ELONGATED MEMBERS
Osamu Matsuo; Keijiro Nakamura, and Toshimi Kodaira, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan
Filed Feb. 28, 1979, Ser. No. 16,692
Claims priority, application Japan, Mar. 1, 1978, 53-23215; Mar. 1, 1978, 53-23216
Int. Cl.³ B07C 5/04
U.S. Cl. 209—558 38 Claims



1. A method for sorting elongated pieces having a stem and a spike portion at one end comprising the steps of:
successively conveying said elongated pieces on conveyer means to a detection station;
detecting the outline of each of said elongated pieces as a still image by a sensor;
generating and processing signals from said still image to measure and determine, the length of said elongated member, the diameter of the stem of said elongated member and a ratio of the spike maximum diameter to the stem diameter; and
selectively comparing the determined parameters with predetermined reference values, and sorting said elongated pieces according to size.

4,271,968
EJECTOR DWELL CONTROLLER FOR A SORTING APPARATUS
Thomas O. Mehrkam, and James F. Lockett, both of Houston, Tex., assignors to Geosource Inc., Houston, Tex.
Filed May 5, 1978, Ser. No. 903,898
Int. Cl.³ B07C 5/342
U.S. Cl. 209—564 14 Claims



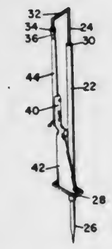
1. In apparatus for sorting freely falling articles having random spacings therebetween, the apparatus being of the type having
(a) an article detector for generating an electrical article-detect signal, the first transistion of the article-detect signal being representative of the entry of a predetermined lead-point of the article into a viewing zone and the next opposite transition of the article-detect signal being representative of the exit of a predetermined trailing point on the article from the viewing zone;
(b) an article classifier for generating an electrical article-classification signal representative of a predetermined physical characteristic on at least a portion of an article; and
(c) an article ejector operative to direct an ejecting force to eject an article from an ejection zone spaced a predetermined distance from the viewing zone;
wherein the improvement comprises:
an ejector control arrangement responsive to the presence of the article-detect and article-classification signals for initiating the operation of the ejector to direct an ejecting force toward substantially the same predetermined portion functionally related to the length of each article being ejected from the ejection zone without regard to the presence of the predetermined physical characteristic on the portion of the article toward which the ejecting force is directed, the length of the article being related directly to the duration of the article-detect signal between the first and second transitions.

4,271,969
PORTABLE LONG BARREL FIREARM STAND FOR RIFLE OR SHOTGUN
Edward C. Guess, 2711 Ocotillo, Santa Maria, Calif. 93454
Filed Mar. 5, 1979, Ser. No. 17,190
Int. Cl.³ A47F 7/00
U.S. Cl. 211—64 9 Claims

1. A portable long barrel firearm stand adapted for use with a rifle or shotgun having a barrel and a fixed stock comprising
an elongated support member having a hollowed out central area extending axially therethrough, said support member terminating in a pointed stud, said hollowed out central area extending from the pointed stud end to the other end of the support member and terminating in said other end in an aperture which defines a locking guide surface communicating with the hollowed-out central area in a plane substantially perpendicular to the axis of the hollowed out central area;
a guide and alignment support formed into a substantially U-shaped member wherein one leg thereof is an elongated guide support having an external cross section which is

adapted to be inserted into and passed through the aperture defining the locking guide surface and adapted to cooperate with the locking guide surface to prevent rotation therebetween, and the other leg thereof defining an alignment support which is substantially shorter than the one leg forming the elongated guide support, said alignment support being spaced a predetermined distance from the elongated guide support, said predetermined distance being equal to that distance required to enable a firearm having a barrel and a fixed stock to be held substantially parallel to the axis of the elongated support member;

a conical shaped, self-aligning support member having a base of the conical shaped portion which is connected to the alignment leg and an apex of the conical shaped portion forming an angular shaped tipped member having an acute angle which is less than 30° which is adapted to be inserted into the opening of a barrel engaging the inner peripheral edge surface of the barrel opening and concurrently aligning and supporting a barrel of a firearm in a substantially



parallel relationship relative to the center axis of the elongated support member; and

a butt support member fixedly mounted to the elongated support member adjacent the pointed stud, said butt support member being positioned a predetermined distance above the pointed stud to enable the butt end of a fixed stock of a firearm to be inserted into said butt support member, said guide and alignment support being positioned within said elongated support member with the conical support member on the same side as said butt support member, said guide and alignment support being adapted to have the elongated guide member slideably move within said hollowed out central area to form a movable support for a firearm defined by the sides of the conical support member engaging the opening of the barrel and the butt support member and wherein the external surface of the elongated guide member cooperates with the locking guide surface to prevent rotation therebetween due to the rotational moment applied thereto by the weight of the firearm.

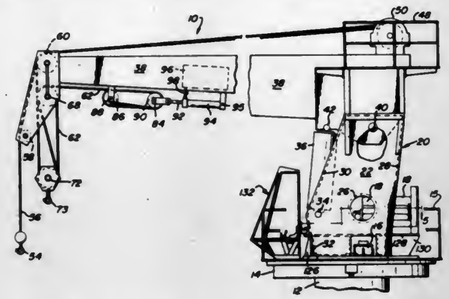
4,271,970

PEDESTAL CRANE

William H. Miller, Flowing Springs Rd., Birchrunville, Pa. 19421, and Jesse T. Grubb, Devault, Pa., assignors to William H. Miller, Birchrunville, Pa.

Filed Jan. 18, 1978, Ser. No. 870,310
Int. Cl.[3] B66C 23/06; B63B 27/00
U.S. Cl. 212—146 8 Claims

1. A pedestal crane which is compact and constructed so as to have a turning radius less than about 8 feet comprising a base, a platform above and supported by the base for 360 degree rotation about a vertical axis, a mast rigidly connected to an upper surface on said platform for rotation therewith, means coupled to the platform for rotating said platform and mast about said axis, said mast including a pair of upright walls, a prime mover disposed between said walls adjacent one end thereof, a first tank for containing fuel for said prime mover, a second tank for containing hydraulic fluid, at least one upright cylinder containing a piston therein, the lower end of said cylinder being pivotably connected to said mast and being between said walls adjacent the other end thereof, a boom having one end pivotably connected to the upper end portion of said mast, said piston having a piston rod pivotably connected to said boom, a winch on said boom adjacent said one end thereof, a cable extending from said winch to a pulley on the other end of said boom, an operator cab supported beneath said boom for rotation with said platform, said cylinder being



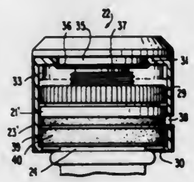
between said cab and said prime mover, said cab having controls for operating said prime mover and winch, a guard rail adjacent the periphery of said platform, and a dynamic load compensator supported by said boom between its ends for absorbing dynamic shocks on said cable, said load compensator including a fluid accumulator supported by said boom between its ends, said accumulator being coupled to said cable for directly controlling the effective length of said cable as a function of dynamic shock loads on said cable.

4,271,971

SAFETY CAP FOR CONTAINERS

Glenn H. Morris, 4203 Highwood Dr., Chattanooga, Tenn. 37415

Filed Apr. 8, 1980, Ser. No. 138,651
Int. Cl.[3] B65D 55/02
U.S. Cl. 215—220 12 Claims



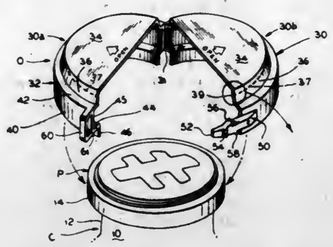
1. A safety cap for containers comprising an inner cap section having screw-threads for rotational engagement with a threaded container, the inner cap section having an additional screw-threaded portion and having axially extending locking and driving means thereon, an outer cap section engaging over the inner cap section and being axially shiftable relative to the inner cap section and being rotatable with and relative to the inner cap section selectively at certain times, and a rotational actuator element having swiveled engagement with the outer cap section and having a screw-threaded portion for threaded engagement with said additional screw-threaded portion of the inner cap section, and the outer cap section having axially extending locking and driving means thereon which are shiftable into and out of interlocking engagement with said locking and driving means of the inner cap section in response to relative axial movements of the inner and outer cap sections induced by the rotation of said rotational actuator element.

4,271,972

TAMPERPROOF OVERCAP

David L. Thor, Naperville, Ill., assignor to Container Corporation of America, Chicago, Ill.

Filed Jul. 24, 1979, Ser. No. 60,147
Int. Cl.[3] B65D 49/12
U.S. Cl. 215—251 11 Claims



1. In a closure arrangement for a container having a neck with an outwardly projecting annular flange and a plug type closure adapted to be received within said neck, a unitary, molded plastic, tamperproof overcap, comprising:

(a) a hollow body including a pair of generally similar, semi-cylindrical body sections having corresponding ends joined by integral hinge means;

(b) said body sections including a detachably removable top wall and a locking ring adapted to snugly engage said container neck flange;

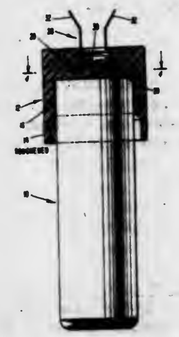
(c) said locking ring including integral locking means, for interconnecting the free ends thereof, which are readily attachable to each other but which cannot be detached from each other without being destroyed.

4,271,973

STERILITY TESTING VESSEL

Daniel A. Quagliaro, Brooklyn, N.Y., and Walter E. Stiesi, Keansburg, N.J., assignors to United States of America, Washington, D.C.

Filed Mar. 19, 1979, Ser. No. 22,220
Int. Cl.[3] B65D 51/16
U.S. Cl. 215—308 10 Claims



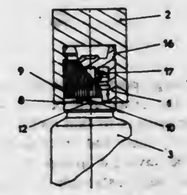
1. A closure for a container suitable for use in testing the sterility of matter, said container having a cylindrical wall defining a container opening, the closure comprising a cap having a top portion and a cylindrical skirt portion depending from said top portion for fitting over said container wall, said skirt portion having a lower part with an increased diameter to provide clearance between the container and the lower skirt portion, said top portion having inner and outer surfaces and a recess formed in said top portion, said recess extending partially through said top portion from said outer surface, said recess including a peripheral wall and a base, passage means extending from said base of said recess to said inner surface of said top portion, a filter means receivable on said base of said recess and a resilient retention clip engagable with said peripheral wall of said recess for retaining said filter means in place, said retention clip including at least one manually operable resilient member extending out from and substantially above said recess when said clip is in place to readily permit selective removal of said clip.

4,271,974

BOTTLE WITH PREALIGNED CLOSURE

Yves Quinard, Boisemont, France, assignor to Parfums Rochas, Paris, France

Filed Jul. 12, 1979, Ser. No. 57,256
Claims priority, application France, Oct. 17, 1978, 78 29505
Int. Cl.[3] B65D 41/04
U.S. Cl. 215—331 3 Claims



1. A bottle with a prealigned closure means comprising a bottle with a neck on the top thereof provided with a threading and a collar at the base thereof having stop shoulders, said shoulders each having an oblique side with an associated inclination angle, a capsule with a closed end provided with an interior threading adapted to engage the threading of the bottle neck, a hollow cap means with the capsule axially disposed therein and provided with means to immoveably secure the capsule with respect to the cap, the lower edge of the capsule being provided with two diametrically opposite grooves in the form of a right-angle triangle whose side opposite the smaller of the acute angles is parallel to the axis of the capsule, the said smaller acute angle determining the inclination of the oblique side of the said right-angled triangle, said smaller acute angle being greater than the inclination angle of the stop shoulders of the bottle with which the grooves are destined to cooperate.

4,271,975

LIGHTWEIGHT CARGO CONTAINER AND FITTINGS

Clyde R. Ketner, Sumner, and Philip C. Whitener, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Aug. 23, 1979, Ser. No. 69,218
Int. Cl.[3] B65D 6/28, 90/08
U.S. Cl. 220—80 3 Claims

1. A wall connecting fitting for a lightweight cargo container, said fitting comprising

an outer flange;

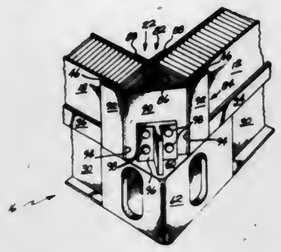
an inner flange; and

a web integrally connecting the outer and inner flanges, said outer flange comprising

a generally rectangular, substantially planar central portion,

a first outer flange portion integrally attached to one edge of said central portion and a second outer flange portion integrally attached to an opposite, parallel edge of said central portion, the first and second outer flange portions extending obliquely with respect to said central portion said first and second outer flange portions each having an inner and outer surface; said web being integrally connected at one end thereof to one side of said central portion substantially midway between the edges and extend-

ing generally perpendicularly with respect to said central portion; and a reaction surface at the connection of each of said first and second outer flange portions with said central portion, each reaction surface being located on a side of said central portion opposite said one side, protruding outwardly therefrom and extending substantially perpendicular to the outer surface of the respective outer flange portion, for applying a clamping tool thereagainst; said inner flange comprising



a pair of inner flange portions integrally connected to each other and to the other end of said web and extending obliquely with respect to said web;

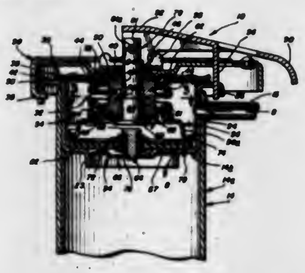
at least one of said outer and inner flange portions on each side of said web having a tapered cross-section in a direction away from said web such that the distance between the outer and inner flange portions on each side of said web increases in a direction away from said web.

4,271,976

COMBINATION PRESSURE RELEASE COOLING CAP AND RECOVERY OF COOLANT

Timothy Detwiler, Dixon, Ill., assignor to E. Edelmann & Co., Skokie, Ill.

Filed Nov. 13, 1979, Ser. No. 93,453
Int. Cl.³ B65D 51/16
U.S. Cl. 220—206 5 Claims



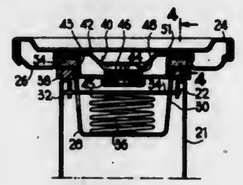
1. An improved radiator cap for use with a coolant recovery system that includes a filler neck provided with spaced upper and lower valve seats and a coolant flow passageway communicating from a reservoir through a side wall of the filler neck in the region between said spaced valve seats; said radiator cap comprising spaced upper seal means and lower seal means adapted for respective sealing against said upper and lower valve seats, the upper seal means being constructed to prevent loss of temperature-expanded coolant and ingestion of atmospheric air therepast; the lower seal means carrying an openable vent valve through which hot gas and temperature-expanded coolant may be selectively vented to said coolant flow passageway and through which reduced temperature coolant may be siphoned back into the radiator; and means for selectively actuating said vent valve to open position including an elongated annular body, a vent pin arranged for reciprocable movement in the bore of said elongated annular body, axially spaced portions of the annular body lying closely adjacent said vent pin to define therebetween axially spaced, restricted annular passageways but with an enlarged, axially elongated, annular passageway located between said restricted annular passageways, and an O-ring seal carried on said vent pin and effecting a rolling seal between said vent pin and the elongated annular body within said enlarged, axially elongated, annular space to prevent leakage of gas and liquid between the vent pin and the annular body.

4,271,977

CLOSING DEVICE FOR A TANK FOR A HYDROCARBON OR LIKE LIQUID

Gerard Saigne, Larche, France, assignor to Paumellerie Electrique, France

Filed Aug. 7, 1979, Ser. No. 64,475
Claims priority, application France, Aug. 8, 1978, 78 23359; Feb. 26, 1979, 79 04804
Int. Cl.³ B65D 51/16
U.S. Cl. 220—371 15 Claims



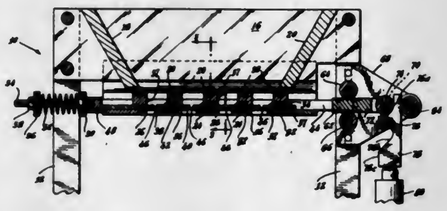
1. A closing device for an inlet aperture of a tank containing hydrocarbon, propane or like product, the device comprising a cover having an inner rib, a base, means defining an extension which has a first end which is connected to the base and a second end which is adapted to extend into the inlet aperture of the tank, the base and the cover defining a cavity, first passage means putting the cavity in communication with the exterior of the cover, means defining an orifice at said first end of the extension, an air filtering element disposed in said orifice, a sealing ring disposed in the cavity and clamped between said base and the filtering element and said inner rib of the cover, and second passage means for putting said orifice in communication with the interior of the tank by way of said extension.

4,271,978

STICK DISPENSER

Edward D. Cottrell, Cattaraugus, N.Y., assignor to Champion International Corporation, Stamford, Conn.

Filed May 31, 1979, Ser. No. 44,110
Int. Cl.³ B65H 3/44
U.S. Cl. 221—243 15 Claims



1. Apparatus for dispensing sticks at a plurality of predetermined locations comprising:

hopper means including

a fixed bottom plate assembly having a plurality of elongated openings disposed at predetermined locations therealong,

a reciprocable upper plate assembly slidably received on the upper surface of said fixed bottom plate assembly, said slidable and reciprocable upper plate assembly including a plurality of elongated openings adapted to be placed in registration with the openings in said fixed bottom plate assembly for dispensing a plurality of sticks disposed within said hopper through each pair of registered openings,

said upper plate assembly including sections having first and second portions between each of the elongated openings therein which are movable relative to each other and to the first and second portions of the other sections,

whereby upon one of said portions in each section meeting an obstruction placed in its path to movement, the preceding and succeeding portions in adjacent sections of said upper plate assembly will continue its movement enabling registration of at least certain ones of said openings in said upper plate assembly with certain ones of said openings in said bottom plate assembly, and

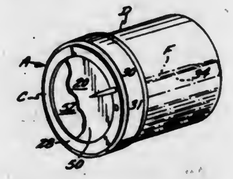
means operatively connected to said upper plate assembly for reciprocably driving the same.

4,271,979

TOOTHPICK DISPENSING DEVICE

Curtis T. Manz, P.O. Box 2466, Long Beach, Calif. 90801

Continuation-in-part of Ser. No. 922,768, Jul. 7, 1978, Pat. No. 4,197,965. This application Jul. 9, 1979, Ser. No. 55,541
Int. Cl.³ B65D 85/20
U.S. Cl. 221—288 3 Claims



1. In combination with a receptacle having a cylindrical side wall that has external threads adjacent the open end thereof and that contains a plurality of toothpicks, an assembly to permit said toothpicks to be discharged from said container one by one each time said receptacle is inverted with said assembly in a downward position, said assembly including:

a. a first portion that includes a circular plate that has a circular lip extending downwardly therefrom, said lip extending downwardly in said open end and slidably engaging the interior surface of said side wall, an elongate tooth pick receiving member that extends downwardly from said circular plate, said member having a first side surface of transverse convex shape that abuts against the interior surface of said receptacle, said member having first and second end surfaces in which first and second longitudinal grooves are defined that are in communication with first and second openings formed in said plate; and

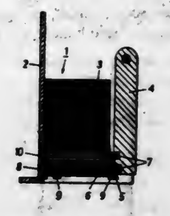
b. a second portion that includes an internally threaded ring that removably engages said external threads, said ring including a circular lip that projects inwardly therefrom and engages a peripheral portion of said plate outwardly from said first and second openings, and one of said toothpicks in said receptacle being disposed in either said first or second grooves depending upon which one is uppermost when said receptacle is moved from a vertical to a downwardly inclined position, and said toothpick sliding by gravity through said opening in said plate that is operatively associated with said groove in which said toothpick is disposed, and one of said toothpicks being so dispensed each time the above-described operation is repeated.

4,271,980

MAGAZINE FOR PLATELIKE ARTICLES

Edwin Friesor, and Jürgen Novotny, both of Graz, Austria, assignors to ELBAK Batteriewerke Gesellschaft mbH, Graz-Puntigam, Austria

Filed Nov. 13, 1978, Ser. No. 960,897
Claims priority, application Austria, Nov. 17, 1977, 8236/77
Int. Cl.³ B65G 59/06
U.S. Cl. 221—297 7 Claims



1. A magazine for platelike articles, comprising

a wall defining a storage space and a lowermost portion,

a rigid unyielding inclined surface projecting into said storage space and extending downwardly and laterally inwardly with respect to said storage space,

withdrawable claw means defining the lower end of said storage space and disengagably supporting superimposed platelike articles in said storage space,

means comprising a pivotally movable pressure-applying lever is disposed on at least a side of said storage space opposite to said inclined surface and arranged to clear a lowermost of said articles and to apply pressure to a second platelike article from the bottom in said storage space so as to retain the second platelike article from the bottom and to support platelike articles superimposed thereon in said storage space pressing articles against said rigid unyielding inclined surface,

said inclined surface is disposed only at said lowermost portion of said wall and extends lower than said lever,

said claw means and said pressure-applying lever being disengageable from said platelike articles in said storage space in alternation to effect a delivery of successive ones of said superimposed platelike articles from said storage space,

a pressure-applying plate disposed on said pressure-applying lever, said pressure-applying plate has an engaged surface which engages the articles, said pressure-applying plate engages a lower portion of said pressure-applying lever such that said engaging surface of said pressure-applying plate extends parallel to said inclined surface and is engageable with said articles, adjacent the bottom, and

compression springs are mounted on said pressure-applying lever, said compression springs extend at right angles to said inclined surface and bias said pressure-applying plate toward said inclined surface.

4,271,981

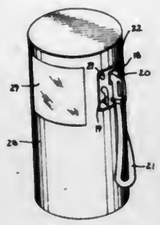
GASOLINE PUMP CONSTRUCTION

James T. Bennett, Hartford, Wis., assignor to Uni-Pump, Inc., Butler, Wis.

Filed Jan. 21, 1979, Ser. No. 50,680
Int. Cl.³ B67D 5/26
U.S. Cl. 222—32 1 Claim

1. In a fuel dispensing mechanism having a fuel pump and a fuel dispensing valve, a supporting structure, a pair of volume and cost registers disposed in side-by-side relation on the supporting structure, a reset control mechanism disposed outwardly of each register and having an operable connection to the respective register, each reset control mechanism being operable to clear the respective register and activate the fuel pump and dispensing valve, each reset control mechanism including a first control shaft disposed on the opposite side of

the reset control mechanism from the register, a generally cylindrical housing to enclose the supporting structure and having a window to view the registers, said supporting structure having openings at opposite sides thereof, a face plate enclosing each opening, an operating handle disposed outwardly of each face plate, each operating handle being rotatable between a first "off" position and a second "on" position, a second shaft connected to each handle and journalled for rotation in said face plate, said second shaft being offset from the corresponding first shaft, a first gear on said first shaft and a second gear on said second shaft, said gears being in engagement whereby rotation of said handle will operate through said



gears to rotate said first control shaft, each set of first and second gears being located in the space between the outer extremity of the corresponding reset mechanism and the face plate, each face plate having a receptacle for a hose nozzle, said operating handle being arranged such that the hose nozzle must be removed from the receptacle in order for the operating handle to be moved from the "off" to the "on" position, movement of the operating handle from the "off" position to the "on" position operating said reset control mechanism to clear the register and activate the fuel pump and dispensing valve so that fuel can be dispensed, and movement of the operating handle from said "on" position to said "off" position acting to deactivate the fuel pump and said dispensing valve.

4,271,982

GLUE DISPENSER

Eugene J. Niksich, Aurora, Ohio, and J. Larry Underwood, Woodstock, Ga., assignors to Dynatron/Bondo Corporation, Atlanta, Ga.

Filed Sep. 14, 1979, Ser. No. 75,805

Int. Cl.³ B65D *17/44*; E65D *35/54*

U.S. Cl. 222—83 **6 Claims**



1. A dispenser for glue or the like comprising a container with an externally threaded spout defining an outlet opening therethrough, a nozzle assembly for attachment to said spout, said nozzle assembly comprising an internal nozzle element including an outlet opening extending therethrough a funnel shaped cam surface which defines part of said outlet opening and internal threads for engaging the threads of the externally threaded spout, an external nozzle element mounted about said internal nozzle element and including an outlet opening extending therethrough, and a deformable nozzle valve including an end portion protruding from inside said external nozzle element and a deformable portion in sliding engagement with the funnel-shaped cam surface of said internal nozzle element whereby when the protruding end portion of the nozzle valve is pushed inwardly with respect to the outlet opening of said external nozzle element said deformable portion of the nozzle valve deforms against the funnel-shaped cam surface to permit the nozzle valve to move inwardly with respect to the external nozzle element and the contents of the container are movable through the outlet opening of the spout and the outlet openings of the internal and external nozzle elements.

4,271,983

LIQUID-WITHDRAWING DEVICE

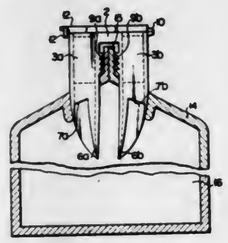
Nobuyuki Takemura, Nishinomiya, and Ichiro Fukuchi, Takatsuki, both of Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Filed May 8, 1978, Ser. No. 903,920

Claims priority, application Japan, May 16, 1977, 52-62477[U]; May 16, 1977, 52-62478[U]; Aug. 2, 1977, 52-103727[U]

Int. Cl.³ B65D *5/74*

U.S. Cl. 222—85 **4 Claims**



1. A device for withdrawing liquid from a paper container having an upper wall provided with a fin-shaped projection, said device comprising:

a pair of parallel hollow tubular bodies connected to each other at adjacent ends thereof, forming therebetween a grooved portion having inwardly directed tooth-shaped projections adapted to be engaged with the fin-shaped projection of the paper container;

one of said hollow bodies having an open head for withdrawing the liquid housed in the paper container, the other having an open head for venting air into the container; and

a partition wall serving to reinforce each hollow body provided in the free end portion of the hollow body in a manner to separate the interior thereof into two sections, the end of said partition wall at the end of the hollow body being formed into a sharp edge portion tapered from outside toward the grooved portion for piercing through the upper wall portion of a container adjacent the fin-shaped projection.

4,271,984

DEVICE FOR DISPENSING TWO PASTY SUBSTANCES IN ADJUSTABLE PROPORTIONS

Luc Ducros, and Roger Navarro, both of Castres, France, assignors to Pierre Fabre S.A., Paris, France

Filed Apr. 6, 1979, Ser. No. 27,731

Claims priority, application France, Apr. 6, 1978, 78 10246

Int. Cl.³ B65D *35/22*

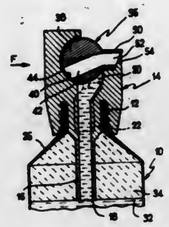
U.S. Cl. 222—94 **9 Claims**

1. For use with a deformable tube containing two pasty substances in two different regions within the tube, a device for dispensing the two pasty substances in adjustable proportions, the device comprising:

a body for mounting on the tube, the body having two passages communicating respectively with the two regions with the tube, each passage terminating in an outlet located in a surface of the body,

a valve member mounted for pivotal movement with respect to the body about an axis perpendicular to the direction of flow of the substances through the passages in the body, a surface of the valve member being cylindrical and having an axis of curvature colinear with the pivot axis of the valve member, the cylindrical surface fitting tightly against the surface of the body in which the outlets are located, and

at least one through passage in the valve member extending



between an inlet, located in the cylindrical surface, and a common outlet nozzle for both pasty substances,

the valve member having one extreme position in which its cylindrical surface closes both outlets and another extreme position in which the outlets are open to a maximum extent to the common outlet nozzle, and the pivotal position of the valve member between the two extreme positions determining the degree of alignment of the inlet with at least one of the outlets, the non-aligned portion of that outlet being closed by the cylindrical surface,

whereby the ratio of the open areas of the outlets, and hence the proportions of the two pasty substances reaching the common outlet nozzle, depends upon the pivotal position of the valve member with respect to the body.

4,271,985

APPARATUS FOR DISPENSING A FLUENT SUBSTANCE FROM A FLEXIBLE CONTAINER DISPOSED BETWEEN A PAIR OF OPPOSED PLATES

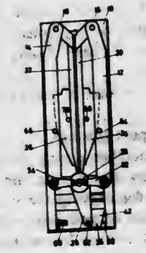
John V. Andersen, 210 Melkbos, Princes Ave., Windsor, Randburg, Transvaal, South Africa

Filed Feb. 23, 1978, Ser. No. 880,492

Claims priority, application South Africa, Jun. 10, 1977, 77/3496

Int. Cl.³ B65D *35/28, 35/26*

U.S. Cl. 222—96 **6 Claims**



1. Apparatus for dispensing a fluent substance from a flexible container, said apparatus comprising:

a frame;

a pair of opposed plates pivotally secured at their upper ends to the frame;

a pair of arms pivotally secured at their upper ends to the frame with the plates between them;

two wedge shaped members, each member being located with its wedge pointing downwardly between an arm and an adjacent plate;

means for moving the arms towards one another, and thereby through the action of the wedge shaped members so to move the opposed plates towards one another as to apply a compressive force to the sides of a container located between the opposed plates, said means comprising a lever pivotally attached to the frame, and two linkage members, each linkage member being pivotally attached to the lever and to the lower end of one of the arms; and

a support plate for supporting the neck of the tubular container placed upside down between the opposed plates, the support plate including a recess into which the neck of the tubular container is insertable, an aperture being formed in the base of the recess for the passage of fluent substance discharged from the container.

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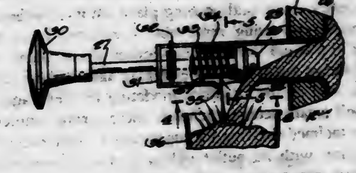
DRINK DISPENSER SPIGOT WITH SPLASH DEFLECTOR

Earl M. Stecker, Kiel, Wis., assignor to Stoelting, Inc., Kiel, Wis.

Filed Nov. 17, 1978, Ser. No. 961,802

Int. Cl.³ B67D *3/00*

U.S. Cl. 222—151 **2 Claims**



1. In a drink dispenser spigot comprising a barrel, a valve plunger, a stem connected to said plunger for guiding said plunger, a spring arranged around said stem for urging said plunger to a closed position, and a spout opening in a sidewall of the barrel, the improvement comprising a tubular splash deflector in said barrel having at one end an end wall, the other end of said deflector being open, said end wall engaged with said spring and having an aperture for receiving said stem and said deflector having a cylindrical wall defining a hollow interior, said cylindrical wall having a sufficient length to enclose a portion of said spring and obstruct said spout opening thereby partially blocking drink from splashing into the barrel through said spout opening and onto said spring, said splash deflector being mounted upon said stem so as to be wholly movable therewith and including an annular flange wiper at said open end which wipes drink splash from the inside of the barrel and out through the spout opening during actuation of the valve plunger.

4,271,987

DEVICE FOR DISPENSING BEVERAGES

Birger Eriksson, Tyresö, and Gösta Bostrüm, Farsta, both of Sweden, assignors to EMAC AB, Stockholm, Sweden

Filed Oct. 13, 1978, Ser. No. 951,262

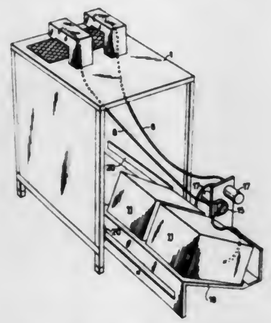
Claims priority, application Sweden, Oct. 18, 1977, 7711743

Int. Cl.³ B67D *5/64*

U.S. Cl. 222—160 **3 Claims**

1. An apparatus for pouring beverages, such as milk, juice, etc., from relatively large beverage packages holding, for

example, 20 liters or more, and having an outlet, said apparatus comprising: a pouring counter having a pouring place; a beverage dispensing hose mounted in said apparatus near said counter having an inlet end and an outlet end, said inlet end adapted to be connected to the outlet of the beverage package; a motor operated rotary pump means mounted in the apparatus with a rotary pump member adapted to engage and operate on said hose; means under the counter for accommodating at least one beverage package; said hose being integral between its two ends; said apparatus having means for supporting said hose including guide means which enable passage of a portion of said hose from below to above said counter and detachable clamp means above said counter for holding and suspending a terminal portion and outlet end of said hose above said counter



with the outlet end being directed downwardly to provide a pouring outlet above said pouring place; an intermediate portion of said hose being removably connected in operative assembly in a liquid transporting section of said pump means with the rotary pump member engaging against the outside of said hose; said means for accommodating the beverage package is shelf means secured beneath said pouring counter providing an inclined shelving for supporting at least one package in a position with its outlet obliquely and downwardly directed; and means under said pouring counter are provided with guide bars for slidably supporting the shelving for movement into inserted and projected positions whereat said shelving can be loaded with said at least one package in a position while out from under the counter.

4,271,988

DISPENSING OF FLUENT MATERIALS

Anthony R. Clausen, Johannesburg, South Africa, assignor to Pitman-Moore, Inc., Washington Crossing, N.J.

Filed Jul. 5, 1978, Ser. No. 922,023

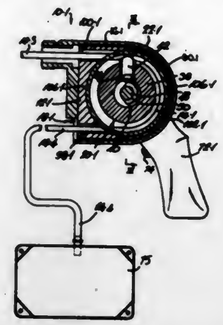
Claims priority, application South Africa, Jul. 7, 1977, 77/4095

Int. Cl.³ F04B *43/12*

U.S. Cl. 222—214 **23 Claims**

1. A dispensing device for use in dispensing measured quantities of fluent material through a resiliently compressible dispensing tube, the device comprising a housing having a compression zone and a cartridge zone for removably receiving a unitary cartridge having a dispensing tube engaged therethrough, collapsing means located in the cartridge zone in said compression zone for collapsing said tube, and displacement means for displacing the collapsing means to advance the compression zone along a compression path to dispense fluent material through the tube; and,

adjustment means, including an adjustable cam member to cooperate with the collapsing means and control the effec-



tive length of a compression path during operation of the collapsing means.

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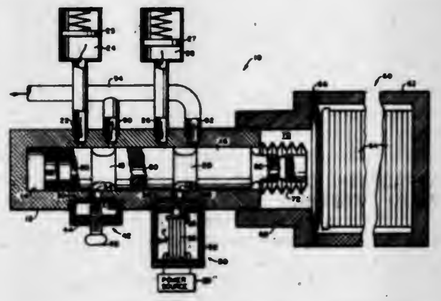
MICRO-METERING SYSTEM

Cormac G. O'Neill, Contra Costa County, and Parker C. Smiley, Alameda County, both of Calif., assignors to Physics International Company, San Leandro, Calif.

Filed Mar. 27, 1979, Ser. No. 24,316

Int. Cl.³ G01F *11/08*

U.S. Cl. 222—282 **3 Claims**



1. An apparatus for controlling the flow of fluid comprising
means defining a primary housing having an inlet port and an outlet port,
means defining a first variable volume cavity in fluid communication with said primary housing,
means for varying the volume of said cavity according to pressure of said fluid,
means for limiting the volume of said variable volume cavity comprising
means defining a support bracket,
an electroexpansive member having one end bearing against said support bracket and having the other end bearing against said means for varying the volume of said cavity according to pressure of said fluid, and
means for applying a voltage across said electroexpansive member whereby said electroexpansive member contracts and expands against said means for varying the volume of said cavity to limit the volume thereof, and
means for alternately communicating said inlet port with said cavity and said outlet port with said cavity.

4,271,990

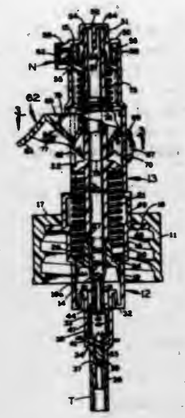
PUMPING SYSTEM FOR DISPENSING PRODUCT FROM A CONTAINER

Louis F. Kutik, Ft. Lauderdale, and Howard E. Cecil, Miami, both of Fla., assignors to Security Plastics, Inc., Miami Lakes, Fla.

Filed May 12, 1978, Ser. No. 905,380

Int. Cl.³ B05B *11/00*

U.S. Cl. 222—321 **10 Claims**



1. In a pumping system for use with a container for product and a dip tube to dispense product from the container through the dip tube, said pumping system including:
a manually actuated pressurizing pump including first and second check valves and a first spring-loaded piston and cylinder assembly for withdrawing a quantity of product from the container through said dip tube and said first check valve during an intake stroke and for pressurizing said quantity of product during a pressurizing stroke;
storage compartment means including a second spring-loaded piston and cylinder assembly expandable for storing under a pressure determined by said second spring-loaded assembly a quantity of pressurized product received through said second check valve from said pressurizing pump;
a discharge nozzle defining a restricted outlet orifice;
said storage compartment means being functionally located with said restricted outlet orifice at its outlet and said second check valve at its inlet from said pressurizing pump;
said restricted orifice controlling the rate of product discharge therethrough so as to allow only a portion of the pressurized product to be dispensed from said pump during the pressurizing stroke, when pumping relatively rapidly, the remainder of said product being stored in said storage compartment means to be dispensed during the subsequent intake stroke of said first spring-loaded piston by contraction of said storage compartment means to maintain the stream or spray from the orifice when the pressurizing pump is receiving product on its intake stroke;
said storage compartment means including an outlet opening in communication with said outlet orifice, said outlet opening being disposed relative to said second spring-/loaded piston so that it is opened and closed by movement of the second spring-loaded piston thereby completely controlling the flow to the restricted orifice;
the improvement wherein:
said second spring-loaded piston and cylinder assembly includes a second spring acting at one end against said second piston to exert pressure on the product in said storage compartment means; and
further comprising:
hollow stem means reciprocable during said intake and pressuring strokes, said stem means being frictionally coupled to said second piston and operatively coupled to said first piston so that said pistons tend to move substantially in unison during said intake and pressurizing strokes, said hollow stem means providing a passageway for the flow of product from said second check valve to said storage compartment means; and
means operatively coupling the opposite end of said second spring in said second spring-loaded piston and cylinder assembly to said stem for movement of said spring substantially in unison with said stem;
said second piston being displaceable along said stem against the drag of the friction coupling to act on said second spring in the second spring-loaded piston and cylinder assembly and thereby compensate for pressure changes in said storage compartment means; and
wherein
said stem means has an intermediate portion; said first spring-loaded piston and cylinder assembly includes a first spring engaged between said intermediate portion of said stem means at its upper end and said first cylinder at its lower end;
said second spring in said second spring-loaded piston and cylinder assembly is operatively engaged between said intermediate portion of said stem means at its lower end and said second piston at its upper end; and
said second piston is movable downward to open said outlet opening and upward to close said outlet opening;
whereby when said pumping system is pumping air during priming of said pump, the downward movement of said stem means during the pressurizing stroke of said first piston and cylinder assembly permits the lower end of said spring in said second spring-loaded piston and cylinder assembly to move down to reduce the pressure on said second piston and enables the latter to move down to open said outlet opening and allow air to escape from said storage compartment means to said outlet orifice for aiding in priming the pumping system.

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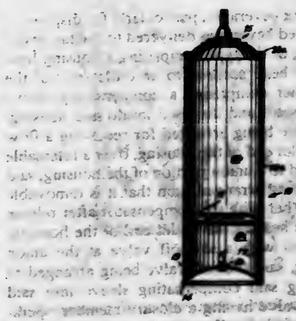
LOW PRESSURE DISPENSING

George B. Diamond, Anthony and Woodglen Rds. R.D., Glen Gardner, N.J. 08826

Continuation-in-part of Ser. No. 877,979, Feb. 16, 1978, Pat. No. 4,171,757, and a continuation of Ser. No. 693,768, Jun. 8, 1976, abandoned. This application Nov. 30, 1978, Ser. No. 964,892

Int. Cl.³ B67D *1/04*

U.S. Cl. 222—389 **10 Claims**



1. As an article of manufacture, a self contained, pressurized barrier container having a thin side wall and thin end walls that are of materially reduced thickness as compared to a conventional pressurized container and will not withstand internal pressures above 120 psig, said container being sealed at the

bottom end and having a discharge valve at the other end, a movable member in the container serving as a gas tight sealing barrier therein for defining two chambers, one chamber communicating with the valve and containing a product for discharge at the pressure of a propellant within the other chamber of the container, said member having such strength as to conform to the wall of the container and also to seal therewith and said side wall being sufficiently flexible as to conform to said member, and said valve being so constructed, on opening, as to afford an effective flow-through cross-sectional outlet area allowing a useful rate of discharge of at least 0.8 g per second at the propellant pressure and maintaining an effective flow rate at the reduced pressures following incremental discharges from the container; said container side wall and end walls being composed of a metal selected from the group consisting of aluminum and steel, with the side wall thickness being in the range of 0.003" to 0.009", and the bottom end wall thickness being in the range of 0.009" to 0.016".

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TAP FOR DISPENSING BEVERAGES

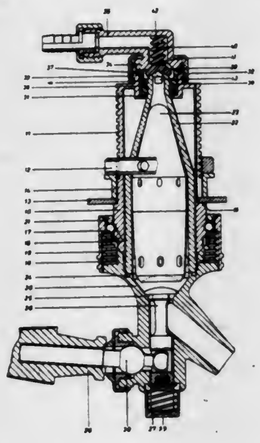
Carl M. Becker, Kalkstrasse 1b, 4030 Ratingen 4, Fed. Rep. of Germany

Filed Nov. 14, 1979, Ser. No. 94,208

Claims priority, application Fed. Rep. of Germany, Nov. 27, 1978, 2851182

Int. Cl.³ B67D *3/00*

U.S. Cl. 222—509 **25 Claims**



1. A tap for dispensing beverages, particularly for dispensing non-alcoholic carbonated beverages delivered to the tap under pressure, said tap being of the type comprising a housing having a dispensing valve head secured to an outlet end of the housing, said tap further comprising a compensating sleeve surrounding a compensator and disposed inside said housing, said compensating sleeve being arranged for receiving a flow of the beverage at an inlet end of the housing, over a releasable connecting pipe secured to a union portion of the housing, said compensating sleeve being arranged such that it is removable from said housing together with the compensator after release of the dispensing valve head at the outlet end of the housing, said tap being provided with a shut-off valve at the union portion of said housing, said shut-off valve being arranged to be opened by inserting said compensating sleeve into said housing, said shut-off valve having a closure member operatively associated with a spring urging the closure portion of the valve against a valve seat upon withdrawal of the compensating sleeve from the housing, wherein the valve seat is formed as a part of gasket means disposed at said union portion of the housing, the gasket means being disposed such that an upstream end portion of the compensating sleeve passes through the gasket means when the dispensing valve head is secured to the housing, said gasket means being operative to simultaneously provide a generally leak proof seal between the compensating sleeve and the housing.

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SLAG TAP FOR COAL SLAGGING GASIFIER

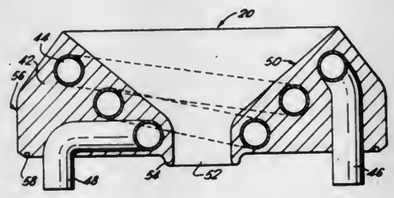
John A. Anderson, Knowle, England, assignor to British Gas Corporation, London, England

Continuation of Ser. No. 830,497, Sep. 6, 1977, abandoned, which is a division of Ser. No. 744,026, Nov. 22, 1976, abandoned. This application Jan. 2, 1979, Ser. No. 8

Claims priority, application United Kingdom, Nov. 27, 1975, 48806/75

Int. Cl.³ B22D *41/08*; B01J *3/00*

U.S. Cl. 222—591 **6 Claims**



1. A slag tap for use in a coal slagging gasifier comprising:
a body comprised of a solid cast mass of high thermal conductivity metal;
said body having a central, right-circular cylindrical orifice through the bottom thereof, said orifice being oriented substantially vertically when said tap is in its normal operating position in a coal slagging gasifier,
a downwardly and inwardly sloping tundish surface extending from the top of said body and converging on and merging smoothly with the surface forming said orifice such that said tundish surface is upwardly positioned substantially horizontally above said orifice and forms a funnel when said slag tap is in its normal operating position in a coal slagging gasifier, and
the slope and length of said tundish surface and the diameter and length of said orifice being selected such that the overall width of said body is at least twice the overall height thereof and the height of said orifice is less than half the overall height of said body so that slag that is to be discharged from the gasifier can readily flow across said tundish surface and be removed through said orifice; and
an integrally formed, spirally coiled metal tube for circulating a coolant liquid through said cast body, said coolant tube being capable of retaining its shape without any appreciable distortion during the casting of the surrounding metal mass and said coolant tube extending through said cast mass and forming a spiral coolant conduit adjacent to the top of said body and closely spaced from said tundish surface along the length thereof and closely spaced from and coiled around said orifice surface, said spacing from said surfaces being a distance of from 0.25 to 1.5 inches, the ends of said tube projecting exteriorly of the bottom of the surrounding cast metal body to provide a coolant inlet and outlet, the spiral of said tube approximating the surface of said tundish surface and said orifice surface.

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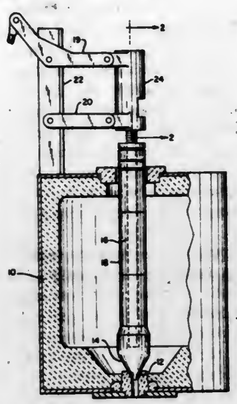
FLEX ROD ASSEMBLY FOR A STOPPER VALVE IN A BOTTOM POUR LADLE

William W. Seaton, Dexter, Mich., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Nov. 9, 1979, Ser. No. 92,802

Int. Cl.³ B22D *41/10*

U.S. Cl. 222—602 **1 Claim**



1. Apparatus for aligning the stopper valve with its seat in a bottom pour ladle, including a bottom pour ladle, a valve seat surrounding a discharge opening in the bottom of the ladle, a stopper valve for controlling opening and closing of the opening, a first stopper rod connected at its lower end to the stopper valve, a parallelogram actuator for the stopper valve, a movable housing forming one side of the parallelogram actuator, a plate secured in the bottom portion of the housing, said plate having an opening therein, the first stopper rod extending up through the opening in such a manner that horizontal movement of the first rod is prevented at this location, a second rod pivotally secured to the top portion of the housing, a universal joint connecting the bottom of the second rod to the top of the first stopper rod, and releasable locking means associated with the second rod, which in a first position permits pivoting of the second rod with respect to the housing, and in a second position locks the second rod to the housing, preventing pivoting therebetween.

4,271,995

METHOD AND APPARATUS FOR MAKING FISHING LURE WINGS

Robert E. Shoup, Lot #11, Muleshoe Cts, R.D. #5, Duncansville, Pa. 16635

Filed Jul. 9, 1979, Ser. No. 55,555

Int. Cl.³ A41H *43/00*

U.S. Cl. 223—47 **21 Claims**

1. Apparatus for forming the wings of a fishing lure comprising,
a pair of cooperating arm members positioned in overlying spaced relationship,
said arm members each having a first end portion and a second end portion,
said first end portions being connected for pivotal movement of said arm members to move said second end portions toward and away from each other,
said second end portions being adapted to receive a wing forming material therebetween,
said arm members being movable between an open position where said second end portions are spaced apart and a closed position where said arm members are abutting,
said second end portions each having a substantially identical configuration corresponding to a preselected wing configuration,
alignment means provided on at least one of said arm member second end portions for selectively positioning the wing forming material between said second end portions in said closed position,
said alignment means including a plurality of reference points located on at least one of said second end portions,
said reference points being selectively positioned in spaced relation on said respective second end portion,



a pair of said reference points defining at least one reference line extending between said reference points,
said reference line forming a position indicator for the wing forming material between said second end portions, and
said position indicator arranged to receive a preselected portion of the wing forming material in register with said position indicator to selectively orient the wing forming material between said second end portions in a preselected position corresponding to a preselected configuration for forming the wing.

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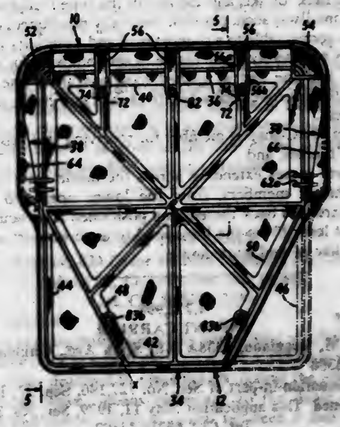
PANNIER FOR BICYCLE REAR CARRIER RACKS

Joseph S. Montgomery, Stamford, Conn., assignor to Cannondale Corporation, Stamford, Conn.

Filed Mar. 30, 1979, Ser. No. 25,394

Int. Cl.³ B62J *9/00*

U.S. Cl. 224—32 A **5 Claims**



1. A pannier for a rear carrier rack of a bicycle or the like comprising a bag of generally flexible lightweight material having a top wall, a back wall, a front wall, a bottom wall and a pair of side walls, an essentially rigid, unitary interior frame received within the bag which includes a back part having a peripheral portion matching and engaging the perimeter of the rear wall of the bag to impart shape and stability thereto, and

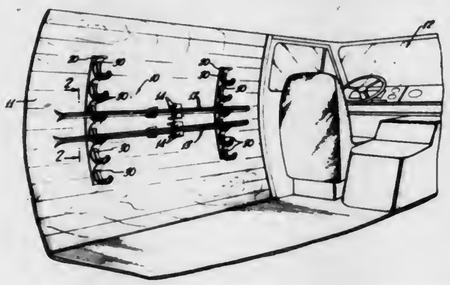
a top part substantially rigidly connected to the upper edge of the rear part, extending out at substantially a right angle to a plane defined by the peripheral portion of the rear part and having a peripheral portion substantially matching and engaging the perimeter of the top wall of the bag to impart shape and stability thereto, and two side parts substantially rigidly connected to the two side edges of the rear part, extending out at substantially a right angle to planes defined by both the peripheral portions of the rear and top parts and extending only partly down the side walls from the top to impart shape and stability to the upper side walls and permit the bottom portions of the front and side walls to assume the shape of the contents of the pannier, the interior space of the pannier thus being entirely uninterrupted side to side and top to bottom, and attaching means joined to the frame adjacent the juncture between the rear part and top part and adapted to mount the pannier on the rack with the top wall of the bag lying generally contiguous to the rack platform, the top part of the frame thus constituting a structural element for supporting part of an object carried on the rack platform and for supporting the bag and objects within it.

4,271,997

RACK FOR SKIS AND THE LIKE

Patrick T. Michael, 2027 W. Arbor Way, Orange, Calif. 92668

Filed Oct. 12, 1979, Ser. No. 84,091
Int. Cl.³ B60R *11/00*
U.S. Cl. 224—42.45 R **14 Claims**



1. In a rack for skis and the like of the type including a pair of horizontally-spaced, parallel, vertically-positioned, elongate brackets connectable to a support wall and a plurality of cradle members removably connectable to said brackets for supporting skis and the like at spaced locations along the lengths thereof, the improvement wherein each of said cradle members comprises:

a generally C-shaped member for receiving said skis and the like therein; and

platform means extending across the inside surface of said C-shaped members, from the lower open end thereof toward said back thereof and positioned at an acute angle of at least 20° to the horizontal so as to support a ski and the like at said acute angle.

4,271,998

INFANT CARRIER

Harriet M. Ruggiano, 5338A NE. Sixth Ave., Oakland Park, Fla. 33308

Continuation-in-part of Ser. No. 727,180, Sep. 27, 1976, abandoned. This application May 11, 1979, Ser. No. 38,222
Int. Cl.³ A47D *13/02*
U.S. Cl. 224—160 **2 Claims**

1. An infant carrier comprising:

an infant seating platform including a lightweight, fairly rigid, cushioned-enveloped block, sized in length and width to seat an infant, said block, including the cushioned envelope, having a substantial vertical thickness, about three inches or more, for engaging the mid-forward torso of a carrier person, said block having a top and a bottom horizontal surface, and front, back and side vertical surfaces;

an inner resilient wall and an outer resilient wall made of a resilient sheet material, said inner wall and said outer wall forming a double wall housing structure for housing said block, said inner wall forming the resilient surface of the rear and two sides of said seating platform, said cushioned-envelope block being removeably housed in a resilient pocket of approximately the same dimensions as said block formed by said inner wall housing structure, said outer wall being a three sided vertical extension of said resilient sheet material, adjoined to the bottommost edges of said seating platform and having a height of about ten inches, overlapping said inner wall, said inner and outer walls being moveable relative to each other, said outer wall having a portion disposed above the upper surface of said seating platform serving as a resilient three sided infant restraining compartment having an upper expandable rim;

a pair of carrier person, two shoulder, trunk engaging straps for suspending, positioning, and holding the seating platform strategically and integrally close and steady within a narrow range on the carrier-person's front torso, but loose enough for said seating platform to have a hinging property for easing the impact of shifting weight, a rectangular portion of said carrier person strap sized in length less than the side to side dimension of the seat, said carrier person strap portion connected horizontally to the outside of said compartment back outer wall in a lateral direction, the top edge of said rectangular strap portion being attached



about midway from said back outerwall, uppermost rim and the bottom most of said platform, said carrier person straps held tightly around the carrier person's rib cage by a pair of releasably joined loops, one of each said loops moveably mounted on one of each of the two sections of said carrier person's strap for adjusting the carrier person strap tension on the back torso of the carrier person, the diametrically opposed straps extending symetrically through said loops, over both carrier persons shoulders, along the underside of, and on the sides of, said seating platform, along the forward edges, and connected along part of the forward edges of the outer wall to within about midway of said outer walls uppermost rim and the bottom most edges of said platform, a pair of adjustment fasteners connected to said strap, said carrier person's straps being adjustable relative to each other in length for adjustment to the carrier person, and for adjustment of said seating platforms tilt;

an infant leg partition member connected to the forward wall of said seating platform and having a free looped end disposed above the upper surface of said seating platform, the other end of said partition member being disposed along the forward, bottom, and back walls of said seating platform and looped over said back outer wall;

means for releasably coupling the upper ends of said outer walls together through said partition loop;

a pair of removable infant side-headrests; and

a pair of narrow straps each connected to a different infant side-headrest, each of said narrow straps issuing through a loop which holds the adjustment fasteners of the carrier

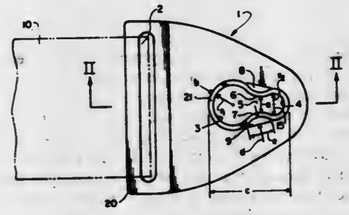
persons shoulder straps, each of said side-headrests being a small cushion, one of said narrow straps being long enough to reach from side to side behind the infant's head and beyond the opposing carrier person's shoulder strap so that the end of said longer narrow straps may be adjustably held with the end of the other of said pair of narrow straps by a slide fastener.

4,271,999

GUITAR STRAP CONNECTOR

David M. Stravitz, New York, N.Y., assignor to Ambico Inc., Lynbrook, N.Y.

Filed Aug. 24, 1979, Ser. No. 69,533
Int. Cl.³ G10G *5/00*
U.S. Cl. 224—257 **12 Claims**



1. A one piece integrally formed guitar strap connector for engaging, retaining and loosely confining a pin-like button connector of a guitar, the pin-like button connector having a given diameter, comprising:

a body member (1) having connecting means (2) for connection of a guitar strap thereto;

a generally keyhole-shaped opening in said body member, said keyhole-shaped opening comprising first and second holes (3, 4) having a resilient restricting passageway 5 therebetween, said first hole (3) being larger than said second hole (4) and both of said holes being larger than said diameter of said pin-like button connector; and

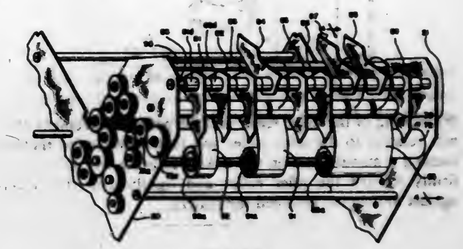
a pair of resilient spring-like members (6, 7) integral and unitary with said body member (1) and being located on respective opposite sides of said passageway (5) and defining said passageway (5), said spring-like members (6, 7) being bowed toward each other to form said resilient restricting passageway (5) therebetween, said passageway (5) having a width less than said diameter of said pin-like button connector, each spring-like member having a pair of smooth camming surfaces respectively facing both holes (3,4) and a respective void space (8,9) therebehind to permit said spring-like members to resiliently flex away from each other into said void spaces to permit a button connector of a guitar to be smoothly passed from the larger hole (3) resiliently through said restricting passageway (5) and into said smaller hole (4) wherein said button connector is engaged and retained without being wedged or otherwise restrained by said spring-like members (6,7), said button connector being loosely confined in said smaller hole (4) to permit substantially free rotating-type movement of the guitar strap connector about said pin-like button connector.

4,272,000

FILM GUIDANCE APPARATUS

Henry F. Hope, 3192 Huntingdon Rd., Huntingdon Valley, Pa. 19006, and Stephen F. Hope, 2321 Wyndotte Rd., Willow Grove, Pa. 19090

Continuation of Ser. No. 810,510, Jun. 27, 1977, Pat. No. 4,151,942. This application Jan. 15, 1979, Ser. No. 3,666
The portion of the term of this patent subsequent to May 1, 1996, has been disclaimed.
Int. Cl.³ B65H *23/32*
U.S. Cl. 226—1 **17 Claims**



1. Apparatus for introducing film strips of various widths into a film processing machine in which these film strips are transported through a succession of treatment tanks, the apparatus comprising:

pair of film transport rollers, positioned between a pair of mounting plates, the pair of rollers defining a nip and being positioned ahead of the inlet to the treatment tanks so as to direct the film strips through the nip into the inlet, and

plurality of spaced apart separating members positioned between the pair of mounting plates at predetermined intervals across the width of the pair of transport rollers, the separating members defining pairs of adjacent insertion channels, located on opposite sides of the separating members and ahead of the nip, which are of sufficient width to accept a strip of film therein, the size of each of the film insertion channels being defined by one of the separating members and either another separating member or a mounting plate, and

the separating members being individually movable between a first position in which they are in front of the nip, to form the pairs of adjacent film insertion channels, and a second position in which they are not in front of the nip, to form channels capable of accepting strips of film having widths at least as great as the sum of the widths of the pairs of adjacent film insertion channels.

4,272,001

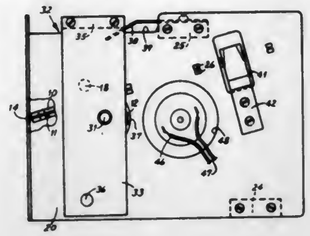
TICKET DISPENSER

Stephen Horalak, 424 Cedar Hill Rd., Ambler, Pa. 19002

Filed Oct. 15, 1979, Ser. No. 84,865
Int. Cl.³ B65H *17/10*
U.S. Cl. 226—187 **10 Claims**

1. A ticket dispensing apparatus comprising an idler roller, a fixed framework in which the idler roller is rotatably mounted, a drive roller disposed to press tickets against the idler roller, controllable power means connected to the drive roller to rotate it and thereby advance tickets between it and the idler roller, a frame movable relative to the framework and in which the drive roller is rotatably mounted and which also disposes the drive roller on the side of the idler roller from which the tickets are supplied to the rollers, bias means which constantly bear on the movable frame to urge the drive roller toward the idler roller to constantly bear on the ticket between the rollers, support means between the movable frame and the framework directing the movement of the movable frame so the axis of the driven roller moves in a path which is inclined toward and

intersects the path of movement of the tickets on the delivery side away from the rollers, the drive roller being located so that it cannot move past the idler roller in the direction of the ticket movement because it abuts against the idler roller, said



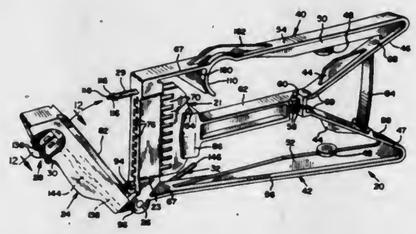
positioning of the drive roller and the path of movement of its axis relative to the idler roller and ticket movement thereby causing a manual pull on the tickets to bring the drive roller firmly toward the idler roller and tightly grip the tickets against movement between the rollers.

4,272,002

INTERNAL SURGICAL STAPLER

Jerome F. Moshofsky, Portland, Oreg., assignor to Lawrence M. Smith; G. Marts Acker and Franklin G. Smith, part interest to each

Filed Jul. 23, 1979, Ser. No. 59,667
Int. Cl.³ B25C *1/00*
U.S. Cl. 227—19 **18 Claims**



1. In a suture stapler, holding means for holding a staple;
ram means for pushing the staple out of the holding means; and
a drive mechanism including a handle pivotally connected to the holding means and a thrust lever folded back on the handle and pivotally connected to the handle and the ram means so that, when the handle and the thrust lever are squeezed together, the ram means is moved through the holding means,
the handle and the thrust lever being integral and including a spring hinge portion connecting them together.

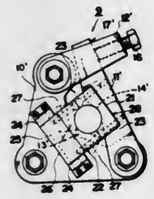
4,272,003

BUTT WELDING AND BURR SHEARING MACHINE FOR REINFORCE STEEL

Hirotsugu Oishibashi; Katsuyoshi Ueyama, both of Musashino; Muneyuki Ohara, Mitaka; Mitsuo Nakamura, Higashikurume, and Takayoshi Amano, Fussa, all of Japan, assignors to Japanese National Railways and Hakusan Seisakusho Co., Ltd., both of Tokyo, Japan

Filed Jun. 22, 1979, Ser. No. 51,272
Claims priority, application Japan, Jul. 3, 1978, 53-80763
Int. Cl.³ B23K *37/02*
U.S. Cl. 228—13 **2 Claims**

1. A butt welding and burr shearing machine for metal rods, comprising:
a plurality of parallel stays;
a left clamping device and a right clamping device supported by said stays in spaced relation, at least one of said clamping devices being slidable along said stays, each of said clamping devices having a positioning clamp nonrotatably supported on said stays, a clamp lever pivotally supported at one end of said positioning clamp and pivotable between an open position in which a rod can be loaded into said clamping device and a clamping position in which a rod is clamped between said clamp lever and said positioning clamp, and a clamp lock lever pivotably supported at the other end of said positioning clamp, and pivotable between a position in which the free end of said clamping lever is movable toward the other end of said positioning clamp and a closed position in which said clamp lock lever holds the free end of said clamp lever close to the other end of said positioning clamp, said



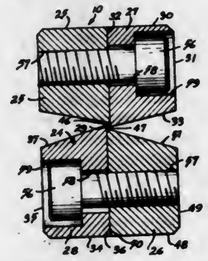
clamp lock lever having a tightening bolt therein engaging the free end of said clamp lever and urging it toward the other end of said positioning clamp;
a piston cylinder device connected to one of said clamping devices for moving said one of the clamping devices toward and away from the other clamping device; and
a pair of mating shear dies on one of said clamping devices, one of said dies being on the positioning clamp thereof and the other of said dies being on the clamp lever thereof, one of said dies being movably mounted for movement between an inoperative position in which it is spaced from a rod clamped in the clamping device, and an operating position in which it engages the other die to hold a rod in shearing engagement therebetween and spaces the positioning clamp and clamping lever of the one clamping device sufficiently far apart so that they cannot clamp a rod therebetween.

4,272,004

Z-BAR GUIDE APPARATUS

Carl J. Nilsen, Hopatcong, N.J., assignor to SWS Incorporated, Landing, N.J.

Filed Oct. 23, 1979, Ser. No. 88,197
Int. Cl.³ B23K *37/04*
U.S. Cl. 228—17.5 **12 Claims**



1. A Z-bar apparatus for guiding the edges of sheet material into overlapping relationship with each other as the material is being moved to a welding apparatus, comprising an elongated central guide member and elongated upper and lower guide bar means, said central guide member having upper and lower

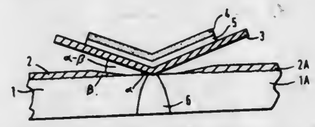
vertically offset portions connected by a web having upper and lower surface, means for removably mounting said upper and lower guide bar means on said upper and lower portions of said central guide member, a first channel formed by portions of said lower portion of said central guide member and said web and said upper guide bar means, a second channel formed by portions of said upper portion of said central guide member and said web and said lower guide bar means, said first and second channels being in vertically spaced overlapping relationship with one another along the entire length of said central member and being of a size to slidably receive and guide the edges of the sheet material, each of said channels having substantially sharp corners along the base portion, at least one of said channels tapering relative to the other along its length so that said channels progressively converge vertically relative to one another along the length of said central guide members, whereby the edges of the sheet material are brought into substantially intimate engagement with one another as the sheet material is discharged from the apparatus.

4,272,005

EXPLOSIVE CLADDING

Peter W. Jackson, Whitley Bay, England; David K. C. Anderson, Troon, and David B. Cleland, Stevenston, both of Scotland, assignors to Imperial Chemical Industries Limited, London, England

Filed Jan. 15, 1979, Ser. No. 3,515
Claims priority, application United Kingdom, Jan. 17, 1978, 1850/78
Int. Cl.³ B23K *20/08*
U.S. Cl. 228—107 **13 Claims**



1. A method of applying a surface layer across a gap between cladding layer edges on a clad metal plate comprising forming a shallow chamfer along each opposing cladding layer edge, forming a groove in the metal plate centrally between the chamfer edges of the cladding layers and positioning in the groove and over the said chamfers a corrosion resistant metal flyer-plate having a shallow generally V-shaped configuration with the apex of the flyer plate facing the clad metal plate and lying between and generally parallel to the cladding layer edges, superimposing an explosive layer upon the cladding layer and detonating the explosive layer so as to weld the flyer-plate material at least to the cladding layers on each side of the gap.

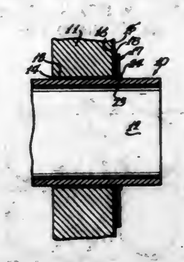
4,272,006

METHOD OF SOLDERING TUBE TO PLATE

Stephen S. T. Kao, Racine, Wis., assignor to Modine Manufacturing Company, Racine, Wis.

Filed Feb. 1, 1980, Ser. No. 117,395
Int. Cl.³ F28F *9/16*
U.S. Cl. 228—183 **1 Claim**

1. The method of joining a heat exchanger tube to a header plate, comprising: providing a header plate having a tube receiving opening in said plate closely embracing said tube when inserted in said opening; arranging a said heat exchanger tube in said opening; providing a sheet of solder on at least one of said tube and plate adjacent to said opening; attaching a retainer wettable by molten said solder to said tube or plate and bearing against said solder to retain it in position, said solder having a melting point less than the melting point of the header, tube and retainer; heating the resulting assembly of tube, plate, retainer and solder to a melting temperature for said solder whereby said molten solder flows over said retainer and into the space between the plate and tube by capillary attraction; and cooling the solder to a temperature less than the melting point of the solder to form a joint uniting said tube and



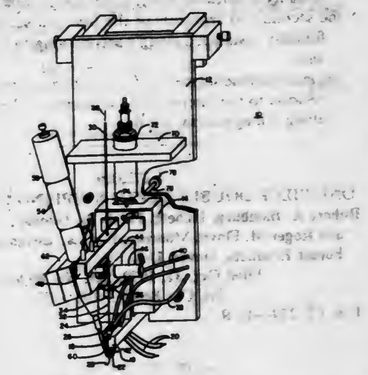
header, said retainer being provided with an opening surrounding said tube, the opening being defined by a sharp edge engaging and slightly penetrating the surface of the tube for holding the retainer in position.

4,272,007

WIRE BONDING SYSTEM AND METHOD

James J. Steranko, 33 Rockport Rd., Weston, Mass. 02193

Filed Feb. 2, 1979, Ser. No. 8,876
Int. Cl.³ H05K *13/06*; B23K *1/12*
U.S. Cl. 228—213 **11 Claims**



1. A method of bonding wire to a contact comprising: employing a first drive means to move a solder head to engage a wire in its tip with a contact to which it is to be bonded; heating said tip to heat the wire and contact and cause solder to flow; employing second drive means to apply an added force to increase the pressure of the tip on the wire and contact; removing the added force on and heating of the tip; and moving the solder head to remove the tip from the contact.

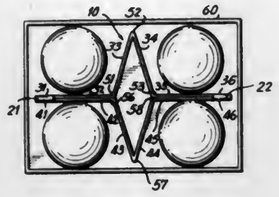
2. A bonding system comprising: a solder head; drive means for moving said head toward and away from a point to be soldered; a tip unit for receiving wire to be soldered and including a tip assembly having a first passage therethrough and a tip ministering assembly with a second passage for receiving wire and inserting it in said first passage; and holding means, for mounting proximate said tip assembly, said tip ministering assembly in a retracted position after threading with the wire passing through it to said tip assembly while allowing said tip ministering assembly to be readily released from said mounting means and moved into said first passage of said tip.

4,272,008

STAR DIVIDER

Roger M. Wozniacki, Spring, Tex., assignor to International Paper Company, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,693
Int. Cl.³ B65D 5/48
U.S. Cl. 229—15 1 Claim



1. A unitary blank for an adjustable carton divider consisting of:

a first panel, comprising a first end segment, four intermediate segments, and a second end segment, the segments being foldably connected in series by five transverse score lines; and,

a second panel, comprising a first end segment, four intermediatesegments, and a second end segment, the segments being foldably connected in series by five transverse score lines; wherein

all of the intermediate segments of the first and second panels are substantially equal in size;

the first end segments of the first and second panels are foldably connected along a first longitudinal score line;

the second end segments of the first and second panels are foldably connected along a second longitudinal score line; and,

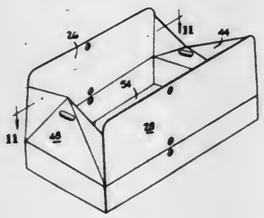
the intermediate segments of the first panel are in an abutting relation to the intermediate segments of the second panel along a longitudinal slit line.

4,272,009

ONE-PIECE DOUBLE DEPTH SHIPPING CONTAINER

Robert A. Bamburg, Hebert; Farris N. Duncan, West Monroe, and Roger M. Floyd, Monroe, all of La., assignors to Manville Forest Products, Dover, Del.

Filed Oct. 31, 1979, Ser. No. 89,849
Int. Cl.³ B65D 5/08, 5/00
U.S. Cl. 229—41 R 9 Claims



1. A one-piece double depth shipping container body production blank, comprising:

(a) a pair of side panels;

(b) an outer bottom panel hingedly attached to one of the side panels by a first score-line;

(c) a pair of inner end panels hingedly attached to the outer bottom panel by a second and third score-line;

(d) a pair of outer end panels hingedly attached to one of the side panels by a fourth and fifth score-line;

(l) one of the outer end panels also being hingedly attached to the other side panel by a sixth score-line;

(e) an inner bottom panel hingedly attached to the other side panel by a seventh score-line;

(f) the pair of side panels and the pair of outer end panels having formed therein an elongated eighth score-line spaced a pre-determined distance from the first and seventh score-line, the elongated eighth score-line running along the two side panels and the two outer end panels;

(g) one of the outer end panels also having formed thereon a hinged tab forming a manufacturers joint for the blank whenever the blank is set up into a container, the hinge being formed from a ninth score-line formed perpendicular to the eighth score-line; and

(h) each of the outer end panels also having formed therein a generally V-shaped score-line formed by a tenth and eleventh score-line and initiating at the apex of the V at a point approximately midway in the panel and located at an outer edge thereof and terminating at the elongated eighth score-line.

4,272,010

FOOD SERVICE CONTAINER AND LID

James L. Capo, Middletown, Ohio, assignor to International Paper Company, New York, N.Y.

Filed Jan. 31, 1980, Ser. No. 117,319
Int. Cl.³ B65D 43/06, 05/64
U.S. Cl. 229—43 21 Claims



1. A unitary paperboard lid for a rimmed receptacle comprising:

a cover panel whose outer dimensions are at least equal to the outer dimensions of the top of the receptacle; and

a pair of locking assemblies depending from opposite edges of the cover panel, each locking assembly comprising

an outer wall panel foldably connected to the cover panel,

means in each outer wall panel defining a semi-detachable retaining tongue,

an inner wall panel containing slot means for engaging the rim of the receptacle,

means for connecting the inner wall panel to the outer wall panel, and

means for securing the upper edge of the inner wall panel in spaced relation to the outer wall panel, whereby the slot means is held in spaced relation to the outer wall panel;

the lid being lockable to the receptacle by engaging the rim of the receptacle in the two slot means and detaching the two retaining tongues from the two outer wall panels to engage the portions of the rim protruding through the slot means, whereby each retaining tongue exerts an outward and upward bias on the protruding rim of the receptacle.

4,272,011

CENTRIFUGAL COUNTERFLOW TYPE CONTACTOR

Katsuaki Nagatomo; Shigenobu Hisatomi; Kiyoshi Fujiwara; Hiromasa Fukumori; Shoji Yoshinaga, all of Kudamatsu, and Kyozo Yoshioka, Hikari, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 10, 1978, Ser. No. 932,657
Claims priority, application Japan, Aug. 10, 1977, 52-95076
Int. Cl.³ B04B 5/06
U.S. Cl. 233—15 16 Claims

1. A centrifugal counterflow type contactor comprising

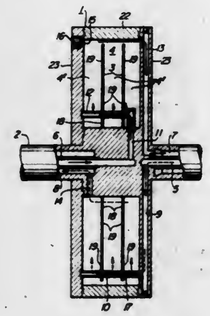
(a) a rotating shaft,

(b) a drum carried by said rotating shaft for rotation in unison therewith, said drum defining an interior annular space with an axial width, said drum adapted to have a light liquid and a heavy liquid flow therethrough in a radial direction, whereby the radial flow velocity may vary in the axial direction of said drums, the axial width being smaller than a preselected axial width so that the variation in radial flow velocity is suppressed,

(c) a light-liquid-in line means and a heavy-liquid-in line means both formed in said rotating shaft,

(d) a light liquid introducing means for introducing through said light-liquid-in line means a light liquid into said annular space in said drum at positions adjacent to the radially outward end or the outer periphery of said annular space,

(e) a heavy liquid introducing means for introducing through said heavy-liquid-in line means a heavy liquid into said annular space in said drum at positions adjacent to the radially inward end or the inner periphery of said annular space,



(f) a light-liquid-out line means and a heavy-liquid-out line means both formed in said rotating shaft,

(g) a light-liquid-lead-out line means for leading out said light liquid through said light-liquid-out line means from said annular space in said drum at positions in the vicinity of said radially inward end or the inner periphery of said annular space, and

(h) a heavy-liquid-lead-out line means for leading out said heavy liquid through said heavy-liquid-out line means from said annular space in said drum at positions in the vicinity of said radially-outward end or the outer periphery of said annular space, whereby the radial counterflow contact may be caused between said light liquid introduced into said annular space adjacent to said radially outward end thereof and said heavy liquid introduced into said annular space adjacent to said radially inward end thereof.

4,272,012

METHOD AND SYSTEM FOR CONTROLLING A PLURALITY OF TEMPERATURE CONDITIONING UNITS

John R. Molnar, 426 James St.; Earl H. Mechling, Butler Rd., and William L. Bell, 525 Oakwood Ave., all of Springdale, Pa. 15144

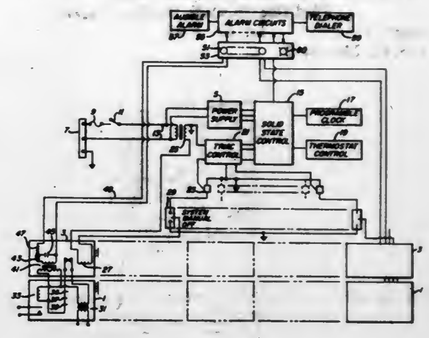
Filed Mar. 9, 1979, Ser. No. 18,923
Int. Cl.³ H02J 1/00; G05D 23/12
U.S. Cl. 236—1 E 10 Claims

1. A system for controlling a multi-unit temperature conditioning installation comprising:

means for repetitively generating timing intervals;

a plurality of control means each of which is connected to enable a group of said temperature conditioning units when energized; and

sequencer means for sequentially and repetitively, one after the other, at intervals equal to one of said timing intervals, energizing a control means for a first preset number of said timing intervals and then deenergizing it for a second preset number of said timing intervals with the total of said first and second preset number of intervals equal to the total number of control units such that a total of said



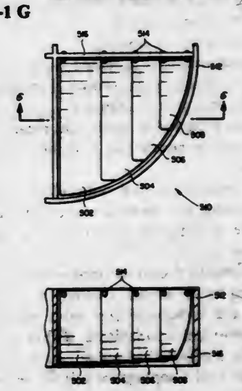
first preset number of control units are energized and the second preset number are deenergized during each timing interval, whereby groups of said conditioning units are disabled for a preset period of time on a rotating basis.

4,272,013

VENT CONTROL ARRANGEMENT FOR COMBUSTION APPARATUS

Werner Diermayer, 1275 Panorama Dr., Lafayette, Calif. 94549, and Luitpold Kutzner, Marschnerstrasse 78, D-8000 Munich, Fed. Rep. of Germany

Filed May 23, 1979, Ser. No. 41,877
Int. Cl.³ G05D 23/08
U.S. Cl. 236—1 G 5 Claims

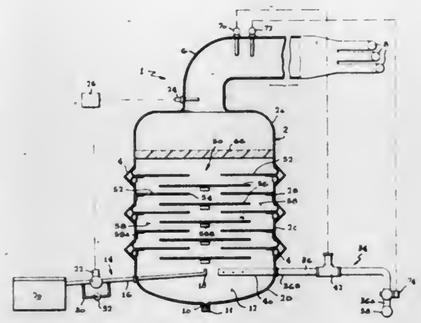


1. A damper arrangement for controlling vent gases along a path from a gas-fired appliance comprising bimetal element means disposed in the path, said bimetal element means including a plurality of bimetal strips responding to temperatures of the vent gases and flexing across the path for opening and closing the flow of gases, elongate opening means formed between adjacent portions of the bimetal element means with the opening means extending lengthwise of the adjacent portions for permitting the same to flex into a changed shape, and means for covering the opening means when the bimetal element means is at or near a position closing the flow of gases, the covering means including means for mounting the bimetal strips with side margins thereof extending in overlapping relationship when closing the flow of gases, with the covering means presenting a minimum of resistance to flexing of the bimetal element means.

4,272,014
HUMIDIFICATION SYSTEM

Paul F. Halfpenny, Van Nuys; Camillo L. Passarelli, Studio City, and Philip S. Starrett, Glendale, all of Calif., assignors to Lockheed Corporation, Burbank, Calif.

Filed Dec. 26, 1978, Ser. No. 973,745
Int. Cl.[3] F24F 3/14
U.S. Cl. 236—44 B 20 Claims



16. A system for controlling the humidity within the passenger compartment of an aircraft, the aircraft having a source of high temperature, pressurized air and a source of pressurized water, comprising:

a tank having an outlet duct connected to said passenger compartment of said aircraft;

water injection means comprising:

a water injection nozzle mounted within said tank;

pipe means connecting said source of pressurized water to said water injection nozzle; and

valve means mounted in said pipe means between said water injection nozzle and said the source of pressurized water;

a thermistor mounted in said outlet duct of said tank and adapted to sense the temperature within said outlet duct and to have a change in resistance as a function of said temperature;

relay means coupled to said thermistor and said valve means and adapted to sense the change in resistance of said thermistor and to actuate said valve means to the open position upon said temperature within said outlet duct rising above a preselected value and to close said valve means upon said temperature falling below said preselected value;

airflow control means comprising:

an air injection nozzle mounted within said tank;

pipe means connecting said source of high temperature air to said air injection nozzle;

a temperature-biased pressure regulator for controlling airflow into said tank such that said airflow has an internal energy sufficient to vaporize said water injected into said tank;

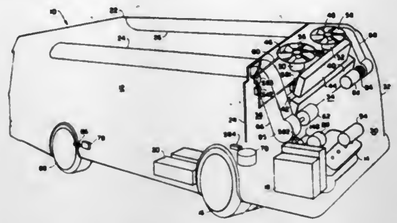
evaporator means mounted within said tank between said outlet duct and said air injection and said water injection nozzles, said evaporator means adapted to maintain said water within said tank until said water has been vaporized; and

a demisting filter mounted in said tank between said evaporator means and said outlet duct, said filter adapted to prevent particulate matter from leaving said tank.

4,272,015
COACH CLIMATE CONDITIONING BLOWER CONTROL

Raymond E. Houser, Wooster, Ohio, assignor to Grumman Flexible Corporation, Delaware, Ohio

Filed May 31, 1979, Ser. No. 44,005
Int. Cl.[3] F24F 7/00; B60H 3/00
U.S. Cl. 236—49 2 Claims



1. In a climate control system for the passenger compartment of a motor vehicle having at least one blower for circulating air through said passenger compartment, an air conditioning, reheating, and heating system for conditioning the air circulated by said blower, an electric motor operable at a low and a high speed driving said blower, and a source of electric power for operating said blower, the improvement in an electrical control circuit for controlling the speed of said blower comprising: switch means in said blower control circuit for selecting automatically the operating speed of said blower, said switch means including a first thermostat responsive to the temperature of the coolant of the engine of said vehicle, a second thermostat responsive to outside ambient temperature, a third thermostat responsive to the temperature of the return air from said passenger compartment, and a pressure switch operatively connected to the suspension system of said vehicle such that said pressure switch is responsive to weight imposed on said vehicle as a function of the number of passengers aboard the same, said thermostats having predetermined temperature set points, said pressure switch having a predetermined pressure set point, said switch means being operable to switch said control circuit to operate said blower at its low speed in a first condition where said first thermostat is above its said set point and said second and third thermostats and said pressure switch are below their said set points and in a second condition where said first and second thermostats are above their said set points and said third thermostat and said pressure switch are below their said set points, and said switch means being operable to switch said control circuit to operate said blower at its high speed in a third condition where said first and second thermostats and said pressure switch are above their said set points and said third thermostat is below its said set point and in a fourth condition where said first, second, and third thermostats are above their said set points and said pressure switch is below its said set point, whereby a correct volume of air for a specified passenger load conditioned to maintain a specified passenger compartment temperature is delivered by said blower.

4,272,016
INTEGRATED SEWAGE TREATMENT SYSTEM

Robert H. Nealy, 365-C11 Newtown Rd., Warminster, Pa. 18974

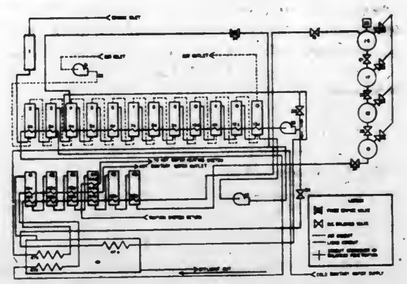
Continuation-in-part of Ser. No. 775,805, Mar. 9, 1977, Pat. No. 4,135,665, which is a continuation-in-part of Ser. No. 477,539, Jun. 7, 1974, abandoned. This application Jan. 22, 1979, Ser. No. 5,542
Int. Cl.[3] F23G 1/00; C02F 3/00; F24D 3/00
U.S. Cl. 237—56 4 Claims

1. An integrated sewage treatment system comprising:

(a) first means for collecting domestic sewage composed of raw human excrement and other organic and inorganic wastes entrained in transport water;

(b) second means for mineralizing the organic component of said sewage;

(c) third means for liquid-phase sterilization of the effluent remaining after the organic component of said sewage has been mineralized;



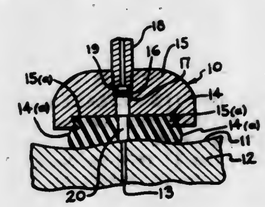
(d) fourth means for regeneratively utilizing the thermal energy contained in said effluent after sterilization to energize at least one other thermally motivated function normally associated with human domestic life; and

(e) fifth means for disposing of said effluent after its thermal energy has been utilized and depleted.

4,272,017
METHOD AND NOZZLE ASSEMBLY FOR FLUID JET PENETRATION OF A WORK MATERIAL

Norman C. Franz, Apt. 1203-4665 W. Tenth Ave., Vancouver, British Columbia, Canada

Filed Mar. 22, 1976, Ser. No. 669,301
Int. Cl.[3] B26F 1/26
U.S. Cl. 239—1 8 Claims



1. A method of penetrating a work material with a high energy fluid jet ejected from a nozzle element comprising the steps of:

(a) addressing the nozzle element to the work material through a chamber interpositioned between a fluid ejection point of the nozzle element and a surface of the work material;

(b) forcing the chamber into a compressed engagement with said work material surface, to cause said chamber to be compressively and substantially sealed against said surface; and

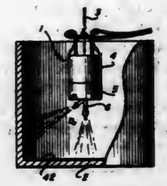
(c) ejecting a high energy fluid jet through the nozzle element, and in throughgoing traverse of said chamber, at a fluid pressure upstream of the nozzle element which develops to at least about 700 kilograms per square centimeter until the work surface is penetrated to the desired extent; wherein

said through-chamber addressing step comprises disposing a deformable element having a tubular opening formed therein between the nozzle element and the surface of the work material.

4,272,018
APPARATUS AND METHOD FOR SPRAYING REFRACTORY MATERIAL

Richard W. Hickson, Lake Village, Ind., assignor to Southern Refractories, Inc., Chicago, Ill.

Filed Aug. 4, 1978, Ser. No. 930,985
Int. Cl.[3] B05B 13/04; C21B 7/06
U.S. Cl. 239—8 8 Claims



1. An apparatus for spraying refractory materials on the interior surfaces of refractory bodies, comprising:

a. a fixed top element;

b. a rotating bottom element depending from and rotatably mounted vertically below said fixed element;

c. first means for axially rotating said bottom element about the vertical axis of the apparatus;

d. a downwardly-depending angularly adjustable spray nozzle mounted on the bottom face of said rotating element for spraying refractory material, said nozzle capable of spraying the bottom interior surface of the refractory body;

e. second means for conveying refractory material to said nozzle;

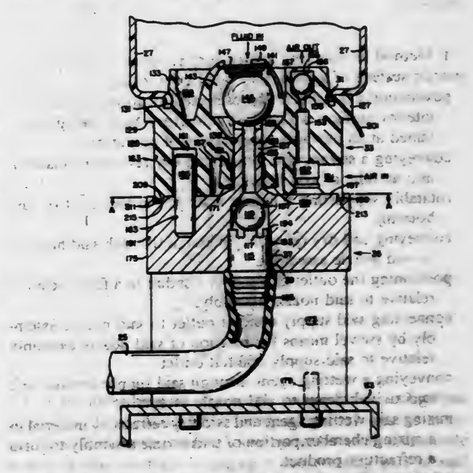
f. third means for conveying a wetting agent to said nozzle; and

g. fourth means for adjusting the direction of spray of said nozzle.

4,272,019
FLUID SPRAYER APPARATUS AND METHOD

Samuel A. Halsby, Jr., 276 Thornell Rd., Pittsford, N.Y. 14534

Filed Oct. 17, 1978, Ser. No. 952,107
Int. Cl.[3] B05B 7/30, 15/08; B65D 41/32; F16L 37/28
U.S. Cl. 239—8 53 Claims



1. In a fluid sprayer apparatus including a selected fluid for spraying therewith, a container for said selected fluid, a fluid supply means associated with said container and said apparatus and comprising in combination a coded fluid inlet and dispens-

ing means having means for attachment to spraying means of said apparatus and having attachment means for attaching the inlet of said coded means to the outlet of a vented companion coded fluid outlet and dispensing means having means for attaching said companion coded means to a container of said fluid characterized in that said inlet and dispensing means and said companion coded fluid outlet and dispensing means each comprises a tubular body with an endwall having a multiplicity of elongated key chambers, said endwalls being opposed and said key chambers in each endwall having locations corresponding to those of key chambers in the opposing endwall with at least two of said chambers being selected mating key chambers and having key pins fitted therein to engage corresponding mating key chambers in the opposing endwall in accordance with a code associated with a selected fluid to be sprayed from said fluid sprayer apparatus and provided in said container.

4,272,020

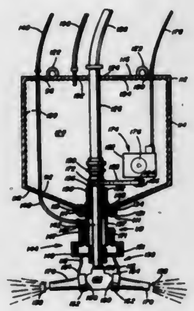
GUNNING APPARATUS FOR IN SITU SPRAYING OF REFRACTORY MATERIAL

Ralph E. Allison, Wheelersburg, Ohio, assignor to BMI Inc., Pittsburgh, Pa.

Continuation of Ser. No. 934,327, Aug. 16, 1978, Pat. No. 4,211,367, which is a continuation-in-part of Ser. No. 780,268, Mar. 23, 1977, abandoned. This application Nov. 26, 1979, Ser. No. 97,238

Int. Cl.³ B05B *3/02*; C21B *7/06*

U.S. Cl. 239—8 **14 Claims**



1. Method for spraying a refractory product in situ upon the interior surface of a refractory body comprising,

positioning a housing at a preselected location opposite said interior surface within said refractory body being maintained at an elevated temperature of operation,

conveying a stream of air entrained dry refractory material into an inlet of said housing,

rotatably supporting a nozzle assembly in an outlet of said housing,

conveying said dry refractory material through said housing to said nozzle assembly,

positioning the outlet of a supply conduit in a fixed position relative to said nozzle assembly,

connecting said supply conduit outlet to said nozzle assembly by swivel means for rotation of said nozzle assembly relative to said supply conduit outlet,

conveying a wetting agent through said supply conduit and said swivel means to said nozzle assembly,

mixing said wetting agent and said dry refractory material in a mixing chamber portion of said nozzle assembly to form a refractory product,

rotating said nozzle assembly at a preselected speed and in a preselected rotary direction, and

applying said refractory product in a spray from said nozzle assembly onto a preselected area of said interior surface of said refractory body while said refractory body is at an elevated operating temperature.

4,272,021

PIPELINE DRAIN APPARATUS

Norman S. Standal, Star Rte., Bliss, Id. 83314

Continuation of Ser. No. 850,917, Nov. 14, 1977, abandoned. This application Feb. 19, 1980, Ser. No. 122,708

Int. Cl.³ A01G *25/09*

U.S. Cl. 239—106 **7 Claims**



1. In combination with an irrigation pipeline having cylindrical walls made of rigid material and having a plurality of longitudinally spaced sprinkler outlets open through said walls along one side of the pipeline;

an apparatus for draining liquid from within the irrigation pipeline, comprising:

elongated sealed bladder means located within the pipeline, said bladder means having a length that longitudinally overlaps the sprinkler outlets along said one side of the pipeline;

said bladder means being expandable and collapsible in transverse directions within the pipeline toward or away from the sprinkler outlets overlapped thereby along said one side of the pipeline;

said bladder means containing compressible gas at a pressure and volume adequate to cause the bladder means to expand toward the walls of the pipeline when the pipeline is empty of water, such gas pressure being less than a predetermined supply water pressure for the pipeline;

and means for introducing water under said predetermined supply water pressure to the space between said bladder means and said one side of the pipeline.

4,272,022

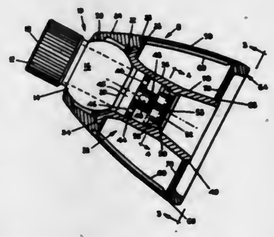
SHOWERHEAD WITH REPLACEABLE HOUSING

Frank C. Evans, Rockford, Mich., assignor to Zin-Plas Corporation, Grand Rapids, Mich.

Filed Oct. 17, 1979, Ser. No. 85,524

Int. Cl.³ B05B *1/18*

U.S. Cl. 239—107 **15 Claims**



1. A showerhead comprising:

a ball joint having an inlet end adapted to be connected to a supply pipe, an outlet end including a ball and a passage connecting said inlet end with said outlet end to provide for fluid communication through said ball joint;

a skirt member mounted on said ball for swiveling movement thereon and coaxially disposed about said passage, said skirt member including a shoulder about a lower outer circumference;

a generally cylindrical water flow section extending from said skirt member for directing fluid flowing through said passage;

an annular groove disposed on an outer circumferential surface of said cylindrical section;

orifice plate means disposed in said cylindrical section downstream of said ball for shaping fluid flowing through said cylindrical section into a water spray pattern; and

a generally cylindrical decorative shell coaxially disposed about and radially spaced from said cylindrical water flow section including an annular end portion having a bead on an inner circumference thereof received in a snap-fit locking relationship in said groove;

said shell removably abutting said shoulder of said skirt member and having an outer surface continuous with an outer surface of said skirt member;

wherein said shell is removable from said cylindrical water flow section without disconnecting said ball joint from said supply pipe.

4,272,023

TELESCOPIC SINKING HYDRANT

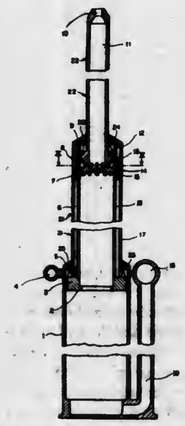
Vesselin Y. Georgiev, and Vladimir S. Mednikarov, both of Sofia, Bulgaria, assignors to Institute po Mechanika i Biomechanika, Sofia, Bulgaria

Filed May 3, 1979, Ser. No. 35,541

Claims priority, application Bulgaria, Oct. 30, 1978, 41257

Int. Cl.³ B05B *15/10*

U.S. Cl. 239—204 **4 Claims**



1. A retractable sprinkler for an irrigation system having main and ancillary conduit means alternately supplied with water under pressure; comprising:

a stationary cylinder communicating at its bottom with said main conduit means and at its top with said ancillary conduit means;

a first-stage riser tube having an open lower end with a first piston head guided in said cylinder for vertical reciprocation under water pressure from said main and ancillary conduit means between a retracted position near the cylinder bottom and an elevated position near the cylinder top, said first-stage tube having an inner and an outer peripheral wall defining an annular channel therebetween;

a second-stage riser tube having a closed lower end with a second piston head guided in said inner wall for vertical reciprocation under said water pressure between a retracted and an elevated position relative to said first-stage tube, said second-stage tube penetrating an otherwise closed upper end of said first-stage tube and having an axial bore terminating in an outlet at the top thereof;

first stop means in said cylinder defining a first clearance between the cylinder top and said first piston head in the elevated position of the latter, said first clearance being open to said ancillary conduit means and communicating with said annular channel through a set of first radial holes near the lower end of said outer wall;

second stop means in said first-stage tube defining a second clearance between said upper end thereof and said second piston head in the elevated relative position thereof, said inner wall being provided near said upper end with a set of second radial holes connecting said second clearance with said annular channel, said axial bore being connected at the bottom thereof via a set of third radial holes with an annular peripheral groove of said second piston head, said inner wall being farther provided below said second radial holes with a set of vertical slots extending in the elevated relative position of said second-stage tube from the level of said peripheral groove to a level below the undersurface of said second piston head whereby a flow path for incoming water is formed in the elevated positions of said tubes from said main conduit means via said cylinder, the open lower end of said first-stage tube, said slots, said peripheral groove, said third radial holes and said bore to said outlet; and

a sleeve in said channel closing said slots from without, said sleeve having vertical passages forming with said first and second radial holes a flow path extending to said ancillary conduit means for the retraction of said second-stage tube under water pressure from the latter conduit means and for the escape of water trapped in said second clearance upon an ascent of said second-stage tube under water pressure from said main conduit means.

4,272,024

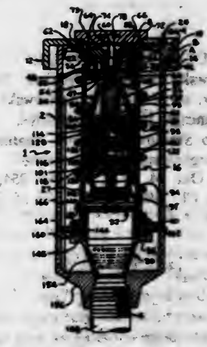
SPRINKLER HEAD

Carl L. C. Kah, Jr., 778 Lakeside Dr., North Palm Beach, Fla. 33408

Filed Aug. 27, 1979, Ser. No. 69,965

Int. Cl.³ B05B *3/04, 15/10*

U.S. Cl. 239—206 **11 Claims**

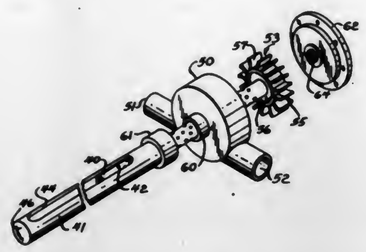


1. A sprinkler head having nozzle means for directing fluid therefrom, drive means for rotating said nozzle means in response to fluid passing through said sprinkler head, said nozzle means having a surface engaging a non-rotating part of said sprinkler head, means continuously biasing said surface of said nozzle means against said non-rotating part, said fluid passing through said nozzle means flowing in a direction to decrease the force of said biasing means acting to bias said surface of said nozzle means against said non-rotating part.

4,272,025
WATER DISTRIBUTION SYSTEM FOR AN ICE MAKING DEVICE

Ermanno Mazzotti, 501 Newberry Dr., Streamwood, Ill. 60103

Filed May 21, 1979, Ser. No. 40,851
Int. Cl.³ B05B 3/16
U.S. Cl. 239—240 7 Claims



1. A spraying unit for spraying fluid in a predetermined angular arc from the spraying unit onto a surface in spaced relation from the spraying unit, said spraying unit comprising:

rotatable spraying means with a plurality of orifices extending into a hollow interior of the spraying means, the hollow interior of the spraying means adapted to communicate with a supply of fluid to be sprayed;

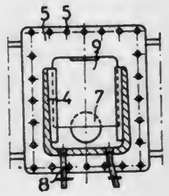
shielding means disposed about said rotatable spraying means with sufficient operational clearance between said spraying means and said shielding means to permit said spraying means to be rotated within said shielding means while said shielding means remains relatively stationary with respect thereto, said shielding means having at least one open area through which fluid may be sprayed through those orifices of the spraying means which are encompassed by the open area in said shielding means, said shielding means being adjustably disposed with respect to said spraying means for selectively regulating the direction of spraying; and

means for rotating said spraying means whereby fluid is directionally sprayed from said spraying means through the open area in said shielding means in a plurality of fine streams which continuously sway across the surface being sprayed.

4,272,026
SPRINKLING DEVICE FOR ABSORPTION TOWERS

Aleksander Jazlowski; Rudnicki Michal; Bartosz Tadeusz; Czelny Zdzislaw, all of Gliwice; Zarkowski Jozef, Gieraltowice, and Romanczyk Henryk, Katowice, all of Poland, assignors to Biuro Studiow, projetiwo Realizacji in Westycji Przemyslu Nieorganicznego "Biprokwas", Gliwice, Poland

Filed Oct. 24, 1978, Ser. No. 954,212
Int. Cl.³ B05B 1/20, 1/30, 15/06
U.S. Cl. 239—273 4 Claims

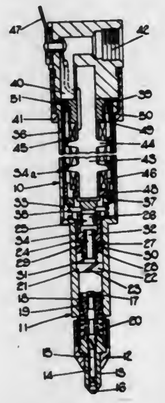


1. A sprinkling device for an absorption tower comprising a collector extending at a level above the tower for distribution of liquid into the tower, means for supplying liquid to said collector, a jacket having cavities in which said collector is supported, feeding troughs for receiving liquid from said collector for distribution into said tower, said collector including a side wall, flange connectors connecting the troughs to said side wall of the collector, said side wall of the collector having orifices for feeding liquid to said feeding troughs, valve plates at said orifices for controlling the outflow of liquid to said feeding troughs, and sprinkling tubes connected to said troughs for distributing the liquid in the troughs into the tower.

4,272,027
FUEL INJECTION PUMPING APPARATUS

Alec H. Scilly, North Wembley, and Dorian F. Mowbray, Burnham, both of England, assignors to Lucas Industries Limited, Birmingham, England

Filed Nov. 16, 1979, Ser. No. 94,717
Claims priority, application United Kingdom, Mar. 3, 1979, 07556/79
Int. Cl.³ B05B 1/30
U.S. Cl. 239—585 12 Claims

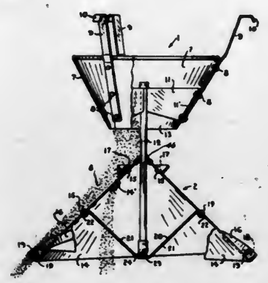


1. A fuel injection pumping apparatus for supplying fuel to a combustion space of an internal combustion engine and comprising an injection nozzle positioned in use on an engine so that fuel delivered to the nozzle will be injected into the combustion space and an injection pump for delivering fuel to the nozzle in timed relationship with the associated engine, the apparatus comprising an elongated hollow body of stepped form having the injection nozzle mounted at the narrower end of the body, a hollow cylindrical valve mounting having a peripheral flange engaging the step in the body and defining a bore in the body, a plunger forming part of said pump slidable in said bore to vary the size of a pumping chamber, resilient means biasing the plunger in a direction to increase the size of the pumping chamber, electromagnetic means mounted in the wider portion of the body and operable to move the plunger against the action of said resilient means to displace fuel from the pumping chamber through said nozzle, and a valve controlled fuel inlet to said pumping chamber and through which fuel can flow into said bore from a source of fuel when the plunger is moved by said resilient means, a valve member of said valve also acting to relieve the pressure in said bore by its engagement with the plunger, after the plunger has been moved to a predetermined position by the electromagnetic means, said bore being of stepped form, the end portion of the bore adjacent the electromagnetic means accommodating the plunger, the intermediate portion of the bore supporting the valve member and the other end portion of the bore defining at its end a seating for a head of the valve member, said other end portion of the bore being of larger diameter than the intermediate portion and having ports formed therein through which fuel can flow from said source, the valve member having a passage extending therethrough and through which fuel can flow into the pumping chamber from said ports when the valve head is lifted from its seating.

4,272,028
SPREADER FOR AND OPERATIVE BY A GRANULAR PRODUCT

Wayne E. Cobb, 358 Harrison St., Valparaiso, Ind. 46383

Continuation of Ser. No. 758,209, Jan. 10, 1977, abandoned. This application Nov. 20, 1978, Ser. No. 962,126
Int. Cl.³ A01C 17/00
U.S. Cl. 239—687 31 Claims



1. In combination: a hopper for receiving a granular product, said hopper having a lower outlet, a shaft secured in said hopper and extending downwardly through and below said outlet, a generally conical impeller having an upper opening through which said shaft extends, a plurality of spaced spiral blades secured to the upper side of said impeller and a fitting carried by its under side, a housing connected to said shaft, an apertured member disposed in a lower part of said housing and a bearing disposed in said housing and upon said apertured member, and means connected to said fitting and said bearing and extending through said apertured member whereby said bearing engages said member for suspending said spreader thereon for rotation relative to said shaft when such a product flows against said blades.

4,272,029
UPGRADING OF BAUXITES, BAUXITIC CLAYS, AND ALUMINUM MINERAL BEARING CLAYS

David Weston, Toronto, Canada, assignor to Reynolds Metals Company, Richmond, Va.

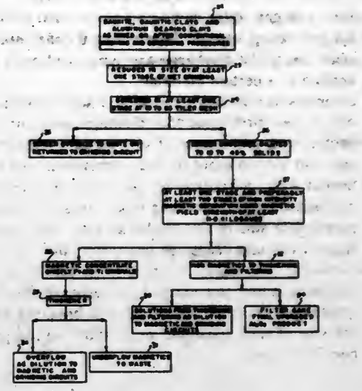
Continuation-in-part of Ser. No. 838,445, Oct. 4, 1977, Pat. No. 4,193,791, which is a continuation-in-part of Ser. No. 736,466, Oct. 28, 1976, Pat. No. 4,113,466, and Ser. No. 115,397, Jan. 24, 1979. This application Feb. 23, 1979, Ser. No. 14,279
Int. Cl.³ B02C 23/08; B03B 1/04
U.S. Cl. 241—16 65 Claims

1. A process for the upgrading of an aluminum mineral bearing material selected from the group consisting of bauxites and bauxitic clays comprising:

(a) subjecting said material to at least one stage of wet grinding at a pulp density of about 25% to 60% solids, and in the presence of at least sodium hydroxide, and in the pH range of about 8.5 to 12.5;

(b) subsequently subjecting the said pulp to at least one screening stage in the range of 10 mesh Tyler to 65 mesh Tyler to produce a minus 10 to minus 65 mesh product, wherein the screen size used in said screening stage is a direct function of the width of the magnetic gap of a high intensity magnetic separation apparatus used in a subsequent at least one stage of high intensity magnetic separation; and wherein such screen size is at least 10% less in dimension than the width of the said magnetic gap setting in the subsequent at least one stage of high intensity magnetic separation;

(c) subsequently subjecting the said minus 10 to minus 65 mesh product to at least one stage of high intensity magnetic separation using a field strength of about 11.0 to 22.0 kilogauss to produce a magnetic concentrate enriched in iron and titanium minerals and a nonmagnetic product impoverished in iron and titanium minerals; and

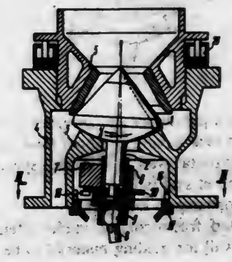


(d) subsequently subjecting said nonmagnetic product to at least one stage of desliming to produce a fines product enriched in iron, titanium, and silica, and a coarse product impoverished in iron, titanium and silica.

4,272,030
DEVICE FOR ADJUSTING AN INERTIA CONE CRUSHER DISCHARGE GAP

Mikhail M. Afanasiev, Varshavskaya ulitsa, 25, kv. 33; Nikolai A. Ivanov, Novoizmailovsky prospekt, 19, kv. 96; Evgeny A. Konstantinov, prospekt Kima, 28, kv. 220, and Valery A. Makarov, Pionerskaya ulitsa, 39, kv. 17, all of Leningrad, U.S.S.R.

Filed Jul. 30, 1979, Ser. No. 62,129
Int. Cl.³ B02C 2/04
U.S. Cl. 241—37 1 Claim



1. A device for adjusting a discharge gap in an inertia cone crusher comprising a breaking head having a shaft, an out-of-balance weight coupled mechanically with said shaft and rotatable around the vertical axis of said crusher, and a crushing bowl installed above said breaking head and capable of vertical displacement with respect to the latter so as to change the size of said discharge gap, said device including:

an angle sensor, responsive to a deflection of the axis of said breaking head from the vertical, having an output, said sensor being an induction sensor comprising a plurality of inductance coils interconnected electrically in parallel, said induction coils being mounted fixedly around said shaft of said breaking head and uniformly distributed along a circle having the center thereof on the vertical axis of said crusher, and at least one permanent magnet coupled mechanically with said out-of-balance weight for

inducing electrical signals in said inductance coils as said out-of-balance weight rotates;

a signal preprocessing unit having an input and an output, said input of said signal preprocessing unit being connected with said output of said angle sensor;

a discharge gap setter having an output, and being adapted for generating a signal determining the maximum permissible size of the discharge gap when said cone crusher is applied to a certain material;

a comparison unit having first and second inputs and an output, said first input of said comparison unit being connected with said output of said signal preprocessing unit, and said second input of said comparison unit being connected with said output of said discharge gap setter; said comparison unit responding to an excess of said maximum permissible size of the discharge gap, determinable by a signal from said discharge gap setter; and

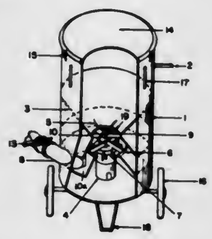
an actuator electrically coupled with said output of said comparison unit and adapted for vertically displacing said crushing bowl with respect to said breaking head when the size of said maximum permissible discharge gap has been exceeded.

4,272,031

VEGETATION PULVERIZER

Chester G. Jines, 1980 SE. Spruce, Hillsboro, Oreg. 97123

Filed Feb. 21, 1979, Ser. No. 6,550
Int. Cl.[3] B02C *23/36*
U.S. Cl. 241—46.17 4 Claims



1. A vegetation pulverizer and spreader comprising

(a) an upright tank having an upper loading operation,

(b) a first horizontal wall in said tank spaced downwardly from the top of said tank,

(c) a central opening in said wall,

(d) an inverted frusto-conical guide extending upwardly from said wall for guiding material to be treated toward said opening,

(e) fluid inlet means adjacent an upper portion of said tank for admitting fluid,

(f) a horizontally operating cutter blade disposed adjacent said central opening for initially cutting and shredding material received down said guide for producing a slurry,

(g) a second horizontal wall below said first horizontal wall forming a compartment therebetween,

(h) cutter and impeller means in said compartment arranged to receive the slurry from said cutter blade and further reduce the material and mix it with fluid to provide a resulting readily flowable slurry in said compartment,

(i) an upright power driven shaft in said tank driving said cutter blade and said cutter and impeller means,

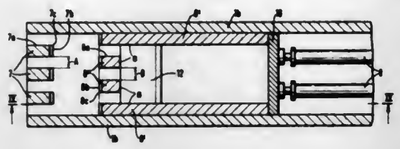
(j) and an outlet radially disposed with relation to said cutter and impeller means through which the latter forces the resulting slurry.

4,272,032

DISINTEGRATOR OF WOODEN PRODUCTS

Bengt Hellberg, Kvartsekelsgatan 3A, S-415 09 Göteborg, Sweden

Filed Apr. 25, 1979, Ser. No. 33,185
Int. Cl.[3] B02C *1/04, 1/10*
U.S. Cl. 241—263 6 Claims



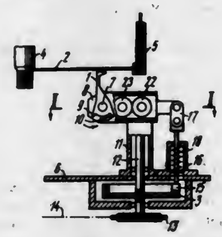
1. Disintegrator of wood products, for example demolition timber containing objects of metal and other hard material, comprising a housing provided with an opening in its top for receiving the wood products intended for treatment, two groups of vertically extending cutting means in the interior of said housing, a movable supporting frame formed in said housing, one group of said cutting means being fixed and located near to one end of said housing and the other group of said cutting means being mounted on said frame, each group of cutting means being in side-by-side and in spaced relationship with each other, the interspace between the cutting means of one group being bridged by the corresponding cutting means of the other group, a power jack connected with said movable supporting frame operable to move said other group of cutting means into overlapping relationship with said one group of cutting means in such manner that cutting edges of the cutting means of both groups slide against each other and cut and disintegrate the wood products in said housing, and an opening in the underside of said housing for feeding-out of the disintegrated material, said frame having a discharge opening in its lower rear portion behind said other group of cutting means which at least in one position of displacement of said frame communicates with said opening in the underside of said housing.

4,272,033

DEVICE FOR FORMING TAPS WHEN WINDING ELECTRICAL COILS

Isaak Y. Feldshtein, ulitsa Rymarskaya, 23, kv. 5; Valery S. Epifanov, prospekt Traktorostroiteiei, 65 V, kv. 22; Vladimir N. Olefirenko, ulitsa Roberta Eidemana, 5, kv. 1; Jury I. Karelov, ulitsa Geroev Truda, 26, kv. 74; Alexandr A. Boyarsky, ulitsa Geroev Truda, 47a, kv. 57, and Alexandr N. Pashkov, pereulok Rubezhansky, 24, all of, Kharkov, U.S.S.R.

Filed Apr. 4, 1979, Ser. No. 27,073
Int. Cl.[3] H02K *15/09*
U.S. Cl. 242—7.05 B 3 Claims



1. A device for forming taps when winding electrical wire into coils in a winding zone of a coil winding machine having a machine bed and a coil wire guide, said device comprising:

a casing movable with respect to the wire guide of the machine;

drive shaft means mounted on said casing for rotation relative to said casing;

a projection rigidly secured on said drive shaft means;

hook means for catching the wire, holding it outside of the winding zone and releasing it prior to completing the winding of the next coil, said hook means being rotatably mounted on said drive shaft means and having stop means for interacting with said projection during the rotation of the hook means about said drive shaft means;

elastic member means connected to said drive shaft means and said hook for transmitting rotary motion from said drive shaft means to said hook means;

cyclicly movable means including cam means for imparting motion to said casing during a portion of each complete rotation of said drive shaft means, said motion being such that said hook means is projected into said winding zone; and

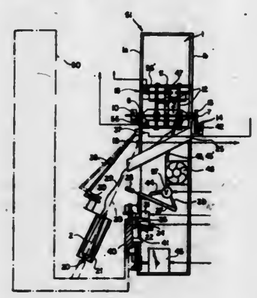
common drive means for both moving said cam means and rotating said drive shaft means.

4,272,034

SPOOL-CHARGING DEVICE FOR AUTOMATIC-WINDING-MACHINE MAGAZINES

Milko D. Dimitrov, Sofia, Bulgaria, assignor to SK "Pamukotex", Sofia, Bulgaria

Continuation-in-part of Ser. No. 917,501, Jun. 21, 1978, abandoned, which is a continuation of Ser. No. 740,739, Nov. 10, 1976, abandoned. This application May 1, 1979, Ser. No. 35,093
Int. Cl.[3] B65H *54/26, 67/02*
U.S. Cl. 242—35.5 R 7 Claims



1. A device for charging spools successively into the socket of a winding machine, said device comprising:

a support;

means for advancing said support along said winding machine;

a bin containing previously oriented spools mounted on said support and formed with a discharge slot;

a first fork displaceable on said support and having arms flanking said discharge slot, said arms being provided with opposite rotatable grip members engageable with opposite axial ends of a spool in said bin for withdrawing an engaged spool from said slot;

a pair of coplanar guides extending parallel to the axis of said spool engaged by said fork and disposed along the path of said spool withdrawn from said slot;

a blowing funnel on one of said guides and an aspiration funnel disposed on the other of said guides and means for displacing said funnels along said guides for respectively dislodging a thread end from said spool engaged by said first fork and drawing said dislodged thread end into said aspiration funnel;

means for directing said spool engaged by said first fork after the drawing of said thread end into said aspiration funnel into a respective socket of said magazine; and

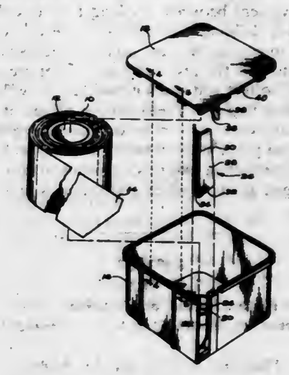
means hinged to said support for guiding said thread end drawn by said aspirator funnel to said winding machine.

4,272,035

LIGHT LOCK FOR ROLL DISPENSING CONTAINER

Larry Sherman, Macedon, and John J. Niedospial, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 14, 1980, Ser. No. 140,512
Int. Cl.[3] G03B *1/10, 17/26*
U.S. Cl. 242—71.1 7 Claims



1. A container for light-sensitive strip material, said container comprising:

a body member having (1) a central cavity, (2) a opening through which strip material is loaded into the cavity and (3) a slot through which the leader of the strip material extends when the strip material is loaded in the cavity;

a cover engagable with said body member to close the opening after the strip material is loaded in the cavity;

a slot closure member movable in said slot between a slot-open position and a slot-closed position, said closure member being biased to its slot-open position for receiving the leader of strip material loaded in the cavity; and

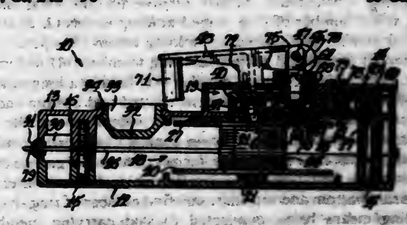
cooperative means on said cover and said closure member for moving said closure member to its slot-closed position as said cover closes the opening in said body member.

4,272,036

LINE REEL

David R. Watermann, Elgin, Ill., assignor to Keson Industries, Inc., Naperville, Ill.

Continuation of Ser. No. 930,683, Aug. 3, 1978, abandoned. This application May 16, 1979, Ser. No. 39,329
Int. Cl.[3] B65H *75/40, 75/16*
U.S. Cl. 242—96 13 Claims



1. In a line reel including a spool for winding line thereabout, a case in which the spool is rotatably mounted and having an aperture through which the line extends, and gear means in engagement with the spool for driving the spool to wind or unwind line thereon, the improvement comprising:

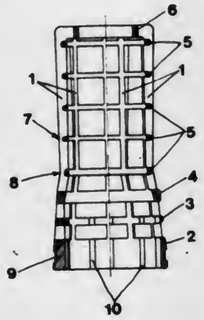
a clutch part carried by the gear means;
a rotatable shaft for driving the gear means having a complementary clutch part at one end adapted to releasably engage the clutch part on the gear means and having its other end external of the case, said shaft being movable between a first position in clutched engagement with the gear means and a second position disengaged from the gear means;
means for biasing said shaft into clutched engagement with the gear means; and
a crank for turning said shaft having one end pivotally connected to the external end of said shaft for selective pivotal movement between cranking and locked positions, said crank defining cam means at the one end thereof adapted to engage the case, said cam means being eccentric relative to the pivot connection between the crank and shaft so that said crank is maintained by the action of said biasing means at a selected one of said cranking and locked positions, said cam means maintaining said shaft in disengaged position when said crank is at its locked position and permitting said biasing means to move said shaft to engaged position when said crank is at its cranking position.

4,272,037

LAP CREEL

Josef Becker; Hubert Becker, and Matthias Becker, all of Niederforstbacher Str. 80 - 84, 5100 Aachen - Brand, Fed. Rep. of Germany

Filed Oct. 9, 1979, Ser. No. 82,803
Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2845053
Int. Cl.³ B65H *75/20*
U.S. Cl. 242—118.1 **5 Claims**



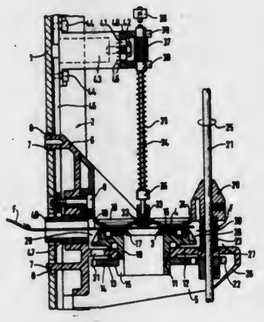
1. A lap creel having a longitudinal axis and top and bottom ends, comprising rod shaped carrying members (1) each having a substantially rectangular cross-section in a direction extending substantially radially relative to said longitudinal axis, a first number of ring shaped holding means (2, 3) and a second number of ring shaped holding means (5) operatively connected to said rod shaped carrying members (1) to form a cage, each of said carrying members (1) having a longitudinal shape with a first part that widens toward said bottom end of the creel and with a second part that widens toward the top end of the creel, whereby a lower conical cage portion and an upper conical cage portion are formed which merge into each other where said cage has its smallest outer diameter intermediate said bottom and top ends, said first number of ring shaped holding means being connected to said carrying members along said first part thereof so that said ring shaped holding means and said carrying members are substantially flush with one another in the radially outward direction along said lower conical cage portion, said second number of ring shaped holding means being connected to said carrying members along said second part thereof so that said carrying members protrude radially outwardly relative to said ring shaped holding means along said upper conical cage portion, said first number of ring shaped holding means comprising at least one ring located at said bottom end and having inwardly facing, axially extending grooves (10) positioned intermediate adjacent carrying members and radially spaced from one another so that said lap creel is insertable with its top end into another lap creel of the same construction.

4,272,038

THREAD-TENSIONING DEVICE ON A WARP CREEL

Edwin Wildi, Niederuzwil, Switzerland, assignor to Maschinenfabrik Benninger AG, Uzwil, Switzerland

Filed May 20, 1980, Ser. No. 151,704
Claims priority, application Switzerland, May 31, 1979, 5062/79
Int. Cl.³ B65H *59/24*
U.S. Cl. 242—150 R **10 Claims**



1. Thread-tensioning device on a warp creel, in which thread unwound from a bobbin is guided through in a straight line between discs of a disc brake, a lower disc of which is driven by a drive shaft running outside the disc periphery and an upper disc of which is pressable resiliently against the lower disc, and in which the thread is deflectable, as it leaves the warp creel, by a deflecting device towards a lapping machine, characterized in that:
said drive shaft for the drive of the lower disc at the same time forms the deflecting device for the thread; and
said upper disc is centered peripherally and partly by a part which sits on the drive shaft in a turn-proof manner and causes, in a frictional manner, the upper disc to turn at least intermittently.

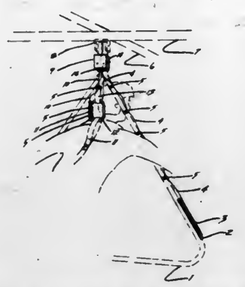
4,272,039

ELECTRONIC HANG GLIDER HOOK-UP WARNING SYSTEM

Thomas C. Hollingsworth, 110 Chantilly Dr., Warner Robins, Ga. 31093

Filed Oct. 19, 1978, Ser. No. 953,097
Int. Cl.³ B64D *47/02*
U.S. Cl. 244—1 R **3 Claims**

1. A hang-glider safety hook-up warning system with pilot awareness means for indication to the pilot that the pilot harness has not been hooked or connected to the glider, which comprises:
a. touch sensitive switch means, having two operable positions, disposed on the glider control bar at a location so as to be actuated by the pilot's hand during take-off or launch, said touch sensitive switch means being in one operable position when in contact with the pilot's hand and in the second operable position when not in contact with the pilot's hand;
b. switch means disposed at the glider suspension loop or glider attachment point, said glider attachment point switch means having two operable positions;
c. receptacle means disposed at the pilot harness attachment link or carabiner into which the said glider attachment point switch means can be inserted at a time when the pilot harness attachment link is hooked to or secured to the glider attachment point;
d. magnet means comprising a magnet associated with said receptacle means, said receptacle means receiving the said glider attachment point switch means, said glider attachment points switch means being in one operable position



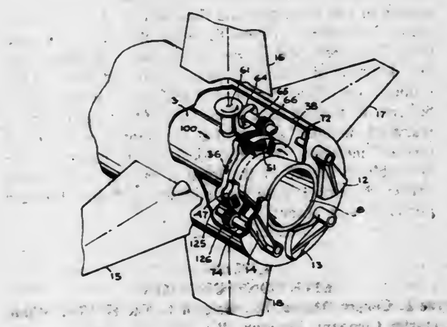
under the force of said magnet when inserted in said receptacle means, and being in the second operable position when said glider attachment points switch means is not inserted in said receptacle means;
e. awareness means disposed on said glider;
f. circuit means, including a power supply with said circuit means connecting said glider attachment point switch means to said touch sensitive switch means so that said awareness means provides an indication of the pilot being unhooked from or unattached to the glider will only occur when the pilot is holding the glider in launch position.

4,272,040

AERODYNAMIC CONTROL MECHANISM FOR THRUST VECTOR CONTROL

Thomas W. Bastian, Fullerton; Garry T. Lacy, Claremont, and John J. Vink, Geyserville, all of Calif., assignors to General Dynamics, Pomona Division, Pomona, Calif.

Filed Jul. 14, 1978, Ser. No. 924,594
Int. Cl.³ F42B *15/18*
U.S. Cl. 244—3.22 **13 Claims**



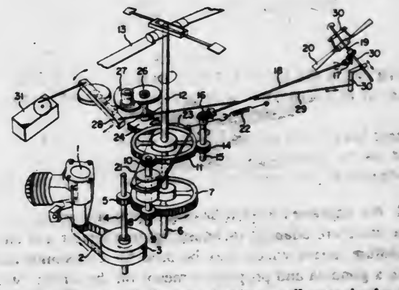
1. An attitude control system for a rocket propelled missile comprising:
a cylindrical missile body;
rocket propulsion means acting along the axis of the body to propel the missile;
a plurality of control elements pivotably mounted external to the body, each being pivotable about an axis normal to the cylindrical surface of the missile body for aerodynamically controlling direction of the missile in flight;
a servo motor associated with each control element for controlling the angular position of the control elements relative to the missile body;
control circuitry for activating the servo motors to control the flight of the missile;
a plurality of thrust vector control jet tabs for providing pitch and yaw moments by deflecting the rocket exhaust gas;
a plurality of geared summing actuators, each for rotating two of said tabs, each geared summing actuator including:
means for receiving pitch or yaw commands or combinations thereof and for receiving roll commands provided to said fins; and
gear means for removing the roll component from the commands while retaining the pitch and yaw components and actuating a selected one of said tabs with the resultant command.

4,272,041

MODEL HELICOPTER DEVICE

Kenichi Mabuchi, and Tatsuo Katamuura, both of Matsudo, Japan, assignors to Mabuchi Motor Co., Ltd., Tokyo, Japan

Filed Sep. 1, 1978, Ser. No. 938,965
Claims priority, application Japan, Sep. 6, 1977, 52/106952
Int. Cl.³ B64C *27/82*
U.S. Cl. 244—17.21 **6 Claims**



1. A device for a toy helicopter having a tail rotor in the tail portion to prevent the rotation of the helicopter body due to the countertorque of the revolution of a main rotor, said device comprising a tail rotor blade pitch adjusting mechanism for adjusting the pitch of the tail rotor blades, a servomotor for controlling the tail rotor blade pitch adjusting mechanism by receiving remote control signals from the radio control device, a linkage for driving the tail rotor blade pitch adjusting mechanism, a first main gear fixed to a first main shaft to which the main rotor is fixed, a first pinion for transmitting revolving energy to the first main gear, a pinion shaft to which the first pinion is fixed and which is rotatably supported along the first main gear while the first pinion is in mesh with the first main gear, and a rotating angle transmitting mechanism which detects and transmits the rotating angle of the pinion shaft to the linkage, and wherein the rotating angle of the pinion shaft which rotates in accordance with changes in the number of revolutions of the main rotor is transmitted to the tail rotor blade pitch adjusting mechanism via the rotating angle transmitting mechanism and the linkage to automatically adjust the pitch of the tail rotor blades, the rotating angle transmitting mechanism comprising a rotary plate which supports the pinion shaft, said rotary blade being supported by the first main shaft and rotating, together with the pinion shaft around the axis of the first main shaft, an intermediate gear which is fixed to the rotary plate and which transmits the rotating angle of the pinion shaft, and a cam which is in mesh with the intermediate gear and which transmits the rotating angle of the pinion

shaft to the linkage, and wherein the rotating angle of the pinion shaft is automatically transmitted to the linkage and wherein the linkage is constructed so as to be controlled by a servomotor which is remotely-controllable by a radio control device.

4,272,042

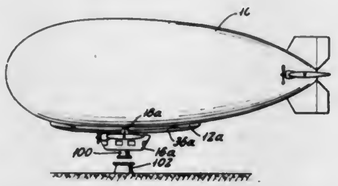
AIRSHIP AND ASSOCIATED APPARATUS AND METHOD FOR ANCHORING SAME

Saul I. Slater, Miami Beach, Fla., assignor to Hov-Air-Ship, Inc.,, Miami Beach, Fla.

Continuation-in-part of Ser. No. 674,278, Apr. 14, 1976, Pat. No. 4,085,912, which is a continuation-in-part of Ser. No. 552,793, Feb. 25, 1975, Pat. No. 3,971,533. This application Jun. 22, 1977, Ser. No. 809,130

Int. Cl.[2] A64B 1/66; B64F 1/12

U.S. Cl. 244—115 42 Claims



1. An improved airship having a generally elongate envelope structure adapted to house lighter-than-air gas and any enclosure means which may be used for containing the gas, with a gondola and propulsion means on the airship, wherein the improvement comprises anchoring means which include magnet means mounted to said airship and fixed thereto against translational and pivotal movement, said magnet means adapted to permit rotation of the airship about a vertical axis extending through said magnet means and being capable of activation from a point remote therefrom for attraction to a suitable magnetically attractive anchoring member secured to the ground, such that said airship can be landed and anchored on the ground by personnel on the airship, said magnet means enabling the airship to rotate completely about the vertical axis of said magnet means when said airship is anchored to the ground.

24. A method of landing and anchoring an airship, which comprises the steps of:

causing the airship to descend generally to about ground level at an anchoring site where a magnetically attractive anchoring structure is secured to the ground;

moving the airship to locate rotation-enabling magnet means which are fixedly mounted to the airship against translational and pivotal movement, to a position essentially adjacent the anchoring structure;

actuating the magnet means to permit magnetic attraction between the magnet means and the anchoring member for contact therebetween; and

permitting the airship to rotate about the vertical axis extending through the magnet means for a virtually unlimited number of rotations.

4,272,043

FLUID STREAM DEFLECTING MEMBERS FOR AIRCRAFT BODIES OR THE LIKE

John J. Spillman, Bedford, England, assignor to National Research Development Corporation, London, England

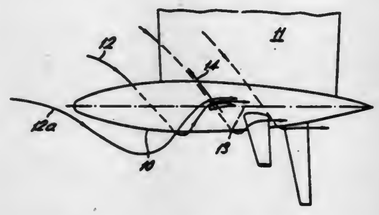
Continuation of Ser. No. 2,182, Jan. 5, 1979, abandoned, which is a continuation of Ser. No. 805,438, Jun. 10, 1977, Pat. No. 4,172,574. This application Feb. 20, 1980, Ser. No. 123,073

Claims priority, application United Kingdom, Jun. 16, 1976, 24943/76; Mar. 1, 1977, 08666/77

The portion of the term of this patent subsequent to Oct. 30, 1996, has been disclaimed.

Int. Cl.[3] B64C 23/00

U.S. Cl. 244—130 2 Claims



1. A body intended for motion within and relative to a mass of fluid in which:

said body presents a surface which will in use form an interface with said mass of fluid;

an array comprising a plurality of members of aerofoil cross-section generated about a smooth camber line without discontinuity and having mountings upon said surface so as to project outwards from said surface in a direction substantially normal to said motion of said body and into the space where a local stream of fluid will form in use, whereby in such use said members will tend to divert said local stream back into the free stream and in so doing experience useful thrust, and in which the cross-section of each said member varies continuously from its root to its tip so that both the said camber of each said member and the incidence of each said member to the said free stream vary continuously as the distance from said surface increases to provide a spanwise variation of incidence upon each said member and to allow for change in the direction of the said local stream as distance from said surface increases; and

said members are staggered so as to have more forward and more rearward members in the direction of the relative motion of said body and said fluid so that the more rearward of said members avoid the wake of the more forward of said members and so that substantial clearance in the said direction of relative motion is provided between the trailing edge of the root of each said more forward member and the leading edge of the root of the adjacent more rearward member, and so that the impact of the more forward members upon the local stream poses a more favorable incidence of the local stream upon the more rearward members than would exist if said more forward members were absent.

4,272,044

KITE CONSTRUCTION

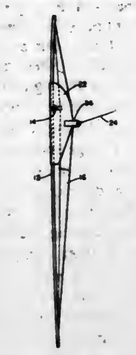
Wayne L. Cooper, Maroa, Ill., assignor to The Hi-Flier Manufacturing Company, Decatur, Ill.

Filed Oct. 5, 1979, Ser. No. 82,414

Int. Cl.[3] B64C 31/06

U.S. Cl. 244—153 R 15 Claims

1. A kite having at least first and second crossed frame members mounting a skin and further comprising a bracket member secured to said frame members and supporting them in a crossed configuration, said bracket member having a web portion arranged with a span thereof compressed between both said first and second frame members and said skin, a peripheral edge of said web portion opposite said frame members contacting said skin to dispose said skin in an aerodynamic configuration having at least first and second portions inclined with a dihedral angle therebetween.



4,272,045

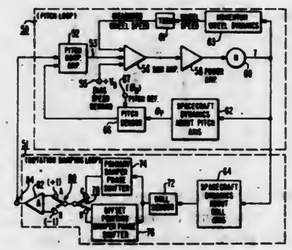
NUTATION DAMPING IN A DUAL-SPIN SPACECRAFT

Kevin J. Phillips, Hightstown, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 29, 1979, Ser. No. 25,099

Int. Cl.[3] B64G 1/38

U.S. Cl. 244—170 12 Claims



1. A method of stabilizing an orbiting spacecraft of the dual-spin type having a spin axis and a characteristic nutation frequency, and further having a platform which can spin relative to a motor-driven spinning wheel, said wheel spinning about the spin axis of the spacecraft, said spin axis being common to said platform and said wheel, a control loop including a motor for driving said wheel and consequently by reaction torques between said wheel and said spacecraft rotating said spacecraft and further including a first sensor and a second sensor, said first sensor oriented to sense motion of said spacecraft about a given geodetic reference lateral axis, and said second sensor oriented to sense pitch errors manifested by rotation of the platform of the spacecraft about the spin axis from a given reference to control the speed of said motor to reduce pitch errors towards said reference, said spacecraft further having cross products of inertia existing on said platform between at least one of the lateral axes and the spinning axis, comprising the steps of:

a. driving said wheel at a speed to thereby rotate said spacecraft about said spin axis;

b. sensing by said first sensor the geodetic referenced lateral motion of the spacecraft about one of said geodetic referenced lateral axes;

c. generating a signal corresponding to the sensed geodetic referenced lateral motion having a cyclic component at the nutation frequency for controlling the torque of the motor;

d. phase shifting the cyclic component of the generated signal by said first sensor at the nutation frequency of said spacecraft by an amount such that the signal from said first sensor is shifted in phase by a first angle such that the first sensor signal is equivalent to a sensor signal of a sensor located on a lateral axis wherein substantially optimum nutation damping is achieved at one angular position of said spacecraft about said spin axis as said spacecraft rotates through a first angular displacement;

e. applying the phase shifted signal to said control loop to control the torque of said motor;

f. phase shifting the cyclic component of the generated signal by said first sensor at the nutation frequency of said spacecraft by an amount such that the signal from said first sensor is shifted in phase by a second angle such that the first sensor signal is equivalent to a sensor signal of a sensor located on a lateral axis wherein substantially optimum damping is achieved at a second angular position of said spacecraft about said spin axis as said spacecraft rotates through a second angular displacement; and

g. applying the second-mentioned phase-shifted signal to said control loop to control the torque of said motor.

12. A nutation control system for a dual-spin stabilized device having a platform, a wheel, a motor, a nutation sensor and a pitch sensor, in which the invention comprises at least two phase shifting networks selectively coupled to said nutation sensor and to said motor to cause said motor to apply a torque to said device to reduce the amount of nutation, and further, said pitch sensor being coupled to said motor to control the rotation of said device about the axis of said motor.

4,272,046

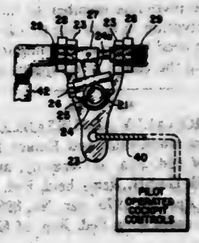
HYDRAULIC ACTUATOR MECHANISM TO CONTROL AIRCRAFT SPOILER MOVEMENTS THROUGH DUAL INPUT COMMANDS

Stephen C. Irick, Hampton, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 17, 1979, Ser. No. 67,595

Int. Cl.[3] B64C 13/04, 13/36

U.S. Cl. 244—226 4 Claims



1. In an aircraft flight spoiler control system having conventional pilot operated cockpit controls, a spoiler mixer control device, a cable linkage to each aircraft wing through which tension is applied by manipulation of the cockpit controls providing a primary input, and, mounted in each wing, a flight spoiler Position Control Unit having a rotating input shaft with a crank to which said cables are attached and apply moments, the Position Control Units in turn actuating the spoilers; the improvement therewith comprising:

means for introducing a supplementary input secondary to the primary input provided by the conventional control system, said means including a one-way coupling whereby forces in the primary input system are transferred to said input shaft and forces introduced by said secondary input system into said input shaft are absorbed by said one-way

coupling before being transferred into the cable linkage of said primary input system;

said means for introducing said secondary input including a fork-shaped input lever-bracket pivotally disposed on the input shaft of said spoiler control unit, control cables attached to the said bracket, said bracket serving to transmit forces from the primary input to said one-way coupling, said bracket further serving to hold said secondary input introducing means allowing said secondary input introducing means to remain in constant proximity to and in direct contact with said input shaft while all of said bracket, one-way coupling, input shaft, and secondary input introducing means are shifted simultaneously in response to said primary target.

4,272,047

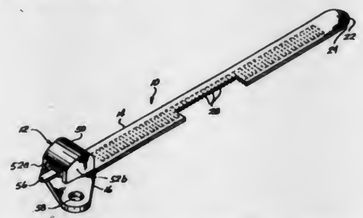
ADJUSTABLE CLAMP

Leslie M. Botka, Bellevue, Wash., assignor to Boeing Commercial Airplane Company, Seattle, Wash.

Continuation-in-part of Ser. No. 781,373, Mar. 25, 1977, abandoned. This application Dec. 19, 1977, Ser. No. 861,802

Int. Cl.[2] F16L *3/08*

U.S. Cl. 248—74 PB **13 Claims**



1. An adjustable clamp for supporting tubing or wiring bundles comprising: a head having an aperture extending therethrough; an elongate flexible strap integrally connected at one end to the head and having laterally extending teeth on one side, said flexible strap to extend around a bundle to be supported and a free end to be inserted into the aperture in the head; a pivotable member integrally connected to an edge of the head at a top outlet side of the aperture, said pivotalbe member to extend with a flat side to be adjacent the bottom side of the aperture to be pivoted outward by the inserted strap and engage the laterally extending strap teeth with teeth on a second side of the pivotable member to lock in the strap to prevent counter pivoting in response to a load; and a projection integral to the head having an opening to accept a fastener to permit mounting the clamp to a support structure.

4,272,048

POSITIONALLY ADJUSTABLE SEAT

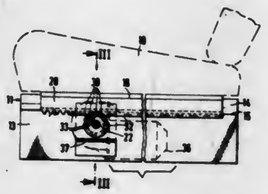
Bernd Klüting, Radevormwald, and Rainer Holweg, Wermelskirchen, both of Fed. Rep. of Germany, assignors to Keiper Automobiltechnik GmbH, Remscheid, Fed. Rep. of Germany

Filed Apr. 20, 1978, Ser. No. 898,132

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1977, 2718928

Int. Cl.[3] F16M *13/00*

U.S. Cl. 248—430 **12 Claims**



1. An adjustable seat, particularly for use in a motor vehicle, comprising a base component; a seat component mounted on said base component for movement along a predetermined path relative thereto; means for moving said seat component along said path, including a toothed rack rigidly connected to one of said components, a driving member, a pinion member, and means for mounting said members on the other of said components for rotation about an axis, said pinion member being in mesh with said toothed rack and being axially displaceable relative to said driving member; and means for disengageably coupling said pinion member with said driving member for joint rotation including respective coupling portions on said members which engage and disengage each other upon the relative axial displacement of said pinion member, said driving member including a driving shaft, and a driving element mounted on said shaft for joint rotation therewith, said coupling portions of said driving member being located on said driving element; said other component including a carrier member and a support member rigid with said carrier member and spaced therefrom axially of said driving shaft; said mounting means further including a bushing to support said driving shaft on said support member; and said carrier member and said support member together bounding a compartment in which said pinion member and said driving element are positioned.

4,272,049

MOULD FOR MOULDING SPECIMEN BLOCKS TO BE CUT IN A MICROTOME OR AN ULTRAMICROTOME

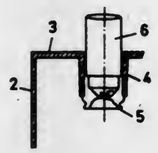
Erik L. Kindel, Älvsjö, Sweden, assignor to LKB-Produkter AB, Bromma, Sweden

Filed Jun. 14, 1979, Ser. No. 48,363

Claims priority, application Sweden, Jun. 21, 1978, 7807073

Int. Cl.[3] B29C *17/14*; B32B *31/18*; C04B *41/44*; G01N *1/06*

U.S. Cl. 249—83 **1 Claim**



1. A mould for moulding specimen blocks to be cut in a microtome or an ultramicrotome, characterized in that it comprises an elongated horizontal plate and two integrally moulded supporting side walls the plate and the side walls being made from a soft heat resistant plastic and the plate being provided with a number of integrally formed depending cavities of a substantially cylindrical upper internal shape corresponding to the desired shape of the specimen block, the plate, side walls and the major upper parts of the cavities having relatively thick walls and the bottom part of each cavity being provided with a thin-walled deformable substantially transparent zone so as to enable the moulded block to be pressed out of the mould by means of deforming the deformation zone, the vertical height of the side walls being greater than the extending depending length of the cavities to prevent contact of the cavities with a horizontal supporting surface.

4,272,050

METHOD AND APPARATUS FOR PRE-CASTING STEEL REINFORCED CONCRETE BOX-LIKE MODULES

Jaime L. del Valle, Rio Piedras, P.R., assignor to Master Modular Homes, Inc., Toa Baja, P.R.

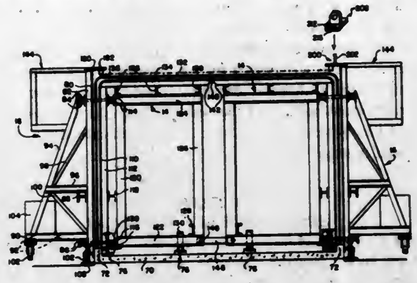
Filed Sep. 14, 1978, Ser. No. 942,377

Int. Cl.[3] E04B *1/348*

U.S. Cl. 249—144 **19 Claims**

1. Forms for defining the side walls and roof of a pre-cast box like concrete building module of the type having a floor, a pair of spaced apart side walls extending upward from said floor, and a roof extending between the upper ends of said side

walls, said forms including: a pair of exterior forms and a pair of interior forms; each exterior form comprising a vertical plate of longitudinal extent at least equal to the length of said module and of vertical extent at least as great as the height of the outer surface of said side walls; each interior form including a vertical plate of longitudinal extent at least equal to the length of said module and vertical extent extending to a height about equal to the inner height of said side walls, a horizontal plate of length at least equal to the length of said module,



means joining said horizontal and vertical plates to define a corner, and roller means for movably supporting said interior forms; said two horizontal plates of said pair of interior forms comprising the form support for the roof of said module, said interior forms being independently longitudinally movable relative to one another whereby to enable one to be removed from the interior of a module while the other remains in forming relation with said module whereby to leave only a portion of the roof span unsupported.

4,272,051

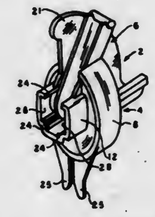
APPARATUS FOR METERING FLUIDS

James A. Huggins, 551 W. Park Ave., Libertyville, Ill. 60048

Filed Jun. 22, 1978, Ser. No. 917,943

Int. Cl.[3] F16K *7/06*

U.S. Cl. 251—6 **18 Claims**



13. A clamp for providing a stable fluid flow rate through a flexible tubing which is adapted to be readily mounted onto the tubing comprising a body having a channel dimensioned to receive the tubing, said channel having a pair of sidewalls and a bottom wall including an anvil for supporting the tubing, and constricting means providing an opposed structure to said anvil and coacting with said anvil for controllably compressing the tubing to establish a stable fluid flow rate through the tubing, said channel having an opening along its entire length for receiving the tubing therein against said bottom wall, means for receiving and retaining said constricting means in an operating position spaced from and adjacent to said anvil, and wherein said constricting means comprises a rotatable cam having a pivot arm extending therefrom and a trunnion adjacent opposite sides of said cam, said trunnions being generally cylindrical in shape and having a flat peripheral surface portion defining a minimum trunnion dimension which is less than the trunnion diameter dimension and wherein said channel constricting means receiving and retaining means includes a slot extending along each said sidewall, each said slot including an initial dimension subtantially equal to said trunnion minimum dimension and an arcuate end wall having an effective diameter dimension substantially equal to said trunnion diameter dimension, said slots being adapted to slidingly receive said trunnions and to retain said trunnions upon rotation of said pivot arm.

4,272,052

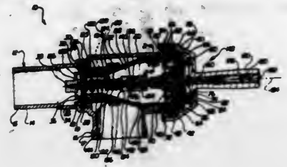
FLUSH VALVES

Robert R. Gidner, Fairview, Pa., assignor to Zurn Industries, Inc., Erie, Pa.

Filed May 7, 1979, Ser. No. 36,524

Int. Cl.[3] F16K *31/143*

U.S. Cl. 251—39 **15 Claims**



1. A flush valve for releasing a predetermined volume of liquid upon actuation thereof comprising:

a. a valve housing having an inlet with liquid under pressure therein, an outlet, and a valve seating surface between said inlet and said outlet,

b. a control valve sealable with said valve seating surface and movable between an open position in which liquid flows from said inlet to said outlet and a closed position in which the flow of liquid from said inlet to said outlet is blocked,

c. a control chamber between said control valve and said housing,

d. means for adjusting the predetermined volume of liquid released by said flush valve upon actuation thereof,

e. means for limiting the volume of liquid released by said flush valve to the predetermined amount,

f. an actuating valve member connected to said control valve and movable between an open position in which said control chamber is connected to one of said inlet and said outlet and a closed position in which said control chamber is disconnected from said one of said inlet and said outlet,

g. said limiting means including an extension member slideably mounted along one end of said actuating valve member,

h. said limiting means having means for resiliently urging said extension member toward the one end of said actuating valve member, and

i. a tripping mechanism mounted to said housing having a tripping member having one end positioned adjacent to said extension member when said control valve is in the closed position, said one end of said tripping member movable upon actuation thereof to move said actuating member to the open position,

j. said adjusting means including means for positioning said tripping member at various positions along said extension member to adjust the predetermined volume of liquid released by said valve.

2. A flush valve as described in claim 1 including means for providing restricted flow of liquid from said control chamber to said outlet including an orifice connecting said control chamber to said outlet, a filter for removing particles from the liquid flowing through said orifice positioned adjacent to said orifice and means for retaining said filter adjacent to said orifice.

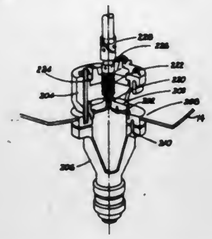
3. A flush valve as described in claim 2 wherein said means for retaining said filter adjacent to said orifice includes a spring having a coil portion engaging said filter, an extending portion extending through said filter and said orifice and a retainer portion for engaging said control valve.

4,272,053

COMBINATION TOP OPERABLE AND BOTTOM OPERABLE TANK LADING VALVE ASSEMBLY

Richard J. Wempe, and Gunter R. Behle, both of St. Charles, Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Division of Ser. No. 908,184, May 22, 1978. This application Apr. 21, 1980, Ser. No. 142,303
Int. Cl.³ F16K 27/03
U.S. Cl. 251—144 5 Claims



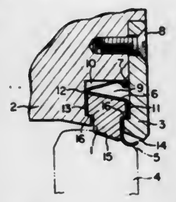
1. A railway tank lading valve assembly comprising: a mounting flange mounted in an opening in the bottom of the tank; said mounting flange including a lading opening; a lading valve movable vertically by rotation between open and closed positions relative to said lading opening; a valve housing including an unloading spout located below said tank bottom mounting flange; a first operator attached to an upper portion of said lading valve extending vertically up through the tank to the upper portion of the tank; said first operator adapted to receive a suitable handle or tool to rotate said first operator and move said lading valve between open and closed position; a second operator, having an upper non-round portion extending into a non-round opening in a lower portion of said lading valve; said second operator including a lower operator extending at least partially through the valve housing and extending outside of said housing having a lower non-round portion whereby said lading valve may also be operated from the bottom of said tank by rotation; said valve housing being maintained in place below said mounting flange with fasteners which define a shear plane, whereby said housing will shear off or drop off along a plane defined by said fasteners and extending between said housing and said mounting flange, said lower operator having separating means therein whereby at least the lower portion of said second operator will shear off and/or drop off by virtue of said separating means leaving the lading valve in place to substantially prevent escape of lading from the tank.

4,272,054

FIRE-SAFE SEALING DEVICE FOR VALVE

Sadazi Zinnai, Yokohama, Japan, assignor to Tokyo Koso K.K., Japan

Filed Jan. 28, 1980, Ser. No. 116,216
Claims priority, application Japan, Jan. 31, 1979, 54-9164
Int. Cl.³ F16K 3/10
U.S. Cl. 251—173 1 Claim



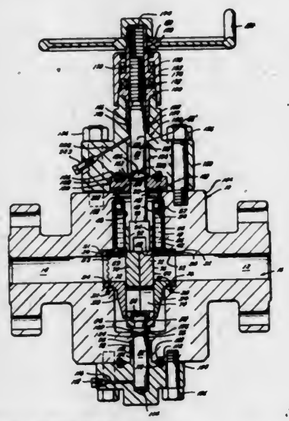
1. A fire-safe sealing device for a valve including a valve body defining a fluid passage and an inner valve positioned in said fluid passage to open or close the fluid flow therethrough, which comprises an annular groove having nearly T-shape in section formed around the fluid passage and defined by the valve body; a seat packing retainer attached thereto; a seat packing of synthetic resin mounted in said annular groove and having a portion projecting from the groove into the fluid passage; shoulders formed at the sides of said projecting part to prevent the seat packing from wholly projecting into the fluid passage; an inclined annular surface comprising a bottom surface at the side opposite to the fluid passage; an annular elastic member made of sheet metal arranged to make tight contact with one side and the bottom surfaces of the seat packing and said annular elastic member further comprising an elastic portion of nearly V-shape extending beyond the portion contacting the bottom surface of the seat packing and a contact portion of nearly semi-circular shape in section extending toward the fluid passage side.

4,272,055

SINGLE DOUBLE BACKSEAT

David P. Herd, Houston, Tex., assignor to McEvoy Oilfield Equipment Company, Houston, Tex.

Continuation of Ser. No. 655,693, Feb. 6, 1976, abandoned, which is a division of Ser. No. 512,368, Oct. 4, 1974, abandoned. This application Oct. 13, 1978, Ser. No. 951,109
Int. Cl.³ F16K 41/16, 41/14
U.S. Cl. 251—214 34 Claims



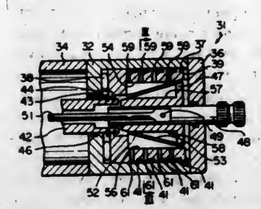
1. A valve comprising:
a valve body having an inlet and an outlet with a chamber therebetween;
closure means for preventing flow through said chamber into said outlet in the closed position and permitting flow through said chamber into said outlet in the open position;
moving means for moving said closure means between the open and closed positions;
first and second cap members sealingly mounted on said body and having means for providing sealing closures for said chamber, said closure means disposed in said chamber and extending through opposite sides of said chamber and into said first and second cap members;
ring means on said closure means for providing a metal-to-metal sealing engagement with said first cap member in at least one of the open and closed positions; and
single seal ring means on said closure means for providing a metal-to-metal sealing engagement with said valve body in said one of the open and closed positions, said closure means including means for permitting limited longitudinal axial reciprocation of said single seal ring means with respect to said ring means.

4,272,056

ROTARY CONTROL VALVE FOR POWER STEERING SYSTEM

Seiji Komamura, and Katsuhiro Suzuki, both of Gifu, Japan, assignors to Kayaba Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 10, 1980, Ser. No. 111,132
Claims priority, application Japan, Feb. 9, 1979, 54-13903
Int. Cl.³ F16K 11/083
U.S. Cl. 251—309 11 Claims



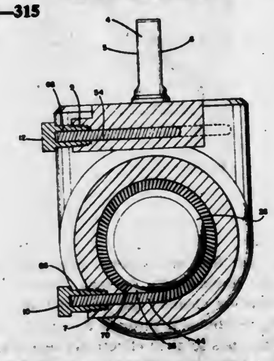
1. A rotary valve comprising a sleeve formed with a conical bore and a rotor having a conical outer surface conjugate to the bore and being disposed therein for relative rotation, the sleeve being formed with a longitudinal internal groove which increases in depth but does not extend radially outwardly from an axis of the bore as a diameter of the bore increases, the rotor being formed with a longitudinal external groove which increases in depth but does not extend radially inwardly toward an axis of the rotor as a diameter of the rotor increases.

4,272,057

VALVE AND FASTENER THEREFOR

Samuel R. Hangland, Reno, Nev., assignor to Delta Dynamics Corporation, Reno, Nev.

Filed Mar. 28, 1979, Ser. No. 24,789
Int. Cl.³ F16K 5/06
U.S. Cl. 251—315 5 Claims



1. In a fluid flow valve assembly comprising
a valve housing having a valve chamber formed by inner walls of the valve housing and flow ports connectible to a fluid flow line,
a generally spherical valve body rotatably mounted in the valve chamber and having an axial passage therethrough,
means for rotating the valve body within the valve chamber,
a valve seat axially slidably mounted within the valve chamber comprising a cylindrical ring having a circumferential sealing forward surface adjacent the valve body,
the improvement therein which comprises
(a) a uniform circumferential recess on a rearward portion of the seat,
(b) a circumferential shoulder on the valve chamber wall, said recess and shoulder forming an annular channel,
(c) a port in the valve housing communicating with the channel and opening tangentially into the channel,
(d) an elongate flexible retainer fabricated from flat wire wrapped helically around a core member, substantially incompressible along its cross-section, located in the channel thereby preventing axial movement of the seat away from the valve body, said retainer being insertable and removable through the port in the valve housing, and
(e) biasing means acting along the sliding axis of the valve seat to urge the retainer against the valve body.

4,272,058

SCREW AND NUT ARRANGEMENT FOR JACK POSTS

Gordon L. Van Santen, Woodstock, Canada, assignor to Pilotron Corporation of Canada Limited, Stoney Creek, Canada

Filed Sep. 5, 1978, Ser. No. 939,116
Claims priority, application United Kingdom, Sep. 6, 1977, 37204/77
Int. Cl.³ B66F 3/08
U.S. Cl. 254—98 3 Claims



1. In a jack post, the improvement comprising a screw having a minor unthreaded end portion and a major threaded portion, a spigot extending from the end of the threaded portion and a pair of flats formed in the threaded portion to allow application of a wrench for turning the screw, the unthreaded end portion being adapted to prevent movement therepast of a nut received in threaded engagement on the threaded portion during extension of the jack post, and said screw being free of any transverse bore therethrough, said nut being of stamped sheet metal and being such that the threaded length exceeds the metal thickness at the edges of the nut, said nut having a substantially flat annular tube engaging surface on which is provided protuberances for engaging in the corners of a square tube, said nut having a protrusion surrounding the threads thereof, said protrusion being surrounded by said flat annular surface, and said nut having side surfaces which converge away from said flat annular surface towards the end of the nut remote from said protrusion, said nut being dimensioned so that said side surfaces engage the interior of an end of an outer tube with the nut received partially within the tube in a collapsed, packaged condition of the jack post.

4,272,059

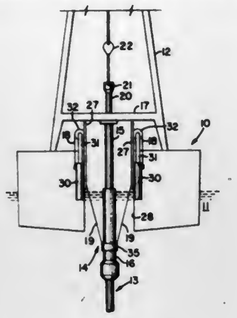
RISER TENSIONER SYSTEM

Jere A. Neerager; Daniel G. Taft, and John M. Bodnar, all of Houston, Tex., assignors to Exxon Production Research Company, Houston, Tex.

Continuation-in-part of Ser. No. 916,404, Jun. 16, 1978, abandoned. This application May 21, 1979, Ser. No. 40,241
Int. Cl.³ E21B 7/12
U.S. Cl. 254—392 20 Claims

1. A tensioner system for a riser pipe extending between an aperture formed in a floating vessel and the bottom of the sea comprising
a plurality of guide means fixed onto the floating vessel and positioned in alignment with said aperture;

a plurality of guide members being restrained by said guide means from substantial lateral motion relative to the vessel, said guide means permitting independent relative vertical motion of each of the guide members;



means on said vessel for applying vertical tension to said guide members; and

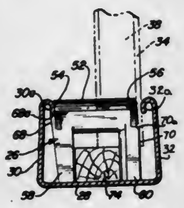
a plurality of fixed-length, tension-carrying means extending from said guide members to said riser pipe for transmitting tension from said guide members to said riser pipe.

4,272,060

FENCE SYSTEM

Robert T. Stafford, 5112 Forest Ave., Downers Grove, Ill. 60515

Filed Jan. 12, 1979, Ser. No. 2,944
Int. Cl.³ E04H 17/16
U.S. Cl. 256—24 15 Claims



1. A fence section comprising at least one rail having a cross-sectionally U-shaped configuration including a base panel and a pair of side panels,

a fence panel having an end portion disposed within the rail intermediate the rail side panels,

a clip for maintaining the fence panel end portion within the rail disposed at least partly within the rail intermediate the fence panel end portion and one of the side panels of the rail and urging the panel end portion into engagement with the other of said rail side panels,

and a runner disposed within the rail intermediate the side panels thereof, the end portion of the fence panel being spaced apart from the base panel of the rail by the runner.

4,272,061

VARIABLE PITCH RAIL SYSTEM

Howard Suckno, Livingston, N.J., assignor to Suckno Brothers Company, South Plainfield, N.J.

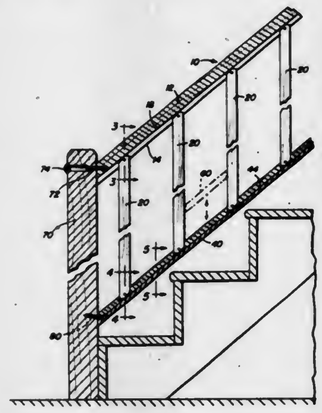
Filed Nov. 28, 1979, Ser. No. 97,903
Int. Cl.³ E04H 17/00
U.S. Cl. 256—67 1 Claim

1. A variable pitch railing system comprising:

a hand rail having a lower surface, said lower surface having a longitudinally extending, downwardly opening channel formed therein, said downwardly opening channel being formed with first and second side walls, said first side wall having apertures directed therethrough for receiving first pivot pins, said second side wall having sockets formed therein, said second side wall sockets extending only partially through said second side wall, said first side wall apertures and said second side wall sockets being respectively axially aligned whereby one of said first pivot pins may be inserted through one first side wall aperture and into engagement with one second side wall socket;

a shoe rail having an upper surface disposed in a facing opposed relation to said lower surface of said hand rail, said upper surface having a longitudinally extending, upwardly opening channel formed therein, said upwardly opening channel being formed with third and fourth side walls, said third side wall having apertures directed therethrough for receiving second pivot pins, said fourth side wall having sockets formed therein, said fourth side wall sockets extending only partially through said fourth side wall, said third side wall apertures and said fourth side wall sockets being respectively axially aligned whereby one of said second pivot pins may be inserted through one third side wall aperture and into engagement with one fourth side wall socket;

a plurality of balusters extending between said hand rail and said shoe rail, said balusters having first and second ends with apertures formed therein and extending therethrough, said first and second ends being positionable within said downwardly opening channel and said upwardly opening channel and said first and second pivot pins being positionable through the apertures in said first and second ends so as to effectively secure said balusters to said hand rail and said shoe rail, said first and second ends of said balusters further including first and second oblique, flat chamfered surfaces cut relative thereto so as to permit a variable pitch pivotal movement of said balusters about said first and second pivot pins, said first and second chamfered surfaces being on opposite sides of said balusters and lying in a spaced apart parallel planar relationship with the chamfered surfaces limiting the pivotal movement between the rails and balusters and the outer ends of the chamfered surfaces being located between the walls of the channels in all angular positions of the balusters and rails; and



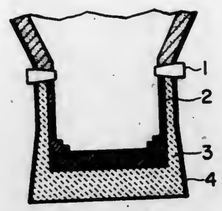
at least one fillet having a length approximately equal to a distance between adjacent balusters, said at least one fillet being dimensioned with a cross section approximately equal to that of said upwardly opening channel for substantially filling the space in said channel between adjacent balusters.

4,272,062

BLAST FURNACE HEARTH

Shigeru Fuziwara, and Shinichi Tamura, both of Himeji, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Nov. 30, 1979, Ser. No. 99,025
Claims priority, application Japan, Dec. 18, 1978, 53-155961
Int. Cl.³ F27B 14/00
U.S. Cl. 266—284 4 Claims



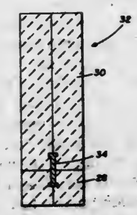
1. A blast furnace hearth for melting iron comprising carbon bricks at least in the internal surface layer of said blast furnace hearth, said bricks consisting essentially of a carbonaceous material, a carbonaceous binder and (1) a Si—N—O composition interspersed throughout the bricks consisting essentially of fibrous fine grained crystals of Si_2ON_2 present in such quantities as to fractionize the pores and fill part of the discontinuous pore openings in the brick, thereby reducing the pore size of the bricks to less than 5 μm, and (2) said bricks also containing SiC therein in amounts sufficient to inhibit the formation of cracks due to heat contraction.

4,272,063

BRICK ASSEMBLY FOR USE IN METALLURGICAL VESSELS

Clyde E. Lawhon, Birmingham, Ala., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed May 23, 1979, Ser. No. 41,660
Int. Cl.³ C21B 7/02
U.S. Cl. 266—286 3 Claims



1. A metallurgical vessel for making steel having an outer metal shell, a refractory lining adjacent the shell and a removable relatively flat bottom section having an outer safety lining and an inner working lining composed of refractory brick, certain of said working lining brick being secured to certain of said safety lining brick with a metal anchor without contacting the metal shell.

4,272,064

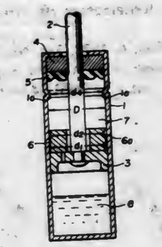
GAS SPRING

Teiji Katsumori, and Kunio Ishida, both of Yokohama, Japan, assignors to Tokico Ltd., Kanagawa, Japan

Filed Aug. 2, 1979, Ser. No. 63,341
Claims priority, application Japan, Aug. 18, 1978, 53-100773
Int. Cl.³ F16F 9/43
U.S. Cl. 267—64 R 5 Claims

1. In a gas spring comprising an outer sheath having a substantially uniform inner diameter (D) and an annular convex formed on the inner surface of said outer sheath, said annular convex having an inner diameter (d4), a piston-rod unit slidably received in said outer sheath, and a stopper received in said outer sheath and having a substantially uniform outer diameter (d1), said stopper having formed in the outer surface thereof an annular recess for engaging said annular convex and for thereby holding said stopper in position within said outer sheath, said annular recess having a bottom diameter (d2), the improvement wherein:

said annular recess is formd in said outer surface of said stopper at a position intermediate upper and lower surfaces of said stopper; and



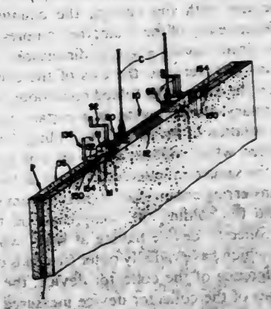
said outer diameter (d1) of said stopper is greater than said bottom diameter (d2) of said annular recess and said inner diameter (d4) of said annular convex, but smaller than said inner diameter (D) of said outer sheath, whereby there is a clearance between said inner surface of said outer sheath and said outer surface of said stopper, and whereby when said annular recess of said stopper is not engaged with said annular convex of said outer sheath said stopper is freely movable within said outer sheath, such that said stopper may be easily inserted into said outer sheath without scratching said inner surface of said outer sheath or said outer surface of said stopper.

4,272,065

BUILDING PANEL ERECTION BRACKETS

Thomas W. Steenson, Richmond Hill, and W. Donald Paton, Aurora, both of Canada, assignors to Butler Manufacturing Company, Kansas City, Mo.

Filed Feb. 12, 1980, Ser. No. 120,837
Int. Cl.³ B66C 1/22
U.S. Cl. 269—46 4 Claims



1. An improvement in a building panel lifting means which is used to position an insulated building panel having lifting brackets embedded therein, the lifting means including a base member, cable attaching means fixed to the base member, bolt accommodating means fixed to the base member, a bolt attachable to the embedded lifting bracket and bolt attaching means for attaching the bolt to the base member via the bolt accommodating means, the improvement comprising:

a panel lifting means rotatably and retractably mounted on

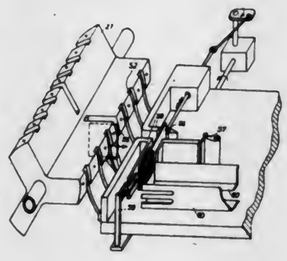
the base member, said panel lifting means including a collar mounted on the base member and having a bore defined therethrough, a crank having one portion thereof rotatably and retractably received in said collar and a lifting plate attached to said crank for rotation and retraction therewith, said crank being retractable transversely of said base member.

4,272,066

APPARATUS FOR PRODUCING COMPRESSES FOR COVERING WOUNDS

Horymir J. Bouda, Katleingasse 10, Wien-Mauer, Austria (A-1238)

Filed Sep. 6, 1978, Ser. No. 940,003
Claims priority, application Austria, Sep. 9, 1978, 6511/78
Int. Cl.³ B65H 45/18
U.S. Cl. 493—418 22 Claims



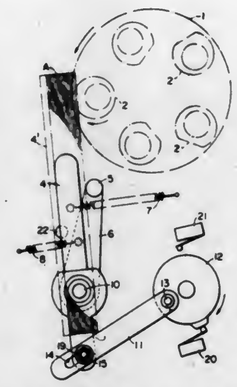
1. Apparatus for producing compresses to cover wounds made from muslin strips having folded over edges, comprising: a rotary drum on which a muslin strip is cut and folded, a folding device mounted adjacent the drum, for effecting additional folding of the compresses which have been folded on the drum, the drum being in the form of a suction roll with cutters distributed over its circumference, said drum including a plurality of suction openings disposed in rows about the periphery of the drum, the cutters being disposed between the rows of suction openings, the drum including a plurality of fluid passageways which extend radially inwardly from the openings, a tube in the drum disposed radially inwardly of the passageways, the passageways being in fluid communication with the tube, the tube being connected to a suction pipe; a counterpiece which cooperates with the cutters, the counterpiece being mounted independently of the drum; the compresses which are folded on the drum having a length dimension, which length dimension runs transverse to the axis of the drum when the compress is on the drum in its folded condition; the circumference of the rotary drum moving at a certain circumferential speed during rotation of the drum, the folding device having a collector device which rotates about an axis parallel to the drum axis at the same circumferential speed as the drum itself, means for transferring compresses from the drum to the collector device and for holding the compresses on the collector device, said collector device having at least two radially extending arms which have radially outer free ends describing an outer circumference of the collector device, the distance between the arms of the collector device measured at the outer circumference of the collector device corresponding to the length dimension of the compresses folded on the drum, the collector device having slots in the arms thereof which are aligned in a plane substantially normal to the axis of the collector device, said slots being sized to receive a movable folding plate, and means to reciprocate said folding plate in a direction normal to the axis of said collecting device toward and into cooperative engagement with folding fingers which act to grasp a compress and fold respective halves thereof together.

4,272,067

APPARATUS FOR HOLDING STACK OF SHEETS IN SHEET COUNTING MACHINE

Minoru Yoshida, and Junichi Arikawa, both of Tokyo, Japan, assignors to Laurel Bank Machine Co., Ltd., Tokyo, Japan

Filed Dec. 19, 1979, Ser. No. 105,293
Claims priority, application Japan, Dec. 22, 1978, 53-159636
Int. Cl.³ B65H 3/10, 3/42, 1/24
U.S. Cl. 271—95 3 Claims



1. In a machine for counting a number of sheets wherein a stack of sheets to be counted is brought in turn into abutment against a plurality of rotary suction heads carried on a rotary cylinder whereby the sheets are attracted by the suction heads through suction and deflected one sheet after another away from the remaining stack of sheets, an apparatus for holding the stack of sheets comprising: a holder for holding the stack of sheets, said holder being rotatable in the direction toward and departing away from said cylinder for bringing the stack of sheets in turn into abutment against the suction heads; a first spring for urging said holder in the direction toward said cylinder; a support rod for holding the stack of sheets between the support rod and the holder; a second spring for urging the support rod in the direction away from said cylinder; said first spring presenting a larger tensile force than that of said second spring to subject the stack of sheets held between said holder and the support rod to the effect of the tensile force difference between the tensile forces of said first and second spring; friction means adapted to decrease by the frictional action thereof the effect of said tensile force difference; adjustment means for adjusting the degree of the frictional action of said friction means; a rotating cam adapted to drive and stop driving said rotatable holder; and a link member interconnecting said cam and a free end portion of said holder, said link member having in an end portion thereof an elongated slot for connection with said free end portion of the holder in such a manner that said free end portion of the holder is permitted to move along said elongated slot; wherein said friction means and said adjustment means are provided for the interconnecting portion of said holder and said link member.

4,272,068

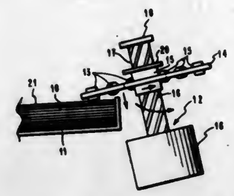
ROLL-WAVE SHEET SEPARATOR STRUCTURE

Stephen P. Garrison, Austin, and Elmer L. B. Kroeker, Round Rock, both of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 29, 1979, Ser. No. 53,484
Int. Cl.³ B65H 3/06
U.S. Cl. 271—117 8 Claims

1. Sheet separating apparatus comprising:
means for supporting a stack of sheets, and
sheet separating means mounted adjacent to said stack comprising:

a rotatable shaft having a helical peripheral thread coaxial with said shaft,
a follower rotatable about said shaft following said helical thread to move along the shaft axis,
at least one circular element supported on said follower,



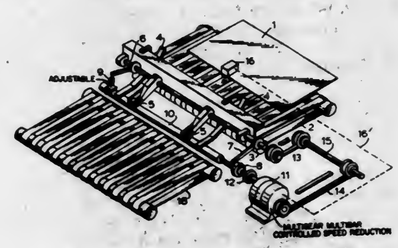
means for rotating the shaft in one direction to drive said follower and said at least one circular element against the surface of the outermost sheet in said stack to shingle said sheet from said stack, and
means for abruptly stopping the rotation of the shaft whereby said follower and said element moves along said shaft back out of engagement with said sheet surface.

4,272,069

METHOD OF AND APPARATUS FOR SLOWING SHEETS CARRIED BY HIGH-SPEED CONVEYORS BEFORE DEPOSIT ON STATIONARY PLATFORMS OR LOW-SPEED CONVEYORS

Merton L. Matthews, Westerly, R.I., assignor to Maxson Automatic Machinery Company, Westerly, R.I.

Filed Jan. 8, 1979, Ser. No. 1,430
Int. Cl.³ B65H 29/68
U.S. Cl. 271—182 11 Claims



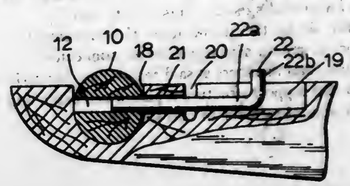
1. A method of slowing the delivery of sheets carried by a high-speed conveyor before deposit upon such an area as low-speed conveyors and stacking platforms, that comprises, feeding successive sheets at relatively high speed over a slow-down region preceding such an area; monitoring the approach of the rear portion of each successive high-speed sheet towards said region and thereupon grabbing such rear portion and decelerating the grabbed sheet to a predetermined slower speed; releasing the grabbed sheet to enable delivery of the same at said predetermined slower speed upon said area; and thereupon feeding the leading portion of the next successive sheet at said high speed over the said region, the grabbing and decelerating being effected by means that is moving at a speed substantially the same as said high speed when said rear portion is grabbed and that is thereupon gradually decreased in speed to decelerate the grabbed sheet to said slower speed.

4,272,070

COMBINATION WALL MOUNTED DANCE BARRE AND EXERCISE ROD

Dianne Schechner, and Barbara Zimmerman, both of Potomac, Md., assignors to Body Design, Incorporated, Potomac, Md.

Filed Dec. 28, 1979, Ser. No. 108,274
Int. Cl.³ A63B 1/00
U.S. Cl. 272—62 4 Claims



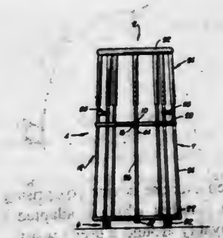
1. A combination wall mounted dance barre and exercise rod, comprising a pair of longitudinally spaced support means, mounting plate means on one end of each support means for mounting said support means on a wall with the support means projecting laterally from the wall, said support means having grooves adjacent the free ends thereof extending parallel to the direction in which the support means are spaced, a rod in said grooves and having holes therethrough at least at the positions at which said rod is supported in said grooves on said support means, and a quick release bolt means horizontally slidable in said support means for movement into and out of said holes for removably holding said rod in said grooves and preventing said rod from rotating about the longitudinal axis thereof relative to said support means, whereby when said rod is mounted on said support means it serves as a dance barre and by moving said bolt means out of said holes in said rod said rod can be removed from said support means and be used as an exercise rod.

4,272,071

WALKER APPARATUS

Barbara A. Bolton, 101 NE., 11th St., Moore, Okla. 73160

Filed Apr. 25, 1979, Ser. No. 33,160
Int. Cl.³ A61H 3/04
U.S. Cl. 272—70.4 4 Claims



1. A walker apparatus for assisting a person who has a walking disability to move about in a substantially erect posture and by means of that person's own strength, comprising:
a support structure having a plurality of structural members interconnected to define a shape approximating a truncated cone, said support structure having a height which is vertically adjustable to extend from a region near the surface on which said support structure is placed to the underarms of said person using said walker, said structural members including:
a plurality of horizontally disposed ring members, each having first and second curvilinear elements interfacing at joining means for providing pivotation about an axis common to all said ring members;
a plurality of strut members interconnected between re-

spective ones of said curvilinear elements of said ring members to concentrically orient and vertically separate said ring members thereby establishing a lowermost ring member and an uppermost ring member; and

an axial member associated with said joining means of each ring member and extending from said lowermost ring member to said uppermost ring member longitudinally along the forward portion of said walker apparatus for providing said common axis; and

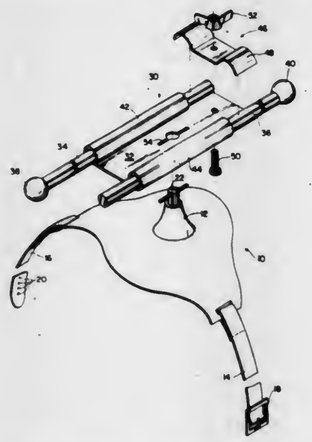
means for aiding the stabilization and movement of said support structure, said means being connected to one of said structural members at said region near the surface on which said support structure is placed and extending from said structural member to said surface.

4,272,072

WAIST MOUNTED EXERCISE DEVICE

Kasimir C. Kusmer, 7220 Sutliff St., Burnaby, B.C., Canada V5A 1M9

Filed Jan. 25, 1980, Ser. No. 115,501
Int. Cl.³ A63B *69/10, 21/26*
U.S. Cl. 272—71 **6 Claims**



1. A waist mounted exercise device comprising:

a waist encircling member which is adapted to be placed relatively immovably around a user's waist;

a pair of elongate rods, each said rod having a distal and a proximal end;

an end member on the distal end of each rod which can be easily grasped by the hand of the user;

a bracket means for receiving the proximal ends of said rods that the distal ends of each rod are positioned on opposite sides of said bracket;

holding means for adjustably attaching said rods to said bracket means; and

means for removably and rotatably mounting said bracket means on said waist encircling member;

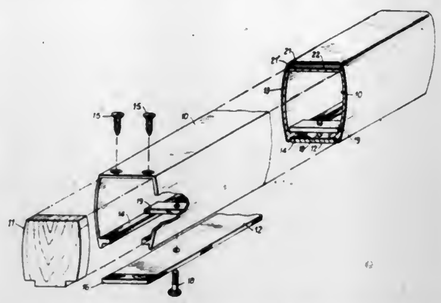
such that exercise is performed by grasping said end members on said rods and moving said end members with the hands in a swimming motion causing the torso to sway back and forth.

4,272,073

ALUMINUM BALANCE BEAM

Richard W. Grosser, Boone, and Virgil L. Long, Sr., Jefferson, both of Iowa, assignors to AMF Incorporated, White Plains, N.Y.

Filed Nov. 2, 1978, Ser. No. 956,830
Int. Cl.³ A63B *7/08*
U.S. Cl. 272—111 **3 Claims**



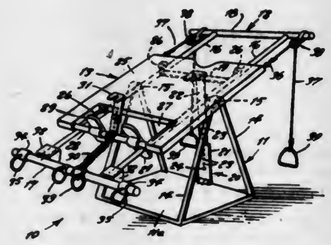
1. An aluminum gymnastic balance beam comprising an elongated extruded aluminum box-shaped member which is open at its bottom and opposite ends, said box-shaped member being thin walled relative its exterior dimensions, closure means for said ends, closure means for said bottom, said last-mentioned closure means being anchored to said beam and having means thereon which is adapted to have support struts connected thereto, said member having a general U-shape in cross-section, the open side of said U-shape facing down, a pair of spaced opposite flanges formed inside said member adjacent the bottom of the open side of said U-shape, said bottom closure means comprising a series of elongated plates extending along said beam at its bottom, and means clamping said plates to said flanges with said flanges being positioned between said clamping means and plates.

4,272,074

BODY BUILDING APPARATUS

Mihai Sferle, 147-25 10th Ave., Whitestone, N.Y. 11357

Filed Oct. 29, 1979, Ser. No. 89,530
Int. Cl.³ A63B *21/00*
U.S. Cl. 272—120 **5 Claims**



1. A body building apparatus comprising a pyramidal support, a rectangular frame pivotally mounted on the apex of the support at a point substantially intermediate its ends to permit the frame to assume a variety of postions with respect to the horizontal and about the apex of the support, a platform slidably mounted on the frame to seat the user, gripping means associated with the frame which the user pulls to move the platform on the frame against his own weight and the force of gravity and an adjustable spacer depending downwardly from the frame for setting the incline of the frame with respect to

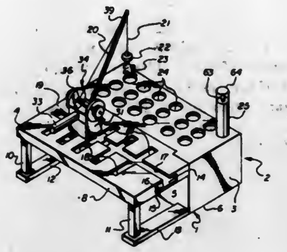
horizontal and to the apex of the support so as to vary the resistance of the platform to movement along the frame.

4,272,075

FISHING GAME

Thurmond J. Rogers, Jr., 7245 Fairbanks-N. Houston, Houston, Tex. 77040

Filed Oct. 1, 1979, Ser. No. 80,997
Int. Cl.³ A63F *9/00*
U.S. Cl. 273—1 E **14 Claims**



1. A fishing game comprising

a box shaped structure having a closed top wall, said top wall having a plurality of apertures therein for selectively fishing therethrough,

a plurality of open-top, vertically-oriented cylindrical receptacles positioned one beneath each of said top wall apertures,

a plurality of fish of magnetic material and of predetermined size and weight, adapted to be positioned one in each of said receptacles to be retrieved therefrom,

electric signal means for said game,

electric power means for selectively energizing said electric signal means,

means forming a table secured to and supported on said box shaped structure extending substantially co-planar with said top wall,

means forming a track of predetermined pattern in said table,

a movable fishing pole including a manually rotatable spool with a fishing line wound thereon and supported by the end of said pole,

a movable base supported for movement in said track and including means supporting said fishing pole for movement thereon,

magnetic means supported on said fishing line for movement into and out of selected holes in said top wall into juxtaposition with preselected receptacles to pick up the magnetic fish positioned therein, and

means on said magnetic means operable upon engagement with the top of one of said receptacles to complete an electric circuit from said electric power means to said electric signal means to energize the same.

4,272,076

TETHERABLE GAME BALL

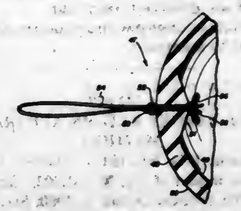
Jae M. Song, 225/46 Yeunbi/dong, MA PO/KU, Seoul, Rep. of Korea, and Samuel B. Ligon, 5505 Emerson, Dallas, Tex. 75209

Filed Dec. 14, 1979, Ser. No. 103,458
Int. Cl.³ A63B *39/00, 43/02*
U.S. Cl. 273—58 C **4 Claims**

1. A game ball that is securable to a tether comprising:

a. a resilient spherical hollow ball having an interior surface and an aperture extending from the interior surface to the exterior surface;

b. a flexible line of predetermined length having two ends extending through said aperture to a position within said hollow ball to form a loop located exteriorly of said hollow ball for securing the tether thereto, both of said ends being knotted independently of each other, said knots being located within said hollow ball and each of said knots being larger than the diameter of said aperture for restraining said line from being pulled from said hollow ball; and



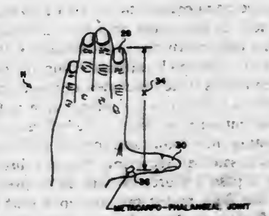
c. a boss located interiorly of said hollow ball, said boss being adjacent to and surrounding said aperture for distributing forces exerted between said hollow ball and said line and for reinforcing said hollow ball adjacent said aperture, said aperture extending through said boss, wherein said boss and said ball form a unitary mass.

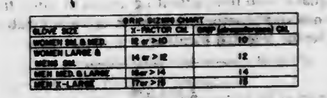
4,272,077

GOLF CLUB PUTTER GRIP

Alice C. Spivey, Rte. 4 - Box 1385, Pell City, Ala. 35125

Filed May 14, 1979, Ser. No. 38,681
Int. Cl.³ A63B *53/14*
U.S. Cl. 273—81 R **12 Claims**





GRIP SIZING CHART		
GLOVE SIZE	X-FACTOR CM.	GRIP (circumference) CM.
WOMEN SM. & MED.	12 or > 10	10
WOMEN LARGE & MENS SM.	14 or > 12	12
MEN MED. & LARGE	16 or > 14	14
MEN X-LARGE	17 or > 15	15

9. The method for custom designing a golf club putter grip for a particular individual golfer so that the dominant hand may grip the putter tightly while enabling the muscles of the non-dominant hand to be in a muscle relaxed and muscle balanced position during putting so that the non-dominant hand will not override the dominant hand and freeze on the club during putting thereby causing an interruption or jerk in an otherwise smooth putting stroke, said method comprising the steps of:

(a) establishing the correlation between progressive X factors (the distance between the tip of the index finger and the first bony prominence of the metacarpo phalangeal joint of the thumb) with their associated approximate grip circumference and setting it out in the following chart:

X-FACTOR CM.	GRIP (circumference) CM
12 or > 10	10
14 or > 12	12
16 or > 14	14
17 or > 15	15

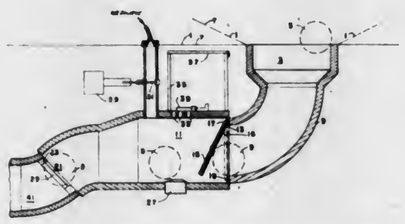
(b) determining and selecting the appropriate grip circumference for said individual golfer from said chart as determined by the golfer's X factor;
(c) measuring the widths of the golfer's non-dominant and dominant hands;
(d) forming said grip with a length at least equal to the width of the said non-dominant hand, and
(e) forming said putter grip with an outside circumference as determined by said chart.

4,272,078

GAME BALL TARGET RETURN APPARATUS AND METHOD

Richard H. Vinette, P.O. Box 191, Lanesboro, Mass. 01237

Continuation-in-part of Ser. No. 31,902, Apr. 20, 1979, abandoned. This application Jun. 4, 1980, Ser. No. 156,443
Int. Cl.³ A63B 69/36
U.S. Cl. 273—182 R 17 Claims



1. In a game comprising a target area to which a ball is to be played, a hole in the target area for receiving the ball once played and a ball return means for returning the ball received by the hole to a selected location, the improvement comprising a ball return means which includes a pressurizable ball receiving chamber, a conduit in communication with the hole and having a ball entrance opening in the ball receiving chamber, a door separating the conduit and the ball receiving chamber, an exit located in said ball receiving chamber through which said ball is able to pass, a source of fluid under pressure, means for admitting the fluid under pressure into said chamber in an amount sufficient to drive the ball from the chamber to the selected location upon receipt of a signal, and means for sensing the presence of a ball in the chamber and thereafter generating a signal to said fluid admitting means to admit fluid under pressure into said chamber, thereby to drive said ball from said chamber to the selected location.

4,272,079

THREAD WOUND GOLF BALL

Shinichi Nakade, Itami, and Michihiro Tanaka, Nishinomiya, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Sep. 25, 1979, Ser. No. 78,826
Claims priority, application Japan, Oct. 2, 1978, 53-121870
Int. Cl.³ A63B 37/06, 37/12
U.S. Cl. 273—225 5 Claims



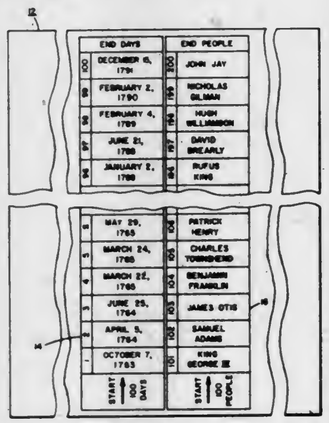
1. A golf ball which comprises a rubber thread-wound core having coated on the surface thereof such that it penetrates the reticulate structure thereof an ionomer resin latex comprising 30 to 60% by weight of solid content of an ionomer resin composition comprising a mono-olefin and at least one unsaturated monocarboxylic or dicarboxylic acid having from three to eight carbon atoms having an ion crosslinkage with an unsaturated monocarboxylic or dicarboxylic acid ester, and a ball shell which covers the surface of the coated thread-wound core such that it is integrally bonded thereto, said ball shell coating comprising an ionomer resin comprising a mono-olefin and at least one unsaturated monocarboxylic or dicarboxylic acid having three to eight carbon atoms having an ion crosslinkage with an unsaturated monocarboxylic or dicarboxylic acid ester.

4,272,080

EDUCATIONAL BOARD GAME

Edward P. Breslin, 5103 N. 15th St., Philadelphia, Pa. 19141

Continuation of Ser. No. 833,979, Sep. 16, 1977, abandoned. This application Jun. 7, 1979, Ser. No. 46,473
Int. Cl.³ A63F 3/00
U.S. Cl. 273—249 7 Claims



1. An educational board game relating to a particular subject and being played with tokens representing the different players, said game comprising:
a game board being divided to include a plurality of separate paths, at least two of which are adjacent to each other, said tokens being movable along any one of said paths;
each path being divided into discrete spaces, each space in one of said two adjacent paths being adjacent to a space in the other of said two adjacent paths, and each of said spaces having indicia imprinted thereon, wherein the printed indicia of adjacent pairs of spaces do not relate to each other, and wherein the printed indicia of each said spaces comprises written information containing different types of data relating to the subject of the game, each space further including one of a sequential number to indicate its position within its respective path;
move directing means operable by the players to determine, on the basis of chance, the number of spaces within a path that the tokens should be moved; and
an informational aid which relates to and provides information about the printed indicia of the spaces,
said informational aid comprising a plurality of sets of information items, one set for each path, each set having as many members as there are spaces on the respective path, each member of said sets comprising information relating to the indicia printed on the corresponding space on said path,
said information aid further comprising a plurality of sets of questions, one set for each path, each member of each set of questions relating to the subject matter found on a space

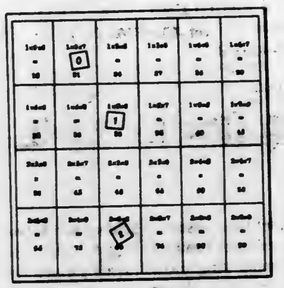
in the corresponding path other than the space corresponding to said member.

4,272,081

GAME WITH BOARD AND TOKENS

James C. Broom, The Hermitage, Burtonshaw Rd., Thames Ditton, Surrey, England

Filed Nov. 7, 1978, Ser. No. 958,412
Int. Cl.³ A63F 3/00
U.S. Cl. 273—265 5 Claims



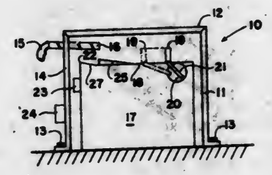
3. Game equipment comprising a set of 24 cards, each card in the set having numerical characters depicting (a) a different mathematical sum involving the combination of three numerical factors, and (b) the three numerical factors of that sum, said factors comprising nine different numerical characters, each sum being unique with regard to its selection of one of each of the three different groups of numerical factors, the characters for the first group of factors having just two alternatives, the characters for the second group of factors having just three alternatives, and the characters for the third group of factors having just four alternatives.

4,272,082

COIN PROJECTING AMUSEMENT DEVICE

Stephen P. Shoemaker, Jr., 70 Tenth St., Hermosa Beach, Calif. 90254

Filed Oct. 10, 1979, Ser. No. 83,376
Int. Cl.³ A63F 7/28, 7/30
U.S. Cl. 273—356 4 Claims



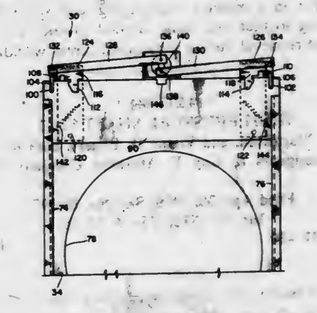
1. An amusement device, comprising:
(a) a substantially rectangular, hollow first housing secured to ground and having a transparent surface at the top thereof;
(b) a substantially rectangular second housing supported on ground and isolated within the interior of said first housing, said second housing having an upper surface horizontally aligned subjacent said transparent surface;
(c) a dam deployed to synchronously translate over at least a portion of said upper surface;
(d) manually articulated coin-dispensing means pivotally extending through at least one lateral surface of said first housing for controllably guiding the passage of said coins to said upper surface;
(e) coin receiving means formed on at least one lateral surface of said second housing for collecting such coins as are pushed over an edge of said upper surface by said dam and for producing sensing signals indicative thereof;
(f) dispensing means mounted on said first housing and connected to receive said sensing signals for dispensing a number of tokens or tickets corresponding to the number of coins sensed; and
(g) surface interruption means secured to said upper surface whereby to cause substantially uni-directional movement of accumulated coins thereon.

4,272,083

VIDEO DISC PLAYER HAVING RECORD EXTRACTING MECHANISM

Leslie A. Torrington, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,601
Int. Cl.³ G11B 25/04, 17/04
U.S. Cl. 369—77 7 Claims



1. A player for recovering prerecorded signals from a disc record removably subject to occupancy of a protective cover comprising a jacket and a record retaining spine removably located therein; said spine being provided with a latch member for releasably securing said spine to said jacket; said player comprising:
(A) a housing having an input slot into which an occupied cover is inserted along a path for loading a record therein;
(B) a turntable rotatably mounted in said housing;
(C) a guide disposed in said housing;
(D) a latch defeat member movably-mounted in said housing and subject to deflection away from a starting position; said latch defeat member being located along said cover insertion path when occupying said starting position thereof such that it is wedged between said spine latch member and an interior portion of said jacket during an occupied cover arrival at a fully inserted position in said player so that said spine latch member is deflected in a manner freeing said spine from said jacket;
(E) a spine gripper member movably-mounted in said housing and subject to deflection away from a beginning position; said spine gripper member being subject to engagement with said spine during an occupied cover arrival at said fully inserted position for releasably securing said spine to said housing, whereby said spine, being freed from said jacket and secured to said housing, is removed from said jacket and retained in said player resting on said guide along with an associated record during a jacket withdrawal subsequent to an occupied cover arrival at said fully inserted position;
wherein said engagement of said spine gripper member with said spine effects a displacement of said spine gripper member away from said beginning position thereof;

(F) means responsive to said displacement of said spine gripper member for deflecting said latch defeat member away from said starting position thereof to a deflected position when said latch defeat member is released from the engagement with said interior portion of said jacket during said jacket withdrawal, whereby said spine latch member is freed from interference by said latch defeat member;

(G) means for transferring said retained record from said guide to said turntable for playback; said transferring means also serving to transfer said retained record from said turntable to said guide for record retrieval;

wherein an empty jacket is inserted into said input slot along said path for retrieving said retained record resting on said guide; wherein said spine latch member, having been freed from interference by said latch defeat member, serves to latch said spine to said jacket upon arrival of said jacket at said fully inserted position; wherein the location of said deflected latch defeat member is such that said empty jacket engages said latch defeat member to cause further deflection thereof during arrival of said empty jacket at said fully inserted position; and

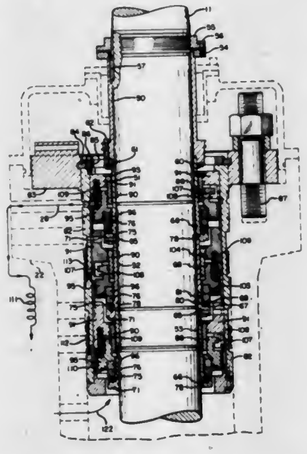
(H) means responsive to said further deflection of said latch defeat member for effecting motion of said spine gripper member in a manner disengaging said spine from said housing so that said spine latched to said jacket effects record retrieval during subsequent cover withdrawal.

4,272,084

HIGH PRESSURE SHAFT SEAL

Arthur R. Martinson, and Victor D. Rogers, both of Portland, Oreg., assignors to Guy F. Atkinson Company, Portland, Oreg.

Filed Apr. 30, 1979, Ser. No. 34,397
Int. Cl.³ F16J 15/54, 15/56
U.S. Cl. 277—30 18 Claims



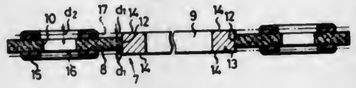
1. A shaft seal comprising a non-rotating seal ring and a rotating seal ring in end face mutual contact in which a support ring is located behind one of said seal rings, face surfaces on said one seal ring and support ring confronting each other, an annular projection on one of said confronting surfaces engaging the opposite confronting surface to support said one seal ring on said support ring, an annular support behind said support ring, face surfaces on said annular support and said support ring confronting each other, and an annular projection on one of said last confronting surfaces engaging the opposite confronting surface to support said support ring on said annular support, said annular projections having diameters causing said support ring to be normally free of any unbalanced forces, said first annular projection being on said one seal ring and said second annular projection being on said annular support.

4,272,085

CYLINDER HEAD GASKET FOR A LIQUID COOLED INTERNAL COMBUSTION ENGINE

Tetsuzo Fujikawa, and Michio Nishimura, both of Kobe, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Oct. 3, 1979, Ser. No. 81,590
Claims priority, application Japan, Oct. 7, 1978, 53-138482[U]; Oct. 7, 1978, 53-138483[U]; Oct. 7, 1978, 53-138484[U]
Int. Cl.³ F16J 15/12
U.S. Cl. 277—235 B 7 Claims



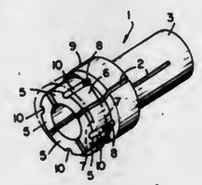
1. A cylinder head gasket to be disposed between a cylinder block and a cylinder head of a liquid cooled internal combustion engine, comprising a gasket body formed with at least one hole for a combustion chamber of the engine and at least one hole for a coolant passage, protruded portions of a metal having a relatively high thermal conductivity, said protruded portions being disposed around a periphery of said hole for the combustion chamber such that they protrude vertically from opposite surfaces of said gasket body and adapted to be in pressure contact with the cylinder block and the cylinder head and at least one seal member of an elastic and liquid impermeable material, said seal member fixed to and arranged on opposite surfaces of said gasket body around a periphery of said hole for the coolant passage, said seal member protruding vertically from said opposite surfaces of said gasket body, and the height of said seal member being larger than that of said protruded portion.

4,272,086

ADJUSTABLE TAPER RING COLLAR

Erwin Tryon, 538 Jamaica Ave., Brooklyn, N.Y. 11208

Filed Mar. 28, 1980, Ser. No. 134,755
Int. Cl.³ B23B 31/40
U.S. Cl. 279—1 S 6 Claims



1. An adjustable taper ring collar comprising: a generally cylindrical member (1) having a plurality of longitudinal slits (2) therein;

receiving means (6) on said generally cylindrical member (1) for receiving a ring, or the like, thereon, the sections (5) between said longitudinal slits (2) being expandable in the radial direction of said generally cylindrical member to retain said ring or the like on said collar;

at least said receiving means (6) having a plurality of longitudinal grooves (10) therein and distributed around the periphery thereof, said grooves (10) extending to the ring or the like receiving area of said receiving means (6); and

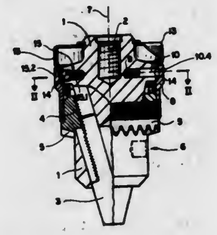
a plurality of elongated abutment means (8, 18) adjustably coupled to said collar and having at least a part of their cross sections located in respective ones of said longitudinal grooves (10) at least in the vicinity of said receiving means (6) and being movable in the longitudinal direction of said collar for abutting against a side surface of said ring or the like at a plurality of spaced apart locations around the circumference of said ring or the like, said longitudinal grooves providing bearing surfaces for substantially preventing circumferentially directed movement of said abutment means (8,18) relative to said collar.

4,272,087

NONLOOSENING DRILL CHUCK

Günter H. Röhm, Heinrich-Röhm-Str. 50, 7927 Sontheim, Fed. Rep. of Germany

Filed Nov. 1, 1979, Ser. No. 90,345
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1978, 2847927
Int. Cl.³ B23B 31/12
U.S. Cl. 279—62 8 Claims



1. A chuck comprising:

a chuck body rotatable about a chuck axis;

a plurality of jaws radially displaceable on said chuck body;

a tightening body rotatable about said axis on said chuck body;

means including interengaging formations on said tightening body and on said jaws for displacing said jaws radially inwardly on rotation of said tightening body relative to said chuck body in a tightening direction and for displacing said jaws radially outwardly on rotation of said tightening body relative to said chuck body in an opposite loosening direction;

an array of radially directed teeth formed on one of said bodies and centered on said axis, each tooth having relative to said loosening direction a front flank and a rear flank;

a latching pin displaceable chordally in the other of said bodies and having a side surface and an outer end surface together forming an edge;

biasing means between said pin and said other of said bodies for urging said pin chordally forwardly into engagement with said teeth with said edge fitting between two adjacent teeth and said side end surface engaging one of said front flanks and said surface engaging the back flank of the tooth immediately trailing said one front flank in said loosening direction; and

means including an unlocking element on said chuck body for displacing said pin against said biasing means chordally backwardly out of engagement with said teeth.

4,272,088

MECHANICAL CONCENTRIC SUPPORT

Fred Perry, 1340 Cedar St., Berkeley, Calif. 94702

Filed Jun. 8, 1979, Ser. No. 46,644
Int. Cl.³ B23B 5/22
U.S. Cl. 279—114 1 Claim

1. A mechanical concentric support device for a workpiece, comprising:

a generally circular-cylindric housing adapted for support axially of said housing on a machine tool and having first and second circular faces,

support shafts radially slideably borne by said housing adjacent to said first circular face of said housing,

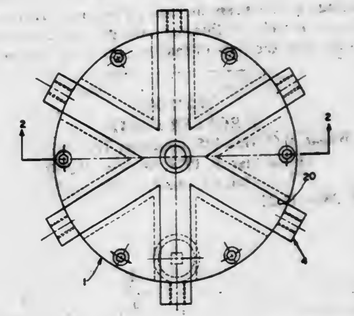
a scroll mechanism contained within said housing and engaged with each of said support shafts to cause radial motion of said support shafts upon rotation of said scroll mechanism about the axis of said housing,

drive means borne by said housing and said scroll mechanism for causing relative rotation of said scroll mechanism with respect to said housing about the axis of said housing, said drive means comprising

a connector for transmitting motion from outside said housing to said scroll mechanism, said connector being located on one of the circular faces of said housing,

a ring spur gear mounted on said scroll mechanism concentric to the axis of said scroll mechanism and said housing,

a driving spur gear engaged with said ring spur gear, and



a shaft journalled through one of the circular faces of said housing parallel with and offset from the axis thereof, and adjacent to the cylindric surface of said housing, said driving spur gear being axially mounted on said shaft internally of said housing and said connector being formed as the end of said shaft opposite said driving spur gear, for engagement by an appropriate tool mating with said connector to rotate said scroll mechanism with respect to said housing, and

adapters threadably engageable with the radially outermost portion of said support shafts and extending radially parallel with the elongate dimension of said support shafts, said first circular face of said housing being formed with radially extending guide slots in the interior surface thereof for limiting said support shafts to radial sliding motion, the exterior surface of said first circular face being formed with radially extending dovetail ways parallel to said guide slots and axially offset therefrom, said adapters being formed with dovetail portions extending along the elongate dimension thereof for mating with said dovetail ways to constrain said adapters to radial sliding motion.

4,272,089

TRACTOR-TRAILER LAND VEHICLE

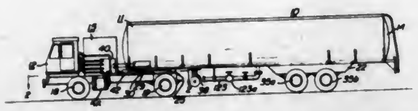
Robert G. Watkins, Jr., No. 2 Longview Rd., R.D. #4, Coatesville, Pa. 19320

Continuation of Ser. No. 769,518, Feb. 17, 1977, Pat. No. 4,149,732. This application Apr. 2, 1979, Ser. No. 26,085
The portion of the term of this patent subsequent to Apr. 17, 1996, has been disclaimed.
Int. Cl.³ B60P 3/22
U.S. Cl. 280—5 C 7 Claims

1. A fuel transport land vehicle comprising

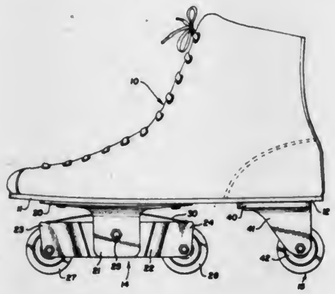
a tractor,

a fifth wheel assembly including means mounting said fifth wheel means to said tractor,
a trailer for carrying jet fuel for engaging said fifth wheel assembly,
means during normal operation of said vehicle for solely preventing any relative pivotal movement between said trailer with respect to said fifth wheel assembly thereby preventing sideways pivoting between trailer and tractor



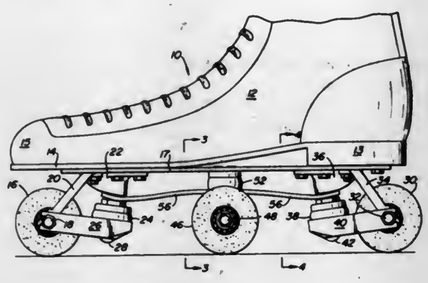
but allowing said tractor to be easily removed from said trailer for maintenance and repair, said fifth wheel assembly mounting means including pivoting means for providing normal up and down movement between tractor and trailer during normal operation of said vehicle, and
said trailer having a tank for carrying said jet fuel and
pumping module means including a housing having disposed therein means for filtering said jet fuel and means for modulating the flow of said jet fuel from said tank.

4,272,090
ROLLER SKATE
Ira N. Wheat, P.O. Box 145, Quitman, Tex. 75784
Filed Mar. 9, 1979, Ser. No. 18,998
Int. Cl.³ A63C *17/04*
U.S. Cl. 280—11.22 **1 Claim**



1. A roller skate comprising
a shoe having a sole portion and a heel portion; a front wheel assembly mounted at said sole portion; and a rear wheel assembly mounted at said heel portion;
said front wheel assembly comprising: a base plate attached to said sole portion having means defining a fixed pivot bearing underlying said sole portion; an elongated bogie, having means defining a fixed pivot bearing intermediate its ends for coacting attachment to said plate pivot bearing; and leading and trailing wheels rotatably mounted at the opposite ends of said bogie, and disposed beneath said sole portion;
spring means coupled between said front wheel assembly base plate and said bogie, for establishing a normal rotative position of said bogie relative to said base plate when the wheels are lifted from the skating surface; said spring means comprising an elongated spring leaf secured rigidly to said base plate intermediate its ends, and having its opposite ends bearing on said bogie adjacent to the respective opposite ends thereof;
said rear wheel assembly comprising: a base plate attached to said heel portion having means defining a wheel mount underlying said heel portion; and a rear wheel rotatably mounted in said wheel mount;
said leading, trailing, and rear wheels being aligned in a single row about parallel axis of rotation.

4,272,091
ROLLER SKATE
Thomas J. Reid, Jr., 506 Morley Pl., Elmira, N.Y. 14904
Filed May 9, 1979, Ser. No. 37,254
Int. Cl.³ A63C *17/04*
U.S. Cl. 280—11.28 **10 Claims**

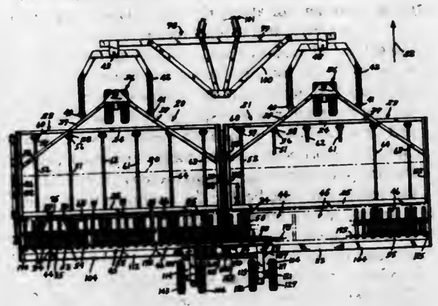


1. A roller skate comprising:
(a) a shoe for receiving therein a person's foot, said shoe having a bottom sole,
(b) a frame fixedly attached to said bottom sole, a front wheel rotatably supported by a brace means depending from said frame adjacent to and beneath the toe of said shoe, a rear wheel rotatably supported by a brace means depending from said frame adjacent to and beneath the heel of said shoe,
(c) a pair of center wheels rotatably supported on a common axis by a brace depending from said frame at a central location on said frame so that said common axis is substantially equidistant from the axes of rotation of said front and rear wheels, all of said wheels being of the same size and at the same elevation for simultaneous rolling contact with a support surface, said front and rear wheels being aligned with one another so as to be rotatable at a location along an imaginary center line of said sole, said center wheels being at opposite sides of said imaginary center line and beneath said sole,
(d) a first shock absorber for said center wheels, a second shock absorber for said front wheel, and a third shock absorber for said rear wheel, means coupling said shock absorbers to said frame, said second shock absorber being rearwardly of the axle for the front wheel, said third shock absorber being forwardly of the axle for the rear wheel, a front fork extending from the front axle to said second shock absorber, a rear fork extending from said third shock absorber to the rear wheel axle.

4,272,092
AGRICULTURAL TRANSPORTER
Gerald T. Johnson, Kulm, N. Dak.
Filed Dec. 26, 1979, Ser. No. 107,447
Int. Cl.³ B62D *25/00*
U.S. Cl. 280—43.23 **8 Claims**

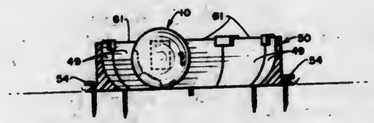
1. A transporter, for a pair of transversely elongated agricultural implements having first, mutually remote ends and second ends in abutting apposition, said implements including forward support wheels and arrays of pivotally mounted rearward packer wheels, said transporter comprising, in combination:
first and second frames;
means attaching said frames rigidly to the backs of said implements near the apposed ends thereof to extend between upper and lower ends;
first and second wheel means;

means mounting said wheel means in said frames for linear vertical movement with respect to said lower ends of said frames;
first motor means for displacing said wheel means between first positions, out of contact with the ground behind said implement, and second positions, in which they contact the ground and raise said frames thereabove;
latch means actuable between an inoperative position and an operative position in which increase in the transverse displacement between said upper ends of said frames is prevented;



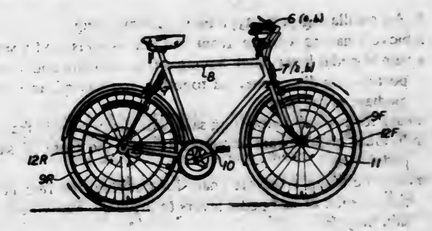
second motor means for causing operation of said latch means;
and means for energizing said motor means so as to first cause said wheel means to move into contact with the ground, then cause operation of said latch means, and then raise said frames with respect to the ground so that said packing wheels are out of contact with the ground and said latch means prevents sagging of said mutually remote ends of said implements.

4,272,093
SELF-PROPELLED ROLLING TOY
Dennis Filice, 7381 Doc Adams Rd., Marysville, Calif. 95901, and David G. Bories, 8421 Ascolano Ave., Fair Oaks, Calif. 95628
Filed Sep. 17, 1979, Ser. No. 76,322
Int. Cl.³ A63G *1/12, 29/00*
U.S. Cl. 280—206 **10 Claims**



1. A rolling toy comprising:
a generally spherically shaped hollow shell structure having an interior sufficiently large to accomodate a human being;
an opening leading into the interior of said shell of a size sufficient to allow a human being to pass therethrough;
a seat disposed in the interior of said shell for providing a seat for a human being;
restraining means associated with said seat and said shell for both holding a human being in said seat and restraining movement thereof;
feet retaining means on the interior of said shell for retaining the feet of a human being in a fixed position; and
hand gripping means on the interior of said shell for gripping by the hands of a human being
wherein said seat is disposed against and integral with the inside wall of said hollow shell structure, and which seat is comprised of two sections, an upper back section and a lower seat cushion section, each of which is separately inflatable,
said seat further including a pair of harnesses, one on the left and one on the right side therof, through which an occupant's left and right arms may be respectively inserted.
9. In the toy of claim 1 including a confining area encircling said shell, said confining area having a single continuous curved wall curving from a point inwardly of said area upwardly and outwardly of the interior of said area
whereby said shell can travel omnidirectionally within said confined area.

4,272,094
POWERCYCLE
Raymond A. Patria, 34-32 75th St., Queens New York, N.Y. 11372
Filed Jun. 14, 1979, Ser. No. 48,419
Int. Cl.³ B62M *1/10*
U.S. Cl. 280—217 **15 Claims**



1. A powercycle comprising
a vehicle wheel having wheel supports,
a flywheel rotatably mounted between the wheel supports inside the vehicle wheel, said flywheel defining sides,
clutch means for releasably connecting and disconnecting, selectively, said flywheel to and from said vehicle wheel, said flywheel being rotatable relative to said vehicle wheel, said clutch means is disposed within the confines of said sides whereby balance is promoted.

4,272,095
CHILD'S WHEELED RIDING TOY
George W. Ptaszek, Elm St., P.O. Box 260, Pascoag, R.I. 02859
Filed Apr. 12, 1978, Ser. No. 895,663
Int. Cl.³ B60B *33/04*
U.S. Cl. 280—220 **7 Claims**



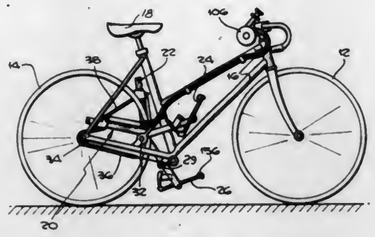
1. A three wheeled vehicle comprising a frame, a front wheel, first means supporting the front wheel for steering movement from said frame, a pair of castered rear wheels each having a swivel axis and a rotational axis, second means supporting said rear wheels from said frame, said second means permitting rocking of the swivel axis of said rear wheels from a tracking position wherein the swivel axis is at an acute angle with a vertical line normal to the ground to a nontracking position wherein said swivel axis is substantially normal to the ground whereby the vehicle may spin about the ground engagement point of the front wheel in said nontracking position.

4,272,096

POWERFUL OSCILLATING PEDAL BICYCLE

Boris Efros, Los Angeles, Calif., assignor to Energenic Propulsions, Ltd., Encino, Calif.

Filed Feb. 21, 1978, Ser. No. 879,220
Int. Cl.³ B62M 1/04
U.S. Cl. 280—255 14 Claims



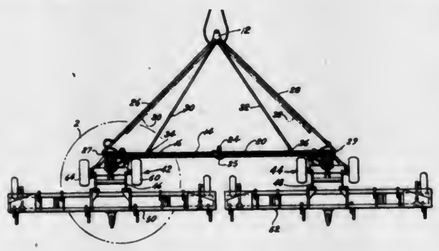
1. An oscillating pedal type bicycle comprising:
a bicycle having a frame, front and rear wheels, and a seat;
a pair of pedal levers each having a front portion and a rear portion, rigidly connected together and having an intermediate pivot point;
means for pivotally mounting said pedal lever on said frame;
individual pedal means mounted toward the front of said pedal levers;
means including a bicycle chain for coupling the rear portion of each of said pedal levers to drive the rear wheel of said bicycle;
means for shifting the speed ratio of said bicycle by changing the effective connection point of said driving means along the length of said rearwardly extending portions of said pedal levers, said speed changing means including mechanical slider means mounted for movement along each of said rearwardly extending portions of said pedal levers, means including recesses in said pedal levers for securely and firmly locking said mechanical slider means in place and for unlocking them, said locking and unlocking means including separate mechanical means independent of said chain means for exerting force between said slider means and said rear portions of said pedal levers, and means for remotely unlocking said mechanical means and shifting their positions to change speed ratios.

4,272,097

DRAWBAR FOR MOUNTING MULTIPLE FARM IMPLEMENT TOOL BARS

Erwin D. Cornelius, Towanda, Ill., assignor to M & W Gear Company, Gibson City, Ill.

Filed Jun. 12, 1979, Ser. No. 47,881
Int. Cl.³ B60D 1/14
U.S. Cl. 280—411 A 5 Claims



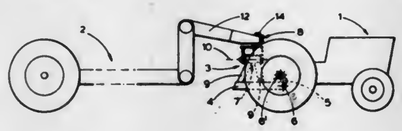
5. A drawbar device for coupling a plurality of farm implement tool bars to a towing vehicle, said drawbar device being convertible between a field operating state and a road operating state and comprising, in combination:
(a) hitch means for securing said drawbar device to said vehicle;
(b) a collapsible crossbar having at least a first section and second section, said first and second sections being hingedly connected to form a substantially linear support span substantially transverse to the direction of vehicle travel in said field operating state and foldable with said first and second sections substantially parallel to the direction of vehicle travel in the road operating state;
(c) bracket means for attaching said collapsible crossbar to said hinge means, said bracket means including a first and second lateral support beams connecting the hitch means respectively to the first and second sections, and also including first and second secondary support beams connecting the hitch means respectively to the first and second sections, when in the field operating state, said secondary support beams having means for detachment from the first and second sections to thereby permit folding of the device from the field to the road operating state;
(d) carriage means for attaching said plurality of separate farm implement tool bars to said collapsible crossbar, said carriage means including means for lowering said farm implement tool bars when said drawbar device is in said field operating state and for raising said farm implement tool bars when said drawbar device is in said road operating state; and
(e) running gear having a frame connected to said collapsible crossbar, a first wheel, a second wheel, and pivotal mounting means for attaching each of said first and second wheels to said frame and for maintaining said wheels in a side-by-side relation when said drawbar device is in said field operating state and in tandem with each other when said drawbar device in said road operation state.

4,272,098

WEIGHT TRANSFER HITCH

Robert J. Greatbatch, Spalding, England, assignor to Weight Distribution Limited, Hong Hong, Hong Kong

Filed Aug. 7, 1978, Ser. No. 931,365
Claims priority, application United Kingdom, Aug. 12, 1977, 33960/77
Int. Cl.³ B60D 7/00
U.S. Cl. 280—494 14 Claims



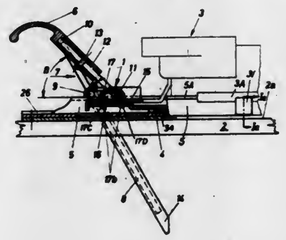
1. A weight transfer hitch for connecting an agricultural tractor having a rear axle to a trailer having a coupling member, said hitch comprising:
a pair of parallel linkage arms adapted to be pivotably attached to said tractor about a transverse horizontal axis positioned below and forwardly of said rear axle, said arms having free ends extending rearwardly beyond said axle;
a horizontal pivot bearing having an outer sleeve and an inner pin pivotally mounted within said sleeve;
means for supporting said horizontal pivot bearing above said linkage arms, said supporting means including two pairs of obliquely inclined convergent struts, the lower, wider spaced ends of the struts of each pair being fixed to a respective one of said arms, and the upper, convergent ends of the struts of each pair being fixed to said sleeve;
a vertical pivot bearing having a first member adapted to be fixedly connected to said coupling member and a second member pivotally movable relative to said first member; and
means for fixedly connecting said second member to said inner pin.

4,272,099

SKI BRAKE

Josef Svoboda, Schwechat; Erwin Krob, Vienna, and Erwin Weigl, Brunn am Gebirge, all of Austria, assignors to TMC Corporation, Baar, Switzerland

Filed Apr. 13, 1978, Ser. No. 896,216
Claims priority, application Austria, Apr. 18, 1977, 2678/77
Int. Cl.³ A63C 7/10
U.S. Cl. 280—605 21 Claims



1. A support structure for mounting a ski brake on a ski adjacent to a safety ski binding means also mounted on said ski, comprising:
guide rail means secured to said ski and extending coextensively therewith, said safety ski binding means being mounted on said guide rail means and having an elongated detent bar separate from said guide rail means extending forwardly therefrom;
a mounting plate having axle receiving means thereon, said axle receiving means including second means for effecting a securement of said mounting plate to the forward end of said detent bar; and
spring wire ski brake means having axle segments received in said axle receiving means, including said second means on said mounting plate for pivotally supporting said ski brake for movement between an operative position and an inoperative position thereof.

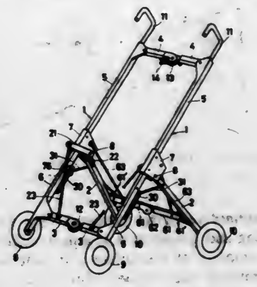
4,272,100

COLLAPSIBLE BABY CARRIAGE

Kenzou Kassai, Osaka, Japan, assignor to Kassai Kabushikikaisha, Osaka, Japan

Filed May 29, 1979, Ser. No. 43,337
Claims priority, application Japan, Aug. 29, 1978, 53/106756; Dec. 15, 1978, 53/155284; Dec. 16, 1978, 53/155537
Int. Cl.³ B62B 7/02
U.S. Cl. 280—650 48 Claims

1. A collapsible baby carriage, comprising a pair of main rods (1), each main rod having an upper handle end and a lower end, auxiliary rods (2), each auxiliary rod having a pivot end and a free end, pivot means (7) operatively securing said pivot ends of said auxiliary rods to the respective main rod (1) intermediate the ends of the main rods, first wheel means operatively secured to said lower ends of the main rods, second wheel means operatively secured to the free ends of the respective auxiliary rods, first, second, and third cross-connecting means (4, 3, 61), first journal means (4') securing the first cross-connecting means (4) to said upper handle ends of said main rods, second journal means (3') securing the second cross-connecting means (3) to the lower ends of said main rods, third journal means (61') securing said third cross-connecting means (61) to the auxiliary rods, each of said cross-connecting means (4, 3, 61) comprising a respective hinge means (13, 12, 62) for folding the cross-connecting means (4, 3, 61), each of said hinge means (13, 12, 62) having a respective hinging axis all of which hinging axes are located in a common plane, first lever means (16, 20) and first linkage means (18) operatively interconnecting said first and second cross-connecting means (4, 3) for movement in unison in response to a folding operation of one of said first or second cross-connecting means, second lever means (21) and second linkage means (23) operatively interconnecting one of said cross-connecting means and said auxiliary rods whereby a folding operation of said cross-connecting means tilts said auxiliary rods toward said main rods so that said first and second wheel means come to be positioned adjacent to one another, third linkage means (63) operatively connected to said third cross-connecting means (61) for folding the third cross-connecting means (61) in response to tilting of said auxiliary rods (2) relative to said main rods (1), whereby all three cross-connecting means (4, 3, 61) are folded or unfolded substantially simultaneously with the tilting of the auxiliary rods (2), and hammock means (83) operatively disposed between said main rods for holding a baby.

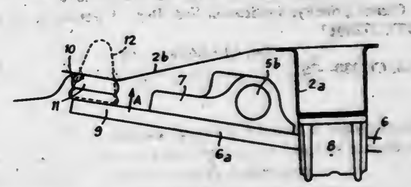


4,272,101

SUSPENSION OF A GROUP OF VEHICLE WHEELS

Andre F. Chambon, Palaiseau, France, assignor to Societe Anonyme Automobiles Citroen and Automobiles Peugeot, both of France

Filed Jul. 20, 1979, Ser. No. 59,454
Claims priority, application France, Jul. 25, 1978, 78 21974
Int. Cl.³ B60G 11/38
U.S. Cl. 280—692 4 Claims



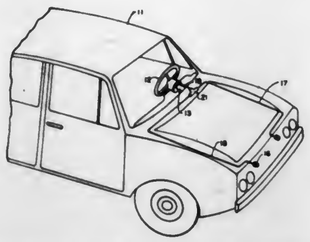
1. An improvement in the suspension of a group of vehicle wheels comprising two wheels located respectively outside at least two longitudinal panels belonging to the structure of the vehicle, two suspension devices, each being constituted by at least one torsion bar substantially parallel to said panels connected at one of its ends to the corresponding wheel, and a transverse elastic member substantially perpendicular to said panels and anchored at the other end of each of the said torsion bars outside said panels, wherein each end of said elastic members extends beyond its anchorage to the corresponding torsion bar with respect to said panel in an end part extending opposite an element fast with said structure and there is disposed between said element and said end part an elastically deformable stop tending to restrain their relative approach beyond a determined load threshold of the vehicle.

4,272,102

COUPLING DEVICE FOR IGNITIVE REACTIONS

Frank B. Burkdoll, Fairfield, Calif., assignor to Explosive Technology, Inc., Fairfield, Calif.

Filed Aug. 7, 1978, Ser. No. 931,601
Int. Cl.³ B60R 21/02; F42C 19/00
U.S. Cl. 280—731 10 Claims



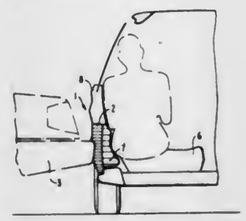
6. In an automotive airbag system having a steering wheel mounted airbag and gas generator, a pyrotechnic crash detector located remotely of the airbag and generator, and pyrotechnic transmission lines connected to the crash detector and gas generator, the improvement comprising: a first body member mounted on the steering column, a second body member affixed to the steering wheel for rotation relative to the first body member, a pyrotechnic transmission channel extending along a generally circular path disposed coaxially of the steering wheel in one of the body members, and means for connecting the transmission lines to the body members in position for communication with the transmission channel in the one body member, said transmission channel containing an exothermal material which is ignited by an ignitive reaction in one of the transmission lines, and a gas channel adjacent to the ignitive material for propagating the reaction to the other transmission line.

4,272,103

LATERAL PROTECTION OF MOTOR VEHICLES

Walter Schmid, Sindelfingen; Werner Breitschwerdt, Stuttgart; Guntram Huber, Aidlingen-Dachtel, and Willi Reidelbach, Sindelfingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Untertuerkheim, Fed. Rep. of Germany

Filed May 24, 1978, Ser. No. 909,070
Claims priority, application Fed. Rep. of Germany, May 27, 1977, 2724017
Int. Cl.³ B60R 21/04
U.S. Cl. 280—751 8 Claims



1. A flank protection for protection of passengers from impacts at lateral areas of motor vehicles comprising a vehicle body side wall having a window, and inner and outer body parts on opposite sides of a plane in which said window is located, wherein reinforcement means effecting lateral impact penetration protection by other vehicles are limited to lower areas of said side wall extending downwardly from a belt line of the vehicle and are comprised by one of said outer body parts and resilient portions of said inner and outer body parts above said belt line together form an area that is yieldable for the absorption of outwardly directed reaction forces applied by an occupant against said body parts above said belt line.

4,272,104

VEHICLE PROVIDED WITH AN INERTIA REEL SEAT BELT

Henri E. E. M. Cuny, 14 rue Charles Floquet, 75007 Paris, France

Filed Mar. 20, 1978, Ser. No. 887,957
Claims priority, application France, Apr. 25, 1977, 77 12396
Int. Cl.³ B60R 21/02
U.S. Cl. 280—801 10 Claims



1. In a vehicle including an internal platform area having a seat mounted on the platform adjacent an entry/exit opening of the vehicle, the improved seat belt system comprising:

(a) a first belt fastener mounted to the platform on the vehicle opening side of the seat;

(b) a second belt fastener mounted to the platform on the vehicle opening side of the seat;

(c) a hook member including a downward facing hook portion mounted to the platform on the side of the seat opposite the vehicle opening; and,

(d) a seat belt assembly including a seat belt connected on one end to said first belt fastener and connected on the opposite end to said second belt fastener, said seat belt being of sufficient length to pass from said first belt fastener across the seat with an occupant therein, around said hook portion of said hook member, and back across the seat and occupant to said second belt fastener, said seat belt further being of such length that normal deployment and removal of said belt can be accomplished by engaging and disengaging said belt from said hook portion of said hook member, said seat belt assembly further including means disposed adjacent the vehicle opening for releasing the seat belt an amount sufficient to allow the occupant to exit the vehicle through the vehicle opening in an emergency without disengaging said belt from said hook portion of said hook member.

4,272,105

PASSIVE SEAT BELT SYSTEM

Thomas C. Holka, Farmington Hills, and Brian D. Marvin, Canton, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Nov. 26, 1979, Ser. No. 97,251
Int. Cl.³ B60R 21/02
U.S. Cl. 280—804 5 Claims

1. A passive seat belt system having a torso belt, one end of which is fixedly anchored to a vehicle body roof rail rearwardly of the outboard side of a vehicle occupant seating position and the other end of which is connected to a seat belt retractor mechanism on the inboard side of the seating position,

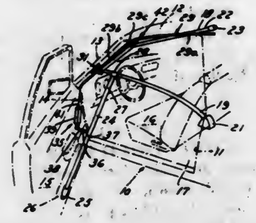
a trolley means movable in response to door opening and closing movement along a track means,

belt engageable means on the trolley means engageable with the belt intermediate the ends of the latter,

the track means having a portion paralleling the roof rail from the fixedly anchored end of the belt forwardly to a point at which the track means turns downwardly to parallel a vehicle windshield pillar located forwardly of the outboard side of the seating position,

the trolley means during forward movement along the track means in response to door opening movement causing the torso belt to be lifted upwardly and forwardly of the seating position to provide egress or ingress to the latter,

belt hanger means comprising a catch depending from the



track means contiguous to a point at which the track means departs from its parallelism to the roof rail and turns downwardly along the windshield pillar,

and hanger engaging means carried on the torso belt constructed and arranged to engage the hanger means to maintain a segment of the torso belt between its roof rail anchored end and the hanger means in substantially parallel relationship to the roof rail as the trolley means travels along the track means adjacent the windshield pillar,

the hanger engaging means comprising a flip hook attached to the torso belt,

the flip hook engaging the catch as the trolley means passes in belt lifting direction of movement.

4,272,106

COPY SHEET

Bertrand Y. Auger, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 10, 1979, Ser. No. 83,385
Int. Cl.³ B41L 1/20; B32B 27/20; B41M 5/16, 5/18
U.S. Cl. 282—27.5 10 Claims

1. A copy sheet comprising

(a) a substantially transparent, heat resistant, polymeric carrier film having means for providing black-line images when used with a master sheet under imaging conditions, and

(b) a substantially transparent, colored dye layer covering at least a portion of one major surface of said carrier film, said dye layer containing at least one dye capable of undergoing a color shift to become lighter in response to the application of a color developer composition.

8. An imaging system comprising the copy sheet of claim 1 and a color developer composition in a transfer means.

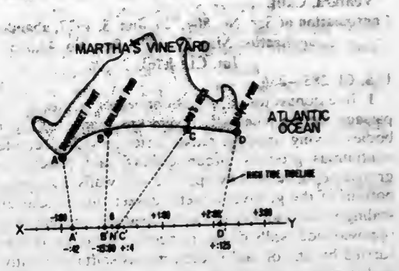
4,272,107

TIDE TIME INDICATOR

William T. Elbow, South Rd., Chilmark, Mass. 02535

Filed Aug. 2, 1979, Ser. No. 63,337
Int. Cl.³ B42D 15/00; G09B 29/00
U.S. Cl. 283—1 A 9 Claims

1. A device for indicating the time of a tide at any or at least one of a plurality of locations having a known tidal time relationship to one another, the device comprising a pair of cooperative charts including a first time-based chart having spaced index marks representing the respective locations, the distance between a pair of the marks being representative of the tidal time difference, to a particular scale, between the locations which the marks represent; and a second timebased chart having index marks representing real time and spaced apart to the same scale as the index marks on said first chart, whereby by positioning an index mark on the second chart representing



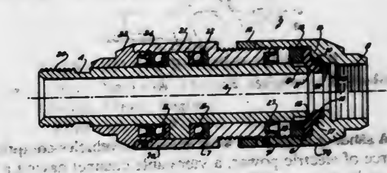
the known time of a tide at one of said locations in register with an index mark on said first chart representing said one location, the time of the tide at another of said locations can be read off from said second chart adjacent an index mark on said first chart representing said another location.

4,272,108

SWIVEL FOR HIGH-PRESSURE CONDUIT-CLEANING ASSEMBLY

Wolfgang Mauserg, Duisburg, Fed. Rep. of Germany, assignor to WOMA Apparatebau Wolfgang Mauserg & Co. GmbH, Duisburg, Fed. Rep. of Germany

Filed Jul. 19, 1979, Ser. No. 59,121
Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 7821972[U]
Int. Cl.³ F16L 27/00
U.S. Cl. 285—95 10 Claims



1. In a conduit-cleaning assembly wherein a high-pressure hose has a hose portion connected to a portion of a conduit-cleaning nozzle, a swivel coupling comprising:

an outer end tube connected to one of said portions;

an intermediate outer tube threaded with said outer end tube;

an inner tube connected to the other of said portions and forming with said outer tubes an axis-defining passage for liquid flow between said portions, said inner tube being at least partially received in said outer tubes and having an inner-tube end in said outer tubes;

a bearing between said inner tube and said intermediate outer tube for relative rotation about said axis therebetween; and

an annular seal engaged between said inner-tube end and said outer end tube and having a pair of generally axially opposite pressure-equalizing surfaces one of which engages said inner-tube end generally axially and both of which are exposed to the pressure in said passage.

4,272,109
RING GASKET RETAINER FOR FLANGED CONNECTORS

Arthur G. Ahlstone, Ventura, Calif., assignor to Vetco, Inc., Ventura, Calif.

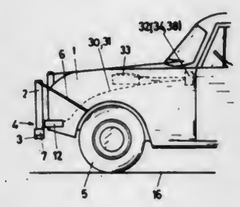
Continuation of Ser. No. 804,726, Jun. 8, 1977, abandoned. This application May 29, 1979, Ser. No. 43,335
Int. Cl.³ F16L 17/06
U.S. Cl. 285—336 19 Claims

1. In a connector: a pair of connector bodies having a fluid passage therein when said bodies are connected together, said bodies having opposed radial surfaces with circumferentially continuous grooves circumscribing said passage and each groove being defined by opposed side walls diverging from the bottom of the groove, a metal gasket ring in said grooves in sealingly and radially inwardly loaded engagement with said opposed side walls of the respective grooves, retainer means carried by one of said bodies, means shiftable relative to said gasket ring and said one of said bodies for connecting said retainer means to said gasket ring and initially holding said gasket ring in position with respect to the groove in one of said bodies to be clamped between said bodies with said side walls loaded axially and circumferentially against said gasket ring, and means clamping said bodies together, said means connecting said retainer means to said gasket being flexible and capable of flexing with respect to said gasket ring and said one of said bodies for enabling movement of said gasket ring during loading thereof.

4,272,110
VIBRATORY SANDER

Franz Cervinka, Oberleiteaweg Nr. 35, A-6370 Kitzbühel, Austria

Filed Jun. 27, 1978, Ser. No. 919,545
Claims priority, application Austria, Jun. 28, 1977, 4602/77
Int. Cl.³ B60B 39/06, 39/10; B61C 15/10
U.S. Cl. 291—23 10 Claims



1. A sanding device for wheeled motor vehicles comprising, a source of electric power, a vibratable channel having a bottom, at least one refillable sand reservoir having a funnel-shaped bottom with a discharge opening being disposed above said vibrating channel, means for vibrating said channel operatively connected to said source of electric power and conveying the sand to a channel opening in said bottom in alignment with and in front of the wheel of the motor vehicle, said channel opening being disposed at an end of said channel directed towards the wheel, a flap arranged to close said channel opening to control the flow of the same therethrough, and said bottom being substantially planar disposed at a slightly upwardly inclined angle relative to a horizontal plane and having grooves longitudinally communicating with said channel opening, and said channel being transversely disposed with respect to the direction of movement of the vehicle and the end of said bottom on the side of the wheel having a diagonal side so that said channel opening has a triangular cross-sectional area dimensioned to pass sand in a predetermined spreading width.

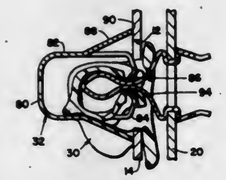
2. A sanding device for selectively discharging sand in front of a wheeled motor vehicle comprising:

a source of electric power, a reservoir container for storing and delivering sand, said reservoir container being formed with a vertically disposed funnel-shaped bottom member having a triangularly shaped delivery opening for delivering the sand and with a top having an inlet opening for receiving the sand, a trough underlying said delivery opening having a substantially plane bottom member to provide sand over the entire surface of said bottom member and said bottom member having a discharge opening dimensioned for discharging a predetermined width of sand in front of the wheel, electric means operatively connected to said source of electric power for vibrating said trough thereby conveying sand along said bottom member from said reservoir container to said discharge opening, a flap member pivotally disposed within said trough for controlling the flow of the sand therethrough said discharge opening, said substantially plane bottom of said trough includes a plurality of longitudinally extending grooves communicating with said discharge opening.

4,272,111
SAFETY LATCH DEVICE

Victor S. Hammer, Jr., Lake Zurich; Arthur J. Danko, Oak Lawn, and Perry J. Heard, Chicago, all of Ill., assignors to Illinois Tool Works Inc., Chicago, Ill.

Filed Mar. 26, 1979, Ser. No. 23,819
Int. Cl.³ E05C 19/06
U.S. Cl. 292—17 12 Claims



1. A safety anchor latch device for accepting a metallic latch strike adapted for use in a supporting structure such as an apertured metallic cabinet and closure therefore with said latch being designed for use at a predetermined maximum operating temperature, including a self retained plastic latch, said latch fabricated of a plastic material having the characteristic of melting at a predetermined temperature, a metallic resilient spring member having positive position retaining means and positive strike gripping means which at normal operating temperatures are inoperative and supported by elements of said plastic latch in spaced relation to said supporting structure and the metallic latch strike respectively but which positively engage and retain same when the structural integrity of said plastic latch is destroyed by abnormally elevated temperatures in excess of said predetermined temperature, whereby said supporting structure is maintained in a closed position and migration because of the elevated temperature is prevented.

4,272,112
ELECTRIC DOOR LOCK FOR MOTOR VEHICLES

Horst Schlick, Schwalbach; Karl Rau, Mühlheim; Alfred Wipfler, Kriftel, and Joachim Laeg-Althoff, Hofheim, all of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 4, 1979, Ser. No. 45,308
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1978, 2825355
Int. Cl.³ E05C 13/04
U.S. Cl. 292—201 14 Claims

1. Apparatus for electrically locking and unlocking doors of a motor vehicle, comprising:

a motor mounted in one door of the vehicle;

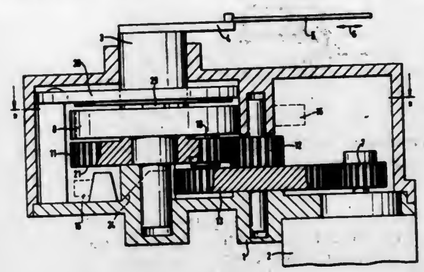
a lock mechanism in the door for locking the door;

a connecting element coupling the motor with the lock mechanism;

switch means connected with the motor and the lock mechanism for controlling locking and unlocking functions of the motor in response to movement of the connecting element, said switch means including a first switch coupled with the motor to be actuated by operation of the motor, and a second switch coupled with the lock mechanism via the connecting element to be actuated by movement of the connecting element;

motion transmitting means connected between the motor and connecting element and constructed to reverse the direction of movement of the connecting element in dependence on the movement completed by the motor; and

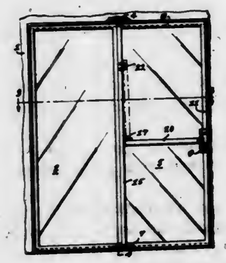
said switch means, motion transmitting means and motor being arranged in a structural unit.



4,272,113
SLIDING DOOR SAFETY BAR

Raymond V. Zins, 228 Crestridge Ave., Colorado Springs, Colo. 80906

Filed Aug. 13, 1979, Ser. No. 66,040
Int. Cl.³ E05C 17/12
U.S. Cl. 292—262 2 Claims



1. A supplemental locking device for relatively sliding parallel door panels mounted in a door frame having parallel top and bottom members, comprising:

a fixed door panel;

a slidable door panel having a frame movable in a plane parallel to the plane of the fixed panel and into juxtaposition therewith;

a rigid mounting post vertically disposed between the said top and bottom frame members and perpendicular thereto and intermediate the lateral extremities of the said door panels;

means attaching the mounting post to the top and bottom frame members;

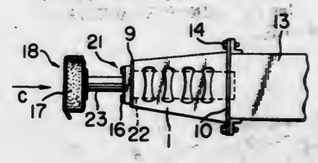
hinge means attached to the mounting post intermediate the top and bottom ends thereof; and

a rigid locking bar attached at its one end to the hinge means and adapted to pivot with respect to the mounting post in a plane parallel to the said door panels and adapted to abut its free end against the frame member of the slidable panel to prevent sliding movement thereof.

4,272,114
IMPACT ABSORBING DEVICE

Tomoyuki Hirano, Tokyo; Akira Yamanaka, and Koichi Tomi, both of Yokohama, all of Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 860,626, Dec. 14, 1977, Pat. No. 4,190,276.
This application Sep. 17, 1979, Ser. No. 76,151
Claims priority, application Japan, Dec. 22, 1976, 51/15533; Feb. 3, 1977, 52/11265; Jun. 8, 1977, 52/68270
Int. Cl.³ B60R 19/04
U.S. Cl. 293—133 11 Claims



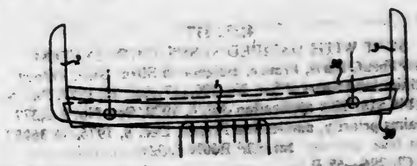
1. An impact absorbing device comprising a hollow polyhedral body, a plurality of elongated cutouts formed in each of the side walls of said polyhedral body, said cutouts extending in parllel relation in a direction substantially orthogonal with respect to the longitudinal axis of said polyhedral body; means for guiding continuous deformation of said polyhedral body in the direction of its longitudinal axis by compression forces, each said cutout having one of its longer edges arranged to protrude outward relative to the other, whereby the energy of impact imparted in the axial direction of said polyhedral body can be absorbed by the deformation or partial breakage of the side walls of said polyhedral body; and

a shock absorber having an impact attenuating capability less than that of said polyhedral body is mounted in said polyhedral body with its axis aligning substantially with the longitudinal axis of said polyhedral body to absorb the energy of less impact than a predetermined magnitude, said polyhedral body absorbing the portion of the energy of impact exceeding the predetermined magnitude.

4,272,115
FREE-MOVING BUMPER FINISHER

Malcolm G. Stock, Nantwich, England, assignor to Rolls-Royce Motors Limited, Crewe, England

Filed Oct. 31, 1978, Ser. No. 956,044
Claims priority, application United Kingdom, Nov. 10, 1977, 46783/77
Int. Cl.³ B60R 19/04
U.S. Cl. 293—155 10 Claims



1. A bumper arrangement for attachment to a body of a vehicle comprising:

a supporting metal beam extending transversely of the body for receiving a force from an impact;

a decorative finisher carried by said supporting metal beam in superposed relationship thereto; and

means connecting said finisher to said supporting metal beam for bodily movement of the finisher relative to said

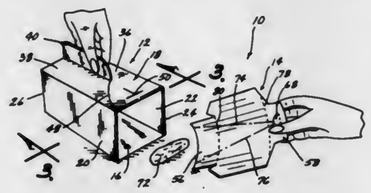
beam in a general direction of the force of impact when applied to the beam, said connecting means comprising at least one bolt extending through said finisher and said beam, said bolt being spring loaded by a spring to urge said beam and finisher together, and at least one of said beam and said finisher at a point through which said bolt extends having a slot to allow relative movement between said finisher and said beam.

4,272,116

APPARATUS AND METHOD OF DISPOSING OF PET WASTE AND THE LIKE

Ralph W. Tufte, Jr., 5820 S. 100 Plz., 3B, Omaha, Nebr. 68127

Filed Nov. 16, 1979, Ser. No. 94,853
Int. Cl.³ A01K *29/00*; A47L *13/52*
U.S. Cl. 294—1 B **11 Claims**



1. A disposable collector for pet waste and the like comprising,

a collapsible generally rectangular container having forward and rearward ends, a bottom wall, top wall and opposite sidewalls foldingly interconnected whereby said container is foldable from a substantially planar collapsed form to a generally tubular open form, and a back wall foldingly connected to one of said walls and adapted to close the rearward end of said container in said open form thereof,

said container further comprising a handle portion formed integrally with one of said walls whereby said container may be supported and manipulated by said handle portion,

a flat spatula adapted for moving waste into said container,

said spatula and container including coacting connector means operative for securing said spatula in substantially closed relation over the forward end of said container, and

said spatula having a pair of laterally directed score lines spaced longitudinally apart by a distance substantially equal to the height of said container at the forward end thereof whereby said spatula may be folded along said score lines to substantially conform to the forward end of said container.

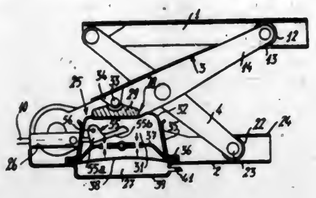
4,272,117

SEAT WITH DAMPED SUSPENSION SYSTEM

Jean Vilbeuf, Paris, France, assignor to Sifra, Glen, France

Continuation-in-part of Ser. No. 790,137, Apr. 22, 1977, Pat. No. 4,148,518. This application Jul. 6, 1978, Ser. No. 922,277
Claims priority, application France, Dec. 8, 1976, 76 36957
Int. Cl.³ B60N *1/02*
U.S. Cl. 296—65 R **26 Claims**

1. A seat, notably for all wheel-mounted or crawler-truck vehicles such as farming tractors, public works equipment, trucks and sundry military vehicles, comprising a sprung suspension mounted on a fixed base frame and supporting a movable seat frame, with resilient return means, wherein said resilient return means comprise a hydropneumatic device associated with an automatic monitoring distributor integrated in said device, adapted to be connected to the pressure-fluid circuit of the vehicle, and for automatically adjusting the pressure in said hydropneumatic device as a function of the seat



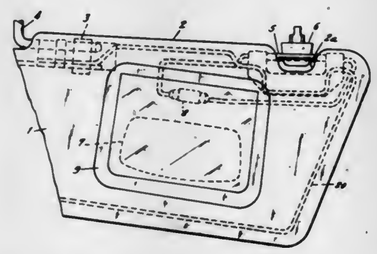
frame oscillations and of the weight of the seat occupant without any prior manual adjustment.

4,272,118

ELECTRIC CONNECTION TO SUN VISOR FOR AUTOMOTIVE VEHICLES, OR THE LIKE

Lothar Viertel, Wuppertal, and Manfred Nowak, Solingen, both of Fed. Rep. of Germany, assignors to Gebr. Happich GmbH, Fed. Rep. of Germany

Filed Feb. 5, 1979, Ser. No. 9,406
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1978, 2703447
Int. Cl.³ B60J *3/00*
U.S. Cl. 296—97 R **18 Claims**



1. Sun visor for a vehicle, or the like, comprising:

a sun visor body; said visor body having an upper longitudinal edge;

a light source on said sun visor body; a first current lead wire and a ground wire both being connected to said light source;

an outer support pivot pin located in the region of one end of said upper edge of said visor body; a support for said pivot pin and being located in said visor body for positioning said pivot pin stationary in location; first contact means on said outer pivot pin; said first current lead wire being connected to said first contact means;

an outer support housing, having a longitudinally extending socket means into which said pivot pin is pivotingly, detachably emplaced; second contact means on said support housing for engaging said first contact means when said pivot pin is in said socket means; connection means on said support housing for connecting a second electric wire of a vehicle, or the like, to said second contact means;

a third electric wire; said pivot pin having a longitudinally extending bore therein shaped for receiving and holding therein said third electric wire that is separate from said pivot pin and that extends longitudinally through said bore and is also located wholly within said bore along the length of said pivot pin; a radially extending groove into said pivot pin and communicating from the exterior of said pivot pin to said bore and extending longitudinally along said pivot pin; said groove being defined by sidewalls in said pivot pin;

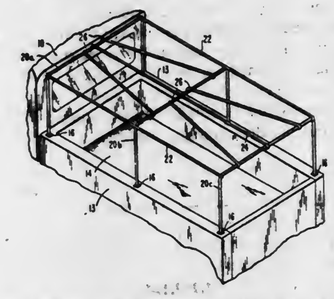
said first contact means comprising a contact element held in said groove and extending into said groove to contact said third electric wire therein, and terminating outside said pivot pin for engaging said first contact means in said socket means.

4,272,119

VEHICLE COVER ASSEMBLY

Robert M. Adams, 41241 Orange Pl., Hemet, Calif. 92343

Continuation-in-part of Ser. No. 665,654, Mar. 10, 1976, Pat. No. 4,093,302, which is a continuation-in-part of Ser. No. 654,623, Feb. 2, 1976, abandoned. This application Jun. 5, 1978, Ser. No. 912,070
Int. Cl.³ B60P *3/34*
U.S. Cl. 296—100 **27 Claims**



1. A camper cover adapted for attachment to a vehicle for a cargo area, said camper cover comprising:

(a) a plurality of frame members adapted for mounting on a vehicle to form a camper frame of the cargo area of the vehicle;

(b) a cover member formed of a flexible sheet material having a front edge, a rear edge, and two side edges adapted to fit over the camper frame formed by said frame members to form a camper cover;

(c) means for securing at least said two side edges of said cover member to the sidewalls of the cargo area of the vehicle; and

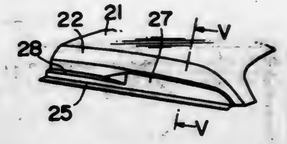
(d) said means for securing said two side edges including a separable fastener of the hook and loop type having a first part with a plurality of upstanding hook or loop type members extending therefrom and a complementary part having a plurality of complementary upstanding hook or loop type members for interengagement with the upstanding members of said first part, along a plane of interengagement, said first part being disengaged from said complementary part when peeled away to effect pulling of hook and loop type members substantially perpendicularly to the plane of interengagement and said first part resisting disengagement when subjected to forces parallel to the plane of interengagement, said first part being secured to said cover member adjacent said two side edges and said complementary part being secured to said sidewalls of the cargo area for releasable engagement with said first part and said first part of said separable fastener being located relative to the side edges of said cover member for maintaining said cover member in a taut disposition over said frame members whereby said first member is releasably secured to said complementary part by pressing said first part into engagement with said complementary part to effect interengagement of said upstanding members and prevent inadvertent disengagement of said first part and said complementary part.

4,272,120

FLANGED VEHICLE ROOF PANEL WITH AN INWARDLY INDENTED SIDE PART

Yoshinori Katayama, Tokyo, and Hiromasa Torii, Koganei, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 6, 1979, Ser. No. 72,926
Claims priority, application Japan, Sep. 16, 1978, 53-127152[U]
Int. Cl.³ B60J *7/10*
U.S. Cl. 296—210 **4 Claims**



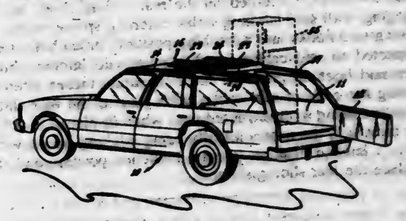
1. A roof panel for a vehicle which has a rear pillar and a gutter, formed with a main central portion, a narrow side portion extending along a side edge of the central portion at a substantial angle thereto, and a narrow flange portion extending along the entire length of the side edge of the side portion which is mated with a gutter at a substantial angle thereto, wherein a rear part of the side portion is indented towards the center line of the central portion of the panel.

4,272,121

STATION WAGON WITH ADJUSTABLE REAR ROOF PANEL

Sunyong P. Kim, 535 N. Cahuenga Blvd., Los Angeles, Calif. 90004

Continuation of Ser. No. 916,955, Jun. 19, 1978. This application Apr. 14, 1980, Ser. No. 140,198
Int. Cl.³ B60J *7/00*
U.S. Cl. 296—216 **4 Claims**



1. In a station wagon vehicle or the like having a roof, a rear cargo space, and a rear door;

the rear portion of said roof provided with a rectangular opening extending rearwardly to form a continuation of the opening provided by the rear door when the latter is opened;

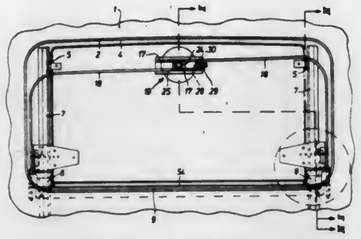
a roof panel covering said rectangular opening, said panel including a downwardly sloping rear portion which engages the upper edge of said rear door when closed; and

support means for said roof panel including guide members pivotally attached to the downwardly sloping rear portion thereof and guideways disposed along the bottom of the front half portion of said roof for slideably receiving said guide members whereby said rear panel can be slid forwardly to lie over the surface of the front half portion of said roof.

4,272,122
VEHICLE BODY MEMBER WITH AN OPENING CLOSABLE BY A COVER

Walter Schätzler, Aufhausen, and Hans Jardin, Inning, both of Fed. Rep. of Germany, assignors to Webasto-Werk W. Baier GmbH & Co., Munich, Fed. Rep. of Germany

Filed Feb. 8, 1979, Ser. No. 10,468
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1978, 2808452
Int. Cl.³ B60J 7/04
U.S. Cl. 296—221 25 Claims



1. A vehicle roof member comprising a fixed roof section with an aperture surrounded by a frame and a cover panel for opening and closing said body member aperture guide tracks disposed laterally in said frame, and being provided with latching holes, said cover being guided in said guide tracks by front and rear sliding shoes for displacement in a direction parallel to said guide tracks between a first, closed, position sealing said aperture and a second, open, position uncovering said aperture, pivot means mounting said cover panel for pivotable movement about an axis running at right angles to the displacement direction near a forward edge of the cover panel for enabling said cover panel to be swung upwardly about said axis from said first position to a third, open, position wherein a rear edge of said cover panel is positioned above said roof member, said cover being further provided with lifting elements, said lifting elements being connected to the rear sliding shoes, an actuating device drivingly connected to incompressible cables guided in tubes for displacing said rear sliding shoes, said actuating device being mounted on the cover panel, latching hooks swivelably mounted on the rear sliding shoes and for engaging with said latching holes, latching spring means for moving said hooks into a latching position, unlatching means connected to said cables for displacing said latching hooks from said latching position, and connection means interconnecting the ends of said cables with play to the rear sliding shoes and being so constructed that, when displaced in at least one direction, the cables initially bring latching hooks which are in a latched position into an unlatched position and then displace the rear sliding shoes.

4,272,123
VEHICLE ROOF CONSTRUCTION

Keiji Mori, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Japan

Filed Mar. 29, 1979, Ser. No. 24,976
Claims priority, application Japan, Mar. 30, 1978, 53/37009
Int. Cl.³ B60J 7/04
U.S. Cl. 296—222 8 Claims



1. A rail unit for a vehicle having a roof frame bounding an opening in the roof of the vehicle and a sliding roof movable to open and close said opening, said rail unit being completely assembled prior to being secured to the roof frame for slidably mounting the sliding roof thereon, said rail unit comprising:

(a) a front rail extending transversely to the vehicle axis and having a pair of substantially parallel grooves therein;

(b) a pair of lateral rails which extend substantially parallel to the vehicle axis at opposite sides of said opening, each of the lateral rails having a pair of substantially parallel grooves therein and having one end adjacent an end of the front rail;

(c) a pair of cornering members, each interposed between an end of the front rail and an end of a lateral rail and having a pair of substantially parallel grooves therein, the ends of the grooves in each of the cornering members being in substantial alignment with the ends of the grooves in the adjacent front and lateral rails, and each cornering member including a projection extending from between the parallel grooves for engaging the adjacent lateral rail and securing it to the cornering member;

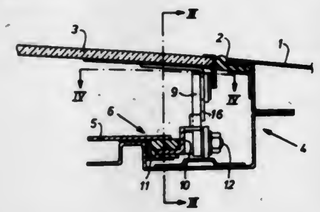
(d) cable means operatively connected to the sliding roof for effecting movement thereof, the cable means being situated in, and guided by, the grooves in the front and lateral rails and the cornering members; and

(e) a cover fixedly mounted on, and securing together, the front rail and the cornering members.

4,272,124
DEVICE FOR HEIGHT ADJUSTMENT OF A RIGID SLIDING COVER

Walter Schätzler, Aufhausen, and Georg Kohlpaintner, Maisach, both of Fed. Rep. of Germany, assignors to Webasto-Werk W. Baier GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,543
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840443
Int. Cl.³ B60J 7/00
U.S. Cl. 296—222 9 Claims

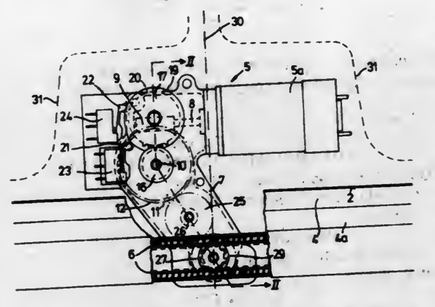


1. A rigid sliding cover panel assembly for a motor vehicle roof of the type having a cover panel that is slidable in guide tracks between positions opening and closing a roof opening via sliding shoes connected to said cover panel and having adjustment means for adjusting the height of said cover panel relative to said roof opening when said cover panel is in the position closing the roof opening, said height adjustment means comprising a lever mounted by a rotatable connector to said cover panel so as to be rotatable about an axis intermediate its ends, locking means associated with said lever for securing the lever in any rotation position relative to said cover panel, and a link arm having one end swivelably connected to an end of said lever and an another end connected to a sliding shoe via a swivelable connection, whereby rotational adjustment of said lever about said axis will adjust the height of said cover panel relative to said sliding shoe.

4,272,125
VEHICLE ROOF

Horst Biesert, Gauting; Richard Igel, Germering, and Johann Rengstl, Munich, all of Fed. Rep. of Germany, assignors to Webasto-Werk W. Baier GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Jan. 22, 1979, Ser. No. 5,234
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1978, 7801538[U]
Int. Cl.³ B60J 7/04
U.S. Cl. 296—223 8 Claims



1. An electric motor drive arrangement for use in place of a manually operated crank drive of a movable closure panel for opening and closing an opening in a vehicle body member of the type having a drive pinion located on a central longitudinal axis of the vehicle body opening and in the vicinity of a leading edge thereof, said drive arrangement comprising:

(a) an intermediate drive connected to said drive pinion and disposed in a drive housing; and

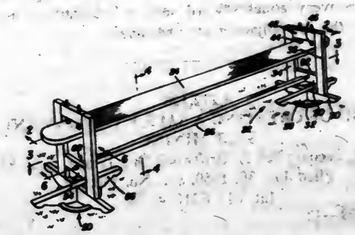
(b) an electric motor flanged to said drive housing to form a module and drivingly connected to said intermediate drive, said module being generally V-shaped when viewed from above, one leg of said V-shape comprising said electric motor and being disposed at a right angle with respect to said longitudinal axis and the other leg of said V-shape being formed by said intermediate drive and drive housing, said other leg having a longitudinal axis that extends at an angle relative to said central longitudinal axis, whereby said arrangement is able to fit into conventional vehicle body configurations including those having limited available space longitudinally of said leading edge and laterally of said longitudinal axis, such as those having depressions for acceptance of sun visors.

4,272,126
JOGGLING BOARD FOR USE AS EXERCISE DEVICE OR AS ITEM OF LAWN FURNITURE

Walter L. Cadle, Tucker, Ga., assignor to Rose Marie Cadle, Tucker, Ga.

Continuation-in-part of Ser. No. 929,113, Jul. 27, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 83,172
Int. Cl.³ A47C 3/029
U.S. Cl. 297—258 23 Claims

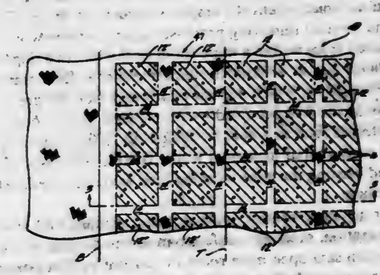
1. An exercise device or lawn furniture device comprising a horizontal longitudinally extending board for supporting one or more persons, a pair of spaced apart support assemblies having mounting means flexibly holding each end of said board to permit combined longitudinal and transverse motion of the board with respect to the support assemblies caused by a person's movements on said board, and an elongated lower spacing member mounted at each end to said support assemblies beneath and parallel to said board, each of said support assemblies having rocker means directly contacting a floor or the earth for permitting combined rocking movements in longitudinal and transverse directions of said support assemblies device, said assemblies moving in unison with each other.



4,272,127
SUBSIDENCE CONTROL AT BOUNDARIES OF AN IN SITU OIL SHALE RETORT DEVELOPMENT REGION

Ned M. Hutchins, and Irving G. Studebaker, both of Grand Junction, Colo., assignors to Occidental Oil Shale, Inc., Grand Junction, Colo.

Filed Dec. 3, 1979, Ser. No. 99,531
Int. Cl.³ E21B 43/247, 43/263
U.S. Cl. 299—2 42 Claims



20. An array of in situ oil shale retorts within boundaries of unfragmented formation in a subterranean formation containing oil shale, each such in situ oil shale retort containing a fragmented permeable mass of formation particles containing oil shale and being separated from adjacent in situ retorts by vertically extending partitions of unfragmented formation,

said array comprising a first region of retorts remote from a boundary of the array wherein the ratio of horizontal areal extent of the fragmented masses in such retorts to the horizontal areal extent of unfragmented formation in such partitions is such that overburden at elevations above the retorts in the first region is supported primarily by such fragmented masses, and a second transition region adjacent a boundary of the array wherein the ratio of the horizontal areal extent of the fragmented masses in the retorts in the second region to the horizontal areal extent of unfragmented formation in partitions adjacent thereto progressively decreases as the retorts in such second region approach such boundary.

31. A method for controlling subsidence of overburden at elevations above an array of in situ recovery zones formed within boundaries of unfragmented formation in a subterranean formation, comprising explosively expanding formation within a plurality of adjacent sites for forming a fragmented permeable mass of formation particles within each of a plurality of horizontally spaced apart in situ recovery zones, such recovery zones being separated by vertically extending partitions of unfragmented formation, the fragmented masses being formed so they progressively support proportionately less of the load from overburden at elevations above a row of such

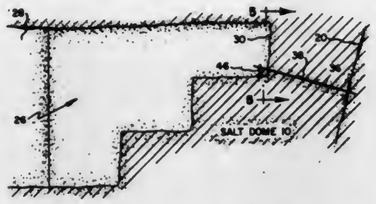
recovery zones, and such partitions of unfragmented formation progressively support proportionately more of the load of such overburden in a direction extending along the length of the row of recovery zones toward such a boundary in an end portion of the row adjacent such boundary.

4,272,128

METHOD OF CREATING A SAFE ENVIRONMENT IN SALT MINING

Charles H. Jacoby, 959 E. Driftwood Dr., Tempe, Ariz. 85283

Filed Jan. 30, 1980, Ser. No. 116,930
Int. Cl.³ E21C 41/08
U.S. Cl. 299—12 9 Claims



1. An improved method for conducting a mechanical mining operation which routinely employs sequential drilling, blasting, and product removing processes against a mine work face, conducted from within a mine room or the like in a deposit of salt which per se is basically impermeable to fluid transport therethrough but which deposit vicariously includes crevices/pockets or the like occupied by pressurized and/or combustible materials such as would be dangerous to the mining operation if encountered incidental to the routine processes of drilling and blasting the mine working face; said improved method comprising:

prior to each routine working face drilling and blasting operation, creating a safe environment for the workmen within said open mine room or the like by first boring an exploratory hole into the salt deposit ahead of the mine working face beyond the region into which said mine face drilling and blasting operation is subsequently to be performed, and dilating/fracturing the salt deposit beyond said mine work face via said bore hole so as to preliminarily discover existence therein of any such pressurized/combustible materials;

controlling release of any said materials as may thereby be encountered so as to create a safe working environment condition for said routine operations;

and then subsequently performing said routine mine face drilling, blasting, and broken salt removal processes under said safe environment condition.

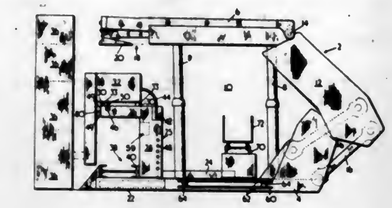
4,272,129

MINERAL MINING INSTALLATION

John T. Pearey, Darrington, England, assignor to Coal Industry (Patents) Limited, London, England

Filed Jul. 5, 1979, Ser. No. 55,283
Claims priority, application United Kingdom, Jul. 14, 1978, 29859/78
Int. Cl.³ E21C 29/00
U.S. Cl. 299—31 21 Claims

1. A mineral mining installation including a self-advancing roof support having a roof-engaging member and a floor-engaging member, wherein the floor-engaging member has a forward part and a rearward part, the forward part being movable relative to the rearward part, a machine supporting element mounted on said forward part at an elevated level above the level of the said forward part, means for supporting and guiding a mineral mining machine on the machine supporting element, and a conveyor receiving area defined beneath the machine supporting element and adapted to locate a conveyor.

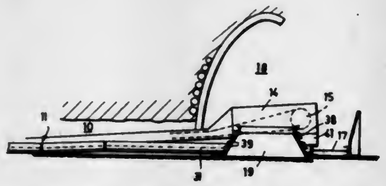


4,272,130

MINERAL MINING INSTALLATION

Alois Hauschopp, Werne, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Jan. 9, 1980, Ser. No. 110,696
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900661
Int. Cl.³ E21C 27/32
U.S. Cl. 299—34 19 Claims



1. A mineral mining installation for winning material in a longwall working, comprising: a longwall conveyor; a guide provided at the face-side of the conveyor, the guide including a plurality of generally L-shaped guide sections, one arm of each L-shaped guide section being attached to said conveyor and the other arm of each guide section extending toward the face to be won; a drive frame at each end of the conveyor; a plough drive chain passing around a pair of end sprockets positioned at the goaf-side of the conveyor, each sprocket being associated with a respective one of the drive frames; a plough movable in the direction of the conveyor, the plow being formed with guide surfaces which cooperate with the guide, the plough having a plough body provided with cutters at one end thereof, and with a sword plate which passes underneath the conveyor, the sword plate having a coupling member which engages the plough drive chain and which is set back relative to the cutters by a sufficient distance to enable the plough to win material up to the appropriate end sprocket when the plough is moving in such a direction that the cutters are leading cutters.

4,272,131

SPEED RETARDER CONTROL SYSTEM

Charles G. Termont, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Sep. 17, 1979, Ser. No. 76,462
Int. Cl.³ B60T 8/02
U.S. Cl. 303—3 1 Claim

1. A speed retarder control system for a vehicle comprising:

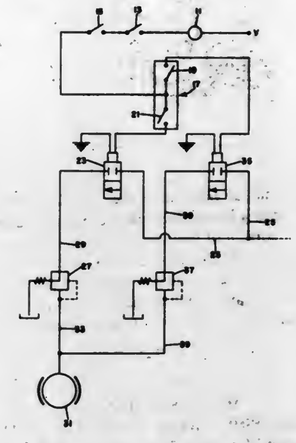
(a) first conduit means to conduct pressure-influenced hydraulic fluid;

(b) pressure reducing means for receiving said fluid from said first conduit means at a high pressure and discharging said fluid at a low pressure including:

(i) at least two electrically responsive two-position normally closed solenoid valves to receive fluid from said first conduit means, said second solenoid valve position being open;

(ii) at least two reducing valves;

(iii) a plurality of second conduit means for conducting fluid from one of said solenoid valves to one of said reducing valves;



(iiii) activation means for selectively activating said solenoid valve whereby said reducing valves are set to release said fluid at different corresponding pressures;

(c) retarding means for receiving said fluid released from said pressure reducing means, and providing a retarding force to said vehicle; and

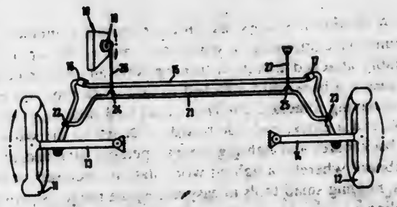
(d) third conducting means for conducting said fluid from said pressure reducing means to said retarding means.

4,272,132

CONTROL MECHANISMS FOR VEHICLE BRAKING SYSTEMS

Alastair J. Young, Kenilworth, England, assignor to Automotive Products Limited, Warwickshire, England

Filed Sep. 18, 1979, Ser. No. 76,808
Claims priority, application United Kingdom, Sep. 22, 1978, 37761/78
Int. Cl.³ B60T 8/26
U.S. Cl. 303—22 R 3 Claims



1. In a motor vehicle including:

one wheel on one side of the vehicle;

another wheel on the other side of the vehicle;

one suspension component which during vehicle cornering moves with vertical movement relative to the vehicle body of said one wheel;

another suspension component which during vehicle cornering moves with vertical movement relative to the vehicle body of said other wheel; and

a braking system comprising:

a driver-controlled source of fluid pressure;

one brake operative to brake said one wheel;

another brake operative to brake said other wheel;

one pressure modulating valve interposed between said source and said one brake;

another pressure modulating valve interposed between said source and said other brake;

a control mechanism for controlling said pressure modulating valves in response to movements of said suspension components to modify, during cornering only, the performance of the modulating valve associated with the inboard of said wheels so that any pressure supplied to the brake which acts on said inboard wheel is lower than any pressure suppled to the brake which acts on the outboard of said wheels;

the control mechanism comprising:

a member having four connecting points which are normally in a common plane and are arranged at the corners of a trapezium;

the member being adapted to be connected at the first point to said one suspension component;

at the second point to said other suspension component and at the third point to the modulating valves;

the fourth point being restrained in a direction substantially perpendicular to the common plane, the arrangement being such that for vertical movements of said wheels relative to the vehicle body which are equal and in the same direction;

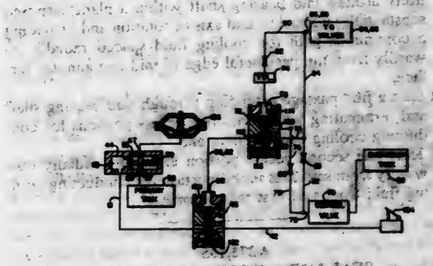
the member pivots freely about the third and fourth points and for movements of said wheels relative to the vehicle body which are unequal and for movements of said wheels relative to the vehicle body which are in different directions the member tends to pivot on a line passing diagonally through the fourth point.

4,272,133

ANTI-LOCKING WITH FAIL SAFE SYSTEM

George Mekosh, Jr., Warrington, Pa., assignor to The Budd Company, Troy, Mich.

Filed May 2, 1979, Ser. No. 35,260
Int. Cl.³ B60T 8/093
U.S. Cl. 303—99 15 Claims



1. In combination with a wheel on a vehicle, having a brake associated therewith,

a fluid pressure controlled anti-lock system comprising:

(a) a source of braking pressure;

(b) means for applying said braking pressure to said brake;

(c) a valve system including normally closed valves responsive to the speed of said wheel having pressure therein to control the operation of said means for applying said braking pressure to permit braking pressure to be applied to said brake during normal braking operations;

(d) said valves opening to release the pressure in said valve system to prevent braking pressure from being applied

to said brake when the deceleration of said wheel exceeds a predetermined rate, and

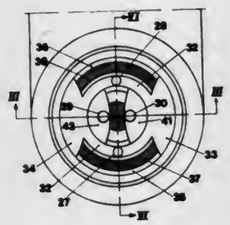
(e) pressure controlled time delay means for rendering ineffective said valve system when the pressure therein drops and remains below a predetermined level for a predetermined time interval while still permitting normal braking operations.

4,272,134

ROTARY DRILL BIT

Bert G. Levefelt, Sandviken, Sweden, assignor to Sandvik Aktiebolag, Sandviken, Sweden

Filed Jun. 26, 1979, Ser. No. 52,185
Claims priority, application Sweden, Jul. 11, 1978, 7807708
Int. Cl.³ F16C 1/24, 19/16
U.S. Cl. 308—8.2 **10 Claims**



1. A rotary drill bit having improved cooling means for cooling the bearing surfaces therein and comprising a head, at least one bearing shaft projecting from said head, a roller cutter rotatably mounted on said bearing shaft, said roller cutter carrying cutting means, bearing means for rotatably supporting said roller cutter on said bearing shaft, said bearing means comprising cooperating annular surfaces on said roller cutter and bearing shaft for transmitting axial forces from said roller cutter to said bearing shaft, said annular surfaces being substantially normal to the axis of rotation of said roller cutter and positioned axially inwardly of the outer end of said bearing shaft, and passage means in said bearing shaft for supplying cooling fluid to said bearing means, the improvement wherein said passage means comprises:

a first recess portion in at least one of said annular surfaces, said first recess portion being endless and extending entirely around said bearing shaft within a plane disposed substantially normal to said axis of rotation and providing a continuous path for cooling fluid spaced radially inwardly from the peripheral edge of said one annular surface,

at least a first passage extending through said bearing shaft and terminating within said first recess portions for conducting cooling fluid thereto, and

at least one second recess portion extending radially outwardly from said first recess portion for conducting cooling fluid from said first recess portion.

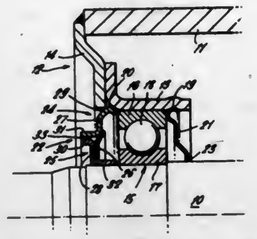
4,272,135

SEAL FOR A ROLLING BEARING

Ronald F. Hamblin, and Harry H. Westgate, both of Luton, England, assignors to SKF (UK) Limited, Bedfordshire, England

Filed Oct. 19, 1979, Ser. No. 86,335
Claims priority, application United Kingdom, Oct. 23, 1978, 41569/78
Int. Cl.³ F16C 33/78; F16J 15/34
U.S. Cl. 308—20 **6 Claims**

1. A seal for a rolling bearing comprising two sheet metal annular members one surrounding the other, and a resiliently deformable sealing element, each annular member comprising an annular radially extending disc having a radially outer periphery and a radially inner periphery, a first annular portion extending axially from the radially outer periphery of the disc and a second annular portion extending axially from the radially inner periphery of the disc, the first annular portion of the radially outer annular member being adapted to be secured in the bore of a housing, the second annular portion of the radially inner annular member being adapted to be mounted on a



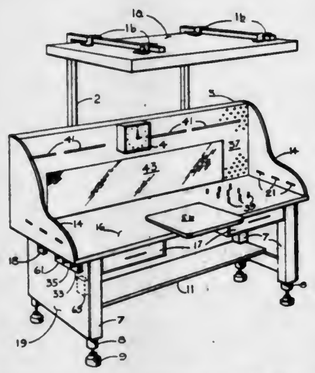
shaft, the first annular portion of the radially inner member being spaced radially inwardly from and being adjacent to the second annular portion of the radially outer member to define an axially extending annular gap between the two said adjacent portions, and the sealing element being attached to one annular member, extending across and bridging the said annular gap and being in rubbing contact with the other annular member.

4,272,136

WORK STATION

Saturnino Sengua, 5850 E. Burns, Tucson, Ariz. 85711

Filed May 29, 1979, Ser. No. 42,801
Int. Cl.³ A47B 96/18; F16M 11/24
U.S. Cl. 312—196 **6 Claims**



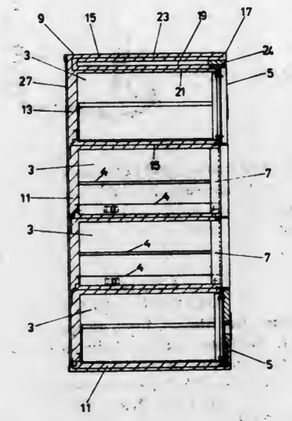
1. A technician's work station for repairing equipment and instruments comprising a work top, said work top having operably attached thereto a turning table and tool receiving pin means; a backboard attached to said work top, said backboard having attached a mirror, small tool holding magnetic strips, and a clock; end side boards attached to the work top and backboard; and lighting means operably attached to said backboard whereby a lighted work station, enclosed on three sides, holding small tools in easy accessible range, is provided enabling a technician repairing an instrument to view the back of the instrument simultaneously with the front to time operations of equipment and instrument, and wherein, a piece of equipment or instrument under repair or test may be placed on said turning table for a rotational ease of accessibility and tools to be used by the technicians are readily accessible and retrievable from the tool receiving pin means.

4,272,137

FIRE RESISTANT CABINET WITH PROTECTIVE VOID IN GYPSUM FILLING

Friedrich Rothhaas, Bellheim, and Günther Pichler, Germersheim, both of Fed. Rep. of Germany, assignors to Sistemco N.V., Curaco, Netherlands

Filed Apr. 3, 1979, Ser. No. 26,744
Claims priority, application Switzerland, Apr. 17, 1978, 4070781/78
Int. Cl.³ E04B 2/34; B65D 25/18
U.S. Cl. 312—214 **7 Claims**



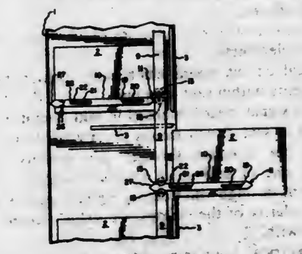
1. A fire resistant cabinet having an outer casing and an inner wall surface and a gypsum filling therebetween, comprising the improvement which consists in that the top (17) portion of the gypsum filling (13) of the cabinet one or more hollow spaces (19) are provided, said hollow space or spaces extending practically over the whole width and depth of the cabinet and having no communication with any hollow spaces in other portions of said gypsum filling.

4,272,138

CABINET DRAWER ANTI-TIP LOCK DEVICE

Forest G. Stark, Jamestown, N.Y., assignor to AVM Corporation, Jamestown, N.Y.

Filed Apr. 2, 1979, Ser. No. 26,220
Int. Cl.³ E05C 7/06; A47B 88/00
U.S. Cl. 312—221 **16 Claims**



1. An improved cabinet of the type having a case with a plurality of horizontally movable components mounted therein, the improvement characterized by an anti-tip mechanism for preventing more than one component from being opened to its fully extended position at one time, said anti-tip mechanism comprising:

(a) a segmented lock bar extending adjacent each of said components, said lock bar comprising a plurality of longitudinally extending snubber elements axially aligned in end-to-end abutment, said elements being resiliently mounted within said cabinet on said case to permit movement in opposite directions from a central equilibrium position to first and second opposite axially displaced positions; and

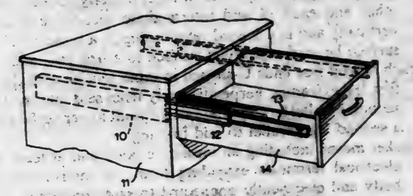
(b) a plurality of longitudinally extending activator rails each disposed substantially normal to said lock bar, each rail being carried by a different one of said components, each rail being disposed with one of its ends positioned to insinuate itself between adjacent snubber elements when its respective component is opened and so shaped with respect to said adjacent snubber elements to displace all of the snubber elements from their central equilibrium positions to one of said first and second positions with the snubber elements located in one of said directions with respect to said insinuated rail moving to said first axially displaced position and those located in the opposite of said one direction moving to said second axially displaced position, whereby the remainder of said plurality of rails and their respective components are blocked by a displaced snubber element.

4,272,139

SLIDING DRAWER SUSPENSION

Jack P. Fier, Kitchener, Canada, assignor to Jacmorr Manufacturing Limited, Kitchener, Canada

Continuation-in-part of Ser. No. 941,585, Sep. 12, 1978. This application Feb. 8, 1979, Ser. No. 10,419
Int. Cl.³ A47B 88/00; F16C 21/00
U.S. Cl. 312—334 **20 Claims**



1. A sliding drawer suspension comprising an outer channel-section rail including channel sides and a channel bottom, and having in a retracted position an intermediate channel rail nested between the sides of the channel of the outer channel section rail, said intermediate rail having channel sides and a channel bottom, and an inner channel-section rail nested in a retracted position between the intermediate channel sides, outer and inner linear ball bearings each including a ball cage between the outer and intermediate rails and between the intermediate and inner rails, respectively, permitting the intermediate and inner rails to slide forwardly relative to the outer and intermediate rails, respectively, to an extended position, latching means releasably latching the inner rail in stationary nested relationship within the intermediate rail, whereby when the inner rail is extended, the intermediate rail remains stationary relative thereto and moves together therewith relative to the outer rail in stationary latched connection thereto, a pair of stop members on the outer and intermediate rails arranged for engaging end surfaces on the outer ball cage to limit extension of the intermediate rail relative to the outer rail, a pair of stop members on the intermediate and inner rails arranged for engaging end surfaces on the inner bearing ball cage to limit extension of the inner rail relative to the intermediate rail, said bearing members being normally positioned so that the end surfaces of each ball cage are spaced at equal distances from the stop surfaces with which they engage, and including on at least one rail selected from said outer rail and said intermediate rail an abutment member which in the closed position of the suspension abuts an end surface of the outer bearing ball cage and engages it when displaced from its normal position and

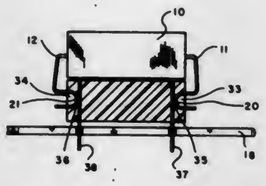
shifts it to its normal position on closing movement of the suspension.

4,272,140

ARRANGEMENT FOR MOUNTING DUAL-IN-LINE PACKAGED INTEGRATED CIRCUITS TO THICK/THIN FILM CIRCUITS

George S. Lychyk, River Forest, and Wayne E. Neese, Hoffman Estates, both of Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 19, 1979, Ser. No. 105,180
Int. Cl.³ H05K 1/12
U.S. Cl. 339—17 CF 7 Claims



1. An arrangement for mounting and electrically connecting an integrated circuit package having at least two side surfaces and a lower surface, to a planar surface including conductive portions, comprising:

at least two electrical leads, each lead including a fixed end, an intermediate section and a free end, each of said fixed ends integrally mounted to a different one of said integrated circuit package side surfaces directly opposite each other and each of said intermediate sections extending vertically and in a spaced relationship to a respective side surface beyond said lower surface to a free end; and

each of said free ends U-shaped in cross section including a first leg extending perpendicularly from said intermediate section parallel to said integrated circuit lower surface and a second leg parallel to said first leg;

socket means including an insulative body and at least two electrical terminals extending from the interior of said body and electrically connected to said conductive portions, and at least two openings, each of said openings extending through said body to a different one of said terminals and each of said openings formed to accept a different one of said integrated circuit free ends, with each of said free ends engaging a respective terminal, mounting and electrically connecting said integrated circuit thereat.

4,272,141

ELECTRONIC CARD CAGE INTERFACING ASSEMBLY

Robert S. McKeen, Randallstown, Md.; Kenneth S. Keefer, Mt. Holly Springs, Pa., and Theodore E. Sawyer, Northridge, Calif., assignors to Frederick Electronics, Frederick, Md.

Filed Jun. 11, 1979, Ser. No. 47,633
Int. Cl.³ H05K 7/02, 7/16
U.S. Cl. 339—18 R 11 Claims

1. A modularized interfacing assembly for providing electrical connections between external customer termination leads and internal input-output signal points of an electronic card cage, said assembly comprising:

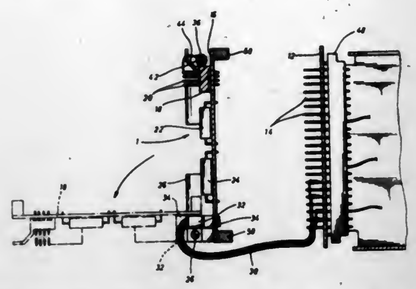
(a) a mounting frame rotatable with respect to the card cage;

(b) at least one interface board mounted to said frame for rotation therewith, said board having electrical circuits thereon;

(c) at least one termination block mounted on each interface board, for electrically connecting the termination leads to the electrical circuits on said board;

(d) at least one multi-pinned connector mounted on each interface board, for providing a quick disconnectable input-output connection port between the circuits on said board and the input-output signal points of the card cage, the pins of said connector connected to the electrical circuits on said board; and

(e) at least one electrical interconnect cable, for providing



the electrical connections between said interface boards and the card cage, each said cable having one end adapted for plugging into said connector and the other end connectable to the input-output signal points of the card cage.

4,272,142

JUMPER CABLE

Richard L. Zapf, Des Moines, Iowa, assignor to Milton Brown; Laurence L. Anderson; Leonard Smith and David Bella, all of Des Moines, Iowa, part interest to each

Filed Oct. 15, 1979, Ser. No. 84,619
Int. Cl.³ H01R 11/22
U.S. Cl. 339—29 B 6 Claims



1. A jumper cable device, comprising,

a first electrical cable means having opposite ends,

a pair of electrical connector clamps on one end of said first electrical cable means,

an electrical coupling on the other end of said first electrical cable means,

a second electrical means having opposite ends,

a pair of electrical connector clamps on one end of said second electrical cable means,

an electrical coupling on the other end of said electrical cable means,

each cable means being comprised of positive and negative cable elements,

electrical circuit means electrically connecting said cable elements within said couplings,

polarity signal means imposed in said circuit means,

a diode in said circuit means permitting flow of current in only one direction through said polarity signal means from one of said cable elements whereby the flow of current through said polarity signal means is indicative of the polarity of the clamps and cable elements associated therewith,

said electrical couplings adapted to be secured directly together to effect electrical connection between said first and second electrical cable means,

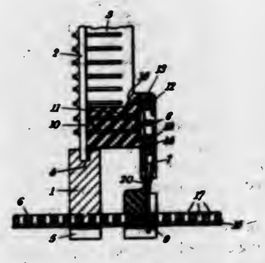
said electrical couplings having positive and negative terminals electrically connected to the positive and negative cable elements, respectively, of each cable means, and means on said couplings permitting the interconnection of said positive terminals together and permitting the interconnection of said negative terminals together, and preventing the interconnection of said positive and negative terminals.

4,272,143

RACK FOR CIRCUIT BOARDS

Harald Weiss, Bremen, Fed. Rep. of Germany, assignor to Vero Electronics GmbH, Bremen, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,334
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845884
Int. Cl.³ H05K 1/07
U.S. Cl. 339—74 R 2 Claims



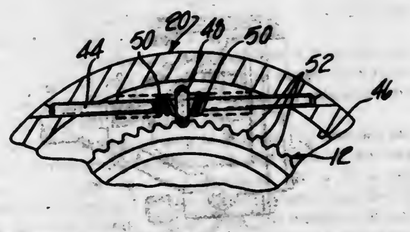
1. A rack for circuit boards comprising upper and lower sets of opposed horizontal guide rails into which the upper and lower edges of circuit boards can be slid, horizontal bus strips attached to at least one set of rails, the bus strips carrying spaced electrically conducting strips which are insulated from one another and serve for transmission of logic signals to the boards and also for transmission of signals between the boards, a set of insulating blocks on the edges of the boards which carry contacts connected to components on the boards, a set of cooperating other insulating blocks on the bus strips which carry contacts connected to the conducting strips on the bus strips, the blocks on the board and blocks on the bus strips inter-engaging with their respective contacts out of engagement with one another when a board is slid into the rack, and means operating as the board is slid fully home into the rack to effect relative movement of the blocks to bring the contacts carried by the board into engagement with the contacts carried by the bus strips.

4,272,144

SPRING LOADED ANTI-ROTATION DEVICE FOR ELECTRICAL CONNECTORS

Robert W. Brush, Unadilla; Dee A. Werth, Nineveh, and Alan L. Schildkraut, Sidney, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Dec. 18, 1979, Ser. No. 104,993
Int. Cl.³ H01R 13/639
U.S. Cl. 339—89 R 10 Claims



1. An electrical connector comprising:

first and second generally cylindrical electrical connector bodies carrying mating electrical contacts and adapted to be advanced into mating engagement by relative axial movement therebetween;

a coupling nut member having an internal passage adapted to receive said first and second electrical connector bodies, said internal passage having an internal thread section formed therein adapted to be threadedly engaged with an external thread formed on one of said first or second electrical connector bodies;

said coupling nut member further including a radially inwardly extending portion engaging said other of said first or second electrical connector bodies to enable said coupling nut member to cause relative axial advance of said one of said first or second electrical connector bodies into engagement with said other of said first or second connector bodies;

anti-decoupling means resisting relative rotation between said coupling nut member and said mated first and second electrical connector bodies in the direction producing uncoupling of said first or second electrical connector bodies while enabling rotation of said coupling nut member in the opposite direction tending to produce coupling movement of said first and second electrical connector bodies, said anti-decoupling means comprising:

an axle mounted within said coupling nut member internal passage so as to lie in a radial plane and extending transversely to the axis of said coupling nut member;

an engagement element mounted to be slidable on said axle;

bias means urging said engagement element into an intermediate position on said axle;

a circumferentially extending series of serrations formed on said other of said first or second connector bodies, the spaces intermediate said serrations receiving said engagement element;

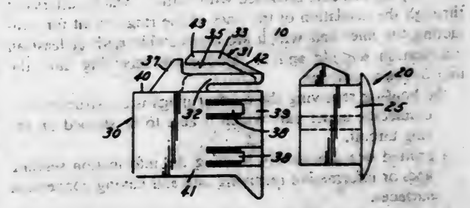
whereby axial movement of said engagement element on said axle accommodates relative rotation of said nut member and said first and second electrical connector bodies during rotation thereof to produce said mating engagement of said first and second electrical connector bodies, while said rotation is resisted by said bias means resisting said axial movement of said engagement element.

4,272,145

CONNECTOR LOCK RELEASE

Jack E. LaDuke, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 22, 1979, Ser. No. 87,193
Int. Cl.³ H01R 13/627
U.S. Cl. 339—91 R 6 Claims



1. Matable electrical connector means having lock means comprising:

a first connector body of molded insulating material having at least one first longitudinal open ended terminal receiving cavity having a first terminal retained therein having a forward female portion;

a second connector body of molded insulating material having at least one second longitudinal open ended terminal receiving cavity having a second terminal retained therein having a forward male portion;

one of said first and second connector bodies having an integral cantilevered latch arm means and the other of said

first and second connector bodies having protruding generally triangular locking ramp means which cooperate to lock said connector body in said mated position;

said latch arm means including a first leg projecting forward and a second, integral leg extending backward from the forwardmost portion of said first leg thus generally forming a V-shape, said forwardmost portion of said first leg engaging said ramp means and being deflected outwardly during mating, said second leg being capable of coacting with said ramp means as a lever and a fulcrum to assist in raising said first leg to release said lock means; and

guard means extending from a main portion of the connector body having said latch arm means toward the free rearwardmost end of said second leg thereby acting to shield said V-shaped opening between said first and said second legs and preventing wires from being snagged in the opening between said first and second legs.

4,272,146

CONNECTOR FOR A RING CIRCUIT OF A BUS-SYSTEM

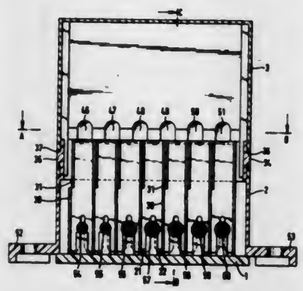
Ernst-Ulrich Simon, Oberursel, and Horst Ullrich, Schöneck, both of Fed. Rep. of Germany, assignors to VDO Adolf Schindling AG, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 7, 1979, Ser. No. 46,599

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1978, 2829849; Jul. 7, 1978, 2829850

Int. Cl.³ H01R *23/70*

U.S. Cl. 339—99 R **9 Claims**



1. In a connector for a ring circuit of a bus-system with a plurality of connectable information sending and/or information receiving units, the connector having a housing with several plug contacts provided with cutters, which cutters cut through the insulation of the lines of the ring circuit for contacting the lines and which are connectable with at least an information sending and/or information receiving unit, the improvement wherein

the housing receiving the contact plugs is constructed as a connector upper part which is able to be slipped on the ring circuit,

a printed board assembly forming the information sending and/or information receiving unit and having connection surfaces,

a capsule slipable on said connector upper part of the housing and housing said unit,

the plug contacts have contact surfaces which contact said connection surfaces of said printed board assembly;

a plurality of projections formed on an upper outer edge of said connector upper part, and said capsule has a lower inner edge forming a plurality of grooves, respective of said projections fit in only one specific of said grooves respectively on said lower inner edge of said capsule and cooperatively define a singular predetermined combination means for non-interchangeability of the capsule and of the associated said connector upper part in only one relative position.

4,272,147

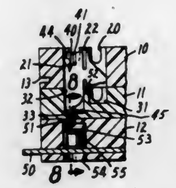
MODULAR CONNECTOR AND PROTECTOR

Sidney J. Berglund, Stillwater, and Gary B. Matthews, Birchwood, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Sep. 14, 1979, Ser. No. 75,737

Int. Cl.³ H01R *4/10*

U.S. Cl. 339—99 R **6 Claims**



1. A connector module for making connection between a plurality of wire pairs from a central office and a plurality of user stations for each of said wire pairs, and useful in the protecting of each said connection against incidental overvoltage, comprising: an upper insulative body member having a series of pairs of transverse channels, each of said pairs of transverse channels being crossed by a pocket, the pockets being arranged successively in alternate longitudinal rows; a lower insulative body member fitting against said upper member, having a series of transverse channels aligned with one channel of each said pairs of channels, a narrow pocket across each of said aligned channels aligned with the corresponding pocket in said upper member, a wide pocket beneath the other channel of each said pair of channels extending from said corresponding pocket, and a vertical slot extending across the lower surface of said lower member from said wide pocket to a flared opening at the front face of said lower member; and for each pair of channels, a contact element in the form of a flat plate having a dependent leg ending in a bifurcate foot, said plate being retained within said pocket in said upper member, having first and second wire-accepting U-slots in alignment with the first and second channels respectively of said pair of channels, said plate extending into said narrow pocket in said lower member and having a third U-slot in alignment with said aligned channel, and said leg and foot fitting within said wide pocket with the opening of the bifurcate foot in alignment with said vertical slot.

4,272,148

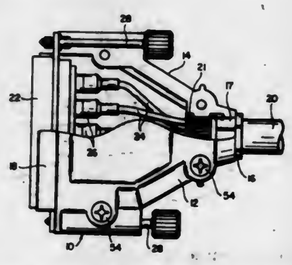
SHIELDED CONNECTOR HOUSING FOR USE WITH A MULTICONDUCTOR SHIELDED CABLE

Albert C. Knack, Jr., Santa Rosa, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 5, 1979, Ser. No. 27,204

Int. Cl.³ H01R *13/58*; H05K *9/00*

U.S. Cl. 339—143 R **8 Claims**



1. A shielded housing for a connector attached to a cable

having one or more insulated conductors in a common conductive shield covered by an insulative plastic sheath, the housing comprising:

a generally cylindrical ferrule for surrounding a portion of the insulative plastic sheath on the end of the cable attached to the connector and having a plurality of longitudinal slots that allow the ferrule to be compressed and engage the sheath; and

mating first and second shells, each shell having connector retaining means for retaining and making electrical contact with the connector, and a cable recess for retaining the cable by compressing the ferrule sufficiently to deform the sheath and cause some of the sheath material to flow into the slots and making electrical contact with the conductive shield by clamping the shield between the outer surface of the ferrule and the cable recess when the first and second shells are mated together.

4,272,149

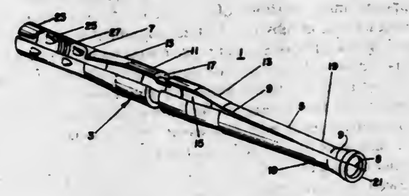
ONE PIECE SOCKET TYPE ELECTRICAL CONTACTS

David O. Gallusser, Oneonta; Valentine J. Hemmer, Sidney, and Gary C. Toombs, New Berlin, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Sep. 28, 1979, Ser. No. 79,764

Int. Cl.³ H01R *13/428*

U.S. Cl. 339—258 R **2 Claims**



1. An electrical contact stamped and formed into a tubular body from a single sheet of metal, said tubular body comprising:

a longitudinal seam extending the entire length thereof;

a mating portion at one end, said mating portion having a longitudinal slit extending from one end thereof and located opposite from the longitudinal seam, said slit and said seam defining two resiliently deflectable fingers at said mating end;

a wire receiving portion at the other end;

a center section having a larger diameter than the mating and wire receiving portions thereof; and

tapered portions extending radially inwardly from said center section to said mating and wire receiving portions respectively, said center section having an annular groove in the outer surface thereof; and

a single longitudinal opening in said tapered portions and said center section aligned with said seam so that said center section may be compressed like a C spring, whereby when said contact is inserted into a bore having a diameter slightly smaller than the diameter of said contact center section, the opposite sides of said opening rotate towards each other to reduce the diameter of the center section.

4,272,150

ELECTRICAL CONTACT FOR AN ELECTRICAL CONNECTOR

LeRoy W. Fairbairn, Sidney, N.Y., assignor to The Bendix Corporation, Southfield, Mich.

Filed Sep. 24, 1979, Ser. No. 78,255

Int. Cl.³ H01R *11/00*

U.S. Cl. 339—276 T **2 Claims**



2. A contact for an electrical connector, said contact comprising:

an elongated electrically conducting tubular holder having an axial passage extending completely therethrough, a flange projecting radially inwardly from the wall of the holder and located intermediate the ends thereof to define a forward portion and a rear portion, said flange having an inner end integral with the wall of said holder and a free end terminating on the opposite side of the longitudinal axis of said holder from said inner end to substantially close the axial passage in said holder, said flange defining a limit stop when a conductor is inserted into the rear portion of the holder, and a shoulder projecting radially outwardly from the tubular wall of the forward portion of said holder;

a plurality of axially aligned wires disposed in the forward portion of the holder, each of said wires having a forward end portion projecting beyond the outer end of the forward portion of the holder, each forward end portion of said wire terminating in an acutely angled surface; and

four symmetrically arranged arcuate crimps in said holder, and concave towards the central axis of said holder, said crimps located between the shoulder and the forward end of holder to retain said wires within said holder.

4,272,151

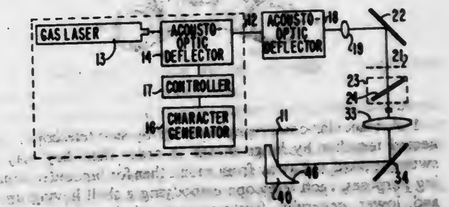
APPARATUS FOR OPTICAL SCANNING

N. Balasubramanian, P.O. Box 884, Cupertino, Calif. 95014

Filed Oct. 30, 1979, Ser. No. 89,759

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—6.6 **3 Claims**



1. An optical scanner comprising:

A. means defining a display area having a generally flat image field across which a beam of optical radiation is to be scanned;

B. means for providing a beam of optical radiation to be scanned;

C. means for modulating said beam of optical radiation to define with the same information it is desired be displayed at said display area;

D. a display area scanner positioned to intercept said beam of optical radiation after it is modulated to project the same to said display area;

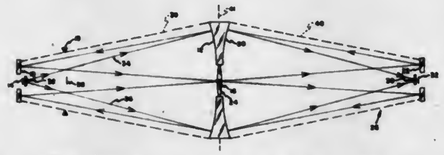
E. a simple optical element which exhibits spherical aberration disposed to intercept said beam prior to the same reaching said display area and with which the remaining optical elements associated with said display area scanner cooperate by utilizing the variation of focal length provided by said spherical aberration to maintain the imaging focal point of said beam in said flat image field.

4,272,152

UNIT MAGNIFICATION RELAY SYSTEMS

David R. Shafer, Fairfield, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Oct. 15, 1979, Ser. No. 84,745
Int. Cl.³ G02B 17/08
U.S. Cl. 350—27 25 Claims



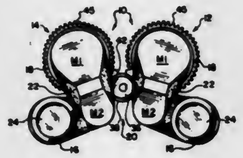
1. A unit magnification relay system comprising:
(A) a pair of concave mirrors mounted back to back and having at their vertices an aperture; and
(B) a pair of convex mirrors, one on each side of and facing said concave mirrors;
the absolute value of the base radius of curvature of all of said mirrors being substantially equal and the vertex of each said concave mirrors being spaced from the vertex of the facing convex mirror by a distance substantially equal to 0.866 times said absolute value.

4,272,153

BINOCULAR WITH NOVEL ARRANGEMENT OF HINGE MEANS BETWEEN THE TELESCOPES THEREOF

William J. Beecher, 1960 Lincoln Park West, Chicago, Ill. 60614

Filed Jul. 31, 1978, Ser. No. 929,578
Int. Cl.³ G02B 23/02, 7/06
U.S. Cl. 350—36 2 Claims



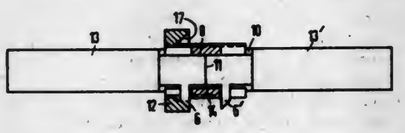
1. A binocular comprising two side-by-side telescopes connected together by hinge means in order that they may be swung toward and away from each other for binocular adjusting purposes, each telescope embodying a shell having upper and lower generally frusto-conical tubular shell portions which have their axes positioned at a right angle to each other in order to subtend a right angle space, and which are arranged with the small base of the upper shell portion intersecting the small base of the lower shell portion having extending thereacross a planar mirror with one section of its rim straight, the small base of each shell portion likewise having extending thereacros a similar planar mirror with one section of its rim straight, the planes of the mirrors at the large bases of the shell portions extending at an angle of approximately 45° to each other, the planes of the mirrors at the small ends of the shell portions extending at a right angle to each other, the mirrors at the small bases of the shell portions having the sections of the rims thereof that are opposite to the straight sections positioned in close proximity to one another, the straight rim sections of the mirrors at the ends of the upper shell portion being disposed in close opposed parallel relation, the straight rim sections of the mirrors at the ends of the lower shell portion being disposed in close opposed parallel relation and positioned apart a distance substantially greater than the distance between the straight rim sections of the mirrors at the ends of the upper shell portion, the large base of the upper shell portion being provided with a circular objective aperture in opposed and nearly touching relation with the adjacent mirror therein, the large base of the lower shell portion being provided with a circular eyepiece aperture in opposed and nearly touching relation with the adjacent mirror therein, the planes of the objective and eyepiece apertures extending each at an angle of approximately 45° to the plane of the adjacent mirror, and being in comparatively close parallelism, a lens-containing objective barrel seated within said objective aperture and extending alongside one pair of right angularly disposed mirrors, and a lens-containing eyepiece barrel seated within the eyepiece aperture and extending alongside of another pair of right angularly disposed mirrors, the upper and lower shell portions of each telescope being of such size or proportion that the mirrors at the small bases thereof are disposed without overlap in the direction of the line of sight and the mirrors at their large bases overlap only slightly in the direction of the line of sight in order that the linear distance between the outer remote surfaces of the eyepiece and objective lens of each telescope is less than one-half the extreme width of the binocular when the two telescopes are swung apart to their fullest extent, the four mirrors of each telescope being arranged in Porro-type relation, said telescopes being positioned so that the right angle spaces which are subtended by the axes of the generally frusto-conical tubular shell portions of the two telescopes face laterally away from each other, and the apices of said right angle spaces are directed towards each other, said hinge means being connected to and extending between the opposed inner portions of the shells of the telescopes, and being located in substantial lateral alignment with the apices of said right angle spaces, said hinge means including two pairs of opposed shoulders which are designed for abutment with each other so as to permit but limited up and down swinging movement of the two telescopes for lateral adjustment of the lens-containing eyepiece barrels when the binocular is in normal use, said axes of said shell portions and said hinge means together having the general configuration of the letter "X" when viewed from the front.

4,272,154

CONNECTING PLUG FOR DETACHABLY CONNECTING TWO LIGHT WAVE GUIDE CABLES

Ernst Bachel, Geltendorf, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 13, 1978, Ser. No. 969,192
Claims priority, application Fed. Rep. of Germany, Dec. 30, 1977, 2759002
Int. Cl.³ G02B 5/16
U.S. Cl. 350—96.22 4 Claims



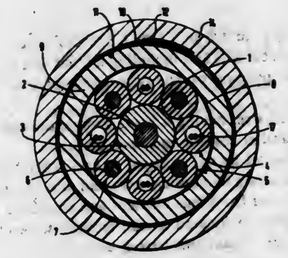
1. A plug connector consisting of two plug parts for detachably connecting two light wave guide cables containing optical fibers, in which the plug parts, and hence the optical fiber ends carried in the latter, are aligned relative to one another by means of a sleeve, characterized in that each plug part (13, 13') has three planar seats which are mutually perpendicularly to each other and comprising a first front planar face (11), orientated perpendicularly to the axis of the plug connector, a second lateral planar guide surface (8), lying in a plane parallel to the axis of the plug connector, and a third planar guide surface (10), lying in a plane parallel to the axis of the plug connector and serving as supported surface (3) for the optical fiber ends, said plug connector having a center sleeve (14), for interconnecting the plug parts (13, 13') with the ends of light wave guides aligned and each plug part (13, 13') has a pin shaped extension (6, 6'), projecting radially toward the exterior and a tapered compression surface which is inclined relative to the axis of the plug connector such that application of a force parallel to the plug axis on this compression surface of the extension (6, 6'), for example, by means of nuts (12) threaded to the sleeve (14) which produce force vectors having components acting parallel to the axis and two vectors acting perpendicularly to the axis, whereby the front faces (11) of the plug parts (13, 13') will be pressed against one another and the second and third seats (8, 10) of the plug parts (13, 13') will be pressed against the corresponding seats (8, 10) of the center sleeve (14).

4,272,155

OPTICAL CABLES

Raymond J. Slaughter, Chislehurst, England, assignor to BICC Limited, London, England

Filed Dec. 14, 1978, Ser. No. 969,021
Claims priority, application United Kingdom, Dec. 21, 1977, 53166/77
Int. Cl.³ G02B 5/16
U.S. Cl. 350—96.23 15 Claims



1. An optical cable, comprising a plurality of separately formed flexible tubes in at least one of which is loosely housed at least one flexible tape which viewed in transverse cross-section, is corrugated so that it has a plurality of troughs extending along its length, at least two optical guides each comprising at least one optical fibre secured in each of at least some of said troughs an outer protective sheath surrounding the assembly of tubes, and, embedded in or surrounded by the outer protective sheath, at least one elongate reenforcing member.

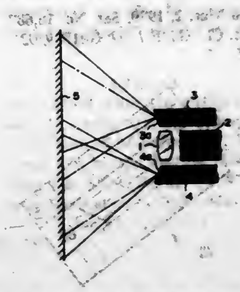
4,272,156

ILLUMINATION OPTICAL SYSTEM USING OPTICAL FIBER BUNDLES

Kaoiaki Ishihashi, Omiya; Norio Shirafuji, and Susumu Oshiro, both of Iwatsuki, all of Japan, assignors to Fuji Photo Optical Co., Ltd., Saitama, Japan

Filed Oct. 10, 1978, Ser. No. 949,629
Claims priority, application Japan, Dec. 27, 1977, 52-158119
Int. Cl.³ G02B 5/17
U.S. Cl. 350—96.26 7 Claims

1. An illumination optical system for an endoscope comprising a plurality of parallel illumination optical fiber bundles located adjacent to a separate image-guide optical fiber bundle which constitutes an observation system having a light-receiving end surface transverse to a first axis, each of said illumination optical fiber bundles having a plurality of light transmitting fibers and a light diverging end face which is in a single plane located at a predetermined angle with respect to said first axis and with respect to its own axis, said end faces of said illumination optical fiber bundles being so constructed and



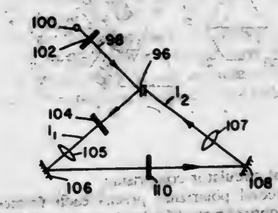
arranged as to diverge light through an area which is in alignment with said first axis and extends beyond the area of said image-guide optical fiber bundle, said end faces of said illumination optical fiber bundles being spaced from said light-receiving end face.

4,272,157

MULTI-STABLE OPTICAL SYSTEM

Stuart A. Collins, Jr., Worthington, Ohio; Uday K. Sengupta, Minneapolis, Minn., and Ulrich H. Gerlach, Columbus, Ohio, assignors to The Ohio State University, Columbus, Ohio

Filed Mar. 28, 1979, Ser. No. 24,683
Int. Cl.³ G02F 1/01, 1/03, 1/135, 1/133
U.S. Cl. 350—374 23 Claims



1. A multi-stable optical system, operable in conjunction with a source of light, comprising:
active optical spatial element means having input and output sides for treating light deriving from said source at said output side to provide light at an intensity, I_1, in response to light at intensity, I_2, incident at said input side;
optical path means for directing light from said source to said active optical spatial element output side and configured to define a feedback path extending from said output side to said input side;
said active optical spatial element and said optical path means exhibiting an operational characteristic represented by the expression:

$$\tau(dI_1/dt)+I_1=\Phi(I_2)$$

$$\tau'(dI_2/dt)+I_2=\Phi(I_1)$$

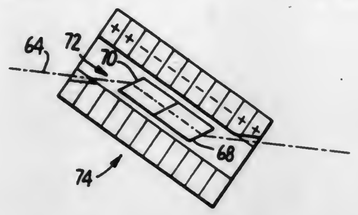
where τ and τ' are relaxation times.

4,272,158

BROADBAND OPTICAL DIODE FOR A RING LASER

Thomas F. Johnston, Jr., Sunnyvale, and William P. Proffitt, San Jose, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Filed Mar. 2, 1979, Ser. No. 16,687
Int. Cl.³ G02F 1/09; G01B 9/02
U.S. Cl. 350—375 10 Claims



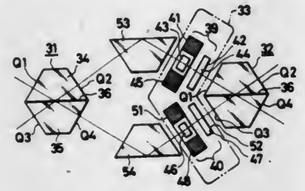
1. An optical diode for a ring laser comprising means for providing a magnetic field; and a unitary member within the magnetic field comprising a piece of material exhibiting right-handed optical activity in optical contact with a piece of the same type of material having left-handed optical activity of slightly different length.

4,272,159

OPTICAL CIRCULATOR

Takao Matsumoto, Yokosuka, Japan, assignor to Nippon Telegraph & Telephone Corporation, Tokyo, Japan

Filed Nov. 14, 1979, Ser. No. 93,967
Claims priority, application Japan, Nov. 28, 1978, 53/146897; Dec. 26, 1978, 53/162975; Feb. 26, 1979, 54/21679
Int. Cl.³ G02F 1/29
U.S. Cl. 350—375 5 Claims



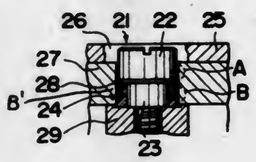
1. An optical circulator comprising:
first and second polarizing prisms each formed by two blocks of optical material joined together with a boundary layer interposed therebetween, said polarizing prisms having on either side of said boundary layer two input-/output faces each forming an acute angle with respect to the boundary layer thereby providing each of the first and second polarizing prisms with four input/output faces, said polarizing prisms being operative to separate an incident light on one of said faces into polarized components perpendicular to each other and to emit light individually from two of the other input/output faces, the boundary layers of said first and the second polarizing prisms being disposed in a common plane;
first and second total reflection prisms disposed respectively on opposite sides of said common plane between said first and second polarizing prisms and each having a coupling face coupled with the corresponding input/output face of the first polarizing prism, an opposing face disposed in parallel with the corresponding input/output face of the second polarizing prism, and a reflection face for totally reflecting an incident light from one of the coupling face and the opposing face to the other; and
first and second non-reciprocal polarized light rotating means respectively disposed between the first total reflection prism and the second polarizing prism and between the second total reflection prism and the second polarizing prism, each of said non-reciprocal polarized light rotating means having two input/output ports and being operative to emit an incident light from one to the other of said input/output ports while rotating the direction of polarization of said incident light an odd number of times as large as 90°, and being operative to emit an incident light from said other input/output port to said one input/output port without rotating the direction of polarization of said incident light or while rotating the direction of polarization an even number of times as large as 90°.

4,272,160

SHOCK ABSORBENT SHIFTING DEVICE

Kyoso Uesugi, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Mar. 31, 1978, Ser. No. 892,052
Claims priority, application Japan, Apr. 8, 1977, 52-39446
Int. Cl.³ G02B 7/04, 15/14
U.S. Cl. 350—429 14 Claims



1. A shifting device in a lens barrel housing a lens system having an optical axis and including a front lens element at the forwardmost position on the object side of said lens system, comprising:
a rotatable barrel having a guide groove delineated substantially parallel control and back-up faces;
movable barrel means engaged in said rotatable barrel and movable along said optical axis, said movable barrel means holding said front lens element and including a front end barrel portion located at the frontmost position on the object side of said lens barrel; and
follower means including a pin member carried on said movable barrel means and loosely engaging said guide groove and including a first portion and a second portion of greater diameter than said first portion and facing said control and back-up faces, and an elastic collar member of greater diameter than said second portion provided on said pin member first portion and having a peripheral surface which is in contact with said control face and back-up face so that a small space is provided between said second portion of said pin member and both of said guide groove faces.

4,272,161

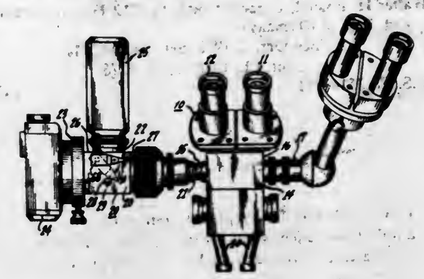
METHOD OF SPLITTING A PARALLEL BEAM OF LIGHT AT FIRST AND SECOND CAMERA LOCATIONS TO PROVIDE PAR FOCAL REGISTRATION

Richard E. Feinbloom, New York, N.Y., assignor to Designs for Vision, Inc., New York, N.Y.

Division of Ser. No. 888,349, Mar. 20, 1978, Pat. No. 4,143,938, which is a continuation of Ser. No. 771,181, Feb. 23, 1977, abandoned. This application Nov. 2, 1978, Ser. No. 957,109
Int. Cl.³ G02B 21/18
U.S. Cl. 350—320 6 Claims

1. A method of splitting a parallel beam of light indicative of the image of an object viewed by a microscope to enable par focal registration of said image at first and second camera locations, comprising the steps of:

(a) directing said beam of light to propagate through a first input aperture,
(b) converging said beam as directed through said input aperture,
(c) bending said converged beam at a predetermined distance from said input aperture at relatively an angle of ninety degrees to direct said beam to said second location,



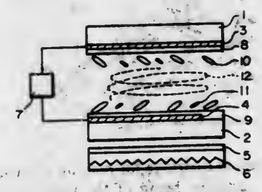
(d) placing a camera at said second location for receiving said bent beam at par focal registration,
(e) diverging said converged beam as directed through said input aperture to direct said beam to said first location,
(f) placing a camera at said first location for receiving said diverged beam at par focal registration.

4,272,162

GUEST-HOST LIQUID CRYSTAL DISPLAY DEVICE

Seigo Togashi; Takaharu Suzuki, and Takaaki Aoyama, all of Tokorozawa, Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 95,048
Claims priority, application Japan, Nov. 21, 1978, 53-143754; Nov. 21, 1978, 53-143755
Int. Cl.³ G02F 1/137
U.S. Cl. 350—349 4 Claims



1. In a liquid crystal display device having a pair of transparent plates each formed with a transparent electrode and a liquid crystal layer interposed therebetween, in which an electric field is applied to the transparent electrodes to control the transmission of unpolarized light through the liquid crystal layer, the improvement wherein:
said liquid crystal layer comprises a pleochroic liquid crystal mixture composed of a guest pleochroic material and a host liquid crystal material, said liquid crystal layer having helical molecular ordering in the absence of said electric field and homeotropic molecular ordering in the presence of said electric field;
the molecular axis of said pleochroic liquid crystal mixture is inclined at an angle of between 10 and 80 degrees with respect to the normal to said transparent plates; and
the orientation of the liquid crystal molecules at the surface of one of said pair of transparent plates crosses the orientation of the liquid crystal molecules at the surface of the other of said pair of transparent plates at an angle $\Delta\phi$ which satisfies the following relation

$$2\pi(d/Po-m+\frac{1}{2})<\Delta\phi<2\pi(d/Po-m+1)$$

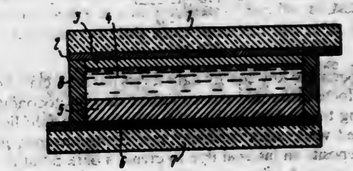
where d is the thickness of said liquid crystal layer, Po is the inherent helical pitch of said pleochroic liquid crystal mixture, and m is the maximum integer which does not exceed d/Po.

4,272,163

ELECTROCHROMIC INDICATOR

Andrei V. Samokhin, korpus 815, kv. 96; Boris G. Bekker, korpus 851, kv. 34, both of Moscow, 103527, and Alexandr N. Davydov, korpus 425, kv. 62, Moscow, 103498, all of U.S.S.R.

Filed Dec. 18, 1978, Ser. No. 970,811
Claims priority, application U.S.S.R., May 16, 1978, 2609551
Int. Cl.³ G02F 1/17
U.S. Cl. 350—357 10 Claims



1. In a multilayered electrochromic indicator comprising:
a first substrate made of an optically transparent material;
a first electrode made of an optically transparent material contacting said first substrate;
a layer of a solid inorganic electrochromic material contacting said first electrode;
a layer of an electrolyte contacting said layer of solid inorganic electrochromic material;
a second electrode; and
a second substrate contacting said second electrode, the improvement which comprises:
interposing a film layer of an oxidation-reduction polymer in contact with and between said electrolyte layer and said second electrode, wherein
said film of the oxidation-reduction polymer contains an oxidized form (Ox) and a reduced form (Red) of compounds which produce on said second electrode a reversible oxidation-reduction reaction of the following type:

$$Red \rightleftharpoons Ox + me,$$

where
e is an electron, and
m is the quantity of electrons involved in the reaction, with an exchange of electrons by means of said second electrode, and also containing compounds which are sources of cations similar to cations of said electrolyte layer.

4,272,164

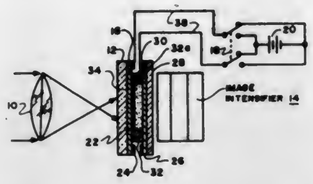
BRIGHT SOURCE ATTENUATING DEVICE FOR AN IMAGE INTENSIFIER

Charlie W. Trussell, Jr., Woodbridge, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 22, 1979, Ser. No. 51,463
Int. Cl.³ G02F 1/17
U.S. Cl. 350—357 20 Claims

1. A bright source attenuating device for automatically attenuating bright sources in the image plane of an image intensifier, said device comprising:
two light transparent conductive means;
a photoconductor coating deposited on one side of one of said two light transparent conductive means;

an insulating spacer ring that forms a cavity between said two light transparent conductive means wherein said photoconductor coating is on the inner wall of said cavity;
an electrochromic material filling the entire volume of said cavity; and
a voltage source switchably connected across said two light transparent conductive means with the negative side of said voltage source connected to the one of said two light transparent conductive means upon which said photoconductor coating is deposited wherein said device remains



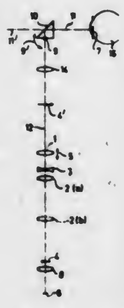
transparent to low energy light levels but wherein a bright light focused on said device causes said photoconductor coating to conduct at the point where said bright light is focused while simultaneously said electrochromic material deposits an internal dye to create a dark point at said point of conduction on said photoconductor coating in which said dye absorbs said bright light portion of the image whereby the removal of said bright light causes current flow to cease through said electrochromic material and said dark point to become transparent again.

4,272,165

OPTICAL SYSTEM FOR ILLUMINATING THE GROUND OF THE EYE

Franz Mschel, Konigsbronn, and Albrecht Vogel, Oberkochen, both of Fed. Rep. of Germany, assignors to Carl Zeiss-Stiftung, Wuerttemberg, Fed. Rep. of Germany

Filed Jan. 10, 1978, Ser. No. 868,460
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1977, 2703723
Int. Cl.³ A61B 3/10
U.S. Cl. 351—13 4 Claims



1. In an optical system for illuminating the ground of a patient's eye and for forming the image of a test mark thereon, in which system a collector and a test mark are provided in the path of light along an optical axis and between a source of light and an opthalmological objective, and in which system an imaging system is displaceably positioned along the optical axis between the test mark and the opthalmological objective, the improvement in which the displaceable imaging system comprises (a) a two-lens system comprising a condensing lens and a diverging lens and forming an image of the test mark at infinity, whereby by displacing the condensing lens along the optical axis, the image scale may be varied, and (b) a further condensing lens arranged in the parallel beam of light behind said two-lens system and so dimensioned that upon its axial displacement a change in the axial position of the image is affected without changing the image scale.

4,272,166

TEMPLES FOR EYEGLASSES

Walter H. Bonsai, Zeppelinstrasse 9, 7012 Fellbach-Schmiden, Fed. Rep. of Germany

Filed Oct. 2, 1978, Ser. No. 947,814
Int. Cl.³ G02C 5/14, 5/18
U.S. Cl. 351—111 1 Claim



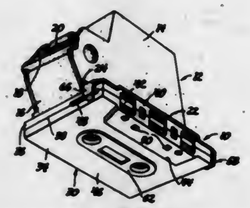
1. A temple unit for eyeglasses comprising:
a rod of permanently but elastically flexible metal damask in the area of a wearer's ear having a temple area end and a free end,
a thin sheath of a very soft material of silicone rubber seated axially motionless on said rod,
said sheath having a very low restoring force so that said unit exhibits a straight rod form in its semifinished state
said sheath having a Shore-D-Hardness below 20 measured according to DIN 53 505,
said sheath having a tear-shaped thickening at its free end.

4,272,167

PROJECTOR CARTRIDGE FOR A FILMSTRIP AND A TAPE CASSETTE

Fred G. Kempster, 44046 Yorkshire, Canton, Mich. 48187

Filed Nov. 15, 1978, Ser. No. 960,794
Int. Cl.³ G03B 31/04
U.S. Cl. 353—120 3 Claims



1. In a projection cartridge for holding a filmstrip and a tape cassette, said cartridge being of the type comprising a base including a mounting plate, a housing mounted on one side of the plate and being adapted to receive a filmstrip and having guide means for guiding the movement of the filmstrip into and out of the housing at a predetermined location relative to said base, the other side of said plate including positioning means and being adapted to receive a tape cassette in a predetermined position relative to said base with the tape head of the cassette coacting with said positioning means, and retaining means for releasably attaching the cassette to the base, the improvement wherein said retaining means comprises a first cam-actuated spring retaining hook mounted on one end of the plate for engaging one end of the cassette and a second cam-actuated spring retaining hook mounted on the other end of the plate for engaging the other end of the cassette, each of said retaining hooks comprising a cantilever arm extending from said plate perpendicular thereto and being integral therewith, each of said cantilever arms having an inwardly projecting nose for camming engagement with a shoulder on said cassette when the cassette is moved toward and away from said plate, whereby the cassette may be attached to said base by pressing it toward the plate in alignment with the positioning means and

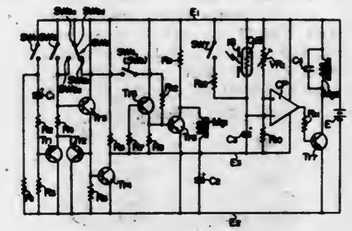
may be released from the base by pulling it away from said plate.

4,272,168

PHOTOGRAPHIC CAMERA OF AUTOMATIC EXPOSURE CONTROL TYPE

Yoshihisa Maitani, and Katsuhiko Tsunefuji, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 19, 1979, Ser. No. 59,078
Claims priority, application Japan, Sep. 8, 1978, 53/110383; Sep. 8, 1978, 53/110384
Int. Cl.³ G03B 7/083, 17/04, 17/38
U.S. Cl. 354—51 22 Claims



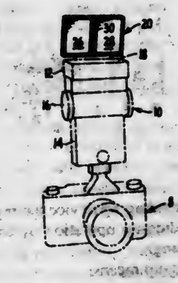
1. A photographic camera of an automatic exposure control type, said camera comprising a camera body, a taking lens disposed on said camera body, a rear lid disposed on said camera body, a film winding mechanism disposed in said camera body, an electrical shutter of the electromagnetic release type including an electrical shutter circuit, a front cover slidably disposed across the front surface of said camera body between a first position in which it closes said taking lens and a second position in which it exposes the taking lens; a first switch which is turned on and off in accordance with the position of the front cover, a second switch which is turned on and off as said rear lid of the camera is opened or closed, a third switch which is changed over in accordance with the operation of said film winding mechanism and the operation of said electrical shutter, and means for coupling said switches to said electrical shutter circuit for providing that a shutter release operation is disabled when the front cover is in its first position to disable a photographing operation but for enabling a high speed shutter operation in response to completion of the film winding operation whenever the rear lid of the camera is opened and the front cover is in the first position.

4,272,169

BOUNCE FLASH APPARATUS

Kenneth Stone, P.O. Box G, Boulder Creek, Calif. 95006

Filed Jul. 28, 1980, Ser. No. 172,527
Int. Cl.³ G03B 15/02
U.S. Cl. 354—126 2 Claims



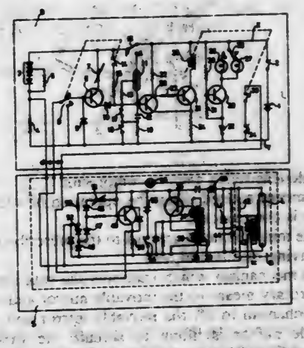
1. A bounce light reflector for a flash gun wherein said flash gun has a light emitting surface aimed at right angles to a subject comprising in combination:
a. reflector having two reflective surfaces, generally equally sized,
b. said reflective surfaces being in side by side relationship and being separated by a narrow, non-reflective stripe and,
c. means for mounting said reflector onto said flash gun whereby the surface of said reflector is held at an angle to the light emitting surface of said flash gun.

4,272,170

PHOTOGRAPHIC ARRANGEMENT USING VARIOUS ELECTRONIC FLASH DEVICES

Yukio Mashima, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 784,524, Apr. 4, 1977, abandoned, which is a continuation of Ser. No. 579,881, May 22, 1975, abandoned, which is a continuation of Ser. No. 89,282, Nov. 13, 1970, abandoned. This application Mar. 26, 1979, Ser. No. 23,776
Claims priority, application Japan, Nov. 20, 1969, 44-116347; Nov. 20, 1969, 44-116348; Nov. 20, 1969, 44-116349; Dec. 25, 1969, 44-103914
Int. Cl.³ G03B 15/05
U.S. Cl. 354—149 14 Claims



1. A photographic flash system comprising:
(A) a first electronic flash device including: a flash tube, capacitor means coupled to the tube for storing electrical energy to sustain a flash in said flash tube, charger means connected to said capacitor means for charging said capacitor means, and detecting means connected to said capacitor means for generating a control signal when the charge of the capacitor means has reached a predetermined value,
(B) a second electronic flash device including: a flash tube, capacitor means coupled to the tube for storing electrical energy to sustain a flash in said flash tube, and charger means connected to said capacitor means for charging said capacitor means, and
(C) a photographic camera, comprising a shutter speed forming circuit and a control circuit connected to an output terminal of said shutter speed forming circuit so as to control an exposure value in correspondence to an output signal from said shutter speed forming circuit,
said shutter speed forming circuit including:
first means having first exposure parameter means for generating an output signal corresponding to a shutter speed suitable for the first electronic flash device, and semiconductive switching means for enabling the first exposure parameter means in the shutter speed forming circuit in response to the control signal from said detecting means when the first electronic flash device is attached on the photographic camera,

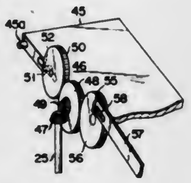
second means having second exposure parameter means for generating a second output signal corresponding to a shutter speed suitable for the second electronic flash device, and selecting switch means for enabling the second exposure parameter means and for disabling the first exposure parameter means when the second electronic flash device is used with the camera, the selecting switch means and the semiconductive switching means being operable alternately so as to allow the shutter speed forming circuit to produce only one of a first output and a second output so that a flash produced by the first flash device and the second flash device is based on the shutter speed determined by the first parameter means and the second parameter means respectively.

4,272,171

SINGLE-LENS REFLEX CAMERA

Akihiko Hashimoto, Hachioji; Tamotsu Koiwai, Akikawa; Isao Kondo, and Toyohiko Kimura, both of Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 18, 1979, Ser. No. 85,920
Claims priority, application Japan, Oct. 27, 1978, 53-132363
Int. Cl.³ G03B 19/12, 1/12
U.S. Cl. 354—152 11 Claims



1. A single-lens reflex camera comprising:
a rotary means rotated when the operation of a focal plane shutter is commenced;
a movable mirror rotated upward to the prescribed position;
a stop-driving mechanism; and
a control mechanism which transmits the rotation moment of the rotary means to the movable mirror and stop-driving mechanism to lift the movable mirror and, after the movable mirror is lifted, to actuate the strop-driving mechanism in the stop-down mode,
said control mechanism comprising
first and second cams,
a first pin cooperable with the first cam, and
a second pin cooperable with the second cam;
the first cam being mounted on one of the rotary means and the movable mirror, and the first pin being mounted on the other one,
the second cam being mounted on one of the rotary means and the stop-driving mechanism, and the second pin being mounted on the other one, and
the first and second cams being so shaped that the stop-driving mechanism is actuated in the stop-down mode after the movable mirror is lifted.

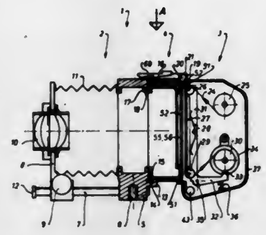
4,272,172

APPARATUS FOR MAKING PHOTOGRAPHIC PICTURES

Emile A. H. Guilhaume, Ballaigues, Switzerland, assignor to Zelacolor Systems Establishment, Vaduz, Liechtenstein

Filed Apr. 2, 1979, Ser. No. 25,946
Claims priority, application Switzerland, Apr. 7, 1978, 3749/78
Int. Cl.³ G03B 17/44
U.S. Cl. 354—161 8 Claims

1. Apparatus for making a photographic picture on a film which is exposable in a film plane, said apparatus comprising:
a first housing; an objective in said first housing; an optical pathway through said first housing and through said objective thereof;
an intermediate housing, separably attachable to and separable from said first housing; said film plane being generally at said intermediate housing; said intermediate housing also having an optical pathway therethrough to said film plane;
said first and said intermediate housings together defining an optical pathway for optical communication between said objective and said film plane;
said intermediate housing incuding mask positioning means for positioning a mask generally in said film plane for intercepting light from said objective; said intermediate housing including shutter means positioned between said mask positioning means and said objective;



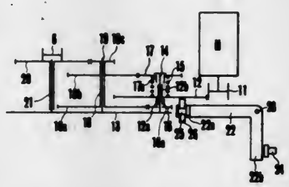
said intermediate housing further including a rear cover on the side of said mask positioning means away from said objective, and said cover being adapted to be separably attached to and to be separated from yet another part of said apparatus; and
said another part of said apparatus being adapted to be separably attached to and to be separated from said intermediate housing cover at the side of said mask positioning means away from said objective, said another part of said housing being supported on said intermediate housing and not on said first housing, whereby upon separation of said intermediate housing from said first housing said another part of said apparatus stays with said intermediate housing.

4,272,173

MOTOR DRIVE UNIT FOR CAMERA HAVING VARIABLE WINDING SPEED CHARACTERISTICS

Tomonori Iwashita, Fuchu; Hidehiko Fukahori, Kawasaki, and Yukio Mashimo, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,623
Claims priority, application Japan, Jul. 25, 1978, 53-90589
Int. Cl.³ G03B 1/18
U.S. Cl. 354—173 7 Claims



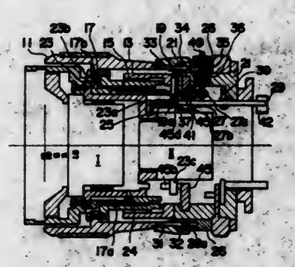
1. An automatic winding-up device having an electric motor for performing winding-up operation by the driving force of said motor, comprising:
(a) driven winding-up means;
(b) motion transmitting means for drivingly connect said motor with said driven winding-up means, said motion transmitting means having two different transfer factors, one being a value at which said motor produces a torque of a maximum efficiency or a torque close thereto and the other being a value at which the motor produces a maximum output torque or a torque close thereto; and
(c) selecting means operatively connected to said motion transmitting means for selecting either of said two transfer factors.

4,272,174

AUTOMATIC AND MANUAL FOCUS CONTROL LENS BARREL STRUCTURE

Tongo Teramoto, Wakayama; Shuzo Matsushita, Ikeda, and Toshio Koberi, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 96,731, Nov. 23, 1979, abandoned. This application Nov. 26, 1979, Ser. No. 97,236
Claims priority, application Japan, Nov. 25, 1978, 53-145502; Nov. 25, 1978, 53-145503; Apr. 30, 1979, 54-53663
Int. Cl.³ G03B 3/02, 7/08
U.S. Cl. 354—195 13 Claims



6. A lens barrel for automatic and manual focus control of a camera, comprising:
a non-movable barrel for holding the whole lens barrel;
a movable barrel for carrying at least one lens group for focussing by means of its axial movement;
first means for shifting said movable barrel along the optical axis of said at least one lens group relative to said non-movable barrel in accordance with manual focus control operation; and
second means for shifting said movable barrel along said optical axis relative to said non-movable barrel in accordance with automatic focus control operation, said second shifting means being independently operable from said first shifting means to shift said movable barrel without movement of said first shifting means.

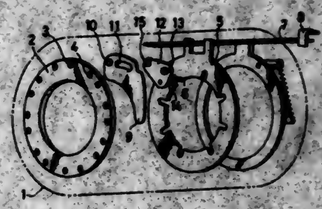
4,272,175

AUTOMATIC APERTURE CONTROL DEVICE

Zenichi Okura, Oomiya, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 31, 1979, Ser. No. 89,798
Claims priority, application Japan, Nov. 14, 1978, 53-140801
Int. Cl.³ G03B 9/06
U.S. Cl. 354—274 6 Claims

1. An automatic aperture control device in a lens barrel in which the aperture value is controlled in accordance with the stop position of an automatic aperture control member in a camera comprising: pairs of aperture blades and intermediate levers pivotally mounted on a supporting ring, a first drive shaft fixedly secured to each intermediate lever operatively coupled to an opening and closing ring turned by said automatic aperture control member of said camera, and a second drive shaft fixedly secured to each intermediate lever slidably mounted in an elongated groove formed in each aperture blade to operate each aperture blade through each intermediate lever, said elongated groove shape defined by the locus of



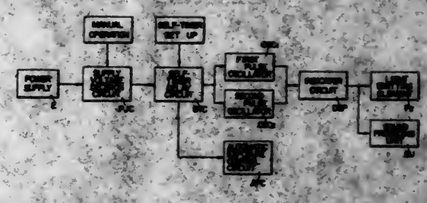
movement of said second drive shaft as it is actuated by said opening and closing ring to define a range of stop positions.

4,272,176

CAMERA HAVING AN ACOUSTIC INDICATOR FOR GENERATING SOUNDS TO INDICATE THE STATUS OF CERTAIN OPERATING CONDITIONS

Yoshihisa Maitani; Isao Kondo; Kazuyuki Nemoto, and Masahiro Kitagawa, all of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Oct. 12, 1978, Ser. No. 950,851
Claims priority, application Japan, Nov. 15, 1977, 52-153242[U]; Nov. 22, 1977, 52-157067[U]
Int. Cl.³ G03B 17/20, 17/40
U.S. Cl. 354—238 5 Claims



1. A camera for use with a power supply providing a supply voltage; said camera comprising an electrically controlled shutter means adapted to be operated from the power supply; a self-timer delay circuit operative for delaying the operation of said electrically controlled shutter means for a given time interval; a single acoustic indicator including a single common acoustic speaker comprising first means for producing a first sound when the supply voltage is above a selected level and second means for producing a second sound different from said first sound responsive to the operation of said self-timer delay circuit.

4,272,177

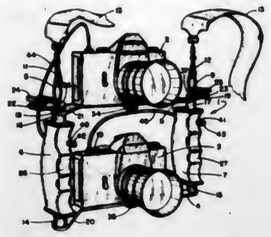
MULTIPLE CAMERA MOUNTING BRACKET

Charles J. Ottenheimer, 2484 Paradise Village Way, Las Vegas, Nev. 89120

Filed May 27, 1980, Ser. No. 153,446
Int. Cl.³ G03B 17/56
U.S. Cl. 354—293 12 Claims

1. Apparatus for mounting photographic equipment comprising
(a) a first mounting shelf,
(b) a second mounting shelf spaced from and substantially parallel to the first mounting shelf,
(c) said first and second mounting shelves each comprising a flat elongated member having an end portion angled from between about 10° and about 90° with respect to said member,

(d) first and second mounting means for removably securing a camera to each mounting shelf, and



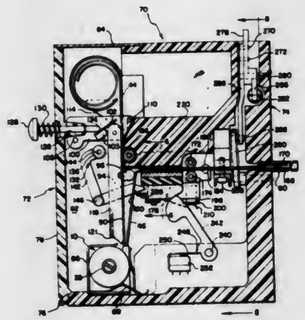
(e) a pair of spaced parallel hand grips fastened between the mounting shelves.

4,272,178

PROCESSING APPARATUS FOR SELF-DEVELOPING TYPE ROLL FILM

Leonard V. Bendoni, Framingham, and Hugh L. Smith, Brockton, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Apr. 3, 1980, Ser. No. 136,802
Int. Cl.³ G03D 5/02
U.S. Cl. 354—298 7 Claims



1. Apparatus for processing an elongate composite film structure of the self-developing transparency type so as to initiate the formation of a visible image therein comprising:

means for supporting a film assemblage including a cylindrical film cassette having an exit slot and a reel upon which an elongate composite film structure is wound, the composite film structure including a first sheet having first and second opposite ends and including therebetween a given length of photographically exposed self-developing transparency type film, a second sheet having a first end secured to a reel located within a film cassette, a second end located in superposed relation to the second end of the first sheet, and an intermediate portion secured to the first sheet at a location closely adjacent to the second end of the first sheet, and a container of processing liquid secured to one of the facing surfaces of the second ends of the first and second sheets;

a chamber having an opening for receiving the first end of the first sheet;

a first pair of rollers adapted to receive the first sheet therebetween;

a spread roller assembly including a second pair of rollers;

means for mounting one of the rollers of said second pair of rollers for movement between an inoperative position wherein said one roller of said second pair is spaced from the other roller of said second pair, and an operative position wherein said one roller is located closely adjacent to said other roller;

a motor for driving one of the rollers of said first pair of rollers in a direction so as to fully withdraw the first sheet and the second end of the second sheet from the film cassette while simultaneously advancing portions of the first sheet into said chamber;

means for disabling said motor to drive said one roller of said first pair in said direction when the second ends of the first and second sheets are located between said one and said other rollers of said second pair when said one roller is located in said inoperative position; and

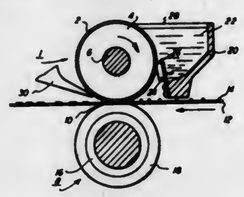
means for energizing said motor, when said one roller of said second pair is moved into said operative position so as to drive one of the rollers of said second pair in a direction to advance the ends of the first and second sheets away from said second pair while simultaneously rupturing the container of processing liquid located between the second ends and spreading its contents between and in engagement with the first and second sheets as they are advanced in superposition between the rollers of said second pair.

4,272,179

METAL-FILLED ELASTOMER FUSER MEMBER

Donald A. Seanor, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 4, 1979, Ser. No. 26,989
Int. Cl.³ B05C 11/02; B21B 31/08
U.S. Cl. 355—3 FU 56 Claims



45. In a heated pressure fusing system for fusing toner images in an electrostatic reproducing apparatus in which a fuser roll and a backup roll define a contact arc to fuse toner images onto a substrate and a release agent is applied to the surface of the fuser roll to prevent toner offset from the fuser roll, the improvement comprising a fuser roll having an elastomer surface with metal-containing filler dispersed therein and the release agent applied upon the surface of the elastomer being a polymeric release agent having functional groups which interact with the metal in the filler.

4,272,180

ELECTROSTATIC COPYING MACHINE

Toyokazu Satomi; Yutaka Koizumi; Isao Nakamura; Yasuhiro Tabata, and Tamaki Kaneko, all of Tokyo, Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

Division of Ser. No. 884,137, Mar. 7, 1978, Pat. No. 4,187,024.
This application May 24, 1979, Ser. No. 42,058
Claims priority, application Japan, Mar. 9, 1977, 52-25769; Apr. 6, 1977, 52-39190
Int. Cl.³ G03G 15/00
U.S. Cl. 355—3 SH 3 Claims

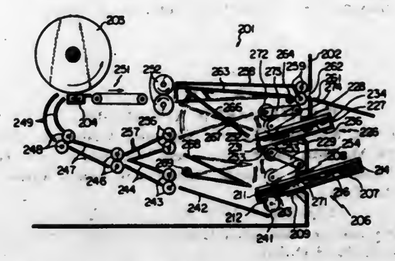
1. In an electrostatic copying machine having a moving photoconductive member and means for forming first and second toner images of first and second original documents respectively on the photoconductive member, the combination comprising:

first and second sheet holders for initially holding first and second copy sheets of first and second sizes respectively, the first and second sizes being different;

first and second intermediate sheet holders for temporarily holding the first and second copy sheets respectively;

selector means for selecting one of the first and second copy sheets; and

feed means for feeding said selected copy sheet from the respective sheet holder into engagement with the photoconductive member to transfer the first toner image onto



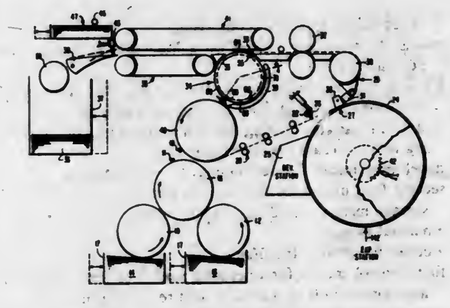
a first side of said selected copy sheet, feeding said selected copy sheet onto the respective intermediate sheet holder and subsequently feeding said selected copy sheet from the respective intermediate sheet holder into engagement with the photoconductive member to transfer the second toner image onto a second side of said selected copy sheet.

4,272,181

ELECTROPHOTOGRAPHIC PRINTER WITH DUPLEX PRINTED SHEET OUTPUT

Robert C. Tressler, Aptos, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,585
Int. Cl.³ G03G 15/00; B65H 29/00
U.S. Cl. 355—14 SH 14 Claims



1. A duplex printer comprising:

means for printing an image on one side of a print sheet;

first sheet feeding means for moving print sheets in sequence to said means for printing, said first sheet feeding means including a first selectively actuable feed means;

second sheet feeding means for continuously moving print sheets in sequence from said means for printing to an output station; said second sheet feeding means including a second selectively actuable feed means in said path and means for producing a fixed image on said print sheet prior to said second selectively actuable feed means;

third sheet feeding means for continuously moving print sheets from said second selectively actuable feed means to said first selectively actuable feed means;

means for selectively actuating said second selectively actuable feed means when said print sheet is in a predetermined position in said second sheet feeding means to move said print sheet to said third sheet feeding means; and

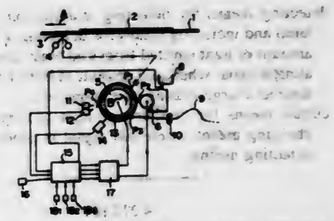
means for energizing said first selectively actuable feed means to feed said print sheet to said means for printing to receive a duplex image on the side of said print sheet opposite to said one side.

4,272,182

APPARATUS FOR CONTROLLING THE DENSITY OF A REPRODUCED IMAGE IN AN ELECTROPHOTOGRAPHIC COPYING MACHINE

Shunichi Abe; Mitsuo Akiyama; Fumio Iwai, and Hiroshi Kuru, all of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Jan. 5, 1979, Ser. No. 1,060
Claims priority, application Japan, Jan. 17, 1978, 53-2756
Int. Cl.³ G03G 15/00
U.S. Cl. 355—14 D 5 Claims



1. In an apparatus for controlling the density of a reproduced image of an original to be copied in an electrophotographic copying machine comprising a copy board; an electrophotosensitive medium; an optical system positioned between the copy board and the electrophotosensitive medium for forming an electrostatic image of the original on the medium; a developing device for changing the electrostatic image to a visible toner image; first means for controlling a toner concentration, the first means comprising a patch of predetermined uniform density disposed at a location remote from the original to be copied and adapted for forming, in conjunction with the optical system and developing device, a toner image of the patch on the electrophotosensitive medium, and a detector for measuring the density of the patch toner image and for generating an output signal for controlling a toner concentration; and second means for controlling a bias between the developing device and the electrophotosensitive medium for controlling the density of the reproduced image, the improvement comprising:

third means for fixing the bias at a predetermined value at least during development of the patch toner image and for fixing the bias at a selectable value at least during development of the original image.

4,272,183

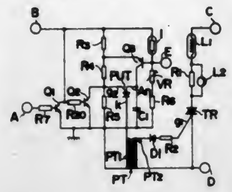
CONTROL SYSTEM RESPONSIVE TO ERASER MALFUNCTIONS IN ELECTROPHOTOGRAPHIC COPYING MACHINES

Masayuki Mase, and Tsuyoshi Nakahara, both of Toyokawa, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Jan. 21, 1979, Ser. No. 89,529
Claims priority, application Japan, Jan. 21, 1978, 53-6979[U]
Int. Cl.³ G03G 15/22
U.S. Cl. 355—14 R 7 Claims

1. In an electrostatic copying apparatus having at least a movable photoconductive member, charging means for uniformly charging the surface of the photoconductive member, exposing means for exposing a light image of an original to the charged surface of the photoconductive member and for form-

ing an electrostatic latent image on the surface of the photoconductive member, transfer means for transferring the image formed on the surface of the photoconductive member to a copying paper, an erasing lamp between the transferring means and the charging means for erasing residual charges on the surface of the photoconductive member, and controlling means for controlling at least an operation of the charging means, said controlling means comprising:



detecting means for detecting malfunction of said erasing lamp and including means for detecting a variation in the amount of light emitted from said erasing lamp and generating a signal when said amount of light fails to assure the desired charge erasing operation; and

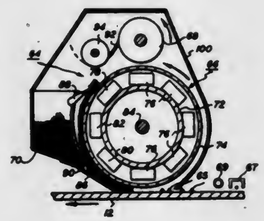
circuit means for disabling at least the operation of said charging means when said signal is generated from said detecting means.

4,272,184

CONDUCTIVE CARRIER FOR MAGNETIC BRUSH CLEANER

Ivan Rezanka, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 1, 1979, Ser. No. 80,762
Int. Cl.³ G03G 21/00
U.S. Cl. 355—15 **11 Claims**



1. A magnetic brush cleaning system for removing residual toner particles from a photoreceptor surface in an electrostatographic copying/duplicating machine, said cleaning system comprising;

(a) a magnetic brush roll adapted to rotate counter to the direction of movement of said photoreceptor surface positioned adjacent to the area of the photoreceptor surface to be cleaned and containing a plurality of magnets located inside the magnetic brush roll;

(b) a plurality of magnetic, electrically conductive carrier particles having a resistivity of less than about 10^{10} ohm-cm and a triboelectric charging response of at least about 15 microcoulombs per gram of said toner particles magnetically adhering to said magnetic brush roll;

(c) a toner reclaim roll adapted to rotate counter to the direction of said magnetic brush roll positioned adjacent to the path of said magnetic brush roll so as to contact the carrier particles having toner particles thereon;

(d) a scraper means positioned in contact with said toner reclaim roll to remove toner particles from said toner reclaim roll;

(e) a transporting means in contact with said scraper means for disposal of said toner particles;

(f) means for electrically biasing the magnetic brush roll to a voltage of between about 50 volts and about 400 volts to assist in attracting the residual toner particles from the photoreceptor and onto the carrier particles; and

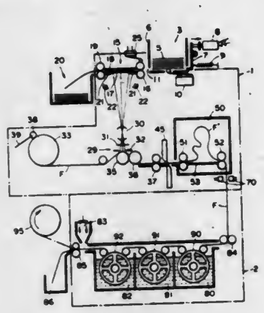
(g) means for electrically biasing the toner reclaim roll to a negative polarity of up to about 400 volts to assist in removing the toner particles from the carrier particles.

4,272,185

PHOTOGRAPHIC APPARATUS

Toshio Arai, Kawasaki; Takeshi Nagasawa, Yokohama; Toshio Iwaya, Machida; Shunzo Inoue, and Motofumi Konishi, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 7, 1979, Ser. No. 73,424
Claims priority, application Japan, Sep. 14, 1978, 53-113032; Sep. 14, 1978, 53-113037
Int. Cl.³ G03B 29/00
U.S. Cl. 355—28 **15 Claims**



1. A recording apparatus comprising:

means for recording images on a long film located at an exposure station;

a film storage means for storing the exposed film, in the form of a loop, conveyed from the exposure station;

first feed means for feeding the film exposed by said recording means to said film storage means;

developing means for developing the exposed film;

second feed means for feeding the film stored in said film storage means to said developing means;

a manual switch;

a cutter for cutting the film;

first control means for operating said first feed means in association with operation of said recording means;

second control means, associated with said manual switch, for operating said first feed means to feed the film through a predetermined length;

a detector, downstream of said second feed means with respect to movement of the film, for detecting the presence of the film;

means for operating said second feed means in conjunction with the operation of said recording means until said film detector detects the film;

means for operating said cutter to separate the exposed portion of the film from the unexposed portion, when said first feed means feeds the film through a predetermined length; and

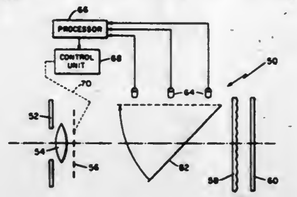
third control means for operating said second feed means to continuously feed the film independently of the operation of said recording means after operation of said manual switch.

4,272,186

CAMERA METHOD AND APPARATUS FOR RECORDING WITH SELECTED CONTRAST

William T. Plummer, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed May 21, 1979, Ser. No. 40,668
Int. Cl.³ G03B 27/52, 27/72
U.S. Cl. 355—34 **42 Claims**



1. Camera apparatus for image recording with reduced contrast, said apparatus having support means for receiving an image recording medium at an image surface and having a lens aligned along an optical axis for directing light from a field of view along an optical path to the image surface, and further comprising

A. light-distributing means arranged in the optical path between said lens and said image surface for modulating the distribution of image light from the lens across the image surface for effectively dividing the image surface into microscopic portions, different ones of which receive relatively increased exposure and others of which receive relatively lesser exposure, than in the absence thereof, from the image light, and

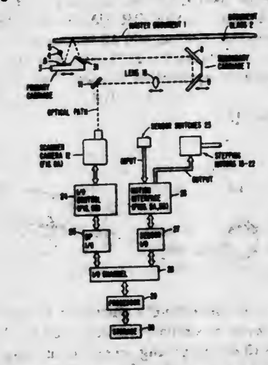
B. aperture means interposed in said optical path anterior to said distributing means for illuminating said distributing means with image light to separate said image-surface portions of increased exposure spaced relative to one another to form portions of lesser exposure therebetween.

4,272,187

AUTOMATIC ALIGNMENT OF OPTICAL ELEMENTS IN AN ELECTROPHOTOGRAPHIC APPARATUS

Ivan P. Birdsall, Boulder; Paul J. Bradmon, Longmont; Donald L. Buddington, Boulder; Vincent H. Garcia, Berthoud, and Don S. Nelson, Arvada, all of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,255
Int. Cl.³ G03B 27/34, 27/40
U.S. Cl. 355—56 **28 Claims**



1. Apparatus for optimumly adjusting the optical elements of a copier to positions forming images of lines, on an illuminated target background, which have the greatest background-to-line illumination contrast, where the invention comprises:

an electronic scanner, operable to repeatedly examine the same target line images and generate, for each line, signals manifesting the amount of light reflected by that line relative to the target background; and

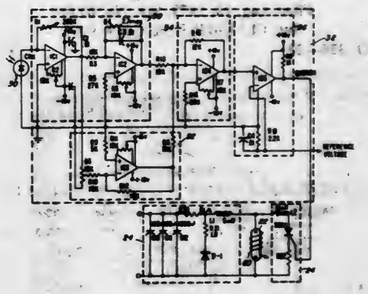
driving devices, for positioning the copier optical elements during repeated operation of the scanner.

4,272,188

EXPOSURE COMPENSATION CIRCUIT FOR A COPIER

Richard F. Lehman, Fairport, and Stephen C. Corona, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 19, 1979, Ser. No. 77,237
Int. Cl.³ G03B 27/72
U.S. Cl. 355—68 **1 Claim**



1. A flash illumination and document exposure system for a copying machine comprising:

a completely enclosed light housing having a first surface adapted to accommodate a document platen and a second surface to accommodate a lens for focusing a document image onto an image plane;

said housing having side walls joined to said first and second surfaces; said side walls having diffusely reflecting interior surface whereby said light housing functions as an integrating cavity;

at least one flash lamp mounted within said housing for illuminating said document;

a triggering circuit connected to said lamp for initiating flash discharge;

a power supply for providing a discharge pulse to said lamp whereby in conjunction with said triggering circuit, said flash lamp produces a light flash;

a photosensor mounted within said housing to detect illumination at a wall of said housing, and to generate an output signal which varies in accordance with impinging light;

a quench circuit connected to said lamp which, when upon receipt of a quench command signal, extinguishes said light flash;

circuit means for generating said quench command signal, said circuit means including;

integrating means responsive to said photosensor signal to continuously generate a first output signal proportional to the total amount of light impinging on said photosensor;

compensation means responsive to said photosensor signal to generate a second output signal representative of the light which would continue to impinge on said photosensor after said quench signal is applied to said lamp;

said compensation means including a resistive element which attenuates the gain of the signal from said integrating means to reflect the proportionally constant of said power supply and the integration constant of said integrating means, and an operational amplifier connected to said resistive element which inverts and further attenuates the signal;

summing means for combining said first and second signals

into a third signal representing the total pre and post quench energy expended by said lamp; and

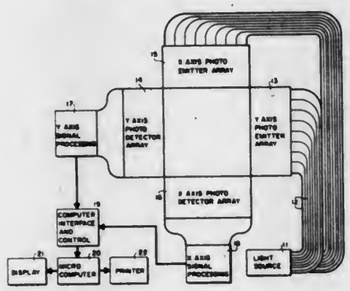
comparator means for comparing said third signal against a predetermined reference signal representative of the desired exposure level, said comparator means generating said quench signal when said third signal equals said reference signal.

4,272,189

ELECTRO-OPTICAL PROJECTILE ANALYZER

Theodore B. Bailey, and Jack Bates, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 16, 1979, Ser. No. 67,089
Int. Cl.³ G01P 3/36; G01V 9/04
U.S. Cl. 356—28 8 Claims



4. A projectile analyzer for determining the velocity, position, pitch, and yaw of a projectile comprising:

first and second linear arrays of emitter means for emitting continuous beams of light, said second linear array of emitter means perpendicular to said first linear array of emitter means, each emitter in said first means defining an optical path,

first and second linear arrays of detector means for detecting light corresponding to said first and second linear arrays of emitter means, respectively, each detector means responsive to a light beam from a corresponding emitter means and located in the optical path defined thereby;

first and second arrays of emitter polarizing filters located in the optical paths of said first and second linear arrays of emitter means, respectively, for polarizing the output of each said emitter means, said polarizing filters configured to provide perpendicular planes of polarization for adjacent emitter means;

first and second arrays of detector polarizing filters placed in the optical paths defined by said emitter means, with the plane of polarization of each detector polarizing filter the same as the plane of polarization of the corresponding emitter means; and

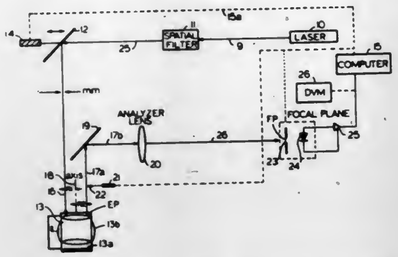
first and second processing means connected to said first and second linear arrays of detector means, respectively, for processing signals from each linear array of detector means, such that each detector means in an array transmits a signal when said detector means have an interruption of the light beam incident thereon and whereby the sequence and duration of interruption of light on the detector means within an array can be used to determine the velocity, position, and orientation of a projectile as it intercepts light beams to each array and where said perpendicular arrays have axes which define the directions of pitch and yaw.

4,272,190

OPTICAL MEASURING SYSTEM

Alan R. Shapiro, Santa Monica, Calif., assignor to Typalogics, Santa Monica, Calif.

Filed Aug. 14, 1978, Ser. No. 933,465
Int. Cl.³ G01B 9/00
U.S. Cl. 356—124 26 Claims



1. Apparatus for determining the optical properties of a test object having an optical axis and light transmission properties between first and second spaced light transparent surfaces comprising:

means for generating a test beam of light parallel to the optical axis of said test object and directed at a point on said first surface, through said test object, and to said second spaced surface;

a reflector located adjacent said second spaced surface of said test object for reflecting all or part of said test beam back into and through said test object as a reflected beam;

means for determining the point at which said reflected beam exits said test object at said first surface; and

means for measuring the intensity of said reflected beam immediately after said reflected beam exits said first surface of said test object

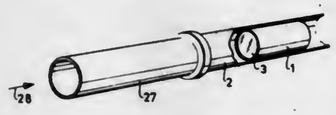
whereby the reflected beam exit location and intensity constitute measures of the optical properties of said test object.

4,272,191

DEVICE FOR INDICATING A PARTICULAR ANGLE IN PIPELAYING WORK OR SIMILAR OPERATIONS

Lars A. Bergkvist, Gottne, 890 42 Mellansel, Sweden

Filed May 22, 1979, Ser. No. 41,416
Claims priority, application Sweden, May 31, 1978, 7806332
Int. Cl.³ G01B 11/27
U.S. Cl. 356—153 6 Claims



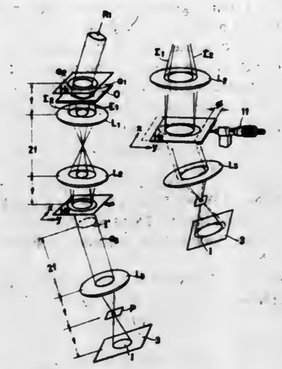
1. Device for indicating a particular angle or alignment in pipelaying work or similar, characterized by the fact that two screen units (3,4) comprising screens consisting of opaque lines (5) separated by transparent gaps (6) are at a certain distance from each other, where each screen's (3,4) opaque lines (5) are in the form of concentric circles, and by the fact that the concentric circles of the two screens (3,4) are mutually concentrically positioned.

4,272,192

HOLOGRAPHIC SHEARING INTERFERENCE CONTRAST METHOD AND INTERFEROMETER

Kiyofumi Matsuda, Musashi-Murayama, Japan, assignor to Agency of Industrial Science and Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Aug. 9, 1978, Ser. No. 932,180
Claims priority, application Japan, Aug. 13, 1977, 52/97227; Aug. 31, 1977, 52/104645
Int. Cl.³ G01B 9/02, 9/021; G02B 5/32
U.S. Cl. 356—347 9 Claims



1. A holographic shearing interference contrast method which comprises:

producing a first hologram by using interference fringes resulting from the interaction between a first reference beam and each of two incident beams having slightly different angles of incidence, and a second hologram by using interference fringes resulting from the interaction between a second reference beam and each of first order diffraction beams reproduced by illumination of the first hologram with a beam equivalent to the first reference beam;

placing a transparent phase object under observation between said first and second holograms arranged in the same positional relationship as in the producing of the holograms;

impinging upon said second hologram the first order diffraction beams reproduced by illumination of said first hologram with said beam equivalent to the first reference beam and passed through said object for thereby reproducing a first order diffraction beam of the second hologram; and

imparting a phase difference to said first order diffraction beam of the second hologram by laterally moving said second hologram a small displacement so as to provide a visible image having a three-dimensional illusion on an observation plane.

4,272,193

METHOD AND APPARATUS FOR TIMING OF LASER BEAMS IN A MULTIPLE LASER BEAM FUSION SYSTEM

Jay M. Eastman, Pittsford, and Theodore L. Miller, Rochester, both of N.Y., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

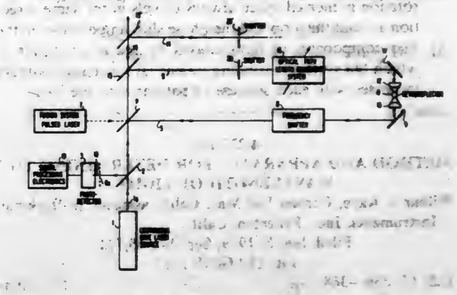
Filed Apr. 13, 1979, Ser. No. 30,044
Int. Cl.³ G01B 9/02
U.S. Cl. 356—349 10 Claims

3. A method for timing a comparison beam and a master beam of partially coherent electromagnetic radiation of the same frequency and finite bandwidth comprising:

shifting the frequency of the master beam relative to that of the comparison beam;

combining the two beams to produce an optical heterodyne interference pattern which is indicative of the difference in optical path lengths of the beams;

detecting the interference pattern of the combined beams; and



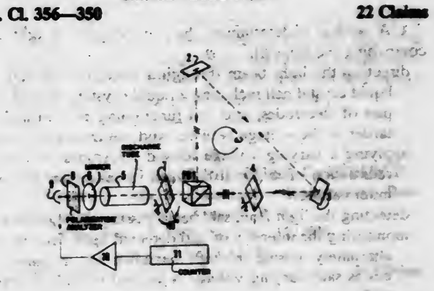
adjusting the optical path length of the comparison beam until the interference pattern indicates that the difference in optical path lengths of the beams is zero.

4,272,194

ROTATION SENSITIVE RING LASER SYSTEM

John G. Gievers, Rochester, Mich., assignor to Christa L. Gievers, Rochester, Mich.

Filed Sep. 5, 1978, Ser. No. 939,250
Int. Cl.³ G01C 19/64
U.S. Cl. 356—350 22 Claims



1. A rotation sensitive ring laser system comprising

a laser gain medium,

a partially transparent end mirror positioned on one side of said laser gain medium,

a splitting and reunifying device positioned on the opposite side of said laser gain medium for splitting a beam of polarized light from said laser gain medium into two orthogonal linear polarized components comprising an ordinary ray and an extraordinary ray, and for reunifying said components,

a plurality of means defining reflective surfaces positioned in a manner such as to provide an optical loop defining a closed path for said components of light to transit in opposite directions,

said splitting and reunifying device being positioned in said loop,

said laser gain medium being positioned externally of said loop and directing light to the splitting and reunifying device and receiving light from the splitting and reunifying device,

and means between the gain medium and the splitting and reunifying device for converting the light emanating from the loop that has been circularly polarized in response to rotation of the loop in inertial space into linearly polarized light, the plane of oscillation of which is rotating at an angular rate proportional to the angular rate with which the system is rotating in inertial space, and for converting said previously converted linearly polarized light as it

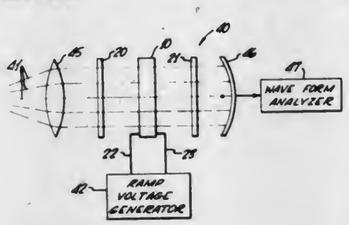
returns from said laser gain medium into circularly polarized light rotating in the opposite direction from the circularly polarized light emanating from the loop such that each component of light which is circularly polarized by rotation in inertial space always travels in the same direction around the loop and the phase shift angle between the two components of light caused by the angular rate at which the system is rotating in inertial space successively increases with each successive path around the loop.

4,272,195

METHOD AND APPARATUS FOR DETERMINING THE WAVELENGTH OF LIGHT

Wilbur I. Kaye, Corona Del Mar, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jun. 5, 1979, Ser. No. 45,722
Int. Cl.³ G02F 1/13
U.S. Cl. 356—368 **10 Claims**



1. A method of determining the wavelength of a light beam comprising the steps of:
directing the light beam through a liquid crystal cell, said liquid crystal cell including a liquid crystal material and a pair of electrodes, said cell functioning as a variable retarder as the voltage between said electrodes is varied;
applying a varying voltage to said electrodes to vary the retardation of said cell between its maximum and minimum values;
detecting the light from said beam passing through said cell;
monitoring the intensity of said detected light, said intensity alternately passing through maximum and minimum values as said varying voltage is applied to said electrodes; and
determining the number of times said intensity alternates between said maximum and minimum values as said retardation of said cell is varied between its maximum and minimum values.

4,272,196

OPTICAL SIZING MASK AND PROCESS

Guy Indebetouw, Blacksburg, Va., assignor to Lasag S.A., Thun, Switzerland

Filed Jan. 12, 1979, Ser. No. 3,027
Int. Cl.³ G01B 11/30
U.S. Cl. 356—371 **12 Claims**



10. An optical measuring process for determining the absolute size of an object as compared to a reference object comprising the steps of:
(a) projecting a group of regular interference fringes in uniform linear translation toward the reference object;
(b) observing by an optical system non-perpendicular to the direction of projection of the fringes an image formed by the fringes projected by the reference object;
(c) detecting a light signal of the image at a point;
(d) projecting the group of regular interference fringes in uniform linear translation toward the object to be measured;
(e) observing by the optical system an image formed by the fringes projected by the object to be measured;
(f) detecting a light signal of the image at a point; and
(g) comparing a phase of the light signal of the image of the reference object at the point to the phase of the light signal of the image of the object to be measured at the point, thereby determining the absolute difference in size at the point of the object to be measured as compared to the point of the reference object.

4,272,197

APPARATUS AND METHOD FOR MEASURING THE RATIO OF TWO SIGNALS

Karl Knop, Zurich, Switzerland, assignor to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 866,651, Jan. 3, 1978, abandoned. This application Aug. 28, 1979, Ser. No. 70,514
Int. Cl.³ G01N 21/59
U.S. Cl. 356—434 **9 Claims**

1. An apparatus for determining the ratio of two signals each at a continuous amplitude level comprising:
means for chopping one of said signals;
means for combining the chopped one signal and the other signal to generate a composite signal;
means for logarithmically amplifying said composite signal to produce an output signal having an alternating amplitude level component and a continuous amplitude level component, said alternating amplitude level component being a function of the ratio of said two signals; and
means for producing an output manifesting the amplitude of the alternating amplitude level component of said output signal

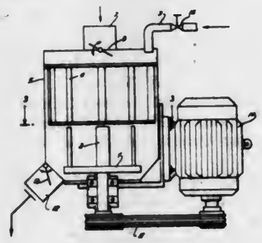
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4,272,198

DEVICE FOR THE DISPERSION OF CEMENT SOLUTIONS

Dancho N. Velikov, St. Zagora; Kancho T. Kanchev, Gabrovo; Stanislav A. Ivanov, Sofia; Ilye H. Ivanov, and Hristo D. Tepavicharov, both of Gabrovo, all of Bulgaria, assignors to VMEI (Vish Maschinno-Elektrotechnicheski Institute), Gabrovo, Bulgaria

Filed May 29, 1979, Ser. No. 43,011
Claims priority, application Bulgaria, May 26, 1978, 39860
Int. Cl.³ B28C 5/08
U.S. Cl. 366—65 **5 Claims**



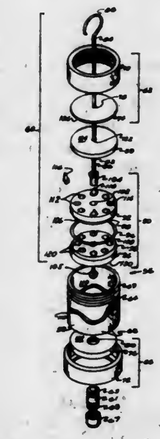
1. A device for forming and dispersing cement solutions, comprising a vertical barrel, a wheel mounted to rotate about a vertical axis within the barrel generally coaxial thereof and adjacent the bottom thereof, the wheel having a hub, a plurality of first blades mounted on the hub parallel to the axis of the wheel and spaced circularly of the hub, the first blades being wedgeshaped and having sharp edges on the portions thereof which lead during rotation of the wheel, means for feeding and water into the top of the barrel, fixed annular means in the upper part of the barrel coaxial with the wheel for directing the cement and water to the first blades on the wheel.

4,272,199

MIXING CONTAINER

Horace A. Hade, 6303 Valley Dr., R.R. #2, Grabill, Ind. 46741

Filed Feb. 27, 1976, Ser. No. 662,144
Int. Cl.³ B01F 7/00
U.S. Cl. 366—130 **6 Claims**



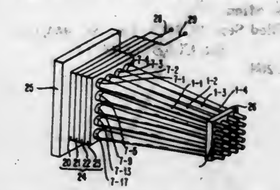
1. A container for storing and mixing two or more incompatible materials, said container comprising an exterior container containing one material having top and bottom ends, at least one interior breakable container containing another material within said exterior container, a rotatable member within said exterior container, means for allowing said rotatable member to be positioned in surface to surface contact with one of said container ends, said rotatable member having thereon means for breaking said interior breakable container, said rotatable member also having thereon means for mixing said material of said breakable container with said material of said exterior container within said exterior container, nozzle means at said bottom end for dispensing said materials from said container, said container having an aperture in said top end, a shaft journaled in said aperture, one of said shaft ends being within said exterior container, said rotatable member including a top member and a bottom member, said bottom member being secured to said one shaft end, said top and bottom members each having a plurality of apertures therein, said breaking means including a plurality of spikes extending from said rotatable member toward said top end, whereby said materials can be essentially completely dispensed from said exterior container, and means engaging said spikes for holding said top member from rotation upon the rotation of said shaft and said bottom member.

4,272,200

HORN LOADED PIEZOELECTRIC MATRIX PRINTER DRIVE METHOD AND APPARATUS

Walter H. Hehl, Steinenbronn, Fed. Rep. of Germany, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 2, 1978, Ser. No. 957,260
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1977, 2756134
Int. Cl.³ B41J 3/10
U.S. Cl. 400—124 **3 Claims**



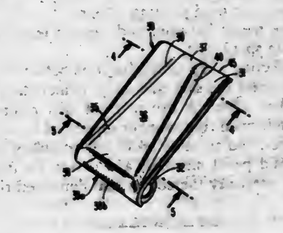
1. Piezoelectrically operated drive apparatus for matrix printer elements, comprising:
a tapered, horn shaped body of material having a base surface input end and a surface output end located at opposite ends of said horn shaped body;
a piezoelectric crystal structure energizable by electric current attached to said base surface input end of said horn shaped body; and
means for applying controlled electrical pulses being of rectangular form and of controlled duration and applied in a plurality of steps in which the voltage level of said steps increases in amplitude to generate a controlled stroke response at the output end of said horn body.

4,272,201

RIBBON SHAPER FOR TYPEWRITER CARTRIDGE

Donald J. Steger, Corinth, Ky., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,800
Int. Cl.³ B41J 35/28
U.S. Cl. 400—208 **14 Claims**



1. In a ribbon cartridge for retaining and supporting a ribbon in a typewriter, said cartridge comprising spaced apart top and bottom walls and a side wall joining said top and bottom wall adjacent the periphery thereof to form a chamber, said side wall being discontinuous at predetermined locations to form at least entrance and exit apertures for a ribbon, and at least ribbon take up spool means in said chamber in communication with said ribbon entrance aperture, an improvement comprising: a ribbon shaper disposed intermediate said entrance aperture and said take up spool, said ribbon shaper comprising a longitudinally extending base portion extending inwardly into said chamber; an upstanding longitudinally diverging rib portion on the base portion, said rib portion including a planar upper surface which because of said divergence is fruto-triangular in plan, the narrower portion of said upper surface being closer to said entrance aperture than the wider portion; and

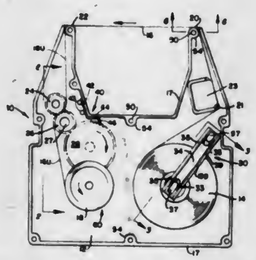
diverging side walls on said rib portion extending from said upper surface to said base portion whereby ribbon entering said entrance aperture tends to spread due to the pressure exerted against said rib and due to the divergence of said planar upper surface and the divergence of said side walls.

4,272,202

RIBBON CARTRIDGE WITH BROKEN UNIDIRECTIONAL FRICTION DRIVE AND SELF CLEANING GEARS

Marvin C. Schroeder, Mission Viejo, and Edwin O. Stastny, Santa Ana, both of Calif., assignors to Data Card Corporation, Minneapolis, Minn.

Filed Sep. 20, 1978, Ser. No. 944,162
Int. Cl.³ B41J 33/14
U.S. Cl. 400—208 18 Claims



1. A cartridge for printing ribbon comprising:
a main panel member;
a secondary panel member;
means for interlocking said panel members together to form a container cartridge;
a printing ribbon supply rotatably mounted between said panel members;
brake means associated with said printing ribbon supply which is biased for engagement therewith whenever the cartridge is not in working position with a printing device in order to prevent inadvertent unwinding of the printing ribbon;
guiding means for said printing ribbon;
capstan feed means for said printing ribbon;
a take-up spool for used printing ribbon;
positive drive means between said capstan feed means and said take-up spool; and,
means for effecting a slip clutch function between said positive drive means and said take-up spool including a central hub member which is driven from said positive drive means, a deformed ring member supported by said central hub member, and an outer spool hub rotatably supported between said panel members and driven by friction engagement internally thereof by said deformed ring member.

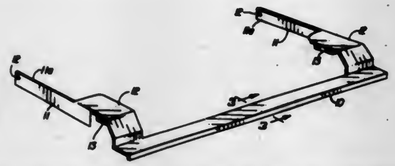
4,272,203

APPARATUS FOR ADAPTING AN OFFICE MACHINE TO ONE-HANDED OPERATION

Kenneth B. Diamond, and Lynda R. Diamond, both of 3102 W. Augusta, Phoenix, Ariz. 85021

Filed Feb. 21, 1979, Ser. No. 13,155
Int. Cl.³ B41J 25/08, 29/00
U.S. Cl. 400—272 1 Claim

1. Apparatus for modifying a key-operated office machine, said machine including,
a plurality of finger-operated keys arranged to form a keyboard, and
a cabinet enclosing said machine, including means defining a horizontal edge of said cabinet extending across the rear of the keyboard,
said apparatus being quickly and conveniently installed on said office machine without requiring physical modification thereof and being arranged to permit selected ones of said keys to be manually depressed by a body member of the operator of said machine while simultaneously depressing one of the character keys, said apparatus comprising:
(a) a substantially rigid depressible bar member shaped and dimensioned to be operatively positioned horizontally across and below said keyboard;
(b) a pair of substantially rigid mounting arms attached to and extending perpendicularly to said bar member, each of said arms terminating in means shaped and dimensioned to detachably engage said horizontal edge of said machine cabinet, to position said bar member in said operative position and permit vertical movement thereof said arms shaped and dimensioned to pivot about said horizontal



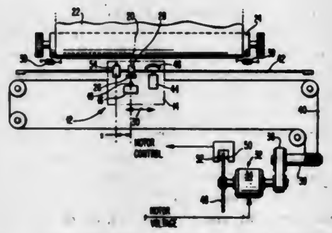
edge when said bar member is depressed and engaging said cabinet without structural modification thereof;
(c) a key depressor member operatively associated with said bar member and said arms, said depressor being located above at least a selected one of the keys of said office machine and operable when said bar member is depressed to depress said selected key;
(d) means for normally urging said bar member and said key depressor upwardly to prevent said key being depressed until downward pressure is exerted on the bar member by the operator, said elastic means attached to the key depressor and contacting said key and generating an upward force on said bar member; and
(e) said key depressor operable when said bar member is depressed to compress said elastic means, said elastic means depressing the key in contact therewith.

4,272,204

AUTOMATIC MARGIN DETERMINING APPARATUS FOR A SCANNED SHEET OF PAPER

Paul A. Quinn, Jr., and Walter J. Wipke, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 21, 1978, Ser. No. 972,100
Int. Cl.³ B41J 21/02
U.S. Cl. 400—342 9 Claims



1. An automatic margin determining apparatus for a typewriter including:
a platen for supporting a sheet of paper thereon;
a carrier having printing means thereon for printing indicia on the sheet of paper supported on said platen;

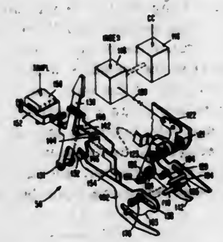
drive means for effecting relative movement between said carrier and said platen;
optical sensing means on said carrier for relative translation therewith;
means coupled to said sensing means for providing a first output signal indicative of the left edge of said sheet of paper and a second output signal indicative of the right edge of said sheet of paper upon relative translation of said carrier and platen;
means for producing a third signal indicating the position of said carrier relative to said platen during relative movement therebetween;
means for producing from said first, second and third signals, a signal including the position of said carrier with respect to said paper edges;
and margin determining means including programmable means for setting a predetermined value distance from said left and right edges of said paper, and means to combine said predetermined value with said left edge position to indicate and define a left margin location, and to combine with said right edge position to define the location of the right margin relative to the paper.

4,272,205

SIGNAL CONTROLLED INDEXING RATE SHIFTER FOR A TYPEWRITER

John J. Biscaro, and Charles D. Bleau, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 26, 1978, Ser. No. 945,953
Int. Cl.³ B41J 19/76
U.S. Cl. 400—575 7 Claims



1. A paper indexing device for a typewriter of the kind having a platen that serves in defining a paper feed path and is rotatable to advance paper past a printing line, said indexing device comprising:
a ratchet wheel connected to rotate with said platen;
a pawl moveable to engage and transmit drive motion to said ratchet wheel;
signal activated drive means for moving said pawl in a reciprocating drive motion;
follower means coupled to said pawl for influencing the amount of motion transmitted from said pawl to said ratchet wheel in accordance with a follower path;
a first cam that is moveable to define a plurality of individual follower paths corresponding to respective paper indexing rates;
a second cam for defining a follower path corresponding to a preselected paper indexing rate;
means responsive to a control signal, for selecting a cam to define the operative follower path for said follower means whereby a signal-controlled change in paper advance rate is provided which does not disturb the rate selection at said first cam.

4,272,206

SAFETY INK PEN

J. Paul Troxa, 9025 St. Bernard Ave., New Orleans, La. 70119

Filed Oct. 30, 1978, Ser. No. 955,804
Int. Cl.³ B43K 24/06
U.S. Cl. 401—165 7 Claims



1. A retractable ink pen, comprising:
a. an outer, longitudinally elongated body having an exterior surface;
b. an inner, ink containing cartridge located within said body, said cartridge being provided with a lower ink dispensing tip portion, said cartridge being movable with respect to said outer body between a first, operative writing position in which said tip portion extends out of said body and a second, non-operative, retracted position in which said tip portion is located within said body;
c. a resilient clip associated with and movable with respect to a portion of said exterior surface of said outer body when said ink cartridge is moved between its operative and non-operative positions, said clip extending over a portion of said body and having an entry end for attaching said ink pen to for example a shirt pocket; and
d. movable blocking means fixedly attached to said body and extending radially out from the exterior surface of said body for blocking said entry portion and preventing the attachment of the ink pen to for example a shirt pocket when the tip portion is in its operative position, said blocking means then being located immediately outside of and in front of said entry portion and comprising a radially, exteriorly projecting guard member fixed to said outer body, said guard member being longitudinally aligned with and located right in front of the entry end into said clip when said tip portion is in its operative, writing position but being positioned away from said entry end when the pen is in its non-operative, retracted position, the relative movement of said cartridge with respect to said body simultaneously occurring with the relative movement of said blocking member and said clip.

4,272,207

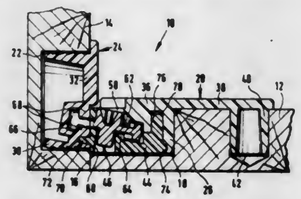
JOINING DEVICE

Karl Lautenschläger, Rolshain, Fed. Rep. of Germany, assignor to Karl Lautenschläger KG Möbelbeschlagfabrik, Rolshain, Fed. Rep. of Germany

Filed Dec. 28, 1978, Ser. No. 974,042
Claims priority, application Fed. Rep. of Germany, Aug. 22, 1978, 2836678
Int. Cl.³ B25G 3/00
U.S. Cl. 403—231 14 Claims

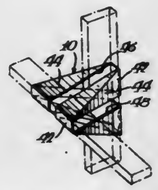
1. A joining device for joining first and second board like furniture parts meeting at an angle, preferably at right angles, with respect to each other, comprising: first and second fittings adapted to be mounted fixedly into first and second furniture parts respectively in said first and second furniture parts, said first

fitting comprising a turn wedge with a spiral-shaped locking wedge which is mounted in said first fitting for turning out of a starting position in which it is turned back into said first fitting, into a locking position in which it emerges from said first furniture part, said second fitting having in its surface facing said first fitting an elongated undercut recess into which the locking wedge can engage, said first and second fittings being in the form of substantially cylindrical, plastic drive-in cups adapted to be inserted into said first and second mortises respectively, said first and second mortises having orifices on one side face of said first and second furniture parts respectively, said first mortise being broken-through to an edge of said first furniture part for the passage of said turn wedge, and said first fitting having a flattened portion at its side associated with said break-through such that the flattened portion open for the passage of the turn wedge is approximately flush with



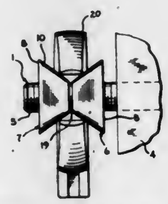
said edge when in its proper position of assembly, said locking wedge being formed by a marginal molding projecting in opposite directions over more than 180° from the marginal portion of a disk-like base part provided with pivots for mounting in said first fitting, said marginal molding having surfaces on opposite sides of said base part, which surfaces extend spiral-like and face said pivots and engage behind inner surfaces of two locking abutments projecting from opposite lateral surfaces of said elongated recess in said second fitting, said first fitting being composed of a cup having a bottom and integral therewith a circumferential wall which is cylindrical with the exception of said flattened portion and which is open on the side opposite to said bottom, and an obturator inserted in the open side of said cup, and bearings for the pivots of the turn wedge being provided in said bottom and in said obturator.

4,272,208
CONNECTOR DEVICE
Dixon J. Jones, Box 80023, Fairbanks, Ak. 99708
Filed May 5, 1980, Ser. No. 146,252
Int. Cl.³ F16B 7/00
U.S. Cl. 403—396 **6 Claims**



4. A device for connecting a pair of members of rectangular cross-section having their longitudinal axes perpendicular to each other, each member having an outer surface and a pair of parallel side surfaces, said device comprising a unitary thin sheet formed into the general shape of the surface of a hexahedron having two parallel rectangular faces and four trapezoidal faces, the rectangular faces being oriented with their longitudinal axes perpendicular to each other; a first slot through one of said rectangular faces and one pair of trapezoidal faces, said first slot being perpendicular to the longitudinal axis of said one face and extending to and having the width of the other of said rectangular faces; a second slot through the other of said rectangular faces and through the other pair of trapezoidal faces, said second slot being perpendicular to the longitudinal axis of said other face and extending to and having the width of said one rectangular face; each of said connected members being received in a respective slot with its outer surface engaged by and secured to the rectangular face at the bottom of the slot, and its parallel side surfaces contacted and engaged by edges of said sheet.

4,272,209
ANTI-VANDALISM NUT ASSEMBLY
Daniel Joseph, Jr. II, Ojo Caliente, N. Mex., assignor to Roland C. Zinn, Tesuque, N. Mex.
Filed Feb. 22, 1978, Ser. No. 880,216
Int. Cl.³ F16B 33/00
U.S. Cl. 403—408 **1 Claim**



1. A bolt and nut assembly to secure a structure member such as a sign or the like to a support member to prevent removal by vandals, comprising a bolt having head means engaging one of the members and a threaded shaft extending through the other member and projecting outwardly therefrom, an inner nut threaded onto the shaft and disposed to be seated in engagement with the structure to secure the latter in place, the inner nut having an outer facing surface of a generally pyramid-like configuration normally non-gripping by a conventional tool to rotate the inner nut into or out of seated position with respect to the members, a second nut threaded onto the shaft outwardly of the inner nut and acting as in implements in combination with a conventional tool actuated between the inner and outer nut in engagement with both nuts when slightly spaced apart to rotate the inner nut into a seated position or to remove the inner nut from the seated position, and the outer nut being removable from the shaft of the bolt when not in use.

4,272,210
INTERCHANGE SYSTEM
Sanae Shoji, 5-25 Sumiyoshicho, Numazu-shi, Shizuoka-ken, and Shigeo Shoji, 46-5 Nishi-Tsutsujigaoka 1 chome, Chofu-shi, Tokyo, both of Japan, assignors to Sanae Shoji; Kunio Shoji; Michio Shoji, all of Numazu and Shigeo Shaji, Tokyo, all of, Japan
Filed Sep. 6, 1979, Ser. No. 73,142
Claims priority, application Japan, Sep. 12, 1978, 53-111271
Int. Cl.³ E01C 1/04
U.S. Cl. 404—1 **4 Claims**

1. An interchange system serving elevated railways, roadways and pedestrian paths formed along the opposite sides of the roadways, which interchange system comprises:

a rotary roadway constructed at a level above the ground surface providing a cylindrical hollow space formed at the center thereof, an annular bus stop compound formed along the periphery of the cylindrical hollow space, and an annular vehicular lane formed along the circumference of the annular bus stop compound and adapted to admit one-way traffic of vehicles,

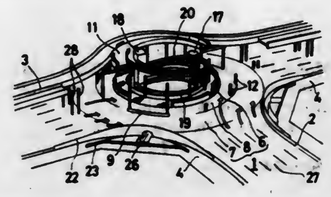
an annular platform including a railway station and located directly above the annular bus stop compound at a level

convenient for users of railcars to enter or leave railcars stopped along the platform,

a circular plaza located in said hollow space a small depth below the ground surface,

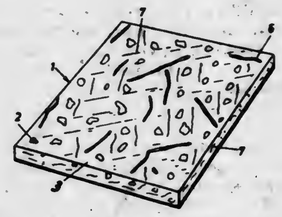
interconnecting passages located in said hollow space providing communication among the circular plaza, the annular bus stop compound, and the annular platform for railcars,

tunnel-like radial pedestrian passages located under the rotary roadway a substantially level connection between the circular plaza and pedestrian decks formed along the opposite sides of the roadways, and



gradual slopes formed across the borderlines of the rotary roadway laid on the ground surface and converging into the rotary roadway so as to smooth the entry into and departure from the rotary roadway of traffic streams, whereby communication between the pedestrian paths running along the opposite sides of the roadways is attained through the medium of the tunnel-like pedestrian passages and the circular plaza, and whereby the hollow space is utilized as a means for providing access amongst the vertically separated circular plaza, rotary roadway and annular platform.

4,272,211
WEAR RESISTANT SLAB
Erik A. Sabel, Industrigatan, S-531 01 Lidköping, Sweden
Filed Feb. 13, 1979, Ser. No. 11,860
Claims priority, application Sweden, Feb. 27, 1978, 7802179
Int. Cl.³ E01C 11/24
U.S. Cl. 404—21 **10 Claims**



1. A method of making a wear-resistant slab which comprises, rapidly quenching austenitic molten cast iron by contacting said molten cast iron with water to produce martensite granules of extremely high hardness, and embedding said granules in a slab-forming body of material selected from the group consisting of synthetic resin and rubber having a lower specific weight than said granules, with said granules concentrated at the upper face of said slab, lower portions of said slab being substantially free of said granules.

4,272,212
METHOD AND APPARATUS FOR REJUVENATING AND RECYCLING ASPHALT
Andrew J. Bauer, Jr., 7937 Arnoldtown Rd., Louisville, Ky. 40214, and John N. Doering, Louisville, Ky., assignors to Andrew J. Bauer, Jr.; Andrew J. Bauer, III, both of Louisville, Ky.; Harold G. Shaw, Sr., Jeffersonville, Ind. and Fred W. Balke, Crestwood, Ky., part interest to each
Filed Jun. 15, 1979, Ser. No. 48,841
Int. Cl.³ E01C 7/24, 19/10
U.S. Cl. 404—72 **21 Claims**



1. A process for recycling asphalt, the steps of which comprise

(A) providing a quantity of crushed asphalt previously removed from a paved surface,

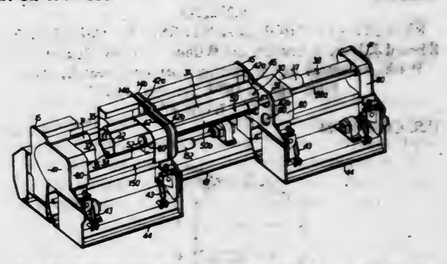
(B) mixing said quantity of crushed asphalt with a quantity of water to provide an intermediate mixture, and, thereafter

(C) mixing a quantity of calcium oxide with said intermediate mixture to form a resultant mixture,

(D) mixing a quantity of asphalt oil with said resultant mixture to form a bondable, asphalt based compound, and

(E) applying said compound to a prepared surface after the temperature of said compound has reached a level suitable for such application.

4,272,213
EXTENDIBLE SCREEDS
Roy R. McGovarin, Rainham, Great Britain, assignor to Blaw Knox Limited, Rochester, England
Filed Jul. 10, 1979, Ser. No. 56,208
Int. Cl.³ E01C 19/22
U.S. Cl. 404—118 **7 Claims**



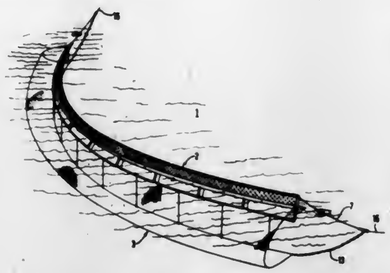
1. A road paving machine having, extending across the rear of the machine, a screed of which the effective overall width is variable and comprising a first part and a second part extending, and reciprocable, along the first to vary the overall width of the screed, the second part being carried from the first by a telescopic support extending in the direction of the width of the screed and of which the outer section is fixed relatively to one of the parts and co-operates with a member that is fixed relatively to the other of the parts, the outer section having an outer surface that is non-circular in cross-section and the member co-operating with the outer surface in such a way that rotation of the member around the section is prevented but sliding of the member along the section is permitted, and means acting between the parts by which one may be slid along the other.

4,272,214

FLOATING FENCE FOR THE COLLECTION OF LIQUID IMPURITIES AS FOR EXAMPLE OIL ON A WATER SURFACE

Harry Nyfeldt, Box 20, S 430 82 Donsö, and Klas Y. T. Bernhardsson, Hus 81, S 430 92 Fotö, both of Sweden

Filed Nov. 5, 1979, Ser. No. 90,897
Claims priority, application Sweden, Nov. 6, 1978, 7811433
Int. Cl.³ E02B 15/04
U.S. Cl. 405—72 8 Claims



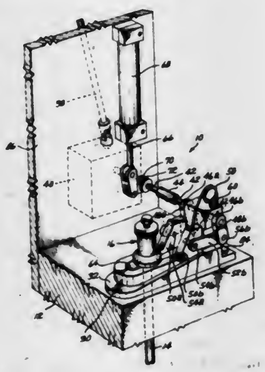
1. Floating fence for the collection of impurities such as oil floating on the surface of a liquid, characterized by comprising a wall (2) intersecting the surface (1) of the liquid and being impermeable in the portion thereof above the surface of the liquid, float bodies (6) carrying said wall, a net (3) having one longitudinal edge attached to a portion of said wall positioned close to the surface of the liquid and another lower longitudinal edge portion provided with a ballast (13) in such a manner that an inlet opening is formed between the lower edge portion of said wall and the lower longitudinal edge portion of said net which results in a bulge being formed by the net behind the wall due to the existing pressure of the liquid when the fence is in use, a towing or anchoring cable (7;13) extending through the upper edge portion of the wall and the lower edge portion of the net, and interspaced suspension cables (14) connecting the lower edge portion of the wall and the lower edge portion of the net.

4,272,215

REMOTE CONTROL COUNTERSINK ADJUSTMENT

Edward J. Davert, Seattle, and Wilbur L. Gants, Renton, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Apr. 2, 1979, Ser. No. 26,122
Int. Cl.³ B23B 47/00
U.S. Cl. 408—14 3 Claims



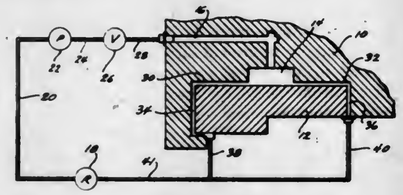
1. A device for remote control of countersink depth on an automatic riveting maching comprising: a reversible motor, a shaft driven by the motor, a pair of wedges mounted one on top of the other with the wedges having aligned slots, linkage extending from the shaft to reciprocally move the upper wedge in response to motor rotation to vary the heighth of the upper surface of the upper wedge, a second linkage extending from the shaft to reciprocally drive a rod a distance relative to the movement of change in the wedge as the shaft rotates, means for converting rod movement into an electrical signal for a readout to directly show heighth change in the wedge, and the wedges located to accept a spindle of an automatic riveting machine through the slots and the top surface of the upper wedge to act as a stop for downward movement of the spindle to control countersink depth.

4,272,216

MACHINE TOOL LUBRICATION SYSTEM

John G. Osburn, Milwaukee, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.

Filed Dec. 20, 1978, Ser. No. 971,351
Int. Cl.³ B23Q 4/12
U.S. Cl. 409—132 5 Claims



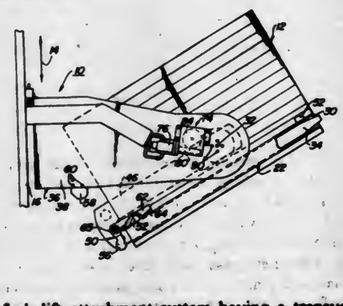
1. A method of lubricating a bearing on a machine tool slide, said machine tool including means for commanding motion of said slide toward a predetermined position, and means for applying a lubricant under pressure to said bearing, said method comprising the steps of applying a lubricant under pressure to said bearing when motion of said slide is commanded, reducing the pressure of said lubricant applied to said bearing when the velocity of said slide is accelerated to a predetermined value, increasing the pressure of said lubricant applied to said bearing when the velocity of said slide is decelerated to a predetermined value, and reducing the pressure of said lubricant to said bearing when said slide arrives at its commanded position so that the acceleration and deceleration of said slide occurs in a smooth and uniform manner.

4,272,217

FORK LIFT ATTACHMENT SYSTEM

Robert Sefcik, 3 Briar La., Cherry Hill, N.J. 08002

Filed Feb. 22, 1978, Ser. No. 880,192
Int. Cl.³ B65G 65/34
U.S. Cl. 414—420 12 Claims



1. A fork lift attachment system having a transverse axis adapted to be mounted to a fork lift truck used for vertically displacing a container in a reversible manner with respect to a horizontal plane comprising:

(a) means for releaseably mounting said container to said fork lift attachment system including (i) a pair of longitudinally extending arm members, said arm members being transversely displaced each from the other and (ii) a pair of container insert members fixedly secured to opposing transverse sides of said container, said insert members adapted for insertion of said arm members, and including a pair of channel members each having a longitudinally extending through passage for insert of said arm members,

(b) means for reversibly rotating said container about a first axis line, said first axis line extending (1) substantially normal to said vertical displacement and (2) substantially parallel to said transverse axis subsequent to said container being mounted to said fork lift attachment system

(c) a vertically displaceable frame member mounted to said fork lift truck, said arm members being rotatably displaceable with respect to said frame member about said first axis line,

(d) means for releaseably capturing said container including (i) at least one lug member fixedly secured to at least one channel member, and (ii) cam means secured to said frame member and at least one arm member for acting in cooperative relation with said lug member for maintaining said container in fixed constrainment to said arm member when said container is rotationally displaced, said cam means including, (A) a cam member fixedly secured to said frame member, and (B) a cam follower member rotatably secured to said arm member for intercepting a path displacement of said lug member when said container is rotatively displaced.

4,272,218

APPARATUS FOR TRANSPORTING A WHEELCHAIR UPON AN AUTOMOBILE

Robert A. Carter, 611E N. 16th St., Phoenix, Ariz. 85006

Continuation-in-part of Ser. No. 850,188, Nov. 10, 1977, abandoned. This application Oct. 30, 1978, Ser. No. 955,892
Int. Cl.³ B60R 9/00
U.S. Cl. 414—462 12 Claims



1. Apparatus for raising an article from a ground position to an engaged position for transport upon the roof of a motor vehicle which comprises:

(a) a supporting base adapted for mounting upon the roof of the motor vehicle, said supporting base having a first edge portion proximate to one side of the motor vehicle and an opposing second edge portion;

(b) a frame member having a first end and a second end, the first end being rotatably mounted to the supporting base adjacent the first edge portion;

(c) cable guide means affixed to the second end of said frame member;

(d) a support cable extending through said guide means and having a free end adapted for attachment to the article, and an opposing end;

(e) stop means secured to said support cable for preventing movement of the free end of said cable through the guide means;

(f) cable reel means attached to said apparatus for receiving the opposing end of said support cable, the actuation of said cable reel means causing an attached article to change elevation, the movement of cable through said guide means being limited by the stop means;

(g) drive means for rotating the frame member between a transport position overlying the vehicle roof and an extended position with the second end thereof extending outwardly of the motor vehicle; and

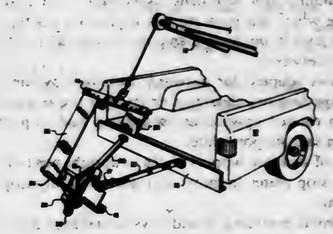
(h) engaging means mounted between the first and second ends of said frame member for engaging the article as said frame member is being rotated to the transport position.

4,272,219

VEHICLE TOWING APPARATUS

William M. Hill, Jr., 1414 N. Zang, Dallas, Tex. 75203

Continuation of Ser. No. 836,360, Sep. 26, 1977, abandoned. This application Feb. 21, 1979, Ser. No. 13,439
Int. Cl.³ B60P 3/12
U.S. Cl. 414—563 8 Claims



1. Apparatus for directly lifting and towing one end of a vehicle between its chassis and bumper by a towing truck without the connection of conventional chains, said apparatus comprising:

a tow sling attached to the towing truck;

a transverse tow bar attached to said tow sling for supportive engagement by the towing truck;

a mounting rib upstanding from the tow bar said rib being in demountable coupling therewith for permitting utilization of said tow bar without said rib, adapted for engaging the vehicle to be towed adjacent to a bumper thereon and between the bumper and vehicle chassis, thereby securing said bumper to the tow truck for towing without the connection of the conventional chains; and

said mounting rib comprising a stationary rigid beam structurally coupled to said tow bar and including a notched section formed centrally thereof for receiving structural frame members attached to said vehicle between its chassis and bumper for applying a horizontal force to the forward surface of the bumper to tow the vehicle.

4,272,220

DRUM LIFTER FOR FORK LIFT TRUCK

Jose M. Garcia, Miami, Fla., assignor to Equipment Company of America, Hialeah, Fla.

Filed May 4, 1979, Ser. No. 35,883
Int. Cl.³ B66F 9/18
U.S. Cl. 414—607 27 Claims



1. A drum lifter comprising a base including a pair of parallel

spaced fork tubes adapted for receiving at one end and positioning over a pair of vertically adjustable forks of a lift truck, and a support plate spanning and secured to the other ends of said tubes;

spaced apertured support blocks mounted upon said support plate;

a pipe extending through a secured to said blocks;

upright stops on said support plate spaced from said support blocks respectively;

a pair of spaced sleeves journalled upon said pipe between a support block and an adjacent stop adapted for limited rotation upon a horizontal axis;

an upright jaw support plate tangentially secured to each sleeve for rotation therewith;

a pair of laterally spaced opposed arcuate drum-engaging jaws projecting forwardly of said sleeves respectively and pivotally mounted at one end upon said jaw support plates adapted for rotation upon vertical axes;

a stop plate mounted on and extending laterally outward of each jaw adjacent its pivot end and including a rearwardly extending stop abutment engageable with said support plate when said jaws are in a horizontal position holding said jaws in operable clamping engagement with a drum therebetween;

said jaws adapted for outward opening movement for encompassing or releasing a drum after the jaw plates have been rotated upwardly, disengaging said stop abutments from said support plate;

return of said jaw support plates to upright position, causing said stop plates to move said jaws inwardly gripping the drum;

the pivotal mounting of said jaws including a pair of spaced trunnions upon each jaw support plate;

a jaw sleeve mounted on one end of each jaw extending transversely thereof and nested between said pair of trunnions; and a pivot pin extending through said jaw sleeve, and through said trunnions and secured thereto; and

a stop pin extending longitudinally of each jaw sleeve and secured thereto, adapted for operative engagement with the adjacent jaw support plate limiting inward movement of said jaws respectively.

4,272,221

UNDERCARRIAGE FOR ADVERSE TERRAIN VEHICLES

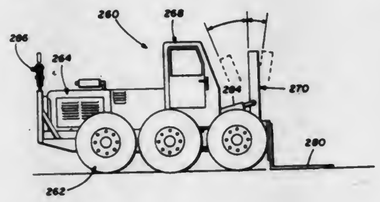
Norman D. Oswald, Duncanville, and Harry S. Mankey, Dallas, both of Tex., assignors to Standard Manufacturing Company, Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 835,726, Sep. 22, 1977, abandoned, which is a continuation-in-part of Ser. No. 799,328, May 23, 1977, abandoned. This application Feb. 6, 1979, Ser. No. 10,084

The portion of the term of this patent subsequent to Jul. 1, 1997, has been disclaimed.

Int. Cl.³ B62D 11/02

U.S. Cl. 414—634 **7 Claims**



1. A rough terrain fork lift truck comprising:

(a) a pair of undercarriage assemblies, each including:

an elongate hollow load-bearing frame;

at least three axle members each having a wheel receiving member at one end thereof;

at least three wheel members each mounted on and secured to a wheel receiving member of an axle member outside said frame;

means rotatably supporting the axle members at longitudinally spaced points along the frame with each of the axle members extending out of the frame and being rotatably supported in at least one side of the frame;

the middle wheel member extending below a plane lying tangent to the bottoms of the end most wheel members to facilitate skid steering of the rough terrain fork lift truck;

transmission means including sprockets and chains positoned within the frame and drivingly interconnecting at least two of the axle members; and

drive means including a motor mounted on the frame and operably connected to the transmission means for actuation thereof whereby the drive means and the transmission means cause concurrent rotation of the interconnected axle members;

(b) an engine supported on the undercarriage assemblies at the rear end thereof;

(c) a fork lift mechanism mounted on the undercarriage assemblies at the front end thereof, the fork lift mechanism including:

a normally vertically disposed mast;

a travelling mechanism supported for vertical movement relative to the mast;

means for selectively raising and lowering the travelling mechanism on the mast;

at least one fork member mounted on the travelling mechanism for vertical movement therewith relative to the mast; and

means for selectively pivoting the mast about a horizontal axis extending parallel to the axle members comprising the undercarriage assemblies.

4,272,222

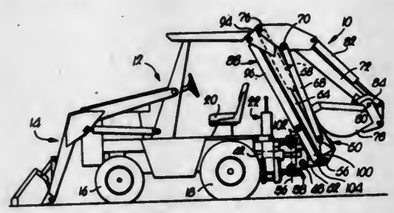
BOOM APPARATUS

Charles J. Davis, Afton, Okla., assignor to The General, Inc., Wichita, Kans.

Filed Jan. 11, 1979, Ser. No. 2,597

Int. Cl.³ E02F 3/74

U.S. Cl. 414—694 **8 Claims**



1. Boom apparatus including:

a support;

a boom mounted on said support for vertical swinging movement relative to the latter about a first horizontal axis;

power means between said support and said boom for effecting said movement of the latter,

said power means being swingable about a second horizontal axis during said movement of the boom,

said boom having a joint therein for articulation about a third horizontal axis spaced outwardly of said first and second axes; and

means for controlling said articulation of the boom during said movement thereof,

said control means comprising a rigid link pivotally connected between said power means and said boom.

4,272,223

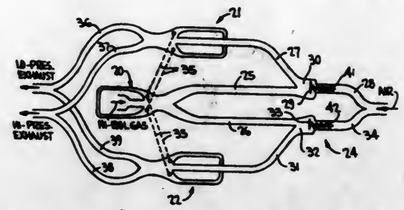
FLUID DYNAMIC ENERGY EXCHANGER

Peter Bauer, 13921 Eworthy Rd., Germantown, Md. 20767

Filed Mar. 30, 1979, Ser. No. 25,714

Int. Cl.³ F04F 11/02

U.S. Cl. 417—54 **11 Claims**



1. Apparatus for transferring energy from a first fluid at relatively high pressure to a second fluid at relatively low pressure comprising:

master commutator means responsive solely to application of said first fluid thereto under pressure for forming a series of discrete spaced slugs of said first fluid;

a fluid passage having first and second ends;

means for establishing compression waves in said fluid passage by delivering said discrete slugs of said first fluid to said first end thereof;

means for admitting said second fluid into said fluid passage between slugs of said first fluid such that said second fluid is pressurized by said compression waves; and

slave commutator means for receiving fluid from said fluid passage at the second end thereof and separating said first fluid from said second fluid.

7. A method for transferring energy from a flowing first fluid at relatively high pressure to a second fluid at relatively low pressure comprising the steps of:

forming a series of discrete spaced slugs of said first fluid at a frequency determined by the flow rate of said first fluid;

establishing compression waves in a fluid passage by delivering said discrete slugs of said first fluid to a first end thereof;

admitting said second fluid into said fluid passage between slugs of said first fluid such that said second fluid is pressurized by said compression waves;

receiving fluid from said fluid passage at the second end thereof and separating said first fluid from said second fluid.

4,272,224

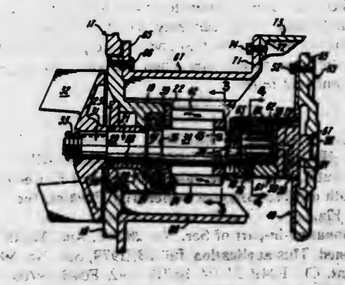
SPLINED SHAFT DRIVING ARRANGEMENT

Walter A. Kabele, Piqua, Ohio, assignor to Roper Industries, Inc. (Ohio), Piqua, Ohio

Filed Aug. 25, 1978, Ser. No. 936,719

Int. Cl.³ F04B 17/00, 39/02

U.S. Cl. 417—360 **23 Claims**



1. A pump unit including a housing embodying impeller means for drawing liquid thereto and delivering the same therefrom, with or without solids, means constituting an adapter for connection with a drive element of any one of a variety of engines, said impeller having a drive shaft in connection therewith and extending therefrom through a wall section of said pump housing, said adapter and said impeller drive shaft including portions formed to provide a male-female interfit producing a connection therebetween which inhibits their relative rotary motion, said connection being provided by a slip fit of one to the other, said interfitting portions defining a lubricant chamber constructed and arranged to accommodate and maintain a storage of lubricant for maintaining the operative condition of these parts and said adapter embodying a relief passage for escape of excess lubricant when said pump is inoperative, said passage being located to preclude escape of lubricant from said chamber and said connection when said pump is operating.

4,272,225

ELECTROMAGNETICALLY-OPERATED FIXED DISPLACEMENT PUMP

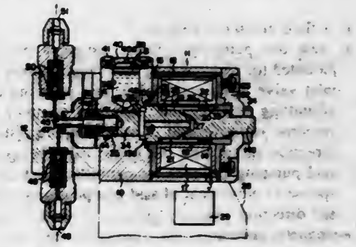
Yoshiaki Fujinaka, Tokyo; Haruo Ohashi, Kawagoe; Masahito Miyazaki, Fujimi; Kenzi Mizuno, Tokorozawa, and Fukuzi Kuwabara, Fujimi, all of Japan, assignors to Iwaki Co., Ltd., Tokyo, Japan

Filed Mar. 30, 1979, Ser. No. 25,550

Claims priority, application Japan, Apr. 8, 1978, 53-41578

Int. Cl.³ F04B 17/04

U.S. Cl. 417—417 **11 Claims**



1. An electromagnetically operated fixed displacement pump comprising:

a body having a bore therein;

a pump head assembly attached to said body and including an inlet, an outlet, valve means and a pump house to contain a pumped fluid;

a solenoid assembly including a solenoid coil surrounding a cylindrical bore, a movable armature slidably disposed in said cylindrical bore surrounded by said coil, return spring for urging the movable armature in one axial direction, stop means for normally holding the movable armature against the biasing force of said return spring in a normal position, a fixed armature axially facing said movable armature and fixedly positioned in said cylindrical bore, said movable armature defining a maximum electromagnetic gap with the fixed armature when the movable armature is in a normal position, and an annular spring chamber for containing the return spring, said annular spring chamber being defined in the said cylindrical bore surrounded by said coil over the outer peripheries of said two armatures;

an intermediate axially and slideably disposed in said bore of said body and being integral with said movable armature for changing the capacity of the pump house in response to the sliding movement of the movable armature, thereby forcing out by regular displacements the fluid to be pumped from said pump house, said intermediate member and said movable armature together forming an integral body;

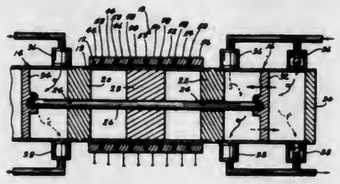
a storage tank mounted in said body for containing a lubricating fluid;
a cross circulation hole mounted across the intermediate portion of said integral body formed of said movable armature and said intermediate member;
fluid communication means for communicating the fluid in said tank with said cross circulation hole; and
an axial circulation hole axially formed in said movable armature and opening at one end into said electromagnetic gap and at the other end into said cross circulation hole.

4,272,226

FLUID PUMP AND METHOD FOR OPERATING SAME

Harry E. Osborne, 1246 Fourth Ave. North, Fort Dodge, Iowa 50501

Filed Jan. 8, 1979, Ser. No. 1,676
Int. Cl.³ F04B 17/04
U.S. Cl. 417—418 7 Claims



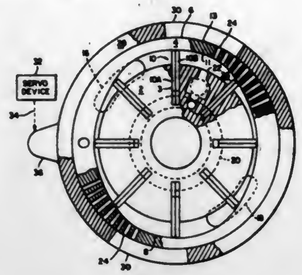
1. A fluid pump comprising:
at least one pumping cylinder having a pumping piston mounted for reciprocating movement therein, at least one inlet valve being provided in said pumping cylinder for permitting entry of fluid into said pumping cylinder in response to movement of said pumping piston in a first direction and at least one outlet valve being provided in said pumping cylinder for permitting exit of fluid in response to movement of said pumping piston in the opposite direction;
a magnetic piston,
a piston rod interconnecting said magnetic piston and said pumping piston for causing them to reciprocate in unison in said first and second directions;
a plurality of separate coils positioned in side by side registered alignment and in surrounding relationship to said magnetic piston;
electrical power means for actuating said coils to cause axial movement of said magnetic piston;
control means connected electrically between said power means and said separate coils for causing sequential actuation of said separate coils to move said magnetic piston back and forth in an axial direction, thereby causing reciprocating movement of said pumping cylinder;
said coils in combination forming a coil cylinder having an axial length greater than that of said magnetic piston whereby only a portion of said coils are located immediately radially outwardly from said magnetic piston for any given position of said magnetic piston,
said control means comprising a clock decoder circuit for causing electricity from said electrical power source to be directed to only a portion of said separate coils at one time in a stepping sequence wherein those of said coils located adjacent said magnetic piston are actuated throughout reciprocating movement of said magnetic piston;
said clock decoder circuit comprises a timing circuit, and a counting and decoding circuit, said control means further comprising a diode matrix circuit connected to said clock decoder circuit, and a plurality of output circuits each of which is electrically connected to one said separate coils.

4,272,227

VARIABLE DISPLACEMENT BALANCED VANE PUMP

Frank Woodruff, New Hartford, N.Y., assignor to The Bendix Corporation, Teterboro, N.J.

Filed Mar. 26, 1979, Ser. No. 23,812
Int. Cl.³ F04B 49/02; F04C 2/00, 15/02
U.S. Cl. 417—440 2 Claims



1. A variable displacement balanced vane pump, comprising:
a cam ring having a pair of diametrically opposed lobes;
a rotor rotatable in the cam ring and having a plurality of radially extending slots spaced equidistantly therearound;
a plurality of vane means disposed in the slots and extending to the inner circumference of the cam ring;
a rotatable control ring in close diametrical fit with the outer circumference of the cam ring;
a pair of port plates sandwiching the rotor and cooperating to provide a pair of diametrically opposed inlet ports and an annular discharge port;
valves carried by passages in the rotor in the space between adjacent vane means and permitting fluid flow radially inward from the inlet ports to the discharge port;
means for rotating the control ring;
means associated with the cam ring and the control ring for providing an alternate fluid flow passage and for thereby regulating fluid flow through the valve upon rotation of the control ring;
said last-mentioned means comprising a first plurality of radially extending holes carried by one portion of the cam ring, a second corresponding plurality of radially extending holes carried by a diametrically opposite portion of the cam ring, the first and second pluralities of holes being in communication with corresponding spaces between the vane means, the control ring carrying a pair of diametrically opposed by-pass ports, and the alternate fluid flow passage being provided upon rotation of the control ring which brings the by-pass ports carried thereby in communication with the first and second pluralities of holes carried by the cam ring; and
the circumference of the contact line between the vane means and the inner circumference of the cam ring being greater than the diameter of the holes in the first and second pluralities of holes to insure a seal with the inner circumference of the cam ring which prevents fluid leakage via the holes in the first and second pluralities of holes past the vane means tips when the vane means tips are adjacent said holes.

4,272,228

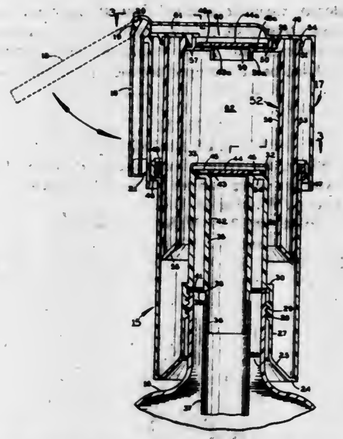
HIGH VOLUME DISPENSING PUMP

Louis F. Kutik, Fort Lauderdale, and Howard E. Cecil, Miramar, both of Fla., assignors to Security Plastics, Inc., Miami Lakes, Fla.

Continuation-in-part of Ser. No. 28,962, Apr. 11, 1979, abandoned. This application Jul. 23, 1979, Ser. No. 59,982
Int. Cl.³ F04B 21/04; B67D 5/42; F04B 19/00
U.S. Cl. 417—460 10 Claims

1. In a pump for expelling fluid product from a container

having a reduced neck leading to an opening at its upper end, said pump comprising:
means defining a variable volume pressurizing chamber with an inlet for receiving the fluid product from the container and an outlet for discharging the fluid product from the pressurizing chamber, said means including a fixed body having means for attaching it to said neck of the container and a manually displaceable plunger slidable downward along said fixed body to decrease the volume of said chamber and increase the fluid pressure therein and slidable upward to increase the volume of said chamber and reduce the fluid pressure therein;
means defining an upwardly-facing annular recess located radially outward from said means for attaching, so as to extend around the reduced neck on the container when said fixed body is attached thereto, said annular recess communicating at its upper end with said pressurizing chamber for the flow of fluid product between them;



said plunger having a depending annular portion thereof slidably received in said annular recess to pump fluid product out of said recess when the plunger is moved down along said fixed body;
an inlet valve at said inlet comprising a valve seat and a movable valve member which is sealingly engageable with said valve seat, said inlet valve being operable to open in response to a pressure decrease in said pressurizing chamber when the plunger moves up and to close in response to a pressure increase in said chamber when the plunger moves down;
and a discharge valve at said outlet comprising a valve seat and a movable valve member which is sealingly engageable therewith, said discharge valve being operable to open in response to a pressure increase in said pressurizing chamber when the plunger moves down and to close in response to a pressure decrease in said chamber when the plunger moves up;

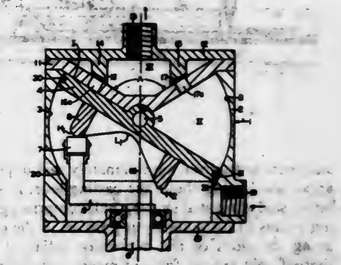
4,272,229

PIVOTAL PISTON MACHINE

Wilhelm Pape, Wuppertal, Fed. Rep. of Germany, assignor to WABCO Westinghouse GmbH, Hanover, Fed. Rep. of Germany

Filed Nov. 30, 1978, Ser. No. 965,203
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1978, 2803853
Int. Cl.³ F04C 9/00; F01C 9/00
U.S. Cl. 417—481 2 Claims

1. A pivotal piston compressor comprising:
(a) a housing having a spherical piston chamber characterized by a continuous seamless surface, an outlet port, and an inlet port formed therein;
(b) a disc-shaped pivotal piston oscillatingly disposed in said piston chamber on an oscillatory axis coinciding with the greatest diameter of said spherical piston chamber;
(c) an annular sealing ring disposed in an annular groove surrounding the periphery of said piston;
(d) a valve plate in the form of a wedge and of V-shaped cross section and disposed in said piston chamber with the apex of the wedge coinciding with said oscillatory axis and serving as an oscillatory pivotal bearing for the pivotal piston,
(e) said valve plate cooperating with said housing to form on one side and within the inner angle thereof a delivery chamber communicating with said outlet port, and cooperating with said housing and pivotal piston to form on the side opposite said one side a pair of compression chambers



communicable with said delivery chamber via respective discharge valves disposed in said valve plate;
(f) each of said compression chambers communicating with said inlet port via respective scavenging ports formed in the inner wall of said housing, and each of said compression chambers being alternately pressurized via said scavenging ports and discharged via said discharge valves by oscillating motion of said piston;
(g) a cylindrical cam extending coaxially from the side of said pivotal piston opposite the compression chambers, said cam having an undulated cam surface characterized by two diametrically opposite high points disposed at 90° relative to two diametrically opposite low points,
(h) a crank arm having a cam roller for making rolling contact with said cam surface; and
(i) a driveshaft for rotating said crank arm for imparting oscillating motion to said pivotal piston.

4,272,230

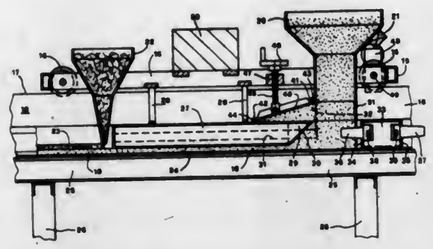
SLIP FORM FOR BUILDING COMPONENTS

Giorgio Abate, Modena, Italy, assignor to Selni Vignola di Faviani Orlando ec Societa, Ancona, Italy

Division of Ser. No. 720,709, Sep. 7, 1976, Pat. No. 4,128,975.
This application May 23, 1977, Ser. No. 799,714
Claims priority, application Italy, Sep. 5, 1975, 40885 A/75; Dec. 18, 1975, 40133 A/75; Dec. 18, 1975, 40232 A/75; Apr. 8, 1976, 40857 A/76
Int. Cl.³ B28B 7/22
U.S. Cl. 425—64 6 Claims

1. A machine for manufacturing prefabricated building components formed of an insulating concrete mix, comprising
means in which to cast said insulating concrete mix, said means comprising an elongation mold having a bottom wall and side walls;
means to cast said insulating concrete mix into said elongation mold along the length thereof;
shaping means to shape the upper surface of the insulating concrete mix when it has been cast within said elongated mold, and to provide at least one deep depression in the concrete mix within said elongated mold, which depres-

sion has a generally rectangular cross section, said shaping means comprising at least one elongated shaping hull, said shaping hull extending below the upper edges of said side walls of said mold, said shaping hull having an upper level, a bottom molding surface, side molding surfaces extending between said upper level and said bottom molding surface, an upstream end and a downstream end, wherein said hull is adapted to form the depression in the cast insulating concrete mix with the depression extending longitudinally of said elongation mold, the upstream end of said hull being provided with means to force the mix downwardly and including a face sloping downwardly



and rearwardly from approximately said upper level, said upper level being above the casting level in said mold;

wherein said elongated shaping hull comprises groove forming means to form undercut grooves in the concrete mix along the sides of the depression adjacent the bottom thereof, said groove forming means comprising a longitudinally extending bulge at the bottom of said side molding surfaces of said elongated shaping hull; and

means to move said elongated shaping hull relative to said elongated mold along a direction parallel to the sides of the mold whereby said hull penetrates into the insulating concrete mix to compress the mix downwardly to form the depression of generally rectangular cross section.

4,272,231

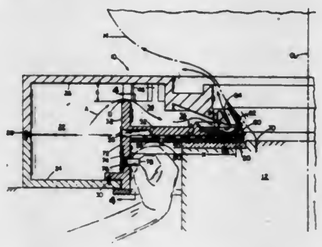
AIR COOLING RING FOR PLASTIC FILM WITH INDEPENDENT LUBRICATING AIR FOR FILM GUIDE SURFACE

Charles M. Schott, Jr., Atkinson, N.H., assignor to Gloucester Engineering Co., Inc., Gloucester, Mass.

Continuation-in-part of Ser. No. 859,824, Dec. 12, 1977, Pat. No. 4,145,177. This application Mar. 15, 1979, Ser. No. 20,793

Int. Cl.³ B29F 3/08; B29D 7/22

U.S. Cl. 425—72 R **4 Claims**



1. In an air ring for cooling the exterior of a hot extruding tube of plastic film, including a ring-form plenum supplied with cooling air, means defining a generally inwardly progressing cooling air flow path receiving air from the plenum and leading to an annular cooling orifice that discharges cooling air into contact with the plastic film, means defining a film guide surface upstream along the film path preceding said orifice, and means for supplying air to move with the film between the film and the guide surface,

that improvement comprising a circumferentially arranged lubricating air bleed port means communicating with air from said plenum independent of said inwardly progressing cooling air flow path, said bleed port means communicating with a bleeded air passage extending inwardly from said bleed port means to an annular lubricating air outlet positioned in advance of said guide surface, and valving means independent of said cooling air flow path for adjusting the flow of bleeded lubricating air, said bleed port means comprising a set of circumferentially spaced-apart discrete holes, said bleed passage being of sufficient length in the direction of flow to enable the discrete flow from said bleed holes, to produce a merged, substantially uniform lubricating flow at said lubricating outlet, said bleed holes being arranged in an annular wall, said valve means comprising a circular array of bleed port closures connected for movement together to simultaneously, dependently vary the bleeded flow through said set of holes, said bleed port closures being moved together by moving a tension band to which said closures are attached, and said band being wrapped around said annular wall.

4,272,232

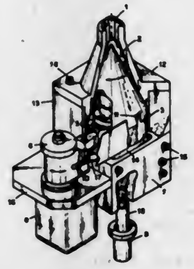
PARTICLE BLENDER

Melvin G. Willey, Knoxville, Tenn., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 7, 1979, Ser. No. 64,592

Int. Cl.³ B29B 1/04

U.S. Cl. 425—200 **10 Claims**



1. A particle blending device comprising:

a vertically disposed cone mounted for rotation about its central axis;

a flexible band connected adjacent one of its ends to said cone and extending circumferentially thereof to form therewith a trough for receiving particles, the other end of said band being pulled so that said cone is rotated and said band moves away from its surface at a predetermined spatial point, whereby particles deposited in said trough are permitted to fall at said point.

4,272,233

MOLD FOR PRODUCING EXTRA THIN WALLED PLASTIC CONTAINERS

Donald D. Cochran, Bartlett, Ill., assignor to National Can Corporation, Chicago, Ill.

Filed Jun. 25, 1979, Ser. No. 51,436

Int. Cl.³ B29C 17/07

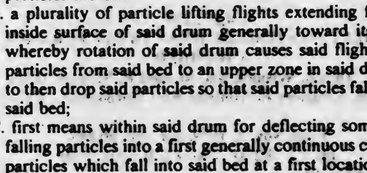
U.S. Cl. 425—526 **6 Claims**

1. A mold assembly for blow molding plastic containers comprising:

a pair of mold halves the respective faces of which when placed in abutting relation form a first cavity, the walls of said cavity defining the configuration of a container to be blow molded therein,

said mold halves defining when in said abutting relation an area adjacent said cavity into which plastic is received during container molding to form a flash cavity connected to one surface of said first cavity by an interconnecting constricted pinch-off cavity,

one of said mold halves having at least one protrusion in said adjacent area thereof extending outwardly from said face



thereof, the other of said mold halves having at least one complementary aligned recess adapted to receive said protrusion, each protrusion and its aligned recess cooperating to define a cavity for a projection in said flash during a container molding,

means for cooling said mold halves, and

each protrusion and its aligned recess being at a location in said flash cavity which is spaced from said pinch-off cavity.

4,272,234

PELLETIZING APPARATUS

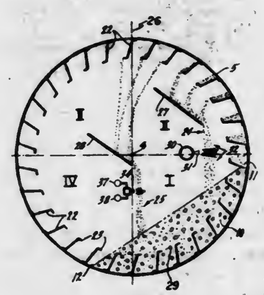
Samuel Y. H. Tse, Calgary, Canada, assignor to Procor Limited, Oakville, Canada

Filed Oct. 25, 1979, Ser. No. 88,235

Claims priority, application Canada, Nov. 6, 1978, 315863

Int. Cl.³ B22F 3/00

U.S. Cl. 425—222 **10 Claims**



1. Apparatus for producing solid pellets, comprising:

A. rotatable, generally cylindrical drum having a bed of particles therein:

B. a plurality of particle lifting flights extending from the inside surface of said drum generally toward its center, whereby rotation of said drum causes said flights to lift particles from said bed to an upper zone in said drum and to then drop said particles so that said particles fall toward said bed;

C. first means within said drum for deflecting some of the falling particles into a first generally continuous curtain of particles which fall into said bed at a first location;

D. first means for spraying into said first curtain of particles above said bed a liquified substance which adheres to the surface of the falling particles in said first curtain;

E. second means within said drum for deflecting other of the falling particles into a second generally continuous curtain of particles which fall into said bed at a second location that is spaced from said first location, said first and second curtains being separated and distinct from each other; and

F. second means for spraying into said second curtain of particles above said bed a cooling liquid that wets the falling particles in said second curtain and thereby lowers the temperature within said drum to a range within which said liquified substance solidifies on said particles and forms said pellets.

4,272,235

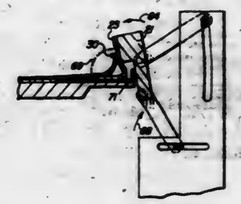
METHOD AND APPARATUS FOR FOLDING AND SEALING A FLOPPY DISC ENVELOPE

David L. Barnett, Phoenix, Ariz., assignor to Three Phoenix Company, Phoenix, Ariz.

Filed Nov. 24, 1978, Ser. No. 963,481

Int. Cl.³ B29C 17/02

U.S. Cl. 425—397 **10 Claims**



1. Apparatus for making a floppy disc envelope form a sheet of flexible plastic, the sheet having first and second opposed surfaces, first and second sections on opposed sides of a center fold line, first and second floppy disc drive holes which are aligned when the sheet is folded, a plurality of slots for permitting a magnetic head to contact an enclosed floppy disc, and a liner attached to the first surface of the sheet, the second section of the sheet including three flaps foldable about three respective end fold lines around three respective corresponding edges of the first section for connection to the second surface of the first section, said apparatus comprising in combination:

a. aligning means for aligning the envelope on a rigid support after the envelope has been folded about the center fold line and after a floppy disc has been placed between sections of the liner attached to the first and second sections of the flexible plastic sheet, and first section of the flexible plastic sheet being positioned against the rigid support;

b. a rigid stop for limiting movement of material of the envelope adjacent to a first one of the end fold lines;

c. first means for engaging an outer edge of a first one of the flaps and moving the outer edge of the first flap along a variable radius arcuate path over the second surface of the second section of the sheet, the arcuate path having curvature such that the material adjacent to the first end fold line is gathered or bunched up against said rigid stop and then is bent about the first end fold line around one of the corresponding edges of the first section, so that the flexible plastic of the first flap near the first end fold line is forced against the rigid stop, the curvature of said variable radius arcuate path being selected to control the radius of curvature of a fold being formed along the first end fold line;

d. pressing means for pressing the first flap against the second surface of the first section of the sheet and the rigid stop to decrease the radius of the fold being formed along the first fold line, causing the elastic limit of the flexible plastic along the first fold line to be exceeded, thereby producing a permanent fold along the first fold line; and

e. a resilient pad having an edge abutting the rigid stop, the curvature of the arcuate path being such that the material near the first fold line is forced against both the rigid stop and the resilient pad, the thickness and resiliency of said

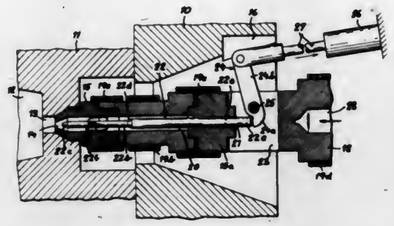
resilient pad being selected to control the radius of curvature of the fold along the first fold line.

4,272,236

INJECTION NOZZLE PROVIDED WITH SHUT-OFF MEANS

Herbert Rees, Willowdale, and Robert D. Schad, Schomberg, both of Canada, assignors to Husky Injection Molding Systems Limited, Bolton, Canada

Filed Dec. 14, 1979, Ser. No. 103,425
Int. Cl.³ B29F 1/03
U.S. Cl. 425—564 5 Claims



1. In an apparatus provided with a mold having a cavity, a nozzle for injecting liquefied plastic material into said cavity in a closed position of said mold, said nozzle having a body with a channel terminating in an injection orifice open toward said cavity, and shut-off means for closing said orifice before the mold is opened,

the improvement wherein said shut-off means comprises an elongate valve pin having a rear portion remote from said orifice slidably guided in a bore of said body adjoining said channel for limited longitudinal displacement relative thereto and a front portion with a tip close to said orifice received in said channel with all-around clearance, and actuating means co-operating with said rear portion for forcing said tip into flow-blocking engagement with said orifice, said body being formed with a passage for oncoming plastic material under pressure merging with said channel at the junction thereof with said bore, said valve pin being provided with a shoulder facing said tip for repression by an unblocking force exerted thereon by said plastic material to disengage said tip from said orifice upon deactivation of said actuating means whereby said plastic material is free to flow through said orifice into said cavity, said front portion being provided with a set of peripherally spaced fins skew to the axis of said valve pin, said fins slidably bearing upon an inner wall surface of said channel for imparting a relative rotary motion to the flow of plastic material traversing said orifice.

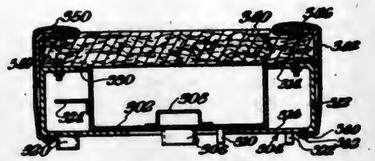
4,272,237

RADIANT HEATING

Thomas M. Smith, 114 Villinger Ave., Cinnaminson, N.J. 08077

Continuation-in-part of Ser. No. 701,687, Jul. 1, 1976, abandoned, and a continuation-in-part of Ser. No. 674,409, Apr. 7, 1976, Pat. No. 4,035,132. This application Mar. 9, 1977, Ser. No. 775,838
Int. Cl.³ F23D 13/12
U.S. Cl. 431—328 10 Claims

1. In a gas-fired radiant heater having a porous refractory mat at the surface of which a gaseous combustion mixture is burned, mounting means holding the mat edges against a plenum box to define a combustion-mixture supply plenum chamber, the improvement according to which a means forming a gas-supply conduit encircles the plenum box alongside said edges and has means forming a gas discharge opening against which the margin of the mat is positioned and from which a separate stream of non-combusting gas can be passed through the mat all along its periphery and the means forming the gas-supply conduit encircling the plenum is defined between the encircled plenum box and encircling interconnected



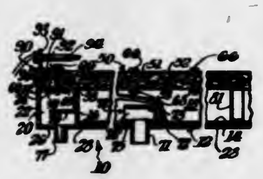
lengths of open members having angular cross-sections and secured to the back of the plenum.

4,272,238

INFRA-RED HEATING AND BURNERS

Thomas M. Smith, 114 Villinger Ave., Cinnaminson, N.J. 08077

Continuation-in-part of Ser. No. 20,079, Mar. 13, 1979, Ser. No. 952,332, Oct. 18, 1978, Ser. No. 863,251, Dec. 22, 1977, Pat. No. 4,224,018, and Ser. No. 775,838, Mar. 9, 1977, said Ser. No. 20,079, and Ser. No. 952,332, is a continuation-in-part of Ser. No. 863,251, , Ser. No. 775,838, , and Ser. No. 906,229, Jul. 1, 1976, abandoned, each is a continuation-in-part of Ser. No. 701,687, Jul. 1, 1976, abandoned, and Ser. No. 775,838, , and Ser. No. 701,687, , each is a continuation-in-part of Ser. No. 674,409, Apr. 7, 1976, Pat. No. 4,035,132. This application Nov. 16, 1979, Ser. No. 94,901
Int. Cl.³ F23D 13/12
U.S. Cl. 431—328 4 Claims



1. In an infra-red generating burner having a metal combustion mixture plenum covered by a porous refractory panel through which the combustion mixture is passed on the outer face of which that mixture burns, and also having a gas-supply conduit encircling the plenum for supplying a stream of non-combusting gas to be discharged around the face of the burner, the improvement according to which the encircling conduit is defined between the outer faces of the plenum and the inner faces of open angular metal members encircling the plenum, and those metal members are spot welded to the back of the combustion mixture plenum by a series of spot welds.

4,272,239

DIRECT HEATING OF HEAT TREAT FURNACE CHAMBER

Arvind C. Thekdi, Sylvania, and Richard R. Mayers, Delta, both of Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio

Filed Nov. 5, 1979, Ser. No. 90,888
Int. Cl.³ F27D 7/00; F27B 9/04, 5/04
U.S. Cl. 432—19 16 Claims

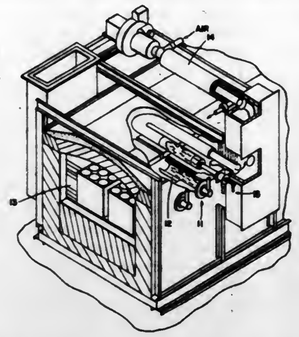
1. A method of directly heat treating articles in the treatment chamber of a heat treatment furnace comprising the steps of:

continuously mixing outside the treatment chamber, a stream of fuel and a stream of air wherein the amount of air is less than that stoichiometrically required for complete combustion;

igniting the air and fuel mixture;

burning the fuel in the air outside the treatment chamber until the oxygen in the air is completely consumed; and subsequently

feeding the reaction products of the burning of the fuel in the air directly into the treatment chamber without further temperature conditioning of such products; and



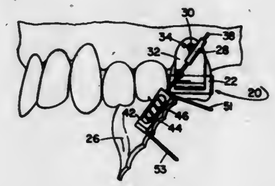
separately feeding a treatment gas directly into the treatment chamber independently of feeding the reaction products into the treatment chamber.

4,272,240

ORTHODONTIC APPLIANCE FOR APPLYING A POWER FORCE TO A TOOTH

E. Glenn Glassman, 85 Paramus Rd., Paramus, N.J. 07652

Filed Aug. 27, 1980, Ser. No. 181,865
Int. Cl.³ A61C 7/00
U.S. Cl. 433—18 11 Claims



1. An orthodontic appliance for applying a power force to a tooth and including:

(a) a band secured to a tooth which is to be moved and/or repositioned by the application of a power force to said tooth;

(b) a plate member secured to this band and adapted to lay alongside the outside of said tooth and below said band;

(c) a tubular member providing a passageway therethrough of a selected size, said tubular member pivotally secured to the extending portion of said plate member;

(d) means for limiting the pivotal movement of said tubular member, said limiting means providing means for tilting the tubular member to a selected limit;

(e) a power force removably carried in or on the head of the user, this power force including a wire member slidable in the through passageway, and

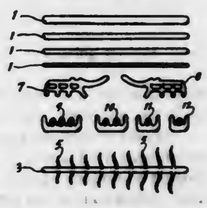
(f) means for limiting the travel of the power force wire in said tubular member so that a directed and desired movement of the tooth is made when the power force is positioned within this pivoted tubular member, the removal of said power force easily achieved when the power force is tilted for removal from the mouth.

4,272,241

METHOD AND ELEMENTS FOR THE FABRICATION OF A PROSTHETIC DENTAL APPLIANCE

Emanuel Crisalli, 10724 Belle Ave., Chatsworth, Calif. 91311

Filed Oct. 25, 1979, Ser. No. 88,006
Int. Cl.³ A61C 13/22
U.S. Cl. 433—171 27 Claims



1. A method of fabricating a prosthetic dental appliance, said method comprising the steps of:

taking an impression of existing dentition in the mouth of the eventual wearer of the appliance;

making a positive model of the dentition from the impression;

heat softening a resilient preformed plastic bar and resilient preformed plastic clasps;

fitting the bar and clasps to the positive model in a predetermined arrangement;

bonding the clasps to the bar to form a plastic dental appliance;

removing the plastic appliance from the positive model; and

fabricating a permanent dental appliance using the plastic appliance.

4,272,242

USE OF WATER-INSOLUBLE ALUMINOSILICATES IN TANNING PROCESS FOR THE PRODUCTION OF LEATHER

Juergen Plapper, Hilden; Klaus Schumann, Erkrath; Milan J. Schwuger, Haan; Heinz G. Smolka, Langenfeld; Emanuel Arndt, Düsseldorf; Emil Ruscheinsky, Leverkusen, all of Fed. Rep. of Germany, and Herman Jansen, Willingboro, N.J., assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany

Filed Jul. 11, 1978, Ser. No. 923,576

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1977, 2732217; May 20, 1978, 2822073; May 20, 1978, 2822074; May 20, 1978, 2822075

Int. Cl.[3] C14C *3/04, 3/06*

U.S. Cl. 8—94.15 32 Claims

1. In the process of tanning uncured hides comprising subjecting uncured hides to the action of an aqueous liquor containing basic metal salt tanning agents including chrome tanning agents, and tanning auxiliaries for a time sufficient to tan said hides, rinsing and recovering leather, the improvement consisting essentially of employing a water-insoluble aluminosilicate, containing bound water of the formula

$$(Cat_{2/n}O)_x.Al_2O_3.(SiO_2)_y$$

wherein Cat represents a cation selected from the group consisting of alkali metals and mixtures of bivalent metal ions with at least 5 mol% of the mixture of alkali metal ions, n represents an integer from 1 to 3 of the valence of the cation, x is an integer from 0.5 to 1.8 and y is an integer from 0.8 to 50, said aluminosilicates having an average particle size in the range of 0.1μ to 5 mm and a calcium binding power of from 0 to 200 mg CaO/gm of anhydrous active substance measured at 22° C., as partial replacement of said basic metal salt tanning agent including chrome tanning agents and tanning auxiliaries.

4,272,243

DYEING OF GRAIN LEATHER

Dietrich Lach, Friedelsheim; Rolf Streicher, Worms, and Franz Feichtmayr, Ludwigshafen, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 12, 1979, Ser. No. 102,847

Claims priority, application Fed. Rep. of Germany, Dec. 29, 1978, 2856628

Int. Cl.[3] D06P *5/00, 5/02*

U.S. Cl. 8—436 3 Claims

1. A process for dyeing grain leather with anionic dyes in the presence of surfactants by dyeing in a drum or dyeing apparatus for from 30 to 180 minutes at from 5° to 60° C. with a liquor length of from 50 to 500%, without subsequent moist storage, wherein the surfactant employed is a combination of

(a) an aliphatic alcohol of 9 to 24 carbon atoms oxyethylated with from 3 to 120 ethylene oxide units and

(b) an aliphatic primary or secondary amine of 8 to 20 carbon atoms per alkyl group oxylated with from 6 to 80 ethylene oxide units, in the weight ratio a:b from 1:4 to 4:1, and in a total amount of from 0.3 to 3%, based on the shaved weight.

4,272,244

DISPERSE DYEING OF POLYVINYL CHLORIDE-ACETELIZED POLYVINYL ALCOHOL FIBERS

Bernhard Schlick, Basel, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

Filed Mar. 6, 1979, Ser. No. 18,294

Claims priority, application Switzerland, Mar. 6, 1978, 2403/78

Int. Cl.[3] D06P *3/82, 1/64, 1/62*

U.S. Cl. 8—529 18 Claims

1. A process for dyeing with a disperse dyestuff a fibrous substrate whose fibres comprise a mixture of polyvinyl chloride and acetalized polyvinyl alcohol, which comprises dyeing the substrate at a temperature from 60° to 90° C. with a dye liquor containing a levelling carrier which is substantially removable from the substrate when the dyed or brightened substrate is subsequently submitted, after drying, to a dry heat treatment for a period of up to 120 seconds and at a temperature from 95° to 135° C.

4,272,245

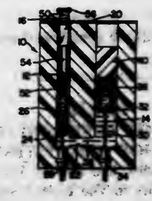
METHOD AND APPARATUS FOR ELECTRO-CHEMICAL MEASUREMENT

Howard Diamond, Ann Arbor; Steven E. Exner, Brooklyn, and Joseph Flowers, Jr., Ann Arbor, all of Mich., assignors to Transidyne General Corporation, Ann Arbor, Mich.

Filed Dec. 4, 1978, Ser. No. 965,901

Int. Cl.[3] G01N *27/56*

U.S. Cl. 23—230 B 13 Claims



7. A method of measuring the pH value of blood samples comprising:

placing a volume of the blood in a capillary tube;

covering a reference electrode and an indicating electrode with a bridging electrolyte solution;

measuring the potential difference between the electrodes, thereby providing a calibration potential;

bringing an open end of the capillary tube over said indicating electrode, thereby displacing the electrolyte from the electrode so that the blood engages the indicating electrode and the electrolyte acts as a bridge between the blood and the reference electrode; and

thereafter measuring the potential between the reference and indicating electrodes whereby the difference between this potential and the calibration potential provides an indication of the pH value of the blood.

4,272,246

METHOD AND APPARATUS FOR CHROMATOGRAPHIC QUANTITATIVE ANALYSIS

James S. Fritz; Douglas T. Gjerde, both of Ames, Iowa, and Gabriella Schmuckler, Haifa, Israel, assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 20, 1979, Ser. No. 67,855

Int. Cl.[3] G01N *31/04, 27/08*

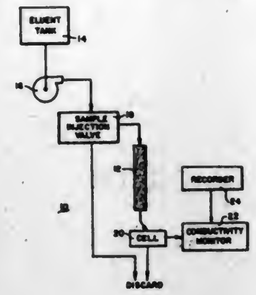
U.S. Cl. 23—230 R 5 Claims

1. A method for chromatographic quantitative analysis of a plurality of anion species in a solution consisting essentially of

adding a solution containing a plurality of anion species to a polystyrene-divinylbenzene macroreticular anion exchange resin bed containing quarternary ammonium functional groups, the resin having a capacity of no more than 0.2 millequivalents per grams of resin;

passing an eluent having a conductance of less than about 10^{-4} mho/cm through the resin bed containing the plurality of anion species to chromatographically separate the plurality of anion species on the resin bed and for eluting the separated species individually from the resin bed, the conductivity of the eluent being less than the conductivity of the anion species being eluted; and

determining the conductivity of each separated anion species exiting from the resin bed, the conductivity being



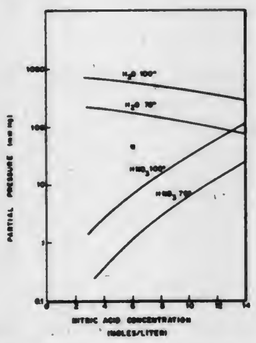
directly proportional the quantity of anion species present in the solution.

4,272,247

CONTINUOUS-FLOW FREE ACID MONITORING METHOD AND SYSTEM

James E. Strain, Kingston, and Harley H. Ross, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jan. 11, 1980, Ser. No. 111,496
Int. Cl.³ G01N 27/10, 27/06
U.S. Cl. 23—230 R 10 Claims



1. A method for measuring the free acid in an aqueous-acid solution, comprising the steps of:

vaporizing a portion of said acid solution at a constant temperature to generate an equilibrium vapor phase of said solution; and

determining the relative amounts of water and acid of said equilibrium vapor phase, said relative amounts being a measure of the free acid concentration of said solution.

4,272,248

NITRIC OXIDE INTERFERENCE FREE SULFUR DIOXIDE FLUORESCENCE ANALYZER

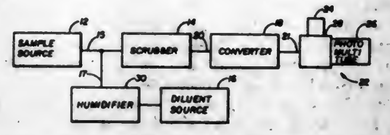
Radhakrishna M. Neti, Brea, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Dec. 26, 1979, Ser. No. 107,109
Int. Cl.³ G01N 21/64
U.S. Cl. 23—232 R 14 Claims

1. A method for removing the fluorescence effect of nitric oxide in a fluorescence analyzer that measures sulfur dioxide comprising the steps of:

providing a sample stream of gas;

providing a diluent stream of gas containing at least one component having nitric oxide quenching properties;



intermixing said sample stream and said diluent stream to form a mixture; and

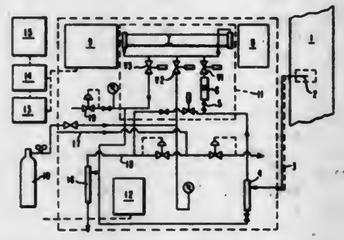
supplying said mixture to the fluorescence analyzer.

4,272,249

METHOD OF MONITORING OXYGEN CONCENTRATIONS IN GAS STREAMS

Joseph P. D'Antonio, Woodbury, Conn., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 28, 1980, Ser. No. 115,756
Int. Cl.³ G01N 21/76
U.S. Cl. 23—232 E 7 Claims



1. A method of monitoring oxygen concentration in a gas mixture, said method comprising the following steps:

(1) passing at a predetermined pressure a sample of the gas to be analyzed through a leak-tight optical absorption cell having high transparency in the 325–600 nm range and maintained at a predetermined temperature above 100° C., said optical absorption cell being placed in the path of a visible light beam;

(2) sealing off said optical absorption cell at said predetermined pressure;

(3) establishing by means of a light detector the base absorbance of the gas to be analyzed or zeroing the light detector to eliminate said base absorbance;

(4) introducing into said optical absorption cell nitrogen oxide, NO, at a pressure at least equal to twice the partial pressure of oxygen in the gas sample, within the range of 0.01 to 0.2 MPa;

(5) determining the absorbance, at a predetermined wavelength within the 325–600 nm range, of nitrogen dioxide, NO_2, formed by reaction of oxygen with nitrogen oxide, NO; and

(6) calculating the oxygen concentration in the gas sample from said absorbance;

with the proviso that the above step (3) may be performed at any time prior to the introduction of nitrogen oxygen into the optical absorption cell, whether or not the cell is sealed off.

4,272,250

PROCESS FOR REMOVAL OF SULFUR AND ASH FROM COAL

Emmett H. Burk, Jr., Glenwood; Jui-Yuan Sun, South Holland, both of Ill., and Nestor J. Troncoso, Thousand Oaks, Calif., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Jun. 19, 1979, Ser. No. 50,263
Int. Cl.³ C10L 9/00, 9/02
U.S. Cl. 44—1 SR 31 Claims

1. A process for reducing the sulfur and ash content of coal comprising the steps of:

(a) providing an aqueous slurry of coal particles containing ash and pyritic sulfur mineral matter;

(b) adding to the slurry a minor amount of hydrocarbon oil sufficient to effect aggregation of the coal particles;

(c) incorporating a gas into or on the coal-oil aggregates, whereby the apparent density of the coal-oil aggregates is modified;

(d) gravitationally separating the density-modified coal-oil aggregates from the aqueous slurry; and

(e) recovering coal-oil aggregates of reduced sulfur.

10. The process of claim 1 wherein the density-modified coal-oil aggregates are separated from the aqueous slurry by differential specific gravity means.

11. The process of claim 1 wherein the density-modified coal-oil aggregates are separated from the aqueous slurry by centrifugal means.

12. The process of claim 1 wherein the density-modified coal-oil aggregates are separated from the aqueous slurry by flotation means.

18. The process of claim 1 wherein, prior to aggregation, the slurried coal particles are contacted with a promoting amount of at least one conditioning agent capable of modifying or altering the existing surface characteristics of the ash and pyritic sulfur mineral matter under conditions whereby there is effected modification or alteration of at least a portion of the contained ash and pyritic sulfur mineral matter.

4,272,251

PROCESS FOR REMOVING SULFUR FROM COAL

LaVern H. Beckberger, Markham, and James L. Barbour, Homewood, both of Ill., assignors to Atlantic Richfield Company, Philadelphia, Pa.

Filed Sep. 10, 1979, Ser. No. 74,033
Int. Cl.³ C10L 9/00, 9/06
U.S. Cl. 44—1 SR 35 Claims

1. A process for reducing the sulfur content of coal, by the treatment of coal particles, contained in an aqueous slurry of floatable coal-oil particles, with an oxygen-containing gas at elevated temperature and pressure, comprising the steps of:

(a) feeding the oxygen-containing gas and the aqueous slurry of floatable coal-oil particles, at process pressure, to a bottom zone of a vertically disposed, elongated reactor vessel;

(b) passing the gas and aqueous slurry in cocurrent flow upwardly through a baffled reaction zone, maintained at reaction temperature and pressure, the baffled reaction zone having a plurality of baffle plates spaced therethrough generally normal to the reactor wall, each baffle plate having a configuration generally conforming to the internal diameter of the reactor vessel and a plurality of apertures disposed about the baffle plate, to provide a total aperture area equal to from about 3% to about 28% of the vessel cross-sectional area as free area;

(c) continuously withdrawing the aqueous slurry and spent gas from a top zone of the reactor vessel; and

(d) recovering from the aqueous slurry coal-oil particles wherein the coal particles possess a reduced sulfur content.

4,272,252

FIRE LIGHTING DEVICE

Donna G. Altman, Atlanta, Ga., assignor to Solid Safety, Inc., Atlanta, Ga.

Filed May 7, 1979, Ser. No. 36,841
Int. Cl.³ C10L 11/00, 11/06
U.S. Cl. 44—40 7 Claims

1. A fire lighting device comprising a cellulosic fibrous material having a combustible volatile petroleum distillate absorbed therein, said fibrous material being porous and having air contained therein, said fibrous material having a density of approximately one to two grams per cubic centimeter, a burnable envelope, said fibrous material with said petroleum distillate absorbed therein being sealed within said burnable envelope and substantially filling said envelope, said burnable envelope being impervious to vapors of said petroleum distillate, said envelope comprising a plurality of layers of material, at least one of said plurality of layers of material being cellophane for providing an easily burnable quality to said burnable envelope, and one layer of said plurality of layers of material being polyethylene for retarding the burning of said burnable envelope.

4,272,253

STABLE COAL-IN-OIL SUSPENSIONS AND PROCESS FOR PREPARING SAME

Johann G. D. Schulz, Pittsburgh, and John A. Cobler, Harwick, both of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Feb. 19, 1980, Ser. No. 122,441
Int. Cl.³ C10L 1/32
U.S. Cl. 44—51 44 Claims

1. A suspension containing coal, hydrocarbon oil, water and the product resulting from the reaction of (1) polycyclic, polycarboxylic acids obtained as a result of the oxidation of coal with (2) a base.

23. A process for preparing a suspension which comprises mixing an aqueous mixture containing (I) the product resulting from the reaction of (1) polycyclic, polycarboxylic acids obtained as a result of the oxidation of coal with (2) a base with (II) coal and (III) hydrocarbon oil for a time sufficient to obtain a suspension.

4,272,254

HYDROCARBON FUEL HAVING IMPROVED COMBUSTION EFFICIENCY

Takashi Mineraki, 2-18-14 Hon-cho, Shibuya-ku, Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,293
Claims priority, application Japan, Mar. 20, 1979, 54-32510
Int. Cl.³ C10L 1/28
U.S. Cl. 44—70 2 Claims

1. A hydrocarbon fuel having improved combustion efficiency which comprises a mixture of said hydrocarbon fuel and an amount effective to increase the combustion efficiency of said fuel of an organic silicon compound having the formula $(SiCH_2CH_2COOH)_nO_3$.

4,272,255

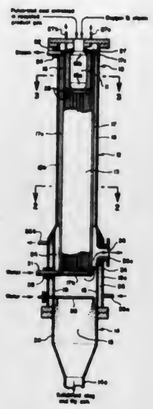
APPARATUS FOR GASIFICATION OF CARBONACEOUS SOLIDS

Ralph L. Coates, Salt Lake City, Utah, assignor to Mountain Fuel Resources, Inc., Salt Lake City, Utah

Filed Jul. 19, 1979, Ser. No. 58,764
Int. Cl.³ C10J 3/20
U.S. Cl. 48—63 2 Claims

1. A multiple stage, downflow gasifier for converting carbonaceous solids to an intermediate heating value fuel gas or synthesis gas, comprising a first stage having refractory means defining a combustion chamber, a second stage below said first stage and having a relatively elongate heat recovery chamber for solidifying molten reactants, said chamber being defined by an annular, water-wall type of heat exchanger within a pres-

sure shell; and a third stage below said second stage and having water quench means, the three stages being substantially aligned along a substantially vertical axis in common and interconnecting along said axis, and the water-wall heat exchanger and pressure shell of the second stage extending upwardly about said combustion chamber to define said first stage; means secured to said water-wall heat exchanger for receiving and supporting said refractory means; means for introducing reaction components that include a combustion-supporting gas and carbonaceous particles into the upper end of said combustion chamber under pressure so they will pass through said first stage and into and along the heat recovery chamber of the second stage; discharge means for product gas located in said



pressure shell above the lower end of said water-wall heat exchanger, the lower end portion of said pressure shell being spaced from the lower end portion of said water-wall heat exchanger to define an annular passage for the flow of product gas to said discharge means, and the portion of the pressure shell located above the annular passage for the flow of product gas to the discharge means being in communication with said annular passage, spaced from the water-wall heat exchanger a smaller distance than the lower end portion thereof, and terminating in a closed upper end to define a relatively narrow, annular, substantially dead gas chamber about the said water-wall heat exchanger substantially throughout its height; and discharge means at or near the lower end of the third stage for solids quenched in said third stage.

4,272,256

METHOD FOR HEATING OXYGEN CONTAINING GAS IN CONJUNCTION WITH A GASIFICATION SYSTEM

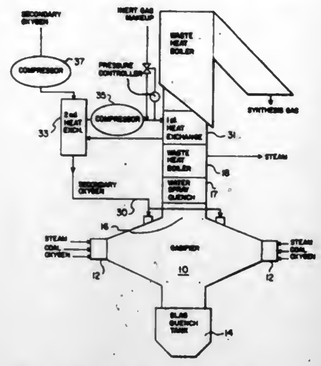
Dimitri M. Mitsak, Edgeworth, Pa., assignor to Koppers Company Inc., Pittsburgh, Pa.

Filed Oct. 15, 1979, Ser. No. 84,982
Int. Cl.³ C10J 3/46
U.S. Cl. 48—206 **2 Claims**

1. A process for the gasification of a carbonaceous fuel comprising:

(a) feeding a mixture of primary oxygen, steam and fuel to a reaction zone to produce a synthesis gas from said mixture;

(b) heating secondary oxygen indirectly from said synthesis gas wherein said step of heating said secondary oxygen includes removing heat from said synthesis gas in a first heat exchanger by heat exchange with a heat transfer gas which does not form an explosive mixture with the synthesis gas, and transferring the heat from the heat transfer gas to said secondary oxygen in a second heat exchanger and circulating the heat transfer gas between said first and second heat exchangers at a pressure which is at all times greater than the pressure of the secondary oxygen to



prevent flow of secondary oxygen into the synthesis gas in the event of a leak in the second heat exchanger; and

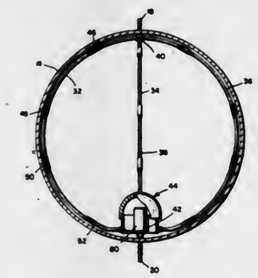
(c) feeding said secondary oxygen to said reaction zone.

4,272,257

LIQUID-VAPOR SEPARATOR

M. Edmund Elliot, Arcadia; J. Ward Putt, Los Angeles, and John J. Montich, Redondo Beach, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 6, 1976, Ser. No. 747,469
Int. Cl.³ B01D 53/22
U.S. Cl. 55—38 **4 Claims**



1. The method of separating liquid from vapor in a substantially zero g environment comprising the steps of:

providing an etched flow passage so that it extends from a first wall to a second wall with the flow passage having sufficiently small dimension that liquid is passed through the passage in preference to vapor due to liquid surface tension forces; and

positioning the passage in a tank for containing liquid and vapor so that liquid is preferentially delivered through the passage for delivery from the tank.

2. The method of separating liquid from vapor in a substantially zero g environment comprising the steps of:

placing and removing liquid from a tank so that both liquid and vapor are present in the tank;

forming a flow passage having a flow direction therethrough and a sufficiently small dimension normal to the flow direction so that liquid is passed through the passage in preference to vapor due to liquid surface tension forces;

positioning the passage in the tank so that one end of the passage is exposed to the interior of the tank and the other end of the passage is connected to a gallery for delivery of liquid from the tank so that liquid delivery in preference to vapor delivery is achieved from the tank; and

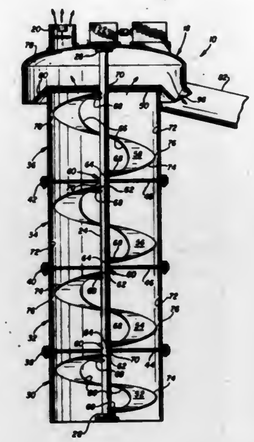
separating liquid from vapor in the tank by preferentially passing liquid through the flow passage and delivering the liquid into the gallery.

4,272,258

MUD DEGASSER METHOD AND APPARATUS

Wiley M. Shifflett, P.O. Box 133, Mentone, Tex. 79754

Filed Nov. 26, 1979, Ser. No. 97,407
Int. Cl.³ B01D 19/00
U.S. Cl. 55—52 **12 Claims**



1. A mud degasser comprising a main cylindrical housing having an inlet formed at the bottom thereof into which gasified mud can flow, and an outlet at the upper end thereof from which degassed mud can flow; a main shaft including means rotatably supporting said shaft along the axial centerline of the main housing; an auger for said shaft, said auger having a flight which commences adjacent the inlet end of the housing and terminates adjacent the outlet end of said housing; said flight having an outer edge adjacent to and spaced from the inner wall of the housing, and an inner edge spaced from the shaft, thereby forming a longitudinally extending passageway along the axial centerline of the housing, means by which said auger flight is affixed in spaced relationship to said shaft;

so that rotation of the shaft causes mud to flow from said inlet to said outlet, while any entrained gases are forced to flow towards the axial passageway formed between the shaft and the inner edge of the flight.

7. Method of removing compressible fluids from drilling fluid comprising the steps of:

(1) arranging a cylindrical housing with the longitudinal central axis thereof vertically disposed;

(2) supporting an auger flight in spaced relationship respective to an auger shaft; and rotatably supporting the auger shaft along the axial centerline of the housing, thereby leaving a central axial passageway between the shaft and auger flight through which gases can flow within the housing; wherein the auger flight occupies an outer annular passageway within the housing through which mud is forced to flow;

(3) arranging the auger flight of step (2) into a plurality of auger flights and positioning the flights in spaced relationship to one another to leave a space between adjacent flights;

(4) placing a screen means perpendicular to the shaft and between adjacent flights;

(5) flowing gas-ladened mud into the lower end of the housing, up through the outer annular passageway of the housing interior, and out of the upper end of the housing by rotating the auger shaft to cause mud to flow due to the action of the auger flight;

(6) said mud describes an upwardly opening cone which has an apex located adjacent the lower end and along the axial centerline of the housing, so that a pressure gradient is formed transversely across the flowing mud, to cause gases to flow towards the cone.

4,272,259

GAS GETTERING SYSTEM

Michael F. Patterson, Clarence; Harry Cheung, Buffalo, and David I. J. Wang, New York, all of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 707,335, Jul. 21, 1976, abandoned. This application Jan. 14, 1977, Ser. No. 806,340
Int. Cl.³ B01D 53/04
U.S. Cl. 55—74 **5 Claims**



1. A method of evacuating a vacuum enclosure comprising the steps of:

(a) providing a fluid-tight container holding active getter and non-sorbable gas at a pressure of at least about one atmosphere;

(b) establishing gas flow communication through a wall of said container between said active getter and the container-surrounding environment by passage means in said container wall, such that the ratio of the vacuum flow conductance of the gas flow passage means, in liters/sec., to the mass of said active getter held in said container, in grams, is in the range of from about 6.0×10^{-8} to about 1.0×10^{-2};

(c) positioning the container in said enclosure for gas flow communication between said active getter and the enclosure environment;

(d) thereafter removing gas from the enclosure and from the positioned container through said passage means for evacuation thereof, in an amount sufficient to reduce the pressure in said enclosure and container to subatmospheric pressure; and

(e) sealing the evacuated enclosure.

4,272,260

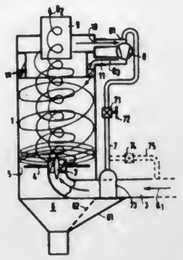
TORNADO-TYPE SEPARATOR

Heinrich Klein; Rudolf Pieper, both of Erlangen, and Eduard Weber, Nuremberg, all of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mulheim an der Ruhr, Fed. Rep. of Germany

Filed May 7, 1979, Ser. No. 36,601
Claims priority, application Fed. Rep. of Germany, May 9, 1978, 2820233
Int. Cl.³ B04C 3/06, 5/18
U.S. Cl. 55—265 **9 Claims**

1. In a tornado-flow vortex generator assembly for separating particulates from gases, having a plurality of parts including a cylindrical vortex chamber, an inlet tube for raw gas coaxially disposed in the vortex chamber and terminating in a nozzle for providing an advance rotation in a flow of the raw gas therethrough, a hopper connected to the vortex chamber, a hopper diaphragm surrounding the inlet tube and positioned in the vicinity of the vortex-chamber casing, with an annular particulate-discharge slot communicating with a space within

the hopper wherein a given pressure exists, a clean-gas outlet disposed in the vortex chamber spaced from and opposite the raw gas inlet tube, an auxiliary-gas outlet surrounding the clean-gas outlet, and an auxiliary-gas inlet disposed at the vortex-chamber casing for blowing auxiliary gas into the vor-



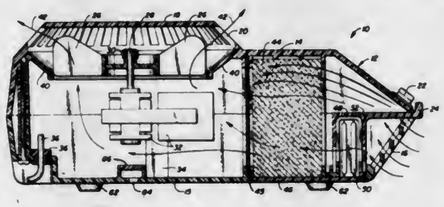
tex chamber at an inclination and tangentially to the casing thereof and connected by a blower to the auxiliary-gas outlet, the improvement comprising means for connecting to the hopper space a pressure source having a pressure lower than the given pressure existing in the hopper space, said means comprising a line having a control valve connected therein.

4,272,261

AIR PURIFYING DEVICE

Patrick E. Lynch, Jr., and James M. Wimsatt, both of 155 Pintail Way, Carson City, Nev. 89701

Filed May 1, 1980, Ser. No. 145,521
Int. Cl.³ B01D *53/34*; A61L *9/01*
U.S. Cl. 55—279 **8 Claims**



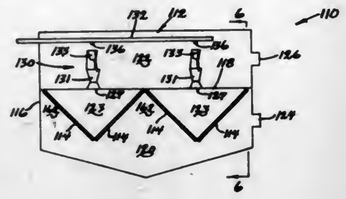
1. An air purifying system comprising:
- a housing including an air inlet, an air outlet, and an internal flow path from the inlet to the outlet;
- fan means within the housing adapted to move air through the housing along the flow path and out of the housing through the outlet;
- a filter interposed in and spanning the flow path in the housing to filter particulate matter from the air passing through the housing;
- an odor neutralizing chamber within the housing partially interposed in the flow path and in flow communication with the flow path and containing an odor neutralizing chemical which vaporizes in the presence of air; and
- means for controlling the amount of the odor neutralizing chemical vapor which exits the chamber and enters the air flowing through the housing.

4,272,262

GAS-SEPARATION FILTER DEVICE

Monroe Britt, and Karl L. Westlin, both of Louisville, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Sep. 27, 1979, Ser. No. 79,564
Int. Cl.³ B01D *46/04*
U.S. Cl. 55—302 **8 Claims**



1. A filter device for removing particulates from a dirty gas stream, comprising:
- a housing;
- a horizontally disposed gas impervious partition in the housing dividing the housing interior into an upper plenum chamber and a lower plenum chamber, said partition having an aperture providing fluid communication between the upper and lower plenum chambers;
- dirty gas inlet means in said housing providing ingress for a dirty gas stream into the lower plenum chamber;
- cleaned gas outlet means in said housing providing egress for a cleaned gas stream from the upper plenum chamber;
- a filter supporting structure of generally V-shaped cross-sectional configuration secured to said partition;
- said supporting structure having opposing open side walls opening into the lower gas plenum and an upper opening opening into the upper plenum chamber through the aperture in said partition;
- a plurality of adjacent panel filters nestled within the supporting structure across each of the open sides of the supporting structure to form a generally V-shaped filter bank providing a filter barrier between the upper and lower plenum chambers;
- filter retaining means nestled within the filter bank and generally contiguously engaging each of the filter panels to secure the panels to the supporting structure in dust-tight sealing relation;
- a first venturi nozzle communicating with the aperture in the horizontal partition for providing a flow path for gases between the upper plenum chamber and the cleaned gas compartment;
- a second converging nozzle disposed in the upper plenum chamber in coaxial alignment with the first venturi and spaced in an axial direction from the first venturi thereby creating a space between them; and,
- high energy cleaning gas emitting means spaced above the second converging nozzle adapted to direct a high energy cleaning gas jet axially into the second converging nozzle for pressurizing the cleaned gas compartment to reverse flush clean the panel filters of separated particulates.

4,272,263

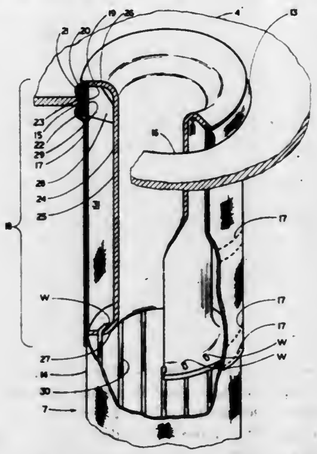
FILTER ARRANGEMENT

Terence M. Hancock, Prospect, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed May 21, 1979, Ser. No. 40,693
Int. Cl.³ B01D *46/02*
U.S. Cl. 55—377 **10 Claims**

1. For a bag house including a plenum having an apertured bag support plate including an aperture of a predetermined diameter, a filter arrangement adapted to be connected with the plate in flow-through communication with the plenum through the plate aperture, comprising:

- a tubular filter having a flexible end portion;
- a flexible ring member connected with said flexible end portion, said ring member removably embracing the marginal edge of the plate aperture to secure the ring member and the filter to the plate;
- a venturi element extending through said ring member into the interior of the filter;
- said venturi element including an inwardly recessed throat portion, an outwardly protruding annular shoulder proximate one end of said throat portion, and an attachment portion spaced from said shoulder within the filter;
- said annular shoulder axially overlying the ring member and being carried thereby to support the venturi element within the filter, the outermost diameter of said shoulder



being less than the diameter of the plate aperture to accommodate withdrawal of the venturi element from either side of the plate upon removal of the ring member;
- said throat portion accommodating manipulative flexure of said ring member upon selective axial displacement of the venturi element with respect to the plate attendant to installation and removal of the filter arrangement;
- filter support means carried by said attachment portion within the filter; and
- said venturi element being of an elongated tubular configuration having axially outwardly flared end portions, one of said end portions providing said annular shoulder and the other of said end portions providing said attachment portion.

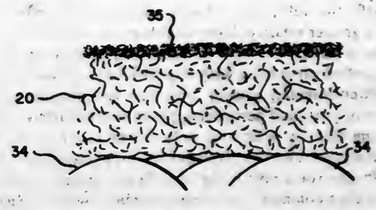
4,272,264

ADSORBENT PACKAGE

John S. Cullen, Buffalo, and Paul W. Huber, Depew, both of N.Y., assignors to Multiform Desiccant Products, Inc., Buffalo, N.Y.

Continuation of Ser. No. 495,883, Aug. 8, 1974, abandoned, which is a continuation of Ser. No. 293,677, Sep. 29, 1972, abandoned. This application Jul. 9, 1976, Ser. No. 703,979
Int. Cl.³ B01D *27/02*, *53/04*
U.S. Cl. 55—387 **14 Claims**

1. An adsorbent package comprising adjacent continuous foraminous wall portions of thermoplastic fibrous meltable and heat-fusible sheet material composed of fibers and defining an enclosure, adsorbent material confined completely within said enclosure, superimposed edge portions on said wall portions, said superimposed edge portions including fibers which are melted out to and including the outermost edges of said wall portions, said melted fibers at said superimposed edge portions being completely fused together to provide a welded seam joining said superimposed edge portions, said wall portions including an outer surface, fiber tie-down means for tying down the fibers of said material on substantially said entire outer surface of said wall portions, said fiber tie-down means permitting said foraminous fibrous sheet material to remain in condition to permit flow of fluids therethrough, whereby said melted edge portions at said completely fused welded seam



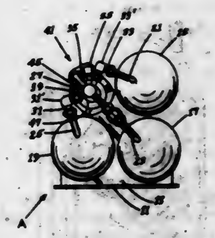
and said tied-down fibers on said outer surface of said wall portions provide a substantially completely tied-down outer surface on said package to prevent fibers of said fibrous sheet material from linting into the fluid in which said adsorbent package is placed.

4,272,265

APPARATUS FOR PRESSURE SWING GENERATION OF OXYGEN

Fred P. Snyder, St. Louis County, Mo., assignor to Essex Cryogenics of Missouri, Inc., St. Louis, Mo.

Filed Jun. 22, 1979, Ser. No. 51,208
Int. Cl.³ F16K *11/02*; B01D *53/06*
U.S. Cl. 55—389 **7 Claims**



1. For use in a system for oxygen generation including a plurality of vessels each containing a molecular sieve bed and each having a first port for providing an oxygen-enriched effluent from the bed and a second port for alternate pressurizing and purging of the bed, rotary control valve apparatus comprising a valve housing, a shaft rotatably journalled in said housing and adapted for being driven for rotation, said housing providing first and second chambers spaced along the length of said shaft, respective pressure and purge control valve rotors carried by said shaft for rotation within the respective chambers, said valve housing including a pressurized air inlet communicating with said first chamber for admitting pressurized air thereto, and a purge gas outlet communicating with said second chamber for discharging of purge gases therefrom, said housing providing a plurality of passages extending between said chambers, said passages corresponding in number to said vessels and extending within said housing in lengthwise relationship between said first and second chambers, said passages being spaced at equal intervals around the axis of rotation of said shaft, said housing including a plurality of ports communicating with respective ones of said passages and adapted for being interconnected with respective second ports of said vessels, each of said rotors comprising a valve port adapted to provide communication between the respective chamber and each of said passages in succession upon rotation of said rotors by said shaft, said rotor valve ports being presented in angular

relationship to one another and to said passages for causing pressurized air to be provided successively through at least one of said passages to a corresponding vessel while permitting purge gases to flow through at least one other of said passages from a corresponding vessel for first pressurizing and subsequently purging said vessels in cyclic manner upon rotation of said shaft, the valve port of said purge control valve rotor being of greater relative dimension than the valve port of said pressure control vave rotor to cause communication by said purge control valve rotor with respective ones of said passages for a proportionately greater time than said pressure control valve rotor port, said ports being positioned angularly relative to one another for permitting only one of said ports to be in communication with any given one of said passages, said purge control valve rotor port being of sufficient angular dimension for providing communication concomitantly with at least two of said passages whereby purging of a corresponding two of said vessels may overlap during a single revolution of said shaft.

4,272,266

APPARATUS FOR THE SEPARATION OF GAS MIXTURES

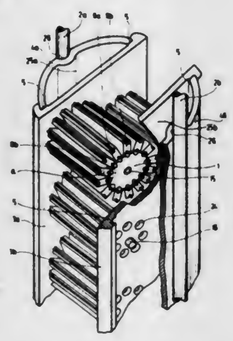
Gerd Tybus, Poing, and Hartmut Neuking, München, both of Fed. Rep. of Germany, assignors to Messerschmitt-Bölkow-Blohm Gesellschaft mit beschränkter Haftung, Munich, Fed. Rep. of Germany

Filed Mar. 29, 1979, Ser. No. 25,274

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2815050

Int. Cl.³ B01D *53/24*

U.S. Cl. 55—392 **16 Claims**



1. Apparatus for the separation of gas mixtures having different molecular weights into a heavy fraction and a light fraction comprising: generally cylindrical body means having outer circumferential surface means; longitudinal deflection channel means formed in said outer surface means; gas channel defining means arranged to define together with said body means a first plurality of gas guide channels spaced apart circumferentially about said body means and a second plurality of gas guide channels interposed between pairs of said first plurality of gas guide channels; said gas channel defining means including pairs of tapered legs extending into said deflection channel means and having terminal edges spaced from said deflection channel means and cooperating therewith to separate said gas mixture into a light fraction and a heavy fraction, with said light fraction flowing to between adjacent pairs of said gas guide channels and with said heavy fraction flowing into said second plurality of gas guide channels; inlet means for introducing a gas mixture into said first plurality of gas guide channels; outlet means for said second plurality of gas guide channels; and outlet means for said light fraction in flow communication to between adjacent pairs of said gas guide channels.

4,272,267

GAS FILTER

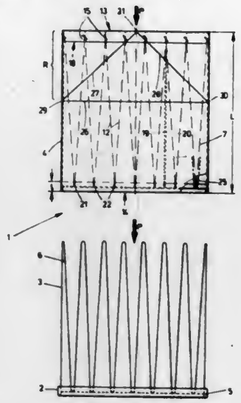
Grietinus R. L. Kamps, Ter Apel; Jan S. P. Moltzer, Dalerveen, and Pieter J. Platteeuw, Veenoord, all of Netherlands, assignors to American Air Filter Company, Inc., Louisville, Ky.

Filed Nov. 13, 1979, Ser. No. 93,926

Claims priority, application Fed. Rep. of Germany, Jan. 15, 1979, 2901414

Int. Cl.³ B01D *46/02*

U.S. Cl. 55—499 **9 Claims**



1. A gas filter, in particular a room air filter, comprising encircling walls forming a square frame and an interchangeable filter package including a gas entrance and a gas discharge port and containing a filter web with a folded zig-zag configuration for forming a plurality of proximate filter pockets, said filter web being secured between the encircling walls of said frame, and further comprising a support grid for receiving the same which is mounted in the frame and which has a shape complimentary to the folds of said filter web, wherein all of said encircling walls of said frame have a stiff construction and together form a rigid container, said gas entrance port being adapted to be closed by bending in and folding over a portion of each of the encircling walls each of said walls having means which forms a marginal strip in each wall adjacent to said port, and tension means anchored to two of the encircling walls opposing one another securing the folds of the filter web adjacent the gas discharge port.

4,272,268

CHEMICAL HEAT PUMP

Leonard Greiner, 2853-A Hickory Pl., Costa Mesa, Calif. 92626

Filed Oct. 17, 1977, Ser. No. 842,702

Int. Cl.³ F25B *27/00, 17/08*

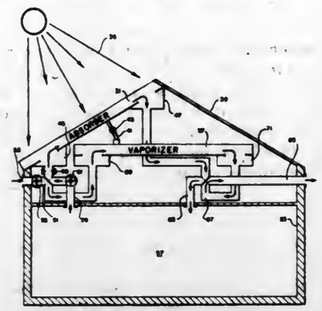
U.S. Cl. 62—2 **28 Claims**

1. A chemical heat pump, comprising:

a vaporizer container storing a material to be vaporized having a length or width which is at least ten times its thickness, said container being evacuated;

a container storing a vapor absorptive chemical having a length or width which is at least ten times its thickness, said container being evacuated, said vapor absorptive chemical expanding and contracting as it absorbs and desorbs vapor, respectively, said container being subjected to a higher outside pressure than the evacuated inside pressure and having a sufficiently thin structure to permit said higher outside pressure to flex said structure during such expansion and contraction to prevent formation of voids in said vapor absorptive chemical;

means exchanging heat through the walls of said vaporizer container and said chemical container; and



a vapor conduit interconnecting said vaporizer container and said chemical container.

4,272,269

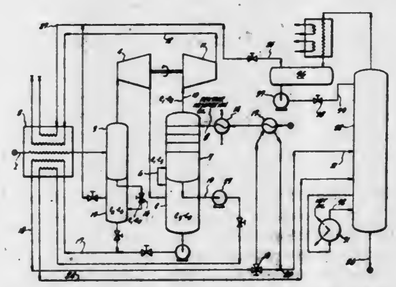
CRYOGENIC EXPANDER RECOVERY PROCESS

James D. Hammond, and EH Deng, both of Irvine, Calif., assignors to Fluor Corporation, Irvine, Calif.

Filed Nov. 23, 1979, Ser. No. 96,662

Int. Cl.³ F25J *3/02*

U.S. Cl. 62—17 **12 Claims**



1. A process for the recovery of hydrocarbons from a gaseous hydrocarbon containing feedstream comprising:

(1) partially condensing such feedstream to form first vapor and liquid streams,

(2) separating said vapor and liquid streams and expanding said separated vapor stream, thereby cooling and partially condensing the same to form second vapor and liquid streams,

(3) separating said second vapor and liquid streams and subjecting said second vapor stream to an absorption step, whereby propane and heavier hydrocarbons from said second vapor stream are absorbed from said vapor, and are thereafter distilled and recovered as liquid product, with the other constituents of said second vapor stream remaining in vapor form and subsequently being recovered as product gas,

(4) passing said first liquid stream to a second separation step, thereby producing additional vapor and liquid streams,

(5) combining said liquid stream from step (4) with said second liquid stream and passing the combined stream to a distillation step, whereby methane and ethane are recovered therefrom as gaseous product, and said vapor stream from step (4) being thereafter combined with said gaseous product from said distillation step and recovered as gaseous product.

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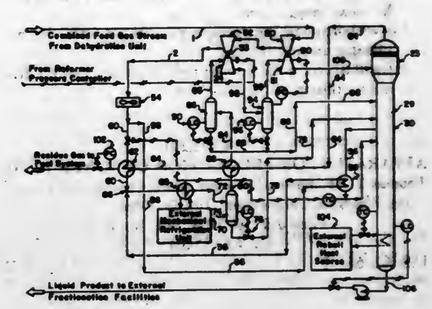
CRYOGENIC RECOVERY OF LIQUID HYDROCARBONS FROM HYDROGEN-RICH

Robert D. Higgins, Houston, Tex., assignor to Petrochem Consultants, Inc., Houston, Tex.

Filed Apr. 4, 1979, Ser. No. 26,809

Int. Cl.³ F25J *3/02*

U.S. Cl. 62—24 **2 Claims**



1. A process for cryogenic recovery of hydrocarbon liquid from gas composed predominantly of hydrogen, comprising:

(a) feeding the gas to one or more compressor/expander units, each unit having compressor means and expander means mounted and driven on a common shaft;

(b) compressing the gas feed in the compressor of each compressor/expander unit;

(c) cooling the compressed gas obtained from step (b) in a heat exchanger;

(d) transmitting a portion of the cooled feed gas obtained in step (c) to a stabilizer side reboiler wherein the feed gas is further cooled;

(e) transmitting the remaining portion of the feed gas obtained in step (c) to a heat exchanger and thermally contacting and cooling said feed gas therein with a cooler residue gas product;

(f) recombining and transmitting the total feed gas portions cooled in steps (d) and (e) to a refrigerant chiller and further cooling the recombined feed gas therein;

(g) transmitting the cooled feed gas obtained from the refrigerant chiller in step (f) to a separator vessel wherein a liquid fraction and a vapor fraction are separated;

(h) transmitting the liquid fraction obtained from the separator in step (g) to the fractionation column of a stabilizer comprising a separator and said fractionation column situated beneath and in communication with the separator, wherein a vaor phase is separated from said liquid fraction;

(i) transmitting the vapor fraction obtained from the separator in step (g) to another heat exchanger wherein it is further cooled by the vapor from the separator of step (h), said vapor from the separator of step (h) being thermally contacted with the vapor fraction from step (g) prior to being transmitted to the heat exchanger in step (e);

(j) transmitting the further cooled vapor fraction obtained from step (i) to an expander inlet separator wherein liquid is separated from the cooled vapor fraction;

(k) transmitting the liquid separated from cooled vapor fraction in step (j) to an upper feed stage of the fractionation column;

(l) transmitting the vapor separated in step (j) to the expander of the first of said one or more compressor/expander units, and transmitting the outlet stream from each but the last expander directly to a liquid/vapor separator without cooling, and without further temperature modification transmitting only the vapor portion from the separator directly to the next expander, and transmitting the separa-

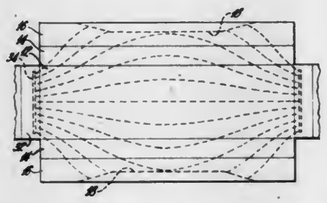
tor liquids to one or more upper feed stages of the fractionation column;
(m) transmitting the cold, two-phase effluent stream from the final expander in step (l) to the separator section of the stabilizer;
(n) withdrawing the vapors rising from the separator section of the stabilizer to form the cold residue gas stream;
(o) transmitting the residue gas stream obtained in step (n) to the heat exchanger used in step (i) and from there to the heat exchanger used in step (e);
(p) withdrawing the residue gas stream from the heat exchanger in step (e); and
(q) withdrawing the liquid product phase from the fractionation column of the stabilizer.

4,272,271

APPARATUS FOR PRODUCTION OF MINERAL FIBERS

Thomas K. Thompson, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jul. 30, 1979, Ser. No. 61,572
Int. Cl.³ C03B 37/02
U.S. Cl. 65—1 6 Claims



1. An electrically heated bushing for the manufacturer of glass fibers comprising:
a. an electrically conductive bottom wall having orifices for the passage of streams of molten glass therethrough for attenuation into fibers;
b. upwardly extending, electrically conductive, sidewalls, each sidewall having an outwardly extending, electrically conductive flange; and
c. an electrically conductive material added to a portion of each flange to lower the electrical resistance of said portion to establish a desired electrical current flow distribution in the bottom wall, the material generally not extending along the entire length of the flange such that more of the material is in the central region of the flange length then in the end regions of the flange length.

4,272,272

METHOD AND APPARATUS FOR PRODUCTION OF MINERAL FIBERS

Lawrence J. Grubka, Heath, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Sep. 10, 1979, Ser. No. 74,357
Int. Cl.³ C03B 17/02
U.S. Cl. 65—1 7 Claims



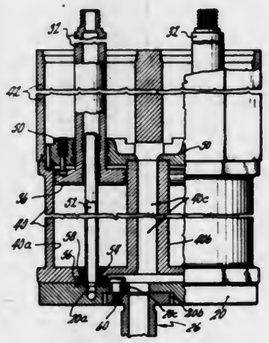
1. In an apparatus for forming mineral fibers comprising a stream feeder having a plurality of orificed projections depending from the feeder floor for flowing streams of molten mineral material, means for attenuating fibers from the streams of molten mineral material, and means for directing gas upwardly into contact with the streams of molten mineral material at a velocity and in an amount effective to convey away from the streams sufficient heat to render the material of the streams attenuable to fibers without appreciably disturbing the ambient gas above the streams in the region of the orificed projections, the improvement comprising a gas flow barrier extending peripherally of the plurality of orificed projections and depending from the feeder floor a distance generally equal to the depending projections adapted to restrict flow of gas adjacent the orificed projections in the region between feeder floor and the depending ends of the orificed projections while leaving the directed gas unrestricted to flow in the region of the streams of material exiting the orificed projections.

4,272,273

PLUNGER MECHANISM FOR GLASSWARE FORMING MACHINE

Albert J. Trahan, Vernon; Bruce R. Beckwith, Unionville, and David B. Murray, West Hartford, all of Conn., assignors to Emhart Industries, Inc., Farmington, Conn.

Filed Jul. 26, 1979, Ser. No. 60,769
Int. Cl.³ C03B 9/26, 11/12
U.S. Cl. 65—167 7 Claims



1. In a glassware forming machine having a frame and a blank mold station at which mating blank mold and neck ring mold assemblies cooperate to define at least one parison cavity, said cavity having a plunger opening for receiving a reciprocable plunger, the improvement comprising a plunger mechanism to be mounted in the machine frame so that the plunger registers with the plunger opening, a base plate for said plunger mechanism, means supporting said base plate in the machine frame for limited horizontal floating movement with respect to the machine frame, said base plate supporting means including a fixed foot and a vertically movable member adjustably connected to said foot for achieving said vertical movement and also connected to said base plate for said floating movement, said plunger mechanism including lower plunger cylinder means with a flat bottom surface abutting said base plate and a plunger cooling tube provided centrally of a cylindrical piston chamber defined by said cylinder means, an annular plunger piston including an actuator rod extending upwardly from said annular piston, said rod being of annular cross section and telescopically receiving said cooling tube at its lower end and adapted to support said plunger at its upper end, said plunger mechanism including upper casing means secured to said lower cylinder means and defining a generally cylindrical cavity above said plunger piston chamber, plunger positioning and guiding elements in said casing cavity, said casing means fitting loosely in an opening provided for it in the machine frame, a positioning plate snugly received around said casing, fastener means for releasably securing said positioning plate to the machine frame, and at least one locking stud securing said casing means to said base plate independently of said positioning plate, said base plate having at least one upwardly open port defined in a planar portion of its upper surface, which port

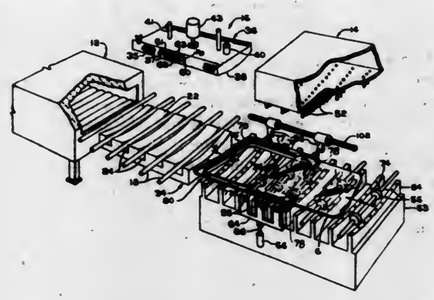
communicates with the lower end of said cooling tube, and the lower end of said tube not projecting below said flat bottom surfaces of said cylinder means.

4,272,274

SLOTTED GLASS SHEET SHAPING MOLD

Robert G. Frank, Murrysville; Rudy Casonaco, Cheswick, and Richard V. Posney, Freeport, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 954,696, Oct. 25, 1978, Pat. No. 4,197,108. This application Sep. 25, 1979, Ser. No. 78,627
The portion of the term of this patent subsequent to Apr. 8, 1997, has been disclaimed.
Int. Cl.³ C03B 23/03
U.S. Cl. 65—273 6 Claims



1. An apparatus for shaping glass sheets, comprising:
a shaping station having a plurality of elongated glass sheet conveying members;
a shaping mold comprising:
a solid block of refractory material having an upward facing shaping surface defining a shaping area having dimensions larger than those of said sheet, said shaping surface having a plurality of smooth, continuous, curved, upward facing, spaced elongated shaping members defining a common curve having a given maximum depth of curvature; and
a continuous elongated grooved portion between adjacent shaping members and generally aligned with said elongated conveying members, the depth of the grooved portion being greater than the given maximum depth of curvature of the shaping members; and
means for moving said mold upward toward said conveying members to move said shaping members between adjacent conveying members.

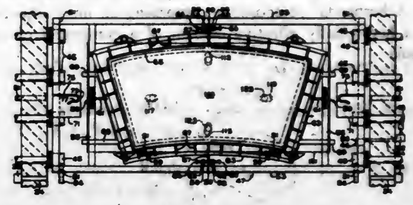
4,272,275

ALIGNING GLASS SHEETS ON AN OUTLINE MOLD PRIOR TO TRANSFER TO SHAPING MOLD

Thomas J. Reese, Server, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 2, 1979, Ser. No. 91,002
Int. Cl.³ C03B 23/025, 23/03
U.S. Cl. 65—273 7 Claims

1. Apparatus for bending glass sheets to a complicated curvature comprising an outline mold having an upwardly facing outline shaping surface and a solid shaping mold having an outline slightly smaller than that of said outline shaping surface and provided with an upwardly facing shaping surface of continuous extent, a plurality of glass edge alignment pins adjacent said outline mold to the outside of said outline shaping surface, first means for supporting each of said glass edge alignment pins in a raised position where said alignment pins abut an edge of one or more glass sheets supported on said outline mold for sag bending, second means for supporting each of said glass edge alignment pins in a lower position where said alignment pins are entirely below said outline shaping surface and means coacting with said first alignment pin supporting means to suddenly and automatically lower said



alignment pins from support by said first alignment pin supporting means to support by said second alignment pin supporting means.

4,272,276

METHOD FOR THE CONTROL OF GERMINATION OF PLANT SEEDS AND GROWTH OF THE SEEDLINGS

Jozsef Szejtli; Magda Tetenyi nee Erdősi, and Peter Tetenyi, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt, Budapest, Hungary

Filed May 21, 1979, Ser. No. 40,957
Claims priority, application Hungary, May 23, 1978, CI-1830
Int. Cl.³ A01N 43/16
U.S. Cl. 71—76 5 Claims

1. A method of controlling seed germination and seedling growth which comprises the step of contacting plant seeds with an effective amount of cyclodextrin solution or solid cyclodextrin selected from the group consisting of alpha-cyclodextrin, beta-cyclodextrin, gamma-cyclodextrin and mixtures of same in a composition containing 0.1 to 95% of cyclodextrin.

4,272,277

2-BUTYL-2-ETHYL-1,3-PROPANEDIOL AS A CHEMICAL PINCHING AGENT

Sol J. Barer, Fanwood, N.J., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 22, 1980, Ser. No. 171,068
Int. Cl.³ A01N 31/02
U.S. Cl. 71—78 7 Claims

1. A method for the inhibition of suckering in growing plants susceptible thereto comprising the application of an effective amount of a composition comprising an active agent consisting essentially of 2-butyl-2-ethyl-1,3-propanediol.

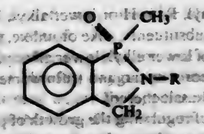
4,272,278

1-METHYL-2-ARYL-2,3-DIHYDRO-1H-2,1-BENZAZAPHOSPHOLE-1-OXIDES, HERBICIDAL COMPOSITIONS AND THE USE THEREOF

Mark T. Bocuy, Maryland Heights, and James A. Miles, Olivette, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 55,432, Jul. 6, 1979, abandoned. This application May 12, 1980, Ser. No. 148,841
Int. Cl.³ A01N 57/36; C07F 9/65
U.S. Cl. 71—86 15 Claims

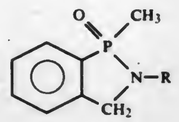
1. A compound of the formula



wherein R is selected from the group consisting of phenyl,

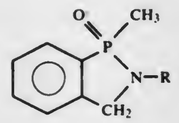
phenoxyphenyl and substituted phenyl containing from one to three substituents individually selected from the class consisting of lower alkyl, lower alkoxy, halogen, and lower haloalkyl.

6. A herbicidal composition comprising an inert adjuvant and a herbicidally effective amount of a compound of the formula



wherein R is selected from group consisting of phenyl, phenoxyphenyl and substituted phenyl containing from one to three substituents individually selected from the class consisting of lower alkyl, lower alkoxy, halogen, and lower haloalkyl.

11. A method of controlling undesired plants which comprises contacting said plants or the plant growth medium with a herbicidal amount of a compound of the formula



wherein R is selected from the group consisting of phenyl, phenoxyphenyl and substituted phenyl containing from one to three substituents individually selected from the class consisting of lower alkyl, lower alkoxy, halogen, and lower haloalkyl.

4,272,279

SEMICARBAZIDYL PHTHALIDES AND USE AS PLANT GROWTH REGULATORS

Joel L. Kirkpatrick, Washington Crossing, Pa., and Natu R. Patel, Overland Park, Kans., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

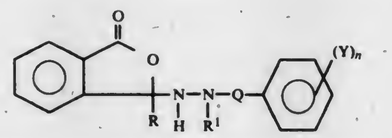
Filed Jun. 19, 1980, Ser. No. 161,189

Int. Cl.³ A01N *43/08*; C07D *307/88*

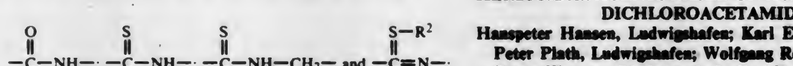
U.S. Cl. 71—88 **54 Claims**

1. A compound of the formula:

(I)



in which Q represents one of the following structures:



R is methyl or ethyl, R^1 is H or lower alkyl, R^2 is lower alkyl and Y represents substituents, alike or unlike, selected from the group consisting of lower alkyl, lower alkoxy, lower alkylthio, bromo, chloro, fluoro, cyano and trifluoromethyl and n=0 to 3, or a hydrohalide salt thereof.

2. The method of regulating the growth of plants comprising applying to the plants, the seed or the soil an effective amount of a compound as specified in claim 1.

4,272,280

ISOBENZOFURANDIONE THIOSEMICARBAZONES AND USE AS PLANT GROWTH REGULATORS

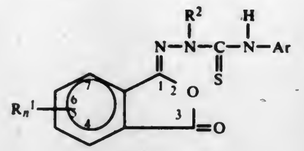
Loren W. Hedrich, Orange, Tex., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Jul. 7, 1980, Ser. No. 166,000

Int. Cl.³ A01N *43/08, 43/30*; C07D *307/90, 317/66*

U.S. Cl. 71—88 **39 Claims**

1. A compound which has the structural formula:



in which R^1 is; C_1 to C_4 alkyl, nitro or halo and n is zero or an integer from 1 to 4, R^2 is; C_1 to C_4 alkyl, or phenyl and Ar is; phenyl or benzyl which may also have thereon a methylenedioxy group or from one to three of the substituents: cyano, phenoxy, nitro, fluoro, bromo, chloro, trifluoromethyl, C_1 to C_4 alkyl, alkenyl, alkoxy, alkylthio or alkylsubstituted amino.

34. The method of regulating the growth of plants comprising applying to the plants, the seed or the soil an effective amount of a compound as specified in claim 1.

4,272,281

COMPOSITION FOR AND METHOD OF SELECTIVELY CONTROLLING WEEDS IN CEREALS

Marco Quadranti, Brugg; Willy Maurer, Basel, and Kurt Maag, Muttenz, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 11, 1979, Ser. No. 56,669

Claims priority, application Switzerland, Jul. 20, 1978, 7837/78

Int. Cl.³ A01N *43/02, 43/40*

U.S. Cl. 71—90 **4 Claims**

1. A herbicidal composition for the selective control of weeds in wheat crops which comprises a herbicidally effective amount of two active components, one component being N-(3-trifluoromethyl-1,2,4-thiadiazolyl-5)-N'-methyl-N'-methoxyurea and the other component being methyl α-[4-(3',5'-dichloropyridyl-2'-oxy)-phenoxy]-propionate, together with inert carriers and or other inert adjuvants, in which the ratio of the urea component to the methyl propionate component is from 1:1 to 5:1.

4,272,282

HERBICIDAL AGENTS BASED ON ACETANILIDES AND DICHLOROACETAMIDES

Hanspeter Hansen, Ladwigshafen; Karl Eicken, Wachenheim; Peter Plath, Ludwigshafen; Wolfgang Rohr, Mannheim, and Bruno Wuerzer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

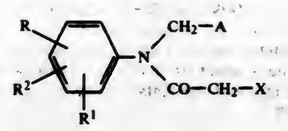
Filed Jul. 17, 1979, Ser. No. 58,258

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832950

Int. Cl.³ A01N *43/56, 37/18*

U.S. Cl. 71—92 **5 Claims**

1. A herbicidal agent for the selective control of unwanted plant growth in corn, said agent containing and effective amount of a substituted acetanilide of the formula



I,

where R denotes hydrogen or linear or branched alkyl of up to 5 carbon atoms, R^1 denotes hydrogen or linear or branched alkyl of up to 5 carbon atoms, R^2 denotes hydrogen or linear or branched alkyl of up to 5 carbon atoms, X denotes chlorine or bromine, and A denotes pyrazole which is attached via a ring nitrogen atom and may be mono- or polysubstituted by halogen, alkyl or alkoxy, each of up to 4 carbon atoms, or A denotes a salt of a pyrazole, as a herbicidal active ingredient, and N-isopropyl-N-propargyl-dichloroacetamide as an antagonistic agent, the ratio of the acetanilide of formula I to the antagonistic agent being from 1:2 to 1:0.125 parts by weight.

4,272,283

HERBICIDAL COMPOSITION AND METHOD FOR CONTROLLING WEEDS

Tetsuo Takematsu; Makoto Konnai, both of Utsunomiya, and Kaoru Ikeda, Ami, all of Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Japan

Filed Jun. 18, 1979, Ser. No. 49,641

Claims priority, application Japan, Jun. 20, 1978, 53-73797

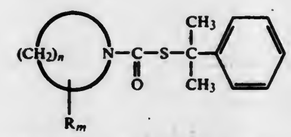
Int. Cl.³ A01N *43/40, 43/36, 37/18, 43/00*

U.S. Cl. 71—94 **7 Claims**

1. A method for controlling weeds, which comprises applying to the locus where the weeds are growing or will grow, 1 to 2,000 g 10 ares of a mixture of

(a) an S-α,α-dimethylbenzyl-N-alkylenimine carbothiolate of the formula

(1)



wherein R represents a lower alkyl group, m is 0, 1 or 2, n is 4, 5 or 6, and the chain of n $—CH_2—$ linkages may contain one oxygen atom, and

(b) 3,4-dichloropropionanilide in a weight ratio of 10 to 400 parts (6) to 100 parts (a).

4,272,284

ARYLTHIOUREIDOISOINDOLINES AND USE AS PLANT GROWTH REGULATORS

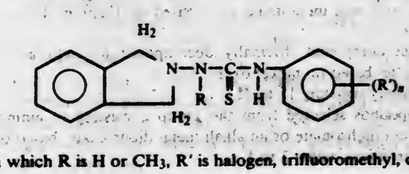
Charles G. Gibbs, Shawnee Mission, Kans., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Mar. 13, 1980, Ser. No. 124,992

Int. Cl.³ A01N *43/38*; C07D *209/44*

U.S. Cl. 71—96 **4 Claims**

1. The method of regulating the growth of plants which comprises applying to the plants pre- or post- emergently an effective amount of a composition comprising from 0.1 percent to 95 weight percent of a compound having the structural formula



in which R is H or CH_3, R' is halogen, trifluoromethyl, cyano or C_1 to C_3 alkyl or C_1 to C_3 alkoxy and n is zero or an integer from 1 to 2, in combination with from 0.1 to 75 weight percent of a carrier or surfactant.

4,272,285

PROCESS FOR PRODUCING MAGNETIC METAL POWDERS

Rioichi Horimoto, Komoro, Japan, assignor to TDK Electronics Co., Ltd., Tokyo, Japan

Filed Jul. 11, 1980, Ser. No. 168,889

Claims priority, application Japan, Jul. 12, 1979, 54-87481; Jul. 12, 1979, 54-87482

Int. Cl.³ C22B *5/12*

U.S. Cl. 75—0.5 BA **5 Claims**

1. A process for producing a magnetic metal powder which comprises reducing a magnetic metal compound in a state mixed with a clay by dry reduction.

4,272,286

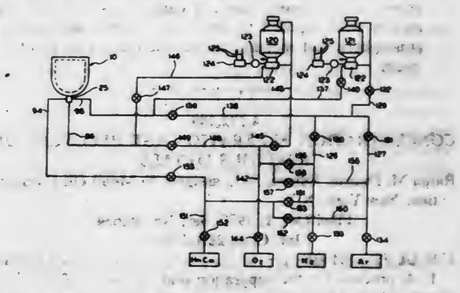
METALLURGICAL VESSEL

Eberhard G. Schempp, Pittsburgh, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Division of Ser. No. 925,545, Jul. 17, 1978, Pat. No. 4,218,049. This application Nov. 13, 1979, Ser. No. 93,808

Int. Cl.³ C21C *5/32, 5/34*

U.S. Cl. 75—51 **4 Claims**



1. A method of treating a molten ferrous metal comprising the steps of containing said metal in a metallurgical vessel, delivering oxygen to said metal in a first flow passage, entraining a highly oxidizable desulfurizing agent in a nonoxidizing gas and delivering the same to said molten metal through a separate second passage concentric with said first passage and delivering hydrocarbon shielding fluid to said vessel through a third flow passage disposed in surrounding relation to said first and second flow passages.

4,272,287

PROCESS FOR REFINING MOLTEN STEEL CONTAINING CHROMIUM

Tadamasa Yajima, Nagoya; Shuzo Kitagawa, Aichi, and Hiromi Hata, Chita, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Aichi, Japan

Filed May 8, 1980, Ser. No. 147,558

Claims priority, application Japan, May 29, 1979, 54-66487

Int. Cl.³ C21C *7/02*

U.S. Cl. 75—60 **7 Claims**

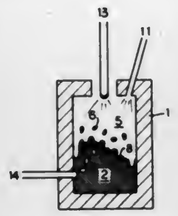
1. Decarburizing refining process for chromium-containing steel comprising steps of:

performing decarburizing reaction and creating turbulence by means of blowing oxygen and inert gas into molten steel in a furnace below the upper surface level thereof;

performing combustion of carbon monoxide (CO) gas produced from the upper surface of the molten steel by means of blowing above said upper surface level oxygen-contain-

ing gas including therein oxygen at least 0.2 times as much as the amount of the oxygen blown below said upper surface level, to convert said carbon monoxide (CO) gas, produced as a product of decarburization reaction caused by the oxygen blown below said upper surface level, into carbon dioxide (CO_2) gas by the oxygen-containing gas blown above said upper surface level;

diffusing exothermic energy, produced by the conversion of carbon monoxide to carbon dioxide, into the molten steel



through the violent turbulent stirring thereof caused by the blowing of the oxygen and the inert gas into the molten steel below said upper surface level for raising thereby the temperature of the molten steel; and

promoting the decarburization reaction taking place, in a high temperature gaseous atmosphere formed above said upper surface level, between carbon contained in the molten steel exposed to said high temperature gaseous atmosphere and metallic oxides such as oxide of chromium.

4,272,288

CONCENTRATION, SEPARATION AND RECOVERY OF PRECIOUS METALS

Ralph M. Dessau, Edison, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 1, 1979, Ser. No. 80,634
Int. Cl.³ C22B *11/04*
U.S. Cl. 75—101 BE **37 Claims**

1. A process for the separation and recovery of precious metals selected from platinum and palladium, which process comprises the steps of:

(a) forming a solution of an ammine complex of a precious metal selected from platinum and palladium;

(b) contacting said solution with one or more members of a novel class of zeolites characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of greater than about 2 to about 12, to selectively sorb said ammine complex;

(c) desorbing said precious metal from said zeolite by ion-exchange with a cation; and

(d) recovering said precious metal.

4,272,289

OXIDATION RESISTANT IRON BASE ALLOY ARTICLES FOR WELDING

Robert B. H. Herchenroeder, and H. Joseph Klein, both of Kokomo, Ind., assignors to Cabot Corporation, Kokomo, Ind.

Continuation of Ser. No. 672,421, Mar. 31, 1976, abandoned, which is a continuation-in-part of Ser. No. 472,341, May 22, 1974, abandoned. This application Nov. 29, 1979, Ser. No. 98,871
Int. Cl.³ C22B *0/00*
U.S. Cl. 75—122 **25 Claims**

1. An improved oxidation resistant iron base alloy article for subsequent welding to another article to form a composite product characterized by reduced heat affected zone cracking high oxidation resistance and improved thermal fatigue resistance as compared with columbium and vanadium bearing iron base alloys consisting essentially of about 0.05 to 0.7% carbon, less than 0.3% columbium, about 15 to 30% cobalt, about 18 to 25% chromium, about 0 to 2% manganese, about 1 to 6% molybdenum, about 0.10 to 0.30% nitrogen, about 15 to 30% nickel, about 0.2 to 0.8% silicon, about 0.1 to 2% tantalum, about 1 to 10% tungsten, about 0 to 0.1% zirconium, about 0.1 to 0.5% aluminum, about 0.001 to 0.1% lanthanum and the balance >23% iron with incidental impurities aggregating less than about 0.6%.

4,272,290

NOVEL POROUS BODY AND PROCESS FOR ITS PREPARATION

Jacques Lesgourgues, Corbeil, France, assignor to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Filed Jul. 18, 1979, Ser. No. 58,487
Claims priority, application France, Jul. 25, 1978, 78 21894
Int. Cl.³ B22F *1/00, 3/00*
U.S. Cl. 75—212 **3 Claims**

1. A porous material comprising 85% to 99.5% by weight of a base materials, in the form of elementary particles such as powders, fibers or chips, selected from the group consisting of nickel, cobalt, iron and various alloys of said metals, and approximately 15 to 0.5% by weight of a fusible auxiliary metal chosen from the group consisting of tin, indium, gallium, germanium, antimony, together with the mixtures and alloys of said metals, said elementary particles being joined to each other by diffusion brazing obtained by means of a dispersion of the fusible material within the particles and by heating the assembly, under a controlled atmosphere, at a temperature higher than 900° C., but in all cases lower than the solidus temperature of the base metal, for a period of time sufficient to cause the melting and diffusion of said fusible metal in the base material.

4,272,291

HEAT-REFLECTIVE ENAMEL

Maria A. Shtern, prospekt Nauki, 11, kv. 87; Nelli I. Levit, prospekt Metallistov, 76, kv. 305; Alla V. Bondarenko, Grazhdansky prospekt, 83, korpus 1, kv. 123, and Alexandra K. Kaschentseva, prospekt Kosmonavtov, 21, korpus 1, kv. 23, all of, Leningrad, U.S.S.R.

Filed Jan. 2, 1980, Ser. No. 109,105
Int. Cl.³ C09D *5/08*
U.S. Cl. 106—14.05 **1 Claim**

1. In a heat-reflective enamel comprising, by weight, 100 parts of a weather resistant vehicle, 30 to 80 parts of a pigment, 1 to 60 parts of and extender, 90 to 840 parts of the a solvent; improvement comprising 15 to 60 parts of the ground product obtained by the thermal interaction between a compound selected from the group consisting of titanium dioxide and metatitanic acid, a nickel compound, antimony trioxide, and a compound selected from the group consisting of ammonium dichromate and an alkali metal dichromate, taken in the following amounts, in parts by weight:

compounds selected from the group consisting of titanium dioxide and metatitanic acid, based on titanium dioxide: 100

nickel compound thermally decomposed to yield nickel oxide, based on nickel oxide: 3 to 32

antimony trioxide: 15 to 35

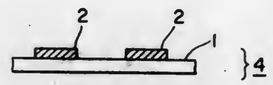
compounds selected from the group consisting of ammonium dichromate or an alkali metal dichromate, based on chromium oxide: 2 to 5.

4,272,292

HEAT TRANSFER PRINTING

Shogo Mizuno, Toride; Kyoichi Shimomura, Tokyo, and Michiaki Kobayashi, Tokyo, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 22, 1978, Ser. No. 962,901
Claims priority, application Japan, Nov. 28, 1977, 52-142423; Nov. 28, 1977, 52-142424
Int. Cl.³ C09D *11/02, 11/10, 11/14*; D06P *5/15*
U.S. Cl. 106—22 **9 Claims**



1. An ink composition for heat transfer printing having enhanced stability on storage comprising:

from about 0.1 to about 10 weight percent of a coloring agent comprising at least one of a carbinol base of a basic dye or a carbinol base derivative, wherein said derivative is the product of the reaction between said basic dye and an alcoholate, and said coloring agent is sublimable at a temperature of from about 80° to about 250° C.;

from about 0.1 to about 10 weight percent of a strong base, wherein the mole ratio of said strong base to said coloring agent is from about 1:1 to about 40:1;

from about 5 to about 20 weight percent of a binder; and a solvent;

wherein all weight percents are based on the total weight of the composition.

4,272,293

PROCEDURE FOR THE TREATMENT OF COMBINED WET FILTER CAKES

Carel W. J. Hooykaas, Rotterdam, Netherlands, assignor to Pelt & Hooykaas B.V., Rotterdam, Netherlands

Filed Jul. 17, 1978, Ser. No. 925,366
Claims priority, application Netherlands, Jul. 22, 1977, 7708196; Dec. 27, 1977, 7714456
Int. Cl.³ C04B *23/04*
U.S. Cl. 106—73.6 **22 Claims**

1. In a process for the treatment of metal-containing filter cakes formed during the purification of wet phosphoric acid obtained by wet methods, the improvement comprising heating the filter cake to above 500° C. in the presence of an inorganic melt whereby said metals are absorbed in the melt.

4,272,294

ALKALI RESISTANT GLASS ARTICLE AND METHOD OF PREPARATION

Karlis L. Jasnaraja, Littleton, Colo., assignor to Johns-Manville Corporation, Denver, Colo.

Filed Sep. 20, 1979, Ser. No. 77,451
Int. Cl.³ C04B *31/06*; D02G *3/00*
U.S. Cl. 106—99 **15 Claims**

1. A glass fiber article having enhanced alkali resistance which comprises glass fiber having thereon a coating comprising zinc stearate and a film forming polymer, said coating being present as 1 to 60% by weight of solids based on the weight of glass fiber.

4,272,295

STARCH-BASED ADHESIVES

Kaljo Linke, Sydney, Australia, assignor to N. B. Love Industries Pty. Ltd., New South Wales, Australia

Filed Jun. 6, 1979, Ser. No. 46,019
Claims priority, application Australia, Jun. 20, 1978, PD4794
Int. Cl.³ C08L *3/00, 89/00*
U.S. Cl. 106—157 **10 Claims**

1. The method of manufacturing a starch based adhesive comprising the steps of:

combining as a mixture at least one lyophilic colloid, granules of at least one raw starch, a water soluble alkaline substance, and water;

partially gelatinising the raw starch granules by alkalization until the starch granules are partially swollen, have lost birefringence, and have increased viscosity, but have not attained maximum swelling and have not burst; and

adding a reaction stopper to the mixture prior to the raw starch granules reaching maximum swelling and bursting.

4,272,296

NEW INORGANIC PIGMENTS AND PROCESS FOR THEIR PREPARATION

Luigi Baldacci, Alessandria, and Massimo Rustioni, Pozzolo Formigaro, both of Italy, assignors to Montedison S.p.A., Milan, Italy

Filed Feb. 4, 1980, Ser. No. 118,117
Claims priority, application Italy, Feb. 9, 1979, 20836 A/79
Int. Cl.³ C09C *1/00*
U.S. Cl. 106—288 B **9 Claims**

1. A yellow pigment composition consisting essentially of monoclinic bismuth vanadate and orthorhombic barium sulfate, in which the barium sulfate is present in amounts between 10 and 90% by weight of the total composition, said composition being obtained by co-precipitating bismuth vanadate and barium sulfate, calcining in the presence of air at a temperature between 400° and 700° C., cooling down slowly and finally grinding.

4,272,297

COMPOSITIONS FOR USE WITH PAPERMAKING FILLERS

Kenneth Brooks, Longfield; Leslie E. Shiel, Gravesend, and David E. Smith, Longfield, all of England, assignors to Blue Circle Industries Limited, London, England

Filed Sep. 19, 1979, Ser. No. 77,095
Int. Cl.³ C09C *1/02*
U.S. Cl. 106—306 **16 Claims**

1. A composition for flocculating filler in aqueous suspension intended for use in a papermaking furnish, comprising: (a) at least one starch, (b) an organic polyelectrolyte capable of flocculating mineral filler particles in aqueous suspension, and (c) at least one agent capable of regulating the mobility of a dispersion.

4,272,298

PROCESS FOR CONDITIONING A PIGMENT IN LIQUID AMMONIA

Fridolin Bäbler, Allschwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 873,584, Jan. 30, 1978, abandoned. This application Sep. 18, 1979, Ser. No. 76,634
Claims priority, application Switzerland, Feb. 3, 1977, 1317/77
Int. Cl.³ C09B *67/10, 67/20, 67/48, 67/54*
U.S. Cl. 106—309 **6 Claims**

1. A process for conditioning an organic pigment selected from the group consisting of isoindolinone, azo, metal complex, quinacridone and quinophthalone pigments with liquid ammonia which comprises: (a) treating the pigment with liquid ammonia in the absence of water or organic solvent; and (b) isolating the pigment by filtration and subsequent removal of

the ammonia by evaporation or by direct evaporation of the ammonia.

4. A process for conditioning an organic pigment selected from the group consisting of isoindolinone, azo, metal complex, quinacridone and quinophthalone pigments with liquid ammonia which comprises: (a) treating the pigment with liquid ammonia in the absence of water or organic solvent; (b) partially evaporating the ammonia to form a pigment suspension; (c) diluting the suspension with an organic solvent or water; and (d) isolating the pigment by filtration and subsequent removal of the ammonia, organic solvent or water.

4,272,299

BURNT SUGAR CARAMEL FLAVORING AND PROCESS OF MAKING

Hazel S. Bush, Rte. 1, Box 78, Newton, Ga. 31770

Filed Mar. 24, 1980, Ser. No. 133,257
Int. Cl.³ A23L *1/09, 1/22*
U.S. Cl. 127—29 **6 Claims**

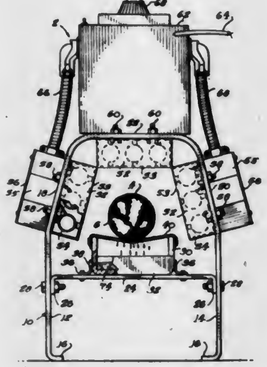
1. A burnt sugar instant caramel flavoring in syrup form storable at room temperature consisting of a mixture of approximately five parts by volume of a sugar base holding syrup and three parts, by volume of a burnt sugar caramel flavored syrup.

4,272,300

METHOD FOR CLEANING GREASE-FILLED CABLE STUB

Frederick W. Burtelson, Harvard, Ill., assignor to Reliable Electric Company, Franklin Park, Ill.

Division of Ser. No. 933,056, Aug. 11, 1978. This application Feb. 6, 1980, Ser. No. 119,095
Int. Cl.³ B08B *7/00*
U.S. Cl. 134—5 **4 Claims**



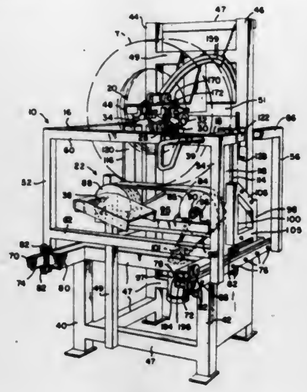
1. A method of cleaning grease from around the insulated wires of an electrical cable stub wherein the cable has a sheath that has been removed at the stub to expose the grease packed insulated wires, said method comprising positioning said stub over an open top trough so that the grease is exposed to the inside of the trough, heating the stub to a temperature sufficient to melt the grease and allow it to run off of the stub into the trough to be collected therein, maintaining the temperature to which the stub is exposed at a level that avoids damage to the insulation of the wires, and during said heating supporting said stub on a structure of sufficiently low heat absorbtivity so as to prevent the formation of hot spots on the cable which might damage the insulation of the wires.

4,272,301

TIRE CLEANING SYSTEM WITH TIRE SPREADER

Lyle D. Galbraith; Hudson Stewart, both of Kirkland, and Jon M. Congdon, Redmond, all of Wash., assignors to Rockcor, Inc., Redmond, Wash.

Continuation of Ser. No. 903,964, May 8, 1978, abandoned, which is a continuation of Ser. No. 751,605, Dec. 17, 1976, abandoned. This application Apr. 15, 1980, Ser. No. 140,612
Int. Cl.³ B08B *1/04, 9/00; B60C 25/14*
U.S. Cl. 134—8 **14 Claims**



1. A method of cleaning the interior of a tire, comprising moving the tire to a position in which a cleaning means is positioned within the inner circumference of the tire, engaging the tire at its outer tread portion and causing relative motion of the tire and cleaning means in a direction substantially normal to the tire axis until the cleaning means is positioned in the tire interior, and rotating the tire adjacent the cleaning means during cleaning thereof.

10. A tire cleaner comprising:

cleaning means for cleaning an interior tire surface during rotation of the tire;

tire rotation means operatively associated with the cleaning means for causing rotation of the tire during cleaning;

tire transport means operatively associated with the cleaning means for moving the tire into position for cleaning; and

tire spreading means operatively associated with said cleaning means to spread the tire beads for admitting said cleaning means into the tire interior, said spreading means including a pair of members movable between first and second positions relative to each other, said members in said first position adapted to engage opposed tire beads as said transport means moves said tire into cleaning position, and means for moving at least one of the members away from the other member to said second position in response to contact of said one member with said tire beads.

4,272,302

METHOD OF MAKING V-MOS FIELD EFFECT TRANSISTORS UTILIZING A TWO-STEP ANISOTROPIC ETCHING AND ION IMPLANTATION

Murzban D. Jhabvala, Seabrook, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

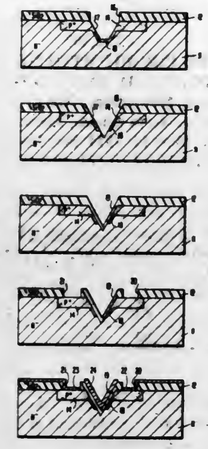
Filed Sep. 5, 1979, Ser. No. 72,727
Int. Cl.³ H01L *21/265, 21/306*
U.S. Cl. 148—1.5 **4 Claims**

1. A method of making a V-MOS field effect transistor comprising the steps of:

forming a masking layer over a surface of a crystalline substrate;

opening an aperture in said masking layer to expose said surface of said substrate;

applying an anisotropic etchant to said exposed surface to etch a groove in said crystalline substrate, said groove having a decreasing width with increasing depth;



inhibiting the effect of said anisotropic etchant before the etch goes to completion so that a V-shaped groove is only partially formed;

accelerating ions through said aperture for implantation in said crystalline substrate in the lower portion of the partially formed V-shaped groove; and

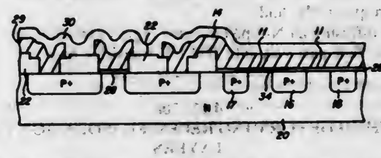
thereafter reapplying an anisotropic etchant to said partially formed V-shaped groove and allowing the etch to go to completion.

4,272,303

METHOD OF MAKING POST-METAL ION BEAM PROGRAMMABLE MOS READ ONLY MEMORY

Pallab K. Chatterjee, Dallas, and Al F. Tasch, Jr., Richardson, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 912,635, Jun. 5, 1978, abandoned. This application Jul. 9, 1979, Ser. No. 68,841
Int. Cl.³ H01L *21/265; B01J 17/00*
U.S. Cl. 148—1.5 **17 Claims**



1. A method of making a read-only-memory comprising the steps of:

forming a plurality of insulated gate field effect transistors in the face of a semiconductor body, each of the transistors having spaced source and drain regions, a channel between the source and drain regions, a gate oxide layer overlying the channel between the source and drain regions, and a gate electrode overlying the gate oxide, the transistors being in a regular pattern to provide an array of memory cells;

subsequent to the completion of fabrication processing involving the formation of the array of memory cells, ion implanting particular memory cells by directing ions of sufficient energy to directly penetrate through the material of the gate electrode and into the gate oxide of selected memory cells; and

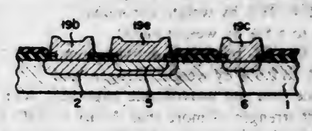
programming the array of memory cells by altering the electrical characteristics of said particular memory cells in response to the selective ion implantation of said particular memory cells.

4,272,304

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

Shigeru Komatsu, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Oct. 22, 1979, Ser. No. 87,435
Claims priority, application Japan, Oct. 26, 1978, 53-131876
Int. Cl.³ H01L *21/26*
U.S. Cl. 148—1.5 **9 Claims**



1. A method of manufacturing a semiconductor device which comprises the steps of:

(1) forming a first insulation layer all over the main surface of a semiconductor substrate in which a base region is diffused, and covering the first insulation layer with a second insulation layer capable of selectively etching against the first insulation layer;

(2) selectively etching off the second insulation layer to form a preliminary port for the diffusion of an emitter region, a preliminary port for mounting a base electrode and a preliminary port for mounting a collector electrode;

(3) depositing a covering layer capable of selectively etching against the second insulation layer all over the second insulation layer;

(4) selectively etching off all portions of the covering layer except the portion which closes the preliminary port for mounting the base electrode to form a retained covering layer;

(5) selectively etching off those portions of the first insulation layer which are exposed at the bottoms of said emitter diffusion and collector electrode preliminary ports, thereby providing an emitter diffusion port and collector electrode deposition port;

(6) forming an emitter region and a high concentration region for the leadout of a collector electrode through the emitter diffusion port and collector electrode deposition port respectively; and

(7) etching off the retained covering layer which is left on the base electrode deposition preliminary port and that portion of the first insulation layer which is exposed at the bottom of said base electrode deposition preliminary port, thereby providing a base electrode deposition port.

4,272,305

FERRITIC-AUSTENITIC CHROMIUM-NICKEL STEEL AND METHOD OF MAKING A STEEL BODY

Hermann Weingerl, and Manfred Koren, both of Kapfenberg, Austria, assignors to Vereinigte Edelstahl-Werke Aktiengesellschaft (VEW), Vienna, Austria

Filed Apr. 10, 1979, Ser. No. 28,815
Claims priority, application Fed. Rep. of Germany, Apr. 10, 1978, 2815439
Int. Cl.³ C22C *38/58; C21D 1/02*
U.S. Cl. 148—12 E **7 Claims**

1. A method of making corrosion resistant objects which comprises the step of forging a chromium-nickel ferritic-auste-

nitic steel containing 30% to 70% austenite and consisting of the following composition:

up to 0.1% by weight carbon,
up to 1.0% by weight silicon,
4.5% to 6.0% by weight manganese,
22.0% to 28.0% by weight chromium,
3.5% to 5.5% by weight nickel,
1.0% to 3.0% by weight molybdenum,
0.35% to 0.6% by weight nitrogen,
balance iron and unavoidable impurities, to a body having a notch impact strength and tenacity in an ISO-V test of at least 35 Joule with a two degree forging and a minimum yield point of 600 N/mm^2.

7. A forged body consisting of ferritic-austenitic chromium-nickel steel having the following composition:

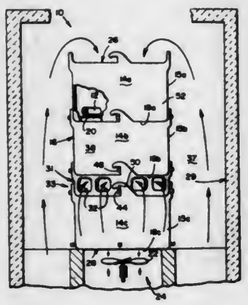
up to 0.1% by weight carbon;
up to 1.0% by weight silicon;
4.5% to 6.0% by weight manganese;
22.0% to 28% by weight chromium;
3.5% to 5.5% by weight nickel;
1.0% to 3.0% by weight molybdenum;
0.35% to 0.6% by weight nitrogen; and
balance iron and unavoidable impurities, with a notch impact strength of more than 35 Joule (ISO-V) with two-degree forging and a minimum yield point of 600 N/mm^2, the steel containing 30% to 70% austenite.

4,272,306

CARBURIZING TUB APPARATUS AND METHOD

George E. Reisinger, Jr., York, Pa., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Sep. 27, 1979, Ser. No. 88,722
Int. Cl.[3] C21D *1/48*
U.S. Cl. 148—16.5 16 Claims



1. An apparatus (10) for controllably contacting a plurality of parts (12) with a gas, comprising:

a pair of tubular tubs (14*b*,14*c*) open at both ends, having flow impervious sidewalls (15*b*,15*c*) and an open framework (20) for holding the parts (12) within each respective tube (14*b*, 14*c*); and

a tubular spacer member (31,31' or 31") having an aperture (32,32' or 32") extending laterally therethrough, the spacer member (31,31' or 31") being located longitudinally between the tubs (14*b*,14*c*) in abutting relation thereto to define, with said tubs (14*b*,14*c*), a stacked column (16) and a first flow path for the gas longitudinally through the column (16), and the aperture (32,32' or 32") defining a second flow path for ingress of the gas from exteriorly of said column (16) to the first flow path.

14. A method of treating a plurality of parts (12) with a gas, comprising:

placing the parts (12) on an open frame work (20) within a pair of tubular tubs (14*b*,14*c*) open at both ends and having generally flow impervious sidewalls (15);

forming a column (16) by placing a tubular spacer member (31) in abutting relation between the tubs (14*b* and 14*c*);

directing the gas in a first flow path longitudinally through the column (16); and

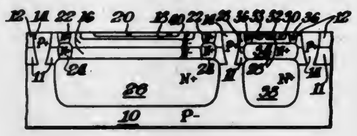
controllably directing the gas inwardly into the column (16) through a plurality of lateral apertures (32,32' or 32") in the tubular spacer member (31).

4,272,307

INTEGRATED CIRCUIT WITH I^2L AND POWER TRANSISTORS AND METHOD FOR MAKING

James F. Mayrand, Shrewsbury, Mass., assignor to Sprague Electric Company, North Adams, Mass.

Filed Mar. 12, 1979, Ser. No. 19,971
Int. Cl.[3] H01L *21/74, 21/22, 29/167;* H03K *19/091*
U.S. Cl. 148—187 7 Claims



1. A method for making an integrated circuit having a power transistor in one epitaxial pocket and an I^2L transistor in another epitaxial pocket, chronologically comprising:

(a) forming first N-type epitaxial layer on a face of a P-type silicon substrate;

(b) predoping a portion of the exposed face of said first epitaxial layer with antimony atoms;

(c) forming over said first layer a second N-type epitaxial layer;

(d) at least partially electrically isolating said one and another pockets in said layers so that said predoped face portion is in said another pocket;

(e) forming an N-type emitter region in said one pocket extending into said second layer from the outer surface thereof;

(f) heating said substrate, to further expand said emitter, to complete said electrically isolating, and to drive said antimony atoms to form an N-type buried layer at the interface between said layers in said another pocket creating an N+N holes-barrier junction with the unaltered portion of said epitaxial layer;

(g) diffusing two P-type base regions extending from the outer surface of and part way through said second epitaxial layer for said power transistor in said one pocket and for said inverted I^2L transistor in said another pocket, respectively; and

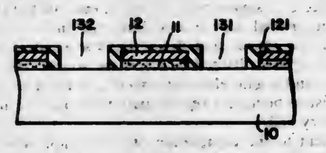
(h) diffusing an N-type collector region extending from said surface part way into said I^2L transistor base region.

4,272,308

METHOD OF FORMING RECESSED ISOLATION OXIDE LAYERS

Ramesh C. Varshney, 2622 Ohlone Dr., San Jose, Calif. 95132

Filed Oct. 10, 1979, Ser. No. 83,346
Int. Cl.[3] H01L *21/316*
U.S. Cl. 148—187 6 Claims



1. A method for growing a recessed oxide region in a portion of a semiconductor substrate located beneath an opening within a protective layer comprising the steps of:

forming an oxide-growth-inhibiting coating over said layer, on the portion of said layer defining said opening, and over the portion of said substrate beneath said opening;

simultaneously removing both said coating over the portion of said substrate beneath said opening to expose said substrate and said coating over said layer while leaving said coating on the portion of said layer defining said opening; and

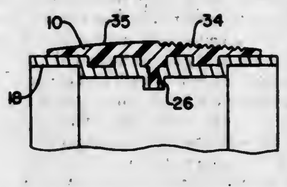
subjecting the said portion of said semiconductor substrate exposed through said opening to an oxidizing process selected to grow said recessed oxide region in said substrate.

4,272,309

PROCESS FOR MOLDING REINFORCED ARTICLES

Roger E. Payne; Robert K. Rossi, both of Akron, Ohio, and James B. Knizely, Middlebury, Conn., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed May 1, 1980, Ser. No. 145,477
Int. Cl.[3] B29H *17/00*
U.S. Cl. 156—117 29 Claims



17. A method of preparing a reinforced tire of liquid reaction material in a tire mold, said mold having a pair of side plates, and a collapsible radially inner tire mold core member which comprises the steps of:

(a) preparing an outer ring of a tread belt member in a tread mold with a removable, generally cylindrical tread mold core member and a radially outer shell member positioned radially outward of the surface of said core member to define a cavity between said shell member and said core member including the steps of:

(1) mounting a spacer band with a radially outer groove thereon around a radially outer surface of said tread mold core member,

(2) wrapping a reinforcing cord around said spacer band and in said groove,

(3) positioning said outer shell member radially outward of said tread mold core member to define an outer cavity between said band and said outer shell member,

(4) charging a liquid reaction mixture into said outer cavity and partially curing said mixture to form an outer polymeric ring of said tread belt member adhered to said reinforcing cord,

(5) collapsing and removing said tread mold core member and said spacer band from said outer shell member containing said outer polymeric ring and reinforcing cord,

(6) positioning a collapsible tread mold core member adjacent said outer shell member to define an inner cavity between said outer polymeric ring and said tread mold core member,

(7) charging a liquid reaction mixture into said inner cavity to form an inner polymeric ring of said tread belt,

(8) partially curing said inner ring and said outer ring at a predetermined temperature to adhere said inner ring to said outer ring,

(9) removing said tread belt from said collapsible tread mold core member and said outer shell member,

(10) mounting said tread belt between said pair of side plates in an outer tread ring of said tire mold;

(b) closing said tire mold with said collapsible tire core member being spaced from said side plates and said tread belt to define a cavity of generally tire shape;

(c) charging a liquid reaction mixture into said cavity to form a tire body and at least partially curing said tire body and further curing said tread belt to adhere said body to said tread belt; and

(d) opening said tire mold and collapsing said tire mold core member to remove the tire from said tire mold.

4,272,310

METHOD OF MAKING A BONDED STRUCTURE OF MAGNET WIRE

Charles D. Dudgeon, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 16, 1979, Ser. No. 85,306
Int. Cl.[3] B65H *71/00*
U.S. Cl. 156—172 12 Claims

1. In a method of making a bonded structure of magnet wire, the steps comprising:

applying a dual-purpose coating of reactive and lubricating spooling oil mixture to a length of unlubricated magnet wire;

forming the magnet wire into a coil, with the contiguous turns of the magnet wire being in abutting relationship; and

heating said coil of magnet wire whereby said coating is converted to a hard adhesive for bonding together the contiguous turns of said coil.

10. In a method of making a bonded structure of magnet wire, the steps comprising:

applying a dual-purpose coating of reactive and lubricating spooling oil mixture onto a length of unlubricated magnet wire;

forming the magnet wire into a coil, with the contiguous turns of the magnet wire being in abutting relationship; and

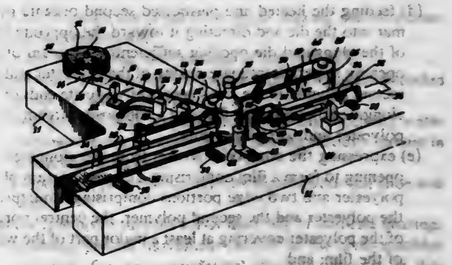
heating said coil of magnet wire whereby said coating is converted to a hard adhesive for bonding together the contiguous turns of said coil, said reactive spooling oil mixture including the epoxy resin compound 3,4-epoxycyclohexylmethyl(3,4-epoxy)cyclohexane carboxyiate, or the melamine resin compound hexamethoxymethylmelamine.

4,272,311

METHOD AND APPARATUS FOR AUTOMATICALLY LABELLING CONTAINERS

Joseph J. D'Angelo, 378 Annette Ct., Wycoff, N.J. 07481, and Joseph J. D'Angelo, Jr., 53 Iroquois Ave., Oakland, N.J. 07536

Filed May 17, 1979, Ser. No. 39,755
Int. Cl.[3] B26D *5/02;* B65C *3/00*
U.S. Cl. 156—215 13 Claims



1. The method of automatically labelling containers comprising the steps of:

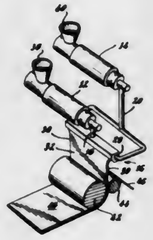
(a) transporting a series of individual containers to a label-engaging station,
(b) feeding a continuous web of preprinted labels to the label-engaging station,
(c) sensing a predetermined portion of each label as the web is being fed to the label-engaging station,
(d) selectively applying an adhesive to the web of preprinted labels,
(e) attaching the front edge of the leading label in the web to a container by pressing the front edge of the label having adhesive thereon into contact with the container at said label-engaging station,
(f) wrapping the attached label around the container by rolling the container,
(g) in response to said sensing temporarily clamping the web, and
(h) separating the label from the web as the label is being wrapped around the container by rolling the container.

4,272,312

PROCESS FOR EXTRUDING FILMS OF THERMOPLASTIC POLYESTER FILM-FORMING MATERIALS

Kenneth P. Thompson, Canton, N.C., assignor to Champion International Corporation, Stamford, Conn.

Filed Nov. 1, 1979, Ser. No. 90,403
Int. Cl.³ B29D *7/02*
U.S. Cl. 156—244.11 **13 Claims**



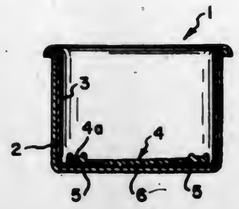
1. A process for forming a film of a thermoplastic film-forming, polyester comprising the steps of:
(a) heating and plasticizing the polyester;
(b) feeding the heated and plasticized polyester to a die having an elongated die opening therein;
(c) heating and plasticizing a second organic polymer not normally readily processable with the polyester;
(d) feeding the heated and plasticized second organic polymer into the die and directing it toward the opposite ends of the elongated die opening sufficiently upstream of the opening to permit intimate mixing of the polyester and the second polymer in the areas near both opposite ends of the elongated dies, thereby forming a composite stream of the polyester and second polymer;
(e) expressing the composite stream from the elongated die opening to form a film comprising a central portion of the polyester and two edge portions comprising a mixture of the polyester and the second polymer, the central portion of the polyester covering at least a major part of the width of the film; and
(f) drawing the film from the die opening at a rate greater than the rate of extrusion to thereby reduce the thickness of the film.

4,272,313

METHOD OF MANUFACTURING A METAL CAP WITH A LINING AFFIXED THERETO AT SELECTED AREAS

Fumio Mori, and Kazuhisa Ishibashi, both of Yokohama, Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

Filed May 15, 1979, Ser. No. 39,119
Claims priority, application Japan, May 26, 1978, 53-62305
Int. Cl.³ B29C *27/04*; B65D *41/04*
U.S. Cl. 156—262 **5 Claims**



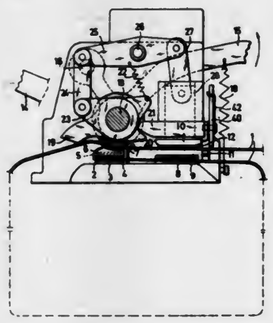
1. A method of manufacturing a metal cap having a primer layer covering the inside bottom surface thereof overlaid by a lining layer, comprising the steps of applying a primer layer to said cap where the primer layer has a thermal adhesiveness with respect to the lining layer and has an adhesiveness with respect to said cap, applying the lining layer to the bottom of said cap, and applying heat to a selected portion of the bottom of the cap whereby a selected part of the lining layer at the bottom of the cap will be thermally adhesively affixed to said primer layer and whereby the remaining unselected portion of the bottom of the cap which is unheated will be loosely positioned with respect to the remaining unselected part of the lining layer.

4,272,314

HAND-OPERATED TENSIONING AND WELDING APPARATUS FOR THERMOPLASTIC BANDS

Andras Banai, Stresemannstr. 5, 5000 Köln 90, Fed. Rep. of Germany

Filed May 29, 1979, Ser. No. 43,301
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1978, 2825068
Int. Cl.³ B65B *13/32*
U.S. Cl. 156—494 **13 Claims**



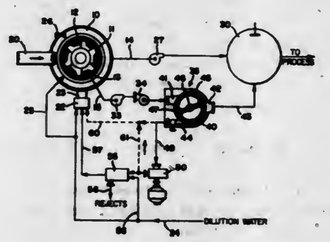
1. In a hand-operated welding apparatus for bands of thermoplastic material, including clamping means for clamping one end portion of the band, tensioning means for forming a loop of said band above said one end portion, means for heating overlapping portions of said loop, means for compressing the heated overlapping portions, and means for cutting the other end portion of the band, a combination comprising a frame; a clearance control lever pivotably supported on said frame and coupled to said clamping means and said tensioning means to open said clamping and tensioning means when rotated in one direction and to close said clamping means and said tensioning means when rotated in the other direction; a pivotable combined control lever pivotally supported on said clearance control lever; over-running coupling means arranged between said combined control lever and said tensioning means to activate the latter during the rotation of said combined control lever in said one direction and to overrun said tensioning means when said combined control lever is rotated in the opposite direction; delayed action coupling means cooperating with said combined control lever; and a linkage arranged between said delayed action coupling and said heating means, said compressing means and said cutting means to activate successively the heating, compressing and cutting means when said combined control lever is swung in said opposite direction, so that said combined control lever is operative for tensioning, welding and cutting said band.

4,272,315

SECONDARY FIBER SYSTEM

Howard P. Espenmiller, Middletown, Ohio, assignor to The Black Clawson Company, Middletown, Ohio

Continuation of Ser. No. 667,675, Mar. 17, 1976, abandoned. This application Mar. 20, 1979, Ser. No. 22,101
Int. Cl.³ D21B *1/32, 1/34*
U.S. Cl. 162—4 **8 Claims**



1. The method of treating waste paper materials containing plastic and other floatable trash to recover paper fibers therefrom for reuse which comprises the steps of:
(a) supplying said materials and water to a vessel at rates maintaining the consistency of the resulting suspension in the range of approximately 2–8% solids content,
(b) continuously pulping said suspension in said vessel to reduce said materials to fragments,
(c) continuously extracting from said vessel a first fraction slurry comprising liquid and only such of said fragments as pass through holes of sufficiently small size to accept only fragments of the size of substantially defibered paper, said small holes being in the range of substantially ¼ to 3/16 inch in diameter,
(d) continuously extracting from said vessel a separate second fraction slurry comprising liquid and such of said fragments as pass through holes sufficiently larger than said small extraction holes to pass pieces of partially defibered paper and correspondingly sized pieces of floating trash, said larger holes being in the range of substantially ¼ to 1 inch in diameter,
(e) cleaning said second extracted fraction by removal of high specific gravity contaminants therefrom,
(f) screening said cleaned fraction through small perforations of a size not larger than said small extraction holes,
(g) mixing the accepted stock from said screening step with said first extracted fraction,
(h) screening the rejected stock from said screening step through perforations of a size intermediate the sizes of said small and large extraction holes, and
(i) recycling the accepted stock from said second screening step to said vessel.

4,272,316

STEAM SHOWER

Edgar J. Justus, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed May 29, 1979, Ser. No. 43,802
Int. Cl.³ D21F *3/02*
U.S. Cl. 162—206 **2 Claims**

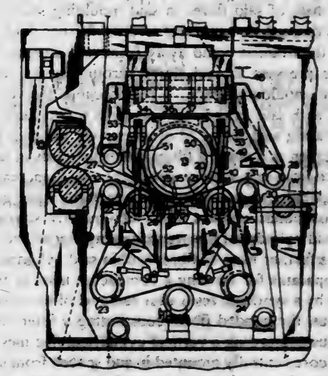
1. The method of removing water from a traveling paper web, which comprises the steps of:
passing the web through a press nip for expressing water therefrom with a felt engaging a first surface of the web;
immediately blanketing a second, exposed surface of the web with steam on the offrunning side of the nip before the web is exposed to air and as the web and felt are being released from the offrunning side of the nip, and substantially completely blanketing the web from the offrunning side of the nip and for a substantial distance downstream from the nip and excluding air from direct contact with the steam covered web; and
applying suction to the felt throughout said substantial distance downstream from the nip and drawing moisture from the web into the felt and drawing steam into the web.

4,272,317

ROLL BEARING ALIGNMENT

Arnold J. Roerig, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis.

Filed Nov. 1, 1979, Ser. No. 90,276
Int. Cl.³ D21F *3/00*; B30B *3/04*
U.S. Cl. 162—272 **10 Claims**



1. An extended nip press for a paper making machine comprising in combination:
a main roll having end bearings at the roll ends;
a pressure shoe having a concave face defining an extended press nip with the roll;
means guiding a felt to pass through the nip receiving water expressed from a traveling web passing through the nip in a machine direction;
a looped belt passing through the nip between the shoe and web;
and a free pivot support for at least one of said end bearings enabling pivotal movement thereof in the cross-machine direction for accommodating effective changes in distances between said end bearings due to bending and temperature change of the roll.

4,272,318
APPARATUS FOR MAKING FILTER ELEMENTS FOR GAS OR LIQUID

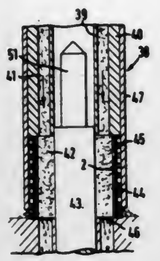
Brian Walker, Washington, and Kenneth Merrie, High Shincliffe, both of England, assignors to Process Scientific Innovations Limited, Durham, England

Division of Ser. No. 3,450, Jan. 15, 1979. This application Aug. 7, 1979, Ser. No. 64,598

Claims priority, application United Kingdom, Jan. 23, 1978, 2559/78

Int. Cl.³ D21J 7/00

U.S. Cl. 162—382 3 Claims



1. Apparatus for forming a compacted tubular mass of fibres to be bonded by a synthetic resin after removal of the mass from the apparatus, the bonded fibres constituting a filter element, the apparatus comprising a vertical cylindrical fine mesh screen, a central core centrally mounted in and spaced from said screen, an annular fine mesh screen extending between said core and said cylindrical screen so as to constitute a base of container means defining a tubular moulding space and otherwise defined by said core and said cylindrical screen, duct means for delivering a slurry of fibres in liquid peripherally around the top of said moulding space to accumulate a tubular mass of said fibres in said moulding space while the liquid is drained through said screens, further duct means for leading the drained liquid away from said screens, means for applying pressure to said slurry throughout its introduction into said moulding space, a reciprocable sleeve in sliding contact with said cylindrical fine mesh screen, and means for reciprocating said sleeve to progressively uncover said cylindrical screen as a mass of fibres builds upwards in said moulding space from said annular screen thereby to increase the area of said cylindrical screen through which the liquid can drain as said mass builds upward and, subsequently substantially to cover said cylindrical fine mesh screen prior to the accumulation of a further mass of fibres within said cylindrical screen.

2. Apparatus for forming a compacted mass of fibres to be bonded by a synthetic resin after removal of the mass from the apparatus, the bonded fibres constituting a filter element, the apparatus comprising a vertical cylindrical fine mesh screen, a central core centrally mounted in and spaced from said screen, an annular fine mesh screen extending between said core and said cylindrical screen so as to constitute a base of container means providing a moulding space and otherwise defined by said core and said cylindrical screen, duct means for delivering a slurry of fibres in liquid peripherally around the top of said moulding space to accumulate a tubular mass of said fibres in said moulding space while the liquid is drained through said screens, further duct means for leading the drained liquid away from said screens, means for applying pressure to said slurry throughout its introduction into said moulding space, said core being formed along its length with portions of different diameters, each portion having a length at least as long as said cylindrical screen, and means for longitudinally adjusting the position of said core relative to said cylindrical screen to vary the volume of said moulding space by bringing different portions of said core into register with said cylindrical fine mesh screen.

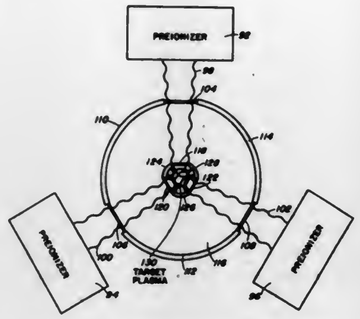
4,272,319
DEVICE AND METHOD FOR ELECTRON BEAM HEATING OF A HIGH DENSITY PLASMA

Lester E. Thode, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 882,024, Feb. 28, 1978, abandoned. This application Aug. 31, 1979, Ser. No. 71,603

Int. Cl.³ G21G 4/02; B23K 9/00; G21B 1/00

U.S. Cl. 176—5 17 Claims



1. A device for relativistic electron beam heating of a high density plasma to kilovolt temperatures comprising:

means for generating a relativistic electron beam having a particle voltage of at least 3 MeV, a current density of at least 1 kA/cm^2, and a low relativistic electron beam temperature along the stream line of said relativistic electron beam;

means for producing a plasma having a density exceeding 10^{17} particles/cm^3;

means for applying said relativistic electron beam to said plasma to maintain said relativistic electron beam temperature along the stream line of said relativistic electron beam at a level sufficiently low to produce convective wave oscillations in said plasma, said convective wave oscillations created by relative drift between electrons of said relativistic electron beam and electrons of said plasma resulting from two stream and upper hybrid instabilities produced in said plasma by said relativistic electron beam;

whereby relativistic electron beam energy is deposited in said plasma to locally heat a small volume of said plasma to kilovolt temperatures at an efficiency which is a function of the strength parameter S, where:

$$S=(\gamma-\gamma^{-1})(n_b/2n_c)^{\frac{1}{2}}.$$

4,272,320
HIGH DENSITY LASER-DRIVEN TARGET

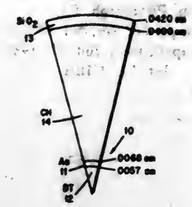
John D. Lindl, San Ramon, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Nov. 3, 1977, Ser. No. 848,427

Int. Cl.³ G21B 1/00

U.S. Cl. 176—9 3 Claims

1. In a system comprising means for extracting useful energy in a controlled manner from a target imploded by energy from at least one laser beam; the improvement comprising: a high density, substantially spherically configured, concentric shelled target consisting of a pusher shell consisting of Au, said pusher shell containing therein a quantity of fuel consisting of DT; an ablator-pusher shell consisting of SiO_2, said ablator-pusher being positioned in spaced relation about said pusher shell forming a region therebetween filled with a material consisting of plastic foam.



4,272,321
NUCLEAR REACTOR INTERNALS AND CONTROL ROD HANDLING DEVICE

George N. Betancourt, Manchester, and William W. Etzel, New Hartford, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed Jun. 1, 1978, Ser. No. 911,628

Int. Cl.³ G21C 7/08

U.S. Cl. 176—87 12 Claims

1. For use in a nuclear reactor installation having a vertically reciprocable crane above a vertically oriented reactor vessel, the vessel containing a core, a plurality of control rods in the core and an upper guide structure in which are disposed a plurality of control rod drive shafts connected to the control rods, an apparatus for removing and reinserting the upper guide structure and control rods from the opened reactor vessel, comprising:

a rigid, vertical frame for placement on the upper guide structure having means at its lower end for selective attachment to the upper guide structure and having interference means at its upper end; and

a control rod support member vertically reciprocable within said frame, said support member including a horizontal platform having gripper means on its underside for simultaneously engaging each drive shaft, said platform including link means connectable to the crane for reciprocating said support member whereby the control rods may be withdrawn from the reactor core into the upper guide structure, said member further having selected surfaces adapted to abut said interference means when said platform is in its maximum vertical position relative to said frame whereby continued upward force by the crane is transferred through the link means to the frame so that the upper guide structure and control rods may be removed simultaneously from the reactor vessel.

4,272,322
METHOD FOR MANUFACTURING CHARCOALS FROM PAPER SLUDGE

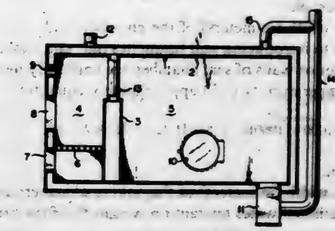
Masahiro Kobayashi, 12-38, Kamishinizu-cho, Shimizu-shi, Shizuoka-ken, Japan

Filed Apr. 3, 1979, Ser. No. 26,774

Claims priority, application Japan, Apr. 3, 1978, 53/38080; Aug. 28, 1978, 53/103885

Int. Cl.³ C10B 47/06; C10L 5/44

U.S. Cl. 201—6 4 Claims



1. A method of manufacturing charcoal from paper sludge comprising the steps of mixing coffee pulps in an amount of 1 to 30 percent by weight with paper sludge having a moisture content of less than 50% whereby the coffee pulps absorb odors from the paper sludge, molding the resultant mixture into a desired configuration, preheating the resultant moldings to a temperature of about 400° C. whereby the odors from the paper sludge are completely absorbed by the coffee pulps, and subjecting the preheated moldings to a dry distillation at a temperature of about 400°-600° C. for between 1 and 3 days.

4,272,323
PROCESS FOR PRODUCING COKE

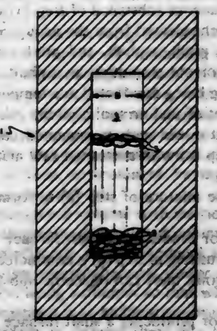
Robert Tettweiler, Buchholz-Obleyfeld, and Hayri Ergun, Essen, both of Fed. Rep. of Germany, assignors to Didier Engineering GmbH, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 877,388, Feb. 13, 1978, abandoned. This application Sep. 6, 1979, Ser. No. 72,869

Claims priority, application Fed. Rep. of Germany, Feb. 12, 1977, 2705971

Int. Cl.³ C10B 17/00, 53/08

U.S. Cl. 201—6 8 Claims



1. In a process for producing coke wherein briquettes, particularly molded briquettes of pitch-bound coal, are formed, said briquettes are introduced into a coking chamber of an

indirectly heated chamber oven, and said oven is operated to form said briquettes into coke, the improvement wherein:

said briquettes are formed according to the relationship:

$$k = 0.5 \times O_B / V_B \times (1-e) \times B,$$

wherein:

k = the ratio between the total surface area of the briquettes contacting the interior walls of said chamber to the total surface area of said interior walls;

O_B = the surface area (in m^2) of a briquette;

V_B = the volume (in m^3) of a briquette;

e = the ratio between the total volume of the gaps or empty spaces between briquettes in a pile or charge or briquettes in the chamber to the total volume of the charge of briquettes; and

B = the width (in meters) of the chamber; and

prior to introducing said briquettes into said chamber, the interior walls of said chamber are uniformly heated to a temperature t_K (°C.) approximately equal to:

$$t_K \approx 1000 + [1000B - 175] \times [1.23 + 0.1283(W-3)],$$

wherein:

B = the width (in meters) of the coking chamber; and

W = the initial water content (in weight % of the briquettes.

4,272,324

PROCESS FOR PRODUCING SHAFT FURNACE COKES

Yoshihiko Sunami, and Kunihiko Nishioka, both of Amagasaki, Japan, assignors to Sumitomo Metal Industries Limited, Osaka, Japan

Continuation-in-part of Ser. No. 914,734, Jun. 12, 1978, abandoned, which is a continuation of Ser. No. 834,670, Sep. 19, 1977, abandoned. This application Aug. 22, 1979, Ser. No. 68,570

Int. Cl.[1] C10B 55/02; C10L 5/16

U.S. Cl. 201—21 7 Claims

1. A process for producing a shaft furnace coke, said process consisting of

(a) finely crushing at least one porous, inert carbonaceous substance selected from the group consisting of powdered coke, coal gasification char, goal liquefaction residue coal, oil coke and semi-dry-distilled char;

(b) mixing and impregnating said finely crushed porous, inert carbonaceous substance of step (a) with at least one aromatic pitch selected from the group consisting of coal tar, coal tar pitch, asphalt, and pitch obtained by heat-treating or solvent-extracting an asphalt, said mixing and impregnating being conducted at a temperature above the melting point of said aromatic pitch,

(c) mixing said mixed and impregnated carbonaceous substance of step (b) with a crushed raw material coal (basic coal), and

(d) roasting the mixture of step (c) to form a shaft furnace coke.

2. A process for producing a shaft furnace coke as in claim 1 wherein said crushing in step (a) is conducted until the granularity of said porous, inert carbonaceous substance is less than 1 mm.

5. A process for producing a shaft furnace coke as in claim 1 wherein 50 to 95 parts by weight of finely crushed, porous, inert carbonaceous substance is mixed in said mixing and impregnating step (b) with 5 to 50 parts by weight of aromatic pitch.

4,272,325

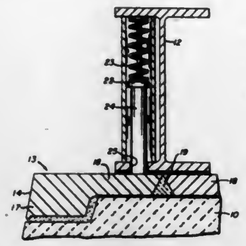
DOOR JAMB CONSTRUCTION FOR COKE OVENS

John F. McDermott, Monroeville, Pa., assignor to United States Steel Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 94,616, Nov. 15, 1979, abandoned. This application Jan. 27, 1980, Ser. No. 163,742

Int. Cl.[1] C10B 25/06

U.S. Cl. 202—248 10 Claims



1. In a jamb having parallel horizontal and vertical legs for bounding an opening in a coke oven refractory wall and forming a frame against which a metal door seal may be pressed closing said opening, said jamb being adapted for use with spring means mounted on a buckstay for forcing the vertical legs thereof toward said oven wall to overcome the effect of thermal distortion on said jamb,

the improvement in which said jamb comprises:

vertical legs having a moment of inertia I_n in $in.^4$ in a direction normal to said oven wall as measured about a plane parallel thereto of between $h^2/550$ and $h^2/275$ where h is the height of said oven in inches, so that said vertical legs are relatively flexible in said normal direction so as to permit said spring means to minimize the gap formed between said legs and the oven wall due to thermal distortion,

said vertical legs also having a moment of inertia I_p in a direction parallel to said oven wall as measured about a plane normal thereto between 3 and 15 times I_n so as to be relatively stiff in said parallel direction thus minimizing any tendency for hourglassing,

said vertical legs having a torsional or polar moment of inertia I_t as measured about the longitudinal axis thereof between 1 and 3 times I_n so as to limit outward bulging of the jamb due to transfer of normal forces from said buckstay to said oven wall,

said jamb thus having properties enabling maintenance of geometry substantially the same as the original shape thereof when said oven is heated so as to prevent gaps between refractory and metal surfaces to which it mates on said oven.

4,272,326

ENHANCED DISTILLATION OF CYCLOHEXANOL FROM PHENOL WITH ADDITIONAL CYCLOHEXANONE FEED

Richard R. Hertzog, Morristown, and David Zudkevitch, Denville, both of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jan. 24, 1980, Ser. No. 114,791

Int. Cl.[3] B01D 3/34

U.S. Cl. 203—62 9 Claims

1. In a distillation process wherein a mixture comprising phenol, cyclohexanone and cyclohexanol is fed to a point intermediate the top and bottom of a distillation column, an overhead stream comprising cyclohexanone and cyclohexanol is withdrawn from a point adjacent the top of the column and a bottoms stream comprising phenol is withdrawn from adjacent the bottom of the column; the improvement which comprises feeding A stream consisting essentially of cyclohexanone to a point below the point where the mixture is and in an amount sufficient to cause the cyclohexanol content of the bottoms stream to be reduced below the proportion of cyclohexanol in the azeotrope of cyclohexanol and phenol.

4,272,327

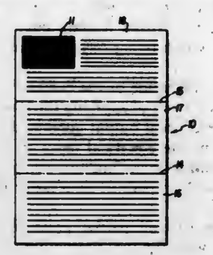
FORM AND LABEL COMBINATION

Emanuel L. Logan, 9406 Flower Ave., Silver Spring, Md. 20901

Filed Jun. 6, 1979, Ser. No. 45,994

Int. Cl.[3] B42D 15/00

U.S. Cl. 283—1 B 4 Claims



1. In combination, a form and a separate label for attachment to the form wherein the form includes a label placement area thereon which is substantially black in color for discouraging writing in the area by making writing in blue or black ink hard to see and wherein printed matter substantially covers the remainder of the form; wherein the label placement area has a visible instruction within the borders thereof which is light in color in contrast to the label placement area which is substantially black in color, the instruction instructing one to place the label in the label placement area; and wherein the label includes code means for identifying a particular party to whom the form relates and an adhesive layer for attachment of the label to the label placement area.

4,272,328

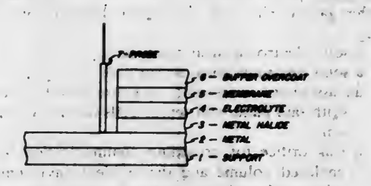
BUFFER OVERCOAT FOR CO_2 ION-SELECTIVE ELECTRODES

Sang H. Kim, Rochester, N.Y., and Hao-Jan Chang, Santa Clara, Calif., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 5, 1979, Ser. No. 100,588

Int. Cl.[3] G01N 27/46; B01D 1/36

U.S. Cl. 204—1 T 18 Claims



1. In an ion-selective electrode for analyzing CO_2 concentration in a liquid comprising a support having thereon a layer or layers having sequentially metal/metal halide reference electrode zones, an electrolyte zone and a membrane zone containing an ionophore, the improvement wherein said membrane zone is positioned between said electrolyte zone and an adjacent zone comprising a hydrophilic binder and a buffer in an amount sufficient to provide a solution having a pH in the range of 7.5 to 9.5 when wetted with about 5 μl of liquid to be analyzed.

4,272,329

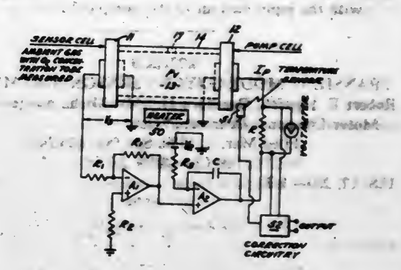
STEADY STATE MODE OXYGEN SENSOR AND METHOD

Robert E. Hetrick, Dearborn Heights, and William A. Fate, Ann Arbor, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Mar. 3, 1980, Ser. No. 126,606

Int. Cl.[3] G01N 27/58

U.S. Cl. 204—1 T 10 Claims



1. An electrochemical apparatus for making a measurement of oxygen partial pressure in an ambient environment including other gaseous materials, said electrochemical apparatus including:

a solid electrochemical pump cell;

a solid electrochemical sensor cell;

an associated supporting structure which in combination with said pump and sensor cells defines an enclosed volume;

a leak orifice for providing communication between said enclosed volume and the ambient environment so that when said enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside said enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

an external circuit means coupled to said pump cell to apply an electrical input to said pump cell and coupled to said sensor cell for measuring an electrical output generated by said sensor cell in response to said electrical input at said pump cell, said external circuit means including a control means to apply a current of sufficient magnitude as said electrical input to maintain a constant voltage across said sensor cell, and said external circuit means including sensing means for sensing the magnitude of said electrical input which is proportional to the percentage of oxygen in the ambient environment thus permitting said electrochemical apparatus to be used as a sensor of the percentage of oxygen;

said pump and sensor cells being formed of platelets of solid ionic conductors capable of conducting oxygen ions, and including two electrode layers attached to opposing faces of each of said platelets, and lead wire attached to each of said electrodes for coupling said first and second circuit means to said pump and sensor cells, respectively.

7. A method for making a measurement of oxygen partial pressure in an ambient environment having other gaseous material including the steps of:

establishing an enclosed volume with restricted access to the ambient environment, the enclosed volume being bounded by a solid electrolyte electrochemical pump cell and a solid electrolyte electrochemical sensor cell, and the restricted access being sufficient so that when the enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside the enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

applying to the pump cell an electrical current of sufficient

magnitude to maintain a constant voltage across the sensor cell so that the magnitude of the electrical input is proportional to the percentage of oxygen in the ambient environment thus determining the percentage of oxygen;

measuring the magnitude of the current drawn through the pump cell;

measuring an electrical output generated by the sensor cell in response to the electrical input at the pump cell; and

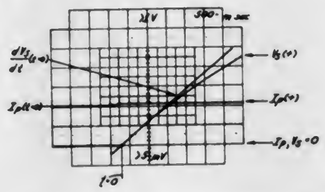
calculating the oxygen percentage using a proportionality with the input current to the pump cell.

4,272,330

TRANSIENT MODE OXYGEN SENSOR AND METHOD

Robert E. Hetrick, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 3, 1980, Ser. No. 126,747
Int. Cl.³ G01N 27/58
U.S. Cl. 204—1 T **11 Claims**



1. An electrochemical apparatus for making a measurement of oxygen partial pressure in an ambient environment including other gaseous materials, said electrochemical apparatus including:

a solid electrochemical pump cell;

a solid electrochemical sensor cell;

an associated supporting structure which in combination with said pump and sensor cells defines an enclosed volume;

a leak orifice for providing communication between said enclosed volume and the ambient environment so that when said enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside said enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

a first circuit means coupled to said pump cell to apply an electrical input to said pump cell, said electrical input being a voltage step function with an abruptly rising leading edge with respect to time having a polarity suitable for withdrawing oxygen from said enclosed volume, and said first circuit means including measuring means for measuring the magnitude of the current drawn through said pump cell as a result of the voltage step function;

a second circuit means coupled to said sensor cell for measuring an electrical output generated by said sensor cell in response to said electrical input at said pump cell, said electrical output having a relatively simple relationship to the ambient oxygen partial pressure so that said electrochemical apparatus can be used as a sensor of the oxygen partial pressure, said second circuit means being adapted to measure the first derivative with respect to time of the sensor voltage, as induced by the pumping action of said pump cell when the voltage step is applied to said pump cell, said voltage step rising in magnitude with respect to time faster than the sensor voltage; and

said pump and sensor cells being formed of platelets of solid ionic conductors capable of conducting oxygen ions and including two electrode layers attached to opposing faces of each of said platelets, and lead wire attached to each of said electrodes for coupling said external circuit means to said pump and sensor cells.

8. A method for making a measurement of oxygen partial pressure in an ambient environment having other gaseous material including the steps of:

establishing an enclosed volume with restricted access to the ambient environment, the enclosed volume being bounded by a solid electrolyte electrochemical pump cell and a solid electrolyte electrochemical sensor cell, and the restricted access being sufficient so that when the enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside the enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

applying to the pump cell an electrical voltage step function with an abruptly rising leading edge having a polarity suitable for withdrawing oxygen from the enclosed volume;

measuring the magnitude of the current drawn through the pump cell as a result of applying the voltage step function;

measuring an electrical output generated by the sensor cell in response to the electrical input at the pump cell, the electrical voltage step function being chosen to rise in magnitude with respect to time faster than the electrical output; and

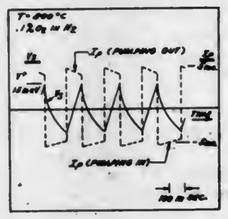
calculating the oxygen partial pressure using an inverse relationship with the first derivative of the voltage measured at the sensor cell.

4,272,331

OSCILLATORY MODE OXYGEN SENSOR AND METHOD

Robert E. Hetrick, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Mar. 3, 1980, Ser. No. 126,607
Int. Cl.³ G01N 27/58
U.S. Cl. 204—1 T **8 Claims**



1. An electrochemical apparatus for making a measurement of oxygen partial pressure in an ambient environment including other gaseous materials, said electrochemical apparatus including:

a solid electrochemical pump cell;

a solid electrochemical sensor cell;

an associated supporting structure which in combination with said pump and sensor cells defines an enclosed volume;

a leak orifice for providing communication between said enclosed volume and the ambient environment so that when said enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside said enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

an external circuit means coupled to said sensor cell for measuring an EMF across said sensor cell and coupled to said pump cell for applying an oscillatory pump cell current and thus producing a concurrent oscillation in the sensor cell EMF such that the period of the oscillations increases monotonically with the partial pressure of oxygen in the ambient and can be calibrated so as to be used as a sensor of the partial pressure of oxygen;

said external circuit means having as an input the EMF generated by said sensor cell and having an output which causes oxygen to be withdrawn (injected) from (into) said enclosed volume, depending upon the polarity of the output current, until said sensor cell EMF reaches a predetermined reference value at which point the output current is changed so that the change of flux of oxygen is in the original direction, such changes in direction continuing in an oscillatory fashion; and

said pump and sensor cells being formed of platelets of solid ionic conductors capable of conducting oxygen ions and including two electrode layers attached to opposing faces of each of said platelets, and lead wire attached to each of said electrodes for coupling said external circuit means to said pump and sensor cells.

6. A method for making a measurement of oxygen partial pressure in an ambient environment having other gaseous material including the steps of:

establishing an enclosed volume with restricted access to the ambient environment, the enclosed volume being bounded by a solid electrolyte electrochemical pump cell and a solid electrolyte electrochemical sensor cell, and the restricted access being sufficient so that when the enclosed volume is immersed in an ambient environment containing a partial pressure of oxygen there is a tendency for the partial pressure of oxygen inside the enclosed volume to equalize with the partial pressure of oxygen of the ambient environment;

applying to the pump cell an oscillatory pump cell current;

measuring an electrical output generated by the sensor cell in response to the oscillatory pump cell current at the pump cell;

determining the period of the oscillatory pump cell current to be determined by the time it takes for the sensor cell EMF to reach a first predetermined reference value traveling in a first increasing direction, and a second predetermined reference value traveling in a second decreasing direction; and

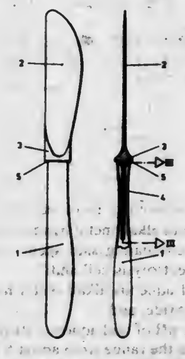
calculating the oxygen partial pressure using a proportionality with the period of oscillation.

4,272,332

METHOD FOR MAKING TABLE KNIVES HAVING A SILVER-PLATED HANDLE

Werner Probost, Deggingen, Fed. Rep. of Germany, assignor to Württembergische Metallwarenfabrik, Geislingen an der Steige, Fed. Rep. of Germany

Filed Jul. 6, 1979, Ser. No. 55,311
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829776
Int. Cl.³ C25D 5/02; B25G 3/00; B21K 11/02
U.S. Cl. 204—15 **2 Claims**



1. A method for making table knives and the like having a handle consisting mainly of metal, and a blade inserted therein and having a blade foot portion, wherein the handle is electrolytically silver-plated and the blade foot portion is ground flush with the handle, characterized in that prior to or during insertion into the not yet silver-plated handle, the blade including its foot portion and shank is electrically insulated from the handle by coating with an electrically insulating dipping varnish or by inserting an insulating disk between the handle and blade and embedding same within the handle in a ceramic cement composition or synthetic resin composition having non-conductive properties after drying, and in that subsequently the blade foot portion is ground flush prior to the handle being silver-plated.

4,272,333

MOVING BED ELECTROLYSIS

Keith Scott, Stockton-on-Tee, and Allen R. Wright, Wallsend, both of England, assignors to National Research Development Corporation, London, England

Filed Mar. 4, 1980, Ser. No. 127,245
Claims priority, application United Kingdom, Mar. 7, 1979, 08039/79; Nov. 21, 1979, 40284/79
Int. Cl.³ C25D 5/04, 17/12; C25C 1/00, 7/02
U.S. Cl. 204—23 **14 Claims**



1. A method of moving bed electrolysis, in which a packed bed comprising conductive particles moves as a packed bed in an electrolyte between two electrodes and in electronic contact with one of said two electrodes, the particles emerging from a downstream end of the moving packed bed being transported, outside the electric field between the two electrodes, to a location from which substantially all of the particles join one of the moving packed bed at an upstream end and an upstream end of a succeeding moving packed bed between the electrodes.

4,272,334

METHOD OF FLUIDIFICATION OF LIQUID BETWEEN PLANE PARALLEL PLATES BY JETTING THE LIQUID

Shuzo Fukuda, Yokohama; Tsutomu Watanabe, Yokosuka, and Masahiro Abe, Yokohama, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 2, 1980, Ser. No. 109,078
Claims priority, application Japan, Jan. 12, 1979, 54-1261
Int. Cl.³ C25D 5/08, 7/06, 21/10
U.S. Cl. 204—27 **7 Claims**



1. A method wherein a pair of plane parallel plates each formed by at least one electrode are arranged one above another in a spaced parallely opposing relation within an electrolytic treating tank filled with an electrolyte and having a pla-

rality of nozzles laterally arranged on one side of said tank, a strip of metal to be subjected to an electrolytic treatment is passed between said pair of plane parallel plates, and said electrolyte between said plane parallel plates is fluidified by jets of liquid from said nozzles, wherein said nozzles are arranged at predetermined spaces such that a half-value width of jets from the respective adjacent ones of said nozzles overlap each other at one edge of said plane parallel plates on the side of said nozzles to thereby make uniform the flow velocity of said electrolyte between said plane parallel plates, and wherein at least one plane dummy plate is disposed between said nozzles and at least one of said plane parallel plates such that said at least one dummy plate adjoins one end of said one of said plane parallel plates and extends toward said nozzles entirely in the same plane with said one plane parallel plate to thereby reduce the diminution of the flow velocity of said jets.

4,272,335

COMPOSITION AND METHOD FOR ELECTRODEPOSITION OF COPPER

Daniel J. Combs, Sterling Heights, Mich., assignor to Oxy Metal Industries Corporation, Warren, Mich.

Filed Feb. 19, 1980, Ser. No. 122,204
Int. Cl.[3] C25D *3/38*
U.S. Cl. 204—52 R 12 Claims

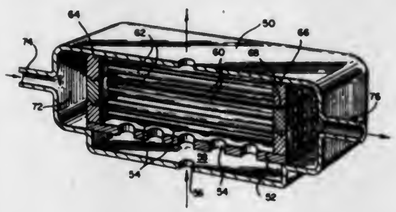
1. In a bath for the electrodeposition of copper, which bath comprises an aqueous acidic solution containing copper in an amount sufficient to electroplate copper on a substrate, the improvement which comprises including in said bath a brightening amount sufficient to produce a bright copper electrodeposit, of a compound comprising a substituted phthalocyanine radical.

4,272,336

METHOD AND APPARATUS FOR FORMING NITRIC OXIDE FROM AMMONIA

Costas G. Vayenas, Wellesley Hills, Mass., and David E. Ortman, Rochester, N.Y., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Jul. 27, 1979, Ser. No. 61,373
Int. Cl.[3] C25B *1/00*; C01B *21/26, 21/28*; H01M *8/12*
U.S. Cl. 204—59 R 10 Claims



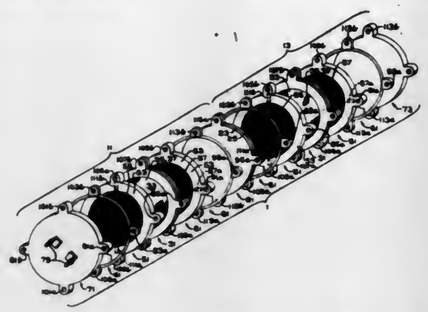
1. The process for oxidizing ammonia to form nitric oxide which comprises passing an ammonia-containing feed gas at a temperature between about 500° C. and about 1000° C. in contact with a first catalyst deposited on a first surface of a solid electrolyte and passing an oxygen-containing gas in contact with a second catalyst deposited on a second surface of said solid electrolyte, said first catalyst being capable of promoting the oxidation of ammonia to nitric oxide, said second catalyst being capable of dissociating oxygen gas to form oxygen ions, said solid electrolyte being capable of transporting said oxygen ions to contact said ammonia to form nitric oxide.

4,272,337

SOLID POLYMER ELECTROLYTE CHLOR-ALKALI ELECTROLYSIS CELL

William B. Darlington, Portland, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 23, 1979, Ser. No. 15,521
Int. Cl.[3] C25B *1/46, 9/00*
U.S. Cl. 204—98 20 Claims



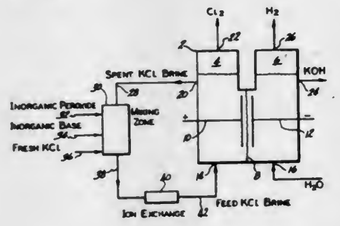
9. In an electrolytic cell having a solid polymer electrolyte comprising a cation selective permionic membrane, an anodic electrocatalyst on an anodic first surface of the permionic membrane, and a cathodic electrocatalyst on a cathodic, second surface of the permionic membrane, opposite the first surface thereof, the permionic membrane being a fluorinated cation exchange membrane having carboxylic acid groups as the ion exchange groups, said permionic membrane having an ion exchange capacity of about 0.5 to 2.0 milliequivalents per gram of dry polymer, and a glass transition temperature above about −80° C. and below about 90° C., the improvement wherein the solid polymer electrolyte comprises means for internally wetting the permionic membrane.

4,272,338

PROCESS FOR THE TREATMENT OF ANOLYTE BRINE

Richard W. Lynch, Chattanooga; Garland E. Hilliard, and Ronald L. Dotson, both of Cleveland, all of Tenn., assignors to Olin Corporation, New Haven, Conn.

Filed Jun. 6, 1979, Ser. No. 46,403
Int. Cl.[3] C25B *1/46*
U.S. Cl. 204—98 28 Claims



1. A process for removing dissolved halogen gas and oxyhalide ions from a spent alkali metal halide brine containing them which comprises circulating said spent brine to a treatment zone outside an electrolysis cell and:

(a) reacting said aqueous alkali metal halide brine with an inorganic peroxide, and

(b) adjusting the pH of said aqueous alkali metal halide brine to a pH within the range from about 5 to about 11 with an inorganic base,

whereby a purified alkali metal halide solution of reduced concentration of said dissolved halogen gas and oxyhalide ions is produced; and circulating said purified solution back to the cell.

4,272,339

PROCESS FOR ELECTROWINNING OF METALS

Bill J. Knight, 1000 Silvertree, Tucson, Ariz. 85716, and David L. Knight, 4950 N. Camino de Oeste, Tucson, Ariz. 85705

Continuation-in-part of Ser. No. 128,444, Mar. 10, 1980, abandoned. This application Jun. 30, 1980, Ser. No. 164,288
Int. Cl.[3] C25C *1/08, 1/12, 1/16*
U.S. Cl. 204—106 9 Claims

1. In an electrowinning process for recovering a selected metal from an aqueous electrolyte containing ions of the selected metal, the process being performed in an electrolytic cell containing the electrolyte with spaced apart anodes and cathodes disposed therein, an electrical potential being produced between said anodes and cathodes for causing electrolysis within said cell to result in the deposition of the selected metal on said cathodes, the improvement comprising the step of using within the electrolytic cell anodes which are formed from a lead alloy containing from about 0.05 to about 0.25% by weight strontium.

4,272,340

ELECTROWINNING OF LEAD FROM H_2SiF_6 SOLUTION

Ernest R. Cole, Jr., Newburg; Agnes Y. Lee, and Danton L. Paulson, both of Rolla, all of Mo., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

Continuation-in-part of Ser. No. 108,191, Dec. 27, 1979. This application Jun. 30, 1980, Ser. No. 164,759
Int. Cl.[3] C25D *3/34*
U.S. Cl. 204—114 5 Claims

1. A process for electrowinning of lead comprising:

(1) providing an electrolyte cell consisting essentially of at least one anode consisting essentially of a titanium substrate and an electrodeposited lead oxide coating having a uniform, dense grain size and structure,

at least one cathode consisting essentially of lead, and

an electrolyte comprising an aqueous solution of lead fluosilicate, free fluosilicic acid and a phosphorus compound in an amount sufficient to provide a concentration of phosphorus of about 0.75 to 3 gpl in the solution, and

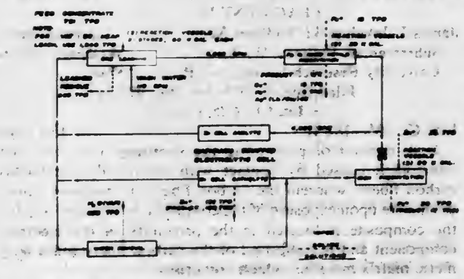
(2) establishing a direct current between anode and cathode to effect electrodeposition of lead on the cathodes.

4,272,341

PROCESS FOR RECOVERY OF METAL VALUES FROM LEAD-ZINC ORES, EVEN THOSE HAVING A HIGH CARBONATE CONTENT

Frank E. Lamb, Tucson, Ariz., assignor to Duval Corporation, Houston, Tex.

Filed Jan. 9, 1980, Ser. No. 110,569
Int. Cl.[3] C25C *1/16, 1/18*; C25B *1/02*
U.S. Cl. 204—118 42 Claims



1. A chemical, electro-chemical process for recovering metal values from a zinc- or lead-containing material comprising:

in a solubilization stage, oxidizing the zinc- or lead-containing material by treating said material with a ferric chloride leach solution until there is substantial solubilization of the zinc or lead content of the material into said solution in the form of zinc or lead chloride, thereby also reducing ferric chloride to ferrous chloride and forming a pregnant liquor;

when solubilized lead is present, separating it from the pregnant liquor forming an essentially lead free solution and recovering the separated lead;

dividing this essentially lead free solution into two portions;

passing one portion of the essentially lead free solution into the anolyte compartment of a Zn° producing electrolysis stage for use as the ferrous ion-containing anolyte thereof;

separating iron from the second portion of the essentially lead free solution, forming an essentially iron free solution;

passing the essentially iron free solution into the catholyte compartment of said Zn° producing electrolysis stage for use as the catholyte thereof;

conducting electrolysis in said Zn° producing electrolysis stage, thereby regenerating ferric chloride leach solution in the anolyte by oxidizing ferrous ions to ferric ions, and reducing zinc ions in the catholyte to Zn°; and

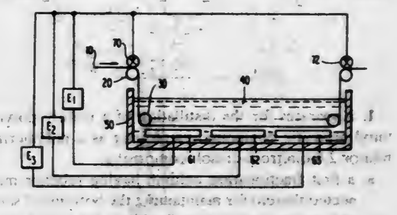
recovering the Zn° produced in the electrolysis stage.

4,272,342

ELECTROLYTIC GRAINING METHOD

Kazutaka Oda, and Hisao Ohba, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Aug. 14, 1980, Ser. No. 178,065
Claims priority, application Japan, Aug. 15, 1979, 54/103904
Int. Cl.[3] C25F *3/04*
U.S. Cl. 204—129.4 16 Claims



1. A method for electrolytically graining the surface of an aluminum plate comprising passing an alternating current through the aluminum plate in an acidic electrolyte solution, wherein the alternating current is passed so that

$$Q_1 > Q_2 < Q_3 \quad (I)$$

wherein Q_1, Q_2 and Q_3 represent the quantities of electricity per unit area of application, respectively, during the first $\frac{1}{4}$ period, the intermediate $\frac{1}{2}$ period, and the final $\frac{1}{4}$ period, of the total electrolytic graining time.

4,272,343

PROCESS FOR THE ELECTROLYTIC REDUCTIVE LEACHING OF ILMENITE ORE

Dennis A. Brunsell, Oklahoma City, and Olen L. Riggs, Jr., Bethany, both of Okla., assignors to Kerr-McGee Corporation, Oklahoma City, Okla.

Filed Jan. 9, 1980, Ser. No. 110,674
Int. Cl.[3] C25C *1/00*
U.S. Cl. 204—130 9 Claims

1. A process for beneficiation of ilmenite ore, comprising:

admixing ilmenite ore with an acidic solution;

electrolytically reducing at least a portion of said ilmenite

ore contained in said admixture to convert ferric iron in said ilmenite ore into ferrous iron; and

dissolving a substantial portion of said ferrous iron from said ilmenite ore to produce beneficiated ilmenite ore.

4,272,344

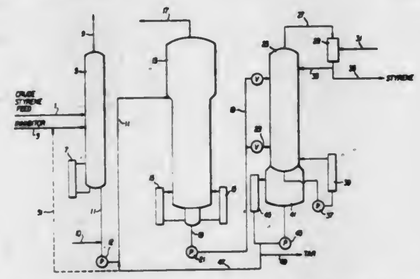
POLYMERIZATION INHIBITOR FOR VINYL AROMATIC COMPOUNDS

James M. Watson, Big Spring, Tex., assignor to Cosden Technology, Inc., Dallas, Tex.

Division of Ser. No. 925,818, Jul. 18, 1978, which is a continuation-in-part of Ser. No. 771,438, Feb. 24, 1977, Pat. No. 4,105,506. This application Aug. 30, 1979, Ser. No. 71,379

Int. Cl.³ B01D *3/34*; C07C *7/05, 7/20*

U.S. Cl. 202—154 5 Claims



1. Apparatus for the distillation of a readily polymerizable vinyl aromatic compound employing as a polymerization inhibitor 2,6-dinitro-p-cresol, comprising:

a. a first fractionation column having reboiler means connected thereto for maintaining the bottoms of said column at a proper temperature, feed lines for introducing a vinyl aromatic compound into said column, and product lines for recovering an overhead product and a bottoms fraction therefrom;

b. means for introducing said polymerization inhibitor into the bottoms of said first fractionation column;

c. a second fractionation column having reboiler means connected thereto, a feed line for transporting the bottoms of said first column to said second column for further distillation, and a product line for recovering an overhead product and a bottoms fraction;

d. a third fractionation column having reboiler means connected thereto, a feed line for transporting the bottoms of said second column to said third column for further distillation, and a product line for recovering an overhead product of high purity vinyl aromatic compound and a bottoms fraction;

e. a flash stripper connected to said third fractionation column for vaporizing residual vinyl aromatic compound from the bottoms fraction of said third column and recycling the vaporized vinyl aromatic compound from said bottoms of said third column back to said third column; and

f. means for recycling a portion of the bottoms of said flash stripper back to said second column.

4,272,345

ENERGY CONSERVATION TECHNIQUE

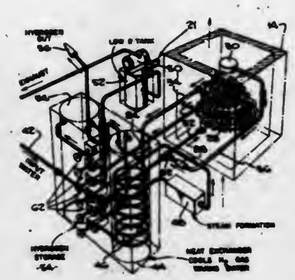
Sam L. Leach, P.O. Box 1190, Pebble Beach, Calif. 93953

Continuation-in-part of Ser. No. 65,188, Aug. 9, 1979, which is a continuation-in-part of Ser. No. 879,226, Feb. 21, 1978, Pat. No. 4,193,879, which is a continuation-in-part of Ser. No. 790,320, Apr. 25, 1977, Pat. No. 4,113,589, and Ser. No. 834,682, Sep. 19, 1977, Pat. No. 4,148,701. This application Oct. 29, 1979, Ser. No. 89,527

The portion of the term of this patent subsequent to Sep. 12, 1995, has been disclaimed.

Int. Cl.³ B01J *19/08*; C01B *3/06, 15/01*

U.S. Cl. 204—157.1 R 22 Claims



1. An apparatus for generating hydrogen gas or hydrogen peroxide from waste heat in which the waste heat is going up a chimney or a stack as heated gases, comprising:

a heat exchanger structure exposed to said heated gases, said gases having a predetermined temperature;

a reactant including at least one metal oxide having more than one oxidation state, and having the property of dissociating oxygen and returning to its lower oxidation state at atmospheric pressure at a temperature below said predetermined temperature, and of sequestering oxygen from water vapor at elevated pressure at said temperature;

means for mounting said reactant to be heated by said heat exchange structure substantially to said predetermined temperature;

means for supplying water vapor to said reactant at an elevated pressure to form hydrogen gas and/or hydrogen peroxide as said reactant is oxidized;

means for reducing the pressure to disproportionate oxygen from the reactant;

means for providing spaces within said reactant;

host and sensitizer means located adjacent said spaces to absorb heat energy and to radiate high intensity energy within the absorption bands of said water vapor into said spaces to dissociate a portion of said water vapor.

4,272,346

TREATMENT OF CARBON FIBERS TO DECREASE ELECTRICAL HAZARDS OF CONDUCTIVE FIBER FRAGMENT RELEASE

James J. Jakubowski, Midland, Mich., and Ravanasamudram V. Subramanian, Pullman, Wash., assignors to Washington State University Research Foundation, Pullman, Wash.

Filed Dec. 3, 1979, Ser. No. 99,516

Int. Cl.³ C25D *13/12*

U.S. Cl. 204—181 R 15 Claims

1. A method of preventing the shorting of an electrical component caused by contact with electrically conductive carbon fibers, wherein the carbon fibers are released from a composite upon exposure of the composite to fire, and wherein the composite is located in the proximity of the electrical component and is comprised of the carbon fibers and a polymeric matrix material, which comprises:

electrocoating the surfaces of the carbon fibers before incorporation thereof into the composite with a coating material that will accelerate the decomposition of the coated carbon fibers when the composite is exposed to fire or which will lead to the formation of a high electrical resistance coating in situ or fiber clumps when the coated carbon fibers within the composite are subsequently exposed to fire, the composite being adapted for use in the proximity of the electrical component such that upon exposure of the composite to fire the decomposition products of the composite will be free from electrically conductive, short circuit-causing carbon fibers.

4,272,347

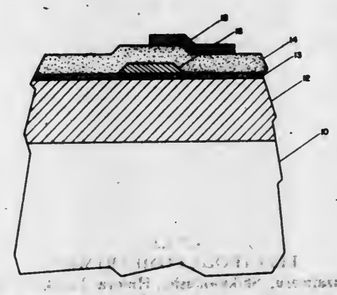
BUBBLE MEMORY OPTIMIZATION BY ADJUSTING PROPERTIES OF QUARTZ FILM

Martin J. Casey, Lansdale; Barry F. Stein, Dresher, and Herman E. Wetterskog, Douglasville, all of Pa., assignors to Sperry Corporation, New York, N.Y.

Filed Oct. 5, 1977, Ser. No. 839,699

Int. Cl.³ C23C *15/00*

U.S. Cl. 204—192 D 4 Claims



1. The method of fabricating an improved bubble memory device having at least one quartz layer separating two conductive surfaces comprising the step of

a. depositing said layer with a p-etch rate on the order of 4 Å/second at approximately a 60° C. substrate temperature, said rate providing said quartz with a characteristic to minimize local stress fields formed in a bubble layer of said memory device wherein said minimization optimizes said device performance.

4,272,348

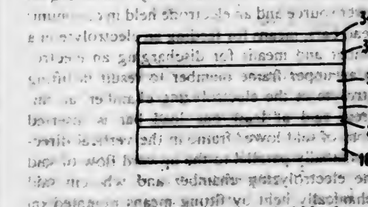
BUBBLE DEVICE FABRICATION

Daniel E. Cox, Ossining, N.Y.; Susan M. Kane, New Fairfield, Conn., and John V. Powers, Shenorock, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 20, 1978, Ser. No. 962,251

Int. Cl.³ C23C *15/00*; C23F *1/02*

U.S. Cl. 204—192 E 17 Claims



1. A method for fabricating a bubble domain device, comprising the steps of:

depositing a first continuous device layer of electrically conductive, non-magnetic material on a substrate comprising a magnetic film in which bubble domains can be moved,

depositing a second continuous device layer of magnetically soft material on said first layer,

depositing a thin first masking layer of a material which etches less rapidly than the materials comprising said first and second device layers onto said second device layer,

forming a thin patterned second masking layer over said first masking layer using a thin resist layer of thickness less than the thickness of either of said first and second device layers,

patterning said first masking layer by etching said first masking layer through said patterned second masking layer,

producing magnetic propagation elements which are separated from each other by gaps of 0.5 micron and less by patterning said first and second device layers by etching said device layers through said patterned first masking layer to form said bubble domain device, portions of said second device layer being patterned to provide magnetic propagation elements for moving said bubbles in said magnetic film.

4,272,349

CATALYST SUPPORTED OXYGEN SENSOR WITH SENSOR ELEMENT HAVING CATALYST AND PROTECTIVE LAYERS AND A METHOD OF MANUFACTURING SAME

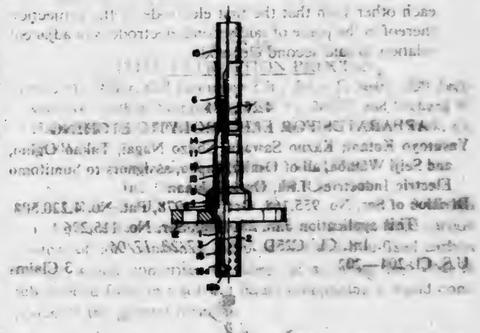
Toshinobu Furutani, Toyota; Hiroshi Shinohara, Okazaki; Yasuhiro Otsuka, Toyota; Shinichi Matsumoto, Toyota, and Hiroshi Wakizaka, Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jan. 25, 1980, Ser. No. 115,480

Claims priority, application Japan, Feb. 7, 1979, 54-13098; Feb. 7, 1979, 54-13099

Int. Cl.³ G01N *27/46*

U.S. Cl. 204—195 S 10 Claims

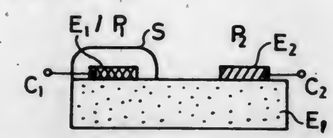


1. In an oxygen sensor comprising an oxygen sensor element having an oxygen-ion conductive electrolyte container with one end closed, an inner electrode provided on the inner surface of the electrolyte container, an outer electrode provided on the outer surface thereof, and an electrode protective layer formed on the outer surface of the electrode layer and a louver having an inner and an outer louver positioned over the oxygen sensor element and in a spaced relation to each other, the improvement which comprises a catalyst layer formed on the outer surface of the electrode protective layer, said catalyst layer being protected by an outer catalyst protective layer of alumina, and said inner louver being provided with a three layer coating, the innermost layer acting as a buffer to lessen heat expansion of the louver material, the middle layer being composed of alumina or spinel, and the outer protective layer having substantially the same composition as said catalyst protective layer performing also a function as a catalyst poison getter.

4,272,350
ELECTROCHEMICAL SENSOR FOR MEASURING CONCENTRATIONS OF SPECIES IN A FLUID MIXTURE, OF THE TYPE COMPRISING A PARTIAL-PRESSURE INTERNAL REFERENCE ELECTRODE

Michel Croset, and Gonzalo Velasco, both of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 12, 1979, Ser. No. 102,915
Claims priority, application France, Dec. 12, 1978, 78 34880
Int. Cl.[3] G01N 27/46
U.S. Cl. 204—195 S 7 Claims



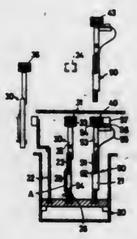
1. An electrochemical sensor for measuring the concentrations of species contained in a fluid mixture and comprising an electrochemical cell having a flat structure, said cell being constituted by a first partial-pressure internal reference electrode having one face either wholly or partly in contact with a solid electrolyte which is an ionic conductor for one of the species of said fluid mixture or for an ion which is capable of reacting with said species, and by a second electrode which communicates with the fluid mixture to be analyzed, one face of said second electrode being either wholly or partly in contact with said solid electrolyte, all the other faces of said first electrode abutting and being protected by an inert envelope and said envelope being impervious to the species which are present in said fluid mixture;

wherein said first electrode and said second electrode are both deposited on the same face or on opposite faces of said solid electrolyte and are so arranged with respect to each other such that the first electrode or the projection thereof in the plane of said second electrode is in adjacent relation to said second electrode.

4,272,351
APPARATUS FOR ELECTROLYTIC ETCHING

Yasutoyo Kotani; Kazuo Sawada; Shuzo Nagai; Takao Ogino, and Seiji Watabe, all of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 955,168, Oct. 27, 1978, Pat. No. 4,220,508.
This application Jan. 25, 1980, Ser. No. 115,276
Int. Cl.[3] C25D 17/08, 17/28, 17/06
U.S. Cl. 204—202 3 Claims



1. An apparatus for electrolytic etching comprising:

an electrolytic bath tank for containing an electrolyte therein;

an anode plate and a spaced opposed cathode plate located within said tank so as to be immersed in electrolyte when said tank contains electrolyte therein;

first guide means disposed between said anode plate and said cathode plate;

second guide means located parallel to said first guide means;

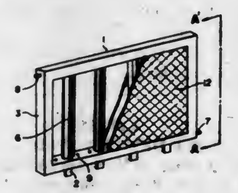
a plurality of insulating frames, each of said frames having at least one opening therethrough and adapted for supporting a workpiece respectively thereon for etching said workpiece, said workpiece being mounted with the side of said workpiece to be etched facing said cathode plate, said first and second guide means located for supporting and guiding said insulating frames thereon; and

third guide means disposed at the ends of said first and second guide means for transferring said insulating frames from said first guide means to said second guide means whereby said insulating frames can be circulated along and between said first and second guide means.

4,272,352
ELECTRODE COMPARTMENT

Tanzo Jizaimaru, Shikawatashi; Hideya Tanaka, Chiba, and Yasuo Sajima, Yokohama, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Jun. 6, 1979, Ser. No. 45,932
Claims priority, application Japan, Jun. 14, 1978, 53-70993
Int. Cl.[3] C25B 9/02, 9/04, 15/08
U.S. Cl. 204—279 4 Claims



1. In an electrode compartment of an electrolyzing chamber surrounded by frame members, said electrode compartment comprising at least one lead bar for electrically connecting an electrode to a power source and an electrode held in communication with the lead bars, means for feeding an electrolyte in a lower frame member and means for discharging an electrolyzed product in an upper frame member to result in lifting flow of the electrolyte in the electrolyzing chamber, an improvement wherein said at least one lead bar is inserted through the bottom of said lower frame in the vertical direction and held substantially parallel to the upward flow of said electrolyte in the electrolyzing chamber and wherein said electrode is mechanically held by fitting means mounted on said at least one lead bar to thereby electrically connect said at least one lead bar to said electrode, and wherein said at least one lead bar is substantially quadrilateral in section and said fitting means include a quadrilateral hollow into which said at least one lead bar is inserted for continuous contct about the periphery of said lead bar.

4,272,353
METHOD OF MAKING SOLID POLYMER ELECTROLYTE CATALYTIC ELECTRODES AND ELECTRODES MADE THEREBY

Richard J. Lawrance, Hampstead, N.H., and Linda D. Wood, Andover, Mass., assignors to General Electric Company, Wilmington, Mass.

Filed Feb. 29, 1980, Ser. No. 125,825
Int. Cl.[3] C25B 11/00, 13/08
U.S. Cl. 204—283 11 Claims

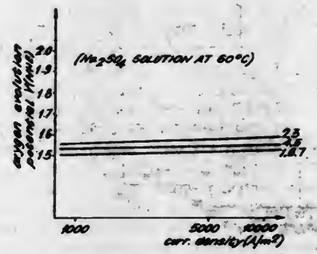


1. An electrode comprising a solid polymer electrolyte membrane base member having at least one abraded surface and finely-divided catalytic particles fixed upon the abraded surface.

4,272,354
ELECTRODES FOR ELECTROLYTIC PROCESSES

Vittorio de Nora, Nassau, The Bahamas; Antonio Nidola, Milan, Italy; Placido M. Spaziante, Lugano, Switzerland, and Giuseppe Bianchi, Milan, Italy, assignors to Diamond Shamrock Technologies, S.A., Geneva, Switzerland

Filed Nov. 26, 1979, Ser. No. 97,346
Int. Cl.[3] C25B 11/06, 11/10
U.S. Cl. 204—290 R 7 Claims

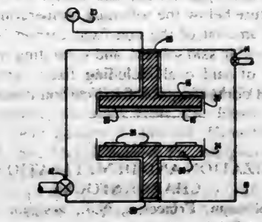


1. An ion selective anode comprising an electrically conductive substrate having a surface coating selected from (a) one or more platinum group metals, (b) one or more platinum group metal oxides, (c) mixtures of one or more platinum group metal oxides with one or more valve metal oxides, and (d) oxides of metals from the group consisting of chromium, molybdenum, tungsten, manganese, iron, cobalt, nickel lead, germanium, antimony, arsenic, zinc, cadmium, selenium and tellarium, said surface coating and conductive substrate being joined by an intermediate coating consisting of one or more layers of a solid solution of a mixture of tin dioxide and bismuth trioxide having a tin to bismuth metal weight ratio ranging from 1:10 to 100:1.

4,272,355
PROCESS OF BONDING SPUTTERING TARGETS TO TARGET ELECTRODES

Thomas N. Kennedy, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 26, 1980, Ser. No. 124,679
Int. Cl.[3] C23C 15/00
U.S. Cl. 204—298 7 Claims



1. A sputtering system for coating substrates comprising:

a vacuum chamber;

means for introducing a gas into said chamber;

a target material for coating said substrates;

a first electrode having a face for mounting said target material thereto;

a second electrode for supporting said substrates positioned adjacent to and in alignment with said first electrode;

means for applying voltages to said electrodes to ionize said gas, so that gas ions energetically bombard said target material; and

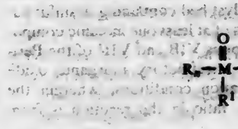
a eutectic metal material that is liquid at ambient temperature disposed between said first electrode and said target material for forming a floating bond therebetween.

4,272,356
COAL EXTRACTION PROCESS

Alfred H. Stiller, 459 Lawnview Cir.; John T. Sears, 200 Jackson Ave., both of Morgantown, W. Va. 26505, and Richard W. Hammack, 9837 Presidential Dr., Apt. 104, Allison Park, Pa. 15101

Filed Apr. 7, 1980, Ser. No. 137,829
Int. Cl.[3] C10G 1/00; C07C 37/68
U.S. Cl. 208—8 LE 9 Claims

1. A process of substantially extracting the non-fixed carbon content of coal containing fixed carbon and non-fixed carbon therein which comprises the steps of agitating said coal in sub-divided form in a solvent liquid comprising a liquid compound of the general formula:

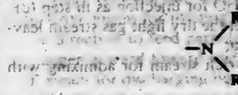


where

M is a carbon, sulfur, or phosphorus atom,

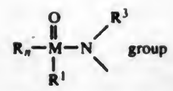
R^2 and R^3 are each a hydrogen atom or a lower alkyl group,

R and R^1 are each a lower alkyl group, another



group,

a monocyclic aromatic group, or R^1 can be another



or R^1 and R^2 together can represent the atoms necessary to close a heterocyclic ring, and

n=1 where M=phosphorus and is otherwise 0,

at a temperature below the softening temperature of coal until a substantial amount of the non-fixed carbon content of said coal is dissolved in said solvent, and separating the undissolved solid matter of said coal including fixed carbon from said solvent liquid containing non-fixed carbon dissolved therein.

4,272,357

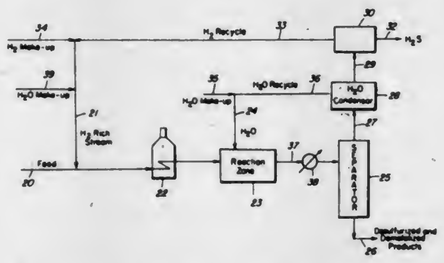
DESULFURIZATION AND DEMETALATION OF HEAVY CHARGE STOCKS

Louis D. Rollmann, Priaceton, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 671,906, Mar. 29, 1976, abandoned. This application Nov. 13, 1979, Ser. No. 93,317

Int. Cl.³ C10G *45/02, 45/26*

U.S. Cl. 208—89 **11 Claims**



1. In a process for removing sulfur and nickel from a heavy hydrocarbon charge stock which contains from about 10 to about 3000 ppm total metals including nickel and from about 1 to about 10 weight percent sulfur by reaction of the charge stock with hydrogen in the presence of a desulfurization catalyst in a reactor with one or more catalyst beds including a first catalyst bed, the improvement comprising reducing the hydrogen partial pressure and enhancing sulfur and nickel removal by:

(a) mixing said charge stock and a hydrogen-rich stream optionally containing water;

(b) heating the mixture from step (a) to reaction temperature;

(c) injecting said heated mixture and water into said reactor and reacting the resulting heated admixture in said first catalyst bed, said first catalyst bed containing desulfurization catalyst which consists of at least one metallic component selected from the Groups VIB and VIII of the Periodic Table deposited on a refractory inorganic oxide support, under desulfurization conditions, wherein the water to hydrogen molar ratio in the reaction is from about 0.05 to about 0.5;

(d) separating a light gas stream which contains H_2, H_2O, H_2S and light hydrocarbons from the effluent of said reaction zone;

(e) separating the H_2O from said light gas stream leaving a substantially dry light gas stream;

(f) recycling the separated H_2O for injection as in step (c);

(g) separating from H_2S from the dry light gas stream leaving a hydrogen-rich stream;

(h) recycling said hydrogen-rich stream for admixing with said charge stock, and

(i) recovering the desulfurized and demetallized product from the effluent of said reaction zone; said water injected in steps (a) and (c) being at a temperature which is not in excess of the reaction temperature in step (b).

4,272,358

PROCESS FOR REDUCING CARBON MONOXIDE EMISSIONS FROM REGENERATORS OF CATALYTIC CRACKING UNITS

Kenneth Baron, Diamond Bar, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Filed Jul. 5, 1979, Ser. No. 54,984

Int. Cl.³ C10G *11/05*

U.S. Cl. 208—120 **15 Claims**

1. In a process for catalytically cracking hydrocarbons wherein coke-containing cracking catalyst particles are regenerated by combusting said coke in the presence of oxygen and under oxidizing conditions and at elevated temperatures so as to remove the coke from the surfaces of said catalyst particles and thereby regenerate said catalyst particles for cracking hydrocarbons while producing a carbon monoxide-containing flue gas, the improvement comprising reducing the amount of carbon monoxide emitted during the combustion of said coke by utilizing catalyst particles in said catalytic cracking process containing one or more rare earth components incorporated by the method including the steps of:

(a) spraying in the form of a mist an impregnant solution containing one or more dissolved rare earth components onto cracking catalyst particles comprising a crystalline aluminosilicate zeolite having substantial activity for cracking hydrocarbons; and

(b) calcining the resulting composite particles at an elevated temperature so as to convert said one or more rare earth components to the oxides thereof.

4,272,359

METHOD AND APPARATUS FOR RE-PROCESSING WASTE OIL

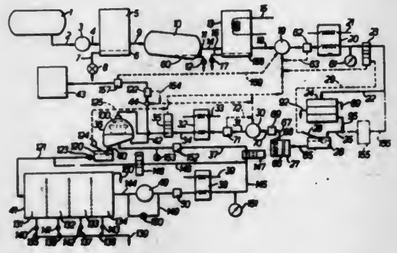
Robert G. F. Owen, Poole, England, assignor to Waste Lubricating Oils Limited, Tunstall, England

Filed Nov. 9, 1979, Ser. No. 92,731

Claims priority, application United Kingdom, Nov. 13, 1978, 44231/78; Jul. 20, 1979, 25384/79

Int. Cl.³ C10M *11/00*

U.S. Cl. 208—179 **15 Claims**



1. A continuous process for re-processing waste oil, possibly containing significant quantities of water and/or solids distributed therein, to produce an oil product having a controlled low water and solids content and suitable for use as a fuel, which method comprises:

(a) providing a solids separation zone for effecting mechanical separation of solids from a liquid;

(b) continuously supplying waste oil to the solids separation zone;

(c) mechanically separating solids from waste oil in the solids separation zone;

(d) recovering from step (c) an intermediate oil product of reduced solids content compared with the waste oil;

(e) continuously feeding intermediate oil product to a separator;

(f) supplying water to the separator;

(g) contacting intermediate oil product of step (d) with water in the separator;

(h) recovering water phase from the separator;

(i) recovering an oil product from the separator;

(j) monitoring the water content of the oil product of step (i); and

(k) controlling the rate of supply of waste oil to the solids separation zone in dependence on the water content of the oil product of step (i), whereby the water content of the oil product of step (i) may be maintained at or below a suitable value permitting use thereof as a fuel.

6. Apparatus for reprocessing waste oil, possibly containing significant quantities of water and/or solids dispersed therein, to produce an oil product having a sufficiently low water and solids content to permit use thereof as a fuel, which apparatus comprises:

(i) solids separation means capable of operation with a continuous liquid feed and including a solids separation zone wherein solids may be separated mechanically from waste oil;

(ii) means for continuously recovering from the solids separation means an intermediate oil product of reduced solids content compared with the starting waste oil;

(iii) separator means for effecting intimate contact between intermediate oil product and water;

(iv) means for continuously supplying intermediate oil product to the separator means;

(v) means for supplying water to the separator means;

(vi) means for recovering from the separator means a water phase;

(vii) means for continuously recovering from the separator means an oil product of sufficiently low water and solids content to permit use thereof as a fuel; and

(viii) means for continuously supplying waste oil to the solids separation means in dependence on the water content of the oil product, whereby the water content of the oil product may be maintained at a predetermined value permitting use thereof as a fuel.

4,272,360

PROCESS FOR BREAKING EMULSIONS IN FLUIDS FROM IN SITU TAR SANDS PRODUCTION

Rene F. Bialek, Calgary, Canada, assignor to Texaco Canada Inc., Calgary, Canada

Filed Mar. 24, 1980, Ser. No. 133,168

Int. Cl.³ C10G *33/04*

U.S. Cl. 208—188 **8 Claims**

1. A process for recovering oil from an oil-in-water emulsion stabilized by clay and other solids comprising the steps of: subjecting said emulsion to the action of an effective emulsion-breaking amount of non-ionic, water-insoluble polyethylene oxide polymers having a molecular weight in the range of 100,000 to 7,000,000, diluting said emulsion with 30 to 50 volume percent of a hydrocarbon diluent, maintaining the temperature of the resulting mixture between about 150° F. and about 240° F.; thereafter adding to said mixture an effective, clay deposit-inhibiting and -removing amount of an alkali metal hydroxide; allowing the resulting system to remain in the quiescent state for about 2 to about 6 hours, and thereby separating said oil from said system.

4,272,361

METHOD FOR REDUCING THE NITROGEN CONTENT OF SHALE OIL

Leslie E. Compton, Claremont, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jan. 27, 1979, Ser. No. 52,638

Int. Cl.³ C10G *17/04, 17/10*

U.S. Cl. 208—254 R **11 Claims**

1. A method for reducing the nitrogen content of crude shale oil by removing nitrogen-containing compounds from crude shale oil, comprising the steps of:

extracting the crude shale oil with an immiscible selective solvent for the nitrogen-containing compounds, the selective solvent consisting essentially of water in an amount up to about ten percent by weight and an organic acid selected from the group consisting of formic acid, acetic acid, and mixtures thereof; and

separating the immiscible selective solvent containing nitrogen-containing compounds from the shale oil having a reduced nitrogen content.

4,272,362

PROCESS TO UPGRADE SHALE OIL

Abraham Schneider, Overbrook Hills, Pa.; Elmer J. Hollstein, Wilmington, Del.; Edward J. Janoski, Havertown, and Edward G. Schiffel, Media, both of Pa., assignors to Sintech, Inc., Philadelphia, Pa.

Filed Feb. 1, 1980, Ser. No. 117,610

Int. Cl.³ C10G *45/02, 67/06*

U.S. Cl. 208—254 H **6 Claims**

1. In the process of contacting shale oil with hydrogen and a hydrogenation catalyst at effective hydrogenation conditions, the improvement which comprises, prior to the contacting with hydrogen and catalyst, contacting the shale oil with a selective for oxygen compounds to extract said oxygen compounds from the shale oil and separating the solvent-extract containing the extracted compounds from the raffinate, whereby the amount of nitrogen removed per unit of hydrogen consumed during hydrogenation of said raffinate is greater than that which would occur if the oxygen compounds were not removed from the shale oil.

4,272,363

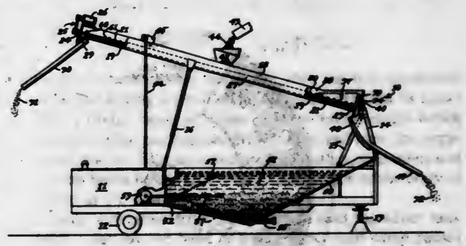
COAL WASHING APPARATUS

Neil H. Cargile, Jr., Box 1067, Nashville, Tenn. 37202

Filed Jul. 11, 1979, Ser. No. 56,685

Int. Cl.³ B03B *5/28*

U.S. Cl. 209—10 **8 Claims**



1. An apparatus for separating relatively light particles from relatively heavy particles by use of a liquid of lesser specific gravity than any of said particles, comprising:

(a) an elongated inclined trough having an upper end, a lower end, an elongated bottom wall portion and upward projecting side walls,

(b) an elongated auger rotatably mounted in said trough along said bottom wall portion,

(c) feed means for introducing a mixture of said light and heavy particles into said trough above said auger,

(d) liquid dispensing means for introducing liquid into said trough between said upper end and said feed means,

(e) drive means for rotating said auger within said trough in a direction to feed particles caught by the flights of said auger upward toward said upper end,

(f) means for discharging liquid containing said lighter particles from the lower end of said trough,

(g) separating means for separating most of the larger lighter

particles from the liquid slurry containing fine lighter particles,

(h) a liquid reservoir for receiving liquid and said slurry from said separating means,

(i) circulating means for selectively drawing liquid from selectively different levels in said reservoir and distributing said liquid to said liquid dispensing means to provide liquid of different specific gravities in said trough.

4,272,364

FROTHER FOR COAL FLOTATION

Kenneth W. Dixon, Drexel Hill, and Frederick A. Hoffstadt, Coraopolis, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Filed Mar. 24, 1980, Ser. No. 133,050

Int. Cl.³ B03D 1/02

U.S. Cl. 209—166 **2 Claims**

1. A method of improving the recovery of coal undergoing a concentration treatment of froth flotation which comprises adding at least 0.01 pounds of 4,4-dimethyl-1-pentanol per ton of dry coal and recovering a concentrate of said coal in said frother.

4,272,365

MAGNETIC SEPARATOR

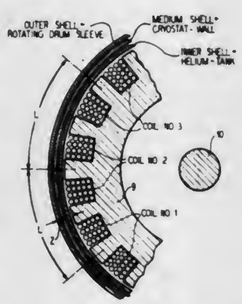
Guenter Ries; Klaus-Peter Juengst; Siegfried Foerster; Franz Graf, all of Karlsruhe; Wolfgang Lehmann, Leopoldshafen; Karl-Heinz Unkelbach, and Gottfried Duren, both of Cologne, all of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Continuation of Ser. No. 843,737, Oct. 19, 1977, abandoned. This application Feb. 5, 1979, Ser. No. 9,291

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1976, 2650528

Int. Cl.³ B03C 1/14

U.S. Cl. 209—223 R **4 Claims**



1. In the magnetic separator of the type which has a separating zone for the separation of magnetic and non-magnetic materials fed into the zone and in which a drum sleeve rotates through the separating zone and rotates about a magnet system for flooding the separating zone with a magnetic field, the improvement wherein:

said magnet system comprises a plurality of super-conducting coils adjacent one another and wound synonymously and adapted to carry current in the same direction, said magnetic coils being of synonymous polarity and producing a high intensity magnetic field which is open in the direction of the separating zone, and soft iron, said coils embedded in said soft iron and operating in an iron-free manner.

4,272,366

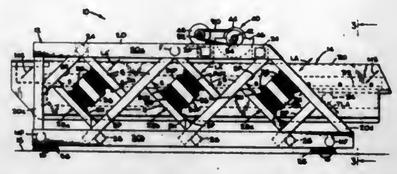
HEAVY DUTY TWO MASS VIBRATORY MACHINE

Arthur L. Dean, and William L. Wine, both of Indiana, Pa., assignors to FMC Corporation, San Jose, Calif.

Filed Aug. 16, 1979, Ser. No. 67,000

Int. Cl.³ B07B 1/42

U.S. Cl. 209—364 **4 Claims**



1. A vibratory machine for mounting to a stationary support, said vibratory machine having a working member to be driven for oscillation along a predetermined linear path, a frame member with laterally spaced side portions straddling said working member, means to resiliently mount one of said members to said support, means defining flat seating surfaces on the sides of said working member and on the side portions of said frame member, said seating surfaces being normal to said predetermined linear path, elastomer blocks located between opposed seating surfaces on the side portions of the frame member and the working member, respectively, to be compressed therebetween in the direction of movement of the working member along the predetermined linear path, said vibratory machine having a longitudinal centerline that extends within a vertical plane, and an exciter mounted outside said frame member and spaced from the working member, said exciter having a shaft normal to said vertical plane, a motor to rotate said shaft, and on the shaft at least one eccentric weight that upon rotation induces orbital motion of the frame member in planes parallel to said vertical plane, said elastomer blocks converting the orbital motion from the frame member to oscillating linear motion of the working member along the predetermined linear path.

4,272,367

STARTING TECHNIQUES FOR AN ELECTRO-PNEUMATICALLY ACTUATED WET SETTLING MACHINE

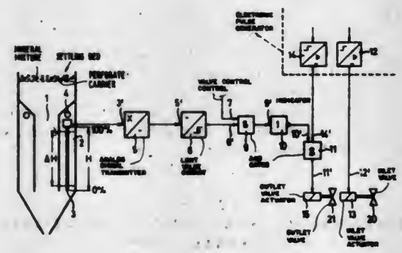
Karl-Heinz Wieffen, Bochum, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz AG, Fed. Rep. of Germany

Filed May 3, 1979, Ser. No. 35,703

Claims priority, application Fed. Rep. of Germany, May 26, 1978, 2822975

Int. Cl.³ B03B 5/20

U.S. Cl. 209—500 **9 Claims**



9. Apparatus for starting operation of a wet settling machine which has a bed for supporting a mineral mixture in a settling chamber which contains a separating liquid, an excitation chamber in the settling chamber, an air inlet valve connecting the excitation chamber to a supply of compressed air, and an air outlet valve for exhausting air from the excitation chamber, said apparatus comprising:

pulse generating means including first and second outputs and operable to provide cyclic pulses alternately at said first and second outputs, said first output connected to the inlet valve to cyclically open the inlet valve and cause a gradual step-wise filling of the excitation chamber with compressed air;

a sensor in the excitation chamber for sensing and providing a level signal indicating the level of the separating liquid;

circuit means connected to said sensor and operable to provide a control signal in response to the level signal exceeding a predetermined magnitude; and

gate means connected to said circuit means and to said second output and to the outlet valve for opening the outlet valve in response to the conjunct occurrence of a pulse and a control signal.

4,272,368

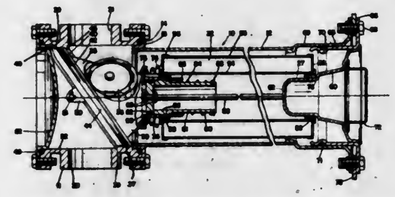
FLUID FILTER AND INDICATOR

Brian A. Foord, and Donald C. Leutz, both of Sylvania, Ohio, assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Sep. 4, 1979, Ser. No. 72,382

Int. Cl.³ B01D 35/00

U.S. Cl. 210—90 **32 Claims**



1. A filter assembly, comprising a housing, a filter element supportive in said housing, a diverter supported in said housing for directing the flow of fluid therein, said diverter being removable from one end of said housing, thereby also to allow removal of said filter element through said one end of said housing, said diverter having support means thereon for supporting said filter element, said diverter comprising a funnel-shape structure having an oblique peripheral edge in supportive engagement with said housing, said oblique edge having a seal thereon to provide fluid tight engagement with said housing, and a bypass valve supported in said diverter for opening and closing a path of fluid communication through said diverter and from one side to the other of said seal on said diverter.

4,272,369

LIQUID TREATMENT APPARATUS

Leonard S. Love, Mississauga, Canada, assignor to Sydlo Inc., Mississauga, Canada

Filed Dec. 13, 1979, Ser. No. 103,310

Int. Cl.³ B01D 21/08

U.S. Cl. 210—137 **15 Claims**

1. Liquid treatment apparatus comprising:

a clarifier tank for containing a body of liquid extending to a predetermined liquid level in the tank;

an inlet for liquid containing suspended particles;

liquid outlet means disposed generally at said predetermined liquid level and through which clarified liquid can leave the tank;

means in said tank for promoting settling of said particles from said liquid;

a sump in a bottom wall of said tank for receiving settled particles in the form of a sludge;

sludge conveyor means operable to convey settled particles towards said sump;

a thickener tank closely associated with said clarifier tank and having a clarified liquid outlet adjacent an upper end of the tank, a sludge outlet adjacent a lower end of the tank through which settled sludge can be periodically removed from the apparatus, and an inlet intermediate said outlets, said inlet and outlets being below said predetermined liquid level in the clarifier tank;

a conduit extending from said clarifier tank sump to said thickener tank inlet, whereby the head of liquid in the clarifier tank above the sump causes sludge and liquid to continuously flow from said sump into said thickener tank, and causes clarified liquid to flow continuously from said thickener tank liquid outlet;

means in said thickener tank for promoting thickening of particles in liquid in the tank; and,

means coupling said clarified liquid outlet of the thickener tank into one of said inlet and liquid outlet means of the clarifier tank.

2. Liquid treatment apparatus comprising:

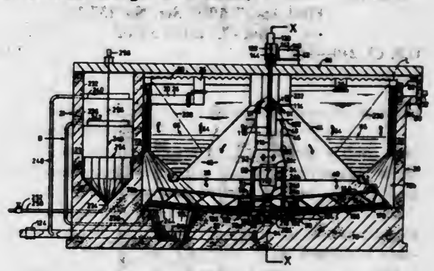
a tank for containing a body of liquid;

a liquid inlet conduit through which liquid containing suspended particles can be delivered to the tank;

liquid outlet means disposed generally at the level of the surface of said body of liquid and through which clarified liquid can leave the tank;

sludge outlet means comprising a sump in a bottom wall of the tank for receiving settled particles and from which said particles can be removed as a sludge;

sludge conveyor means operable to convey settled particles towards said sludge outlet means;



a thickener tank closely associated with the first-mentioned tank and having a clarified liquid outlet adjacent its upper end, a sludge outlet adjacent its lower end through which settled sludge can be periodically removed from the apparatus, and an inlet intermediate said outlets, said inlets and outlets being below said level of the surface of the body of liquid in the first-mentioned tank;

a conduit extending from said sump to said thickener tank inlet, whereby the head of liquid above said sump causes sludge and liquid to continuously flow from said sump into said thickener tank, and causes clarified liquid to flow continuously from said thickener tank liquid outlets; and,

means in said thickener tank for promoting thickening of particles in liquid in the tank;

an inlet member disposed at an inner end of said liquid inlet conduit adjacent said bottom wall of the tank and arranged to direct influent liquid generally vertically upwards in the tank, said inlet member including generally co-axial inner and outer portions each of tubular form extending about a common axis and through which the liquid flows from end to end, said outer portion being of significantly greater cross-sectional area than said inner portion and defining a discharge end of said inlet, whereby some of the energy in liquid flowing through said inlet member is dissipated as the liquid flows from said inner end portion to said outer end portion;

static mixer means disposed in said inner portion of the inlet member;

feed means adapted to permit introduction of chemical addi-

tives into influent liquid immediately upstream of said static mixer;

a generally conical partition member disposed in the tank above said inlet and defining a circulation zone below said member, the remainder of the tank outside said partition member defining a relatively quiescent zone for gravity settling of suspended particles;

a tubular eductor member having open upper and lower ends and disposed in an upright position below said partition member and generally in alignment with said liquid inlet, said eductor member being arranged relative to said inlet so that liquid entering the tank from the inlet flows upwardly in said eductor member and through the open upper end of the member into said circulation zone, and liquid and suspended particles adjacent said open lower end of the eductor member are entrained by said upward flow of liquid, whereby a recirculation of liquid and suspended particles is established below said partition member for promoting flocculation of said particles;

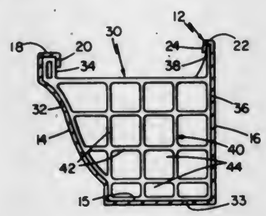
rotary impeller means disposed adjacent said discharge end of said inlet in the path of liquid flowing through the inlet and adapted to control circulation of liquid and suspended particles in said circulation zone.

4,272,370

GUTTER STRAINER

Joseph M. Cunning, Cohasset, Mass., assignor to Bird & Son, Inc., East Walpole, Mass.

Filed Apr. 7, 1980, Ser. No. 137,772
Int. Cl.³ B01D 35/02
U.S. Cl. 210—162 2 Claims



1. For use with a generally U-shaped gutter having a generally curvilineal front wall, a generally straight vertical rear wall and a bottom wall extending therebetween, said front and rear walls each having inwardly and downwardly turned flanges providing open bottom recesses extending continuously along their upper edges

a rigid, generally planar gutter strainer of generally rectangular configuration adapted for vertical mounting within said gutter perpendicular to its said front, rear and bottom walls and extending therebetween throughout the vertical cross sectional area of said gutter

said gutter strainer having

front, rear and bottom edges adapted to abut said front, rear and bottom walls, respectively, of said gutter, and

a central grid portion defining a plurality of openings for impeding passage of debris while allowing passage of water therethrough

said front and rear edges each having an upstanding abutment on their upper ends adapted to be received within said front and rear wall flanges, respectively, of said gutter for mounting and retaining said gutter strainer within said gutter perpendicular to its walls

said central grid portion consisting of a plurality of elements defining said plurality of openings, the dimension of said elements in the direction perpendicular to the plane of said gutter strainer being substantially greater than their dimension in the direction parallel to said plane

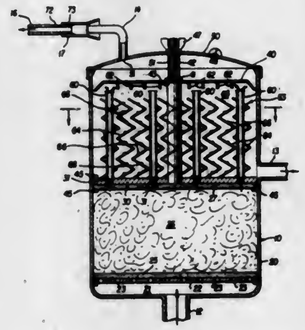
wherein said central grid portion is effective to impede passage of debris along said gutter while allowing water to flow therethrough.

4,272,371

LUBRICATING OIL FILTER-REFINER FOR INTERNAL COMBUSTION ENGINES

John R. Moses, Annapolis, and Adolph Fram, Baltimore, both of Md., assignors to Fram-Israelson Enterprises, Baltimore, Md.

Filed Feb. 21, 1980, Ser. No. 123,119
Int. Cl.³ B01D 35/18
U.S. Cl. 210—168 1 Claim



1. A lubricant filter refiner in combination with an internal combustion engine, the combination comprising:

a casing having upper and lower ends, said casing having an inlet at the lower end thereof for used oil from the engine and an outlet intermediate the upper and lower ends thereof for returning refined oil to the engine;

a retaining plate having holes therein fixed in the casing just below the outlet;

a fibrous filter disposed between the lower end of the casing and the retaining plate;

an evaporation chamber disposed above the fibrous filter and in free communication with the outlet of the casing;

a retaining bolt extending upwardly into the evaporation chamber from the retaining plate;

a splash baffle positioned within the evaporation chamber, and mounted on the retaining bolt in spaced relation with the retaining plate;

a tube extending upwardly from each hole for directing streams of filtered oil against the splash baffle;

spaced plates disposed between the retaining plate and the baffle, the spaced plates being configured with alternating concave and convex surfaces with the concave surfaces having drain holes adjacent the lowest point thereof for draining oil onto an adjacent convex surface, the concave surfaces extending beyond the convex surfaces whereby the lubricant drains off of the convex surfaces onto the adjacent lower concave surface, each of the plates having a center hole therethrough for receiving the retaining bolt and being spaced on the retaining bolt by bushings;

dams disposed on the upper surfaces of the convex and concave plates to slow the flow of oil thereacross and to spread the oil over the surfaces;

vent means positioned in the upper end of the casing above the baffle means for venting volatiles evaporated from the oil while the oil is in the evaporation chamber; and

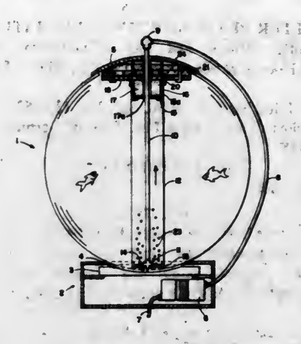
means for connecting the vent means to the air intake of the internal combustion engine to thereby apply a vacuum to the evaporation chamber to enhance evaporation of the volatiles from the oil.

4,272,372

GLOBAL AQUARIUM WITH AERATOR AND PURIFIER

Oscar Fonseca, 3054½ San Bruno Ave., San Francisco, Calif. 94134

Filed Apr. 8, 1980, Ser. No. 138,309
Int. Cl.³ E04H 3/20
U.S. Cl. 210—169 4 Claims



1. A global aquarium containing a combined aerator-purifier and comprising:

a water tank of generally spherical configuration;

a base for said tank;

a rotatable mounting supporting said tank upon said base;

a combined aerator-purifier of generally hollow cylindrical configuration positioned vertically in the center of said tank;

said aerator-purifier having an open bottom in communication with the interior of said tank and in close proximity to the bottom of said tank;

an air supply tube positioned axially in the center of said aerator-purifier;

said air supply tube extending towards the bottom of said tank and having an opening in close proximity thereto;

a source of compressed air supply to said tube;

a first filter positioned within said aerator-purifier at the top thereof;

said filter having an outlet communicating with the interior of said tank;

a second filter positioned above said first filter;

said second filter communicating with said first filter and the interior of said tank;

an opening in the top of said tank;

a removable cover plate having a central hole and disposed to cover said opening;

said cover plate, said opening and said filters being disposed for easy access, removal for cleaning and replacement of said filters.

4,272,373

APPARATUS FOR THE TRANSFER OF SUBSTANCES BETWEEN TWO FLUIDS WITH SIMULTANEOUS TEMPERING OF AT LEAST ONE OF THE FLUIDS

Kaj O. Stenberg, Staffanstorp, and Lars J. C. Traven, Lund, both of Sweden, assignors to Gambro AB, Sweden

Filed Jan. 24, 1979, Ser. No. 6,250
Claims priority, application Sweden, Feb. 2, 1978, 7801230
Int. Cl.³ B01D 31/00; A61M 1/03
U.S. Cl. 210—175 24 Claims

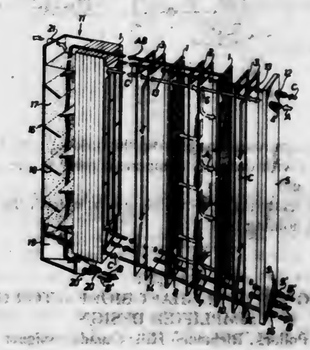
1. Apparatus for the transfer of substances between first and second fluids comprising:

at least one heat permeable membrane having first and second opposing surfaces for the transfer of heat therethrough;

first fluid conducting means for conducting a first fluid through a portion of said apparatus;

a plurality of spacing plates arranged in stacked relationship, said spacing plates including flow channels therein for conducting a second fluid therethrough, at least one of said spacing plates being juxtaposed to said first surface of said at least one heat permeable membrane for conducting a portion of said second fluid through said flow channels thereof along said first surface of said heat permeable membrane;

second fluid introduction means for introducing a second fluid into said flow channels of said spacing plates, said second fluid introduction means including inlet apertures through each of said spacing plates, said inlet apertures being aligned with one another to define a fluid passage through said stack of spacing plates, and said flow channels of said spacing plates being in communication with said inlet apertures in said spacing plates;



transfer means for transferring substances between said first and second fluids;

third fluid conducting means for conducting a third fluid along said second surface of said heat permeable membrane for tempering said portion of said second fluid conducted along said first surface; and

adjustable control means for controlling the introduction of said second fluid to only a predetermined number of spacing plates, said adjustable control means comprising a shut-off element movable to selectively shut off said flow channels of said spacing plates other than said predetermined number of spacing plates so that said second fluid is only introduced into said predetermined number of said spacing plates.

4,272,374

APPARATUS FOR TREATING WASTEWATER

William E. Baker, 6706 Markwood St., Worthington, Ohio 43085

Filed Aug. 3, 1979, Ser. No. 63,435
Int. Cl.³ C02F 3/28
U.S. Cl. 210—189 6 Claims

1. In the combination of apparatus for treating wastewater including a settling tank and means for delivering wastewater to the tank, the wastewater including solid and liquid components; means for separating the solid from the liquid components; a sludge digester containing sludge; means for moving the separated solid component from the tank to the digester; and means for heating the separated solid component prior to its delivery to the digester,

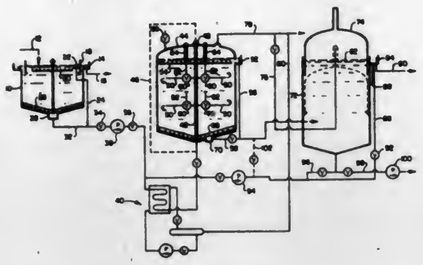
means for distributing the solid component substantially uniformly throughout the sludge in said digester comprising a rotating manifold mounted concentrically within the digester, the manifold having distribution arms in communication with the manifold and extending outwardly therefrom toward the periphery of the digester and to within about a foot of said periphery,

means for rotating the manifold at a speed not substantially greater than one rpm, said speed being less than a speed

which would cause a homogenous mixture within said digester,

means for activating the rotating means only when sludge is being delivered to the digester,

a holding tank and means for removing sludge from the digester and depositing it in the holding tank,



means for removing sludge from the holding tank and combining it with the solid component prior to the time it is heated, and

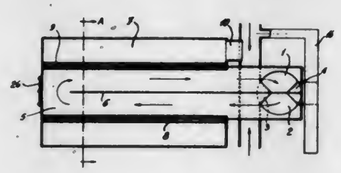
means for removing combustible gas from both the digester and the holding tank.

4,272,375

LONG VERTICAL SHAFT BIOREACTOR OF SIMPLIFIED DESIGN

David C. I. Pollock, Richmond Hill, Canada, assignor to C-I-L Inc., Montreal, Canada

Filed Jun. 13, 1980, Ser. No. 159,353
Claims priority, application Canada, Oct. 26, 1979, 338538
Int. Cl.³ C02F 3/22
U.S. Cl. 210—194 1 Claim



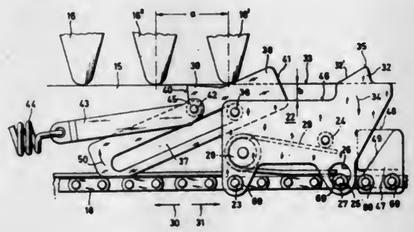
1. An improved long vertical shaft bioreactor comprising an enclosed head tank, a long vertical downcomer chamber, a long vertical riser chamber, the said downcomer and riser chambers operatively communicating with each other directly at their lower ends and through the said head tank at their upper ends thus forming a circulatory loop, both the said downcomer chamber and the said riser chamber having means for the injection therein at depth of an oxygen-containing gas, a waste influent conduit operatively opening into said riser chamber at a location above the location of the means for injecting oxygen-containing gas into said riser chamber, a waste effluent conduit operatively discharging from said riser chamber at a location below the location of the means for injecting oxygen-containing gas into said riser chamber, the improvement comprising a foam oxidation vessel surrounding the said head tank in such a manner that the said head tank is immersed in liquid in the foam oxidation vessel, the said head tank and foam oxidation vessel having first and second conduit means therebetween, said first conduit means comprising an inverted J configuration with the short arm of J discharging from the head tank at a position above the normal liquid level in the said head tank, the said second conduit means comprising an inverted J configuration with the long arm of the J discharging from the head tank at a position below the normal liquid level in the said head tank, the said first conduit means being adapted to transfer foam from the surface of the said head tank to the liquid in the said foam oxidation vessel, the said second conduit means being adapted to compensate for increased pressure in the said head tank caused by surges of influent discharge into the said bioreactor.

4,272,376

FILTER PLATE SHIFTING APPARATUS

Alfons Schotten, Düren, Fed. Rep. of Germany, assignor to Eberhard Hoesch & Söhne GmbH & Co., Düren, Fed. Rep. of Germany

Filed Mar. 26, 1980, Ser. No. 133,987
Claims priority, application Fed. Rep. of Germany, Apr. 10, 1979, 2914448
Int. Cl.³ B01D 25/12
U.S. Cl. 210—230 12 Claims



1. In a filter press having a length, a closed side and an open side and including a plurality of filter plates displaceable parallel to the filter press length towards the open side and in an opposite direction towards the closed side; the filter plates being adapted to assume at said closed side a mutually contacting relationship to form a filter plate stack in which the filter plate closest to the open side is the outermost filter plate; a projection forming part of each filter plate; a filter plate shifting apparatus for individually moving the momentarily outermost filter plate from the closed side towards the open side; the filter plate shifting apparatus including a filter plate drive extending parallel to the filter press length and being movable parallel to the filter press length towards said open and closed sides; the improvement wherein said filter plate shifting apparatus comprises in combination

(a) a carrier means mounted on said filter plate drive for force-transmittingly engaging the projection of the outermost filter plate for shifting it away from said filter plate stack towards said open side when said filter plate drive is moved in the direction of said open side; and

(b) a locking means for pressing the next-to-the-outermost filter plate against said filter plate stack during an initial part of the travel of the outermost filter plate entrained by said carrier means during the motion of said filter plate drive towards said open side; said locking means being mounted on said carrier means for limited displacement relative to said carrier means in a direction parallel to the filter press length and for movement together with said carrier means towards said closed and open sides.

4,272,377

PRODUCTION OF POLYURETHANE EMBEDDING MATERIALS

Klaus Gerlach, Obernau, and Gerhard Wick, Obernburg, both of Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Filed Mar. 26, 1979, Ser. No. 23,948
Claims priority, application Fed. Rep. of Germany, Mar. 25, 1978, 2813197; Feb. 26, 1979, 2907501; Mar. 28, 1979, 2855243
Int. Cl.³ B01D 31/00
U.S. Cl. 210—321.3 3 Claims

1. In an apparatus for a selectively effective dialysis wherein a porous membrane is mounted in a housing to divide it into a dialysate chamber and a retentate chamber, the improvement in mounting said membrane onto the housng which comprises support means partially embedding the membrane and securely adhering it to said housing, said support means consisting essentially of a polyurethane material which is the hardened, cross-linked product obtained by reacting an aromatic diisocyanate in stoichiometric excess with a mixture consisting essentially of castor oil and trimethylolpropane to form a flowable preadduct containing unreacted isocyanate groups, and subsequently hardening said preadduct by intimately admixing therewith as a cross-linking agent

(a) castor oil, or

(b) a mixture of castor oil and trimethylolpropane

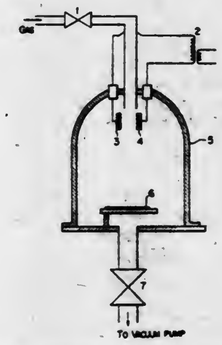
in an amount sufficient to cross-link the prepolymer through a majority of its unreacted isocyanate groups.

4,272,378

SEMIPERMEABLE MEMBRANE

Takezo Sano, Takatsuki; Takatoshi Shimomura, Toyonaka; Masao Sasaki, Osaka, and Ichiki Murase, Ibaragi, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 714,239, Aug. 13, 1976, Pat. No. 4,147,745.
This application Jan. 3, 1979, Ser. No. 701
Claims priority, application Japan, Aug. 25, 1975, 50/103329
The portion of the term of this patent subsequent to Aug. 15, 1995, has been disclaimed.
Int. Cl.³ B01D 39/00
U.S. Cl. 210—500.2 3 Claims



1. A heterogeneous membrane of a thickness of 20 to 500μ comprising acrylonitrile copolymers which has a crosslinked dense layer whose thickness is less than 1μ only in the vicinity of the surface thereof and pores of 100 to 1,000 Å in size in the layer close to said cross-linked dense layer, the size of the pores increasing gradually to 1 to 100μ toward the back surface of the membrane.

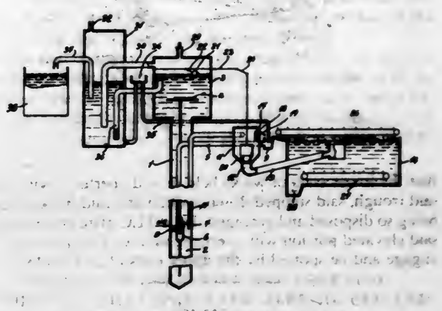
4,272,379

METHOD FOR PROTECTING A BIOREACTOR PRESSURIZED HEAD TANK AGAINST EXTREME SURGES OF INFLUENT WASTE WATER

David C. I. Pollock, Richmond Hill, Canada, assignor to C-I-L Inc., Montreal, Canada

Filed Jun. 13, 1980, Ser. No. 159,349
Claims priority, application Canada, Oct. 26, 1979, 338540
Int. Cl.³ C02F 3/22
U.S. Cl. 210—621 4 Claims

1. An improved long vertical shaft bioreactor apparatus comprising an enclosed head tank, a downcomer chamber and a riser chamber operatively communicating with each other at their upper and lower extremities, communication at the upper extremities being through the said head tank, means for directing influent waste to said riser, means for removing treated effluent from said riser, means for injecting oxygen-containing gas into the waste within said riser and downcomer, the improvement comprising gas conduit means in the said head tank for venting gas therethrough into an adjacent collection vessel, the end of said gas-venting conduit in said collection vessel being immersed in a predetermined depth of waste liquid in the said collection vessel, liquid conduit means in said head tank for venting liquid therethrough into the said adjacent collection vessel, the end of said liquid venting conduit being immersed in the said collection vessel liquid at a lower level than the end of said gas-venting conduit, the said collection vessel having overflow conduit means for transferring waste liquid therefrom to the bioreactor influent steam, said overflow conduit means being positioned so as to control the level of liquid in the said collection vessel thereby controlling the pressure exerted by the said liquid upon the gas vented from the said head tank.



4,272,380

SOLVENT FRONT DETECTION METHOD AND MANUFACTURE

Donald W. Jones, San Clemente, Calif., assignor to Analytical Systems, Inc., Laguna Hills, Calif.

Filed Sep. 13, 1979, Ser. No. 75,347
Int. Cl.³ B01D 15/08
U.S. Cl. 210—658 6 Claims

1. In a thin layer chromatographic method employing a chromatogram having a plurality of scored areas adjacent one end of said chromatogram and having inserted into said scored areas at least one disc impregnated with an analyte and at least one disc impregnated with a known organic compound, and eluting said analyte and said known compound with an eluting solvent, whereby said solvent, said analyte and said known organic compound migrate away from said discs, with said solvent defining a solvent front,

the improvement which comprises,

having a solvent elutable lipophilic dye impregnated into at least one of said discs, whereby said lipophilic dye migrates away from said disc said dye traveling with said solvent at said solvent front, wherein said solvent elutable lipophilic dye is present in said disc in sufficient amount to provide at said solvent front easy visual detection of said front.

4,272,381

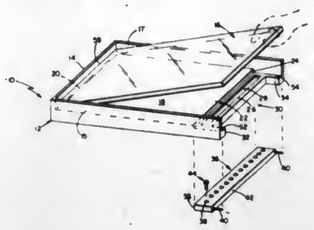
THIN-LAYER CHROMATOGRAPHY SPOTTING

Richard D. Kramer, Keene, N.H., and Michael J. Sisbourgartner, Del Mar, Calif., assignors to Schleicher & Schuell, Inc., Keene, N.H.

Filed Oct. 22, 1979, Ser. No. 87,874
Int. Cl.³ B01B 15/08
U.S. Cl. 210—658 11 Claims

1. A device for spotting samples at spaced locations on the adsorbent surface of a TLC plate comprising a base member having an elevated flat TLC plate-supporting portion extend-

ing forwardly from its back and a stepped-down portion at its front containing a solvent trough and a wicking plate containing wick-receiving apertures adapted to be positioned on said stepped-down portion with said apertures over said trough so



that the lower ends of wicks held in said apertures will dip in said trough, said stepped-down portion and said wicking plate being so disposed and arranged that a TLC plate positioned on said elevated portion will overhang said wicking plate so as to engage and be spotted by the upper ends of said wicks.

4,272,382

PROCESS FOR SEPARATING CYCLIC PHOSPHAZENE OLIGOMERS

Yuzuru Ogata, Tokushima, and Yoshifumi Nakacho, Sakai, both of Japan, assignors to Otsuka Chemical Co. Ltd., Osaka, Japan

Filed Nov. 27, 1979, Ser. No. 97,893
Claims priority, application Japan, Apr. 7, 1979, 54-42191
Int. Cl.³ B01D *15/00*
U.S. Cl. 210—660 **3 Claims**

1. A process for separating cyclic phosphazene oligomers which comprises adding a mineral adsorbent to a mixture containing cyclic phosphazene oligomers and linear phosphazenes, the amount of said mineral adsorbent being 0.5 to 10 parts by weight to 1 part by weight of the linear phosphazenes in the mixture and said mineral adsorbent being at least one mineral selected from the group consisting of vermiculite, sericite, talc, mica, diatomaceous earth, kaolin, bentonite, montmorillonite, acid clay, activated clay, silica, alumina, zeolite, synthetic zeolite and molecular sieves; maintaining said mineral adsorbent in said mixture for a period of from 10 minutes to 10 hours at a temperature of from room temperature to 200° C.; and thereafter removing said mineral adsorbent from said mixture.

4,272,383

METHOD AND APPARATUS FOR EFFECTING SUBSURFACE, CONTROLLED, ACCELERATED CHEMICAL REACTIONS

Jay L. McGrew, 12213 Maxwell Hill Rd., Littleton, Colo. 80120

Continuation of Ser. No. 887,506, Mar. 17, 1978, abandoned. This application Jan. 3, 1980, Ser. No. 109,417
Int. Cl.³ C02F *1/74, 11/08*
U.S. Cl. 210—741 **62 Claims**

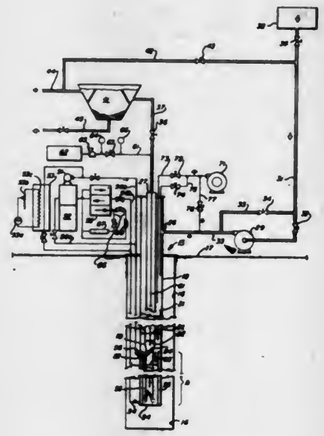
1. In a method for effecting accelerated chemical reactions between at least two reactants, the steps of:

flowing an influent fluid with at least two reactants downwardly through a downgoing flow passage at a selected flow rate to a selected depth below the ground surface in a subterranean hole to form a hydrostatic column of fluid exerting a pressure and provide a temperature sufficient to cause the reactants at said selected depth to react in a reaction at an accelerated reaction rate and pass further down through a reaction zone extending through said downgoing flow passage a selected distance below said selected depth whereby reaction products are produced and the fluid is heated in said reaction zone, flowing the heated fluid and reaction products from said reaction zone back up to substantially ground surface level in an upgoing flow passage in heat exchange relation to the downflowing fluid as an effluent fluid, said reaction being carried out with said downgoing and upgoing flow passages suspended from above in said subterranean hole and in spaced relation to said hole; and

controlling the temperature of said reaction zone by adding heat to said fluid in said reaction zone when the temperature of said fluid in said reaction zone is below a selected temperature and removing heat from said fluid in said reaction zone when said fluid in said reaction zone is above a selected temperature to accomplish a maximum reaction rate with the vapor pressure of the influent fluid at the local temperature being maintained always lower than the local pressure to prevent boiling of said influent fluid.

31. In apparatus for effecting accelerated chemical reactions, the combination comprising:

a reactor including first and second pipe portions defining a downgoing flow passage and an upgoing flow passage in heat exchange relation to the downgoing flow passage, said reactor being suspended from above in a subterranean hole and in spaced relation to said hole, said downgoing



flow passage extending from substantially the ground surface to a depth sufficient to cause a downflowing fluid therein to form a hydrostatic column of fluid to exert a pressure and provide a temperature sufficient to cause two reactants in the fluid at said selected depth to react at an accelerated rate, said downgoing flow passage extending down from said selected depth to form a reaction zone whereby reaction products are produced and said fluid is heated in said reaction zone;

means for pumping an influent fluid with at least two reactants from substantially the ground surface level through said downgoing and upgoing passages whereby an effluent fluid with reaction products is passed from said reactor; and

means for controlling the temperature of said reaction zone by adding heat to said fluid in said reaction zone when the temperature of said fluid in said reaction zone is below a selected temperature and removing heat from said fluid in said reaction zone when said fluid in said reaction zone is above a selected temperature to maintain a substantially maximum reaction rate without boiling of the fluid in said reaction zone.

4,272,384

COMPOSITION FOR PREVENTING A RESIN SYSTEM FROM SETTING UP IN A WELL BORE

Robert C. Martin, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 922,614, Jul. 7, 1978, Pat. No. 4,189,002. This application Sep. 14, 1979, Ser. No. 75,625
Int. Cl.³ E21B *33/138*
U.S. Cl. 252—8.55 R **8 Claims**

1. A composition for preventing a resin system from setting up in a wellbore comprising:

(a) from about 5 to about 50 parts by weight an alkanol primary amine;

(b) from about 95 to about 50 parts by weight an alkylene glycol alkyl ether, (a) and (b) together totalling 100 parts by weight;

(c) from about 0.2 to about 4.5 parts by weight a water insoluble cellulose derivative which is dispersible in the mixture of (a) and (b); and

(d) from about 0.04 to about 0.75 parts by weight a finely divided inert particulate, (c) and (d) functioning to control fluid loss of said composition.

4,272,385

PERFUMED FIREPROOFING COMPOSITION

Micheline M. J. Crête; Pierre G. C. Crête, both of 14, rue de la Chataigneraie, Montmorency (Val d'Oise), and Aurélie Pascod nee Pacescu, 107 Avenue de la Bourdonnais, Paris (Seine), all of France

Filed Feb. 26, 1979, Ser. No. 15,550
Claims priority, application France, Mar. 8, 1978, 78 06704
Int. Cl.³ C09K *3/28*
U.S. Cl. 252—608 **8 Claims**

1. Perfumed fireproofing composition including ammonium sulphamate as fireproofing agent and a wetting agent, comprising in an aqueous medium a perfume selected in the group consisting of terpene, phenyl and benzyl compounds as well as an homogenizing agent for said perfume in the form of a sorbitan ester.

4,272,386

ANTISTATIC, FABRIC-SOFTENING DETERGENT ADDITIVE

Ellsworth R. Draper, Jr., and Kenneth L. Jones, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 961,445, Nov. 16, 1978, abandoned. This application Aug. 30, 1979, Ser. No. 71,424
Int. Cl.³ D06M *13/46, 15/30*; C11D *3/20, 3/26*
U.S. Cl. 252—8.6 **30 Claims**

1. The particulate detergent additive for preventing static buildup on textiles and softening fabrics when applied thereto from a laundry solution, said particulate additive being produced by the at least partial complexing of:

(a) from about 1% to about 90% by weight of an anionic complexing component selected from the group consisting of anionic synthetic surfactants; soaps; nonsurfactant electrolytes selected from the group consisting of alkali metal phosphates, borates, carbonates, silicates, sulfates, and citrates; and mixtures thereof; and

(b) from about 10% to about 99% by weight of particles of an intimate mixture of:

(i) from about 90% to about 20% by weight of a quaternary ammonium compound of formula $[R_1R_2R_3R_4N]^+Y^-$ wherein at least one, but not more than two, of R_1, R_2, R_3, and R_4 is an organic radical containing a group selected from a C_{16}–C_{22} aliphatic radical, or an alkyl phenyl or alkyl benzyl radical having 10 to 16 carbon atoms in the alkyl chain, the remaining group or groups being selected from C_1–C_4 alkyl, C_2–C_4 hydroxy alkyl, and cyclic structures in which the nitrogen atom forms part of the ring, Y constituting an anionic radical selected from the group consisting of hydroxide, halide, sulfate, methylsulfate, ethylsulfate and phosphate ions, and

(ii) from about 10% to about 80% by weight of a dispersion inhibitor, being a solid organic material having a solubility in water of 50 ppm maximum at 25° C. and a softening point in the range of 75° F. to 250° F., said material being selected from the group consisting of paraffinic waxes, cyclic and acyclic mono- and polyhydric alcohols, substituted and unsubstituted aliphatic carboxylic acids, esters of the foregoing alcohols and acids, C_3–C_4 alkylene oxide condensates of any of the foregoing materials and mixtures thereof,

wherein said complex constitutes at least 25% of the surfaces of said particulate additive and wherein substantially all of the additive particles have a size of about 10 microns to about 500 microns, a solubility in water of about 50 ppm maximum at 25° C., and a softening point of from about 75° F. to about 250° F.

4,272,387

PROCESS OF PREPARING MOLYBDENUM COMPLEXES, THE COMPLEXES SO-PRODUCED AND LUBRICANTS CONTAINING SAME

John M. King, San Rafael, and Louis de Vries, Greenbrae, both of Calif., assignors to Chevron Research Company, San Francisco, Calif.

Filed Jun. 28, 1979, Ser. No. 52,699
The portion of the term of this patent subsequent to Apr. 21, 1998, has been disclaimed.
Int. Cl.³ C10M *1/54*
U.S. Cl. 252—46.4 **13 Claims**

1. A process for preparing a sulfurized molybdenum-containing composition which comprises (1) reacting an acidic molybdenum compound and a basic nitrogen compound selected from the group consisting of a succinimide, carboxylic acid amide, Mannich base, phosphonamide, thiophosphonamide, phosphoramide, dispersant viscosity index improvers, or mixtures thereof, to form a molybdenum complex wherein from 0.01 to 2 atoms of molybdenum are present per basic nitrogen atom; and (2) reacting said complex with a sulfur containing compound, in an amount to provide 0.1 to 4.0 atoms of sulfur per atom of molybdenum, to form a sulfur- and molybdenum-containing composition.

4,272,388

LIGHTWEIGHT INJECTABLE, THIXOTROPIC FOAM INSULATING MATERIAL

Harald Wermelin, Gulbaravägen 12, Johanneshov, Sweden (S-121 41)

Continuation of Ser. No. 28,643, Mar. 15, 1979, abandoned, which is a continuation of Ser. No. 902,391, May 3, 1978, abandoned. This application Mar. 21, 1980, Ser. No. 132,654
Claims priority, application Sweden, Nov. 12, 1976, 7612649
Int. Cl.³ C04B *43/02, 43/00*
U.S. Cl. 252—62 **10 Claims**

1. An injectable, thixotropic material for use as insulating material, characterized in that it comprises a mixture of 250–1500 parts by weight of water, 5–70 parts by weight of binder, 1–10 parts by weight anionic or cationic wetting agent, 10–100 parts by weight of mineral wool, 30–300 parts by weight of expanded vermiculite, and optionally 1–10 parts by weight of ammonia; said material having a bulk density from about 0.085 g/cm³ to about 0.145 g/cm³.

7. An injectable, thixotropic material for use as insulating material characterized in that it consists essentially of a mixture of 250–1500 parts by weight of water, 5–70 parts by weight of a binder selected from the group consisting of carboxymethyl cellulose, starch and acrylate binders, 1–10 parts by weight of

anionic or cationic wetting agent, 10–100 parts by weight of mineral wool, 30–300 parts by weight of expanded vermiculite, and optionally 1–10 parts by weight of ammonia.

4,272,389

ABSORPTION HEAT PUMP WORK MEDIUM CONSISTING OF A SOLUTION OF A FLUOROCHLOROALKANE IN A SUBSTITUTED AMINO PHOSPHORUS OXIDE

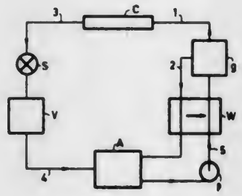
Udo K. P. Biermann, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 29, 1979, Ser. No. 89,073

Claims priority, application Netherlands, Nov. 6, 1978, 7811002

Int. Cl.³ C09K 5/04

U.S. Cl. 252—69 **3 Claims**



1. A work medium for use in an absorption heat pump, which consists of a solution of a fluorochloroalkane in a solvent consisting of (a) at least one substituted amino phosphorus oxide compound having the general formula:

$$[(R_1R_2)N]3-x(R_3)_xPO$$

and/or (b) at least one substituted amino phosphorus oxide compound having the general formula:

$$[(R_1R_2)N]4-p(R_3)_pP_2O_3$$

wherein R_1, R_2, and R_3 are methyl, ethyl, propyl, butyl, phenyl or cyclohexyl and, in addition, R_3 is methoxy or ethoxy; x is an integer from 0 to 2; and p is an integer from 0 to 3.

4,272,390

HYDRATED $CACL_2$ REVERSIBLE PHASE CHANGE COMPOSITIONS WITH NUCLEATING ADDITIVES

George A. Lane, and Harold E. Rossow, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 2,828, Jan. 12, 1979, abandoned. This application Nov. 2, 1979, Ser. No. 90,704

Int. Cl.³ C09K 5/06

U.S. Cl. 252—70 **10 Claims**

1. A reversible liquid/solid phase change composition comprising hydrated $CaCl_2$, and as a nucleating additive, one or more of BaI_2, $BaSO_4$, or BaO, added to the composition in an amount effective to suppress supercooling of the hydrated $CaCl_2$ liquid phase.

4,272,391

HYDRATED $MG(NO_3)_2$ REVERSIBLE PHASE CHANGE COMPOSITIONS

George A. Lane, and Harold E. Rossow, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 2, 1979, Ser. No. 90,789

Int. Cl.³ C09K 5/06

U.S. Cl. 252—70 **17 Claims**

1. A reversible liquid/solid phase change composition comprising hydrated $Mg(NO_3)_2$ and as a nucleating additive, one or more of MgO, $Mg(OH)_2$, $MgCO_3$, CaO, $Ca(OH)_2$, or $CaCO_3$, added to the composition in an amount effective to suppress average supercooling of the $Mg(NO_3)_2$ liquid phase to about 2° C. or less.

4,272,392

HYDRATED $MG(NO_3)_2/MGCL_2$ REVERSIBLE PHASE CHANGE COMPOSITIONS

George A. Lane, and Harold E. Rossow, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 2, 1979, Ser. No. 90,803

Int. Cl.³ C09K 5/06

U.S. Cl. 252—70 **11 Claims**

1. A reversible liquid/solid phase change composition comprising hydrated $Mg(NO_3)_2/MgCl_2$ and as a nucleating additive, one or more of MgO, $Mg(OH)_2$, or $NaBO_2$, added to the composition in an amount effective to suppress average supercooling of the $Mg(NO_3)_2/MgCl_2$ liquid phase to about 2° C. or less.

4,272,393

GAS GENERATING CLEANING ARTICLE

Gerhard Gergely, Gartengasse 8, 1053 Wien, Austria

Continuation-in-part of Ser. No. 857,843, Dec. 5, 1977, Pat. No. 4,216,104. This application Dec. 27, 1979, Ser. No. 106,337

Claims priority, application Austria, Dec. 3, 1976, 8978/76

Int. Cl.³ C11D 11/00, 7/12; B08D 1/00

U.S. Cl. 252—91 **16 Claims**

1. In a cleaning material comprising a porous flexible support impregnated with a detergent selected from the group consisting of anionic, cationic and non-ionogenic surfactants, and a water-soluble adhesive, the improvement wherein

said support is also coated or impregnated with (1) at least one gas-generating substance selected from the group consisting of calcium hydride, sodium borohydride, a substance for generating oxygen in water, and a substance for generating CO_2 in water; and, when said gas-generating substance is a said substance for generating oxygen in water or for generating CO_2 in water, said support additionally contains (2) a material for triggering the generation in water of a gas selected from said oxygen and said CO_2.

4,272,394

MACHINE DISHWASHING DETERGENTS CONTAINING LOW-FOAMING NONIONIC SURFACTANTS

Thomas M. Kaneko, Trenton, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Nov. 19, 1979, Ser. No. 95,818

The portion of the term of this patent subsequent to Jan. 13, 1998, has been disclaimed.

Int. Cl.³ C11D 7/54

U.S. Cl. 252—99 **18 Claims**

1. A low-foaming homogeneous, nonionic surfactant blend consisting essentially of a blend of

A. at least one conventional polyoxyalkylene-based low-foaming nonionic surfactant and

B. a second nonionic surfactant consisting of a block or heteric/block polyoxyalkylene having a cloud point in a 1 weight percent aqueous solution of about 10° C. to about 30° C. selected from the group consisting of at least one of the polyoxyalkylenes having the formulas:

$$Y[(EO/A)_m(A)_nH]_x \quad \text{I}$$

$$Y[(A)_o(EO)_m(A)_nH]_x \quad \text{II}$$

$$Y[(A)_o(EO/A)_m(A)_nH]_x \quad \text{III}$$

$$Y[(EO/A)_m(EO/A)_nH]_x \quad \text{IV}$$

wherein EO represents ethylene oxide which is present in the polymer in the proportion of about 5 to about 60 percent by weight; Y represents the nucleus of an active hydrogen-containing organic compound having a functionality of x and (1) about 2 to about 6 carbon atoms and at least two reactive hydrogen atoms or (2) about 7 to about 18 carbon atoms and at least one reactive hydrogen atom; A represents a lower alkylene oxide selected from the group consisting of propylene oxide, butylene oxide, tetrahydrofuran or mixtures thereof wherein up to 25 percent by weight of A is reacted directly with said organic compound either alone in formulas II and III or in admixture with ethylene oxide in formulas I and IV and 75 percent by weight or more of A is subsequently reacted to produce said polymer; m, n and o are integers individually selected such that the average total molecular weight of the polymer is about 500 to about 25,000; and wherein said conventional nonionic surfactant is present in the proportion of about 10 to about 90 percent by weight and said second nonionic surfactant is present in the proportion of about 10 to about 90 percent by weight or

C. a second nonionic surfactant characterized as a block polyoxyalkylene having a cloud point of about 10° C. to about 20° C. selected from the group consisting of at least one of the polyoxyalkylenes having the formula

$$Y[(EO)_m(A)_nH]_x \quad \text{V}$$

wherein Y, EO, A, m, n, x, molecular weight, and useful proportions are as defined above.

4,272,395

GERMICIDAL COMPOSITIONS

Robert J. Wright, London, England, assignor to Lever Brothers Company, New York, N.Y.

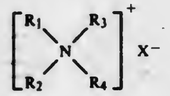
Continuation of Ser. No. 910,550, May 30, 1978, abandoned. This application Dec. 20, 1979, Ser. No. 106,072

Int. Cl.³ C11D 1/62, 3/48

U.S. Cl. 252—106 **4 Claims**

1. A germicidal liquid detergent composition consisting essentially of water and 0.05 to 20% by weight of an active mixture consisting of:

(a) from 50 to 95 parts by weight of a quaternary ammonium compound having the formula



wherein R_1 and R_2 are alkyl groups each having 9 to 11 carbon atoms; R_3 and R_4 are each an alkyl group of 1 to 3 carbon atoms, a hydroxyalkyl group of 1 to 3 carbon atoms, an alkylether group of 1 to 3 carbon atoms, or a benzyl group; and X^- is Cl^-, Br^-, I^-, NO_3^-, $\frac{1}{2}SO_4^{2-}$, $CH_3SO_4^-$, $C_2H_5SO_4^-$, $\frac{1}{2}HPO_4^{2-}$ or CH_3COO^-;

(b) from 5 to 50 parts by weight of a short chain anionic surfactant having 3 to 8 carbon atoms in the hydrophobic group, selected from the group consisting of organic water soluble, single, double or triple charged sulphonates, sulphates, phosphates and carboxylic acid salts and mixtures thereof; and

(c) from 0 to 20 parts by weight of a nonionic surfactant, selected from the group consisting of mono- or diethanolamides of C_{10}–C_{16} fatty acids; and ethoxylated or propoxylated primary or secondary C_8–C_{16} alkanols containing 1 to 4 ethylene oxide or propylene oxide units per molecule; and mixtures thereof.

4,272,396

ENZYME-CONTAINING DETERGENT COMPOSITION

Kazuaki Fukano, Chiba; Ryuichi Nakagawa, Narashino; Akira Fukasawa, Yachiyo, and Hiroshi Nishio, Chiba, all of Japan, assignors to The Lion Fat & Oil Co., Ltd., Tokyo, Japan

Filed Nov. 20, 1979, Ser. No. 96,150

Claims priority, application Japan, Dec. 5, 1978, 53/150297

Int. Cl.³ C11D 3/386, 7/42

U.S. Cl. 252—174.12 **9 Claims**

1. An enzyme-containing detergent composition consisting essentially of:

an enzyme having an activity under the conditions of a pH of about 4 to about 13, and a temperature of about 10° to about 80° C.;

an anionic surface active agent containing at least 50% by weight of α-olefin sulfonate having 10 to 20 carbon atoms, said anionic surface active agent being contained within said composition in an amount of 5 to 40% by weight, and;

polyethylene glycol having a weight average molecular weight of 1,000 to 20,000, said polyethylene glycol being contained within said composition in an amount of 0.1 to 10% by weight.

4,272,397

METHOD OF PREPARING FLAKE-LIKE CERAMIC PARTICLE OF ZINC SULFIDE PHOSPHOR

Yoji Fukuda, Neyagawa; Fumio Fukushima, Moriguchi; Tomizo Matsuoka, Neyagawa; Tsuneharu Nitta, Katano, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 31, 1979, Ser. No. 44,102

Claims priority, application Japan, Jan. 1, 1978, 53-66383

Int. Cl.³ C09K 11/46; C04B 35/00

U.S. Cl. 252—301.6 S **11 Claims**

1. A method of preparing flake-like ceramic particles of zinc sulfide phosphor, which comprises the steps of

preparing flake-like particles of basic zinc sulfate crystal doped with activator, by precipitating said basic zinc sulfate particles from an aqueous solution containing zinc sulfate, urea and an activator metal ion component which is at least one activator metal ion selected from the group consisting of copper, silver, gold, aluminum, indium, gallium, rare earth metal and manganese, the atomic ratio of said activator metal ion component in said aqueous solution being 10^{-5} to 10^{-2} with respect to the zinc atom of said zinc sulfate,

sulfurizing said basic zinc sulfate particles in a carbon disulfide atmosphere at a temperature from 400° to 800° C., and

heating the thus sulfurized particles in a hydrogen sulfide atmosphere at a temperature from 800° to 1200° C.

4,272,398

MICROENCAPSULATION PROCESS

Howard Jaffe, Gaithersburg, Md., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation of Ser. No. 934,940, Aug. 17, 1978, abandoned. This application Jan. 15, 1979, Ser. No. 49,819

Int. Cl.³ B01J 13/02; A01N 25/28

U.S. Cl. 252—316 **5 Claims**

2. An encapsulation process for one-phase encapsulation of compounds and mixtures of compounds soluble in volatile organic solvents comprising dissolving said compound and a biodegradable polymer selected from the group consisting of polylactic acid and copolymers of lactic and glycolic acids in a suitable organic solvent, dispersing the solution in an aqueous medium containing an anionic surfactant, and stirring said dispersion until the solvent evaporates, thereby forming a soapy white suspension of said compound in said polymer, filtering, washing, drying and sizing to aggregates of one-phase particles.

4,272,399

CONVERSION OF CARBON-CONTAINING MATERIALS TO SYNTHESIS GAS

George D. Davis, Creve Coeur, Mo.; James C. Hill, Seabrook, Tex.; Talmage D. McMinn, Des Peres, and Charles W. Rooks, St. Louis, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 21, 1979, Ser. No. 77,706
Int. Cl.³ C01B 2/06, 2/10
U.S. Cl. 252—373 21 Claims

1. A continuous process for the gasification of carbon-containing materials in a fluidization system comprising a reduction zone and a gasification zone which comprises:

(a) introducing particulate solid oxidant at an elevated temperature into said reduction zone,

(b) introducing a carrier gas selected from the group consisting of steam and carbon dioxide, synthesis gas and mixtures thereof substantially devoid of free oxygen into said reduction zone at such a rate to fluidize oxidant and cause it to move upwardly through said system,

(c) maintaining said reduction zone under conditions such that when said carrier gas is synthesis gas said oxidant is at least partially reduced and said synthesis gas is oxidized to steam and carbon dioxide,

(d) introducing carbon-containing material and steam into said gasification zone whereby said carbon-containing material is injected into and mixed with said upward moving oxidant, steam and carbon dioxide,

(e) maintaining said gasification zone under conditions such that said carbon-containing material, steam and carbon dioxide are endothermically reacted to a mixture of carbon monoxide and hydrogen, and

(f) withdrawing a gaseous effluent comprising carbon monoxide and hydrogen from said gasification zone.

4,272,400

REGENERATION OF SPENT HYDRODESULFURIZATION CATALYSTS EMPLOYING PRESULFIDING TREATMENT AND HETEROPOLY ACIDS

Bernard G. Silbernagel, Scotch Plains; Raam R. Mohan, Berkley Heights, and Gopal H. Singhal, Westfield, all of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 938,798, Sep. 1, 1978, abandoned. This application Jul. 19, 1979, Ser. No. 59,070
Int. Cl.³ B01J 23/94, 23/92, 21/20; C10G 23/02
U.S. Cl. 252—413 25 Claims

1. An improved process for regenerating spent hydrofining catalysts which comprises contacting spent catalyst with a gaseous sulfur-containing reagent having a partial pressure of sulfur of at least about 0.01 atmospheres at a temperature of up to about 650° C., followed by contacting the catalyst with an aqueous solution of a heteropolyacid, impregnating with a water soluble cobalt or nickel salt and calcining at a maximum temperature of about 450° C.

3. The process of claim 1 in which the heteropoly acid contains about 1 to 50 wt. % hydrogen peroxide.

14. The process of claim 1 in which the heteropoly acid is represented by the general formula $H_x(YM_{12}O_{40})$, where Y is at least one element selected from the group consisting of phosphorus, silicon, titanium, germanium, arsenic, zirconium, thorium and cerium, M is at least one element selected from the group consisting of molybdenum, tungsten, niobium and tantalum and x is 3 when Y is pentavalent and 4 and when Y is tetravalent.

4,272,401

REGENERATION OF SPENT HYDRODESULFURIZATION CATALYST WITH HETEROPOLY ACIDS

Raam R. Mohan, Berkley Heights, and Gopal H. Singhal, Westfield, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 938,796, Sep. 1, 1978, abandoned. This application Jul. 19, 1979, Ser. No. 59,072
Int. Cl.³ B01J 23/94, 23/92, 21/20; C10G 23/02
U.S. Cl. 252—413 19 Claims

1. An improved process for regenerating spent hydrofining catalysts which comprises contacting spent catalyst with an aqueous solution of a heteropoly acid to extract vanadium and nickel, impregnating with a water soluble cobalt or nickel salt and calcining at a maximum temperature of about 450° C.

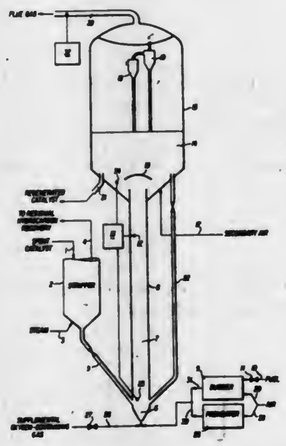
3. The process of claim 1 in which the impregnation and calcination are repeated at least once.

4,272,402

PROCESS FOR REGENERATING FLUIDIZABLE PARTICULATE CRACKING CATALYSTS

Warden W. Mayes, Big Spring, Tex., assignor to Coaden Technology, Inc., Tex.

Filed Jul. 16, 1979, Ser. No. 58,129
Int. Cl.³ B01J 29/38, 21/20; C10G 11/18, 11/05
U.S. Cl. 252—417 44 Claims



1. A process for regenerating spent fluidizable catalyst particles contaminated with carbonaceous deposits comprising the steps of:

introducing spent catalyst particles and hot regenerated catalyst particles directly from a secondary regeneration dense phase zone into a stream of oxygen-containing gas and entraining the catalyst particles in the gas stream to produce a dilute phase catalyst particle stream; the amount of oxygen in said dilute phase stream being sufficient to oxidize substantially all of the carbonaceous deposits on said spent catalyst particles to gaseous combustion products; the temperature of the hot regenerated catalyst particles being greater than the minimum temperature required to initiate rapid oxidation of the carbonaceous deposits on the spent catalyst particles, and the proportion of hot regenerated catalyst introduced into said gas stream being sufficient to raise the temperature of the dilute phase stream to at least the minimum temperature required to induce rapid oxidation of said carbonaceous deposit;

passing said dilute phase particle stream through an upwardly directed primary regeneration zone while maintaining regeneration conditions suitable for rapid oxidation of said carbonaceous deposit in said primary zone and oxidizing substantially all of the carbonaceous deposits on said spent catalyst particles to gaseous combustion products in said dilute phase stream in the primary zone to regenerate the catalyst particles;

passing said dilute phase stream containing regenerated catalyst particles and gaseous combustion products from the top of said primary zone to the bottom of a dense phase bed of regenerated catalyst particles in a secondary regeneration zone disposed above the primary zone;

introducing a secondary oxygen-containing gas into the lower portion of the dense phase bed in the secondary regeneration zone to assist in maintaining the dense phase bed in a fluidized state and to assure substantially complete combustion of carbon monoxide in the dense phase bed to carbon dioxide;

exhausting the gaseous combustion products from said secondary regeneration zone; said exhausted gaseous products containing between about 1 percent and about 5 percent oxygen and less than 1,500 ppm by volume carbon monoxide; and

withdrawing hot regenerated catalyst particles from said secondary regeneration zone; said regenerated catalyst particles containing less than 0.1 weight percent carbon.

16. A process according to claim 1 further comprising the step of monitoring the temperature of the dilute phase catalyst particle stream in the mixing zone to assure that the minimum temperature of said dilute phase stream is sufficient to induce rapid oxidation of the carbonaceous deposits on the spent catalyst within the primary regeneration zone.

17. A process according to claim 1 further comprising the additional steps of measuring the temperature of the dilute phase catalyst particle stream and adjusting the proportion of at least one member of the group consisting of the spent catalyst particles, the hot regenerated catalyst particles and the oxygen-containing gas stream combined to produce the dilute phase stream to assure that the dilute phase stream reaches the minimum temperature required to induce rapid oxidation of the carbonaceous deposits on the spent catalyst.

4,272,403

BORIC ANHYDRIDE SOLUTIONS AND THEIR USE AS HARDENERS OF RESOLS

Nicolas Meyer, Bully les Mines, and Raymond Foulon, Brusy en Artois, both of France, assignors to Societe Chimiques des Charbonnages SA, Paris La Defense, France

Filed Jun. 15, 1979, Ser. No. 49,009
Claims priority, application France, Jun. 19, 1978, 78 18279
Int. Cl.³ B01J 31/02, 21/02
U.S. Cl. 252—428 18 Claims

1. A concentrated, substantially anhydrous boric anhydride solution which comprises (1) at least 5 percent by weight of boric anhydride; (2) at least one solvent selected from the group consisting of mono alcohols, poly alcohols, trialkylborates and dialkyl acetals of formol; and (3) from 5 to 70 percent by weight, based on the weight of solution, of at least one acid selected from the group consisting of sulfuric acid and sulfonic acids.

4,272,404

SUPPORTED ZIEGLER CATALYSTS AND METHOD THEREFOR

Harry J. Wristers, deceased, Baytown, Tex., and by Joy K. Wristers, sole beneficiary, Baytown, Tex., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 858,999, Dec. 9, 1977, abandoned, which is a continuation of Ser. No. 659,008, Feb. 20, 1976, abandoned, which is a continuation-in-part of Ser. No. 523,354, Nov. 13, 1974, Pat. No. 3,990,993. This application Jul. 10, 1979, Ser. No. 56,175
Int. Cl.³ C08F 4/62, 4/64
U.S. Cl. 252—429 B 24 Claims

1. Supported Ziegler transition metal halide catalyst component comprising a plurality of agglomerated particles having a mean particle diameter of from about 10 up to about 1,000 microns, each agglomerated particle comprising a web of polytetrafluoroethylene submicroscopic fibers entangled with supported transition metal halide Ziegler catalyst particles, said support material being a Group IA, IIA, and B or IIIA metal halide.

4,272,405

ZIEGLER TRANSITION METAL HALIDE CATALYSTS AND METHOD THEREFOR

Harry J. Wristers, deceased, late of Baytown, Tex., and by Joy K. Wristers, sole beneficiary, Baytown, Tex., assignors to Exxon Research & Engineering Co., Florham, N.J.

Continuation-in-part of Ser. No. 736,049, Oct. 27, 1976, abandoned, which is a continuation-in-part of Ser. No. 523,354, Nov. 13, 1974, Pat. No. 3,990,993. This application Aug. 27, 1979, Ser. No. 69,652
The portion of the term of this patent subsequent to Nov. 9, 1993, has been disclaimed.
Int. Cl.³ C08F 4/64
U.S. Cl. 252—429 B 18 Claims

1. Ziegler transition metal halide catalyst composition comprising a plurality of agglomerated particles having a mean particle diameter of from about 10 up to 1,000 microns, each agglomerated particle comprising a web of polytetrafluoroethylene submicroscopic fibers entangled with a plurality of Ziegler transition metal halide catalyst particles, said Ziegler transition metal halide catalyst having the formula:

$$MX_{m-\chi}M'R_nX_{3-n-y}R_nM''X_{3-n}$$

where χ ranges between 0 to 3.0; m ranges between 2 to 3.5; n ranges between 0 to 3.0; and y ranges between 0 to 1; and R is an alkyl group having 1 to 8 carbons; M is a transition metal from Groups IIIB, IVB and VB of the Periodic Table; M' is an element from Groups IA, IIA and IIIA of the Periodic Table; M'' is an element from Groups IA, IIA, IIB and IIIA of the Periodic Table; and X is a halogen from Group VIIA of the Periodic Table.

4,272,406

REFRACTORY METAL OXIDE/SILICA SUPPORTED NICKEL CLUSTER CATALYST

David L. Beach, and Theodore P. Kobylinski, both of Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 21, 1980, Ser. No. 151,948
Int. Cl.³ B01J 31/12
U.S. Cl. 252—430 40 Claims

1. A catalyst composition obtained by contacting (a) a refractory metal oxide/silica support wherein the silica content of said support is from about 2 to about 95 weight percent and the metal oxide content of said support is from about 5 to about 98 weight percent with (b) a tris(cyclopentadienyl)trinickel dicarbonyl.

4,272,407
METAL MODIFIED REFRACTORY METAL OXIDE/SILICA SUPPORTED NICKEL CLUSTER CATALYST

David L. Beach, and Thaddeus P. Kobylinski, both of Gibsonia, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed May 21, 1980, Ser. No. 151,951
Int. Cl.³ B01J 31/12
U.S. Cl. 252—430 58 Claims

1. A catalyst composition obtained by contacting (1) a refractory metal oxide/silica support wherein the silica content of said support is from about 2 to about 95 weight percent and the metal oxide content of said support is from about 5 to about 98 weight percent with (2) a solution of a soluble salt whose cationic portion is selected from the group consisting of an alkali metal, an alkaline earth metal and a lanthanide and whose anionic portion is selected from the group consisting of a halide, a nitrate, an acetate and an acetylacetonate and (3) then contacting the metal modified support with a tris(cyclopentadienyl)trinickel dicarbonyl.

4,272,408
STABLE MOLYBDENUM CATALYSTS FOR HIGH CONVERSION OF C^3 AND C^4 OLEFINS TO CORRESPONDING UNSATURATED ALDEHYDES AND ACIDS

Chelliah Daniel, Columbus, Ohio, assignor to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 952,177, Oct. 17, 1978, Pat. No. 4,212,767. This application Mar. 24, 1980, Ser. No. 133,045
Int. Cl.³ B01J 27/14, 27/24, 27/02, 27/06
U.S. Cl. 252—437 23 Claims

1. The method of preparing heteropoly molybdate catalysts which comprises impregnating a catalytically active calcined precursor material containing molybdenum in the anion stabilized in defect state, with at least one metallic element, then drying and calcining the impregnated material; said precursor material being one prepared by adding to a compound selected from the group consisting of phosphomolybdates, silicomolybdates and arsenomolybdates, an aqueous chloride ion and a compound selected from the group consisting of phosphotungstates, silicotungstates, vanadium arsenate, silicoarsenate, phosphovandate, silicovandate, the corresponding acids and mixtures thereof.

4,272,409
ALUMINOSILICATE SOLS AND POWDERS

Horacio E. Bergna, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 861,397, Dec. 16, 1977, Pat. No. 4,217,240, which is a continuation-in-part of Ser. No. 809,362, Jun. 24, 1977, abandoned, which is a continuation-in-part of Ser. No. 719,717, Sep. 2, 1976, abandoned. This application Oct. 12, 1979, Ser. No. 84,403
Claims priority, application Canada, Aug. 31, 1977, 285851
Int. Cl.³ B01J 21/12, 29/06
U.S. Cl. 252—455 R 33 Claims

1. A porous powder composition comprising porous aggregates of spheroidal particles of from 3 to 90 nanometers which particles are nonporous to nitrogen and contain:

(a) a core of silica, aluminosilicate or one or more refractory metal oxides selected from alumina, zirconia, titania, thoria and rare earth oxides;

(b) a coating around said core of at least 0.5 nanometer in depth of an amorphous hydrous aluminosilicate compound having a molar ratio of Si:Al of from 1:1 to 19:1 and comprising one or more cations selected from sodium, potassium, ammonium, hydrogen and Groups I to VIII metals selected from Cs, Li, Mg, Ca, Sr, Ba, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, La, Ce, rare earth metals, Hf, Ta, W, Re, Os, Ir, Pt, Au, Sn, Cd, Bi and Sb; and

(c) a surface layer over said coating of 0 to 15% by weight of a metal or metal oxide selected from Cs, Li, Mg, Ca, Sr, Ba, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Y, Zr, Nb, Mo, Tc, Ru, Rh, Pd, Ag, La, Ce, rare earth metals, Hf, Ta, W, Re, Os, Ir, Pt, Au, Sn, Cd, Bi and Sb; said powder composition having a specific surface area of 30 to 750 m^2/g, a bulk density of 0.5 g/cc or more and substantially uniform size pore diameters of from 20 Å to 250 Å, with pore diameters of 20 Å to 45 Å having a uniformity such that at least 90% of the pore volume is made up of pores of from 0.6 D to 1.4 D and pore diameters of 45 Å to 250 Å having a uniformity such that at least 80% of the pore volume is made up of pores of from 0.6 D to 1.4 D, where D is the median pore diameter.

19. The porous powder composition of claim 1 uniformly mixed with a crystalline aluminosilicate zeolite such that the mixture is 5 to 50% by weight crystalline aluminosilicate zeolite and 95 to 50% by weight of said powder.

4,272,410
CATALYST FOR PREPARATION OF OXYGENATES FROM CARBON MONOXIDE AND HYDROGEN

Yun-Yang Huang, Troy, Mich., assignor to Ethyl Corporation, Richmond, Va.

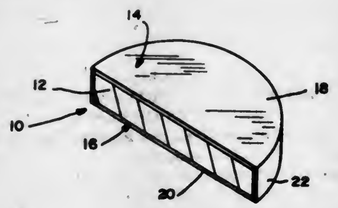
Continuation of Ser. No. 38,470, May 14, 1979, Pat. No. 4,210,597. This application Oct. 31, 1979, Ser. No. 89,978
Int. Cl.³ B01J 21/04, 23/58, 23/64
U.S. Cl. 252—465 4 Claims

1. A catalyst especially adapted for converting a gaseous mixture of carbon monoxide and hydrogen to oxygenated compounds consisting essentially of rhodium, tungsten and an alkali metal supported on alumina.

4,272,411
METAL OXIDE VARISTOR AND METHOD

Theodore O. Sokoly, Racine, and John Niedzialkowski, Milwaukee, both of Wis., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Mar. 8, 1979, Ser. No. 18,626
Int. Cl.³ H01B 1/04
U.S. Cl. 252—516 11 Claims



1. A sintered body for a varistor having the following composition by weight:

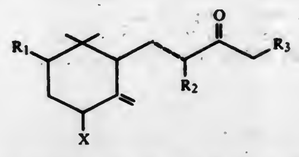
92.7–93.69 molar percent zinc oxide
2.50 molar percent bismuth trioxide
0.40 molar percent manganese oxide
1.10 molar percent cobalt tetraoxide
0.80 molar percent nickel oxide 1.50 molar percent antimony trioxide, and
0.01–1.00 molar percent silicon carbide

4,272,412
HALOGEN CONTAINING IONONE DERIVATIVES AND COMPOSITIONS CONTAINING SAME

Brian J. Willis, Bergenfield; Philip A. Christensen, Midland Park, both of N.J., and Robert Mack, Valley Stream, N.Y., assignors to Fritzsche Dodge & Olcott Inc., New York, N.Y.

Filed Mar. 13, 1980, Ser. No. 129,898
Int. Cl.³ C07C 49/11, 49/21; A61K 7/46
U.S. Cl. 252—522 R 6 Claims

1. A compound defined by the generic structure



wherein the dashed line may be either a carbon-carbon single bond or a carbon-carbon double bond; R_1, R_2 and R_3 are each the same or different and each represents hydrogen or methyl; and X is halogen.

4. A fragrance composition which comprises an amount of the compound of claim 1 effective to impart fragrance thereto in combination with conventional fragrance ingredients.

4,272,413
DIALKYLUREA TEXTILE SOFTENING AND ANTISTATIC AGENTS

Robert A. Bauman, New Brunswick, N.J., assignor to Colgate-Palmolive Company

Filed Nov. 26, 1979, Ser. No. 97,579
Int. Cl.³ C11D 1/50; D06M 13/40; C07C 127/15
U.S. Cl. 252—525 18 Claims

1. Dialkyl urea antistatic and softening agents substituted on both nitrogen atoms and having the formula:

RNHCONHR'

wherein R is a short alkyl group of 1–6 carbons, and R' is a secondary aliphatic hydrocarbon chain of 8–22 carbons.

4,272,414
CHEMICAL RETARDANTS FOR FOREST FIRES

H. Lawrence Vandersall, Upland, Calif., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 909,903, May 26, 1978, abandoned. This application Jun. 14, 1979, Ser. No. 48,566
Int. Cl.³ C09D 5/18; C09K 3/28
U.S. Cl. 252—602 21 Claims

10. A fire retardant composition which comprises an aqueous solution of:

(a) from about 5 to about 40 percent by weight of ammonium sulfate;

(b) from 0 to about 20 percent by weight of an ammonium salt selected from the group consisting of monoammonium orthophosphate; diammonium orthophosphate; monoammonium pyrophosphate; diammonium pyrophosphate; triammonium pyrophosphate; tetraammonium pyrophosphate; ammonium, substituted ammonium, amide and melamine polyphosphates; ammonium-alkali metal mixed salts of ortho-, pyro- and polyphosphates; ammonium-alkaline earth metal mixed salts of ortho-, pyro- and polyphosphates; and mixtures thereof; and

(c) from about 0.005 to about 5.0 percent by weight of a polygalactomannan derivative selected from the group consisting of carboxyalkyl ethers of polygalactomannans and hydroxyalkyl ethers of polygalactomannans.

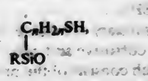
4,272,415
COMPOSITIONS INCLUDING MERCAPTOORGANOPOLYSILOXANES AND METAL SALTS OF CARBOXYLIC ACIDS

Gary R. Homan, and Chi-Long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

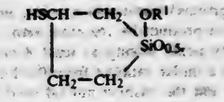
Filed Dec. 3, 1979, Ser. No. 99,302
Int. Cl.³ C08L 91/00
U.S. Cl. 260—18 S 5 Claims

1. A composition of matter consisting essentially of a material prepared by mixing

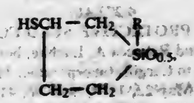
(A) a mercaptoorganopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units, hydroxydimethylsiloxane units, trimethylsiloxane units, units of the formula



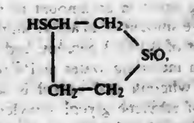
units of the formula



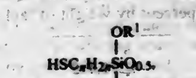
units of the formula



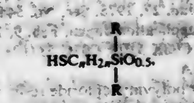
units of the formula



units of the formula



units of the formula



wherein: R is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive and phenyl radical; R^1 is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive; and n has a value of from 1 to 4 inclusive, there being in said mercaptoorganopolysiloxane an average of at least two sulfur-containing siloxane units per molecule, but not more than 10 mole percent sulfur-containing units based upon the total number of siloxane units in the mercaptoorganopolysiloxane;

(B) a filler in an amount equal to from about 0 to about 200 parts by weight per 100 parts by weight of (A); and

(C) a carboxylic acid salt of a metal where the metal is selected from the group consisting of iron, cobalt, copper, manganese and nickel in an amount equal to from about 0.01 to about 5 parts by weight per 100 parts of the weight of (A).

4,272,416

FILM-FORMING RESIN FOR USE IN ANTI-CORROSIVE AND CAN-COATING COMPOSITIONS

Beppino Passalenti, Lissone; Gino Giuliani, Parabiago, and Osvaldo Fiorani, Sesto S. Giovanni, all of Italy, assignors to Societa Italiana Resine S.I.R. S.p.A., Milan, Italy

Filed Nov. 19, 1979, Ser. No. 95,285

Claims priority, application Italy, Nov. 21, 1978, 29966 A/78

Int. Cl.³ C08L 91/00

U.S. Cl. 260—18 EP **13 Claims**

1. A resinous substance suitable for use as film-forming component in anti-corrosive and can-coating paint and varnish compositions, which consists of the product obtained by reacting a normally solid polyepoxide with cashew nut oil in such amounts as to ensure equivalence, or substantial equivalence between the phenolic hydroxyl groups of said cashew nut oil and the epoxy groups of said polyepoxide, and modifying the resulting reaction product by reaction with saturated and/or unsaturated fatty acids having at least 8 carbon atoms per molecule, using a molar ratio of from 0.1:1 to 0.8:1 between said fatty acids and the cashew nut oil used for the reaction with the polyepoxide.

4,272,417

STABLE PROTECTIVE SEED COATING

Martin B. Barke, and Rebecca A. Luebke, both of Minneapolis, Minn., assignors to Cargill, Incorporated, Minnetonka, Minn.

Filed May 22, 1979, Ser. No. 41,321

Int. Cl.³ A01C 1/06; A09D 3/64; C09D 5/02; A09D 5/14

U.S. Cl. 260—22 R **12 Claims**

1. A stable composition for coating seeds comprising a non-phytotoxic binding agent in an amount of at least about 2.5 percent, an effective amount of an active ingredient, a coloring agent in an amount of 0.1 to 3 percent, and a liquid medium, said liquid medium including water and a polyol to stabilize said composition, wherein said polyol is selected from the group consisting of ethylene glycol, hexylene glycol, propylene glycol, diethylene glycol, glycerol, methyl cellosolve, and butyl cellosolve, said polyol comprising between about 5 percent and about 48 percent by weight of said composition.

4,272,418

STABILIZER FOR VINYL CHLORIDE RESIN

Hiroshi Isa, Yachiyo; Masatoshi Takahashi, Fujisawa, and Isamu Kadoya, Tokyo, all of Japan, assignors to Lion Corporation, Tokyo, Japan

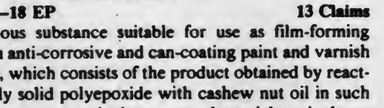
Filed Jan. 27, 1975, Ser. No. 544,230

Claims priority, application Japan, Feb. 9, 1974, 49/16664

Int. Cl.³ C08K 5/09; C07C 53/128, 51/14

U.S. Cl. 260—23 XA **6 Claims**

1. A stabilizer for polyvinyl chloride resin, which consists of the calcium or barium salt of fatty acid having the formula:



wherein R_1 is alkyl, one of R_2 and R_3 is methyl or ethyl and the other of R_2 and R_3 is hydrogen, and the total number of carbon atoms of R_1, R_2 and R_3 is in the range of from 18 to 26.

4. Polyvinyl chloride resin molding composition having blended therein a stabilizer in an amount effective to impart thermal stability to said composition, said stabilizer being the calcium salt, the barium salt or a mixture of the calcium and barium salts of fatty acid having the formula



wherein R_1 is alkyl, one of R_2 and R_3 is methyl or ethyl and the other of R_2 and R_3 is hydrogen, and the total number of carbon atoms of R_1, R_2 and R_3 is in the range of from 18 to 26.

5. A polyvinyl chloride resin molding composition according to claim 4, in which said fatty acid has been prepared by reacting an olefin, carbon monoxide and water, in the presence of a cobalt carbonyl compound and an organic base, at a reaction temperature of from 100° to 200° C., under a carbon monoxide pressure of from 10 to 150 atmospheres.

4,272,419

TREATMENT OF STYRENE-BUTADIENE RUBBER

Carlton G. Force, Mt. Pleasant, S.C., assignor to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 962,301, Nov. 20, 1978, abandoned. This application Dec. 26, 1979, Ser. No. 106,569

Int. Cl.³ C08L 9/06, 93/00

U.S. Cl. 260—27 BB **16 Claims**

1. A styrene-butadiene copolymer rubber composition comprising styrene-butadiene copolymer rubber and as a tackifier from 1% to 25% based on dry weight of the rubber of a tall oil pitch which has been at least partially saponified.

4,272,420

AQUEOUS POLYESTER EMULSIONS AND THE USE THEREOF FOR THE PRODUCTION OF PARTICULARLY THIN-LAYER COATINGS

Walter Frank; Otto Bendszus; Hans-Joachim Freier, and Hans-Joachim Traeuckner, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 11, 1980, Ser. No. 120,576

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905666

Int. Cl.³ C08K 5/01

U.S. Cl. 260—28 R **10 Claims**

1. A monomer-free aqueous emulsion of

(A) from 10 to 90% by weight of a mixture of α,β-ethylenically unsaturated polyesters;

(B) from 9.95 to 83% by weight of water;

(C) from 0.05 to 2% by weight of a sealing agent and

(D) 0 to 5% by weight of a thickener; the percentages by weight being based in each case on the sum of (A), (B), (C) and (D), and said polyester mixture (A) containing:-

(a) from 50 to 95% by weight, based on the sum of (a) and (b), of at least one α,β-ethylenically unsaturated polyester which, per 100 g of polyester (a), contains from 0.2 to 0.8 moles of β,γ-ethylenically unsaturated ether groups but is free of co-condensed polyalkylene glycol residues having a molecular weight of 250 to 2000 and

(b) from 5 to 50% by weight based on the sum of (a) and (b) of at least one α,β-ethylenically unsaturated polyester of which 25 to 90% by weight based on (b) consists of co-condensed glycol residues having a molecular weight of from 250 to 2000 and which contains, per 100 g of polyester (b), 0.02 to 0.2 mole of saturated aliphatic terminal groups which are residues of at least one member selected from the group consisting of monocarboxylic acids and monofunctional alcohols.

4,272,421

METHOD FOR PREPARING WATER-SOLUBLE LACQUER

Hitoshi Yamazaki; Hiroshi Ito; Toshiyuki Takeda, all of Kamakura, and Junzo Enomoto, Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1979, Ser. No. 85,314

Int. Cl.³ C08L 71/02

U.S. Cl. 260—29.2 EP **2 Claims**

1. A method for preparing a water soluble lacquer for use in forming a liquid phosphor suspension which comprises dissolving polyethylene oxide having a molecular weight of at least 2,500,000 in water to form a polyethylene oxide aqueous solution, adding acid to said solution in such a manner as to adjust the pH of the solution in the range of from 3.0 to 5.0, heating the resultant solution at a temperature of not lower than 95° C., cooling the solution and removing the remaining acid with an ion exchange resin.

4,272,422

AQUEOUS MICROHYDROGEL DISPERSIONS, PROCESSES FOR PRODUCING THE SAME, AND PROCESSES FOR PRODUCING MICROHYDROGELS

Koji Tanaka, Okayama, Japan, assignor to Japan Exlan Company Limited, Osaka, Japan

Filed Jul. 10, 1979, Ser. No. 56,314

Claims priority, application Japan, Aug. 16, 1978, 53-100323

Int. Cl.³ C08L 33/02

U.S. Cl. 260—29.6 AN **20 Claims**

1. A process for producing an aqueous microhydrogel dispersion characterized by causing an alkaline substance to act on an acrylonitrile polymer containing acid groups and a crosslinked structure and having a particle diameter not larger than 1μ or on an aqueous emulsion of said polymer so as to introduce at least 0.1 m mol/g salt-type carboxyl groups represented by —COOX wherein X is an alkali metal or ammonium ion, thereby to form an aqueous dispersion in which a hydrogel having a degree of water-swellability not lower than 3 cc/g and a particle diameter not larger than 1μ in absolute dryness is stably dispersed in an aqueous medium.

4,272,423

TEXTILE PRINTING PASTE

Norimasa Hirano, and Yuzuru Yamauchi, both of Uji, Japan, assignors to Dainippon Ink & Chemicals Inc., Tokyo, Japan

Filed Sep. 26, 1979, Ser. No. 79,153

Claims priority, application Japan, Jun. 5, 1979, 54-69489; Jul. 8, 1979, 54-72108; Jul. 18, 1979, 54-90287

Int. Cl.³ C08L 33/04

U.S. Cl. 260—29.6 TA **13 Claims**

1. A textile printing paste for pigment printing, consisting essentially of a stock emulsion and an aqueous pigment color, which stock emulsion is a mixture in the form of an o/w emulsion consisting essentially of

(A) an alkali-thickenable emulsion of a copolymer having a weight average molecular weight of at least 500,000 and being derived from

(i) 2.5 to 40% by weight of an ethylencially unsaturated carboxylic acid containing 3 to 6 carbon atoms,

(ii) 1 to 10% by weight of an ethylenically unsaturated monomer having one crosslinkable functional group selected from the class consisting of the group —CH_2OR wherein R is a hydrogen atom or an alkyl group containing 1 to 4 carbon atoms, a glycidyl group and a hydroxyl group,

(iii) 0.1 to 3% by weight of a monomer having an ethylenic linkage and at least one sulfonate salt group, and

(iv) 47 to 96.5% by weight of another monomer having an ethylenic linkage,

(B) a basic compound, and

(C) a hydrophobic organic solvent,

said mixture containing 3 to 12% by weight of the copolymer and not more than 2% by weight of surface active agents.

4,272,424

PROCESS FOR THE PREPARATION OF VINYL CHLORIDE-BASED RESINS

Hajime Kitamura; Kazuhiko Kurimoto, and Koji Azuma, all of Ibaragi, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 12, 1979, Ser. No. 84,380

Claims priority, application Japan, Oct. 20, 1978, 53-129278

Int. Cl.³ C08L 33/10, 27/06; C08K 3/00; C08L 9/08

U.S. Cl. 260—29.6 RW **4 Claims**

1. A process for the preparation of a vinyl chloride based resin modified with a polymer latex by suspension polymerization of vinyl chloride monomer or a mixture of monomers mainly composed of vinyl chloride monomer in an aqueous medium in the presence of a water-soluble suspending agent and a polymerization initiator soluble in the monomer phase which comprises introducing the latex of the modifier polymer in an amount from about 0.1 to 50% by weight as solids based on the amount of monomers originally in the mixture into the polymerization mixture at a moment when the conversion of the monomer or monomers to polymer is in the range from 30% to 95%, introducing an inorganic fine powder having an average particle size not exceeding 50 μm into the polymerization mixture at the same time as or before the introduction of the latex of the modifier polymer and continuing the polymerization reaction to completion where the monomer conversion is larger by at least 2% than at the moment of the introduction of the latex of the modifier polymer.

4,272,425

TREATING DISPERSIONS OF ACRYLONITRILE POLYMERS

James R. Miller, Richfield, and Edward J. Lepoes, Avon Lake, both of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Oct. 26, 1979, Ser. No. 88,439

Int. Cl.³ C08F 6/16, 236/12

U.S. Cl. 260—29.7 PT **5 Claims**

1. A method for reducing the acrylonitrile content of aqueous dispersions of copolymers of butadiene-1,3 and acrylonitrile comprising adding to said dispersion after the butadiene-1,3 and acrylonitrile have copolymerized to greater than 90% conversion to copolymer an amount of butadiene-1,3 greater than the amount of free acrylonitrile and a catalyst comprising an organic peroxide and a reducing heavy metal compound in amount based on the peroxy compound of at least about 0.1 part based on the total monomer and polymer present.

4,272,426

PREPARATION OF LATICES

Alan A. J. Feast, Eastleigh, England, assignor to The International Synthetic Rubber Company Ltd., South Hampton, England

Filed Feb. 29, 1980, Ser. No. 126,017

Claims priority, application United Kingdom, Mar. 7, 1979, 07999/79

Int. Cl.³ C08L 47/00

U.S. Cl. 260—29.7 H **21 Claims**

1. A process for the preparation of a carboxylated latex from monomeric components (a), (b), (c) and (d) in which (a) is at least one conjugated diene, (b) is at least one monovinyl non carboxylic comonomer, (c) is at least one ethylenically unsaturated carboxylic acid and (d) is at least one N-alkylolamide of an alpha beta-ethylenically unsaturated carboxylic acid wherein the polymerisation reaction is carried out in two or more stages in which all of monomeric components (a), (b) and (c) together with only a proportion or none at all of monomeric component (d) are polymerised to a conversion of 30% to 80% in the first stage, the reaction is continued in the second

stage to which is supplied the balance or all of monomeric component (d) and the carboxylated latex is recovered from the final stage.

4,272,427

PLASTICIZED PVC

Boyce I. D. Davis, Cheadle, and Brian G. Clubley, Wilmslow, both of England, assignors to Ciba-Geigy AG, Basel, Switzerland

Filed Nov. 13, 1979, Ser. No. 94,305

Claims priority, application United Kingdom, Nov. 15, 1978, 44635/78

Int. Cl.³ C08K *5/49*

U.S. Cl. 260—30.6 R **5 Claims**

1. A composition comprising a vinyl chloride polymer or copolymer and

(a) from 1 to 150 parts by weight, per 100 parts by weight of the vinyl chloride polymer or copolymer, of a triaryl phosphate ester, and

(b) from 1 to 120 parts by weight per 100 parts by weight of vinyl chloride polymer or copolymer of a mixture of magnesium carbonate and zinc carbonate in which the ratio of magnesium carbonate to zinc carbonate is from 10:1 to 1:10.

4,272,428

PLASTICIZED VINYL CHLORIDE POLYMER

Christian Lindner, Cologne; Carlhans Süling; Herbert Bartl, both of Odenthal; Dietrich Hardt, and Karola Brudermanns, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 23, 1979, Ser. No. 41,546

Claims priority, application Fed. Rep. of Germany, May 26, 1978, 2823161

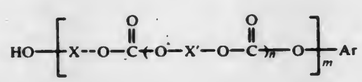
Int. Cl.³ C08K *5/04*; C08L *69/00*

U.S. Cl. 260—31.2 R **4 Claims**

1. A thermoplastic molding composition comprising a mixture of

(a) 10 to 95% by weight of a vinyl chloride polymer and

(b) 90 to 5% by weight of an adipate/carbonate mixed ester of the formula



wherein

Ar is aryl of 6 to 18 carbon atoms;

X and X' are independently polyester moieties of adipic acid and polyhydric alcohol with the polyester molecular weight being 800 to 3500;

n is an integer from 0 to 10 and

m is an integer from 22 to 100.

4,272,429

THERMALLY STABLE, FLAME-RETARDANT POLYMERS AND SELECTED OLIGOMERS USEFUL THEREIN

Richard H. Jones, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 35,097, May 1, 1979, abandoned. This application Feb. 29, 1980, Ser. No. 125,849

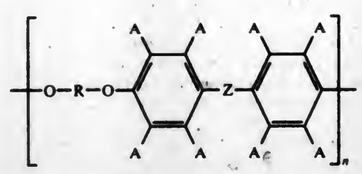
Int. Cl.³ C08K *7/14, 5/06*

U.S. Cl. 260—37 N **5 Claims**

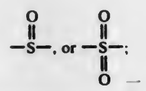
1. A flame-retardant blend consisting of

(a) a thermoplastic, film-forming polyamide

(b) between about 1–30 percent by weight based on blend of an oligomer represented by the formula



wherein R is a divalent arylene group of between about 6–15 carbon atoms; each A is independently hydrogen or bromine with the proviso that at least 6 of the A groups are bromine; n is a cardinal number of between about 2 and about 20;
and Z is 0, S,



(c) and between about 1–15 percent by weight based on blend of a metal oxide synergist that does not substantially degrade the polymer.

4. The blend of claim 1 which contains a filler or a reinforcing agent.

4,272,430

ADDITIVE FOR INORGANIC BINDERS

Stefan Pieh, Linz, and Hubert Czepel, Dornach, both of Austria, assignors to Chemie Linz Aktiengesellschaft, Linz, Austria

Filed Jun. 8, 1979, Ser. No. 46,778

Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826447

Int. Cl.³ C08L *61/20*

U.S. Cl. 260—39 R **5 Claims**

1. A mixture containing an inorganic binder from the group consisting of cement, magnesia cement and calcium sulfate, and having improved flowability and increased early strength, which comprises water, the inorganic binder and 0.01 to 20%, relative to the inorganic binder, of a water-soluble salt of a mixed condensate of urea, melamine, an aromatic aminosulfonic acid and formaldehyde, in which the molar ratio of the aromatic aminosulfonic acid to the total amount of urea and melamine is from 0.2 to 1.0:1 and the molar ratio of melamine to urea is from 0.75:0.25 to 0.30:0.70.

4,272,431

PROCESS FOR PREPARING A POLYMER MIXTURE

Herman A. J. Schepers, Stein, Netherlands, assignor to Stamicarbon, B.V., Geleen, Netherlands, 4

Continuation of Ser. No. 835,893, Sep. 23, 1977, abandoned. This application Oct. 30, 1979, Ser. No. 89,358

Claims priority, application Netherlands, Sep. 25, 1976, 7610672; Sep. 25, 1976, 7610674

Int. Cl.³ C08K *3/04*; C08L *53/00*

U.S. Cl. 260—42.46 **33 Claims**

1. A thermoplastic, elastomeric composition based on a polyalkene rubber and a polyalkene plastic, and consisting essentially of an intimate mixture of

(a) 25–85% by weight of a substantially amorphous ethene-α-alkene copolymer, having an X-ray crystallinity of below 4% by weight, a differential scanning (d. sc.) crystallization temperature of +0° to about 50° C. and a tensile strength in unvulcanized condition of at least 10 kg/cm², and

(b) 15–75% by weight of an at least partially crystalline block copolymer of propene and ethene having an ethene content of between about 1 and 25% by weight and an X-ray crystallinity of at least 25% by weight.

15. The composition of claim 1, further including 1–100 parts of carbon black incorporated per 100 parts of polymer mixture.

4,272,432

CLAUDOGENIC-INTERCEPTIVE NONAPEPTIDE

John P. Yardley, and Alan Corbin, both of King of Prussia, Pa., assignors to American Home Products Corporation, New York, N.Y.

Filed Nov. 13, 1974, Ser. No. 523,302

Int. Cl.³ C07C *103/52*

U.S. Cl. 260—112.5 R **3 Claims**

1. A compound of the formula:

(R)-L-tryptophyl-(R^2)-L-seryl-(R^3)-L-tyrosyl-D-alanyl-(R^5)

in which

R is —H or an α-amino protecting group selected from the group consisting of tert-butyloxycarbonyl, trityl, phthalyl, tosyl, allyloxycarbonyl, cyclopentyloxycarbonyl, tert-amyloxycarbonyl, benzyloxycarbonyl, o-nitrobenzyloxycarbonyl and p-nitrobenzyloxycarbonyl;

R^2 and R^3 are independently —H or a hydroxyl protecting group selected from the group consisting of acetyl, tosyl, benzoyl, tert-butyl, trityl, benzyl and benzyloxycarbonyl; and,

R^5 is hydrazino or a carboxyl protecting group selected from the group consisting of an alkyl ester containing from 1 to 6 carbon atoms in the alcohol moiety, benzyl ester or a substituted benzyl ester in which said substitution is in ortho and/or para position and is represented by lower alkyl, lower alkoxy or nitro group.

4,272,433

METHOD FOR PREPARING ANTIGEN AND ANTIBODY

Tomoyoshi Nishino, Tokushima, Japan, assignor to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Division of Ser. No. 876,799, Feb. 10, 1978, abandoned. This application Sep. 20, 1979, Ser. No. 77,221

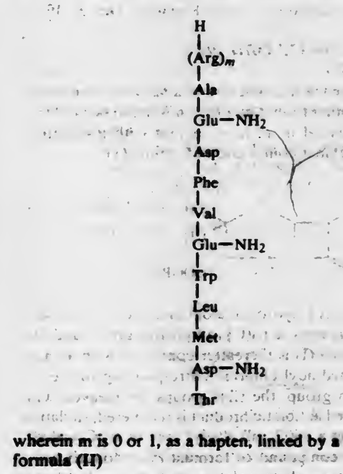
Claims priority, application Japan, Feb. 10, 1977, 52-13919

The portion of the term of this patent subsequent to Sep. 9, 1997, has been disclaimed.

Int. Cl.³ C07C *103/52*; A61K *37/00*

U.S. Cl. 260—112.5 R **13 Claims**

1. A peptide-protein complex antigen consisting essentially of a peptide of the formula (I)



(I)

wherein m is 0 or 1, as a hapten, linked by a dialdehyde of the formula (II)

$$OHC-(CH_2)_n-CHO$$

wherein n is an integer of 1 to 5, to a protein carrier selected from the group consisting of equine serum albumin, bovine serum albumin, rabbit serum albumin, human serum albumin, equine serum globulin, bovine serum globulin, rabbit serum globulin and human serum globulin conventionally used to prepare antigen.

4,272,434

NONDIFFUSIBLE COMPOUNDS HAVING A RELEASABLE AZO DYE MOIETY

Brian D. Baigrie; Joseph Bailey; Linda G. Johnston, and Miroslav V. Mijovic, all of Harrow, England, assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 927,189, Jul. 24, 1978, Pat. No. 4,183,753, which is a division of Ser. No. 822,188, Aug. 5, 1977, Pat. No. 4,142,891. This application Mar. 23, 1979, Ser. No. 23,430

Claims priority, application United Kingdom, Sep. 10, 1976, 37653/76

Int. Cl.³ C09B *29/36, 29/42, 29/44*

U.S. Cl. 260—156 **21 Claims**

1. A nondiffusible compound having a releasable azo dye moiety, said compound having the following formula:



wherein:

Z represents the atoms necessary to complete an aromatic carbocyclic or heterocyclic nucleus having at least one ring of 5 to 7 atoms;

Z' is an aromatic carbocyclic or heterocyclic nucleus having at least one ring of 5 to 7 atoms, said Z' having, in a position adjacent to the point of attachment to the azo linkage, either (a) a nitrogen atom in said ring of said nucleus which acts as a chelating site, or (b) a carbon atom in said ring of said nucleus having directly attached thereto a nitrogen atom which acts as a chelating site;

G is a metal chelating group, a salt thereof or a hydrolyzable precursor thereof;

said compound also containing a ballasted carrier moiety which will release said diffusible azo dye under alkaline conditions.

4,272,435

PROCESS FOR THE PREPARATION OF AZO COMPOUNDS FROM AMINO COMPOUNDS IN THE PRESENCE OF A PHASE TRANSFER CATALYST

Teruo Matsuda; Shigeo Wake, both of Niihama, and Tetsuya Shiozaki, Saijo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

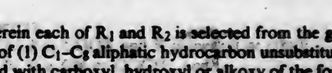
Filed Sep. 25, 1978, Ser. No. 945,804

Claims priority, application Japan, Oct. 12, 1977, 52-122725; Dec. 19, 1977, 52-153363; Apr. 18, 1978, 53-46351

Int. Cl.³ C07C *107/00, 107/02, 107/04*

U.S. Cl. 260—192 **18 Claims**

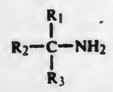
1. A process for producing an azo compound of the formula (I),



(I)

wherein each of R_1 and R_2 is selected from the group consisting of (1) C_1–C_8 aliphatic hydrocarbon unsubstituted or substituted with carboxyl, hydroxyl or alkoxy of the formula —OR_4 in which R_4 is C_1–C_4 aliphatic hydrocarbon, (2) C_3–C_8 alicyc-

lic hydrocarbon, (3) C_6–C_{10} aromatic hydrocarbon and (4) C_4–C_{12} alicyclic hydrocarbon formed by combining R_1 and R_2 together with the adjacent carbon atom, and R_3 is selected from the group consisting of nitrile, ester of the formula —$COOR_4$ in which R_4 is C_1–C_4 aliphatic hydrocarbon, carboxylate of the formula —COOM in which M is an alkali metal or alkaline earth metal, and carboxyamido, by reacting an amino compound of the formula (II), having an ammonia content of 2.0% by weight or less,



(II)

wherein R_1, R_2 and R_3 are as defined above, with a metal hypohalide of the formula (III),

$$M(OX)_n \quad \text{(III)}$$

wherein M is an alkali metal or alkaline earth metal, X is chlorine, bromine or iodine and n is the valence of the metal M, or with an alkyl hypohalite of the formula (IV),

$$R_5OX \quad \text{(IV)}$$

wherein R_5 is C_1–C_6 aliphatic hydrocarbon and X is as defined above, in the presence of an alkali, characterized in that said reaction is carried out using as a phase transfer catalyst at least one member selected from the group consisting of organic quaternary ammoniums, organic quaternary phosphoniums and macrocyclic polyethers in a heterogeneous medium comprising water and at least one organic solvent selected from the group consisting of nitriles and esters.

4,272,436

COMPOSITION AND METHOD OF IMPROVING THE GREEN STRENGTH OF UNVULCANIZED RECLAIMED RUBBER

Joginder Lal, Akron, and Sandra J. Walters, Stow, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

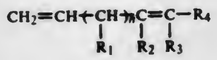
Division of Ser. No. 779,382, Mar. 21, 1977, Pat. No. 4,198,324. This application May 24, 1979, Ser. No. 42,190

Int. Cl.³ C08J *11/04*; C08L *45/00*

U.S. Cl. 260—2.3 **2 Claims**

2. An elastomer blend compostition having improved green strength, comprising:

a blend of a semi-crystalline butene polymer having a number average molecular weight of from about 30,000 to about 500,000 with an elastomer, the amount of said butene polymer ranging from about 2 to about 25 parts per 100 parts by weight of said elastomer, said butene polymer selected from the group consisting of polybutene and interpolymers made from 1-butene monomer and at least one monomer selected from the group consisting of alpha-olefins having 2 through 16 carbon atoms, non-conjugated dienes having the general formula:



where R_1, R_2 and R_3 is a hydrogen, a lower alkyl group containing from one to four carbon atoms, or an aryl group; where R_4 may be an aryl group or a lower alkyl group containing from one to nine carbon atoms, and n is an integer having a value of from 1 to 6, and wherein the said R_1's in the



may be similar or dissimilar; and non-conjugated alpha, omega-polyenes having from 6 to 36 carbon atoms which may or may not contain internal unsaturation, wherein butene in said interpolymers comprises from 99.9 to 65 mole percent of the total monomers, and

said elastomer being reclaimed rubber.

4,272,437

ANTIBACTERIAL AGENTS, AND 4-THIO AZETIDINONE INTERMEDIATES

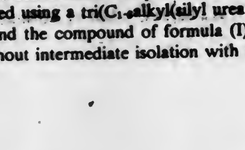
Marcel Menard, Candiac, and Alain Martel, Delson, both of Canada, assignors to Bristol-Myers Company, New York, N.Y.

Continuation-in-part of Ser. No. 968,663, Dec. 18, 1978, abandoned. This application Sep. 21, 1979, Ser. No. 77,888

Int. Cl.³ C07D *205/08, 403/12, 513/04*; A61K *31/425*

U.S. Cl. 260—239 A **5 Claims**

1. An intermediate selected from the group consisting of a compound of the formula



wherein Y is hydrogen, Q is phenyl or (lower)alkyl, R" is an easily removable ester protecting group, X is 1 or 2 and M is Cu(I I), Pb(II) or Hg(II) when X is 2 or Ag(I) when X is 1; and a compound of the formula

in which Y, Q and R" are as defined above.

4,272,438

MANUFACTURE OF SEMI-SYNTHETIC PENICILLIN ANTIBIOTICS

Marco Croci, and Gennaro Maruzzelli, both of Milan, Italy, assignors to Glaxo Group Limited, London, England

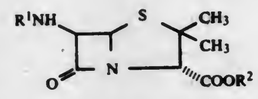
Filed Sep. 28, 1979, Ser. No. 79,939

Claims priority, application United Kingdom, Oct. 6, 1978, 39599/78

Int. Cl.³ C07D *499/12*

U.S. Cl. 260—239.1 **19 Claims**

1. In a process for the manufacture of a 6β-acylamino penicillanic acid antibiotic product in which 6β-amino penicillanic acid (6-APA) is reacted in an inert solvent with a silylating agent to form a silylated compound of formula (1)



(1)

wherein R^1 represents a hydrogen atom or a tri(C_{1-6}alkyl)silyl group and R^2 represents a tri(C_{1-6}alkyl)silyl group and the compound of formula (I) is thereafter contacted with an acyl chloride or protected acyl chloride corresponding to the desired 6β-acylamino group, the silyl groups are cleaved with water and the desired antibiotic product is recovered, silylation being effected using a tri(C_{1-6}alkyl)silyl urea or tri(C_{1-6}alkyl)-halosilane and the compound of formula (I) produced being reacted without intermediate isolation with the acyl chloride

or protected acyl chloride, the improvement which comprises acylating in the presence of a hydrogen halide acceptor mixture comprising in excess of 0.15 up to about 3.00 moles of urea per mole of 6-APA, in excess of 0.15 up to about 1.30 moles of bis-tri(C_{1-6}alkyl)silyl urea per mole of 6-APA, and in excess of 0.25 up to about 3.30 moles of tri(C_{1-6}alkyl)-ammonium halide per mole of 6-APA.

4,272,439

6-(SUBSTITUTED-HYDROXYMETHYLENE PENAMS)

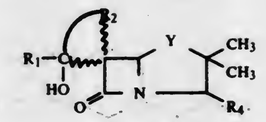
Ashit K. Ganguly, Upper Montclair; Vlyyoor M. Girijavallabhan, East Orange; Patricia Cavender, Lawrenceville; Olga Sarre, Verona, and Stuart W. McCombie, West Orange, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Filed Jun. 2, 1978, Ser. No. 911,858

Int. Cl.³ C07D *277/60*

U.S. Cl. 260—245.2 R **4 Claims**

1. A compound of the formula:



wherein Y is sulfur or sulfoxide; R_1 together with the carbon atom to which it is attached, is the carbon residue of an aldehyde or ketone which contains no functional group that would preferentially react with a zinc halo-β-lactam intermediate over the oxo functionality; R_2 is a group of the formula

$$-(CH_2)_m-(X)_p-(CH_2)_n-$$

wherein

X is O or S;

m is 0–3;

p is 0–1;

n is 0–3; and

m+p+n is 3–5; and

R_4 is cyano, or —$COOR_{11}$ wherein R_{11} is a readily removable ester-forming moiety, and the pharmaceutically acceptable acid addition salts thereof.

4,272,440

INTERMEDIATES FOR PREPARING HYDROXYPHENYLPYRIDAZINONES

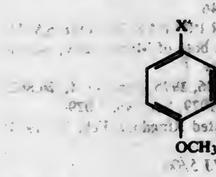
Angelina J. Duggan, Lawrenceville, N.J., and Robert L. Webb, West Chester, Pa., assignors to SmithKline Corporation, Philadelphia, Pa.

Division of Ser. No. 880,928, Feb. 24, 1978, abandoned. This application Feb. 2, 1979, Ser. No. 8,732

Int. Cl.³ C07D *307/58*

U.S. Cl. 260—343.6 **2 Claims**

1. A compound of the formula:



in which X' is bromo or chloro and both variables denoted by X are either bromo or chloro.

4,272,441

PREPARATION OF CARBAMATES

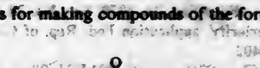
Robert E. Kezy, Stockton, N.J.; Edward F. Orwell, Fort Littleton, Pa., and John A. Price, Kingston, N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Mar. 13, 1980, Ser. No. 129,936

Int. Cl.³ C07D *307/86*

U.S. Cl. 260—346.73 **10 Claims**

1. In a process for making compounds of the formula



wherein

R^1 is alkyl, alkyl substituted by halogen, alkyl substituted by alkoxy, aryl, aryl substituted by halogen, aryl substituted by alkyl, aryl substituted by alkoxy, aralkyl, aralkyl substituted by alkoxy, cycloalkyl, cycloalkyl substituted by halogen, cycloalkyl substituted by alkyl or cycloalkyl substituted by alkoxy, and

R^2 is an aromatic group, an aromatic group substituted by alkyl, an aromatic group substituted by halogen, an aromatic group substituted by alkoxy, a heteroaromatic group, a heteroaromatic group substituted by alkyl, a heteroaromatic group substituted by halogen, or a heteroaromatic group substituted by alkoxy, by the reaction of phosgene with a phenol of the formula

$$R^2—OH$$

and further by reaction of a primary amine of the formula

$$R^1—NH_2$$

by reacting all three of the above-mentioned reactants in a common water-immiscible organic solvent in the same reaction vessel at the same time in the presence of an acid binding agent, the improvement which comprises omitting the acid binding agent and gradually adding the phosgene and primary amine concurrently, but as separate streams, to the stirred R^2—OH and solvent.

4,272,442

CERTAIN TRICARBOXYLIC ACID DERIVATIVES

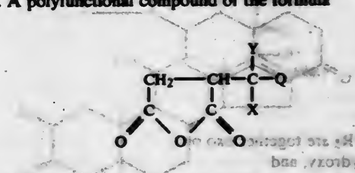
Eddie N. Gutierrez, Fort Lee, N.J., assignor to Lever Brothers Company, New York, N.Y.

Division of Ser. No. 970,827, Dec. 18, 1978, Pat. No. 4,226,781. This application Dec. 17, 1979, Ser. No. 104,637

Int. Cl.³ C07D *307/60*

U.S. Cl. 260—346.74 **4 Claims**

1. A polyfunctional compound of the formula



wherein

(A) X is COOR and R is methyl or ethyl;

(B) Y is CN or $COCH_3$, and

(C) Q is H.

4,272,443
SILVER-CONTAINING CARRIER CATALYSTS, PROCESS FOR THEIR MANUFACTURE, AND PROCESS FOR THE MANUFACTURE OF ETHYLENE OXIDE USING THESE CATALYSTS

Eckart Titzenthaler, Ludwigshafen, and Roland Schwen, Friedelsheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Sep. 24, 1979, Ser. No. 78,305

Claims priority, application Fed. Rep. of Germany, Dec. 12, 1978, 2844402

Int. Cl.³ C07D 301/10; B01J 21/08, 23/04, 23/50

U.S. Cl. 260—348.34 4 Claims

1. A carrier catalyst comprising a carrier material and a catalyst, the active mass of which is 20 to 90 percent by weight of silver, 0.005 to 5 percent by weight of lithium; and 3 to 70 percent by weight of SiO_2 in free form or in the form of silicates.

4,272,444
DEHYDROFORMYLATION OF STEROIDAL ALDEHYDES

Charles A. McCombs, and Charles H. Foster, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 14, 1980, Ser. No. 178,043

Int. Cl.³ C07J 1/00

U.S. Cl. 260—397.3 12 Claims

1. A process for dehydroformylating a steroidal aldehyde of the group consisting of dinorcholan-22-aldehydes and dinorcholen-22-aldehydes to the corresponding 17(20)-pregnenes or 20-pregnenes which comprises heating the aldehyde at a temperature of at least 160° C. in the presence of a noble metal catalyst.

4,272,445
PROCESS FOR PREPARING ACTIVE COMPOUNDS

Paul Smith, Hoddesdon, and Frederick Cassidy, Harlow, both of England, assignors to Beecham Group Limited, England

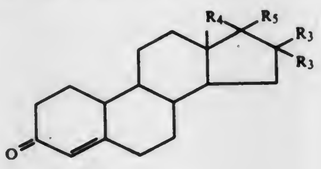
Filed May 19, 1978, Ser. No. 907,778

Claims priority, application United Kingdom, May 25, 1977, 21961/77

Int. Cl.³ C07J 1/00

U.S. Cl. 260—397.4 7 Claims

1. The process for the preparation of a 16,16-disubstituted androst-4-en-3 one of the formula:



wherein

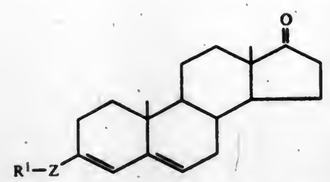
R_4 and R_5 are together oxo or

R_4 is hydroxy, and

R_5 is hydrogen or alkyl of 1 to 5 carbon atoms, and

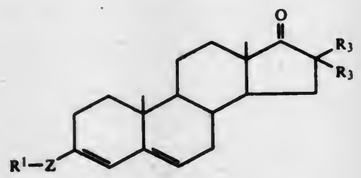
each R_3 is alkyl of 1 to 5 carbon atoms, which comprises

(a) converting androst-4-ene-3,17-dione to an androsta-3,5(6)-dien-17-one of the formula:



wherein Z is oxygen or sulfur and R^1 is alkyl of 1 to 6 carbon atoms, phenyl, phenylalkyl of 7 to 9 carbon atoms or cycloalkyl of 5 or 6 carbon atoms by treatment with a reagent operable to effect selective enol ether or enol thioether formation,

(b) treating said androsta-3,5(6)-dien-17-one with R_3Y wherein R_3 is as defined above and Y is a halide, tosylate, mesylate or azide in the presence of a strong base of low nucleophilicity to yield a 16,16-disubstituted androsta-3,5(6)-dien-17-one of the formula:



wherein R^1, Z and R_3 are as defined above,

(c)

(i) when R_4 and R_5 are to be other than oxo and R_5 is to be hydrogen, reducing said 16,16-disubstituted androsta-3,5(6)-dien-17-one to produce the corresponding 16,16-disubstituted androsta-3,5(6)-dien-17-ol, or

(ii) when R_4 and R_5 are to be other than oxo and R_4 is to be alkyl, alkylating said 16,16-di-substituted androsta-3,5(6)-dien-17-one to produce the corresponding 16,16-disubstituted 17-alkylandrosta-3,5(6)-dien-17-ol, and

(d) hydrolyzing said 16,16 disubstituted androsta-3,5(6)-dien-17-one, said 16,16-disubstituted androsta-3,5(6)-dien-17-ol or said 16,16-disubstituted 17-alkylandrosta-3,5(6)-dien-17-ol with aqueous acid to yield said 16,16-disubstituted androst-4-en-3-one.

4,272,446
STEROIDS AND PROCESS FOR PREPARING THE SAME

Mario Riva, and Luciano Toecano, both of Milan, Italy, assignors to Pierrel S.p.A., Milan, Italy

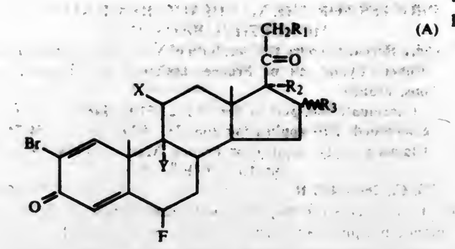
Division of Ser. No. 553,124, Feb. 26, 1975, Pat. No. 4,226,862. This application Jan. 12, 1979, Ser. No. 3,029

Claims priority, application United Kingdom, Feb. 27, 1974, 8928/74

Int. Cl.³ C07J 5/00

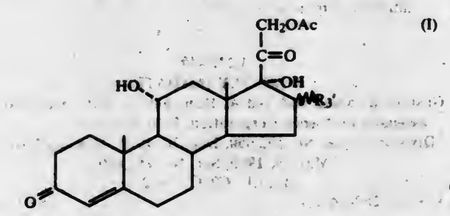
U.S. Cl. 260—397.45 9 Claims

1. In a process for preparing 2-bromo-6β-fluoro pregna-1,4-dien-3,20-dione compounds having the formula A



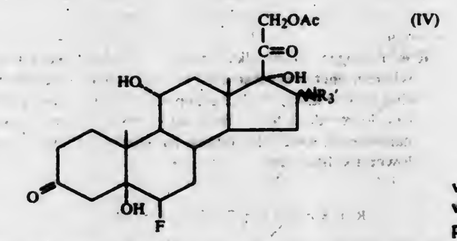
(A)

wherein X represents Br, Cl, or OQ; Y represents Br, Cl, F or H; R_1 represents OQ; R_2 represents OQ; R_3 represents H, CH_3 or α-OQ; and the groups Q, which may be the same or different from each other, represent H or acyl or the two OQ groups in 16- and 17-position or the two OQ groups in 17- and 21-position together form a cyclic ketal, cyclic acetal or cyclic alkyl orthorester, wherein at least one group OQ is a carboxylic or inorganic acid radical, by ketalizing a compound of formula I



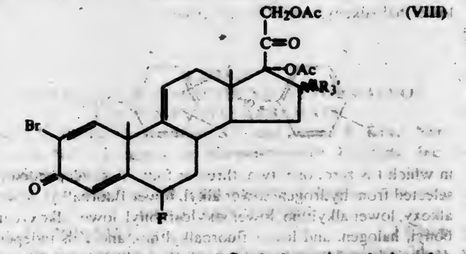
(I)

wherein R_3' is hydrogen or methyl and Ac is CH_3CO under migration of the double bond into 5,6-position, epoxidizing the double bond and reacting the resulting 5α6β-epoxide with hydro-fluoric acid to form a fluoro hydrin compound of formula IV



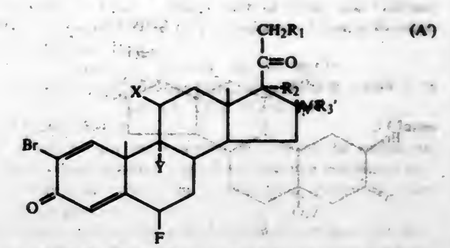
(IV)

wherein R_3' and Ac are as defined above converting the compound of (IV) into a compound of formula VIII



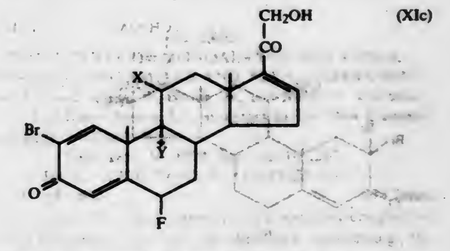
(VIII)

wherein R_3' and Ac are as defined above introducing the substituents X and Y in 9- and 11-position of the compound of formula VIII and converting the OAc groups in 17- and 21-position into a group OQ to form a compound of formula A'



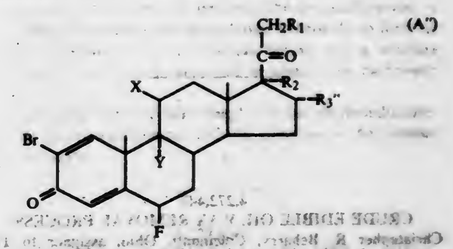
(A')

wherein X, Y, R_1, R_2 and R_3' are as defined above, and dehydrating a compound of formula A' wherein R_3' is hydrogen and X, R_1 and R_2 each are hydroxy to form a compound of formula



(XIc)

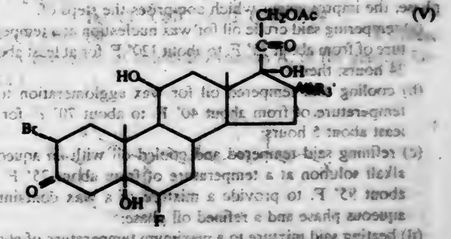
oxidizing the compound of formula XIc into the corresponding 16, 17 dihydroxy compound and converting the 16, 17 and 21 hydroxy groups therein into a group OQ to obtain a compound of formula A"



(A")

wherein X, Y, R_1 and R_2 are as defined above and R_3'' is OQ, wherein the improvement comprises the conversion of a compound of formula IV into a compound of formula VIII comprising the steps of

(a) monobrominating the compound of formula IV into a corresponding 2α-bromo compound of the formula V

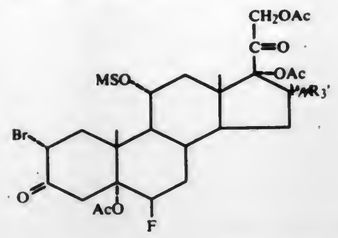


(V)

wherein R_3' and Ac are as defined above,

(b) mesylating the 11-hydroxy group of the compound of

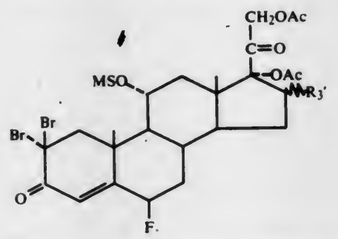
formula V and acetylating the resulting 11-mesylate into a compound of formula VII



(VII)

wherein R_3' and Ac are as defined above and MS represents CH_3SO_2-,

(c) brominating the compound of formula VII under dehydroacetylation into a compound of formula VII bis



(VII bis)

wherein R_3' Ac and MS are as defined above, and

(d) dehydrobrominating the compound (VIII bis) under dehydromesylation into the compound of formula VIII.

4,272,447

CRUDE EDIBLE OIL WAX REMOVAL PROCESS

Christopher R. Beharry, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Dec. 26, 1979, Ser. No. 106,959
Int. Cl.³ C11B 3/06
U.S. Cl. 260—425 16 Claims

1. In a process for refining and dewaxing crude vegetable oil wherein said crude oil is treated with an aqueous alkali solution to provide a wax containing aqueous phase and a refined oil phase, said oil phase then being separated from said aqueous phase, the improvement which comprises the steps of:

(a) tempering said crude oil for wax nucleation at a temperature of from about 75° F. to about 120° F. for at least about 24 hours; then

(b) cooling said tempered oil for wax agglomeration to a temperature of from about 40° F. to about 70° F. for at least about 5 hours;

(c) refining said tempered and cooled oil with an aqueous alkali solution at a temperature of from about 75° F. to about 95° F. to provide a mixture of a wax containing aqueous phase and a refined oil phase;

(d) heating said mixture to a maximum temperature of about 120° F., and separating said oil phase from said aqueous phase.

4,272,448

PROCESS FOR THE MANUFACTURE OF ALUMINUM MONOETHYL PHOSPHITE

Andre Bernard; Andre Disdier, both of Villeurbanne, and Michel Royer, Lyons, all of France, assignors to Philagro, Lyons, France

Continuation-in-part of Ser. No. 22,510, Mar. 21, 1979, abandoned. This application Jun. 25, 1979, Ser. No. 51,753
Claims priority, application France, Mar. 24, 1978, 78 09965
Int. Cl.³ C07F 5/06
U.S. Cl. 260—448 R 21 Claims

1. A process for the continuous manufacture of aluminium monoethyl-phosphite, which consists in successively:

(a) preparing a mixture of phosphite compounds, containing at least 70 mol % of diethyl phosphite,

(b) saponifying and neutralising this mixture with an inorganic base at a temperature of 20° to 85° C., whilst keeping the pH at 4.0 to 8.5, and then

(c) reacting the residual aqueous solution of alkali metal monoethyl-phosphite, which is continuously withdrawn from the preceding operation, with an approximately stoichiometric amount of a water-soluble aluminium salt, at a temperature of 70° to 95° C. and at a pH of about 3.0 to 4.5, and continuously withdrawing the precipitate of aluminium monoethyl-phosphite.

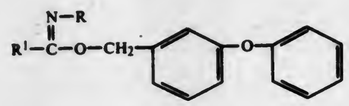
4,272,449

PHENOXY IMIDATES

Gustave K. Kohn, and Ted A. Baer, both of Palo Alto, Calif., assignors to Zoecon Corporation, Palo Alto, Calif.

Division of Ser. No. 102,050, Dec. 10, 1979. This application May 19, 1980, Ser. No. 151,490
Int. Cl.³ C07C 119/20
U.S. Cl. 260—453.99 15 Claims

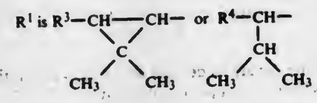
1. A compound of the following formula:



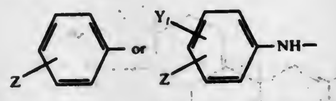
(A)

wherein,

R is hydrogen, lower alkyl, phenyl, or substituted phenyl wherein phenyl is substituted at one, two, or three of the ring carbon atoms with a group selected from lower alkoxy, lower alkyl, lower fluoroalkyl, lower alkenyl, lower haloalkenyl, lower alkenyloxy, halogen, nitro, cyano, and lower alkylthio; and



where R^3 is lower alkyl, lower haloalkyl, lower alkenyl or lower haloalkenyl; and R^4 is the group



in which t is zero, one, two, three or four; Y is independently selected from hydrogen, lower alkyl, lower fluoroalkyl, lower alkoxy, lower alkylthio, lower alkylcarbonyl, lower alkoxycarbonyl, halogen, and lower fluoroalkylthio; and Z is independently selected from the values of Y, cycloalkyl, and lower fluoroalkoxy.

4,272,450

(3-NITRO-4-METHYL)-PHENYL CHLOROFORMATE AND ITS PREPARATION

Horst Scheuermann, and Dieter Schneider, both of Ludwigshafen, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 28, 1980, Ser. No. 144,059
Claims priority, application Fed. Rep. of Germany, May 19, 1979, 2920386
Int. Cl.³ C07C 69/96
U.S. Cl. 260—463 1 Claim

1. (3-Nitro-4-methyl)-phenyl chloroformate.

4,272,451

ACETONITRILE PROCESS WITH IMPROVED CATALYSTS

James W. Gambell, and Steven R. Auvil, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 26, 1979, Ser. No. 106,776
Int. Cl.³ C07C 121/18, 120/00
U.S. Cl. 260—465.1 17 Claims

1. In a process of preparing acetonitrile by reaction of carbon monoxide, hydrogen and ammonia in molar ratio of approximately 1:0.1–10:0.5–4, at a temperature over about 450° C. over a molybdenum catalyst, the improvement which comprises utilizing catalyst consisting essentially of (a) unsupported molybdates of manganese, calcium, magnesium or strontium; or (b) a high surface area refractory support and molybdenum with additional additive which interacts therewith selected from compounds of manganese, strontium, magnesium and calcium, with such additive being present in molar ratio to molybdenum in the range of about 0.25:1 to about 4:1; and from zero up to about 2% of alkali-metal compound.

4,272,452

PROCESS FOR PREPARING ACETONITRILE

Steven R. Auvil, St. Louis, and Charles R. Penquite, Ballwin, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 26, 1979, Ser. No. 106,775
Int. Cl.³ C07C 120/00, 121/18
U.S. Cl. 260—465.1 15 Claims

1. In a process for producing acetonitrile by reaction of carbon monoxide, ammonia and hydrogen at elevated temperature in excess of 350° C. and pressures in excess of 100 psi gauge in contact with a catalyst for such reaction, which is a transition metal in reduced valence state, the improvement which comprises utilizing feed gas with operative ratios of such reactants in $CO:NH_3:H_2$ mole ratios of 1:1–4.5:0.1–2 and providing carbon dioxide in the feed gas to improve selectivity of the conversion of carbon monoxide to acetonitrile and in amount at least about 0.5 mole per mole of carbon monoxide and sufficient to retard substantially the conversion of carbon monoxide, and obtaining acetonitrile with improved selectivity.

4,272,453

1-CHLORO-1-P-METHOXYBENZOYLFORMALDOXIME-N-METHYLCARBAMATE

David L. Booth, Crystal Lake, Ill., and Joseph E. Gray, Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.

Filed Jul. 24, 1980, Ser. No. 171,987
Int. Cl.³ C07C 119/20
U.S. Cl. 260—543.1 1 Claim

1. The compound 1-chloro-1-p-methoxybenzoylformaldoxime-N-methylcarbamate.

4,272,454

PROCESS FOR THE CHLORINATION OF α-AMINOACIDS

Rodolfo Maggi; Gian P. Maggi, both of Milan, and Gullano Marcon, Bulciago, all of Italy, assignors to Chimica Bulciago S.r.l., Bulciago, Italy

Filed Apr. 11, 1979, Ser. No. 29,126
Claims priority, application Italy, May 16, 1978, 23446 A/78
Int. Cl.³ C07C 51/60
U.S. Cl. 260—544 N 3 Claims

1. A process for the chlorination only of the carboxylic group of p-hydroxy-phenyl-glycine consisting essentially of:

suspending the glycine in an anhydrous solvent at room temperature;

saturating the suspension with gaseous hydrogen chloride;

treating the mixture with a stoichiometric amount of chloromethylene-diammonium-chloride while controlling the temperature so as not to exceed 20° C.; and

filtering the crystalline precipitate product.

4,272,455

PRODUCTION OF MONOALKYLENEGLYCOLS, MONOALKANOLAMINES AND ALKYLENEDIAMINE

Frank T. Cook; Daniel W. Bengh, Jr., and Robert V. Chambers, Jr., all of Baton Rouge, La., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 26, 1979, Ser. No. 107,287
Int. Cl.³ C07C 29/00, 85/145, 85/20, 89/00
U.S. Cl. 564—503 10 Claims

1. A process for the production of monoalkyleneglycols, monoalkanolamines and alkylenediamines, comprising the steps of:

a. reacting an alkylene carbonate with ammonia or ammonium carbonate to form a carbamate;

b. heating the carbamate to form a monoalkyleneglycol, an alkyleneurea, a 2-oxazolidinone, or a mixture thereof;

c. further reacting the alkyleneurea, the 2-oxazolidinone, or a mixture thereof with ammonium hydroxide to form an alkylenediamine, a monoalkanolamine, or a mixture thereof, and to form ammonia or ammonium carbonate; and

d. separating the monoalkyleneglycol, the alkylenediamine, the monoalkanolamine, and the ammonia or ammonium carbonate.

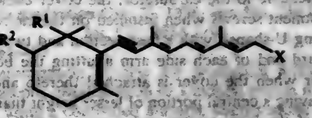
4,272,456

DERIVATIVES OF 8-DEHYDRO-VITAMIN A AND THEIR PREPARATION

Manfred Baumann, Mannheim, and Werner Hoffmann, Neuhofen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Division of Ser. No. 895,640, Apr. 12, 1978. This application Jan. 12, 1979, Ser. No. 3,021
Claims priority, application Fed. Rep. of Germany, Apr. 21, 1977, 2717737
Int. Cl.³ C07C 21/02; C07F 9/54
U.S. Cl. 570—186 4 Claims

1. A derivative of 8-dehydro-vitamin A, of the general formula I



(I)

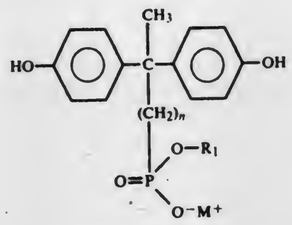
where R^1 and R^2 are hydrogen or methyl and X is chlorine or bromine.

4,272,457
ALKALINE HEMIESTERS AND ALIPHATIC DIESTERS OF BIS-(HYDROXY-4-PHENYL) ALKYLPHOSPHONIC ACIDS

Pierre Poisson, Bernay, and Georges Sturtz, Brest, both of France, assignors to Societe Anonyme Dite: Ato Chimie, France

Filed Dec. 18, 1979, Ser. No. 104,788
Claims priority, application France, Dec. 20, 1978, 78 35753
Int. Cl.[3] C07F 9/40
U.S. Cl. 260—953 8 Claims

1. Alkaline hemiesters of bis-(hydroxy-4-phenyl)-alkylphosphonic acids of the general formula:

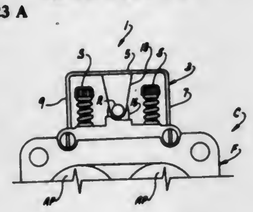


in which:
n is equal to 0, 1, 2 or 3,
M is an alkaline metal such as lithium, sodium or potassium,
R_1 is cyclohexyl radical or a C_1 to C_6 alkyl radical.

4,272,458
TAMPER RESISTANT IDLE ADJUSTMENT SCREW

Harvey L. Ruth, St. Louis, and Michael B. Phelan, Florissant, both of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

Filed Nov. 9, 1979, Ser. No. 92,756
Int. Cl.[3] F02M 3/08
U.S. Cl. 261—23 A 2 Claims

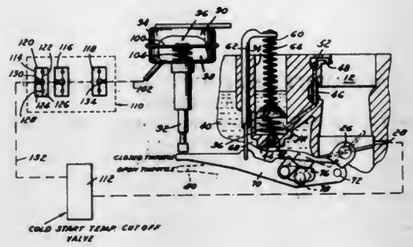


1. In a carburetor for an internal combustion engine, the carburetor having two air passages and two idle speed fuel circuits, each fuel circuit respectively supplying fuel to one of the air passages to mix with air and form a mixture combusted in the engine, an adjustable idle screw for each idle fuel circuit for respectively varying the quantity of fuel drawn through each idle fuel circuit and thus the fuel to air ratio of the mixture produced, the improvement comprising means for making the idle adjustment screw tamper resistant after an initial adjustment of the screw has been made, said means comprising a cover attachable to the carburetor, the cover enclosing both idle adjustment screws when installed on the carburetor, the cover being U-shaped with a base section and two side arms, the forward end of each side arm abutting the body of the carburetor when the cover is attached thereto and the base section having a central portion of lesser height than the outer portions of the base section and a tang extending inwardly from this central portion, the tang being attached to the carburetor.

4,272,459
CARBURETOR ACCELERATOR PUMP LOCKOUT SYSTEM

Alvin H. Berger, Wyandotte, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 959, Jan. 4, 1979, abandoned. This application Apr. 8, 1980, Ser. No. 138,794
Int. Cl.[3] F02M 7/08
U.S. Cl. 261—34 A 8 Claims

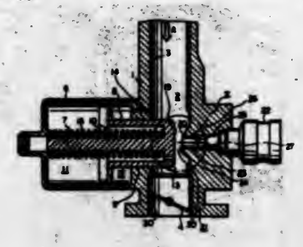


1. An accelerator pump assembly for a carburetor having a rotatable throttle valve controlled induction passage connected to an engine intake manifold, including an accelerator pump movable from an original non-pumping position through a pumping stroke to inject fuel into the induction passage, and linkage means connecting the throttle valve and pump for moving the pump through its pumping stroke upon movement of the throttle valve from an engine idle speed essentially closed position to an off idle engine accelerating position, spring means returning the pump to its original position to reprime the pump, and control means preventing actuation of the pump through its pumping stroke when the throttle valve is moved from the off idle speed position to the idle speed position and quickly returned to the off idle speed position within a predetermined period of time, the connecting means including a pivotal lever operably connecting the throttle valve and pump and a pin and cam slot connecting the lever and throttle valve whereby movement of the throttle valve from an off idle speed position to the idle speed position cams the lever from a pumping position to a non-pumping position whereby return movement of the throttle valve to an off idle position cams the lever to actuate the pump, and stop means in the path of movement of the lever to prevent movement of the lever to the pumping position in response to a predetermined movement of the throttle valve, including a vacuum controlled servo having plunger means movable at times to engage the lever and retractible to a non-engaged position, vacuum passage means connecting the servo to the carburetor induction passage at a location above the idle speed position of the throttle valve so as to subject the passage means to atmospheric pressure when the throttle valve is in the idle speed position to effect movement of the servo plunger means to the non-engaged position with the lever and to subject the passage means to engine manifold vacuum when the throttle valve is moved to the off idle speed position to effect movement of the servo to move the plunger means to engage the lever and prevent actuation of the pump, the control means including vacuum delay means in the vacuum passage means operable to control the servo to prevent actuation of the pump during a momentary return of the throttle valve to the idle speed position from an off idle position while permitting actuation of the pump upon maintenance of the throttle valve in the idle speed position for longer than the predetermined time period.

4,272,460
VARIABLE VENTURI TYPE CARBURETOR

Noboru Watanabe, Susono; Tokuta Isono, Mishima, and Kiyohiko Oishi, Susono, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Feb. 28, 1980, Ser. No. 125,633
Claims priority, application Japan, Mar. 7, 1979, 54/25617
Int. Cl.[3] F02M 9/02
U.S. Cl. 261—53 5 Claims

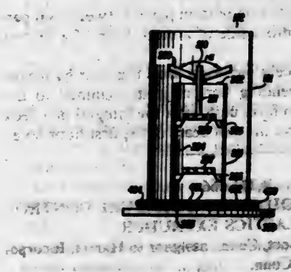


1. A variable venturi type carburetor of an internal combustion engine, comprising:
a housing;
a bore extending through said housing and having an inner wall defining an intake passage;
a suction piston movably mounted in said housing and having a head portion projecting into said intake passage, said head portion of the suction piston and said inner wall of the intake passage defining a venturi, said suction piston moving so as to change the cross-sectional area of said venturi in response to a change in the vacuum produced in said intake passage downstream of said venturi at a constant value;
an electronic control fuel injection valve being electronically controlled so as to inject the necessary amount of fuel into said intake passage in response to the engine running conditions, and;
a pipe member being opened at a free end thereof to said intake passage in a position opposite said head portion of the suction piston with regard to said intake passage and connected at the other end thereof to a nozzle end portion of said fuel injection valve so that the fuel injected from the fuel injection valve is supplied through said pipe member into the intake passage.

4,272,461
APPARATUS FOR MIXING GASES WITH LIQUIDS

Grover C. Franklin, Jr., 2250 Warmouth St., San Pedro, Calif. 90732

Filed Mar. 6, 1979, Ser. No. 18,054
Int. Cl.[3] B01F 3/04
U.S. Cl. 261—93 7 Claims

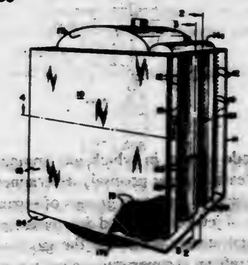


1. An apparatus for mixing gas with liquid comprising:
(a) an inner cylindrical member comprising an elongated tube having upper and lower ends and a plurality of turbines, which are free to rotate about the longitudinal axis thereof mounted within the tube, the turbines being spaced apart from one another and so constructed that adjacent turbines have different rotational direction or velocity, the tube having a solid, imperforate wall;
(b) an outer cylindrical member comprising an elongated tube having upper and lower ends and a plurality of openings in the lower half of the tube wall, the outer and inner cylindrical members being arranged in a concentric manner;
(c) a base member, to one surface of which the lower ends of the inner and outer cylindrical members are attached so that the lower ends are completely sealed; and
(d) a gas inlet pipe for introducing gas bubbles into the lower end of at least one of the cylindrical members.

4,272,462
LIQUID WETTED GAS COOLED HEAT EXCHANGER

Alan G. Butt, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis.

Filed Sep. 11, 1980, Ser. No. 185,860
Int. Cl.[3] B01F 3/04
U.S. Cl. 261—153 15 Claims



1. A heat exchanger for cooling a first fluid, comprising
(a) a plurality of passages for conveying the first fluid through the heat exchanger, said passages being formed in generally rectangular extruded layers which are arranged in generally parallel, spaced apart relationship;
(b) a series of fin sheets disposed between the layers of extruded fluid passages, in spaced apart array, for defining passages for an air stream entering at one side of the heat exchanger and exiting the other side;
(c) water passages disposed at the side of the heat exchanger where the air stream enters, along an edge of the extruded layers, and operative to convey water along that edge for distribution into the adjacent air stream passages; and
(d) slot means for distributing water flowing in the water passages into the adjacent air stream passages such that the water is induced to spread uniformly in a thin film over the surfaces of the air stream passages downstream of the slot means by the moving air stream, and to cool the first fluid by evaporation of the thin film of water.

4,272,463
PROCESS FOR PRODUCING METAL POWDER

Ian S. R. Clark, Greenwood Lake, and John K. Forgeter, Warwick, both of N.Y., assignors to The International Nickel Co., Inc., New York, N.Y.

Continuation of Ser. No. 533,756, Dec. 18, 1974, abandoned. This application Oct. 27, 1976, Ser. No. 736,119
Int. Cl.[3] B01J 2/06
U.S. Cl. 264—12 11 Claims

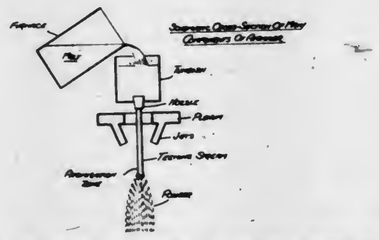
1. An atomization process for producing metal powder through gaseous disintegration of a molten stream in an atomizing tank using a controlled multiple impact mode system as herein defined and which by reason of such multiple impact mode, as opposed to an otherwise single impact mode, (i) powder loss through filigree formation (powder adherence to

the interior wall of the atomizing tank) is minimized, (ii) powder loss through flake formation (powder deflecting from the interior tank wall) is reduced, (iii) a higher yield of metal powder is achieved, the foregoing being achievable (iv) though gas pressure and gas consumption be relatively low, which comprises,

(a) directing molten metal in a downwardly stream through a venturi teeming nozzle at a rate of from about 10 to about 65 kg/min,

(b) directing jets of gas through venturi jets to impinge against the molten metal stream to atomize said stream and thereby cool the stream such that droplets form,

(c) said gas being delivered from the jets at an exit velocity of at least Mach. No. 1 such that a supersonic tongue of up to at least three inches is maintained and under a multiple



impact mode system in which gas impinges against the stream at least twice at precisely determined but different locations using at least two groups of separate jets with a first group of jets being angled downwardly relative to the falling metal stream such that the gaseous medium dispensed therefrom at supersonic velocity strikes the molten metal at a first point downstream, and with at least a second group of downwardly angled jets arranged such that the gaseous medium dispensed therefrom at supersonic velocity strikes the metal at a second point downstream but below the said first point of impact and at an angle different from the first at least about 1° less than the first angle of impact,

(d) and thereafter further cooling the droplets formed to complete the powder formation process.

4,272,464

METHOD FOR PREVENTING PLASTICIZER BLEEDING ON POLYVINYL CHLORIDE SHAPED ARTICLES

Michihiko Asai, Fujisawa; Yoshio Suda, Hachioji; Kiyoshi Imada, Omiya; Suzuma Ueno, and Hirokazu Nomura, both of Ibaragi, all of Japan, assignors to Agency of Industrial Science and Technology and Shin-Etsu Chemical Co., Ltd., both of Japan

Filed Jun. 22, 1979, Ser. No. 51,151
Claims priority, application Japan, Jun. 26, 1978, 53-77294
Int. Cl.³ H05B 7/00
U.S. Cl. 264—22 **11 Claims**

1. A method for preventing bleeding of a plasticizer on the surface of a shaped article of a plasticized polyvinyl chloride resin which comprises

(a) combining the polyvinyl chloride resin with a plasticizer,

(b) blending a urethane elastomer with the polyvinyl chloride resin prior to the fabrication of the polyvinyl chloride resin into a shaped article,

(c) fabricating the polyvinyl chloride resin with plasticizer admixed with the urethane elastomer into a shaped article and

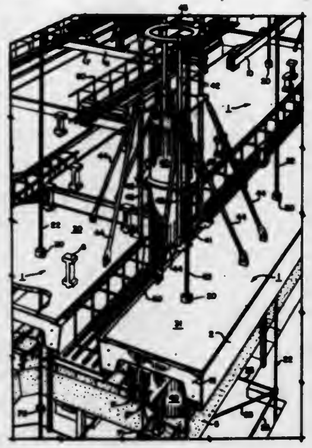
(d) subjecting the shaped article to a treatment with low temperature plasma of a gas.

4,272,465

METHOD FOR MULTI-STORIED CONCRETE CONSTRUCTION AND APPARATUS THEREFOR

Reginald D. Hough, and Vincent J. Kelly, both of 15 Green St., Huntington, N.Y. 11743

Filed May 9, 1979, Ser. No. 37,296
Int. Cl.³ E04B 1/16
U.S. Cl. 264—33 **6 Claims**



1. Multi-floor concrete construction process including casting concrete floor beams at vertically spaced floor levels comprising the steps of:

(a) assembling a plurality of horizontally spaced pan form units together at a first floor level to form a pan deck wherein facing sides of adjacent pan form units define vertical extending sides of a beam form;

(b) positioning a removable bottom panel between adjacent pan form units to define the bottom of a beam form;

(c) connecting adjacent pan form units together by means of horizontally extending bottom joists clamped to the underside of said pan form units to form an integral pan deck;

(d) casting concrete into the beam form;

(e) connecting adjacent pan form units together by means of horizontally extending top joists clamped to the top side of said pan form units to form an integral pan deck;

(f) allowing the concrete in said beam form to harden to form a cast beam at a first floor level;

(g) unclamping the bottom joists from the underside of said pan form units;

(h) removing said removable bottom panel from between said pan form units;

(i) vertically raising said pan form units together as a single integral pan deck to a second floor level;

(j) repositioning a removable pottom panel between said pan units to define a bottom side of a beam form of a second floor level; and

(k) reconnecting adjacent pan form units together by means of horizontally extending bottom joists clamped to the underside of the pan form units after the integral pan deck has been raised above the cast beam of the first floor level.

4,272,466

SYSTEM AND METHOD OF TEMPERATURE CONTROL FOR PLASTICS EXTRUDER

Holton E. Harris, Westport, Conn., assignor to Harrel, Incorporated, East Norwalk, Conn.

Filed Aug. 4, 1980, Ser. No. 175,048
Int. Cl.³ B29F 1/00
U.S. Cl. 264—40.6 **15 Claims**

1. An improvement in a temperature control system for a plastics extruder, the extruder having a barrel defining a bore for the movement of plastic therein, at least one temperature control zone served by a temperature altering means including a heater, the temperature altering means being coupled to the barrel to provide heat to the plastic in the bore in the zone, the temperature control system being of the kind that includes a shallow well temperature sensor located in a shallow well near the outer surface of the barrel and in the temperature control zone at a location that is subject to temperature alteration by the temperature altering means, a second temperature sensor located in a deep well in the barrel proximate the bore and in the temperature control zone at a location that is subject to temperature alteration by the temperature altering means; the improvement comprising:

(a) means connected with the shallow well sensor for comparing the temperature indication of the shallow well sensor with a preset temperature setpoint T_1,

(b) means, connected with the means for comparing and with the temperature altering means, for activating the temperature altering means based on the difference between the sensed shallow well temperature indication and T_1,

(c) means connected with the deep well sensor for comparing the temperature indication of the deep well sensor with a further preset temperature set point T_2, and

(d) means responsive to the comparison by said means connected with the deep well sensor for altering the first-mentioned preset temperature set point T_1 based on the difference between the sensed deep well temperature indication and T_2.

12. A method of temperature control for a plastics extruder that has a barrel defining a bore for the movement of plastic therein, a temperature control zone served by a temperature altering means including a heater, the temperature altering means being coupled to the barrel to provide heat to the plastic in the bore in the zone; the temperature control method including:

(a) sensing temperature in a shallow well near the outer surface of the barrel in the temperature control zone at a location that is subject to temperature alteration by the temperature altering means,

(b) sensing temperature in a deep well in the barrel proximate the bore and in the temperature control zone at a location that is subject to temperature alteration by the temperature altering means,

(c) comparing the shallow well temperature with a preset temperature T_1,

(d) activating the temperature altering means based on the difference between the sensed shallow well temperature and T_1,

(e) comparing the deep well temperature with a further preset temperature T_2, and

(f) altering the first-mentioned preset indication T_1 based on the difference between the sensed deep well temperature and T_2.

4,272,467

METHOD FOR PRODUCING AN ESSENTIALLY GAS AND LIQUID IMPERMEABLE LOW DENSITY, CLOSED-CELL, MICROCELLULAR POLYPARABANIC ACID ARTICLE

Burnett H. Johnson, Baytown, Tex., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 643,863, Dec. 22, 1975, abandoned, which is a division of Ser. No. 366,924, May 3, 1973, abandoned. This application Jan. 3, 1978, Ser. No. 866,443
Int. Cl.³ B29D 27/00
U.S. Cl. 264—41 **19 Claims**

1. A method of producing an essentially gas and liquid impermeable, low density, closed-celled, microcellular article of polyparabanic acid which comprises in combination the steps of:

(a) forming a polymer solution of polyparabanic acid and a dipolar, aprotic solvent;

(b) casting said polymer solution onto a suitable surface to form an intermediate stage structure in any suitable prearranged configuration or extruding a fiber;

(c) exposing said resulting structure or fiber to a non-solvent atmosphere of high humidity thereby precipitating said polymer in the presence of the non-solvent atmosphere;

(d) drying said precipitated polymer thereby forming microcellular polyparabanic acid; and

(e) recovering said shaped microcellular article of polyparabanic acid.

4,272,468

METHOD FOR REDUCING THE AGING PERIOD OF POLYETHYLENE FOAMS

Robert C. Slocumb, New Brighton, Minn., assignor to Conwed Corporation, St. Paul, Minn.

Continuation-in-part of Ser. No. 866,904, Jan. 3, 1978, abandoned, which is a continuation-in-part of Ser. No. 773,873, Mar. 2, 1977, abandoned. This application Jun. 18, 1979, Ser. No. 49,627
Int. Cl.³ B29D 27/00
U.S. Cl. 264—53 **9 Claims**

1. A process for reducing the aging period of a thermoplastic polymer foam melt extruded and blown-up from a tubular die under pressure and intimately admixed with a gaseous expansion agent, said process comprising:

(a) cooling the extruded, blown-up foam to a temperature at least 40° C. below its melting point and, thereafter within a period of time of not more than about two weeks,

(b) biaxially orienting the foam to a dimension at least 25% greater in both radial and axial directions than the dimensions of the extruded, blown-up, cooled foam.

4,272,469

METHOD AND APPARATUS FOR FORMING EXPANDED FOAM ARTICLES

Stuart B. Smith, Conyers, Ga., assignor to Integrated Insulation Systems, Inc., Decatur, Ga.

Continuation-in-part of Ser. No. 15,431, Feb. 26, 1979, abandoned, which is a continuation-in-part of Ser. No. 899,597, Apr. 25, 1978, abandoned, and a continuation-in-part of Ser. No. 8,688, Jan. 30, 1979, abandoned. This application Jul. 28, 1979, Ser. No. 59,302
Int. Cl.³ B29D 27/00
U.S. Cl. 264—53 **13 Claims**

1. A method of pre-expanding beads of synthetic thermoplastic resin material containing a blowing agent, comprising the steps of:

(a) heating the beads in a chamber having an interior surface heated to about the fusion temperature of the beads and above the boiling point of the blowing agent;

(b) continuously, at substantially atmospheric pressure, agitating the beads to prevent agglomeration while the beads absorb heat from the interior surface of the chamber, until

said beads reach their softening point and expand in volume;

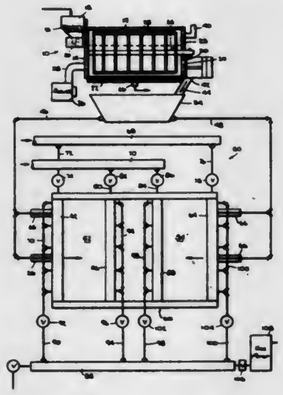
(c) reducing the pressure in said chamber to extract a substantial portion of the gaseous blowing agent from the expanded beads so that the blowing agent content of the expanded beads is from about 0.75 to 2% by weight;

(d) permitting the expanded beads to return to substantially atmospheric pressure.

6. A method of forming an expanded synthetic thermoplastic resin article from a synthetic thermoplastic resin material containing a blowing agent, comprising the steps of:

(a) heating the beads in a chamber having an interior surface heated to about the fusion temperature of the beads and above the boiling point of the blowing agent;

(b) continuously, at substantially atmospheric pressure, agitating the beads to prevent agglomeration while the beads absorb heat from the interior surface of the chamber, until said beads reach their softening point and expand in volume;



(c) reducing the pressure in said chamber to extract a substantial portion of the gaseous blowing agent from the expanded beads so that the blowing agent content of the expanded beads is from about 0.75 to 2% by weight;

(d) permitting the expanded beads to return to substantially atmospheric pressure;

(e) conveying the expanded beads to a mold cavity;

(f) introducing a heated fluid medium from one side of the mold cavity, while maintaining a negative pressure on the opposite side of the mold cavity to further expand the beads and until the beads are completely fused;

(g) discontinuing the supply of heated fluid medium after the fusion is completed and maintaining a negative pressure on the mold cavity to remove residual blowing agent and moisture;

(h) returning the mold cavity to atmospheric pressure after said residual moisture and blowing agent are removed;

(i) removing the thus formed article from the mold cavity.

4,272,470

CROSS-LINKED POLYVINYL ALCOHOL AND METHOD OF MAKING SAME

Li-Chen Hsu, Westlake; Dean W. Shelbley, Sandusky, and Warren H. Philipp, North Olmsted, all of Ohio, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Continuation of Ser. No. 971,473, Dec. 20, 1978, abandoned.
This application Apr. 30, 1980, Ser. No. 145,271
Int. Cl.³ B29C *25/00*; C08J *3/24*; H01M *2/16, 2/18*
U.S. Cl. 264—104 6 Claims

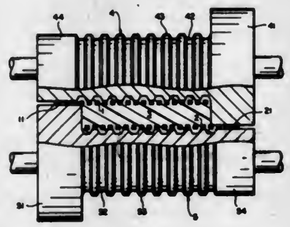
1. A method of making a cross-linked polyvinyl alcohol polymer alkaline battery separator comprising the steps of mixing an aqueous solution containing a film forming polyvinyl alcohol polymer which comprises 10 to 20% by weight of said aqueous solution with a polyaldehyde-polysaccharide cross-linking agent having at least two monosaccharide units, and a plurality of aldehyde groups amounting to between one and two aldehyde groups per monosaccharide unit, said cross-linking agent being present in an amount of about 2.5 to 20% of the theoretical amount required to cross-link all of the available hydroxyl groups of the polyvinyl alcohol, casting a film from said solution, drying said film, and effecting a reaction between the polymer and the cross-linking agent in the presence of an acid catalyst by contacting the dried film with an aqueous acid solution containing a dissolved salt selected from the group consisting of sodium sulfate and potassium sulfate and in quantity sufficient to prevent substantial dissolution of said film in said aqueous acid solution to produce the cross-linked polyvinyl alcohol polymer separator.

4,272,471

METHOD FOR FORMING LAMINATES COMPRISING AN ELECTRODE AND A CONDUCTIVE POLYMER LAYER

Jack M. Walker, Portola Valley, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Filed May 21, 1979, Ser. No. 41,071
Int. Cl.³ H05B *3/10*
U.S. Cl. 264—104 27 Claims



1. A method of making a laminate comprising a layer of a conductive polymer composition and an electrode in contact with said layer, which method comprises

(1) forwarding an electrode in the form of a tape having a plurality of openings therein through an aperture of substantially closed cross-section which is formed by a plurality of rollers which rotate so as to forward material in contact with the rollers through said aperture, said electrode being in contact with at least one of said rollers and thereby being forwarded through said aperture, and said roller contacted by said electrode having a plurality of indentations in the surface thereof, whereby first areas of the electrode are in contact with said roller and second areas of said electrode overlie said indentations;

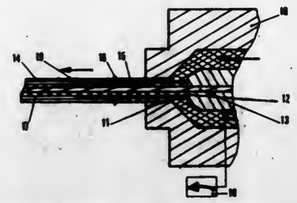
(2) simultaneously feeding a heat-softened conductive polymer composition into said aperture at a rate sufficient to fill said aperture, whereby said composition is forwarded through said aperture in contact with said electrode and penetrates into but not through openings in said first areas of the electrode and penetrates into and through openings in said second areas of the electrode.

4,272,472

METHOD AND APPARATUS FOR GROOVED SECTION MANUFACTURE

Jean P. Hulin, Conflans, and Michel de Vecchis, Pontoise, both of France, assignors to Societe Lignes Telegraphiques et Telephoniques, Paris, France

Filed Nov. 5, 1979, Ser. No. 90,993
Claims priority, application France, Nov. 17, 1978, 78 32530
Int. Cl.³ B29C *17/16*; G02B *5/14*
U.S. Cl. 264—146 4 Claims



1. A process for manufacturing a grooved plastic section with open grooves direct from extrusion through a cross-head without further machining comprising the steps of:

extruding molten plastic material through a die opening coaxial with a central longitudinal guide located upstream with respect to said die, said guide carrying longitudinal pins distributed along a circle of diameter smaller than said die opening and extending downstream of said die so as to provide ducts within the extruded section;

drawing said extruded section across a series of outwardly directed cutting means disposed at the downstream ends of said pins to form radial slits leading from the ducts through the periphery of the extruded section; and

further drawing said extruded section along guides which fill the ducts and extend downstream from the pins a distance sufficient to enable the guides to preserve the shapes of the ducts until the extruded material sets.

3. An apparatus for manufacturing a grooved plastic section with open grooves direct from extrusion without further machining which includes:

a cross-head extruder inlet forcing molten plastic material along an horizontal line;

a smooth horizontal cylindrical guide surrounded by said molten material;

protruding pins mounted on a circle on the downstream end of said guide to delimit ducts;

a die coaxial with said guide and downstream of said guide with an opening surrounding said pins for outwardly shaping said section;

cutting means made of triangular blades mounted on the downstream end of said pins opening slits in said ducts;

flexible wires mounted on the downstream ends of said pins to fill said slitted ducts.

4,272,473

METHOD FOR EMBOSSING AND PERFORATING A RUNNING RIBBON OF THERMOPLASTIC FILM ON A METALLIC PATTERN ROLL

Coenraad E. Riemersma, and Theodore P. Merz, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

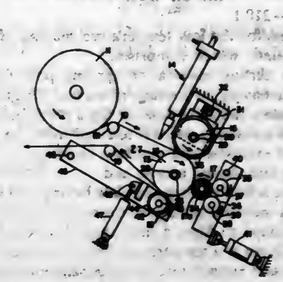
Filed Dec. 7, 1978, Ser. No. 967,194
Int. Cl.³ B29C *17/14*
U.S. Cl. 264—154 16 Claims

1. A method to produce an embossed thermoplastic film and to perforate the tips of the bosses thereof, comprising the following steps:

(a) supplying a heated, deformable thermoplastic film to a male patterned embossing surface having a multiplicity of raised knobs with apices which define a raised surface;

(b) conforming the thermoplastic film into intimate contact with the raised knobs of the male patterned embossing surface to produce an embossed film having a multiplicity of raised bosses;

(c) perforating the bosses of the film by pressing the tips of said raised bosses between said apices of said knobs and a heated perforating surface to form apertures in the apices of said raised bosses, while maintaining registration and contact between said film and said raised knobs;



(d) cooling said embossed film to a less deformable state while maintaining registration and contact between said embossed film and said raised knobs; and

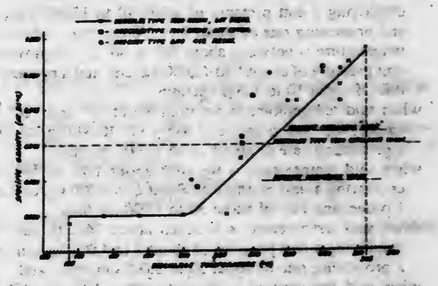
(e) removing said embossed film from said male patterned embossing surface.

4,272,474

PROCESS FOR PRODUCING ARTICLES OF ULTRA HIGH MOLECULAR WEIGHT HIGH DENSITY POLYETHYLENE

Zenas Crocker, Quebec, Canada, assignor to Synergistics Chemicals Limited, Concorde, Canada

Filed Nov. 6, 1979, Ser. No. 91,780
Int. Cl.³ B29F *3/02, 3/014*
U.S. Cl. 264—176 R 17 Claims



1. A process for the production of a fabricated article of a desired shape from ultra high molecular weight high density polyethylene having a molecular weight greater than 1.7×10^6 comprising the steps of:

intensively mixing and thermo-kinetically heating ultra high molecular weight polyethylene resin in an enclosed container with a plurality of blades attached to arms rotating about an axis, with a blade tip speed of at least 18 m/second, the resin is heated quickly at a desired discharge temperature of at least 135° C. without shearing action occurring and with thermal degradation being controlled, discharging the resin after the intensive mixing step, and forming the ultra high molecular weight polyethylene resin into the desired shape within a time such that degradation does not occur.

4,272,475

PROCESS FOR THE LOW TEMPERATURE SHAPING PROCESSING OF POLYETHYLENE TEREPHTHALATE

Chang S. Chi, No. 29-3, Nishihara 3-chome, Shibuya-ku, Tokyo, Japan

Filed Feb. 6, 1978, Ser. No. 875,552
Claims priority, application Japan, Feb. 12, 1977, 52/14414
Int. Cl.³ D01F 11/00
U.S. Cl. 264—210.1 23 Claims

1. A process for the low temperature shaping of polyethylene terephthalate, which comprises:

molding a starting material comprising polyethylene terephthalate having an average molecular weight of at least 12,000 into a shaped article having a predetermined initial shape by a molding process selected from the group consisting of extrusion and injection molding;

solidifying said shaped article; and

pressing the solidified shaped article having said initial shape against a mold having a predetermined three-dimensional second shape to form a final shaped article having said second shape at a temperature between about 0° to about 240° C., said temperature being dependent upon the crystallinity, thickness and filler content of said article and being the highest of

a temperature between about 0° and about 40° C. when the thickness of the first shaped article is below 3 mm, a temperature between about 40° C. and 60° C. when the thickness of said first shaped article is in the range from 3 mm to 5 mm, a temperature between about 60° C. and 240° C. when the thickness of said first shaped article is greater than 5 mm,

a temperature below 80° C. when the starting material is non-crystalline or of low crystallinity,

a temperature between 70° C. and 240° C. when the material is of high crystallinity, and

a temperature between 70° C. and 240° C. when the filler content is at least 10% by weight of the starting material,

the pressing operation being performed with a unit pressure and a processing rate dependent upon the temperature and within the following parameters:

when said temperature is between about 0° and 40° C., employing a unit pressure of about 20 to 20,000 kg/cm² and processing rate of about 2 to 500 cm/min.,

when said temperature is between about 40° and 60° C., employing a unit pressure of about 10 to 15,000 kg/cm² and processing rate of about 5 to 500 cm/min., when said temperature is between about 60° to 80° C., employing a unit pressure of about 5 to 12,000 kg/cm² and a processing rate of about 10 to 1,000 cm/min.,

when said temperature is between about 80° and 120° C., employing a unit pressure of about 3 to 10,000 kg/cm² and a processing rate of about 20 to 2,000 cm/min.,

when said temperature is between about 120° to 160° C., employing a unit pressure of about 2 to 6,000 kg/cm² and a processing rate of about 30 to 3,000 cm/min.,

when said temperature is between about 160° to 200° C., employing a unit pressure of about 2 to 4,000 kg/cm² and a processing rate of about 30 to 5,000 cm/min., and

when said temperature is between about 200° to 240° C., employing a unit pressure of about 2 to 2,000 kg/cm² and a processing rate of about 50 to 10,000 cm/min.

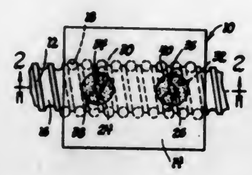
4,272,476

MANUFACTURE OF BALL NUT WITH INTERNAL CROSSOVER PATH FOR BALL RECIRCULATION

Robert L. Benton, Bay City, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Nov. 7, 1979, Ser. No. 92,432
Int. Cl.³ B29C 1/02
U.S. Cl. 264—225 3 Claims

1. A method of making a ball nut for a ball nut and screw assembly with an internal ball return crossover comprising the steps of providing a master ball nut with an internal helical groove therein for a train of balls and with a radial opening in the wall of said ball nut which intersects the longitudinal axis of said ball nut and two adjacent turns of said groove, installing an insert into said opening having crossover channel for said balls internally formed therein to provide a ball path which interconnects said two adjacent turns of said groove, using said master ball nut and said insert as a master mold, molding an imprint mold from said master mold that profiles a portion of said helical groove and said ball crossover channel, removing said imprint mold from said master mold, inserting said imprint mold into a blank ball nut that has an internal helical thread



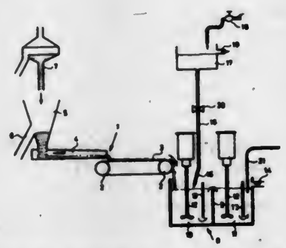
groove and a radial opening that conforms to the helical groove and radial opening of said master mold, supplying a plastic material into said radial opening of said blank ball nut while the profile of the helical groove formed on said imprint mold engages the helical groove of said blank ball nut and while the profile of the ball crossover channel is disposed in the inner end of said radial opening, hardening said plastic material to thereby form a plug with a ball crossover channel corresponding to the crossover channel of said master insert, and removing said imprint mold from said blank ball nut.

4,272,477

APPARATUS FOR PREPARATION OF SOLUTIONS OF SOLID SAMPLES FOR WET CHEMICAL ANALYSIS

Fritz Hagedorn, Schade, Fed. Rep. of Germany, assignor to Kali-Chemie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jun. 13, 1979, Ser. No. 48,188
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829690
Int. Cl.³ G01N 1/04, 1/28
U.S. Cl. 422—50 10 Claims



1. Apparatus for preparing solutions of solids samples for wet chemical analysis, said apparatus comprising:

(a) an overflow dissolving vessel, divided by an overflow baffle into at least two chambers,

(b) means for maintaining a constant stream of solvent flowing successively through the chambers of said overflow dissolving vessel, and

(c) metering conveyor scale means for continuously metering a measured amount of a solid sample to be analyzed to the overflow dissolving vessel.

4,272,478

DISCARDABLE REACTION RECEPTACLE FOR USE IN IMMUNOLOGICAL ASSAY

Reijo Vihko, Jaakonkuja 1 E 3, 90230 Oulu 23, Finland

Filed Feb. 21, 1979, Ser. No. 13,315
Claims priority, application Finland, Feb. 27, 1978, 780656
Int. Cl.³ G01N 33/50
U.S. Cl. 422—57 4 Claims



1. In a discardable reaction receptacle for use in immunological assay and intended for the performing of reactions between a substance to be measured, a labelling substance and an antibody, the improvement wherein said reaction receptacle consists essentially of mutually detachably connected parts forming the walls of the receptacle and comprising an outside wall formed by at least one of said parts and defining a space for the reactions to take place, said space being left open from one end, and said mutually detachably connected parts carrying different kinds of antibodies fixed to their surfaces for the purpose of binding different reaction products so as to permit simultaneous determination of several substances from one and the same sample, at least one of the antibodies being fixed to the inner surface of a part which forms said outside wall or a section of it.

4,272,479

TESTING TUBE FOR MEASURING CHROMATE AND CHROMIC ACID AEROSOLS IN AIR

Karl-Heinz Haneke, and Wilfried Laufenberg, both of Lübeck, Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 29, 1980, Ser. No. 125,979
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1979, 2913283
Int. Cl.³ F01B 23/00; B63H 1/00; G01N 27/62
U.S. Cl. 422—57 7 Claims



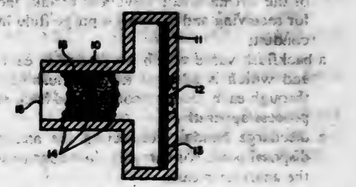
1. An improved gas testing device of the type having a glass tube, sealed breakoff points on the opposite ends of the tube, and an ampoule mounted within the tube adjacent one end of the glass tube within the breaking area of one of the breakoff points, an improved arrangement for measuring chromate and chromic acids in air to be drawn through the glass tube comprising, in the direction of flow of the air to be drawn through the tube, the ampoule, a filter paper adjacent the ampoule, a granular reagent layer of quartz impregnated with diphenyl carbazide, a granular layer of silica gel and a granular collecting layer of quartz, and further comprising a quantity of sulfuric acid within said ampoule.

4,272,480

DEVICE FOR REDUCING THE SENSITIVITY OF AN ETHYLENE OXIDE LEAK DETECTOR

Bertram O. Stull, and Russell Reed, Jr., both of Ridgecrest, Calif., assignors to The United State of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 25, 1980, Ser. No. 124,369
Int. Cl.³ G01N 21/01, 31/22
U.S. Cl. 422—58 5 Claims



1. A device for determining the presence of ethylene oxide vapor, said device comprising:

A. an indicator which indicates the presence of ethylene oxide vapor if it comes into contact with ethylene oxide vapor;

B. a housing for supporting said indicator in an area of potential vapor source;

C. a scrubber system in said housing;

D. said scrubber system being supported adjacent to said indicator between said indicator and said potential vapor source; and

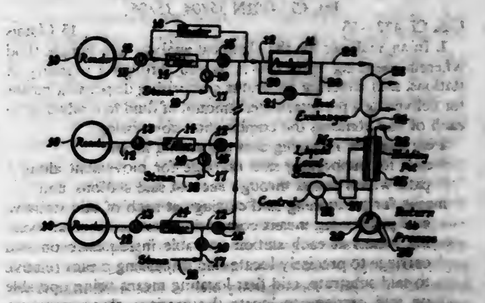
E. said scrubber system comprising activated charcoal coated with silicotungstic acid and being effective to block a certain amount of ethylene oxide vapor from reaching said indicator.

4,272,481

SYSTEM AND METHOD FOR PROVIDING A VAPOR PHASE SAMPLE FOR ANALYSIS

Ross C. Ahlstrom, Jr., Lake Jackson, and Craig E. Mappus, New Braunfels, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 21, 1979, Ser. No. 41,158
Int. Cl.³ G01N 21/00, 7/00, 31/08
U.S. Cl. 422—62 5 Claims



1. A system for providing a vapor phase chemical sample for

analysis, said vapor phase sample containing components which are condensable, and components which are non-condensable, at atmospheric pressure and at ambient temperature; the system comprising:

a chemical analyzer means, adapted for receiving and analyzing said vapor phase sample;

at least one delivery conduit which connects the analyzer means to at least one chemical process apparatus, for delivering the vapor phase sample to the analyzer;

a heater means associated with each delivery conduit, for heating the delivery conduit to a temperature sufficient to maintain the sample in a vapor phase;

a shut-off valve, and a stream select valve, each valve being installed in the delivery conduit between the chemical process apparatus and the analyzer means, the stream select valve being adapted for selecting a specific portion of the vapor phase sample for delivery to the analyzer means;

a purge conduit connected into each delivery conduit ahead of the stream select valve and behind the shut-off valve, for receiving and carrying a purge fluid into said delivery conduit;

a backflush valve which is installed in each purge conduit, and which is adapted for backflushing the purge fluid through each delivery conduit and back into the chemical process apparatus;

a discharge conduit connecting the analyzer means to a disposal point, for carrying the vapor phase sample out of the analyzer means;

a by-pass conduit which connects into the delivery conduit ahead of the analyzer and into the discharge conduit behind the analyzer, for carrying a contaminated portion of the vapor phase sample past the analyzer means; and

a by-pass valve installed in the by-pass conduit, for regulating flow of the contaminated sample through the by-pass conduit;

a condenser means connected into the discharge conduit, for converting the condensable vapor phase components to a liquid phase component;

a collecting vessel, for collecting the liquid phase component, and the non-condensable vapor phase component;

pump means connected into the collecting vessel and in communication with the chemical process apparatus, for pumping the liquid phase component back to said chemical process apparatus;

control means associated with the collecting vessel and the pump means, for regulating the liquid level in said collecting vessel; and

vent means in the collecting vessel, for carrying the non-condensable vapor phase components out of the collecting vessel.

4,272,482

METERING APPARATUS

Thomas C. Jessop, Webster, and Jeffrey L. Helfer, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

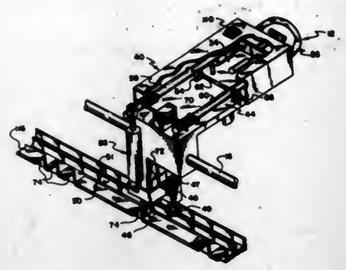
Filed Jul. 2, 1979, Ser. No. 54,060
Int. Cl.³ G01N 35/04, 35/06
U.S. Cl. 422—65 15 Claims

1. In an analyzer for the chemical analysis of a sample fluid wherein metering apparatus is moved through a plurality of stations, said metering apparatus comprising dispensing means for delivering a predetermined amount of fluid to a substrate in each of said stations, the combination comprising:

a carriage for receiving said dispensing means;

means for supporting said carriage for movement along a path which passes through each of said stations; and

means for positioning said carriage at each of said stations, said positioning means comprising first and second locating means at each station operable in sequence on said carriage to precisely locate said dispensing means relative to said substrate, said first locating means being operable on said carriage to locate the carriage along said path between predetermined limits and said second locating means being operable on said carriage after said first locating means to precisely locate said carriage along said path within said limits.

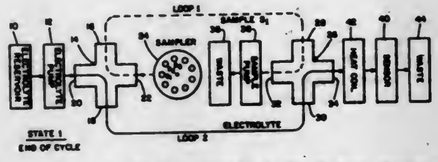


4,272,483

SOLUTION HANDLING APPARATUS AND METHOD

Karl G. Schick, Whitefish Bay, Wis., assignor to Fiatron Systems, Inc., Milwaukee, Wis.

Filed Jul. 13, 1979, Ser. No. 57,369
Int. Cl.³ G01N 21/00, 31/00
U.S. Cl. 422—67 10 Claims



1. A solution handling apparatus for use in flow injection analysis and liquid chromatography comprising:

(a) means for supplying background electrolyte,

(b) means for supplying solutions for analysis,

(c) first and second fluid carrying channels,

(d) first valve means having first and second states for simultaneously injecting said solutions in an amount to fill one of said channels and electrolyte in an amount to fill the other of said channels in said first state and vice versa in said second state,

(e) second valve means having first and second states for simultaneously receiving and distributing the solution from said one filled channel to one location and electrolyte from said other filled channel to a second location in said first state and vice versa in said second state,

(f) means for simultaneous switching said first and second valve means between the first and second states in a manner described in (d) and (e) above.

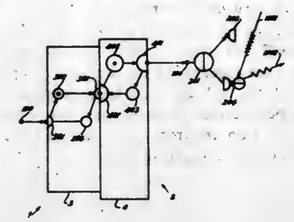
4,272,484

FILLING FOR OPTODES

Dietrich W. Lübbers, Dortmund, Fed. Rep. of Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Goettingen, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,780
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856251
Int. Cl.³ G01N 21/78, 21/64
U.S. Cl. 422—68 13 Claims

1. In an indicator chamber (optode) comprising an indicator and a membrane surrounding said indicator and impermeable to it, for measurement of concentration of particles by means of a light measurement system including a light source, a light receiver and readout means, the improvement comprising providing in a filling within said indicator chamber a substance which reacts with said particle to be measured and which generates through said reaction a reaction product which modifies the optical properties of said indicator, thereby allowing the preparation of highly selective indicator chambers with a broad range of applicability.

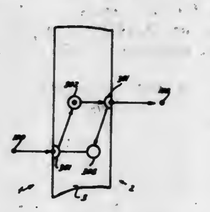


4,272,485

MEMBRANES FOR OPTODES

Dietrich W. Lübbers, Dortmund, Fed. Rep. of Germany, assignor to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V., Goettingen, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,781
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856252
Int. Cl.³ G01N 21/78, 21/64
U.S. Cl. 422—68 16 Claims



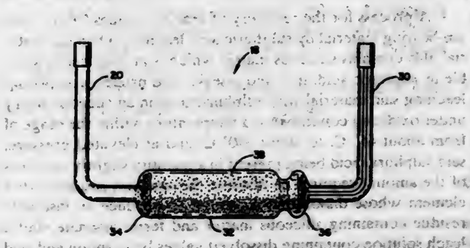
1. In an indicator arrangement comprising an indicator and a membrane forming a chamber surrounding said indicator and impermeable to it, for determination of concentrations of particle components, the improvement comprising providing within said membrane a carrier which is mobile within said membrane and which transports said particles through said membrane.

4,272,486

INTERFERENCE REACTOR TO PROVIDE SELECTIVE SO_2 MEASUREMENT BY FLUORESCENT METHODOLOGY

John N. Harman, III, Placentia, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Feb. 14, 1979, Ser. No. 12,174
Int. Cl.³ G01N 21/64, 21/33
U.S. Cl. 422—91 14 Claims



1. A converter for removing polynuclear aromatic hydrocarbons from the sample gas stream of a fluorescent gas analyzer, without substantial effect upon any sulfur dioxide contained in said sample gas stream, comprising:

housing means having an inlet for receiving a sample gas stream and an outlet for exhausting said sample gas stream;

a mixture of vanadium pentoxide and an inert material disposed within said housing means to contact said sample gas stream; and

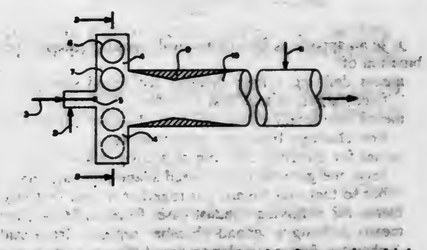
means adjacent said inlet and said outlet to prevent loss of said vanadium pentoxide.

4,272,487

CARBON BLACK REACTOR WITH INNER AND OUTER HOT COMBUSTION GAS ENTRIES PROVIDING PROTECTIVE BLANKET AND EXTRA HOT GASES FOR CONVERSION OF FEED

Oliver K. Austin, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 957,608, Nov. 3, 1978, Pat. No. 4,220,624, which is a division of Ser. No. 701,807, Jun. 28, 1976, Pat. No. 4,134,966. This application Dec. 3, 1979, Ser. No. 99,390
Int. Cl.³ C09C 1/50
U.S. Cl. 422—150 6 Claims

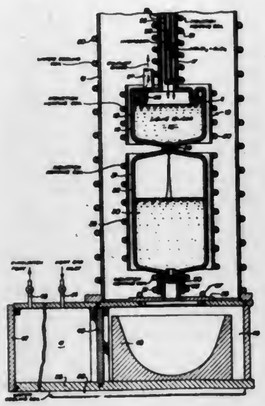


1. In an elongated carbon black production furnace in which there is located at one end of an elongated passageway an axial hydrocarbon oil or gas feed for feeding hydrocarbon to be converted to carbon black and at the other end means for removing gases and carbon black produced therein, disposed at said one end of said elongated passageway, a hot combustion gas section in axial alignment with the longitudinal axis of said passageway, and means for supplying said hot combustion gases in said section; the improvement which comprises at least two individual tangential entry combustion gas feeds consisting essentially of an outer tangential entry gas feed, and an inner tangential entry gas feed disposed inside said outer tangential entry gas feed with respect to the longitudinal axis of said passageway, said inner gas feed being spaced from the periphery or wall portion of said section, and means upon each of said combustion gas feeds for supplying tangentially into said passageway combustion gas from each of said feeds into said section independently one from the other in manner such that different rates of flow of combustion gases of different temperatures and/or composition can be simultaneously effected through said feeds into said section, thereby to produce a blanket of combustion gases to travel adjacent the periphery or wall portion of said section and a relatively hotter, inner layer of combustion gases encompassed within said blanket, whereby the oil to be converted to carbon black can be subjected to optimum and/or hotter-than-usual combustion gases while maintaining for a substantial length of travel the blanket around said inner hotter or optimum combustion gases along the longitudinal axis of said passageway, thus to yield more carbon black from the oil than otherwise obtainable, without injury to said combustion gas section.

4,272,488
APPARATUS FOR PRODUCING AND CASTING LIQUID SILICON

Justice N. Carman, Tarzana, Calif., assignor to John S. Pennish, Los Angeles, Calif., a part interest

Division of Ser. No. 800,191, May 25, 1977, Pat. No. 4,176,166.
This application Sep. 14, 1979, Ser. No. 75,644
Int. Cl.³ B01J 19/02
U.S. Cl. 422—199 7 Claims

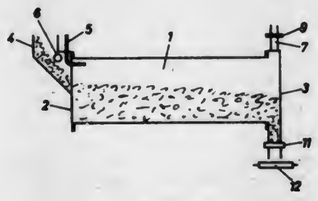


1. In an apparatus for continuously making silicon, the combination of:
means defining a first chamber for liquid silicon with no fixed targets in said first chamber;
means positioned about said first chamber for heating said first chamber from the exterior thereof;
means for directing a stream of hydrogen and a stream of at least one gaseous halogenated silane into said first chamber so that said stream mix together in said first chamber;
means for removing exhaust gases from said first chamber;
means defining a second chamber separate from said first chamber for accumulating liquid silicon; and
means interconnecting said first and second chambers for flow of liquid silicon from said first chamber to said second chamber.

4,272,489
DEVICE FOR COMPOSTING REFUSE AND SEWAGE SLURRY

Willibald Lutz, and Heinz Moces, both of Vienna, Austria, assignors to Ruthner Industrieanlagen-Aktiengesellschaft, Vienna, Austria

Filed Nov. 21, 1978, Ser. No. 962,644
Claims priority, application Austria, Nov. 24, 1977, 8433/77
Int. Cl.³ B01J 19/28; C05F 11/08
U.S. Cl. 422—209 6 Claims

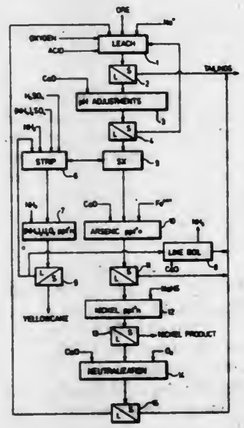


1. A device for composting refuse and sewage slurry, comprising a rotatable drum supported substantially horizontally having a fixed front wall through which refuse and sewage slurry may be fed to the drum, and a fixed rear wall through which the mixture in the drum may be removed, said fixed walls having introducing and extracting means for introducing an oxygen containing gas mixture through one wall and for extracting the gas mixture through the other of said walls, said introducing and extracting means being operable to control the direction and rate of gas mixture flow through the drum and including a gas pipeline having a regulator provided at each end of the drum, said regulators being connectable to a blower such that the direction of gas mixture flow in the drum may be effected both from the front to the rear of the drum and from the rear to the front of the drum.

4,272,490
HYDROMETALLURGICAL PROCESS FOR THE TREATMENT OF ORES

Verner B. Sefton, Edmonton, and Ian M. Masters, Fort Saskatchewan, both of Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Canada

Filed Jun. 28, 1978, Ser. No. 920,027
Claims priority, application United Kingdom, Jul. 5, 1977, 28093/77
Int. Cl.³ B01D 11/00; B01F 1/00; C01G 43/00, 56/00; C22B 11/00
U.S. Cl. 423—18 10 Claims



1. A process for the recovery of uranium values from uranium-bearing material by sulphuric acid leaching when the material also contains siliceous matter which is at least partly soluble in sulphuric acid, iron and arsenic, said process comprising leaching said material with sulphuric acid in an aqueous slurry under oxidizing conditions at a temperature within the range of from about 65° C. to about 200° C. and at elevated pressure, said sulphuric acid being present in a quantity slightly in excess of the amount required to dissolve the uranium and any other element whose dissolution is desired to produce an insoluble residue containing siliceous matter and ferric arsenate, and a leach solution containing dissolved values by uranium and said any other element.

4,272,491
FERRIC LEACHING OF URANIUM VALUES FROM LIGNITE

Lawrence E. Schultze, Sparks; Donald J. Bauer, and Michael T. Morimoto, both of Reno, all of Nev., assignors to The United States of America as represented by the Secretary of the Interior, Washington, D.C.

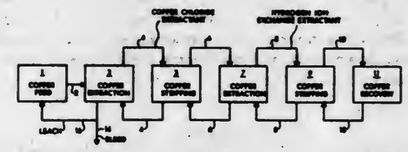
Filed Jun. 1, 1979, Ser. No. 44,814
Int. Cl.³ C01G 43/00
U.S. Cl. 423—20 6 Claims

1. A process for extracting uranium values from a uraniferous lignite consisting essentially of treating the lignite at a temperature of from about 20° to 104° C. with a leach solution consisting essentially of an aqueous solution of a ferric salt.

4,272,492
SELECTIVE EXTRACTION AND RECOVERY OF COPPER

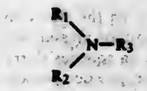
Wayne H. Jensen, 1102 E. 10th, Casa Grande, Ariz. 85222

Filed May 31, 1979, Ser. No. 44,080
Int. Cl.³ C01G 3/10
U.S. Cl. 423—24 62 Claims



11. A process for selectively recovering copper from an acidic chloride solution containing copper, comprising:
contacting said acidic chloride solution containing copper with an extractant, said extractant selectively extracting copper as copper chloride from said acidic chloride solution;
contacting said acidic chloride solution from which copper has been selectively extracted by said extractant with a hydrogen ion exchange extractant, said hydrogen ion exchange extractant selectively extracting substantially all copper remaining in said acidic chloride solution;
contacting said extractant containing copper extracted from said acidic chloride solution as copper chloride with a relatively neutral aqueous stripping solution to strip copper from said extractant thereby forming an aqueous stripping solution pregnant with copper;
contacting said aqueous stripping solution pregnant with copper with said hydrogen ion exchange extractant, said hydrogen ion exchange extractant selectively extracting copper from said aqueous stripping solution pregnant with copper; and
contacting said hydrogen ion exchange extractant containing copper extracted from said acidic chloride solution and said pregnant aqueous stripping solution with an aqueous acidic stripping solution to strip copper from said hydrogen ion exchange extractant thereby forming an aqueous acidic stripping solution pregnant with copper, saleable copper being recoverable from said pregnant aqueous acidic stripping solution.

21. The process of claim 11 wherein said extractant is comprised of a tertiary amine having the formula:



wherein R_1, R_2, and R_3 are straight or branched aliphatic chains containing from 6 to 18 carbon atoms, said tertiary amine being dissolved in an inert organic solvent carrier.

4,272,493
PELLETIZING SULFATION OF ANODE SLIMES

Kobur N. Subramanian, East Hanover, N.J.; Rotrou A. Hall, Mississauga, and Gerald V. Glasm, Oakville, both of Canada, assignors to The International Nickel Co., Inc., New York, N.Y.

Filed May 5, 1980, Ser. No. 146,231
Claims priority, application Canada, Jun. 14, 1979, 329748
Int. Cl.³ C01G 3/10; C01B 19/02
U.S. Cl. 423—41 5 Claims

1. In a process for treating anode slimes which contain copper, selenium and tellurium with sulfuric acid to recover water-soluble compounds of copper and tellurium in solid form, the improvement which comprises introducing the slimes and concentrated sulfuric acid in an amount of between about 120% and 150% by weight of the slime solids into a heated pelletizing apparatus, maintaining the slimes at a temperature between about 180° and 240° C. while forming pellets thereof, and withdrawing formed pellets at such a rate as to provide a residence time of between about 0.5 and 4 hours for the slimes in the pelletizing apparatus, whereby reaction between the sulfuric acid and slimes to solubilize at least part of the copper and tellurium present takes place simultaneously with formation of the pellets.

4,272,494
METHOD FOR RECOVERING METALS OF GROUPS V-VI OF THE PERIODIC SYSTEM FROM SOLUTIONS AND PULPS

Nazar Y. Ljubenna, ulitsa Dzhandosova, 166, kv. 38, and Jury N. Svyadosch, ulitsa Tulebaeva, 139, kv. 19, both of Alma-Ata, U.S.S.R.

Filed Mar. 21, 1979, Ser. No. 22,415
Int. Cl.³ C01G 39/00, 30/00, 28/00, 29/00
U.S. Cl. 423—54 8 Claims

1. A method for recovering metals selected from the group consisting of arsenic, antimony, bismuth, and molybdenum from a sulfate solution containing said metals which comprises:
polycondensation of a polyhydric phenol and formaldehyde, with the retention of water in three stages, to form a selective ion exchange resin;
conducting the first stage at a temperature of about 50° to 80° C., with stirring, at a pH of about 0.2 to 1.0, at a molar ratio of formaldehyde to polyhydric phenol of about 1.2–3:1, and a weight ratio of water to polyhydric phenol of about 2–7:1, for a time sufficient to ensure a 96 to 98% conversion of the polyatomic phenol;
conducting the second stage at a temperature of about 20° to 54° C. to ensure recovery of a polymeric product in sizes of about 0.008 to 20 microns;
recovering said polymeric product in the third stage and heating it in a sealed vessel at a temperature of about 70° to 90° C. for about 10 to 60 hours to complete formation of the ion exchange resin; and
contacting said sulfate solution containing said metals with said ion exchange resin.

4,272,495
CHEMICAL PROCESSES

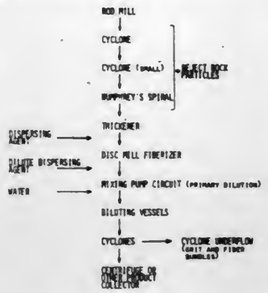
Phillip S. B. Stewart, Bassendean, and Jeremy J. Lees, Birchgrove, both of Australia, assignors to Woodcroft Mines Limited, Darraba, Australia

Filed Jan. 22, 1979, Ser. No. 5,086
Int. Cl.³ B01D 9/02
U.S. Cl. 423—167 17 Claims

1. A method for producing agglomerates of unit, or near unit, fibrils of chrysotile asbestos from crude chrysotile asbestos, comprising the steps of:
(a) forming a stable gel structure of unit, or near unit, fibrils

of asbestos by mixing the crude asbestos with an aqueous solution of an asbestos dispersing agent to disperse the fibrils to form the stable gel structure;

(b) diluting the gel structure dispersion with water in a first dilution step to form a readily pourable dispersion without diluting the concentration of the asbestos dispersing agent



to a level where it is insufficient to maintain the asbestos fibrils in a dispersed state; and

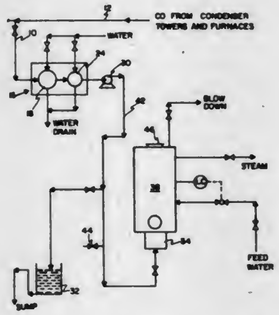
(c) rapidly diluting the dispersion with water in a second dilution step sufficient to reduce the concentration of the asbestos dispersing agent to a level where it is insufficient to maintain the dispersion such that the dispersion of the fibrils collapses and agglomerates of the fibrils are formed.

4,272,496

PROCESSING ELEMENTAL PHOSPHORUS (P_4) CONTAINING GAS STREAMS

William J. Powell, Butte, Mont., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Dec. 26, 1979, Ser. No. 107,466
Int. Cl.³ B01D 53/34
U.S. Cl. 423—210 8 Claims



1. A process for reducing the tendency of a carbon monoxide gas stream, containing a minor level of elemental phosphorus, to corrode metallic surfaces in a combustion zone upon combustion of the gas stream in the combustion zone to combustion gases comprising, prior to combustion:

(a) cooling the gas stream to a sufficiently low temperature to condense a quantity of elemental phosphorus to produce a reduced level of elemental phosphorus in the gas stream; and

(b) diluting the gas stream with an effective amount of combustible gas, wherein the effective amount of combustible gas is an amount which is effective in producing a dew point of the combustion gases, with respect to the quantity of acid produced by the combustion of the reduced level of elemental phosphorus, less than the temperature of the metallic surfaces.

4,272,497

METHOD FOR TREATING A NITROGEN OXIDE- AND SULPHUR OXIDE-CONTAINING WASTE GAS

Kazuyoshi Takahashi, Hiratsuka, and Hiromi Tanaka, Abiko, both of Japan, assignors to Sumitomo Heavy Industries, Ltd. and Electric Power Development Co., Ltd., both of Tokyo, Japan

Filed Jul. 28, 1980, Ser. No. 172,733
Claims priority, application Japan, Feb. 8, 1979, 54-13736
Int. Cl.³ B01D 53/36
U.S. Cl. 423—239 7 Claims

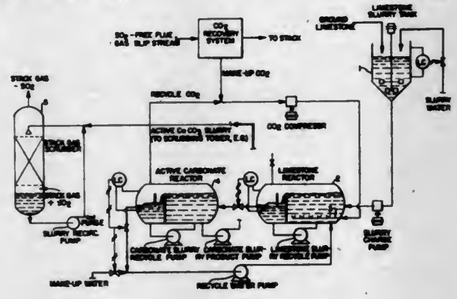
1. A method for removing nitrogen oxides and sulphur oxides from waste gas which comprises the steps of: mixing gaseous ammonia with a nitrogen oxide- and sulphur oxide-containing waste gas; passing the resulting mixed gas in a cross current direction through a first reactor provided with a moving bed of carbonaceous catalyst adapted to move downwards; introducing the gas passed through the upper part of said reactor into a flue without undergoing any treatment; re-mixing the gas passed through the bottom part of the reactor with a fresh gaseous ammonia; thereafter allowing said mixed gas to pass in a cross current direction through a second reactor provided with a moving bed of carbonaceous catalyst adapted to move downwards; and introducing the gas passed through said reactor into the flue.

4,272,498

PROCESS FOR COMMINUTING AND ACTIVATING LIMESTONE BY REACTION WITH CO_2

Albert C. Faatz, Montclair, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.

Filed Sep. 25, 1979, Ser. No. 78,972
Int. Cl.³ B02C 19/00; C01B 11/00; C01F 5/24
U.S. Cl. 423—242 18 Claims



8. A process for the removal of sulfur oxides from a gas mixture containing same, said process comprising:

(a) forming an aqueous slurry of particulate calcium carbonate or limestone;

(b) contacting said aqueous slurry with gaseous carbon dioxide at a pressure of carbon dioxide which is at least the minimum transition pressure required to convert calcium carbonate into an unstable solid calcium compound at the temperature employed, and continuing said contacting for a sufficient period of time to substantially convert the calcium carbonate into an unstable solid calcium compound;

(c) instantaneously reducing the pressure on the slurry to significantly less than said minimum transition pressure for the temperature employed, to produce an aqueous slurry containing calcium carbonate of a fine powder particle size; and

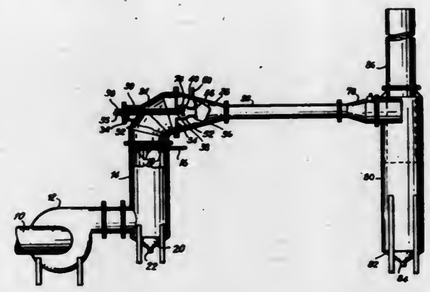
(d) contacting the gas mixture with the aqueous slurry containing calcium carbonate of a fine powder particle size formed in step (c).

4,272,499

PROCESS AND APPARATUS FOR THE REMOVAL OF PARTICULATE MATTER AND REACTIVE OR WATER SOLUBLE GASES FROM CARRIER GASES

Robert W. Cason, Omaha; Orvis L. Holland, Linden; Floyd C. Russell, Daingerfield; Malley R. Bass, and James L. Frier, both of Longview, all of Tex., assignors to Lone Star Steel Company, Dallas, Tex.

Filed Nov. 28, 1979, Ser. No. 98,069
Int. Cl.³ C01B 17/00; B01D 45/00, 47/10
U.S. Cl. 423—242 21 Claims



1. In a process for the purification of a polluted carrier gas containing pollutant material such as particulates, gases, vapors or combinations thereof wherein a stream of said polluted carrier gas is driven by blower means through a conduit and through a subsonic nozzle having an inlet communicating with said conduit, the steps of:

(a) continuously supplying pressurized compressible fluid to the inlet of a supersonic nozzle located in said conduit and expanding said compressible fluid through said supersonic nozzle to form a free supersonic jet of said compressible fluid directed from a position upstream of said subsonic nozzle through said stream of polluted carrier gas within said conduit and into the inlet of said subsonic nozzle to form in the interior of said subsonic nozzle a turbulent mixture of said polluted carrier gas with said compressible fluid, said supersonic jet expanding within said subsonic nozzle to hook up with the interior surface thereof to act as an ejector providing additional driving force to said turbulent mixture;

(b) forming a series of jet sprays of a first liquid in a first atomized condition disposed circumferentially about the free jet of compressible fluid emerging from said supersonic nozzle;

(c) further atomizing said first liquid into finely divided droplets by directing said jet sprays into the outer regions of said jet of compressible fluid as it emerges from said supersonic nozzle thus to supply to said turbulent mixture said finely divided droplets of further atomized liquid and to cause entrainment within said subsonic nozzle of at least a portion of said pollutant material in said droplets;

(d) discharging said mixture including said finely divided droplets from said subsonic nozzle to form a second free jet of said mixture and said finely divided droplets directed into a mixing tube;

(e) forming a series of jet sprays of a second liquid in a first atomized condition disposed circumferentially about said second jet as it emerges from said subsonic nozzle;

(f) further atomizing said second liquid into finely divided droplets by directing said jet sprays of said second liquid into said second jet as it emerges from said subsonic nozzle thus to form a further mixture containing the droplets of said second liquid within said mixing tube, the droplets of said first and second liquids combining and growing in size as they move through said mixing tube; and

(g) separating said droplets, thus grown in size, from the remainder of said carrier gas.

15. In apparatus for the purification of a polluted carrier gas containing pollutant material such as particulates, gases, vapors or combinations thereof the combination of:

(a) a conduit;

(b) a subsonic nozzle having an inlet communicating with said conduit;

(c) blower means for driving a stream of said carrier gas through said conduit and said subsonic nozzle;

(d) a compressible fluid ejector comprising a supersonic nozzle within said conduit upstream of the inlet of said subsonic nozzle;

(e) means for continuously supplying pressurized compressible fluid to the inlet of said supersonic nozzle and expanding said compressible fluid through said supersonic nozzle to form a free jet of said compressible fluid directed at supersonic velocity through said stream of gas and into the inlet of said subsonic nozzle, said free jet of compressible fluid expanding within said subsonic nozzle to hook up with the interior surface thereof to act as an ejector pump providing additional driving force to said stream of polluted gas;

(f) means for forming a series of jet sprays of a first liquid in a first atomized condition disposed circumferentially about and directed into the outer regions of said jet of compressible fluid emerging from said supersonic nozzle to further atomize said first liquid into finely divided droplets to form a turbulent mixture of said droplets with said polluted carrier gas and with said compressible fluid in said subsonic nozzle and to cause entrainment of at least a portion of said pollutant material in said finely divided droplets as said turbulent mixture moves through said subsonic nozzle and emerges therefrom to form a free jet of said mixture;

(g) a mixing tube having entry and exit ends communicating at its entry end with said conduit and positioned downstream of said subsonic nozzle, said free jet of said mixture being directed into the upstream entry end of said mixing tube;

(h) means for forming a series of jet sprays of a second liquid in a first atomized condition disposed circumferentially about said free jet of said mixture emerging from said subsonic nozzle to further atomize said second liquid into finely divided droplets and to mix said finely divided droplets of said second liquid with said mixture emerging from said subsonic nozzle, the droplets of said first and second liquids combining and growing in size as they move through said mixing tube; and

(i) means communicating with the exit and of said mixing tube for separating the droplets, thus grown in size, from the remainder of said carrier gas.

4,272,500

PROCESS FOR FORMING MULLITE

Carl L. Eggerding, Wappingers Falls; Frank Gonzalez, Jr., Poughkeepsie, and Jerzy B. Niklewski, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 904,112, May 8, 1978, abandoned. This application Nov. 6, 1979, Ser. No. 91,868
Int. Cl.³ C01B 33/36; C04B 35/64
U.S. Cl. 423—327 6 Claims

1. A method of fabricating a multi-layer ceramic substrate for an integrated circuit semiconductor package formed of a ceramic material composed of a high percentage of high purity dense mullite comprising

forming a particulate ceramic mixture of (1) mullite in an amount in the range of 5 to 30% by weight, (2) Al_2O_3 in an amount such that it is from stoichiometric amount to excess as necessary to form the desired mullite composi-

tion percentage less the initially added mullite, and (3) aluminosilicate glass with an SiO_2 content in the range of 40 to 80% and including a significant amount of alkaline earth oxides, said glass in an amount to provide sufficient SiO_2 to combine with Al_2O_3 to form the desired mullite composition percentage,

combining the particulate mixture with an organic binder resin, and a solvent for the resin to form a liquid dispersion,

forming the liquid dispersion into a sheet,

drying the resultant sheet to remove the solvent from the resin to thereby form a ceramic green sheet,

laminating a plurality of processed green sheets,

sintering the resultant laminated green sheet substrate at a temperature in the range of 1300° to 1600° C. for a time in the range of one-half to 24 hours to remove the binder resin and subsequently react the Al_2O_3 and SiO_2 in the glass to form dense mullite under the influence of the initially added mullite, the resultant substrate having 0% apparent porosity.

4,272,501

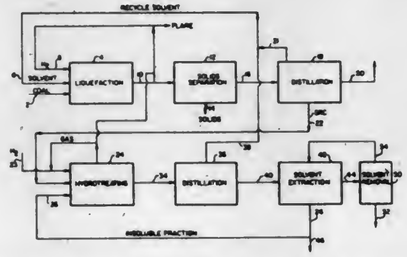
CARBON FIBERS FROM SRC PITCH

Eugene J. Greskovich, Allentown, and Edwin N. Givens, Bethlehem, both of Pa., assignors to International Coal Refining Company, Allentown, Pa.

Filed Mar. 3, 1980, Ser. No. 126,499

Int. Cl.³ D01F 9/14

U.S. Cl. 423—447.1 **4 Claims**



1. In a process for manufacturing a carbon fiber from a coal derived pitch, the improvement which comprises utilizing as said coal derived pitch a solvent refined coal containing hetero atoms and a soluble and insoluble portion therein which has been treated in accordance with the following process steps:

(a) hydrotreating the solvent refined coal in the presence of a catalyst under conditions suited to reduce the heteroatom content but insufficient to convert more than 25% of the solvent refined coal to a fraction having a boiling point less than 850° F.;

(b) distilling the fraction generated in the hydrotreating step (a) under conditions suitable for removing volatiles therefrom leaving a heavy fraction having a boiling point of greater than 850° F.;

(c) subjecting the heavy fraction from step (b) to solvent extraction, said solvent extraction being effective for extracting the soluble portion of the solvent refined coal and reducing the total hetero atom content of the solubilized portion to less than 4% by weight; and

(d) recovering the mixture of the soluble portion and solvent from the solvent extraction step and removing the solvent therefrom to form an SRC pitch.

4,272,502

PROCESS FOR PREPARING GASEOUS HYDROGEN CHLORIDE FROM DILUTE AQUEOUS HYDROCHLORIC ACID

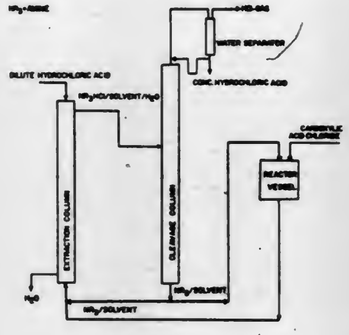
Willi Ziegenbein, Marl, and Ferdinand Von Praun, Haltern, both of Fed. Rep. of Germany, assignors to Chemische Werke Hüls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed May 22, 1980, Ser. No. 152,525

Claims priority, application Fed. Rep. of Germany, May 30, 1979, 2921916

Int. Cl.³ C01B 7/08

U.S. Cl. 423—488 **11 Claims**



1. In a process for the production of gaseous hydrogen chloride by extraction of dilute aqueous hydrochloric acid with amines, comprising:

(a) aqueous hydrochloric acid with an extractant selected from the group consisting of a tertiary alkyl amine which contains 14 to 36 carbon atoms in the nitrogen-bound side chains, and among these at most one is a nitrogen-bound methyl group and at least one is an aliphatic group containing at least 6 carbon atoms, and wherein the acid constant K_a of the tertiary amine is smaller than 10^{-3}, or a mixture of said tertiary amine and an inert organic solvent which is immiscible with water and has a lower boiling point than said tertiary amine to form a two-phase condensate comprising a water phase and an organic phase containing aminohydrochlorides;

(b) separating said water phase from said organic phase;

(c) liberating gaseous hydrogen chloride from said separated organic phase by thermolysis of said aminohydrochlorides and formation of said tertiary amines and primary and secondary amine decomposition products of said tertiary amines; and

(d) recirculating said tertiary amines of step (c) to said extracting step (a); the improvement comprising:

(e) adding carboxylic acid chlorides in at least stoichiometric quantities to said primary and secondary amines to form their amides.

4,272,503

REDUCTANT COMPOSITION FOR TECHNETIUM-99M AND METHOD FOR MAKING TECHNETIUM-99M LABELLED LIGANDS

Leopoldo L. Camin, Lexington, and Maria P. Litsplo, Bedford, both of Mass., assignors to New England Nuclear Corporation, Boston, Mass.

Filed May 25, 1978, Ser. No. 909,385

Int. Cl.³ A61K 49/00, 43/00

U.S. Cl. 424—1 **62 Claims**

1. A product for reducing technetium comprising a substrate having attached thereto a reducing complex having sufficient redox potential to reduce technetium from the +7 oxidation state to an oxidation state at which said technetium forms a relatively stable complex with a ligand to be labelled.

4,272,504

ANTIBODY ADSORBED SUPPORT METHOD FOR CARCINOEMBRYONIC ANTIGEN ASSAY

Yung D. Kim, Lindenhurst; Joseph T. Tomita, and Jay R. Schenck, both of Waukegan, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Dec. 14, 1978, Ser. No. 969,592

Int. Cl.³ G01N 33/48; A61K 43/00; G01T 1/00

U.S. Cl. 424—1 **7 Claims**

1. A method for measuring the level of carcinoembryonic antigen in a test sample of plasma or sera, comprising the steps of:

(a) heat-treating the test sample to precipitate interfering protein and provide a supernatant containing carcinoembryonic antigen, and separating the supernatnant from the precipitated protein;

(b) incubating the supernatant with a plastic solid support having carcinoembryonic antigen antibody adsorbed thereto, thereby binding carcinoembryonic antigen from the supernatant to said antibody;

(c) separating the supernatant from and washing the plastic solid support to remove unbound carcinoembryonic antigen;

(d) incubating the plastic solid support with a solution of labeled carcinoembryonic antigen antibody, thereby binding said labeled antibody to the solid support;

(e) separating the solution from and wshing the plastic solid support to remove unbound labeled carcinoembryonic antigen antibody; and

(f) measuring the labeled carcinoembryonic antigen antibody either bound to the plastic solid support or in the solution.

4,272,505

COMPETITIVE BINDING ANALYSIS BY FLUORESCENCE

David S. Smith, London, England, assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Sep. 1, 1977, Ser. No. 830,809

Claims priority, application United Kingdom, Aug. 17, 1976, 38710/76

Int. Cl.³ G01N 33/78, 33/58, 33/54, 21/64

U.S. Cl. 424—8 **6 Claims**

1. A method of assaying a biological fluid sample for a thyroid hormone, comprising the steps of:

(a) forming a mixture of said fluid sample with a known amount of conjugate formed by labeling a thyroid hormone with a fluorophore, said fluorophore having a fluoreacent level which is substantially suppressed by said thyroid hormone in said conjugate;

introducing into said mixture a binding substance which will equilibrate with both the thyroid hormone in said conjugate and said fluid sample, said binding substance sterically hindering the thyroid hormone of said conjugate from suppressing the fluorescence of said fluorophore;

(c) measuring the fluorescent level of said mixture; and

(d) calculating the amount of thyroid hormone in said sample by comparing the fluorescent level of said mixture with a standard fluorescent level.

6. A method of assaying a sample fluid for a thyroid hormone, which contains iodine, comprising

(a) forming a mixture of said sample with a known amount of a conjugate formed by labeling said thyroid hormone with a fluorophore;

(b) adding to said mixture a known amount of a binding substance for said thyroid hormone, said binding substance hindering the fluorescence inhibiting action of the iodine contained in said thyroid hormone;

(c) measuring the fluorescent level of the mixture;

(d) calculating the amount of thyroid hormone in said sample by comparing the fluorescent level with that of a standard.

4,272,506

PURIFICATION OF REAGENTS BY DISULFIDE IMMOBILIZATION

Moshe Schwarzberg, Hastings on Hudson, N.Y., assignor to Syva Company, Palo Alto, Calif.

Filed Aug. 31, 1979, Ser. No. 71,526

Int. Cl.³ C07G 7/00; C12Q 1/00; G09K 11/07; G01N 33/52

U.S. Cl. 424—8 **10 Claims**

1. A method for purifying labeled poly(amino acid) ligands for use in immunoassays, where the poly(amino acid) ligands which are labeled are present in a mixture and said labeled poly(amino acid) ligands are prepared by covalently labeling said mixture of compounds which includes said poly(amino acid) ligands, wherein said ligand is a member of a specific binding pair consisting of ligand and its reciprocal antiligand and said labeled poly(amino acid) ligand is substantially enriched relative to other labeled compounds in said mixture; said method comprising: affixing to a displacesble disulfide substituted support a mercapto substituted member of said specific binding pair by displacement of said disulfide to form a specific binding pair member affixed to said support through a disulfide linkage;

binding to said affixed specific binding pair member labeled reciprocal member of said specific binding pair from a mixture of other labeled material;

removing from said support non-specifically bound label; and

cleaving said disulfide to obtain a labeled reagent useful in immunoassays.

9. In a method for performing an immunoassay involving labeled ligand and antiligand, the improvement which comprises employing as the labeled ligand a reagent prepared according to any of claims 1 or 6.

4,272,507

PHENYLAMINOTHIOPHENACETIC ACIDS, THEIR SYNTHESIS, COMPOSITIONS AND USE

Volker Figala, Allensbach, Fed. Rep. of Germany, assignor to Byk Gulden Lomberg Chemische Fabrik GmbH, Constance, Fed. Rep. of Germany

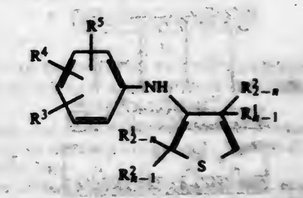
Filed May 22, 1979, Ser. No. 41,313

Claims priority, application Switzerland, May 24, 1978, 5687/78; Apr. 18, 1979, 3419/79

Int. Cl.³ A61K 31/38; C07D 333/24

U.S. Cl. 424—275 **13 Claims**

1. A compound of the formula



wherein

R^1 is a hydrogen atom (—H), chloro, bromo or methyl;

R^2 is $—CH_2—COOH$ or $—CH_2—COOR^6$;

R^3 is —H, halo, lower alkyl, lower alkoxy or trifluoromethyl;

R^4 is one of the meanings of R^3;

R^5 is —H, halo or lower alkyl;

R^6 is benzyl, alkyl with from 1 to 5 carbon atoms or such alkyl which is substituted, any substituent of substituted alkyl being hydroxyl, hydroxy(lower)alkoxy or lower alkanoyloxy; and

n is a positive whole number of at most 2;

or a salt of one of the acids.

4,272,508

COSMETICS FOR TREATMENT OF HAIR AND SKIN

Jurgen Tamm, Martinistrasse 52, 2000 Hamburg 20, Fed. Rep. of Germany

Filed Mar. 30, 1979, Ser. No. 25,578
Int. Cl.³ A61K 31/56
U.S. Cl. 424—45 18 Claims

1. A cosmetic hair or skin composition selected from the group consisting of a hair cream, a hair oil, a skin cream, a skin oil, an aerosol and a shampoo useful in the treatment of individuals exhibiting excessively greasy hair, androgenic alopecia and/or acne comprising as an active ingredient from about 0.5 to 2.0% by weight based on the total weight of said cosmetic of 11-α-hydroxyprogesterone and/or a pharmaceutically compatible ester thereof in a pharmaceutically acceptable carrier.

4,272,509

PRECIPITATED SILICON DIOXIDE CLEANING AGENT AND DENTIFRICE COMPOSITION

Satish K. Wason, Churchville, Md., assignor to J. M. Huber Corporation, Locust, N.J.

Continuation of Ser. No. 943,884, Sep. 19, 1978, abandoned. This application Mar. 12, 1980, Ser. No. 129,773
Int. Cl.³ A61K 7/16; C01B 33/12, 33/193
U.S. Cl. 424—49 8 Claims

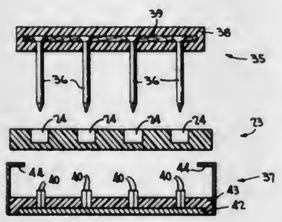
1. A synthetic precipitated silicon dioxide that provides a toothpaste clarity of 8 to 9, a radioactive dentin abrasion value of 360 to 401 and a % fluoride compatibility of 83–88 when incorporated into a visually clear toothpaste as an abrasive and cleaning agent, said silicon dioxide being characterized by wet cake moisture of from 46.1 to 50.9 , a refractive index ranging from 1.46 to 1.463, an oil absorption ranging from 50 to 59 cc/100 g, a surface area ranging from 354 to 374 m^2/g, a pour density ranging from 16.4 to 18.4 lb./cu.ft., and a pack density ranging from 34.7 to 37.2 lb./cu.ft.,

4,272,510

MAGNETIC ATTRACTION TRANSFER PROCESS FOR USE IN SOLID PHASE RADIOIMMUNOASSAYS AND IN OTHER ASSAY METHODS

Kendall O. Smith, 133 Trillium La., San Antonio, Tex. 78213, and Warren D. Gehle, 6815 Forest Haven, San Antonio, Tex. 78240

Filed Apr. 26, 1976, Ser. No. 680,506
Int. Cl.³ B05D 3/14; A61K 43/00
U.S. Cl. 427—47 19 Claims



1. A process, for use in solid phase immunoassays, for simultaneously transferring a plurality of antigen-antibody adsorbent units from one location to another, comprising the steps of providing a plurality of units each comprising a core containing ferromagnetic material, said core covered with at least one coating for preventing chemical interactions between said core and aqueous chemical solutions and for adsorbing antigens or antibodies on the outer surface thereof, placing each of said units in a separate receptacle containing an appropriate liquid and then simultaneously removing said units from said receptacles by magnetic attraction by the use of a transfer device having a plurality of probes of magnetic material which are spatially oriented with respect to the receptacles.

4,272,511

COSMETIC COMPOSITIONS FOR TREATING HAIR

Christos Papantoniou, Montmorency, and Jean Mondet, Sevran, both of France, assignors to L'Oreal, Paris, France

Filed Jun. 20, 1979, Ser. No. 50,428
Claims priority, application France, Jun. 23, 1978, 78 18832; Feb. 8, 1979, 79 03260
Int. Cl.³ A61K 7/06
U.S. Cl. 424—47 12 Claims

1. A cosmetic composition containing in a suitable cosmetic vehicle at least one copolymer resulting from the copolymerization of:

(i) 3 to 20% by weight of N-vinylpyrrolidone,
(ii) 13 to 87% by weight of vinyl acetate,
(iii) 2 to 15% by weight of crotonic acid, and
(iv) 1 to 80% by weight of at least one fourth monomer selected from the group consisting of

(a) a vinyl ester of the formula

$$CH_2{=}CH{-}O{-}\overset{O}{\overset{\|}{C}}{-}R_1$$

wherein, R_1 represents a linear or branched alkyl having 2–21 carbon atoms,

(b) an allyl or methallyl ester of the formula

$$CH_2{=}\overset{R_3}{\overset{|}{C}}{-}CH_2{-}O{-}\overset{O}{\overset{\|}{C}}{-}R_2$$

wherein, R_2 represents a linear or branched alkyl having 1–21 carbon atoms and R_3 represents hydrogen or methyl,

(c) a vinyl ether of the formula

$$CH_2{=}CH{-}O{-}R_4$$

wherein, R_4 represents a linear or branched alkyl having 4–18 carbon atoms,

(d) an α-olefin of the formula

$$CH_2{=}CH{-}(CH_2)_nCH_3$$

wherein, n is an integer from 3 to 15 inclusive, and

(e) a vinyl, allyl or methallyl ester of an α- or β-cyclic carboxylic acid having the formula

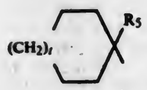
$$Cyc{-}(CH_2)_p{-}\overset{O}{\overset{\|}{C}}{-}O{-}(CH_2)_m{-}\overset{R'}{\overset{|}{C}}{=}CH_2$$

wherein, R' represents hydrogen or methyl, m is 0 or 1, p is 0 or 1, when p is 0, Cyc represents a saturated or unsaturated mono- or polycyclic radical selected from

(i)

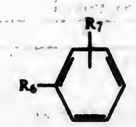


(ii)



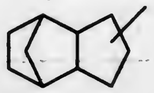
wherein, R_5 represents hydrogen or methyl and t is 0 or 1,

(iii)

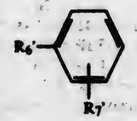


wherein, R_6 is hydrogen, methyl, ethyl, tert.-butyl, ethoxy, or dodecoxy and R_7 is hydrogen, alkyl having 1–4 carbon atoms or alkoxy having 1–4 carbon atoms, or

(iv)



and when p is 1, Cyc represents



wherein, R'6 and R'7 have the same meanings as R_6 and R_7 given above.

4,272,512

ANTIGINGIVITIS COMPOSITION

Abdul Gaffar, Somerset, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Jan. 31, 1980, Ser. No. 117,489
Int. Cl.³ A61K 7/16, 31/19, 31/505
U.S. Cl. 424—49 9 Claims

1. An oral composition adapted to inhibit symptoms of gingivitis comprising an oral vehicle and effective amounts of tranexamic acid and folic acid.

4,272,513

STABILIZED ORAL COMPOSITION

Abdul Gaffar, Somerset, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed Jan. 31, 1980, Ser. No. 117,156
Int. Cl.³ A61K 7/16, 7/18
U.S. Cl. 424—52 7 Claims

1. An oral composition for promoting oral hygiene containing an oral vehicle and, approximately by weight, 0.001 to 10.0% of tranexamic acid as antigingivitis agent, 0.005 to 2.0% of a fluorine-providing anticaries agent, and 0.01 to 3.0% of a flavoring mixture, which mixture consists essentially of, approximately by weight, 55 to 65% of methyl salicylate, 30 to 35% of menthol, 1 to 5% of eugenol, and 3 to 8% of cineol.

4,272,514

HIGH ABSORPTION BODY POWDER

Wayman R. Spence, Waco, Tex., assignor to Spence Medical Corporation, Waco, Tex.

Filed Nov. 6, 1979, Ser. No. 91,391
Int. Cl.³ A61K 7/26, 7/38
U.S. Cl. 424—69 13 Claims

1. An improved high absorption body powder composition comprising a uniform mixture of a water-absorbent graft copolymer and an adjuvant sorbent, said copolymer having a particle size of less than about 150 mesh and characterized by a relatively high water absorption capacity, said adjuvant sorbent having a particle size of about 100 microns and less, and characterized by a low water sorbent capacity relative to said water absorbent graft copolymer, said body powder containing said polymer in an amount of from about 2% to about 50% by weight of said composition and said adjuvant sorbent in an amount of from about 50% to about 98% by weight of said composition.

4,272,515

HAIR CONDITIONING SHAMPOO

Keith Hofman, Isleworth; Brian A. Scott, Leeds, both of England, and Rudolf Vogl, Bad Segeberg, Fed. Rep. of Germany, assignors to Lever Brothers Company, New York, N.Y.

Filed Jun. 16, 1977, Ser. No. 807,110
Claims priority, application United Kingdom, Jun. 21, 1976, 25897/76
Int. Cl.³ A61K 7/06
U.S. Cl. 424—70 8 Claims

1. A hair conditioning shampoo consisting essentially of an aqueous solution of

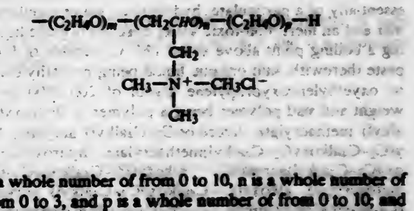
A. 5% to 25% by weight of an alkyl ether sulphate detergent;

B. 0.2% to 0.8% by weight of cationic cellulosic resin having the general formula:



wherein

R_{cell} represents the residue of an anhydroglucose unit, Y is an integer of from 50 to 20,000 and wherein each R individually represents a substituent group of the following general formula:



where

m is a whole number of from 0 to 10, n is a whole number of from 0 to 3, and p is a whole number of from 0 to 10; and

C. an added amount S% by weight of a simple salt such that $(S/MW)\times N$ is from 0.03 to 0.21 where MW is the molecular weight of the salt and N is the number of ions produced by the salt in aqueous solution.

4,272,516

PROCESS FOR IMPROVING TRANSCUTANEOUS AND TRANSFOLLICULAR ABSORPTION OF COSMETIC COMPOSITIONS

Oreste Caldini, and Sandro Mauci, both of Florence, Italy, assignors to Societa Italo-Britannica-L. Manetti-H. Roberts Co., Florence, Italy

Continuation of Ser. No. 847,824, Oct. 31, 1977, abandoned. This application May 30, 1979, Ser. No. 43,819
Claims priority, application Italy, Nov. 5, 1976, 52871 A/76
Int. Cl.³ A61K 7/06
U.S. Cl. 424—70 7 Claims

1. A process of improving the transcutaneous and transfollicular absorption of a hair lotion having the following composition in parts by weight,

Nicotinyl alcohol: 0.5
Resorcinol: 0.5
Propylene glycol: 4.0
Polysorbate 80: 1.0
Polyethylene glycol 600: 2.0
Perfume: 1.0
Ethyl alcohol 95%: 47.5

De-ionised water: 31.5

comprising the steps of

(a) adding to said hair lotion 12.0 parts by weight of benzyl alcohol as an absorption activator, to form an improved hair lotion, and

(b) applying an effective amount of said improved hair lotion to the hair.

4,272,517
PERMANENT WAVING COMPOSITIONS

Koji Yoneda, Amagasaki; Takehisa Ohashi, Kobe; Masami Ouchi, Akashi, and Hirotaka Fukumitsu, Kakogawa, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed May 21, 1979, Ser. No. 40,969

Claims priority, application Japan, Dec. 25, 1978, 53/164712

Int. Cl.³ A61K *7/09*

U.S. Cl. 424—72 7 Claims

1. In a permanent waving composition comprising an aqueous solution the improvement comprising including therein as the main ingredient, 3–20 percent by weight of N-carbamoylcysteine, said aqueous solution having a pH of 8–10.

4,272,518
PLASTIC WOUND BANDAGE

Daniel G. Moro, 7 Carriage Ct., Randolph, N.J. 07801; Gary A. Griffin, 2 Pilgrim Run, East Brunswick, N.J. 08816, and Mark J. D'Andrea, 70 C Zion Montgomery Rd., Neshanic Station, N.J. 08553

Filed Jul. 10, 1979, Ser. No. 56,183

Int. Cl.³ A61K *31/78*

U.S. Cl. 424—81 34 Claims

1. A process of treating a wound comprising applying to the surface of the wound a settable, non-toxic paste consisting essentially of a particulate, hydrophilic, water-swellable polymer and an inert, non-toxic water-miscible organic liquid having a boiling point above about 120° C. capable of forming a paste therewith, said organic liquid being polyethylene glycol or oxyethyleneoxypropylene glycol of 200–2000 molecular weight and said polymer being a polymer of hydroxy(C_2–C_4alkyl) methacrylate, hydroxy(C_2–C_4alkyl) acrylate, hydroxy(C_2–C_4alkoxyC_2–C_4alkyl)methacrylate, hydroxy(C_2–C_4alkoxyC_2–C_4alkyl)acrylate, alkoxy(C_2–C_4alkoxyC_2–C_4alkyl) methacrylate, alkoxy(C_2–C_4alkoxyC_2–C_4alkyl) acrylate, N-(C_1–C_4alkyl)acrylamide, N-(C_1–C_4alkyl)methacrylamide, N,N-di(C_1–C_4-alkyl)acrylamide, N,N-(di(C_1–C_4alkyl)methacrylamide, vicinal-epoxy(C_1–C_4alkyl methacrylate, or vicinal-epoxy(C_1–C_4alkyl)acrylate, said paste having a setting time of up to about one hour and a working time sufficient to apply the paste to the said wound surface, the polymer of said paste in set condition being water-insoluble, the ratio of polymer to organic liquid in the paste being from above about 0.8:1 to about 1.4:1 by weight, whereby there is formed a non-tacky, homogeneous, occlusive film on the surface of the wound.

4,272,519
COSMETIC LOTION FORMULATION

Anne M. Herrold, Brownsburg, and Ovidio Vargas, Carmel, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 20, 1980, Ser. No. 179,629

Int. Cl.³ A61K *7/02*

U.S. Cl. 424—63 1 Claim

1. A skin lotion formulation consisting essentially of, in percent by weight:

Ingredients	Percent
deionized water	69.35
xanthan gum	0.15
propylene glycol	5.00
polyoxyethylene (30) stearate	1.70

-continued

Ingredients	Percent
methyl p-hydroxybenzoate	0.20
imidazolidinyl urea	0.30
polyphenylmethylsiloxane	3.00
polyethylene homopolymer (1500 m. wt., density 0.91 g/cc)	1.00
glyceryl monostearate, neutral non-emulsifying	2.00
propyl p-hydroxybenzoate	0.20
sorbitan monostearate	2.00
ethylene glycol monostearate	1.00
lanolin oil	2.50
isopropyl myristate	3.00
squalane	8.50
fragrance	0.10

4,272,520
COMPOSITIONS COMPRISING N-TETRADECYL FORMATE AND THEIR USE IN CONTROLLING INSECTS

Agis F. Kydonieus, New York, N.Y., and Roger L. Kitterman, Tonopah, Ariz., assignors to Herculite Products, Inc., New York, N.Y.

Filed Apr. 5, 1979, Ser. No. 27,329

Int. Cl.³ A01N *25/00*

U.S. Cl. 424—84 5 Claims

1. A method for controlling insects of the Heliothis complex species by disruption of the reproductive cycle of said insects comprising substantially uniformly distributing, over an area containing crops which are subject to infestation by said insects, n-tetradecyl formate, the amount of n-tetradecyl formate being sufficient to impede moths in finding female moths thereby interrupting mating of said insects.

4,272,521
PURIFIED IMMUNE SERUM GLOBULIN

Timothy R. Zuffi, Kensington, Calif., assignor to Cutter Laboratories, Inc., Berkeley, Calif.

Filed Jul. 16, 1979, Ser. No. 57,880

Int. Cl.³ A61K *39/395, 39/00*

U.S. Cl. 424—85 4 Claims

1. A method of removing Factor XII from an immune serum globulin preparation which comprises contacting the preparation with an ion exchange material at a pH of ≧7.2 under conditions sufficient to assure removal of substantially all of the Factor XII.

4,272,522
METHOD FOR STIMULATING PHAGOCYTIC ACTIVITY AND SYNERGISTIC COMPOSITIONS THEREFOR

Endre A. Balazs, 3333 H. Hudson Pkwy., Riverdale, N.Y. 10463

Filed Oct. 15, 1979, Ser. No. 84,615

Int. Cl.³ A61K *37/62*

U.S. Cl. 424—94 6 Claims

1. A composition for stimulating phagocytosis, said composition comprising a physiological saline solution containing muramidase an a soluble salt of hyaluronic acid, having a molecular weight of at least about 430,000, both in amounts sufficient so that when about 1–2 ml. thereof are subcutaneously or intramuscularly injected in a mammal the concentration of each in the blood system of said mammal is about 10–50 ug/ml.

4,272,523
FRACTIONATING CITRATE-STABILIZED PLASMA

Ronald Kotitschke, and Wolfgang Stephan, both of Dreieich, Fed. Rep. of Germany, assignors to Biotest Serum Institut GmbH, Frankfurt-Niederrad, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 875,489, Feb. 6, 1978, Pat. No. 4,170,590, which is a continuation-in-part of Ser. No. 639,960, Dec. 11, 1975, Pat. No. 4,081,431. This application Sep. 17, 1979, Ser. No. 75,967

Claims priority, application Fed. Rep. of Germany, Jan. 20, 1979, 2902158

The portion of the term of this patent subsequent to Mar. 28, 1995, has been disclaimed.

Int. Cl.³ A61K *35/14*; C07G *7/00*

U.S. Cl. 424—101 16 Claims

1. A method for obtaining fibrinogen, a prothrombin complex containing coagulation factors II, VII, IX and X, antithrombin III, and a solution of stable serum proteins from a citrate-stabilized blood plasma comprising contacting the plasma with colloidal silica of a specific surface of about 50 to 400 m^2/g, about 50 to 400 mg of silica being employed per g of plasma protein, thereby to adsorb the fibrinogen from the plasma, separating the silica and adsorbed fibrinogen from the residual protein solution, subjecting the residual protein solution to ultrafiltration or dialysis so as to remove citrate and calcium ions therefrom, contacting the residual protein solution with an adsorbent for the prothrombin complex and antithrombin III, and separating the adsorbent with material adsorbed thereon from the residual solution of stable serum proteins.

4,272,524
N-ACYL-MURAMYL PEPTIDE DERIVATIVES HAVING ANTI-INFECTIOUS INFECTIONS PROPERTIES

Louis Chedid; Jean Choay, both of Paris; Edgar Lederer, Sceaux; Pierre Lefrancier, Bures sur Yvette; Monique Parant, and Francine Parant, both of Paris, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly-sur-Seine-Cedex, France

Continuation-in-part of Ser. No. 516,991, Oct. 22, 1974, Pat. No. 4,186,194. This application Nov. 1, 1977, Ser. No. 847,673

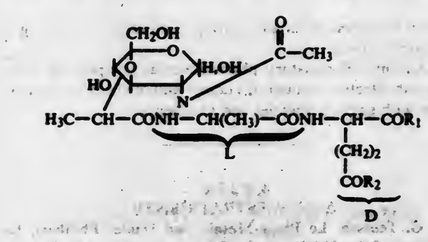
Claims priority, application United Kingdom, Nov. 2, 1976, 45597/76

The portion of the term of this patent subsequent to Jan. 29, 1997, has been disclaimed.

Int. Cl.³ A61K *37/00*; C07C *103/52*

U.S. Cl. 424—177 25 Claims

1. The method of controlling infection in a host by causing bactericidal or bacteriostatic activity in the host which comprises administering an effective dose of a compound which is effective to control Klebsiella of the following formula:



wherein

R_1 is OH or NH_2 and

R_2 is OH, NH_2 or a peptidic residue containing from 1 to 2 aminoacids, wherein the first of said amino acids is L—Ala or L—Lys, with the proviso that R_1 and R_2 are not simultaneously NH_2.

4,272,525
DERIVATIVES OF POLYENE MACROLIDE ANTIBIOTICS CONTAINING AN AMINO SUGAR MOIETY, PROCESS FOR THE PREPARATION THEREOF, AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

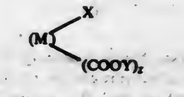
John J. Wright, Cedar Grove, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Continuation-in-part of Ser. No. 953,824, Oct. 23, 1978, abandoned. This application Mar. 7, 1980, Ser. No. 128,011

Int. Cl.³ A61K *37/00, 31/70*; C07C *103/52*; C07H *19/16*

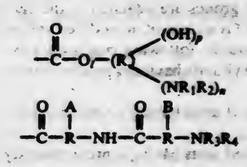
U.S. Cl. 424—177 30 Claims

1. Derivatives of polyene macrolide antibiotics of the general formula

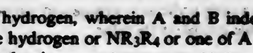


(I)

wherein M is a polyene macrolide antibiotic moiety containing an amino sugar moiety, the amino group of which is substituted by X, wherein X is

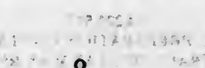


(II),



(III),

—R_5 or hydrogen, wherein A and B independently of each other are hydrogen or NR_3R_4 or one of A and B is hydrogen and the other is



R is a saturated hydrocarbon group having 1 to 10 carbon atoms; R_1 and R_2 independently of each other are hydrogen or a straight chain alkyl group having 1 to 3 carbon atoms or one of R_1 and R_2 is hydrogen and the other a straight chain alkyl group having 1 to 3 carbon atoms substituted by an NH_2 group; R_3 and R_4 independently of each other are hydrogen or a straight chain alkyl group containing 1 to 3 carbon atoms; R_5 is histidyl, tyrosyl, tryptophyl, arginyl, phenylalanyl or prolyl or an (α)-N-[$(NH_2)_m$-(R)-CO]— derivative of histidyl, tyrosyl, tryptophyl, phenylalanyl or prolyl; m is 1 or 2, n is 1 to 3, t is zero or 1, and when t is zero p is zero to 4 and when t is 1 p is zero; with the proviso that not more than one hetero atom is attached to the same carbon atom in any one of R, R_1 and R_2 and that in those compounds containing more than one R-group, these R-groups may be of the same or different chain length; z is zero or 1, and Y is hydrogen, an alkyl group containing 1 to 10 carbon atoms, allyl, propargyl, benzyl or phenylpropargyl, with the proviso that, when X is hydrogen, z must be 1 and Y must be allyl, propargyl, benzyl or phenylpropargyl; and the pharmaceutically acceptable acid addition salts of all the foregoing compounds.

29. The method for treating fungal infections which comprises administering to a mamsal infected with a susceptible fungus, a non-toxic, fungicidally effective amount of a compound of claim 1.

30. A pharmaceutical composition comprising a non-toxic, fungicidally effective amount of a compound of claim 1 together with a non-toxic, pharmaceutically acceptable carrier.

4,272,526
DERIVATIVES OF CHLORAL

David E. Simpkins, Benfleet, and John B. O. Taylor, Gidea Park, both of England, assignors to Macarthys Pharmaceuticals Limited, Romford, England

Filed May 8, 1979, Ser. No. 37,056
Claims priority, application United Kingdom, Jul. 11, 1978, 29451/78
Int. Cl.³ A61K 31/715; C07H 1/00
U.S. Cl. 424—180 11 Claims

1. A pharmaceutical hypnotic composition comprising a chloral derivative having the general formula:



in which Y' is a polysaccharide consisting of a chain of anhydroglucose, substituted anhydroglucose or uronic acid units as substituent groups and in which R is selected from —COCH$_2$OH, —[(CH$_2$)$_n$O]$_x$—H in which n is 2 to 5 and x is 1 to 7; —CH$_2$OSO$_2$X' or —CH$_2$COOX' in which X' is NH$_4$ or an alkaline earth metal cation, —(CCH$_2$)$_n$H where n is 1 to 7, —(CH$_2$)$_n$ (OH)$_x$Y where Y is —H or —CH$_3$ n is 1 to 7, x is 1 to 12 and the —OH groups are attached to the carbon atoms and wherein when Y' is a chain of unmodified anhydroglucose units, those units have the following configurations:

α-D-glucopyranosyl units having a predominantly 1–4 linkage.

β-D-glucopyranosyl units having a predominantly 1–4 linkage or

β-D-glucopyranosyl units having a predominenty 1–4 linkage when C$_6$ is a carboxylic acid group; and a pharmaceutically acceptable excipient therefor.

4,272,527
MEDICINAL PREPARATION CONTAINING THE EXTRACT OF PEAT WAX RESIN

Peter I. Belkevich, ulitsa Kulman, 15, kv. 55; Solomon J. Buslovich, ulitsa Volgogradskaya, 27, kv. 49; Elena F. Dolidovich, ulitsa D. Serdicha, 3, kv. 58; Fanya L. Kaganovich, ulitsa Kozlova, 8/1, kv. 88; Oktyabr P. Komov, ulitsa Ya. Kolasa, 27, korpus 2, kv. 30, and Ljudmila P. Timofeeva, prospekt Lenina, 40, kv. 34, all of Minsk, U.S.S.R.

Filed Feb. 26, 1979, Ser. No. 15,200
Int. Cl.³ A61K 35/78
U.S. Cl. 424—195 2 Claims

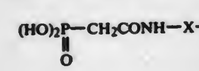
1. A method for the treatment of skin diseases selected from the group consisting of eczema and psoriasis, comprising the topical administration of a medicinal preparation containing a therapeutically effective amount of an ethanol extract of peat wax resin in conjunction with a pharmaceutically acceptable ointment vehicle.

4,272,528
PHOSPHONOACETYL AMINOACIDS

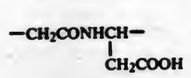
Anne M. Von Esch, North Chicago; Alford M. Thomas, Wadsworth; John S. Fairgrieve, Lake Villa, and John H. Seely, Lake Forest, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Aug. 14, 1980, Ser. No. 178,191
Int. Cl.³ A61K 31/60; C07F 9/38
U.S. Cl. 424—211 21 Claims

1. A compound of the formula

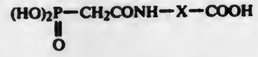


wherein X stands for >CHCH$_3$, —CH$_2$—, —CH$_2$CH$_2$—, >CHCH$_2$CH(CH$_3$)$_2$, >CHCH$_2$CONH$_2$ or

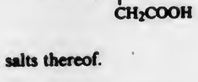


and the nontoxic salts thereof.

15. A method for treating herpes simplex virus infection in a warm-blooded animal which comprises administering to an animal so infected, an effective amount to combat said virus of a composition containing a compound of the formula



wherein X stands for >CHCH$_3$, —CH$_2$—, —CH$_2$CH$_2$—, >CHCH$_2$CH(CH$_3$)$_2$, >CHCH$_2$CONH$_2$ or



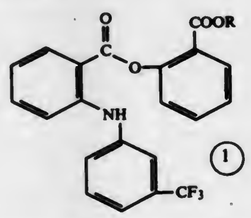
and the nontoxic salts thereof.

4,272,529
O-ALCOXYCARBONYLPHENYL ESTERS OF ANTHRANILIC ACID WITH THERAPEUTICAL ACTIVITY, METHOD FOR THEIR PREPARATION AND RELATED PHARMACEUTICAL COMPOSITION

Cesare Casagrande, Arese, and Giorgio Ferrari, Milan, both of Italy, assignors to Simes S.p.A., Milan, Italy

Filed Apr. 3, 1980, Ser. No. 137,295
Claims priority, application Italy, Jul. 31, 1979, 24806 A/79
Int. Cl.³ A61K 31/60; C07C 101/54
U.S. Cl. 424—230 7 Claims

1. N-m-trifluoromethylphenylanthranilate of O-alcoxy-carbonylphenyl, having the formula (1)



wherein R represents an alkyl group, preferably comprising 1 to 4 carbon atoms.

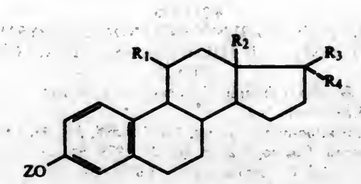
4. An anti-inflammatory pharmaceutical composition containing an effective amount of a compound of claim 1 in combination with suitable vehicles and excipients.

4,272,530
Δ$^{1,3,5(10)}$-ESTRATRIENES

Jean G. Teutsch, Le Blanc-Mesnil, and Daniel Philibert, La Varenne Saint-Hilaire, both of France, assignors to Roussel Uclaf, Paris, France

Filed Jan. 6, 1978, Ser. No. 867,486
Claims priority, application France, Jan. 13, 1977, 77 00859
Int. Cl.³ A61K 31/58, 31/56; C07J 1/00, 3/00
U.S. Cl. 424—238 35 Claims

1. A compound of formula

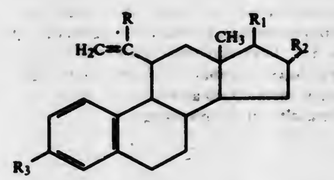


wherein R$_1$ is selected from the group consisting of unsaturated alkyl of 2 to 8 carbon atoms optionally substituted with a member selected from the group consisting of alkylthio of 1 to 4 carbon atoms and halogens, aryl of 6 to 12 carbon atoms and aralkyl of 7 to 13 carbons atoms optionally substituted with at least one member of the group consisting of alkoxy and alkylthio of 1 to 4 carbon atoms, halogens and -CF$_3$, thienyl, isothienyl and furyl, R$_2$ is alkyl of 1 to 4 carbon atoms, Z is selected from the group consisting of hydrogen, alkyl of 1 to 12 carbon atoms and aralkyl of 7 to 9 carbon atoms, R$_3$ is selected from the group consisting of hydrogen, hydroxy, acyl of an organic carboxylic acid of 1 to 18 carbon atoms and acyloxy of an organic carboxylic acid of 1 to 18 carbon atoms and R$_4$ is selected from the group consisting of hydrogen, hydroxy, alkyl and alkoxy of 1 to 8 carbon atoms, acyloxy of an organic carboxylic acid of 1 to 8 carbon atoms and alkenyl and alkynyl of 2 to 8 carbon atoms, with the proviso that R$_1$ is not allyl when Z is hydrogen, R$_2$ is methyl, R$_3$ is hydroxy and R$_4$ is hydrogen.

17. An estrogenic composition comprising an estrogenically effective amount of at least one compound of claim 1 and an inert pharmaceutical carrier.

19. A method of inducing estrogenic activity in warm-blooded animals comprising administering to warm-blooded animals an estrogenically effective amount of at least one compound of claim 1.

35.



wherein R=hydrogen or methyl,

R$_1$=Hydroxy, acyloxy of an organic carboxylic acid of 1 to 18 carbons;

R$_2$=Hydrogen, alkyl of 1 to 4 carbon atoms, alkenyl of 2 to 4 carbons and alkynyl of 2 to 4 carbons and;

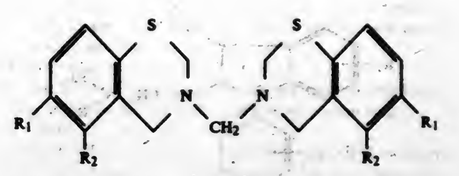
R$_3$=Hydroxy, alkoxy of 1 to 4 carbons and aralkoxy of 7 to 9 carbons.

4,272,531
3,3 -BIS-METHYLENE-1,3'-BENZO-THIAZINE COMPOUNDS

Robert M. DeMarinis, Ardmore, Pa., assignor to SmithKline Corporation, Philadelphia, Pa.

Filed Jun. 26, 1980, Ser. No. 163,123
Int. Cl.³ C07D 417/06; A61K 31/54
U.S. Cl. 424—246 12 Claims

1. A chemical compound of the formula:



in which:

R$_1$ is chloro or sulfamoyl; and R$_2$ is chloro or hydrogen; or a pharmaceutically acceptable acid addition salt thereof.

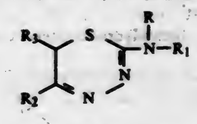
10. A method of inhibiting phenylethanolamine N-methyltransferase which comprises administering to an animal requiring said inhibition an amount sufficient to produce said inhibition of a chemical compound as defined in claim 1.

4,272,532
5-(OPTIONALLY SUBSTITUTED PHENYL)-6H-1,3,4-THIADIAZINE-2-AMINES

Winton D. Jones, Cincinnati, and Francis P. Miller, Loveland, both of Ohio, assignors to Richardson-Merrell Inc., Wilton, Conn.

Filed Sep. 4, 1979, Ser. No. 71,954
Int. Cl.³ A61K 31/54
U.S. Cl. 424—246 7 Claims

1. A method of inducing sedation in a patient which comprises administering to a patient in which sedation is desired an amount effective for inducing sedation of a compound of the formula



wherein

R is H, or C$_{1-5}$ or 7-straight or branched chain alkyl;

R$_1$ is H, C$_{1-5}$ or 7-straight or branched chain alkyl or allyl;

R$_2$ is phenyl or phenyl substituted with F, Cl, Br, No$_2$, C$_{1-5}$ straight or branched chain alkyl, C$_{1-5}$ straight or branched chain alkoxy, 2,4-di-Cl, 2,4-di-F, 2,4-di-Br with the proviso that when the phenyl group is monosubstituted with F, the F atom is not in the o-position; and

R$_3$ is H or C$_{1-5}$ straight or branched chain alkyl, with the proviso that when R$_3$ is straight or branched chain alkyl, R$_2$ is unsubstituted phenyl; or

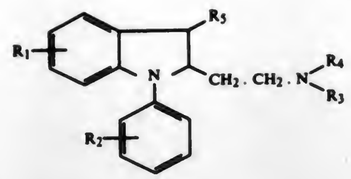
a pharmaceutically acceptable acid addition salt thereof.

4,272,533
N-PHENYLINDOLINE DERIVATIVES, AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Fulvio Gadient, Birsfelden, and Rudolf Sliwa, Reinach, both of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

Filed Aug. 27, 1979, Ser. No. 70,266
Claims priority, application Switzerland, Aug. 30, 1978, 9155/78
Int. Cl.³ A61K 31/40; C07D 209/14
U.S. Cl. 424—248.4 12 Claims

1. A compound of formula I



wherein

R_1 and R_2 independently are hydrogen, halogen of atomic number from 9 to 35, alkoxy (C_{1-4}) or alkyl (C_{1-4}),

R_3 and R_4 either are independently hydrogen or alkyl (C_{1-6}), or together with the nitrogen atom to which they are bound form a pyrrolidino, piperidino, perhydrazepino, morpholino or 4-alkyl(C_{1-4})piperazinyl radical, and

R_5 is hydrogen or alkyl(C_{1-4}),

or a pharmaceutically acceptable acid addition salt thereof.

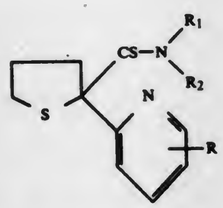
2. A pharmaceutical composition comprising an anti-diabetic or anti-obesity effective amount of a compound of claim 1 in association with a pharmaceutical diluent or carrier.

4,272,534
2-(PYRID-2-YL)TETRAHYDROTHIOPHENE DERIVATIVES

Jean-Claude Aloup, Villeneuve-le-Roi; Jean Bouchaudon, Morsang-sur-Orge; Daniel Farge, Thiais, and Claude James, Paris, all of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Mar. 26, 1980, Ser. No. 134,311
Claims priority, application France, Mar. 30, 1979, 79 08032; Jan. 24, 1980, 80 01499; Jan. 24, 1980, 80 01500
Int. Cl.³ A61K *31/44, 31/495*; C07D *413/14*
U.S. Cl. 424—248.51 11 Claims

1. A 2-(pyrid-2-yl)tetrahydrothiophene compound of the formula:



wherein R represents hydrogen or alkyl of 1 through 4 carbon atoms, and R_1 and R_2 represent hydrogen or alkyl of 1 through 15 carbon atoms, or alkyl of 1 through 15 carbon atoms substituted by one substituent selected from (i) hydroxy, (ii) alkylamino in which the alkyl radical is of 1 through 4 carbon atoms, (iii) dialkylamino in which the alkyl radicals are of 1 through 4 carbon atoms, (iv) phenyl, (v) carboxy, and (vi) alkoxycarbonyl in which the alkoxy radical is of 1 through 4 carbon atoms, or R_1 and R_2 together with the nitrogen atom to which they are attached represent piperidino, morpholino, or piperazin-1-yl which may be substituted on the 4-position nitrogen atom by alkyl of 1 to 4 carbon atoms, and pharmaceutically acceptable acid addition salts thereof or pharmaceutically acceptable metal salts or salts with pharmaceutically acceptable nitrogen-containing bases.

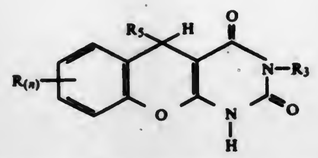
10. A pharmaceutical composition which comprises an effective amount of a 2-(pyrid-2-yl)tetrahydrothiophene compound or a pharmaceutically acceptable salt thereof as claimed in claim 1, in association with at least one compatible pharmaceutically acceptable carrier or adjuvant.

4,272,535
2,4-[1H,3H,5H]-(1)-BENZOPYRANO-[2,3-d]-PYRIMIDINEDIONES AND THEIR USE AS ANTI-ALLERGY AGENTS

David J. Blythin, Caldwell, N.J., assignor to Schering Corporation, Kenilworth, N.J.

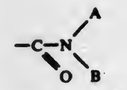
Continuation-in-part of Ser. No. 929,598, Jul. 31, 1978, abandoned. This application Jul. 27, 1979, Ser. No. 61,559
Int. Cl.³ A61K *31/505*; C07D *491/052*
U.S. Cl. 424—248.54 22 Claims

1. A compound of the formula

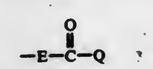


(I)

wherein each of R_3 and R_5 is hydrogen or loweralkyl, n is an integer from one to four and R is hydrogen, loweralkyl, lowercycloalkyl, acyloxyloweralkyl, hydroxyloweralkyl, loweralkoxyloweralkyl, nitro, halogeno, haloloweralkyl, hydroxy, loweralkoxy, acylaminoloweralkyl, mono- or diloweralkylaminoloweralkyl, alkanoyloxy, carboxy, loweralkoxycarbonyl, acyl, formyl, cyano or a carboxamido moiety of the structure



wherein A is straight or branched chain alkyl with up to 12 carbon atoms, lowercycloalkyl, lowercycloalkylloweralkyl, loweralkoxyloweralkyl, hydroxyloweralkyl, fluoroloweralkyl, loweralkenyl, loweralkylthioloweralkyl, loweralkylsulfoxyloweralkyl, loweralkylsulfonyllowerlkyl, thiazolyl, oxazolyl, thiadiazolyl, methylthiadiazolyl, furyl, pyrazolyl, tetrazolyl, methyltetrazolyl, or the grouping



wherein E is a straight or branched chain or cyclic loweralkylene, and Q is hydroxy, loweralkoxy, amino or mono- or diloweralkylamino; or the grouping —E—R_8, wherein E is as defined above or E is as defined above and E is substituted by hydroxy, by phenyl, or by both hydroxy and phenyl, R_8 is phenyl, thiazolyl, oxazolyl, thiadiazolyl, methylthiadiazolyl, tetrazolyl, methyltetrazolyl, furyl, pyridyl, methylpyridyl or piperidinyl; and B is hydrogen, loweralkyl; lowercycloalkyl, lowercycloalkylloweralkyl, or loweralkenyl; or A and B, when taken together with the nitrogen atom to which they are attached, represent imidazolyl, morpholinyl, pyrrolidinyl, piperidinyl or piperazinyl said heterocyclic rings being optionally substituted by hydroxy, loweralkyl or hydroxyloweralkyl; and pharmaceutically acceptable salts thereof.

21. A method for effecting an anti-allergic reaction which comprises administering an effective amount of a compound as claimed in claim 1 to an animal.

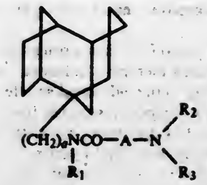
22. An anti-allergic pharmaceutical composition containing as active ingredient an effective amount of at least one compound as claimed in claim 1 together with a pharmaceutical carrier or excipient.

4,272,536
NOVEL TRICYCLOUNDECANE AMINOACID AMIDE

Yoshiaki Inamoto, Utsunomiya; Motoyoshi Ozugi, and Eiji Kashihara, both of Wakayama, all of Japan, assignors to Kao Soap Co., Ltd., Tokyo and Sumitomo Chemical Industries Ltd., Osaka, both of, Japan

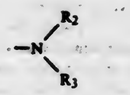
Filed Dec. 12, 1979, Ser. No. 102,674
Claims priority, application Japan, Dec. 21, 1978, 53-159541
Int. Cl.³ A61K *31/16*; C07C *87/40, 103/00*
U.S. Cl. 424—248.54 8 Claims

1. A compound having the formula



(I)

wherein a is 0 or 1, R_1 is hydrogen or lower alkyl having from 1 to 4 carbon atoms, A is lower alkylene having from 1 to 4 carbon atoms or lower alkylidene having from 2 to 4 carbon atoms, and R_2 and R_3, which can be the same or different, are hydrogen, lower alkyl having from 1 to 4 carbon atoms, cycloalkyl having 5 or 6 carbon atoms, benzyl or benzyl substituted on the benzene ring with alkyl having from 1 to 4 carbon atoms, alkoxy having from 1 to 3 carbon atoms, chloro, bromo or nitro, or



form a saturated heterocyclic ring selected from the group consisting of pyrrolidine, piperidine and morpholine, and pharmacologically acceptable acid addition salt thereof.

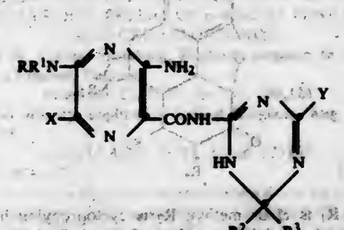
7. A pharmaceutical composition which comprises as an active ingredient a pharmaceutically effective amount of at least one of the compounds as claimed in claim 1 and at least one pharmceutically acceptable inert carrier or diluent.

4,272,537
3-AMINO-5-SUBSTITUTED-6-HALO-N-(4,4-DISUBSTITUTED-6-SUBSTITUTED-1,3,5-TRIAZIN-2-YL)-2-PYRAZINECARBOXAMIDES

Otto W. Wolterudorf, Jr., Chalfont; S. Jean deSolms, Norristown, and Robert L. Smith, Lansdale, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jul. 2, 1980, Ser. No. 165,313
Int. Cl.³ C07D *403/12*; A61K *31/495, 31/53*
U.S. Cl. 424—249 11 Claims

1. A compound of the formula or the tautomeric form thereof



wherein

R is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;

R^1 is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;

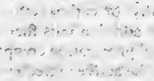
R^2 is C_{1-5} alkyl;

R^3 is C_{1-5} alkyl;

R^2 and R^3 can be joined with the carbon atom to which they are attached to form a 3–7 membered carbon ring;

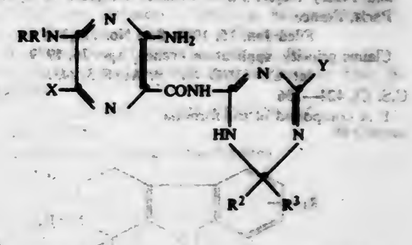
X is halo;

Y is OH, SH, C_{1-5} alkoxy, C_{1-5} alkylthio and NR^4R^5 wherein R^4 is hydrogen or C_{1-5} alkyl and R^5 is hydrogen, C_{1-5} alkyl, CN, $CONH_2$,



NO_2 or NH_2 and the pharmaceutical acid addition salts thereof.

10. A method of treating edema or hypertension which comprises administering to a patient in need of such treatment a pharmaceutically effective amount of a compound of the formula:



wherein

R is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;

R^1 is hydrogen, C_{1-5} alkyl, C_{2-5} alkenyl or C_{3-6} cycloalkyl;

R^2 is C_{1-5} alkyl;

R^3 is C_{1-5} alkyl;

R^2 and R^3 can be joined with the carbon atom to which they are attached to form a 3–7 membered carbon ring;

X is halo;

Y is OH, SH, C_{1-5} alkoxy, C_{1-5} alkylthio and NR^4R^5 wherein R^4 is hydrogen or C_{1-5} alkyl and R^5 is hydrogen, C_{1-5} alkyl, CN, $CONH_2$,



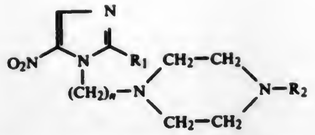
NO_2 or NH_2 and the pharmaceutical acid addition salts thereof.

4,272,538
5-NITRO-IMIDAZOLE WITH ANTIPROTOZOIC ACTIVITY

Francesco Makovec, Paolo Senin, both of Monza, and Luigi Rovati, S. Fruttuoso di Monza, all of Italy, assignors to Roche Research Laboratories S.p.A., San Fruttuoso di Monza, Italy

Filed May 18, 1979, Ser. No. 40,249
Claims priority, application Italy, May 29, 1978, 68223 A/78
Int. Cl.³ A61K *31/495*; C07D *403/06*
U.S. Cl. 424—250 10 Claims

1. A compound selected from the group consisting of compounds having the formula:



in which R_1 is hydrogen, methyl, ethyl or phenyl, n is 2 or 3, and R_2 is methyl, ethyl, carboxymethyl or carboxyethyl, and the pharmaceutically acceptable acid addition salts thereof.

7. An anti-protozoic pharmaceutical preparation comprising a compound according to claim 1, as the active ingredient, and a pharmaceutically acceptable carrier or diluent.

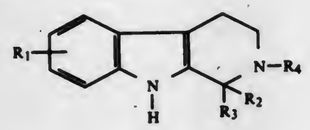
4,272,539

PYRIDOINDOLE DERIVATIVES

Gabor I. Koletar, Berkeley Heights, N.J.; Jonathan R. Frost, Palaiseau, France; Regis Dupont, Paris, France; Patrick Lardenois, Bourg la Reine, France; Claude Morel, Massy, France, and Henry Najer, Paris, France, assignors to Synthelabo, Paris, France

Filed Jan. 15, 1980, Ser. No. 112,212
Claims priority, application France, Apr. 26, 1979, 79 10654
Int. Cl.³ C07D *471/04*; A61K *31/435*
U.S. Cl. 424—256 4 Claims

1. A compound of the formula



wherein

R_1=H, halogen, C_{1-4} alkyl, C_{1-4} alkoxy, or CF_3;

R_2=$CONHR_5$ in which R_5 is C_{1-4} alkyl, C_{3-6} cycloalkyl or benzyl;

R_3=H or CH_3; and

R_4=H, CH_3 or CH_3CO;

or a pharmaceutically acceptable salt thereof.

4. A method of treating a patient for anoxia, comprising administering to the patient a therapeutically effective dose of a compound as claimed in claim 1.

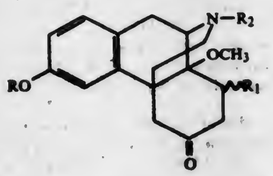
4,272,540

14-METHOXYMORPHINAN-6-ONE COMPOUNDS AND THERAPEUTIC METHODS OF TREATING PAIN AND DRUG DEPENDENCE WITH THEM

Raj K. Razdan, Belmont, and Anil C. Ghosh, Lexington, both of Mass., assignors to SISA, Incorporated, Cambridge, Mass.

Filed Apr. 24, 1979, Ser. No. 32,733
Int. Cl.³ A61K *31/485*; C07D *221/28*
U.S. Cl. 424—260 46 Claims

1. 14-methoxy substituted 3-hydroxy or 3-methoxy-6-one morphinans characterized by the formula:



where R is H or methyl; R_1 is H, α-methyl or β-methyl, and R_2 is cyclobutylmethyl, cyclopropylmethyl, tetrahydrofurfuryl or dimethylallyl, provided that when R_2 is dimethylallyl, R_1 is methyl.

32. A therapeutic method for treating pain in an individual for whom such therapy is indicated, which method comprises administering to the individual an effective analgesic amount of a compound selected from the group of 17-cyclobutylmethyl-3,14-dimethoxymorphinan-6-one, 17-cyclobutylmethyl-3-hydroxy-14-methoxymorphinan-6-one, 17-tetrahydrofurfuryl-3-hydroxy-14-methoxymorphinan-6-one, 17-tetrahydrofurfuryl-3,14-dimethoxymorphinan-6-one, 17-dimethylallyl-3-hydroxy-14-methoxy-8α-methylmorphinan-6-one, 17-tetrahydrofurfuryl-3,14-dimethoxy-8α-methylmorphinan-6-one or a pharmacological acceptable, non-toxic acid addition salt thereof.

34. A therapeutic method for treating drug dependence in an individual for whom such therapy is indicated, which method comprises administering to the individual an effective narcotic antagonist amount of a compound selected from the group of 17-cyclopropylmethyl-3,14-dimethoxy-8β-methylmophinan-6-one; 17-cyclopropylmethyl-3-hydroxy-14-methoxy-8β-methylmorphinan-6-one; 17-cyclobutylmethyl-3,14-dimethoxy-8β-methylmorphinan-6-one; 17-cyclobutylmethyl-3-hydroxy-14-methoxy-8β-methylmorphinan-6-one; 17-cyclopropylmethyl-3-hydroxy-14-methoxy-8α-methylmorphinan-6-one; 17-cyclopropylmethyl-14-methoxy-8β-methylmorphinan-3,6-diol or a pharmacologically acceptable, non-toxic acid addition salt thereof.

38. A therapeutic method for treating pain without liability of drug dependence in an individual for whom such therapy is indicated which method comprises administering to the individual an effective analgesic amount of a compound selected from the group of 17-cyclopropylmethyl-3,14-dimethoxymorphinan-6-one, 17-cyclopropylmethyl-3-hydroxy-14-methoxymorphinan-6-one, 17-cyclobutylmethyl-3-hydroxy-14-methoxy-8α-methylmorphinan-6-one or a pharmacologically acceptable, non-toxic acid addition salt thereof.

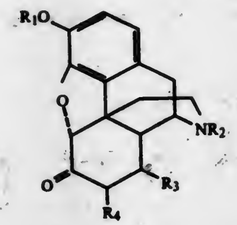
4,272,541

7,8 AND 7-8 SUBSTITUTED 4,5α-EPOXYMORPHINAN-6-ONE COMPOUNDS, AND METHODS OF TREATING PAIN AND DRUG DEPENDENCE WITH THEM

Michael P. Kotick, Elkhart, Ind.; Robert N. Schut, Edwardsburg, Mich.; Joseph O. Polazzi, and David L. Eshleman, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 911,939, Jun. 2, 1978, abandoned, which is a continuation-in-part of Ser. No. 876,640, Feb. 10, 1978, abandoned. This application Jul. 11, 1979, Ser. No. 56,549
Int. Cl.³ A61K *31/485*; C07D *489/02*
U.S. Cl. 424—260 34 Claims

1. 7,8 and 7-8 substituted 4,5α-epoxymorphinan-6-one compounds characterized by the structural formula:



wherein R_1 is H or methyl; R_2 is cyclopropylmethyl, cyclobutylmethyl, allyl or tetrahydrofurfuryl; R_3 is β-methyl, β-ethyl or α-ethyl and R_4 is H or α-methyl, provided that:

i. when R_2 is allyl, R_3 is β-ethyl, R_4 is H and R_1 is H;

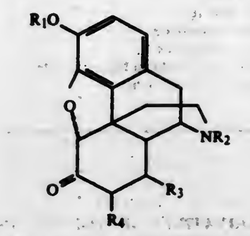
ii. when R_2 is tetrahydrofurfuryl, R_3 is β-ethyl, R_4 is H and R_1 is H;

iii. when R_2 is cyclobutylmethyl, R_1 is H and R_3 and R_4 are, respectively, either β-ethyl and H, β-methyl and α-methyl or β-methyl and H;

iv. when R_2 is cyclopropylmethyl and R_1 is methyl, R_3 is β-ethyl and R_4 is H; and

v. when R_2 is cyclopropylmethyl and R_1 is H, R_3 and R_4 are, respectively, either β-ethyl and H, α-ethyl and H or β-methyl and α-methyl.

19. A therapeutic method for treating pain in an individual for whom such therapy is indicated without liability of drug dependence which method comprises administering to the individual an analgesically effective amount of a compound characterized by the formula:



wherein R_1 is H or methyl; R_2 is cyclopropylmethyl, cyclobutylmethyl or tetrahydrofurfuryl; R_3 is β-methyl, β-ethyl or α-ethyl and R_4 is H or α-methyl, provided that:

i. when R_2 is tetrahydrofurfuryl, R_3 is β-ethyl, R_4 is H and R_1 is H;

ii. when R_2 is cyclobutylmethyl, R_1 is H and R_3 and R_4 are, respectively, either β-ethyl and H, β-methyl and α-methyl or β-methyl and H;

iii. when R_2 is cyclopropylmethyl and R_1 is methyl, R_3 is β-ethyl and R_4 is H; and

iv. when R_2 is cyclopropylmethyl and R_1 is H, R_3 and R_4 are, respectively, either β-ethyl and H, α-ethyl and H or β-methyl and α-methyl.

33. A therapeutic method for treating drug dependence in an individual for whom such therapy is indicated, which method comprises administering to said individual an effective narcotic antagonist amount of a compound selected from the group of 17-allyl-4,5α-epoxy-8β-ethyl-3-hydroxymorphinan-6-one or 17-cyclopropylmethyl-4,5α-epoxy-3-hydroxy-7α-methyl-8β-methylmorphinan.

4,272,542

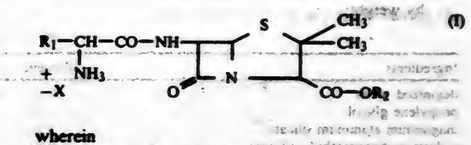
USE OF DI-SODIUM AND DI-POTASSIUM SALTS OF DICARBOXYLIC AMINO ACIDS AND TRI- OR DI-SODIUM OR POTASSIUM PHOSPHATE TARTRATE OR CITRATE TO IMPROVE THE TASTE OF IN VIVO HYDROLYSABLE ESTERS OF α-AMINO PENICILLINS AND CEPHALOSPORINS

Charles B. Taskis, Worthing, England, assignor to Beecham Group Limited, England

Filed Jul. 27, 1976, Ser. No. 709,123
Claims priority, application United Kingdom, Aug. 7, 1975, 32976/75
Int. Cl.³ A61K *31/43, 31/66, 31/195*
U.S. Cl. 424—271 15 Claims

1. A powder which may be reconstituted into an oral pharmaceutical composition in suspension or solution form by the addition of water which powder comprises

(a) fine particles of a penicillin of the formula



wherein

R_1 is phenyl, 4-hydroxyphenyl or cyclohexadienyl;

R_2 is acetoxymethyl, pivaloyloxymethyl or phthalidyl; and

X^- is a pharmaceutically acceptable anion; and

(b) a di-sodium or di-potassium salt of a di-carboxylic amino acid or tri- or di-sodium or potassium phosphate, tartrate or citrate; the weight ratio of said penicillin to said di-sodium or di-potassium salt of a di-carboxylic amino acid or tri- or di-sodium or potassium phosphate, tartrate or citrate being from 2:1 to 1:5.

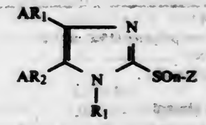
4,272,543

PHARMACOLOGICALLY ACTIVE 4,5-DIARYL-2-SUBSTITUTED-IMIDAZOLES

Ulrich Niedballa, and Irmgard Bottcher, both of Berlin, Fed. Rep. of Germany, assignors to Schering, Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Dec. 27, 1979, Ser. No. 107,882
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1978, 2856909
Int. Cl.³ A61K *31/415*; C07D *233/84*
U.S. Cl. 424—273 R 38 Claims

1. An imidazole derivative of the formula



AR_1 and AR_2 are independently each phenyl; or phenyl substituted by halogen, C_{1-4} alkyl, C_{1-4} alkoxy or C_{2-6} dialkylamino; with the proviso that AR_1 and AR_2 are not both unsubstituted phenyl;

R_1 is hydrogen, alkyl of 1–4 carbon atoms or alkyl of 1–4 carbon atoms substituted by hydroxy, C_{1-4} alkoxy or C_{1-6} alkanoyloxy;

n is 0, 1 or 2; and

Z is cyano; alkynyl of 2–6 carbon atoms; cycloalkyl of 3–8 carbon atoms; cycloalkyl of 3–8 carbon atoms substituted by hydroxy, acyloxy, hydroxymethyl or acyloxymethyl, "acyl" in both cases being the acyl group of a hydrocarbon, aliphatic C_{1-6} carboxylic acid or of benzoic acid; or alkyl of 1–4 carbon atoms substituted by cyano or cycloalkyl of 3–6 carbon atoms;

or a physiologically acceptable salt thereof with an acid.

37. A method of treating inflammations in a mammal which comprises administering an antiinflammatorily effective amount of a compound of claim 1 to the mammal.

4,272,544

SKIN CELL RENEWAL REGIME

John A. Calla, Carmel; Marlyn G. Flora, Noblesville; Anne M. Herrold, Brownsburg; Joe O. Martin, Martinsville, and Ovidio Vargas, Carmel, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 20, 1980, Ser. No. 179,827
Int. Cl.³ A61K *31/415*
U.S. Cl. 424—273 R 2 Claims

1. A method of increasing the rate of skin cell turnover without causing skin irritation which comprises applying to the skin in a regime:

(a) a cleanser formulation consisting essentially of, in percent by weight:

Ingredients	Percent
deionized water	39.73
propylene glycol	6.00
magnesium aluminum silicate	1.10
sodium carboxymethyl cellulose	0.10
methyl p-hydroxybenzoate	0.20
imidazolidinyl urea	0.30
ethylenediaminetetraacetic acid	0.02
sodium N-lauryl-β-iminodipropionate	4.00
titanium dioxide	0.75
sodium isostearoyl-2-lactylate	2.00
soya sterols	1.00
polyoxyethylene (10) soya sterols	2.50
polyoxyethylene (3) myristyl ether myristate	8.00
polyoxypropylene (15) stearyl ether	8.00
heavy mineral oil	8.00
propylene glycol dicaprylate/dicaprate (80/20 to 50/50)	7.00
cetyl alcohol (1-hexadecanol)	4.00
stearyl alcohol (1-octadecanol)	2.00
propyl p-hydroxybenzoate	0.10
glyceryl monostearate and polyethylene glycol (100) monostearate	2.00
triple pressed stearic acid	2.50
lactic acid	1.10
fragrance	0.60

(b) a cream formulation consisting essentially of, in percent by weight:

Ingredients	Percent
light mineral oil	4.45
polyethylene homopolymer (1500 m. wt., density 0.91 g/cc)	2.50
undecanoic triglyceride	2.00
squalane	5.00
distilled lanolin alcohol	0.55
white beeswax	1.00
polydimethyl cyclosiloxane	9.00
triglyceryl diisostearate	4.00
isopropyl myristate	5.00
propyl p-hydroxybenzoate	0.10
quaternary bentonite	0.40
deionized water	59.00
methyl p-hydroxybenzoate	0.20
70% sorbitol solution	5.00
imidazolidinyl urea	0.30
urea	0.50
glyoxyldiureide	0.20
DL-pantothenyl alcohol	0.50
cis-1-(3-chloroallyl)-3,5,7-triaza-1-azoniaadamantane chloride	0.10
fragrance	0.20

(c) a lotion formulation consisting essentially of, in percent by weight:

Ingredients	Percent
deionized water	69.35
xanthan gum	0.15
propylene glycol	5.00
polyoxyethylene (30) stearate	1.70
methyl p-hydroxybenzoate	0.20
imidazolidinyl urea	0.30
polyphenylmethylsiloxane	3.00
polyethylene homopolymer (1500 m. wt., density 0.91 g/cc)	1.00
glyceryl monostearate, neutral non-emulsifying	2.00
propyl p-hydroxybenzoate	0.20
sorbitan monostearate	2.00
ethylene glycol monostearate	1.00
lanolin oil	2.50

-continued

Ingredients	Percent
isopropyl myristate	3.00
squalane	8.50
fragrance	0.10

(d) a tonic formulation consisting essentially of, in percent by weight:

Ingredients	Percent
deionized water	80.12
polyethylene and polypropylene glycol	2.00
glyoxyldiureide	0.20
polyethylene glycol (300)	9.00
imidazolidinyl urea	0.40
denatured alcohol	7.00
methyl p-hydroxybenzoate	0.10
propyl p-hydroxybenzoate	0.05
polyoxyethylene (60) sorbitan fatty acid ester	0.30
polyoxyethylene (10) oleylether	0.50
menthol	0.03
fragrance	0.30

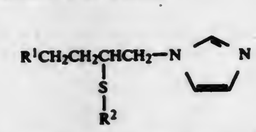
4,272,545

DERIVATIVES OF THIENYL- AND FURYL-SUBSTITUTED N-BUTYL AND N-PHENYL IMIDAZOLES

Keith A. M. Walker, Los Altos Hills, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Feb. 2, 1979, Ser. No. 8,718
Int. Cl.³ A01N *43/50*; C07D *403/00*
U.S. Cl. 424—273 R 10 Claims

1. The compound of the formula



and the antimicrobial acid addition salts thereof wherein

R^1 is optionally substituted furyl, the substituents independently selected from the group halo, C_1 to C_6 alkyl and C_1 to C_6 alkoxy; and

R^2 is optionally substituted phenyl, the substituents independently selected from the group halo, C_1 to C_4 alkyl, C_1 to C_4 alkoxy and trifluoromethyl.

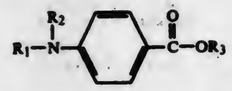
4,272,546

ESTERS OF 4-(MONOALKYLAMINO)BENZOIC HYDROXYALKANOIC ACIDS

Robert G. Shepherd, South Nyack, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 861,736, Dec. 19, 1977, Pat. No. 4,196,208.
This application Oct. 22, 1979, Ser. No. 87,136
Int. Cl.³ A61K *31/245*; C07C *101/62*
U.S. Cl. 424—310 10 Claims

1. A compound of the formula:



wherein R_1 is an unbranched or branched alkyl group of the formula C_nH_{2n+1} where n is an integer from 8 to 19, inclusive; R_2 is selected from the group consisting of hydrogen, methyl,

carboxyalkyl, acetyl, succinyl, 1-(sodiumsulfo)loweralkyl, 1-(sodiumsulfo)polyhydroxyalkyl, and 1,3-bis(sodiumsulfo)aralkyl; and R_3 is selected from the group consisting of unsubstituted or substituted aryl selected from the group consisting of phenyl, 3-bromophenyl, 4-fluorophenyl, 2,6-dichlorophenyl, 2,4-difluorophenyl, 3-carbomethoxyphenyl, 4-carboxyphenyl, and 4-carboxamidophenyl, and substituted unbranched or branched (loweralkyl, loweralkenyl, cycloalkyl, or hydroxyloweralkyl) groups consisting of 1–6 carbon atoms and bearing 1–3 substituents selected from the group consisting of carboxy, carboalkoxy, carboxamido, N,N-dialkylcarboxamido, and 2-dimethylaminoethoxycarbonyl; and the pharmaceutically acceptable acid-addition and cationic salts thereof.

10. The method of treating hyperlipidemia and hyperlipoproteinemia and/or altering the lipoprotein pattern in a mammal comprising administering to said mammal an effective lipid-altering amount of a compound in accordance with claim 1.

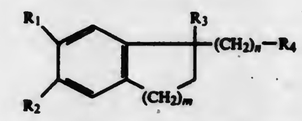
4,272,547

BENZOYL INDANE CARBOXAMIDES AS ANTIPHLOGISTICS

Georges Haas, and Alberto Rossi, both of Oberwil, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 548,956, Feb. 11, 1975, Pat. No. 4,057,573.
This application Aug. 18, 1977, Ser. No. 825,637
Claims priority, application Switzerland, Feb. 14, 1974, 2094/74
Int. Cl.² C07C *103/26, 69/02*; A61K *31/165, 31/22*
U.S. Cl. 424—311 6 Claims

1. A compound of the general formula



(I)

wherein one of the two radicals R_1 and R_2 denotes benzoyl, or benzoyl substituted by at least one member selected from lower alkyl, lower alkoxy, halogen and trifluoromethyl, and the other denotes hydrogen, hydroxy, hydroxy esterified by a lower alkanecarboxylic acid, or hydroxy etherified by a lower alkanol, R_3 denotes hydrogen, lower alkyl or lower hydroxyalkyl, R_4 denotes amidised carboxyl wherein the amino group is a member selected from di-lower alkylamino-lower alkylamino, hydroxylamino, hydrazino, mono-lower alkylamino, di-lower alkylamino and amino, m denotes 1 or 2 and n denotes 0 or 1, or therapeutically acceptable salts of said amidised carboxyl compounds.

6. An antiphlogistic, antirheumatic, antipyretic and mildly analgesic pharmaceutical preparation containing a correspondingly effective amount of one of the compounds mentioned in claim 1, together with a pharmaceutical excipient.

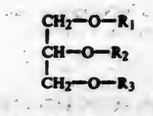
4,272,548

PROCESS FOR THE LOWERING OF INCREASED LEVELS OF CHOLESTEROL AND NEUTRAL FAT IN THE BLOOD OF HUMANS

Carl-Jacob Gatzen, Pannebickerstr. 20; Hartmut Poethen, Berger Allee 3, and Herlbert Sloa, Graf-Adolf-Platz 3, all of Düsseldorf, Fed. Rep. of Germany

Filed Feb. 15, 1980, Ser. No. 121,688
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1979, 2905979
Int. Cl.³ A61K *31/23*
U.S. Cl. 424—312 3 Claims

1. A process for lowering increased cholesterol and neutral fat levels in the blood of humans comprising orally administering to said humans a cholesterol and neutral fat level reducing amount of a completely acetylated monoglyceride having the formula:



wherein one of the groups R_1,R_2 and R_3 is the acyl radical of a saturated or olefinically unsaturated fatty acid having from 12 to 22 carbon atoms and the other two groups represent acetyl groups, or a mixture of several such completely acetylated monoglycerides.

4,272,549

THERAPEUTICAL METHOD FOR THE TREATMENT OF CHRONIC URAEMIC PATIENTS UNDERGOING PERIODICAL HAEMODIALYSIS AND LIQUID COMPOSITION FOR DIALYSIS FOR USE IN SUCH A METHOD

Claudio Cavazza, 35, Via Marocco, 00144 Rome, Italy

Filed May 14, 1979, Ser. No. 38,734
Claims priority, application Italy, May 15, 1978, 49355 A/78
Int. Cl.³ A61K *31/205*
U.S. Cl. 424—316 12 Claims

1. A method for alleviating asthenia and muscle weakness in a chronic uraemic patient under regular dialysis treatment, which comprises submitting said patient to dialysis with a polysaline dialytic solution which contains a quantity of carnitine, or a pharmaceutically acceptable salt thereof, sufficient to render the molar concentration of carnitine in said solution at least equal to the molar concentration of the plasma carnitine of the patient under dialytic treatment.

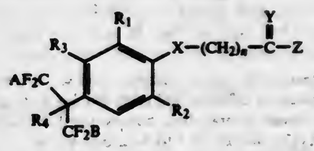
4,272,550

OMEGA-[4-(POLYFLUORO-2-HYDROXY-2-PROPYL)-2,3,6-SUBSTITUTED-PHENOXY AND PHENYLTHIO]ALKANOIC ACIDS AND COMPOUNDS RELATED THERETO

Bernard R. Neustadt, and Elijah H. Gold, both of West Orange, N.J., assignors to Schering Corporation, Kenilworth, N.J.

Division of Ser. No. 35,963, May 4, 1979, Pat. No. 4,199,597.
This application Oct. 31, 1979, Ser. No. 89,804
Int. Cl.³ A61K *31/135, 31/165*; C07C *93/06, 103/26*
U.S. Cl. 424—324 6 Claims

1. A compound of the formula



wherein A and B are independently hydrogen, chloro or fluoro;

R_1 is hydrogen, halo, lower alkyl or lower alkoxy;

R_2 is halo, lower alkyl or lower alkoxy;

R_3 is hydrogen or lower alkyl;

R_4 is hydroxy, lower alkoxy, amino, or mono- or di-lower alkylamino;

n is 1-4;

X is oxygen or $S(O)_m$ wherein m is 0-2;

Y is oxygen or (H,H); and

Z is amino, mono- or di-lower alkylamino or mono- or di-lower aralkylamino when Y is oxygen; or amino, mono- or di-lower alkylamino or lower aralkylamino when Y is (H,H); and the pharmaceutically acceptable salts thereof.

5. A pharmaceutical composition adapted for the treatment of hypertension which comprises an anti-hypertensive amount

of a compound according to claim 1 in admixture with a pharmaceutically acceptable carrier therefor.

6. A method for the treatment of hypertension which comprises administering to a hypertensive mammal an anti-hypertensive amount of a compound according to claim 1.

4,272,551

N-SULFENYLATED FORMANILIDES USEFUL AS FUNGICIDES AND BACTERICIDES

Eberhard Ammermann, Ludwigshafen; Sabine Thym, Heidelberg, and Ernst-Heinrich Pommer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

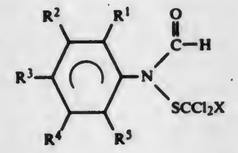
Filed Aug. 30, 1979, Ser. No. 71,550

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1978, 2838750

Int. Cl.³ A01N 37/18, 37/34, 37/00; C07C 97/16

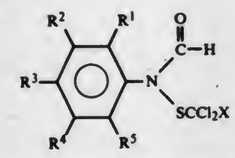
U.S. Cl. 424—324 3 Claims

1. An N-sulfenylated formanilide of the formula



where X denotes fluorine or chlorine, and R^1, R^2, R^3, R^4 and R^5 are identical or different and each denotes hydrogen, halogen, nitro, linear or branched, unsubstituted or halogen-substituted alkyl or alkoxy of 1 to 4 carbon atoms, or —CN or —COR^6, R^6 denoting linear or branched alkoxy of 1 to 6 carbon atoms or dialkylamino, the alkyls being linear or branched and of 1 to 4 carbon atoms, or R^6 denoting N-alkyl-N-arylamino, alkyl being of from 1 to 4 carbon atoms and aryl being unsubstituted or substituted by halogen or alkyl.

2. A method of combating fungi which comprises applying to the fungi or the objects to be protected against fungus attack with a fungicially effective amount of a formanilide of the formula



where X denotes fluorine or chlorine, and R^1, R^2, R^3, R^4 and R^5 are identical or different and each denotes hydrogen, halogen, nitro, linear or branched, unsubstituted or halogen-substituted alkyl or alkoxy of 1 to 4 carbon atoms, or —CN or —COR^6, R^6 denoting linear or branched alkoxy of 1 to 6 carbon atoms or dialkylamino, the alkyls being linear or branched and of 1 to 4 carbon atoms or R^6 denoting N-alkyl-N-arylamino, alkyl being of from 1 to 4 carbon atoms and aryl being unsubstituted or substituted by halogen or alkyl.

4,272,552

PROCESS FOR PRODUCING A LOW CARBOHYDRATE, LOW CALORIE BEER

Klaus D. Zastrow, St. Louis County, Mo., assignor to Anheuser-Busch, Incorporated, St. Louis, Mo.

Filed Feb. 7, 1977, Ser. No. 765,968

Int. Cl.³ C12C 9/00, 11/04

U.S. Cl. 426—13 7 Claims

1. A process of brewing a low carbohydrate low calorie beer comprising the steps of

(a) preparing a hopped, boiled wort, which after straining and cooling, has a gravity of about 10° to about 18° Plato,

(b) preparing a separate malt mash, said mash containing about 0.5 to about 1.5% by weight of solids based on the weight of raw materials of the wort,

(c) treating the separate malt mash about 45° to about 55° C. for about 30 to about 150 minutes to substantially inactivate all of the microorganisms present while still retaining the enzyme activity,

(d) combining the wort and the treated separate malt mash with yeast to ferment the wort to produce a fermented wort

(e) preparing a purified carbonated water by dissolving CO_2 from a beer fermentation in deaerated water, and

(f) combining said carbonated water with the fermented wort from step (d) to produce a low calorie, low carbohydrate beer of about 95 to about 100 calories per 12 oz. serving.

4,272,553

PROCESS FOR PREPARING COATED FRIED VEGETABLES

Bengt L. Bengtsson, and Jörgen Fouskov, both of Bjuv, Sweden, assignors to Produits Findus S.A., Vevey, Switzerland

Filed Jun. 7, 1979, Ser. No. 46,220

Claims priority, application Switzerland, Jun. 13, 1978, 6423/78

Int. Cl.³ A21D 6/00

U.S. Cl. 426—241 12 Claims

1. A process for the preparation of fried vegetables which comprises:

(a) coating raw or frozen pieces of the vegetables either

i. in one step with a starch-containing product in dry state comprising a mixture of potato starch and cereal flour or a mixture of cereal flour and bread crumbs or corn flakes crumbs or a mixture of cereal flour, potato starch and bread or corn flakes crumbs; or

ii. in two steps with a fluid batter and then with a starch-containing product as defined in (i) above;

(b) blanching the coated pieces with steam for 1 to 5 minutes; and then

(c) deep fat frying the coated and blanched pieces for 0.5 to 1.5 minutes at 150° C. to 200° C.

4,272,554

PROCESS FOR PREPARING BLISTER-INHIBITED POTATO CHIPS

Otto E. Schroeder, Arlington; Alan Wohlman, Richardson, and Michael G. Topor, Farmer's Branch, all of Tex., assignors to Frito-Lay, Inc., Dallas, Tex.

Filed May 7, 1979, Ser. No. 36,367

Int. Cl.³ A23L 1/216

U.S. Cl. 426—321 11 Claims

1. A process for making potato chips which comprises contacting potato slices, having a thickness of up to about 0.1 inch, with an aqueous solution having calcium dissolved therein to add to said slices a small amount of calcium sufficient to inhibit the formation of blisters on the slices upon frying, said aqueous solution having calcium dissolved therein in a concentration of up to about 0.05 molar, said contacting being at a temperature of about 10° to 40° C., and frying the resulting calcium-containing slices to provide said chips.

4,272,555

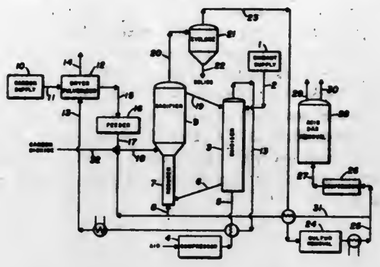
CONVERSION OF CARBON-CONTAINING MATERIALS TO CARBON MONOXIDE

George D. Davis, Creve Coeur, Mo.; James C. Hill, Seabrook, Tex.; Talmage D. McMinn, Des Peres, and Charles W. Rooks, St. Louis, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 21, 1979, Ser. No. 77,694

Int. Cl.³ C01B 31/18

U.S. Cl. 423—415 A 13 Claims



1. A continuous process for the gasification of carbon-containing materials in a fluidization system comprising a reduction zone and a gasification zone which comprises:

(a) introducing particulate solid oxidant at an elevated temperature into said reduction zone,

(b) introducing carbon monoxide substantially devoid of free oxygen into said reduction zone at such a rate to fluidize said oxidant and cause it to move upwardly through said system,

(c) maintaining said reduction zone under conditions such that said oxidant is reduced and said carbon monoxide is oxidized to gaseous carbon dioxide,

(d) introducing carbon-containing material into said gasification zone whereby said carbon-containing material is entrained in and mixed with said upward moving oxidant and gaseous carbon dioxide,

(e) maintaining said gasification zone under conditions such that said carbon-containing material and carbon dioxide are endothermically reacted to carbon monoxide, and

(f) withdrawing a gaseous effluent comprising carbon monoxide from said gasification zone.

4,272,556

METHOD FOR FORMING POTATO DOUGH FROM DRY POTATO AGGLOMERATES AND WATER

Mounir A. Shatila, and William H. Von Der Lieth, both of Blackfoot, Id., assignors to AMPCO Foods, Inc., San Francisco, Calif.

Continuation of Ser. No. 507,691, Sep. 19, 1974, abandoned. This application Aug. 30, 1976, Ser. No. 718,849

Int. Cl.³ D21C 3/04, 11/18; D21D 2/00

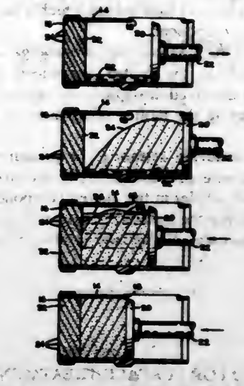
U.S. Cl. 426—453 8 Claims

1. In an improved process for forming potato dough by combining a quantity of water sufficient to form dough with a quantity of dry potato agglomerates containing fines in a chamber and consolidating the water and agglomerates into a volume within said chamber by reciprocating a piston therewithin in a consolidating stroke thereby forming a homogeneous dough without agitation, the improvement comprising the steps of:

(a) introducing a first minority portion of said water into the chamber, the minority portion being in the range of about 15%–20% by volume of the quantity of water;

(b) adding all the agglomerates containing fines into the first portion of water in the chamber to form a mix; and then

(c) supplying the balance of said quantity of water into the mix and moving said piston in a consolidating stroke thereby wetting said fines more efficiently so that a more uniform homogeneous dough is produced, the supplying



and moving steps being performed before the agglomerates and water set into a firm dough.

4,272,557

STABLE GELATIN DESSERT AND PROCESS FOR MAKING SAME

Bernard H. Nappen, Cranford, N.J., assignor to National Starch and Chemical Corporation, Bridgewater, N.J.

Filed Dec. 10, 1979, Ser. No. 101,781

Int. Cl.³ A23L 1/06

U.S. Cl. 426—576 6 Claims

1. In a gelatin dessert of the type prepared by dissolving a dessert powder consisting essentially of powdered gelatin, sugar, and optionally flavor and color in warm or boiling water with stirring, adding cold water and allowing the resulting mixture to set at refrigeration temperature until a gel is formed, the improvement which consists essentially of the presence in said dessert powder of about 0.5 to 5% by weight of guar gum, based on the weight of the powder, thereby providing said gelatin dessert with low-temperature stability.

4,272,558

METHOD AND APPARATUS FOR PRODUCING A CELLULAR PRODUCT

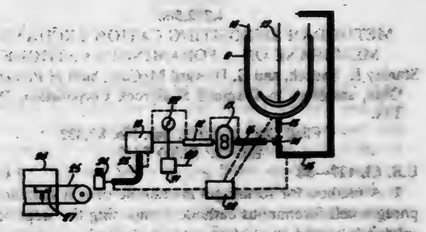
David W. Bonette, Macclesfield, England, assignor to E. T. Oakes Limited, Macclesfield, England

Continuation of Ser. No. 927,922, Jul. 25, 1978, abandoned. This application Jan. 24, 1980, Ser. No. 114,748

Claims priority, application United Kingdom, Jul. 27, 1976, 31655/77

Int. Cl.³ A23G 3/00

U.S. Cl. 426—660 8 Claims



1. A method of making a cellular food product comprising the steps of:

(a) providing an edible component;

(b) heating the edible component to render it in the molten condition;
(c) introducing into the molten component under pressure either a gas or a liquified gas which is largely soluble in the molten component;
(d) mixing the molten component and gas to disperse the gas uniformly in the molten component so that it is thoroughly dissolved throughout the molten component while maintaining the molten component and gas under pressure;
(e) then suddenly releasing the pressure by expansion to atmospheric pressure whereby the dissolved gas forms gaseous bubbles in the molten component; and
(f) solidifying the molten component into the finally deposited resulting cellular food product by cooling.

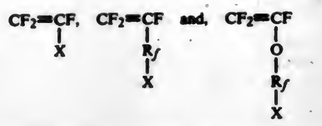
4,272,559
METHOD FOR SURFACE TREATMENT OF SHAPED ARTICLES OF POLYVINYL CHLORIDE RESINS
Michihiko Asai, Fujisawa; Keishiro Tsuda, and Akira Okada, both of Yokohama, all of Japan, assignors to Agency of Industrial Science and Technology and Ministry of International Trade & Industry, both of Tokyo, Japan
Filed Oct. 27, 1978, Ser. No. 955,211
Claims priority, application Japan, Nov. 1, 1977, 52/131094
Int. Cl.³ B05D 3/06
U.S. Cl. 427—54.1 2 Claims



1. A process for preventing low molecular weight plasticizers from migrating to the surface of a shaped poly(vinyl chloride) article which contains such plasticizers in amounts of 15 to 50% by weight comprising irradiating the poly(vinyl chloride) at the surface of said article with ultra-violet radiation having a wavelength in the range from 105–200 nm in an environment selected from the group consisting of vacuum, nitrogen, oxygen or air whereby a highly cross-linked layer of poly(vinyl chloride) is formed at the surface of said article which prevents the migration of said low molecular weight plasticizers.

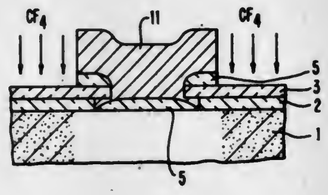
4,272,560
METHOD OF DEPOSITING CATION EXCHANGE MEMBRANE ON A FORAMINOUS CATHODE
Stanley K. Baczek, and G. Howard McCain, both of Painesville, Ohio, assignors to Diamond Shamrock Corporation, Dallas, Tex.
Filed Oct. 23, 1979, Ser. No. 87,332
Int. Cl.³ B05D 5/12
U.S. Cl. 427—58 7 Claims

1. A method for forming a membrane over a standard diaphragm cell foraminous cathode comprising the steps of: dissolving in a solvent a polymeric material polymerized from at least two monomers, one said monomer consisting essentially of a fluorinated vinyl compound and said other monomer consisting essentially of at least one monomer of the structure



wherein R_f is a bifunctional perfluorinated radical containing from two to eight carbon atoms, which carbon atoms may be interrupted by one or more oxygen atoms and X is selected from the group consisting of sulfonyl fluoride, carbonyl fluoride, sulfonate ester, and carboxylate ester, said solvent for said polymeric material being at least one selected from the group consisting of low molecular weight polymers of perhalogenated alkylethers, low molecular weight polymers of perhalogenated alkyls and perfluorokerosenes, each having boiling points between about 200° C. and 350° C.; applying said dissolved polymeric material to said cathode surface; and thereafter stripping said solvent therefrom to resolidify said polymeric material in the shaped form.

4,272,561
HYBRID PROCESS FOR SBD METALLURGIES
Laura B. Rothman, Sherman, Conn.; Paul A. Totta, Poughkeepsie, and James F. White, Newburgh, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 29, 1979, Ser. No. 43,416
Int. Cl.³ H01L 21/283, 29/48
U.S. Cl. 427—84 25 Claims



1. A lift-off method for forming a metallic film on a substrate comprising:
(a) depositing a blanket coating of a metal film on said substrate;
(b) depositing a blanket film of a solvent soluble organic polymer on said metal film,
(c) depositing a blanket film of a masking material on said polymeric film,
(d) forming a predetermined pattern of openings through said masking and polymeric films to expose corresponding portions of said metal film,
(e) depositing an etch resistant blanket layer of a diverse conductive metal, which is inert to said solvent, over said masking and exposed portions of the first said metal film,
(f) subjecting the components structure to said solvent to solvate said polymeric film and concurrently lifting-off all superimposed films thereon and expose underlying portions of the first said metal film, and
(g) removing the said underlying exposed portions of said metal film.

4,272,562
METHOD OF FABRICATING AMORPHOUS MEMORY DEVICES OF REDUCED FIRST FIRE THRESHOLD VOLTAGE
Grady M. Wood, Melbourne, Fla., assignor to Harris Corporation, Melbourne, Fla.
Filed Jan. 19, 1979, Ser. No. 50,033
Int. Cl.³ H01L 45/00
U.S. Cl. 427—87 8 Claims

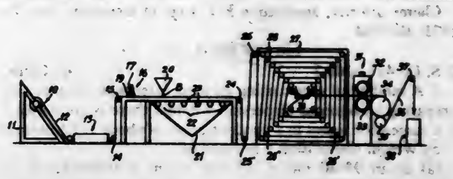


1. A method of forming an amorphous memory device with reduced first fire threshold voltage comprising:
depositing a first layer of material in an amorphous state capable of switching from a high resistance state to a low resistance state when a voltage above its threshold voltage level is applied;
heating the first layer sufficiently to crystallize said first layer; and
depositing a second layer of the same material as said first layer in an amorphous state;
said first and second layers constituting the storage media of homogeneous material.

4,272,563
MANUFACTURE OF MAGNETIC RECORDING MEDIA HAVING A WEAR-RESISTANT SURFACE
Werner Stock, Mutterstadt; Werner Loeser, Ludwigshafen; Manfred Steuerwald, Frankenthal; Gerd Wunsch, Speyer, and Paul Deigner, Weisenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany
Filed Feb. 3, 1977, Ser. No. 765,159
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1976, 2608022
Int. Cl.³ B05D 5/12
U.S. Cl. 427—130 4 Claims

1. In a process for the manufacture of a magnetic recording medium, provided with a uniform wear-resistant protective surface layer of thickness of 0.01 μm to 0.2 μm, the medium comprising a base which is stable up to 300° C. and a thin layer of cobalt-containing ferromagnetic metal of thickness from 0.06 μm to 0.6 μm, firmly bonded thereto, said ferromagnetic metal layer consisting essentially of from 90 to 98.5% by weight of cobalt and from 1.5 to 10% by weight of phosphorus, wherein the improvement comprises: treating the surface of the metallic recording layer at a pH of from 9 to 13.2 for from 1 to 60 minutes at temperatures of from 5° to 70° C. with a basic medium consisting essentially of (a) a solution of a compound in a solvent of water, lower alcohols or mixtures thereof, said compound being selected from at least one member of the group consisting of hydroxides, carbonates and tertiary phosphates of alkali metals and ammonia, and (b) gaseous oxygen present in said solution, washing and drying the so-treated recording medium, and heating said treated recording medium in the presence of oxygen at temperatures of from 170° to 300° C.

4,272,564
FLEXIBLE REFLEX-REFLECTIVE ARTICLE HAVING UNDULANT SURFACE AND METHOD OF MAKING THE SAME
Josef Grewe, and Philip Portner, both of Hagerstown, Md., assignors to C. M. Offray & Son, Inc., New York, N.Y.
Filed Jan. 27, 1979, Ser. No. 52,454
Int. Cl.³ G02B 5/128; B05D 5/06, 3/12
U.S. Cl. 427—163 14 Claims



1. The method of forming a reflex-reflective flexible article having an undulant surface portion defined by reflex-reflective spheres arrayed in an undulant pattern, which comprises the steps of providing a flexible web, having an undulant pattern on at least one surface, coating at least portions of said at least one surface with a tacky liquid layer of high shrink adhesive, said layer having an inner surface conforming to said at least one surface and having a substantially flat outer surface, said layer being of irregular thickness in accordance with the undulant pattern of said at least one surface of said web, covering said outer surface of said layer with reflex-reflective spheres, causing said spheres to be embedded into said layer to essentially equal depths, and thereafter causing said liquid adhesive layer to cure and shrink, thereby to deform said outer surface of said adhesive from an essentially flat to an undulant configuration.

4,272,565
FINISH APPLICATION FOR TANDEM WINDING
James P. Glass, Jr., Pensacola, Fla., assignor to Monsanto Company, St. Louis, Mo.
Filed Nov. 23, 1979, Ser. No. 96,983
Int. Cl.³ B65H 54/04
U.S. Cl. 427—177 4 Claims



1. In a process for applying finish to first and second yarns being wound on respective first and second bobbins, said first and second bobbins forming respective first and second nips with and being driven by frictional engagement with a shared bobbin drive roll, said yarns having finish applied thereto by contact with respective first and second different regions on the periphery of a rotating finish roll prior to entering said nips, said first yarn passing through said first nip and being wound on said first bobbin, said second yarn passing through said first and second nips and being wound on said second bobbin, the improvement comprising providing a thicker finish film on said second region of said finish roll than on said first region of said finish roll.

4,272,566
SUSPENSION AGENT FOR SYNTHETIC RESIN POWDERS

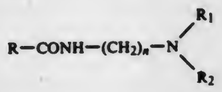
Anton Capelle, Delden, Netherlands, and Heinz Scholten, Haltern, Fed. Rep. of Germany, assignors to Chemische Werke Hüls AG, Marl, Fed. Rep. of Germany

Division of Ser. No. 6,874, Jan. 26, 1978, Pat. No. 4,237,040, which is a continuation of Ser. No. 658,579, Feb. 17, 1976, abandoned. This application Apr. 29, 1980, Ser. No. 144,888
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1975, 2507504
Int. Cl.³ B05D 5/10
U.S. Cl. 427—208.2 12 Claims

1. A method of spot coating garment interlinings comprising preparing an aqueous dispersion wherein there is contained:

I. a suspension agent in a concentration of about 1–7.5 percent by weight comprising a mixture of

(a) about 95–40 molar percent of an aminoamide of the general formula



wherein

R represents a saturated or unsaturated hydrocarbon group having 13–19 carbon atoms,

n represents an integer of between 2 and 6, and

R_1 and R_2 represent alkyl groups having 1–3 carbon atoms; and

(b) about 5–60 molar percent of an acid salt of said aminoamide; and

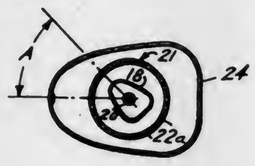
II. a concentration of about 25–50 percent by weight synthetic resin powders having melting points not more than about 140° C.; and

spot coating said garment interlinings with said aqueous dispersion.

4,272,567
CONTROLLED DISPERSION OF COATING INSIDE NON-CIRCULAR HOLLOW ARTICLES

Harry N. Blakeslee, Barrington, Ill., assignor to American Can Company, Greenwich, Conn.

Division of Ser. No. 961,513, Nov. 17, 1978, Pat. No. 4,233,932. This application Jan. 18, 1980, Ser. No. 113,366
Int. Cl.³ B05D 1/02
U.S. Cl. 427—236 3 Claims



1. A method of coating the inside surface of a hollow tube of a non-circular cross-section configuration comprising the steps of:

(1) inserting a coating distributing apparatus into the interior of said tube, said distributing apparatus comprising:

(a) a first means mounted for rotation about an axis at relatively high angular velocity for disbursing coating material in a radial direction from said first means,

(b) a coating delivery means having a pressurized coating material supply and a transportation system connected and arranged to deliver a quantity of coating material to said first means, and

(c) a shaped passage ending in a generally noncircular orifice nozzle means at the distal portion of said transportation system and generally in alignment with said axis for defining the form of said deposit for its distribution by said first means, said nozzle means having a configuration bearing a relationship to the distribution pattern desired;

(2) angularly displacing the distributing apparatus with respect to the configuration of said tube so that the coating is applied and distributed in a predetermined manner;

(3) rotating said first means and delivering pressurized coating material to said first means in order to distribute coating material in a radial pattern towards said inside surface; and,

(4) adjusting the flow of the coating material through said distributing apparatus by controlling the period and amount of flow.

4,272,568
PROTECTIVE GLOVE AND ITS METHOD OF MANUFACTURE

Francis T. Berend, Boulogne-sur-Seine, France, assignor to Societe Anonyme Parinter, Paris, France

Continuation of Ser. No. 844,465, Oct. 21, 1977, abandoned. This application Sep. 24, 1979, Ser. No. 78,661
Int. Cl.³ B05D 1/18, 3/10
U.S. Cl. 427—261 2 Claims



1. A method of manufacture of a protective glove having high qualities of mechanical and physical strength and chemical resistance and having a flexible inner lining, covered externally by a protective coating of plasticized polyvinyl chloride, comprising, providing a flexible inner lining of a glove made in the shape of a glove, coating said lining by soaking in a first chemical bath of a coating material imparting to said lining excellent qualities of mechanical and physical strength followed by draining, incompletely gelling the coating, after soaking in said first bath of a material able to give the glove excellent qualities of mechanical and physical strength and after the incomplete gelling followed by draining, and before gelling is complete effecting a second soaking in a seoond bath of a coating material able to impart to the glove excellent qualities of resistance to chemicals, said second soaking being only partial and covering only the fingers and palm of the glove, and the first bath having the following composition: for 100 parts by weight polyvinyl chloride, approximately 110 to 130 plasticizer, whereof approximately 40 to 60 are phosphate plasticizer, and the second bath having a composition, for 100 parts by weight polyvinyl chloride, of approximately 140 to 160 plasticizer of which approximately 70 to 80 are polymeric plasticizer.

4,272,569
WATER AND SOLVENT RESISTANT COATED PAPER AND METHOD FOR MAKING THE SAME

Michael J. Shaw, Kalamazoo, and Robert J. Thiessen, Richland, both of Mich., assignors to Allied Paper Incorporated, Kalamazoo, Mich.

Division of Ser. No. 827,127, Aug. 24, 1977, abandoned. This application Jun. 1, 1979, Ser. No. 44,664
Int. Cl.³ B05D 3/10
U.S. Cl. 427—336 1 Claim

1. A method for the preparation of substrates having improved water resistance which comprises

(a) applying to such substrate a formulation containing a binding amount of a natural or synthetic binder and a filler at least a portion of which is an amount of plastic particles, said formulation further containing encapsulated in capsules a solvent to which the plastic particles are sensitive;

(b) drying the formed coating, said plastic particles being in an essentially non-coalesced state at time of application and non-film forming under the conditions of application and drying of the coating; and

(c) rupturing said capsules following application of said formulation, thereby wetting the formed coating from step (a) with said solvent;

the amount of plastic particles and sensitivity being sufficient to form a film thereof on exposure to said solvent, thereby materially increasing water and/or solvent resistance.

4,272,570
PROVISION OF SURFACE LAYERS OF COPPER OR COPPER ALLOYED WITH ZINC ON DIE CASTINGS OF ZINC OR ZINC ALLOYS

Raichur S. Narayan, Schaumburg, Ill., assignor to Sunbeam Corporation, Chicago, Ill.

Filed Apr. 11, 1980, Ser. No. 139,388
Int. Cl.³ C23C 3/02
U.S. Cl. 427—436 7 Claims

1. A process for providing surface layers of copper or copper alloyed with zinc on die castings of zinc or zinc alloys comprising a step of immersing the castings in an agitated bath containing an aqueous vehicle, which has been adjusted to a pH of approximately from 8 to 10, and to which cupric oxide or cuprous oxide has been added as a powder in an amount of approximately from 200 to 250 grams per liter of the agitated bath.

4,272,571
FLOWER PRESERVATION

Cesar Romero-Sierra, Bath, and John C. Webb, Kingston, both of Canada, assignors to Queen's University at Kingston, Kingston, Canada

Continuation-in-part of Ser. No. 914,172, Jun. 9, 1978, abandoned. This application Jun. 4, 1979, Ser. No. 45,126
Int. Cl.³ A01L 3/00
U.S. Cl. 428—24 16 Claims

7. A single step process for preserving fresh, naturally coloured blooms comprising immersing untreated said fresh blooms in an essentially water-free composition consisting essentially of at least one dehydrating alcohol, a urea-containing compound, a carboxylic acid, and an alkaline citrate, an effective amount of at least one of aluminum or magnesium sulphate, a transitional metal sulphate, and an alkaline formaldehyde sulfoxylate and from zero to an effective amount of at least one of a silicone fluid and a silicone resin; said composition also containing a sufficient quantity of at least one compound of the group consisting of an alkaline phosphate, a lower carboxylic acid and phenol so as to ensure said composition has a pH in the range 5 to 7.

4,272,572
VIBRATION ISOLATION STRUCTURE

Samuel G. Netherly, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Oct. 11, 1979, Ser. No. 83,642
Int. Cl.³ F16F 7/00; B04B 1/82; D02G 3/00
U.S. Cl. 428—35 12 Claims

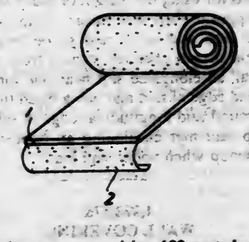


1. An article especially suited for use as a vibration isolating or shock absorbing structure comprising a multitude of short, resiliently compressible, elastic, tubular, rubbery bodies held together in closely-packed relationship by restraining means, wherein said rubbery bodies comprise a cured thermosetting millable extrudable composition having in the cured state an elasticity in excess of 200% and an elongation at break in excess of 300% and wherein said tubular bodies are characterized by having a length to diameter ratio from about 2:1 to about 8:1 and a wall thickness of at least about 0.025 inch.

4,272,573
SELF-ADHESIVE TAPE

Richard Ewald, Weinheim, and Klaus Freiberg, Mannheim, both of Fed. Rep. of Germany, assignors to Brans & Co. GmbH, Frankfurt Am main, Fed. Rep. or Germany

Filed May 21, 1979, Ser. No. 41,180
Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821859
Int. Cl.³ C09J 7/00; C08K 5/09, 5/06, 5/02
U.S. Cl. 428—40 12 Claims



1. A self-adhesive tape comprising 100 parts by weight of a vinyl chloride/vinylisobutylether copolymer from 100 to 400 parts by weight of a mixture of nitrile rubber and a polyvinylchloride homopolymer, from 60 to 230 parts by weight of a plasticiser consisting of one or more esters of phthalic acid, and from 4 to 70 parts by weight of a resinous plasticiser which is an epoxy resin and which imparts adhesive properties to the composition.

4,272,574
OPTICALLY READABLE INFORMATION DISC

Gerardus J. M. Lippits; Arnoldus J. M. van den Broek, and Rinse Dijkstra, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 20, 1978, Ser. No. 926,952
Claims priority, application Netherlands, Apr. 17, 1978, 7804036
Int. Cl.³ G11B 7/24
U.S. Cl. 428—64 6 Claims

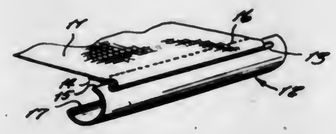
1. An optically readable information disk which having a laminated structure and comprising a relatively thick transparent substrate having laminated thereto a layer of a cured resin comprising an information track having a crenelated profile,

said cured resin being the cross-linked substantially aprotic product of a radiation curable lacquer having a viscosity of less



than 100 cP comprising a mixture of a cross-linkable protic polythiol compound and a radiation cross-linkable polyene compound.

4,272,575
ANCHOR MAT
Robert S. Egigian, c/o Mrs. Evelyn Kuntz, 2700 Zinfandel Dr., Rancho Cordova, Calif. 95670
Filed Dec. 28, 1979, Ser. No. 108,213
Int. Cl.³ B32B *3/02, 3/04*
U.S. Cl. 428—83 1 Claim



1. An anchor mat, comprising, in combination, a rectangular mat and an anchor secured at each opposite end thereof, said mat being made of any woven material, and each said anchor including means for using the weight of beach sand for anchoring said mat opposite ends; said means comprising a scoop for being inserted into said sand; said scoop being a generally semi-cylindrical shaped channel, formed from a rigid sheet of plastic material, an elongated slot near one longitudinal edge thereof, one end edge of said mat being fitted therein and sewn into a loop around said longitudinal edge of said scoop, and a pillow on top said mat cushioning an opposite longitudinal edge of said scoop when under said mat.

4,272,576
WALL COVERING
Stanley N. Britson, White Fox Rd., Webster City, Iowa 50595
Filed Oct. 1, 1979, Ser. No. 80,347
Int. Cl.³ E04D *1/34;* B32B *3/06*
U.S. Cl. 428—100 2 Claims



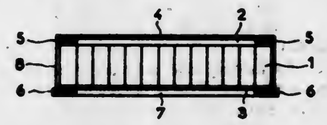
1. A wall covering for attachment to a wall, said covering comprising:
an elongated horizontal siding member having an upper edge and a lower edge,
first securing means for attaching said upper edge of said siding member to said wall,
a horizontal bottom strip having in cross section a single thickness comprising an upper vertical surface, a first angled surface extending downwardly from said vertical surface and outwardly away from the vertical plane of said vertical surface, a second angled surface extending downwardly and outwardly from said vertical plane at a steeper angle than said first angled surface, and a male locking flange extending inwardly toward said vertical plane from the lower edge of said second angled surface;
second securing means for attaching said upper vertical surface of said strip to said wall;
said elongated siding member having a female locking flange at the lower edge thereof, said female locking flange extending inwardly toward said vertical plane and retentively surrounding and embracing said male locking flange of said bottom strip so as to be held against movement by said bottom strip;
said siding member extending downwardly at an angle which is substantially the same as said steeper angle of said second surface and being in facing engagement with the entire surface of said second angled surface;
said male and female locking flanges being spaced outwardly from said vertical plane sufficiently far to permit manual access between said vertical plane and said male and female locking flanges together;
said male locking flange having in cross section a horizontal portion extending from said lower edge of said second angled surface to an inner edge spaced from said vertical plane, said male locking flange further including a lip portion extending upwardly from said inner edge of said horizontal portion;
said female locking flange having in cross section a horizontal portion and a lip portion surrounding and embracing said horizontal and lip portions of said male locking member;
said lip portion of said female locking flange having a bead portion extending toward said lip portion of said male locking flange for retentively locking said male and female locking flanges together in nested relationship;
said lip portion of said male locking flange having an outward projection extending toward said lip portion of said female locking flange at a point below said bead portion whereby said outward projection and said bead portion engage one another to retentively hold said male and female locking flanges in nested relationship;
said second securing means comprising horizontally spaced apart vertically elongated holes permitting horizontal adjustment of said bottom strip around said wall.

4,272,577
PLASTIC NON-WAX SKI BASE AND METHODS FOR ITS MANUFACTURE
Stig Lyng, Oslo, Norway, assignor to Andelslaget for Norsk Skiforskning, and Sentralinstitutt for Industriell Forskning, Oslo, both of, Norway
Filed Jun. 12, 1978, Ser. No. 915,306
Claims priority, application Norway, Jun. 10, 1977, 772044; Jan. 2, 1978, 780006; Jan. 5, 1978, 780044
Int. Cl.³ B32B *5/16*
U.S. Cl. 428—112 13 Claims



1. A no wax ski base comprising a matrix of plastic material having embedded therein elongated particles of a material harder than said plastic material, said matrix and particles defining a composite material having areas of varying hardness, said particles being angularly oriented within said matrix, said particles having longitudinal dimensions of a minimum size sufficient to ensure that said particles in interaction with said matrix form a three-dimensional gliding surface of the ski base, said gliding surface having a direction-dependent friction coefficient when said gliding surface is subjected to wear including a pretreated involving grinding said gliding surface in a direction from the front end thereof to the back and thereof, said longitudinal dimensions of said particles being of a maximum size less than the thickness of the ski base, and said particles forming mutually offset and spaced harder areas throughout said thickness, such that said areas become gradually exposed during wear of the ski base, thereby providing an effective configuration and friction coefficient of said gliding surface during the entire service life of the ski base such that said gliding surface provides good gliding properties in the ski forward direction with good grip properties in the backward direction of the ski.

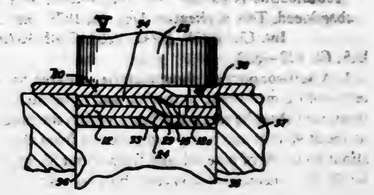
4,272,578
SKI APPARATUS
Robert J. F. Schegerin, 44 Ave. Gabriel Teri, 91430 Igny, France
Filed May 31, 1979, Ser. No. 44,174
Int. Cl.³ B32B *3/12*
U.S. Cl. 428—113 20 Claims



1. Composite ski structure having longitudinal and transverse dimensions comprising:
a core having upper and lower surfaces extending over at least a major portion of the length of the ski structure and formed of a material having a maximum allowable shear stress in the longitudinal direction greater than about 25 bars and a maximum allowable compressive stress in a direction normal to said longitudinal and transverse dimensions greater than about 21 bars;
a working upper layer affixed to the upper surface of said core comprising a material having a modulus of elasticity in the longitudinal direction of less than about 4,700 hbars, and said upper layer having a cross-sectional area such that the product of the modulus of elasticity and the cross-sectional area of said upper layer is in the range of between about 140,000 hbars mm² and about 400,000 hbars mm²; and
a working lower layer affixed to the lower surface of said core comprising a material different from the material which comprises said working upper layer and having a modulus of elasticity in the longitudinal direction of greater than about 4,700 hbars, said lower layer having a cross-sectional area such that the product of the modulus of elasticity and the cross-sectional area of said lower layer is in the range of between about 130,000 hbars mm² and about 530,000 hbars mm².

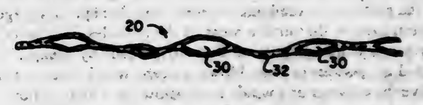
4,272,579
LAMINATED STACK MANUFACTURE
Yoshiaki Mitsui, Kitakyushu, Japan, assignor to Mitsui Mfg. Co., Ltd., Kitakyushu, Japan
Division of Ser. No. 819,679, Jul. 27, 1977, Pat. No. 4,110,895.
This application Jan. 22, 1978, Ser. No. 917,962
The portion of the term of this patent subsequent to Jul. 3, 1996, has been disclaimed.
Int. Cl.³ B32B *3/24*
U.S. Cl. 428—133 10 Claims

1. A laminated stack manufacture comprising:
a first sheet having a first keyhole-shaped aperture;
a second sheet overlying said first sheet and having a second keyhole-shaped aperture substantially corresponding to and aligned with said first aperture, projection extending downwardly from said second sheet and received in said first aperture, said projection defining an arcuate distal end defining with an arcuate end of the subsequent aperture a circular opening in each but the top sheet; and
a plurality of additional sheets similar to said second sheet and stacked thereon with the projection of each extending into the aperture of the subjacent sheet and the top surface of the top sheet being substantially planar, the bottom



surface of said first sheet being substantially planar and having said first aperture open downwardly therethrough, the said sheets cooperatively defining an interlocked stack having apertured substantially planar top and bottom surfaces, said planar bottom surface of the stack permitting positive facial support of the stack on a flat underlying support during stacking manufacture thereof.

4,272,580
DECORATIVE PARCHMENT PAPER
Rocio S. de Zepeda-Bermudez, Hoskins 4-D, Escondido Village, Stanford, Calif. 94305
Continuation of Ser. No. 898,391, Apr. 19, 1978, abandoned.
This application Jan. 31, 1980, Ser. No. 117,204
Int. Cl.³ B32B *3/26, 29/06*
U.S. Cl. 428—153 2 Claims



1. A decorative paper comprising a single ply sheet of parchment paper characterized in that it embodies discrete interspersed, randomly-scattered puffed and unpuffed areas, said puffed areas varying in area in the plane of the sheet and in thickness perpendicular thereto and defining voids between the surfaces of the sheet in said areas and said unpuffed areas varying in area in the plane of the sheet and being of substantially uniform thickness in the plane of the sheet.

4,272,581
HEAT RESISTANT DECORATIVE LAMINATE
James Cooley, 585 Azalea, and Ossie Fogle, Rte. 3, Box 377F, both of Orangeburg, S.C. 29115
Continuation of Ser. No. 949,193, Oct. 6, 1978, abandoned, which is a continuation of Ser. No. 812,232, Jul. 1, 1977, abandoned. This application Aug. 27, 1979, Ser. No. 70,178
Int. Cl.³ B32B *5/16, 27/08*
U.S. Cl. 428—328 4 Claims

1. A low pressure decorative and heat resistant laminate material consisting essentially of a wood containing substrate base member directly secured to a polyvinylchloride film by an organic adhesive selected from the group consisting of phenol-formaldehyde, urea-formaldehyde, melamine-formaldehyde, furfural resins, polyvinyl resins, urethane resins, mixtures of phenol-formaldehyde and butadiene acrylonitrile synthetic rubber, synthetic rubber derivatives mixed with phenol-formaldehyde resins and polyvinyl butyral mixed with phenol-formaldehyde, having aluminum powder with an average particle size of about 1 to 50 microns dispersed therein such that said adhesive contains about 10 to 30 weight percent of said aluminum powder.

4,272,582

WATERPROOFING SHEET MATERIAL

Charles A. Kumins, Gates Mills, and Milan L. Warford, Shaker Heights, both of Ohio, assignors to Tremco, Inc., Cleveland, Ohio

Division of Ser. No. 887,292, Mar. 16, 1978, which is a continuation-in-part of Ser. No. 798,566, May 19, 1977, abandoned. This application Oct. 26, 1979, Ser. No. 88,400

Int. Cl.³ B32B *27/42, 9/04;* C08L *93/00*

U.S. Cl. 428—332 3 Claims

1. A self-supporting sheet material suitable for use as a waterproofing membrane in roofing and other structural applications, said sheet having a thickness within the range of about 20 to about 90 mils and being composed of from about 15 wt.% to about 80 wt.% of pine oil, and from about 85 wt.% to about 20 wt.% of a plasticized polyvinyl butyral resin.

4,272,583

FLAMEPROOFED EXPANDABLE STYRENE POLYMERS

Klaus Hahn, Lampertheim; Herbert Naarmann, Wattenheim; Klaus Penzien, Frankenthal, and Heinz Weber, Gruenstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Del.X

Continuation-in-part of Ser. No. 10,727, Feb. 8, 1979. This application Jul. 21, 1980, Ser. No. 170,521

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1978, 2809979

Int. Cl.³ C08J *9/22*

U.S. Cl. 428—407 6 Claims

1. A particulate expandable styrene polymer which comprises: styrene polymer particles containing from 0.01 to 2.0 parts by weight based on 100 parts by weight of the particles of an organic bromine compound as a flameproofing agent on the surface of the particles, said flameproofing agent being applied to the particles by tumbling whereby said flameproofing agent is restricted to the surface areas of the particles, said particles further containing (a) from 3 to 10 percent by weight of a liquid or gaseous organic blowing agent which does not dissolve the polymer and which boils below the softening point of the polymer and (b) from 0.01 to 1.0% by weight of an organic synergistic flame-proofing agent containing a labile C—C, O—O or N=N bond and having a decomposition half-life, measured at 100° C. in benzene, of more than 5 hours, said blowing agent and said synergistic flameproofing agent being homogeneously dispersed throughout the particles.

4,272,584

PLATABLE HIGH HEAT ABS RESINS AND PLATED ARTICLES MADE THEREFROM

Gerald Goldberg, Parkersburg; Charles L. Myers, Vienna, both of W. Va.; Charles F. Parsons, Little Hocking, Ohio, and William Steffancin, Parkersburg, W. Va., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Oct. 16, 1979, Ser. No. 85,362

Int. Cl.³ B32B *27/28, 27/06, 15/08*

U.S. Cl. 428—412 10 Claims

6. A metal plated article of manufacture capable of passing thermal cycles of from 180° F. to −30° F. comprising from 65 to 100 parts by weight of (a) a high heat ABS blend having a heat deflection temperature at 264 psi of at least 234° F. of a compression molded ½"×½" annealed specimen under ASTM test D-648 and comprising (1) an alphamethyl styrene copolymer containing at least 50% alphamethyl styrene by weight and at least 20% acrylonitrile by weight and (2) a graft polymer prepared by reacting a monomer mixture of from 20–40% acrylonitrile by weight and correspondingly from 80–60% of a monovinyl aromatic hydrocarbon by weight in the presence of a diene rubber, the alphamethyl styrene content of said blend of (1) and (2) being at least 35% by weight, (b) from 35 to 0 parts by weight of a polycarbonate and (c) from about 0.05 to about 0.5 parts of a siloxane polymer having a viscosity of from 200 to 100,000 centistokes and having the following structure:



where R and R' are hydrogen, methyl or other alkyl.

4,272,585

PROCESS FOR TREATING POLYVINYLIDENE FLUORIDE AND RESULTING PRODUCTS

Albert Strassel, Oullins, France, assignor to Produits Chimiques Ugine Kuhlmann, Paris, France

Continuation of Ser. No. 905,933, May 15, 1978, abandoned, which is a continuation of Ser. No. 782,313, Mar. 29, 1977, abandoned. This application Dec. 5, 1979, Ser. No. 100,376

Claims priority, application France, Apr. 6, 1976, 76 09917; Jan. 7, 1977, 77 00327

Int. Cl.³ B32B *27/38, 27/40*

U.S. Cl. 428—413 9 Claims

1. A process for treating solid polyvinylidene fluoride surfaces to enhance adhesion of other polymers thereto comprising applying to at least one surface thereof a solution consisting essentially of a coating polymer selected from a polyurethane or an alkyl polymethacrylate and at least one aprotic polar solvent in which said polymer is soluble, and exposing said surface to a temperature of from about 100° to 300° C. for a time sufficient to evaporate said solvent.

8. The product of the process of claim 1.

4,272,586

LAMINATED GLASS PRODUCT

Toshihiro Ando; Hiroshi Ohgi, and Ikuji Kishi, all of Machida, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 31, 1979, Ser. No. 8,105

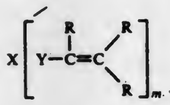
Claims priority, application Japan, Feb. 23, 1978, 53-20249; Feb. 23, 1978, 53-20250; Apr. 28, 1978, 53-50130

Int. Cl.³ B32B *27/28;* C08F *2/46*

U.S. Cl. 428—419 7 Claims

1. A laminated glass product having a bonding layer formed by curing a photocurable composition comprising a polyene component, a polythiol component, an organosilicone compound and a photocuring rate accelerator; wherein

(A) said polyene is a compound having the formula

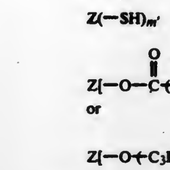


wherein m is an integer of 2 to 6; R represents a hydrogen atom, a C_1–C_8 alkyl, a C_1–C_3 alkoxy or phenyl group which can be substituted with a substituent of nitro, C_1–C_8 alkyl or alkoxy group or a halogen atom; Y is $—CH_2)_n$ wherein n is 0 or an integer of 1 to 10, $—OCH_2)_p$ wherein p is an integer of 1 to 10, $—O—CH_2)_q$ wherein q is an integer of 1 to 10 or



and X is a polyvalent group which has a valency of m representing benzene, toluene, ethylene glycol, diethylene glycol, triethylene glycol, trimethylolpropane, phthalate, cyanurate, isocyanurate, trimellitate, ethane, N,N-piperazine, orthosilicate, phosphate, oxalate, terephthalate, diphenylterephthalate or methylenediamine group;

(B) said polythiol is a compound having the formula



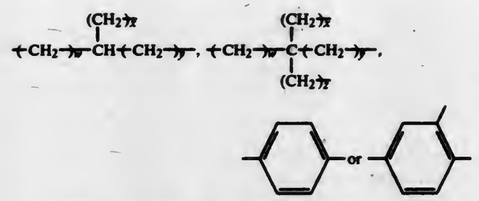
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(III)

or

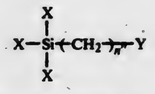
(IV)

wherein Z is a group connecting m' members and is $—CH_2)_v$



wherein v is an integer of 1 to 6, and w, x, y and z are respectively 0 or an integer of 2 to 6; m' is an integer of 2 to 4; n' and p' are respectively 0 or an integer of 1 to 3; said polythiol having an average molecular weight of 50 to 15,000;

(C) said organosilicone compound is a compound having the formula

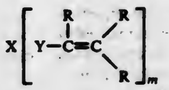


(V)

wherein n'' is 0 or an integer of 1 to 3; X represents chlorine atom or a C_1–C_8 alkoxy or acetoxy group which can be substituted by chlorine atom, nitro group or a C_1–C_2 alkoxy group; and Y represents vinyl group which can be substituted by chlorine atom, methoxy, ethoxy, propyloxy or acetoxy; or acryloyl, methacryloyl or mercaptan group; and

(D) said photocuring rate accelerator is selected from the group consisting of benzophenone, p-methoxybenzophenone, acetophenone, m-chloroacetophenone, propiophenone, xanthone, benzoin, benzoin methyl ether, benzoin ethyl ether, benzoin isopropyl ether, benzoin isobutyl ether, benzyl benzaldehyde, naphthoquinone, anthraquinone, 2,4,7-trinitro-9-fluorenone, 5-nitro-acenaphthene, p-nitrodiphenyl, p-nitroaniline and malachite green.

5. A photocurable composition which comprises a polyene component, a polythiol component, an organosilicone compound and a photocuring rate accelerator wherein said polyene is a compound having the formula



wherein m is an integer of 2 to 6; R represents a hydrogen atom, a C_1–C_8 alkyl, a C_1–C_3 alkoxy or phenyl group which can be substituted with a substituent of nitro, C_1–C_8 alkyl or alkoxy group or a halogen atom; Y is $—CH_2)_n$ wherein n is 0 or an integer of 1 to 10, $—CH_2)_p$ wherein p is an integer of 1 to 10, $—CH_2)_q$ wherein q is an integer of 1 to 10 or

zine, orthosilicate, phosphate, oxalate, terephthalate, diphenylterephthalate or methylenediamine group;

(B) said polythiol is a compound having the formula

(II)

(III)

or

(IV)

wherein Z is a group connecting m' members and is $—CH_2)_v$

wherein v is an integer of 1 to 6, and w, x, y and z are respectively 0 or an integer of 2 to 6; m' is an integer of 2 to 4; n' and p' are respectively 0 or an integer of 1 to 3; said polythiol having an average molecular weight of 50 to 15,000;

(C) said organosilicone compound is a compound having the formula

(V)

wherein n'' is 0 or an integer of 1 to 3; X represents chlorine atom or a C_1–C_8 alkoxy or acetoxy group which can be substituted by chlorine atom, nitro group or a C_1–C_2 alkoxy group; and Y represents vinyl group which can be substituted by chlorine atom, methoxy, ethoxy, propyloxy or acetoxy; or acryloyl, methacryloyl or mercaptan group; and

(D) said photocuring rate accelerator is selected from the group consisting of benzophenone, p-methoxybenzophenone, acetophenone, m-chloroacetophenone, propiophenone, xanthone, benzoin, benzoin methyl ether, benzoin ethyl ether, benzoin isopropyl ether, benzoin isobutyl ether, benzyl benzaldehyde, naphthoquinone, anthraquinone, 2,4,7-trinitro-9-fluorenone, 5-nitro-acenaphthene, p-nitrodiphenyl, p-nitroaniline and malachite green.

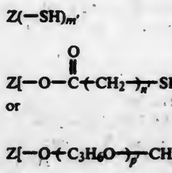
5. A photocurable composition which comprises a polyene component, a polythiol component, an organosilicone compound and a photocuring rate accelerator wherein said polyene is a compound having the formula

wherein m is an integer of 2 to 6; R represents a hydrogen atom, a C_1–C_8 alkyl, a C_1–C_3 alkoxy or phenyl group which can be substituted with a substituent of nitro, C_1–C_8 alkyl or alkoxy group or a halogen atom; Y is $—CH_2)_n$ wherein n is 0 or an integer of 1 to 10, $—CH_2)_p$ wherein p is an integer of 1 to 10, $—CH_2)_q$ wherein q is an integer of 1 to 10 or



and X is a polyvalent group which has a valency of m representing benzene, toluene, ethylene glycol, diethylene glycol, triethylene glycol, trimethylolpropane, phthalate, cyanurate, isocyanurate, trimellitate, ethane, N,N-piperazine, orthosilicate, phosphate, oxalate, terephthalate, diphenylterephthalate or methylenediamine group;

said polythiol is a compound having the formula



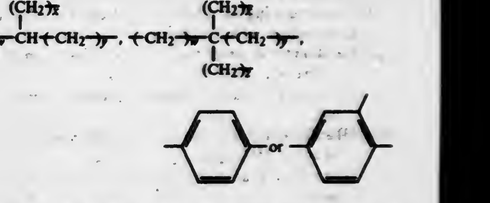
(II)

(III)

or

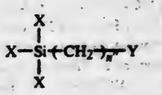
(IV)

wherein Z is a group connecting m' members and is $—CH_2)_v$



wherein v is an integer of 1 to 6, and w, x, y and z are respectively 0 or an integer of 2 to 6; m' is an integer of 2 to 4; n' and p' are respectively 0 or an integer of 1 to 3; said polythiol having an average molecular weight of 50 to 15,000; and

said organosilicone compound is a compound having the formula



(V)

wherein n'' is 0 or an integer of 1 to 3; X represents chlorine atom or a C_1–C_8 alkoxy or acetoxy group which can be substituted by chlorine atom, nitro group or a C_1–C_2 alkoxy group; and Y represents vinyl group which can be substituted by chlorine atom, methoxy, ethoxy, propyloxy or acetoxy group; or acryloyl, methacryloyl or mercaptan group.

4,272,587

GLASS ARTICLE HAVING ABRASION RESISTANT AND LABEL RECEPTIVE COATING AND METHOD OF PRODUCING SAME

Edgardo Santiago, Toledo, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 17, 1979, Ser. No. 104,210

Int. Cl.³ B32B *17/06*

U.S. Cl. 428—432 10 Claims

1. In a method of increasing the scratch and abrasion resistance as well as the lubricity and labelability of a glass surface wherein pyrolyzable tin or titanium compounds are applied to a hot glass surface to form a tin or titanium oxide layer thereon and then an organic material is sprayed onto said oxide layer

while at a lower elevated temperature, the improvement wherein said organic material comprises a label-accepting physical mixture of acrylic resin aqueous emulsion and low molecular weight polyethylene resin aqueous emulsion, said resins in said mixture varying from a solids ratio of about 7:1 to 1:1.

5. As an article of manufacture, a coated glass article having a tin oxide or titanium oxide layer directly adhered to the surface of said glass article and an organic material applied over the said oxide layer comprising the decomposition product of a physical mixture of acrylic resin aqueous emulsion and low molecular weight polyethylene resin aqueous emulsion varying from a solids ratio of about 7:1 to 1:1, said coated article having exterior surfaces which are scratch and abrasion resistant, lubricious and especially receptive to labels and printing inks.

4,272,588
OXIDE PROTECTED MIRROR

Bulent E. Yoldas, Churchill; Arthur M. Filippi, Mt. Lebanon, and Raymond W. Buckman, Jr., Pleasant Hills, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 23, 1979, Ser. No. 69,214
Int. Cl.³ B05D 3/02; G02B 1/10, 5/08
U.S. Cl. 428—433 15 Claims

7. A method of making a mirror comprising

(A) coating a highly reflective surface of a substrate with a composition which comprises

(1) titanium alkoxide having the general formula $Ti(OR)_4$, where R is alkyl from C_1 to C_6;

(2) about 1.7 to about 8 moles of water per mole of alkoxide;

(3) sufficient alcohol to give a solids content of about 0.1 to about 15%, and

(4) a sufficient amount of a suitable acid to prevent cloudiness;

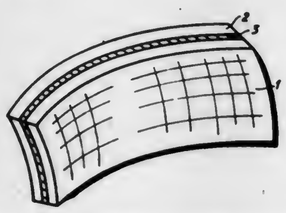
(B) firing said coated substrate at about 200° to about 600° to form an oxide coating which is substantially oxygen impervious,

(C) repeating steps (A) and (B), as necessary, until said oxide coating is of a desirable thickness.

4,272,589
PROCESS FOR GLUING TWO MEMBERS USING A PHOTOPOLYMERIZABLE SUBSTANCE

Jean-Claude Dubois; Armand Eranian, and Paul Paimblant, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Dec. 12, 1979, Ser. No. 102,901
Claims priority, application France, Dec. 15, 1978, 78 35385
Int. Cl.³ B32B 17/10; B29C 19/02
U.S. Cl. 428—442 15 Claims



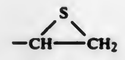
1. A process for gluing together two members, at least one of said members being permeable to ultraviolet radiation, said process comprising:

(A) applying to at least one of said members a layer of a solvent-free photopolymerizable composition that is photopolymerized by the exposure of ultraviolet radiation thereto, said composition comprising a mixture of:

(1) at least one vinyl monomer having a functionality of at least 2 and a molecular weight less than 500 grams;

(2) at least one reactive polymer that is soluble in said monomer (1); and

(3) at least one photosensitive catalyst present in an amount of from 1 to 5 weight percent of said composition provided that at least one of said monomer (1) or polymer (2) have a ti-irane



ring in its structure;

(B) joining the two members together with the applied layer of photopolymerizable composition therebetween; and

(C) exposing the thus joined members throught the at least one permeable number to ultraviolet radiation in an amount sufficient to photopolymerize said composition and joint the two members together.

4,272,590
WATER-BASED GLYOXAL CURED COATING COMPOSITIONS

Werner J. Blank, Wilton, Conn., assignor to American Cyanamid Company, Stamford, Conn.

Filed Apr. 23, 1979, Ser. No. 32,208
Int. Cl.³ B32B 15/08, 27/42
U.S. Cl. 428—460 11 Claims

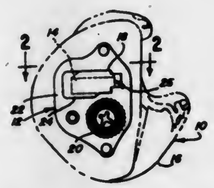
1. A coating composition for preparing water-resistant coatings comprising an emulsified copolymer containing about 0.2 to 4 moles of amide functionality per 1000 grams of copolymer, a cross-linkingly effective amount of glyoxal, and water.

11. The cured composition of claims 1, 4, 7 or 9 upon a substrate selected from the group consisting of metal, plastic and wood.

4,272,591
ELECTRONIC APPARATUS WITH BATTERY CHAMBER

Richard Brander, Cicero, Ill., assignor to Beltone Electronics Corporation, Chicago, Ill.

Filed Mar. 25, 1980, Ser. No. 133,917
Int. Cl.³ H01M 2/10
U.S. Cl. 429—98 5 Claims

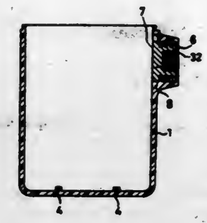


1. Compact electronic apparatus including a molded plastic body member, a chamber in said body member for receiving a battery and a door for opening and closing the battery chamber, hinge means provided at one side of said door; said hinge means comprising hinge pin means formed of plastic material, and plastic hinge pin support members for the hinge pin means formed in the plastic material of said body member at opposite sides of said chamber and being dimensioned with respect to the hinge pin means so that the hinge pin means may be snapped into the support members due to the resiliency of the plastic material from which they are formed.

4,272,592
STORAGE BATTERY

Shiro Miyagawa, Suita, Japan, assignor to Miyagawa Kasei Industry Co., Ltd., Osaka, Japan

Filed Jan. 8, 1979, Ser. No. 46,651
Claims priority, application Japan, Jan. 27, 1978, 53/89039[U]
Int. Cl.³ H01M 2/30
U.S. Cl. 429—161 2 Claims



1. A storage battery comprising: an electrolyte container body having an opening in the upper surface produced by the molding of a thermoplastic synthetic resin, a lid fixed to the top of said electrolyte container body to close said upper surface opening and cooperating with said electrolyte container body to constitute an electrolyte container, a group of electrode plates housed in said electrolyte container, electrode bars operatively connected to said electrode plates, electrode leading-out members extending through the lateral wall of said electrolyte container body with their welding surfaces to be welded to said electrode bars facing the inside of said electrolyte container, said electrode leading-out members being presented at the lateral wall portion of said electrolyte container body when said electrolyte container body is molded with said electrode leading-out members placed in a die for molding said electrolyte container body, wherein a spacing is defined between the peripheral edge of said welding surface of each of said electrode leading-out members and a portion of said electrolyte container body extending around said welding surface, wherein said welding surface and the inner wall surface of said electrolyte container body extending around said welding surface are flush with each other, and wherein said spacing extending around the leading-out member is formed by the mold for said electrolyte container body, said spacing being formed by an annular recess in said inner wall surface of said electrolyte container body, said spacing being so located that the wall surfaces forming said spacing are defined by a portion of the respective electrode leading-out member and by a portion of the electrolyte container body.

4,272,593
ELECTROCHEMICAL CELL WITH IMPROVED CATHODE CURRENT COLLECTOR

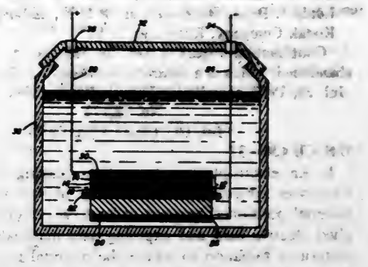
Keith A. Klinedinst, Marlborough, Mass., assignor to GTE Laboratories Incorporated, Waltham, Mass.

Filed Apr. 25, 1980, Ser. No. 143,697
Int. Cl.³ H01M 4/36
U.S. Cl. 429—101 11 Claims

1. A primary electrochemical cell comprising:

an oxidizable active anode material;

a cathode current collector including a catalyst for reducing the liquid cathode material comprising a composite material of carbon and platinum bonded to an inert, electrically-conductive substrate; and an electrolytic solution, in contact with the anode material and cathode current collector, comprising a reducible

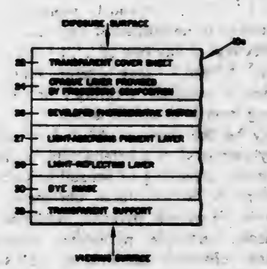


liquid cathode material and an electrolyte solute dissolved therein.

4,272,594
PHOTOGRAPHIC PRODUCT INCLUDING A LIGHT-REFLECTING LAYER WITH CARBON COATED WITH REFLECTING MATERIAL

Louis J. George, Somerville, and Barbara A. Theobald, Boston, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Dec. 4, 1978, Ser. No. 966,088
Int. Cl.³ G03C 1/40, 1/84, 5/54, 1/48
U.S. Cl. 430—14 40 Claims



1. A photographic product for forming a diffusion transfer image within a permanent laminate including at least one developed silver halide layer, the photographic product comprising, in combination: an image-receiving layer; at least one photosensitive silver halide emulsion layer, each said silver halide emulsion having associated therewith an image-forming material; means for providing a light-reflecting layer positioned between the silver halide layer or layers and the image-receiving layer and effective to mask the developed silver halide layer or layers and to provide a white background for viewing a transfer image in the image-receiving layer, the light-reflecting layer consisting essentially of a polymeric binder matrix having uniformly distributed therethrough a first light-reflecting pigment material and a second light-absorbing carbon-based pigment material consisting of particulate carbon coated with a light-reflecting material on substantially all of the surface area of the carbon particles; a transparent support through which the transfer image may be viewed against the light-reflecting layer; and means for providing a processing composition for developing the silver halide emulsion or emulsions after photoexposure and for forming a transfer image in said image-receiving layer.

4,272,595
ELECTROPHOTOSENSITIVE MATERIALS FOR MIGRATION IMAGING PROCESSES

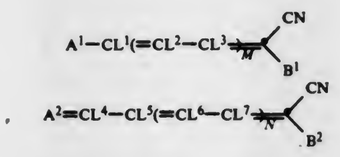
Frank G. Webster, Rochester; Michael T. Regan, Fairport, and Louis J. Rossi, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 899,186, Apr. 24, 1978, abandoned, which is a continuation-in-part of Ser. No. 818,697, Jul. 25, 1977, abandoned. This application Feb. 14, 1979, Ser. No. 12,172

Int. Cl.³ G03G 5/06, 17/04

U.S. Cl. 430—37 3 Claims

1. An electrophoretic migration imaging process which comprises subjecting an electrically photosensitive colorant material positioned between at least two electrodes to an applied electric field and exposing said materials to an image pattern of radiation to which the material is photosensitive, thereby obtaining image formation on at least one of said electrodes, the improvement which comprises using as at least a portion of said material, an electrically photosensitive material having a structure selected from the group consisting of:



I.

II.

wherein:

M and N represent zero, one or two;

L^1, L^2, L^3, L^4, L^5, L^6, and L^7 represent cyano, hydrogen, substituted or unsubstituted alkyl, alkoxy, aralkyl, aryl or heterocycyl or any two of L^1, L^2 and L^3 and any two of L^4, L^5, L^6 and L^7 may together represent the elements needed to complete a carbocyclic or heterocyclic ring having from 5–12 carbon atoms;

A^1 may be the same as A^2 and in addition represents diarylaminoaryl or a heterocyclic nucleus selected from the group consisting of benzo[b]thiophene, naphtho[2,3-b]thiophene, isobenzofuran, chromene, pyran, xanthene, pyrrole, 2H-pyrrole, pyrazole, indolizine, indoline, indole, indazole, carbazole, pyrimidine, isothiazole, isoxazole, furazan, chroman, isochroman, 1,2,3,4-tetrahydroquinoline, 4H-pyrrolo[3,2,1-ij]-quinoline; 1,2-dihydro-4H-pyrrolo[3,2,1-ij]quinoline; 1,2,5,6-tetrahydro-4H-pyrrolo[3,2,1-ij]quinoline; 1H,5H-benzo[ij]quinolizine; 2,3-dihydro-1H,5H-benzo[ij]quinolizin; 2,3-dihydro1H,5H-benzo[ij]quinolizine and 2,3,6,7-tetrahydro-1H,5H-benzo[ij]-quinolizine; 10,11-dihydro-9H-benzo[a]xanthen-8-yl; 6,7-dihydro-5H-benzo[b]pyran-7-yl and pyrrolo[2,1-b]benzothiazole;

A^2 represents a heterocyclic nucleus selected from the group consisting of imidazole, benzothiazole, naphthothiazole, thianaphtheno-7',6',4,5-thiazole, oxazole, benzoxazole, naphthoxazole, benzoselenazole, naphthoselenazole, thiazoline, 2-quinoline, 1-isoquinoline, benzimidazole, 2-pyridine, 4-pyridine, pyrrolo[1,2-a]pyridine, 3H-indole, tetrazole, and acenaphthothiazole; and

B^1 and B^2 represent cyano, cyanoaryl, carboxy, alkoxycarbonyl, aryloxycarbonyl, alkylsulfonyl, acyl, furoyl, arylcarbonyl, benzofuroyl, nitro, nitro substituted aryl, sulfonyl, fluorosulfonyl, trifluoromethylsulfonyl, carbamoyl, arylcarbamoyl, and alkylcarbamoyl or

B^2 may be combined with $=CL^4-CL^5=$ or $=CL^6-CL^7=$ to provide sufficient atoms to form a substituted pyrindine nucleus.

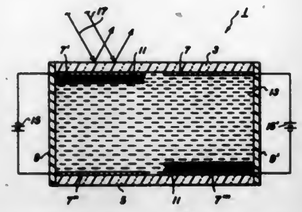
4,272,596
ELECTROPHORETIC DISPLAY DEVICE

John R. Harbour, Mississauga, and Michael L. Hair, Oakville, both of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 1, 1979, Ser. No. 44,802

Int. Cl.³ C25D 1/12; G03G 13/00

U.S. Cl. 430—37 9 Claims



1. An electrophoretic imaging process which comprises applying a voltage to a pair of electrodes spaced apart to form a cavity therebetween, at least one of said electrodes being transparent to visible light, said cavity containing an electrophoretic imaging suspension comprising (1) electrophoretic imaging particles suspended in (2) a suspending medium comprising a suspension of colloidal iron oxide particles in an electrically insulating liquid, whereby the voltage causes the electrophoretic movement of said electrophoretic particles in imagewise configuration and to visibly appear at said transparent electrode.

4,272,597
ELECTROPHOTOGRAPHIC SENSITIZING SCREEN

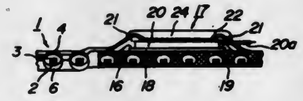
Masaji Nishikawa, No. 37-22, 2-Chome, Koyasu-Machi, Hachioji City, Tokyo; Norio Amemiya, No. 382, Namiki-Cho, Hachioji, Tokyo; Tadahiro Yasuda, No. 776-1, Yotsuya-Machi, Hachioji City, Tokyo, and Shigeru Nakayama, No. 1464-1, Hazama-Cho, Hachioji City, Tokyo, all of Japan

Continuation of Ser. No. 918,823, Jun. 22, 1978, abandoned. This application Nov. 28, 1979, Ser. No. 98,318

Claims priority, application Japan, Jun. 24, 1977, 52-74969; Jun. 24, 1977, 52-74970; Jun. 24, 1977, 52-74971; Jun. 24, 1977, 52-74972; Jun. 24, 1977, 52-74973

Int. Cl.³ G03G 5/04

U.S. Cl. 430—68 2 Claims



1. An electrophotographic sensitizing screen being provided with at least an insulating layer and a conductive layer successively formed on a conductive mesh, a photosensitive layer on said conductive mesh opposite said insulating layer and a thin dielectric surface layer associated therewith wherein: an electrode plate is disposed on a part of said conductive mesh and insulated from said mesh and electrically connected to said conductive layer, so as to apply a given bias voltage thereto through said electrode plate, said electrode plate is disposed on a part of said conductive mesh in an insulated state from said mesh, there also being an adhesive layer being formed on the peripheral edge of said electrode plate, a metallic thin film on said electrode plate and adhesive layer formed by a vacuum evaporation process to electrically connect them to said conductive layer, and a conductive paint applied to said metallic thin film to cover a region including said electrode plate and the boundary between said electrode plate and adhesive layer.

4,272,598
ELECTROPHOTOGRAPHIC MATERIAL CONTAINING DISAZO COMPOUNDS

Masaomi Sasaki, Kawasaki; Kiyoshi Sakai, Tokyo; Mitsuru Hashimoto, Hino; Masafumi Ohta, and Akio Kozima, both of Yokohama, all of Japan, assignors to Ricoh Co., Ltd., Tokyo, Japan

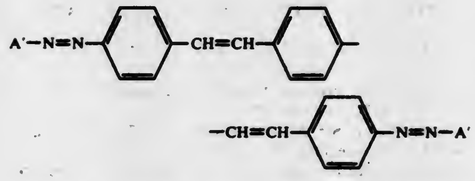
Filed Apr. 20, 1978, Ser. No. 898,130

Claims priority, application Japan, Apr. 27, 1977, 52-48859; Apr. 27, 1977, 52-48860

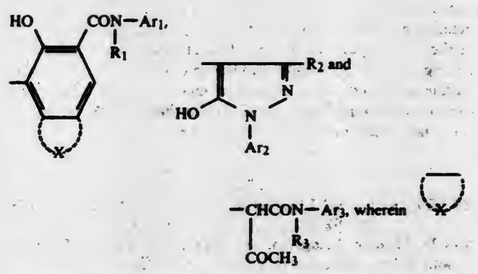
Int. Cl.³ G03G 5/06, 13/22

U.S. Cl. 430—72 54 Claims

1. An electrophotographic material which comprises an electrically conductive support and a photosensitive layer formed thereon, said photosensitive layer consisting essentially of fine particles of a disazo compound having the formula



wherein A' is a member selected from the group consisting of



is a fused ring selected from the group consisting of benzene ring, halobenzene ring, naphthalene ring, indole ring, carbazole ring and benzofuran ring; Ar_1 is a member selected from the group consisting of phenyl, methylphenyl, methoxyphenyl, chlorophenyl, nitrophenyl, ethoxyphenyl, methylchlorophenyl, dimethylphenyl, methoxychlorophenyl, methoxybromophenyl, methoxymethylphenyl, dimethoxyphenyl, dimethoxychlorophenyl, dimethylaminophenyl, cyanophenyl, carboxyphenyl, benzenesulfonic acid sodium salt, tert-butoxyphenyl, naphthyl, methoxydibenzofuryl and carbazolyl; each of Ar_2 and Ar_3 is a member selected from the group consisting of phenyl, naphthyl, methoxyphenyl, methylphenyl, acetylaminophenyl, dimethylaminophenyl, cyanophenyl, nitrophenyl, dinitrophenyl, chlorophenyl, trichlorobenzenesulfonic acid, benzenesulfonic acid and benzenesulfonamide; each of R_1 and R_3 is a member selected from the group consisting of hydrogen, methyl, ethyl, phenyl and chlorophenyl; and R_2 is a member selected from the group consisting of methyl, carboxyl and $-COOC_2H_5$; and a resinous binder.

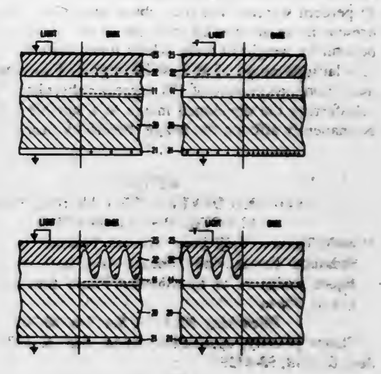
4,272,599
INK DEVELOPMENT OF ELECTROSTATIC IMAGES

Yaqub Moradzadeh, Saratoga, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 389,927, Aug. 20, 1973, abandoned, which is a continuation-in-part of Ser. No. 156,727, Jun. 25, 1971, abandoned. This application Jan. 14, 1977, Ser. No. 759,307

Int. Cl.³ G03G 13/10, 13/24

U.S. Cl. 430—100 12 Claims



1. A process for the ink development of an electrostatic image on a charge retaining surface on an imaging member for the purpose of subsequent transfer therefrom to a copy medium, said process comprising the steps of:

(a) wetting the charge retaining surface with a continuous film of a dielectric liquid that is less than about 15 microns thick and is chemically inert toward said surface,

(b) applying to said surface an electrical potential of optional polarity but predetermined magnitude,

(c) forming on said surface an electrostatic latent image comprising charged and uncharged image areas to create a contrast potential of at least a predetermined magnitude therebetween,

(d) applying with a roller to the wetted surface at said charged and uncharged image areas as a continuous thin film an electrically conductive liquid ink that contains no selectively depositable charged particles and is immiscible with the dielectric liquid, thereby to create by virtue of the magnitude of said contrast potential, an induced charge differential which exceeds a preselected threshold value at the interface between the ink and dielectric liquid, selectively at the charged or uncharged image areas on said surface according to whether an electrical bias potential of appropriate sign and magnitude is not or is, respectively, applied to the ink by way of said roller, which charge differential causes the electrically conductive ink

(i) to displace the dielectric liquid and thus cause all constituents of which the ink consists to selectively wet only the image areas subjected to said induced charge differential, and

(ii) to be completely repelled by the dielectric liquid in the areas not subjected to said charge differential, whereby an image is formed as a result of the magnitude of the induced charge differential across said interface, without precharging of said ink and independent of the polarity of the said electrical potential.

4,272,600
MAGNETIC TONERS CONTAINING CUBICAL MAGNETITE

Donald S. Sypula, and Cornelius B. Murphy, both of Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

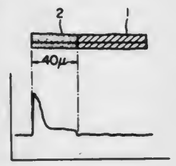
Filed Jan. 7, 1980, Ser. No. 110,075
Int. Cl.³ G03G 9/00
U.S. Cl. 430—106 9 Claims

1. A method for developing magnetic latent images by causing the formation of a magnetic latent image on a suitable substrate, followed by contacting the image with a dry magnetic toner comprised of a copolymer resin of styrene-butadiene, which copolymer contains form about 75 percent to about 95 percent styrene, and the cubical magnetite, Mapico black, present in an amount of from about 40 percent to about 70 percent by weight of toner which toner has a fusing temperature latitude range of at least 30 degrees Fahrenheit, up to a maximum temperature of 390 degrees Fahrenheit, followed by transferring the developed image to a suitable substrate, and permanently affixing the image thereto by fusing.

4,272,601
COATED DEVELOPER CARRIER FOR ELECTROPHOTOGRAPHY

Hiroshi Tokura; Keiji Sato; Makoto Tomono, all of Hachioji; Sadatugu Terada, and Hideaki Arai, both of Hino, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed May 30, 1979, Ser. No. 43,760
Claims priority, application Japan, Jun. 6, 1978, 53-67249; Jun. 6, 1978, 53-67250
Int. Cl.³ G03G 9/10
U.S. Cl. 430—108 15 Claims



1. A developer carrier for electrophotography comprising a plurality of core particles, said particles coated with a layer comprising a resin and a surface active agent incorporated therein, said agent containing at least one carbon-fluorine bond and having at least one functional group having an affinity for said resin.

14. A process for the preparation of a developer carrier for electrophotography having a plurality of core particles, said process comprising coating a layer on the surface of said particles by applying a solution comprising a resin and a surface active agent, said agent containing at least one carbonfluorine bond and having at least one functional group having an affinity for said resin.

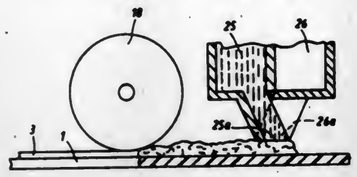
4,272,602
RECORDING MEDIUM AND METHOD OF MAKING

Otto Stemme, Munich, and Frank A. Staudacher, Haan, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,788
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839658
Int. Cl.³ B05D 3/14
U.S. Cl. 430—140 9 Claims

1. An improved recording material having a magnetizable recording surface comprising a film substrate, a light sensitive layer on one surface, and a magentizable material which contains a magnetic pigment on the other surface of the support consisting of a polymeric binder with incorporated magnetic pigments

wherein the improvement comprises a plurality of strips of



said magnetizable material having areas of differing surface roughness consisting of at least one stripe having a surface of lesser roughness and at least one stripe having a surface of greater roughness.

4,272,603
RESIN BLENDS FOR IMPROVED VESICULAR SYSTEMS

Donald J. Chenevert, 1717 Pine Chase, Apt. 87, Houston, Tex. 77055; John R. Grawe, Southern Station, P.O. Box 586, Hattiesburg, Miss. 39401, and John C. McDaniel, 4100 Cadillac St., Apt. A, New Orleans, La. 70122

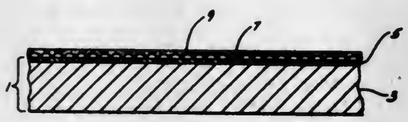
Continuation of Ser. No. 803,375, Jun. 3, 1977, abandoned, which is a continuation of Ser. No. 561,799, May 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 306,229, Nov. 13, 1972, abandoned. This application Nov. 6, 1979, Ser. No. 92,086
Int. Cl.³ G03C 1/60, 1/76, 1/72
U.S. Cl. 430—155 2 Claims

1. In a light-sensitive vesicular material comprising a thermoplastic resin vehicle coated onto a polyethylene terephthalate backing in which is dispersed a photosensitive compound which is capable of decomposing to yield nitrogen gas when exposed to actinic radiation, said vehicle consisting of a blended polymer admixture of a homopolymer of methacrylonitrile and a copolymer of vinylidene chloride and acrylonitrile having 60–90% by weight vinylidene chloride which is compatible with said homopolymer of methacrylonitrile wherein the amount of said copolymer is greater than 50% by weight of the total weight of the blended polymers.

4,272,604
BASE PLATE AND LITHOGRAPHIC PLATE PREPARED BY SENSITIZATION THEREOF

Jim D. Meador, Bridgeton, and Edward H. Parker, Ballwin, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Continuation of Ser. No. 834,236, Sep. 19, 1977, abandoned, which is a continuation of Ser. No. 584,880, Jun. 9, 1975, abandoned. This application Sep. 13, 1979, Ser. No. 75,215
Int. Cl.³ G03C 1/54, 1/60, 7/08; B41N 1/08
U.S. Cl. 430—159 13 Claims



1. A lithographic plate comprising:
a substrate comprising a metal support and over said support a silicate barrier layer having a water-wettable hydrophilic surface, and over said substrate a lithographic coating comprising two layers applied in separate sequential coating steps, said layers comprising:

an inner oleophilic nonwater-redispersible reinforcing layer applied in a first coating step and which, as applied to the substrate, is subject to removal by a water/-polar organic solvent mixture and permeable to penetration by a light-sensitive condensation product, said inner layer comprising an olephilic nonwater-redispersible ink-receptive acrylic resin overlying said substrate and in direct contact with said surface, and

an outer water-soluble light-sensitive layer applied in a subsequent step over said inner layer, said outer layer comprising a negative-working light-sensitive condensation product of an aryl diazo compound and a carbonyl compound generally overlying said inner layer but sufficiently contiguous with said substrate by penetration of said condensation product through said layer so that both said inner layer and said outer layer become anchored to the substrate in the areas of exposure when the light-sensitive outer layer is exposed to light,

said outer layer becoming ink-receptive and resistant to removal by water in said areas of exposure and said inner layer becoming resistant in said areas to removal by water/polar organic solvent mixtures that are capable of removing said inner layer prior to exposure.

12. A planographic printing plate comprising:

a substrate comprising a metal support and over said support a silicate barrier layer having a water-wettable hydrophilic surface, and an ink-receptive image on the substrate comprising a coating comprised of an inner oleophilic reinforcing layer composition acrylic resin in contact with one surface and a light-reacted outer layer comprising the light induced reaction product of a water-soluble condensation product of an aryl diazo compound and a carbonyl compound,

said inner layer having been applied over said substrate in a first coating step and, as initially applied to said substrate, having been subject to removal by a water/polar organic solvent mixture and permeable to penetration by said condensation product, and

said light-reacted outer layer being the light reaction product of a light-sensitive water-soluble outer layer comprising said condensation product, said water-soluble outer layer having been applied over said inner layer in a coating step subsequent to said first step and generally overlying said inner layer but sufficiently contiguous with said substrate by penetration of said condensation product through said inner layer so that both the inner and the light-reacted outer layer are anchored to the substrate as a result of exposure of said condensation product to light,

said condensation product and inner layer having been removed from the non-light struck areas of the plate by a developing composition comprising water and a polar organic solvent, thereby uncovering said hydrophilic silicate surface in the non-image areas of the plate.

4,272,605
BASE PLATE AND LITHOGRAPHIC PLATE PREPARED BY SENSITIZATION THEREOF

Jim D. Meador, Bridgeton, and Edward H. Parker, Ballwin, both of Mo., assignors to Western Litho Plate & Supply Co., St. Louis, Mo.

Continuation of Ser. No. 884,176, Mar. 7, 1978, abandoned, which is a division of Ser. No. 834,238, Sep. 19, 1977, abandoned, which is a continuation of Ser. No. 584,880, Jun. 9, 1975, abandoned. This application Sep. 13, 1979, Ser. No. 75,214
Int. Cl.³ G03F 7/08; G03C 1/94
U.S. Cl. 430—169 12 Claims

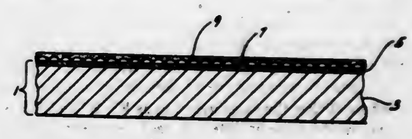
1. A method of preparing a lithographic plate comprising the steps of:

applying an aqueous light-sensitive coating solution containing a water-soluble negative-working light-sensitive condensation product of an aryl diazo compound and a carbonyl compound to a base plate comprising:

a substrate comprising a metal support and over said support a silicate barrier layer having a hydrophilic water-wettable surface, and

an oleophilic nonwater-redispersible reinforcing layer that is subject to removal by a water/polar organic solvent mixture and permeable to penetration by said light-sensitive condensation product, said oleophilic layer comprising an oleophilic nonwater-redispersible ink-receptive acrylic resin overlying said substrate and in direct contact with said surface,

the application of said aqueous solution to said substrate thereby providing a wet light-sensitive coating and effecting penetration of said condensation product through said oleophilic layer; and



drying said light-sensitive coating to provide an outer water-soluble negative working light-sensitive layer that generally overlies said oleophilic layer but is sufficiently contiguous with the substrate by penetration of said condensation product through said oleophilic layer so that the oleophilic layer becomes anchored to the substrate when the light-sensitive outer layer is exposed to light,

whereby upon exposure of the plate to light the outer layer becomes ink-receptive and resistant to removal by water in the areas of exposure and the oleophilic layer becomes resistant in said areas to removal by water/polar organic solvent mixtures that are capable of removing said oleophilic layer prior to exposure.

4,272,606
METHOD OF FORMING A HIGH-CONTRAST PHOTOGRAPHIC IMAGE

Hiroyuki Mifune; Shunji Takada; Yoshitaka Akimura, and Yoshihara Fuseya, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation-in-part of Ser. No. 903,336, May 5, 1978, abandoned. This application Feb. 1, 1980, Ser. No. 117,882
Int. Cl.³ G03C 5/30
U.S. Cl. 430—264 22 Claims

1. A method for forming a negative photographic image comprising

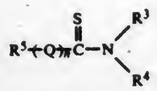
(i) image-wise exposing a photographic light-sensitive material comprising a support having thereon at least one silver halide mono-disperse photographic emulsion layer containing surface latent images silver halide grains and at least one compound represented by the following general formula (I):

$$R^1NHNHCOR^2 \quad (I)$$

is an amount of about 10^{-5} to about 10^{-1} mol/mol Ag, wherein R^1 represents an aryl group, R^2 represents a hydrogen atom, a phenyl group, or an unsubstituted alkyl group having 1 to 3 carbon atoms; in said photographic emulsion layer or in another hydrophilic colloid layer, and

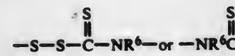
(ii) developing said exposed material with a developing solution containing a developing agent which is an aminophenol, a 3-pyrazolidone, a 1-phenyl-3-pyrazoline, a dihydroxybenzene or a mixture of a dihydroxybenzene and other of said afore-mentioned developing agents, and containing about 0.15 mol/liter or more of a sulfite ion and having a pH of about 10.5 to 12.3, wherein a compound having a thioamido moiety in the molecular structure thereof is present in an emulsion, an auxiliary layer, a developing solution or a prebath, as an agent which increases sensitivity and contrast, wherein said compound

having a thioamido moiety in the molecular structure thereof is represented by the following general formula (II):



(II)

wherein R^5 represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group; and Q represents a sulfur atom, a selenium atom, an oxygen atom, a disulfide group, —NR^6—,



where R^6 has the same meaning as R^5; R^3 and R^4, which may be the same or different, each represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group or an amino group; and R^5 and R^6, R^3 and R^4 or R^3 and R^5 together may combine to form a 5- or 6-membered heterocyclic group provided that neither of R^4 nor R^6 represents a hydrogen atom when R^3 and R^5 combine to form a 5- or 6-membered heterocyclic group and n is 0 or 1.

4,272,607

PHOTOSENSITIVE RESIN COMPOSITION

Katsushige Tsukada; Nobuyuki Hayashi; Hideo Yamada; Toshiaki Ishimaru, and Hajime Kakumaru, all of Hitachi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Filed Mar. 29, 1977, Ser. No. 782,378
Claims priority, application Japan, Mar. 30, 1976, 51-35442
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—288 **23 Claims**

1. A photosensitive resin composition consisting essentially of

(a) 20 to 70 parts by weight of a polymer selected from the group consisting of a linear polymer having tetrahydrofurfuryl groups at side chains and a linear copolymer having tetrahydrofurfuryl groups at side chains, wherein the tetrahydrofurfuryl groups at side chains is contained in the polymer in a proportion of at least 0.007 mole/100 g,

(b) 20 to 60 parts by weight of one or more photopolymerizable unsaturated compounds having at least two terminal ethylene groups, and

(c) 1 to 10 parts by weight of one or more sensitizers which initiate polymerization of said unsaturated compounds by irradiation of active light.

4,272,608

PHOTOSENSITIVE COMPOSITIONS CONTAINING THERMOPLASTIC IONOMERIC ELASTOMERS USEFUL IN FLEXOGRAPHIC PRINTING PLATES

Stephen Proskow, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 5, 1979, Ser. No. 27,445
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—288 **11 Claims**

1. A photosensitive, elastomeric composition which comprises, based on the total composition,

(a) 40 to 90% by weight of a high molecular weight butadiene/acrylonitrile copolymer having a number average molecular weight of 20,000 to 75,000, an acrylonitrile content of 10 to 50% by weight, and a carboxyl content of 2 to 15% by weight, 25 to 100 mole % of the carboxyl groups being neutralized with a metal cation of Groups IIA or IIB of the Periodic Table of Elements;

(b) 2 to 40% by weight of a nongaseous, ethylenically unsaturated compound containing at least one terminal ethylenic group, said compound being capable of forming a high polymer of free-radical initiated, chain-propagating addition polymerization and being compatible with copolymer (a);

(c) 0.001 to 10% by weight of a radiation-sensitive, free-radical generating system, activatible by actinic radiation which initiates polymerization of the unsaturated compound (b).

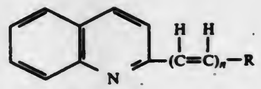
4,272,609

PHOTOPOLYMERIZABLE MIXTURE

Kurt Klöpfel, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 19, 1979, Ser. No. 95,363
Claims priority, application Fed. Rep. of Germany, Nov. 22, 1978, 2850585
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—288 **6 Claims**

1. A photopolymerizable mixture comprising a polymeric binder, a polymerizable compound having at least one terminal ethylenic double bond and a boiling point above 100° C., and a photoinitiator having the formula



wherein

R is an aromatic group either unsubstituted or substituted by alkoxy, alkyl, aryl, hydroxy or carboxylic acid amide groups or by halogen atoms, and

n is 1 or 2.

4,272,610

PHOTOPOLYMER PROCESS USING PHOTO OXIDIZABLE COMPONENT

David S. Breslow, and David A. Simpson, both of Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 912,154, Jun. 2, 1978, abandoned, which is a continuation of Ser. No. 739,928, Nov. 8, 1976, abandoned, which is a continuation-in-part of Ser. No. 405,192, Oct. 10, 1973, abandoned. This application Feb. 19, 1980, Ser. No. 122,162
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—302 **47 Claims**

1. The process of making a photographic image which comprises exposing selected areas of a photosensitive composition in film form to light having a wavelength of from about 2,000 to about 12,000 Angstroms in the presence of oxygen to form peroxides in said areas, and decomposing said peroxides to form free radicals which effect insolubilization of the composition in the exposed areas of the film, said photosensitive composition comprising a mixture of a photooxygenation sensitizer with a photosensitive composition comprising as essential components (1) a polymerizable ethylenically unsaturated component selected from ethylenically unsaturated monomers, ethylenically unsaturated polymers and mixtures thereof; capable of forming a high molecular weight polymer by addition polymerization or cross-linking, and (2) a photooxidizable component different from the said polymerizable ethylenically unsaturated component containing olefinic unsaturation of the type in which there is no more than one hydrogen atom on each of the double bond carbons and in which there is at least one allylic hydrogen on at least one of the carbons adjacent to the double bond carbons, which allylic hydrogen is not on a bridgehead carbon.

4,272,611

PHOTOPOLYMERIZABLE COMPOSITION FOR THE PRODUCTION OF PRINTING PLATES AND RELIEF PLATES, AND THE ELEMENTS PRODUCED THEREWITH

Rudolf Vyvial, Ludwigshafen; Guenter Wallbillich, Schifferstadt, and Horst Trapp, Plankstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 22, 1979, Ser. No. 86,719
Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846647
Int. Cl.³ G03C *1/68*
U.S. Cl. 430—306 **9 Claims**

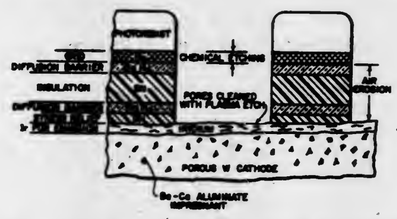
1. A photopolymerizable composition for the production of water-developable printing plates and relief plates which comprises: a water-soluble or water-dispersible mixture containing a photoinitiator, one or more olefinically unsaturated photopolymerizable monomers and one or more water-soluble or water-dispersible polymers containing vinyl alcohol units, wherein at least 10% by weight of said polymers containing vinyl alcohol units is a water-soluble vinyl alcohol polymer or copolymer containing recurring —CH_2—CH(OH)—units in the polymer molecule and which is modified to contain from 5 to 75% by weight of chemically bonded O—CH_2—CH_2—units in the polymer molecule.

4,272,612

EROSION LITHOGRAPHY TO ABRADE A PATTERN ONTO A SUBSTRATE

David W. Oliver, Schenectady, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 37,258, May 9, 1979, Pat. No. 4,237,209. This application May 12, 1980, Ser. No. 149,205
Int. Cl.³ G03C *5/00*; B24B *7/00*
U.S. Cl. 430—323 **11 Claims**



1. The method of making a precise pattern on a substrate, comprising the steps of:

(a) forming a first layer on said substrate,

(b) forming a second layer on the first layer,

(c) forming a photo-resist layer on the second layer,

(d) exposing the photo-resist layer with means to form said pattern, followed by a developing process which selectively removes part of the photo-resist layer to expose openings of said pattern,

(e) removing the second layer in said openings,

(f) using air blasting with an abrasive powder to remove the first layer in said openings, with the photo-resist and the second layer acting together as a mask;

the improvement wherein for step (f) a special elongated nozzle and scanning provides substantially uniform abrasion over the entire exposed surface of said first layer, wherein the nozzle has an exit which is relatively long in one dimension and narrow in the orthogonal dimension to provide a substantially uniform velocity of the abrasive powder along the long dimension, and the scanning of the pattern-substrate structure with respect to the nozzle comprises successive passes in a direction generally perpendicular to the long dimension of the projection of the nozzle.

4,272,613

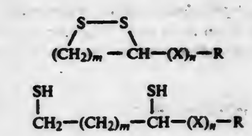
COLOR PHOTOGRAPHIC PROCESS

Haruo Shibaoka, and Junkichi Ogawa, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed May 19, 1980, Ser. No. 151,078
Claims priority, application Japan, May 18, 1979, 54-61344
Int. Cl.³ G03C *7/30*; G03C *7/00*
U.S. Cl. 430—364 **26 Claims**

1. A color photographic process for simultaneously producing silver image and dye image which comprises

developing an imagewise exposed silver halide photographic material containing a dye-forming coupler using a color developer solution containing components (1) an aromatic primary amino color developing agent, (2) a 1-aryl-3-pyrazolidone compound having two substituents at the 4-position, and (3) at least one compound selected from compounds represented by the formulae (I) and (II)



(I)

(II)

wherein X represents a hydrocarbon group having 1 to 6 carbon atoms; R represents a carboxylic acid group, a water-soluble carboxylic acid salt group, a water-soluble carboxylic acid ester group, or a water-soluble carboxylic acid amide group; m is 1 or 2; and n is 0 or 1,

and then fixing the photographic material using an acid hardening fix solution.

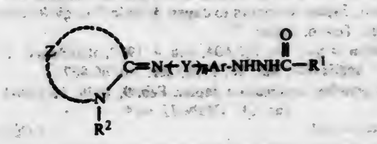
4,272,614

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Hiroyuki Mifune, and Shigeo Hirano, both of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 20, 1979, Ser. No. 105,689
Claims priority, application Japan, Dec. 28, 1978, 54-82
Int. Cl.³ G03C *1/06*
U.S. Cl. 430—441 **30 Claims**

1. A silver halide photographic light-sensitive material having at least one silver halide photographic emulsion layer comprising substantially surface latent image type silver halide grains, and containing in said photographic emulsion layer or at least one of other hydrophilic colloid layers a compound represented by the following general formula (I):



(I)

wherein R^1 represents a hydrogen atom, an aliphatic group containing only carbon and hydrogen atoms which may be substituted or an aryl group which may be substituted; Ar represents a divalent aryl group which may be substituted; Y represents a divalent linking group containing a carbonamido or a sulfonamido group; n represents 0 or 1; R^2 represents a hydrogen atom, an aliphatic group containing only carbon and hydrogen atoms which may be substituted or an aryl group which may be substituted; and Z represents a non-metallic atomic group necessary to form a 5-membered or 6-membered heterocyclic ring together with the



linkage.

4,272,615

PHOTOGRAPHIC LIGHT-SENSITIVE ANTISTATIC CONTAINING MATERIAL

Masakazu Yoneyama; Shizo Kishimoto, both of Minami-ashigara, and Yasuhiro Nakayama, Fujinomiya, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jul. 3, 1979, Ser. No. 54,492
Claims priority, application Japan, Jul. 3, 1978, 53-80657
Int. Cl.³ G03C 1/78
U.S. Cl. 430—527 10 Claims

1. A photographic light-sensitive element comprising at least one silver halide emulsion layer and containing in at least one layer thereof a compound represented by the following formula:



wherein R_f represents a perfluoroalkenyl group containing 3, 6, 9 or 12 carbon atoms, n represents an integer of 3 to 50, and Y represents a hydroxy group or an organic residue containing 1 to 18 carbon atoms, said compound being present in an amount of about 0.005 to 20 g per square meter of said element.

4,272,616

PHOTOGRAPHIC RADIATION-SENSITIVE MATERIALS HAVING IMPROVED ANTISTATIC PROPERTY

Shinzo Kishimoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Jun. 7, 1979, Ser. No. 46,279
Claims priority, application Japan, Jun. 7, 1978, 53/68636
Int. Cl.³ G03C 1/78
U.S. Cl. 430—529 10 Claims

1. A photographic sensitive material having an improved antistatic property which comprises a nonionic polyoxyethylene surface active agent and at least one of an alkali metal thiocyanate, alkali metal and alkaline earth metal iodide, alkali metal and alkaline earth metal perchlorate and alkali metal periodate in at least one layer.

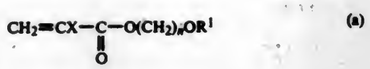
4,272,617

IMMOBILIZATION OF ENZYMES OR BACTERIA CELLS

Isao Kaetsu; Minoru Kumakura, and Masaru Yoshida, all of Takasaki, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

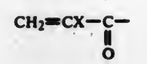
Continuation of Ser. No. 765,604, Feb. 4, 1977, abandoned. This application Jul. 26, 1979, Ser. No. 60,867
Claims priority, application Japan, Feb. 9, 1976, 51-13083
Int. Cl.³ C12N 11/04
U.S. Cl. 435—182 4 Claims

1. A process for producing a composition containing insolubilized enzyme and/or insolubulized bacterial cells, comprising mixing an aqueous solution of enzyme and/or an aqueous dispersion of bacterial cells with at least one hydrophobic, vitrifiable monomer, said hydrophobic, vitrifiable monomer or monomers comprising more than 76% by weight of all monomers present, and irradiating the resulting mixture by means of an ionizing radiation to polymerize the monomer, the irradiation being carried out at a temperature of less than −10° C., wherein the hydrophobic, vitrifiable monomer or monomers are compounds having a formula selected from the group consisting of:

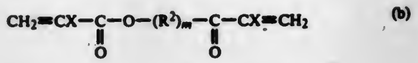


(a)

wherein X is H or methyl, R^1 is H or

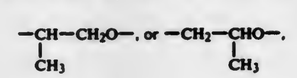


wherein X is as defined above, and n is an integer of 4 to 10;

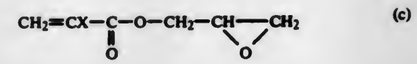


(b)

wherein X is as defined above, R^2 is $-CH_2CH_2O-$,

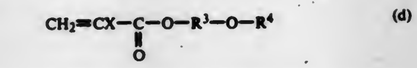


and m is an integer of 1 to 3;



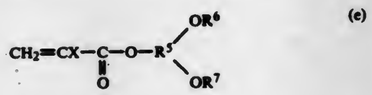
(c)

wherein X is as defined above;



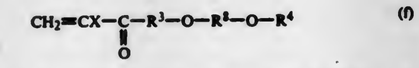
(d)

wherein X is as defined above, R^3 is straight chain or branched chain alkylene having carbon from 1 to 10 atoms, and R^4 is vinyl or alkyl having carbon from 1 to 10 atoms;



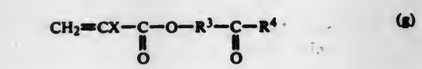
(e)

wherein R^5 is alkane (C_1 to C_5)-yl-ylide, alkylene (C_1 to C_5) amino, R^6 and R^7 are independently H, alkyl group having from 1 to 5 carbon atoms, alkylamino group having from 1 to 5 carbon atoms, hydroxyalkyl group having from 1 to 5 carbon atoms, allyl or vinyl;



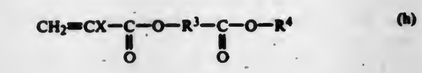
(f)

wherein X, R^3 and R^4 are as defined above, R^8 is the same as R^3, R^3 and R^8 being the same as or different from each other;



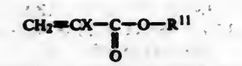
(g)

wherein X, R^3 and R^4 are as defined above;



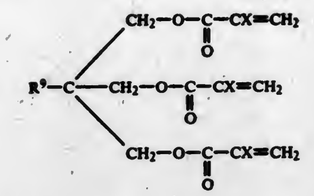
(h)

wherein X, R^3 and R^4 are as defined above;



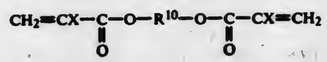
(i)

wherein X is as defined above, and R^{11} is benzyl, toluyl, xylyl, phenyl, furfuryl, naphthyl, phthalyl, cyclohexyl, cyclopentyl, cycloheptyl, cyclobutyl, pyridyl or 3-oxopyrrolidinyl;



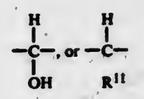
(j)

wherein X is as defined above, and R^9 is ethyl or propyl; and



(k)

wherein X is as defined above, and R^{10} is isopropylene, isobutylene, branched chain alkylene having from 1 to 5 carbon atoms,



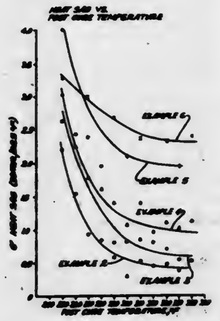
wherein R^{11} is as defined above.

4,272,618

HEAT STABLE REACTION INJECTION MOLDED ELASTOMERS

Richard J. G. Dominguez, and Doris M. Rice, both of Austin, Tex., assignors to Texaco Development Corp., White Plains, N.Y.

Filed Apr. 30, 1979, Ser. No. 34,101
Int. Cl.³ C08G 18/14, 18/32, 18/82
U.S. Cl. 521—160 10 Claims



1. A reaction injection molded polyurethane elastomer having significantly improved properties comprising a cured reaction product of polyhydric polyethers of above about 500 molecular weight, a chain-extender and an aromatic polyisocyanate, said curing comprising subjecting said reaction product to an ambient temperature of from about 290° F. to 425° F. for a length of time sufficient to achieve an improvement in properties and wherein the polyisocyanate and chain-extender are chosen from products which yield an isocyanate chain-extender reaction product with a glass transition temperature of above about 325° F. and wherein the polyol is chosen from those products which do not significantly adversely affect the glass transition temperature of the isocyanate chain-extender reaction product.

4,272,619

PROCESS FOR THE PRODUCTION OF MODIFIED POLYETHER POLYOLS AND THEIR USE IN PROCESSES FOR THE PRODUCTION OF POLYURETHANE PLASTICS

Gerhard Belle; Hansjürgen Rabe, both of Leverkusen, and Peter Vehlewald, Leichlingen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 14, 1980, Ser. No. 139,981
Claims priority, application Fed. Rep. of Germany, Apr. 18, 1979, 2915610
Int. Cl.³ C08G 18/14
U.S. Cl. 521—169 10 Claims

1. A process for the production of modified polyether polyols by the free radical polymerization of

I. 1 to 60 parts by weight of a mixture of:
- (A) 20 to 99.9% by weight of acrylonitrile,
- (B) 0 to 80% by weight of styrene,
- (C) 0.1 to 10% by weight of an α,β-unsaturated monocarboxylic or polycarboxylic acid and
- (D) 0 to 20% by weight of one or more other copolymerizable, olefinically unsaturated compounds;

II. 99 to 40 parts by weight of a polyether polyol, in the presence of a free-radical forming polymerization initiator characterized in that the α,β-unsaturated monocarboxylic or polycarboxylic acid is used in the form of a salt with a primary, secondary or tertiary monoamine or polyamine.

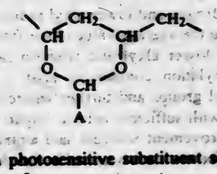
4,272,620

POLYVINYL ALCOHOL-STYRYLPYRIDINIUM PHOTOSENSITIVE RESINS AND METHOD FOR MANUFACTURE THEREOF

Kunihiro Ichimura, Yokohama, Japan, assignor to Agency of Industrial Science and Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Jul. 31, 1979, Ser. No. 62,490
Claims priority, application Japan, Aug. 9, 1978, 53/96803; Nov. 6, 1978, 53/136536
Int. Cl.³ C08F 8/44
U.S. Cl. 525—61 10 Claims

1. A photosensitive resin, comprising: a polyvinyl alcohol or a partially hydrolyzed polyvinyl acetate polymeric backbone containing units of the formula:



wherein A is a photosensitive substituent selected from the group consisting of

(A) a group of the generic formula:



wherein, R represents one member selected from the class consisting of a hydrogen atom, alkyl groups and lower hydroxyalkyl groups, R' one member selected from the class consisting of a hydrogen atom and alkyl groups and (B) a group of the generic formula:



wherein, R_1 represents one member selected from the class consisting of a hydrogen atom, alkyl groups and aralkyl groups, R_2 one member selected from the class consisting of a hydrogen atom and alkyl groups, n an integer having a value between 1 and 6 inclusive and X^- a strongly acidic ion, and wherein the molar ratio of said photosensitive substituent to the vinyl alcohol or vinyl acetate units of said polyvinyl alcohol or partially hydrolyzed polyvinyl acetate polymeric backbone ranges from 0.5:99.5 to 10:90, said polyvinyl alcohol or partially hydrolyzed polyvinyl acetate polymeric backbone having a degree of polymerization of 400 to 3000.

4,272,621

WATER THINNABLE COATING COMPOSITIONS FROM AMINOALKYLATED INTERPOLYMERS

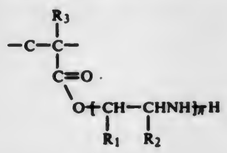
Russell T. McFadden, Freeport; Reuben L. Krause, Angelton, both of Tex., and R. Gregg Young, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 954,256, Oct. 24, 1978, abandoned. This application Dec. 14, 1979, Ser. No. 103,330

Int. Cl.³ C08F 8/32

U.S. Cl. 525—355 **7 Claims**

1. In a water soluble acidified aminoalkylated vinyl carboxylic acid interpolymer, said interpolymer before acidification having pendant aminoalkyl groups of the formula:



wherein R_1 and R_2 are independently selected from the group consisting of hydrogen and lower alkyl radicals of one to four carbon atoms and the average value of n is from about 1 to 3.5; R_3 is phenyl or lower alkyl and wherein said interpolymer before aminoethylation contains at least 3 weight percent pendant carboxyl groups and further wherein said interpolymer is acidifed with sufficient acid to impart water solubility thereto, the improvement wherein said aminoalkylated interpolymer is acidifed with a mixture of hydrochloric acid and at least 70 mole percent hydrobromic acid based on the total amount of acid added.

4,272,622

METHOD FOR PREVENTING POLYMER SCALE DEPOSITION IN THE POLYMERIZATION OF AN ETHYLENICALLY UNSATURATED MONOMER IN AN AQUEOUS MEDIUM

Hajime Kitamura, Ichihara; Toshihide Shimizu, Chiba, and Ichiro Kaneko, Ibaraki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed May 13, 1980, Ser. No. 149,414

Claims priority, application Japan, May 22, 1979, 54-62780; May 25, 1979, 54-64765

Int. Cl.³ C08F 2/18, 2/22, 2/20, 2/24

U.S. Cl. 526—62 **8 Claims**

1. A method for preventing polymer scale deposition on the walls of a polymerization reactor in the polymerization of an ethylenically unsaturated monomer in an aqueous medium which comprises, prior to the introduction of the monomer, water and other ingredients pertaining in the polymerization into the polymerization reactor, coating the surface of the walls of the polymerization reactor with an aqueous coating solution containing, as dissolved therein, (a) a water-soluble ionic polymer compound and (b) a water-soluble ionic dye having counteractive polarity to the polarity of the said ionic polymer compound and drying the thus coated surface.

4,272,623

MERCAPTOORGANOPOLYSILOXANE ELASTOMERS CATALYZED BY METALLIC COMPOUNDS IN THE PRESENCE OF PEROXIDES

Gary R. Homan, and Chi-Long Lee, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 3, 1979, Ser. No. 99,298

Int. Cl.³ C08G 77/06

U.S. Cl. 528—15 **8 Claims**

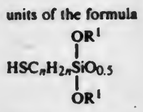
1. A composition of matter consisting essentially of a material prepared by mixing

(A) a mercaptoorganopolysiloxane consisting essentially of a combination of units selected from dimethylsiloxane units, trimethylsiloxane units, hydroxydimethylsiloxane units,

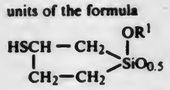
units of the formula



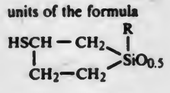
units of the formula



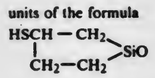
units of the formula



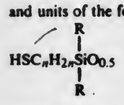
units of the formula



units of the formula



and units of the formula



wherein: R is a monovalent radical selected from the group consisting of alkyl radicals of from 1 to 3 carbon atoms inclusive and phenyl radical; R^1 is methyl or ethyl; and, n has a value of from 1 to 4 inclusive, there being in said mercaptoorganopolysiloxane an average of greater than two mercapto-containing siloxane units per molecule and no more than 10 mole percent mercapto-containing siloxane units based on the total number of siloxane units in the mercaptoorganopolysiloxane;

(B) an organic peroxide in an amount of from 0.5 to about 6 parts by weight per 100 parts by weight of (A);

(C) a transition metal compound selected from among those which react to provide oxidized metal ions in the presence of (B) and reduced metal ions in the presence of (A), in an amount of from about 0.1 to about 10 parts by weight per 100 parts by weight of (A); and

(D) a filler in an amount of from 0 to 200 parts by weight per 100 parts by weight of (A).

4,272,624

PROCESS FOR PRODUCING HIGH MOLECULAR WEIGHT DIORGANOPOLYSILOXANES FOR USE IN HEAT VULCANIZABLE SILICONE RUBBER COMPOSITIONS

John S. Razzano, Troy, N.Y., assignor to General Electric Company, Waterford, N.Y.

Continuation of Ser. No. 463,435, Apr. 24, 1974, Pat. No. 3,937,684. This application Jun. 10, 1975, Ser. No. 585,675

The portion of the term of this patent subsequent to Feb. 10, 1993, has been disclaimed.

Int. Cl.³ C08G 77/04

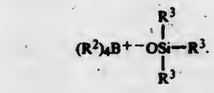
U.S. Cl. 528—37 **5 Claims**

1. A process for producing diorganopolysiloxane polymers having a viscosity from 1,000 to 200,000,000 centipoise at 25° C. where at least one of the organo groups is an aliphatic or haloaliphatic radical of at least 3 carbon atoms or more consisting essentially of

(a) reacting cyclic polysiloxanes of the formula

$$(RR'SiO)_4$$

at a temperature in the range of 0° to 90° C. in the presence of 5 to 300 parts per million of a catalyst selected from the class consisting of CsOH, and



where R^2 is selected from the class consisting of alkyl radicals of 1 to 8 carbon atoms, cycloalkyl radicals of 4 to 8 carbon atoms and phenyl, B is selected from the class consisting of nitrogen and phosphorous, R^3 is selected from the class consisting of alkyl radicals of 1 to 8 carbon atoms, cycloalkyl radicals of 4 to 8 carbon atoms, phenyl, siloxane chains of the unit formula $R_a^4SiO_{(4-a)/2}$ and mixtures thereof where R^4 is selected from the class consisting of monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, a varies from 1.5 to 2.5 until equilibration is reached, and (b) neutralizing the catalyst in the reaction mixture after equilibrium has been reached where R is selected from the class consisting of methyl, ethyl, vinyl and phenyl, R' is $R^5CH_2CH_2$— and R^5 is a perfluoroalkyl radical of 1 to 6 carbon atoms.

4,272,625

THERMOTROPIC POLYESTER AMIDES

James E. McIntyre, Harrogate, and Alexander H. Milburn, Leeds, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Jul. 20, 1979, Ser. No. 59,449

Claims priority, application United Kingdom, Jul. 24, 1978, 30879/78; Jul. 24, 1978, 30880/78

Int. Cl.³ C08L 77/12

U.S. Cl. 528—183 **12 Claims**

1. Fibre-forming polyesteramides capable of forming an optically anisotropic melt and having a melting point below the decomposition temperature of the polyesteramide consisting essentially of residues of aminophenols wherein at least 50% of the residues are selected from p-aminophenol and p-N-methylaminophenol and residues of aromatic dicarboxylic acids which contain one or more aromatic rings that form part of the main chain of the polyesteramide and are selected from residues of the group consisting of:

(a) acids with aromatic rings containing one or more unreactive monovalent constituents and which are connected to other residues in the main chain by coaxial or parallel and oppositely directed bonds,

(b) acids with aromatic rings connected to other residues in the main chain by two valency bonds which are neither coaxial nor parallel and oppositely directed,

(c) acids with aromatic rings which are one or more p-phenylene groups connected to other residues in the main chain through two valency bonds to two chemically different atoms,

(d) acids with unsubstituted aromatic rings which are connected to other residues in the main chain by coaxial or parallel and oppositely directed bonds,

(e) mixtures of at least two of the types of residues (a), (b), (c) and (d).

4,272,626

METHOD OF PRODUCING 1-EPI-2-DEOXYFORTIMICIN A AND INTERMEDIATES THEREFOR

Ronald E. Carney, Gurnee, and James B. McAlpine, Libertyville, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Sep. 26, 1979, Ser. No. 79,016

Int. Cl.³ C07H 15/22

U.S. Cl. 536—17 R **4 Claims**

1. 1-epi-Tetra-N-benzyloxycarbonylfortimicin A-2-epi-thiocarbonylimidazolide.

4,272,627

PHENYL-QUINOLIZINONES

Rene Imhof, Wittnau, and Emilio Kyburz, Reinach, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

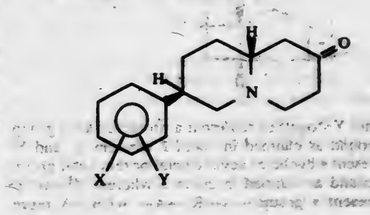
Division of Ser. No. 85,096, Oct. 15, 1979. This application May 12, 1980, Ser. No. 148,646

Claims priority, application Switzerland, Oct. 13, 1978, 10654/78; Aug. 3, 1979, 7156/79

Int. Cl.³ C07D 455/02

U.S. Cl. 546—138 **4 Claims**

3. A compound of the formula



V

wherein X is hydrogen, fluorine, chlorine, lower alkoxy, lower alkyl or trifluoromethyl; and Y is hydrogen, fluorine, chlorine, lower alkoxy or lower alkyl,
its racemate or an enantiomer thereof.

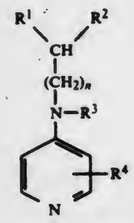
4,272,628

NOVEL PYRIDINE DERIVATIVES

Edwin T. Edington, Cookham, and Alan C. White, Windsor, both of England, assignors to John Wyeth & Brother Limited, Maidhead, England

Continuation-in-part of Ser. No. 873,192, Jan. 30, 1978, Pat. No. 4,180,670. This application Jun. 22, 1979, Ser. No. 51,077
Claims priority, application United Kingdom, Feb. 2, 1977, 4354/77; Jul. 9, 1977, 28879/77
Int. Cl.³ C07D *213/32*
U.S. Cl. 546—284 **5 Claims**

1. A compound selected from those having the formula



(I)

and their pharmaceutically acceptable acid addition salts, wherein one of R^1 and R^2 is phenyl; naphthyl; phenyl substituted by one to two substituents selected from halogen, lower alkyl, lower alkoxy, lower alkylenedioxy and trifluoromethyl; thienyl and pyridyl, the other of R^1 and R^2 is lower alkyl, R^3 and R^4 are independently selected from hydrogen and lower alkyl and n is selected from 0 and 1.

4,272,629

NOVEL PROSTAGLANDIN INTERMEDIATES

Stanley M. Roberts, Macclesfield, England, assignor to Allen & Hanburys Limited, London, England

Continuation of Ser. No. 868,331, Jan. 10, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,502
Claims priority, application United Kingdom, Jan. 11, 1977, 952/77
Int. Cl.³ C07D *303/06, 493/10, 497/10*
U.S. Cl. 549—11 **9 Claims**

1. The compound of formula I,



(I)

and derivatives thereof in which the ketone group is protected.
2. A compound as claimed in claim 1 having the formula II,



(II)

wherein Y^1 and Y^2 together represent a protected keto group.
3. A compound as claimed in claim 2 wherein Y^1 and Y^2 together represent a cyclic or acyclic ketal or thio ketal group.
4. A compound as claimed in claim 3 wherein Y^1 and Y^2 together represent a group —A—R^1—A— where A represents an oxygen or sulphur atom and R^1 represents a C_{2-6} alkylene group.
7. A compound as claimed in claim 4 wherein Y^1 and Y^2 together represent a 1,3-dioxan or 1,3-dithian ring.

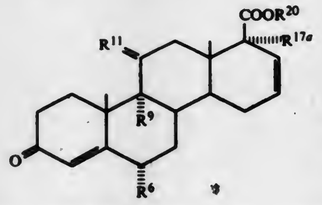
4,272,630

D-HOMOSTEROIDS

Leo Alig, 32 Liebrütistrasse, Kaiseraugst; Andor Fürst, 14 Magnoliapark, Basel; Marcel Müller, 10 Quellenweg, Frenkendorf, all of Switzerland; Ulrich Kerb, 7 Prinzregentenstrasse, Berlin, Fed. Rep. of Germany; Klaus Kieslich, 4 Strasse zum Löwen, Berlin, Fed. Rep. of Germany, and Rudolf Wiechert, 8a Petzower Strasse, Berlin, Fed. Rep. of Germany

Filed Jan. 11, 1980, Ser. No. 111,424
Claims priority, application Switzerland, Jan. 24, 1979, 707/79
Int. Cl.³ C07C *69/75*
U.S. Cl. 560—6 **7 Claims**

1. D-homosteroids of the formula



wherein R^6 is hydrogen, fluorine, chlorine or methyl; R^9 is hydrogen, fluorine, chlorine or bromine; R^{11} is oxo or (α-H,β-OH) when R^9 is hydrogen, or R^{11} is oxo, (α-H,β-OH), (α-H,β-fluoro) or (α-H,β-chloro) when R^9 is fluorine, chlorine or bromine, with the proviso that, in the case of 9,11-dihalo compounds, the atomic number of the halogen in the 9-position is not less than the atomic number of the halogen in the 11-position; R^{17a} is acyloxy selected from the group consisting of alkanoyloxy containing from 1-7 carbon atoms, undecylenyloxy, oleyloxy, cyclopentylpropionyloxy, cyclohexylpropionyloxy, phenylacetyloxy, salicyloxy, acetylsalicyloxy and benzoyloxy; and R^{20} is lower alkyl or halo-(lower alkyl) and wherein the broken line in the 1,2-position denotes an optional carbon-carbon bond.

4,272,631

HYDROLYSIS OF 5-(BETA-METHYLMERCAPTOETHYL)-HYDANTOIN

Kurt H. Schaaf, Clearwater, Fla., and Herman Horn, Staten Island, N.Y., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Feb. 25, 1980, Ser. No. 124,295
Int. Cl.³ C07C *149/247*
U.S. Cl. 562—559 **12 Claims**

1. A process for preparing methionine from 5-(beta-methylmercaptoethyl)-hydantoin comprising hydrolzing at superatmospheric pressure in an autoclave at a temperature of from about 105° C. to about 230° C., one mole of the hydantoin with a mixture of from about one to eight moles of a hydroxide of a monovalent cation selected from the group consisting of lithium hydroxide, sodium hydroxide, potassium hydroxide, ammonium hydroxide and alkyl substituted ammonium hydroxide and from about one to about five moles of zinc hydroxide in an aqueous medium containing from about 500 to 5,000 milliliters of water per mole of the hydantoin and thereafter recovering methionine from the hydrolysis reaction mixture.

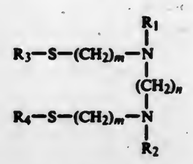
4,272,632

NOVEL SILVER COMPLEXING AGENTS

Krishna G. Sachdev, Beacon, N.Y., and Stanley M. Bloom, deceased, late of Waban, Mass. (by Arlene N. Bloom, executrix), assignors to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 80,440, Oct. 1, 1979. This application Jun. 16, 1980, Ser. No. 159,910
Int. Cl.³ C07C *87/14, 87/22, 91/12*
U.S. Cl. 564—501 **3 Claims**

1. A compound represented by the formula:



wherein m is 2 or 3; n is 2 or 3; R_1 and R_2 may be the same or different and may be H, alkyl, alkoxyalkyl, hydroxyalkyl or aminoalkyl having two to six carbon atoms; and R_3 and R_4 may be the same or different and may be alkyl, alkoxyalkyl or aminoalkyl having two to six carbon atoms.

4,272,633

PROCESS FOR THE MANUFACTURE OF TETRACHLOROCYCLOBUTENONE FROM HEXACHLOROCYCLOBUTENE

Günther Manbs, and Konrad Rombusch, both of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Mar. 9, 1979, Ser. No. 19,205
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1978, 2810398
Int. Cl.³ C07C *45/27, 49/593*
U.S. Cl. 568—364 **10 Claims**

1. A process for preparing tetrachlorocyclobutenone from hexachlorocyclobutene, which comprises reacting (a) hexachlorocyclobutene with
I. (b) anhydrous sulphuric acid and (c) sulphur trioxide; or
II. (b) anhydrous sulphuric acid and (d) phosphorus pentoxide
at a temperature of 30°-140° C.;
the starting materials being present in the following molar ratios at the start of the reaction:
for I,
(a): (c)=0.67-10:1 and
(b): (c)=0.1-10:1;
and for II,
(a): (d)=0.67-10:1 and
(b): (d)=0.5-20:1.

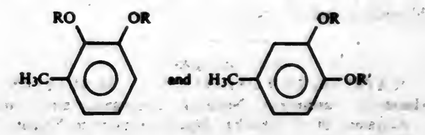
4,272,634

PROCESS FOR THE PRODUCTION OF INTERMEDIATE OXIDATION PRODUCTS OF TOLUENES HAVING ETHER LINKAGES

Juichi Imamura, Chofu, Japan, assignor to Director-General of Agency of Industrial Science and Technology; Sanko Chemical Co., Ltd. and Nippon Soda Co., Ltd., all of Tokyo, Japan

Division of Ser. No. 863,954, Dec. 23, 1977, Pat. No. 4,220,605. This application Dec. 11, 1979, Ser. No. 102,599
Claims priority, application Japan, Dec. 27, 1976, 51-158756; Dec. 27, 1976, 51-158757; Aug. 15, 1977, 52-97646
Int. Cl.³ C07C *45/00, 37/00*
U.S. Cl. 568—432 **5 Claims**

1. In the process for the production of alcohols and/or aldehydes which comprises subjecting a toluene derivative having ether radicals of the general formula selected from



and

wherein R and R' are hydrocarbyl groups with 1-20 carbon atoms which may carry an inert substituent, to oxidation reaction in the liquid phase with molecular oxygen the improvement wherein the said oxidation reaction is effected under the following combination of conditions: (a) the use, as solvent, of a lower saturated fatty acid and/or anhydride thereof; (b) a partial pressure of oxygen of 0.1-50 Kg/Cm² absolute; (c) a temperature in the range of 40°-200° C.; (d) in the presence of a soluble cobalt salt in the amount of at least 0.0005 moles per mole of toluene derivative; (e) in the presence of a bromine ion-supplying substance in an amount of 0.00001-0.5 moles per mole of toluene derivative and concurrently in an amount of 0.0002-20 moles per mole of cobalt salt; (f) in such a manner that the conversion rate of said toluene derivative does not exceed 90%.

4,272,635

PRODUCTION OF ALKALI METAL PHENATES

Sanford A. Siegel; Masao Yoshimine, and Che-I Kao, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 26, 1979, Ser. No. 60,945
Int. Cl.³ C07C *39/24, 39/36*
U.S. Cl. 568—776 **10 Claims**

1. A process for the preparation of an alkali metal phenate which comprises the steps of reacting by mixing a molten chlorinated phenol with an aqueous caustic solution in a sealed, pressurized reactor vessel, under superatmospheric pressure, at a temperature from about 165° C. to about 200° C., until the caustic solution is sufficiently reacted with the substituted phenol, cooling and isolating the solid alkali metal phenate product by rapidly drying the aqueous reaction product mixture in a manner which permits short contact time with heat.

4,272,636

CHLORINATED PHENOL MOLD RELEASE AGENT

Leonard R. Thompson, and J. Kevin Kearney, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 26, 1979, Ser. No. 106,991
Int. Cl.³ C07C *39/36*
U.S. Cl. 568—776 **8 Claims**

1. A process for imparting mold release properties to a chlorinated phenol prepared by chlorinating phenol in the presence of a Friedel-Crafts catalyst, comprising adding to a molten chlorinated phenol, immediately on completion of the chlorination process and without distillation at least 0.5 weight percent of a glycol mono ether compound selected from the group consisting of mono-methyl, mono-ethyl, mono-butyl, mono-isobutyl or mono-phenyl ethers of ethylene, diethylene, triethylene or propylene glycols.

8. The process improvement of claim 1 or 2 wherein the chlorinated phenol is pentachlorophenol.

4,272,637

CATALYST FOR OXIDATION OF ISOBUTYLENE

Haruhisa Yamamoto; Nobuaki Yoneyama, and Shinichi Akiyama, all of Takaoka, Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Dec. 20, 1978, Ser. No. 971,302
Claims priority, application Japan, Dec. 28, 1977, 52-159553
Int. Cl.[3] C07C 45/35, 47/22
U.S. Cl. 568—780 8 Claims

1. A process for preparing methacrolein which comprises oxidizing isobutylene with molecular oxygen in the vapor phase at a temperature of 250° to 700° C. in the presence of a catalyst which has a composition of the formula

$$Mo_aBi_bFe_cCo_dNi_eP_fPb_gX_hO_i$$

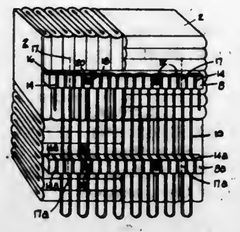
wherein X is at least one alkali metal element selected from the group consisting of K, Rb and Cs; a, b, c, d, e, f, g and h respectively represent the number of Mo, Bi, Fe, Co, Ni, P, Pb and X atoms, and a is 12, b is 0.1–10, c is 9–20, d is 0–12, e is 0–12 with the proviso that the sum of d and e is 0.5–15, f is 0.1–5, g is 0.05–8 and h is 0.01–5; and i is the number of oxygen atoms which satisfies the atomic valences of the other elements.

4,272,638

HEATER ELEMENT SUPPORTS FOR USE WITH FIBROUS BLOCK INSULATIONS

Anthony E. Cimochowski, Sedalia, Colo., assignor to Johns-Manville Corporation, Denver, Colo.

Filed Mar. 16, 1979, Ser. No. 21,051
Int. Cl.[3] F27D 11/02; H05B 3/06
U.S. Cl. 13—25 34 Claims



1. A heater element support device to support electrical heater elements and to be used in conjunction with a block of fibrous thermal insulation which is adapted to be secured to a wall of a heated chamber by means of an attaching element attached to the cold face of said block, which device comprises:

(a) a bar shaped member having heater element securing means disposed longitudinally along said member; and

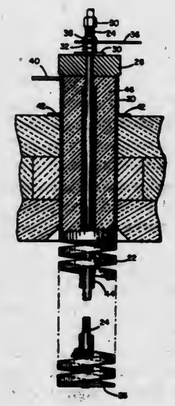
(b) member securing means integral with said block and penetrating the hot face of said block at only a single location to releasably secure said member in a position abutting said hot face of said block.

4,272,639

HELICALLY WOUND HEATER

Jacob H. Beck, Waban, Mass., assignor to BTU Engineering Corporation, North Billerica, Mass.

Filed Aug. 1, 1979, Ser. No. 62,757
Int. Cl.[3] H05B 3/14
U.S. Cl. 13—25 19 Claims



1. A high temperature electrical resistance heater adapted for use within a high temperature furnace and comprising:

an elongated tubular element including:

a first axially extending helical section of high resistance and adapted for disposition within a furnace chamber, and having helical turns spaced from one another;

a second axially extending tubular section contiguous with and electrically and thermally joined to said first section and of low resistance and adapted for disposition external to the furnace chamber;

an elongated rod of low resistance disposed coaxially within and substantially coextensive with said tubular element;

a member of low resistance electrically and mechanically connecting the end of said first section to the confronting end of said rod;

means for maintaining the coaxial position of said rod within said tubular element;

means for maintaining said helical section in compression; and

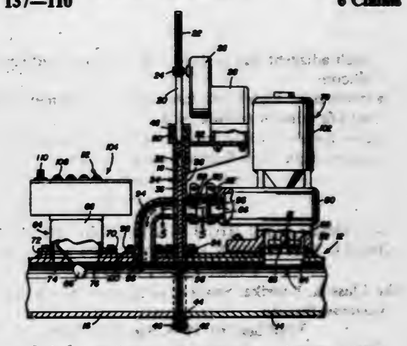
means for electrically connecting an end of said second section and confronting end of said rod to a power source.

4,272,640

AUTOMATIC SEWAGE VALVE

William J. Baumbach, Box 117, Fairfax Station, Va. 22039

Filed Jun. 19, 1979, Ser. No. 49,934
Int. Cl.[3] G05D 11/00
U.S. Cl. 137—110 6 Claims



1. A valve for installation in a sewer line extending from a house or other building structure to prevent back flow of sewage into the house, said valve including a reciprocal gate mounted for movement between a closed position and an open position, a housing for said gate, said housing including wiper seal means adjacent the sewer pipe to clean the surfaces of the gate during reciprocation and to seal the gate in relation to the flow path of sewage, and means automatically moving said gate to its position in response to conditions of sewage flow in the sewer line on the downstream side of the valve in relation to the house or other building structure, bypass means associated with the valve for communicating the portions of the sewer line on each side of the valve, said bypass means including pump means for pumping sewage from the upstream side of the valve to the downstream side thereof in relation to the house when the gate closes thereby enabling sewage producing facilities in the house to be used in a normal manner when the valve is in closed position, said bypass means including a conduit, said gate including an aperture alignable with the conduit to automatically open the conduit when the gate is closed, said pump means including a chopper unit for reducing sewage particle size entering the pump means.

4,272,641

TANDEM JUNCTION AMORPHOUS SILICON SOLAR CELLS

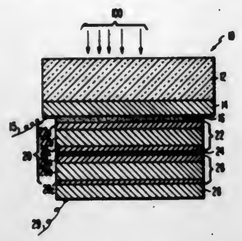
Joseph J. Hanak, Lawrenceville, N.J., assignor to RCA Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 31,460, Apr. 19, 1979, abandoned. This application Jan. 4, 1980, Ser. No. 109,637
Int. Cl.[3] H01L 31/06
U.S. Cl. 136—249 18 Claims

1. An amorphous silicon solar cell comprising:

an active body having a first major surface and a second major surface opposite to said first major surface, wherein said active body comprises a plurality of layers of hydro-

genated amorphous silicon each having regions of differing conductivity type, each of said layers forming a photovoltaic generator, said layers being arranged in stacked configuration such that the photovoltages from each of said layers is added, and a transparent, high work function metal cermet layer forming a tunnel junction between



each adjacent pair of layers of hydrogenated amorphous silicon;

a transparent high work function metal cermet contacting said first major surface; and

means for electrically contacting said last mentioned transparent high work function metal cermet.

4,272,642

GAS-INSUATED HIGH-VOLTAGE BUSHING WITH SHIELD ELECTRODE EMBEDDED IN AN ANNULAR INSULATING BODY

Ake Classon, Ludvika, Sweden, assignor to ASEA Aktiebolag, Vasteras, Sweden

Filed Sep. 10, 1979, Ser. No. 74,236
Claims priority, application Sweden, Sep. 13, 1978, 7809619
Int. Cl.[3] H01B *17/26, 17/42*
U.S. Cl. 174—31 R 10 Claims



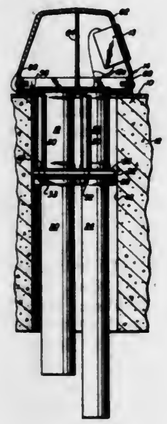
1. In an electrical high-voltage bushing for a metal-enclosed, pressure gas insulated switchgear, which bushing includes an elongated hollow tubular insulator, a centrally located current conductor, the space between the conductor and the inner surface of the tubular insulator being filled with a pressurized insulating gas, the bushing further including a metal flange connected to one of the ends of the tubular insulator for connecting the bushing to a bushing opening in the ground metal enclosure of a switchgear, and an annular shield electrode positioned within the space between the conductor and the inner surface of the tubular insulator near the metal flange, the shield electrode being electrically connected to the metal flange, the improvement wherein an annular insulating body is positioned in said space between the conductor and the inner surface of the tubular insulator near the metal flange, said shield electrode being at least partially embedded within said annular insulating body, said annular insulating body being composed of a material which displays a permittivity several times higher than the permittivity of the insulating gas within said space, said annular insulating body being connected to said metal flange and extending away therefrom a distance further than the distance between said shield electrode and said metal flange, the volume of said annular insulating body located beyond said shield electrode with respect to said metal flange being several times greater than that of said shield electrode, said annular insulating body including a field-controlling upper portion remote from said metal flange which includes an inner side which extends towards said central current conductor so as to form a tapering annular space between said current conductor and said field-controlling upper portion in a direction away from said metal flange.

4,272,643

FIRE RESISTANT FITTING

James C. Carroll, Hamilton, Ohio; Donald L. Chapman, Liberty, Ind.; Stephen L. Flee, Oxford, and Gilbert A. McGoldrick, Hamilton, both of Ohio, assignors to Square D Company, Palatine, Ill.

Filed Nov. 15, 1978, Ser. No. 961,075
Int. Cl.[3] H02G *15/04*
U.S. Cl. 174—48 10 Claims



1. An electrical fitting assembly for insertion in a floor passage extending through a floor, the improvement comprising:

a pair of plates, each plate having a periphery shaped and dimensioned to be received in said floor passage, each plate also having an aperture adapted to receive a conduit;

a first conduit received within said aperture in a first of said plates and secured to said first plate, said first conduit extending in an opposite direction from the second of said plates;

a second conduit received within said aperture of said second plate and secured to said second plate, said second conduit extending in an opposite direction from said first plate, said first conduit aligned with said second conduit;

a compressible material located between said plates in a plane between said first and second conduits, said material having a passage therein aligned with said conduits to enable the extension of wiring through said first and second conduits, said material adapted to expand inwardly about the entire perimeter of said passage upon exposure to sufficient heat in order to completely seal said passage about a wire extending therethrough;

means extending through said first plate and engaged in said second plate for connecting said first plate to said second plate and for readily moving said second plate towards said first plate upon installation of said assembly to compress said material and expand said material radially outward for sealing the periphery of said passage in said floor,

whereby said assembly is secured in said floor passage; and

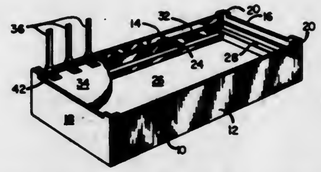
a third plate having an aperture therein receiving said first conduit extending from said first plate and secured to said first conduit with said third plate having a perimeter larger than said passage through said floor for overlapping said passage.

4,272,644

ELECTRONIC HYBRID CIRCUIT PACKAGE

Ronald C. Visser, Bedford; G. James Estep, Georgetown, and Alan S. Esbitt, Lynnfield, all of Mass., assignors to Hybrid Systems Corporation, Bedford, Mass.

Filed Sep. 27, 1979, Ser. No. 79,581
Int. Cl.[3] H05K *5/00*
U.S. Cl. 174—52 FP 6 Claims



1. A hybrid circuit package comprising a ceramic substrate, a film circuit on at least one surface of the substrate, one or more monolithic chips mounted on the substrate and wire-bonded to the film circuit, an array of terminal pins disposed along at least one edge of the substrate and affixed to the substrate by respective pin clips, and wire bonds interconnecting the terminal pins to the circuit;

a shell of generally rectangular configuration having a top wall and four side walls defining an interior space accommodating the hybrid circuit and including:

first means integral with the shell engaging and supporting the substrate a predetermined distance from the inner surface of the top wall;

second means integral with the shell accommodating the terminal pins and associated pin clips; and

third means integral with the shell to provide a bonding surface around the perimeter of the substrate; and

an encapsulate bonded onto at least the perimeter of the outer surface of the substrate and bonded onto the third means and around the portions of the terminal pins at the second integral means and operative to seal the package and rigidly retain the terminal pins extending therethrough.

4,272,645

ELASTOMERIC MOLDED STRAIN RELIEF

Boleslaw Kornatowski, Elizabeth, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Jan. 29, 1980, Ser. No. 116,510
Int. Cl.[3] H01R *13/58*
U.S. Cl. 174—65 G 8 Claims

1. A molded elastomeric strain relief to extend longitudinally through an opening in a wall of a housing, the wall having a predetermined thickness, the housing comprising a barrier extending across a first side of the opening and comprising an outwardly facing surface forming part of the periphery of the opening and an inwardly facing surface spaced from the outwardly facing surface by a predetermined first distance, the opening further being defined by an edge portion of the wall spaced from the outwardly facing surface by a second predetermined distance, the strain relief comprising:

an entrance end and an external end longitudinally spaced from the entrance end;

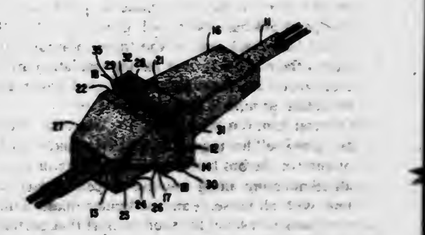
a central portion extending longitudinally along the strain relief between the entrance end and the exernal end and having a cross-section for substantially filling the opening;

a first shoulder extending transversely relative to the longitudinal direction of the strain relief at a location intermediate the ends and on a first side of the strain relief to abut against the outwardly facing surface to prevent the strain relief from being inserted too far into the opening;

a second shoulder at one end of the central portion and facing in the opposite direction from the first shoulder and extending transversely relative to a second side of the strain relief opposite the first side to engage the inner surface of the wall when the strain relief is fully inserted into the opening to prevent the strain relief from being easily removed from the opening;

a projection extending from the first side of the strain relief offset closer to the entrance end than the second shoulder is and spaced from the first shoulder towards the entrance end by a distance substantially equal to the first distance to form a trough in the strain relief between the projection and the first shoulder, whereby the outwardly facing surface and the inwardly facing surface on the barrier are clasped in the trough when the strain relief is in position in the opening;

a beveled surface on the second side of the strain relief extending from the height of the second shoulder toward the first side, whereby the portion of the strain relief



adjacent the entrance end is tapered so that the extremity of the entrance end of the strain relief is smaller than the opening, to permit the tapered portion of the strain relief to be inserted at an angle into the opening, the distance between the bottom of the trough adjacent the first shoulder and the distal edge of the second shoulder being greater than the distance between the barrier and the edge portion of the wall;

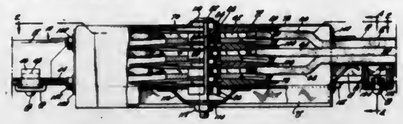
a third shoulder extending substantially parallel to and in the same direction relative to the strain relief as the second shoulder and spaced from the second shoulder toward the external end of the strain relief to define the other end of the central portion, the cross-section of the central portion substantially conforming in shape to the shape of the opening; and

side portions of the strain relief along third and fourth mutually opposite sides of the strain relief adjacent the second shoulder and facing away from the entrance end, whereby pressure can be applied to the side portions to force the tapered portion of the strain relief adjacent the second shoulder far enough into the opening to permit the second shoulder to engage the inner surface of the wall with the strain relief in position such that the projection locks behind the inwardly facing surface of the barrier and the second and third shoulders lock on opposite sides of a portion of the edge of the wall immediately adjacent the opening.

4,272,646
BUS CONDUIT ELECTRICAL DISTRIBUTION SYSTEM

Elmer T. Carlson, Port St. Lucie, Fla., assignor to Broadhill Development Corporation, Farmington, Conn.

Continuation-in-part of Ser. No. 877,595, Feb. 15, 1978, Pat. No. 4,213,003, which is a continuation-in-part of Ser. No. 755,446, Dec. 29, 1976, Pat. No. 4,112,249, which is a continuation-in-part of Ser. No. 554,684, Mar. 3, 1975, Pat. No. 4,008,365. This application May 19, 1980, Ser. No. 151,460
Int. Cl.³ H02G 5/08
U.S. Cl. 174—88 B 1 Claim

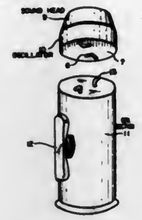


1. An electrical distribution system comprising:
(a) an elongated tray and cover, both of U-cross section;
(b) between them, but protruding beyond their ends, a set of bus bars of which has substantially the same cross section both in shape and dimensions, which cross section is substantially that of a rectangle, the bus bars including ones of different electrical phase from each other, all those of the one phase when within the tray and cover being on the one level side by side with their edges horizontally adjacent to each other and their lower and upper faces substantially on the same respective levels with each other, the bus bars in any one phase including a plurality of groups of bus bars, with each group including three individual bars, each one of the three individual bars when within the tray and cover having insulation around it and each group when within the tray and cover also having insulation around it as a group;
(c) a metal joint box at an end of the tray and cover, the joint box also itself having a tray and cover and within it one set of ends of the bus bars in condition bare of insulation and all terminating along the one perpendicularly transverse line, with all those in any particular phase terminating at one particular level for such ends of that particular phase in side by side position;
(d) a second tray and cover and set of bus bars having the same attributes as stated for the first such items but located on the opposite side of the joint box and having its set of bus bar ends extending in from the opposite end of the joint box to end in a perpendicularly transverse line on the other side of the first and spaced from it and the individual ends in any one phase of the one set of bus bars ending on the same horizontal level as the individual ends in the same phase of the other set of bus bars;
(e) bridging plates within the joint box of which there is one and only one such plate for each phase and this extends across between an overlapping contacting position relative to all the bared bus bars of that phase in the one set of bus bars within the joint box and a corresponding overlapping contacting position relative to the bared bus bars of that phase in the other set of bus bars within the joint box, and each such plate having a hole in its center;
(f) insulating plates in the joint box, one between each adjacent pair of phases and one on the outside above and below the upper and lower phases respectively, each insulating plate having a hole in its center in registry with the holes in the bridging plates and around that hole having on the one side a protruding single ridge concentric with the hole and on the other side a double ridge concentric with the hole, with the single ridge on one plate adapted to fit into the valley between the concentric ridges on the adjacent plate; and
(g) a single bolt extending through all the holes and a single nut to cooperate with the bolt to hold everything together in the joint.

4,272,647
SPEECH AID APPARATUS

Ivar Veit, Auf dem Schild 6, 2400 Lübeck; Liesbet Sickel, Dr. Ringen Str. 49, 5063 Overath, and Konstantin Gatzsch, Hinter den Wiesen 15, 5 Köln 91, all of Fed. Rep. of Germany

Filed Apr. 25, 1979, Ser. No. 33,290
Claims priority, application Fed. Rep. of Germany, Apr. 26, 1978, 2818144
Int. Cl.³ A61F 1/20
U.S. Cl. 179—1 AL 8 Claims

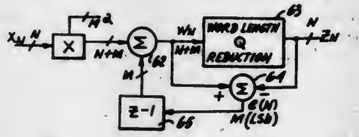


1. A speech-aid apparatus for laryngectomees, comprising: a first housing having disposed therein a sound head with a hard diaphragm held therein, an electrodynamic oscillator connected to the sound head and including a magnet system with an oscillator coil, a plunger, connected thereto and a soft diaphragm vibrationally connected to the first housing through the plunger, whereby the soft diaphragm sets the hard diaphragm into vibration; and a second housing for a power supply and an operating switch and means for releasably mechanically and electrically connecting the two housings comprising a bayonet joint wherein the magnet system comprises a pot-type magnet arrangement having a central opening and comprising an axially polarized, very thin annular permanent magnet held between two pole rings made of a soft magnetic material and having rotational symmetry, the upper one of the two rings being pot-shaped, with a downwardly open annular gap concentric with the central opening and the oscillator coil projecting into it, and wherein the plunger is connected to the oscillator coil and extends freely through the central opening of the pot-type magnet arrangement.

4,272,648
GAIN CONTROL APPARATUS FOR DIGITAL TELEPHONE LINE CIRCUITS

Bhagwati P. Agrawal, Shelton, and Kishan Shenoi, Fairfield, both of Conn., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Nov. 28, 1979, Ser. No. 98,110
Int. Cl.³ G06F 7/39
U.S. Cl. 179—1 VL 23 Claims

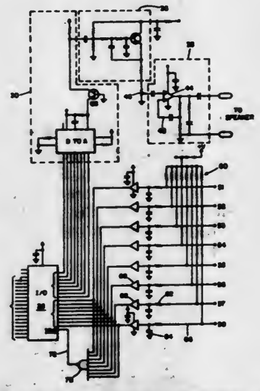


1. A gain control circuit for operating on a digital input signal of the type comprising a plurality of digital words each having the same number of bits with each word manifesting a weighted value of an analog signal, said circuit comprising:
multiplier means having one input responsive to said digital input signal, and a second input adapted to receive a digital coefficient word indicative of a desired gain factor to be imparted to each of said digital input words, said coefficient word having a predetermined number of bits to provide at an output of said multiplier means, a digital product signal, each word of which having a number of bits equal to the sum of said coefficient word bits and said digital input signal word bits,
logic means responsive to said product signal for obtaining at an output, an output signal comprised of output digital words, each having a number of bits equal to the number of bits of said digital input signal words, said logic means being operative to remove all of the least significant bits in said product signal not corresponding to said digital input signal word bits, whereby said output digital words each contain the same number of bits as said input digital word, and such that each of said output digital words include said gain factor,
summing means responsive to the output signal from said logic means and said least significant bits and operative to derive an error signal indicative of said least significant bits,
feedback control means responsive to said error signal and to the product signal obtained from the next input digital word for adding said error signal to said product signal to provide a compensated digital signal each word of which has the same number of bits as does each word of said product signal, said feedback control means including means for applying said compensated signal to said logic means to cause said logic means to operate on said product signal as compensated by said error signal.

4,272,649
PROCESSOR CONTROLLED SOUND SYNTHESIZER

Randall R. Pfeiffer, Costa Mesa, Calif., assignor to Williams Electronics, Inc., Chicago, Ill.

Filed Apr. 9, 1979, Ser. No. 28,079
Int. Cl.³ G10L 1/00
U.S. Cl. 179—1 SM 3 Claims

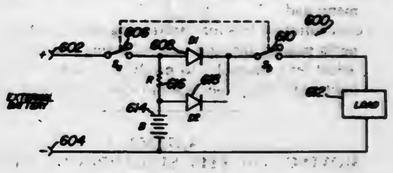


1. A method of synthesizing sound comprising the steps of:
(a) storing in a processor memory data from which the sound waveforms are to be synthesized and a program for causing said processor to produce digital representations of the sound waveforms,
(b) executing selective portions of said program utilizing selected data depending upon the sound waveform desired, including the substeps of:
(i) providing data lines connected to said processor, the logic state of said lines being externally controlled to select the portions of said program executed and the data utilized,
(ii) detecting a change in the logic state of said data lines,
(iii) causing said processor to poll said data lines whenever a change is detected thereby to control the operation of said processor,
(c) converting said digital representation to corresponding analog sound waveforms,
(d) applying said analog sound waveforms to audio means to produce the desired sounds.

4,272,650
POWER SUPPLY SYSTEM

Duane R. Belgiano, Bala Cynwyd; Joel M. Benjamin, Jr., Pottstown, and Victor Meyer, Jr., Telford, all of Pa., assignors to International Mobile Machines Incorporated, Bala Cynwyd, Pa.

Division of Ser. No. 755,615, Dec. 29, 1976, Pat. No. 4,130,731. This application Oct. 16, 1978, Ser. No. 951,737
Int. Cl.³ H04M 19/00
U.S. Cl. 179—77 5 Claims

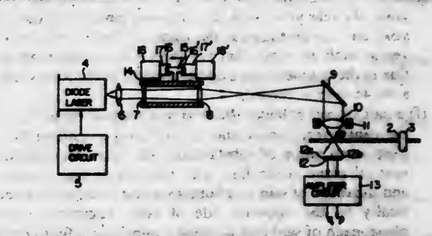


1. A portable telephone system comprising at least one subscriber station and at least one base station in selective communication with each other, a power supply network for supplying power to said telephone system, said power supply network comprising a primary high voltage power source and a secondary low voltage power source, means causing total suspension of power from said primary power source except during periodic intervals of time, whereby said primary power source is alternatively activated and inactivated, and means inhibiting said secondary power source from supplying power to said system while said primary power source is activated and permitting said secondary power source to supply power to said system while said primary power source is inactivated, said subscriber station having a memory means for storing an indication of the channel to which said system is tuned when said primary power source becomes inactivated, and said secondary power source supplying power substantially only to said memory means while said primary power source is inactivated, whereby said memory means retains the indication of said channel while said primary power source is inactivated.

4,272,651
OPTICAL SYSTEM HAVING DIODE LASER LIGHT SOURCE

Tomio Yoshida, Katano; Yoshinobu Nakata, Ikoma; Shunji Harigae, Neyagawa, and Toshio Sato, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Apr. 24, 1979, Ser. No. 33,085
Claims priority, application Japan, Apr. 28, 1978, 53-51807; Aug. 25, 1978, 53-104081
Int. Cl.³ G11B 7/00
U.S. Cl. 369—112 3 Claims



1. An optical system for optically recording or reproducing information on or from the information tracks of an optically sensitive recording medium by a light beam, comprising:

a diode laser forming a light source, said laser having a junction plane and emitting a first light beam component in a direction perpendicular to a said junction plane and a second light beam component in a direction parallel to said junction plane;

a condenser lens disposed in a light emission path of said diode laser for collecting the first and second light beam components emitted by said diode laser;

a cylindrical lens assembly composed of at least a concave cylindrical lens and a convex cylindrical lens, each cylindrical lens having an axis of curvature in a direction perpendicular to said junction plane of said diode laser, said cylindrical lens assembly being disposed in succession to said condenser lens to receive the light output therefrom, and disposed such that only said second light beam component emitted from said laser undergoes optical treatment; and

a concentrating lens for constricting said light beam components passing through said collecting lens and said cylindrical lens assembly, to produce a narrowly constricted light beam for projection onto said recording medium.

4,272,652

MOVING COIL TYPE STEREOPHONIC PICKUP CARTRIDGE

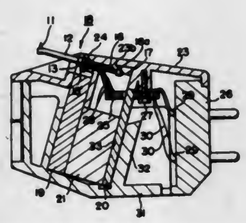
Masaru Ogikubo, Kokubunji, Japan, assignor to Nippon Atsudenki K.K., Mitaka, Japan

Filed May 23, 1979, Ser. No. 41,918

Claims priority, application Japan, May 25, 1978, 53-62450; Apr. 16, 1979, 54-45671

Int. Cl.³ H04R 9/16

U.S. Cl. 369—139 **11 Claims**



1. A moving coil type stereophonic pickup cartridge comprising:

(a) a cantilever which has a stylus mounted on a front end thereof,

(b) a front yoke which is arranged within an imaginary plane intersecting the axis of the cantilever,

(c) a rear yoke having a pair of branched portions which extend toward the front yoke parallel to the axis of the cantilever,

(d) a magnet for magnetizing the front yoke and the rear yoke,

(e) a pair of magnetic gaps which are formed within the front yoke, the rear yoke, and the branched portions of the rear yoke and are arranged at the right and left of the cantilever at such an angle that the directions of the magnetic flux in the magnetic gaps correspond to the groove wall of a 45/45 system record,

(f) a pair of coil bobbins attached to a supporting portion of the cantilever, one of said coil bobbins extending therefrom at an angle of substantially 45° from an imaginary vertical plane coinciding with the axis of the cantilever and the other of said coil bobbins being arranged symmetrically on the opposite side of said imaginary vertical plane, each of said coil bobbins comprising a first portion attached to the cantilever supporting portion and extending therefrom toward said magnet at the angle of 45° and a second portion formed integrally with said first portion and extending therefrom substantially parallel to the axis of the cantilever, and

(g) a moving coil wound only on each of said second portions of the coil bobbins and the moving coil-wound portions positioned and disposed as a whole within said air gaps, the axial directions of which are approximately parallel to the axial direction of the cantilever, whereby stereophonic reproduction is effected for a stereophonic record of the 45/45 system.

4,272,653

LOUDSPEAKER AND A METHOD OF PRODUCING THE SAME

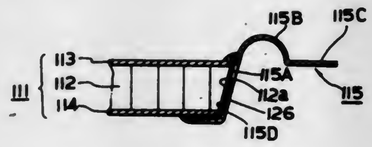
Mamoru Ouchi, Yokosuka, and Hiroshi Koizumi, Ohmiya, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 14, 1979, Ser. No. 48,389

Claims priority, application Japan, Jun. 15, 1978, 53-72426

Int. Cl.³ H04R 7/02

U.S. Cl. 179—115 R **14 Claims**



1. A loudspeaker comprising:

a planar diaphragm, including first and second layers, and a core member sandwiched between said layers, said core member having an edge surface aslant relative to the direction of thickness thereof;

means for driving said diaphragm at a node portion of a divided vibration mode thereof in accordance with an electrical drive signal supplied thereto; and

support means for supporting said diaphragm and said driving means.

4,272,654

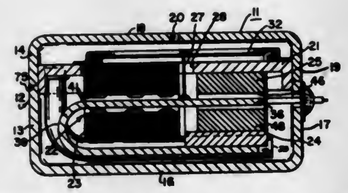
ACOUSTIC TRANSDUCER OF IMPROVED CONSTRUCTION

Elmer V. Carlson, Prospect Heights, Ill., assignor to Industrial Research Products, Inc., Elk Grove Village, Ill.

Filed Jan. 8, 1979, Ser. No. 1,949

Int. Cl.³ H04R 11/00, 31/00

U.S. Cl. 179—119 A **3 Claims**



1. A transducer comprising in combination a case including a motor positioned therein, said motor comprising an armature, a self-supporting coil having a tunnel formed therein for receiving the armature, a U-shaped armature in said transducer, said armature having a pair of parallel extending arms positioned or joined together by a folded portion, said folded portion of said armature being formed in an arcuate shape, said coil including a tunnel or passageway formed through the center thereof, and ridges extending inwardly into said passageway to limit the movement of said armature to protect said armature against shock damage.

3. The method of fabricating a transducer, said transducer including a case and a motor positioned therein, said motor including an armature, a coil including a tunnel or passageway formed therein, a U-shaped armature, said armature having a pair of parallel extending arms positioned to be joined together by a folded portion and one of the armature arms being affixable in place and the other arm being free to vibrate, consisting of the steps of:

(a) forming ridges extending inwardly into said coil passageway;

(b) securing one arm of the armature in place;

(c) positioning shims along the vibratable arm of the armature;

(d) inserting the passageway of the coil around the shims and vibrating arm of the armature; and,

(e) affixing the coil in position in said case.

4,272,655

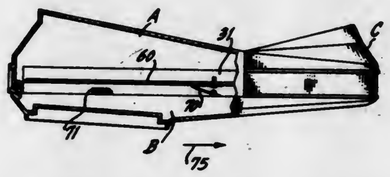
COMPACT TELEPHONE SET EMPLOYING SLIDABLE ACTUATED SUPERVISION SWITCHES

George W. MacKenzie, Middletown; Clifford W. Shackelton, Keyport, and Norbert E. Yankielun, Westfield, all of N.J., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Aug. 22, 1979, Ser. No. 68,835

Int. Cl.³ H04M 1/02

U.S. Cl. 179—159 **15 Claims**



1. In combination with a telephone instrument of the type having a telescoping operation wherein a first slidable housing section is slidably movable with respect to a second housing section to move to an extended position indicative of an off-hook condition, and a closed position indicative of an on-hook condition, the improvement therewith of apparatus for actuating supervisory switches associated with said instrument, comprising:

a first actuatable switching means positioned in said second housing section and having a first mechanically operated member for actuation of said first switching means in a first mode when said member is operated, said switching means operative in said first mode to provide a closed state, and in a second mode when said member is not operated, to provide an open position, and

first means positioned on said first slidable housing section to operate said mechanically operated member when said housing is moved to said off-hook position to cause said switching means to provide said first mode and said member not being operated to provide said second mode when said housing is moved to said second closed position indicative of an on-hook position.

4,272,656

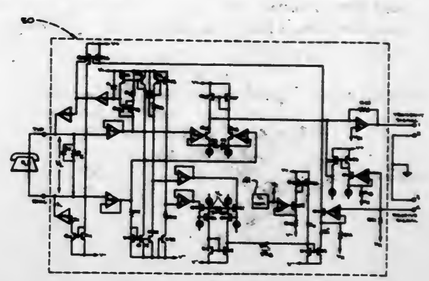
QUASI-RESISTIVE BATTERY FEED FOR TELEPHONE CIRCUITS

Yukio Nishikawa, San Jose, Calif., assignor to Precision Monolithics, Inc., Santa Clara, Calif.

Filed Apr. 5, 1979, Ser. No. 27,503

Int. Cl.³ H04B 1/58

U.S. Cl. 179—170 NC **9 Claims**



1. In an electronic circuit for replacing the hybrid transformer portion of the telephone system call-handling equipment, an electronic circuit for simulating the direct current characteristics of said transformer, comprising:

current amplifier means for supplying a loop current to a telephone subscriber loop;

voltage sensing means, connected across said subscriber loop, for sensing the voltage across said subscriber loop and for transferring said sensed voltage across a reference resistor, thereby developing a reference current through said resistor which is proportional to the voltage across said subscriber loop;

current generator means for supplying a current of constant value; and

current subtractor means, connected between the outputs of said voltage sensing means and said current generator means and the input of said current amplifier means, for subtracting said constant current from said reference current, the resulting current forming the input current to said current amplifier means, said current amplifier means thereby producing an amplified current proportional to the reciprocal of a constant resistance plus the resistance of said subscriber loop.

4,272,657

KEYBOARD ASSEMBLY FOR ELECTRONIC MUSICAL INSTRUMENTS

Masakatsu Iijima, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan

Filed Jan. 24, 1979, Ser. No. 6,178

Claims priority, application Japan, Jan. 26, 1978, 53-7297[U]; Jan. 26, 1978, 53-7298[U]; Jan. 26, 1978, 53-7299[U]; Jan. 26, 1978, 53-7300[U]; Jan. 26, 1978, 53-7301[U]; Jan. 26, 1978, 53-7302[U]; Jan. 26, 1978, 53-7303[U]

Int. Cl.³ H01H 13/70; G10C 3/12

U.S. Cl. 200—5 A **40 Claims**

1. An improved keyboard assembly for electronic musical instruments, comprising:

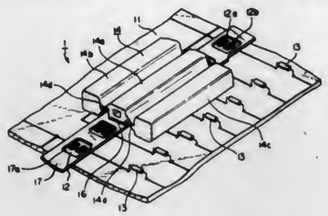
a keyboard frame carrying a first plurality of independently swingable keys arranged in side-by-side relationship to each other, each of which is provided with a downwardly projecting actuator;

holder block means including first and second holding sections;

a printed circuit base board carried by said holder block means having a top face on which is printed a given electric circuit including a second plurality of sets of fixed contacts, said sets being equal in number to said first plurality of keys, said sets being arranged in spaced side-by-

side relationship to each other at intervals corresponding to those of said keys such that each of said sets is associated with a respective one of said keys;

a movable contact made of a resilient material and including a center switching section which extends over all of said fixed contacts, said switching section having a bottom surface which faces said fixed contacts, and said movable contact further including electrode means disposed on said bottom surface of said switching section; and said movable contact further including a pair of holding sec-



tions which are arranged on opposite sides of and connected to said center switching section; and

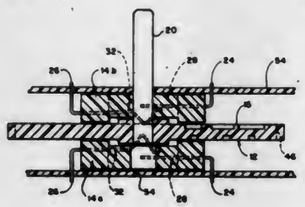
means for maintaining said movable contact in position relative to said printed circuit base board so that said movable contact electrode means is held in position above and spaced from said fixed contacts when none of said keys is depressed and so that when a key is depressed, a corresponding portion of said movable contact electrode means is locally brought into contact with its respective set of fixed contacts.

4,272,658

MULTI-CONTACT ROTARY SWITCH

John B. Crosby, Yorba Linda, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Nov. 16, 1978, Ser. No. 961,165
Int. Cl.³ H01H *19/60*
U.S. Cl. 200—6 B **6 Claims**



1. A multi-contact rotary switch structure comprising essentially the following three components:

two side members, each having a body structure composed of insulating material in which are embedded a plurality of parallel-extending switch element pairs, each pair comprising one fixed and one movable conductor element which have aligned interengageable portions; and

a rotatable switch-controlling member mounted between the two side members and having a plurality of arcuate cam lobes on each of its sides, which lobes determine, in accordance with the position of the rotatable member, the contact or non-contact of each movable switch element with its paired fixed switch element;

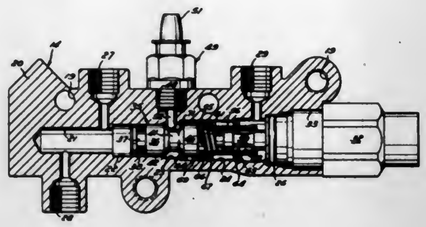
the side members of the switch structure having guiding channels formed therein, each of which laterally confines one of the movable switch elements so as to insure its alignment with the corresponding fixed switch element.

4,272,659

HYDRAULIC BRAKE WARNING SWITCH

Edward S. Orzel, Parma, Ohio, assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 21, 1979, Ser. No. 106,095
Int. Cl.³ H01H *35/38*
U.S. Cl. 200—82 D **7 Claims**



1. A differential pressure sensing device comprising a housing, a bore in said housing, a piston mounted in said bore for axially slidable movement therein, a first fluid pressure chamber at one end of said bore, a second fluid pressure chamber at the other end of said bore, passage means connecting said first and second fluid pressure chambers to separate sources of fluid pressure, said bore having a first diameter at said first fluid pressure chamber, said bore having a second diameter at said second fluid pressure chamber greater than said first diameter, said piston having a portion in said first fluid pressure chamber having said first diameter, said piston having a cylindrical portion in said second fluid pressure chamber having a diameter less than said first diameter, an annular seal means making sealing contact with said piston cylindrical portion and with said bore at said second diameter and being axially slidable with respect to said bore and said piston, an abutment on said piston engageable by said seal means on movement of said seal member away from said second fluid pressure chamber, a helical compression spring mounted around said piston and engageable at one end with said housing and at the other end with said seal means to bias said seal means toward said second fluid pressure chamber, and switch means operable by movement of said piston a predetermined distance in either axial direction.

4,272,660

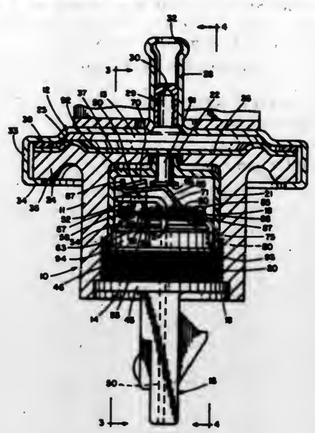
VACUUM OPERATED SWITCH

William R. Mayer, Rochester, and James R. Pescetto, Springfield, both of Ill., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Jul. 11, 1979, Ser. No. 56,390
Int. Cl.³ H01H *35/34*
U.S. Cl. 200—83 P **21 Claims**

1. A vacuum or pressure operated electric switch, comprising; a housing having axially aligned contact abutments, a first contact on at least one of the abutments, a first terminal electrically connected to the contact, an over-center contact blade having a second contact movable between a first position in engagement with the first contact and a second position in engagement with one of said abutments, a second terminal electrically connected to said contact blade, spring means biasing said contact blade away from a center position thereof between the first contact and another of said abutments, a non-resilient lever member in the housing directly engaging and supporting said contact blade for movement between said first and second positions, a diaphragm in said housing defining a vacuum or pressure chamber therein, and a plunger between the diaphragm and the lever member normally biasing said

lever in a direction to move the contact blade to one of said positions and when subjected to a predetermined vacuum or



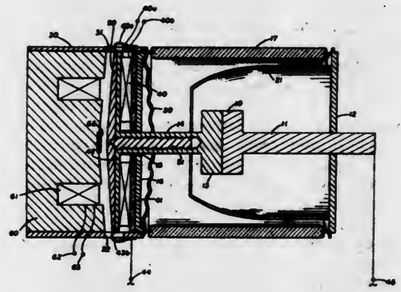
pressure in said chamber permitting the lever and spring to move the contact blade to the other of said positions.

4,272,661

HIGH SPEED VACUUM INTERRUPTER

Rolf Dethlefsen, Greensburg, Pa., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Mar. 9, 1978, Ser. No. 884,984
Int. Cl.³ H01H *33/66, 53/00*
U.S. Cl. 200—144 B **16 Claims**



1. A high speed circuit interrupter comprising:

a pair of cooperable contacts;

an evacuated housing enclosing said pair of cooperable contacts and having an axis;

flexible contact support means for supporting one of said pair of contacts for movement along said axis of said housing and for forming a vacuum seal for said housing; the other of said contacts being secured to said housing and being immovable relative thereto; and

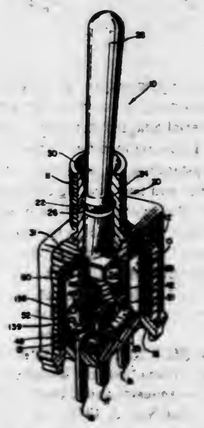
a Lenz coil fixed to the exterior of said housing and a conductive counterplate disposed outside said housing and closely coupled to said Lenz coil and fixed to said one of said pair of contacts, said Lenz coil being adapted to produce a strong repulsive force on said counterplate to move said counterplate and said one of said contacts away from said other of said pair of cooperable contacts, thereby to interrupt a current that is flowing through said pair of contacts; and said interrupter including no means for moving said one of said pair of contacts to interrupt a current that is flowing through said pair of contacts other than said Lenz coil and said counterplate.

4,272,662

TOGGLE SWITCH WITH SHAPED WIRE SPRING CONTACT

Kenneth Simpson, Lynnfield, Mass., assignor to C & K Components, Inc., Newton, Mass.

Filed May 21, 1979, Ser. No. 41,057
Int. Cl.³ H01H *13/28*
U.S. Cl. 200—275 **26 Claims**



1. An electrical switch comprising:

a housing defining a chamber therein and having an orifice formed on a first side thereof;

a plurality of spaced electrical terminals mounted on a second side of said housing opposite of said first side, each one of said terminals having a first portion extending into said chamber a predetermined distance, and a second portion projecting outwardly from said housing;

a switch actuator extending through said orifice and into said chamber and confronting said plurality of terminals, said actuator having a portion external to said chamber and adapted to receive force to move said actuator, a middle portion residing within said orifice in oscillatory, unsecured contact with surfaces of said housing disposed on the perimeter of said orifice, and an actuator tip within said chamber movable in response to force applied to said external portion; and

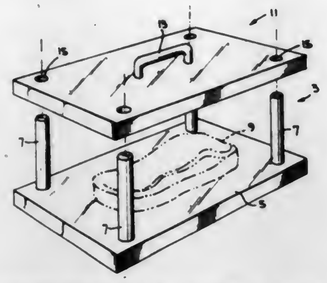
a wire spring contact disposed in engagement with said actuator tip within said chamber and adapted to be pivoted by movement of said actuator into one of an available plurality of discrete, preselected operating positions in which said contact is selectively electrically connected to at least one of said plurality of terminals when said contact is in at least one of said operating positions, said contact providing a spring bias operative alone to urge said middle portion of said actuator into contact with said orifice, and having a predetermined shape operative alone to determine said available plurality of preselected operating positions, said shape and said bias alone being operative to selectively retain said actuator tip in one of said preselected operating positions.

4,272,663

METHOD AND APPARATUS FOR COOKING

Robert E. Green, 909 N. Front St., Marquette, Mich. 49855

Filed Aug. 10, 1979, Ser. No. 65,643
Int. Cl.[3] H05B *6/80*
U.S. Cl. 219—10.55 E 13 Claims



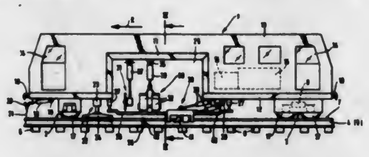
1. A cooking implement for cooking a cut of beef in a microwave oven including, in combination, a base formed of a thermoplastic material adapted to receive thereon a cut of beef for cooking, and a floating member formed of thermoplastic material, means upstanding on said base slideably receiving said floating member and said floating member sliding downwardly on said means into operative position in engagement with the cut of beef which is adapted to be disposed on said base, said entire implement being disposed in a microwave oven for cooking the cut of beef.

4,272,664

MOBILE RAIL WELDING MACHINE

Josef Theurer, Vienna, Austria, assignor to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed Nov. 3, 1978, Ser. No. 957,402
Claims priority, application Austria, Dec. 28, 1977, 9352/77
Int. Cl.[3] E01B *11/50, 31/18;* B23K *11/04*
U.S. Cl. 219—53 10 Claims



1. A mobile rail welding machine mounted on a track for mobility in an operating direction, the track being comprised of rails consisting of rail sections having abutting ends and ties supporting the rail sections, which comprises the combination of

(a) a heavy frame supporting a chassis capable of housing operating personnel,

(b) two undercarriages spaced from each other along the track and supporting the frame thereon, the frame defining an upwardly recessed operating space intermediate the undercarriages,

(c) a hydraulically driven flash butt welding device for welding the abutting rail section ends of a selected one of the rails, the welding device being mounted on the frame in the operating space intermediate the undercarriages,

(d) a hydraulically driven weld burr removal device mounted on the frame and extending into the operating space intermediate the undercarriages, and

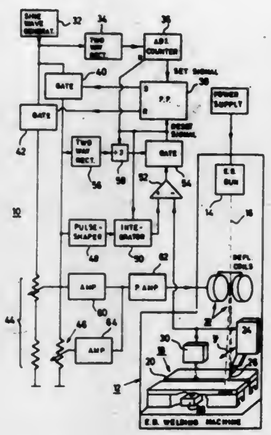
(e) a support means for the frame operable to relieve the track rails of the machine weight.

4,272,665

ENERGY BEAM WELDING A GAP OF VARYING WIDTH

Karl H. Steigerwald, Starnberg, Fed. Rep. of Germany, assignor to Steigerwald Strahltechnik GmbH, Fed. Rep. of Germany

Filed Nov. 30, 1978, Ser. No. 965,174
Claims priority, application United Kingdom, Dec. 5, 1977, 50579/77
Int. Cl.[3] B23K *15/00, 26/00*
U.S. Cl. 219—121 ED 8 Claims



1. An energy beam welding method for forming a weld seam along a gap of varying width defined by two workpiece edges to be welded together, said gap having a length direction, comprising the steps of:

directing an energy beam to a welding location including said gap, said energy beam having an average direction;

producing a first relative motion between said beam and said workpiece arrangement such that said average direction proceeds along said gap in said length direction to produce a weld seam joining said workpiece edges;

producing a second relative motion between said beam and said gap, said second relative motion being repetitive and having a direction essentially perpendicular to said length direction of said gap, and having a maximum peak-to-peak amplitude at least as large as the maximum expected width of said gap;

measuring the width of the gap and producing a width signal;

supplying additional material to the welding location;

controlling the rate of supply of additional material as a function of said width signal;

said second relative motion taking place during first time intervals, with said maximum peak-to-peak amplitude, and second time intervals, alternating with said first intervals, during which the peak-to-peak amplitude is smaller than said maximum amplitude, and wherein the ratio of said first time intervals to said second time intervals is varied as a function of said width signal.

4,272,666

FUSING ROLLS FIXING UNIT FOR COPYING MACHINE

Vittorino Collia, Turin, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy

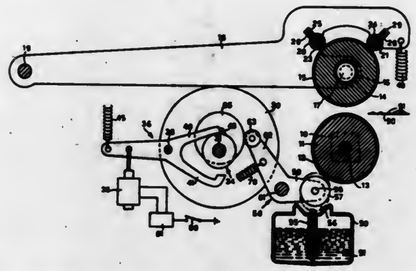
Filed Nov. 28, 1978, Ser. No. 964,358
Claims priority, application Italy, Dec. 1, 1977, 69709 A/77
Int. Cl.[3] H05B *1/00*
U.S. Cl. 219—216 8 Claims

1. In a heat fixing unit of a cyclically operating copy-machine of the type having a pair of cooperating fixing rolls at least one of which is heated to a suitable fixing temperature and through which a copy-sheet having an unfixed toner image is advanced, and actuating means controlling at least one copy cycle for each copy run, the improvement which comprises

a toner antisticky liquid supply device including:

a tank for said liquid,

a supply element selectively movable from a rest position to a first position, in which it receives a small quantity of said liquid from said tank, and to a second position in which it contacts one of said fixing rolls to apply to it the received liquid,



first moving means for reciprocating said supply element between said rest position and said first position at the end of a copy-run and for reciprocating said supply element between said rest position and said second position at the start of a copy-run,

one of said fixing rolls being movable between an operative position in which it engages the other fixing roll and an inoperative position in which it is disengaged from the other fixing roll, and

second moving means for moving said movable fixing roll from said inoperative position to said operative position at the start of a copy-run and from said operative position to said inoperative position at the end of a copy-run.

4,272,667

ELECTRIC FLUID HEATING APPARATUS EMPLOYING STACKABLE HEAT TRANSFER MODULES

Edward Golowacz, 362 N. Central Ave., Wood Dale, Ill. 60191

Filed Jul. 10, 1978, Ser. No. 922,983
Int. Cl.[3] F24H *1/16;* F28D *1/02*
U.S. Cl. 219—326 15 Claims

1. A heat transfer apparatus for fluid comprising:

a housing having an inner side wall surface and defining an inner space having a particular shape and containing a heat transfer fluid;

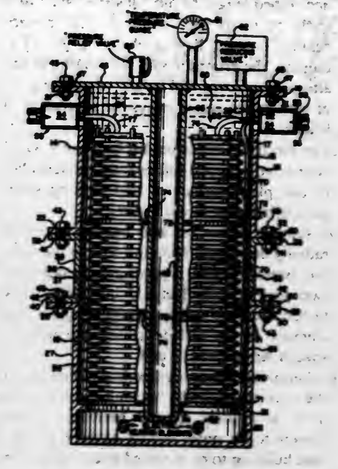
an inlet fluid conducting manifold and an outlet fluid conducting manifold disposed on said housing and each of said manifolds communicating fluid flow from the outside of said housing to said inner space;

heat transfer means disposed within said housing and in said inner space for immersion in said fluid;

said heat transfer means comprising at least one module, each module having a supporting structure including elongated members extending therefrom and at least one long length of flexible tubing would about said members to form a porous volumetric shape substantially conforming to the shape of said inner space of said housing to substantially fill the same, the ends of said tubing being connected to said manifolds to provide fluid flow conduction from said inlet to said outlet manifold;

heat exchange means coupled to said inner space for maintaining said heat transfer fluid at selected temperatures and;

wherein each heat transfer module supporting structure comprises a base plate and said elongated members comprising a plurality of upstanding posts disposed on one side of said plate, and said plate having a plurality of apertures therethrough



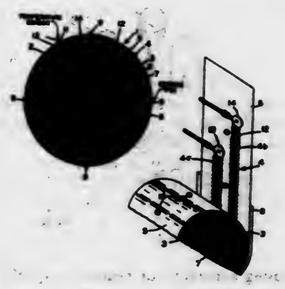
disposed adjacent said posts, and said tubing would about said posts in a basket-weave fashion.

4,272,668

SMALL ROUND AIR STREAM HEATING UNIT

Norman A. Johnson, Lititz, and Raymond C. Kent, Lancaster, both of Pa., assignors to Armstrong Cork Company, Lancaster, Pa.

Filed Nov. 13, 1979, Ser. No. 93,198
Int. Cl.[3] H05B *3/16*
U.S. Cl. 219—375 6 Claims



1. A small electric resistance air stream heater which operates directly on 120 volts with a wattage output of less than 500 watts comprising

(1) an electrically insulating housing;

(2) a rolled heating assembly positioned within the housing, said heating assembly having a diameter of about 6" and comprising in combination,

(A) an electrically insulating core,

(B) an electrically conductive crimped metallic foil heating element comprising at least two electrically connected strips thereof, each having crimps in which the distance between peaks is about 0.085 inch, said crimps having a depth of about two times the pitch between successive crimps and being substantially evenly distributed along the lengths of said strips, said foil heating element having electrical volume resistivity falling in the range of from about 75×10^{-6} ohm-cm to 125×10^{-6} ohm-cm, a thickness in the range of about 0.001 to 0.005 inch (0.025 to 0.127 mm), each of said

crimped foil strips having a width in the range of about 0.25 inch to 0.75 inch (6.35 to 19.05 mm), the combined uncrimped length of the foil strips being in the range of about 55 to 65 feet (16.77 to 19.82 meters), said foil heating element having electrical power connections thereon, the crimps in said foil heating element forming alternate grooves and ridges which define a multitude of continuous passageways for air passing through the heater;

(C) an electrical insulating backing sheet, said electrically connected crimped foil heating elements being secured to one plane surface of said backing sheet in spaced parallel relation to each other;

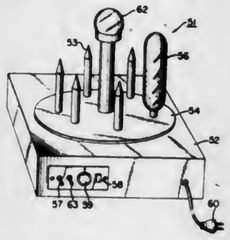
(D) support means for said heating assembly extending radially outwardly from the core to the outer surface of the assembly, said support means comprising at least two pins of non-electrical conducting material positioned to extend through the backing for the foil heating element of the rolled heating assembly between the spaced strips thereof; and

(E) thermostatic means extending radially outwardly from the core through the backing for the foil heating element at a point located between the spaced strips thereof to the outer surface of the assembly to enable a heat build-up to be detected over a large cross-sectional area of the heating assembly.

4,272,669
HEATER

Minoru Yamanaka, Ichikawa; Yukio Yamaya, Niiza, and Masahide Ichikawa, Tokyo, all of Japan, assignors to Takeshi Yagi, Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,597
Claims priority, application Japan, Mar. 19, 1979, 54-34289[U]
Int. Cl.³ A47J 37/08
U.S. Cl. 219—385 **5 Claims**



1. A heating apparatus for heating foodstuffs, said heating apparatus comprising:

(a) a housing;

(b) a plurality of heating means mounted in a circular pattern on said housing, each of said heating means comprising a hollow means for insertion into said foodstuff and an electric heating element positioned within the hollow portion of said hollow means, wherein said heating means heats the foodstuff inserted thereon from the inside;

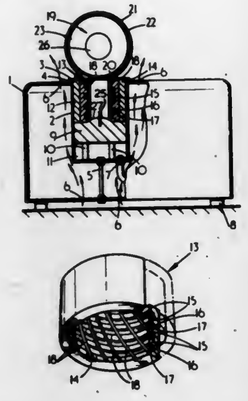
(c) warming lamp means mounted on said housing at the center of the circular pattern of said heating means, said warming lamp means warming the foodstuff from the outside and producing light for the attracting the attention of a purchaser; and

(d) control means mounted in said housing and connected to said heating means and said warming lamp means for controlling the operation thereof wherein in one mode said heating means and said lamp means are on and in another mode, said heating means is off and said lamp means is on.

4,272,670
FURNACE MUFFLES AND FURNACES

Albert G. Docx, 70 Ellesmere Rd., Altrincham, Cheshire, England

Continuation-in-part of Ser. No. 792,953, May 2, 1977, abandoned. This application Mar. 15, 1979, Ser. No. 20,684
Claims priority, application United Kingdom, May 1, 1976, 17893/76; May 19, 1978, 20820/78
Int. Cl.³ H05B 3/66
U.S. Cl. 219—390 **4 Claims**



1. A furnace muffle for firing ceramic work pieces, such as dental fixtures, comprising:

(a) a hollow cylindrical ceramic fibrous support member,

(b) an open channel defined on the inside of said support member,

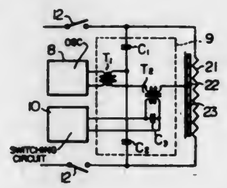
(c) a coiled heating element loosely disposed in said channel, and

(d) a plurality of strips of ceramic fibrous material cemented generally diagonally across the openings of said channel for retaining said heating element therein, said strips being substantially circular in cross-section.

4,272,671
TEMPERATURE CONTROL SYSTEM FOR ELECTRIC SURFACE HEATER

Hitoshi Hukagawa, Kodoma; Isao Shimada, Yahata; Masayuki Naruo, Hirakata, and Terumi Endo, Shijonawate, all of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Sep. 17, 1979, Ser. No. 75,991
Claims priority, application Japan, Sep. 15, 1978, 53-113877
Int. Cl.³ H05B 1/02
U.S. Cl. 219—505 **9 Claims**

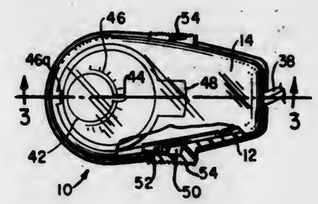


1. A temperature control system for electric surface heater formed of piled layers of a heating element and a thermosensitive electrode, said heating element being connected at both ends to a commercial alternating current source, the system comprising a direct current source circuit generating a direct current with a commercial alternating current applied thereto from said alternating current source, an oscillating circuit generating an alternating current of a frequency higher than that of said commercial alternating current with said direct current from said direct current source circuit, a coupling circuit applying said alternating current of the higher frequency from said oscillating circuit between said heating element and said thermosensitive electrode of the heater as a signal voltage, and a switching circuit detecting any variation in the impedance between the heating element and the thermosensitive electrode and opening a contact inserted between the heating element and the commercial alternating current source at a set level of said detected impedance.

4,272,672
AQUARIUM HEATER

Marvin A. Goldman, Great Neck; Jerome N. Goldman, New York, and Silvio J. DiMarchi, Brooklyn, all of N.Y., assignors to Penn-Plax Plastics, Inc., Garden City, N.Y.

Continuation of Ser. No. 837,618, Sep. 28, 1977, abandoned, which is a continuation of Ser. No. 728,203, Sep. 30, 1976, abandoned. This application May 18, 1979, Ser. No. 40,416
Int. Cl.³ H05B 3/06
U.S. Cl. 219—523 **5 Claims**



1. An aquarium heater for mounting on the top of an aquarium wall, and having an exposed thermostatic control, comprising

(a) a glass tube body closed at one end;

(b) an electrical heater element in said body;

(c) a thermostatic control connected to said heater element and extending from the top of said tube body;

(d) an electric power line for said heater element extending from the top of said tube body; the improvement characterized by

(e) a unitary dielectric sealing cap for said body disposed on the end of said tube opposite said closed end and sealingly engaging said thermostatic control;

(f) said sealing cap extending part-way into said body;

(g) an integral sealing skirt on said sealing cap and coaxial therewith, said sealing skirt extending partly along the outside of said tube body walls from the open end thereof;

(h) an integral radial extension on said sealing cap, said radial extension surrounding and sealing said power line;

(i) a hanger mounting unit coaxial with said sealing cap;

(j) an integral depending extension on said hanger mounting unit extending from one side edge thereof, said extension having a threaded bore therein;

(k) an adjusting screw in said threaded bore for engaging the outer surface of an aquarium wall;

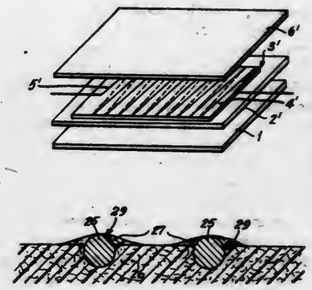
(l) a pair of spaced integral brackets depending from said hanger mounting unit and spaced from said adjusting screw for engaging the inner surface of said aquarium wall; and

(m) a control knob engaging said thermostatic control.

4,272,673
HEATING ELEMENT

Daniel Semanaz, Vernaison, and Robert Canut, Ternay, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation of Ser. No. 828,603, Aug. 29, 1977, abandoned, which is a continuation of Ser. No. 813,353, Jul. 6, 1977, abandoned. This application Apr. 16, 1979, Ser. No. 30,637
Claims priority, application France, Jul. 6, 1976, 76 21285; Nov. 15, 1976, 76 34843
Int. Cl.³ H05B 3/36
U.S. Cl. 219—544 **26 Claims**



1. A heating element which comprises:

a generally flat and generally solid, electrically insulating substrate, said substrate comprising a reinforced polyimide resin composite;

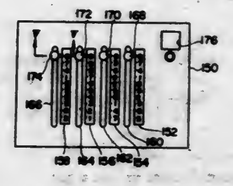
a continuous electric resistor wire element of a predetermined resistance wound around and at least partially inlain within said composite, said electric resistor wire element being integrally coated with a layer of a thermostable, electrically insulating coating; and

means for coupling said electric resistor wire element with an electric power source.

4,272,674
CHECK DIGIT CALCULATOR

Mutsumi Takahashi, Kawasaki; Toshio Uwabe, Tokyo; Toshio Nagase, Yokohama; Shosuke Sato, and Hideshi Matsuzawa, both of Tokyo, all of Japan, assignors to Tokyo Keiki Company Ltd. and Totec Co. Ltd., both of Tokyo, Japan

Filed Oct. 27, 1978, Ser. No. 955,236
Claims priority, application Japan, Oct. 31, 1977, 52/130406; Oct. 31, 1977, 52/130407; Jul. 16, 1978, 53/86273
Int. Cl.³ G06C 27/00; G01D 13/22
U.S. Cl. 235—69 **3 Claims**



1. A check digit calculator for directly indicating code number check digits according to modulus 10 and/or modulus 11, comprising:

code number setting means wherein a plurality of slits are formed in the surface of the calculator case, said slits being equal in number to code number digit groups, each of said digit groups being indicated along each of said slits, said

digit group corresponding to a predetermined modulus and selected according to the weight of each digit in the code number associated therewith and a code number setting knob is disposed along each of said slits;

guide means for each of said code number setting knobs, said knob being inserted through a coiled spring into a guide cylinder mounted on the surface of the calculator, a flange being formed at the lower end of said knob, a guide plate including a plurality of holes arranged at predetermined spaces and a slit connecting said holes with each other being disposed inside the calculator case such that said flange is selectively engageable with said holes, depression of said knob causing said flange to project through said hole to permit sliding movement of said knob;

connecting means for each of said knobs, a press pin having a press cam plate fixedly mounted thereon and on the top thereof being disposed below said knob flange, said press cam plate being pressed against one side of a slit of a set plate resiliently secured to a fixed frame, a movable block being mounted on the lower part of said press pin, said movable block including a pair of guide rails extended therethrough in the same direction as said slit, said moving block having mounted therein a moving pin held between a spring and a stop screw and adapted to movement in a transverse direction corresponding to a direction crossing said slit, so that when said press cam is moved downward against the resilience of said set plate, said press pin is moved downward so that a transverse force is imparted to said moving pin and said moving pin is extended through a side wall of said movable block to engage with one of a plurality of holes formed in endless belt means at predetermined spaces and thereby to hold said knob and said endless belt means in a locked condition;

said endless belt means being extended by way of a plurality of pulleys along said slits and around a sprocket pulley formed on the outer periphery thereof with a plurality of projections adapted to engage with the holes in said endless belt means, so that when said knob is slid with said moving pin of said movable block being engaged with the hole in said endless belt means, said endless belt means is moved in response to the sliding movement of said knob; and

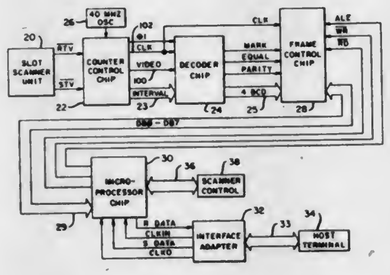
check digit indicating means mounted on the same shaft with said sprocket pulley, so that when a desired code number is set by said code number setting means, said knob guide means, said connecting means and said endless belt means are operated in association to rotate said sprocket pulley and thereby to indicate a check digit corresponding to said set code number.

4,272,675

SYMBOL PROCESSING SYSTEM

Denis M. Blanford, and Syed Naseem, both of Cambridge, Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed May 30, 1979, Ser. No. 43,971
Int. Cl.³ G06K *7/10*
U.S. Cl. 235—463 **19 Claims**



1. A system for processing a continuous string of data generated by a pattern recognition array during scanning of a bar-coded symbol, where said string of data contains valid data intermingled with invalid data, comprising:

means receiving said data from said pattern recognition array;

means coupled to said receiving means for storing said data from said pattern recognition array;

timing means for clocking said data from said receiving means to said storage means;

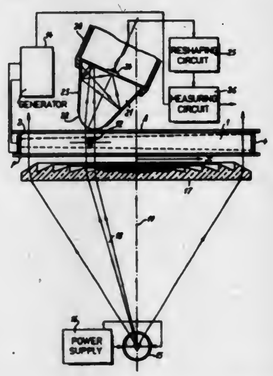
and logic means, coupled to said timing means and said storage means, for distinguishing valid data from invalid data and causing the valid data to be captured in said storage means while the invalid data is clocked out of said storage means by said timing means.

4,272,676

OPTICAL-PICKUP COORDINATOMETER

Eugene Dieulesaint; Daniel Royer, and Richard Guedj, all of Paris, France, assignors to Thomson-CSF, Paris, France

Filed Nov. 9, 1979, Ser. No. 93,137
Claims priority, application France, Nov. 10, 1978, 78 31861
Int. Cl.³ G01D *21/04*
U.S. Cl. 250—221 **12 Claims**



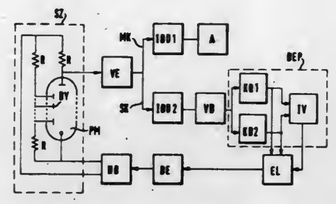
1. An optical-pickup coordinatometer comprising a writing table provided with electromechanical transducer means for propagating elastic-wave trains in a direction parallel to the table surface, a pickup which is capable of point detection of the passage of elastic waves when it rests on the table and chronometric means for determining each coordinate by measuring the time taken by the elasticwave trains to travel over the corresponding distance, wherein the writing table is constituted by a plate of refractive material placed within an optical polarizing cell, said cell being so arranged as to prevent emergence of incident radiation produced by a source, said pickup being an optical device for receiving that portion of the radiation which emerges from the optical cell by reason of the birefringence induced within the plate by the volume elastic-wave trains issuing from said electromechanical transducer means.

4,272,677

METHOD AND APPARATUS FOR THE AUTOMATIC STABILIZATION OF DRIFT IN RADIATION MEASUREMENTS

Fritz Berthold, Pforzheim, and Helmut Kubisiak, Wildbad-Nonnenmiss, both of Fed. Rep. of Germany, assignors to Laboratorium Prof. Dr. Rudolf Berthold, Wildbad, Fed. Rep. of Germany

Filed Jun. 12, 1979, Ser. No. 47,723
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826484
Int. Cl.³ G01D *18/00*
U.S. Cl. 250—252 **34 Claims**



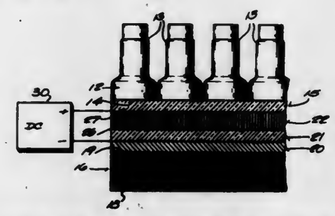
24. Radiation measurement apparatus comprising: a detector means for absorbing radiation and for providing pulses whose pulse amplitude corresponds to the energy of the radiation absorbed by it and extends over a pulse amplitude spectrum; a determination means, connected to the output of said detector means, for deriving a control signal from a peak in the pulse amplitude spectrum, said peak being the peak resulting from individual electrons; and a control means, connected between said determination means and said detector means, for automatically stabilising the drift of said detector.

4,272,678

GAMMA RAY CAMERA USING A CHANNEL AMPLIFIER

Kai Lange, Strandvej, Denmark, assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,979
Int. Cl.³ G01T *1/20, 1/00*
U.S. Cl. 250—363 S **5 Claims**



1. A scintillation camera having means for amplifying the brightness of scintillations, comprising:

an array of photodetector devices for producing electric signals in response to intercepting scintillations,

a planar homogeneous unitary scintillator element spaced from said photodetector devices and responsive to absorption of gamma ray photons by producing primary scintillations where photons are absorbed,

the means for amplifying the brightness of the primary scintillations comprising a channel amplifier plate extending transversely to the path between said planar scintillator element and said photodetector array and being composed of a plurality of elements having electron emissive internal channels for receiving electrons and for multiplying electron current,

a photocathode layer disposed at corresponding ends of said channel elements at a face of said plate which is presented toward said scintillator element for emitting electrons into said channels in response to absorption of photons corresponding with primary scintillations from said scintillator,

a phosphorescent screen layer disposed at corresponding ends of said channels at a face of said plate which is presented toward said photodetector array and responsive to absorption of multiplied electrons by producing brightened scintillations corresponding with said primary scintillations, and

means for connecting opposite ends of said channels to a source of d-c voltage for propagating said electrons from the photocathode through the channels,

a plate of transparent material interposed between said planar scintillator element and said photocathode layer for coupling said primary scintillations in said scintillator to said photocathode layer, and

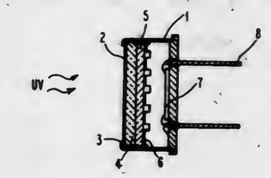
a plate of transparent material interposed between said phosphorescent screen means and said array of photodetectors for coupling the brightened scintillations on said screen to said photodetectors.

4,272,679

ULTRAVIOLET RADIATION SENSOR

Frederick K. Blades, Boulder, Colo., assignor to PureCycle Corporation, Boulder, Colo.

Filed Sep. 28, 1979, Ser. No. 80,097
Int. Cl.³ G01J *1/42*; G01N *21/64*
U.S. Cl. 250—372 **13 Claims**



1. A UV radiation sensor for measurement of incident UV radiation comprising:

a first layer of UV absorptive material arranged to be exposed directly to said incident radiation comprising a plurality of phosphor particles which, in response to the incident UV, emit visible or near visible radiation; followed by

filter means for absorbing substantially all UV radiation not absorbed by said phosphor and transmitting said visible or near visible radiation; and

means for providing an electrical signal in response to said visible or near visible radiation;

whereby solarization of said filter means is avoided.

4,272,680

MODULAR ARRAY RADIATION DETECTOR

Dennis J. Cotic, Pewaukee, Wis., assignor to General Electric Company, Milwaukee, Wis.

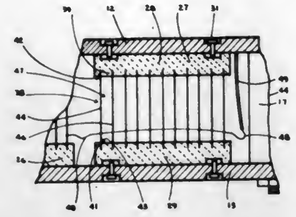
Filed Dec. 3, 1979, Ser. No. 99,537
Int. Cl.³ G01T *1/18*
U.S. Cl. 250—375 **22 Claims**

1. An improved support structure for a radiation detector apparatus of the type having a pair of spaced insulating members with a plurality of electrodes disposed therebetween for defining gaps to be filled by a gas for producing photoelectron-ion pairs when radiation enters the gaps, wherein the improvement comprises:

a pair of support members spaced in generally parallel relationship and having their ends interconnected to form a rigid structure for receiving said pair of insulating members therein; and

fastening means for rigidly and releasably attaching at a

plurality of points said pair of insulating members to said rigid structure, with each of said insulating members being



in parallel contiguity with one of said pair of support members.

4,272,681

METHOD AND APPARATUS FOR ISOTOPE-SELECTIVELY EXCITING GASEOUS OR VAPOROUS URANIUM HEXAFLUORIDE MOLECULES

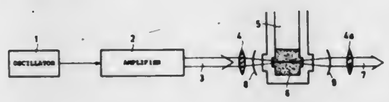
Ernst E. Fill, Garching; Heinz L. Jetter, Feldkirchen-Westerham, and Reinhard Volk, Munich, all of Fed. Rep. of Germany, assignors to Uranit Uran-Isotopentrennungs-Gesellschaft mbH, Jülich, Fed. Rep. of Germany

Filed Dec. 15, 1978, Ser. No. 969,939

Claims priority, application Fed. Rep. of Germany, Mar. 2, 1978, 2808955

Int. Cl.³ H01J *27/00*

U.S. Cl. 250—423 P 7 Claims



1. A method of isotope-selectively exciting gaseous or vaporous uranium hexafluoride molecules by means of a monochromatic iodine laser beam having an adjustable frequency, in which the beam frequency is tuned to an absorption band of the molecules to be isotope-selectively excited wherein the iodine laser beam is scattered in liquid and/or solid nitrogen and the beam produced by triply stimulated Raman-scattering is brought into interaction with the uranium hexafluoride molecules.

4,272,682

SPECIMEN ELEVATOR FOR AN ION MILLING MACHINE

Peter R. Swann, Pittsburgh, Pa., assignor to Gatan, Inc., Warrendale, Pa.

Filed Aug. 10, 1979, Ser. No. 65,579

Int. Cl.³ G21N *5/06*

U.S. Cl. 250—442 17 Claims

1. A machine for ion milling a specimen comprising:

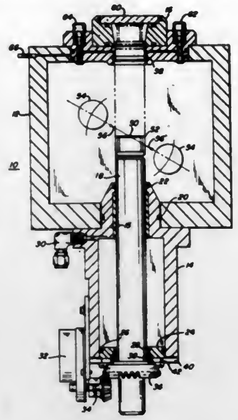
a main evacuated chamber having an upper port and a lower port;

ion milling means for ion milling of a specimen disposed in said main evacuated chamber;

a secondary chamber in communication with said main chamber through its upper port for specimen viewing and exchange;

specimen positioning means extending through said lower port of said main chamber for vertically moving the specimen between a first position in said main evacuated chamber, where ion thinning is accomplished, and a second position in said secondary chamber, where the specimen can be viewed and exchanged;

means for sealing said main chamber at its lower port; and



sealing means for providing a vacuum seal between said main chamber and said secondary chamber when said specimen positioning means is in the second position.

4,272,683

TRANSPORT AND STORAGE VESSEL FOR RADIOACTIVE MATERIALS

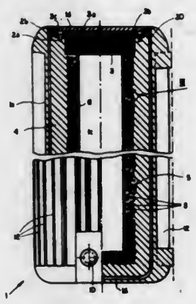
Henning Bantz, Essen; Dieter Rittscher, Heiligenhaus, and Jürgen Fischer, Essen, all of Fed. Rep. of Germany, assignors to GNS Gesellschaft für Nuklear-Service mbH and Rheinisch-Westfälisches Elektrizitätswerk, both of Essen, Fed. Rep. of Germany

Filed Sep. 8, 1978, Ser. No. 940,856

Claims priority, application Fed. Rep. of Germany, Sep. 10, 1977, 2740933

Int. Cl.² G21F *5/05*

U.S. Cl. 250—507 6 Claims



1. A transport and storage vessel for radioactive materials, comprising an upwardly open body having lateral walls and a bottom defining a chamber for receiving said materials, a cover removably affixed to said body for closing said chamber, said body being cast in one piece from high-carbon ferrous metal and having an outer layer, an intermediate layer, and an inner layer, the inner and outer layers being composed of said high-carbon cast ferrous metal, said intermediate layer consisting of said high-carbon cast ferrous metal as a matrix and having heavy-metal particles of a melting point above 800° C. embedded in said matrix whereby the intermediate layer forms a gamma radiation shield, said outer layer being formed unitarily with a multiplicity of channels cast in situ and filled with a material other than said ferrous metal and resistant to penetration by neutrons whereby said outer layer forms a neutron radiation shield, said outer layer being further formed unitarily with cooling ribs over its external surfaces and cast in one piece with said outer layer from said high-carbon ferrous material.

4,272,684

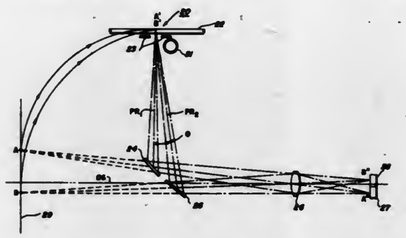
OPTICAL BEAM-SPLITTING ARRANGEMENTS ON OBJECT SIDE OF A LENS

Ned J. Seachman, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 6, 1978, Ser. No. 949,179

Int. Cl.³ H01J *3/16*; H04N *1/10*

U.S. Cl. 250—578 14 Claims



1. An optical system for focusing light reflected from an illuminated line on an object plane onto an image plane including

an illumination means for illuminating said object line,

at least two mirrors positioned with respect to said illuminated object line so as to simultaneously reflect identical images of said line into the entrance pupil of a lens, said lens focusing at least a portion of said reflected object line image onto a separate portion of said image plane.

4,272,685

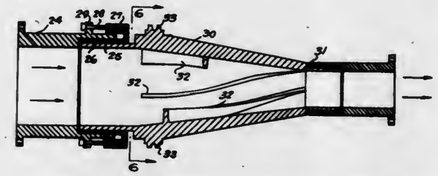
GENERATING MEANS

James Toyama, 1980 Cedar Ave., Long Beach, Calif. 90806

Filed Dec. 20, 1976, Ser. No. 752,874

Int. Cl.³ F01D *15/10*

U.S. Cl. 290—52 1 Claim



1. Apparatus for generating electricity by passing water in a pipe through a series of turbines in which the water traverses from a higher elevation to a lower elevation and in which the turbines include a water flow valve upstream of said turbine in the pipe to alter the flow rate in said pipe, said turbines comprising a housing having a conically tapering configuration truncated at the smaller extent and blades disposed on an inner surface of said housing such that said blades have a continuous, uninterrupted, spirally curved tapering configuration and terminate in the small end of said housing, said housing supported at its small end by bearings and at its large end by a packing ring which supports said housing and allows said housing to rotate, gear teeth disposed about the outer periphery of said housing at its large end, a generator having a toothed armature, and a chain connecting said gear teeth of said housing to said toothed armature so that rotation of said housing provides rotation of said armature thereby generating electricity.

4,272,686

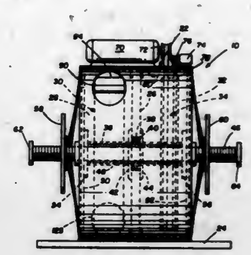
APPARATUS FOR CONVERTING HYDRAULIC ENERGY TO ELECTRICAL ENERGY

Kunio Suzuki, 3615 Sierra Dr., Honolulu, Hi. 96816

Filed Mar. 25, 1980, Ser. No. 133,672

Int. Cl.³ F03B *13/08*

U.S. Cl. 290—54 10 Claims



1. An electric power plant for generating electrical energy from the energy of a fluid flowing within a pipeline, comprising:

a turbine having a plurality of vanes removably secured to the outer rim of the turbine;

a flywheel for driving an electrical generator;

a tubular shaft connecting said turbine and said flywheel for enabling said flywheel to be driven by said turbine;

a housing surrounding said turbine and said flywheel, said housing having a center partition for providing a first chamber for said turbine and a second chamber for said flywheel;

a central axle extending through said tubular shaft, said axle being supported by said housing;

means for supporting said tubular shaft passing through said partition;

inlet openings formed through said housing for connecting the power plant to a pipeline to enable said turbine to be operated in an undershoot or overshoot condition; and

an oulet opening formed through said housing for allowing fluid to exit from the turbine chamber.

4,272,687

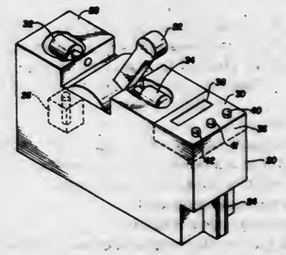
POWER MANAGEABLE CIRCUIT BREAKER

William N. Borkan, 3031 Prairie Ave., Miami Beach, Fla. 33140

Filed Mar. 5, 1979, Ser. No. 17,776

Int. Cl.³ H01H *3/28, 43/10, 43/24*

U.S. Cl. 307—115 49 Claims

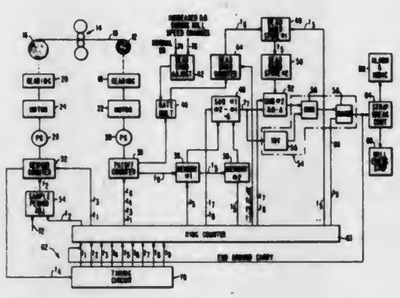


1. A power management and control device comprising:

a rectangular housing having a pair of terminals accessible from the exterior of said housing for installation into a power panel as a normal circuit breaker;

a circuit breaker in said housing having a pair of contacts connected in series with said terminals which open in response to current overload;
actuator means in said housing for opening and closing said contacts; and
electrical timer means in said housing for controlling said actuator means independent of current overload to open said contacts and automatically reclose said contacts after a period of time.

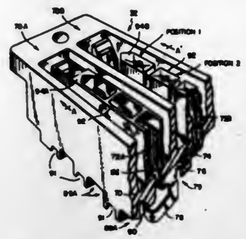
4,272,688
STRIP BREAK DETECTOR SYSTEM
John W. Cook, Williamsville, and Voit C. Drankhan, Boston, both of N.Y., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jul. 3, 1979, Ser. No. 54,516
Int. Cl.³ B65H *25/30, 25/32*
U.S. Cl. 307—123 **7 Claims**



1. A break detection system for a process line wherein strip material is being payed out from a payoff reel to a rewind reel comprising:
means for successively digitally counting the material being payed out from the payoff reel, over first and second equal digital sampling intervals, said intervals being a function of the rotational displacement of the rewind reel;
means for memorizing the successive digital counts to provide first and second memory counts respectively;
means for subtracting the first memory counts from the second memory counts to provide a difference signal delta; and
means for providing a signal indicative that a break in the strip material has occurred when delta is equal to or greater than a preselected dead-band count.

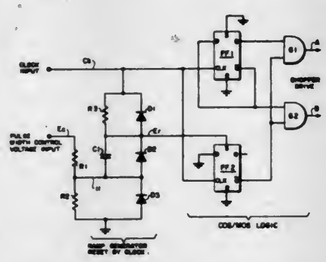
4,272,689
FLEXIBLE WIRING SYSTEM AND COMPONENTS THEREFOR
Philip C. S. Crosby, Lexington, Mass.; Philip A. Barrios, Nashua, N.H., and Ronald R. Perry, Billerica, Mass., assignors to Harvey Hubbell Incorporated, Orange, Conn.
Filed Sep. 22, 1978, Ser. No. 944,997
Int. Cl.³ H02B *1/08*
U.S. Cl. 307—147 **7 Claims**

1. A receptacle connector assembly for use in adapting an appliance to use in a flexible wiring-type branch circuit electrical power distribution system comprising:
a male receptacle connector;
a female receptacle connector;
the male and female receptacle connectors each including a plurality of male and female electrical contacts, respectively, and housings for such contacts;
the housings for male contacts being of a female type and the housings for female contacts being of a male type; each such receptacle connector including physical keying means for defining a single permissble orientation for such receptacle connector to mate to plug connector;
each male contact being associated with a corresponding female contact and each such associated male-female contact pair being integrally formed from a single piece of



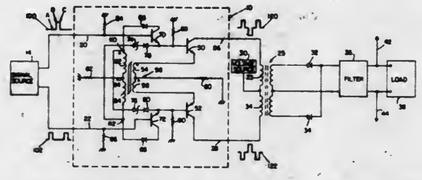
suitably cut and bent sheet metal stock, and a portion of such sheet metal stock forming a bussbar conductor between the male and female contacts;
each male contact/female contact/bussbar assembly including means for securing thereto a wire from the appliance.

4,272,690
CLOCK CONTROLLED PULSE WIDTH MODULATOR
John S. Riney, Potomac, Md., and Thomas F. Chamblin, Purcellville, Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Aug. 16, 1979, Ser. No. 66,984
Int. Cl.³ H03K *3/17;* H02M *3/335*
U.S. Cl. 307—265 **3 Claims**



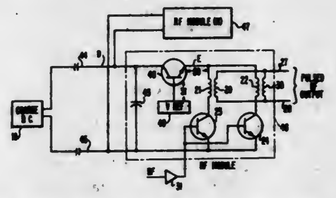
1. A pulse width modulator comprising a ramp generator to produce a ramp voltage on a ramp conductor, first and second flip-flops, and first and second gates; controlled by clock pulses on a clock conductor and a control voltage on a control conductor, the clock pulses occurring in repetitive intervals of a fixed duration with a first voltage level for a relatively long duration in each interval and a second voltage level for the remainder thereof:
wherein said ramp generator comprises capacitor means, charging means, and diode means, connected to said clock conductor, control conductor and ramp conductor, so that immediately following each transition of the clock pulses to said first voltage level the ramp voltage on the ramp conductor starts at an initial voltage which is a given function of said control voltage and changes toward another value, the ramp voltage being reset by said diode means in response to said second voltage level on the clock lead to a voltage level very near to said second level;
each flip-flop having first and second states, the first flip-flop being connected to the clock conductor to change state in response to each transition of the clock pulses to the first voltage level; the second flip-flop being connected to the ramp conductor and clock conductor, so that it is set to the first state in response to the voltage on the ramp conductor reaching a predetermined level, and it is reset to the second level in response to the transition of the clock pulses to the first level;
the first and second flip-flops being connected to the first and second gates, to select the first gate with the first flip-flop in the first state and to select the second gate with the first flip-flop in the second state; and the selected gate has a pulse output at a given level during the interval that the second flip-flop is in the first state.

4,272,691
GENERATING ELECTRICAL PULSES
Josef H. Hendriks, Wakefield, Mass., assignor to Teradyne, Inc., Boston, Mass.
Continuation-in-part of Ser. No. 915,396, Jun. 14, 1978, abandoned. This application Nov. 8, 1978, Ser. No. 958,713
Int. Cl.³ H03K *5/12, 17/04, 17/08*
U.S. Cl. 307—268 **15 Claims**



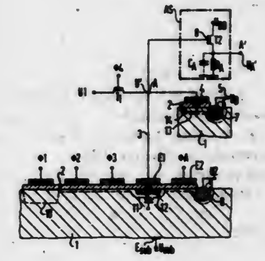
1. Electrical circuitry for generating pulses having sharp dropoff characteristics, comprising
a power transistor,
a voltage source connected to supply current through the collector-emitter circuit of said transistor,
a degenerative feedback loop connected between the emitter and the base of said transistor,
switching means connected to the base of said transistor to initiate turn-on and turn-off of said transistor, and
means for activating said loop upon initiation of turnoff,
wherein said means for activating said loop includes means responsive to the current flowing through the collector-emitter circuit of said power transistor so that when said transistor is turned on and currrent through it exceeds a predetermined value, said loop is activated thereby draining away base current from said transistor.

4,272,692
POWER SUPPLY DISTRIBUTION SYSTEM
Alfred W. Morse, Baltimore, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Feb. 23, 1979, Ser. No. 14,409
Int. Cl.³ H03K *17/62;* H02J *1/06, 4/00*
U.S. Cl. 307—268 **5 Claims**



1. A distributed pulsed power supply, comprising
a direct current power supply,
a plurality of modules, each having a pair of inputs electrically connecting each said module in parallel to said power supply,
a switching transistor having collector, emitter and base portions mounted within each of said modules, said collector portion being connected electrically to one of said inputs,
a pulsed load mounted in each said module electrically connected at one side to the emitter portion of its respective switching transistor and at its other side to the other of the pair of inputs, said pulsed load including means to repetitively open and close a circuit path from the power supply through the collector and emitter portion of its switching transistor,
a precision voltage source for each module connected electrically to the base portion of its respective switching transistor, said precision voltage being a value to produce a current substantially equal to the load requirements of its module divided by the current gain of the switching transistor, said switching transistor being operative in a linear regulator mode.

4,272,693
ANALYSIS CIRCUIT FOR A CHARGE COUPLED DEVICE
Günther Meusburger, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany
Continuation of Ser. No. 896,754, Apr. 17, 1978. This application Aug. 31, 1979, Ser. No. 71,539
Claims priority, application Fed. Rep. of Germany, May 31, 1977, 2721812
Int. Cl.³ H03K *3/353;* G11C *19/28;* H01L *29/718*
U.S. Cl. 307—304 **5 Claims**



1. A charge coupled device (CCD) having a semiconductor layer of a first conductivity type, a layer of insulating material on one surface of said semiconductor layer, a row of CCD shift electrodes on aid layer of insulating material, means for feeding pulse train voltages displaced in phase relative to one another to said CCD shift electrodes in a sequential manner, a first field effect transistor, a first terminal, a further shift electrode E1 on said insulating layer connected to said first terminal and through said first field effect transistor to a pulse train voltage source U1 which intermittently supplies one of said pulse train voltages to said further shift electrode and having a first amplitude during its initial stage and a second lower amplitude at its later stage, said semiconductor layer being connected to a reference potential, a field effect capacitor 4, 5 comprising a gate electrode 4 and a diffused zone located at the surface of said semiconductor layer, said field effect capacitor including said gate electrode 4 arranged on said layer of insulating material and a part of the surface of said semiconductor layer located beneath said gate electrode and adjacent to said diffused zone, means for supplying a periodic pulse square wave pulse (U_D) to said diffused zone which occurs after said pulse train voltage U1, and said terminal A of said further shift electrode

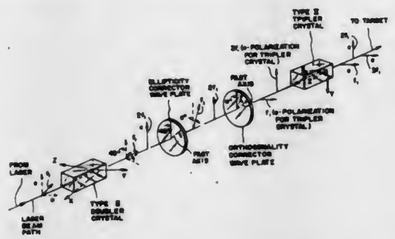
E1 connected to the gate 4 of said field effect capacitor to serve as a signal output and an additional shift electrode and a periodic square wave pulse ϕA which occurs after said periodic pulse U_D supplied to said additional shift electrode.

4,272,694

SYSTEM FOR CONVERTING THE FREQUENCY OF COHERENT RADIATION

Stephen D. Jacobs, Pittsford, N.Y., assignor to The University of Rochester, Rochester, N.Y.

Filed Nov. 15, 1979, Ser. No. 94,402
Int. Cl.³ H01S 3/13
U.S. Cl. 307—427 **15 Claims**



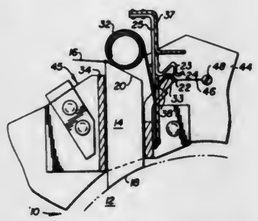
1. Apparatus for converting the frequency of coherent radiation comprising first and second crystals having non-linear optical coefficients, and first and second waveplates between said crystals each having a different effect upon the polarization of the fundamental frequency component of said radiation to orient the polarization components of said radiation in predetermined relationship with respect to the axes of the second of said crystals.

4,272,695

BRUSH WEAR INDICATOR

Frank S. Buchwald, Beachwood; Richard C. Maher, Painesville, and Jerome E. Buchina, Eastlake, all of Ohio, assignors to Towmotor Corporation, Mentor, Ohio

Continuation-in-part of Ser. No. 845,764, Oct. 26, 1977, abandoned. This application Feb. 26, 1979, Ser. No. 15,094
Int. Cl.³ H02K 13/00
U.S. Cl. 310—242 **4 Claims**



1. In a brush wear indicator having a brush box connected to a insulator, a brush slidably connected to the brush box for translatory movement relative thereto, a mounting plate releasably connected to the brush box, and a spring connected to the mounting plate urging the brush in a preselected direction in response to wearing away of an end of the brush, the improvement comprising:

a first electrical contactor connected to the support structure;

a second electrical contactor connected to the mounting plate and movable relative to the first electrical contactor between a first position at which the second electrical contactor is free from contact with the first electrical contactor and a second position at which the second electrical contactor is in engagement with the first electrical contactor; and

means connected to the mounting plate for biasing the second electrical contactor to a selected one of the first and second positions;

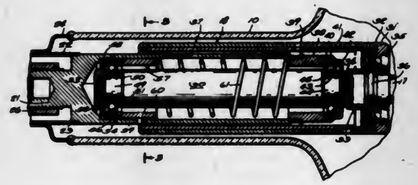
said spring being movable from a first position to a second position in response to the brush being worn away to a preselected shortened length, said second electrical contactor being maintained at the selected one of the first and second positions against the biasing influence of the biasing means by the spring at the first position of the spring and said second electrical contactor being moved to the other of the first and second positions by the biasing means when the spring reaches its second position.

4,272,696

PRELOADED BEARING ASSEMBLY FOR ROTATING ANODE X-RAY TUBES

Reimann L. Stroble, Milwaukee; Robert E. Hueschen, Hales Corners, and Richard A. Jens, Milwaukee, all of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 16, 1979, Ser. No. 85,357
Int. Cl.³ H01J 35/04
U.S. Cl. 313—60 **3 Claims**



1. A rotating anode x-ray tube comprising:

an envelope,

a stem member sealed into said envelope and having a part extending to the outside of said envelope for making an external electrical connection to it and having a tubular part extending inside of said envelope,

a shaft having first and second end portions and being arranged coaxially inside of said tubular part of said stem member, and a rotor assembly including a rotor sleeve mounted to the first end portion of said shaft which projects from said tubular part, said sleeve surrounding said tubular part and being coaxial with said shaft,

a stud projecting axially from said rotor sleeve and an x-ray target supported on said stud,

an axially yieldable non-rotating bearing retainer located inside of said tubular part of said stem member in proximity with the second end portion of said shaft,

shoulder means inside of said tubular part axially spaced from said retainer and spring means interposed in compressive condition between said shoulder means and said bearing retainer,

a first ball bearing having an externally grooved inner race and an internally grooved outer race with balls disposed around said grooves, said inner race being secured on the first end portion of said shaft and said outer race being secured in said tubular part of said stem member, and

a second ball bearing having an externally grooved inner race and an internally grooved outer race with balls disposed around said grooves, said inner race being secured on said second end portion of said shaft and said outer race being secured in said axially yieldable bearing retainer,

said spring means being operative to apply an axially directed spring means for applying an axially directed force to said axially yieldable bearing retainer and to the outer race of said second bearing secured therein to thereby maintain said balls in continuous contact with the grooves

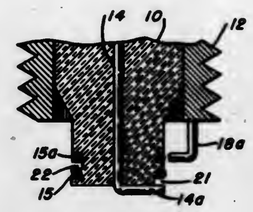
in said outer and inner races when said rotor assembly is rotating.

4,272,697

SPARK PLUG WITH ANNULAR RINGS IN INSULATING CORE CHANNELS FORMING SERIES GAP

Bernard Wax, P.O. Box 197, Succasunna, N.J. 07876

Filed Mar. 1, 1979, Ser. No. 16,183
Int. Cl.³ H01T 13/02, 13/22
U.S. Cl. 313—123 **1 Claim**



1. A spark plug comprising,

(a) an insulating core carried by a metal shell,

(b) an annular channel formed in the peripheral surface of the core,

(c) a metal ring member disposed in the said channel,

(d) a main electrode carried by the core and having a radially-offset end portion spaced from said ring member,

(e) a radial opening formed in the core and extending between the said ring member and the offset end portion of the main electrode,

(f) a second annular channel formed in the peripheral surface of the core,

(g) a second metal ring member disposed in said second channel,

(h) a second radial opening formed in the core and extending between the two annular channels, the two openings formed in the core being located substantially on opposite ends of the core diameter, and

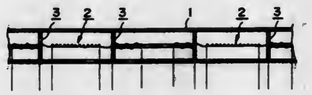
(i) a ground electrode carried by the said shell and spaced from said second ring member.

4,272,698

TUBULAR INCANDESCENT LAMP

Hiroo Oyama, Hyogo, and Takashi Yokouchi, Takasago, both of Japan, assignors to Ushio Denki Kabushikikaisha, Japan

Filed Jul. 2, 1979, Ser. No. 54,177
Int. Cl.³ H01J 1/88, 19/50; H01K 1/18
U.S. Cl. 313—272 **14 Claims**



1. A long, tubular incandescent lamp comprising:

(a) a tubular-like envelope; and

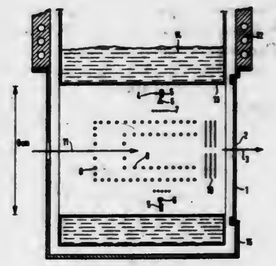
(b) a composite filament of alternating interconnected light-emitting and non-light-emitting segments wherein each non-light-emitting segment is formed of a bar with a straight middle short-circuit portion, bent portions provided at both ends of the middle short-circuit portion and support portions respectively extending from the bent portions and engageable with the inner wall of said envelope, and wherein each light-emitting segment is formed of a single coil having a light-emitting coil portion and a roughly-pitched coil-like coupling portion at the end of the light-emitting coil portion for insertion and connection with the straight short-circuit portion of the non-light-emitting segment.

4,272,699

ELECTRON IMPACT ION SOURCE WITH FIELD EMISSION CATHODE

Manfred Faubel, Rosdorf, Fed. Rep. of Germany; William M. Holber, Chicago, Ill., and Jan P. Toennies, Göttingen, Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V, Fed. Rep. of Germany

Filed Mar. 8, 1979, Ser. No. 18,646
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1978, 2810736
Int. Cl.³ H01J 37/073, 37/08, 49/14, 19/24
U.S. Cl. 313—360 **3 Claims**



1. An electron impact ion source for use in a mass spectrometer, molecular beam detector, or like instrument comprising:

an inner ionization cage defining a generally cylindrical ionization chamber;

a retarding grid disposed in radially spaced encompassing relation to the ionization cage;

an extraction grid disposed in radially spaced encompassing relation to a predetermined portion of the retarding grid;

and a field emission cathode positioned in radially spaced encompassing relation to the extraction grid,

the field emission cathode comprising a conductive support on which a multiplicity of carbon fibers are mounted, the carbon fibers projecting radially inwardly toward the extraction grid with the tips of the fibers affording a multiplicity of electron emission points directed toward the axis of the ion source.

4,272,700

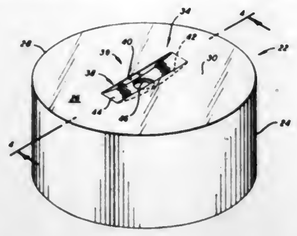
ONE PIECE ASTIGMATIC GRID FOR COLOR PICTURE TUBE ELECTRON GUN AND METHOD OF MAKING SAME

Floyd K. Collins, Seneca Falls, N.Y., assignor to GTE Products Corporation, Stamford, Conn.

Filed Nov. 15, 1979, Ser. No. 94,489
Int. Cl.³ H01J 29/46
U.S. Cl. 313—458 **6 Claims**

1. A one-piece grid which provides an astigmatic lens for a cathode ray tube electron gun comprising: a functional grid area defined by a given perimeter and having a given thickness; and a two part lens forming aperture formed in said functional grid area; a first part of said aperture comprising a slot having

a length greater than its width and a maximum depth less than said given thickness; and a second part comprising an aperture



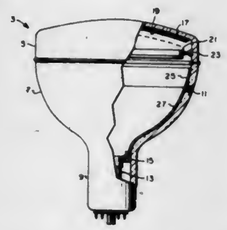
located at said maximum depth and extending through the remaining portion of said thickness.

4,272,701

CATHODE RAY TUBE ARC LIMITING COATING

Anthony V. Gallaro; Joseph E. Lane, both of Auburn, and G. Norman Williams, Seneca Falls, all of N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Filed Aug. 27, 1979, Ser. No. 70,278
Int. Cl.³ H01J 29/88
U.S. Cl. 313—479 **12 Claims**



1. In a cathode ray tube having an evacuated envelope including a funnel member and an arc limiting coating affixed to at least a portion of the inner surface of said funnel member wherein said arc limiting coating includes graphite particles, a silicate binder and insulator oxide particles, the improvement wherein said oxide particles have an exothermic heat of formation greater than the exothermic heat of formation of iron oxide.

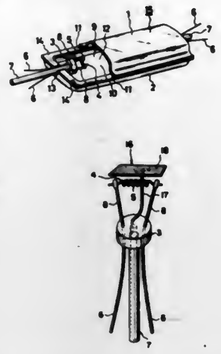
4,272,702

FLUORESCENT LAMP

Toru Teshima, Hadano; Kazuo Ariga, Tokyo; Norimasa Oinuma, Machida, and Mitunari Yoshida, Yokohama, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Filed Jan. 19, 1978, Ser. No. 870,853
Claims priority, application Japan, Jan. 28, 1977, 52/8949; Jan. 31, 1977, 51/10248
Int. Cl.³ H01J 61/42
U.S. Cl. 313—493 **13 Claims**

1. A fluorescent lamp comprising:
- a pair of opposed shells sealingly bonded together along peripheral bonding surfaces thereof to form a lamp body symmetrically shaped about said bonding surfaces and defining an interior space within said body, each of said shells having a concave recess formed on its bonding surfaces and disposed opposite a mating concave recess formed on the bonding surfaces of the other of said shells, said mating recess having the same shape and size as said recess, said recess and said mating recess together forming an opening of a predetermined cross-sectional shape and size;
- an exhaust tube extending through said opening and into said space, said exhaust tube having a cross-sectional shape and size generally equal to said predetermined cross-sectional shape and size and being sealingly secured to the perimeter of said opening;
- a stem formed on said exhaust tube within said space;
- an electrode filament supported on said stem within said space; and



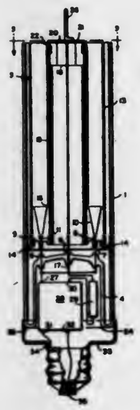
- a pair of lead wires attached to said stem and being electrically connected to said electrode filament, said pair of lead wires extending into said space through said opening between the perimeter of said opening and the outer surfaces of said exhaust tube, said pair of lead wires and said exhaust tube together sealing said opening.

4,272,703

D.C. VOLTAGE FLUORESCENT LAMP

Edwin E. Eckberg, 5504 Currier Cir., Boise, Id. 83705, assignor to Edwin E. Eckberg, Boise, Id.

Filed Jun. 15, 1979, Ser. No. 48,991
Int. Cl.³ H05B 41/22
U.S. Cl. 315—205 **24 Claims**



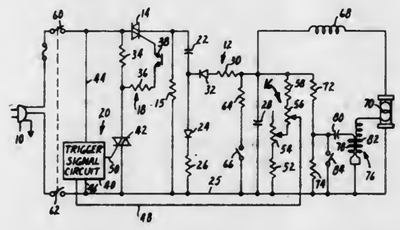
1. A fluorescent lamp comprising
- an envelope having a phosphor coated inner surface;
- a plurality of cathode leadwires supporting a platform member;
- a plurality of column means mounted on said platform member;
- electron emissive cathode means mounted within each column means, each said cathode means being connected to a cathode leadwire;
- an anode member having extensions mounted adjacent the upper portions of each of said column means;
- an anode leadwire connected to said anode member;
- a conductive starter member mounted within each of said column means so as to provide a first insulative gap between one end of said starter member and its associated cathode means and a second insulative gap between the other end of said starter member and its associated anode extension; and
- means for applying a D.C. voltage to said anode leadwire and each of said cathode leadwires.

4,272,704

DC POWER SUPPLY FOR HIGH POWER DISCHARGE DEVICES

Jerry L. Alexander, St. Paul Park, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 28, 1980, Ser. No. 125,577
Int. Cl.³ H05B 41/16, 41/18
U.S. Cl. 315—205 **8 Claims**



1. A D.C. power supply energized from an A.C. supply and connected to a gaseous discharge lamp and a triggering circuit for such lamp for providing D.C. power for operation of such lamp including
- a voltage doubler circuit having a capacitor operatively connected to the gaseous discharge lamp and the triggering circuit for the gaseous discharge lamp;
- a gate controlled bidirectional solid state switch operatively connected to said voltage doubler circuit and the A.C. supply for completing a current path from the A.C. supply to said voltage doubler circuit when said solid state switch is conducting;
- a voltage controlled gate circuit operatively connected to said solid state switch for controlling the conduction of said solid state switch during each half cycle of the A.C. supply;
- a voltage level sensing circuit operatively connected to said capacitor; and
- a bidirectional disabling switch means operatively connected to said voltage controlled gate circuit and said voltage level sensing circuit, said disabling switch means conducting during each half cycle of the A.C. supply when said voltage level sensing circuit is responding to a predetermined voltage level at said capacitor and when conducting preventing said voltage controlled gate circuit from causing said solid state switch to conduct.

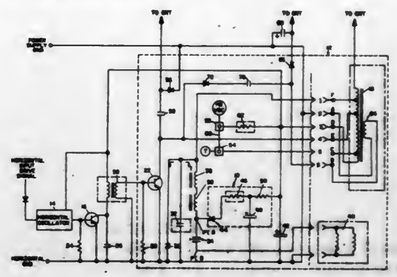
4,272,705

ANTI-RINGING CIRCUIT FOR CRT DEFLECTION YOKE

Gregory J. Beaumont, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 14, 1979, Ser. No. 75,566
Int. Cl.³ H01J 29/70, 29/76
U.S. Cl. 315—408 **4 Claims**

1. An anti-ringing system for eliminating spurious deflection signals caused by resonant inductances in an alternating current sweep drive circuit of a cathode ray tube in a video display, said sweep drive circuit including a plurality of coils for deflecting an electron beam and wherein electron beam scan is initiated by a flyback pulse, said anti-ringing system comprising in combination:
- a source of alternating current energizing the sweep drive circuit;
- a direct current power supply;
- first resistor means coupling the direct current power supply to the sweep drive circuit; and



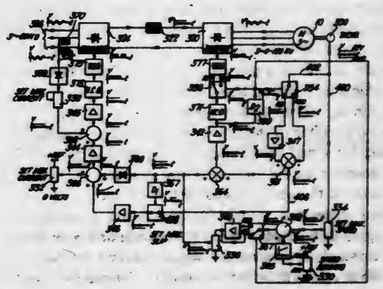
- means for temporarily connecting said first resistor means to the sweep drive circuit immediately following the flyback pulse when the voltage in said circuit drops below a predetermined value thereby eliminating distortions in electron beam scan by damping out spurious deflection signals produced by resonant inductances in said sweep drive circuit.

4,272,706

MOORING WINCH SYSTEM

William M. Somerville, Newcastle, England, assignor to Northern Engineering Industries Limited, Newcastle upon Tyne, England

Continuation-in-part of Ser. No. 853,787, Nov. 21, 1977, abandoned. This application Oct. 25, 1978, Ser. No. 954,434
Claims priority, application United Kingdom, Dec. 3, 1976, 50622/76
Int. Cl.³ B65H 59/38, 77/00; H02P 5/34, 7/42
U.S. Cl. 318—6 **8 Claims**



1. An automatic mooring winch system comprising a winch having a winding drum and a polyphase AC motor in driving relationship with the winding drum, an AC polyphase electric power source, converter means comprising rectifier means and inverter means, further means to connect said converter means between said motor and said power source, speed-responsive means in driving relationship with said AC motor and operble to produce a first signal corresponding to motor speed, frequency-correction means and voltage-correction means arranged to receive said first signal and to produce, respectively, frequency-correction and voltage-correction signals, said in-

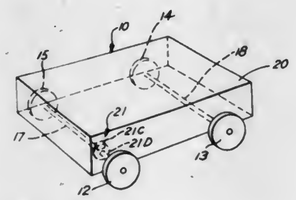
verter means and said rectifier means being arranged to receive said frequency-correction and voltage-correction signals, and electronic detector means responsive to a reduction of said frequency correction signal to a pre-set value to change the mode of operation of said inverter to change the phase of energisation of said motor whereby said motor exerts torque in the rope in-haul sense while said motor runs in the rope pay-out sense.

4,272,707

MOTOR CONTROL TECHNIQUES

Robert C. Burgener, and Philip T. Martin, both of Columbus, Ohio, assignors to Interlake, Inc., Oak Brook, Ill.

Filed Dec. 11, 1978, Ser. No. 968,557
Int. Cl.³ H02P 1/04
U.S. Cl. 318—139 7 Claims



1. In a vehicle including an electric drive motor means for propelling the vehicle and controller means for conducting current from a source of electrical power to the motor means, for changing the current in response to a drive signal in order to control the speed of the motor means, for enabling the motor means to generate torque in a first rotational direction which urges the vehicle in a first lineal direction in response to a first direction signal and for enabling the motor means to generate torque in a second rotational direction which urges the vehicle in a second lineal direction in response to a second direction signal, improved apparatus for enabling the vehicle to move in either of the first or second linear directions within preselected speed boundaries, said apparatus comprising:

tachometer means for generating a tachometer signal dependent on the actual speed of the vehicle;

speed generator means for generating a sustained speed signal defining the speed to be sustained over a period of time and an acceleration signal defining the rate of change of the speed necessary to attain a desired sustained speed;

boundary generator means responsive to the speed signal for generating a boundary signal representation of desired speed boundaries for the vehicle;

drive means for generating said drive signal by comparing the tachometer signal with the speed signal, whereby the motor creates an appropriate amount of torque to achieve the desired speed; and

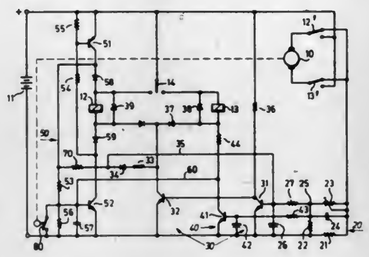
direction means for generating said first direction signal or said second direction signal whenever the actual vehicle speed lies outside the desired speed boundaries, whereby the motor means generates torque in a direction which tends to restore the actual vehicle speed within the desired speed boundaries.

4,272,708

WINDOW LIFTER INSTALLATION

Hermann Carle, Lochgau; Heribert Klement, Bietigheim-Bissingen, and Uwe Knobloch, Heilbronn-Sontheim, all of Fed. Rep. of Germany, assignors to ITT Industries, Inc., New York, N.Y.

Filed Apr. 23, 1979, Ser. No. 32,471
Claims priority, application Fed. Rep. of Germany, May 10, 1978, 2820330
Int. Cl.³ H02P 1/22
U.S. Cl. 318—266 8 Claims



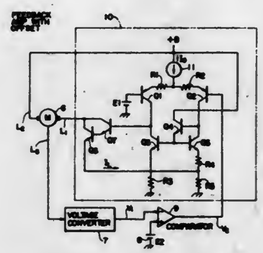
1. A circuit arrangement for the purpose of driving a movable window element or the like in motor vehicles, comprising: an operating switch, an electric motor fed out of a voltage source and controlled by way of a switching element and a motor current supervising stage affecting the switching element, wherein the motor current supervising stage at least at times recognizes a reset signal derived from a given change in time of the motor current, wherein the motor current supervising stage recognizes a reset signal derived from a given static motor value, wherein the maximum torque of the motor exceeds by 20 percent, the torque necessary to drive the movable element in the most unfavorable case of operation, wherein the drop in voltage on a measuring resistor in the motor circuit serves as a reset signal, to which measuring resistor a voltage divider with a resistor and a parallel circuit consisting of a preferably variable resistor and a capacitor is connected in parallel, whereby the reset signal may be measured on the voltage divider tapping, wherein the load inrush current of the motor is absorbed by a capacitor, wherein the motor current supervising stage affects the switching element via a bistable toggle stage which may be quenched by the reset signal and be brought back to the other switching condition only by means of a switching process of the operating switch, wherein the operating voltage may be conducted to at least one switching member of the toggle stage via the operating switch, wherein a switching member of the toggle stage is connected with the switching element and the operating switch is connected in series to the voltage source, wherein the toggle stage is provided with two transistors of which one is located in the control circuit of the switching element as switching member and is controlled by the second transistor, whereby the output signal of the first transistor is fed back to the control voltage, wherein the reset signal is conducted to the second transistor as control voltage, wherein the reset signal is conducted to the first transistor via a further switching stage, wherein the motor is switched off via the toggle stage and a further switching element is controlled to reverse the direction of rotation of the motor, whereby the control circuit of said second switching element is interrupted, when the current supervising device detects a reset signal, wherein a further transistor switching stage serves for the control of the control circuit of the second switching stage serves for the control of the control circuit of the second switching element, whereby the reset signal is conducted to said transistor switching stage, wherein the control circuit of the second switching element is affected by the transistor switching stage which also controls the toggle stage, and wherein the two switching elements comprise one change-over relay each through which the motor may be depolarized or short-circuited, whereby shorting of the motor winding takes place before reversing the motor.

4,272,709

CIRCUIT FOR CONTROLLING THE DRIVE OF MOTOR

Katsuji Mizumoto; Toshihide Hanada, both of Sayama; Yasuo Kominami, Kokubunji, and Masahiro Yamamura, Kodaira, all of Japan, assignors to Pioneer Electronic Corporation and Hitachi, Ltd., both of Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,872
Claims priority, application Japan, Jul. 19, 1978, 53-88043
Int. Cl.³ H02P 5/16
U.S. Cl. 318—317 4 Claims



1. A circuit for controlling the running speed of a motor comprising; a comparator for comparing a speed signal produced responsive to the running speed of said motor with a reference signal, said comparator having substantially no offset; and a feedback amplifier including a differential amplifier for receiving an output signal from said comparator, an output circuit for feeding a drive current to said motor upon receipt of an output from said differential amplifier and a current feedback loop connected between said output circuit and said differential amplifier, said feedback amplifier having an offset, one end of said motor being directly connected to a first operating potential, another end of said motor being connected to a second operating potential through said output circuit and said current feedback loop, said drive current being based upon said offset of said feedback amplifier and flowing through the series path of said motor, said output circuit and said current feedback loop between said first operating potential and said second operating potential.

4,272,710

METHOD AND APPARATUS FOR THE ADJUSTMENT OF A DEFINITE POSITION OF REST OF A ROTARY TUBE

Helmut Duill, and Jakob Ansen, both of Cologne, Fed. Rep. of Germany, assignors to Klockner-Humboldt-Deutz AG, Fed. Rep. of Germany

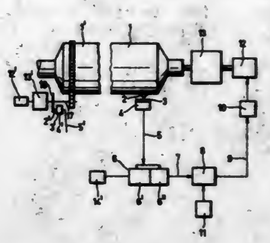
Filed May 21, 1979, Ser. No. 40,567
Claims priority, application Fed. Rep. of Germany, May 26, 1978, 2823140
Int. Cl.³ G05G 5/00
U.S. Cl. 318—470 6 Claims

1. A method of setting a definite standstill position of a rotary mill tube, without braking, upon switching off of the tube drive and subsequent inertial rotation of the tube, comprising the steps of:

testing the switch-off-to-standstill condition to determine the amount of angular rotation therebetween;

generating a reference time pulse prior to switch-off;

delaying the reference time pulse by a predetermined time relating to the amount of angular rotation between switch-off and standstill to produce a desired angular position of the tube; and



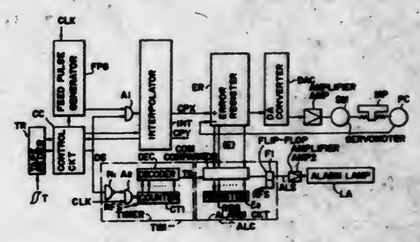
generating and applying a switch-off signal to the tube drive upon expiration of the delay time of the reference time pulse.

4,272,711

MALFUNCTION DETECTING SYSTEM

Hiroomi Fukuyama, Kanagawa, and Shinichi Isobe, Tachikawa, both of Japan, assignors to Fujitsu Fanuc Limited, Japan

Filed Apr. 27, 1979, Ser. No. 34,143
Claims priority, application Japan, Apr. 28, 1978, 53/51693
Int. Cl.³ G05B 23/02
U.S. Cl. 318—565 4 Claims



1. A malfunction detecting system for a numerical control unit having an interpolation means for generating command pulses in response to a distribution command and having a servo system means for generating an error signal to drive a movable part of a machine in accordance with the command pulses, comprising: means for making a comparison between the error signal generated by the servo system means and a preset value at a predetermined period of time after the distribution command is switched OFF, and means for generating an alarm signal if the means for making a comparison detects that the error signal exceeds the preset value upon expiration of the predetermined period of time.

4,272,712

PHASE LOCKED LOOP CONTROL SYSTEM

Thomas E. Bellag, Saxonville, and Leopold Eric, Braintree, both of Mass., assignors to Sigma Instruments, Inc., Braintree, Mass.

Filed Apr. 10, 1979, Ser. No. 28,782
Int. Cl.³ G05B 19/40
U.S. Cl. 318—696 7 Claims

1. A system for controlling a motor system having inertia in response to pulses, comprising:

a phase comparator,

a filter,

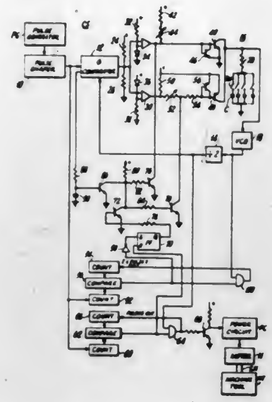
a voltage controlled oscillator,

said filter having a time factor equal to or greater than the inertial delay of the motor,

pulse comparison means for storing two sets of pulses and comparing the numbers of the pulses with each other, said

phase comparator having a feedback input and a signal input for receiving input pulses, and

circuit means for connecting said phase comparator, said filter, and said voltage controlled oscillator into a phase locked loop with a connection to the feedback input to the



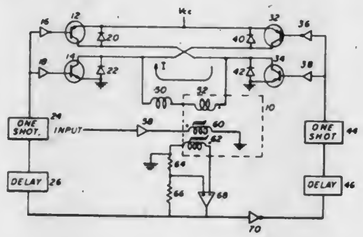
comparator and for connecting the pulse comparison means to the inputs of the phase comparator so as to store and count the pulses at each of the inputs to the phase comparator and to pass pulses from the feedback input only as long as the counts are unequal.

4,272,713

SWITCHING TRANSCONDUCTANCE AMPLIFIER FOR INDUCTIVE LOADS

Eric K. Pritchard, 1702 Plymouth Ct., Bowie, Md. 20716

Filed Oct. 30, 1979, Ser. No. 89,678
Int. Cl.³ G05B 19/40
U.S. Cl. 318—696 6 Claims



1. A switching current amplifier to drive inductive loads with output devices comprising:

a. a first means for sensing an input signal from a position command signal;

b. a non-linear transformer means responsive to said input signal for sensing the load current of said inductive load, for comparing said load current to high and low switching points of said amplifier, said switching points being a function of said transformer parameters, and for providing switching signals indicative of the load current attaining said high and low switch points;

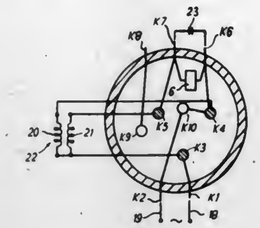
c. a second means for receiving said switching signal and for switching said output devices.

4,272,714

STARTER DEVICE FOR A SINGLE-PHASE ASYNCHRONOUS MOTOR

Holger V. Vind, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

Filed May 14, 1979, Ser. No. 38,461
Claims priority, application Fed. Rep. of Germany, May 16, 1978, 2821253
Int. Cl.³ H02P 1/44
U.S. Cl. 318—783 3 Claims



1. A starter device for single phase asynchonous motors, comprising, a housing, a PTC resistor mounted in said housing having first and second capacitor contacts connected to opposite sides thereof, a third capacitor contact mounted in said housing, first and second power input contacts mounted in said housing, first and second sets of main and auxiliary windings contacts mounted in said housing with three contacts in each said set, said first set having first and second contacts connected to opposite sides of said PTC resistor and respectively to said first and second capacitor contacts, said second set having a first contact connected to one side of said PTC resistor and a second contact connected to said third capacitor contact, said first and second sets having a third contact which is common to both said sets and is connected to one of said input contacts, said first contact of each of said sets being connected to each other and to the other of said input contacts, and all said contacts being accessible from the exterior of said housing.

4,272,715

SYSTEM FOR CONTROLLING TORQUE OF INDUCTION MOTORS

Mitsuo Matsumoto, Kokubunji, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 4, 1979, Ser. No. 1,014
Claims priority, application Japan, Jan. 18, 1978, 53-3834
Int. Cl.³ H02P 5/34, 7/42, 5/28, 7/36
U.S. Cl. 318—800 2 Claims

1. A system of controlling torque of a 3 phase induction motor comprising:

means for detecting an angle of rotation θ of a shaft of said motor in terms of a digital quantity;

means for generating a sampling pulse at a definite period:

means for generating a torque instruction T_c; cumulating means responsive to said sampling pulse for sequentially accumulating a product of said torque instruction and a first constant; a first adder for adding an output of said accumulating means and said angle of rotation θ to produce a magnetic flux angle ϕ; means for adding together a first phase direction component ($\Phi_o/M \cdot \sin \phi$) of a first vector having a definite magnitude (Φ_o/M) and a direction in said magnetic flux angle ϕ, and a first phase direction component ($T_c' Lr/MK_T\Phi_o \cdot \cos \phi$) of a second vector which is orthogonal to said first vector and has a magnitude equal to a product of said torque instruction and a second constant ($Lr/MK_T\Phi_o$) for producing a first phase current instruction (i_{1a}); a second adder for adding together a second phase direction component ($\Phi_o/M \cdot \sin (\phi - \frac{1}{2}\cdot\pi)$) of said first vector, and a second phase direction component ($T_c' Lr/MK_T\Phi_o \cdot \cos (\phi - \frac{1}{2}\cdot\pi)$) of said second vector to produce a second phase current instruction (i_{1b});

where Φ_o is the magnitude of the rotating magnetic field,

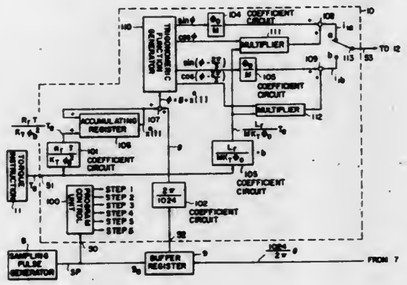
M is the mutual inductance between stator and rotor windings of the motor,

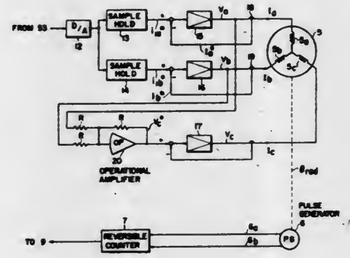
K_T is a constant, and

L_r is the self inductance of the rotor windings;

a digital-analogue converter for converting said current instructions i_{1a} and i_{1b} produced by said digital data processing means into analogue current instructions i_{1a}^* and i_{1b}^* respectively;

first power amplifier means for amplifying a difference between said analogue current instruction i_{1a}^* and a voltage I_a^* corresponding to current flowing through a first phase





stator winding of said motor to apply an output voltage V_a to said first phase stator winding, said first power amplifier means including means for feeding back its output current to its output;

a second power amplifier means for amplifying a difference between said analogue current instruction i_{1b}^* and a voltage I_b^* corresponding to a current flowing through a second phase stator winding of said motor to apply an output voltage V_b to said second phase stator winding, said second power amplifier means including means for feeding back its output current to its input; and

third power amplifier means for producing an output voltage V_c which is equal to $-(V_a+V_b)$ and applied to a third phase stator winding of said motor.

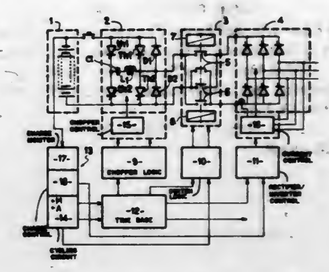
4,272,716

DEVICE FOR SIMULATING THE OPERATION OF AN ACCUMULATOR BATTERY, IN PARTICULAR A TRACTION BATTERY FOR AN ELECTRIC VEHICLE

Michel Etienne, Valmondois, France, assignor to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

Filed Mar. 14, 1979, Ser. No. 20,444
Claims priority, application France, Mar. 29, 1978, 78 09150
Int. Cl.³ H02J 7/00
U.S. Cl. 320—14 16 Claims

1. A device for simulating the operation of an accumulator battery, comprising an electric supply device for connection to a source of alternating current, said supply device comprising a rectifier-inverter for connection to said source and for connection to the battery for delivering a charging current to the battery in the course of the battery charging periods and for restoring to said source a discharge current of the battery in the course of the battery discharging periods, the simulating device further comprising a direct current chopper circuit adapted to chop at a variable conduction rate selectively the



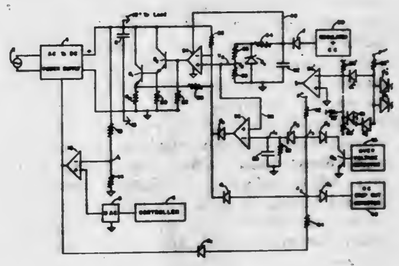
current received by the battery and the current delivered by the battery in the course of the simulation of a cycle of operation of the battery, and a switch connected between the rectifier-inverter and the chopper circuit for causing the passage of a charging current from the rectifier-inverter to the battery in the course of the battery charging periods and the passage of a discharge current from the battery to the rectifier-inverter and the source during the battery discharging periods.

4,272,717

OUTPUT CAPACITOR DISCHARGE CIRCUIT

Paul W. Bailey, Flanders, N.J., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 12, 1979, Ser. No. 19,525
Int. Cl.³ G05F 1/613
U.S. Cl. 323—226 11 Claims



1. A power supply comprising

an output capacitor,

means for applying a regulated desired direct current voltage to said capacitor,

a transistor having a collector, an emitter, and a base,

means coupling the collector-to-emitter path of said transistor across said output capacitor with such polarity as to discharge said capacitor when current is flowing in the said path,

means for applying a bias to the base of said transistor that cuts off current flow in the path between its collector and emitter,

means for selecting the value of regulated voltage that is to exist across said capacitor,

means for comparing the difference between the value of voltage selected and the voltage across said capacitor,

means for removing said cut-off bias from the base of said transistor when said difference in voltage attains a prede-

termined value so as to initiate discharge of said capacitor, and

means for applying a forward bias to the base of said transistor that increases as the voltage across said capacitor decreases, thereby causing said transistor to have a negative resistance characteristic.

4,272,718

MOISTURE METER

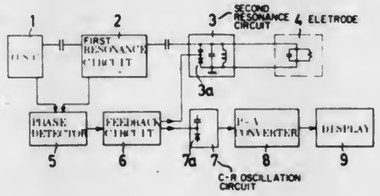
Yoshinobu Kashiuchi, and Isamu Zinguzi, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed May 30, 1979, Ser. No. 43,645

Claims priority, application Japan, Nov. 30, 1977, 52-143557; Feb. 28, 1978, 53-23073

Int. Cl.³ G01R *27/26*

U.S. Cl. 324—61 R **4 Claims**



1. A moisture meter for measuring the moisture content of a sample and comprising:

an oscillator;

a first resonant circuit;

a second resonant circuit having a first variable capacitance diode;

said first and second resonant circuits capacitively coupled to said oscillator and in resonance;

an electrode connected in parallel with said second resonant circuit for receiving said sample to be measured;

a phase detector connected to said oscillator and said first resonant circuit for detecting the drift in the resonant frequency point of said first resonant circuit;

a feedback circuit connected to said phase detector and said second resonant circuit to apply a voltage to said first variable capacitance diode to cancel said drift in said resonant frequency point;

an oscillation circuit for producing pulses and including a second variable capacitance diode having substantially the same characteristics as said first variable capacitance diode, said second variable capacitance diode also receiving said voltage from said feedback circuit, the pulse width of said oscillation circuit pulses having a predetermined relationship to the capacitance of said second diode; and

a pulse width to voltage converter connected to said oscillation circuit for converting the width of the pulses from said oscillation circuit to an output voltage of the moisture meter; said output voltage having a predetermined relationship to the moisture content of said measured sample.

4,272,719

ELECTRIC FIELD INTENSITY MEASURING APPARATUS

Shoji Niki, Saitama, and Yuji Yoshino, Gyoda, both of Japan, assignors to Takeda Riken Kogyo Kabushikikaisha, Tokyo, Japan

Filed Feb. 23, 1979, Ser. No. 14,568

Claims priority, application Japan, Feb. 27, 1978, 53/20916

Int. Cl.³ G01R *31/02*

U.S. Cl. 324—72 **25 Claims**

1. An electric field intensity measuring apparatus for measuring, in accordance with a reference level, the electric field intensity of an input signal received by an antenna, said input signal having an input signal level, said apparatus comprising:

first level adjuster means supplied with said input signal from said antenna for adjusting the input signal level in accordance with a first set value provided thereto to produce a first level adjusted output;

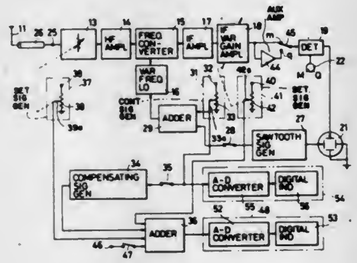
variable frequency local oscillator means for generating an oscillator output signal having an oscillation frequency which is controlled by a control signal provided as an input to said variable frequency local oscillator means;

frequency converter means for receiving said first level adjusted output and said oscillator output signal, and for frequency mixing the first level adjusted output and the oscillator output signal to provide a signal of a constant frequency as a converted output having a level;

second level adjuster means supplied with the converted output from the frequency converter means for adjusting said level of said converted output in accordance with a second set value to produce a second level adjusted output;

detector means for detecting said second level adjusted output to produce a detected output having a magnitude;

first display means supplied with the detected output from the detector means for displaying an indication of said magnitude of said detected output, said magnitude of said detected output approaching said reference level;



control signal generator means for supplying to said variable frequency local oscillator means said control signal for controlling said oscillation frequency of said oscillator output signal in accordance with a control signal set value provided to said control signal generator means;

first set signal generator means for generating a first set signal indicating said first set value provided to said first level adjuster means;

second set signal generator means for generating a second set signal indicating said second set value provided to said second level adjuster means;

compensating signal generator means supplied with a signal corresponding to said control signal set value to produce a compensating signal for compensating the frequency characteristic of the antenna;

adder means for receiving and adding together the first set signal, the second set signal and the compensating signal to produce an added output having a magnitude; and

second display means supplied with the added output from the adder means for displaying an indication of said magnitude of said added output, whereby to display said measured electric field intensity of said input signal when said magnitude of said detected output reaches said reference level.

4,272,720

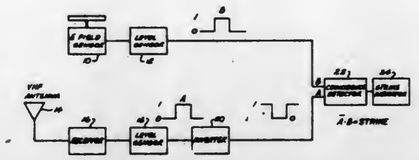
LIGHTNING DISCHARGE IDENTIFICATION SYSTEM

Carl L. Lennon, Merritt Island, Fla., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed May 30, 1979, Ser. No. 43,945

Int. Cl.³ G01R *31/02*

U.S. Cl. 324—72 **4 Claims**



1. A system for differentiating between cloud-to-cloud and cloud-to-ground lightning discharges comprising:

(a) an electric field sensing means generating an electric field signal responsive to a lightning discharge;

(b) a level sensor means connected to said electric field sensing means generating an output signal of a predetermined duration responsive to said electric field signal exceeding a predetermined threshold level;

(c) a coincidence detector connected to receive said output signal from said level sensor means;

(d) a VHF sensing means generating a signal responsive to a cloud-to-cloud lightning discharge;

(e) means connected between said VHF sensing means and said coincidence detector for supplying a signal to said coincidence detector responsive to said VHF sensing means generating a signal responsive to a cloud-to-cloud lightning discharge;

(f) indicator means connected to said coincidence detector indicating a cloud-to-cloud lightning discharge when said coincidence detector simultaneously receives signals produced by said electric field sensing means and said VHF sensing means, and

(g) said indicator means indicating a cloud-to-ground lightning discharge when said coincidence detector only receives a signal produced by said electric field sensing means.

4,272,721

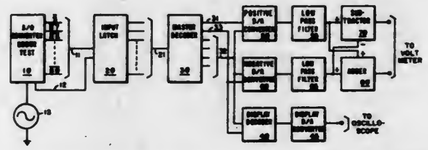
ANALOG-TO-DIGITAL CONVERTER ALIGNMENT CIRCUIT

Robert H. Beeman, Berkeley, Ill., assignor to GTE Automatic Electric Laboratories Inc., Northlake, Ill.

Filed Dec. 7, 1978, Ser. No. 967,340

Int. Cl.³ H03K *13/32*

U.S. Cl. 324—73 R **8 Claims**



1. A monitor circuit for use in a system for test and alignment of an analog-to-digital converter, said system including a voltage measuring device, a source of analog signals, an analog-to-digital converter under test connected to said analog signal source, operated in response to said analog singals to generate a strobe signal and digital data representative of said analog signals, said monitor circuit comprising:

storage means connected to said converter operated in response to said strobe signal to store said digital data;

decoding means connected to said storage means operated in response to said stored data signals to generate sign and magnitude signals;

first signal conversion means connected to said decoding means operated in response to said magnitude signals and a first sign signal to generate a first filtered signal below a frequency of a predetermined value;

second signal conversion means connected to said decoding means operated in response to said magnitude signals and a second sign signal to generate a second filtered signal below said predetermined frequency;

subtraction means connected to said voltage measuring device, and to said first and to said second signal conversion means operated in response to said first and to said second filtered signals to generate a signal representative of the difference between said first and said second filtered signal;

said stored data signals are coded in inverted sign plus magnitude code and said decoding means converts said inverted sign plus magnitude stored data signals to sign plus magnitude signals for values of stored data signals below a predetermined threshold and operated to convert stored data signals above said predetermined threshold to a sign signal plus a predetermined magnitude signal.

4,272,722

DETERMINATION OF ELECTRIC CURRENT FLOW PATTERNS

Armando S. Cammarano, Hyde Park; Giulio DiGiacomo, Poughkeepsie, and Stephen S. Drofitz, Jr., Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 3, 1979, Ser. No. 26,491

Int. Cl.³ G01R *19/00*

U.S. Cl. 324—76 R **7 Claims**



1. A method of producing a visually observable mapping of the flow of electric current through a metal conductor comprising the steps of:

heating said conductor to a temperature equal to or greater than approximately 96 percent of its melting temperature;

applying an electric current to said conductor; and

maintaining the heat and the electric current for a sufficient amount of time to develop a pattern of ridges and valleys parallel to the direction of current flow in the conductor.

4,272,723

POWER FACTOR METER

Virgil L. Pullen, 395 Monte Via, Oak View, Calif. 93022

Filed Jan. 15, 1979, Ser. No. 3,241
Int. Cl.³ G01R 25/00
U.S. Cl. 324—86 8 Claims



1. Apparatus for determining power factor in an alternating current carrying conductor which isolates the operator of the apparatus from the circuit comprising

reference signal means for supplying pulses,

counting means for counting the pulses supplied by said reference signal means,

voltage sensing means for initializing said counting means in response to a zero crossing of the voltage in the conductor, said voltage sensing means being capacitively coupled to earth ground to electrically isolate an operator from the conductor,

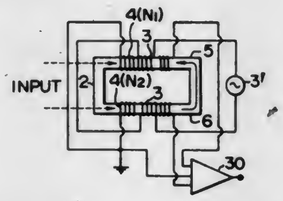
current sensing means for stopping said counting means in response to a zero crossing of the current in the conductor.

4,272,724

MAGNETIC MODULATOR FOR MAGNETIC FIELD DETECTION DIFFERENTIALLY OUTPUTTING MAGNETIC CORE NOISE

Tatsuhiko Wada, Shapporo, and Zenuemon Abe, Yokohama, both of Japan, assignors to President of Hokkaido University, Tokyo, Japan

Filed Nov. 28, 1978, Ser. No. 964,380
Claims priority, application Japan, Jan. 28, 1978, 53-8628
Int. Cl.³ G01R 33/04
U.S. Cl. 324—253 13 Claims



1. A low noise magnetic modulator, comprising:

a one-piece magnetic core defining a continuous magnetic circuit loop and having a pair of magnetic core legs which partially define the continuous magnetic circuit loop;

excitation means for generating an excitation magnetic field flowing through the continuous magnetic circuit loop defined by said core and through each of said core legs in opposite directions relative to each other; and

a pair of detecting coils wound on said core, said pair of detecting coils being differentially connected and disposed on said core so that the excitation magnetic field flowing through the continuous magnetic circuit loop defined by said core flows in opposite respective directions through said pair of detecting coils for cancelling detected magnetic core noise and for adding detected magnetic input signals applied to said core in a direction parallel to the portion of said core on which said detecting coils are wound, said detecting coils respectively having N_1 coil windings and N_2 coil windings, and said pair of detecting coils having a balance parameter γ at least approximately equal to zero, wherein $\gamma=|(N_2-N_1)/N_1|$, for maximizing core noise cancellation.

5. A low noise winding-input type magnetic modulator, comprising:

an annular one-piece magnetic core comprised of a ring-shaped first leg having a pair of opposite ends facing each other and spaced by a narrow gap, a ring-shaped second leg having a pair of opposite ends facing each other and spaced by a narrow gap, wherein said first leg is positioned aligned with and concentric to said second leg with the respective gaps in said first and second legs aligned, and magnetic material bridging between adjacent ends of said first and second legs to define a continuous magnetic circuit loop through said annular one-piece magnetic core;

excitation means for generating an excitation magnetic field flowing through the continuous magnetic circuit loop and through each of said core legs in opposite directions relative to each other; and

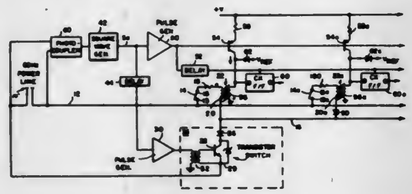
detecting coils wound on said core interconnected and oriented in directions so that respective currents induced in said detecting coils by magnetic core noise and by the excitation magnetic field are cancelled and detected magnetic input signals applied parallel and in the same direction to said first and second legs are added to permit the detection of extremely weak input magnetic fields.

4,272,725

INTERFACE CIRCUIT FOR USE WITH ELECTRONIC CONTROL DEVICES

Nathan K. Weiner, Stoughton, and David D. Ketchum, Ipswich, both of Mass., assignors to Electronics Corporation of America, Cambridge, Mass.

Filed May 3, 1979, Ser. No. 35,534
Int. Cl.³ G01R 31/02
U.S. Cl. 324—415 R 34 Claims



29. A circuit for providing an output signal representative of the state of a pair of switch contacts while providing electrical isolation between the switch contacts and the output signal, comprising:

two terminals for application of an AC power line signal;

a saturable core having a BH curve characterized by a two state hysteresis loop;

a primary winding on said core;

a secondary winding on said core;

a switching device responsive to a pulse control signal applied thereto for switching between a conductive and a nonconductive state;

the switch means, the primary winding, and the switch contacts all being connected in a series loop between said terminals to apply a saturating current to set said core to one state if said switch contacts are closed;

means responsive to an AC power line signal applied to the terminals for providing a reference signal representative of the phase of the AC power line signal;

current source means, in series with the secondary winding on said core and responsive to a test pulse signal, for providing a current pulse through the secondary winding to set said core to the other state;

pulse means responsive to the reference signal for providing the pulse control signal and the test pulse signal during selected intervals of the power line signal;

means connected to the secondary winding and responsive to the voltage across the secondary winding generated in response to said core changing its state of magnetization and a clock signal for providing an output signal representative of the state of the switch contacts in response to the voltage across the secondary winding at a time denoted by the clock signal; and

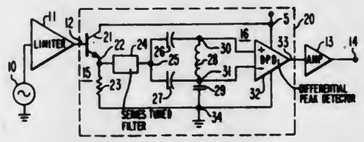
means responsive to the reference signal for providing the clock signal a predetermined time after the beginning of the test pulse from the current source.

4,272,726

DIFFERENTIAL FM DETECTOR WITH SERIES TUNED FILTER

Max E. Malchow, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,469
Int. Cl.³ H03D 3/14
U.S. Cl. 329—103 15 Claims



1. In combination with a differential peak detector apparatus with first and second input connections, means for applying FM signals having a center frequency to those input connections, which means comprises:

first reactance means having a first end connection to the first input connection of said differential peak detector apparatus, having a second end connection to the second input connection of said differential peak detector apparatus, and having a center-tap connection;

second reactance means having a first end connection to the first input connection of said differential peak detector apparatus and having a second end connection to the second input connection of said differential peak detector apparatus, for antiresonating said first reactance means at a frequency substantially equal to said center frequency;

third reactance means;

a source of FM signal voltage having substantially no source impedance at said FM signal frequencies compared to the impedances of said first and second and third reactances; and

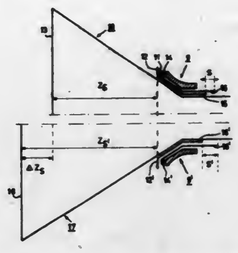
means serially connecting said source of FM signal voltage and said third reactance means between the first end connection and center tap connection of said first reactance means including a series-tuned reactive circuit arranged to pass frequencies within a prescribed range of said center frequency.

4,272,727

SELF-CONVERGING DEFLECTION UNITS FOR COLOR DISPLAY TUBES OF DIFFERENT SCREEN FORMATS

Joris A. M. Nieuwendijk; Nicolaas G. Vink, and Werner A. L. Heijnemans, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 21, 1979, Ser. No. 68,371
Claims priority, application Netherlands, Aug. 25, 1978, 7808775
Int. Cl.³ H01F 5/00
U.S. Cl. 335—213 6 Claims



1. A series of at least two electromagnetic deflection units for colour display tubes of the in-line type having the same deflection angles and neck diameters but at least two different screen formats, in which each deflection unit has:

a first deflection coil having a front end and a rear end for deflecting electron beams generated in the display tube in a vertical direction, the electron beams, when the unit has been mounted on a display tube, passing through the coil in the direction from the rear and to the front end,

a second deflection coil, which coil is of the saddle type and also has a front end and a rear end, for deflecting electron beams generated in the display tube in a horizontal direction, as well as a yoke ring of ferromagnetic material surrounding at least the second deflection coil, wherein for a given screen format the first and the second coil each have a given effective length between their front and rear ends, the effective length of the first coil being larger and/or the effective length of the second coil being smaller for a larger screen format, and conversely, so as to provide for different screen formats a self-converging combination of display tube/deflection unit.

4,272,728

DIFFERENTIAL-INPUT AMPLIFIER CIRCUIT

Harold A. Wittlinger, Pennington, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 28, 1979, Ser. No. 70,510
Int. Cl.³ H03F 3/45
U.S. Cl. 330—253 16 Claims

1. A differential-input amplifier comprising:

first and second transistors of a first conductivity type and third and fourth transistors of a second conductivity type complementary to said first conductivity type, each of said transistors having the ends of its principal conduction path defined by respective first and second electrodes thereof and having a respective third electrode, the conduction of its principal conduction path being controlled by potential between its first and third electrodes;

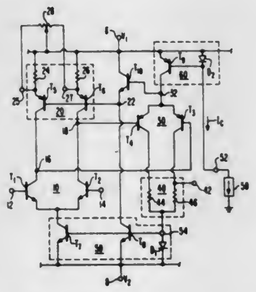
first and second input signal terminals for receiving input signal therebetween, said first input signal terminal being connected to the third electrode of said first transistor and said second input signal terminal being connected to the third electrode of said second transistor;

first controlled current source means for responding to a control signal to supply current to a first node, said first node having the second electrode of said first transistor connected thereto and being direct coupled to the third

electrode of said third transistor, the current said first controlled current source supplies to said first node being of the polarity the second electrode of said first transistor normally conducts;

second controlled current source means for responding to said control signal to supply current to a second node, said seccond node having the second electrode of said second transistor connected thereto and being direct coupled to the third electrode of said fourth transistor, the current said second controlled current source supplies to said second node being of the polarity the second electrode of said second transistor normally conducts;

common-mode feedback means connected to respond to the common-mode component of the voltages at said first and second nodes to develop said control signal, completing degenerative voltage feedback loops that adjust the respective currents supplied to said first and second nodes



by said first and second controlled current sources to substantially equal the currents flowing between said first and second nodes and the respective second electrodes of said first and second transistors;

conductive means for connecting the second electrodes of said third and fourth transistors to a first operating supply voltage, including

means for responding to the variations in the current flowing through the second electrode of at least one of said third and fourth transistors to provide an output signal;

feed-forward means independent of said common-mode feedback means, supplying a first tail current to an interconnection of the first electrodes of said first and second transistors for completing their connection as a first long-tailed pair, and supplying a second tail current proportional to said first tail current to an interconnection of the first electrodes of said third and fourth transistors for completing their connection as a second long-tailed pair.

4,272,729

AUTOMATIC PRETUNING OF A VOLTAGE CONTROLLED OSCILLATOR IN A FREQUENCY SYNTHESIZER USING SUCCESSIVE APPROXIMATION

William J. Riley, Jr., Pittsford, N.Y., assignor to Harris Corporation, Melbourne, Fla.

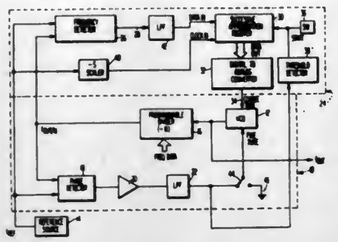
Filed May 10, 1979, Ser. No. 37,886
Int. Cl.³ H03L 7/12
U.S. Cl. 331—1 A **17 Claims**

9. Apparatus for pretuning a voltage controlled oscillator, comprising:

a source of a reference signal;

means for detecting the difference in frequency between the reference signal and an output signal from the voltage controlled oscillator;

means for generating a digital number and for adjusting said digital number by successively decreasing powers of 2 starting from the power of the most significant bit position in response to the difference in frequency between the reference signal and the oscillator output signal; and



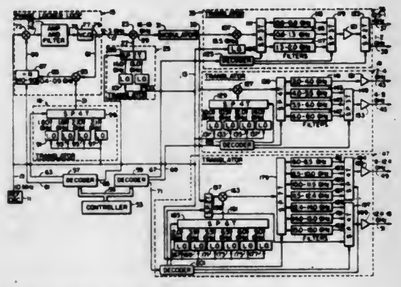
means for applying the adjusted digital number as a control input signal to the voltage controlled oscillator.

4,272,730

MICROWAVE FREQUENCY SYNTHESIZER UTILIZING A COMBINATION OF A PHASE LOCKED LOOP AND FREQUENCY TRANSLATION TECHNIQUES

Joseph J. Digiovanni, Los Altos, Calif., assignor to Itek Corporation, Lexington, Mass.

Filed Apr. 30, 1979, Ser. No. 34,367
Int. Cl.³ H03L 7/18
U.S. Cl. 331—16 **13 Claims**



3. A microwave signal generator, comprising:

a reference oscillator generating a fixed frequency reference signal in excess of 500 KHz,

a voltage controlled oscillator having an output frequency proportional to a magnitude of an input signal,

a first mixer connected to compare the frequencies of said reference signal and an output signal of a frequency divider circuit, an output signal of said mixer having a magnitude proportional to the relative phase of the signals being compared by said mixer, said output being applied to the input of said voltage controlled oscillator,

a frequency source having an output signal that is controllably switchable among frequencies that differ by a fraction of the fixed reference signal of said reference oscillator, and

a second mixer receiving the output signals of said voltage controlled oscillator and said switchable frequency source for applying a difference or sum of their frequencies to an input of said dividing circuit, whereby a signal generator is provided that is simple, and simultaneously has a fast response time and high frequency resolution.

5. A microwave signal generator, comprising:

means including a phase locked loop for selectively generating an output signal in equal fixed increments in response to a first control signal,

a plurality of local fixed frequency oscillators that each generate a unique frequency output signal,

means responsive to a second control signal for selecting the signal output from one of said plurality of oscillators at a time, and

a mixer connected to simultaneously receive the output signal of said generating means and the output signal of one of the plurality of oscillators as selected by said switching means, said mixer characterized by forming at an output a signal having a frequency related to the relative frequencies of the two signals received by it, the fixed frequencies of said local oscillators being such that the mixer output frequency range is greater than the bandwidth of said phase locked loop,

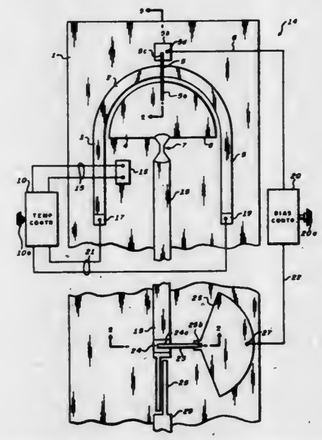
whereby translation and expansion of the generating means given output frequency range is controllably accomplished by a cooperative selection of said first and second control signals.

4,272,731

THIN FILM RESISTOR MICROWAVE NOISE GENERATOR

W. Baldwin Day, Dunedin, and Harry F. Strenglein, Clearwater, both of Fla., assignors to Sperry Corporation, New York, N.Y.

Filed May 25, 1979, Ser. No. 42,489
Int. Cl.³ H03B 29/00
U.S. Cl. 331—78 **14 Claims**



1. In transmission line apparatus for generating broad band noise signals:

substrate means having at least a first surface,

transmission line means affixed to said first surface and having at least a first end,

capacitive plate means affixed to said first surface opposite said first end,

thin film microresistor noise generator means coupled to said capacitive plate means and in matched energy exchanging relation with said first end,

said thin film noise generator means being affixed to said first surface, and

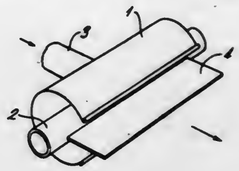
generator means coupled across said thin film microresistor noise generator means for cyclically heating same.

4,272,732

FIELD EMISSION LASER WITH RADIAL CURRENT PATHS

Marcus H. R. Hutchinson, London, and Daniel J. Bradley, Harrow, both of England, assignors to National Research Development Corporation, London, England

Filed Apr. 17, 1979, Ser. No. 30,936
Claims priority, application United Kingdom, Apr. 27, 1978, 16769/78
Int. Cl.³ H01S 3/05
U.S. Cl. 331—94.5 P **2 Claims**



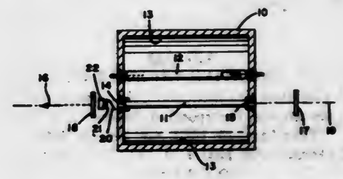
1. In a laser comprising a field emission diode of annular configuration defined between an outer cathode and an inner anode coaxial therewith, which anode is in the form of a hollow container for a high pressure gaseous lasing medium, the walls of the container being at least partly pervious to electrons emitted from the cathode, mirrors at opposite ends of the container to enable resonance to occur therein at the lasing frequency, and means for abstracting energy at the lasing frequency from the container, the improvement in which the said cathode is in the shape of an incomplete cylinder subtending an angle of less than 360 degrees at its axis and in which there is an external electrical connection to the said anode extending radially outwardly from the anode and through the gap formed by the said incomplete cylinder.

4,272,733

BROADLY TUNABLE CHROMIUM-DOPED BERYLLIUM ALUMINATE LASERS AND OPERATION THEREOF

John C. Walling, Morristown; Robert C. Morris, Ledgewood; Otis G. Peterson, Dover, all of N.J., and Hans P. Jenssen, Belmont, Mass., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 953,067, Oct. 20, 1978. This application May 29, 1979, Ser. No. 43,513
Int. Cl.³ H01S 3/14
U.S. Cl. 331—94.5 F **21 Claims**



1. A broadly wavelength-tunable laser comprising:

(a) a laser medium comprising a single crystal of beryllium aluminate of the chrysoberyl structure having a trivalent chromium doping concentration from about 0.002 to 10 atom percent with respect to aluminum sites;

(b) means for exciting said laser medium to emit coherent radiation;

(c) tuning means for tuning said coherent radiation in a spectral range from red to infrared; and

(d) mirrors forming an optical resonator, said resonator

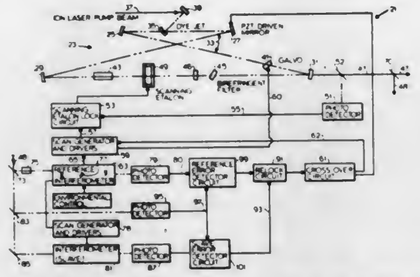
enclosing the laser medium and tuning means and adapted for maintaining laser oscillations between the mirrors.

4,272,734

DUAL REFERENCE INTERFEROMETER FOR DYE LASER STABILIZATION

Steven M. Jarrett, Los Altos, and Harold D. Du Bose, Sunnyvale, both of Calif., assignors to Spectra-Physics, Inc., Mountain View, Calif.

Filed May 29, 1979, Ser. No. 43,466
Int. Cl.³ H01S 3/13
U.S. Cl. 331—94.5 S 11 Claims



1. A dual reference interferometer control apparatus for detecting and controlling the frequency of operation of a laser, said control apparatus comprising,

a continuous wave dye laser, having a resonant laser cavity, capable of lasing in a plurality of modes,

tuning means for restricting lasing to a single mode at a selected frequency,

first reference interferometer means having a relatively small free spectral range for stabilizing the frequency of operation of the dye laser at a relatively narrow line width,

servo means operatively associated with the first reference interferometer means and the tuning means for servo locking the tuning means to a side of a transmission fringe of the first reference interferometer to maintain lasing operation at the selected frequency in the absence of perturbations that can cause a mode hop in the dye laser cavity, and

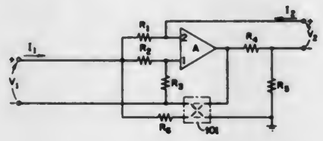
second reference interferometer means having a free spectral range substantially larger than the first reference interferometer and operatively associated with the first reference interferometer means and the servo means for detecting a mode hop in the dye laser cavity and the extent and direction of the mode hop and effective, in the event of a mode hop, to return dye laser to operation at the selected frequency.

4,272,735

SINGLE AMPLIFIER VARIABLE GYRATOR

Richard J. Cubbison, Jr., Littleton, Colo., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 20, 1980, Ser. No. 131,898
Int. Cl.³ H03B 5/08; H03H 11/42, 11/50; 331 108 B;108 D;110;115;167
U.S. Cl. 331—108 B 15 Claims



1. A gyrator with variable impedance characteristics having a first terminal of the first port, a second terminal of the first port and a pair of terminals for the second port comprising:

voltage source means (A) having a first input (1), a second input (2), an output;

first impedance means (R_1) connected from said second voltage source means input (2) to said first terminal of the first port;

second impedance means (R_2) connected from said first voltage source means input (1) to said first input terminal;

third impedance means (R_3) connected from said first voltage source means input (1) to said second terminal of the first port;

fourth impedance means (R_4) connected from said voltage source means output to a first of said pair of terminals for the second port;

fifth impedance means (R_5) connected from said first terminal of the second port to circuit ground;

wherein said second voltage source means input (2) is also directly connected to the second of said terminals of the second port; and

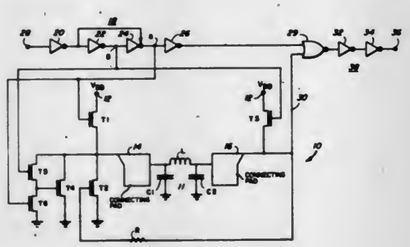
wherein the first of said first port terminals is connected by a sixth impedance means (R_6) to circuit ground or said voltage source means output while the second of said first port terminals is connected to said voltage source means output or to circuit ground respectively.

4,272,736

START STOP OSCILLATOR HAVING FIXED STARTING PHASE

Anil Gercekci, Geneva, and Heinz B. Maeder, Nyon, both of Switzerland, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 11, 1979, Ser. No. 47,546
Int. Cl.³ H03B 5/12
U.S. Cl. 331—108 B 9 Claims



1. A start-stop oscillator for generating oscillation signals in response to an applied start signal, the oscillation signals having a predetermined and fixed starting phase associated therewith, comprising:

inverter amplifier means being responsive to the start signal for producing an output signal at an output having a predetermined amplitude and phase, the phase of said output signal being shifted a predetermined amount with respect to the phase of an input signal which is applied to the input of said inverter amplifier;

phase shifting means for shifting the phase of said output signal from said inverter amplifier by a predetermined amount, said phase shifting means being connected between said output and input of said inverter amplifier means and including inductive circuit means, and

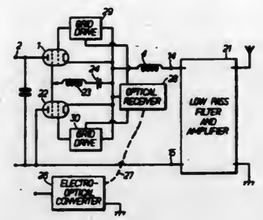
bias circuit means coupled both to said inverter amplifier means and said inductive circuit means and being responsive to a stop signal applied to the oscillator for inhibiting the oscillation signals and for producing a direct current that is injected through said inductive circuit means thereby establishing the beginning phase of the oscillation signals at the initiation thereof.

4,272,737

PULSE WIDTH MODULATOR FOR AMPLITUDE MODULATION CIRCUIT

Robert B. Molyneux-Berry, Danbury, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed May 25, 1979, Ser. No. 42,289
Int. Cl.³ H03C 1/00; H03K 7/08
U.S. Cl. 332—1 8 Claims



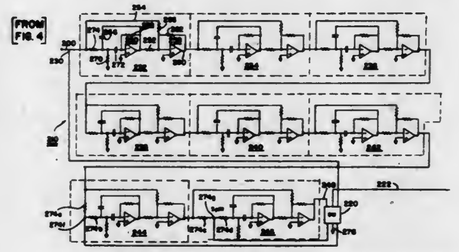
1. A modulation circuit including a pulse width modulation switch in the form of a switchable tube having a grid electrode to which, in operation, is applied a pulse width modulation control signal and a screen electrode; means for applying a substantially constant bias current to said screen electrode for those periods during which the tube is rendered conductive by the application of a suitable control signal to the grid electrode; and a low pass filter connected between said switchable tube and an output terminal of the modulation circuit to attenuate frequencies at the switching frequency of said control signal.

4,272,738

PROGRAMMABLE DELAY RESPONSE SHAPE BULK DELAY EXTENDER

James F. Turner, Oakton, Va., assignor to Convex Corporation, Fairfax, Va.

Filed Apr. 25, 1978, Ser. No. 899,936
Int. Cl.³ H03H 7/03; H04B 3/14
U.S. Cl. 333—28 R 24 Claims



1. A line conditioner or equalizer to produce various delay response shapes or effect a complete bypass of a programmable bulk delay extender comprising

a cascade of all pass sections including a first all pass section and a final all pass section, each of said all pass sections having an input junction, an output junction, band pass filter and summing amplifier means for processing signals in which said sections introduce delay of said signals,

said band pass filter including an operational amplifier having a positive input terminal connected to ground, a negative input terminal and an output terminal, a resistor connected between the output terminal and the negative input terminal of the operational amplifier, a capacitor connected between a junction point and said negative input terminal, a second capacitor connected between said junction point and said output terminal, two of said all pass sections having a resistor network comprising two resistors in series respectively connected between said junction point and the input junction of said respective all pass section,

said summing amplifier means comprising of a further operational amplifier with a negative input terminal, a positive input terminal connected to ground and an output terminal connected to said output junction, a single resistor connected between the output terminal and the negative input terminal of said further operational amplifier,

a summing resistive network comprising a first resistor connected between the negative input terminal of said further operational amplifier and the input junction of said respective all pass section and a second resistor connected between the negative input terminal of said further operational amplifier and the output terminal of said operational amplifier of said band pass filter,

and switching means including a single multi-position rotary switch having six (6) terminals, one being connected to ground; two being respectively connected to an intermediate node of the two resistor network of said two all pass sections; one being connected to said input junction of said first all pass section for effecting a complete bypass of said bulk delay extender; one being connected to the output junction of said final all pass section; and one being a common output terminal,

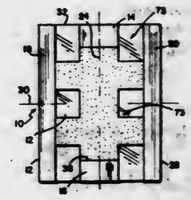
said switching means selectively neutralizing delay introduced by one or two sections of the cascade of all pass sections thereby effecting a programmable delay response shape, bulk delay extender.

4,272,739

HIGH-PRECISION ELECTRICAL SIGNAL ATTENUATOR STRUCTURES

Morton Nesses, 715 Carmen Plz., Greenwood, Ind. 46142

Filed Oct. 18, 1979, Ser. No. 85,967
Int. Cl.³ H01P 1/22
U.S. Cl. 333—81 A 15 Claims



1. An electrical signal attenuator for insertion into a line, comprising:

a dielectric substrate;

an input electrode, an output electrode, and two shunt electrodes, all provided on a surface of the substrate, the input and output electrodes being positioned on the substrate for coupling to a conductor of the line and the two shunt electrodes being positioned on the substrate for coupling to another conductor of the line;

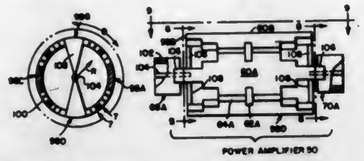
a distributed resistance film element positioned on the substrate surface among the four electrodes, the distributed resistance film element comprising a center portion, a first leg for coupling the center portion to the first electrode, a second leg for coupling the center portion to the second electrode, a third leg for coupling the center portion to one of the shunt electrodes, and a fourth leg for coupling the center portion to the other shunt electrode.

4,272,740

COAXIAL-TO-CYLINDRICAL ARRAY TRANSITION

George H. MacMaster, Lexington, and Lawrence J. Nichols, Burlington, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 13, 1979, Ser. No. 103,028
Int. Cl.³ H01P 3/08
U.S. Cl. 333—127 12 Claims



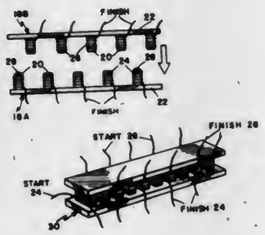
1. A system comprising:
a set of longitudinal conductive members positioned along a cylindrical surface, each of said members having side walls directed normally to said surface;
opposed walls of neighboring ones of said members defining parallel-walled transmission lines, there being an even number of said members;
first and second coaxial transmission lines;
alternate ones of said members having ends which are tapered via a stepped transmission line configuration to terminals thereof, said terminals being coupled to the center conductors of said coaxial transmission lines; and
the remaining ones of said members being tapered via a stepped transmission line configuration to terminals thereof, said terminals of said remaining members being coupled to an outer conductor of said coaxial transmission lines.

4,272,741

INDUCTIVE DELAY LINE AND METHOD OF MAKING

Jacobus J. M. Vanderkuyff, Oceanside, Calif., assignor to Varian Associates, Palo Alto, Calif.

Filed Apr. 9, 1979, Ser. No. 27,992
Int. Cl.³ H03H 7/20, 7/32, 3/00
U.S. Cl. 333—138 11 Claims



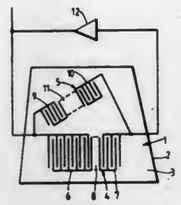
1. An inductive delay line, including an inductive component comprising a pair of multiple bobbin elements, each having an elongated connecting plate with a plurality of posts of inductive material projecting perpendicularly from one side, the posts on each element being spaced to interfit with the posts of the other element when the two elements are joined with the connecting plates forming a spaced parallel pair of outside walls of the component and with said posts extending in a row therebetween in longitudinally spaced relationship; and a wire coil inductive winding on each of said posts.

4,272,742

ACOUSTIC WAVE DEVICES WITH TEMPERATURE STABILIZATION

Meirion F. Lewis, Malvern, England, assignor to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Sep. 21, 1979, Ser. No. 77,703
Claims priority, application United Kingdom, Sep. 22, 1978, 37867/78
Int. Cl.³ H03H 9/42, 9/68, 9/25; H01L 41/18
U.S. Cl. 333—155 15 Claims



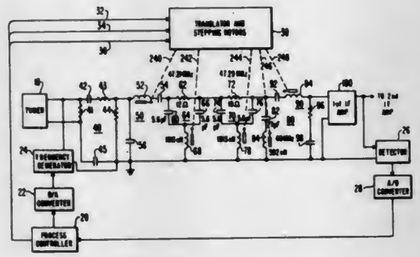
1. An acoustic wave device comprising at least two acoustic components each having transducer means for launching and receiving acoustic waves along an acoustic track in a substrate, said acoustic components having their respective transducer means electrically connected to one another in parallel and each having a similar phase slope but different temperature coefficients whereby the resultant overall frequency response of the device is compensated over a useful temperature range.

4,272,743

METHOD FOR TUNING A FILTER CIRCUIT

Robert M. Evans, Ringoes, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Apr. 20, 1979, Ser. No. 32,026
Int. Cl.³ H03H 3/00, 7/01
U.S. Cl. 333—176 8 Claims



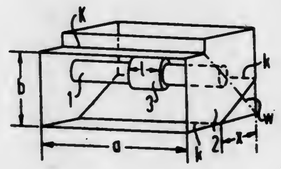
1. A method of tuning a trap circuit to locate the frequency at which the trap provides maximum attenuation at a desired frequency comprising the steps of:
(a) applying a constant amplitude signal, of successively different frequencies in a progression of frequency increments, over a given frequency range including said desired frequency, to said trap circuit, while
(b) detecting the amplitude of said signal as modified by said trap circuit at each of said different frequencies, and
(c) sequentially storing said detected amplitudes;
(d) comparing successive ones of said stored amplitudes until an amplitude difference is found which is greater than a predetermined minimum difference and is of a polarity indicative of an increase in amplitude with said progression, and is a successor of an amplitude difference which is greater than said predetermined minimum difference and is of a polarity indicative of a decrease in amplitude with said progression; and
(e) adjusting said trap circuit in accordance with the frequency difference between the frequency of inflection indicated by said first named amplitude difference and said desired frequency.

4,272,744

RECTANGULAR WAVEGUIDE ELBOW BENT ACROSS THE BROAD SIDE OF THE WAVEGUIDE WITH CORNER FLATTENING AND A TRANSVERSE BAR

Eberhard Schuegraf, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 18, 1980, Ser. No. 113,174
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1979, 2903665
Int. Cl.³ H01P 1/02
U.S. Cl. 333—249 3 Claims



1. A rectangular waveguide elbow bent across the broad side of the waveguide with an outer corner symmetrically angled by means of a conductive flattening plane, characterized in that a cylindrical, conductive cross-bar (1) is mounted parallel to the broad sides of the waveguide and extends between the narrow sides of the waveguide line opposite one another and is mounted with its center axis at the geometrical median (w) of the bend, and the condutive cross-bar (1) has an enlarged portion (3) symmetrically arranged at the center of the bar and which has a diameter d_Q which is larger than the diameter of the end portions of the bar.

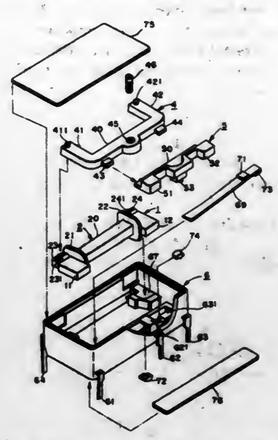
4,272,745

ELECTROMAGNETIC RELAY

Takashi Tanaka, Takatsuki, and Hirofumi Koga, Kyoto, both of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Jun. 13, 1979, Ser. No. 48,157
Claims priority, application Japan, Jun. 30, 1978, 53-80321; Jun. 30, 1978, 53-80323
Int. Cl.³ H01H 67/02
U.S. Cl. 335—128 8 Claims

1. An electromagnetic relay comprising a bracket-shaped stationary core having a main portion and two leg portions, a spool having two end flanges on opposite sides of the axial extent of said spool, said spool being secured to said stationary core, a coil wound around said spool, an armature, and a pair of contacts comprising a movable contact and a stationary contact which are closed or opened in response to the movement of said armature, said spool having a pair of engaging portions on opposite sides thereof extending from said end flanges, said armature being a bracket-shaped member having a main portion and two leg portions, said leg portions being engaged with said engaging portions of said spool whereby said armature is pivotally supported by said engaging portions to close or open said contacts in response to a current applied to said coil for forming a closed magnetic circuit between said stationary core and said armature, said engaging portions being located in positions respectively opposite to said leg portions of said stationary core.

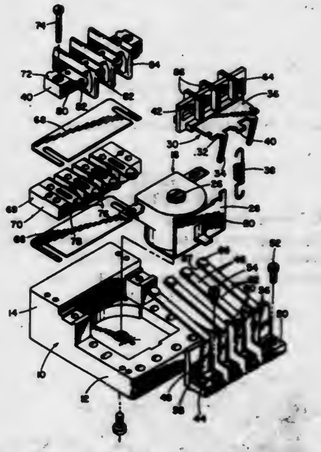


4,272,746

FOUR POLE DOUBLE THROW RELAY

William W. Wright, Wheaton, and Frank S. Vojir, Downers Grove, both of Ill., assignors to Guardian Electric Manufacturing Company, Chicago, Ill.

Filed Aug. 9, 1979, Ser. No. 65,097
Int. Cl.³ H01H 67/02
U.S. Cl. 335—128 11 Claims



1. An improved double throw multipole relay comprising, in combination:
(a) a base member;
(b) a coil member on the base member intermediate the sides of the base member and including a vertical field piece core for the coil;
(c) a terminal block on one side of the coil including at least one flexible contact blade attached thereto and extending as a cantilever over the coil core to the opposite side of the core, said blade terminating with a contact;
(d) an armature lifter affixed to a spring biased armature on the field piece, said lifter including an opening for receipt

of the flexible contact blade, said opening defining a predetermined gap between the blade and lifter whereby said lifter is moved through said gap width prior to engagement with the blade upon actuation of the relay; and

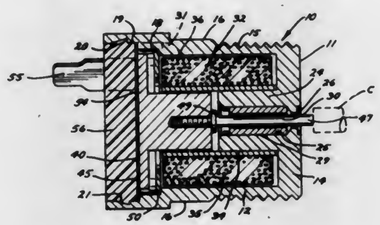
(e) a fixed contact assembly on the opposite side of the coil from the terminal block, said fixed contact assembly including a contact mounted in the path of said flexible blade contact.

4,272,747

SOLENOID HOUSING

Patrick G. Bauer, 9150 E. Starring La., Eden Prairie, Minn. 55344

Filed Jul. 25, 1979, Ser. No. 60,481
Int. Cl.[3] H01F 7/08
U.S. Cl. 335—257 12 Claims



1. In a solenoid,

(a) a housing having an externally threaded cylindrical side wall and a bottom wall integrally formed therewith,

(b) the bottom wall having an axially centered aperture,

(c) an energizable electric coil disposed within the housing and having upwardly extending leads,

(d) an armature comprising a head and actuator pin, the head of which further comprises a cylindrical body portion and an enlarged disc-shaped cap, in the coil movable by energization thereof and having the actuator pin extending through said aperture,

(e) a dielectric cap on the housing having electric terminals mounted thereon, and

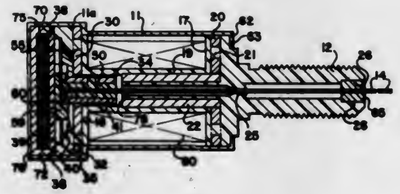
(f) said leads connected to said terminals.

4,272,748

PRINT WIRE SOLENOID

Philip E. Fugate, Dayton, and Kenneth L. Roy, Centerville, both of Ohio, assignors to Ledex, Inc., Vandalia, Ohio

Continuation-in-part of Ser. No. 908,153, May 22, 1978, Pat. No. 4,200,401. This application Jan. 30, 1980, Ser. No. 116,718
Int. Cl.[3] H01F 7/08
U.S. Cl. 335—271 4 Claims



1. In a high speed axial type solenoid suitable for use as a printing solenoid and the like, having an axially movable armature therein, the improvement comprising:

means in said solenoid defining a datum plane,

solenoid armature impact plate means positioned at said plane and defining a rest position for the armature,

a solenoid wall,

means defining a quantity of energy absorbing elastomeric material positioned between said wall and said plate means, and

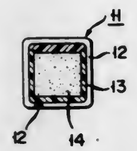
means at said datum plane engaging said plate means and normally retraining said material in precompression.

4,272,749

REACTOR CORE OF INSULATED IRON POWDER

Toshihiko Tuji, Tokyo, Japan, assignor to Nippon Kinzoku Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 821,150, Aug. 2, 1977, abandoned. This application Aug. 30, 1979, Ser. No. 71,260
Claims priority, application Japan, Aug. 9, 1976, 51-94647
Int. Cl.[3] H01F 27/24
U.S. Cl. 336—233 3 Claims



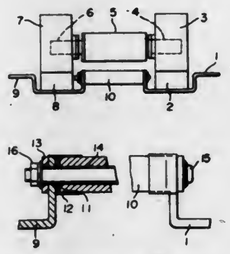
1. A reactor core comprising: a body made of particles of iron power providing a closed magnetic path, said particles being insulated from each other, said body having a density of from 2 to 6.5 g/cm^3, and said particles having a Tyler mesh size from 100 to 300.

4,272,750

POWER BREAKER APPARATUS

Shigenori Hotta, and Sadaaki Baba, both of Nagoya, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1978, Ser. No. 952,159
Claims priority, application Japan, Aug. 24, 1978, 53/115979[U]
Int. Cl.[3] H01H 87/00
U.S. Cl. 337—1 5 Claims



1. A power breaker apparatus comprising a permanent fuse and at least one resistor connected in parallel to said permanent fuse through a connecting conductor having a pair of terminals, and being connected between a power source and a load current supply to break said current supply to said load when a fault current is passed, wherein said at least one resistor comprises:

a resistor element, said resistor element having two ends, one of said ends adjacent each of said terminals;

an insulating coating material coating each of said ends;

means for securing each of said ends to a respective terminal, said securing means being electrically insulated from said resistor element and said pair of terminals; and

easily deformable conductive spacing means between each of said ends and said respective terminal;

wherein said insulative coating material covers said conductive spacing means,

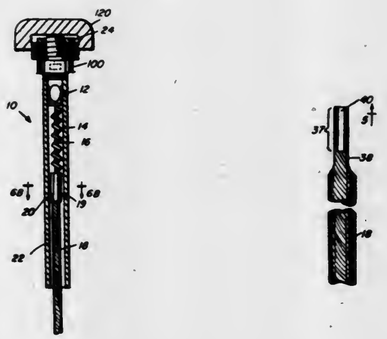
whereby said conductive spacing means is deformed by the securement of each of said ends to said respective terminal so as to ensure electrical contact therebetween.

4,272,751

HIGH-VOLTAGE FUSE LINK AND METHOD OF MANUFACTURING SAME

Bruce A. Biller, and Hiram S. Jackson, Jr., both of Chicago, Ill., assignors to S&C Electric Company, Chicago, Ill.

Filed Jun. 25, 1979, Ser. No. 51,933
Int. Cl.[3] H01H 69/02, 85/36
U.S. Cl. 337—231 16 Claims



10. An improved fuse link of the type wherein an end of a fusible element is attached to an end of a flexible multi-strand cable, wherein the improvement comprises:

(a) an end segment of the cable subjected to sufficient compressive force to cold-form the strands thereof into a compact, relatively inflexible mass of decreased cross-sectional area, and

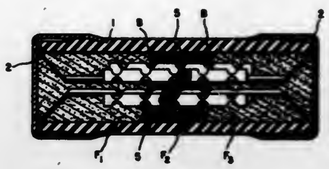
(b) a receiving region formed in the segment, into which the end of the fusible element is placed, the receiving region being collapsed by compressive force to mechanically and electrically attach the end of the fusible element to the cable.

4,272,752

ELECTRIC FUSE INCLUDING TWO DIFFERENT FILLERS

Philip C. Jacobs, Jr., Newtonville, Mass., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jul. 30, 1979, Ser. No. 62,078
Int. Cl.[3] H01H 85/18
U.S. Cl. 337—276 6 Claims



1. An electric fuse comprising:

(a) a casing of electric insulating material,

(b) terminal caps disposed on the ends of the casing,

(c) fusible element means arranged inside said casing and electrically interconnecting said terminal elements,

(d) a plurality of differing arc quenching materials arranged in layers within said casing and embedding said fusible element means, and

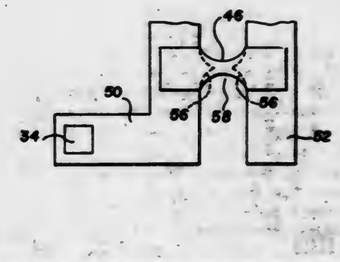
(e) electrically insulative barrier means introduced in a fluid state between said layers so as to conform to the geometry of said fusible element means and to the surface of said layers and thereby establish an essentially impermeable barrier between said layers.

4,272,753

INTEGRATED CIRCUIT FUSE

Hugh C. Nicolay, Melbourne Village, Fla., assignor to Harris Corporation, Melbourne, Fla.

Division of Ser. No. 934,150, Aug. 16, 1978, Pat. No. 4,198,744. This application Oct. 18, 1979, Ser. No. 86,097
Int. Cl.[3] H01H 85/10
U.S. Cl. 337—297 1 Claim



1. An integrated circuit having a substrate and an insulating layer thereon and comprising:

a plurality of discrete interconnects on said insulating layer;

at least one fuse element on and extending across a pair of said interconnects and separated from said insulating layer;

said fuse including a necked portion extending across said pair of interconnects; and

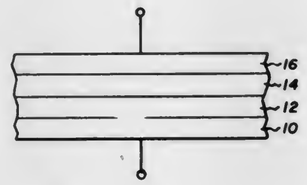
said pair of interconnects each including a tapered portion extending below said necked portion and separated from each other by a gap below said necked portion.

4,272,754

THIN FILM VARISTOR

Liang F. Lou, Liverpool, N.Y., assignor to General Electric Company, Auburn, N.Y.

Filed Dec. 17, 1979, Ser. No. 104,564
Int. Cl.[3] H01C 7/10
U.S. Cl. 338—21 20 Claims



1. A nonlinear heterojunction resistor comprising in layered relationship:

a thin film layer of a first metal;

a thin film layer of a first metal oxide;

a thin film layer of a second metal oxide;

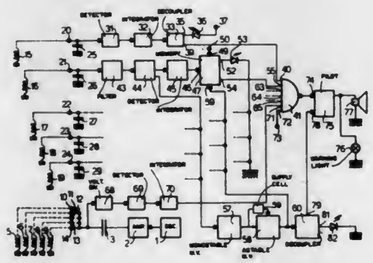
a thin film layer of a second metal.

4,272,755

DEVICE FOR INDICATING INSUFFICIENT INFLATION PRESSURE IN VEHICLE TIRES

Costantino Broetto, Milan, Italy, assignor to Fratelli Borletti S.p.A., Milan, Italy

Filed Aug. 6, 1979, Ser. No. 63,826
Claims priority, application Italy, Sep. 1, 1978, 69035 A/78
Int. Cl.[3] B60C 23/02
U.S. Cl. 340—58 31 Claims



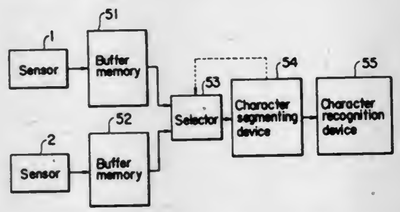
1. A device for indicating insufficient inflation pressure in vehicle tires, comprising an emitter coil supplied by a signal generator at a determined frequency, and a receiver coil, said emitter and receiver coils being housed on a fixed support of said vehicle in proximity to each rotating wheel so that they cannot be inductively coupled together but can be coupled together only by a respective coupling circuit disposed on each wheel, said coupling circuit comprising a first and a second transfer coil connected in series with an electrical contact operated by a transducer sensitive to the values of said pressure in said tire; said transfer coils being disposed in said wheel in such a manner as to allow said receiver coil to periodicically receive a signal supplied by said generator to said emitter coil when the transfer coils respectively face said emitter coil and said receiver coil and if said electrical contact has closed said coupling circuit due to said pressure exceeding a minimum set value; said signal periodically received by each of said receiver coils being fed to relative memory means and control means adapted to automatically activate said memory means so that they receive said signal only when said vehicle has a speed exceeding a set minimum speed, and consequently said signal received periodically by said receiver coil has a repetition frequency exceeding a minimum set value; said control means comprising a supply cell and an astable multivibrator controlled by said supply cell, said multivibrator when activated producing an output signal which actuates said memory units, said supply cell activating said mutivibrator only when said cell receives said signal at a frequency exceeding said minimum set value, whereby the average energy of the signal exceeds a predetermined value; the output signal from said memory means being arranged to activate alarm means if there is no reception of said signal from at least one of said receiver coils due to a reduction in inflation pressure below said minimum set value.

4,272,756

METHOD OF PATTERN RECOGNITION AND APPARATUS THEREOF

Shigeru Kakumoto, Kodaira; Yoshiji Fujimoto, Hachioji, and Kunihiro Okada, Hinodemachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 8, 1979, Ser. No. 37,034
Claims priority, application Japan, May 22, 1978, 53-59933
Int. Cl.[3] G06K 9/34
U.S. Cl. 340—146.3 H 8 Claims



1. A method for recognizing at least one line pattern in a picture comprising:

a first step of converting an image of a desired partial picture in the picture into pattern signals, said picture being constructed of a plurality of partial pictures formed by dividing said picture, adjacent ones of said partial pictures having in common a partially-overlapped region;

a second step of recognizing the coordinates of feature points representing a partial line pattern in each partial picture on the basis of the pattern signals obtained in said first step; and

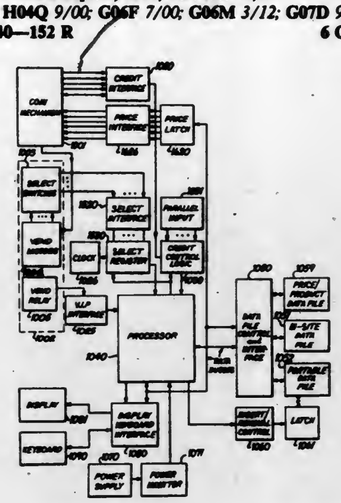
a third step of connecting the partial line patterns in the respective partial pictures on the basis of the coordinates obtained in said second step thereby recognizing the line pattern of the whole of the picture.

4,272,757

VENDING MACHINE ACCOUNTABILITY SYSTEM

Donald L. McLaughlin, Newtown Square, and Elwood E. Barnes, Parkesburg, both of Pa., assignors to Mars, Incorporated, McLean, Va.

Filed Apr. 5, 1979, Ser. No. 27,377
Int. Cl.[3] H04Q 9/00; G06F 7/00; G06M 3/12; G07D 9/00
U.S. Cl. 340—152 R 6 Claims



1. An accountability system for a vending machine having means for vending products, means for crediting the value of deposited monies, means for comparing the credit with the price of the product for determining the sufficiency of the credit and any excess of credit, and means for dispensing change equal to any excess of credit; the accountability system comprising digital data processor means for collecting transaction data, an in-site data file for storing the transaction data, an exchangeable, portable data file module for recording the transaction data stored in the in-site data file, means for updating the data in the portable data file module prior to removal and exchange of the module, means for recording an identification of the particular vending machine in the portable data file module, means to inhibit operation of the vending machine in the absence of a portable data file module, and means to lock the portable data file module in place in the vending machine, the lock means being controlled by the data processor.

4,272,758

ARRANGEMENT FOR PROVIDING A POWER SUPPLY AND TRANSMITTING ELECTRICAL SIGNS BETWEEN TWO DEVICES USING A SMALL NUMBER OF CONTACTS

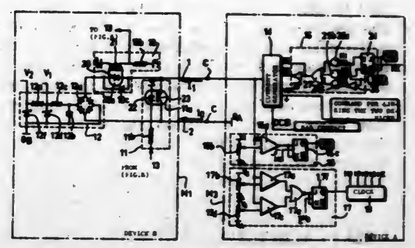
Georges Giraud, Le Vesinet, France, assignor to Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme), Paris, France

Filed Sep. 12, 1978, Ser. No. 941,674
Claims priority, application France, Sep. 16, 1977, 77 28048
Int. Cl.[3] H04B 3/60; H04Q 1/38
U.S. Cl. 340—310 A 20 Claims

1. An arrangement for providing a power supply and transmitting data signals between first and second devices by means of a pair of contacts, which arrangement is capable of allowing digital data signals to be exchanged between said devices and at least one operating voltage to be fed from said first device to said second device, said arrangement comprising:

a modulated current generator in the first device connected to the contacts for transmitting the data signals from the first to the second device by modulating the duration of two currents of different intensities, the contacts thereby conveying an electrical signal;

an amplitude modulator in the second device for transmitting data signals from the second device to the first device by modulating the amplitude of the electrical signal conveyed by the contacts; and



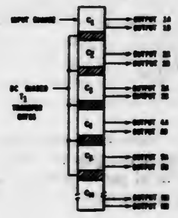
a network in the second device for producing operating voltage in the second device, said network being connected via a unidirectional current conduction member to the contacts.

4,272,759

16 BIT ANALOG TO DIGITAL CONVERTER

Roland J. Handy, Northridge, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 23, 1978, Ser. No. 918,254
The portion of the term of this patent subsequent to Dec. 16, 1997, has been disclaimed.
Int. Cl.[3] H03K 13/02
U.S. Cl. 340—347 AD 3 Claims



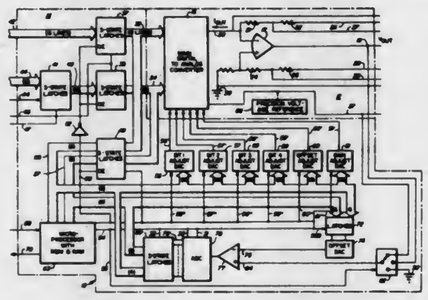
1. In an analog to digital converter wherein on a single integrated circuit chip utilizing charge transfer technology is a cell comprising input gate means for receiving an input analog signal represented by packets of charge; transfer gate means coupled to said input gate means for transferring any such packets of charge; said transfer gate means comprising first and second transfer gates in charge packet transfer relationship with said input gate means, said first transfer gate transferring an excess of a predetermined charge, and said second transfer gate transferring a charge at or below said predetermined charge, the charge levels being determined by the depletion levels established by applied voltage levels; output gate means including charge sensing amplifier gate means coupled to said transfer gate means for detecting the presence of charged transferred, an excess of charge transferred, or no charge transferred, the output of said output gate means being a pair of digital logic voltage signals indicitive of these three conditions, said charge sensing amplifier means comprising a master gate and a slave gate in charge packet transfer relationship with said first and second transfer gates, said master and slave gates having an externally applied voltage potential thereto which is independent from other applied voltages, said master gate inducing a change in the potential in said slave gate whereby said slave gate blocks the transfer of charge from said second transfer gate when said master gate detects an excess charge transferred by said first transfer gate; the improvement comprising:

a plurality of said cells arranged on said single integrated circuit chip in charge transfer proximity to thereby form an analog to digital register of said plurality of cells, said register including an additional transfer gate between said cells to effect charge transfer from cell to cell, whereby charges in excess of that capable of being transferred within a first cell are transferred to said second cell by said transfer gate and on through the register until all the incoming charge is transferable within the cells, the output of these cells being of a different logic configuration than those cells to which no charge was transferred, thereby indicating a digital logic signal representation of the input analog charge level.

4,272,760
SELF-CALIBRATING DIGITAL TO ANALOG CONVERSION SYSTEM AND METHOD

Paul R. Prazak, and Theodore L. Williams, both of Tucson, Ariz., assignors to Burr-Brown Research Corporation, Tucson, Ariz.

Filed Apr. 10, 1979, Ser. No. 28,667
Int. Cl.[3] H03K *13/02*
U.S. Cl. 340—347 CC 16 Claims



1. A method for automatically calibrating a first digital to analog converter, said first digital to analog converter including a plurality of digital inputs and an output terminal for producing an analog output signal, said method comprising the steps of:

(a) applying a first pattern of logic signals to the inputs of said first digital to analog converter and also applying at least a portion of said first pattern of logic signals to the address inputs of a memory for storing a plurality of correction codes;

(b) performing a digital to analog conversion of said first pattern of logic signals to produce a first output voltage;

(c) temporarily maintaining a first analog signal representative of said first output voltage;

(d) applying a second pattern of logic signals to the inputs of said first digital to analog converter and also applying a portion of said second pattern of logic signals to the address inputs of said memory;

(e) performing a digital to analog conversion of said second pattern of logic signals to produce a second output voltage;

(f) comparing said first analog signal to said second output voltage to produce a first difference signal;

(g) performing an analog to digital conversion of said first difference signal to produce a first digital word;

(h) computing a first correction code based on said first digital word;

(i) writing said first correction code into a first location of said memory determined by said first pattern of logic signals;

(j) applying said first pattern of logic signals to the inputs of the first digital to analog converter and also applying said portion of said first pattern of logic signals to the address inputs of said memory;

(k) performing a digital to analog conversion of said first pattern of logic signals to produce said first output current;

(l) fetching said first correction code from said first location of said memory, said first location being addressed by said portion of said first pattern of logic signals;

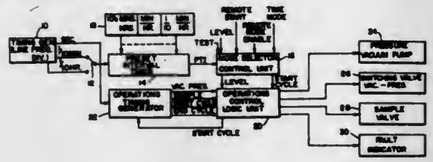
(m) performing a digital to analog conversion of said first correction code to produce a first correction current; and

(n) adding or subtracting a predetermined proportion of said first correction current to or from said first output current to compensate for an error in said first output current, thereby producing a first corrected output current.

4,272,761
OPERATIONS CONTROL SYSTEM

Raymond A. Newman, Cheektowaga, N.Y., assignor to NP Industries, Inc., Tonawanda, N.Y.

Continuation of Ser. No. 858,747, Dec. 8, 1977, abandoned. This application Feb. 19, 1980, Ser. No. 122,319
Int. Cl.[3] G08B *23/00*; B67D *5/08*
U.S. Cl. 340—500 14 Claims

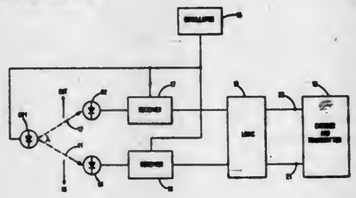


1. An operations control system for an effluent monitoring system for controlling a cycle of successive operations upon occurrence of each passage of a predetermined period of time and any of a plurality of different effluent monitoring events so that said operations occuur in predetermined time sequence, said system comprising timing generator means for generating timing signals which occur repetitively with constant periodicity, preset interval timing means for producing first outputs at preset time intervals equal to said predetermined period of time, means responsive to said events and to said preset interval timing means first outputs for generating a start command upon occurence of said first outputs and of any of said plurality of effluent monitoring events, operation timing means responsive to said timing signals and to said start command for producing a cycle of second outputs corresponding to different ones of said successive operations, and operations control means operated by said second outputs for controlling each of said operations.

4,272,762
EXIT-ENTRY SENSING APPARATUS

William L. Geller, and Richard L. Naugle, both of Framingham, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Sep. 17, 1979, Ser. No. 75,769
Int. Cl.[3] G08B *13/18*
U.S. Cl. 340—556 9 Claims



1. Sensing apparatus for monitoring the passage of objects through a portal including in combination

a source of radiant energy mounted at one side of the portal;

first and second radiant energy detectors mounted at the opposite side of the portal for receiving first and second beams of radiant energy, respectively, directed across the portal from said source of radiant energy;

said radiant energy detectors being spaced apart in the direction of movement of objects through the portal so that an object passing through the portal in one direction interrupts the first beam of radiant energy and then the second beam of radiant energy and an object passing through the portal in the opposite direction interrupts the second beam of radiant energy and then the first beam of radiant energy;

said first radiant energy detector being operable to produce a first signal condition when receiving radiant energy from said source and to produce a second signal condition when not receiving radiant energy from said source;

said second radiant energy detector being operable to produce a first signal condition when receiving radiant energy from said source and to produce a second signal condition when not receiving radiant energy from said source;

first receiver means coupled to said first radiant energy detector for producing a first output condition in response to the first signal condition from the first radiant energy detector and a second output condition in response to the second signal condition from the first radiant energy detector;

second receiver means coupled to said second radiant energy detector for producing a first output condition in response to the first signal condition from the second radiant energy detector and a second output condition in response to the second signal condition from the second radiant energy detector;

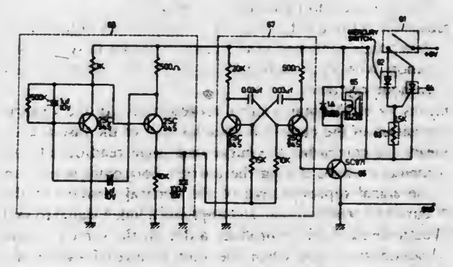
logic means coupled to the first and second receiver means and having first and second operating states, said logic means being switched to said first operating state in response to the output condition from said first receiver means changing from the first to the second output condition while the second receiver means is producing its first output condition and being switched to said second operating state in response to the output condition from said second receiver means changing from the first to the second output condition while the first receiver means is producing its first output condition;

whereby passage of an object through the portal in the one direction causes the logic means to operate in said second operating state and passage of an object through the portal in the opposite direction causes the logic means to operate in said first operating state.

4,272,763
SECURITY ATTACHE CASE WITH AUTOMATIC ALARM SYSTEM

Ben-Lee Chang, 12-7 Fl., 100, 3 Sec., Roosevelt Rd., Taipei, and Mo-Fei Lee, P.O. Box 26-18, Taichung, both of Taiwan

Filed Aug. 31, 1979, Ser. No. 71,700
Int. Cl.[3] G08B *13/14*, *15/00*
U.S. Cl. 340—571 7 Claims



1. An attache case comprising a case body; a handle, said handle having a pair of cavities therein; an inner case installed in said case body; a voltage step-up transforming circuit and an alarm generating circuit mounted in said inner case; a pair of micro switches mounted in said cavities; electric wires disposed on the exterior of said case body; said micro switches being actuable to start said voltage step-up transforming circuit to generate a high voltage fed to said electric wires; and a movement sensitive switch disposed in said case body for activating said alarm generating circuit in response to movement of said case body.

4,272,764
SELF CONTAINED HEAD MOUNTABLE SLEEP INHIBITING DEVICE

Myron R. Herr, and Austin E. Elmore, both of Scottsdale, Ariz., assignors to Oliver A. Miller, Scottsdale, Ariz., a part interest

Filed Jan. 14, 1980, Ser. No. 111,711
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—575 6 Claims



1. A sleep inhibiting device comprising:

a rectangular housing provided with a clamp hingedly mounted along one of its edges,

said clamp comprising an L-shaped configuration having one leg lying along one surface of said housing and the other leg lying along another surface of said housing,

a spring mounted on said housing between one of said legs of said clamp and the outer surface of said housing for biasing one leg of said clamp toward said housing and the other leg of said clamp away from said housing,

said one leg being adapted to receive and hold between it and the outer surface of said housing an object worn by the user of said device,

an alarm means mounted in said housing,

battery means mounted in said housing,

an electric circuit interconnecting said alarm means in series with said battery means through an on-off switch and an independently adjustable mercury switch,

said mercury switch comprising a switch housing for forward and rearward angular movement for opening and closing a circuit therein to energize and deenergize said alarm means when said on-off switch is in its on position, and

knob means mounted on the outside of said housing of the device for adjusting the position of said switch housing relative to said housing of the device,

whereby nodding of the user's head will complete the circuit in said mercury switch and energize said alarm means to awaken the user.

4,272,765
MICROWAVE LEAKAGE DETECTORS

Geoffrey T. White, 2/16 Fordholm Rd., Hawthorn, 3122, Victoria, Australia

Filed Apr. 25, 1979, Ser. No. 33,894
Claims priority, application Australia, May 5, 1978, PD4389; Jul. 3, 1978, PD4927; Jul. 24, 1978, PD6197
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—600 7 Claims

1. A microwave detector arrangement comprising electrical

circuitry having one or more dipoles connected thereto for receiving wave propagated electromagnetic energy such as microwave energy and providing a signal to said electrical circuitry related to the level of said energy, said circuitry being adapted to operate an associated visual warning device when



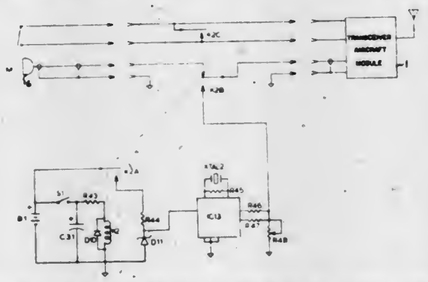
said level exceeds a predetermined maximum level, said circuitry being fully encased in a substantially solid block of material in a manner whereby said warning device is externally visible and said block having a specific gravity greater than that of water such that said arrangement is caused to sink when placed in water.

4,272,766

RADIO OPERATED REMOTE CONTROL

Wesley G. Stucker, and Richard J. Coles, Jr., both of Houston, Tex., assignors to Darlene M. Koch; Robert H. Koch, both of Alison Park, Pa.; Viola C. Coles, Houston, Tex.; Maurice Guy Reynolds, Houston, Tex.; Lydia M. Reynolds, Houston, Tex.; J. P. Carlson, Jr. and Carolyn Carlson, both of Pampa, Tex.

Filed Feb. 8, 1979, Ser. No. 10,418
Int. Cl.³ B60Q *1/02*
U.S. Cl. 340—696 2 Claims



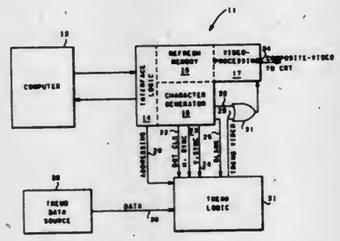
1. In a radio signal device, a transmitter for transmitting a dual tone multi frequency signal through standard radio equipment, a decoder for receiving said signal and closing a switch in a remote location to effect the actuation of a control switch to light an airfield said device consists of a pair of modules, one mounted in the aircraft and the other mounted in the air field control tower, the first mentioned module having means for manually activating one set of contacts which directs a circuit therethrough at a predetermined voltage to a tone generator, another set of contacts also actuated by said switch which transfers the input from the aircraft microphone and connects it to the output of the tone generator and which actuates still another set of contacts to key the transmitter so the tones will be broadcast to the second module which will receive the signal and direct same to four stages of programmable level adjustments, the first two stages being attenuators and the second two stages being amplifiers, directing the output through active filters, resistors and capacitors, to produce an output of sine waves, which will be converted to square waves and amplified to TTL compatible levels and into a decoder, the signal is then verified and sets a latch, which it then conducts and energizes to activate a contactor which turns on the lights at the airport.

4,272,767

DISPLAY SYSTEM FOR DISPLAYING INFORMATION IN THE FORM OF A HORIZONTALLY ORIENTED CURVE ON A RASTER-TYPE CRT

Robert H. Lacy, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 26, 1979, Ser. No. 52,294
Int. Cl.³ G08B *5/36*
U.S. Cl. 340—722 16 Claims



1. Apparatus for producing a horizontally oriented curve on a raster-type cathode-ray tube display, comprising:

a cathode-ray tube;

means for producing a raster on said cathode-ray tube having horizontal scans alternating with retraces;

means for producing a new curve data point signal representative of the vertical height of a dot to be displayed on said cathode-ray tube;

a memory means having a plurality of memory locations in sequence, each of said plurality of memory locations corresponding to a respective one of the horizontal positions on said cathode-ray tube where curve data points may be displayed;

means for shifting any curve data points in said memory means to the next memory location in sequence in said memory means;

means for transferring said new curve data point signal from said means for producing said new curve data point signal to the initial memory location in said memory means, the procedure of producing a new curve data point, shifting the curve data points in said memory means to the next memory location in sequence, and transferring the new curve data point to the initial memory location in said memory means continuing until a desired horizontal curve has been stored in said memory means;

means for reading out of said memory means all of the curve data points contained in said memory means in synchronization with each horizontal scan of the raster on said cathode-ray tube;

means for establishing a signal representative of the vertical position of the current horizontal scan of the raster; and

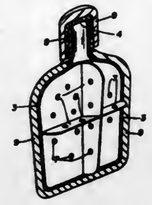
means for comparing the curve data point read out of said memory means during the current horizontal scan with the signal representative of the vertical position of the current horizontal scan and applying a video signal to said cathode-ray tube to produce a dot on the screen of said cathode-ray tube when the thus compared signals are equal.

4,272,768

MULTI-PURPOSE SURVIVAL CANTEEN

Johnnie P. Rookard, Jr., 1061-72nd Ave., Apt. 4, Oakland, Calif. 94621

Filed Jan. 21, 1980, Ser. No. 113,442
Int. Cl.³ H01Q *15/18*; B65D *1/04*
U.S. Cl. 343—18 C 7 Claims



1. A survival canteen comprising:

a substantially microwave transparent vessel for holding liquid, having a sealable mouth;

said vessel having internal microwave reflective baffles dividing the vessel into chambers and openings between the chambers to allow damped fluid flow therebetween; and

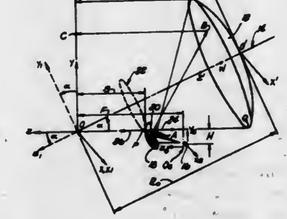
said baffles positioned to define at least one corner reflector.

4,272,769

MICROWAVE ANTENNA WITH PARABOLIC MAIN REFLECTOR

Frederick A. Young, 17502 Berlark Cir., Huntington Beach, Calif. 92649, and Willard V. T. Rusch, 800 S. Hudson, Pasadena, Calif. 91106

Filed Aug. 27, 1979, Ser. No. 69,968
Int. Cl.³ H01Q *19/14*
U.S. Cl. 343—781 P 8 Claims



6. In a conical scanning microwave antenna, comprising: a primary reflector, having an axis and consisting of an axially symmetric surface of revolution about the primary reflector axis, and having a peripheral edge, and an aperture plane, defined as the x,y plane in an x,y,z coordinate system with an origin O on the primary reflector axis and rotated an angle α in the y,z plane from the primary reflector axis; a subreflector, which subreflector has an apex; a spherical-wave point source of microwave energy; and, the spherical-wave point source being located at an origin O_s of an x_s, y_s, z_s coordinate system, wherein the x_s, y_s, z_s coordinates are parallel, respectively, to the x, y and z coordinates, and the y_s, z_s plane is coplanar with the y, z plane, the improvement comprising:

the origin O_s being located a fixed distance, co-linear with y_s below the z axis, an extension of which forms a line in the y,z plane, said line intersecting the primary reflector axis at an angle α and intersecting the peripheral edge of the primary reflector normal to the surface of the primary reflector at the point of intersection with the peripheral edge;

the subreflector being positioned and having a surface contour such that in the transmit mode a ray from the point source reflecting from the subreflector at the apex onto the primary reflector, travels along the extension of the z axis and reflects, from the point of intersection of the extension of the z axis and the peripheral edge, back along the extension of the z axis and intersects the primary reflector axis and travels a fixed distance from the point source, to said surface of the subreflector, to said point of intersection with the pheripheral edge, to the point of intersection with the primary reflector axis; and,

for rays from the point source incident upon said surface of the subreflector there are corresponding reflections onto a point on the primary reflector which result in a reflection from that point, which is parallel to the z axis and has the same distance of travel from the point source, to the subreflector, to the primary reflector, to the x,y plane, as did the said ray reflected from the apex of the subreflector;

the subreflector having a surface defined such that for every ray, represented by the vector R_s, originating from the point source origin O_s and incident upon said surface of the subreflector, a unit vector n_s normal to said surface of the subreflector is defined, at the point of incidence upon said surface of the subreflector, as

$$n_s = -u/|u|$$

where:

$$u = \hat{m}_s + \hat{r}_s$$

and where $\hat{r}_s$, a unit vector along R_s is defined as

$$\hat{r}_s = \frac{R_s}{|R_s|} = \frac{x_s \hat{a}_x + Y_s \hat{a}_y + z_s \hat{a}_z}{K + z - C(x,y)}$$

wherein a_x, a_y and a_z are unit vectors along the x,y,z axes, and C(x,y) is the distance between the point of incidence of the ray on said surface of the subreflector and the point of incidence of the reflected ray upon the primary reflector and is defined as:

$$C(x,y) = \frac{(K+z)^2 - |RF|^2}{(RF \cdot \hat{m}) + K + z}$$

K = a constant

$$= \sqrt{H^2 + (F-S)^2} + D/\sin\alpha - S$$

$$x_s = x + C(x,y)m_x$$
$$y_s = y + H + C(x,y)m_y$$
$$z_s = z + F + C(x,y)m_z$$

wherein H is the distance along the y_s axis between the source and the extension of the z axis, F is the coordinate along the extension of the z axis of the distance between 0 and the point source, S is the coordinate along the extension of the z axis of the distance between 0 and the apex of the subreflector, D is the diameter of the primary reflector, and m is a unit vector in the direction from the point of incidence of the reflected ray upon the primary reflector, with m_x, m_y, and m_z being the x, y and z components of m; and,

RF is the vector between O_s and the point of incidence upon the primary reflector and is defined as:

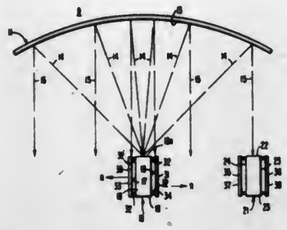
$$RF = x\hat{a}_x + (y+H)\hat{a}_y + (z+F)\hat{a}_z$$

4,272,770

REFLECTOR ANTENNAE APPARATUS FOR LIMITING APERTURE BLOCKAGE

Coleman J. Miller, Arnold, and Daniel Davis, Baltimore, both of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 13, 1979, Ser. No. 93,323
Int. Cl.³ H01Q 15/10, 19/13
U.S. Cl. 343—782 11 Claims



1. An antennae reflector assembly having a surface for reflecting transmitted wave energy in a predetermined direction, comprising:

at least one aperture blocking structure with a frontal area facing the reflecting surface and sidewalls having a surface area substantially parallel to both the direction and E-field of the reflected wave energy,

a board of insulating material having a plane surface for each of the sidewalls, each of said boards being substantially similar to its respective sidewall in both area and configuration and having a plurality of spaced conductive portions disposed on its plane surface, each said spaced conductive portions being configured such that any two perpendicular lines dividing such portion into quadrants are of substantially equal length, and

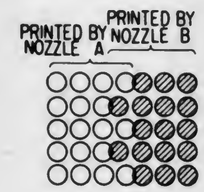
means mounting each of said boards spaced substantially uniformly a predetermined distance from its reflected sidewall.

4,272,771

INK JET PRINTER WITH MULTIPLE NOZZLE PRINT HEAD AND INTERLACING OR DITHER MEANS

Tatsuya Furukawa, Yokohama, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Sep. 17, 1979, Ser. No. 75,999
Claims priority, application Japan, Sep. 25, 1978, 53-116495
Int. Cl.³ G01D 15/18
U.S. Cl. 346—75 6 Claims



1. An ink-jet printer comprising:

an ink-jet print head having a plurality of nozzles arranged for printing dots in a coordinate array of rows and columns, each nozzle having an ink drop charging electrode and a pair of ink drop deflection electrodes;

means for providing relative motion between said head and a recording medium to cause said head to scan said medium in horizontal and vertical directions to print a pattern comprising groups of adjacent dot arrays, each dot array comprising a plurality of dots, with one dot array corresponding to each nozzle of said print head, the boundaries between adjacent dot arrays being defined by a first outermost line of dots of one dot array and an oppositely disposed parallel second line of dots of another dot array;

digital control means for sequentially enabling said nozzles to print said dot arrays; and

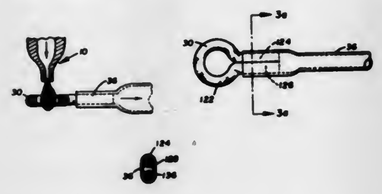
stagger circuit control means operatively associated with said digital control means for varying the positions of selected portions of said first and second lines of dots to cause only some dots of the first line to be deflected toward the second line, and only some dots of the second line to be deflected toward other dots of the first line, while enabling said digital control means to generate only the dots of said lines which are so deflected.

4,272,772

PRIMING APPARATUS FOR LIQUID INK WRITING INSTRUMENTS

Ronald J. Geil, Vermilion, Ohio, assignor to Gould Inc., Rolling Meadows, Ill.

Division of Ser. No. 859,902, Dec. 12, 1977, Pat. No. 4,170,106.
This application Jun. 27, 1979, Ser. No. 52,453
Int. Cl.³ G01D 15/18
U.S. Cl. 346—140 R 1 Claim



1. An improved charging and priming ring for an ink jet printer, comprising:

an element of electrically conductive material formed into a loop having essentially radially outwardly extending ends, pairs of said ends being held in laterally spaced relation to define a flow channel therebetween;

conduit means surround each pair of said ends to restrain them, said laterally spaced ends and said conduit means defining an orifice means wherein a drop of liquid passing through said element is drawn away when a vacuum is applied to said orifice means.

4,272,773

INK SUPPLY AND FILTER FOR INK JET PRINTING SYSTEMS

Laszlo Halasz, Brecksville, Ohio, assignor to Gould Inc., Rolling Meadows, Ill.

Filed May 24, 1979, Ser. No. 42,189
Int. Cl.³ G01D 15/16, 15/18
U.S. Cl. 346—140 R 6 Claims

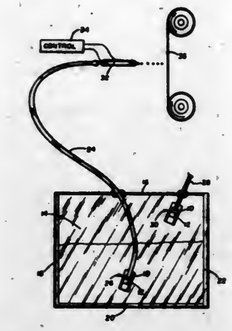
1. An improved ink supply container for use in ink jet printing systems, comprising:

a sealed collapsible container;

at least one ink delivery conduit extending through a wall of said container, said conduit having an inlet end located in said container;

a conduit segment having a bore sized to receive said inlet end; and

a filter element located within said bore, said element comprising a cylinder of compressed fibers forming a plurality



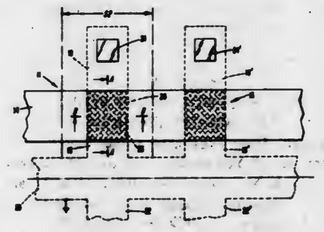
of substantially parallel passages through which capillary flow is achievable.

4,272,774

SELF-ALIGNED FLOATING GATE MEMORY CELL AND METHOD OF MANUFACTURE

Charles E. Boettcher, Sandy, Utah, assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jul. 19, 1979, Ser. No. 59,235
Int. Cl.³ H01L 29/78
U.S. Cl. 357—23 10 Claims



1. A floating gate memory cell comprising:

a semiconductor substrate of one conductivity type,

source and drain surface regions on said substrate of the opposite conductivity type and a channel region connecting said surface regions,

a conductive floating gate insulated from, overlying and substantially coextensive with said channel region in the direction transverse to the source-to-drain direction and insulated from said channel region,

a conductive control gate overlying and insulated from said floating gate and coextensive with said floating gate in the source-to-drain direction.

4,272,775

LASER TRIM PROTECTION PROCESS AND STRUCTURE

James B. Compton, Los Gatos; Robert A. Comptta, San Jose, and Daniel D. Culmer, Sunnyvale, all of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 921,743, Jul. 3, 1978, Pat. No. 4,179,310.
This application Jun. 4, 1979, Ser. No. 45,323
Int. Cl.³ H01L 27/14
U.S. Cl. 357—29 9 Claims

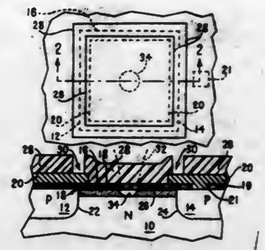
1. An integrated circuit structure, which comprises:

(a) a semiconductor substrate of a first conductivity type,

(b) a first region of second conductivity type in said semiconductor substrate and forming a P-N junction therewith,

(c) a second region contiguous with said first region and including a circuit element to be trimmed by use of a radiant energy beam,

(d) a first oxide on said semiconductor substrate overlying said second region including said circuit element,



(e) a layer of a metal reflective to the radiant energy beam on said first oxide at least the P-N junction formed between said first region and said semiconductor substrate, and

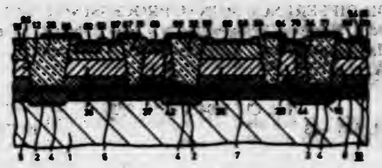
(f) a second oxide layer on said reflective metal layer, said second oxide layer having an opening which exposes said reflective metal layer over the P-N junction at the surface of said semiconductor substrate where said P-N junction is contiguous with said second region.

4,272,776

SEMICONDUCTOR DEVICE AND METHOD OF MANUFACTURING SAME

Bernard H. Weijland, Nijmegen, and Wilhelmus H. C. G. Verkuijlen, Eindhoven, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 18, 1972, Ser. No. 254,604
Claims priority, application Netherlands, May 22, 1971, 7107039
Int. Cl.³ H01L 27/04
U.S. Cl. 357—50 32 Claims

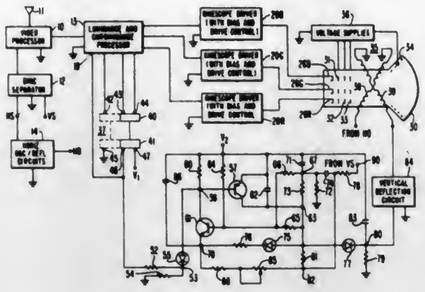


1. A semiconductor device comprising a body, said body comprising a monocrystalline substrate, at least a first layer consisting of silicon semiconducor material on a surface of said substrate, at least part of said first layer being monocrystalline, a second layer of insulating material located at only part of the said substrate surface and buried within the body, the buried second layer consisting at least partly of silicon nitride, and means forming an isolation zone for isolating part of the first semiconductor layer which is monocrystalline from another part of the semiconductor layer, said isolation zone comprising at least partly a third layer of insulating material inset in the first semiconductor layer from its surface and extending down to and at least partly adjoining the second insulating layer, said third layer consisting of silicon oxide formed by in situ conversion of the semiconductor material of the first semiconductor layer, the lateral extent of the second layer being different from the lateral extent of the third layer where it adjoins the second layer.

4,272,777
SERVICE SWITCH APPARATUS

William V. Fitzgerald, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Feb. 8, 1980, Ser. No. 119,965
Int. Cl.[3] H04N 9/62
U.S. Cl. 358—10 3 Claims



1. In a television receiver including a vertical oscillator for providing a signal to a vertical deflection circuit, service switch apparatus comprising:

a service switch, incorporating an electrical contact, said switch being adjustable between a first and a second position, said first position defining a condition in which a first potential is applied to said contact, said second position defining a condition in which a second potential, different than said first potential, is applied to said contact;

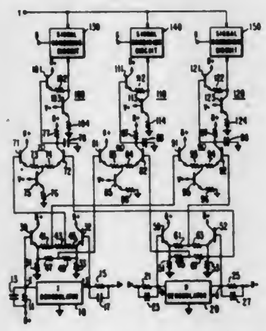
a diode;

means for coupling said diode between a point in said oscillator and said contact with such polarity that application of said first potential to said contact effects a forward biasing of said diode to cause conduction by said diode, said conduction effecting a disabling of said oscillator, whereas application of said second potential to said contact effects a reverse biasing of said diode, permitting normal operation of said vertical oscillator and decoupling said oscillator point from said contact.

4,272,778
COLOR-DIFFERENCE SIGNAL PROCESSING CIRCUITS

Leopold A. Harwood, Bridgewater, N.J., and Robert L. Shanley, II, Indianapolis, Ind., assignors to RCA Corporation, New York, N.Y.

Filed Mar. 3, 1980, Ser. No. 126,783
Int. Cl.[3] H04N 9/50, 9/52
U.S. Cl. 358—23 10 Claims



1. In a color television receiver, apparatus comprising, in combination:

a first push-pull color demodulator having first and second output terminals, the voltage at said first output terminal varying about a quiescent voltage of a first magnitude in representation of a first color-difference signal with a first polarity, and the voltage at said second output terminal varying about a quiescent voltage of a magnitude closely matching said first magnitude in representation of said first color-difference signal with a second polarity opposite to said first polarity;

a second push-pull color demodulator having third and fourth output terminals, the voltage at said third output terminal varying about a quiescent voltage of a magnitude closely matching said first magnitude in representation of a second color-difference signal with said first polarity, and the voltage at said fourth output terminal varying about a quiescent voltage of a magnitude closely matching said first magnitude in representation of said second color-difference signal with said second polarity opposite to said first polarity;

a first resistive current path;

means for direct current conductively connecting said first resistive current path between said first and second output terminals;

a second resistive current path;

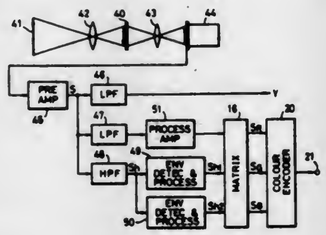
means for direct current conductively connecting said second resistive current path between said third and fourth output terminals; and

means, direct current conductively coupled to an asymmetrically positioned intermediate point of said first resistive current path and to an asymmetrically positioned intermediate point of said second resistive current path and responsive to the respective voltages appearing at said intermediate points, for forming a third color-difference signal representative of a combination of said first and second color difference signals with a given polarity relationship and a given magnitude ratio.

4,272,779
SIGNAL PROCESSING CIRCUIT FOR A COLOR TELEVISION CAMERA

Shintaro Nakagaki; Itsuo Takanashi; Sumio Yokokawa; Tadayoshi Miyoshi, all of Yokohama; Koichiro Motoyama, Ninomiya, and Kenichi Miyazaki, Sagamihara, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Jan. 19, 1979, Ser. No. 4,721
Claims priority, application Japan, Jan. 20, 1978, 53-5168[U]; Feb. 16, 1978, 53-15953
Int. Cl.[3] H04N 9/04
U.S. Cl. 358—47 16 Claims



1. A signal processing circuit for a color television camera having a camera tube which generates a multiplex output signal comprising a direct wave signal and a plurality of amplitude-modulated signals, said circuit comprising:

filter means responsive to an output signal of the camera tube for individually separating a direct wave signal from a plurality of amplitude-modulated signals;

a plurality of detection and processing means corresponding to each of the separated amplitude-modulated signals, each of the plurality of detection and processing means comprising detection means for detecting its corresponding separated amplitude-modulated signal to produce a detected signal having restored DC components, and gamma correction means for gamma-correcting the detected signal;

processing circuit means comprising gamma correction means for gamma-correcting the separated direct wave signal;

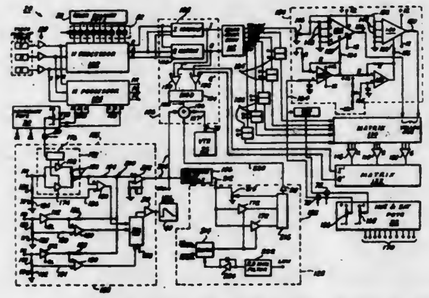
matrix means for matrixing the output signals of said plurality of detection and processing means and said processing circuit to obtain three primary color signals; and

color encoding means for producing a composite color video signal from the output three primary color signals of said matrix means.

4,272,780
FILM SCANNER WITH VARIABLE RATE IMAGE ENHANCEMENT

Armand Beimares-Sarabia, St. James, N.Y.; Stanley J. Chayka, Parsippany, N.J., and Robert M. Lund, New York, N.Y., assignors to Teletronics International, Inc., New York, N.Y.

Division of Ser. No. 700,852, Jun. 29, 1976, Pat. No. 4,096,523.
This application Jun. 9, 1978, Ser. No. 914,575
Int. Cl.[2] H04N 5/30
U.S. Cl. 358—54 5 Claims



1. In a system for converting photographic images to video signals, said system including projector means for presenting and projecting images sequentially at a variable rate, video camera means for converting said images into video signals, aperture delay means for producing contours signals for image enhancement, the improvement of rate-responsive variable enhancement means for amplifying said contours signals in an amount which is a direct function of the rate of presentation of said images by said projector means.

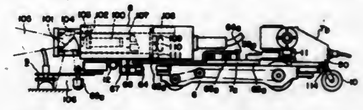
5. A device as in claim 1 in which said video camera means includes luminance signal generating means, said aperture delay means being connected to receive said luminance signal, chrominance signal means, and means for adding the output of said variable enhancement means to said chrominance signal to produce a composite video signal.

4,272,781
NONDESTRUCTIVE EXAMINING APPARATUS

Nobuo Taguchi, Fuchu; Tadashi Munakata, Tokyo, and Yoshikata Kobayashi, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1979, Ser. No. 72,592
Claims priority, application Japan, Sep. 8, 1978, 53-109594; Jan. 17, 1979, 54-3660[U]
Int. Cl.[3] H04N 7/18
U.S. Cl. 358—100 9 Claims

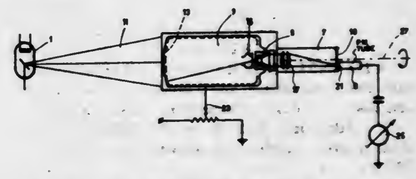
1. A nondestructive examining apparatus comprising a carriage capable of running along a surface to be examined; an industrial television camera, a profile sensor for profiling the contour of a surface to be examined, and a nondestructive examining unit which are mounted on an arm supported on said carriage; control means for controlling said carriage, said industrial television camera, said profile sensor, and said nondestructive examining unit; and, recording means for recording data produced by said nondestructive examining unit as a result of operation thereof and video images produced by said television camera.



4,272,782
METHOD OF AND APPARATUS FOR ADJUSTING AN IMAGE INTENSIFIER CHAIN

Johannes Proper; Jacob Schaar; George L. A. Monte, and Eduard P. Westerveld, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 5, 1977, Ser. No. 757,296
Claims priority, application Netherlands, Jan. 8, 1976, 7600142
Int. Cl.[3] H04N 5/32; H01J 31/49, 23/08; H04N 5/21
U.S. Cl. 358—111 22 Claims



1. A method of adjusting an image intensifier to obtain an optimum adjustment at least of a focussing voltage applied to the image intensifier comprising the steps of exposing the input screen of the image intensifier to input radiation, converting light originating from at least a portion of the output screen of the image intensifier into a first electrical signal, sensing the difference between said first signal and a reference value and adjusting said focussing voltage until said difference attains an extreme value.

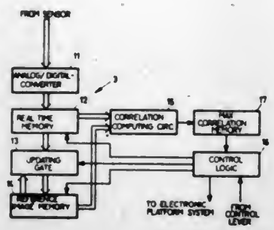
4,272,783
CORRELATION FOLLOWER FOR TRACKING AN OBJECT

Lars-Ake Warnstam; Rune Jonsson, and Georg Ludvigsson, Linköping, all of Sweden, assignors to Saab-Scania AB, Linköping, Sweden

PCT No. PCT/SE78/00067, § 371 Date Jul. 2, 1979, § 102(e) Date Jun. 29, 1979, PCT Pub No. WO79/00268, PCT Pub. Date May 17, 1979
This PCT application filed Jun. 29, 1979, Ser. No. 127,211
Claims priority, application Sweden, Nov. 2, 1977, 7712352
Int. Cl.[3] H04N 7/18
U.S. Cl. 358—126 5 Claims

1. A video correlator for causing an object to be tracked by an image sensor that has a limited field of view and is arranged to cyclically scan said field of view and produce a video signal corresponding thereto, said video correlator comprising a first addressable memory and means for charging the same with digital-form information for each scanning cycle obtained from said video signal and corresponding to a section of said field of view, a second addressable memory and means for initially charging thereinto digital-form image information corresponding to the portion of said section that is to be kept centered in the field of view, means comprising correlation computing means for determining the portion of the information in the first memory that most nearly correlates with said image information and for producing an error signal which corresponds to shift in the location of said portion from cycle to cycle and

which is employed for controlling alignment of said sensor with the object, and updating means for automatically updating image information in the second memory from information in the first memory, said video correlator being characterized by:



said updating means comprising address means arranged to address, during any one scanning cycle, discrete positions in said second memory that correspond to spaced apart parts of the image to which the information in said second memory corresponds, so that in any one scanning cycle said second memory is updated only partially and at positions that are distributed over the area of said image.

4,272,784

CHANNEL PROGRAMING APPARATUS

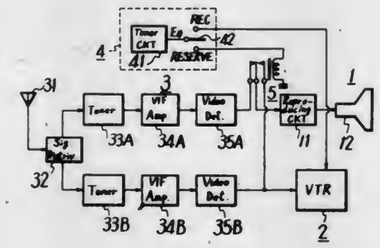
Takahiko Saito, Kamakura, and Masaru Sato, Asaka, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 26, 1978, Ser. No. 973,536

Claims priority, application Japan, Dec. 27, 1977, 52-179139[U]

Int. Cl.³ H04N 5/78

U.S. Cl. 358—127 **7 Claims**



1. Channel programing apparatus, capable of supplying a video display means and a video recording means which is selectively settable to one of several modes including a recording mode, each with an individual tuned video signal, comprising:

means defining first and second video outputs for supplying signals to said video display means and said video recording means, respectively;

first and second tuner means providing first and second tuned signals, respectively;

means for applying said second tuned signal to said second video output;

tuner switching means for selectively applying one of said first and said second tuned signals to said first video output;

timing means having an unset state and being changeable to a set state in which said tuning means produces a timed command at a selected time, said timing means including mode switching means for selectively establishing a record command mode and a reserve command mode;

means for causing said tuner switching means to switch over so as to apply said second tuned signal to said first video output in response to said timed command, and which is rendered inoperative in said record command mode; and

means for causing said video recording means to be set to said recording mode thereof in response to said timed command when said mode switching means has established said record command mode.

4,272,785

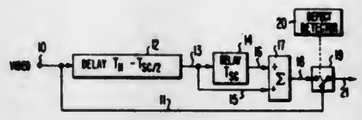
DEFECT COMPENSATION FOR COLOR TELEVISION

Jack S. Fuhrer, Carmel, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Jun. 1, 1979, Ser. No. 44,364

Int. Cl.³ H04N 5/76, 9/535, 5/78, 5/795

U.S. Cl. 358—127 **5 Claims**



5. An improved system for playback of a record of successive images including pickup means for recovering a real-time video signal from the record, signal defect detection means and a source of video signal recovered from said record and delayed by one image line relative to said real-time signal; and means for substituting said delayed video signal for the real-time video signal upon detection of a defect in the real-time video signal, the improvement wherein said source of delayed video signals comprises:

means for delaying the real-time video signal by first and second intervals respectively shorter and longer than one image line;

means for averaging the signals delayed said first and second intervals for providing said video signal delayed by one image line.

4,272,786

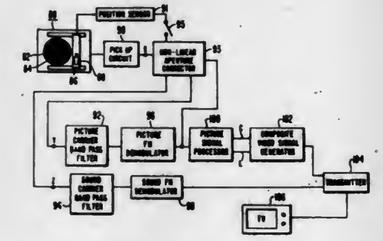
VIDEO DISC PLAYBACK APPARATUS WITH NON-LINEAR APERTURE CORRECTION

John J. Gibson, Princeton, N.J., assignor to RCA Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 951,382, Oct. 16, 1978, abandoned. This application Sep. 19, 1979, Ser. No. 75,330

Int. Cl.³ H04N 5/76, 5/78

U.S. Cl. 358—128.5 **18 Claims**



1. In a disc record player for information recovery of video and sound signals, an apparatus comprising:

means for recovering modulated information signals having different components including composite color video signals with sound accompaniment from a disc record, said recovery means having a non-linear response which produces intermodulation distortions between said different components of the modulated information signals;

a non-linear compensating means, coupled to said recovery means, for reducing said intermodulation distortions resulting from the non-linear response of the recovery means, in the recovered signals;

means, coupled to said compensating means, for demodulating the information signals; and

means, coupled to said demodulating means, for processing said demodulated signals.

4,272,787

T.V. PICTURE FREEZE SYSTEM

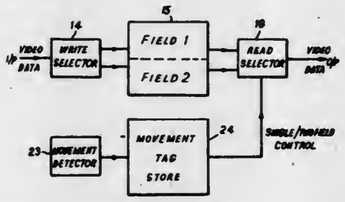
Peter C. Michael, Newbury; Richard J. Taylor, London, and Paul R. N. Kellar, Newbury, all of England, assignors to Micro Consultants Limited, Berkshire, England

Filed Aug. 16, 1979, Ser. No. 67,496

Claims priority, application United Kingdom, Sep. 7, 1978, 35988/78

Int. Cl.³ H04N 5/22

U.S. Cl. 358—160 **9 Claims**



1. A picture freeze system comprising:

frame storage means for storing picture information from first and second fields of a television picture;

movement detector means for detecting on a picture point by picture point basis any picture movement from the information on a predetermined portion of the picture;

movement data storage means for storing data indicative of any movement detected picture point by picture point; and

selector means for selectively outputting stored picture information picture point by picture point from a single or both fields in dependence on the stored movement data to provide information from both fields during parts of the picture where no movement has been detected and from only a single field from parts of the picture where movement has occurred.

4,272,788

RECEIVER FOR TELEVISION SOUND MULTIPLEX BROADCASTING AND FM STEREO MULTIPLEX BROADCASTING

Minoru Ogita, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Oct. 12, 1979, Ser. No. 84,366

Claims priority, application Japan, Oct. 19, 1978, 53-128904

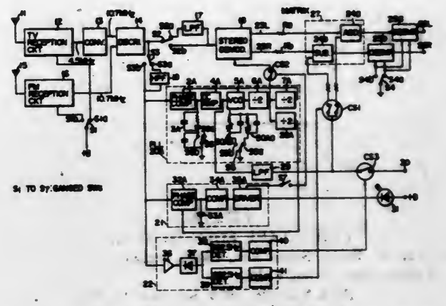
Int. Cl.³ H04N 5/46

U.S. Cl. 358—189 **8 Claims**

1. A receiver for selectively receiving either a television sound multiplex broadcasting in which a main carrier is frequency-modulated by a television sound multiplex composite signal including a main channel signal of a first audio signal and a subchannel signal formed by frequency-modulating a subcarrier with a second audio signal, or an FM stereo multiplex broadcasting in which a main carrier is frequency-modulated by an FM stereo multiplex composite signal including a main channel signal which is the sum of left and right channel audio signals, a subchannel signal formed by suppressed-carrier amplitude-modulating a subcarrier with the difference between the left and right channel audio signals and a pilot signal having a frequency half the frequency of the subcarrier, said receiver comprising:

frequency discriminator means for recovering the television sound multiplex composite signal during the reception of the television sound multiplex broadcasting and the FM stereo multiplex composite signal during the reception of the FM stereo multiplex broadcasting;

PLL circuit means coupled with said frequency discriminator means and including a voltage-controlled oscillator, and circuit means connected to said oscillator for selectively setting the self-running frequency of said oscillator to a frequency corresponding to the frequency of the subcarrier in the television sound multiplex broadcasting



for the purpose of receiving the television sound multiplex broadcasting or a frequency corresponding to the frequency of the pilot signal in the FM stereo multiplex broadcasting for the purpose of receiving the FM stereo multiplex broadcasting, whereby said PLL circuit means FM-demodulates the subchannel signal during the reception of the television sound multiplex broadcasting and forms a switching carrier signal with a frequency two times the frequency of the pilot signal during the reception of the FM stereo multiplex broadcasting.

4,272,789

PULSE-FORMING CIRCUIT FOR ON/OFF CONVERSION OF AN IMAGE ANALYSIS SIGNAL

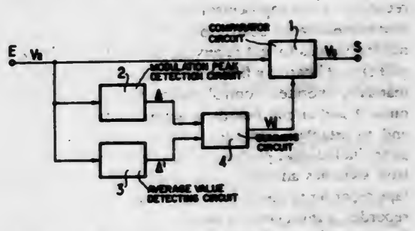
Gerard Biron, Cressely, France, assignor to Compagnie Industrielle des Telecommunications Cit-Alcatel, Paris, France

Filed Aug. 30, 1979, Ser. No. 70,760

Claims priority, application France, Sep. 21, 1978, 78 27070

Int. Cl.³ H04N 1/40

U.S. Cl. 358—282 **8 Claims**



1. A pulse-forming circuit for on/off conversion of an image analysis signal representative of successive image points along successive image scan lines, the signal being modulated such that its level varies between two limit levels corresponding to image white and to image black, the pulse-forming circuit converting the image analysis signal to an on/off signal by comparing the said imge analysis signal with a decision threshold, and the decision threshold being variable as a function of the level of the image analysis signal, wherein the pulse-forming circuit comprises an image background level detector circuit connected to receive the image analysis signal and to operate over a scan line to detect the level Δ of the image background, an average value detector circuit connected to

receive the image analysis signal and to operate over a few successive image points to detect the average value Δ' thereof and a circuit for determining the said variable decision threshold, connected to receive the background level Δ and the average value Δ' from the detector circuits and to provide the said decision threshold at a value V_d which satisfies a function having the form $V_d = K\Delta + K'\Delta'$, where K and K' are two coefficients which satisfy the following relationships:

$0 \leqq K < 1$;

$0 < K' < 1$; and

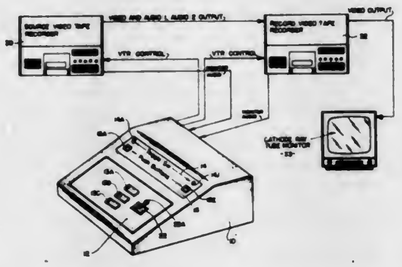
$0 < K + K' < 1$.

4,272,790

VIDEO TAPE EDITING SYSTEM

George W. Bates, Santa Ana, Calif., assignor to Convergence Corporation, Irvine, Calif.

Filed Mar. 26, 1979, Ser. No. 23,759
Int. Cl.[3] H04N 5/78; G11B 15/46
U.S. Cl. 360—14 5 Claims



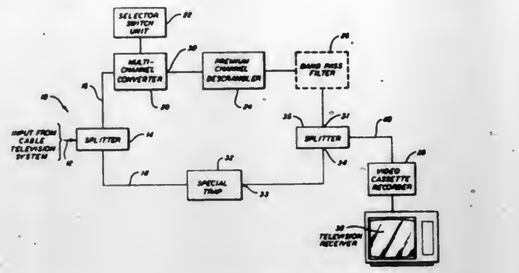
1. An editing control system for transferring selected video information from a video source to a record video tape recorder, said editing control system including: a plurality of solid state electronic circuit boards for controlling the transfer of video information from the source to the record video tape recorder; a microprocessor circuit board connected to said first-named circuit boards for cyclically and successively transmitting signals to and receiving signals from different ones of said circuit boards; a first control panel including a plurality of manually-operated control switches connected to respective ones of said circuit boards to activate control circuits thereon and to establish operating modes therein; a second control panel including a plurality of manually-operated remote controll switches adapted to be connected to said record video tape recorder to control the operation of said record video tape recorder; a third control panel including a plurality of manually-operated control switches connected to one of said circuit boards to establish selected operating modes in the editing control system, said third control panel further including manually-controllable potentiometer means connected to one of said circuit boards for effectuating forward and reverse motion of the record video tape recorder under manual control from a still-frame position and at a speed determined by the setting of the potentiometer means on either side of a neutral position, and a manually-operated cruise switch connected to one of said circuit boards to cause the record video tape recorder to be driven at a speed selected by said potentiometer means independent of subsequent settings of said potentiometer means.

4,272,791

METHOD AND APPARATUS FOR VIDEO RECORDING

Jerome C. Rifkea, 304 Edwards Dr., Fayetteville, N.Y. 13066

Filed Mar. 26, 1979, Ser. No. 24,103
Int. Cl.[3] H04N 5/78, 7/10
U.S. Cl. 360—33 5 Claims



1. A control system for connecting a cable television system to a video cassette recorder and a television receiver comprising:

input means for receiving a plurality of very high frequency television signals transmitted by said cable television system;

means for directing said transmitted signals through first and second conduits defining respectively first and second signal flow paths;

a multi-channel converter provided in said first flow path including selector means for selecting a single very high frequency signal from the plurality of very high frequency signals transmitted by said cable television system and for converting said single signal to a preselected converter very high frequency output signal;

trap means including an output provided in said second flow path for eliminating said preselected converter output signal from the very high frequency signals transmitted by said cable television system;

means connected to said first and second conduits for combining said preselected converter output signal and the very high frequency signals transmitted from the output of said trap means;

a video cassette recorder connected to an output of said combining means for receiving said combined signals whereat any very high frequency signal comprised within the cable television system transmitted signals may be recorded; and

a television receiver connected to the output of said combining means for receiving said combined signal whereat any signal comprised within the cable television system transmitted signals may be viewed.

4,272,792

MODE CHANGING SYSTEM FOR A CASSETTE TAPE RECORDER

Niro Nakamichi, Higashikurume; Kozo Kobayashi, Kodaira, and Hideo Kawachi, Ichikawa, all of Japan, assignors to Nakamichi Corporation, Tokyo, Japan

Filed Jun. 25, 1979, Ser. No. 52,020
Claims priority, application Japan, Jun. 28, 1978, 53-78170
Int. Cl.[3] G11B 15/18, 19/02
U.S. Cl. 360—69 6 Claims

1. A mode changing system for a cassette tape recorder wherein operating members such as a head base plate and a pinch roller are moved in accordance with operating modes of said cassette tape recorder comprising:

control means to control movement of the operating members to take a position corresponding to a selected mode of said cassette tape recorder;

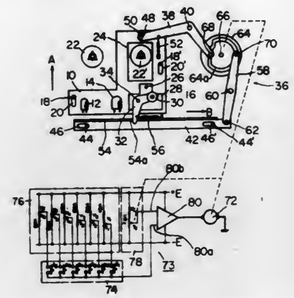
a control electric motor to actuate said control means;

a mode selective switch group to select one of said modes;

a reference signal generating circuit to generate a reference signal corresponding to the selected one of said modes in accordance with the selection of said modes by means of said mode selective switch group;

a variable signal generating circuit to generate a variable signal which continuously varies with the rotation of said control electric motor; and

an operational circuit to receive said reference signal at one of its inputs and said variable signal at the other input to



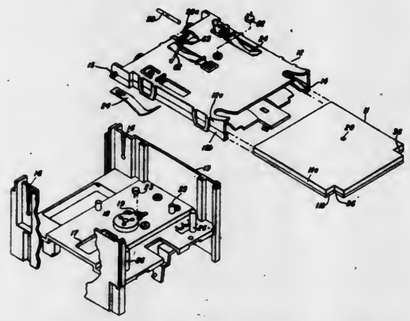
compare said signals to generate a control output so as to rotate said control electric motor, said operational circuit being associated with said control means and said variable signal generating circuit so that said control output is generated for rotating said control electric motor when said operating members are at a position different from the position corresponding to the selected mode and for stopping said control electric motor when said operating members reach the position corresponding to the selected mode.

4,272,793

SYSTEM AND METHOD FOR POSITIONING A MAGNETIC HEAD TRANSDUCER ON A FLEXIBLE STORAGE MEDIA

Richard D. Van Landingham, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jan. 4, 1979, Ser. No. 45,153
Int. Cl.[3] G11B 21/10, 5/55, 23/02
U.S. Cl. 360—78 14 Claims



1. A system for recording information on a plurality of recording tracks on a recording surface of a sheet of information storage media, said system comprising:

(a) a cartridge containing said sheet of information storage media, said cartridge having first and second openings therein, said first opening for providing access to said media for providing rotational motion thereto, said second opening for providing access to said media for writing and/or reading information thereon;

(b) rotational means extending through said first opening for engaging said media and imparting rotational motion thereto; and

(c) means for recording and/or writing information on a selected track of said media, said media including:

(i) a magnetic head transducer disposed in registration with said second opening for reading and/or writing information on said selected track; and

(ii) means for positioning said head transducer on said selected track, said positioning means including:

a. means for determining the total number of tracks between the present track location of said head transducer and said selected track and the direction of said selected track with respect to said present track location, and

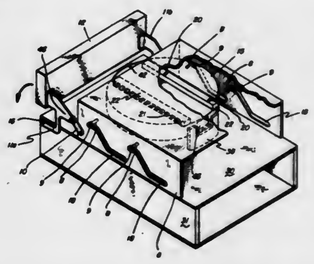
b. means for moving said head transducer to said selected track in M increments of N tracks each, M being an integer and N being a predetermined integer greater than one, and thereafter in single track increments when the total number of tracks is equal to or exceeds (M+1)·N, said head transducer being moved in single track increments only when said total number is less than 2·N.

4,272,794

DISC MEMORY DRIVE WITH IMPROVED CARTRIDGE HANDLING

Loren D. Skarky, Bethany, Okla., assignor to Magnetic Peripherals Inc., Minneapolis, Minn.

Filed Oct. 10, 1978, Ser. No. 949,845
Int. Cl.[2] G11B 17/04, 23/02
U.S. Cl. 360—97 12 Claims



1. A disk drive unit mechanism for loading on and unloading from the drive spindle of said disk drive unit, a disk memory module of the type having a housing with a support feature, and on its bottom an exposed disk hub with a spindle attachment feature, comprising

(a) a base supporting the spindle;

(b) a panel mounted on the base and spaced apart from the spindle, and having on a vertical face thereof a loading port large enough to pass the module;

(c) a door not substantially smaller than the loading port;

(d) hinge means fastening the door to the base adjacent the loading port for allowing said door to pivot from a position closing the loading port to an open position allowing the module to enter the loading port;

(e) a module support means mating with the housing's support feature and suspending the housing thereby;

(f) transport means for conveying the module support from a first position adjacent the loading port which allows the module to be passed through the loading port to be mated by its support feature to the module support, to a second position placing the disk hub adjacent the spindle and allowing the disk hub to be mated by its spindle attachment feature to the spindle,

said transport means comprising

(i) a pair of vertical plates attached to the module support means substantially parallel to each other, and spaced apart from each other on opposite sides of the spindle, each of the plates having a pair of slots, each slot having a substantially horizontal part and a diagonal part slanting upward therefrom toward the loading port, and

(ii) four projections fixed to the base one projection engaging each slot to guide the module support between its first and second positions; and

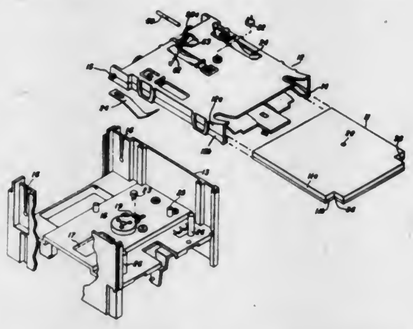
(g) linkage means operatively attached between the door and the module for shifting the module support bidirectionally between its first and second positions respectively as the door is opened and closed.

4,272,795

INFORMATION STORAGE SYSTEM AND RECORDING CARTRIDGE HAVING PRECISE ALIGNMENT FEATURES

Max G. Davis, Jr., Plano, and Charles M. Mueller, Forney, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 4, 1979, Ser. No. 45,477
Int. Cl.³ G11B *3/62, 5/016, 23/02*
U.S. Cl. 360—99 **18 Claims**



1. A system for reading and/or writing information on a sheet of flexible information storage media, said system comprising:

(a) a cartridge having parallel planar top and bottom surfaces, side walls and end walls forming an internal chamber wherein said media is disposed, said bottom surface having:

(i) a pair of elongated slots extending inwardly from opposite side walls;

(ii) a recess extending inwardly from an end wall, said end wall being substantially orthogonal to said opposite side walls; and

(iii) first and second openings, said first opening being centrally located for providing access to said media to impart rotational motion thereto, said second opening for providing access to said media for reading and/or writing information thereon;

(b) a cartridge holder having a receptacle for retaining said cartridge in a predetermined position therein, said receptacle being defined by top and bottom major interior surfaces, interior side walls, an interior end wall and an open end through which said cartridge is inserted into and removed from said holder, said holder including:

(i) a pair of elongated projection members extending inwardly from opposite interior side walls along said interior bottom surface for mating with respective slots in said bottom surface of said cartridge and retaining said catridge in said predetermined position;

(ii) an extension member extending inwardly from said interior end wall for mating with said recess in said cartridge and retaining said cartridge in said predetermined position and

(iii) third and fourth openings extending through said interior bottom surface, said third and fourth openings being in registration with said first and second openings, respectively, in said bottom surface of said cartridge when said projection members are in mating engagement with respective elongated slots and said extension member is in mating engagement with said recess; and

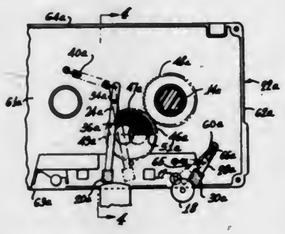
(c) a base member for supporting said holder in said cartridge in a fixed position, said base member having a magnetic head transducer disposed in alignment with said second and said fourth openings for reading and/or writing information on said media and rotational means disposed in alignment with said first and third openings for engaging said media and imparting rotational motion thereto.

4,272,796

AUTOMATIC CASSETTE CLEANER

Rudolf Van Kreuningen, Torrance, and Dan O. Ray, Rowland Heights, both of Calif., assignors to Kraco Enterprises, Inc., Compton, Calif.

Filed Jun. 29, 1979, Ser. No. 53,299
Int. Cl.³ G11B *5/41*
U.S. Cl. 360—128 **7 Claims**



1. For use with a cassette tape deck which moves recording tape in a standard cassette in a path adjacent to and past a play and/or record tape head, an apparatus for cleaning the tape head utilizing power from the tape transport means of the cassette tape deck, comprising:

a frame;

an arm having a first end terminating nearly adjacent to the tape head;

a cleaning pad attached to said first end of said arm adapted to wipe across said tape head;

pivot means for pivotally supporting said arm within said frame about a pivot point to allow motion of said cleaning pad both parallel to and perpendicular to the tape path; and

driving means for effecting reciprocal motion of said arm parallel and perpendicular to the tape path.

4,272,797

FAST RECOVERY PEAK DETECTOR

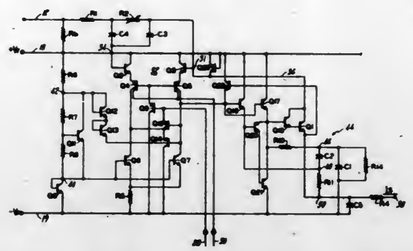
Edward K. Howell, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,460
Int. Cl.³ H02H *3/08*
U.S. Cl. 361—93 **10 Claims**

1. In a circuit breaker static trip unit having at least one current transformer for developing a secondary winding current proportional to a distribution circuit phase current flowing in its primary, a rectifier for rectifying the secondary current, a burden resistor and a power supply connected in series across the outputs of the rectifier for developing an undulating DC signal voltage across the burden resistor referenced to a regulated DC supply voltage developed by the power supply; a peak detector comprising, in combination:

A. a differential amplifier having a first input, a second input connected to one end of the burden resistor at its junction with the power supply to receive the regulated supply voltage, and an output;

B. a resistor connecting the other end of the burden resistor at its junction with one output of the rectifier to said first input of said amplifier; and



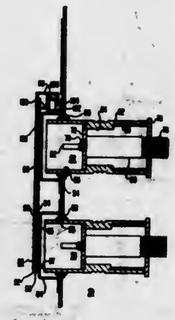
C. peak detecting means connected as a DC negative feedback network between said output and first input of said amplifier, said peak detecting means including a first capacitor and means responsive to the amplifier output voltage for charging said first capacitor to a voltage proportional to the peak amplitude of said output voltage, said first capacitor voltage producing a DC current signal at a peak detector output terminal which is equal to the signal voltage peak amplitude divided by the resistance of said resistor.

4,272,798

COMPOSITE GROUNDABLE BARRIER FOR SWITCHGEAR AND GROUNDING APPARATUS

Carl R. Merola, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 25, 1979, Ser. No. 88,307
Int. Cl.³ H02B *1/04*
U.S. Cl. 361—345 **16 Claims**



1. Electrical apparatus, comprising:

(a) electrically grounded support means;

(b) a stationary electrical contact means disposed on said support means in a disposition to be contacted only from a point within a limited three-dimensional angular range;

(c) movable electrical contact means for being selectively disposed in a disposition of engagement with said stationary contact means or not, said engagement coming from a point within said range;

(d) movable composite barrier means movably disposed upon said support means for being actuated to a first position to insulate said stationary contact means from any point within said range when said movable contact means is not in a disposition of engagement therewith, and for being actuated to a second position to allow said engagement of said stationary contact means with said movable contact means, said composite barrier means comprising electrically insulating material for that portion thereof which is closest to said stationary contact means when said barrier means is in said first position and electrically conducting material which is spaced from said stationary contact means by said insulating material, said electrically conducting material having a contact thereon for being grounded when said barrier means is in said first position to thus interpose the electrical potential of ground between said stationary contact means and any point in said range, said electrically conducting material being ungrounded when said barrier means is in said second position to thus reduce the tendency to interact electrically with said engaged stationary contact means and said movable contact means;

(e) actuating means for moving said barrier means; and

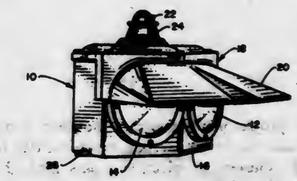
(f) grounding means including an electrical conductor and an actuating-means-actuated contact means for connecting said support means to said conductor at a time which is generally concurrent with said contact on said barrier means being connected to said conductor for thus grounding said conducting material when said barrier means is in said first position, said latter two separate connections both being disconnected when said barrier means is in said second position.

4,272,799

SURFACE FLOODLIGHT ASSEMBLY

James R. Downing, 10218 Donna Ave., Northridge, Calif. 91324

Filed Jan. 29, 1979, Ser. No. 7,073
Int. Cl.³ F21L *11/00*; F21V *1/00, 7/02*
U.S. Cl. 362—145 **12 Claims**



1. A surface lighting assembly for non-glare illumination of helicopter landing pads comprising:

a housing;

mounting means for mounting said housing around the peripheral surface of said landing pad;

cover means for covering said housing;

omnidirectional light means on said housing for providing a perimeter marking light;

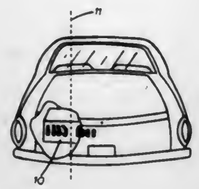
a pair of adjacent faces in said housing angled backward with respect to one another;

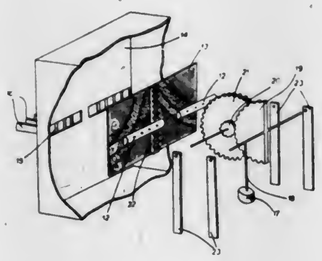
a pair of floodlights mounted in said adjacent faces; the angle of said adjacent faces being such that the respective axes of said floodlights are at approximately 40° to one another;

said pair of floodlights selected to cooperate to produce a beam of maximum illumination over a horizontal beam width of approximately 90°; and

limiting means for limiting the maximum vertical divergence of light to approximately less than about 10°, whereby maximum illumination is provided over the surface area of a helicopter pad with a minimum direct glare to the helicopter pilot.

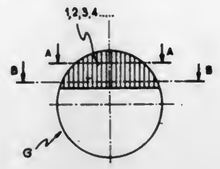
4,272,800
SAFE-SPEED INDICATOR SYSTEM
Rolin K. Asatourian, 20231 Brightwood Ct., Yorba Linda, Calif. 92686
Filed Sep. 1, 1978, Ser. No. 938,816
Int. Cl.³ F21V *13/00*; B60Q *1/00*
U.S. Cl. 362—242 6 Claims





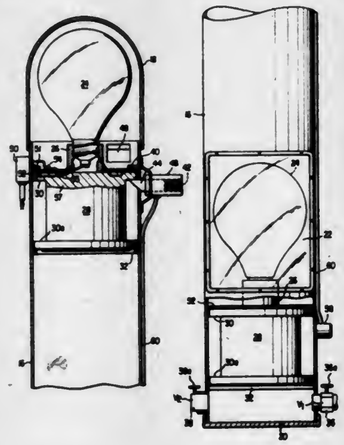
1. A light projector comprising a housing, a plurality of white light sources; a transparency means located in front of the said light sources to selectively pass through different colors of the white light radiating from the said light sources; a color selector means having windows through which only a selected set of colors of the said transparency means can be observed; a plurality of convergent lenses positioned at a focal distance from the said transparency means to produce parallel beams of light of the colors selectively uncovered by the said color selector means, said parallel beams being projected by the said plurality of lenses on left and right hand sides of the said projector at different converging projection angles, such that a beam projected from one such lens on one side intersects with each of the beams projected from other lenses on the other side of the said projector at predetermined distances thereof, the weight of the said transparency means being supported by a weight, through a spur-gear assembly, the said weight being suspended in a manner to allow for its swing when the said housing is decelerated or accelerated, the said swing of the said weight being translated through the said spur-gear assembly to a displacement of the said transparency means, resulting in uncovering of a new set of colors in the said transparency means and projection of each of the said new uncovered colors by one of the said lenses whose projection angle is different from the projection angle of the lens projecting the said color in fixed-speed motion of the said projector.

4,272,801
MOTOR VEHICLE HEAD LAMP LENSES HAVING LIGHT DEFLECTING RIBS
Hector Fratty, Boulogne, France, assignor to Cibie Projecteurs, Bobigny, France
Filed Jun. 1, 1979, Ser. No. 44,821
Claims priority, application France, Jun. 9, 1978, 78 17312
Int. Cl.³ F21V *5/00*
U.S. Cl. 362—336 3 Claims



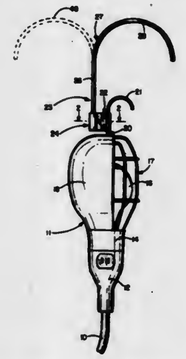
1. A lens for a motor vehicle headlight having a series of substantially vertical ribs,
each rib having a cross-sectional shape, in any selected horizontal plane, in the form of a circular arc,
the radius of curvature of the circular arc varying continuously along the length of each rib, and
the width of each rib being substantially constant along its length,
whereby the lateral spread of rays of light passing through the lens varies continuously from one end of each rib to the other and the series of ribs together produces a vertical displacement of the light passing through the lens.

4,272,802
TOWER LIGHT SYSTEM
Rufus P. Steadman, Rte. 2, Box 249, Middleton, Tenn. 38052
Filed Jan. 23, 1979, Ser. No. 5,757
Int. Cl.³ B60Q *1/06*
U.S. Cl. 362—385 9 Claims



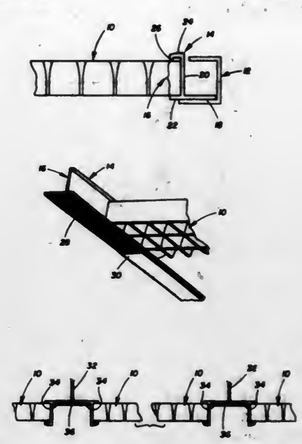
1. In a composite assembly of an elevated tower or other elevated and stabilized structure carrying an energizable warning fixture, as a light or other signal, at the top portion thereof; the provision of an auxiliary assembly including a substantially sealed tubing arrangement along substantially the length of the elevated structure in supported association therewith, a carriage carrying the warning fixture and disposed within said tubing arrangement as a piston with a sliding friction fit therewith for movement along the length thereof from a lower accessible position permitting replacement, repair of other servicing of the fixture, to an elevated upper position with the fixture in operative location relative to the elevated structure, force applying means reactive with the carriage for moving the carriage and included fixture from the lower position to the upper position and with permissive selective lowering thereof to the lower position, and means for effecting connection of the warning fixture to a source of energization therefor for operation of the warning fixture at the upper operative position thereof.

4,272,803
ADJUSTABLE TROUBLE LAMP SUPPORT
Alton L. Johnson, 1280 Eustis St., St. Paul, Minn. 55108
Filed Mar. 19, 1979, Ser. No. 21,509
Int. Cl.³ H01K *5/00*
U.S. Cl. 362—399 12 Claims



1. An adjustable trouble lamp comprising:
elongated electrical cord means;
handle means;
socket means secured to said handle means and to which said cord means is conductively connected, said socket means being for the purpose of conductively receiving a conventional bulb means;
conventional lamp guard cage means attached to said handle means for the protection of said bulb means;
a reflector surrounding part of the cage means for directing light from the bulb means in a particular direction;
an elongated rod member attached to said cage means on the end opposite said handle means and protruding a short distance therefrom;
a support comprising a hook including a curved section and a substantially straight shank section;
friction swivel means pivotally connected to the shank section of said hook; and
clamping bracket means fixedly attached to said friction swivel means and clamping said support to said elongated rod member,
the hook being sufficiently large that the transverse distance from the line of attachment of the support to said elongated rod member to the outermost periphery of the hook is larger than the transverse distance from said line of attachment to the outermost periphery of the trouble lamp cage at any angular position of the trouble lamp cage.

4,272,804
LIGHTING PANEL TRIM ELEMENT
Harold G. Blum, St. Charles, Mo., assignor to Keller Craft Plastic Products, Inc., Fenton, Mo.
Filed Mar. 19, 1979, Ser. No. 21,507
Int. Cl.³ F21V *17/04*
U.S. Cl. 362—408 7 Claims

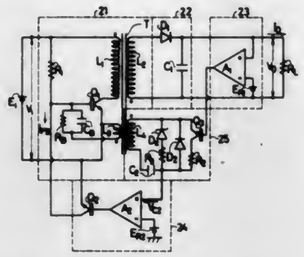


1. Elongated one-piece plastic lighting panel trim elements for attachment to each of the outer marginal edges of a thick cellular lighting panel to facilitate mounting the lighting panel in a ceiling suspended lighting panel frame without routing the marginal edges of the lighting panel, said lighting panel trim elements being peripherally mounted on each outer marginal edge of the lighting panel, each lighting panel trim element having a throat section for receiving the top, side and bottom marginal edges of the thick cellular lighting panel, each lighting panel trim element also having a horizontal wall section integral and in direct line with the throat bottom wall section and extending outwardly from the lighting panel for mounting the lighting panel relative to the ceiling suspended lighting panel frame, and said lighting panel trim elements each also having a flexible top wall lip portion for securing the lighting panel within the throat sections of the lighting panel trim elements.

4,272,805
SWITCHING REGULATOR PROVIDED WITH CHARGE-DISCHARGE CIRCUIT HAVING OVERCURRENT PROTECTING FUNCTION AND SOFT-START FUNCTION
Yasuhide Iguchi, Tsuruoshima, and Tsutomu Koike, Higashimotoyama, both of Japan, assignors to Teko, Inc., Tokyo, Japan
Filed Aug. 13, 1979, Ser. No. 66,428
Claims priority, application Japan, Aug. 25, 1978, 53-103395
Int. Cl.³ H02M *3/335*
U.S. Cl. 363—19 2 Claims

1. A switching regulator comprising:
an oscillator circuit for chopping a DC voltage supplied from an input power source to thereby drive a transformer having at least a primary winding, secondary winding and at least one or more additional windings;
a rectifier circuit for rectifying an AC output voltage derived from said transformer;
an error amplifier circuit for comparing a DC output voltage derived from said rectifier circuit with a first reference voltage to thereby provide an output corresponding to the deviation of said DC output voltage from said first reference voltage;
a charge-discharge circuit including a capacitor connected

to one of said additional windings, said charge-discharge circuit being arranged so that said capacitor is charged with a voltage induced in said one additional winding in such a manner that the polarity of charges stored in said capacitor when the oscillation of said oscillator is in ON state, becomes opposite to the polarity of the charges stored in said capacitor when the oscillation is in OFF state, the discharge time constant of said charge-discharge



circuit being variable with the output of said error amplifier circuit; and

a control circuit adapted, when the oscillation is in ON state, for comparing the voltage across said capacitor with a second reference voltage and for applying to the base of a switching transistor a trigger signal for causing the oscillation operation to be switched from the ON state to the OFF state only when the voltage across the capacitor exceeds the second reference voltage.

4,272,806

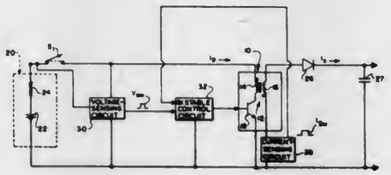
DC TO DC CONVERTER ADJUSTABLE DYNAMICALLY TO BATTERY CONDITION

Lenard M. Metzger, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 8, 1979, Ser. No. 47,530

Int. Cl.³ H05B 41/32; H02M 3/335; H02J 7/00

U.S. Cl. 363—21 **6 Claims**



1. In a DC to DC converter adapted to be energized by a battery, the battery having a load voltage that varies directly as a function of its open-circuit voltage and inversely as a function of its internal resistance, said converter comprising a transformer including a first winding and a second winding, and a switch for interrupting battery current to said first winding to cause current to flow in said second winding, the improvement comprising:

(a) voltage-sensing means, coupled to the battery, for sensing (1) the battery open-circuit voltage when battery current to said first winding is interrupted, and (2) the battery load voltage when battery current flows to said first winding; and

(b) voltage-comparator means, coupled to said voltage-sensing means and said switch, for comparing the battery open-circuit voltage with the battery load voltage and for causing said switch to interrupt current in said first winding when the battery load voltage is less than a predetermined percentage of the battery open-circuit voltage, whereby the energy drawn from the battery when current flows to said first winding varies in direct proportion to the open-circuit voltage and in inverse proportion to the internal resistance of the battery.

4,272,807

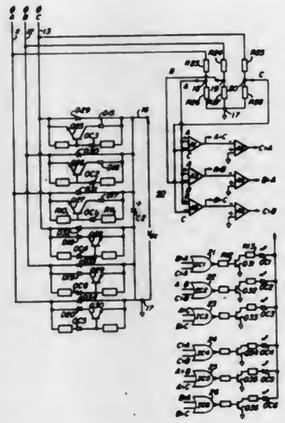
REGENERATIVE DC POWER SUPPLY

Gerard A. Gallagher, Pittsburgh, Pa., assignor to Contraves Goerz Corporation, Pittsburgh, Pa.

Filed Jul. 20, 1979, Ser. No. 59,400

Int. Cl.³ H02M 7/06

U.S. Cl. 363—126 **8 Claims**



1. A regenerative DC power supply operable from an AC line comprising:

an input connected to the AC line;

an output connected to a DC bus;

a plurality of rectifier devices connected between the input and the output to provide full wave rectification at the output;

a transistor switching circuit connected in anti-parallel with each of said plurality of rectifiers; and,

control means controlling each transistor switching circuit for conduction during an appropriate time period to conduct regenerative power from the DC bus to the AC line.

4,272,808

DIGITAL GRAPHICS GENERATION SYSTEM

William F. Hartwig, St. Paul, Minn., assignor to Sperry Corporation, New York, N.Y.

Filed May 21, 1979, Ser. No. 40,610

Int. Cl.³ G06F 3/153, 15/31

U.S. Cl. 364—718 **6 Claims**

1. Signal generating means for generating signals corresponding to the x, y coordinates of a plurality of selected resolution points of an image displayed by said system, comprising:

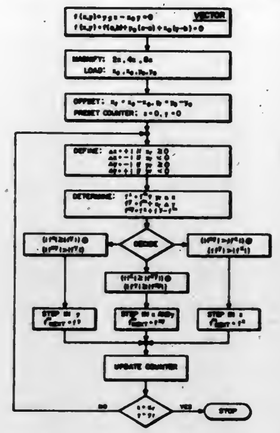
first means for storing the x, y coordinates of a current one of said selected resolution points;

second means coupled to said first means for performing the Taylor's expansion of the function corresponding to said image at said current resolution point and at a plurality of resolution points incrementally displaced from said current resolution point and determining a plurality of values, each of said values associated with a respective one of said plurality of incrementally displaced resolution points;

third means coupled to said second means for comparing said plurality of values to determine that value which has the smallest absolute magnitude;

fourth means coupled to said first and third means for incrementing or decrementing the x, y coordinates of said

current resolution point to establish the x, y coordinates of the next selected resolution point on said image, and next



resolution point corresponding to the incrementally displaced resolution point having the smallest magnitude determined by said third means.

4,272,809

CHANNEL DEVICE

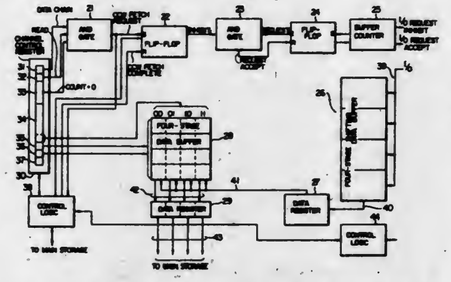
Yoshihiko Kadowaki, Hadano, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 16, 1978, Ser. No. 961,245

Claims priority, application Japan, Nov. 16, 1977, 52-136677; Feb. 1, 1978, 53-9268

Int. Cl.³ G06F 3/00

U.S. Cl. 364—900 **7 Claims**



1. A channel device for executing data transfer between I/O device and a main storage unit in accordance with a channel command word read out from said main storage unit, said main storage unit having an access width which is n times as large as a width of data transferred from said I/O device, comprising:

a first data buffer including a plurality of groups of n data storage positions each having a data width which is equal to the width of said data transferred from said I/O device;

a second data buffer including a plurality of data storage positions each having a data width which is equal to the width of said data transferred from said I/O device;

first data input means connected between said I/O device and said second data buffer for inputting a transferred data from said I/O device into a selected one of the data storage positions of said second data buffer;

data storage position designation means connected to said first data buffer for designating a selected one of the data storage positions of said first data buffer in accordance with a data address part of said channel command word;

second data input means connected between said first and second data buffer for reading out data from a selected one of the data storage positions of said second data buffer in which a data is stored by said first data input means and then inputting said data into the selected one of the data storage positions of said first data buffer, which are designated by said data storage position designated means; and

means connected between said first data buffer and main storage unit for reading out a data from a selected one of the data storage position groups of said first data buffer in which a data is stored by said second data input means and then transferring said data to said main storage unit.

4,272,810

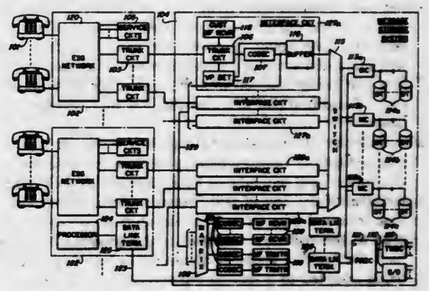
ARRANGEMENT FOR DELETING TRAILING MESSAGE PORTIONS

Geoffrey W. Gates, Woodridge, and Garry D. Kepley, Wheaton, both of Ill., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 21, 1978, Ser. No. 972,074

Int. Cl.³ H04M 1/64; G06F 7/22

U.S. Cl. 364—900 **8 Claims**



1. A message storage system wherein a message comprises a plurality of sequential message segments each containing message information signals and wherein trailing message segments, representing final segments of said message, which are devoid of significant message information signals are eliminated from said message, said message storage system comprising:

input means (106, 107, 116);

storage means (114*a* through 114*n*) for storing message segments comprised of message information signals;

detection means (117) connected to said input means for detecting significant message information signals received by said input means and for generating a message present signal during periods of time when significant message information signals are detected;

connection means (113*a* through 113*n* and 115) for connecting said input means and said storage means;

CHARACTERIZED IN THAT

said connection means comprises:

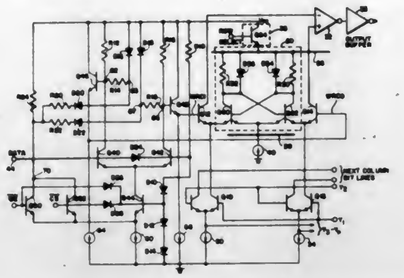
means (310, 311) responsive to said message present signal for generating output signals defining message segments in which significant message signals are not detected; and

processor means (203) connected to said storage means and responsive to said output signals for writing control signals, indicating that no significant message information signals are stored therein, into storage locations of said storage means corresponding to message segments defined by said output signals, said processor means responsive to said means for generating output signals for eliminating from said storage means those message segments which are devoid of significant message signals.

4,272,811
WRITE AND READ CONTROL CIRCUIT FOR SEMICONDUCTOR MEMORIES

Thomas S. Wong, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 15, 1979, Ser. No. 84,943
Int. Cl.[3] G11C 7/00
U.S. Cl. 365—190 10 Claims

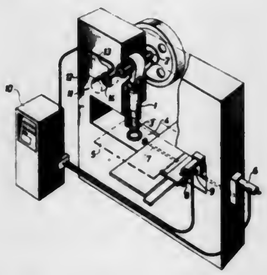


1. In an array of semiconductor memory cells, a write and read control circuit comprising:
- a first pair of transistors having their emitter terminals coupled to a first current source, a base terminal of a first of said first pair being disposed for receiving data to be written in said array and a base terminal of a second of said first pair being coupled to a first reference potential, and each of said first pair of transistors having collector terminals;
- a second pair of transistors having their collector terminals coupled to a second reference potential, the base terminal of a first of said second pair being coupled to the collector terminal of the first of said first pair of transistors and the base terminal of a second of said second pair being coupled to the collector terminal of the second of said first pair, the emitter terminal of the first of said second pair being coupled to a second current source and forming a first output of said circuit, and the emitter terminal of the second of said second pair being coupled to a third current source and forming a second output of said circuit; and,
- a pair of bias voltage means coupled to the base terminals of each of said second pair of transistors.

4,272,812
NUMERICAL CONTROL APPARATUS FOR STEPPED FEEDING AT PUNCH AND NIBBLING MACHINES

Sven L. I. Svensson, Tegelvägen 61, 723 48 Västerås, Sweden

Filed Apr. 25, 1979, Ser. No. 33,228
Claims priority, application Sweden, Apr. 26, 1978, 7804806
Int. Cl.[3] G06F 15/46; B26D 5/20; B23D 27/00
U.S. Cl. 364—475 7 Claims

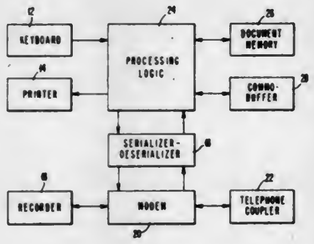


1. A numerically controlled nibbling machine comprising a fixed tool, a punching tool cooperating with said fixed tool, means including crank mechanism having a crankshaft for cyclically reciprocating said punching tool relative to said fixed tool between a working position and a release position, step feeding means for moving a workpiece step-by-step between said fixed tool and said punching tool while said punching tool is in release position, computer means controlling said feeding means, means for generating a multiplicity of pulses each revolution of said crankshaft, said pulse generating means comprising a rotor rotatable with said crankshaft and having a multiplicity of angular zones each representing a small angle of rotation of said crankshaft and a sensor for detecting passage of said zones as said rotor rotates to generate said pulses, means for feeding said pulses and information of the thickness of said workpiece to said computer means, said computer means being programmed to send a control signal to said step feeding means for blocking the workpiece feed movement when the number of pulses transmitted to said computer following top dead center, as a reference, corresponds to a first angular position of said crankshaft in which said punching tool just clears a workpiece of predetermined thickness, and subsequently to send a control signal to said feeding means for resumption of workpiece feed movement when the number of additional pulses transmitted to said computer corresponds to a second angular position of said crankshaft in which said punching tool again just clears said workpiece of predetermined thickness after having engaged said workpiece.

4,272,813
COMMUNICATING TYPEWRITER AND DICTATION SYSTEM UTILIZING ANALOG RECORDING AND TRANSMISSION TECHNIQUES

Dan M. Howell; Robert A. Kolpek, and William M. Schuller, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 2, 1979, Ser. No. 26,251
Int. Cl.[3] G06F 1/00; G11B 31/00; H04M 11/00
U.S. Cl. 364—900 14 Claims

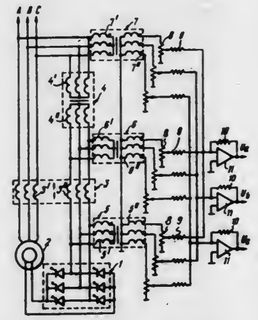


1. A type recording and communications system comprising:
- a keyboard;
- means for generating digital signals in response to selective keyboard depressions;
- a memory means for storing the digital signals;
- means for printing human understandable patterns corresponding to the digital signals;
- a recording means for storing analog signals; said recording means being capable of recording audio voice and audio tone signals;
- means for providing communication of audio tone signals between said type recording and communications system and a remote system;
- means for converting the digital signals corresponding to the selective keyboard depressions into audio tone signals suitable for recording by said recording means;
- means for converting audio tone signals from said recording means into corresponding digital signals suitable for storage in said memory means;
- means operatively connecting said means for converting digital signals and said means for converting audio tone signals between said recording means for storing analog signals and said means for providing communication to convert audio tone signals to be transmitted to said remote system to digital signals and reconvert the digital signals to audio tone signals to eliminate distortion from the recorded analog tone signals.

4,272,814
APPARATUS FOR COMPENSATION OF COMMUTATION DIPS IN SYNCHRONIZING VOLTAGE CURVES

Vladilen G. Nakrokhin, ulitsa Baumana, 32a, kv. 9, and Vladimir M. Katunin, ulitsa Shefskaya, 30, kv. 8, both of Sverdlovsk, U.S.S.R.

Filed Oct. 15, 1979, Ser. No. 84,724
Int. Cl.[3] H02M 1/08
U.S. Cl. 363—129 1 Claim

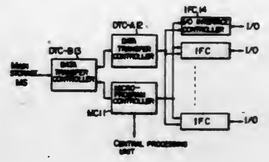


1. An apparatus for compensation of commutation dips in an excitation system of a synchronous machine with a thyristor converter and a matching transformer, comprising:
- three measuring transformers implemented as voltage transformers, each of said measuring transformers having primaries and secondaries equal in number to the number of phases of said thyristor converter, first ends of said primaries of first and second measuring transformers being coupled respectively to primaries and secondaries of said matching transformer in antiphase relation to each other, first ends of said primaries of a third measuring transformer being coupled to the arms of said thyristor converter in antiphase relation to said primaries of said second measuring transformer, second ends of said primaries of said measuring transformer being coupled to one another, said secondaries of said measuring transformers being connected in cophasal relation to one another, and first ends of said secondaries of said measuring transformers being joined together to constitute a common point;
- adjusting resistors with movable contacts, second ends of said secondaries of each of said measuring transformers being coupled to a respective adjusting resistor;
- operational amplifiers equal in number to the number of phases and adding the voltages relating to the corresponding phases of said thyristor converter; and
- scaling resistors providing for the preset transfer ratios of said operational amplifiers, said movable contact of each of said adjusting resistors being connected in phase relation to the inputs of the corresponding operational amplifier via said scaling resistors.

4,272,815
CHANNEL CONTROL SYSTEM FOR CONTROLLING DATA TRANSFER THROUGH A PLURALITY OF CHANNELS WITH PRIORITY ASSIGNMENT

Yoshihiko Kadowaki; Hiroya Okuda, and Takashi Morikawa, all of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 12, 1979, Ser. No. 3,092
Claims priority, application Japan, Jan. 20, 1978, 53-4381
Int. Cl.[3] G06F 3/00
U.S. Cl. 364—200 5 Claims



1. A channel control system for controlling data transfer through a plurality of channels, comprising:
- channel data buffer storage means having a plurality of storage positions for storing data transferred through said channels, each of said storage positions storing data for each of said channels;
- channel control register means having a plurality of storage positions for storing data transfer control information, each of said storage positions storing data transfer control information for each of said channels;
- selection means for accepting selectively one of a plurality of data transfer requests in said channels and for issuing the number identifying the accepted channel;
- stage control means including series-connected stage control units for performing simultaneously separated processings for different channels, wherein said channel identifying number issued from said selection means is received at the first one of said stage control units and control operation is shifted sequentially from the first one to the last one of said stage control units;
- channel control register control means for making reference to and updating the contents of said channel control register means in response to the channel identifying number from at least one of said control units;
- channel data buffer storage control means for performing read-out/write-in operations of data for said channel data buffer storage means in response to the channel identifying number from at least one of said stage control units; and
- means for performing data transfer with said channel data buffer storage control means in response to the channel identifying number from at least one of said stage control units.

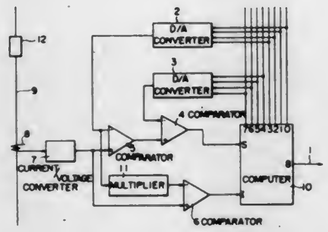
4,272,816
OVERCURRENT PROTECTING APPARATUS

Yoshihiro Matsumoto, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Apr. 23, 1979, Ser. No. 32,604
Claims priority, application Japan, Apr. 27, 1978, 53-49312; Apr. 27, 1978, 53-49324
Int. Cl.[3] G06F 15/20
U.S. Cl. 364—483 8 Claims

1. An overcurrent protecting apparatus for interrupting

overcurrent flowing through an electric power line in accordance with a current/time characteristic, comprising a microcomputer, a current/voltage converter for converting a current flowing through said power line into a voltage, D/A converting means for converting an output of said microcomputer into a voltage, comparator means connected to compare the output of said current/voltage converter with the output of said D/A converting means, and to deliver an output to a first input of said microcomputer when the output of said current-/voltage converter exceeds the output of said D/A converting means, and a separate comparator connected to compare the output of said current/voltage converter with a reference voltage indicative of a current value to be interrupted instantaneously and to deliver an output to a second input of said microcomputer when the output of said current/voltage converter exceeds said reference voltage, said microcomputer including means for storing current values and time values corresponding to said current/time characteristic, means for delivering outputs indicative of current values sequentially, starting from the highest value to the lowest value, to the input of said D/A converting means until an input is received at said first input, means for reading out a time value corresponding to the current value causing the receiption of said first input, and means for delivering a tripping instruction after expiration of said time value when said first input is received in the microcomputer, and for delivering said tripping instruction immediately when said second input is received.

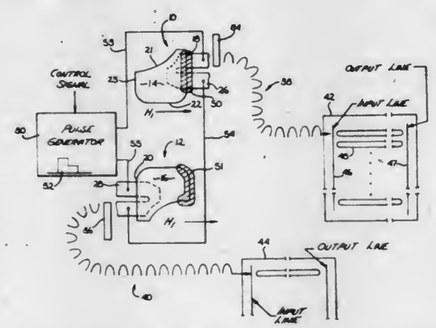


4,272,817

MULTIPLEXED SINGLE WALL DOMAIN GENERATORS

Donald K. Rose, Palo Alto, Calif., assignor to Intel Magnetics, Inc., Santa Clara, Calif.

Filed Apr. 2, 1979, Ser. No. 25,848
Int. Cl.[3] G11C *19/08*
U.S. Cl. 365—12 10 Claims



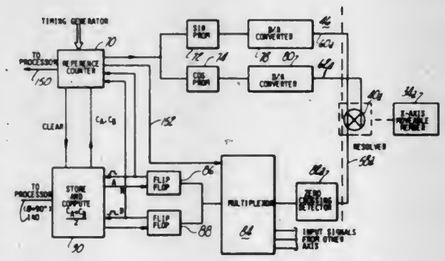
1. In a magnetic apparatus which includes a layer of magnetic material in which single wall domains are moved, an improved domain generation system comprising:
first and second generation means, each for generating domains, electrically coupled in series;
first propagation means for directing domains away from said first generation means, said first propagation means having a first orientation with respect to said first generation means; and,
second propagation means for directing domains away from said second generation means, said second propagation means having a second orientation with respect to said second generation means, said second orientation being opposite direction from said first orientation;
whereby said first and second generation means may be coupled to the same signal source to generate two independent streams of domains.

4,272,818

POSITION FEEDBACK CONTROL SYSTEM FOR A NUMERICALLY CONTROLLED MACHINE TOOL

George H. McDaniel, Northville, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 19, 1979, Ser. No. 59,015
Int. Cl.[3] G05B *1/03, 19/19*
U.S. Cl. 364—118 15 Claims



1. A feedback position control system controlling the displacement of at least one movable member of a numerical control apparatus and further having transducer means, responsive to excitation signals, operatively connected to each movable member for generating an output signal having a cyclically recurring phase relationship with respect to the excitation signals that is correlatable with the displacement of the at least one movable member, the feedback position control system comprising:
command means for generating a command signal indicative of the desired position of the at least one movable member;
feedback means for generating a feedback signal indicative of the motion of said at least one member comprising:
phase detecting means for determining the phase of said output signal relative to a determinable reference irrespective of the d.c. bias level of the output signal;
conversion means for converting said determined phase into a first signal indicative of the motion of said at least one movable member during a particular cycle of said output signal; and wherein said system further includes
comparator means for comparing said command signal and said feedback signal and for generating an error signal for driving said at least one member to the desired position.

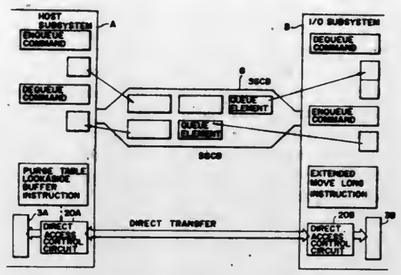
4,272,819

INTER-SUBSYSTEM DIRECT TRANSFER SYSTEM

Yutaka Katsumata, Inagi; Mitsuru Sasagi, and Hideo Tanaka, both of Yokohama, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Mar. 26, 1979, Ser. No. 24,032
Claims priority, application Japan, Mar. 31, 1978, 53-37920
Int. Cl.[3] G06F *15/16*
U.S. Cl. 364—200 10 Claims

1. An inter-subsystem direct transfer system for inter-subsystem communication between plural subsystems, said direct transfer system having a communication queue enqueued with queue elements by one of said subsystems selected as a source subsystem and dequeued by another one of said subsystems selected as a destination subsystem, each said subsystem having a respective processor and a respective memory, the processor of each said subsystem connected to the memory and to a respective part of said direct transfer system comprised in the same subsystem as the processor, said direct transfer system comprising



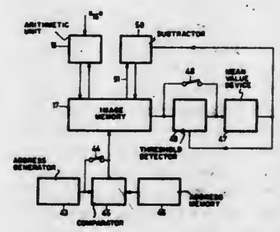
direct memory access means located at least in part in each said subsystem for permitting each said destination subsystem to directly access a memory of said source subsystem, and
means for each said source subsystem to insert into respective ones of said queue elements memory access information necessary for said direct accessing of the memory of said source subsystem by said destination subsystem.

4,272,820

METHOD OF AND DEVICE FOR REDUCING ARTEFACTS IN COMPUTED TOMOGRAPHY IMAGES

Peter Lax, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 4, 1978, Ser. No. 966,453
Claims priority, application Fed. Rep. of Germany, Dec. 7, 1977, 2754361
Int. Cl.[3] G01N *23/00*
U.S. Cl. 364—414 7 Claims



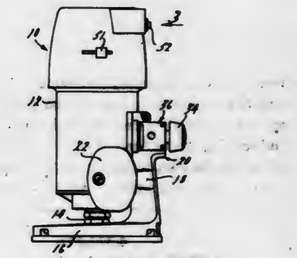
1. A method for producing a corrected image, with reduced artefacts, from an uncorrected image obtained by the methods of computed tomography, the uncorrected image consisting of a reconstructed object image and an outer region which surrounds the object image, comprising the steps of:
scanning a layer of an object with radiation which penetrates the object so that the object, as well as a region surrounding the object, is irradiated in a large number of directions by radiation beams situated in the layer;
detecting the radiation to produce measuring data which characterizes the absorption of each radiation beam along corresponding measuring paths;
deriving image data, which represents the absorption in elements of the uncorrected image, from the measuring data; and subsequently
reducing artefacts which cross the uncorrected reconstruction image in the form of straight strips by:
deriving error signals from data elements in the outer region which lie along each measuring path and
subtracting the error signals from each individual element of the uncorrected image associated with that measuring pair.

4,272,821

DIGITAL BLADE ADJUSTMENT READ-OUT FOR A PORTABLE POWER TOOL

Robert Bradus, Randallstown, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Sep. 18, 1979, Ser. No. 76,705
Int. Cl.[3] G06F *15/46*; B27C *5/10*; G01B *7/26*
U.S. Cl. 364—475 11 Claims



1. A digital read-out system for a portable power tool having a cutting implement and adjustment means for varying the position of the cutting implement, comprising:
(a) position encoder means connected to the adjustment means for producing a position signal related to the movement effected by the adjustment means,
(b) orientation means connected to the tool for producing a signal related to the orientation of the tool with respect to a reference plane,
(c) computer means responsive to the position signal and to the orientation signal for calculating the amount of adjustment relative to a reference position and for controlling the orientation of the read-out, and
(d) digital display means operatively connected to the computer means for indicating the amount of adjustment in a display oriented with respect to the reference plane regardless of the orientation of the tool.

4,272,822

APPARATUS FOR CONVERTING A MECHANICAL DISPLACEMENT TO AN ELECTRICAL SIGNAL

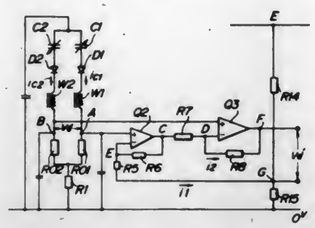
Takeshi Yasuhara, and Keiichiro Tago, both of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Aug. 8, 1979, Ser. No. 64,798
Claims priority, application Japan, Aug. 17, 1978, 53-99546
Int. Cl.[3] G12B *1/00*
U.S. Cl. 364—481 6 Claims

1. Converting apparatus comprising:
displacement detecting means including first and second capacitors having, respectively, first and second capacitances which differentially change in response to a mechanical displacement applied thereto, and means for coupling an oscillating source for supplying a predetermined AC signal to said first and second capacitors, said displacement detecting means producing a sum signal proportional to the sum of said first and second capacitances and a difference signal proportional to the difference between said first and second capacitances;
a first converting circuit receiving the sum signal from said displacement detecting means, said first converting circuit converting said sum signal into a pulse signal with a duty

ratio corresponding to the sum of said first and second capacitances;

a second converting circuit receiving the difference signal from said displacement detecting means, said second converting circuit converting said difference signal into a voltage corresponding to the difference between said first and second capacitances; and



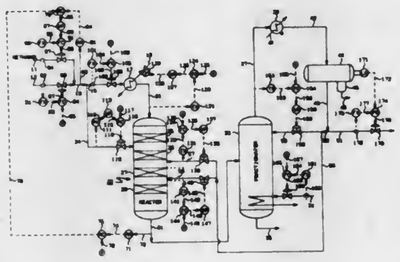
a third converting circuit receiving said pulse signal from said first converting circuit and said voltage from said second converting circuit, said third converting circuit multiplying the reciprocal of said duty ratio by said voltage to produce an output signal corresponding to the ratio of said difference signal to said sum signal.

4,272,823

CONTROL SYSTEM FOR A REACTOR

Joe V. Pool, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 26, 1979, Ser. No. 88,716
Int. Cl.³ G06G 7/58
U.S. Cl. 364—500 **16 Claims**



1. Apparatus comprising:

a reactor having at least first, second and third catalyst beds in series;

a first heat exchange means;

means for supplying a first portion of a feed stream through said first heat exchange means to said reactor at a point prior to said first catalyst bed;

means for supplying a heating fluid to said first heat exchange means to thereby supply heat to said first portion of said feed stream;

means for supplying a second portion of said feed stream to said reactor at a point after said first catalyst bed but before said second catalyst bed;

means for supplying a diluent fluid stream to said reactor at a point after said second catalyst bed but before said third catalyst bed;

means for establishing a first signal representative of the feed inlet temperature of said first catalyst bed;

means for establishing a second signal representative of the desired feed inlet temperature for said first catalyst bed;

means for comparing said first signal and said second signal and for establishing a third signal responsive to the difference between said first signal and said second signal;

means for manipulating the flow rate of said heating fluid to said first heat exchanger means to thereby maintain the actual inlet temperature of said first catalyst bed substantially equal to the desired inlet temperature for said first catalyst bed;

means for establishing a fourth signal representative of the inlet temperature of said third catalyst bed;

means for establishing a fifth signal representative of the desired inlet temperature for said third catalyst bed;

means for comparing said fourth signal and said fifth signal and for establishing a sixth signal responsive to the difference between said fourth signal and said fifth signal; and

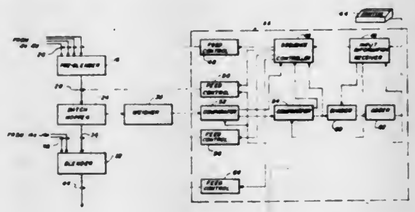
means for manipulating the flow rate of said diluent fluid stream in response to said sixth signal to thereby maintain the actual inlet temperature of said third catalyst bed substantially equal to the desired inlet temperature for said third catalyst bed.

4,272,824

BATCH PRODUCT PREPARATION

Nathan Lewinger, Rochester, and John A. Gillis, Webster, both of N.Y., assignors to Pennant Products, Inc., Rochester, N.Y.

Filed Aug. 17, 1979, Ser. No. 67,415
Int. Cl.³ G05D 11/02
U.S. Cl. 364—502 **6 Claims**



1. In a process for preparing product from a plurality of constituent ingredients wherein said process includes mixing a multiple batch of certain of such ingredients in a receptacle and sequentially dividing and transporting substantially equal portions of said mixed batch to an apparatus for combination with certain other of such ingredients for preparing said product, means for controlling the division of said mixed batch into said substantially equal portions, said control means comprising:

an intermediate chamber in flow communication with said receptacle and said apparatus;

means for substantially transferring a predetermined portion of said mixed batch from said receptacle to said intermediate chamber and thence to said apparatus;

means for weighing said portion of said mixed batch delivered to said intermediate chamber;

means for comparing the weight of said portion of said mixed batch delivered to said intermediate chamber with a predetermined desired portion of said mixed batch to determine any error between said delivered portion and said predetermined desired portion;

means for dividing any such determined error by the remaining number of substantially equal portions of said mixed batch to establish a new desired predetermined portion of said mixed batch; and

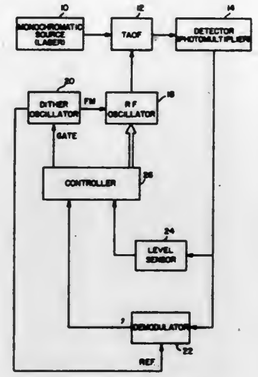
means operatively coupled to said transferring means for adjusting the predetermined portion of said mixed batch to be transferred from said receptacle to said new desired predetermined portion established by said dividing means.

4,272,825

TEMPERATURE COMPENSATION OF TUNABLE ACOUSTIC OPTICAL FILTERS

Leonard M. Smithline, and George J. Wolga, both of Ithaca, N.Y., assignors to Lasing Research Corporation, Ithaca, N.Y.

Filed May 21, 1979, Ser. No. 40,644
Int. Cl.³ G02F 1/135, 1/29; G05B 15/02
U.S. Cl. 364—571 **6 Claims**



2. Apparatus for compensating the tuning curve of a tuning curve being a temperature dependent relationship of the center wavenumber of the TAOF to the frequency of an acoustic beam, said apparatus comprising:

(a) at least one monochromatic source for providing light at a reference wavenumber to the optical input of the TAOF;

(b) photodetector means for providing a signal representing the intensity of light at an optical output of the TAOF;

(c) means for providing a variable frequency acoustic beam to the TAOF;

(d) means for varying the frequency of the acoustic beam to the TAOF in response to the signal representing the intensity of light from the TAOF until the signal is maximized by causing the center wavenumber of the TAOF to coincide with a reference wavenumber, and for holding the frequency of the acoustic beam constant at the point of coincidence; and

(e) means for ratioing the frequency of the acoustic beam to the frequency of an acoustic beam corresponding to the reference wavenumber at a reference TAOF temperature, whereas the acoustic frequency ratio is a function of the temperature of the TAOF, and;

(f) means for storing values representing a tuning curve relationship of the center wavelength of the TAOF and the frequency of an acoustic beam at a reference condition and for modifying said values by the acoustic frequency ratio relationship to correct for the temperature of the TAOF.

4,272,826

ELECTRONIC CALCULATOR

Simon Deutsch, Forest Hills, N.Y., assignor to Peerless Instrument Co., Inc., Elmhurst, N.Y.

Filed Aug. 30, 1979, Ser. No. 71,369
Int. Cl.³ G06F 3/02, 15/02; G04B 19/30
U.S. Cl. 364—709 **18 Claims**

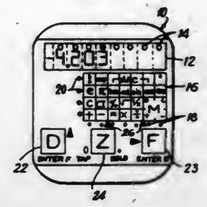
1. A small-size electronic calculator comprising, in combination:

a first section for displaying successive indicia in a first form;

a second section for displaying successive indicia in a second form;

means for electrically connecting said first and second sections in an X-Y matrix;

a plurality of manually operable input keys, the keys including a first stepping key for successively advancing the display of said first form of indicia, and a second stepping key for successively advancing said second form of indicia;



a calculator logic circuit connected to the first and second sections; and

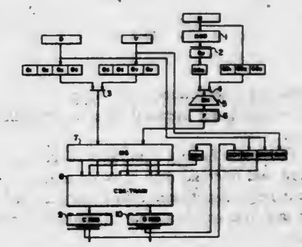
circuit means responsive to the actuation of said second key for entering a selected first form of indicia advanced by said first key in said logic circuit and responsive to the actuation of said first key for entering a selected second form of indicia advanced by said second key in said logic circuit.

4,272,827

DIVISION PROCESSING METHOD SYSTEM HAVING 2N-BIT PRECISION

Norio Inui, Yokohama; Noriaki Kume, and Tetsuro Okamoto, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Continuation-in-part of Ser. No. 816,799, Jul. 18, 1977, abandoned, which is a continuation of Ser. No. 582,362, May 30, 1975, abandoned. This application Mar. 16, 1979, Ser. No. 21,011
Claims priority, application Japan, May 31, 1974, 49-61510
Int. Cl.³ G06F 7/52
U.S. Cl. 364—764 **13 Claims**



1. A method for performing division processing with 2 N-bit precision utilizing only N-bit precision components which perform at least multiplication processing and division processing, wherein the division function to be performed with 2 N-bit precision is expressed as:

$$\frac{C + D \times 2^{-n}}{A + B \times 2^{-n}}$$

(n=N, the number of digit positions in each of the selected binary numbers A, B, C and D) and wherein the answer to said division function is represented by:

$$Q_1 + Q_2 \times 2^{-n}$$

where Q_1 and Q_2 are binary quotients each of N bits; the method comprising the steps of:

approximating said binary quotient Q_1, in accordance with division processing of N-bit precision, to produce a Q_1 approximation which includes an error value;

operating on said Q_1 approximation in accordance with said N-bit precision division processing and in conjunction with said A, B, C and D terms so as to calculate an approximation of said quotient Q_2; and

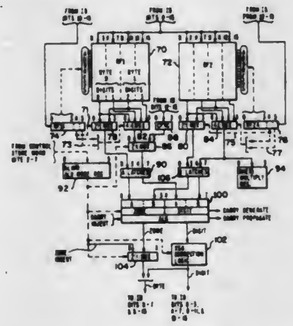
generating said binary quotient Q_1, from said Q_1 approximation in conjunction with said A and C terms, in accordance with N-bit precision division processing.

4,272,828

ARITHMETIC LOGIC APPARATUS FOR A DATA PROCESSING SYSTEM

Virendra S. Negi, Pepperell, and Arthur Peters, Sudbury, both of Mass., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 3, 1979, Ser. No. 842
Int. Cl.³ G06F *7/50*
U.S. Cl. 364—900 **11 Claims**



1. Arithmetic logic apparatus comprising:

A. means for supplying operand data to be arithmetically processed;

B. register file means having a plurality of storage locations for storing said operand data in word units, each of said word units being partitioned into a plurality of byte units and each said byte unit being partitioned into a plurality of digit units;

C. an arithmetic unit for arithmetically processing said operand data;

D. selection means for feeding data stored in said register file means to said arithmetic unit for processing;

E. address means for supplying address data to said register file means for accessing operand data stored therein and for supplying selection data to said selection means for controlling the latter to feed accessed operand data from said register file means to said arithmetic unit in either byte units or digit units; and

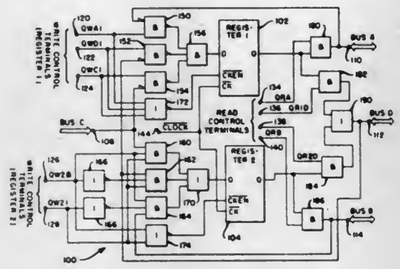
F. control means coupled to said address means for modifying said address data and said selection data in a timed sequence whereby word units of said operand data are selectively accessed in said register file means and fed to said arithmetic unit sequentially in byte units or in digit units for either byte-order processing or digit-order processing.

4,272,829

RECONFIGURABLE REGISTER AND LOGIC CIRCUITRY DEVICE FOR SELECTIVE CONNECTION TO EXTERNAL BUSES

Carson T. Schmidt, San Diego; William P. Ward, Poway, and Rocky M. Y. Young, San Diego, all of Calif., assignors to NCR Corporation, Dayton, Ohio

Filed Dec. 29, 1977, Ser. No. 865,457
Int. Cl.³ G06F *13/00*
U.S. Cl. 364—900 **8 Claims**



1. In a data processing system, a register circuit in the form of an integrated circuit structure for use at each of a plurality of locations in order to reduce the number of different types of integrated circuits in the data processing system, wherein at each location there are external data buses, including

(a) at least one external data bus for transferring data into the register circuit, and

(b) at least one external data bus for transferring data out of the register circuit,

and wherein at each location there is a different number of at least one of

(a) the external data buses for transferring data into the register circuits and

(b) the external data buses for transferring data out of the register circuits,

the register circuit comprising:

(A) at least two multibit registers, each of said two registers for storing a data word or the like and having a data input and a data output;

(B) a plurality of data terminals on the integrated circuit structure for connection to the external data buses, including first and second bi-directional data input/output terminals, each of the first and second bi-directional terminals for connection to an external bi-directional data bus; and

(C) logic means for receiving external control signals and in response selectively connecting said plurality of data terminals to the data inputs and data outputs of said two registers, including means for connecting the first bi-directional data terminal to either one of the data input and data output of both said two registers and connecting the second bi-directional data terminal to either one of the data input and data output of at least one of said two registers, so that the register circuit selectively connects a different number of at least one of

(a) the external data buses for transferring data into the register circuits, and

(b) the external data buses for transferring data out of the register circuits,

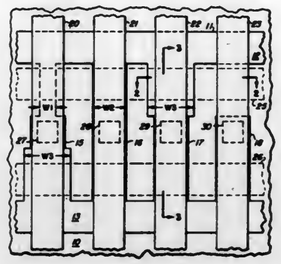
to the data inputs and data outputs of said two registers at each of the plurality of locations in the data processing system.

4,272,830

ROM STORAGE LOCATION HAVING MORE THAN TWO STATES

Jerry D. Moench, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 22, 1978, Ser. No. 972,619
Int. Cl.³ G11C *11/40, 13/00*
U.S. Cl. 365—45 **10 Claims**



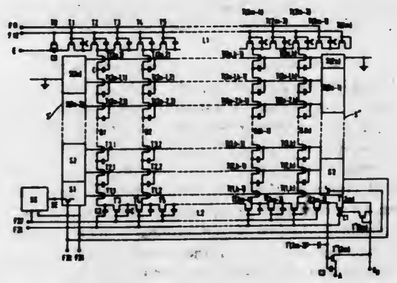
1. A read-only memory array having a plurality of storage locations for storing digital information wherein at least one of the storage locations can contain digital information which can be represented by more than one binary digit, comprising: at least a first field effect transistor having a gate electrode region of a first dimension; and at least a second field effect transistor having a gate electrode region of a second dimension so that the second field effect transistor can conduct more current than the first field effect transistor to provide a storage location containing digital information represented by more than one binary digit.

4,272,831

TWO-DIMENSIONAL ANALOG MEMORY

Manfred F. Ullrich, Denzlingen, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 93,959
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851111
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—45 **2 Claims**



1. Two-dimensional analog memory monolithically integrated with insulated-gate field-effect transistors, operating on the charge-transfer, and more particularly on the bucket-brigade principle, for temporarily storing the signals originating with the two half pictures of a (TV) video signal, wherein:

two partial memories are in such a way multiplexed-operated that, while the one-half picture is being read into the one partial memory, the other half picture as previously read into the other partial memory, is read out of this partial memory,

each partial memory comprises a first series longitudinal chain of series-connected stages of the same design operated by a first pair of clock signals, and transversal chains connected to each of the even-numbered or to each of the odd-numbered stages of the first longitudinal chain, with an equal number n of series-connected stages which are interconnected with respect to the control electrodes of their transistors, as well as a second longitudinal chain of series-connected stages of the same design and operated by a second pair of clock signals, with the even-numbered or odd-numbered stages thereof being connected to the end of each time one transversal chain,

an n-stage shift register of transistors of the same conductivity and control type is moreover associated with each partial memory, in which one stage contains a coupling transistor applied with the one end of the control current path to the information input, a first switching transistor applied with the one end of its controlled current path to the zero point of the circuit, and a second switching transistor, as well as a capacitor (=simple shift register stage), all of which being interconnected in such a way that the series-arranged controlled current paths of both the first and the second switching transistor are applied between the zero point of the circuit and the first clock signal input, that the capacitor is applied between the gate terminal of the second switching transistor and the gate terminals of both the first switching transistor and the coupling transistor being applied in common to the second clock signal input, and in which, alternating in the stages, the first and the second or respectively the second and the first clock signal input are supplied by respectively one of the two parts of a third clock signal pair, and

the n parallel-outputs of the shift register are connected to the corresponding first, second n-th stages of the transversal chains as interconnected with one another, with each time one stage being set in the shift register, with this information being shifted in direction from the second to the first longitudinal chain, controlled by the third pair of clock signals,

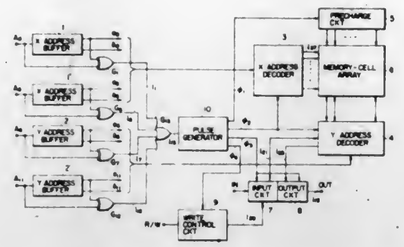
characterized in that:

the two partial memories together with the two associated shift reigsters are in such a way combined on one single semiconductor chip that the analog memory comprises one single first longitudinal chain (L1), 2n-stage transversal chains (Q1, Q2, Q(k−1), Q(k)), one single second longitudinal chain (L2) and one single 2n-stage shift register (S),

merely the first shift register stage(S1) is a shift register stage enlarged by an additional switching transistor (47), a load transistor (50), a by-pass transistor (51) and an additional capacitor (52), with these four additional circuit elements being interconnected in such a way that the series-arranged controlled current paths of both the additional switching transistor and the load transistor (47, 50) will come to lie between the zero point of the circuit and the second clock signal input (49, 49'), that the controlled current path of the by-pass transistor (51) will come to lie in parallel with that of the first switching transistor (45), that the additional capacitor (52) will come to lie between the gate terminal of the by-pass transistor (51) and the zero point of the circuit, that the gate terminal of the additional switching transistor (47) will come to lie at the setting input (SE), that the gate terminal of the load transistor (50) will come to lie at the second clock signal input (49, 49') and that the gate terminal of the by-pass transistor (51) will come to lie at the point connecting both the additional switching transistor and the load transistor (47, 50), and that:

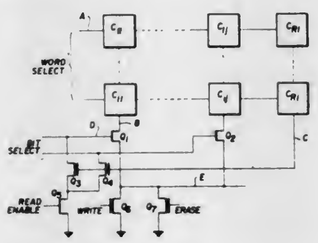
the signal for setting the respective one shift register stage is produced with the aid of a setting stage (SS) integrated as well.

4,272,832
SEMICONDUCTOR MEMORY DEVICE
Tsuneo Ito, Kodaira, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed May 23, 1979, Ser. No. 41,553
Claims priority, application Japan, May 24, 1978, 53-61092
Int. Cl.³ G11C 7/00
U.S. Cl. 365—189 5 Claims



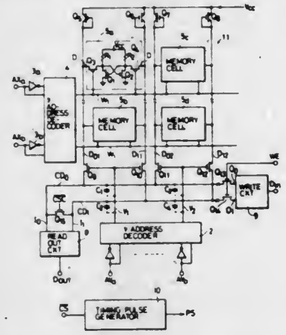
1. A semiconductor memory device comprising an input address buffer circuit and a memory cell circuit which are constructed of static logic circuits, an address decoder circuit which is constructed of a dynamic logic circuit, a detector circuit which detects a change in an output signal of said address buffer circuit, and a pulse generator circuit which is started operating by an output signal of said detector circuit and which provides a clock signal for said address decoder circuit.

4,272,833
TWO SWITCHABLE RESISTIVE ELEMENT PER CELL MEMORY ARRAY
David L. Taylor, Carrollton, Tex., assignor to Harris Corporation, Melbourne, Fla.
Filed Oct. 9, 1979, Ser. No. 82,506
Int. Cl.³ G11C 11/40
U.S. Cl. 365—210 18 Claims



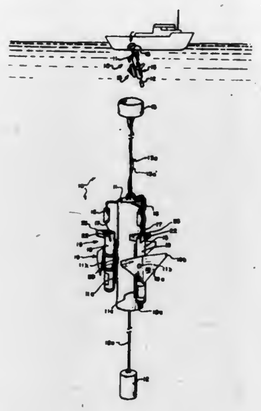
11. In a memory array having a plurality of word lines and a plurality of bit lines interconnected at their intersections by a plurality of memory cells, said memory cells comprising:
first switch means interconnecting a word line and a bit line;
a first bistable resistor, switchable from a high resistance state to a low resistance state for a potential applied above its threshold value, in series with said first switch means and said bit line;
a second switch means interconnecting said word line and said bit line;
a second bistable resistor, switchable from a high resistance state to a low resistance state for a potential applied above its threshold value, in series with said second switch means and said bit line; and
output means connected between said first and second bistable resistors and said bit line for providing a first logic output on said bit line when the cell is addressed by a ramp potential and when the threshold difference of said first and second bistable resistor is relatively large and for providing a second logic output on said bit line when the threshold difference of the first and second bistable resistors is relatively small.

4,272,834
DATA LINE POTENTIAL SETTING CIRCUIT AND MIS MEMORY CIRCUIT USING THE SAME
Yoshio Noguchi, and Tsuneo Ito, both of Kodaira, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Oct. 3, 1979, Ser. No. 81,370
Claims priority, application Japan, Oct. 6, 1978, 53/22616; Jul. 11, 1979, 54/86927
Int. Cl.³ G11C 11/40, 13/00
U.S. Cl. 365—230 17 Claims



10. An MIS memory circuit comprising: a plural pairs of digit lines connected commonly with an input and output terminals of a plurality of a memory cells, respectively; a pair of common data lines; gate means for connecting one selected from said plural pairs of digit lines with said pair of common data lines; a wirte and read out circuits connected with said pair of common data lines; a first insulate gate field effect transistor including a gate electrode and first and second output terminals, the first output terminal being connected with a reference voltage terminal, the second output terminal being connected with one of said pair of common data lines; a second insulate gate field effect transistor including a gate electrode and first and second output terminals, the first output terminal being connected with said reference voltage terminal, the second output terminal being connected with the other of said pair of common data lines; and a control circuit having its output terminal connected with the gate electrodes of the first and second insulate gate field effect transistor, whereby the respective potentials at said pair of common data lines are forcibly changed to the potential at said reference voltage terminal by feeding the control signals at a high level from said control circuit to said gate electrodes before the reading operation of data signals out of said memory cells is started.

4,272,835
MASTER BUOY SYSTEM FOR ACOUSTIC ARRAY DEPLOYMENT, USING UNDERWATER GLIDE BODIES REMOTELY LAUNCHED FROM A SUBMERGED POD
Robert A. Flood, San Diego; Howard R. Talkington, La Jolla; Richard A. Wheelock, and Robert L. Watts, both of San Diego, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed May 23, 1977, Ser. No. 800,584
Int. Cl.³ H04B 1/59
U.S. Cl. 367—4 20 Claims



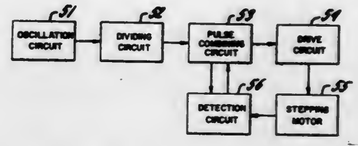
1. A method of deploying an array of hydrophones in a body of water comprising:
releasing an anchor portion from a central body portion carrying a number of hydrophone transport vehicles;
disengaging the vehicles from the central body portion;
gliding the vehicles radially outwardly from the central body portion to rest on the bottom boundary of the body of water; and
freeing the hydrophones from the radially disposed vehicles.

4,272,836
ALARM TIMEPIECE
Munetaka Tamaru; Minoru Natori, both of Tokyo, and Sizuo Yamaguchi, Sayama, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Filed Jan. 9, 1979, Ser. No. 2,217
Claims priority, application Japan, Jan. 12, 1978, 53-2302; Jan. 14, 1978, 53-3085; Apr. 4, 1978, 53-39394
Int. Cl.³ G04B 23/02; G04C 19/00
U.S. Cl. 368—74 10 Claims



10. An alarm display system for an electric timepiece having a actual time of day display, said display system comprising:
storage means for storing a plurality of alarm times;
a plurality of alarm display devices circumferentially arranged around the time of day display, said alarm display devices simultaneously and continuously indicating said plurality of alarm times stored in said storage means; and
alarm control means for independently and selectively setting or resetting each of said alarm times stored in said storage means.

4,272,837
ELECTRONIC TIMEPIECE WITH ROTATION DETECTOR
Makoto Ueda; Akira Toriuwa; Katsuhiko Satoh; Masaharu Shida; Masaaki Mandai, and Kazuhiro Asano, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan
Filed Apr. 20, 1978, Ser. No. 898,400
Claims priority, application Japan, Apr. 23, 1977, 52-47094
Int. Cl.³ G04B 19/04; G04C 19/00
U.S. Cl. 368—80 4 Claims



1. In an electronic timepiece:
an oscillator circuit for generating an oscillating time standard signal;
a dividing circuit for dividing the time standard signal and for developing different output pulse signals having different respective pulse repetition rates;
a stepping motor having a rotor and a coil;
a drive circuit responsive to control signals for driving said stepping motor at a normal rate and for applying a corrective pulse to said stepping motor according to the control signals;
pulse combining circuit means for combining the different output pulse signals from said dividing circuit for generating the control signals and for applying the control signals to said drive circuit, said pulse combining circuit means normally generating a control signal effective to drive said stepping motor at a normal rate and said pulse combining circuit means responsive to a correction signal to control said drive circuit to apply a corrective pulse to said stepping motor;
detecting circuit means for detecting rotation and nonrotation of said stepping motor rotor and for generating a detection voltage signal indicative of the state of rotation of said stepping motor rotor; and
voltage comparing circuit means for comparing the detection voltage signal with a standard voltage value and for applying a correction signal to said pulse combining circuit means when non-rotation of said stepping motor rotor is detected after a drive pulse is applied to said stepping motor.

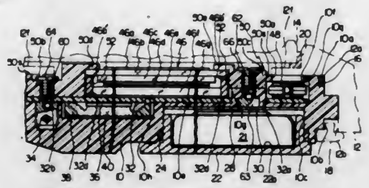
4,272,838
ELECTRONIC WATCH MODULE STRUCTURE
Noriyuki Kasama, Hino, and Singo Ichikawa, Tanashi, both of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Filed Mar. 20, 1979, Ser. No. 22,252
Claims priority, application Japan, Mar. 22, 1978, 53/032556; Mar. 22, 1978, 53/032558; Apr. 17, 1978, 53/044181; Jun. 23, 1978, 53/076200; Jun. 23, 1978, 53/086138[U]; Jun. 23, 1978, 53/086139; Jun. 28, 1978, 53/077408; Jul. 18, 1978, 53/087892
Int. Cl.³ G04C 23/02; G04B 37/00; G04C 19/00, 17/00
U.S. Cl. 368—88 53 Claims

1. A module structure for an electronic watch having a case body and a battery, comprising:
a single body of plastic base serving as a substrate and a back cover of the watch, adapted to be disposed in and supported by a case body, said plastic base having a first axially extending recess formed on one side of said plastic

base, and a radial wall portion continuous with said first axially extending recess;

a circuit board disposed in said first axially extending recess and placed on said radial wall portion, said circuit board supporting an integrated circuit chip and having a printed circuit pattern thereon;

a liquid crystal display cell disposed on one side of said circuit board opposite said radial wall portion of said plastic base, said display cell including an upper glass plate having rows of printed electrode terminals, and a lower glass plate;



flexible electrically conductive members disposed between said upper glass plate and said one side of said circuit board to provide electrical connection between said rows of printed electrode terminals and said circuit pattern of said circuit board;

display cell retaining means for retaining said display cell in a fixed place relative to said circuit board; and

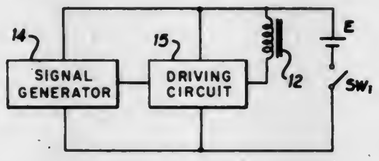
means for securing said display cell retaining means to the one side of said plastic base.

4,272,839

ELECTRIC TIMER

Kiyoshi Kitai, and Nobuo Shinozaki, both of Yotsukaido, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 9, 1979, Ser. No. 18,913
Claims priority, application Japan, Mar. 10, 1978, 53-28129
Int. Cl.[3] G04F *8/00*; G04B *15/00*
U.S. Cl. 368—107 5 Claims



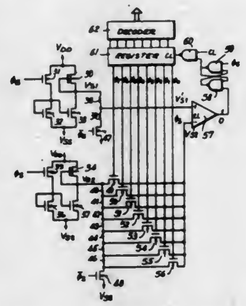
1. An electric timer comprising: a rotatably mounted operating member movable from a datum position to any one of a plurality of angular positions respectively corresponding to periods of time for which it is desired to set the timer; means cooperative with the operating member for indicating the setting of the operating member to a desired angular position; means for urging the operating member to rotate in a predetermined direction from the desired angular position back to the datum position; a rotatably mounted toothed member having a plurality of teeth; means connecting the toothed member to the operating member when the operating member is rotated by the urging means; a pivotally mounted escapement member having a magnetic portion and being engageable with the teeth of the toothed member to control the rotation of the toothed member and thereby the operating member; a signal generator for producing time reference pulses; and electro-magnetic means including a permanent magnet disposed adjacent the magnetic portion of the escapement member for exerting a magnetic force to normally magnetically attract the escapement member, and at least one winding receptive of the time reference pulses and configued to reduce the magnetic force exerted by the permanent magnet when energized by the time reference pulses to permit the pivoting of the escapement member and thereby the rotation of the toothed member and the operating member under the action of the urging means.

4,272,840

SEMICONDUCTOR INTEGRATED CIRCUIT FOR A TIMEPIECE

Shinji Morozumi, and Tatsushi Asakawa, both of Suwa, Japan, assignors to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Nov. 22, 1978, Ser. No. 963,056
Claims priority, application Japan, Nov. 25, 1977, 52-141153
Int. Cl.[3] G04B *17/12, 17/16, 17/20*; H03L *1/00*
U.S. Cl. 368—202 15 Claims



1. A semiconductor temperature compensation circuit for use in an electronic timepiece, comprising in combination, temperature detecting means including a first subcircuit having at least two MOS transistors and a second like configured subcircuit having at least two MOS transistors at least one like polarity MOS transistor in each subcircuit having a different threshold value with respect to the remaining MOS transistors in each subcircuit so that said first and second subcircuits each produce temperature signals having a voltage level determined by the different threshold values of said one like polarity MOS transistor, and at least one like positioned transistor in each subcircuit having a different conductive coefficient with respect to each other so that said first and second subcircuits each produce temperature signals that are distinctly varied in response to changes in temperature and a plurality of semiconductor elements including MOS transistors defining a temperature signal converting circuit for receiving said temperature signals produced by said temperature detecting means and, in response thereto, converting same into a temperature compensation signal, each of the semiconductor elements in said temperature signal converting circuit and the MOS elements defining said temperature detecting means being monolithically integrated into the same substrate.

4,272,841

TIMEPIECE

Francois Nickles, Cornaux, Switzerland, assignor to Ebauches Electroniques SA, Maria, Switzerland

Continuation of Ser. No. 841,564, Oct. 12, 1977, abandoned.
This application Oct. 2, 1979, Ser. No. 81,165
Claims priority, application Switzerland, Oct. 22, 1976, 13358
Int. Cl.[3] G04B *19/00*; G04G *5/00, 9/02*
U.S. Cl. 368—224 14 Claims

1. An electronic module for assemblege with a timepiece that carries a push button, said module comprising a metallic frame; a display cell mounted to said metallic frame in electrical communication therewith; and a circuit board in electrical communication with said display cell and mounted to said metallic frame but insulated therefrom, said circuit board having at least one contact, said metallic frame being electrically connected to a source of electric energy and having metallic

spring means normally spaced from but cooperative with said contact and adapted to constitute a switch upon translational movement of said spring means by the push button, said spring



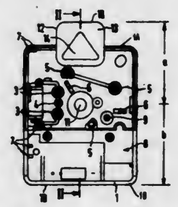
means serving as a return spring for such push button and being integral with and formed of portions of said metallic frame to provide a compact, self contained electronic module structure.

4,272,842

SUSPENSION DEVICE FOR THE CLOCKWORK OF A CLOCK

Udo Schultheiss, Schramberg, Fed. Rep. of Germany, assignor to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 68,597
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 7827033[U]
Int. Cl.[3] G04B *37/00*
U.S. Cl. 368—316 5 Claims



1. A clock comprising a two-section housing, a first of said housing sections presenting a clockwork receiving area which receives a clockwork, the second of said housing sections being removably insertable onto said first housing section to close said area, said first housing section being formed with a suspension means comprising a plate-shaped suspension member and a suspension aperture therethrough, said plate-like member and aperture projecting partially into said clockwork receiving area, said plate-like suspension member having a plurality of stiffening ribs projecting outwardly therefrom and joining said plate-like suspension member to said first housing section.

4,272,843

SYSTEM FOR TRANSMITTING SERVICE COMMUNICATIONS

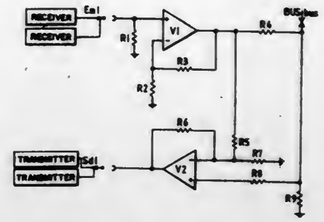
Wolfgang Schneider, Backnang, Fed. Rep. of Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 13, 1978, Ser. No. 915,227
Int. Cl.[3] H04J *1/14*
U.S. Cl. 370—24 4 Claims

1. In combination with a service channel for a radio system wherein signals are sent over said service channel at the lower end of the system base band, said radio system including a transmitter and a receiver associated with said transmitter, and a data transmission device and a voice instrument associated with said data transmission device, apparatus comprising:

a common bus bar;

a first network coupling said transmitter and receiver to said bus bar, said first network including a first operational amplifier having its direct input connected to receive service channels signals from said receiver; a second operational amplifier having its output connected to deliver service channel signals to said transmitter; a first receiver connecting the output of said first amplifier to said bus bar; a first voltage divider connecting the output of said first amplifier to the negating input of said second amplifier; a



second voltage divider connecting the output of said first amplifier to the negating input thereof; and a second resistor connecting the direct input of said second amplifier to said bus bar, whereby the output of said first amplifier is connected to the direct input of said second amplifier via said first resistor, said bus bar and said second resistor; and

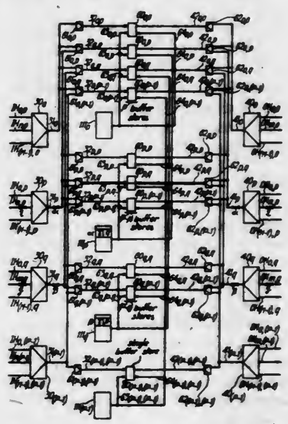
a second network coupling said data transmission device and said voice instrument to said bus bar.

4,272,844

MULTIPLEX TIME DIVISION SWITCHING NETWORK UNIT OF THE TIME-TIME TYPE

Alain Y. Roche, Oliver F. Louvet, both of Lannion, Daniel J. Mell, Perros Guirec, Herve Le Bris, Pleumeur Bodou, France, all of assignor to Centre National d'Etudes de Telecommunication, Issy les Moulineaux, France

Filed Jul. 2, 1979, Ser. No. 54,238
Claims priority, application France, Jun. 30, 1978, 78 19638; Apr. 12, 1979, 79 09332; May 31, 1979, 79 14062
Int. Cl.[3] H04Q *11/04*
U.S. Cl. 370—66 4 Claims



1. Time division multiplex switching network unit for switching a time slot i assigned to a calling subscriber to a time slot j assigned to a called subscriber, said network unit comprising:

in an input stage, a plurality of P groups of N incoming multiplex highways and supermultiplexers multiplexing each of said multiplex highway groups into an incoming supermultiplex highway, said calling subscriber time slot i

and called subscriber time slot j being included in said incoming multiplex highways and being respectively transferred by said supermultiplexers into time slots α and β in said incoming supermultiplex highways;

in an output stage, a plurality of P outgoing supermultiplex highways and superdemultiplexers demultiplexing each of said outgoing supermultiplex highways into a plurality of N outgoing multiplex highways, the time slots α and β being included in said outgoing supermultiplex highways and being respectively transferred by said superdemultiplexers into said calling subscriber time slot i and said called subscriber time slot j in said outgoing multiplex highways;

additional multiplexers selectively multiplexing two by two the P incoming supermultiplex highways and thereby providing a number of $P(P+1)/2$ incoming double supermultiplex highways, whereby one and the same among said incoming double supermultiplex highways contains both time slots α and β;

additional demultiplexers selectively demultiplexing two by two the $P(P+1)/2$ outgoing double supermultiplex highways, one and the same among said double supermultiplexing highways containing both the time slots α and β and thereby providing a number of P outgoing supermultiplex highways;

$P(P+1)/2$ bidirectional buffer stores connected to said incoming and outgoing double supermultiplex highways;

P control stores associated with and respectively controlling P, $(P-1)$, $(P-2)$, . . . 2, 1 bidirectional buffer stores, said control stores including means for transferring the word contained in the word location of given address γ in a buffer store associated with said control store into time slot α in an outgoing double supermultiplex highway; means for transferring the word contained in time slot α in an incoming double supermultiplex highway into the word location of address γ in said buffer store; means for transferring the word contained in the word location of address γ in said buffer store into time slot β in said outgoing double supermultiplex highway; and means for transferring the word contained in time slot β in said incoming double supermultiplex highway into the word location of address α in said buffer store.

4,272,846

METHOD FOR CANCELLING IMPULSIVE NOISE

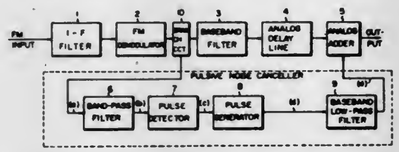
Takuro Muratani, Tokyo; Tatsuo Watanabe, Mitaka; Michihisa Ohkawa, and Takeshi Mizuike, both of Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 4,989

Claims priority, application Japan, Feb. 1, 1978, 53-9230

Int. Cl.³ H04B *1/10*

U.S. Cl. 455—296 **3 Claims**



1. A method for cancelling impulsive noise for a system of transmitting a band-limited baseband signal using a transmission channel having a transmission bandwidth larger than the bandwidth of the baseband signal, comprising the steps of: applying an out-band signal received outside of the frequency band of the baseband signal in a received signal to an impulse detector having a predetermined threshold level to detect the peak of an impulsive noise in the received out-band signal and to produce a detected impulsive noise output; generating a rectangular pulse having a duration determined according to the transmission bandwidth of the band-limited baseband signal and having a peak level determined according to the detected peak of the impulse noise; producing a pseudo noise pulse substantially equal in level but reverse in polarity to the impulsive noise from the detected impulsive noise output by passing said rectangular pulse through a baseband low-pass filter; and adding the pseudo noise pulse to the baseband signal, thereby to cancel the impulsive noise from the received signal.

4,272,845

RECEIVER FOR DATA-TRANSMISSION SYSTEM OPERATING WITH SINGLE-SIDEBAND AMPLITUDE MODULATION

Francesco Fiumani, Settimo Milanese, Italy, assignor to Societa Italiana Telecomunicazion Siemens SpA, Milan, Italy

Filed Oct. 17, 1979, Ser. No. 85,794

Claims priority, application Italy, Oct. 18, 1978, 28849 A/78

Int. Cl.³ H04L *3/00*

U.S. Cl. 375—20 **9 Claims**

1. A receiver for an incoming message wave formed by an attenuated carrier and a single sideband of the same carrier amplitude-modulated by a three-level baseband signal, comprising:

filter means for separating the carrier from the incoming message wave;

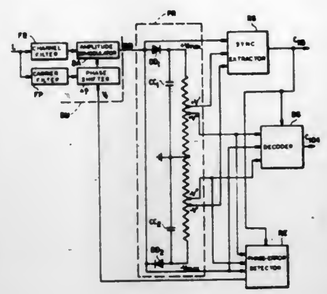
an amplitude demodulator having a message-wave input and further having a collateral input connected to said filter means for recovering the baseband signal from said message wave under the control of said carrier;

phase-shifting means inserted between said filter means and said collateral input;

a synchronization extractor connected to said amplitude demodulator for deriving from said baseband signal a local oscillation giving rise to sampling pulses and to timing pulses spaced from said sampling pulses;

a phase-error detector with input connections to said amplitude demodulator and to said synchronization extractor for monitoring polarity reversals of said baseband signal and determining the relative time positions of said timing pulses and of the instants of zero crossing during said polarity reversals, said phase-error detector having an output connection to said phase-shifting means for delivering thereto a corrective signal varying with said relative time positions to minimize spurious offsets between said carrier and said baseband signal; and

decoding means connected to said amplitude demodulator and controlled by said sampling pulses for converting said baseband signal into a binary pulse train.



DESIGN PATENTS

GRANTED JUN. 9, 1981

ERRATA

For CLASS	See PATENT NO.
D99–049	259,446
D03–035	259,450
D02–024	259,451

259,445
FOB FOR A KEY CHAIN OR THE LIKE
Thomas E. Clarke, Alton, Canada, assignor to Universal Polyquartz Inc.
Filed Apr. 30, 1979, Ser. No. 34,358
Claims priority, application Canada, Mar. 2, 1979, 0203791
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—61

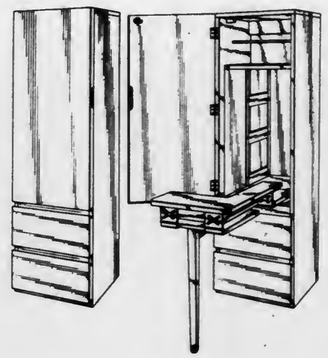




259,446
TOOL CARRIER
Lyle L. Sullivan, 79 Elm St., Springville, N.Y. 14141
Filed Jul. 17, 1979, Ser. No. 58,314
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D99—49



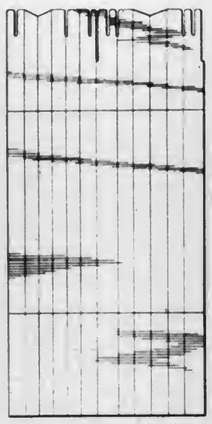
259,447
SEWING CABINET
Robert V. Haas, Edison, and Robert S. Peets, Island Heights, both of N.J., assignors to The Singer Company, Stamford, Conn.
Filed Oct. 18, 1978, Ser. No. 952,876
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—40



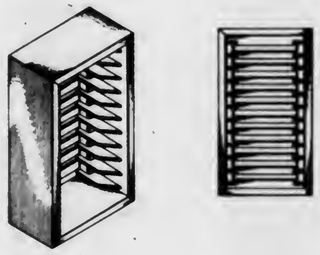
259,448
PICNIC TABLE
Gilles Maheu, 58 Jean Boisvert St., Lavaltrie, Canada (J0K 1H0)
Filed Jun. 14, 1978, Ser. No. 915,531
Claims priority, application Canada, Dec. 16, 1977, 1612771
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—45



259,449
PRESCORED ASSEMBLY UNIT BLANK FOR DISPLAY STANDARD, OR SIMILAR ARTICLE
Ronald H. Taub, 1154 Sheridan Rd., Highland Park, Ill. 60035
Filed Jun. 21, 1978, Ser. No. 917,513
Term of patent 14 years
Int. Cl. 6—*06*
U.S. Cl. D6—85



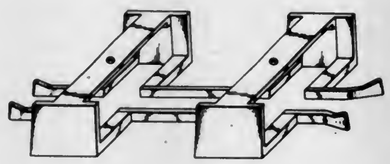
259,450
MAGNETIC CARTRIDGE HOLDER
Guy G. Veralrud, Canoga Park, Calif., assignor to Kustom Kreations, Inc., Northridge, Calif.
Filed Apr. 23, 1979, Ser. No. 32,374
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35



259,451
DESIGN FOR BRASSIERE
Peter R. Vale, 1010 Fifth Ave., New York, N.Y. 10028, assignor to Peter R. Vale and Pearl R. Vale, both of New York, N.Y.
Filed Dec. 3, 1979, Ser. No. 99,791
Term of patent 14 years
Int. Cl. D2—*01*
U.S. Cl. D2—24



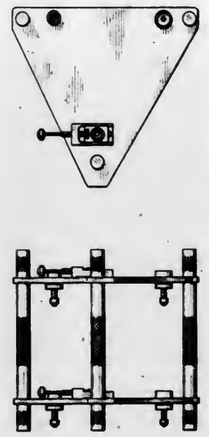
259,452
STEMWARE HOLDER
Louis Hoffman, 5 Ernst Dr., Suffern, N.Y. 10901
Filed Apr. 9, 1979, Ser. No. 27,989
Term of patent 14 years
Int. Cl. D6—*04*; D7—*99*
U.S. Cl. D6—113



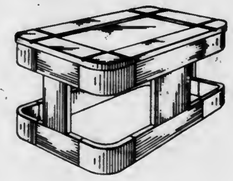
259,453
WALL MOUNTED RACK FOR KEYS
Stephen H. Warhaftig, 15 Avon Rd., New Rochelle, N.Y. 10804
Filed Mar. 29, 1979, Ser. No. 25,116
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—114



259,454
MULTIPLE PROJECTOR REGISTRATION PLATFORM
Howard S. Gudgel, 7326 E. 59th Pl., Tulsa, Okla. 74145
Filed Feb. 27, 1978, Ser. No. 881,870
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—145



259,455
TABLE
Richard G. Brown, High Point, N.C., assignor to Null Manufacturing Corporation, Maiden, N.C.
Filed Apr. 16, 1979, Ser. No. 30,135
Term of patent 7 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



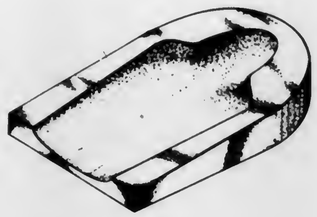
259,456
MAGAZINE RACK
Walter Zeischegg, Neu-Ulm, and Bernd Brüssing, Ulm, both of Fed. Rep. of Germany, assignors to Hans Friedrich Hefendehl, Kierspe, Fed. Rep. of Germany
Filed Aug. 15, 1978, Ser. No. 933,919
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1978, MR 512
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—184



259,457
SWIVEL SUPPORT FOR A VEHICLE SEAT
Gordon W. Smith, Dunwoody, and Terrell E. Ayers, Mableton, both of Ga., assignors to Ayers Manufacturing Corp., Atlanta, Ga.
Filed Apr. 25, 1979, Ser. No. 33,137
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—191

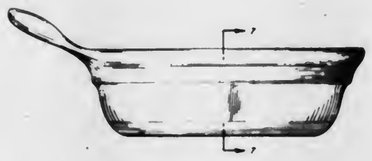


259,458
SUPPORT PAD FOR AN INFANT
Charles R. Fuller, and John P. Fuller, both of 15164 Stagg St., Van Nuys, Calif. 91405
Filed Jun. 9, 1978, Ser. No. 914,240
Term of patent 14 years
Int. Cl. D6—*99*
U.S. Cl. D6—201



259,459
CASSEROLE DISH OR SIMILAR ARTICLE
George B. Jensen, deceased, late of Syracuse, N.Y., and Stanley F. Campion, executor, Fayetteville, N.Y., assignors to Syracuse China Corporation, Syracuse, N.Y.
Filed May 11, 1979, Ser. No. 38,244
Term of patent 14 years
Int. Cl. D07—*01, 02*
U.S. Cl. D7—20





259,460
MEASURING CUP SET OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. de Coster, Aalst, both of Belgium, assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 27, 1978, Ser. No. 890,348
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—50



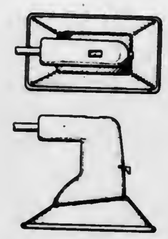
259,461
MEASURING CUP OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. de Coster, Aalst, both of Belgium, assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 27, 1978, Ser. No. 890,351
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—50



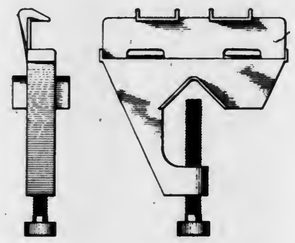
259,462
MEASURING CUP OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. de Coster, Aalst, both of Belgium, assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 27, 1978, Ser. No. 890,352
Term of patent 14 years
Int. Cl. D7—*04*
U.S. Cl. D7—50



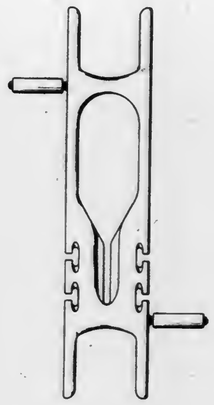
259,463
CARPET DESIGNER'S IRON
John Szymanski, 1728 12th Crt. North, Lake Worth, Fla. 33460
Filed May 16, 1979, Ser. No. 39,277
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—203



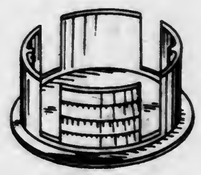
259,464
MANIFOLD HOLDER
Hyman W. Paley, 20 Broadmoor Dr., San Francisco, Calif. 94132
Filed Dec. 14, 1978, Ser. No. 969,410
Term of patent 14 years
Int. Cl. D8—*05, 08*
U.S. Cl. D8—72



259,465
EXTENSION CORD REEL
Melvin F. Weil, Evansville, Ind., assignor to Liblem Corporation, Evansville, Ind.
Filed Aug. 16, 1979, Ser. No. 67,094
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D8—359



259,466
INSULATION INJECTION HOLE PLUG
R. Dean Doonan, 101 Sunnyside Dr., Montezuma, Iowa 50171
Filed Jul. 28, 1978, Ser. No. 929,211
Term of patent 14 years
Int. Cl. D8—*99*
U.S. Cl. D8—499



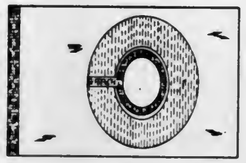
259,467
DISPENSING CONTAINER FOR FLUIDS
Jack Halbeisen; Peter A. Basile, both of Hudson, and Carl E. Bochmann, Brecksville, all of Ohio, assignors to The Clorox Company, Oakland, Calif.
Filed Jul. 21, 1978, Ser. No. 927,112
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—300



259,468
DISPLAY CONTAINER
Michael P. Patterson, Oshkosh, Wis., and William H. Perkins, Oxford, Ohio, assignors to Paragon Candles, Inc., Oshkosh, Wis.
Filed Oct. 16, 1978, Ser. No. 951,857
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—415



259,469
CARTON
Adam J. Grodin, Forrest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,470
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



259,470
CARTON
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,471
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



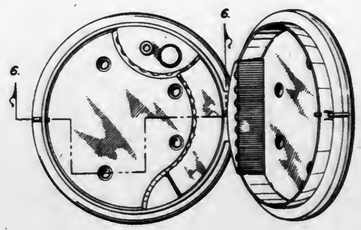
259,471
CARTON
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,472
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



259,472
CARTON
Adam J. Grodin, Forest Hills, N.Y., assignor to American Cyanamid Company, Stamford, Conn.
Filed Sep. 21, 1978, Ser. No. 944,476
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—432



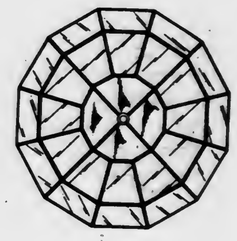
259,473
CONTAINER FOR TOYS OR SIMILAR ARTICLE
Seiko Konya, Monterey Park; Janice E. Rosenthal, Manhattan Beach, and Virginia R. Sargent, Hermosa Beach, all of Calif., assignors to Mattel, Inc., Hawthorne, Calif.
Filed Mar. 5, 1979, Ser. No. 17,221
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—420



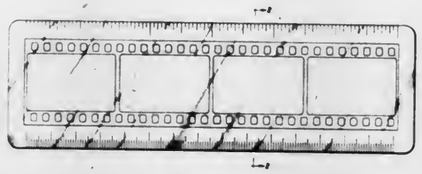
259,474
CLOCK HOUSING
Jack V. Miller, 700 Auburn, Sierre Madre, Calif. 91024
Filed Jul. 28, 1978, Ser. No. 929,019
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—1



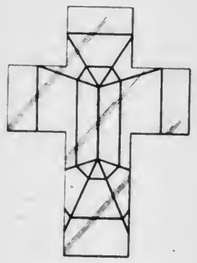
259,475
HOUSING FOR A WALL CLOCK
Jack V. Miller, 700 Auburn, Sierre Madre, Calif. 91024
Filed Jul. 31, 1978, Ser. No. 929,554
Term of patent 14 years
Int. Cl. D10—*01*
U.S. Cl. D10—1

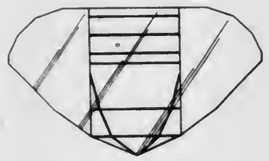


259,476
RULER
Irene B. Feingold, and Stanley Z. Feingold, both of 420 Pitts Colony Dr., Rochester, N.Y. 14623
Filed Jul. 9, 1979, Ser. No. 55,831
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—71

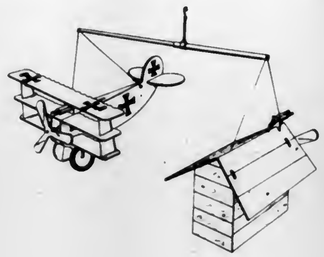


259,477
DIAMOND
Benayahu L. Najjar, 104-20 Queens Blvd., Forest Hills, N.Y. 11375
Filed Nov. 2, 1978, Ser. No. 957,241
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—90





259,478
SIMULATIVE TOY MOBILE
Robert R. Schoch, 517 Otteray Dr., High Point, N.C. 27260
Filed Jun. 26, 1978, Ser. No. 919,367
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—141



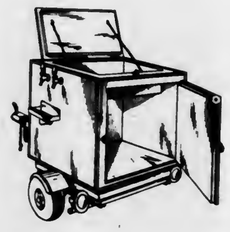
259,479
HORSEMAN FIGURE
Charles A. MacLean, 23073 Beech Ave., Dearborn, Mich. 48124
Filed Apr. 27, 1979, Ser. No. 33,869
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



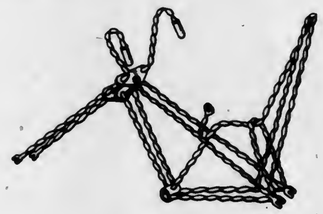
259,480
COMBINED UPPER HULL AND BOAT INTERIOR
Charles Bednar, Oak Park, Ill., assignor to Viking Boat Company, Inc., Middlebury, Ind.
Filed Dec. 5, 1978, Ser. No. 966,764
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—318



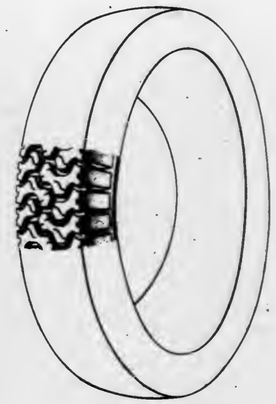
259,481
BEVERAGE COOLER AND DISPENSING TRAILER
Christopher Kappos, Cambridge, Iowa 50046
Filed Sep. 14, 1978, Ser. No. 942,409
Term of patent 14 years
Int. Cl. D12—*10*
U.S. Cl. D12—102



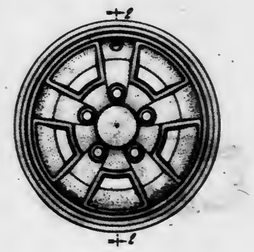
259,482
BICYCLE FRAME
Paul G. Terrazas, 45280 Kings St., Indio, Calif. 90212, and Robert Terrazas, 2012 Nile St., Bakersfield, Calif. 93305
Filed Dec. 21, 1978, Ser. No. 967,891
Term of patent 14 years
Int. Cl. D12—*11*
U.S. Cl. D12—111



259,483
PNEUMATIC TIRE TREAD AND BUTTRESS
Carl F. Smajd, St. Clair Shores, Mich., assignor to Uniroyal, Inc., New York, N.Y.
Filed Mar. 8, 1979, Ser. No. 18,486
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—146



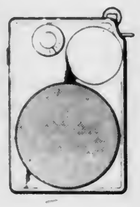
259,484
VEHICLE WHEEL
Edward T. Welburn, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed May 24, 1979, Ser. No. 42,064
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



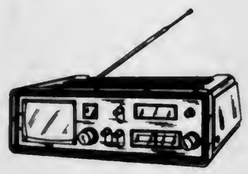
259,485
ELECTRICAL CONNECTOR
Joseph J. Manno, La Jolla, Calif., assignor to IVAC Corporation, San Diego, Calif.
Filed Mar. 23, 1979, Ser. No. 23,331
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



259,486
COMBINED RADIO AND TOBACCO PRODUCTS LIGHTER
Hoi T. Vong, 179/180 Connaught Rd. West, Cheung Ka Industrial Bldg., 19th Floor, Block A, West Point, Hong Kong
Filed Jun. 15, 1977, Ser. No. 806,933
Claims priority, application United Kingdom, Dec. 17, 1976, 978,320/76
Term of patent 14 years
Int. Cl. D14—*03*; D27—*05*
U.S. Cl. D14—68



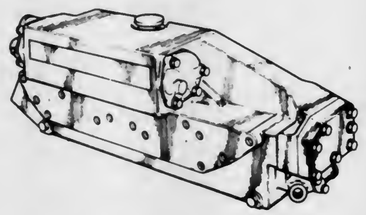
259,487
COMBINED CLOCK RADIO AND TELEVISION RECEIVER
Naoki Wada; Tomitaro Saito; Seiji Usami; Kazuo Kawabe, and Koji Satake, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Aug. 3, 1978, Ser. No. 930,738
Claims priority, application Japan, Feb. 2, 1978, 53-4701
Term of patent 14 years
Int. Cl. D14—*03*; D10—*01*
U.S. Cl. D14—73



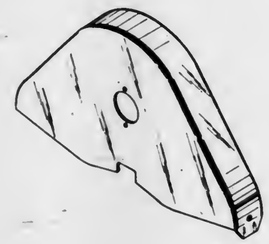
259,488
BOAT PROPELLING UNIT
Leslie G. Carter, 15420 Tiger Bend Rd., and Warren A. Coco, 5848 Stumberg La., both of Baton Rouge, La. 70816
Filed Jun. 5, 1978, Ser. No. 912,936
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D15—4



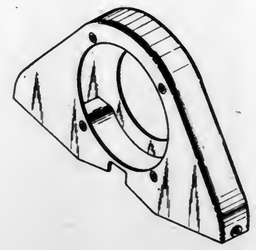
259,489
COMBINED INDUCTION AND EXHAUST MANIFOLD FOR AN INTERNAL COMBUSTION ENGINE
Frederik J. Herenius, Peterborough, England, assignor to Perkins Engines Limited, London, England
Filed Jun. 19, 1978, Ser. No. 916,671
Claims priority, application United Kingdom, Dec. 22, 1977, 982715/77
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



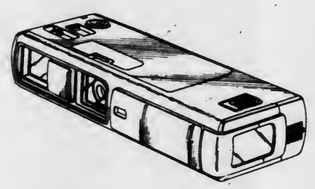
259,490
FAN HOUSING FOR AN AIR COOLED ENGINE
James J. Feuling, 686 Ash Ave., Chula Vista, Calif. 92010
Filed Nov. 9, 1978, Ser. No. 959,430
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



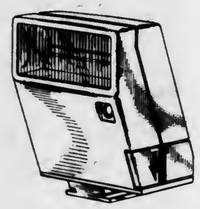
259,491
FAN HOUSING FOR AN AIR COOLED ENGINE
James J. Feuling, 686 Ash Ave., Chula Vista, Calif. 92010
Filed Aug. 17, 1979, Ser. No. 67,401
Term of patent 14 years
Int. Cl. D15—*01*
U.S. Cl. D15—5



259,492
STILL CAMERA WITH INTEGRAL FLASH
Samuel F. Swayze, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 30, 1978, Ser. No. 958,841
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—06



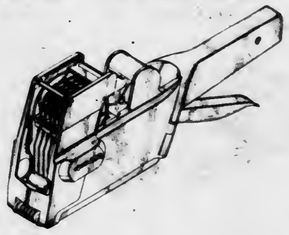
259,493
ELECTRONIC FLASH DEVICE
Peter T. Quinn, Littleton, Colo., assignor to Rollei of America, Inc., Littleton, Colo.
Filed Sep. 18, 1978, Ser. No. 943,346
Term of patent 14 years
Int. Cl. D16—*05*
U.S. Cl. D16—42



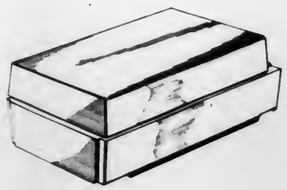
259,494
BASS GUITAR
Charles H. Todd, III, Meridian, Miss., assignor to Peavey Electronics Corp., Meridian, Miss.
Filed Dec. 19, 1979, Ser. No. 105,164
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—14

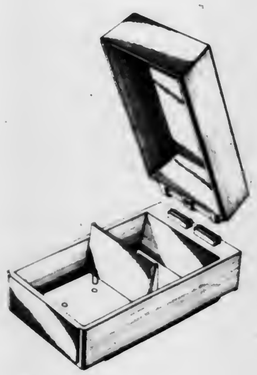


259,495
LABELER
Tokio Wada, Nagarayamashi, Japan, assignor to Kabushiki Kaisha Shinsei Industries, Tokyo, Japan
Filed Nov. 28, 1978, Ser. No. 964,437
Term of patent 14 years
Int. Cl. D18—*02*
U.S. Cl. D18—19

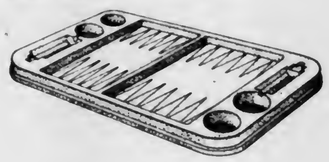


259,496
BUSINESS CARD FILE
James F. Hampshire, Stephens City, and Greg P. Terek, Winchester, both of Va., assignors to Rubbermaid Commercial Products Inc.
Filed Jul. 26, 1978, Ser. No. 928,185
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—76

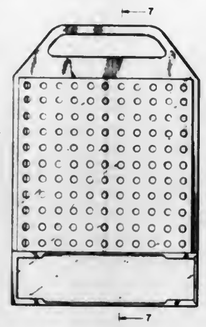




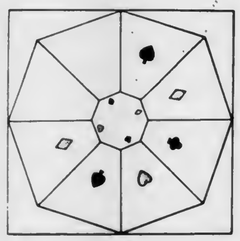
259,497
FLOATING GAME BOARD
Kenneth Mahler, Cincinnati, Ohio, assignor to The Sunfloat Company, Cincinnati, Ohio
Filed Mar. 16, 1979, Ser. No. 20,992
Term of patent 14 years
Int. Cl. D21—*08*
U.S. Cl. D21—16



259,498
PEG GAME CHEST
Frederick H. Kroll, 72 Wood Hollow La., New Rochelle, N.Y. 10804
Filed May 16, 1979, Ser. No. 39,255
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—17



259,499
BOARD FOR A GAME
Alan G. A. Dunham, 74 Abbots Way, Beckenham, Kent, and Stanley Crichton, 87 Leonards Rd., Penge, London SE. 20, both of England
Filed Jul. 30, 1979, Ser. No. 62,094
Claims priority, application United Kingdom, Feb. 9, 1979, 988488/79
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—26



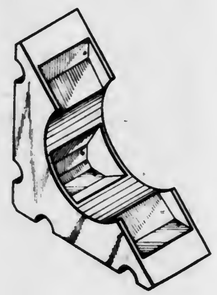
259,500
PLANE KITE
Bernard R. Barrett, 308 W. Graham St., Lombard, Ill. 60148
Filed Oct. 23, 1978, Ser. No. 953,419
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—88



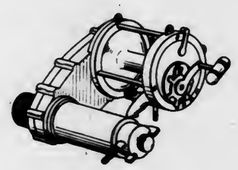
259,501
TRAINING BAT
William F. Salisbury, 264 E. 700 South, Springville, Utah 84663
Filed Mar. 19, 1979, Ser. No. 21,708
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—211



259,502
PLAY SCULPTURE FOR PLAYGROUND APPARATUS
Richard M. Keenan, Kent County, and Robert Blaszczyk, Grand Rapids, both of Mich., assignors to Game Time, Inc., Fort Payne, Ala.
Filed Mar. 5, 1979, Ser. No. 17,499
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—245



259,503
ELECTRIC FISHING REEL
Peck T. Huffman, Greensboro, N.C., assignor to Electric Fishing Reel Systems, Inc., Greensboro, N.C.
Filed Jul. 31, 1979, Ser. No. 62,496
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—25



259,504
FISHING LURE
Paul C. Lott, R. 4, Brookwood Dr., Owensboro, Ky. 42301
Filed Aug. 3, 1979, Ser. No. 63,589
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—27



259,505
COMBINED NARROW BODY SELF-RIGHTING SINKER AND LURE SUPPORT WITH TRAILING LEGS
Robert J. Dickinson, 501 S. Wisconsin, and James L. Wagner, 515 E. Fourth, both of Mitchell, S. Dak. 57301
Filed Jun. 6, 1979, Ser. No. 45,995
Term of patent 14 years
Int. Cl. D22—*05*
U.S. Cl. D22—30



259,506
FILLER FOR LIQUID CONTAINERS
Nils Nygards, 7435 Highway 65 Northeast, Minneapolis, Minn. 55432
Filed Dec. 29, 1978, Ser. No. 974,535
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—1

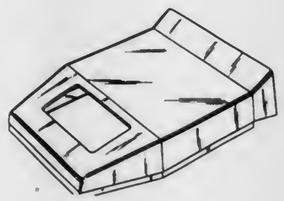




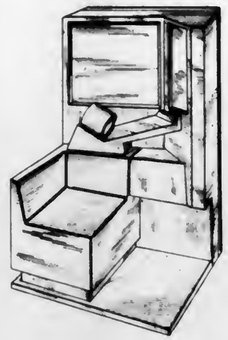
259,507
TUBOCHARGER BY-PASS VALVE
Hugh MacInnes, La Canada, and Robert A. Keller, Westlake Village, both of Calif., assignors to Roto-Master, Inc., North Hollywood, Calif.
Filed Sep. 15, 1978, Ser. No. 943,350
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



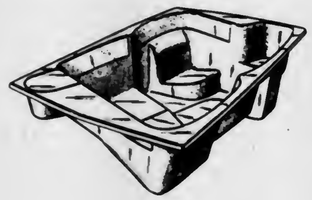
259,508
AIR VENT COVER
William E. Giles, 9782 Central, Garden Grove, Calif. 92644
Filed Dec. 18, 1978, Ser. No. 970,200
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—153



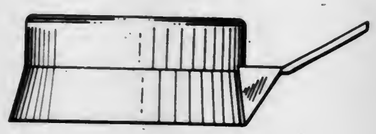
259,509
ENCLOSURE FOR BODY DATA MONITORING APPARATUS
Herbert H. Loeffler, Arlington, and James S. MacConkey, Winchester, both of Mass., assignors to Gulf & Western Manufacturing Company, New York, N.Y.
Filed May 1, 1980, Ser. No. 145,520
Term of patent 14 years
Int. Cl. D24—*01*
U.S. Cl. D24—21



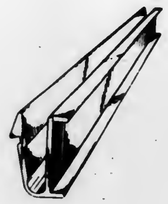
259,510
HYDROTHERAPY SPA
Richard G. Reineman, Newport Beach, Calif., assignor to Marlin Fiberglass, Inc., Huntington Beach, Calif.
Filed Feb. 20, 1980, Ser. No. 123,081
Term of patent 14 years
Int. Cl. D24—*01*; D23—*02*; D25—*99*
U.S. Cl. D24—38



259,511
SPECIMEN COLLECTION SKIRT
James J. Peterson, Elgin, Ill., assignor to The Kendall Company, Boston, Mass.
Filed Sep. 15, 1978, Ser. No. 942,501
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—54



259,512
MOULDING FOR FITTING AN ANTI-DAZZLER SCREEN OR A LOUVRE TO A LAMP FITTINGS
Jan-Ake Hallen, Brinketorpsvägen 3, Partille, Sweden (433 02)
Filed Apr. 13, 1979, Ser. No. 29,876
Term of patent 14 years
Int. Cl. D25—*01*
U.S. Cl. D25—74



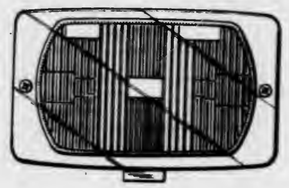
259,513
UTILITY POLE
William J. Whatley, 1300 Greenmeadow La., Littleton, Colo. 80121
Filed May 7, 1979, Ser. No. 36,827
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—77



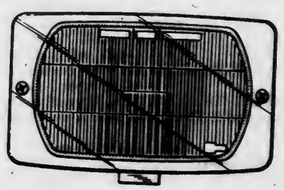
259,514
DECORATIVE LAMP
James D. Welch, 10328 Pinehurst Ave., Omaha, Nebr. 68124
Filed Sep. 1, 1978, Ser. No. 939,170
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—26



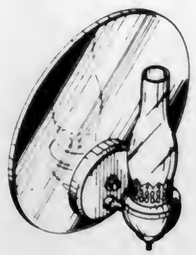
259,515
HEADLIGHT
Pierre Catte, Sevres, France, assignor to Cibie Projecteurs, Bobigny, France
Filed Jun. 8, 1979, Ser. No. 46,728
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D26—28



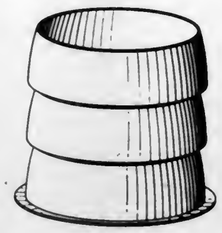
259,516
HEADLIGHT
Pierre Catte, Sevres, France, assignor to Cibie Projecteurs, Bobigny, France
Filed Jun. 8, 1979, Ser. No. 46,729
Term of patent 14 years
Int. Cl. D26—*06*
U.S. Cl. D26—28



259,517
COMBINED ELECTRIC LAMP AND MIRROR
John F. Dobrowski, 28 N. Date, Mesa, Ariz. 85201
Filed Oct. 30, 1978, Ser. No. 955,883
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—56



259,518
LIGHT REFLECTOR
Octavio G. Garcia, Prairie Village, Kans., and Peter A. Lambert, Excelsior Springs, Mo., assignors to Devine Lighting, Incorporated, Kansas City, Mo.
Filed Apr. 16, 1979, Ser. No. 29,976
Term of patent 14 years
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259,519
ASHTRAY
Alf B. Magnusson, Göteborg, Sweden, assignor to Bengt Petersson New Products Investment AB, Göteborg, Sweden
Filed Feb. 28, 1978, Ser. No. 882,066
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Bate, Geoffrey; and Dunn, Larry P., to International Business Machines Corporation. Apparatus for disorienting magnetic particles. 4,271,782, Cl. 118-623.000.
Bates, George W., to Convergence Corporation. Video tape editing system. 4,272,790, Cl. 360-14.000.
Bates, Jack: *See*—
Bailey, Theodore B.; and Bates, Jack, 4,272,189, Cl. 356-28.000.
Bauer, Andrew J., Jr.; and Doering, John N., to Bauer, Andrew J., Jr.; Bauer, Andrew J., III; Shaw, Harold G., Sr.; and Balke, Fred W., part interest to each. Method and apparatus for rejuvenating and recycling asphalt. 4,272,212, Cl. 404-72.000.
Bauer, Andrew J., III: *See*—
Bauer, Andrew J., Jr.; and Doering, John N., 4,272,212, Cl. 404-72.000.
Bauer, Donald J.: *See*—
Schultze, Lawrence E.; Bauer, Donald J.; and Morimoto, Michael T., 4,272,491, Cl. 423-20.000.
Bauer, Patrick G. Solenoid housing. 4,272,747, Cl. 335-257.000.
Bauer, Peter. Fluid dynamic energy exchanger. 4,272,223, Cl. 417-54.000.
Baugh, Daniel W., Jr.: *See*—
Cook, Frank T.; Baugh, Daniel W., Jr.; and Chambers, Robert V., Jr., 4,272,455, Cl. 564-503.000.
Bauman, Robert A., to Colgate-Palmolive Company. Dialkylurea textile softening and antistatic agents. 4,272,413, Cl. 252-525.000.
Baumann, Manfred; and Hoffmann, Werner, to BASF Aktiengesellschaft. Derivatives of 8-dehydro-vitamin A and their preparation. 4,272,456, Cl. 570-186.000.
Baumbach, William J. Automatic sewage valve. 4,272,640, Cl. 137-110.000.
Bayer Aktiengesellschaft: *See*—
Balle, Gerhard; Rabe, Hansjurgen; and Vehlewald, Peter, 4,272,619, Cl. 521-169.000.
Frank, Walter; Bendszus, Otto; Freier, Hans-Joachim; and Traenckner, Hans-Joachim, 4,272,420, Cl. 260-28.00R.
Lindner, Christian; Suling, Carlhans; Bartl, Herbert; Hardt, Dietrich; and Brudermanns, Karola, 4,272,428, Cl. 260-31.20R.
Bayerische Motoren Werke A.G.: *See*—
Kuzma, Gyozo, 4,271,943, Cl. 192-53.00F.
BBC Brown, Boveri & Company, Limited: *See*—
Skala, Karel, 4,271,673, Cl. 60-660.000.
Beach, David L.; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Refractory metal oxide/silica supported nickel cluster catalyst. 4,272,406, Cl. 252-430.000.
Beach, David L.; and Kobylinski, Thaddeus P., to Gulf Research & Development Company. Metal modified refractory metal oxide/-silica supported nickel cluster catalyst. 4,272,407, Cl. 252-430.000.
Beaumont, Gregory J., to Zenith Radio Corporation. Anti-ringing circuit for CRT deflection yoke. 4,272,705, Cl. 315-408.000.
Beck, Jacob H., to BTU Engineering Corporation. Helically wound heater. 4,272,639, Cl. 13-25.000.
Beckberger, LaVern H.; and Barbour, James L., to Atlantic Richfield Company. Process for removing sulfur from coal. 4,272,251, Cl. 44-1.0SR.
Becker, Carl M. Tap for dispensing beverages. 4,271,992, Cl. 222-509.000.
Becker, Hubert: *See*—
Becker, Josef; Becker, Hubert; and Becker, Matthias, 4,272,037, Cl. 242-118.100.
Becker, Josef; Becker, Hubert; and Becker, Matthias. Lap creel. 4,272,037, Cl. 242-118.100.
Becker, Matthias: *See*—
Becker, Josef; Becker, Hubert; and Becker, Matthias, 4,272,037, Cl. 242-118.100.
Beckman Instruments, Inc.: *See*—
Crosby, John B., 4,272,658, Cl. 200-6.00B.
Harman, John N., III, 4,272,486, Cl. 422-91.000.
Kaye, Wilbur I., 4,272,195, Cl. 356-368.000.
Neti, Radhakrishna M., 4,272,248, Cl. 23-232.00R.
Beckwith, Bruce R.: *See*—
Trahan, Albert J.; Beckwith, Bruce R.; and Murray, David B., 4,272,273, Cl. 65-167.000.
Becus, Robert, to Societe des Aciers Fins de l'Est. Device for regulating the flow through a plug of a dispensing vessel in a continuous casting installation, using the level of the metal bath in the receiving ingot mold. 4,271,896, Cl. 164-449.000.
Bednar, John M.: *See*—
Noerager, Jere A.; Taft, Daniel G.; and Bednar, John M., 4,272,059, Cl. 254-392.000.
Beecham Group Limited: *See*—
Smith, Paul; and Cassidy, Frederick, 4,272,445, Cl. 260-397.400.
Taskis, Charles B., 4,272,542, Cl. 424-271.000.
Beecher, William J. Binocular with novel arrangement of hinge means between the telescopes thereof. 4,272,153, Cl. 350-36.000.
Beeman, Robert H., to GTE Automatic Electric Laboratories Inc. Analog-to-digital converter alignment circuit. 4,272,721, Cl. 324-73.00R.
Beeny, Mark T.; and Miles, James A., to Monsanto Company. 1-Methyl-2-aryl-2,3-dihydro-1H-2,1-benzazaphosphole-1-oxides, herbicidal compositions and the use thereof. 4,272,278, Cl. 71-86.000.
Beharry, Christopher R., to Procter & Gamble Company, The. Crude edible oil wax removal process. 4,272,447, Cl. 260-425.000.
Behle, Gunter R.: *See*—
Wempe, Richard J.; and Behle, Gunter R., 4,272,053, Cl. 251-144.000.
Bekker, Boris G.: *See*—
Samokhin, Andrei V.; Bekker, Boris G.; and Davydov, Alexandr N., 4,272,163, Cl. 350-357.000.
Belanger, Germain, to Bombardier Limited. Structural panel. 4,271,649, Cl. 52-309.200.
Belin, David: *See*—
Zapf, Richard L., 4,272,142, Cl. 339-29.00B.
Beling, Thomas E.; and Bric, Leopold, to Sigma Instruments, Inc. Phase locked loop control system. 4,272,712, Cl. 318-696.000.
Belkevich, Peter I.; Buslovich, Solomon J.; Dolidovich, Elena F.; Kaganovich, Fanya L.; Komov, Oktyabr P.; and Timofeeva, Ljudmila P. Medicinal preparation containing the extract of peat wax resin. 4,272,527, Cl. 424-195.000.
Bell Telephone Laboratories, Incorporated: *See*—
Cubbison, Richard J., Jr., 4,272,735, Cl. 331-108.00B.

Gates, Geoffrey W.; and Kepley, Garry D., 4,272,810, Cl. 364-900.000.
Kahng, Dawon; and Shankoff, Theodore A., 4,271,583, Cl. 29-571.000.
von Roeagen, Charles A., 4,271,573, Cl. 29-33.00M.

Bell, William L.: *See—*
Molnar, John R.; Mechling, Earl H.; and Bell, William L., 4,272,012, Cl. 236-1.00E.

Belmares-Sarabia, Armand; Chayka, Stanley J.; and Lund, Robert M., to Teletronics International, Inc. Film scanner with variable rate image enhancement. 4,272,780, Cl. 358-54.000.

Beloit Corporation: *See—*
Justus, Edgar J., 4,272,316, Cl. 162-206.000.
Roerig, Arnold J., 4,272,317, Cl. 162-272.000.

Beltone Electronics Corporation: *See—*
Brander, Richard, 4,272,591, Cl. 429-98.000.

Bendix Corporation, The: *See—*
Brush, Robert W.; Werth, Dee A.; and Schildkraut, Alan L., 4,272,144, Cl. 339-89.00R.
Fairbairn, LeRoy W., 4,272,150, Cl. 339-276.00T.
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,272,149, Cl. 339-258.00R.
McDaniel, George H., 4,272,818, Cl. 364-118.000.
Seitz, William R.; and Leung, Chun K., 4,271,798, Cl. 123-419.000.
Woodruff, Frank, 4,272,227, Cl. 417-440.000.

Bendler, Hellmut; Homburg, Axel; and Penner, Horst, to Dynamit Nobel Aktiengesellschaft. Fastening element with a cavity containing an explosive charge. 4,271,747, Cl. 411-20.000.

Bendoni, Leonard V.; and Smith, Hugh L., to Polaroid Corporation. Processing apparatus for self-developing type roll film. 4,272,178, Cl. 354-298.000.

Bendazus, Otto: *See—*
Frank, Walter; Bendazus, Otto; Freier, Hans-Joachim; and Traeckner, Hans-Joachim, 4,272,420, Cl. 260-28.00R.

Bengtsson, Bengt L.; and Fonskov, Jorgen, to Produits Findus S.A. Process for preparing coated fried vegetables. 4,272,553, Cl. 426-241.000.

Bengtsson, Sigurd W. Teeth cleaning implement. 4,271,854, Cl. 132-89.000.

Benjamin, Joel M., Jr.: *See—*
Bolgiano, Duane R.; Benjamin, Joel M., Jr.; and Meyer, Victor, Jr., 4,272,650, Cl. 179-77.000.

Bennett, James T., to Uni-Pump, Inc. Gasoline pump construction. 4,271,981, Cl. 222-32.000.

Benton, Robert L., to General Motors Corporation. Manufacture of ball nut with internal crossover path for ball recirculation. 4,272,476, Cl. 264-225.000.

Berend, Francis T., to Societe Anonyme Parinter. Protective glove and its method of manufacture. 4,272,568, Cl. 427-261.000.

Beretta, Pier C., to Fabbrica d'Armi P. Beretta S.p.A. Pistol with stock extension and auxiliary grip. 4,271,623, Cl. 42-72.000.

Berger, Alvin H., to Ford Motor Company. Carburetor accelerator pump lockout system. 4,272,459, Cl. 261-34.00A.

Berger, Peter W., to Metallschlauch-Fabrik Pforzheim Witzenmann GmbH. Hydraulic shock absorbing arrangement for pipe conduit systems. 4,271,938, Cl. 188-280.000.

Berger, Philip H. Proximity detector. 4,271,763, Cl. 104-179.000.

Bergkvist, Lars A. Device for indicating a particular angle in pipelaying work or similar operations. 4,272,191, Cl. 356-153.000.

Berglund, Sidney J.; and Matthews, Gary B., to Minnesota Mining and Manufacturing Company. Modular connector and protector. 4,272,147, Cl. 339-99.00R.

Bergna, Horacio E., to Du Pont de Nemours, E. I., and Company. Aluminosilicate sols and powders. 4,272,409, Cl. 252-455.00R.

Bernard, Andre; Disdier, Andre; and Royer, Michel, to Philagro S.A. Process for the manufacture of aluminum monoethyl phosphite. 4,272,448, Cl. 260-448.00R.

Bernhardsson, Klas Y. T.: *See—*
Nyfeldt, Harry; and Bernhardsson, Klas Y. T., 4,272,214, Cl. 405-72.000.

Berthold, Fritz; and Kubisiak, Helmut, to Laboratorium Prof. Dr. Rudolf Berthold. Method and apparatus for the automatic stabilization of drift in radiation measurements. 4,272,677, Cl. 250-252.000.

Berube, Richard G., to King Instrument Corporation. Cassette correlator. 4,271,955, Cl. 198-400.000.

Betancourt, George N.; and Etzel, William W., to Combustion Engineering, Inc. Nuclear reactor internals and control rod handling device. 4,272,321, Cl. 176-87.000.

Bettencourt, Darryl G., to Blackwelders. Load retraction preventing finger array. 4,271,756, Cl. 100-220.000.

Bey, Roger, to Babcock & Wilcox Company, The. Drag ball valve including variable pressure reducing means. 4,271,866, Cl. 137-625.300.

Bialek, Rene F., to Texaco Canada Inc. Process for breaking emulsions in fluids from in situ tar sands production. 4,272,360, Cl. 208-188.000.

Bianchi, Giuseppe: *See—*
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,272,354, Cl. 204-290.00R.

Bianchi, Valerio; Schmidt, Peter-Jurgen; Latsch, Reinhard; and Wahl, Josef, to Robert Bosch GmbH. Method and apparatus for determining fuel mixture adjustment values for fuel burning engines. 4,271,804, Cl. 123-440.000.

BICC Limited: *See—*
Slaughter, Raymond J., 4,272,155, Cl. 350-96.230.

Bienert, Horst; Igel, Richard; and Reagstl, Johann, to Webasto-Werk W. Baier GmbH & Co. Vehicle roof. 4,272,125, Cl. 296-223.000.

Biermann, Udo K. P., to U.S. Philips Corporation. Absorption heat pump work medium consisting of a solution of a fluorochloroalkane in a substituted amino phosphorus oxide. 4,272,389, Cl. 252-69.000.

Biller, Bruce A.; and Jackson, Hiram S., Jr., to S&C Electric Company. High-voltage fuse link and method of manufacturing same. 4,272,751, Cl. 337-231.000.

Bio Systems Design, Corp.: *See—*
Turner, Paul F.; and Gandhi, Om P., 4,271,848, Cl. 128-804.000.

Biotest Serum Institut GmbH: *See—*
Kotitschke, Ronald; and Stephan, Wolfgang, 4,272,523, Cl. 424-101.000.

Bird & Son, Inc.: *See—*
Cunning, Joseph M., 4,272,370, Cl. 210-162.000.

Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., to International Business Machines Corporation. Automatic alignment of optical elements in an electrophotographic apparatus. 4,272,187, Cl. 355-56.000.

Biron, Gerard, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Pulse-forming circuit for on/off conversion of an image analysis signal. 4,272,789, Cl. 358-282.000.

Biszcat, John J.; and Bleau, Charles D., to International Business Machines Corporation. Signal controlled indexing rate shifter for a typewriter. 4,272,205, Cl. 400-575.000.

Bishop, Reginald M., to Crane Limited. Pressure tapping. 4,271,863, Cl. 137-557.000.

Biuro Studiow, projetwo i Realizacji in Westycji Przemyslu Nieorganicznego "Biprokawas": *See—*
Jazlowski, Aleksander; Michal, Rudnicki; Tadeusz, Bartosz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, 4,272,026, Cl. 239-273.000.

Black Clawson Company, The: *See—*
Espenmiller, Howard P., 4,272,315, Cl. 162-4.000.

Black & Decker Inc.: *See—*
Bradus, Robert, 4,272,821, Cl. 364-475.000.

Black, Robert B. Energy conversion system. 4,271,789, Cl. 122-16.000.

Blackwelders: *See—*
Bettencourt, Darryl G., 4,271,756, Cl. 100-220.000.

Blades, Frederick K., to PureCycle Corporation. Ultraviolet radiation sensor. 4,272,679, Cl. 250-372.000.

Blakeslee, Harry N., to American Can Company. Controlled dispersion of coating inside non-circular hollow articles. 4,272,567, Cl. 427-236.000.

Blanford, Denis M.; and Naseem, Syed, to NCR Corporation. Symbol processing system. 4,272,675, Cl. 235-463.000.

Blank, Werner J., to American Cyanamid Company. Water-based glyoxal cured coating compositions. 4,272,590, Cl. 428-460.000.

Blankenmeister, Anton, to BASF Aktiengesellschaft. Box for tools and accessories for tape cassettes, especially for magnetic tape cassettes. 4,271,961, Cl. 206-216.000.

Blaw-Knox Foundry & Mill Machinery, Inc.: *See—*
Eibe, Werner W., 4,271,959, Cl. 198-777.000.

Blaw Knox Limited: *See—*
McGovarin, Roy R., 4,272,213, Cl. 404-118.000.

Bleau, Charles D.: *See—*
Bisczat, John J.; and Bleau, Charles D., 4,272,205, Cl. 400-575.000.

Bloom, Arlene N., executrix: *See—*
Sachdev, Krishna G.; and Bloom, Stanley M., deceased, 4,272,632, Cl. 564-501.000.

Bloom, Stanley M., deceased: *See—*
Sachdev, Krishna G.; and Bloom, Stanley M., deceased, 4,272,632, Cl. 564-501.000.

Blue Circle Industries Limited: *See—*
Brooks, Kenneth; Shiel, Leslie E.; and Smith, David E., 4,272,297, Cl. 106-306.000.

Blum, Harold G., to Koller Craft Plastic Products, Inc. Lighting panel trim element. 4,272,804, Cl. 362-408.000.

Blumenthal, John, to Gould Inc. Toner clean-off head. 4,271,559, Cl. 15-308.000.

Blythin, David J., to Schering Corporation. 2,4-[1H,3H,5H]-(1)-Benzopyrano-[2,3-d]-pyrimidinediones and their use as anti-allergy agents. 4,272,535, Cl. 424-248.540.

BMI Inc.: *See—*
Allison, Ralph E., 4,272,020, Cl. 239-8.000.

Bodig, Bernd; Schmied, Helmut; Hohne, Gerd; and Fritz, Adolf, to Robert Bosch GmbH. Apparatus for maintaining constant igaition energy with increasing engine speeds in an ignition system for an internal combustion engine. 4,271,812, Cl. 123-609.000.

Bodine, Albert G. Elastically vibratory longitudinal jacketed drill. 4,271,915, Cl. 175-56.000.

Body Design, Incorporated: *See—*
Schachner, Dianne; and Zimmerman, Barbara, 4,272,070, Cl. 272-62.000.

Boeing Commercial Airplane Company: *See—*
Botka, Leslie M., 4,272,047, Cl. 248-74.0PB.

Boeing Company, The: *See—*
Davert, Edward J.; and Gants, Wilbur L., 4,272,215, Cl. 408-14.000.
Ketner, Clyde R.; and Whitener, Philip C., 4,271,975, Cl. 220-80.000.
Pease, George E., 4,271,749, Cl. 91-358.00R.

Boettcher, Charles E., to National Semiconductor Corporation. Self-aligned floating gate memory cell and method of manufacture. 4,272,774, Cl. 357-23.000.

Bogert, Robert C.: *See—*
Rudy, Marion F., 4,271,606, Cl. 36-29.000.

Bolgiano, Duane R.; Benjamin, Joel M., Jr.; and Meyer, Victor, Jr., to International Mobile Machines Incorporated. Power supply system. 4,272,650, Cl. 179-77.000.

Bologa, Elvis. Liquid transfer device. 4,271,878, Cl. 141-375.000.

Bolt Associates, Inc.: *See—*
Chelminski, Stephen V., 4,271,924, Cl. 181-120.000.

Bolton, Barbara A. Walker apparatus. 4,272,071, Cl. 272-70.400.

Bombardier Limited: *See—*
Belanger, Germain, 4,271,649, Cl. 52-309.200.

Bondarenko, Alla V.: *See—*
Shtern, Maria A.; Levit, Nelli I.; Bondarenko, Alla V.; and Kaschentseva, Alexandra K., 4,272,291, Cl. 106-14.050.

Bononi, Walter H. Temples for eyeglasses. 4,272,166, Cl. 351-111.000.

Booth, David L.; and Gray, Joseph E., to Morton-Norwich Products, Inc. 1-Chloro-1-p-methoxybenzoylformaldoxime-N-methylcarbamate. 4,272,453, Cl. 260-543.100.

Bopp, Robert D.; Kloosterman, David P.; and Lipshield, Eugene C., to Orscheln Co. Cable tension adjusting means for a brake cable operating lever. 4,271,718, Cl. 74-522.000.

Borg-Warner Corporation: *See—*
Goldberg, Gerald; Myers, Charles L.; Parsons, Charles F.; and Steffancin, William, 4,272,584, Cl. 428-412.000.

Bories, David G.: *See—*
Filice, Dennis; and Bories, David G., 4,272,093, Cl. 280-206.000.

Borkan, William N. Power manageable circuit breaker. 4,272,687, Cl. 307-115.000.

Borracci, Pasquale. Apparatus for charging an internal combustion engine. 4,271,800, Cl. 123-430.000.

Bostrom, Gosta: *See—*
Eriksson, Birger; and Bostrom, Gosta, 4,271,987, Cl. 222-160.000.

Botka, Leslie M., to Boeing Commercial Airplane Company. Adjustable clamp. 4,272,047, Cl. 248-74.0PB.

Bottcher, Irmgard: *See—*
Niedballa, Ulrich; and Bottcher, Irmgard, 4,272,543, Cl. 424-273.00R.

Bouchaudon, Jean: *See—*
Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,272,534, Cl. 424-248.510.

Bouda, Horymir J. Apparatus for producing compresses for covering wounds. 4,272,066, Cl. 493-418.000.

Bouette, David W., to E. T. Oakes Limited. Method and apparatus for producing a cellular product. 4,272,558, Cl. 426-660.000.

Boussid, Issam S.; and Ho, Benny K-C, to Texaco Inc. Oil recovery method employing alternate slugs of surfactant and fresh water solution of sacrificial agent. 4,271,906, Cl. 166-273.000.

Bowlus, Burton R.; and McKinney, Gerald L., to Wichita Pro-Tech Inc. Protective helmet with releasable face guard apparatus. 4,271,537, Cl. 2-424.000.

Boyarsky, Alexandr A.: *See—*
Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N., 4,272,033, Cl. 242-7.05B.

Boykin, Richard. Container sign holder. 4,271,616, Cl. 40-11.00A.

Braas & Co. GmbH: *See—*
Ewald, Richard; and Freiberg, Klaus, 4,272,573, Cl. 428-40.000.

Bradley, Daniel J.: *See—*
Hutchinson, Marcus H. R.; and Bradley, Daniel J., 4,272,732, Cl. 331-94.50P.

Bradmon, Paul J.: *See—*
Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., 4,272,187, Cl. 355-56.000.

Bradus, Robert, to Black & Decker Inc. Digital blade adjustment read-out for a portable power tool. 4,272,821, Cl. 364-475.000.

Brady, Darrell B. Method and device for introducing liquid into boat motor cooling systems. 4,271,874, Cl. 141-1.000.

Brambley, Michael L; Myers, Herbert J.; and Rios, Januario R., Jr., to Picker Chemicals Inc. Container for film processing chemicals. 4,271,965, Cl. 206-219.000.

Brander, Richard, to Beltone Electronics Corporation. Electronic apparatus with battery chamber. 4,272,591, Cl. 429-98.000.

Braun Aktiengesellschaft: *See—*
Ernst, Rolf; and Ullmann, Roland, 4,271,590, Cl. 30-43.920.

Braun, Dieter; Mehren, Herbert; and Wulf, Helmut, to Daimler-Benz Aktiengesellschaft. Vehicle adapted to be guided on tracks for the public local passenger traffic with pivotal rear axle and longitudinal guide members for such axle. 4,271,764, Cl. 104-247.000.

Brefer S.p.A.: *See—*
Ferrero, Franca B., 4,271,613, Cl. 37-103.000.

Breitschwerdt, Werner: *See—*
Schmid, Walter; Breitschwerdt, Werner; Huber, Guntram; and Reidelbach, Willi, 4,272,103, Cl. 280-751.000.

Brems, John H. Tool carriage advance and retraction control. 4,271,710, Cl. 74-27.000.

Brems, John H. Apparatus for cycloidal acceleration and deceleration with partial constant velocity. 4,271,727, Cl. 74-813.00R.

Breslin, Edward P. Educational board game. 4,272,080, Cl. 273-249.000.

Breslow, David S.; and Simpson, David A., to Hercules Incorporated. Photopolymer process using photo oxidizable component. 4,272,610, Cl. 430-302.000.

Bric, Leopold: *See—*
Beling, Thomas E.; and Bric, Leopold, 4,272,712, Cl. 318-696.000.

Bridge, Erland T., to Eaton Corporation. Pumping element for temperature responsive viscous fan drive. 4,271,946, Cl. 192-58.00B.

Bridgestone Tire Co., Ltd.: *See—*
Takigawa, Hiroyoshi; Yahagi, Mitsuhisa; and Ogawa, Hiroshi, 4,271,885, Cl. 152-209.00R.

Tanaka, Mamoru, 4,271,551, Cl. 9-8.00R.

Bristol-Myers Company: *See—*
Menard, Marcel; and Martel, Alain, 4,272,437, Cl. 260-239.00A.

British Gas Corporation: *See—*
Anderson, John A., 4,271,993, Cl. 222-591.000.

Britson, Stanley N. Wall covering. 4,272,576, Cl. 428-100.000.

Britt, Monroe; and Westlin, Karl L., to American Air Filter Company, Inc. Gas-separation filter device. 4,272,262, Cl. 55-302.000.

Broadhill Development Corporation: *See—*
Carlson, Elmer T., 4,272,646, Cl. 174-88.00B.

Brocklehurst, Charles E.: *See—*
Burton, Perry E.; and Brocklehurst, Charles E., 4,271,767, Cl. 112-2.000.

Broetto, Costantino, to Fratelli Borletti S.p.A. Device for indicating insufficient inflation pressure in vehicle tires. 4,272,755, Cl. 340-58.000.

Brooks, Kenneth; Shiel, Leslie E.; and Smith, David E., to Blue Circle Industries Limited. Compositions for use with papermaking fillers. 4,272,297, Cl. 106-306.000.

Broom, James C. Game with board and tokens. 4,272,081, Cl. 273-265.000.

Brown, George S.; and Hatton, Robert E., to Riggers (Steeplejacks) Limited. Inspection or maintenance cradle. 4,271,927, Cl. 182-36.000.

Brown, Milton: *See—*
Zapf, Richard L., 4,272,142, Cl. 339-29.00B.

Bruckner-Trockentechnik KG: *See—*
Grun, Reinhold; Troster, Dietrich; and Gleich, Bruno, 4,271,569, Cl. 26-79.000.

Brudermanns, Karola: *See—*
Lindner, Christian; Suling, Carlhans; Bartl, Herbert; Hardt, Dietrich; and Brudermanns, Karola, 4,272,428, Cl. 260-31.20R.

Brunsell, Dennis A.; and Riggs, Olen L., Jr., to Kerr-McGee Corporation. Process for the electrolytic reductive leaching of ilmenite ore. 4,272,343, Cl. 204-130.000.

Brush, Robert W.; Werth, Dee A.; and Schildkraut, Alan L., to Bendix Corporation, The. Spring loaded anti-rotation device for electrical connectors. 4,272,144, Cl. 339-89.00R.

Brusseau, H. Donald; and Brusseau, Louvain M. Convertible door structure. 4,271,892, Cl. 160-92.000.

Brusseau, Louvain M.: *See—*
Brusseau, H. Donald; and Brusseau, Louvain M., 4,271,892, Cl. 160-92.000.

Bryant, Donald C.: *See—*
Chatfield, John F., Jr.; Bryant, Donald C.; Daly, James C.; and Kamila, Friedolf, 4,271,909, Cl. 169-70.000.

BTU Engineering Corporation: *See—*
Beck, Jacob H., 4,272,639, Cl. 13-25.000.

Buchhorn, Peter, to John Lysaght (Australia) Limited. Cladding sheets. 4,271,653, Cl. 52-522.000.

Buchina, Jerome E.: *See—*
Buchwald, Frank S.; Maher, Richard C.; and Buchina, Jerome E., 4,272,695, Cl. 310-242.000.

Buchmuller, Gunter, to Volkswagenwerk Aktiengesellschaft. Oil cooler for an internal combustion engine. 4,271,901, Cl. 165-165.000.

Buchwald, Frank S.; Maher, Richard C.; and Buchina, Jerome E., to Townmotor Corporation. Brush wear indicator. 4,272,695, Cl. 310-242.000.

Buckley, Franklin J.; and Hubbard, David W., to Pitney-Bowes, Inc. Electrophotocopier developer unit mounting system. 4,271,786, Cl. 118-661.000.

Buckman, Raymond W., Jr.: *See—*
Yoldas, Bulent E.; Filippi, Arthur M.; and Buckman, Raymond W., Jr., 4,272,588, Cl. 428-433.000.

Budd Company, The: *See—*
Dickhart, William W., III, 4,271,765, Cl. 105-164.000.
Mekosh, George, Jr., 4,272,133, Cl. 303-99.000.

Buddington, Donald L.: *See—*
Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., 4,272,187, Cl. 355-56.000.

Budinski, John A., to General Motors Corporation. Electrically actuated viscous fan clutch. 4,271,945, Cl. 192-58.00B.

Burg, Kenneth E. Fluid actuated acoustic pulse generator. 4,271,925, Cl. 181-120.000.

Burgener, Robert C.; and Martin, Philip T., to Interlake, Inc. Motor control techniques. 4,272,707, Cl. 318-139.000.

Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., to Atlantic Richfield Company. Process for removal of sulfur and ash from coal. 4,272,250, Cl. 44-1.0SR.

Burkdoll, Frank B., to Explosive Technology, Inc. Coupling device for ignitive reactions. 4,272,102, Cl. 280-731.000.

Burr-Brown Research Corporation: *See—*
Prazak, Paul R.; and Williams, Theodore L., 4,272,760, Cl. 340-347.0CC.

Burtelson, Frederick W., to Reliable Electric Company. Method for cleaning grease-filled cable stub. 4,272,300, Cl. 134-5.000.

Burton, Perry E.; and Brocklehurst, Charles E., to Opelika Manufacturing Corporation. Sheet production system. 4,271,767, Cl. 112-2.000.

Burton, Perry E., to Opelika Manufacturing Corporation. Cutting and hemming system. 4,271,774, Cl. 112-262.100.

Burton, Philip J.: *See—*
Snape, Christopher J.; and Burton, Philip J., 4,271,858, Cl. 137-74.000.

Bush, Hazel S. Burnt sugar caramel flavoring and process of making. 4,272,299, Cl. 127-29.000.

Buslovich, Solomon J.: *See*—
Belkevich, Peter I.; Buslovich, Solomon J.; Dolidovich, Elena F.; Kaganovich, Fanya L.; Komov, Oktyabr P.; and Timofeeva, Ljudmila P., 4,272,527, Cl. 424-195.000.

Busschaert, Bruno J.: *See*—
Schwob, Alain L. C.; Busschaert, Bruno J.; and Ivorra, Claude A. M., 4,271,825, Cl. 126-450.000.

Bute, Donald R. Device for testing smoke detector alarms. 4,271,693, Cl. 73-1.00G.

Butler, Johnny L.; and Valigura, Joe L., Jr. Method and apparatus for blocking the flow of fluids through an elongated pipe section. 4,271,870, Cl. 138-94.300.

Butler Manufacturing Company: *See*—
Steenson, Thomas W.; and Paton, W. Donald, 4,271,737, Cl. 83-171.000.
Steenson, Thomas W.; and Paton, W. Donald, 4,272,065, Cl. 269-46.000.

Butt, Alan G., to Trane Company, The. Liquid wetted gas cooled heat exchanger. 4,272,462, Cl. 261-153.000.

Butz, David E., to Data Packaging Corporation. Disk pack handle mechanism. 4,271,963, Cl. 206-444.000.

Byk Gulden Lomberg Chemische Fabrik GmbH: *See*—
Figala, Volker, 4,272,507, Cl. 424-275.000.

C-I-L Inc.: *See*—
Pollock, David C. I., 4,272,375, Cl. 210-194.000.
Pollock, David C. I., 4,272,379, Cl. 210-621.000.

C & K Components, Inc.: *See*—
Simpson, Kenneth, 4,272,662, Cl. 200-275.000.

C. M. Offray & Son, Inc.: *See*—
Grewe, Josef; and Portner, Philip, 4,272,564, Cl. 427-163.000.

Cabot Corporation: *See*—
Herchenroeder, Robert B. H.; and Klein, H. Joseph, 4,272,289, Cl. 75-122.000.

Cadle, Rose Marie: *See*—
Cadle, Walter L., 4,272,126, Cl. 297-258.000.

Cadle, Walter L., to Cadle, Rose Marie. Joggling board for use as exercise device or as item of lawn furniture. 4,272,126, Cl. 297-258.000.

Caldini, Oreste; and Meucci, Sandro, to Societa Italo-Britannica-L. Manetti-H. Roberts Co. Process for improving transcutaneous and transfollicular absorption of cosmetic compositions. 4,272,516, Cl. 424-70.000.

Calgon Corporation: *See*—
Dixon, Kenneth W.; and Hoffstadt, Frederick A., 4,272,364, Cl. 209-166.000.

Cameron Iron Works, Inc.: *See*—
Rowe, Frederick G., 4,271,857, Cl. 137-73.000.

Camin, Leopoldo L.; and Liteplo, Maria P., to New England Nuclear Corporation. Reductant composition for technetium-99m and method for making technetium-99m labelled ligands. 4,272,503, Cl. 424-1.000.

Cammarano, Armando S.; DiGiacomo, Giulio; and Drofitz, Stephen S., Jr., to International Business Machines Corporation. Determination of electric current flow patterns. 4,272,722, Cl. 324-76.00R.

Campbell, Chris A., to Dana Corporation. Axle disconnect. 4,271,722, Cl. 74-710.500.

Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See*—
Ward, Frederick D., 4,271,748, Cl. 89-1.814.

Canadian Fram Limited: *See*—
Yew, Kwang, 4,271,948, Cl. 192-84.00T.

Canfield, Allen B.: *See*—
Whitaker, William C.; and Canfield, Allen B., 4,271,877, Cl. 141-166.000.

Canning, Thomas N.; Barns, Christopher E.; Murphy, James P.; Gin, Bobby; and King, Robert W., to United States of America, National Aeronautics and Space Administration. High acceleration cable deployment system. 4,271,761, Cl. 102-504.000.

Cannondale Corporation: *See*—
Montgomery, Joseph S., 4,271,996, Cl. 224-32.00A.

Canon Kabushiki Kaisha: *See*—
Arai, Toshio; Nagasawa, Takeshi; Iwaya, Toshio; Inoue, Shunzo; and Konishi, Motofumi, 4,272,185, Cl. 355-28.000.
Iwashita, Tomonori; Fukahori, Hidehiko; and Mashimo, Yukio, 4,272,173, Cl. 354-173.000.
Kosugi, Masao, 4,271,577, Cl. 29-238.000.
Mashimo, Yukio, 4,272,170, Cl. 354-149.000.

Canonaco, Rudy: *See*—
Frank, Robert G.; Canonaco, Rudy; and Posney, Richard V., 4,272,274, Cl. 65-273.000.

Capelle, Anton; and Scholten, Heinz, to Chemische Werke Huls AG. Suspension agent for synthetic resin powders. 4,272,566, Cl. 427-208.200.

Capo, James L., to International Paper Company. Food service container and lid. 4,272,010, Cl. 229-43.000.

Carduner, Jean-Jacques, to Regie Nationale des Usines Renault. Loading mechanism for rack and pinion steering. 4,271,716, Cl. 74-422.000.

Cargile, Neil H., Jr. Coal washing apparatus. 4,272,363, Cl. 209-10.000.

Cargill, Incorporated: *See*—
Barke, Martin B.; and Luebke, Rebecca A., 4,272,417, Cl. 260-22.00R.

Carl Zeiss-Stiftung: *See*—
Muchel, Franz; and Vogel, Albrecht, 4,272,165, Cl. 351-13.000.

Carle, Hermann; Klement, Heribert; and Knobloch, Uwe, to ITT Industries, Inc. Window lifter installation. 4,272,708, Cl. 318-266.000.

Carlo Erba Strumentazione S.p.A.: *See*—
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,271,695, Cl. 73-23.100.

Carlson, Carolyn: *See*—
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Carlson, Elmer T., to Broadhill Development Corporation. Bus conduit electrical distribution system. 4,272,646, Cl. 174-88.00B.

Carlson, Elmer V., to Industrial Research Products, Inc. Acoustic transducer of improved construction. 4,272,654, Cl. 179-119.00A.

Carlson, J. P., Jr.: *See*—
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Carman, Justice N., to Pennish, John S., a part interest. Apparatus for producing and casting liquid silicon. 4,272,488, Cl. 422-199.000.

Carney, Ronald E.; and McAlpine, James B., to Abbott Laboratories. Method of producing 1-epi-2-deoxyfortimicin A and intermediates therefor. 4,272,626, Cl. 536-17.00R.

Carocci, Alberto, to Racla Co. Limited. Fireplace. 4,271,816, Cl. 126-132.000.

Caron, Beryl, to Zimmerman Brush Co. Shock absorbing floor brush assembly. 4,271,557, Cl. 15-180.000.

Carroll, James C.; Chapman, Donald L.; Flee, Stephen L.; and McGoldrick, Gilbert A., to Square D Company. Fire resistant fitting. 4,272,643, Cl. 174-48.000.

Carter, Robert A. Apparatus for transporting a wheelchair upon an automobile. 4,272,218, Cl. 414-462.000.

Casagrande, Cesare; and Ferrari, Giorgio, to Simes S.p.A. O-Alcoxycarbonylphenyl esters of anthranilic acid with therapeutical activity, method for their preparation and related pharmaceutical composition. 4,272,529, Cl. 424-230.000.

Casey, Martin J.; Stein, Barry F.; and Wetterskog, Herman E., to Sperry Corporation. Bubble memory optimization by adjusting properties of quartz film. 4,272,347, Cl. 204-192.00D.

Cashman, Kenneth A.: *See*—
Marshall, Richard L.; and Cashman, Kenneth A., 4,271,674, Cl. 60-737.000.

Cason, Robert W.; Holland, Orvis L.; Russell, Floyd C.; Bass, Malley R.; and Frier, James L., to Lone Star Steel Company. Process and apparatus for the removal of particulate matter and reactive or water soluble gases from carrier gases. 4,272,499, Cl. 423-242.000.

Cassat, Robert: *See*—
Semanaz, Daniel; and Cassat, Robert, 4,272,673, Cl. 219-544.000.

Cassidy, Frederick: *See*—
Smith, Paul; and Cassidy, Frederick, 4,272,445, Cl. 260-397.400.

Caterpillar Tractor Co.: *See*—
Reisinger, George E., Jr., 4,272,306, Cl. 148-16.500.
Shaffer, Walter M., 4,271,723, Cl. 74-720.000.

Cavazza, Claudio. Therapeutical method for the treatment of chronic uraemic patients undergoing periodical haemodialysis and liquid composition for dialysis for use in such a method. 4,272,549, Cl. 424-316.000.

Cavender, Patricia: *See*—
Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., 4,272,439, Cl. 260-245.20R.

Cavitron Corporation: *See*—
Dempster, Philip T.; and Pun, John Y., 4,271,701, Cl. 73-861.420.

Cecil, Howard E.: *See*—
Kutik, Louis F.; and Cecil, Howard E., 4,271,990, Cl. 222-321.000.
Kutik, Louis F.; and Cecil, Howard E., 4,272,228, Cl. 417-460.000.

Celanese Corporation: *See*—
Barer, Sol J., 4,272,277, Cl. 71-78.000.

Cella, John A.; Floss, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, to Eli Lilly and Company. Skin cell renewal regime. 4,272,544, Cl. 424-273.00R.

Centre National d'Etudes de Telecommunication: *See*—
Le Bris, Herve, 4,272,844, Cl. 370-66.000.

Cervinka, Franz. Vibratory sander. 4,272,110, Cl. 291-23.000.

Chalich, Charles, to Taylor Manufacturing Company. Conveyors and chain. 4,271,960, Cl. 198-779.000.

Chambers, Robert V., Jr.: *See*—
Cook, Frank T.; Baugh, Daniel W., Jr.; and Chambers, Robert V., Jr., 4,272,455, Cl. 564-503.000.

Chamblin, Thomas F.: *See*—
Riney, John S.; and Chamblin, Thomas F., 4,272,690, Cl. 307-265.000.

Chambon, Andre F., to Societe Anonyme Automobiles Citroen; and Automobiles Peugeot. Suspension of a group of vehicle wheels. 4,272,101, Cl. 280-692.000.

Champion International Corporation: *See*—
Cottrell, Edward D., 4,271,978, Cl. 221-243.000.
Thompson, Kenneth P., 4,272,312, Cl. 156-244.110.

Chandler, Roy L., to Advanced Marine Concepts, Inc. Connection means for a knock-down boat. 4,271,549, Cl. 9-2.00S.

Chang, Ben-Lee; and Lee, Me-Fei. Security attache case with automatic alarm system. 4,272,763, Cl. 340-571.000.

Chang, Hao-jan: *See*—
Kim, Sang H.; and Chang, Hao-jan, 4,272,328, Cl. 204-1.00T.

Chapman, Donald L.: *See*—
Carroll, James C.; Chapman, Donald L.; Flee, Stephen L.; and McGoldrick, Gilbert A., 4,272,643, Cl. 174-48.000.

Charles E. Green & Son, Inc.: *See*—
McDonald, Walter; and Seitel, Norbert J., 4,271,579, Cl. 29-430.000.

Charles Winn (Valves) Limited: *See*—
Snape, Christopher J.; and Burton, Philip J., 4,271,858, Cl. 137-74.000.

Chatfield, John F., Jr.; Bryant, Donald C.; Daly, James C.; and Kamila, Friedolf, to American Fire and Industrial Products Company. Modular fire fighting apparatus. 4,271,909, Cl. 169-70.000.

Chatterjee, Pallab K.; and Tasch, Al F., Jr., to Texas Instruments Incorporated. Method of making post-metal ion beam programmable MOS read only memory. 4,272,303, Cl. 148-1.500.

Chayka, Stanley J.: *See*—
Belmares-Sarabia, Armand; Chayka, Stanley J.; and Lund, Robert M., 4,272,780, Cl. 358-54.000.

Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, to Agence Nationale de Valorisation de la Recherche (ANVAR). N-Acyl-muramyl peptide derivatives having anti-infectious infections properties. 4,272,524, Cl. 424-177.000.

Chelminski, Stephen V., to Bolt Associates, Inc. Airgun apparatus providing high strength and high pressure capabilities. 4,271,924, Cl. 181-120.000.

Chemie Linz Aktiengesellschaft: *See*—
Pieh, Stefan; and Czepel, Hubert, 4,272,430, Cl. 260-39.00R.

Chemische Werke Huls AG: *See*—
Capelle, Anton; and Scholten, Heinz, 4,272,566, Cl. 427-208.200.

Chemische Werke Huls Aktiengesellschaft: *See*—
Maahs, Gunther; and Rombusch, Konrad, 4,272,633, Cl. 568-364.000.
Ziegenbein, Willi; and Von Praun, Ferdinand, 4,272,502, Cl. 423-488.000.

Chenevert, Donald J.; Grawe, John R.; and McDaniel, John C. Resin blends for improved vesicular systems. 4,272,603, Cl. 430-155.000.

Cheung, Harry: *See*—
Patterson, Michael F.; Cheung, Harry; and Wang, David I. J., 4,272,259, Cl. 55-74.000.

Chevron Research Company: *See*—
King, John M.; and de Vries, Louis, 4,272,387, Cl. 252-46.400.

Chi, Chang S. Process for the low temperature shaping processing of polyethylene terephthalate. 4,272,475, Cl. 264-210.100.

Chikashige, Kiyoshi; and Takahashi, Nagashige, to Kabushiki Kaisha Medos Kenkyusho. Device for bending a medical instrument inserted into the body cavity. 4,271,845, Cl. 128-756.000.

Chimica Bulciago S.r.l.: *See*—
Maggi, Rodolfo; Maggi, Gian P.; and Marcon, Guiliano, 4,272,454, Cl. 260-544.00N.

Chin, Albert K.: *See*—
Fogarty, Thomas J.; and Chin, Albert K., 4,271,839, Cl. 128-344.000.

Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt: *See*—
Szejtli, Jozsef; Tetenyi nee Erdosi, Magda; and Tetenyi, Peter, 4,272,276, Cl. 71-76.000.

Chinook Manufacturing Co.: *See*—
Johnson, William R., 4,271,815, Cl. 126-121.000.

Choay, Jean: *See*—
Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, 4,272,524, Cl. 424-177.000.

Christenson, Philip A.: *See*—
Willis, Brian J.; Christenson, Philip A.; and Mack, Robert, 4,272,412, Cl. 252-522.00R.

Christian, Fredrick W., III. Adapter for adjustable hospital beds. 4,271,545, Cl. 5-66.000.

Chung, Yun H., to International Automated Machinery, Inc. Machine and method for forming, filling, and sealing packages of laminated sheet material. 4,271,739, Cl. 83-175.000.

Ciba-Geigy AG: *See*—
Davis, Boyce I. D.; and Clubley, Brian G., 4,272,427, Cl. 260-30.60R.

Ciba-Geigy Corporation: *See*—
Babler, Fridolin, 4,272,298, Cl. 106-309.000.
Haas, Georges; and Rossi, Alberto, 4,272,547, Cl. 424-311.000.
Quadranti, Marco; Maurer, Willy; and Maag, Kurt, 4,272,281, Cl. 71-90.000.

Cibie Projecteurs: *See*—
Fratty, Hector, 4,272,801, Cl. 362-336.000.

Cimochowski, Anthony E., to Johns-Manville Corporation. Heater element supports for use with fibrous block insulations. 4,272,638, Cl. 13-25.000.

Citizen Watch Co., Ltd.: *See*—
Kasama, Noriyuki; and Ichikawa, Singo, 4,272,838, Cl. 368-88.000.
Tamaru, Munetaka; Natori, Minoru; and Yamaguchi, Sizuo, 4,272,836, Cl. 368-74.000.
Togashi, Seigo; Suzuki, Takaharu; and Aoyama, Takaaki, 4,272,162, Cl. 350-349.000.

Clark, Ian S. R.; and Pargeter, John K., to International Nickel Co., Inc., The. Process for producing metal powder. 4,272,463, Cl. 264-12.000.

Clarke, Philip C.: *See*—
Millward, Thomas H.; Wylie, David G.; and Clarke, Philip C., 4,271,717, Cl. 74-467.000.

Classon, Ake, to ASEA Aktiebolag. Gas-insulated high-voltage bushing with shield electrode embedded in an annular insulating body. 4,272,642, Cl. 174-31.00R.

Clausen, Anthony R., to Pitman-Moore, Inc. Dispensing of fluent materials. 4,271,988, Cl. 222-214.000.

Cleland, David B.: *See*—
Jackson, Peter W.; Anderson, David K. C.; and Cleland, David B., 4,272,005, Cl. 228-107.000.

Clifton, Ronald M. Sewage system with comminutor. 4,271,540, Cl. 4-319.000.

Clubley, Brian G.: *See*—
Davis, Boyce I. D.; and Clubley, Brian G., 4,272,427, Cl. 260-30.60R.

Coal Industry (Patents) Limited: *See*—
Pearey, John T., 4,272,129, Cl. 299-31.000.

Coalinga Corporation: *See*—
Slagle, Grady M., Jr.; and Thomas, Donald O., Jr., 4,271,903, Cl. 166-129.000.

Coates, Ralph L., to Mountain Fuel Resources, Inc. Apparatus for gasification of carbonaceous solids. 4,272,255, Cl. 48-63.000.

Cobb, Wayne E. Spreader for and operative by a granular product. 4,272,028, Cl. 239-687.000.

Cobler, John A.: *See*—
Schulz, Johann G. D.; and Cobler, John A., 4,272,253, Cl. 44-51.000.

Cochran, Donald D., to National Can Corporation. Mold for producing extra thin walled plastic contsiners. 4,272,233, Cl. 425-526.000.

Coherent, Inc.: *See*—
Johnston, Thomas F., Jr.; and Proffitt, William P., 4,272,158, Cl. 350-375.000.

Coin Acceptors, Inc.: *See*—
Heim, Edward L., 4,271,952, Cl. 194-97.00R.

Cole, Ernest R., Jr.; Lee, Agnes Y.; and Paulson, Danton L., to United States of America, Interior. Electrowinning of lead from H_2SiF_6 solution. 4,272,340, Cl. 204-114.000.

Cole, James C.; and Cronenwett, George F., to HPM Corporation. Automatic part loader unit for multi-cavity rotor die and method of operation. 4,271,895, Cl. 164-109.000.

Coles, Richard J., Jr.: *See*—
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Coles, Viola C.: *See*—
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Colgate-Palmolive Company: *See*—
Bauman, Robert A., 4,272,413, Cl. 252-525.000.
Gaffar, Abdul, 4,272,512, Cl. 424-49.000.
Gaffar, Abdul, 4,272,513, Cl. 424-52.000.

Collin, Lars T., to Lars Collin Consult AB. Two-way power transferring reduction gear of the epicyclic type. 4,271,940, Cl. 192-4.00C.

Collin, Vittorino, to Ing. C. Olivetti & C., S.p.A. Fusing rolls fixing unit for copying machine. 4,272,666, Cl. 219-216.000.

Collins, Floyd A.; and Spychalski, Joseph L., to American Can Company. Apparatus for reforming round cans into rectangular cans. 4,271,777, Cl. 113-1.00G.

Collins, Floyd K., to GTE Products Corporation. One piece astigmatic grid for color picture tube electron gun and method of making same. 4,272,700, Cl. 313-458.000.

Collins, Stuart A., Jr.; Sengupta, Uday K.; and Gerlach, Ulrich H., to Ohio State University, The. Multi-stable optical system. 4,272,157, Cl. 350-374.000.

Combs, Daniel J., to Oxy Metal Industries Corporation. Composition and method for electrodeposition of copper. 4,272,335, Cl. 204-52.00R.

Combustion Engineering, Inc.: *See*—
Betancourt, George N.; and Etzel, William W., 4,272,321, Cl. 176-87.000.
Seaton, William W., 4,271,994, Cl. 222-602.000.

Cometta, Robert A.: *See*—
Compton, James B.; Cometta, Robert A.; and Culmer, Daniel D., 4,272,775, Cl. 357-29.000.

Compagnie Generale des Etablissements Michelin: *See*—
Pommier, Jean, 4,271,889, Cl. 152-353.00R.
Pommier, Jean, 4,271,890, Cl. 152-352.00R.
Pommier, Jean, 4,271,891, Cl. 152-352.00R.

Compagnie Industrielle des Telecommunications Cit-Alcatel: *See*—
Biron, Gerard, 4,272,789, Cl. 358-282.000.

Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme): *See*—
Giraud, Georges, 4,272,758, Cl. 340-310.00A.

Compton, James B.; Cometta, Robert A.; and Culmer, Daniel D., to National Semiconductor Corporation. Laser trim protection process and structure. 4,272,775, Cl. 357-29.000.

Compton, Leslie E., to Occidental Research Corporation. Method for reducing the nitrogen content of shale oil. 4,272,361, Cl. 208-254.00R.

Compudrive Corporation: *See*—
Ryffel, Henry, 4,271,726, Cl. 74-805.000.

Congdon, Jon M.: *See*—
Galbraith, Lyle D.; Stewart, Hudson; and Congdon, Jon M., 4,272,301, Cl. 134-8.000.

Conn, Shepard; and Kushner, Arnold, to KCDP Corporation. Fluid-expansible contraceptive tampon and applicator. 4,271,835, Cl. 128-270.000.

Conoco, Inc.: *See*—
Wingrave, James A., 4,271,698, Cl. 73-74.000.

Construction Specialties, Inc.: *See*—
Lynn-Jones, David M., 4,271,650, Cl. 52-395.000.

Container Corporation of America: *See*—
Thor, David L., 4,271,972, Cl. 215-251.000.

Continental Gummi-Werke Aktiengesellschaft: *See*—
Bachmann, Willi; Thielemann, Klaus; and von der Wall, Klaus, 4,271,886, Cl. 152-209.00R.

Contraves Goerz Corporation: *See*—
Gallagher, Gerard A., 4,272,807, Cl. 363-126.000.

Convergence Corporation: *See*—
Bates, George W., 4,272,790, Cl. 360-14.000.

Conves Corporation: *See*—
Turner, James F., 4,272,738, Cl. 333-28.00R.

Conwed Corporation: *See*—
Slocumb, Robert C., 4,272,468, Cl. 264-53.000.

Cook, Frank T.; Baugh, Daniel W., Jr.; and Chambers, Robert V., Jr., to Dow Chemical Company, The. Production of monoalkyleneglycols, monoalkanolamines and alkylenediamine. 4,272,455, Cl. 564-503.000.

Cook, John W.; and Drankhan, Voit C., to Westinghouse Electric Corp. Strip break detector system. 4,272,688, Cl. 307-123.000.

Cook, Sharon: *See*—
Suligoy, Diane; and Cook, Sharon, 4,271,731, Cl. 81-177.0ST.

Cooley, James; and Fogle, Ozzie. Heat resistant decorative laminate. 4,272,581, Cl. 428-328.000.

Cooper, Wayne L., to Hi-Flier Manufacturing Company, The. Kite construction. 4,272,044, Cl. 244-153.00R.

Corbin, Alan: *See*—
Yardley, John P.; and Corbin, Alan, 4,272,432, Cl. 260-112.50R.

Cornelius, Erwin D., to M & W Gear Company. Drawbar for mounting multiple farm implement tool bars. 4,272,097, Cl. 280-411.00A.

Corona, Stephen C.: *See*—
Lehman, Richard F.; and Corona, Stephen C., 4,272,188, Cl. 355-68.000.

Corse, Louis G., to Machines Chambon. Printing machines of the offset type. 4,271,760, Cl. 101-142.000.

Cosden Technology, Inc.: *See*—
Mayes, Warden W., 4,272,402, Cl. 252-417.000.
Watson, James M., 4,272,344, Cl. 202-154.000.

Cotic, Dennis J., to General Electric Company. Modular array radiation detector. 4,272,680, Cl. 250-375.000.

Cotonificio Cantoni S.p.A.: *See*—
Durville, Gerard; Moulin, Michel; Ramseier, Serge; and Zurcher, Erwin, 4,271,568, Cl. 26-9.000.

Cottrell, Edward D., to Champion International Corporation. Stick dispenser. 4,271,978, Cl. 221-243.000.

Coulter Systems Corporation: *See*—
DiNallo, Samuel R., Sr.; and Najarian, Leon K., 4,271,785, Cl. 118-661.000.

Cowie, David B. Outboard motor clutches. 4,271,781, Cl. 440-113.000.

Cox, Daniel E.; Kane, Susan M.; and Powers, John V., to International Business Machines Corporation. Bubble device fabrication. 4,272,348, Cl. 204-192.00E.

Crane Limited: *See*—
Bishop, Reginald M., 4,271,863, Cl. 137-557.000.

Crawford, John G., to General Electric Company. Dishwasher fill level control arrangement. 4,271,861, Cl. 137-387.000.

Creech, William C. Portable surface grinding machine. 4,271,638, Cl. 51-241.00S.

Crete, Micheline M. J.; Crete, Pierre G. C.; and Pascod nee Pacescu, Aurelie. Perfumed fireproofing composition. 4,272,385, Cl. 252-608.000.

Crete, Pierre G. C.: *See*—
Crete, Micheline M. J.; Crete, Pierre G. C.; and Pascod nee Pacescu, Aurelie, 4,272,385, Cl. 252-608.000.

Crisalli, Emanuel. Method and elements for the fabrication of a prosthetic dental appliance. 4,272,241, Cl. 433-171.000.

Croci, Marco; and Maruzzelli, Gennaro, to Glaxo Group Limited. Manufacture of semi-synthetic penicillin antibiotics. 4,272,438, Cl. 260-239.100.

Crocker, Zenas, to Synergistics Chemicals Limited. Process for producing articles of ultra high molecular weight high density polyethylene. 4,272,474, Cl. 264-176.00R.

Crom Corporation, The: *See*—
Balck, Lars, Jr., 4,271,647, Cl. 52-169.400.

Cronenwett, George F.: *See*—
Cole, James C.; and Cronenwett, George F., 4,271,895, Cl. 164-109.000.

Crooks, Melvin L. Building construction. 4,271,645, Cl. 52-81.000.

Crosby, John B., to Beckman Instruments, Inc. Multi-contact rotary switch. 4,272,658, Cl. 200-6.00B.

Crosby, Philip C. S.; Barrios, Philip A.; and Perry, Ronald R., to Harvey Hubbell Incorporated. Flexible wiring system and components therefor. 4,272,689, Cl. 307-147.000.

Croset, Michel; and Velasco, Gonzalo, to Thomson-CSF. Electrochemical sensor for measuring concentrations of species in a fluid mixture, of the type comprising a partial-pressure internal reference electrode. 4,272,350, Cl. 204-195.00S.

Croslin, Michael E., to Medtek Corporation. Method and apparatus for performing non-invasive blood pressure and pulse rate measurements. 4,271,844, Cl. 128-681.000.

Crostack, Horst-Artur, to Karl Deutsch Pruf-und Messgerate. Method and device for generating acoustic pulses. 4,271,705, Cl. 73-602.000.

Crowley, Kenneth H., to Gunson's Sortex Limited. Sorting machine. 4,271,966, Cl. 209-576.000.

Cubbison, Richard J., Jr., to Bell Telephone Laboratories, Incorporated. Single amplifier variable gyrator. 4,272,735, Cl. 331-108.00B.

Cullen, John S.; and Huber, Paul W., to Multiform Desiccant Products, Inc. Adsorbent package. 4,272,264, Cl. 55-387.000.

Cullity, Richard E., to Mark Industries. Rotatable work platform. 4,271,926, Cl. 182-2.000.

Culmer, Daniel D.: *See*—
Compton, James B.; Cometta, Robert A.; and Culmer, Daniel D., 4,272,775, Cl. 357-29.000.

Cunning, Joseph M., to Bird & Son, Inc. Gutter strainer. 4,272,370, Cl. 210-162.000.

Cuny, Henri E. E. M. Vehicle provided with an inertia reel seat belt. 4,272,104, Cl. 280-801.000.

Curzio, Frederick H., to Textile Products, Inc. Graphite fiber alignment process and apparatus. 4,271,570, Cl. 28-290.000.

Cutter Laboratories, Inc.: *See*—
Zuffi, Timothy R., 4,272,521, Cl. 424-85.000.

Czepel, Hubert: *See*—
Pich, Stefan; and Czepel, Hubert, 4,272,430, Cl. 260-39.00R.

DAF Indal Ltd.: *See*—
Wood, Charles; and Fralick, Richard, 4,271,542, Cl. 4-495.000.

Dai Nippon Insatsu Kabushiki Kaisha: *See*—
Mizuno, Shogo; Shimomura, Kyoichi; and Kobayashi, Michiaki, 4,272,292, Cl. 106-22.000.

Dai Nippon Printing Co. Ltd.: *See*—
Tsuda, Takeshi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masahiro; Imamura, Yasuo; and Kato, Kazunori, 4,271,571, Cl. 29-25.180.

Daido Tokushuko Kabushiki Kaisha: *See*—
Yajima, Tadamasa; Kitagawa, Shuzo; and Hata, Hiromi, 4,272,287, Cl. 75-60.000.

Daig Corporation: *See*—
Little, Richard L., 4,271,846, Cl. 128-785.000.

Daimler-Benz Aktiengesellschaft: *See*—
Braun, Dieter; Mehren, Herbert; and Wulf, Helmut, 4,271,764, Cl. 104-247.000.
Schmid, Walter; Breitschwerdt, Werner; Huber, Gustram; and Reidelbach, Willi, 4,272,103, Cl. 280-751.000.
Withalm, Gert; and Hiereth, Hermann, 4,271,672, Cl. 60-602.000.

Dainippon Ink & Chemicals Inc.: *See*—
Hirano, Norimasa; and Yamauchi, Yuzuru, 4,272,423, Cl. 260-29.6TA.

D'Alba, Anthony R., to Trico Products Corporation. Windshield wiper blade refill assembly and adapter clips. 4,271,558, Cl. 15-250.420.

Daly, James C.: *See*—
Chatfield, John F., Jr.; Bryant, Donald C.; Daly, James C.; and Kamila, Friedolf, 4,271,909, Cl. 169-70.000.

Dana Corporation: *See*—
Campbell, Chris A., 4,271,722, Cl. 74-710.500.
Kishline, Alan R., 4,271,922, Cl. 180-254.000.
Orzel, Edward S., 4,272,659, Cl. 200-82.00D.

D'Andrea, Mark J.: *See*—
Moro, Daniel G.; Griffin, Gary A.; and D'Andrea, Mark J., 4,272,518, Cl. 424-81.000.

Danfoss A/S: *See*—
Vind, Holger V., 4,272,714, Cl. 318-783.000.

D'Angelo, Joseph J.; and D'Angelo, Joseph J., Jr. Method and apparatus for automatically labelling containers. 4,272,311, Cl. 156-215.000.

D'Angelo, Joseph J., Jr.: *See*—
D'Angelo, Joseph J.; and D'Angelo, Joseph J., Jr., 4,272,311, Cl. 156-215.000.

Daniel, Chelliah, to Air Products and Chemicals, Inc. Stable molybdenum catalysts for high conversion of C^3 and C^4 olefins to corresponding unsaturated aldehydes and acids. 4,272,408, Cl. 252-437.000.

Danko, Arthur J.: *See*—
Hammer, Victor S., Jr.; Danko, Arthur J.; and Heard, Perry J., 4,272,111, Cl. 292-17.000.

D'Antonio, Joseph P., to Du Pont de Nemours, E. I., and Company. Method of monitoring oxygen concentrations in gas streams. 4,272,249, Cl. 23-232.00E.

Darlington, William B., to PPG Industries, Inc. Solid polymer electrolyte chlor-alkali electrolysis cell. 4,272,337, Cl. 204-98.000.

Data Card Corporation: *See*—
Schroeder, Marvin C.; and Stastny, Edwin O., 4,272,202, Cl. 400-208.000.

Data Packaging Corporation: *See*—
Butz, David E., 4,271,963, Cl. 206-444.000.
Lyman, George F., 4,271,618, Cl. 40-152.000.

Daugherty, Richard G.: *See*—
Tippmann, Joseph R.; and Daugherty, Richard G., 4,271,622, Cl. 40-606.000.

Davert, Edward J.; and Gants, Wilbur L., to Boeing Company, The. Remote control countersink adjustment. 4,272,215, Cl. 408-14.000.

Davis, Boyce I. D.; and Clubley, Brian G., to Ciba-Geigy AG. Plasticized PVC. 4,272,427, Cl. 260-30.60R.

Davis, Charles J., to General, Inc., The. Boom apparatus. 4,272,222, Cl. 414-694.000.

Davis, Daniel: *See*—
Miller, Coleman J.; and Davis, Daniel, 4,272,770, Cl. 343-782.000.

Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., to Monsanto Company. Conversion of carbon-containing materials to synthesis gas. 4,272,399, Cl. 252-373.000.

Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., to Monsanto Company. Conversion of carbon-containing materials to carbon monoxide. 4,272,555, Cl. 423-415.00A.

Davis, Max G., Jr.; and Mueller, Charles M., to Texas Instruments Incorporated. Information storage system and recording cartridge having precise alignment features. 4,272,795, Cl. 360-99.000.

Davydov, Alexandr N.: *See*—
Samokhin, Andrei V.; Bekker, Boris G.; and Davydov, Alexandr N., 4,272,163, Cl. 350-357.000.

Day, W. Baldwin; and Strenglein, Harry F., to Sperry Corporation. Thin film resistor microwave noise generator. 4,272,731, Cl. 331-78.000.

Dean, Arthur L.; and Wine, William L., to FMC Corporation. Heavy duty two mass vibratory machine. 4,272,366, Cl. 209-364.000.

DeAngelis, Eugene R. Sawing machine. 4,271,738, Cl. 83-174.000.

deBuhr, Harold E., to Deere & Company. Harvester header with rearwardly extended crop divider. 4,271,661, Cl. 56-98.000.

Decker, Charles R., III, to Impac Inc. Solar heating apparatus. 4,271,824, Cl. 126-449.000.

Deere & Company: *See*—
deBuhr, Harold E., 4,271,661, Cl. 56-98.000.
Hutchinson, Eugene B.; and Van Auwelaer, James M., 4,271,956, Cl. 198-613.000.
McConnell, Kenneth C., 4,271,659, Cl. 56-13.300.
Ochsner, Jon K., 4,271,921, Cl. 180-89.120.
Schafer, Richard A., 4,271,910, Cl. 172-7.000.
Termont, Charles G., 4,272,131, Cl. 303-3.000.

Deguchi, Ryuichi: *See*—
Nakanishi, Kiyoshi; Okumura, Takeshi; Deguchi, Ryuichi; and Tanahashi, Toshio, 4,271,803, Cl. 123-432.000.

Deibert, Daniel T. Knee brace. 4,271,831, Cl. 128-80.00C.

Deigner, Paul: *See*—
Steck, Werner; Loeser, Werner; Steuerwald, Manfred; Wunsch, Gerd; and Deigner, Paul, 4,272,563, Cl. 427-130.000.

Delta Dynamics Corporation: *See*—
Haugland, Samuel R., 4,272,057, Cl. 251-315.000.

del Valle, Jaime L., to Master Modular Homes, Inc. Method and apparatus for pre-casting steel reinforced concrete box-like modules. 4,272,050, Cl. 249-144.000.

DeMarinis, Robert M., to SmithKline Corporation. 3,3'-Bis-methylene-1,3'-benzo-thiazine compounds. 4,272,531, Cl. 424-246.000.

Dempster, Philip T.; and Pun, John Y., to Cavitron Corporation. Gas flow measuring system. 4,271,701, Cl. 73-861.420.

Deng, EH: *See*—
Hammood, James D.; and Deng, EH, 4,272,269, Cl. 62-17.000.

Denki Kagaku Kogyo Kabushiki Kaisha: *See*—
Ando, Toshihiro; Ohgi, Hiroshi; and Kishi, Ikuji, 4,272,586, Cl. 428-419.000.

Denman, Dennis, to Matthias Spencer & Sons Limited. Tool holders. 4,271,735, Cl. 82-36.00R.

de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, to Diamond Shamrock Technologies, S.A. Electrodes for electrolytic processes. 4,272,354, Cl. 204-290.00R.

Designs for Vision, Inc.: *See*—
Feinbloom, Richard E., 4,272,161, Cl. 350-320.000.

deSolms, S. Jane: *See*—
Wolterndorf, Otto W., Jr.; deSolms, S. Jane; and Smith, Robert L., 4,272,537, Cl. 424-249.000.

Dessau, Ralph M., to Mobil Oil Corporation. Concentration, separation and recovery of precious metals. 4,272,288, Cl. 75-101.0BE.

Dethlefsen, Rolf, to Gould Inc. High speed vacuum interrupter. 4,272,661, Cl. 200-144.00B.

Detwiler, Timothy, to E. Edelmann & Co. Combination pressure release cooling cap and recovery of coolant. 4,271,976, Cl. 220-206.000.

Deutsch, Simon, to Peerless Instrument Co., Inc. Electronic calculator. 4,272,826, Cl. 364-709.000.

de Vecchis, Michel: *See*—
Hulin, Jean P.; and de Vecchis, Michel, 4,272,472, Cl. 264-146.000.

Devine Lighting, Incorporated: *See*—
Garcia, Octavio G.; and Lambert, Peter A., 4,271,621, Cl. 40-570.000.

de Vries, Louis: *See*—
King, John M.; and de Vries, Louis, 4,272,387, Cl. 252-46.400.

de Zepeda-Bermudez, Rocio S. Decorative parchment paper. 4,272,580, Cl. 428-153.000.

Diamond, George B. Low pressure dispensing. 4,271,991, Cl. 222-389.000.

Diamond, Howard; Enzer, Steven E.; and Flowers, Joseph, Jr., to Transidyne General Corporation. Method and apparatus for electrochemical measurement. 4,272,245, Cl. 23-230.00B.

Diamond, Kenneth B.; and Diamond, Lynda R. Apparatus for adapting an office machine to one-handed operation. 4,272,203, Cl. 400-272.000.

Diamond, Lynda R.: *See*—
Diamond, Kenneth B.; and Diamond, Lynda R., 4,272,203, Cl. 400-272.000.

Diamond Shamrock Corporation: *See*—
Baczek, Stanley K.; and McCain, G. Howard, 4,272,560, Cl. 427-58.000.
Schaaf, Kurt H.; and Horn, Herman, 4,272,631, Cl. 562-559.000.

Diamond Shamrock Technologies, S.A.: *See*—
de Nora, Vittorio; Nidola, Antonio; Spaziante, Placido M.; and Bianchi, Giuseppe, 4,272,354, Cl. 204-290.00R.

Dickhart, William W., III, to Budd Company, The. Railway car tilting stabilizing system. 4,271,765, Cl. 105-164.000.

Didier Engineering GmbH: *See*—
Tettweiler, Robert; and Ergun, Hayri, 4,272,323, Cl. 201-6.000.

Diermayer, Werner; and Kutzner, Luitpold. Vent control arrangement for combustion apparatus. 4,272,013, Cl. 236-1.00G.

Diesel Kiki Co., Ltd.: *See*—
Kaibara, Nobuhiro; and Kobayashi, Masayoshi, 4,271,806, Cl. 123-502.000.
Kobayashi, Masayoshi; Sakuranaka, Toru; and Yamada, Keiichi, 4,271,805, Cl. 123-459.000.
Kobayashi, Masayoshi; Sakuranaka, Toru; and Yamada, Keiichi, 4,271,808, Cl. 123-506.000.

Dieulesaint, Eugene; Royer, Daniel; and Guedj, Richard, to Thomson-CSF. Optical-pickup coordinatometer. 4,272,676, Cl. 250-221.000.

DiGiacomo, Giulio: *See*—
Cammarano, Armando S.; DiGiacomo, Giulio; and Drofitz, Stephen S., Jr., 4,272,722, Cl. 324-76.00R.

Digiovanni, Joseph J., to Itek Corporation. Microwave frequency synthesizer utilizing a combination of a phase locked loop and frequency translation techniques. 4,272,730, Cl. 331-16.000.

Dijkstra, Rinse: *See*—
Lippits, Gerardus J. M.; van den Broek, Arnoldus J. M.; and Dijkstra, Rinse, 4,272,574, Cl. 428-64.000.

DiMarchi, Silvio J.: *See*—
Goldman, Marvin A.; Goldman, Jerome N.; and DiMarchi, Silvio J., 4,272,672, Cl. 219-523.000.

Dimitrov, Milko D., to SK "Pamukotex". Spool-charging device for automatic-winding-machine magazines. 4,272,034, Cl. 242-35.50R.

DiNallo, Samuel R., Sr.; and Najarian, Leon K., to Coulter Systems Corporation. Apparatus for developing latent electrostatic images. 4,271,785, Cl. 118-661.000.

Director-General of Agency of Industrial Science and Technology: *See*—
Imamura, Juichi, 4,272,634, Cl. 568-432.000.

Disdier, Andre: *See*—
Bernard, Andre; Disdier, Andre; and Royer, Michel, 4,272,448, Cl. 260-448.00R.

Dixon, Kenneth W.; and Hoffstadt, Frederick A., to Calgon Corporation. Frother for coal flotation. 4,272,364, Cl. 209-166.000.

Dobbie, John G. Automatic musical tuning device. 4,271,746, Cl. 84-454.000.

Docx, Albert G. Furnace muffles and furnaces. 4,272,670, Cl. 219-390.000.

Doering, John N.: *See*—
Bauer, Andrew J., Jr.; and Doering, John N., 4,272,212, Cl. 404-72.000.

Dolidovich, Elena F.: *See*—
Belkevich, Peter I.; Buslovich, Solomon J.; Dolidovich, Elena F.; Kaganovich, Fanya L.; Komov, Oktyabr P.; and Timofeeva, Ljudmila P., 4,272,527, Cl. 424-195.000.

Dominguez, Richard J. G.; and Rice, Doris M., to Texaco Development Corp. Heat stable reaction injection molded elastomers. 4,272,618, Cl. 521-160.000.

Dona, Marinus J. J., to U.S. Philips Corporation. Speed- or movement-reducing drive. 4,271,713, Cl. 74-198.000.

Dotson, Ronald L.: *See*—
Lynch, Richard W.; Hilliard, Garland E.; and Dotson, Ronald L., 4,272,338, Cl. 204-98.000.

Dow Chemical Company, The: *See*—
Ahlstrom, Ross C., Jr.; and Meppen, Craig E., 4,272,481, Cl. 422-62.000.
Cook, Frank T.; Baugh, Daniel W., Jr.; and Chambers, Robert V., Jr., 4,272,455, Cl. 564-503.000.
Lane, George A.; and Rossow, Harold E., 4,272,390, Cl. 252-70.000.
Lane, George A.; and Rossow, Harold E., 4,272,391, Cl. 252-70.000.
Lane, George A.; and Rossow, Harold E., 4,272,392, Cl. 252-70.000.
Martin, Robert C., 4,272,384, Cl. 252-8.55R.
McFadden, Russell T.; Krause, Reuben L.; and Young, R. Gregg, 4,272,621, Cl. 525-355.000.
Siegel, Sanford A.; Yoshimine, Masao; and Kao, Che-I, 4,272,635, Cl. 568-776.000.
Thompson, Leonard R.; and Kearney, J. Kevin, 4,272,636, Cl. 568-776.000.

Dow Corning Corporation: *See*—
Homan, Gary R.; and Lee, Chi-Long, 4,272,415, Cl. 260-18.00S.
Homan, Gary R.; and Lee, Chi-Long, 4,272,623, Cl. 528-15.000.

Downing, James R. Surface floodlight assembly. 4,272,799, Cl. 362-145.000.

Draftex Development: *See*—
Andrzejewski, Heinz, 4,271,634, Cl. 49-491.000.

Dragerwerk Aktiengesellschaft: *See*—
Hunecke, Karl-Heinz; and Laufenberg, Wilfried, 4,272,479, Cl. 422-57.000.

Drankhan, Voit C.: *See*—
Cook, John W.; and Drankhan, Voit C., 4,272,688, Cl. 307-123.000.

Draper, Ellsworth R., Jr.; and Jones, Kenneth L., to Procter & Gamble Company, The. Antistatic, fabric-softening detergent additive. 4,272,386, Cl. 252-8.600.

Dressel, Michael O., to United States of America, Interior. Automatic feed and rotational speed control system of a hydraulic motor operated drill. 4,271,914, Cl. 173-158.000.

Dresser Industries, Inc.: *See*—
Lawhon, Clyde E., 4,272,063, Cl. 266-286.000.

Drofitz, Stephen S., Jr.: *See*—
Cammarano, Armando S.; DiGiacomo, Giulio; and Drofitz, Stephen S., Jr., 4,272,722, Cl. 324-76.00R.

Dubois, Jean-Claude; Eranian, Armand; and Palmblast, Paul, to Thomson-CSF. Process for gluing two members using a photopolymerizable substance. 4,272,589, Cl. 428-442.000.

Du Bose, Harold D.: *See—*
Jarrett, Steven M.; and Du Bose, Harold D., 4,272,734, Cl. 331-94.50S.

Dubourg, Jean-Pierre, to Patpan Inc. Apparatus for drying flat articles of porous material under vacuum. 4,271,600, Cl. 34-92.000.

Dubuque, Gerald P. Process for fabricating articles from ultra high molecular weight polymer material. 4,271,851, Cl. 264-328.

Duchene, Georges, to Agence Nationale de Valorisation de la Recherche (ANVAR). Device for collecting solar energy. 4,271,826, Cl. 126-450.000.

Ducros, Luc; and Navarro, Roger, to Pierre Fabre S.A. Device for dispensing two pasty substances in adjustable proportions. 4,271,984, Cl. 222-94.000.

Dudgeon, Charles D., to General Electric Company. Method of making a bonded structure of magnet wire. 4,272,310, Cl. 156-172.000.

Duggan, Angelina J.; and Webb, Robert L., to SmithKline Corporation. Intermediates for preparing hydroxyphenylpyridazinones. 4,272,440, Cl. 260-343.600.

Duill, Helmut; and Ansen, Jakob, to Klockner-Humboldt-Deutz AG. Method and apparatus for the adjustment of a definite position of rest of a rotary tube. 4,272,710, Cl. 318-470.000.

Duncan, Farris N.: *See—*
Bamburg, Robert A.; Duncan, Farris N.; and Floyd, Roger M., 4,272,009, Cl. 229-41.00R.

Dunlop Limited: *See—*
Udall, William S.; and Martin, John, 4,271,884, Cl. 157-1.000.

Dunn, Larry P.: *See—*
Bate, Geoffrey; and Dunn, Larry P., 4,271,782, Cl. 118-623.000.

Du Pont de Nemours, E. I., and Company: *See—*
Bergna, Horacio E., 4,272,409, Cl. 252-455.00R.
D'Antonio, Joseph P., 4,272,249, Cl. 23-232.00E.
Jones, Richard H., 4,272,429, Cl. 260-37.00N.
Proskow, Stephen, 4,272,608, Cl. 430-288.000.
Reitz, Charles F., 4,271,900, Cl. 165-162.000.

Dupont, Regis: *See—*
Koletar, Gabor I.; Frost, Jonathan R.; Dupont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,272,539, Cl. 424-256.000.

Durando, Pierre: *See—*
Joubert, Philippe; Durando, Pierre; and Fleury, Daniel, 4,271,550, Cl. 9-8.00R.

Duren, Gottfried: *See—*
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.

Durkoppwerke GmbH: *See—*
Goldbeck, Heinz, 4,271,768, Cl. 112-68.000.

Durville, Gerard; Moulin, Michel; Ramseier, Serge; and Zurcher, Erwin, to Cotonificio Cantoni S.p.A. Method of cutting columns of thread loops. 4,271,568, Cl. 26-9.000.

Duval Corporation: *See—*
Lamb, Frank E., 4,272,341, Cl. 204-118.000.

Dynamit Nobel Aktiengesellschaft: *See—*
Bendler, Heilmut; Homburg, Axel; and Penner, Horst, 4,271,747, Cl. 411-20.000.

Dynatron/Bondo Corporation: *See—*
Niksich, Eugene J.; and Underwood, J. Larry, 4,271,982, Cl. 222-83.000.

E. D. Bullard Company: *See—*
Moretti, Anthony L., 4,271,833, Cl. 128-201.290.

E. Edelmann & Co.: *See—*
Detwiler, Timothy, 4,271,976, Cl. 220-206.000.

E. T. Oakes Limited: *See—*
Bouette, David W., 4,272,558, Cl. 426-660.000.

Earnest, Ernest R., to Hydragon Corporation. Turbine engine with exhaust gas recirculation. 4,271,664, Cl. 60-39.18R.

Eastman, Jay M.; and Miller, Theodore L., to United States of America, Energy. Method and apparatus for timing of laser beams in a multiple laser beam fusion system. 4,272,193, Cl. 356-349.000.

Eastman Kodak Company: *See—*
Baigrie, Brian D.; Bailey, Joseph; Johnston, Linda G.; and Mijovic, Miroslav V., 4,272,434, Cl. 260-156.000.
Jessop, Thomas C.; and Helfer, Jeffrey L., 4,272,482, Cl. 422-65.000.
Kim, Sang H.; and Chang, Hao-jan, 4,272,328, Cl. 204-1.00T.
McCombs, Charles A.; and Foster, Charles H., 4,272,444, Cl. 260-397.300.
Metzger, Lenard M., 4,272,806, Cl. 363-21.000.
Sherman, Larry; and Niedospial, John J., 4,272,035, Cl. 242-71.100.
Webster, Frank G.; Regan, Michael T.; and Rossi, Louis J., 4,272,595, Cl. 430-37.000.

Eaton Corporation: *See—*
Bridge, Erland T., 4,271,946, Cl. 192-58.00B.
Morscheck, Timothy J., 4,271,724, Cl. 74-720.000.

Ebara Corporation: *See—*
Takao, Syosuke; Kikuchi, Gunpei; Sekiguchi, Masuo; and Kawauchi, Shinji, 4,271,725, Cl. 74-730.000.

Ebauches Electroniques SA: *See—*
Nickles, Francois, 4,272,841, Cl. 368-224.000.

Eberhard Hoesch & Sohne GmbH & Co.: *See—*
Schotten, Alfons, 4,272,376, Cl. 210-230.000.

Eblen, Ewald: *See—*
Links, Heinz; Kopee, Odon; and Eblen, Ewald, 4,271,807, Cl. 123-506.000.

Echterling, Eugene, to Louis Marx & Co., Inc. Doll high chair and swing. 4,271,627, Cl. 46-15.000.

Eckberg, Edwin E., to Eckberg, Edwin E. D.C. Voltage fluorescent lamp. 4,272,703, Cl. 315-205.000.

Edington, Edwin T.; and White, Alan C., to John Wyeth & Brother Limited. Novel pyridine derivatives. 4,272,628, Cl. 546-284.000.

Efros, Boris, to Energenic Propulsions, Ltd. Powerful oscillating pedal bicycle. 4,272,096, Cl. 280-255.000.

Eggerding, Carl L.; Gonzales, Frank, Jr.; and Niklewski, Jerzy B., to International Business Machines Corporation. Process for forming mullite. 4,272,500, Cl. 423-327.000.

Egigian, Robert S. Anchor mat. 4,272,575, Cl. 428-83.000.

Eibe, Werner W., to Blaw-Knox Foundry & Mill Machinery, Inc. Coil rotating cooling conveyor system. 4,271,959, Cl. 198-777.000.

Eicken, Karl: *See—*
Hansen, Hanspeter; Eicken, Karl; Plath, Peter; Rohr, Wolfgang; and Wuerzer, Bruno, 4,272,282, Cl. 71-92.000.

Eisele, Hermann: *See—*
Knapp, Heinrich; Eisele, Hermann; and Kammerer, Werner, 4,271,794, Cl. 123-454.000.

Eitzinger, Robert, to Mid-West Automation, Inc. Apparatus for inserting multiple terminals into a holder. 4,271,581, Cl. 29-564.600.

Elb-Werkzeug-und Maschinenbau GmbH: *See—*
Geibel, Horst, 4,271,637, Cl. 51-92.00R.

ELBAK Batteriewerke Gesellschaft mbH: *See—*
Frieser, Edwin; and Novotny, Jurgen, 4,271,980, Cl. 221-297.000.

Elbow, William T. Tide time indicator. 4,272,107, Cl. 283-1.00A.

Electric Power Development Co., Ltd.: *See—*
Takahashi, Kazuyoshi; and Tanaka, Hiromi, 4,272,497, Cl. 423-239.000.

Electric Power Research Institute: *See—*
Sokoly, Theodore O.; and Niedzialkowski, John, 4,272,411, Cl. 252-516.000.

Electronics Corporation of America: *See—*
Weiner, Nathan K.; and Ketchum, David D., 4,272,725, Cl. 324-415.00R.

Eli Lilly and Company: *See—*
Cella, John A.; Flom, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, 4,272,544, Cl. 424-273.00R.
Herrold, Anne M.; and Vargas, Ovidio, 4,272,519, Cl. 424-83.000.

Ellion, M. Edmond; Putt, J. Ward; and Montich, John J., to Hughes Aircraft Company. Liquid-vapor separator. 4,272,257, Cl. 55-38.000.

Ellis, Christopher R.: *See—*
Hatch, Donald; Ellis, Christopher R.; Gibbon, Richard H.; and Stirling, Walter R., 4,271,937, Cl. 188-264.00F.

Elmore, Austin E.: *See—*
Herr, Myron R.; and Elmore, Austin E., 4,272,764, Cl. 340-575.000.

EMAC AB: *See—*
Eriksson, Birger; and Bostrom, Gosta, 4,271,987, Cl. 222-160.000.

Emhart Industries, Inc.: *See—*
Trahan, Albert J.; Beckwith, Bruce R.; and Murray, David B., 4,272,273, Cl. 65-167.000.

Enders, Edward O.: *See—*
Templin, Harry W.; and Enders, Edward O., 4,271,663, Cl. 59-84.000.

Endo, Terumi: *See—*
Hukagawa, Hitoshi; Shimada, Isao; Naruo, Masayuki; and Endo, Terumi, 4,272,671, Cl. 219-505.000.

Energenic Propulsions, Ltd.: *See—*
Efros, Boris, 4,272,096, Cl. 280-255.000.

Enomoto, Junzo: *See—*
Yamazaki, Hitoshi; Ito, Hiroshi; Takeda, Toshiyuki; and Enomoto, Junzo, 4,272,421, Cl. 260-29.2EP.

Enzer, Steven E.: *See—*
Diamond, Howard; Enzer, Steven E.; and Flowers, Joseph, Jr., 4,272,245, Cl. 23-230.00B.

Epifanov, Valery S.: *See—*
Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N., 4,272,033, Cl. 242-7.05B.

Equipment Company of America: *See—*
Garcia, Jose M., 4,272,220, Cl. 414-607.000.

Eranian, Armand: *See—*
Dubois, Jean-Claude; Eranian, Armand; and Paimblant, Paul, 4,272,589, Cl. 428-442.000.

Erb, Robert A., to Franklin Institute, The. Unitary solar collector panel. 4,271,823, Cl. 126-445.000.

Erbach, Arthur R.: *See—*
Mulec, Dennis L.; Erbach, Arthur R.; and Ray, Frank, 4,271,626, Cl. 43-112.000.

Ergun, Hayri: *See—*
Tettweiler, Robert; and Ergun, Hayri, 4,272,323, Cl. 201-6.000.

Eriksson, Birger; and Bostrom, Gosta, to EMAC AB. Device for dispensing beverages. 4,271,987, Cl. 222-160.000.

Ernst, Rolf; and Ullmann, Roland, to Braun Aktiengesellschaft. Dry shaving apparatus. 4,271,590, Cl. 30-43.920.

Esbitt, Alan S.: *See—*
Visser, Ronald C.; Estep, G. James; and Esbitt, Alan S., 4,272,644, Cl. 174-52.0FP.

Escher Wyss Limited: *See—*
Lehmann, Rolf, 4,271,575, Cl. 29-116.0AD.

ESCO Corporation: *See—*
Jones, Larren F., 4,271,615, Cl. 37-142.00A.

Espenmiller, Howard P., to Black Clawson Company, The. Secondary fiber system. 4,272,315, Cl. 162-4.000.

Esselte Pendaflex Corporation: *See—*
Volk, Heinrich, 4,271,759, Cl. 101-110.000.

Essex Cryogenics of Missouri, Inc.: *See—*
Snyder, Fred P., 4,272,265, Cl. 55-389.000.

Estebanell, Juan B. Comber-cleaner carding device. 4,271,564, Cl. 19-100.000.

Estep, G. James: *See—*
Visser, Ronald C.; Estep, G. James; and Esbitt, Alan S., 4,272,644, Cl. 174-52.0FP.

Ethyl Corporation: *See—*
Huang, Yun-Yang, 4,272,410, Cl. 252-465.000.

Etienne, Michel, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Device for simulating the operation of an accumulator battery, in particular a traction battery for an electric vehicle. 4,272,716, Cl. 320-14.000.

Etoh, Akio, to Niigata Engineering Co., Ltd. Apparatus for maneuvering a ship. 4,271,780, Cl. 114-144.00E.

Etoh, Yukihiro: *See—*
Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,271,795, Cl. 123-308.000.

Etzel, William W.: *See—*
Betancourt, George N.; and Etzel, William W., 4,272,321, Cl. 176-87.000.

Evans, Frank C., to Zin-Plas Corporation. Showerhead with replaceable housing. 4,272,022, Cl. 239-107.000.

Evans, Mervyn; and Harris, John D., to National Research Development Corporation. Post-fracture stability of limbs. 4,271,832, Cl. 128-92.00A.

Evans, Robert M., to RCA Corporation. Method for tuning a filter circuit. 4,272,743, Cl. 333-176.000.

Ewald, Richard; and Freiberg, Klaus, to Braas & Co. GmbH. Self-adhesive tape. 4,272,573, Cl. 428-40.000.

Explosive Technology, Inc.: *See—*
Burkdoll, Frank B., 4,272,102, Cl. 280-731.000.

Exxon Production Research Company: *See—*
Gale, Walter W., 4,271,907, Cl. 166-274.000.
Noerager, Jere A.; Taft, Daniel G.; and Bednar, John M., 4,272,059, Cl. 254-392.000.
Peters, Beldon A., 4,271,704, Cl. 73-864.630.
Robinson, Leon H., Jr.; Barry, Adelbert; and Speers, Jerry M., 4,271,908, Cl. 166-315.000.

Exxon Research & Engineering Co.: *See—*
Johnson, Burnett H., 4,272,467, Cl. 264-41.000.
Mohan, Raam R.; and Singhal, Gopal H., 4,272,401, Cl. 252-413.000.
Silbernagel, Bernard G.; Mohan, Raam R.; and Singhal, Gopal H., 4,272,400, Cl. 252-413.000.

Faatz, Albert C., to Foster Wheeler Energy Corporation. Process for comminuting and activating limestone by reaction with CO_2. 4,272,498, Cl. 423-242.000.

Fabbrica d'Armi P. Beretta S.p.A.: *See—*
Beretta, Pier C., 4,271,623, Cl. 42-72.000.

Facet Enterprises, Inc.: *See—*
Miller, Donald L., 4,271,941, Cl. 192-35.000.

Fairbairn, LeRoy W., to Bendix Corporation, The. Electrical contact for an electrical connector. 4,272,150, Cl. 339-276.00T.

Fairgrieve, John S.: *See—*
Von Esch, Anne M.; Thomas, Alford M.; Fairgrieve, John S.; and Seely, John H., 4,272,528, Cl. 424-211.000.

Farge, Daniel: *See—*
Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,272,534, Cl. 424-248.510.

Farrell, Daniel L. Solar energy apparatus. 4,271,819, Cl. 126-417.000.

Farrell, Eugene C., Jr. Pipe cleaning apparatus. 4,271,556, Cl. 15-104.30R.

Fastex s.r.l.: *See—*
Motta, Carmelo, 4,271,871, Cl. 139-384.00B.

Fate, William A.: *See—*
Hetrick, Robert E.; and Fate, William A., 4,272,329, Cl. 204-1.00T.

Faubel, Manfred; Holber, William M.; and Toennies, Jan P., to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. Electron impact ion source with field emission cathode. 4,272,699, Cl. 313-360.000.

Feast, Alan A. J., to International Synthetic Rubber Company Ltd., The. Preparation of latices. 4,272,426, Cl. 260-29.70H.

Feichtmayr, Franz: *See—*
Lach, Dietrich; Streicher, Rolf; and Feichtmayr, Franz, 4,272,243, Cl. 8-436.000.

Feinbloom, Richard E., to Designs for Vision, Inc. Method of splitting a parallel beam of light at first and second camera locations to provide par focal registration. 4,272,161, Cl. 350-320.000.

Feldman, Abe, to Timex Corporation. Gas driven gyroscope. 4,271,709, Cl. 74-5.120.

Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N. Device for forming taps when winding electrical coils. 4,272,033, Cl. 242-7.05B.

Ferguson, Robert W. Folding tent. 4,271,856, Cl. 135-4.00A.

Ferodo Limited: *See—*
Hatch, Donald; Ellis, Christopher R.; Gibbon, Richard H.; and Stirling, Walter R., 4,271,937, Cl. 188-264.00F.

Ferrari, Giorgio: *See—*
Casagrande, Cesare; and Ferrari, Giorgio, 4,272,529, Cl. 424-230.000.

Ferrero, Franca B., to Brefer S.p.A. Excavator with articulated arms. 4,271,613, Cl. 37-103.000.

Fiatron Systems, Inc.: *See—*
Schick, Karl G., 4,272,483, Cl. 422-67.000.

Fichtel & Sachs AG: *See—*
Kolb, Dieter; and Muller, Karl, 4,271,950, Cl. 192-98.000.

Weidl, Johann; Heyer, Gunter; Wecker, Wilhelm; Weippert, Gerhard; and Spichala, Paul, 4,271,869, Cl. 138-30.000.

Figala, Volker, to Byk Gulden Lomberg Chemische Fabrik GmbH. Phenylaminothiophenacetic acids, their synthesis, compositions and use. 4,272,507, Cl. 424-275.000.

Filice, Dennis; and Bories, David G. Self-propelled rolling toy. 4,272,093, Cl. 280-206.000.

Filippi, Arthur M.: *See—*
Yoldas, Bulent E.; Filippi, Arthur M.; and Buckman, Raymond W., Jr., 4,272,588, Cl. 428-433.000.

Fill, Ernst E.; Jetter, Heinz L.; and Volk, Reinhard, to Uranit Uran-Isotopentrennungs-Gesellschaft mbH. Method and apparatus for isotope-selectively exciting gaseous or vaporous uranium hexafluoride molecules. 4,272,681, Cl. 250-423.00P.

Fiorani, Osvaldo: *See—*
Passalenti, Beppino; Giuliani, Gino; and Fiorani, Osvaldo, 4,272,416, Cl. 260-18.0EP.

Fischer, Jurgen: *See—*
Baatz, Henning; Rittscher, Dieter; and Fischer, Jurgen, 4,272,683, Cl. 250-507.000.

Fishgal, Semyon I. Machine lubrication system. 4,271,929, Cl. 184-6.240.

Fitzgerald, William V., to RCA Corporation. Service switch apparatus. 4,272,777, Cl. 358-10.000.

Fiumani, Francesco, to Societa Italiana Telecomunicazion Siemens SpA. Receiver for data-transmission system operating with single-sideband amplitude modulation. 4,272,845, Cl. 375-20.000.

Flee, Stephen L.: *See—*
Carroll, James C.; Chapman, Donald L.; Flee, Stephen L.; and McGoldrick, Gilbert A., 4,272,643, Cl. 174-48.000.

Fler, Jack P., to Jacmorr Manufacturing Limited. Sliding drawer suspension. 4,272,139, Cl. 312-334.000.

Fleury, Daniel: *See—*
Joubert, Philippe; Durando, Pierre; and Fleury, Daniel, 4,271,550, Cl. 9-8.00R.

Flom, Merlyn G.: *See—*
Cella, John A.; Flom, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, 4,272,544, Cl. 424-273.00R.

Flood, Robert A.; Talkington, Howard R.; Wheelock, Richard A.; and Watts, Robert L., to United States of America, Navy. Master buoy system for acoustic array deployment, using underwater glide bodies remotely launched from a submerged pod. 4,272,835, Cl. 367-4.000.

Flowers, Joseph, Jr.: *See—*
Diamond, Howard; Enzer, Steven E.; and Flowers, Joseph, Jr., 4,272,245, Cl. 23-230.00B.

Floyd, Roger M.: *See—*
Bamburg, Robert A.; Duncan, Farris N.; and Floyd, Roger M., 4,272,009, Cl. 229-41.00R.

Fluor Corporation: *See—*
Hammond, James D.; and Deng, EH, 4,272,269, Cl. 62-17.000.

Flynn, George J. Method and apparatus for diastolic pressure measurement. 4,271,843, Cl. 128-681.000.

FMC Corporation: *See—*
Dean, Arthur L.; and Wine, William L., 4,272,366, Cl. 209-364.000.
Keay, Robert E.; Orwoll, Edward F.; and Price, John A., 4,272,441, Cl. 260-346.730.
Milberger, Lionel J.; and Tucker, Albert R., 4,271,867, Cl. 137-625.210.
Templin, Harry W.; and Enders, Edward O., 4,271,663, Cl. 59-84.000.

Foerster, Siegfried: *See—*
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.

Fogarty, Thomas J.; and Chin, Albert K., to Fogarty, Thomas J. Dilation catheter method and apparatus. 4,271,839, Cl. 128-344.000.

Fogle, Ozzie: *See—*
Cooley, James; and Fogle, Ozzie, 4,272,581, Cl. 428-328.000.

Fonseca, Oscar. Global aquarium with aerator and purifier. 4,272,372, Cl. 210-169.000.

Fonskov, Jorgen: *See—*
Bengtsson, Bengt L.; and Fonskov, Jorgen, 4,272,553, Cl. 426-241.000.

Foord, Brian A.; and Leutz, Donald C., to Parker-Hannifin Corporation. Fluid filter and indicator. 4,272,368, Cl. 210-90.000.

Force, Carlton G., to Westvaco Corporation. Treatment of styrene-butadiene rubber. 4,272,419, Cl. 260-27.0BB.

Ford Motor Company: *See—*
Berger, Alvin H., 4,272,459, Cl. 261-34.00A.
Hetrick, Robert E.; and Fate, William A., 4,272,329, Cl. 204-1.00T.
Hetrick, Robert E., 4,272,330, Cl. 204-1.00T.
Hetrick, Robert E., 4,272,331, Cl. 204-1.00T.
Holka, Thomas C.; and Marvin, Brian D., 4,272,105, Cl. 280-804.000.
LaDuke, Jack E., 4,272,145, Cl. 339-91.00R.

Fortunato, Louis F. Method and apparatus for masterkeying. 4,271,597, Cl. 33-174.00F.

Foster, Charles H.: *See—*
McCombs, Charles A.; and Foster, Charles H., 4,272,444, Cl. 260-397.300.

Foster, Leslie W., to Toro Company, The. Clutch and blade brake for lawn mower. 4,271,658, Cl. 56-11.300.

Foster Wheeler Energy Corporation: *See—*
Faatz, Albert C., 4,272,498, Cl. 423-242.000.

Foulon, Raymond: *See—*
Meyer, Nicolas; and Foulon, Raymond, 4,272,403, Cl. 252-428.000.

Fralick, Richard: *See—*
Wood, Charles; and Fralick, Richard, 4,271,542, Cl. 4-495.000.

Fram, Adolph: *See—*
Moses, John R.; and Fram, Adolph, 4,272,371, Cl. 210-168.000.

Fram-Israelson Enterprises: *See—*
Moses, John R.; and Fram, Adolph, 4,272,371, Cl. 210-168.000.

Frank, Robert G.; Canonaco, Rudy; and Posney, Richard V., to PPG Industries, Inc. Slotted glass sheet shaping mold. 4,272,274, Cl. 65-273.000.

Frank, Walter; Bendszus, Otto; Freier, Hans-Joachim; and Traenckner, Hans-Joachim, to Bayer Aktiengesellschaft. Aqueous polyester emulsions and the use thereof for the production of particularly thin-layer coatings. 4,272,420, Cl. 260-28.00R.

Franklin, Grover C., Jr. Apparatus for mixing gases with liquids. 4,272,461, Cl. 261-93.000.

Franklin Institute, The: *See—*
Erb, Robert A., 4,271,823, Cl. 126-445.000.

Franz, Norman C. Method and nozzle assembly for fluid jet penetration of a work material. 4,272,017, Cl. 239-1.000.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See—*
Theurer, Josef, 4,272,664, Cl. 219-53.000.

Fratelli Borletti S.p.A.: *See—*
Broetto, Costantino, 4,272,755, Cl. 340-58.000.

Fratty, Hector, to Cibie Projecteurs. Motor vehicle head lamp lenses having light deflecting ribs. 4,272,801, Cl. 362-336.000.

Frederick Electronics: *See—*
McKeen, Robert S.; Keefer, Kenneth S.; and Sawyer, Theodore E., 4,272,141, Cl. 339-18.00R.

Freeman, Edward M. Economizer comfort index control. 4,271,898, Cl. 165-16.000.

Freiberg, Klaus: *See—*
Ewald, Richard; and Freiberg, Klaus, 4,272,573, Cl. 428-40.000.

Freier, Hans-Joachim: *See—*
Frank, Walter; Bendszus, Otto; Freier, Hans-Joachim; and Traenckner, Hans-Joachim, 4,272,420, Cl. 260-28.00R.

Fried. Krupp GmbH: *See—*
Homann, Thorsten, 4,271,754, Cl. 100-37.000.

Friedman, Harry G., to Medtronic, Inc. Electro-ocular stimulation system. 4,271,841, Cl. 128-419.00R.

Frier, James L.: *See—*
Cason, Robert W.; Holland, Orvis L.; Russell, Floyd C.; Bass, Malley R.; and Frier, James L., 4,272,499, Cl. 423-242.000.

Frieser, Edwin; and Novotny, Jurgen, to ELBAK Batteriewerke Gesellschaft mbH. Magazine for platelike articles. 4,271,980, Cl. 221-297.000.

Frito-Lay, Inc.: *See—*
Schroeder, Otto E.; Wohlman, Alan; and Topor, Michael G., 4,272,554, Cl. 426-321.000.

Fritz, Adolf: *See—*
Bodig, Bernd; Schmied, Helmut; Hohne, Gerd; and Fritz, Adolf, 4,271,812, Cl. 123-609.000.

Fritz, James S.; Gjerde, Douglas T.; and Schmuckler, Gabriella, to United States of America, Energy. Method and apparatus for chromatographic quantitative analysis. 4,272,246, Cl. 23-230.00R.

Fritzsche Dodge & Olcott Inc.: *See—*
Willis, Brian J.; Christenson, Philip A.; and Mack, Robert, 4,272,412, Cl. 252-522.00R.

Frost, Jonathan R.: *See—*
Koletar, Gabor I.; Frost, Jonathan R.; Dupont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,272,539,. Cl. 424-256.000.

Frye, John V., to Ag-Team, Inc. Disc harrow. 4,271,912, Cl. 172-441.000.

Fugate, Philip E.; and Roy, Kenneth L., to Ledex, Inc. Print wire solenoid. 4,272,748, Cl. 335-271.000.

Fuhrer, Jack S., to RCA Corporation. Defect compensation for color television. 4,272,785, Cl. 358-127.000.

Fuji Electric Co., Ltd.: *See—*
Kohno, Masaru; and Nakagawa, Yukio, 4,271,708, Cl. 73-861.280.
Matsuo, Osamu; Nakamura, Keijiro; and Kodaira, Toshimi, 4,271,967, Cl. 209-558.000.
Yasuhara, Takeshi; and Tago, Keiichiro, 4,272,822, Cl. 364-481.000.

Fuji Photo Film Co., Ltd.: *See—*
Kishimoto, Shinzo, 4,272,616, Cl. 430-529.000.
Mifune, Hiroyuki; Takada, Shunji; Akimura, Yoshitaka; and Fuseya, Yoshiharu, 4,272,606, Cl. 430-264.000.
Mifune, Hiroyuki; and Hirano, Shigeo, 4,272,614, Cl. 430-441.000.
Oda, Kazutaka; and Ohba, Hisao, 4,272,342, Cl. 204-129.400.
Shibaoka, Haruo; and Ogawa, Junkichi, 4,272,613, Cl. 430-364.000.
Yoneyama, Masakazu; Kishimoto, Shinzo; and Nakayama, Yasuhiro, 4,272,615, Cl. 430-527.000.

Fuji Photo Optical Co., Ltd.: *See—*
Ishibashi, Kuniaki; Shiraishi, Norio; and Oshiro, Susumu, 4,272,156, Cl. 350-96.260.

Fujikawa, Tetsuzo; and Nishimura, Michio, to Kawasaki Jukogyo Kabushiki Kaisha. Cylinder head gasket for a liquid cooled internal combustion engine. 4,272,085, Cl. 277-235.00B.

Fujimoto, Yoshiji: *See—*
Kakumoto, Shigeru; Fujimoto, Yoshiji; and Okada, Kunihiro, 4,272,756, Cl. 340-146.30H.

Fujinaka, Yoshiaki; Ohashi, Haruo; Miyazaki, Masahito; Mizuno, Kenzi; and Kuwabara, Fukuzi, to Iwaki Co., Ltd. Electromagnetically-operated fixed displacement pump. 4,272,225, Cl. 417-417.000.

Fujitsu Fanuc Limited: *See—*
Fukuyama, Hiroomi; and Isobe, Shinichi, 4,272,711, Cl. 318-565.000.

Fujitsu Limited: *See—*
Inui, Norio; Kume, Noriaki; and Okamoto, Tetsuro, 4,272,827, Cl. 364-764.000.
Katsumata, Yutaka; Sanagi, Mitsuru; and Tanaka, Hideo, 4,272,819, Cl. 364-200.000.
Shirai, Kazunari; Tanaka, Izumi; Tanaka, Shinpei; and Nishimoto, Keiji, 4,271,582, Cl. 29-571.000.

Fujiwara, Kiyoshi: *See—*
Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, 4,272,011, Cl. 233-15.000.

Fukahori, Hidehiko: *See—*
Iwashita, Tomonori; Fukahori, Hidehiko; and Mashimo, Yukio, 4,272,173, Cl. 354-173.000.

Fukano, Kazuaki; Nakagawa, Ryuichi; Fukasawa, Akira; and Nishio, Hiroshi, to Lion Fat & Oil Co., Ltd., The. Enzyme-containing detergent composition. 4,272,396, Cl. 252-174.120.

Fukasawa, Akira: *See—*
Fukano, Kazuaki; Nakagawa, Ryuichi; Fukasawa, Akira; and Nishio, Hiroshi, 4,272,396, Cl. 252-174.120.

Fukuchi, Ichiro: *See—*
Takemura, Nobuyuki; and Fukuchi, Ichiro, 4,271,983, Cl. 222-85.000.

Fukuda, Shuzo; Watanabe, Tsutomu; and Abe, Masahiro, to Nippon Kokan Kabushiki Kaisha. Method of fluidification of liquid between plane parallel plates by jetting the liquid. 4,272,334, Cl. 204-27.000.

Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Method of preparing flake-like ceramic particle of zinc sulfide phosphor. 4,272,397, Cl. 252-301.60S.

Fukumitsu, Hirotaka: *See—*
Yoneda, Koji; Ohashi, Takehisa; Onishi, Masami; and Fukumitsu, Hirotaka, 4,272,517, Cl. 424-72.000.

Fukumori, Hiromasa: *See—*
Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, 4,272,011, Cl. 233-15.000.

Fukushima, Fumio: *See—*
Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,272,397, Cl. 252-301.60S.

Fukuyama, Hiroomi; and Isobe, Shinichi, to Fujitsu Fanuc Limited. Malfunction detecting system. 4,272,711, Cl. 318-565.000.

Funck, Herbert. Sole-unit for protective footwear. 4,271,607, Cl. 36-30.00R.

Furst, Andor: *See—*
Alig, Leo; Furst, Andor; Muller, Marcel; Kerb, Ulrich; Kieslich, Klaus; and Wiechert, Rudolf, 4,272,630, Cl. 560-6.000.

Furukawa, Tatsuya, to Ricoh Co., Ltd. Ink jet printer with multiple nozzle print head and interlacing or dither means. 4,272,771, Cl. 346-75.000.

Furutani, Toshinobu; Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; and Wakisaka, Hiroshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Catalyst supported oxygen sensor with sensor element having catalyst and protective layers and a method of manufacturing same. 4,272,349, Cl. 204-195.00S.

Fuseya, Yoshiharu: *See—*
Mifune, Hiroyuki; Takada, Shunji; Akimura, Yoshitaka; and Fuseya, Yoshiharu, 4,272,606, Cl. 430-264.000.

Fuziwara, Shigeru; and Tamura, Shinichi, to Nippon Steel Corporation. Blast furnace hearth. 4,272,062, Cl. 266-284.000.

Gadbois, Richard T.; and Matthews, Richard A., to Minnesota Mining and Manufacturing Company. Rotatable floor treating pad. 4,271,640, Cl. 51-400.000.

Gadient, Fulvio; and Suess, Rudolf, to Sandoz Ltd. N-Phenylindoline derivatives, and pharmaceutical compositions containing them. 4,272,533, Cl. 424-248.400.

Gaeckle, Fred J., to General Electric Company. Thermal fuze mechanical disconnect eutectic containment. 4,271,947, Cl. 192-82.00T.

Gaffar, Abdul, to Colgate-Palmolive Company. Antigingivitis composition. 4,272,512, Cl. 424-49.000.

Gaffar, Abdul, to Colgate-Palmolive Company. Stabilized oral composition. 4,272,513, Cl. 424-52.000.

Gagnon, Pierre; and Laforest, Pierre. Brake. 4,271,934, Cl. 188-170.000.

Galbraith, Lyle D.; Stewart, Hudson; and Congdon, Jon M., to Rockcor, Inc. Tire cleaning system with tire spreader. 4,272,301, Cl. 134-8.000.

Gale, Walter W., to Exxon Production Research Company. Microemulsions which compatibly incorporate viscosifiers and their use in enhanced oil recovery. 4,271,907, Cl. 166-274.000.

Gallagher, Gerard A., to Contraves Goerz Corporation. Regenerative DC power supply. 4,272,807, Cl. 363-126.000.

Gallaro, Anthony V.; Lane, Joseph E.; and Williams, G. Norman, to GTE Products Corporation. Cathode ray tube arc limiting coating. 4,272,701, Cl. 313-479.000.

Gallay, S.A.: *See—*
Le Bret, Lucien, 4,271,778, Cl. 113-121.0AB.

Galli, Mario: *See—*
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,271,695, Cl. 73-23.100.

Galloway, Charles R.: *See—*
Galloway, Robert L.; and Galloway, Charles R., 4,271,865, Cl. 137-614.060.

Galloway, Robert L.; and Galloway, Charles R. Dry break coupling valve. 4,271,865, Cl. 137-614.060.

Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., to Bendix Corporation, The. One piece socket type electrical contacts. 4,272,149, Cl. 339-258.00R.

Gambell, James W.; and Auvil, Steven R., to Monsanto Company. Acetonitrile process with improved catalysts. 4,272,451, Cl. 260-465.100.

Gambro AB: *See—*
Stenberg, Kaj O.; and Traven, Lars J. C., 4,272,373, Cl. 210-175.000.

Gandhi, Om P.: *See—*
Turner, Paul F.; and Gandhi, Om P., 4,271,848, Cl. 128-804.000.

Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., to Schering Corporation. 6-(Substituted-hydroxymethylene penams). 4,272,439, Cl. 260-245.20R.

Ganis, G. Robert. Instrument and method for determining map coordinates. 4,271,596, Cl. 33-1.00C.

Gants, Wilbur L.: *See—*
Davert, Edward J.; and Gants, Wilbur L., 4,272,215, Cl. 408-14.000.

Garcia, Jose M., to Equipment Company of America. Drum lifter for fork lift truck. 4,272,220, Cl. 414-607.000.

Garcia, Octavio G.; and Lambert, Peter A., to Devine Lighting, Incorporated. Conversion unit for electrical light fixture. 4,271,621, Cl. 40-570.000.

Garcia, Vincent H.: *See—*
Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., 4,272,187, Cl. 355-56.000.

Garrison, Stephen P.; and Kroeker, Elmer L. B., to International Business Machines Corporation. Roll-wave sheet separator structure. 4,272,068, Cl. 271-117.000.

Gatan, Inc.: *See—*
Swann, Peter R., 4,272,682, Cl. 250-442.000.

Gates, Geoffrey W.; and Kepley, Garry D., to Bell Telephone Laboratories, Incorporated. Arrangement for deleting trailing message portions. 4,272,810, Cl. 364-900.000.

Gatzen, Carl-Jacob; Poethen, Hartmut; and Sion, Heribert. Process for the lowering of increased levels of cholesterol and neutral fat in the blood of humans. 4,272,548, Cl. 424-312.000.

Gatzsch, Konstantin: *See—*
Veit, Ivar; Sickel, Liesbet; and Gatzsch, Konstantin, 4,272,647, Cl. 179-1.0AL.

Gebr. Happich GmbH: *See—*
Viertel, Lothar; and Nowak, Manfred, 4,272,118, Cl. 296-97.00R.

Gebruder Junghans GmbH: *See—*
Schultheiss, Udo, 4,272,842, Cl. 368-316.000.

Gehle, Warren D.: *See—*
Smith, Kendall O.; and Gehle, Warren D., 4,272,510, Cl. 427-47.000.

Geibel, Horst, to Elb-Werkzeug-und Maschinenbau GmbH. Surface grinding machine. 4,271,637, Cl. 51-92.00R.

Geiger, Robert W.: *See—*
Tschanz, August E.; and Geiger, Robert W., 4,271,700, Cl. 73-182.000.

Geil, Ronald J., to Gould Inc. Priming apparatus for liquid ink writing instruments. 4,272,772, Cl. 346-140.00R.

Geller, William L.; and Naugle, Richard L., to GTE Laboratories Incorporated. Exit-entry sensing apparatus. 4,272,762, Cl. 340-556.000.

General Dynamics, Pomona Division: *See—*
Bastian, Thomas W.; Lacy, Garry T.; and Vink, John J., 4,272,040, Cl. 244-3.220.

General Electric Company: *See—*
Cotic, Dennis J., 4,272,680, Cl. 250-375.000.
Crawford, John G., 4,271,861, Cl. 137-387.000.
Dudgeon, Charles D., 4,272,310, Cl. 156-172.000.
Gaeckle, Fred J., 4,271,947, Cl. 192-82.00T.
Howell, Edward K., 4,272,797, Cl. 361-93.000.
Lange, Kai, 4,272,678, Cl. 250-363.00S.
Lawrance, Richard J.; and Wood, Linda D., 4,272,353, Cl. 204-283.000.
Lou, Liang F., 4,272,754, Cl. 338-21.000.
Lupinski, John H.; and Gorowitz, Bernard, 4,271,783, Cl. 118-629.000.
Noland, Joseph R., 4,271,899, Cl. 165-29.000.
Razzano, John S., 4,272,624, Cl. 528-37.000.
Stroble, Reimann L.; Hueschen, Robert E.; and Jens, Richard A., 4,272,696, Cl. 313-60.000.

General, Inc., The: *See—*
Davis, Charles J., 4,272,222, Cl. 414-694.000.

General Motors Corporation: *See—*
Benton, Robert L., 4,272,476, Cl. 264-225.000.
Budinski, John A., 4,271,945, Cl. 192-58.00B.
Lancaster, David R., 4,271,810, Cl. 123-568.000.
McCarbery, Gary P., 4,271,797, Cl. 123-412.000.
McCartney, Charles P., Jr., 4,271,586, Cl. 29-623.500.

General Systems Research Ltd.: *See—*
Schmidt, Erick, 4,271,619, Cl. 40-154.000.

Genini, Graziano, to Albatex A.G. Pair of grippers for weaving looms without shuttle. 4,271,873, Cl. 139-446.000.

George, Louis J.; and Theobald, Barbara A., to Polaroid Corporation. Photographic product including a light-reflecting layer with carbon coated with reflecting material. 4,272,594, Cl. 430-14.000.

Georgetown University: *See—*
Ledley, Robert S., 4,271,706, Cl. 73-614.000.

Georgiev, Vesselin Y.; and Mednikarov, Vladimir S., to Institute po Mechanika i Biomechanika. Telescopic sinking hydrant. 4,272,023, Cl. 239-204.000.

Geosource Inc.: *See—*
Mehrkam, Thomas O.; and Lockett, James F., 4,271,968, Cl. 209-564.000.

Gercekci, Anil; and Maeder, Heinz B., to Motorola, Inc. Start stop oscillator having fixed starting phase. 4,272,736, Cl. 331-108.00B.

Gergely, Gerhard. Gas generating cleaning article. 4,272,393, Cl. 252-91.000.

Gerlach, Klaus; and Wick, Gerhard, to Akzo N.V. Production of polyurethane embedding materials. 4,272,377, Cl. 210-321.300.

Gerlach, Ulrich H.: *See—*
Collins, Stuart A., Jr.; Sengupta, Uday K.; and Gerlach, Ulrich H., 4,272,157, Cl. 350-374.000.

Gewerkschaft Eisenhutte Westfalia: *See—*
Hauschopp, Alois, 4,272,130, Cl. 299-34.000.

Ghosh, Anil C.: *See—*
Razdan, Raj K.; and Ghosh, Anil C., 4,272,540, Cl. 424-260.000.

Gibbon, Richard H.: *See—*
Hatch, Donald; Ellis, Christopher R.; Gibbon, Richard H.; and Stirling, Walter R., 4,271,937, Cl. 188-264.00F.

Gibbs, Charles G., to Gulf Oil Corporation. Arylthioureidoisoindolines and use as plant growth regulators. 4,272,284, Cl. 71-96.000.

Gibson, John J., to RCA Corporation. Video disc playback apparatus with non-linear aperture correction. 4,272,786, Cl. 358-128.500.

Gidner, Robert R., to Zurn Industries, Inc. Flush valves. 4,272,052, Cl. 251-39.000.

Gievers, Christa L.: *See—*
Gievers, John G., 4,272,194, Cl. 356-350.000.

Gievers, John G., to Gievers, Christa L. Rotation sensitive ring laser system. 4,272,194, Cl. 356-350.000.

Gillis, John A.: *See—*
Lewinger, Nathan; and Gillis, John A., 4,272,824, Cl. 364-502.000.

Gin, Bobby: *See—*
Canning, Thomas N.; Barns, Christopher E.; Murphy, James P.; Gin, Bobby; and King, Robert W., 4,271,761, Cl. 102-504.000.

Ginsburgh, Irwin; and Hall, Robert D., to Standard Oil Company (Indiana). Method for controlling underground combustion. 4,271,904, Cl. 166-251.000.

Giraud, Georges, to Compagnie Internationale pour l'Informatique CII Honeywell Bull (Societe Anonyme). Arrangement for providing a power supply and transmitting electrical signs between two devices using a small number of contacts. 4,272,758, Cl. 340-310.00A.

Girijavallabhan, Viyyoor M.: *See—*
Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., 4,272,439, Cl. 260-245.20R.

Giuliani, Gino: *See—*
Passalenti, Beppino; Giuliani, Gino; and Fiorani, Osvaldo, 4,272,416, Cl. 260-18.0EP.

Givens, Edwin N.: *See—*
Greskovich, Eugene J.; and Givens, Edwin N., 4,272,501, Cl. 423-447.100.

Gjerde, Douglas T.: *See—*
Fritz, James S.; Gjerde, Douglas T.; and Schmuckler, Gabriella, 4,272,246, Cl. 23-230.00R.

GKN Axles Limited: *See—*
Millward, Thomas H.; Wylie, David G.; and Clarke, Philip C., 4,271,717, Cl. 74-467.000.

Glass, James P., Jr., to Monsanto Company. Finish application for tandem winding. 4,272,565, Cl. 427-177.000.

Glaseman, E. Glenn. Orthodontic appliance for applying a power force to a tooth. 4,272,240, Cl. 433-18.000.

Glaum, Gerald V.: *See—*
Subramanian, Kohur N.; Hall, Rotrou A.; and Glaum, Gerald V., 4,272,493, Cl. 423-41.000.

Glaxo Group Limited: *See—*
Croci, Marco; and Maruzzelli, Gennaro, 4,272,438, Cl. 260-239.100.

Gleich, Bruno: *See—*
Grun, Reinhold; Troster, Dietrich; and Gleich, Bruno, 4,271,569, Cl. 26-79.000.

Glifberg, Nils B.: *See—*
Andersson, Alf H.; and Glifberg, Nils B., 4,271,662, Cl. 56-121.440.

Glock, Eugene, to American Brands, Inc. Method for increasing the filling capacity of tobacco. 4,271,852, Cl. 131-292.000.

Gloucester Engineering Co., Inc.: *See—*
Schott, Charles M., Jr., 4,272,231, Cl. 425-72.00R.

Gnesa, Edward C. Portable long barrel firearm stand for rifle or shotgun. 4,271,969, Cl. 211-64.000.

GNS Gesellschaft fur Nuklear-Service mbH: *See—*
Baatz, Henning; Rittscher, Dieter; and Fischer, Jurgen, 4,272,683, Cl. 250-507.000.

Gold, Elijah H.: *See—*
Neustadt, Bernard R.; and Gold, Elijah H., 4,272,550, Cl. 424-324.000.

Goldbeck, Heinz, to Durkoppwerke GmbH. Assembly for forming piped-edge openings in a fabric workpiece. 4,271,768, Cl. 112-68.000.

Goldberg, Gerald; Myers, Charles L.; Parsons, Charles F.; and Steffancin, William, to Borg-Warner Corporation. Platable high heat ABS resins and plated articles made therefrom. 4,272,584, Cl. 428-412.000.

Goldberg, Paul R.: *See—*
Specht, Donald F.; and Goldberg, Paul R., 4,271,842, Cl. 128-661.000.

Goldman, Jerome N.: *See—*
Goldman, Marvin A.; Goldman, Jerome N.; and DiMarchi, Silvio J., 4,272,672, Cl. 219-523.000.
Goldman, Marvin A.; Goldman, Jerome N.; and DiMarchi, Silvio J., to Penn-Plax Plastics, Inc. Aquarium heater. 4,272,672, Cl. 219-523.000.
Golowacz, Edward. Electric fluid heating apparatus employing stackable heat transfer modules. 4,272,667, Cl. 219-326.000.
Gonzales, Frank, Jr.: *See—*
Eggerding, Carl L.; Gonzales, Frank, Jr.; and Niklewski, Jerzy B., 4,272,500, Cl. 423-327.000.
Goodwin, Burnus R. Propeller driven aerial toy. 4,271,629, Cl. 46-78.000.
Goodyear Tire & Rubber Company, The: *See—*
Lal, Joginder; and Walters, Sandra J., 4,272,436, Cl. 260-2.300.
Payne, Roger E.; Rossi, Robert K.; and Knizely, James B., 4,272,309, Cl. 156-117.000.
Gorowitz, Bernard: *See—*
Lupinski, John H.; and Gorowitz, Bernard, 4,271,783, Cl. 118-629.000.
Gosney, Garrison, to New England Machinery, Inc. Bottle orienting apparatus. 4,271,954, Cl. 198-399.000.
Gould Inc.: *See—*
Blumenthal, John, 4,271,559, Cl. 15-308.000.
Dethlefsen, Rolf, 4,272,661, Cl. 200-144.00B.
Geil, Ronald J., 4,272,772, Cl. 346-140.00R.
Halasz, Laszlo, 4,272,773, Cl. 346-140.00R.
Jacobs, Philip C., Jr., 4,272,752, Cl. 337-276.000.
Graf, Franz: *See—*
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.
Grawe, John R.: *See—*
Chenevert, Donald J.; Grawe, John R.; and McDaniel, John C., 4,272,603, Cl. 430-155.000.
Gray, Joseph E.: *See—*
Booth, David L.; and Gray, Joseph E., 4,272,453, Cl. 260-543.100.
Greatbatch, Robert J., to Weight Distribution Limited. Weight transfer hitch. 4,272,098, Cl. 280-494.000.
Green Line, Inc.: *See—*
Vavra, Gary J., 4,271,711, Cl. 74-96.000.
Green, Marvin V., administrator: *See—*
Kloefkorn, Melvin L.; Kloefkorn, Earl W., deceased; and Green, Marvin V., administrator, 4,271,660, Cl. 56-14.600.
Green, Robert E. Method and apparatus for cooking. 4,272,663, Cl. 219-10.55E.
Greiner, Leonard. Chemical heat pump. 4,272,268, Cl. 62-2.000.
Grenell, David, to Allen-Stevens Corp. Combination drill and tap tool. 4,271,554, Cl. 10-152.00T.
Greskovich, Eugene J.; and Givens, Edwin N., to International Coal Refining Company. Carbon fibers from SRC pitch. 4,272,501, Cl. 423-447.100.
Grewe, Josef; and Portner, Philip, to C. M. Offray & Son, Inc. Flexible reflex-reflective article having undulant surface and method of making the same. 4,272,564, Cl. 427-163.000.
Griffin, Gary A.: *See—*
Moro, Daniel G.; Griffin, Gary A.; and D'Andrea, Mark J., 4,272,518, Cl. 424-81.000.
Grolms, Friedbert, to Jagenberg Werke Aktiengesellschaft. Air nozzle for a jet dryer. 4,271,602, Cl. 34-160.000.
Grosser, Richard W.; and Long, Virgil L., Sr., to AMF Incorporated. Aluminum balance beam. 4,272,073, Cl. 272-111.000.
Grossutti, Aldo. Mattress and boxspring extender. 4,271,547, Cl. 5-181.000.
Grubb, Jesse T.: *See—*
Miller, William H.; and Grubb, Jesse T., 4,271,970, Cl. 212-146.000.
Grubka, Lawrence J., to Owens-Corning Fiberglas Corporation. Method and apparatus for production of mineral fibers. 4,272,272, Cl. 65-1.000.
Grumman Flexible Corporation: *See—*
Houser, Raymond E., 4,272,015, Cl. 236-49.000.
Grun, Reinhold; Troster, Dietrich; and Gleich, Bruno, to Bruckner-Trockentechnik KG. Tenter apparatus for fabric web tenter machines. 4,271,569, Cl. 26-79.000.
Grunder, Werner, to Zellweger Uster, Ltd. Method and apparatus for regulating out variations in the sliver weight on devices for processing fibre slivers. 4,271,565, Cl. 19-240.000.
GTE Automatic Electric Laboratories Inc.: *See—*
Beeman, Robert H., 4,272,721, Cl. 324-73.00R.
Lychyk, George S.; and Neese, Wayne E., 4,272,140, Cl. 339-17.0CF.
GTE Laboratories Incorporated: *See—*
Geller, William L.; and Naugle, Richard L., 4,272,762, Cl. 340-556.000.
Klinedinst, Keith A., 4,272,593, Cl. 429-101.000.
GTE Products Corporation: *See—*
Collins, Floyd K., 4,272,700, Cl. 313-458.000.
Gallaro, Anthony V.; Lane, Joseph E.; and Williams, G. Norman, 4,272,701, Cl. 313-479.000.
Guardian Electric Manufacturing Company: *See—*
Wright, William W.; and Vojir, Frank S., 4,272,746, Cl. 335-128.000.
Gudorf, James L., to Mead Corporation, The. Method of manufacturing charge plates. 4,271,589, Cl. 29-878.000.
Guedj, Richard: *See—*
Dieulesaint, Eugene; Royer, Daniel; and Guedj, Richard, 4,272,676, Cl. 250-221.000.
Guerton, Jean P.; and Regazzoni, Francis, to S.K.F. Compagnie d'Applications Mechaniades. Clutch thrust bearing device. 4,271,949, Cl. 192-98.000.
Guillaume, Emile A. H., to Zelacolor Systems Establishment. Apparatus for making photographic pictures. 4,272,172, Cl. 354-161.000.
Gulf Oil Corporation: *See—*
Gibbs, Charles G., 4,272,284, Cl. 71-96.000.
Hedrich, Loren W., 4,272,280, Cl. 71-88.000.
Kirkpatrick, Joel L.; and Patel, Natu R., 4,272,279, Cl. 71-88.000.
Gulf Research & Development Company: *See—*
Beach, David L.; and Kobylinski, Thaddeus P., 4,272,406, Cl. 252-430.000.
Beach, David L.; and Kobylinski, Thaddeus P., 4,272,407, Cl. 252-430.000.
Schulz, Johann G. D.; and Cobler, John A., 4,272,253, Cl. 44-51.000.
Gunning, David W., to Anchor Coupling Co., Inc. Apparatus for applying coupling to hose. 4,271,576, Cl. 29-237.000.
Gunson's Sortex Limited: *See—*
Crowley, Kenneth H., 4,271,966, Cl. 209-576.000.
Gutierrez, Eddie N., to Lever Brothers Company. Certain tricarboxylic acid derivatives. 4,272,442, Cl. 260-346.740.
Guy F. Atkinson Company: *See—*
Martinson, Arthur R.; and Rogers, Victor D., 4,272,084, Cl. 277-30.000.
Haas, Georges; and Rossi, Alberto, to Ciba-Geigy Corporation. Benzoyl indane carboxamides as antiphlogistics. 4,272,547, Cl. 424-311.000.
Hade, Horace A. Mixing container. 4,272,199, Cl. 366-130.000.
Hagedorn, Fritz, to Kali-Chemie Aktiengesellschaft. Apparatus for preparation of solutions of solid samples for wet chemical analysis. 4,272,477, Cl. 422-50.000.
Hahn, Klaus; Naarmann, Herbert; Penzien, Klaus; and Weber, Heinz, to BASF Aktiengesellschaft. Flameproofed expandable styrene polymers. 4,272,583, Cl. 428-407.000.
Hair, Michael L.: *See—*
Harbour, John R.; and Hair, Michael L., 4,272,596, Cl. 430-37.000.
Hakusan Seisakusho Co., Ltd.: *See—*
Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Museyuki; Nakamura, Mitsuo; and Amano, Takayoshi, 4,272,003, Cl. 228-13.000.
Halaby, Samuel A., Jr. Fluid sprayer apparatus and method. 4,272,019, Cl. 239-8.000.
Halasz, Laszlo, to Gould Inc. Ink supply and filter for ink jet printing systems. 4,272,773, Cl. 346-140.00R.
Halfpenny, Paul F.; Passarelli, Camillo L.; and Starrett, Philip S., to Lockheed Corporation. Humidification system. 4,272,014, Cl. 236-44.00B.
Hall, Robert D.: *See—*
Ginsburgh, Irwin; and Hall, Robert D., 4,271,904, Cl. 166-251.000.
Hall, Rotrou A.: *See—*
Subramanian, Kohur N.; Hall, Rotrou A.; and Glaum, Gerald V., 4,272,493, Cl. 423-41.000.
Hamblin, Ronald F.; and Westgate, Harry H., to SKF (UK) Limited. Seal for a rolling bearing. 4,272,135, Cl. 308-20.000.
Hamilton, W. Duane, to American Optical Corporation. Lens generating apparatus. 4,271,636, Cl. 51-33.00W.
Hammack, Richard W.: *See—*
Stiller, Alfred H.; Sears, John T.; and Hammack, Richard W., 4,272,356, Cl. 208-8.0LE.
Hammer, Victor S., Jr.; Danko, Arthur J.; and Heard, Perry J., to Illinois Tool Works Inc. Safety latch device. 4,272,111, Cl. 292-17.000.
Hammermeister, David W.: *See—*
Thomson, Ronald E.; and Hammermeister, David W., 4,271,930, Cl. 184-15.00A.
Hammond, James D.; and Deng, EH, to Fluor Corporation. Cryogenic expander recovery process. 4,272,269, Cl. 62-17.000.
Hammond, Larry R. Animal commode. 4,271,544, Cl. 4-661.000.
Hanada, Toshihide: *See—*
Mizumoto, Katsuji; Hanada, Toshihide; Kominami, Yasuo; and Yamamura, Masahiro, 4,272,709, Cl. 318-317.000.
Hanak, Joseph J., to RCA Corporation. Tandem junction amorphous silicon solar cells. 4,272,641, Cl. 136-249.000.
Hancock, Terence M., to American Air Filter Company, Inc. Filter arrangement. 4,272,263, Cl. 55-377.000.
Handy, Roland J., to Xerox Corporation. 16 Bit analog to digital converter. 4,272,759, Cl. 340-347.0AD.
Hanes Corporation: *See—*
King, James F.; and Horton, Gilbert L., 4,271,580, Cl. 29-447.000.
Hanna, Mohsen R.: *See—*
Redford, David A.; and Hanna, Mohsen R., 4,271,905, Cl. 166-263.000.
Hansen, Hanspeter; Eicken, Karl; Plath, Peter; Rohr, Wolfgang; and Wuerzer, Bruno, to BASF Aktiengesellschaft. Herbicidal agents based on acetanilides and dichloroacetamides. 4,272,282, Cl. 71-92.000.
Hanson, Douglas R. Single revolution torque limiting clutch. 4,271,944, Cl. 192-56.00L.
Harbour, John R.; and Hair, Michael L., to Xerox Corporation. Electrophoretic display device. 4,272,596, Cl. 430-37.000.
Hard af Segerstad, Goran J. F. Arrangement for attaching, folding and slidable suspension of curtains, draperies and the like at a curtain rod. 4,271,560, Cl. 16-93.00D.

Hardt, Dietrich: *See—*
Lindner, Christian; Suling, Carlhans; Bartl, Herbert; Hardt, Dietrich; and Brudermanns, Karola, 4,272,428, Cl. 260-31.20R.
Harigae, Shunji: *See—*
Yoshida, Tomio; Nakata, Yoshinobu; Harigae, Shunji; and Sato, Toshio, 4,272,651, Cl. 369-112.000.
Harman, John N., III, to Beckman Instruments, Inc. Interference reactor to provide selective SO_2 measurement by fluorescent methodology. 4,272,486, Cl. 422-91.000.
Harr, Forrest. Self-contained roof-mounted vehicle air-conditioning system. 4,271,677, Cl. 62-127.000.
Harrel, Incorporated: *See—*
Harris, Holton E., 4,272,466, Cl. 264-40.600.
Harris Corporation: *See—*
Nicolay, Hugh C., 4,272,753, Cl. 337-297.000.
Riley, William J., Jr., 4,272,729, Cl. 331-1.00A.
Taylor, David L., 4,272,833, Cl. 365-210.000.
Wood, Grady M., 4,272,562, Cl. 427-87.000.
Harris, Holton E., to Harrel, Incorporated. System and method of temperature control for plastics extruder. 4,272,466, Cl. 264-40.600.
Harris, John D.: *See—*
Evans, Mervyn; and Harris, John D., 4,271,832, Cl. 128-92.00A.
Hartwig, William F., to Sperry Corporation. Digital graphics generation system. 4,272,808, Cl. 364-718.000.
Harvey Hubbell Incorporated: *See—*
Crosby, Philip C. S.; Barrios, Philip A.; and Perry, Ronald R., 4,272,689, Cl. 307-147.000.
Harwood, Leopold A.; and Shanley, Robert L., II, to RCA Corporation. Color-difference signal processing circuits. 4,272,778, Cl. 358-23.000.
Harz, Martin: *See—*
Lindenthal, Hans; and Harz, Martin, 4,271,685, Cl. 64-17.00R.
Hashimoto, Akihiko; Koiwai, Tamotsu; Kondo, Isao; and Kimura, Toyohiko, to Olympus Optical Co., Ltd. Single-lens reflex camera. 4,272,171, Cl. 354-152.000.
Hashimoto, Mitsuru: *See—*
Sasaki, Masaomi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Kozima, Akio, 4,272,598, Cl. 430-72.000.
Hastings, Dawson W.: *See—*
Wheeler, Keith A.; and Hastings, Dawson W., 4,271,913, Cl. 172-633.000.
Hastwell, Peter J. Solar heater roof-panel construction. 4,271,818, Cl. 126-417.000.
Hata, Hiromi: *See—*
Yajima, Tadamasa; Kitagawa, Shuzo; and Hata, Hiromi, 4,272,287, Cl. 75-60.000.
Hata, Yoshitaka: *See—*
Suzuki, Suzuo; Hata, Yoshitaka; and Ohnishi, Akihiro, 4,271,811, Cl. 123-571.000.
Hatch, Donald; Ellis, Christopher R.; Gibbon, Richard H.; and Stirling, Walter R., to Ferodo Limited. Valves for hydraulic brakes. 4,271,937, Cl. 188-264.00F.
Hatton, Robert E.: *See—*
Brown, George S.; and Hatton, Robert E., 4,271,927, Cl. 182-36.000.
Haugland, Samuel R., to Delta Dynamics Corporation. Valve and fastener therefor. 4,272,057, Cl. 251-315.000.
Hauschopp, Alois, to Gewerkschaft Eisenhutte Westfalia. Mineral mining installation. 4,272,130, Cl. 299-34.000.
Hawaiian Motor Company: *See—*
Rahe, Jon A., 4,271,595, Cl. 30-347.000.
Hayakawa, Shigeru: *See—*
Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,272,397, Cl. 252-301.60S.
Hayashi, Nobuyuki: *See—*
Tsukada, Katsuhige; Hayashi, Nobuyuki; Yamada, Hideo; Ishimaru, Toshiaki; and Kakumaru, Hajime, 4,272,607, Cl. 430-288.000.
Heard, Perry J.: *See—*
Hammer, Victor S., Jr.; Danko, Arthur J.; and Heard, Perry J., 4,272,111, Cl. 292-17.000.
Heckele, Helmut, to Richard Wolf GmbH. Endoscope with distance measuring device. 4,271,829, Cl. 128-6.000.
Hedrich, Loren W., to Gulf Oil Corporation. Isobenzofurandione thiosemicarbazones and use as plant growth regulators. 4,272,280, Cl. 71-88.000.
Hehl, Walter H., to International Business Machines Corporation. Horn loaded piezoelectric matrix printer drive method and apparatus. 4,272,200, Cl. 400-124.000.
Heijnemans, Werner A. L.: *See—*
Nieuwendijk, Joris A. M.; Vink, Nicolass G.; and Heijnemans, Werner A. L., 4,272,727, Cl. 335-213.000.
Heim, Edward L., to Coin Acceptors, Inc. Serration detector. 4,271,952, Cl. 194-97.00R.
Heinzle, August. Punched card control system for embroidery machine. 4,271,770, Cl. 112-84.000.
Helfer, Jeffrey L.: *See—*
Jessop, Thomas C.; and Helfer, Jeffrey L., 4,272,482, Cl. 422-65.000.
Hellberg, Beagt. Disintegrator of wooden products. 4,272,032, Cl. 241-263.000.
Hemmer, Valentine J.: *See—*
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,272,149, Cl. 339-258.00R.
Hendriks, Josef H., to Teradyne, Inc. Generating electrical pulses. 4,272,691, Cl. 307-268.000.
Henkel Kommanditgesellschaft auf Aktien: *See—*
Plapper, Juergen; Schumann, Klaus; Schwuger, Milan J.; Smolka, Heinz G.; Arndt, Emanuel; Ruscheinsky, Emil; and Jansen, Herman, 4,272,242, Cl. 8-94.150.
Henryk, Romanczyk: *See—*
Jazlowski, Aleksander; Michal, Radnicki; Tadeusz, Bartosz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, 4,272,026, Cl. 239-273.000.
Herchenroeder, Robert B. H.; and Klein, H. Joseph, to Cabot Corporation. Oxidation resistant iron base alloy articles for welding. 4,272,289, Cl. 75-122.000.
Hercules Incorporated: *See—*
Breslow, David S.; and Simpson, David A., 4,272,610, Cl. 430-302.000.
Herculite Products, Inc.: *See—*
Kydonieus, Agis F.; and Kitterman, Roger L., 4,272,520, Cl. 424-84.000.
Herd, David P., to McEvoy Oilfield Equipment Company. Single double backseat. 4,272,055, Cl. 251-214.000.
Herr, Myron R.; and Elmore, Austin E., to Miller, Oliver A., a part interest. Self contained head mountable sleep inhibiting device. 4,272,764, Cl. 340-575.000.
Herrold, Anne M.; and Vargas, Ovidio, to Eli Lilly and Company. Cosmetic lotion formulation. 4,272,519, Cl. 424-83.000.
Herrold, Anne M.: *See—*
Cella, John A.; Flom, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, 4,272,544, Cl. 424-273.00R.
Hertzog, Richard R.; and Zadkevitch, David, to Allied Chemical Corporation. Enhanced distillation of cyclohexanol from phenol with additional cyclohexanone feed. 4,272,326, Cl. 203-62.000.
Hester Industries, Inc.: *See—*
Williams, Charles E., 4,271,683, Cl. 62-374.000.
Hetrick, Robert E.; and Fate, William A., to Ford Motor Company. Steady state mode oxygen sensor and method. 4,272,329, Cl. 204-1.00T.
Hetrick, Robert E., to Ford Motor Company. Transient mode oxygen sensor and method. 4,272,330, Cl. 204-1.00T.
Hetrick, Robert E., to Ford Motor Company. Oscillatory mode oxygen sensor and method. 4,272,331, Cl. 204-1.00T.
Hewlett-Packard Company: *See—*
Bailey, Paul W., 4,272,717, Cl. 323-226.000.
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Heyer, Gunter: *See—*
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Cooper, Wayne L., 4,272,044, Cl. 244-153.00R.
Hickson, Richard W., to Southern Refractories, Inc. Apparatus and method for spraying refractory material. 4,272,018, Cl. 239-8.000.
Hiereth, Hermann: *See—*
Withalm, Gert; and Hiereth, Hermann, 4,271,672, Cl. 60-602.000.
Higgins, Robert D., to Petrochem Consultants, Inc. Cryogenic recovery of liquid hydrocarbons from hydrogen-rich. 4,272,270, Cl. 62-24.000.
Hill, James C.: *See—*
Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., 4,272,399, Cl. 252-373.000.
Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., 4,272,555, Cl. 423-415.00A.
Hill, William M., Jr. Vehicle towing apparatus. 4,272,219, Cl. 414-563.000.
Hilliard, Garland E.: *See—*
Lynch, Richard W.; Hilliard, Garland E.; and Dotson, Ronald L., 4,272,338, Cl. 204-98.000.
Hirano, Norimasa; and Yamauchi, Yazuru, to Dainippon Ink & Chemicals Inc. Textile printing paste. 4,272,423, Cl. 260-29.6TA.
Hirano, Shigeo: *See—*
Mifune, Hiroyuki; and Hirano, Shigeo, 4,272,614, Cl. 430-441.000.
Hirano, Tomoyuki; Yamanaka, Akira; and Tonai, Koichi, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Impact absorbing device. 4,272,114, Cl. 293-133.000.
Hiroshi Takeuchi: *See—*
Seki, Kunimichi, 4,271,682, Cl. 62-354.000.
Hisatomi, Shigenobu: *See—*
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Hitachi Chemical Company, Ltd.: *See—*
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Hitachi, Ltd.: *See—*
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Kadowaki, Yoshihiko, 4,272,809, Cl. 364-900.000.
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Kakumoto, Shigeru; Fujimoto, Yoshiji; and Okada, Kunihiro, 4,272,756, Cl. 340-146.30H.
Kimura, Tomoaki; and Nishino, Tadashi, 4,271,894, Cl. 164-87.000.
Mizumoto, Katsuji; Hanada, Toshihide; Kominami, Yasuo; and Yamamura, Masahiro, 4,272,709, Cl. 318-317.000.
Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, 4,272,011, Cl. 233-15.000.
Noguchi, Yoshio; and Ito, Tsuneo, 4,272,834, Cl. 365-230.000.

Hitt, George F., to Kreutzelman, Geurt. Driving interface for veneer chuck assembly. 4,271,881, Cl. 144-209.00R.

Ho, Benny K-C: *See*—
Bousaid, Issam S.; and Ho, Benny K-C, 4,271,906, Cl. 166-273.000.

Hoechst Aktiengesellschaft: *See*—
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Hoffman, Paul L.: *See*—
Hurley, John F.; and Hoffman, Paul L., 4,271,666, Cl. 60-226.00R.

Hoffmann-La Roche Inc.: *See*—
Imhof, Rene; and Kyburz, Emilio, 4,272,627, Cl. 546-138.000.

Hoffmann, Werner: *See*—
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Hoffstadt, Frederick A.: *See*—
Dixon, Kenneth W.; and Hoffstadt, Frederick A., 4,272,364, Cl. 209-166.000.

Hofman, Keith; Scott, Brian A.; and Vogl, Rudolf, to Lever Brothers Company. Hair conditioning shampoo. 4,272,515, Cl. 424-70.000.

Hohne, Gerd: *See*—
Bodig, Bernd; Schmied, Helmut; Hohne, Gerd; and Fritz, Adolf, 4,271,812, Cl. 123-609.000.

Hokkaido University, President of: *See*—
Wada, Tatsuhiko; and Abe, Zenuemon, 4,272,724, Cl. 324-253.000.

Holber, William M.: *See*—
Faubel, Manfred; Holber, William M.; and Toennies, Jan P., 4,272,699, Cl. 313-360.000.

Holka, Thomas C.; and Marvin, Brian D., to Ford Motor Company. Passive seat belt system. 4,272,105, Cl. 280-804.000.

Holl, Alfred; and Wewerka, Anton, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Wrenching device for installing and tightening screws to a high torque. 4,271,730, Cl. 81-57.400.

Holland, Orvis L.: *See*—
Cason, Robert W.; Holland, Orvis L.; Russell, Floyd C.; Bass, Malley R.; and Frier, James L., 4,272,499, Cl. 423-242.000.

Holley, Danforth. Solar heat structure. 4,271,820, Cl. 126-417.000.

Hollingsworth, Thomas C. Electronic hang glider hook-up warning system. 4,272,039, Cl. 244-1.00R.

Hollstein, Elmer J.: *See*—
Schneider, Abraham; Hollstein, Elmer J.; Janoski, Edward J.; and Scheibel, Edward G., 4,272,362, Cl. 208-254.00H.

Holweg, Rainer: *See*—
Kluting, Bernd; and Holweg, Rainer, 4,272,048, Cl. 248-430.000.

Holzwarth, Dietmar H.; and Rieger, Hansjorg W. Tire chain. 4,271,887, Cl. 152-220.000.

Homan, Gary R.; and Lee, Chi-Long, to Dow Corning Corporation. Compositions including mercaptoorganopolysiloxanes and metal salts of carboxylic acids. 4,272,415, Cl. 260-18.00S.

Homan, Gary R.; and Lee, Chi-Long, to Dow Corning Corporation. Mercaptoorganopolysiloxane elastomers catalyzed by metallic compounds in the presence of peroxides. 4,272,623, Cl. 528-15.000.

Homann, Thorsten, to Fried. Krupp GmbH. Method of and apparatus for pressing of liquids from solid materials. 4,271,754, Cl. 100-37.000.

Homburg, Axel: *See*—
Bendler, Hellmut; Homburg, Axel; and Penner, Horst, 4,271,747, Cl. 411-20.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Nishimura, Sadanori; Yamada, Yoji; Shimizu, Takeyuki; and Yamashita, Masaru, 4,271,951, Cl. 192-106.00F.

Honeywell Information Systems Inc.: *See*—
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Hooykaas, Carel W. J., to Pelt & Hooykaas B.V. Procedure for the treatment of combined wet filter cakes. 4,272,293, Cl. 106-73.600.

Hope, Henry F.; and Hope, Stephen F. Film guidance apparatus. 4,272,000, Cl. 226-1.000.

Hope, Stephen F.: *See*—
Hope, Henry F.; and Hope, Stephen F., 4,272,000, Cl. 226-1.000.

Hoptner, Hans-Gerd. Hand tool with a blade adapted to be folded into the handle. 4,271,592, Cl. 30-153.000.

Hori, Kenji; and Kiyota, Yuhiko, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Secondary intake gas control system for internal combustion engine. 4,271,802, Cl. 123-432.000.

Horimoto, Rioichi, to TDK Electronics Co., Ltd. Process for producing magnetic metal powders. 4,272,285, Cl. 75-0.5BA.

Horn, Herman: *See*—
Schaaf, Kurt H.; and Horn, Herman, 4,272,631, Cl. 562-559.000.

Horniak, Stephen. Ticket dispenser. 4,272,001, Cl. 226-187.000.

Horton, Gilbert L.: *See*—
King, James F.; and Horton, Gilbert L., 4,271,580, Cl. 29-447.000.

Hoskinson, William R.; Solender, Peter E.; and Machanian, William V., to Wurlitzer Company, The. Accompaniment system for electronic musical instrument. 4,271,741, Cl. 84-1.030.

Hotta, Shigenori; and Baba, Sadaaki, to Mitsubishi Denki Kabushiki Kaisha. Power breaker apparatus. 4,272,750, Cl. 337-1.000.

Hough, Reginald D.; and Kelly, Vincent J. Method for multi-storied concrete construction and apparatus therefor. 4,272,465, Cl. 264-33.000.

Houser, Raymond E., to Grumman Flexible Corporation. Coach climate conditioning blower control. 4,272,015, Cl. 236-49.000.

Hov-Air-Ship, Inc.,: *See*—
Slater, Saul I., 4,272,042, Cl. 244-115.000.

Howell, Dan M.; Kolpek, Robert A.; and Schuller, William M., to International Business Machines Corporation. Communicating typewriter and dictation system utilizing analog recording and transmission techniques. 4,272,813, Cl. 364-900.000.

Howell, Edward K., to General Electric Company. Fast recovery peak detector. 4,272,797, Cl. 361-93.000.

HPM Corporation: *See*—
Cole, James C.; and Cronenwett, George F., 4,271,895, Cl. 164-109.000.

Hsu, Li-Chen; Sheibley, Dean W.; and Philipp, Warren H., to United States of America, National Aeronautics and Space Administration. Cross-linked polyvinyl alcohol and method of making same. 4,272,470, Cl. 264-104.000.

Huang, Yun-Yang, to Ethyl Corporation. Catalyst for preparation of oxygenates from carbon monoxide and hydrogen. 4,272,410, Cl. 252-465.000.

Hubbard, David W.: *See*—
Buckley, Franklin J.; and Hubbard, David W., 4,271,786, Cl. 118-661.000.

Huber, Guntram: *See*—
Schmid, Walter; Breitschwerdt, Werner; Huber, Guntram; and Reidelbach, Willi, 4,272,103, Cl. 280-751.000.

Huber, Paul W.: *See*—
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Hueschen, Robert E.: *See*—
Stroble, Reimann L.; Hueschen, Robert E.; and Jens, Richard A., 4,272,696, Cl. 313-60.000.

Huggins, James A. Apparatus for metering fluids. 4,272,051, Cl. 251-6.000.

Hughes Aircraft Company: *See*—
Ellion, M. Edmond; Putt, J. Ward; and Montich, John J., 4,272,257, Cl. 55-38.000.

Hukagawa, Hitoshi; Shimada, Isao; Naruo, Masayuki; and Endo, Terumi, to Matsushita Electric Works, Ltd. Temperature control system for electric surface heater. 4,272,671, Cl. 219-505.000.

Hulin, Jean P.; and de Vecchis, Michel, to Societe Lignes Telegraphiques et Telephoniques. Method and apparatus for grooved section manufacture. 4,272,472, Cl. 264-146.000.

Huneke, Karl-Heinz; and Laufenberg, Wilfried, to Dragerwerk Aktiengesellschaft. Testing tube for measuring chromate and chromic acid aerosols in air. 4,272,479, Cl. 422-57.000.

Hunt & Moscrop (Paper Machinery) Ltd.: *See*—
Matikainen, Martti, 4,271,574, Cl. 29-115.000.

Hurley, John F.; and Hoffman, Paul L., to Avco Corporation. Integral infrared radiation suppressor for a turbofan engine. 4,271,666, Cl. 60-226.00R.

Husky Injection Molding Systems Limited: *See*—
Rees, Herbert; and Schad, Robert D., 4,272,236, Cl. 425-564.000.

Hutchins, Ned M.; and Studebaker, Irving G., to Occidental Oil Shale, Inc. Subsidence control at boundaries of an in situ oil shale retort development region. 4,272,127, Cl. 299-2.000.

Hutchinson, Eugene B.; and Van Auwelaer, James M., to Deere & Company. Finger construction for a combine platform auger. 4,271,956, Cl. 198-613.000.

Hutchinson, Marcus H. R.; and Bradley, Daniel J., to National Research Development Corporation. Field emission laser with radial current paths. 4,272,732, Cl. 331-94.50P.

Hvizdos, Leonard J., to Air Products and Chemicals, Inc. Method and apparatus for recovering natural gas in a mine. 4,271,676, Cl. 62-55.000.

Hybrid Systems Corporation: *See*—
Visser, Ronald C.; Estep, G. James; and Esbitt, Alan S., 4,272,644, Cl. 174-52.0FP.

Hydragon Corporation: *See*—
Earnest, Ernest R., 4,271,664, Cl. 60-39.18R.

Ichikawa, Masahide: *See*—
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Ichikawa, Singo: *See*—
Kasama, Noriyuki; and Ichikawa, Singo, 4,272,838, Cl. 368-88.000.

Ichimura, Kunihiro, to Agency of Industrial Science and Technology; and Ministry of International Trade & Industry. Polyvinyl alcohol-styrylpyridinium photosensitive resins and method for manufacture thereof. 4,272,620, Cl. 525-61.000.

Igel, Richard: *See*—
Bienert, Horst; Igel, Richard; and Rengstl, Johann, 4,272,125, Cl. 296-223.000.

Iguchi, Yasuhide; and Koike, Tsutomu, to Toko, Inc. Switching regulator provided with charge-discharge circuit having overcurrent protecting function and soft-start function. 4,272,805, Cl. 363-19.000.

Iijima, Masakatsu, to Nippon Gakki Seizo Kabushiki Kaisha. Keyboard assembly for electronic musical instruments. 4,272,657, Cl. 200-5.00A.

Ikeda, Kaoru: *See*—
Takematsu, Tetsuo; Konnai, Makoto; and Ikeda, Kaoru, 4,272,283, Cl. 71-94.000.

Illinois Tool Works Inc.: *See*—
Hammer, Victor S., Jr.; Danko, Arthur J.; and Heard, Perry J., 4,272,111, Cl. 292-17.000.

Imada, Kiyoshi: *See*—
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,272,464, Cl. 264-22.000.

Imamura, Juichi, to Director-General of Agency of Industrial Science and Technology; Sanko Chemical Co., Ltd.; and Nippon Soda Co., Ltd. Process for the production of intermediate oxidation products of toluenes having ether linkages. 4,272,634, Cl. 568-432.000.

Imamura, Yasuo: *See*—
Tsuda, Takeshi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masahiro; Imamura, Yasuo; and Kato, Kazunori, 4,271,571, Cl. 29-25.180.

Imhof, Rene; and Kyburz, Emilio, to Hoffmann-La Roche Inc. Phenylquinolizinones. 4,272,627, Cl. 546-138.000.

Impac Inc.: *See*—
Decker, Charles R., III, 4,271,824, Cl. 126-449.000.

Imperial Chemical Industries Limited: *See*—
Jackson, Peter W.; Anderson, David K. C.; and Cleland, David B., 4,272,005, Cl. 228-107.000.
McIntyre, James E.; and Milburn, Alexander H., 4,272,625, Cl. 528-183.000.

Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, to Kao Soap Co., Ltd.; and Sumitomo Chemical Industries Ltd. Novel tricyclooudecane aminoacid amide. 4,272,536, Cl. 424-248.540.

Inca-One Corporation: *See*—
Roberts, George C., 4,271,539, Cl. 4-300.000.

Indebetouw, Guy, to Lasag S.A. Optical sizing mask and process. 4,272,196, Cl. 356-371.000.

Industrial Research Products, Inc.: *See*—
Carlson, Elmer V., 4,272,654, Cl. 179-119.00A.

Ing. C. Olivetti & C., S.p.A.: *See*—
Collin, Vittorino, 4,272,666, Cl. 219-216.000.

Inoue, Shunzo: *See*—
Arai, Toshio; Nagasawa, Takeshi; Iwaya, Toshio; Inoue, Shunzo; and Koniahi, Motofumi, 4,272,185, Cl. 355-28.000.

Inoue, Tokuta: *See*—
Watanabe, Noboru; Inoue, Tokuta; and Oishi, Kiyohiko, 4,272,460, Cl. 261-53.000.

Institut Francais du Petrole: *See*—
Joubert, Philippe; Durando, Pierre; and Fleury, Daniel, 4,271,550, Cl. 9-8.00R.
Layotte, Pierre-Claude; and James, Andre, 4,271,923, Cl. 181-114.000.

Institute po Mechanika i Biomechanika: *See*—
Georgiev, Veselin Y.; and Mednikarov, Vladimir S., 4,272,023, Cl. 239-204.000.

Integrated Insulation Systems, Inc.: *See*—
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Intel Magnetics, Inc.: *See*—
Rose, Donald K., 4,272,817, Cl. 365-12.000.

Inter Ocean N.V.: *See*—
Snoek, Govert J., 4,271,862, Cl. 137-511.000.

Interlake, Inc.: *See*—
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International Automated Machinery, Inc.: *See*—
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International Business Machines Corporation: *See*—
Bate, Geoffrey; and Dunn, Larry P., 4,271,782, Cl. 118-623.000.
Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., 4,272,187, Cl. 355-56.000.
Biszcat, John J.; and Bleau, Charles D., 4,272,205, Cl. 400-575.000.
Cammarano, Armando S.; DiGiacomo, Giulio; and Drofitz, Stephen S., Jr., 4,272,722, Cl. 324-76.00R.
Cox, Daniel E.; Kane, Susan M.; and Powers, John V., 4,272,348, Cl. 204-192.00E.
Eggerding, Carl L.; Gonzales, Frank, Jr.; and Niklewski, Jerzy B., 4,272,500, Cl. 423-327.000.
Garrison, Stephen P.; and Kroeker, Elmer L. B., 4,272,068, Cl. 271-117.000.
Hehl, Walter H., 4,272,200, Cl. 400-124.000.
Howell, Dan M.; Kolpek, Robert A.; and Schuller, William M., 4,272,813, Cl. 364-900.000.
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Quinn, Paul A., Jr.; and Wipke, Walter J., 4,272,204, Cl. 400-342.000.
Rothman, Laura B.; Totta, Paul A.; and White, James F., 4,272,561, Cl. 427-84.000.
Steger, Donald J., 4,272,201, Cl. 400-208.000.
Treseder, Robert C., 4,272,181, Cl. 355-14.0SH.

International Coal Refining Company: *See*—
Greakovich, Eugene J.; and Givens, Edwin N., 4,272,501, Cl. 423-447.100.

International Flavors & Fragrances Inc.: *See*—
Mookherjee, Braja D.; Wilson, Richard A.; Schmitt, Frederick L.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,271,853, Cl. 131-276.000.

International Mobile Machines Incorporated: *See*—
Bolgiano, Duane R.; Benjamin, Joel M., Jr.; and Meyer, Victor, Jr., 4,272,650, Cl. 179-77.000.

International Nickel Co., Inc., The: *See*—
Clark, Ian S. R.; and Pargeter, John K., 4,272,463, Cl. 264-12.000.
Subramanian, Kohur N.; Hall, Rotrou A.; and Glaum, Gerald V., 4,272,493, Cl. 423-41.000.

International Paper Company: *See*—
Capo, James L., 4,272,010, Cl. 229-43.000.
Wozniacki, Roger M., 4,272,008, Cl. 229-15.000.

International Synthetic Rubber Company Ltd., The: *See*—
Feast, Alan A. J., 4,272,426, Cl. 260-29.70H.

International Telephone and Telegraph Corporation: *See*—
Agrawal, Bhagwati P.; and Shenoi, Kishan, 4,272,648, Cl. 179-1.0VL.
MacKenzie, George W.; Shackelton, Clifford W.; and Yankielun, Norbert E., 4,272,655, Cl. 179-159.000.

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Pelat, Roger P.; and Le Pierres, Gildas, 4,271,935, Cl. 188-185.000.

Inui, Norio; Kane, Noriaki; and Okamoto, Tetsuro, to Fujitsu Limited. Division processing method system having 2N-bit precision. 4,272,827, Cl. 364-764.000.

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Mori, Fumio; and Ishibashi, Kazuhisa, 4,272,313, Cl. 156-262.000.

Ishibashi, Kuniaki; Shiraishi, Norio; and Oshiro, Susumu, to Fuji Photo Optical Co., Ltd. Illumination optical system using optical fiber bundles. 4,272,156, Cl. 350-96.260.

Ishida, Kunio: *See*—
Katsumori, Teiji; and Ishida, Kunio, 4,272,064, Cl. 267-64.00R.

Ishimaru, Toshiaki: *See*—
Tsukada, Katsushige; Hayashi, Nobuyuki; Yamada, Hideo; Ishimaru, Toshiaki; and Kakumaru, Hajime, 4,272,607, Cl. 430-288.000.

Ishimoto, Osamu; Tsuda, Hiroshi; and Miyashita, Kiyoshi, to Olympus Optical Co., Ltd. Apparatus for discharging a fatigued developing agent in a magnetic brush developing device. 4,271,784, Cl. 118-652.000.

Isobe, Shinichi: *See*—
Fukuyama, Hiroomi; and Isobe, Shinichi, 4,272,711, Cl. 318-565.000.

Itek Corporation: *See*—
Digiovanni, Joseph J., 4,272,730, Cl. 331-16.000.

Ito, Hiroshi: *See*—
Yamazaki, Hitoshi; Ito, Hiroshi; Takeda, Toshiyuki; and Enomoto, Junzo, 4,272,421, Cl. 260-29.2EP.

Ito, Toshimitsu: *See*—
Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, 4,271,799, Cl. 123-425.000.

Ito, Tsuneo, to Hitachi, Ltd. Semiconductor memory device. 4,272,832, Cl. 365-189.000.

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Noguchi, Yoshio; and Ito, Tsuneo, 4,272,834, Cl. 365-230.000.

ITT Industries, Inc.: *See*—
Carle, Hermann; Klement, Heribert; and Knobloch, Uwe, 4,272,708, Cl. 318-266.000.
Ullrich, Manfred F., 4,272,831, Cl. 365-45.000.

Ivanov, Ilye H.: *See*—
Velikov, Dancho N.; Kanchev, Kancho T.; Ivanov, Stanislav A.; Ivanov, Ilye H.; and Tepavicharov, Hristo D., 4,272,198, Cl. 366-65.000.

Ivanov, Nikolai A.: *See*—
Afanasiev, Mikhail M.; Ivanov, Nikolai A.; Konstantinov, Evgeny A.; and Makarov, Valery A., 4,272,030, Cl. 241-37.000.

Ivanov, Stanislav A.: *See*—
Velikov, Dancho N.; Kanchev, Kancho T.; Ivanov, Stanislav A.; Ivanov, Ilye H.; and Tepavicharov, Hristo D., 4,272,198, Cl. 366-65.000.

Ivorra, Claude A. M.: *See*—
Schwob, Alain L. C.; Busschaert, Bruno J.; and Ivorra, Claude A. M., 4,271,825, Cl. 126-450.000.

Iwai, Fumio: *See*—
Abe, Shunichi; Akiyama, Mistuo; Iwai, Fumio; and Kuru, Hiroshi, 4,272,182, Cl. 355-14.00D.

Iwaki Co., Ltd.: *See*—
Fujinaka, Yoshiaki; Ohashi, Haruo; Miyazaki, Masahito; Mizuno, Kenzi; and Kuwabara, Fukuzi, 4,272,225, Cl. 417-417.000.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Hydraulic control system for a hydrokinetic torque converter. 4,271,939, Cl. 192-3.300.

Iwanaga, Kazuyoshi: *See*—
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,271,721, Cl. 74-695.000.

Iwashita, Tomonori; Fukahori, Hidehiko; and Mashimo, Yukio, to Canon Kabushiki Kaisha. Motor drive unit for camera having variable winding speed characteristics. 4,272,173, Cl. 354-173.000.

Iwata, Minoru: *See*—
Mitsuda, Tadao; Iwata, Minoru; Sugiura, Masatoshi; Takada, Shigetaka; and Watanabe, Yukihiro, 4,271,667, Cl. 60-276.000.

Iwaya, Toshio: *See*—
Arai, Toshio; Nagasawa, Takeshi; Iwaya, Toshio; Inoue, Shunzo; and Koniahi, Motofumi, 4,272,185, Cl. 355-28.000.

J. I. Case Company: *See*—
Albrecht, Allan J., 4,271,614, Cl. 37-103.000.

J. M. Huber Corporation: *See*—
Wason, Satish K., 4,272,509, Cl. 424-49.000.

Jackson, Hiram S., Jr.: *See*—
Biller, Bruce A.; and Jackson, Hiram S., Jr., 4,272,751, Cl. 337-231.000.

Jackson, Peter W.; Anderson, David K. C.; and Cleland, David B., to Imperial Chemical Industries Limited. Explosive cladding. 4,272,005, Cl. 228-107.000.

Jacmorr Manufacturing Limited: *See*—
Fler, Jack P., 4,272,139, Cl. 312-334.000.

Jacob, Charles W., to United States Steel Corporation. Adjustable-stroke crank apparatus. 4,271,720, Cl. 74-600.000.

Jacobs Manufacturing Company, The: *See*—
Sickler, Kenneth H.; McCarthy, Donald J.; and Quenneville, Raymond N., 4,271,796, Cl. 123-321.000.

Jacobs, Philip C., Jr., to Gould Inc. Electric fuse including two different fillers. 4,272,752, Cl. 337-276.000.

Jacobs, Stephen D., to University of Rochester, The. System for converting the frequency of coherent radiation. 4,272,694, Cl. 307-427.000.

Jacoby, Charles H. Method of creating a safe environment in salt mining. 4,272,128, Cl. 299-12.000.

Jaffe, Howard, to United States of America, Agriculture. Microencapsulation process. 4,272,398, Cl. 252-316.000.

Jagenberg Werke Aktiengesellschaft: *See*—
Grolms, Friedbert, 4,271,602, Cl. 34-160.000.

Jakubowski, James J.; and Subramanian, Ravanasamudram V., to Washington State University Research Foundation. Treatment of carbon fibers to decrease electrical hazards of conductive fiber fragment release. 4,272,346, Cl. 204-181.00R.

James, Andre: *See*—
Layotte, Pierre-Claude; and James, Andre, 4,271,923, Cl. 181-114.000.

James, Claude: *See*—
Aloup, Jean-Claude; Bouchaudon, Jean; Farge, Daniel; and James, Claude, 4,272,534, Cl. 424-248.510.

Janome Sewing Machine Co., Ltd.: *See*—
Makabe, Hachiro; Watanabe, Kazuo; Kume, Toshiaki; Kakinuma, Toshihide; and Takenoya, Hideaki, 4,271,773, Cl. 112-158.00E.

Janoski, Edward J.: *See*—
Schneider, Abraham; Hollstein, Elmer J.; Janoski, Edward J.; and Scheibel, Edward G., 4,272,362, Cl. 208-254.00H.

Jansen, Herman: *See*—
Plapper, Juergen; Schumann, Klaus; Schwuger, Milan J.; Smolka, Heinz G.; Arndt, Emanuel; Ruscheinsky, Emil; and Jansen, Herman, 4,272,242, Cl. 8-94.150.

Japan Atomic Energy Research Institute: *See*—
Kaetsu, Isao; Kumakura, Minoru; and Yoshida, Masaru, 4,272,617, Cl. 435-182.000.

Japan Exlan Company Limited: *See*—
Tanaka, Koji, 4,272,422, Cl. 260-29.6AN.

Japanese National Railways: *See*—
Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Muneyuki; Nakamura, Mitsuo; and Amano, Takayoshi, 4,272,003, Cl. 228-13.000.

Jardin, Hans: *See*—
Schatzler, Walter; and Jardin, Hans, 4,272,122, Cl. 296-221.000.

Jarrett, Steven M.; and Du Bose, Harold D., to Spectra-Physics, Inc. Dual reference interferometer for dye laser stabilization. 4,272,734, Cl. 331-94.50S.

Jaulmes, Christian, to Ateliers de la Motobecane. Antitheft device for two-wheeled vehicles. 4,271,690, Cl. 70-233.000.

Jaunaraja, Karlis L., to Johns-Manville Corporation. Alkali resistant glass article and method of preparation. 4,272,294, Cl. 106-99.000.

Jazlowski, Aleksander; Michal, Rudnicki; Tadeusz, Bartosz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, to Biuro Studiow, projetwo i Realizacji in Westycji Przemyslu Nieorganicznego "Biprokawas". Sprinkling device for absorption towers. 4,272,026, Cl. 239-273.000.

Jenness, Peter, III: *See*—
Maxwell, William E.; Jenness, Peter, III; and Potter, Michael F., 4,271,757, Cl. 101-37.000.

Jens, Richard A.: *See*—
Stroble, Reimann L.; Hueschen, Robert E.; and Jens, Richard A., 4,272,696, Cl. 313-60.000.

Jensen, Wayne H. Selective extraction and recovery of copper. 4,272,492, Cl. 423-24.000.

Jenssen, Hans P.: *See*—
Walling, John C.; Morris, Robert C.; Peterson, Otis G.; and Jenssen, Hans P., 4,272,733, Cl. 331-94.50F.

Jeppsson, Erik H. O., to Alfa-Laval AB. Valve. 4,271,860, Cl. 137-240.000.

Jessop, Thomas C.; and Helfer, Jeffrey L., to Eastman Kodak Company. Metering apparatus. 4,272,482, Cl. 422-65.000.

Jetter, Heinz L.: *See*—
Fill, Ernst E.; Jetter, Heinz L.; and Volk, Reinhard, 4,272,681, Cl. 250-423.00P.

Jhabvala, Murzban D., to United States of America, National Aeronautics and Space Administration. Method of making V-MOS field effect transistors utilizing a two-step anisotropic etching and ion implantation. 4,272,302, Cl. 148-1.500.

Jines, Chester G. Vegetation pulverizer. 4,272,031, Cl. 241-46.170.

Jizaimaru, Tanzo; Tanaka, Hideya; and Sajima, Yasuo, to Asahi Glass Company, Ltd. Electrode compartment. 4,272,352, Cl. 204-279.000.

John Lysaght (Australia) Limited: *See*—
Buchhorn, Peter, 4,271,653, Cl. 52-522.000.

John Wyeth & Brother Limited: *See*—
Edington, Edwin T.; and White, Alan C., 4,272,628, Cl. 546-284.000.

Johns-Manville Corporation: *See*—
Cimochowski, Anthony E., 4,272,638, Cl. 13-25.000.
Jaunaraja, Karlis L., 4,272,294, Cl. 106-99.000.

Johnson, Alton L. Adjustable trouble lamp support. 4,272,803, Cl. 362-399.000.

Johnson, Burnett H., to Exxon Research & Engineering Co. Method for producing an essentially gas and liquid impermeable low density, closed-cell, microcellular polyparabanic acid article. 4,272,467, Cl. 264-41.000.

Johnson, David S. Subterranean drain system for basements. 4,271,648, Cl. 52-169.500.

Johnson, Gerald T. Agricultural transporter. 4,272,092, Cl. 280-43.230.

Johnson, Norman A.; and Kent, Raymond C., to Armstrong Cork Company. Small round air stream heating unit. 4,272,668, Cl. 219-375.000.

Johnson, William R., to Chinook Manufacturing Co. Prefabricated fireplace for permanent installation. 4,271,815, Cl. 126-121.000.

Johnston, Linda G.: *See*—
Baigrie, Brian D.; Bailey, Joseph; Johnston, Linda G.; and Mijovic, Miroslav V., 4,272,434, Cl. 260-156.000.

Johnston, Thomas F., Jr.; and Proffitt, William P., to Coherent, Inc. Broadband optical diode for a ring laser. 4,272,158, Cl. 350-375.000.

Jones, Aaron U. Sawmill apparatus with vertically movable logging dogs. 4,271,736, Cl. 83-156.000.

Jones, Bryn; and Slattery, Sidney E., to Rolls-Royce Limited. Combustion apparatus for gas turbine engines. 4,271,675, Cl. 60-737.000.

Jones, Dixon J. Connector device. 4,272,208, Cl. 403-396.000.

Jones, Donald W., to Analytical Systems, Inc. Solvent front detection method and manufacture. 4,272,380, Cl. 210-658.000.

Jones, Kenneth L.: *See*—
Draper, Ellsworth R., Jr.; and Jones, Kenneth L., 4,272,386, Cl. 252-8.600.

Jones, Larren F., to ESCO Corporation. Locking device for excavating equipment. 4,271,615, Cl. 37-142.00A.

Jones, Richard H., to Du Pont de Nemours, E. I., and Company. Thermally stable, flame-retardant polymers and selected oligomers useful therein. 4,272,429, Cl. 260-37.00N.

Jones, Winton D.; and Miller, Francis P., to Richardson-Merrell Inc. 5-(Optionally substituted phenyl)-6H-1,3,4-thiadiazine-2-amines. 4,272,532, Cl. 424-246.000.

Jonsson, Rune: *See*—
Warnstam, Lars-Ake; Jonsson, Rune; and Ludvigsson, Georg, 4,272,783, Cl. 358-126.000.

Joseph, Daniel, Jr. II, to Zinn, Roland C. Anti-vandalism nut assembly. 4,272,209, Cl. 403-408.000.

Joubert, Philippe; Durando, Pierre; and Fleury, Daniel, to Institut Francais du Petrole. Method for submerging an equipment of negative buoyancy. 4,271,550, Cl. 9-8.00R.

Jozef, Zurkowski: *See*—
Jazlowski, Aleksander; Michal, Rudnicki; Tadeusz, Bartosz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, 4,272,026, Cl. 239-273.000.

Juengst, Klaus-Peter: *See*—
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.

Jungbluth, Otto. Three-dimensional structures of frame beams and multiple joints. 4,271,654, Cl. 52-637.000.

Justus, Edgar J., to Beloit Corporation. Steam shower. 4,272,316, Cl. 162-206.000.

Kabele, Walter A., to Roper Industries, Inc. (Ohio). Splined shaft driving arrangement. 4,272,224, Cl. 417-360.000.

Kabushiki Kaisha Daini Seikosha: *See*—
Ueda, Makoto; Torisawa, Akira; Satoh, Katsuhiko; Shida, Masaharu; Mandai, Masaaki; and Asano, Kazuhiro, 4,272,837, Cl. 368-80.000.

Kabushiki Kaisha Kawai Gakki Seisakusho: *See*—
Sakashita, Masao; and Matsuura, Yoshiaki, 4,271,742, Cl. 84-1.260.
Uchiyama, Shigeru, 4,271,743, Cl. 84-1.260.

Kabushiki Kaisha Medos Kenkyusho: *See*—
Chikashige, Kiyoshi; and Takahashi, Nagashige, 4,271,845, Cl. 128-756.000.

Kabushiki Kaisha Suwa Seikosha: *See*—
Morozumi, Shinji; and Asakawa, Tatsushi, 4,272,840, Cl. 368-202.000.

K.K. Toyota Chuo Kenkyusho: *See*—
Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, 4,271,799, Cl. 123-425.000.

Kadowaki, Yoshihiko, to Hitachi, Ltd. Channel device. 4,272,809, Cl. 364-900.000.

Kadowaki, Yoshihiko; Okuda, Hiroya; and Morikawa, Takashi, to Hitachi, Ltd. Channel control system for controlling data transfer through a plurality of channels with priority assignment. 4,272,815, Cl. 364-200.000.

Kadoya, Isamu: *See*—
Isa, Hiroshi; Takahashi, Masatoshi; and Kadoya, Isamu, 4,272,418, Cl. 260-23.0XA.

Kaetsu, Isao; Kumakura, Minoru; and Yoshida, Masaru, to Japan Atomic Energy Research Institute. Immobilization of enzymes or bacteria cells. 4,272,617, Cl. 435-182.000.

Kaganovich, Fanya L.: *See*—
Belkevich, Peter I.; Buslovich, Solomon J.; Dolidovich, Elena F.; Kaganovich, Fanya L.; Komov, Oktyabr P.; and Timofeeva, Ljudmila P., 4,272,527, Cl. 424-195.000.

Kah, Carl L. C., Jr. Sprinkler head. 4,272,024, Cl. 239-206.000.

Kahng, Dawon; and Shankoff, Theodore A., to Bell Telephone Laboratories, Incorporated. Fabrication of semiconductor devices having planar recessed oxide isolation region. 4,271,583, Cl. 29-571.000.

Kaibara, Nobuhiro; and Kobayashi, Masayoshi, to Diesel Kiki Co., Ltd. Distribution type fuel injection pump. 4,271,806, Cl. 123-502.000.

Kakinuma, Toshihide: *See*—
Makabe, Hachiro; Watanabe, Kazuo; Kume, Toshiaki; Kakinuma, Toshihide; and Takenoya, Hideaki, 4,271,773, Cl. 112-158.00E.

Kakumaru, Hajime: *See*—
Tsukada, Katsushige; Hayashi, Nobuyuki; Yamada, Hideo; Ishimaru, Toshiaki; and Kakumaru, Hajime, 4,272,607, Cl. 430-288.000.

Kakumoto, Shigeru; Fujimoto, Yoshiji; and Okada, Kunihiro, to Hitachi, Ltd. Method of pattern recognition and apparatus thereof. 4,272,756, Cl. 340-146.30H.

Kali-Chemie Aktiengesellschaft: *See*—
Hagedorn, Fritz, 4,272,477, Cl. 422-50.000.

Kamila, Friedolf: *See*—
Chatfield, John F., Jr.; Bryant, Donald C.; Daly, James C.; and Kamila, Friedolf, 4,271,909, Cl. 169-70.000.

Kammerer, Werner: *See*—
Kaupp, Heinrich; Eisele, Hermann; and Kammerer, Werner, 4,271,794, Cl. 123-454.000.

Kampa, Gristinus R. L.; Moltzer, Jan S. P.; and Platteeuw, Pieter J., to American Air Filter Company, Inc. Gas filter. 4,272,267, Cl. 55-499.000.

Kanchev, Kancho T.: *See*—
Velikov, Dancho N.; Kanchev, Kancho T.; Ivanov, Stanislav A.; Ivanov, Ilye H.; and Tepavicharov, Hristo D., 4,272,198, Cl. 366-65.000.

Kane, Susan M.: *See*—
Cox, Daniel E.; Kane, Susan M.; and Powers, John V., 4,272,348, Cl. 204-192.00E.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Yoneda, Koji; Ohashi, Takehisa; Onishi, Masami; and Fukamitsu, Hirotaka, 4,272,517, Cl. 424-72.000.

Kaneko, Ichiro: *See*—
Kitamura, Hajime; Shimizu, Toshihide; and Kaneko, Ichiro, 4,272,622, Cl. 526-62.000.

Kaneko, Tamaki: *See*—
Satomi, Toyokazu; Koizumi, Yutaka; Nakamura, Isao; Tabata, Yasuhiro; and Kaneko, Tamaki, 4,272,180, Cl. 355-3.05H.

Kaneko, Thomas M., to BASF Wyandotte Corporation. Machine dishwashing detergents containing low-foaming nonionic surfactants. 4,272,394, Cl. 252-99.000.

Kao, Che-I: *See*—
Siegel, Sanford A.; Yoshimine, Masao; and Kao, Che-I, 4,272,635, Cl. 568-776.000.

Kao Soap Co., Ltd.: *See*—
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,272,536, Cl. 424-248.540.

Kao, Stephen S. T., to Modine Manufacturing Company. Method of soldering tube to plate. 4,272,006, Cl. 228-183.000.

Karashima, Masashi. Refrigerated show case. 4,271,680, Cl. 62-256.000.

Karelov, Jury I.: *See*—
Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N., 4,272,033, Cl. 242-7.05B.

Karl Deutsch Pruf-und Messgerate: *See*—
Crostack, Horst-Artur, 4,271,705, Cl. 73-602.000.

Karl Lautenschlager KG Mobelbeschlagfabrik: *See*—
Lautenschlager, Karl, 4,272,207, Cl. 403-231.000.

Karr, Dale A. Tent with inflatable tube erector. 4,271,642, Cl. 52-2.000.

Kasai, Kazumi, to Yoshida Kogyo K.K. Slider with a built-in locking device in a slide fastener. 4,271,689, Cl. 70-68.000.

Kasama, Noriyuki; and Ichikawa, Singo, to Citizen Watch Co., Ltd. Electronic watch module structure. 4,272,838, Cl. 368-88.000.

Kaschentseva, Alexandra K.: *See*—
Shtern, Maria A.; Levit, Nelli I.; Bondarenko, Alla V.; and Kaschentseva, Alexandra K., 4,272,291, Cl. 106-14.050.

Kashihara, Eiji: *See*—
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,272,536, Cl. 424-248.540.

Kashiuchi, Yoshinobu; and Zinguzi, Isamu, to Sumitomo Electric Industries, Ltd. Moisture meter. 4,272,718, Cl. 324-61.00R.

Kasui Kabushikikaisha: *See*—
Kasai, Kenzou, 4,272,100, Cl. 280-650.000.

Kasui, Kenzou, to Kasui Kabushikikaisha. Collapsible baby carriage. 4,272,100, Cl. 280-650.000.

Katayama, Yoshinori; and Torii, Hiromasa, to Nissan Motor Company, Limited. Flanged vehicle roof panel with an inwardly indented side part. 4,272,120, Cl. 296-210.000.

Kato, Kazunori: *See*—
Tsuda, Takeshi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masahiro; Imamura, Yasuo; and Kato, Kazunori, 4,271,571, Cl. 29-25.180.

Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, to K.K. Toyota Chuo Kenkyusho; and Toyota Jidosha Kogyo Kabushiki Kaisha. Knocking control device. 4,271,799, Cl. 123-425.000.

Katsumata, Yutaka; Sasagi, Mitsuru; and Tanaka, Hideo, to Fujitsu Limited. Inter-subsystem direct transfer system. 4,272,819, Cl. 364-200.000.

Katsumori, Teiji; and Ishida, Kunio, to Tokico Ltd. Gas spring. 4,272,064, Cl. 267-64.00R.

Katsunuma, Tatsuo: *See*—
Mabuchi, Kenichi; and Katsunuma, Tatsuo, 4,272,041, Cl. 244-17.210.

Katunin, Vladimir M.: *See*—
Nakrokhin, Vladilen G.; and Katunin, Vladimir M., 4,272,814, Cl. 363-129.000.

Kawachi, Hideo: *See*—
Nakamichi, Niro; Kobayashi, Kozo; and Kawachi, Hideo, 4,272,792, Cl. 360-69.000.

Kawaguchi, Mamoru, to Taiyo Kogyo Company Limited. Tension structure. 4,271,641, Cl. 52-2.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See*—
Fujikawa, Tetsuo; and Nishimura, Michio, 4,272,085, Cl. 277-235.00B.

Kawauchi, Shinji: *See*—
Takao, Syosuke; Kikuchi, Gunpei; Sekiguchi, Masuo; and Kawauchi, Shinji, 4,271,725, Cl. 74-730.000.

Kayaba Kogyo Kabushiki Kaisha: *See*—
Komamura, Seiji; and Suzuki, Katsuhiro, 4,272,056, Cl. 251-309.000.

Kaye, Wilbur J., to Beckman Instruments, Inc. Method and apparatus for determining the wavelength of light. 4,272,195, Cl. 356-348.000.

KCDP Corporation: *See*—
Coss, Shepard; and Kushner, Arnold, 4,271,835, Cl. 128-270.000.

Kearney, J. Kevin: *See*—
Thompson, Leonard R.; and Kearney, J. Kevin, 4,272,636, Cl. 568-776.000.

Kearney & Trecker Corporation: *See*—
Osburn, John G., 4,272,216, Cl. 409-132.000.

Keay, Robert E.; Orwoll, Edward F.; and Price, John A., to FMC Corporation. Preparation of carbamates. 4,272,441, Cl. 260-346.730.

Keefer, Kenneth S.: *See*—
McKeen, Robert S.; Keefer, Kenneth S.; and Sawyer, Theodore E., 4,272,141, Cl. 339-18.00R.

Keiper Automobilsechsik GmbH: *See*—
Kluting, Berad; and Holweg, Rainer, 4,272,048, Cl. 248-430.000.

Kellar, Paul R. N.: *See*—
Michael, Peter C.; Taylor, Richard J.; and Kellar, Paul R. N., 4,272,787, Cl. 358-160.000.

Keller, Arnulf A.; and Keller, Norbert A. Reciprocating-piston engine, especially hot-gas engine or compressor. 4,271,669, Cl. 60-517.000.

Keller, Norbert A.: *See*—
Keller, Arnulf A.; and Keller, Norbert A., 4,271,669, Cl. 60-517.000.

Kelly, Vincent J.: *See*—
Hough, Reginald D.; and Kelly, Vincent J., 4,272,465, Cl. 264-33.000.

Kempster, Fred G. Projector cartridge for a filmstrip and a tape cassette. 4,272,167, Cl. 353-120.000.

Kennedy, Thomas N., to International Business Machines Corporation. Process of bonding sputtering targets to target electrodes. 4,272,355, Cl. 204-298.000.

Kent, Raymond C.: *See*—
Johnson, Norman A.; and Kent, Raymond C., 4,272,668, Cl. 219-375.000.

Kepley, Garry D.: *See*—
Gates, Geoffrey W.; and Kepley, Garry D., 4,272,810, Cl. 364-900.000.

Kerb, Ulrich: *See*—
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Kerr, Colin C. Solar energy collector. 4,271,821, Cl. 126-417.000.

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Brussell, Dennis A.; and Riggs, Olen L., Jr., 4,272,343, Cl. 204-130.000.

Kexon Industries, Inc.: *See*—
Waterman, David R., 4,272,036, Cl. 242-96.000.

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Alig, Leo; Furst, Andor; Muller, Marcel; Kerb, Ulrich; Kimlich, Klaus; and Wiechert, Rudolf, 4,272,630, Cl. 560-6.000.

Kikuchi, Gunpei: *See*—
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Kilmer, Lauren G. Filament-type weed-grass trimmer. 4,271,594, Cl. 30-276.000.

Kim, Sang H.; and Chang, Hao-jan, to Eastman Kodak Company. Buffer overcoat for CO_2 ion-selective electrodes. 4,272,328, Cl. 204-1.00T.

Kim, Sunyong P. Station wagon with adjustable rear roof panel. 4,272,121, Cl. 296-216.000.

Kim, Yong D.; Tomita, Joseph T.; and Schenck, Jay R., to Abbott Laboratories. Antibody adsorbed support method for carcinoembryonic antigen assay. 4,272,504, Cl. 424-1.000.

Kimo, Wallenley R. Rapid response steam generator. 4,271,791, Cl. 122-39.000.

Kimura, Koichi; and Nagishi, Eimei, to Nippon Kogaku K.K. Apparatus for guiding continuous chip formed in lathing. 4,271,734, Cl. 82-34.000.

Kimura, Tomoshi; and Nishino, Tadashi, to Hitachi, Ltd. Continuous casting apparatus. 4,271,894, Cl. 164-87.000.

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Kindel, Erik L., to LKB-Produkter AB. Mould for moulding specimen blocks to be cut in a microtome or an ultramicrotome. 4,272,049, Cl. 249-83.000.

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Berube, Richard G., 4,271,955, Cl. 198-400.000.

King, James F.; and Horton, Gilbert L., to Hesse Corporation. Method of forming wire support frame member. 4,271,580, Cl. 29-447.000.

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Montesi, Edward N.; and King, John H., 4,271,538, Cl. 2-439.000.
King, John M.; and de Vries, Louis, to Chevron Research Company. Process of preparing molybdenum complexes, the complexes so-produced and lubricants containing same. 4,272,387, Cl. 252-46.400.
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Canning, Thomas N.; Barna, Christopher E.; Murphy, James P.; Gin, Bobby; and King, Robert W., 4,271,761, Cl. 102-504.000.
Kintgen, Dale I.; Mylrea, William J.; and Smith, William A., to Master Conveyor Corporation. Bag handling apparatus. 4,271,755, Cl. 100-52.000.
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Ando, Toshihiro; Ohgi, Hiroshi; and Kishi, Ikuji, 4,272,586, Cl. 428-419.000.
Kishimoto, Shinzo, to Fuji Photo Film Co., Ltd. Photographic radiation-sensitive materials having improved antistatic property. 4,272,616, Cl. 430-529.000.
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Kitagawa, Shuzo: *See*—
Yajima, Tadamasa; Kitagawa, Shuzo; and Hata, Hiromi, 4,272,287, Cl. 75-60.000.
Kitai, Kiyoshi; and Shinozaki, Nobuo, to Seiko Koki Kabushiki Kaisha. Electric timer. 4,272,839, Cl. 368-107.000.
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Kitterman, Roger L.: *See*—
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Kiwala, Jacob: *See*—
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Klein, Heinrich; Pieper, Rudolf; and Weber, Eduard, to Kraftwerk Union Aktiengesellschaft. Tornado-type separator. 4,272,260, Cl. 55-265.000.
Klein, Wolfgang, to Acla-Werke Aktiengesellschaft. Elevator guide shoe. 4,271,932, Cl. 187-95.000.
Klement, Heribert: *See*—
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Klinedinst, Keith A., to GTE Laboratories Incorporated. Electrochemical cell with improved cathode current collector. 4,272,593, Cl. 429-101.000.
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Bopp, Robert D.; Klosterman, David P.; and Lipshield, Eugene C., 4,271,718, Cl. 74-522.000.
Klupfel, Kurt, to Hoechst Aktiengesellschaft. Photopolymerizable mixture. 4,272,609, Cl. 430-288.000.
Kluting, Bernd; and Holweg, Rainer, to Keiper Automobiltechnik GmbH. Positionally adjustable seat. 4,272,048, Cl. 248-430.000.
Knack, Albert C., Jr., to Hewlett-Packard Company. Shielded connector housing for use with a multiconductor shielded cable. 4,272,148, Cl. 339-143.00R.
Knapp, Heinrich; Eisele, Hermann; and Kammerer, Werner, to Robert Bosch GmbH. Fuel delivery apparatus. 4,271,794, Cl. 123-454.000.
Knight, Bill J.; and Knight, David L. Process for electrowinning of metals. 4,272,339, Cl. 204-106.000.
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Knowles, Albert H., to Rines, Robert Harvey, a part interest. Process and apparatus for accelerating growth rate of salmonoids and other fish and the like. 4,271,788, Cl. 119-3.000.
Kobayashi, Kozo: *See*—
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Kobayashi, Masahiro. Method for manufacturing charcoals from paper sludge. 4,272,322, Cl. 201-6.000.
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Kobylinski, Thaddeus P.: *See*—
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Kohn, Gustave K.; and Baer, Ted A., to Zoecon Corporation. Phenoxy imidates. 4,272,449, Cl. 260-453.990.
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Koike, Tsutomu: *See*—
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Kolb, Dieter; and Muller, Karl, to Fichtel & Sachs AG. Clutch mounting and actuating device. 4,271,950, Cl. 192-98.000.
Koletar, Gabor I.; Frost, Jonathan R.; Dupont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, to Synthelabo. Pyridoindole derivatives. 4,272,539, Cl. 424-256.000.
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Komamura, Seiji; and Suzuki, Katsuhiro, to Kayaba Kogyo Kabushiki Kaisha. Rotary control valve for power steering system. 4,272,056, Cl. 251-309.000.
Komatsu, Shigeru, to Tokyo Shibaura Denki Kabushiki Kaisha. Method of manufacturing a semiconductor device. 4,272,304, Cl. 148-1.500.
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Korsvik, Nils, to A/S Aukra Brak; and A/S Blehr Og Tenvig. System for launching and hauling in objects from the sea. 4,271,553, Cl. 9-14.000.
Kosugi, Masao, to Canon Kabushiki Kaisha. Alignment device. 4,271,577, Cl. 29-238.000.
Kotani, Yasutoyo; Sawada, Kazuo; Nagai, Shuzo; Ogino, Takao; and Watabe, Seiji, to Sumitomo Electric Industries, Ltd. Apparatus for electrolytic etching. 4,272,351, Cl. 204-202.000.
Kotick, Michael P.; Schut, Robert N.; Polazzi, Joseph O.; and Leland, David L., to Miles Laboratories, Inc. 7,8 and 7-8 Substituted 4,5α-epoxymorphinan-6-one compounds, and methods of treating pain and drug dependence with them. 4,272,541, Cl. 424-260.000.
Kotitschke, Ronald; and Stephan, Wolfgang, to Biotest Serum Institut GmbH. Fractionating citrate-stabilized plasma. 4,272,523, Cl. 424-101.000.
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Krause, Walter. Storage arrangement. 4,271,883, Cl. 150-1.000.
Kremer, Richard D.; and Siebengartner, Michael J., to Schleicher & Schuell, Inc. Thin-layer chromatography spotting. 4,272,381, Cl. 210-658.000.
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Memminger, Gustav; and Kuhn, Falk, 4,271,687, Cl. 66-146.000.
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Kumins, Charles A.; and Warford, Milan L., to Tremco, Inc. Waterproofing sheet material. 4,272,582, Cl. 428-332.000.
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Kuwabara, Fukuzi: *See*—
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Kuzma, Gyoso, to Bayerische Motoren Werke A.G. Blocking synchronization device for gear-type change-speed transmissions. 4,271,943, Cl. 192-53.00F.
Kyburz, Emilio: *See*—
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Kydonieus, Agis F.; and Kitterman, Roger L., to Herculite Products, Inc. Compositions comprising n-tetradecyl formate and their use in controlling insects. 4,272,520, Cl. 424-84.000.
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Lacy, Robert H., to Phillips Petroleum Company. Display system for displaying information in the form of a horizontally oriented curve on a raster-type CRT. 4,272,767, Cl. 340-722.000.
LaDuke, Jack E., to Ford Motor Company. Connector lock release. 4,272,145, Cl. 339-91.00R.
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Lakin, Kenneth M., to Northrop Corporation. Received signal encoding and correlating system. 4,271,707, Cl. 73-614.000.
Lal, Joginder; and Walters, Sandra J., to Goodyear Tire & Rubber Company, The. Composition and method of improving the green strength of unvulcanized reclaimed rubber. 4,272,436, Cl. 260-2.300.
Lamb, Frank E., to Duval Corporation. Process for recovery of metal values from lead-zinc ores, even those having a high carbonate content. 4,272,341, Cl. 204-118.000.
Lambert, Peter A.: *See*—
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Lancaster, David R., to General Motors Corporation. Divided chamber engine with prechamber exhaust recirculation. 4,271,810, Cl. 123-568.000.
Lancaster, Patrick R., III; and Lancaster, William G., to Lantech Inc. Automatic web tying apparatus. 4,271,657, Cl. 53-399.000.
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Lancaster, Patrick R., III; and Lancaster, William G., 4,271,657, Cl. 53-399.000.
Landwehr, Gunter; and Thiele, Horst, to Kochs Adler AG. Workpiece feeding device for a sewing machine. 4,271,776, Cl. 112-311.000.
Lane, George A.; and Rossow, Harold E., to Dow Chemical Company, The. Hydrated $CaCl_2$ reversible phase change compositions with nucleating additives. 4,272,390, Cl. 252-70.000.
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Lane, Joseph E.: *See*—
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Lasag S.A.: *See*—
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Lasser, Jeffrey I.; and Alaino, Francisco H., to Laschal Instruments Corp. Suture cutter. 4,271,838, Cl. 128-318.000.

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Huneke, Karl-Heinz; and Laufenberg, Wilfried, 4,272,479, Cl. 422-57.000.
Laurel Bank Machine Co., Ltd.: *See*—
Ueda, Nobuo, 4,271,855, Cl. 133-3.00D.
Yoshida, Minoru; and Arikawa, Junichi, 4,272,067, Cl. 271-95.000.
Lautenschlager, Karl, to Karl Lautenschlager KG Mobelbeschlagfabrik. Joining device. 4,272,207, Cl. 403-231.000.
Lawhon, Clyde E., to Dresser Industries, Inc. Brick assembly for use in metallurgical vessels. 4,272,063, Cl. 266-286.000.
Lawrance, Richard J.; and Wood, Linda D., to General Electric Company. Method of making solid polymer electrolyte catalytic electrodes and electrodes made thereby. 4,272,353, Cl. 204-283.000.
Lawsing, Joseph W., to United Technologies Corporation. Temperature sensor. 4,271,859, Cl. 137-85.000.
Layotte, Pierre-Claude; and James, Andre, to Institut Francais du Petrole. Mobil device for generating acoustic shear waves in the earth. 4,271,923, Cl. 181-114.000.
Leach, Sam L. Energy conservation technique. 4,272,345, Cl. 204-157.10R.
Le Bret, Lucien, to Gallay, S.A. Container seaming chuck. 4,271,778, Cl. 113-121.0AB.
Le Bris, Herve, to Centre National d'Etudes de Telecommunication. Multiplex time division switching network unit of the time-time type. 4,272,844, Cl. 370-66.000.
Lederer, Edgar: *See*—
Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, 4,272,524, Cl. 424-177.000.
Ledex, Inc.: *See*—
Fugate, Philip E.; and Roy, Kenneth L., 4,272,748, Cl. 335-271.000.
Ledley, Robert S., to Georgetown University. Ultrasonic scanner. 4,271,706, Cl. 73-614.000.
Lee, Agnes Y.: *See*—
Cole, Ernest R., Jr.; Lee, Agnes Y.; and Paulson, Danton L., 4,272,340, Cl. 204-114.000.
Lee, Chi-Long: *See*—
Homan, Gary R.; and Lee, Chi-Long, 4,272,415, Cl. 260-18.00S.
Homan, Gary R.; and Lee, Chi-Long, 4,272,623, Cl. 528-15.000.
Lee, Me-Fei: *See*—
Chang, Ben-Lee; and Lee, Me-Fei, 4,272,763, Cl. 340-571.000.
Leeper, William E., Jr. Multiple purpose woodworking apparatus. 4,271,880, Cl. 144-134.00R.
Lees, Jeremy J.: *See*—
Stewart, Phillip S. B.; and Lees, Jeremy J., 4,272,495, Cl. 423-167.000.
Leeson, Edward J.: *See*—
Miller, James R.; and Leeson, Edward J., 4,272,425, Cl. 260-29.7PT.
Lefrancier, Pierre: *See*—
Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, 4,272,524, Cl. 424-177.000.
Lehman, Richard F.; and Corona, Stephen C., to Xerox Corporation. Exposure compensation circuit for a copier. 4,272,188, Cl. 355-68.000.
Lehmann, Rolf, to Escher Wyss Limited. Controlled deflection roll. 4,271,575, Cl. 29-116.0AD.
Lehmann, Wolfgang: *See*—
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.
Leland, David L.: *See*—
Kotick, Michael P.; Schut, Robert N.; Polazzi, Joseph O.; and Leland, David L., 4,272,541, Cl. 424-260.000.
Lennon, Carl L., to United States of America, National Aeronautics and Space Administration. Lightning discharge identification system. 4,272,720, Cl. 324-72.000.
Le Pierres, Gildas: *See*—
Pelat, Roger P.; and Le Pierres, Gildas, 4,271,935, Cl. 188-185.000.
Lesgourgues, Jacques, to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Novel porous body and process for its preparation. 4,272,290, Cl. 75-212.000.
Leung, Chun K.: *See*—
Seitz, William R.; and Leung, Chun K., 4,271,798, Cl. 123-419.000.
Leutz, Donald C.: *See*—
Foord, Brian A.; and Leutz, Donald C., 4,272,368, Cl. 210-90.000.
Levefelt, Bert G., to Sandvik Aktiebolag. Rotary drill bit. 4,272,134, Cl. 308-8.200.
Lever Brothers Company: *See*—
Gutierrez, Eddie N., 4,272,442, Cl. 260-346.740.
Hofman, Keith; Scott, Brian A.; and Vogl, Rudolf, 4,272,515, Cl. 424-70.000.
Wright, Robert J., 4,272,395, Cl. 252-106.000.
Levit, Nelli I.: *See*—
Shtern, Maria A.; Levit, Nelli I.; Bondarenko, Alla V.; and Kaschentseva, Alexandra K., 4,272,291, Cl. 106-14.050.
Lewinger, Nathan; and Gillis, John A., to Pennant Products, Inc. Batch product preparation. 4,272,824, Cl. 364-502.000.
Lewis, Eugene J. Poultry dismembering apparatus. 4,271,561, Cl. 17-11.000.
Lewis, Meirion F., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Acoustic wave devices with temperature stabilization. 4,272,742, Cl. 333-155.000.
Licentia Patent-Verwaltungs-G.m.b.H: *See*—
Schneider, Wolfgang, 4,272,843, Cl. 370-24.000.
Liebert Corporation: *See*—
Liebert, Ralph C., 4,271,678, Cl. 62-173.000.
Liebert, Ralph C., to Liebert Corporation. Liquid refrigeration system for an enclosure temperature controlled outdoor cooling or pre-conditioning. 4,271,678, Cl. 62-173.000.
Ligon, Samuel B.: *See*—
Song, Jae M.; and Ligon, Samuel B., 4,272,076, Cl. 273-58.00C.
Lindenthal, Hans; and Harz, Martin, to Voith Transmit GmbH. Double-ring universal joint. 4,271,685, Cl. 64-17.00R.
Lindl, John D., to United States of America, Energy. High densit, laser-driven target. 4,272,320, Cl. 176-9.000.
Lindner, Christian; Suling, Carlhans; Bartl, Herbert; Hardt, Dietrich; and Brudermanns, Karola, to Bayer Aktiengesellschaft. Plasticized vinyl chloride polymer. 4,272,428, Cl. 260-31.20R.
Linke, Kaljo, to N. B. Love Industries Pty. Ltd. Starch-based adhesives. 4,272,295, Cl. 106-157.000.
Links, Heinz; Kopse, Odon; and Eblen, Ewald, to Robert Bosch GmbH. Pump/nozzle for internal combustion engines. 4,271,807, Cl. 123-506.000.
Lion Corporation: *See*—
Ina, Hiroshi; Takahashi, Masatoshi; and Kadoya, Isamu, 4,272,418, Cl. 260-23.0XA.
Lion Fat & Oil Co., Ltd., The: *See*—
Fukano, Kazuaki; Nakagawa, Ryuichi; Fukasawa, Akira; and Nishio, Hiroshi, 4,272,396, Cl. 252-174.120.
Lipp, Willi, to Thyssen Industrie AG. Machine tool having at least one tool magazine. 4,271,572, Cl. 29-26.00A.
Lippits, Gerardus J. M.; van den Broek, Arnoldus J. M.; and Dijkstra, Rinse, to U.S. Philips Corporation. Optically readable information disc. 4,272,574, Cl. 428-64.000.
Lipshield, Eugene C.: *See*—
Bopp, Robert D.; Klosterman, David P.; and Lipshield, Eugene C., 4,271,718, Cl. 74-522.000.
Lister, Paul M. Heat extracting apparatus for fireplaces. 4,271,814, Cl. 126-121.000.
Liteplo, Maria P.: *See*—
Camin, Leopoldo L.; and Liteplo, Maria P., 4,272,503, Cl. 424-1.000.
Little, Richard L., to Daig Corporation. Lead installation tool. 4,271,846, Cl. 128-785.000.
Ljubman, Nazar Y.; and Svyadosch, Jury N. Method for recovering metals of groups V-VI of the periodic system from solutions and pulps. 4,272,494, Cl. 423-54.000.
LKB-Produkter AB: *See*—
Kindel, Erik L., 4,272,049, Cl. 249-83.000.
Lockett, James F.: *See*—
Mehrkam, Thomas O.; and Lockett, James F., 4,271,968, Cl. 209-564.000.
Lockheed Corporation: *See*—
Halfpenny, Paul F.; Passarelli, Camillo L.; and Starrett, Philip S., 4,272,014, Cl. 236-44.00B.
Loeser, Werner: *See*—
Steck, Werner; Loeser, Werner; Steuerwald, Manfred; Wunsch, Gerd; and Deigner, Paul, 4,272,563, Cl. 427-130.000.
Logan, Emanuel L., to Reliable Security Systems, Inc. Emergency release for deadlocks. 4,271,691, Cl. 70-422.000.
Logan, Emanuel L. Form and label combination. 4,272,327, Cl. 283-1.00B.
Lone Star Steel Company: *See*—
Cason, Robert W.; Holland, Orvis L.; Russell, Floyd C.; Bass, Malley R.; and Frier, James L., 4,272,499, Cl. 423-242.000.
Long, Virgil L., Sr.: *See*—
Grosser, Richard W.; and Long, Virgil L., Sr., 4,272,073, Cl. 272-111.000.
L'Oreal: *See*—
Papantoniou, Christos; and Mondet, Jean, 4,272,511, Cl. 424-47.000.
Lou, Liang F., to General Electric Company. Thin film varistor. 4,272,754, Cl. 338-21.000.
Louis Marx & Co., Inc.: *See*—
Echterling, Eugene, 4,271,627, Cl. 46-15.000.
Love, Leonard S., to Sydlo Inc. Liquid treatment apparatus. 4,272,369, Cl. 210-137.000.
Lubbers, Dietrich W., to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. Filling for optodes. 4,272,484, Cl. 422-68.000.
Lubbers, Dietrich W., to Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V. Membranes for optodes. 4,272,485, Cl. 422-68.000.
Lucas Industries Limited: *See*—
Seilly, Alec H.; and Mowbray, Dorian F., 4,272,027, Cl. 239-585.000.
Thomas, Alfred W.; and op den Camp, Lutz E. A., 4,271,750, Cl. 92-98.00D.
Ludvigsson, Georg: *See*—
Warnstam, Lars-Ake; Jonsson, Rune; and Ludvigsson, Georg, 4,272,783, Cl. 358-126.000.
Luebke, Rebecca A.: *See*—
Barke, Martin B.; and Luebke, Rebecca A., 4,272,417, Cl. 260-22.00R.
Lueg-Althoff, Joachim: *See*—
Schlick, Horst; Rau, Karl; Wipfler, Alfred; and Lueg-Althoff, Joachim, 4,272,112, Cl. 292-201.000.

Lund, Robert M.: *See*—
Belmares-Sarabia, Armand; Chayka, Stanley J.; and Lund, Robert M., 4,272,780, Cl. 358-54.000.
Lupinski, John H.; and Gorowitz, Bernard, to General Electric Company. Apparatus for fluidized bed-electrostatic coating of indefinite length substrate. 4,271,783, Cl. 118-629.000.
Lutz, Willibald; and Moosa, Heinz, to Ruthner Industrieanlagen-Aktiengesellschaft. Device for composting refuse and sewage slurry. 4,272,489, Cl. 422-209.000.
Lux, Peter, to U.S. Philips Corporation. Method of and device for reducing artefacts in computed tomography images. 4,272,820, Cl. 364-414.000.
Lychyk, George S.; and Neese, Wayne E., to GTE Automatic Electric Laboratories Incorporated. Arrangement for mounting dual-in-line packaged integrated circuits to thick/thin film circuits. 4,272,140, Cl. 339-17.0CF.
Lyman, George F., to Data Packaging Corporation. Frame construction. 4,271,618, Cl. 40-152.000.
Lynch, Patrick E., Jr.; and Wimsatt, James M. Air purifying device. 4,272,261, Cl. 55-279.000.
Lynch, Richard W.; Hilliard, Garland E.; and Dotson, Ronald L., to Olin Corporation. Process for the treatment of anolyte brine. 4,272,338, Cl. 204-98.000.
Lyng, Stig, to Andelslaget for Norsk Skiforskning; and Sentralinstitutt for Industrielle Forskning. Plastic non-wax ski base and methods for its manufacture. 4,272,577, Cl. 428-112.000.
Lynn-Jones, David M., to Construction Specialties, Inc. Expansion joint cover. 4,271,650, Cl. 52-395.000.
M. D. Wood, Inc.: *See*—
Wood, Milton D., 4,271,696, Cl. 73-37.000.
M & W Gear Company: *See*—
Cornelius, Erwin D., 4,272,097, Cl. 280-411.00A.
Maag, Kurt: *See*—
Quadranti, Marco; Maurer, Willy; and Maag, Kurt, 4,272,281, Cl. 71-90.000.
Maaba, Gunther; and Rombusch, Konrad, to Chemische Werke Huls Aktiengesellschaft. Process for the manufacture of tetrachlorocyclobutenone from hexachlorocyclobutene. 4,272,633, Cl. 568-364.000.
Maasberg, Wolfgang, to WOMA Apparatebau Wolfgang Maasberg & Co. GmbH. Swivel for high-pressure conduit-cleaning assembly. 4,272,108, Cl. 285-95.000.
Mabuchi, Kenichi; and Katsunuma, Tatsuo, to Mabuchi Motor Co., Ltd. Model helicopter device. 4,272,041, Cl. 244-17.210.
Mabuchi Motor Co., Ltd.: *See*—
Mabuchi, Kenichi; and Katsunuma, Tatsuo, 4,272,041, Cl. 244-17.210.
Mac Valves, Inc.: *See*—
Neff, James A., 4,271,864, Cl. 137-599.000.
Neff, James A., 4,271,868, Cl. 137-625.640.
Macarthys Pharmaceuticals Limited: *See*—
Simpkins, David E.; and Taylor, John B. O., 4,272,526, Cl. 424-180.000.
Machanian, William V.: *See*—
Hoskinson, William R.; Soleander, Peter E.; and Machanian, William V., 4,271,741, Cl. 84-1.030.
Machines Chambon: *See*—
Corse, Louis G., 4,271,760, Cl. 101-142.000.
Mack, Robert: *See*—
Willis, Brian J.; Christenson, Philip A.; and Mack, Robert, 4,272,412, Cl. 252-522.00R.
MacKenzie, George W.; Shackelton, Clifford W.; and Yankielun, Norbert E., to International Telephone and Telegraph Corporation. Compact telephone set employing slidable actuated supervision switches. 4,272,655, Cl. 179-199.000.
MacMaster, George H.; and Nichols, Lawrence J., to Raytheon Company. Coaxial-to-cylindrical array transition. 4,272,740, Cl. 333-127.000.
Madison-Kipp Corporation: *See*—
Thomson, Ronald E.; and Hammermeister, David W., 4,271,930, Cl. 184-15.00A.
Maeder, Heinz B.: *See*—
Gercekci, Anil; and Maeder, Heinz B., 4,272,736, Cl. 331-108.00B.
Maese, Masayuki; and Nakakami, Tsuyoshi, to Minolta Camera Kabushiki Kaisha. Control system responsive to eraser malfunctions in electrophotographic copying machines. 4,272,183, Cl. 355-14.00R.
Maggi, Gian P.: *See*—
Maggi, Rodolfo; Maggi, Gian P.; and Marcon, Guiliano, 4,272,454, Cl. 260-544.00N.
Maggi, Rodolfo; Maggi, Gian P.; and Marcon, Guiliano, to Chimica Bulciago S.r.l. Process for the chlorination of α-aminoacids. 4,272,454, Cl. 260-544.00N.
Magnetic Peripherals Inc.: *See*—
Skarky, Loren D., 4,272,794, Cl. 360-97.000.
Maher, Richard C.: *See*—
Buchwald, Frank S.; Maher, Richard C.; and Buchina, Jerome E., 4,272,695, Cl. 310-242.000.
Mail-Ex Corporation: *See*—
Russell, Robert J., 4,271,656, Cl. 53-381.00R.
Maitani, Yoshihisa; and Tsunefuji, Katsuhiko, to Olympus Optical Co., Ltd. Photographic camera of automatic exposure control type. 4,272,168, Cl. 354-51.000.
Maitani, Yoshihisa; Kondo, Isao; Nemoto, Kazuyuki; and Kitagawa, Masahiro, to Olympus Optical Co., Ltd. Camera having an acoustic indicator for generating sounds to indicate the status of certain operating conditions. 4,272,176, Cl. 354-238.000.
Makabe, Hachiro; Watanabe, Kazuo; Kume, Toshiaki; Kakinuma, Toshihide; and Takenoya, Hideaki, to Janome Sewing Machine Co., Ltd. Pulse motor rotation phase adjusting system of a sewing machine. 4,271,773, Cl. 112-158.00E.
Makarov, Valery A.: *See*—
Afanasiev, Mikhail M.; Ivanov, Nikolai A.; Konstantinov, Evgeny A.; and Makarov, Valery A., 4,272,030, Cl. 241-37.000.
Makovec, Francesco; Senin, Paolo; and Rovati, Luigi, to Rotta Research Laboratorium S.p.A. 5-Nitro-imidazole with antiprotozoic activity. 4,272,538, Cl. 424-250.000.
Makuta, Yoshihiro: *See*—
Yamazaki, Masahiro; Akiyama, Takayasu; Makuta, Yoshihiro; and Maruoka, Toshimi, 4,271,740, Cl. 83-592.000.
Malchow, Max E., to RCA Corporation. Differential FM detector with series tuned filter. 4,272,726, Cl. 329-103.000.
Mandai, Masaaki: *See*—
Ueda, Makoto; Torisawa, Akira; Satoh, Katsuhiko; Shida, Masaharu; Mandai, Masaaki; and Asano, Kazuhiro, 4,272,837, Cl. 368-80.000.
Mandrin, Charles, to Sulzer Brothers Limited. Installation for generating pressure gas or mechanical energy. 4,271,665, Cl. 60-39.18B.
Mankey, Harry S.: *See*—
Oswald, Norman D.; and Mankey, Harry S., 4,272,221, Cl. 414-634.000.
Manson, Lewis A. Gravity sensor. 4,271,702, Cl. 73-382.00R.
Manufacture Provencale de Matieres Plastiques SA: *See*—
Zeltner, Bernard; and Marmonnier, Gaston, 4,271,630, Cl. 47-81.000.
Manville Forest Products: *See*—
Bamburg, Robert A.; Duncan, Farris N.; and Floyd, Roger M., 4,272,009, Cl. 229-41.00R.
Manz, Curtis T. Toothpick dispensing device. 4,271,979, Cl. 221-288.000.
Marcon, Guiliano: *See*—
Maggi, Rodolfo; Maggi, Gian P.; and Marcon, Guiliano, 4,272,454, Cl. 260-544.00N.
Marconi Company Limited, The: *See*—
Molyneux-Berry, Robert B., 4,272,737, Cl. 332-1.000.
Mark Industries: *See*—
Cullity, Richard E., 4,271,926, Cl. 182-2.000.
Markay International, Inc.: *See*—
Theuman, James L., 4,271,563, Cl. 17-71.000.
Markem Corporation: *See*—
Maxwell, William E.; Jeaneau, Peter, III; and Potter, Michael F., 4,271,757, Cl. 101-37.000.
Marmonnier, Gaston: *See*—
Zeltner, Bernard; and Marmonnier, Gaston, 4,271,630, Cl. 47-81.000.
Mars, Incorporated: *See*—
McLaughlin, Donald L.; and Barnes, Elwood E., 4,272,757, Cl. 340-152.00R.
Marshall, Richard L.; and Cashman, Kenneth A., to United Technologies Corporation. Premix combustor assembly. 4,271,674, Cl. 60-737.000.
Martel, Alain: *See*—
Menard, Marcel; and Martel, Alain, 4,272,437, Cl. 260-239.00A.
Martin, Jean, to Valentin S.A. Shower bar with sliding spray head. 4,271,543, Cl. 4-615.000.
Martin, Joe O.: *See*—
Cella, John A.; Flom, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, 4,272,544, Cl. 424-273.00R.
Martin, John: *See*—
Udall, William S.; and Martin, John, 4,271,884, Cl. 157-1.000.
Martin, Mary. Inflatable lift for patient's bedpan use. 4,271,546, Cl. 5-90.000.
Martin, Philip T.: *See*—
Burgener, Robert C.; and Martin, Philip T., 4,272,707, Cl. 318-139.000.
Martin, Robert C., to Dow Chemical Company, The. Composition for preventing a resin system from setting up in a well bore. 4,272,384, Cl. 252-8.55R.
Martinson, Arthur R.; and Rogers, Victor D., to Guy F. Atkinson Company. High pressure shaft seal. 4,272,084, Cl. 277-30.000.
Maruoka, Toshimi: *See*—
Yamazaki, Masahiro; Akiyama, Takayasu; Makuta, Yoshihiro; and Maruoka, Toshimi, 4,271,740, Cl. 83-592.000.
Maruzzelli, Gennaro: *See*—
Croci, Marco; and Maruzzelli, Gennaro, 4,272,438, Cl. 260-239.100.
Marvin, Brian D.: *See*—
Holka, Thomas C.; and Marvin, Brian D., 4,272,105, Cl. 280-804.000.
Marvin Glass & Associates: *See*—
Kulesza, Ralph J., 4,271,744, Cl. 84-330.000.
Maschinenbau "WAM" M. Osterhof KG: *See*—
Osterhof, Klaus, 4,271,758, Cl. 101-110.000.
Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See*—
Holl, Alfred; and Wewerka, Anton, 4,271,730, Cl. 81-57.408.
Maschinenfabrik Benninger AG: *See*—
Wildi, Edwin, 4,272,038, Cl. 242-150.00R.
Mashimo, Yukio, to Canon Kabushiki Kaisha. Photographic arrangement using various electronic flash devices. 4,272,170, Cl. 354-149.000.
Mashimo, Yukio: *See*—
Iwashita, Tomonori; Fukahori, Hidehiko; and Mashimo, Yukio, 4,272,173, Cl. 354-173.000.
Massachusetts Institute of Technology: *See*—
Vayenas, Costas G.; and Ortman, David E., 4,272,336, Cl. 204-59.00R.

Master Conveyor Corporation: *See—*
Kintgen, Dale I.; Mylrea, William J.; and Smith, William A., 4,271,755, Cl. 100-52.000.

Master Modular Homes, Inc.: *See—*
del Valle, Jaime L., 4,272,050, Cl. 249-144.000.

Masters, Ian M.: *See—*
Sefton, Verner B.; and Masters, Ian M., 4,272,490, Cl. 423-18.000.

Mathews, Lester R. Apparatus for intermittent delivery of fluid under pressure. 4,271,541, Cl. 4-490.000.

Mathias, Schorwerth: *See—*
Xaver, Wirth; and Mathias, Schorwerth, 4,271,936, Cl. 188-244.000.

Matikainen, Martti, to Hunt & Moscrop (Paper Machinery) Ltd. Mechanical drive for rotatable mantle roll mounted onto a stationary axle, especially for a deflection-compensated roll mantle of a paper machine. 4,271,574, Cl. 29-115.000.

Matsuda, Kiyofumi, to Agency of Industrial Science and Technology; and Ministry of International Trade & Industry. Holographic shearing interference contrast method and interferometer. 4,272,192, Cl. 356-347.000.

Matsuda, Teruo; Wake, Shigeo; and Shiozaki, Tetsuya, to Sumitomo Chemical Company, Limited. Process for the preparation of azo compounds from amino compounds in the presence of a phase transfer catalyst. 4,272,435, Cl. 260-192.000.

Matsumoto, Mitsuo, to Toshiba Kikai Kabushiki Kaisha. System for controlling torque of induction motors. 4,272,715, Cl. 318-800.000.

Matsumoto, Shinichi: *See—*
Furutani, Toshinobu; Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; and Wakisaka, Hiroshi, 4,272,349, Cl. 204-195.00S.

Matsumoto, Takao, to Nippon Telegraph & Telephone Corporation. Optical circulator. 4,272,159, Cl. 350-375.000.

Matsumoto, Yoshihiro, to Tokyo Shibaura Denki Kabushiki Kaisha. Overcurrent protecting apparatus. 4,272,816, Cl. 364-483.000.

Matsuo, Osamu; Nakamura, Keijiro; and Kodaira, Toshimi, to Fuji Electric Co., Ltd. System for sorting elongated members. 4,271,967, Cl. 209-558.000.

Matsuoka, Tomizo: *See—*
Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,272,397, Cl. 252-301.60S.

Matsushita Electric Corporation of America: *See—*
Schmidt, Hans, 4,271,714, Cl. 74-202.000.

Matsushita Electric Industrial Co., Ltd.: *See—*
Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,272,397, Cl. 252-301.60S.
Yoshida, Tomio; Nakata, Yoshinobu; Harigae, Shunji; and Sato, Toshio, 4,272,651, Cl. 369-112.000.

Matsushita Electric Works, Ltd.: *See—*
Hukagawa, Hitoshi; Shimada, Isao; Naruo, Masayuki; and Endo, Terumi, 4,272,671, Cl. 219-505.000.

Matsushita, Shuzo: *See—*
Terramoto, Tougo; Matsushita, Shuzo; and Kobori, Toshio, 4,272,174, Cl. 354-195.000.

Matsuura, Yoshiaki: *See—*
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Matsuzawa, Hideshi: *See—*
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Sato, Shosuke; and Matsuzawa, Hideshi, 4,272,674, Cl. 235-69.000.

Matthews, Gary B.: *See—*
Berglund, Sidney J.; and Matthews, Gary B., 4,272,147, Cl. 339-99.00R.

Matthews, Merton L., to Maxson Automatic Machinery Company. Method of and apparatus for slowing sheets carried by high-speed conveyors before deposit on stationary platforms or low-speed conveyors. 4,272,069, Cl. 271-182.000.

Matthews, Richard A.: *See—*
Gadbois, Richard T.; and Matthews, Richard A., 4,271,640, Cl. 51-400.000.

Matthias Spencer & Sons Limited: *See—*
Denman, Dennis, 4,271,735, Cl. 82-36.00R.

Maurer, Willy: *See—*
Quadranti, Marco; Maurer, Willy; and Maag, Kurt, 4,272,281, Cl. 71-90.000.

Max-Planck-Gesellschaft zur Forderung der Wissenschaften e.V: *See—*
Faubel, Manfred; Holber, William M.; and Toennies, Jan P., 4,272,699, Cl. 313-360.000.
Lubbers, Dietrich W., 4,272,484, Cl. 422-68.000.
Lubbers, Dietrich W., 4,272,485, Cl. 422-68.000.

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Maxwell, William E.; Jeaness, Peter, III; and Potter, Michael F., to Markem Corporation. Rotary offset article printing system. 4,271,757, Cl. 101-37.000.

Mayer, William R.; and Pescetto, James R., to Stewart-Warner Corporation. Vacuum operated switch. 4,272,660, Cl. 200-83.00P.

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Mayes, Warden W., to Coeden Technology, Inc. Process for regenerating fluidizable particulate cracking catalysts. 4,272,402, Cl. 252-417.000.

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McCarbery, Gary P., to General Motors Corporation. Internal combustion engine control system. 4,271,797, Cl. 123-412.000.

McCarthy, Donald J.: *See—*
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McCartney, Charles P., Jr., to General Motors Corporation. Method of making battery plates. 4,271,586, Cl. 29-623.500.

McCluskey, William A. Window blind cord control apparatus. 4,271,893, Cl. 160-178.00R.

McCombie, Stuart W.: *See—*
Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., 4,272,439, Cl. 260-245.20R.

McCombs, Charles A.; and Foster, Charles H., to Eastman Kodak Company. Dehydroformylation of steroidal aldehydes. 4,272,444, Cl. 260-397.300.

McConnell, Kenneth C., to Deere & Company. Air duct system for a cotton harvester. 4,271,659, Cl. 56-13.300.

McCormick, Michael E. Counter-rotating wave energy conversion turbine. 4,271,668, Cl. 60-398.000.

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McDermott, John F., to United States Steel Corporation. Door jamb construction for coke ovens. 4,272,325, Cl. 202-248.000.

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McFadden, Russell T.; Krause, Reuben L.; and Young, R. Gregg, to Dow Chemical Company, The. Water thinnable coating compositions from aminoalkylated interpolymers. 4,272,621, Cl. 525-355.000.

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Carroll, James C.; Chapman, Donald L.; Flee, Stephen L.; and McGoldrick, Gilbert A., 4,272,643, Cl. 174-48.000.

McGovarin, Roy R., to Blaw Knox Limited. Extendible screeds. 4,272,213, Cl. 404-118.000.

McGrew, Jay L. Method and apparatus for effecting subsurface, controlled, accelerated chemical reactions. 4,272,383, Cl. 210-741.000.

McIntyre, James E.; and Milburn, Alexander H., to Imperial Chemical Industries Limited. Thermotropic polyester amides. 4,272,625, Cl. 528-183.000.

McKeen, Robert S.; Keefer, Kenneth S.; and Sawyer, Theodore E., to Frederick Electronics. Electronic card cage interfacing assembly. 4,272,141, Cl. 339-18.00R.

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McLaughlin, Donald L.; and Barnes, Elwood E., to Mars, Incorporated. Vending machine accountability system. 4,272,757, Cl. 340-152.00R.

McMinn, Talmage D.: *See—*
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Gudorf, James L., 4,271,589, Cl. 29-878.000.

Meador, Jim D.; and Parker, Edward H., to Western Litho Plate & Supply Co. Base plate and lithographic plate prepared by sensitization thereof. 4,272,604, Cl. 430-159.000.

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Medtronic, Inc.: *See—*
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Lattin, Gary A.; and Sorenson, Paul D., 4,271,840, Cl. 128-1.00R.
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Mehrkam, Thomas O.; and Lockett, James F., to Geosource Inc. Ejector dwell controller for a sorting apparatus. 4,271,968, Cl. 209-564.000.

Mekosh, George, Jr., to Budd Company, The. Anti-locking with fail safe system. 4,272,133, Cl. 303-99.000.

Mellingen, Knut O., to Komiv A/S. Apparatus for producing ski tracks for a ski trail. 4,271,612, Cl. 37-10.000.

Memminger GmbH: *See—*
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Memminger, Gustav; and Kuhn, Falk, to Memminger GmbH. Thread or yarn supply apparatus with movable thread supply guide means, particularly for circular knitting machines. 4,271,686, Cl. 66-146.000.

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Menard, Marcel; and Martel, Alain, to Bristol-Myers Company. Antibacterial agents, and 4-thio azetidinone intermediates. 4,272,437, Cl. 260-239.00A.

Meppen, Craig E.: *See—*
Ahlstrom, Ross C., Jr.; and Meppen, Craig E., 4,272,481, Cl. 422-62.000.

Merck & Co., Inc.: *See—*
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Merrie, Kenneth: *See—*
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Merrifield, Fred C. Snowshoe. 4,271,609, Cl. 36-125.000.

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Meyer, Nicolas; and Foulon, Raymond, to Societe Chimiques des Charbonnages SA. Boric anhydride solutions and their use as hardeners of resols. 4,272,403, Cl. 252-428.000.

Meyer, Victor, Jr.: *See—*
Bolgiano, Duane R.; Benjamin, Joel M., Jr.; and Meyer, Victor, Jr., 4,272,650, Cl. 179-77.000.

Michael, Patrick T. Rack for skis and the like. 4,271,997, Cl. 224-42.45R.

Michael, Peter C.; Taylor, Richard J.; and Keller, Paul R. N., to Micro Consultants Limited. T.V. Picture freeze system. 4,272,787, Cl. 358-160.000.

Michal, Radnicki: *See—*
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Mifune, Hiroyuki; Takada, Shunji; Akimura, Yoshitaka; and Puseya, Yoshiharu, to Fuji Photo Film Co., Ltd. Method of forming a high-contrast photographic image. 4,272,606, Cl. 430-264.000.

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Mijovic, Miroslav V.: *See—*
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Milberger, Lionel J.; and Tucker, Albert R., to FMC Corporation. Method and apparatus for hydraulically controlling subsea well equipment. 4,271,867, Cl. 137-625.210.

Milburn, Alexander H.: *See—*
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Miles, James A.: *See—*
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Miles Laboratories, Inc.: *See—*
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Miller, Coleman J.; and Davis, Daniel, to Westinghouse Electric Corp. Reflector antennae apparatus for limiting aperture blockage. 4,272,770, Cl. 343-782.000.

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Miller, Francis P.: *See—*
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Miller, James R.; and Leeson, Edward J., to B. F. Goodrich Company, The. Treating dispersions of acrylonitrile polymers. 4,272,425, Cl. 260-29.7PT.

Miller, Oliver A.: *See—*
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Miller, Theodore L.: *See—*
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Miller, William H.; and Grubb, Jesse T., to Miller, William H. Pedestal crane. 4,271,970, Cl. 212-146.000.

Mills, Derek J. Post support means. 4,271,646, Cl. 52-165.000.

Millward, Thomas H.; Wylie, David G.; and Clarke, Philip C., to GKN Axles Limited. Axle assemblies. 4,271,717, Cl. 74-467.000.

Minezaki, Takashi. Hydrocarbon fuel having improved combustion efficiency. 4,272,254, Cl. 44-70.000.

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Berglund, Sidney J.; and Matthews, Gary B., 4,272,147, Cl. 339-99.00R.
Gadbois, Richard T.; and Matthews, Richard A., 4,271,640, Cl. 51-400.000.
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Mitsuda, Tadao; Iwata, Minoru; Sagiura, Masatoshi; Takada, Shigetaka; and Watanabe, Yukihiro, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Aisan Industry Co., Ltd. Apparatus for controlling the amount of secondary air fed into an internal combustion engine. 4,271,667, Cl. 60-276.000.

Mitsui Mfg. Co., Ltd.: *See—*
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Mizuno, Shogo; Shimamura, Kyoichi; and Kobayashi, Michiaki, to Dai Nippon Insatsu Kabushiki Kaisha. Heat transfer printing. 4,272,292, Cl. 106-22.000.

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Mobil Oil Corporation: *See—*
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Mohan, Raam R.; and Singhal, Gopal H., to Exxon Research & Engineering Co. Regeneration of spent hydrodesulfurization catalyst with heteropoly acids. 4,272,401, Cl. 252-413.000.
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Morse, Alfred W., to Westinghouse Electric Corp. Power supply distribution system. 4,272,692, Cl. 307-268.000.
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Moses, John R.; and Fram, Adolph, to Fram-Israelson Enterprises. Lubricating oil filter-refiner for internal combustion engines. 4,272,371, Cl. 210-168.000.
Moshofsky, Jerome F., to Smith, Lawrence M.; Acker, G. Marts; and Smith, Franklin G., part interest to each. Internal surgical stapler. 4,272,002, Cl. 227-19.000.
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Kolb, Dieter; and Muller, Karl, 4,271,950, Cl. 192-98.000.
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Alig, Leo; Furst, Andor; Muller, Marcel; Kerb, Ulrich; Kieslich, Klaus; and Wiechert, Rudolf, 4,272,630, Cl. 560-6.000.
Multiform Desiccant Products, Inc.: *See*—
Cullen, John S.; and Huber, Paul W., 4,272,264, Cl. 55-387.000.
Munakata, Tadashi: *See*—
Taguchi, Nobuo; Munakata, Tadashi; and Kobayashi, Yoshikata, 4,272,781, Cl. 358-100.000.
Murase, Ichiki: *See*—
Sano, Takezo; Shimomura, Takatoshi; Sasaki, Masao; and Murase, Ichiki, 4,272,378, Cl. 210-500.200.
Muratani, Takuro; Watanabe, Tatsuo; Ohkawa, Michihisa; and Mizuike, Takeshi, to Kokusai Denshin Denwa Kabushiki Kaisha. Method for cancelling impulsive noise. 4,272,846, Cl. 455-296.000.
Murphy, Cornelius B.: *See*—
Sypula, Donald S.; and Murphy, Cornelius B., 4,272,600, Cl. 430-106.000.
Murphy, James P.: *See*—
Canning, Thomas N.; Berns, Christopher E.; Murphy, James P.; Gin, Bobby; and King, Robert W., 4,271,761, Cl. 102-504.000.
Murray, David B.: *See*—
Trahan, Albert J.; Beckwith, Bruce R.; and Murray, David B., 4,272,273, Cl. 65-167.000.
Myers, Charles L.: *See*—
Goldberg, Gerald; Myers, Charles L.; Parsons, Charles F.; and Steffancin, William, 4,272,584, Cl. 428-412.000.
Myers, Herbert J.: *See*—
Brambley, Michael I.; Myers, Herbert J.; and Rios, Januario R., Jr., 4,271,965, Cl. 206-219.000.
Mylrea, William J.: *See*—
Kintgen, Dale I.; Mylrea, William J.; and Smith, William A., 4,271,755, Cl. 100-52.000.
N. B. Love Industries Pty. Ltd.: *See*—
Linke, Kaljo, 4,272,295, Cl. 106-157.000.
Naarmann, Herbert: *See*—
Hahn, Klaus; Naarmann, Herbert; Penzien, Klaus; and Weber, Heinz, 4,272,583, Cl. 428-407.000.
Nagai, Shuzo: *See*—
Kotani, Yasutoyo; Sawada, Kazuo; Nagai, Shuzo; Ogino, Takao; and Watabe, Seiji, 4,272,351, Cl. 204-202.000.
Nagasawa, Takeshi: *See*—
Arai, Toshio; Nagasawa, Takeshi; Iwaya, Toshio; Inoue, Shunzo; and Konishi, Motofumi, 4,272,185, Cl. 355-28.000.
Nagase, Toshio: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Seto, Shosuke; and Matsuzawa, Hideshi, 4,272,674, Cl. 235-69.000.

Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, to Hitachi, Ltd. Centrifugal counterflow type contactor. 4,272,011, Cl. 233-15.000.
Nagayoshi, Katsuhiro, to Nichiro Kogyo Co, Ltd. Semiautomatic-automatic strapping machine. 4,271,655, Cl. 53-201.000.
Najarian, Leon K.: *See*—
DiNallo, Samuel R., Sr.; and Najarian, Leon K., 4,271,785, Cl. 118-661.000.
Najer, Henry: *See*—
Koletar, Gabor I.; Frost, Jonathan R.; Dupont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,272,539, Cl. 424-256.000.
Nakacho, Yoshifumi: *See*—
Ogata, Yuzuru; and Nakacho, Yoshifumi, 4,272,382, Cl. 210-660.000.
Nakade, Shinichi; and Tanaka, Michihiro, to Sumitomo Rubber Industries, Ltd. Thread wound golf ball. 4,272,079, Cl. 273-225.000.
Nakagaki, Shintaro; Takanashi, Itsuo; Yokokawa, Sumio; Miyoshi, Tadayoshi; Motoyama, Koichiro; and Miyazaki, Kenichi, to Victor Company of Japan, Ltd. Signal processing circuit for a color television camera. 4,272,779, Cl. 358-47.000.
Nakagawa, Ryuichi: *See*—
Fukano, Kazuaki; Nakagawa, Ryuichi; Fukasawa, Akira; and Nishio, Hiroshi, 4,272,396, Cl. 252-174.120.
Nakagawa, Yasuhito; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, to Nissan Motor Company, Limited. Internal combustion engine with dual induction system and with fuel injection system to discharge fuel into secondary induction system. 4,271,795, Cl. 123-308.000.
Nakagawa, Yukio: *See*—
Kohno, Masaru; and Nakagawa, Yukio, 4,271,708, Cl. 73-861.280.
Nakai, Meroji: *See*—
Nakagawa, Yasuhito; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,271,795, Cl. 123-308.000.
Nakajima, Ryoji: *See*—
Nakagawa, Yasuhito; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,271,795, Cl. 123-308.000.
Nakakami, Tsuyoshi: *See*—
Masse, Masayuki; and Nakakami, Tsuyoshi, 4,272,183, Cl. 355-14.00R.
Nakamichi Corporation: *See*—
Nakamichi, Niro; Kobayashi, Kozo; and Kawachi, Hideo, 4,272,792, Cl. 360-69.000.
Nakamichi, Niro; Kobayashi, Kozo; and Kawachi, Hideo, to Nakamichi Corporation. Mode changing system for a cassette tape recorder. 4,272,792, Cl. 360-69.000.
Nakamura, Isao: *See*—
Satomi, Toyokazu; Koizumi, Yutaka; Nakamura, Isao; Tabata, Yasuhiro; and Kaneko, Tamaki, 4,272,180, Cl. 355-3.0SH.
Nakamura, Keijiro: *See*—
Matsuo, Osamu; Nakamura, Keijiro; and Kodaira, Toshimi, 4,271,967, Cl. 209-558.000.
Nakamura, Mitsuo: *See*—
Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Muneyuki; Nakamura, Mitsuo; and Amano, Takayoshi, 4,272,003, Cl. 228-13.000.
Nakanishi, Kiyoshi; Okumura, Takeshi; Deguchi, Ryuichi; and Tanahashi, Toshio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Internal combustion engine. 4,271,803, Cl. 123-432.000.
Nakata, Yoshinobu: *See*—
Yoshida, Tomio; Nakata, Yoshinobu; Harigae, Shunji; and Sato, Toshio, 4,272,651, Cl. 369-112.000.
Nakayama, Shigeru: *See*—
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,272,597, Cl. 430-68.000.
Nakayama, Yasuhiro: *See*—
Yoneyama, Masakazu; Kishimoto, Shinzo; and Nakayama, Yasuhiro, 4,272,615, Cl. 430-527.000.
Nakrokhin, Vladilen G.; and Katusin, Vladimir M. Apparatus for compensation of commutation dips in synchronizing voltage curves. 4,272,273, Cl. 363-129.000.
Nappen, Bernard H., to National Starch and Chemical Corporation. Stable gelatin dessert and process for making same. 4,272,557, Cl. 426-576.000.
Narayan, Raichur S., to Sunbeam Corporation. Provision of surface layers of copper or copper alloyed with zinc on die castings of zinc or zinc alloys. 4,272,570, Cl. 427-436.000.
Naruo, Masayuki: *See*—
Hukagawa, Hitoshi; Shimada, Isao; Naruo, Masayuki; and Eado, Terumi, 4,272,671, Cl. 219-505.000.
Naseem, Syed: *See*—
Blanford, Denis M.; and Naseem, Syed, 4,272,675, Cl. 235-463.000.
Nash, Edgar M.: *See*—
Nash, Henry R.; and Nash, Edgar M., 4,271,876, Cl. 141-12.000.
Nash, Henry R.; and Nash, Edgar M. Method and apparatus for filling honeycomb panels with fiber insulation. 4,271,876, Cl. 141-12.000.
National Can Corporation: *See*—
Cochran, Donald D., 4,272,233, Cl. 425-526.000.
National Research Development Corporation: *See*—
Evans, Mervyn; and Harris, John D., 4,271,832, Cl. 128-92.00A.
Hutchinson, Marcus H. R.; and Bradley, Daniel J., 4,272,732, Cl. 331-94.50P.
Scott, Keith; and Wright, Allen R., 4,272,333, Cl. 204-23.000.
Spillman, John J., 4,272,043, Cl. 244-130.000.
National Semiconductor Corporation: *See*—
Boettcher, Charles E., 4,272,774, Cl. 357-23.000.
Compton, James B.; Cometta, Robert A.; and Culmer, Daniel D., 4,272,775, Cl. 357-29.000.
National Starch and Chemical Corporation: *See*—
Nappen, Bernard H., 4,272,557, Cl. 426-576.000.
Natori, Minoru: *See*—
Tamaru, Munetaka; Natori, Minoru; and Yamaguchi, Sizuo, 4,272,836, Cl. 368-74.000.
Naugle, Richard L.: *See*—
Geller, William L.; and Naugle, Richard L., 4,272,762, Cl. 340-556.000.
Navarro, Roger: *See*—
Ducros, Luc; and Navarro, Roger, 4,271,984, Cl. 222-94.000.
NCR Corporation: *See*—
Blanford, Denis M.; and Naseem, Syed, 4,272,675, Cl. 235-463.000.
Schmidt, Carson T.; Ward, William P.; and Young, Rocky M. Y., 4,272,829, Cl. 364-900.000.
Nealy, Robert H. Integrated sewage treatment system. 4,272,016, Cl. 237-56.000.
Neely, Raymond J., to Refreshment Machinery Incorporated. Brewing mechanism. 4,271,753, Cl. 99-289.00R.
Neese, Wayne E.: *See*—
Lychyk, George S.; and Neese, Wayne E., 4,272,140, Cl. 339-17.0CF.
Neff, James A., to Mac Valves, Inc. Pressure regulating valve. 4,271,864, Cl. 137-599.000.
Neff, James A., to Mac Valves, Inc. Pilot operated pilot valve. 4,271,868, Cl. 137-625.640.
Negi, Virendra S.; and Peters, Arthur, to Honeywell Information Systems Inc. Arithmetic logic apparatus for a data processing system. 4,272,828, Cl. 364-900.000.
Negishi, Eimei: *See*—
Kimura, Keiichi; and Negishi, Eimei, 4,271,734, Cl. 82-34.00R.
Nelson, Don S.: *See*—
Birdsall, Ivan P.; Bradmon, Paul J.; Buddington, Donald L.; Garcia, Vincent H.; and Nelson, Don S., 4,272,187, Cl. 355-56.000.
Nemoto, Kazuyuki: *See*—
Maitani, Yoshihisa; Kondo, Isao; Nemoto, Kazuyuki; and Kitagawa, Masahiro, 4,272,176, Cl. 354-238.000.
Neuses, Morton. High-precision electrical signal attenuator structures. 4,272,739, Cl. 333-81.00A.
Netherly, Samuel G., to Minnesota Mining and Manufacturing Company. Vibration isolation structure. 4,272,572, Cl. 428-35.000.
Neti, Radhakrishna M., to Beckman Instruments, Inc. Nitric oxide interference free sulfur dioxide fluorescence analyzer. 4,272,248, Cl. 23-232.00R.
Neuking, Hartmut: *See*—
Tybus, Gerd; and Neuking, Hartmut, 4,272,266, Cl. 55-392.000.
Neustadt, Bernard R.; and Gold, Elijah H., to Schering Corporation. Omega-[4-(polyfluoro-2-hydroxy-2-propyl)-2,3,6-substituted-phenoxy and phenylthio]alkanoic acids and compounds related thereto. 4,272,550, Cl. 424-324.000.
New England Machinery, Inc.: *See*—
Gosney, Garrison, 4,271,954, Cl. 198-399.000.
New England Nuclear Corporation: *See*—
Camin, Leopoldo L.; and Liteplo, Maria P., 4,272,503, Cl. 424-1.000.
Newman, Raymond A., to NP Industries, Inc. Operations control system. 4,272,761, Cl. 340-500.000.
Newroyd Limited: *See*—
Barnes, William J., 4,271,769, Cl. 112-79.0FF.
Nichiro Kogyo Co, Ltd.: *See*—
Nagayoshi, Katsuhiro, 4,271,655, Cl. 53-201.000.
Nichols, Lawrence J.: *See*—
MacMaster, George H.; and Nichols, Lawrence J., 4,272,740, Cl. 333-127.000.
Nickles, Francois, to Ebauches Electroniques SA. Timepiece. 4,272,841, Cl. 368-224.000.
Nicolay, Hugh C., to Harris Corporation. Integrated circuit fuse. 4,272,753, Cl. 337-297.000.
Nidola, Antonio: *See*—
de Nora, Vittorio; Nidola, Antonio; Speziante, Placido M.; and Bianchi, Giuseppe, 4,272,354, Cl. 204-290.00R.
Niedballa, Ulrich; and Bottcher, Irmgard, to Schering Aktiengesellschaft. Pharmacologically active 4,5-diaryl-2-substituted-imidazoles. 4,272,543, Cl. 424-273.00R.
Niedospial, John J.: *See*—
Sherman, Larry; and Niedospial, John J., 4,272,035, Cl. 242-71.100.
Niedzialtowski, John: *See*—
Sokoly, Theodore O.; and Niedzialtowski, John, 4,272,411, Cl. 252-516.000.
Nieuwendijk, Joris A. M.; Vink, Nicolaas G.; and Heijnemans, Werner A. L., to U.S. Philips Corporation. Self-converging deflection units for color display tubes of different screen formats. 4,272,727, Cl. 335-213.000.
Niigata Engineering Co., Ltd.: *See*—
Etoh, Akio, 4,271,780, Cl. 114-144.00E.
Niki, Shoji; and Yoshino, Yuji, to Takeda Riken Kogyo Kabushikikaisha. Electric field intensity measuring apparatus. 4,272,719, Cl. 324-72.000.
Niklewski, Jerzy B.: *See*—
Eggerding, Carl L.; Gonzales, Frank, Jr.; and Niklewski, Jerzy B., 4,272,300, Cl. 423-327.000.
Nitsch, Eugene J.; and Underwood, J. Larry, to Dynatron/Bondo Corporation. Glue dispenser. 4,271,982, Cl. 222-83.000.

Nilsen, Carl J., to SWS Incorporated. Z-Bar guide apparatus. 4,272,004, Cl. 228-17.500.

Nippon Atsudenki K.K.: *See—*
Ogikubo, Masaru, 4,272,652, Cl. 369-139.000.

Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Iijima, Masakatsu, 4,272,657, Cl. 200-5.00A.
Ogita, Minoru, 4,272,788, Cl. 358-189.000.

Nippon Kinzoku Co., Ltd.: *See—*
Tuji, Toshihiko, 4,272,749, Cl. 336-233.000.

Nippon Kogaku K.K.: *See—*
Kimura, Keiichi; and Negishi, Eimei, 4,271,734, Cl. 82-34.00R.

Nippon Kokan Kabushiki Kaisha: *See—*
Fukuda, Shuzo; Watanabe, Tsutomu; and Abe, Masahiro, 4,272,334, Cl. 204-27.000.

Nippon Soda Co., Ltd.: *See—*
Imamura, Juichi, 4,272,634, Cl. 568-432.000.

Nippon Soken, Inc.: *See—*
Wakamatsu, Hisato, 4,271,728, Cl. 74-866.000.

Nippon Steel Corporation: *See—*
Fuziwara, Shigeru; and Tamura, Shinichi, 4,272,062, Cl. 266-284.000.

Nippon Telegraph & Telephone Corporation: *See—*
Matsumoto, Takao, 4,272,159, Cl. 350-375.000.

Nippon Zeon Co., Ltd.: *See—*
Yamamoto, Haruhisa; Yoneyama, Nobuaki; and Akiyama, Shinichi, 4,272,637, Cl. 568-780.000.
Yamazaki, Masahiro; Akiyama, Takayasu; Makuta, Yoshihiro; and Maruoka, Tosikuni, 4,271,740, Cl. 83-592.000.

Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru. Electrophotographic sensitizing screen. 4,272,597, Cl. 430-68.000.

Nishikawa, Yukio, to Precision Monolithics, Inc. Quasi-resistive battery feed for telephone circuits. 4,272,656, Cl. 179-170.0NC.

Nishimoto, Keiji: *See—*
Shirai, Kazunari; Tanaka, Izumi; Tanaka, Shinpei; and Nishimoto, Keiji, 4,271,582, Cl. 29-571.000.

Nishimura, Michio: *See—*
Fujikawa, Tetsuzo; and Nishimura, Michio, 4,272,085, Cl. 277-235.00B.

Nishimura, Sadanori; Yamada, Yoji; Shimizu, Takeyuki; and Yamashita, Masaru, to Honda Giken Kogyo Kabushiki Kaisha. Check valve apparatus for oil pressure operated clutch. 4,271,951, Cl. 192-106.00F.

Nishino, Tadashi: *See—*
Kimura, Tomoaki; and Nishino, Tadashi, 4,271,894, Cl. 164-87.000.

Nishino, Tomoyoshi, to Otsuka Pharmaceutical Co., Ltd. Method for preparing antigen and antibody. 4,272,433, Cl. 260-112.50R.

Nishio, Hiroshi: *See—*
Fukano, Kazuaki; Nakagawa, Ryuichi; Fukasawa, Akira; and Nishio, Hiroshi, 4,272,396, Cl. 252-174.120.

Nishioka, Kunihiko: *See—*
Sunami, Yoshihiko; and Nishioka, Kunihiko, 4,272,324, Cl. 201-21.000.

Nissan Motor Company, Limited: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,271,939, Cl. 192-3.300.
Katayama, Yoshinori; and Torii, Hiromasa, 4,272,120, Cl. 296-210.000.
Nakagawa, Yasuhiko; Etoh, Yukihiro; Nakai, Meroji; and Nakajima, Ryoji, 4,271,795, Cl. 123-308.000.
Suzuki, Suzuo; Hata, Yoshitaka; and Ohnishi, Akihiro, 4,271,811, Cl. 123-571.000.
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,271,721, Cl. 74-695.000.

Nisshin Steel Co., Ltd.: *See—*
Tsuda, Takeshi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masshiro; Imamura, Yasuo; and Kato, Kazunori, 4,271,571, Cl. 29-25.180.

Nitta, Tsuneharu: *See—*
Fukuda, Yoji; Fukushima, Fumio; Matsuoka, Tomizo; Nitta, Tsuneharu; and Hayakawa, Shigeru, 4,272,397, Cl. 252-301.60S.

Noerager, Jere A.; Taft, Daniel G.; and Bednar, John M., to Exxon Production Research Company. Riser tensioner system. 4,272,059, Cl. 254-392.000.

Noguchi, Yoshio; and Ito, Tsuneo, to Hitachi, Ltd. Data line potential setting circuit and MIS memory circuit using the same. 4,272,834, Cl. 365-230.000.

Nohira, Hidetaka: *See—*
Yamakawa, Yoshio; Toyoda, Toshikazu; and Nohira, Hidetaka, 4,271,801, Cl. 123-432.000.

Noland, Joseph R., to General Electric Company. Heat pump control system. 4,271,899, Cl. 165-29.000.

Nomura, Hirokazu: *See—*
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,272,464, Cl. 264-22.000.

Northern Engineering Industries Limited: *See—*
Somerville, William M., 4,272,706, Cl. 318-6.000.

Northern, James, to Rolls-Royce Limited. Lubricant supply device. 4,271,928, Cl. 184-6.400.

Northrop Corporation: *See—*
Lakin, Kenneth M., 4,271,707, Cl. 73-614.000.

Norton Company: *See—*
Montesi, Edward N.; and King, John H., 4,271,538, Cl. 2-439.000.

Novotny, Jurgen: *See—*
Frieser, Edwin; and Novotny, Jurgen, 4,271,980, Cl. 221-297.000.

Nowak, Manfred: *See—*
Viertel, Lothar; and Nowak, Manfred, 4,272,118, Cl. 296-97.00R.

Nowak, Robert A., to Motorola, Inc. Process of manufacturing a encapsulated hybrid circuit assembly. 4,271,588, Cl. 29-827.000.

NP Industries, Inc.: *See—*
Newman, Raymond A., 4,272,761, Cl. 340-500.000.

Nyfeldt, Harry; and Bernhardsson, Klas Y. T. Floating fence for the collection of liquid impurities as for example oil on a water surface. 4,272,214, Cl. 405-72.000.

Occidental Oil Shale, Inc.: *See—*
Hutchins, Ned M.; and Studebaker, Irving G., 4,272,127, Cl. 299-2.000.

Occidental Research Corporation: *See—*
Compton, Leslie E., 4,272,361, Cl. 208-254.00R.

Ochsner, Jon K., to Deere & Company. Adjustable mount for a tractor cab. 4,271,921, Cl. 180-89.120.

Oda, Kazutaka; and Ohba, Hisao, to Fuji Photo Film Co., Ltd. Electrolytic graining method. 4,272,342, Cl. 204-129.400.

Ogata, Yuzuru; and Nakacho, Yoshifumi, to Otsuka Chemical Co. Ltd. Process for separating cyclic phosphazene oligomers. 4,272,382, Cl. 210-660.000.

Ogawa, Hiroshi: *See—*
Takigawa, Hiroyoshi; Yahagi, Mitsuhisa; and Ogawa, Hiroshi, 4,271,885, Cl. 152-209.00R.

Ogawa, Junkichi: *See—*
Shibaoka, Haruo; and Ogawa, Junkichi, 4,272,613, Cl. 430-364.000.

Ogikubo, Masaru, to Nippon Atsudenki K.K. Moving coil type stereophonic pickup cartridge. 4,272,652, Cl. 369-139.000.

Ogino, Takao: *See—*
Kotani, Yasutoyo; Sawada, Kazuo; Nagai, Shuzo; Ogino, Takao; and Watabe, Seiji, 4,272,351, Cl. 204-202.000.

Ogita, Minoru, to Nippon Gakki Seizo Kabushiki Kaisha. Receiver for television sound multiplex broadcasting and FM stereo multiplex broadcasting. 4,272,788, Cl. 358-189.000.

Ohara, Muneyuki: *See—*
Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Muneyuki; Nakamura, Mitsuo; and Amano, Takayoshi, 4,272,003, Cl. 228-13.000.

Ohashi, Haruo: *See—*
Fujinaka, Yoshiaki; Ohashi, Haruo; Miyazaki, Masahito; Mizuno, Kenzi; and Kuwabara, Fukuzi, 4,272,225, Cl. 417-417.000.

Ohashi, Takehisa: *See—*
Yoneda, Koji; Ohashi, Takehisa; Onishi, Masami; and Fukumitsu, Hirotaka, 4,272,517, Cl. 424-72.000.

Ohba, Hisao: *See—*
Oda, Kazutaka; and Ohba, Hisao, 4,272,342, Cl. 204-129.400.

Ohgi, Hiroshi: *See—*
Ando, Toshihiro; Ohgi, Hiroshi; and Kishi, Ikuji, 4,272,586, Cl. 428-419.000.

Ohio State University, The: *See—*
Collins, Stuart A., Jr.; Sengupta, Uday K.; and Gerlach, Ulrich H., 4,272,157, Cl. 350-374.000.

Ohkawa, Michihisa: *See—*
Muratani, Takuro; Watanabe, Tatsuo; Ohkawa, Michihisa; and Mizuike, Takeshi, 4,272,846, Cl. 455-296.000.

Ohmi, Atsushi, to Aisin Seiki Kabushiki Kaisha. Power assist mechanism. 4,271,670, Cl. 60-554.000.

Ohnishi, Akihiro: *See—*
Suzuki, Suzuo; Hata, Yoshitaka; and Ohnishi, Akihiro, 4,271,811, Cl. 123-571.000.

Ohta, Masafumi: *See—*
Sasaki, Masaomi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Kozima, Akio, 4,272,598, Cl. 430-72.000.

Ohtsuka, Kunio: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,271,939, Cl. 192-3.300.
Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, 4,271,721, Cl. 74-695.000.

Oinuma, Norimasa: *See—*
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,272,702, Cl. 313-493.000.

Oishi, Kiyohiko: *See—*
Watanabe, Noboru; Inoue, Tokuta; and Oishi, Kiyohiko, 4,272,460, Cl. 261-53.000.

Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Muneyuki; Nakamura, Mitsuo; and Amano, Takayoshi, to Japanese National Railways; and Hakusan Seisakusho Co., Ltd. Butt welding and burr shearing machine for reinforce steel. 4,272,003, Cl. 228-13.000.

Okada, Akira: *See—*
Asai, Michihiko; Tsuda, Keishiro; and Okada, Akira, 4,272,559, Cl. 427-54.100.

Okada, Kunihiro: *See—*
Kakumoto, Shigeru; Fujimoto, Yoshiji; and Okada, Kunihiro, 4,272,756, Cl. 340-146.30H.

Okamoto, Tetsuro: *See—*
Inui, Norio; Kume, Noriaki; and Okamoto, Tetsuro, 4,272,827, Cl. 364-764.000.

Okuda, Hiroya: *See—*
Kadowaki, Yoshihiko; Okuda, Hiroya; and Morikawa, Takashi, 4,272,815, Cl. 364-200.000.

Okumura, Takeshi: *See—*
Nakanishi, Kiyoshi; Okumura, Takeshi; Deguchi, Ryuichi; and Tanahashi, Toshio, 4,271,803, Cl. 123-432.000.

Okura, Zenichi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Automatic aperture control device. 4,272,175, Cl. 354-274.000.

Olefirenko, Vladimir N.: *See—*
Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N., 4,272,033, Cl. 242-7.05B.

Olin Corporation: *See—*
Lynch, Richard W.; Hilliard, Garland E.; and Dotson, Ronald L., 4,272,338, Cl. 204-98.000.

Oliver, David W., to United States of America, Army. Erosion lithography to abrade a pattern onto a substrate. 4,272,612, Cl. 430-323.000.

Olympus Optical Co., Ltd.: *See—*
Hashimoto, Akihiko; Koiwai, Tamotsu; Kondo, Isao; and Kimura, Toyohiko, 4,272,171, Cl. 354-152.000.
Ishimoto, Osamu; Tsuda, Hiroshi; and Miyashita, Kiyoshi, 4,271,784, Cl. 118-652.000.
Maitani, Yoshihisa; and Tsunefuji, Katsuhiko, 4,272,168, Cl. 354-51.000.
Maitani, Yoshihisa; Kondo, Isao; Nemoto, Kazuyuki; and Kitagawa, Masahiro, 4,272,176, Cl. 354-238.000.

Omron Tateisi Electronics Co.: *See—*
Tanaka, Takashi; and Koga, Hirofumi, 4,272,745, Cl. 335-128.000.

O'Neill, Cormac G.; and Smiley, Parker C., to Physics International Company. Micro-metering system. 4,271,989, Cl. 222-282.000.

Onishi, Masami: *See—*
Yoneda, Koji; Ohashi, Takehisa; Onishi, Masami; and Fukumitsu, Hirotaka, 4,272,517, Cl. 424-72.000.

op den Camp, Lutz E. A.: *See—*
Thomas, Alfred W.; and op den Camp, Lutz E. A., 4,271,750, Cl. 92-98.00D.

Opelika Manufacturing Corporation: *See—*
Burton, Perry E.; and Brocklehurst, Charles E., 4,271,767, Cl. 112-2.000.
Burton, Perry E., 4,271,774, Cl. 112-262.100.

Orochela Co.: *See—*
Bopp, Robert D.; Klosterman, David P.; and Lipshield, Eugene C., 4,271,718, Cl. 74-522.000.

Orthoplant Orthopadische Implantate GmbH & Co.: *See—*
Rehder, Gunther, 4,271,849, Cl. 128-92.00E.

Ortman, David E.: *See—*
Vayenas, Costas G.; and Ortman, David E., 4,272,336, Cl. 204-59.00R.

Orwoll, Edward F.: *See—*
Keay, Robert E.; Orwoll, Edward F.; and Price, John A., 4,272,441, Cl. 260-346.730.

Orzel, Edward S., to Dana Corporation. Hydraulic brake warning switch. 4,272,659, Cl. 200-82.00D.

Osato, Mamoru; and Koizumi, Hiroshi, to Sony Corporation. Loudspeaker and a method of producing the same. 4,272,653, Cl. 179-115.00R.

Osborne, Harry E. Fluid pump and method for operating same. 4,272,226, Cl. 417-418.000.

Osborne, Robert L., to LaSalle Machine Tool, Inc. Mechanical transfer bar drive assembly. 4,271,957, Cl. 198-737.000.

Osburn, John G., to Kearney & Trecker Corporation. Machine tool lubrication system. 4,272,216, Cl. 409-132.000.

Oshiro, Susumu: *See—*
Ishibashi, Kuniaki; Shiraishi, Norio; and Oshiro, Susumu, 4,272,156, Cl. 350-96.260.

Osterhof, Klaus, to Maschinenbau "WAM" M. Osterhof KG. Selective locking display wheels in digit printers. 4,271,758, Cl. 101-110.000.

Osugi, Motoyoshi: *See—*
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,272,536, Cl. 424-248.540.

Oswald, Norman D.; and Mankey, Harry S., to Standard Manufacturing Company, Incorporated. Undercarriage for adverse terrain vehicles. 4,272,221, Cl. 414-634.000.

Otsuka Chemical Co. Ltd.: *See—*
Ogata, Yuzuru; and Nakacho, Yoshifumi, 4,272,382, Cl. 210-660.000.

Otsuka Pharmaceutical Co., Ltd.: *See—*
Nishino, Tomoyoshi, 4,272,433, Cl. 260-112.50R.

Otsuka, Yasuhiro: *See—*
Furutani, Toshinobu; Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; and Wakisaka, Hiroshi, 4,272,349, Cl. 204-195.00S.

Ottenheimer, Charles J. Multiple camera mounting bracket. 4,272,177, Cl. 354-293.000.

Owen, Calvin P.: *See—*
Vicino, Robert K.; and Owen, Calvin P., 4,271,620, Cl. 40-406.000.

Owen, Robert G. F., to Waste Lubricating Oils Limited. Method and apparatus for re-processing waste oil. 4,272,359, Cl. 208-179.000.

Owens-Corning Fiberglas Corporation: *See—*
Grubka, Lawrence J., 4,272,272, Cl. 65-1.000.
Thompson, Thomas K., 4,272,271, Cl. 65-1.000.

Owens-Illinois, Inc.: *See—*
Santiago, Edgardo, 4,272,587, Cl. 428-432.000.

Oxy Metal Industries Corporation: *See—*
Combs, Daniel J., 4,272,335, Cl. 204-52.00R.

Oyama, Hiroo; and Yokouchi, Takashi, to Ushio Denki Kabushikikaisha. Tubular incandescent lamp. 4,272,698, Cl. 313-272.000.

Paimblant, Paul: *See—*
Dubois, Jean-Claude; Ernsten, Armand; and Paimblant, Paul, 4,272,589, Cl. 428-442.000.

Papantoniou, Christos; and Mondet, Jean, to L'Oreal. Cosmetic compositions for treating hair. 4,272,511, Cl. 424-47.000.

Pape, Wilhelm, to WABCO Westinghouse GmbH. Pivotal piston machine. 4,272,229, Cl. 417-481.000.

Parant, Francine: *See—*
Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, 4,272,524, Cl. 424-177.000.

Parant, Monique: *See—*
Chedid, Louis; Choay, Jean; Lederer, Edgar; Lefrancier, Pierre; Parant, Monique; and Parant, Francine, 4,272,524, Cl. 424-177.000.

Parfums Rochas: *See—*
Quinard, Yves, 4,271,974, Cl. 215-331.000.

Pargeter, John K.: *See—*
Clark, Ian S. R.; and Pargeter, John K., 4,272,463, Cl. 264-12.000.

Parker, Edward H.: *See—*
Meador, Jim D.; and Parker, Edward H., 4,272,604, Cl. 430-159.000.
Meador, Jim D.; and Parker, Edward H., 4,272,605, Cl. 430-169.000.

Parker-Hannifin Corporation: *See—*
Foord, Brian A.; and Leutz, Donald C., 4,272,368, Cl. 210-90.000.

Parrent, Buddy R. E. Adhesively attachable rotatible sole plate for shoes. 4,271,610, Cl. 36-136.000.

Parsons, Charles F.: *See—*
Goldberg, Gerald; Myers, Charles L.; Parsons, Charles F.; and Steffancin, William, 4,272,584, Cl. 428-412.000.

Pascod nee Pacescu, Aurelie: *See—*
Crete, Micheline M. J.; Crete, Pierre G. C.; and Pascod nee Pacescu, Aurelie, 4,272,385, Cl. 252-608.000.

Pashkov, Alexandr N.: *See—*
Feldshtein, Isaak Y.; Epifanov, Valery S.; Olefirenko, Vladimir N.; Karelov, Jury I.; Boyarsky, Alexandr A.; and Pashkov, Alexandr N., 4,272,033, Cl. 242-7.05B.

Passalenti, Beppino; Giulimi, Gino; and Fiorani, Osvaldo, to Societa Italiana Resine S.I.R. S.p.A. Film-forming resin for use in anti-corrosive and can-coating compositions. 4,272,416, Cl. 260-18.0EP.

Passarelli, Camillo L.: *See—*
Halfpenny, Paul F.; Passarelli, Camillo L.; and Starrett, Philip S., 4,272,014, Cl. 236-44.00B.

Patel, Natu R.: *See—*
Kirkpatrick, Joel L.; and Patel, Natu R., 4,272,279, Cl. 71-88.000.

Paton, W. Donald: *See—*
Steenson, Thomas W.; and Paton, W. Donald, 4,271,737, Cl. 83-171.000.
Steenson, Thomas W.; and Paton, W. Donald, 4,272,065, Cl. 269-46.000.

Patpan Inc.: *See—*
Dubourg, Jean-Pierre, 4,271,600, Cl. 34-92.000.

Patrin, Raymond A. Powercycle. 4,272,094, Cl. 280-217.000.

Patterson, Michael F.; Cheung, Harry; and Wang, David I. J., to Union Carbide Corporation. Gas gettering system. 4,272,259, Cl. 55-74.000.

Paul, William F. Tractor-mounted laterally undercutting transplant digging machine. 4,271,611, Cl. 37-2.00R.

Paulson, Danton L.: *See—*
Cole, Ernest R., Jr.; Lee, Agnes Y.; and Paulson, Danton L., 4,272,340, Cl. 204-114.000.

Paumellerie Electrique: *See—*
Saigne, Gerard, 4,271,977, Cl. 220-371.000.

Pavitt, Frederick C. Wheel camber and castor measurement apparatus. 4,271,599, Cl. 33-336.000.

Payne, Roger E.; Rossi, Robert K.; and Kainely, James B., to Goodyear Tire & Rubber Company, The. Process for molding reinforced articles. 4,272,309, Cl. 156-117.000.

Pearce, James C.; and Williams, Richard L. Wheelchair brake attachment. 4,271,933, Cl. 188-2.00F.

Pearey, John T., to Coal Industry (Patents) Limited. Mineral mining installation. 4,272,129, Cl. 299-31.000.

Pearman, A. Noel J. System for in situ meter testing. 4,271,694, Cl. 73-3.000.

Pease, George E., to Boeing Company, The. Reduced back pressure, anti-cavitation valve system. 4,271,749, Cl. 91-358.00R.

Pedone, Egidio, to Rockwell-Rimoldi, S.p.A. Workpiece trimming device for sewing machines. 4,271,771, Cl. 112-122.000.

Peerless Instrument Co., Inc.: *See—*
Deutsch, Simon, 4,272,826, Cl. 364-709.000.

Pelat, Roger P.; and Le Pierres, Gildas, to International Vibration Engineering. Inertial device to prevent and permit motion between two members. 4,271,935, Cl. 188-185.000.

Pelt & Hooykaas B.V.: *See—*
Hooykaas, Carel W. J., 4,272,293, Cl. 106-73.600.

Peluso, Nicholas. Portable tackle and bait holder. 4,271,624, Cl. 43-54.50R.

Pena-Flax Plastics, Inc.: *See—*
Goldman, Marvin A.; Goldman, Jerome N.; and DiMarchi, Silvio J., 4,272,672, Cl. 219-523.000.

Pennant Products, Inc.: *See—*
Lewinger, Nathan; and Gillis, John A., 4,272,834, Cl. 364-502.000.

Penner, Horst: *See—*
Bendler, Hellmut; Homburg, Axel; and Penner, Horst, 4,271,747, Cl. 411-20.000.

Penner, Nicholas. Fish scaler. 4,271,562, Cl. 17-67.000.

Pennink, John S.: *See—*
Carman, Justice N., 4,272,488, Cl. 422-199.000.

Pennsylvania Engineering Corporation: *See—*
Schempp, Eberhard G., 4,272,286, Cl. 75-51.000.

Pasquite, Charles R.: *See—*
Auvil, Steven R.; and Pasquite, Charles R., 4,272,452, Cl. 260-465.100.

Penzien, Klaus: *See—*
Hahn, Klaus; Naarmann, Herbert; Penzien, Klaus; and Weber, Heinz, 4,272,583, Cl. 428-407.000.

Perina, Joseph, to Velcro USA Inc. Shear attachments using hook and loop fastener elements. 4,271,566, Cl. 24-204.000.

Perkin-Elmer Corporation, The: *See—*
Shafer, David R., 4,272,152, Cl. 350-27.000.

Perrino, Joseph A.; and Perrino, Thomas W., to Micro Electronics, Inc. Wire stripping device. 4,271,729, Cl. 81-9.50B.

Perrino, Thomas W.: *See—*
Perrino, Joseph A.; and Perrino, Thomas W., 4,271,729, Cl. 81-9.50B.

Perry, Fred. Mechanical concentric support. 4,272,088, Cl. 279-114.000.

Perry R. Bass, Inc.: *See—*
Moore, Howard H., Jr., 4,271,902, Cl. 166-117.500.

Perry, Ronald R.: *See—*
Crosby, Philip C. S.; Barrios, Philip A.; and Perry, Ronald R., 4,272,689, Cl. 307-147.000.

Pescetto, James R.: *See—*
Mayer, William R.; and Pescetto, James R., 4,272,660, Cl. 200-83.00P.

Peters, Arthur: *See—*
Negi, Virendra S.; and Peters, Arthur, 4,272,828, Cl. 364-900.000.

Peters, Beldon A., to Exxon Production Research Company. Fluid sampling device and method of sampling fluid. 4,271,704, Cl. 73-864.630.

Peterson, Otis G.: *See—*
Walling, John C.; Morris, Robert C.; Peterson, Otis G.; and Jensen, Hans P., 4,272,733, Cl. 331-94.50F.

Petrochem Consultants, Inc.: *See—*
Higgins, Robert D., 4,272,270, Cl. 62-24.000.

Pfarrwaller, Erwin, to Sulzer Brothers Limited. Drive mechanism for a sub-mechanism of a weaving machine. 4,271,872, Cl. 139-439.000.

Pfeiffer, Randall R., to Williams Electronics, Inc. Processor controlled sound synthesizer. 4,272,649, Cl. 179-1.0SM.

Phelan, Michael B.: *See—*
Ruth, Harvey L.; and Phelan, Michael B., 4,272,458, Cl. 261-23.00A.

Phenol Engineering S.a.r.l.: *See—*
Schwob, Alain L. C.; Busschaert, Bruno J.; and Ivorra, Claude A. M., 4,271,825, Cl. 126-450.000.

Philagro S.A.: *See—*
Bernard, Andre; Disdier, Andre; and Royer, Michel, 4,272,448, Cl. 260-448.00R.

Philibert, Daniel: *See—*
Teutsch, Jean G.; and Philibert, Daniel, 4,272,530, Cl. 424-238.000.

Philipp, Warren H.: *See—*
Hsu, Li-Chen; Sheibley, Dean W.; and Philipp, Warren H., 4,272,470, Cl. 264-104.000.

Phillips, Kevin J., to RCA Corporation. Nutation damping in a dual-spin spacecraft. 4,272,045, Cl. 244-170.000.

Phillips Petroleum Company: *See—*
Austin, Oliver K., 4,272,487, Cl. 422-150.000.
Lacy, Robert H., 4,272,767, Cl. 340-722.000.
Mowery, Richard A., Jr., 4,271,697, Cl. 73-61.10C.
Pool, Joe V., 4,272,823, Cl. 364-500.000.
Roof, Lewis B., 4,271,703, Cl. 73-863.110.

Physics International Company: *See—*
O'Neill, Cormac G.; and Smiley, Parker C., 4,271,989, Cl. 222-282.000.

Pichler, Gunther: *See—*
Rothhaas, Friedrich; and Pichler, Gunther, 4,272,137, Cl. 312-214.000.

Picker Chemicals Inc.: *See—*
Brambley, Michael I.; Myers, Herbert J.; and Rios, Januario R., Jr., 4,271,965, Cl. 206-219.000.

Pieh, Stefan; and Czepel, Hubert, to Chemie Linz Aktiengesellschaft. Additive for inorganic binders. 4,272,430, Cl. 260-39.00R.

Pieper, Rudolf: *See—*
Klein, Heinrich; Pieper, Rudolf; and Weber, Eduard, 4,272,260, Cl. 55-265.000.

Pierre Fabre S.A.: *See—*
Ducros, Luc; and Navarro, Roger, 4,271,984, Cl. 222-94.000.

Pierrel S.p.A.: *See—*
Riva, Mario; and Toscano, Luciano, 4,272,446, Cl. 260-397.450.

Pignatti, Ugo. Sewing machine attachment for edgings and collars. 4,271,772, Cl. 112-137.000.

Piloni, Taddeo: *See—*
Valente, Paolo; and Piloni, Taddeo, 4,271,752, Cl. 99-289.00R.

Pioneer Electronic Corporation: *See—*
Mizumoto, Katsuji; Hanada, Toshihide; Kominami, Yasuo; and Yamamura, Masahiro, 4,272,709, Cl. 318-317.000.

Pitman-Moore, Inc.: *See—*
Clausen, Anthony R., 4,271,988, Cl. 222-214.000.

Pitney-Bowes, Inc.: *See—*
Buckley, Franklin J.; and Hubbard, David W., 4,271,786, Cl. 118-661.000.

Plapper, Juergen; Schumann, Klaus; Schwuger, Milan J.; Smolka, Heinz G.; Arndt, Emanuel; Ruscheinsky, Emil; and Jansen, Herman, to Henkel Kommanditgesellschaft auf Aktien. Use of water-insoluble aluminosilicates in tanning process for the production of leather. 4,272,242, Cl. 8-94.150.

Plath, Peter: *See—*
Hansen, Hanspeter; Eicken, Karl; Plath, Peter; Rohr, Wolfgang; and Wuerzer, Bruno, 4,272,282, Cl. 71-92.000.

Platteeuw, Pieter J.: *See—*
Kamps, Grietinus R. L.; Moltzer, Jan S. P.; and Platteeuw, Pieter J., 4,272,267, Cl. 55-499.000.

Pliotron Corporation of Canada Limited: *See—*
Van Santen, Gordon L., 4,272,058, Cl. 254-98.000.

Plummer, William T., to Polaroid Corporation. Camera method and apparatus for recording with selected contrast. 4,272,186, Cl. 355-34.000.

Poethen, Hartmut: *See—*
Gatzen, Carl-Jacob; Poethen, Hartmut; and Sion, Heribert, 4,272,548, Cl. 424-312.000.

Poisson, Pierre; and Sturtz, Georges, to Ato Chimie. Alkaline hemiesters and aliphatic diesters of bis-(hydroxy-4-phenyl) alkylphosphonic acids. 4,272,457, Cl. 260-953.000.

Polaroid Corporation: *See—*
Bendoni, Leonard V.; and Smith, Hugh L., 4,272,178, Cl. 354-298.000.
George, Louis J.; and Theobald, Barbara A., 4,272,594, Cl. 430-14.000.
Plummer, William T., 4,272,186, Cl. 355-34.000.
Sachdev, Krishna G.; and Bloom, Stanley M., deceased, 4,272,632, Cl. 564-501.000.

Polazzi, Joseph O.: *See—*
Kotick, Michael P.; Schut, Robert N.; Polazzi, Joseph O.; and Leland, David L., 4,272,541, Cl. 424-260.000.

Pollock, David C. I., to C-I-L Inc. Long vertical shaft bioreactor of simplified design. 4,272,375, Cl. 210-194.000.

Pollock, David C. I., to C-I-L Inc. Method for protecting a bioreactor pressurized head tank against extreme surges of influent waste water. 4,272,379, Cl. 210-621.000.

Pommer, Ernst-Heinrich: *See—*
Ammermann, Eberhard; Thym, Sabine; and Pommer, Ernst-Heinrich, 4,272,551, Cl. 424-324.000.

Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Tire with asymmetric radial carcass employing blocks to limit carcass swing and carcass expansion. 4,271,889, Cl. 152-353.00R.

Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Radial carcass tire of large width employing two axially-spaced carcass expansion limiting blocks. 4,271,890, Cl. 152-352.00R.

Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Radial carcass tire employing carcass expansion limiting block. 4,271,891, Cl. 152-352.00R.

Pool, Joe V., to Phillips Petroleum Company. Control system for a reactor. 4,272,823, Cl. 364-500.000.

Portner, Philip: *See—*
Grewe, Josef; and Portner, Philip, 4,272,564, Cl. 427-163.000.

Posney, Richard V.: *See—*
Frank, Robert G.; Canonaco, Rudy; and Posney, Richard V., 4,272,274, Cl. 65-273.000.

Potter, Michael F.: *See—*
Maxwell, William E.; Jenness, Peter, III; and Potter, Michael F., 4,271,757, Cl. 101-37.000.

Powell, William J., to Stauffer Chemical Company. Processing elemental phosphorus (P_4) containing gas streams. 4,272,496, Cl. 423-210.000.

Powers, John V.: *See—*
Cox, Daniel E.; Kane, Susan M.; and Powers, John V., 4,272,348, Cl. 204-192.00E.

PPG Industries, Inc.: *See—*
Darlington, William B., 4,272,337, Cl. 204-98.000.
Frank, Robert G.; Canonaco, Rudy; and Posney, Richard V., 4,272,274, Cl. 65-273.000.
Reese, Thomas J., 4,272,275, Cl. 65-273.000.

Prazak, Paul R.; and Williams, Theodore L., to Burr-Brown Research Corporation. Self-calibrating digital to analog conversion system and method. 4,272,760, Cl. 340-347.0CC.

Precision Monolithics, Inc.: *See—*
Nishikawa, Yukio, 4,272,656, Cl. 179-170.0NC.

Presearch Incorporated: *See—*
Sandler, Charles S., 4,271,552, Cl. 9-9.000.

Price, John A.: *See—*
Keay, Robert E.; Orwoll, Edward F.; and Price, John A., 4,272,441, Cl. 260-346.730.

Priestman Brothers Limited: *See—*
Robinson, Frank M.; and Taylor, Norman F., 4,271,578, Cl. 29-426.300.

Pritchard, Eric K. Switching transconductance amplifier for inductive loads. 4,272,713, Cl. 318-696.000.

Probost, Werner, to Wurttembergische Metallwarenfabrik. Method for making table knives having a silver-plated handle. 4,272,332, Cl. 204-15.000.

Process Scientific Innovations Limited: *See—*
Walker, Brian; and Merrie, Kenneth, 4,272,318, Cl. 162-382.000.

Procor Limited: *See—*
Tse, Samuel Y. H., 4,272,234, Cl. 425-222.000.

Procter & Gamble Company, The: *See—*
Beharry, Christopher R., 4,272,447, Cl. 260-425.000.
Draper, Ellsworth R., Jr.; and Jones, Kenneth L., 4,272,386, Cl. 252-8.600.
Riesenman, Coenraad E.; and Merz, Theodore P., 4,272,473, Cl. 264-154.000.

Produits Chimiques Ugine Kuhlmann: *See—*
Strassel, Albert, 4,272,585, Cl. 428-413.000.

Produits Findus S.A.: *See—*
Bengtsson, Bengt L.; and Fonskov, Jorgen, 4,272,553, Cl. 426-241.000.

Proffitt, William P.: *See—*
Johnston, Thomas F., Jr.; and Proffitt, William P., 4,272,158, Cl. 350-375.000.

Proper, Johannes; Schuur, Jacob; Monte, George L. A.; and Westerveld, Eduard P., to U.S. Philips Corporation. Method of and apparatus for adjusting an image intensifier chain. 4,272,782, Cl. 358-111.000.

Proskow, Stephen, to Du Pont de Nemours, E. I., and Company. Photosensitive compositions containing thermoplastic isomeric elastomers useful in flexographic printing plates. 4,272,608, Cl. 430-288.000.

Ptaszek, George W. Child's wheeled riding toy. 4,272,095, Cl. 280-220.000.

Pullen, Virgil L. Power factor meter. 4,272,723, Cl. 324-86.000.

Pun, John Y.: *See—*
Dempster, Philip T.; and Pun, John Y., 4,271,701, Cl. 73-861.420.

PureCycle Corporation: *See—*
Blades, Frederick K., 4,272,679, Cl. 250-372.000.

Putt, J. Ward: *See—*
Ellion, M. Edmond; Putt, J. Ward; and Montich, John J., 4,272,257, Cl. 55-38.000.

Quadranti, Marco; Maurer, Willy; and Maag, Kurt, to Ciba-Geigy Corporation. Composition for and method of selectively controlling weeds in cereals. 4,272,281, Cl. 71-90.000.

Quagliaro, Daniel A.; and Stiesi, Walter E., to United States of America, America. Sterility testing vessel. 4,271,973, Cl. 215-308.000.

Queen's University at Kingston: *See—*
Romero-Sierra, Cesar; and Webb, John C., 4,272,571, Cl. 428-24.000.

Quenneville, Raymond N.: *See—*
Sickler, Kenneth H.; McCarthy, Donald J.; and Quenneville, Raymond N., 4,271,796, Cl. 123-321.000.

Quinard, Yves, to Parfums Rochas. Bottle with prealigned closure. 4,271,974, Cl. 215-331.000.

Quinn, Paul A., Jr.; and Wipke, Walter J., to International Business Machines Corporation. Automatic margin determining apparatus for a scanned sheet of paper. 4,272,204, Cl. 400-342.000.

Rabe, Hansjurgen: *See—*
Balle, Gerhard; Rabe, Hansjurgen; and Vehlewald, Peter, 4,272,619, Cl. 521-169.000.

Racla Co. Limited: *See—*
Carocci, Alberto, 4,271,816, Cl. 126-132.000.

Raczka, Edward, to Sea Gull. Flexible foot support. 4,271,605, Cl. 36-28.000.

Radebold, Reinhart. Conversion of available energy. 4,271,822, Cl. 126-426.000.

Rahe, Jon A., to Hawaiian Motor Company. Housing and cutting line assembly for vegetation cutting apparatus. 4,271,595, Cl. 30-347.000.

Ramseier, Serge: *See—*
Durville, Gerard; Moulin, Michel; Ramseier, Serge; and Zurcher, Erwin, 4,271,568, Cl. 26-9.000.

Rau, Karl: *See—*
Schlick, Horst; Rau, Karl; Wipfler, Alfred; and Lueg-Althoff, Joachim, 4,272,112, Cl. 292-201.000.

Ray, Dan O.: *See—*
Van Kreuningen, Rudolf; and Ray, Dan O., 4,272,796, Cl. 360-128.000.

Ray, Frank: *See—*
Mulee, Dennis L.; Erbach, Arthur R.; and Ray, Frank, 4,271,626, Cl. 43-112.000.

Raychem Corporation: *See—*
Walker, Jack M., 4,272,471, Cl. 264-104.000.

Raytheon Company: *See—*
MacMaster, George H.; and Nichols, Lawrence J., 4,272,740, Cl. 333-127.000.

Razdan, Raj K.; and Ghosh, Anil C., to SISA, Incorporated. 14-Methoxymorphinan-6-one compounds and therapeutic methods of treating pain and drug dependence with them. 4,272,540, Cl. 424-260.000.

Razzano, John S., to General Electric Company. Process for producing high molecular weight diorganopolysiloxanes for use in heat vulcanizable silicone rubber compositions. 4,272,624, Cl. 528-37.000.

RCA Corporation: *See—*
Evans, Robert M., 4,272,743, Cl. 333-176.000.
Fitzgerald, William V., 4,272,777, Cl. 358-10.000.
Fuhrer, Jack S., 4,272,785, Cl. 358-127.000.
Gibson, John J., 4,272,786, Cl. 358-128.500.
Hanak, Joseph J., 4,272,641, Cl. 136-249.000.
Harwood, Leopold A.; and Shanley, Robert L., II, 4,272,778, Cl. 358-23.000.
Knop, Karl, 4,272,197, Cl. 356-434.000.
Malchow, Max E., 4,272,726, Cl. 329-103.000.
Phillips, Kevin J., 4,272,045, Cl. 244-170.000.
Torrington, Leslie A., 4,272,083, Cl. 369-77.000.
Wittlinger, Harold A., 4,272,728, Cl. 330-253.000.

Redford, David A.; and Hanna, Mohsen R., to Alberta Oil Sands Technology and Research Authority. Gaseous and solvent additives for steam injection for thermal recovery of bitumen from tar sands. 4,271,905, Cl. 166-263.000.

Reed, Russell, Jr.: *See—*
Stull, Bertram O.; and Reed, Russell, Jr., 4,272,480, Cl. 422-58.000.

Rees, Herbert; and Schad, Robert D., to Husky Injection Molding Systems Limited. Injection nozzle provided with shut-off means. 4,272,236, Cl. 425-564.000.

Reese, Thomas J., to PPG Industries, Inc. Aligning glass sheets on an outline mold prior to transfer to shaping mold. 4,272,275, Cl. 65-273.000.

Refreshment Machinery Incorporated: *See—*
Neely, Raymond J., 4,271,753, Cl. 99-289.00R.

Regan, Michael T.: *See—*
Webster, Frank G.; Regan, Michael T.; and Rossi, Louis J., 4,272,595, Cl. 430-37.000.

Regazzoni, Francis: *See—*
Guerton, Jean P.; and Regazzoni, Francis, 4,271,949, Cl. 192-98.000.

Regie Nationale des Usines Renault: *See—*
Carduner, Jean-Jacques, 4,271,716, Cl. 74-422.000.

Rehder, Gunther, to Orthoplast Orthopadische Implantate GmbH & Co. Apparatus for producing relief grooves in pan-shaped bones. 4,271,849, Cl. 128-92.00E.

Reid, Thomas J., Jr. Roller skate. 4,272,091, Cl. 280-11.280.

Reidelbach, Willi: *See—*
Schmid, Walter; Breitschwerdt, Werner; Huber, Gustram; and Reidelbach, Willi, 4,272,103, Cl. 280-751.000.

Reisinger, George E., Jr., to Caterpillar Tractor Co. Carburizing tub apparatus and method. 4,272,306, Cl. 148-16.500.

Reitz, Charles F., to Du Pont de Nemours, E. I., and Company. Apparatus with expandable tube bundle. 4,271,900, Cl. 165-162.000.

Reliable Electric Company: *See—*
Burtelson, Frederick W., 4,272,300, Cl. 134-5.000.

Reliable Security Systems, Inc.: *See—*
Logan, Emanuel L., 4,271,691, Cl. 70-422.000.

Rengstl, Johann: *See—*
Bienert, Horst; Igel, Richard; and Rengstl, Johann, 4,272,125, Cl. 296-223.000.

Rexham Corporation: *See—*
Whitaker, William C.; and Canfield, Allen B., 4,271,877, Cl. 141-166.000.

Reynolds, Lydia M.: *See—*
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Reynolds, Maurice Guy: *See—*
Stucker, Wesley G.; and Coles, Richard J., Jr., 4,272,766, Cl. 340-696.000.

Reynolds Metals Company: *See—*
Train, David B., 4,271,964, Cl. 206-633.000.
Weston, David, 4,272,029, Cl. 241-16.000.

Rezanka, Ivan, to Xerox Corporation. Conductive carrier for magnetic brush cleaner. 4,272,184, Cl. 355-15.000.

Rheinisch-Westfalisches Elektrizitatswerk: *See—*
Bastz, Hensing; Rittscher, Dieter; and Fischer, Jurgen, 4,272,683, Cl. 250-507.000.

Rhone-Poulenc Industries: *See—*
Aloup, Jean-Claude; Boschaudon, Jean; Farge, Daniel; and James, Claude, 4,272,534, Cl. 424-248.510.
Semenaz, Daniel; and Canat, Robert, 4,272,673, Cl. 219-544.000.

Rice, Doris M.: *See—*
Dominguez, Richard J. G.; and Rice, Doris M., 4,272,618, Cl. 521-160.000.

Richard Wolf GmbH: *See—*
Heckele, Helmut, 4,271,829, Cl. 128-6.000.

Richardson-Merrell Inc.: *See—*
Jones, Winton D.; and Miller, Francis P., 4,272,532, Cl. 424-246.000.

Rickards, Michael A., to Rohr Industries, Inc. Anti-broaching sidehull fence for a surface effect ship. 4,271,779, Cl. 114-67.00A.

Ricoh Co., Ltd.: *See—*
Furukawa, Tatsuya, 4,272,771, Cl. 346-75.000.
Sasaki, Masaomi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Kozima, Akio, 4,272,598, Cl. 430-72.000.

Ricon Co., Ltd.: *See—*
Satomi, Toyokazu; Koizumi, Yutaka; Nakamura, Isao; Tabata, Yasuhiro; and Kaneko, Tamaki, 4,272,180, Cl. 355-3.0SH.

Rieger, Hansjorg W.: *See—*
Holzwarth, Dietmar H.; and Rieger, Hansjorg W., 4,271,887, Cl. 152-220.000.

Riemersma, Coenraad E.; and Merz, Theodore P., to Procter & Gamble Company, The. Method for embossing and perforating a running ribbon of thermoplastic film on a metallic pattern roll. 4,272,473, Cl. 264-154.000.

Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Uakelbach, Karl-Heinz; and Duren, Gottfried, to Klockner-Humboldt-Deutz AG. Magnetic separator. 4,272,365, Cl. 209-223.00R.

Riften, Jerome C. Method and apparatus for video recording. 4,272,791, Cl. 360-33.000.

Riggers (Steeplejacks) Limited: *See—*
Brown, George S.; and Hatton, Robert E., 4,271,927, Cl. 182-36.000.

Riggs, Olen L., Jr.: *See—*
Brussell, Dennis A.; and Riggs, Olen L., Jr., 4,272,343, Cl. 204-130.000.

Riley, William J., Jr., to Harris Corporation. Automatic pretuning of a voltage controlled oscillator in a frequency synthesizer using successive approximation. 4,272,729, Cl. 331-1.00A.

Rillieux, Philippe. Hall with mobile wall and roof elements. 4,271,644, Cl. 52-67.000.

Rines, Robert Harvey: *See—*
Knowles, Albert H., 4,271,788, Cl. 119-3.000.

Riney, John S.; and Chamblin, Thomas F., to United States of America, Army. Clock controlled pulse width modulator. 4,272,690, Cl. 307-265.000.
Rios, Januario R., Jr.: *See*—
Brambley, Michael I.; Myers, Herbert J.; and Rios, Januario R., Jr., 4,271,965, Cl. 206-219.000.
Rittscher, Dieter: *See*—
Baatz, Henning; Rittscher, Dieter; and Fischer, Jurgen, 4,272,683, Cl. 250-507.000.
Riva, Mario; and Toscano, Luciano, to Pierrel S.p.A. Steroids and process for preparing the same. 4,272,446, Cl. 260-397.450.
Robert Boech GmbH: *See*—
Bianchi, Valerio; Schmidt, Peter-Jurgen; Latsch, Reinhard; and Wahl, Josef, 4,271,804, Cl. 123-440.000.
Bodig, Bernd; Schmied, Helmut; Hohne, Gerd; and Fritz, Adolf, 4,271,812, Cl. 123-609.000.
Knapp, Heinrich; Eisele, Hermann; and Kammerer, Werner, 4,271,794, Cl. 123-454.000.
Links, Heinz; Kopse, Odon; and Eblen, Ewald, 4,271,807, Cl. 123-506.000.
Roberts, George C., to Inca-One Corporation. Quick-change toilet system. 4,271,539, Cl. 4-300.000.
Roberts, Stanley M., to Allen & Hanburys Limited. Novel prostaglandin intermediates. 4,272,629, Cl. 549-11.000.
Robinson, Frank M.; and Taylor, Norman F., to Priestman Brothers Limited. Method and apparatus for removing a slewing ring from a pedestal mounted crane. 4,271,578, Cl. 29-426.300.
Robinson, Leon H., Jr.; Barry, Adelbert; and Speers, Jerry M., to Exxon Production Research Company. Tracked cable guide assembly and method for storing conductor cable inside a drill pipe. 4,271,908, Cl. 166-315.000.
Robinson, Wade C. Clip-on snow chains. 4,271,888, Cl. 152-234.000.
Rockcor, Inc.: *See*—
Galbraith, Lyle D.; Stewart, Hudson; and Congdon, Jon M., 4,272,301, Cl. 134-8.000.
Rockwell-Rimoldi, S.p.A.: *See*—
Pedone, Egidio, 4,271,771, Cl. 112-122.000.
Roerig, Arnold J., to Beloit Corporation. Roll bearing alignment. 4,272,317, Cl. 162-272.000.
Rogers, Thurmond J., Jr. Fishing game. 4,272,075, Cl. 273-1.00E.
Rogers, Victor D.: *See*—
Martinson, Arthur R.; and Rogers, Victor D., 4,272,084, Cl. 277-30.000.
Rohm, Gunter H. Nonloosening drill chuck. 4,272,087, Cl. 279-62.000.
Rohr Industries, Inc.: *See*—
Rickards, Michael A., 4,271,779, Cl. 114-67.00A.
Rohr, Wolfgang: *See*—
Hansen, Hanspeter; Eicken, Karl; Plath, Peter; Rohr, Wolfgang; and Wuerzer, Bruno, 4,272,282, Cl. 71-92.000.
Rollmann, Louis D., to Mobil Oil Corporation. Desulfurization and demetalation of heavy charge stocks. 4,272,357, Cl. 208-89.000.
Rolls-Royce Limited: *See*—
Jones, Bryn; and Slattery, Sidney E., 4,271,675, Cl. 60-737.000.
Northern, James, 4,271,928, Cl. 184-6.400.
Rolls-Royce Motors Limited: *See*—
Stock, Malcolm G., 4,272,115, Cl. 293-155.000.
Rombusch, Konrad: *See*—
Maahs, Gunther; and Rombusch, Konrad, 4,272,633, Cl. 568-364.000.
Romero-Sierra, Cesar; and Webb, John C., to Queen's University at Kingston. Flower preservation. 4,272,571, Cl. 428-24.000.
Roof, Lewis B., to Phillips Petroleum Company. High temperature sampling system for liquid chromatography. 4,271,703, Cl. 73-863.110.
Rookard, Johnnie P., Jr. Multi-purpose survival canteen. 4,272,768, Cl. 343-18.00C.
Rooks, Charles W.: *See*—
Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., 4,272,399, Cl. 252-373.000.
Davis, George D.; Hill, James C.; McMinn, Talmage D.; and Rooks, Charles W., 4,272,555, Cl. 423-415.00A.
Roper Industries, Inc. (Ohio): *See*—
Kabele, Walter A., 4,272,224, Cl. 417-360.000.
Rose, Donald K., to Intel Magnetics, Inc. Multiplexed single wall domain generators. 4,272,817, Cl. 365-12.000.
Ross, Harley H.: *See*—
Strain, James E.; and Ross, Harley H., 4,272,247, Cl. 23-230.00R.
Rossi, Alberto: *See*—
Haas, Georges; and Rossi, Alberto, 4,272,547, Cl. 424-311.000.
Rossi, Louis J.: *See*—
Webster, Frank G.; Regan, Michael T.; and Rossi, Louis J., 4,272,595, Cl. 430-37.000.
Rossi, Robert K.: *See*—
Payne, Roger E.; Rossi, Robert K.; and Knizely, James B., 4,272,309, Cl. 156-117.000.
Rossow, Harold E.: *See*—
Lane, George A.; and Rossow, Harold E., 4,272,390, Cl. 252-70.000.
Lane, George A.; and Rossow, Harold E., 4,272,391, Cl. 252-70.000.
Lane, George A.; and Rossow, Harold E., 4,272,392, Cl. 252-70.000.
Rothhaas, Friedrich; and Pichler, Gunther, to Sistemco N.V. Fire resistant cabinet with protective void in gypsum filling. 4,272,137, Cl. 312-214.000.
Rothman, Laura B.; Totta, Paul A.; and White, James F., to International Business Machines Corporation. Hybrid process for SBD metallurgies. 4,272,561, Cl. 427-84.000.
Rotta Research Laboratorium S.p.A.: *See*—
Makovec, Francesco; Senin, Paolo; and Rovati, Luigi, 4,272,538, Cl. 424-250.000.
Roussel Uclaf: *See*—
Teutsch, Jean G.; and Philibert, Daniel, 4,272,530, Cl. 424-238.000.
Rovati, Luigi: *See*—
Makovec, Francesco; Senin, Paolo; and Rovati, Luigi, 4,272,538, Cl. 424-250.000.
Rowe, David. Batter actuated baseball pitching machine. 4,271,813, Cl. 124-7.000.
Rowe, Frederick G., to Cameron Iron Works, Inc. Fire safe valve. 4,271,857, Cl. 137-73.000.
Rowsey, Luther B., Jr. Portable planetarium. 4,271,604, Cl. 434-289.000.
Roy, Kenneth L.: *See*—
Fugate, Philip E.; and Roy, Kenneth L., 4,272,748, Cl. 335-271.000.
Royer, Daniel: *See*—
Dieulesaint, Eugene; Royer, Daniel; and Guedj, Richard, 4,272,676, Cl. 250-221.000.
Royer, Michel: *See*—
Bernard, Andre; Diadier, Andre; and Royer, Michel, 4,272,448, Cl. 260-448.00R.
Rudy, Marion F., to Bogert, Robert C. Shoes with studded soles. 4,271,606, Cl. 36-29.000.
Ruggiano, Harriet M. Infant carrier. 4,271,998, Cl. 224-160.000.
Rusch, Willard V. T.: *See*—
Young, Frederick A.; and Rusch, Willard V. T., 4,272,769, Cl. 343-781.00P.
Ruscheinsky, Emil: *See*—
Plapper, Juergen; Schumann, Klaus; Schwuger, Milan J.; Smolka, Heinz G.; Arndt, Emanuel; Ruscheinsky, Emil; and Jansen, Herman, 4,272,242, Cl. 8-94.150.
Russell, Floyd C.: *See*—
Cason, Robert W.; Holland, Orvis L.; Russell, Floyd C.; Bass, Malley R.; and Frier, James L., 4,272,499, Cl. 423-242.000.
Russell, Robert J., to Mail-Ex Corporation. Envelope processing machine. 4,271,656, Cl. 53-381.00R.
Rustioni, Massimo: *See*—
Balducci, Luigi; and Rustioni, Massimo, 4,272,296, Cl. 106-288.00B.
Ruth, Harvey L.; and Phelan, Michael B., to ACF Industries, Incorporated. Tamper resistant idle adjustment screw. 4,272,458, Cl. 261-23.00A.
Ruthner Industrieanlagen-Aktiengesellschaft: *See*—
Lutz, Willibald; and Moos, Heinz, 4,272,489, Cl. 422-209.000.
Ryczek, William G., to Allis-Chalmers Corporation. Concave safety door with sealing and latching features. 4,271,850, Cl. 130-27.0JT.
Ryffel, Henry, to Compudrive Corporation. Planetary transmission. 4,271,726, Cl. 74-805.000.
S&C Electric Company: *See*—
Biller, Bruce A.; and Jackson, Hiram S., Jr., 4,272,751, Cl. 337-231.000.
S.K.F. Compagnie d'Applications Mechaniades: *See*—
Guerton, Jean P.; and Regazzoni, Francis, 4,271,949, Cl. 192-98.000.
Saab-Scania AB: *See*—
Warnstam, Lars-Ake; Jonsson, Rune; and Ludvigsson, Georg, 4,272,783, Cl. 358-126.000.
Sabel, Erik A. Wear resistant slab. 4,272,211, Cl. 404-21.000.
Sachdev, Krishna G.; and Bloom, Stanley M., deceased (by Bloom, Arlene N., executrix), to Polaroid Corporation. Novel silver complexing agents. 4,272,632, Cl. 564-501.000.
Sahley, Lloyd W., to Syndrill Products Joint Venture. Locking device for hard metal inserts. 4,271,917, Cl. 175-410.000.
Saigne, Gerard, to Paumellerie Electrique. Closing device for a tank for a hydrocarbon or like liquid. 4,271,977, Cl. 220-371.000.
Saito, Takahiko; and Sato, Masaru, to Sony Corporation. Channel programing apparatus. 4,272,784, Cl. 358-127.000.
Sajima, Yasuo: *See*—
Jizaimaru, Tanzo; Tanaka, Hideya; and Sajima, Yasuo, 4,272,352, Cl. 204-279.000.
Sakai, Kiyoshi: *See*—
Sasaki, Masaomi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Kozima, Akio, 4,272,598, Cl. 430-72.000.
Sakashita, Masao; and Matsuura, Yoshiaki, to Kabushiki Kaisha Kawai Gakki Seisakusho. Sound generator for producing ANGKLONG like sound. 4,271,742, Cl. 84-1.260.
Sakuranaka, Toru: *See*—
Kobayashi, Masayoshi; Sakuranaka, Toru; and Yamada, Keiichi, 4,271,805, Cl. 123-459.000.
Kobayashi, Masayoshi; Sakuranaka, Toru; and Yamada, Keiichi, 4,271,808, Cl. 123-506.000.
Samokhin, Andrei V.; Bekker, Boris G.; and Davydov, Alexandr N. Electrochromic indicator. 4,272,163, Cl. 350-357.000.
Sanada, Masakatsu: *See*—
Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, 4,271,799, Cl. 123-425.000.
Sanagi, Mitsuru: *See*—
Katsumata, Yutaka; Sanagi, Mitsuru; and Tanaka, Hideo, 4,272,819, Cl. 364-200.000.
Sandler, Charles S., to Presearch Incorporated. Torpedo floatation device. 4,271,552, Cl. 9-9.000.
Sandoz Ltd.: *See*—
Gadient, Fulvio; and Suess, Rudolf, 4,272,533, Cl. 424-248.400.

Schlick, Bernhard, 4,272,244, Cl. 8-529.000.
Sandvik Aktieboleg: *See*—
Levefelt, Bert G., 4,272,134, Cl. 308-8.200.
Sandy, Inc.: *See*—
Schmiedeler, Edward A., 4,271,766, Cl. 108-111.000.
Sanko Chemical Co., Ltd.: *See*—
Imamura, Juichi, 4,272,634, Cl. 568-432.000.
Sano, Takezo; Shimomura, Takatoshi; Sasaki, Masao; and Murase, Ichiki, to Sumitomo Chemical Company, Limited. Semipermeable membrane. 4,272,378, Cl. 210-500.200.
Santiago, Edgardo, to Owens-Illinois, Inc. Glass article having abrasion resistant and label receptive coating and method of producing same. 4,272,587, Cl. 428-432.000.
Sarre, Olga: *See*—
Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., 4,272,439, Cl. 260-245.20R.
Sasaki, Masao: *See*—
Sano, Takezo; Shimomura, Takatoshi; Sasaki, Masao; and Murase, Ichiki, 4,272,378, Cl. 210-500.200.
Sasaki, Masaomi; Sakai, Kiyoshi; Hashimoto, Mitsuru; Ohta, Masafumi; and Kozima, Akio, to Ricoh Co., Ltd. Electrophotographic material containing diazo compounds. 4,272,598, Cl. 430-72.000.
Sato, Keiji: *See*—
Tokura, Hiroshi; Sato, Keiji; Tomono, Makoto; Terada, Sadatugu; and Arai, Hideaki, 4,272,601, Cl. 430-108.000.
Sato, Masaru: *See*—
Saito, Takahiko; and Sato, Masaru, 4,272,784, Cl. 358-127.000.
Sato, Shosuke: *See*—
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Sato, Toshio: *See*—
Yoshida, Tomio; Nakata, Yoshinobu; Harigae, Shunji; and Sato, Toshio, 4,272,651, Cl. 369-112.000.
Satoh, Katsuhiko: *See*—
Ueda, Makoto; Toriaswa, Akira; Satoh, Katsuhiko; Shida, Masaharu; Mandai, Masaaki; and Asano, Kazuhiro, 4,272,837, Cl. 368-80.000.
Satomi, Toyokazu; Koizumi, Yutaka; Nakamura, Isao; Tabata, Yasuhiro; and Kaneko, Tamaki, to Ricon Co., Ltd. Electrostatic copying machine. 4,272,180, Cl. 355-3.0SH.
Satti, John A., to United States of America, Energy. Method of constructing a superconducting magnet. 4,271,585, Cl. 29-599.000.
Sawada, Kazuo: *See*—
Kotani, Yasutoyo; Sawada, Kazuo; Nagai, Shuzo; Ogino, Takao; and Watabe, Seiji, 4,272,351, Cl. 204-202.000.
Sawyer, Theodore E.: *See*—
McKeen, Robert S.; Keefer, Kenneth S.; and Sawyer, Theodore E., 4,272,141, Cl. 339-18.00R.
Schaaf, Kurt H.; and Horn, Herman, to Diamond Shamrock Corporation. Hydrolysis of 5-(beta-methylmercapteothyl)-hydantoin. 4,272,631, Cl. 562-559.000.
Schachner, Dianne; and Zimmerman, Barbara, to Body Design, Incorporated. Combination wall mounted dance barre and exercise rod. 4,272,070, Cl. 272-62.000.
Schad, Robert D.: *See*—
Rees, Herbert; and Schad, Robert D., 4,272,236, Cl. 425-564.000.
Schafer, Otmar U. Heating installation. 4,271,679, Cl. 62-238.400.
Schafer, Richard A., to Deere & Company. Draft sensing device including load pin with free end. 4,271,910, Cl. 172-7.000.
Schatzler, Walter; and Jardin, Hans, to Webasto-Werk W. Baier GmbH & Co. Vehicle body member with an opening closable by a cover. 4,272,122, Cl. 296-221.000.
Schatzler, Walter; and Kohlpaintner, Georg, to Webasto-Werk W. Baier GmbH & Co. Device for height adjustment of a rigid sliding cover. 4,272,124, Cl. 296-222.000.
Schegerin, Robert J. F. Ski apparatus. 4,272,578, Cl. 428-113.000.
Scheibel, Edward G.: *See*—
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Schemp, Eberhard G., to Pennsylvania Engineering Corporation. Metallurgical vessel. 4,272,286, Cl. 75-51.000.
Schenck, Jay R.: *See*—
Kim, Yong D.; Tomita, Joseph T.; and Schenck, Jay R., 4,272,504, Cl. 424-1.000.
Schepers, Herman A. J., to Stamicarbon, B.V. Process for preparing a polymer mixture. 4,272,431, Cl. 260-42.460.
Schering, Aktiengesellschaft: *See*—
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Schering Corporation: *See*—
Blythin, David J., 4,272,535, Cl. 424-248.540.
Ganguly, Ashit K.; Girijavallabhan, Viyyoor M.; Cavender, Patricia; Sarre, Olga; and McCombie, Stuart W., 4,272,439, Cl. 260-245.20R.
Neustadt, Bernard R.; and Gold, Elijah H., 4,272,530, Cl. 424-324.000.
Wright, John J., 4,272,525, Cl. 424-177.000.
Schertz, William W., to United States of America, Energy. Long-term ice storage for cooling applications. 4,271,681, Cl. 62-260.000.
Schwarzmann, Horst; and Schneider, Dieter, to BASF Aktiengesellschaft. (3-Nitro-4-methyl)-phenyl chloroformate and its preparation. 4,272,450, Cl. 260-463.000.
Schick, Karl G., to Flatron Systems, Inc. Solution handling apparatus and method. 4,272,483, Cl. 422-67.000.
Schildkraut, Alan L.: *See*—
Brush, Robert W.; Werth, Dee A.; and Schildkraut, Alan L., 4,272,144, Cl. 339-89.00R.
Schleicher & Schuell, Inc.: *See*—
Kremer, Richard D.; and Siebengartner, Michael J., 4,272,381, Cl. 210-658.000.
Schlick, Bernhard, to Sandoz Ltd. Disperse dyeing of polyvinyl chloride-acetalized polyvinyl alcohol fibers. 4,272,244, Cl. 8-529.000.
Schlick, Horst; Rau, Karl; Wipfler, Alfred; and Lang-Althoff, Joachim, to VDO Adolf Schindling AG. Electric door lock for motor vehicles. 4,272,112, Cl. 292-201.000.
Schmid, Walter; Breitschwerdt, Werner; Huber, Guntram; and Reidelbach, Willi, to Daimler-Benz Aktiengesellschaft. Lateral protection of motor vehicles. 4,272,103, Cl. 280-751.000.
Schmidt, Carson T.; Ward, William P.; and Young, Rocky M. Y., to NCR Corporation. Reconfigurable register and logic circuitry device for selective connection to external buses. 4,272,829, Cl. 364-900.000.
Schmidt, Erick, to General Systems Research Ltd. Reusable picture frame. 4,271,619, Cl. 40-154.000.
Schmidt, Hans, to Matsushita Electric Corporation of America. Drive mechanism. 4,271,714, Cl. 74-202.000.
Schmidt, Peter-Jurgen: *See*—
Bianchi, Valerio; Schmidt, Peter-Jurgen; Latsch, Reinhard; and Wahl, Josef, 4,271,804, Cl. 123-440.000.
Schmied, Helmut: *See*—
Bodig, Bernd; Schmied, Helmut; Hohne, Gerd; and Fritz, Adolf, 4,271,812, Cl. 123-609.000.
Schmiedeler, Edward A., to Sandy, Inc. Collapsible display shelf. 4,271,766, Cl. 108-111.000.
Schmitt, Frederick L.: *See*—
Mookherjee, Braja D.; Wilson, Richard A.; Schmitt, Frederick L.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,271,853, Cl. 131-276.000.
Schmuckler, Gabriella: *See*—
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Schneider, Abraham; Hollstein, Elmer J.; Janoski, Edward J.; and Scheibel, Edward G., to Suntech, Inc. Process to upgrade shale oil. 4,272,362, Cl. 208-254.00H.
Schneider, Dieter: *See*—
Schwarzmann, Horst; and Schneider, Dieter, 4,272,450, Cl. 260-463.000.
Schneider, Wolfgang, to Lizentia Patent-Verwaltungs-G.m.b.H. System for transmitting service communications. 4,272,843, Cl. 370-24.000.
Scholten, Heinz: *See*—
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Shafer, David R., to Perkin-Elmer Corporation, The. Unit magnification relay systems. 4,272,152, Cl. 350-27.000.
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Shanley, Robert L., II: *See*—
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Shatto, Homer M. Percussion instruments. 4,271,745, Cl. 84-402.000.
Shaw, Harold G., Sr.: *See*—
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Shifflett, Wiley M. Mud degasser method and apparatus. 4,272,258, Cl. 55-52.000.
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Shoemaker, Stephen P., Jr. Coin projecting amusement device. 4,272,082, Cl. 273-356.000.
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Shoup, Robert E. Method and apparatus for making fishing lure wings. 4,271,995, Cl. 223-47.000.
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Silbernagel, Bernard G.; Mohan, Raam R.; and Singhal, Gopal H., to Exxon Research & Engineering Co. Regeneration of spent hydrodesulfurization catalysts employing presulfiding treatment and heteropoly acids. 4,272,400, Cl. 252-413.000.
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Simon, Ernst-Ulrich; and Ullrich, Horst, to VDO Adolf Schindling AG. Connector for a ring circuit of a bus-system. 4,272,146, Cl. 339-99.00R.
Simpkins, David E.; and Taylor, John B. O., to Macarthys Pharmaceuticals Limited. Derivatives of chloral. 4,272,526, Cl. 424-180.000.
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Simpson, Kenneth, to C & K Components, Inc. Toggle switch with shaped wire spring contact. 4,272,662, Cl. 200-275.000.
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Silbernagel, Bernard G.; Mohan, Raam R.; and Singhal, Gopal H., 4,272,400, Cl. 252-413.000.
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Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, to Carlo Erba Strumentazione S.p.A. Apparatus for feeding carrier gas to on-column injectors. 4,271,695, Cl. 73-23.100.
SK "Pamukotex": *See*—
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Skala, Karel, to BBC Brown, Boveri & Company, Limited. Steam turbine plant. 4,271,673, Cl. 60-660.000.
Skarky, Loren D., to Magnetic Peripherals Inc. Disc memory drive with improved cartridge handling. 4,272,794, Cl. 360-97.000.
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Slagle, Grady M., Jr.; and Thomas, Donald O., Jr., to Coalinga Corporation. Retrievable annulus and tubing flow control valves. 4,271,903, Cl. 166-129.000.
Slater, Saul I., to Hov-Air-Ship, Inc.. Airship and associated apparatus and method for anchoring same. 4,272,042, Cl. 244-115.000.
Slattery, Sidney E.: *See*—
Jones, Bryn; and Slattery, Sidney E., 4,271,675, Cl. 60-737.000.
Slaughter, Raymond J., to BICC Limited. Optical cables. 4,272,155, Cl. 350-96.230.
Slocumb, Robert C., to Conwed Corporation. Method for reducing the aging period of polyethylene foams. 4,272,468, Cl. 264-53.000.
Smeets, Gerard G. F. Two step pressure intensifier system. 4,271,671, Cl. 60-578.000.
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Smith, David S., to Technicon Instruments Corporation. Competitive binding analysis by fluorescence. 4,272,505, Cl. 424-8.000.
Smith, Donald C., to Zapata Industries, Inc. Automatic feeding hopper employing an anti-jamming mechanism. 4,271,953, Cl. 198-347.000.
Smith, Franklin G.: *See*—
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Smith, Hugh L.: *See*—
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Smith, Kendall O.; and Gehle, Warren D. Magnetic attraction transfer process for use in solid phase radioimmunoassays and in other assay methods. 4,272,510, Cl. 427-47.000.
Smith Kline Instruments, Inc.: *See*—
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Smith, Samuel C. Wire cutter. 4,271,593, Cl. 30-233.000.
Smith, Stuart B., to Integrated Insulation Systems, Inc. Method and apparatus for forming expanded foam articles. 4,272,469, Cl. 264-53.000.
Smith, Thomas M. Radiant heating. 4,272,237, Cl. 431-328.000.
Smith, Thomas M. Infra-red heating and burners. 4,272,238, Cl. 431-328.000.
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Snape, Christopher J.; and Burton, Philip J., to Charles Wiss (Valves) Limited. Butterfly valve having temperature responsive sealing means. 4,271,858, Cl. 137-74.000.
Snoek, Govert J., to Inter Ocean N.V. Check valve and method of manufacturing said check valve. 4,271,862, Cl. 137-511.000.
Snyder, Fred P., to Essex Cryogenics of Missouri, Inc. Apparatus for pressure swing generation of oxygen. 4,272,265, Cl. 55-389.000.
Societa Italiana Resine S.I.R. S.p.A.: *See*—
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Societa Italo-Britannica-L. Manetti-H. Roberts Co.: *See*—
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Societe Anonyme Automobiles Citroen: *See*—
Barthelemy, Andre J., 4,271,920, Cl. 180-55.000.
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Societe Anonyme Parimter: *See*—
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Societe Chimiques des Charbonnages SA: *See*—
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Societe des Aciers Fins de l'Est: *See*—
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Sokoly, Theodore O.; and Niedzialkowski, John, to Electric Power Research Institute. Metal oxide varistor and method. 4,272,411, Cl. 252-516.000.
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Solid Safety, Inc.: *See*—
Altman, Donna G., 4,272,252, Cl. 44-40.000.
Somerville, William M., to Northern Engineering Industries Limited. Mooring winch system. 4,272,706, Cl. 318-6.000.
Song, Jae M.; and Ligon, Samuel B. Tetherable game ball. 4,272,076, Cl. 273-58.00C.
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Sorrells, Paul J., Jr., to MM Systems Corporation. Batten and paneling system. 4,271,651, Cl. 52-460.000.
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Specht, Donald F.; and Goldberg, Paul R., to Smith Kline Instruments, Inc. Apparatus and method for providing multiple ultrasonic sector image displays. 4,271,842, Cl. 128-661.000.
Speckter, Gerald A. Apparatus for pivotally interconnecting. 4,271,692, Cl. 72-447.000.
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Speers, Jerry M.: *See*—
Robinson, Leon H., Jr.; Barry, Adelbert; and Speers, Jerry M., 4,271,908, Cl. 166-315.000.
Spence, Wayman R., to Spenco Medical Corporation. High absorption body powder. 4,272,514, Cl. 424-69.000.
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Sperry Corporation: *See*—
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Day, W. Baldwin; and Stringfellow, Harry F., 4,272,734, Cl. 331-78.000.
Hartwig, William F., 4,272,808, Cl. 364-718.000.
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Spichala, Paul: *See*—
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Spillman, John J., to National Research Development Corporation. Fluid stream deflecting members for aircraft bodies or the like. 4,272,043, Cl. 244-130.000.

Spivey, Alice C. Golf club putter grip. 4,272,077, Cl. 273-81.00R.

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Mayrand, James F., 4,272,307, Cl. 148-187.000.

Spychalski, Joseph L.: *See*—
Collins, Floyd A.; and Spychalski, Joseph L., 4,271,777, Cl. 113-1.00G.

Square D Company: *See*—
Carroll, James C.; Chapman, Donald L.; Flee, Stephen L.; and McGoldrick, Gilbert A., 4,272,643, Cl. 174-48.000.

Stafford, Robert T. Fence system. 4,272,060, Cl. 256-24.000.

Stamicarbon, B.V.: *See*—
Schepers, Herman A. J., 4,272,431, Cl. 260-42.460.

Standal, Norman S. Pipeline drain apparatus. 4,272,021, Cl. 239-106.000.

Standard Manufacturing Company, Incorporated: *See*—
Oswald, Norman D.; and Mankey, Harry S., 4,272,221, Cl. 414-634.000.

Standard Oil Company (Indiana): *See*—
Ginsburgh, Irwin; and Hall, Robert D., 4,271,904, Cl. 166-251.000.

Stanley Electric Co., Ltd.: *See*—
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, 4,272,702, Cl. 313-493.000.

Stark, Forest G., to AVM Corporation. Cabinet drawer anti-tip lock device. 4,272,138, Cl. 312-221.000.

Starrett, Philip S.: *See*—
Halfpenny, Paul F.; Passarelli, Camillo L.; and Starrett, Philip S., 4,272,014, Cl. 236-44.00B.

Stastny, Edwin O.: *See*—
Schroeder, Marvin C.; and Stastny, Edwin O., 4,272,202, Cl. 400-208.000.

Staudacher, Frank A.: *See*—
Stemme, Otto; and Staudacher, Frank A., 4,272,602, Cl. 430-140.000.

Stauffer Chemical Company: *See*—
Powell, William J., 4,272,496, Cl. 423-210.000.

Steadman, Rufus P. Tower light system. 4,272,802, Cl. 362-385.000.

Steck, Werner; Loeser, Werner; Steuerwald, Manfred; Wunsch, Gerd; and Deigner, Paul, to BASF Aktiengesellschaft. Manufacture of magnetic recording media having a wear-resistant surface. 4,272,563, Cl. 427-130.000.

Stecker, Earl M., to Stoelting, Inc. Drink dispenser spigot with splash deflector. 4,271,986, Cl. 222-151.000.

Steenson, Thomas W.; and Paton, W. Donald, to Butler Manufacturing Company. Movable insulation puncher. 4,271,737, Cl. 83-171.000.

Steenson, Thomas W.; and Paton, W. Donald, to Butler Manufacturing Company. Building panel erection brackets. 4,272,065, Cl. 269-46.000.

Steffancin, William: *See*—
Goldberg, Gerald; Myers, Charles L.; Parsons, Charles F.; and Steffancin, William, 4,272,584, Cl. 428-412.000.

Steger, Donald J., to International Business Machines Corporation. Ribbon shaper for typewriter cartridge. 4,272,201, Cl. 400-208.000.

Steigerwald, Karl H., to Steigerwald Strahltechnik GmbH. Energy beam welding a gap of varying width. 4,272,665, Cl. 219-121.0ED.

Steigerwald Strahltechnik GmbH: *See*—
Steigerwald, Karl H., 4,272,665, Cl. 219-121.0ED.

Stein, Barry F.: *See*—
Casey, Martin J.; Stein, Barry F.; and Wetterskog, Herman E., 4,272,347, Cl. 204-192.00D.

Stemme, Otto; and Staudacher, Frank A., to AGFA-Gevaert, A.G. Recording medium and method of making. 4,272,602, Cl. 430-140.000.

Stenberg, Kaj O.; and Traven, Lars J. C., to Gambro AB. Apparatus for the transfer of substances between two fluids with simultaneous tempering of at least one of the fluids. 4,272,373, Cl. 210-175.000.

Stengard, Charles: *See*—
Koponen, Vesa; and Stengard, Charles, 4,271,601, Cl. 34-156.000.

Stepanski, Eugene R., to W. H. Brady Co. Tape dispenser package with roll restraining friction disc. 4,271,962, Cl. 206-411.000.

Stephan, Wolfgang: *See*—
Kotitschke, Ronald; and Stephan, Wolfgang, 4,272,523, Cl. 424-101.000.

Steranko, James J. Wire bonding system and method. 4,272,007, Cl. 228-213.000.

Steuerwald, Manfred: *See*—
Steck, Werner; Loeser, Werner; Steuerwald, Manfred; Wunsch, Gerd; and Deigner, Paul, 4,272,563, Cl. 427-130.000.

Stewart, Hudson: *See*—
Galbraith, Lyle D.; Stewart, Hudson; and Congdon, Jon M., 4,272,301, Cl. 134-8.000.

Stewart, Phillip S. B.; and Lees, Jeremy J., to Woodsreef Mines Limited. Chemical processes. 4,272,495, Cl. 423-167.000.

Stewart-Warner Corporation: *See*—
Mayer, William R.; and Pescetto, James R., 4,272,660, Cl. 200-83.00P.

Stiesi, Walter E.: *See*—
Quagliaro, Daniel A.; and Stiesi, Walter E., 4,271,973, Cl. 215-308.000.

Stiller, Alfred H.; Sears, John T.; and Hammack, Richard W. Coal extraction process. 4,272,356, Cl. 208-8.0LE.

Stirling, Walter R.: *See*—
Hatch, Donald; Ellis, Christopher R.; Gibbon, Richard H.; and Stirling, Walter R., 4,271,937, Cl. 188-264.00F.

Stock, Malcolm G., to Rolls-Royce Motors Limited. Free-moving bumper finisher. 4,272,115, Cl. 293-155.000.

Stoelting, Inc.: *See*—
Stecker, Earl M., 4,271,986, Cl. 222-151.000.

Stokes, Kenneth B., to Medtronic, Inc. Temporary adjustable bipolar lead. 4,271,847, Cl. 128-786.000.

Stone, Kenneth. Bounce flash apparatus. 4,272,169, Cl. 354-126.000.

Stone, Ronald L., to United Kingdom Atomic Energy Authority. Rotary tools. 4,271,733, Cl. 82-4.00C.

Strain, James E.; and Ross, Harley H., to United States of America, Energy. Continuous-flow free acid monitoring method and system. 4,272,247, Cl. 23-230.00R.

Strassel, Albert, to Produits Chimiques Ugine Kuhlmann. Process for treating polyvinylidene fluoride and resulting products. 4,272,585, Cl. 428-413.000.

Stravitz, David M., to Ambico Inc. Guitar strap connector. 4,271,999, Cl. 224-257.000.

Streicher, Rolf: *See*—
Lach, Dietrich; Streicher, Rolf; and Feichtmayr, Franz, 4,272,243, Cl. 8-436.000.

Strenglein, Harry F.: *See*—
Day, W. Baldwin; and Strenglein, Harry F., 4,272,731, Cl. 331-78.000.

Stringfellow, H. Berton, to Sperry Corporation. Shuttle cross conveyor. 4,271,958, Cl. 198-742.000.

Stroble, Reimann L.; Hueschen, Robert E.; and Jess, Richard A., to General Electric Company. Preloaded bearing assembly for rotating anode X-ray tubes. 4,272,696, Cl. 313-60.000.

Stubbings, John B.: *See*—
Mingolla, Joseph; and Stubbings, John B., 4,271,555, Cl. 14-73.000.

Stucker, Wesley G.; and Coles, Richard J., Jr., to Koch, Darlene M.; Koch, Robert H.; Coles, Viola C.; Reynolds, Maurice Guy; Reynolds, Lydia M.; Carlson, J. P., Jr.; and Carlson, Carolyn. Radio operated remote control. 4,272,766, Cl. 340-696.000.

Studebaker, Irving G.: *See*—
Hutchins, Ned M.; and Studebaker, Irving G., 4,272,127, Cl. 299-2.000.

Stull, Bertram O.; and Reed, Russell, Jr., to United States of America, Navy. Device for reducing the sensitivity of an ethylene oxide leak detector. 4,272,480, Cl. 422-58.000.

Sturtz, Georges: *See*—
Poisson, Pierre; and Sturtz, Georges, 4,272,457, Cl. 260-953.000.

Subramanian, Kohur N.; Hall, Rotrou A.; and Glaum, Gerald V., to International Nickel Co., Inc., The. Pelletizing sulfation of anode slimes. 4,272,493, Cl. 423-41.000.

Subramanian, Ravanasamudram V.: *See*—
Jakubowski, James J.; and Subramanian, Ravanasamudram V., 4,272,346, Cl. 204-181.00R.

Suckno Brothers Company: *See*—
Suckno, Howard, 4,272,061, Cl. 256-67.000.

Suckno, Howard, to Suckno Brothers Company. Variable pitch rail system. 4,272,061, Cl. 256-67.000.

Suda, Yoshio: *See*—
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,272,464, Cl. 264-22.000.

Suess, Rudolf: *See*—
Gadient, Fulvio; and Suess, Rudolf, 4,272,533, Cl. 424-248.400.

Sugano, Kazuhiko: *See*—
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,271,939, Cl. 192-3.300.

Sugiura, Masatoshi: *See*—
Mitsuda, Tadao; Iwata, Minoru; Sugiura, Masatoshi; Takada, Shigetaka; and Watanabe, Yukihiro, 4,271,667, Cl. 60-276.000.

Suligoy, Diane; and Cook, Sharon. Pivot tip hand tool. 4,271,731, Cl. 81-177.0ST.

Suling, Carlhans: *See*—
Lindner, Christian; Suling, Carlhans; Bartl, Herbert; Hardt, Dietrich; and Brudermanns, Karola, 4,272,428, Cl. 260-31.20R.

Sulzer Brothers Limited: *See*—
Mandrin, Charles, 4,271,665, Cl. 60-39.18B.
Pfarrwaller, Erwin, 4,271,872, Cl. 139-439.000.

Sumi, Kazumasa: *See*—
Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, 4,271,799, Cl. 123-425.000.

Sumitomo Chemical Company, Limited: *See*—
Matsuda, Teruo; Wake, Shigeo; and Shiozaki, Tetsuya, 4,272,435, Cl. 260-192.000.
Sano, Takezo; Shimomura, Takatoshi; Sasaki, Masao; and Murase, Ichiki, 4,272,378, Cl. 210-500.200.

Sumitomo Chemical Industries Ltd.: *See*—
Inamoto, Yoshiaki; Osugi, Motoyoshi; and Kashihara, Eiji, 4,272,536, Cl. 424-248.540.

Sumitomo Electric Industries, Ltd.: *See*—
Kashiuchi, Yoshinobu; and Zinguzi, Isamu, 4,272,718, Cl. 324-61.00R.
Kotani, Yasutoyo; Sawada, Kazuo; Nagai, Shuzo; Ogino, Takao; and Watabe, Seiji, 4,272,351, Cl. 204-202.000.

Sumitomo Heavy Industries, Ltd.: *See*—
Takahashi, Kazuyoshi; and Tanaka, Hiromi, 4,272,497, Cl. 423-239.000.

Sumitomo Metal Industries Limited: *See*—
Sunami, Yoshihiko; and Nishioka, Kunihiko, 4,272,324, Cl. 201-21.000.

Sumitomo Rubber Industries, Ltd.: *See*—
Nakade, Shinichi; and Tanaka, Michihiro, 4,272,079, Cl. 273-225.000.

Sun, Jui-Yuan: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., 4,272,250, Cl. 44-1.0SR.

Sunami, Yoshihiko; and Nishioka, Kunihiko, to Sumitomo Metal Industries Limited. Process for producing shaft furnace cokes. 4,272,324, Cl. 201-21.000.

Sunbeam Corporation: *See*—
Narayan, Raichur S., 4,272,570, Cl. 427-436.000.

Suntech, Inc.: *See*—
Schneider, Abraham; Hollstein, Elmer J.; Janoski, Edward J.; and Scheibel, Edward G., 4,272,362, Cl. 208-254.00H.

Suzuki, Katsuhiro: *See*—
Komamura, Seiji; and Suzuki, Katsuhiro, 4,272,056, Cl. 251-309.000.

Suzuki, Kunio. Apparatus for converting hydraulic energy to electrical energy. 4,272,686, Cl. 290-54.000.

Suzuki, Suzuo; Hata, Yoshitaka; and Ohnishi, Akihiro, to Nissan Motor Company, Limited. Feedback control of exhaust gas recirculation based on combustion condition. 4,271,811, Cl. 123-571.000.

Suzuki, Takaharu: *See*—
Togashi, Seigo; Suzuki, Takaharu; and Aoyama, Takaaki, 4,272,162, Cl. 350-349.000.

Svenska Sockerfabriks AB: *See*—
Andersson, Alf H.; and Glifberg, Nils B., 4,271,662, Cl. 56-121.440.

Svensson, Ake. Facing. 4,271,652, Cl. 52-478.000.

Svensson, Sven L. I. Numerical control apparatus for stepped feeding at punch and nibbling machines. 4,272,812, Cl. 364-475.000.

Svoboda, Josef; Krob, Erwin; and Weigl, Erwin, to TMC Corporation. Ski brake. 4,272,099, Cl. 280-605.000.

Svyadosch, Jury N.: *See*—
Ljubman, Nazar Y.; and Svyadosch, Jury N., 4,272,494, Cl. 423-54.000.

Swann, Peter R., to Gatan, Inc. Specimen elevator for an ion milling machine. 4,272,682, Cl. 250-442.000.

Sweers, Ronald L. Eaves trough mounting adapter. 4,271,643, Cl. 52-11.000.

SWS Incorporated: *See*—
Nilsen, Carl J., 4,272,004, Cl. 228-17.500.

Sydlo Inc.: *See*—
Love, Leonard S., 4,272,369, Cl. 210-137.000.

Syndrill Products Joint Venture: *See*—
Sahley, Lloyd W., 4,271,917, Cl. 175-410.000.

Synergistics Chemicals Limited: *See*—
Crocker, Zenas, 4,272,474, Cl. 264-176.00R.

Syntex (U.S.A.) Inc.: *See*—
Walker, Keith A. M., 4,272,545, Cl. 424-273.00R.

Synthelabo: *See*—
Koletar, Gabor I.; Frost, Jonathan R.; Dupont, Regis; Lardenois, Patrick; Morel, Claude; and Najer, Henry, 4,272,539, Cl. 424-256.000.

Sypula, Donald S.; and Murphy, Cornelius B., to Xerox Corporation. Magnetic toners containing cubical magnetite. 4,272,600, Cl. 430-106.000.

Syva Company: *See*—
Schwarzberg, Moshe, 4,272,506, Cl. 424-8.000.

Szalay, John J. Ice skate-sharpening apparatus. 4,271,635, Cl. 51-5.00D.

Szejtli, Jozsef; Tetenyi nee Erdosi, Magda; and Tetenyi, Peter, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Method for the control of germination of plant seeds and growth of the seedlings. 4,272,276, Cl. 71-76.000.

Tabata, Yasuhiro: *See*—
Satomi, Toyokazu; Koizumi, Yutaka; Nakamura, Isao; Tabata, Yasuhiro; and Kaneko, Tamaki, 4,272,180, Cl. 355-3.0SH.

Tadeusz, Bartosz: *See*—
Jazlowski, Aleksander; Michal, Rudnicki; Tadeusz, Bartotz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, 4,272,026, Cl. 239-273.000.

Taft, Daniel G.: *See*—
Noerager, Jere A.; Taft, Daniel G.; and Bednar, John M., 4,272,059, Cl. 254-392.000.

Tago, Keiichiro: *See*—
Yasuhara, Takeshi; and Tago, Keiichiro, 4,272,822, Cl. 364-481.000.

Taguchi, Nobuo; Munakata, Tadashi; and Kobayashi, Yoshikata, to Tokyo Shibaura Denki Kabushiki Kaisha. Nondestructive examining apparatus. 4,272,781, Cl. 358-100.000.

Taiyo Kogyo Company Limited: *See*—
Kawaguchi, Masuru, 4,271,641, Cl. 52-2.000.

Takada, Shigetaka: *See*—
Mitsuda, Tadao; Iwata, Minoru; Sugiura, Masatoshi; Takada, Shigetaka; and Watanabe, Yukihiro, 4,271,667, Cl. 60-276.000.

Takada, Shunji: *See*—
Mifune, Hiroyuki; Takada, Shunji; Akimura, Yoshitaka; and Fusaya, Yoshiharu, 4,272,606, Cl. 430-264.000.

Takagi, Kazuhiro: *See*—
Tsuda, Takashi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masahiro; Imamura, Yasuo; and Kato, Kazunori, 4,271,571, Cl. 29-25.180.

Takahashi, Kazuyoshi; and Tanaka, Hiromi, to Sumitomo Heavy Industries, Ltd.; and Electric Power Development Co., Ltd. Method for treating a nitrogen oxide- and sulphur oxide-containing waste gas. 4,272,497, Cl. 423-239.000.

Takahashi, Masatoshi: *See*—
Ito, Hiroshi; Takahashi, Masatoshi; and Kadoya, Isamu, 4,272,418, Cl. 260-23.0XA.

Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Seto, Shosuke; and Matsuzawa, Hideshi, to Tokyo Keiki Company Ltd.; and Totec Co. Ltd. Check digit calculator. 4,272,674, Cl. 235-69.000.

Takahashi, Nagashige: *See*—
Chikashige, Kiyoshi; and Takahashi, Nagashige, 4,271,845, Cl. 128-756.000.

Takanashi, Itsuo: *See*—
Nakagaki, Shintaro; Takanashi, Itsuo; Yokokawa, Sumio; Miyoshi, Tadayoshi; Motoyama, Koichiro; and Miyauchi, Kenichi, 4,272,779, Cl. 358-47.000.

Takao, Syosuke; Kikuchi, Gunpei; Sekiguchi, Masao; and Kawauchi, Shinji, to Ebara Corporation. Hydraulic motor unit. 4,271,725, Cl. 74-730.000.

Takeda Riken Kogyo Kabushikikaisha: *See*—
Niki, Shoji; and Yoshino, Yuji, 4,272,719, Cl. 324-72.000.

Takeda, Toshiyuki: *See*—
Yamazaki, Hitoshi; Ito, Hiroshi; Takeda, Toshiyuki; and Enomoto, Junzo, 4,272,421, Cl. 260-29.2EP.

Takematsu, Tetsuo; Konasi, Makoto; and Ikeda, Kaoru, to Mitsubishi Petrochemical Co., Ltd. Herbicidal composition and method for controlling weeds. 4,272,283, Cl. 71-94.000.

Takemura, Nobuyuki; and Fukuchi, Ichiro, to Toppan Printing Co., Ltd. Liquid-withdrawing device. 4,271,983, Cl. 222-85.000.

Takenoya, Hideaki: *See*—
Makabe, Hachiro; Watanabe, Kazuo; Kase, Toshiaki; Katinuma, Toshihide; and Takenoya, Hideaki, 4,271,773, Cl. 112-158.00E.

Takigawa, Hiroyoshi; Yahagi, Mitsuhisa; and Ogawa, Hiroshi, to Bridgestone Tire Co., Ltd. Heavy duty pneumatic radial tire exhibiting less railway wear. 4,271,885, Cl. 152-209.00R.

Talalay, Anselm; and Talalay, Leon. Manufacture of sponge rubber spheres. 4,271,639, Cl. 51-322.000.

Talalay, Leon: *See*—
Talalay, Anselm; and Talalay, Leon, 4,271,639, Cl. 51-322.000.

Talkington, Howard R.: *See*—
Flood, Robert A.; Talkington, Howard R.; Wheelock, Richard A.; and Watts, Robert L., 4,272,835, Cl. 367-4.000.

Tamaru, Munetaka; Natori, Minoru; and Yamaguchi, Sizuo, to Citizen Watch Co., Ltd. Alarm timepiece. 4,272,836, Cl. 368-74.800.

Tamm, Jurgen. Cosmetics for treatment of hair and skin. 4,272,508, Cl. 424-45.000.

Tamura, Shinichi: *See*—
Fuziwara, Shigeru; and Tamura, Shinichi, 4,272,062, Cl. 266-284.000.

Tanabashi, Toshio: *See*—
Nakanishi, Kiyoshi; Okumura, Takashi; Deguchi, Ryuichi; and Tanabashi, Toshio, 4,271,803, Cl. 123-432.000.

Tanaka, Hideo: *See*—
Katsumata, Yutaka; Sanagi, Mitsuru; and Tanaka, Hideo, 4,272,819, Cl. 364-200.000.

Tanaka, Hideya: *See*—
Jinzimaru, Tazuo; Tanaka, Hideya; and Sajima, Yasuo, 4,272,352, Cl. 204-279.000.

Tanaka, Hiromi: *See*—
Takahashi, Kazuyoshi; and Tanaka, Hiromi, 4,272,497, Cl. 423-239.000.

Tanaka, Izumi: *See*—
Shirai, Kazunari; Tanaka, Izumi; Tanaka, Shinpei; and Nishimoto, Keiji, 4,271,582, Cl. 29-571.000.

Tanaka, Koji, to Japan Exlan Company Limited. Aqueous microhydrogel dispersions, processes for producing the same, and processes for producing microhydrogels. 4,272,422, Cl. 260-29.6AN.

Tanaka, Mamoru, to Bridgestone Tire Co., Ltd. Binding device for hoses floating on water surface. 4,271,551, Cl. 9-8.00R.

Tanaka, Michihiro: *See*—
Nakade, Shinichi; and Tanaka, Michihiro, 4,272,079, Cl. 273-225.000.

Tanaka, Shinpei: *See*—
Shirai, Kazunari; Tanaka, Izumi; Tanaka, Shinpei; and Nishimoto, Keiji, 4,271,582, Cl. 29-571.000.

Tanaka, Takashi; and Koga, Hirofumi, to Omron Tateisi Electronics Co. Electromagnetic relay. 4,272,745, Cl. 335-128.000.

Tanaka, Yoshio. Disposable portable mask for emergency use. 4,271,834, Cl. 128-205.270.

Tasch, Al F., Jr.: *See*—
Chatterjee, Pallab K.; and Tasch, Al F., Jr., 4,272,303, Cl. 148-1.500.

Taskis, Charles B., to Beecham Group Limited. Use of di-sodium and di-potassium salts of dicarboxylic amino acids and tri- or di-sodium or potassium phosphate tartrate or citrate to improve the taste of in vivo hydrolysable esters of α-amino penicillins and cephalosporins. 4,272,542, Cl. 424-271.000.

Tatemoto, Minoru, to Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Air conditioning display system for vehicles. 4,271,897, Cl. 165-11.000.

Taylor, David L., to Harris Corporation. Two switchable resistive element per cell memory array. 4,272,833, Cl. 365-210.000.

Taylor, John B. O.: *See*—
Simpkins, David E.; and Taylor, John B. O., 4,272,526, Cl. 424-180.000.

Taylor Manufacturing Company: *See*—
Clulich, Charles, 4,271,960, Cl. 198-779.000.

Taylor, Norman F.: *See*—
Robinson, Frank M.; and Taylor, Norman F., 4,271,578, Cl. 29-426.300.

Taylor, Richard J.: *See*—
Michael, Peter C.; Taylor, Richard J.; and Kellar, Paul R. N., 4,272,787, Cl. 358-160.000.

TDK Electronics Co., Ltd.: *See*—
Horimoto, Rioichi, 4,272,285, Cl. 75-0.5BA.

Technicon Instruments Corporation: *See*—
Smith, David S., 4,272,505, Cl. 424-8.000.

Teleflex Incorporated: *See*—
Tschanz, August E.; and Geiger, Robert W., 4,271,700, Cl. 73-182.000.

Teletronics International, Inc.: *See*—
Belmares-Sarabia, Armand; Chayka, Stanley J.; and Lund, Robert M., 4,272,780, Cl. 358-54.000.

Templin, Harry W.; and Enders, Edward O., to FMC Corporation. Releasable locking coupling pin for chain links. 4,271,663, Cl. 59-84.000.

Tepavicharov, Hristo D.: *See*—
Velikov, Dancho N.; Kanchev, Kancho T.; Ivanov, Stanislav A.; Ivanov, Ilye H.; and Tepavicharov, Hristo D., 4,272,198, Cl. 366-65.000.

Terada, Sadatugu: *See*—
Tokura, Hiroshi; Sato, Keiji; Tomono, Makoto; Terada, Sadatugu; and Arai, Hideaki, 4,272,601, Cl. 430-108.000.

Teradyne, Inc.: *See*—
Hendrika, Jozef H., 4,272,691, Cl. 307-268.000.

Termont, Charles G., to Deere & Company. Speed retarder control system. 4,272,131, Cl. 303-3.000.

Terramoto, Tougo; Matsushita, Shuzo; and Kobori, Toshio, to Minolta Camera Kabushiki Kaisha. Automatic and manual focus control lens barrel structure. 4,272,174, Cl. 354-195.000.

Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitunari, to Stanley Electric Co., Ltd. Fluorescent lamp. 4,272,702, Cl. 313-493.000.

Tetenyi nee Erdosi, Magda: *See*—
Szejtli, Jozsef; Tetenyi nee Erdosi, Magda; and Tetenyi, Peter, 4,272,276, Cl. 71-76.000.

Tetenyi, Peter: *See*—
Szejtli, Jozsef; Tetenyi nee Erdosi, Magda; and Tetenyi, Peter, 4,272,276, Cl. 71-76.000.

Tettweiler, Robert; and Ergun, Hayri, to Didier Engineering GmbH. Process for producing coke. 4,272,323, Cl. 201-6.000.

Teutsch, Jean G.; and Philibert, Daniel, to Roussel Uclaf. $\Delta^{1,3,5(10)}$-Estratrienes. 4,272,530, Cl. 424-238.000.

Texaco Canada Inc.: *See*—
Bialek, Rene F., 4,272,360, Cl. 208-188.000.

Texaco Development Corp.: *See*—
Dominguez, Richard J. G.; and Rice, Doris M., 4,272,618, Cl. 521-160.000.

Texaco Inc.: *See*—
Bousaid, Issam S.; and Ho, Benny K-C, 4,271,906, Cl. 166-273.000.

Texas Instruments Incorporated: *See*—
Chatterjee, Pallab K.; and Tasch, Al F., Jr., 4,272,303, Cl. 148-1.500.
Davis, Max G., Jr.; and Mueller, Charles M., 4,272,795, Cl. 360-99.000.
Van Landingham, Richard D., 4,272,793, Cl. 360-78.000.

Textile Products, Inc.: *See*—
Curzio, Frederick H., 4,271,570, Cl. 28-290.000.

Thekdi, Arvind C.; and Mayers, Richard R., to Midland-Ross Corporation. Direct heating of heat treat furnace chamber. 4,272,239, Cl. 432-19.000.

Theobald, Barbara A.: *See*—
George, Louis J.; and Theobald, Barbara A., 4,272,594, Cl. 430-14.000.

Theuman, James L., to Markay International, Inc. Shellfish extraction tool. 4,271,563, Cl. 17-71.000.

Theurer, Josef, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Mobile rail welding machine. 4,272,664, Cl. 219-53.000.

Thiele, Horst: *See*—
Landwehr, Gunter; and Thiele, Horst, 4,271,776, Cl. 112-311.000.

Thielemann, Klaus: *See*—
Bachmann, Willi; Thielemann, Klaus; and von der Wall, Klaus, 4,271,886, Cl. 152-209.00R.

Thiessen, Robert J.: *See*—
Shaw, Michael J.; and Thiessen, Robert J., 4,272,569, Cl. 427-336.000.

Thode, Lester E., to United States of America, Energy. Device and method for electron beam heating of a high density plasma. 4,272,319, Cl. 176-5.000.

Thomas, Alford M.: *See*—
Von Esch, Anne M.; Thomas, Alford M.; Fairgrieve, John S.; and Seely, John H., 4,272,528, Cl. 424-211.000.

Thomas, Alfred W.; and op den Camp, Lutz E. A., to Lucas Industries Limited. Servo boosters for vehicle braking systems. 4,271,750, Cl. 92-98.00D.

Thomas, Donald G., to Anson Engineering Pty. Ltd. Surveying staffs. 4,271,598, Cl. 33-293.000.

Thomas, Donald O., Jr.: *See*—
Slagle, Grady M., Jr.; and Thomas, Donald O., Jr., 4,271,903, Cl. 166-129.000.

Thompson, E. Arthur. Fire array and apparatus. 4,271,817, Cl. 126-298.000.

Thompson, Kenneth P., to Champion International Corporation. Process for extruding films of thermoplastic polyester film-forming materials. 4,272,312, Cl. 156-244.110.

Thompson, Leonard R.; and Kearney, J. Kevin, to Dow Chemical Company, The. Chlorinated phenol mold release agent. 4,272,636, Cl. 568-776.000.

Thompson, Thomas K., to Owens-Corning Fiberglas Corporation. Apparatus for production of mineral fibers. 4,272,271, Cl. 65-1.000.

Thomson-CSF: *See*—
Croset, Michel; and Velasco, Gonzalo, 4,272,350, Cl. 204-195.00S.
Dieulesaint, Eugene; Royer, Daniel; and Guedj, Richard, 4,272,676, Cl. 250-221.000.
Dubois, Jean-Claude; Eranian, Armand; and Paimblant, Paul, 4,272,589, Cl. 428-442.000.

Thomson, Ronald E.; and Hammermeister, David W., to Madison-Kipp Corporation. Enclosed lubricating apparatus. 4,271,930, Cl. 184-15.00A.

Thor, David L., to Container Corporation of America. Tamperproof overcap. 4,271,972, Cl. 215-251.000.

Three Phoenix Company: *See*—
Barnett, David L., 4,272,235, Cl. 425-397.000.

Thym, Sabine: *See*—
Ammermann, Eberhard; Thym, Sabine; and Pommer, Ernst-Heinrich, 4,272,551, Cl. 424-324.000.

Thyssen Industrie AG: *See*—
Lipp, Willi, 4,271,572, Cl. 29-26.00A.

Tice Engineering & Sales, Inc.: *See*—
Tice, William A., 4,271,775, Cl. 112-276.000.

Tice, William A., to Tice Engineering & Sales, Inc. Needle positioner for high speed stitching machines. 4,271,775, Cl. 112-276.000.

Tillotson Corporation: *See*—
Tillotson, John G., 4,271,688, Cl. 68-5.00D.

Tillotson, John G., to Tillotson Corporation. Apparatus for treating plaited yarns. 4,271,688, Cl. 68-5.00D.

Timex Corporation: *See*—
Feldman, Abe, 4,271,709, Cl. 74-5.120.

Timmons, David R., to Automation Industries, Inc. Air device with flexible mounting system. 4,271,751, Cl. 98-40.00D.

Timofeeva, Ljudmila P.: *See*—
Belkevich, Peter I.; Buslovich, Solomon J.; Dolidovich, Elena F.; Kaganovich, Fanya L.; Komov, Oktyabr P.; and Timofeeva, Ljudmila P., 4,272,527, Cl. 424-195.000.

Tippmann, Joseph R.; and Daugherty, Richard G. Dasher board for ice skating rinks and method of making same. 4,271,622, Cl. 40-606.000.

Tisdale, Clarence F. Locket assembly. 4,271,684, Cl. 63-19.000.

Titzenthaler, Eckart; and Schwen, Roland, to BASF Aktiengesellschaft. Silver-containing carrier catalysts, process for their manufacture, and process for the manufacture of ethylene oxide using these catalysts. 4,272,443, Cl. 260-348.340.

TMC Corporation: *See*—
Svoboda, Josef; Krob, Erwin; and Weigl, Erwin, 4,272,099, Cl. 280-605.000.

Toennies, Jan P.: *See*—
Faubel, Manfred; Holber, William M.; and Toennies, Jan P., 4,272,699, Cl. 313-360.000.

Togashi, Seigo; Suzuki, Takaharu; and Aoyama, Takaaki, to Citizen Watch Co., Ltd. Guest-host liquid crystal display device. 4,272,162, Cl. 350-349.000.

Tokico Ltd.: *See*—
Katsumori, Teiji; and Ishida, Kunio, 4,272,064, Cl. 267-64.00R.

Toko, Inc.: *See*—
Iguchi, Yasuhide; and Koike, Tsutomu, 4,272,805, Cl. 363-19.000.

Tokura, Hiroshi; Sato, Keiji; Tomono, Makoto; Terada, Sadatugu; and Arai, Hideaki, to Koinshiroku Photo Industry Co., Ltd. Coated developer carrier for electrophotography. 4,272,601, Cl. 430-108.000.

Tokyo Keiki Company Ltd.: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Sato, Shosuke; and Matsuzawa, Hideshi, 4,272,674, Cl. 235-69.000.

Tokyo Koso K.K.: *See*—
Zinnai, Sadazi, 4,272,054, Cl. 251-173.000.

Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Komatsu, Shigeru, 4,272,304, Cl. 148-1.500.
Matsumoto, Yoshihiro, 4,272,816, Cl. 364-483.000.
Taguchi, Nobuo; Munakata, Tadashi; and Kobayashi, Yoshikata, 4,272,781, Cl. 358-100.000.

Tomita, Joseph T.: *See*—
Kim, Yung D.; Tomita, Joseph T.; and Schenck, Jay R., 4,272,504, Cl. 424-1.000.

Tomono, Makoto: *See*—
Tokura, Hiroshi; Sato, Keiji; Tomono, Makoto; Terada, Sadatugu; and Arai, Hideaki, 4,272,601, Cl. 430-108.000.

Tomuro, Yasushi. Spike shoe. 4,271,608, Cl. 36-61.000.

Tonai, Koichi: *See*—
Hirano, Tomoyuki; Yamanaka, Akira; and Tonai, Koichi, 4,272,114, Cl. 293-133.000.

Toombs, Gary C.: *See*—
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,272,149, Cl. 339-258.00R.

Topor, Michael G.: *See*—
Schroeder, Otto E.; Wohlman, Alan; and Topor, Michael G., 4,272,554, Cl. 426-321.000.

Toppan Printing Co., Ltd.: *See*—
Takemura, Nobuyuki; and Fukuchi, Ichiro, 4,271,983, Cl. 222-85.000.

Torii, Hiromasa: *See*—
Katayama, Yoshinori; and Torii, Hiromasa, 4,272,120, Cl. 296-210.000.

Torisawa, Akira: *See*—
Ueda, Makoto; Torisawa, Akira; Satoh, Katsuhiko; Shida, Masaharu; Mandai, Masaaki; and Asano, Kazuhiro, 4,272,837, Cl. 368-80.000.

Toro Company, The: *See*—
Foster, Leslie W., 4,271,658, Cl. 56-11.300.

Torrington, Leslie A., to RCA Corporation. Video disc player having record extracting mechanism. 4,272,083, Cl. 369-77.000.

Toscano, Luciano: *See*—
Riva, Mario; and Toscano, Luciano, 4,272,446, Cl. 260-397.450.

Toshiba Kikai Kabushiki Kaisha: *See*—
Matsumoto, Mitsuo, 4,272,715, Cl. 318-800.000.

Totec Co. Ltd.: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Sato, Shosuke; and Matsuzawa, Hideshi, 4,272,674, Cl. 235-69.000.

Totta, Paul A.: *See*—
Rothman, Laura B.; Totta, Paul A.; and White, James F., 4,272,561, Cl. 427-84.000.

Towmotor Corporation: *See*—
Buchwald, Frank S.; Maher, Richard C.; and Buchina, Jerome E., 4,272,695, Cl. 310-242.000.

Toyama, James. Generating means. 4,272,685, Cl. 290-52.000.

Toyo Seikan Kaisha, Ltd.: *See*—
Mori, Fumio; and Ishibashi, Kazuhisa, 4,272,313, Cl. 156-262.000.

Toyoda, Toshikazu: *See*—
Yamakawa, Yoshio; Toyoda, Toshikazu; and Nohira, Hidetaka, 4,271,801, Cl. 123-432.000.

Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Arai, Hajime, 4,271,715, Cl. 74-360.000.
Furutani, Toshinobu; Shinohara, Hiroshi; Otsuka, Yasuhiro; Matsumoto, Shinichi; and Wakisaka, Hiroshi, 4,272,349, Cl. 204-195.00S.
Kato, Takayuki; Sumi, Kazumasa; Arakawa, Hideo; Ito, Toshimitsu; and Sanada, Masakatsu, 4,271,799, Cl. 123-425.000.
Mitsuda, Tadao; Iwata, Minoru; Sagiura, Masatoshi; Takada, Shigetaka; and Watanabe, Yukihiro, 4,271,667, Cl. 60-276.000.
Nakanishi, Kiyoshi; Okumura, Takeshi; Deguchi, Ryuichi; and Tanahashi, Toshio, 4,271,803, Cl. 123-432.000.
Watanabe, Noboru; Inoue, Tokuta; and Oishi, Kiyohiko, 4,272,460, Cl. 261-53.000.
Yamakawa, Yoshio; Toyoda, Toshikazu; and Nohira, Hidetaka, 4,271,801, Cl. 123-432.000.

Traenckner, Hans-Joachim: *See*—
Frank, Walter; Bendezus, Otto; Freier, Hans-Joachim; and Traenckner, Hans-Joachim, 4,272,420, Cl. 260-28.00R.

Trahan, Albert J.; Beckwith, Bruce R.; and Murray, David B., to Emhart Industries, Inc. Plunger mechanism for glassware forming machine. 4,272,273, Cl. 65-167.000.

Train, David B., to Reynolds Metals Company. Folding carton structure. 4,271,964, Cl. 206-633.000.

Trane Company, The: *See*—
Butt, Alan G., 4,272,462, Cl. 261-153.000.

Transidyne General Corporation: *See*—
Diamond, Howard; Eazer, Steven E.; and Flowers, Joseph, Jr., 4,272,245, Cl. 23-230.00B.

Trapp, Horst: *See*—
Vyvial, Rudolf; Wallbillich, Guenter; and Trapp, Horst, 4,272,611, Cl. 430-306.000.

Traven, Lars J. C.: *See*—
Stenberg, Kaj O.; and Traven, Lars J. C., 4,272,373, Cl. 210-175.000.

Treen, J. Paul. Safety ink pen. 4,272,206, Cl. 401-105.000.

Tremco, Inc.: *See*—
Kumins, Charles A.; and Warford, Milan L., 4,272,582, Cl. 428-332.000.

Treseder, Robert C., to International Business Machines Corporation. Electrophotographic printer with duplex printed sheet output. 4,272,181, Cl. 355-14.0SH.

Trestianu, Sorin: *See*—
Sisti, Giorgio; Trestianu, Sorin; and Galli, Mario, 4,271,695, Cl. 73-23.100.

Trico Products Corporation: *See*—
D'Alba, Anthony R., 4,271,558, Cl. 15-250.420.

Troncoso, Nestor J.: *See*—
Burk, Emmett H., Jr.; Sun, Jui-Yuan; and Troncoso, Nestor J., 4,272,250, Cl. 44-1.0SR.

Troster, Dietrich: *See*—
Grun, Reinhold; Troster, Dietrich; and Gleich, Bruno, 4,271,569, Cl. 26-79.000.

Trout, Donald M. Self-locking automatically-releasing sash balance for tiltably-removable sliding sash windows. 4,271,631, Cl. 49-181.000.

Trussell, Charlie W., Jr., to United States of America, Army. Bright source attenuating device for an image intensifier. 4,272,164, Cl. 350-357.000.

Tryon, Erwin. Adjustable taper ring collar. 4,272,086, Cl. 279-1.00S.

Tschanz, August E.; and Geiger, Robert W., to Teleflex Incorporated. Pitot tube assembly. 4,271,700, Cl. 73-182.000.

Tse, Samuel Y. H., to Procor Limited. Pelletizing apparatus. 4,272,234, Cl. 425-222.000.

Tsuda, Hiroshi: *See*—
Ishimoto, Osamu; Tsuda, Hiroshi; and Miyashita, Kiyoshi, 4,271,784, Cl. 118-652.000.

Tsuda, Keishiro: *See*—
Asai, Michihiko; Tsuda, Keishiro; and Otada, Akira, 4,272,559, Cl. 427-54.100.

Tsuda, Takeshi; Kubota, Michio; Takagi, Kazuhiro; Shimose, Masahiro; Imamura, Yasuo; and Kato, Kazunori, to Nisshin Steel Co., Ltd.; and Dai Nippon Printing Co. Ltd. Process for manufacturing shadow mask of Braun tube for color TV. 4,271,571, Cl. 29-25.180.

Tsukada, Katsuhige; Hayashi, Nobuyuki; Yamada, Hideo; Ishimaru, Toshiaki; and Kakumaru, Hajime, to Hitachi Chemical Company, Ltd. Photosensitive resin composition. 4,272,607, Cl. 430-288.000.

Tsunefuji, Katsuhiko: *See*—
Maitani, Yoshihisa; and Tsunefuji, Katsuhiko, 4,272,168, Cl. 354-51.000.

Tucker, Albert R.: *See*—
Milberger, Lionel J.; and Tucker, Albert R., 4,271,867, Cl. 137-625.210.

Tufte, Ralph W., Jr. Apparatus and method of disposing of pet waste and the like. 4,272,116, Cl. 294-1.00B.

Tuji, Toshihiko, to Nippon Kinzoku Co., Ltd. Reactor core of insulated iron powder. 4,272,749, Cl. 336-233.000.

Turner, James F., to Convex Corporation. Programmable delay response shape bulk delay extender. 4,272,738, Cl. 333-28.00R.

Turner, Paul F.; and Gandhi, Om P., to Bio Systems Design, Corp. Apparatus for electromagnetic radiation of living tissue and the like. 4,271,848, Cl. 128-804.000.

Tybus, Gerd; and Neuking, Hartmut, to Messerschmitt-Bolkow-Blohm Gesellschaft mit beschrankter Haftung. Apparatus for the separation of gas mixtures. 4,272,266, Cl. 55-392.000.

Typalogics: *See*—
Shapiro, Alan R., 4,272,190, Cl. 356-124.000.

Uchiyama, Shigeru, to Kabushiki Kaisha Kawai Gakki Seisakusho. Envelope signal generator. 4,271,743, Cl. 84-1.260.

Udall, William S.; and Martin, John, to Dunlop Limited. Tire fitting device. 4,271,884, Cl. 157-1.000.

Ueda, Makoto; Torisawa, Akira; Satoh, Katsuhiko; Shida, Masaharu; Mandai, Masaaki; and Asano, Kazuhiro, to Kabushiki Kaisha Daini Seikosha. Electronic timepiece with rotation detector. 4,272,837, Cl. 368-80.000.

Ueda, Nobuo, to Laurel Bank Machine Co., Ltd. Coin selecting apparatus. 4,271,855, Cl. 133-3.00D.

Ueno, Susumu: *See*—
Asai, Michihiko; Sada, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,272,464, Cl. 264-22.000.

Uesugi, Kyozo, to Minolta Camera Kabushiki Kaisha. Shock absorbent shifting device. 4,272,160, Cl. 350-429.000.

Ueyama, Katsuyoshi: *See*—
Oishibashi, Hirotsugu; Ueyama, Katsuyoshi; Ohara, Muneyuki; Nakamura, Mitsuo; and Amano, Takayoshi, 4,272,003, Cl. 228-13.000.

Ullmann, Roland: *See*—
Ernst, Rolf; and Ullmann, Roland, 4,271,590, Cl. 30-43.920.

Ullrich, Horst: *See*—
Simon, Ernst-Ulrich; and Ullrich, Horst, 4,272,146, Cl. 339-99.00R.

Ullrich, Manfred F., to ITT Industries, Inc. Two-dimensional analog memory. 4,272,831, Cl. 365-45.000.

Underwood, J. Larry: *See*—
Niksich, Eugene J.; and Underwood, J. Larry, 4,271,982, Cl. 222-83.000.

Uni-Pump, Inc.: *See*—
Bennett, James T., 4,271,981, Cl. 222-32.000.

Union Carbide Corporation: *See*—
Patterson, Michael F.; Cheung, Harry; and Wang, David I. J., 4,272,259, Cl. 55-74.000.

Union Oil Company of California: *See*—
Baron, Kenneth, 4,272,358, Cl. 208-120.000.

United Kingdom Atomic Energy Authority: *See*—
Stone, Ronald L., 4,271,733, Cl. 82-4.00C.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Lewis, Meirion F., 4,272,742, Cl. 333-155.000.

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Agriculture: *See*—
Jaffe, Howard, 4,272,398, Cl. 252-316.000.
America: *See*—
Quagliaro, Daniel A.; and Stiesi, Walter E., 4,271,973, Cl. 215-308.000.
Army: *See*—
Oliver, David W., 4,272,612, Cl. 430-323.000.
Riney, John S.; and Chamblin, Thomas F., 4,272,690, Cl. 307-265.000.
Trussell, Charlie W., Jr., 4,272,164, Cl. 350-357.000.
Energy: *See*—
Eastman, Jay M.; and Miller, Theodore L., 4,272,193, Cl. 356-349.000.
Fritz, James S.; Gjerde, Douglas T.; and Schmuckler, Gabriella, 4,272,246, Cl. 23-230.00R.
Lindl, John D., 4,272,320, Cl. 176-9.000.
Satti, John A., 4,271,585, Cl. 29-599.000.
Schertz, William W., 4,271,681, Cl. 62-260.000.
Strain, James E.; and Ross, Harley H., 4,272,247, Cl. 23-230.00R.
Thode, Lester E., 4,272,319, Cl. 176-5.000.
Willey, Melvin G., 4,272,232, Cl. 425-200.000.
Interior: *See*—
Cole, Ernest R., Jr.; Lee, Agnes Y.; and Pardoen, Dominic L., 4,272,340, Cl. 204-114.000.
Dressel, Michael O., 4,271,914, Cl. 173-158.000.
Schultze, Lawrence E.; Bauer, Donald J.; and Morimoto, Michael T., 4,272,491, Cl. 423-20.000.
National Aeronautics and Space Administration: *See*—

Canning, Thomas N.; Barns, Christopher E.; Murphy, James P.; Gin, Bobby; and King, Robert W., 4,271,761, Cl. 102-504.000.
Hsu, Li-Chen; Sheibley, Dean W.; and Philipp, Warren H., 4,272,470, Cl. 264-104.000.
Irick, Stephen C., 4,272,046, Cl. 244-226.000.
Jhabvala, Murzban D., 4,272,302, Cl. 148-1.500.
Lennon, Carl L., 4,272,720, Cl. 324-72.000.
Navy: *See*—
Bailey, Theodore B.; and Bates, Jack, 4,272,189, Cl. 356-28.000.
Flood, Robert A.; Talkington, Howard R.; Wheelock, Richard A.; and Watts, Robert L., 4,272,835, Cl. 367-4.000.
Stull, Bertram O.; and Reed, Russell, Jr., 4,272,480, Cl. 422-58.000.
Zaeschmar, Guenther, 4,271,584, Cl. 29-584.000.
U.S. Philips Corporation: *See*—
Biermann, Udo K. P., 4,272,389, Cl. 252-69.000.
Dona, Marinus J.-J., 4,271,713, Cl. 74-198.000.
Lippits, Gerardus J. M.; van den Broek, Arnoldus J. M.; and Dijkstra, Rinse, 4,272,574, Cl. 428-64.000.
Lux, Peter, 4,272,820, Cl. 364-414.000.
Nieuwendijk, Joris A. M.; Vink, Nicolaas G.; and Heijnemans, Werner A. L., 4,272,727, Cl. 335-213.000.
Proper, Johannes; Schuur, Jacob; Monte, George L. A.; and Westerveld, Eduard P., 4,272,782, Cl. 358-111.000.
Weijland, Bernard H.; and Verkuijlen, Wilhelmus H. C. G., 4,272,776, Cl. 357-50.000.
U.S. Product Development Company: *See*—
Adell, Robert, 4,271,633, Cl. 49-462.000.
United States Steel Corporation: *See*—
Jacob, Charles W., 4,271,720, Cl. 74-600.000.
McDermott, John F., 4,272,325, Cl. 202-248.000.
United Technologies Corporation: *See*—
Lawsing, Joseph W., 4,271,859, Cl. 137-85.000.
Marshall, Richard L.; and Cashman, Kenneth A., 4,271,674, Cl. 60-737.000.
University of Rochester, The: *See*—
Jacobs, Stephen D., 4,272,694, Cl. 307-427.000.
Unkelbach, Karl-Heinz: *See*—
Ries, Guenter; Juengst, Klaus-Peter; Foerster, Siegfried; Graf, Franz; Lehmann, Wolfgang; Unkelbach, Karl-Heinz; and Duren, Gottfried, 4,272,365, Cl. 209-223.00R.
Uranit Uran-Isotopentrennungs-Gesellschaft mbH: *See*—
Fill, Ernst E.; Jetter, Heinz L.; and Volk, Reinhard, 4,272,681, Cl. 250-423.00P.
Ushio Denki Kabushikikaisha: *See*—
Oyama, Hiroo; and Yokouchi, Takashi, 4,272,698, Cl. 313-272.000.
Uwabe, Toshio: *See*—
Takahashi, Mutsumi; Uwabe, Toshio; Nagase, Toshio; Sato, Shosuke; and Matsuzawa, Hideshi, 4,272,674, Cl. 235-69.000.
Valdespino, Joseph M. Internal combustion engine. 4,271,793, Cl. 123-3.000.
Valente, Paolo; and Piloni, Taddeo. Coffee making assembly. 4,271,752, Cl. 99-289.00R.
Valentin S.A.: *See*—
Martin, Jean, 4,271,543, Cl. 4-615.000.
Valigura, Joe L., Jr.: *See*—
Butler, Johnny L.; and Valigura, Joe L., Jr., 4,271,870, Cl. 138-94.300.
Valmet Oy: *See*—
Koponen, Vesa; and Stengard, Charles, 4,271,601, Cl. 34-156.000.
Valo, Antti T. Blade for a cutter for a chipper or similar wood reducing machine. 4,271,882, Cl. 144-241.000.
Van Auwelaer, James M.: *See*—
Hutchinson, Eugene B.; and Van Auwelaer, James M., 4,271,956, Cl. 198-613.000.
van den Broek, Arnoldus J. M.: *See*—
Lippits, Gerardus J. M.; van den Broek, Arnoldus J. M.; and Dijkstra, Rinse, 4,272,574, Cl. 428-64.000.
Vanderknyff, Jacobus J. M., to Varian Associates. Inductive delay line and method of making. 4,272,741, Cl. 333-138.000.
van der Lely, Cornelis. Soil cultivating machines. 4,271,911, Cl. 172-68.000.
Vanderloop, James P. Silo door. 4,271,632, Cl. 49-192.000.
Vandersall, H. Lawrence, to Monsanto Company. Chemical retardants for forest fires. 4,272,414, Cl. 252-602.000.
Van Kreuningen, Rudolf; and Ray, Dan O., to Kraco Enterprises, Inc. Automatic cassette cleaner. 4,272,796, Cl. 360-128.000.
Van Landingham, Richard D., to Texas Instruments Incorporated. System and method for positioning a magnetic head transducer on a flexible storage media. 4,272,793, Cl. 360-78.000.
Van Santen, Gordon L., to Pliotron Corporation of Canada Limited. Screw and nut arrangement for jack posts. 4,272,058, Cl. 254-98.000.
Vargas, Ovidio: *See*—
Cella, John A.; Flom, Merlyn G.; Herrold, Anne M.; Martin, Joe O.; and Vargas, Ovidio, 4,272,544, Cl. 424-273.00R.
Herrold, Anne M.; and Vargas, Ovidio, 4,272,519, Cl. 424-83.000.
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Vanderknyff, Jacobus J. M., 4,272,741, Cl. 333-138.000.
Varshney, Ramesh C. Method of forming recessed isolation oxide layers. 4,272,308, Cl. 148-187.000.
Vaughn, Hugh R. Auger assembly moving device. 4,271,919, Cl. 180-16.000.
Vaughan, James E., Jr. Cam-operating adjustable plier wrench with overtravel stop device. 4,271,732, Cl. 81-414.000.
Vavra, Gary J., to Green Line, Inc. 180 Degree folding device. 4,271,711, Cl. 74-96.000.
Vayenas, Costas G.; and Ortman, David E., to Massachusetts Institute of Technology. Method and apparatus for forming nitric oxide from ammonia. 4,272,336, Cl. 204-59.00R.
VDO Adolf Schindling AG: *See*—
Schlick, Horst; Rau, Karl; Wipfler, Alfred; and Lueg-Althoff, Joachim, 4,272,112, Cl. 292-201.000.
Simon, Ernst-Ulrich; and Ullrich, Horst, 4,272,146, Cl. 339-99.00R.
Vehlewald, Peter: *See*—
Balle, Gerhard; Rabe, Hanajurgen; and Vehlewald, Peter, 4,272,619, Cl. 521-169.000.
Veit, Ivar; Sickel, Liesbet; and Gatzsch, Konstantin. Speech aid apparatus. 4,272,647, Cl. 179-1.0AL.
Velasco, Gonzalo: *See*—
Croset, Michel; and Velasco, Gonzalo, 4,272,350, Cl. 204-195.00S.
Velcro USA Inc.: *See*—
Perina, Joseph, 4,271,566, Cl. 24-204.000.
Velikov, Dancho N.; Kanchev, Kancho T.; Ivanov, Stanislav A.; Ivanov, Ilye H.; and Tepavicharov, Hristo D., to VMEI (Vish Maschinno-Elektrotechnicheski Institute). Device for the dispersion of cement solutions. 4,272,198, Cl. 366-65.000.
Vereinigte Edelstahl-Werke Aktiengesellschaft (VEW): *See*—
Weingerl, Hermann; and Koren, Manfred, 4,272,305, Cl. 148-12.00E.
Verkuijlen, Wilhelmus H. C. G.: *See*—
Weijland, Bernard H.; and Verkuijlen, Wilhelmus H. C. G., 4,272,776, Cl. 357-50.000.
Vero Electronics GmbH: *See*—
Weiss, Harald, 4,272,143, Cl. 339-74.00R.
Vetco, Inc.: *See*—
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Viertel, Lothar; and Nowak, Manfred, to Gebr. Happich GmbH. Electric connection to sun visor for automotive vehicles, or the like. 4,272,118, Cl. 296-97.00R.
Vihko, Reijo. Discardable reaction receptacle for use in immunological assay. 4,272,478, Cl. 422-57.000.
Vilbeuf, Jean, to Sifra. Seat with damped suspension system. 4,272,117, Cl. 296-65.00R.
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Vinci, Holger V., to Danfoss A/S. Starter device for a single-phase asynchronous motor. 4,272,714, Cl. 318-783.000.
Vinette, Richard H. Game ball target return apparatus and method. 4,272,078, Cl. 273-182.00R.
Vink, John J.: *See*—
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Von Esch, Anne M.; Thomas, Alford M.; Fairgrieve, John S.; and Seely, John H., to Abbott Laboratories. Phosphonoacetyl aminoacids. 4,272,528, Cl. 424-211.000.
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White, Herbert O. Variable speed drive unit. 4,271,712, Cl. 74-141.000.

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Williams, Charles E., to Hester Industries, Inc. High humidity food chilling system. 4,271,683, Cl. 62-374.000.

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Williamson, Harry L. Sheet thickness monitoring system and method. 4,271,699, Cl. 73-159.000.

Willis, Brian J.; Christenson, Philip A.; and Mack, Robert, to Fritzsche Dodge & Olcott Inc. Halogen contsining ionone derivatives and compositions containing same. 4,272,412, Cl. 252-522.00R.

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Withalm, Gert; and Hiereth, Hermann, to Daimler-Benz Aktiengesellschaft. Internal combustion engine with an exhaust gas turbocharger. 4,271,672, Cl. 60-602.000.

Wittchow, Eberhard, to Kraftwerk Union Aktiengesellschaft. Steam generator for generating steam from feedwater of reduced quality. 4,271,792, Cl. 122-406.00S.

Wittlinger, Harold A., to RCA Corporation. Differential-input amplifier circuit. 4,272,728, Cl. 330-253.000.

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WOMA Apparatebau Wolfgang Massberg & Co. GmbH: *See*—
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Wood, Milton D., to M. D. Wood, Inc. Method of determining change in subsurface structure due to application of fluid pressure to the earth. 4,271,696, Cl. 73-37.000.

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Wright, John J., to Schering Corporation. Derivatives of polyene macrolide antibiotics containing an amino sugar moiety, process for the preparation thereof, and pharmaceutical compositions containing them. 4,272,525, Cl. 424-177.000.

Wright, Robert J., to Lever Brothers Company. Germicidal compositions. 4,272,395, Cl. 252-106.000.

Wright, William W.; and Vojir, Frank S., to Guardian Electric Manufacturing Company. Four pole double throw relay. 4,272,746, Cl. 335-128.000.

Wristers, Harry J. Supported Ziegler catalysts and method therefor. 4,272,404, Cl. 252-429.00B.

Wristers, Harry J., deceased; and by Wristers, Joy K., sole beneficiary. Ziegler transition metal halide catalysts and method therefor. 4,272,405, Cl. 252-429.00B.

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Xaver, Wirth; and Mathias, Schorwerth, to Knorr-Bremse GmbH. Closure for retaining an insertable brake lining in a brake lining holder for disk brakes. 4,271,936, Cl. 188-244.000.

Xerox Corporation: *See*—
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Yajima, Tadamasa; Kitagawa, Shuzo; and Hata, Hiromi, to Daido Tokushuko Kabushiki Kaisha. Process for refining molten steel containing chromium. 4,272,287, Cl. 75-60.000.

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Yamaguchi, Sizuo: *See*—
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Yamakawa, Yoshio; Toyoda, Toshikazu; and Nohira, Hidetaka, to Toyota Jidosha Kogyo Kabushiki Kaisha. Internal combustion engine with twin intake ports for each cylinder. 4,271,801, Cl. 123-432.000.

Yamamori, Takahiro; Iwanaga, Kazuyoshi; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Housing for front-drive automatic transmission for transverse engine of automotive vehicle. 4,271,721, Cl. 74-695.000.

Yamamoto, Haruhisa; Yoneyama, Nobuaki; and Akiyama, Shinichi, to Nippon Zeon Co., Ltd. Catalyst for oxidation of isobutylene. 4,272,637, Cl. 568-780.000.

Yamamura, Masahiro: *See*—
Mizumoto, Katsuji; Hanada, Toshihide; Kominami, Yasuo; and Yamamura, Masahiro, 4,272,709, Cl. 318-317.000.

Yamanaka, Akira: *See*—
Hirano, Tomoyuki; Yamanaka, Akira; and Tonai, Koichi, 4,272,114, Cl. 293-133.000.

Yamanaka, Minoru; Yamaya, Yukio; and Ichikawa, Masahide, to Yagi, Takeshi. Hester. 4,272,669, Cl. 219-385.000.

Yamashita, Masaru: *See*—
Nishimura, Sadanori; Yamada, Yoji; Shimizu, Takeyuki; and Yamashita, Masaru, 4,271,951, Cl. 192-106.00F.

Yamauchi, Yuzaru: *See*—
Hirano, Norimasa; and Yamauchi, Yuzaru, 4,272,423, Cl. 260-29.6TA.

Yamaya, Yukio: *See*—
Yamanaka, Minoru; Yamaya, Yukio; and Ichikawa, Masahide, 4,272,669, Cl. 219-385.000.

Yamazaki, Hitoshi; Ito, Hiroshi; Takeda, Toshiyuki; and Enomoto, Junzo, to Mitsubishi Denki Kabushiki Kaisha. Method for preparing water-soluble lacquer. 4,272,421, Cl. 260-29.2EP.

Yamazaki, Masahiro; Akiyama, Takayasu; Makuta, Yoshihiro; and Marsoka, Tosikuni, to Nippon Zeon Co., Ltd. Catting apparatus for potting material with hollow fibers embedded therein. 4,271,740, Cl. 83-592.000.

Yankielun, Norbert E.: *See*—
MacKenzie, George W.; Shackelton, Clifford W.; and Yankielun, Norbert E., 4,272,655, Cl. 179-159.000.

Yardley, John P.; and Corbin, Alan, to American Home Products Corporation. Claudogenic-interceptive nonapeptide. 4,272,432, Cl. 260-112.50R.

Yasuda, Tadahiro: *See*—
Nishikawa, Masaji; Amemiya, Norio; Yasuda, Tadahiro; and Nakayama, Shigeru, 4,272,597, Cl. 430-68.000.

Yasuhara, Takeshi; and Tago, Keiichiro, to Fuji Electric Co., Ltd. Apparatus for converting a mechanical displacement to an electrical signal. 4,272,822, Cl. 364-481.000.

Yew, Kwong, to Canadian Fram Limited. Clutch having segmented band. 4,271,948, Cl. 192-84.00T.

Yokokawa, Sumio: *See*—
Nakagaki, Shintaro; Takanashi, Itsuo; Yokokawa, Sumio; Miyoshi, Tadayoshi; Motoyama, Koichiro; and Miyazaki, Kenichi, 4,272,779, Cl. 358-47.000.

Yokouchi, Takashi: *See*—
Oyama, Hiroo; and Yokouchi, Takashi, 4,272,698, Cl. 313-272.000.

Yoldas, Bulent E.; Filippi, Arthur M.; and Buckman, Raymond W., Jr., to Westinghouse Electric Corp. Oxide protected mirror. 4,272,588, Cl. 428-433.000.

Yoneda, Koji; Ohashi, Takehisa; Onishi, Masami; and Fukunitsu, Hirotaka, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Permanent waving compositions. 4,272,517, Cl. 424-72.000.

Yoneyama, Masakazu; Kishimoto, Shinzo; and Nakayama, Yasuhiro, to Fuji Photo Film Co., Ltd. Photographic light-sensitive antistatic containing material. 4,272,615, Cl. 430-527.000.

Yoneyama, Nobuaki: *See*—
Yamamoto, Haruhisa; Yoneyama, Nobuaki; and Akiyama, Shinichi, 4,272,637, Cl. 568-780.000.

Yoshida Kogyo K.K.: *See*—
Aoki, Tsunetaka, 4,271,567, Cl. 24-205.14R.
Kasai, Kazumi, 4,271,689, Cl. 70-68.000.

Yoshida, Masaru: *See*—
Kaetsu, Isao; Kumakura, Minoru; and Yoshida, Masaru, 4,272,617, Cl. 435-182.000.

Yoshida, Minoru; and Arikawa, Junichi, to Laurel Bank Machine Co., Ltd. Apparatus for holding stack of sheets in sheet counting machine. 4,272,067, Cl. 271-95.000.

Yoshida, Mitsuari: *See*—
Teshima, Toru; Ariga, Kazuo; Oinuma, Norimasa; and Yoshida, Mitsuari, 4,272,702, Cl. 313-493.000.

Yoshida, Tomio; Nakata, Yoshinobu; Harigae, Shunji; and Sato, Toshio, to Matsushita Electric Industrial Co., Ltd. Optical system having diode laser light source. 4,272,651, Cl. 369-112.000.

Yoshimine, Masao: *See*—
Siegel, Sanford A.; Yoshimine, Masao; and Kao, Che-I, 4,272,635, Cl. 568-776.000.

Yoshinaga, Shoji: *See*—
Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, 4,272,011, Cl. 233-15.000.

Yoshino, Yuji: *See*—
Niki, Shoji; and Yoshino, Yuji, 4,272,719, Cl. 324-72.000.

Yoshioka, Kyozo: *See*—
Nagatomo, Katsuaki; Hisatomi, Shigenobu; Fujiwara, Kiyoshi; Fukumori, Hiromasa; Yoshinaga, Shoji; and Yoshioka, Kyozo, 4,272,011, Cl. 233-15.000.

Yoshizawa, Daisuke. Method of removing snow from ground surface. 4,271,617, Cl. 37-195.000.

Young, Alastair J., to Automotive Products Limited. Control mechanisms for vehicle braking systems. 4,272,132, Cl. 303-22.00R.

Young, Frederick A.; and Rusch, Willard V. T. Microwave antenna with parabolic main reflector. 4,272,769, Cl. 343-781.00P.

Young, R. Gregg: *See*—
McFadden, Russell T.; Krause, Reuben L.; and Young, R. Gregg, 4,272,621, Cl. 525-355.000.

Young, Rocky M. Y.: *See*—
Schmidt, Carson T.; Ward, William P.; and Young, Rocky M. Y., 4,272,829, Cl. 364-900.000.

Zaeschmar, Guenther, to United States of America, Navy. Method of attaching LED chip to a header. 4,271,584, Cl. 29-584.000.

Zapata Industries, Inc.: *See*—
Smith, Donald C., 4,271,953, Cl. 198-347.000.

Zapf, Richard L., to Brown, Milton; Anderson, Laurence L.; Smith, Leonard; and Bellis, David, part interest to each. Jumper cable. 4,272,142, Cl. 339-29.00B.

Zastrow, Klaus D., to Anheuser-Busch, Incorporated. Process for producing a low carbohydrate, low calorie beer. 4,272,552, Cl. 426-13.000.

Zdzislaw, Czelny: *See*—
Jazlowski, Aleksander; Michal, Rudnicki; Tadeusz, Bartosz; Zdzislaw, Czelny; Jozef, Zurkowski; and Henryk, Romanczyk, 4,272,026, Cl. 239-273.000.

Zelacolor Systems Establishment: *See*—
Guillaume, Emile A. H., 4,272,172, Cl. 354-161.000.

Zellweger Uster, Ltd.: *See*—
Grunder, Werner, 4,271,565, Cl. 19-240.000.

Zeltner, Bernard; and Marmonnier, Gaston, to Manufacture Provencale de Matieres Plastiques SA. Soil supports for plant containers. 4,271,630, Cl. 47-81.000.

Zenith Radio Corporation: *See*—
Beaumont, Gregory J., 4,272,705, Cl. 315-408.000.

Ziegenbein, Willi; and Von Praun, Ferdinand, to Chemische Werke Huls Aktiengesellschaft. Process for preparing gaseous hydrogen chloride from dilute aqueous hydrochloric acid. 4,272,502, Cl. 423-488.000.

Zimmerman, Barbara: *See*—
Schachner, Dianne; and Zimmerman, Barbara, 4,272,070, Cl. 272-62.000.

Zimmerman Brush Co.: *See*—
Caron, Beryl, 4,271,557, Cl. 15-180.000.

Zia-Plas Corporation: *See*—
Evans, Frank C., 4,272,022, Cl. 239-107.000.

Zinguzi, Isamu: *See*—
Kashiuchi, Yoshinobu; and Zinguzi, Isamu, 4,272,718, Cl. 324-61.00R.

Zinn, Roland C.: *See*—
Joseph, Daniel, Jr. II, 4,272,209, Cl. 403-408.000.

Zinnai, Sadazi, to Tokyo Koso K.K. Fire-safe sealing device for valve. 4,272,054, Cl. 251-173.000.

Zins, Raymond V. Sliding door safety bar. 4,272,113, Cl. 292-262.000.

Zoecon Corporation: *See*—
Kohn, Gustave K.; and Baer, Ted A., 4,272,449, Cl. 260-453.990.

Zudkevitch, David: *See*—
Hertzog, Richard R.; and Zudkevitch, David, 4,272,326, Cl. 203-62.000.

Zuffi, Timothy R., to Cutter Laboratories, Inc. Purified immune serum globulin. 4,272,521, Cl. 424-85.000.

Zurcher, Erwin: *See*—
Durville, Gerard; Moulin, Michel; Ramseier, Serge; and Zurcher, Erwin, 4,271,568, Cl. 26-9.000.

Zurn Industries, Inc.: *See*—
Gidner, Robert R., 4,272,052, Cl. 251-39.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

August Bilstein, Firma: *See*—
Keilholz, Friedrich, Re. 30,640, Cl. 254-126.000.
Austen Bryars of London, Inc.: *See*—
Bryars, David J. J., Re. 30,638, Cl. 66-191.000.
Becker, Mitchell, to Halcon Research & Development Corp. Process for preparing molybdenum acid salts. Re. 30,642, Cl. 260-414.000.
Bryars, David J. J., to Austen Bryars of London, Inc. Multi-gauge knit fabric with fleece inlay yarn. Re. 30,638, Cl. 66-191.000.
Cojafex B.V.: *See*—
Hofstede, Marinus J.; Hermans, Leonardus J. C.; and de Koe, Jan W., Re. 30,639, Cl. 72-8.000.
de Koe, Jan W.: *See*—
Hofstede, Marinus J.; Hermans, Leonardus J. C.; and de Koe, Jan W., Re. 30,639, Cl. 72-8.000.
General Electric Company: *See*—
Whetten, Nathan R.; and Houston, John M., Re. 30,644, Cl. 250-385.000.
Gore, William C.: *See*—
King, John H.; and Gore, William C., Re. 30,637, Cl. 40-495.000.
Halcon Research & Development Corp.: *See*—
Becker, Mitchell, Re. 30,642, Cl. 260-414.000.
Hermans, Leonardus J. C.: *See*—
Hofstede, Marinus J.; Hermans, Leonardus J. C.; and de Koe, Jan W., Re. 30,639, Cl. 72-8.000.
Hofstede, Marinus J.; Hermans, Leonardus J. C.; and de Koe, Jan W., to Cojafex B.V. Process and device for bending elongated articles. Re. 30,639, Cl. 72-8.000.
Houston, John M.: *See*—
Whetten, Nathan R.; and Houston, John M., Re. 30,644, Cl. 250-385.000.
International Standard Electric Corporation: *See*—
Nill, Eberhard; and Schmidt, Peter, Re. 30,643, Cl. 427-69.000.
Johnson & Johnson: *See*—
Verdicchio, Robert J.; and Rodon, Maria C., Re. 30,641, Cl. 252-526.000.
Keilholz, Friedrich, to August Bilstein, Firma. Vehicle lifting jack. Re. 30,640, Cl. 254-126.000.
King, John H.; and Gore, William C. Vehicle dispatch indicator with color-coded, alphabetical and numerical indicia. Re. 30,637, Cl. 40-495.000.
Nill, Eberhard; and Schmidt, Peter, to International Standard Electric Corporation. Method of aluminizing the inside of the panel of a television picture tube. Re. 30,643, Cl. 427-69.000.
Rodon, Maria C.: *See*—
Verdicchio, Robert J.; and Rodon, Maria C., Re. 30,641, Cl. 252-526.000.
Schmidt, Peter: *See*—
Nill, Eberhard; and Schmidt, Peter, Re. 30,643, Cl. 427-69.000.
Verdicchio, Robert J.; and Rodon, Maria C., to Johnson & Johnson. Low irritating detergent compositions. Re. 30,641, Cl. 252-526.000.
Whetten, Nathan R.; and Houston, John M., to General Electric Company. X-ray detector. Re. 30,644, Cl. 250-385.000.

LIST OF DESIGN PATENTEES

American Cyanamid Company: *See*—
Grodin, Adam J., 259,469, Cl. D9-432.000.
Grodin, Adam J., 259,470, Cl. D9-432.000.
Grodin, Adam J., 259,471, Cl. D9-432.000.
Grodin, Adam J., 259,472, Cl. D9-432.000.
Ayers Manufacturing Corp.: *See*—
Smith, Gordon W.; and Ayers, Terrell E., 259,457, Cl. D6-191.000.
Ayers, Terrell E.: *See*—
Smith, Gordon W.; and Ayers, Terrell E., 259,457, Cl. D6-191.000.
Barrett, Bernard R. Plane kite. 259,500, 6-9-81, Cl. D21-88.000.
Basile, Peter A.: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,467, Cl. D9-300.000.
Bednar, Charles, to Viking Boat Company, Inc. Combined upper hull and boat interior. 259,480, 6-9-81, Cl. D12-318.000.
Bengt Petersson New Products Investment AB: *See*—
Magnusson, Alf B., 259,519, Cl. D27-28.000.
Blaszczyk, Robert: *See*—
Keenan, Richard M.; and Blaszczyk, Robert, 259,502, Cl. D21-245.000.
Bochmann, Carl E.: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,467, Cl. D9-300.000.
Brown, Richard G., to Null Manufacturing Corporation. Table. 259,455, 6-9-81, Cl. D6-177.000.
Brussing, Bernd: *See*—
Zeischegg, Walter; and Brussing, Bernd, 259,456, Cl. D6-184.000.
Campion, Stanley F., executor: *See*—
Jensen, George B., deceased; and Campion, Stanley F., executor, 259,459, Cl. D7-20.000.
Carter, Leslie G.; and Coco, Warren A. Boat propelling unit. 259,488, 6-9-81, Cl. D15-4.000.
Catte, Pierre, to Cibie Projecteurs. Headlight. 259,515, 6-9-81, Cl. D26-28.000.
Catte, Pierre, to Cibie Projecteurs. Headlight. 259,516, 6-9-81, Cl. D26-28.000.
Cibie Projecteurs: *See*—
Catte, Pierre, 259,515, Cl. D26-28.000.
Catte, Pierre, 259,516, Cl. D26-28.000.
Clarke, Thomas E., to Universal Polyquartz Inc. Fob for a key chain or the like. 259,445, 6-9-81, Cl. D3-61.000.
Clorox Company, The: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,467, Cl. D9-300.000.
Coco, Warren A.: *See*—
Carter, Leslie G.; and Coco, Warren A., 259,488, Cl. D15-4.000.
Crichton, Stanley: *See*—
Dunham, Alan G. A.; and Crichton, Stanley, 259,499, Cl. D21-26.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., to Dart Industries Inc. Measuring cup set or the like. 259,460, 6-9-81, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., to Dart Industries Inc. Measuring cup or the like. 259,461, 6-9-81, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., to Dart Industries Inc. Measuring cup or the like. 259,462, 6-9-81, Cl. D7-50.000.
Dart Industries Inc.: *See*—
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,460, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,461, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,462, Cl. D7-50.000.
de Coster, Pieter K. J.: *See*—
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,460, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,461, Cl. D7-50.000.
Daenen, Robert H. C. M.; and de Coster, Pieter K. J., 259,462, Cl. D7-50.000.
Devine Lighting, Incorporated: *See*—
Garcia, Octavio G.; and Lambert, Peter A., 259,518, Cl. D26-131.000.
Dickinson, Robert J.; and Wagner, James L. Combined narrow body self-righting sinker and lure support with trailing legs. 259,505, 6-9-81, Cl. D22-30.000.
Dobrowski, John F. Combined electric lamp and mirror. 259,517, 6-9-81, Cl. D26-56.000.
Doonan, R. Dean. Insulation injection hole plug. 259,466, 6-9-81, Cl. D8-499.000.
Dunham, Alan G. A.; and Crichton, Stanley. Board for a game. 259,499, 6-9-81, Cl. D21-26.000.
Eastman Kodak Company: *See*—
Swayze, Samuel F., 259,492, Cl. D16-06.000.
Electric Fishing Reel Systems, Inc.: *See*—
Huffman, Peck T., 259,503, Cl. D22-25.000.
Feingold, Irene B.; and Feingold, Stanley Z. Ruler. 259,476, 6-9-81, Cl. D10-71.000.

Feingold, Stanley Z.: *See*—
Feingold, Irene B.; and Feingold, Stanley Z., 259,476, Cl. D10-71.000.
Feuling, James J. Fan housing for an air cooled engine. 259,490, 6-9-81, Cl. D15-5.000.
Feuling, James J. Fan housing for an air cooled engine. 259,491, 6-9-81, Cl. D15-5.000.
Fuller, Charles R.; and Fuller, John P. Support pad for an infant. 259,458, 6-9-81, Cl. D6-201.000.
Fuller, John P.: *See*—
Fuller, Charles R.; and Fuller, John P., 259,458, Cl. D6-201.000.
Game Time, Inc.: *See*—
Keenan, Richard M.; and Blaszczyk, Robert, 259,502, Cl. D21-245.000.
Garcia, Octavio G.; and Lambert, Peter A., to Devine Lighting, Incorporated. Light reflector. 259,518, 6-9-81, Cl. D26-131.000.
General Motors Corporation: *See*—
Welburn, Edward T., 259,484, Cl. D12-209.000.
Giles, William E. Air vent cover. 259,508, 6-9-81, Cl. D23-153.000.
Grodin, Adam J., to American Cyanamid Company. Carton. 259,469, 6-9-81, Cl. D9-432.000.
Grodin, Adam J., to American Cyanamid Company. Carton. 259,470, 6-9-81, Cl. D9-432.000.
Grodin, Adam J., to American Cyanamid Company. Carton. 259,471, 6-9-81, Cl. D9-432.000.
Grodin, Adam J., to American Cyanamid Company. Carton. 259,472, 6-9-81, Cl. D9-432.000.
Gudgel, Howard S. Multiple projector registration platform. 259,454, 6-9-81, Cl. D6-145.000.
Gulf & Western Manufacturing Company: *See*—
Loeffler, Herbert H.; and MacConkey, James S., 259,509, Cl. D24-21.000.
Haas, Robert V.; and Peets, Robert S., to Singer Company, The. Sewing cabinet. 259,447, 6-9-81, Cl. D6-40.000.
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., to Clorox Company, The. Dispensing container for fluids. 259,467, 6-9-81, Cl. D9-300.000.
Hallen, Jan-Ake. Moulding for fitting an anti-dazzler screen or a louvre to a lamp fittings. 259,512, 6-9-81, Cl. D25-74.000.
Hampshire, James F.; and Terek, Greg P., to Rubbermaid Commercial Products Inc. Business card file. 259,496, 6-9-81, Cl. D19-76.000.
Hefendehl, Hans Friedrich: *See*—
Zeischegg, Walter; and Brussing, Bernd, 259,456, Cl. D6-184.000.
Herenius, Frederik J., to Perkins Engines Limited. Combined induction and exhaust manifold for an internal combustion engine. 259,489, 6-9-81, Cl. D15-5.000.
Hoffman, Louis. Stemware holder. 259,452, 6-9-81, Cl. D6-113.000.
Huffman, Peck T., to Electric Fishing Reel Systems, Inc. Electric fishing reel. 259,503, 6-9-81, Cl. D22-25.000.
IVAC Corporation: *See*—
Manno, Joseph J., 259,485, Cl. D13-24.000.
Jensen, George B., deceased; and Campion, Stanley F., executor, to Syracuse China Corporation. Casserole dish or similar article. 259,459, 6-9-81, Cl. D7-20.000.
Kabushiki Kaisha Shinsei Industries: *See*—
Wada, Tokio, 259,495, Cl. D18-19.000.
Kappos, Christopher. Beverage cooler and dispensing trailer. 259,481, 6-9-81, Cl. D12-102.000.
Kawabe, Kazuo: *See*—
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, 259,487, Cl. D14-73.000.
Keenan, Richard M.; and Blaszczyk, Robert, to Game Time, Inc. Play sculpture for playground apparatus. 259,502, 6-9-81, Cl. D21-245.000.
Keller, Robert A.: *See*—
MacInnes, Hugh; and Keller, Robert A., 259,507, Cl. D23-19.000.
Kendall Company, The: *See*—
Peterson, James J., 259,511, Cl. D24-54.000.
Konya, Seiko; Rosenthal, Janice E.; and Sargent, Virginia R., to Mattel, Inc. Container for toys or similar article. 259,473, 6-9-81, Cl. D9-420.000.
Kroll, Frederick H. Peg game chest. 259,498, 6-9-81, Cl. D21-17.000.
Kustom Kreations, Inc.: *See*—
Veralrud, Guy G., 259,450, Cl. D3-35.000.
Lambert, Peter A.: *See*—
Garcia, Octavio G.; and Lambert, Peter A., 259,518, Cl. D26-131.000.
Liblem Corporation: *See*—
Weil, Melvin F., 259,465, Cl. D8-359.000.
Loeffler, Herbert H.; and MacConkey, James S., to Gulf & Western Manufacturing Company. Enclosure for body data monitoring apparatus. 259,509, 6-9-81, Cl. D24-21.000.
Lott, Paul C. Fishing lure. 259,504, 6-9-81, Cl. D22-27.000.
MacConkey, James S.: *See*—
Loeffler, Herbert H.; and MacConkey, James S., 259,509, Cl. D24-21.000.
MacInnes, Hugh; and Keller, Robert A., to Roto-Master, Inc. Tubocharger by-pass valve. 259,507, 6-9-81, Cl. D23-19.000.
MacLean, Charles A. Horseman figure. 259,479, 6-9-81, Cl. D11-159.000.
Magnusson, Alf B., to Bengt Petersson New Products Investment AB. Ashtray. 259,519, 6-9-81, Cl. D27-28.000.
Maheu, Gilles. Picnic table. 259,448, 6-9-81, Cl. D6-45.000.
Mahler, Kenneth, to Sunfloat Company, The. Floating game board. 259,497, 6-9-81, Cl. D21-16.000.
Manno, Joseph J., to IVAC Corporation. Electrical connector. 259,485, 6-9-81, Cl. D13-24.000.
Marlin Fiberglass, Inc.: *See*—
Reineman, Richard G., 259,510, Cl. D24-38.000.
Mattel, Inc.: *See*—
Konya, Seiko; Rosenthal, Janice E.; and Sargent, Virginia R., 259,473, Cl. D9-420.000.
Miller, Jack V. Clock housing. 259,474, 6-9-81, Cl. D10-1.000.
Miller, Jack V. Housing for a wall clock. 259,475, 6-9-81, Cl. D10-1.000.
Najjar, Besayahu L. Diamond. 259,477, 6-9-81, Cl. D11-90.000.
Null Manufacturing Corporation: *See*—
Brown, Richard G., 259,455, Cl. D6-177.000.
Nygards, Nils. Filler for liquid containers. 259,506, 6-9-81, Cl. D23-1.000.
Paley, Hyman W. Manifold holder. 259,464, 6-9-81, Cl. D8-72.000.
Paragon Candles, Inc.: *See*—
Patterson, Michael P.; and Perkins, William H., 259,468, Cl. D9-415.000.
Patterson, Michael P.; and Perkins, William H., to Paragon Candles, Inc. Display container. 259,468, 6-9-81, Cl. D9-415.000.
Peavey Electronics Corp.: *See*—
Todd, Charles H., III, 259,494, Cl. D17-14.000.
Peets, Robert S.: *See*—
Haas, Robert V.; and Peets, Robert S., 259,447, Cl. D6-40.000.
Perkins Engines Limited: *See*—
Herenius, Frederik J., 259,489, Cl. D15-5.000.
Perkins, William H.: *See*—
Patterson, Michael P.; and Perkins, William H., 259,468, Cl. D9-415.000.
Peterson, James J., to Kendall Company, The. Specimen collection skirt. 259,511, 6-9-81, Cl. D24-54.000.
Quinn, Peter T., to Rollei of America, Inc. Electronic flash device. 259,493, 6-9-81, Cl. D16-42.000.
Reineman, Richard G., to Marlin Fiberglass, Inc. Hydrotherapy spa. 259,510, 6-9-81, Cl. D24-38.000.
Rollei of America, Inc.: *See*—
Quinn, Peter T., 259,493, Cl. D16-42.000.
Rosenthal, Janice E.: *See*—
Konya, Seiko; Rosenthal, Janice E.; and Sargent, Virginia R., 259,473, Cl. D9-420.000.
Roto-Master, Inc.: *See*—
MacInnes, Hugh; and Keller, Robert A., 259,507, Cl. D23-19.000.
Rubbermaid Commercial Products Inc.: *See*—
Hampshire, James F.; and Terek, Greg P., 259,496, Cl. D19-76.000.
Saito, Tomitaro: *See*—
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, 259,487, Cl. D14-73.000.
Salisbury, William F. Training bat. 259,501, 6-9-81, Cl. D21-211.000.
Sargent, Virginia R.: *See*—
Konya, Seiko; Rosenthal, Janice E.; and Sargent, Virginia R., 259,473, Cl. D9-420.000.
Satake, Koji: *See*—
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, 259,487, Cl. D14-73.000.
Schoch, Robert R. Simulative toy mobile. 259,478, 6-9-81, Cl. D11-141.000.
Sharp Corporation: *See*—
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, 259,487, Cl. D14-73.000.
Singer Company, The: *See*—
Haas, Robert V.; and Peets, Robert S., 259,447, Cl. D6-40.000.
Smajd, Carl F., to Uniroyal, Inc. Pneumatic tire tread and buttress. 259,483, 6-9-81, Cl. D12-146.000.
Smith, Gordon W.; and Ayers, Terrell E., to Ayers Manufacturing Corp. Swivel support for a vehicle seat. 259,457, 6-9-81, Cl. D6-191.000.
Sullivan, Lyle L. Tool carrier. 259,446, 6-9-81, Cl. D99-49.000.
Sunfloat Company, The: *See*—
Mahler, Kenneth, 259,497, Cl. D21-16.000.
Swayze, Samuel F., to Eastman Kodak Company. Still camera with integral flash. 259,492, 6-9-81, Cl. D16-06.000.
Syracuse China Corporation: *See*—
Jensen, George B., deceased; and Campion, Stanley F., executor, 259,459, Cl. D7-20.000.
Szymanski, John. Carpet designer's iron. 259,463, 6-9-81, Cl. D7-203.000.
Taub, Ronald H. Prescored assembly unit blank for display standard, or similar article. 259,449, 6-9-81, Cl. D6-85.000.
Terek, Greg P.: *See*—
Hampshire, James F.; and Terek, Greg P., 259,496, Cl. D19-76.000.
Terrazas, Paul G.; and Terrazas, Robert. Bicycle frame. 259,482, 6-9-81, Cl. D12-111.000.
Terrazas, Robert: *See*—
Terrazas, Paul G.; and Terrazas, Robert, 259,482, Cl. D12-111.000.
Todd, Charles H., III, to Peavey Electronics Corp. Bass guitar. 259,494, 6-9-81, Cl. D17-14.000.
Uniroyal, Inc.: *See*—
Smajd, Carl F., 259,483, Cl. D12-146.000.
Universal Polyquartz Inc.: *See*—
Clarke, Thomas E., 259,445, Cl. D3-61.000.
Usami, Seiji: *See*—
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, 259,487, Cl. D14-73.000.
Vale, Pearl R.: *See*—
Vale, Peter R., 259,451, Cl. D2-24.000.

Vale, Peter R., to Vale, Peter R.; and Vale, Pearl R. Design for brassiere. 259,451, 6-9-81, Cl. D2-24.000.
Veralrud, Guy G., to Kustom Kreations, Inc. Magnetic cartridge holder. 259,450, 6-9-81, Cl. D3-35.000.
Viking Boat Company, Inc.: *See*—
Bednar, Charles, 259,480, Cl. D12-318.000.
Vong, Hoi T. Combined radio and tobacco products lighter. 259,486, 6-9-81, Cl. D14-68.000.
Wada, Naoki; Saito, Tomitaro; Usami, Seiji; Kawabe, Kazuo; and Satake, Koji, to Sharp Corporation. Combined clock radio and television receiver. 259,487, 6-9-81, Cl. D14-73.000.
Wada, Tokio, to Kabushiki Kaisha Shinsei Industries. Labeler. 259,495, 6-9-81, Cl. D18-19.000.
Wagner, James L.: *See*—
Dickinson, Robert J.; and Wagner, James L., 259,505, Cl. D22-30.000.
Warhaftig, Stephen H. Wall mounted rack for keys. 259,453, 6-9-81, Cl. D6-114.000.
Weil, Melvin F., to Liblem Corporation. Extension cord reel. 259,465, 6-9-81, Cl. D8-359.000.
Welburn, Edward T., to General Motors Corporation. Vehicle wheel. 259,484, 6-9-81, Cl. D12-209.000.
Whatley, William J. Utility pole. 259,513, 6-9-81, Cl. D25-77.000.
Zeischegg, Walter; and Brussing, Bernd, to Hefendehl, Hans Friedrich. Magazine rack. 259,456, 6-9-81, Cl. D6-184.000.

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Bailey, Catherine H.; and Hough, L. Fredric, to Stark Brothers Nurseries & Orchards Company. Apple tree—N.J. 49 cultivar. 4,740, 6-9-81, Cl. 34.000.
Hough, L. Fredric: *See*—
Bailey, Catherine H.; and Hough, L. Fredric, 4,740, Cl. 34.000.
James, Leonard D., to James, Leonard D.; and James, Uldine S. Almond tree. 4,739, 6-9-81, Cl. 30.000.
James, Uldine S.: *See*—
James, Leonard D., 4,739, Cl. 30.000.
Stark Brothers Nurseries & Orchards Company: *See*—
Bailey, Catherine H.; and Hough, L. Fredric, 4,740, Cl. 34.000.
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CLASSIFICATION OF PATENTS

ISSUED JUNE 9, 1981

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
424 4,271,537
439 4,271,538

CLASS 4
300 4,271,539
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625.64 4,271,868

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35.5 R 4,272,034
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115 4,272,042
130 4,272,043
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173 4,272,054
214 4,272,055
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315 4,272,057

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225 4,272,476

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286 4,272,063

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64 R 4,272,064

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117 4,272,068
182 4,272,069

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CLASS 277
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62 4,272,087
114 4,272,088

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255 4,272,096
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155 4,272,115

CLASS 294
1 B 4,272,116

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223 4,272,125

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31 4,272,129
34 4,272,130

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3 4,272,131
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CLASS 307
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123 4,272,688
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265 4,272,690
268 4,272,691
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20 4,272,135

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139 4,272,707
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347 CC 4,272,760
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126 4,272,783
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128.5 4,272,786
160 4,272,787
189 4,272,788
282 4,272,789

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33 4,272,791
69 4,272,792
78 4,272,793
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99 4,272,795
128 4,272,796

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345 4,272,798

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145 4,272,799
242 4,272,800
336 4,272,801
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200 4,272,815
4,272,819
414 4,272,820
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4,272,821
481 4,272,822
483 4,272,816
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571 4,272,825
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4,272,810
4,272,813
4,272,828
4,272,829

CLASS 365
12 4,272,817
45 4,272,830
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190 4,272,811
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230 4,272,834

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118 4,272,213

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72 4,272,214

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14 4,272,215

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132 4,272,216

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20 4,271,747

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420 4,272,217
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563 4,272,219
607 4,272,220
634 4,272,221
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58 4,272,560
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413 4,272,585
419 4,272,586
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433 4,272,588
442 4,272,589
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CLASS 430
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101 4,272,593
161 4,272,592

CLASS 430
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37 4,272,595
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140 4,272,602
155 4,272,603
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160 4,272,618
169 4,272,619

CLASS 525
61 4,272,620
355 4,272,621

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CLASS 528
15 4,272,623
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CLASS 560
6 4,272,630

CLASS 562
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CLASS 564
501 4,272,632
503 4,272,455

CLASS 568
364 4,272,633
432 4,272,634
776 4,272,635
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CLASS 570
186 4,272,456

CLASSIFICATION OF DESIGNS

D2—	24	259,451	D7—	20	259,459			259,471	D13—	24	259,485	D21—	16	259,497	D24—	21	259,509
D3—	35	259,450		50	259,460			259,472	D14—	68	259,486		17	259,498		38	259,510
	61	259,445			259,461	D10—	1	259,474		73	259,487		26	259,499		54	259,511
D6—	40	259,447			259,462			259,475	D15—	4	259,488		88	259,500	D25—	74	259,512
	45	259,448		203	259,463		71	259,476		5	259,489		211	259,501		77	259,513
	85	259,449	D8—	72	259,464	D11—	90	259,477			259,490		245	259,502	D26—	26	259,514
	113	259,452		359	259,465		141	259,478			259,491	D22—	25	259,503		28	259,515
	114	259,453		499	259,466		159	259,479	D16—	06	259,492		27	259,504			259,516
	145	259,454	D9—	300	259,467	D12—	102	259,481		42	259,493		30	259,505		56	259,517
	177	259,455		415	259,468		111	259,482	D17—	14	259,494	D23—	1	259,506		131	259,518
	184	259,456		420	259,473		146	259,483	D18—	19	259,495		19	259,507	D27—	28	259,519
	191	259,457		432	259,469		209	259,484	D19—	76	259,496		153	259,508	D99—	49	259,446
	201	259,458			259,470		318	259,480									

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P.—	11	4,735		4,736	12	4,737	20	4,738	30	4,739	34	4,740

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Guam	14	New Jersey	34	West Virginia	54
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PATENTS

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6 :	4,271,979		4,271,926		4,272,685		4,272,610		4,271,956			4,272,226
	4,272-575		4,271,958		4,272,723	12 :	4,271,638		4,271,972			4,272,246
9 :	4,271,666		4,271,969		4,272,730		4,271,647		4,271,976			4,272,576
	4,271,954		4,271,989		4,272,734		4,271,664		4,272,025		20 :	4,271,537
01 :	4,272,063		4,271,997		4,272,741		4,271,738		4,272,036			4,271,621
	4,272,077		4,272,013		4,272,759		4,271,793		4,272,044			4,271,711
02 :	4,272,208		4,272,014		4,272,768		4,271,875		4,272,051			4,271,766
04 :	4,271,541		4,272,040		4,272,769		4,271,877		4,272,060			4,272,284
	4,271,588		4,272,082		4,272,775		4,271,892		4,272,097		21 :	4,271,657
	4,271,677		4,272,088		4,272,790		4,271,990		4,272,111			4,271,699
	4,271,712		4,272,093		4,272,796		4,271,998		4,272,140			4,271,861
	4,271,827		4,272,096		4,272,799		4,272,024		4,272,153			4,271,899
	4,271,828		4,272,102		4,272,800		4,272,042		4,272,233			4,272,201
	4,272,128		4,272,109		4,272,811		4,272,220		4,272,250			4,272,204
	4,272,136		4,272,119		4,272,817		4,272,228		4,272,251			4,272,205
	4,272,203		4,272,121		4,272,829		4,272,562		4,272,300			4,272,212
	4,272,218		4,272,148		4,272,835		4,272,565		4,272,453			4,272,262
	4,272,235		4,272,151	08 :	4,271,546		4,272,631		4,272,504			4,272,263
	4,272,339		4,272,158		4,271,605		4,272,646		4,272,528			4,272,813
	4,272,341		4,272,169		4,271,755		4,272,687		4,272,567		22 :	4,272,009
	4,272,492		4,272,181		4,271,782		4,272,720		4,272,570			4,272,206
	4,272,760		4,272,189		4,271,914		4,272,731		4,272,591			4,272,455
	4,272,764		4,272,190		4,272,113		4,272,753		4,272,626		24 :	4,271,552
06 :	4,271,539		4,272,195		4,272,127	13 :	4,271,561		4,272,654			4,271,668
	4,271,544		4,272,202		4,272,187		4,271,651		4,272,660			4,271,691
	4,271,545		4,272,241		4,272,294		4,271,688		4,272,667			4,271,706
	4,271,557		4,272,248		4,272,383		4,271,774		4,272,705			4,271,888
	4,271,570		4,272,257		4,272,638		4,272,039		4,272,721			4,272,070
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	4,271,595		4,272,269		4,272,735		4,272,252		4,272,751			4,272,223
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OFFICIAL GAZETTE of the
UNITED STATES PATENT and TRADEMARK OFFICE

June 16, 1981 Volume 1007 Number 3

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,720,351, Re. S.N. 248,377, Filed Mar. 27, 1981, Cl. 222/1, PULVERIZED FUEL DELIVERY SYSTEM FOR A BLAST FURNACE, Earl E. Coulter, et al., Owner of Record: *The Babcock & Wilcox Co., New Orleans, La.,* Attorney or Agent: R. J. Edwards, et al., Ex. Gp.: 311

3,733,438, Re. S.N. 230,874, Filed Feb. 2, 1981, Cl. 370/69, CARRIER SUPPLY FOR FREQUENCY DIVISION MULTIPLEXED SYSTEMS, Thomas John Haley, et al., Owner of Record: *Bell Telephone Laboratories, Inc., Murray Hill, N.J.,* Attorney or Agent: S. E. Hollander, et al., Ex. Gp.: 236

3,808,178, Re. S.N. 215,486, Filed Dec. 11, 1980, Cl. 257/351, OXYGEN-PERMEABLE CONTACT LENS COMPOSITION, METHOD AND ARTICLE OF MANUFACTURE, Norman Gaylord, Owner of Record: *Mesne Assignts. to Syntex (U.S.A.) Inc., Palo Alto, Calif.,* Attorney or Agent: Joseph I. Hirsch, et al., Ex. Gp.: 257

3,991,717, Re. S.N. 178,306, Filed Aug. 15, 1980, Cl. 119/19, KENNEL, CIRCULAR FACILITY, Robert Royce Buchanan, Owner of Record: *Inventor,* Attorney or Agent: David A. Boone, et al., Ex. Gp.: 333

4,103,001, Re. S.N. 243,806, Filed Mar. 16, 1981, Cl. 424/128, BUFFERED PHENOL-GLUTARALDEHYDE STERILIZING COMPOSITIONS, Robert I. Schattner, Owner of Record: *Inventor,* Attorney or Agent: Morris Fidelman, et al., Ex. Gp.: 125

4,123,359, Re. S.N. 193,520, Filed Oct. 2, 1980, Cl. 210/169, WATER PURIFYING SYSTEM AND PUMP THEREFOR, John D. Smith, Owner of Record: *Bernard L. Kleinke, Des Plaines, Ill.,* Attorney or Agent: Bernard L. Kleinke, Ex. Gp.: 176

4,140,431, Re. S.N. 231,426, Filed Feb. 4, 1981, Cl. 407/114, CUTTING INSERT, Ernest J. Friedline, et al., Owner of Record: *Kennametal Inc., Latrobe, Pa.,* Attorney or Agent: Lawrence R. Burns, et al., Ex. Gp.: 324

4,146,048, Re. S.N. 247,820, Filed Mar. 26, 1981, Cl. 137/75, FIRE DAMPER AND METHOD OF FABRICATION, Francis J. McCabe, Owner of Record: *Prefco Products, Inc., Buckingham, Pa.,* Attorney or Agent: Frank J. Benasutti, et al., Ex. Gp.: 341

4,185,395, Re. S.N. 243,364, Filed Mar. 13, 1981, Cl. 34/12, METHOD FOR THERMAL DEHYDRATION OF BROWN COAL, Yukio Nakako, et al., Owner of Record: *Kobe Steel, Ltd., Kobe City, Japan,* Attorney or Agent: Norman F. Oblon, et al., Ex. Gp.: 344

4,220,164, Re. S.N. 230,732, Filed Feb. 2, 1981, Cl. 131/84 R, TOBACCO DISTRIBUTOR FOR CIGARETTE ROD MAKING MACHINES OR THE LIKE, Heinz-Christen Lorenzen, Owner of Record: *Hauni-Werke Korber & Co., KG., Hamburg, Germany,* Attorney or Agent: Peter K. Kontler, et al., Ex. Gp.: 335

4,229,504, Re. S.N. 229,050, Filed Jan. 28, 1981, Cl. 428/461, A POLYOLEFIN COMPOSITION HAVING HIGH IMPACT RESISTANCE AND HIGH TEMPERATURE FLOW RESISTANCE, Armand E. Brachman, Owner of Record: *Bethlehem Steel Corp., Bethlehem, Pa.,* Attorney or Agent: Joseph J. O'Keefe, et al., Ex. Gp.: 164

Service by Publication

A petition to cancel each of the registrations identified below having been filed, and the notice of such proceedings sent by registered mail to each registrant at the last known address having been returned by the Post Office as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days from the date of this publication, the cancellation will be proceeded with as in the case of default.

Morabito Boutique, Paris, France; Reg. No. 857,670, Canc. No. 12,844.

Krypton Electronics, Inc., New York, N.Y.; Reg. No. 1,032,131, Canc. No. 12,858.

Flair Originals, Inc., New York, N.Y.; Reg. No. 811,063, Canc. No. 12,869.

ERMA S. BROWN,
Deputy Clerk, Trademark Trial and Appeal Board.
For MARGARET M. LAURENCE,
Assistant Commissioner for Trademarks.

DEPARTMENT OF COMMERCE
Patent and Trademark Office
AUTOMATION STUDY

AGENCY: Patent and Trademark Office, Commerce

ACTION: Notice of Automation Study

SUMMARY: The Patent and Trademark Office invites public participation in a study for fully automating the operations of the Office. Such automation efforts are intended to modernize the PTO's patent, trademark, information dissemination and administrative management programs. The final report of this study, which is required by Section 9 of P.L. 96–517, will be submitted to the Congress on or before Dec. 12, 1982.

DATES: Written comments must be submitted on or before July 23, 1981; public hearing, July 23, 1981, 9:30 a.m.; requests to present oral comments should be received on or before July 16, 1981.

ADDRESSES: Address written comments and requests to present oral testimony to the Commissioner of Patents and Trademarks, Washington, D.C. 20231. The hearing will be held in Room 11C24 of Bldg. 3, Crystal Plz., located at 2021 Jefferson Davis Hwy., Arlington, Va. Written comments and a transcript of the public hearing will be available for public inspection in Room 11E10 of Bldg. 3, Crystal Plz. at 2021 Jefferson Davis Hwy., Arlington, Va.

FOR FURTHER INFORMATION CONTACT: Mr. Bradford R. Huther by telephone at (703) 557-1572 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks, Wash., D.C. 20231

SUPPLEMENTARY INFORMATION: Section 9 of P.L. 96–517 is the basis for the development of the automation plan.

"Sec. 9. The Commissioner of Patents and Trademarks shall report to Congress, within two years after the effective date of this Act [Dec. 12, 1980], a plan to identify, and if necessary develop or have developed, computerized data and retrieval systems equivalent to the latest state of the art which can be applied to all aspects of the operation of the Patent and Trademark Office, and particularly to the patent search file, the patent classification system, and the trademark search file. The report shall specify the cost of implementing the plan, how rapidly the plan can be implemented by the Patent and Trademark Office, without regard to funding which is or which may be available for this purpose in the future."

The areas proposed for study include patent automation, trademark automation, information dissemination, integrated resources management, office automation and legal decisions. Public participation is intended to insure the maximum potential for all automation opportunities to be addressed. Following the identification of automation opportunities, alternative approaches to support them will be developed and the feasibility costs and benefits associated with each will be determined.

RENE D. TEGTMEYER
May 14, 1981. *Acting Commissioner of Patents and Trademarks.*

ROBERT B. ELLERT
May 19, 1981. *Acting Assistant Secretary for Productivity, Technology and Innovation.*

Withdrawal of Extension of Time for Filing Notices of Opposition

By means of an Official Gazette announcement dated January 30, 1981, the Patent and Trademark Office granted an automatic 14-day extension of time for filing Notices of Opposition beginning with the Official Gazette issue dated January 13, 1981. Beginning with the Official Gazette issue dated June 9, 1981, the automatic extension is no longer in effect.

MARGARET M. LAURENCE,
Jun. 2, 1981. *Assistant Commissioner for Trademarks.*

PATENT NOTICES

Certificates of Correction for the Week of June 16, 1981

Re. 30,445	4,235,602	4,246,949	4,254,942
4,084,063	4,235,754	4,247,606	4,255,059
4,155,646	4,235,889	4,247,656	4,255,282
4,184,155	4,236,363	4,247,932	4,255,362
4,185,909	4,236,527	4,247,939	4,255,371
4,187,651	4,236,700	4,248,314	4,255,504
4,188,974	4,237,100	4,248,338	4,255,553
4,189,455	4,237,119	4,248,615	4,255,643
4,191,513	4,237,362	4,248,673	4,256,000
4,191,532	4,237,503	4,248,957	4,256,061
4,199,574	4,238,355	4,248,962	4,256,063
4,199,605	4,238,635	4,249,100	4,256,073
4,206,577	4,239,514	4,249,446	4,256,132
4,209,390	4,239,621	4,249,904	4,256,174
4,211,797	4,240,034	4,250,038	4,256,315
4,215,265	4,240,598	4,250,134	4,256,376
4,215,300	4,240,622	4,250,318	4,256,435
4,216,834	4,241,329	4,250,451	4,256,451
4,220,512	4,241,807	4,250,497	4,256,694
4,220,758	4,241,835	4,250,883	4,256,769
4,221,788	4,242,069	4,251,130	4,257,062
4,222,905	4,242,331	4,251,734	4,257,145
4,223,795	4,242,355	4,251,782	4,257,152
4,225,411	4,242,513	4,252,269	4,257,175
4,228,339	4,243,060	4,252,308	4,257,772
4,228,902	4,243,157	4,252,552	4,257,837
4,229,399	4,243,553	4,252,751	4,257,841
4,229,579	4,243,577	4,253,095	4,257,914
4,230,736	4,243,988	4,253,270	4,257,980
4,230,900	4,244,096	4,253,315	4,257,981
4,231,039	4,244,988	4,253,409	4,257,982
4,231,158	4,245,313	4,253,453	4,257,983
4,231,220	4,245,353	4,253,474	4,258,508
4,231,365	4,245,363	4,253,602	4,259,801
4,231,375	4,245,626	4,253,973	4,259,935
4,232,335	4,245,710	4,253,978	4,259,988
4,232,338	4,245,800	4,254,259	4,260,370
4,233,989	4,245,885	4,254,378	4,260,431
4,234,821	4,246,075	4,254,721	4,260,436
4,235,500	4,246,397		

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $.50 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Va. 22161 for $5.00 each ($10.00 outside North American Continent). Requests for copies of patent applications must include the patent application number. Claims are deleted from patent application copies sold to avoid premature disclosure. Claims and other technical data will usually be made available to serious prospective license upon execution of a non-disclosure agreement.

Requests for information on the licensing of particular inventions should be directed to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF AGRICULTURE

Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-212,297. Process for Producing Transfer Printed Cotton and Cotton Blends. Filed Dec. 3, 1980.

Patent 4,236,890. Process for Producing Transfer Printed Cotton and Cotton Blends. Filed June 7, 1978. Patented Dec. 2, 1980. Not available NTIS.

Patent 4,246,289. Novel Aroid Products. Filed July 5, 1979. Patented Jan. 20, 1981. Not available NTIS.

U.S. DEPARTMENT OF ENERGY

Assistant General Counsel for Patents
Washington, D.C. 20545

Patent application 6-101,368. Flash Protection Controller. Filed Dec. 7, 1979.

Patent application 6-101,369. Waveform Synthesizer. Filed Dec. 7, 1979.

Patent 4,197,285. Regeneration of Lime from Sulfates for Fluidized-Bed Combustion. Filed Dec. 7, 1977. Patented Apr. 8, 1980. Not available NTIS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6-186,735. Anti Thy 1.2 Monoclonal Antibody-Ricin Hybrid Utilized as a Tumor Suppressant. Filed Sept. 30, 1980.

Patent application 6-210,044. Acoustically Transparent Hydrophone Probe. Filed Nov. 24, 1980.

U.S. DEPARTMENT OF THE INTERIOR

Branch of Patents
18th and C Streets, N.W.
Washington, D.C. 20240

Patent application 6-184,851. Multi-Chromatographic Materials. Sept. 8, 1980.

Patents Available for Licensing or Sale

3,927,282. BUTTONS FOR ATTACHMENT TO PUSHBUTTON TELEPHONE KEYS. *Harold S. Firstenberg,* Imagineering Industries, 36 Berry St., San Francisco, Calif. 94107.

4,059,995. LEVEL INDICATORS FOR LIQUIDS. *Raul Calderon DePalacio,* Pennsylvania 171 Mexico 18, D. F.

4,064,999. ADJUSTABLE BUILDING PANEL SCAFFORD *Simon Young,* General Delivery, Mamou, La. 70554.

4,178,874. ROADSIDE EMERGENCY SIGNALLING DEVICE. *Michael S. Berns,* 3N-2335 W. Farwell, Chicago, Ill. 60645.

4,203,175. SLIPPER HOLDER. *Charles A. Heine,* 730 Vera Dr., Arnold, Mo. 63010.

4,205,634. VARIABLE VALVE-TIMING MECHANISM FOR INTERNAL COMBUSTION ENGINES. *E. M. Tourtelot, Jr.,* 2719 Sheridan Rd., Evanston, Ill. 60201.

4,213,069. ELECTRIC MOTOR. Box 596, Ladel, Ill. 61329.

4,242,763. PET TOILET. *John Walker,* 663 Lefferts Ave., Brooklyn, N.Y. 11203.

4,253,698. THEFT GUARD FOR AUTOMOTIVE GASOLINE TANK. *Hollis C. Hodson,* P.O. Box 114, Amo, Ind. 46103.

4,254,700. DOMESTIC APPLIANCE FOR THE LIQUID INJECTION OF MEAT. *Edward H. Fleming.* Correspondence to: Ross, Ross & Flavin, 120 Maple St., Springfield, Mass. 01103.

4,257,186. APPARATUS FOR FLYING TOY AIRPLANE. *William L. Wilson,* 85 Appian Way, Arden, N.C. 28704.

4,262,606. CONVERTIBLE FOLDING TABLES. *Hollis C. Hodson,* P.O. Box 114, Amo, Ind. 46103.

The following Patents, owned jointly by Mobil Oil Corp. and the U.S. Department of the Interior, Bureau of Mines, are offered for licensing to members of the public on a nonexclusive, royalty-free basis. Inquiries and applications for licenses should be addressed to: Office of Patent Counsel, Mobil Oil Corp., 3225 Gallows Rd., Fairfax, Va., 22037.

U.S. Patent No. 4,198,207 DETERMINATION OF WATER CONTENT IN PRESENCE OF OILS.

U.S. Patent No. 4,257,775 DETERMINATION OF WATER CONTENT IN VARIOUS SYSTEMS.

General Electric Co. is prepared to grant non-exclusive licenses under the following patents upon reasonable terms to domestic manufacturers.

Applications for license may be addressed to: Patent Counsel, General Electric Co., Re-Entry Systems Div., 3198 Chestnut St., Philadelphia, Pa. 19101.

3,630,389. MATERIAL-HANDLING APPARATUS.
3,868,296. PLASTIC WALL CONSTRUCTION AS A WALL UNIT.
4,201,831. MAGNETIC ADSORBENT COMPOSITE.
4,216,633. PROCESS AND APPARATUS FOR ELEVATING A FOLDING ROOF SYSTEM.

Applications for license may be addressed to Patent Counsel, Gas Turbine Division, General Electric Co., 1 River Rd., Bldg. 500, Room 218, Schenectady, N.Y. 12345.

4,255,927. COMBUSTION CONTROL SYSTEM.

Applications for license may be addressed to: Patent Counsel, Large Transformer Business Division, General Electric Co., 100 Woodlawn Ave., Pittsfield, Mass. 01201.

3,883,107. LOAD CARRYING BED WITH ADJUSTABLE ANCHOR.
3,883,206. CENTERING AND ANCHORING DEVICE.
3,917,985. TRANSFORMER/TRANSMISSION LINE INTERCONNECT SYSTEM.
4,011,535. VAPORIZATION COOLED TRANSFORMER.

Applications for license may be addressed to: Patent Counsel, Industrial and Marine Steam Turbine Division, General Electric Co., 1100 Western Ave., Lynn, Mass. 01910.

4,208,882. START-UP ATTEMPERATOR.
4,228,959. ROTATING NOZZLE EXPANDER.
4,246,490. ROTATING NOZZLE GENERATOR.

Applications for license under these patents may be addressed to: Mr. Rodney J. Schaid, Director of Administration, American Dental Association, 211 East Chicago Ave., Chicago, Ill. 60611.

4,251,565. POLYFUNCTIONAL SURFACE-ACTIVE COMONOMERS WITH NITROGEN LIGANDS—concerns "adhesives" for resin compositions.
4,243,763. TERTIARY AROMATIC AMINE ACCELERATORS IN ACRYLIC RESIN.
4,217,264. MICROPOROUS GLASSY FILLERS FOR DENTAL RESIN COMPOSITES—concerns fillers prepared by a low temperature gel route.

Application for license may be addressed to the General Electric Co., Division, Patent Counsel, Housewares and Audio Business Division 1285 Boston Ave., Bridgeport, Ct., 06602.

3,737,623. GROUNDED PROBE EJECTOR.
3,747,241. SELF-CLEANING STEAM IRON.
3,749,880. APPARATUS FOR HEATING FLOWABLE MATERIAL.
3,758,969. FAST START SPRAY IRON.
3,777,406. HAIR DRYER.
3,823,498. SELF-CLEANING STEAM IRON.
3,849,916. SELF-CLEANING STEAM IRON.
3,968,740. COFFEEMAKER.
3,986,282. STEAM IRON.
3,919,793. EXTRA CAPACITY STEAM IRON.
4,003,388. HAIR DRYER VARIABLE CONTROL.
4,013,198. MEASURING DISPENSER.
4,013,199. MEASURING DISPENSER.
4,065,705. SCR CONTROLLED UNIVERSAL MOTOR.
4,069,949. APPARATUS FOR HEATING AND DISPENSING FLOWABLE MATERIAL.
4,073,056. VEGETABLE PEELER.
4,088,869. DRYER TEMPERATURE LIMITER.
4,101,729. APPLIANCE STRAIN RELIEF.
4,107,860. STEAM IRON.
4,109,136. THERMOSTAT CONTROLLED FLAT-IRON.
4,132,360. PULSATING HAIR DRYER.
4,149,454. COFFEEMAKER BASKET AND FILTER ASSEMBLY.
4,156,382. BAG SEALER AND CUTTER ASSEMBLY.

4,164,670. SEALED MOTOR MOUNT.
4,180,928. SELF-CLEAN STEAM IRON.

Applications for license may be addressed to the Division Patent Counsel, General Electric Co., Bldg. 2, Room 205, Electronics Park, Syracuse, N.Y. 13221.

3,982,245. SIDELOBE CANCELLER WITH PROGRAMMABLE CORRELATION SIGNAL WEIGHTING.
3,988,686. DIGITALLY CONTROLLED ANALOG FLUX SENSING FERRITE PHASE SHIFTER DRIVER.
4,037,163. AUTOMATIC GAIN CONTROL CIRCUIT.
4,041,442. ACOUSTIC DATA ACQUISITION SYSTEM.
4,044,359. MULTIPLE INTERMEDIATE FREQUENCY SIDE-LOBE CANCELLER.
4,047,172. SIGNAL PROCESSOR FOR PULSE-ECHO SYSTEM PROVIDING INTERFERENCE LEVEL COMPENSATION AND FEED-FORWARD NORMALIZATION.
4,058,160. HEAT TRANSFER DEVICE.
4,063,306. ACTIVELY SWITCHED DAMPING CIRCUIT.
4,074,182. POWER SUPPLY SYSTEM WITH PARALLEL REGULATORS AND KEEP-ALIVE CIRCUITRY.
4,084,257. SIGNAL PROCESSING APPARATUS.
4,099,075. SIGNAL DETECTION APPARATUS USING AN ADAPTIVE THRESHOLD.
4,106,462. IGNITION SYSTEM CONTROL CIRCUIT.
4,125,785. CHARGE TRANSFER MEMORY APPARATUS.
4,125,786. CHARGE TRANSFER MEMORY APPARATUS.
4,132,947. WAVESHAPE DETECTOR.
4,152,280. MOLTEN SALT SYNTHESIS OF MODIFIED LEAD ZIRCONATE TITANATE SOLID SOLUTION POWDER.
4,152,281. MOLTEN SALT SYNTHE IS OF LEAD ZIRCONATE TITANATE SOLID SOLUTION POWDER.
4,161,785. MATRIX MULTIPLIER.

Application for license may be addressed to the General Electric Co., Division Patent Counsel, Housewares and Audio, Business Div., 1285 Boston Ave., Bridgeport, Conn. 06602.

3,423,102. COAXIAL HANDLE ARRANGEMENT.
3,447,189. VACUUM CLEANER WITH CORD REEL.
3,334,370. LIGHTWEIGHT PORTABLE VACUUM CLEANER.
3,251,107. CORD GUIDING AND LOCKING DEVICE FOR UPRIGHT FLOOR APPLIANCE.
3,654,661. VACUUM CLEANER.
3,201,553. APPLIANCE SWITCH AND CONDUCTOR ASSEMBLY.
3,381,328. VACUUM CLEANER INLET COUPLING AND AIR REGULATOR.
3,188,669. RUG CLEANING ATTACHMENT FOR POLISHERS.
3,432,735. IMPROVED SYNCHRONOUR MOTOR.
3,497,782. BATTERY OPERATED CLOCK CIRCUIT.
3,368,231. PORTABLE ELECTRIC CLOTHES CLEANER.
3,608,300. CALENDAR CLOCK.
3,183,738. ADJUSTING SCREW SPRING CLIP.
3,202,799. CONTROL MECHANISM FOR A TOASTER OR SIMILAR APPLIANCE.
3,634,905. ELECTRIC VACUUM CLEANER CONSTRUCTION.
3,618,310. CLOCK TIMER WITH SLEEP SWITCH.

The following patents are offered by: David H. Flynn, Tyler, Cooper, Grant, Bowerman & Keefe. 205 Church St., New Haven, Conn. 06509.

3,984,957. COMPOSITE BUILDING MODULE HAVING A RIGID FOAM CORE ENCASED IN A SHELL MADE OF FIBER REINFORCED CEMENT.
4,084,362. COMPOSITE BUILDING MODULE HAVING A RIGID FOAM CORE ENCASED IN A SHELL MADE OF FIBER REINFORCED CEMENT AND AN ANCHOR DEVICE FOR ATTACHING THE MODULE TO A SUPPORTING STRUCTURE.
4,133,859. A PROCESS AND APPARATUS FOR MAKING A PLURALITY OF BUILDING MODULES, EACH HAVING AN INSULATION FOAM CORE ENCASED IN A SHELL OF FIBER REINFORCED CEMENTITIOUS MATERIAL.
4,229,497. COMPOSITE MODULE HAVING A RIGID FOAM CORE ENCAPSULATED IN A SHELL OF REINFORCED CEMENTITIOUS MATERIAL.
4,069,629. COMPOSITE BUILDING MODULE AND THE PROCESS FOR MAKING SAME AND AT LEAST ONE ANCHOR DEVICE FOR ATTACHING THE MODULE TO EXTERNAL STRUCTURE FOR LIFTING SAME.
4,123,212. A PROCESS AND AN APPARATUS FOR SUBSTANTIALLY UNIFORMLY DISTRIBUTING GLASS FIBERS ONTO A FORMING BED.
4,186,536. COMPOSITE PANEL-LIKE BUILDING MODULE HAVING A RIGID FOAM CORE ENCAPSULATED IN A SHELL AND REINFORCED CEMENTITIOUS MATERIAL HAVING A FACING MEMBER ON ONE MAIN FACE THEREOF, WHICH MAY BE A DRY WALL, AND A PROCESS FOR MAKING THE COMPOSITE MODULE.
4,175,867. A PROCESS AND APPARATUS FOR THE STATIC MIXING OF MATERIALS, PREFERABLY TO PRODUCE GLASS FIBER, REINFORCED CEMENT AND CONCRETE.
4,233,787. A COMPOSITE BUILDING MODULE AND METHOD FOR MAKING SAME, INCLUDING FORMING A BOTTOM LAYER OF FIBER REINFORCED WET CEMENTITIOUS MATERIAL, PLACING AT LEAST TWO RIGID FOAM CORES SIDE BY SIDE ON THE BOTTOM LAYER AND ENCAPSULATING THE CORES IN A FIBER REINFORCED WET CEMENTITIOUS SHELL.
4,252,767. A MONOLITHIC-LIKE, COMPOSITE BUILDING MODULE SUCH AS A WALL PANEL HAVING A CORE OF RIGID FOAM ENCASED IN A SHELL MADE OF FIBER REINFORCED CEMENT.

The RCA Corp. offers to grant nonexclusive licenses on reasonable terms and conditions under the patents listed below. Inquiries respecting licenses under RCA patents should be addressed to RCA Corp., Sr. Vice President, Licensing, 30 Rockefeller Plaza, New York, N.Y. 10020.

4,253,887. METHOD OF DEPOSITING LAYERS OF SEMI-INSULATING GALLIUM ARSENIDE.
4,254,160. METHOD FOR SLURRY COATING A FACEPLATE PANEL HAVING A PERIPHERAL SIDEWALL.
4,254,365. SIDE PINCUSHION CORRECTION MODULATOR CIRCUIT.
4,254,366. REGULATED DEFLECTION CIRCUIT.
4,254,381. BALANCED-TO-SINGLE-ENDED SIGNAL CONVERTERS.
4,254,426. METHOD AND STRUCTURE FOR PASSIVATING SEMICONDUCTOR MATERIAL.
4,254,436. NOISE CANCELLATION CIRCUIT.
4,254,447. INTEGRATED CIRCUIT HEAT DISSIPATOR.
4,254,506. CHANNEL IDENTIFICATION APPARATUS USEFUL IN A MULTIBAND SWEEP TYPE TUNING SYSTEM.
4,255,019. DIFFRACTIVE COLOR FILTER.
4,255,504. METHOD FOR PRODUCING CRT SCREEN STRUCTURE.
4,255,514. METHOD FOR FABRICATING A DIFFRACTIVE SUBTRACTIVE FILTER EMBOSSING MASTER.
4,255,714. GAAS DUAL-GATE FET FREQUENCY DISCRIMINATOR.
4,255,740. SYSTEMS FOR COMPARING AND RANKING A PLURALITY OF SIGNAL INPUTS.
4,255,758. SELF-ADJUSTING BELL FILTER CIRCUIT FOR USE IN SECAM CODERS.
4,256,052. TEMPERATURE GRADIENT MEANS IN REACTOR TUBE OF VAPOR DEPOSITION APPARATUS.
4,256,311. VIDEO DISC STYLUS RETRACTOR.
4,256,796. PARTIALLY DEVITRIFIED PORCELAIN COMPOSITION AND ARTICLES PREPARED WITH SAME.
4,257,009. INHIBIT CIRCUIT FOR A DIFFERENTIAL AMPLIFIER.
4,257,068. SYSTEM FOR PERIODICALLY REVERSING THE ORDER OF VIDEO DATA IN A FLAT PANEL DISPLAY DEVICE.
4,258,233. TRACK SKIPPER APPARATUS FOR VIDEO DISC PLAYER.
4,258,284. ELECTRON TUBE HAVING ELECTRODE CENTERING MEANS.
4,258,383. MINIMUM PRESSURE DROP LIQUID COOLED STRUCTURE FOR A SEMICONDUCTOR DEVICE.
4,258,467. METHOD OF MAKING TRANSFORMER.
4,258,508. FREE HOLD DOWN OF WAFERS FOR MATERIAL REMOVAL.
4,259,166. SHIELD FOR PLATING SUBSTRATE.
4,259,414. NON-AIR POLLUTING, NON-PYROLYTIC UPGRADING OF COAL FOR CLEANER AND MORE EFFECTIVE ELECTRICAL POWER GENERATION.
4,259,421. IMPROVING ETCH-RESISTANCE OF CASEIN-BASED PHOTORESIST PATTERN.
4,259,587. X-RAY LUMINESCENT GLASSES.
4,259,609. PICK-UP TUBE HAVING LIGHT CONTROLLABLE FURCATED LIGHT PIPES.
4,259,611. SEGMENTED SHADOW MASK.
4,259,612. FACEPLATE ASSEMBLY FOR A FLAT PANEL COLOR DISPLAY DEVICE.
4,259,671. ANTENNA DEICING APPARATUS.
4,259,692. PROJECTION KINESCOPE AND METHOD OF OPERATION.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
California	Los Angeles Public Library	(213) 626-7555 Ext. 274
	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 223
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1458
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner
WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 2, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	10-11-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Casting; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	1-17-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—VACANT Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—VACANT Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	12-21-78
DESIGN, GROUP 290—C. D. QUARFORTH, Director Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	12-11-79
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	12-03-79
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-05-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	3-19-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,980, inclusive
Plant Patents ..... Numbers 2,399 to 2,406, inclusive

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,645

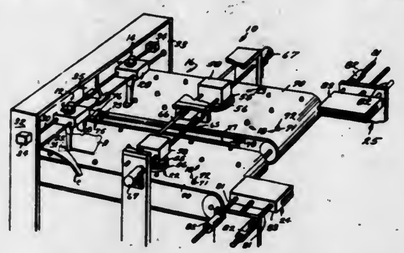
METHOD AND APPARATUS FOR CUTTING SHEET METAL WRAPPERS OR THE LIKE

James H. Stubbings, Rockville, Md., assignor to Potomac Applied Mechanics, Inc., Bethesda, Md.

Original No. 4,070,890, dated Jan. 31, 1978, Ser. No. 648,776, Jan. 13, 1976. Application for reissue Jul. 6, 1979, Ser. No. 55,370

Int. Cl.[3] B26D *5/30*; B21F *11/00*

U.S. Cl. 72—129 20 Claims



14. A method for automatically cutting wrappers or the like from metal sheets utilizing a pair of cutting devices mounted for movement in a given horizontal direction Y, and for movement with respect to each other in the direction Y, the operation, and position in the direction Y, of each of the cutting devices being automatically controlled; said method comprising the steps of

(a) conveying a metal or the like sheet in a given horizontal direction X toward the cutting devices, the direction X being substantially perpendicular to the direction Y;

(b) automatically controlling the operation and position in direction Y of each of the cutting devices to simultaneously form longitudinal edges of a wrapper or the like, at least one of the longitudinal edges being non-parallel to both the directions X and Y; and

(c) automatically conveying the cut wrapper or the like past the cutting devices in the X direction while cutting of the wrapper or the like continues.

Re. 30,646

CEMENT SIDE AND HEEL LASTING MACHINE

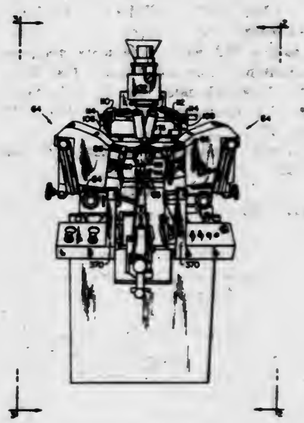
Walter Vornberger, Tewksbury, Mass., and Karl F. Vornberger, Amherst, N.H., assignors to International Shoe Machine Corporation, Nashua, N.H.

Original No. 4,082,060, dated Apr. 4, 1978, Ser. No. 762,685, Jan. 26, 1977. Application for reissue Apr. 2, 1979, Ser. No. 25,695

Int. Cl.[3] B05C *3/02, 11/00*; A43D *21/00*

U.S. Cl. 118—411 11 Claims

1. A machine, operable on a shoe assembly formed of a last having an insole located on its bottom and an upper mounted thereon with the toe portion of the upper margin being wiped against and secured to the insole and unwiped portions of the upper margin extending heelwardly of said wiped upper margin portion, for applying cement in the corners between said unwiped margin portions and the corresponding portions of the insole periphery compising: a shoe assembly support for supporting the shoe assembly bottom-up with the toe end of the shoe assembly facing forwardly; a pair of nozzles, located above the shoe assembly, mounted for forward-rearward movement, for heightwise movement, and for inward-outward movement; a stop member located in a particular location; an engaging member, mounted for forward-rearward movement in unison with the nozzles, located rearwardly of the stop member in intersecting relationship with the stop member; means for initially retaining the nozzles in rearward, upper and inner positions; means for thereafter moving the nozzles, together with the engaging member, forwardly until the engaging member intersects the stop member; means for thereafter effecting lowering and [outboard] *outward* movements of the nozzles to move the nozzles into said corners heelwardly of the boundaries between said wiped and unwiped upper margin portions; means for thereafter removing the stop member from said particular location to enable the nozzles to resume their forward movement so as to bring the nozzles to said boundaries; means operative when the nozzles have arrived at said boundaries to effect rearward movement of the nozzles while maintaining the nozzles in said corners; and means for extruding cement from the nozzles into said corners during said



rearward movements of the nozzles; the machine having the improvement comprising: a detector member mounted for forward-rearward movement; means so mounting the stop member and so connecting the stop member to the detector member as to cause the stop member to have forward-rearward movement in unison with the detector member; means for initially locating the detector member in a forward position that is forward of the toe end extremity of the shoe assembly; and means, operative prior to said first mentioned forward movement of the nozzles, for yieldably moving the detector member, together with the stop member, rearwardly to bring the detector member into engagement with the toe end extremity of the shoe assembly and to thereby bring the stop member to said particular location.

Re. 30,647

TUBULAR CONNECTION

Thomas L. Blose, Houston, Tex., assignor to Hydril Company, Los Angeles, Calif.

Original No. 3,989,284, dated Nov. 2, 1976, Ser. No. 570,633, Apr. 23, 1975. Application for reissue May 31, 1978, Ser. No. 911,117

Int. Cl.[3] F16L *15/00*

U.S. Cl. 285—332.2 61 Claims

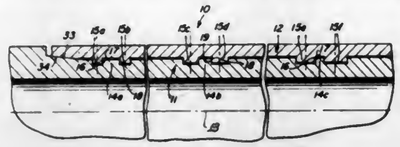
1. In a pipe joint including pin and box members, the joint having an axis,

a. a pair of interengaged threads on said members for producing hoop tension in the pin member and hoop com-

pression in the box member in response to forcible make-up of said members,

b. the threads on said members having dove-tail interfit,

c. said thread on each member having progressively chang-



ing axial width along substantially the entire helical length thereof and at selected radical distance from said axis, whereby upon complete make-up of the joint the interengaged thread flanks produce forces tending to urge the members radially together.

Re. 30,648

CHAIR FOR DENTAL PATIENTS

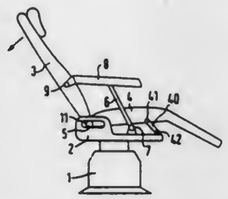
Wilhelm Ohlrogge, Uelzen-Veerssen, and Walter Hetz, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Original No. 3,806,192, dated Apr. 23, 1974, Ser. No. 264,211, Jun. 19, 1972. Application for reissue Jun. 2, 1978, Ser. No. 912,233

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1971, 2141022

Int. Cl.[2] A61G *15/00*

U.S. Cl. 297—318 **13 Claims**



1. A chair for dental patients, comprising a lower portion and an upper portion, said upper portion having a back, a seat, and a hinge connecting the lower end of said back with the rear end of said seat, said upper and lower portions having means for supporting and moving said seat in a longitudinal direction, said means including crosshead [guides] *guide assemblies*, one part of *each of* said crosshead [guides] *guide assemblies* being connected with the seat and the other part with the lower portion, [the chair] *said means* having rods with ends connected about a horizontal axis transverse to the longitudinal axis of the chair with said back and other ends connected with said lower portion, *at least one of the rods providing an arm support for the chair*, and means interposed between said seat and said lower portion and away from said hinge for tipping said seat about a horizontal axis toward said back when said back is inclined.

Re. 30,649

FOOD PROCESSING APPARATUS

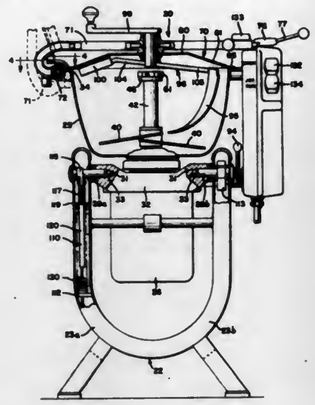
James W. Thompson, Troy, Ohio, assignor to Hobart Corporation, Troy, Ohio

Original No. 4,100,615, dated Jul. 11, 1978, Ser. No. 803,462, Jun. 6, 1977. Application for reissue Nov. 2, 1979, Ser. No. 90,822

Int. Cl.[3] B01F *7/16*

U.S. Cl. 366—169 **4 Claims**

1. In an apparatus for processing foodstuffs, including a mixing bowl having a drive shaft extending into the bowl through the bottom center thereof, a motor mounted outside the bowl and connected to rotate the drive shaft, food processing blades mountable on the drive shaft within the bowl for processing foodstuffs therein when the motor is operated, a cover system including a lid for closing the top of the bowl, and a mixing baffle blade and support mounted through the center of the lid for rotation along and around the inside sur-



face of the bowl for removing and returning foodstuffs from the side of the bowl to the vicinity of the food processing blades for further processing thereby, the improvement comprising means defining a hollow drive shaft for said mixing baffle blade and support connecting through the center of the lid and being open in the top and bottom thereof for introducing liquids into the mixing bowl directly over the food processing blades and drive shaft while the motor is being operated.

Re. 30,650

DISPERSING AND STABILIZING AGENTS FOR DYESTUFFS

Reinhold Deubel; Helmut Diery; Wolfgang Klinser; Karl-Hermann List, and Heinz Uhrig, all of Frankfurt, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Original No. 3,781,169, dated Dec. 25, 1973, Ser. No. 907,785, May 19, 1978. Continuation of Ser. No. 907,785, May 19, 1978, abandoned. Application for reissue Dec. 14, 1979, Ser. No. 103,492

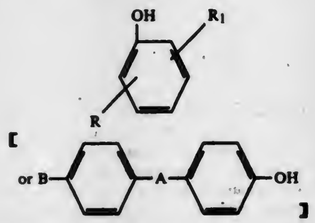
Int. Cl.[3] D06P *1/22*; C09B *67/00*

U.S. Cl. 8—560 **2 Claims**

1. A dyestuff dispersion consisting essentially of:

(a) 1 part by weight of a disperse- or vat-dyestuff; and

(b) 0.2 to 3 parts by weight of a dispersing agent formed by co-condensation of 1 mol of a phenolic component, 1.1 to 4 mols of formaldehyde and 0.3 to 1.6 mols of alkali metal sulfite, said phenolic component being [selected from the group consisting of] *of the formula*



wherein R is hydrogen, chlorine or lower alkyl, *and* R_1 is hydrogen[,] *or* alkyl with one to 12 carbon atoms[, B is hydrogen or hydroxyl and A is a single bond, sulfonyl or alkylene with one to four carbon atoms].

Re. 30,651

PROCESS FOR PRODUCING A ROASTED PEANUT PRODUCT

William M. Green, Robersonville, N.C., assignor to Carolina Peanuts of Robersonville, Inc., Robersonville, N.C.

Original No. 4,085,230, dated Apr. 18, 1978, Ser. No. 448,666, Mar. 6, 1974. Application for reissue Feb. 11, 1980, Ser. No. 120,761

Int. Cl.[3] A23L *1/36*

U.S. Cl. 426—262 **8 Claims**

1. The process of preparing a roasted peanut product comprising: removing the shells and skins from raw peanuts; precooking said peanuts over a period of from about 4 to 12 minutes in a water solution which contains from between about 0.02 to 1.0 percent by weight of a reducing sugar and wherein said water solution is maintained at a temperature in the range of from about 190° to 212° F. throughout said precooking operation; removing said peanuts from said hot precooking cooking solution and eliminating excess water from the exterior of such peanuts; roasting said peanuts in a bath of hot edible oil for a period of 3 to 8 minutes at a temperature ranging from 320° to 380° Fahrenheit; removing said roasted peanuts from said oil bath and draining excess oil therefrom; cooling said peanuts to approximate ambient temperature; coating said peanuts with a liquid edible oil or fat ranging from 1 to 3 percent by weight of the peanuts; salting said peanuts to impart a favorable flavor thereto; and packaging said peanuts whereby a superior roasted peanut product is produced.

8. The process of preparing a roasted peanut product comprising: removing the shells and skins from raw peanuts; precooking said peanuts over a period of from about 4 to 12 minutes in a water solution maintained at a temperature in the range of from about 190° to 212° F. throughout said precooking operation; removing said peanuts from said hot precooking cooking solution and eliminating excess water from the exterior of such peanuts; roasting said peanuts in a bath of hot edible oil for a period of 3 to 8 minutes at a temperature ranging from 320° to 380° Fahrenheit; removing said roasted peanuts from said oil bath and draining excess oil therefrom; cooling said peanuts to approximate ambient temperature; coating said peanuts with a liquid edible oil or fat ranging from 1 to 3 percent by weight of the peanuts; salting said peanuts to impart a favorable flavor thereto; and packaging said peanuts whereby a superior roasted peanut product is produced.

Re. 30,652

METHOD FOR CONSTRUCTING A THERMOELECTRIC MODULE AND THE MODULE SO OBTAINED

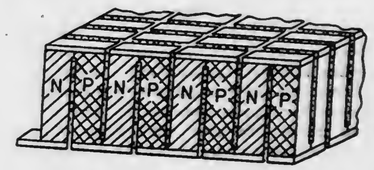
Giovanni Germano; Francesco Losciale, both of Rome; Roberto Falesiedi, Piansano; Ferruccio Dacion, Grottaferrat, and Nicola Merzagora, Rome, all of Italy, assignors to Snamprogetti S.p.A., Milan, Italy

Original No. 4,081,895, dated Apr. 4, 1978, Ser. No. 724,544, Sep. 20, 1976. Application for reissue Dec. 13, 1978, Ser. No. 968,920

Claims priority, application Italy, Sep. 30, 1975, 27777 A/75

Int. Cl.[2] H01L *23/56*

U.S. Cl. 357—28 **3 Claims**



1. A method for constructing a thermoelectric module, comprising the following operations:

(a) constructing a reference shoulder on the semiconductor bar by an ultrasonic perforator;

(b) assembling the semiconductor bars in series, using a cement of insulating properties;

(c) cleaning the surfaces by sandblasting;

(d) gold plating to a thickness of 1μ by metalisation;

(e) nickel plating to a thickness of 0.01–0.03 mm using a Watts bath;

(f) brasing copper electrodes under vacuum using a welding alloy consisting of Au, Ag, Ga;

(g) machining the regions between elements which have to remain isolated using an ultrasonic perforator;

(h) protecting the copper electrodes by nickel or chromium plating.

3. The method in accordance with claim 1 wherein the welding alloy consists essentially of 50% Au, 20% Ag and 30% Ga.

PLANT PATENTS

GRANTED JUNE 16, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,741
GRANNY SMITH APPLE TREE (GREENSPUR STRAIN)

Calvin L. Cooper, Brewster, Wash., assignor to Auvil Fruit Co., Inc., Orondo, Wash., a part interest

Filed Apr. 18, 1980, Ser. No. 141,310
Int. Cl.[3] A01H *5/03*
U.S. Cl. Plt.—34 1 Claim

1. A new and distinct variety of Granny Smith apple tree similar to the parent Hannaford strain Granny Smith apple tree, but characterized by significantly increased bloom set, by significantly higher setting of double and triple apple clusters, by sharply increased productivity, and by materially reduced internodal distances on the terminal growths of its branches.

4,742
BEGONIA PLANT

Cornelis P. Van den Berg, Ashtabula, Ohio, assignor to Mikkelsens Inc., Ashtabula, Ohio

Filed Mar. 20, 1980, Ser. No. 132,328
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct cultivar of begonia plant known by the cultivar name Harmony, as described and illustrated, and particularly characterized as to uniqueness by its large, double, light orange flowers and dark green foliage; relatively great number of pistillated flowers; early flowering and floriferous habit; excellent keeping quality; adaptability in a controlled environment to year round flowering and varying pot size; sturdy, upright and compact growth habits, and by its excellent vigor.

4,743
BEGONIA PLANT

James C. Mikkelsen, and Cornelis P. van den Berg, both of Ashtabula, Ohio, assignors to Mikkelsens Inc., Ashtabula, Ohio

Filed Mar. 25, 1980, Ser. No. 133,901
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct cultivar of begonia plant known by the cultivar name Ballet, as described and illustrated, and particularly characterized as to uniqueness by the combined characteristics of clear yellow flowers and dark green foliage; double flowers, with the tepals in the center being smaller and more ruffled than those of the parent cultivar Baluga, and by its significantly larger outside tepals, giving the impression of a flower having a relatively small center enframed by the two outside tepals.

4,744
KALANCHOE NAMED PUEBLO

Claude Hope, Cartago, Costa Rica, assignor to Pan-American Plant Company, West Chicago, Ill.

Filed May 16, 1980, Ser. No. 150,590
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct variety of kalanchoe plant, substantially as herein shown and described, characterized by its orange-yellow flowers displayed in panicles supported by rigid stems and clustered above and between dark green shiny leaves, the plant having a strong, vigorous and rapid growth habit and a profuse production of flowers.

4,745
KALANCHOE NAMED YUCATAN

Claude Hope, Cartago, Costa Rica, assignor to Pan-American Plant Company, West Chicago, Ill.

Filed May 16, 1980, Ser. No. 150,591
Int. Cl.[3] A01H *5/00*
U.S. Cl. Plt.—68 1 Claim

1. A new and distinct kalanchoe cultivar, substantially as herein shown and described, characterized in particular by its massed profuse production of small flowers which are of a light red color upon first opening but soon turning to a bright pink.

PATENTS

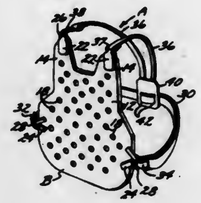
GRANTED JUN. 16, 1981

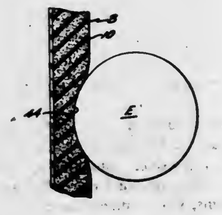
ERRATA

For CLASS	See PATENT NO.
434–340	4,272,896
074–711	4,272,993
081–177 M	4,273,173
411–168	4,273,175
294–087.2	4,273,273
294–141	4,273,274
493–427	4,273,320
369–032	4,273,342
518–715	4,273,724
369–126	4,273,967
033–296	4,274,061

GENERAL AND MECHANICAL

4,272,847
BASEBALL PLAYER'S CHEST PROTECTOR
William J. Buhler, 2210 McNab Ave., Long Beach, Calif. 90815
Filed Apr. 30, 1979, Ser. No. 34,650
Int. Cl.³ A41D *13/00*
U.S. Cl. 2—2 6 Claims





1. A lightweight, perspiration impervious baseball catcher's chest protector that causes a thrown baseball striking the same to drop to the ground adjacent the catcher and said protector allowing flow of air from the ambient atmosphere to the catcher's body, said chest protector of the type that includes a protective pad that extends across at least the chest of the catcher and a harness that removably supports said pad on said catcher, with said pad being characterized by being formed from a sheet of a foamed resilient organic material that has a section thereof deform transversely and laterally into a concavity when struck by a thrown baseball, with the major portion of the kinetic energy of said baseball being dissipated in laterally deforming said sheet, and said material having a sufficiently slow rate of recovery to its initial configuration that said baseball does not tend to bounce therefrom but instead drops to the ground adjacent said catcher, and a plurality of spaced transverse openings in said sheet through which air from the ambient atmosphere may circulate to the cather's body adjacent said pad; and

a film of a pliable polymerized water impervious, abrasion resistant resin that covers said sheet on the side adjacent the body of said catcher to prevent said sheet from absorbing perspiration from said catcher.

4,272,848
MOISTURE-RELIEVING GARMENT
Shirley B. Hoofnagle, 309 Wessling Cir., Catonsville, Md. 21228
Filed May 14, 1979, Ser. No. 38,888
Int. Cl.³ A41D *13/00*; A41B *9/06*
U.S. Cl. 2—2 5 Claims

1. An undergarment to be worn by an individual between a body or limb portion of the individual and a surrounding enclosure such as an orthopedic device for removal of moisture, which comprises:

a first single layer of fabric;

a second single layer of fabric;

each fabric being formed entirely by a plurality of randomly arrayed spunlaced polyester fibers;

each fiber of each respective fabric being entangled with other fibers of the respective fabric and free to move independently of any other fiber of the respective fabric;

at least some of the fibers of each fabric having end portions which extend outwardly from one surface of the fabric to form an unsmooth surface;

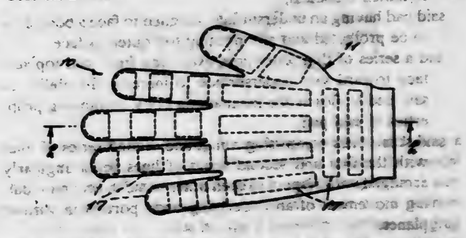
the first layer of fabric placed in interfacing relation with the second layer of fabric to form a double-layer fabric arrangement having unsmooth outer surfaces;

the double-layer fabric arrangement being formed in a generally cylindrical shape to fit about a selected area of the body or limb portion of the individual which area is to be encompassed by the surrounding enclosure; and



the cylindrical shape of the double-layer fabric arrangement having opposite end edges and inner and outer surfaces formed by the unsmooth surfaces of the double-layer fabric arrangement with the inner unsmooth surface adjacent to the body or limb portion of the individual and the outer unsmooth surface adjacent to the inner surface of the surrounding enclosure when the undergarment and enclosure are worn by the individual whereby the end portions of said fibers in said unsmooth surface adjacent said body contact the moisture droplets on the wearers body and the moisture is wicked away.

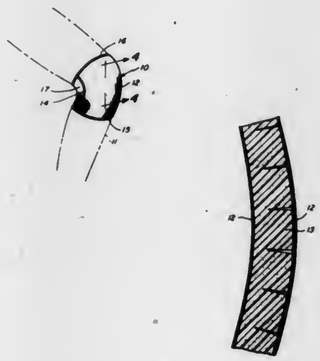
4,272,849
FLEXIBLE FORM FITTING GLOVE
Jay D. Thurston, c/o George Spector, 3615 Woolworth Building, 233 Broadway, and George Spector, 3615 Woolworth Building, 233 Broadway, both of New York, N.Y. 10007
Filed Dec. 28, 1978, Ser. No. 973,966
Int. Cl.³ A41D *19/00*
U.S. Cl. 2—16 2 Claims



1. A flexible, form fitting glove, comprising in combination a flexible glove member including a hand portion and fingers being made of an outer and an inner liner, said cover and liner being made of flexible materials, a space between said cover and liner having a plurality of steel plates so positioned to not interfere with front movements of a wearer, said plate being placed on a back hand side of said glove and located over non-jointed portions of said fingers and hands, wherein each

said plate includes a lug on each opposite side to wrap around opposite sides of said fingers wherein said plates are pivotally attached together by hinges including a tab on one end of each plate which overlaps an opposite end of each adjacent plate to limit backward pivotal movement of each plate.

4,272,850
BODY PROTECTIVE PADS
Robert J. Rule, Manhasset, N.Y., assignor to W. H. Brine Company, Milford, Mass.
Filed May 25, 1979, Ser. No. 42,582
Int. Cl.³ A41D *13/06*
U.S. Cl. 2—24 6 Claims



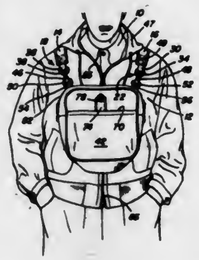
1. A protective pad for use in cushioning and protecting the body,
said pad comprising a resilient organic polymeric foam material having body cushioning properties and a predetermined thickness,
said pad having an undersurface designed to face a body area to be protected and an opposing top outer surface,
and a series of thin score lines extending from said top surface toward said undersurface to increase the ability of said pad to flex while maintaining body cushioning properties of said pad,
said score lines comprising a first and second series of lines with the first and second series of lines being angularly arranged with respect to each other to aid in accommodating movement of an underlying body portion in various planes,
said score lines having a depth of at least about 25% of the thickness of said pad,
said score lines permitting spreading of the top surface of said pad when said pad is flexed so that normally facing walls of the indentations formed by the score lines move apart to define a flexed opening therebetween without said opening exceeding a distance that is greater than the distance of objects likely to engage and strike the pad.

4,272,851
HAZARDOUS ENVIRONMENT SUIT
Lynn E. Goldstein, Cleburne, Tex., assignor to Durafab Division of Texel Industries, Inc., Cleburne, Tex.
Filed Feb. 16, 1979, Ser. No. 12,655
Int. Cl.³ A41D *13/02*
U.S. Cl. 2—79 4 Claims



1. A protective garment for use in contaminated areas, comprising:
a. laminated seam-bondable body material, said seam-bondable body material forming the body of said garment and comprising non-woven spunbonded olefin having laminated to one side thereof a polyethylene film,
b. bonded seams, said bonded seams being formed of said seam-bondable body material and comprising an ultrasonically induced welded seam portion,
c. binding means on the outside of said bonded seams, said binding means comprising a sewn binding sewn externally of said bonded seam, the stitching of said sewn binding being positioned such that said welded seam portion is located between said stitching and the interior of said garment, and
d. double zipper means securing a body opening in said garment.

4,272,852
GARMENT WITH SHOULDER ATTACHED SUPPORTING STRAPS
Richard S. Bell, Gloucester, Mass., assignor to Mighty-Mac, Inc., Gloucester, Mass.
Filed Apr. 28, 1978, Ser. No. 901,308
Int. Cl.³ A41D *1/00*; A45C *1/04*
U.S. Cl. 2—94 8 Claims



1. An outer garment having attaching means affixed to the outside thereof for removably securing an attachable knapsack at an outside location on the garment selectable from the front of said garment and the rear of said garment, the garment having front closure means and shoulders, said attaching means comprising a pair of shoulder straps extending over the respective shoulders of said garment from the front to the rear of said garment, said straps being sewn to the outside of said garment substantially along the entire length of said straps, each of said straps containing a free end, said free end comprising a cloth loop passing through a ring, said ring capable of removably securing said attachable knapsack, said cloth loop being affixed to said strap by stitching the length of said straps containing the respective free ends extending from the top of the shoulder area of said garment to an area of said garment just below the top of the chest at the front of the wearer and to the shoulder blade area at the back of the wearer, whereby the placement of the free ends at the front of the garment allows a knapsack to be positioned above the waist and supported against the chest of the wearer and the placement of the free ends at the rear of the garment allows a knapsack to be positioned above the waist and supported on the back of the wearer, the attaching means producing both a decorative and a functional effect.

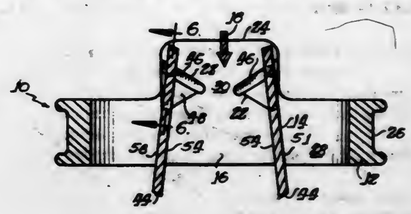
4,272,853
COLD WEATHER HOOD FOR SAFETY HAT
Walter E. Schuessler, 800 Redbud La., Wilmette, Ill. 60091
Filed Dec. 31, 1979, Ser. No. 108,518
Int. Cl.³ A42B *1/04, 3/00*
U.S. Cl. 2—424 24 Claims



1. A protective hood for use with a safety hat having rigid integral crown and brim portions, said hood comprising a tube of stretchable knitted fabric having upper and lower portions and having a maximum diameter in an unstretched state substantially smaller than the brim of a safety hat to be worn therewith, said tube being open at its lower end and having at least one face opening located in said lower portion, said tube also having at least one brim-receiving slit between said upper and lower portions for receiving a portion of the brim of a safety hat to anchor said tube against longitudinal and lateral sliding movement relative to a safety hat over which said upper portion of said tube is fitted, said slit and face opening being spaced apart to define a lateral band of fabric therebetween for protecting a wearer's forehead and for restraining upward movement of said hood upon a safety hat.

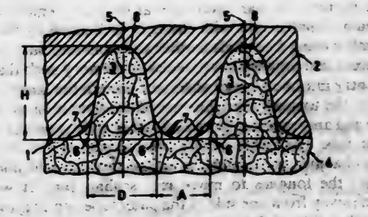
4,272,854
BI-LEAFLET HEART VALVE
Jack C. Bokros, Alpine, Calif., assignor to Carbomedics, Inc., Austin, Tex.
Filed Aug. 7, 1979, Ser. No. 64,400
Int. Cl.³ A61F *1/22*
U.S. Cl. 3—1.5 6 Claims

1. A heart valve prosthesis comprising
an annular valve body having a central passageway therethrough,
a pair of leaflets which are proportioned to jointly close said passageway, and
means mounting said leaflets for substantially pivotal movement between a closed position blocking blood flow through said central passageway and an open position allowing blood flow therethrough,
said mounting means including projections extending in opposite directions from the lateral sides of each of said leaflets and generally diametrically opposed slots in said annular valve body wherein each of said projections is respectively disposed, each of said slots extending along a substantially straight line displaced from a plane perpendicular to the centerline of said passageway by an angle of between about 20° and about 40° in a direction outward from the center and upstream of blood flow,



said projections having rounded ends and said slots being open at the outward end thereof and curved at the other end with a radius of curvature proportioned to the curvature of said rounded ends, whereby said slots guide the pivotal movement of said leaflets by defining the path along with said projections can travel during opening and closing movement.

4,272,855
ANCHORING SURFACE FOR A BONE IMPLANT
Otto Frey, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland
Filed May 10, 1979, Ser. No. 37,752
Claims priority, application Switzerland, May 19, 1978, 5443/78
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—1.9 12 Claims



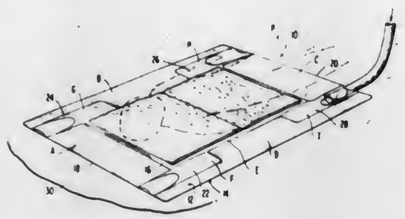
1. A bone implant having an anchoring surface including a plurality of villi, each said villus having a generally conical shape devoid of corners and edges and a longitudinal axis extending from a base level of said surface at an angle of from 50° to 90°, each said villus having a transition surface merging into said base level of said anchoring surface without corners and edges, each said villus having a cross-section in a transverse plane at said base level with a transverse width D and a longitudinal length L in the range $D \leq L \leq 3$ D, a height H from said base level in the range $1D \leq H \leq 5$ D, and with a spacing A between the generatrices of the conical shape of adjacent villi in said transverse plane in the range $0.25 D \leq A \leq 1D$.

4,272,856

DISPOSABLE AIR-BEARING PATIENT MOVER AND A VALVE EMPLOYED THEREIN

Jack Wegener, 830 Chambers Ave., Gloucester City, N.J., and Raynor A. Johnson, Newark, Del., assignors to Jack Wegener, Gloucester City, N.J.

Filed Aug. 28, 1979, Ser. No. 70,464
Int. Cl.³ A47C 27/08; B63C 7/10
U.S. Cl. 5—81 R 9 Claims



1. A low-cost, disposable patient mover of the air-bearing type for minimal friction movement of a medical patient supported by a generally rigid planar backing member over an underlying generally planar fixed support surface, said patient mover including top and bottom walls at least partially defining a plenum chamber, at least said bottom wall being formed of thin flexible material, said bottom wall including a portion bearing small diameter perforations with the perforations opening into the plenum chamber, air dispersion means carried by the patient mover for insuring airflow thorughout the chamber when the patient mover is under load at the time of air pressurization of the plenum chamber, means for controlling pillowing of the flexible material to permit jacking of the backing member and the medical patient sufficient to permit the patient mover to accommodate surface irregularities for both the load support surface and the backing member while preventing ballooning of the flexible material, air inlet means provided to the chamber for permitting air pressurization of the chamber for jacking the load and for subsequent discharge through said perforations to create an air film between the bottom wall and the fixed support surface, said air inlet means comprising at least one outer tube formed of thin flexible material and an inner tube mounted coaxially within the outer tube and comprised of opposed, flexible tongues having a flexibility less than that of the thin flexible material forming said outer tube and being sealed on the outer surface of opposed inner tube portions to said outer tube at the ends remote from the plenum chamber and with the ends proximate to the plenum chamber being free of each other and from said outer tube, and wherein said tongues have an elastic memory such that during air entry into the plenum chamber through the inner and outer tubes, the tongues take the curved configuration of the outer tube and are separated from each other and in contact with said outer tube end, subsequently, after pressurization of the plenum chamber, air tending to escape through said inlet means causes the tongues to move into sealing contact with each other, away from one side of the outer tube and to press against the other side of the outer tube to thereby close off said inlet means.

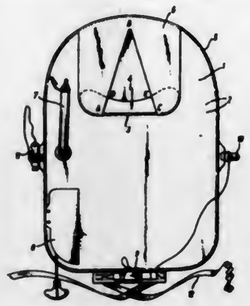
4,272,857

LIFEJACKET

Walter Oldham, Rochdale, England, assignor to Beaufort Air-Sea Equipment Ltd., Birkenhead, England

Filed Jun. 30, 1978, Ser. No. 920,968
Claims priority, application United Kingdom, Sep. 1, 1977, 36454/77
Int. Cl.³ B63C 9/08
U.S. Cl. 9—345 11 Claims

1. An inflatable lifejacket comprising a body defining an aperture adapted to receive the wearer's head and defining an upper head portion positioned behind a users head and a chest portion positioned immediately below said aperture, means for inflating the lifejacket and restraint means in the form of sheet material connected to the body of the lifejacket and extending over a portion of the aperture between said head portion and at



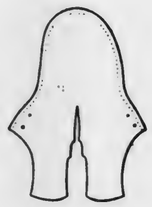
least one side of said chest portion wherein said restraint means are dimensioned such that, in the deflated condition of the lifejacket, the restraint means are loose and the wearer may don the lifejacket, and in the inflated condition of the lifejacket the sheet material is tensioned to be stretched over the aperture to inhibit the wearer's head slipping back through the aperture.

4,272,858

METHOD OF MAKING A MOCCASIN SHOE

John Hlustik, Brentwood, England, assignor to K. Shoemakers Limited, Kendal, England

Filed Jan. 23, 1979, Ser. No. 5,680
Claims priority, application United Kingdom, Jan. 26, 1978, 3227/78
Int. Cl.³ A43D 9/00; A43B 3/14; A43C 13/08
U.S. Cl. 12—142 MC 11 Claims



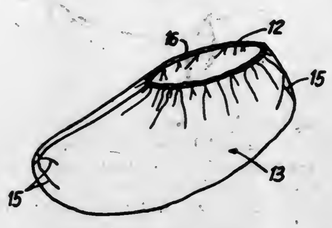
1. A method of making a moccasin shoe comprising, in sequence, the following:
- cutting parts of an upper including a vamp;
- preparing the underside of the vamp for bonding;
- assembling the back part of the shoe;
- mounting the thus formed and prepared upper on a last;
- placing and fixing the mounted upper in a mould;
- successively injecting layers of polyurethane or other suitable thermoplastic material having different physical properties into the mould to form a sole bonded to the underside of the upper and also, by means of an upstanding peripheral flange having an external peripheral groove formed therein, to the side margins of the upper;
- removing the upper and sole assembly from the mould;
- sinking stitching through the groove into the upper to thereby attach the sole to the upper; and
- stitching a plug portion to the upper margin of the vamp.

4,272,859

METHOD FOR MANUFACTURING OVERSHOES MADE OF NON-WOVEN FABRIC

Jacques Vaahove, Romilly sur Seine, France, assignor to Matexil, France

Filed Nov. 7, 1979, Ser. No. 92,083
Claims priority, application France, Nov. 20, 1978, 78 32636
Int. Cl.³ A43D 9/00; A43B 3/16
U.S. Cl. 12—142 K 6 Claims



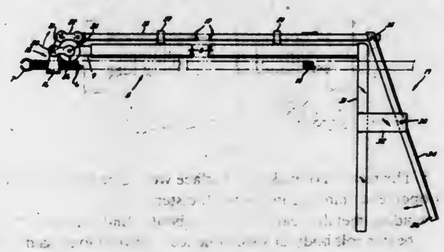
1. A method for forming a blank of non-woven fabric suitable for making an overshoe, comprising the steps of:
- forming a tube of non-woven fabric, said tube comprising two flat longitudinal faces connected to each other by two lateral gussets each of which is adapted to form the sole of an overshoe,
- forming a plurality of spaced transverse lines of join in said tube, said lines of join being oblique with respect to the axis of said tube and joining said longitudinal faces and the opposite faces of said gussets, consecutive lines of join defining a diamond or double-walled parallelogram,
- separating said diamonds or double-walled parallelograms along said lines of join, and
- cutting each of said diamonds along a median longitudinal line of cut to obtain two blanks having an opening created by said line of cut.

4,272,860

DRAIN AUGER CONTROLLING TOOL

John R. Hinton, W340 N8121 Town Line Rd., Oconomowoc, Wis. 53066

Filed Feb. 15, 1980, Ser. No. 121,828
Int. Cl.³ B08G 9/06
U.S. Cl. 15—257 R 5 Claims



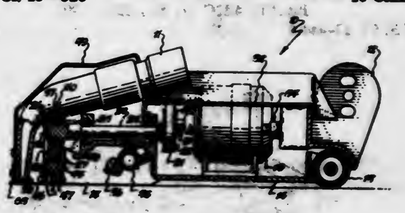
1. A tool for flexing a front end portion of an elongated, slender, substantially springy drain auger in a desired direction while the auger is in a duct system so that the auger can be caused to advance into a desired part of that system, said tool comprising:
- A. a substantially rigid elongated body member;
- B. guide means on a front end of said body member defining a reaction surface that has a substantially arcuate curve about an axis transverse to the length of the body member, said surface being engageable by a medial portion of an auger while a more rearward portion of the auger extends along said body member, substantially parallel thereto and at one side thereof;
- C. an auger flexing hook member having a connection with the body member to be swingable substantially about said axis and having an auger engaging portion which is spaced radially outwardly from said reaction surface and by which lateral force can be exerted upon a part of an auger that is forward of its said medial portion, to flex the auger around said surface from said one side of the body member toward said other side thereof; and
- D. a tension member extending along said body member at said other side thereof, said tension member
  - (1) having at its front end a connection with said hook member that is spaced from said connection of the hook member with the body member,
  - (2) having actuating means at its rear end by which it can be drawn rearwardly, and
  - (3) having a supple front end portion that can extend around said reaction surface and react thereagainst to translate rearward movement of the tension member into swinging of the hook member from a position at said one side of the body member towards said other side thereof.

4,272,861

CARPET CLEANING DEVICE

Adolf Notta, and Ian A. Scovell, both of Youngstown, N.Y., assignors to Wetrok, Inc., Niagara Falls, N.Y.

Filed Sep. 28, 1979, Ser. No. 79,969
Int. Cl.³ A47L 11/12, 11/202
U.S. Cl. 15—320 10 Claims



1. In a carpet cleaning device having means to deliver a liquid cleaning or rinse solution to the carpet, suction pickup means to remove liquid from the carpet and oscillating brush means arranged to contact the carpet, the improvement comprising:
- a drive shaft, means to rotate said shaft, means for converting rotation of said shaft to oscillation of said brush means including a crank portion of said shaft disposed at an oblique angle to the axis of said shaft, a bearing mounted on said crank portion, said means connecting said bearing to said brush means, said brush means comprising a transversely extending bar pivoted to oscillate in contact with the carpet, the pivot axis of said brush means, the center line of said bearing and the axis of said shaft substantially intersecting at a common point.

4,272,862

SKINNING APPARATUS

Dennis B. Griffin, Edgewood, and Otis L. Purdy, Butler, both of Ky., assignors to Jay Gee Manufacturing Company, Butler, Ky.

Filed Oct. 1, 1979, Ser. No. 80,245
Int. Cl.³ A22C 17/12
U.S. Cl. 17—21 10 Claims

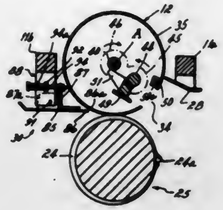
1. Apparatus for skinning hogs, including a rotatable drum, a skin clamp means operatively associated with said drum, and a skinning blade, said drum mounted on a rotatable drive shaft operatively connected with said skin clamp means for driving

said drum through said skin clamp means, the improvement wherein said apparatus further includes;

an end plate fixed at one end of said drum,

an adjustable brake means mounted on said end plate of said drum, said adjustable brake means including,

brake plate means,



a spring-loaded pressure plate means for biasing said brake plate means against and into frictional engagement with said end plate, said brake plate means disposed between said end plate and said pressure plate means, and

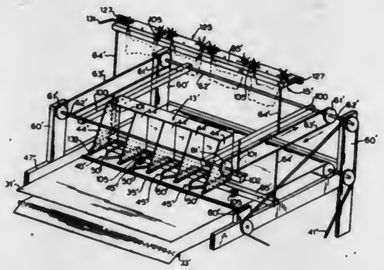
means for holding said brake plate stationary against rotation when said drum is rotated, for braking said drum.

4,272,863

SHACKLING APPARATUS FOR LIVE POULTRY

Alonzo E. Parker, Jr., 1031 S. Plum St., Durham, N.C. 27701

Division of Ser. No. 912,726, Jun. 5, 1978, Pat. No. 4,215,654.
This application Apr. 21, 1980, Ser. No. 142,083
Int. Cl.³ A22C *21/00*; A22B *1/00*
U.S. Cl. 17—44.1 8 Claims



1. Shackling apparatus adapted for shackling and handling live poultry on foot comprising, in combination:

(a) an elongate base frame structure adapted to be supported in the path of and loaded with a plurality of live fowl on foot and when loaded with a plurality of said fowl adapted to be releasably supported on a processing conveyor; and

(b) laterally-spaced releasable limb securing means mounted on and extending outwardly from said base frame structure for receiving plural pairs of fowl limbs and having movable limb-holding portions adapted to open to receive and to thereafter close and releasably secure selected plural laterally-spaced paired limb portions of the fowl while on foot and in a side-by-side array adjacent said base frame structure.

4,272,864

METHOD FOR MAKING FOOD PATTY

Harry H. Holly, 150 Key Palm Rd., Boca Raton, Fla. 33432

Filed Mar. 29, 1979, Ser. No. 25,031
Int. Cl.³ A22C *7/00*
U.S. Cl. 17—45 15 Claims

1. A method for forming a patty of plastic food material, including ground meat and the like, which is subject to shrinkage during cooking, said method comprising the steps of:

(a) forming said material into a plurality of plugs having generally oppositely extending ends; and

(b) assembling said plugs into a closely packed array to define a patty without substantially inwardly compressing



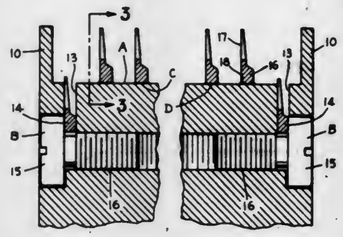
each plug laterally and providing a substantially continuous layer of material disposed across and connecting the ends of said plugs on one of the surfaces of said formed patty to aid in holding the patty together and, when the patty is cooked on a grill with the layer at the top of the patty, to aid in retaining vapors and juices within the patty to thereby promote more rapid cooking.

4,272,865

METHOD OF MAKING A BEATER ROLL

Karl H. Schmolke, Zwerenberg, Fed. Rep. of Germany, assignor to John D. Hollingsworth on Wheels, Inc., Greenville, S.C.

Division of Ser. No. 918,484, Jun. 23, 1978, Pat. No. 4,208,767.
This application Mar. 29, 1979, Ser. No. 25,030
Int. Cl.³ D01G *15/14*
U.S. Cl. 19—97 1 Claim



1. The method of making a surface wound beater roll for use in open end spinning including the steps of:

winding metallic card clothing about a uniform cylindrical beater roll body in spaced helical convolutions, said wire having a base and teeth extending upwardly therefrom, while placing a set therein causing the wire to conform generally to the surface of the beater roll body;

forming repetitive spaces under said teeth by reason of placing said set in said wire, a segment being formed in an underside of said base under each tooth defining said spaces;

applying a liquid sealant upon the wound roll causing the sealant to flow into said spaces; and

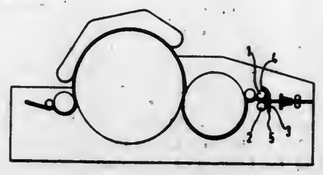
allowing the sealant to cure forming a meniscus extending between said cylindrical surface and said base entirely along each side thereof.

4,272,866

WEB GUIDING DEVICE FOR A CARDING MACHINE

Ulrich Vollrath, Neuss, Fed. Rep. of Germany, assignor to Trützschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Oct. 10, 1979, Ser. No. 83,560
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1978, 2846137
Int. Cl.³ D01G *15/46*
U.S. Cl. 19—150 6 Claims



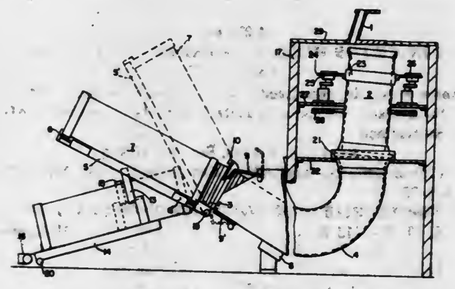
1. In a carding machine having a web delivering assembly including cooperating upper and lower rollers; a web guiding device for withdrawing and gathering a fiber web discharged by the web delivering assembly; the web guiding device including a guide element arranged immediately downstream of the rollers as viewed in the direction of advance of the fiber web; the guide element having at least one operationally stationary guide face extending transversely to the plane in which the fiber web advances; the guide element further having an upper longitudinal edge extending along the upper roller in the immediate vicinity thereof; the improvement wherein said guide element has a lower longitudinal edge extending along said lower roller at a sufficient distance therefrom for allowing waste to drop out downwardly from the fiber web as it passes from said rollers to said guide element.

4,272,867

APPARATUS FOR LOADING A ROPE-LIKE STRAND OF FIBERS INTO SPINNING CANS

Alf Schopper, Meyrin, Switzerland, assignor to Heberlein Hispano S.A., Switzerland

Filed Oct. 29, 1979, Ser. No. 88,814
Claims priority, application Switzerland, Oct. 30, 1978, 11190/78
Int. Cl.³ B65H *54/80*
U.S. Cl. 19—159 R 7 Claims



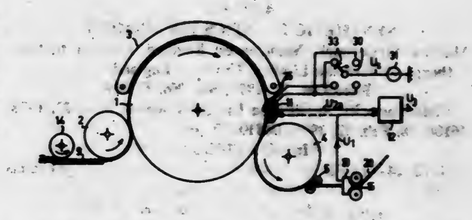
1. An apparatus for loading a rope-like strand of fibers into spinning cans after leaving a card or drawing frame and being piled in cycloidal loops in a tubular member, the improvement comprising a ramp for receiving said rope-like strand and oriented such that the strand is slideable through the ramp to a discharge end thereof, a can support located adjacent the discharge end of said ramp for releasably supporting a can with an open end positioned to receive the rope-like strand from the discharge end of said ramp, means for tilting said can support about a tilt axis located adjacent the discharge end of said ramp to a number of positions at angles to the horizontal such that the can supported thereon can be progressively oriented at different angles in a vertical plane prior to, during and after filling, and means for severing the rope-like strand between the discharge end of said ramp and the open end of said can.

4,272,868

DEVICE FOR OBTAINING A CONTROL SIGNAL CORRESPONDING TO THE DENSITY OF THE FIBRE WEB LYING ON A FIBRE-CARRYING ELEMENT OF A CARD

Werner Grunder, Münchaltorf, and Ernst Loch, Uster, both of Switzerland, assignors to Zellweger Uster, Ltd., Uster, Switzerland

Filed Apr. 26, 1979, Ser. No. 33,448
Claims priority, application Switzerland, Apr. 26, 1978, 4496/78
Int. Cl.³ D01H *5/38*
U.S. Cl. 19—240 28 Claims



1. A device for obtaining a control signal corresponding to the density of the fibre covering lying on a fibre carrying element of a card, comprising:

a holder which extends over the width of the fibre carrying element to span the width of the fibre covering on said fibre carrying element; and

means mounted on said holder responsive to the density of the fibre covering lying on the fibre carrying element for producing output signals corresponding to the density of the fibre covering.

4,272,869

UNITIZED ATTACHMENT DEVICE

Nancy J. Wilmer, 186 The Alameda, San Anselmo, Calif. 94960

Filed Sep. 7, 1979, Ser. No. 73,236
Int. Cl.³ A44B *21/00*; A45D *8/26*
U.S. Cl. 24—3 R 1 Claim

1. An attachment device comprising:

a snap fastener, including a stud, a socket, and a pair of pronged rings adapted for mating engagement with said stud and said socket;

a flexible hinge having first and second ends; and

A pair of annular rings sized to provide a manual grasping surface;

one said annular ring and said first end of said hinge captured between one said pronged ring and said stud, the other said annular ring and said second end of said hinge cap-

tured between the other said pronged ring and said socket, said annular rings having such dimensions to allow lever-



age to be applied to accommodate manual opening of said attachment device.

4,272,870

SYNTHETIC PLASTICS TIE MEMBER

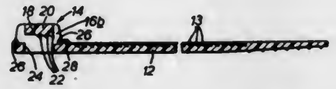
Mathew McCormick, Manchester, England, assignor to Bowthorpe-Hellermann Limited, Crawley, England

Filed Oct. 22, 1979, Ser. No. 87,211

Claims priority, application United Kingdom, Nov. 27, 1978, 46108/78; Feb. 12, 1979, 04810/79

Int. Cl.³ F16L *3/08*

U.S. Cl. 24—16 PB **7 Claims**



1. A unitary tie molded of synthetic plastic material, comprising

a flexible elongated planar strap member (12) including

(a) a body portion one surface of which contains a plurality of serrations (13) extending longitudinally between a pair of plain portions (38*a*, 38*b*); and

(b) a head portion (14) connected with one end of said body portion, said head portion extending laterally of the strap member and including,

(1) a pair of side walls (16*a*, 16*b*) adjacent opposite longitudinal edges of said strap member, respectively;

(2) a cross-piece (18) extending transversely between said side walls;

(3) a pawl (20) pivotally connected at one end with said cross-piece, the other end of said pawl extending longitudinally of said strap member; and

(4) an abutment wall (26) extending transversely between said side walls generally opposite and spaced from said cross-piece and said pawl, said side walls, said cross-piece, said pawl, and said abutment wall being arranged to define an aperture (25) extending longitudinally through said head portion;

(5) said pawl including a plurality of teeth (22) opposite said abutment wall and having a configuration complementary to said serrations, each of said teeth defining an arcuate path, respectively, through said aperture during pivotal movement of said pawl;

(6) said side walls including longitudinal guide abutment surfaces (36*a*, 36*b*) adjacent said pawl opposite and spaced from said abutment wall, respectively, the distance between said abutment wall and said guide surfaces corresponding generally with the thickness of said body portion, whereby when the other end of said body portion is initially inserted within said aperture at the end thereof adjacent the pivotal end of said pawl, the body is guided during further longitudinal insertion through the aperture by the cooperation between said guide abutment surfaces and said marginal plane portions, respectively;

(7) the teeth on said pawl and the serrations on said body portion being operable upon subsequent displacement of said body portion in the opposite direction relative to the aperture to cause said pawl to pivot in the direction of said abutment wall to lock said body portion thereagainst.

4,272,871

HOSE COUPLING

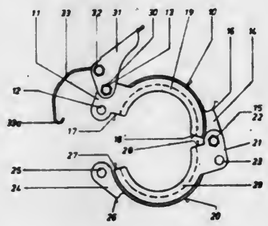
Karl Weinhold, Im Jagdfeld 43, Neuss 4040, Fed. Rep. of Germany

Filed Nov. 8, 1979, Ser. No. 92,347

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1978, 2849880

Int. Cl.³ F16L *37/20*

U.S. Cl. 24—270 **4 Claims**



1. An apparatus for connecting pipe or hose ends comprising at least two identical shell members which are connected at one end by means of a hinge bolt, and other ends of the shells being pressed together by a tensioning lever and a spring, the tensioning lever being mounted to the shell member by way of a bolt in a bore penetrating a part of the shell member, characterized in that the ends of the shell members pressed together by the tension lever have interlocking tongue (11) and cam (24) which are provided with another bore (12,25) through which another hinge bolt is passed.

4,272,872

DEVICE FOR HOLDING A THIN-WALLED METAL CYLINDER

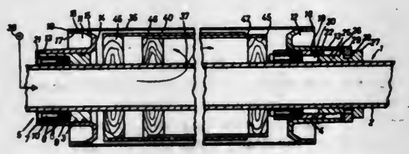
Anton Hess, Koppigen, and Ramon Bellot, Utzenstorf, both of Switzerland, assignors to Fritz Buser Maschinenfabrik AG, Switzerland

Filed Feb. 9, 1979, Ser. No. 10,955

Claims priority, application Switzerland, Feb. 14, 1978, 1630/78

Int. Cl.³ B21B *31/32, 31/08*; G03B *27/04*; F16D *1/00*

U.S. Cl. 29—113 R **10 Claims**



1. An apparatus for releasably holding a thin-walled cylinder, comprising

carrier means having fluid pressure supply means coupled thereto;

first and second hubs mounted on said carrier means, said first hub being adjustably mounted on said carrier means to vary the spacing between said hubs;

first and second centering flanges slidably and sealingly coupled to said first and second hubs, respectively, each said flange having an outer perimeter seat surface; and

a thin-walled cylinder having ends thereof mounted on said flanges, said cylinder and said flanges comprise means defining a pressure space in fluid communication with said fluid pressure supply means so that when pressure is supplied to said space by said fluid pressure supply means, axially extending, annular seal slit openings are formed between said cylinder and said outer perimeter seat surfaces of said flanges and in fluid communication with said pressure space.

4,272,873

STONE ROLLER

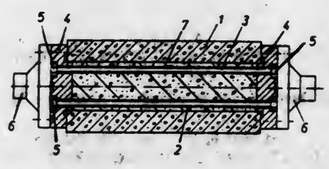
Robert Dietrich, Heidenheim-Grosskuchen, Fed. Rep. of Germany, assignor to J. M. Voith GmbH, Fed. Rep. of Germany

Filed Apr. 24, 1979, Ser. No. 32,920

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818437

Int. Cl.³ D21F *3/08*

U.S. Cl. 29—123 **22 Claims**



1. A stone pressure roller for a paper making machine comprising:

a unitary cylindrical roller body comprised of stone; said roller body having opposite axial ends;

a respective clamping plate positioned at each said axial end of said roller body;

a plurality of tensioned tie-rods extending between said clamping plates and axially through said roller body, and said tie-rods being adapted to draw said clamping plates together to place said roller body under axial stress;

each said tie-rod passing through said roller body at a respective different angular position around said roller body than the other said tie-rods, and said tie-rods being spaced radially away from the axis of said roller body, whereby said plates are drawn toward each other at different angular positions around said plates and said roller body.

4,272,874

APPARATUS FOR STUFFING COMPRESSIBLE PRODUCTS INTO FLEXIBLE COVERS

Reuben J. Kreis, Fort Smith, Ark., assignor to Cochmen Industries, Inc., Middlebury, Ind.

Continuation-in-part of Ser. No. 846,410, Oct. 28, 1977, abandoned. This application Jun. 25, 1979, Ser. No. 51,511

Int. Cl.³ B23P *19/02*

U.S. Cl. 29—235 **9 Claims**

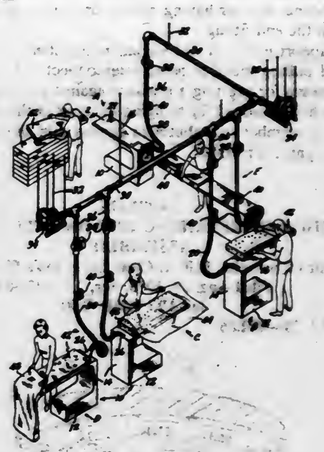
1. Apparatus for use in the application around an air pervious expanded flexible filler of a flexible cover envelope open at a margin thereof and of a size and shape when closed which closely conforms to the normal expanded size and shape of the filler, in combination,

a horizontal filler supporting member,

means mounting said supporting member in cantilevered relation to accommodate application of said opened flexible cover envelope around the free end of the supporting member and articles supported thereon,

means defining a plurality of air flow passages open in substantially uniformly spaced relation in at least a selected portion of the upper surface of said supporting member,

a flexible substantially air impervious sheet draped over said filler supporting member and a filler supported thereon and spanning all air flow passages not spanned by said filler, and



means located adjacent to said supporting means and connected to said passages to generate a sub atmospheric pressure in said passages and the space between said sheet and said supporting member and thereby collapse said filler and accommodate encirclement of said filler, sheet and the portion of said supporting member which supports said filler by said cover envelope when open.

4,272,875

DEVICE TO ALIGN THE END FITTINGS IN THE CASTING OF CONCRETE PILES

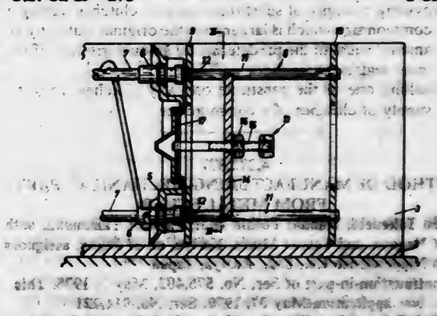
Frank O. Silvander, Richertsgatan 10, S-412 50 Göteborg, Sweden

Filed Aug. 27, 1979, Ser. No. 70,180

Claims priority, application Sweden, Jun. 12, 1979, 7905155

Int. Cl.³ B25B *27/14*

U.S. Cl. 29—271 **2 Claims**



1. An improved device designed to align the end fittings of concrete piles of the kind to be cast in elongate molds comprising a bottom section and two side walls, and having lengthwise extending reinforcement rods therein, the ends of which are provided with interconnecting members passing through the end fittings, the improvement comprising

an alignment member arranged to be positioned in said mold, said alignment member having faces spaced for position-

ing in abutting relationship with the bottom section and side walls of the mold at right angles to the lengthwise extension of the mold for locating said alignment member relative to the mold,

shoulders on said alignment member, said shoulders being juxtaposed to the interconnecting members when said alignment member is positioned in the mold for serving as points of abutment against the ends of the interconnecting members, and

a pulling member having means for providing a connection to the end fitting

a support means in said alignment member,

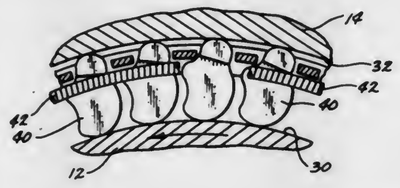
said pulling member being interconnected to said support means for exerting a pressure against said support means when tensioned for bringing the ends of the interconnecting member into abutment against said shoulders of said alignment member.

4,272,876

METHOD OF REPAIRING ONE-WAY CLUTCH DRIVE ASSEMBLIES

Vincent O. Schmitz, R.R. 1, Clear Lake, Iowa 50428

Filed Aug. 28, 1978, Ser. No. 937,403
Int. Cl.³ B23P *7/00*
U.S. Cl. 29—402.06 **5 Claims**



1. Method of repairing a one-way clutch drive assembly including an input shaft which drives an output gear through a one-way clutch mounted in the output gear on the input shaft by substituting a one-way clutch having sprags which are adapted to move radially between inner and outer races on the input shaft and the output gear, the improved method comprising the steps of,

taking an output gear and input shaft and discarding the used one-way clutch,

grinding the inner and/or outer races on the input shaft and output gear a predetermined total amount,

providing a supply of substitute one-way clutches having a common size which is larger than the original clutch by an amount equal to the predetermined amount ground off the inner and/or outer races,

installing one of the substitute one-way clutches from the supply of clutches of a common size.

4,272,877

METHOD OF MANUFACTURING MECHANICAL PARTS FROM METAL SCRAP

Keizo Takeuchi, Handa; Yoshio Iwai; Tadashi Yamanaka, both of Nagoya, and Tatsuo Miura, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

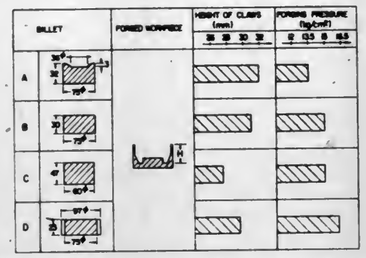
Continuation-in-part of Ser. No. 575,402, May 7, 1975. This application May 31, 1978, Ser. No. 911,221
Claims priority, application Japan, May 13, 1974, 49/53622; Jul. 1, 1974, 49/75724; Jul. 8, 1974, 49/78599; Jul. 24, 1974, 49/85476; Nov. 6, 1974, 49/127737
Int. Cl.³ B23Q *17/00*
U.S. Cl. 29—403.2 **12 Claims**

1. A method of manufacturing a pole core of an alternator comprising a base portion, a boss portion, and at least one claw, from metal scrap, comprising the steps of,

preparing metal scrap comprising press chips, shavings and turnings;

forming a billet by pressing the metal scrap;

heating the billet to the forging temperature, whereby a satisfactory plasticity is given to the billet for plastic deformation of metal scrap in the succeeding process; and



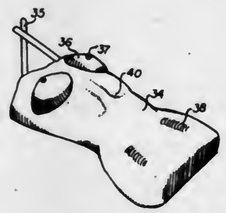
forming the heated billet into a pole core of an alternator by use of a semi-closed forging die means, the shape of said pole core being selected such that substantially every part of said billet is deformed plastically by a degree of deformation sufficient to generate metallic bond at said substantially every part of the billet.

4,272,878

METHOD FOR MAKING HYPEREXTENSION ORTHOSIS

Michael B. Danforth, 718 Highland St., Altamonte Springs, Fla. 32701

Filed May 8, 1978, Ser. No. 903,498
Int. Cl.² B29C *13/00, 25/00*; B29D *31/00*
U.S. Cl. 29—526 R **5 Claims**



1. A method of making an anterior total contact hyperextension orthosis which utilizes contact with a patient's breasts as a supporting surface comprising the steps of:

placing a stockinette on a patient;

marking the stockinette with a transferrable dye to mark the position of the patient's breasts;

measuring the patient's breast for size in a standing or sitting position;

forming a cast on a patient's body over said stockinette with the patient being in a supine position;

removing the cast and forming a mold therein having the dye markings thereon transferred from the marking made on said stockinette for said patient's breast position;

mounting the mold onto a stand;

modifying the mold to conform to a patient, including mounting breast cup molded parts to conform to the measured patient's breast in a standing or sitting position on the dye marked portion of said mold; and

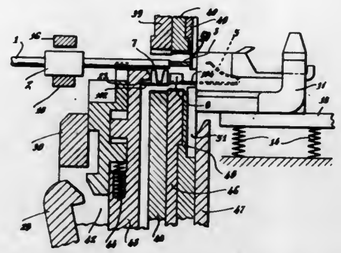
drape forming an anterior hyperextension orthosis on the mold formed to apply a uniform support pressure on the patient's breasts.

4,272,879

METHODS AND APPARATUS FOR MAKING ELECTRICAL CONNECTORS

Jon Wigby, 183 Sugar St., Newtown, Conn. 06470; Ralph L. Platt, R.F.D. #2 Salem Rd., Pound Ridge, N.Y. 10576, and James D. Anderson, 2 Timothy Rd., Norwalk, Conn. 06850

Filed Feb. 5, 1979, Ser. No. 8,999
Int. Cl.³ H01R *43/04*
U.S. Cl. 29—566.2 **3 Claims**



1. A machine for installing electrical termination connectors simultaneously on the ends of a plurality of wires which have previously been coupled together and arrayed in substantially planar, parallel, spaced-apart relationship with bared conductor ends thereof exposed for presentation to said machine, comprising:

a base;

gripper means movable relative to said base in a direction transverse to the plane of a planar array of wires for gripping such an array in substantially fixed position relative to said base, at a point axially spaced from the ends of wires;

wire guide means having a plurality of open grooves for receiving individual wires therein, positioned between said gripper means and the ends of wires held therein, said guide means being movable in a direction transverse to the axes of wires held in said gripper means between a first non-engaging position and a second wire-engaging position;

connector support means for positioning a plurality of electrical contacts in position to receive the ends of individual wires held by said gripper means;

movable contact crimping means positioned to engage and deform a plurality of contact elements supported in said connector support means onto the ends of a plurality of wires held by said gripper means;

means for moving said gripper means in the direction of the axes of wires gripped therein to advance such wires axially into a connector supported in said connector support means together with contacts installed on such wires, when said guide means has moved from said wire-engaging position to said non-engaging position.

4,272,880

MOS/SOS PROCESS

Richard D. Pashley, Sunnyvale, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Apr. 20, 1979, Ser. No. 31,826
Int. Cl.³ H01L *21/22*
U.S. Cl. 29—571 **17 Claims**

1. A process for fabricating two MOS transistors having a common gate region on a substrate comprising the steps of:

forming a gate region insulated from said substrate, said gate region having an oxide member disposed above said gate region and a silicon nitride member disposed above said oxide member;

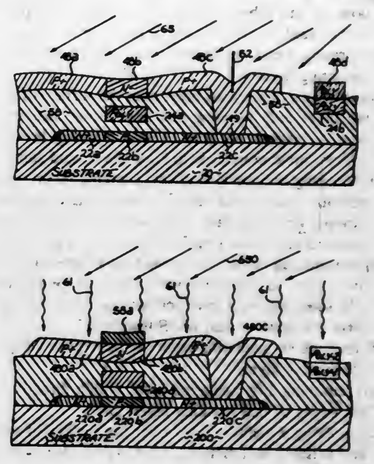
doping said substrate in alignment with said gate region to form first source and drain regions of a first MOS transistor;

forming an oxide layer on said substrate, said silicon nitride member preventing substantial oxide formation on said gate region during the oxide formation step;

doping said oxide layer and silicon nitride member;

removing said silicon nitride member;

forming a polysilicon layer over said oxide layer and said oxide member; and



diffusing the dopant from said oxide layer into said polysilicon layer so as to form second source and drain regions of a second MOS transistor in said polysilicon layer in alignment with said common gate region,

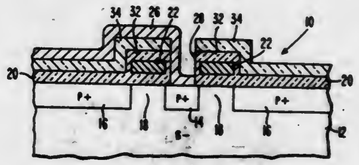
whereby two MOS transistors are formed in vertical alignment with one another.

4,272,881

METHOD FOR MAKING A CLOSED GATE MOS TRANSISTOR WITH SELF-ALIGNED CONTACTS WITH DUAL PASSIVATION LAYER

Rodney L. Angle, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,473
Int. Cl.³ H01L *21/26*
U.S. Cl. 29—571 **17 Claims**



1. The method of making a closed gate geometry MOS transistor comprising the steps of:

(a) selecting a semiconductor substrate of a first conductivity type;

(b) forming a first insulating layer on a surface of said substrate;

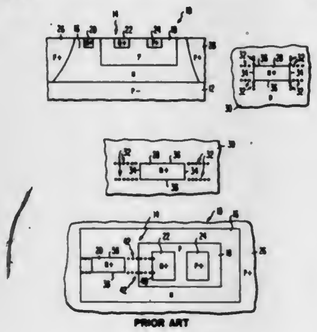
(c) forming a layer of semiconductor material on the surface of said first insulating layer;

(d) defining said layer of said semiconductor material to cover the areas where drains and gates will be located in the completed MOS transistor;

(e) removing the exposed portions of said first insulating layer to expose the surface of said substrate;

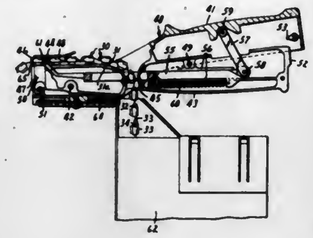
(f) introducing conductivity modifiers, opposite in conductivity type to said substrate, into the exposed surface of said substrate and into said layer of semiconductor material, said conductivity modifiers being used to form the source of said MOS transistor and to make said layer of semiconductor material conductive;
(g) forming a second insulating layer on the exposed portions of said substrate and on the exposed edges and surface of said conductive semiconductor layer;
(h) forming a masking layer over the surface of said second insulating layer;
(i) applying a photoresist layer over the surface of said masking layer and defining and developing said photoresist layer to expose portions of said masking layer through which ohmic contact is to be made to said substrate;
(j) removing the portions of said masking layer, said second insulating layer and said first insulating layer which are exposed through said masking layer there being some undercutting of said masking layer during this step;
(k) introducing conductivity modifiers, opposite in conductivity type to said substrate, into the exposed surface of said substrate, said conductivity modifiers being used to form the drain of said MOS transistor;
(l) forming an insulating layer on the exposed edges of said conductive layer;
(m) removing any insulating layer which directly underlies the edges of said masking layer; and
(n) applying a metallic layer over the surface of said device and defining said metallic layer to provide ohmic contacts and interconnects.

4,272,882
METHOD OF LAYING OUT AN INTEGRATED CIRCUIT WITH SPECIFIC ALIGNMENT OF THE COLLECTOR CONTACT WITH THE EMITTER REGION
Albert W. Fisher, East Amwell Township, Hunterdon County, N.J., assignor to RCA Corporation, New York, N.Y.
Filed May 8, 1980, Ser. No. 147,574
Int. Cl.³ H01L *21/22, 21/324*
U.S. Cl. 29—578 2 Claims



1. An improved method of laying-out an integrated circuit of the type which includes an NPN bipolar transistor having an emitter formed within a P type well which P type well is formed within an N type substrate in which a rectangular N+ collector contact is formed,
wherein the improvement comprises aligning the longer edges of said N+ contact in a direction substantially perpendicular to the direction between said contact and said emitter and not aligning any of said longer edges toward said emitter.

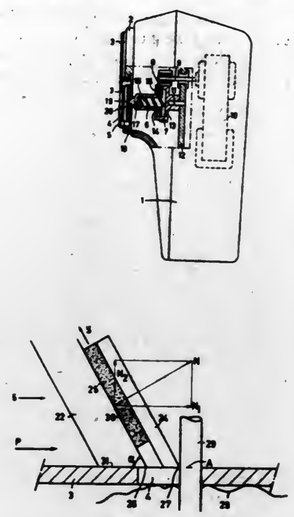
4,272,883
CONTINUOUS FILM CARRIER WIRE CONNECTING SYSTEM
Leo E. Anthone, Little Canada, and Sidney J. Berglund, Stillwater, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 916,215, Jun. 16, 1978, Pat. No. 4,225,042.
This application Dec. 26, 1979, Ser. No. 107,430
Int. Cl.³ H01R *43/04*
U.S. Cl. 39—751 2 Claims



1. A hand tool adapted for crimping the foremost connector of a series of connectors supplied in receptacles in a film carrier strip onto wire ends inserted into said connector, said connector being of the type having a wire receiving body portion and a cap telescopically received in one face of the body and said carrier strip having compressible longitudinal edges alongside the connectors; said tool comprising:
an elongate housing having a longitudinal insertion passage for receiving said film carrier strip, said passage having an inlet and an exit and being spaced to contact the longitudinal edges of a said carrier strip and compress said edges as the carrier strip advances within said passage toward the passage exit, said housing having a channel near the exit from said passage which intersects said passage, said housing also having a compression member adjacent said passage exit;
a plunger slideably fitting within said channel and moveable across said passage toward said compression member;
an elongate handle member pivotally mounted on said housing and pivotally attached to said plunger for slideably moving said plunger within said channel and for applying crimping pressure to a connector retained at the intersection of said channel and said passage between said compresion member and said plunger;
check means within said longitudinal passage for preventing retraction of said carrier strip toward said passage inlet; said check means being positioned to engage the longitudinal edges of a said carrier strip alongside the connector when said connector is positioned in the intersection of said channel and said passage; and
advancing means for moving a connector on a said carrier strip into alignment with said compression means, said advancing means being positioned within said elongate housing and pivotally attached to said elongate handle member such that the applying of crimping pressure to said handle activates said advancing means.

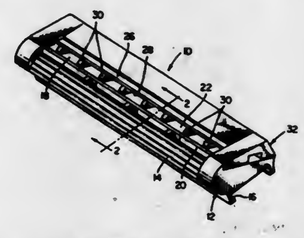
4,272,884
SHAVING APPARATUS
Eduard W. Tietjens, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 27, 1979, Ser. No. 70,197
Claims priority, application Netherlands, Sep. 18, 1978, 7809462
Int. Cl.³ B26B *19/14*
U.S. Cl. 30—43.6 2 Claims

1. A shaving apparatus having a cutting unit provided with at least one cutter, a lead cutter associated with and movable relative to the cutter, and an element connecting the lead cutter to the cutter, said connecting element comprising a layer



of a material having rubber-elastic properties between the cutter and the lead cutter.

4,272,885
SHAVING CARTRIDGE
Frank A. Ferraro, Trumbull, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.
Continuation-in-part of Ser. No. 831,469, Sep. 8, 1977, abandoned. This application Jan. 16, 1979, Ser. No. 3,825
Int. Cl.³ B26B *21/06, 21/22*
U.S. Cl. 30—47 12 Claims



1. A razor cartridge comprising:
a blade seat;
a seat blade having a cutting edge exposed for shaving;
a cap blade having a cutting edge extending rearwardly of and substantially parallel with said edge of said seat blade and exposed for shaving;
a cap; and
a spacer between said blades, said spacer having a forward margin disposed behind and in substantially parallel relationship with said cutting edge of said seat blade, said margin of said spacer including projections extending forwardly of said cap blade cutting edge for decreasing contact between said blade edges and the skin to reduce irritation in shaving with said cartridge, at least one of the projections having a forward extent greater than that of another of the projections and extending at least to a plane tangent to both cutting edges.

4,272,886
SHAVER UNIT
Tamoru Asano, Seki, Japan, assignor to Kai Cutlery Center Co., Ltd., Seki, Japan
Filed Mar. 27, 1979, Ser. No. 24,603
Claims priority, application Japan, Mar. 28, 1978, 53-36894
Int. Cl.³ B26B *21/06, 21/52*
U.S. Cl. 30—47 3 Claims



1. A shaver unit comprising in combination:
at least one shaving blade unit;
a case member including a top portion and a bottom portion, said top portion defining a recess for detachably receiving said blade unit for use during shaving, said top portion curvedly extending from said bottom portion for offsetting said blade unit in said recess from said bottom portion and properly orienting said blade unit for shaving, said bottom portion having sidewalls and a first planar rectangular panel therebetween, a portion of said case member being operable as a handle for guiding said blade during shaving; and
a cover member releasably interlocking with said case member and including a blade accommodating space for each blade unit for storing each blade unit in a fixed position when not in use during shaving and for dispensing said blade unit into said recess, said cover member including a second planar rectangular panel with a top and bottom wall, said second panel having an inner and an outer surface, said inner surface having walls associated therewith for partly defining said blade accommodating space, said second panel and said bottom portion interlocking so as to form a substantially box-like structure enclosing said blade accommodating space therewithin.

4,272,887
PIVOTING BLADE KNIFE
Paul W. Pocklington, P.O. Box 487, Stinson Beach, Calif. 94970
Filed May 17, 1979, Ser. No. 40,066
Int. Cl.³ B26B *1/00*
U.S. Cl. 30—161 1 Claim



1. A pivoting blade knife comprising a plate having a plate opening therethrough, said plate opening having one part circular at one distance from a transverse axis and having a first pocket at a different distance from said axis; a blade having a transverse surface and having a blade opening therethrough, said blade opening having one part circular at said one distance from said axis and having a second pocket at a different distance from said axis, a sleeve coaxially with said axis and fitting said circular parts of said plate opening and said blade opening; means for holding said sleeve against movement

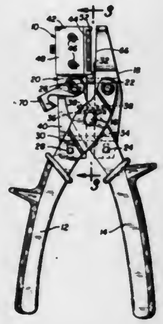
along said axis relative to said plate; means defining a third pocket in said sleeve; a bolt movable in said sleeve along said axis between a first position and a second position; means on said bolt slidably fitting said plate pocket and said blade pocket in said first position and fitting only one of said plate and blade pockets in said second position; means yieldably urging said bolt into said first position; a cross pin rotatable in said plate; and an eccentric portion on said pin adapted to abut said transverse surface.

4,272,888

PARALLEL ACTION CUTTING HAND TOOL

Ruben J. Hartmeister, 1034 6th St., Golden, Colo. 80401

Filed Dec. 17, 1979, Ser. No. 104,185
Int. Cl.³ B26B *13/00*
U.S. Cl. 30—229 9 Claims



1. A parallel action die cutting hand tool having a parallel action handle of the kind employing a pair of scissors-action handle levers pivoted on a transverse axis, each of the levers having a pivot pin both longitudinally to the rear and longitudinally to the front of the pivot axis and parallel thereto, the pivot axis and the pivot pins being normal to the plane of the parallel action handle, comprising:

(a) first and second die cutting jaws connected to the parallel action handle by engagement of the pivot pins, each jaw connected to a front pivot pin of one handle lever and a rear pivot pin of the opposite handle lever in corresponding pivot pin receiving openings in each jaw, at least one of the openings being longitudinally elongated;

(b) at least front and rear guide pins extending between said die cutting jaws and slidable with respect to at least one of the jaws, the pins being longitudinally spaced apart, each near a pivot pin and lying in the plane of the parallel action handle approximately in longitudinal alignment with the cutting edges of the jaws; and

(c) at least one compression member connected between the die cutting jaws for biasing the jaws to separated position and located longitudinally between said guide pins.

4,272,889

PORTABLE SAW

Lewis A. Scott, Lake Oswego, and Duane M. Gibson, Milwaukie, both of Oreg., assignors to Omark Industries, Inc., Portland, Oreg.

Filed Feb. 26, 1979, Ser. No. 14,862
Int. Cl.³ B27B *17/00*
U.S. Cl. 30—371 18 Claims

1. In a power saw:

a motor having a housing,

a guide plate attached to the housing,

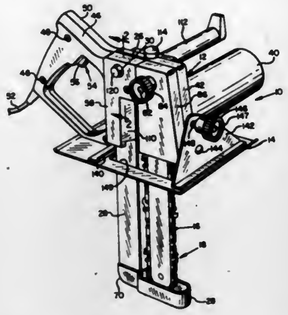
a saw bar secured to the housing in a position extending from the guide plate and having a nose portion remote from the guide plate,

a sprocket driven by the motor,

a saw chain entrained about the sprocket and the saw bar,

a rigid guard bar having a thickness less than the thickness of said saw chain,

a guard member mounted on one end of the guard bar, and mounting means mounting the guard bar on the housing in a position extending along a rear edge of the saw bar in the plane of the saw bar for longitudinal adjustment between



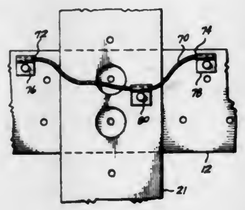
an extended position in which the guard member covers the nose portion of the saw to prevent cutting by the saw chain in the region of the nose portion and a retracted position in which the guard member is withdrawn from the nose portion to allow cutting in the region of the nose portion while normally exposing the forward edge of the saw bar.

4,272,890

LATTICE TEMPLATE

Edward J. Davert, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Nov. 30, 1979, Ser. No. 99,158
Int. Cl.³ G01B *3/00*; E06B *3/00*
U.S. Cl. 33—174 G 1 Claim



1. In configuration:

a plurality of drill templates having holes extending therethrough, said plurality of drill templates extending in a predetermined direction;

a further plurality of drill templates having holes extending therethrough, said further plurality of drill templates extending in a further predetermined direction;

said plurality and said further plurality of drill templates forming points of intersection at respective points of overlap with each other;

means for providing limited relative motion between said plurality and said further plurality of drill templates at said points of intersection; and,

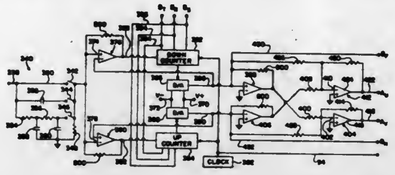
wherein said means for providing limited relative motion between said plurality and said further plurality of drill templates comprises a cable member disposed at each of said points of intersection, each of said cable members having the ends thereof fastened to corresponding ones of said plurality of drill templates at each of said points of intersection, and a portion intermediate the ends thereof fastened to corresponding ones of said further plurality of drill templates at each of said points of intersection.

4,272,891

ELECTRONIC GEAR CHECKER

Mario P. Fusari, Leyden, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Continuation-in-part of Ser. No. 939,045, Sep. 1, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,827
Int. Cl.³ G01B *7/00, 7/28, 7/30*
U.S. Cl. 33—179.5 B 51 Claims



1. A functional workpiece checking machine comprising means mounting a master workpiece in engagement with a test workpiece so as to produce a relative displacement between said master workpiece and said test workpiece when relative motion occurs therebetween in a predetermined manner, sensing means for producing a checking signal that is representative of said relative displacement wherein said checking signal undergoes an excursion of a maximum magnitude in a particular direction from a reference level as said relative motion occurs and successive approximation means comprising comparison means coupled to receive said checking signal, counting means initially set to a count representative of a signal level that is of a greater magnitude in said particular direction than said excursion, said counting means being constructed to count in a periodic manner so that its count is representative of a signal level that approaches said maximum magnitude excursion as said count continues, digital-to-analog converter means coupled to said counting means so as to convert the count in said counting means to an analog level, the output of said converter means being coupled to said comparison means and the output of said comparison means being coupled to said counting means for stopping said counting means from further counting when said checking signal is approximately equal to the level represented by the count in said counting means.

26. A functional workpiece checking machine comprising means mounting a master workpiece in engagement with a test workpiece so as to provide a relative displacement between said master workpiece and said test workpiece when relative motion occurs therebetween in a predetermined manner, sensing means for producing a checking signal that is representative of said relative displacement and signal processing means for processing said checking signal to determine the characteristics of said test workpieces that are represented by said checking signal wherein said sensing means comprises an operational amplifier comprising a difference amplifier that has an inverting and a non-inverting input terminal, a pair of complementary transistors that have their emitters connected together, their bases coupled to the output of said difference amplifier, and their collector-emitter paths coupled in series across a power supply that supplies a positive voltage at one terminal and a negative voltage at the other and a feed-back resistor coupled at one end to said emitters and its other end to the inverting input terminal of said difference amplifier.

28. A functional workpiece checking machine comprising means mounting a master workpiece in engagement with a test workpiece so as to produce a relative displacement between said master workpiece and said test workpiece when relative motion occurs therebetween in a predetermined manner, a single sensing means coupled to produce a checking signal that is representative of said relative displacement, a plurality of signal processing means for simultaneously processing input signals to said processing means and for producing output signals representative of various desired components of said checking signal, said signal processing means each comprising successive approximation detection and storage means for detecting maximum excursions of their respective input signals with respect to a reference level and filter means that is capable of operating in a plurality of different filtering modes inserted between said sensing means and said signal processing means for filtering said checking signal and for supplying said filtered checking signal as an input signal to selected ones of said signal processing means, and mode selection means for selecting a predetermined filtering mode for each of said selected ones of said signal processing means.

32. A functional workpiece checking machine comprising means mounting a master workpiece in engagement with a test workpiece so as to produce a relative displacement between said master workpiece and said test workpiece when relative motion occurs therebetween in a predetermined manner, sensing means for producing output signals representative of said relative displacement with respect to two planes normal to each other, first and second signal processing means for processing said output signals comprising first and second successive approximation detection and storage means for respectively detecting and storing first and second signal levels representative of the maximum range of said relative displacement with respect to each of said planes and combining means for combining said first and second signal levels in a predetermined manner.

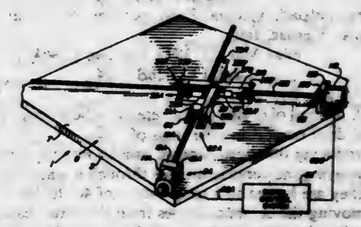
34. A functional workpiece checking machine comprising means mounting a master workpiece in engagement with a test workpiece so as to produce a relative displacement between said master workpiece and said test workpiece when relative motion occurs therebetween in a predetermined manner, first sensing means associated with a first predetermined line of relative travel with respect to said test workpiece to produce a first checking signal as said relative motion occurs, second sensing means associated with a second predetermined line of travel with respect to said test workpiece to produce a second checking signal as said relative motion occurs, signal processing means comprising first and second successive approximation detection and storage means for detecting and storing first and second signal levels each of which are respectively representative of maximum excursions of said first and said second checking signals and combining means for combining said first and second signal levels in a predetermined manner.

4,272,892

AUTOMATIC TEST PROBE POSITIONING APPARATUS

Stanley E. Rose, Phoenix, Ariz., assignor to Omnicomp, Inc., Phoenix, Ariz.

Filed Aug. 10, 1979, Ser. No. 65,539
Int. Cl.³ G01B *5/00*; B27G *23/00*
U.S. Cl. 33—185 R 19 Claims



1. A test probe system for use in automatic testing of printed circuit boards, said test probe system comprising in combination:

a. a substantially flat slide surface;

b. first and second threaded shafts extending over said slide surface, said first and second threaded shafts being sub-

stantially parallel to said slide surface, said first threaded shaft crossing over said second threaded shaft;
c. first and second drive means for controllably axially rotating said first and second threaded shafts, respectively;
d. support means for supporting said first and second drive means, said support means having first and second points located in fixed relationship to said slide surface;
e. pivot means for pivotally connecting said first and second drive means to said support means at said first and second points, said first and second threaded shafts being pivotable laterally over said slide surface;
f. first and second shaft receiving means for receiving said first and second shafts, respectively;
g. connecting means for pivotally connecting said first and second shaft receiving means, a triangle substantially parallel to said slide surface being defined by said first and second points and a point at which said connecting means pivotally connects said first and second shaft receiving means, the angles and lengths of the sides of the triangle being variably dependent on the angular positions of said first and second threaded shafts with respect to first and second reference angular positions of said first and second threaded shafts, respectively; and
h. probe support means carried by one of said first and second shaft receiving means for supporting a first conductive probe.

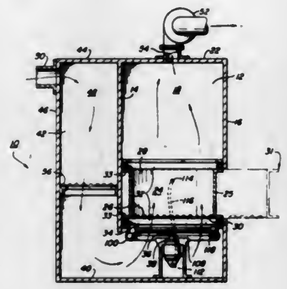
4,272,893
ENHANCING THE CHARACTERISTICS OF MAGNETICALLY STABILIZED FLUIDIZED BEDS
Octave Levenspiel, Corvallis, Oreg., and Kenneth Kamholz, Cherry Hill, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.
Division of Ser. No. 711,500, Aug. 4, 1976, Pat. No. 4,143,469. This application Mar. 6, 1979, Ser. No. 18,060
Int. Cl.³ F26B 3/08
U.S. Cl. 34—1 **3 Claims**

1. In a process for fluidizing a bed containing solid particulate magnetizable, fluidizable material within an external force field, wherein said bed of fluidizable material is fluidized by a flow of gas therethrough with sufficient force to oppose an external force field acting on said particulate material, and wherein said fluidized bed is subjected to a magnetic field having a substantial component positioned in the direction of said external force field, the improvement which comprises: periodically removing the magnetic field from the fluidized bed so as to promote mixing of the solids in the fluidized bed and then reapplying the magnetic field before the bed visibly exhibits "boiling" or "bubbling" typical of unstabilized fluidized bed operation.

4,272,894
DRYING STEP IN A METHOD OF PRODUCING CERAMIC ARTICLES
Antonio Salviati, Vicenza, Italy, assignor to Salviati Impianti S.p.A., Vicenza, Italy
Filed Mar. 21, 1979, Ser. No. 22,464
Int. Cl.³ F26B 3/04
U.S. Cl. 34—9 **5 Claims**

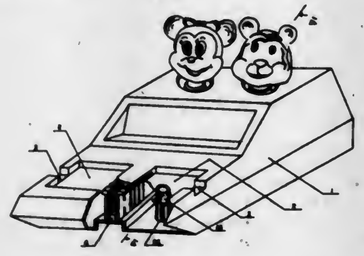
1. A method of drying green ceramic articles in a continuous tunnel drier comprising the steps of
introducing the green ceramic articles into the tunnel drier,
conveying the ceramic articles through a water bath where they are heated to a temperature of 40° to 100°,
removing the ceramic articles from the water bath,
heating the green ceramic articles in the drier to a drying temperature while maintaining them at a moisture content substantially equal to that existing at the beginning of the heating steps; and
drying the green articles previously heated;
said heating and drying steps being carried out by passing a stream of hot air in co-current relationship with the green ceramic articles entering the tunnel drier, said stream of hot air having a temperature of from 120° to 140° C. and a moisture content of from 48 to 850 g of water per kg of dry air.

4,272,895
PRODUCT RECLAMATION IN A FLUID BED DRYER
Len Bentzien, Menomonie Falls, Wis., assignor to Universal Foods Corporation, Milwaukee, Wis.
Filed Nov. 7, 1979, Ser. No. 92,216
Int. Cl.³ F26B 3/08
U.S. Cl. 34—10 **16 Claims**



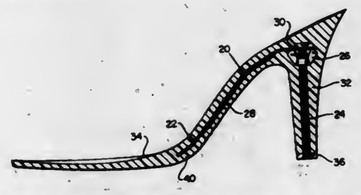
1. In a fluidized bed apparatus for drying of particulate material which comprises a vertically disposed fluidizing chamber, means for passing a current of air through said fluidizing chamber, and an apertured disc shaped element rotatably mounted in a second chamber below said fluidizing chamber and adapted to interrupt a current of air passing through said fluidizing chamber, the improvement comprising:
accumulator means disposed in said second chamber and surrounding said disc shaped element for accumulating particles of said material which fall upon said disc shaped element;
passing means for interconnecting said second chamber and said fluidizing chamber; and
collector means coupled to said accumulator means for concentrating and transferring said particles to said passage means.

4,272,896
EDUCATIONAL TOY
Sydarsis Liou, No. 137, Chung Shan Rd., Chuou Lan Town, Miao Li Hsien, Taiwan
Filed May 30, 1979, Ser. No. 43,829
Int. Cl.³ G09B 7/00
U.S. Cl. 434—340 **7 Claims**



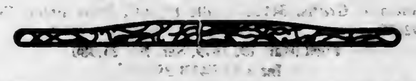
1. An educational toy comprising a frame structure, two compartments provided on the surface of said frame structure, a series of selected quiz and answer boards, one compartment for receiving said quiz boards and the other compartment for receiving said answer boards, a bar disposed beneath said compartments comprising a base and a plurality of flexible upright stems disposed in two rows along opposite longitudinal sides of said base having heads exposed to said compartments and accessible to the quiz and answer boards placed therein, ejecting means for ejecting an answer board from said other compartment to signify the answer is negative and indicating means for showing that an answer is affirmative, separate electrically operated means for individually actuating said ejecting and indicating means, electrical contacts on said stems and electrical circuitry connecting said contacts and said separate electrically operated means, and means on said quiz and answer boards for flexing said stems when inserted in said compartments for selectively closing said contacts to activate one of said separate electrically operated means.

4,272,897
STEEL SHANK SUPPORT FOR MOLDED UNIT SOLE
Gerald J. Ponce, 8956 Burnt Oak Dr., St. Louis, Mo. 63123
Filed Nov. 13, 1979, Ser. No. 93,791
Int. Cl.³ A43B 13/28, 21/36, 13/42
U.S. Cl. 36—24.5 **9 Claims**



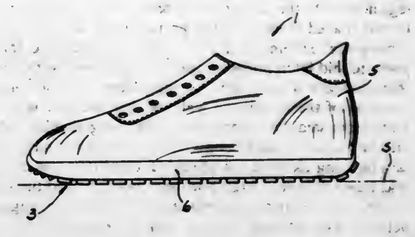
1. In a molded unit sole for a lady's high heel shoe, a shoe shank support suitable for being molded into said unit sole and which provides stability from side to side and heel to toe comprising a shank of sufficient length to extend from the heel area to approximately the beginning of the ball of the foot, said shank having means defining a hole therein, a detachable heel post for strengthening the heel, said heel post being threaded, and means to fix said heel post within said shank hole including a wing nut for reverse threading onto said heel post.

4,272,898
RESIN-COATED FIBER MASS CONTAINING CATALYST-FILLED HOLLOW FIBERS
Horace A. Tassill, Box 278, Santa Barbara, Calif. 93102
Division of Ser. No. 665,805, Mar. 11, 1976, Pat. No. 4,128,951, which is a continuation of Ser. No. 412,581, Nov. 5, 1973, abandoned. This application Jul. 31, 1978, Ser. No. 929,257
Int. Cl.³ A43B 13/38; A61F 5/04
U.S. Cl. 36—44 **7 Claims**



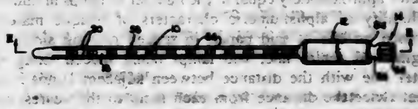
1. An article comprising a mass of coherent fibers, said mass comprising, as a first portion, fibers having a curable substance coated thereon and, as a second portion, pliant hollow fibers uniformly dispersed in said coated fibers and being capable of being rendered frangible, said hollow fibers containing a curing agent for said curable substance.

4,272,899
FOOTWEAR
Jeffrey S. Brooks, 11630 Chieftain Dr., St. Louis County, Mo. 63141
Filed Oct. 15, 1979, Ser. No. 84,832
Int. Cl.³ A43B 5/00, 23/08
U.S. Cl. 36—129 **127 Claims**



1. Footwear, such as a running shoe, comprising a sole and an upper, the sole having:
(a) a heel section for the bottom of the heel of the foot;
(b) an arch section forward of the heel section for the bottom of the arch of the foot;
(c) a forefoot section forward of the arch section having a forward portion for supporting the metatarsal heads and toes of the foot and a rear portion for supporting the part of the foot immediately rearward of the metatarsal heads;
(d) medial and lateral sides;
the sole being so formed that when it is unstressed and disposed on a generally flat horizontal surface:
(e) the upper foot-supporting surfaces of said heel and arch sections are inclined generally downwardly from the medial to the lateral side of the sole;
(f) the arch section at the medial side of the sole being elevated in relation to the forefoot section for supporting the bottom of the arch of the foot at an elevation of from 0.5–3 cm above a line which, as viewed from the medial side of the shoe, extends between the upper foot-supporting surface of the heel section and an area on the upper surface of the forward portion of the forefoot section generally corresponding to the area on which the first metatarsal head is adapted to lie, said 0.5–3 cm being measured from the top of the arch section at its sole side vertically downwardly to said line;
(g) the arch section being compressible at its medial side in relation to said line no more than about 0.5 cm, as measured vertically downwardly from the top of the arch section, on impact of the sole during running.

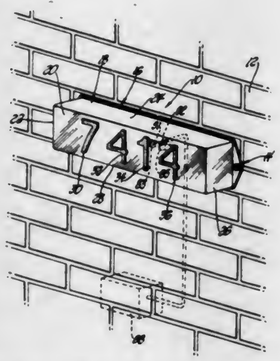
4,272,900
IDENTITY BAND
Bernard G. MacLarty, Bedfordview, and Bryan Sidders, Germiston, both of South Africa, assignors to Promex Plastics (Proprietary) Limited, South Africa
Continuation-in-part of Ser. No. 811,779, Jun. 30, 1977, abandoned. This application Aug. 30, 1979, Ser. No. 71,290
Claims priority, application South Africa, Sep. 27, 1976, 76/5777; Mar. 17, 1977, 77/1615
Int. Cl.³ G09F 03/14
U.S. Cl. 40—21 C **7 Claims**



1. An identity band capable of being formed into a loop, comprising an elongate strap portion having opposed major

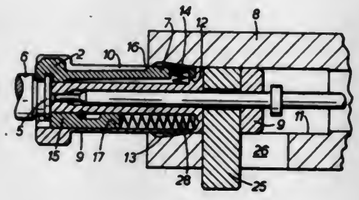
faces and a series of apertures therein, each aperture having two spaced apart transverse walls, one transverse wall of each aperture constituting a camming face and the other transverse wall of each aperture constituting a stop face, the camming and stop faces being skew to said major faces and thus both intersecting said major faces at angles other than right angles, and a latch portion adjacent one end of the band, the latch portion including a latch portion base and an arch formation including legs normal to the latch portion base and a cross-piece parallel to and spaced from the latch portion base, said legs, base and cross-piece defining a latching slot for receiving said strap portion, said latch portion base having an aperture therein and there being a displaceable latching element protruding from that one of the transverse walls of this aperture which is remote from said strap portion, said latching element extending into said slot, and said camming faces serving in turn to deflect said latching element out of said slot and into said aperture in said base while said strap portion is being passed through said slot in one direction to form the band into a loop, engagement between said latching element and any one of said stop faces preventing withdrawal of the strap portion from the slot in the opposite direction, a portion of the band being adapted to receive identification information.

4,272,901
LIGHTED ADDRESS SIGN
David R. Matthews, 1613 Waltham Dr., Ann Arbor, Mich. 48103
Filed Jun. 27, 1978, Ser. No. 919,636
Int. Cl.³ G09F 13/08
U.S. Cl. 40—574 3 Claims



1. An address sign adapted to display a house address number or the like and to provide low intensity illumination in a localized area such as a house entrance, said sign comprising an elongated rectangular back plate being adapted to be mounted on a support member, a boxlike cover of rigid self-supporting translucent material having a rectangular front panel with a configuration the same as the back plate and being disposed in spaced parallel relationship with said back plate, said cover having a length greater than its width and comprising four side panels unitary with said front panel and extending perpendicular thereto with the edges of the side panels seated upon said back plate, a set of miniature incandescent lamps mounted on the back plate and disposed on the longitudinal center line thereof, the length of the cover being greater than the width by a factor approximately equal to the number of lamps in said set, a plurality of alphanumeric characters of opaque material disposed on one of said panels in spaced relation along the longitudinal center line, said lamps being spaced along the center line with the distance between adjacent lamps being about twice the distance from each lamp to the nearest side panel, the front panel being spaced further from the lamps than the side panels but less than the distance between adjacent lamps, said translucent material of said cover having a light transmission factor in the range of 0.28 to 0.32 whereby the front panel is illuminated with uniform intensity over the entire surface thereof to provide enhanced readability of the characters from a distance and whereby the side panels have a minimized front-to-back dimension and are illuminated with uniform intensity over the entire surface areas to provide low level ambient lighting; said back plate being provided with a first mounting flange at one end thereof and a second mounting flange at the other end thereof, the side panels of the cover at opposite ends thereof having first and second cover flanges unitary therewith in overlying relationship with the respective mounting flanges on said back plate and first fastener means extending through both of said first flanges, and second fastener means extending through both of said second flanges for securing said cover to said back plate and for securing said sign to said support member.

4,272,902
FIRE-ARMS
Frank E. Waters, Brentwood, England, assignor to Chartered Industries of Singapore Private Limited, Jalan Boon Lay, Singapore
Filed Dec. 4, 1978, Ser. No. 966,386
Claims priority, application United Kingdom, Dec. 5, 1977, 50593/77
Int. Cl.³ F41C 15/12
U.S. Cl. 42—25 10 Claims



1. A bolt assembly for a fire-arm, the assembly comprising a reciprocable bolt carrier, a bolt reciprocably received in and rotatable relative to the bolt carrier, a recess in the bolt and an extractor having a body which in unassembled condition of the bolt and bolt carrier is freely placeable in and removable from the recess in the bolt, and which is pivotally retained in the recess in the assembled condition of the bolt assembly by the bolt carrier, the extractor and recess being shaped to hold the extractor relative to the bolt for reciprocation and rotation of the bolt relative to the bolt carrier and the extractor having a head for engaging a cartridge case in a first position of relative reciprocation of the bolt and bolt carrier, the extractor being held by the bolt carrier in a first pivotal position in which the extractor head will in use be engaged with a cartridge case to withdraw the case from the chamber of the fire-arm while in a second position of relative reciprocation of the bolt and the bolt carrier the extractor being pivotable to a second position from which the head can move to engage with a cartridge.

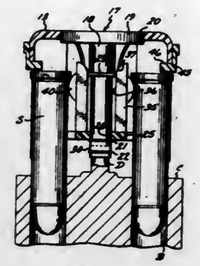
4,272,903
REVOLVER RELOADING DEVICE
William T. Griffis, 34122 Seville Pl. #C, Dana Point, Calif. 92629
Filed Mar. 19, 1979, Ser. No. 21,980
Int. Cl.³ F42B 39/04
U.S. Cl. 42—89 5 Claims

1. A reloading device for retaining a plurality of cartridges in alignment for receipt in a cylinder of a revolver, which cylinder includes a center shaft, and for releasing said cartridges upon manual application of said reloading device against said center shaft of said cylinder, comprising:

a cylindrical housing conformed as a segment of a cylinder

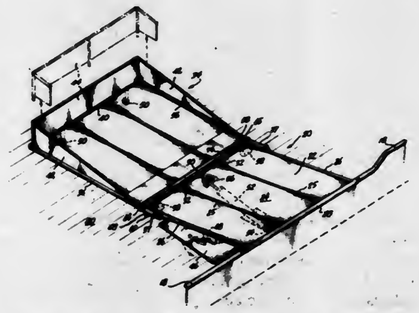
including a cap at one end thereof, a plurality of peripherally spaced grooves formed in the exterior surface of said housing, a central cavity extending axially through the interior of said housing and said cap, said central cavity communicating with said grooves, said grooves being confomred to receive said cartridges therein;

a latching spider received on the interior of said central cavity and including a plurality of flexible latches each aligned to extend into the interior of said grooves for retaining said cartridges therein; and



a center post assembly deployed on the interior of said central cavity and adapted for axial articulation therein, said assembly including a radial projection adapted to oppose the releasing flexure of said latches in one axial position thereof and an end fitting adapted to engage the end of said center shaft of said cylinder whereby the axial articulation of said assembly by said shaft from said one axial position will allow for releasing flexure of said latches.

4,272,904
CRAB POT HANDLING APPARATUS AND METHOD
Gilbert W. Franckiyn, 1160 Conyn Rd. NW., Poulsbo, Wash. 98370
Filed Oct. 9, 1979, Ser. No. 82,743
Int. Cl.³ A01K 69/08
U.S. Cl. 43—4.5 6 Claims



1. An apparatus for receiving, holding and disposing of a crab pot catch comprising:

a first structural frame means having a pivotal engagement with a crab harvesting vessel near the gunwale for rotation from a first sorting position to a second dumping position and having first crab pot engaging means thereon for supporting and launching a crab pot;

a second structural frame means pivotally interconnected to said first frame means and having a sorting surface thereon for recovering crabs said second frame means adapted for rotation into stowed engagement upon said first frame means;

upstanding enclosure means along portions of the periphery of said second structural frame forming with said sorting surface a sorting bin means for receiving and holding the crab pot catch; and

means for rotating said first structural frame means about said pivotal engagement from said first sorting position to said second dumping position whereby the non-harvestable portion of the catch not removed from said sorting bin means are dumped overboard.

6. A method of handling and sorting a crab pot catch comprising:

removing the crab pot from a water body to a crab harvesting vessel having a crab pot launching surface pivotally mounted on the gunwale of said vessel, said surface having a sorting surface pivotally attached to the edge opposite the pivotal mount on said gunwale;

placing the crab pot catch on said sorting surface;

sorting the harvestable crabs from said crab pot catch so confined on said sorting surface and simultaneously rebaiting and preparing the pot for launching;

rotating said launching surface upwardly to launch said pot;

pivoting said launching surface downwardly and then locking said launching and said sorting surfaces together to prevent relative rotation there between and to form a disposal slide for dumping debris from said sorting surface; and

dumping the non-harvestable portion of said catch remaining on said sorting surface into the surrounding water body by rotating said sorting surface and launching surface into an inclined position.

4,272,905
GIG WITH REMOVABLE TINES
Ernest G. Hinkle, 12431 SW. First Pl., Plantation, Fla. 33325
Filed Dec. 13, 1978, Ser. No. 969,283
Int. Cl.³ A01K 81/04
U.S. Cl. 43—6 3 Claims



1. A gig for catching animals, comprising:

an elongated body having a longitudinal center line, a forward end and a rear end;

said body including a first body aperture in said body and a second body means spaced from said first body aperture along a line parallel to the longitudinal center line of said body;

a spear means connected in one fixed workable position to said body and positioned on the surface of said body generally parallel to the longitudinal center line of said body;

said spear means including a barbed first end positioned beyond said forward end of said body, a second end means for insertion through said first body aperture, and a second means positioned between said barbed first end and said second end means, said secured means for positioning said spear means; and

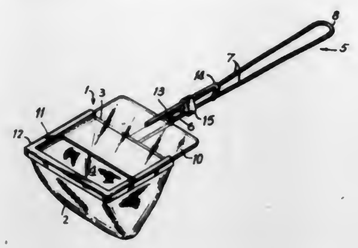
a quick release biasing securing means disposed about said spear means and said surface of said body adjacent said second body means for removably securing said spear means to said body in a fixed position, said quick release biasing securing means for quick movement from a secured position to a spear released position by finger or thumb movement;

said movable means includes a gap for removing and replacing said spear means from said body whereby said gig may be easily assembled and disassembled for safe storage and shipment when not in use.

4,272,906
CLOSEABLE FISH NET

Gary Liebling, Calle 2, R-10 Jardines Fagot, Ponce, P.R. 00731

Filed Aug. 14, 1978, Ser. No. 933,290
Int. Cl.³ A01K 77/00
U.S. Cl. 43—11 17 Claims

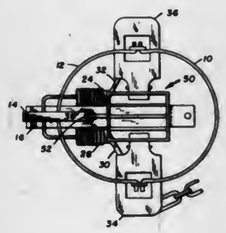


1. A fish net comprising a rigid frame, a container of flexible netting material mounted on said frame and defining therewith an opening for entry of fish into the container, a fitting mounted on said frame around said opening, said frame having a round cross-section, said netting having an edge wrapped around said frame, said fitting being U-shaped in cross-section and mounted over said frame and the netting wrapped thereon, rigid cover means slidably supported by said fitting for movement in a plane between a retracted position and an extended position, said cover means having a dimension corresponding to the size of said opening to close said opening in said extended position, said opening being open and accessible with said cover means in the retracted position and actuator means coupled to said cover means for moving the cover means between the retracted and extended positions.

4,272,907
ANIMAL TRAP

Victor Skapura, P.O. Box 77, Lore City, Ohio 43755

Filed Aug. 29, 1979, Ser. No. 70,838
Int. Cl.³ A01M 23/26
U.S. Cl. 43—92 10 Claims

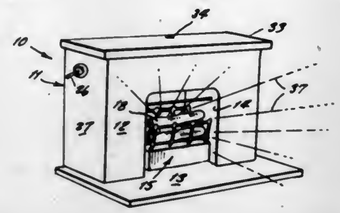


1. An improved spring-actuated leg-hold animal trap of the type having a trap pan pivotally mounted on the trap frame with a shank for engaging a trigger lever, which holds the trap in a set position, the trap pan defining a substantially horizontal plane, whereby upon movement of the trap pan the trigger lever is released and the trap is closed, the improvement wherein the trap pan is formed of at least one thin flat elongate element affixed to the shank, wherein all downwardly facing surfaces, in relation to the defined horizontal plane, of said at least one thin flat elongate element are tapered, substantially forming a knife edge.

4,272,908
ELECTRIFIED DOLL HOUSE FIREPLACE

Henry Bassetti, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of, New York, N.Y. 10007

Filed Jun. 15, 1979, Ser. No. 48,748
Int. Cl.³ A63H 33/00
U.S. Cl. 46—12 3 Claims

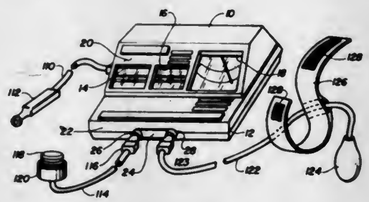


1. A miniaturized electrical fireplace for a doll house comprising a block supported on a base with a mantle secured pivotally to the top of said block in combination with a grate and simulated logs, said block including a recess at the block bottom adapted to receive said grate supported on said base, said grate comprising a support with opposing grate mesh retainers for supporting said simulated logs, said support including a notched out portion to receive therein at least one lamp mounted on said base, said retainers having means for supporting said logs in a manner to obscure said lamp, said block further including hollowed out portions and an electrical circuit including battery means located therein for lighting said lamp.

4,272,909
TOY MEDICAL MONITOR UNIT

Kwok W. Tsui, Hong Kong, Hong Kong, assignor to Arco Industries Ltd., Hong Kong, Hong Kong

Filed Apr. 25, 1980, Ser. No. 143,851
Int. Cl.³ A63H 33/30, 29/16
U.S. Cl. 46—39 7 Claims

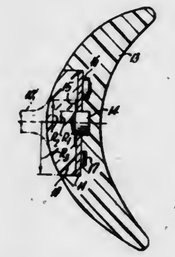


1. A toy medical monitor unit to simulate registering respectively on gages pulse rate, blood pressure and body temperature, said unit comprising in combination, a housing having a base and viewing openings therein, a plurality of automatically expandable and contractable bellows mounted to said unit, a plurality of cylindrical drums supported within said housing adjacent said viewing openings, indicia respectively on said drums simulating reading of pulse rate and blood pressure, a plurality of cylinder and piston units within said housing respectively adjacent said drums, tube means connecting one end of each bellows with one end of a respective cylinder and operable to reciprocate said pistons in said cylinders in opposite directions respectively by means of air pressure and suction induced by manual compression and automatic expansion of said bellows, means connected to said pistons and operable to move said drums to display certain fictitious pulse rate and blood pressure indicating indicia on said drums respectively in said viewing openings, an arcuate scale in said housing viewable through another one of said plurality of viewing openings, a dial finger rotatably supported for movement of said finger relative to said scale to simulate body temperature, another bellows similar to said aforementioned bellows mounted within said housing adjacent said scale and havng one end anchored relative to said base of said housing, a reciprocable member fixed to one end of said other bellows and engageable with said dial finger to rotate it relative to said scale, and a tube having one end connected to said other bellows and the other end having a mouthpiece operable to be blown by a child to expand said other bellows to produce movement of said dial finger in one direction and release of said pressure automatically permitting said other bellows to retract and restore said dial finger to initial position relative to said scale.

4,272,910
OCULAR PROSTHETIC OR THE LIKE

William R. Danz, 87 Park Ave., Glen Rock, N.J. 07452

Continuation-in-part of Ser. No. 62,329, Jul. 31, 1979, abandoned. This application Jul. 10, 1980, Ser. No. 164,943
Int. Cl.³ A63H 33/26, 3/38; A61F 1/16
U.S. Cl. 46—45 26 Claims



21. An artificial eye, comprising a substrate having a front surface bearing iris indicia characterized by a central dark circular area sized to simulate a pupil in a bright-light environment, said iris indicia further including an annular area surrounding the pupil-simulating area and colored and sized to simulate the remaining area of a simulated iris, a flat electro-optically sensitive annulus in front of said iris-simulating area and extending radially outward from said dark area to a radial extent to correspond with the outer diameter of a pupil that has been dilated due to a light environment of intensity less than that of said bright environment, electric-circuit means carried by said substrate with excitation connections to said electro-optically sensitive annulus, and eye-simulating body means mounting said substrate and providing a transparent covering of at least said pupil-simulating region.

4,272,911
SPINNING TOY

Manfred Strauss, Randolph, N.J., assignor to Shelcore, Inc., New York, N.Y.

Filed Sep. 25, 1978, Ser. No. 945,401
Int. Cl.³ A63H 1/32
U.S. Cl. 46—47 10 Claims

1. A spinning toy comprising:
a transparent outer shell with a hollow interior, the exterior surface of said shell being in the shape of a surface of revolution with an axis of symmetry so that it may be rolled about said axis along a horizontal surface,
an object disposed within said shell and spaced from the interior surface thereof, said object being visible through said shell from the exterior surface thereof, and
a flexible elastomeric support band having end portions thereof fixedly secured to spaced points of the shell located on said axis of symmetry, said band supporting and being fixed to said object between said points, the center of gravity of said object being below said band, rotation of said shell about said axis of symmetry as it rolls in one direction on said surface causing said band to initially twist against the rotational inertia of said object without initially causing said object to spin, said object being sufficiently light in weight so that when after a finite time interval which sufficient energy has been stored up in said band by rolling of the shell on said surface in said one direction, the rotational inertia of the object is overcome by the stored energy in the band to suddenly spin the object without causing the toy to roll in a direction opposite to said one direction, whereby said band untwists completely to spin said object about the length of the band, the momentum of the spinning object causing said band to twist beyond the relaxed state and in an opposite or reverse sense of direction compared to the initial twisting of said band, said object rotating and counter-rotating about said band until friction substantially dissipates the stored energy.



4,272,912
AIRPLANE MODEL WITH FLEXIBLE STRUT ASSEMBLY

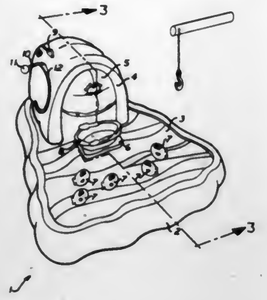
Philippe Lapierre, 4, rue Pasly, 75014 Paris, France

Filed Jun. 4, 1979, Ser. No. 44,951
Claims priority, application France, Jun. 20, 1978, 78 18340
Int. Cl.³ A63H 27/00
U.S. Cl. 46—79 5 Claims



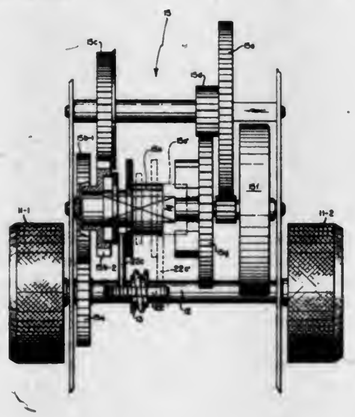
1. An airplane model, comprising:
a fuselage;
a wing assembly including an upper wing comprised of two half-wing sections; and
strut brace means including a plurality of center section struts for directly securing said upper wing to said fuselage in a substantially fixed relationship which is maintained during repeated use of the model, each said strut being made from a resilient material whereby said strut brace means acts to return said upper wing to said fixed relationship with said fuselage upon the occurrence of forces applied to the wing assembly which result in movement of said upper wing with respect to said fuselage and said strut brace means further including an oblique strut assembly for connecting each half-wing section to the fuselage with each oblique strut assembly being connected to at least a first point on said fuselage in one of a flexible and hinged manner and to at least a second point on said fuselage in a sliding manner.

4,272,913
SIMULATED MONSTER TOY AND GAME
Jeffery R. Bisch, 1635 Nineteenth St., Manhattan Beach, Calif. 90266
Filed Mar. 30, 1979, Ser. No. 25,476
Int. Cl.³ A63H 13/02
U.S. Cl. 46—123 3 Claims



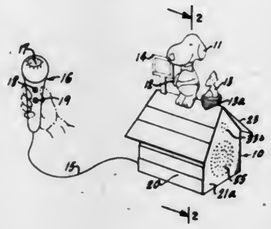
1. A toy including at least two toy weights and shell means movably mounted on base means, said base means including a generally horizontal surface having an opening, means for holding said shell means cocked, weight-actuated means for triggering release of said shell means from cocked position including depressible weight-receiving means mounted in said opening on said base means within reach of said shell means and cocking release means joined to said weight-receiving means, said weight-receiving means being adapted to actuate said cocking release means when a number of said toy weights sufficient to depress said weight-receiving means is placed on said weight-receiving means, and means for moving said shell means forward from cocked position to a position covering said toy weights, and then moving said shell means and covered weights to a position where said toy weights no longer exert force on said weight-receiving means.

4,272,914
ROCKET CAR
Henry Orenstein, Claridge House, Verona, N.J. 07044
Filed Jan. 26, 1979, Ser. No. 6,687
Int. Cl.³ A63H 29/20, 17/04, 11/10, 13/16
U.S. Cl. 46—209 8 Claims



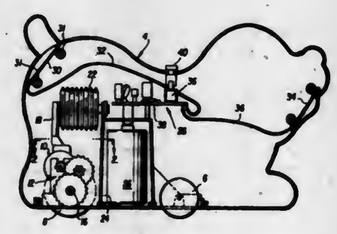
1. A toy device comprising
a chassis with a shaft connected thereto,
an energy source,
means for connecting said energy source to drive said shaft at a first velocity, and
means responsive to the rotation of said shaft for connecting said energy source to drive said shaft at a second velocity, greater than the first, and for operating an auxiliary device; wherein said energy source is a flywheel, the first mentioned connecting means is a gear train, and the second mentioned connecting means is a slider operated by the rotation of said shaft.

4,272,915
AUDIO-VISUAL AMUSEMENT DEVICE
Sidney Noble, Taipei, Taiwan, assignor to Mego Corp., New York, N.Y.
Filed Sep. 28, 1979, Ser. No. 79,661
Int. Cl.³ A63H 33/26, 11/00
U.S. Cl. 46—232 9 Claims



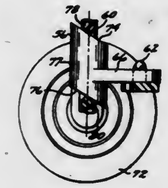
1. An audio-visual amusement device comprising a housing supporting at least one movable animated figure, a mechanical drive mechanism including an electric motor, an audio amplifier, a battery source of electric power, and an elongated control cable, said control cable terminating in a control head including a microphone, a first control switch placing said microphone in circuit with said amplifier, and a second control switch activating the electric motor of said drive mechanism, said drive mechanism including a vertically oriented driven member, said driven member having axial means for activating a first animated figure in each revolution thereof and radial means for activating a second animated figure.

4,272,916
PROXIMITY RESPONSIVE TOY
George P. Giordano; Robert E. Cordrey, and Allen F. Eberts, all of Cincinnati, Ohio, assignors to CPG Products Corp., Cincinnati, Ohio
Filed Dec. 6, 1979, Ser. No. 100,986
Int. Cl.³ A63H 30/02
U.S. Cl. 46—253 8 Claims



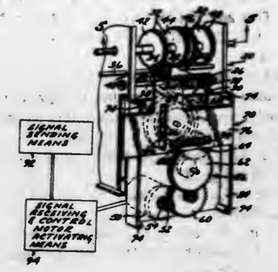
1. A toy having motor-driven drive means for propelling the same,
electrical sensing circuit means on said toy, including a capacitor plate means for sensing the proximity of said toy to a capacitive body;
and control circuit means responsive to a predetermined change in capacitance of said sensing circuit means upon close proximity of said capacitive body to said capacitor plate means for initiating operation of said motor for a predetermined period of time;
said drive means being arranged to drive said toy in a forward direction, said capacitor plate means including a plate positioned in a rear region of said toy whereby approach of a capacitive body to said rear region will cause said toy to move in a direction away therefrom; and
p1 a further plate positioned in a forward region of said toy whereby approach of a capacitive body thereto will cause said toy to move toward said latter capacitive body and follow any forward movement thereof.

4,272,917
STEERING ASSEMBLY RENDERING CAR UNSTABLE IN A TURN
Jay Smith, III, Pacific Palisades, and Richard L. Malone, Manhattan Beach, both of Calif., assignors to Smith Engineering, Santa Monica, Calif.
Filed Jan. 25, 1980, Ser. No. 115,229
Int. Cl.³ A63H 30/04, 17/36
U.S. Cl. 46—254 21 Claims



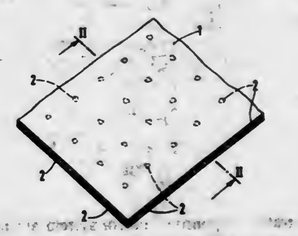
1. A steering assembly adapted for incorporation into a toy car and for rendering the toy car unstable in a turn thereby enhancing the play value of the toy car, the steering assembly comprising:
a first kingpin incorporated in a toy car chassis and fixedly connected to a first axle bearing a first wheel;
a second kingpin incorporated in the toy car chassis and fixedly connected to a second axle bearing a second wheel;
first means attached to the car chassis for pivoting the first kingpin and the second kingpin about a respective substantially vertically disposed axis at the option of a player, a pivoting motion of the first and second kingpins being coordinated so as to steer the toy car on a support surface, either one of the first and second kingpins being on the inside and the other kingpin being on the outside of a turn at the steering option of the player, and
second means for lowering the kingpin and the connected wheel positioned on the inside of the turn towards the support surface, and for simultaneously raising the kingpin and the connected wheel positioned on the outside of the turn away from the support surface.

4,272,918
MULTI-POSITION REMOTE CONTROLLING DEVICE FOR TOYS
Tsutomu Inoue, Ichikawa, Japan, assignor to Takara Co., Ltd., Tokyo, Japan
Filed Mar. 19, 1979, Ser. No. 21,639
Claims priority, application Japan, Mar. 30, 1978, 53-41442[U]
Int. Cl.³ A63H 11/00
U.S. Cl. 46—266 17 Claims
1. In a toy having a plurality of moving parts, and a device for driving and selectively actuating any one of the parts, the device comprising:
a drive motor mounted within the toy, the drive motor rotating a drive gear mounted upon a first axle;
a control gear mounted upon a second axle in the toy and engaging the drive gear, the control gear being movable relative to the drive gear in a direction parallel with the first axle while staying in operative position wherein the drive gear rotates the control gear;
a plurality of output gears, each output gear being fixedly positioned relative to the drive gear for engagement with the control gear in at least one subjectively selected position of the control gear, each output gear driving a predetermined part of the toy;



cam means for continuously moving the control gear relative to the drive gear, the cam means including a cam member and a cam follower connecting piece mounted for movement in the toy parallel with the first axle, the connecting piece moving the control gear, and
motor means for driving the cam means, for as long as the motor means are energized the motor means being subjectively actuable by an operator, the cam means and the control gear being adapted to be left in any position that the cam means and the control gear are occupying at the time the motor means are deenergized.

4,272,919
SEED CARRIER AND METHOD OF PRODUCING SAME
Evald G. Schmidt, Skaragatan 4, Markaryd, Sweden (285 00)
Filed Aug. 2, 1979, Ser. No. 63,142
Claims priority, application Sweden, Jul. 28, 1978, 7808216
Int. Cl.³ A01G 31/00
U.S. Cl. 47—56 23 Claims



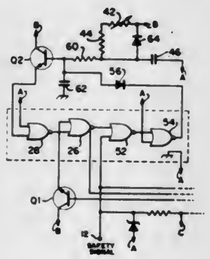
13. A method of producing a peat-containing seed carrier on a machine comprising at least one rotating endless forming element and having a drying section comprising the steps of:
(a) adding water to raw peat material to obtain a peat fibre suspension having a peat fibre concentration of less than 1 percent by weight;
(b) feeding the peat fibre suspension to a classifying device;
(c) classifying the peat fibre suspension by separating therefrom a portion of colloids and particles of less than 0.2 mm in size;

(d) wet mixing another fibre material with the peat material to interconnect the peat fibres and to form a mixture;
(e) thereafter supplying the mixture to the forming element of the forming machine;
(f) adding seeds to the peat fibre material before the mixture reaches a drying section of the machine; and
(g) thereafter drying the mixture to provide a seed carrier.

4,272,920
METHOD OF APPLYING HERBICIDE
Jean H. Dawson, Prosser, Wash., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Continuation-in-part of Ser. No. 907,474, May 19, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 83,694
Int. Cl.³ A01C *1/06*; A01N *9/12*
U.S. Cl. 47—58 **20 Claims**

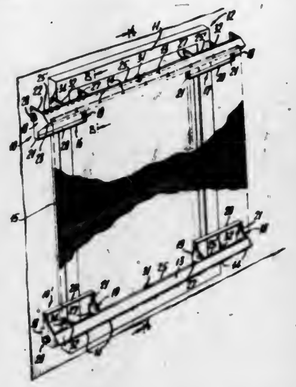
1. A method of applying herbicide to control the growth of undesirable plants among crop plants, comprising
simultaneously introducing into the soil in close proximity, a crop seed and herbicide,
said herbicide having the capability of spreading from the area around the seed,
said herbicide being introduced in an amount sufficient, after spreading thereof, to control the growth of undesirable plants and insufficient to prevent an economically meaningful stand of said crop plants resulting from the germination of said crop seed,
said herbicide being introduced in an amount, before spreading, capable of causing injury to said crop resulting from germination of said crop seed,
said introduction being carried out in the absence of substances which specifically antagonize any harmful action of said herbicide on said crop seed and crop plants resulting from the germination of said crop seed.

4,272,921
TRAFFIC RESPONSIVE CONTROL SYSTEM FOR AUTOMATICALLY OPERATED DOORS
Robert Jorgensen, Niles, Mich., assignor to Kawneer Company, Inc., Niles, Mich.
Filed Dec. 21, 1978, Ser. No. 971,781
Int. Cl.³ E05F *15/20*
U.S. Cl. 49—30 **10 Claims**



1. A traffic responsive control system arranged to control traffic through a door and responsive to the presence of traffic on both the operate and safety sides of the door, comprising means for developing a first control signal in response to the presence of traffic in a predetermined area on the operate side of the door, means for developing a second control signal in response to the presence of traffic in a predetermined area on the safety side of the door, a power switch, means controlled by said power switch for developing power for said control system, means responsive to said first control signal for opening said door, said door opening means also operating in response to the application of power of said control system when said power switch is closed, means for disabling said door opening means when power is initially applied to said control system, thereby to prevent opening of said door in response to closure of said power switch, and means for preventing said disabling means from also responding to said second control signal so that said door can be opened in response to said first control signal substantially immediately after termination of said second control signal.

4,272,922
WINDOW GUARD SUPPORT
Irwin D. Prager, 34 Malone Ave., Staten Island, N.Y. 10306
Filed Jun. 25, 1979, Ser. No. 52,005
Int. Cl.³ E06B *3/68*
U.S. Cl. 49—55 **9 Claims**



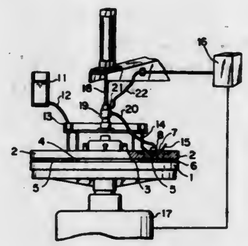
1. Window guard supporting means for securing a window guard such as steel mesh, screening and the like in overlying relationship to a window having a surrounding frame comprising at least one support for attachment to said window, said support comprising a pair of spaced brackets, an elongated member extending between and rotatably carried by said brackets, a carrier member extending between and secured to said brackets, said carrier member including means for engaging and supporting said guard, and adjustable means carried by and adjoining each end of said elongated member and movable into engagement with said frame to releasably secure said support to said window frame.

4,272,923
VEHICLE DOOR
Bruce H. Anderson, Centerport, N.Y., assignor to ComCoach Corporation, Ronkonkoma, N.Y.
Continuation-in-part of Ser. No. 932,942, Aug. 11, 1978, abandoned. This application Jul. 20, 1979, Ser. No. 59,567
Int. Cl.³ E05F *11/00*
U.S. Cl. 49—360 **25 Claims**

1. In combination, a mass transit vehicle having a sliding door, comprising upper track means suspended downwardly and resiliently mounted on the upper frame of said vehicle, lower track means extending outwardly and rigidly mounted on the lower frame of said vehicle, lower suspending means mounted on said door and slidingly cooperating with said lower track means, upper guide means mounted on said door and slidingly cooperating with said upper track means, and means for causing said door to move between an open and a closed position along said track means, each of said track means comprising linear bearing rod means affixed to a plurality of spaced apart mounting blocks which, in turn, are secured to said vehicle such that said linear bearing means are essentially parallel to the longitudinal axis of said vehicle, said upper track means comprising an upper track support fixed to the upper frame of said vehicle in a horizontal plane and upper mounting blocks suspended from, and resiliently mounted to, said upper track support, and said lower track means comprising a lower track support fixed to the lower frame of said vehicle in a vertical plane and lower mounting blocks extending outwardly from, and rigidly mounted to, said lower track support.

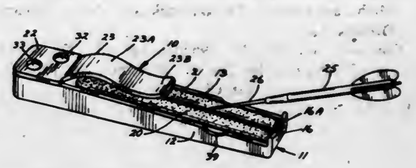


4,272,924
METHOD OF ULTRASONIC CONTROL FOR LAPPING AND AN APPARATUS THEREFOR
Masami Masuko, Tokyo, and Chikanobu Ichikawa, Koshoku, both of Japan, assignors to Fujikoshi Machinery Corporation, Nagano, Japan
Filed Jan. 29, 1980, Ser. No. 116,396
Claims priority, application Japan, Jan. 31, 1979, 54-10024
Int. Cl.³ B24B *49/04*
U.S. Cl. 51—165 R **5 Claims**



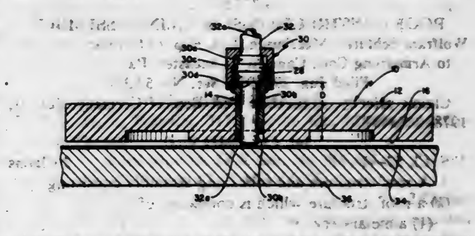
1. A method for lapping a thin work piece in a lapping machine having a lower lapping surface plate with an annular lapping surface and an upper lapping surface plate with an annular lapping surface rotating relative to and substantially in parallel with the lower lapping surface plate with said work piece sandwiched therebetween and with a continuous supply of a lapping fluid to the interspace therebetween, which method comprises:
(a) projecting an ultrasonic wave substantially perpendicularly to the surface of the work piece through said lapping fluid and said work piece, said wave passing through an opening provided in a portion of the annular lapping surface of the upper lapping surface plate with an ultrasonic transducer means,
(b) receiving the echo waves of the ultrasonic wave reflected at the upper and the lower surfaces of the work piece with the ultrasonic transducer means whereby the echo waves are converted into electric signals corresponding thereto, and
(c) transmitting the electric signals to a control means for the lapping machine where the electric signals corresponding to the delay time of the echo waves are computed in terms of the thickness of the work piece and utilized for controlling the operation of the lapping machine.

4,272,925
SHARPENING APPARATUS
Louis N. Graves, Anoka, Minn., assignor to Louis N. Graves Co., Inc., Anoka, Minn.
Filed Feb. 4, 1980, Ser. No. 117,876
Int. Cl.³ B24B *3/54*; B24D *15/02*
U.S. Cl. 51—211 R **11 Claims**



1. A sharpening apparatus comprising;
a base;
a pair of thin, elongate sharpening rods;
said base having a compartment for storage of the rods in side-by-side relationship in a first position with a surface interface of the rods accesible for sharpening a pointed object;
clip means holding the rods in the compartment;
said base having an end wall partially defining said compartment;
said rods movable to a second position in side-by-side relationship with first ends located in the compartment and retained therein by the clip means, and opposite ends extended over the end wall in cantilever fashion and accessible for use in sharpening pointed articles;
said base having angularly inclined mounting openings for mounting the rods in a third position extended angularly upward in acute angular relationship to the base with each rod leaning in an opposite direction relative to the base.

4,272,926
FACE FINISHING TOOL FOR FIBER OPTIC COMMUNICATION CABLE
Thomas W. Tamulevich, Southbridge, Mass., assignor to Epoxy Technology Inc., Billerica, Mass.
Filed Nov. 5, 1979, Ser. No. 91,076
Int. Cl.³ B24B *41/06*
U.S. Cl. 51—216 R **7 Claims**



1. In a facet finishing tool for a terminated fiber optic communication cable, said tool having a reference surface and having a connector element for selectively positioning and locating such a cable coupled therewith relative to the reference surface, said connector element including a cable-abutting locating surface, the improvement in said tool comprising
a base element of precision cast material forming, as cast,

said reference surface and a mounting passage with selected precise orientation relative to said reference surface,

said connector element being mounted to said base element by adjustable press fit within said passage,

whereby said cast base element provides said reference surface with selected smoothness and with abrasion resistance, and mounts said connector element with selected precise relative orientation and adjustably for the calibration repositioning of said locating surface in said passage relative to said reference surface.

4,272,927

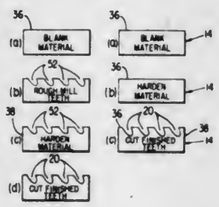
METHOD OF MANUFACTURING A BROACHING TOOL

Julius D. Myers, Lake Orion, and John X. Russell, Troy, both of Mich., assignors to The Babcock & Wilcox Company, New Orleans, La.

Continuation of Ser. No. 895,903, Apr. 13, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 102,205

Int. Cl.³ B24B 1/00

U.S. Cl. 51—322 **3 Claims**



1. A method of manufacturing a broaching tool comprising the steps of:

providing a blank piece of steel material suitable for manufacturing a broaching tool;

heat treating said steel material to harden it to a Rockwell C hardness substantially in the range of 63.5 to 67 thereby;

grinding a series of gullets directly into the hardened material with a CBN 500 (cubic boron nitride) grinding wheel to form a series of finished broach cutting teeth therein with said grinding with said CBN 500 grinding wheel being done so as to provide the removal of between 0.06 and 0.09 inches of hardened metal per each cyclic pass of said CBN 500 grinding wheel across the surface of said hardened material at a rate of approximately 2 to 6 inches per minute; and

exhausting a synthetic coolant on the face of said CBN 500 grinding wheel at a rate of substantially 30 gallons per minute during the grinding operation.

4,272,928

ROOF CONSTRUCTION-SUBCEILING ASSEMBLY

Wolfram Schlüter, Meerbusch, Fed. Rep. of Germany, assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Jun. 29, 1979, Ser. No. 53,377

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833487

Int. Cl.³ E04H 9/00

U.S. Cl. 52—1 **2 Claims**

1. A roof structure and subceiling assembly consisting of:

(a) a roof structure which is composed of:

(1) a metal deck,

(2) over top of the metal deck there being positioned a heat insulating layer,

(3) over top of the heat insulating layer there being positioned a water impermeable outer layer,

(b) below the roof structure there being positioned a suspended ceiling, said suspended ceiling comprising:

(1) a plurality of suspended support runners,

(2) positioned on the support runners a plurality of ceiling boards,

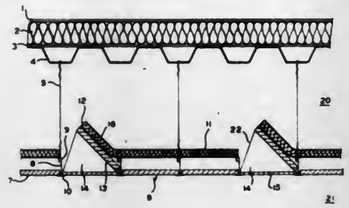
(3) over top of the ceiling boards there being positioned an intermediate heat insulating layer,

(c) the improvement comprising:

(1) a plurality of ventilation openings in the suspended ceiling providing for air passage from the area below the suspended ceiling into the area above the suspended ceiling between the suspended ceiling and roof structure,

(2) said ventilation openings being capable of being closed by a fire barrier, said fire barrier comprising:

(a) a ceiling board sized to fit within the ventilation opening and having one edge of the ceiling board



resting on a support runner in a diagonal position so that the opposite edge of the ceiling board is raised above the plane of the suspended ceiling, said ceiling board being supported in position by a supporting member of a material which will melt, decompose, or otherwise lose its rigidity under the influence of heat so that, after the decomposition of said supporting member, said ceiling board, together with the overlying intermediate layer of heat insulation material will fall into position substantially closing the ventilation opening with ceiling board in position in the plane of the suspended ceiling and the overlying intermediate layer of insulation being placed in position over top of the ceiling board.

4,272,929

TOWER AND METHOD OF CONSTRUCTION

Bror H. Hanson, 7182 Broadbridge, Fair Haven, Mich. 48023

Filed Aug. 23, 1979, Ser. No. 69,120

Int. Cl.³ E04H 12/00

U.S. Cl. 52—40 **1 Claim**



1. A wind powered generating tower comprising in combination:

a plurality of tubular sections, including a lower section to be anchored by cement in a hole in the ground and a higher section slideable within and atop the lowest section;

the distance the higher section slides within the lowest section predetermined by a ring shaped member attached around the exterior of the higher section where the ring abuts the top of the lowest section;

the lowest section including pairs of set screws positioned around its top so that by tightening selective screws the higher section may be placed at an angle relative the lowest section and where the sections are locked together by the tightening of said set screws;

the lowest section further including a U-shaped member where the tops of the sides of the U-shaped member are joined to the lowest section and the base of the U rests on the bottom of the hole so to enable the anchoring cement poured around the lowest section to flow past the U-shaped member into the interior of the lowest section;

each of said sections having staggered nuts welded to the exterior of the tower for holding ladder legs which enable climbing of the tower; and

a wind tubine generator pivotably connected atop the highest section.

4,272,930

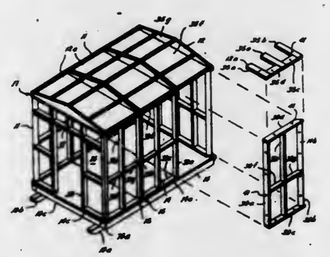
MODULAR HOUSING SYSTEM

Manford H. Foster, Houston, Tex., assignor to Roy H. Smith, Jr., Bellaire, Tex.

Continuation of Ser. No. 628,468, Nov. 4, 1975, abandoned. This application May 30, 1978, Ser. No. 910,575

Int. Cl.³ E04H 12/14

U.S. Cl. 52—79.1 **8 Claims**



1. In a modular housing system which includes a number of wall panel units disposed in line and abutting one another to form a wall and connector means extending between abutting frame members of such wall panel units, said connector means including:

a pin extending through aligned openings in adjacently positioned frame members of adjacently positioned wall panel units;

said pin having an end portion extending outwardly of said adjacently positioned frame members, said end portion having a pair of oppositely positioned slots;

a lock plate having an opening wherein to receive said pin end portion, said lock plate being positioned against said frame member from which said pin end portion extends outwardly; and

a wedge member mounted onto said pin end portion for engaging said pair of oppositely positioned slots;

said wedge member being movable between a released position and a wedge position in which said wedge member is wedged against said lock plate and said pin end portion, holding said pin in tension to attach said adjacent frame members to each other;

said lock plate and wedge member having serrated portions which intersect to lock said wedge member in said wedged position, both said serrated portions being spaced from their respective opening portions engaging said pin end for separation of the wedge member from the lock plate by lifting up on the end of the wedge member adjacent its serrated portion.

4,272,931

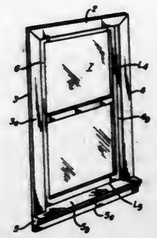
PREFABRICATED SHELL ASSEMBLY FOR WINDOW TRIM

John A. Stanizzo, 430 Ferahill Ave., Pittsburgh, Pa. 15226

Filed May 21, 1979, Ser. No. 40,764

Int. Cl.³ E06B 7/12

U.S. Cl. 52—98 **5 Claims**



1. A shell assembly comprised of trim members for the interior surrounds of a substantially rectangular window opening, said trim members being joined together so as to form the trim facing for said window; each such trim member being comprised of (i) an elongated casing section having an interior surface adapted for attachment to the wall surrounding said window opening, the inner longitudinal edge of said casing section being joined with and substantially perpendicular to (ii) an elongated border section, having a length commensurate with the length of said casing section and a width of from about ¼ to 6 inches, the interior surface of said border section being adapted for attachment to the jamb surface which is perpendicular to the plane of the wall and to the plane of the window, a major portion of said interior surface having longitudinal grooves therein, said grooves being parallel to each other and to the free longitudinal edge of said border section, and being spaced from each other a distance of about ¼ to ½ inch, permitting said width readily to be modified to correspond with the depth between the wall and the window rail, so as to fit properly therebetween when said trim member is attached to the wall, wherein the border section of at least one of said side trim members has an interior surface constructed to provide at least one approximately longitudinal channel between said interior surface and said jamb surface, in which a portion of said channel near one end thereof can be connected to a source of air under a pressure greater than ambient, while another portion near the other end thereof connects to an aperture penetrating the thickness of said border section at an acute angle thereto, whereby air flowing through said channel and said aperture will be caused to flow over the inner surface of the window and prevent condensation thereon.

4,272,932

TELESCOPIC BOOM

Joachim H. R. Wappler, 317 Kenollie Rd., Mississauga, Ontario, Canada

Filed May 16, 1978, Ser. No. 906,661

Int. Cl.³ E04H 12/34

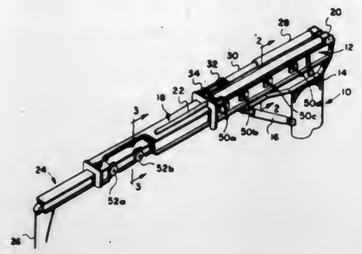
U.S. Cl. 52—118 **3 Claims**

1. A telescopic boom for a hoist such as a truck mounted hoist or the like, having a column portion, a fixed boom section mounted on said column portion, a telescopic boom section slidably received within said fixed section, a trolley section slidably received within said telescopic section, wherein the improvement comprises:

two parallel I beam members fastened together in side by side relationship and forming said telescopic section, each

of said I beam members comprising a central web portion and upper and lower flanges extending outwardly therefrom on either side of said web portion, and said flanges having generally planar surfaces thereon lying in a plane at an obtuse angle relative to the plane of said web portion;

wheel members mounted in an inwardly facing manner on said fixed boom section, and engaging opposite said I



beam members on their outwardly directed sides, and further wheel members on said trolley section, facing outwardly with respect to and engaging said I beam members on their inwardly directed sides;

rims on said wheel members engageable with said I beam members for guiding telescoping movement, and,

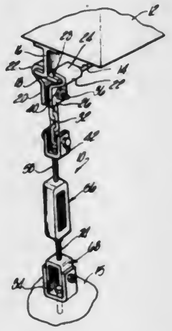
tapering, convexly curved tread surfaces on said wheel members engaging said generally planar surfaces of said flanges in an essentially tangential manner.

4,272,933

MOBILE HOME ANCHOR

Rosario Lopez, 19266 Berden Ave., Harper Woods, Mich. 48225

Filed Apr. 16, 1979, Ser. No. 30,272
Int. Cl.³ E02D *27/32, 5/74*
U.S. Cl. 52—149 5 Claims



1. An anchor for detachably securing a mobile home to and above a base, said mobile home having an underframe, said anchor comprising:

a clamp member,

first means for attaching said clamp member to the mobile home underframe,

an elongated connecting member secured at one end to the clamp member,

a first clevis having a base and a pair of outwardly extending legs,

means for securing said first clevis to the other end of said connecting member so that the legs of the first clevis extend upwardly toward said mobile home underframe,

a second clevis having a base and a pair of outwardly extending legs, a pair of registering apertures being formed through the outwardly extending legs of the second clevis,

means for attaching said second clevis to said base so that the base of the second clevis flatly abuts against said base and so that the legs of said second clevis extend upwardly,

a third clevis having a base and a pair of outwardly extending legs, each leg having an aperture formed through it so that said apertures register with each other, the outside width of the legs of the third clevis being less than the inside width between the legs of the second clevis,

means extending through the apertures in the legs of said second and third clevis for pivotally securing said second and third clevises together so that the legs of the third clevis extend downward, and

tension means for attaching the bases of the first and third clevises together,

wherein all of said clevises are of a one-piece construction.

4,272,934

PANEL STRUCTURE FOR BLOCKING WINDOWS

Ernest A. Cowden, Kansas City, and Leo E. Lauber, Eudora, both of Kans., assignors to The Clear Corporation, Eudora, Kans.

Continuation-in-part of Ser. No. 846,416, Oct. 28, 1977, abandoned. This application Jan. 26, 1979, Ser. No. 6,686
Int. Cl.³ E06B *3/28*
U.S. Cl. 52—202 4 Claims



1. A panel structure for blocking a glass pane, said panel structure comprising:

a rigid framework of thermally insulating material, said framework extending on all sides of said glass pane;

a plurality of panel sections each constructed of a rigid thermally insulating material adapted to substantially prevent the passage of light therethrough, said panel sections having adjacent edges and each presenting opposed substantially flat surfaces, the ends of said panel sections being exposed under said sheet whereby said sections may be trimmed to a desired size;

a flexible sheet coupled with both panel sections along two aligned flat surfaces to hingedly couple said sections together, the adjacent edges of said sections being exposed beneath said sheet whereby when said flat surfaces are aligned said edges are is abutting relationship, said sheet being foldable to provide a hinge axis about which said sections may be moved to a folded position; and

means for coupling said panel sections with said framework to thereby hold said sections in a pane blocking position.

4,272,935

FIELD-INSTALLED INSULATION AND APPARATUS FOR AND METHOD OF MAKING AND INSTALLING THE SAME

Sidney Lakas, East Meadow; Timothy E. Golden, Islip; Patrick J. Lanarola, Massapequa, and Michael G. Mard, Bohemia, all of N.Y., assignors to Retro-Flex, Inc., Hempstead, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,200
Int. Cl.³ E04B *2/34;* B29D *27/00*
U.S. Cl. 52—309.11 25 Claims

1. Method of making thermal insulation in closed cavities of field structures, comprising the steps of:

(a) conveying a carrier air stream under pressure along a path to a wetting chamber;

(b) introducing a multitude of individually pre-formed, foamed plastic particles into the carrier air stream for entrainment in the stream;

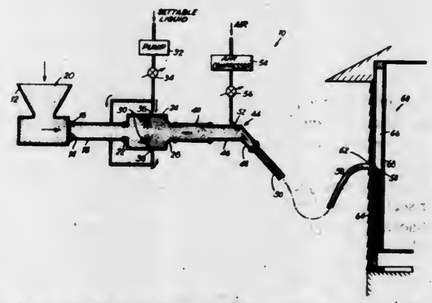
(c) substantially wetting the carrier-entrained particles by applying a settable film-forming liquid substance thereto in the wetting chamber to form a liquid-drenched dense but flowable mixture of said multitude of particles;

(d) pulling the drenched particles out of the wetting chamber in a second air stream, said conveying step and said pulling step jointly constituting a push-pull step; and

(e) flowing the drenched particles in a second air stream via a filler hose to the closed cavities,

said settable substance setting and forming a set film which covers and adheres said particles to one another at their common points of contact to form a structural thermally-insulating dense mass of said particles at the cavities,

said structural thermally-insulating mass being structurally stable and resistant to disassociation of said individual particles due to the adhesion-like characteristic of said set film which provides structural integrity to the entire thermally-insulating mass.



11. A thermally-insulating, non-flammable, air-permeable insulation installed in a field structure, said insulation being made and installed by the method of claim 1, said insulation comprising:

a multitude of individually pre-formed, foamed plastic, thermally-insulating particles; and

a set film formed from a settable, film-forming, initially-liquid, non-flammable substance,

said set film covering and adhering said particles to one another at their common points of contact to form a structural dense mass of said multitude of particles,

said mass being structurally stable and resistant to disassociation of said individual particles due to the adhesion-like characteristic of said set film which provides structural integrity to the entire mass,

said mass being resistant to fire due to the non-flammable characteristic of said set film which covers said particles,

said mass having interstices bounded by said particles themselves at those points which are other than said contact points, and

said interstices being air passageways which permit vapors on one side of the mass to pass through towards the other side of the mass in order to permit the entire mass to vent vapors therethrough.

4,272,936

INVERTED ROOF SYSTEM

Orland H. Bonaguidi, 1363 Cottontail La., La Jolla, Calif. 92037

Filed Jan. 2, 1979, Ser. No. 332
Int. Cl.³ E04B *5/00*
U.S. Cl. 52—309.12 5 Claims

1. An inverted roof structure of reduced weight and enhanced insulative, protective, and fire retardant qualities, which comprises:

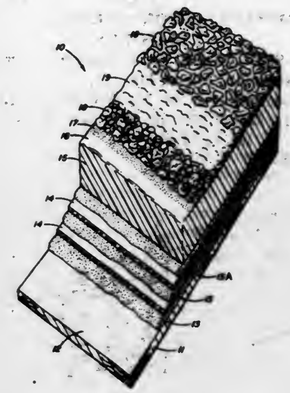
(a) roof support means;

(b) a roof deck secured to said roof support means;

(c) a water impermeable membrane affixed to the exposed outer surface of said roof deck;

(d) a sealant-adhesive coat disposed over said membrane;

(e) a thermal-insulation layer comprised of closed-cell plastic foam secured to said membrane by means of said sealant-adhesive coat;



(f) a toothing surface secured upon said thermal-insulation layer; and

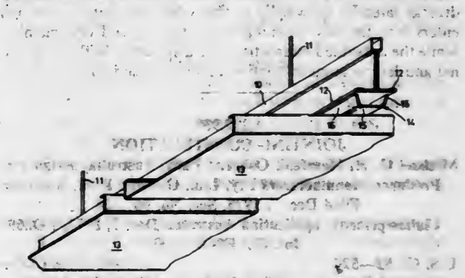
(g) a substantially water-impermeable insulative-protective layer uniformly disposed upon toothing surface in the amount of at least about 50 pounds per 100 square feet of surface area and secured thereto, said insulative-protective layer being formed from an admixture substantially comprising unset white cement, water, perlite fines, finely divided clay and lime, a thickener, a vinyl acrylic polymer, and magnesium silica flour.

4,272,937

PANEL CONSTRUCTION

Johannes Antonius H. Brugman, Rotterdam, Netherlands, assignor to Hunter Douglas International N.V., Curacao, Netherlands Antilles

Filed Nov. 16, 1978, Ser. No. 961,265
Claims priority, application Fed. Rep. of Germany, Nov. 28, 1977, 2752963; United Kingdom, May 26, 1978, 23416/78
Int. Cl.³ E04B *5/52*
U.S. Cl. 52—483 11 Claims



1. A panel construction comprising a plurality of mutually parallel elongate support members, each having two parallel free longitudinal edges spaced apart from one another, elongate support elements carried by said support members, said

support elements having their length aligned with and parallel to the length of said support members, a bracket means connecting adjacent support elements to maintain a predetermined spacing between said support elements, clamping means engaged around the longitudinal edges of the support members for pressing said support elements against said support members, a plurality of panel holding means on each support element and a plurality of panels held by said panel-holding members.

4,272,938

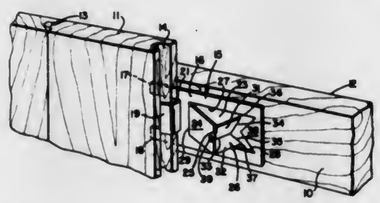
SHEET METAL CLIP FOR ASSEMBLY OF BUILDING COMPONENTS

Andrew G. Seipos, Miami, Fla., assignor to Automated Building Components, Inc., Miami, Fla.

Continuation-in-part of Ser. No. 953,760, Oct. 23, 1978. This application Oct. 18, 1979, Ser. No. 86,132

Int. Cl.³ E04B *1/38, 1/58, 1/60*

U.S. Cl. 52—509 10 Claims



1. A clip for attaching together wooden or like members consisting of a one-piece sheet metal element having a thin flat base adapted to be seated on one of said members and provided along one edge with an outwardly open socket-like formation consisting of metal displaced from said base and disposed above a surface of said base for abutting engagement with the other of said members, a bent nail formed by material displaced out of said base to leave an opening in said base and comprising a shank portion extending at an acute angle from a hinge along an edge of said opening away from the opening of said socket-like formation and away from said base surface and said opening and a tip portion extending from a transverse bend parallel to said hinge back toward said opening and being adapted to angularly penetrate said one member, the included angle between said shank and tip portions being an acute angle, and said tip being longitudinally bifurcated with the free ends of the bifurcation having oppositely laterally outwardly and downwardly inclined edges that terminate in relatively sharp points, whereby when said shank is bent about said hinge to drive said tip portion into said one member the clip is biased to more closely abut said socket with said other member while at the same time said bifurcations are caused to automatically diverge laterally outwardly so that when the shank of the nail enters into the base opening it lies flat on said one member while the imbedded bifurcations are disposed in both longitudinal and lateral angular relation relative to said base.

4,272,939

JOINTING CONSTRUCTION

Michael O. H. Herzfeld, Osborne Park, Australia, assignor to Producer Manufacturers Pty. Ltd., Osborne Park, Australia

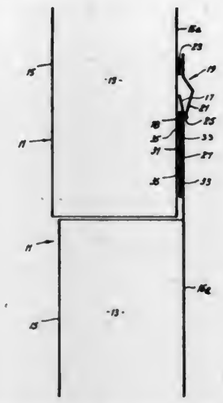
Filed Dec. 7, 1978, Ser. No. 967,354

Claims priority, application Australia, Dec. 7, 1977, PD2697

Int. Cl.³ E04D *1/00*

U.S. Cl. 52—527 6 Claims

1. A jointing construction for laminated panels of the type having a core lamination of heat insulating material and facing sheet laminations bonded to opposed sides of the core, the jointing construction being characterized in that one of said panels is formed with one side edge portion of one facing sheet extending beyond the core lamination to define a projection, the adjacent side edge portion of the facing sheet of the adjacent panel having an engaging member associated therewith, the engaging member having engaging means spaced from the respective facing sheet to define a gap therebetween, the pair of said panels in use being disposed adjacent each other with the projection of one panel engaged by the engaging member of the other panel and retained in said gap, and sealing means provided between said projection of said one panel and the



adjacent side edge portion of the corresponding facing sheet of said adjacent panel, said sealing means comprising a tubular seal formed from resilient material, said tubular seal extending along the length of the joint, non-drying sealant provided between said projection and the adjacent side face of the tubular seal, and further non-drying sealant provided between said adjacent side edge portion and the adjacent face of said tubular seal.

4,272,940

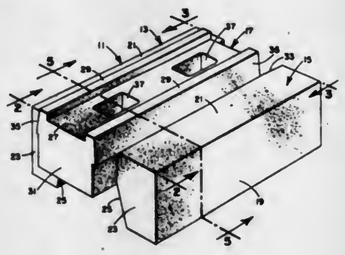
INTERLOCKING BUILDING BLOCK

Ted Nicolls, Rte. 2, Newcastle, Wyo. 82701

Filed Mar. 7, 1979, Ser. No. 18,169

Int. Cl.³ E04B *2/18*

U.S. Cl. 52—592 9 Claims



1. A building block adapted to interfit with similarly shaped blocks when assembled into a structure, said block comprising: a central body portion and a pair of side body members disposed on either side of said central portion; vertically extending tongue means extending from the upper surface of said central body portion; groove means formed by the bottom of the central body portion and the inner surface of said side body member; a male member projecting from one end of said block; and a flared female recess means in the opposite end of said block for the receipt of the male member of an adjacent block, the interior surfaces of said side body members forming the interior walls of said female recess being horizontally tapered inwardly, said flared female recess being the widest at its external orifice and narrower at the innermost portion of the recess, whereby the horizontal alignment and interfitting of the male member and female recess of adjacent blocks is enhanced when building a course or wall.

4,272,941

THERMALLY-INSULATING CONNECTING ELEMENTS FOR COUPLING TWO COMPONENT PARTS, AND ALSO COMPOUND, THERMALLY-INSULATING PROFILE MEMBERS AND A PROCESS FOR THEIR MANUFACTURE

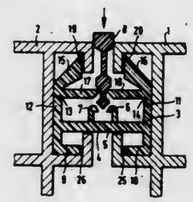
Wilhelm Hasselbacher, Neustadt, and Wolfgang Schalm, Munich, both of Fed. Rep. of Germany, assignors to Annemarie Hasselbacher, Neustadt, Fed. Rep. of Germany

Filed Apr. 3, 1978, Ser. No. 893,000

Claims priority, application Fed. Rep. of Germany, Apr. 4, 1977, 2714999; Apr. 4, 1977, 2715010

Int. Cl.³ E04C *3/30*

U.S. Cl. 52—731 23 Claims



1. A thermally-insulating connecting device intended for the coupling of two components and comprising a resiliently deformable connecting element which is insertable into receiving channels on the components, said connecting element being shaped for engagement within said receiving channels as a result of its shape and, after having been inserted into said receiving channels, being adapted to be changed in its dimensions by inserting a locking element so that a connection of the components is formed by resiliently deforming said connecting element by means of said locking element, to urge said receiving channels, said connecting element comprising internal extension arms forming connecting triangles, whereby the extensions push against internal surfaces of the components when the extension arms are actuated by the locking element, to draw the two components together, said extension arms having the shape of a continuous ridge with catching devices fitted to the underside thereof, said continuous ridge comprising a standardized breaking point which may be broken upon insertion of the locking element.

4,272,942

METHOD AND APPARATUS FOR CUSTOM CLOSING OR MODIFYING BUILDING OPENINGS

Edward L. Jackson, 215 Terrace Dr., Pauls Valley, Okla. 73075

Filed Apr. 11, 1977, Ser. No. 786,079

Int. Cl.³ E06B *3/26*

U.S. Cl. 52—741 3 Claims



1. A method for sealing an opening in a building comprising:
fastening to, and in contact with, a structure which defines the opening, a plurality of first magnetic strips containing a plurality of magnets, with adjacent magnets so positioned as to have alternate poles thereof facing towards a surface of each of said first strips opposite a surface of each of said first strips which is in contact with the structure which defines the opening, said first magnetic strips being positioned in a course extending around the entire outer periphery of the opening;
closing said opening by positioning a first glass pane thereacross;
positioning, upon a second glass pane, a second magnetic strip containing a plurality of magnets so that the magnets in said second strip are positioned to align poles thereof with at least some of the unlike poles of the magnets in said first magnetic strips when said second strip is superimposed over at least one of said first strips and in registry therewith;
fastening, to said second glass pane, said second magnetic strip; and
placing said second glass pane over the opening and in a plane spaced from the plane occupied by said first glass pane to define air space between said glass panes so that said second strip is superimposed over at least one of said first strips and in registry therewith, and so that said second glass pane may be removed from engagement with the structure which defines the opening by twisting the second glass pane about an angle within the plane of the second glass pane whereby at least one first magnet of said plurality of said magnets in said second magnetic strip will be moved from a position adjacent an unlike pole of at least one magnet in said plurality of magnets in at least one of said first magnetic strips to a position adjacent a like pole of a third magnet of said plurality of magnets in one of said first magnetic strips, whereby a repulsive force will be generated between said first and third magnets, thereby urging the closure panel out of engagement with the structure which defines said opening.

4,272,943

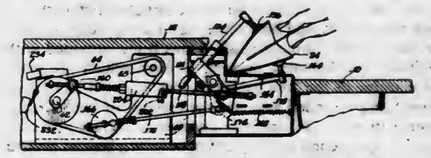
ENVELOPE PROCESSING MACHINE AND METHOD

Robert J. Russell, Camden, N.J., assignor to Mail-Ex Corporation, Skokie, Ill.

Division of Ser. No. 801,454, May 31, 1977, Pat. No. 4,159,611, which is a continuation-in-part of Ser. No. 707,723, Jul. 22, 1976, abandoned. This application Oct. 26, 1978, Ser. No. 955,134

Int. Cl.³ B65B *43/30*

U.S. Cl. 53—492 5 Claims



1. A method for opening a sealed envelope having opposing planar sides and exposing the contents thereof for manual removal comprising the steps of:
stacking sealed envelopes to be opened,
removing an envelope from the stack and transmitting the removed envelope from the stack with its planar sides in a substantialy horizontal plane to a cutting means,
severing one edge of said envelope,
transmitting the envelope from the cutting means with said sides in said substantially horizontal plane to an opening means,
thereafter applying suction forces to aid opposite sides of said envelope while said sides are in said substantially horizontal plane,
thereafter maintaining said suction forces on said opposite sides of said envelope and contemporaneously translating said suction forces and moving said suction forces upwardly and apart to move the opposite sides of said envelope apart and to upwardly incline said sides from said substantially horizontal plane to thereby incline said enve-

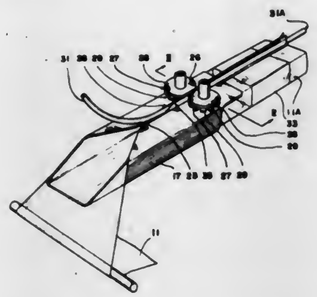
lope at an angle to said substantially horizontal plane with the severed edge facing upwardly,
and thereafter holding said envelope open for manual removal of envelope contents.

4,272,944

APPARATUS FOR CONTINUOUSLY WRAPPING SUCCESSIVE ARTICLES UNDER VACUUM IN HEAT-SEALABLE FILM

Tadoru Suga, 5-5 Shinchujo-cho, Ibaragi-shi, Osaka-pref., Japan

Filed Mar. 23, 1979, Ser. No. 23,321
Claims priority, application Japan, Sep. 19, 1978, 53/128777[U]; Oct. 24, 1978, 53/146824[U]
Int. Cl.³ B65B *31/04*
U.S. Cl. 53—511 **5 Claims**



1. In packaging apparatus of the type wherein a continuous length of thin flexible heat-sealable film and a succession of articles to be enclosed in said film are introduced into an elongated generally tubular film forming guide means for progressively wrapping the film around the respective opposite sides of the articles to bring the respective side margins of the length of film together to be heat-sealed along their lengths, said apparatus including means to subject the space enclosed by said film during said wrapping to the influence of a source of vacuum, the improvement which comprises means to heat seal said respective side margins of the film together along a continuous line, and means to position an inlet means for said source of vacuum out of contact with said articles and within the space enclosed by said film when sealed along said continuous line, said tubular forming guide means being provided with a longitudinally extending opening through which the respective margins of the film exteriorly project, said heat sealing means being provided adjacent the exterior of said elongated opening to press said margins together on a first continuous line and on a second intermittent parallel line spaced inwardly from the first line, said inlet means for the vacuum source being positioned exteriorly of said forming guide means and within the enclosure defined by said first and second lines of sealing, the intervals in the intermittent second line of sealing providing communication between said inlet means and the space occupied by said articles.

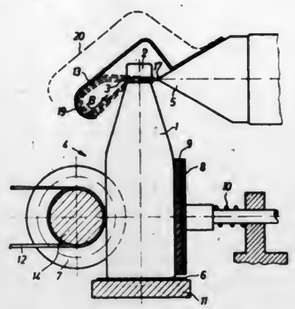
4,272,945

PROCESS AND APPARATUS FOR THE PRODUCTION OF A GUARANTEE CLOSURE

Albert Obrist, Alte Therwilerstrasse 12, 4153 Reinach, Switzerland

Filed May 17, 1979, Ser. No. 39,967
Claims priority, application Switzerland, May 17, 1978, 5316/78
Int. Cl.³ B65B *7/28, 53/06*
U.S. Cl. 53—557 **6 Claims**

1. Apparatus for the simultaneous and continuous production of a guarantee closure on a multiplicity of containers with closure caps each having a guarantee strip of plastics material separable along a desired tear line, said strip being positively shrink fitted on to the neck of the associated container by heating, comprising transport means for transporting the containers in a row along a predetermined feed path and for simultaneously rotating the containers about their own axes, at least one assembly for producing a flow of hot gas, provided along the feed path, a slot-like nozzle of said assembly disposed approximately at the level of the plane of movement of the



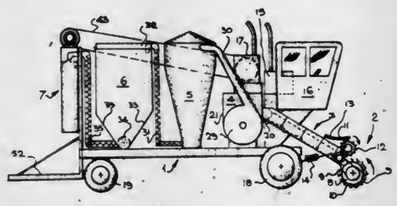
guarantee strips, the outlet opening of said nozzle being directed toward the guarantee strips on said containers as they are moved therepast continuously in a row, while rotating about their own axes to thereby direct the hot gas against the guarantee strips, and a deflector for receiving hot gas from said nozzle after the hot gas has passed the guarantee strips and redirecting it back onto the region of the guarantee strips on the side opposite the nozzle.

4,272,946

MOBILE HAMMER-MILL

Jack Maher, "Shangrilah", North Condobolin Rd., Forbes, New South Wales, 2871, and Grosvenor F. Francis, Berowra, Leadville, via Dunedoo, New South Wales, 2744, both of Australia

Filed Jan. 6, 1979, Ser. No. 45,877
Claims priority, application Australia, Mar. 2, 1977, FC9258; Mar. 2, 1978, 33803/78
Int. Cl.³ A01D *55/26*
U.S. Cl. 56—13.5 **3 Claims**



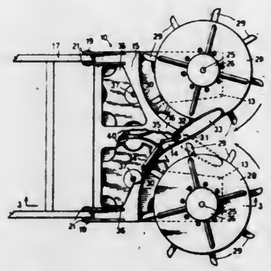
1. A mobile meal-production means comprising, in combination, a self-propelled wheeled vehicle having a chassis which supports:
a hay pick-up reel;
a conveyor;
a hammer-mill;
a cyclone device;
a first vertically-disposed auger;
a holding hopper;
a second vertically-disposed auger; and
a single-column screw bagger;
said hay pick-up reel being positioned adjacent ground level in communication with an input region of said conveyor, the output of which communicates with the input of said hammer-mill, the output of said hammer-mill feeding said cyclone device, the output of said hammer-mill being connected with said first vertically-disposed auger at its lower end, the upper end of said auger feeding said holding hopper, the output of said hopper being lower than its input and being connected to said second vertically-disposed auger at its lower end, and the upper end of said second auger, in turn, feeding said single-column screw bagger.

4,272,947

TOPPING CUTTER FOR A CANE HARVESTER

Joseph M. Mizzi, Halifax Rd., Ingham, Queensland, Australia (4850)

Filed Oct. 5, 1979, Ser. No. 82,334
Int. Cl.³ A01D *45/10*
U.S. Cl. 56—63 **4 Claims**



1. A topping cutter for a cane harvester including:
a frame,
means for mounting the frame in a vertically adjustable manner on a cane harvester,
a pair of adjacent counter-rotatable feed means mounted at the front of the frame, adapted to engage and feed between them the tops of cane stalks as the harvester advances,
a rotary cutter positioned below and substantially behind each feed means and adapted to coact therewith to sever the tops of cane stalks,
the two sets of feed means and coacting cutter being adapted to eject several tops of cane stalks to opposite sides of the frame,
deflector means pivotally mounted on the frame, and means for moving said deflector so as to direct cane tops selectively to either set of coacting feed means and cutter, and
hydraulic motors for separately driving said cutters and said feed means in opposite directions, said motors being connected in series so as to permit reversal of the directions of rotation thereof to clear trash from the area above the cutters and below said feed means.

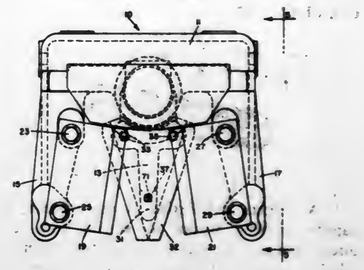
4,272,948

OSCILLATING KNIFE CUTTING APPARATUS

Dale R. Dolberg, Hedrick, and Jack L. Gulter, Ottumwa, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Aug. 13, 1979, Ser. No. 66,138
Int. Cl.³ A01D *55/00*
U.S. Cl. 56—246 **12 Claims**

1. A cutting apparatus comprising:
(a) a main support comprising at least an arm;
(b) at least one main knife fixed to said arm and defining a first plane;
(c) a bearing fixed to said support;
(d) a shaft rotatably mounted in said bearing;
(e) a secondary support, said support comprising a clamp slidably mounted on said shaft;
(f) a secondary knife fixed to said secondary support and defining a second plane parallel to said first plane, one of said secondary and main knives movable relative to the other for severing material disposed between said secondary and main knives; and
(g) means for adjusting the position of one of said second knife and said main knife in a direction perpendicular to



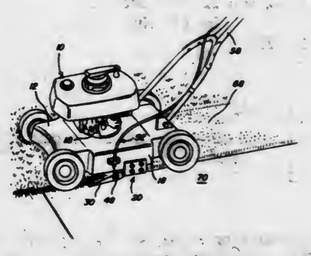
said first plane, said adjusting means comprising a member threadably mounted in said shaft, movable longitudinally of said shaft and engageable with said clamp for sliding said clamp along said shaft by rotation of said member.

4,272,949

ROTARY LAWN MOWER EDGING ATTACHMENT

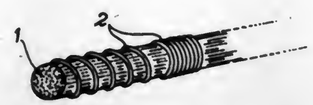
Gerald N. Franks, and Mae P. Franks, both of P.O. Box 4954, Greenville, Miss. 38701

Filed Feb. 7, 1980, Ser. No. 119,464
Int. Cl.³ A01G *3/06*
U.S. Cl. 56—255 **7 Claims**



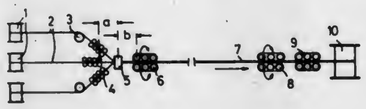
1. In combination with a rotary lawn mower of the type including a downwardly opening wheeled housing in which a powered rotary cutting blade assembly is journaled for rotation about a vertical axis and with said housing including opposite side and front and rear end portions, a mount supported from one side of said housing intermediate the front and rear portions thereof, an elongated narrow ramp member including an elongated longitudinal upper surface, said ramp member extending in a front to rear direction relative to said housing and having its rear end portion pivotally supported from said mount for angular displacement of said ramp member between a lowered operative position with said upper surface forwardly and downwardly inclined and a raised operative position with said upper surface generally horizontally disposed, said upper surface including an inner side marginal edge portion underlying the outer periphery of the adjacent portion of the circular path through which the radial outermost portions of said blade assembly swing, and positioning means operatively connected between said ramp member and housing for releasably retaining said ramp member in said operative and inoperative positions.

4,272,950
FILIFORM TEXTILE MATERIAL
Bruno Bompard, Villeurbanne, France, assignor to Commissariat a l'Energie Atomique, Paris, France
Filed Dec. 7, 1978, Ser. No. 967,492
Int. Cl.³ D02G 3/36
U.S. Cl. 57—232 11 Claims



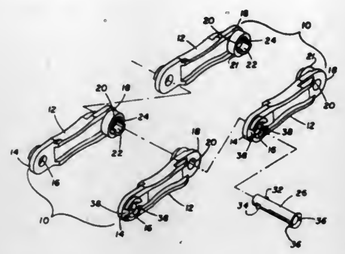
1. A filiform and flexible primary textile strand which is capable of being wound for storing with adjacent turns in direct contact one relative to the other before being used and which is capable of being woven, wherein said textile strand comprises at least one assembly of continuous chemical individual filaments covered by a thread of continuous chemical filaments around said assembly of individual filaments in the form of a helix, said strand having a substantially circular cross-section, said thread of continuous filaments forming an outer surface with protuberances and hollows, said assembly of individual filaments being preimpregnated with a nonpolymerized resin and said thread of continuous filaments being not impregnated with resin.

4,272,951
APPARATUS FOR THE SZ TWISTING OF POWER CABLE CONDUCTORS WITH SECTOR-SHAPED CONDUCTOR CROSS SECTION
Dieter Vogelsberg, Coburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Jul. 20, 1979, Ser. No. 59,194
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833704; May 22, 1979, 2921092
Int. Cl.³ H01B 13/04
U.S. Cl. 57—293 7 Claims



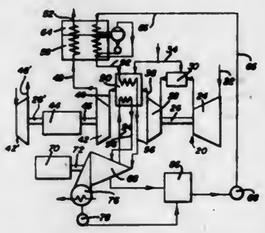
1. In apparatus for the SZ twisting of power cable conductors with a sector-shaped conductor cross section, including:
stationary conductor supplies,
a first twisting closer and a stationary positive guide for each cable conductor arranged in front thereof; and
a second twisting closer;
two twisting devices arranged between the twisting closers, and associated respectively with the two twisting closers;
means to cause said twisting devices to revolve synchronously with changing rotary motion; and
a pulling-off and winding-up device, the distance between the first twisting closer and the first point of engagement of the first twisting device being equal or approximately equal to the distance between the last point of engagement of the second twisting device and the second twisting point, the improvement comprising:
the twisting devices being arranged immediately after and immediately ahead of their respective twisting closers; and
the distance between the last point of engagement of each positive guide at a cable conductor and the first point of engagement of the first twisting device at the material to be twisted being smaller than or at most equal to the length of lay of the material to be twisted given by the pulling off velocity and the speed of revolution of the twisting device, and preferably smaller than or at most equal to one half the length of lay.

4,272,952
PLASTIC CHAIN AND TUBULAR LINK PIN
Richard B. Graham, Columbus, Ohio, assignor to Dresser Industries, Inc., Dallas, Tex.
Filed May 8, 1979, Ser. No. 37,185
Int. Cl.³ F16G 13/06
U.S. Cl. 59—84 18 Claims



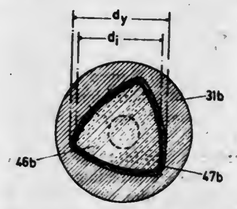
1. Plastic chain link comprising a pair of separate facing link sections formed of molded thermoplastic material, each link section including in one end a first opening and in the opposite end a second opening bounded by mating means extending outwardly on the side of each link section toward like mating means on the other link section for abutting engagement thereof to provide a predetermined space between the links at said one end and indexing means cooperating with the mating means for rigidly joining the separate link sections together at said opposite end and aligning the first openings of each section and the second openings of each section respectively to form a unitary link, said predetermined distance sufficient to accommodate at least a portion of the like joined opposite ends of an adjacent similarly-shaped link so that the first aligned openings of each link can be aligned with the second aligned openings in the adjacent link to receive pin means for coupling the two links together.

4,272,953
REHEAT GAS TURBINE COMBINED WITH STEAM TURBINE
Ivan G. Rice, P.O. Box 233, Spring, Tex. 77373
Filed Oct. 26, 1978, Ser. No. 954,838
Int. Cl.³ F02C 6/18
U.S. Cl. 60—39.04 16 Claims



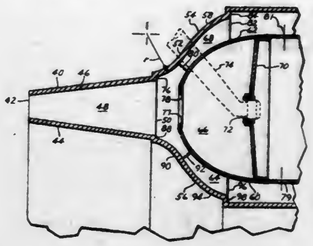
1. A process for production of useful power comprising the following steps:
(a) generating in a gas generator means a high temperature, high pressure first gas from ambient air and gas generator fuel without the use of intercooling:
(b) reheating said first gas in a reheat combustor by injection and ignition of reheater fuel to form a high temperature, high pressure second gas;
(c) driving with said second gas a power turbine for generation of useful power in a first generating means and production of an exhaust third gas;
(d) exchanging heat in heat exchange means for said third gas with liquid water for generation of steam for production of useful power in a second generating means by a steam turbine, said gas generator means comprising a generator turbine drivingly connected by a generator shaft to a turbine gas compressor, said compressor receiving said ambient air for producing high pressure air and discharge thereof into a first combustor, said first combustor receiving said gas generator fuel and forming a combustion gas for driving said generator turbine, said generator turbine driving said compressor and forming said first gas for discharge to said reheat combustor, wherein the pressure ratio of said high pressure air to said ambient air is at least about 18 and said combustion gas is formed at a temperature of at least about 2000° F., and wherein said heat exchange means comprises an evaporator and an economizer, said evaporator receiving said third gas for transfer of heat therefrom to produce a fourth gas, said economizer receiving said fourth gas for extraction of heat therefrom to produce a discharge gas, said economizer receiving liquid water condensate from said steam turbine and receiving heat from said fourth gas for warming said water and discharging said warmed water to said evaporator, said evaporator receiving heat from said third gas for producing input steam from said warmed water, said input steam being discharged to said reheat combustor to form superheated steam.

4,272,954
GAS TURBINE HAVING A CERAMIC ROTOR
Sven-Olof Kronogard, Lomma, Sweden, assignor to United Turbine AB & Co., Kommanditbolag, Malmo, Sweden
Division of Ser. No. 839,273, Oct. 4, 1977, Pat. No. 4,176,519, which is a division of Ser. No. 638,052, Dec. 5, 1975, Pat. No. 4,064,690, which is a continuation-in-part of Ser. No. 471,176, May 17, 1974, Pat. No. 3,943,703. This application Jun. 25, 1979, Ser. No. 51,756
Claims priority, application Sweden, May 22, 1973, 7307153
Int. Cl.³ F01D 5/28, 5/30
U.S. Cl. 60—39.16 R 2 Claims



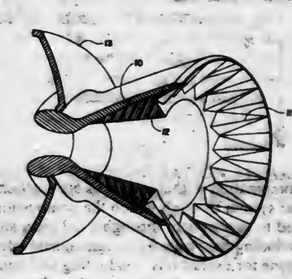
1. In a gas turbine power plant comprising a compressor, a first turbine rotor mounted upon the shaft as, and imparting rotary movement to said compressor, at least one further turbine rotor mounted upon a shaft separate from that of said first turbine rotor and compressor combination, and at least one combustion chamber having fuel supply means, receiving air from the compressor and supplying combustion gas to said first and at least one further turbine rotor, the improvement comprising said shaft mounting said first turbine rotor and said compressor, being hollow, said first turbine rotor being manufactured of ceramic material and being provided with an integral stub shaft introduced into the void at the end of said hollow shaft, means including a resilient clamping member and a tightening rod connected integrally therewith at one end to said clamping member for retaining said stub shaft to said hollow shaft, said clamping member having a corrugated sleeve portion enclosing said stub shaft, means for preventing relative rotation during torque transfer including said stub shaft, said corrugated sleeve and said void at the end of said hollow shaft all having mating, but successively bigger polygonal cross sections.

4,272,955
DIFFUSING MEANS
Jacob S. Hoffman, Ipswich, and Mario E. Abreu, South Peabody, both of Mass., assignors to General Electric Company, Lynn, Mass.
Filed Jun. 28, 1979, Ser. No. 53,121
Int. Cl.³ F02C 3/08
U.S. Cl. 60—39.36 18 Claims



2. Diffusing apparatus for converting the dynamic head of a flowing stream of fluid discharged from a compressor into static pressure, said apparatus comprising:
first diffusing means receiving said fluid from said compressor for decelerating said fluid from a first velocity to a second velocity;
means disposed downstream of said first diffusing means for accelerating said fluid to a third velocity having a magnitude greater than the magnitude of said second velocity; and
second diffusing means disposed downstream of said accelerating means for decelerating said fluid from said third velocity to a fourth velocity having a magnitude less than the magnitude of said second velocity;
means disposed downstream of said second diffusing means for suddenly expanding said fluid to reduce the velocity of said fluid to a fifth velocity having a magnitude less than the magnitude of said fourth velocity.

4,272,956
TIME DELAY DEVICE FOR DEPLOYABLE ROCKET NOZZLE SKIRTS
Garland C. Lamere; Frank S. Inman, and Ronald B. Mitchell, all of Brigham City, Utah, assignors to Thiokol Corporation, Newtown, Pa.
Filed Jan. 22, 1979, Ser. No. 5,536
Int. Cl.³ F02K 1/24
U.S. Cl. 60—242 9 Claims



1. A rocket motor having an expansion cone, a combustion

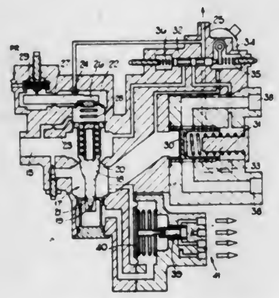
gas deployable skirt for the expansion cone and a barrier blocking gas flow to said deployable skirt in its undeployed condition, means retaining said barrier in said expansion cone, and said barrier removed by the erosive action of the combustion gas after a predetermined time of operation of the motor has elapsed to unblock gas flow to said deployable skirt.

4,272,957

FUEL CONTROL SYSTEM FOR A RAM JET ENGINE

Geoffrey A. Lewis, Solihull, and Arthur L. Lloyd, Wolverhampton, both of England, assignors to Lucas Industries Limited, Birmingham, United Kingdom

Filed Oct. 31, 1978, Ser. No. 956,416
Claims priority, application United Kingdom, Nov. 5, 1977, 46135/77
Int. Cl.³ F02K 7/10
U.S. Cl. 60—243 **7 Claims**



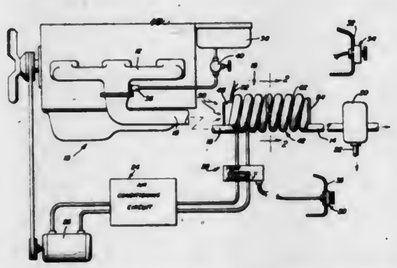
1. A fuel control system for a ram jet engine having both main and pilot burners comprises a metering device having a first control means movable in response to an air pressure signal at the engine air intake, for controlling fuel flow to the main and pilot burners of the engine, and a second control means, movable with said first control means, for controlling fuel flow from the downstream side of said first control means to the engine pilot burners.

4,272,958

ANTI-POLLUTION TREATING DEVICE

Owen R. Waltrip, Roseville, Calif., assignor to U.S. Emission Systems, Inc., Casper, Wyo.

Filed May 8, 1979, Ser. No. 37,115
Int. Cl.³ F01N 3/02; F28D 7/12
U.S. Cl. 60—309 **15 Claims**



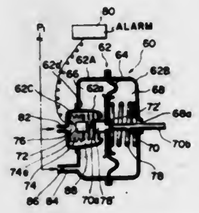
1. In combination with a source of combustion products and an exhaust system through which the combustion products are discharged to atmosphere through a tail pipe, an anti-pollution device including heat transfer conduit means enclosing a single cooling zone for exclusively conducting said combustion products from said source to the tail pipe along a helical path, cooling means disposed in said cooling zone for conducting coolant in non-contacting heat exchange relation to the combustion products during travel thereof along said helical path, and control means connected to the cooling means for controlling cooling of the combustion products by the coolant to effect separation of noxious components of the combustion products by entrainment in liquid condensate formed internally within the conduit means.

4,272,959

DIAPHRAGM BREAKAGE CONDITION DETECTING DEVICE FOR A PRESSURE CONTROL DEVICE

Ken Yamane, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Dec. 26, 1979, Ser. No. 107,457
Claims priority, application Japan, Jan. 20, 1979, 54-5433
Int. Cl.³ F02D 23/00; G08B 21/00
U.S. Cl. 60—602 **5 Claims**



1. A diaphragm breakage condition detecting device for a pressure control device comprising:
(a) a casing (62),
(b) a diaphragm member (64) pertitioning the casing (62) into a first chamber (66) and a second chamber (68), said second chamber (68) having an opening (68a) exposed to air,
(c) a compression spring (78) interposed between the diaphragm member (64) and the inner wall of said casing (62) within said second chamber (68).
(d) an actuating rod (70) one end of which is supported by said diaphragm member (64), while the other end thereof extends towards exterior of said casing (62) through said opening (68a),
(e) a breakage detecting switch (72) supported by a displaceable partitioning member (74) which is at the bottom portion thereof mounted on an inner wall of said second chamber (68), which is opposite to said diaphragm member (64),
(f) a third chamber (76) defined by said displaceable partitioning member (74) and the inner wall of said casing (62),
(g) a control vacuum P_1 supplied into said first and third chambers (66, 76),
whereby, if there occurs breakage in said diaphragm member 64, said breakage detecting switch (72) mounted on said displaceable partitioning member (74) moves towards said diaphragm member (64) to become in contact with the one end of said actuating rod (70), thereby to become operative to detect the breakage in said diaphragm member (64).

4,272,960

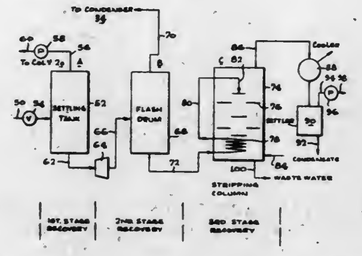
PROCESS AND SYSTEM FOR RECOVERY OF WORKING FLUID FOR DIRECT CONTACT HEAT EXCHANGE

Edward F. Wahl, III, Claremont, Calif., assignor to Occidental Petroleum Corporation, Los Angeles, Calif.

Filed Feb. 6, 1978, Ser. No. 875,213
Int. Cl.³ F03G 7/00
U.S. Cl. 60—641 D **6 Claims**

1. In a system for recovery of energy from hot water-containing fluids including geothermal brine and other hot water-containing sources, said system comprising heat exchange column means for direct contact heat exchange between said

hot water-containing fluid and an immiscible working fluid, to produce a heated working fluid and a cooled aqueous liquid-containing working fluid, means for expanding the resulting heated working fluid to produce work, condenser means for condensing the expanded working fluid, means for returning the condensed working fluid to said heat exchange column means and means for withdrawing said cooled liquid from said column means, the improvement which comprises in combination,
(a) settling means communicating with said heat exchange column means for settling said cooled liquid withdrawn from said column means, to separate some of said working fluid from said liquid,



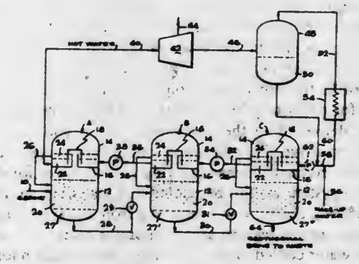
(b) flash means communicating with said settling means for flashing said separated cooled liquid from step (a) to flash off additional working fluid and to further reduce the content of working fluid in said cooled liquid,
(c) stripping column means communicating with said flash means for steam stripping said cooled and flashed liquid to still further reduce the content of working fluid therein,
(d) heat transfer coil means in the bottom portion of said stripping column means for conducting cooled liquid through said coil means,
(e) means for conducting the cooled liquid exiting said coil means onto the top of said stripping column means, and
(f) means for introducing wellhead brine or steam into the bottom portion of said steam stripping column means.

4,272,961

RECOVERY OF ENERGY FROM GEOTHERMAL BRINE AND OTHER AQUEOUS SOURCES

Pasupati Sadhukhan, La Verne, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Continuation of Ser. No. 861,907, Dec. 19, 1977, abandoned. This application Jan. 21, 1979, Ser. No. 50,868
Int. Cl.³ F03G 7/04
U.S. Cl. 60—641 D **36 Claims**



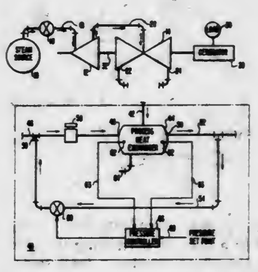
1. A process for recovery of energy from hot aqueous liquids containing a non-volatile solute which comprises providing a plurality of interconnected like stages, and in each stage thereof
(a) directly contacting a hot aqueous first liquid with a water immiscible second liquid having a boiling point lower than said first hot liquid in an evaporator zone, causing said immiscible second liquid to boil and generate vapor,
(b) contacting the vapor of said immiscible second liquid generated during said boiling with cooler water in a condenser zone,
(c) causing condensation of said vapor of said second liquid and heating said water by transfer of latent heat from the condensing vapor,
(d) withdrawing condensed second liquid, and
(e) recycling said condensed immiscible second liquid from said condenser zone to said evaporator zone.

4,272,962

PRESSURE CONTROLLER FOR DUAL PURPOSE STEAM TURBINE POWER PLANT

Paul W. Viscovich, Swedesboro, N.J., and Moti T. Khemlani, West Chester, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 13, 1978, Ser. No. 968,951
Int. Cl.³ F01K 17/00
U.S. Cl. 60—648 **16 Claims**



1. A heat exchanger for use in a dual purpose steam turbine power plant wherein steam extracted from said steam turbine power plant is supplied through one section of said heat exchanger and a process fluid is conducted through another section of said exchanger, which is physically isolated from said one section, said heat energy of said extracted steam being transferred to said process fluid within said heat exchanger to elevate the temperature of said process fluid, said heat exchanger comprising:
an input end into which said process fluid is supplied to said another section;
an output end to exit process fluid at elevated temperatures from said another section;
means for returning heated process fluid to said input end to be mixed with the process fluid supplied to said another section;
means for causing said mixed process fluid to flow through said another section;
means for regulating the flow of process fluid returned back to said input end from said output end;
means for generating a signal representative of the pressure of said extracted steam in said one section; and
means governed by said steam pressure representative signal and a desired pressure set point signal to control said flow regulating means to influence the pressure of the extracted steam as conducted through said one section.

4,272,963

CYCLIC ENERGY TRANSFORMATION APPARATUS

Giles P. Lay, Sulphur, Okla., assignor to Layco, Inc., Sulphur, Okla.

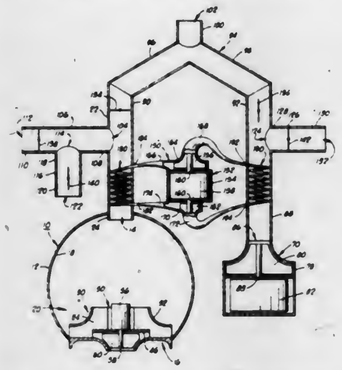
Filed Oct. 3, 1979, Ser. No. 81,344
Int. Cl.³ F01K 23/02; F02C 1/02
U.S. Cl. 60—655 **12 Claims**

1. An apparatus for deriving beneficial results from the

separation of a flow of primary working fluid into branches of flow having different energy characteristics, comprising:

a spheroid container having an outlet bore diametrically disposed from an inlet bore, with a first outlet port substantially equidistant between such bores, and having an internal surface shaped to deflect a primary working fluid into non-conflicting streamlines that form a vortical ring flow pattern within the provided internal cavity;

a vortical ring flow generator assembly disposed within, and suitably connected to said inlet bore of said spheroid container, and having an initial inlet port, an internal inlet port, a plurality of channel outlet ports, and a plurality of stationary volute vanes arranged to merge the flow of primary working fluid through said initial inlet port with



the flow of primary working fluid through said internal inlet port in a manner permitting the mixed flow of primary working fluid to exhaust from said outlet port with a minimum of turbulence; and

a powered pump assembly, suitably connected to said vortical ring flow generator assembly, having a motor and an impeller arranged so that the application of an external source of power causing a pumping action that draws the primary working fluid through said initial inlet port, in a manner that induces additional flow through the internal inlet port, and causes primary working fluid to flow through said vortical ring flow generator outlet port for circulation within said spheroid container internal cavity as such flow is branched for exit through said spheroid container first outlet port or outlet bore.

4,272,964

STEAM GENERATING APPARATUS

Yoshio Kumagai, Takahagi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 18, 1979, Ser. No. 31,297
Claims priority, application Japan, Apr. 24, 1978, 53/47737
Int. Cl.³ F01D *11/04*; F22B *1/02*
U.S. Cl. 60—657 **8 Claims**

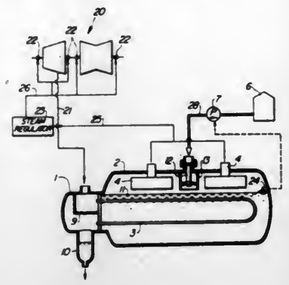
1. A steam generating apparatus comprising:

a shell containing feed water introduced thereinto; and

heating pipes submerged in the feed water contained in said shell for permitting a heating fluid of high temperature to flow therethrough, indirect heat exchange being effected between the heating fluid and the feed water in said shell through said heating pipes so as to evaporate the feed water;

said apparatus further comprising

a spray valve mounted in a space above the liquid level of the feed water in said shell for scattering condensate in atomized particles in said shell, said spray valve including resilient means mounted therein for varying the degree of opening of said spray valve according to the pressure of the condensate supplied to said spray valve, arrangement being such that the atomized particles of the condensate delivered into said shell through said spray valve are brought into contact with steam generated in said shell



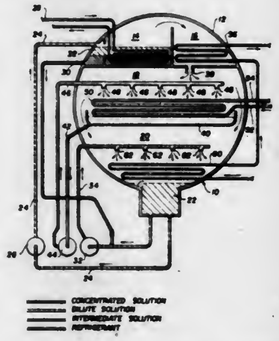
and heated thereby to a saturation temperature corresponding to the internal pressure of said shell.

4,272,965

METHOD AND APPARATUS FOR CONTROLLING AND CONSERVING ENERGY IN AN ABSORPTION REFRIGERATION SYSTEM

Richard W. Thoma, Dickerson, Md., assignor to Parklawn Associates, Inc., Rockville, Md.

Filed Jun. 7, 1979, Ser. No. 46,284
Int. Cl.³ F25B *15/00*
U.S. Cl. 62—104 **8 Claims**



1. In an absorption refrigeration system including a concentrator section, a condenser section, an evaporator section and an absorber section, and a closed loop fluid path for delivering a refrigerant from section to section and changing phases of the refrigerant from a vapor to a liquid and a liquid to a vapor and providing cooling in the evaporator section in the process, means for delivering heat energy to said concentrator section to vaporize the refrigerant, control means connected to said means for delivering heat energy to regulate the rate of heat energy delivered to the condenser section and thus energy utilized to drive the absorption refrigeration system, closed loop heat exchange means carrying chilled water for distribution to a system load to be cooled and including an inlet portion carrying chilled water returning from the system load, and an outlet portion leaving said evaporator section for carrying chilled water cooled in the evaporator to the system load to be cooled, wherein the improvement comprises:

temperature sensing means connected exclusively to the inlet portion of said closed loop heat exchange means for sensing the temperature of chilled water returning from the systemm load before entering said evaporator section; and

means operably connecting said temperature sensing means

and said control means for effecting regulation of said control means in response to the temperature of chilled water entering the refrigeration system evaporator section from the system load and irrespective of the temperature of chilled water leaving the refrigeration system evaporator section.

5. A method for controlling and conserving energy utilization in an absorption refrigeration system including a concentrator section, a condenser section, and evaporator section and an absorber section, and a closed loop fluid path for delivering a refrigerant from section to section and changing phases of the refrigerant from a vapor to a liquid and a liquid to a vapor and providing cooling in the evaporator section in the process, means for delivering heat energy to said concentrator section to vaporize the refrigerant in the concentrator for delivery of the vaporized refrigerant to the condenser, control means connected to said means for delivering heat energy to regulate the rate of heat energy input to the concentrator section and thus energy utilized to drive the absorption refrigeration system, close loop heat exchange means carrying chilled water for distribution to a system load to be cooled and including an inlet section carrying chilled water returning from the system load and an outlet section leaving said evaporator section for carrying chilled water cooled in the evaporator system to the system load to be cooled, wherein the improvement comprises the steps of:

sensing the temperature of chilled water exclusively as the water returns from the system load to be cooled before the chilled water enters the evaporator; and

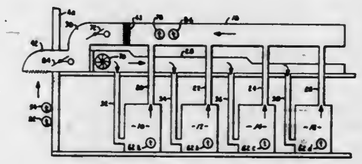
controlling the amount of heat energy delivered to the concentrator section as a function of the temperature of the returning chilled water coming from the system load to be cooled irrespective of the temperature of the chilled water leaving the refrigeration system evaporator section.

4,272,966

COOLING SYSTEM UTILIZING OUTSIDE AIR

Eugene E. Niemann, and Kelly E. Niemann, both of 100 W. 4th St., Appletor City, Mo. 64624

Filed Oct. 19, 1979, Ser. No. 86,280
Int. Cl.³ F25D *17/00*
U.S. Cl. 62—180 **8 Claims**



1. Equipment for cooling a plurality of containers inside of a building, each of said containers characterized by a refrigeration unit in association therewith, said equipment being responsive to ambient air temperature and utilizing said outside air for cooling, said equipment comprising:

first duct means for collecting cooled air from said containers and returning it to said containers;

blower means disposed in said duct means for recycling the collected air to said containers;

auxiliary cooling means disposed in said duct means downstream from said blower mean;

first temperature responsive means for sensing the temperature of said ambient air;

first circuit means coupled with said first temperature responsive means for deactivating said refrigeration units in response to a first temperature drop and activating said auxiliary cooling means and said blower means;

second duct means for receiving outside air, said second duct means being in communication with said first duct means;

primary closure means for opening and closing said second duct means to the passage of air therethrough;

second temperature responsive means for sensing the temperature of the ambient air; and

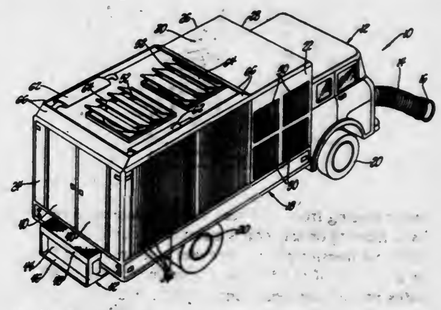
second circuit means coupled with said second temperature responsive means for operating said primary closure means in response to a second temperature drop whereby said closure means is opened and outside air is brought into said second duct.

4,272,967

SELF-CONTAINED PORTABLE AIR-CONDITIONING SYSTEM

Jack H. White, Fountain Valley, and Joseph M. FitzGerald, Buena Park, both of Calif., assignors to Lear Siegler, Inc., Santa Ana, Calif.

Continuation of Ser. No. 918,016, Jun. 22, 1978, abandoned. This application Mar. 31, 1980, Ser. No. 135,746
Int. Cl.³ F25B *27/00*; B60H *3/04*
U.S. Cl. 62—236 **3 Claims**



1. A self-contained, self-propelled air-conditioning apparatus for providing air to a structure having an inlet for conveying the air through the structure, said system comprising:

a frame mounted on rotatable wheels,

driving means for rotating said wheels,

a prime mover mounted on said frame for supplying mechanical energy,

starting means for starting said prime mover,

a generator mechanically connected to said prime mover for changing the supplied mechanical energy into electrical energy,

a ventilation system mounted on said frame for moving air from the ambience to the inlet duct,

two refrigeration systems mounted on said frame, each selectively operable alone or with the other for cooling said moving air, and

an electrical control circuit for selectively electrically connecting each of said ventilation, and refrigeration systems to said generator and for selectively electrically connecting each of said ventilation, and refrigeration systems to an external electrical power source, said control circuit including means for automatically breaking the electrical connection to the generator and for disabling said starting means when there is electrical connection to the external electrical power source.

4,272,968

CONVERTIBLE DISPENSER

William A. Harvill, Stone Mountain, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jul. 18, 1979, Ser. No. 56,270
Int. Cl.³ B67D *5/62*; F25D *19/02*
U.S. Cl. 62—394 **4 Claims**

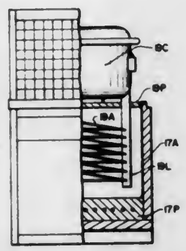
1. A convertible cooling system for a post-mix or pre-mix beverage dispenser for cooling at least one beverage product

which is supplied from a beverage container through the cooling system to a discharge valve comprising:

a cooling tank in which a refrigeration means is positioned for cooling the beverage product, said cooling tank including four upwardly projecting sidewalls terminating in an open top portion;

a heat transfer plate positioned in the cooling tank forming an integral bottom portion thereof and being sealably affixed to said four upwardly projecting sidewalls to form a liquid-tight compartment, said heat transfer plate including a plurality of flow paths therethrough in communication with said beverage product and said discharge valve; and

a removable mechanical refrigerating means for cooling said beverage within said flow paths to a predetermined temperature including a coil which projects into said cooling tank a predetermined distance while providing an ade-



quate spacing from said heat transfer plate wherein an ice bank forming on said coil is maintained out of contact with said heat transfer plate to prevent cold spots and freezing of a portion of the beverage contained within said flow paths within said heat transfer plate, said removable mechanical refrigerating means including a plate for providing a closure to said open top portion of said cooling tank;

said removable mechanical refrigerating means including downwardly projecting legs for providing a support when removed from the cooling tank and further including an agitator rotatably driven by a motor for circulating liquid within said cooling tank;

whereby said mechanical refrigerating means may be readily removed from said cooling tank and ice particles positioned directly on said heat transfer plate thereby providing the refrigeration means for cooling said beverage to said predetermined temperature.

4,272,969

METHOD FOR REFRIGERATING FRESH PRODUCTS AND KEEPING THEM FRESH, AS WELL AS REFRIGERATOR FOR CARRYING OUT THIS METHOD

Fernand Schwitzgebel, c/o Hermann Forster, CH 9320 Arbon, Switzerland

Filed Feb. 3, 1978, Ser. No. 874,941

Claims priority, application Fed. Rep. of Germany, Feb. 3, 1977, 2704562; Dec. 23, 1977, 2757644

Int. Cl.³ F25D *17/06*; F24F *3/16*; F25D *21/00, 5/00*

U.S. Cl. 62—419 **13 Claims**

1. A high humidity refrigerator for preventing the withdrawal of moisture from food products therein, said refrigerator including

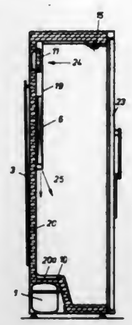
(a) a cold insulated compartment

(b) a compressor, condenser and evaporator connected by refrigerant lines

(c) said evaporator being positioned within, and in the upper portion of, said cold insulated compartment, and having a surface temperature above 0° C.

(d) a continuously operating fan located within said cold insulated compartment above said evaporator for directing air vertically downwardly past the evaporator to prevent icing of the evaporator surface, resulting in the formation of condensation thereon, and

(e) a drip dish in the lower portion of the compartment beneath the evaporator for receiving water produced by the condensation dropping from the evaporator



(f) said drip dish lying in the direct path of the air flow from the fan, whereby the air impinges upon the water contained in the drip dish to constantly absorb moisture therefrom and return it into the air surrounding the goods being refrigerated.

4,272,970

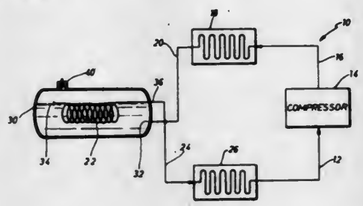
COMPRESSION REFRIGERATION SYSTEM

James R. Hobbs, 5303 Glenmont, Houston, Tex. 77081

Filed Feb. 4, 1980, Ser. No. 117,908

Int. Cl.³ F25B *41/06*

U.S. Cl. 62—511 **11 Claims**



1. In a compression refrigeration system having a compressor, a condenser, an evaporator and a liquid refrigerant, the improvement in a restriction between the condenser and the evaporator comprising,

a capillary tube having an inlet and an outlet,

an enclosure surrounding the capillary tube,

the outlet of the capillary tube extending through the enclosure and connected to the inlet of the evaporator,

the inlet of the capillary tube being in fluid communication with the interior of the enclosure,

said enclosure having an inlet connected to the outlet of the condenser for receiving liquid refrigerant from the condenser which flows into the capillary tube inlet and also forms a heat exchange with the exterior of the capillary tube for providing a self-regulating flow through the capillary tube.

4,272,971

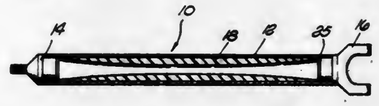
REINFORCED TUBULAR STRUCTURE

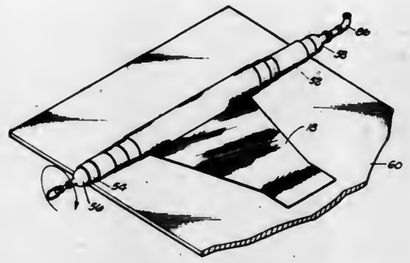
Morris S. Loyd, Northridge, and Timothy W. McGann, Anaheim, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 26, 1979, Ser. No. 16,454

Int. Cl.³ F16C *1/00, 3/00*

U.S. Cl. 64—1 S **19 Claims**





1. A reinforced tubular structure comprising:

a metal tube, said metal tube having inner and outer peripheral surfaces:

a cured composite tubular liner within said metal tube adhesively bonded to said inner peripheral surface of said metal tube, said liner comprising a plurality of plies of fibrous material in a solid resin matrix, said liner increasing the longitudinal stiffness of said tubular structure, said liner having a longitudinal Young's Modulus to density ratio greater than for the metal tube.

4,272,972

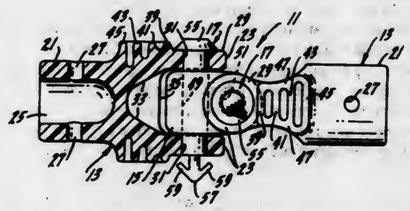
UNIVERSAL JOINT

Ian R. James, Lombard, Ill., assignor to Lovejoy, Inc., Downers Grove, Ill.

Filed Dec. 26, 1979, Ser. No. 106,672

Int. Cl.³ F16D *3/26*

U.S. Cl. 64—17 SP **3 Claims**



1. A universal joint formed of plastic and including two yokes and a block with the block received between and pivotally connected to the yokes,

each of said yokes including a cylindrical portion having a shaft receiving bore at one end and a pair of arms integrally formed at the other end with the outer surfaces of the arms being spaced apart a distance which is greater than the outer diameter of the cylindrical portion,

aligned pin receiving bores formed in the arms near the free ends thereof to receive pins pivotally connecting the block to the yokes,

a diametrically extending rib connecting said arms and positioned at the base of said arms to prevent free pivotal movement of the block relative to the yokes, and

transversely extending strengthening ribs formed on the exterior diametric surfaces of the yoke arms with the transversely extending ribs aligned with the diametrically extending rib at the base of the arms,

said transversely extending strengthening ribs extending at right angles to the diametrically extending rib at the base of the arms.

4,272,973

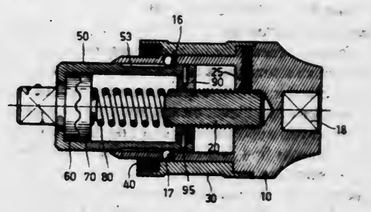
SOCKET JOINT FOR TORQUE WRENCH

Lee Fu-Tsai, No. 209-10 Kuang-Ming Rd., Taichung, Taiwan

Filed Apr. 26, 1979, Ser. No. 33,431

Int. Cl.³ F16D *7/06*

U.S. Cl. 64—29 **14 Claims**



1. An assembly for torque wrenches comprising:

a body provided with a circular chamber at one end and a rectangular socket at another end;

a bolt having one end fixed to a central screw hole of said circular chamber;

a clutch casing, said casing being a circular tube having a protruding ring provided on inner wall of one end thereof;

a clutching means disposed in said casing, said clutching means including a rectangular plug assembly resting upon said protruding ring;

a spring positioned between said bolt and clutching means; and

a positioning nut threaded to said bolt and secured to another end of said clutch casing.

4,272,974

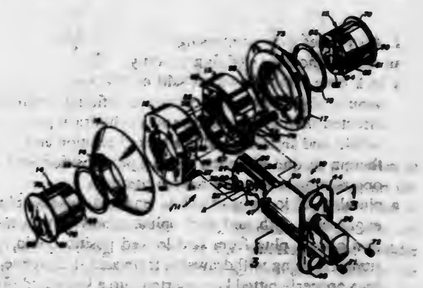
DEAD BOLT LOCK

Thomas F. Hennessy, Bristol, Conn., assignor to Lori Engineering Corporation, Southington, Conn.

Filed Jan. 25, 1979, Ser. No. 6,564

Int. Cl.³ E05B *9/06, 65/06*; E05C *1/06*

U.S. Cl. 70—129 **16 Claims**



1. A key operable dead bolt lock comprising:

housing means, said housing means defining a first axis which will be generally transverse to the plane defined by

the face of a door in which the lock is installed, said housing means further defining a bolt means receiving passage which is transverse to and intersects said first axis;

at least a first key operated actuator means, said first actuator means having an axis and being releasably received in said housing means coaxially with said first axis, said actuator means having a rotatable cam means extending from a first end thereof, said cam means being rotated in response to rotation of a removable key, said first actuator means first end being disposed oppositely to the key receiving end of said first actuator means;

elongated bolt means, said bolt means having an axis and including a retractable bolt which may be extended from a first end of said bolt means, the second end of said bolt means being received in said housing means passage, said bolt means second end intersecting said housing means first axis;

means for releasably securing said bolt means to said housing means;

lever means, said lever means being pivotally supported on said bolt means second end;

cam follower means mounted on said lever means, said cam follower means being positioned for engagement by said first actuator means cam means whereby rotation of a key received in said first actuator means will be translated into motion of said lever means, said cam follower means being moved to opposite sides of a first plane through said housing means first axis and transverse to said bolt means axis by said cam means;

means coupling said lever means to said bolt means bolt whereby said bolt will be extended and retracted in accordance with the movements of said lever means; and

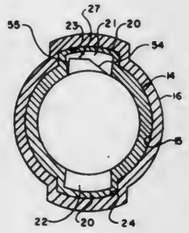
means for locking said first actuator means in said housing means.

4,272,975

CYLINDER LOCK WITH KEY REMOVABLE CORE

George P. Patriquin, Gardner, Mass., assignor to Hudson Lock, Inc., Hudson, Mass.

Filed Jul. 6, 1979, Ser. No. 55,925
Int. Cl.³ E05B 15/14, 29/02
U.S. Cl. 70—369 10 Claims



1. A cylinder lock comprising:

an annular housing defining a cavity;

a lock core retained within said cavity and comprising an annular shell with an inner surface defining longitudinally directed shell spline means, and a cylindrical plug retained within said annular shell in a locked position and rotatable therein in one direction to an open position and in the opposite direction to a release position;

a plurality of locking tumblers retained by said plug and engageable with said shell spline means to prevent rotation of said plug from said locked position, said locking tumblers being withdrawable from said shell spline means by a properly bitted key inserted into a keyway defined by said plug;

an actuator member coupled to said plug so as to undergo movement in response to rotation thereof;

a locking member movable between latched and unlatched positions by said actuator member;

release tumbler means retained by said plug and engaged with said shell spline means with said plug in said locked position, said release tumbler means and said shell spline means being shaped and arranged to permit rotation of said plug in said one direction and to prevent rotation of said plug in said opposite direction, said release tumbler means being withdrawable from said shell spline means by a properly bitted key inserted into said keyway so as to allow rotation of said plug in said opposite direction; and

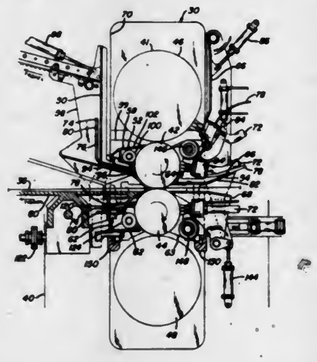
retaining means shaped and arranged to prevent relative axial movement between said housing and said core with said plug in said locked and open positions and to allow said relative axial movement with said plug in said release position.

4,272,976

HOT STRIP ROLLING MILL STAND

Ronald D. Pizzedaz, Springdale, Pa., assignor to Mesta Machine Company, Pittsburgh, Pa.

Filed Jan. 5, 1979, Ser. No. 45,638
Int. Cl.³ B21B 27/10
U.S. Cl. 72—45 15 Claims



1. In a rolling mill wherein at least upper and lower mill rolls are rotatably mounted in window means of a mill housing to reduce strip passed therebetween and wherein a direct application lubricant is applied to said mill roll on the entry side of such a rolling mill, the improvement comprising: applying means to continuously apply such direct application lubricant to adjacent peripheral portions of said mill rolls prior to said adjacent peripheral portions engaging such strip for the reduction thereof; and smoothing means spaced from said applying means, of at least said upper mill roll, in the direction of rotation of said upper mill roll and operable to direct a flow of air to said upper mill roll to smooth and control the thickness of such direct application lubricant applied by said applying means to respective adjacent peripheral portions of said at least said upper mill roll prior to said respective adjacent peripheral portions engaging such strip for the reduction thereof.

4,272,977

METHOD AND APPARATUS FOR NECKING-IN AND FLANGING A CONTAINER BODY

Laszlo A. Gombas, Rte. 7, Box 555Q, Evergreen, Colo. 80439

Filed Jun. 7, 1979, Ser. No. 46,231
Int. Cl.³ B21D 41/04
U.S. Cl. 72—121 57 Claims

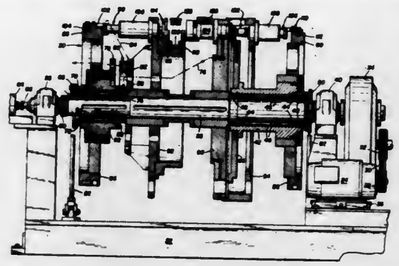
1. Apparatus for simultaneously necking-in and flanging the cylindrical side wall of a container body adjacent to an open axial end thereof, comprising:

(a) a mandrel having forward and rearward ends with a longitudinally extending axis of rotation extending therebetween;

(b) first roller means carried by the mandrel near the forward end thereof in axially slidable relationship for radially supporting the side wall of a container inserted over the first roller means;

(c) second roller means carried by the mandrel rearwardly of the first roller means in axially slidable relationship with the mandrel for radially supporting the side wall of a container inserted over at least a forward portion of the second roller means;

(d) can end nest means carried by the mandrel with at least



a portion of the next means at a radial spacing outwardly from said forward portion of the second roller means for defining in combination with the forward portion of the second roller means a forwardly opening groove for receiving, in use, a container side wall marginal end and encapsulating the radial outer surface thereof; and

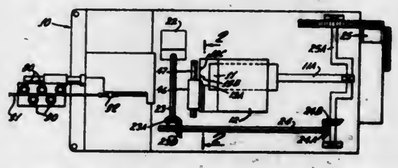
(e) necking die means carried by said mandrel for radial movement in the plane between said first and second roller means for, in use, deforming the cylindrical side wall of a container inserted over said roller means while inducing axial separation of the two rollers to accommodate at least partial entry of the necking die means between the rollers.

4,272,978

PROGRESSIVE STAGE FORGING MACHINE

Imre Berecz, 917 Acapulco St., Laguna Beach, Calif. 92651

Filed Sep. 3, 1974, Ser. No. 502,352
The portion of the term of this patent subsequent to Dec. 16, 1985, has been disclaimed.
Int. Cl.³ B21D 43/02, 45/00; B21K 1/44
U.S. Cl. 72—335 9 Claims



1. A progressive stage forging machine for forming articles of steel and like material from work piece blanks cut from material stock, said machine comprising:

(a) a frame;

(b) a source of power;

(c) a power ram mounted in the frame for reciprocating movement along a rectilinear path of travel between an extended position and a retracted position;

(d) first power transmission means, including a main crankshaft, interconnecting the power source and the ram for powered reciprocal movement along said path of travel;

(e) first, second, and third punches carried at the distal end of the ram and arranged at intervals of spacing transversely related to the path of travel of the ram;

(f) first, second, and third dies carried by the frame and arranged at first, second, and third die stations spaced transversely of said path, the dies being in individual positions of cooperation aligned respectively with one of said punches;

(g) means mounting the first of said dies in a fixed aligned position relative to the first of said punches;

(h) indexing means carried by the frame and mounting each of the remaining two of said dies for alternative shifting of the second die and the third die between positions alternatively, respectively aligned with the second punch and the third punch;

(i) transfer means to feed an individual work piece blank to the first die station;

(j) separate transfer means to effect transfer of an individual blank from the first die station to the second die station;

(k) second power transmission means, including timing mechanism, connected between the main crankshaft and both of said transfer means to effect timed transfer of the blanks respectively held thereby, the transfer occurring prior to a predetermined extended position of the ram and a corresponding position of rotation of the crankshaft; and

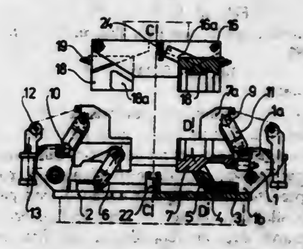
(l) third power transmission means, including timing mechanism connected between the main crankshaft and said indexing means to effect shifting of the second die and the third die between positions alternatively, respectively aligned with the second punch and the third punch, such shifting commencing after each stroke of the ram to an extended position and being completed within a predetermined arc of rotation of the crankshaft, so that upon successive extensions of the ram, the third punch delivers a finishing blow to a work piece blank on each such extension, the first finishing blow being delivered to a blank carried in one of either the second die or the third die, and the next blow being delivered to a blank carried in the other of such dies.

4,272,979

METHOD AND APPARATUS FOR FORGING CRANK THROWS

Tadeusz Rut, Poznan, Poland, assignor to Instytut Obrobki Plastycznej, Poznan, Poland

Filed Jan. 11, 1979, Ser. No. 2,777
Claims priority, application Poland, Jan. 14, 1978, 204016; Nov. 22, 1978, 211132
Int. Cl.³ B21K 1/08
U.S. Cl. 72—356 12 Claims

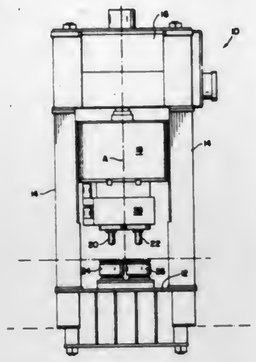


1. A method of forging crank throws in which a portion of a bar is upset by applying opposed longitudinal forces on the said portion and its middle part is bent in a direction which is perpendicular to the direction of the upsetting forces, wherein during the upsetting step, before the bending of the middle part, the flowing material is directed to form at the ends of the upset portion two upset projections which are situated eccentrically to the axis of the bar and which include crests which are directed opposite to the intended bending direction of said middle part.

4,272,980
LOAD EQUALIZER FOR PRESS TOOLING

Louis F. Carrieri, LaGrange Park, Ill., assignor to Gulf & Western Manufacturing Company, Southfield, Mich.

Filed Aug. 10, 1979, Ser. No. 65,562
Int. Cl.³ B21J 13/02
U.S. Cl. 72—404 20 Claims



1. In a hydraulic load equalizing system for press tooling comprising first and second tool means, tool support means, means including corresponding piston means and cylinder means supporting each said first and second tool means for reciprocation between extended and retracted positions relative to said tool support means, means connecting said cylinder means in fluid flow communication with one another and with a source of hydraulic fluid, whereby displacement of one of said tool means in the direction from the extented toward the retracted position thereof displaces the other of said tool means in the direction from the retracted toward the extended position thereof, the improvement comprising: said first and second tool means each having a neutral position between the corresponding extended and retracted positions, and means biasing each said tool means in the direction from the extended toward the neutral position thereof.

4,272,981
WORKPIECE MANIPULATOR FOR FORGING PRESS

Horst Endter, Düsseldorf, Fed. Rep. of Germany, assignor to Maschinenfabrik Haeseclever Gesellschaft mit beschränkter Haftung, Düsseldorf, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,515
Claims priority, application Fed. Rep. of Germany, Feb. 18, 1978, 2806987
Int. Cl.³ B21D 43/05
U.S. Cl. 72—405 7 Claims

1. A workpiece manipulator comprising: first transmission means including a first epicyclic gear train having a rotary input and a crank output for movement of said output generally in a planar and square path on rotation of said rotary input through a predetermined angular distance, said path having generally parallel first and second sides and generally parallel third and fourth sides interconnecting said first and second sides and forming therewith a plane;

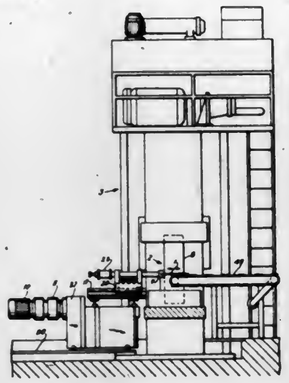
drive means including a second epicyclic gear train connected to said rotary input for rotating same at a speed increasing generally from a standstill to a predetermined speed then slowing generally to a standstill twice for each travel of said output about said square path, said standstills respectively corresponding to intermediate positions of said output along said first and second sides;

a traversing carriage coupled to said crank output and generally jointly displaceable therewith in said plane in a first direction generally parallel to said first and second sides and in a second direction generally parallel to said third and fourth sides;

a lift carriage coupled to said traversing carriage and jointly displaceable therewith in said second direction;

a holder carriage coupled to said lift carriage and jointly displaceable therewith in said first and second directions but independently displaceable relative thereto in a third direction generally perpendicular to said first and second directions;

an openable and closable workpiece holder carried on said holder carriage;



a threaded spindle extending generally in said first direction, threaded into said traversing carriage, carrying at said holder carriage a pinion, and nondisplaceable in said first direction relative to said lift carriage;

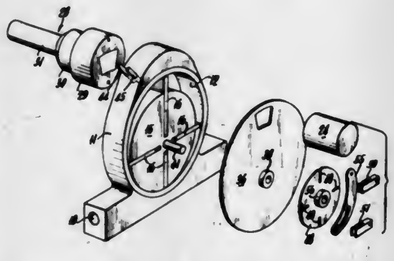
a rack fixed on said holder carriage, extending in said third direction, and in mesh with said pinion; and

means for preventing said lift carriage from moving jointly in said first direction of displacement of said crank output between said intermediate positions and said fourth side for screwing of said spindle in said traversing carriage to rotate said pinion and displace said holder carriage in said third direction.

4,272,982
FLUID FLOW METER FOR MIXED LIQUID AND GAS

Dan M. Arnold, and Robert W. Pitts, Jr., both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Oct. 17, 1979, Ser. No. 85,571
Int. Cl.³ G01N 9/24; G01F 1/90
U.S. Cl. 73—19 2 Claims



1. Fluid flow meter for continuously measuring the rate of flow of a mixed fluid having both liquid and gas components, comprising in combination

positive displacement meter means comprising a housing having a circular cross section interior with tangential inlet and outlet passages adjacent to one side thereof,

a rotor eccentrically located in said interior and incorporating a balanced plurality of radial vanes biased into sealing relation with said housing interior for dividing said mixed fluid stream into at least one segment during flow through the meter,

a gamma ray densitometer having a beam directed across said segment adjacent to the other side of said housing interior for measuring the density of said mixed fluid in order to determine the percent of one of said components,

means mounted on said housing for measuring the pressure of said mixed fluid segment, and

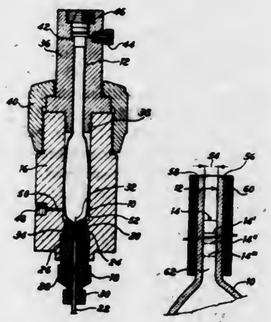
means mounted on said housing for measuring the temperature of said mixed fluid segment,

all whereby the linear flow rate of both liquid and gas components of said mixed fluid will be equal during said measurements.

4,272,983
APPARATUS FOR POROSIMETRIC MEASUREMENTS

Giorgio Sisti, Melzo; Ermete Riva, Merate, and Pietro Italiano, Cernusco sul Naviglio, all of Italy, assignors to Carlo Erba Strumentazione S.p.A., Italy

Filed Oct. 31, 1979, Ser. No. 89,994
Claims priority, application Italy, Dec. 13, 1978, 30787 A/78
Int. Cl.³ G01N 15/08
U.S. Cl. 73—38 7 Claims



1. Apparatus for porosimetric measurements comprising a vessel for housing a solid to be analysed, said solid being immersed in mercury and suitable for being subjected to controlled pressure increases, said vessel including a neck portion taking the form of a gauged-diameter capillary where a mercury meniscus forms at any pressure condition during the measurement, said gauged-diameter capillary being formed of dielectric material and having walls exhibiting a gauged thickness, armature means formed of electrically conductive material externally surrounding said neck, means for electrically communicating through said vessel with mercury present therein, and means for connecting said armature means outside zones subjected to pressure and said electrically communicating means in a circuit including a power source and means for measuring capacity variations of a mercury condenser formed in said capillary between said mercury and said armature and the dielectric wall of said capillary.

4,272,984
PIPELINE LEAK DETECTION METHOD AND CONTROL DEVICE THEREFOR

David A. Bell, White City, Canada, assignor to Interprovincial Steel and Pipe Corporation, Ltd., Regina, Canada

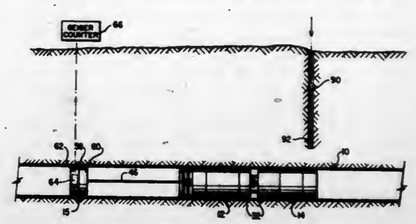
Filed May 18, 1979, Ser. No. 40,092
Int. Cl.³ G01M 3/02
U.S. Cl. 73—40.5 R 6 Claims

1. In or for use with a pipeline packer assembly having a packer unit for sealing the pipe when actuated and actuating means responsive to an energizing signal for selectively actuating the packer unit;

a control device for the actuating means comprising:

a gamma ray detector providing an electrical output signal representative of the gamma radiation detected by the detector, and

a signal processor receiving and responsive to the electrical output signal from the gamma ray detector and providing

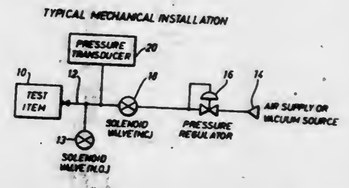


said energizing signal for the actuating means when the gamma radiation exceeds a set threshold level, said signal processor providing said energizing signal when the gamma radiation intensity exceeds a set threshold level for at least a set period of time, and wherein the signal processor includes a stepping switch which provides said energizing signal cyclically as the stepping switch is sequentially actuated.

4,272,985
METHOD OF AND APPARATUS FOR COMPENSATING FOR TEMPERATURE IN LEAK TESTING

William J. Rapson, Jr.; Leroy C. Delahorre, and Charles L. Thompson, all of Houston, Tex., assignors to Uson Corporation, Houston, Tex.

Filed Dec. 3, 1979, Ser. No. 99,777
Int. Cl.³ G01M 3/26
U.S. Cl. 73—49.2 7 Claims



1. An apparatus for testing leaks in a test item having a temperature different than ambient temperature comprising,

means for sealing the test item in ambient air,

transducer means for measuring the pressure in the test item,

means conducted to the transducer means for measuring the rate of change of the pressure of the air sealing the test item for providing a temperature correction,

means connected to the measuring means for storing the rate of change measurement,

means for subjecting the test item to a pressurized fluid, and

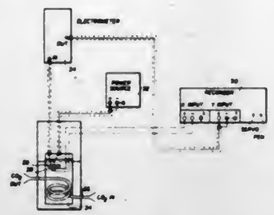
means connected between the storing means and the transducer for applying a temperature correction signal to the transducer measurement while testing for a leak in the test item.

4,272,986

METHOD AND MEANS FOR MEASURING MOISTURE CONTENT OF HERMETIC SEMICONDUCTOR DEVICES

Robert K. Lowry, Melbourne Beach, and Larry A. Miller, Palm Bay, both of Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Apr. 16, 1979, Ser. No. 30,498
Int. Cl.³ G01N 27/18
U.S. Cl. 73—73 23 Claims



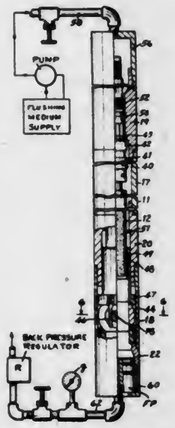
1. A method of measuring the amount of moisture in a hermetically sealed semiconductor device package comprising:
providing parallel conductive elements having a thickness no greater than 12,000 angstroms and a separation of no greater than 0.5 mils on an insulative surface is said package;
simultaneously lowering the temperature of said package at a rate no greater than 15° centigrade per minute to condense the water vapor and measuring the conductivity between said conductive elements; and
determining the moisture content from the temperature of maximum conductivity.

4,272,987

PRESSURE CORE BARREL FLUSHING SYSTEM

James T. Aumann, Salt Lake City, and Harold G. White, West Jordan, both of Utah, assignors to Christensen, Inc., Salt Lake City, Utah

Filed Dec. 3, 1979, Ser. No. 99,670
Int. Cl.³ E21B 47/00
U.S. Cl. 73—153 11 Claims



1. A flushing system for flushing drilling mud from a pressure core barrel assembly adapted for containing and maintaining a core sample taken from a bore hole sealed therein under a controlled pressure substantially equal to the pressure present at a depth in the bore hole at which the core sample is sealed off to freezing of the core sample for analysis comprising:
pressurizing inlet flushing means connected to an end portion of the pressure core barrel assembly containing movable sealing means and adapted for pressurizing and conveying a flushing medium under sufficient pressure into the pressure core barrel assembly to disengage and open the movable sealing means, flush out and displace drilling mud from the pressure core barrel assembly; and
pressurizable outlet flushing means connected to an opposite end portion of the pressure core barrel assembly containing valve sealing means operable to an open or closed position from the exterior of the pressure core barrel assembly and adapted for pressurizing, determining internal pressure, conveying and maintaining drilling mud displaced from the pressure core barrel assembly by the flushing medium substantially to at least the internal pressure therein at which the core sample was sealed in the bore hole;
whereby the sealing means in the pressure core barrel assembly will be opened for a more complete flushing of the drilling mud therefrom without loss of internal pressure and contents from the core sample, the core sample maintained and frozen at substantially the pressure it was sealed at in the bore hole and with the sealing means in the open position, the outlet flushing means disconnected and the frozen core sample extracted for analysis.

4,272,988

MULTIPLE SIGNAL THERMOPARTICULATING COATING

David C. Phillips; William M. Hickam, both of Pittsburgh, and James D. B. Smith, Turtle Creek, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 568,218, Apr. 15, 1975, abandoned.
This application Oct. 12, 1979, Ser. No. 84,223
The portion of the term of this patent subsequent to Dec. 25, 1996, has been disclaimed.
Int. Cl.³ C09K 3/00; G08B 21/00; G01K 13/00, 1/00, 3/04, 3/08
U.S. Cl. 73—339 R 11 Claims

1. A thermoparticulating coating on a substrate, said thermoparticulating coating comprising at least two solid layers one atop the other, each layer comprising at least one adhering compound which thermoparticulates at a different temperature between 60° and 200° C., said layers being arranged so that no layer is between said substrate and a layer which thermoparticulates at a higher temperature.

4,272,989

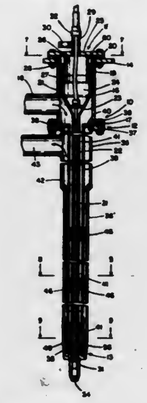
INSTRUMENT LANCE FOR BASIC OXYGEN STEELMAKING FURNACE

Nicholas M. Rymarchyk, Wexford, and Leo L. Meisert, Baden, both of Pa., assignors to Pullman Berry, Harmony, Pa.

Filed Sep. 4, 1979, Ser. No. 71,901
Int. Cl.³ C21D 1/00; G01K 1/12
U.S. Cl. 73—432 R 13 Claims

1. A sensor lance for insertion into a vessel for monitoring process conditions for molten metal comprising:
a top adapter head including a first upper pipe section having an upper first horizontal flange,
a bushing sleeve spaced inwardly of said first upper pipe section having a tubular vertical portion in engagement with said first upper pipe section and including a second horizontal flange for connecting said bushing sleeve to said first horizontal flange,
a piston sleeve spaced inwardly of said bushing sleeve having an enlarged upper chamber, said piston sleeve being in sliding engagement within said bushing sleeve,
a central second pipe connected to and communicating with said piston sleeve,
a connecting member means connecting a relatively small diameter portion of the central second pipe to a relatively larger diameter portion of the piston sleeve for facilitating water flow thereabout,

a top horizontal plate connecting said first and second flanges,
a stub sleeve spaced inwardly of said piston sleeve and connected to said top plate projecting into said enlarged upper chamber,
said stub sleeve being in relative sliding engagement with said piston sleeve to accommodate differential thermal expansion,
a water inlet connection on said first upper pipe section,
a third inner pipe spaced outwardly from said second central pipe to provide a water inlet passage communicating with said water inlet connection,
a fourth outer pipe concentric with and spaced outwardly from said third inner pipe to provide a water outlet passage,
a water outlet connection on said fourth outer pipe communicating with said water outlet passage,



a nozzle head connected to the lower portions of said fourth outer and central second pipes and including water cooling passages communicating with said water inlet and outlet passages,
a gas inlet tube connected to said top plate to provide a gas inlet into said enlarged upper chamber,
electrical cable means supported within said gas inlet tube and extending within said second central pipe,
a tubular sensor support means supported on and projecting outwardly from said nozzle head,
said central second pipe communicating with said tubular sensor support means and said electrical cable means extending within said sensor support means, and
said sensor support means being adapted to connect and support a sensor device connected to said cable means.

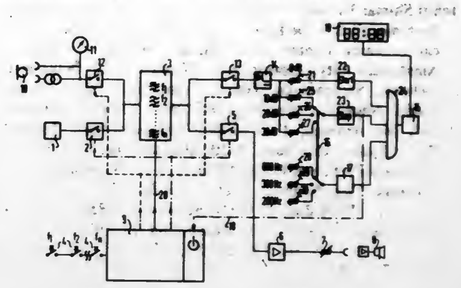
4,272,990

DEVICE FOR THE MEASUREMENT OF ACOUSTIC REVERBERATION TIME AND METHOD

Klaus Hiemann, Isernhagen, and Jost-Michael Haase, Burgwedel, both of Fed. Rep. of Germany, assignors to Polygram GmbH, Hanover, Fed. Rep. of Germany

Filed Jul. 25, 1979, Ser. No. 60,375
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832791
Int. Cl.³ G01H 7/00
U.S. Cl. 73—586 12 Claims

1. In apparatus for measuring the acoustic reverberation time of an acoustic space, having means for generating a sound frequency signal, a loudspeaker for exciting said acoustic space, a transducer for responding to acoustic energy within said space, and a time measuring device for measuring said acoustic reverberation time, the combination comprising; a plurality of band-pass filters each having a pass band of approximately one-third octave, means for connecting the input of a selected one of said filters to said sound generator and the output of said selected filter to said loudspeaker, and means for



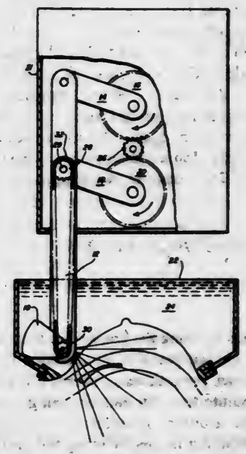
alternately connecting the input of said filter to said transducer and the output of said filter to said reverberation time measuring device.

4,272,991

SCANNING METHOD AND APPARATUS

Robert W. Cribbs, Placerville, Calif., assignor to Litton Industrial Products, Inc., Beverly Hills, Calif.

Filed Feb. 9, 1979, Ser. No. 10,894
Int. Cl.³ A61B 10/00; G01N 29/04
U.S. Cl. 73—621 8 Claims



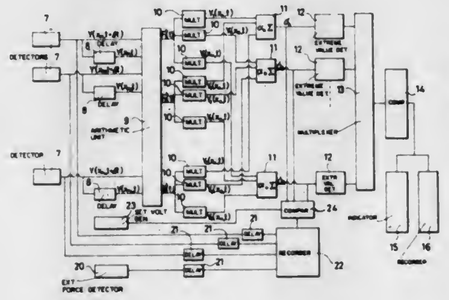
1. A scanner for use in an ultrasonic imaging system and of the type for translating a transducer assembly along a path of successive positions, each position being angularly referenced to a center of translation, wherein the scanner comprises:
means for rotating the transducer assembly about a center of rotation which is offset from the center of translation.

4,272,992

TORSIONAL VIBRATION MONITORING METHOD FOR ROTATING SHAFT SYSTEM

Ichiji Shima; Tatsuo Yamamoto; Shigeru Yoshibayashi; Hiroshi Teshima, all c/o The Kansai Electric Power Co., Inc., Technical Research Center of 2, Ichinotsubo 1-chome, Wakaoji, Amagasaki City, Osaka; Akio Hizume, 8-11, Naka-machi 1-chome, Setagaya-ku, Tokyo; Tetsuo Iki, 1998-5, Yokoomachi, Nagasaki City, Nagasaki Pref.; Takashi Yamamoto, 347, Motomurago, Tokitsu-cho, Nishisonogi-gun, Nagasaki Pref.; Kyozo Kanamori, 16-10, Shiraiwa-cho, Isahaya City, Nagasaki Pref., and Kenzo Noguchi, 5-24, Nameshi 6-chome, Nagasaki City, Nagasaki Pref., all of Japan

Filed Jun. 19, 1979, Ser. No. 49,983
Claims priority, application Japan, Jun. 23, 1978, 53-76131
Int. Cl.³ G01N 29/04
U.S. Cl. 73—650 5 Claims



1. A torsional vibration monitoring method for a rotating shaft system wherein a torsional vibration $Y(x,t)$ produced in the rotating shaft system is a sum of modal vibrations $Y_i(x,t)$, each of the modal vibrations is a product of vibration mode types $G_i(x)$ and vibration mode components $H_i(t)$, the vibration mode components $H_i(t)$ is a product of vibration amplitudes $F_i(t)$ and periodic components $E_i(t)$, the torsional vibration $Y(x,t)$ is a sum of the up to 2n-th modal vibrations and the vibration amplitude $F_i(t)$ at a time t is the same as $F_i(t+\Delta t)$ at a time delayed by a minute at Δt and represented by $F_i'(t)$, comprising the steps of measuring torsional vibrations $Y(x_{pk},t)$ with detectors at positions $x_{pk}(k=1 \ldots n)$ of the rotating shaft system obtaining vibration amplitudes F_i' (t) from 2n simultaneous equations of 2n-th degrees including:

$$\begin{cases} Y(x_{pk},t) = \sum_{i}^{2n} G_i(x_{pk}) \cdot E_i(t) \cdot F_i'(t) \\ Y(x_{pk}, t+\Delta t) = \sum_{i}^{2n} G_i(k_{pk}) \cdot E_i(t+\Delta t) \cdot F_i'(t) \end{cases}$$

in arithmetic means by using the known mode types $G_i(x_{pk})$ up to the 2n-th, the known periodic components $E_i(t)$ up to the 2n-th, and the known periodic components $E_i(t+\Delta t)$ up to the 2n-th after the minute time Δt; and obtaining torsional vibrations $Y(x_j,t)$ at the arbitrary positions x_j of the rotating shaft system with multiplying means by using the known vibration amplitude F_i' (t), the known vibration mode types $G_i(x_j)$ and the periodic components $E_i(t)$ according to the equation:

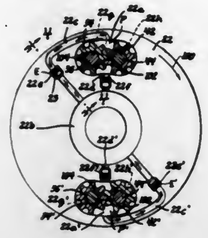
$$Y(x_j,t) = \sum_{i}^{2n} G_i(x_j) \cdot E_i(t) \cdot F_i'(t).$$

4,272,993

HYDRAULICALLY CONTROLLED DIFFERENTIAL

Leonard F. Kopich, Madison Heights, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Oct. 11, 1978, Ser. No. 950,418
Int. Cl.³ F16H 1/42, 1/44
U.S. Cl. 74—711 4 Claims



1. In a planetary gear differential having a pair of side gears, a pair of composite planet gears rotatably carried by a rotatable carrier, said pair of composite planet gears including meshing impeller gears and drive gears meshing respective side gears, improved hydraulic control means for limiting the differential speed of the side gears comprising:

a closed hydraulic circuit including a gear pump chamber having the meshing impeller gears disposed therein, and

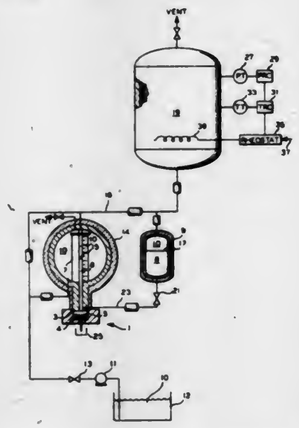
a pair of opposed unidirectional restrictions located on opposite sides of the gear pump chamber.

4,272,994

CONSTANT PRESSURE APPARATUS AND METHOD

Edwin E. Reed, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 1, 1979, Ser. No. 44,810
Int. Cl.³ G01N 3/10
U.S. Cl. 73—807 3 Claims



1. An apparatus or maintaining a constant elevated liquid pressure in a small, liquid filled vessel, said apparatus comprising:

(a) a small, liquid filled vessel, said small vessel requiring substantially constant pressure as part of a testing system;

(b) in open communication therewith a vessel having a volume of about 20 to about 100 times the volume of said small vessel;

(c) means for filling said vessels with liquid at a constant pressure; and

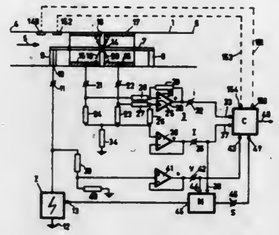
(d) means for sensing and manipulating the temperature of liquid in said larger vessel to maintain a substantially constant pressure within the apparatus.

4,272,995

IONIZATION FLOW METER

Marten P. Weistra, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,043
Claims priority, application Netherlands, Jun. 26, 1978, 7806827
Int. Cl.³ G01F 1/56
U.S. Cl. 73—861.09 17 Claims



1. In an ionisation flow meter for gases in which an ion beam is produced between an anode and a cathode and is deflected as a result of the passage of the gas to provide first and second currents determined by the deflection of the ion beam, the improvement comprising, a high-voltage source connected to the anode and cathode for generating an ion current therebetween, and a measuring device for measuring the deflection and for producing a signal quantity which is proportional to the gas flow, the measuring device comprising a voltage measuring device for measuring the voltage V between the anode and cathode, a first current measuring device for measuring the total ion current I, a second current measuring device for deriving a difference current i which is determined by the difference of said first and second currents to provide a measure of the ion beam deflection, a calculating unit including operational amplifiers and multiplication circuits and having inputs for the quantities measured and an output for said signal quantity, a modulator coupled to the high-voltage source which periodically varies the operating point of the current I and the voltage V on the I-V curve by an amount dI for the current and dV for the voltage and supplies a signal to a further input of the calculating unit which is a measure of the slope S, the slope S being defined as dI divided by dV at the operating point, the calculating unit deriving from the measured quantities said signal quantity which is proportional to the flow rate of the gas and which is independent of pressure and temperature, using a corona current formula I as a function of V and a deflection formula i as a function of the deflection.

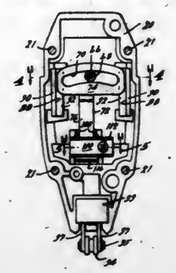
4,272,996

SCOTCH YOKE HAVING A CURVED TRACK

William D. Sauerwein, Joppa, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Jun. 19, 1979, Ser. No. 50,044
Int. Cl.³ B27B 11/02; F16H 21/18
U.S. Cl. 74—50 12 Claims

1. In a reciprocating scotch yoke drive mechanism for a power tool including a crank plate, an eccentrically located crank pin secured to said crank plate and drivingly disposed within an aperture in a yoke member having a shaft portion and a transversely extending head portion containing said aperture, and bearing means defining a support for said shaft for determining the reciprocal axis for said yoke member; the improvement wherein said aperture is curvilinear and wherein the radius of curvature of said aperture is equal to the distance between said crank pin and a point on the axis of said shaft



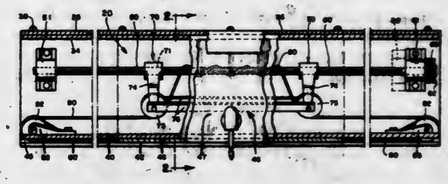
adjacent said bearing means when said yoke is at its mid-stroke position.

4,272,997

DRIVE MECHANISM

Willis G. Groth, Geneva, Ill., assignor to H. A. Phillips & Co., St. Charles, Ill.

Filed Aug. 17, 1978, Ser. No. 934,407
Int. Cl.³ F16H 27/02
U.S. Cl. 74—89.22 5 Claims



1. A mechanism for converting rotary to linear movement, comprising:

a. a drive shaft having external threads formed on a section thereof,

b. means for rotating said drive shaft about its own axis,

c. internally threaded bracket means mounted on said threaded drive shaft section for movement therealong as said drive shaft is rotated,

d. said bracket means having cable direction changing means mounted thereon,

e. drive cable means having a cable portion wrapped around said threaded drive shaft section and having oppositely extending cable portions extending generally perpendicularly away from said drive shaft,

f. said oppositely extending cable portions adapted to be connected to said driven means, and

g. said oppositely extending cable portions tracking around said direction changing means whereby said cable portions then extend generally parallel to said drive shaft.

4,272,998

DRIVE MECHANISM

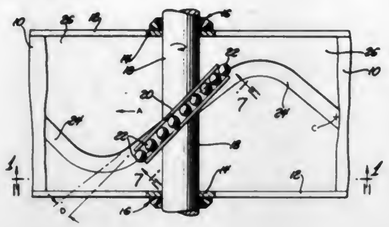
Erwin F'Geppert, Novi, Mich., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 4, 1980, Ser. No. 118,044
Int. Cl.³ F16H 21/44, 21/54
U.S. Cl. 74—99 R 7 Claims

1. Means to transmit motive power between two movable machine elements, one of which rotates about a fixed axis and the other of which moves along a path perpendicular to said axis, comprising:

a. a planar member mounted on the first-named element to rotate about said axis and having a peripheral groove,

b. a plurality of rollers disposed in said peripheral groove,
c. a track in the second-named element adapted to cooperate with the rollers of the planar member to transmit force between the planar member and the track, and



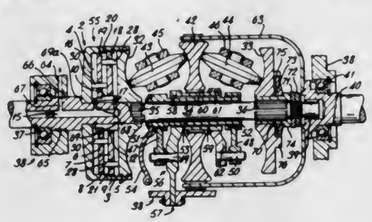
d. the planar member being skew mounted on the first-named element and having a non-circular shape whereby said rollers are always in engagement with the track as the first-named element rotates and the track moves.

4,272,999

FLUID PRESSURE OPERATED ACTUATOR

Forbes G. B. Perry, Forest Row, England, assignor to National Research Development Corporation, London, England

Filed Apr. 5, 1979, Ser. No. 27,595
Claims priority, application United Kingdom, Apr. 11, 1978, 14144/78
Int. Cl.³ F16H 17/00; F01B 7/04
U.S. Cl. 74—200 **19 Claims**



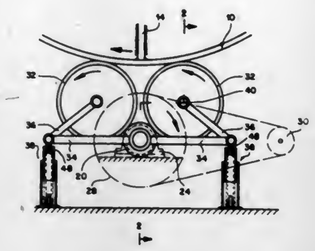
1. A fluid pressure operated actuator comprising a cylinder having a cylindrical portion and a cylinder end portion and a main piston movable axially, in sealing relation, within the cylinder characterized by the following features in combination:
(a) a pair of auxiliary piston members received within said cylinder between said main piston and the cylinder end portion,
(b) sealing means permitting limited passage of fluid past the edges of the auxiliary piston members,
(c) a pressurized zone between a first member of said pair of auxiliary piston members and the cylinder end portion,
(d) another pressurized zone between a second member of the pair of auxiliary piston members and said main piston,
(e) a vented zone between the members of the pair of auxiliary piston members,
(f) mechanical linkage means coupling, to the main piston, the member of the pair of auxiliary piston members which is nearest to the cylinder end portion,
(g) mechanical linkage means coupling to the cylinder end portion, the member of the pair of auxiliary pistons which is nearest to the main piston,
(h) duct means for the introduction of pressurized fluid into the pressurized zones of paragraphs (c) and (d), above,
(i) an escape orifice through which fluid, accumulating in said vented zone, may escape.

4,273,000

DRIVE MECHANISM FOR A DRUM

Alfred Schmid, Schöfflisdorf, Switzerland, assignor to Bucher-Guyer AG, Zürich, Switzerland

Filed Aug. 11, 1978, Ser. No. 932,926
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1977, 2738172
Int. Cl.³ F16H 13/02; B28C 5/18
U.S. Cl. 74—206 **11 Claims**



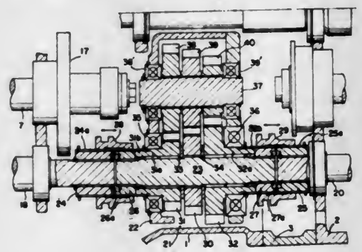
1. A drive mechanism, for use in rotating a relatively large drum rotatable about a substantially horizontal axis of rotation, comprising in combination:
spring-support means, said drum being supported rotatably from said spring-support means, and
drive means including an energizable rotor, first guide means resiliently and rotatably supporting said energizable motor from said spring-support means, said motor being in operative frictional contact with the circumference of said drum, for rotating said drum when energized, an energizing wheel in frictional driving connection with said energizable rotor for energizing it to revolve in a predetermined rotational direction, so as to drive said drum in a rotational direction opposite to said predetermined rotational direction, and second guide means rotatably supporting said energizing wheel from said spring-support means.

4,273,001

GEAR TRANSMISSION

Masayoshi Miyahara; Morimitsu Katayama, both of Sakai, and Hiroyuki Kisaka, Sennan, all of Japan, assignors to Kubota, Ltd., Naniwa, Japan

Filed Mar. 26, 1979, Ser. No. 24,030
Claims priority, application Japan, May 27, 1978, 53-73313; Jun. 7, 1978, 53-77472
Int. Cl.³ F16H 3/08, 37/06; G05G 9/12
U.S. Cl. 74—359 **4 Claims**



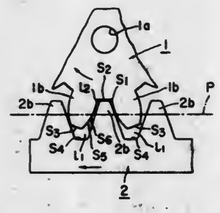
1. A gear transmission comprising:
a driving transmission;
a driven transmission shaft coaxial with said driving transmission shaft;
a speed change shaft disposed between and coaxial with said transmission shafts and provided with three speed change gears having different diameters from one another, namely first and second freely rotatable gears and a fixed gear arranged between said rotatable gears;
an auxiliary speed change shaft provided with three fixed auxiliary speed change gears having different diameters from one another and constantly meshing with said three speed change gears on said speed change shaft respectively;
a first tube member secured to a rear end portion of said driving transmission shaft and having a first meshing portion with splines on an outer periphery thereof;
a second tube member secured to a front end portion of said driven transmission shaft and having a second meshing portion with splines on an outer periphery thereof;
third and fourth tube members secured to rear and front end portions of said speed change shaft and having third and fourth meshing portions with splines on outer peripheries thereof respectively;
first and second boss portions formed as integral extensions of said freely rotatable gears and having fifth and sixth meshing portions with splines on outer peripheries thereof, said six meshing portions all having the same outer diameter and the outer splines of the same shape and number;
a first tubular clutch member with splines on an inner periphery thereof slidable from said first tube member to said first boss portion through said third tube member and switchable between a position to mesh with said first and third meshing portions, a position to mesh with said first and fifth meshing portions, and a neutral position, and
a second tubular clutch member with splines on an inner periphery thereof slidable from said second tube member to said second boss portion through said fourth tube member and switchable between a position to mesh with said second and fourth meshing portions, a position to mesh with said second and sixth meshing portions, and a neutral position.

4,273,002

FACE GEAR ASSEMBLY

Hiroomi Ogasawara, 3821-4, and Masaomi Ogasawara, 3833, both of Yamakita, Yamakitamachi, Ashigarakami-gun, Kanagawa-ken, Japan

Filed Mar. 12, 1979, Ser. No. 20,110
Int. Cl.³ F16H 55/06, 1/12
U.S. Cl. 74—462 **1 Claim**



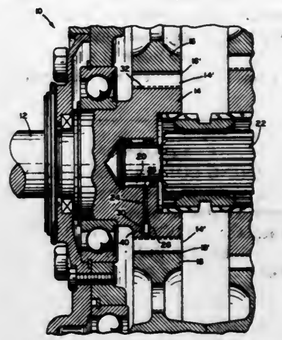
1. A face gear assembly comprising a face gear having teeth arranged in annular disposition and directed in the direction parallel to the rotational axis of the face gear, each of said teeth having a substantially flat crest, and a pinion having teeth in engagement with said teeth of the face gear, said pinion having a root surface between two adjoining teeth thereof, said crest being formed to contact the root surface between two adjoining teeth of the pinion which are in mesh with the tooth of said crest.

4,273,003

CHECK VALVE BEARING LUBRICATOR

Donald C. Schultz, 404 Northdale Dr., Toledo, Ohio 43612

Filed Mar. 12, 1979, Ser. No. 19,809
Int. Cl.³ F01M 9/10; F16H 57/04
U.S. Cl. 74—467 **10 Claims**



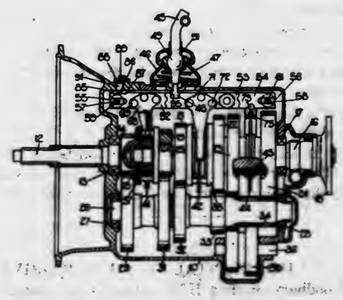
1. In a gear having a bearing surface contained therein for rotatable mounting thereof, the gear including a bore extending radially from gear teeth thereon to said bearing surface; a bearing lubricator within said gear comprising said bore and a check valve including a dynamically operative ceramic element within said bore, whereby oil may be forced radially inwardly through said bore and check valve, via dynamic mesh of said gear teeth with gear teeth of a second gear.

4,273,004

GEAR SELECTOR MECHANISM

William M. Morrison, Shandon, 107 Coalway Rd., Wolverhampton, West Midland, England, and Philip J. Mazziotti, 2826 Falmouth Rd., Toledo, Ohio 43615

Filed Jul. 23, 1979, Ser. No. 60,117
Claims priority, application United Kingdom, Jul. 25, 1978, 31079/78
Int. Cl.³ G05G 9/14
U.S. Cl. 74—473 R **7 Claims**



1. A gearbox having an output shaft and an axis parallel to said output shaft, said gearbox comprising a main housing for enclosing gears and a bell housing for positioning adjacent an associated clutch, said bell housing secured to said main housing,
first roller mounting means located in said main housing, second roller mounting means located in said bell housing, a first set of rollers mounted on said first roller mounting means, a second set of rollers mounted on said second roller mounting means,
a plurality of shift bars operatively connected to shift elements for engaging and disengaging said gears, each of

said shift bars extending parallel to said axis, each of said shift bars having a rectangular cross-section and having first and second axially spaced ends, said first ends of each of said shift bars mounted on said first set of rollers, said second ends of each of said shift bars mounted on said second set of rollers, at least one of said first and second ends of each of said shift bars defining a slot to facilitate the assembly of said gearbox, said bars being constrained to substantially axial movement by said first and second sets of rollers,

and control means for selectively engaging and axially moving shift bars.

4,273,005

STEERING COLUMN ASSEMBLY

Derek W. Strutt, Great Baddow, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 20, 1979, Ser. No. 14,464
Int. Cl.³ B62D *1/18*
U.S. Cl. 74—492 **11 Claims**



1. A steering column assembly comprising;

an upper rotatable shaft section adapted at one end to carry a steering wheel;

a lower rotatable shaft section adapted at one end for connection to a steering linkage and connected to the upper shaft section for rotation therewith about a common steering axis;

the upper shaft section being axially movable relative to the lower shaft section, whereby the length of the column may be adjusted;

a jacket surrounding and rotatably supporting the upper shaft section;

a deformable member coaxially mounted on the jacket and connected to the jacket at one end, thereby the deformable member being capable of altering its length under impact loads;

a clamp extending around the deformable member towards the other end thereof; and

a mounting bracket carrying the clamp and being deformable to allow the clamp to move under impact loads and to increase the clamping force on the deformable member.

4,273,006

AIRCRAFT HORIZONTAL STABILIZER DRIVE

James R. Woodbury, Rolling Hills Estates, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

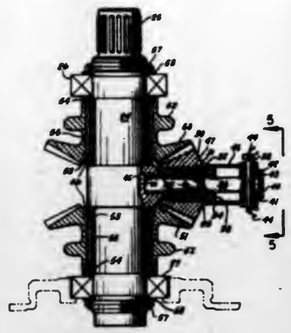
Filed Sep. 27, 1978, Ser. No. 946,148
Int. Cl.³ F16H *1/44*; F16D *9/00*; G05G *7/00*
U.S. Cl. 74—710.5 **15 Claims**

1. In an airplane, an apparatus for the transmission of mechanical power to a first and second driven means which, in turn, drive a single control surface which comprises:

an epicylic gear train of the differential motion type, said gear train comprising two driven gears and a pinion gear with said pinion gear mounted for rotation on an axle which is attached to an arm which is turning about the axis of at least one of said driven gears;

means for retaining said pinion gear to said pinion axle so that said pinion gear will rotate on said pinion axle only after a predetermined torque is applied to said pinion gear;

means for attaching said first and second driven means to one each of said driven gears;



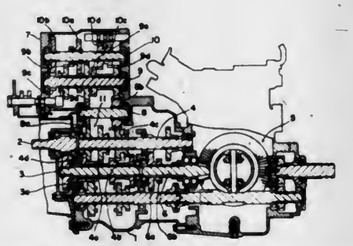
whereby an input torque applied to said epicyclic gear train causes said arm with said pinion gear to rotate, driving both driven gears without relative movement between the three gears until a predetermined differential torque is experienced between said two driven gears which allows the pinion gear to rotate on its axle.

4,273,007

TRANSMISSION FOR AGRICULTURAL TRACTOR

Mitsuhiro Sato; Hiroshi Itatani, and Kenji Matsuda, all of Sakai, Japan, assignors to Kubota, Ltd., Osaka, Japan

Filed Apr. 2, 1979, Ser. No. 26,105
Claims priority, application Japan, Apr. 21, 1978, 53-53779[U]; Apr. 21, 1978, 53-53783[U]
Int. Cl.³ F16H *3/02*
U.S. Cl. 74—745 **4 Claims**



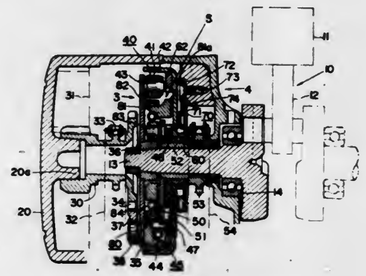
1. A transmission for an agricultural tractor comprising a main transmission casing, a main speed change means disposed within said main transmission casing, said main speed change means including first, second, and third shift gears for main speed changes, a constant drive gear for power take-off disposed within said main transmission casing, said first, second, and third shift gears and said constant drive gear mounted within said main transmission casing on a main common shaft supported at opposite ends by said main transmission casing, said constant drive gear fixed in the axial direction for relative rotation on said common shaft and said first, second, and third shift gears being splined on said common shaft for axial movement relative thereto, an opening in one side of said main transmission casing, said first, second, and third shift gears and said constant speed gear being disposed in relative positions in proximity to said opening in said main transmission casing and exposed thereby; an auxiliary speed change means supported within an auxiliary transmission casing, said auxiliary transmission casing removably secured to said main transmission casing relative to said opening therein, said auxiliary speed change means including an input gear arranged to mesh with said constant drive gear and an output gear so arranged to mesh with one of said shift gears on said main common shaft, said input gear and said output gear mounted on an auxiliary common shaft supported by said auxiliary transmission casing, said output gear being freely rotatable relative to said auxiliary common shaft and said input gear being splined to said auxiliary common shaft for rotation therewith.

4,273,008

AUTOMATIC TRANSMISSION

Takeo Ishihara, Asaka; Tsutomu Hayashi, Hoya, and Masumi Hamane, Kawagoe, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 29, 1979, Ser. No. 53,325
Claims priority, application Japan, Jul. 4, 1978, 53-81152
Int. Cl.³ F16H *3/74, 3/44*; F02N *5/02*
U.S. Cl. 74—752 E **14 Claims**



1. An automatic transmission, comprising:

a drive shaft (13) driven from a drive source (10);

a centrifugal first clutch (40);

a planetary gear mechanism (45);

an output shaft (52) from which power from said drive shaft (13) is taken out through said planetary gear mechanism (45);

said drive shaft (13) being provided to project from said drive source, with a proximal end of said drive shaft being supported by a bearing (14) proximal said drive source (10);

said planetary gear mechanism (45) including an outermost ring gear (46), a central sun gear (48), and planet gears (47) disposed between and meshing with said ring and sun gears;

said drive shaft (13) being coupled to one of said three different types of gears of said planetary gear mechanism (45) through said centrifugal first clutch (40);

said output shaft (52) being coupled to another one of said three different types of gears;

said planetary gear mechanism (45) being mounted on said drive shaft (13) with said sun gear (48) at the center of said planetary gear mechanism being fitted on said drive shaft (13);

said centrifugal clutch (40) and planetary gear mechanism (45) being disposed on said drive shaft so as to closely face each other; and

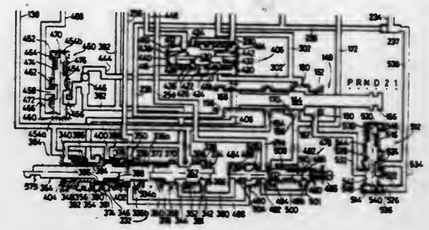
a one-way clutch (70) coupled on one hand to the remaining one of the three different types of said gates (46, 47, 48) of said planetary gear mechanism (45) coupled to neither said drive shaft (13) nor said output shaft (52), and on the other hand to a stationary member (20).

4,273,009

TRANSMISSION THROTTLE VALVE FOR USE IN HYDRAULIC CONTROL SYSTEM OF AUTOMATIC POWER TRANSMISSION

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company Limited, Yokohama, Japan

Filed Feb. 2, 1979, Ser. No. 9,031
Claims priority, application Japan, Sep. 29, 1978, 53-120981
Int. Cl.³ B60K *41/00, 41/06*
U.S. Cl. 74—869 **3 Claims**



1. In a hydraulic control system of an automatic power transmission for an automotive vehicle having an acceleration producing member movable into and out of a released position producing an idling condition in the engine, a transmission throttle valve for producing a throttle pressure variable with the amount of displacement of the acceleration producing member from said released position thereof, comprising

a first movable member engaging the acceleration producing member through a mechanical linkage for being moved in a first direction when the acceleration producing member is moved away from the released position thereof, the first movable member being formed with a pressure acting area to be acted upon by said throttle pressure for urging the first movable member in said first direction;

a second movable member arranged and movable in series with said first movable member and formed with a pressure acting area to be acted upon by said throttle pressure for urging the second movable member to move in a second direction opposite to the first direction, the pressure acting area of the first movable member being larger than the pressure acting area of the second movable member;

first resilient biasing means engaging the first and second movable members for urging the first and second movable members to move in the second and first directions, respectively, with a force variable with the spacing between the first and second movable members; and

second resilient biasing means incorporated into said mechanical linkage for urging the first movable member to move in the second direction with a force variable with the amount of displacement of the acceleration producing member away from said released position thereof.

4,273,010

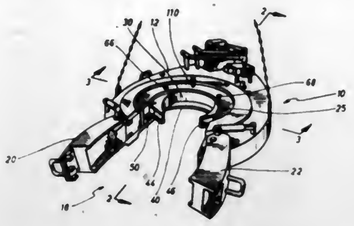
POWER TONG

Garth M. Farr, 1620 Magnolia Ln., Kingwood, Tex. 77339; Terence D. McCoy, Site 16, Box 1, R.R.1, Spruce Grove, Edmonton, Alberta, and Jiri Diask, 121 Tudor Ln., Edmonton, Alberta, all of Canada

Filed Jul. 31, 1979, Ser. No. 61,619
Int. Cl.³ B25B *17/00*
U.S. Cl. 81—57.18 **10 Claims**

1. In a power tong of the type having a frame with a pipe-receiving throat and mounting a rotatable portion, a rotary gear mounted for rotation within the frame, means for rotatably driving the rotary gear, cam means on the inner surface of said rotary gear and pipe-gripping means including gripping elements and cam follower means for engaging said cam means

and urging said gripping elements into engagement with a pipe section, the improvement comprising at least one arcuate groove formed in a surface of said rotary gear, an aperture in the frame rotatable portion residing proximate said groove and



means sized to pass through said opening and into said groove for joining said frame rotatable portion and said rotary gear for joint rotation when the cam follower means is proximate the end of the cam means during pipe gripping operations.

4,273,011

DEVICE FOR TURNING THE NUTS ON STUDS FOR CLOSING A PRESSURE VESSEL

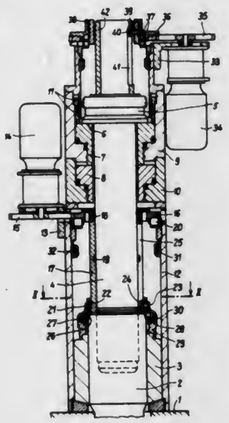
Gerhard Exner, and Volfango Festinori, both of Berlin, Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Nov. 26, 1979, Ser. No. 97,798

Claims priority, application Fed. Rep. of Germany, Nov. 30, 1978, 2852105

Int. Cl.³ B25B *29/02*

U.S. Cl. 81—57.38 **7 Claims**



1. In a device for turning nuts, tensioning nuts, and tensioning bolts on studs arranged on a pitch circle for closing a pressure vessel, in which the stud or a tensioning bolt connected thereto may extend substantially beyond a nut seated on the pressure vessel, the device comprising a tensioning assembly having a central space in a supporting body for receiving a stud, a nut and a tensioning bolt, when one is used, and which carries separate turning units for reversibly driving a pinion meshing with the teeth of a drive bushing held in the support body and surrounding the stud to transmit torque to the nut and for applying tension to the stud, the improvement comprising:

the nut being connected to one half of a positive, torque-transmitting clutch which can be pulled apart in the axial direction,

the second half of the clutch being supported for motion lengthwise on the drive bushing while being secured against rotation relative to the bushing; and

the drive bushing being guided on the stud and being provided, at the end away from the nut, with external teeth for meshing with the pinion.

4,273,012

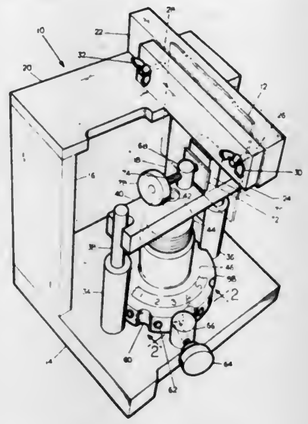
FOAM SPECIMEN APPARATUS AND METHOD

Edson C. Bates, Toledo, Ohio, and Jeanne A. King, Huntington, N.Y., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Jan. 7, 1980, Ser. No. 109,946

Int. Cl.³ B26D *4/50, 7/08*

U.S. Cl. 83—17 **10 Claims**



10. The method of preparing foam sheet samples for microscopic inspection including the steps of;

(a) severing a sample of foam sheet material from a larger sheet,

(b) grasping one end of said sample with first clamp means so that the position of said sample is fixed with respect to said first clamp means,

(c) grasping the opposite end of said sample with second clamp means so that the position of said sample is movable with respect to said second clamp means,

(d) moving said first and second clamp means relative to one another so that said sample protrudes beyond a cutting surface on said first clamp means,

(e) severing that portion of the foam sample that protrudes beyond said cutting surface,

(f) advancing said second clamp means toward said first clamp means so that a prescribed amount of said sample protrudes beyond said cutting surface,

(g) severing the prescribed amount of said sample so that it can be mounted for microscopic examination.

4,273,013

SLICING MACHINE

Robert L. Artin, Menomonee Falls, and Allen C. Eimerman, Milwaukee, both of Wis., assignors to Sunbeam Corporation, Chicago, Ill.

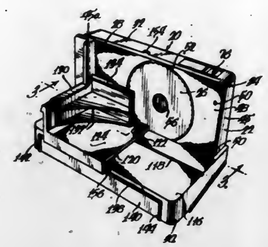
Filed Jul. 9, 1979, Ser. No. 55,861

Int. Cl.³ B26D *4/28*

U.S. Cl. 83—167 **10 Claims**

1. A slicing machine for use in the home for slicing foodstuffs, comprising, a housing containing an electric motor in driving connection with a flat circular blade, said blade being supported for rotation about its central axis and positioned in a recess in a housing wall, a stop plate mounted in said housing adjacent said blade and movable substantially perpendicualr to said blade to select a thickness of a slice of foodstuff being

sliced, an opening formed in said housing adjacent said blade and said stop plate through which sliced food is discharged, the portion of said housing defining the lower edge of said opening being formed with a food dish receiving member which guides said sliced food through said opening onto a dish, said food dish receiving member including a first portion to position said dish and a second portion extending beyond said



first portion to direct liquids from said food onto said dish, a table having a surface for supporting food to be moved toward and across said blade, said table being detachably mounted to the housing with said surface being above the lower edge of said blade and at a substantially right angle to said blade during operation, means detachably mounting said table in an alternative storage position partially enclosing said housing and being positioned with said surface substantially parallel to said blade.

4,273,014

DEVICE FOR CUTTING OUT BLANKS FROM A WEB OF MATERIAL

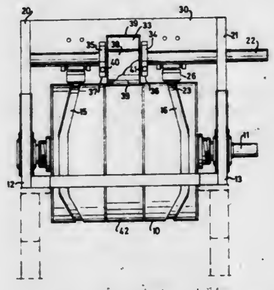
Ernst G. S. Edling, Mölnlycke, Sweden, assignor to Mölnlycke AB, Goteborg, Sweden

Filed May 21, 1979, Ser. No. 41,181

Claims priority, application Sweden, May 25, 1978, 7805988

Int. Cl.³ B26D *1/28*

U.S. Cl. 83—333 **4 Claims**



1. Device for cutting out formed pieces from thin web material, comprising a roller over which the web is led and means acting against the roller to press the web against the roller, characterized in that in the roller there is cut out a groove corresponding to the desired contours of the formed piece, the groove being disposed about the roller in a path whose position varies lengthwise of the rollers, and that a member is disposed to press against the edge of the groove and thereby cut through the material web, and means mounting said member for oscillatory movement lengthwise of said roller to follow said groove upon rotation of said roller.

4,273,015

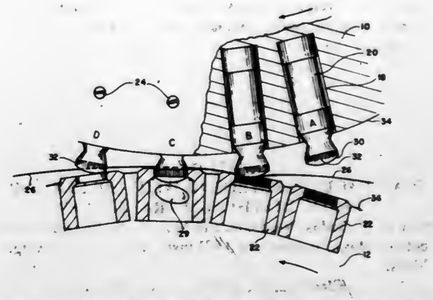
DOME HEAD PUNCH

Donald R. Johnson, 5019 Mortier Ave., Orlando, Fla. 32809

Filed Jun. 4, 1979, Ser. No. 44,983

Int. Cl.³ B26F *1/10*

U.S. Cl. 83—670 **5 Claims**



1. A novel domed head punch adapted for use on the periphery of a rotary punch ring of a machine that also utilizes a die ring rotating at the same speed at a location closely adjacent the punch ring, the head of said punch being arranged to enter a corresponding serrated die on the die ring during co-rotation of the punch ring and die ring, and during such entry, having penetrating contact with the serrations of the die, thus to effect the punching of holes in sheet material passing between the punch and die, the domed head of said punch causing somewhat of a stretching of the sheet material residing adjacent the die immediately prior to the punching of the sheet material by the punch and die, with this stretching of the sheet material causing the punched portion to readily leave the main portion of the sheet material passing between punch and die, thus diminishing the likelihood of "hangers" being created.

4,273,016

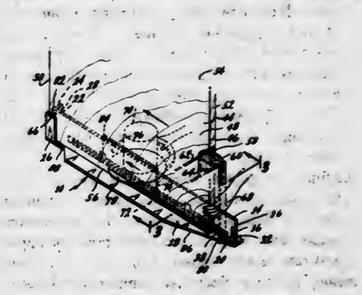
DOOR CUTTING TEMPLATE

Mark W. Murdock, P.O. Box F, Lake Arrowhead, Calif. 92352

Filed Jan. 30, 1980, Ser. No. 116,985

Int. Cl.³ B27B *9/04*

U.S. Cl. 83—743 **11 Claims**



1. A door cutting guide used in conjunction with a saw and a door of the type having two parallel face surfaces separated by two elongated side edges and a top and bottom edge which comprises:

an elongated first member sized to fit across the width of one of the face surfaces of said door, said elongated member including two elongated parallel faces, one of which is capable of fitting flush against said face surface of said door, said elongated member including a lower edge capable of resting on a floor and supporting said elongated member above said floor adjacent to said door;

said first member including an elongated slot means extend-

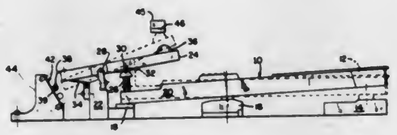
ing between said two parallel faces along a portion of the length of said elongated member, said slot means forming an opening for the blade of said saw allowing said blade of said saw to pass through said elongated member and contact said door;

a retaining means located on one end of said elongated member and capable of retaining said one end of said elongated member in a fixed position with respect to said door with respect to movement of said elongated member in a direction perpendicular to the plane of the face surfaces of the door.

4,273,017
PIANO ACTION KEYBOARD WITH ROLLER AND ELASTIC DIAPHRAGM TRANSDUCER

Philip V. W. Dodds, Needham, and Mark L. Smith, Auburndale, both of Mass., assignors to ARP Instruments, Inc., Lexington, Mass.

Filed Feb. 27, 1979, Ser. No. 15,729
Int. Cl.³ G10H *1/02, 1/34*
U.S. Cl. 84—1.1 **6 Claims**



1. Electrical circuit controller usable in electric musical instrument keyboard controls and like applications responsive to a plurality of independent controlling movements comprising,

means defining a circuit portion comprising at least a triple layering of bottom, middle and top superimposed films of resilient plastic, the middle such film having multiple openings therein in a linear array,

the films being tensioned and arranged so that portions of the bottom and top films have two relative positions, one of which is close proximity including contact or near contact of the two films and the other of which is lesser proximity, one of said positions being the at-rest position of the films portions in the region of each such opening and the other being the result of external actuation to at least one of the films, the positional changes of film portions in other openings of said aperture array being similarly sequentially effected,

the film arrangement at each such opening including a capability of varying the form or time of assuming a form of the said films resulting from the application of external force depending on the exact point of application force and rate of application of the said external actuation,

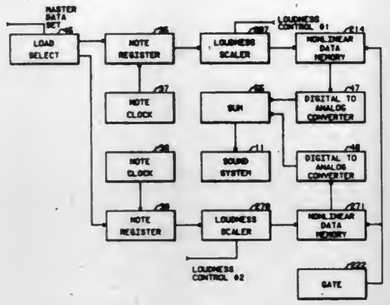
means defining electrical components located in at said openings and each having multiple states in relation to an electrical circuit containing such components including at least a first state when the top and bottom films have said at rest positions and a second state in the other position and including in at least some of said openings, a third state resulting from variation of form of the said position due to variation of location, force and rate of said external actuation, and

means defining a separate external force actuating linkage aligned with each opening of the linear array and arranged for independent actuation of the film portions at each such opening.

4,273,018
NONLINEAR TONE GENERATION IN A POLYPHONIC TONE SYNTHESIZER

Ralph Deutsch, Sherman Oaks, Calif., assignor to Kawai Musical Instrument Mfg. Co., Ltd., Hamamatsu, Japan

Filed Jun. 2, 1980, Ser. No. 155,327
Int. Cl.³ G10H *1/06, 1/02*
U.S. Cl. 84—1.22 **12 Claims**



1. In a musical instrument having one or more tone generators, in which a plurality of data words corresponding to the amplitudes of a corresponding number of evenly spaced points defining the waveform of a musisical tone are computed and transferred sequentially to a digital-to-analog converter at a rate proportional to the pitch of the tone being generated, apparatus for generating tones having a variable spectral content comprising;

a first means for computing transfer data values during the first subcomputation cycle of a sequence of computation cycles each comprising a first and a second subcomputation cycle,

a first memory means for storing said transfer data values,

a second means for computing data values of a master data set during said second subcomputation cycle,

a second memory means for storing said master data set,

a third memory means for storing data to be thereafter read out,

a first data transfer means whereby said master data set is read out of said second memory means and stored in said third memory means,

a first addressing means for sequentially and repetitively reading out data stored in said third memory means,

control signal generation means for generating a control signal,

a second addressing means responsive to said control signal and data read out of said third memory means whereby transfer data values are read out from said first memory means, and

means for producing musical signal waveshapes from transfer data values read out from said first memory means.

4,273,019
ELECTRONIC TONE GENERATOR

Mitsuhiro Goto, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

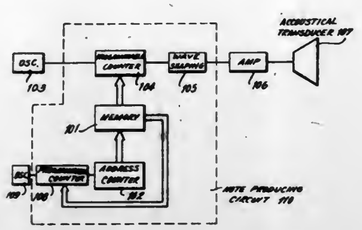
Filed Jul. 10, 1979, Ser. No. 56,155
Claims priority, application Japan, Jul. 11, 1978, 53-84306; Jul. 11, 1978, 53-84308; Jul. 11, 1978, 53-84309; Jul. 11, 1978, 53-84310
Int. Cl.³ G10H *1/043, 1/10*
U.S. Cl. 84—1.24 **29 Claims**

1. An electronic tone generator comprising:

at least one first signal-generating oscillator circuit;

at least two note-producing circuits, each note-producing circuit including a memory circuit for storing note and time data for each note, a first programmable counter

circuit for variably dividing pulses outputted by said first signal-generating oscillator circuit to produce in sequence different notes of selected frequencies and selected durations in response to sequential reading of said data in said memory circuit, the note output of each note-producing circuit being produced independently of the note output



of the other note-producing circuit, but said output notes being interrelated to produce a single musical effect;

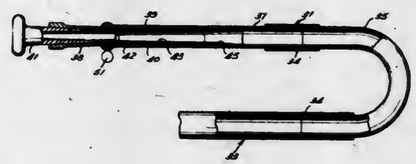
means to mix and amplify note wave forms produced by said note-producing circuits; and

an electroacustic transducer receiving the output of said mixing and amplifying means and outputting audible sound having a special sound effect.

4,273,020
METHOD OF CONSTRUCTING TRUMPET OR OTHER BRASS INSTRUMENT

Ralph A. Happe, 15400 Belgrade St., Apt. 35, Westminster, Calif. 92683

Filed May 24, 1979, Ser. No. 42,109
Int. Cl.³ G10D *7/10*
U.S. Cl. 84—394 **17 Claims**



1. A method of constructing a musical wind instrument having a cup-shaped mouthpiece and a main bore section to correct the intonation of selected notes of the chromatic scale of said instrument comprising:

forming a mouthpipe having a conical-shaped axial aperture and mounted between said mouthpiece and said main bore section; and

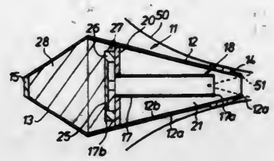
forming a zone of increased taper along the length of said conical-shaped aperture, said zone located to coincide with the pressure maximum points of said selected notes of said chromatic scale.

4,273,021
MUTES FOR WIND INSTRUMENTS

Robert D. Mackie, 4 Parkdale Rd., Bakersfield, Nottingham, England

Filed Nov. 8, 1979, Ser. No. 92,488
Int. Cl.³ G10D *9/06*
U.S. Cl. 84—400 **6 Claims**

1. A mute for a wind instrument comprising a hollow shell adapted for fitting in the bell of the wind instrument and having an inlet for collecting the air passing through the instrument and an outlet for directing said air in a direction away from the instrument, the shell being partitioned by a sound absorbent rigid barrier spaced from said inlet to define together with an internal wall surface of the shell a first chamber within the shell, said barrier being spaced from said outlet to define a second chamber within the shell; a baffle mounted on the barrier and having a peripheral portion spaced from the internal wall surface of the shell to define therewith an inlet into said second chamber, the internal wall surface of the shell forming the first chamber being an anechoic surface so that said first chamber defines an anechoic chamber; a tube mounted on the barrier so as to extend towards the inlet of the shell and defining an exit passage from the first chamber through the barrier, the tube directing air exiting from the first

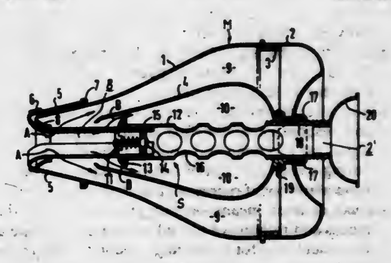


chamber towards the central region of the baffle and serving as an anenergic means to dampen sound waves travelling from the first chamber to the baffle, said baffle directing air exiting from the first chamber towards the portion of the internal wall surface of the shell to be deflected thereby through said inlet to the second chamber, said portion of the shell having an anechoic surface, the second chamber containing a sound insulating material through which air travelling from the inlet of the second chamber to the outlet of the shell has to pass.

4,273,022
INSTRUMENTAL MUTE

Robert E. Bell, 224 Perth Rd., Gants Hill, Ilford, Essex, England

Filed Nov. 21, 1979, Ser. No. 96,313
Int. Cl.³ G10D *9/06*
U.S. Cl. 84—400 **11 Claims**



1. A mute for insertion within the bellmouth of a wind musical instrument comprising: body means enclosing at least one internal chamber, said body means including inlet means permitting sounds from said bellmouth to enter said chamber and outlet means permitting said sounds to exit from said chambers and supporting means including retaining means, adjusting means, sealing means and closure means, said retaining means adapted to retain said mute in said bellmouth; said adjusting means permitting said body means to be adjusted relative to said supporting means in at least two positions; said sealing means selectively (1) acoustically sealing said body means and said bellmouth when said body means is in a first adjusted position, to constrain said sounds to enter said chamber, and (2) spacing said body means from said bellmouth, when said body means is in a second adjusted position, to allow said sounds to both exit exteriorly of said body and enter said chamber, and said closure means selectively (1) opening communication of said sounds to said outlet means, when said body means is in said first position, and (2) closing communication of said sounds to said outlet means, when said body means is in

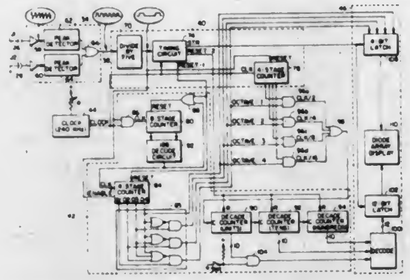
said second position, whereby when said body means is in said first position, said sounds are constrained to pass into said inlet means, through said internal chamber, and out said outlet means, and when said body means is in said second position, said sounds are allowed to pass exteriorly of said body means as well as into said chamber but not out of said outlet means.

4,273,023

AURAL PITCH RECOGNITION TEACHING DEVICE

Stanley L. Mercer, 3038 Alta Vista Ave., Alameda, Calif. 94501

Filed Dec. 26, 1979, Ser. No. 106,969
Int. Cl.³ G10G *7/02*; G09B *15/02*
U.S. Cl. 84—454 **5 Claims**



1. Apparatus for teaching aural pitch recognition by receiving a musical tone containing a pitch in the form of peak amplitude excursions and by displaying a visual represenation of the pitch, comprising:

means for receiving and detecting the peak amplitude, and for generating therefrom a pulse train having a period and a pulse repetition frequency substantially equal to that of the pitch;

means coupled to the receiving means and responsive to the pulse train for producing therefrom a periodic control signal having a first binary state followed by a second binary state, said control signal having a period substantially equal to a number of said pulse train periods;

means for producing a binary clock signal having a predetermined pulse repetition frequency substantially greater than that of said pulse train;

first counter means operatively coupled to the control means and responsive to the first binary state of said control signal for receiving and counting the binary clock signal during a time duration of said first state to produce therefrom a first count representative of the octave of the pitch;

second counter means operatively coupled to the clock means and responsive to said second binary state and said first count, and for producing a second count indicative of the frequency of said pitch within the octave; and

means coupled to said first and second counter means for receiving the first and second count and for decoding and displaying therefrom a visual representation indicative of the pitch of the received musical tone.

4,273,024

APPARATUS AND METHOD FOR EXTRACTING STUCK AMMUNITION CASES FROM SIZER DIES

Bob R. Veloni, Rte. 3, P.O. Box 862, Hoquiam, Wash. 98550

Filed Sep. 4, 1979, Ser. No. 71,889
Int. Cl.³ F42B *33/10*
U.S. Cl. 86—1 R **6 Claims**

1. A device for extracting an ammunition case from a sizer die in which said case has become stuck during sizing of said case with a reloading press, said case having a gripping rim and a primer pocket formed at its head, said press including a frame in which said sizing die and a reloading ram are mounted in spaced-apart, coaxial relation, a shell holder carried by said ram having an annular rim on one face received by a mounting slot formed at one end of said ram and a slot at the opposite face of said shell holder adapted to receive said gripping rim; and means for moving said ram between a first position in which said case is inserted in said sizer die and a second position in which said case is withdrawn from said sizer die, said extracting device comprising a generally cylindrical body having an annular rim at one end adapted for insertion in the mounting slot and a screw projecting from the opposite end of said body adapted for insertion in a threaded bore formed in



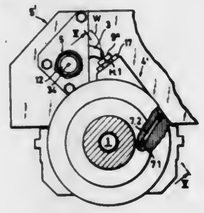
the primer pocket of said case such that stuck cases may be removed from said sizer die by boring a hole in said primer pocket, tapping said bore to form screw threads therein, removing said case holder from said ram before inserting the rim formed in the body of said extracting device in the mounting slot of said ram, rotating said body to insert said screw into the threaded bore formed in said primer pocket, and moving said ram from its first position to its second position to withdraw said case from said sizer die.

4,273,025

BELT-ADVANCE MECHANISM FOR AN AUTOMATIC GAS-LOADING BELT-FEED WEAPON, ESPECIALLY A MACHINE GUN

Clemens Bremer, and Lothar Post, both of Düsseldorf, Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Feb. 27, 1979, Ser. No. 15,[illegible]9
Claims priority, application Fed. Rep. of Germany, Mar. 6, 1978, 2809505
Int. Cl.³ F41D *10/04*
U.S. Cl. 89—33 CA **8 Claims**





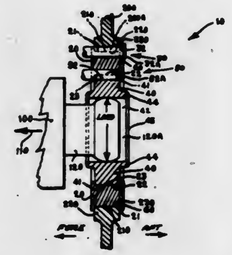
1. In a belt-advance system for a belt-feed gas-loading weapon having a munitions-belt advancing mechanism including an actuator element shiftable to step the munitions belt, means for tapping a portion of propellant gas from the weapon upon the firing thereof in the form of gas energy for actuating said element, a cylinder/gas-piston unit connection to said means for transforming gas energy into mechanical energy for actuation of said element by said mechanical energy, and an energy-storage unit capable of storing energy tapped from the weapon and forming a timer for the operation of said mechanism, the improvement wherein said units are functionally integrated and said energy-storage unit stores the gas energy directly and is provided ahead of the cylinder/gas-piston unit in the direction of energy flow for operation of said mechanism, said units being provided side-by-side in a common housing, said energy-storage unit comprising a chamber formed in said housing and having an inlet, a passage connecting said chamber with the cylinder of said cylinder/gas-piston unit, and means at said inlet for controlling the flow cross section of said inlet so that with an increasing value of the pressure p_v ahead of said inlet, the ratio $a=p_v/p_h$ reaches unity rapidly while, upon rapid fall of the value p_v, the reciprocal ratio 1/a reaches unity more slowly, p_h being the pressure downstream of said inlet.

4,273,026

GUN ALIGNMENT ADJUSTING DEVICE

Albert F. Walter, Fort Worth, Tex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 3, 1979, Ser. No. 63,499
Int. Cl.³ F41F *19/00*
U.S. Cl. 89—37 R **8 Claims**



1. A gun alignment adjusting device, in combination with:

a a gun having an alignment and an aft support;

b. and, a stationary support structure adjacent to and aft of said aft support of said gun, wherein said stationary support structure has an opening therein and therethrough in alignment with, and sized larger than, said aft support of said gun and has a perimeter formed by said opening, and also has an index marking at a preselected fixed location adjacent said opening and said perimeter thereof;

wherein said gun alignment adjusting device comprises:

a. an outer eccentric member rotatably mounted in said opening in said stationary support structure, wherein said outer eccentric member has an outer perimeter with a scale along thereat divided into a plurality of a preselected number of marked equal spacings, with each one of said marked spacings rotatably and selectively setable in alignment with said index marking of said stationary support structure, and wherein said outer eccentric member has an off-center opening therein and therethrough forming an inner perimeter of said outer eccentric member, with said off-center opening being sized larger than said aft support of said gun, and wherein said outer eccentric member also has an index marking at a preselected fixed location adjacent said off-center opening and said inner perimeter thereof;

b. means for releasably locking, in a preselected rotational relationship, sad outer eccentric member to said stationary support structure;

c. an inner eccentric member rotatably mounted in such off-center opening in said outer eccentric member, wherein said inner eccentric member has an outer perimeter with a scale along thereat divided into a plurality of a preselected number of marked spacings, an off-center opening therein and therethrough into which said aft support of said gun is free-fitted and is releasably supported and held, an inner perimeter formed by said off-center opening, and a hub portion surrounding said off-center opening;

d. and, means for releasably locking, in a preselected rotational relationship, said inner eccentric member to said outer eccentric member;

whereby said inner and outer eccentric members are rotatable and releasably lockable, in a preselected rotated positional relationship, relative to each other and to said stationary support structure,

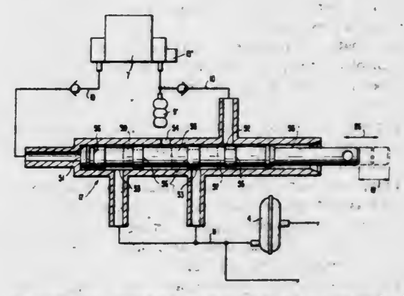
and whereby said inner and outer eccentric members are useable complementarily with, and cooperatively with, each other and with said stationary support structure, thereby permitting said alignment of said gun to be set, as desired.

4,273,027

PNEUMATIC ACTUATING ARRANGEMENT, ESPECIALLY FOR CENTRAL LOCKING SYSTEMS, AND SHIFTING VALVES THEREFOR

Theodor Reinhard, Böblingen; Ernst Haug; Rüdiger Hoffmann, both of Sindelfingen, and Dieter Feichtiger, Aidlingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Untertuerkheim, Fed. Rep. of Germany

Filed Jun. 1, 1978, Ser. No. 911,314
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1977, 2742666
Int. Cl.³ E05B *65/38*; F15B *13/04*
U.S. Cl. 91—32 **22 Claims**



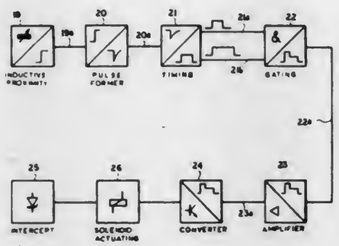
1. A pneumatic actuating arrangement for a central locking system of motor vehicles, the pneumatic actuating arrangement being adapted to open and close locking means of the motor vehicle, the actuating arrangement comprising an excess pressure source means, a vacuum source means, and at least one working device, the at least one working device having a single working chamber means, a single shifting valve means for selectively connecting the single working chamber means with the excess pressure source means and vacuum source means, the shifting valve means being shiftable between two end positions, characterized in that the shifting valve means connects the working chamber means with the excess pressure source means in one end position to act in said working chamber means to move the working device in one direction and connects the working chamber means with the vacuum source means in the second end position to act in said working chamber means to move the working device in an opposite direction, the shifting valve means is shiftable into an intermediate position which becomes effective temporarily during a transition of the shifting valve means from one of the two end positions into the other of the two end positions, and in that the shifting valve means connects the working chamber means with the atmosphere solely when the shifting valve means is in the intermediate position.

4,273,028

VALVES AND OPERATING SYSTEM FOR EXPANSION MACHINES

Ernst Turnwald, Altenmarkt; Stefan Asztalos, and Rudolf Rosenmeier, both of Munich, all of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Apr. 5, 1979, Ser. No. 27,390
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1978, 2815849
Int. Cl.³ F01L 25/08
U.S. Cl. 91—275 8 Claims



1. A valve system for a piston-type machine having a crankshaft connected to a piston reciprocable in a cylinder, said valve system comprising:

(a) a valve comprising:

a valve housing formed with a passage communicating between a pair of gas spaces and controlling gas flow relative to said cylinder,

a valve member shiftable in said passage between an open and a closed position,

an armature connected to said valve member and axially displaceable in said housing for shifting said valve member from one of said positions to another of said positions,

a spring operatively connected to said valve member for biasing said valve member and said armature in one direction toward one of said positions,

a pole piece surrounding said armature and defining a pair of axially-spaced magnetic poles cooperating with said armature, each of said poles having a recess conforming to the cross section of said armature and receiving same with limited radial play, and

a coil in said housing energizable to generate a magnetic field through said pole piece and displace said armature relative thereto;

(b) an inductive proximity switch responsive to operation of said crankshaft for producing a timing signal for said valve; and

(c) circuit means connected between said inductive proximity switch and said coil for energizing same, said circuit means comprising:

an input pulse forming stage connected to said switch for generating a steep-flank voltage pulse upon receipt of said signal,

a timer stage connected to said input stage for producing two rectangular voltage pulses of different adjustable duration upon receipt of said steep-flank pulse,

a gating stage connected to said timer stage and responsive to said rectangular pulses for producing a stepped voltage signal having a high amplitude initial portion and a low amplitude following portion,

an amplifier stage connected to said gating stage for amplifying said stepped signal,

a power converter stage connected to said amplifier stage for energizing said coil with a current pulse of stepped amplitude conforming to the amplified stepped signal, and

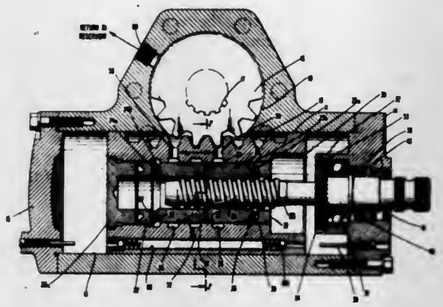
an intercept stage effective upon current deenergization of the coil for draining same to enable rapid displacement of said valve member by said spring.

4,273,029

POWER STEERING GEAR WITH IMPROVED RESPONSIVENESS

Richard H. Sheppard, Hanover, Pa. 17331

Filed May 8, 1979, Ser. No. 37,046
Int. Cl.³ F15B 9/10
U.S. Cl. 91—422 10 Claims



1. In a power steering gear having a reciprocating power piston in a cylinder, a valve within the piston having distribution grooves to selectively distribute pressurized fluid to a first and second end of the piston within the cylinder for steering action, a steering input shaft operatively engaging the valve, and an output means in engagement with said piston, the improvement comprising:

first and second washer spring assemblies mounted in opposition to each other adjacent the ends of said valve,

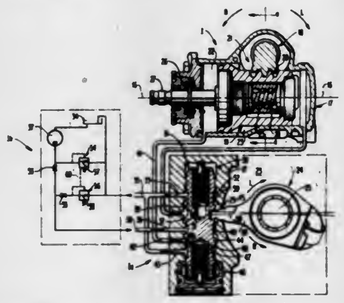
dual washer springs in each assembly and being substantially flat and mounted adjacent each other whereby a substantially increased spring rate is obtained to provide comparable increased responsiveness of said valve.

4,273,030

PRESSURE RELIEF VALVE FOR THE WORKING PRESSURE OF A SERVO-STEERING SYSTEM

Bruno Beeskow, Bietigheim; Egon Bauer, Göppingen, and Wolfgang Pfundstein, Stuttgart, all of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Mar. 6, 1978, Ser. No. 883,781
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1977, 2710001
Int. Cl.³ F15B 13/14, 13/042
U.S. Cl. 91—450 30 Claims



1. A pressure-relief valve for a working pressure of a servo-

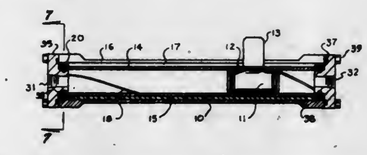
steering mechanism having a steering shaft in a vehicle, comprising a pressure-medium connection between a high pressure pump connection operable to be placed under the working pressure and a return connection operable to be placed under a lower pressure, including valve adjusting means retained under normal conditions in a normal position closing the pressure-medium connection from communication with said return connection, and control means operating in dependence upon an operating magnitude of the servo-steering mechanism and operable upon exceeding a critical value of the operating magnitude so as to displace the valve-adjusting means into a by-pass position opening up the pressure-medium connection to a return line by means of said return connection, characterized in that the operating magnitude is an external load moment and the control means is operable in dependence on said external load moment of the servo-steering mechanism, and in that the valve-adjusting means is displaced into the by-pass position as a function of the load moment on the servo-steering mechanism substantially independently of the angle of rotation of said steering shaft of said servo-steering mechanism so as to decrease the working pressure of the servo-steering mechanism as manual torque on a steering wheel operatively connected with the servo-steering mechanism increases.

4,273,031

FLUID PRESSURE CONTAINMENT ACTUATOR

Albert H. Hannon, 805 Dorado Dr., Santa Barbara, Calif. 93111

Filed May 22, 1979, Ser. No. 41,383
Int. Cl.³ F01B 29/08
U.S. Cl. 92—88 4 Claims



1. A fluid power device for converting pressurized fluid into mechanical force, comprising:

(a) a vessel to contain a pressurized fluid, said vessel having extended through the surface thereof a longitudinal slot;

(b) a piston positioned within said vessel to move longitudinally with respect to said vessel in response to said pressurized fluid;

(c) a hollow tube having a spiral slot through the surface thereof, said tube positioned to rotate within said vessel to provide a continuous seal of said longitudinal slot except in one moveable contiguous area of said spiral slot and longitudinal slot; and

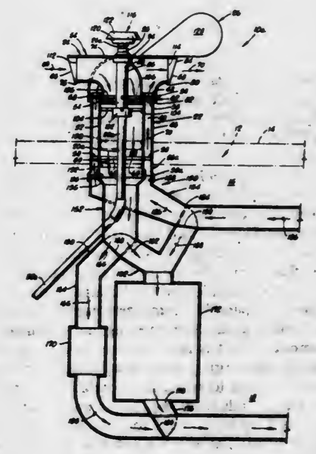
(d) means passing through said moveable contiguous area of said longitudinal slot and spiral slot for attaching said moveable piston to a load exterior to said vessel, and said means for attaching including means for sealing said longitudinal slot at said moveable contiguous area.

4,273,032

VENTILATOR APPARATUS

Robert C. Spain, Box 728, Frederick, Okla. 73542

Filed Oct. 18, 1979, Ser. No. 85,940
Int. Cl.³ F24F 7/00
U.S. Cl. 98—63 43 Claims



1. A ventilator apparatus for venting objectionable odors from an interior area of a structure to the atmosphere and for providing air circulation in the structure, the interior area of the structure having a first interior portion and a second interior portion, the ventilator apparatus comprising:

a vent conduit having a first end portion, a medial portion, and a second end portion, the vent conduit being secured to the structure such that the first end portion and the medial portion of the vent conduit are substantially vertically disposed and the second end portion is disposed within the first interior portion of the structure, the first end portion of the vent conduit extending upwardly from the structure, the vent conduit establishing fluid communication between the first interior portion of the structure and the atmosphere;

a housing having a first end portion and an opposed second end portion, the opposed end portion of the housing being disposed within the second interior portion of the structure and the first end portion of the housing extending upwardly from the structure, the housing encompassing the medial portion of the vent conduit such that the first end portion of the vent conduit extends a distance from the first end portion of the housing and the second end portion of the vent conduit extends a distance from the opposed second end portion of the housing, the housing being further characterized as having an axially disposed inner passageway and an axially disposed outer passageway therein, the inner and the outer axially disposed passageways establishing fluid communication between the second interior portion of the structure and the atmosphere;

a terminal housing having an inlet and an outlet, the inlet being positioned in the terminal housing substantially opposite the outlet such that the inlet and outlet face in opposite direction, the terminal housing being rotatably mounted to the first end portion of the vent conduit and encompassing the first end portion of the housing such that in an assembled position the vent conduit communicates with the atmosphere, the inlet of the terminal housing communicating with one of the inner and the outer axially disposed passageways of the housing and the outlet of the terminal housing communicating with the other of the inner and the outer axially disposed passageways, the inlet and outlet of the terminal housing having a common central axis, the central axis being substantially perpendicular to a vertical axis of the vent conduit disposed with the housing; and

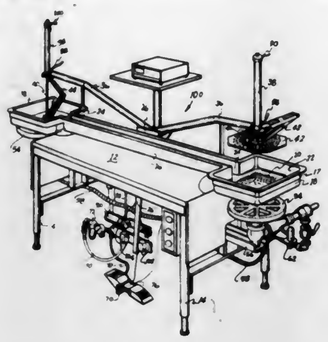
means secured to the terminal housing for orienting the terminal housing such that the inlet of the terminal housing faces the wind.

4,273,033

METHOD AND APPARATUS FOR FLASH COOKING FOOD

Jaxon O. Hice, Clover, S.C., assignor to Research Associates, Ltd., Charlotte, N.C.

Division of Ser. No. 804,492, Jun. 8, 1977, Pat. No. 4,123,560.
This application Sep. 25, 1978, Ser. No. 945,229
Int. Cl.³ A47J 37/12
U.S. Cl. 99—349 5 Claims



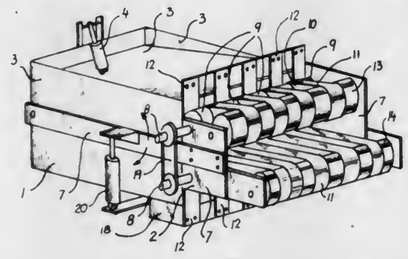
1. Apparatus for flash cooking a portion of food, comprising:
(a) a pan having side walls extending upwardly from a generally flat cooking surface on which said food portion is supported, one of said side walls having an opening therein;
(b) selectively operable compression means for pressing said food portion against said cooking surface;
(c) means for forming an interface of liquid between said cooking surface and said food portion at the time said food portion is pressed against said cooking surface;
(d) selectively operable means for causing said pressed food portion to be submerged in a heated cooking liquid, said selectively operable submerging means including a conduit leading to said side opening and mounted for pivotal movement about a horizontal axis, and said selectively operable submerging means also including conduit control means operable to move said conduit to a first position at which it extends from said pan in an upward direction to cause said cooking liquid to flow into said pan and to a second position at which it extends in a downward direction to cause said cooking liquid to flow out of said pan.

4,273,034

BALE FORMING APPARATUS

Joseph Molitorisz, 624 81st Ave. NE., Bellevue, Wash. 98004

Filed Jan. 23, 1980, Ser. No. 114,622
Int. Cl.³ B65B 13/20
U.S. Cl. 100—8 1 Claim



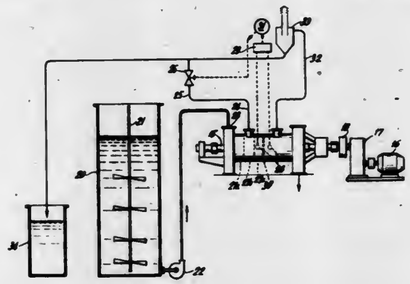
1. A bale forming apparatus to compress loose fibrous agricultural crops or industrial products into substantially rectangular bales which are held together by twine, wire or the like, said bale forming apparatus comprising; a longitudinally extending and substantially rectangular bale forming channel assembly, and a feeder-compactor assembly, said bale forming channel assembly having a substantially rectangular intake port, and being confined by longitudinally extending lateral boundaries, at least one of said lateral boundaries being flexibly suspended and inwardly biased by suitable biasing means, said inwardly biased lateral boundaries being in frictional contact with said formed bale exerting frictional resistance against the movement of said formed bale in said bale forming channel, said bale forming apparatus having a suitable mechanism to wrap and tie said twine, wire or the like around said formed bale, said feeder-compactor assembly consisting of; a plurality of feeder-compactor rollers rotatably supported by a common frame and being held substantially parallel relative to each other and at an adjustable distance to confine a transverse intake opening between their adjacent rotational peripheral surfaces, the common frame of said feeder-compactor assembly being pivotally mounted to said bale forming channel assembly, power drive means connected to said bale forming channel assembly and said common frame for movement thereof in a reversing up and down motion, each of said feeder-compactor rollers having a longitudinally extending shaft holding a plurality of substantially cylindrical compactor disks securely fastened to said shaft to receive rotational drive, said compactor disks being separated from each other by substantially cylindrical pulleys, said pulleys being rotatably mounted on said shaft, a plurality of belts, chains or the like being partially wrapped and at one of their ends securely attached to said compactor disks of said feeder-compactor rollers, the opposite ends of said belts, chains or the like being securely attached to suitable structural components of said bale forming channel, allowing said belts, chains or the like to wrap and unwrap around the said compactor disks of said feeder-compactor rollers as said common frame of said feeder-compactor assembly being power driven causing its reversing or oscillating upward-downward motion, said belts, chains or the like being extended between said feeder-compactor rollers and said suitable structural components of said bale forming channel in such way that those belts, chains or the like being securely attached to the said compactor disks of said upper feeder-compactor roller are also being securely attached to said suitable structural component at or near the upper boundaries of said bale forming channel, said belts, chains or the like being securely attached to said compactor disks of said lower feeder-compactor roller are also being securely attached to said suitable structural component at or near said lower boundaries of said bale forming channel, said belts, chains or the like partially covering said intake port of said bale forming channel, holding the deposited layers of the bale in said bale forming channel, said common shafts of said feeder-compactor rollers being interconnected by suitable power transmission means such as drive chain or the like, to assure the simultaneous rotational motion of said feeder-compactor rollers in identical directions as said belts, chains or the like wrap and unwrap around said feeder-compactor rollers as said common frame or said feeder-compactor assembly performs its reversing or oscillating upward downward motion in a plane at or near to said intake port of said bale forming channel between or beyond said upper and lower boundaries of said intake port of said bale forming channel, said rotatably mounted pulleys of said feeder-compactor rollers being connected to suitably positioned feeder-rollers by a plurality of endless chains, belts or the like, said feeder-rollers being journally mounted on a suitable frame and receiving power drive to cause their rotation in such way that the interaction between said plurality of endless chains, belts or the like compress and convey the loose fibrous material to said intake port of said bale forming channel regardless of the direction of rotation of said feeder-compactor rollers, said feeder-compactor rollers receiving and depositing said compressed sheet of fibrous material in a plane which is confined by the lateral boundaries of said intake port of said bale forming channel, said deposition or laying of the compressed sheet of fibrous material being accomplished in a continuous process by reversing the direction of the motion of said feeder-compactor assembly in said plane at or near said intake port of said bale forming channel at properly selected positions relative to said upper and lower boundaries of said intake port, said reversal of the direction of motion of said feeder-compactor assembly in said plane at or near said intake port of said bale forming channel causing the reversal of the laying of the compressed fibrous material, folding it at or near said upper and lower boundaries of said intake port of said bale forming channel, resulting in the buildup of the body of the bale by depositing and compressing the subsequently folded layers in said bale forming channel, said feeder-compactor rollers exerting compressive forces on said formed bale causing the compaction and sliding motion of said formed bale in said bale forming channel, said formed bale having reached its desired length being tied together by a suitable tying mechanism with twine, wire or the like, said formed and tied bale being forced out from said bale forming channel at its discharge end by the subsequently formed bales.

4,273,035

METHOD AND APPARATUS FOR STABILIZING OPERATION OF A PRESS

Dante S. Cusi, Benjamin Franklin 132, Mexico City 18, Mexico

Continuation-in-part of Ser. No. 937,755, Aug. 29, 1978, abandoned. This application Dec. 20, 1978, Ser. No. 971,307
Int. Cl.³ B30B 9/12
U.S. Cl. 100—37 40 Claims



1. A method for stabilizing the operation of a press used to separate the phases of a liquid-solid mixture wherein the discharge of liquid expressed from the mixture upstream of a control position downstream from the inlet of the press is restricted by an adjustable valve comprising the steps of
(a) measuring the pressure of the liquid-solid mixture at the control position,
(b) comparing the measured value of the pressure at the control position with a predetermined optimum value of the pressure at the control position, and
(c) generating as a result of the comparison a change in the restriction caused by the adjustable valve which tends to reduce any difference between the measured value and the optimum value.

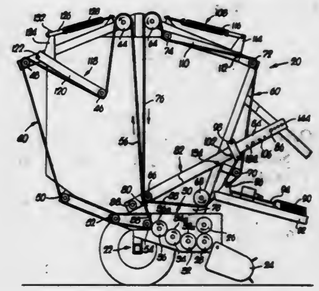
4,273,036

MACHINE FOR ROLLING CROPS INTO ROUND BALES

Arnold F. Kopaska, Guthrie Center, Iowa 50115

Continuation of Ser. No. 914,005, Jun. 9, 1978, abandoned, which is a division of Ser. No. 704,173, Jul. 12, 1976, Pat. No. 4,121,513. This application Jun. 2, 1980, Ser. No. 155,551
Int. Cl.³ B30B 5/06
U.S. Cl. 100—88 3 Claims

1. In a machine having a frame and apparatus for applying compactive pressure to a cylindrical crop bale while the same is being formed within the machine, the improvement in said apparatus comprising:
a tension arm mounted on said frame for swinging movement about an axis transverse to the arm,
said arm being operable to transmit progressively increasing compactive pressure to the bale as the latter grows diametrically and the arm is swung from a starting end of its path of travel toward a finishing end of its path of travel corresponding to full bale size;
a spring for resisting said movement of the arm whereby to supply said compactive pressure,
said spring having an anchor point at one end thereof with said frame; and
a slip connection on the other end of said spring operably coupling the same with the arm,
said spring being so oriented with respect to said arm that shortly before the arm reaches said finishing end of its path of travel, the slip connection slips in a direction to prevent further increase in the compactive pressure applied to the bale notwithstanding continued swinging of the arm toward said finishing end of its path of travel,



said arm having a surface and a first and a second stop spaced apart along said surface,
said first stop being closer than said second stop to said anchor point of the spring when the arm is at said starting end of its path of travel, and said second stop being closer than said first stop to said anchor point of the spring when the arm is at said finishing end of its path of travel,
said surface being disposed to shift from an acute angle with the line of force from said spring to an obtuse angle with the line of force from said spring as the arm swings from the starting end of its path of travel to the finishing end of its path of travel,
said slip connection including means movable along said surface by said spring from said first stop as said surface of the arm shifts to said obtuse angle with the line of force from said spring and the arm approaches said finishing end of its path of travel.

4,273,037

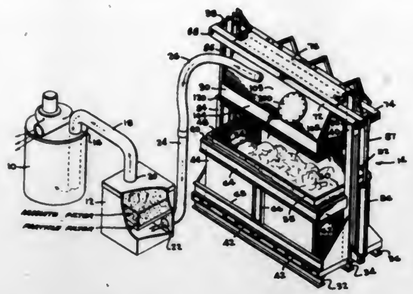
COMPACTOR

George B. Rachesam, R.R. #1, Box 12A, Readsboro, Vt. 05350

Filed Sep. 26, 1979, Ser. No. 79,170
Int. Cl.³ B30B 1/34
U.S. Cl. 100—91 10 Claims

1. A trash compactor including a base frame means, a compactor piston having side wall means and an end face, piston guide means supporting piston for linear reciprocation with respect to said base frame means, a plurality of suction openings positioned about the periphery of said piston in said side wall means, a vacuum source, means connecting said vacuum source to said suction openings, an open-topped trash con-

tainer mounted on said frame means and dimensioned to matingly receive said compactor piston and power drive means for



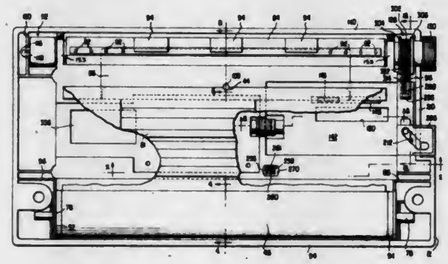
reciprocating said compactor piston into and out of said open-topped trash container.

4,273,038

PORTABLE TRANSACTION LOG RECORDER

Heinz F. Strohschneider, Plymouth, Mass., assignor to DBS, Inc., Randolph, Mass.

Filed Jan. 29, 1979, Ser. No. 7,638
Int. Cl.³ B41F 3/04
U.S. Cl. 101—45 9 Claims



1. A portable transaction log recorder for processing at least one transaction log sheet comprising

a base,

means supported by said base for removably receiving a printing plate;

supply means disposed on one side of said printing plate receiving means supported by said base for removably storing said transaction log sheet;

take-up means disposed on the other side of said printing plate receiving means supported by said base for removing said transaction log sheet from said supply means across said printing plate receiving means; and

means for braking said take-up means to thereby maintain said log sheet in a predetermined spatial relationship with respect to said printing plate receiving means, said brake means including

a first gear connected to said take-up means;

second and third gears normally in engagement with said first gear and with each other; and

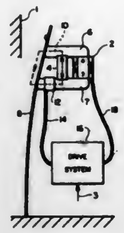
means for disengaging at least said third gear from said first gear to disengage the brake means and permit said take-up means to remove the log sheet from the supply means, said brake means being engaged when said third gear engages said first gear.

4,273,039

IMPACT PRINTING APPARATUS AND METHOD USING RELUCTANCE SWITCHING AND A CLOSED LOOP DRIVE SYSTEM

Zong S. Luo, and Todd M. Woodcock, both of Boise, Id., assignors to Hewlett Packard Company, Palo Alto, Calif.

Filed Aug. 3, 1979, Ser. No. 63,502
Int. Cl.³ B41J 9/42, 3/12
U.S. Cl. 101—93.02 3 Claims



1. Printing apparatus comprising:

a first pole piece;

a second pole piece;

magnetic field means magnetically coupled to the first pole piece and the second pole piece for producing a first magnetic field;

reluctance switching means having reluctance and being magnetically coupled to the first pole piece and the second pole piece for varying reluctance in response to receiving a switching signal;

a ferromagnetic tine disposed to be attracted to the second pole piece by the first magnetic field, said ferromagnetic tine being magnetically coupled to the first pole piece and being structurally connected to the first pole piece and structurally distortable by the first magnetic field; said reluctance switching means comprising an electromagnet coupled to the first pole piece and the second pole piece;

sensing means for detecting changes in magnetic flux resulting from changes in position of the ferromagnetic tine and producing a sensing signal; and

driving means coupled to receive the sensing signal and an applied firing signal for first applying a signal of a first polarity to the electromagnet in response to the firing signal and then applying a signal of a second polarity to the electromagnet in response to the sensing signal.

4,273,040

SEGMENTED DRUM BAR HELIX PRINTER

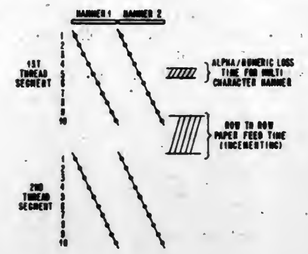
Robert A. Sebrosky, Newtown, Pa., and William D. Thorne, Wake Forest, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 28, 1979, Ser. No. 79,761
Int. Cl.³ B41J 3/08
U.S. Cl. 101—93.04 7 Claims

1. In a mosaic printer having a cylindrical rotating drum, rotating at some arbitrary fixed rate, the outer surface of which has at least one raised spiral thread, and having at least one print hammer located adjacent to said drum and being provided with means for firing said hammer to impact against said spiral thread at desired times, and a printing medium interposed between said hammer and said thread and means associated with said printing medium for moving said medium at some arbitrary feed rate between said hammer and said drum to effect printing operations in either incremental or fixed speed modes, and timing means for controlling the times during the revolution of said drum that said hammer is moved to impact said medium against a portion of said spiral thread, the improvements comprising:

said spiral thread being divided into a plurality of segments; and

the endings and beginnings, respectively, of each of said segments relative to the preceding and succeeding segments thereof being offset from one another circumferentially on said drum by a distance at least equal to that



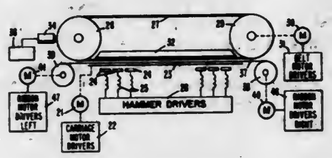
distance traversed by any point on the periphery of said drum at said rate of revolution thereof during the time required by said moving means to move said print medium at said rate to a new printing position.

4,273,041

BELT PRINTER CONTROL ARCHITECTURE

Richard D. Bolcavage, Kirkwood; Armand J. Ferraro, Endicott, both of N.Y., and Arthur E. Fleck, Cary, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,856
Int. Cl.³ B41J 1/20
U.S. Cl. 101—93.14 33 Claims



1. A printer system interconnectable to a host system for receipt of control and printing information for printing lines of data comprising in combination,

a printer mechanism having a revolving type belt with an array of type elements repeatedly alignable in scan/sub-scan sequences with a row of print hammers,

said printer mechanism also including a forms feed mechanism and a drive for an ink ribbon cooperable with said type belt and print hammers to print characters on forms in said printer mechanism and to perform other operations ancillary to printing,

control means for said printer mechanism including

a plurality of control elements related to printing operations and non-printing operations of said printer mechanism,

a first microprocessor operable for receiving control and printing information from said host system and for controlling certain control elements related to non-printing operations of said printer mechanism,

a first bus interconnecting said first microprocessor with said host system for receiving said control and printing information and with said certain control elements related to said nonprinting operations of said printer mechanism,

a second microprocessor for controlling printing operations of said printer mechanism,

a second bus interconnecting said second microprocessor with certain of said control elements related to printing operations of said printer mechanism,

RAM storage means for storing printing information for plural lines of data along with control information relating to printing operations and nonprinting operations,

a common bus for interconnecting said first and second microprocessors to said RAM storage means,

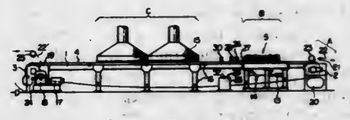
said common bus being accessible by said first and second microprocessors in alternate phases to said RAM storage for storing, processing, and retrieving information to be printed and control information to be used by said first and second microprocessors to perform said printing and nonprinting operations by said printer mechanism.

4,273,042

AUTOMATIC SCREEN PRINTING PROCESS AND APPARATUS

Saneto Machida, Nishinomiya, Japan, assignor to Toshin Kogyo Co., Ltd., Hyogo, Japan

Filed Nov. 17, 1978, Ser. No. 961,641
Claims priority, application Japan, Nov. 26, 1977, 52-141119; Oct. 7, 1978, 53-124049
Int. Cl.³ B05C 17/04; B41L 27/00
U.S. Cl. 101—123 2 Claims



1. An automatic screen printing apparatus which comprises:

an endless belt laid out to travel through a pasting operation zone, a printing operation zone, a drying operation zone and a washing operation zone by means of a pair of pulleys,

a servo drive mechanism for driving one of said pair of pulleys to thereby drive said endless belt intermittently and continuously around said pair of pulleys,

a pasting mechanism disposed in the pasting operation zone so that it can engage with and separate from the endless belt,

a mechanism for feeding to the endless belt a material to be printed and having a printing-starting end and applying and sticking the material to the endless belt,

a printing unit disposed in said printing operation zone, said printing unit including a flat screen having a standard end, a squeegee capable of scanning on the screen and a squeegee driving mechanism, said printing unit further comprising a mechanism for printing marks for respective feedings on the surface of the endless belt prior to or simultaneously with printing of a first color,

a mark detecting mechanism disposed in the printing operation zone for detecting said feeding marks,

a first control mechanism for stopping said servo drive mechanism in response to a signal issued from said mark detecting mechanism to control a repeat length of the endless belt,

a lift mechanism for driving and moving the printing unit in a vertical direction between a lowermost printing position and an uppermost non-printing position,

a drying device disposed in said drying operation zone,

a mechanism for peeling off a printed product from the endless belt,

a washing mechanism disposed in the washing operation zone so that it can engage with and separate from the endless belt,

a positioning mechanism for correctly registering the printing-starting end of the material to be printed with the standard end of the screen of the printing unit, and

a drive control mechanism for continuously driving said servo drive mechanism for applying the whole length of the material to be printed onto the endless belt along a predetermined length prior to printing and, after the application of the material to be printed has been completed, intermittently driving said servo drive mechanism for

travelling the endless belt intermittently by a predetermined repeat length along the entire surface of the material to be printed,

wherein said mark detecting mechanism comprises a first detecting device to issue signals to said first control mechanism for reducing the speed of the endless belt during periods of intermittent travel thereof, and a second detecting device to issue signals to said first control mechanism for stopping the intermittent travel of the endless belt,

wherein said first detecting device is located downstream of said second detecting device in the direction of travel of the endless belt,

wherein said pasting mechanism and washing mechanism are connected to said drive control mechanism so that the pasting and washing mechanisms operate on the endless belt only when the endless belt is continuously driven, and

wherein said lift mechanism and squeegee driving mechanism are connected to said drive control mechanism so that dropping of the printing unit to the lowermost position is performed on confirmation of the repeat length feeding of the material to be printed, scanning movement of the squeegee is performed on confirmation of completion of dropping of the printing unit to the lowermost position elevation of the printing unit to the uppermost position is performed on confirmation of completion of scanning movement of the squeegee and driving of the endless belt is performed on confirmation of elevation of the printing unit to the uppermost position.

4,273,043

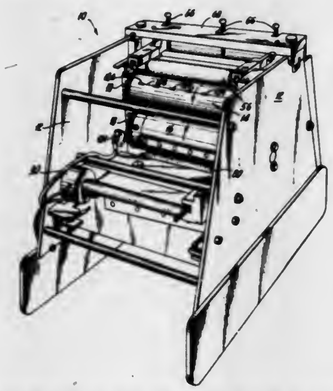
LABEL MAKING APPARATUS

Peter V. Martino, 99-60 65th Rd., Rego Park, N.Y. 11374

Filed Oct. 15, 1979, Ser. No. 84,671

Int. Cl.³ B41F *9/00*

U.S. Cl. 101—143 **15 Claims**



1. An apparatus for reproducing the indicia of a master sheet on a continuous web for printing labels comprising:

a rotatable plate roller, said plate roller having a means for attaching said master sheet thereto;

a fountain solution module for supplying a fountain solution to the master sheet on said plate roller;

an ink module positioned for supplying ink to said master sheet on said plate roller after said master sheet has been supplied with fountain solution;

a rotatable blanket roller having a diameter equal to the diameter of said plate roller, said blanket roller being in contact with said plate roller;

drive means connected to both said plate roller and said blanket roller, with said rollers being rotated at the same speed such that the ink placed on said plate roller is accurately transferred to said blanket roller;

a rotatable impression roller mounted for reciprocating movement into and out of contact with said blanket roller;

means for selectively moving said impression roller into or out of contact with said blanket roller; and

control means for actuating said moving means whereby when said impression roller is brought into contact with said blanket roller, said blanket roller will cause said impression roller to rotate such that when said continuous web is fed adjacent to the nip between said blanket and impression rollers, it will be drawn therethrough, thereby transferring the ink on said blanket roller to said continuous web, said control means for activating said moving means including first and second micro-switches disposed adjacent the rotational axis of one of said plate and blanket rollers, and wherein said first micro-switch functions to activate said moving means which places said impression roller in contact with said blanket roller, and wherein said second micro-switch functions thereafter to deactivate said moving means thereby lowering said impression roller out of contact with said blanket roller, said control means further including means provided to vary the time lag between the activation of said first micro-switch and the activation of said second micro-switch such that the length of time said impression roller is in contact with said blanket roller may be varied for enabling the length of the printing on the continuous web to be adjusted, with said means for varying the time lag between the activation of said first micro-switch and the activation of said second micro-switch including a means for varying the position of one of said switches relative to the rotational axis of the associated roller.

4,273,044

SERIGRAPHIC PRINTING MACHINE PRINTING A NUMBER OF OBJECTS IN SEVERAL COLORS

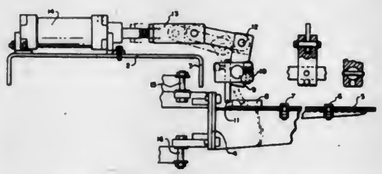
Umberto Brasa, Via Ippolito Nievo, No. 8, Milan, Italy

Filed Jan. 24, 1980, Ser. No. 115,064

Claims priority, application Italy, Mar. 12, 1979, 20895 A/79

Int. Cl.³ B41F *1/12, 1/34, 17/38*

U.S. Cl. 101—193 **6 Claims**



1. A serigraphic printing machine for printing several colors on objects, each object being carried on a bracket and each bracket being moved through several printing stations spaced from each other along a generally straight length of the machine, at each station a color being printed by a planar panel on each object in registration with the colors printed at the other stations, the machine comprising:

means for alignment of the object with the printing panel at each printing station to assure proper registration of the colors printed at the several stations, said means comprising:

a generally planar support connected to each bracket by a pivot pin around which the support is rotatable in its plane, the support arranged to be generally parallel with the planar panel when the panel is printing on the object and each support bearing the object on the bracket;

a centering plate fixed on each support and having a slot extending thereinto in alignment with an axis of the support passing through the pivot pin;

a rod extending and generally parallel to the straight length of the machine adjacent the printing stations and being rotatable around its longitudinal axis;

a centering pin at each printing station registerably fixed along the length of said rod, in a first rotational position of said rod said pins being engaged in said slots of said centering plates to align said supports with said centering pins and said objects with said panels, and in a second rotational position of said rod said pins being disengaged from said slots to allow said brackets to be moved through said printing stations; and

actuating means for rotating said rod to said first and second rotational positions.

4,273,045

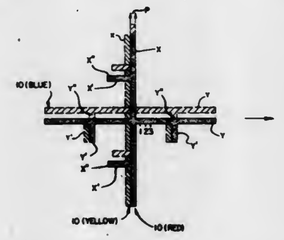
PRINTING MACHINE REGISTRATION TARGET

Bucky Crowley, Newton, Mass., assignor to Butler Greenwich Inc., Greenwich, Conn.

Filed Jul. 23, 1979, Ser. No. 59,515

Int. Cl.³ B41F *5/06*

U.S. Cl. 101—211 **2 Claims**



1. In a method of indicating registration of printing on a web in a rotary multicolor printing press wherein a plurality of colors are printed successively on a web by a plurality of cylinders, the steps comprising printing on a selvage of the web in said plurality of colors with said plurality of cylinders indicium for registration with one another, each indicium having a pair of arms which intersect intermediate their ends at right angles so as to form a cross, one of said arms extending in a direction parallel to the direction of web travel through the press, the other of said arms extending transversely thereto, at least one tab extending out from each arm in one direction parallel to the other arm, said tab having no counterpart extending out from each arm in the opposite direction so that each said indicium is rectilinear yet asymmetric about the long axes of said arms, the widths of the arms and tabs of each indicium being substantially equal to the stroke width of the lines printed by each print cylinder on the web between its selvages, the lengths of each indicium arm and tab being integral multiples of said stroke width, and the distance between each indicium tab and the intersection of said indicium arms being an integral multiple of said stroke width thereby to indicate registration within the allowable tolerance when the corresponding arms and tabs of all of the indicia overlap one another to some extent and beyond the allowable tolerance when the corresponding arms and tabs of at least two of the indicia do not overlap, the direction of the unacceptable registration error being readily apparent from the orientation of the tabs and the amount of said error being evident by the number of stroke width segments visable between the corresponding arms and tabs of the out-of-registration indicia.

4,273,046

ATTACHING MECHANISM FOR INKING DEVICE OF PORTABLE LABEL PRINTING MACHINE OR THE LIKE

Yo Sato, Tokyo, Japan, assignor to Kabushiki Kaisha Sato Keikyusho, Japan

Filed Jun. 18, 1979, Ser. No. 49,121

Int. Cl.³ B41K *1/42, 3/60*

U.S. Cl. 101—348 **4 Claims**

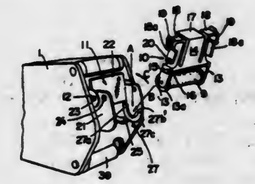
1. An attaching mechanism for attaching an inking device to a label printing machine, or the like, said attaching mechanism comprising:

a supporting device which is attached to the machine body of a label printing machine;

an ink applicator; said ink applicator comprising an inking roller supporting frame having journals thereon, and an inking roller being supported to said frame on said journals;

said ink applicator also comprising a holder which includes attaching means for fixedly attaching said holder to said supporting device;

a generally J-shaped stopper on said supporting device; said J-shaped stopper being comprised of a guide section which is one leg of the J shape, said guide section being further into said supporting device so that as said ink applicator is applied to said supporting device, its said supporting frame first engages said guide section for guiding said ink applicator supporting frame to a stopper section; a stopper section being the web of the J shape, being placed for having said ink applicator supporting frame guided to it by said guide section and being shaped



for halting further motion of said ink applicator as it is being applied to said supporting device; a retaining section being the other leg of the J shape, being less far into said supporting device than said guide section, and being for retaining said supporting frame in said stopper section said guide section of said generally J-shaped stopper being taller than said retaining section thereof;

said supporting frame having an end surface thereof near to said journals and which is curved in shape complementary to the curve of said stopper section; said supporting frame end surface being so shaped that with said frame on said stopper section, said supporting frame is swivelable between a position where it is nearer to said guide section and a position where it is further from said guide section; and

said attaching means being positioned for attaching said holder to said supporting device following application of said ink applicator to said supporting device and following rotating of said ink applicator at said stopper section of said stopper of said supporting device toward said guide section of said stopper.

4,273,047

APPARATUS FOR PERFORATING A WELL AND ITS METHOD OF ASSEMBLY

T. James Rommer, Arlington, Tex., assignor to Jet Research Center, Inc., Arlington, Tex.

Filed Dec. 11, 1978, Ser. No. 968,537

Int. Cl.³ E21B *7/00*; F42B *3/08*

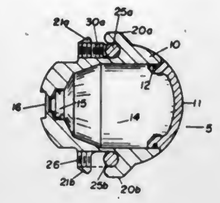
U.S. Cl. 102—310 **9 Claims**

9. An explosive charge unit comprising:

a case having a cavity therein adapted to receive said explosive charge; and

selectively engageable wire gripping means extending from said case, said selectively engageable wire gripping means

further comprising an ear defining a recess; a lug adjacent to said ear, said lug having a threaded aperture there-



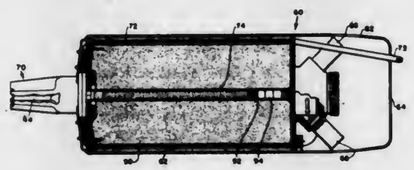
through oriented toward said recess; and a screw threaded into said aperture.

4,273,048

SURFACE-LAUNCHED FUEL-AIR EXPLOSIVE MINEFIELD CLEARANCE ROUND

Michael H. Aley, China Lake; James A. Bowen, Inyokern, and Cecil A. Glass, China Lake, all of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 26, 1979, Ser. No. 24,132
Int. Cl.³ F42B *3/00*
U.S. Cl. 102—363 13 Claims



1. A fuel-air explosive minefield clearance round for triggering mines in a target area comprising:

a rocket motor for propelling said round to the target area from a predetermined location;

a fin assembly connected to the rear of said rocket motor for stabilizing said round in flight, such that said round follows a predetermined path to the target area;

a parachute contained within said fin assembly for slowing said round prior to termination of said round's arrival at said target area;

a warhead connected to said rocket motor for containing said fuel-air explosive during travel of said round to said target area;

a burster charge container within said warhead for dispersing said fuel air explosive over said target area;

a detonator assembly contained within said warhead for detonating said dispersed fuel, such that said detonator assembly is independent of ambient temperature of said fuel;

a fuze operatively connected to said burster charge, detonator assembly and parachute; and

an extension probe of predetermined length connected to said fuze for sensing when said warhead is a predetermined distance above the ground, said probe extending afte the slowing of said round by said parachute to avoid damage to the probe due to wind shear.

4,273,049

METHOD OF BLASTING A FIELD WITH ANFO AND TL-136

Donald W. Edwards, Provo, Utah; Paul R. Young, and Thomas M. Zakovich, both of Palatine, Ill., assignors to International Minerals & Chemical Corp., Terre Haute, Ind.

Filed Oct. 22, 1979, Ser. No. 86,913
Int. Cl.³ F42D *3/00*
U.S. Cl. 102—312 4 Claims

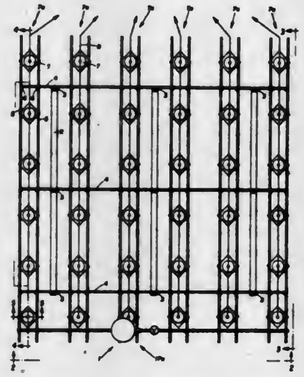
1. A method of blasting a field comprising the steps of (a) forming a drill pattern of bore holes, (b) successively delivering to each hole blasting agent TL-136 and a bulk blasting agent mixture consisting essentially of ammonium nitrate 86–90 parts by weight and 10–14 parts by weight of a hydrocarbon and a nitroalkane of 1–3 carbon atoms in a ratio of about 1:1:4 respectively and having a minimum density of 1.0 g/cc, the ammonium nitrate consisting of about a 1:1 mixture of explosive grade prills and comminuted prills, (c) adding a booster and/or primer and initiating device and (d) detonating same.

4,273,050

PLACEMENT METHOD FOR Q.D. CHARGES USING MINIMUM DIVING TIME

Claude H. Brown, Arlington, Tex., assignor to Jet Research Center, Inc., Arlington, Tex.

Continuation of Ser. No. 653,985, Jan. 30, 1976, Pat. No. 4,018,163, which is a division of Ser. No. 522,542, Nov. 11, 1974, Pat. No. 3,972,285. This application Jan. 6, 1977, Ser. No. 757,172
Int. Cl.³ F42B *3/02*
U.S. Cl. 102—321 9 Claims



1. A reusable framework for the remote, simultaneous placing of a plurality of explosive charges at predetermined space intervals, comprising:

(a) open frame means of sufficient strength to support a plurality of individual, separate explosive charges laterally spaced from each other and suspended therefrom;

(b) means for suspending said open frame means in a generally horizontal position from at least one overhead haul rope;

(c) releasable holding means depending downwardly from said open frame means at predetermined spacing for individually holding each one of a plurality of explosive charges; and

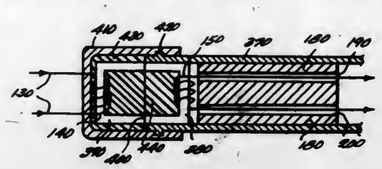
(d) release means interconnected with said releasable holding means for simultaneously releasing all of the explosive charges in their predetermined position.

4,273,051

ELECTRIC DEVICE

Andrew Stratton, Farnborough, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jan. 17, 1979, Ser. No. 4,265
Int. Cl.³ F42C *11/00*; F23Q *7/00*
U.S. Cl. 102—202.2 44 Claims



1. An electrical control circuit for selectively energizing an electrically ignited load only in response to input electrical energy from an a.c. source having predetermined electrical parameters, said control circuit comprising:

first and second inductors having mutual linkage therebetween,

said first inductor being adapted for connection to said a.c. source,

said second inductor being adapted for connection to said load,

at least one of said first and second inductors being constructed and connected in circuit to provide a substantial protective inductance effectively connected in series with said load, and

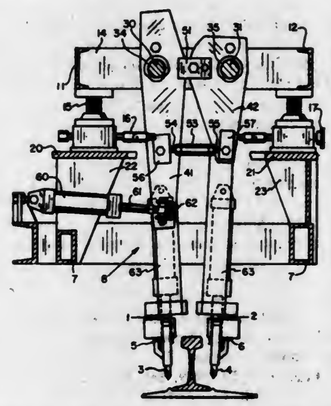
an energy dissipation means, effectively coupled to said at least one inductor, for dissipating input electrical energy as a function of the voltage across and/or current through at least one of said first and second inductors.

4,273,052

SPIKE DRIVING APPARATUS

John H. Woolner, Pittsburgh; Emeric Gaslevic, Glenshaw, and Richard B. Doorley, Pittsburgh, all of Pa., assignors to Portec, Inc., Pittsburgh, Pa.

Filed Mar. 24, 1978, Ser. No. 889,845
Int. Cl.³ E01B *29/26*
U.S. Cl. 104—17 R 20 Claims



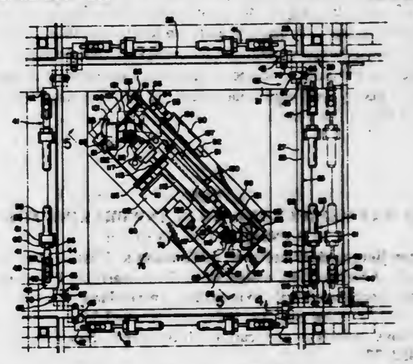
1. Spike driving apparatus including a frame adapted to be mounted on a vehicle, at least two adjustment means supported on said frame, an elongated support member depending from each of said adjustment means, means for independently moving each of said adjustment means and the corresponding depending elongated support member in a first direction, means for rotating said depending elongated support members about the upper ends to move the lower ends relative to each other in a second direction substantially perpendicular to the first direction, means operatively connecting said adjustment means for unisonant movement of said adjustment means and said depending elongated support members in said first direction, means for unisonously moving the lower ends of said depending elongated support members in said first direction and angularly in said second direction, each of said depending elongated support members supporting a ram and hydraulic cylinder and spike holding means, said spike holding means located at the lower end of said depending elongated support member and adapted to hold a spike in a position to be driven by downward movement of said ram, and means to lower said ram to drive a spike.

4,273,053

MATERIAL HANDLING APPARATUS

James W. Gibbs, Hialeah, Fla., assignor to Gibbs-Ryder Materials Handling Systems, Inc., Coral Gables, Fla.

Filed Mar. 29, 1976, Ser. No. 671,729
Int. Cl.³ B61B *13/12*
U.S. Cl. 104—168 12 Claims



1. Transporter apparatus for the controlled movement of goods comprising, two intersecting rail means, pallet means capable of supporting the goods, first wheel means mounted on said pallet means for engaging one of said intersecting rail means, second wheel means mounted on said pallet means for engaging the other of said intersecting rail means, and directional interchange means in each of said intersecting rail means contacting said first and second wheel means to permit movement of said pallet means in two angular directions therefrom, and drive means engaging said pallet means for selectively propelling said pallet means in either of the two angular directions, said drive means including two drive wheels which engage said pallet means disposed generally diagonally of said pallet means when positioned on said direction interchange means.

4,273,054

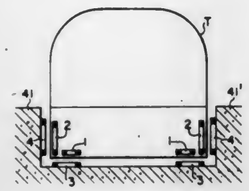
VEHICLE VIBRATION DAMPING METHOD IN THE INDUCED REPULSION TYPE MAGNETICALLY SUSPENDED RAILWAY VEHICLE

Hiroshi Yamashita, Yokohama; Takahiko Iwahana, Hachioji, and Shunsuke Fujiwara, Musashino, all of Japan, assignors to Japanese National Railways, Tokyo, Japan

Filed Dec. 29, 1977, Ser. No. 865,724
Claims priority, application Japan, Jan. 18, 1977, 52-3587; Jan. 18, 1977, 52-3588; Jan. 18, 1977, 52-3589
Int. Cl.³ B61B *3/00*
U.S. Cl. 104—281 10 Claims

1. Vehicle vibration damping means for an induced repulsion type magnetic levitation system for railway vehicles, said system having superconductive levitating magnets with alternate opposite polarity positioned at specific intervals longitudi-

nally of the vehicle and conductive loop coils or conductive sheets on the track at specific intervals in the direction of travel of the vehicle, and the vehicle is levitated by the repulsion taking place due to said superconductive magnets and the eddy currents produced by the voltage induced in said loop coils by the flux from said magnets when the vehicle runs at a specified speed, said vibration damping means comprising means on the



vehicle for constantly applying a magnetic flux in one direction and of a specific magnitude to said conductive loop coils from the vehicle, said flux being in addition to the levitation flux, for producing a damping magnetic force on said vehicle as a result of the current induced in the conductive loop coils or conductive sheets by said additional magnetic flux for damping the vibrations of the vehicle.

4,273,055

RAILWAY VEHICLE TRACTION AND BRAKING FORCE TRANSMITTING SYSTEM

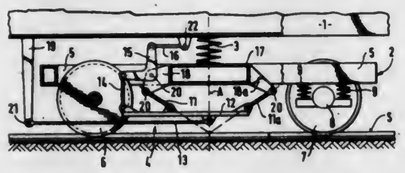
Gaston Borgeaud, Winterthur, and Johann K. Pfister, Dietlikon, both of Switzerland, assignors to Schweizerische Lokomotiv- und Maschinenfabrik, Winterthur, Switzerland

Filed Sep. 18, 1978, Ser. No. 943,306

Claims priority, application Switzerland, Sep. 20, 1977, 011452/77

Int. Cl.³ B61F *3/04, 5/16, 5/22, 5/50*

U.S. Cl. 105—199 F **15 Claims**



1. A rail vehicle comprising:

a vehicle body;

an undercarriage for supporting said body on a rail surface, and

means for transmitting traction and braking forces between said body and said undercarriage, said means including at least one bar-like connecting rod movably connected to one of said body and said undercarriage and disposed longitudinally of said body, a movable intermediate member pivotably connected to said other of said body and said undercarriage about at least one substantially transverse axis and connected to said connecting rod, at least one tie rod inclined downwardly toward the center of said undercarriage, said the rod being pivotally connected between and to said intermediate member and said other of said body and said undercarriage and means for guiding said intermediate member in a vertical plane relative to said body to maintain the position of said intermediate member relative to said undercarriage.

4,273,056

DIGGING AND PLANTING MACHINE

Stig-Gunnar Löfgren, Järved, and Bo G. Ekeborg, Bonässund, both of Sweden, assignors to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Filed May 18, 1979, Ser. No. 40,355

Claims priority, application Sweden, May 22, 1978, 7805797

Int. Cl.³ A01C *11/00*

U.S. Cl. 111—2 **21 Claims**



1. A digging and planting machine having a tubular digging and planting tool; at least one sensing and signalling means for sensing a resistance below and/or exceeding a predetermined value to penetration of the ground by the digging tip of the tool, thus gauging the condition of the ground, and detecting obstacles to such penetration so as to ensure that the digging tip provides and a plant is fed to a planting hole of the desired depth, and a digging attempt is aborted if this be impossible, and comprising an elongated member movable towards and away from the ground in a selected location where a planting hole is to be dug; means biasing the elongated member resiliently towards the ground with a force opposed by the force resisting penetration of the member into the ground, the biasing force being insufficient to prevent movement of the member against the biasing force at a resisting force above a predetermined minimum; at least one signalling means and at least one signal actuating means operatively associated with the elongated member and responding to a predetermined movement of the elongated member as a function of the penetrability of the ground, due to the condition of the ground at that location, by actuating the signalling means to give a signal indicating that the elongated member has detected a resisting force above the predetermined minimum showing the digging tip cannot provide a planting hole of the desired depth; and timing control means operatively connected to the sensing and signalling means and establishing and controlling the time for the digging and planting tool to carry out a normal cyclic digging and planting operation; and the raising and lowering of the digging and planting tool towards and away from the ground, and, in response to the signal, aborting that digging attempt and causing the digging and planting tool to make another hole-digging attempt as soon as the attempt is aborted.

4,273,057

PLANTING APPARATUS FOR A GRAIN DRILL

Lorne R. Pollard, St. Ann's, Canada, assignor to International Harvester Company, Chicago, Ill.

Filed May 29, 1979, Ser. No. 42,752

Int. Cl.³ A01C *5/06*

U.S. Cl. 111—85 **8 Claims**

1. A planting apparatus for a drawn grain drill comprising:

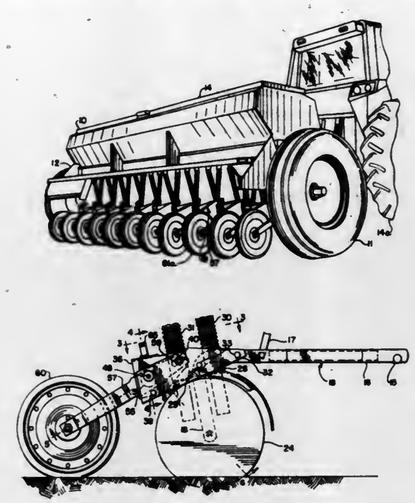
a. a drawbar adapted to be attached at a forward end to a drawbar shaft of a grain drill for pivotal movement therewith;

b. a pair of opposed, furrow forming disks rotatably mounted on said drawbar;

c. means adapted to be connected to the drill and connected to said drawbar for forcing said disks into the soil;

d. a seed tube located between said disks and extending toward the furrow for depositing seed therein, said tube being adapted to be connected to a seed dispenser; and

e. a press gauge wheel assembly mounted on said drawbar rearward of said disks for closing the furrow and compacting the soil on the seed, said assembly comprising:



a bracket mounted on said drawbar, an arm pivotally supported on said bracket, a wheel rotatably mounted on said arm, and a rearwardly facing adjustment means mounted on said bracket having a rotatable handle portion and a gear set for transferring said rotation to a generally vertical plane to said arm to control wheel position and hence furrow depth in response to force applied to said drawbar.

4,273,058

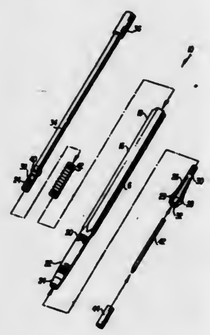
EMBROIDERY NEEDLE ASSEMBLY

Daniel Martushev, 14874 SE. Taylor Ct., Portland, Oreg. 97233

Filed Mar. 1, 1979, Ser. No. 16,370

Int. Cl.³ D05C *15/06*

U.S. Cl. 112—80 **1 Claim**



1. An embroidery needle comprising in combination a handle assembly and a needle assembly, said needle assembly including a hollow needle, said handle assembly including a hollow gripping member, said gripping member having a reducing taper at one end and a plurality of spaced annular peripheral grooves on the taper portion, at least one gauge boot slidingly received over said needle, a hollow push rod disposed within said gripping member and moveable between a first and a second position, said push rod having a swag on its outer surface adjacent one end and an open passage therethrough internally threaded at said one end, helical spring biasing means seated within the reduced taper portion of said gripping member having one end seated in said taper portion and its other end seated against said swag provided on said push rod, said one end of said push rod being disposed within said spring, said helical spring biasing means cooperating with said push rod to exert a biasing force thereon such that one end of said push rod extends outwardly from said gripping member, said push rod also having a hollow push button at its other end for the passage of thread therethrough, clasping means carried at the opposite end of said push rod for clutching said needle assembly, said clasping means having a hollow cylindrical shaft portion including external threads at one end, said clasping means being threaded to said push rod, and said clasping means including a plurality of spring finger gripping elements extending from the other end of said shaft portion and having an expanded position when said push rod is in its first position to allow free insertion between said finger elements of one end of the needle assembly and a closed position when said push rod is in its second position such that said finger elements close tightly about said one end of the needle assembly and a coaxial longitudinally passage extending through said handle assembly and needle assembly.

4,273,059

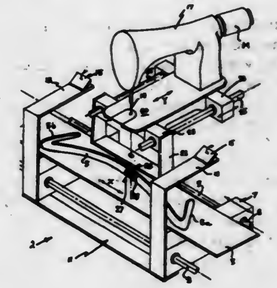
X-Y ALTERNATING DRIVE PROFILING SYSTEM

Nabil Kamal, 8166 St. Denis, Montreal, Quebec, Canada (H2P 2G6)

Filed Apr. 7, 1980, Ser. No. 137,624

Int. Cl.³ D05B *3/00, 21/00*

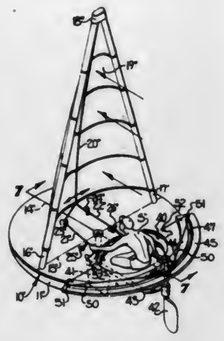
U.S. Cl. 112—121.14 **8 Claims**



1. A profiling system comprising a profile member having a profile guide element, said profile member being secured to a first displaceable frame which is displaceable along a first straight axis, a working head fixedly secured relative to a work support surface and spaced relative to said profile member, said working head and support surface being mounted on a head support frame displaceable along a second straight axis extending transversely to said first axis, support means secured relative to said profile member and displaceable therewith to retain and displace a material to be worked on by said head, a follower element fixedly secured to said head support frame and displaceably engaged with said profile guide element, said head support frame being displaced along said second axis in response to angular deviations from said first straight axis as defined by a path delineated by said profile guide element as said profile member is drivingly displaced along said first axis, said profile member being displaced along said first axis in response to angular deviation from said second axis as defined by said path as said head support frame is drivingly displaced along said second axis, and drive means selectively engaged to

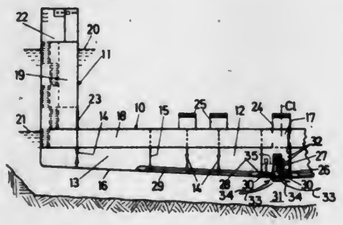
said first displaceable frame and said head support frame to selectively displace said frames along their respective straight axis.

4,273,060
SAILING VESSEL
Ivan Pavincic, P.O. Box 4005, Florence, S.C. 29501
Filed Mar. 26, 1980, Ser. No. 134,087
Int. Cl.³ B63H *9/06*
U.S. Cl. 114—39 **13 Claims**



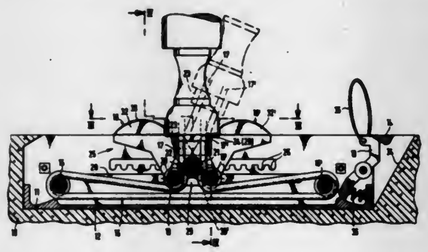
1. A sailing vessel comprising the combination of:
(a) omnidirectional hull means,
(b) a sail,
(c) sail support means carried by said hull means and extending upwardly therefrom and cooperating with said sail for supporting two side edges thereof along intersecting angularly upwardly extending axes while leaving a third side edge of said sail unsupported and extending generally horizontally,
(d) sail control means connected to said third side edge of said sail medially of the adjacent corners of the sail and cooperating with said hull for pulling the sail laterally so as to alter the shape of the sail,
(e) a centerboard positioned beneath said hull and mounted for pivotal movement about a substantially vertical axis, and
(f) a centerboard control cooperating with said centerboard and positioned for operation by the sailor of said vessel for adjusting the pivotal position of said centerboard relative to said hull for assisting in controlling the direction of movement of said vessel.

4,273,061
FLOATING DOCK
Thorsten Lundberg, Askim, Sweden, assignor to Gotaverken Arendal AB, Gothenburg, Sweden
Filed May 25, 1978, Ser. No. 909,681
Int. Cl.³ B63B *1/06*
U.S. Cl. 114—45 **2 Claims**



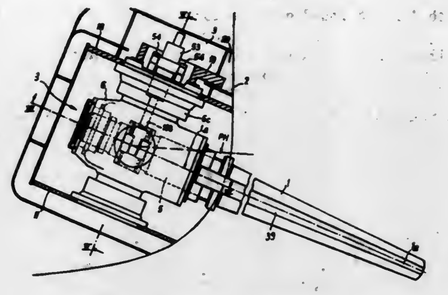
1. A floating dock comprising a ship supporting bottom structure enclosing a plurality of ballast tanks disposed on either side of the longitudinal center line of said dock, and two longitudinal side walls extending upwards from said bottom structure,
a bottom plating, downwardly defining said bottom structure and being downwardly inclined from the longitudinal sides of the bottom structure towards its longitudinal center line,
a service tunnel within said bottom structure, extending centrally in its longitudinal direction,
said ballast tanks being floodable for lowering the dock,
pump means for removing water from said ballast tanks for raising the dock, said pump means being located in said service tunnel and having outlets below the same,
said outlets directing flow of water outwardly along the inclined bottom plating, and
at least one watertight staircase within one of said side walls extending from a portion thereof remaining above water level even when the dock is brought to a lowered position, and into said bottom structure, as well as a transverse tunnel communicating said staircase with said central service tunnel.

4,273,062
DEVICE FOR CONNECTING A SAILMAST TO A SAILBOARD
Hannes Marker, Hauptstrasse 51-53, 8100 Garmisch-Partenkirchen, Fed. Rep. of Germany, and Otto Hüss, Wallgau, Fed. Rep. of Germany, assignors to Hannes Marker, Garmisch-Partenkirchen, Fed. Rep. of Germany
Filed Mar. 29, 1979, Ser. No. 24,996
Claims priority, application Fed. Rep. of Germany, Oct. 5, 1978, 2843551
Int. Cl.³ B63B *15/00*
U.S. Cl. 114—91 **15 Claims**



1. A device for connecting a sailmast to a sailboard comprising:
a supporting member connected to the sailmast;
a slide for positively holding the supporting member in a position for use;
a resilient element for biasing the supporting member towards the slide to the position for use;
the sailboard having a longitudinal groove formed therein for receiving the slide, the slide being longitudinally slidably guided and adapted to be releasably locked in the groove;
said resilient element urging the supporting member towards the slide when the sailmast is in any position of use and urging said slide to a position in which said slide is releasably locked.

4,273,063
SHIP STABILIZER
Jean Berne, Le Havre, France, assignor to Societe Nouvelle des Ateliers et Chantiers du Havre, Seine-Maritime, France
Filed Jun. 11, 1979, Ser. No. 47,785
Claims priority, application France, Jun. 19, 1978, 78 18241; Nov. 2, 1978, 78 31072
Int. Cl.³ B63B *39/06*
U.S. Cl. 114—126 **12 Claims**

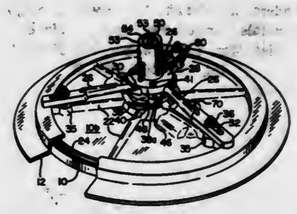


1. A ship stabilizer with fins retractable into the hull of a ship, comprising:
at least one pair of fins mounted on either side of the hull of the ship, each said fin being connected to a connectable casing;
means for retracting each of said fins from an operative position into a retracted position in a housing formed in the hull of the ship below the floating line of the ship by rotating said casing;
an auxilliary flap pivotally mounted on the rear edge of each said fin;
inclination means for varying the angle of inclination of said fin with respect to said casing; and
adjusting means for adjusting the inclination angle of said auxilliary flap as a function of the inclination angle of said main fin, comprising
a first arm fixedly connected to said auxilliary flap,
a connecting rod, disposed substantially perpendicular to the plane of said fin, pivotally connected at one end to said first arm and pivotally mounted at the other end thereof on said casing; and
means for varying the effective length of said first arm comprising a double action jack which causes the point of intersection of said first arm and said connecting rod to be moved along the axis of said first arm.

2. A ship stabilizer with fins retractable into the hull of a ship, comprising:
a housing formed on each side of the hull of the ship;
a monoblock, water-tight casing vertically mounted in each said housing;
a shaft, connected at one end thereof, to each said casing;
a stabilizer fin fixed to each said shaft;
a double-action jack connected to said housing and to said casing to cause said casing and attached shaft and fin to rotate to and from operative and retracted positions; and
adjusting means for adjusting the inclination angle of said fin and comprising a double action jack partly housed within said casing and connected to said shaft by means of a lever fitted on a frustoconical portion of said shaft without keying;
wherein said casing is made water-tight by means of a bellows connected at one end to said casing and at the other end thereof to said jack of said adjusting means, said bellows being filed with oil.

3. A ship stabilizer with fins retractable into the hull of a ship, comprising:
a housing formed on each side of the hull of the ship;
a monoblock, water-tight casing vertically mounted in each said housing;
a shaft connected, at one end thereof, to each said casing;
a stabilizer fin fixed to each said shaft;
a double-action jack connected to said housing and to said casing to cause said casing and attached shaft and fin to rotate to and from operative and restracted positions; and
adjusting means for adjusting the inclination angle of said fin and comprising a double action jack partly housed within said casing and connected to said shaft by means of a lever fitted on a frustoconical portion of said shaft without keying, said double action jack of said adjusting means having a hollow piston rod containing a tie rod therein, said tie rod having one end removably fixed to said shaft, the other end thereof being removably fixed to the top of the cylinder of said jack, whereby the tie rod may be easily dismounted and then the jack brought out from the inside of the ship without intervening outside the hull.

4,273,064
HATCH COVER
Robert W. Sutton, P.O. Box 774, Port Orford, Oreg. 97465
Filed Feb. 1, 1979, Ser. No. 8,326
Int. Cl.³ B63B *19/14*
U.S. Cl. 114—203 **19 Claims**

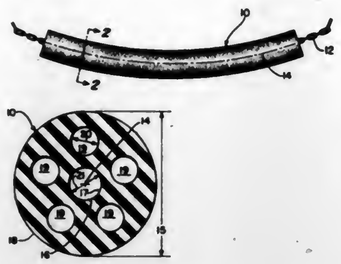


14. An improved plate-like hatch cover for closing a hatch opening of the type having a latching mechanism at one side of the cover, which includes a rotatable hub and plural latching arms extending in different directions from the hub towards a rim of the opening, said mechanism being operable such that rotation of said hub in one direction frees said latching arms from latching engagement with the rim while rotation of said hub in the opposite direction engages said latching arms with the rim, wherein the improvement comprises:
venting passageway defining means for defining a pressure relief passageway from one side of said cover to its opposite side;
control means for controlling the flow of fluids through said passageway,
said control means being coupled to said latching mechanism for automatically closing said passageway when said hub is in a latched position in which said latching arms secure the cover to the rim and for automatically opening said passageway in other positions of said hub.

4,273,065
ENERGY ABSORBING DEVICE
Ronald J. Lindsay, Hudson, and Clifford W. Cress, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Dec. 6, 1979, Ser. No. 101,047
Int. Cl.³ B63B *59/02*
U.S. Cl. 114—219 **9 Claims**

1. An elastomeric energy absorption device having an overall configuration resembling that of an elongated cylinder and including a central bore extending axially throughout the length thereof and a plurality of additional holes extending axially through the length thereof, said additional holes being

symmetrically positioned around and between the inner and outer peripheral surfaces of the device, the diameter of said



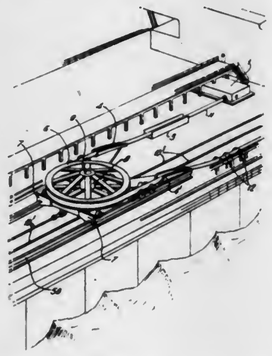
central bore being from about 1/6 to about ⅓ that of the overall diameter of the device.

4,273,066

OIL STORAGE VESSEL, MOORING APPARATUS AND OIL DELIVERY FOR THE OFF-SHORE PRODUCTION OF OIL

Harold E. Anderson, Frilsham, Nr. Newbury, England, assignor to Sea Terminals Limited, Berkshire, England

Filed Mar. 13, 1978, Ser. No. 885,591
Int. Cl.³ B65D *88/78*
U.S. Cl. 114—256 33 Claims



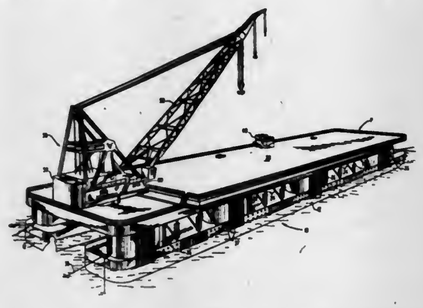
1. An oil storage vessel which is provided with (a) a flexible hose for delivery of oil, one end of said hose being adapted for connection to the oil storage capacity of the vessel; and (b) a hose guide system which is constructed so as to receive and support said flexible hose, and which comprises (i) a travelling sheave adapted to allow the flexible hose to pass around it, the sheave being mounted on guide means for travel along a track extending generally along the axis of the vessel; (ii) a first hose support channel positioned on one side of said track, for supporting the flexible hose between its connection with the oil storage capacity of the vessel and the travelling sheave; and (iii) a second hose support channel, positioned on the opposite side of said track to said first hose support channel, for supporting the flexible hose between the travelling sheave and one end of the vessel, and hose guide tongues mounted on said guide means for guiding the hose between the sheave and the first and second hose support channels whereby the flexible hose can be supported in a generally U-shaped course defined by the first hose support channel, the travelling sheave and the second hose support channel between its connection with the oil storage capacity of the vessel and said one end of the vessel.

4,273,067

METHOD OF OPERATING TWIN HULL SEMISUBMERSIBLE DERRICK BARGE

Samuel H. Lloyd, III, and Yoram Goren, both of Los Angeles, Calif., assignors to Santa Fe International Corporation, Orange, Calif.

Division of Ser. No. 732,117, Oct. 13, 1976, Pat. No. 4,150,635, which is a division of Ser. No. 650,953, Jan. 21, 1976, abandoned, which is a continuation of Ser. No. 486,588, Jul. 8, 1974, abandoned, which is a division of Ser. No. 161,865, Jul. 9, 1971, Pat. No. 3,835,800, which is a continuation of Ser. No. 705,175, Feb. 13, 1968, abandoned. This application Mar. 21, 1979, Ser. No. 22,506
The portion of the term of this patent subsequent to Sep. 17, 1991, has been disclaimed.
Int. Cl.³ B63B *35/44*
U.S. Cl. 114—258 8 Claims



1. A method of operating a column stabilized semisubmersible barge for marine construction, pipelaying and like other offshore operations, said barge being characterized by:

a pair of elongated hulls disposed in substantially parallel spaced side-by-side relation with each of said hulls spaced from and lying on an opposite side of the longitudinal centerline of said barge, and said barge further comprising:

a working platform spaced above said hulls a predetermined height and normally lying in a generally horizontal plane;

means for supporting said platform in fixed spaced relation above said hulls including at least three pairs of upstanding columns connecting with each of said hulls and said platform; each of said columns having a substantially constant cross sectional area over the effective height of the column between the platform and associated hull;

each of said hulls having, over substantially the entire length thereof, a substantially rectangular transverse cross section with its breadth greater than its height;

a plurality of longitudinally spaced structure means interconnecting and reinforcing the structural relationship of the hulls, platform and columns, with such structural means including substantially transversely extending members structurally interconnecting uppermost portions of the hulls;

said barge generally rectangular in plan with the length of said barge along its longitudinal centerline and roll axis being substantially greater than the width of said barge along its transverse centerline and pitch axis;

at least three of said columns being located on each of said two hulls on opposite sides of the barge's roll axis with pairs of such columns being located near opposite ends of each of said hulls on opposite sides of the barge's pitch axis and another pair of said columns being located at an intermediate position on each of said hulls;

each of said columns having an oblong cross section with a dimension extending in the direction of the barge's longitudinal axis greater than the column's dimension extending transversely of said longitudinal barge axis;

the centroid of the cross section of each column on said hulls lying outboard of the longitudinal centerline of the associated hull;

the outboard sides of said oblong columns being substantially in vertical alignment with the outboard sides of the associate rectangular twin hulls;

the configuration and cross-sectional area of said columns throughout effective height thereof and the distances of said columns from the barge's longitudinal roll axis and transverse pitch axis being such that said columns provide sufficient righting moments about roll and pitch axis when the barge is in high draft semisubmerged operating positions and also being such that said columns provide righting moment about the transverse pitch axis which is greater than righting moment provided about the longitudinal roll axis when the barge is in semisubmerged column stabilized operating positions;

said hulls having ballast compartments, with each of said rectangular twin hulls including at least two separate ballast compartments spaced transversely within each hull and a plurality of separate ballast compartments spaced longitudinally within each hull;

means for ballasting said barge when required to alter its draft between a low draft hull-supported floating condition in which the hulls have freeboard with said transversely extending members which structurally interconnect uppermost portions of the hulls being disposed above the mean waterline and a high draft semisubmerged column stabilized floating and operating condition in which the mean waterline is located along intermediate portions of said columns above said hulls and below the underside of said platform;

crane means including a rotatable derrick mounted on said barge near one end thereof for transferring loads between spaced positions on said platform, said crane means being of sufficient size and capacity for various marine construction, pipelaying and other like offshore operations;

said means for ballasting including means for adjusting vessel angle of heel change caused during semisubmerged derrick barge operations to provide a reduction of the barge's angle of heel about its roll axis when required during semisubmerged column stabilized operations; and

said means for ballasting including means for adjusting vessel angle of trim change caused during semisubmerged barge operations to provide a reduction of the vessel's angle of trim about its pitch axis when required during semisubmerged column stabilized operations;

said method comprising the steps of:

moving the barge when required in a low draft floating condition with said rectangular cross section hulls having freeboard and with said transversely extending members interconnecting said hulls normally being above mean waterline;

ballasting the barge to submerge said hulls and also portions of said columns below the mean waterline to provide a high draft semisubmerged column stabilized floating and operating condition with the mean waterline located between the tops of the hulls and the underside of the platform;

performing operations with said crane means when said barge lies in said high draft floating semisubmerged column stabilized condition, and maintaining the barge's metacenter above the barge's center of gravity for all semisubmerged column stabilized positions and operations of the barge and said crane means;

ballasting the barge when it is in said high draft semisubmerged operating condition to adjust the barge's angle of heel about its roll axis when required during operation of said barge and crane means in said semisubmerged column stabilized condition;

ballasting the barge when in said high draft semisubmerged condition to adjust the barge's angle of trim about its pitch axis when required during said barge and said crane means operations in said semisubmerged column stabilized condition;

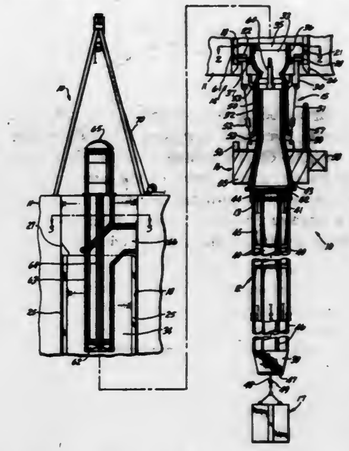
deballasting the barge to return the barge to the low draft condition with the hulls having freeboard.

4,273,068

CONNECTION OF COLD WATER RISER PIPES TO SUPPORTING STRUCTURES

James F. McNary, Santa Ana, Calif., assignor to Global Marine, Inc., Los Angeles, Calif.

Filed Aug. 21, 1978, Ser. No. 935,641
Int. Cl.³ E02B *9/00*
U.S. Cl. 114—264 17 Claims



1. Apparatus for releasably connecting to a structure floating on the surface of an ocean the upper end of an elongate pipe assembly extending pendulously downwardly substantially vertically from the floating structure to a lower end disposed above the ocean floor, the apparatus affording a mechanism for connection of the pipe assembly to a structure at a site of use of the pipe assembly, for speedy jettisoning and release of the pipe assembly from the structure as in the event of an emergency, and for reconnection of the pipe assembly to the structure, the apparatus comprising an open-ended socket member connectable in a substantially vertical attitude to the floating structure substantially at the structure in fluid flow relation to a flow passage in the structure to open downwardly thereof with the lower end of the socket member proximate the structure, and a cooperating hollow open-ended pin member connectable to the upper end of the pipe assembly in substantially coaxial fluid flow relation to the pipe assembly and matable in the socket member, the pin and socket members being cooperatively arranged so that mating of the pin member in the socket member requires only upward linear movement of the pin member into the socket member, from below the floating structure, thereby to define a flow path from the pipe assembly through the pin and socket members to the passage, and selectively operable quick-disconnct connection means for releasably holding the pin member in mated relation with the socket member.

4,273,069

DEVELOPMENT SYSTEM

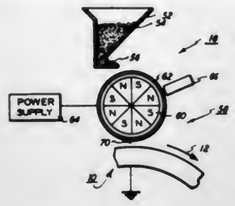
Raymond W. Huggins, Pittsford; Paul W. Burnham, Webster, and Arthur L. Torrey, Irondequoit, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 21, 1979, Ser. No. 50,717
Int. Cl.³ B05C *19/00*; G08G *15/00*
U.S. Cl. 118—658 16 Claims

1. An apparatus for developing a latent image with particles having low conductivity, including:

a member spaced from the latent image to define a gap therebetween:

means for attracting the particles to said member, said attracting means comprising means for generating a magnetic field to attract particles to said member; and



means for reducing the particle to particle electrostatic attractive force and increasing the bulk conductivity of the particles on said member to improve the flow of the particles and development of the latent image with the low conductivity particles, said reducing means comprising a vibrator coupled to said member for vibrating said member relative to the latent image.

4,273,070

MILKING HOSE

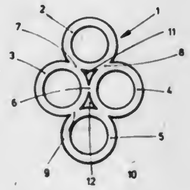
Tilman, Hoefelmayr, Niederteufen AR, Switzerland, assignor to Bio-Melktechnik Swiss Hoefelmayr & Co., Niederteufen AR, Switzerland

Filed Sep. 4, 1979, Ser. No. 72,709

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838659

Int. Cl.³ A01J *5/00*; F16L *11/04*

U.S. Cl. 119—14.51 **5 Claims**



1. In a unitary and flexible hose arrangement having at least four separate tubular conduits therethrough, said tubular conduits extending parallel to one another, the improvement comprising wherein the central longitudinal axes of said four tubular conduits each lie substantially at the corners of a rhombus, wherein each of said four tubular conduits are held together by a connection means between the mutually adjacent segments of each of said tubular conduits, said connection means extending over the entire length of said hose arrangement, and wherein at least two further passageways, separate from each of said four tubular conduits, are provided in said hose arrangement one each between three of said connections means between the two sets of three of said mutually adjacent segments of said tubular conduits on opposite sides of the minor axis of said rhombus, said hose arrangement thereby having a greater flexibility characteristic.

4,273,071

CONTAINERS FOR TRANSPORTING POULTRY

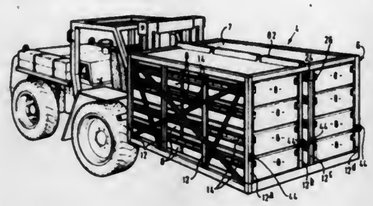
Colin R. Clark, Shucknall; Arthur R. Shore, St. Weonards, and Robert A. Corbett, Kinnersley, all of England, assignors to Sun Valley Poultry Limited, Hereford, England

Filed May 16, 1979, Ser. No. 39,505

Claims priority, application United Kingdom, May 26, 1978, 23261/78

Int. Cl.³ A01K *31/07*

U.S. Cl. 119—17 **5 Claims**



1. A container for transporting poultry from a poultry house to a processing plant, the container comprising:

a frame having opposed side walls each of which is provided with vertically-spaced mounting means, and a cover member extending between the side walls at upper parts thereof, a plurality of superposed drawers supported by the mounting means for movement between open and closed positions, and a locking mechanism carried by the frame and operable to secure the drawers in their closed positions,

wherein when the uppermost drawer is in its open position there is ready access to the interior thereof through the open top thereof and when the uppermost drawer is closed the open top thereof is closed by the cover member, and when each other drawer is in its open position, with the next drawer above it closed, there is ready access to its interior through the open top thereof and when each of the other drawers is closed, with the next drawer above it closed, the open top thereof is closed by the base of said next drawer above, and

wherein the locking mechanism is operative to lock all the drawers simultaneously, and the container comprises a lifting formation carried by the frame which is adapted to enable the container to be picked up by the transporter, the locking mechanism being associated with the lifting formation in a manner such that it is moved to lock all the drawers automatically by the picking up of the container by such a transporter.

4,273,072

PREFABRICATED WALL STRUCTURE FOR FORMING AN ENCLOSURE SUCH AS A HORSE-BOX

Daniel P. L. Choisel, 2 Muette St., The Lower Bushes, 28100 Dreux, France

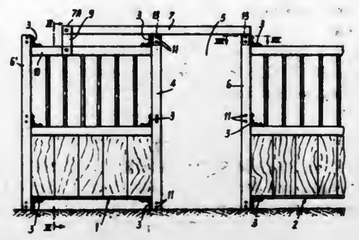
Filed Oct. 2, 1979, Ser. No. 81,145

Claims priority, application France, Oct. 5, 1978, 78 28470

Int. Cl.³ A01K *1/00*

U.S. Cl. 119—27 **5 Claims**

1. A wall structure for an enclosure comprising first and second upright tubular posts, the first and second posts being spaced to define an opening therebetween which can be blocked by a door, a wall section mounted on the second post, and a crosspiece extending from the first post across said opening and beyond the second post by a distance at least equal to the width of the opening, wherein each said post has four faces defining a substantially square cross-section, and each post has two end portions in which holes are provided in each of the four faces, a sleeved nut being mounted in each of said holes, and wherein first and second elements are mounted on the crosspiece and are received in the upper end portions of the first and second posts respectively, each of said elements comprising two plates which cross over one another and are arranged within the respective post such that each said plate extends along a diagonal of the cross-section of the post,



screws being screwed into selected ones of said sleeved nuts to engage each said element, and wherein one end of said crosspiece is firmly connected to said wall section.

4,273,073

CIRCULATING FLUIDIZED BED BOILER

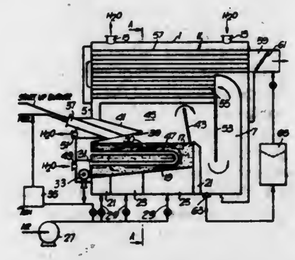
Edwin Robinson, Darlington, England, assignor to Deborah Fluidised Combustion Limited, Peterlee, England

Filed May 30, 1979, Ser. No. 43,931

Claims priority, application United Kingdom, May 31, 1978, 25699/78

Int. Cl.³ F23C *11/02*

U.S. Cl. 122—4 D **6 Claims**



1. A boiler comprising: a combustion chamber having an exterior surface, means for circulating water about the exterior surface of said combustion chamber, tubes located within said means for circulating water, means for feeding combustion gases from said combustion chamber through said tubes located within said means for circulating water, a bed for receiving particulate material, said bed being enclosed within said combustion chamber and having first and second opposite ends, said bed also having a base which is inclined upwardly from said first end thereof to said second end thereof, means for feeding air to said bed to effect fluidisation of said material and circulation of said material by movement thereof from said first end to said second end in an upper region of the bed and from said second end to said first end in a lower region of the bed, and deflection means located over the bed material adjacent said first end to limit expansion of the bed adjacent said first end.

4,273,074

COOLING DEVICE FOR HOT GASES IN PIPES

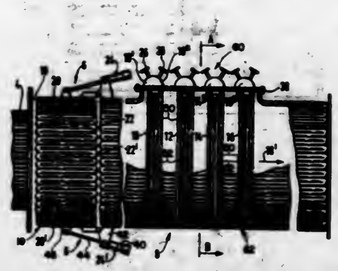
Herbert Kuhlmann, Bochum, Fed. Rep. of Germany, assignor to Sidepal Societe Anonyme Societe Industrielle de Participations Luxembourgeois, Luxembourg, Luxembourg

Filed Jul. 23, 1979, Ser. No. 59,625

Claims priority, application Luxembourg, Jul. 24, 1978, 80033

Int. Cl.³ F22D *1/00*

U.S. Cl. 122—7 R **8 Claims**



1. A cooling device for use in a tubular hot gas conduit of the type having longitudinal pipes arranged in side-by-side abutting relationship around the conduit circumference, said conduit having a gas flow path extending therethrough in a longitudinal direction, said conduit having an open end adopted to be mounted in spaced relationship from a hot gas supply for receiving a hot gas and defining an air gap for the flow of air into the gas flow path, and damper means for adjusting the spacing between the open end and the hot gas supply relative to the hot gas supply thereby controlling the flow of air through the air gap, comprising, in combination therewith, a plurality of registers arranged in spaced relationship along the length of said conduit and extending across said conduit transverse to the flow path, each of said registers including a plurality of tubes connected into one side of said hot gas conduit and extending through said hot gas conduit substantially to the other side thereof, each of said tubes having an inflow portion extending into said hot gas conduit from one side for passing a flow of a medium to the opposite side of said conduit and an outflow portion connected to said inflow portion for passing a flow from said opposite side to the one side for the outflow of the cooling medium.

4,273,075

HEAT GENERATING DEVICE

Dean A. Freihage, Afton, Iowa 50830

Filed Sep. 7, 1979, Ser. No. 73,221

Int. Cl.³ F22B *3/06*; F24C *9/00*

U.S. Cl. 122—26 **5 Claims**

1. A heat generator, comprising:

a sealed drum of heat conducting material,

a shaft axially mounted in said drum and projecting from one end thereof,

means for rotating said shaft,

a plurality of hubs keyed to said shaft in longitudinal spaced relationship thereon,

the perimeter of each hub being provided with an endless succession of continuous notches with each notch having a short side extending radially inwardly to a long side extending laterally therefrom and tangentially back to the perimeter to the point of the next short notch side,

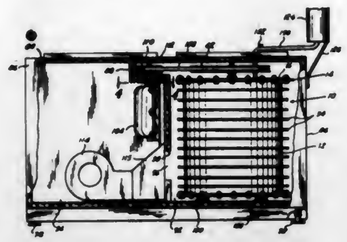
a respective elongated flat bar vane seated in respective aligned notches on said hubs and secured thereto,

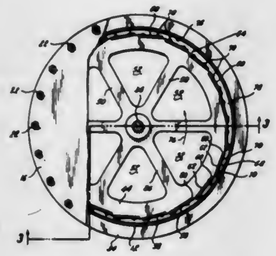
relative to the direction of rotation of said hubs, the vane side seated against said short notch side defined as the leading vane edge and the opposite vane edge being the trailing edge,

the leading edge of each vane being spaced inwardly from

the trailing edge of an adjacent vane to define a restricted passageway therebetween,

a supply of oil in said drum, and





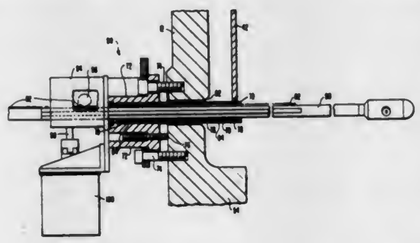
the rotation of said hubs and vanes acting to forcibly drive said oil through said passageways in heat generating friction contact to effectively heat said drum from which the heat is radiated.

4,273,076

STEAM GENERATOR SLUDGE LANCING APPARATUS

Edward J. Lahoda, Edgewood, and Thomas H. Dent, Greensburg, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 28, 1978, Ser. No. 974,178
Int. Cl.³ F22B 37/52, 37/54
U.S. Cl. 122—382 11 Claims



1. Apparatus for removing sludge deposits from steam generators comprising:

a mounting plate capable of being attached to said steam generator;

a first tubular member having a plurality of outlet openings therein attached to said mounting plate and capable of being disposed through an opening in said steam generator;

a second tubular member disposed within said first tubular member defining a first annular chamber therebetween for conducting a first fluid to said outlet openings for establishing a peripheral flow within said steam generator;

a third tubular member having a first bore therein slidably disposed within said second tubular member for conducting a pulsating second fluid to said sludge deposits;

a head mounted on the end of said third tubular member for directing said second fluid toward said sludge deposits thereby carrying said sludge deposits to said peripheral flow; and

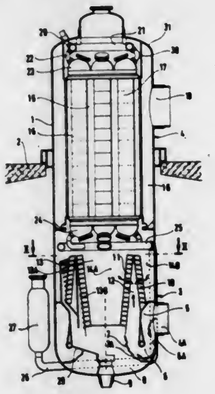
at least two nozzles mounted on said head between approximately 20° to 30° from the horizontal for emitting said pulsating second fluid.

4,273,077

VERTICAL STEAM SEPARATOR-SUPERHEATER

Roger Bessouat, and Jacques Marjollet, both of Paris, France, assignors to Stein Industrie, Velizy-Villacoublay, France

Filed Oct. 15, 1979, Ser. No. 84,709
Claims priority, application France, Oct. 18, 1978, 78 29673
Int. Cl.³ F22G 1/00
U.S. Cl. 122—483 4 Claims



1. A vertical steam separator-superheater comprising a common casing (1) enclosing a lower portion (3) forming a speparation zone and an upper portion (4) forming a superheating zone, said separator-superheater further including an axial dry steam inlet zone (15), nests (16, 17) of superheating tubes disposed in envelopes spaced out round the central zone and fixed to a thin and flexible casing (30), said thin and flexible casing itself being fixed to the upper portion of the common casing and defining a peripheral superheated steam collection zone (18) the improvement wherein the lower portion includes an annular wet steam inlet chamber (5), wet steam inlet openings (4A) and separator components grouped in two coaxial truncated pyramids, said wet steam inlet openings being connected to said wet chamber, said pyramids including an outer pyramid (10) whose large base is lower than its small base and an inner pyramid (11) whose large base is higher than its small base, and wherein said annular inlet chamber communicates via an annular passage (6) with the volume contained between the outer pyramid and the inner pyramid.

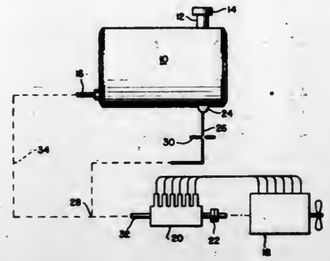
4,273,078

FUEL SUPPLY SYSTEM

Eric C. Cottell, Private Rd., Bayville, N.Y. 11709

Filed Dec. 11, 1978, Ser. No. 968,582
Int. Cl.³ F02M 37/00
U.S. Cl. 123—25 R 1 Claim

1. A fuel supply system for a diesel engine comprising a fuel injection pump, a supply tank, a main fuel conduit means leading from the tank to said injection pump for supplying oil to the combusiton chambers of the diesel engine and a secondary fuel conduit leading from the lower-most region of the tank to said main fuel conduit means upstream of said injection pump, said secondary fuel conduit including flow restriction means and constituting means for continuously delivering water of condensation or accidentally injected in the tank or in the absence thereof a small part of the fuel delivered to said injection pump to be mixed with the major part of the fuel delivered to said injection pump along said main fuel conduit means, said conduits and said pump comprising means for removing any water in the lower-most region of said tank and for emulsifying the same with the fuel delivered along said main fuel conduit means, whereby the build-up of bacteriological sludge in said tank is avoided and pure oil is delivered to said injection pump through said conduits when water of condensation or accidentally injected in the tank is not present in the tank.

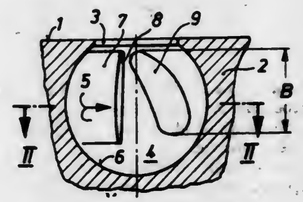


4,273,079

AIR-COMPRESSING DIRECT INJECTION INTERNAL COMBUSTION ENGINE

Uwe Buddenhagen, Munich, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nürnberg, Fed. Rep. of Germany

Continuation of Ser. No. 823,136, Aug. 9, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 82,942
Claims priority, application Fed. Rep. of Germany, Jul. 1, 1977, 2635847
Int. Cl.³ F02B 19/00
U.S. Cl. 123—276 4 Claims



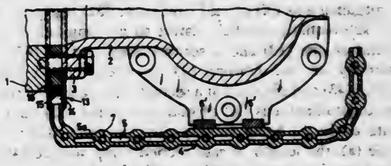
1. In an air-compressing direct injection internal combustion engine having a cylinder with a first member represented by a cylinder head for said cylinder and with a second member represented by a piston reciprocable in said cylinder and having a compression stroke, said members including a combustion chamber including a substantially cylindrical wall and having a center axis extending therethrough which lies in a plane located vertically with respect to the chamber in one of said members and including moving air compressed by the piston in said combustion chamber, the major portion of the cylindrical wall of said combustion chamber resulting from geometric rotation of the plane through approximately 270° about the axis of the chamber, and said combustion chamber having a constricted opening for passage of combustion air and gases moved upon relative movement of said members, said chamber containing substantially all the combustion air and gases at the compression stroke, and also being adapted to form a film of fuel on said wall, said wall having an improvement in combination therewith comprising a discontinuity extending longitudinally along said wall in front of the moving air and at least as long as the length of said film on the wall so that the air moving along said wall strikes said discontinuity, said discontinuity particularly being formed by an arrangement including a step and a segment of said wall having its surface extended radially outward of said cylindrical wall, the step of the arrangement rising radially towards the combustion chamber center axis and including a radial surface formation as a tripping hump extending radially outwardly from said cylindrical wall with a radius increasing in direction of rotation relative to said surface of said segment outwardly of said cylindrical wall, so that the laminar boundary of said moving air is destroyed by said step to result in improved removal of the fuel in said fuel film while the main flow of air is unaffected.

4,273,080

EXHAUST GAS CONDUIT SYSTEM FOR MULTI-CYLINDER RECIPROCATING PISTON INTERNAL COMBUSTION ENGINES

Heinz Pieuqet, Cologne, Del.X, assignor to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Oct. 4, 1978, Ser. No. 948,438
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1977, 2744964
Int. Cl.³ F01P 11/20
U.S. Cl. 123—41.5 6 Claims



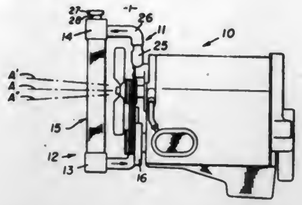
1. An exhaust gas conduit system for a multi-cylinder reciprocating piston internal combustion engine having its cylinders arranged in at least one cylinder row and respectively provided with a cylinder head and an exhaust gas conduit, in which said exhaust gas conduits respectively establish communication between the respective cylinder and the pertaining cylinder head, and which includes water cooled insulating walls respectively surrounding said exhaust gas conduits as well as having water chambers therewith and extending in the longitudinal direction thereof and being formed by water chamber forming wall sections of said insulating walls and by ribs supporting said water chamber forming wall sections relative to each other; wherein each insulating wall comprises a plurality of longitudinal sections provided with connecting flanges, adjacent connecting flanges forming with each other water chambers adapted to be connected to supply and withdraw conduits for circulating cooling water; and in which said insulating walls are at their connecting area with the respective exhaust gas conduit provided with recesses having inserts sealingly connected thereto, and in which said exhaust gas conduits are connected to the pertaining cylinder head by flanges having recesses therein, said inserts on the one hand forming with the respective insulating walls an annular water chamber interconnecting the pertaining longitudinal water chambers and on the other hand being guided on a spacer ring between the respective cylinder head and the pertaining flange while a heat resistant O-ring is interposed between a spacer ring in the respective insert and the adjacent insulating wall.

4,273,081

VENT VALVE FOR ENGINE COOLING SYSTEMS

Gary L. Cleveland, Washington, and Clyde O. Taylor, Peoria, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

Filed Aug. 27, 1979, Ser. No. 57,480
Int. Cl.³ F01P 7/14
U.S. Cl. 123—41.08 14 Claims



1. In a cooling system (11) for an engine (10) disposed on a longitudinal axis (A) thereof and comprising a first chamber (19) defined in said engine (10), a second chamber (20) defined in said cooling system (11), thermostat means (17) for normally preventing coolant from communicating from said first chamber (19) to said second chamber (20) and for opening to communicate coolant from said first chamber (19) to said second chamber (20) in response to the temperature of coolant in said first chamber (19) rising above a predetermined level, and a vent valve (32) including a housing (33) having an inlet (34) and an outlet (37), a third chamber (42) defined in said housing (33), a first ramp surface (43) defined internally on said housing (33) and terminating at an annular seat (44) at said outlet (37) to define a first acute angle (a) relative to a longitudinal axis (X) of said vent valve (32), and a valve element (41) disposed in said third chamber (42), the improvement comprising the longitudinal axis (X) of said vent valve (32) being disposed at least substantially parallel relative to the longitudinal axis (A) of said engine (10) and a second ramp surface (45) defined internally on said housing (33) to intersect said first ramp surface (43) and disposed at a second acute angle (b) relative to the longitudinal axis (X) of said vent valve (32), said second acute angle (b) being substantially less than said first acute angle (a), the length of said second ramp surface (45) in the direction of the longitudinal axis (X) of said vent valve (32) and the volume of said third chamber (42) each being substantially greater than the size of said valve element (41), said valve element movable from a first position substantially remote from said seat to permit unobstructed flow of air from said inlet (34), through said third chamber (42), and to said outlet, to a second position engaging said seat by moving sequentially along said second (45) and first (43) ramp surfaces in response to liquid coolant at least substantially filling said first (19) and third (42) chambers.

4,273,082

COOLING SYSTEM FOR VEHICLE DRIVE

Paul Tholen, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Sep. 13, 1978, Ser. No. 941,865
Claims priority, application Fed. Rep. of Germany, Sep. 14, 1977, 2741244
Int. Cl.³ F01P 1/06, 3/12
U.S. Cl. 123—41.31 3 Claims

1. A cooling system for an air cooled vehicle drive, which comprises:

an internal combustion engine;

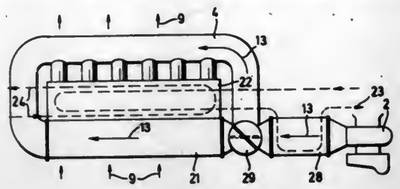
a transmission operatively connected to said engine;

a retarder operatively connected to said engine;

a supercharger intercooler system operatively connected to said engine;

ducts for conducting oil to and from said internal combustion engine, said transmission, and said retarder, some of said ducts passing at least partially through said supercharger intercooler system; and

at least one air cooled heat exchanger for cooling oil for said retarder and said transmission, said supercharger intercooler system comprising a main cooler and a precooler,



said oil ducts for said transmission and said retarder passing through said precooler, an additional oil cooler which follows said main cooler in the direction of flow of cooling air, and a controllable bypass which precedes said main cooler in the direction of flow of charging air.

4,273,083

DISTRIBUTION SYSTEM FOR THE INTAKE AND EXHAUST OF A SUPER CHARGED INTERNAL COMBUSTION ENGINE

Auguste Moiroux, 28 Route de Dardilly, Ecully, (Rhone), France

Filed Jan. 24, 1978, Ser. No. 871,825
Claims priority, application France, May 16, 1977, 77 16035
Int. Cl.³ F01L 1/28
U.S. Cl. 123—79 R 11 Claims



1. A system for the distribution of fresh air and burnt gases in a reciprocating internal combustion engine, said engine having an exhaust manifold, an intake manifold, a cylinder and a cylinder head wherein:

a flow of active fluid is directed to said cylinder and is in part parallel with said cylinder, and is connected to said cylinder by a connecting valve;

said cylinder head including said exhaust manifold, with said exhaust manifold being opposite said cylinder, and extending substantially directly above said cylinder and being connected to said cylinder by said connecting valve;

said intake manifold being supplied with air by a supercharging turbo-compressor and being connectable to said exhaust manifold by a second valve;

said second valve which connects said intake manifold to said exhaust manifold being disposed at a distance from said connecting valve, wherein;

said second valve is disposed downstream of said connecting valve with respect to the exhaust gas manifold in one position, wherein;

said second valve by means of which said intake manifold opens into said exhaust manifold comprises an oscillating flap valve which is movable between two extreme positions in which it respectively closes-off said intake manifold and said exhaust manifold; and wherein:

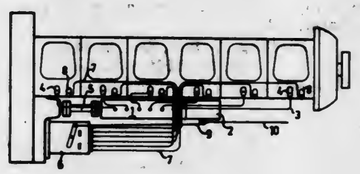
said flap valve comprises a movable edge which moves in the vicinity of a first edge of a stationary deflector of the chamber of said connecting valve, the second edge of said deflector being disposed in the immediate vicinity of said connecting valve, such that during movement of said oscillating valve between the two extreme positions thereof there is an intermediate position of said flap valve in which it substantially forms an extension of said stationary deflector, whereby said intake manifold and exhaust manifold are both provisionally extended separately as far as the immediate vicinity of said connecting valve, on either side of said flap valve and of said deflector.

4,273,084

FUEL INJECTION SYSTEM FOR DIESEL ENGINES

Heinz E. A. Holmer, Gothenburg, Sweden, assignor to AB Volvo, Gothenburg, Sweden

Filed Nov. 15, 1978, Ser. No. 962,031
Claims priority, application Sweden, Nov. 23, 1977, 7713231
Int. Cl.³ F02N 17/08; F02B 3/06
U.S. Cl. 123—179 L 8 Claims



1. In a fuel injection system for direct injection diesel engines with a depression in the tops of the pistons, said system comprising a first injection pump with a regulator and accompanying first injector for each cylinder, said injectors being disposed to spray the fuel in a zone around the center axis of the respective piston depression; the improvement comprising a second injection pump (6) with a regulator and accompanying second injectors (8) for each cylinder, said second injectors being disposed to inject fuel obliquely from the side into the respective piston depression in a direction (B) counter to the rotation of the intake air, both of said injection pumps being operable during a combustion cycle, said second pump (6) being arranged to permit injection of fuel before fuel from the first pump (1) is injected so that the compression combustion of the fuel from the second injection pump (6) can initiate the combustion of the fuel from the first pump (1).

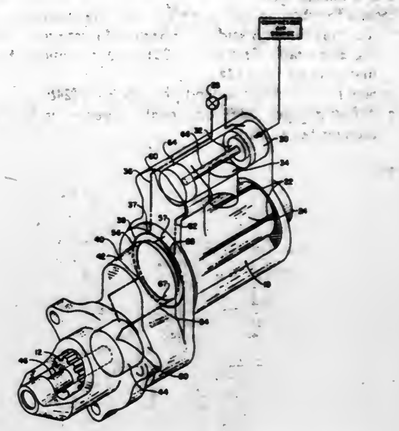
4,273,085

AIR STARTER

Leon P. Janik, Jr., No. 3 Hoover La., Hazardville, Conn. 06036

Division of Ser. No. 909,103, Jun. 22, 1977, Pat. No. 4,170,210.
This application Nov. 22, 1978, Ser. No. 963,030
Int. Cl.³ F02N 7/08
U.S. Cl. 123—179 F 6 Claims

1. An air starter including an air motor having an air inlet suited for receiving air from a source of high pressure to power the air motor, a main air valve in said inlet for controlling the delivery of air to power said air motor, a pneumatic piston for actuating said valve to move the same against the bias of the incoming pressure to open the valve to permit the entry of air into the air motor, a first chamber associated with said valve, means for automatically entrapping a quantity of lubricant in said first chamber and for discharging the same into the incoming air stream as the main control valve moves to its open position, a second chamber associated with said valve, means for automatically entrapping a quantity of fluid in said second chamber during the closing movement of said valve, and means for controlling the discharge of said fluid during such closing movement to regulate the rate of closing movement



under the bias of incoming air pressure to minimize the shock imposed by the closing of the valve.

4,273,086

DEVICE AND METHOD FOR FREEING FROZEN ENGINE CYLINDERS

Robert K. Hayden, Box 488, LaPlata, Md. 20646

Filed Jan. 12, 1979, Ser. No. 33,754
Int. Cl.³ F02B 77/00, 75/12
U.S. Cl. 123—198 R 1 Claim



1. A device for freeing frozen pistons in the cylinders of an internal combustion engine comprising a fitting being adapted at one end to be placed in an existing engine spark plug or injector hole, said fitting at its other end being adapted as a grease gun lubrication fitting and further having a passage from the lubrication fitting at the one end to the other end and opening into the combustion chamber of said engine when the device is fitted into the spark plug or injector hole; whereby grease under pressure may be applied to the cylinder of a frozen piston in order to free the said piston.

4,273,087

DUAL FUEL ROTARY CONTROLLED PILOT AND MAIN INJECTION

Alexander Goloff, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

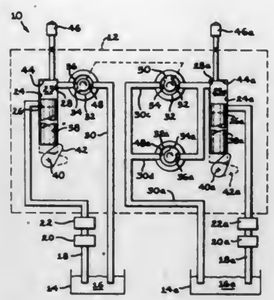
Filed Oct. 22, 1979, Ser. No. 102,193
Int. Cl.³ F02M 43/00
U.S. Cl. 123—299 9 Claims

1. A fuel injection apparatus comprising:

means for defining a first plunger bore (24);

a first plunger (30) reciprocally mounted in said first plunger bore (24);

means (18,30) for conducting a first fuel (16) to and from said first plunger bore (24);
a first nozzle (46);
means for starting and stopping pilot injection of said first fuel (16) through said first nozzle (46), said means including a rotatable first valve (32) fluidly connected to said first plunger bore (24);
means for defining a second plunger bore (24*a*);
a second plunger (38*a*) reciprocally mounted in said second plunger bore (24*a*);



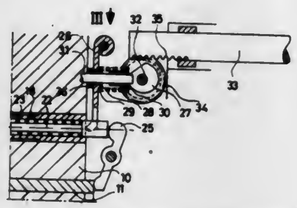
means (18*a*,30*a*) for conducting a second fuel (16*a*) to and from said second plunger bore (24*a*);
a second nozzle (46*a*);
means for starting main injection of said second fuel (16*a*) through said second nozzle (46*a*), said means including said first valve (32) fluidly connected to said second plunger bore (24*a*); and
means for stopping main injection of said second fuel (16*a*), said means including a rotatable second valve (32*a*) fluidly connected to said second plunger bore (24*a*).

4,273,088

APPARATUS FOR SETTING THE ANGULAR RELATIONSHIP BETWEEN ROTATING DRIVING, AND DRIVEN MEMBERS

Eberhard Hofmann, Kirchberg; Ernst Ritter, Stuttgart, and Heinrich Staudt, Markgröningen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 22, 1979, Ser. No. 14,199
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1978, 2807737
Int. Cl.³ F02D *1/04*; F02M *39/00*
U.S. Cl. 123—502 **14 Claims**



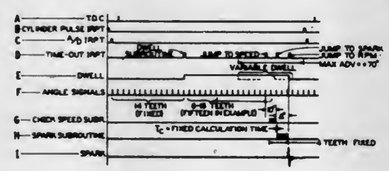
1. In an apparatus for setting the angular relationship between a rotating drive member and a driven member in the drive of a fuel injection pump of an internal combustion engine, said drive including: the drive member having a toothed portion; the driven member having a toothed portion; and a coupler having toothed portions complemental to the toothed portions of the drive member and the driven member, with at least one of the toothed portions of the drive member and driven member and the complemental toothed portion of the coupler being helical toothed portions, said apparatus including hydraulic displacement means for hydraulically displacing the coupler and thereby at least the driven member to attain an rpm-dependent adjustment of the instant of injection, said hydraulic displacement means including: a valve member; at least one spring; and a centrifugal governor having flyweights which produce an rpm-dependent displacement of the valve member against the force exerted by said at least one spring, and thereby the hydraulic displacement of the coupler and at least the driven member,
the improvement in the apparatus comprising load-dependent displacement means connected to the hydraulic displacement means for further displacing the coupler and thereby at least the driven member in a load dependent manner, to attain a further adjustment of the instant of injection which is load-dependent, said load dependent displacement means including at least one prestressed spring.

4,273,089

OPEN LOOP COMPUTER-CONTROLLED SPARK IGNITION TIMING SYSTEM

Thomas A. Maier, Apollo, Pa., assignor to Essex Group, Inc., Fort Wayne, Ind.

Filed Sep. 12, 1979, Ser. No. 74,614
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—417 **4 Claims**



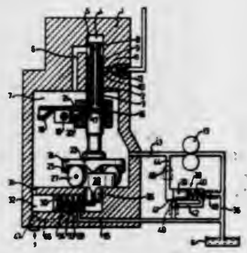
1. Electronic spark angle timing apparatus for a spark ignition, internal combustion engine, comprising:
means for providing cylinder signals indicative of the occurrence of each cylinder-related sub-cycle of the engine;
means for providing engine angle signals delineating angular rotation of the engine within each cylinder-related sub-cycle of engine rotation, said engine angle signals indicating angles of rotation which are much smaller than the angles of rotation to each cylinder-related sub-cycle of the engine;
means operative in response to inlet manifold pressure of the engine for providing pressure signals indicative of engine loading; and
signal processing means including a source of clock signals and repetitively operative in relation to successive cylinder-related engine sub-cycles in response to said cylinder signals, said engine angle signals and said pressure signals,
for providing engine speed-related signals in response to said clock signals and said engine angle signals,
for counting a fixed number of said engine angle signals while concurrently, first, providing firing angle signals indicative of the desired spark firing angle as a function of engine speed and load in response to said speed-related signals and said pressure signals, and, second, providing, in response to said firing angle signals, count signals, dependent upon the number of said engine angle signals in excess of said fixed member which are produced within a desired delay angle which extends between the angle at which said cylinder signals appear and a related desired spark firing angle, and remainder signals dependent upon a portion of said desired delay angle in excess of the aggregate angle represented by the number of said engine angle signals indicated by said corresponding count signals, and
for counting a number of said engine angle signals produced subsequent to one of said cylinder signals in dependence on said related count signals and for thereafter counting a number of said clock signals determined by related ones of said remainder signals and said speed signals to provide a signal indicating the time of the desired spark firing angle represented by said firing angle signals.

4,273,090

FUEL INJECTION PUMP

Gerald Höfer, Weissach-Flacht; Karl Kourath, Ludwigsburg; Franz Eheim; Otmar Weiss, both of Stuttgart; Edgar Schmitt, Möglingen; Werner Faupel, Gerlingen, and Edgar Götz, Stuttgart, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Oct. 25, 1977, Ser. No. 844,933
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1976, 2648043
Int. Cl.³ F02M *59/34*
U.S. Cl. 123—502 **13 Claims**



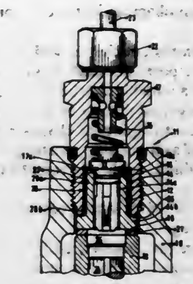
1. In a fuel injection pump for an internal combustion engine having: a fuel sump; a housing; a working cylinder defined within the housing which receives fuel from the fuel sump; a pump piston mounted for movement within the working cylinder; drive means for effecting the movement of the pump piston; adjusting means including an adjustable piston and restoring force means, said adjustable piston being displaceable against the force of the restoring force means, for adjusting the drive means and thus the movement of the pump piston; a fuel passage leading to the fuel sump; fuel supply means for supplying fuel through the fuel passage to the fuel sump; and pressure control means for controlling the pressure of the fuel supplied by the fuel supply means through the fuel passage, at least in accordance with engine speed and by means of controlling the flow of a partial quantity of fuel back to the fuel supply means, the pressure control means including a movable member and a spring for exerting a closing force against the movable member, the movable member controlling the fuel passage and being subjected to the fuel pressure in the passage, which is exerted against the movable member in opposition to the closing force, the improvement comprising:
a control member; and
a heatable thermostat including a working element of expansible material operative at least during engine starting and until engine warm-up, for actuating the control member for controlling the flow of a partial quantity of fuel back to the fuel supply means, wherein:
(i) the control member and the heatable thermostat form part of the pressure control means;
(ii) the closing force exerted by the spring is varied by the control member during the actuation thereof by the heatable thermostat; and
(iii) the pressure control means, the control member and the heatable thermostat effect a relative reduction of a total partial quantity of fuel back to the fuel supply means and a corresponding relative increase in the fuel supply pressure in the fuel sump.

4,273,091

FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Gerhard Stumpp, Stuttgart; Max Greiner, Gerlingen; Otmar Weiss, Stuttgart, and Karl Kourath, Ludwigsburg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 28, 1979, Ser. No. 59,353
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1978, 2842155
Int. Cl.³ F02M *59/02*; F04B *39/10*
U.S. Cl. 123—506 **7 Claims**



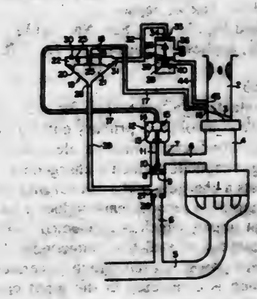
1. A fuel injection pump for internal combustion engines, particularly Diesel engines having a pressure valve disposed between the pump working chamber and the pressure line leading to the injection nozzle, said pressure valve including a flange on its lower terminal end remote from said pressure line, said pressure valve arranged to be pressed by the end face of a hollow-cylindrical threaded connection element having an inner disposed wall downwardly toward a pump cylinder, and an annular chamber disposed between said inner wall of the threaded connection element and said pressure valve, further wherein a protective sealing means is positioned in said chamber, said sealing means further including at least two annular contact surfaces axially displaced relative to one another and one each of which contact surfaces is arranged to engage said pressure valve and said inner wall of said threaded connection element.

4,273,092

EXHAUST GAS RECIRCULATION SYSTEM WITH ENGINE LOAD DEPENDENT PERFORMANCE

Hideni Osuka, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Jul. 18, 1979, Ser. No. 58,518
Claims priority, application Japan, Dec. 22, 1978, 53-160393
Int. Cl.³ F02B *47/08*
U.S. Cl. 123—568 **2 Claims**

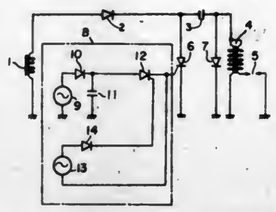


1. An exhaust gas recirculation system for an internal com-

bustion engine comprising an exhaust passage, an inlet manifold, and a throttle valve in said inlet manifold, comprising:
an exhaust gas recirculation passage leading from a part of said exhaust passage to a part of said inlet manifold downstream of said throttle valve;
an orifice element provided within said exhaust gas recirculation passage;
an exhaust gas recirculation control valve, downstream of said orifice element in said exhaust gas recirculation passage, so as to define a pressure chamber in said exhaust gas recirculation passage between itself and said orifice element, comprising:
a first diaphragm;
a first diaphragm chamber, defined on one side of said first diaphragm,
a first valve element coupled to said first diaphragm;
and a first valve port cooperating with said first valve element to form a variable aperture in said exhaust gas recirculation passage, so that an increase in the vacuum supplied to said first diaphragm chamber increases the opening amount of said variable aperture;
a first passage which supplies vacuum to said first diaphragm chamber;
a vacuum control valve, which comprises:
a second diaphragm;
a second diaphragm chamber, defined on one side of said second diaphragm to which is admitted the pressure of the exhaust gas in said pressure chamber;
a third diaphragm chamber, defined on the other side of said second diaphragm;
a second valve port communicating with said third diaphragm chamber to said first passage; and,
a second valve element, supported by said second diaphragm, and cooperating with said second valve port so as to close said second valve port when the pressure in said second diaphragm chamber exceeds the pressure in said third diaphragm chamber by more than a certain amount, and so as to open said second valve port when the pressure in said second diaphragm does not exceed the pressure in said third diaphragm chamber by more than said certain amount;
and a means for admitting atmospheric air into said third diaphragm chamber, whose resistance to the passage of said atmospheric air is varied, in accordance with the inlet vacuum at a point in said inlet manifold which is upstream of said throttle valve when said throttle valve is opened to less than a certain predetermined opening, and which is downstream of said throttle valve when said throttle valve is opened to more than said predetermined opening, in such a way that said resistance is minimum when the vacuum at said point is minimum, and maximum when the vacuum at said point is maximum.

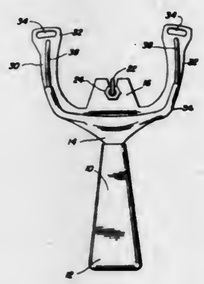
4,273,093
NON-CONTACTOR IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES
Masayuki Ozawa, Himeji, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 6, 1979, Ser. No. 73,136
Claims priority, application Japan, Sep. 29, 1978, 53-121003
Int. Cl.³ F02P 3/12
U.S. Cl. 123—653 **4 Claims**

1. In a non-contactor ignition system for generating an ignition voltage while controlling a primary current of an ignition coil by a first semiconductor switching element, the improvement comprising: a capacitor which is charged by a first power source and repeats a charging and a discharging operation in a predetermined period; a second semiconductor switching element for ignition timing which is connected to the capacitor and the input terminal of said first semiconductor switching element; a second power source which generates an output voltage and which is connected in the input circuit of said second semiconductor switching element for ignition timing and whose value is varied depending upon the variation of revolution velocity of an engine and which has a charging period including at least the charging period of said capacitor; and a third power source which is connected in parallel to said



second power source and whose output voltage is steep and remarkably higher than the output voltage of said second power source.

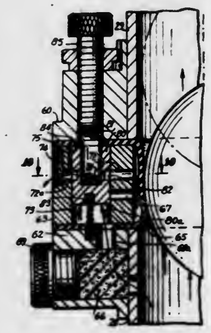
4,273,094
SLINGSHOT
Frank M. Hogan, 250 Sierra Vista, Tucson, Ariz. 85731
Continuation of Ser. No. 839,215, Oct. 3, 1977, abandoned. This application Sep. 27, 1979, Ser. No. 79,340
Int. Cl.³ F41B 7/00
U.S. Cl. 124—20 R **4 Claims**



1. In a slingshot, a substantially heavy handle tapering upwardly from the base, a sight tapering upwardly from the upper end of the handle, a V-groove in the upper medial end of the sight, an aperture below the V-groove, a forwardly extending, horizontal rod in said aperture and secured thereto, a blade on the forward end of said rod and aligned with said V-slot, a pair of legs integrally formed on the upper end of said handle each extending upwardly and rearwardly and radially and terminating in a flattened portion, said flattened portion bent at an angle, a rectangular opening in each of said flattened portions, a tube integrally secured to the upper end of said handle and spaced away therefrom and positioned on the front of said device, said tube extending outwardly in opposite directions from said point of securement with the free ends being bent upwardly radially, a rod anchored medially in said tube and extending outwardly of said tube in opposite directions and both ends bent at a radius towards said arms and each terminating below and adjacent said rectangular opening, a pair of rubber tubes, one end of each rubber tube inserted through the rectangular openings and slidable on the rods and the integral tube, a soft, resilient, rectangular shaped piece of leather, apertures in each end of said leather, the free end of said tubes inserted in and through one of each of said apertures and bent over itself, and means for anchoring said bent-over portions of said tube.

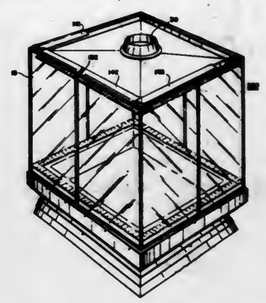
4,273,095
PNEUMATICALLY-OPERATED BALL PROJECTING DEVICE
Richard Speer, Oak Hall, Ware Neck, Va. 23178
Continuation of Ser. No. 894,162, Apr. 6, 1978, Pat. No. 4,212,284, and a continuation-in-part of Ser. No. 764,197, Jan. 31, 1977, Pat. No. 4,094,294. This application Jul. 12, 1979, Ser. No. 57,105
The portion of the term of this patent subsequent to Jun. 13, 1995, has been disclaimed.
Int. Cl.³ F41F 1/04
U.S. Cl. 124—56 **3 Claims**





1. In a pneumatic device for projecting a ball, the device comprising a ball-directing tube defining a generally tubular inner space, gas pressure supply means operatively connected to a first end of the tube to provide gas under pressure thereto, means for feeding a ball into the tube for movement along the tubular inner space in a direction from the first end of the tube toward the second end of the tube, and detent means in the tube for transiently restraining the movement of a ball therethrough until a predetermined pressure is developed behind the ball, the improvement comprising pressure-operated detent means comprising:
an inflatable member within said tube, the member having a first inflated configuration extending into the tubular inner space, defining a substantially pressure-tight detent volume, so as to constrict the tubular inner space and thus restrain the movement of a ball therethrough, and a second deflated configuration permitting the movement of a ball along the tubular inner space;
connecting means for increasing the fluid pressure within such detent volume as the gas pressure behind the ball is increased;
exhaust means for releasing the fluid pressure within the detent volume when the gas pressure behind the detained ball reaches a predetermined value;
whereby the detent means deflates thus releasing the ball for movement along the tubular inner surface, the ball being projected by the gas pressure developed therebehind.

4,273,096
FIREPLACE
Harold Hanneburn, 420 E. Walnut St., P.O. Box #437, Bellevue, Id. 83313
Continuation-in-part of Ser. No. 843,827, Oct. 20, 1977, Pat. No. 4,181,117, which is a continuation-in-part of Ser. No. 762,014, Jan. 24, 1977, abandoned. This application Sep. 19, 1978, Ser. No. 943,842
Int. Cl.³ F24B 1/18
U.S. Cl. 126—120 **2 Claims**

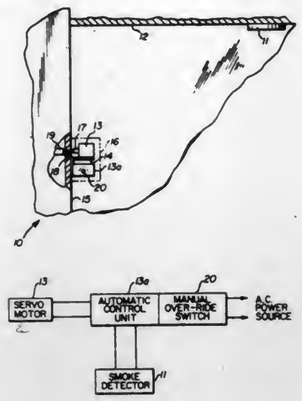


1. A heating unit comprising:
a firebox;
a vertically elongated hollow member formed primarily of transparent material, said member being open at both ends and secured at its lower end to the firebox; and
a hollow top section having a relatively small open end conforming to and engaging the upper end of said hollow member, said top section having a narrow horizontal peripheral border formed with at least one opening communicating with the interior of the hollow member, said border having essentially the same perimeter as that of said member, wherein
said border has a louver mounted to said border located so as to direct the flow of air through the border opening, wherein
said opening and said louver are located in said border in a position so that a fire in the firebox causes air to be drawn into the interior of the hollow member, when the forebox is in use, with said louver oriented so as to direct said drawn air intitially along a vertically down extending path in the fire, with the exhaust gases in the forebox being then discharged upwardly through said chimney, in which
a hinged cover unit is pivotally mounted externally to the top section and located to block the opening of the border in the closed position of the cover, together with spring means to bias the cover to the closed position and screw means to pivot the cover away from the closed position so as to regulate the size of opening leading into the interior of the hollow member, in which
the border is formed with a plurality of sets of openings with a separate cover pivotally mounted externally of each set of openings, and with the said covers in frictional engagement with each other so that a single spring means biases all covers to the closed position and a single screw means serves to adjust all the covers away from the closed position.

4,273,097
AUTOMATIC FIREPLACE DAMPER
Henry S. Swartz, 17 Terrace Ave., Suffern, N.Y. 10901
Filed Apr. 24, 1978, Ser. No. 898,772
Int. Cl.³ F23L 1/00; F23N 3/00
U.S. Cl. 126—285 B **8 Claims**

1. A firebox with a flue and damper, comprising a smoke detector located in a room with the firebox, an automatic

control unit for controlling a servo-motor secured to said flue, said servo-motor acting to open and close said damper, a manual override switch for controlling said servo-motor operation when desired, and bracket means securing said servo-motor



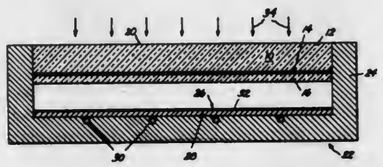
and said automatic control unit to said flue, said automatic control unit being activated by said smoke detector to open said damper in incremental steps when smoke enters said room by closing an alternating current circuit to said servo-motor.

4,273,098

TRANSPARENT COMPOSITE LAMINAR STRUCTURE, SOLAR COLLECTOR AND METHOD

Seth D. Silverstein, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 2, 1979, Ser. No. 593
Int. Cl.³ F24J *3/02*; B32B *15/00*
U.S. Cl. 126—417 **8 Claims**



1. In a system for collecting solar radiation comprising an absorber adapted to absorb incident solar radiation and a heating-insulating transparent cover separating said absorber from the ambient atmosphere, said transparent cover comprising (A) a glass substrate oriented such that at least portions of opposite major surfaces thereof are respectively absorber-proximate and absorber-distal respecting said absorber, (B) an infrared-reflecting layer provided on the absorber-proximate surface portion of said substrate, and (C) a solar reflection-reducing layer provided on said infrared-reflecting layer, the improvement comprising:

(I) said infrared-reflecting layer is of semiconductor oxide composition and provided on said absorber-proximate surface portion, said semiconductor oxide having (a) reflectivity of at least 60% in the infrared wavelength range from 5 to 15 microns and (b) less than about 20% absorption throughout a substantial portion of the visible solar wavelength spectrum of 0.3 to 2 microns,

(II) said reflection-reducing layer is a film of a polymeric composition which has a thickness of greater than 0.5 micron and less than 200 micron, and has (a) refractive indices of from about 1.3 to about 1.7 as measured in air at 25° C. to a substantial portion of light in the visible solar spectrum and (b) substantial transparency in the infrared wavelength range from 5 to 15 microns.

2. The system of claim 1, wherein said absorber has a ratio of absorption to emission of less than 3.

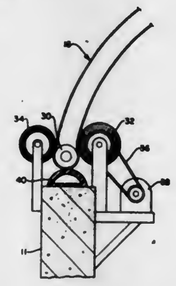
8. In a method for collecting solar radiation wherein an absorber is exposed to said radiation through a heat-insulating light-transmitting cover separating said absorber from the ambient atmosphere, said light-transmitting cover including (a) a glass substrate, (b) an infrared reflection layer provided on at least a portion of one major surface of said substrate, and (c) a reflection reducing layer provided on at least a portion of said infrared reflecting layer, the improvement wherein said cover is the laminar structure of claim 2, said structure being so oriented that the exposed surface of said glass substrate is distal respecting said absorber and said reflection-reducing layer is proximate said absorber such that said glass substrate generally faces the solar radiation to which the laminar structure is exposed and the reflection-reducing layer faces said absorber spaced from the laminar structure.

4,273,099

SOLAR HEATED BUILDING

Burton D. Morgan, Hudson, Ohio, assignor to Concept Development Institute, Inc., Hudson, Ohio

Filed Jun. 14, 1979, Ser. No. 48,549
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—426 **6 Claims**



1. A solar heated building including roof means comprising a flexible transparent tube of plastic sheeting enclosing the top of the building, rotating means engaging the exterior of said tube to move it around its periphery in endless belt fashion, said tube having a light reflective area and a light transmitting area each extending substantially the length of said tube and being alternately presentable to have the sun's rays reflected therefrom or transmitted therethrough, respectively, said tube of plastic sheeting having a gas sealed therein, and means engaging and operatively sealing the end portions of said tube.

4,273,100

PASSIVE SOLAR HEATING AND COOLING PANELS

Joseph A. Cogliano, Baltimore, Md., assignor to W. R. Grace & Co., New York, N.Y.

Filed Feb. 16, 1979, Ser. No. 12,733
Int. Cl.³ F24J *3/02*; F28D *15/00*
U.S. Cl. 126—433 **30 Claims**

1. An apparatus to provide a heat exchange relationship across a generally vertical wall defining the inside and outside of a building, said wall having means for mounting a heat pipe at its middle portion for rotational motion of said heat pipe in said wall about said middle portion, said apparatus comprising

a heat pipe having a middle portion passing through the wall with two closed ends, said ends being arranged with respect

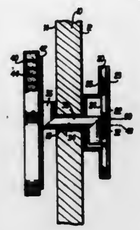
to a middle portion axis extending axially along the length of the middle portion of the heat pipe and

to a plane passing through said axis

so that one closed end extends only perpendicularly above the plane while the other closed end extends perpendicularly to the axis and only below the plane, said heat pipe being mounted in the wall to rotate about the axis of the middle portion of the pipe;

a thermally conductive solar heat panel on the outside of the building and having the side facing the wall in thermal contact with one end portion of the heat pipe; and

a thermally conductive heat absorber on the inside of the building and having the side facing the wall in thermal contact with the other end portion of the heat pipe, whereby when the end portion on the outside is extending downward solar heat is transferred to the inside of the building to warm the building, and when the heat pipe is rotated so the end portion on the inside is extending downward, the inside heat is transferred to the outside to cool the building.



22. A controllable heat pipe comprising a sealed tube containing a vaporizable fluid, said tube having a middle portion and two closed end portions with the portions at each end

(a) being arranged with respect

to a middle portion axis extending axially along the length of the middle portion of the heat pipe and

to a plane passing through said axis

so that one closed end extends only perpendicularly above the plane while the other closed end extends perpendicularly to the axis and only below the plane, and

(b) forming a minimum angle between them when viewed along the middle portion as the vertex of at least 90°,

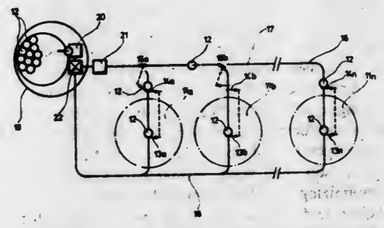
said tube not requiring any wicking material through which the fluid transfers from one end to the other end.

4,273,101

SOLAR ENERGY SYSTEM

Veit Merges, Putzbrunn, Fed. Rep. of Germany, assignor to Messerschmitt-Bölkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Filed May 23, 1979, Ser. No. 41,775
Claims priority, application Fed. Rep. of Germany, Jun. 13, 1978, 2825775
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—435 **26 Claims**



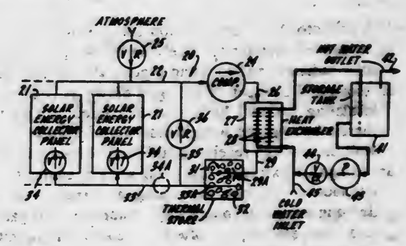
1. A solar energy system comprising: solar radiation focalization means; a plurality of solid solar radiation absorption bodies interacting with said focalization means to effect heating of said absorption bodies by solar radiation through operation of said focalization means; said focalization means comprising a plurality of solar radiation concentrators defining focal points which constitute irradiation positions at which said absorption bodies may be located to absorb solar radiation; heat accumulator means receiving heated absorption bodies from said focalization means and withdrawing heat from said absorption bodies thus received; feed and return means for transporting said absorption bodies between said accumulator means and said focalization means; and means for delivering said absorption bodies individually to said irradiation positions at said radiation concentrators and for maintaining said bodies in position to receive concentrated solar energy from said concentrators until said bodies have reached a desired temperature.

4,273,102

SOLAR ENERGY SYSTEM

Myron L. Anthony, 607 Agate Dr., Grand Junction, Colo. 81501

Filed May 29, 1979, Ser. No. 43,232
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—435 **17 Claims**



1. A solar energy system utilizing high pressure high velocity air as the primary heat transfer medium, comprising:

collector means for collection of radiant solar energy, comprising at least one solar energy collector panel having an air inlet and an air outlet;

an air compressor having an air inlet and an air outlet;

energy utilization means, including an air/fluid heat exchanger having a heating air inlet, a cooled air outlet, a secondary fluid inlet and a secondary fluid outlet;

a series of ducts, forming a closed loop, connecting the collector panel air outlet to the compressor air inlet, the compressor air outlet to the heat exchanger heating air inlet, and the heat exchanger cooled air outlet to the collector panel air inlet;

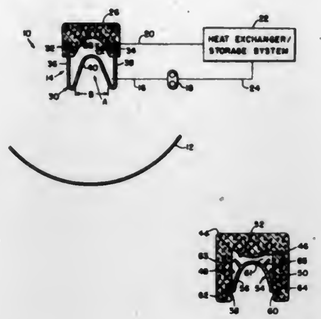
thermal flow control means, comprising a self actuating temperature responsive air flow control valve interposed in the loop in association with the collector means, for limiting the air flow through the collector means to a minimum whenever the air temperature in the collector means is below a minimum threshold and for increasing the air flow through the collector means as the air temperature in the collector means rises above the minimum threshold, up to a maximum flow whenever the air temperature in the collector means exceeds a given maximum threshold, thereby maintaining the temperature of the air output from the collector means within a limited range for a wide variety of solar radiation conditions;

and air feedback means for maintaining a relatively constant air flow through the compressor, the air feedback means comprising an air feedback conduit effectively interconnecting the compressor air outlet back to its inlet, bypassing the collector means, the air feedback means further comprising a self-actuating pressure-responsive feedback control valve interposed in the air feedback conduit.

4,273,103
SOLAR ENERGY RECEIVERS

Miroslav Uroshevich, Cincinnati, Ohio, assignor to Alpha Solarco Inc., Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 52,086
Int. Cl.³ F24J 3/02; F28F 1/20
U.S. Cl. 126—438 3 Claims

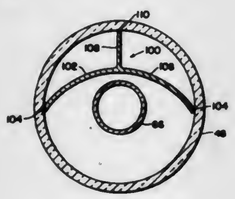


1. A collector for solar radiation comprising:
an elongated reflector for receiving the beam component of solar radiation and focusing it generally along a band;
an elongated element of nitrogen blown polysulfone heat insulating material having an elongated trough formed therein by opposed straight side walls joined by a convex wall, said trough receiving said band of focused radiation;
an elongated extruded thin wall section element of heat conductive material comprising a curved wall section defining a concave outer wall adjacent to and parallel to said band, said heat conductive element having marginal edges with integral flanges embedded in said insulating element to form a passage for heat transfer fluid therebetween, said heat conductive element having an outer surface for directly receiving the focused solar radiation, said outer surface having portions that are normal to the rays of focused solar radiation within said band to maximize solar energy absorption,
said heat conductive element having a pair of elongated integral fins formed along the inner surface thereof, the edges of said fins being positioned closely adjacent the junction between the side walls and said convex wall in said trough for maximizing the surface area of said heat conductive element is exposed to heat transfer fluid;
whereby heat transfer to said fluid is maximized.

4,273,104
SOLAR ENERGY COLLECTORS

Miroslav Uroshevich, Cincinnati, Ohio, assignor to Alpha Solarco Inc., Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 52,088
Int. Cl.³ F24J 3/02
U.S. Cl. 126—439 6 Claims

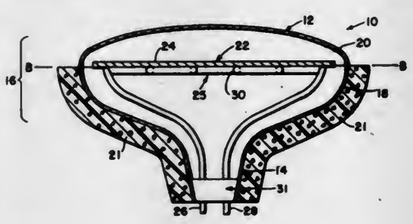


1. A solar energy collector comprising:
means for forming an elongated main reflective concave surface for reflecting and focusing the beam component of solar radiation along a focal line;
an elongated tube like heat conductive receiver positioned coaxially with respect to said focal line, said receiver providing a passageway for heat exchange fluid;
an elongated generally cylindrical shell transparent to solar radiation surrounding said receiver; and
a secondary reflector positioned within said shell and comprising an elongated curve sheet having a concave secondary reflective surface facing said main reflective surface, said receiver being positioned between said main and secondary reflective surfaces, said curved sheet having side edges abutting the interior walls of said cylindrical shell and a longitudinal integral rib extending from the midpoint of said curved sheet and having a side edge which also abuts the interior wall of said cylindrical shell thereby providing said secondary reflector with a three point support.

4,273,105
SOLAR ENERGY COLLECTOR

Miroslav Uroshevich, Cincinnati, Ohio, assignor to Alpha Solarco Inc., Cincinnati, Ohio

Filed Jun. 25, 1979, Ser. No. 52,082
Int. Cl.³ F24J 3/02
U.S. Cl. 126—443 6 Claims

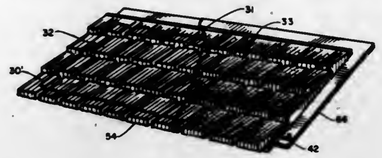


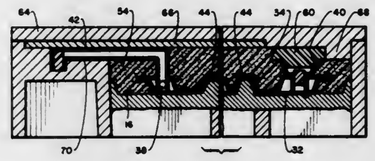
1. A flat plate collector for solar energy, said collector comprising:
a closed shell transparent to solar radiation and comprising a neck portion integrally connected with an expanded generally rectangular portion extending in the direction of a plane normal to the longitudinal axis of said neck portion;
a generally rectangular copper plate positioned in said rectangular portion generally parallel to said plane, said rectangular plate being formed from high conductivity material having a black chrome surface on the side facing away from said neck for receiving solar radiation;
conduit means forming passages for a heat transfer fluid, said conduit means being connected in heat transfer relation to said plate; said conduit means including a single inlet and a single outlet extending through said neck; and
means for forming a gas tight seal between said inlet and outlet portions of said conduit means and the neck of said shell, said shell being substantially evacuated of air for minimizing heat loss from said plate;
wherein said seal means comprises a ceramic plug through which said inlet and outlet of said conduit means extends, silicone insulating material between said plug and said glass, and a semi-liquid insulating material between the plug and the interior of said glass shell.

4,273,106
COMPOSITE SYNTHETIC ROOFING STRUCTURE WITH INTEGRAL SOLAR COLLECTOR

Walter M. Gould, 1731 Harriman La., Redondo Beach, Calif. 90278

Filed Nov. 16, 1978, Ser. No. 961,328
Int. Cl.³ F24J 3/02; B29C 23/00; B22D 19/04
U.S. Cl. 126—444 17 Claims



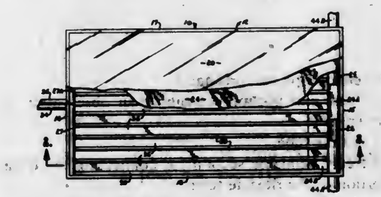


1. A roofing structure incorporating a solar energy collecting device comprising:
a base member;
a form-molded foam shingle structure formed to simulate shingles, securely attached to said base member;
one side and an adjacent end of the shingle structure overlapping an edge of said base member, and the other side and adjacent end of the base member overlapping the either side of the shingle structure;
a solar panel having a plurality of interconnected fluid channels embedded in said form-molded foam shingle structure with one surface of the solar panel being contiguous with the surface of the shingle structure; and
said solar panel having an inlet and outlet communicating with said fluid channels at the overlapping edges of the base member and shingle structure whereby adjacently mounted roofing structures conceal the inlet and outlet pipes.

4,273,107
TRACKING SOLAR ENERGY COLLECTOR

James Methvin, Harrisburg, Ark., assignor to Enertek Energy Engineering Inc., Trumann, Ark.

Filed Aug. 20, 1979, Ser. No. 68,171
Int. Cl.³ F24J 3/02
U.S. Cl. 126—445 2 Claims

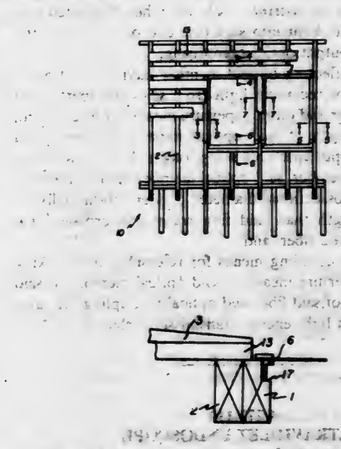


1. An internally manifolded tracking solar collector comprising:
rigid, generally rectangular frame means adapted to be coupled to a conventional, external solar tracking device;
substantially planar foam insulative means disposed within said frame means and forming a bottom of said collector;
converter means of substantially planar dimensions formed from carbon silicone sheet material and disposed within said frame means for generating heat from solar energy;
tubular fluid input manifold means disposed interiorly of said collector at one end thereof for inputting heat exchange fluid into said collector;
tubular fluid output manifold means disposed interiorly of said coverter at an opposite end thereof in spaced-apart, substantially parallel relationship with respect to said fluid input manifold means for outputting warmed fluid from said collector to an application;
a plurality of generally parallel elongated, fluid conduction channels disposed within said frame means between said foam insulative means and said converter means for conducting a heat exchange fluid between said input manifold means and said output manifold means, said channels defined between a plurality of rigid, parallel, elongated glue beads extending longitudinally within said frame in perpendicular relation with respect to said input manifold means and said output manifold means, said glue beads operable to secure said converter means and said foam insulative means together;
an end portion of said converter means lapped about a major portion of the circumference of said tubular output manifold means whereby to sealably confine fluid within said channels, the terminal edge of said end portion being secured by said glue beads to said bottom foam insulative means; and,
glazing means forming a top of said collector disposed upon said frame above said converter means for minimizing escape of energy.

4,273,108
BUILT-IN SOLAR PANEL

Michael J. Aloi, 835 W. Harvey La. #150, Lodi, Calif. 95240, and Kevin J. Hancock, II, 3525 W. Ben Hoet #289, Stockton, Calif. 95209

Filed Dec. 11, 1979, Ser. No. 102,616
Int. Cl.³ F24J 3/02; E04B 7/18; F28F 9/04
U.S. Cl. 126—450 5 Claims



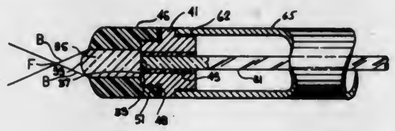
1. A solar panel formed to be set in the roof of a building having downwardly extending rafters and transverse roof sheeting comprising in combination:
a solar panel frame set within cutaway portions of the rafters and sheeting and fastened thereto,
a pair of conduit means horizontally disposed within said frame in which one of said conduit means is at a higher elevation than the other,

plural substantially linear tubed collector plate means interconnecting said conduit means,
a step portion disposed on an upper inner periphery of said frame,
a frame lower portion set on said step portion having an inverted substantially "L" shaped cross sections,
a frame upper portion overlying and fastened to said frame lower portion,
and a transparent panel secured between said upper and lower frame portions whereby solar radiation passing through said panel heats liquid within said tubes.

4,273,109
FIBER OPTIC LIGHT DELIVERY APPARATUS AND MEDICAL INSTRUMENT UTILIZING SAME

Charles E. Enderby, Palo Alto, Calif., assignor to Cavitron Corporation, New York, N.Y.

Continuation of Ser. No. 702,596, Jul. 6, 1976, abandoned, which is a continuation-in-part of Ser. No. 636,139, Nov. 28, 1975, abandoned. This application Jun. 16, 1978, Ser. No. 916,383
Int. Cl.³ A61N *5/06*; A61B *17/32*
U.S. Cl. 128—6 **12 Claims**



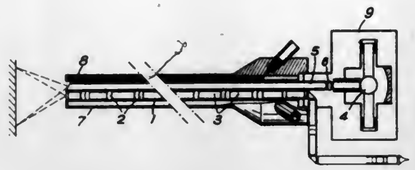
1. In a light energy delivery apparatus having an elongated fiber optic fiber having along its length a first transverse crossectional diameter, an entrance aperture at a first end of said fiber and an exit aperture at a second end of said fiber opposite said entrance aperture, a high energy light source mounted adjacent said entrance aperture such that when energized said light source directs light into said first end of said fiber, the improvement of output optics comprising,
an internally reflecting optical member having input aperture means for receiving light from said exit aperture of said optic fiber and output aperture means for discharging light, the length of said optical member between said output and input apertures being longer than the width of said optical member, said optical member having a second transverse crossectional diameter greater substantially all along its length than said first transverse crossectional diameter of said fiber, and
connecting and coupling means for releasably interlocking said input aperture means of said optical member to said exit aperture of said fiber and optically coupling the same in an efficient light energy-transmissive relation.

4,273,110
ULTRAVIOLET ENDOSCOPE

Jean Groux, 15 Av. de Lesine, Morsang sur Orge, France (91390)

Filed Jul. 11, 1979, Ser. No. 56,703
Claims priority, application France, Jul. 13, 1978, 78 20993
Int. Cl.³ A61B *1/06*
U.S. Cl. 128—6 **9 Claims**

1. An endoscope for examining detailed images from a first inaccessible location to a second viewing location, said endoscope comprising an image transmitting member for transmitting an image from said first location to said second location, light guide means for transmitting light produced by a source of ultraviolet and visible light to said first location, and conduit means substantially coextensive with said light guide means for

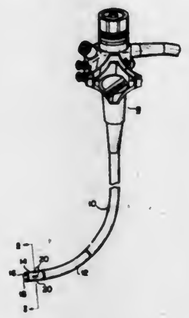


delivering a substance which becomes flourescent under the influence of ultraviolet light to said first location.

4,273,111
ENDOSCOPE WITH BEND ANGLE CONTROL

Takashi Tsukaya, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 7, 1979, Ser. No. 101,076
Claims priority, application Japan, Dec. 22, 1978, 53/158869
Int. Cl.³ A61B *1/06*; A61M *25/00*
U.S. Cl. 128—6 **4 Claims**

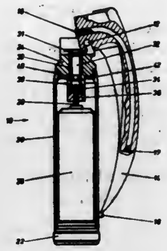


1. An endoscope comprising:
(a) a distal end portion containing an observation optical system;
(b) a flexible tube;
(c) a freely bendable section for connecting the distal end portion to the flexible tube;
(d) a plurality of supersonic transducers spatially arranged on the peripheral wall of the distal end portion; and
(e) bend angle control means for controlling the angle through which the freely bendable section is to be bent in accordance with data supplied from the plural supersonic transducers in order to direct the distal end portion of said freely bendable section to the substantial center of the cross section of a coeliac tube to be examined.

4,273,112
LARYNGOSCOPE

Helmut A. Heine, Herrsching; Helmut W. Rosenbusch, Wellheim, and Rudolf Kratzer, Oberalting, all of Fed. Rep. of Germany, assignors to Propper Manufacturing Co., Inc., Long Island City, N.Y. and Heine Optotechnik GmbH & Co. KG, Herrsching, Fed. Rep. of Germany

Filed Aug. 10, 1978, Ser. No. 932,494
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1977, 2738202
Int. Cl.³ A61D *1/06*
U.S. Cl. 128—11 **12 Claims**



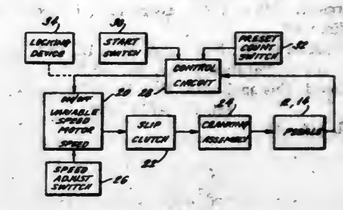
1. A laryngoscope comprising a handle, a lamp mounted within one end of said handle, said lamp being movable between an energized position and a de-energized position, said lamp being electrically connected to power supply terminals within said handle when in said energized position and being disconnected from at least one of said power supply terminals when in said de-energized position, a spatula pivotally mounted on said handle adjacent said lamp, said spatula being movable between a non-operating position and an operating position, means for moving said lamp into said energized position when said spatula is moved to said operating position and for moving said lamp to said de-energized position when said spatula is moved to said non-operating position so as to energize said lamp, light transmissive means associated with said spatula for conducting light from said lamp to the field under observation, and means for supporting said lamp in said handle and movable therewith, said supporting means having a protruding part engageable from outside said one end of said handle, said one end of said handle and said supporting means constructed and arranged so that said supporting means can be removed from said handle in a direction away from said operating position by engagement of said protruding part for replacement of said lamp therein when said spatula is moved from said operating position.

4,273,113
FOOT EXERCISER

Steven R. Hofstein, North Brunswick, N.J., assignor to World Medical Marketing Corporation, New York, N.Y.

Division of Ser. No. 85,330, Oct. 29, 1979. This application Jan. 14, 1980, Ser. No. 111,925
Int. Cl.³ A61H *1/02*
U.S. Cl. 128—25 B **5 Claims**

1. A foot exercising device, comprising:
a pair of pedals;
motor means for reciprocating said foot pedals; and
control circuit means for controlling the operation of said motor means, said control circuit means sequentially placing said motor means in a passive and an active mode of operation, said control circuit means switching said motor means from said passive mode to said active mode after it

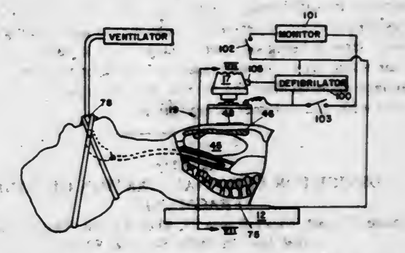


has detected that said pedals have been reciprocated m times during said passive mode, m being a positive integer.

4,273,114
CARDIOPULMONARY RESUSCITATOR, DEFIBRILLATOR AND MONITOR

Clare E. Barkalow, Comstock Park, Mich., and James O. Elam, Chicago, Ill., assignors to Michigan Instruments, Inc., Grand Rapids, Mich.

Continuation-in-part of Ser. No. 952,656, Oct. 19, 1978, Pat. No. 4,198,963. This application Nov. 23, 1979, Ser. No. 96,699
Int. Cl.³ A61N *1/36*
U.S. Cl. 128—53 **29 Claims**



1. A cardiac compressor and defibrillator comprising in combination:
a reciprocatable cardiac compressor means for cyclically compressing a patient's chest;
said compressor means including a base for positioning behind the patient's back posterior to the patient's heart;
said compressor means including a cardiac compressor pad for positioning anterior to the patient's heart, said compressor pad being actuated by said compressor means for compressing the patient's heart between said compressor pad and said base;
an anterior electrode disposed on said compressor pad for compression between said compressor pad and the patient's sternum;
a posterior electrode disposed on said base for compression between said base and the patient's back;
a cardiac defibrillator means connected to said anterior and posterior electrodes for establishing an electric current therebetween; and
a means for synchronizing said defibrillator means and said compressor means whereby a defibrillating current is applied to the patient's heart only during compression of a patient's heart.

4,273,115

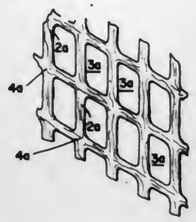
MOLDABLE PLASTIC ORTHOPEDIC CAST

Kenneth M. Holland, Pebble Beach, and Milton F. Custer, Livermore, both of Calif., assignors to Hexcel Corporation, Dublin, Calif.

Continuation of Ser. No. 20,006, Mar. 12, 1979, abandoned, which is a continuation of Ser. No. 633,333, Nov. 19, 1975, abandoned. This application Dec. 10, 1979, Ser. No. 102,285

Int. Cl.³ A61F 5/04

U.S. Cl. 128—90 13 Claims



1. A bandage material for forming in place an orthopedic cast, comprising a pliant, large mesh fabric carrier formed from a knit having bulky strands of high structural stability and low density, each strand being formed from a plurality of fibers, said strands being porous and of relatively bulky and high heat insulating material, the fabric carrier having openings of relatively large transverse dimension, the strands having a raw diameter of between 0.013 and 0.040 inches, each strand being coated and only partially impregnated with a polymer composition having a heat softening point of not less than 125° F. and not greater than 165° F., said polymer coated strands defining openings having an area of not less than 0.020 square inches and not greater than about 0.25 square inches, whereby said openings are sufficiently large so that the polymer composition does not form air impervious blocks across the openings, said coated strands being sufficiently large so as to have a plurality of air voids providing increased insulating properties for said bandage material after the strands have been partially impregnated with said polymer composition.

4,273,116

DEVICE FOR EXTERNAL FIXATION OF BONE FRAGMENTS

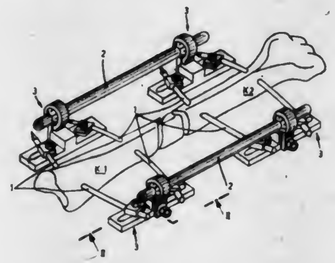
Claude Chiquet, Morystrasse 77, 4125 Riehen, Switzerland

Filed Jun. 26, 1979, Ser. No. 52,247

Claims priority, application Switzerland, Jun. 27, 1978, 7007/78

Int. Cl.³ A61F 5/04; F16 3/00; F16C 11/06; F16D 1/12

U.S. Cl. 128—92 A 3 Claims



1. A device for the reduction of bone fractures, of the type having pins intended to be inserted in groups into portions of bone to be mutually fixed or realigned, said pins being connected by sliding universal articulated couplings to at least one rigid tie-rod, said device comprising a plurality of said couplings, each coupling including

a T-shaped member having two arms exhibiting respective longitudinal slots,

two nut-and-bolt assemblies respectively disposed in said slots,

clamping means cooperating with each of said nut-and-bolt assemblies for adjustably clamping and unclamping end portions of said pins to said two arms,

a spherical adapter sleeve split by staggered slots and slidingly mounted on said tie-rod,

a coupling locking clamp comprising a ring portion having a spherical-shaped inner clamping surface embracing and fitted to said adapter sleeve and two straight end portions to which clamp lugs having respective screw holes are integrally affixed, and

a further nut-and-bolt assembly traversing said clamp lugs through said screw holes for securing said coupling locking clamp to the upright of said T-shaped member and, when tightened, for simultaneously preventing both swivelling of said coupling locking clamp and said T-shaped member about the center of said spherical adapter sleeve and sliding of said adapter sleeve, together with said coupling locking clamp and said T-shaped member, along said tie-rod.

4,273,117

APPARATUS FOR DRILLING BONE

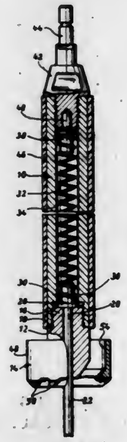
Hans G. Neuhäuser, Moorhaldenstrasse 22,, 7130 Mühlacker, Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,625

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838348

Int. Cl.³ A61F 5/04, 17/32; A61B 17/16; B23B 51/00

U.S. Cl. 128—92 E 20 Claims



1. Apparatus suitable for forming a hole in bone, which comprises a body comprising a manually gripable outer casing, an inner shaft rotatably arranged within the casing, a drill bit attached to the lower end of the inner shaft for rotation therewith, and a mandrel coaxial and rotatable with respect to the drill bit, said mandrel being slidably projectable through said drill bit between a retracted and an extended position, means biasing said mandrel to an extended position and teeth on said mandrel for abutting the bone to prevent rotation of the mandrel relative to the bone.

4,273,118

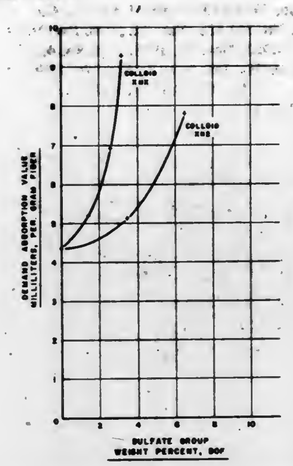
FIBERS OF HIGH FLUID HOLDING CAPACITY

Frederick R. Smith, Toms Brook, Va., assignor to Avtex Fibers Inc., Valley Forge, Pa.

Filed Jun. 4, 1979, Ser. No. 45,146

Int. Cl.³ A61L 15/00

U.S. Cl. 128—156 15 Claims



1. An article of manufacture comprising a highly fluid absorbent mass of alloy fibers, said fibers comprising a matrix of regenerated cellulose and a cellulose sulfate salt of an alkali-metal dispersed therein, said salt being present in an amount of at least about five weight percent based on the weight of the cellulose.

4,273,119

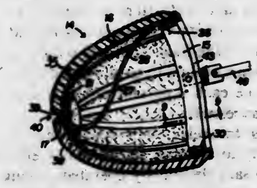
BREATHING MASK FOR HORSES

John L. Marchello, 57751 Grand River Ave., New Hudson, Mich. 48165

Filed Feb. 26, 1980, Ser. No. 124,801

Int. Cl.³ A61M 15/00; A62B 23/06; B68B 5/00

U.S. Cl. 128—201.13 6 Claims



1. A bag-like mask for fitting over and receiving the forward, i.e., nose and mouth, portion of a horse's head, comprising:

an approximately dome-like shaped frame having a rear open end formed of a ring-like base member through which the forward end of the horse's head is inserted, and having frame members extending forwardly from the base member and joined together to form the closed forward end of the frame, with the frame members being spaced a distance outwardly from the adjacent head portions;

a cover shaped to correspond to the frame shape, and being fitted over and secured to the frame, said cover being formed of a relatively thick wall, flexible, open cell, foamed plastic material,

releasable fastening means for securing the mask upon a horse's head for wearing during exercising, as well as when the horse is stationary;

a nose engaging bar arranged within the frame and comprising an elongated, flat, semi-flexible, relatively stiff strip having one end secured to the base member, and its opposite end secured to the frame at the closed forward end thereof, with the bar being bent in between its ends for resting upon the upper surface of the horse's head, at the nose portion, and between the horse's nostrils for thereby positioning and holding the frame upon the horse's head, but with the frame spaced a distance from the horse's nostrils;

an absorbent pad arranged within the mask between the nose bar and the closed forward end of the frame for absorbing and emitting inhalants applied to the pad;

the cover material cell size being sufficiently air pervious to substantially freely pass air therethrough, but to screen a substantial portion of dust and the like carried by the air, and the cover wall being of sufficient thickness to tend to produce a cold weather breathing cycle wherein a part of the moisture in exhaled breath condenses in the wall portion near the inner surface of the cover so that the condensation tends to insulate and help retain some heat within the mask, and wherein fresh air inhaled passes through such condensation and retained heat and tends to pick up some moisture and become somewhat preheated before inhalation thereof.

4,273,120

UNDERWATER BREATHING APPARATUS

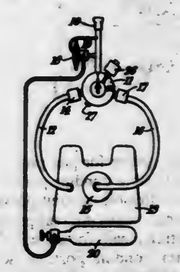
Hugh H. B. Oswell, Hexham, England, assignor to Submarine Products Limited, Northumberland, England

Filed Feb. 27, 1979, Ser. No. 15,741

Claims priority, application United Kingdom, Feb. 27, 1978, 7728/78

Int. Cl.³ A62B 7/00

U.S. Cl. 128—204.26 13 Claims



1. A closed circuit breathing apparatus for use by an individual comprising:

a mouthpiece operatively connected to an outward flow conduit and return flow conduit, said outward and return flow conduits being operatively connected to an inflatable breathing bag;

a control valve operatively connected to said mouthpiece;

a gas flow path between said mouthpiece and the control valve;

absorbent means for removing carbon dioxide being operatively connected between said outward and return flow conduits and disposed substantially within said inflatable breathing bag;

a breathing circuit being formed on exhalation between said outward flow conduit and said inflatable breathing bag and on inhalation between said inflatable breathing bag and said return flow conduit, said absorbent means being operatively positioned within said breathing circuit for removing carbon dioxide from exhaled gases;

a one-way exhaust valve operatively connected to said control valve;

said control valve being operatively connected to the said outward and return flow conduits and to said gas flow path, said control valve including a valve member movable between a first position in which the control valve connects the mouthpiece to the outward and return flow conduits to allow closed circuit breathing and a second position in which the control valve disconnects the mouthpiece from the outward and return flow conduits and connects the mouthpiece to said one-way exhaust valve to allow gas to be exhaled through the exhaust vlave;

a supply of breathable gas;

an inlet flow conduit operatively connected to said supply of breathable gas;

a connection between said inlet flow conduit and said gas flow path; and

a demand valve in said connection for controlling the flow of breathable gas from the inlet flow conduit to the mouthpiece.

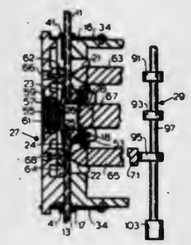
4,273,121
MEDICAL INFUSION SYSTEM

Jal S. Jassawalla, San Francisco, Calif., assignor to Andros Incorporated, Berkeley, Calif.

Continuation-in-part of Ser. No. 878,700, Feb. 17, 1978, Pat. No. 4,199,307, which is a continuation-in-part of Ser. No. 812,904, Jul. 5, 1977, abandoned. This application Sep. 28, 1979, Ser. No. 79,806

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 F **5 Claims**



1. A medical infusion system for pumping fluids or semi-solids from an upstream flexible conduit portion of the infusion system to a downstream flexible conduit portion thereof, comprising, a pump having means for supporting said conduit portions, first constricting means for selectively restricting and opening said upstream conduit portion, second restricting means for selectively restricting and opening said downstream conduit portion, a cassette having means for connecting to said upstream and downstream conduit portions, said cassette comprising a rigid enclosure defining a substantially cylindrical pumping cavity having an open end defining a window and having valveless inlet and outlet openings, the cross-sectional area of each of said inlet and outlet openings having a ratio to the area of said window not greater than about 0.3 to 1, a diaphragm relatively more flexible than said enclosure extending and held in fluid tight engagement across said window and being impermeable to the passage of fluids or semi-solids therethrough, means for releasably supporting said cassette in a position between said upstream and downstream conduit portions in connection therewith, actuator means for engaging said diaphragm and being movable to displace, from a fully retracted position to a fully extended position, a predetermined volume in said pumping cavity, said actuator means being of a size such that the area of said diaphragm not engaged with said actuator means is less than about three-quarters of the total area of said diaphragm, said predetermined volume being at least about 0.25 ml and less than about 1.01 ml, and means for operating said first and second restricting means and said actuator means in a sequence such as to pump fluids or semi-solids from said upstream conduit portion to said downstream conduit portion.

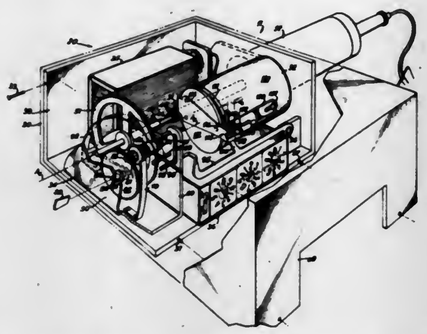
4,273,122
SELF CONTAINED POWERED INJECTION SYSTEM

Douglass G. Whitney, 2518 W. Wesley Rd., and John K. Martin, III, 2837 Ridge Wood Cir., both of Atlanta, Ga. 30327

Division of Ser. No. 741,528, Nov. 12, 1976, Pat. No. 4,150,672, and Ser. No. 964,953, Nov. 30, 1978, Pat. No. 4,235,234. This application Jan. 8, 1979, Ser. No. 1,091

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 A **18 Claims**



1. Apparatus for injecting fluid into a patient at an average prescribed rate over a prolonged period of time comprising:

carriage means defining a fluid chamber therein carrying fluid to be dispensed and an outlet from said fluid chamber connected to the patient;

a piston slidably mounted in said fluid chamber for forcing fluid from said outlet as said piston is moved toward said outlet;

an electrical power supply;

electrically operated driving means for moving said piston toward said outlet when said electrically operated driving means is connected to said power supply, said electrically operated driving means constructed and arranged to move said piston only a prescribed distance toward said outlet each time said electrical power supply is connected to said electrically operated driving means regardless of the length of time said electrical power supply is connected to said electrically operated driving means, said piston forcing a volume of the fluid from said outlet much less than the total volume of fluid to be injected over the prolonged period of time each time said piston is moved said prescribed distance; and,

control means for selectively connecting said electrical power supply to and disconnecting said electrical power supply from said electrically operated driving means at a rate such that fluid is injected into the patient at the desired average rate over the prolonged period of time so that, if said control means fails so as to continuously connect said electrical power supply to said electrically operated driving means, said piston will be moved only said incremental prescribed distance toward said outlet to prevent overdosing the patient, said control means including:

switching means for selectively connecting said electrical power supply to said electrically operated driving means;

timing pulse generator means for operating said switching means; and

programming means for selectively controlling the timing pulse rate output of said timing pulse generator, said programming means including encoding means; manually operated input means for selectively encoding said encoding means with the volume of fluid to be injected over a selected time period; manually adjustable time period selector means for selecting the time period over which the fluid is to be injected; and dosage rate logic means operatively connected to said encoding means, said time period selector means, and said timing pulse generator for calculating the required timing pulse output from said timing pulse generator to cause the volume of fluid encoded into said encoding means to be injected within the time period selected in said time period selector means and for causing said timing pulse generator to generate the required timing pulse output.

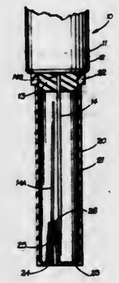
4,273,123
SYRINGE AND NEEDLE COVER

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Filed Oct. 1, 1979, Ser. No. 80,561

Int. Cl.³ A61M 5/00

U.S. Cl. 128—218 N **6 Claims**



1. A disposable hypodermic syringe comprising in combination:

a tubular housing which is open at one end and closed at the other,

a hypodermic needle secured to the closed end of said housing,

a piston slidably movable within the interior of said tubular housing for forcing a liquid therefrom through said hypodermic needle,

a protective plastic closure of elongated tubular shape open at one end and closed at the other,

said closure adapted to surround said hypodermic needle and to be frictionally engaged within the end of the tubular housing supporting said needle to provide protection for said needle during storage of the syringe,

said closure having a thin wall portion containing a tubular extension thereof defining a passageway for receiving said needle, and

a penetrable wall extending across said tubular extension through which penetrable wall said needle may be passed after penetrating same so as to permit said needle to be frictionally held within said tubular extension and to be retained therein after the syringe and needle have been used.

4,273,124
NASAL CANNULA

J. Earl Zimmerman, Rte. 3, Box 351, Pine Grove, Pa. 17963

Filed Jun. 1, 1979, Ser. No. 44,582

Int. Cl.³ A61M 3/00

U.S. Cl. 128—245 **13 Claims**

1. A breathing apparatus comprising a source of pressurized therapeutic gas, a nasal cannula directly connected to said gas source and positioned within the nose of a patient to administer the gas to the patient, said cannula comprising a resilient enlarged member configured to fit snugly against the vestibule wall of one nasal cavity of the patient to form a tight seal with respect thereto while maintaining the other nasal cavity in communication with ambient surroundings, said enlarged member including a passage therethrough for communicating the gas with the nasal cavity so that the gas supplied from said



source is inhaled solely through said one nasal cavity and into the patient's lungs and exhaled solely through said other nasal cavity and/or open mouth of the patient.

4,273,125
TAMPON

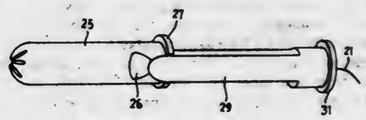
Akira Sakurai, Utsunomiya, Japan, assignor to Kao Soap Co., Ltd., Tokyo, Japan

Filed Mar. 20, 1980, Ser. No. 132,249

Claims priority, application Japan, Apr. 12, 1979, 54-44582

Int. Cl.³ A61F 15/00

U.S. Cl. 128—263 **7 Claims**



1. A tampon, comprising:

an elongated outer cylinder having an outer end and having an inner end adapted for insertion into a vagina, a mass of absorbent material disposed inside said outer cylinder close to the inner end thereof and adapted to be moved through said inner end of said outer cylinder, said outer cylinder having one or more through holes formed in the side wall thereof at a location spaced from the inner end of said outer cylinder and in the region of the outer end of said mass of absorbent material;

a push-out member mounted on said outer cylinder for sliding movement in a direction lengthwise thereof, said push-out member having one or more longitudinally extending push-out pieces corresponding in number to the number of said holes, said push-out pieces being disposed outside of said outer cylinder, said push-out pieces having a size such that they can be extended through said holes into the interior of said outer cylinder for engaging said mass of absorbent material in response to movement of said push-out member relative to said outer cylinder and then longitudinal movement of said push-out member in a direction toward the inner end of said outer cylinder causes said push-out pieces to move said mass of absorbent material out of said outer cylinder through the inner end thereof.

4,273,126

ATTACHMENT DEVICE FOR TRACHEAL ASPIRATOR

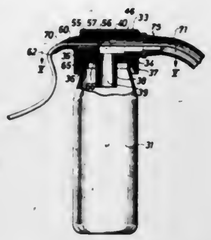
Christian Grane, Kokkedal, and Ole B. Kobanke, Kgd. Lyngby, both of Denmark, assignors to Ruth Lea Hesse, Rungsted Kyst, Denmark

Filed Feb. 7, 1978, Ser. No. 875,804

Claims priority, application United Kingdom, Feb. 8, 1977, 5218/77

Int. Cl.³ A61M 1/00

U.S. Cl. 128—276 12 Claims



1. Attachment device for use in combination with a pump operating as a tracheal aspirator, for sucking and collecting secretion from the oral cavity of an unconscious person and separating large solid particles from the aspired air and from any such liquid secretion as flows to the normal secretion reservoir of the pump, comprising: a hand-held container with rigid walls having a secretion inlet opening with an inside diameter of between 6 and 12 millimeters, said diameter being sufficiently large to permit passage of solid particles normally occurring in secretion such as vomitus; and a secretion suction tube of correspondingly large inside diameter and of a length in the range between 200 and 300 millimeters, said length being just sufficient to enable the device to be operated in front of the mouth of a patient, one end of said tube being received by said inlet opening, said container having an outlet opening provided with means for connecting said device to the suction tube of the pump, a passage being provided substantially in line and in communication with said inlet opening, said passage being normally closed by a lock member adapted to be opened for insertion of an introduction stylus to pass through the inlet opening from the inner end thereof outwardly into the attached secretion suction tube to support said secretion suction tube.

4,273,127

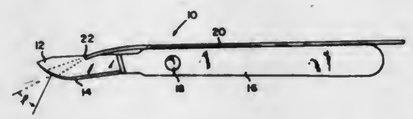
METHOD FOR CUTTING AND COAGULATING TISSUE

David C. Auth, Bellevue, and Robert F. Rushmer, Seattle, both of Wash., assignors to Research Corporation, New York, N.Y.

Continuation of Ser. No. 950,694, Oct. 12, 1978, abandoned, which is a continuation-in-part of Ser. No. 656,709, Feb. 9, 1976, Pat. No. 4,126,136. This application Aug. 4, 1980, Ser. No. 175,322

Int. Cl.³ A61B 17/36

U.S. Cl. 128—303.1 6 Claims



1. A method of creating an incision in vascularized tissue and coagulating tissue adjacent the incision comprising coupling laser radiation to a light guide having a relatively narrow working surface which is elongated in the direction of the incision from which said radiation is emitted in a beam and which has a relatively large angle of divergence in a plane perpendicular to said incision, and guiding said working surface along and in contact with said tissue, said laser radiation being of sufficient intensity to form said incision so that said laser radiation forms said incision at the point of contact between said working surface and tissue and coagulates blood adjacent said incision while the contact between said working surface and tissue provides tactile feedback and facilitates coupling of laser radiation from said light guide to said tissue.

4,273,128

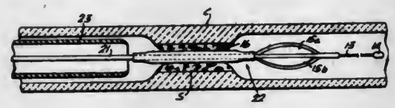
CORONARY CUTTING AND DILATING INSTRUMENT

Banning G. Lary, 6225 SW. 117th Ter., Miami, Fla. 33156

Filed Jan. 14, 1980, Ser. No. 111,807

Int. Cl.³ A61B 17/32; A61M 29/02

U.S. Cl. 128—305 6 Claims



1. A coronary dilating and cutting instrument comprising, in combination, a cannula, flexible probe means extending outwardly of one end of said cannula for the guidance thereof through an artery, cutting means extending laterally outwardly of said cannula for longitudinally cutting a stenonic arterial zone as said cannula is introduced centrally through the artery, said cutting means being located behind said flexible probe means and comprising a flat knife blade defining a radially-extending plane with respect to said cannula, said knife blade having a cutting edge of arquate shape, an elongated, tubular, inflatable balloon circumjacent said cannula directly behind said cutting means and having end portions thereof circumferentially secured and hermetically sealed with respect to spaced, outer surface portions of said cannula, through opening means in said cannula side wall and in registration with said balloon for the introduction of hydraulic fluid into said balloon through the other end of said cannula, and means at the other end of said cannula for connection with a source of hydraulic fluid under pressure for the controlled inflation of said balloon.

4,273,129

FORCEPS FOR APPLYING CLIPS TO FALLOPIAN TUBES

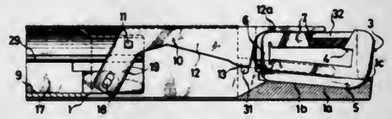
Manfred Boebel, Oetisheim, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlengen, Fed. Rep. of Germany

Filed Jan. 20, 1979, Ser. No. 50,454

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1978, 2828564; Dec. 27, 1978, 2856241

Int. Cl.³ A61B 17/12

U.S. Cl. 128—326 11 Claims



1. Forceps for applying a clip to a fallopian tube, said clip being in one piece and made of plastics material and having two separable arms connected by a flexible strip, one of said arms having a latch recess in a free end thereof facing said strip, into which recess the end of the other one of said clip arms is pressable by elastic deformation, said forceps having an outer shaft provided with a cutout to receive the clip in open condition with the other clip arm extended, said forceps comprising two proximal handle members for relative opening and closing movement, a two-armed closing lever mounted for opening and closing movement on a pivot bearing carried by a

movable inner shaft inside said outer shaft, one arm of said lever when closed having a face parallel with said outer shaft to lie adjacent said other clip arm when the clip is closed, the one lever arm also having a projection engageable with the other clip arm when in the open condition to press it into said latch recess to latch the clip and the other lever arm being pivotally connected to a lever-operating rod movable axially inside said outer shaft both in the distal and proximal direction upon movement of said proximal handle members, and means to advance said inner shaft and pivot bearing distally with said rod after the latter has first been moved distally a predetermined distance, whereby said rod upon movement of said handle members first is distally movable through said predetermined distance to open said closing lever and then is distally movable farther to simultaneously advance said inner shaft and said pivot bearing distally so that said projection of said closing lever is aligned against said other clip arm and so that, by leaving the closing lever in said aligned position said rod may be retracted proximally to cause said lever to close the clip.

4,273,130

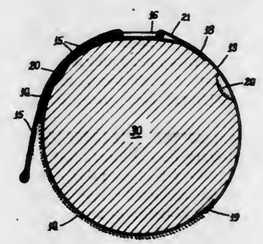
CONSTRICTOR

Judith V. Simpson, 307 MacLaren La., Lake Bluff, Ill. 60044

Filed Dec. 11, 1978, Ser. No. 968,173

Int. Cl.³ A61B 17/12

U.S. Cl. 128—327 10 Claims



1. A constrictor for medical use comprising; an elongated flexible strip having a ring affixed to one end and an end tab at the other end, said strip consisting of an elastic portion, a first coupling surface portion and a second coupling surface portion on the same face of the strip, said first and second coupling surfaces cooperating upon contact to provide resistance to slidable motion between said surfaces and providing disengagement by separation of the surfaces, said elastic portion being about 6 to 17 percent, said first coupling surface portion about 17 to 28 percent, and said second coupling surface portion about 55 to 77 percent of the length of said elongated flexible strip, said strip being of a length that it will encompass a limb or trunk of a patient, pass through said ring and reverse upon itself such that said first and second coupling surface portions will attach to each other, said constrictor being capable of application and adjustment using one hand by passing said end tab through said ring and pulling said second coupling surface portion back over itself to engage said first coupling surface portion.

4,273,131

SURGICAL STYLET

C. Eric Olson, Oxnard, Calif., assignor to Auburn Enterprises, Inc., Ventura, Calif.

Filed Jun. 18, 1979, Ser. No. 49,949

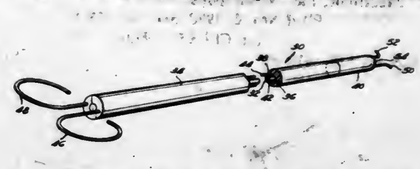
Int. Cl.³ A61M 29/00

U.S. Cl. 128—341 5 Claims

1. A surgical stylet comprising:

an elongated member formed of a core and a first exterior covering, said core being of a solid metal but bendable into a variety of different configurations, said core having a longitudinal center axis, said first exterior covering comprising a rigid plastic;

said elongated member having a fore end and an aft end, said core extending into said fore end, said core having a tip, said tip being smoothly contoured, a second exterior covering extending beyond said tip, said second exterior



covering being formed of a resilient cushiony plastic so as to deter the making of puncture wounds in tissue during use of the stylet; and

said first exterior covering being extruded upon said core, said core being of uniform cross-sectional configuration, said exterior covering being of uniform cross-sectional configuration.

4,273,132

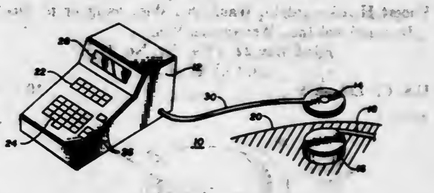
DIGITAL CARDIAC PACEMAKER WITH THRESHOLD MARGIN CHECK

Jerome T. Hartlaub, New Brighton; David L. Thompson, Fridley, and Ray S. McDonald, St. Paul, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 6, 1978, Ser. No. 958,090

Int. Cl.³ A61N 1/36

U.S. Cl. 128—419 PT 21 Claims



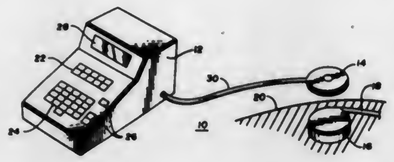
1. An implantable cardiac pacemaker pulse generator having stimulating signal providing means for generating electrical stimulating pulses having a defined pulse energy and rate adapted to be applied to stimulate the heart, and detecting means for receiving a test signal from an external source and providing a threshold safety margin signal, further comprising safety margin means responsive to said threshold safety margin signal for causing said stimulating signal providing means to provide a test series of stimulating pulses at a rate different than the defined rate when said defined rate is lower than said test rate and at said defined rate where said defined rate exceeds said test rate and to provide one of said stimulating signal having a pulse energy reduced by a predetermined amount from the defined pulse energy, and means for terminating said test series when fixed number of said stimulating pulses is produced following the provision of said threshold safety margin signal.

4,273,133

PROGRAMMABLE DIGITAL CARDIAC PACEMAKER WITH MEANS TO OVERRIDE EFFECTS OF REED SWITCH CLOSURE

Jerome T. Hartlaub, New Brighton; Ray S. McDonald, St. Paul, and Martin A. Roesing, Anoka, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 6, 1978, Ser. No. 958,325
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PG 19 Claims



1. The programmable medical device having operating modes or parameters adapted to be programmed by the application thereto of first and second programming signals which include the program data manifesting the desired operating mode or parameter values for the medical device to assume, comprising:

means responsive to the first programming signal for receiving and storing the second programming signal;

switching means responsive to the first programming signal for switching the operating mode of the medical device from a normal operating mode to a different operating mode; and

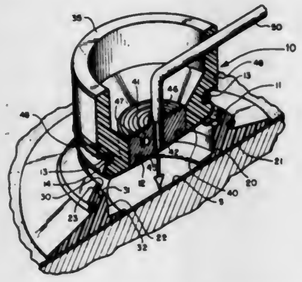
disabling means responsive to the program data manifesting certain parameters for disabling said switching means so that the medical device is maintained in its normal operating mode while the medical device is programmed to the certain parameter value.

4,273,134

FIXATION RING ASSEMBLY AND METHOD OF ASSEMBLING A SENSOR HEAD

Robert H. Ricciardelli, Waukesha, Wis., assignor to Biochem International Inc., Wauwatosa, Wis.

Filed May 22, 1979, Ser. No. 41,524
Int. Cl.³ A61B 5/00
U.S. Cl. 128—635 10 Claims



1. A method of assembling a sensor head and permeable membrane encapsulating electrolyte over the electrode surface of the sensor head, for securing to the surface of a patient's skin by means of a fixation ring, wherein the fixation ring has an annular passage extending therethrough from an upper face to a lower face, comprising the steps of:

a. fastening a sheet of permeable membrane film across the upper face of the fixation ring covering one end of said passage,

b. placing an electrolyte on at least one of the electrode surface and the membrane film over the passage,

c. inserting the sensor head into said passage through said one end whereby the membrane is pressed against the base of the sensor head with the electrolyte over the electrode surface, and

d. causing said membrane to be released from said fixation ring and fastened to said sensor head when said sensor head is inserted.

5. A fixation ring for securing to the surface of a patient's skin, comprising:

a. a member having a lower face for seating on the skin surface of a patient, and an upper face opposite said lower face,

b. said member having an annular passage in it opening through both said upper and lower faces,

c. said passage including a first, largest diameter passage section adjacent said upper face, a second smaller diameter passage section intermediate said faces, and a third, smallest diameter passage section adjacent said lower face,

d. sensor body detent means formed inwardly of said first passage section adjacent said upper face, and

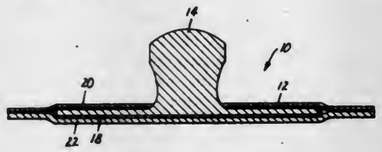
e. an annular resilient ring seating channel with opposed shoulders encircling the outside of said member around said passage.

4,273,135

BIOMEDICAL ELECTRODE

Franklin C. Larimore, Shoreview, and Steven M. Heilmann, North St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 825,870, Aug. 19, 1977, abandoned. This application Sep. 8, 1978, Ser. No. 940,735
Int. Cl.³ A61B 5/04
U.S. Cl. 128—640 13 Claims



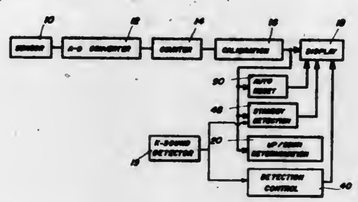
1. In an essentially dry disposable biomedical electrode comprising an electrode plate having an upper surface and a lower body-contacting surface, said upper surface having means for electrically connecting said electrode plate to a lead wire, and a conductive material on said body-contacting surface of said electrode plate for enhancing electrical connection with the skin, the improvement wherein said conductive material consists essentially of a dermally nonirritating, conformable, cohesive, non-ionic synthetic hydrophilic polymer containing at least 15 mole percent of a water-soluble monomer, said electrode having an impedance of 500 Kohms or less at a frequency of 10 Hertz.

4,273,136

ELECTRONIC SPHYGMOMANOMETER

Kimio Kubo, Nara, and Ryuichi Miyamae, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 22, 1978, Ser. No. 963,134
Claims priority, application Japan, Nov. 24, 1977, 52-150002[U]; Nov. 25, 1977, 52-158485[U]; Nov. 30, 1977, 52-162424[U]
Int. Cl.³ A61B 5/02
U.S. Cl. 128—680 11 Claims



1. A blood pressure measurement system including a pressure cuff comprising:

a sensor for detecting a cuff pressure having applied and pulsatile components;

means for providing blood pressure data derived from said sensor, said blood pressure data including data representative of successive sampled cuff pressures; and

applied cuff pressure change determination means for determining whether the applied component of said cuff pressure is increasing for preparation purposes or decreasing for measurement purposes, said determination means including;

comparing means for comparing the current sampled cuff pressure with the last sampled cuff pressure;

detecting means for detecting and producing an enabling signal when the difference between the current sampled cuff pressure and the last sampled cuff pressure is smaller than a predetermined value; and

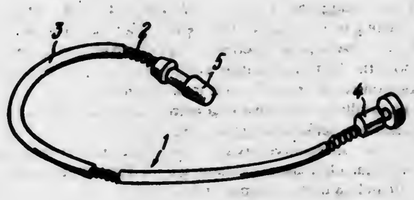
means responsive to said enabling signal for developing a blood pressure measurement mode signal to enable blood pressure determination when said enabling signal is produced by said detecting means.

4,273,137

ELECTRICAL CONDUCTOR FOR IMPLANTATION INTO HUMAN BODY

Nikolai L. Pravoverov, ulitsa Pervomaiskaya, 16, kv. 4, Istra Moskovskoi; Ravil N. Nazyrov, MIZ, dom 31-1, Mozhaisk; Sergei S. Grigorov, prospekt Vernadskogo, 105, korpus 2, kv. 81, Moscow, and Lidia S. Turova, ulitsa Jubileinaya, 13, kv. 99, Istra Moskovskoi, all of U.S.S.R.

Filed Dec. 17, 1979, Ser. No. 104,390
Int. Cl.³ A61N 1/04
U.S. Cl. 128—784 4 Claims



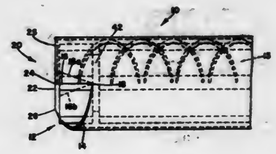
1. An electrical conductor for implantation into human body, comprising: an insulating sheath; conductive fibers placed in said insulating sheath; tubes made of high-strength, corrosion-proof. nontoxic alloy, forming said fibers; a filler of said tubes made of a highly electrically conductive metal or alloy.

4,273,138

DISCHARGE ARRANGEMENT FOR AN AXIAL FLOW ROTARY SEPARATOR

Klaus H. Pauli, Bad Homburg, Fed. Rep. of Germany, assignor to Deere & Company, Moline, Ill.

Filed Jul. 5, 1979, Ser. No. 54,734
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1978, 2830164
Int. Cl.³ A01F 12/00
U.S. Cl. 130—27 T 10 Claims



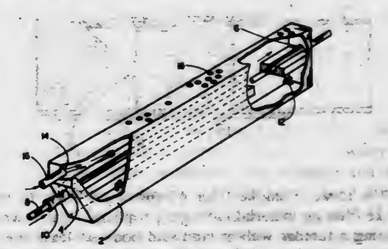
1. In an axial flow rotary separator for a combine in which a generally cylindrical and at least partially foraminous separator housing wall surrounds a rotatably mounted threshing and separating rotor having a particular direction of rotation, in which housing and rotor cooperate as the rotor rotates to process crop material in an annular space between rotor and housing and convey at least a portion of that crop material in a generally helical path downstream for discharge from the separator, a discharge arrangement comprising an opening in the housing wall having discharge edges including an exit edge extending approximately in a helix lying in the housing wall and of the same hand as the helical path of the crop material being conveyed through the separator and having, in relation to the direction of rotor rotation, first and second ends.

4,273,139

FIRMNESS IMPROVEMENT IN CIGARETTE ROD

George W. Bentley, Clarksville, Ind., assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Filed Dec. 20, 1979, Ser. No. 105,812
Int. Cl.³ A24C 5/04, 5/60
U.S. Cl. 131—280 7 Claims



1. An apparatus for improving the firmness of cigarette rods comprising:

a housing having spaced aligned inlet and outlet openings to receive a cigarette rod therethrough;

guide means between said inlet and outlet openings to guide a cigarette rod through said housing; and,

a gas supply opening in the housing in flow communication with a gas supply source and means for maintaining at

least 5 psig gas pressure in said housing while said cigarette is travelling through said housing at a predetermined velocity so as to reorient said tobacco particles.

4,273,140

DEVICE FOR SPREADING INDIVIDUAL TOBACCO LEAF HALVES

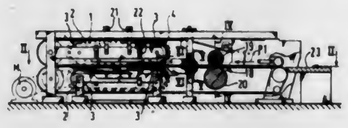
Petrus A. H. Eijsermans, Eindhoven, Netherlands, assignor to B.V. Arenco P.M.B., Best, Netherlands

Filed Jan. 23, 1979, Ser. No. 5,717

Claims priority, application Netherlands, Feb. 17, 1978, 7801797

Int. Cl.³ A24B 5/14

U.S. Cl. 131—328 12 Claims



1. A device for stretching a tobacco leaf half comprising in combination:

first conveyor means for moving a tobacco leaf half along a first path at a predetermined speed;

second conveyor means for progressively intercepting, stretching and capturing said tobacco leaf half as it is moved by said first conveyor means and moving said tobacco leaf half along a second path divergent from said first path at a speed such that the direction of said second path has a component parallel and equal in speed to said first path and another component perpendicular to said first path whereby said tobacco leaf half is stretched in a direction perpendicular to said first path and captured in stretched state by said second conveyor means as it is moved along said second path.

4,273,141

SMOKE FILTERS

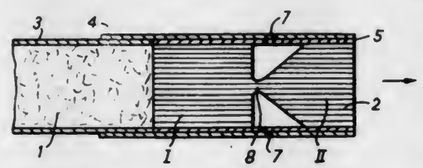
Jan Van Tilburg, 74 Lyceum Straat, Alkmaar, Netherlands

Filed Mar. 14, 1978, Ser. No. 886,399

Claims priority, application United Kingdom, Mar. 14, 1977, 10607/77; May 28, 1977, 22634/77; May 31, 1977, 23042/77; Jun. 21, 1977, 25954/77; Nov. 8, 1977, 46317/77; Nov. 15, 1977, 47417/77; Jan. 23, 1978, 2576/78

Int. Cl.³ A24D 3/04

U.S. Cl. 131—336 1 Claim



1. A tobacco smoke filter comprising a body of tobacco smoke filtering material having a peripheral region, wrapping forming a tubular wall around said body, at least one cavity defined and substantially wholly enclosed by said body and wrapping and extending all to said tubular wall, each said cavity having a shape causing a variation, across the filter of the rate of smoke flow into the cavity, air-permeable means in said wrapping allowing direct passage of external ventilating air into said cavity or cavities through said wrapping, each said cavity having an upstream peripheral extremity, said air-permeable means being concentrated at said extremity, each said cavity further having an upstream wall extending obliquely downstream from said tubular wall, said filter body constraining the smoke flow in said cavity or cavities to concentrate at a peripheral region and said air-permeable means being disposed at said region of concentrated smoke flow whereby at least a major portion of tobacco smoke and said ventilation air entering said cavity or cavities form a mixture over a region of the filter extending inwardly of its peripheral region.

4,273,142

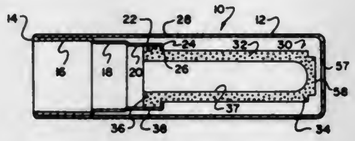
SMOKING FILTERS

Gerald T. Swanson, and John Trenary, both of Ft. Collins, Colo., assignors to Teledyne Industries, Inc., Ft. Collins, Colo.

Filed Jul. 16, 1979, Ser. No. 58,083

Int. Cl.³ A24D 3/00; A24F 7/04

U.S. Cl. 131—339 28 Claims



1. A smoking filter comprising:

an elongated tubular shell one interior end portion of which is shaped to define a coupling to a smoking device and longitudinally of said coupling being shaped to define a tubular wall of predetermined cross-section;

means defining an air inlet through the outer wall of said shell;

a filter element, of a rigidified porous plastic material inhibitive to the passage of substances in said smoke and in the form of an elongated hollow sleeve one integral and commonly-formed end of which is closed and the other end of which is open; means supporting said filter element within said tubular shell beyond said coupling.

4,273,143

PERMANENT WAVE COMPOSITION

Ernest J. Klemm, Thornwood, N.Y.; Walter W. Edman, Westport; Frances E. Erskine, Fairfield, and Everett G. McDonough, Stamford, all of Conn., assignors to Zotos International, Inc., Darien, Conn.

Filed Jul. 17, 1979, Ser. No. 58,264

Int. Cl.³ A45D 7/00

U.S. Cl. 132—7 18 Claims

1. A composite product for permanently waving a head of hair having hair fibers of vastly diverse condition intermixed throughout the head of hair, including up to 50% bleached hair fibers intermixed with unbleached hair fibers, and eliminating the necessity for segregation of the hair fibers into groups of hair fibers of similar condition, the composite product comprising

A. a first, wrapping composition for readying the hair fibers by equalizing the diverse condition of the hair fibers, imparting protection to all of the hair fibers, and preparing the hair fibers for interactive receipt of the second composition, the first composition comprising an aqueous solution consisting essentially of, in addition to water:

(a) a disulfide derivative of a mercaptan incorporating at least one substituent group, and

(b) a hair substantive organic compound incorporating a lipoidal alkyl chain and having a total of between about 10 and 18 carbon atoms; and

B. a second, processing composition absorbable into the readied hair fibers for imparting a permanent wave thereto, comprising an aqueous solution consisting essentially of, in addition to water,

(a) a thioglycolate ester or salt, and

(b) at least one selected from the group consisting of

mercaptans with at least one substituent group and disulfide derivatives of mercaptans with at least one substituent group,

whereby a head of hair having mixed hair fibers of vastly differing conditions is capable of being permanently waved as a single entity, without requiring segregation of the hair fibers into groups of hair fibers of similar condition and without experiencing either breakage of the bleached hair fibers or under-waving of unbleached hair fibers, by readying all of the hair fibers for receipt of the waving composition and employing a waving composition formulated for optimum interaction with the readied hair fibers.

4,273,144

HAIR PARTING AND LIQUID SPREADING DEVICE

Shila Morganroth, 20413 Willowick Dr., Southfield, Mich. 48075

Continuation-in-part of Ser. No. 592,764, Jul. 2, 1975, Pat. No. 4,211,247. This application Dec. 12, 1977, Ser. No. 859,740

Int. Cl.³ A45D 40/26

U.S. Cl. 132—88.7 53 Claims



1. A hair parting and liquid spreading device comprising a tubular flange surrounding an axis having means for removably holding the device in liquid tight relation to a squeeze bottle, closure means secured to the upper end of said tubular flange having a discharge outlet therein, and an elongated, hollow projection surrounding an axis connected at one end to and extending upwardly from said closure means around said discharge outlet, said projection having an outside dimension in cross section at the end connected to said closure means which is small relative to the dimension of said closure means and terminating in an opposite end capable of penetrating and parting the hair and having a liquid spreading surface on a side wall extending upwardly from said closure means adjacent to its periphery, and there being at least one discharge orifice in the liquid spreading surface thereof.

4,273,145

HIGH MOLECULAR WEIGHT VINYL ACRYLIC COMBINED WITH LOW MOLECULAR WEIGHT VINYL ACETATE-MALEATE FOR CONTROLLED PERMANENT TACK AND METHOD OF MAKING SAME

David Lester, Arlington, and Robert R. Alexander, Waltham, both of Mass., assignors to Polymerics, Inc., Waltham, Mass.

Filed Jun. 13, 1979, Ser. No. 48,053

Int. Cl.³ C08L 31/04

U.S. Cl. 132—1 R 8 Claims

1. A polymeric composition having controlled permanent tack for use in making unsupported decorative films comprising:

86 to 88 parts of a vinyl acetate-acrylic copolymer of high molecular weight in excess of one million and low residual tack;

14 to 12 parts of a vinyl acetate-maleate copolymer of low molecular weight in the range of 55–35,000 and high residual tack, wherein said vinyl acetate-acrylic copolymer comprises,

Ingredients	Parts By Weight
Vinyl acetate	77.0
Itaconic acid	1.5
Ethyl acrylate	12.0
Glycidyl methacrylate	2.5
Thiodiethylene glycol	4.0
Sodium Lauryl sulfate	2.5
Ammonium persulfate	0.4
Water	100.0 T.T.S 50%

and, wherein said polyvinyl acetate-maleate copolymer comprises,

Ingredients	Parts by Weight
Vinyl acetate	56.0
Methacrylic acid	1.5
Dioctyl maleate	37.0
Sodium lauryl sulfate	3.5
Hydroxyethyl cellulose	1.5
Ammonium persulfate	0.6
Water	100.0

4,273,146

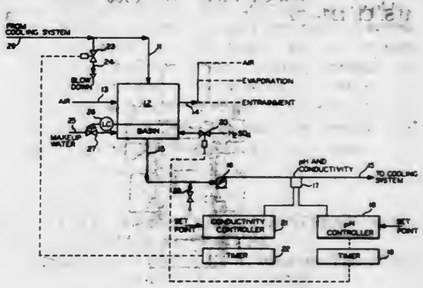
COOLING TOWER OPERATION WITH AUTOMATED PH CONTROL AND BLOWDOWN

Neal W. Johnson, Woods Cross, Utah, assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 5, 1979, Ser. No. 1,345

Int. Cl.³ G05D 11/02

U.S. Cl. 137—5 4 Claims



1. In a process for controlling the pH and salts concentration of water in a water circulating system wherein cool water is used to cool warmer fluids by indirect heat exchange and the resulting warm water is cooled and recirculated for further heat exchange, said process comprising measuring the pH of the water and adding acid to the water while the measured pH of the water exceeds a preset pH value, measuring the electrical conductivity of the water and releasing water from the system while the measured conductivity exceeds a predetermined value, adding water to the system to maintain a predetermined volume, the added water having a lower electrical conductivity than the released water,

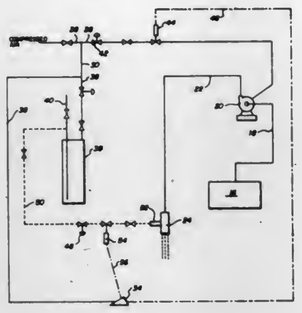
the improvement comprising

releasing said water from the system intermittently on timed on/off cycles.

4,273,147
TRANSPORTATION AND PLACEMENT OF WATER-IN-OIL EXPLOSIVE EMULSIONS

Robert S. Olney, Bethlehem, Pa., assignor to Atlas Powder Company, Dallas, Tex.

Filed Apr. 16, 1979, Ser. No. 30,425
Int. Cl.[3] F17D 1/16
U.S. Cl. 137—13 3 Claims

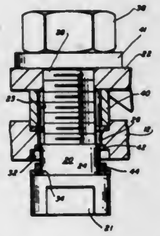


1. A method for transporting water-in-oil explosive emulsions through conduits comprising injecting into said conduit a substantially annular stream of a lubricating fluid at a flow rate such that the linear velocity of said lubricating fluid is substantially equal to that of the explosive emulsion flowing through said conduit wherein said lubricating fluid comprises an aqueous solution of ammonium nitrate.

4,273,148
STEM SEAL FOR A FIRE SAFE BALL VALVE

Raymond J. Charland, South Windsor, Conn., assignor to Litton Industrial Products, Inc., East Hartford, Conn.

Filed Apr. 21, 1980, Ser. No. 142,449
Int. Cl.[3] F16K 41/00; F15J 15/54
U.S. Cl. 137—72 3 Claims



1. In a ball valve including a cylindrical housing having a flow passage, rotatable ball means for selectively blocking said flow passage, and external actuating means, a fire safe stem seal comprising:

a stem having a selected diameter with a larger diametered shoulder portion on one end including means for engaging the ball means, and an opposite end for engagement with the actuating means,

the housing having a stem bore for matingly receiving said stem therethrough within a selected tolerance, a first interior step concentric with said stem bore and selectively sized to accommodate said stem shoulder, and a second smaller selectively sized interior step concentric with said stem bore having a selected axial depth,

a deformable heat-resistant secondary seal ring having an axial thickness substantially greater than said axial depth of said second step for engagement with the housing in said second step,

a heat-destructible primary seal and bearing ring for engagement with the housing and said heat-resistant ring in said first step, and

means to draw said stem shoulder against said heat-destructible primary ring in said first step which thereby compacts said heat-resistant ring in said second step and into said tolerance to effectively functionally lock said heat-resistant ring in a desired position around said stem,

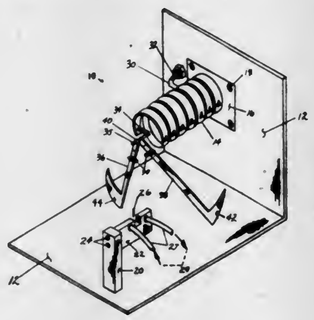
whereby said heat-destructible ring acts to seal the housing between said first step and said stem shoulder and serves to retain said heat-resistant ring in position to protect it from abrasive stem shoulder rotation while serving as a bearing for said stem shoulder, and

whereby when the valve is subjected to intense heat and said heat-destructible ring disintegrates, said heat-resistant ring acts to seal said housing between said stem bore and second step and said stem and stem shoulder.

4,273,149
BLIND PRESSURE PILOT

David R. Gordon, P.O. Box 591, Harvey, La. 70058

Continuation-in-part of Ser. No. 874,429, Feb. 2, 1978, abandoned. This application Nov. 8, 1978, Ser. No. 958,738
Int. Cl.[3] G05D 16/00
U.S. Cl. 137—83 6 Claims



1. A blind pressure pilot apparatus comprising:

a. a substantially ell-shaped supportive base, said base comprising a lower base portion and an upper base portion connected thereto at substantially right angles;

b. a pressure responsive bourdon tube mounted on said upper base portion and extending therefrom substantially parallel to said lower base portion;

c. an indicating arm mount attached to the projecting end portion of said bourdon tube, said indicating arm mount comprising a pivot arm connected at one end portion thereof to said bourdon tube and a shaft attached to the other end portion of the pivot arm, said shaft having it's central axis generally aligned with the central axis of said bourdon tube, said shaft rotating responsive to pressure changes within said bourdon tube;

d. a pair of indicating arms pivotally and frictionally attached to said indicating arm mount shaft portion each of said indicating arms being independently, pivotally movable on said shaft, each of said arms providing an extreme interrupting flag member at it's end portion away from said shaft, said flags thus moving through and defining a generally arcuate path, each of said interrupting flag members traveling generally through said defined arcuate path responsive to pressure changes within said bourdon tube, said arcuate path generally parallel with said upper base portion; and

e. a gap sensor providing a stream of continuous control air flowing across a portion of said defined arcuate path, said gap sensor body comprising,

i. a gap sensor body attached to said lower base portion;

ii. a gap formed in said gap sensor body, and projecting across a portion of said gap;

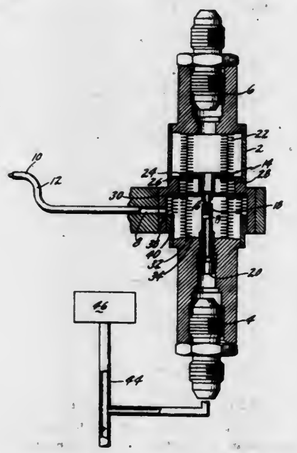
iii. a gap bore provided in said gap sensor body and projecting across a portion of said gap and said defined arcuate path,

iv. a supply stream of control air flowing through said gap bore and across said gap and said arcuate path, the registration of one of said flag members with said supply streams causing an interruption of said supply stream at said gap.

4,273,150
LEVERLESS PRESSURE TRANSDUCER

Stanley R. Paduch, Somers, and Robert K. Olson, Bloomfield, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Nov. 26, 1979, Ser. No. 97,585
Int. Cl.[3] G05D 16/00
U.S. Cl. 137—85 9 Claims



1. A pressure transduer including:

a casing having a hydraulic fluid inlet and outlet and a gas pressure inlet;

a movable valve plate in said casing between the fluid inlet and outlet having a nozzle therein;

a valve element in said casing in a position to be engaged by said plate to more or less close said nozzle;

a plurality of bellows connected to and supporting said plate for movement toward and away from said valve element; and

means for exposing one side of one bellows to gas from the gas pressure inlet and for exposing one side of each of two bellows to the hydraulic fluid pressure on opposite sides of the nozzle plate, the bellows exposed to the gas being larger than and surrounding one of the bellows exposed to the hydraulic fluid pressure and the space between these bellows being evacuated.

4,273,151
IN-LINE RELIEF VALVE

James E. Nezworski, Milwaukee, Wis., assignor to The Perlick Company, Inc., Milwaukee, Wis.

Filed Oct. 4, 1979, Ser. No. 81,696
Int. Cl.[3] G05D 11/00
U.S. Cl. 137—115 6 Claims

6. A safety relief valve that is connectable between a source of fluid under pressure and a location to which fluid flows from said source, and whereby pressure at said location is prevented from exceeding a predetermined value, said relief valve being characterized by:

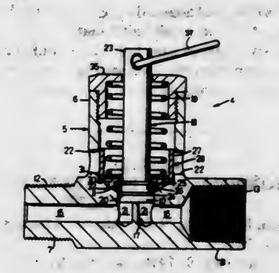
A. a body that defines

(1) a vented valve cage having an axis,

(2) a coaxial annular valve seat at one end of said valve cage having an annular seating surface that faces into the valve cage,

(3) a pressure chamber having said valve seat at one side thereof and communicable with the valve cage therethrough, and

(4) a pair of tubular nipple portions having bores which extend into the body from opposite sides of said axis, in substantially symmetrical relation thereto, and which are communicated with the pressure chamber at their inner ends;



B. a coaxial valve element in said valve cage, movable axially to and from a closed position engaging said annular seating surface, said valve element

(1) having a pressure surface which faces into the pressure chamber through the valve seat and

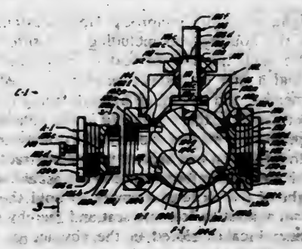
(2) being yieldingly biased towards said closed position; and

C. a baffle in the body between the inner ends of said bores, said baffle being in substantially parallel and symmetrical relationship to said axis and projecting from the side of the pressure chamber opposite the valve seat partway across the pressure chamber, to be at all times spaced from said pressure surface and permit communication through the pressure chamber between the inner ends of said bores, said baffle causing pressure fluid that flows into the body through either of said bores to be deflected towards said pressure surface to impose impact pressure thereon.

4,273,152
CONTROL VALVE ASSEMBLY WITH ONSTREAM SEAL REMOVAL FEATURE

Murray E. Freeman, 1710 Hollow Hook, Houston, Tex. 77080

Filed Feb. 9, 1979, Ser. No. 10,717
Int. Cl.[3] F16K 43/00, 5/06
U.S. Cl. 137—315 14 Claims



1. A control valve assembly with onstream seal removal feature for controlling fluid flow in a flowline, comprising:

a housing adapted to be mounted with the flowline, said housing having a flow control cavity formed therein, said flow control cavity in flow communication with the flowline;

flow control means mounted in said flow control cavity for controlling fluid flow through said housing wherein said flow control means includes a ball valve for controlling fluid flow through said housing;

seal means for preventing the unwanted migration of fluid flow between said housing and said ball valve, said seal means having an external sealing surface;

said seal means mounted with said ball valve for engaging said flow control cavity of said housing at said external sealing surface to prevent fluid migration therebetween;

access means mounted with said housing for providing access to said seal means while maintaining fluid flow to said housing; and,

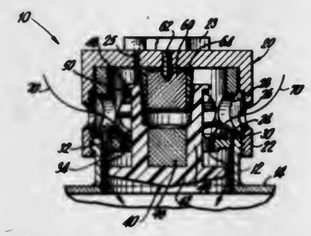
redundant seal means adapted to engage said housing, said access means and said ball valve said redundant seal means continuously engages said ball valve and for preventing fluid migration therebetween said ball valve and said flow control cavity during removal or inspection of said seal means.

4,273,153

VIBRATION RESISTANT PRESSURE ACTUATED VACUUM BREAKER

J. James Brown, Red Bank, N.J., assignor to Girard Equipment, Inc., Rahway, N.J.

Filed Oct. 9, 1979, Ser. No. 82,679
Int. Cl.³ F16K *31/11, 17/00*
U.S. Cl. 137—454.5 **13 Claims**



1. A pressure actuated vacuum breaker for mounting on the top of a movable tank above the level to which the tank is normally filled with product for admitting atmospheric air to the tank to relieve a reduced pressure condition occurring in the tank while substantially preventing the escape of product or product vapor from the tank via the vacuum breaker, the vacuum breaker being highly resistant to opening due to vibration associated with movement of the tank, comprising:

a housing communicating with the interior of the tank and vented to the atmosphere;

a downward facing closure seat disposed in the housing between the interior of the tank and the vent to the atmosphere;

a light-weight, vertically reciprocal closure assembly disposed in the housing and including a closure member cooperable with the closure seat to close the vacuum breaker and a first permanent magnet mounted on the closure member and having an upward facing pole;

a second permanent magnet mounted in the housing above the first permanent magnet and having a downward facing pole so that the first and second magnets attract one another with a magnetic force equal to at least about 5 times the weight of the closure assembly to hold the closure member up against the closure seat and thereby maintain the vacuum breaker closed in the absence of reduced pressure in the tank and in spite of accelerations due to vibration up to at least about 4 times gravitational acceleration tending to open the vacuum breaker, the force of attraction between the magnets being overcome and the closure assembly moving downward to open the vacuum breaker when a reduced pressure condition occurs in the tank;

a shielding assembly disposed in the housing and substantially surrounding the first and second magnets at all times during operation of the vacuum breaker; and

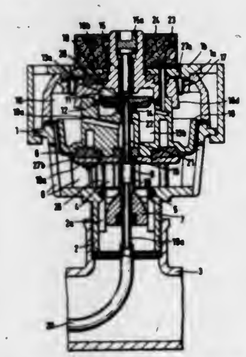
spring means for exerting an upward return force on the closure assembly to assist in closing the vacuum breaker after it has opened.

4,273,154

DEVICE FOR REGULATING THE VACUUM IN A VACUUM LINE SYSTEM, ESPECIALLY FOR MILKING INSTALLATIONS

Hermann Moldenhauer, and Kurt Muller, both of Dusseldorf, Fed. Rep. of Germany, assignors to A. und K. Muller GmbH & Co. KG, Dusseldorf, Fed. Rep. of Germany

Filed Feb. 6, 1980, Ser. No. 118,874
Claims priority, application Fed. Rep. of Germany, Feb. 12, 1979, 2905199
Int. Cl.³ F16K *31/126*
U.S. Cl. 137—490 **10 Claims**



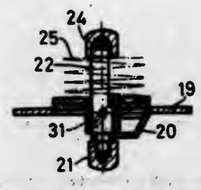
1. In a device for the control of the vacuum in a vacuum line system and of the type having a casing including a connecting piece connectable to a vacuum line, a main valve disposed in the casing including a main valve chamber which has a valve seat on one side facing the connecting piece, air intake apertures in its outside walls, means forming a control chamber in the casing and to which the vacuum dependant upon the vacuum in the vacuum line is applicable including a first membrane, a main valve body connected by a valve stem to the first membrane and by which the main valve chamber is separated from the control chamber such that the position of the main valve body with respect to the valve seat is dependent upon the vacuum in the control chamber and an auxiliary valve disposed in the casing for influencing the vacuum in the control chamber and including an auxiliary valve body, an auxiliary valve seat, means adjustably biasing the auxiliary valve body into the auxiliary valve seat including a coil spring and an auxiliary membrane joined to the auxiliary valve body and separating first and second auxiliary chambers of which a first is connectable to the vacuum line and a second to the atmosphere for producing a force responsive to the pressure difference to lift the auxiliary valve body from the auxiliary valve seat against the force of the coil spring, the improvement comprising a support movably mounted in the casing having the auxiliary valve disposed therein and movable therewith and on which the stem of the main valve is disposed and which presents active surfaces of different size to the interior of the main valve chamber and to the atmosphere and wherein the means forming the control chamber comprises a second membrane closing off the control chamber on the side facing away from the main valve chamber and adjoining the atmosphere, means joining the first and second membranes to the casing and to the movable support and means forming a main fluid passage connecting the control chamber and the first auxiliary chamber to the vacuum line through the movable support, the main valve stem and the main valve body.

4,273,155

BACK-PRESSURE VALVE FOR HEATING INSTALLATIONS

Karl Eserle, Bruckstrasse 73, D-7463 Rosenfeld 1, Fed. Rep. of Germany

Filed May 7, 1979, Ser. No. 36,904
Claims priority, application Fed. Rep. of Germany, May 9, 1978, 7813921[U]
Int. Cl.³ F16K *15/02*
U.S. Cl. 137—543.17 **1 Claim**



1. An improved back-pressure valve assembly, specifically for heating installations, comprising

an annular mask mounted within a throughflow opening formed in a pump,

first and second superposed sheet metal sealing disks having at least one eccentric opening each and positioned thereon such that they at least partially overlap when positioned proximate to each other,

a central stud extending through said throughbore opening and said sealing disks,

spiral groove guiding means mounted on said stud between said first sealing disk and said stud and cooperating means on said first sealing disk for rotating said first sealing disk when being axially moved,

said second sealing disk being mounted on said stud for linear shifting movement only, and

a spring pushing said sealing disks against said mask in closing direction,

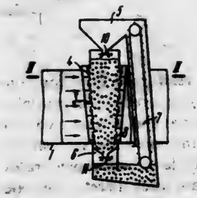
whereby said openings are offset with respect to each other when the valve is closed and said openings overlap forming a passageway when the valve is open.

4,273,156

SHUTOFF DEVICE

Alexandr A. Borodin, Schelkovskoe shosse, 17, korpus 1, kv. 21, Moscow, U.S.S.R.

Filed Mar. 28, 1980, Ser. No. 134,749
Int. Cl.³ F16K *35/06*
U.S. Cl. 137—601 **3 Claims**



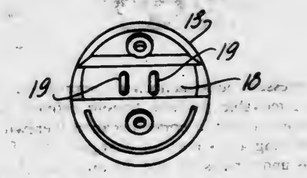
1. A shutoff device for closing a large-area gas duct, comprising a gas duct; two rows of swivel louvre grills arranged in said gas duct at an angle to the vertical plane and spaced apart more widely in the top portion of said gas duct than in the bottom portion thereof; a hopper located above said swivel louvre grills, and a receiving hopper located under the swivel louvre grills so as to establish a lock chamber confined within said hoppers, the gas duct walls and the swivel louvre grills; said lock chamber being filled, when the gas duct is being closed, with bulk material from said hopper, said bulk material causing the swivel louvres of the grills to jam, and when the gas duct is being opened, said lock chamber is emptied of the bulk material, which is poured down by gravity to said receiving hopper; said hopper and receiving hopper being interconnected through a conveyer for the bulk material to return to the top hopper.

4,273,157

THREE WAY BUTTERFLY VALVE

George C. Ladwig, Owosso, Mich., assignor to Tom McGuane Industries, Inc., Madison Heights, Mich.

Filed Nov. 13, 1978, Ser. No. 959,743
Int. Cl.³ F16K *5/00*
U.S. Cl. 137—887 **10 Claims**



9. In a butterfly valve, the valve comprising:

a housing having an opening therethrough, at least a portion of said opening defining a cylindrical passage;

a bypass passageway mounted to the side of said housing, said passageway further having a projection which protrudes approximately midway into said cylindrical passage, said projection further having a face seat on its protruding end;

a pivot pin mounted diametrically through said housing across said cylindrical passage in spaced relationship to said face seat on said projection;

a metal valve plate engaged to said pivot pin, said valve plate having a diametrically extending central flat planar portion which extends radially of said cylindrical passage and perpendicular to the axis of said cylindrical passage when said valve plate is in inclined position with respect to the axis of said cylindrical passage whereby said valve plate stops the flow of fluid through said cylindrical passage and permits the flow of fluid through said bypass passageway when said valve plate is in a first predetermined position and said valve plate restricts the flow of fluid through said bypass passageway and permits the flow of fluid through said cylindrical passage when said valve plate is in a second predetermined position;

said valve plate having at least the peripheral portion thereof formed with a resilient gasket that engages the interior surface of said cylindrical passage when said planar portion is perpendicular to the axis of said cylindrical passage and the general plane of the valve plate forms an acute angle with respect to the axis of said cylindrical passage;

means for restricting the flow of fluid through said bypass passageway when said valve plate is in parallel position with respect to the axis of said cylindrical passage and in positional relationship to said face seat on said projection;

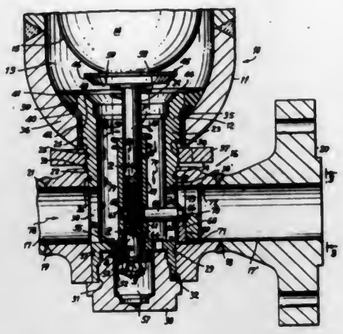
a resilient orifice mounted in said cylindrical passage so that the fluid downstream of said valve plate is restricted to a predetermined pressure level; and

whereby said planar portion of said valve plate is first positioned centrally of said cylindrical passage with said flat portion engaging said pin before fastening said plate to said pin.

4,273,158
PRESSURE PULSE DAMPENING DEVICE

Hugh Chun, Hacienda Heights, Calif., assignor to Greer Hydraulics, Incorporated, Chatsworth, Calif.

Filed May 9, 1979, Ser. No. 37,387
Int. Cl.³ F16L 55/04
U.S. Cl. 138—30 8 Claims



1. A pressure pulse dampener comprising a pressure vessel having a movable partition therein defining two chambers, each having a port in communication therewith, one of said ports defining a gas port for charging one of said chambers with gas under pressure, and the other an oil port, a housing associated with said pressure vessel, said housing including a transverse flow passage in communication with said oil port and a through flow passage connected with said transverse flow passage and having an inlet port and an outlet port adapted to be interposed in a hydraulic line, a hollow sleeve rigidly secured to said housing and extending into said vessel through said oil port, said sleeve having an upper end disposed within said vessel and defining a valve seat, said sleeve having transversely directed openings in alignment with said through flow passage, a valve member mounted for axial movement relative to said sleeve and including a head axially shiftable between closing and opening positions of said seat, and a stem disposed within said sleeve, a variable flow control valve in said through flow passage, and drive means operatively connecting said stem and said variable flow control valve for varying the effective area of said flow control valve responsive to movements of said valve stem within said sleeve.

4,273,159
EARTH BORING APPARATUS WITH MULTIPLE WELDS

Jimmie B. Bolton, Conroe, and Sam T. Crews, Houston, both of Tex., assignors to Smith International, Inc., Newport Beach, Calif.

Filed Mar. 16, 1978, Ser. No. 887,005
Int. Cl.³ F16L 9/04
U.S. Cl. 138—109 18 Claims

1. Drill pipe comprising a steel tube having a pin tool joint member welded to one end and a box tool joint member welded to the other end,

said tool joint members each comprising a tubular body of hardenable steel, said body including a medial portion having a generally cylindrical outer periphery, a thread ring at one end of the body, a weld neck at the other end of the body, and a tapered shoulder between the neck and medial portion,

the body of the box tool joint member having an annular groove thereabout extending over the shoulder and a portion of the weld neck adjacent to said shoulder,

said box tool joint member further comprising a butter layer of non-hardenable steel welded into said annular groove, said butter layer having an annular groove thereabout extending over said shoulder and into said weld neck, said groove in said butter layer being filled with hard facing, said hard facing and the part of the butter layer beyond the ends of said groove therein being flush with the adjacent surfaces of the weld neck and medial portion of the

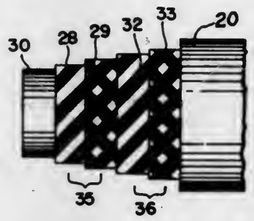


body of the tool joint member, the steel of said butter layer being non-hardenable in the sense that by heat treatment alone the steel cannot have its hardness increased over 255 Brinnell.

4,273,160
HIGH PRESSURE HOSE

David C. Lowles, Chagrin Falls, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Continuation of Ser. No. 832,325, Sep. 12, 1977, abandoned, which is a continuation of Ser. No. 747,713, Dec. 6, 1976, abandoned. This application Jan. 16, 1979, Ser. No. 3,844
Int. Cl.³ F16L 138/125
U.S. Cl. 138—124 6 Claims

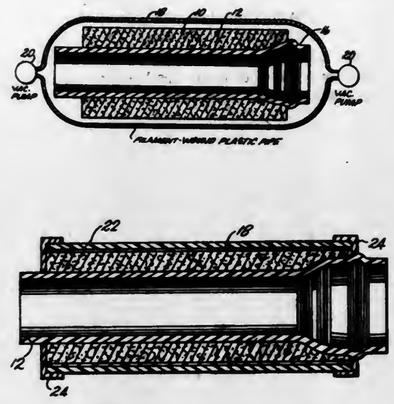


1. A flexible reinforced hose for conveying fluids under pressure comprising a radially expansible core tube of flexible elastomeric material and at least two layers of stranded reinforcement over the core tube, such strands having an angle of lay such that each layer will expand radially upon application of radially outward force thereto, the material of the outermost layer having a modulus of elasticity that is greater than that of the innermost layer, none of such layers having a modulus of elasticity greater than that of any succeeding radially outward layer, and said layers including an intermediate layer of stranded reinforcement having a modulus of elasticity between that of the innermost layer and that of the outermost layer.

4,273,161
INSULATED PLASTIC PIPE PRODUCT AND METHOD

Hugh T. McLaughlin, Santa Ana, Calif., assignor to Ameron, Inc., Monterey Park, Calif.

Division of Ser. No. 612,659, Sep. 12, 1975, which is a continuation of Ser. No. 513,481, Oct. 9, 1974, abandoned. This application Nov. 17, 1975, Ser. No. 632,571
Int. Cl.³ F16L 9/14
U.S. Cl. 138—149 7 Claims

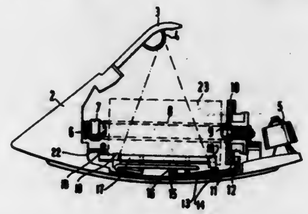


1. An insulated pipe construction comprising a rigid carrier pipe, a rigid tubular outer shell disposed concentrically around and spaced from the carrier pipe, a partially compressed, volumetrically deformable insulation layer in the space between the carrier pipe and the outer shell, and a flexible, imperforate tube normally having an inside diameter greater than that of the outer shell encasing the insulation layer and embedded between the outer shell and the partially compressed insulation layer.

4,273,162
BRAKING APPARATUS FOR TAPE ROLLERS OF WEAVING SHUTTLES

Frank Boose, Tecklenburg, Fed. Rep. of Germany, assignor to Windmöller & Hölscher, Lengerich, Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 85,541
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1978, 2846920
Int. Cl.³ D03D 37/00
U.S. Cl. 139—13 A 6 Claims



1. Apparatus for braking a tape roller positioned in a weaving shuttle of a circular loom comprising:

a rocker shafter (17) mounted parallel to an axis of a tape roller positioned in a body of the shuttle;

guide yoke means (21) secured on the rocker shaft for guiding tape;

radially extending abutment means (10) carried by the rocker shaft for limiting movement thereof;

first spring means (20) engaging the rocker shaft for pivoting the guide yoke means against a force exerted by tape being withdrawn from the taper roller;

means for braking the tape roller effective on pivoting of the guide yoke means by the first spring means when the force exerted by the withdrawn tape is reduced by tape slackage or breakage;

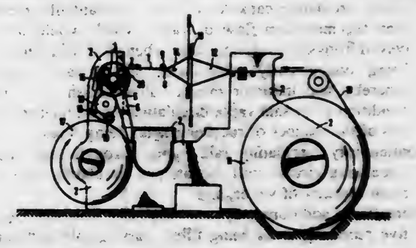
a plurality of rotatable seating means in the weaving shuttle for clamping the tape roller, one of the seating means (9) having a disc (10) which forcibly rotates with the tape roller (23), the means for braking including a brake shoe (12) engageable with the disc (10), and second spring means (15) for connecting the brake shoe to the rocker shaft so that, on pivoting of the guide yoke means (21), the second spring means (15) increases the braking force against the first spring means (20) which pivots against the tape tension;

the means for braking further including a two-armed lever (13), and a shaft (14) carried by the shuttle for pivotally mounting the two-armed lever (13), the brake shoe (12) being secured to one end of a lever arm of the two-armed lever, the end of the other lever arm of the two-arm lever being connected by the second spring means (15) to the rocker shaft (17).

4,273,163
FABRIC TAKE-OFF DEVICE

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jan. 16, 1979, Ser. No. 3,901
Claims priority, application Switzerland, Jan. 19, 1978, 498/78
Int. Cl.³ D03D 49/20
U.S. Cl. 139—308 16 Claims



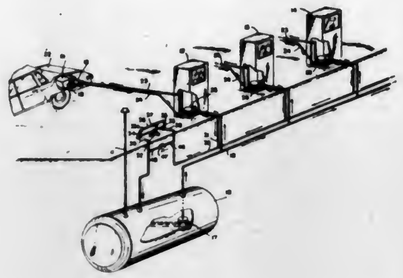
1. A fabric take-off device for a travelling web of a fabric, said device comprising

a plurality of supports disposed across a given weaving width;

a pair of longitudinally elongated guide elements mounted on said supports in spaced relation to each other to define a gap of predetermined size therebetween, each said element extending across said weaving width on a fixed longitudinal axis for passage of the travelling web thereabout with at least the upstream guide element being driveless; and

a take-off roller of a diameter greater than said size of said gap disposed between said guide elements relative to the travelling web for passage of the travelling web thereover, said roller being drivingly rotatable about a longitudinal axis thereof and freely movable transversely of said latter axis to define a nip with each said guide element for passage of the web therebetween.

4,273,164
MANIFOLDED FUEL VAPOR
Kenneth M. Gunn, Gresham, N.Y., assignor to Texaco Inc., White Plains, N.Y.
Division of Ser. No. 925,018, Jul. 17, 1978, abandoned. This application Dec. 6, 1978, Ser. No. 967,032
Int. Cl.³ B65B 3/18
U.S. Cl. 141—7 5 Claims



1. Method for providing a substantially constant degree of vacuum assist to a system which carries a volatile liquid, and having means within the system for dispensing said volatile liquid from a liquid-holding reservoir to one or more of a plurality of receiving tanks, and for concurrently withdrawing vapors from said one or more receiving tanks being filled to avoid passage of said vapor into the atmosphere, which method includes the steps of;

providing a closed, vapor circulating circuit having an inlet manifolded to the respective receiving tanks, and having an outlet communicated with said liquid holding reservoir, said vapor circulating circuit including a vapor inductor means therein,

introducing vapors from said one or more receiving tanks into said vapor circulating circuit, the latter having a vapor circulating capacity which is substantially greater than the maximum flow of vapor which would be received from said receiving tanks when all of said tanks are being concurrently filled with said volatile liquid, whereby said inductor means will establish a vacuum condition at the said vapor circulating circuit inlet regardless of the number of receiving tanks being filled,

continuously circulating said vapor through said vapor circulating circuit until the latter is circulating its maximum capacity of vapor, and

thereafter as additional vapor is withdrawn from the respective receiving tanks being filled, passing said additional vapor from the vapor circulating circuit into said liquid holding reservoir.

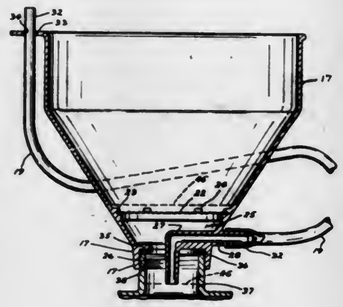
4,273,165
Patent Not Issued For This Number

4,273,166
COMBINATION FUNNEL AND SIPHON
Alan V. Bradley, 616 Lincoln Ave., Crookston, Minn. 56716
Filed Oct. 4, 1979, Ser. No. 81,800
Int. Cl.³ B65B 39/04; B67C 11/00
U.S. Cl. 141—95 4 Claims

1. A funnel for directing liquid into the cap-anchoring filler neck of a tank, comprising

a funnel-shaped receptacle having an open top and a peripheral wall and a lower annular sleeve formed integrally of the receptacle to embrace and seal against the filler neck of the tank and direct liquid into the tank, the sleeve also having an annular ledge facing downwardly to bear and seal against the top of the filler neck, the sleeve having attaching means to anchor the sleeve to the filler neck,

a single rigid depending tube located centrally of and within the annular sleeve and having a size significantly less than the inner diameter of the sleeve to permit free downward flow of liquid all around the inner periphery of the sleeve, the tube having a lower end free of the sleeve and extending downwardly beyond the lower end of the sleeve to extend into the filler neck, the tube having an upper end above the annular ledge and sleeve and being formed

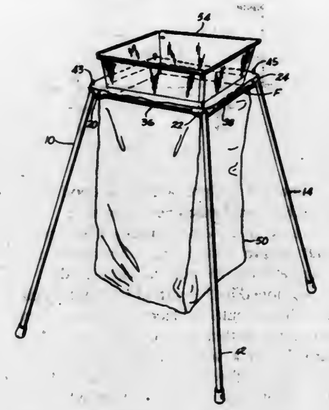


integrally of the receptacle wall, the upper end of the tube extending horizontally and outwardly through the receptacle wall and having a terminal end at the exterior of the receptacle wall, the horizontal upper end of the tube partially obstructing flow through the sleeve, an elongate flexible tubing connected with the terminal end of the rigid tube at the exterior of the receptacle to alternately extend upwardly along the receptacle and downwardly along the annular sleeve,

a metal screen traversing the interior of the receptacle and above the upper end of the tube and indicating the level of the liquid in the receptacle to produce siphoning flow of liquid from the filler neck of the tank, and releasable retainer means on the receptacle wall at the exterior thereof and releasably holding the flexible tubing of the upper end thereof.

4,273,167
TRASH BAG HOLDER
David J. Stillwell, 300 Washington Ave., #201D, Elyria, Ohio 44035
Filed Aug. 30, 1979, Ser. No. 71,038
Int. Cl.³ B65B 1/04
U.S. Cl. 141—314 10 Claims

10. A manually assemblable stand for removably supporting an associated pliable bag of predetermined size comprising; a closed four-cornered rectangular frame, legs depending downwardly and outwardly from the four corners of the frame, said frame having each corner thereof formed of a hollow tubular right-angle corner pipe elbow forming rod-receiving sockets disposed at right angles to each other, said frame also having the sides thereof formed of elongated members telescoped into the respective sockets of said corner pipe elbows to form the frame, each of said corner pipe elbows having a leg-receiving socket, said legs being telescoped into said leg-receiving sockets, each of said corner pipe elbows having an upstanding pin secured to the top surface thereof for detachably receiving a

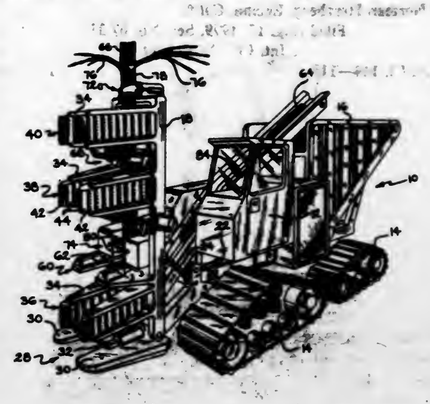


top edge portion of the associated pliable bag to hold such bag on the frame, said pins projecting upwardly and outwardly from the corner pipe elbows, a funnel having its lower portion receivable just within and so disposed the frame to guide the flow of material into the associated pliable bag when such bag is secured to the frame, and a cloth bag secured to said frame and extending downwardly therefrom, whereby the associated pliable bag is placed within the cloth bag and secured to the frame thereby protecting the associated pliable bag from rupturing.

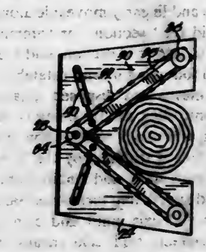
4,273,168
APPARATUS AND METHOD FOR HARVESTING TREES
Robert L. Propst, 4141-145th Ave. NE., Bellevue, Wash. 98007
Filed Sep. 24, 1979, Ser. No. 78,649
Int. Cl.³ A01G 23/08
U.S. Cl. 144—3 D 11 Claims

1. A timber harvesting machine for converting standing trees to bolt length logs comprising a vehicle frame having a front end, a tree-severing unit on said frame front end, an upright mast assembly on said frame extending upwardly from said severing unit, tree-gripping and feeding means mounted on said mast assembly operable to drive a gripped tree downwardly, a tree cutoff unit disposed below said gripping and feeding assembly and spaced above said severing unit a predetermined distance corresponding substantially to said bolt length, tree-delivery means operable to support and drive a severed tree rearwardly into engagement with said cutoff unit

so as to sever a bolt length log from the lower end of said severed tree, and tree cutoff means on said mast assembly located rearwardly of said cutoff unit and below said tree-gripping and feeding means operable to cut additional bolt length logs from the lower end of said tree as said tree-gripping and feeding means is operated to move said tree downwardly.

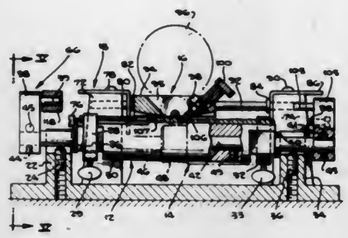


4,273,169
CABLE SAW FOR TREE HARVESTING APPARATUS
Paul W. Beenen, Wausau, Wis., assignor to J. I. Case Company, Racine, Wis.
Filed Apr. 12, 1979, Ser. No. 29,196
Int. Cl.³ A01G 23/08
U.S. Cl. 144—34 R 2 Claims



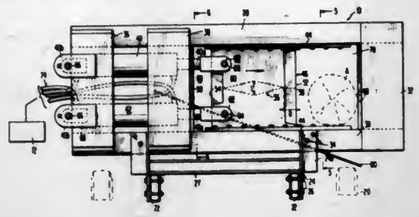
1. In a tree harvesting head having a frame with grapple means supported adjacent one end of said frame for gripping a standing tree and cutting means adjacent an opposite end for severing said tree gripped by said gripping means, said cutting means including a reversible motor supported on said frame and having an output shaft, a drive pulley secured to said output shaft and an idler pulley spaced from said shaft with means between said frame and idler pulley for moving said idler pulley between first and second positions, a cable entrained over said pulleys and having a plurality of spaced cutting elements at spaced locations thereon, each cutting element having first and second cutting edges at opposite ends thereof with each cutting edge extending circumferentially around the entire periphery of said cable and being radially spaced therefrom so that said cutting means will sever a tree while being driven in either direction.

4,273,170
PRECISION REED TRIMMING MACHINE
Norman Herzberg, 16712 Chaplin Ave., Encino, Calif. 91436, and James Compton, Jr., Long Beach, Calif., assignors to Norman Herzberg, Encino, Calif.
Filed Aug. 17, 1979, Ser. No. 67,330
Int. Cl.³ B27C 1/14
U.S. Cl. 144—115 12 Claims



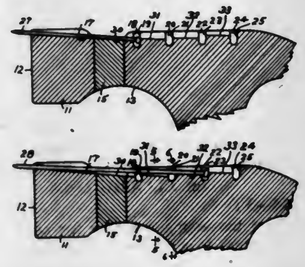
1. In an apparatus for trimming woodwind instrument reeds of the type having:
(a) reed supporting means for supporting a generally cylindroidal section of reed material and for allowing said reed section to rotate about its longitudinal axis, said supporting means being removable from said apparatus;
(b) cam means, journalled in parallel relation to said supporting means, for rotative movement about an axis parallel with said longitudinal axis of said reed section, for defining a gradient to be trimmed onto said reed section; and
(c) reed cutting means, pivotally disposed above said supporting means and linearly moveable along said longitudinal axis of said reed section, for trimming said gradient onto one half of said reed section, said reed cutting means including cam following means, rotatably attached to said reed cutting means and disposed adjacent to said cam means, for controlling the trimming of said reed by said cutting means, whereby a reed section mounted upon said supporting means is trimmed by the linear movement of said cutting means along said longitudinal axis of said reed section, as said supporting means and said cam means are rotated about said axis, until said cam following means completely contacts said cam means, whereupon said supporting means is removed from and remounted upon said apparatus to expose both halves of said reed section to said cutting means;
the improvement comprising:
(1) adjustable means, interlocking said supporting means and said cam means, for adjustably maintaining said supporting means and said cam means in a precise fixed rotational relation as said reed is trimmed;
(2) means for vertically changing the axis of rotation of said cam means relative to said supporting means, thereby controlling the depth of said gradient trimmed onto said reed section;
(3) means for determining the precise longitudinal center of said trimmed reed; and
(4) means for orienting said supporting means and said cam means in a precise predetermined rotational relationship when the rotational axis of said cam means is vertically altered by means of said changing means.

4,273,171
DUAL ACTION COMBINATION FIREWOOD CUTTING AND SPLITTING MACHINE
Bert W. Spaulding, Sr., R.F.D. 1, Box 280, Claremont, N.H. 03743
Filed Oct. 15, 1979, Ser. No. 84,692
Int. Cl.³ B27L 7/00
U.S. Cl. 144—193 A 10 Claims



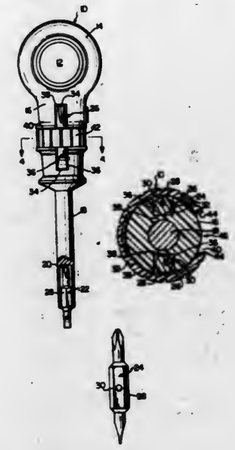
1. A combined reciprocating firewood log splitting and cutting machine, said machine comprising:
a thin, vertically oriented cutting blade mounted for horizontal reciprocation along a horizontal cutting path and bearing at least one vertical cutting edge,
a stop positioned in the path of said cutting blade and defining with said cutting blade a guillotine cutting area for a log inserted within said cutting area,
a relatively thick wedge means mounted to said cutting blade rearwardly of the cutting edge and projecting to one side thereof, opposite the side from which a log is inserted, and bearing a tapered splitting edge facing towards said stop with said tapered splitting edge positioned rearwardly of the cutting blade cutting edge; and
means for reciprocating said blade towards and away from said stop to open and close said guillotine cutting area such that during closure of said area there results initial partial severance of a firewood length log section from said inserted log and subsequently, splitting only of said partially severed log section by said wedge means prior to complete severance of said log section from said inserted log.

4,273,172
NAIL HOLDING HAMMER HEAD
Jack D. Hoosier, 488 Hill Rd., Green Lane, Pa. 18054
Filed May 12, 1980, Ser. No. 149,185
Int. Cl.³ B25C 1/00; B25D 1/00
U.S. Cl. 145—30 R 4 Claims



1. A hammer head having a longitudinal groove leading away from the striking face to temporarily receive the shank of a nail to be struck into a receiving surface, and having a plurality of transverse grooves crossing the longitudinal groove along its length at spaced intervals to receive the nail heads and provide nail head abutment surfaces, the bottom of the longitudinal groove being stepped upwardly between said transverse grooves away from the striking surface so that the heads of finishing nails will bear against said abutment surfaces.

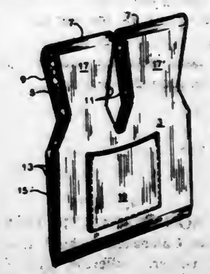
4,273,173
DEVICE FOR TRANSMITTING TORQUE
Lloyd T. Smith; Alan E. Bartholomew, both of Newton; Robert W. Fee; Michael L. Meister, both of Wichita; Richard J. Robbins, Derby, and Richard E. Ten Eyck, Wichita, all of Kans., assignors to S/V Tool Company, Inc., Newton, Kans.
Filed Oct. 17, 1979, Ser. No. 85,812
Int. Cl.³ B25G 1/08
U.S. Cl. 81—177 M 1 Claim



1. In a torque transmitting device,
an elongated stem provided with an enlarged, integral handle;
a shank secured to the stem in axial alignment therewith,
said shank extending from the stem oppositely from said handle,
said stem being provided with an elongated, outwardly-opening, tool-storing slot extending longitudinally of the stem between the handle and the shank,
said slot terminating in a pair of opposed, spaced-apart, radial end walls, one being spaced from the shank and facing toward the handle, the other being adjacent the handle and facing toward the shank, presenting stops for precluding displacement of the tool longitudinally of the slot,
said stem having an outwardly-opening, circumferential groove between the handle and the shank of lesser depth than the slot,
said groove intersecting the slot and otherwise surrounding the stem, the slot being otherwise uninterrupted between said ends thereof; and
a C-shaped, tool-retaining, band-like ring confined in said groove and rotatable about the axis of the stem,
said ring being substantially equal in width to the width of the groove, and having a pair of opposed ends, presenting a space therebetween alignable with the slot upon rotation of the ring, and through which the tool may be inserted into and removed from the slot.

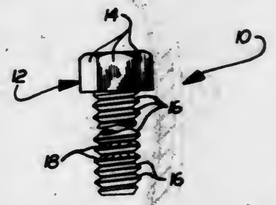
4,273,174
HANDBAG
Mary S. Potter, 1020 Glaan Rd., Toledo, Ohio 43607
Filed Sep. 13, 1979, Ser. No. 74,961
Int. Cl.³ B65D 33/06
U.S. Cl. 150—3 17 Claims

1. A flexible container fabricated of a flexible sheet material, said container having equal side walls, said side walls having an upper portion and a lower portion, said upper portion having a central cutout opening and opposed edge cutout openings defining two carrying and closing loops, said lower portion being joined to form the container, each of said loops having a converging portion, a diverging portion and a narrowest point



below the midline of the upper portion where said converging portion changes to said diverging portion and a closure defined by said loops formed by passing one of said loops through the other of said loops whereby such container is loosely closed and may be carried by said one of said loops.

4,273,175
THREAD CONVOLUTION
Terry D. Capuano, Hinckley, Ohio, assignor to The Lamson & Sessions Co., Cleveland, Ohio
Filed Apr. 4, 1979, Ser. No. 26,879
Int. Cl.³ F16B 39/02
U.S. Cl. 411—168 6 Claims



1. A first thread convolution adapted to engage a second thread convolution, said first thread convolution comprising first and second flank portions which extend from opposite sides of a crest of said first thread convolution to a root of said first thread convolution, and retainer means for enabling relative rotation to occur between said first and second thread convolutions in a first direction and for retarding relative rotation between said first and second thread convolutions in a second direction which is opposite from said first direction, said retainer means including a resiliently deflectable spring portion which forms part of said first flank portion, said spring portion being integrally formed with said first thread convolution and being resiliently deflectable toward the second flank portion from an extended position to a retracted position under the influence of forces applied to said spring portion by a flank surface of the second thread convolution, said spring portion including surface means for penetrating the flank surface of the second thread convolution and for effecting movement of said spring portion from the retracted position toward the extended position upon relative rotation between said first and second thread convolutions in the second direction, said spring portion being effective to transmit forces retarding relative rotation in the second direction between said first and second thread convolutions upon movement of said spring portion from the retracted position toward the extended position after having penetrated the flank surface of the second thread con-

volution, said surface means including a pointed end portion which is disposed radially outwardly of the pitch diameter of said first thread convolution and is disposed radially inwardly of the crest of said first thread convolution, said pointed end portion extending along the flank of the second thread convolution when said spring portion is in the retracted position and extending into the flank of the second thread convolution when said spring portion moves toward the extended position upon relative rotation between said first and second thread convolutions in the second direction.

4,273,176

NON-PNEUMATIC TIRE

Ransome J. Wyman, Calabasas; Richard A. Alshin, Long Beach, and Charles H. Gilbert, Fullerton, all of Calif., assignors to Carefree Bicycle Tire Company, Marina Del Rey, Calif.

Continuation-in-part of Ser. No. 906,691, May 16, 1978, abandoned. This application May 8, 1979, Ser. No. 37,393
Int. Cl.³ B60C 7/12
U.S. Cl. 152—327 **10 Claims**



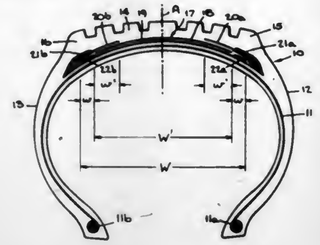
1. An improvement in a non-pneumatic tire having a solid monolithic true body made of a urethane elastomer for the use on a wheel rim having a pair of laterally spaced bead flanges and side walls and a circumferential channel forming the bottom of the rim which comprises:
said tire body having a circumferentially extending tunnel formed on the inside of said tire body;
said tire body having inclined side walls that converge outwardly from each other, the apex of said side walls forming a crown, the tread portion of the tire located at said crown;
each of said side walls terminating in a thickened portion forming a bead shoulder that seats on the top of the head flanges of said wheel rim and including a bead extending essentially downward from said thickened portion;
the portion of said beads distal to said thickened portion forming a lower bead wall;
a bead cord extending essentially circumferentially within said bead proximal to said lower bead wall;
each of said beads fitting into said rim adjacent to one of said walls positioning said cords within said rim between said bead flanges and said bottom of said rim;
said bead cord is held within said bead in the shape of a multisided closed polygon having arcuate shaped sides.

4,273,177

PNEUMATIC RADIAL TIRE WITH FOLDED PLY BREAKER HAVING SOFT CUSHION SURROUNDING BREAKER EDGE

George H. Nybakken, Prospect, Conn., assignor to Uniroyal, Inc., New York, N.Y.

Filed Mar. 31, 1980, Ser. No. 136,182
Int. Cl.³ B60C 9/20
U.S. Cl. 152—360 **10 Claims**



1. A pneumatic radial tire comprising:
a carcass including a pair of beads and at least one ply having cords extending from one bead to the other and disposed substantially radially of the tire;
a reinforcing breaker extending substantially circumferentially of the tire over said carcass; and
tread and sidewall portions of elastomeric material over said carcass;
said reinforcing breaker comprising an unfolded inner first ply of cord material coated with elastomeric material and an outer second ply of cord material coated with elastomeric material and folded to form two opposed flap portions which fold over on said outer ply and on said inner ply, the edges of said inner ply being spaced apart from the folded edges of said outer ply so that said outer ply has folded two-layer regions; and
a cushion portion of elastomeric material above, at the edge, and below each two-layer region of said outer ply substantially separating said each two-layer region from the adjacent radial carcass ply, tread and sidewall portions, said cushion portions of elastomeric material being softer than said tread portion and softer than said elastomeric material coating said inner and outer plies of said breaker.

4,273,178

VIBRATOR CASTING SYSTEM WITH FEEDBACK

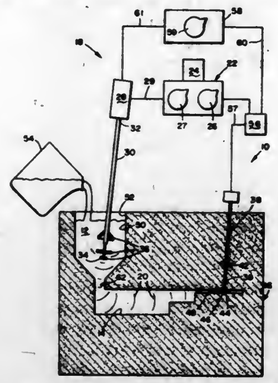
Alexander Goloff, East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Jul. 9, 1979, Ser. No. 55,588
Int. Cl.³ B22D 2/00, 46/00
U.S. Cl. 164—4 **16 Claims**

1. An apparatus (10) for aiding the flow of a liquid (12) in a cavity (14) to improve the filling thereof, comprising:
means (18) for generating a plurality of waves (20) in the liquid (12) in the cavity (14) at a first location (50);
means (38) for sensing the waves (20) at a second location (48) spaced from the first location (50), said first location (48) of said cavity (14) defining a first cross-section generally orthogonal to flow thereat and said second location (50) of said cavity (14) defining a second cross-section generally orthogonal to flow thereat, a minimum dimension of said first cross-section being significantly smaller than a minimum dimension of said second cross-section; and
means (56) for controlling said generating means (18) in response to the waves (20) sensed by said sensing means (38).

10. A method for filling a cavity (14) with a liquid (12), comprising:

introducing the liquid (12) into the cavity (14);
generating waves (20) in the liquid (12) at a first position (50) in the cavity (14);
sensing the waves (20) in the liquid (12) at a second position (48) in the cavity (14), the second position (48) being spaced apart from the first position (50), said second position (48) being selected such that a minimum dimension of



a cross-section generally orthogonal to flow thereat at said cavity (14) at said first position (50) is significantly larger than a minimum dimension of a cross-section generally orthogonal to flow thereat at said cavity (14) at said second position (48); and
controlling the generating of the waves (20) responsive to the waves (20) sensed.

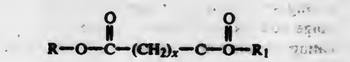
4,273,179

PHENOLIC RESIN-POLYISOCYANATE BINDER SYSTEMS CONTAINING DIBASIC ESTER SOLVENTS

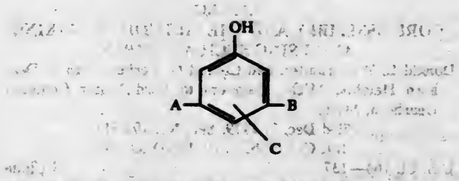
John J. Gardikes, Worthington, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Aug. 16, 1978, Ser. No. 934,287
Int. Cl.³ C08K 5/09, 5/10; B22C 1/22
U.S. Cl. 164—43 **19 Claims**

1. A binder composition comprising in admixture a resin component, a hardener component, and a curing component, said resin component comprising a solution of resin in an organic solvent (comprising at least a dibasic ester of) said solvent comprising a dibasic ester having the following formula:



wherein X is 1, 2, 3, or 4, R is an alkyl group of from one to four carbon atoms and R_1 is an alkyl group of from one to four carbon atoms and said resin is a non-aqueous phenolic resin which comprises a condensation product of a phenol having the general formula:



wherein A, B, and C are hydrogen, hydrocarbon radicals or halogen, with an aldehyde having the general formula R'CHO wherein R' is a hydrogen or a hydrocarbon radical of 1 to 8 carbon atoms; said hardener component comprising a liquid polyisocyanate containing at least two isocyanate groups; and said curing component comprising a tertiary amine.

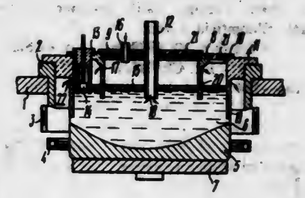
19. The process of preparing shaped foundry products which comprises:
(a) forming a foundry mix by uniformly distributing on a foundry aggregate containing sand as the major constituent a binding amount of upto 10% based on the weight of the aggregate of a binder composition obtained by combining the phenolic resin component of claim 1 and the hardener component of claim 1, said polyisocyanate being employed in a concentration of 10 to 500% by weight of the phenolic resin;
(b) shaping the foundry mix in a mold; and
(c) curing the shaped foundry mix with a gaseous tertiary amine catalyst.

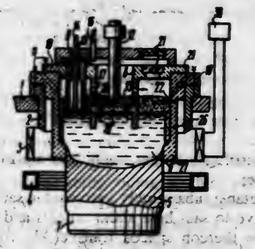
4,273,180

PROCESS AND APPARATUS FOR CONTINUOUS CASTING OF METAL IN ELECTROMAGNETIC FIELD

Anatoly S. Tertishnikov, ulitsa Sovetskaya, 42, kv. 9; Boris P. Platunov, ulitsa Sovetskaya, 40, kv.51, both of, Mtsensk Orlovskoi oblasti; Alexei V. Novikov, ulitsa Vvedenskogo, 24, kv. 12, Moscow; Nikolai A. Gordeev, ulitsa Karla Marxa 81, kv. 29, Mtsensk Orlovskoi oblasti; Eduard K. Belebashev, ulitsa Narodnaya, 7, kv. 40; Dmitry P. Lovtsov, ulitsa Butlerova, 10, kv. 132, both of, Moscow; Vladimir A. Korytov, 1 Mikroraion, 6, kv. 67, and Jury P. Ignatiev, 1 Mikroraion, 18, kv. 34, both of, Mtsensk Orlovskoi oblasti, all of U.S.S.R.

Filed Mar. 8, 1979, Ser. No. 18,835
Int. Cl.³ B22D 27/02
U.S. Cl. 164—49 **16 Claims**





1. A process for continuous casting of metal in electromagnetic field, which comprises delivering a molten metal onto a bottom plate disposed in said electromagnetic field acting to support said molten metal in the form of a column which solidifies from the bottom to the top with a liquid portion at the top of said column and a solidifying skin being formed about said column; feeding a coolant to the side surface of solidified ingot; and providing a protective medium about the liquid portion of said column, said protective medium being held in place at ingot side surface of said liquid portion by means of a funnel-shaped band formed with an annular section with its bottom portion closely adjoining the ingot solidifying skin

above the level from which the coolant is fed to the ingot side surface.

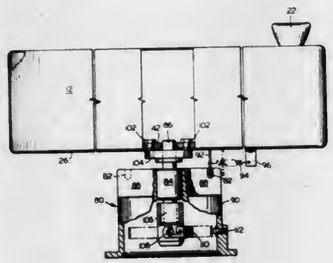
7. An apparatus for carrying into effect the continuous casting of metal in electromagnetic field, comprising: a frame; a ring-shaped baffle for shielding the electromagnetic field mounted onsaid frame; a magnetic inductor mounted on said frame and arranged coaxially with said baffle; a ring shaped cooler mounted on said frame and arranged coaxially with said ring-shaped baffle and said magnetic inductor; said ring-shaped baffle, magnetic inductor and cooler forming and enveloping an ingot-forming space; a bottom plate located in and forming the bottom of said ingot-forming space; a cover positioned above said ring-shaped baffle and forming the top of said ingot-forming space, said cover having a first opening for the ingot-forming metal in molten form to pass therethrough, a second opening for a rod of a metal level float gauge to extend therethrough and indicate the height of the molten ingot-forming metal in said ingot-forming space, and a third opening for a protective medium which prevents oxidation of the molten-ingot forming metal to pass therethrough; at least one shell positioned on said cover in the ingot-forming space and, fixed on said baffle means by a flange in a manner to permit the lower end face of said shell to be immersed in the ingot molten metal to define a portion of the horizontal liquid portion of the ingot surface as being confined within said shell lower end face so that the latter constitutes a boundary around said ingot liquid surface portion, said shell being formed of a refractory nonmagnetic material chemically inert to the protective medium and having low conductivity and means for introducing the protective medium through said third opening onto the ingot liquid surface portion bounded by said shell end face.

4,273,181

CENTRIFUGAL CASTING MACHINE

Irving G. Winer, Yucaipa, Calif., assignor to The J. M. Ney Company, Bloomfield, Conn.

Filed Oct. 30, 1979, Ser. No. 89,523
Int. Cl.³ B22D *13/00*
U.S. Cl. 164—114 **8 Claims**



1. A centrifugal-casting machine comprising:
a. a base;
b. a rotatable subassembly journaled in said base for rotation relative to said base about an axis and having mounting means thereon spaced transversely from said axis and adapted for mounting a centrifugal-casting crucible and mold;
c. drive means including drive spring means, said drive means being operatively connected to said base and said rotatable subassembly for winding of said drive spring means by rotation of said rotatable subassembly relative to said base in one direction and for urging of said rotatable subassembly in the other direction by said drive spring means when it is wound, said drive means permitting said rotatable subassembly to rotate in the other direction without winding said drive spring means;
d. handle means including a handle portion adapted to be manually gripped by the user, said handle means being slidably mounted on said rotatable subassembly for sliding movement radially thereof from a first position, in which said handle portion is spaced farther from said axis, to a second position, in which said handle portion is positioned closer to said axis; and
e. cooperating locking means on said base and said handle means, said locking means being engageable upon movement of said handle means to said second position to prevent rotation of said rotatable subassembly relative to said base in said other direction and disengageable upon movement of said handle means to said first position to permit such rotation, whereby winding, locking, and release can all be effected by manipulation of said handle means.

8. A method of operating a centrifugal-casting machine comprising the steps of:
a. providing a centrifugal-casting machine that includes:
(i) a base;
(ii) a rotatable subassembly journaled in said base for rotation relative to said base about an axis and having mounting means thereon spaced transversely from said axis and mounting a centrifugal-casting crucible and mold;
(iii) drive means including drive spring means, said drive means being operatively connected to said base and said rotatable subassembly for winding of said drive spring means by rotation of said rotatable subassembly relative to said base in one direction and for urging of said rotatable subassembly in the other direction when said drive spring means is wound, said drive means permitting said rotatable subassembly to rotate in the other direction relative to said base without winding said drive spring means;
(iv) handle means including a handle portion adapted to be manually gripped by the user, said handle means being slidably mounted on said rotatable subassembly for sliding movement radially thereof from a first position in which said handle portion is spaced farther from said axis to a second position in which said handle portion is positioned closer to said axis; and
(v) cooperating locking means on said base and said handle means, said locking means being engageable upon movement of said handle portion to said second position to prevent rotation of said rotatable subassembly relative to said base in said other direction and disengageable upon movement of said handle means to said first position to permit such rotation, whereby winding, locking, and release of said centrifugal-casting machine are all possible by manipulation of said handle means;
b. with said handle means in said first position, urging said handle portion about said axis in said one direction, thereby winding said drive spring means;
c. moving said handle portion to said second position to engage said cooperating locking means;
d. heating a charge of material in said crucible to a molten state;
e. moving said handle portion to said first position; and
f. releasing said handle portion of said handle means, thereby permitting said drive means to rotate said rotatable subassembly.

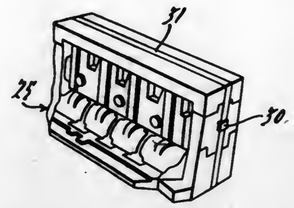
4,273,182

CORE ASSEMBLY AND THE METHOD OF MAKING AND USING SUCH ASSEMBLY

Donald L. Winterhalter, and Conrad G. Perkey, both of Dearborn Heights, Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Dec. 7, 1979, Ser. No. 101,311
Int. Cl.³ B22C *9/10*; B22D *33/04*
U.S. Cl. 164—137 **9 Claims**

1. A method of making a metal casting, comprising:
(a) assembling for use as a unit a plurality of selectively disintegratable cores;
(b) securing said unit by at least one annular strap tightly binding said unit, said strap consisting of a material that is dissipatible by the heat of the metal to be cast; and



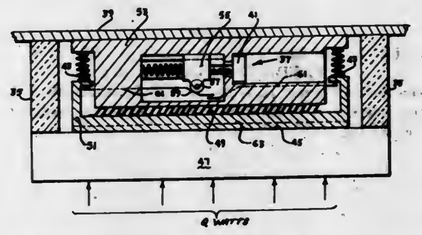
(c) placing said unit in a mold and pouring molten metal thereinto to form a casting while dissipating said strap.

4,273,183

MECHANICAL HEAT TRANSFER DEVICE

Frank E. Altoz, Catonsville, and William H. Winn, Linthicum, both of Md., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jul. 31, 1979, Ser. No. 62,592
Int. Cl.³ F28F *27/00*
U.S. Cl. 165—32 **2 Claims**



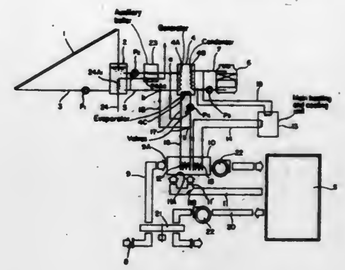
1. A unidirectional heat transfer device for use on an aircraft to cool an electronic assembly installed therein, said heat transfer device comprising a heat exchanger in surface contact with the electronic assembly, a plate assembly having one side in surface contact with said heat exchanger, interface coupling surfaces formed between said heat exchanger and said plate assembly, a flexible thermal conductor in surface contact with the other side of said plate assembly, a stationary outer conductor plate having one side in surface contact with said flexible thermal conductor, the other side of said conductor plate being in contact with the outer skin of the aircraft, a thermal actuator positioned within said outer conductor plate for sensing and reacting to the increase in temperature of the outer skin of the aircraft, said actuator being fabricated of a phase change material, an actuator piston attached to said thermal actuator for producing linear movement in response to phase change thereof, a cam roller attached to said actuator piston for movement therewith, a pair of pivoting links positioned between said cam roller and said plate assembly, a cam surface on one of said pivoting links in contact with said cam roller to cause said pivoting links to pivot in response to movement of said cam roller, the pivoting of said pivoting links producing a decoupling movement of said plate assembly to prevent heat from the outer skin of the aircraft from flowing back to the electronic assembly, a first biasing means for holding said plate assembly against the surface of the electronic assembly, and a second biasing means for urging said actuator piston back to its first position when the temperature of the outer skin of the aircraft decreases to a predetermined lower level, thereby allowing heat to flow again from the electronic assembly to the outer skin of the aircraft.

4,273,184

SOLAR HEAT UTILIZED AIR-CONDITIONING SYSTEM

Shunroku Tanaka, Tokyo; Jun Inoue, Matsubara; Katsuroo Yukimachi, Sakai, and Keiichi Minamino, Matsubara, all of Japan, assignors to Osaka Gas Kabushiki Kaisha, Osaka, Japan

Filed Sep. 5, 1978, Ser. No. 939,317
Int. Cl.³ F24F *7/00*
U.S. Cl. 165—59 **2 Claims**



1. A cooling and heating system utilizing solar heat comprising;
an air-conditioning unit (10) disposed intermediately of a fresh-air intake path (9) leading to space (S) to be air conditioned, said air-conditioning unit (10) having a main heat exchanger (15) and an auxiliary heat exchanger (12) arranged in parallel with and adjacent to each other therein with said auxiliary heat exchanger (12) disposed at a fresh-air intake side thereof,
a main cooling and heating apparatus (13) of a type not utilizing solar heat and capable of selectively supplying cold or warm water to said main heat exchanger (15),
an auxiliary cooling and heating apparatus of a type utilizing solar heat and capable of selectively supplying cold or warm water to said auxiliary heat exchanger (12), said auxiliary cooling and heating apparatus including; a solar heat collecting unit (1), a regenerator tank (2) for storing warm water heated by solar heat obtained by said solar heat collecting unit (1), an absorption type refrigerating machine (4) for producing cold water by provoking a refrigerating cycle of evaporation-condensation-vaporization-absorption of an incorporated refrigerant using the heat of the warm water supplied from said regenerator tank (2), warm water circuits (5) (18) for supplying the warm water from said generator tank (2) selectively to said absorption type refrigerating machine (4) or to said auxiliary heat exchanger (12), and a cold water circuit (17) for selectively supplying or not supplying the cold water from said absorption type refrigerating machine (4) to said auxiliary heat exchanger (12),
an air return path (11) extended from said space to be air-conditioned (S) and being opened in and communicated with said air conditioning unit (10) at a portion of a fresh-air intake side with respect to said auxiliary heat exchanger (12), said air return path (11) being provided with a branched path (11') opened in and communicated with said air conditioning unit (10) at an intermediate portion between said main and auxiliary heat exchangers (15), (12), and a damper (11B) to selectively open and close said branched path (11'), and
a further heat exchanger (21) disposed between said fresh-air intake path (9) and an exhaust path (20) extending from said space to be air-conditioned (S).

4,273,185

DEVICE FOR HOLDING A DISC-SHAPED SEMICONDUCTOR ELEMENT

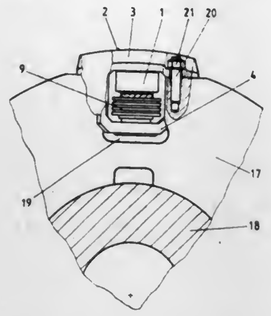
Kurt Thoma, Birr, and Urban Ulrich, Fislisbach, both of Switzerland, assignors to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Dec. 20, 1978, Ser. No. 971,543

Claims priority, application Switzerland, Jan. 17, 1978, 457/78

Int. Cl.³ H01L 23/02; F28F 7/00

U.S. Cl. 165—80 B **11 Claims**



1. An arrangement for holding at least one disc-shaped semiconductor element on a support wheel, comprising:

a support wheel having at least one recess on an outer circumference, said support wheel being provided on a shaft;

at least one disc-shaped semiconductor element having first and second contact surfaces;

at least one carrier, said carrier releasably receiving said at least one disc-shaped semiconductor element, with said carrier being releasably received within at least one said recess of said support wheel, said carrier including a support body and a yoke with said support body and said yoke being of unitary construction, said carrier having a first clamping surface provided on one side of the disc-shaped semiconductor element and a second clamping surface provided on another side of the disc-shaped semiconductor element; and

biasing means for urging the first and the second clamping surfaces against the contact surfaces of the disc-shaped semiconductor element.

4,273,186

WELL SAFETY VALVE SYSTEM

Joseph L. Pearce, Dallas; John H. Yonker, Carrollton, and Thomas M. Deaton, Dallas, all of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Nov. 13, 1978, Ser. No. 960,170

Int. Cl.³ E21B 34/10

U.S. Cl. 166—72 **21 Claims**

1. A well safety system comprising:

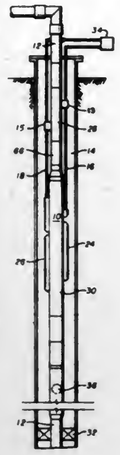
a tubing retrievable safety valve connectable in a tubing string having means for controlling flow therethrough and means responsive to pressure for opening and closing said valve;

a control line for conducting a pressure fluid to said valve;

a balance line for conducting a pressure fluid to said valve;

a landing nipple connectable in said tubing string, spaced from said tubing retrievable safety valve, for receiving a secondary safety valve;

means for connecting said control and balance lines to said landing nipple;



means for selectively conducting the pressure fluids from said lines to either the tubing retrievable safety valve or to said landing nipple.

4,273,187

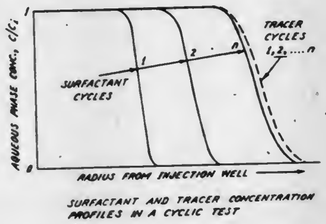
PETROLEUM RECOVERY CHEMICAL RETENTION PREDICTION TECHNIQUE

Abdus Satter; Richard H. Widmyer; Yick M. Shum, all of Houston, and Curtis E. Howard, Porter, all of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,963

Int. Cl.³ E21B 47/00, 49/00

U.S. Cl. 166—250 **8 Claims**



SURFACTANT AND TRACER CONCENTRATION PROFILES IN A CYCLIC TEST

1. A method for determining the amount of a chemical that is retained within a subterranean reservoir undergoing a chemical flooding operation comprising:

(a) conducting a first injection-soak-production cycle in a single well which penetrates and communicates with a portion of the reservoir with a volume of a fluid which comprises the retained chemical and a non-retained tracer material;

(b) obtaining from a produced fluids concentration profile of the tracer the reservoir volume contacted and a dispersion parameter describing the dispersion effects for a non-retained material within the reservoir;

(c) obtaining retention parameters for the retained chemical by history-matching the actual produced fluids concentration profile of the retained chemical with a simulated produced fluids concentration profile of the retained chemical for this cycle obtained from a chemical flood mathematical model of the reservoir;

(d) simulating within the chemical flood mathematical model at least one more injection-soak-production cycle in the well utilizing a fluid of the same volume and comprising the same concentration of the retained chemical as in step (a) until such time as the simulated produced fluid concentration profile of the chemical is essentially the same as the actual produced fluid concentration profile of tracer from step (a);

(e) determining the amount of chemical retained within the contacted reservoir volume for the cyclic test by summing the amount of the chemical retained in step (a) and the amounts of the chemical retained in the simulated cycles of step (d);

(f) determining the amount of the chemical that is retained per unit volume by those portions of the reservoir undergoing the cyclic test by dividing the summed amount of chemical retained in step (e) by the reservoir volume contacted in the cyclic test from step (a); and

(g) determining the total amount of chemical retained within those portions of the reservoir as a whole that undergo the chemical flood from the information in step (f).

4,273,188

IN SITU COMBUSTION PROCESS FOR THE RECOVERY OF LIQUID CARBONACEOUS FUELS FROM SUBTERRANEAN FORMATIONS

Roger F. Vogel, Butler; Ajay M. Madgavkar, Pittsburgh, and Harold E. Swift, Gibsonia, all of Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa.

Filed Apr. 30, 1980, Ser. No. 145,368

The portion of the term of this patent subsequent to Feb. 5, 1997, has been disclaimed.

Int. Cl.³ E21B 43/24

U.S. Cl. 166—256 **19 Claims**

1. The in situ combustion process for recovering liquid hydrocarbons from subterranean formations which comprises injecting a stream of combustion air into at least one injection well leading to a combustion zone in said subterranean formation, producing liquid hydrocarbons and combustion gas from at least one production well, separating the liquid hydrocarbons from the stream of combustion gas whereby a separated stream of flue gas is obtained having a heating value between about 15 Btu/scf. and about 200 Btu/scf. and containing at least one aliphatic hydrocarbon having from one to about seven carbon atoms, passing said flue gas stream admixed with air for combustion through two combustion zones in series comprising a first combustion zone and a second combustion zone in contact with two different catalysts consisting of a supported bimetallic catalyst comprising platinum and at least one metal oxide cocatalyst selected from Groups IIA and VIIB, Group VIII up through atomic No. 45, the lanthanides, chronium, zinc, silver, tin and antimony in one combustion zone and an oxidation catalyst which does not have the carbon monoxide suppressing capability of the bimetallic catalyst in the other combustion zone at a temperature in each combustion zone which is high enough to initiate and maintain combustion of said gas stream, the total amount of combustion air being sufficient to provide an air equivalence ratio between about 0.20 and less than 1.0, expanding the gas stream in a gas turbine following said catalyzed combustion; and driving an air compressor with said gas turbine to compress and inject said stream of combustion air into the said subterranean combustion zone.

4,273,189

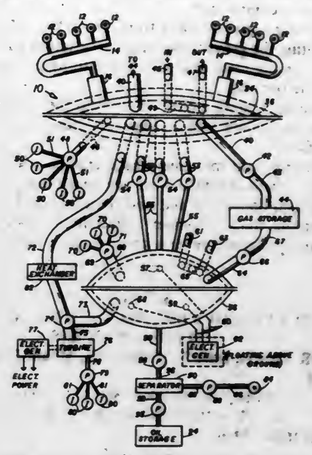
METHOD AND APPARATUS FOR RECOVERING NATURAL GAS FROM GEOPRESSURED SALT WATER

Neil L. Carpenter, 392 Englewood, Kerrville, Tex. 78028

Continuation-in-part of Ser. No. 914,879, Jun. 12, 1978, abandoned. This application Oct. 30, 1979, Ser. No. 89,287

Int. Cl.³ B01D 19/00; C02F 1/46; C25B 1/04; E21B 43/40

U.S. Cl. 166—266 **56 Claims**



1. A method of recovering hydrocarbon gases from hot geopressured salt water, comprising the steps of

recovering the geopressured salt water from a subsurface earth formation,

discharging the geopressured salt water into a variable volume container at a substantially reduced pressure for causing release of hydrocarbon gases therefrom,

agitating the geopressured salt water during said discharge step for enhancing release of the hydrocarbon gases, and

recovering the released hydrocarbon gases.

21. A method of recovering hydrocarbon gases from connate salt water associated with crude oil recovered from a producing oil well, comprising the steps of

separating the connate salt water containing dissolved hydrocarbon gases from the recovered crude oil,

electrically isolating said separated connate salt water,

establishing an AC electrical current flow in said separated connate salt water for causing disassociation of hydrocarbon gases therefrom, and

recovering said disassociated hydrocarbon gases.

4,273,190

METHOD AND APPARATUS FOR GRAVEL PACKING MULTIPLE ZONES

Eugene E. Baker; David D. Szarka, both of Duncan, Okla.; Odie R. S. Davis, Humble, and Nolan M. Workman, Lewisville, both of Tex., assignors to Halliburton Company, Duncan, Okla.

Filed Dec. 27, 1979, Ser. No. 107,699

Int. Cl.³ E21B 43/04

U.S. Cl. 166—278 **37 Claims**

1. Apparatus for circulating fluid to at least one formation in a well bore, comprising:

seal means to isolate said at least one formation from said well bore above said formation;

fluid passage means adapted to carry said fluid between a location substantially removed from and above said at least one formation and said at least one formation in isolation from said well bore;

circulation means in fluid communication with said fluid passage means and adapted to circulate said fluid from

said fluid passage means in one direction to said at least one formation and back to said fluid passage means, and to receive said fluid in the reverse direction from said fluid passage means and return it thereto without moving fluid in contact with said at least one formation; and

positioner means to position said circulation means adjacent said at least one formation.

30. A method of gravel-packing at least one zone pierced by a well bore, comprising:

circulating a gravel slurry from the surface to said zone;

depositing the gravel from said slurry across said at least one zone in the form of a pack and returning slurry-free fluid to the surface;

reverse circulating a clean fluid from the surface to a location proximate said at least one zone and back to the surface;

preventing fluid movement adjacent the wall of said well bore except at said at least one zone during said circulating, said depositing and said returning; and

preventing fluid movement adjacent the wall of said well bore during said reverse circulating.

4,273,191

SIMULTANEOUS OIL RECOVERY AND WASTE DISPOSAL PROCESS

Joseph R. Hradel, 6482 S. Mission Rd., Mount Pleasant, Mich. 48858

Filed Feb. 25, 1980, Ser. No. 123,940
Int. Cl.³ C10G 1/04; E21B 43/22, 43/267
U.S. Cl. 166—305 R 8 Claims

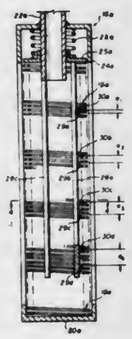
1. In a process for recovering oil from an oil bearing mass, by treating the mass with an aqueous liquid, the improvement which comprises treating said mass with a black liquor, thereby effecting the release of oil from said mass.

4,273,192

METHOD FOR CLEANING A SAND SCREEN

Fuad T. Saadeh, Bellaire, and Marc F. Fontaine, Houston, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 952,747, Oct. 19, 1978, Pat. No. 4,200,150.
This application Oct. 3, 1979, Ser. No. 81,416
Int. Cl.³ F21B 37/08, 43/08
U.S. Cl. 166—312 8 Claims



1. A method for cleaning a helical spring screen having a production tube extending into the screen for producing solids-free liquid following the step of injecting a high pressure hydraulic pulse into the helical spring screen for expanding the coils of the helical spring screen comprising the step of,

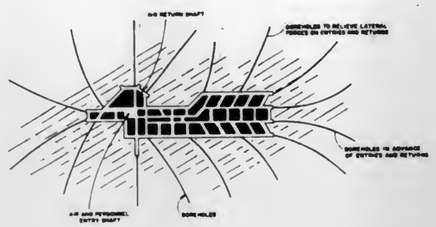
(a) urging the expanded coils toward each other after having expanded to a predetermined amount by the hydraulic pulse, by actuation of an actuator means for crushing and forcing loose the solids from between the coils for removal thereof upon subsequent spreading and cleaning of the coils.

4,273,193

PROCESS FOR USE IN DEGASIFICATION OF SUBTERRANEAN MINERAL DEPOSITS

John C. Tompkins, Oklahoma City, Okla., assignor to Kerr-McGee Coal Corporation, Oklahoma City, Okla.

Filed Feb. 8, 1980, Ser. No. 119,746
Int. Cl.³ E21B 7/08, 47/022, 43/25
U.S. Cl. 166—314 4 Claims



1. A process for removing gases from a subterranean mineral deposit comprising:

providing a drilling apparatus capable of producing horizontal boreholes within the subterranean deposit;

positioning said drilling apparatus within a passage within said deposit to drill a horizontal borehole in a predetermined position to effect gas removal from said deposit;

drilling a horizontal borehole by advancing a rotating drill bit from said drilling apparatus by connecting a plurality of segments of drill rod to the end of said drill bit to form a drill string while applying horizontal force produced by the drilling apparatus to the segment of drill rod nearest said drilling apparatus, said horizontal force being translated through the drill string comprising the plurality of drill rods to advance said drill bit;

providing directional guidance for said drilling through use of a continuous survey instrument positioned near the end of said drill string connected to said drill bit, said survey instrument being connected to data display devices positioned outside the borehole by an internal drill rod cable system passing through the interior of said drill string;

providing said drilling apparatus with a drilling chuck assembly which includes a rotatable drill chuck, a hollow drive shaft, operatively associated with a rotational means, said drive shaft being interposed between and connected to said drill chuck, a stationary drilling fluid adaptor fitting for introducing drilling fluid into said drill string connected to said drilling apparatus and a hollow cable support rod which extends through the interior of said rotatable drill chuck, hollow drive shaft and stationary drilling fluid adaptor fitting, said support rod having a rotating support positioned upon that end of the support rod which is within the interior of the drill chuck, said rotating support being capable of rotation with the rotation of the drill chuck while maintaining the support rod in a fixed, non-rotating position to permit said cable connecting said survey instrument to said data display devices to pass through the interior of said hollow cable support rod without being subjected to substantial rotation during rotation of said drill chuck;

withdrawing said drill string including said survey instrument and said drill bit from the borehole upon completion of drilling to a predetermined depth; and

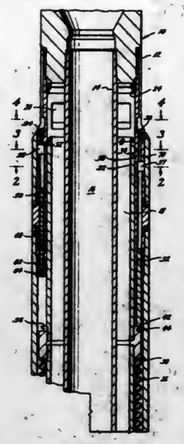
withdrawing gas which flows into said borehole from the surrounding mineral deposit from said borehole.

4,273,194

ANNULAR FLOW CONTROL SAFETY VALVE

Ronald E. Pringle, and Paul W. Black, both of Houston, Tex., assignors to Camco, Incorporated, Houston, Tex.

Filed Feb. 11, 1980, Ser. No. 120,439
Int. Cl.³ E21B 43/00
U.S. Cl. 166—323 7 Claims



1. A well safety valve comprising,

a tubular housing

a tubular inner member connected to the housing and positioned concentrically in the housing forming an inner passageway inside of the inner member and an outer passageway between the inner member and the housing,

said housing having valve openings leading from the outer passageway to the exterior of the housing,

a tubular valve closure member telescopically movable on the interior of the housing for opening and closing said valve openings, said closure member positioned whereby upward flow through the outer passageway acts on the closure member to close said valve openings,

means for moving the valve closure member in an upward direction for closing said openings,

at least one actuating piston telescopically movable within and having its longitudinal axis within the wall of the housing and outside of the valve closure member, said piston engaging the valve closure member, the first side of the piston being in communication with a hydraulic passageway adapted to extend to the well surface for actuating said closure member in the direction to open said valve openings.

4,273,195

FIRE PROTECTION SPRINKLER HEAD WITH AIR-CURRENT DIVERTING FINS

Michael A. Fischer, North Kingstwon, R.I., and Jerome S. Pepi, North Attleboro, Mass., assignors to Grinnell Fire Protection Systems Company, Inc., Providence, R.I.

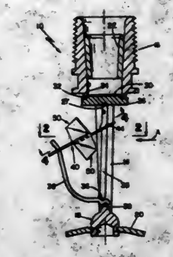
Filed Apr. 30, 1979, Ser. No. 34,636
Int. Cl.³ A62C 37/12
U.S. Cl. 169—39 12 Claims

1. In a fire-protection sprinkler head with a fusible link, a passage in the head through which fire-retardant fluid can flow, and a closure for said passage, said link including two sheet-metal members joined at a fusible region by a fusible medium, each said member being engaged with another portion of said sprinkler head and said link being under load in its longitudinal direction and in a manner to hold said closure in position to close said passage, said members being adapted to release said load upon melting of said fusible medium to thereby release said closure to open said passage and allow flow of said fluid, the improvement wherein

said fusible link includes at least two sheet-metal fins each of which has first and second face portions oriented in different directions to enable said fins to divert air currents from a plurality of orthogonal directions over said fusible region,

said fusible region is generally planar and has two opposite generally longitudinally extending edges,

said fins extend from said edges,



any said fin exteading from the first of said edges extends away from said link in such a direction that said fin lies on one side of the plane passing through said planar region,

any said fin extending from the second of said edges extends away from said link in such a direction that said fin lies on the other side of said plane passing through said planar region,

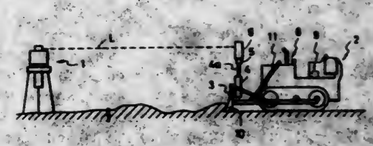
whereby air diverted over said fusible region by the fin extending from said first edge is not retarded in moving away from said link by the fin extending from said second edge and thus heat transfer is enhanced by a continuous movement of air across said fusible region.

4,273,196

AUTOMATIC CONTROL SYSTEM FOR MAINTAINING BLADE IN PREDETERMINED RELATIONSHIP TO LASER BEAM

Yuji Etsusaki, and Shunichi Hayakawa, both of Hiratsuka, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed May 11, 1979, Ser. No. 38,318
Claims priority, application Japan, May 16, 1978, 53/57887
Int. Cl.³ E02F 3/76, 3/85
U.S. Cl. 172—4.5 6 Claims



1. An automatic control system for maintaining the blade of an earthworking device in a predetermined vertical relationship to a reference laser beam, said system comprising:

a beam receiver coupled to the blade, said beam receiver providing a beam detection signal corresponding to a vertical position on the beam receiver at which the reference laser beam is received and to an incident angle of the reference laser beam, wherein said beam receiver includes at least two beam receiving element groups angled outwardly with respect to each other;

main control means for controlling the position of the blade in response to said beam detection signal so that the vertical position at which the laser beam is received will correspond to a preset position;

automatic tracing means for controlling the turning of the

beam receiver in response to the beam detection signal to thereby control the direction of the beam receiver, wherein said automatic tracing means comprises a logical circuit which can receive a first signal from one of said beam receiving element groups and a second signal from the other of said beam receiving element groups and delivers no output when it has received both the first and second signals, a right turn signal when it has received the first signal only and a left turn signal when it has received the second signal only;

beam deviation means for detecting an upward or downward deviation of the beam receiver with respect to the laser beam; and

blade control means for moving the blade upward when the beam receiver has deviated downwardly with respect to the laser beam and downward when the beam receiver has deviated upwardly with respect to the laser beam, to thereby enable the beam receiver to receive the laser beam again.

4,273,197

REVERSIBLE PLOUGHS

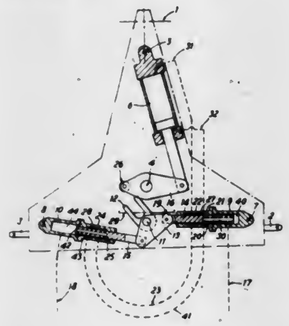
Richard J. Hawes, Ipswich, England, assignor to Nacton Works, Ipswich, England

Filed Mar. 10, 1980, Ser. No. 128,900

Claims priority, application United Kingdom, Mar. 12, 1979, 08643/79

Int. Cl.³ A01B *3/34*

U.S. Cl. 172—225 **12 Claims**



1. A reversible plough comprising a headstock for connection to a tractor and having a reversing spindle rotatably mounted therein; a plough frame secured to the reversing spindle for rotational reversing movement relative to the headstock between left and right handed ploughing positions, the frame being adapted for the mounting of left and right handed plough bodies, and a double acting hydraulic ram supported in the headstock and connected with the reversing spindle, the ram being adapted when supplied with hydraulic fluid at one end thereof to rotate the frame from one ploughing position to a midway position and when subsequently supplied with hydraulic fluid at the other end thereof to rotate the frame from the midway position to the other ploughing position, characterised in that there is provided a hydraulically operating mechanism (**9, 10, 14, 15, 13, 12, 26**) connected between a source of hydraulic fluid (**17, 18**) and the double acting ram (**16**) and cooperating mechanically with the reversing spindle (**4**), the mechanism serving at the midway position of the plough frame both to switch the flow of hydraulic fluid from one to the other end of the double acting ram and to apply additional reversing torque to the spindle.

4,273,198

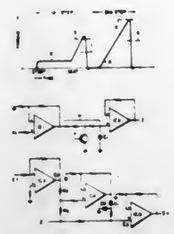
MOTOR-DRIVEN CLAMPING METHOD AND DEVICE

Tabito Doniwa, Atsugi, Japan, assignor to Daiichi Dentsu Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 9, 1979, Ser. No. 55,608

Int. Cl.³ B25B *23/147, 21/02*

U.S. Cl. 173—1 **2 Claims**



1. A motor-driven clamping method comprising the steps of:

once decelerating and rapidly stopping a drive motor when a torque applied to a member to be clamped reaches a first set value smaller than a reference set value;

re-starting immediately and controlling the drive motor so that the torque applied to the member to be clamped increases along a predetermined torque increasing characteristic; and

braking the drive motor to be rapidly stopped when the torque applied to the member to be clamped reaches a second value corresponding to the reference set value.

4,273,199

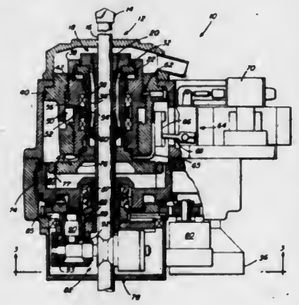
TORQUER/THRUSTER

John H. Blanz, 282 E. Riding Dr., Carlisle, Mass. 01741

Filed Oct. 6, 1978, Ser. No. 949,122

Int. Cl.³ B23Q *5/027, 5/033*

U.S. Cl. 173—149 **14 Claims**



1. A device for applying rotational torque and longitudinal thrust to a drill, said device comprising:

(a) a housing;

(b) cylindrical piston means mounted within said housing, said piston means fixed against rotational movement within said housing and constrained for limited longitudinal movement within said housing;

(c) collet means mounted within said piston means, said collet means including a collet that is longitudinally expandable and inwardly contractable, said collet configured to engage and to disengage a shaft of the drill;

(d) bladder means disposed between said piston means and said collet, said bladder means and said collet means fixed against movement with respect to one another, said bladder means and said collet means constrained for rotational movement within said piston means;

(e) means for longitudinally moving said piston means and for urging said bladder means against said collet, said bladder inwardly contracting and longitudinally expanding said collet, said collet captively engaging the drill shaft when contracted inwardly by said bladder means, said piston means applying longitudinal thrust to a drill shaft captively engaged by said contracted collet; and

(f) drive means operatively connected to said collet means for rotating said collet means and for applying rotational torque to the drill shaft captively engaged by said collet;

(g) said piston means, said collet means and said bladder means longitudinally movable as an integral unit, said collet means and said bladder means rotatable within said non-rotatable piston means.

4,273,200

DRIVE MANDREL FOR A DRILLING STEM

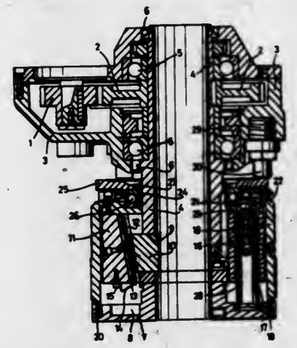
Joseph H. Lambot, Wauthier-Braine, Belgium, assignor to Diamant Boart, Brussels, Belgium

Filed Aug. 24, 1979, Ser. No. 69,410

Claims priority, application Belgium, Aug. 25, 1978, 190067

Int. Cl.³ B23B *31/30*; E21B *11/00*; E21C *9/00*

U.S. Cl. 173—166 **5 Claims**



1. A mandrel for driving a drilling stem comprising:

a fixed housing (**3**) traversed during use by the drilling stem,

transmission means (**1, 2**) mounted within the fixed housing (**3**) and mechanically coupled to a drive motor for the drilling stem,

a tubular element (**4**) coaxially traversed during use by the drilling stem, mechanically coupled to the transmission means (**1, 2**) and mounted for rotation around its axis in the fixed housing (**3**), and projecting below the fixed housing (**3**),

a circular flange (**7**) integral with the lower projection of the tubular element (**4**), and extending radially outwardly therefrom,

openings (**9**) provided in the tubular element (**4**), above the flange (**7**) and below the fixed housing (**3**) and evenly distributed around the axis of the tubular element (**4**),

an upper annular plate (**25**) surrounding the tubular element (**4**) below and close to the fixed housing (**3**), and capable of being immobilized in relation to the tubular element (**4**),

a lower annular plate (**21**) surrounding the tubular element (**4**) below the upper plate (**25**), mounted on the tubular element (**4**), axially slidable along the tubular element (**4**), and rotatable together with the tubular element (**4**),

a bearing ring (**26**) surrounding the tubular element (**4**) between the upper plate (**25**) and the lower plate (**21**) and in contact with said plates (**25**) and (**21**), axially slidable along the tubular element (**4**), and rotatable in part together with the tubular element (**4**),

a cylinder (**18**) surrounding the lower part of the tubular element (**4**) at a distance from said element, placed above the flange (**7**), threaded internally, fastened at the top to the lower plate (**21**), axially slidable along the tubular element (**4**), and rotatable together with the lower plate (**21**),

a sleeve (**16**) surrounding the lower part of the tubular element, above the flange (**7**), threaded externally, and axially screwed in an adjustable manner into the cylinder (**18**),

jaws (**10**) disposed in corresponding apertures in the sleeve (**16**), extending through the openings (**9**) of the tubular element (**4**), radially slidable in the apertures and openings (**9**), bearing in use against the drilling stem, and rotatable together with the sleeve (**16**),

wedges (**11**) supported by the sleeve (**16**), cooperating with the jaws (**10**), slidable upwardly, bearing against the lower plate (**21**), and rotatable together with the sleeve (**16**),

springs (**28**) disposed in cavities (**17**) of the sleeve (**16**) bearing at their lower sides against the flange (**7**), bearing at their upper sides against the lower plate (**21**) and biasing it upwardly, and rotatably together with the sleeve (**16**),

fixed hydraulic screw jacks (**29**) mounted on the fixed housing (**3**), evenly distributed around the axis of the tubular element (**4**), and having piston rods (**30**) bearing against the upper plate (**25**),

the assembly of the tubular element (**4**), the jaws (**10**), the wedges (**11**), the springs (**28**), the sleeve (**16**), the cylinder (**18**), the lower plate (**21**) and part of the bearing ring (**26**) thus turning around the axis of the drilling stem under the action of the drive motor of the drilling stem and by the intermediary of the transmission means, said assembly driving the drilling stem by the jaws (**10**) gripping it, and

the assembly of the sleeve (**16**), the wedges (**11**), the lower plate (**21**), the bearing ring (**26**) and the upper plate (**25**) being slidable along the axis of the drilling stem, upwardly under the action of the springs (**28**) and downwardly against said springs (**28**) under the effect of the thrust of the hydraulic screw jacks (**29**), the wedges (**11**) pushing the jaws (**10**) against the drilling stem by the springs (**28**), and releasing said jaws (**10**) from the drilling stem due to the hydraulic screw jacks (**29**).

4,273,201

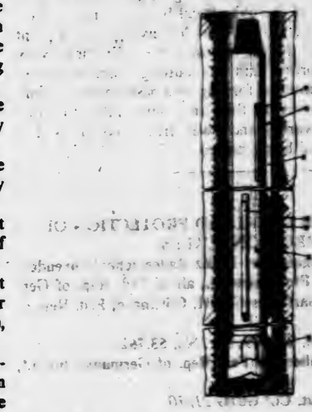
WELL DRILLING COLLARS

Wylie Garrett, Hammond, La., assignor to Garrett Design, Inc., Hammond, La.

Filed Mar. 31, 1980, Ser. No. 135,863

Int. Cl.³ E21B *17/16*

U.S. Cl. 175—107 **4 Claims**



1. In a drill collar for rotary drilling and which is of the type carrying a drill bit through which drilling fluid is ejected during drilling operations, said drill collar comprising:

a cylindrical body having an axial through-bore therein for conducting drilling fluid to said drill bit for ejection therefrom,

at least first and second non-radially oriented, horizontally extending passages in said body above said bit, each passage extending partially through said body and including an inner end terminating within said body adjacent said through-bore and an outer end opening into the ambient surroundings,

said first and second passages being spaced from said through-bore on opposite sides thereof,

conduit means communicating said through-bore with the inner end of each of said passages to discharge drilling fluid through each passage and horizontally from the outer ends thereof to establish horizontal moments, all of which horizontal moments act in the direction of rotation of said collar to augment such rotation,

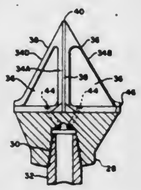
said through-bore being of reduced diameter from a location below said passages to said bit to at least partially compensate at said bit for the pressure drop caused by the discharge through said passages.

4,273,202

DRILLING BIT FOR BLAST FURNACE TAP HOLES

Paul S. Phillips, Pittsburgh, and Glenn Forsythe, Ellwood City, both of Pa., assignors to Woodings Industrial Corporation, Mars, Pa.

Filed Feb. 5, 1979, Ser. No. 8,993
Int. Cl.³ E21B *10/00*
U.S. Cl. 175—385 **5 Claims**



1. A drilling bit comprising a central, generally cylindrical body portion having an opening for receiving the end of a hollow drill rod, flanged cutting elements mounted on said cylindrical body portion and extending radially outwardly from its central axis, the cutting elements being separated by flutes and having outer inclined cutting edges which extend beyond the periphery of the cylindrical body portion at their points of connection thereto and which converge into a point at the forward end of the bit opposite the cylindrical body portion, the body portion and the cutting elements being formed from a single, integral forging, and passageways in said body portion for conveying fluid into said flutes to force drilled material backwardly and away from said bit as it is forced into the material being drilled.

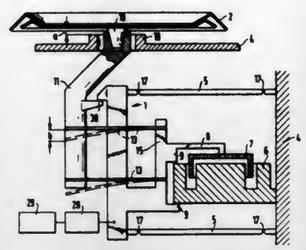
4,273,203

APPARATUS FOR OVERLOAD PROTECTION OF PRECISION SCALES

Dieter Blawert, Göttingen; Karl-Heinz Rademacher, Bovenden, and Walter Södler, Pforzheim-Bü., all of Fed. Rep. of Germany, assignors to Sartorius GmbH, Göttingen, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 53,762
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1978, 2830345
Int. Cl.³ G01G *21/10*
U.S. Cl. 177—187 **8 Claims**

1. An overload protection device for a scale having a weighing pan supported on the upper end of a parallel guided load support coupled with a transducer having limited movement, wherein auxiliary parallel guide means is connected between the weighing pan and load support, said auxiliary parallel guide means including a pre-biased resilient element connected between the weighing pan and load support and having a spring path which is greater than the free travel of the weighing pan



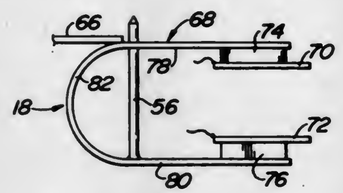
up to a stop, said resilient element coupling the weighing pan with the load support in a semi-rigid manner for movement together under proper load conditions and in an elastically yielding manner under improper load conditions, said auxiliary parallel guide means comprising the resilient element.

4,273,204

CAPACITIVE FORCE LOAD CELL FOR WEIGHING SCALE

Adelbert M. Gillen, Atlantic Highlands, N.J., assignor to The Jade Corporation, Huntingdon Valley, Pa.

Filed May 30, 1978, Ser. No. 910,804
Int. Cl.³ G01G *7/00*
U.S. Cl. 177—210 C **14 Claims**



1. A capacitive force load cell for linearly transducing force into electrical capacity, comprising:

(a) a pair of metallic plates;

(b) said plates being insulatively mounted on a support to form a capacitor;

(c) said support including arm means supporting one end of said plates so that at least one of said plates has a free distal end, said arm means being joined to spring means holding said plates in their initial spaced relation to each other;

(d) means for transmitting a load force proportional to weight to said support for changing the spacing between facing surfaces of said plates with maximum change of spacing being at said distal end of at least one plate in response to the applied force thereby changing the electrical capacity of the capacitor formed by said plate;

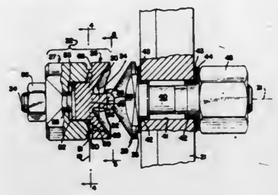
(e) said plates having a physical shape such that the change in electrical capacitance is linearly proportional to the load force applied to the support when the facing surfaces of the plates are displaced out of their initial spaced relation by the force applied to the support.

4,273,205

CLAMPING DEVICE FOR OSCILLATORY STRINGS IN A WEIGHT SENSING CELL FOR A WEIGHING APPARATUS

Albert H. De Voogd, Venlo, Netherlands, assignor to Maatschappij van Berkel's Patent N.V., Leidschendam, Netherlands

Filed Feb. 28, 1980, Ser. No. 125,490
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1979, 2908110
Int. Cl.³ G01G *3/14*; G10D *3/00*
U.S. Cl. 177—210 FP **7 Claims**



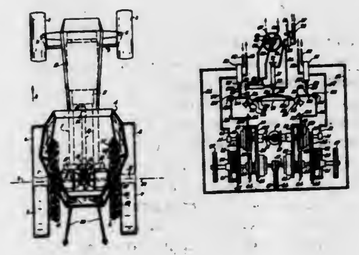
1. In a weight sensing cell for a weighing apparatus having a vibrating string, a clamping device mounted on a fixed or movable support of the apparatus for securing thereto an end of the string which comprises, a base adjacent to the support, a flexurally and/or torsionally resilient neck extending from the base along an axis perpendicular to the string, and a clamping head on the free end of the neck, said clamping head including jaws for clamping the end of the string and having a recess facing the neck and into which the neck extends such that the clamping point of the jaws is substantially aligned with the bottom of the recess where the neck is joined.

4,273,206

TORQUE CONVERTER

Cornelis van der Lely, 7 Brüschenrain, Zug, Switzerland

Filed Dec. 15, 1978, Ser. No. 969,703
Claims priority, application Netherlands, Dec. 15, 1977, 7713880; Dec. 15, 1977, 7713881
Int. Cl.³ B62D *11/08*
U.S. Cl. 180—6 Z **12 Claims**



1. A motor vehicle having forward steerable wheels and rear wheels, a motor being in driving engagement with a respective rear wheel axle at each side of the vehicle and a steering control wheel connected to turn the steerable wheels, each axle being driven by the output of a corresponding torque converter, said converter including an input shaft that is rotated by the motor and a change-speed mechanism that interconnects the input and output shafts, said mechanism being adjusted hydraulically responsive to a speed control and/or said control wheel, a hydraulic system comprising corresponding valve means for each converter that feeds and withdraws pressurized fluid to said converter and said valve means being actuated by a control device to supply fluid selectively to the two mechanisms, said axles each being rotated in either direction of rotation by the corresponding mechanism.

4,273,207

SUPPORTING PIPE TO CONSTITUTE A DRIVE UNIT FOR AN AUTOMOTIVE VEHICLE

Rolf V. Sivers, Warmbronn; Rudolf Herrmann, Flein, and Ulrich Layher, Sersheim, all of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Sep. 5, 1979, Ser. No. 72,608
Claims priority, application Fed. Rep. of Germany, Sep. 5, 1978, 2838574
Int. Cl.³ B60K *17/22*
U.S. Cl. 180—70 P **22 Claims**



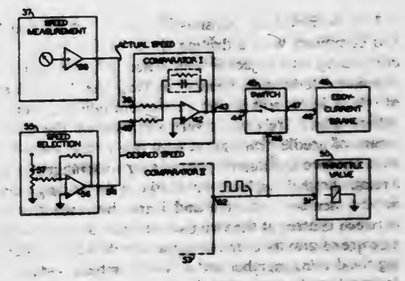
1. A drive unit for an automotive vehicle, comprising an engine with a clutch and a transmission unit, the engine being disposed forwardly of the transmission and connected to the transmission to form a unit by an interposed supporting pipe, the supporting pipe comprising at least one outer pipe and an inner pipe fitted therein, said pipes being fixedly interconnected only at one end and except for said one end being held together in a manner permitting relative movement by a friction seating of the inner pipe within the outer pipe.

4,273,208

SYSTEM FOR CONTROLLING THE SPEED OF AN AUTOMOTIVE VEHICLE

Peter Liermann, Gehrden, Fed. Rep. of Germany, assignor to WABCO Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,535
Claims priority, application Fed. Rep. of Germany, May 2, 1978, 2819175
Int. Cl.³ B60K *31/00*
U.S. Cl. 180—179 **4 Claims**



1. A system for controlling the speed of a vehicle, which is provided with service brake apparatus and a plurality of other deceleration devices for reducing vehicle speed, comprising,

(a) a speed measuring means responsive to vehicle movement for supplying a first signal representing actual vehicle speed,

(b) a source supplying a second signal representing desired vehicle speed,

(c) a comparator means having a plurality of channels, each channel associated with a different one of said other deceleration devices and coupled to said speed measuring means and said desired speed source for comparing said first and second signals, said channels generating separate output signals at different preselected levels of difference between said first and second signals,

(d) a first comparator channel being coupled for actuating a first other decelerating device when an output signal is produced at the lowest of said preselected difference levels to provide an initial level of additional deceleration of said vehicle,

(e) a separate switch means coupled between the second and each higher numbered comparator channel and the associated other deceleration device, and enabled by an output signal from the next lower numbered channel for supplying an output signal from the associated channel to the associated other deceleration device to actuate increasing additional deceleration of said vehicle as successive preselected higher levels of difference between actual and selected speed signals are exceeded.

4,273,209

POWER TRANSMITTING DEVICE AND APPLICATIONS THEREOF

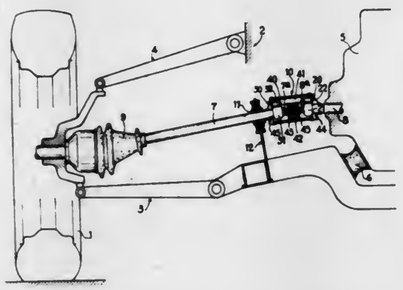
Michel A. Orain, Conflans Ste Honorine, France, assignor to Glaenzer Spicer, Poissy, France

Filed Feb. 13, 1979, Ser. No. 11,870

Claims priority, application France, Feb. 13, 1978, 78 03978; Apr. 26, 1978, 78 12335

Int. Cl.³ F16D *3/02*

U.S. Cl. 180—254 **18 Claims**



1. A homokinetic transmission device interposed between and combined with a driving member and a driven member comprising two adjacent articulated joints combined with a common intermediate member and together homokinetic, each of which joints comprising an element defining trunnions and rollers which are respectively mounted on the trunnions by means of needle bearings, at least one of the joints being slidable, the two articulated joints being so arranged as to permit a relative radial displacement between the driving member and driven member and, if h and l are the respective distances between centres of the two two adjacent articulated joints and a centre of gravity of the transmission device for interconnecting the driving member and driven members, and ρ^2 is equal to Io/m where Io represents the inertia of the intermediate member about an axis perpendicular to the general axis of the intermediate member and to a direction of lateral displacement of said intermediate member and intersecting the centre of gravity G and m represents the mass of the intermediate member, the following condition is at least substantially satisfied:

$$h \times l = \rho^2.$$

4,273,210

ROLLER UNIT FOR WINDING-UP SAFETY BELTS FOR MOTOR VEHICLES

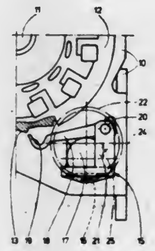
Karl-Heinz Nitzbon, Hamburg, Fed. Rep. of Germany, assignor to Autoflug GmbH, Rellingen, Fed. Rep. of Germany

Continuation of Ser. No. 920,285, Jun. 29, 1979, abandoned. This application Nov. 23, 1979, Ser. No. 96,886

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1977, 2729301

Int. Cl.³ A62B *35/02*; B65H *75/48*

U.S. Cl. 180—268 **5 Claims**



5. A roller unit for winding up a safety belt for motor vehicles with a built-in device for blocking the pulling-out of the safety belt in response to certain movements and positions of a vehicle equipped with said unit, said device including in combination:

a sensor comprising a magnetically attractible ball resting in a saucer,

rotatable means for winding up a safety belt,

a blocking disc rotatably connected to said rotatable means, ratchet gear means connected to said blocking disc for rotation therewith,

pawl means resting on said ball and operable to engage and disengage said ratchet gear means upon upward movement, said pawl means being operable by said ball upon upward movement in said saucer to move from an ineffective position in which it is disengaged from said ratchet gear means into an effective position in which it engages said ratchet gear means and thereby blocks rotation of said blocking disc and said rotatable means, and

an electromagnet with a coil arranged in minimum space to said ball in said saucer, said coil being operable when energized to exert an attractive force directly upon said ball to cause the latter to move upwardly in said saucer to positively move said pawl means upwardly into engagement with said ratchet gear means, thereby causing blockage of said rotatable means, the axis of the coil of said electromagnet being spaced upwardly from the axis of said ball which passes through the center of gravity of said ball and parallel to said axis of the coil so that electromagnet forces are effective in a direction corresponding to ball movement in said saucer substantially parallel to said coil axis by a distance necessary to cause said ball to move said pawl means into its effective position.

4,273,211

FIXED PIVOT SINGLE PEDAL ACCELERATOR AND BRAKE CONTROL MECHANISM

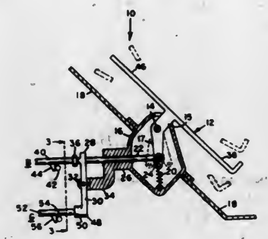
Alberto G. Sarmiento, Box 305, Mayaguez, P.R. 00708

Continuation of Ser. No. 824,813, Aug. 15, 1977, abandoned. This application Apr. 6, 1979, Ser. No. 27,688

Int. Cl.³ B60K *26/02*

U.S. Cl. 180—333 **5 Claims**

1. In a vehicle having an accelerator control rod and a brake control rod extending generally parallel to each other and trasversely spaced and terminating freely at one end, a fixed pivot single pedal accelerator and brake control mechanism comprising a pivot base secured to the floor of said motor behicle, a pedal pivot fixedly mounted on said base, a combined accelerator and brake control pedal provided with a depending pivot arm intermediate its ends, pivotally mounted on said pedal pivot said pedal having an upper portion extending to one side of said pivot and also having a lower portion extending to the other side of said pivot, said pivot arm having an extension extending beyond said pedal pivot, a bar slidably mounted through a bore in said base, said pedal pivot arm



extension being operatively connected to one end of said slidably mounted bar, a see-saw rod having one bifurcated end and pivotally mounted intermediate its ends on an extension of said base and spaced from one end of said bore, said slidably mounted rod extending through said bifurcated end of said see-saw rod and terminating in an enlarged foot in alignment with the brake control rod for brake operation only when the lower portion of said pedal is depressed, said enlarged foot providing a hook pulling the bifurcated end of said see-saw rod to rock about its pivot to actuate its other end against the accelerator control rod to actuate same only when the upper portion of said pedal is depressed.

4,273,212

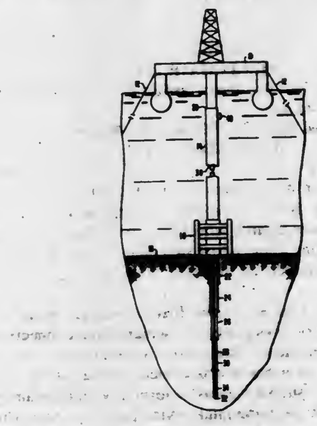
OIL AND GAS WELL KICK DETECTOR

John A. Dorr, and Matt Noman, both of Annapolis, Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 26, 1979, Ser. No. 6,832

Int. Cl.³ G01V *1/40*

U.S. Cl. 181—102 **7 Claims**



1. Apparatus for detecting a kick during the drilling of a well utilizing drill pipe extending down through a larger diameter conduit and wherein drilling fluid is circulated down the drill pipe and up the annulus around the drill pipe, comprising:

(A) transducer means connected to said conduit and being in acoustic communication with said drilling fluid in said annulus;

(B) means for energizing said transducer means to propagate acoustic signals through said drilling fluid down said annulus;

(C) means for receiving reflected acoustic energy propagated back through said drilling fluid; and

(D) means for displaying at least the reflection of acoustic energy from the vicinity of the bottom of the hole being drilled and for displaying the reflection of acoustic energy from the interface between said drilling fluid and a kicking medium.

4,273,213

ELEMENT FOR SONIC AND VIBRATORY ABSORPTION

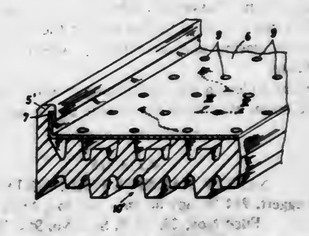
Erich Munz, Weststrasse 11, 5204 Lohmar 1, Geber, Fed. Rep. of Germany

Filed Nov. 7, 1978, Ser. No. 958,403

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1977, 2750122

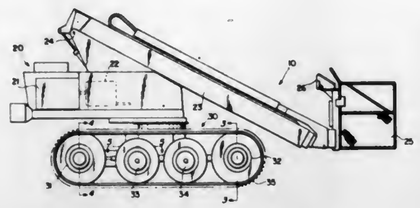
Int. Cl.³ F16F *7/00*

U.S. Cl. 181—207 **2 Claims**



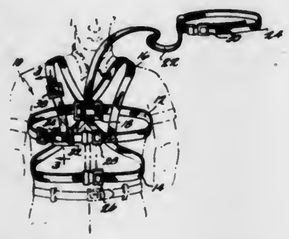
1. An element for sonic and vibratory absorption, comprising a first series of longitudinal ribs of flexible material, the ribs being of substantially uniform height and approximately trapezoidal cross section, the ribs extending substantially equidistantly and parallel to each other over the entire length of the element and projecting from the top side and the bottom side of the element, the top side and bottom side ribs being in staggered relationship and each two ribs defining a space therebetween, and a second series of longitudinal ribs of a height inferior to that of the ribs of the first series and of approximately trapezoidal cross section, each rib of inferior height being arranged in a respective one of said spaces, each rib of inferior height projecting from the top side being in alignment with a respective rib of the first series projecting from the bottom side and each rib of inferior height projecting from the bottom side being in alignment with a respective rib of the first series projecting from the top side, said element further comprising a stop extending over the entire length of the element at least at one longitudinal side of the element and a rigid support fixedly arranged on the ribs of the first series projecting from the top side, said rigid support comprising a stop ledge projecting perpendicularly to the support and parallel to the stop and having an upper rim embedded in the stop and wherein said rigid support has a planar base plate defining an array of openings gripping the ribs of the first series projecting from the top side, said ribs having buffer portions extending above the rigid support and projecting from the openings.

4,273,214
TRACK MOUNTED AERIAL LIFT PLATFORM APPARATUS
John L. Grove, Greencastle, Pa., assignor to JLG Industries, Inc., McConnellsburg, Pa.
Filed Feb. 28, 1977, Ser. No. 772,812
Int. Cl.³ B66F 11/04
U.S. Cl. 182—2 12 Claims



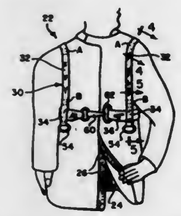
1. Aerial lift platform apparatus comprising a chassis and a rotatable upper works mounted thereon,
said upper works comprising a boom,
said boom having an operator's platform adjacent the outer end thereof,
said chassis comprising on each side first and second end wheels and at least one intermediate wheel, at least one end wheel being a driving wheel, means mounting said end wheels on said chassis,
said wheels each including a pneumatic tire, a track on said wheels,
means for mounting the intermediate wheels on opposite sides of the chassis as a pair for conjoint movement when the chassis is tilted to one side or the other, and resilient means biasing said intermediate wheels away from said chassis,
whereby to lessen the overturning moment occurring when the boom extends over one side of the apparatus.

4,273,215
SAFETY HARNESS FOR HUNTERS
Paul Leggett, 914 Woodville Dr., Jackson, Miss. 39212
Filed Nov. 29, 1978, Ser. No. 964,785
Int. Cl.³ A62B 35/00
U.S. Cl. 182—3 16 Claims



1. A safety harness for maintaining a subject proximate an object comprising:
a chest web for surrounding the subject's chest;
a waist web for surrounding the subject's waist;
rear connecting means for slidably engaging said chest web and waist web;
a shoulder web having a first end attached to said chest web and a second end, said rear connecting means slidably engaging said shoulder web;
shoulder web connecting means, engaging said chest web, for connecting said shoulder web second end to said chest web,
means, engaging said shoulder web, for adjusting the length of said shoulder web;
chest connecting means, including means for adjusting the length of said chest web and a first quick release buckle, for detachably securing said chest web snugly about the chest of said subject;
waist connecting means, including means for adjusting the length of said waist web and a second quick release buckle, for detachably securing said waist web snugly about the waist of said subject;
a lifeline web having a first end and a second end, said first end having means for attachment to said rear connecting means;
said first and second buckles being of the kind which release only upon the application of a force thereto of given magnitude, said magnitude being substantially independent of the amount of tension in said waist web and said chest web, respectively.

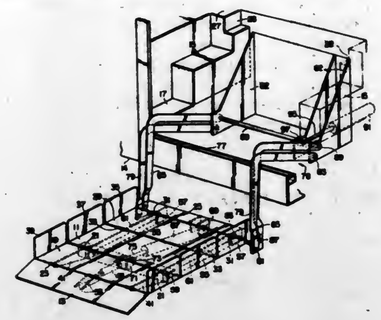
4,273,216
SAFETY JACKET
Rita H. Weissmann, 200 E. 64th St., New York, N.Y. 10021
Filed Aug. 2, 1979, Ser. No. 62,917
Int. Cl.³ A62B 35/00, 1/16
U.S. Cl. 182—3 10 Claims



1. A safety jacket adapted to have a line secured thereto for anchoring the wearer of said jacket, comprising,
(a) a harness having a pair of shoulder straps and a belt made of webbing,
(b) each of said shoulder straps being permanently affixed to the outer side of said jacket at at least one point of attachment,
(c) said shoulder straps having loops through which said belt is threaded, and
(d) said belt being permanently affixed to the outer side of said jacket at at least one point of attachment.

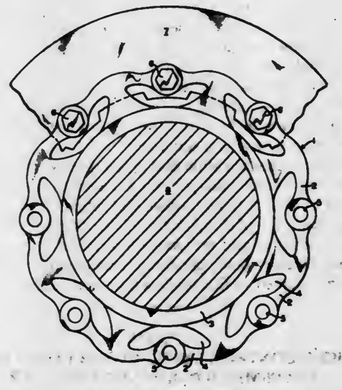
4,273,217
WHEELCHAIR LIFT
Tosifumi Kajita, Yamato, Japan, assignor to Marubeni Kogyo K.K., Gunma, Japan
Filed Jun. 13, 1979, Ser. No. 48,264
Int. Cl.³ B66B 9/20
U.S. Cl. 187—9 R 3 Claims

1. A wheelchair lift for a bus capable of forming stairs for the passenger to use and also capable of forming a lift for the handicapped passenger in a wheelchair, including:
a first connecting plate, a first step plate, a second connecting plate and a second step plate connected together with hinges;
a supporter connected to the first connecting plate with hinges, a set of links one end of which being connected to the supporter and the other end of which being connected to one end of a horizontal device with a set of pivots positioned in such a way as to form a parallelogram, the other end of the horizontal device being connected to a hinge of the second step plate, the supporter being connected to one end of a set of lifting links, and the other end of the set of lifting links being connected to brackets, a shaft also connects the brackets, an arm mounted on one end of the shafts;
a set of stairs for holding both ends of the first and second step plates and which are fixed to the bus;
a first power supplying device for forming the lift when actuated, one end of said first power supplying device



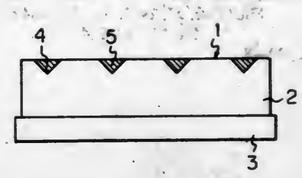
being pivotally connected to the supporter the other end of which being pivotally connected to the horizontal device; and
a second power supplying device for lowering and lifting the lift, one end of said second power supplying device being pivotally connected to a part of the bus and the other end of which being pivotally connected to the arm.

4,273,218
FLEXIBLE MOUNTING HUB FOR DISC MEMBER
Robert B. Morris, N. Huntingdon, and Allen W. Kyllonen, Plum, both of Pa., assignors to American Standard Inc., Wilmerding, Pa.
Filed Mar. 15, 1979, Ser. No. 20,565
Int. Cl.³ F16D 65/10
U.S. Cl. 188—18 A 5 Claims



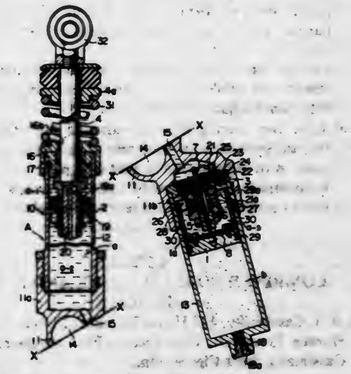
1. A hub for mounting a disc brake rotor to a flange member on a vehicle axle, said hub having a plurality of equi-angularly spaced peripheral segments each having a bolt hole formed therein for receiving a plurality of axially aligned bolts by which the rotor is concentrically secured to the hub, said hub being provided with respective opening means radially disposed between each of said peripheral segments and said flange member for allowing radial movement of said segments for accommodating expansion and contraction of the rotor caused by heat generated during braking operations.

4,273,219
FRICTION PAD OF DISC BRAKE
Hiroshi Ito, Kawasaki, Japan, assignor to Tokico Ltd., Kawasaki, Japan
Filed Aug. 10, 1979, Ser. No. 65,743
Claims priority, application Japan, Aug. 19, 1978, 53/114007[U]
Int. Cl.³ F16D 69/02
U.S. Cl. 188—256 5 Claims



1. A friction pad for use in disc brakes, said friction pad being made of a sintered metal and having a working surface for contacting a disc and further having a plurality of shallow recesses in said working surface, and a resin filling said recesses.

4,273,220
OLEO DAMPERS HAVING VARIABLE ORIFICES
Lucien Tilkens, Zolder, Belgium, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan
Filed Jul. 16, 1979, Ser. No. 58,065
Claims priority, application Japan, Jul. 20, 1978, 53/88883
Int. Cl.³ F16F 9/50
U.S. Cl. 188—282 7 Claims



1. An oleo damper comprising housing means having inside chamber means, movable partition means separating the chamber means into oil compartment means and gas compartment means being chargeable with pressurized gas and said oil compartment means with hydraulic oil, at least a part of said oil compartment means being defined by cylinder means for reciprocating movement and having restricted passage means for allowing restricted flow of the hydraulic oil across the piston means in response to the reciprocating movement of the piston means, said piston means being provided with piston rod means extending outwardly through the housing means, stationary partition means disposed in said oil compartment means between said piston means and said movable partition means and having orifice means, said movable partition means having metering needle means extending toward said stationary partition means and inserted into said orifice means, said needle means having cross-sectional area which decreases toward said movable partition means whereby the orifice means is de-

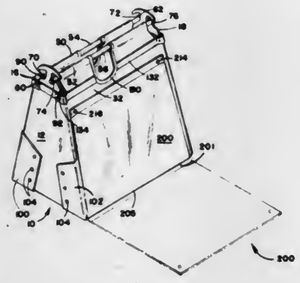
creased in effective area when the movable partition means is displaced away from the stationary partition means by increase in temperature of the oil which causes increase in the oil volume and therefore enlargement of said oil compartment, and of axial shock.

4,273,221

COMBINATION VALISE AND BACKREST

Mary K. Poeg, 1686 Labrador Dr., Costa Mesa, Calif. 92626

Filed Dec. 27, 1977, Ser. No. 864,682
Int. Cl.³ A45F 4/00
U.S. Cl. 190—8 19 Claims



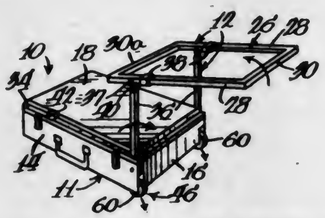
1. The combination of a valise and backrest comprising:
- a pair of end panels having a base portion longer than an upper portion and wherein said base portion extends beyond the upper portion to form a stabilized base for purposes of leaning thereagainst;
- a bottom interconnecting said end panels;
- a pair of side panels adapted for connection to said end panels so as to form a valise out of said end panels, side panels and bottom when placed in connection relationship;
- a sheet in connected relationship to said bottom upon which one can sit while at the same time leaning back against a side panel adjacent thereto; and,
- at least one bracing member adapted for extending across the top portion of at least one of said end panels for connection to at least one of said side panels for purposes of supporting at least one of said side panels at the upper portions thereof between said end panels.

4,273,222

COMBINED PORTABLE CASE AND LUGGAGE TROLLEY

K. A. I. Cassimally, 402 Hayes Rd., Fort Pierce, Fla. 33450, and Horace Frommelt, Fort Pierce, Fla., assignors to K. A. I. Cassimally, Fort Pierce, Fla.

Filed Aug. 22, 1979, Ser. No. 68,867
Int. Cl.³ A45C 5/14
U.S. Cl. 190—18 A 20 Claims



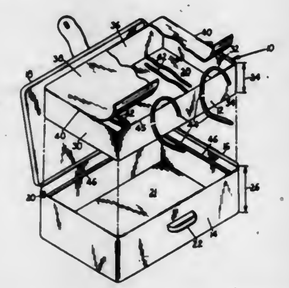
1. A portable case having a folding framework which is associated with a face of said case to provide the appearance of a conventional case and which can be moved to an operative position for moving said case on wheels associated therewith comprising:
- a rigid rectangular frame having rigidly interconnected side and end members and substantially the same length and width as said face to be of a size to have said hollow frame lie adjacent said face when folded;
- means mounting said frame for movement to an operative position spaced from and generally perpendicular to said case including a pair of arms pivotally connected between said case and said frame, said arms extending in coplanar relation with said frame in both the folded and operative positions of said frame; and
- means for releasably locking said frame and arms together in said parallel relation.

4,273,223

PROTECTIVE INSERT FOR USE WITH SOFT-SIDED LUGGAGE

Lenore E. Tomlinson, 236 SE. 32nd Ave., Portland, Oreg. 97214

Filed Sep. 24, 1979, Ser. No. 78,561
Int. Cl.³ A45C 5/12
U.S. Cl. 190—41 C 1 Claim



1. A protective insert for separately enclosing articles of clothing and the like within a suitcase, comprising:
- (a) a selectively closable flexible envelope having a bottom member, sides attached to said bottom member and a top member attached to one of said sides;
- (b) slide fastener closure means for releasably fastening said top member to the remaining ones of said sides to close said enclosure;
- (c) support means attached to the exterior of said flexible envelope for attaching said protective insert to the interior of a suitcase to hold said protective insert substantially immobile within said suitcase;
- (d) retention means within said protective insert for securing clothing within said protective insert to prevent movement of said clothing therein, said retention means including a plurality of elongate flexible clothing ties attached to the interior of said protective insert; and
- (e) said envelope being generally rectangular in shape and of a size adapted to fit snugly within said suitcase.

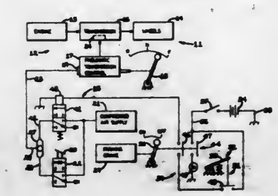
4,273,224

VEHICLE CONTROL SYSTEM WITH CONDITIONAL TRANSMISSION-BRAKE INTERLOCK

Vaikai K. Brown, LeRoy Township, Lake County; Thorolf R. Bjorkstea, Mentor, and Llewellyn L. Walter, Perry, all of Ohio, assignors to Towmotor Corporation, Mentor, Ohio

Filed Oct. 11, 1978, Ser. No. 950,338
Int. Cl.³ B60K 41/26
U.S. Cl. 192—4 A 9 Claims

1. In a control system for a vehicle (12, 12a) having a drive transmission (16, 16a) which may be shifted between a neutral non-drive transmitting condition and at least one drive transmitting condition and having a brake (29, 29a) which may be engaged and disengaged, and having a control element (32, 32a) which is operated in conjunction with initiating travel of the vehicle, the control system including neutralizing means (19, 19a) for maintaining said transmission in said neutral condition in response to a neutralizing signal and further including a transmission and brake interlock circuit means (39, 39a) for holding said transmission in said neutral condition by transmitting said neutralizing signal to said neutralizing means if said



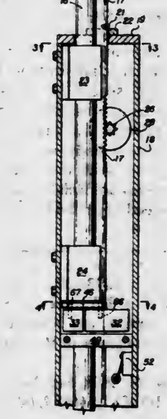
control element is operated while said brake is engaged, the improvement comprising:
- interlock control circuit means (51, 51a) for inactivating said interlock circuit means during travel of said vehicle by blocking transmission of said neutralizing signal from said interlock circuit means to said neutralizing means to enable engagement of said brake without neutralization of said transmission when said vehicle is traveling.

4,273,225

ELECTRICALLY OPERATED MAST FOR LASER-CONTROLLED LEVELLING SYSTEM

Carl R. Swanson, 204 S. "A" St., Tulare, Calif. 93274

Filed Apr. 10, 1979, Ser. No. 28,669
Int. Cl.³ B60K 41/20
U.S. Cl. 192—7 7 Claims



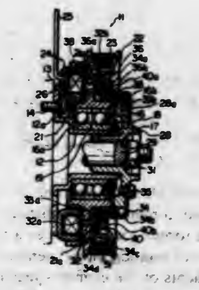
1. A mast construction for a laser sensor comprising a casing, a shaft substantially vertically reciprocable in said casing and adapted for attachment of a laser sensor on its upper end, mounting means on said casing for said shaft, a rack on said shaft, a pinion rotatably mounted in said casing meshing with said rack, means for rotating said pinion in both directions to raise and lower said shaft and a brake in said casing engageable with said shaft and arranged to impose a drag on the descent of said shaft, said brake comprising first means and second means releasably movable with said shaft having an operative position with said first and second means engaging said shaft and an inoperative position, biasing means biasing said first and second means toward operative position and brake actuating means operable to overcome said biasing means and move said first and second means to inoperative position when said shaft is being raised by said pinion.

4,273,226

ELECTROMAGNETIC SPRING-WOUND CLUTCH

Hideyasu Takefuta; Akira Shinoda, and Teruyoshi Shibuta, all of Higashimatsuyama, Japan, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Jan. 8, 1979, Ser. No. 46,751
Claims priority, application Japan, Jan. 12, 1978, 53-79197
Int. Cl.³ F16D 13/62, 27/10, 27/14
U.S. Cl. 192—35 3 Claims



1. An electromagnetic spring-wound clutch comprising:
- a rotary input member;
- a rotary output member coaxial with the input member;
- a rotary clutch disc coaxial with the input member and frictionally engageable therewith;
- a coil-wound spring wound around the input member and being connected at its ends to the clutch disc and the output member respectively;
- a cover member fixed to the output member and covering the coil-wound spring;
- spring means urging the clutch disc away from engagement with the input member and toward engagement with the cover member;
- an electromagnetic coil which, when energized, attracts the clutch disc into frictional engagement with the input member against a force of the spring means; and
- a non-magnetic, resilient spacer disposed between the clutch disc and the cover member;
- a surface of the clutch disc facing the cover member being formed with a plurality of circumferentially spaced grooves, the spacer comprising a plurality of spacer sections fittingly retained in the grooves respectively.

4,273,227

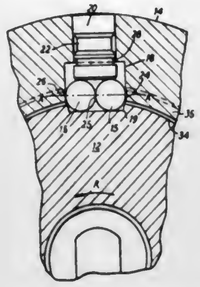
TORQUE-TRANSMITTING DEVICES

John C. Grey, 30 Osterley Ct., Osterley, Middlesex, TW7 4PX, England

Filed Nov. 29, 1979, Ser. No. 98,677
Claims priority, application United Kingdom, Dec. 4, 1978, 47080/78; Dec. 4, 1978, 47081/78
Int. Cl.³ F16D 43/20
U.S. Cl. 192—56 R 14 Claims

1. A torque-transmitting device comprising rotary input and output members having a common axis of rotation, at least one pair of cylindrical rolling elements in coupling engagement with the members for transmitting a torque load between the input and output members while co-rotating therewith, said at least one pair of rolling elements having respective rolling axes parallel to the axis of rotation of the members and at a common radial distance from the axis of rotation, said element comprising a front element and a rear element arranged in tandem to each other so that the torque load is transmitted through said elements from the rear element to the front element, a portion of the input member comprising an engagement face having a

linear contact zone along the axial length of the rear element of said at least one pair of elements to transmit the torque load thereto and a portion of the output member comprising an engagement face having a linear contact zone along the axial length of the front element of said at least one pair of elements to receive the torque load transmitted therethrough, at least one of said contact zones for said at least one pair of elements



being on a radial plane of said one element that is obliquely offset from said common radial distance, whereby the transmission of the torque load generates a force component radially of the axis of rotation of the members to produce counter-rotary movements of the elements urging them to roll in said radial direction, resiliently displaceable means acting on said at least one element for retaining the elements in coupling engagement with the members.

4,273,228

FRICTION CLUTCH

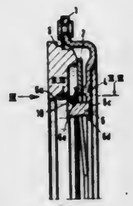
Lothar Huber, Bühl, Fed. Rep. of Germany, assignor to Luk Lamellen und Kupplungsbau GmbH, Bül, Fed. Rep. of Germany

Filed Apr. 3, 1978, Ser. No. 892,924

Claims priority, application Fed. Rep. of Germany, Apr. 2, 1977, 2714861

Int. Cl.³ F16D *13/44*

U.S. Cl. 192—89 B **20 Claims**



1. In a friction clutch wherein, for pivotally mounting a plate spring thereof at a clutch cover, the plate spring being formed with recesses, first bracing means are provided at the cover side of the plate spring and second bracing means are provided at the side of the plate spring facing away from the clutch cover and holding means for retaining the second bracing means, said holding means being punched out of the material of the clutch cover and bent away so as to extend through the recesses formed in the plate spring, said holding means being formed from the cover by a punched-out section originally extending in a direction substantially transverse to radial direction of the cover, said punched-out section being diverted so as to extend in a substantially radial plane and substantially perpendicularly to the plane of rotation of the clutch.

4,273,229

ELASTIC MOUNTING FOR HIGH-SPEED ROTOR

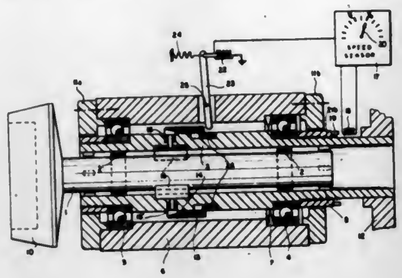
Horst Voll, Hassfurt, Fed. Rep. of Germany, assignor to Kugelfischer Georg Schäfer & Co., Schweinfurt, Fed. Rep. of Germany

Filed May 17, 1979, Ser. No. 39,779

Claims priority, application Fed. Rep. of Germany, May 20, 1978, 2822108

Int. Cl.³ F16D *43/24*

U.S. Cl. 192—105 CF **8 Claims**



1. In a device including a housing, a shaft rotatable in said housing at a high operating speed, a tool carried on a free end of said shaft projecting from said housing, and drive means for rotating said shaft,

the combination therewith of a mounting for said shaft comprising:

an elongate tubular element having an axial bore of a diameter substantially exceeding that of said shaft, said element surrounding said shaft over a major part of the length of the latter and terminating ahead of said free end thereof;

two axially spaced bearings rotatably supporting said element in said housing, said element having an extremity opposite said free end projecting from said housing, said extremity being coupled to said drive means; and

elastic coupling means in said bore supporting said shaft in substantially coaxial relationship with said element at a plurality of axially spaced locations for joint rotation while allowing limited radial excursions of said shaft from a coaxial position, said shaft and said tool together constituting a rotary body whose moment of inertia determines together with the modulus of elasticity of said coupling means a normal critical speed lower than the operating speed imparted to said body by said drive means.

4,273,230

INDEXING DRIVE DISCONNECT

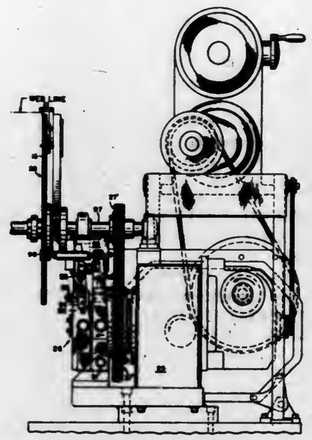
Peter H. Gundal, Centerville, and Richard Briggs, East Sandwich, both of Mass., assignors to Packaging Industries, Inc., Hyannis, Mass.

Filed Nov. 24, 1978, Ser. No. 963,427

Int. Cl.³ F16D *7/04*

U.S. Cl. 192—150 **8 Claims**

1. A rotary disconnect assembly for disconnecting a rotary drive from a driven rotary member, the disconnect assembly including a shaft adapted to be rotated, means defining a driven surface supported on the shaft to be rotated with said shaft, at least one tapered recess formed in said surface, a disconnect member mounted on said shaft and slideably supported thereon to permit rotation of the shaft with respect to the disconnect member and to permit sliding movement of the disconnect member on the shaft in the axial direction, said disconnect member supporting at least one projection movable therewith and having a tapered end thereon receivable in the tapered recess to rotate the disconnect member with the surface and the shaft, said tapered projection end and tapered recess defining engaging cam surfaces such that the projection end is forced out of the recess upon application of a force retarding rotation of the projection relative to the surface having said recess and the disconnect member is moved axially to a disconnect position, the rotary disconnect assembly further comprising controllable means for moving the disconnect member axially on the shaft away from the surface having the recess to the disconnect position so as to move the tapered projection end out of the recess, whereby the rotary motion of the plate and shaft can be disconnected from the disconnect member



upon actuation of the controllable means for moving, the disconnect member having a first peripheral channel about its outer circumference encircling the shaft, and the controllable means for moving including at least one roller received in the first peripheral channel, and a first lever member supporting the roller and being movable in one direction for forcing the roller against one wall of the channel to cause the disconnect member to move away from the surface with the tapered recess and being movable in the opposite direction for forcing the roller against an opposite wall of the channel to cause the disconnect member to move towards the surface.

4,273,231

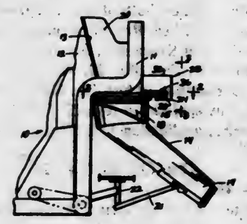
CHUTE BRAKE FOR CONCRETE MIXING VEHICLES

Jan Hodneland, Spokane, Wash., assignor to Central Pre-Mix Concrete Co., Spokane, Wash.

Filed Nov. 5, 1979, Ser. No. 91,578

Int. Cl.³ B65G *11/00*

U.S. Cl. 193—10 **6 Claims**



1. A chute brake for a concrete mixing vehicle having a mixing drum movably mounted to a supporting framework, a horizontal ring bearing with an annular stationary bearing plate fixed to the framework and a coaxial rotatable bearing plate movably suspending the chute from the framework at a location adjacent the mixing drum for pivotal movement of the chute about a vertical bearing axis, the chute brake comprising:

a horizontal arcuate anchor rim fixed to one of the bearing plates and arranged coaxially about the bearing axis, said rim having top and bottom opposed horizontal surfaces;

rigid brace means fixed to the framework at a location elevationally adjacent one surface of the anchor rim, for slidably engaging said one surface; and

brake actuator means operably mounted to the framework adjacent the remaining surface of the anchor rim opposite the brace means for selectively clamping the anchor rim against the brace means to selectively prevent pivotal movement of the chute relative to the framework about the bearing axis.

4,273,232

PASSENGER CONVEYOR BALUSTRADE

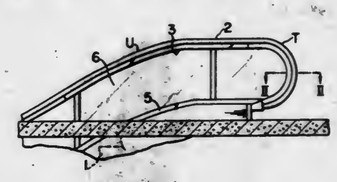
Cyuichi Saito, and Katsuya Teranishi, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 20, 1978, Ser. No. 952,985

Claims priority, application Japan, Oct. 28, 1977, 52-128762

Int. Cl.³ B65G *15/00, 17/00*

U.S. Cl. 198—335 **4 Claims**



1. In a balustrade for use with passenger conveyors including a first deck member provided with a guide for guiding a handrail which is adapted to be moved in synchronism with an endless series of steps, a second deck member formed of sheet material connected to the first deck member, the second deck member having a U-shaped cross-sectional configuration opening in a direction opposite the handrail, each of said first and second deck members being bent to assume a first arcuate shape at landings of the passenger conveyor, the improvement comprising second arcuate-shaped portions provided adjacent opposite ends of said first arcuate-shaped portion of the second deck member, the second arcuate-shaped portions having larger radii of curvature than that of the first arcuate-shaped portion, said second deck member being bent inwardly about the opening of the arcuate-shaped portions to provide deformation preventing strips.

4,273,233

APPARATUS FOR CONVEYING ROD-LIKE ARTICLES

Dennis Hinchcliffe; George R. Bennett, and Frank Heyhoure, all of London, England, assignors to Molins, Limited, London, England

Filed Oct. 30, 1978, Ser. No. 955,539

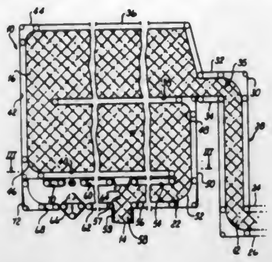
Claims priority, application United Kingdom, Nov. 1, 1977, 45452/77

Int. Cl.³ B65G *1/04*

U.S. Cl. 198—347 **22 Claims**

1. Apparatus for conveying rod-like articles, including an inlet for rod-like articles; an outlet for rod-like articles; first conveyor means for moving a stack of said articles unidirectionally from the inlet to the outlet; second conveyor means for moving a stack of said articles to and from a junction with the first conveyor means, said first and second conveyor means

respectively defining first and second paths having major portions at least which respectively extend in adjacent laterally-spaced, substantially-vertically planes and are disposed generally side-by-side with respect to each other.

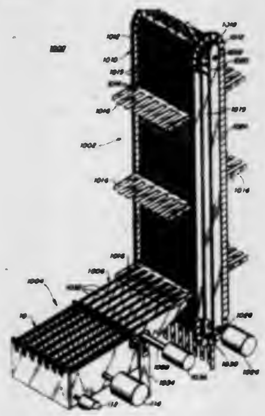


4,273,234

CONVEYOR STORAGE SYSTEM

Ronald D. Bourgeois, 38 Ellison Park, Waltham, Mass. 02154

Filed Feb. 2, 1979, Ser. No. 8,881
Int. Cl.³ B65G 37/00
U.S. Cl. 198—347 2 Claims



1. A conveyor storage system comprising:

an elevator conveyor system including an elevator conveyor; first drive means for driving said elevator conveyor; and first control means for selectively energizing said drive means in the load and unload directions; said elevator conveyor having a plurality of carrier members fixed to and spaced longitudinally along it and extending outwardly therefrom; each of said carrier members including a plurality of elements extending outwardly from said conveyor and spaced from each other; and

a transfer conveyor system including a delivery conveyor system having a plurality of individual modular conveyor units for engaging with said carrier members; said conveyor units being spaced apart to accommodate said carrier elements and extending into the spaces between said elements to load and unload said elevator conveyor system; second drive means for driving said conveyor units; and second control means for selectively energizing said second drive means in the load and unload directions for receiving and replacing product with its orientation unchanged; said transfer conveyor system further including a diverting conveyor system including: a support structure; a static conveyor including a plurality of spaced rollers mounted in said support structure; a drive apparatus for continuously driving said rollers; a main direction control device for operating said drive apparatus to drive said rollers to convey selectively in the forward and reverse direction; a support frame and a mounting structure carried on the support structure for slidably supporting said support frame; said mounting structure including spaced slides for slidably receiving a slide member carried by said support frame; an endless roller chain conveyor having parallel sets of raised laterally spaced flights and a drive chain section carried by said support frame; a drive system mounted on said support frame for continuously driving said roller conveyor; a transverse direction control device for operating said drive system to drive said roller conveyor to convey selectively in the left and right directions; and

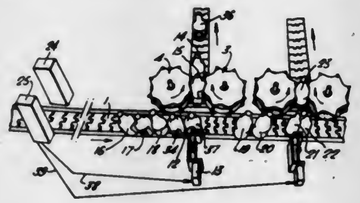
actuator means mounted on said support structure for moving said support frame selectively up to insert said flights interstitally of said rollers to divert conveyed goods from the main direction and down to withdraw said flights and allow goods to continue in the main direction.

4,273,235

DEVICE FOR SELECTIVE FEED OUT OF ARTICLES

Willy Rustand, Asker, Norway, assignor to Tomra Systems A/S, Asker, Norway

Filed Apr. 2, 1979, Ser. No. 25,809
Claims priority, application Norway, Apr. 7, 1978, 781233
Int. Cl.³ B65G 65/04, 43/00, 33/06
U.S. Cl. 198—372 6 Claims



6. An assembly in the nature of a plurality of associated conveyors for selectively transferring a supply of articles from one station to another, and comprising at least a pair of spaced coacting rotary units constructed and arranged to move such articles, one by one, from one conveyor to another, detaining means engaging said rotary units such that each article is temporarily detained between the rotary units and out of contact with the first conveyor and the second conveyor while enroute to the second conveyor, and drive means to rotate the rotary units from a detaining mode to a transfer mode.

4,273,236

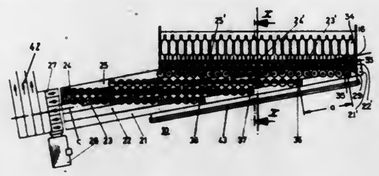
METHOD AND APPARATUS FOR HANDLING BOTTLES

Alois Wahl; Paul Elsner, both of Bad Kreuznach, and Gerhard Born, Bingen, all of Fed. Rep. of Germany, assignors to Seitz-Werke GmbH, Bad Kreuznach, Fed. Rep. of Germany

Continuation of Ser. No. 851,422, Nov. 4, 1977, abandoned, which is a continuation of Ser. No. 675,887, Apr. 12, 1976, abandoned. This application Apr. 27, 1979, Ser. No. 34,166
Claims priority, application Fed. Rep. of Germany, Apr. 22, 1975, 2517757
Int. Cl.³ B65G 47/26
U.S. Cl. 198—432 7 Claims

1. In a system for transferring bottles discharged from a machine in long rows of laterally spaced bottles to substantially shorter rows of laterally spaced bottles on a linear conveyor, the conveyor system for conveying away upright beverage bottles of glass as a reusable packaging container distinct from flat edible food cakes and maintained upright when moving along at an angle, comprising in combination therewith a bottle treatment machine having means to transport bottles in

spaced, parallel rows in a direction perpendicular to said rows and to discharge said bottles in upright position one row at a time in succession, a linear conveyor having a plurality of parallel adjacent belts with a common drive for movement of said belts at a common speed, the direction of travel of said conveyor being at an acute angle to said parallel rows of upright beverage bottles of glass in said machine and at an angle greater than 90° to the direction of movement of said rows of upright beverage bottles of glass in said machine to move said upright beverage bottles of glass by pushing at an equal level height away from said machine, said belts at the upstream end of the upper reach thereof adjacent said machine having staggered reversing supports, a stationary plate extending over the upstream ends of the upper reaches of said belts at the discharge position, means to receive said upright beverage bottles of glass deposited by said machine one row at a time, means to



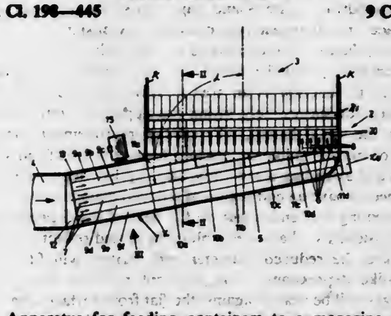
move each row of upright beverage bottles of glass onto said plate at right angles to said row and to displace the preceding row of upright beverage bottles of glass on said plate to move onto said linear conveyor at an acute angle to the direction of travel of said conveyor with each said row extending from side to side of said linear conveyor at said acute angle, said linear conveyor moving at substantially greater speed than the movement of said rows of upright beverage bottles of glass from said machine such that a plurality of upright beverage bottles of glass in each row of bottles discharged onto said linear conveyor move away from the discharge position before the discharge of the next succeeding row of upright beverage bottles of glass, the speed of discharge being such that upon transferring of a row of upright beverage bottles of glass, generation of noise due to bumping of upright beverage bottles of glass into the upright beverage bottles of glass in the row previously transferred in upright position is avoided.

4,273,237

DEVICE FOR FEEDING CONTAINERS, ESPECIALLY BOTTLES, TO PROCESSING MACHINES, ESPECIALLY CONTAINER CLEANING MACHINES

Alois Wahl, and Paul Elsner, both of Bad Kreuznach, Fed. Rep. of Germany, assignors to Seitz-Werke GmbH, Bad Kreuznach, Fed. Rep. of Germany

Continuation of Ser. No. 784,251, Apr. 4, 1977, abandoned. This application May 7, 1979, Ser. No. 36,292
Claims priority, application Fed. Rep. of Germany, Apr. 6, 1976, 2614711
Int. Cl.³ B65G 47/12
U.S. Cl. 198—445 9 Claims



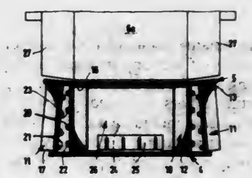
1. Apparatus for feeding containers to a magazine table having a plurality of entrance paths separated by parallel partitions, said apparatus including a conveyor belt arranged at an obtuse angle to said front side of said magazine table and at an acute angle to said paths, to deliver containers to said magazine table, said conveyor belt being formed by a plurality of component belts for delivering containers to said magazine table, the front side of said magazine table overlying said conveyor belt, covering plates overlying said component belts adjacent the front side of said magazine table to guide said containers from said component belts to the entrance paths between said partitions so that groups of containers conveyed by said conveyor belt are individually deflected to said entrance paths, the movement of said containers at an angle to the front side of said magazine table exerting a component of force toward said table to direct said containers into said paths.

4,273,238

COVER BELT CONVEYOR WITH CLOSURE STRIPS

Karl-Günther Blättermann, Hamburg-Rahlstedt; Günter Neuhaus, Hamburg, and Günther Nolte, Moers, all of Fed. Rep. of Germany, assignors to Conrad Scholtz AG, Fed. Rep. of Germany

Filed Sep. 25, 1979, Ser. No. 78,904
Claims priority, application Fed. Rep. of Germany, Sep. 26, 1978, 2841795
Int. Cl.³ B65G 15/14
U.S. Cl. 198—605 5 Claims



1. In a cover belt conveyor adaptable for use in conveying material from one level to another level and including a carrier belt and a cover belt entrained over respective return drums and having proximal runs defining a conveyor path therebetween, said belts defining proximal surfaces along said runs and extending in spaced apart substantially parallel relationship along the conveyor path, each belt also having opposite side edges thereon, and two longitudinally extending closure strips of flexible material, such as rubber or the like, projecting from the proximal surface of each belt adjacent the respective side edges thereof, the closure strips being so positioned that the closure strips of one belt fit between the cover closure strips of the other belt to form a closed box-shaped conveyor space between the proximal runs of the belts,

the improvement comprising

said closure strips of both belts having a periodic wave form defining wave ridges thereon which project substantially perpendicularly from said proximal surfaces of the respective belts with all of said closure strips projecting approximately the same extent from said proximal surfaces of the respective belts, each of said one belt closure strips being offset inwardly from the respective other belt closure strip adjacent the respective side edge of said other belt so that said one belt closure strips are spaced inwardly a relatively small extent from the respective other belt closure strips in the conveyor path, and profile knobs carried by each closure strip and projecting from the wave ridges thereof, certain of said profile knobs being located on the outer sides of said one belt closure strips, and certain others of said profile knobs being located on the inner sides of said other belt closure strips, said profile knobs

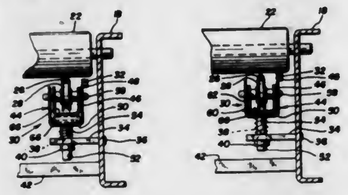
being arranged in longitudinal rows extending substantially parallel with said belts and having contact surfaces thereon facing toward the proximal surfaces of the one belt and the other belt, respectively, so that said contact surfaces of adjacent rows of profile knobs on adjacent one belt closure strips and cover belt closure strips will contact each other to aid in maintaining the closure strips of the one belt in the desired relation to said other belt closure strips along said conveyor path.

4,273,239

ZERO PRESSURE ACCUMULATOR AND BRAKING APPARATUS THEREFOR

John A. Thwaites, Jackson, and Ronald A. Ferrara, Englishtown, both of N.J., assignors to Contran Conveyors & Systems, Inc., Rahway, N.J.

Filed Apr. 23, 1979, Ser. No. 32,654
Int. Cl.³ B65G *13/071, 13/075*
U.S. Cl. 198—781 **18 Claims**



1. A zero pressure accumulator conveyor comprising:
(a) a plurality of sections arranged in tandem, each section including a pair of side rails and a plurality of article supporting rollers at spaced intervals therebetween;
(b) driving means including a combination driven propelling and braking apparatus operatively coupled to said article supporting rollers and disposed on one of said side rails;
(c) a pressurized fluid source; and
(d) an article detecting sensor disposed in each said section, said article detecting sensor being operatively coupled to said pressurized fluid source and said combination propelling and braking apparatus to either simultaneously engage the braking portion while disengaging the propelling portion or simultaneously engage the propelling portion while disengaging the braking portion of said combination propelling and braking apparatus from a plurality of said article supporting rollers by movement perpendicular to said article supporting rollers, said braking forces being applied only in a direction perpendicular to the axis of said article supporting rollers.

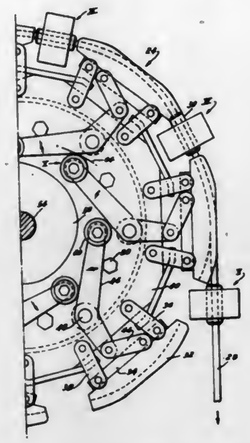
4,273,240

VARIABLE PITCH SPROCKETS FOR CONVEYOR SYSTEM

Robert W. Selleck, Los Gatos, Calif., assignor to Becton, Dickinson and Company, Rutherford, N.J.

Filed Jan. 26, 1979, Ser. No. 6,908
Int. Cl.³ B65G *23/04*
U.S. Cl. 198—835 **29 Claims**

1. A conveyor system comprising; at least one drive sprocket, at least one idler sprocket, a conveying member adapted to carry a work load and to mesh with the sprockets, support structure with the sprockets mounted thereon in a predetermined arrangement in position to mesh with the conveying member to drive and guide conveying member along a predetermined path, spaced elements on the sprockets and speced elements on the conveying member to be spaced from one another in alternate side by side arrangement when the conveying member is meshed with the sprockets, drive means to drive the drive sprocket, means for causing each element on the sprocket to contact an element on the conveying member at a point adjacent the exit of the conveying member from meshing with the sprocket to transfer the load at an advanced position by compressive action between the element of the conveyor and the element of the sprocket in a direction axial to the conveying member, and variable pitch adjustment means on the sprockets to automatically accommodate for a pitch variation on the conveying member and adjust the sprocket



circumferentially between entry and exit of the meshing of the conveying member and the sprocket to continue to mesh with the conveying member without the spaced elements on the sprockets contacting the spaced elements on the conveying member at the entry and exit of the meshing of the conveying member and sprocket.

4,273,241

REFLECTOR UNIT FOR PHOTOFLASH ARRAY

Andrew Smetana, Mentor, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,776
Int. Cl.³ B65D *21/02*; G03B *15/02*
U.S. Cl. 206—520 **6 Claims**



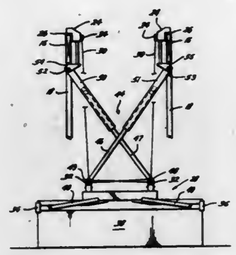
1. A reflector unit for assembly into a photoflash array, comprising a sheet-like member shaped to provide a plurality of individual reflectors and having a substantially flat front surface area between two of said individual reflectors, said reflector units being contoured so that a plurality thereof can be stacked in nested manner, said flat surface area being intended to function as an area to which a vacuum device is applied for successively lifting the uppermost reflector units from the stack thereof, wherein the improvement comprises one or more cup-like depressions formed in said front surface area and extending rearwardly, said cup-like depressions being shaped to have an end region of reduced diameter and a flange connecting said end region to the next of the depression, and dimensioned so that when a plurality of said reflector units are stacked the reduced diameter end regions will fit into the cup-like depressions of an adjacent reflector unit and the flanges will be near or against the flat front surface area of said adjacent reflector unit, thereby improving the stacking alignment and also preventing said flat surface area from being appreciably distorted when said vacuum lifting device is applied thereto.

4,273,242

STABILIZING DEVICE

Donald W. Schaper, Alliance, Ohio, assignor to Marathon LeTourneau Company, Longview, Tex.

Filed May 18, 1979, Ser. No. 40,330
Int. Cl.³ B66C *13/06*
U.S. Cl. 212—147 **19 Claims**



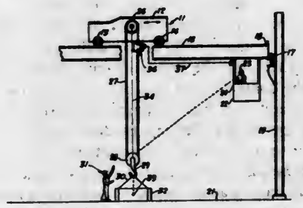
1. A stabilizing apparatus for preventing sway of a body suspended from an overhead support, said apparatus comprising:
a first relatively elongate rigid stabilizing member pivotally connected at one of its ends to one of said body and said overhead support;
first guide means carried by the other of said body and said overhead support and adapted to coact with said first stabilizing member;
a second relatively elongate rigid stabilizing member pivotally connected at one of its ends to one of said body and said overhead support;
second guide means carried by the other of said body and said overhead support and adapted to coact with said second stabilizing member;
said first and second stabilizing members coacting with said first and second guide means to permit said stabilizing members to slide relative to said guide means in a direction parallel to said stabilizing members' longitudinal axis, whereby said body may be raised and lowered relative to said support;
force transmitting means interconnecting said first and second stabilizing members for transmitting a force applied to said body in a direction tending to cause sway to said first and second stabilizing members in opposed directions, whereby said body is stabilized against sway.

4,273,243

LIFT CENTERING DEVICE

Frank S. Locher, R.D. #1 Kepple Hill, Vandergrift, Pa. 15690

Filed Apr. 18, 1979, Ser. No. 31,163
Int. Cl.³ B66C *19/00*
U.S. Cl. 212—153 **11 Claims**



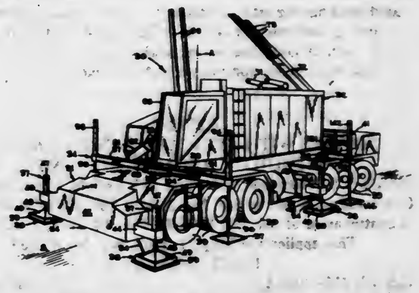
1. A crane load centering means for use in combination with a crane system,
said crane system having a cable winding means with a cable having at least one end secured thereto,
said cable supportably passing through a traveling block,
said traveling block including hook means to be secured to a load to be lifted,
a load centering means secured to said traveling block and positioned adjacent and positioned away from said traveling block and out of contact with said cable,
said load centering means having a null condition when said crane system is not in use and said load centering means is in a predetermined spatial relationship with a vertical line and a line which is coincident with the cable center line in the region between said traveling block and said cable winding means,
said load centering means including at least four electrical switch means spatially positioned in respect of said cable such that relative movement of said predetermined cable center line, vertical line spatial relationship actuates at least one of said electrical switches to provide an indication that said null condition has been disturbed and that should said load be lifted while said indication is present, said load will not receive optimal lifting from said traveling block of said crane system.

4,273,244

CRANE UPPERSTRUCTURE SELF-TRANSFERRING SYSTEM

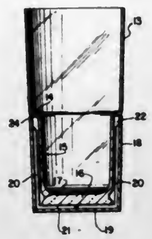
Lyle B. Jensen, Cedar Rapids, and Leroy L. Wittman, Marion, both of Iowa, assignors to FMC Corporation, San Jose, Calif.

Filed Jan. 29, 1979, Ser. No. 7,102
Int. Cl.³ B66C *23/84*
U.S. Cl. 212—181 **10 Claims**



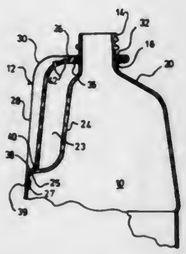
1. A crane upperstructure self-transferring system comprising a crane upperstructure frame having a front end and a rear end, a carrier for supporting the crane upperstructure frame, a quick disconnect turntable mounting interconnecting the carrier and the frame for rotation of the frame about a generally vertical axis, boom foot pins mounted at the front end of the frame, a front lifting assembly attachable to the frame by the boom foot pins, a counterweight mounting mechanism mounted at the rear end of the frame, a rear lifting assembly attachable to the frame by the counterweight mounting mechanism, said carrier having outrigger support jacks, and an air pad assembly positioned between a surface supporting the carrier and the outrigger support jacks enabling lateral movement of the carrier to align the carrier with the generally vertical axis of the quick disconnect turntable mounting, said front and rear lifting assemblies being operable to transfer said upperstructure frame between a position supported on said carrier and a position spaced from said carrier and supported by other means.

4,273,245
INSULATED GLASS VESSEL
Pio Hartinger Machalek, Pershing 287, Lima, Peru
Filed Nov. 26, 1976, Ser. No. 745,246
Int. Cl.³ B65D *6/10*
U.S. Cl. 215—13 R 5 Claims



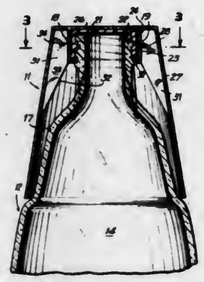
1. A vessel assembly comprising:
a glass vessel formed of glass or crystal and having an upper portion and a lower portion, said upper portion having a diameter greater than the diameter of said lower portion, said upper and lower portions being integrally formed and being joined by a step;
a substantially tubular shell formed of a plastic material having a low thermal conductivity;
said glass vessel being positioned within said shell such that said shell surrounds said lower portion of said glass vessel;
said shell having an inner diameter greater than the outer diameter of said lower portion of said glass vessel, thereby forming an annular space therebetween;
said annular space being completely filled with a synthetic resin material having a low thermal conductivity, said resin material being firmly bonded to the interior of said shell and the exterior of said lower portion of said glass vessel, thereby forming a permanently joined and solid assembly; and
said shell having an outer surface which is symmetrical with and a continuation of the outer surface of said upper portion of said glass vessel, such that the outer surface of said assembly is continuous and unbroken.

4,273,246
BOTTLES WITH ATTACHED HANDLES AND A METHOD OF FORMING THE SAME
Mortimer S. Thompson, P.O. Box 113, Enfield, Conn. 06082
Continuation-in-part of Ser. No. 28,886, Apr. 10, 1979, which is a continuation of Ser. No. 877,603, Feb. 14, 1978, abandoned.
This application May 21, 1979, Ser. No. 40,865
Int. Cl.³ B65D *23/10*
U.S. Cl. 215—100 A 32 Claims



1. A bottle having a neck portion, a sidewall and a lifting, carrying and pouring handle attached thereto, wherein said handle generally is L-shaped and is positioned substantially within the breadth of the bottle, and includes a generally horizontal leg attached to said neck portion, and a generally vertical leg in engagement with the sidewall of the bottle which has been flexed outwardly to place said handle under tension and to maintain said generally vertical leg in engagement with the sidewall of the bottle during lifting, carrying and pouring.

4,273,247
BOTTLE CLOSURE-CUP ASSEMBLY
William L. Earls, Cincinnati, Ohio, assignor to Schenley Industries, Inc., New York, N.Y.
Filed Jan. 28, 1980, Ser. No. 115,591
Int. Cl.³ B65D *51/24*
U.S. Cl. 215—228 17 Claims

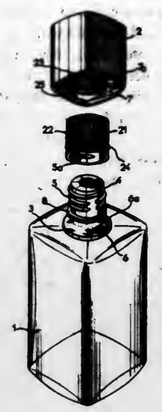


1. A bottle closure-cup assembly comprising:
a rotatably removeable bottle cap; and
a cup having a base and a substantially rigid side-wall extending from said base, a substantially cylindrical collar extending from said base and spaced apart from said side-wall and a plurality of fins extending between said side-wall and said collar, the interior surface of said collar including inwardly projecting means for engaging said bottle cap,
whereby said cup and bottle cap may be rotatably displaced as a unit to remove said bottle cap from the bottle and said cup may be separated from the bottle cap by pulling the cup axially away from the bottle without rotating the bottle cap.

4,273,248
SHAPED CAPS AND CONTAINERS
Myrtil B. Lehmann, Saint Cloud, France, assignor to Chanel, Neuilly-sur-Seine, France
Filed Jul. 6, 1979, Ser. No. 55,487
Claims priority, application France, Jul. 7, 1978, 78 20257
Int. Cl.³ B65D *51/18*
U.S. Cl. 215—331 9 Claims

1. In a container having a non-circular container body and a non-circular cap and guide means for ensuring repeatable helical movement of the cap about an axis of rotation and relative to the container body during sealing of an outlet of the container by the cap, the improvement comprising abutment means on the container and stop means on the cap, the abutment means and stop means comprising respective faces repeatably cooperating to define a predetermined orientation of the cap relative to the body of the container at the termination of the said helical sealing movement and said cap being a two-part cap having an inner and an outer part, the inner part engaging with the container by said guide means and the outer part being separate from the inner part, driving means for interengaging the inner and outer parts and for permitting

relative slippage between the same, said driving means comprising a first portion on said outer part and a second portion



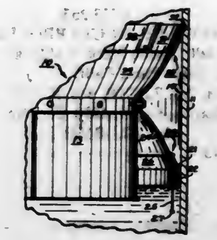
on said inner part, said outer part bearing said stop means and said inner part including sealing means for sealing the outlet.

4,273,249
SANDWICH CONTAINER
John Florian, Bakersfield, Calif., assignor to Mobil Oil Corporation, New York, N.Y.
Continuation of Ser. No. 513,601, Oct. 10, 1974, abandoned.
This application Jun. 22, 1977, Ser. No. 808,755
Int. Cl.³ B65D *1/26, 17/28*
U.S. Cl. 220—4 E 2 Claims



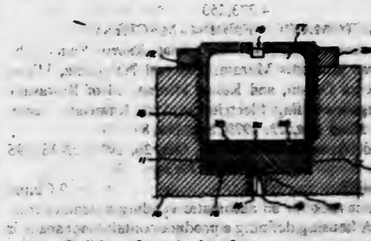
1. A disposable container of foamed thermoplastic resin for dispensing a circular sandwich and for convenient cosumption of such sandwich from a portion of the container comprising two generally similar recesses each defined by two semi-circular walls and a side walls integral with each edge of said semi-circular walls, the radius of said semi-circular walls being greater than the spacing of said side walls, the said recesses being adapted to enclose a circular sandwich with a portion thereof disposed in each recess when the said recesses are placed in abutting relation of the openings of said recesses, a flange integral with the semi-circular and side walls of each recess and extending outwardly therefrom, a hinge constituting a line of weakened area of the container integral with the flange of each recess extending from one end of the semi-circular wall thereof and parallel to such end, whereby the portions of the container may be separated by tearing along said weakened area to expose said circular sandwich projecting from one of said portions for convenient consumption with retention of liquids dripping from said sandwich in said recess to avoid soiling by said liquids; the flange integral with one side wall of each of said recesses being of a width adapted to cause the adjacent side wall to slope downward from the opening of the recess when the container or one portion thereof is at rest supported on a surface by a flange of such width and the adjacent side wall to assure retention of liquids in the container or portion thereof.

4,273,250
SEALING SYSTEM FOR LIQUID STORAGE TANKS
Mark D. Kinghorn, Sr., 1333 Rte. 30, Schererville, Ind. 46375, and Mark D. Kinghorn, Jr., 8044 Howard, Munster, Ind. 46321
Continuation of Ser. No. 873,218, Jan. 30, 1978, abandoned. This application Apr. 26, 1979, Ser. No. 33,697
Int. Cl.³ H05B *1/00*; A45D *1/04*
U.S. Cl. 220—220 11 Claims



1. A sealing system for use with a liquid storage tank having a roof freely floating on the contents stored within the tank comprising
a circumferentially radially outwardly extending primary wiper seal means for engaging a radially inwardly directed inner wall of the liquid storage tank to form a substantially liquid tight seal therewith,
supporting means adapted to be connected to the roof of the liquid storage tank and supporting said primary wiper seal means for applying a force thereto biasing said primary wiper seal means into sealing engagement with the inner wall of the liquid storage tank forming said wiping seal therewith at a position above the level of any liquid contained therein,
said primary wiping seal means having two parallel sides each of which extend a length substantially exceeding its thickness and a sealing face having its entire sealing area formed to extend parallel to the inner walls of the liquid storage tank when in an unbiased condition without said biasing force applied thereto and inclined obliquely from at least one of said parallel sides for wiping said wall upon movement of the tank roof relative thereto, and
vapor barrier means supported from said supporting means for inhibiting evaporation of the liquid contained within the liquid storage tank.

4,273,251
SAFETY DEVICE
John B. McMahon, Eastwood, Australia, assignor to The Commonwealth Industrial Gases Limited, Surry Hills, Australia
Filed Jan. 30, 1980, Ser. No. 116,732
Claims priority, application Australia, Feb. 1, 1979, PD7525
Int. Cl.³ B65D *51/16*; F16K *17/40*
U.S. Cl. 220—361 3 Claims



1. A fusible safety device for a pressure vessel having a counter-bore formed in the vessel wall with an outer end open to atmosphere and an inner end defined by a floor, and a vent

bore having an inner end open to the vessel interior and an outer end opening to said floor; comprising:

(a) a tablet of fusible material able to rest on said floor in coverage of the outer end of said vent bore,

(b) a sleeve screw-threaded into said counter-bore,

(c) a rigid pressure plate tightly sandwiched between said tablet and said sleeve, and

(d) at least one hole in said pressure plate axially displaced relative to said vent bore.

4,273,252

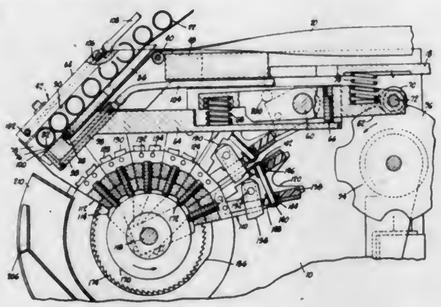
TAPED PRODUCTS PROCESSOR

Larry J. Marshall, Menlo Park, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Division of Ser. No. 721,700, Sep. 9, 1976, abandoned. This application Aug. 7, 1978, Ser. No. 931,545

Int. Cl.³ B65H *5/28*

U.S. Cl. 221—13 **2 Claims**



1. A controlled product feed apparatus comprising

a first member and second member defining a control station wherein work may be positioned, said second member including a stop to hold the work in said control station and being pivotally mounted for selective separation from said first member to allow the work to pass from said control station;

feed means including a work feed path extending to said control station and means for advancing work along said feed means to said control station; and

detection means for sensing an interrupted path extending from said first member to said second member across said control station such that work in said control station will interrupt said path and said separation of said second member from said first member will interrupt said path, said detection means being associated with means for advancing work to activate said means for advancing work when said path is uninterrupted, said detection means for sensing an interrupted path including a nozzle, a source of pressurized air, an orifice, and a pressure activated switch, said nozzle is in one of said first and second members and said orifice is in the other of said first and second members.

4,273,253

AUTOMATIC VENDING MACHINE

Nobuyasu Tanaka; Kazuhira Nakajima; Kaoru Yamaguchi; Shinji Hara; Morihiro Murata; Tetuyosi Nakazima; Hirosi Matuo; Akura Onishi, and Kazuo Hirano, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

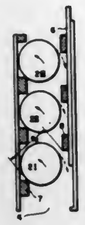
Filed Oct. 22, 1979, Ser. No. 87,180

Claims priority, application Japan, Oct. 26, 1978, 53-131995

Int. Cl.³ B65H *29/34*

U.S. Cl. 221—75 **9 Claims**

1. A product rack for an automatic vending machine, comprising: a rack housing defining a product containment space in which product items are arranged in at least one vertical line one above another with means for providing a product delivering outlet at the bottom thereof, said product items being substantially cylindrical in shape and having equal dimensions; a movable rack board provided opposite to one side wall of said rack housing, said rack board being movable vertically; first and second groups of product supporting members provided respectively on said one side wall and said movable rack board at equal vertical intervals and protruding inwardly; and a drive mechanism for performing a lifting operation wherein said movable rack board is moved upwardly from a lower standby position thereof and is then moved downwardly to said lower standby position, the vertical interval distance h of each of said first and second groups of product supporting members, the horizontal distance l between said one side wall



and said second group of product supporting members or between said movable rack board and said first group of product supporting members, a product passage clearance g between said first and second groups of product supporting members, and the stroke length of said lifting operation of said movable rack board being determined such that said product items are supported by respective pairs of product supporting members of said first and second groups in said standby position and pass through said product passage clearance between said first and second groups of product supporting members and move downwardly by one step during one vertical reciprocation of said movable rack board.

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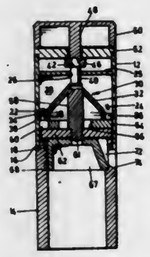
DEVICE FOR CONTAINING AND DISPENSING PARTICLES SUCH AS TABLETS

Brian Cuppleditch, 16 Devonshire Ave., Bryanston, Sandton, Transvaal, and Clive Lewis, 99 Packard St., Woodmead, Sandton, Transvaal, both of South Africa

Filed Jan. 23, 1979, Ser. No. 5,886

Int. Cl.³ B65D *83/04*

U.S. Cl. 221—196 **7 Claims**



1. A container-dispenser for particles comprising a housing having walls defining a chamber in which at least a part is generally cylindrical, a circular floor mounted rotatably in the generally cylindrical part of the chamber and having centrally on its upper surface an upwardly narrowing protrusion, the floor being formed with an aperture adapted to receive a measured quantity of the particles from a supply of the particles located in the chamber, a diaphragm located in the chamber

below the floor and being formed with an aperture adapted, in one position of the floor relatively to the housing, to register with the aperture in the floor, means to rotate the floor and its protrusion in the chamber relatively to the housing, a particle delivery opening in said housing walls below said diaphragm, and receiving means located below the diaphragm to receive a measured quantity of the particles which has been transferred, on such rotation, through the aperture in the floor to the aperture in the diaphragm and thence to the receiving means, the receiving means comprising a body surrounding a substantial portion of the lower portion of said housing, said body having a chute extending generally spirally around the housing with the head of the spiral chute disposed adjacent said delivery opening and said chute ending in a basin-like zone extending away from the walls of the housing and in which the measured quantity of the particles will come to rest to assure easy access to such particles by a user.

4,273,255

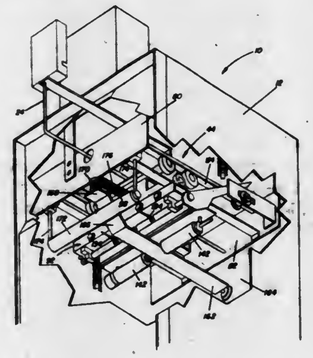
NEWSPAPER DISPENSER

Kenneth D. Overall, 328 Paragon Mills Rd., Nashville, Tenn. 37211

Filed Nov. 26, 1979, Ser. No. 97,177

Int. Cl.³ B65H *3/22*

U.S. Cl. 221—213 **35 Claims**



1. A mechanism for slidably propelling a single substantially planar item in a direction substantially within the plane of said planar item, comprising:

a transverse bar position adjacent to the planar item;

mounting means for mounting the transverse bar adjacent to the planar item, said transverse bar being movable through linear motion between a retracted position and a dispensing position;

at least one pin mounted on said transverse bar and being movable by the rotation of said transverse bar between an engagement position and a disengagement position, said pin being positioned to engage the planar item when in the engagement position and to disengage the planar item when in the disengagement position;

a cocking lever extending from said transverse bar;

a cocking stop positioned to selectively engage said cocking lever;

said cocking lever being oriented to engage the cocking stop as the transverse bar moves in a direction from the dispensing position toward the retracted position, said cocking stop being operable to cocking said lever to rotate and transverse bar to place said pin in the engagement position when said transverse bar is in the retracted position;

said pin being operable to engage and slidably propel said planar item in a linear direction when said transverse bar is moved from the retracted position to the dispensing position.

4,273,256

APPARATUS FOR DISPENSING PRINTED PRODUCTS

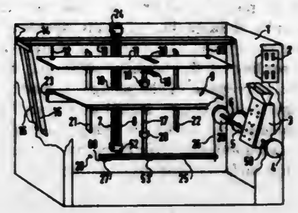
Hans Wesner, Lessingstrasse 40, 6901 Eppelheim, Fed. Rep. of Germany

Filed Oct. 13, 1978, Ser. No. 951,358

Claims priority, application Fed. Rep. of Germany, Oct. 15, 1977, 7731990[U]

Int. Cl.³ B65H *1/14, 3/24; G07F 11/14*

U.S. Cl. 221—230 **17 Claims**



11. An apparatus for dispensing folded or stitched printed products such as newspapers or periodicals, said apparatus being of the type which includes a housing with an automatic coin system and a turning device which is rotated after coin insertion to deliver a printed product through a delivery slot, the housing having therein two perpendicular detent rods arranged parallel to one another, one detent rod being arranged fixedly and the other being arranged to move upwards and downwards, and a transport plate for carrying the printed product stack arranged for upward and downward movement adjacent the detent rods, the transport plate having two pivotable pawls for engagement with the two detent rods, wherein the improvement comprises:

the detent rods (7, 8) are arranged side by side on the housing rear wall and the transport plate (9) is arranged horizontally, and further comprising a push plate (11) displaceably arranged above the transport plate, the push plate having gripper means (38, 39, 74) for expelling the printed product lying uppermost on the stack, a lever (25) pivotable about an axis (27) arranged beneath the ends of the detent rods and approximately horizontally along the housing rear wall, on which lever the movable detent rod stands freely, and a draw cable (46) operationally connected between the free end of the lever and the turning device (4).

4,273,257

JAR MOUNTED PIPETTOR

James C. Smith, Hayward, and Richard D. Reed, Sonoma, both of Calif., assignors to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Jul. 18, 1977, Ser. No. 816,853

Int. Cl.³ G01F *11/02*

U.S. Cl. 222—43 **4 Claims**

3. A pipettor, comprising:

a dispenser body including a plunger chamber as part of a structure with its lower portion adapted to be fastened onto a bottle top,

a plunger assembly operable for reciprocating a plunger back and forth within said plunger chamber, said plunger assembly terminating in an end extending outward of the top of said dispenser body,

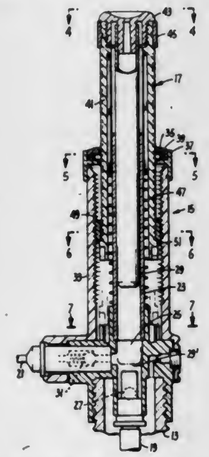
valve means for permitting liquid to be drawn from the bottle into the plunger chamber upon movement of said plunger assembly in a direction outward of the top dispenser body end and to discharge liquid therefrom in response to movement of said plunger assembly in a direction into the dispenser body, the volume of liquid so discharged depending upon the length of the plunger's downward stroke,

means for providing a fixed maximum position that said plunger assembly can be pushed into said dispenser body,

resilient means within said dispenser body for urging said plunger assembly to a rest position outward of the dispenser body,

means responsive to rotation of said plunger assembly for continuously controlling the permissible stroke length by adjusting the rest position of said plunger assembly, thereby to provide control of the volume of liquid discharged in one reciprocation of said plunger,

a vertical liquid volume scale provided on the outside surface of the plunger assembly in a line oriented along its length and in the area thereof that is capable of protruding from the end of said dispenser body, thereby to provide a coarse reading of the liquid volume that is discharged upon full depression of the plunger assembly, the major markings on said coarse scale being spaced apart a distance equal to that which the plunger assembly advances in one revolution, said scale being read by its intersection with a top surface of the dispenser body,



a circular scale provided around said top dispenser body surface and surrounding said protruding end of the plunger assembly, said circular scale having a given number of equally spaced major volume markings, said circular scale being read upon its intersection with said vertical scale, whereby a combination of the readings from both scales provides fine and coarse adjustment of the piston stroke length, and

positive detent means within said dispenser body for establishing a plurality of stable rotatable positions of the plunger equal to said given number, said positive detent means oriented so that at each stable position said vertical scale is opposite a major marking of said circular scale, said stable positions being overcome by enough hand force to rotate said plunger assembly to a new volume setting when desired.

4,273,258

TOOTH PASTE DISPENSER

Charlene Stevenson, 752 NE. 83, Oklahoma City, Okla. 73114

Filed Mar. 14, 1979, Ser. No. 20,379
Int. Cl.³ B65D *35/28*
U.S. Cl. 222—103 4 Claims

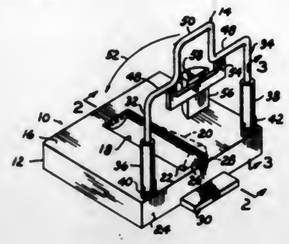
1. In a holder for a collapsible tube containing paste material and having a discharge nozzle, the improvement comprising:

a base having an upper surface provided with an elongated transversely arcuate recess for nesting a longitudinal peripheral portion of said tube with its nozzle overhanging one side edge surface of said base;

frame means hingedly connected with said base adjacent said one side edge surface for vertical movement about a horizontal axis toward and away from said tube,

said frame means including a generally U-shaped member having a bight portion and parallel legs,

a pair of casings telescopically receiving one end portion of said legs, and,



springs normally biasing said legs toward a telescopically extended position; and,

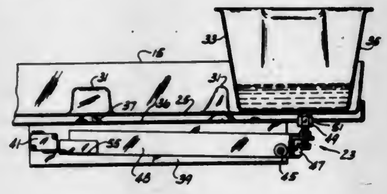
pressure foot means supported by said frame means for extruding paste through said nozzle.

4,273,259

FLOOD CONTROL FOR A BEVERAGE VENDOR

William V. Koeneker, St. Louis, and Franklin D. Newkirk, Florissant, both of Mo., assignors to UMC Industries, Inc., Stamford, Conn.

Filed Sep. 27, 1979, Ser. No. 79,352
Int. Cl.³ B67D *1/16*
U.S. Cl. 222—108 12 Claims



1. A flood control apparatus for a beverage vendor of the type comprising a cabinet, a station where beverage is delivered into a cup, a water supply system including a line for bringing water into the cabinet to provide water for beverages, and a valve in said line; said control means comprising:

a pan having a bottom and upstanding side walls, the pan being located beneath components of the water supply system within the cabinet to collect water discharged upon a failure of any of the components, said pan being adapted resiliently to flex downward at least in part under the weight of water collected in the pan;

means in the cabinet for supporting the pan with said part of the pan free to flex downward under the weight of water collected in the pan; and

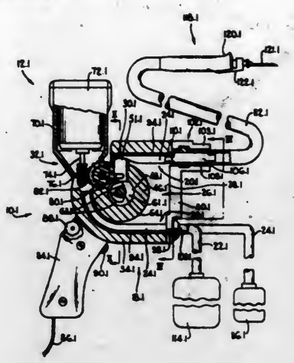
means engageable by said part of the pan on said downward flexing thereof for closing the valve to cut off the supply of water, said means for closing the valve being actuated to close the valve upon said part flexing downward under the weight of the water collected in the pan.

4,273,260

DISPENSING OF FLUENT MATERIALS

George E. Bush, 65 Hillman St., Woodmead East, Sandton, Transvaal Province, South Africa

Filed Jan. 24, 1979, Ser. No. 6,145
Claims priority, application South Africa, Feb. 3, 1978, 78/0674
Int. Cl.³ B67D *5/52*
U.S. Cl. 222—135 6 Claims



1. A dispensing device for use in dispensing measured quantities of fluent material through a plurality of resiliently compressible dispensing tubes, the device comprising:

a housing having a tube zone for receiving a plurality of dispensing tubes;

collapsing means for collapsing, in compression zones, dispensing tubes when located in the tube zone;

said collapsing means including a plurality of displaceable compression members slidably connected to said collapsing means and projecting to different extents beyond the periphery of said collapsing means for cooperating with the dispensing tubes when located along different radii of curvature in the tube zone;

displacement means for displacing the collapsing means to advance the compression zones along compression paths to dispense fluent materials through said dispensing tubes, the compression paths being of different effective lengths;

a plurality of fixed cam members to cooperate with said collapsing means to define the effective length of the compression paths affected by the collapsing means during operation of the collapsing means;

said cam members being adapted to cooperate with the respective compression members to define the effective lengths of the compression paths affected by the compression members.

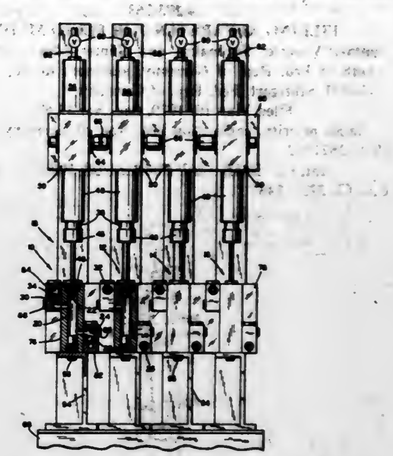
4,273,261

METERING APPARATUS

Wallace F. Krueger, 4401 Merriweather Rd., Toledo, Ohio 43623

Filed Apr. 4, 1979, Ser. No. 27,032
Int. Cl.³ B67D *5/52*
U.S. Cl. 222—135 19 Claims

1. Apparatus for metering material comprising means forming a first cylinder having a first ram reciprocable therein, first inlet means connected to said first cylinder for supplying material to said first cylinder, said first inlet means having a first check valve enabling flow of the material only toward said first cylinder, first outlet means connected to said first cylinder for receiving metered material from said first cylinder, said first outlet means having a second check valve enabling flow of the material only away from said first cylinder, means forming a second cylinder having a second ram reciprocable therein, second inlet means connected to said second cylinder for supplying material to said second cylinder, said second inlet means having a third check valve enabling flow of the material only toward said second cylinder, second outlet means connected to said second cylinder for receiving metered material from said second cylinder, said second outlet means having a fourth check valve enabling flow of the material only away from said



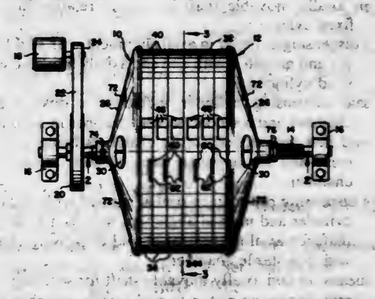
second cylinder, a first gear rack connected to said first ram, a second gear rack connected to said second ram, a pinion between said racks and meshing with both, and means for driving said first gear rack and second gear rack comprising a fluid-operated cylinder connected with each of said gear racks.

4,273,262

ROTARY DISPENSER APPARATUS

Spencer R. Hanson, Rte. 2, Box 217, Blair, Wis. 54616

Filed Nov. 28, 1977, Ser. No. 855,296
Int. Cl.³ A01C *19/00*
U.S. Cl. 222—144 12 Claims



1. Apparatus for dispensing a fluid material comprising: a drum adapted to be rotated about a non-vertical axis; said drum defining a chamber therein for fluid material to be dispensed therefrom; said drum having an annular side wall and at least one axial end bell fixedly interconnected for rotation together about said axis; said annular side wall having at least one dispenser ring provided with an arcuate channel; said channel having a radially inner wall and a radially outer wall; a radial inlet opening in said radially inner wall communicating said channel with said chamber; a radial outlet opening in said radially outer wall communicating said channel with space external to said drum; said inlet and outlet openings being angularly displaced from each other about said axis along said channel whereby fluid material passing into said inlet opening and out of said outlet opening must pass through a length of said channel; an adjustable inlet valve disposed at said inlet

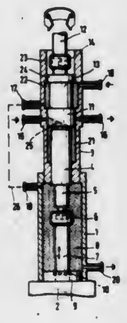
opening for adjusting the actual size of said inlet opening; said valve including a weir extending across said inlet opening in the direction of said axis on the leading side of said inlet opening with respect to the direction of rotation about said axis.

4,273,263

FILLING APPARATUS FOR FLUID MEDIA

Günther Voegele, Schönaich, and Günter Meyer, Brettheim, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,601
Claims priority, application Fed. Rep. of Germany, May 13, 1978, 2821052
Int. Cl.³ B65B 3/32; F04B 21/08; B08B 3/04
U.S. Cl. 222—148 5 Claims



1. A dispensing apparatus for dispensing a fluid medium in which parts of the apparatus used in dispensing the fluid may be cleaned and sterilized without removal of the parts and the parts are always sterile during dispensing doses which comprises:

a fixed frame;

a fixed cylinder secured at one end to said fixed frame and forming a first sterile chamber;

an axially movable shaft in coaxial relationship with said fixed cylinder;

a dispensing cylinder in axial alignment with said fixed cylinder and mounted with one end axially movable within said fixed cylinder;

said dispensing cylinder including a dosage dispensing chamber and a second sterile chamber in axial alignment;

said first and second sterile chambers being in axial alignment and on opposite sides of said dosage dispensing chamber;

a dispensing piston in coaxial alignment with said dispensing cylinder and in axial alignment with said axially movable shaft for axial movement in said dispensing chamber and said first sterile chamber;

means on said axially movable shaft for securing one end of said dispensing piston to said axially movable shaft;

a first inlet in said dispensing cylinder;

a first outlet in said dispensing cylinder in direct opposition to said first inlet;

a rotary valve in said dispensing cylinder in coaxial relationship therewith in axial relationship with said dispensing piston and in radial alignment with said first inlet and said first outlet;

means for rotating said rotary valve to close and open said first inlet and said first outlet;

a second inlet and a second outlet connected with said second sterile chamber in said dispensing cylinder; a third inlet and a third outlet connected to said first sterile chamber in said fixed cylinder;

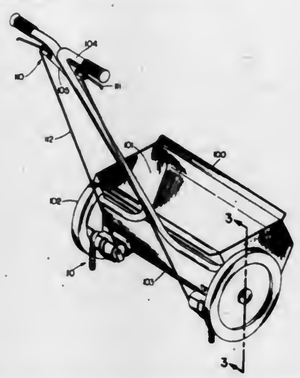
whereby fluids may be dispensed with said dispensing cylinder in one position and said dispensing elements may be cleaned and sterilized when said dispensing cylinder is moved to a second position relative to said first sterile chamber in said fixed cylinder.

4,273,264

SPREADER MARKER HAVING A GROUND WHEEL ACTUATED AEROSOL SUPPLY

Howard W. Legg, 2229 N. Park, Grand Island, Nebr. 68801

Filed Dec. 3, 1979, Ser. No. 99,796
Int. Cl.³ B67D 5/64
U.S. Cl. 222—162 10 Claims



1. A marking device for a lawn spreader comprising:

a bracket secured to the spreader body;

an aerosol can filled with marking material pivotably supported on said bracket via a retaining member; and

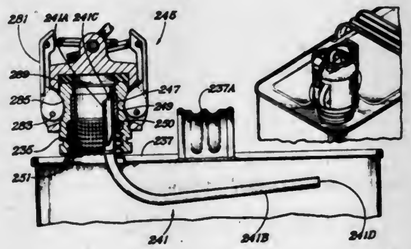
at least one cam means mounted on one wheel of said spreader, and adapted to engage the aerosol can to dispense its contents beneath the lawn spreader.

4,273,265

SAFETY DISPENSING SPOUT

Bazeel B. Anderson, 2233 Glenco Ter., Fort Worth, Tex. 76110

Continuation of Ser. No. 51,995, Jun. 25, 1979, abandoned, which is a continuation of Ser. No. 848,496, Nov. 4, 1977, abandoned. This application Jun. 13, 1980, Ser. No. 159,200
Int. Cl.³ B67D 5/58, 3/00
U.S. Cl. 222—189 5 Claims



1. A dispensing spout adapted to be removably coupled to the opening of a container for holding liquid, comprising:

conduit means having a threaded end adapted to be threaded to threaded means defining the opening of a container and having a dispensing end opposite said threaded end,

tube means adapted to be located concentrically in said conduit means,

screen means forming a flame arrester connected to the lower end of said tube means,

a vent tube extending through said screen means and having a first portion located within said tube means next to its wall,

said vent tube having a second portion adapted to extend out of said threaded end of said conduit means when said tube means and said first portion of said vent tube are located therein with said second portion of said vent tube being adapted to be located in the container when said threaded end of said conduit means is threaded to the threaded means defining the opening of the container,

said second portion of said vent tube extending generally transverse to said first portion and having an end adapted to be located in the container at a position spaced away from the opening of the container,

said tube means, said screen means, and said vent tube being fixedly secured relative to each other,

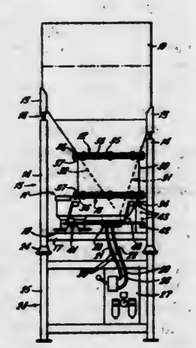
said conduit means being rotatable relative to said tube means, said screen means and said vent tube.

4,273,266

METHOD AND APPARATUS FOR DISCHARGING MATERIAL FROM BULK CONTAINERS

George W. Snape, Shipston-on-Stour, England, assignor to Bulk Unit Load Systems Limited, London, England

Filed Mar. 26, 1979, Ser. No. 24,175
Claims priority, application United Kingdom, Mar. 23, 1978, 11698/78
Int. Cl.³ B67D 5/06; B65G 69/00
U.S. Cl. 222—199 8 Claims



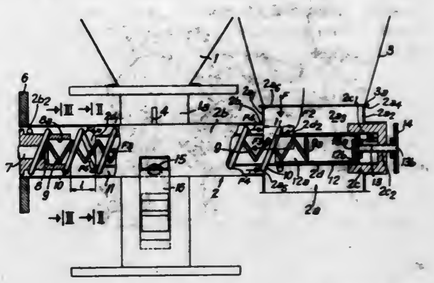
1. Apparatus for discharging material from a bulk container having a discharge opening in its base, vibratory delivery means for conveying material from said opening of the container to a second discharge opening, the delivery means having an inlet connected to the discharge opening of the container by means including a flexible but non-stretchable and non-metallic member defining a duct and means for vibrating the delivery means, characterized in that to assist the passage of the material from the container to the delivery means the flexible but non-stretchable member is convergent in the downward direction and is arranged to transmit vibration from the delivery means to the container, said member being releasably connected to said container and said delivery means, said apparatus comprising a mobile unit, there being provided a frame for supporting both the container and the delivery means, and a second support frame, the frame of the mobile unit having feet for resting on the second frame, and the second frame providing means for minimizing the transmission of vibrations from the delivery means to the second frame.

4,273,267

DEVICE FOR EXTRACTING AND PROPORTIONING PULVERULENT PRODUCTS

Gilbert G. Conca, Cabries, France, assignor to Societe Anonyme dite: Transtube-Project, Aix-en-Provence, France

Filed May 30, 1979, Ser. No. 43,719
Claims priority, application France, Jun. 2, 1978, 78 17241
Int. Cl.³ B65D 88/54
U.S. Cl. 222—318 9 Claims



1. In a device for extracting and proportioning pulverulent products comprising a hopper and coaxial screws with threads of opposite directions, means for driving said screws in rotation in a cylindrical conduit, said screws being separated from each other by the wall of a tube coaxial to the screws and to the conduit, the screw of smaller diameter rotating inside the tube to convey the product therein in one direction and the screw of larger diameter rotating outside said tube to convey the product in the opposite direction in the space defined between the tube and the conduit, said conduit comprising on its periphery at least one orifice for the flow of the product, said screws being composed of wires helically wound in the manner of a spring, and the tube in which the screw of smaller diameter is mounted, comprising on its periphery and adjacent the hopper an opening for the inlet of the product, in front of which said screws extend at least partially, said product, after having passed through said tube, being taken up by the screw of larger diameter and being transported between said tube and said conduit in the direction towards the hopper to exert a constant pressure at said opening, to avoid the effects of "vault" above the inlet opening and simultaneously to cause the product to pass through said orifice located on the periphery of the conduit.

4,273,268

FLUID SPRAY PUMP

Chester Wickenberg, Elgin, Ill., assignor to Sequoist Valve Co., Div. of Pittway, Cary, Ill.

Continuation of Ser. No. 960,233, Dec. 13, 1977, abandoned. This application Jul. 11, 1979, Ser. No. 56,438
Int. Cl.³ G01F 11/02
U.S. Cl. 222—321 20 Claims

1. A fluid spray pump primarily adapted for pumping a fluid from a fluid container, comprising in combination:

a housing comprising a housing internal cylinder having a first and a second end;

a collar established adjacent said first end of said housing internal cylinder having a collar internal aperture;

one way valve means connecting the fluid container to said housing internal cylinder;

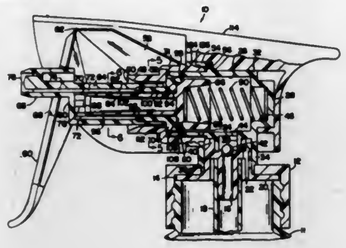
a pump barrel slideably receivable in said internal collar aperture and including a barrel internal bore in communication with a terminal orifice in said pump barrel;

a piston comprising a piston stem and an enlarged piston head with said piston stem being receivable in said barrel internal bore of said pump barrel and with said pump head being receivable in said housing internal cylinder;

channel means for communicating said housing internal cylinder with said terminal orifice;

annular seal means movably mounted between a first and a second position for sealing said channel means when said annular seal means is in the first position and for enabling fluid flow through said channel means when said annular seal means is in the second position;

said annular seal comprising a single tubular sleeve and a sealing member;



said internal bore of said pump barrel including an internal annular seal bore for at least partially receiving therein the total single tubular sleeve portion of said annular seal means; and

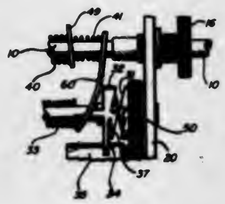
said annular seal bore of said pump barrel enabling said annular seal means to move within said internal annular seal bore relative to said pump barrel and said piston to provide fluid communication between said housing internal cylinder and said terminal orifice upon movement of said pump barrel and piston in a direction toward said second end of said housing internal cylinder.

4,273,269

HAND HELD ELECTRIC CAULKING GUN

George B. Davis, Jr., 7512 Marbury Rd., Bethesda, Md. 20034

Continuation-in-part of Ser. No. 876,048, Feb. 8, 1978, Pat. No. 4,171,072. This application Jul. 30, 1979, Ser. No. 61,863
The portion of the term of this patent subsequent to Oct. 16, 1996, has been disclaimed.
Int. Cl.³ B67D 5/46
U.S. Cl. 222—326 33 Claims



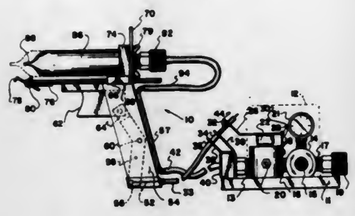
1. A hand held electric caulking gun including in combination, a receptable for receiving therein a caulk containing cartridge having a caulk dispensing nozzle, a piston movable when driven through said cartridge to force the caulking therein from said nozzle, means including a reciprocating surface, driving means for said reciprocating surface including an electric motor, a speed reducing drive train connecting said motor with said reciprocating surface whereby operation of said motor causes reciprocal movement of said surface, and a spring piston gripping plate movable by movement of said reciprocating surface to engage in gripping relation the surface of said piston to effect movement of said piston through said cartridge to force caulking therein from said nozzle, said spring piston gripping plate resiliently being yieldable to absorb the reciprocating movement of said reciprocating surface upon a predetermined movement arresting force being applied to the caulk driving end of said piston during operation of said motor.

4,273,270

TRIGGER ACTUATED AIR PRESSURE DISPENSING GUN

George C. Kray, 137 Plitt Ave., Farmingdale, N.Y. 11735

Filed Aug. 21, 1979, Ser. No. 68,380
Int. Cl.³ G01F 11/00
U.S. Cl. 222—327 7 Claims



1. Air compression means to apply air under pressure from a source thereof to a container of flowable material which container has a nozzle through which said material may be discharged, comprising

a valve assembly with an inlet port connectable to an air source, said valve assembly incorporating a three-way valve, an actuator extending from said three-way valve for controlling the flow of air passing therethrough; a spring-biased pivoted lever for biasing said actuator to a normal position;

a gun unit including a handle, trigger means including a trigger arm pivoted in said handle; a flexible tension control cable connecting said trigger arm and said pivoted lever for activating said actuator away from the normal position and into the actuated position when tension is applied to the said control cable; a holder fixed to the upper part of said handle; holding means for a said container adjustably and slidably mounted on said holder; a coupler on said holding means communicating with said container in the installed position of the container; a flexible air line connecting said three-way valve to said coupler; such that

the gun unit may be held in a hand of the user and controlled by pressure of a finger of said hand against said trigger means and with the valve assembly mounted at a remote location from the gun, in which

said three-way valve in the normal biased condition blocks the inlet port and connects the flexible air line to an exhaust outlet of the valve that leads to ambient air outside the valve under atmospheric pressure, and in which said three-way valve in the actuated condition blocks the said exhaust outlet and connects the inlet port to the flexible air line.

4,273,271

VOLUMETRIC DISPENSER

Howard L. Tiger, Eagle Ridge Way, West Orange, N.J. 07052

Continuation-in-part of Ser. No. 790,481, Apr. 25, 1977, abandoned. This application May 21, 1979, Ser. No. 40,725
Int. Cl.³ G01F 11/26
U.S. Cl. 222—454 1 Claim

1. A volumetric dispenser for dispensing measured increments of a liquid from a supply of the same, comprising in combination:

a housing having a closed top and adapted to be connected in communicating relation with a closed container containing a supply of liquid,

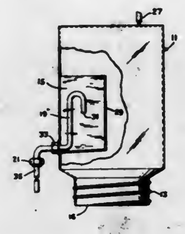
a dosage measuring receptacle disposed internally of said housing,

said dosage measuring receptacle having a closed bottom and an open top, and being fillable by inversion of said container and said housing followed by restoration thereof to their initial relative positions,

means defining a passage extending from a point inside said dosage measuring receptacle to a delivery point outside said container,

means completely disposed internally of said housing for adjusting the effective volume of said dosage measuring receptacle to a selected value, and

means independent of said dosage measuring receptacle and said means for adjusting the effective volume thereof and



external of said housing, for relieving inequalities between the pressure of the ambient atmosphere and the pressure in the vapor space over the liquid in said container and in said dosage measuring receptacle,

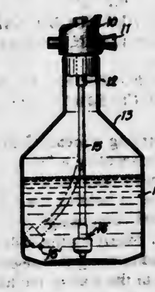
said means for adjusting the effective volume of said dosage measuring receptacle comprising a delivery tube disposed internally of said housing, said tube having a feed point selectively adjustable to a predetermined depth within said dosage measuring receptacle located below the surface of the liquid container therein, said tube establishing communication for the liquid with said passage defining means to the delivery point outside said container, and a pivotal liquid-tight connector joining said tube with said passage defining means.

4,273,272

LIQUID DISPENSER

Max A. Blanc, 5 Rue du Pilori, 64 100 Bayonne, France, assignor to William B. Anderson, West Palm Beach, Fla. and Max Alain Blanc, St. Jean de Luz, France, part interest to each

Filed Nov. 13, 1979, Ser. No. 93,381
Int. Cl.³ B67D 5/60
U.S. Cl. 222—464 5 Claims



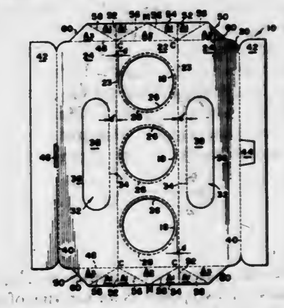
1. In a liquid dispenser in which a liquid is dispensed from a container through an upper discharge by means of a depending tube, the improvement of an intake fitting engageable with the lower end of the tube and comprising a passage through the intake fitting, a stop within said passage engageable by the lower end of the tube when it is inserted in the passage and constriction means within the passage and spaced above the stop for engaging the outer periphery of the tube to lock the fitting on the lower end of the tube, said intake fitting being relatively heavy in relation to the liquid which it displaces so that both it and the liquid can be displaced by gravity to the same region within the container and with the lower end of the fitting positioned in the lower region of the liquid, said intake fitting including a tubular formation of relatively lightweight material having a passage extending therethrough, an annular weight slidably engageable onto the upper end of the tubular formation, a support outwardly extending from the tubular formation for the support of the annular weight, a depending portion of the tubular formation beneath said support, a lower end of the passage passing through the depending formation and an upwardly and outwardly shaped outer surface formed on said depending formation surrounding the lower end of the passage.

4,273,273

HAND CARRIER FOR CANS OR BOTTLES

Hideomi Zeari, No. 32-12, 2-chome, Kaminakazato, Kita-ku, Tokyo, Japan

Filed Jul. 17, 1978, Ser. No. 925,164
Claims priority, application Japan, Feb. 8, 1978, 53-13246
Int. Cl.³ B65D 71/00
U.S. Cl. 294—87.2 7 Claims



1. A hand carrier made of a thick sheet for carrying cans or bottles by gripping their circumferential projections, characterized in comprising:

a bottom wall (22) and two side walls (24) provided one along either side of the bottom wall (22) via first scoring lines (23),

at least one circular gripping hole (18) provided in the bottom wall (22) for gripping a can or bottle and having a smaller diameter than that of the circumferential projection (27) of the can or bottle to be carried,

a second circular scoring line (28) formed concentrically with each of the circular gripping holes (18) and having a diameter larger than that of the circumferential projection (27) of the can or bottle to be carried,

an annular region (26) defined between the circular gripping hole (18) and the second circular scoring line (28) and being transformable into a frustoconical gripper upwardly extending from the second circlar scoring line (28) simultaneously with the insertion of the can or bottle into the circular gripping hole (18) from the underside of the bottom wall (22), the frustoconical gripper being engageable with and tightly gripping the circumferential projection of the can or bottle from the underside thereof,

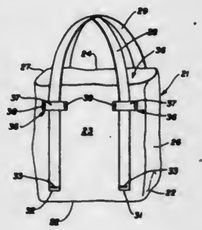
reinforcing ear portions (30) provided one on each end of the bottom wall (22) and the side walls (24) via additional scoring lines (40),

the configuration of the reinforcing ear portion (30) being an isosceles trapezoid having its base on the additional scoring line (40), each reinforcing ear portion (30) having further scoring lines (32) lying on the extensions of the first scoring lines (23), mid scoring lines (36) connecting the mid point (M) of the outer edge (34) of the ear portion

(50) and two intersecting points, (C, C) of the first and the additional scoring lines (23) and (48), and lateral scoring lines (58) symmetrical with the mid scoring lines (56) with respect to the further scoring lines (52), and

first triangular shaped portions (A_1) defined by said further mid and lateral scoring lines (52, 56 and 58) and the outer edge (54) of the ear portions (50) being bent inwardly, and second triangular portions (A_2) defined by said additional and further scoring lines (48 and 56) and third triangular portions (A_3) defined by said additional and lateral scoring lines (48 and 58) and oblique line (60) of the ear portions (50) being bent substantially normal to the bottom wall (22) and the side walls (24), when the hand carrier is folded into its usable form.

4,273,274
CONVERTIBLE HANDBAG AND BACKPACK
Margo S. Freistadt, 670 Greenwich St., San Francisco, Calif. 94133
Filed Jun. 7, 1979, Ser. No. 46,358
Int. Cl.³ A45C 13/26
U.S. Cl. 294—141 2 Claims



1. A bag having a pair of carrying straps mounted thereto for movement between two positions for carrying of said bag as a handbag, a shoulder bag and a backpack; said bag including a bag body having a bottom panel, opposite side panels and opposite end panels, said bottom panel being elongated and said side panels each having a greater transverse dimension than the transverse dimension of said end panels; a first carrying strap having a first end secured to a first side panel proximate said bottom panel and proximate a first end panel; a second carrying strap having a first end secured to said first side panel proximate said bottom panel and proximate a second end panel, said straps each extending upwardly along said first side panel over the top of said bag and terminating in a second end secured to a second side panel; and mounting means slidably mounting each of said straps to said first side panel proximate the top of said bag, said straps each being unattached to said first side panel intermediate said mounting means and said first ends; wherein the improvement in said bag comprises:

said side panels and said end panels terminating in and defining an open bag top;

said bag body being formed of a flexible material proximate said open bag top;

said mounting means being further secured to said first side panel to position an intermediate portion of said first strap proximate said first end panel and an intermediate portion of said second strap proximate said second end panel;

said straps extending from said mounting means and crossing over said open bag top along substantially diagonally extending lines with said second end of said first strap being secured to said second side panel proximate said second end panel and said second end of said second strap being secured to said second side panel proximate said first end panel; and

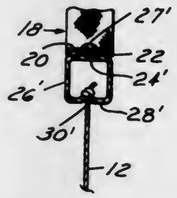
said straps being secured to said bag body and slidably mounted by said mounting means for movement between a first position at which the crossed straps:

(i) may be gripped by the hand of the user for carrying as a handbag, and

(ii) define an opening over said open bag top lying in a plane parallel to said side panels through which the arm and shoulder of the user may be inserted for carrying of the bag as a shoulder bag, and

a second position at which the crossed straps are pulled down over and hold closed said open bag top by pulling said flexible material proximate said bag top together, said straps in said second position being slid down through said mounting means to enable insertion of the arms of the user between said straps and said first side panel for carrying of said bag as a backpack.

4,273,275
TOY ACCESSORY
Kenneth Vadnais, Livonia, Mich., assignor to S & S Industries, Inc., Wyandotte, Mich.
Filed Apr. 17, 1979, Ser. No. 30,832
Int. Cl.³ A63H 1/30
U.S. Cl. 224—101 3 Claims



1. A finger ring comprising a flexible strap, having first and second portions, one of said portions having a plurality of hooks and the other portion having a plurality of loops adapted to engage said hooks to form an adjustable loop, a cup attached to the strap and having the cup bottom extending outwardly from the strap, a hole formed in the bottom of the cup, the hole having a substantially conical configuration with the larger portion of the cone being located furtherest from the strap, the inner portion of the cone being rolled, the hole being sized to allow passing of a string therethrough and the cup being sized to retain a knot formed in the string within the cup and away from the strap the knot being free to rotate within the cup to form a swivel.

4,273,276
HOLSTER WITH ADJUSTABLE SAFETY STRAP
Neale A. Perkins, Bradbury, Calif., assignor to Safariland Ltd. Inc., Monrovia, Calif.
Filed Nov. 30, 1979, Ser. No. 98,984
Int. Cl.³ F41C 33/02
U.S. Cl. 224—243 10 Claims

1. In a holster for carrying a firearm and comprising a case having a safety strap for securing a firearm in the case, and a snap ring fastener element secured to a wall of the holster adjacent the case for use in holding the safety strap over the firearm, the improvement comprising:

a reinforcing member overlying the wall of the holster and having an elongated opening that registers with a similar elongated opening in the wall of the holster;

means securing the reinforcing member in a fixed position on the wall of the holster so the two elongated openings register with each other;

a snap ring fastener element adjacent the wall of the holster on a side thereof opposite the reinforcing member;

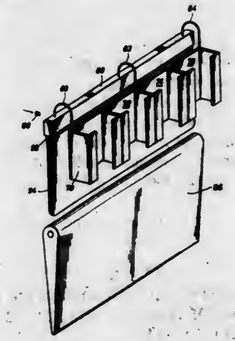
an attachment element facing the registered elongated openings in the reinforcing member and the wall of the holster; and

fastening means engaging the attachment element to releasably secure the snap ring fastener element to the wall of the holster, the fastening means being releasable from the attachment element for moving the snap ring fastener element to a selected position along the length of the



registered elongated openings, the fastening means being securely fastened to the attachment memeber to rigidly hold the fastener element in the selected position.

4,273,277
VISOR-CONNECTED TAPE CARTRIDGE HOLDER
H. Spencer Stone, 10816 Long Shadow, Houston, Tex. 77024
Division of Ser. No. 913,806, Jun. 8, 1978, abandoned. This application Sep. 27, 1979, Ser. No. 79,376
Int. Cl.³ B60R 7/04; B65J 3/00
U.S. Cl. 224—312 4 Claims



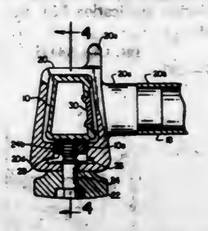
1. A holder for attaching to a vehicle sun visor and holding at least one tape cartridge therein, comprising

a plastic clamp segment for lying adjacent the top of the visor, said segment including oppositely aligned, upwardly and inwardly turned wedging end pieces attached to said base portion, the dimension between said inwardly turned end pieces and said base portion accepting the tape cartridge, and

accommodating clamping means connected to said base portion to permit attaching of the holder to sun visors of varying thicknesses, and

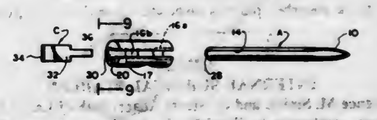
a sun screen attached to said clamping means on the underneath side of the visor for position pivoting independently of the visor.

4,273,278
ADJUSTABLE LUGGAGE RACK
Manfred Storm, Cheshire, Conn., assignor to Oliver Industries, Inc., New Haven, Conn.
Filed May 7, 1979, Ser. No. 36,678
Int. Cl.³ B60R 9/04
U.S. Cl. 224—321 10 Claims



1. A luggage rack for a vehicle roof or the like comprising a pair of spaced parallel side rails of generally tubular cross section, stanchion means supporting said side rails above the vehicle roof, at least one cross bar extending between said side rails, cross bar end fittings with portions encircling said tubular side rails and each end fitting having a projecting portion fixedly secured to the associated end of a cross bar, a side rail clamping device rotatably mounted in the lower side of each cross bar end fitting portion encircling said side rail, each of said devices including a threaded portion and a member threadably received thereon for acting against the underside of said side rail in response to rotation of said clamping device.

4,273,279
HIGH STRENGTH NEEDLE ASSEMBLY WITH SHARPENABLE CUTTING EDGE
Steven Kunreuther, 285 Central Park W., New York, N.Y. 10024
Filed Jul. 9, 1979, Ser. No. 55,542
Int. Cl.³ B65C 7/00
U.S. Cl. 227—67 25 Claims



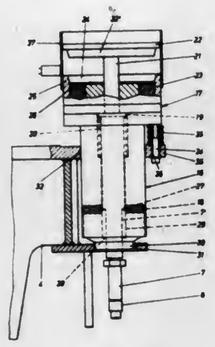
1. A needle assembly for use in a fastener attacher or the like comprising a shank part and a base part, said base part being adapted to be removably received in the fastener attacher, said shank part and said base part being independently fabricated, said shank part comprising a tip portion and a substantially cylindrical hollow portion having an inner and an outer diameter, said base part comprising a central bore having first and second sections, said first section having an inner diameter substantially equal to the outer diameter of said cylindrical portion so as to permit insertion of said cylindrical portion therein, said second section having an inner diameter substantially equal to the inner diameter of said cylindrical portion, and adhesive means for non-removably securing the outer surface of said cylindrical portion to the inner surface of said first section.

4,273,280

MACHINE FOR THE ATTACHMENT OF RIVETS, BUTTONS OR THE LIKE ON CLOTHING PIECES

Herbert Birkhofer; Gunther Diekhoner, and Hans-Otto Hoffler, all of Brunswick, Fed. Rep. of Germany, assignors to Schaeffer-Homberg GmbH, Wuppertal, Fed. Rep. of Germany

Filed Jun. 14, 1979, Ser. No. 48,565
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826417
Int. Cl.³ A41H 37/04
U.S. Cl. 227—107 9 Claims



1. In a machine for the attachment of rivets, buttons or the like on clothing pieces, with an upper tool to be moved onto the lower tool, which upper tool is mounted on a vertically guided upper tool ram with electrical drive, the improvement comprising

two different strength electromagnets being operatively coordinated to the upper tool ram,

means for spring-biasing said upper tool ram in a reverse run direction,

said upper tool ram being formed with a cross-sectionally smaller step,

the weaker of said electromagnets being disposed in the range of said cross-sectionally-smaller step of said upper tool ram and surrounding said upper tool ram in a ring-like manner,

the stronger of said electromagnets has a core, said core forming a pot-shaped core recess,

a plate armature being arranged on a free end of said upper tool ram, said plate armature being operatively insertable into said core recess,

said core recess is defined by a bottom surface,

a shock absorber plate is disposed on said bottom surface.

4,273,281

INTERNAL SURGICAL STAPLER

Lawrence M. Smith, and G. Marts Acker, both of Lake Oswego, Oreg., assignors to Franklin G. Smith and Jerome F. Moshofsky, part interest to each

Filed Jul. 23, 1979, Ser. No. 59,941
Int. Cl.³ B25C 5/11
U.S. Cl. 227—152 4 Claims

1. In an improved internal surgical stapler,

holding means for holding a staple;

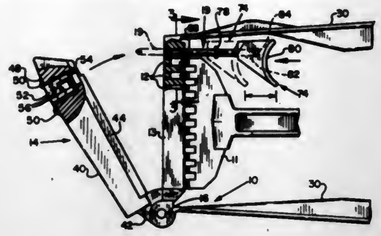
anvil means hinged to the holding means for clinching the staple and being movable between an open position and a clamping position clamping layers to be stapled together;

a latching pin;

latching means carried by the anvil means;

means mounting the latching pin on the holding means for forward movement from a retracted position to a latching position engaging the latching means when the anvil means is in its clamping position; and

manually operable release means for effecting unlatching of the pin and the latching means,



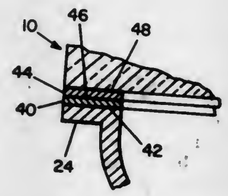
the release means including means for turning the pin relative to the latching means, wherein the pin and the latching means are disengageable.

4,273,282

GLASS-OR CERAMIC-TO-METAL SEALS

Gordon S. Norvell, Thousand Oaks, and Donald W. King, Pomona, both of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.

Filed Dec. 20, 1979, Ser. No. 105,759
Int. Cl.³ B23K 20/24
U.S. Cl. 228—116 10 Claims



1. A process for vacuum tight sealing a metal surface to a second surface chosen from the class consisting of glass or glass-ceramic surfaces comprising:

attaching a layer of gold to said metal surface;

placing a layer of indium over said layer of gold;

heating said gold and indium above the melting point of indium to form a gold-indium alloy at the interface between said gold and indium;

cooling; and

pressing said indium onto said second surface.

4,273,283

AUTOMATIC AIR REGISTER

Allen W. Edwards, 405 Hyacinthe Blvd., T.H. 3, Mississauga, Ontario, Canada (L5A 3N1)

Continuation-in-part of Ser. No. 838,734, Oct. 3, 1977, Pat. No. 4,151,952. This application Nov. 3, 1978, Ser. No. 957,545
Claims priority, application Canada, Sep. 16, 1977, 286878; United Kingdom, Feb. 15, 1977, 6316/77
Int. Cl.³ F24F 7/00; E05F 15/20
U.S. Cl. 236—49 11 Claims

1. An air register comprising:

housing means defining a flow path for air from an air duct,

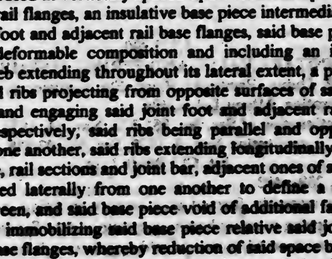
louvre means in the housing means for closing and opening said flow path,

a crank arm connected to said louvre means and adapted upon rotation to adjust the louvre means,

a shaft mounted for rotation with respect to said housing means,

a bi-metallic, temperature-sensitive element connected to said shaft and mounted with respect to the housing means such that it can regulate the angular orientation of the shaft with respect to the housing means,

and a lever connected to said shaft and disposed perpendicular thereto, the lever having a slot in which part of said crank arm is captive, the slot including at least one portion disposed such that when said part of the crank arm is located therein the crank arm is caused to rotate when the lever rotates,



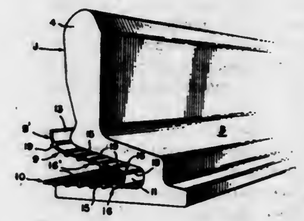
said housing means supporting a pivotal but stiffly mounted adjustable member adjacent said lever, the adjustable member having a projection extending through the plane of rotation of the lever and being located to one side thereof, whereby rotation of the adjustable member in one sense can bring the projection into contact with the lever and thus retain the lever in a position for which the louvre means is in an extreme condition.

4,273,284

INSULATED RAIL JOINT

Thomas N. Hannigan, Chicago, Ill., assignor to Portec, Inc., Oak Brook, Ill.

Filed Jul. 21, 1978, Ser. No. 926,968
Int. Cl.³ E01B 11/54, 11/10
U.S. Cl. 238—160 5 Claims



1. An insulated rail joint including, a pair of adjacent longitudinally aligned rail sections each having a web and a base flange, a joint bar provided with an upright disposed in laterally spaced-apart relationship adjacent said two rail webs and a foot disposed in vertically spaced-apart relationship adjacent said two rail flanges, an insulative base piece intermediate said joint bar foot and adjacent rail base flanges, said base piece of resilient deformable composition and including an integral central web extending throughout its lateral extent, a plurality of integral ribs projecting from opposite surfaces of said central web and engaging said joint foot and adjacent rail base flanges respectively, said ribs being parallel and oppositely disposed one another, said ribs extending longitudinally of said base piece, rail sections and joint bar, adjacent ones of said ribs well spaced laterally from one another to define a groove therebetween, and said base piece void of additional fastening means for immobilizing said base piece relative said joint bar and rail base flanges, whereby reduction of said space between said joint bar foot and adjacent rail base flanges during installation of said joint bar compresses and deforms said ribs to enhance retention of said base piece in said rail joint during travel thereover.

4,273,285

WEED SPRAYING ASSEMBLY

Sylvanus L. Scholbrock, Marion, Iowa, assignor to Ex-Cell-O Corporation, Troy, Mich.

Filed Jul. 25, 1979, Ser. No. 60,637
Int. Cl.³ B05B 1/28
U.S. Cl. 239—121 30 Claims



1. A spraying assembly comprising; support means adapted for attachment to a vehicle, spray means supported on said support means for spraying liquid generally horizontally in a predetermined pattern, collector means supported on said support means and having a spray-receiving opening and liquid catch basin below said opening, and permeable means supported by said collector means in said opening and at an acute angle relative to said spray pattern for receiving the liquid spray and allowing the liquid to permeate therethrough and collect in said catch basin.

4,273,286

CONDUIT FOR DRIP IRRIGATION SYSTEMS

Stanley W. O. Meazel, Sydney, Australia, assignor to RIS Irrigation Systems, El Cajon, Calif.

Filed Nov. 20, 1978, Ser. No. 962,111
Claims priority, application Australia, Nov. 29, 1977, PD2595
Int. Cl.³ B05B 15/00
U.S. Cl. 239—272 10 Claims

1. A conduit for drip irrigation systems formed of an extrudable plastic material which conduit comprises:

(a) a tube having a wall of a selected thickness for conveying pressure fluids,

(b) the wall of said tube having a series of inwardly formed dimples along the length of the said tube, said dimples being pierceable by a piercing member by rupturing an inner part of the said dimples to leave the ruptured dimple wall in pressure contact with a said piercing member, and

(c) outwardly formed stiffening ribs extending along the said conduit immediately on each side of the said dimples whereby the dimples are positioned in a channel extending along the said conduit.

4,273,287

ATOMIZER HEAD FOR PAINT SPRAY GUNS

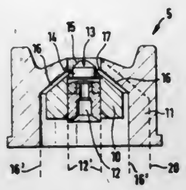
Willi Huber, Altstätten, Switzerland, assignor to J. Wagner AG, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 68,220

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 2841384

Int. Cl.³ B05B 7/08

U.S. Cl. 239—299 7 Claims



1. An improved paint spray nozzle having an outer housing, a centrally located cylindrical member having an upper conical surface on which is located a paint spray orifice having an essentially elliptical cross-section, operable to form a fan-shaped paint spray, a paint input port flow connected to the spray orifice, and a compressed air input port, the improvement comprising:

a first and a second compressed air output orifice flow connected to the compressed air input port;

said two orifices having a selected shape and being disposed, in spaced apart relationship on opposite sides of the cylindrical member supporting the spray orifice and located a selected distance upstream of an outer edge of the upper conical surface, at a selected acute angle with respect to a longitudinal axis of the cylindrical member;

said two air output orifices cooperating with the cylindrical member and the upper conical surface to form a screen of air, having essentially an elliptically shaped cross-section fully enclosing the fan-shaped spray.

4,273,288

DISPENSING HEAD FOR BEVERAGES

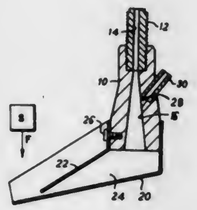
Jean Lagneaux, Bourg Argental, France, assignor to Societe Generale pour l'Emballage, France

Filed Jul. 27, 1979, Ser. No. 61,332

Claims priority, application France, Jul. 28, 1978, 78 22483

Int. Cl.³ F23D 11/16

U.S. Cl. 239—419.3 9 Claims



1. A dispensing head for dispensing beverages made from a concentrate and a diluting liquid, including a spout comprising a tubular element having input and output orifices for the diluting liquid, the cross-section of the bore of the tubular element increasing progressively from the input to the output orifice, a deflector arranged below said output orifice arranged to conduct liquid from the output orifice in a direction slightly inclined from the horizontal and discharge the liquid from an opening, a grid fixed within the deflector to distribute the flow of diluting liquid over the width of the deflector, and means for passing a stream of liquid concentrate in a substantially vertical direction downstream of said opening so that the stream of concentrate and the liquid discharged from the opening intersect.

4,273,289

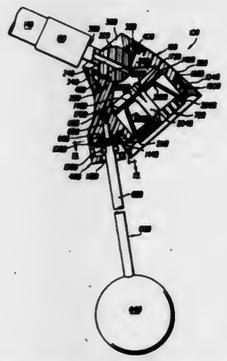
SHOWERHEAD SPRAY TEXTURE CONTROL

Emile Jette, 1328 NE. 110 Ter., Miami, Fla. 33161

Continuation-in-part of Ser. No. 863,694, Dec. 20, 1977, abandoned, which is a continuation-in-part of Ser. No. 818,441, Jul. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 790,277, Apr. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 743,766, Nov. 22, 1976, abandoned. This application Jan. 9, 1978, Ser. No. 868,200

Int. Cl.³ B05B 1/18, 1/32

U.S. Cl. 239—458 23 Claims



1. A showerhead comprising, in combination:

(a) a main housing having a longitudinal passage therethrough with inlet and outlet ends;

(b) means for connecting the main housing at the inlet end of the passage to a water supply line to permit substantially universal pivotal movement of the main housing with respect to the water supply line, whereby water flow through the passage is permitted in at least one pivoted position and terminated in at least one other pivoted position;

(c) an elongate control rod having a first end carried by the main housing and a second free distal end for pivoting the main housing about its pivotal connection to the water supply line to control water flow through the passage and spray direction; and

(d) wherein the longitudinal axes of the control rod and flow passage diverge outwardly from the showerhead to locate the second free distal end at all times away from contact by water spray from the showerhead.

4,273,290

UNITARY VALVE AND SPRING ASSEMBLY

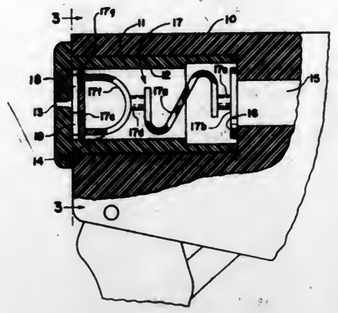
David R. Quinn, Pembroke Pines, Fla., assignor to The AFA Corporation, Miami Lakes, Fla.

Continuation of Ser. No. 851,227, Nov. 14, 1977. This application Nov. 9, 1979, Ser. No. 92,888

Int. Cl.³ B05B 1/34

U.S. Cl. 239—493 10 Claims

1. An assembly formed as a unitary molding including a sinuous spring member having opposite ends, a flat faced valve member connected to one of said opposite ends of said spring member and deployed transversely with respect thereto, a spin element comprising a flat plate deployed transversely with respect to said spring member and connected to the other of said opposite ends of said spring and, an arched bridge connecting said spin element to said other opposite end of said spring member.



4,273,291

FUEL INJECTOR FOR INTERNAL COMBUSTION ENGINES

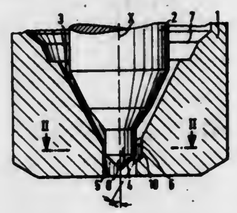
Eckart Müller, Schwabach, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Filed Nov. 15, 1978, Ser. No. 960,832

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1977, 2750928

Int. Cl.³ B05B 1/30

U.S. Cl. 239—533.12 8 Claims



1. A fuel injector for internal combustion engines, which comprises in combination:

a nozzle body with a valve seat and having a wall including therewith a nozzle bore which is coaxial to the longitudinal axis of said nozzle body;

a nozzle needle which is axially displaceably arranged within said nozzle body and is provided with a valve seat, said valve seat of said nozzle needle being adapted to be lifted off said nozzle body in response to fuel pressure into an open position of said fuel injector, and being further adapted to have its valve seat rest against said nozzle body in a closed position of said fuel injector; and

a throttling pin forming a part of said nozzle needle and extending into said nozzle bore at least during said closed position of said fuel injector, said nozzle bore being provided with an eccentrically arranged gap at at least one point of its periphery, said gap being located transverse to the wall of the nozzle bore and being so arranged that during slow lifting of said nozzle needle from the valve seat there results change of direction of discharging fuel stream with increasing stroke lifting thereof,

said throttling pin extending into said nozzle bore at least during a portion of the lifting off of said valve seat of said nozzle needle from said nozzle body, said gap being a quadrangular recess.

4,273,292

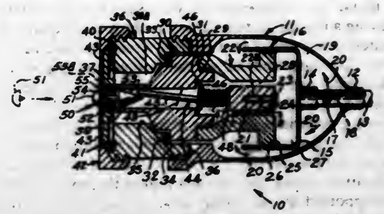
SELF-CLOSING SHOWER HEAD

Allen Neula, 27486 Verona Ave., Hayward, Calif. 94545

Filed Apr. 23, 1980, Ser. No. 143,082

Int. Cl.³ F16K 31/143; B05B 1/02

U.S. Cl. 239—562 1 Claim



1. A self-closing shower head, comprising, in combination, a hollow main body, a hollow cylinder secured in said hollow main body, a plunger slidably received in said hollow main body, for using water pressure in said hollow cylinder to advance said plunger onto a seat in a sleeve secured in said hollow main body, an externally threaded inlet water pipe threaded into a neck portion integral of the end wall of said hollow cylinder, said inlet water pipe being threadingly received in the neck portion of said hollow main body, and a pair of transverse openings through said water pipe enables water to flow into said hollow main body around the outer periphery of said hollow cylinder and the outer periphery of a portion of said plunger, and a transverse opening through said plunger receives the water, and the flow is metered by an adjustable needle valve threadingly received in a fluted opening included on the longitudinal axis of said plunger, and said needle valve intersects with the transverse opening through said plunger, for adjustably restricting the water flow.

4,273,293

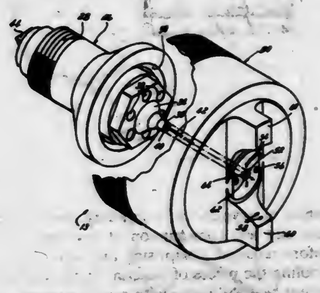
NOZZLE ASSEMBLY FOR ELECTROSTATIC SPRAY GUNS

Donald R. Hastings, Elyria, Ohio, assignor to Nordson Corporation, Amherst, Ohio

Filed Dec. 20, 1978, Ser. No. 971,514

Int. Cl.³ B05B 5/02

U.S. Cl. 239—705 7 Claims



1. In a system for the coating of articles with a liquid coating material supplied from a pressurized bulk coating source wherein said liquid coating material is emitted from a coating material spray device in the form of an atomized spray produced by impacting a central stream of liquid coating material under pressure with a pressurized gas stream encircling said central liquid stream and wherein the articles to be coated are spaced from said spray device, the combination comprising:

a source of liquid coating material under pressure;

a source of pressurized atomizing gas;

a material spray device having a liquid conduit with flow control means therein adapted to be connected to said

source of pressurized liquid coating material for providing relatively low liquid coating material flow rates in the approximate range of 1½–6 fluid ounces of material per minute, and having a gas conduit therein adapted to be connected to said source of pressurized atomizing gas; and

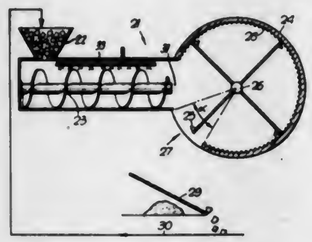
a spray coating nozzle assembly made which is substantially constructed of nonconductive plastic material comprising a liquid tip communicating with said liquid conduit and having a nozzle portion through which said liquid coating material is emitted in a central stream at said relatively low flow rate, and an air cap communicating with said atomizing gas conduit through which gas is ejected for impinging and atomizing said central stream of liquid coating material emitted from said nozzle portion of said liquid tip, said air cap being positionably supported by said spray device only in the rear region of said air cap to effectively leave the forward region thereof positionably unsupported by said spray device, said air cap having a central bore and a plurality of circumferentially spaced holes aligned with the axis of said central bore and intersecting the edge thereof defining a plurality of circumferentially spaced axial gas flow passages with spaced, radially inwardly extending ribs therebetween, said ribs engaging the outside surface of said liquid coating tip nozzle portion to positively align the center axis of said liquid coating nozzle portion on said axis of said central bore to provide uniform atomizing gas flow around said liquid coating tip nozzle portion for producing at said relatively low flow rate a finely atomized uniform spray pattern of said coating material emitted from said liquid tip.

4,273,294

METHOD AND APPARATUS FOR CRYOGENIC GRINDING

David J. E. Hollely, Misterton, near Doncaster, and Norris W. Shepherd, Worksop, both of England, assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 31, 1979, Ser. No. 44,296
Claims priority, application United Kingdom, Mar. 15, 1979, 09168/79
Int. Cl.³ B02C *13/288*
U.S. Cl. 241—18 10 Claims



1. A method of cryogenically grinding pieces of material, with substantially less consumption of cryogenic refrigerant than heretofore required, comprising the steps of:

(a) pre-cooling the pieces of material to be ground in counter-current heat exchange with a cold gaseous cryogenic refrigerant,

(b) further cooling and embrittling the pre-cooled pieces of material in direct contact with a liquid cryogenic refrigerant, and thereby vaporizing said liquid cryogenic refrigerant and generating said cold gaseous cryogenic refrigerant,

(c) continuing said cooling and embrittling step for a sufficient contact time to thoroughly embrittle said pieces throughout,

(d) introducing said thoroughly embrittled pieces of material through an inlet of a rotary impact mill,

(e) passing said thoroughly embrittled pieces of material through said mill in an arcuate path comprising more than 270° of travel through said mill,

(f) discharging on the first pass through said mill at least 70% of the entering embrittled material through a nonscreened discharge opening subtending an angle of between 5° and 60°, and

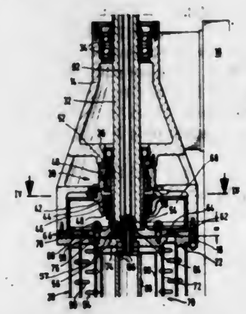
(g) restricting the flow of said cold refrigerant gas which is discharged from said mill to a sufficient degree to cause the majority of said cold gaseous refrigerant which is generated to flow in counter-current heat exchange with said pieces of material according to step (a).

4,273,295

AGITATOR MILL

Josef Pöllmann, Lorenzreuth, Fed. Rep. of Germany, assignor to Gebruder Netzsch, Maschinenfabrik GmbH & Co., Fed. Rep. of Germany

Filed Apr. 4, 1979, Ser. No. 26,853
Int. Cl.³ B02C *23/10*
U.S. Cl. 241—46.11 9 Claims



1. An agitator mill for the continuous processing of grinding stock comprising

a stand,

a bearing housing arranged on said stand and having at least one bearing,

a drive shaft which turns in said at least one bearing of said bearing housing,

a detachable grinding chamber attached to said bearing housing having a grinding stock intake and containing grinding stock as well as grinding bodies,

a detachable agitator shaft coupled to said bearing housing and reaching into said grinding chamber where it includes at least one agitating element carried on said shaft,

a discharge chamber situated between said grinding chamber and said at least one bearing,

and a separation system arranged between said grinding chamber and said discharge chamber including

a separator ring rotating together with said agitator shaft,

a stationary ring attached to said bearing housing,

a separation slit between the two said rings to permit the processed grinding stock to flow through but to retain the grinding bodies,

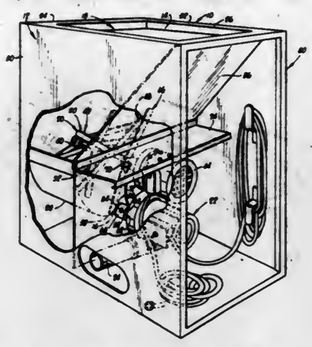
characterized by the fact that said rotating separator ring (56) is attached to said drive shaft (32) independently of said agitator shaft (70) which is also attached to said drive shaft (32) and that said agitator shaft (70) in the region between said grinding chamber (20) and said at least one bearing (36) situated in said bearing housing (14) is detachable from said drive shaft (32) while said separator ring (56) remains attached to said drive shaft (32).

4,273,296

MATERIAL MOVING APPARATUS

Tom C. Hoshall, 4005 N. Penn., Oklahoma City, Okla. 73112

Filed Apr. 13, 1979, Ser. No. 29,642
Int. Cl.³ B02C *13/10*
U.S. Cl. 241—60 12 Claims



1. A material moving apparatus, comprising:

a hopper having an upper end and a lower end, a material receiving opening being formed in the upper end, the hopper having a chamber and a material discharge opening, material being dischargable into the chamber through the material receiving opening and the material being movable from the chamber through the material discharge opening, the lower end portion of the hopper being formed on a radius;

a hopper blade assembly disposed in the hopper chamber for shredding the material discharged into the hopper chamber, the hopper blade assembly cooperating to shred the material and cooperating to move the material from the hopper chamber through the material discharge opening, comprising:

a shaft rotatably mounted and extending through a portion of the hopper chamber;

at least two blades, each blade being connected to the shaft and extending a distance radially therefrom terminating with an outermost end; and

means to rotatingly drive the shaft, thereby rotating the blades within the hopper chamber, the lower end portion of the hopper being formed on the radius and shaped to provide a minimum clearance between the outermost ends of the blades of the hopper blade assembly and the lower end portion of the hopper;

a blower assembly for receiving substantially all of the material discharged through the hopper material discharge opening and forcibly discharging the received material through a blower discharge; and

a discharge conduit connected to the blower discharge and receiving substantially all of the material discharged from the material discharge opening, substantially all of the material being discharged from the material moving apparatus via the discharge conduit.

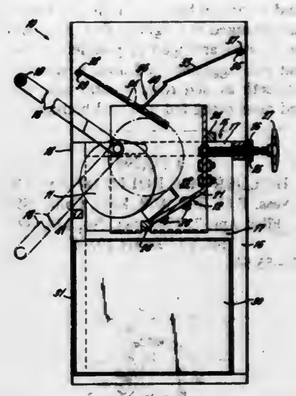
4,273,297

APPARATUS FOR CRUSHING FRANGIBLE ARTICLES

John H. T. Riafret, and Elizabeth M. Riafret, both of The Grange, West Ashby, Horncastle, Lincolnshire, England

Filed Jul. 24, 1979, Ser. No. 60,025
Claims priority, application United Kingdom, Jul. 26, 1978, 31168/78
Int. Cl.³ B02C *1/00*
U.S. Cl. 241—99 7 Claims

1. Apparatus for crushing frangible articles comprising a housing; a support plate mounted within the housing, said support plate including a planar surface for supporting articles to be crushed; a crushing member having a crushing surface portion mounted in the housing; means for rotating said crushing member about an axis generally parallel to said planar portion of the support plate such that, in use, rotation of the crushing member about the axis moves said surface portion of the crushing member in an arcuate path towards, along and away from the planar surface of the support plate to crush the articles therein, a tangent to the path at one point being parallel to said planar portion of the support plate; and means connected to said support plate for moving said support plate towards or away from the crushing member to adjust the distance between the support plate and said tangent to the arcuate path.

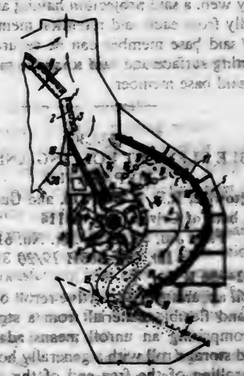


4,273,298

APPARATUS FOR CRUSHING AGGLOMERATED MASS

Ivan K. Boriskin, ulitsa Kutuzova, 10, kv. 29, Novokuznetsk; Jury S. Bragin, Chavaguraky bulvar, 9, kv. 18, Moscow; Mikhail S. Bykov, ulitsa Kirova, 3, kv. 38, Novokuznetsk; Valentin I. Gubanov, prospekt Metallurgov, 32, kv. 30, Novokuznetsk; Vladlen M. Ivanov, ulitsa Bardina, 36, kv. 164, Novokuznetsk; Eduard A. Tool, ulitsa Kirova, 30, kv. 62, Novokuznetsk, all of U.S.S.R.; Sergei V. Bazilevich, deceased, late of Moscow, U.S.S.R.; by Tatyana N. Bazilevich, administrator, ulitsa Kremenchugskaya, 9, kv. 53, Moscow, U.S.S.R.; Vitaly A. Sergeev, deceased, late of Novokuznetsk, U.S.S.R.; by Valentina I. Sergeeva, administrator, and by Elena V. Sergeeva, administrator, both of ulitsa Telyati, 23, kv. 12, Novokuznetsk, U.S.S.R.

Filed Jul. 30, 1979, Ser. No. 62,176
Int. Cl.³ B02C *13/09*
U.S. Cl. 241—189 R 5 Claims



1. An apparatus for crushing agglomerated mass comprising:

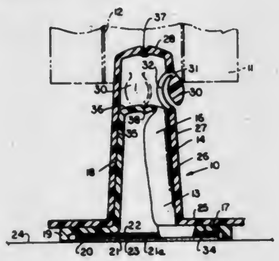
a housing having an outlet; a feed device including a chute for feeding said agglomerated mass into said housing; a rotatable rotor juxtaposed beneath said chute, having a shaft and formed with sprockets, and being located in said housing; said sprockets of said rotor being rigidly set in series on said shaft; said sprockets having crescent-shaped teeth with a work edge and with a concave surface thereof being arranged radially with respect to said rotor and having a T-shaped cross section with a web thereof arranged at a right angle to the axis of said rotor and a flange thereof arranged in parallel to the axis of said rotor, so that said agglomerated mass is struck by the work edge of said teeth as said rotor rotates into the path of the agglomerated mass being fed into said housing via said chute.

4,273,299

HOLDER FOR ROLLS OF PAPER

Virginia V. Ness, P.O. Box 1078, Ross, Calif. 94957

Filed Apr. 7, 1980, Ser. No. 138,149
Int. Cl.³ B65H *19/00*
U.S. Cl. 242—55.54 9 Claims



1. A two-piece paper towel roll holder, including in combination:

a stationary base member of high-impact plastic having an annular rim surrounding a central hollow projection, said rim having an upper surface on the same side as said projection,

a rotatable member of high-impact plastic having an annular rim surrounding a central hollow projection that nests around the outer surface of the hollow projection of said base member in surface engagement therewith and is rotatable with respect thereto, said rim having a lower surface facing the upper surface of said base member's rim, said projection of said rotatable member having a series of integral, yieldable, outwardly extending retention members, for firmly and non-rotatably engaging the hollow core of a paper towel roll, said retention members being connected to the remainder of said projection only by a springy web, a said projection having an opening radially inwardly from each said retention member,

whereby said base member can be secured to a stationary supporting surface and said rotatable member is rotatable about said base member.

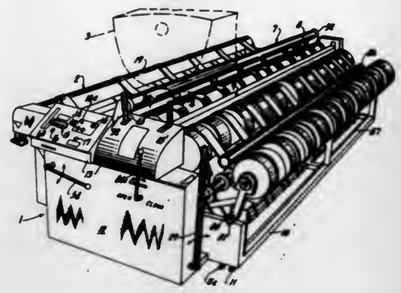
4,273,300

FLEXIBLE ELEMENT ROLLING AND HANDLING APPARATUS

Walter Wojtowicz, R.R. 4, Box 216, and Gust Mursau, Rte. 1, Box 390, both of Crivitz, Wis. 54114

Filed Jul. 30, 1979, Ser. No. 61,749
Int. Cl.³ B65H *19/20*
U.S. Cl. 242—56 R 18 Claims

1. A reroll apparatus for selective reroll of a relatively wide elongated and flexible material from a storage roll of such material, comprising an unroll means adapted to rotatably support said storage roll with a generally horizontal rotational azis for unrolling of the free end of the material from said storage roll, a reroll means mounted in aligned parallel relationship to said axis of said storage roll as established by said unroll means and receiving the flap end of said material and engaging said material, said reroll means including a pair of roller means movable relative to each other to vary the spacing therebetween and a spacing guide means located below the roller means, belt means encircling said pair of roller means and said guide means and adapted to be located downwardly between said roller means to form a loop located below the



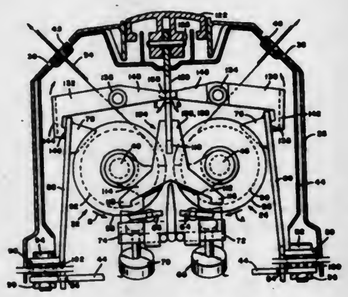
roller means with the roller means in a closed position and stretching outwardly between said roller means as said means move outwardly of each other, said material being movable downwardly into said loop portion and rerolled upon itself to initiate a rerolling of said material in response to movement of said belt means, and means to selectively lock said roller means in fixed relation to each other.

4,273,301

SEAT BELT RETRACTOR WITH EMERGENCY RELEASE AND REDUCED SPOOLING

John W. Franklin, Sterling Heights, Mich., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Apr. 2, 1980, Ser. No. 137,107
Int. Cl.³ B65H *75/48*; A62B *35/02*
U.S. Cl. 242—107.2 20 Claims



1. A seat belt retractor comprising:

seat belt storage means;

seat belt webbing stored on said storage means and adapted to be extracted from and rewound onto said storage means;

locking means operable to lock said retractor against movement in a direction permitting extraction of said webbing from said storage means;

release means actuatable for releasing said locking means; and

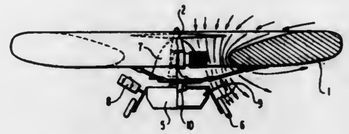
clamp means effective to limit withdrawal of said webbing from said storage means, and means responsive to actuation of said release means to render said clamp means ineffective to limit withdrawal of said webbing from said storage means following actuation of said release means.

4,273,302

AIRCRAFT WITH COUNTERROTATING MEMBERS

Heinz Jordan, Woelfnitz, Austria, assignor to Technische Geräte -u. Entwicklungsgesellschaft m.b.H, Woelfnitz/Klagenfurt, Austria

Filed Oct. 30, 1978, Ser. No. 956,005
Claims priority, application Austria, Oct. 31, 1977, 7749/77; Jun. 13, 1978, 4309/78; Jun. 13, 1978, 4310/78
Int. Cl.³ B64C *39/06*
U.S. Cl. 244—23 C 1 Claim



1. A flying craft comprising a rotationally symmetrical supporting means for creating vertical lift in response to the movement of air over its upper surface, said supporting means having a cross section in the form of an airfoil profile, an inner driving unit coaxially arranged with said supporting means, said driving unit having a rotationally driven impeller portion and a base portion, said base portion being connected to said supporting means so as to rotationally drive the supporting means by the counter torque generated by the driving unit in a direction which is opposite to the rotating direction of the impeller portion, said driving unit being spaced from the supporting means to provide a gap therebetween, said driving unit being oriented and operated to draw air across the upper surface of the supporting means and impelling it downwardly through said gap whereby the movement of air across the upper surface of the supporting means provides said vertical lift, and a carrier, a shaft supported by ball bearings rotatably mounting the carrier in relation to the supporting means and to the driving unit, at least two steering flaps movable into the stream of air flowing through said gap, and at least one stabilizer which is located below the carrier, said steering flaps being pivotally mounted on a common frame, a plurality of rods each of which is associated with one of said flaps and is connected to its respective flap at a point spaced from the pivotal connection between the flap and the frame, a common adjusting ring operatively connected to each of said rods, said adjusting ring being rotatably mounted on and coaxial with the supporting means.

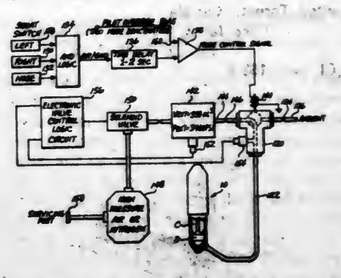
4,273,303

ADAPTIVE AIRPLANE LANDING GEAR

Paul T. Seaton, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Mar. 16, 1979, Ser. No. 21,365
Int. Cl.³ B64C *25/58*
U.S. Cl. 244—104 FP 9 Claims

1. A shock absorbing airplane landing gear strut comprising: a pair of cylinders sealingly and reciprocally mounted one within the other to provide hydraulic pneumatic containment, primary pneumatic means for directly acting on hydraulic fluid to urge the cylinders apart, means for hydraulic dampening of relative movement between the two cylinders during touchdown of an airplane, a compartment within one of the cylinders, a bottomed out piston sealingly and slideably mounted within the compartment with one side of the piston communicating with hydraulic fluid in the cylinders, a logic system initiated by landing having means for introducing secondary pneumatic pressure to the other side of the piston to drive said piston toward the primary pneumatic means, and the piston having valve means for closing off hydraulic fluid flow when in the bottomed out position and for opening to allow hydraulic fluid flow to provide a second and parallel hydraulic fluid



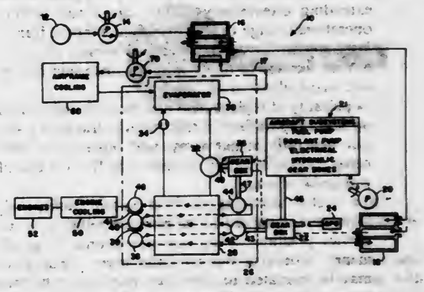
dampening means when the piston is used in response to the logic system.

4,273,304

COOLING SYSTEM FOR HIGH SPEED AIRCRAFT

Robert A. Froech, Administrator of the National Aeronautics and Space Administration with respect to an invention of ; Pierce L. Lawing, 88 Columbia Dr., Newport News, Va. 23602, and LaVerne L. Pagel, 3013 Manelle Dr., St. Charles, Mo. 63301

Filed Jan. 31, 1979, Ser. No. 8,210
Int. Cl.³ B64D *37/34*; B64C *1/40*
U.S. Cl. 244—117 A 16 Claims



1. A cooling system for a high speed aircraft comprising:

an aircraft;

fuel means carried by said aircraft;

said aircraft having airframe cooling means;

heat pump means comprising evaporator and condenser means for receiving coolant medium from within said airframe cooling means and extracting heat therefrom in said evaporator means;

heat exchanger means for receiving fuel from said fuel means and receiving said coolant medium from said evaporator means and transferring heat from said coolant medium to said fuel said condenser means receiving fuel from said heat exchanger means for further heating of said fuel in said heat pump means; and,

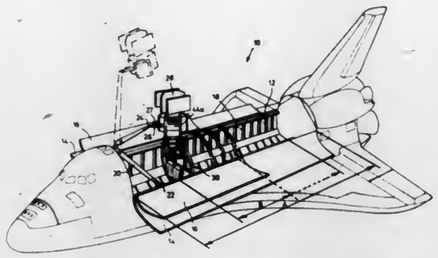
said heat exchanger means and said heat pump means arranged to maintain said airframe at low temperatures by transferring heat from said coolant medium to said fuel whie said aircraft is flying at high speeds.

4,273,305

SATELLITE SERVICING

Charles M. Hinds, Weston, Canada, assignor to Spar Aerospace Limited, Toronto, Canada

Filed Jul. 3, 1979, Ser. No. 54,829
Int. Cl.³ B64G 1/14
U.S. Cl. 244—158 R **19 Claims**



1. In a space shuttle orbiter having a cargo bay formed therein which has a longitudinal extent in a first direction, said orbiter being adapted to open to provide access to the cargo bay through an access passage extending along said cargo bay in said first direction, an improved satellite servicing system comprising:

(a) a remote manipulator assembly which includes a remote manipulator arm having a first end secured to the orbiter and a free end which may be moved in response to manipulation of the arm to be positioned at any required point with a predetermined operational range extending within and without said cargo bay for use in the capturing, deploying and servicing of satellites and the like,

(b) a combined satellite service and replacement module support assembly mounted in said cargo bay within said operational range of said arm, said support assembly comprising:

(i) a short generally planar support frame mounted in and extending transversely of said cargo bay within said operational range of said arm, said support frame having a support face extending transversely of said cargo bay on the side of the frame proximate said first end of said manipulator arm,

(ii) a plurality of replacement modules releasably mounted on said support face of said support frame in a side-by-side generally planar array, said replacement modules being accessible to and releasable by the free end of said manipulator arm,

(iii) a satellite servicing platform on said frame, said platform being adapted to support a satellite in a satellite service position within said operational range of said manipulator arm whereby the manipulator assembly may be operated to affect an interchange of modules between a satellite located on said platform and modules located on said support assembly.

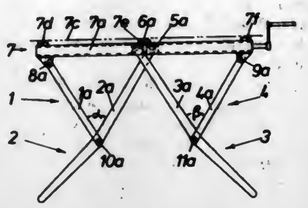
4,273,306

ADJUSTABLE-HEIGHT SUPPORT APPARATUS

Pek S. Chang, Flat No. 509, Lai Kit Lau, 38, Lai Tak Tsuen, Tai Hang, Hong Kong

Filed May 17, 1979, Ser. No. 39,863
Claims priority, application United Kingdom, Jun. 10, 1978, 26658/78
Int. Cl.³ F16M 13/00
U.S. Cl. 248—421 **9 Claims**

1. Adjustable-height support apparatus comprising a pair of leg supports, each leg support comprising a pair of spaced and interconnected legs and at least one strut pivotally connected to the legs intermediate their ends, elongate means in which one end of each leg is pivotally engaged, the positions of said one ends of the legs of the two leg supports being relatively adjustably positionable along said elongate means, the ends of the struts remote from the legs being pivotally mounted at fixed points relative to the elongate means, the legs of one leg support crossing the legs of the other leg support, actuating



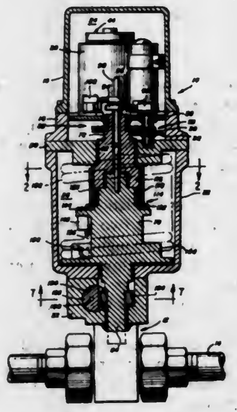
means operatively associated with said legs for moving the legs along the elongate means, and support means on the elongate means or on the opposite ends of the legs.

4,273,307

CLUTCH FOR VALVE ACTUATOR

Richard F. Maliuski, Schaumburg, and John Sikorcia, St. Charles, both of Ill., assignors to Vapor Corporation, Chicago, Ill.

Filed Sep. 18, 1978, Ser. No. 943,576
Int. Cl.³ F16D 13/08; F03G 1/00
U.S. Cl. 251—69 **10 Claims**



1. In a rotary valve actuator of the type employing a drive motor, an energy storage spring between said drive motor and a valve providing powered rotation of an output shaft secured to said valve to a pre-determined valve position, and self-powered return to an original valve position, the improvement comprising:

a drive motor shaft axially aligned with and abutting a valve-operating shaft; a helical torsion spring surrounding at least a portion of said motor shaft and said valve operating shaft; said torsion spring including first and second ends, said first end affixed to said drive motor shaft, said spring exerting positive radial compression on at least a portion of the drive motor shaft;

means releasably attaching said second end to said output shaft;

wherein actuating said attachment means, and rotation of said drive motor shaft provides positive radial compression between said spring and output shaft to provide operational torque to turn said valve and wind said storage spring; and,

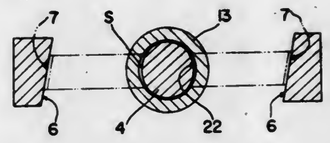
wherein release of said second end reduces said valve shaft radial compression allowing opposite rotation of said valve shaft without input drive shaft movement.

4,273,308

ROTARY VALVE

Osamu Nakai, Hirakata, Japan, assignor to Kubota, Ltd., Osaka, Japan

Filed Nov. 2, 1979, Ser. No. 90,716
Claims priority, application Japan, Nov. 4, 1978, 53/136020; Dec. 16, 1978, 53/155294
Int. Cl.³ F16K 25/00
U.S. Cl. 251—88 **10 Claims**



1. A rotary valve comprising:

a housing having an inlet and an outlet;

bearing means supported on an axis of said housing;

a rotatable valve stem supported by said bearing means;

said rotary valve stem including bearing surfaces juxtaposed said bearing means;

a valve disc coaxially supported by said valve stem within said housing between said inlet and said outlet;

a valve seat supported by said housing in direct relationship with said valve disc and operative therewith for closing said valve; and

said valve stem bearing surfaces having an outer surface configuration which is different from the inner surface configuration of said bearing means in which one of said surface configurations is a circle and the other of said surface configurations is elliptic-oval shaped which forms a clearance between said valve stem bearing surfaces and said bearing means;

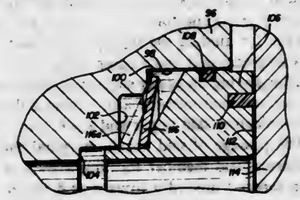
whereby said clearance between said valve stem bearing surfaces and said bearing means is greater in a direction perpendicular with the flow of fluid than in a direction parallel to the fluid flow.

4,273,309

VALVE MECHANISM INCORPORATING UNIVERSAL SEAT SPRING

Bertram L. Morrison, Houston, Tex., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Mar. 15, 1979, Ser. No. 20,765
Int. Cl.³ F16K 25/00
U.S. Cl. 251—174 **17 Claims**



1. A valve mechanism comprising:

a valve body defining a valve chamber and defining a flow passage intersecting said valve chamber, said valve body being formed to define at least one seat pocket within said valve body;

a valve element being positioned within said valve chamber and being movable between open and closed positions to control the flow of fluid through said valve mechanism;

a valve seat member being movably received within said seat pocket;

at least one of said seat pocket, valve element and seat member having tolerances varying between a maximum and minimum; and

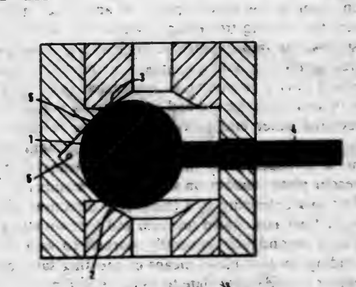
a universal annular disc spring being located within said seat pocket, said disc spring being deformed by movement of said valve seat relative to said valve body from an initial substantially flat configuration to a yielded frusto-conical configuration and developing a spring force urging said valve seat into sealing engagement with said valve element, said disc spring being further deformed by further movement of said valve seat relative to said valve body in response to the pressure responsive movement of said valve element within said valve chamber, said disc spring being deformed beyond the elastic limits of the material thereof through at least a portion of the tolerance variation between said maximum and minimum to compensate for said tolerance variations, the spring force of said disc spring being within a preselected narrow band of spring force both within and beyond said elastic limits, whereby force exerted by said disc spring against said seat and hence against said valve element being within a predetermined range regardless of the degree of flexure of said disc spring.

4,273,310

DEVICE FOR BLOCKING OR RELEASING FLUID FLOW

Peter Ginzler, Kaiser-Friedrich-Ring 67, Wiesbaden, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 67,862
Int. Cl.³ F16K 31/44, 15/00
U.S. Cl. 251—211 **3 Claims**



1. A valve for controlling fluid flow therethrough, comprising

valve body means defining a cavity therein and first and second opposing fluid flow passages communicating with said cavity, for fluid flow between said first and second opposing fluid flow passages through said cavity, said valve body means further defining a first tapered metallic valve seat in said cavity surrounding said first fluid flow passage and a second tapered metallic valve seat in said cavity surrounding said second fluid flow passage, said valve body means further defining a conical recess in said cavity intermediate said first and second tapered valve seats, said recess having its central axis substantially perpendicular with respect to the direction of fluid flow between said first and second fluid flow passages,

a valve ball in said cavity for movement into sealing engagement with said first and second tapered metallic valve seats by fluid flow between said first and second fluid flow passages to prevent further fluid flow through said cavity,

a release bar extending through an opening in said valve body means opposite said conical recess, said release bar being slidably mounted for movement into said cavity in a direction substantially perpendicular to said fluid flow

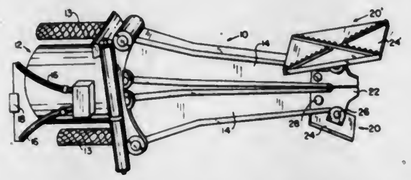
between said first and second opposing fluid flow passages to contact said valve ball and press said valve ball into said conical recess, thereby permitting fluid flow through said cavity and wherein said valve body means further defines a fluid passageway from said recess to said cavity to equalize pressure within said recess when said valve ball is positioned in said recess, thereby facilitating movement of said ball from said recess into engagement with said first or second tapered metallic valve seats upon movement of said release bar away from said recess.

4,273,311

RESCUE TOOL HAVING SPREADER PLATES

Gerald J. Rio, Hebron, Conn., assignor to Cranjer Company, Inc., Amston, Conn.

Filed Jan. 9, 1980, Ser. No. 110,764
Int. Cl.³ B66F 3/00
U.S. Cl. 254—93 R **12 Claims**



1. In a portable fluid operated rescue tool having a body assembly including a pair of elongated force arms pivotally supported at the inner ends thereof on the body assembly for movement between retracted and spread positions, the arms being generally adjacent to each other in the retracted position and the outer ends of the arms being in spread apart relation to each other in the spread position, and fluid operated power means for moving the arms between the retracted and spread positions, the improvement comprising at least one spreader plate assembly including a support member having an inwardly opening cavity receiving an associated outer end portion of one of said arms therein and substantially complementing said associated outer end portion, means for releasably retaining said support member in connected engagement with said one arm, a spreader plate member, and means supporting said spreader plate member on said support member to pivot about a first axis extending in a transverse direction relative to the longitudinal axis of said one arm and for swivelling movement about a second axis generally normal to said first axis and including another plate, means connecting said spreader plate member to said other plate to swivel relative thereto about said second axis, and means connecting said other plate to said support member for pivotal movement about said first axis, said first axis being spaced longitudinally inwardly from the outer end of said one arm.

4,273,312

METHOD OF PROCESS OFF-GAS CONTROL

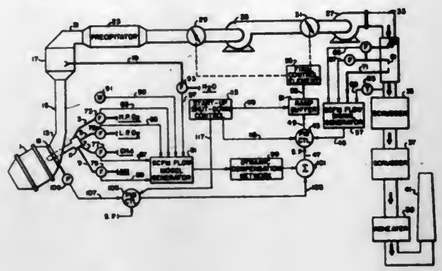
William R. Phillips, Jr.; Ronald D. Tate, both of Denver, and Radon Tolman, Evergreen, all of Colo., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Mar. 22, 1979, Ser. No. 22,770
Int. Cl.³ C22B 15/06
U.S. Cl. 266—44 **11 Claims**

1. A method of controlling a process off-gas system in which a plurality of gases are generated in a process vessel in varying proportions during various stages of the process and are drawn through treatment equipment by fan means including a fan and means for controlling the capacity of the fan, said process comprising the steps of:

determining on a real time basis the actual flow rate of the off-gases down stream of the fan means by measuring the amount by percent volume of each of the major constituents present in the off-gases, measuring the temperature and pressure of said off-gases and using said amounts, pressure and temperature to generate the downstream actual flow rate which is the combined flow rate of said major constituents corrected for temperature and pressure,

generating a set point value for said downstream actual off-gas flow rate by measuring on a real time basis the



inputs of off-gas producing materials to the process vessel, and determining the flow rate of the off-gas that will be generated by the process as a function of the measured process inputs,

comparing the actual flow rate with a set point value for the flow, and

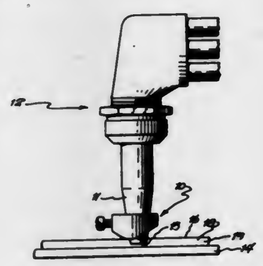
controlling the fan means to adjust the flow of off-gases to maintain the actual flow rate at the set point value.

4,273,313

GUIDE FOR A CUTTING TORCH

John M. DeNardo, 1044 Amherst St., Buffalo, N.Y. 14216

Filed Mar. 31, 1980, Ser. No. 135,294
Int. Cl.³ B23K 7/10
U.S. Cl. 266—66 **5 Claims**



1. A guide adapted to be mounted on the nozzle marginal end portion of a cutting torch and used in association with a straight-edge for guiding the movement of said cutting torch along a workpiece, said guide comprising:

A member having an upper surface, a lower surface, and a side surface, said member also having a through passage communicating said upper and lower surfaces to accommodate passage of said nozzle marginal end portion, the surface on said member forming a wall of said passage being tapered inwardly toward said lower surface, said lower surface being configured as a convex cam in one direction and adapted to slidably engage said straight-edge; and

means mounted on said member for selectively holding said member to said nozzle marginal end portion;

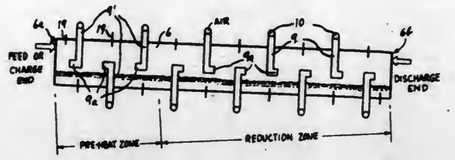
whereby said cutting torch may be tilted to vary the spacing of said nozzle from said workpiece.

4,273,314

DIRECT REDUCTION ROTARY KILN WITH IMPROVED AIR INJECTION

Vitle P. Keran, and Alan C. Baker, both of Harriman, Tenn., assignors to The Direct Reduction Corporation, New York, N.Y.

Filed Jun. 22, 1979, Ser. No. 51,017
Int. Cl.³ F27B 7/36
U.S. Cl. 266—145 **10 Claims**



1. In a rotary kiln for the direct reduction of materials containing iron oxides using a solid carbonaceous reducing agent as the reductant and fuel and having a preheat zone toward the charge feed end, a reduction zone toward the discharge end and of the type comprising:

means for adding part of the solid carbonaceous reducing agent through the discharge end of the kiln concurrently with the flow of the combustion gases within the kiln;

means for adding the remainder of the solid carbonaceous reducing agent through the feed end of the kiln out of which end the combustion gases exhaust; and

means spaced along the length of the kiln for injecting air under pressure axially therein; the improvement wherein said air injecting means comprises:

means at the feed end of the kiln for injecting air toward said feed end concurrently with the flow of the combustion gases; and

means along the remainder of the kiln for injecting air toward the discharge end of the kiln against the combustion gases flowing toward the feed end.

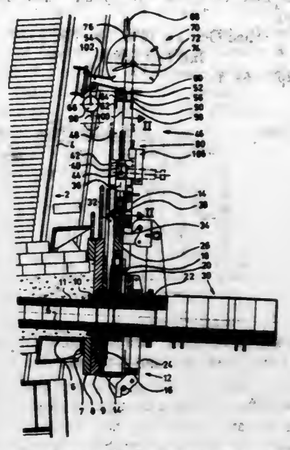
4,273,315

SLIDE CLOSURE FOR THE TAPPING CHANNEL OF A MOLTEN METAL CONTAINER

Bernhard Tinnes, Zollikerberg, Switzerland, assignor to Metacon AG, Zurich, Switzerland

Filed May 1, 1980, Ser. No. 145,875
Claims priority, application Fed. Rep. of Germany, May 7, 1979, 2918344
Int. Cl.³ C21C 5/48
U.S. Cl. 266—236 **11 Claims**

1. A slide closure for the tapping channel of a molten metal container provided with a framework, such closure comprising a slide housing, a refractory bottom to said housing, a movable slide guided by said slide housing, a refractory slide plate to said movable slide, a lifting drive detachably connected to said slide, a coupling interconnecting said lifting drive and slide, a housing for said lifting drive, a flexible supporting member connectable to said container framework for supporting said lifting drive, and a detachable connecting member between said drive housing and said slide housing, said connecting member being arranged to act on said slide housing in a plane



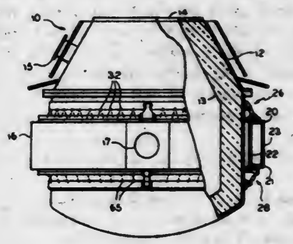
containing the axis of said lifting member and symmetrically with respect to the said axis.

4,273,316

METALLURGICAL VESSEL SUSPENSION SYSTEM

Rashed N. Nagati, Mars, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Filed Jul. 27, 1979, Ser. No. 60,993
Int. Cl.³ C21C 5/50
U.S. Cl. 266—246 **12 Claims**



1. A metallurgical vessel subject to expansion and contraction during its operating cycles, said vessel including:

support means at least partially surrounding said vessel,

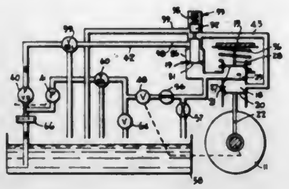
a plurality of members disposed in spaced apart relation around said vessel and each including first and second ends, first means for pivotally connecting the first end of each member to said vessel and second means for pivotally connecting the second end of each said member to said support, the portion of each member between said ends being free of connection to said vessel, one of said first and second means including a ball joint whereby misalignment may occur between the pivotal connections at the opposite ends of said members as said vessel expands and contracts.

4,273,317

SERVO CONTROLLED VEHICLE SUSPENSION

Leonard J. Blee, 66 Leslie Ave.,, Blair Athol, South Australia, Australia

Filed Oct. 11, 1978, Ser. No. 950,362
Int. Cl.³ B60G 21/06
U.S. Cl. 267—64 A 17 Claims



1. Hydraulic suspension means suitable for interpositioning between a first structure and a second structure which said structures are relatively movable, comprising:

walls defining a pressure chamber, at least one of said walls being movable relative to the other said walls so that the pressure chamber is of variable volume, and means interconnecting one of said relatively movable walls to one of said structures,

a resilient sensing device interpositioned between a second of said relatively movable walls and the second said structure and arranged to sense movement therebetween responsive to variations in compressive force,

a pump,

a valve having a movable valve member and a drain port, a first conduit extending between the pump and the valve, a second conduit extending between the valve and the chamber, and valve control means coupling the sensing device and the movable valve member and operable to move the valve member to a first position where it opens a pressure liquid flow path between the pump and chamber as said structures move apart so that the pump directs liquid flow into the chamber to thereby expand the chamber volume and assist said movement apart,

said valve control means also being operable to move the valve member to a second position where it closes said pressure liquid flow path and opens a drain flow path between said second conduit and said drain port as said structures move towards each other so that some of the contents of the chamber are discharged to drain to thereby allow movement of said structures toward each other without proportional increase in resistance to that movement.

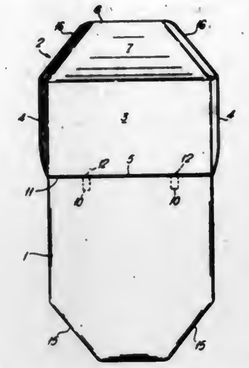
4,273,318

FOOD PREPARATION APPLIANCES

Brian H. Crowhurst, 2/19 Liam Pl., Howick, Auckland, New Zealand

Filed Mar. 26, 1980, Ser. No. 134,273
Claims priority, application New Zealand, Mar. 4, 1979, 190098
Int. Cl.³ B23Q 3/00
U.S. Cl. 269—13 8 Claims

1. A food preparation appliance comprising a tray, a chopping board and means for detachably connecting said tray to said chopping board, said tray having an end wall of a height no greater than the thickness of said chopping board, a base, side walls and an opening opposite said end wall, said detachable connecting means permitting association to be maintained between said chopping board and said tray while further permitting limited displacement between said chopping board and



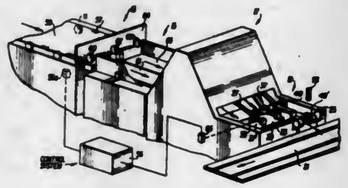
said tray in directions substantially parallel to the plane of said end wall.

4,273,319

DOCUMENT SEQUENCER

Lester H. Stocker, Phillipsburg, N.J., assignor to Bell & Howell Company, Phillipsburg, N.J.

Filed May 30, 1978, Ser. No. 910,326
Int. Cl.³ B41F 13/56
U.S. Cl. 270—21.1 12 Claims



1. An automated in-line mailing system including:

a web supply means for supplying a sheet-web having indicia thereon;

a cutter means attached to said web-supply means for receiving said sheet web and cutting said sheet web into side-by-side individual sheets;

a folding means for receiving said individual sheets along adjacent channels from said cutter means and for folding said sheets;

a collector sequencer means for receiving said folded sheets along adjacent channels from said folder means and accumulating said folded sheets respectively received from said adjacent channels in adjacent collector bins, at least one of said collector bins including an ejecting means for ejecting its contents into the other collector bin and the other collector bin including an ejecting means for ejecting its contents to further processing equipment; and

a control system including a scanner means for sensing said sheet web indicia upstream of said cutting element, said control system being coupled to at least one collector bin to eject its contents into the other collector bin in response to indicia read from said sheet web by said scanner.

7. An automated in-line mailing system including:

a web supply means for supplying a sheet-web having indicia thereon;

a cutter means attached to said web-supply means for receiving said sheet web and cutting said sheet web into side-by-side individual sheets;

a collector sequencer means for receiving said individual sheets from said cutter means along parallel channels, accumulating said individual sheets respectively received from said adjacent channels in adjacent collector bins, at least one of said adjacent collector bins including an ejecting means for ejecting its contents into the other collector bin, and the other collector bin including an ejecting means for ejecting its contents to further processing equipment; and

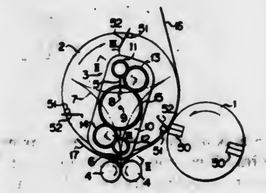
a control system including a scanner means for scanning said sheet-web indicia upstream of said cutting element, said control system being coupled to said at least one collector bin for ordering said at least one collector bin to eject its contents into the other collector bin in response to indicia read from said sheet web by said scanner.

4,273,320

FOLDING MECHANISM FOR A PRINTING PRESS

Yuji Fujishiro, Tokyo, Japan, assignor to Kabushiki Kaisha Tokyo Kikai Seisakusho, Tokyo, Japan

Filed Jan. 19, 1978, Ser. No. 916,749
Claims priority, application Japan, Feb. 27, 1978, 53-23434[U]
Int. Cl.³ B65H 45/16
U.S. Cl. 493—427 3 Claims



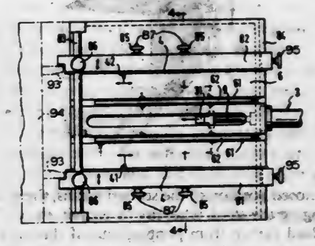
1. In a folding mechanism for a printing press including a frame of the printing press, a folding cylinder rotatably mounted on said frame, an eccentric member fixedly secured to said frame, said eccentric member having first and second holes formed therein, a sun gear shaft inserted in the first hole of said eccentric member and fixedly secured thereto, said sun gear shaft having a sun gear formed at one end thereof, a gear box rotatably mounted on said sun gear shaft, and a drive shaft rotatably mounted on said frame at one end thereof, the other end of said drive shaft being fixedly secured to said gear box and adapted to rotate together; the improvement comprising a pair of idler gears rotatably mounted in said gear box adapted in mesh with said sun gear, a pair of folding blade shafts rotatably mounted on said gear box, each of said folding blade shafts having a plurality of folding blades and a driving gear mounted thereon, said driving gears being adapted to mesh with said idler gears and one of said driving gears being adapted to move in axial direction out of engagement of said idler gear, manually-operated means for interrupting the drive to one of said folding blade shafts for silencing the folding blades associated therewith comprising a manipulating ring rotatably mounted on said gear box, one end of said one of the folding blade shafts being inserted into said manipulating ring and having an axial hole formed therein, a manipulating disc fixedly secured to said manipulating ring, said manipulating disc having a hole formed therein, an engaging member disposed in the hole of said manipulating disc for selectively engaging or disengaging said one of the folding blade shafts with or from said manipulating disc, and spring means disposed in the axial hole of said one of the folding blade shafts for urging said engaging member toward said manipulating disc so as to engage said folding blade shaft with said manipulating disc, and interlock means fixedly mounted on said gear box for locking said one of folding blade shafts against rotation when said one of driving gears is moved in axial direction out of engagement of one of said idler gears to engage with said interlock means.

4,273,321

APPARATUS FOR FEEDING CONDUCTOR PLATES INTO A CONDUCTOR PLATE TESTER

Erich Luther, Rousenberg, and Martin Maelzer, Wunstorf, both of Fed. Rep. of Germany, assignors to Luther & Maelzer GmbH, Wunstorf, Fed. Rep. of Germany and Limited-Liability Company, both of, Fed. Rep. of Germany

Filed Dec. 18, 1978, Ser. No. 970,484
Claims priority, application Fed. Rep. of Germany, Apr. 6, 1978, 2814954
Int. Cl.³ B65H 3/24, 3/46
U.S. Cl. 271—10 4 Claims



1. Apparatus for feeding conductor plates from a stack thereof to a conductor plate tester, including in combination:

a base plate supporting a stack of thin conductor plates,

stack forming means for retaining said stack,

reciprocating feeding means for removing the lowermost plate only of said stack from said stack and propelling it forwardly,

a transport path disposed in the same plane as said base plate, for receiving each forwardly projected plate and leading it to said tester,

said transport path being inclined downwardly toward said tester, so that said conductor plates are moved therealong by the force of gravity,

said feeding means being inclined at the same angle as said transport path and said stack-forming means being perpendicular thereto, and

control means for preventing the last, uppermost, conductor plate of the stack from sliding down the transport path uncontrolled after the remaining plates of the stack have been removed, said control means including said base plate having at least one recess and a spring located in said recess which, when in untensioned condition, projects above the upper surface of the base plate.

4,273,322

GATE MECHANISM FOR CARTON ERECTING MACHINE

George E. Glather, Sr., King of Prussia; A. David Johnson, Jr., and Joseph L. Bachman, both of Wayne, all of Pa., assignors to Wayne Automation Corporation, King of Prussia, Pa.

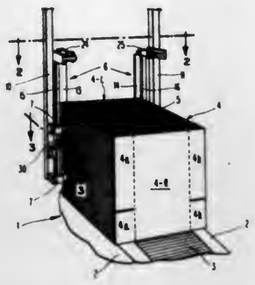
Filed Jul. 9, 1979, Ser. No. 55,764
Int. Cl.³ B31B 1/06
U.S. Cl. 271—149 5 Claims

5. In a carton erecting machine having frame means mounting a magazine supporting a stack of vertically oriented, flat folded cartons arranged one beside the other along an axis, the magazine including means to move and guide the cartons one after another to a take-down station, improved gate mechanism to releasably retain a carton in the take-down plane comprising;

first and second carton restrainer means, each mounted to be moved as between open and closed positions;

means to move said first and second restrainer means so that when the first restrainer means is in the closed position the second restrainer means is in the open position and when the first restrainer means is in the open position the second restrainer means is in the closed position;

in the respective open positions each restrainer means being disengaged and spaced from the cartons of the stack;
in the closed position of the first restrainer means, the first restrainer means engaging the lead carton of the stack whereby to restrain motion of same and to locate the lead carton in a take-down plane at said take-down station; and



in the closed position of the second means, the second means engaging the stack whereby to restrain the carton next to the lead carton from popping out of the stack when the lead carton is taken down for the erection operation.

4,273,323

SHEET FEEDING APPARATUS FOR COPYING MACHINE, PRINTING MACHINE, ETC.

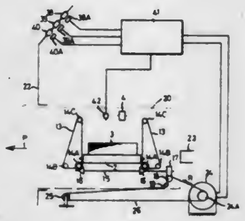
Tamaki Kaneko, Fujisawa; Kenich Mizuma, Yokohama, and Tugio Okuzawa, Tokyo, all of Japan, assignors to Ricoh Co., Ltd., Japan

Filed Nov. 13, 1978, Ser. No. 959,597

Claims priority, application Japan, Nov. 24, 1977, 52-139827; Nov. 24, 1977, 52-139828; Dec. 7, 1977, 52-146134; Dec. 8, 1977, 52-146627; Dec. 12, 1977, 52-148108; Dec. 12, 1977, 52-148109; Dec. 14, 1977, 52-149343

Int. Cl.³ B65H *1/14, 1/26*

U.S. Cl. 271—157 **6 Claims**



3. In a photocopying machine including a housing having means for feeding sheets into association with an image bearing member for the purpose of transferring the image to the sheets, the improvement comprising a frame movable into and out of said housing, a tray for the sheets on said frame, first conveyor means on said frame connected to said tray for moving said tray toward and away from the feeding means for positioning the sheets on said tray into association with said feeding means for the feeding thereof, second conveyor means in the housing connected to said frame for moving said frame out of said housing for the loading and unloading of sheets onto said tray and into said housing, and actuation means connected between said first and second conveyor means and between said tray and frame and said housing to cause said first conveyor means to move said tray when said frame is inside said housing into association with said feeding means so that the sheets may be fed thereby and to move said tray away from said feeding means to a lowermost position thereof in said housing, said housing including a stop therein, said frame being movable into said housing until it is stopped by said stop, said actuation means moving said frame into and out of said housing when said tray is in the lowermost position and being effective, when said frame is stopped by said stop, to actuate said first conveyor to move said tray toward said feeding means.

4,273,324

SUCTION BRAKING APPARATUS

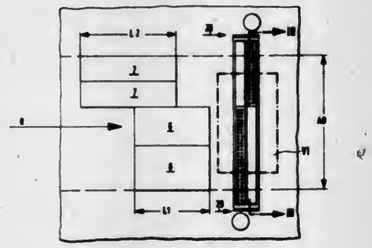
Helmut Philipp, Eckrath-Unterbach, Fed. Rep. of Germany, assignor to Jagenberg Werke Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Aug. 1, 1979, Ser. No. 63,026

Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833570

Int. Cl.³ B65H *29/68*

U.S. Cl. 271—183 **4 Claims**



1. A suction braking apparatus for the braking and overlapping of sheets travelling longitudinally thereover, comprising a suction chamber extending transversely of the direction of travel of the sheets and provided with first and second groups of suction holes, each group extending across a portion of the transverse length of the suction chamber, aligned first and second cover plates respectively provided with perforations in register with the first and second groups of suction holes, first and second cover slides respectively provided for cooperation with the first and second groups of suction holes, the first cover slide ending at a junction line across the suction chamber and transverse of the direction of travel of the sheets where the second cover slide begins, and perforated control belts operatively connected with said first and second cover slides so as to be able to displace them across the suction chamber and thereby locate said junction line at any predetermined point across the suction chamber, whereby the cover slides can be moved to accommodate changes in the width of sheets to be operated upon by each of the first and second groups of suction holes.

4,273,325

SHINGLED SHEET ALIGNMENT

Dennis W. Rodewald, Phillips, Wis., assignor to Marquip, Inc., Phillips, Wis.

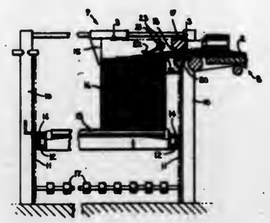
Filed Mar. 8, 1979, Ser. No. 18,603

Int. Cl.³ B65H *31/26*

U.S. Cl. 271—220 **4 Claims**

1. In a sheet handling device:
(a) a conveyor for conveying a plurality of sheets in succession,
(b) a nip disposed at the discharge end of the conveyor for passing sheets therethrough,
(c) a sheet stacker disposed downstream of said nip for receiving and stacking said sheets,
(d) and stop means disposed between said nip and said stacker for guiding the longitudinal sheet edges in a manner to prevent transverse shifting of said edges as the sheets pass from said nip to said stacker, said stop means comprising:

(1) an elongated mounting element disposed above the path of the traveling sheets and extending transversely thereof and outwardly beyond the said longitudinal sheet edges,
(2) and a plurality of fingers normally hanging downwardly by gravity and arrayed along said mounting element,



(3) a first portion of said fingers being disposed in the path of said sheets and engageable thereby so that said first portion of fingers are swung forwardly and upwardly about a transverse axis and rest on the sheets,
(4) and a second portion of said fingers remaining out of the path of the traveling sheets and hanging downwardly to guide the said longitudinal sheet edges.

4,273,326

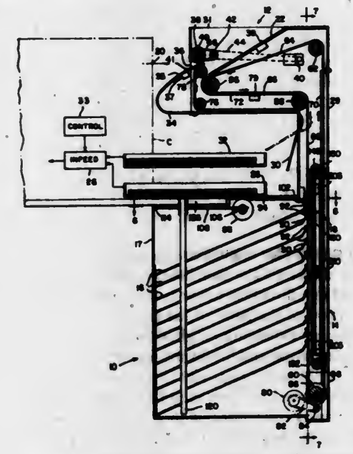
COLLATOR

Donald L. Snellman, and Osceola J. Gerbracht, both of Seattle, Wash., assignors to Norfin, Inc., Seattle, Wash.

Filed Dec. 14, 1978, Ser. No. 969,383

Int. Cl.³ B65H *39/11, 29/58, 31/24*

U.S. Cl. 271—288 **19 Claims**



1. A collator, comprising: sheet receiver means for receiving a sheet adjacent one side thereof; sheet infeed means including a sheet support surface and means for positioning an incoming sheet thereon operatively associated with said sheet receiver means for accepting an incoming sheet adjacent the side of said receiver means opposite the one side thereof; sheet conveyor means for engaging the sheet positioned on said support surface to remove said sheet therefrom by movement in said opposite direction; and then moving the sheet in a direction corresponding to its direction of movement when accepted by said sheet infeed means while maintaining an inverted surface orientation, and sheet deflector means operatively associated with said conveyor means for deflecting a sheet moving along said course of travel adjacent the one side of said receiver means for reception by said receiver means with said sheet having resumed its corresponding surface orientation, wherein said sheet conveyor means include a sheet conveyor assembly which comprises opposed moveable conveyor tape means for engaging opposed surfaces of a sheet positioned on said sheet support surface to move said sheet in said opposite direction while curving said sheet until inverted and underlying said sheet support surface for movement in said corresponding direction toward the one side of said receiver means, and wherein one of said conveyor tape means include a portion continuing along the one side of said receiver means in a direction substantially perpendicular to said corresponding direction toward said deflector means, and wherein said receiver means include a column of spaced bins having inlets which face the one side of said receiver means; said sheet deflector means include a moveable sheet deflector assembly operatively associated with said continuing conveyor tape means portion, means mounting said deflector assembly for movement along said course of travel, and means for positioning said deflector assembly along said course for deflecting sheets therefrom into selected ones of said bins; and said sheet conveyor assembly includes sheet retaining means for holding a sheet on said continuing conveyor tape means portion for movement to the position at which it is deflected.

13. A collator for use with a copier to duplex copy, the collator comprising: sheet receiver means for receiving a sheet adjacent one side thereof; a sheet support surface, means for positioning an incoming sheet from a copier adjacent the side of said receiver means opposite the one side thereof; sheet conveyor means operatively associated with said receiver means and said sheet support surface for engaging the sheet positioned on said support surface to remove said sheet therefrom by movement in said opposite direction while maintaining its surface orientation and then moving said sheet in a direction corresponding to its direction of movement when accepted by said sheet support surface while maintaining an inverted surface orientation; and sheet deflector means operatively associated with said conveyor means for returning the sheet copied on one surface from said receiver means to the copier adjacent the opposite side of the receiver by deflecting the sheet moving along said course of travel adjacent the one side of said receiver means for reception by said receiver means with said sheet having resumed its corresponding surface orientation to effect a copy on the opposite surface thereof.

4,273,327

SKI EXERCISING APPARATUS

Clive Nall, Los Gatos; Leo E. Long, Los Altos; Sterling C. Rigby, Los Altos, and K. Boyd Bangs, Los Altos, all of Calif., assignors to Major Sports Sales, Inc., Mountain View, Calif.

Filed Dec. 10, 1979, Ser. No. 102,120

Int. Cl.³ A63B *69/18*

U.S. Cl. 272—97 **7 Claims**



1. A ski exercise apparatus comprising:

a tilt swivel board with a top planar surface and a bottom surface of substantially convex shape;

a plurality of elastic and extensible spring members connected on the one hand to said tilt swivel board and on the other hand to means for grasping by a user while standing upon said tilt swivel board and extending said elastic and extensible spring members so as to tilt said tilt swivel board in reaction to weight changes in said user's legs; and

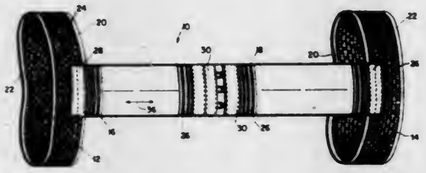
a belt means for attachment snugly generally about the waist of the user with said elastic and extensible spring members passing through said belt means.

4,273,328

CHEST MUSCLE AND POSTURE DEVELOPER

Suzan N. Ozbey; Amber L. Ozbey, and Ahmet M. Ozbey, all of 205 Bonhill Dr., Ft. Washington, Md. 20022

Filed Jun. 8, 1979, Ser. No. 46,817
Int. Cl.³ A63B 21/02
U.S. Cl. 272—137 **12 Claims**



1. An apparatus for use in developing the chest muscles and posture of a user without substantially developing the arm muscles of the user comprising at least two arm encircling means, a first of said arm encircling means being adapted to encircle the upper left arm and a second of the arm encircling means being adapted to encircle the upper right arm of the user, a back traversing means connected between said first and second arm encircling means, said back traversing means being elastically extensible to vary the distance between said first and second arm encircling means and including a first section formed of elastic material, a first inelastic connector extending between said first section and said first arm encircling means, said first inelastic connector being secured to said first section and to said first arm encircling means, and a second inelastic connector extending between said first section and said second arm encircling means, said second inelastic connector being secured to said first section and to said second arm encircling means.

4,273,329

FLAG PIN ATTACHMENT INCLUDING BALL DISTANCE MEASURING LINE AND TURF REPAIR TOOL

Donald L. Trigg, 10934 Gazette Ave., Chatsworth, Calif. 91311, and Richard V. Portolan, 557 Daroca Ave., San Gabriel, Calif. 91775

Filed Mar. 13, 1980, Ser. No. 129,917
Int. Cl.³ A63B 57/00
U.S. Cl. 273—32 B **2 Claims**

1. An apparatus for use in playing golf, comprising:

a housing;

a spool rotatably attached to said housing, said spool containing a length of line wound on said spool, said line having a first end and a second end, and attached to said spool at said first end;

a coiled spring attached to said spool and said housing, said spring being caused to distort from a relaxed position in response to said line being unwound by rotation of said spool, and said spring returning to said relaxed position, causing said spool to rotate to rewind said line, when the tension on said line is released;

an attaching member including a clip affixed to said housing and adapted to engage a golf hole flag stick as said line is unwound from said spool, said clip including a shaft attached to said housing, a first clip member having a prong portion and an arcuate portion, formed integrally with said prong portion, and having an end, and a second clip member having a prong portion and an arcuate portion, formed integrally with said prong portion, and having an end, and,



said first and second clip members being pivotally attached to said shaft;

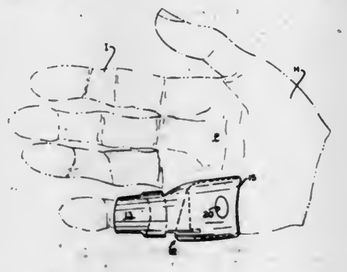
a spring attached to said first and second clip members, said spring urging said ends of said arcuate sections into contact.

4,273,330

BOWLER'S FINGER SUPPORT

Paul Buneta, 7101 S. Grand Ave., St. Louis, Mo. 63111

Filed Mar. 27, 1979, Ser. No. 24,303
Int. Cl.³ A63B 69/00
U.S. Cl. 273—54 B **8 Claims**



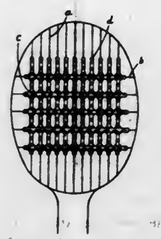
1. A finger support for application by a bowler in association with the little finger on the ball delivery hand and for use in urging the ball in a direction towards the index finger and the proximate portion of the palm of the bowler's hand, comprising, a base member extending longitudinally of the little finger of the hand when in use and for disposition contiguous with the inner surface of the said finger and the approximate region of the upper palm associated with such finger and aligned therewith, a band means connecting with the upper portion of the base member and for snugly surrounding the said little finger to insure retention of the support upon the hand, the lower portion of the base member widened and thickened for disposition intermediate the said aligned palm region and the bowling ball to effect ball displacement from the hand at this location and causing a shift of the weight towards the index finger of the ball supporting hand, said base member, band means, and lower portion all being cut and formed from a tubular type flexible material, said material being designed cut at its upper portion to form the said base member and integral band means of the support, a spacer means provided within the lower portion of the base member to provide means for maintaining the thickened and widened disposition of the support at said location, said spacer means comprising a plate that is tapered and forms an upper angular surface within the widened lower portion of the base member and useful for urging the ball further towards the center of the bowler's palm, whereby the ball is urged in the direction towards the index finger and the proximate portion of the palm of the bowler's hand.

4,273,331

TENNIS RACKET

Werner Fischer, Lichtenburgerstrasse 13, 8313 Vilsbiburg, Fed. Rep. of Germany

Filed Dec. 8, 1977, Ser. No. 858,644
Claims priority, application Fed. Rep. of Germany, Dec. 10, 1976, 2656082
Int. Cl.³ A63B 51/02
U.S. Cl. 273—73 D **6 Claims**



1. A grid for use in conjunction with the strings of a game racket, comprising:

a plurality of first guide members disposed in a first direction to be disposed on a plurality of first strings of a game racket for receiving and guiding the movement of said first strings, and

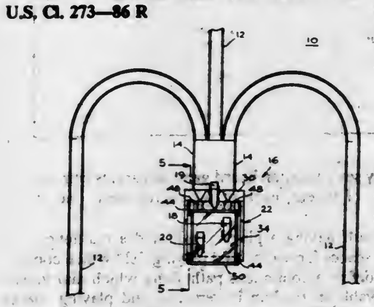
means for connecting said first guide members to form a unitary grid having a plurality of open areas so that when said grid is disposed on said first strings of a game racket, said grid moves substantially as a unit, and so that said grid and said first strings of the game racket move as a unit and slide relative to second strings transversely-disposed to said first strings of the game racket when struck by a ball to increase the amount of spin imparted to said ball.

4,273,332

TOY RACING APPARATUS

Gordon H. Buck, Torrance, and Kenneth I. Amamoto, Los Angeles, both of Calif., assignors to Mattel, Inc., Hawthorne, Calif.

Filed Aug. 23, 1979, Ser. No. 69,035
Int. Cl.³ A63F 9/14; A63H 17/42
U.S. Cl. 273—86 R **2 Claims**



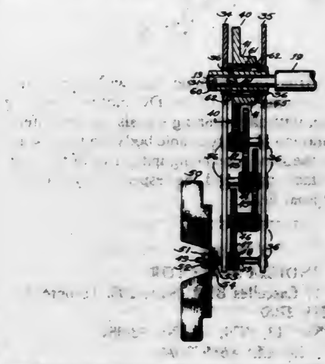
1. A toy for determining the final position of toy racing vehicles comprising a base over which toy vehicles may be operated, a cover supported over the base, and means for collapsing the cover onto vehicles traversing the base including a set of linkages rotatably positioning the cover over the base, a spring for placing a downward force on the cover, and trigger means for causing the base to begin rotation in response to a vehicle reaching a particular location on the base, whereby such vehicles come to rest in positions indicative of their positions in a race.

4,273,333

GEAR TRAIN GOVERNORS IN SPINNING REEL GAMES

Frank G. Nicolaus, Chicago, Ill., assignor to Bally Manufacturing Corporation, Chicago, Ill.

Filed Feb. 28, 1979, Ser. No. 16,099
Int. Cl.³ A63F 5/04; F16D 41/06
U.S. Cl. 273—143 R **2 Claims**



1. In cyclically operable game apparatus of the type wherein a drive shaft is oscillated in each game cycle in a forward setting phase initially with reversal in a return stroke phase in which the speed thereof is regulated by governor means of the fan-loaded gear-train type, improvements in governor means characterized in that: the governor comprises a gear array including a large diameter input gear coupling with said drive shaft, and a small low-torque output gear driving a loading fan, together with a train of intermediate reduction gears drivingly interconnecting the input and output gears, said input gear being drivingly coupled with said drive shaft through a unidirectional clutch of the precision ball type operative to drive the input gear only in the direction of rotation of the drive shaft in the return phase thereof, such that the respective gears in the entire array are constrained always to turn in the same unidirectional progression through cumulatively complete revolutions, and no gear can be repetitiously oscillated in any game cycle operation of said drive shaft, whereby all of the teeth of all of the gears in the array will be exposed to wear stress notwithstanding repetitious oscillation of the drive shaft in repetitious cycling of said game apparatus.

4,273,334

REEL MECHANISM FOR USE IN A PLAYING DEVICE

Siegfried Schöne, and Joachim Rambow, both of Berlin, Fed. Rep. of Germany, assignors to Gustav Wulff-Apparatebau GmbH, Berlin, Fed. Rep. of Germany

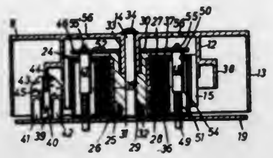
Filed May 29, 1979, Ser. No. 43,371
Int. Cl.³ A63F 5/04
U.S. Cl. 273—143 R **24 Claims**

1. A reel mechanism for use in a playing device, comprising:

a rotatable body having a plurality of substantially equally spaced symbols to be sequentially displayed in a visual field, said rotatable body comprising a DC motor having a rotor and a stator, said rotor being rotatably disposed about the stator and the rotatable body forming an outer apron disposed about the rotor with said symbols on said outer apron;

scanning means operatively associated with the rotatable body for generating scanning signals, each of said scan-

ning signals uniquely corresponding to a respective symbol position, which signals are indicative of the rotational position of the rotatable body relative to the visual field; switching means operatively connected to the scanning means for receiving said scanning signals therefrom, the switching means providing pulsing signals to the DC



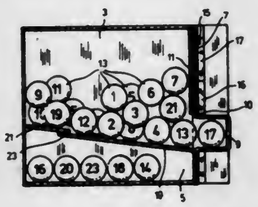
motor for energizing the magnetic field within the stator to control the commutation of the DC motor in pulsing synchronization, with the scanning signals thereby effecting rotational motion of the rotatable body, and said scanning signals, at the same time being indicative of the position of the rotatable body and the respective symbol displayed in the visual field.

4,273,335

INDICIA SELECTOR

Georges Allonsius, 17 Lascelles Blvd., Suite 208, Toronto, Ontario, Canada (M4V 2B6)

Filed Nov. 13, 1979, Ser. No. 93,054
Int. Cl.³ A63F 7/04
U.S. Cl. 273—144 B 9 Claims



1. A portable handheld indicia selector for selecting indicia at random and being particularly suitable for lottery selections, said selector comprising a totally enclosed unit consisting of an opaque mixing chamber for mixing a plurality of indicia bearing members, each of which bears its own distinct indicia, a transparent deposit chamber to which said indicia bearing members are deposited directly from said mixing chamber, wall means separating said deposit chamber from said mixing chamber and means for moving the indicia bearing members past said wall means from one chamber to the other, such that the members deposited in the deposit chamber are maintained therein in the order in which they are moved, the arrangement being such that the indicia bearing members in the mixing chamber are hidden from view and mixable with one another for random movement to the deposit chamber where they are clearly apparent.

4,273,336

GOLF SWING AID

Orval W. Larkey, Thousand Oaks, Calif., assignor to J. T. Posey Company, Arcadia, Calif.

Filed May 8, 1980, Ser. No. 148,162
Int. Cl.³ A63B 69/36
U.S. Cl. 273—189 R 5 Claims

1. A golf swing aid comprising an elongated first strap; fastening means for releasably securing opposite end portions of the first strap to form a first loop that makes a snug fit around the first wrist of a golfer; an elastically stretchable second strap overlying the first strap and fixed at opposite end portions to the first strap, the second strap cooperating with the first strap to form a second loop between them; the elastically stretchable second strap being stretchable away from the



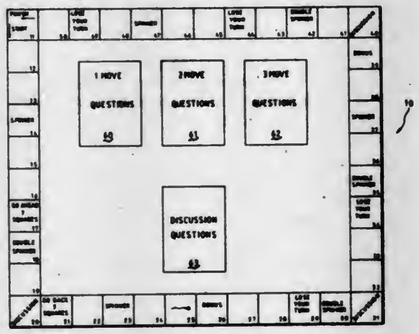
first strap to enlarge the enclosed area within the second loop to a size comparable to the enclosed area within the first loop in order to accommodate the second wrist while both hands are gripping a golf club, the second strap being under tension when forming said enlarged second loop.

4,273,337

FAMILY SEX EDUCATION BOARD GAME

Michael A. Carrera; June F. Carrera, both of 444 E. 82nd St., New York, N.Y. 10028; Melvyn S. Littner, and Lorna C. Littner, both of 52 W. 57th St., New York, N.Y. 10019

Filed Oct. 11, 1979, Ser. No. 83,877
Int. Cl.³ A63F 3/00
U.S. Cl. 273—243 8 Claims



1. A family sex education board game apparatus comprising:
a plurality of tokens, each of which represent one of the players;
a game board having a playing field and a multiplicity of playing spaces formed on said playing field which cooperatively define a continuous path along which said tokens are movable in random increments, said playing spaces including a starting and finishing space and at least four different sets of spaces, a first set of spaces interspersed along said path having instructions thereon concerning the loss of a turn, a second, third and fourth set of spaces interspersed along said path, each of which has identical indicia thereon which is different from the indicia of the other sets;

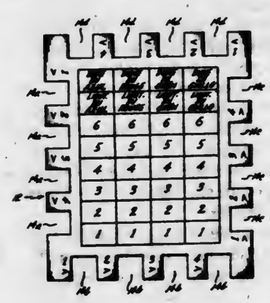
three decks of cards, each card in each of said decks having a question thereon concerning the field of human sexuality, the cards in the same deck having questions of relatively the same difficulty and the cards in the different decks have questions of various levels of difficulty, each deck divided into a plurality of subdecks having questions thereon directed to a particular category of human sexuality, the categories being the same between said three decks, each of the cards of each one of the categories identified by indicia common to that category and distinct from the indicia on the cards of the other categories;
a fourth deck of cards associated with said fourth set of playing spaces, each of which contain a question for discussion among the players in the field of human sexuality;
a spinner device associated with said second and third sets for playing spaces which includes a base plate having a plurality of radially-arranged spaces thereon, each of which bear a number concerning movement of the player's token which lands on one of said spaces of said second and third sets, and a spinner rotatably mounted on said base plate for randomly selecting one of said spaces on said base plate;
an answer booklet containing the answers to the questions set forth in said four decks of cards; and
a category score sheet for scoring one's correct answers according to various categories of human sexuality
the score sheet categories having indicia thereon corresponding to the indicia on the cards within the said subdeck categories.

4,273,338

GAME APPARATUS WITH NOTCHED GAME BOARD

Michael Yaeger, P.O. Box 4304, Pioneer Square Station, Seattle, Wash. 98104

Filed Apr. 25, 1979, Ser. No. 33,135
Int. Cl.³ A63F 3/00
U.S. Cl. 273—282 9 Claims



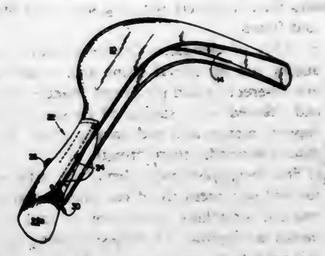
1. A game apparatus comprising in combination a playing board and a set of blocks, the blocks being divided into first, second, third and fourth groups, each group containing an equal number of blocks, each block having upon it some marking that indicates to which group it belongs and also having upon it some indicia of its priority within its group, the board being a closed polygon, each side of the board having notches integrally formed therein along the perimeter of the polygon, said notches adapted to receive said blocks as they are played, the board further having a central portion divided into a plurality of spaces equal to the number of blocks in the set, each space carrying thereon indicia corresponding to a particular block and adapted to receive said corresponding block as play of the game progresses.

4,273,339

PLASTIC CESTA

Gilbert J. Fortunato, 23 Blinn St., East Hartford, Conn. 06108

Filed Apr. 26, 1979, Ser. No. 33,420
Int. Cl.³ A63B 65/12
U.S. Cl. 273—326 4 Claims



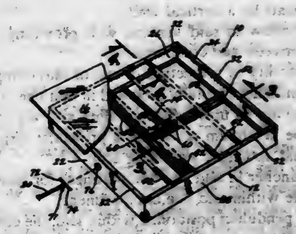
1. A molded plastic cesta for throwing or catching an object such as a ball, said cesta comprising a body portion defining a chute having a generally straight launching surface segment adjacent one end and an arcuate inner ramp surface connected to said straight surface and tangent therewith, said arcuate inner surface having a radius of curvature which decreases in magnitude along the inwardly curved surface, and an inner end of said body portion defining a generally straight segment connected to the inner end of said decreasing radius portion of sharpest curvature by a reversedly curved portion such that the said straight inner and outer segments are generally perpendicular to one another, said body portion having generally parallel crescent shaped sides integrally connected to said ramp surface to define a U-shaped chute having a pocket in the area of sharpest curvature, and a glove defining flexible member attached to the surface of said flat inner segment opposite the ramp surface thereof, said body portion having a uniform thickness, being formed from a single plastic member and having outturned flanged portions integrally formed in said sides, which flanged portions have the same thickness as said sides, and stiffeners for said flanged portions, said stiffeners being made from U-shaped plastic strips slidably received on said outturned flanged portions, a cestus for securing the cesta to the wrist, metal bracket means secured to the innermost end portion of the plastic cesta ramp surface and defining an elongated opening transverse to the chute, and a peg for said opening, said peg having end portions projecting beyond the sides of said bracket to facilitate girdling the cestus onto the wearer's wrist.

4,273,340

HORSESHOE STAKE SUPPORT APPARATUS

James L. Hackett, 522 N. Sierra Dr., Council Bluffs, Iowa 51501

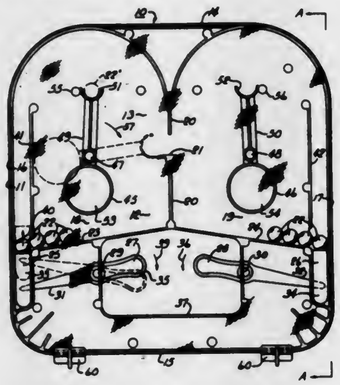
Filed Jan. 29, 1979, Ser. No. 7,475
Int. Cl.³ A63B 67/06
U.S. Cl. 273—336 14 Claims



1. A portable horseshoe court comprising,
a generally peripheral support frame,

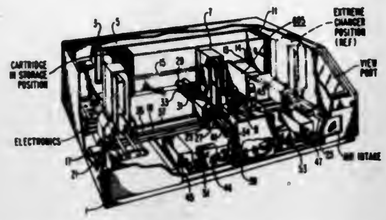
an elongated horseshoe stake,
a horseshoe stake support block,
said block having a hole which opens through the top thereof for receiving said horseshoe stake,
said stake being received in press-fit relation in said hole whereby said stake is rigidly secured relative to said block,
means for operatively securing said stake support block to said frame,
a plurality of elongated flexible support means extended across said peripheral frame and connected at opposite ends thereof to said peripheral frame,
a pad adapted to be supported on said frame and flexible support means, said pad having a hole for said stake to extend upwardly therethrough, and
said flexible support means being the only vertical support for said pad interiorly of said pheripheral frame whereby resilient stretching movement of said flexible support means in response to a horseshoe being pitched onto said pad permits said pad to resiliently yield in a vertical direction, thereby to at least partially absorb the impact of said horseshoe.

4,273,341
GAME APPARATUS INCLUDING PROJECTILE AND PIVOTAL TARGETS
John T. Warrix, Columbus, Ohio, assignor to Wolverine Toy Company, Booneville, Ark.
Filed Feb. 14, 1980, Ser. No. 121,375
Int. Cl.³ A63F 9/02, 7/02
U.S. Cl. 273—357 **4 Claims**



4. An amusement game device comprising:
an up-standing housing including spaced front and back vertical walls joined by top, bottom and side walls;
said front wall formed at least in part of transparent material;
said housing internally separated into left and right compartments by a vertical wall;
a window in said vertical wall providing communication between said compartments;
a plurality of projectiles in one of said compartments;
a pendulum pivotally mounted in said one compartment and having an upwardly extending arm which extends above the pendulum pivot and a projectile target at the top of said upwardly extending arm;
a launcher in said one compartment for launching a projectile within said one compartment;
said pendulum positioned within said one compartment such that when a projectile is launched and thereby projected into said target, said pendulum will pivot from the weight of said projectile resting in said target to dump the projectile into the other compartment through said window.

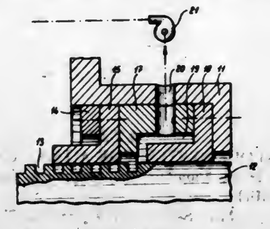
4,273,342
PROTECTIVE CARTRIDGE FOR OPTICAL DISCS
Alan P. Gilson, Collingswood, and Bohdan W. Siryj, Cinnaminson, both of N.J., assignors to RCA Corporation, New York, N.Y.
Filed May 23, 1979, Ser. No. 41,677
Int. Cl.³ G11B 17/00, 5/48
U.S. Cl. 369—32 **2 Claims**



1. A cartridge for use in an information storage and retrieval system for optically reading information stored on an optical disc, said system having a storage module including a plurality of storage locations for storing optical discs enclosed in cartridges, each of said storage locations including at least one storage positioning element, having a reader wherein said optical disc is placed during information retrieval, said reader having a means for providing a beam of coherent light, said reader including at least one reader positioning element, and having a disc changer for transporting a cartridge enclosing said optical disc between said storage module and said reader, said disc changer having an electromagnetic means embedded in said changer; said cartridge comprising:
a frame having first and second ends and at least one other edge;
said first end having an aperture for coupling said cartridge to said at least one storage positioning element of one of said plurality of storage locations;
said second end having an aperture for coupling said cartridge to said at least one reader positioning element of said reader; and
a magnetically actuated spring coupled to said other edge of said frame, said magnetically actuated spring having a relaxed position and a latched position, said spring being in said relaxed position when said cartridge is located in one of said plurality of storage locations or in said reader during information retrieval, said spring being in said latched position with said spring deflected into engagement with said electromagnetic means when said changer is transporting said cartridge between said storage module and said reader;
said frame further having a window therein for providing access to an information bearing surface of said optical disc by said beam of coherent light.

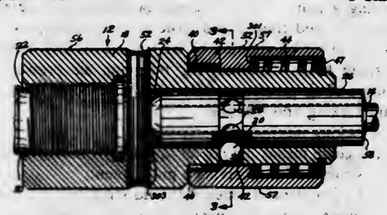
4,273,343
SHAFT SEAL
Teunis Visser, Sliedrecht, Netherlands, assignor to IHC Holland N.V., Rotterdam, Netherlands
Filed Nov. 8, 1979, Ser. No. 92,556
Claims priority, application Netherlands, Nov. 10, 1978, 7811164
Int. Cl.³ F16J 15/40, 15/44
U.S. Cl. 277—53 **7 Claims**

1. Seal of a shaft, said shaft being rotatable relative to a stationary housing and being provided with a helical groove, said groove cooperating with a cylindrical surface, said surface surrounding said shaft, characterized in that the groove thread with respect to the direction of rotation of the shaft is always such that the groove carries medium from the housing beyond the confines of the seal, from the high-pressure region to the low-pressure space, and the cylindrical surface surrounding



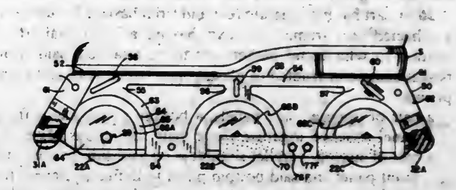
the shaft is constituted by a flexible sleeve, the outer surface of said sleeve being under the pressure of the space to be sealed.

4,273,344
MOTOR QUICK-CHANGE CHUCK SYSTEM FOR TOOL HAVING CYLINDRICALLY SHAPED ADAPTER PORTION
Richard L. Benson, Mercer Island; Horace E. Hill, Renton, and Mark S. Soderberg, Bellevue, all of Wash., assignors to The Boeing Company, Seattle, Wash.
Continuation of Ser. No. 932,593, Aug. 8, 1978, Pat. No. 4,184,692. This application Jan. 4, 1979, Ser. No. 45,483
The portion of the term of this patent subsequent to Jan. 22, 1997, has been disclaimed.
Int. Cl.³ B23B 31/22
U.S. Cl. 279—75 **1 Claim**



1. A tool-holding chuck assembly having a generally cylindrically shaped body member, said generally cylindrically shaped body member having a hollow first end portion, said hollow first end portion having an inner wall surface threaded to accept the mating threaded spindle of a portable motor, said generally cylindrically shaped body member having a hollow second end portion concentrically disposed relative to said hollow first end portion, said generally cylindrically shaped body member including a roll pin depth stop disposed between said hollow first end portion and said hollow second end portion;
said tool-holding chuck assembly including three cylindrically shaped ball elements, a collar member (32) having an internal shoulder (301), a recess (40) formed in the inner wall surface thereof, a retaining ring (47), a spirally wound spring member (44) disposed between said retaining ring (47) and said internal shoulder (301), said collar member (32), retaining ring (47), and spirally wound spring member (44) coaxially disposed about the central axis of said tool-holding chuck assembly, said collar member (32) adapted to be moved axially for compressing spirally wound spring member (44) between said retaining ring (47) and said internal shoulder (301) thereby positioning said recess (40) for receiving said three cylindrically shaped ball elements.

4,273,345
ROLLER SKATE
Efraim Ben-Dor, P.O. Box 33372, Tel-Aviv, Israel, and Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840
Filed Oct. 2, 1978, Ser. No. 948,029
Int. Cl.³ A63C 17/06, 17/14
U.S. Cl. 280—11.2 **5 Claims**



1. A roller skate comprising:
A skate wheel support having an upper portion including laterally extending flange portions adapted to be secured to the bottom of a shoe,
said support having a downwardly extending wheel supporting portion,
the lower portion of said wheel supporting portion having a plurality of cowl portions each defined by space-separated outwardly extending and downwardly depending opposite wall portions spaced apart from each other at the bottom of said wheel supporting portion and extending in longitudinal alignment with each other so as to define a plurality of wheel housings, each of which is open at the bottom of said wheel supporting portion of said support,
a plurality of wheels extending in a row along the lower portion of said support with each wheel supported in bearing within each of said cowl portions of said support by the opposite walls thereof for supporting and providing wheeled movement of said skate across a surface, and
a braking member secured to and supported by the sidewall of said support and having an outer surface of friction producing material which braking member is shaped and positioned to permit said outer surface to be engaged against the surface on which the skate is used to the exclusion of all other portions of said skate for slowing down and stopping movement of the skater along such skating surface.

4,273,346
OVER-THE-COUNTER CART WITH HINGEDLY ATTACHED PLASTIC BASKET AND RETRACTING FRONT GATE
Houston Rehrig, 1401 S. Oak Knoll Ave., Pasadena, Calif. 91109
Filed Mar. 6, 1979, Ser. No. 18,028
Int. Cl.³ B62B 3/08
U.S. Cl. 280—33.99 F **38 Claims**

1. A plastic basket for use with a wheeled over-the-counter cart frame having a horizontal frame portion to which said basket is to be attached, comprising:
a pair of opposed side panels, a bottom panel, and a front panel attached together along their contiguous edges, said side panels and said bottom panel terminating in a rear edge, a channel extending from the underside of said bottom panel adjacent its rear edge and continuing up and along said side panels adjacent their rear edges,
a pair of spaced, parallel shoulders on said side panels, said front panel and said bottom panel to define said channel for receiving a reinforcing means for reinforcing said basket, said channel having a widened section, said section extending from the underside of said bottom panel to a position on the lower portion of said side panels adjacent their rear edge, and wherein said channel widened section also receives a hinge means, attached to said reinforcing means, for hingedly attaching said basket to said horizon-

tal frame portion and to provide added stiffness to the basket,

said reinforcing means being adapted to attach said basket to said horizontal frame portion of the over-the-counter cart frame, and

a hinge member mounted to said horizontal frame portion for hingedly receiving said hinge means.

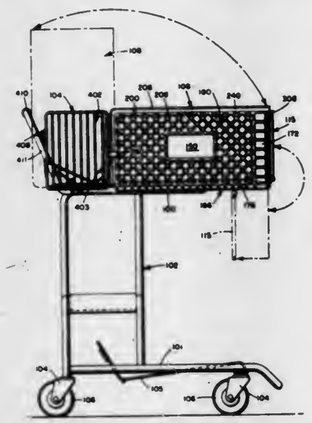
26. A cart having separate rear and front baskets for use with a wheeled cart frame, said cart having a horizontal frame portion to which said baskets are to be attached, said front basket being constructed of plastic open latticework and comprising:

a pair of opposed side panels, a bottom panel, and a front panel attached together along their contiguous edges,

a pair of spaced, parallel shoulders on said side panels, said front panel and said bottom panel to define a channel for receiving reinforcing means, said reinforcing means being adapted to attach said basket to said horizontal frame portion,

said rear basket having a rear and forward portion and being attached to said horizontal frame portion in such a manner to prevent relative movement of said rear basket with respect to said horizontal frame portion,

said rear basket comprising: a pair of opposed stationary side panels, a stationary rear panel, a stationary bottom panel



and a seat back panel, and further comprising rail means attached to said stationary side panels for pivotally attaching said seat back panel to said rear basket, a pair of spaced upwardly inclined rear posts having a handle carried by said posts, said posts extending through said stationary rear panel and being attached to said horizontal frame portion,

a child's seat pivotally attached to said stationary bottom panel at the rear portion of said rear basket,

said stationary rear panel comprising at least one leg opening for accomodating the legs of a child sitting in said child seat, said child seat adapted to be movable between a first position in juxtaposition to said stationary bottom panel and a second position covering said leg openings,

said seat back panel is movable between a first seat back position substantially perpendicular to said stationary bottom panel and a second seat back position and juxtaposition to said stationary bottom panel,

said stationary side panels having at the forward portion of said rear basket a horizontal cross-sectional configuration comprising an inwardly curved section, and,

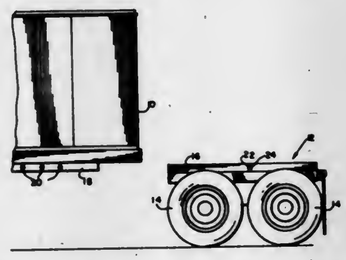
said rail means comprising a first bar having a first loop-shaped end defining a first opening, said first loop-shaped end being attached to said curved section of one of said stationary side panels, the other end of said first bar extending towards the rear portion of said rear basket and having a section thereof inclined upwardly.

4,273,347

INTERLOCK SYSTEM FOR A TRAILER AND BOGIE

David O. Hulse, Lionville, Pa., assignor to The Budd Company, Troy, Mich.

Filed Sep. 24, 1979, Ser. No. 77,897
Int. Cl.³ B62D 27/04
U.S. Cl. 280—90 B 9 Claims



1. In combination with a tractor driven trailer having a pair of tracks with spaced apertures secured thereto, a structure having a plurality of wheels for supporting said trailer and having a pair of rail elements for slidable mounting to the tracks of said trailer, said structure including parking brake means to inhibit rotation of the wheels on said structure and parking brake chambers for receiving air pressure from a source of air pressure to selectively overcome the braking of said parking brake means;

a locking mechanism comprising:

(a) guide means having an opening therein secured to said structure for receiving a pin element;

(b) a pin element secured to said structure and disposed to move within the opening of said guide means;

(c) means for moving said pin within the opening of said guide means from at least one of said rails into a selected one of said plurality of apertures in one of said tracks to secure said structure to said trailer;

(d) means for connecting air pressure from said source into the opening within said guide means;

(e) means for connecting said opening within said guide means to said brake chambers;

(f) means associated with said pin element including a pair of spaced flexible ring elements extending around said pin and dimensioned to compress when inserted into the opening in said guide means to provide a sealed chamber between said ring elements with said guide means within said opening;

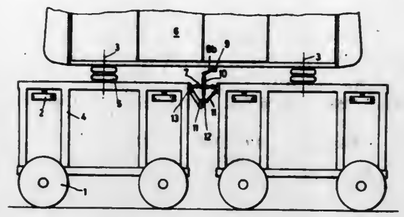
(g) said sealed chamber being alignable with said means for connecting air pressure and means for connecting said opening when said pin is inserted from one of said rails through said selected one aperture of one of said tracks to permit air pressure to pass from said source through said sealed chamber into said brake chambers, with no air pressure being applied from said source to said brake chambers when said pin is not inserted from said one rail through said selected one aperture in said one of said tracks and said sealed chamber is misaligned with respect to the means for connecting said air pressure and said means for connecting said opening.

4,273,348

ROLL STABILIZING APPARATUS FOR VEHICLES

Martin Middeldorf, Waltrop, Fed. Rep. of Germany, assignor to DeMag Aktiengesellschaft, Duisburg, Fed. Rep. of Germany

Filed Feb. 23, 1979, Ser. No. 15,604
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1978, 2807765
Int. Cl.³ B62D 63/04
U.S. Cl. 280—112 A 6 Claims



1. Apparatus for vehicles to accommodate centrifugal forces when the vehicle is traversing a curve, comprising

(a) a vehicle chassis;

(b) a pair of spaced undercarriages for said chassis;

(c) each undercarriage pivotal on a vertical axis on said chassis; the improvement characterized by

(d) first mechanical linkage means disposed between said spaced undercarriages and moving in response to relative horizontal displacement between said undercarriages when traversing curves; and

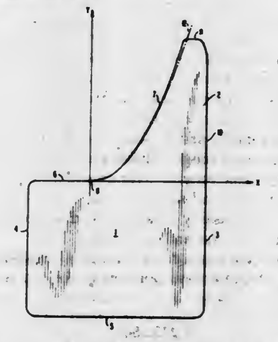
(e) second mechanical linkage means disposed between said first mechanical linkage means and said chassis for transposing said movement of said first mechanical linkage means into relative vertical displacement between said undercarriages and said chassis.

4,273,349

MUD FLAP

Knut Arenhold, Westend 7, 2000 Hamburg 52, Fed. Rep. of Germany

Filed Jul. 16, 1979, Ser. No. 57,681
Claims priority, application Fed. Rep. of Germany, Jan. 24, 1979, 2906545
Int. Cl.³ B62D 25/16
U.S. Cl. 280—154.5 R 5 Claims



1. A flexible mud flap for securing to the fender of a vehicle, comprising:

(1) a main body portion having a generally horizontally disposed lower edge, generally vertically disposed inside and outside edges, and a generally horizontally disposed upper edge;

(2) an additional body portion disposed generally vertically above the main body portion and having a generally parabolically curved inner edge such that the vertex of the parabola lies on the upper edge of the main body portion and the distance between the vertex and the inside edge of the main body portion is approximately 0.3 to 0.4 of the distance between the inside and outside edges of the main body portion, the half parameter of the parabola being between p=3.5 and p=4.0 centimeters, and said curved inner edge adapted to be attached to the fender welt;

whereby the mud flap is securable to curved fenders.

4,273,350

FOLDING WHEELCHAIR

Patrick Y. Williams, Golden Eagles Flats, 6 Fawcett St., Ballina, New South Wales, Australia (2478)

Filed Mar. 5, 1979, Ser. No. 17,704
Claims priority, application Australia, Mar. 15, 1978, PD3730
Int. Cl.³ B62M 1/14
U.S. Cl. 280—242 WC 14 Claims



1. In a folding wheelchair comprising first and second side frames mounted on wheels, a folding seat extending between the side frames, and toggle brace assemblies pivotally connected to and extending between the side frames, the improvement comprising providing said toggle brace assemblies as front, rear and bottom toggle brace assemblies respectively pivotally connected to and extending between front, rear and bottom portions of the side frames, each toggle brace assembly being foldably displaceable between a bracing position in which the side frames are held apart and a folded position in which the side frames move adjacent to one another, and holding means for the front and rear toggle brace assemblies, the holding means being engageable with the bottom toggle brace assembly when in the bracing position to hold the front and rear toggle brace assemblies against folding displacement until commencement of folding of the bottom toggle brace assembly.

4,273,351

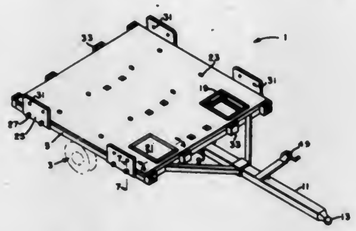
MULTIPURPOSE TRAILER

Michael G. Salamander, 16 Dunsbach Ferry Rd., R.D. #, Cohoes, N.Y. 12047

Filed Jul. 20, 1979, Ser. No. 59,558
Int. Cl.³ B60P 3/10
U.S. Cl. 280—414 R 1 Claim

1. A multipurpose trailer for use as a flat-bed trailer and being adaptable for conversion for use as a boat trailer, for use as a tent trailer, for use as a utility or box trailer, and for mounting and transporting motorcycles or snowmobiles, said trailer having a wheeled undercarriage and a drawbar, said wheeled undercarriage having a tubular frame carrying a fixed, flat-bed platform, said tubular frame having a frame support complementally receiving therein said drawbar, said frame support pivotally mounting said drawbar at its other end to permit said wheeled undercarriage to tilt upwards to facilitate loading of a boat, motorcycle or snowmobile onto said flat-bed platform, said fixed, flat-bed platform having formed therein zees

constituting open wheel wells for receiving therein in disposed relationship the front wheels of motorcycles, said wheel wells when not in use receiving flat cover plates to render said flat-bed platform flat, said frame carrying hold-down plates, said hold-down plates having aligned holes for mounting hold-down bars disposed in securing relationship with the skis of a snowmobile to mount said snowmobile, said trailer being convertible for use as a utility or box trailer by vertically upstanding side-forming and end-forming members, said holes of said hold-down plates being utilized to bolt thereto said side-forming members, said end-forming members having stakes, said frame having sockets or brackets, said sockets or brackets complementally receiving in mounting relationship said stakes of said end-forming members, said trailer being convertible for



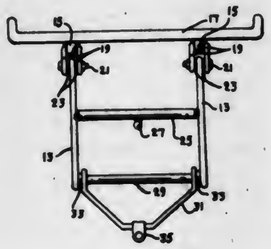
use as a boat trailer by means of keel-roller assemblies and cradles, said keel-roller assemblies having side walls for mounting disposition in said frame brackets, said cradles having depending stake-type legs receivable for mounting disposition in said frame brackets, said drawbar mounting a winch for providing a cable for raising a boat onto said trailer, securing same to said trailer and lowering same from said trailer, said trailer being convertible for use as a tent trailer by said frame having corner sockets or brackets for adjustable mounting disposition of leveling legs, said platform being leveled by appropriate vertical disposition of said leveling legs, said frame having formed therein frame-support sockets or brackets for receiving in mounting relationship the end of tent frames to thereby mount same.

4,273,352

COMBINATION PUSH AND TOW BAR

Lyle A. Jorgenson, 7420 S. 1025 E., South Weber, Utah 84403

Filed Jul. 18, 1979, Ser. No. 58,419
Int. Cl.³ B60D 1/06, 3/00
U.S. Cl. 280—481 2 Claims



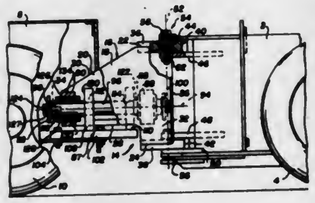
1. A combination push and tow bar for attachment to the front of a carrying vehicle comprising, a pair of mounting bars extending outwardly and upwardly from the front of the vehicle, said mounting bars being spaced apart in parallel relationship, means for pivotably attaching said mounting bars to the front of the vehicle, a first transverse brace member positioned between said mounting bars approximately half-way along the length thereof, a second transverse brace member positioned between said mounting bars at the outer ends thereof, a U-frame pivotably attached to said second transverse brace member at the outer ends of said mounting bars, a coupler attached to the outer apex of said U-frame for engagement with a ball on another vehicle, and a ball fixedly attached to said first transverse brace at the midpoint thereof, said coupler on said U-frame engaging said ball on said first transverse brace for locking said U-frame in the downward position when said push and tow bar with said mounting bars upwardly oriented is in the push mode of operation and not in engagement with a towing vehicle.

4,273,353

ARTICULATOR FOR INTERCONNECTING FRONT AND REAR VEHICLE CHASSIS PORTIONS

John Holmes, 3380 Francis Rd., Richmond, British Columbia, Canada

Filed Apr. 5, 1979, Ser. No. 27,528
Int. Cl.³ B60D 1/00
U.S. Cl. 280—483 16 Claims



12. An articulator for interconnecting front and rear chassis portions of a vehicle, comprising:

(a) a frame,

(b) a pair of spaced apart mounting holders affixed to said frame;

(c) a pair of insert enclosures each affixed to an associated one of said mounting holders;

(d) a pair of resilient inserts each bonded to an interior surface of an associated one of said insert enclosures;

(e) a pair of cylindrical mounting sleeves each fitted into an opening in and bonded to an associated one of said resilient inserts and such that the interior bores of said sleeves are axially aligned;

(f) a pair of spaced apart brackets affixable to one end of one of said front and rear chassis portions, said brackets having circular apertures of substantially the same diameter, as the diameter of said bores and when said brackets are affixed to said one chassis portion, they are axially aligned along a longitudinal axis of said one chassis portion, the spacing of said mounting holders and said brackets being such that said holders and said brackets are alignable along a common axis with one pair of said pair of holders and brackets interposed between the other of said pairs;

(g) a coupling shaft snugly, slidably receivable by said respective bores and apertures for providing support to said mounting holders and said brackets;

(h) means for releasably retaining said coupling shaft in position in said bores and apertures,

whereby said resilient insert dampens the transmission of vibrations from one of said chassis portions to the other.

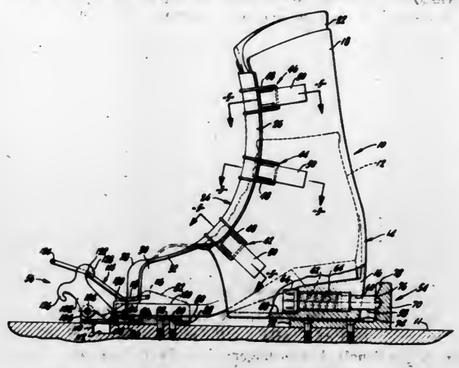
4,273,354

CONVERTIBLE SKI BOOT AND BINDING EQUIPMENT

Frederick W. George, P.O. Box 9246, Tahoe Valley Pharmacy, S. Lake Tahoe, Calif. 95731

Filed Feb. 21, 1979, Ser. No. 13,380
Int. Cl.³ A63C 9/08
U.S. Cl. 280—614 5 Claims

1. Combination ski boot and binding equipment for use with boots of the tour skiing type, including the combination of a ski boot shell, means for detachably mounting the shell about the boot for use during Alpine skiing and when the shell is detached the heel of the boot is released from the skii for use during tour skiing, heel binding means for releasably holding the heel of the shell on the ski for use during Alpine skiing, toe binding means operable between a first mode for releasably holding the toe of the boot on the ski for use during Alpine skiing and a second mode for locking the toe of the boot on the



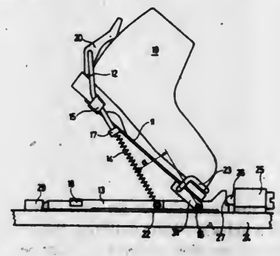
ski for use during tour skiing, said shell including a support for the heel of the boot and upstanding substantially rigid sides for supporting the sides of the boot, together with a tongue having an upper portion extending across the front of the boot and overlapping with the sides of the shell, said tongue including a lower portion extending over the toe of the boot and with the toe binding means locking the tongue lower portion.

4,273,355

SKI SAFETY BINDING

Ralf Storandt, Leonberg, Fed. Rep. of Germany, assignor to Vereinigte Baubeschlagfabriken, Gretsch & Co. GmbH, Leonberg, Fed. Rep. of Germany

Filed Sep. 28, 1979, Ser. No. 80,015
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1978, 2846914
Int. Cl.³ A63C 9/086
U.S. Cl. 280—614 23 Claims



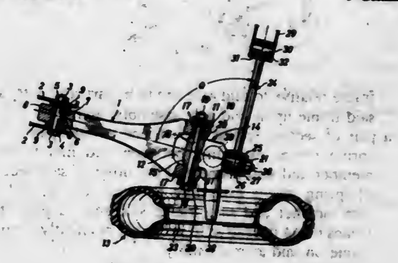
1. A ski safety binding which is convertible between downhill and touring configurations, the binding comprising a base plate connectable via a safety release mechanism to a ski, a sole plate to which a ski boot can be fastened arranged for pivotal movement about a transverse pivot axis on the base plate to define said touring configuration and at least one fitting provided on at least one side of the binding for securing the sole plate to the base plate in the downhill configuration, said fitting comprising a link incorporating a spring member at its forward portion and extending at least between a point of attachment at the forward part of the base plate and a point at which it is held to the side of the sole plate at the rear portion thereof, a projection on the base plate and which is disposed between said point of attachment and the point at which the link is held to the sole plate and somewhat below the latter and an abutment on the link which is located in front of and close to the projection when, to define the downhill configuration, the link is engaged beneath this projection.

4,273,356

REAR WHEEL SUSPENSION DEVICE FOR VEHICLES

Mamoru Sakata, Tokyo; Yozo Kami, Sakado, and Tetsuro Mitsui, Shiki, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 23, 1979, Ser. No. 68,759
Claims priority, application Japan, Dec. 28, 1977, 52/179474[U]
Int. Cl.³ B60G 3/20
U.S. Cl. 280—675 5 Claims



1. A rear wheel suspension device for vehicles comprising:

a radius rod extending substantially in the longitudinal direction of the vehicle body, said radius rod being inclined with respect to the axis of the vehicle body;

a lower arm extending substantially in the transverse direction of the vehicle body;

said radius rod and said lower arm each supporting at one end an axle member of a rear wheel;

said lower arm being inclined with respect to the axis of the rear wheel axle;

said radius rod extending at an angle of 90 degrees to said lower arm;

a rubber bush for supporting said radius rod on the vehicle body, said bush being formed to be relatively highly resilient in the back-and-forth direction of the rear wheel, and relatively substantially less resilient in the transverse direction of the rear wheel; and

a rubber bush for supporting said lower arm, said rubber bush being substantially non-resilient so as to substantially rigidly support said lower arm in the transverse direction of the rear wheel.

4,273,357

VEHICLE SUSPENSION SYSTEM

William B. Pashkow, Toledo, Ohio, assignor to Shelter-Globe Corporation, Toledo, Ohio

Filed Feb. 21, 1979, Ser. No. 13,207
Int. Cl.³ B60G 11/34
U.S. Cl. 280—697 17 Claims

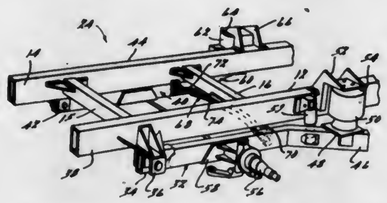
1. In a vehicle having a suspension system comprising a frame including first and second spaced elongated side rail members and transversely extending interconnecting members secured to said side rail members, an axle assembly, means provided on said axle assembly for securing ground engaging wheels thereto and suspension means for movably mounting said axle assembly to said vehicle frame, said suspension means comprising:

a first trailing arm member having one end pivotably secured to one of said side rails;

a second trailing arm member having one end pivotably secured to the other of said side rails;

means securing said axle assembly to said first and second trailing arms;

first spring means extending transversely relative to said frame and having opposite end portions connected to respective of said first and second trailing arm members, and an intermediate portion secured directly to an intermediate portion directly to said frame, said first spring means being operative to inhibit lateral movement of said



frame relative to said axle and to in part resiliently support said frame upon said axle assembly; and

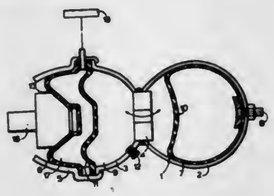
a pair of second spring means, one of said pair of second spring means extending between said first trailing arm member and said frame and the other of said second pair of spring means extending between said second trailing arm member and said frame, said second pair of spring means being operative to primarily resiliently support said frame on said axle assembly.

4,273,358

SUSPENSION MEANS FOR VEHICLES

Phillip A. Taft, Solihull, England, assignor to Girling Limited, Birmingham, England

Filed Apr. 2, 1979, Ser. No. 25,862
Int. Cl.³ B60G 11/30
U.S. Cl. 280—708 **5 Claims**



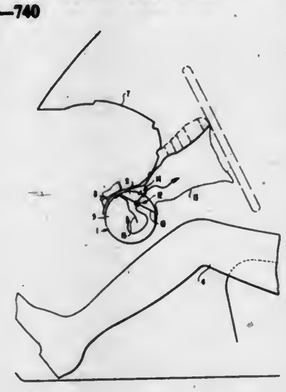
1. Hydro-pneumatic suspension means for a vehicle comprising in combination a housing assembly and a piston member, said housing assembly and said piston member being adapted for connection between sprung and unsprung parts of a vehicle and being relatively movable in response to relative movement between the sprung and unsprung parts, wherein the housing assembly incorporates a pressure chamber containing a trapped volume of gas under pressure which defines a gas spring for supporting the load on a wheel or axle of the vehicle, a working chamber containing a trapped constant volume of liquid, a height adjusting chamber to which liquid is supplied to compensate for changes in the pressure in the pressure chamber due to changes in the loading on the vehicle, a first flexible diaphragm for separating said gas in said pressure chamber from said liquid in said working chamber, a second flexible diaphragm for separating said trapped volume of liquid in said working chamber from any liquid in said height adjusting chamber so that no transfer of liquid between said working chamber and said adjusting chamber can take place, a third diaphragm disposed between said piston member and said housing assembly and through which oscillations between said piston member and said housing assembly are transmitted to said gas spring by displacement of said liquid in said working chamber, and damping valve means separate from said piston member and disposed within said working chamber, said liquid in said working chamber being forced through said valve means to damp out oscillations of said gas spring in response to relative movement between the sprung and unsprung parts, and wherein a supply of liquid of which the pressure can be altered to compensate for changes in the pressure in said pressure chamber due to changes in the loading on the vehicle is provided for supply to said height adjusting chamber, whereby a ride height for the vehicle can be maintained substantially at a constant value.

4,273,359

DEFORMATION MEMBER ARRANGED IN THE IMPACT AREA OF THE KNEE

Hansjürgen Scholz, Echterdingen; Hans-Gerd Backhaus, Stuttgart, and Luigi Brambilla, Böblingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz AG, Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 1,165, Jan. 5, 1979, which is a continuation of Ser. No. 768,344, Feb. 14, 1977. This application Dec. 20, 1979, Ser. No. 105,706
Claims priority, application Fed. Rep. of Germany, Feb. 19, 1976, 2606640
Int. Cl.³ B60R 21/08
U.S. Cl. 280—740 **19 Claims**



1. An impact absorbing device for engagement by knees of an occupant of a vehicle during collision, the device comprising a plastically deformable, hollow body member extending in a vehicle transverse direction, said member having an impact engaging surface facing said knees, said surface having a rounded-off cross sectional profile and vertically extending corrugations whereby said member yields only locally upon engagement by said knees.

15. An impact absorbing device according to claim 1, wherein a channel means is located outside of the impact engaging surface and is provided with openings directed toward the hollow space, said channel means being adapted to supply a gas to the hollow space.

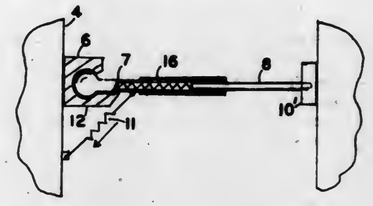
19. An impact absorbing device according to claim 15, wherein openings directed toward a head space of the vehicle are provided in the channel means through which the gas passes over into an inflatable bag serving for absorbing an upper body of a passenger of the motor vehicle.

4,273,360

SAFETY BAR FOR FIRE TRUCKS

John McLoughlin, 92 Mobrey La., Smithtown, N.Y. 11787; Yehuda Rotblum, 7 Williams Blvd., Lake Grove, N.Y. 11755, and Neocles Athanasiades, 2 Bluff La., Setauket, N.Y. 11785

Filed Feb. 7, 1979, Ser. No. 10,178
Int. Cl.³ B60R 21/10
U.S. Cl. 280—751 **4 Claims**



1. Safety bar for a truck of the type having an open space behind the cab for carrying men comprising:

a bar to protect men from falling out from said space,

means to mount the bar to extend across the space and for movement upwardly and inwardly with respect to the truck,

and means to restrain the bar from movement downwardly from horizontal position and outwardly with respect to the truck,

wherein the bar comprises:

inner and outer telescoping portions,

means to spring load the inner portion to push it to the extended position,

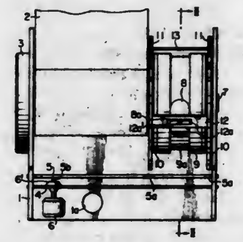
and means to spring load the bar in a downward direction and means to spring load the bar in an outward direction against stops.

4,273,361

SEAT BELT SYSTEM FOR VEHICLE

Toshihiro Takei, Okazaki; Satosi Kuwakado, Aza Mitsuishi; Eiji Takakuwa, and Toshiaki Shimogawa, both of Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Jul. 31, 1978, Ser. No. 929,782
Claims priority, application Japan, Aug. 5, 1977, 52-105467[U]
Int. Cl.³ B60R 21/10
U.S. Cl. 280—805 **5 Claims**



1. A seat belt system for a vehicle comprising:

a seat belt for restraining an occupant;

seat belt anchor means adapted to be firmly secured to a vehicle body; and

an impact energy absorbing device interposed between said seat belt and said seat belt anchor means to connect them, said impact energy absorbing device comprising

a cutter having a cutting edge formed with an arcuate portion at its shearing part,

a member connected to said seat belt to be moved thereby when collision occurs and disposed in juxtaposed relation to said cutter and having a recessed U-shaped groove formed therein to provide a portion of constant reduced thickness adapted to be sheared by said cutter during movement of said member against said cutter, and

a cutter supporting member for supporting said cutter such that said cutter is held stationary when collision occurs, whereby said cutter shears said member when the vehicle collides to thereby absorb the impact energy acting on the seat belt,

said cutter further having a first guide portion disposed flat in said U-shaped groove and extending therein in a direction opposite to said movement of said member so as always to be upstream of said cutting edge to keep said cutter in proper cutting position,

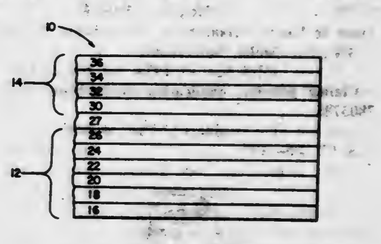
said cutter further having a second guide portion on the opposite end of said cutting edge from said first guide portion and extending at an angle thereto with an arcuate surface which continues the said arcuate portion of said shearing part for coiling the shorn reduced thickness portion into a tight coil on the side of said reduced thickness portion opposite said U-shaped groove.

4,273,362

INFORMATION-BEARING ARTICLE FOR CONVEYING INFORMATION WHICH CANNOT BE SURREPTITIOUSLY DETECTED

Lee A. Carrier, Longmeadow, and Leon G. Carpenter, Wilbraham, both of Mass., assignors to Ludlow Corporation, Needham Heights, Mass.

Division of Ser. No. 685,646, May 12, 1976, Pat. No. 4,120,445. This application Apr. 21, 1978, Ser. No. 898,658
Int. Cl.³ B42D 15/00
U.S. Cl. 283—6 **10 Claims**



1. An indicia-bearing article of the type wherein said indicia is not readily detectable except by irreversible alteration of the article, said article comprising

(a) an indicia-bearing sheet, said sheet comprising

(1) a substrate sheet forming a mechanically stable means for manipulating and handling said indicia-bearing sheet and

(2) a release coating between said substrate sheet and an indicia-bearing surface of said indicia-bearing sheet;

(b) a cover sheet that is adhesively laminated to said indicia-bearing sheet and forms means to hide said indicia;

(c) said release coating forming means to cause preferential delamination of said article along a plane formed by said release coating before any delamination takes place at along said indicia-bearing surface.

4,273,363

INSULATED FLEXIBLE PIPE COUPLING

Richard R. Angel, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

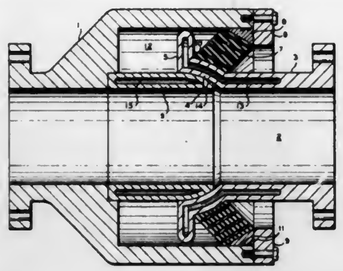
Filed Jan. 27, 1979, Ser. No. 52,836
Int. Cl.³ F16L 27/10, 59/14
U.S. Cl. 285—47 **13 Claims**

1. A flexible pipe coupling comprising:

an annular housing with a central cavity and a housing end flange,

a nipple partially submerged in said cavity with the nipple 5 having a spherically flared end on the submerged portion, and a radially outwardly extending flange on the lower extremity of the submerged, flared portion of the nipple,

an annular, elastomeric seal assembly located exteriorly of the flared end of the nipple and extending between the



nipple end and the housing end flange thereby closing said cavity,

means located internally of the flared end wherein the means bridges the nipple and housing thereby providing a constant inside diameter for said coupling,

insulation means disposed in the nipple to thereby reduce the heat flow to the elastomeric seal located outside the nipple of the flexible coupling from fluid passing through the pipe coupling.

4,273,364

BRANCH PIECE

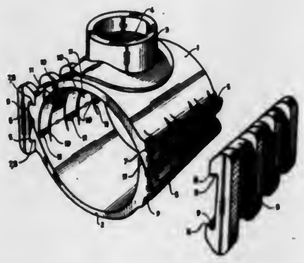
Tinus de Lange, Vroomshoop, Netherlands, assignor to Wavin B.V., Em Zwolle, Netherlands

Filed Apr. 10, 1979, Ser. No. 28,829

Claims priority, application Netherlands, Apr. 10, 1978, 7803785

Int. Cl.³ F16L *41/00*

U.S. Cl. 285—197 **6 Claims**



1. A branch piece for providing pipe-lines with branches, comprising:

a first part with a branch opening in a wall surface;

a second part, together with the first part, adapted to surround a pipe-line;

C-shaped means for connecting said first part and said second part together on the outside;

each part being provided with axially spaced projections in the vicinity of opposite coupling edges adapted to support said connecting means;

said projections being adapted to fit in axially spaced recesses of each part in the vicinity of said opposite coupling edges of each part and also being adapted to co-operate with said connecting means;

wherein the projections have the shape of wedge-shaped tongues while the recesses interacting therewith have complementary wedge-shapes;

wherein, in cross-section of a cylindrical housing formed by the two parts, said wedge-shaped tongues and recesses extend along the cylindrical housing;

wherein the opposite coupling edges co-operating with the connecting means are provided with grooves, the bottom of said grooves being able to support the connecting means, said grooves being located in the closing or connecting direction of the cylindrical housing above the roots of the tongues and the entrances of the recesses; and

wherein the grooves corresponding to a wedge-surface of the connecting means extend slopingly in the longitudinal direction of the cylindrical housing, said sloping direction of the grooves on each opposite side of each separate part being identical.

4,273,365

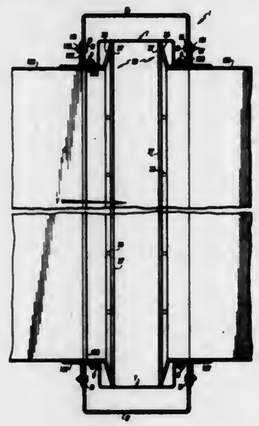
EXPANSION JOINT AND FABRIC THEREFOR

Donald K. Hagar, 2439 Walnut St., Allentown, Pa. 18104

Filed May 18, 1979, Ser. No. 40,736

Int. Cl.³ F16L *51/02*

U.S. Cl. 285—229 **30 Claims**



1. An expansion joint for accommodating relative movements between a plurality of elements through which a fluid flows, the joint comprising:

(a) a flexible fabric portion defining an enclosed passage through which fluid may flow;

(b) first means for attaching said fabric portion to one of the elements through which the fluid flows;

(c) second means for attaching said fabric portion to another of the elements through which the fluid flows;

(d) said fabric portion extending between said first and second attaching means, said fabric portion including:

(1) a first layer of high temperature resistant material;

(2) a second layer of high temperature resistant material;

(3) an inner metallic foil disposed between said first and second layers of high temperature resistant material;

(4) means for preventing creasing and rupture of said inner metallic foil, due to excessive folding and wrinkling of said fabric portion, by partially stiffening said layers of heat resistant material to such an extent that said excessive folding and wrinkling is prevented but not to such extent that relative movement between the plurality of elements is hampered; and

(5) said preventing means including a first metallic foil, other than said inner metallic foil, affixed to said first layer of high temperature resistant material to provide a first foil-fabric composite and a second metallic foil, other than said inner metallic foil, affixed to said second layer of high temperature resistant material to provide a second foil-fabric composite, said first and second metallic foils each having a thickness greater than 0.0005 inches.

4,273,366

TWO-PART FLUID CONDUIT WITH MEANS FOR CONNECTING THE SECTIONS THEREOF

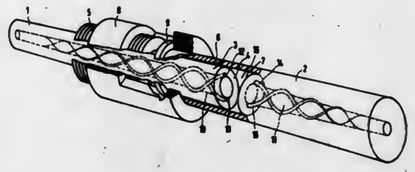
Olov Ekström, Brottby, and Kenth Nilsson, Akersberga, both of Sweden, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 17, 1978, Ser. No. 887,480

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1977, 2715270

Int. Cl.³ F16L *25/00*

U.S. Cl. 285—332 **5 Claims**



1. A two-part fluid conduit assembly comprising first and second conduit sections with proximate connected ends and each having a remote end remote from the proximate end thereof, said proximate ends having means providing a sealed connection of said conduit sections, the proximate end of the first section being tapered externally and having an inner wall defining a fluid passage therein, and an annular terminal surface, the proximate end of the second conduit section having an internally conical section tapering off at its proximate end, having an inner wall defining a fluid passage and having an interior ledge at which the fluid passage terminates, the proximate end of the first conduit section fitting into the proximate end of the second conduit section so that with a tight connection of the conduit sections the annular terminal surface is in spaced relation from the interior ledge to provide a fluid receiving space (16) therebetween, said first and second conduit sections together forming a fluid conduit to be filled with a coupling fluid for transmitting a pressure to be measured, one of said conduit sections when filled with said coupling fluid leading via the remote end thereof to a patient for the sensing of the pressure of body fluids, the other of said conduit sections when filled with said coupling fluid leading via the remote end thereof to a pressure sensor,

(a) the inner walls defining the fluid passages of said first and second conduit sections being of constant and equal diameter over the entire extent of said fluid conduit between said remote ends except at said fluid receiving space,

(b) the fluid receiving space (16) directly adjoining the fluid passages of said constant and equal diameter, an interior wall of the proximate end of said second conduit section defining an outer margin of said fluid receiving space (16) and being of larger diameter than the constant and equal diameter of said fluid passages (10, 11),

(c) at least one of said conduit sections (1, 2) having helical groove means (12, 13, 14, 15) formed along the inner wall thereof of said constant and equal diameter and functioning solely to produce rotation of the coupling fluid during filling of said fluid conduit and not for mechanical connection of the fluid conduit,

(d) means whereby said helical groove means are of fixed length along said fluid conduit independent of the proximity of the fluid passages of said constant and equal diameter and independent of the degree of tightness of said tight connection, and the fixed length and location of said helical groove means relative to said fluid receiving space (16) being such that the coupling fluid when filled into said fluid conduit from one of said remote ends is caused to rotate as it flows through said fluid receiving space to insure removal of air bubbles from the entirety of said fluid conduit.

4,273,367

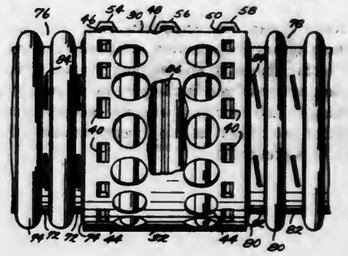
PIPE COUPLING

Gary E. Keeney; Allen K. Zarcher, and Ervin C. Loomis, all of Greene, Iowa, assignors to Plasta-Plug, Inc., Greene, Iowa

Filed Feb. 21, 1978, Ser. No. 879,627

Int. Cl.³ F16L *21/06*

U.S. Cl. 285—419 **22 Claims**



1. A one-piece pipe coupling for joining abutting sections of annularly corrugated non-metallic pipe having annular grooves and lips comprising:

(a) a substantially rectangular non-metallic pipe coupling body having two ends and a resilient center portion radially deformable to form a sleeve member;

(b) a first single row of ribs disposed along the length of said coupling body and adjacent to a first side of said coupling body;

(c) a second single row of ribs disposed along the length of said coupling body and adjacent to a second side of said coupling body and substantially parallel to said first single row of ribs;

(d) at least two strap projections integral with one end of said coupling body;

(e) at least two strap engaging openings integral with the other end of said coupling body; and

(f) independent tensioning and securing means provided in said strap projections and strap engaging openings cooperating with said first single row of ribs and said second single row of ribs and said resilient center portion to tension and secure said sleeve member around each abutting section of annularly corrugated pipe to the maximum extent permitted by the outside diameter and groove configuration of said pipe by forcing said first single row and second single row of ribs in securement with one corrugation of each abutting section of said pipe while providing a flexible joint by allowing cooperation between said first single row and second single row of ribs and said resilient center portion.

4,273,368

DUAL LATCHING MECHANISM FOR A FLEXIBLE DECK LID

Akira Tanaka, Northridge, Calif., assignor to American Safety Equipment Corporation, San Fernando, Calif.

Filed Jul. 6, 1979, Ser. No. 55,183

Int. Cl.³ B60C *3/26, 9/00*

U.S. Cl. 292—53 **13 Claims**

1. A dual latching mechanism for latching two spaced locations of a flexible lid to a pair of similarly spaced anchors of a compartment to which said lid is movably mounted, said latching mechanism comprising:

first and second latching means for latching to said anchors

said first and second latching means being individually actuated to latching positions by each striking said anchors;

mounting means for mounting said latching means to said flexible lid at spaced locations thereon; and

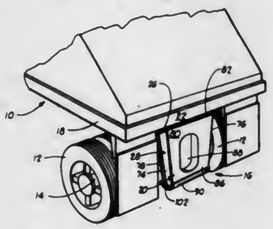


latch control means connected between said first and second latching means for allowing independent movement of said latching means to said latching position while limiting latching action of said latching means to concurrent only latching to said sanchors, whereby independent latching of either one of said latching means to one only of said anchors is prevented.

4,273,369
REVERSIBLE PUSH BLOCK-REAR BUMPER ASSEMBLY

Glen F. Rosenbaum, Elk Point, S. Dak., assignor to CMI Corporation, Oklahoma City, Okla.

Filed Aug. 6, 1979, Ser. No. 63,959
Int. Cl.³ B60R *19/00*
U.S. Cl. 293—1 **5 Claims**



1. A reversible push block-rear bumper assembly for a wheeled vehicle which comprises:

(a) support means secured to the underside of the vehicle in close proximity to the rear end portion of the vehicle, said support means having a forwardly inclined downwardly extending support surface;

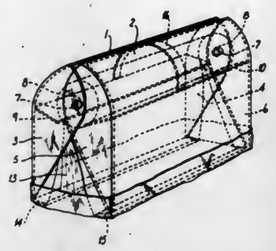
(b) block means having an upper end portion and a lower end portion maintained in a separate spatial relationship, said upper end portion having an inclined connecting surface for mating with the support surface of said support means so that in a first position said block means extends downwardly from said support means in a plane substantially perpendicular to the longitudinal axis of the vehicle and in a second position extends rearwardly from the rear end portion of the vehicle; and

(c) first fastening means for detachably securing the inclined connecting surface of said block means to the support surface of said support means so that the block means is positioned in a selected one of the first and second positions.

4,273,370
DEVICE FOR COLLECTING AND REMOVING DOG DROPPINGS OR THE LIKE

Per Kjaer, Nedre Skogvei 4B, Oslo 2, Norway

Filed Oct. 10, 1979, Ser. No. 83,549
Claims priority, application Norway, Oct. 10, 1978, 783418
Int. Cl.³ A01K *29/00*
U.S. Cl. 294—1 B **9 Claims**



1. A device for collecting and removing dog droppings or the like, comprising:

a pair of gripping members for facilitating the lifting and gathering of said droppings or the like which members are hingedly connected to each other by a hinge connection and able to be moved towards each other at free ends of the gripping members remote from said hinge connection,

a bag of flexible material having an open end with a mouth portion, said bag in its operational position being located in the space between said gripping members and with its open end folded with its mouth portion about said free ends of the gripping members, and

a holding means arranged between said gripping members at a distance from the free ends thereof and arranged to receive a number of said bags, so that the bags may successively be extracted from said holding means for disposition in said operational position.

4,273,371
CLAW HOOK ASSEMBLY

Edward R. Behnke, Lockport, and Floyd W. Sanderson, Grand Island, both of N.Y., assignors to Columbus McKinnon Corporation, Tonawanda, N.Y.

Filed Jun. 20, 1979, Ser. No. 50,180
Int. Cl.³ B66C *1/34*; F16G *15/04*
U.S. Cl. 294—78 R **7 Claims**



1. In an articulated load bearing connecting device adapted to engage at each of its opposite ends a link of an interconnecting link type load chain, the improvement which comprises in combination:

a. a first chain grappling member having a first open end adapted to removably engage a load chain and a second end having an eye;

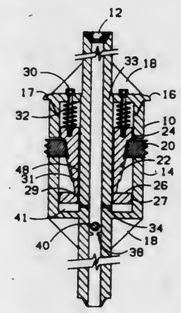
b. a second chain grappling member having a first open end adapted to removably engage a load chain and a second end formed in a bifurcated clevis adapted to receive said second end of said first chain grappling member between the opposite portions of said bifurcated clevis, said clevis including a laterally extending passage through each opposite portion of said bifurcated clevis whereby said passage and said eye may be brought into axial alignment; and

c. a load pin extending through said laterally extending passage and said eye to interconnect said first and second chain grappling members in an articulated joint.

4,273,372
APPARATUS FOR USE IN LOWERING CASING STRINGS

Adel A. Sheshtawy, Norman, Okla., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Continuation of Ser. No. 942,243, Sep. 14, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,603
Int. Cl.³ E21B *31/20*
U.S. Cl. 294—86.15 **7 Claims**



7. A quick release running tool for offshore operations comprising:

a hollow housing having radial openings in the walls thereof;

a hollow guidepost running through said housing and forming an annulus between the exterior of the post and the interior of the housing;

segmented elements fitted radially in said openings;

means connected to said segmented elements to radially extend or retract said elements beyond or within the outer wall of said housing responsive to fluid pressure within said hollow guidepost;

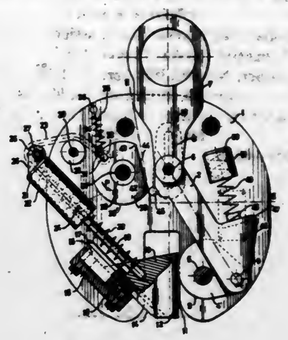
the exterior end of each element having threads thereon aligned with the threads on the other exterior ends forming a discontinuous screw thread to enable release of said elements by rotation of the tool in event said means fail to retract said elements.

4,273,373
HOIST CLAMP

Martinus B. van de Wetering, Zeist, Netherlands, assignor to Interproduct B.V., Driebergen, Netherlands

Filed Jun. 4, 1979, Ser. No. 44,972
Claims priority, application Netherlands, Jun. 8, 1978, 7806250
Int. Cl.³ B66C *1/48*
U.S. Cl. 294—101 **8 Claims**

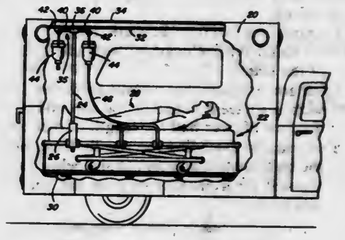
1. An improved hoist clamp for clampingly gripping plate-shaped pieces, comprising an eccentric round clamping segment constituting one lever of a spring operated toggle lever system on which at the other end the hoisting eye operates, said segment co-operating with a counter clamping segment as is part of a movable wedge and a locking system associated with said wedge; said improvement comprises: having said wedge co-operating with a stationary block, and being connected, by means of a flexible connection, with said locking system.



4,273,374
ANCHORING DEVICE FOR INTRAVENOUS BOTTLE HOLDER

Stanley J. Portman, 185 Essex St., Melrose, Mass. 02176

Filed Jan. 3, 1979, Ser. No. 787
Int. Cl.³ A61G *3/00*
U.S. Cl. 296—19 **8 Claims**



1. An emergency vehicle means comprising:

a support platform;

a roof in fixed relation with said support platform;

patient support means disposed on said support platform;

a support pole secured to said patient support means and projecting upwardly therefrom, said support pole having an upper distal end projecting upwardly away from said patient support means towards said roof;

bottle holder means attached near said upper distal end of said support pole and having a pair of oppositely extending radial arms, each of said arms having a loop formed at the outward distal end thereof for holding one or more dependingly attached bottles; and

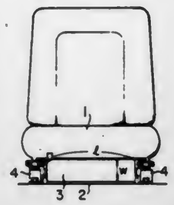
anchoring means for removably attaching said support pole to said roof, for reducing swaying movement of said support pole and said bottle holder means and for substantially preventing rotation of said bottle holder means, said anchoring means comprising a disc-shaped plate having a central recess for receiving said upper distal end of said support pole, sad disc-shaped plate having a pair of mounting holes for fixed mounting thereof to an interior surface of said roof and a diametric slot for receiving said oppositely extending radial arms of said bottle holder means.

4,273,375

DEVICE FOR PREVENTING AIR-CONDITIONING WARM OR COOL BLAST FROM BLOWING THROUGH UNDER A SEAT

Fumiaki Kobayashi, Toyota, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Division of Ser. No. 895,385, Apr. 11, 1978. This application Nov. 30, 1979, Ser. No. 98,888
Claims priority, application Japan, Dec. 1, 1977, 52/161363
Int. Cl.³ B62D 27/04
U.S. Cl. 296—65 R 17 Claims



1. In a vehicle having a floor and a seat, spaced above the floor, which is adjustably slidable forwardly and rearwardly on tracks, the improvement comprising a shield for blocking the flow of cooling or heating air from locations forward of the seat beneath the seat between it and the floor to a region to the rear of the seat, said shield comprising:

a one-piece substantially imperforate plate, U-shaped in plan, having upper and lower horizontal edges, said lower edge being fixedly secured to the floor, said plate having a width, throughout substantially its entire extent, substantially equal to the spacing of the seat from the floor and extending vertically therebetween, said U-shaped plate including:

a central bight section, adjacent to and below the front of the seat, having a length substantially equal to the width of the seat,

a first arm extending rearwardly from one end of the bight section adjacent to and below one side of the seat for a distance of over half the length of that one side, and

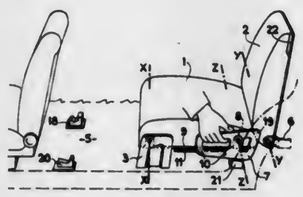
a second arm extending rearwardly from the other end of the bight section adjacent to and below the other side of the seat for a distance of over half the length of that other side.

4,273,376

CONVERTIBLE SEAT STRUCTURES FOR AUTOMOBILE VEHICLES

Pierre Duguet, Feucherolles, and Christian Robert, Rueil Malmaison, both of France, assignors to Automobiles Peugeot and Societe Anonyme Automobiles Citroen, both of Paris, France

Filed Dec. 28, 1979, Ser. No. 108,001
Claims priority, application France, Jan. 29, 1979, 79 02206
Int. Cl.³ B60N 1/02
U.S. Cl. 296—65 R 8 Claims



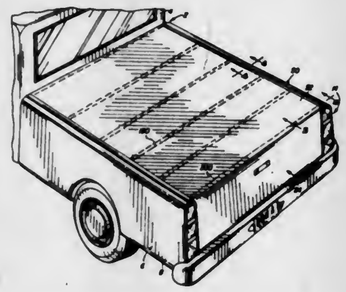
1. A convertible seat structure, in particular for an automobile vehicle, the seat structure being convertible from a normal position of use to a utility position for increasing loading space and comprising a seat mounted to be pivotable through substantially 180° about a transverse axis located in the vicinity of a front part of the seat, a backrest which is capable of being swung over forwardly through substantially 90° about a transverse axis located adjacent a lower part of the backrest, a mechanism comprising an actuating handle located on at least one side of the seat structure and mounted on the seat to pivot about a transverse axis, and a protecting panel which is disposed flat under the seat in said normal position of use and is raisable so as to be roughly perpendicular to the seat in said utility position, the panel being associated with the handle for being shifted by the handle, and the handle defining a support surface for the seat in said utility position.

4,273,377

TONNEAU COVER APPARATUS FOR PICKUP TRUCK VEHICLES

Ronald R. Alexander, 5301 W. Saguaro, Glendale, Ariz. 85304

Filed Apr. 9, 1979, Ser. No. 28,218
Int. Cl.³ B60P 7/02
U.S. Cl. 296—100 14 Claims



1. In a pickup truck having a cab, a bed extending rearwardly from the cab, two sides extending upwardly from the bed, and a tailgate remote from the cab; tonneau cover apparatus extending between the sides and from the cab to the tailgate, for covering the bed, comprising, in combination:

track means secured to the sides of the pickup truck;

bearing means disposed in the track means and movable therein;

bracket means secured to the bearing means and movable therewith in the track means, and including

plate means,

a slot extending through the plate means,

fastening means extending through the slot and secured to the bearing means for securing the bracket means to the bearing means for moving the bracket means and the bearing means in the track means and movable in the slot for providing axial, lateral, and vertical movement of the plate means of the bracket means relative to the bearing means; and

cover means secured to the plate means and movable with the bracket means and the bearing means for selectively covering and uncovering the bed of the pickup truck.

4,273,378

VEHICLE DOOR, ESPECIALLY FOR A DRIVER'S CAB

Peter Kramer, Spich, Fed. Rep. of Germany, assignor to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Jul. 24, 1978, Ser. No. 927,297
Claims priority, application Fed. Rep. of Germany, Jul. 22, 1977, 2733166
Int. Cl.³ B60J 5/04
U.S. Cl. 296—146 9 Claims

1. A vehicle door for an operator cab of a vehicle used for

agricultural and construction purposes which is composed of elements rigidly attached to each other to form a unitary frame structure which includes an outer frame section, and an inner frame section fixed to said outer frame section, at least one of said frame sections being provided with web means having surfaces bracing said inner and outer frame sections with regard to each other in transversly of said inner and outer frame sections, a portion of said web means of one of said frame sections being provided with bracing surfaces engaging oppositely located bracing surfaces of the other one of said two frame sections, said inner and outer frame sections both being of glass fiber reinforced synthetic material, the bracing surfaces of said web means extending transversly of an adjacent portion of the adjoining web means, each frame section comprising an upright front arm and rear arm and also an upper arm and lower transverse arm interconnecting said upright arms, for absorbing transverse and diagonal forces therebetween, the bracing surfaces of said web means being located within the region of one of said upper and lower transverse



arms, the bracing surfaces being firmly connected to one of said transverse arms, said web means having conical guiding surfaces, the conical guiding surfaces of the web means belonging with one of said frame sections having those ends of said web means which are adjacent the other frame section provided with flange means for bracing engagement with said other frame section, said web means having a U-shaped cross section and legs of said U-shaped cross section comprising said conical guiding surfaces, reinforcing means between the legs of said web means for receiving tightening screws therein, at least two of said web means having a U-shaped cross section and having hinge holding means between the legs thereof for receiving hinge means for said vehicle door, said inner frame section being provided with first web means of U-shaped cross section, and the outer frame section being provided with second web means of U-shaped cross section, the legs of said first and second web means being in bracing engagement with each other, said hinge holding means being provided between the legs of said second web means and being fastened thereto with transfer of support forces of hinge means therewith.

4,273,379

COLLAPSIBLE CHAIR

Donald J. Borichevsky, Wells, Vt., assignor to The Telescope Folding Furniture Co., Inc., Granville, N.Y.

Filed Sep. 5, 1979, Ser. No. 72,160
Int. Cl.³ A47C 4/32
U.S. Cl. 297—56 8 Claims

1. A collapsible chair comprising a pair of frames disposed in spaced parallel relation, each frame having a pair of legs disposed in hinged crossing relation to each other to permit movement of said legs between a closed over-lapping position and an opened position relative to each other, one of said legs of each said pair of legs extending upwardly to a higher plane than the other leg of said pair of legs in said opened position;

a plurality of cross-bars interconnecting said frames together, said cross-bars including a front cross-bar secured to an upper end of each said other leg, an intermediate cross-bar secured to intermediate portions of each said one leg, and a rear cross-bar secured to an upper end of each said one leg;



a strip of material secured to and over said front, intermediate and rear cross-bars; and

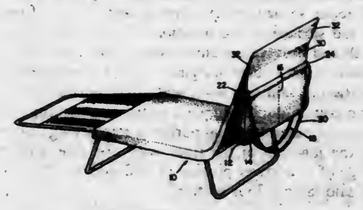
a pair of struts, each strut being hinged to said upper end of a respective said other leg and releaseably secured to said upper end of a respective one leg biasing said legs apart and imparting a pre-stress to said material in said opened position.

4,273,380

BEACH ACCESSORY

Margaret W. Silvestri, 18 Arbor Ct., Peabody, Mass. 01960

Filed Aug. 27, 1979, Ser. No. 70,382
Int. Cl.³ A47C 31/10
U.S. Cl. 297—191 5 Claims



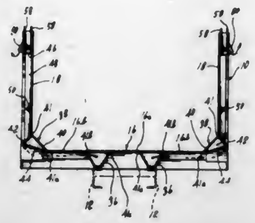
1. A beach accessory in the form of a combined beach towel—chair cover—tote bag, comprising an elongated strip of absorbent towelling having substantially superimposed pockets on its opposite major surfaces at one end, at least one of said pockets being large enough to store the entire length of towelling not covered by the pockets, said pockets opening inwardly of the towelling and having stringing through casings along their free edges to allow closure thereof to form a tote bag for said towelling and other articles to be carried, said free edges, when said stringings therein are not under tension, running perpendicular to the longitudinal axis of said towelling and being of substantially the same length as the width of said towelling adjacent said free edges, said accessory further comprising tucks in said towelling near said pockets, said tucks defining the corners of a fold adapted to fit said accessory to the back of a chair or chaise lounge, while allowing said pockets to hang from said back to provide storage, said tucks being short enough and said fold being narrow enough to allow said accessory to be placed substantially flat on a flat surface.

4,273,381

DUMP BODY FOR MOUNTING ON THE FRAME OF A VEHICLE

Jean-Marie Bibeau, 109 Houle Blvd., St. Gabriel de Brandon, and Marcel Bibeau, 4471, Castel d'Autray, St. Felix de Valois, both of Canada

Filed Oct. 27, 1978, Ser. No. 955,386
Int. Cl.³ B60P *1/00*
U.S. Cl. 298—1 H **1 Claim**



1. A dump body for mounting on the frame of a truck comprising:
(a) a floor, side walls and a front wall secured together to form an integral unit;
(b) a rear gate closing the back of the unit; and
(c) wherein the floor comprises an elongated central plate forming a central, flat floor section, and a pair of elongated lateral plates, each of smaller thickness than said central plate, each lateral plate forming a lateral floor section co-planar with said central floor section and the inner marginal portion of each lateral plate adjacent said central plate being overlapped by said central plate and bent to form a generally V-shaped longitudinally-extending beam having the edges of its legs welded to the underside of said central plate, each of said beams resting directly on the frame of the truck to fully support the dump body, each lateral plate having an outer marginal portion which has its free edge welded to a respective side wall, said outer marginal portion inclined upwardly at an angle of about 45 degrees relative to said floor to form an inclined surface at the junction of the floor with the side wall and prevent accumulation of dust and gravel at said junction, said outer marginal portion overlying the lower portion of said side wall, said lower portion bent to form two mutually-inclined plate sections constituting with said inclined outer marginal portion a reinforcing hollow beam at the junction of the floor with one side wall, the free edge of said lower portion of said side wall being welded to said lateral floor section.

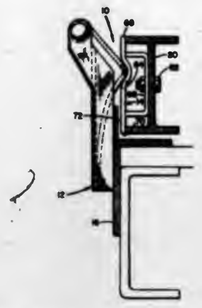
4,273,382

BODYGUIDE AND HOLDDOWN SYSTEM USABLE WITH DUMP TRUCKS AND TRAILERS

Robert W. Benson, Rte. 4, Box 338, Parkersburg, Wood County, W. Va. 26101

Filed Jul. 19, 1979, Ser. No. 58,836
Int. Cl.³ B60P *1/28*
U.S. Cl. 298—38 **10 Claims**

1. A bodyguide and holddown system for use with a dump body mounted on a vehicle, said system having first and second complementary components that interact with each other to center the dump body on a chassis of the vehicle, releaseably hold the dump body on the chassis, and oppose lateral movement of the dump body with respect to the chassis;
said first complementary component being affixable to one of the dump body and the chassis and comprising:
a generally U-shaped member having a portion thereof affixable to one of the dump body and the chassis and openings formed in upper portions thereof for receiving a bolt;
a bolt extending through said openings and connected to said U-shaped member; and
a spring member connected to said U-shaped member by said bolt and having a horizontally extending portion thereof forming an engagement surface; and
said second complementary component being affixable to the other of the dump body and the chassis and comprising a generally vertically extending member having a horizontally extending shaped portion formed therein;



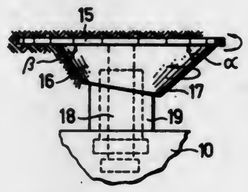
said first and said second complementary components being affixable to the dump body and the chassis in such manner that contact between said spring member and said vertically extending member during movement of the dump body towards the chassis tends to center the dump body on the chassis and engagement between said engagement surface and said horizontally extending shaped portion releasably holds the dump body on the chassis.

4,273,383

MINERAL WINNING MACHINES

Hans-Theodor Grisebach, Unna, Fed. Rep. of Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Mar. 2, 1979, Ser. No. 16,745
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809132
Int. Cl.³ E21C *27/00*
U.S. Cl. 299—23 **10 Claims**



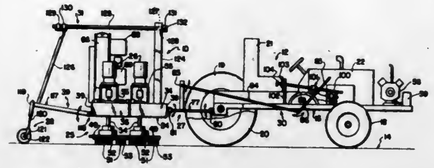
1. A mineral winning machine guided for movement back and forth alongside a mineral face and equipped with a plurality of separate cutting devices which are staggered and serve to cut into the mineral face to different depths as the machine progresses along the mineral face, wherein: each cutting device is composed of rotary cutting means for initially cutting into the mineral face and rotary wedging means for detaching mineral in a wedging action after the initial cutting operation performed by the associated cutting means, the cutting means and the wedging means of each device being rotatable about a common axis and, wherein drive means is provided for driving the cutting means and the wedging means of each device separately and individually with the cutting means being driven at a higher rotational speed than the wedging means.

4,273,384

VEHICLE-TOWED ROADWAY GRINDING MACHINE

Lewis R. Freeburn, 1030 Clarendon Rd., Quincy, Mich. 49082

Filed Oct. 17, 1979, Ser. No. 85,474
Int. Cl.³ E01C *23/09*
U.S. Cl. 299—41 **9 Claims**



1. An adjustable grinding machine towed by a vehicle for grinding a surface traversed by the vehicle, the combination comprising:
a support member having a front portion and a rear portion;
a plurality of grinding members, each grinding member having a grinding surface;
means for rotatably mounting said grinding members to said support member in a downwardly extending orientation wherein all of said grinding surfaces are substantially contained in a single plane;
power means, coupled to said grinding members, for rotating said grinding members;
first coupling means for hingedly coupling said support member front portion to the vehicle above the surface to be ground;
wheel means for supporting said support member rear portion above the surface to be ground;
second coupling means for hingedly coupling said wheel means to said support member rear portion;
first adjusting means, coupled to said first coupling means, for adjusting said first coupling means to vary the elevation of said front portion relative to the surface to be ground; and
second adjusting means, coupled to said second coupling means, for adjusting said second coupling means to vary the elevation of said rear portion relative to the surface to be ground,
thereby controlling said support member to present the single plane containing said grinding surfaces parallel to and in even contact with the surface to be ground,
said first coupling means comprising
an elongated member having first and second ends,
means for hingedly coupling said elongated member first end to the vehicle about an axis parallel to the ground, and
means for hingedly coupling said elongated member second end to said support member front portion.

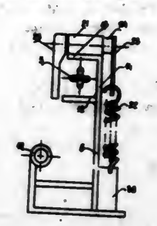
4,273,385

DEVICE FOR SAFETY GUIDING OF HAULING CHAIN ESPECIALLY AT RANGING DRUM SHEARER IN COAL MINING

Jan Rynik, Gliwice, Poland, assignor to Politechnika Slaska im. Wincentego Pstrowskiego, Gliwice, Poland

Filed Jul. 25, 1979, Ser. No. 60,426
Claims priority, application Poland, Jul. 24, 1978, 208629; Dec. 5, 1978, 211507; Mar. 2, 1979, 213841
Int. Cl.³ E21C *35/04, 29/20*
U.S. Cl. 299—42 **10 Claims**

1. A device for safety guiding a hauling chain, adapted for a ranging drum shearer in a coal mining apparatus equipped with chain haulage drive means comprising means for screening the hauling chain along a guard rail assembly adjacent a conveyor, and chain guide means having screening plates are fixed to the ranging drum shearer, wherein said guide means are mounted



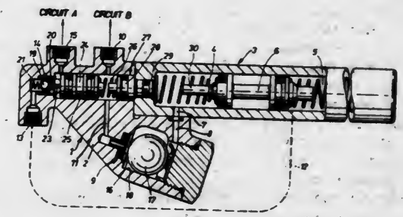
for translation movements along the route of the conveyor inside the screening means of said guard assembly.

4,273,386

CONTROL VALVE ASSEMBLIES

Glyn P. R. Farr, Warwich, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Dec. 28, 1979, Ser. No. 107,826
Claims priority, application United Kingdom, Jan. 22, 1979, 02229/79
Int. Cl.³ B60T *8/26*
U.S. Cl. 303—6 C **10 Claims**

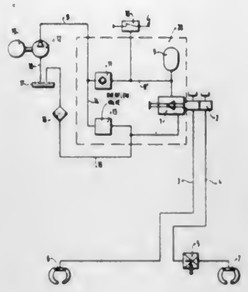


10. A master cylinder and a control valve assembly for a vehicle braking system having first and second circuits, said master cylinder being fast with said assembly, said control valve assembly comprising a first inlet and a first outlet for connection in said first circuit, a first, inertia-responsive control valve for controlling communication between said first inlet and outlet, a second inlet and a second outlet for connection in said second circuit, a second control valve operable in response to pressure prevailing in said first circuit to control the flow by pressurized fluid between said second inlet and outlet, equalizing means for ensuring equalization of the pressures at said outlets in normal operation, said equalization means comprising bore extending between said first and second outlets, and a free floating piston working in said bore and being movable to open and close said second control valve, a differential-area piston arrangement co-operating with said free-floating piston, a larger area portion of said differential-area piston arrangement being subjected to the pressure at said first outlet and a smaller area portion being subjected to the pressure at said first inlet, said master cylinder having a piston defining a pressure chamber, said smaller area portion of said piston arrangement extending into said pressure chamber and being engageable by said piston of the master cylinder, in the event of pressure failure in said first circuit, to urge said piston arrangement into engagement with said floating piston, and thereby hold said second control valve open.

4,273,387
HYDRAULIC BRAKE SYSTEM

Gerald Höfer, Weissach-Flacht; Ewald Hübl, Schwieberdingen, and Steffen Schneider, Möglingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 9, 1979, Ser. No. 65,303
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1978, 2848216
Int. Cl.³ B60T 13/14
U.S. Cl. 303—10 9 Claims



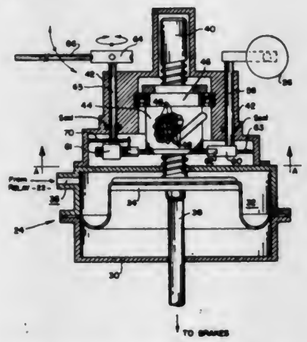
prising: a brake chamber; a movable member mounted in said brake chamber and responsive to fluid pressure introduced into said chamber for operating the brakes of the vehicle; a housing mounted adjacent to said brake chamber; and elongated screw affixed to said movable member in said brake chamber and extending into said housing for linear movement in both directions along a particular axis, said movable member holding said elongated screw against rotation; a nut positioned in coaxial relationship with said screw and in threaded relationship with said screw to permit such linear movement of said screw along said axis so long as said nut is freely rotatable; bearing means mounting said nut in said housing to cause said nut to be freely rotatable, said nut having an annular ratchet extending around its periphery; a latch mounted in said housing; and operator means for said latch for causing said latch to move from a disengaged position to a second position in which it engages said ratchet on the nut and prevents rotation of the nut in one direction only when the fluid pressure for the braking mechanism drops below a predetermined threshold.

1. A hydraulic brake system including:
a fluid storage tank;
a pump connected with said tank and continuously operated during vehicle operation for supplying fluid under pressure in said brake system;
an overflow valve having a predetermined closing force;
a first pressure line connected at one end with said pump and at the other end with said overflow valve;
a return line connected to said overflow valve and said fluid storage tank to return fluid to said fluid storage tank from said overflow valve;
a second pressure line;
said second pressure line connected to said first pressure line at a point between said pump and said overflow valve;
at least one reservoir in communication with said second pressure line;
whereby said reservoir operates under the pressure predetermined by said overflow valve.

4,273,388
AIR BRAKE SAFETY MECHANISM

Zdenek Muller, 2032 Kingsford, Sydney, New South Wales, Australia

Filed Jul. 13, 1979, Ser. No. 57,274
Int. Cl.³ B60T 17/16; 303 89
U.S. Cl. 303—89 7 Claims

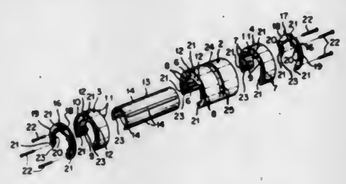


1. A fluid operated braking mechanism for a vehicle, com-

4,273,389
BALL SPLINE BEARING ASSEMBLY

Takamoto Takai, Tokyo, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan

Filed Oct. 24, 1979, Ser. No. 87,788
Int. Cl.³ F16C 31/06
U.S. Cl. 308—6 C 6 Claims

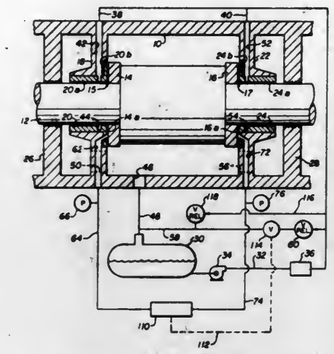


1. A ball spline bearing assembly comprising:
an outer ring having a plurality of axially extending non-load ball raceways formed internally thereof and having a plurality of axially extending load raceways of generally semicircular cross section formed in its radially inner surface;
a shaft fitted axially and slidably within said outer ring, said shaft having a plurality of axially extending load raceways of generally semicircular cross section formed in its radially outer surface;
a plurality of balls contained in said raceways;
a ball cage coaxially disposed between the radially inner surface of said outer ring and the radially outer surface of said shaft, said ball cage, having a plurality of axially extending ball slots of substantially uniform cross section for retaining balls disposed in the load raceways formed in part by said outer ring and in part by said shaft; and
a pair of guide plates located one each at the axial ends of said outer ring, said guide plates being provided with a plurality of channels cooperating one each with the axial end of one of said load raceways and the axial end of one of said non-load raceways, said guide plates including means to secure said ball cage in both axial and rotational alignment with said outer ring.

4,273,390
BEARING SYSTEM WITH THRUST COMPENSATION MEANS

Judson S. Swearingen, and Michael D. Irvine, both of Los Angeles, Calif., assignors to Rotoflow Corporation, Los Angeles, Calif.

Filed May 15, 1978, Ser. No. 905,649
Int. Cl.³ F16C 1/24
U.S. Cl. 308—168 10 Claims

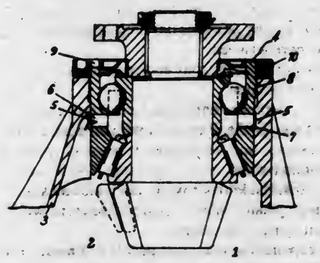


1. A thrust bearing system comprising:
a thrust bearing structure including at least a first pair of opposed bearing faces defining a first bearing space therebetween;
means for delivering lubricant to said first bearing space;
thrust compensation means operative upon delivery thereto of an activating signal to increase the pressure with which the lubricant is delivered to said first bearing space;
and load sensing means including switch means associated with said bearing structure for determining the value of a parameter indicative of the thrust load on said first pair of bearing faces and operatively associated with said thrust compensation means to deliver said activating signal to said thrust compensation means substantially instantaneously when said parameter exceeds a predetermined limit.

4,273,391
DEVICE FOR AXIAL ADJUSTMENT OF A ROTATABLE BODY

Sture L. Asberg, Partille, Sweden, assignor to SKF Nova AB, Gothenburg, Sweden

Continuation of Ser. No. 855,758, Nov. 29, 1977, abandoned.
This application Aug. 10, 1979, Ser. No. 65,621
Claims priority, application Sweden, Dec. 1, 1976, 7613437
Int. Cl.³ F16C 25/06
U.S. Cl. 308—174 1 Claim



1. The combination comprising a housing, a shaft journal having a gear wheel at one end, a bearing assembly rotatably supporting the shaft journal in a cylindrical seat in said housing including a one-piece outer ring having threads on its outer periphery cooperating with threads in said cylindrical seat, means defining a plurality of circumferentially spaced openings in the outer axial end face of the outer ring to accommodate a turning tool having projections corresponding to the openings thereby to permit axial adjusting movement of said bearing assembly relative to said housing, an inner race ring on said shaft journal, two rows of rolling bodies in the annular space between said rings spaced closely relative to one another, one of said rows comprising rollers having axes inclined at an angle to the bearing axis disposed adjacent said gear wheel, the other row of rolling bodies comprising balls which roll against raceways in the rings to provide angular contact disposed at the opposite end of said shaft journal.

4,273,392
TISSUE ROLL HOLDER

Constance E. Stinson, 33 Franklin Ave., Quincy, Mass. 02170

Filed May 4, 1979, Ser. No. 35,940
Int. Cl.³ A47F 3/02; B65D 85/672
U.S. Cl. 312—42 1 Claim



1. A tissue roll holder for holding a plurality of tissue rolls comprising;
an elongated support rod receiving the open core of the rolls and including means permitting the rolls to be vertically stacked one on top of the next with all rolls being supported stationary on the support member but being removable by lifting from the support member,
said support rod having a support plate at the bottom thereof having the lowermost roll supported thereon with the plate disposed orthogonally to the support rod and having a diameter greater than the tissue roll core inner diameter,
an elongated cylindrical housing having a closed base permitting the housing to be free-standing in a vertical position, the inner diameter of the housing being greater than the maximum diameter of a tissue roll so that the stacked vertical array of rolls readily is accommodated in the elongated housing,
said housing base forming a support for the support member plate thus elevating the bottom roll above the closed base by at least the thickness of the plate,
means at the top of the elongated support member for allowing removal of the tissue roll array, in toto, said latter means comprising means adapted to be grasped and disposed at the very top end of the support rod, said manually graspable means being dimensioned to permit removal of the rolls one at a time therepast,
and a top removable cover for closing the housing, said

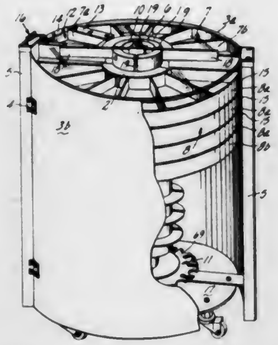
tissue rolls being supported primarily only on their base absent any side support.

4,273,393

AUTOMATIC COMPONENT DISPENSOR

Michael S. Foley, Beverly, and Mark V. Pierson, Lynn, both of Mass., assignors to USM Corporation, Farmington, Conn.

Filed Sep. 20, 1979, Ser. No. 76,975
Int. Cl.³ A47F 5/02; H05K 13/04
U.S. Cl. 312—97.1 **9 Claims**



1. A dispensing device comprising:
at least two banks of flanges, flanges of one bank being arranged to reciprocate into coplanar relationships with flanges of the other bank;
a plurality of stacked trays having compartments formed therein, slidably disposed upon and supported by said flanges;
means to index simultaneously the top tray supported on the one bank of flanges and the bottom tray supported on the other bank of flanges; and
means to restrain indexing of intermediate trays disposed below said top tray on said one bank and above said bottom tray on said other bank whereby said intermediate trays will index from one bank to the other bank.

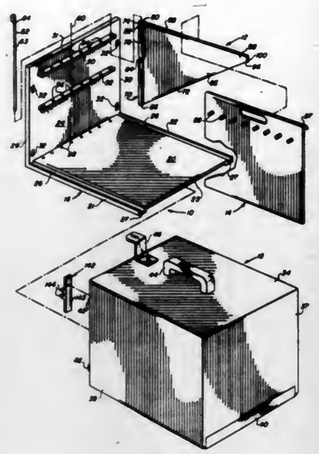
4,273,394

APPARATUS FOR SUPPORTINGLY ORGANIZING AND DISPLAYING MISCELLANEOUS ARTICLES

Earl E. Chandler, P.O. Box 1624, Coolidge, Ariz. 85228

Continuation-in-part of Ser. No. 937,543, Aug. 28, 1978, Pat. No. 4,225,202. This application Feb. 21, 1980, Ser. No. 123,387
Int. Cl.³ A47B 63/00; A47F 5/08; A47B 96/06
U.S. Cl. 312—184 **11 Claims**

1. An apparatus for supportingly displaying miscellaneous articles in organized arrays comprising:
(a) a box including,
I. a base having a floor with an upstanding end wall,
II. a cover having a top from which an opposed pair of sidewalls and an end wall depend, and
III. means on said base and on said cover for demountably coupling said cover to said base;
(b) at least one cantilever arm means of generally triangular configuration having an elongated horizontal top edge and an elongated vertical side edge;
(c) means adjacent the upper end of the upstanding end wall and in the floor of said base and on said cantilever arm means for demountably and pivotably mounting said cantilever arm in said box so that its elongated vertical side edge lies along a vertical axis adjacent the upstanding end wall of said base and said cantilever arm means is pivotably movable about that vertical axis;
(d) a display panel demountably suspended from said cantilever arm means; and



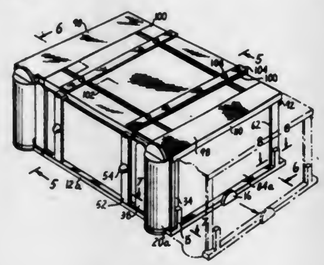
(e) fastener means on said display panel for demountably supporting miscellaneous articles thereon in an organized array.

4,273,395

ADJUSTABLE BOX

John Martinez, and Lilla V. Britt, both of 1646 East 2nd St., Brooklyn, N.Y. 11230

Filed Jul. 18, 1979, Ser. No. 58,494
Int. Cl.³ A47B 45/00
U.S. Cl. 312—205 **9 Claims**



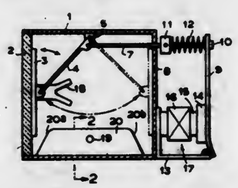
1. A slidably adjustable, readily assemblable box comprising:
a slidably expandable base portion;
front corner member posts and rear corner member posts, said front corner member posts and rear corner member posts each having portions defining relatively perpendicular slots therebetween;
means for securing said front and rear corner member posts to said base portion;
front corner members engaging said front corner member posts in their perpendicular slots, and rear corner members engaging said rear corner member posts in their perpendicular slots;
a slidably expandable front wall panel, and means for pivotally engaging said slidably expandable front wall panel to said front corner members;
a slidably expandable rear wall panel, and means for engaging said rear wall panel to said rear corner members;
side wall members, and means for engaging said side wall members to said front and rear corner members;
said front wall panel and said rear wall panel having a slidable length relatively equal to a slidable length of said base portion;
said means for engaging said side walls of the box to said front and rear corner members including complimentary engaging slot portions on a side edge portion of said front corner members and on a side edge portion of said rear corner members, said slot portions snugly engaging vertical edges of said side walls; and
transverse slots being provided on cover portions of said corner members, said transverse slots engaging downwardly projecting lip portions provided on said side wall members, and descending lip portions provided on rear edges of said side walls, and snugly abutting against rear wall sections of said rear corner members.

4,273,396

DISPLAY UNIT

Takeshi Teragaki; Yasuya Ohno, both of Tokyo, and Etsuso Yokoyama, Tachikawa, all of Japan, assignors to T.I.C. - Citizen Co., Ltd., Tokyo, Japan

Filed May 9, 1979, Ser. No. 37,282
Claims priority, application Japan, Feb. 9, 1979, 54-16445[U]
Int. Cl.³ A47B 77/08; G08B 5/22
U.S. Cl. 312—223 **10 Claims**



1. A magnetically operated display unit for use in displaying characters or figures at two stable positions comprising:
a hermetically sealed casing having a transparent front wall;
a reflector plate which is movable between a display position at which said reflector plate is disposed in the proximity to or in contact with the inner surface of said front wall and a non-display position apart from said display position inside said casing; and
driving means for moving said reflector plate in such a manner that said reflector plate is rotated about a first pivot located on a plane in parallel with the front surface of said reflector plate while said reflector plate moves between said display position and said non-display position, and that said first pivot undergoes displacement with respect to said plane, said driving means further comprising a lever which is connected at its one end to said reflector plate so as to rotate about said pivot and is connected at its other end to said casing so as to rotate about a second pivot in parallel with said first pivot, lever drive means for driving said lever about said second pivot over a predetermined range, and control means for controlling the direction of said reflector plate in the course of the rotation of said lever.

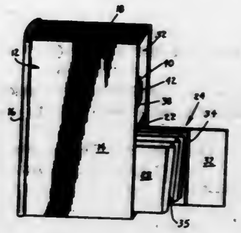
4,273,397

FILING CASE HAVING REMOVABLE, EXPANDING FILE

Lily P. Nolan, 4248 D'youville Trace, Atlanta, Ga. 30341

Filed Sep. 10, 1979, Ser. No. 74,057
Int. Cl.³ A47B 83/00, 63/00; B65D 27/08
U.S. Cl. 312—237 **3 Claims**

1. In a filing case which may be manufactured to simulate a book: a case having a hollow interior defined by opposed sides, opposed ends and having one closed edge thereof which may simulate the spline of a book and the other edge thereof spaced from said closed edge having an opening to provide access to the hollow interior compartment; an expanding envelope inserted within said case for removal through said open edge spaced from said spline, said expanding envelope comprising a plurality of individual compartments connected by gussets between opposed edges which may be moved toward or away from one another by expanding or contracting said envelope, whereby said expanding envelope may be removed from said case for the storage of photographs, coupons, or the like within said individual compartments and then compressed and returned to said case to be concealed therein from view when



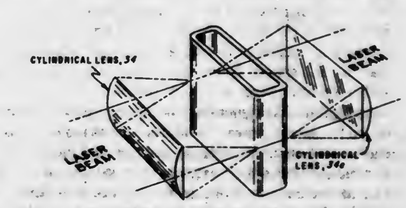
said case is placed on a shelf or the like, and a movable panel attached to and coextensive with one opposed edge and the gusset on said expanding envelope which movable panel may be moved out of the way from in front of the gussets when said envelope is removed from said case and is moved into position over said expanding envelope to conceal the gussets therein when said envelope is positioned within said case, said panel thereby becoming the front closure on said case to close the opening and conceal the envelope therein.

4,273,398

METHOD AND APPARATUS FOR MANUFACTURING GAS-FILLED TUBES AND THE LIKE

Tommy L. Summers, and David L. Yeaswine, both of Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Feb. 13, 1978, Ser. No. 877,450
Int. Cl.³ H01J 9/38, 9/40
U.S. Cl. 316—20 **48 Claims**



20. A method of manufacturing radioactive gas-filled light sources for illuminating displays and the like comprising the steps of:
(a) coating the interior surface of a glass tube with a phosphor material;
(b) sealing one end of said glass tube;
(c) mounting said glass tube in a pressure chamber;
(d) maintaining said pressure chamber at a first predetermined pressure;
(e) filling said glass tube with a radioactive gas via the unsealed end thereof, said radioactive gas for generating energy to excite said phosphor material and thereby produce light energy;
(f) maintaining said radioactive gas in said glass tube at a constant second predetermined pressure whereby each gas-filled light source contains said radioactive gas at said predetermined pressure;

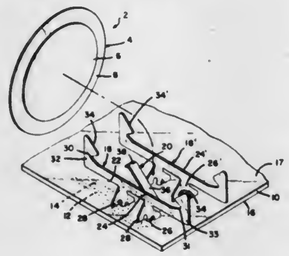
(g) indexing said glass tube in increments of a predetermined length;
(h) focusing a laser beam through a cylindrical lens to provide a relatively long and narrow beam of light energy simultaneously across the entire width of said glass tube at each indexed position to thereby seal and sever said tube along said beam, the length of said beam being at least equal to the width of said tube; and
(i) removing gas-filled segments of said predetermined length from said pressure chamber.

4,273,399

TRANSDUCER SUPPORTING AND CONTACTING MEANS

Ronald W. Myers, Landisburg, and Daniel V. Nardone, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 5, 1979, Ser. No. 91,672
Int. Cl.³ H01R 9/09
U.S. Cl. 339—17 C **17 Claims**



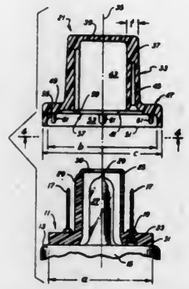
1. A circuit board having supporting and contacting means thereon for supporting a circular disk-like piezoelectric tone transducer in spaced parallel relationship to said circuit board and for establishing first electrical contact with the periphery of said transducer and second electrical contact with a central location on said transducer, said supporting and contacting means comprising:
a pair of aligned sheet metal supporting members, said members being disposed in spaced-apart planes which extend normally of the plane of said circuit board, each of said supporting members having a first edge which is proximate to, and spaced from, the surface of said circuit board and a second edge which is remote from said circuit board, each of said members being secured to said circuit board by securing means which is remote from at least one end of said member whereby each of said members has a flexible portion which extends from said securing means to said one end, each of said flexible portions being laterally flexible normally of its own plane and parallel to the plane of said circuit board,
each of said members having on said second edge thereof opposed notches adjacent to the ends thereof, said notches being dimensioned to receive peripheral portions of said transducer, said notches constituting said first electrical contact,
said second electrical contact comprising a contact member having a mounting portion which is mounted on said circuit board between said supporting members, a spring contact arm extending from said mounting portion away from said circuit board, said contact arm having a contact portion
for establishing said second electrical contact whereby, said transducer can be mounted in said supporting and contacting means by flexing said flexible portions of said supporting members away from each other, positioning said transducer in said notches, and permitting said flexible portions to return to their normal positions, and said spring contact arm will be against, and in electrical contact with, said central location on said transducer.

4,273,400

PROTECTIVE MEANS FOR CRT BASE

Allan W. Porsch, Seneca Falls, and Fred L. Sorensen, Waterloo, both of N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Filed Dec. 7, 1979, Ser. No. 101,387
Int. Cl.³ H01R 13/44
U.S. Cl. 339—36 **5 Claims**



1. Protective means for use on a CRT base seated on the closure header of the tube wherein a substantially annular array of tube connector pins protrude exteriorly from a circular flange-like member of the base structure through a plurality of aligned apertures therein surrounding a central hollow crown portion which encloses the sealed exhaust tubulation of the tube, said flange member having a circumferential sidewall and a diametrical dimension defining that of said base, said protective means being in the form of a one-piece cap-like structure comprising:
a central substantially cylindrical hollow body member having a longitudinal axis therethrough, and being formed of a curved sidewall portion having a closed terminal end and an opposed open proximal end thereby defining a central cavity proportioned to accommodate the crown portion of said base, said sidewall portion having sufficient thickness to have formed therein a plurality of longitudinal bores extending inwardly from said proximal end to effect spatial protective encompassment of said tube connector pins; a substantially planar outstanding rim-like basal portion formed about the open proximal end of said body member, said rim-like portion having alpha and beta surfaces and an external diameter greater than that of said base; a circular recess formed in said beta surface of said rim-like portion, said recess having a peripheral wall, a seating surface and a diameter slightly greater than that of said base to enable said basal portion recess to encompass a major portion of said base flange member when such is seated therein; and a plurality of spaced-apart retaining elements formed as nubbins are fashioned to protrude inward from the peripheral wall of said recess toward said axis, the protrusion of said nubbins being sufficient to effect adhering engagement with the circumferential sidewall of said base when said cap is positioned to encompassingly seat on said base.

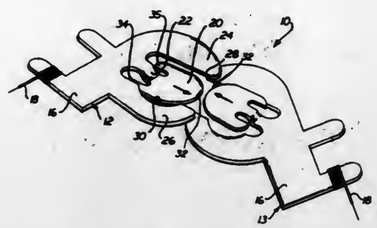
4,273,401

ZERO INSERTION FORCE ELECTRICAL CONNECTOR

Leonard Katzin, 204 S. Swall Dr., Beverly Hills, Calif. 90211

Filed Jul. 6, 1979, Ser. No. 55,682
Int. Cl.³ H01R 4/58
U.S. Cl. 339—47 R **37 Claims**

1. A zero insertion force electrical connector comprising:
a pair of thin essentially planar elements engageable together along a selected axis to an inserted position, and including an interior spreader member on a first element disposed when in the inserted position between opposed coplanar receiving arms on the second element, the spreader member lying in the same plane as the receiving arms and being pivotable relative thereto about an axis normal to the plane, the outside periphery of the spreader member engaging the interior and opposing receiving arms in edge



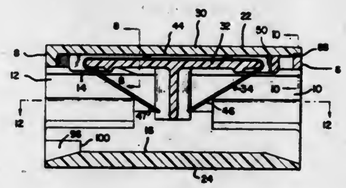
contact relation when pivoted relative thereto from the inserted position, and the second element being configured to provide spring force resistance against the action of the spreader member, whereby the two elements may be coupled together along the selected axis with minimum force and at least one may be pivoted relative to the other to an engaged position having at least two regions of edge contact maintained under pressure.

4,273,402

ELECTRICAL CONNECTOR RECEPTACLE

Donald W. K. Hughes, Mechanicsburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 16, 1979, Ser. No. 85,443
Int. Cl.³ H01R 13/424
U.S. Cl. 339—91 R **11 Claims**



1. A double-ended receptacle of the general type comprising a housing assembly having oppositely directed first and second plug-receiving faces, a plug-receiving opening extending into each of said plug-receiving faces, each of said openings having opposed internal sidewalls and opposed internal endwalls, said housing assembly having opposed external sidewalls and opposed external endwalls, a plurality of parallel side-by-side conductors, each of said conductors having a first and second contact portion and an intermediate portion, said intermediate portion of each conductor being disposed in said housing assembly between one of said internal sidewalls and the one external side-wall which is adjacent to said one internal sidewall, each of said first and second contact portions emerging from said one internal sidewall at a location proximate to said first and second faces respectively and extending obliquely inward of its respective opening and towards the other internal sidewall, said receptacle being dimensioned to receive a connector plug in each of said first and second plug-receiving openings, said plugs having contact members therein which are engageable with said contact portions of said conductors, said receptacle being characterized in that:
said housing assembly comprises a housing frame and a tubular housing sheath, said housing frame being telescopically received in said housing sheath,
said housing frame comprises an elongated web which extends between said plug-receiving faces, said web having ends which are proximate to said faces, said web having first and second surfaces which extend between said ends, said first surface constituting said one internal sidewall, said second surface being proximate to internal surface portions of said sheath, a medial wall integral with, and extending from said first surface, said medial wall lying in a plane which is essentially perpendicular to said internal sidewalls and said internal endwalls, recesses in the sides of said medial wall, said first and second contact portions of said conductors having free end portions which are received in, and captured by, said recesses,
said intermediate portions of said conductors being between said second surface of said web and said internal surface portions of said sheath, said intermediate portions extending around said ends of said web, and
interengaging latching means on said frame and on said sheath, said latching means being spaced inwardly from said first plug-receiving face, said latching means being effective to prevent retrograde movement of said frame from its inserted position, whereby
said housing frame is maintained in said tubular sheath in a predetermined position between said faces by said latching means.

4,273,403

LOCKING STRUCTURE FOR ELECTRICAL CONNECTORS

Thomas M. Cairns, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Feb. 1, 1980, Ser. No. 117,420
Int. Cl.³ H01R 13/627
U.S. Cl. 339—91 R **6 Claims**



1. A pair of matable electrical connectors comprising:
a ramp member formed on a first of said pair of matable connectors having a generally fixed width with a flat lock surface generally perpendicular to the direction of movement to mate said pair of electrical connectors, and a prow like wedge positioned adjacent said flat lock surface and pointing away from a second of said pair of matable connectors;
a pair of cantilever beams formed on said second of said pair of matable connectors, supporting portions of each of said cantilever beams extending upwardly from a rear portion of a surface of said second connector with said cantilever beams projecting forwardly therefrom in a parallel, spaced relationship toward a front face of said first connector; the spacing between said cantilever beams being slightly greater than said generally fixed width of said ramp member; each of said cantilever beams having at its free end an enlarged portion which projects into the space between said cantilever beams towards, but not into engagement with, said enlarged portion on the other one of said cantilever beams whereby a space exists between said enlarged portions,
whereby said cantilever beams are deflected upwardly by engagement with said ramp member and said enlarged

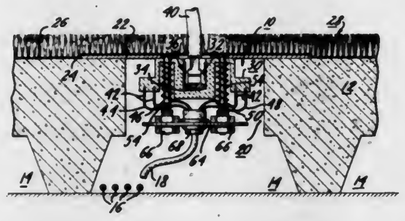
portions pass over said ramp member and are positioned adjacent said flat lock surface so as to lock together said pair of matable electrical connectors, and whereby deflection of said cantilevered beams positions said enlarged portions adjacent said prow like wedge and drawing said enlarged portions along said wedge of said ramp member spreads said cantilever beams apart to permit easy unmating of said matable connectors.

4,273,404

RESILIENTLY SUPPORTED ELECTRICAL FLOOR INSTALLATION

Rolf E. Hedlund, New York, and Thomas J. Hynes, Brentwood, both of N.Y., assignors to Scanorama, Inc., New York, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,821
Int. Cl.³ H01R 33/12
U.S. Cl. 339—93 R **3 Claims**



1. An electrical installation for making electrical connections in a floor of a building comprising:

a floor plate of relatively thin, substantially flat rigid material adapted to cover in said floor an aperture for access to a source of electrical power beneath the surface of said floor, the periphery of said plate being adapted for mounting on the surface portion of the floor defining said aperture, said plate having an opening for receiving the plug of a cable connected to an electrical device;

connector means mounted beneath said plate, said connector means having first means for receiving and making connection with said plug and having second means for making connection to said electrical source; and

means attached to said plate for resiliently supporting said connector means so that said connector means may be displaced away from said plate by a load less than the load required to damage said connector means,

said connector means comprising an insulative housing, said first means including a receptacle having electrical elements therein for making electrical contact with said plug, said receptacle being substantially aligned with said opening for receiving said plug, said means for supporting comprising spring means, said spring means comprising a pair of helical-type springs,

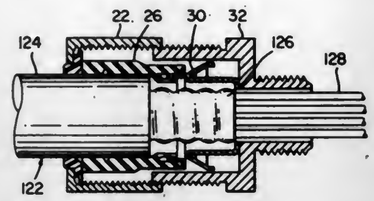
said means for supporting comprising a pair of rods extending axially through said helical type springs and through a pair of apertures provided in said housing, said apertures in said housing each being formed so that said springs do not pass therethrough such that in response to the application of said load said housing slides over said rods resiliently on said springs, said means for supporting also including means for retaining said springs on said rods and means for directly attaching one end of each of said rods to said plate.

4,273,405

JACKETED METAL CLAD CABLE CONNECTOR

Joseph P. Law, Scotch Plains, N.J., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Aug. 13, 1979, Ser. No. 65,762
Int. Cl.³ H01R 4/66; H02B 1/12
U.S. Cl. 339—94 R **22 Claims**



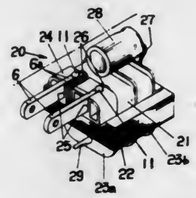
1. A grounding ring for metal-clad cables comprising: a base having a generally circular configuration and defining an aperture to receive a metal-clad cable therethrough; at least two upstanding arms coupled to said base, diametrically opposed and extending perpendicularly to the plane of said base along the extent of a portion of a metal-clad cable passing through said aperture in said base; outwardly inclined arms, one coupled to the free end of each of said upstanding arms adapted to be engaged by a member advanced towards said base to force said upstanding arms into intimate engagement with the metal cladding of a metal-clad cable passing therebetween; and stop means coupled to said base and extending in the direction of said upstanding arms to limit the advancement of a member towards said base.

4,273,406

ELECTRICAL CORD ADAPTER

Kuni Okagami, Kawaniski, Japan, assignor to Mitsuoka Electric Mfg. Co., Ltd., Tondabayashi, Japan

Filed Dec. 28, 1978, Ser. No. 974,023
Int. Cl.³ H01R 3/00, 13/514
U.S. Cl. 339—147 P **9 Claims**



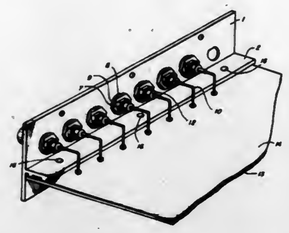
1. An adapter for electric cords, comprising a transformer with a coil bobbin, having plug blades integrally attached thereto; a bottomed, generally cylindrical casing having apertures for receiving said blades and at least one screw inserting aperture formed in its front wall; a bottomed, generally cylindrical lid complementary to said casing and having an internally threaded lid pillar extending from a rear wall surface of said lid toward an open side; temporary fixing means provided on said casing and said lid, respectively, for engagement with each other; wherein said temporary fixing means include first inner and outer clamp walls to define a guide groove therebetween, provided on a peripheral wall of said casing, second inner and outer clamp walls to define a guide groove therebetween, provided on a peripheral wall of said lid, for engaging said first clamp walls, L-shaped apertures formed by notching said first clamp walls, and claws projecting from said second clamp walls for engaging said apertures; and at least one screw for interconnecting said casing with said lid.

4,273,407

COAXIAL CONNECTOR ASSEMBLY FOR ATTACHMENT TO CIRCUIT BOARD

Clifton K. Snuffer, 23 Oak St., Walpole, Mass. 02081, and Walter T. Caches, 16 Hillcrest Rd., Medfield, Mass. 02053

Filed Oct. 24, 1979, Ser. No. 88,094
Int. Cl.³ H01R 17/18; H05K 1/18
U.S. Cl. 339—177 R **4 Claims**



1. A coaxial connector assembly for enabling a circuit board disposed behind a faceplate of the assembly to be connected in one wave soldering operation to a plurality of the assembly's coaxial connectors, the assembly comprising

(1) a faceplate having apertures therein for receiving at spaced locations coaxial connectors of the type to which a mating coaxial member can be readily attached,

(2) a rib attached to and extending rearwardly from the faceplate,

(3) a plurality of coaxial connectors disposed at spaced locations in the apertures of the faceplate, each of said plurality of coaxial connectors being of the type having a center conductor disposed within a conductive outer member which has means enabling a mating coaxial member to be attached in a manner permitting easy disconnection, each of said plurality of coaxial connectors being secured to the faceplate and having its center conductor extending rearwardly beyond the rib, and

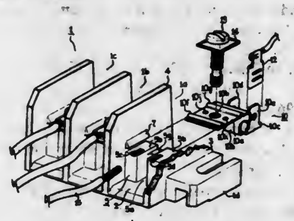
(4) standoff means carried by the rib for spacing the rib from the surface of the aforesaid circuit board.

4,273,408

TERMINAL BLOCK ASSEMBLY

Wallace H. Orr, Hendersonville, N.C., assignor to General Electric Company, Schenectady, N.Y.

Filed Feb. 21, 1979, Ser. No. 13,036
Int. Cl.³ H01R 9/00
U.S. Cl. 339—198 G **1 Claim**



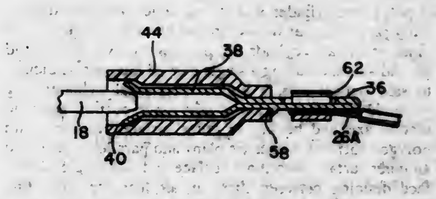
1. Electrical connector device comprising, in combination, an insulating terminal block having a bottom and spaced opposite walls defining a passage, said block having a base portion on the bottom thereof extending between said walls in said passage, said base portion having an upper surface, said walls each having ledge means projecting into said passage and extending along and spaced above the plane of said upper surface of said base portion, a strip-shaped conductive terminal member having a front portion arranged on said upper surface of said base portion in said passage and having opposite marginal portions engaging the undersides of said ledge means of said opposite walls for frictionally holding said terminal member in assembly with said terminal block, and fastener means engaging said terminal member for securing a conductor lead to said terminal member, said terminal member being slidable along said plane with its front portion between said ledge means and the upper surface of said base portion into assembled position on said terminal block, said fastener means comprising a screw passing through and threadably engaging the front portion of said terminal member, said base portion formed with a recess in which said screw is received, said screw coacting with a wall of said recess for preventing withdrawal of said terminal member from said terminal block, said base portion having a rear surface transverse said upper surface, said terminal member having an intermediate portion rearward of and extending downwardly below the plane of said front portion and arranged closely adjacent said rear surface of said base portion in said assembled position for preventing substantial forward movement of said terminal member relative to said terminal block in said position.

4,273,409

CONNECTOR HAVING LOW PROFILE CONTACT ELEMENT

Stephen A. Blanche, Warwick, and Lee Portrais, North Scituate, both of R.I., assignors to Victor Electric Wire & Cable, West Warwick, R.I.

Filed Sep. 4, 1979, Ser. No. 72,163
Int. Cl.³ H01R 4/18
U.S. Cl. 339—206 P **5 Claims**



1. A connector of the type having a molded plug in which at least one contact element is housed within a separate enclosure having spaced upper and lower walls in part defining an open forward end, said contact element having a split terminal portion including a pair of spaced apart legs adapted to receive a male contact element projecting through said enclosure open end, said legs each having a major longitudinally extending body portion terminating in an outwardly angularly flared end disposed in respective contact with said upper and lower walls proximal said open forward end, said contact element leg body portions being generally spaced from said upper and lower walls except at said ends thereof whereby relative inward motion of said male element with respect to said legs tends to force said leg ends slightly forwardly along said walls towards said open enclosure end while simultaneously tending to flatten the disposition angle between said leg ends and said leg body portions, said enclosure including a rear wall having an opening therethrough, rearwardly disposed portions of said leg body portions adapted to pass through said opening and disposed in mutual face-to-face contact with each other both within said opening and at those portions thereof extending into said plug rearwardly of said enclosure rear wall opening, said legs being of essentially flat blade-like configuration, said enclosure rear wall opening being of flat slot-like configuration such that said legs passing in face-to-face disposition therethrough essentially block said rear wall opening such that material forming said plug cannot pass through said rear wall opening during the molding of said plug about said enclosure and said contact element, said leg body rear portions extending rearwardly of said enclosure rear wall opening forming a contact tongue to which an electrical conductor is attached, one of the said body portions of said tongue having an open slot disposed therethrough, said electrical conductor contact-

ing the other of said tongue body portions of that face distal from said slot, and a clamp extending about said tongue and said conductor, said clamp having opposite ends disposed in said slot and in contact with the face of said other of said tongue body portions proximal said slot.

4,273,410

POLYGONAL CYLINDER FOR USE IN OPTICAL PICTURE SCANNING SYSTEMS

Josef F. Menke, Glücksburg, Fed. Rep. of Germany, assignor to Electro-Optik GmbH & Co. K.G., Glücksburg, Fed. Rep. of Germany

Filed Jul. 10, 1979, Ser. No. 56,405
Int. Cl.³ G02B 27/17
U.S. Cl. 350—6.2 2 Claims



1. In an optical system having an objective lens generating an optical axis, a correcting lens, a polygonal cylinder lens, a transformation lens, and detecting means spaced consecutively and respectively along said optical axis, the improvement comprising:

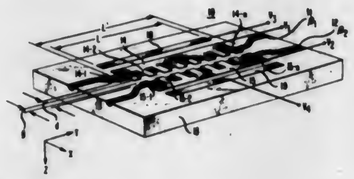
said polygonal cylinder lens having a second axis substantially perpendicular to said optical axis and comprising an inner stationary cylindrical portion located along said second axis and having a single curved face perpendicular to said optical axis, a hollow polygonal cylinder ring mounted for rotation about said inner portion and said second axis and having an outer surface provided with polygon surfaces which are plane and parallel in pairs and an inner surface, said inner surface and said single curved face defining between them an air lens for correcting image distortions of said optical system.

4,273,411

OPTICAL WAVELENGTH FILTER

Rodney C. Alferness, Holmdel, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 24, 1980, Ser. No. 114,832
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.14 19 Claims



1. A filter comprising:

a pair of optical waveguides (11, 12) embedded in a substrate (13) of electrooptical material of lower refractive index;

characterized in that:

said waveguides (11, 12) are in coupling relationship over an interval L' but have sufficiently dissimilar propagation constants (β_1, β_2) to preclude unrestricted coupling therebetween;

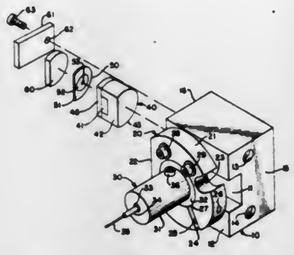
and in that coupling means (14-1, 14-2 . . . 14-n; 15-1, 15-2 . . . 15-n) are longitudinally spaced along said interval for inducing selective coupling between wave energy at a wavelength λ_o of one polarization (TE, TM) in one of said waveguides (11) and wave energy of an orthogonal polarization (TM, TE) in the other (12) of said waveguides.

4,273,412

OPTICAL FIBER COUPLING FITTING

Clarence G. Hillegonds, Palm Bay, Fla., assignor to Harris Corporation, Cleveland, Ohio

Filed Aug. 3, 1978, Ser. No. 930,702
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 13 Claims



1. An optical fiber coupler fitting for securely coupling an optical fiber to a photo element retained within a mounting fixture comprising:

an optical fiber holding member having a channel extending therethrough in which an optical fiber is secured;

a clamp member having

an aperture therethrough into which said optical fiber holding member may be inserted, and

first means for controlling the size of said aperture so that said holding member may be inserted into said aperture and securely retained therein; and

second means for affixing said clamp member to said mounting fixture, and thereby couple an optical fiber secured in said holding member to a photo element retained within said mounting fixture, wherein said first means comprises a slot provided in said clamp member and extending from a peripheral portion thereof to said aperture, and means for controlling the spacing between opposing faces of said slot and thereby controlling the size of said aperture.

4,273,413

PHOTOELECTRIC ELEMENT/OPTICAL CABLE CONNECTOR

Leonard F. Bendiksen, Harrisburg, and William L. Schumacher, Camp Hill, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Feb. 26, 1979, Ser. No. 15,254
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.20 8 Claims

1. In a connector for optically coupling an optic transmission cable and a photoelectric element of an electronic circuit, the improvement comprising:

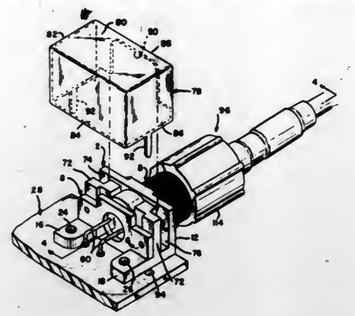
a metal body having a base portion constructed for mounting on a surface of a circuit board,

a sleeve portion of said body having a flattened portion for association coplanar with said a surface of a circuit board on which said body is mounted to provide a low profile for said body, said sleeve portion having a profiled bore therethrough,

a photoelectric element mounted in a first resilient ferrule with electrical leads protruding from said ferrule for pluggable connection in a circuit board on which said body is mounted, said ferrule being received in one end of said profiled bore,

means for retaining said ferrule in said bore,

said sleeve being externally threaded to receive a threaded cap rotatably mounted on a second resilient ferrule provided at the end of an optic cable and pluggably received



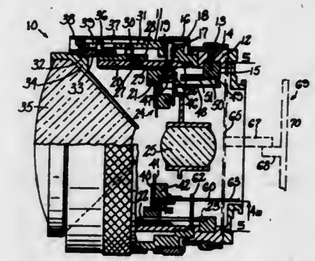
in said profiled bore and optically coupling said optic cable and said photoelectric element.

4,273,414

ZOOM LENS

Masatoshi Shimojima, Tokyo, Japan, assignor to Vivitar Corporation, Santa Monica, Calif.

Division of Ser. No. 750,828, Dec. 15, 1976, Pat. No. 4,141,636.
This application Dec. 1, 1978, Ser. No. 965,340
Claims priority, application Japan, Jan. 20, 1976, 51-514228
Int. Cl.³ G02B 7/10
U.S. Cl. 350—429 5 Claims



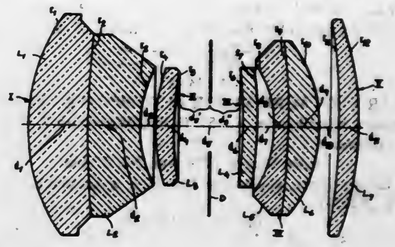
1. A zoom lens comprising a housing member and having two lens groupings axially movable for zooming and maintaining focus, a zoom selection ring exterior of said housing and rotatable thereabout a zoom ring within said housing and rotatable with said selection ring, a first lens mounting member movable axially upon rotation of said zoom ring, a first slot defined in said zoom ring, a sleeve-like member rotatably mounted about said zoom ring and having a follower in said first slot, another follower on said sleeve-like member extending into a second axial guide slot in said housing whereby when said zoom ring rotates said first slot causes said sleeve-like member to move axially in said second slot at a rate determined by the contour of said first slot, a focusing lens mounting member threadably engaged to said sleeve-like member and movable axially thereon upon rotation thereof for focusing, and a focusing ring rotatable on said housing and connected to said focusing lens mount.

4,273,415

OPTICAL OBJECTIVE

Günther Sonnet, Bad Kreuznach, Fed. Rep. of Germany, assignor to Jos. Schneider & Co., Optische Werke, Bad Kreuznach, Fed. Rep. of Germany

Filed Oct. 16, 1979, Ser. No. 85,238
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1978, 2845247
Int. Cl.³ G02B 9/60
U.S. Cl. 350—465 6 Claims



1. An optical objective consisting of a negatively refracting first component, a positively refracting second component, a positively refracting third components, a negatively refracting fourth component and a positively refracting fifth component, said second and third components being separated by a diaphragm space, said first and second components being coupled for correlated codirectional axial shifts at a relatively slow and a relatively fast rate, respectively, to minimize optical aberrations with different magnification ratios.

2. An optical objective consisting of a negatively refracting first component, a positively refracting second component, a positively refracting third component, a negatively refracting fourth component and a positively refracting fifth component, said components being constituted by meniscus-shaped lenses which are bounded by spherically curved surfaces all concave toward an intervening space separating said second and third components,

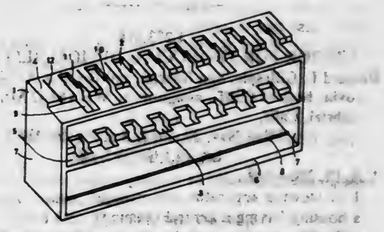
said first, second, third, fourth and fifth components having respective individual focal lengths whose absolute magnitudes are related to one another in the ratio of substantially 7.5:1.1:2.7:9.7:1.6.

4,273,416

INDICATING TEST TUBE RACK

Alvin S. Blum, 2350 Del Mar Pl., Fort Lauderdale, Fla. 33301

Filed Jan. 2, 1979, Ser. No. 177
Int. Cl.³ B01L 9/06; G02B 7/02
U.S. Cl. 350—239 16 Claims



1. A rack for test tubes and the like comprising: means for holding each of said tubes in two generally stable, easily observable positions, wherein each of said tubes individually may be readily changed from one of said positions to the other of said positions, wherein holding means for each said tube com-

prises individual opening means in said rack, said opening means being generally of a size and shape to cause said tube to pivot about a portion of said tube, while another portion of said tube moves to and fro in a limited channel from one generally stable position to a second generally stable position, wherein a portion of each of said opening means is elongate and said elongate portions are parallel, restricting said tubes to a to and fro motion at this region of said tubes and another portion of each of said opening means restricts said tubes to a pivoting motion at this other region of said tubes.

13. The invention of claim 1, which further comprises: at least one vertical wall of transparent material provided with magnifying means for observing the contents of said test tubes.

4,273,417

REAR VIEW MIRROR FOR AUTOMOTIVE VEHICLES

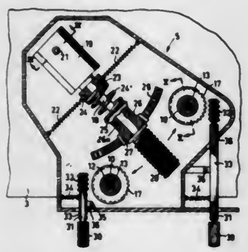
Bernhard Mittelhäuser, No. 57, D-3002 Wedemark 2, Fed. Rep. of Germany

Filed May 9, 1979, Ser. No. 37,463

Claims priority, application Fed. Rep. of Germany, May 11, 1978, 2820541

Int. Cl.³ G02B *5/08*

U.S. Cl. 350—289 **15 Claims**



1. An adjustable mirror assembly for automotive vehicles and the like, comprising:

a reflector member;

two setting elements operatively connectible to said reflector member for adjusting the attitude of said reflector member;

an at least pivotally movable electric motor including an output shaft;

a first driving means mounted on said motor output shaft for operatively connecting said motor and a pertaining setting element; and

a second driving means at least in part rotatable mounted on said motor turned shaft for pivotally displacing said electric motor when said electric motor is actuated to bring said first driving means in operative contact with one of said setting elements.

4,273,418

MIRROR FOR PRODUCING OPTICAL ILLUSIONS

Richard L. Gillespie, San Gabriel, and Douglas A. Geller, Monrovia, both of Calif., assignors to WHAM-O Mfg. Co., San Gabriel, Calif.

Filed Nov. 30, 1979, Ser. No. 98,939

Int. Cl.³ G02B *5/08*

U.S. Cl. 350—289 **20 Claims**

1. A viewing apparatus comprising:

a housing having a central opening;

reflective means mounted in the central opening of the housing, said reflective means having transparent areas and reflective areas disposed over the surface thereof according to a predetermined pattern;

means for rotatably supporting the reflective means at the periphery thereof in the central opening; and

drive means located in the housing linked to the supporting means for causing said reflective means to rotate at a



selectable speed whereby an unobstructed view of both sides of the reflective means is provided.

4,273,419

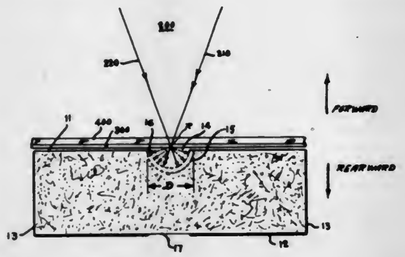
LIGHT-SCATTERING DISC COLLECTOR

Joseph M. Geary, Edgewood, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 21, 1980, Ser. No. 132,451

Int. Cl.³ G02B *5/02*; G01N *21/00*

U.S. Cl. 350—320 **8 Claims**



1. A light-scattering disc collector comprising a member made of material which transmits light and also is non-absorbing and highly scattering as to said light, wherein:

(a) said member has a first flat face and a second flat face which are opaque to light, and which are in parallel-spaced relationship with each other;

(b) said first and second flat faces are joined by a common surface which is opaque to light;

(c) said first flat face has a light-transmissive entrance aperture therein in the form of a cavity which is in the shape of an inwardly disposed hemispherical dome that is light-antireflective coated;

(d) and, said second flat face has a light-transmissive exit aperture in optical alignment with said light-transmissive entrance aperture in said first flat face.

4,273,420

LIQUID CRYSTAL DISPLAY DEVICE

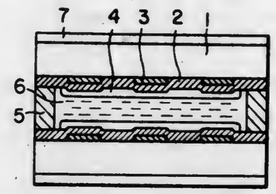
Takeshi Watanabe, Yokohama; Ryoichi Sudo, Yokosuka; Fusaji Shoji, Yokohama; Issei Takemoto, Yokohama, and Hitoshi Yokono, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 9, 1979, Ser. No. 56,119

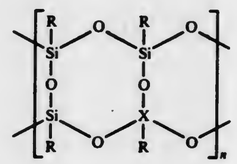
Claims priority, application Japan, Jul. 7, 1978, 53/81891; Oct. 6, 1978, 53/122595; Nov. 6, 1978, 53/135855; Nov. 6, 1978, 53/135857

Int. Cl.³ G02F *1/133*

U.S. Cl. 350—341 **5 Claims**



1. A liquid crystal display device having a liquid crytal layer between a pair of substrates, each, having an electrode thereon, which comprises an alignment film of ladder-type organosilicone polymer represented by the following general formula of repetition unit being formed on counter-faced sides of said substrates:



wherein n=25-5,000, X is Si or one of metals of Al, Ti, B, Ge, Sn, P, As, Mg, Pb, Zr, Sb, Cr, Fe, Co, and Ni, and R is at least one member selected from phenyl group, alkyl-substituted phenyl group, halogen-substituted phenyl group, diphenyl group, alkyl-substituted diphenyl group, halogen-substituted diphenyl group, naphthyl group, alkyl-substituted naphthyl group, halogen-substituted naphthyl group, and alkyl groups including methyl group, ethyl group, propyl group, butyl group, amyl group, hexyl group, etc.

4,273,421

SEMICONDUCTOR LIFETIME MEASUREMENT METHOD

Richard W. Gurtler, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 17, 1977, Ser. No. 759,618

Int. Cl.³ G01N *21/17*

U.S. Cl. 350—353 **10 Claims**

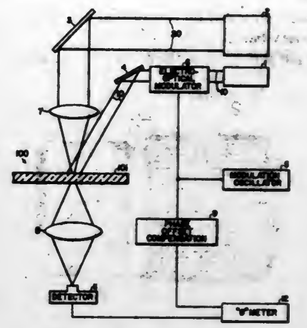
1. A method for measuring semiconductor lifetime comprising:

generating free carriers in a region of the semiconductor with a first modulated optical beam;

modulating a second optical beam with said free carriers;

detecting the modulation of said second optical beam;

comparing the phase of the detected modulation of said second optical beam with the modulation of said first modulated optical beam; and



calculating the lifetime of said free carriers from said compared phase and the frequency of modulation of said first modulated optical beam.

4,273,422

LIGHT VALVE CONTAINING LIQUID SUSPENSION INCLUDING POLYMER STABILIZING SYSTEM

Robert L. Saxe, New York, N.Y., assignor to Research Frontiers Incorporated, Plainview, N.Y.

Continuation-in-part of Ser. No. 952,512, Aug. 10, 1978, Pat. No. 4,164,365, which is a division of Ser. No. 596,198, Jul. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 476,106, Jun. 3, 1974, abandoned, which is a continuation-in-part of Ser. No. 276,796, Jul. 31, 1972, abandoned. This application Mar. 5, 1979, Ser. No. 17,453

Int. Cl.³ G02F *1/00, 1/17*

U.S. Cl. 350—362 **29 Claims**

1. A light valve for controlling the transmission of radiation, which comprises a cell and a liquid suspension in said cell; said liquid suspension comprising:

an electrically resistive liquid suspending medium;

a plurality of small, anisometrically shaped halogen-containing particles suspended in said suspending medium;

a copolymer of at least two different monomers, at least one of said monomers having a sterically unhindered functional group for bonding to or associating with said particles, and at least one of said monomers having a branched group, the distance from the backbone of the copolymer to said sterically unhindered functional group most distant from the backbone being less than the distance from the backbone to the terminal group of said branched group, the branched groups in said copolymer being sufficiently soluble so that the copolymer as a whole is substantially dissolved in said liquid suspending medium; and

a polymer dissolved in said liquid suspending medium and bonded to or associated with said copolymer but not said particles; the amount of said copolymer and said associated polymer being at least sufficient to inhibit agglomeration of said particles.

4,273,423

ZOOM LENS BARREL ASSEMBLY FOR CONSTANT MAGNIFICATION

Kyozo Uesugi, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Oct. 17, 1979, Ser. No. 85,527

Claims priority, application Japan, Nov. 4, 1978, 53-136133

Int. Cl.³ G02B *15/18*

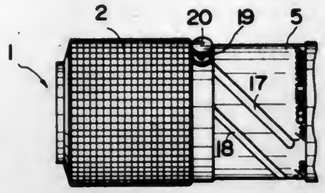
U.S. Cl. 350—429 **10 Claims**

1. In a zoom lens barrel which includes a stationary barrel and a single operation ring, axial movement of which relative to said stationary barrel causes zooming operation and rotation

of which relative to said stationary barrel causes focusing operation, a device for constant magnification photography comprises:

cam means provided on one of said operation ring and said stationary barrel, and

a guide pin provided on the other of said operation ring and



said stationary barrel and engageable with said cam means, said cam means having a configuration by which said cam means forces said operation ring to rotate upon axial movement of the operation ring through the engagement with said guide pin such that a magnification remains substantially constant during focusing for the varying distance to a focused object.

4,273,424

VARIABLE ABERRATION LENS SYSTEM

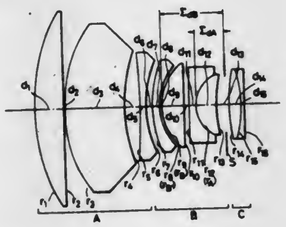
Yukusuke Nanjoh, Urawa, Japan, assignor to Mamiya Koki Kabushiki Kaisha (Mamiya Camera Co., Ltd.), Tokyo, Japan

Filed May 29, 1979, Ser. No. 42,779

Claims priority, application Japan, May 31, 1978, 53/65048; Oct. 20, 1978, 53/128421

Int. Cl.³ G02B *9/34, 9/64, 13/20*

U.S. Cl. 350—431 **5 Claims**



1. A variable aberration lens system characterized in that said lens system comprises a stop, two cemented lens elements arranged adjacently to said stop and having therebetween a cementing surface which is concave against said stop, and a variable air space arranged between two surfaces having similar radii of curvature which are concave against said stop and capable of varying the spherical aberration; that the condition of

$$0.01 < n_A - n_{A'} < 0.1$$

$$R < |r_A| < 1.4R$$

and

$$0.7\Sigma d_A < |r_A| < 1.4\Sigma d_A$$

are satisfied, wherein N_A represents the refractive index of one on the side far from said stop of said two cemented lens elements, $n_{A'}$ represents the refractive index of the other on the side near to said stop of said two cemented lens elements, r_A represents the radius of curvature of said cementing surface, R represents the radius of the full aperture of said stop and ΣdA represents the axial distance from said cementing surface to said stop; and that the conditions of

$$2R < \left| \frac{r_B + r_{B'}}{2} \right| < 3R \text{ and}$$

$$0.7\Sigma d_B < |r_B| < 1.4\Sigma d_B$$

are satisfied, wherein r_B represents the radius of curvature of one near to said stop of said two surfaces, $r_{B'}$ represents the radius of curvature of the other far from said stop of said two surfaces and Σd_B represents the axial distance from said one near said stop of said two surfaces to said stop, and that the following condition is satisfied in at least one of d_{MAX} and d_{MIN}:

$$\Sigma I/\Sigma I > 150$$

wherein d_{MAX} represents the maximum width of said variable air space, d_{MIN} represents the minimum width of said variable air space, ΣI represents a sum of the third degree spherical aberration coefficients and $\Sigma \dot{I}$ represents a sum of the fifth degree spherical aberration coefficients.

4,273,425

HIGH SPEED CATADIOPTRIC OBJECTIVE LENS SYSTEM

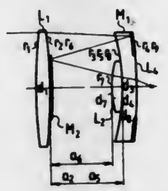
Ludvik Canzek, Unterentfelden, Switzerland, assignor to Kern & Co. A.G., Aarau, Switzerland

Filed Dec. 8, 1978, Ser. No. 967,973

Claims priority, application Switzerland, Dec. 8, 1977, 15052/77

Int. Cl.³ G02B *17/08*

U.S. Cl. 350—444 **4 Claims**



1. A high speed catadioptric objective system lens of the type in which a first single lens (L_1) is convergent, with a main mirror (M_1), a counter mirror (M_2) and a field lens system (L_2, L_4) adjacent to the focal point, wherein only two optical members carry said mirrors and of which at least one member carries an additional lens element, said counter mirror (M_2) surfaced on the central portion of said first single lens (L_1) facing the image side and at least one element (L_2) of said field lens system cemented to the central portion (L_4) of said optical member carrying the main mirror (M_1) and facing the object side, the elements having the following numerical values:

	F = 1:1.2 f = 99.7 s' = 8.7	Thicknesses and Separations	n_d	ν_d
L_1	r1 = +747.831	d1 = 7.5	1.76180	27.0
	r2 = −2214.349	a2 = 46.9		
M_1	r3 = −137.033	d3 = 8	1.68900	49.4
	r4 = −198.791	d4 = d3		
	r5 = r3	a5 = a2		
M_2	r6 = r2	a6 = 41.9		
L_2	r7 = +37.388	d7 = 5	1.46450	65.8
	r8 = r3	d8 = d3		
L_4	r8 = r3	d8 = d3	1.68900	49.4

-continued

F = 1:1.2 f = 99.7 s' = 8.7	Thicknesses and Separations	n_d	ν_d
r9 = r4			

where f is the focal length of the system, r is the radius of curvature of the indicated elements, and L_4 is the central portion of the main mirror (M_1).

4,273,426

MOTION PICTURE SYSTEM

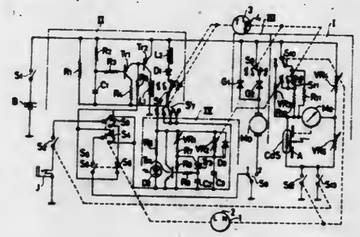
Hideto Iwama, Kawasaki; Masamichi Toyama; Mamoru Shimazaki, both of Machida, and Toshikazu Ichiyanagi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 11, 1977, Ser. No. 814,850

Claims priority, application Japan, Jul. 14, 1976, 51-83750

Int. Cl.³ G03B *21/38*

U.S. Cl. 352—169 **3 Claims**



2. A motion picture camera comprising:

(a) a shutter;

(b) a motor;

(c) shutter driving means driven by said motor for driving a shutter between a fully closed position and a fully opened position;

(d) latching means coupled to the driving means and having a latch position for latching said shutter driving means when said shutter is moved to said fully closed position and fully opened position;

(e) a motor switch for electrically energizing said motor when said latching means is in a non-latching position;

(f) electromagnetic means to cause said latching means to move to the non-latching position when energized;

(g) first sensor switch means which becomes conductive when said shutter occupies said opened position;

(h) second sensor switch means which becomes conductive when said shutter occupies said closed position;

(i) a selector member for selecting an interval time exposure mode and a long time exposure mode;

(j) a timer circuit connected to said electromagnetic means for producing pulses at predetermined intervals when the timer circuit operates, and for applying the pulses to energize said electromagnetic means; and

(k) selecting switch means operatively coupled to said selector member, said selecting switch means connecting said first sensor switch means to said electromagnetic means for energizing said electromagnetic means when said first sensor switch means becomes conductive and energizing said timer circuit in the interval time exposure mode, and said selecting switch means connecting said second sensor switch means to said electromagnetic means for energizing said electromagnetic means when said second sensor switch means becomes conductive and connecting said timer circuit to said first sensor switch means for supplying power to said timer circuit when said first sensor switch means becomes conductive state in the long-time exposure mode.

4,273,427

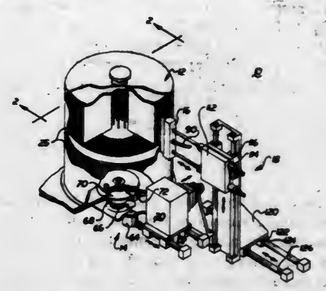
APPARATUS FOR STORING AND RANDOMLY ACCESSING PLANAR FILM RECORDS

David C. Bailey, Cocoa Beach, Fla., assignor to Harris Corporation, Cleveland, Ohio

Filed Jul. 10, 1978, Ser. No. 923,182

Int. Cl.³ G03B *23/08*

U.S. Cl. 353—27 A **10 Claims**



1. Apparatus for storing and randomly accessing a plurality of planar film records, comprising record storing means for storing said planar film records in a close, side by side relationship in corresponding known locations in said record storing means, including location defining means for confining said film records to specific locations by restraining two opposing edges of said film record from movement in at least a direction normal to the plane of said film record, film record retrieval means for retrieving a selected film record from said record storing means by grasping said selected film record by an edge other than said two opposing edges and then withdrawing said film record from said film storing means, and control means for causing said retrieval means to retrieve a selected film record from said record storing means by causing said retrieval means to retrieve the film record from the location in said record storing means in which said film record is known to be stored, wherein said record storing means further includes backstop means for providing a backstop against which said planar film records may be forced by said retrieval means during the retrieval of a selected film record, and wherein said retrieval means includes means for forcing said selected film record against said backstop means during said retrieval of said selected film record, so as to thereby cause said planar film record to flex slightly between said retrieval means and said backstop means, thereby forcing said grasped edge of said selected film record into a known alignment with said film retrieval means.

4,273,428

DIGITAL EXPOSURE-DURATION CONTROL CIRCUIT WITH UPPER LIMIT ON EXPOSURE DURATION

Kurt Borowski; Eduard Wagenseonner, both of Aschheim, and Istvan Cocron, Munich, all of Fed. Rep. of Germany, assignors to AGFA Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Apr. 24, 1979, Ser. No. 32,902

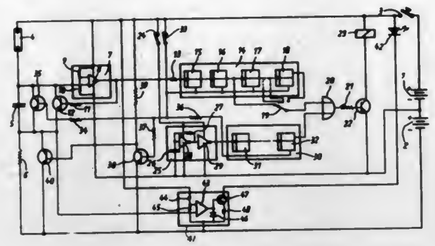
Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818686

Int. Cl.³ G03B *7/093*

U.S. Cl. 354—23 D **7 Claims**

7. An exposure duration control circuit, comprising: a photosensitive element; a first pulse generator connected to the photosensitive element and producing a first pulse train having a frequency which is dependent upon intensity of ambient scene light incident upon the photosensitive element; an adjust-

able counter connected to the first pulse generator and counting pulses, the adjustable counter being adjustable in dependence upon film speed and operating in a manner that when the adjustable counter has counted a number of pulses which the counter has been adjusted to count, the adjustable counter produces a first output signal which can cause an exposure to



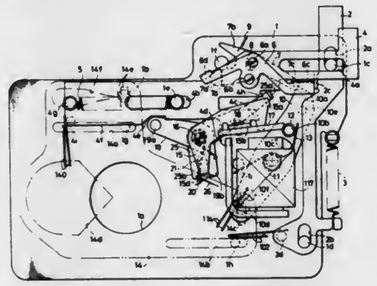
be terminated; a second pulse generator generating a second pulse train having a constant frequency and connected to the adjustable counter; a switch connected to the second pulse generator and turning it on and off; and an output stage connected to the adjustable counter and responding to the first output signal in a manner that whenever the first output signal is generated, an exposure will be terminated.

4,273,429

ELECTRIC SHUTTER DEVICE PROVIDED WITH AN ELECTRIC SELF-TIMER

Kunio Arisaka, Urawa, and Kenta Namioka, Tokyo, both of Japan, assignors to Copal Company Limited, Tokyo, Japan

Filed Apr. 20, 1979, Ser. No. 31,967
Claims priority, application Japan, Apr. 21, 1978, 53/46669
Int. Cl.³ G03B *9/64, 7/14*
U.S. Cl. 354—30 **4 Claims**



1. An electric shutter device provided with an electric self-timer comprising:
- a shutter plate,
- a release member movably supported on said shutter plate,
- a closing drive member movably supported on said shutter plate and capable of moving between its cocked position and its uncocked position and capable of being locked in the cocked position by said release member,
- a timer lever rotatably supported on said shutter plate and capable of locking said closing drive member in the initial period of the movement of said closing drive member from its cocked position to its uncocked position,
- an armature lever supported rotatably on said shutter plate and operatively connected with said timer lever,
- an electromagnet mounted on said shutter plate and capable of attracting said armature lever,
- an exposure time controlling circuit having an output terminal thereof connected to said electromagnet through a first resistor,
- a current amplifying circuit having an output end thereof connected to said electromagnet to make a large current instantaneously flow to said electromagnet,
- a pulse generating circuit having an output terminal thereof connected to the input terminal of said curent amplifying circuit,
- a self-timer delaying circuit having an output terminal thereof connected to the input terminal of said pulse generating circuit, and
- a current source switch arranged adjacently to said release member and capable of feeding a current to said electromagnet through said exposure time controlling circuit and first resistor by the initial motion of said release member,

said current being for the purpose of causing said electromagnet to generate a magnetic force insufficient to attract said armature lever when said armature lever is apart from the attracting surface of said electromagnet but sufficient to keep said armature lever in the attracted state when said armature lever is in contact with the attracting surface,

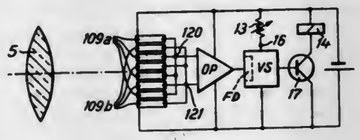
the locking of said closing drive member by said timer lever being released by said armature lever when said armature lever is attracted by a large magnetic force generated in said electromagnet by a large current fed instantaneously to said electromagnet when the operation of said self-timer delaying circuit ends, said closing drive member being moved to start the shutter opening operation and becoming immediately locked again by said armature lever having been attracted by said electromagnet, and said armature lever being rotated to release the locking of said closing drive member by said armature lever when a proper exposure time lapses and a current to said electromagnet is interrupted by the operation of said exposure time controlling circuit, said closing drive member being again moved to close the shutter.

4,273,430

PHOTOGRAPHIC CAMERA

Rainer Fritsche, Wetzlar, and Klaus-Dieter Schaefer, Braunfels, both of Fed. Rep. of Germany, assignors to Ernst Leitz Wetzlar GmbH, Wetzlar, Fed. Rep. of Germany

Continuation of Ser. No. 958,067, Nov. 6, 1978, abandoned. This application Jul. 10, 1980, Ser. No. 167,370
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1977, 2750068
Int. Cl.³ G01P *3/36*; G03B *17/20*
U.S. Cl. 354—31 **6 Claims**



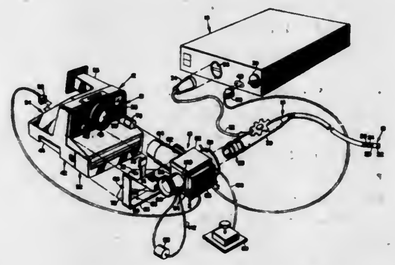
1. A photographic camera apparatus comprising:
- circuit means including photosensor means for generating an electrical signal proportional to the degree of relative movement between an object to be photographed and said camera apparatus,
- an imaging optical device having an image plane for imaging the object to be photographed,
- means for generating a control signal in response to said relative movement electrical signal,
- indicator means responsive to said control signal for indicating an unacceptable camera setting,
- means mounting said photosensor means at least in the vicinity of the image plane of said imaging optical device,
- said photosensor means comprising a plurality of individual photosensors arranged in two mutually perpendicular directions forming a photosensor matrix,
- said circuit means comprising operational amplifier means having first and second inputs and an output connected to said means for generating,
- means parallelly interconnecting alternate ones of said individual photosensors of said matrix forming thus a first and a second group generating first and second electrical sum signals, respectively, and
- means connecting said first and second electrical sum signals to said first and second inputs, respectively, of said operational amplifier means.

4,273,431

ADAPTER FOR COUPLING A PHOTOGRAPHIC CAMERA WITH A VIEWING DEVICE

Zane M. Farmer, Ashburnham, and Edward A. Yobaccio, Westwood, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Aug. 2, 1979, Ser. No. 63,254
Int. Cl.³ G03B *7/087, 17/48*; A61B *1/04*
U.S. Cl. 354—59 **14 Claims**



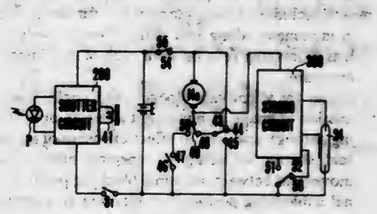
1. An adapter for optically and mechanically coupling a photographic camera to the proximal end of an optical viewing device such as an endoscope so that the image formed by the optical viewing device can be viewed and photographed wherein the camera is of the type which includes an exposure control system having a light sensing system and which, upon actuation, automatically regulates the exposure delivered to a film in accordance with the speed rating of the film and the amount of light received by the light sensing system of the camera exposure control system and wherein the optical viewing device is of the type which has an eyepiece located at its proximal end for forming a viewable image of the object and includes means by which the object can be illuminated, said adapter comprising:
- a housing section for forming a releasable generally light-tight mechanical connection with the proximal end of the optical viewing device and structured to form a branched light path having a primary branch the entrance of which optically aligns with the optical viewing device eyepiece when said housing section is connected thereto and along which the viewable image formed by the eyepiece can be directly viewed through the exit of said primary branch and having a secondary branch depending from said primary branch at a predetermined angle;
- optical means disposed in said housing section for receiving light traveling along said primary light path branch and directing a portion of it into and along said secondary light path branch so that the viewable image formed by the eyepiece can be photographed through the exit of said secondary light path branch;
- means for releasably attaching the camera to said housing section so that the camera objective lens is aligned in a predetermined manner with the exit of said secondary light path branch for purposes of photographing the eyepiece viewable image while the camera light sensing system is not aligned with said secondary light path branch exit;
- light detecting means structured, in part, to be electrically actuated and arranged along said housing section branched light path for movement between a first at rest arrangement in which said light detecting means, upon electrical actuation, provides an output signal having an electrical characteristic which varies in a predetermined manner with the brightness of the eyepiece viewable image and in which the viewable image is visually unobstructed when observed along said primary light path branch and a second arrangement in which both said primary and secondary light path branches are unobstructed so that the eyepiece viewable image can be simultaneously viewed and photographed;
- means for precluding ambient light from entering the camera light sensing system;
- control means including circuit means for monitoring said light detecting means output signal while said light detecting means is in its first arrangement and determining an exposure parameter value which is appropriate for the film speed and the brightness of the eyepiece viewable image, for displacing said light detecting means from its first to its second arrangement, for actuating the camera to begin its exposure cycle, and for presenting within said light precluding means an artificial source of illumination to cause the camera light sensing system to terminate the camera exposure cycle in accordance with said exposure parameter value.

4,273,432

MOTOR DRIVEN CAMERA

Mutsuhide Matsuda, Yokohama; Hideo Tamamura, Tokyo; Tetsuya Taguchi; Tadashi Okino, both of Kawasaki, and Mutsunobu Yazaki, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

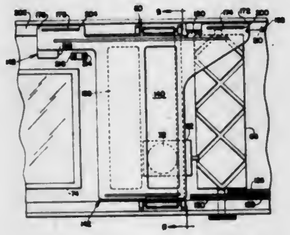
Filed Aug. 31, 1979, Ser. No. 71,544
Claims priority, application Japan, Sep. 8, 1978, 53-111068; Sep. 14, 1978, 53-113049
Int. Cl.³ G03B *15/05*
U.S. Cl. 354—145 **5 Claims**



1. A motor driven camera including:
- a shutter mechanism;
- a winding mechanism for transporting a film and for charging a shutter;
- a flash device;
- an electric motor for driving said winding mechanism;
- an electrical power source for supplying electrical energy to said motor and said flash device;
- means for detecting the completion of a film winding operation;
- shutter release means;
- a first switch cooperative with said release means for interrupting the supply of electrical energy to said flash device during the time when the shutter is in operation;
- a second switch cooperative with said detecting means for interrupting the supply of electrical energy to said flash device during the time when said motor is supplied with electrical energy, and for supplying electrical energy to

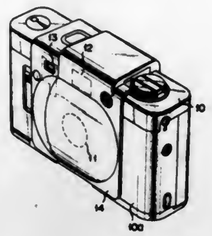
said flash device when the completion of the film winding operation is detected by said detecting means;
a film rewinding mechanism;
changeover means for activating said film rewinding mechanism; and
a rewind control switch connected in series to said second switch and arranged to be closed in response to said changeover means.

4,273,433
TWO-BLADED SHUTTER MECHANISM FOR MICROFICHE CAMERA
Philip R. Norris, North Reading, Mass., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Nov. 29, 1979, Ser. No. 98,492
Int. Cl.³ G03B 9/40, 27/32
U.S. Cl. 354—246 **15 Claims**



1. A camera for exposing a plurality of image areas on a single card-like film unit, said camera comprising:
means for supporting such a film unit at a film plane;
means for defining a plurality of image areas disposed in a row on the film unit at said film plane;
an image forming lens;
means mounting said lens for movement along a path of travel substantially parallel to said row of image areas;
means, including a rotatable member, for advancing said lens in increments along said path to successively locate said lens in imaging relation with each of said image areas for exposure;
a shutter for selectively blocking and unblocking the transmission of image forming light along an optical path passing through said lens to effect exposure of an image area, said shutter including an opening blade mounted for movement between an initial blocking position and terminal unblocking position for initiating an exposure, a closing blade mounted for movement between an initial unblocking position and a terminal blocking position for terminating the exposure, and means for biasing said opening and closing blades toward their respective terminal positions; and
means for controlling movement of said opening and closing blades including a control member mounted for rotation and coupled to said rotatable member for simultaneous rotation therewith for releasably holding said opening and closing blades at their respective initial positions when said rotatable member is at a predetermined initial position, for releasing said opening blade for movement to its said terminal unblocking position while maintaining said closing blade at its said initial position in response to rotation of said rotatable member through a first arc segment past said initial position and for releasing said closing blade for movement to its said terminal position in response to rotation of said rotatable member through a second arc segment beyond said first arc segment.

4,273,434
PHOTOGRAPHIC CAMERA
Yoshihisa Maitani, Hachioji, and Yuichi Sato, Kanagawa, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Jul. 20, 1979, Ser. No. 59,334
Claims priority, application Japan, Sep. 14, 1978, 53/113370
Int. Cl.³ G03B 17/02
U.S. Cl. 354—288 **5 Claims**

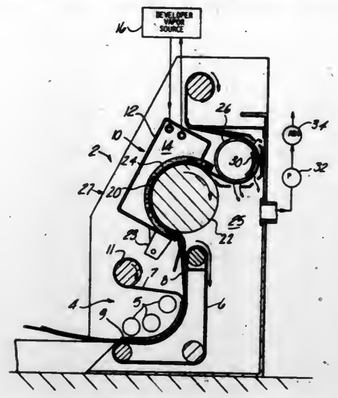


1. In a photographic camera whose body is provided on one side with an object lens, a main finder and a range finder window and on the other with an eyepiece window and which carries a double image-superimposing type range finder, the improvement comprising:
a slide cover fitted to the camera body and adapted to be moved linearly lengthwise thereof between a first position closing the object lens and main finder and a second position opening the object lens and main finder;
a protective cover fitted to and rotatably mounted on the camera body and adapted to be moved between a first position closing the range finder window and a second position opening said range finder window; and
a coupling mechanism resiliently operatively interconnecting the slide cover and protective cover to cause the protective cover to take the first and second positions when the slide cover is moved to the first and second positions.

4,273,435
METHOD AND ARRANGEMENT FOR ELIMINATING AMMONIA VAPORS FROM DEVELOPED DIAZO COPY MATERIAL
Robert K. Hewelt, 3275 Hagerman, Leonard, and Edward F. Dohring, Westland, both of Mich., assignors to Robert K. Hewelt, Leonard, Mich.
Filed May 7, 1979, Ser. No. 36,478
Int. Cl.³ G03D 7/00
U.S. Cl. 354—299 **5 Claims**

1. In a diazo copying machine of the type including means for passing exposed diazo copying material to be developed through a development chamber wherein said copy material is exposed to ammonia developing vapors, the improvement comprising:
a degassing chamber having an inlet for receiving copy material from the development chamber and an outlet for degassed copy material;
means for evacuating ammonia vapors in said degassing chamber out of said degassing chamber;
a stationary convex contact surface having a width at least equal to the width of the copy material located in said degassing chamber;
heater means heating said contact surface to a temperature on the order of 180°-250° F; and

feed means for drawing copy material through the outlet of the degassing chamber and imposing forces on the copy material which draw the copy material into sliding contact with the heated convex contact surface.

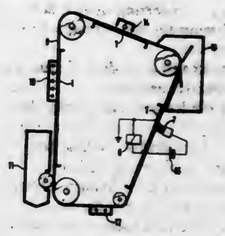


4,273,436
DEVICE FOR SUPPORTING AND PREVENTING CURLING OF PHOTOGRAPHIC FILM DURING DEVELOPING THEREOF
Philip Drell, Skokie, Ill., assignor to Sima Products Corporation, Chicago, Ill.
Filed Dec. 21, 1979, Ser. No. 106,031
Int. Cl.³ G03D 13/08
U.S. Cl. 354—344 **5 Claims**



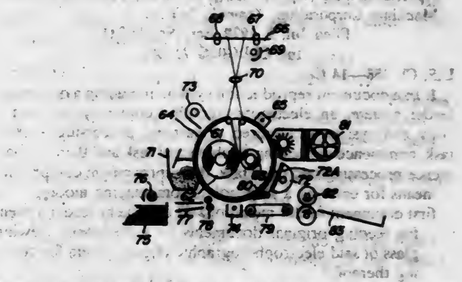
1. A device for use in the selective supporting and weighting of a strip of photographic film having parallel rows of sprocket holes in hanging disposition comprising, a one-piece body including a pair of opposed surfaces, arm means rigid with and projecting beyond one of said surfaces to terminate in an outer end remote from said surface, a pair of return bent hooks rigid with said arm means proximate the outer end thereof and projecting laterally therefrom, the hooks of said pair of hooks being spaced from each other a distance approximately the same as the distance between the parallel rows of sprocket holes whereby said pair of hooks may be inserted within respective ones of the sprocket holes and means on said body engageable with a support for suspending the strip in said hanging disposition.

4,273,437
BEARING PLATE FOR A BAND OF PHOTOCONDUCTIVE RECORDING MEDIUM
Jürgen Neumann, Liederbach, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Jul. 24, 1979, Ser. No. 60,224
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832775
Int. Cl.³ G03G 15/00
U.S. Cl. 355—3 BE **10 Claims**



1. A bearing plate for a moving band of photoconductive recording medium, wherein the band is provided with perforations close to and parallel to one of its two longitudinal edges and is adapted to be contacted by a metal brush pressing against the recording medium in the zone of the perforated longitudinal edge, said bearing plate comprising a base plate of a conductive material having at least one aperture therethrough and an electrically conductive grid covering said aperture, said grid being positioned such that it is contacted by the metal brush through the perforations in the photoconductive recording medium.

4,273,438
ELECTROSTATOGRAPHIC PRINTING METHOD AND APPARATUS
Masaji Nishikawa, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Nov. 21, 1978, Ser. No. 962,798
Claims priority, application Japan, Nov. 24, 1977, 52-139816
Int. Cl.³ G03G 15/00
U.S. Cl. 355—14 CU **4 Claims**



1. An electrophotographic duplicating apparatus which can be driven into a multiple copy printing mode with a master for forming a plurality of duplicated copies of an original with the aid of the master which is formed by fixing a toner image corresponding to an image of the original onto a photoconductive sheet, by repeatedly subjecting in succession the master to uniform charging, uniform exposure, development and then

transferring and into an electrophotographic printing mode without the master, to thereby form at least one duplicated copy of the original by subjecting a photoconductive sheet to uniform charging, imagewise exposure, development and transferring, comprising:

a drum, said drum is rotatably arranged and is provided with a supply roll and a takeup roll of the photoconductive sheet wound around an outer surface of the drum;

means for rotating the drum,

a corona charger arranged along the drum for uniformly charging the photoconductive sheet;

means for projecting the optical image of the original onto the uniformly charged photoconductive sheet to form an electrostatic latent image on the sheet;

a developer arranged along the drum for developing the electrostatic image to form a toner image;

a toner image transferring device arranged along the drum for transferring the toner image onto an image receiving member;

a lamp arranged along the drum for uniformly irradiating the photoconductive member;

a first fixing device arranged along the drum for fixing the toner image on the photoconductive sheet;

a device for successively feeding image receiving members through the transferring device;

a second fixing device for fixing a transferred toner image on the image receiving member; and

means responsive to a manual operation for controlling the operation of all of said aforementioned devices whereby in the multiple copy printing mode with, said master, the master is formed by operating the drum rotating means, the corona charger, the image projecting means, the developer device and the first fixing device and then a plurality of copies are formed by repeatedly operating the corona charger, the uniformly irradiating device, the developer device, the transferring device, the image receiving member feeding device and the second fixing device, and in the electrophotographic printing mode without master, the electrostatic image is formed on the photoconductive sheet by operating the drum rotating means, the corona charger and the image projecting means and then at least one copy is formed by operating the developer device, the transferring device, the image receiving member feeding device and the second fixing device.

4,273,439

DOCUMENT FEEDER SYSTEM HAVING A SUSPENDING/COMMENCING MODE WITH A JUDGMENT DECISION CAPABILITY

Harvey R. Markham, Westminster, and Roger D. Shepherd, Nederland, both of Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 9, 1979, Ser. No. 55,711
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 C **14 Claims**

1. In a document reproduction system, including a document feeder system, an electrophotographic copier system and a copy exit system, configured to suspend processing a prior task, commence processing a subsequent task and then, recommence processing said prior task, the improvement comprising:

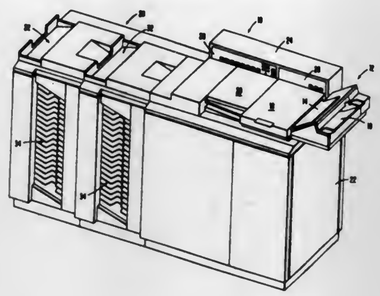
means for entering a suspending/commencing mode;

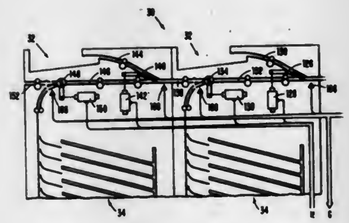
first document feeder means of said document feeder system for feeding original documents to a document viewing glass of said electrophotographic copier system for copying thereof;

second document feeder means of said document feeder system for feeding original documents to a document viewing glass of said electrophotographic copier system for copying thereof;

prior task document queue means of said document feeder system, operatively connected to said first and second document feeder means for storing an original document of said prior task during said suspending/commencing mode, and for refeeding said original document of said prior task back onto said document viewing glass of said electrophotographic copier system, after completion of said subsequent task for recommencing of said prior task; and

logic control means operatively connected to and cooperating with said means for entering said suspending/commencing mode, said first document feeder means, said second document feeder means, said prior task document queue means and said electrophotographic copier system such that when said suspending/commencing mode is





entered, operation of either said first or said second document feeder means processing said prior task is suspended based on a judgment decision, determined in accordance with predetermined criteria, whether to finish the copying of said original document of said prior task on said document viewing glass and then feed the first original document of said subsequent task onto said document viewing glass, or whether to immediately feed said original document of said prior task into said prior task document queue and then feed said first original document of said subsequent task onto said document viewing glass.

4,273,440

METHOD AND APPARATUS FOR DATA COLLECTION AND PREPARATION

Horst Froessl, Gutenbergstrasse 2-4, Hemsbach, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 829,249, Aug. 30, 1977, abandoned. This application Oct. 12, 1979, Ser. No. 84,174
Int. Cl.³ G03B *27/52*
U.S. Cl. 355—40 **17 Claims**

1. A metod of precollecting and organizing selected segments of data from a plurality of source records comprising the steps of

providing a plurality of source records, each having a plurality of human-readable, analog data segments thereon in a known format;

identifying selected ones of the human readable data segments which are to be collected;

defining a sequence in which the identified segments are to

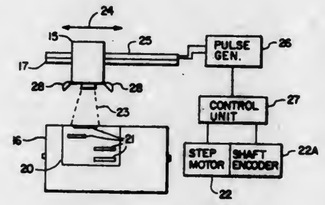
be collected and arranged, which sequence is different from and independent of the format in which they appear on the source record;

providing at least one recording apparatus capable of recording an optical representation of a visible image placed within its field of view;

successively positioning each source document and the apparatus relative to each other such that portions thereof are within the field of view; and

successively recording optical representations of the identified data segments in analog form in the defined sequence on a record from which analog representations of the identified segments can be reproduced.

11. An apparatus for precollecting and organizing selected segments of data from each of a plurality of source records, each of the records being of the type having a plurality of human readable data segments thereon in a known format, comprising the combination of



means for sequentially delivering individual ones of said source records to a recording station;

camera means at said recording station having

optical means for forming an image of a portion of a source record in the field of view thereof, and

record forming means for storing an analog record of the portion of a source record in the field of view when actuated;

means for providing relative movement between said source record and said camera means so that predetermined areas of said source record are brought into said field of view; and

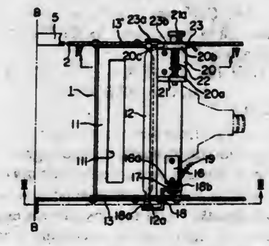
control means for repeatedly actuating said camera means during said relative movement so that selected data segments in said selected areas are recorded in a desired sequence independent of the original format of said source records.

4,273,441

ELECTROPHOTOGRAPHIC COPYING APPARATUS

Mitsuru Nagoshi, Hachioji, Japan, assignor to Konishiroku Photo Industry Co. Ltd., Tokyo, Japan

Filed Sep. 17, 1979, Ser. No. 76,071
Claims priority, application Japan, Sep. 19, 1978, 53-114064
Int. Cl.³ G03B *27/54*
U.S. Cl. 355—67 **7 Claims**



1. In an electrophotographic copying apparatus including a pair of spaced frame members having rails mounted thereon for guiding a reciprocatable copy board supporting an original to be copied, an illuminating lamp located between the pair of frame members, and a reflector mirror of a predetermined configuration mounted in association with the illuminating lamp so as to direct light rays emitted by the illuminating lamp toward the copy board; the improvement comprising:

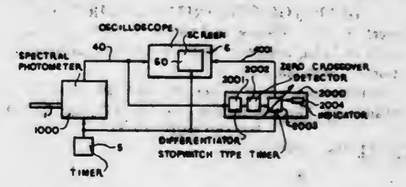
said reflector mirror being formed as a single, unitary structure and including a rearwardly-extending ledge directly and rigidly supporting the illuminating lamp on said ledge at a fixed, predetermined position and orientation with respect to the reflector mirror whereby the need for further relative adjustment therebetween is obviated.

4,273,442

SPECTRAL PHOTOMETER FOR MEDICAL APPLICATIONS

Dietrich W. Lübbers, Dortmund, Fed. Rep. of Germany, assignor to Max Planck Gesellschaft zur Förderung der Wissenschaften e.V., Göttingen, Fed. Rep. of Germany

Filed Apr. 6, 1979, Ser. No. 27,850
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2815074
Int. Cl.³ G01J *3/34*; G01N *33/48*
U.S. Cl. 356—326 **4 Claims**



1. A spectral photometer for medical applications, comprising:

a spectral photometer stage providing a spectral display signal from a sample under investigation;

a display unit responding to the spectral display signal and visually displaying it to a user;

a maximum detector responding to the spectral display signal and detecting successive maxima therein; and

an intermaximum calculator cooperating with the maximum detector and cooperating with the display to visually display distance between successive maxima in the spectral display signal.

4,273,443

METHOD AND APPARATUS FOR MEASUREMENT OF RERADIATION IN PARTICLE FLOW CELL SYSTEMS

Walter R. Hogg, South Miami, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.

Filed Nov. 21, 1979, Ser. No. 93,311
Int. Cl.³ G01N *21/49, 21/85*; G02B *27/12*
U.S. Cl. 356—343 **32 Claims**

1. Apparatus for measuring the directional distribution of radiant energy reradiated from a particle for particle characterization which comprises:

A. a source of radiant energy arranged to project an incident beam of radiant energy along a first axis,

B. a sensing zone on said first axis,

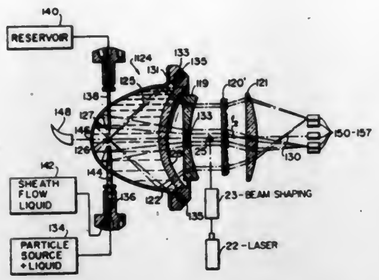
C. means for moving particles through said sensing zone to produce reradiation including scattering of the radiant energy from the beam,

D. means for collecting a portion of said reradiated radiant energy,

E. means for collimating at least a portion of the collected radiant energy,

F. means for deviating the collimated radiant energy selectively with respect to different geometric portions of the collimated radiant energy,

G. means for focusing the different deviated geometric portions of the collimated radiant energy at different respective locations, and



H. means for measuring the intensity of the radiant energy focused at each location.

4,273,444

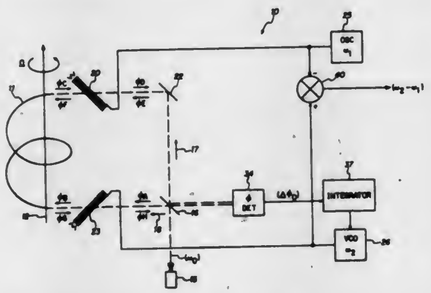
INTERFEROMETER GYROSCOPE HAVING RELAXED DETECTOR LINEARITY REQUIREMENTS

Robert H. Pool, Marion, and Glenn W. Sellers, Cedar Rapids, both of Iowa, assignors to Rockwell International Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 962,519, Nov. 20, 1978, abandoned. This application Jun. 13, 1979, Ser. No. 48,207

Int. Cl.³ G01C *19/64*

U.S. Cl. 356—350 **7 Claims**



1. An interferometer gyro, comprising:
a source of light;
first means for modulating a fixed frequency onto a first portion of the light of said source of light;
second means for modulating a variable frequency onto a second portion of the light of said source of light;
a light path having an axis of sensitivity, the rotation of said light path about which is desired to be measured disposed whereby said modulated first component traverses said light path in one direction and said second modulated component traverses said light path in an opposite direction;
said first and second modulating means each being operative upon a respective one of said first and second light portions before it has traversed said light path and a respective other of said light portions after it has traversed said light path;
means for producing a signal representing the phase difference between said first and second modulated portions introduced by the rotation of said light path about said axis of sensitivity as said first and second portions traverse said light path;
and means for integrating said phase difference representing signal, operative to change said variable frequency to produce a null phase difference representing signal, whereby the difference between said fixed and variable frequencies represents the rate of rotation of said light path about said axis of sensitivity.

4,273,445

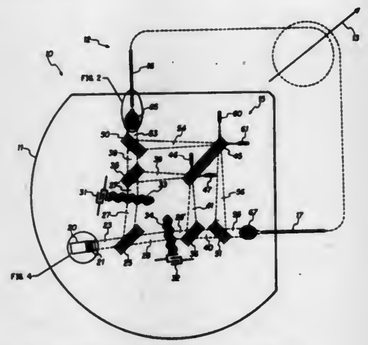
INTERFEROMETER GYROSCOPE FORMED ON A SINGLE PLANE OPTICAL WAVEGUIDE

David E. Thompson, Placentia; Shi-Kay Yao, Brea; Rudolf R. August, Laguna Beach, and Dean B. Anderson, Whittier, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Continuation-in-part of Ser. No. 936,678, Aug. 23, 1978. This application Jul. 30, 1979, Ser. No. 62,210

Int. Cl.³ G01C *19/64*

U.S. Cl. 356—350 **24 Claims**



1. An interferometer gyroscope, comprising:
a substrate,
a single optical waveguide layer on said substrate, said waveguide layer being configured in a single plane,
a source of laser light,
means for introducing said laser light from said source into said optical waveguide layer in a single beam,
means for dividing said single beam into first and second beams in said optical waveguide layer,
means for directing said first and second beams in opposite directions along a path encompassing an axis of rotational sensitivity,
means for receiving said first and second beams from said path and directing said first and second beams in said optical waveguide layer for detection,
and means for detecting a phase difference between said received first and second beams to indicate a rotation of said gyroscope about said axis of rotational sensitivity.

4,273,446

LIGHT SPOT POSITION SENSOR FOR A WAVEFRONT SAMPLING SYSTEM

Richard H. Pohle, Cupertino, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

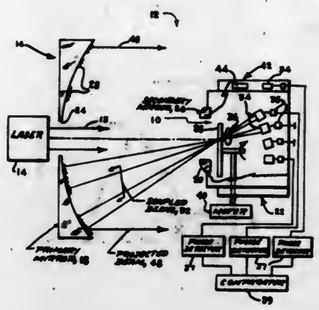
Filed Jun. 26, 1979, Ser. No. 52,163

Int. Cl.³ G01B *9/02*

U.S. Cl. 356—354 **8 Claims**

1. In a grating wavefront sampling system having means for providing a quasi-monochromatic beam of light, a beam expander made up of a primary and a secondary mirror, means on said primary mirror for diffracting a portion of said quasi-monochromatic beam of light thereby establishing at least one diffracted beam of light and a wavefront sensor optically aligned with said diffracted beam of light, the improvement therein being in the form of a light spot position sensor incorporated within said wavefront sensor, said light spot position

sensor comprising means optically aligned with said diffracted beam of light for detecting the intensity of said diffracted beam of light, means positioned adjacent to said intensity detecting means and in optical alignment with said diffracted beam of light for interrupting said diffracted beam of light at a predetermined period of time so as to produce two frequency components, said diffracted beam of light producing a spot of light on said light interrupting means, the relative position of which is unknown, means for providing a spot of light having two frequency components and the position of which is known,



means for detecting the intensity of said known spot of light, means operably connected to said intensity detecting means of said unknown and said known spot of light, respectively, for separating the frequency components thereof, means operably connected to said frequency separating means for detecting the phase of each of said frequency components of said unknown and said known spot of light and means operably connected to said phase detecting means for comparing each of said phases of said unknown and said known spot of light thereby providing a signal representative of the relative spot position difference between said unknown and said known spot of light.

4,273,447

PIVOTABLE MOUNT FOR SCANNING UNIT

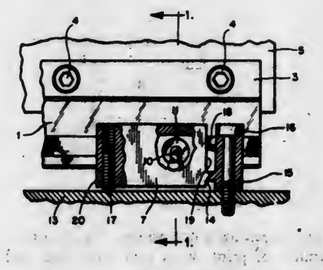
Gunther Nelle, Bergen, Fed. Rep. of Germany, assignor to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

Filed Oct. 5, 1979, Ser. No. 82,105

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1978, 2844066

Int. Cl.³ G01B *11/14, 11/04*

U.S. Cl. 356—373 **9 Claims**



1. In a measuring instrument for determining the relative displacement of a first object with respect to a second object, said instrument including a measuring scale mounted to the first object and a scanning unit for scanning the measuring scale, the improvement comprising:
a mounting member mounted to a second object;
an elastic bridging member interposed between and fixedly coupled to the mounting member and the scanning unit such that the bridging member forms a joint which permits the scanning unit to pivot with respect to the mounting member about an axis substantially perpendicular to the plane of the measuring scale but substantially prevents movement of the scanning unit in any direction inclined to the plane of the measuring scale and thus maintains a substantially constant spacing between the measuring scale and the scanning unit; and
means for selectively adjusting the angular position of the scanning unit with respect to the mounting member and for selectively locking the scanning unit rigidly in place with respect to the mounting member.

4,273,448

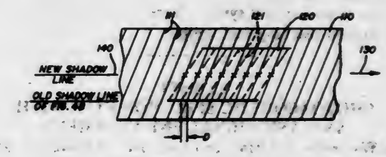
MEASURING METHOD AND APPARATUS

Frederick S. Schiller, 3375 Oak Rd., Stow, Ohio 44224

Filed Jun. 4, 1979, Ser. No. 44,987

Int. Cl.³ G01B *11/14; G02B 27/60; H01F 21/04*

U.S. Cl. 356—374 **7 Claims**



1. In a method of measuring movement wherein primary and secondary windings comprising a multiplicity of series-connected conductors are respectively disposed on a movable and a fixed object and one of said windings is energized to produce a secondary voltage varying in magnitude according to the relative position of the objects, the improvement comprising:
(A) disposing said conductors at an angle other than 90° with respect to the path of movement; and
(B) adjusting the magnitude of the secondary voltage by displacing said conductors on the movable object transversely of the path of movement of the movable object a fixed distance to increase or decrease the linear count for a given linear movement.

4,273,449

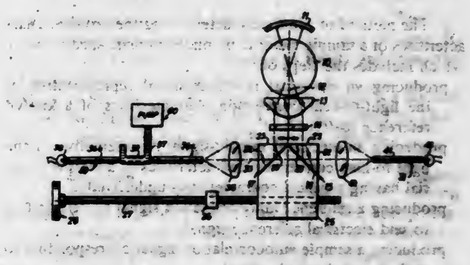
RADIATION MEASURING APPARATUS

Carl J. Schmid, Port Washington, N.Y., assignor to Peerless Electronics Research Corp., Westbury, N.Y.

Filed Feb. 28, 1979, Ser. No. 15,943

Int. Cl.³ G01N *21/85; G02B 27/14*

U.S. Cl. 356—411 **14 Claims**



1. In apparatus for measuring a characteristic of a sample, in combination:
a source of radiation;
means for receiving radiation from said source and directing the same along a stationary optical path;
at least one optical system disposed in spaced relationship

with said stationary optical path along an axis which intersects said path;

a sample holder in position to receive radiation from the at least one optical system;

radiation dividing means located along said stationary optical path at its intersection with said axis for receiving radiation from said source and for dividing the received radiation into separate beams, the dividing means directing one of the beams through said at least one optical system to a sample in said sample holder, said one beam passing through said sample to modify the intensity of said one beam;

a detector for receiving said one beam from said sample and for detecting the intensity of the received beam;

a carriage for supporting the radiation dividing means; and

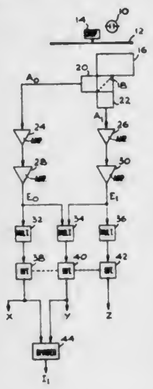
means for moving said carriage along said axis to similarly move the radiation dividing means and thereby vary the intensity of said one beam, the movement of said carriage along said axis away from said at least one optical system increasing the intensity of the radiation reaching said sample, and the movement of said carriage along said axis toward said optical system decreasing the intensity of the radiation reaching said sample.

4,273,450

PHOTOACOUSTIC SPECTROMETER WITH ANALYSIS-SIGNAL ENHANCEMENT

Atsuo Watanabe, and Masahiro Uno, both of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Tokyo, Japan

Filed Sep. 28, 1979, Ser. No. 80,167
Int. Cl.³ G01N *21/00*
U.S. Cl. 356—433 **10 Claims**



1. The method of accurately determining the physical characteristics of a sample material by photoacoustic spectrometry which includes the steps of;

producing an electrical reference-signal representative of the light-to-heat conversion characteristics of a known reference material;

producing an electrical sample-signal representative of the light-to-heat conversion characteristics of a sample material having physical characteristics under study;

producing a reference autocorrelation signal corresponding to said electrical reference-signal;

producing a sample autocorrelation signal corresponding to said electrical sample-signal;

cross-correlating said reference autocorrelation signal and said sample autocorrelation signal to produce a cross-correlation signal; and

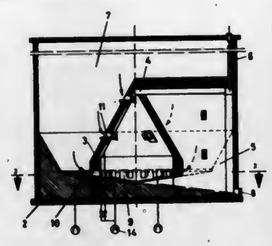
performing predetermined mathematical operations upon selective combinations of said reference autocorrelation signal, said sample autocorrelation signal and said cross-correlation signal to derive desired physical characteristics of said sample material.

4,273,451

MIXING CHAMBER SILO WITH IMPROVED MIXING

Werner Krauss, Hamburg, Fed. Rep. of Germany, assignor to Claudius Peters AG, Hamburg, Fed. Rep. of Germany

Filed Jun. 22, 1979, Ser. No. 51,169
Claims priority, application Fed. Rep. of Germany, Jun. 26, 1978, 2827991
Int. Cl.³ B01F *13/02*
U.S. Cl. 366—101 **6 Claims**



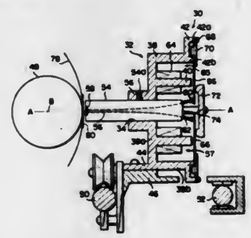
1. A mixing chamber silo having a main silo chamber to which the material can be fed from above, and having a floor and a silo discharge and a pneumatic mixing chamber connected with the silo discharge and arranged on the floor of the main silo chamber, the mixing chamber having a lower wall portion and a conical upper wall forming a roof portion, material inlet orifices in the lower wall portion, and additional material inlet orifices disposed in the conical upper wall or roof portion of the mixing chamber, communicating with the silo interior to receive additional material from the silo at different levels therein to facilitate spout formation and mixing of material.

4,273,452

PRINT HEAD FOR A DOT PRINTER

Hiroshi Honma, Yokohama, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Sep. 19, 1979, Ser. No. 76,926
Claims priority, application Japan, Sep. 29, 1978, 53-133785
Int. Cl.³ B41J *3/12*
U.S. Cl. 400—124 **1 Claim**



1. A print head for a dot printer, which comprises:

a plurality of print wires each provided with a printing portion at the forward end;

printing portion guiding means for guiding the respective forward end printing portions of the print wires in a given direction when the print wires are lengthwise driven; and

an electromagnet unit for driving the selected print wires to impress characters in dots, which comprises electromagnets and armatures provided for the respective print wires, and in which the armatures, when attracted by the electromagnets, drive the print wires and wherein the magnetic circuit of the electromagnet unit consists of an integrally formed circuit member; said magnetic circuit member comprising:

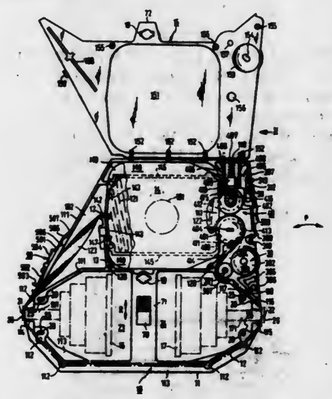
a boss common to the electromagnets; yokes for the respective electromagnets which yokes comprise radially arranged arms provided in the same number as the print wires and radially extending from the boss for substantially the same distance spaced from each other to reach approximately the same circumference, said circumference defining an axis, and parallel arranged arms extending from the outer ends of the radially arranged arms approximately in parallel with the axis of said circumference for a given distance in the same direction spaced from each other; pole pieces for magnetizing coils for mounting the respective electromagnets which pole pieces extend from the radially arranged yoke arms substantially in parallel with the parallel arranged arms at the prescribed space therefrom; and a yoke arm deformation-preventing ring connected to the outer ends of all the parallel-arranged arms.

4,273,453

SELECTIVELY ENGAGEABLE RIBBON RE-INKING DEVICE FOR INK RIBBON CARTRIDGE

Johannes Haftmann, Borchen-Doerenhagen, Fed. Rep. of Germany, assignor to Nixdorf Computer AG, Paderborn, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 53,140
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830657
Int. Cl.³ B41J *33/10*
U.S. Cl. 400—196.1 **3 Claims**



1. A selectively engageable ribbon re-inking device for an ink ribbon cartridge having a storage chamber provided with an inlet and an outlet opening for an endless ink ribbon and having a ribbon guide device connected with the storage chamber for guiding the endless ink ribbon from the outlet opening through at least one printing region to the inlet opening, comprising:

an inking roller mounted for rotation about a stationary axis on the cartridge and having the periphery thereof contacting the endless ink ribbon;

a feed roller mounted on a rocker adjacent said inking roller for rotation about a stationary axis and storing a supply of ink, said feed roller being selectively engageable with said inking roller and being arranged to be replaceable;

said rocker being shiftably mounted on said cartridge and being movable between a first position in which said feed roller engages said inking roller for transferring a portion of said ink supply from said feed roller to said inking roller, and a second position in which the feed roller is disengaged from said inking roller;

a manually shiftable activating element mounted exteriorly of said cartridge for engagement with said rocker, said activating element being movable between an activated position and a released position for moving said rocker from said second position thereof to said first position thereof, said activating element being lockable in said activated position; and

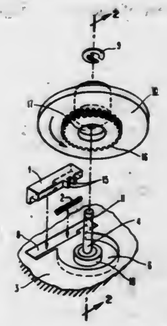
a spring element carried by said activating element for urging said rocker toward said activating position thereof.

4,273,454

TAPE TENSIONING MECHANISM

Stavros M. Anagnostopoulos, Lansdowne, Pa., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jun. 15, 1979, Ser. No. 48,906
Int. Cl.³ B41J *33/14*
U.S. Cl. 400—234 **9 Claims**



1. A tape tensioning device comprising:

a capstan, comprising means for securing a spool of tape thereto, a toothed gear wheel and a flange of greater diameter than said wheel;

a slider provided with at least one tooth sized to be engaged with said toothed gear wheel; and

a spring;

said slider being biased in one direction by said spring and sliding within a recess so sized that said slider can be advanced, in the opposite direction only, a distance sufficient that the teeth thereon are permitted to slip with respect to those on said toothed gear wheel, said recess being enclosed by said flange so that escape of said slider and said spring is prevented.

4,273,455

JUSTIFYING TEXT WRITING COMPOSING MACHINE

W. S. Gubelmann, deceased, late of Convent, N.J.; by Walter S. Gubelmann, executor, Palm Beach, Fla., and William R. Grier, New Vernon, N.J., assignors to Realty and Industrial Corporation, Morristown, N.J.

Division of Ser. No. 732,973, Oct. 15, 1976, which is a division of Ser. No. 213,048, Dec. 28, 1971, Pat. No. 3,993,179. This application Sep. 25, 1978, Ser. No. 945,802
Int. Cl.³ B41J *19/62*
U.S. Cl. 400—309 **4 Claims**

1. A bidirectional proportional spacing carrier moving mechanism for a carrier of an electric typewriter, comprising:

a ratchet wheel with teeth having a predetermined pitch for determining incremental proportional spacing units;

means coupling said ratchet wheel to said carrier for bidirectional rotation in synchronism with bidirectional linear movement of said carrier;

first force exerting means for urging said carrier in a first direction to cause said ratchet wheel to be urged in a given rotational direction;

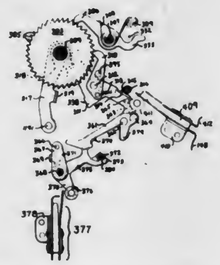
detent means normally engaged with said ratchet wheel for preventing rotation thereof in said given direction, to thereby prevent movement of said carier in said first direction;

first control means for momentarily disengaging said detent means from said ratchet wheel to permit rotation of said ratchet wheel in said given direction by said first force exerting means;

an incremental spacing control member having a first end pivotally mounted adjacent said ratchet wheel, and a stop engaging surface remote from said wheel;

a pawl normally engaged with one of said teeth and pivotally mounted on said control member, for preventing rotation of said ratchet wheel in said given direction when said detent means is disengaged therefrom;

a plurality of stop members disposed in mutual alignment adjacent said stop engaging surface, at least two of said stop members being selectively movable in and out of the path of movement of said stop engaging surface,



said stop members permitting incremental rotational movement of said stop engaging surface, pawl and ratchet wheel in said given direction and linear movement of said carrier in said first direction, by a distance corresponding to a desired number of proportional spacing increments;

second force exerting means for urging said control member to rotate in a direction to move said stop engaging surface away from said stop members and to cause said pawl to rotate said ratchet wheel in a direction opposite to said given direction, to drive said carrier for linear movement in a second direction opposite to said first direction; and

releasable means for momentarily rotating said control member against the force exerted by said second force exerting means to move said pawl a distance corresponding to a desired number of second direction spacing increments, until said stop engaging surface engages one of said stop members,

said second force exerting means acting upon release of said control member by said releasable means to move said carrier in said second direction by said desired number of second direction spacing increments.

4,273,456

PAPER INSERTION APPARATUS FOR A TYPEWRITER

John J. Blaczat; Robert R. Lisk; William R. McCray, all of Lexington, and James L. Sizemore, Cynthiana, all of Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 26, 1978, Ser. No. 945,922
Int. Cl.³ B41J *19/76*
U.S. Cl. 400—550 **8 Claims**

1. Semi-automatic paper insertion apparatus for use in a typewriter of the kind that establishes a printing line and has keyboard apparatus for producing coded signals and means including a platen for defining a paper feed path,

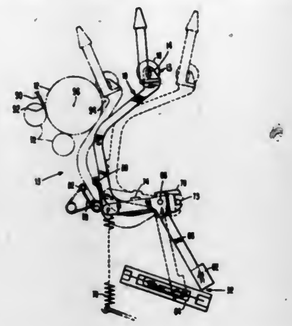
said paper insertion apparatus comprising:

an operator-manipulable paper hold-down device having a first position at the paper feed path and a second position which is away from the paper feed path;

means for detecting the presence of said hold-down device in said second position and for producing a corresponding detection signal;

an indexing device for receiving an indexing control signal and for advancing paper along said paper feed path in accordance with said indexing control signal; and

control circuit means for receiving said detection signal, said control circuit means including means for storing a code indicating a paper feed distance along said paper feed path for a first line of printing and means, responsive to said



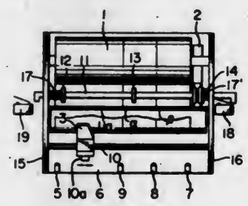
detection signal, for accessing said code and for supplying a corresponding set of indexing control signals to said indexing device whereby paper insertion to a first line for printing is effected.

4,273,457

RECORDING DEVICE FOR USE WITH RECORDING MEDIA OF VARIOUS WIDTHS

Atsushi Noda, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 843,166, Oct. 17, 1977, abandoned. This application Aug. 31, 1979, Ser. No. 71,729
Claims priority, application Japan, Nov. 16, 1976, 51/137541
Int. Cl.³ B41J *29/42*
U.S. Cl. 400—705.1 **7 Claims**



1. A recording device comprising:

(a) recording means for writing information on a recording medium; and

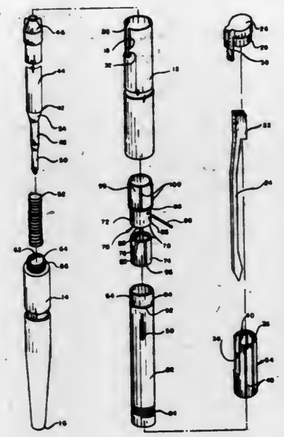
(b) logic control means including a plurality of first detecting means for detecting the width of the recording medium loaded in said recording device, said plurality of first detecting means including switching means actuable in response to the loading of the recording medium, second detecting means for detecting the position of the recording means in accordance with the width of the recording medium loaded in said recording device, said logic control means being responsive to said first detecting means and said second detecting means to generate a signal for controlling said recording means in accordance with the width of the recording medium loaded in said recording device.

4,273,458

WRITING IMPLEMENT

James W. Mausheim, Fort Madison, and William M. Martz, Donnellson, both of Iowa, assignors to Textron Inc., Providence, R.I.

Filed Sep. 26, 1979, Ser. No. 79,110
Int. Cl.³ B43K *24/06*
U.S. Cl. 401—109 **10 Claims**



1. An operating mechanism for a writing or similar implement of the type having an elongate housing with an axially oscillable cap portion and a longitudinally reciprocal unit, said mechanism being characterized by

(A) a drive member disposed within said housing and comprised of

(i) an upper sleeve section oscillable conjointly with said cap portion,

(ii) a lower sleeve section coaxial with said upper sleeve section and reciprocal conjointly with said unit,

(iii) the lower surface of said upper sleeve section and the upper surface of said lower sleeve section being contiguous, and

(iv) link means disposed between and pivoted on said sleeve sections at generally diametrically opposed points on said contiguous surfaces,

(B) connecting means releasably coupling said drive member to said housing and supporting said upper sleeve section for said oscillable but against reciprocal movement and said lower sleeve section for said reciprocal but against rotary movement,

(C) said link means swiveling around said pivot points in response to conjoint oscillation of said cap portion and said upper sleeve section, said link means swiveling around said pivot points between

(i) a folded transverse position pulling said sleeves together and retracting said unit in response to relative rotation of said pivot points to a generally diametrically opposed position, and

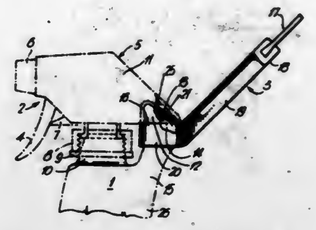
(ii) an erect longitudinal position pushing said sleeve sections apart and extending said unit in response to relative rotation of said pivot points to a generally diametrically aligned position.

4,273,459

SQUEEGEE DEVICE FOR LIQUID DISPENSING BOTTLE

Pierre J. Hardy, 4210 St. Denis St., Apt. #2, Montreal, Quebec, Canada (H2J 2K8)

Filed Nov. 13, 1978, Ser. No. 960,083
Int. Cl.³ A47L *1/08, 13/03*
U.S. Cl. 401—139 **2 Claims**



1. A squeegee device for attachment to a fluid dispensing bottle, the fluid dispensing bottle having a trigger operated fluid dispensing mechanism, the fluid dispensing mechanism having retained thereon a screw-threaded cap, the cap being freely rotatable relative the fluid dispensing mechanism and being screw engageable about an axis with a screw-threaded neck of the bottle, the bottle having a projection locatable within a correspondingly shaped recess defined by a shaped skirt forming a part of the fluid dispensing mechanism, the projection and the recess spaced from said axis for preventing relative rotation of the bottle and the dispensing mechanism about the axis;

the squeegee device having a blade with a free flexible outer edge and a rigid inner edge, an elongate support member extending from the inner edge, said support member having a shaped portion including a substantially rectangular frame shaped to closely surround the projection and a clamping member extending from one part of the frame to another part of the frame and shaped to fit snugly around said projection and within the recess, the clamping member having a plate-like portion extending in a plane substantially perpendicular to a longitudinal axis of the support member, the clamping member insertable between the projection and the recess in a position in which the squeegee device extends in a direction substantially opposite to a fluid dispensing direction of said fluid dispensing mechanism, said shaped portion lockable in said position on said cap being screwed down on the neck of the bottle thereby preventing the squeegee device from twisting about said axis.

4,273,460

AXLE CONSTRUCTION FOR FOUR WHEEL DRIVE VEHICLES OR THE LIKE

Mitsuo Ueno, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jul. 30, 1979, Ser. No. 61,803
Claims priority, application Japan, Aug. 11, 1978, 53-109452
Int. Cl.³ B60B *27/00*; F16D *1/06*
U.S. Cl. 403—1 **2 Claims**

1. In a vehicle having multiple sets of drives wheels, an axle construction comprising:

a drive shaft;

a hollow spindle disposed coaxially about said drive shaft;

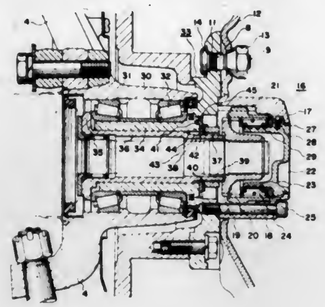
a wheel hub having a hollow shaft portion, said hollow shaft portion coaxially disposed within said hollow spindle;

at least one bearing having an inboard end mounted between and rotatably supporting said hollow shaft portion relative to said hollow spindle;

a free running hub provided between said drive shaft and

said wheel hub for providing a selective drive connection therebetween;

a bearing support having an outboard end, said bearing support fitted within said hollow shaft portion of said wheel hub and spaced from said drive shaft, said bearing support having a flange engageable with said inboard end



of said at least one bearing for securing same on said hollow shaft portion;

a washer fitted on said outboard end of said bearing support and engageable with said wheel hub; and

a hub nut engaged with said outboard end of said bearing support for retaining said washer on said bearing support.

4,273,461

COUPLING OF THE BALL-AND-SOCKET JOINT TYPE

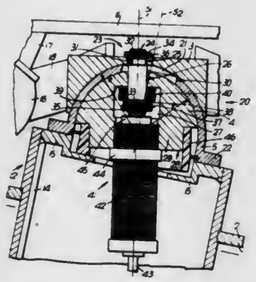
Gunnar M. T. Kjellstrand, Framnäsvägen 3; Olof Olofsson, Hotellvägen 10, both of S-683 00 Hagfors, and Anders G. Linder, Bergsvägen 12, S-663 00 Skoghall, all of Sweden

Filed Jun. 26, 1979, Ser. No. 52,229

Claims priority, application Sweden, Jul. 13, 1978, 7807787

Int. Cl.³ F16C *11/06*; F16D *1/12*

U.S. Cl. 403—125 **9 Claims**



1. A coupling of the ball-and-socket joint type for coupling a first object and a second object, said coupling comprising a first coupling member connected to the first object and a second coupling member connected to the second object, said first coupling member comprising a joint socket having a spherical radius (R) and a joint ball having a smaller radius (r) than that of the joint socket, the central axis of the joint ball when fixed coinciding with that of the joint socket, and a gap having a width corresponding to the difference (R−r) between said radii being formed between the joint socket and the joint ball, said second coupling member comprising a shell which is disposed between the joint socket and the joint ball and is the form of a portion of a sphere, the outer and inner radii (R and r) of which coincides with the radii (R and r) of said joint socket and said joint ball so that said shell can completely fill the gap between the joint socket and the joint ball and can be displaced in various directions by sliding in said gap, said coupling also including gripping means including at least one spring for urging said joint ball and said joint socket towards one another with sufficient force so that the interposed shell can be locked in the desired position to thereby lock the two objects in the desired position in relation to one another, and said coupling further comprising disengaging means for releasing said coupling when a fresh locking position is to be assumed, said disengaging means being an independent unit in relation to said gripping means and comprising means for compressing said at least one spring to at least a sufficient extent so as to cancel the gripping force exerted by said at least one spring so that the coupling is thereby released.

4,273,462

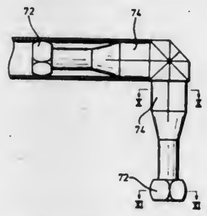
JOINT UNIT

Shigeki Fukuchi, Tokyo, Japan, assignor to Metako Kigyo Co., Ltd., Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 53,725

Int. Cl.³ F16D *1/00*; F16B *7/00*; E04B *7/08*

U.S. Cl. 403—171 **13 Claims**



1. A joint unit for hollow frame elements comprising a base support and at least one connection member extended therefrom, said connection members being provided with at least two axially separated contacting sections having peripheral contours adapted to engage the inner wall of the frame elements, at least one of the contacting sections being substantially twisted about the axis of the connection member relative to the other contacting section to thereby skew said contours relative to each other.

4,273,463

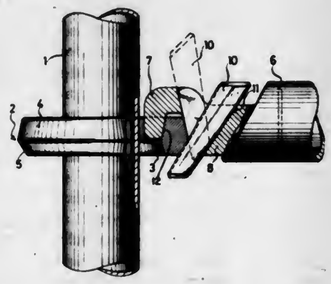
STEEL TUBE SCAFFOLD

Gerhard Dobersch, No. 10, Adolf-Kaschny-Strasse, 5090 Leverkusen, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,510

Int. Cl.³ E04G *7/00*

U.S. Cl. 403—246 **3 Claims**



1. Tubular metal scaffolding comprising:

(a) a plurality of substantially vertical tubular posts, each having at least one bracket thereon, and a plurality of substantially horizontal tubular braces, each having at least one hook-like jaw for engaging a bracket on a tubular post;

(b) each said bracket on said tubular posts comprising a member extending in a direction transverse to the longitudinal axis of and being spaced from its tubular post, at least a portion of the surface of said member facing said tubular post and at least a portion of the surface of said member opposite said tubular post each being at different acute angles with respect to said axis of said post,

(c) each said hook-like jaw on said tubular braces for engaging a bracket of a post being adapted to be secured to said bracket with the interior surface of said jaw contacting said member including said portion of said surface facing said post, said jaw having an aperture passing therethrough in a direction transverse to and in communication with said member, the interior surface of said aperture facing said member being at an acute angle that is different from said first mentioned angles with respect to said axis of said post;

(d) said scaffolding further comprising an elongated wedge adapted to be inserted in said aperture in said jaw after said jaw is placed in engagement with said member of said bracket such that the opposite surfaces of said wedge simultaneously engage said surface of said aperture facing said member and said portion of said surface of said bracket member opposite said post to lock together and prevent separation of said bracket and said jaw.

4,273,464

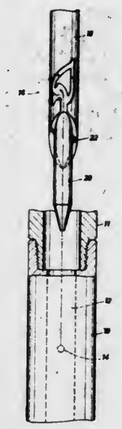
WIRE LINE ANCHOR

Anthony C. Scott, Norfolk Great Yarmouth, England, assignor to Eastman Whipstock, Inc., Houston, Tex.

Filed May 8, 1979, Ser. No. 36,305

Int. Cl.³ B25G *3/00*; E21B *23/00*

U.S. Cl. 403—348 **2 Claims**



1. Apparatus for attaching an anchor connected to a wire line to an anchor housing located in a pipe string in a well bore and for releasing the anchor from the anchor housing by raising and lowering the anchor with the wire line relative to the housing, comprising an anchor housing for connecting in a pipe string located in a well bore, an anchor for attaching to a wire line for movement into and out of the pipe string, said anchor housing having an opening to receive the anchor and a key attached to the housing and extending into the opening to engage the anchor, said anchor having a section with a cylindrical outer surface in which a slot system is formed to receive the key and to move the anchor relative to the key to position the key in the slot system to hold the anchor from upward movement relative to the anchor housing upon the downward movement of the anchor relative to the key a distance limited by the key and the slot system and the subsequent upward movement of the anchor by the wire line a distance limited by the key and the slot system to allow an upward force to be applied to the wire line and for releasing the anchor from the housing by lowering the anchor until further downward movement is prevented by the key and the slot system and moving the anchor upwardly to move the key out of engagement with the slot system.

4,273,465

PIPE CLAMP

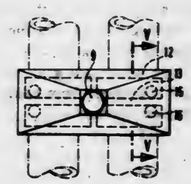
Otmar Schoen, Am Kirschenberg 5, D 6601 Scheidterberg 5, Fed. Rep. of Germany

Filed Aug. 7, 1979, Ser. No. 64,517

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1978, 7825626[U]

Int. Cl.³ F16B *7/02*; F16L *3/22*

U.S. Cl. 403—391 **9 Claims**



1. In an apparatus for fastening two pipes together including two holding bodies, each having two recesses disposed therein in side-by-side relationship, said recesses in one of said holding bodies facing the recesses in the other of said holding bodies to thereby define two substantially circular receiving areas for the reception of the two pipes; two clamping elements enclosing said holding bodies therebetween; an attaching element penetrating said clamping elements and said holding bodies; first means on one of said clamping elements for supporting said attaching element; and a second means on the other of said clamping elements for releasably connecting said attaching element thereto via rotation, the improvement comprising:

locking means, located on said clamping element containing said first means and on the adjacent holding body, for preventing relative rotation therebetween,

said locking means comprising

a rib extending in a cavity on the upper side of said adjacent holding body, and

two projections extending from the bottom side of said clamping element into said cavity and engaging said rib therebetween.

4,273,466

BASIN

Karl W. Trahan, Sr., Lafayette, La., and Timothy S. Smith, Eunice, La., assignors to Kar Fabricators, Inc.

Filed May 29, 1979, Ser. No. 43,264

Int. Cl.³ E01F *5/00*

U.S. Cl. 404—4 **2 Claims**

1. A preformed catch basin for mounting with a drainage pipe for catching fluids including running rain water, streams, and the like to prevent flooding, comprising:

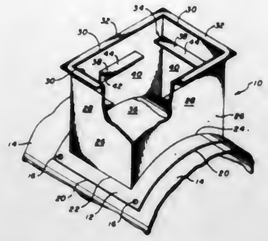
(a) frame means for mounting around the opening in the drainage pipe to enable mounting of said catch basin around the opening;

(b) riser means extending from said frame means, said riser means having an opening therein communicating with the opening in the drainage pipe and opening at its other end for receiving fluids;

(c) grid support means attached around the interior periphery of said riser means and positioned between the opening of said frame means communicating with the opening

in the drainage pipe and the opening at the other end of said frame means; and

(d) grid means positioned for preventing oversized and unwanted debris and trash entering into the drainage pipe wherein said catch basin enables fluids to enter said open-



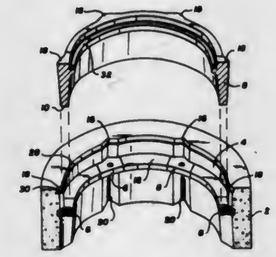
ing of said riser means and flow through said grid means, through said opening of said riser means communicating with the opening of said drainage pipe to deposit fluids in said drainage pipe while said grid means prevents oversized articles and/or trash from being deposited in said drain and/or sewer pipes.

4,273,467

ADJUSTABLE MANHOLE COVER SUPPORT

Allan D. Cronk, West Vancouver, Canada, assignor to Cremo Supply Ltd., West Vancouver, Canada

Filed Jun. 25, 1979, Ser. No. 51,595
Claims priority, application Canada, Oct. 13, 1978, 313373
Int. Cl.³ E02D *29/14*
U.S. Cl. 404—26 **7 Claims**



1. An adjustable manhole cover support comprising:

an outer ring having a circular internal opening;

a plurality of threaded members disposed about the circular opening;

an insert dimensioned to fit within the outer ring to a depth controlled by the abutment of the insert against the threaded members;

studs to engage and to extend through the threaded members to abut an under surface of the insert to provide control of the depth of the insert into the outer ring and the angulation of the insert, the studs being defined by bolts having enlarged heads; and

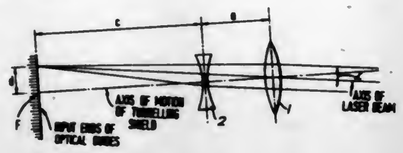
a locking member loosely fitted on the head of the bolt and able to contact sides of the ring when in contact with the head to prevent rotation of the bolt.

4,273,468

TUNNELLING SHIELDS AND LIKE MOVEABLE APPARATUS

Tadeusz R. Cyfka, London, England, assignor to Balfour Beatty Limited, Surrey, England

Filed Mar. 23, 1978, Ser. No. 889,242
Int. Cl.³ E21D *9/00*
U.S. Cl. 405—132 **22 Claims**



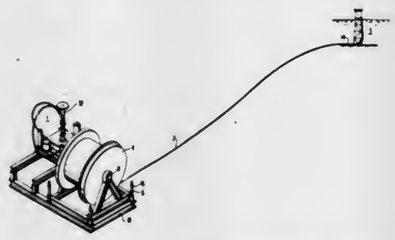
1. A method of determining corrections to be applied to the motion of a tunnelling shield to maintain or restore motion of the shield along a predetermined path, which method comprises directing a beam of collimated light along, or in a direction parallel to or at a fixed angle with, the axis of the predetermined path of the tunnelling shield; focussing said beam on to the input end of an optical cable carried by the shield and comprising a plurality of optical fibres, the input ends of said optical fibres being arranged in an array in which the position of the input end of each optical fibre relative to that of another is fixed; and displaying light transmitted through the optical fibres on to a device at which the output ends of the optical fibres are so arranged as to facilitate ready determination of any correction required to be applied to the motion of the tunnelling shield to maintain or restore motion of the tunnelling shield along said predetermined path.

4,273,469

SYSTEM AND METHOD FOR LAYING SUBSEA PIPELINES

Peter A. Lunde, Houston, Tex., assignor to Santa Fe International Corporation, Orange, Calif.

Filed Mar. 12, 1979, Ser. No. 19,609
Int. Cl.³ B21D *3/02*; E21B *43/013*; F16L *1/04*
U.S. Cl. 405—158 **15 Claims**



1. A system for laying subsea pipelines, said system comprising: a reel; a pipeline wound on said reel; support means for rotatably supporting said reel, said support means and said reel with said wound pipeline being submergible to a seabed; securing means including a base structure capable of being secured on the seabed and means for attaching said support means to said base structure; and means for drawing said pipeline off of said reel from the location of said support means towards a desired termination location.

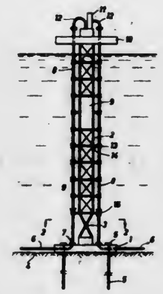
13. A method for installing subsea pipelines comprising the steps of: winding the pipeline to be installed onto a reel; mounting the reel on a support member in such a manner that the reel is rotatable on the support member; submerging the support member and the reel to a seabed; securing the support member to the seabed; drawing the pipeline off of the reel from the location of the support member towards a desired termination location; and connecting the free end of the pipeline at the termination point.

4,273,470

OFFSHORE PRODUCTION RISER WITH FLEXIBLE CONNECTOR

Everhard C. Blomsma, and Paulus T. M. Holtslag, both of Rijswijk, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 16, 1979, Ser. No. 3,698
Claims priority, application United Kingdom, Jan. 20, 1978, 2383/78
Int. Cl.³ E02D *21/00*; E21B *17/01*
U.S. Cl. 405—202 **11 Claims**



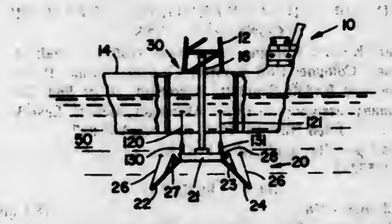
1. Offshore installation comprising a base carrying at least one fluid conduit and adapted to be placed on the sea bottom, an oblong structure adapted to be substantially vertically positioned in the water, a joint interconnecting said base and the lower end of said structure in a manner allowing the structure to sway in the water when the base is placed on the sea bottom, at least one substantially straight pipe coupled at one end thereof to the fluid conduit of the base extending upwards substantially parallel to the structure, and a plurality of supports forming support means between the pipe and the structure to restrict lateral displacements of the pipe with respect to the structure, wherein the lowermost support of the support means is constituted by a guide sleeve that is situated at a level above the joint and is of a length greater than the support means above said sleeve and is of an internal diameter to allow up to 3° deviation between the central axis of the sleeve and the central axis of the pipe.

4,273,471

MARINE-DRILLING SUB-BASE ASSEMBLY FOR A SOFT-BOTTOM FOUNDATION

Ben G. Burke, Lafayette, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Jun. 13, 1979, Ser. No. 48,130
Int. Cl.³ E02B *17/02*; E02D *27/52*
U.S. Cl. 405—203 **12 Claims**



1. A drilling sub-base assembly for use at a site under a body of water having a soft-bottom foundation wherein drilling operations are conducted through a moon pool of an offshore drilling vessel, comprising:

a main section of the drilling sub-base assembly dimensioned for ease of passage through the moon pool, said main section having an aperture formed therein and being adapted to be positioned on the underwater bottom; and

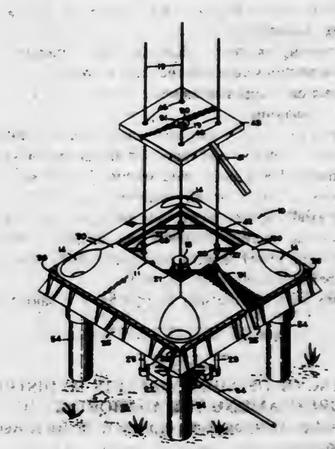
secondary sections pivotally affixed to said main section on at least two opposite sides thereof to hang from said main section to be in a substantially vertical position with respect thereto when the drilling sub-base assembly is located in the moon pool so that the drilling sub-base assembly may pass therethrough and said secondary sections in a substantially horizontal position relative to said main section when said drilling sub-base assembly is positioned on the underwater bottom wherein said secondary sections are restrained from moving to a position above the horizontal with respect to said main section so that the necessary foundational base for the carrying-on of drilling operations is provided.

4,273,472

APPARATUS FOR PROTECTING SUBSEA WELLS

Andre L. Piazza, Houston; Michael J. Kresek, Spring, and Thomas J. Ames, Houston, all of Tex., assignors to FMC Corporation, San Jose, Calif.

Filed Oct. 18, 1978, Ser. No. 952,418
Claims priority, application United Kingdom, Feb. 20, 1978, 6720/78
Int. Cl.³ E02B *17/02*; E02D *31/00*
U.S. Cl. 405—211 **5 Claims**



1. Apparatus for protecting subsea structures on the sea floor from physical damage caused by nets, anchors and other marine equipment, said apparatus comprising:

a deflecting structure for mounting over said subsea structures, said deflecting structure including an inclined roof portion, a skirt-like anchor deflector and means for pivotally connecting said anchor deflector to a lower portion of said roof portion, said deflecting structure having an opening in the upper portion thereof for access to said subsea structure;

at least one supporting pile placed in said sea floor to secure said deflecting structure in place;

means for connecting said deflecting structure to said supporting pile; and

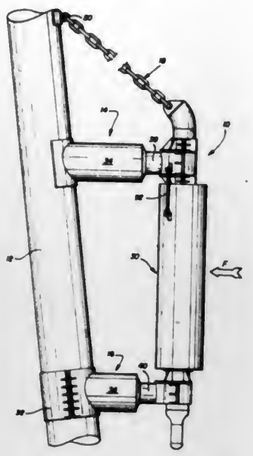
a protective cap for mounting in said opening of said deflecting structure.

4,273,473

SHOCK ABSORBING COLUMN

Clarence Thomerson, and Jay W. Jackson, both of Corsicana, Tex., assignors to Regal Tool & Rubber Co., Inc., Corsicana, Tex.

Filed Mar. 13, 1979, Ser. No. 20,163
Int. Cl.³ E02B 3/22, 17/00; B63H 21/04
U.S. Cl. 405—212 18 Claims



1. In a bumper assembly for use on an offshore structure to provide protection from contact from vessels, said assembly comprising in combination:

(a) a vertically extending elongate contact member having hollow portions adjacent the ends thereof;

(b) at least one support member extending into each of said hollow portions;

(c) at least two axially spaced resilient means coupling said contact member to said support member, one of said resilient means being positioned within each of said hollow portions of said contact member, said resilient means being axially spaced to provide an unsupported length of said contact member between said resilient means;

(d) upper and lower support arms connected to said support member at spaced locations; and

(e) means for attaching said support arms to said structure.

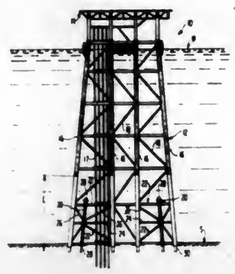
4,273,474

GROUTING OF OFFSHORE JACKETS TO DISTRIBUTE FORCES AMONG THE ANCHORING PILES

Jay B. Weidler, Houston, Tex., assignor to Brown & Root, Inc., Houston, Tex.

Filed May 11, 1979, Ser. No. 38,272
Int. Cl.³ E02B 17/00
U.S. Cl. 405—225 12 Claims

1. In an offshore jacket of the type comprising a plurality of main hollow pile sleeves and a plurality of secondary hollow pile sleeves of shorter height than said main sleeves and connected to said main sleeves by framing, all of said pile sleeves resting on said seabed and extending upwardly therefrom; a plurality of main piles disposed within said main sleeves and projecting downwardly therebeyond into the seabed; a plurality of secondary piles disposed within said secondary sleeves and projecting downwardly therebeyond into said seabed, said main and secondary piles being connected to their respective main and secondary sleeves by grout disposed within an annulus between the sleeve and the pile, so that said piles resist axial forces; the grout within the annulus of each secondary sleeve extends to the seabed; the improvement wherein the grout within at least some of said main sleeves terminates above the seabed to decrease the axial spring value of the associated main



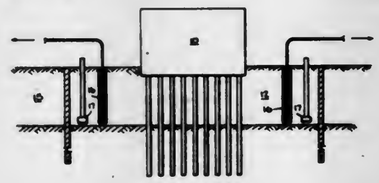
piles and thereby increase the proportion of the axial forces which are borne by said secondary piles.

4,273,475

LOAD SUPPORTING STRUCTURE

Francis M. Fuller, Houston, Tex., assignor to Raymond International Inc., Houston, Tex.

Division of Ser. No. 725,497, Sep. 22, 1976, Pat. No. 4,124,982.
This application May 18, 1978, Ser. No. 907,306
Int. Cl.³ E02D 3/10, 27/00
U.S. Cl. 405—229 3 Claims



1. In a region normally including a stratum of loose water bearing granular soil having liquefaction potential, a load supporting system comprising: load bearing means in said region extending to a depth at least to a load bearing level, endless wall means in said region extending to a depth at least equal to the depth of said stratum to confine that portion of said stratum above a load bearing level and within said wall means and to resist the flow of ground water into said stratum, and water removing means including means within said stratum confined by said endless wall means and extending to a depth near the bottom of the stratum for removing water from within the confines of said wall means substantially to dewater said soil to a degree sufficient to stabilize said soil having liquefaction potential thereby to provide additional support for said load bearing means.

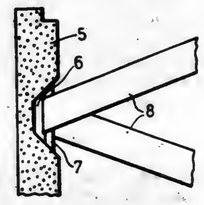
4,273,476

REINFORCEMENT OF ARMORED EARTH WORK CONSTRUCTIONS

Bernhard Kotulla, Cologne; Hans Haas, Hoffnungsthal; Martin Weiser, Cologne; Rolf Förster, Cologne; Lothar Preis, Cologne, and Rudolf Schmidt, Burscheid, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen

Filed Nov. 15, 1978, Ser. No. 960,817
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1977, 2753243
Int. Cl.³ E02D 5/00
U.S. Cl. 405—258 18 Claims

1. A method of reinforcing an armoured earthwork construction comprising the steps of: providing at least one exposed connecting element in the outer skin of at least one building member; impregnating at least one high-strength corrosion-resistant netted or weaved band with liquid reaction resins, which harden after the band has been embedded in the



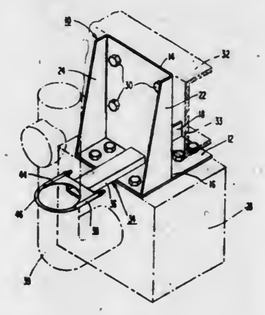
earth; wrapping each band around a connecting element; and embedding the free ends of the band in the earth.

4,273,477

METHOD AND APPARATUS FOR INSTALLING A DRY BULK OFF-LOADING SYSTEM

John T. Murphy, Audubon, Pa., assignor to R & M Associates, Inc., Valley Forge, Pa.

Filed Oct. 3, 1978, Ser. No. 948,382
Int. Cl.³ B65G 53/40
U.S. Cl. 406—39 1 Claim



1. In a system for off-loading dry bulk material from a transporting vehicle, bracket for mounting a blower on a frame member of said vehicle whereby the center of gravity of said blower is beneath said frame member, said blower mounting bracket comprising:

a. a first support member comprising a blower attachment plate having a first surface adapted for mating with said blower and a second surface opposite said first surface;

b. a second support member extending from and substantially perpendicular to said second surface of said first support member, said second support member comprising a frame attachment plate having a first surface adapted for mating with said vehicle frame member and a second surface opposite said first surface;

c. torsion resisting means comprising:

i. first and second side plates extending from and substantially perpendicular to said second surface of said frame attachment plate, one edge of each of said side plates being rigidly attached to said second surface of said blower attachment plate; and

ii. at least one stiffener plate extending from said second surface of said blower attachment plate, one edge thereof being rigidly attached to said first surface of said frame attachment plate; and

d. pipe support means comprising:

i. an elongate pipe support member having a substantially rectangular cross-section, a first end of said pipe support member being rigidly attached to said second surface of said blower attachment plate between said first and second side plates, adjacent said second surface of said frame attachment plate; and

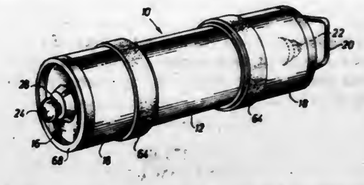
ii. means adapted to engage at least a portion of the periphery of a blower discharge pipe, said means rigidly attached to a second end of said pipe support member opposite said first end.

4,273,478

LOCKING SECURITY CONTAINER

Stig Cedergren, c/o Robsahm, Strindbergsgat. 53, S-115 31 Stockholm, Sweden

Filed Apr. 6, 1978, Ser. No. 893,980
Claims priority, application Sweden, Apr. 12, 1977, 7704195
Int. Cl.³ B65G 51/06
U.S. Cl. 406—189 8 Claims



1. A lockable security container for valuables comprising:

a container including a central body and a closure cap provided on at least one end thereof;

said container including an interal space for positioning valuables;

said internal space being defined between an inner wall of said central body and end walls of said container;

an electrical circuit including a first portion substantially covering the entire inner wall of said central body;

said electrical circuit including a second portion substantially covering the entire end walls of said container;

said first and second portions of said electrical circuit being operatively connected to each other and to a power source;

means for damaging the valuables positioned within said container including a housing positioned within said internal space for containing a dye;

said housing including a plunger interposed between a charge of powder and said dye; and

said charge of powder being operatively connected to said electrical circuit and said power source thereby shortcircuiting said electrical circuit activates said charge of powder to move said plunger against said dye to uniformly spray said internal space and damage said valuables.

4,273,479

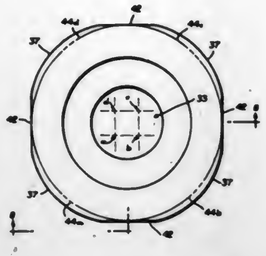
CUTTER ASSEMBLY FOR BROACHING

Arthur J. Rapp, Jr., Milford; Michael N. Gerasin, Drayton Plains, and M. Leonard Thompson, Livonia, all of Mich., assignors to The Valeron Corporation, Troy, Mich.

Filed Nov. 28, 1979, Ser. No. 98,229
Int. Cl.³ B26D 1/12
U.S. Cl. 407—113 3 Claims

1. An indexable cutting insert for a broaching tool, said insert including a center, a top planar surface, a bottom planar surface, and a peripheral surface, said peripheral surface bounding an inscribed circle which has a center coincident with the center of said insert, said peripheral surface including a plurality of flat planar surfaces that are parallel to the longitudinal axis of said insert and a plurality of bulges, said flat planar surfaces being substantially tangent to said inscribed circle and each bulge being defined by a corresponding center of curvature and radius of curvature, the radius of curvature of each bulge being at least four times greater than the distance from the center of curvature of each bulge to the center of said inscribed circle, the top planar surface and bottom planar

surface being substantially perpendicular to the longitudinal axis of said peripheral surface and the intersection of the top planar surface and bottom planar surface with the bulges on



said peripheral surface defining a plurality of cutting edges, and said flat planar surfaces providing an indexing mechanism for said insert whereby said insert may be accurately indexed in multiples of 90°.

4,273,480

THROWAWAY TIP

Makoto Shirai; Michinobu Ito, and Osamu Kato, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed Oct. 16, 1978, Ser. No. 951,816

Claims priority, application Japan, Oct. 17, 1977, 52/138842[U]

Int. Cl.³ B26D *1/00*

U.S. Cl. 407—114 **10 Claims**



1. In a throwaway tip for use in a lathe cutting tool, having a cutting edge formed about the periphery of the tip and a chip breaker groove formed on a surface, the improvement comprising, said breaker groove formed by a plurality of generally spherical recesses disposed adjacent said cutting edge and contacting each other.

4,273,481

HYDRAULIC STOP

John E. Corley, St. Charles; Joseph M. Mitchell, Marthasville, and Charles M. Andert, Florissant, all of Mo., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Dec. 17, 1979, Ser. No. 104,076

Int. Cl.³ B23B *47/24*

U.S. Cl. 408—14 **4 Claims**

1. An automatic hydraulic stop for use with a numerical control machine and drill bit to limit the depth a drill bit penetrates a work piece comprising:

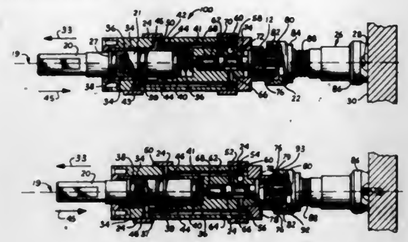
an elongated driver interconnected at its first end to said numerical control machine to rotate about an axis, said driver having a piston on its second end;

a body member surrounding and attached to the piston end of said driver to rotate with said driver about said axis and transmit rotary motion to said drill bit affixed to said body member, said piston end of said driver located in a first cavity within said body member defining first and second chambers, the volumes of said chambers varing proportionally with the location of said piston in said cavity;

hydraulic fluid to fill said first chamber to transmit a force lineally along said axis from said driver to said drill bit;

spring means interconnected between said body member and said driver to bias said piston end of said driver out of said body member lineally along said axis enlarging the volume of said first chamber and decreasing the volume of said second chamber;

first valve means permitting unidirectional flow of hydraulic fluid between said chambers;



second valve means designed to open at a predetermined force permitting the flow of hydraulic fluid in the opposite direction of the first valve means between said chambers, and

sensing means attached to said body member to contact a work piece to be drilled and transmit a predetermined force to said second valve means thereby opening said valve means when the drill bit has penetrated said work piece to the prescribed depth.

4,273,482

AUTOMATIC TOOL-MOVING MACHINE

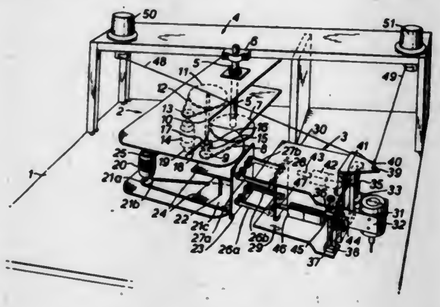
William M. LLoyd, Hartley, and Brian M. Lloyd, Higher Compton, both of England, assignors to Conti-Form Machine Tools Limited, Plymouth, England

Filed Jun. 27, 1979, Ser. No. 52,663

Claims priority, application United Kingdom, Jul. 3, 1978, 28609/78

Int. Cl.³ B23Q *21/00*; G05B *00/00*

U.S. Cl. 409—80 **15 Claims**



1. An automatic machine for effecting required movements of an element over a two-dimensional work area, said machine comprising:

fixed structure,

first support means in the form of a cantilevered arm having inner and outer arm parts respectively articulated to said fixed structure and to said inner arm part,

second support means mounting said element and carried at the free end of said outer arm part in a manner permitting relative movement between said second support means and the outer arm part within predetermined displacement limits whereby to enable the said element to be moved

over a zone of the work area, the location of said zone within the work area being dependent on the instantaneous position of the first support means,

a first servo control loop including first movement means in the form of respective motors for articulating the inner and outer arm parts whereby to enable the second support means and the said element to be displaced over substantially the whole of the work area; first sensing means arranged to generate output signals indicative of the approach of the second support means to a said limit of its displacement relative to the said outer arm part; and first control means for controlling operation of said first movement means in dependence on the output signals of said first sensing means; and

a second servo control loop including second movement means in the form of two linear actuators operative to move the second support means relative to the outer arm part in respective mutually orthogonal directions, the said two linear actuators being arranged such that their respective lines of action are substantially parallel to each other, and the second movement means further including a linkage system effective to transpose the action of the said actuators from their lines of action to said mutually orthogonal directions; second sensing means arranged to generate feedback signals indicative of movement of the said element over the work area relative to the machine fixed structure; storage means for storing demand signals indicative of the required movement of the element relative to said fixed structure; and second control means arranged to receive said feedback and demand signals and being operative in dependence thereon to control the second movement means with a view to causing the latter to effect the said required movement by itself notwithstanding the said limits on the permitted relative movement between the outer arm part and the second support means;

said first servo control loop being responsive to the second support means approaching a said limit of its displacement relative to the outer arm part, to so move the first support means relative to the fixed structure as to contribute to the said required movement of said element sufficiently to prevent the second servo control loop seeking to move the second support means beyond the relevant said displacement limit.

4,273,483

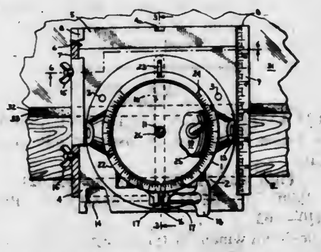
DEGLAZING TOOL

Lyle J. Mendicino, 130 Jefferson St., North Fond du Lac, Wis. 54935

Filed Aug. 6, 1979, Ser. No. 64,009

Int. Cl.³ B27C *5/10*

U.S. Cl. 409—178 **4 Claims**



1. A portable deglazing tool for removing glazing compound and glazier points from the inside ledge of window frames while simultaneously refinishing the wood surfaces to which the compound has been applied, which comprises a base disposed to overlie the window frame and having a generally centrally located slot therein extending at right angles to the frame of the window upon which the base of the tool is disposed, guide means located on each side of the base in generally parallel relation to the slot, a sub-base disposed over the base with a central aperture therein in alignment with the slot in the base and adapted to be moved over the base within the guide means, a generally cylindrical housing having an open supporting means at the lower end secured to the sub-base, an electric motor rotatably disposed within the cylindrical housing, a first cooperating indexing means on the supporting means and sub-base which is disposed in predetermined alignment by movement of the sub-base to locate the motor in a selected location longitudinally of the window frame and with respect to the ledge thereof, means to secure the sub-base to the base when the selected alignment of the base and sub-base have been completed and the motor properly located with respect to the ledge, a fluted cutting bit secured at the upper end to the motor within the supporting means and rotated by the motor at a speed of at least 20,000 r.p.m. and adapted to extend through the aperture in the sub-base and the slot in the base to engage the glazing compound on the ledge, and the cylindrical housing being split vertically and having a grooved helical track on the inside, and abutments on the frame of the motor disposed to ride in said track to permit rotation of the motor clockwise or counterclockwise of the motor to locate the motor and cutting bit at various selected heights within the cylindrical housing, the height position of the motor being determined by alignment of a second cooperating indexing means comprising a selected index mark on a rotatable scale on top of the cylindrical housing being aligned with a selected scale mark on the housing of the motor, and a wing nut assembly secured to the two parts of the cylindrical housing and disposed to be tightened to secure the motor within the cylindrical housing in the selected height position to locate the cutting tool over the ledge of the frame at a predetermined depth to then activate the cutting bit and remove the glazing compound and glazing points from the ledge and refinish the wood bordering the ledge without injury to the wood or glass in the event window glass is located on the ledge.

4,273,484

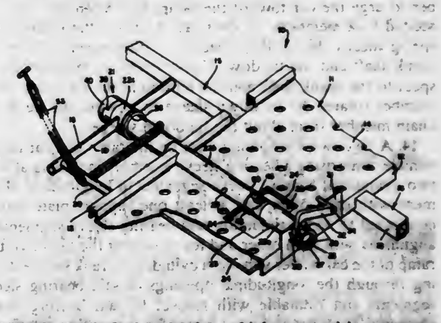
QUICK RELEASE WINCH TIE DOWN AND RAMP ASSEMBLY

Gregory G. Blanar, Marietta, Ga., assignor to Bankhead Enterprises, Inc., Atlanta, Ga.

Filed Jul. 16, 1979, Ser. No. 57,826

Int. Cl.³ B60P *3/06, 7/08*; B61D *45/00*; B66D *1/04*

U.S. Cl. 410—12 **14 Claims**



1. A tie down for car hauler vehicles comprising an outer bearing sleeve for mounting to the ramp of a vehicle, a cylindrical crank shaft extending through said bearing sleeve, a ratchet attached to said crank shaft and a pawl arranged to engage said ratchet to prevent rotation of said ratchet and said crank shaft in one direction while permitting rotation of said crank shaft in the other direction, a release shaft extending through said crank shaft and having one end thereof protruding from said crank shaft, at right angles to the protruding end of said release shaft, a tie down sleeve extending about said crank shaft and said release shaft and including

a second lock member mounted on one end thereof for engagement with said first lock member, spring means for urging said first lock member into engagement with said second lock member whereby said release shaft and said tie down sleeve are locked together and are rotatable in unison, and connector means for connecting said crank shaft and said release shaft in telescopic relationship for rotation together, a tie down chain means having an end portion thereof connected to said tie down sleeve with its other end portion being connectable to an automobile carried on the ramp, said crank shaft defining an opening therein through which said release shaft can be engaged and moved longitudinally whereby when the tie down chain means is connected to an automobile on the ramp to which the tie down is mounted and the crank shaft is rotated, the release shaft, both lock members, and the tie down sleeve also rotate to wrap the tie down chain means about the tie down sleeve and effectively shorten the tie down chain means and urge the automobile to which the tie down chain means is connected toward the ramp, and when the release shaft is moved longitudinally with respect to the crank shaft the lock members disengage and the tie down sleeve is free to rotate about the crank shaft and the release shaft so that tension in the tie down chain means causes the tie down sleeve to rotate an unreel and tie down chain means from about the tie down sleeve.

6. A ramp assembly for a car hauler vehicle including in combination a pair of spaced parallel tracks for supporting the wheels of a car, the combination therewith of each track including at lest one tie down assembly for holding the car on the ramp assembly, each of said tie down assemblies comprising an outer bearing sleeve mounted to its track, a crank shaft rotatably received in said bearing sleeve, retaining means for preventing rotation of said crank shaft in one direction while permitting rotation of said crank shaft in the other direction, a tie down sleeve rotatable about said crank shaft, a release shaft positioned within said tie down sleeve and telescopically connected to said crank shaft for rotation with said crankshaft, a first lock member mounted on said release shaft, a second lock member mounted on said tie down sleeve, spring means biasing said first and second lock members toward locked engagement with each other, means for releasing said tie down sleeve from said crank shaft, and a tie down chain member connected at one of its end portions to said tie down sleeve, whereby when the first and second lock members are locked together and when the tie down chain member is connected to a car on the ramp and the crank shaft is rotated the tie down sleeve also rotates and winds the tie down chain member about the tie down sleeve and effectively shortens the tie down chain member to urge the car toward the ramp, and when the first and second lock members are disengaged against the force of the spring means the tie down sleeve is disconnected from the crank shaft and the tie down sleeve is free to rotate with respect to the crank shaft and the tension in the tie down chain member rotates the tie down sleeve to unwind the tie down chain member from about the tie down sleeve.

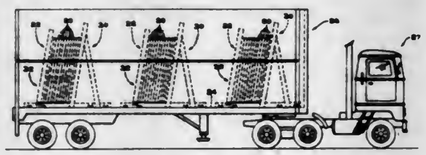
14. A tie down for holding a car on the ramp of a car hauler vehicle comprising a bearing sleeve assembly including at least two cylindrical bearing sleeve segments in longitudinal alignment with each other and at least one support plate rigidly connected to and maintaining said bearing sleeve segments in alignment with each other and for mounting the tie down to a ramp of the car hauler vehicle, a cylindrical crank shaft extending through the longitudinal openings of said bearing sleeve segments and rotatable with respect to said bearing sleeve segments, a ratchet and pawl means for preventing rotation of said crank shaft in one direction of rotation with respect to said bearing sleeve segments and allowing rotation of said crank shaft in the other direction of rotation with respect to said bearing sleeve segments, a tie down sleeve positioned coaxially about said crank shaft and positioned in a space between said bearing sleeve segments and rotatable with respect to said crank shaft, releasable lock means for releasably connecting said crank shaft and said tie down element, said releasable lock means comprising a release shaft positioned in said crank shaft and movable along the length of said crank shaft for rotation with said crank shaft and including an end portion protruding from an end of said crank shaft, a first lock element at the protruding end of said release shaft, and tie down sleeve including a second lock element, spring means arranged to urge said release shaft along its length until said lock elements are in locking engagement with each other so that said tie down sleeve and said crank shaft are locked together, said crank shaft defining an opening in its side portion at a position between bearing sleeve elements which exposes said release shaft to the outside of the tie down for engagement by an actuating tool, a tie down chain member having one end portion connected to said tie down element and the other end free for connection to a car on the ramp of the car hauler, whereby when the releasable lock means is connected between said crank shaft and said tie down element and the crank shaft is rotated the tie down sleeve rotates in unison therewith to reel the tie down chain member about the tie down sleeve, and when the releasable lock means is disconnected between said crank shaft and said tie down sleeve the tie down sleeve is independently rotatable with respect to said crank shaft and said bearing sleeve elements and any tension applied to the tie down chain member rotates said tie down sleeve and unreels the tie down chain member from about the tie down sleeve.

4,273,485

SEMI-TRAILER SHIPPING SUPPORT STRUCTURE

Wolfgang Fischer, Carlisle, and William J. Brown, Lower Burrell, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 7, 1978, Ser. No. 931,709
Int. Cl.³ B60P 7/10; B61D 3/16, 45/00
U.S. Cl. 410—34 **14 Claims**



1. A front restraint for a rack for shipping articles on a vehicle, wherein the rack is of the type having a pair of spaced elongated runners, each of the runners having a horizontal supporting surface and an opposite second surface; back support means; and means for mounting the back support means on the runners, comprising:

at least one upright having a first end and a second end;

means for slidably mounting the first end of said upright on the supporting surface of one of the runners; and

means engaging the opposite second surface of the runner when the second end of said upright is tilted toward the back support means for locking said slidably mounting means on said one of said runners.

4,273,486

WINCH AND CHAIN ATTACHMENT ASSEMBLY

Richard A. Tatina, Bridgeview, Ill., assignor to Portec, Inc., Oak Brook, Ill.

Filed May 31, 1977, Ser. No. 801,621
Int. Cl.³ B60P 7/08; B61D 45/00; B65D 63/00; B66D 1/00
U.S. Cl. 410—103 **5 Claims**

1. In a tie-down winch for tying cargo to the deck of a flat deck transporting vehicle,

at least one channel extending longitudinally along the deck of the vehicle and having a web,

parallel spaced side walls extending upwardly of said web,

retainer flanges extending inwardly of said side walls,

a tie-down winch carried in said channel and including a base frame having a bottom wall supported on the web of said channel for adjustable movement therealong and having parallel spaced side walls and a top wall, said top, bottom and side walls being integrally formed,

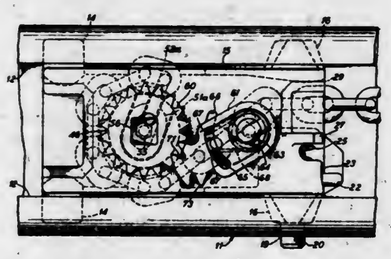
at least one locking member carried by said base frame for movement relative to said base frame into interengagement with said channel to hold said base frame in position in said channel,

a tie-down chain having horizontal and vertical links connected together and adapted to be connected to cargo on said flat deck,

a vertical axis winch block mounted on said base frame between the top and bottom walls thereof and journalled in said top and bottom walls for take-up movement relative to said base frame,

a ratchet having interengagement with said winch block,

a pawl pivoted on said top wall of said base and having pawl teeth positionable to engage said ratchet and accommodate rotation of said ratchet and winch block in chain take-up increments and to hold said winch block from rotation as tension is taken up on said chain, and



spring means resiliently retaining said pawl teeth in engagement with said ratchet,

the improvement comprising,

an upwardly opening chain pocket recessed in said winch block for an end horizontal link of a tie-down chain and a depending recessed portion extending from said chain pocket to the periphery of said winch block and forming a partial chain pocket for a next adjacent vertical link of said tie-down chain,

said ratchet having a depending boss having interengagement with said block and having a vertically extending chain pocket registering with and completing said partial chain pocket in said winch block to receive a next adjacent vertical link of said tie-down chain and complete said partial chain pocket, and

means accessible from the top of said winch for retaining said ratchet to said winch block and said tie-down chain to the chain pocket formed by said winch block and boss.

4,273,487

CARGO TIE-DOWN ANCHOR

Richard E. McLennan, Rancho Palos Verdes, Calif., assignor to Satron, Inc., El Segundo, Calif.

Filed Jun. 13, 1979, Ser. No. 47,989
Int. Cl.³ B60P 7/08; B61D 45/00
U.S. Cl. 410—105 **12 Claims**

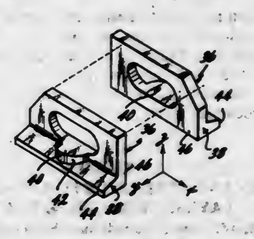
1. An end fitting for cargo tiedown gear for connecting the cargo tiedown gear to a tiedown track wherein the track includes having a pair of spaced undercut longitudinally-extending flanges, a longitudinally-extending hollow space of uniform reentrant lateral cross section defined beneath the flanges and within the track, the hollow space having a uniform width in the lateral direction, said flanges including edges which face each other, the edges including opposite straight portions alternating along the edge with opposing concave portions in a periodic sequence, said end fitting being of the butterfly type wherein two halves of the end fitting are juxtaposed at a position along the track and are inserted into the track by simultaneously pivoting the halves in opposite senses about longitudinal axes, said end fitting comprising:

two halves, each half being a rigid unitary structure extending in longitudinal and lateral directions that are aligned with the longitudinal and lateral directions of the track when the halves have been inserted into the track, and extending in a vertical direction that is orthogonal to the longitudinal and lateral directions, each half comprising:

a foot having a toe, a heel and sole, said foot thin enough in the vertical direction to permit the toe to extend into the undercut space beneath one of the flanges of the track to prevent the half from being pulled vertically out of the track;

said toe being thinner in a vertical direction than the remainder of said foot;

a back plate extending longitudinally and extending vertically from the heel of the foot far enough to extend outward and beyond the flanges when the half has been inserted in the track, the thickness of said back plate in the



lateral direction being greater than the thickness of the foot in the vertical direction, the thickness of said back plate being less than half the lateral spacing between the straight portions of the edges of the flanges of the track by an amount of clearance adequate to permit the halves to be pivoted into the track but sufficiently small that after the halves have been inserted into the track, lateral motion of the end fitting within the track is limited by the straight portions of the edges of the flanges of the track;

a land elevated vertically above said foot and supported by a pedestal extending vertically from said foot, said pedestal extending laterally toward the toe of the foot far enough to engage one of the concave portions of the edge of a flange of the track when said half has been inserted into the track, to limit movement of said half longitudinally along the track; and,

each of said two halves including means for securing to said two halves cargo tiedown gear when said two halves are inserted in said track.

4,273,488

BALE STACKING WAGON

Amos G. Hill, and Fenton J. Harder, both of Hesston, Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Jun. 5, 1978, Ser. No. 912,441
Int. Cl.³ A01D 87/12; B65G 57/30, 57/32
U.S. Cl. 414—44 **44 Claims**

1. In a mobile machine for building a multilayer stack of crop bales, the improvement comprising:

a generally horizontally disposed bed supported above the ground for travel across a field having a number of bales lying thereon;

apparatus for picking up said bales, elevating the same to said bed, and forming one layer at a time on the bed from the picked up and elevated bales;

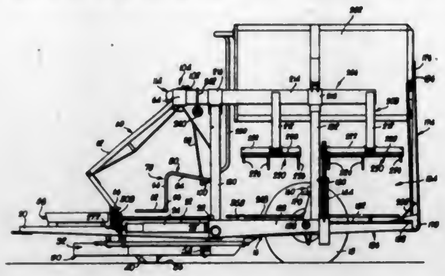
means for vertically reciprocating said bed between, and selectively holding the same at, any one of a number of vertical positions including a layer-forming position and an overhead, layer-transferring position;

structure for successively receiving layers from said bed in said layer-transferring position of the latter and for retain-

ing the same, together with any layers above the retained layer, in spaced disposition above the bed so as to progressively form an upright stack from the bottom up from the layers presented by the bed,

said structure including selectively releasable means operable when released to permit retrograde, lowering movement of layers with the bed; and

mechanism for off-loading a completed stack from said bed while said stack remains upright and while the bed remains substantially horizontal within its path of vertical, reciprocating travel.

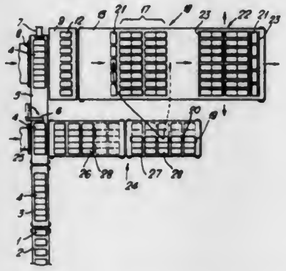


4,273,489

PROCESS AND APPARATUS FOR FORMING OF SET LAYERS FROM BRICK BLANKS

Hans Lingl, Jr., Neu-Ulm, and Josef Schwarz, Vöhringen, both of Fed. Rep. of Germany, assignors to Lingl Corporation, Paris, Tenn.

Filed Dec. 26, 1978, Ser. No. 972,718
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1977, 2758648
Int. Cl.³ B65G 57/26
U.S. Cl. 414—60 **25 Claims**



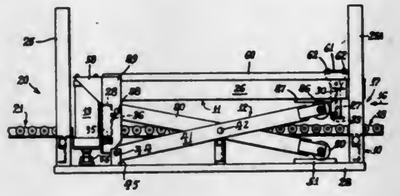
1. A method of forming a layer of green bricks, in which layer rows of the bricks can have the same or differing orientations, which method comprises conveying using first conveyor means bricks in a row, adjacent bricks being near to or in contact with each other, the row being transferred to a displacement device arranged to receive a row from the first conveyor means, bricks of the row being spaced apart from each other longitudinally of the row by the displacement device, transferring the separated rows to second conveyor means transversely of the longitudinal axis of the row to form on the second conveyor means a layer or partial layer, transferring, to supplement the partial layer if required, further bricks in a row from the first conveyor means to a preparatory device comprising third conveyor means, adjacent bricks of the further row being near to or in contact with each other, the third conveyor means conveying the further row transversely of the longitudinal axis of the further row and substantially parallel to the direction of conveyance of the rows on the second conveyor means to form a preparatory layer, transferring, using first transfer gripper means, the preparatory layer or a row from the preparatory layer with simultaneous rotation through 90° to the second conveyor means to supplement the partial layer and transferring, using second transfer gripper means, the layer from the second conveyor means.

4,273,490

STACKING APPARATUS

Raymond E. James, Chicago, Ill., assignor to Palletron Incorporated, Schiller Park, Ill.

Filed Oct. 4, 1979, Ser. No. 81,768
Int. Cl.³ B65G 57/30
U.S. Cl. 414—95 **7 Claims**



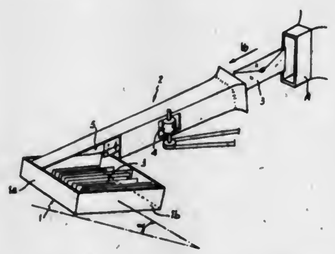
1. Apparatus for forming a vertical stack of pallets being delivered horizontally comprising: means receiving said pallets in a direction parallel to the length of the stringers of said pallet; a vertically reciprocating frame including first and second pivotal end gates extending transverse of said stringers and each including lifter members; power means for selectively raising and lowering said reciprocating frame relative to a pallet received in said apparatus; and actuating means for swinging said gates outwardly of a pallet received in said apparatus when said reciprocating frame is lowered to a position at which the weight of a partial stack held by said reciprocating frame is transferred to a newly received pallet, said actuating means further swinging said gates to a lifting position when said frame is fully lowered.

4,273,491

DEVICE FOR STORAGE OF FLAT OBJECTS

Jacques Roux, Paris, France, assignor to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly-sur-Seine, France

Filed Apr. 14, 1978, Ser. No. 896,485
Claims priority, application France, Apr. 18, 1977, 77 11561
Int. Cl.³ B65G 57/00
U.S. Cl. 414—109 **16 Claims**



1. In a device for forming and storing a stack of flat objects each having a plurality of edges, in a box open on one face, closed on the opposite face, and having a plurality of additional faces extending between said opposite and open faces to define sides, said flat objects being stacked substantially perpendicularly to said opposite face and against one of said sides defining a stacking surface, said objects arriving individually from a processing device in a substantially vertical plane substantially perpendicular to said opposite face and an adjacent side, and remote from said stacking surface and at a certain speed, the improvement comprising:

said box being positioned with respect to said processing device so that objects arrive along a path of travel forming an acute angle with said opposite face;

a stop situated substantially in the plane of said adjacent side of the box and positioned to receive the impact of part of the leading edge of an arriving object, said stop acting on said object to create a couple of rotation in its plane, so that an edge of said object directed towards said opposite face and defining a lower edge is urged against the opposite face of the box; and

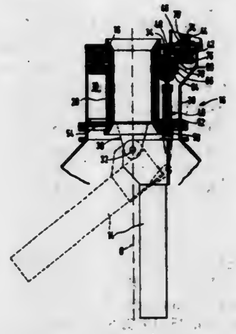
said processing device being situated at a sufficient height with respect to said opposite face so that each flat object, as soon as its lower edge is resting on said opposite face retains its perpendicular orientation thereto and moves against the stack already formed.

4,273,492

CHARGING DEVICE FOR SHAFT FURNACES

Edouard Legille, Luxembourg, and Pierre Mailliet, Howald, both of Luxembourg, assignors to Paul Wurth, S.A., Luxembourg

Filed Aug. 9, 1979, Ser. No. 65,289
Claims priority, application Luxembourg, Aug. 16, 1978, 80112
Int. Cl.³ C21B 7/16
U.S. Cl. 414—160 **15 Claims**



1. An improved charging device for furnaces of the type having a tubular feed channel which directs charge material delivered thereto under the influence of gravity onto a first end of a steerable charge distribution chute, the feed channel having an axis and being circumscribed by a portion of the furnace wall, the improved charging device comprising:

ferrule means, said ferrule means being coaxial with the feed channel, said ferrule means cooperating with the furnace wall portion which circumscribes the feed channel to define an actuator chamber therebetween;

mounting means positioned in said actuator chamber for supporting said ferrule means from the furnace wall, said mounting means including bearing means for permitting rotation of said ferrule means with respect to the furnace wall about the feed channel axis, said bearing means comprising a bearing block affixed to said ferrule means;

heat shield means affixed to said ferrule means, said heat shield means extending outwardly from said ferrule means toward the said furnace wall portion and defining the lower end of the actuator chamber;

means pivotally supporting the distribution chute from said ferrule means whereby the chute will rotate with said ferrule means, said supporting means positioning the chute such that the receiving end thereof is beneath the feed channel;

telescopic control rod means, said control rod means being pivotally connected at a first end to the distribution chute, said control rod means extending through said heat shield means into the actuator chamber, said control rod means including relatively rotatable upper and lower elements, said lower element being articulated to the chute;

first drive means for imparting rotation to said ferrule means, said first drive means being in part positioned in said actuator chamber and being operatively connected to said mounting means bearing means bearing block;

second rotation imparting drive means, said second drive means being in part positioned in said actuator chamber; and

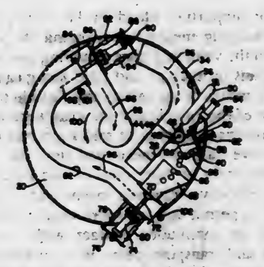
means coupling said second drive means to said control rod means upper element to cause rotation thereof to thereby vary the length of said control rod means whereby the distribution chute will pivot on said support means, said second drive means being operable independently of said first drive means, said coupling means being rotatably supported from said mounting means bearing means bearing block.

4,273,493

ROTARY FURNACE VOLUMETRIC FEEDER WITH SEALED CHUTE

William I. Bayly, Livingston; Louis J. Rambolo, Toms River; Ernest E. Fazekas, and Frank Korzeb, both of Westfield, all of N.J., assignors to American Gas Furnace Company, Elizabeth, N.J.

Filed Dec. 11, 1978, Ser. No. 968,579
Int. Cl.³ F27B 7/32
U.S. Cl. 414—221 **5 Claims**



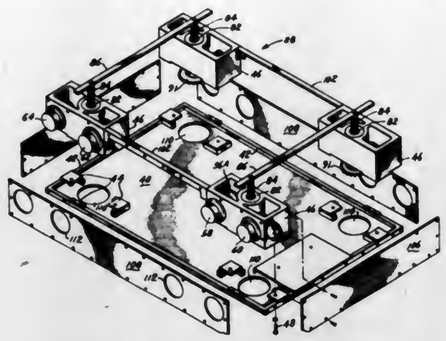
1. A volumetric feeder for a rotary furnace, comprising a measuring station; discharging means for discharging workpieces into the furnace; a discharge chute communicating with said measuring station and said discharging means; first gate means disposed at one end of said discharge chute proximate said measuring station and timed to open and receive workpieces at a particular point in a rotary cycle of the furnace; second gate means disposed at the other end of said discharge chute proximate said discharging means, said second gate means opening at another time in said rotary cycle of the furnace after said first gate means to permit workpieces to be discharged by gravity from said discharge chute into said discharging means; and purging means for purging outside air from said discharge chute, said purging means including supplying means communicating with said discharge chute proximate said discharging means for supplying a protective atmosphere to said discharge chute and exhausting means communicating with said discharge chute proximate said measuring station for exhausting outside air from said discharge chute in response to the supply of protective atmosphere to said discharge chute by said supplying means.

4,273,494

STORAGE RACK ENTRY VEHICLE

James C. Swain; John D. Dickson, both of Columbus, and Larry E. Schluer, Sugar Grove, all of Ohio, assignors to Interlake, Inc., Oak Brook, Ill.

Filed Sep. 27, 1978, Ser. No. 946,152
Int. Cl.³ B65G 65/00; B66B 9/20
U.S. Cl. 414—266 7 Claims



1. A vehicle for transporting loads of substantial weight and adapted to operate on a surface comprising:

a substantially continuous rectangular flexible plate means having a major planar area substantially horizontal and parallel to said surface,

a plurality of rigid box means mounted directly upon and supported by said plate means adjacent each corner thereof,

transport means mounted on each of said rigid box means and supporting the vehicle for movement upon said surface,

means for supporting a load on the vehicle including elevation changing means for changing the elevation of the load on the vehicle, means mounting said elevation changing means on each of said rigid box means,

said plate means being sufficiently flexible to flex due to the weight of the vehicle and the load thereon to effect vertical movement of ones of said rigid box means and their respective transport means and elevation changing means independently of other ones of said rigid box means and their respective transport means and elevation changing means to permit said transport means to move toward and remain in continuous contact with said surface upon which said transport means move when a portion of the surface upon which a given one of said transport means is in contact varies in elevation from other portions of the surface upon which the other of said transport means are in contact.

4,273,495

APPARATUS AND METHOD FOR LAYING COMPOST IN A MUSHROOM BED

Robert T. Pannell, Kennett Square, Pa., assignor to Pannell Manufacturing Corporation, Avondale, Pa.

Filed Jul. 23, 1979, Ser. No. 59,580
Int. Cl.³ A01G 1/04; B65B 1/30
U.S. Cl. 414—272 4 Claims

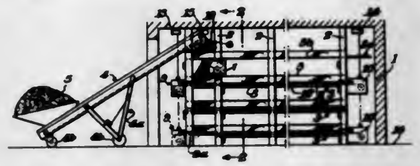
1. Apparatus for depositing a uniformly thick and uniformly dense layer of compost along the entire length and width of a shelf in a mushroom growing house, which apparatus comprises:

(a) a supply elevator conveyer which supplies compost into said mushroom house to a location near one end thereof, the supply end of said shelf; and

(b) a transverse, variable speed, reversible belt conveyer capable of being driven at variable speeds and in reversible directions, said transverse conveyer being located above and adjacent said shelf in close proximity to said supply end thereof, and being capable of receiving compost from said supply elevator and distributing compost into and across said shelf at the supply end thereof onto

(c) a moving web, which web moves along the bottom of said shelf in a direction from the supply end thereof toward the far end thereof, and which web receives said compost distributed onto it by said transverse conveyer at the supply end of the shelf and carries the compost toward the far end of the shelf; and

(d) a fixed, rotating leveling member having rotatable elements located above said shelf in close proximity to the supply end thereof, said elements extending over the entire width of the bed, being prepared and being positioned above the shelf such that on rotation said elements pass over the compost at a desired height from the floor of



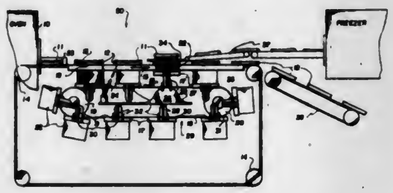
the shelf contacting only compost beyond said height and throwing it upwardly and back into the area initially receiving material, thereby preventing any substantial carryover of compost downstream and thereby leveling the compost to a desired and uniform thickness as the compost passes under said leveling member, whereby, as compost is being supplied, the supply conveyer, the transverse conveyer, the moving web and the leveling member all act cooperatively to form a mushroom bed having compost out a uniform depth along the entire length and width of said bed, said rotatable elements comprising blades of an open type construction comprising an outer member extending parallel to the axle rotating said elements and struts perpendicular to said outer member and connecting said outer member to said axle, thereby providing open spaces between said struts.

4,273,496

DEVICE FOR DEPANNING FRESHLY BAKED PIZZA OR OTHER BAKED GOODS

Gregory C. Papalexis, Cambridge Way, Alpine, N.J. 07620

Filed Jul. 25, 1979, Ser. No. 60,640
Int. Cl.³ B65G 59/00
U.S. Cl. 414—417 11 Claims



1. A device for depanning freshly baked goods having a crust soon after they leave an oven and before the crust softens comprising:

a pan conveyor adapted to extend from the oven;

baking pans having a plurality of perforations therethrough disposed on said pan conveyor and moveable thereby in a feed path from the ovens, each pan adapted to carry a baked good having a crust, from the oven;

a pin-block conveyor associated with said pan conveyor;

spaced pin-blocks connected to said pin-block conveyor and moveable thereby into the vicinity of said feed path;

means for spacing said baking-pans equal to the spacing between adjacent pin-blocks;

a plurality of pins extending from each pin-block in a pattern and number corresponding to that of said perforations on said baking pan and each of a diameter at most smaller than that of each of said perforations;

a guide means associated with said pan conveyor and pin-block conveyor for guiding said baking pan on said pan conveyor to bring said perforations into alignment with said pins;

hold down means extending parallel to said pan conveyor for holding down said baking pans while allowing conveying of said baking pans and during vertical movement of said pin-blocks;

pin raising means associated with said pin-block for raising said plurality of pins at a location spaced from the oven after said perforations are brought into alignment with said pins, to extend said pins through said perforations and into contact with the crust in said pan thereby lifting the baked good in said baking pan and separating it therefrom before the crust softens; and,

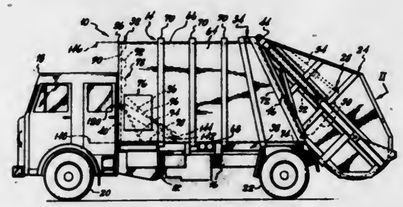
means associated with said pin-block for removing the baked good from said pins.

4,273,497

REFUSE STORAGE AND DISCHARGE APPARATUS

Barrie E. Mealing, and Roderick A. Scott, both of Warwick, England, assignors to Hestair Eagle Limited, Warwick, England

Filed Jun. 13, 1979, Ser. No. 48,314
Claims priority, application United Kingdom, Jun. 26, 1978, 27914/78
Int. Cl.³ B65F 3/28
U.S. Cl. 414—517 4 Claims



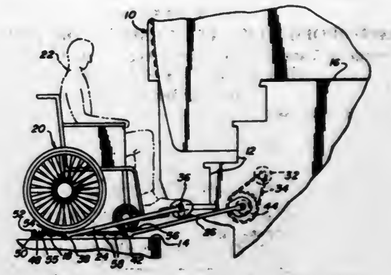
1. Refuse storage and discharge apparatus comprising a refuse container having a discharge end and a non-discharge end, an upright refuse pushing member to push refuse out of the discharge end of the refuse container, said refuse pushing member being mounted in the refuse container for movement lengthwise of the container, a support frame positioned below the refuse container and extending lengthwise of the refuse container, a cantilever secured to the support frame at the non discharge end of the refuse container, said cantilever extending upwards from the support frame and forming a rigid load-resisting structure therewith, said refuse pushing member comprising a substantially vertical upper wall portion from the lower edge of which a lower portion slopes downwards and towards the discharge end of said refuse container, said lower portion being constructed so as to overlie at least part of the cantilever when the refuse pushing member is at the non discharge end of the refuse container, and a hydraulic refuse pushing ram connected between the upper end of said cantilever and a lower portion of the refuse pushing member, the ram extending downwardly from the cantilever and towards the discharge end of the refuse container, the position of the connection between the ram and the cantilever being not higher than halfway between the top and the bottom of said refuse pushing member, said upper wall portion of the refuse pushing member being located substantially directly above said connection when the refuse pushing ram is fully retracted.

4,273,498

RAILWAY CAR TRAP DOOR LIFT

William W. Dickhart, III, Fort Washington, and Richard H. Marvin, Philadelphia, both of Pa., assignors to The Budd Company, Troy, Mich.

Filed Nov. 7, 1979, Ser. No. 92,439
Int. Cl.³ B60P 1/44, 3/06; B61D 1/44, 3/06
U.S. Cl. 414—556 9 Claims



1. In combination with a railway car having steps leading from a lower level outside of the railway car to a higher level inside the railway car,

(a) a movable platform connected to said car having stationary means for securing and positioning a wheeled vehicle thereon against rolling movement in both directions;

(b) means for moving said platform over said steps between said lower and higher levels, and

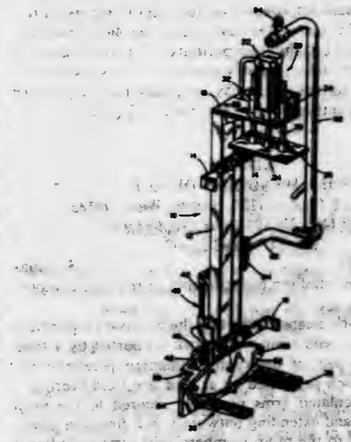
(c) means for maintaining said platform in a horizontal position as it is moved from said lower level to said higher level.

4,273,499

APPARATUS FOR MANIPULATING SIGNATURE BUNDLES

Peter Berko, Royal Oak, Mich., assignor to D. W. Zimmerman Mfg., Inc., Madison Heights, Mich.

Filed Aug. 3, 1979, Ser. No. 63,209
Int. Cl.³ B65G 7/00; B66C 1/44
U.S. Cl. 414—626 8 Claims



1. Apparatus for handling signature bundles comprising an elongate frame member, clamping means carried by one end of said frame member for engaging and releasing an end of a signature bundle, two pivotable arms, said pivotable arms

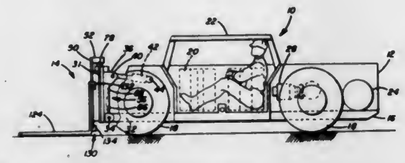
including an upper row of rollers for engaging the other end of the signature bundle, said pivotable arms also including a lower row of rollers for engaging an upper end of another signature bundle, means pivotally connecting said arms to the other end of said frame member, and moving means connected to said pivotal connecting means for moving said pivotable arms between a position for engaging the other end of the signature bundle and a position clear of the signature bundle.

4,273,500

LOW PROFILE LIFT ATTACHMENT FOR A FORKLIFT

George A. Yates, 111 Woodlawn Ave., Grove City, Ohio 43123

Filed Sep. 11, 1978, Ser. No. 941,229
Int. Cl.³ B66B 9/20
U.S. Cl. 414—642 11 Claims



8. A forklift assembly comprising,

a mounting plate having an intermediate portion positioned between and rearwardly of a pair of end portions,

a forklift unit positioned forwardly of said mounting plate with said pair of end portions being positioned closer to said forklift unit than said intermediate portion,

a piston cylinder assembly secured to said mounting plate intermediate portion,

a piston rod operable to extend and retract relative to the upper end of said piston cylinder assembly,

said forklift unit having a rearwardly extending attachment lug with a bore therethrough for receiving the upper end of said piston rod,

said piston rod having a shoulder portion adjacent the upper end thereof for supporting said attachment lug,

said attachment lug bore having a diameter greater than the diameter of the upper end of the piston rod so that said attachment lug is movable relative to the piston rod to assist in preventing the torsional forces carried by said forklift unit from being transferred to said piston rod and said piston cylinder assembly, and

connecting means for connecting the end of said piston rod to said forklift unit so that said attachment lug is movable on said piston rod shoulder portion and upon actuation of said piston cylinder assembly said piston rod is operable to extend and retract to thereby vertically raise and lower said forklift unit relative to said mounting plate.

4,273,501

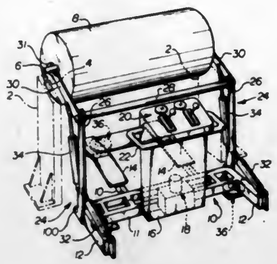
ROLL HANDLING DEVICE

Melvin D. Terry, P.O. Box 7174, Seattle, Wash. 98133

Filed Oct. 23, 1978, Ser. No. 953,914
Int. Cl.³ B66C 23/00
U.S. Cl. 414—680 5 Claims

1. A device for handling rolls of paper or the like, comprising:

main framework means supporting the necessary equipment and controls, said main framework supported by a fluid bearings, a pair of outwardly extending parallel ramp members, each supported by at least one fluid bearing, a pair of articulated arms pivotably secured to the main framework and extending outwardly in a direction generally parallel to the ramp members, said arms including a first section pivotably secured to the frame at opposite sides thereof and extending generally outwardly and upwardly, a second section having a first end pivotably secured to the first section and extending generally outwardly and downwardly to terminate in a material handling second end said arms movable from an extended or reach position to a retracted position and to an upward or lift position, means for selectively moving the arms to the



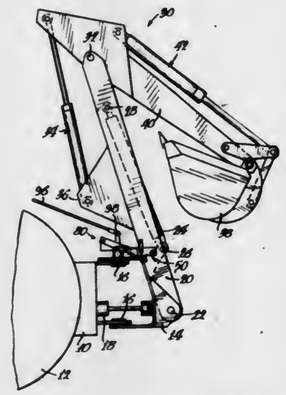
various positions, and means limiting vertical movement of the second end to a plane substantially above and including the center of gravity of the device, whereby the device lifts only when in a stable position.

4,273,502

BOOM LOCK MEANS

Herman J. Maurer, and Wayne G. Smith, both of Burlington, Iowa, assignors to J. I. Case Company, Racine, Wis.

Filed Mar. 16, 1979, Ser. No. 21,265
Int. Cl.³ E02F 3/32
U.S. Cl. 414—694 6 Claims



1. In a vehicle having a operator's station and an implement frame supported thereon with a boom pivoted on said frame and movable between transport and working positions, and releaseable latch means for locking said boom in said transport position on same said frame, said releaseable latch means comprising: pin means fixed to said frame at a location horizontally spaced from the pivot for said boom; a generally U-shaped latch having a pair of legs extending from a bite portion with said legs pivoted on said boom about a generally horizontal pivot axis spaced from the pivot for said boom and disposed towards said pin means such that said bite portion and legs cooperate to define a open space for receiving said pin means when said boom is in its transport position; biasing means, linking said boom with said latch, for normally maintaining said latch in a first position where said pin means is received within said open space when said boom in its transport position and for accommodating movement to a second position under the influence of said said pin means while said boom is moving to said transport position and for returning said latch to said first position when said open space is aligned with said pin means; unlatching means, fixed to said frame, for pivoting said latch from said first position to said second position, said unlatching means including a first element secured to said implement frame, a second element pivoted on said first element, and means, between said first and said second elements, for normally maintaining said second element in a first position, said second element and said latch having overlapping portions adapted to engage each other when said second element is in its first position and said latch is in its first position; and a control member connected to said second element and extending to said operator's station for pivoting said second element from said first position to its second position, whereby

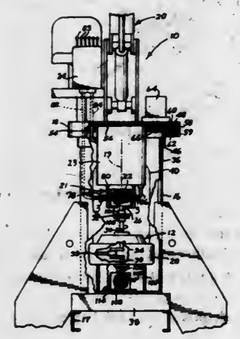
with said boom raised to its transport position and with said latch and said second element in their first positions, said latch is freed from said pin means through the operation of said control member by pivoting said latch to said second position whereupon said boom is free to pivot away from said transport position to a working position.

4,273,503

PRESSURE-FLUID SUPPLY SYSTEM

Tony R. Damron, 37923 Shenandoah Lp., Springfield, Oreg. 97477

Filed Oct. 1, 1979, Ser. No. 80,708
Int. Cl.³ E02F 9/22
U.S. Cl. 414—694 6 Claims



1. A pressure fluid supply system for use in combination with a pair of relatively rotatable structures where one structure is intended to carry fluid-operated equipment intended to be operated by said system, said system in operative condition comprising,

self-contained fluid supply and exhaust apparatus operatively connectable with said fluid-operated equipment and including a pump unit having a stator portion anchored to said one structure and a power-driveable rotor portion rotatably mounted with respect to said stator portion,

power-operated prime mover means including a stator portion anchored to the other structure, and a power-outputable rotor portion rotatably mounted with respect to the prime mover means' stator portion, and

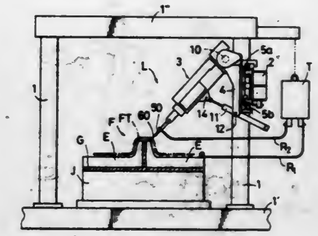
means drivingly coupling said two rotor portions.

4,273,504

INDUSTRIAL ROBOT SYSTEM CAPABLE OF PRESSURE APPLIED MACHINING OPERATIONS

Hirokazu Shimatake, Yamato; Kenzo Natsume, Zama; Takeshi Kojima, Saitama; Shuichi Ogawa, Tokyo; Ryuichi Nara, Tokyo; Shigeru Uchida, Tokyo, and Haruyoshi Takagishi, Yamato, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 21, 1979, Ser. No. 41,068
Claims priority, application Japan, May 22, 1978, 53-60727
Int. Cl.³ B25J 9/00
U.S. Cl. 414—728 5 Claims



1. An industrial robot system comprising:

a pair of vertically spaced parallel upper and lower guide rails;

means for supporting said guide rails a distance from the ground;

a slide member mounted slidably on said guide rails;

means for moving said slide member along said guide rails;

a robot arm structure having a housing pivotally mounted at an upper end portion thereof on an upper pivot point of said slide member adjacent to said upper guide rail, an outer cylindrical shaft mounted movably in said housing along the longitudinal axis thereof, an inner shaft mounted in said outer shaft and rotatable about said longitudinal axis and axially movable with said outer shaft, first fluid operated telescopic means secured to said housing for axially moving said outer and inner shafts, second fluid operated means for rotating said inner shaft, and a tool holding wrist portion for holding a tool, said wrist portion being axially movable with the axial movement of said outer and inner shafts and vertically swingable with the rotation of said inner shaft; and

third fluid operated telescopic means pivotally connected between a lower pivot point of said slide member adjacent to said lower guide rail and a lower end portion of said housing for pivoting said robot arm structure at a desired angular position.

4,273,505

PNEUMATIC INFLATABLE END EFFECTOR

Keith H. Clark, Decatur, and James D. Johnston, Madison, both of Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Sep. 22, 1978, Ser. No. 945,044
Int. Cl.³ B25J 3/00
U.S. Cl. 414—735 5 Claims

1. In the combination of a remote controlled manipulator arm and an end-effector device of the type used on space vehicles and the like for carrying out maneuvers by inserting said end-effector device into an opening in an object being grasped, wherein said end-effector device comprises:

a tubular member;

means for adapting said tubular member to said manipulator arm;

inflatable balloon means carried by one end of said tubular

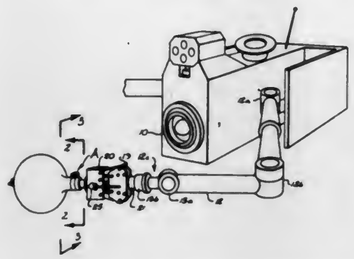
member expandable into a general shape for occupying said opening of said object;

a hollow bore formed within said tubular member;

means for connecting said hollow bore to a source of pressurized fluid;

an elongated spine member carried by said tubular member in a cantilevered manner extending past said one end of said tubular member and having a distal end attached to said balloon means affording rigidity to said balloon means when inflated and during manipulation of said object;

said spine member being slidably carried by said tubular member to variably project and retract relative to said



tubular member for accomodating the inflation and deflation of said balloon means;

reinforcing means carried in contact with a base portion of said balloon means for stiffening said base portion when inflated affording reinforcement under load to provide a degree of rigidity to said balloon means when undergoing motion about the axis of said tubular member;

a central bore formed in said spine member communicating with said hollow bore of said tubular member; and

a plurality of openings formed in the exterior of said spine member communicating said central bore with the interior of said balloon means by which said balloon means may be selectively inflated and deflated.

4,273,506

INDUSTRIAL MANIPULATOR FOR PLACING ARTICLES IN CLOSE PROXIMITY TO ADJACENT ARTICLES

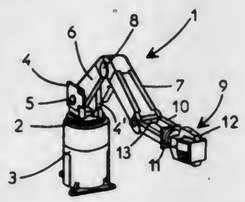
Robert P. Thomson, Nottingham, and James R. Robertson, Runcorn, both of England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 5, 1978, Ser. No. 948,790

Claims priority, application United Kingdom, Oct. 20, 1977, 43709/77; Dec. 23, 1977, 53748/77

Int. Cl.³ B66C *1/32*

U.S. Cl. 414—735 **7 Claims**



1. An industrial manipulator for placing articles onto a surface in close proximity to adjacent articles, comprising:

a gripper having a pair of jaws for gripping an article;

support means for positioning the gripper in space;

orientation means for interconnecting the gripper and the support means for orientating the gripper, said orientation means comprising: means for tilting the gripper about a first axis; and means for rotating the gripper about a second axis perpendicular to said first axis, said first and second axis mutually intersecting at a common point located between said jaws, said rotating means being located on the opposite side of said tilting means as the gripper; and

joint means for interconnecting said orientation means to said support means so that said first axis is held parallel to the surface onto which articles are to be placed when the gripper is tilted.

4,273,507

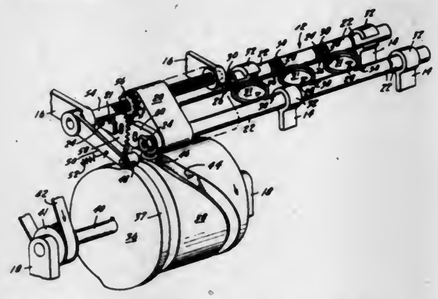
TRANSFER MECHANISM

Frank J. Herdzina, Schaumburg, and Robert P. Vandlik, Mount Prospect, both of Ill., assignors to American Can Company, Greenwich, Conn.

Filed Dec. 4, 1978, Ser. No. 966,198

Int. Cl.³ B21J *13/08*

U.S. Cl. 414—750 **5 Claims**



1. An apparatus for transferring workpieces including:

(a) support means;

(b) carrier means comprising;

(i) a barrel, slidably and rotatably mounted on said support means and having at least one axial opening in the wall thereof;

(ii) a shaft disposed in said barrel for relative rotation therein;

(iii) a pair of fingers;

a first one of said fingers being mounted on said barrel proximate to said opening and extending radially outwardly therefrom;

the second of said fingers being mounted on said shaft and extending radially outwardly through said opening for gripping cooperation with said first finger;

(iv) said barrel and shaft being relatively pivotable from a first position in which said fingers may lie closely adjacent to one another to a second position in which said fingers are spread, whereby said fingers may cooperatively grip said workpiece in said first position and may release said workpiece in said second position; and

(c) means for lateral reciprocation of said carrier means from said gripping position to said releasing position thereby effecting transfer of said workpiece.

4,273,508

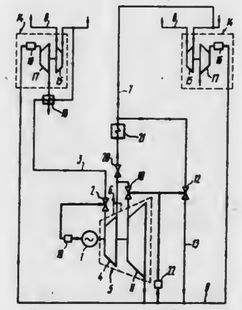
METHOD FOR AUTOMATIC CONTROL OF POWER PLANT AND POWER PLANT OF COMPRESSOR STATION OF GAS PIPELINE SYSTEM, WHEREIN SAID METHOD IS EFFECTED

Mikhail M. Fomichev, ulitsa, Kirova, 20, kv. 1, Krasnodar; Mikhail B. Schepakin, Lefortovsky val, 7/6, Moscow; Anatoly G. Gudz, ulitsa Gertsena, 37, kv. 71, Moscow; Viktor G. Evdokimov, ulitsa B. Bronnaya, 5, kv. 26, Moscow; Nikolai E. Lukianov, Teply stan, mikroraion 8a, korpus 7a, kv. 95, Moscow; Irina A. Romanchenko, ulitsa Tramvainaya, 4, kv. 34, and Andrei F. Salnikov, ulitsa Blagoeva, 7, kv. 72, both of Krasnodar, all of U.S.S.R.

Filed Dec. 14, 1978, Ser. No. 969,265

Int. Cl.³ F01D *17/04, 17/08*

U.S. Cl. 415—1 **1 Claim**



1. A method for automatic control of a power plant including an electric generator and an expansion engine having a high-pressure section, a take-off chamber and a low-pressure section and coupled to the electric generator's shaft, which method consists in that

a control signal of the electric load of the electric generator is applied to a first control element which controls the flow rate of gas supplied from the gas line to the high-pressure section of the expansion engine,

a control signal of the pressure downstream of the expansion engine is applied to a second control element which controls the flow rate of a part of the gas flow supplied through the low-pressure section of the expansion engine to a controlled counterpressure gas line;

the control signal of the pressure downstream of the expansion engine is applied to a third control element which controls the flow rate of the rest of the gas flow, which third control element is installed in a line that bypasses the low pressure section of the expansion engine, whereby the rest of the gas flow is directed to the controlled counterpressure gas line.

4,273,509

SELF-POWERED CLEANING UNIT FOR A FLUID PUMP

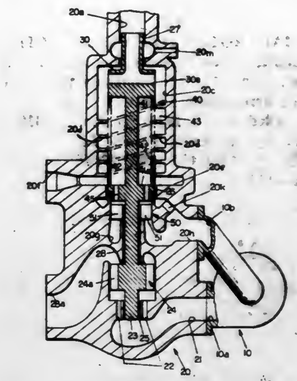
John W. Erickson, Huntington Beach; F. Barton Brown, La Crescenta, and Thomas A. White, Jr., Redondo Beach, all of Calif., assignors to Kobe, Inc., City of Commerce, Calif.

Filed Apr. 23, 1979, Ser. No. 32,035

Int. Cl.³ F01M *1/10*; B01D *33/10*

U.S. Cl. 415—111 **13 Claims**

1. A method of lubricating fluid bearings employed in a pumping apparatus required to pump fluid containing a significant quantity of particulates, comprising the steps of: imparting a rotational movement to the fluid containing particulates to separate such fluid into two radially distinct rotating streams, the outer stream containing most of the particulates and the inner stream being relatively free of particulates; directing the inner stream against stationary vane means to convert the rotational energy of the rotating inner stream into a pressure head; and applying a portion of the pressurized relatively clean fluid stream to lubricate the fluid bearings.



4,273,510

METHOD OF AND DEVICE FOR AVOIDING ROTOR INSTABILITY TO ENHANCE DYNAMIC POWER LIMIT OF TURBINES AND COMPRESSORS

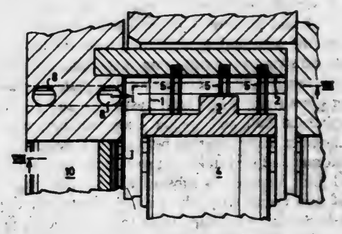
Friedrich Ambrosch, and Rudolf Schwaebel, both of Nuremberg, Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Continuation of Ser. No. 876,932, Feb. 10, 1978, abandoned, which is a continuation of Ser. No. 723,913, Sep. 16, 1976, abandoned, which is a continuation of Ser. No. 562,235, Mar. 26, 1975, abandoned. This application Apr. 5, 1979, Ser. No. 27,291

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1974, 2413655

Int. Cl.³ F01D *25/04, 11/02*

U.S. Cl. 415—119 **7 Claims**



1. In a method of increasing rotor stability in a fluid actuated axial flow machine having radially spaced rotating and non-rotating elements and contact-free, continuous, circumferential radial seals in a radial gap between said elements, in which said rotating element is subject to excessive oscillations at a critical load so that the power output of said machine is limited to the output below rated load, the fluid flow in said gap having a circumferential component of the gap flow to be defined positive in the sense of rotation of a vibration vector of the natural vibrations, the improvement comprising the step of reducing said fluid flow in the direction of circumferential component to modify oscillations of the rotating elements in said fluid flow, the vibration vector rotating in the same sense as the direction of the rotation of the axial flow machine wherein a second fluid flow is applied to said fluid in said gap having the circumferential gap flow component affected to such an extent that the

lateral force of pressure distribution in the seal is substantially negated.

4,273,511

MAIN ROTOR FOR A HELICOPTER

Rene L. Moulle, Aix-en-Provence, and Marcel A. S. Lafargue, Marignane, both of France, assignors to Societe Nationale Industrielle Aerospatiale, France

Filed Jul. 10, 1978, Ser. No. 923,430
Claims priority, application France, Jul. 13, 1977, 77 21657
Int. Cl.³ B64C *27/48*
U.S. Cl. 416—134 A **4 Claims**



1. A rotor, specially a main rotor for a helicopter, comprising a rotor hub and at least two blades

each of said blades includes a spar made of a bundle of glass fibres impregnated with a thermosetting resin,

said bundle being prolonged beyond the blade root towards said rotor hub to constitute a substantially radial flexible and twistable strip, having a substantially rectangular cross section and presenting a decreasing thickness from its outer end near the blade root to its central flattened portion between the blade root and said rotor hub, and an increasing thickness from said central portion to its inner end, where said strip is at the thickest and constitutes a relatively thick terminal part for attachment to the rotor hub,

said strip being surrounded in a spaced-relationship by a tubular rigid sleeve extending along the strip and secured by its outer end to the blade root and by its inner end to a rigid ring to the outside wall of which a blade pitch control lever is connected, said rigid ring surrounding the portion with increasing thickness of the strip which is prolonged beyond said rigid ring in the direction of said rotor hub by said relatively thick terminal attachment part, in which rotor there is inserted between each flat surface of said portion with increasing thickness of the strip and the surrounding rigid ring, from the longitudinal axis of said strip to the rigid ring, a stacking comprising a drag frequency adaptor consisting of a plate of elastomer having great rigidity and high hysteresis, and a laminated part-spherical ball and socket joint member, each said joint member being inserted between the associated plate of elastomer and said rigid ring so that the common center of said joint members is substantially on the longitudinal axis of said radial strip, the said elements and the strip shape determining the flap axis of the corresponding blade cutting the strip longitudinal section on the common center of the ball and socket joint members and the drag axis shifted in the central flattened portion of said strip.

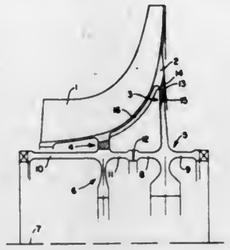
4,273,512

COMPRESSOR ROTOR WHEEL AND METHOD OF MAKING SAME

Wolfgang Weiler, Dachau, Fed. Rep. of Germany, assignor to MTU Motoren-und Turbinen-Union Munchen GmbH, Munich, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,526
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1978, 2830358
Int. Cl.³ B23P *15/02*; F04D *29/28*
U.S. Cl. 416—188 **9 Claims**

1. Compressor rotor wheel, such as a centrifugal compressor rotor wheel for turbomachines, the blade portions of which are made of a heat-resistant metallic material and the rotor disk portions of which are made of a high-strength metallic material, where a coaxially extending steel connection is provided between the blade portion and the rotor disk portion, characterized in that as the steel connection a spacer ring of steel is provided which is connected on the one side to the blade portion by explosion welding and on the other side to the rotor



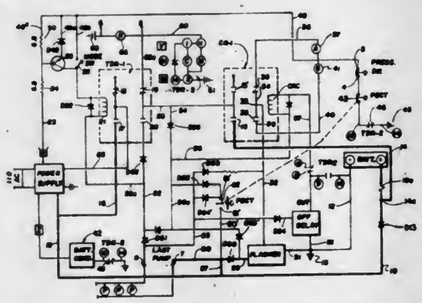
disk portion by brazing or welding, and characterized in that the rotor wheel region is manufactured as an integral part and essentially consists of a shell carrying the centrifugal compressor blades, where the steel connections containing the spacer rings are respectively provided at at least two axially and radially spaced-apart points associated with each of which are radially aligned rotor disk sections.

4,273,513

PUMP FAILURE PROTECTION FOR LIQUID TRANSMISSION PIPE LINES

Louis E. Salina, Bridgeville, Pa., assignor to GA Industries, Inc., Pittsburgh, Pa.

Filed Oct. 2, 1978, Ser. No. 948,040
Int. Cl.³ F04B *49/06*, *49/10*
U.S. Cl. 417—12 **16 Claims**



1. For use with a pumping station having at least one pump driven from an AC power source which operates through the closing of an auxiliary electric motor circuit and wherein the output of the pump is against the resistance of a flow of liquid through a pipeline to a discharge at a remote location higher than the pump so that, if output pressure at the pumping station fails to sustain the required line pressure there may result a pressure surge of liquid in the pipeline of potentially destructive magnitude and wherein there is a surge valve in close proximity to the pump operable to release liquid from the line to reduce the force of the pressure surge, the apparatus comprising:

(a) a pressure switch responsive to a drop in pressure at the output of the pump, the abnormal stoppage of which may result in a pressure surge;

(b) a solenoid valve operable upon energizing the solenoid to effect the opening of the surge valve;

(c) a relay controlled DC storage battery circuit with a power source energized from the AC power supply to the pump including the pressure switch which is opened upon such drop in pump pressure and produces conditions to initiate the opening of the solenoid valve and thereby open the surge valve; and

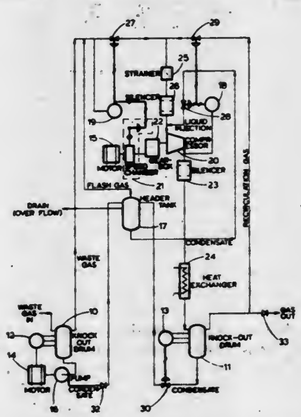
(d) means in said DC circuit to thereupon energize the solenoid valve within a preset time interval following the opening of the pressure switch.

4,273,514

WASTE GAS RECOVERY SYSTEMS

David Shore, Maidenhead, and Robert F. Lintonbon, Weybridge, both of England, assignors to Ferakarn Limited, London, England

Filed Oct. 6, 1978, Ser. No. 949,091
Int. Cl.³ F04B *49/00*
U.S. Cl. 417—15 **13 Claims**



1. In a waste gas recovery system with inlet means for receiving the waste gas and a compressor connected to the inlet means and serving to compress the waste gas; the improvement comprising: means for driving the compressor at a selectable speed, first sensing means for sensing the pressure of the waste gas at the inlet means and for controlling the drive means to drive the compressor at a speed commensurate with the sensed pressure, second sensing means for sensing the temperature at the outlet of the compressor and valve means controlled by said second sensing means and operable to inject liquid acting as a coolant into the waste gas entering the inlet of the compressor in the event that the sensed temperature exceeds a pre-determined value.

4,273,515

LIQUID RING PUMP

James B. Fitch, Marshfield, Mass., assignor to General Signal Corporation, Stamford, Conn.

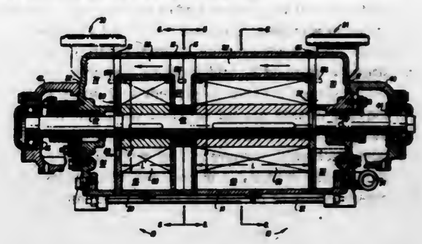
Continuation-in-part of Ser. No. 674,347, Apr. 7, 1976, abandoned. This application Dec. 11, 1978, Ser. No. 968,144
Int. Cl.³ F04B *23/04*; F04C *19/00*
U.S. Cl. 417—62 **5 Claims**

1. An improved liquid ring pump for gases, liquids and mixtures thereof, comprising:

a first stage casing section and a separate second stage casing section,

at least two impellers, a first of which is mounted for rotation within said first stage casing section, and a second of which is mounted for rotation within said second stage casing section, each said impeller having a prime number of radial blades supported thereon at equal angular intervals for pumping said fluids, said first and second impellers having different numbers of blades, whereby the number of excitation frequencies of each said impeller and hence, noise and vibration of said pump, are reduced and the different numbers of blades for the respective impellers cause different excitation frequencies for said impellers to further reduce vibration and noise of the pump,

and at least one suction port and at least one exhaust port located adjacent each said impeller.



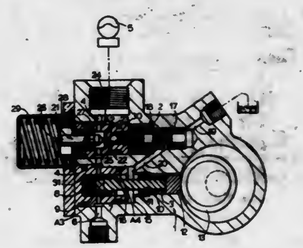
4. The pump of claim 1 in which said first and second stage casing sections include means for causing flow through said casing sections in series.

4,273,516

PUMPS FOR FLUIDS

Glyn P. R. Farr, Leek Wootton, England, assignor to Girling Limited, Birmingham, England

Filed Apr. 2, 1979, Ser. No. 25,864
Claims priority, application United Kingdom, Apr. 11, 1978, 14078/78
Int. Cl.³ F04B *49/08*
U.S. Cl. 417—214 **4 Claims**



1. An hydraulic pump system comprising an hydraulic accumulator for supplying services, a tank for liquid, a pump assembly for pumping liquid from said tank to said hydraulic accumulator to charge said accumulator, and a pressure-responsive valve responsive to pressure in said accumulator for preventing pressure in said accumulator from exceeding a predetermined cut-out valve, wherein said pump assembly comprises a housing having an inlet for connection to said tank for liquid, an outlet for connection to said hydraulic accumulator, an intake check valve in said inlet and a discharge check valve in said outlet, and a bore, means defining a working chamber, a pump piston reciprocably mounted in said bore to draw liquid from said inlet and into said working chamber during an induction stroke defined by movement of said pump piston in a first direction, and to force liquid from said working chamber to said outlet during a power stroke defined by movement of said pump piston in a second opposite direction, drive means for urging the pump piston in said first direction, said means for subjecting said pump piston to the effect of pressure at said outlet to move said pump piston in said second direction, said pump piston being of stepped outline having a first area over which pressure at said outlet acts, and a second area smaller than said first area for acting on said liquid in said working chamber

during said induction and power strokes, and said pressure-responsive valve is disposed between said discharge check

valve and said outlet, said pressure-responsive valve being movable between an open position, and a closed position when pressure in said accumulator attains said cut-out value, in said open position liquid can be forced from said working chamber to said hydraulic accumulator during said power stroke, and in said closed position said working chamber is isolated from said outlet and a volume of liquid drawn into said working chamber during an induction stroke is trapped in said working chamber by said pressure-responsive valve to prevent said pump piston from moving in said second opposite direction whereby said pump is disabled and no further circulation of liquid can take place until pressure in said accumulator has reduced to a predetermined cut-in pressure which is less than said cut-out value of pressure in said accumulator.

4,273,517

CONTROL DEVICE FOR AN AXIAL PISTON MACHINE

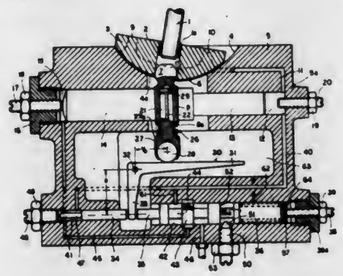
Walter Heyl, Johannesberg, Fed. Rep. of Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Aug. 1, 1978, Ser. No. 930,031

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1977, 2734933

Int. Cl.³ F04B *1/26;* F01B *13/04*

U.S. Cl. 417—222 **18 Claims**



1. In a control device for the adjustment of the displacement per revolution of an axial piston pump having a housing, a displacement-controlling member angularly displaceable in said housing and acting upon a cylinder drum of the pump, a setting piston constituted as a differential piston and having large-diameter and small-diameter portions connected to said member for displacing same, a small surface of the differential piston being subjected to pump pressure and a large surface of the differential piston being subjected to pump pressure as controlled by a valve member forming a control element, a bell crank lever fulcrumed in said housing and engaged by a pressure body connected to said setting piston for effecting force transmission between said valve member and said setting piston, the improvement which comprises in combination:

(a) a first spring interposed between said setting piston and said pressure body, said spring urging said pressure body toward said bell crank lever;

(b) a control piston bearing upon one side of a first end of said bell crank lever and urged by the aforementioned pump pressure thereagainst; and

(c) a second spring bearing upon said valve member and urging same against the opposite side of said first end of said bell crank lever, the pressure on said control piston and the force of said first spring acting in opposite directions on said bell crank lever and said second spring bearing directly upon said valve member.

4,273,518

SWASH-PLATE TYPE COMPRESSOR

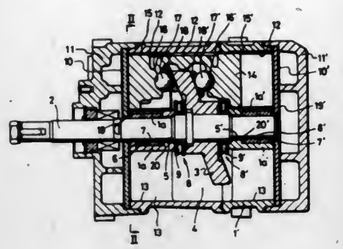
Tsunenori Shibuya, Konan, Japan, assignor to Diesel Kiki Co., Ltd., Saitama, Japan

Filed Aug. 22, 1979, Ser. No. 68,509

Claims priority, application Japan, Oct. 16, 1978, 53-141990[U]

Int. Cl.³ F04B *1/12*

U.S. Cl. 417—269 **5 Claims**



1. In a swash-plate type compressor having a pair of cylinder blocks combined together in axial alignment, each including an axial through bore formed centrally thereof, said cylinder blocks defining a swash plate chamber therebetween; a drive shaft rotatably inserted in said axial through bores; a pair of radial bearing sections provided between said axial through bores and said drive shaft, each receiving a radial bearing radially supporting said drive shaft; a swash plate secured on said drive shaft within said swash plate chamber; and a pair of valve plates arranged on opposite ends of said combined cylinder blocks; said combined cylinder blocks including a plurality of cylinder bores axially extending therethrough, each of which receives a piston for sliding therein and cooperates with the valve plates and the piston to form pumping chambers therebetween; and said swash plate has an outer fringe thereof disposed in engagement with the pistons and is rotatable in unison with the drive shaft being rotated to cause reciprocal motion of the pistons within the resective cylinder bores to carry out pumping action;

the improvement comprising:

a gap provided between said drive shaft and each of said through bores; and

passage means directly communicating each of said pumping chambers formed in at least one of the cylinder bores with said gap provided between said drive shaft and each of said through bores;

said gap communicating said passage means with said swash plate chamber through an associated one of said radial bearings, whereby part of oil contained in refrigerant gas in said associated pumping chamber is supplied to said associated radial bearing section via said passage means and said gap due to a pressure difference between said swash plate chamber and said associated pumping chamber caused by the reciprocating movement of said piston within said at least one of the cylinder bores.

4,273,519

SPLIT CRANKCASE RADIAL AUTOMOTIVE COMPRESSOR

Edwin L. Gannaway, Adrian, Mich., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Sep. 5, 1978, Ser. No. 939,877

Int. Cl.³ F16J *10/02;* F04B *1/04*

U.S. Cl. 417—273 **13 Claims**

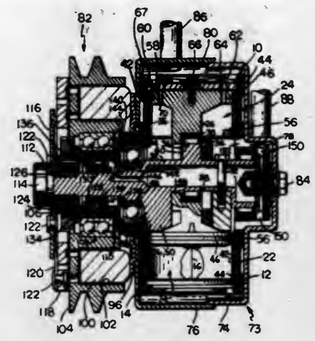
1. A radial compressor comprising:

a crankcase having at least three radially oriented cylinders therein, said crankcase comprising two halves in abutment along a planar interface axially intersecting said cylinders such that each of said cylinders is defined by a pair of semicylindrical recesses in the respective halves of said crankcase,

a crankshaft received in said crankcase and positioned at the common center of said cylinders,

a plurality of cylindrical pistons connected to said crankshaft so as to form therewith an interconnected assembly, said pistons being received in said cylinders, respectively,

a cylindrical cylinder liner received in each of said cylinders



and having said pistons received therein, said liners each having a cylindrical outer surface which is completely enclosed within said crankcase and which is contacted around substantially its entire periphery by the confronting surfaces of the respective pair of semicylindrical recesses, said liners serving to align the semicylindrical recesses of the respective pairs in a tangential direction relative to the axis of said crankshaft; and

means for sealing one end of each of said liners.

4,273,520

DEEP WELL PUMP

Wayne N. Sutliff, and Jim L. Downen, both of 2931 Pierce Rd., Bakersfield, Calif. 93308

Filed Nov. 20, 1979, Ser. No. 96,066

Int. Cl.³ F04B *47/02, 21/04*

U.S. Cl. 417—434 **2 Claims**



1. In a deep well pump adapted to be mounted on the lower end of a pump tubing string and operated through a connection made with the lower end of a sucker rod string extending downwardly through said pump tubing string, the combination of:

a pump barrel open at its lower end for the free entry thereinto or exhaust therefrom of well fluid;

a tubular adapter assembly screw connecting at its lower end to the top of said barrel and provided at its upper end with screw means for being connected to the lower end of a pump tubing string;

an internally upwardly bevelled annulus means mounted within said adapter assembly

a tubular pump head normally extending downwardly at least partly through said annulus means and resting downward on and making a sealing downward engagement with said annulus means;

latch means carried by said head for inwardly yieldingly engaging said annulus means from beneath to effectively latch said head against withdrawal upwardly from said connection with said annulus means but permitting said head to be so withdrawn by a continued upward strain on said head; said head having an axial bore;

a hollow plunger slidable in said barrel;

a hollow polish rod connecting coaxially at its bottom end to the top of said plunger and extending coaxially upwardly slidably through the bore of said head to close off a pumped oil compression chamber confined by the top of the pump plunger, the pump barrel between the pump plunger and the sealing annulus means, the pump head and the portion of the hollow polish rod located at the moment between said head and said plunger;

means at the upper end of the hollow polish rod adapting the same to be screw connected to the lower end of a sucker rod string while providing for the discharge into the pump tubing string of the oil delivered upwardly to the lower end of the sucker rod string; and

a tandem pair of check valves mounted in superposed relation within an upper end portion of said plunger, the lower valve opening to receive oil from beneath through the plunger on its down stroke, the upper valve closing on the down stroke to divert said oil laterally to the oil compression chamber, the upstroke of the plunger reversing the valve positions to positively force the oil from the compression chamber into the space between the two valves thus hydraulically closing the bottom valve and opening the upper valve from which the oil has nowhere to go except up the polish rod and pump tubing string;

the tubular adapter assembly being of sufficient length and adequate in internal diameter to provide a pump head and plunger bypassing drain chamber when said head and plunger are withdrawn upwardly from said barrel and through said annulus means.

4,273,521

DRIVE ARRANGEMENT

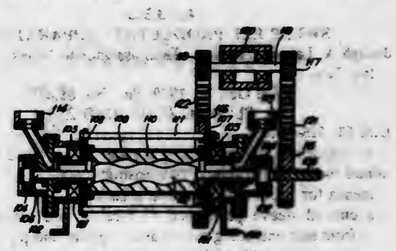
Donald E. Baker, and David W. Bouette, both of Macclesfield, England, assignors to E. T. Oakes Limited, Cheshire, England

Filed Feb. 9, 1979, Ser. No. 10,917

Claims priority, application United Kingdom, Feb. 10, 1978, 5542/78

Int. Cl.³ F04C *2/16*

U.S. Cl. 418—48 **5 Claims**



1. A helical gear pump, compressor or motor including an inner member with an external helical gear form having n starts; an outer member with a cooperating internal helical

gear form having n ± 1 starts; at least one shaft rotatable about a first axis and connected to said inner member for rotation therewith; a support for supporting the outer member for rotation about a second axis laterally spaced from the first axis; and a geared connection between said inner and outer members, whereby the inner and outer members can rotate synchronously without any driving contact between the helical gear forms of the inner and outer members.

4,273,522

REINFORCING MEMBER SUPPORT IN CONCRETE EXTRUDERS

Norman W. Bunn, West Vancouver, and Christopher B. Bunn, North Vancouver, both of Canada, assignors to Dyform Engineering Limited, Vancouver, Canada

Filed Sep. 17, 1979, Ser. No. 76,294
Int. Cl.³ B28B *23/18*; B29C *3/00*
U.S. Cl. 425—113 **13 Claims**



1. An extrusion machine for making elongated articles of concrete-like moldable material having at least one reinforcing member therein and extending longitudinally thereof, comprising;

a conveyor chamber,

an open-ended mold of a desired cross-sectional shape aligned with one end of the chamber and in communication therewith,

conveyor means in the chamber and extend to the mold,

a support tube extending longitudinally of the chamber to the mold to receive and support an elongated reinforcing member extending therethrough and through the mold when an elongated article is to be made,

said tube having a slot therein opening upwardly therefrom, and

means for directing concrete-like material into the chamber and through said slot into the support tube around the reinforcing member therein, said conveyor means being operable to move the concrete-like material under pressure through the mold around said reinforcing member.

4,273,523

SWEEP ELL PRODUCTION APPARATUS

Joseph A. Levens, Houston, Tex., assignor to Nipak, Inc., Dallas, Tex.

Filed Oct. 29, 1979, Ser. No. 88,418
Int. Cl.³ B29C *17/07*; B29D *23/04*
U.S. Cl. 425—326.1 **7 Claims**

1. Apparatus for producing a pipe ell having a predetermined radius of curvature, comprising:

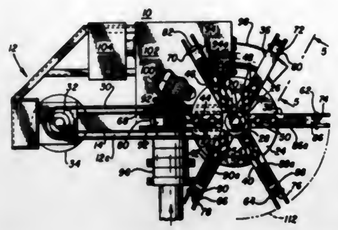
means for producing extruded pipe;

a curved sleeve positioned to receive said extruded pipe from said extruding means and to guide said pipe along an arc having said predetermined radius of curvature;

said sleeve being perforated along at least a portion thereof;

means connected to the perforated portion of said sleeve for applying vacuum pressure to size said pipe; and

means movable along a continuation of the arc having said predetermined radius of curvature for circumferentially engaging and for pulling said extruded pipe from said



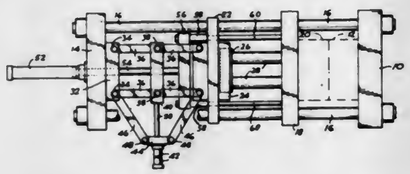
sleeve to draw said extruded pipe along the arc continuation to form the pipe ell.

4,273,524

PLATEN TYPE MOLDING PRESS

John A. Smith, Cinnaminson, N.J., assignor to Hull Corporation, Hatboro, Pa.

Filed Oct. 18, 1978, Ser. No. 952,496
Int. Cl.³ B29F *1/00*
U.S. Cl. 425—450.1 **5 Claims**



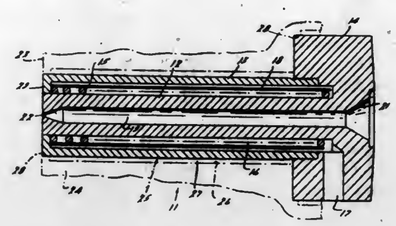
1. In a platen type molding press having fixed and movable platens mounting mold components, the movable platen being mounted on guide rods extending between the fixed platen and a stationary base, a series-connected assembly of extensible platen drive and locking mechanism and extensible mold clamping mechanism interengaging the stationary base and the movable platen, the drive mechanism being operable to move the movable platen between a retracted, mold-open position for removing molded components therefrom and an extended position in which the mold component mounted on said movable platen is in a mold-closed position closed against the mold component mounted on the fixed platen and locked releasably against retraction from said mold-closed position, and the extensible mold clamping mechanism being operable to apply high clamping pressure to the mold component on the movable platen, the combination therewith of a second extensible platen drive mechanism connected between the stationary base and movable platen in parallel with said series-connected drive and locking mechanism and mold clamping mechanism for moving the movable platen between said extended, mold-closed position and a second retracted, mold-open position in which the mold component mounted on said movable platen is spaced from the mold component on the fixed platen a distance greater than the first mentioned retracted, mold-open position afforded by the firts named platen drive and locking mechanism.

4,273,525

INJECTION MOLD BUSHING

David M. Reitan, Keene, N.H., assignor to Incoe Corporation, Troy, Mich.

Continuation of Ser. No. 870,849, Jan. 19, 1978, abandoned. This application Mar. 16, 1979, Ser. No. 21,155
Int. Cl.³ B29F *1/08*
U.S. Cl. 425—549 **15 Claims**



1. A hot sprue bushing adapted to be mounted in a mold part, said bushing having

a head portion at the rearward end thereof,

a material passage extending in substantially a straight path entirely therethrough from the rearward end to the forward end thereof, and

an annular heat insulating space surrounding and spaced radially outwardly from said passage; and

heater means in said annular space in heat exchange relation with the inner annular wall thereof,

said material passage having an inlet opening through the rearward end of said head portion and an outlet having a tapered section terminating in a material discharge orifice opening through the forward end of said bushing,

the rearward terminal portions of said annular space and of said heater means extending into said head portion but terminating short of the rearward end of the latter,

said head providing a relatively large metallic mass having substantial strength to withstand forces imposed thereon in use by material in said passage and said head further adapted to be heated in use by the portion of said heater means disposed therein and defining a heat sink for heating the portion of said passage and material therein extending axially rearwardly beyond said heater means,

the forward terminal portions of said annular space and of said heater means at least partially overlapping said tapered section,

and

the portion of said bushing disposed forwardly of said heater and of said annular space providing a direct radial heat flow path between the mold and said orifice whereby to permit coolant conventionally circulated through the mold to freeze material in said orifice during removal of a part from said mold while permitting said heater to maintain material in said outlet behind said orifice and in said passage in a fluid condition.

4,273,526

AUTOMATIC DAMPER CONTROL

Nicholas J. Perrelli, 131 Woodward Dr., West Seneca, N.Y. 14224

Filed Jul. 12, 1979, Ser. No. 56,836
Int. Cl.³ F23N *3/00*
U.S. Cl. 431—20 **7 Claims**

1. An automatic damper control comprising:

(a) a damper for use in a flue or the like;

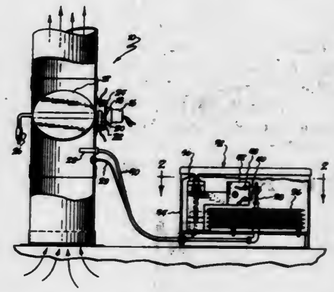
(b) diaphragm means adapted to expand and contract in response to pressure variations in said flue;

(c) sensor means for sensing the pressure in said flue, said sensor means being connected to said diaphragm means, said sensor means comprising means for generating a plurality of beams of light, photoreceptors, and collimating means adapted to collimate each of said beams of light onto a photoreceptor;

(d) blocking means for blocking at least one of said beams of light, said blocking means being operatively associated with said diagphragm means and being adapted to be displaced relative to said beams of light in response to movement by said diaphragm means;

(e) drive means for moving said damper means in response to pressure variations in the flue;

(f) wherein said collimating means comprises a collimating plate arranged between said light generating means and said photoreceptors, said collimating plate comprising an orifice aligned with each of said light generating means and said photoreceptors so as to collimate each of said beams of light onto each of said photoreceptors;



(g) wherein said blocking means comprises blocking plate means arranged between said means for generating said beams of light and said photoreceptors adjacent said collimating plate;

(h) said blocking plate means being arranged relative to said orifices such that a single one of said orifices may be exposed in response to movement of said blocking plate means; and

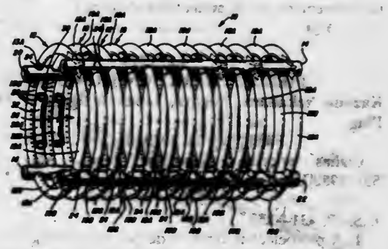
(i) wherein said diaphragm means comprises a bellows, said blocking plate means being mounted on said bellows such that said blocking plate means move relative to each of said orifices as said bellows expands and contracts in response to pressure variations in the flue.

4,273,527

MULTIPLE FUEL BURNING SYSTEM FOR FURNACES OR THE LIKE

Cyril F. Meenan, 7349 Ridgeway, Skokie, Ill. 60076

Filed Sep. 4, 1979, Ser. No. 72,103
Int. Cl.³ F27D *17/00*
U.S. Cl. 431—177 **13 Claims**

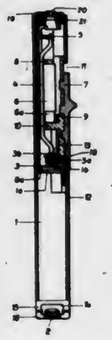


1. A fuel burning system for a furnace or the like capable of burning multiple fuels comprising:

a plurality of first annular tubular conduits coupled to a first supply of pressurized gas,

a plurality of second annular tubular conduits alternately spaced between said first conduits coupled to a second supply of pressurized gas,
a plurality of third annular tubular conduits coupled to a source of liquid to be heated,
said first, second and third annular tubular conduits defining a combustion chamber,
said first and second tubular conduits are concentric and said third tubular conduit is concentric with and positioned between said first and second tubular conduits,
a first nozzle in said combustion chamber coupled to a source of a first combustible fuel,
a second nozzle in said combustion chamber coupled to a source of a second combustible fuel, and
a third nozzle in said combustion chamber coupled to a source of a third combustible fuel.

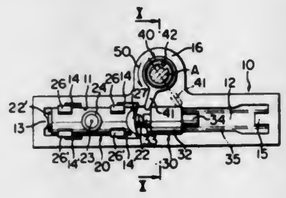
4,273,528
GAS LIGHTER
Reiner Göbelt, Offenbach am Main, Fed. Rep. of Germany, assignor to Rowenta-Werke, GmbH, Offenbach am Main, Fed. Rep. of Germany
Filed Dec. 5, 1978, Ser. No. 966,937
Claims priority, application Fed. Rep. of Germany, Dec. 8, 1977, 2754639
Int. Cl.³ F23Q 7/12
U.S. Cl. 431—255 10 Claims



1. In a gas lighter of a type comprising a cylindrical tank provided with a burner valve, a conduit connecting the burner valve to a combustion space, a subassembly comprising a substantially semi-cylindrical holder and a semi-cylindrical axially displaceable actuating member, and an electrical ignition device mounted in said holder and covered by said member, the actuating member being provided with means for operating the ignition device and means for opening the burner valve, an improvement wherein a one-piece tubular sleeve surrounds and holds together the tank, the holder, and the actuating member, the sleeve having an aperture therein to permit manual movement of the actuating member.

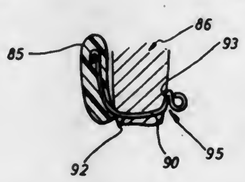
4,273,529
PIEZOELECTRIC IGNITION DEVICE
Kazumi Nakahara, Nagoya, Japan, assignor to NGK Spark Plug
Filed May 24, 1979, Ser. No. 42,135
Claims priority, application Japan, May 30, 1978, 53/72980[U]
Int. Cl.³ F23Q 3/00
U.S. Cl. 431—255 7 Claims

1. A piezoelectric ignition device comprising:
a base mount having an elongated window with first and second contiguous window portions,
a cylindrical piezoelectric element fixedly held in said first window portion,
a cylindrical hammer slideably held in said second window portion for axial movement between a normal position wherein one end of said hammer rests on an end of said piezoelectric element and a retracted position,
spring means for urging said hammer toward said normal position and for rapidly returning said hammer into said normal position after been brought into said retracted position, whereby an ignition spark is generated,
said ignition device being operable with a gas equipment having a gas valve actuated by an axle connected thereto, wherein manual rotation of said axle opens or closes said valve depending on the direction of said rotation,
a hole formed in said base mount for snugly rotatably receiving said axle,
an actuation arm member having a hole therein for loosely receiving said axle, means for producing unitary rotation of said actuation arm member with said axle, said rotation being in a plane generally parallel to an axis of said cylindrical hammer, an actuation arm on said actuation arm



member having a free end normally abutting a forward end of said cylindrical hammer when said cylindrical hammer is in said normal position when said axle is in a position which closes said gas valve, said arm free end being operative to move said hammer into said retracted position against the force of said spring means when said axle is rotated in a direction which opens said gas valve and being further operative to disengage said hammer for permitting said hammer to rapidly return to said normal rest position, and
another spring means operative to urge said actuation arm member into a normal stance while said arm member is rotated toward said retracted position and further operative to permit said actuation arm member to tilt on said axle whereby said arm free end may slide along the circumferential surface of said cylindrical hammer against the force of said another spring means to allow said actuation arm member to return to said normal position.

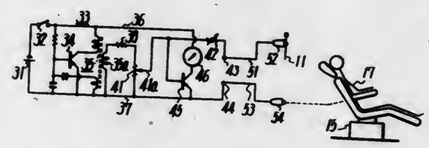
4,273,530
ORTHODONTIC APPLIANCE AND CLASP THEREFOR
Garfford J. Broussard, 203 Chimney Rock, Houston, Tex. 77024
Filed May 17, 1979, Ser. No. 39,798
Int. Cl.³ A61C 7/00
U.S. Cl. 433—6 6 Claims



1. An orthodontic appliance for teeth, comprising:
an inner mouth portion;
at least one clasp, said clasp bent from a length of orthodontic wire, and said clasp including:

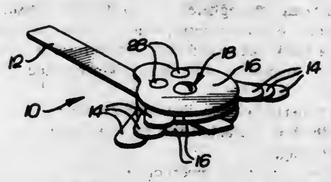
a shank portion positioned in at least one interproximal site in the lingual surface of the inner mouth portion;
an intermediate portion for occupying an occlusal or incisal interproximal space in the teeth;
a downwardly depending hook portion attached to said intermediate portion, and bent so as to occupy a labial or buccal interproximal space of the teeth; and
an eye portion attached to said hook portion, adapted for receiving an archwire.

4,273,531
ROOT CANAL MEASURING APPARATUS
Kiyoshi Hasegawa, 2-11-10, Hirata, Ichikawa-shi, Chiba-ken, Japan
Filed May 9, 1979, Ser. No. 37,293
Claims priority, application Japan, May 15, 1978, 53/57304
Int. Cl.³ A61C 19/04
U.S. Cl. 433—27 9 Claims



1. A root canal measuring apparatus comprising:
a DC power source having positive and negative terminals;
an oscillating circuit having a relatively high output impedance and connected at one output end to the negative terminal of said power source and at its other output end to the positive terminal thereof, said oscillating circuit producing a high frequency output;
a first output terminal leading from one output end of said oscillating circuit;
a second output terminal leading from the other output end of said oscillating circuit;
a first electrode connected to said first output terminal of said oscillating circuit, said first electrode comprising a probe insertable through a root canal of a patient to his periodontal membrane whose root canal length is to be measured;
a support for said patient including a conductive portion which forms with the patient an electrostatic capacitor; and
coupling means connecting said second output terminal and said support;
means for detecting variations in voltage between said first and second output terminals; and
display means responsive to the detection of voltage.

4,273,532
EDENTULOUS IMPRESSION CORRELATOR AND METHOD OF USING SAME
Martin A. Hass, 1105 El Medio Dr., Pacific Palisades, Calif. 90272
Filed Sep. 14, 1979, Ser. No. 75,753
Int. Cl.³ A61C 9/00
U.S. Cl. 433—37 7 Claims



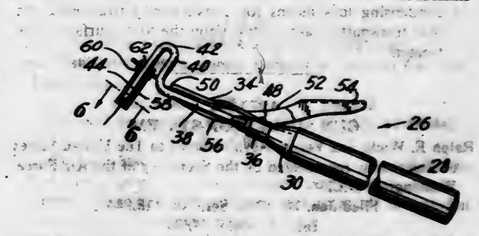
1. An edentulous impression correlator comprising:
an arm that serves as a handle and is adapted to project from a patient's mouth; and
at least three pairs of wings forming a support for impressionable material, said wings having horizontal surfaces extending outwardly and forwardly from said arm when in a patient's mouth, said wings being arranged in pairs that are stacked horizontally, the wings of each pair having a generally V-shaped configuration, and the wings of the lower-most of said pairs being closest to said arm and forming the largest angle therebetween.

4,273,533
METHOD FOR CONSTRUCTING DENTURES
John B. Della Croce, 450 Washington St., Freeland, Pa. 18224
Filed Aug. 10, 1979, Ser. No. 65,484
Int. Cl.³ A61C 11/00
U.S. Cl. 433—55 12 Claims



1. In the construction of dentures, a method for calibrating an articulator, said method comprising the steps of:
(a) rigidly and intra-orally mounting a tracing table member to one of a patient's upper and lower jaws;
(b) rigidly and intra-orally mounting a scribing member to the other of said patient's jaws;
(c) adjusting and locking the angular relationship and distance between bearing surfaces of said tracing table and said scribing member to bring said bearing surfaces into contact when said jaws are held slightly apart;
(d) forming a first set of three gothic arch traces, the traces defining a three-dimensional envelope of motion; and,
(e) utilizing the first set of traces to form a substantially identical second set of gothic arch traces on the articulator, whereby relative movement of the articulator may be confined to the envelope of motion after the first set of gothic arch traces has been removed.

4,273,534
AMALGAM CARRIER AND DISPENSER
Paul A. Seid, New City, N.Y., assignor to Sultan Dental Products, Inc., Englewood, N.J.
Filed Aug. 27, 1979, Ser. No. 69,613
Int. Cl.³ A61C 5/04
U.S. Cl. 433—90 13 Claims



1. An amalgam carrier and dispenser comprising:
a handle;
a plunger element affixed to said handle, said plunger ele-

ment having a substantially rectilinearly extending portion having a forward end region and a terminal end region, the latter having an axial length which terminates at a free end surface;

an open ended sleeve element having a substantially rectilinearly extending internal bore terminating at a free end, said plunger portion of said plunger element being located within said bore such that said plunger element is axially slideable within said sleeve element bore;

lever means associated with said sleeve element for axially moving said plunger portion within said sleeve element bore between a first position wherein said free end surface of said plunger portion is located interiorly of said sleeve element bore recessed inwardly from said free end of said sleeve element a predetermined distance so as to define a cavity within said sleeve element for carrying amalgam and a second position wherein at least a portion of the axial length of said terminal end region of said plunger portion extends exteriorly of said sleeve element bore so that said free end surface of said plunger portion extends beyond said free end of said element to dispense the amalgam carried in the cavity; and

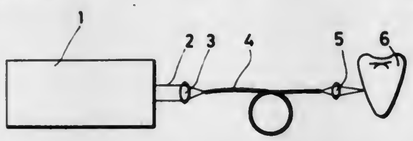
wherein said terminal end region of said plunger portion is formed of wear resistant material which has a hardness greater than about 20 on the Rockwell C scale.

4,273,535

DEVICE FOR PREVENTING TOOTH DECAY BY LASER BEAM IRRADIATION AND METHOD OF PREVENTING TOOTH DECAY BY USE OF THE SAME

Hajime Yamamoto, Izumi, and Shogo Yoshikawa, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Morita Seisakusho, Kyoto, Japan

Filed Sep. 14, 1979, Ser. No. 75,645
Claims priority, application Japan, Dec. 4, 1978, 53/150402
Int. Cl.³ A61C *3/00, 19/06*
U.S. Cl. 433—216 **4 Claims**



1. A device for preventing tooth decay by irradiation of laser beams, said device comprising:

a continuous excitation Nd:YAG laser oscillator having a mean output capacity of at least 10 watts and a peak output limited to less than 100 KW;

an ultrasonic Q-switch for Q-switching said continuous excitation Nd:YAG laser at a rate from 1 to several kHz;

a condensing lens means for transmitting Q-switch pulses projected from said oscillator;

a transmitting means consisting of glass fibers for transmitting the thus condensed laser beams; and

a condensing lens means for convergently irradiating the thus transmitted laser beams upon the tooth surface to be treated.

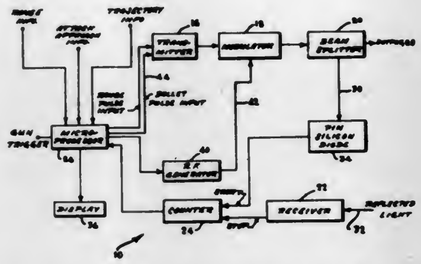
4,273,536

GUN SIMULATOR SYSTEM

Ralph E. Wick, Las Vegas, Nev., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 115,844
Int. Cl.³ F41F *27/00*
U.S. Cl. 434—14 **7 Claims**

1. A gun simulator system comprising a source of electromagnetic radiation energy at a first location for transmitting a plurality of electromagnetic pulses, a target at a second location, means optically aligned with said plurality of pulses for continually varying the angle of output of said pulses, means optically aligned with said plurality of pulses for directing a substantial portion of all of said electromagnetic radiation of each of said pulses in the direction of said target and the remainder of said electromagnetic radiation of each of said pulses in another direction indicative of the start of each of said pulses, means on said target for reflecting said pulses, means optically aligned with said target for receiving said reflected pulses, computer means operably connected between said



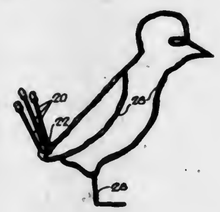
electromagnetic source and said receiving means for comparing the time interval between the start of each of said pulses and the reception of the same pulse in order to determine whether said pulse is received within a preselected time interval thereby establishing range information and for comparing said range information with preselected trajectory information corresponding to said range information, whereby the output of said computer means provides a signal indicative of whether the output of said gun fired at said target would strike said target.

4,273,537

SELF-ADHERING EDUCATIONAL DEVICES FOR CONSTRUCTING LETTERS, FIGURES, DESIGNS AND THE LIKE

Bernard Borisof, 3920 N. Lake Shore Dr., Chicago, Ill. 60613

Continuation of Ser. No. 605,239, Aug. 18, 1975, abandoned.
This application Mar. 4, 1977, Ser. No. 774,706
Int. Cl.³ A63H *33/14*
U.S. Cl. 434—83 **16 Claims**



1. A tangible line adapted to be shaped into free-standing models,

said tangible line comprising a length of flexible cord,

said cord being impregnated with a flexible pressure-sensitive adhesive wax material which is viscous enough to retain a thick shape and sufficiently rigid to make said cord self-supporting after being impregnated with said wax material,

said wax material being malleable and having pressure-sensitive adhesive characteristics to make said tangible line self-adhering,

said wax material being microcrystalline wax with mineral oil in the proportion of 2 to 12% mixed with said microcrystalline wax to provide greater tackiness,

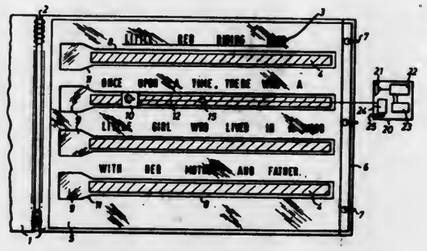
said microcrystalline wax being of a flexible type with a melting point between 150° and 180° F. and a needle penetration between 20 and 50 when measured at 77° F. in accordance with ASTM Standard No. D1321.

4,273,538

EDUCATIONAL AID

Arnold S. Ross, London, England, assignor to Douglas Alan Ross, Geneva, Switzerland, a part interest

Filed Aug. 30, 1979, Ser. No. 71,158
Claims priority, application United Kingdom, Sep. 6, 1978, 35815/78
Int. Cl.³ G09B *17/00*; G11B *5/80*
U.S. Cl. 434—178 **2 Claims**



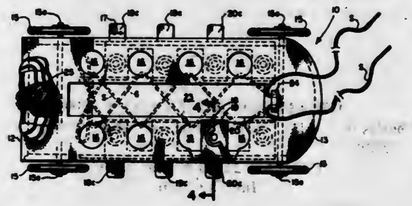
1. Apparatus for teaching reading comprising a book having a plurality of first sheets bearing spaced lines of printed text, a plurality of magnetic strips associated respectively with said lines of printed text and each bearing a sound recording of the associated text so positioned that the second record of each word is adjacent that word in the printed text, a second transparent sheet in said book adapted to overlay each of said first sheets in succession, guide slots in said transparent sheet for exposing the magnetic strips on a selected one of said first sheets, means for reproducing said sound records comprising a pick-up device having a flat base and adapted to rest under its own weight on said magnetic strip in a guide slot without obscuring the associated printed text, and means attached to said device for drawing said pick-up device along said guide slot to reproduce the sound recording on the magnetic strip adjacent said guide slot simultaneous with the user's reading of the printed text associated with said magnetic strip.

4,273,539

SHOE-TYING TRAINING TOY

Glenn T. Moore, 1742 Terpsichore St., New Orleans, La. 70113

Filed Nov. 23, 1979, Ser. No. 96,688
Int. Cl.³ G09B *19/00*
U.S. Cl. 434—260 **9 Claims**



1. A child's training toy for training a child how to lace shoes and the like, comprising:

a body having a extended exposed area on its top side;

a series of pairs of opposed, open eyelets disposed on said body down along said open area, said eyelets being formed of movable members whose movements change the crossectional areas of the openings of said eyelets to vary the skill level necessary for the child to thread a string through said eyelets; and

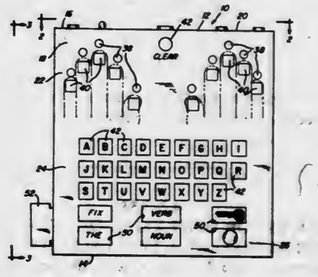
opening adjustment means carried by said body and connected to said movable members for increasing and decreasing the effective opening areas of said eyelets, the opening area of each of said eyelets being openable to a maximum opening for beginning the training and then closeable ultimately to a significantly smaller size equivalent to the opening area of the standard eyelet on a real child's shoe.

4,273,540

THERAPIST'S PATIENT EVALUATION AND TRAINING DEVICE

Randy B. Dill, 49 Walnut St., Ambler, Pa. 19002

Filed Apr. 17, 1980, Ser. No. 141,216
Int. Cl.³ G09B *23/28*
U.S. Cl. 434—262 **10 Claims**



1. A therapist's patient evaluation and training device for use in evaluating disorders of brain damaged patients and of patients who have suffered damage to the central nervous system, comprising: a casing having an upper surface; a digit section carried by said casing and including a plurality of spaced electrically energizable digit means arranged in an array approximating the five digits of at least one hand; a keyboard section carried by said casing and including a plurality of spaced electrically energizable keyboard means having indicia thereon; each of said digit and keyboard means including portions thereof operable to produce respective discreet illuminations adjacent said upper surface upon appropriate actuation thereof by a patient; control means selectively operable by a therapist to render said digit and keyboard sections operable in a plurality of modes; during one of said modes said digit means are cycled through a first digit means operational sequence and during other of said modes said digit means are cycled through a second digit means operational sequence; and during another of said modes said keyboard means are cycled through a first keyboard means operational sequence and during still another of said modes said keyboard means are cycled through a second keyboard means operational sequence.

4,273,541

CLOCK FOR EDUCATIONAL PURPOSES

Shozo Ishiyama, Tokyo, Japan, assignor to Gakken Co., Ltd., Tokyo, Japan

Filed Apr. 2, 1980, Ser. No. 136,523
Claims priority, application Japan, Apr. 6, 1979, 54-45306[U]
Int. Cl.³ G09B *19/12*
U.S. Cl. 434—304 **19 Claims**

1. A clock for educational purposes, comprising:

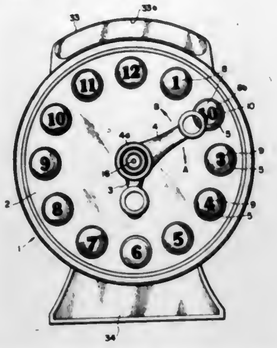
a minute hand and an hour hand, both rotatably mounted at the center of the clockface;

twelve openings formed in the clockface at locations where the hours and minutes are indicated;

a rotating member provided for each said opening and each marked on its surface with an hour indicating figure and a

minute indicating figure, the surface of each rotating member being partially exposed through respective ones of said openings;

movable members each secured to a shaft of said rotating member; and



an arm adapted to rotate with said minute hand to oscillate respective ones of said movable members as said minute hand is turned.

4,273,542

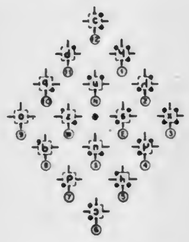
DEVICES FOR DISPLAYING OR PERFORMING OPERATIONS IN A TWO-VALUED SYSTEM

Shea Zellweger, 1483 Robinwood Rd., Alliance, Ohio 44601

Continuation of Ser. No. 729,119, Oct. 4, 1976, abandoned. This application May 31, 1979, Ser. No. 44,170

Int. Cl.³ G09B *1/32*

U.S. Cl. 434—433 **8 Claims**



1. An apparatus for displaying and performing a complete set of the sixteen binary connectives in a two-valued notational system, said apparatus comprising:

a set of six devices, each device including a first area and a second area opposed to the first area, each first area including a symbol, and each second area including a same-shape repeat in see-through orientation of the symbol on the corresponding first area;

each of said symbols having a shape selected to indicate a selected number of from zero to four components arranged with respect to the quadrants of a set of Cartesian corrdinates, wherein the shapes of said symbols have iconicity, eusymmetry, and frame consistency with respect to said quadrants of Cartesian coordinates and the alignments of said shapes of said symbols are symmetry positional with respect to the axes of said Cartesian coordinates;

said six symbols on said first areas chosen such that said six devices can be positioned by a combination of rotation and flip operations to display and perform all sixteen binary connectives.

4,273,543

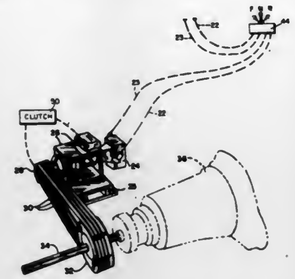
EMERGENCY MARINE PROPULSION USING EXISTING PROPELLER SHAFT

James D. McCusker, Bergenfield, N.J., assignor to Engine Technology, Inc., Rahway, N.J.

Filed Oct. 1, 1979, Ser. No. 80,184

Int. Cl.³ B63H *23/10*

U.S. Cl. 440—4 **10 Claims**



1. An emergency marine propulsion means for vessels having a single propeller shaft normally driven by a main engine, said propulsion means including:

(a) an electrical generator adapted to generate electrical current of a given voltage and amperage when rotated at a selected speed to deliver this current for use on said vessel;

(b) a diesel engine adapted to drive said electrical generator by and through a connected means;

(c) means for maintaining a relatively constant regulated and desired speed of the diesel engine and generator;

(d) means for driving a connected hydrostatic pump by the diesel engine;

(e) a hydraulic reservoir and filter adapted to feed filtered hydraulic fluid from the reservoir to the driven hydrostatic pump;

(f) a hydrostatic motor adapted for rotative motion in either direction by delivered pressurized hydraulic fluid from the driven hydrostatic pump;

(g) a pair of hydraulic conductors adapted to carry pressurized hydraulic fluid from the hydrostatic motor to the hydrostatic pump and a return flow from the hydrostatic motor to the hydrostatic pump;

(h) means for regulating the amount and direction of flow from the hydrostatic pump to the hydrostatic motor to rotate said motor in the desired direction and at a selected speed;

(i) a flexible drive adapted to connect the output of the hydrostatic motor to drive means provided on said single propeller shaft, and (j) means for disengaging the flexible drive from the hydrostatic motor to said propeller shaft when and while the main engine is operatively connected to the propeller shaft.

4,273,544

AQUATIC RECREATIONAL VEHICLES

Charles E. Smith, 7932 Eisenhower Blvd., Bridgeport, N.Y. 13030

Filed Dec. 22, 1978, Ser. No. 972,204

Int. Cl.³ B60F *3/00*

U.S. Cl. 440—30 **9 Claims**

1. An aquatic recreational vehicle powered by one or more riders and comprising, in combination:

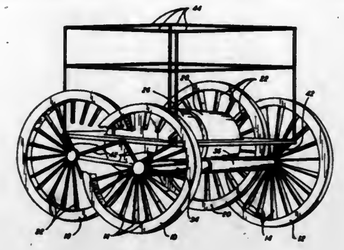
(a) at least one pair of forward wheels mounted on and rotatable by a common front axle;

(b) at least one pair of rear wheels mounted on and rotatable by a common rear axle;

(c) means providing sufficient buoyancy to support said vehicle and rider(s) upon a body of water;

(d) frame means connecting said front and rear axles;

(e) at least one sprocket on each of said front and rear axles for transmitting rotation thereto in at least one direction;



(f) at least one gear member supported relative to said frame means for rotation by said rider(s); and

(g) means for transmitting rotation of said gear member to both said sprockets.

4,273,545

MARINE PROPELLER UNIT

Anders L. Pehrsson, Kristinehamn, Sweden, assignor to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden

Filed Sep. 25, 1979, Ser. No. 78,830

Claims priority, application Sweden, Oct. 2, 1978, 7810328

Int. Cl.³ B63H *23/00*

U.S. Cl. 440—75 **2 Claims**

1. A marine propeller unit for mounting to an underside of a vessel, the unit comprising a propeller mounted on a horizontal propeller shaft, a gear housing in which said propeller shaft is journalled, a vertical hollow strut attached to and supporting said gear housing at its lower end and having its upper end adapted for connection to said underside of said vessel, a gearing system housed in said gear housing and connecting said propeller shaft to a transmission shaft system extending substantially vertically upwards from said gear housing through said hollow strut for connection to a drive machinery located within said vessel, said gearing system and said transmission shaft system including at least two conical gears mounted axially spaced on said propeller shaft, at least two mutually parallel, substantially vertical gear drive shafts journalled for rotation within said strut with their lower ends connected to respective ones of said conical gears, a first vertical transmission shaft having its lower end coupled to one of the gear drive shafts through a first cylindrical gear and extending upwards so as to have its upper end inside the vessel, and a tubular second vertical transmission shaft coaxially surrounding said first transmission shaft and having its lower end coupled to the other gear drive shaft through a second cylindrical gear and extending upwards so as to have its upper end close to the upper end of said first transmission shaft, said first and second transmission shafts having their upper ends coupled together so as to be driveable jointly and in the same direction of rotation from said drive machinery within the vessel.

4,273,546

BICYCLE CHAIN-SHIFTING DEVICE

Eduard Bergles, Graz, Austria, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jul. 26, 1979, Ser. No. 61,065

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1978, 2834646

Int. Cl.³ F16H *11/04*

U.S. Cl. 474—82 **19 Claims**



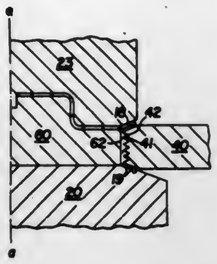
1. A chain-shifting device for a bicycle or the like comprising a frame, an axle mounted on said frame for supporting a driven wheel, a chain wheel unit including a plurality of chain wheels concentrically positioned relative to said axle, said chain wheels having different diameters and being arranged next to one another in the axial direction of said axle, a chain guide wheel, a movable support member rotatably supporting said chain guide wheel, said chain guide wheel being rotatable about an axis disposed in substantially parallel relation with said axle, a fixed support member attached to said frame, guide means supported on said fixed support member, said movable support member secured to said guide means for movement along a path substantially parallel to said axle, an adjusting switch having a plurality of switch positions corresponding at least to the number of said chain wheels, transmission means connected to and extending between said adjusting switch and said guide means for positioning said movable support member via said guide means along the path of movement of said movable support member, an endless chain engageable with said guide wheel and selectively engageable with said chain wheels on said chain wheel unit for driving said axle, said movable support member being locked in position when said chain engaged on said chain guide wheel is not moving, said adjusting switch being displaceable into another position when said movable support member is in the locked position, said guide means including readjustment means for moving said movable support member into another position corresponding to the changed position of said adjusting switch when said movable support member is released from the locked position when said chain commences to move over said chain guide wheel, wherein the improvement comprises that said guide means includes a linkage arrangement comprising a first linkage part connected to said movable support member, a second linkage part articulated at one end thereof to said first linkage part, said first and second linkage parts being movable relative to one another, a cam disc rotatably mounted on said second linkage part with said cam disc being rotatable between angularly spaced end positions, a cam disc follower attached to said first linkage part, and said readjustment means connected to said first linkage part for maintaining said cam disc follower in contact with said cam disc when said chain is moving.

4,273,547

METHOD OF PULLEY MANUFACTURE AND PRODUCT

Klaus K. Bytzek, Toronto, Canada, assignor to Drive Manufacturing Inc., Weston, Canada

Continuation of Ser. No. 850,356, Nov. 10, 1977, abandoned.
This application Sep. 17, 1979, Ser. No. 76,279
Claims priority, application Canada, Feb. 4, 1977, 271068
Int. Cl.³ F16H 55/44; B21K 1/42
U.S. Cl. 474—170 13 Claims



1. A poly v pulley formed from a pulley can blank of sheet metal of a predetermined minimum permissible thickness comprising:

a circular base of a wall thickness equal to said predetermined minimum permissible thickness, and

an integral annular wall portion having a generally smooth cylindrical interior peripheral surface and an exterior peripheral surface shaped to operatively engage a poly v-belt,

said wall portion having a cross-sectional configuration defined by metal cold flow which is straight along its interior periphery and has a plurality of v grooves in its exterior periphery,

the distance between the trough of each v groove and said straight interior periphery being sufficient to provide required strength but less than the predetermined minimum thickness of said sheet metal can blank,

the cross-sectional area of said wall portion being greater than the cross-sectional area of a section of said sheet metal can blank of said predetermined thickness having a length equal to the axial extent of said wall portion whereby said pulley contains less metal and weighs less than a pulley with a similarly configured wall portion made from a can blank of the same metal having a thickness such that a length thereof equal to the axial extent of said wall portion has a cross-sectional area equal to or slightly greater than the cross-sectional area of said wall portion.

4,273,548

METHOD AND DEVICE FOR FOLDING BLANKS TO FORM BOXES

Walton B. Crane, Sherman Oaks, Calif., assignor to Industrial Designs & Services, Encino, Calif.

Filed Oct. 4, 1979, Ser. No. 81,633
Int. Cl.³ B31B 1/26
U.S. Cl. 493—162 19 Claims

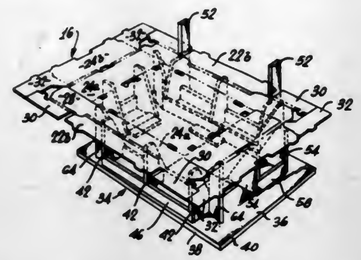
1. A jig for folding a blank having side panels, end panels, supplemental side panels attached to said end panels, and supplemental end panels attached to said side panels to form a paperboard box, said jig comprising:

a base;

side panel folding means arranged on opposite sides of said base and defining side folding surfaces that extend upwardly and outwardly from said base for engaging and folding said side panels;

end panel folding means arranged at opposite ends of said base and defining end folding surfaces that extend upwardly and outwardly from said base for engaging and folding said end panels, said end folding surfaces raising less steeply from said base than said side folding surfaces, whereby said side panels are folded upwardly before said end panels as said blank is pressed into said jig; and

corner guide means for engaging and folding said supplemental end panels upwardly with respect to the associated



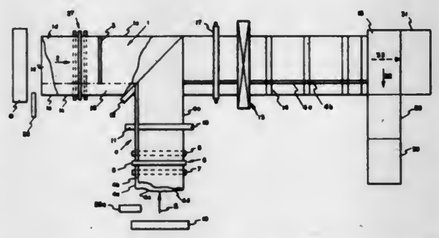
side panels prior to engagement of said side panels with side folding surfaces whereby said supplemental end panels are folded inwardly of said end panels, and for folding said supplemental side panels outwardly with respect to the associated end panels as said blank is pressed downwardly into said jig.

4,273,549

PROCESS FOR MAKING MULTI-WALLED PLASTIC BAG

Francesco Pezzana, Pregnana Milanese, and Cesare Quacquarella, Milan, both of Italy, assignors to W. R. Grace & Co., Duncan, S.C.

Filed Jun. 26, 1979, Ser. No. 52,171
Claims priority, application United Kingdom, Jun. 26, 1978, 27884/78
Int. Cl.³ B31B 1/36, 23/60, 27/00
U.S. Cl. 493—196 11 Claims



1. A process for manufacturing a plurality of multi-walled bags of a flexible plastic material comprising: taking a longitudinally folded flat web of a first flexible plastic film; at least partially opening superposed plies of said first flexible plastic film at a web margin opposite a fold line and establishing a relative movement between a corona discharge electrode and the first plastic film in a direction along the film to pre-treat at least a part of an inwardly facing surface of each of said superposed plies; taking a longitudinally folded flat web of a second flexible plastic film, a transverse dimension of said second flexible plastic film being less than a transverse dimension of said first flexible plastic film; pre-treating outwardly facing surfaces of two plies of said second flexible plastic film; passing a pre-treated web of said second flexible plastic film over a diverter guide into a space between the at least partially opened plies of said first flexible plastic film to bring a fold line of the second flexible plastic film between the said two plies of said flexible plastic film at least substantially into register with the fold line between the partially opened plies of said first

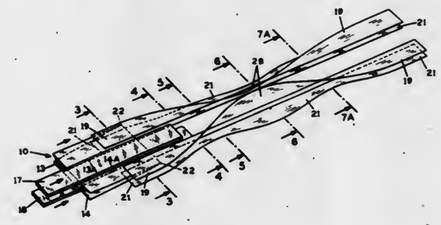
flexible plastic film with said two webs moving synchronously in a single direction; and sealing a composite of the two folded webs at a sealing station along a spaced seal line extending transversely of the said direction of movement of the two webs to form a plurality of open-ended bags having a bottom of each bag defined by said at least substantially registered fold lines of the two webs and a mouth region of each bag defined by said first flexible plastic film at a web margin opposite the fold lines in an area of dimension which is greater than a dimension of said second flexible plastic film whereby said mouth is defined only by said first flexible plastic film.

4,273,550

METHOD FOR PRODUCING A FLAT BOTTOM PLASTIC BAG

Ewald A. Kamp, Chicago, Ill., assignor to Union Carbide Corporation, New York, N.Y.

Continuation of Ser. No. 889,915, Mar. 24, 1978, abandoned.
This application Aug. 30, 1979, Ser. No. 71,199
Int. Cl.³ B31B 1/42, 1/54, 1/80
U.S. Cl. 493—240 3 Claims



1. A method of producing a flat-bottom bag from a thermo plastic heat sealable material which includes the steps of:

(a) providing a length of flattened, thermo plastic heat sealable tubular material having front and back walls and a central longitudinal region, said walls being united along each longitudinal edge by a gusset including a longitudinal gusset fold line, said length having been heat sealed transversely adjacent one extremity to provide a bag having a closed bottom and an open mouth;

(b) clamping the front and back walls in said central longitudinal region by directing said bag between two feed belts of lesser width than said central region;

(c) delivering a jet of air in between each of said gussets to separate opposing films of said gussets from each other;

(d) flaring the gussets until the position of the transverse heat seal common to the gusset coincides with the gusset fold line by directing a continuous force against said gussets while passing said gussets through a first path-conforming zone corresponding to the spreading of the gussets from substantially 0° to substantially 180°; and

(e) maintaining the fold line and heat seal in juxtaposition by application of a force directed against said fold line and said heat seal while returning the gussets to the non-flared position by directing said gussets through a second path-conforming zone corresponding to the merging of the gussets from substantially 180° to substantially 0° thus providing a gusset tuck disposed on each corner of said closed bottom.

4,273,551

DOUBLE-WALLED HOLLOW ROD OF FLEXIBLE TUBULAR MATERIAL

Armin Köstner, Wiesbaden; Richard Lenhart, Wiesbaden-Frauenstein, and Klaus-Jürgen Bittner, Wiesbaden, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 413,622, Nov. 7, 1973, abandoned. This application Jun. 9, 1978, Ser. No. 914,158
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1972, 2254731
Int. Cl.³ A22C 13/00
U.S. Cl. 493—243 4 Claims



1. A process for the manufacture of a hollow tubular rod of flexible tubing having a coating on at least one of its surfaces which comprises:

(a) fitting a shirred stick of flexible tubing having a coating on at least one of its surfaces over a hollow former,

(b) sealing one end of the stick,

(c) pushing the sealed end of the shirred stick into the central orifice of the hollow former until the sealed end within the former is approximately inside the other end of the stick which lies on the outside of the former, such that a double-walled rod is formed, and

(d) withdrawing the double-walled rod from the former in the direction opposite to the direction in which the sealed end of the stick was pushed into the central orifice of the former.

4,273,552

PROCESS FOR THE PRETREATMENT OF CELLULOSE FIBERS TO BE PRINTED ACCORDING TO THE THERMOTRANSFER PRINTING METHOD

Ehrenfried Nischwitz, Schmitten, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

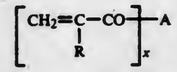
Filed Sep. 12, 1979, Ser. No. 75,328

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1978, 2840438

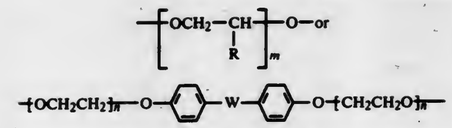
Int. Cl.³ D06P 1/00; B05D 3/02, 3/00

U.S. Cl. 8—471 **1 Claim**

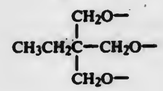
1. In a process for the thermotransfer printing of cellulose fibers, the improvement which consists of printing such cellulose fibers which have been treated prior to the printing by impregnating the fiber material with a solution or dispersion containing a compound of the formula



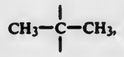
in which x is 2 or 3, A represents—if x=2—a group of the formula



or—if x=3—represents a group of the formula



W is a group of the formula —CH_2— or



R is hydrogen or methyl, m is a number of from 1 to 30, preferably from 4 to 11, and n is a number of from 1 to 30, preferably from 1 to 10, as well as a polymerization catalyst, and steaming and drying the material.

4,273,553

ANTHRAQUINONE REACTIVE DYESTUFFS

Wolfgang Harms; Horst Jäger; Klaus von Oertzen, and Klaus Wunderlich, all of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

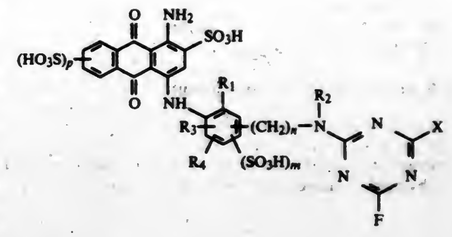
Filed Oct. 19, 1979, Ser. No. 86,615

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848403; Nov. 24, 1978, 2850919

Int. Cl.³ C09B 62/06; C07D 251/00

U.S. Cl. 8—549 **5 Claims**

1. Dyestuffs of the formula



wherein

R_1=C_1–C_4-alkyl or halogen,

R_2=H or C_1–C_4-alkyl,

R_3 and R_4=H, C_1–C_4-alkyl or halogen,

m, n and p=0 or 1 and

X=NH_2.

4,273,554

PROCESS FOR DYEING TEXTILE CELLULOSE MATERIAL WHICH HAS NOT BEEN PRE-CLEANED

Heinz Abel, Reinach, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,856

Claims priority, application Switzerland, Jan. 10, 1979, 218/79

Int. Cl.³ C09B 67/00, 67/28

U.S. Cl. 8—557 **19 Claims**

1. A process for dyeing cellulosic textile material, which has not been pre-cleaned, with a vat dye or an anionic dye, which comprises dyeing the cellulose in the presence of polymaleic acid with a molecular weight of 300 to 5,000 or of an anhydride or salt thereof.

4,273,555

AZO COMPOUNDS

Yasushi Yamada, Omiya; Hiroshi Ozawa, Koshigaya; Masse Gomi, Toda, and Hideshiro Nomura, Urawa, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

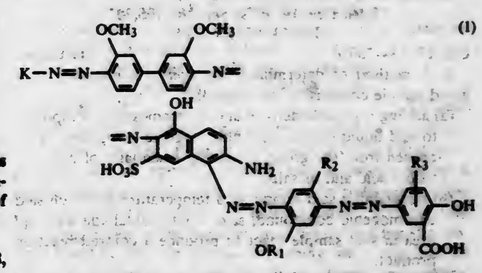
Filed Sep. 7, 1979, Ser. No. 73,426

Claims priority, application Japan, Sep. 22, 1978, 53-115992

Int. Cl.³ C09B 27/00

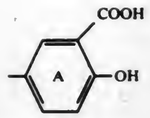
U.S. Cl. 8—673 **7 Claims**

1. An azo compound which, in the free acid form, is repesented by the following formula:

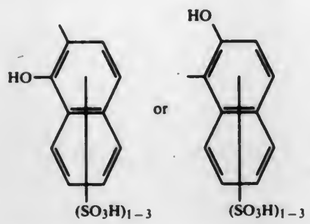


(1)

wherein R_1 stands for methyl or ethyl, R_2 stands for hydrogen, methyl, methoxy or ethoxy, R_3 stands for hydrogen or methyl, and K stands for

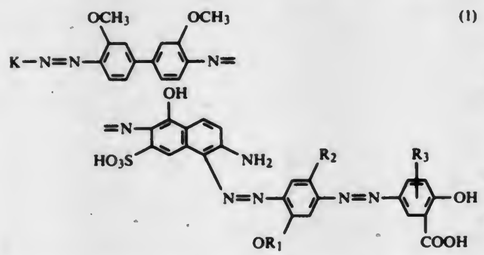


wherein the benzene nucleus A may be further substituted by methyl, amino, acetyl amino or methoxy; or



wherein these naphthalene nuclei may be further substituted by hydroxy, amino or acetylamino.

6. A method for dyeing cellulose fibers which comprises treating cellulose fibers with an azo compound which, in the free acid form, is represented by the following formula:



(1)

wherein R_1, R_2, R_3 and K are as defined in claim 1, and subjecting the dyed cellulose fibers to a copper treatment.

4,273,556

DETERMINATION OF UREA

E. Melvin Gindler, Union City, Calif., assignor to Sherwood Medical Industries Inc., St. Louis, Mo.

Filed Dec. 19, 1979, Ser. No. 105,207
Int. Cl.³ G01N *33/62*
U.S. Cl. 23—230 B 19 Claims

1. A method of determining the urea concentration of a liquid sample comprising the steps of:

(a) adding o-phthalaldehyde and a chromogenic compound to said liquid sample, said chromogenic compound being chosen from the group consisting essentially of chromotropic acid and its salts;

(b) maintaining said sample at a temperature at which said chromogenic compound, said o-phthalaldehyde and said urea in said sample react to produce a colored reaction product;

(c) obtaining a colorimetric absorbance reading for said sample; and

(d) comparing said absorbance reading with calibration means.

4,273,557

LIMULUS LYSATE PROCEDURE FOR DETERMINING ENDOTOXINS

David L. Juranas, St. Louis, Mo., assignor to Mallinckrodt, Inc., St. Louis, Mo.

Filed Mar. 31, 1980, Ser. No. 135,810
Int. Cl.³ C12Q *1/00*; G01N *33/50*
U.S. Cl. 23—230 B 9 Claims

1. In an in vitro test method for determining endotoxin under endotoxin determining conditions by Limulus amebocyte lysate in certain fluids selected from the group consisting of lipid emulsions for injection, parenterally administered sodium chloride solutions, lactated Ringer's solution, normal serum albumin, plasma protein fraction and anti-hemophilic factor USP which interferes with the reaction between any endotoxin present and said lysate thereby giving an improper determination, the improvement comprising conducting said method in the presence of (1) an interference reducing amount of a substantially linear polymeric water soluble interference reducing agent to reduce said interference, said agent having a molecular weight of at least 1000 selected from the group consisting of acrylic acid-acrylamide copolymer, acrylic acid—acrylonitrile copolymer, polyacrylic acid, alkali metal salts of polyacrylic acid, hydrolyzed polyacrylamide, alkali metal salts of hydrolyzed polyacrylamide, hydrolyzed polyacrylonitrile and alkali metal salts of polyacrylonitrile and (2) a sufficient amount of divalent cation selected from the group consisting of calcium and magnesium to overcome the chelating capacity of said interference reducing agent.

4,273,558

DETERMINATION OF TOTAL ORGANIC CARBON IN AN AQUEOUS SAMPLE CONTAINING HALIDE ION

Danny M. Mar, Daly City, Calif., assignor to Envirotech Corporation, Menlo Park, Calif.

Filed Mar. 7, 1980, Ser. No. 128,066
Int. Cl.³ G01N *33/18*
U.S. Cl. 23—230 PC 27 Claims

1. A process for determining total organic carbon in an aqueous sample containing halide ion, said process comprising the steps of:

(a) preparing an aqueous solution containing an oxidizing agent and mercuric monohalide ion without forming an insoluble precipitate;

(b) introducing said sample into said solution;

(c) irradiating said solution and said sample with electromagnetic energy to oxidize organic matter in said sample to carbon dioxide;

(d) removing carbon dioxide produced by oxidation of said organic matter in said sample from said solution; and

(e) measuring total carbon in said carbon dioxide.

4,273,559

ELEMENTAL SUPERSELECTIVE GAS CHROMATOGRAPHIC DETECTION APPARATUS AND METHOD

Norvell J. Nelson, Palo Alto, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Continuation of Ser. No. 822,584, Aug. 8, 1977, abandoned. This application Dec. 21, 1978, Ser. No. 972,089
Int. Cl.³ G01N *21/72, 27/66*
U.S. Cl. 23—232 E 5 Claims

1. A method of element discrimination comprising:

maintaining a surface defining a boundary of a reaction zone at a first electrical potential relative to a second potential;

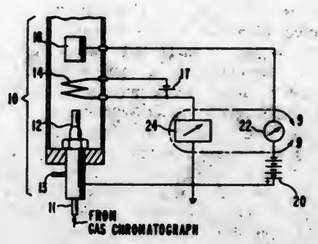
supplying a source of alkali metal vapor to said reaction zone;

introducing a sample gas from a flame tip member to said reaction zone, said flame tip member maintained at a reference potential;

introducing another gas to said reaction zone;

inducing selected reactions with said sample gas in said reactions zone;

collecting a plurality of ionic species at a second electrical potential to form a signal proportional to ionic current collected, said ionic species resulting from said reaction;



causing the sense of said ionic current to change for selected components thereof by adjusting of the electric potential distribution between said first potential and said second potential for discrimination between at least two ionic species; and

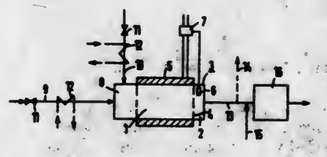
detecting the value and polarity of the ionic current as a function of the elemental constituents of said sample gas.

4,273,560

METHOD FOR OPERATING COMBUSTION DEVICES

Hans Kostka, Nuremberg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 20, 1979, Ser. No. 67,897
Claims priority, application Fed. Rep. of Germany, Aug. 30, 1978, 2837899
Int. Cl.³ C01B *3/40*
U.S. Cl. 48—212 11 Claims



1. A method for the operation of a combustion device, comprising:

(a) mixing liquid hydrocarbons with air with an air number of from about 0.05 to about 0.3 resulting in the mixture with liquid hydrocarbons;

(b) contacting said mixture with shaped metal bodies, consisting essentially of an aluminum alloy containing from about 15 to about 35% silicon by weight, and at elevated temperature, to result in the production, by partial oxidation, of a soot-free fuel gas mixture containing carbon monoxide, gaseous hydrocarbons and hydrogen wherein after the contacting from about 5 to about 30% by weight, of the aluminum in said shaped metal bodies is in the form of α-Al_2O_3 and from about 1 to about 10% by weight of the silicon in said shaped metal bodies is in the form of β-SiC;

(c) mixing said fuel gas with additional air to form a fuel gas/air mixture; and

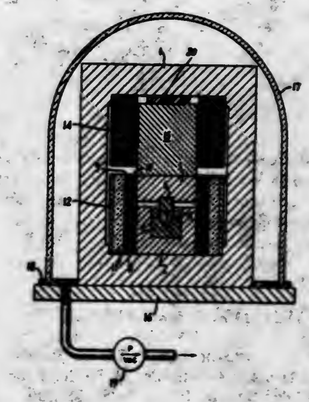
(d) conducting said fuel gas/air mixture to a device for the combustion thereof.

4,273,561

ULTRASHARP POLYCRYSTALLINE DIAMOND EDGES, POINTS, AND IMPROVED DIAMOND COMPOSITES, AND METHODS OF MAKING AND IRRADIATING SAME

Humberto Fernandez-Moran Villalobos, 55 Dartmouth Rd., Williams Bay, Wis. 53191

Continuation of Ser. No. 896,571, Apr. 4, 1978, which is a continuation-in-part of Ser. No. 852,822, Nov. 16, 1977, Pat. No. 4,164,680, which is a continuation-in-part of Ser. No. 608,260, Aug. 26, 1975, Pat. No. 4,004,942. This application Aug. 6, 1979, Ser. No. 63,685
Int. Cl.³ B24D *3/04*
U.S. Cl. 51—307 24 Claims



1. A method of producing a microprecision polycrystalline diamond implement which comprises:

preparing ultrafine particles of predominantly rhombohedral graphite having a particle size less than 100 Å,

placing a selected quantity of said graphite particles in a mold having a mold cavity of selected size and shape,

placing said mold in a gas-tight enclosure and evacuating said enclosure to produce therein an ultrahigh vacuum thoroughly to degas said graphite particles and mold, and

subjecting said graphite particles in said mold to pressure of the order of at least 80 Kb and temperature of 2000°–3000° K. in an ultrahigh vacuum or inert gas to convert said ultrafine graphite particles to ultrafine diamond particles and to mold and sinter said ultrafine diamond particles into a microprecision polycrystalline diamond implement of predetermined size and shape.

4,273,562

METHOD AND APPARATUS FOR PUMPING GASEOUS LIQUIDS AND SEPARATING THE GASEOUS COMPONENTS THEREFROM

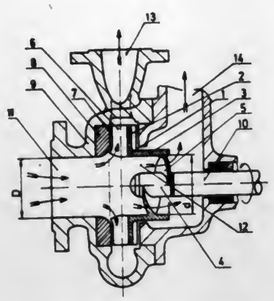
Toivo Niskanen, Hamina, Finland, assignor to A. Ahlstrom Osakeyhtio, Noormarkku, Finland

Filed Oct. 1, 1979, Ser. No. 80,344
Int. Cl.³ B01D *19/00*; F03B *11/04*
U.S. Cl. 55—52 4 Claims

1. A method for pumping gaseous liquids in a centrifugal pump having a rotary impeller with vanes defining a first set of passages, and an opening through said impeller defining a second passage, which method comprises introducing into the pump an inflowing stream of gaseous liquid, dividing said inflowing stream at the impeller into two outflowing streams, one of said outflowing streams containing the greater part of the gaseous content of said inflowing stream and passing through said second passage, and the other of said outflowing streams passing through said first set of passages, and positively driving said one outflowing stream through said second

passage by a surface extending into said second passage and rotating with the impeller.

3. A centrifugal pump having a rotary impeller, an opening through said impeller defining a passage for the flow of a



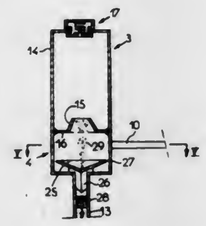
gaseous fluid stream and an improved entrained gas separating structure, which improvement comprises means defining at least one surface connected to the impeller for rotation therewith and extending into said passage to positively drive therethrough such gaseous fluid stream.

4,273,563

COOLING SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Jean Fadda, Chassieu, and Jean P. Pernet, Estrablin, both of France, assignors to Automobiles M. Berliet, Lyons, France

Filed Nov. 13, 1978, Ser. No. 959,910
Claims priority, application France, Nov. 10, 1977, 77 34522
Int. Cl.³ B01D *53/24*
U.S. Cl. 55—189 **10 Claims**



1. In combination with an internal combustion cooling system of the type having a radiator mounted in front of an engine, including passage means communicating the hot cooling fluid containing gases from the engine to the radiator, the fluid being cooled in the radiator and returning to the engine by way of an inlet opening in the water pump mounted to said engine, the improvement comprising:

a cylindrical expansion tank mounted in said passage means for receiving said cooling liquid containing gases from said engine and from said radiator, said cylindrical expansion tank further comprising separator means mounted in said expansion tank defining a first chamber degasification portion and a second chamber expansion portion, said separator means further comprising:

an internal wall mounted transverse to the axis of said cylindrical expansion tank between said first chamber degasification portion and said second chamber expansion portion, said internal wall having portions defining a central opening and at least one hole spaced away from said central opening; and

a truncated cone connected to said internal wall and covering said central opening, said cone having a wall tapering upwards from said internal wall;

inlet means tangentially mounted in said first chamber to said cylindrical expansion tank, said inlet means receiving said cooling liquid containing gases from said engine and from said radiator;

outlet means mounted to one end of said first chamber in the cylindrical expansion tank, said outlet means directing said cooling liquid contained in said tank to said passage means to return said cooling liquid to said engine;

valve means mounted to said outer end of said expansion tank in said second chamber for regulating the escape of gases contained in said cooling liquid;

conical deflector means mounted in said outlet means of the first chamber so that the cooling liquid containing gases enters said cylindrical expansion tank through said tangential inlet means and is caused to travel around the periphery of said cylindrical expansion tank thereby generating a vortex flow in said tank, said cooling liquid being able to pass around the peripheral conical edge of said deflector means such that the gases in said cooling liquid containing gases entering said tank are deflected by said deflector means toward said second chamber in said cylindrical tank; and

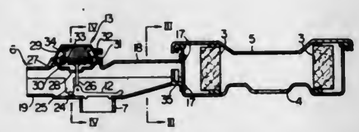
means for mounting said cylindrical expansion tank in said passage means of said internal combustion engine cooling system.

4,273,564

AIR CLEANER OF INTERNAL COMBUSTION ENGINES

Hiromichi Sugie, Nagoya; Hajime Akado, Anjo, and Akira Yamashita, Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 15, 1980, Ser. No. 140,593
Claims priority, application Japan, May 30, 1979, 54-72595[U]
Int. Cl.³ B01D *51/00*
U.S. Cl. 55—267 **5 Claims**



4. An air cleaner of an internal combustion engine comprising:

an air cleaner main body;

an air inlet conduit fitted to said air cleaner main body and provided with a diaphragm type vacuum motor, said air inlet conduit being formed of a synthetic resinous material and composed of an upper conduit portion and a lower conduit portion obtained by dividing said air inlet conduit longitudinally into two axially extending segments secured to each other;

a heated air inlet port formed integrally in said lower conduit portion;

a stepped flange formed integrally with said upper conduit portion to constitute a lower half portion of a housing of the vacuum motor;

a cap joined to said stepped flange, with an outer peripheral edge of a diaphragm of the vacuum motor being held therebetween, to constitute an upper half portion of the housing of the vacuum motor;

a valve body disposed so as to open and close said heated air inlet port and connected to the central portion of the diaphragm;

a recess and a notch formed at the bottom of said recess on the inner surface of either side wall of said lower conduit portion; and

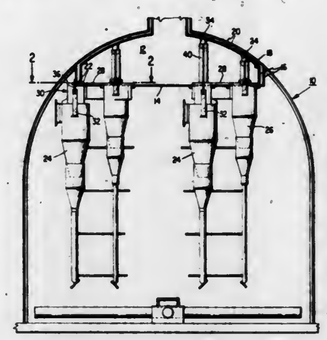
a bearing member attached to the inner surface of either side wall of said upper conduit portion and formed at its lower end with a notch complementary with said notch formed at the bottom of said recess of the lower conduit portion, said two notches cooperating with each other to provide a bearing which rotatably supports said valve body.

4,273,565

CYCLONE SUPPORT

Arthur C. Worley, Mt. Tabor, N.J., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 902,952, May 5, 1978, abandoned. This application Feb. 15, 1980, Ser. No. 122,232
Int. Cl.³ B01D *45/12*
U.S. Cl. 55—343 **5 Claims**



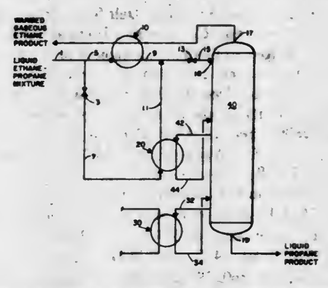
1. A vessel which is subjected to a high temperature differential, comprising a vessel head having a downward extending support skirt connected therewith and a plenum chamber at an end of said vessel adjacent said head; a plurality of separator stages mounted in said vessel; means located completely within said vessel including hanger strap means for separately and independently supporting each of said stages directly from said vessel head; and a relatively thin flexible plenum chamber floor having said skirt connected therewith and substantially supported only by said plurality of stages, wherein said hanger strap means extend through said floor.

4,273,566

METHOD AND SYSTEM FOR THE FRACTIONATION OF ETHANE-PROPANE MIXTURES

Brian L. Schwarz, Pearland, Tex., assignor to Cabot Corporation, Kokomo, Ind.

Continuation-in-part of Ser. No. 939,460, Sep. 5, 1978, abandoned. This application Jun. 4, 1979, Ser. No. 44,976
Int. Cl.³ F25J *3/02*
U.S. Cl. 62—27 **7 Claims**



1. A method for the fractionation of ethane-propane mixtures which comprises the steps of:

(a) providing a relatively high pressure entirely liquid feed mixture consisting essentially of between 85 and 70 mole percent ethane and between 15 and 30 mole percent propane:

(b) dividing said liquid feed mixture into first and second feed mixture streams;

(c) cooling and reducing the pressure of said liquid feed mixture to a temperature sufficiently low to supply all of the refrigeration in the fractionation step of (d), below, and to a relatively low pressure whereat said mixture is maintained in an at least predominantly liquid state, thereby to provide all of the liquid for refluxing purpose in said fractionation step of (d), said first stream being precooled by heat exchange thereof with cold gaseous ethane fraction removed as overhead product from the fractionation tower of step (d), said second stream being precooled by heat exchange thereof with cold distilling liquid removed from the fractionation tower of step (d), said distilling liquid being recycled to the fractionation tower after warming and at least partial vaporization thereof by said second stream to thereby provide reboil heat to said tower, said cooling and pressure reduction being at least partially achieved by expansion cooling of said liquid feed mixture substantially immediately preceding said step (d);

(d) introducing the cooled pressure-reduced and at least predominantly liquid feed mixture of (c) into a fractionation tower wherein fractionation of the ethane component from said mixture is achieved at relatively low pressure;

(e) removing as overhead product from said fractionation tower, and without reflux condensation thereof, a cold gaseous ethane fraction having a propane content of no greater than about 10 mole percent; and

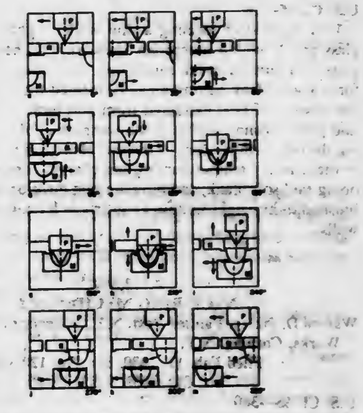
(f) removing as bottom product from said fractionation tower a liquid propane fraction having reduced ethane content.

4,273,567

METHOD AND APPARATUS FOR FORMING GLASS PARISONS

John J. Scholl, Elmira, and Warren D. Staley, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,352
Int. Cl.³ C03B *11/16*
U.S. Cl. 65—72 **41 Claims**



1. A method of forming glass parisons with a single mold and plunger set for retention by a plurality of successively presented retention means, which comprises, continuously moving a plurality of retention means along a predetermined path, positioning a mold in an initial position vertically below said predetermined path, delivering a charge of molten glass to said

mold, moving said mold in the direction of movement of said retention means at the same speed as that of said retention means so as to track vertically below one of said retention means, moving said mold vertically into operable engagement with said one retention means while continuing to track with the same, positioning a plunger vertically above said predetermined path for movement in the direction of said path, moving said plunger in the direction of movement of said retention means at the same speed as that of said retention means so as to track vertically above said one retention means simultaneously with the tracking of the mold with said retention means, moving said plunger vertically into operable pressing engagement with said one retention means while continuing to track with the same, pressing said charge of molten glass carried by said mold into a parison while said one retention means, said mold and said plunger move simultaneously along said predetermined path, vertically moving said mold and said plunger from operable engagement with said one retention means while simultaneously tracking with the same, retaining said newly press-formed parison with said retention means, moving said mold and plunger in a return direction opposite to the direction of movement of said retention means along said path to relative starting positions, and repeating the pressing cycle of said mold and plunger set with the next presented retention means.

36. Apparatus for forming glass articles which comprises, means for continuously moving a plurality of neck ring assemblies horizontally along a predetermined linear path, a single mold positioned below said linear path, a single plunger positioned above said linear path, means for moving said mold and said plunger into operable pressing engagement with each neck ring assembly successively presented along said path for press forming a glass article therewithin during continuous movement along said path from a charge of molten glass delivered to said mold, and said means for moving said mold and said plunger including cam actuated means programming the vertical and horizontal movement of said mold and said plunger for operable synchronous tracking engagement with each successively presented continuously moving neck ring assembly.

4,273,568

PRESS AND BLOW GLASS FORMING

John J. Scholl, Elmira, and Warren D. Staley, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,353
Int. Cl.³ C03B 9/193
U.S. Cl. 65—76 12 Claims

1. A method of forming a thin walled lightweight hollow glass article which comprises, delivering a charge of molten glass to a parison mold, rapidly press forming said charge to form a soft blank having a cavity formed therein, minimizing the amount of heat extracted from said molten charge during said press forming so that at the completion of said press forming the core temperature of the soft blank is substantially equal to the delivery temperature of said charge, controllably developing said soft blank, and blowing said developed blank into a finished lightweight hollow glass article having relatively thin walls.

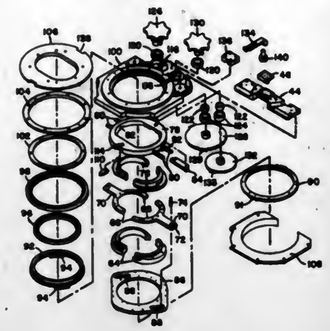
4,273,569

NECK RING MECHANISM

Warren D. Staley, Painted Post, N.Y., assignor to Corning Glass Works, Corning, N.Y.

Filed Feb. 11, 1980, Ser. No. 120,330
Int. Cl.³ C03B 9/325, 9/40
U.S. Cl. 65—360 18 Claims

1. A neck ring mechanism for transporting, rotating and releasing a glass article which comprises, a neck ring housing, a neck ring rotatably mounted within said housing and comprising a plurality of neck ring segments, an inner bearing ring mounted for rotation within said housing, means slidably mounted with respect to said inner bearing ring and operatively retaining said neck ring segments for opening and closing the segments of said neck ring, rotatable cam means for actuating said slidably mounted means, and means for rotating



said cam means and camming said slidably mounted means inwardly for closing said neck ring segments and for rotating said neck ring.

4,273,570

PROCESS FOR THE PRODUCTION OF A LIQUID ALKALINE FERTILIZER CONTAINING CLAYS AND TRACE ELEMENTS

Josef Deubler, Ramsau Nr. 31, 4822 Bad Goisern, Austria

Filed Sep. 21, 1979, Ser. No. 77,828
Claims priority, application Austria, Mar. 30, 1978, 2258/78
Int. Cl.³ C05D 3/00
U.S. Cl. 71—21 17 Claims

1. Process for the production of a liquid, alkaline fertilizer containing clays and trace elements, comprising the steps of

adding 30–40 parts by weight of ground Haselgebirge to 70–60 parts by weight of water, and

stirring or agitating this mixture for the production of a solution and suspension, respectively, for at least 30 minutes,

with continued stirring adding in the aqueous mixture per 1000 liters of mixture, 0.1 to 0.5 kg. of calcium carbide,

after gas generation has ended, continuing stirring at least one hour obtaining an alkaline fertilizer concentrate.

4,273,571

ORGANIC CHEMICAL COMPOUND, MICROBIOLOGICAL PROCESS FOR ITS PREPARATION, AND ITS USE AS A HERBICIDE

Dieter Berg; Werner Frommer; Delf Schmidt, all of Wuppertal; Robert R. Schmidt, Cologne, and Dietmar Schäfer, Marburg, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Dec. 8, 1978, Ser. No. 967,930
Claims priority, application Fed. Rep. of Germany, Dec. 24, 1977, 2758008; Feb. 11, 1978, 2805855
Int. Cl.³ A01N 63/04; C12P 13/00, 1/06
U.S. Cl. 71—79 6 Claims

1. A compound of the empirical formula $C_{10}H_{14}N_6O_3$, having an IR KBr-absorption spectrum exhibiting characteristic bands at wave numbers 3340, 3170, 2920, 2040, 1660, 1600, 1570, 1520, 1480, 1430, 1380, 1340, 1295, 1250, 1215, 1160, 1110, 1030, 890, 860, 790 and 720 cm^{-1}, and a specific optical rotation at 1% in methanol at 20° C. of −19.7°.

5. A method of combating weeds which comprises applying to the weeds, or to a habitat thereof, a herbicidally effective amount of the compound according to claim 1.

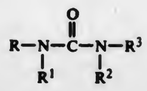
4,273,572

N-ALKYL OR ALKOXY-N'-SUBSTITUTED HYDROCARBYL UREA

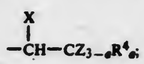
Malcolm S. Singer, Novato, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 919,016, Jun. 26, 1978, Pat. No. 4,200,450, which is a division of Ser. No. 741,422, Nov. 12, 1976, Pat. No. 4,111,683, which is a continuation-in-part of Ser. No. 591,058, Jun. 27, 1975, abandoned, which is a continuation of Ser. No. 385,521, Aug. 3, 1973, abandoned, which is a continuation-in-part of Ser. No. 124,422, Mar. 16, 1971, abandoned, and Ser. No. 124,423, Mar. 16, 1971, abandoned.
This application Aug. 20, 1979, Ser. No. 68,039
Int. Cl.³ A01N 57/30; C07F 9/24
U.S. Cl. 71—86 9 Claims

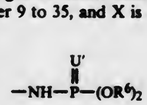
1. A compound of the formula



wherein R is an aromatic hydrocarbyl group of 6 to 12 carbon atoms substituted with 0 to 5 halogen atoms of atomic number 9 to 35 (fluorine, chlorine or bromine), nitro, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, alkylthio of 1 to 4 carbon atoms, or 0 to 1 alkylsulfoxy of 1 to 4 carbon atoms, alkylsulfonyl of 1 to 4 carbon atoms, trifluoromethyl, phenoxy, phenylthio, phenylsulfoxy, phenylsulfonyl, the phenoxy, phenylthio, phenylsulfoxy or phenylsulfonyl being substituted on the aromatic nucleus with 0 to 5 halogens of atomic number 9 to 35 or alkyl of 1 to 4 carbon atoms; R^1 is hydrogen or alkyl of 1 to 4 carbon atoms, R^2 is alkyl of 1 to 4 carbon atoms or alkoxy of 1 to 4 carbon atoms and R^3 is



wherein a is 0 to 1 and R^4 is hydrogen or CW'_3, W' representing hydrogen or halogen of atomic number 9 to 35, Z is halogen of atomic number 9 to 35, and X is



wherein U' is 0 or S, and R^6 is alkyl of 1 to 4 carbon atoms.

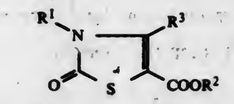
4,273,573

AGENTS FOR REGULATING PLANT GROWTH USING 2-THIAZOLONE-5-CARBOXYLIC ACID COMPOUNDS

Klaus Grohe, Odenthal, and Klaus Lürssen, Bergisch-Gladbach, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 4, 1979, Ser. No. 26,850
Claims priority, application Fed. Rep. of Germany, Apr. 27, 1978, 2818504
Int. Cl.³ A01N 43/78
U.S. Cl. 71—90 31 Claims

1. Method for regulating the growth of plants, comprising applying to the plants or their habitat effective amounts of a 2-thiazolone-5-carboxylic acid compound of the formula



(I)

in which

R^1 is hydrogen;

alkyl of from 1 to 4 carbon atoms;

alkoxyalkyl of from 1 to 4 carbon atoms in each alkyl moiety;

alkyl of 1 to 4 carbon atoms substituted by phenylcarbonyl aryl of 6 to 10 carbon atoms optionally substituted with halogen; arylalkyl of 6 to 10 carbon atoms in the aryl moiety and 1 to 4 carbon atoms in the alkyl moiety; or the radical



wherein

R^4 is straight or branched alkyl of up to 6 carbon atoms and R^5 is straight or branched alkyl of 1 to 6 carbon atoms,

R^2 is hydrogen;

alkyl of up to 16 carbon atoms optionally substituted by cycloalkyl of 5 to 7 ring carbon atoms, alkoxy of 1 to 4 carbon atoms, phenoxy, or cyano; cycloalkyl of 5 to 7 ring carbon atoms optionally substituted by alkyl of 1 to 4 carbon atoms; aralkyl of 6 carbon atoms in the aryl moiety and 1 to 4 carbon atoms in the alkyl moiety;

R^3 is hydrogen,

alkyl of up to 4 carbon atoms;

alkoxyalkyl of 1 to 4 carbon atoms in each alkyl moiety; haloalkyl of 1 to 4 carbon atoms.

4,273,574

2-[3-(4-CHLOROPHENOXY)PROPYLTHIO]-5-(1,3,3-TRIMETHYLUREIDO)-1,3,4-THIADIAZOLE AND USE AS A POST-EMERGENT HERBICIDE

Joel L. Kirkpatrick, Washington Crossing, Pa., assignor to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Aug. 14, 1980, Ser. No. 178,240
Int. Cl.³ A01N 43/82; C07D 285/12
U.S. Cl. 71—90 6 Claims

1. 2-[3-(4-Chlorophenoxy)propylthio]-5-(1,3,3-trimethylureido)-1,3,4-thiadiazole.

2. A herbicidal formulation which comprises from 0.1 percent to 95 percent by weight of the compound of claim 1 in combination with from 0.1 to 75 percent by weight of a carrier or surface active agent.

4,273,575

PROCESS FOR TRANSFORMING FINES OF IRON OR MANGANESE INTO RAW-MATERIAL FOR SINTERING

Bernardo C. Litzinger, and Udo F. M. Schmelling, both of Rio de Janeiro, Brazil, assignors to Minerações Brasileiras Reunidas S.A., Rio de Janeiro, Brazil

Filed Mar. 27, 1979, Ser. No. 24,400
Claims priority, application Brazil, Mar. 31, 1978, 7802010
Int. Cl.³ C22B 1/243, 1/244
U.S. Cl. 75—3 3 Claims

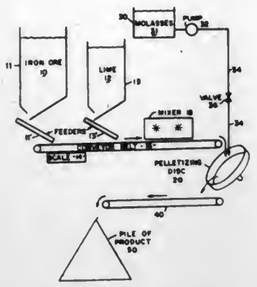
1. A process from transforming ore fines having a substantial proportion of particles with sizes below 150 microns into raw-material for a sintering process that produces raw material for steel-making furnaces, comprising the steps of:

mixing an iron ore fine with a lime agglomerant, the proportion of lime being 5% by weight;

adding 3% by weight of cane molasses to the mixture;

pelletizing the mixture to form micro-pellets having a diameter of less than 6 mm;

curing the micro-pellets in a closed environment at temperatures below 300° C. for a period sufficient to harden the



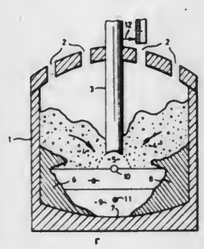
pellets to such an extent that they are resistant to size degradation due to handling.

4,273,576

ELECTRIC ARC FURNACE OPERATION

James H. Corrigan, Bonao, Dominican Republic, and Egil J. Jahnsen, Vaagsbygd, Norway, assignors to Falconbridge Nickel Mines Limited, Canada

Filed Feb. 14, 1980, Ser. No. 121,510
Claims priority, application Canada, Feb. 16, 1979, 321687
Int. Cl.³ C21C 5/52
U.S. Cl. 75—11 2 Claims



1. In the method of conducting the continuous shielded arc melting of particulate material containing metal values and a preponderence of slag-making constituents including silica and magnesia, by establishing, in an electric arc furnace having a refractory lining and a given hearth area, a bath resulting from the said melting of particulate material overlying the bath and a protective crust of solidified bath material and unmelted particulate material between the refractory lining and the bath, whereby a major portion of the electrical energy supplied to the furnace is released in the shielded arc and a minor portion of said energy is released in the bath, the improvement comprising,

(a) determining, by slag weight and bath level measurements, the rate of change of bath volume coincident with a measured rate of change of bath level in the furnace,

(b) dividing the rate of change of bath volume by that of bath level to obtain an active bath area, and

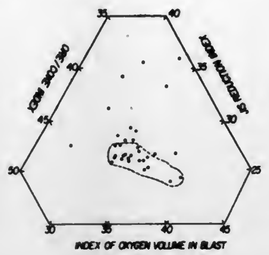
(c) adjusting the ratio of energy released in the arc to that released in the bath, by regulating the fraction of the total power fed to the bath, to maintain a predetermined active bath area.

4,273,577

BLAST-FURNACE OPERATION METHOD

Isao Fujita, Takarazuka; Nobuyuki Imanishi, Kobe; Tadao Tsutaya, Kobe; Ryo Watanabe, Kobe, and Takao Kawai, Kobe, all of Japan, assignors to Kobe Steel, Limited, Kobe, Japan

Filed Aug. 22, 1979, Ser. No. 68,582
Claims priority, application Japan, Aug. 28, 1978, 53-104558
Int. Cl.³ C21B 5/00
U.S. Cl. 75—41 9 Claims



1. A method for the efficient operation of a blast furnace comprising:

selecting oxygen volume in blast (x), ore/coke (Y) and reducibility of burden materials (Z) from among factors which affect heat input and heat output in the furnace; plotting a graph having a center axis (Y Axis) representing ore/coke, an axis (X axis) representing oxygen volume in blast and an axis (Z axis) representing reducibility of burden materials, the X axis and the Z axis being located in parallel on the left and right sides of the Y axis; plotting on said graph values of the three factors which represent data of efficiently operated blast furnaces; determining from the plot of the data an angle θ downwardly subtended on the central axis by straight lines drawn to the point on the central axis from the two points on the neighboring axes according to the relation

$$\theta = 180° + \theta_x + \theta_z \quad (1);$$

and controlling at least one of the three factors according to the equation

$$\theta_x O_z + \tan^{-1} f(X,Y) + \tan^{-1} g(Y,Z) \quad (2)$$

wherein θ_x and O_z are angles subtended toward the point on the Y axis from points on the X and Z axes with respect to a straight line drawn at right angles to the three axes through a point on the Y axis wherein the points represent the operational values of the furnace, f(X,Y) represents a function of X and Y determined by a regression equation of X-Y obtained from the data of efficiently operated blast furnaces and the distance between the X and Y axes, and g(Y,Z) represents a function of Y and Z determined by a regression equation of Y-Z obtained from the data of efficiency operated blast furnaces and the distance between the Y and Z axes, so that the value of θ for the furnace is within a suitable range of values determined from the data.

4,273,578

METHOD FOR RECOVERING RHODIUM

Paul Nesvadba, Nidderau, and Gisela Weigl, Rodenbach, both of Fed. Rep. of Germany, assignors to W. C. Heraeus GmbH, Hanau, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 130,644
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 2911193
Int. Cl.³ C22B 11/00; C01G 55/00
U.S. Cl. 75—83 11 Claims

1. A process for recovering rhodium from a residue of the oxo synthesis or of a hydroformylation which comprises contacting at a temperature of 60° to 140° C. said residue with sulfur or a compound which under the reaction conditions

splits off sulfur whereby there is formed a rhodium-containing precipitate and separating the resultant rhodium-containing precipitate from said residue.

6. A process according to claim 1, wherein the so-separated rhodium-containing precipitate is thereafter converted to rhodium or a rhodium compound.

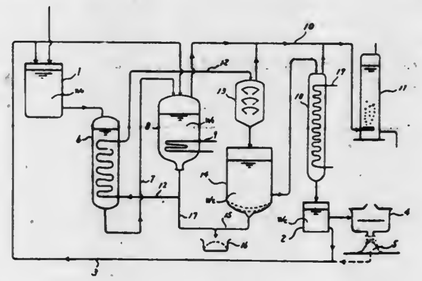
7. A process according to claim 6, wherein the rhodium precipitate is smelted with pyrosulfate, common salt or lead to give rhodium and/or a rhodium compound.

4,273,579

PROCESS FOR TREATING LIQUID CONTAINING AU-CN COMPOUND

Michihide Okugawa, and Ryougi Ishii, both of Hyogo, Japan, assignors to Dainichi-Nippon Cables, Ltd., Hyogo, Japan

Filed Mar. 27, 1980, Ser. No. 134,688
Claims priority, application Japan, Mar. 28, 1979, 54-37616
Int. Cl.³ C22B 11/04, 11/08
U.S. Cl. 75—106 6 Claims



1. A process for treating a liquid containing an Au-CN compound characterized in that the liquid is heated at a temperature of at least 170° C. in the presence of at least 0.1 mole of a water-soluble metallic hydroxide per gram atom of the gold in the Au-CN compound to recover gold.

4,273,580

REINFORCED JACKET CROWN AND METHOD OF CONSTRUCTION

Itzhak Shoher, 50 Shlomo Hamelech St., Tel Aviv, and Aharon E. Whiteman, 13 J1 Perez St., Petach Tikvah, both of Israel

Filed Apr. 4, 1979, Ser. No. 26,785
Int. Cl.³ C22C 5/02; B22F 7/08
U.S. Cl. 75—165 10 Claims



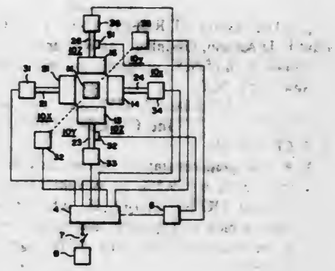
1. A reinforced porcelain jacket crown restoration comprising a composite body including a thin metal foil of platinum conforming in shape to the tooth preparation to be restored, at least one thin intermediate coating of a predetermined composition of finely divided particles bonded to said thin metal foil at an elevated sintering temperature above at least 1600° F.; said composition comprising, from about 1 to 100% by weight of a noble metal chloride with said noble metal being selected from the group consisting of gold, silver, palladium and platinum in combination with from zero to 99% by weight of a gold based noble metal; and a relatively thick fired on outer coating of dental porcelain.

4,273,581

SINTERING METHOD

Kiyoshi Inoue, Tokyo, Japan, assignor to Inoue-Japax Research Incorporated, Kanagawa, Japan

Filed Apr. 6, 1979, Ser. No. 27,662
Claims priority, application Japan, Apr. 7, 1978, 53-40193; Apr. 24, 1978, 53-47902; Sep. 18, 1978, 53-113644; Oct. 4, 1978, 53-121466; Oct. 17, 1978, 53-128144
Int. Cl.³ B22F 3/16
U.S. Cl. 75—214 7 Claims



1. A method of sintering a mass of particulate material, comprising the steps of:

applying a first pressure to said mass in a first direction;

applying a second pressure of said mass in a second direction which is transverse to said first direction;

applying a third pressure to said mass in a third direction which is transverse to said first and second directions; and

successively modifying at least two of said first, second and third pressures to said mass cyclically while said mass is heated at a sintering temperature.

4,273,582

PROCESS FOR THE MANUFACTURE OF SINTERED METAL BODIES, IN PARTICULAR BATTERY ELECTRODES

Manfred A. Gutjahr, Wendlingen, and Hans Heinrich, Esslingen, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Apr. 5, 1977, Ser. No. 784,774
Claims priority, application Fed. Rep. of Germany, Apr. 10, 1976, 2615779
Int. Cl.³ B22F 1/00
U.S. Cl. 75—222 33 Claims

1. A process for the manufacture of sintered metal bodies comprising mixing a powdered metal or metal alloy with at least one pore-forming filler, said filler being a fine grain salt or mixture of salts, filling a mold with said mixture, heating the uncompressed mixture to the sintering temperature of the metal or metal alloy, reducing the pressure of the atmosphere surrounding said mold during said heating, the salt of said mixture being vaporizable under the conditions of sintering, said salt of the mixture being selected such that significant vaporization thereof occurs only after sintering of the metal has begun, continuing such heat and reduced pressure for a period of time sufficient to vaporize substantially all of said salt and sinter the metal or alloy into a porous body, and recovering the porous sintered metal.

4,273,583

FLAKE SILVER POWDERS WITH CHEMISORBED MONOLAYER OF DISPERSANT

Leo W. Tyran, Lewiston, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 29, 1979, Ser. No. 53,197
Int. Cl.³ B22F 1/02
U.S. Cl. 75—251 6 Claims

1. A flake silver powder consisting essentially of silver particles having at least a partial chemisorbed monolayer of hydrophobic organic dispersing agent on the particle surfaces wherein said dispersing agent contains at least one olefinic unsaturation and at least one carboxylic acid group and wherein said dispersing agent comprises 0.2–0.5% by weight of the powder.

4,273,584

DETERGENT RESISTANT COMPOSITIONS

Paul F. D'Angelo, Ossining, and Richard B. Metzler, Briar Cliff Manor, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 7, 1979, Ser. No. 100,990
Int. Cl.³ C09G 1/00
U.S. Cl. 106—3 6 Claims

1. A detergent resistant composition which comprises

I. from 35% to 99.5% by weight of a component of the formula $HO[Si(CH_3)_2O]_xH$, wherein x is a numerical value which will provide said component with a viscosity in the range of from 10 to 100,000 centistokes at ambient temperature,

II. from 0.8% to 75% by weight of a component of the formula

$$(RO)_{3-a}R_a'SiC_3H_6N[C_2H_4N]_yC_3H_6SiR_b'(OR)_{3-b}$$
$$\qquad\qquad\qquad\quad X \qquad X$$

wherein R and R' are alkyl groups of from one to eight carbons, a and b have values of zero and one, y has a value of from zero to twenty, and X is hydrogen or an organotrialkoxysilyl group of the formula —L—$Si(OR)_3$ wherein R is as defined above and L is $—C_3H_6—$ or $—CH_2.CHOHCH_2C_3H_6—$, and

III. from 0.5% to 65% by weight of a component of the formula $(RO)_3SiZ$ or a component of the formula

$$(RO)_2SiO(SiO)_xSi(OR)_2$$
$$\qquad\qquad\quad OR$$

wherein R is an alkyl group of from one to eight carbons, x has a value of from 0 to 100, and Z is a nonhydrolyzable aliphatic group containing up to ten carbon atoms.

4,273,585

SEALING GLASS

David A. Krohn, Milford; Elias Snitzer, West Hartford, and Peter E. Raber, Milford, all of Conn., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 21, 1980, Ser. No. 142,038
Int. Cl.³ C03C 3/14
U.S. Cl. 106—47 R 2 Claims

1. A sealing glass composition having a thermal coefficient of expansion (from room temperature to 300° C.) of about $90\times10-7$/°C. and a softening temperature of about 406° C., consisting essentially of the following ingredients in the following proportions:

Pbo	66%
B_2O_3	18%
ZnO	15%
Fining Agent	1%

4,273,586

TINTED GLASSWARE

James E. Flannery; David W. Morgan, both of Corning; Sara E. Rosplock, Campbell, all of N.Y., and Stella A. Szczerbaniewicz, Inwood, W. Va., assignors to Corning Glass Works, Corning, N.Y.

Filed Jun. 23, 1980, Ser. No. 161,760
Int. Cl.³ C03C 3/04
U.S. Cl. 106—52 2 Claims

1. A transparent glass which, after thermal tempering, exhibits the following C.I.E. chromaticity coordinates and transmission utilizing Illuminant C

$x=0.3300\pm0.0040$
$y=0.3360\pm0.0040$
$Y=60.8\pm4$

consisting essentially, expressed in weight percent on the oxide basis, of

SiO_2		75 ±2.0
Na_2O		13.45 ± 0.5
Al_2O_3		165 ± 0.2
CaO		9.6 ± 0.3
As_2O_3		0.15 ± 0.1
NiO		0.03 ± 0.005
	with	
Cr_2O_3		0.002 ± 0.0005
	or	
CuO		0.005 ± 0.002

4,273,587

POLYCRYSTALLINE TRANSPARENT SPINEL SINTERED BODY AND A METHOD FOR PRODUCING THE SAME

Isao Oda, Nagoya; Masayuki Kaneno, Tokoname, and Issei Hayakawa, Tsushima, all of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Filed Aug. 8, 1979, Ser. No. 64,841
Claims priority, application Japan, Aug. 14, 1978, 53-98947
Int. Cl.³ C04B 35/44
U.S. Cl. 106—73.4 3 Claims

1. A polycrystalline transparent spinel sintered body consisting mainly of Al_2O_3 and MgO in a molar ratio of Al_2O_3/MgO of ranging from 0.52/0.48 to 0.70/0.30, and containing 0.001-0.1% by weight of LiF.

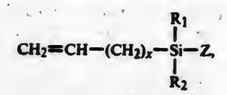
4,273,588

ASPHALT COMPOSITIONS MODIFIED WITH ORGANO SILANE COMPOUNDS

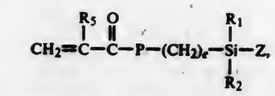
Alfred Marzocchi; Michael G. Roberts, and Charles E. Bolen, all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 66,207, Aug. 13, 1979, which is a continuation-in-part of Ser. No. 852,772, Nov. 18, 1977, abandoned. This application Mar. 24, 1980, Ser. No. 133,169
Int. Cl.³ C08L 95/00
U.S. Cl. 106—273 N 2 Claims

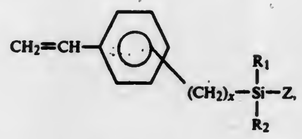
1. A silicon-modified bitumen composition prepared by reaction of (1) a bitumen chemically modified with a modifying agent selected from the group consisting of, ammonia and an amine, said amine having the formula $R_3—NH—R_4$ or $H_2N—(CH_2)y\ NH—(CH_2)_z—NH]_eH$ wherein R_3 is a C_1–C_{10} alkyl, R_4 is hydrogen or a C_1–C_{10} alkyl, y is an integer from 2 to 6, z is an integer from 2 to 6 and a is 0 or an integer from 1 to 6 and (2) an organo silicon compound selected from the group consisting of a compound having the formula:



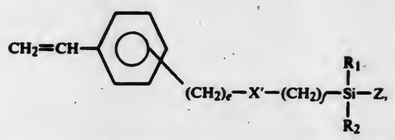
a compound having the formula:



a compound having the formula:



and a compound having the formula:



wherein x is 0 or an integer from 1–3, Z is a readily hydrolyzable group; R_1 and R_2 are selected from the group consisting of Z and a non-hydrolyzable organic group; R_5 is hydrogen or methyl; P is 0 or —NH—; e is an integer from 2–6, X' is —NH— or $—NH—(CH_2)_3—NH—$ and f is an integer from 2 to 6 and the hydrolysis products of said organo silicon compound, in the presence of a catalyst to promote the reaction between the ethylenic unsaturation of said organo silicon compound with ethylenic unsaturation in the bitumen.

4,273,589

PRECIPITATED SILICIC ACID, METHOD AND COMPOSITIONS CONTAINING SAME

Peter Nauroth, Wesseling; Heinz Esch, Wesseling-Urfeld; Robert Kuhlmann, Erftstadt; Rudolf Bode, Bad Ork; Arthur Reisert, Kahl; Harald Bühler, and Günter Türk, both of Hanau, all of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 810,441, Jun. 27, 1977, abandoned.
This application Jul. 31, 1979, Ser. No. 62,397
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1976, 2628975
Int. Cl.³ C09C 1/30
U.S. Cl. 106—308 Q 8 Claims

1. Hydrophobic silicic acid having the following properties:

BET surface acc. to DIN 66 131	m^2/g	110 ± 30
Average size of the primary particles from EM pictures	nm	15–22
Loss after drying acc. to DIN 55 921 after 2 hours at 105° C.	%	<2.5
Loss at red heat (related to the substance dried for 2 hours at 105° C.) acc. to DIN 55 921	%	5.5 ± 1.5
pH value (in 5% aqueous dispersion) acc. to DIN 53 200		7 ± 1
Conductivity (in 4% aqueous dispersion)	µS	600
Tamped density of the unaerated substance acc. to DIN 53 194	g/l	50 ± 20
Water wettability		<0.05
Carbon content	%	2.5 ± 0.6
Water absorption at 30° C. & 30% RM	%	1.2 ± 0.4
at 30° C. & 70%	%	1.5 ± 0.5
DBP adsorption	%	260 ± 30

said hydrophobic silicic acid having been prepared from a precipitated silicic acid by treating and agitating said silicic acid with a hydrophobic agent in a ratio of 10:0.5 to 10:3 followed by tempering for 60 to 180 minutes at a temperature of 200° C. to 400° C. and grinding to form a finely divided product, and said precipitated silicic acid having the following properties:

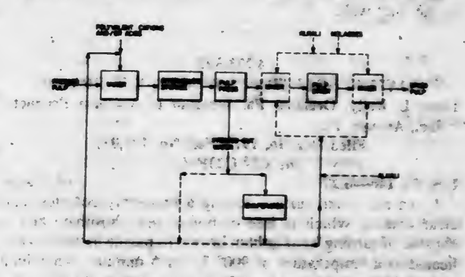
BET surface acc. to DIN 66 131	m^2/g	150 ± 30
Average size of the primary particles from EM pictures	nm	15–22
Loss after drying acc. to DIN 55 921 after 2 hours at 150° C.	%	2.5–3.5
Loss at red heat (related to the substance dried for 2 hours at 105° C.) acc. to DIN 55 921	%	3 ± 0.5
pH value (in 5% aqueous dispersion) acc. to DIN 53 200		3.5–5.5
Conductivity (in 5% aqueous dispersion)	µS	<500
Tamped density of the unaerated substance acc. to DIN 53 194	g/l	60 ± 20
SO_3 content (related to the substance dried for 2 hours at 105° C.)	%	<0.3
Na_2O content (related to the substance dried for 2 hours at 105° C.)	%	<0.3

4,273,590

PROCESS FOR OBTAINING PRESSED BEET PULP WITH HIGH DRY-SUBSTANCE CONTENT

Theodor Cronewitz, and Hubert Schiweck, both of Worms, Fed. Rep. of Germany, assignors to Süddeutsche Zucker-Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,259
Claims priority, application Fed. Rep. of Germany, Feb. 20, 1979, 2906528
Int. Cl.³ C13D 1/08; B30B 13/00
U.S. Cl. 127—44 18 Claims



1. Process for obtaining beet pulp of high dry-solids content from a sugar extraction process, comprising:

mechanically pressing the pulp to produce pressed pulp;

mixing the pressed pulp with a solution of a material selected

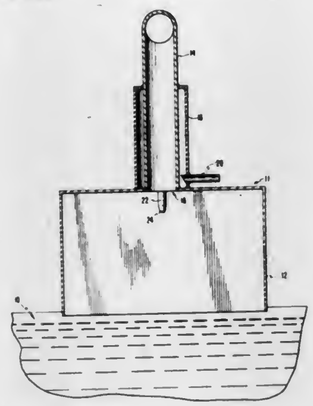
from the group consisting of salts of polyvalent cations, acids and mixtures thereof to lower the pH;
mechanically pressing the admixture;
recycling at least a portion of press water from the second pressing step to form said solution; and
thermally drying the pressed admixture.

4,273,591

METHOD AND APPARATUS FOR PREVENTION OF CLOGGING OF EXHAUST SYSTEMS

William G. Wood, Grosse Pointe Farms, and John F. Pilznienski, Dearborn Heights, both of Mich., assignors to Kolene Corp, Detroit, Mich.

Filed Oct. 5, 1979, Ser. No. 82,020
Int. Cl.³ B08B 9/02
U.S. Cl. 134—11 9 Claims



7. In a method of preventing the build up of material in a device for adding solvent solutions of a chemical to an essentially solvent free fused bath of a chemical composition by spraying the solvent solution onto the bath. and wherein the bath has sufficient heat to vaporize the solvent and which device includes wall means defining a solvent exhaust system having a hood, an exhaust duct communicating with said hood, and fluid conducting means disposed to deliver the solvent solution to be sprayed onto the fused bath under the hood, the improvement which comprises providing fluid tight jacket means surrounding said exhaust system in the region where said exhaust duct and said hood communicate, said fluid tight jacket means being in heat conducting relationship with said exhaust system, and passing cooling fluid through said jacket at a temperature below the boiling point of the solvent whereby to condense solvent onto the walls of the exhaust system to thereby dissolve and remove splattered chemical composition on the duct wall.

4,273,592

COATING SOLUTION FOR METAL SURFACES

Timm L. Kelly, Oreland, Pa., assignor to Amchem Products, Inc., Ambler, Pa.

Filed Dec. 26, 1979, Ser. No. 107,017
Int. Cl.³ C23F 7/06
U.S. Cl. 148—6.27 64 Claims

1. An aluminum surface having a uniformly colorless and clear coating which is free of boron and phosphate and is capable of turning light golden brown to purple in color when heated at a temperature of 900° F. for 5 minutes, but which resists blackening for at least 5 minutes when heated in water having a temperature within the range of about 140° F. to about 170° F., said coated aluminum surface having been obtained by contacting such aluminum surface with an acidic aqueous coating solution having a pH within the range of about 3.0 to about 5.0 and consisting essentially of at least about 0.5×10^{-3} moles/liter of zirconium or hafnium or a mixture thereof, at least about 0.025×10^{-3} moles/liter of a polyhydroxy compound having no more than 7 carbon atoms, and at least sufficient fluoride to combine with and form a soluble complex with all of the zirconium and hafnium present in the solution, wherein said polyhydroxy compound is selected from the group consisting of gluconic acid, a salt of gluconic acid, sorbitol, mannitol, dextrose, ethylene glycol, glycerine, and glucoheptonate.

4,273,593

METAL-JOINING PASTE AND VEHICLE THEREFOR

Albert J. Mastrangelo, North Olmsted, Ohio, assignor to SCM Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 52,063, Jun. 25, 1979. This application Jan. 22, 1980, Ser. No. 114,235
Int. Cl.³ B23K 35/34
U.S. Cl. 148—24 15 Claims

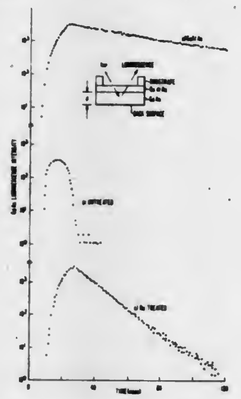
1. A vehicle for a metal-joining paste composition comprising in weight parts:
0.1–10 parts hydroxypropyl cellulose, the concentration of said hydroxypropyl cellulose being sufficient for imparting initial apparent viscosity between about 5,000 and about 50,000 centipoises to said vehicle;
1–20 parts selected from the group consisting of glycerine, water, and mixtures thereof;
0–50 parts of fluxing agent;
0–3 parts surfactant; and
55–99 parts of a mixture of polyalkoxyalkanols, said composition being a solvent for its hydroxypropyl cellulose content at 50° C.

4,273,594

GALLIUM ARSENIDE DEVICES HAVING REDUCED SURFACE RECOMBINATION VELOCITY

Adam Heller, Bridgewater; Harry J. Leamy, Summit; Barry Miller, New Providence; Ronald J. Nelson, Berkeley Heights, all of N.J., and Bruce A. Parkinson, Ames, Iowa, assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 5, 1979, Ser. No. 82,002
Int. Cl.³ H01L 31/04, 21/306
U.S. Cl. 148—33.3 6 Claims



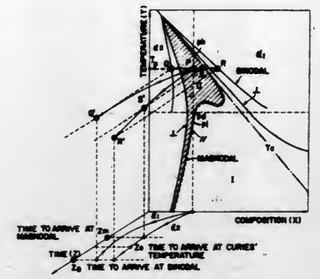
1. A semiconductor device containing n-type GaAs, said n-type GaAs having a surface, a layer of material disposed on said surface, characterized in that said surface further contains material selected from the group consisting of ruthenium, rhodium, nickel, iridium and lead, said material being present in an amount equivalent to greater than one-hundredth of a monolayer and less than one monolayer.

4,273,595

METHOD OF PREPARING THERMOMAGNETICALLY TREATED MAGNETICALLY ANISOTROPIC OBJECTS

Kiyoshi Inoue, Tokyo, and Hideo Kaneko, Wakabayashi, both of Japan, assignors to Inoue-Japax Research Incorporated, Kanagawaken, Japan

Filed Feb. 5, 1980, Ser. No. 118,792
Claims priority, application Japan, Mar. 19, 1979, 54-32649
Int. Cl.³ C21D 1/04
U.S. Cl. 148—103 5 Claims



1. A method of producing a magnetically anisotropic object from a spinodal decomposition-type alloy system wherein a homogeneous α phase is spinodally decomposable into an isomorphous structure of a ferromagnetic α_1 phase and a paramagnetic α_2 phase in a magnetic field, said method comprising the steps of: establishing a formula expressed as a function of temperature and composition for the total free energy of said alloy system and expressed as a sum of the chemical free energy of said alloy system and an additional term, said chemical free energy being resolved into a nonmagnetic component and a magnetic component thereof, said additional term being constituted by a free energy of magnetization of said alloy system and expressed with an intensity of said magnetic field taken as a parameter; calculating spinodal of said alloy system from said free energy formula by obtaining the locus of disappearance of a second derivative thereof to yield a first spinodal component applicable in parallel with the direction of said magnetic field and a second spinodal component applicable perpendicular to the direction of said magnetic field; drawing as curves said first and second spinodal components along with a a_4 curve representing the Curie's temperature of said alloy system in a phase diagram to establish an area therein defined by said first and second spinodal curves in conjunction with said Curie's temperature curve; and thermomagnetically treating said alloy system within said area.

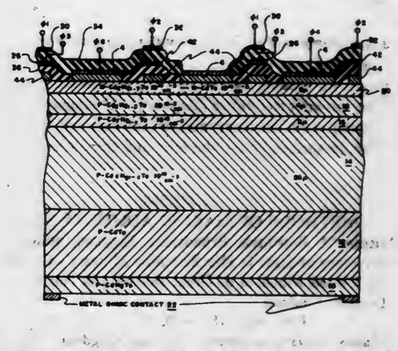
4,273,596

METHOD OF PREPARING A MONOLITHIC INTRINSIC INFRARED FOCAL PLANE CHARGE COUPLED DEVICE IMAGER

William A. Gutierrez, Woodbridge, and John H. Pollard, Alexandria, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 948,129, Oct. 3, 1978, Pat. No. 4,228,365. This application Jan. 2, 1980, Ser. No. 109,025
Int. Cl.³ H01L 21/368, 21/82, 27/14
U.S. Cl. 148—171 4 Claims

1. A method of preparing a monolithic intrinsic IR focal plane array CCD imager having a simple fabrication compatible with LSI technology; the steps of said method comprising:
providing a p-type, low resistivity single crystal wafer window substrate layer having an input side and an output side;
seeding the growth of four layers on said output side by using said p-type, low resistivity single crystal wafer window substrate layer in which said substrate layer furnishes the seed for said four layers, growing a p-doped wide band spillover layer on said window substrate layer, growing a p-doped narrow band absorber layer on said spillover layer, growing a p-doped transfer layer on said absorber layer, said transfer layer forming a heterojunction with said absorber layer and said transfer layer and absorber layer being lattice matched with proper bandgap, thickness and doping types and levels for efficient injection across said heterojunction, and growing an n-doped channel layer on said transfer layer;
forming a CCD gate structure on said channel layer wherein said step of forming a CCD gate structure comprises deposition on said channel layer a plurality of Schottky barrier gates designated 1, 2, 3, and 4 and a plurality of channel stops separating rows of said Schottky barrier gates 1, 2, 3, and 4 and next depositing a first insulator



layer between said plurality of channel stops and said Schottky barrier gates and depositing a first metallization forming first and second metal layers over said first insulator layer wherein said second metal layer is connected to Schottky barrier gate 4 and said first metal layers is connected to Schottky barrier gate 3 and depositing a second insulator layer over said first metallization and the remaining bare area of said first insulator layer then depositing a second metallization forming third and fourth metal layers over said second insulator layer wherein said third metal layer is connected to Schottky barrier gate 1 and said fourth metal layer is connected to Schottky barrier gate 2;
depositing a p-doped optical filter over said input side of said substrate layer; and
depositing a metal ohmic contact on a portion of said p-doped optical filter.

4,273,597

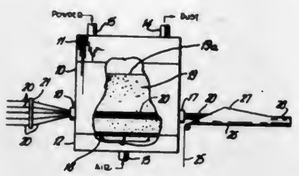
FLUIDIZED POWDER FILLING OF CABLE CORE UNITS

John N. Garner, Pointe Claire, and Arthur S. Hayes, Kingston, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Continuation-in-part of Ser. No. 921,252, Jul. 3, 1978, abandoned. This application Sep. 11, 1979, Ser. No. 74,492
Int. Cl.³ H01B 13/06
U.S. Cl. 156—48 12 Claims

1. A method of powder filling cable core units having a plurality of conductors, said method comprising:
fluidizing a bed of said powder to form a fluidized bed with a defined upper surface; and
with the conductors of the cable core unit devoid of any surface covering which would prevent passage of powder between them, passing the core unit through the fluidized bed and beneath its defined upper surface with the conductors of the core unit substantially closed together, the fluidized powder in the bed flowing between the conductors to fill voids within the unit while avoiding attracting the powder to the conductors electrostatically.

6. Apparatus for powder filling cable core unit comprising:
a housing having a bottom and inlet and outlet ends;
at least one inlet for a core unit at said inlet end and at least one outlet for a core unit at the outlet end with the conductors substantially closed together;
a porous member located within the housing and extending across the housing at a level below the inlet and outlet;



a fluidizable bed of filling powder supported by the porous member; and
means for feeding air through the porous member and into the powder to fluidize the powder, the quantity of powder being sufficient to produce a fluidized bed with a defined upper surface above the inlet and the outlet.

4,273,598

METHODS OF MAKING ADHESIVE BONDS

Malcolm R. Bowditch, Broadstone, England, assignor to The Secretary of State in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed May 18, 1979, Ser. No. 40,106
Claims priority, application United Kingdom, Jan. 20, 1977, 2419/77
Int. Cl.³ E04B *2/00*; B29H *19/00*; B29C *17/00*; B22P *19/10*; B29C *27/22*
U.S. Cl. 156—94 8 Claims







1. A method of making an adhesive bond to a substrate in the presence of water, the method comprising the steps of
impregnating a compliant synthetic foam carrier material having an open-celled structure with a thermosetting resinous adhesive,
applying the impregnated carrier material to the substrate,
compressing the impregnated carrier material against the substrate whereby initially the resinous adhesive causes bulk water to be displaced, absorbed or otherwise eliminated from the substrate to which the bond is to be made and the resinous adhesive is thereafter immobilized within the interstices of the carrier material and cures to form a strong bond with the substrate.

4,273,599

PROCESS FOR REINFORCING POLYVINYL CHLORIDE PIPE BY WRAPPING WITH GLASS FIBERS COATED WITH A POLYESTER RESIN COMPOSITION

Frederick A. Butt, Croton, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Division of Ser. No. 866,140, Dec. 30, 1977, Pat. No. 4,189,452. This application Jul. 2, 1979, Ser. No. 54,329
Int. Cl.³ B65C *54/64*
U.S. Cl. 156—172 5 Claims

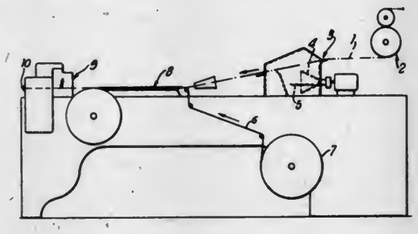
1. A process for reinforcing polyvinylchloride pipe, comprising:
(a) coating glass fibers with a liquid resin composition consisting essentially of:
(i) a first polyester of diethylene glycol, neopentyl glycol, maleic acid or anhydride and isophthalic acid,
(ii) a second polyester of propylene glycol, maleic acid or anhydride and isophthalic acid,
(iii) a monomer copolymerizable with said polyesters, and
(iv) an initiator for inducing copolymerization of said monomer with said polyesters;
(b) winding the resin-coated glass fibers around the exterior of said pipe to make direct contact of said resin composition with said pipe; and
(c) then permitting the resin composition to cure, thereby forming a bond between said pipe and the reinforcing glass fibers wound thereabout.

4,273,600

BONDING FIBRILLATED POLYPROPYLENE SMOKE FILTER WITH ETHYLENE-VINYLACETATE EMULSION

John A. Luke, Romsey, England, assignor to Brown & Williamson Tobacco Corporation, Louisville, Ky.

Continuation-in-part of Ser. No. 877,153, Feb. 13, 1978, abandoned, which is a continuation of Ser. No. 703,392, Jul. 8, 1976, abandoned. This application Jul. 26, 1979, Ser. No. 61,144
Claims priority, application United Kingdom, Jul. 11, 1975, 29261/75
Int. Cl.³ A24C *5/50*
U.S. Cl. 156—180 2 Claims



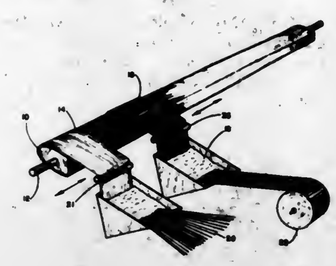
1. A method of making tobacco smoke filter rod from crimped fibrillated fibres of polypropylene, which comprises: spreading a tow of the fibres by passing the tow through a tow processing unit; applying to the spread (fibres) tow a cold-setting bonding agent comprising an emulsion of ethylene-vinyl acetate co-polymer, which emulsion has a viscosity in the range of 10 to 200 centipoise and a solids content in the range of 30 to 60 percent by weight and is applied to the tow in the form of a curtain of droplets, said emulsion being applied to the two in the form of a curtain of droplets by means of a spinning shear cone rotating at a speed of the order of 4,000 r.p.m.; and forming the fibres with the applied bonding agent into a filter rod without applying heat to set the bonding agent.

4,273,601

METHOD FOR THE PRODUCTION OF ELONGATED RESIN IMPREGNATED FILAMENT COMPOSITE STRUCTURES

Oscar Weingart, Riverside, Calif., assignor to Structural Composites Industries, Inc., Azusa, Calif.

Filed Oct. 31, 1977, Ser. No. 847,041
Int. Cl.³ B65H *81/00, 81/08*
U.S. Cl. 156—189 9 Claims



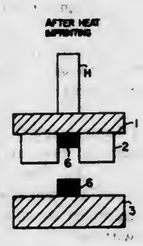
1. The method of winding an elongated hollow blade or spar having a longitudinal axis extending from a root portion to a tip portion and subject when in use to aerodynamic loading including cylical bending comprising the steps of:
wrapping successive overlapping helical convolutions of thermosetting synthetic resin and tape on an elongated mandrel while advancing tape from one end region of the mandrel to the other;
said tape carrying said resin and comprising short parallel high tensile strength filaments selected from the group consisting of glass, polyaramide, carbon, graphite or boron, lying transversely to the length of said tape, supported by continuous warp threads which constitute less than about five percent of the weight of the tape;
parallelogram distorting said tape during winding whereby said filaments lie at an angle of less than 30 degrees with respect to the longitudinal axis of the mandrel and finished spar said successive convolutions overlapped about 50% in the direction of the mandrel longitudinal axis.

4,273,602

HEAT-SENSITIVE RECORDING MATERIAL

Takao Kosaka, and Tahara, Yukio, both of Takasago, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Feb. 6, 1979, Ser. No. 10,043
Claims priority, application Japan, Feb. 7, 1978, 53-12637
Int. Cl.³ B41M *5/18*
U.S. Cl. 156—234 11 Claims



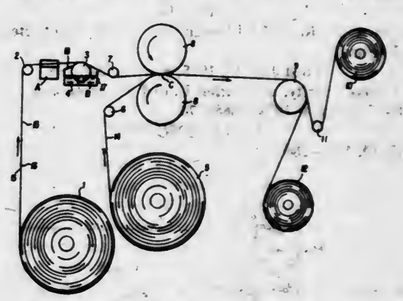
11. A method for recording images which comprises providing an imprinting-transferring type heat-sensitive recording material which comprises a support sheet of 5–40μ in thickness having thereon a transferable heat-sensitive chromogenic layer comprising a phenolic material, a colorless or pale-colored chromogenic material which reacts with said phenolic material upon application of heat to form color and heat fusible material having a melting point of 40°–150° C. and an image receiving sheet having thereon an image receiving layer containing a receiving agent having tackiness upon application of heat thereon, which is bonded by application of pressure onto the support sheet in such a manner that said heat sensitive chromogenic layer and said image receiving layer are in contact with each other, said heat fusible material being one which (1) increases the sensitivity of the chromogenic material for color formation, (2) bonds the support sheet to the receiving sheet and (3) transfers the heat-imposed portions of the transfer layer, heat-imprinting this recording material and then separating the two sheets to transfer the heat-imprinted images to the image receiving sheet.

4,273,603

PROCESS FOR TRANSFER OF A MAGNETIC LAYER FROM A TEMPORARY TO A PERMANENT SUPPORT

Roland Perounet, Lineil Brevannes; Bernard Couturier, Varennes Jarcy, and Christian Fombert, Champigny, all of France, assignors to La Societe Pyral, Creteil, France

Filed Oct. 10, 1978, Ser. No. 950,032
Claims priority, application France, Oct. 21, 1977, 77 31700
Int. Cl.³ B32B *31/20, 31/08*
U.S. Cl. 156—236 12 Claims



1. A cold transfer process for transferring a magnetic layer from a temporary support to a permanent support film which comprises applying a magnetic layer comprising finely divided magnetic particles uniformly dispersed throughout a resin binder onto a temporary support film; wetting the magnetic layer with an organic liquid solvent which is capable of softening the resin binder but will not dissolve the resin binder such that the layer will readily separate from the temporary support; bringing the wet and softened magnetic layer into pressure contact with said final support to thereby transfer the magnetic layer from said temporary support to said final support.

4,273,604

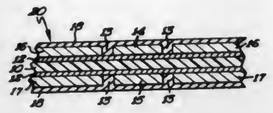
HEAT BONDING DEVICE

Orin B. Johnston, 5548 W. 78th St., Edina, Minn. 55435

Continuation-in-part of Ser. No. 827,668, Aug. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 697,746, Jun. 21, 1976, abandoned, which is a continuation of Ser. No. 499,449, Aug. 22, 1974, Pat. No. 3,964,988, which is a continuation-in-part of Ser. No. 326,534, Jan. 24, 1973, abandoned. This application Sep. 6, 1979, Ser. No. 73,147
Int. Cl.³ B29C *17/00*
U.S. Cl. 156—382 6 Claims

1. In apparatus for joining heat bondable materials by the application of heat and pressure along a predetermined seam area by means of a flexible diaphragm one side of which is pressed by fluid pressure which flexes its material engaging side convexly against the materials, said diaphragm comprising a web carrying permanently bonded thereto on its non-material pressing side a flexible heating element adapted to

apply heat through the web to said area while the diaphragm is so pressed and heat dissipating means carried by the web for dissipating heat from the diaphragm and the materials in the area adjacent the seam area, the improvement wherein said



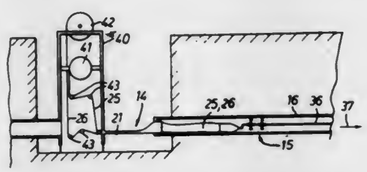
web carries on its material pressing side heat directing means having a configuration corresponding to the desired seam configuration and located opposite said heating element for directing heat therefrom to the seam area.

4,273,605

INTERNAL LINING AND SEALING OF HOLLOW DUCTS

Louis A. R. Ross, 54 Llanvair Dr., South Ascot, Berkshire, England

Filed Jan. 13, 1975, Ser. No. 540,386
Claims priority, application United Kingdom, Jan. 21, 1974, 2824/74; Sep. 4, 1974, 38688/74
Int. Cl.³ B29C *17/07*
U.S. Cl. 156—286 2 Claims



1. A method for in situ lining of the interior sidewall of a long, buried length of pipeline with an imperforate, flexible lining tube, comprising the steps of:

(a) introducing an imperforate flexible lining tube into the length of pipeline in a collapsed state so that it lies throughout the length of said interior sidewall of said length of pipeline, step (a) being conducted by superimposing said tube in a collapsed state, upon an underlay and pulling a leading portion of this composite along through the length of pipeline, until said collapsed tube lies upon the underlay throughout said length of pipeline with approximately half of the exterior surface thereof presented upwardly;

(b) sealing the ends of the tube perimetrically to said length of pipeline at both ends of said length of pipeline, but providing an exhaust port from the space between the outside of the tube and said interior sidewall at one said end and an inflation port into the lumen of the tube at the opposite said end of said pipeline length;

(c) partially exhausting said space between the outside of the tube and said interior sidewall;

(d) progressively expanding the tube into intimate contact with said length of pipeline in an even manner, by:

(i) continuing to conduct step (c) upon said space, by drawing a partial vacuum via said exhaust port; and simultaneously

(ii) admitting an inflation gas such as air into said lumen through said inflation port;

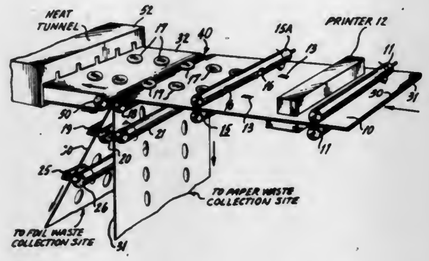
further comprising a step of applying an adhesive upon said upwardly presented half of the collapsed tube before conducting step (b), the amount of distribution of this adhesive as applied being at least sufficient to, as a consequence of conducting step (d) and setting of said adhesive, approximately the upper half of exterior of the tube is facially secured to about the upper half of the interior sidewall of the length of pipeline.

4,273,606

COMBINATION LAMINATOR AND SEPARATOR

Pasquale Trilli, 2700 Linder Ave., North Brunswick, N.J. 08902

Filed Nov. 1, 1979, Ser. No. 90,318
Int. Cl.³ B32B *31/18*
U.S. Cl. 156—388 8 Claims



1. A laminator and separator apparatus for making articles from a composite laminate sheet formed of a thick paper backing sheet covered by a thinner metallic foil sheet with a heat curable adhesive located between said foil and paper sheets, comprising:

(a) a pair of pressure rollers through which said composite laminate sheet moves with said foil sheet facing upwards with said sheet moving in a linear path,

(b) a rotary printing means in said path and operative to print indicia in discrete regions on said foil sheet,

(c) a rotary die cutter for cutting a pattern in said laminate sheet with said pattern surrounding said indicia and indicative of said article,

(d) a main roller located in said linear path and adapted to receive said composite sheet,

(e) a conveyor roller located in said path and separated from said main roller by a predetermined distance, a conveyor belt encircling said conveyor roller,

(f) a first and a second roller each having their surfaces coacting and located parallel to said main roller and positioned beneath the same with solely said thick paper backing sheet directed between said rollers, said first and second rollers of a given diameter and adapted to exert a downward force on said paper backing sheet, to cause said article as defined by said pattern to traverse said distance for directing the same to said conveyor belt, with said paper backing sheet moving downwardly towards a first collection site,

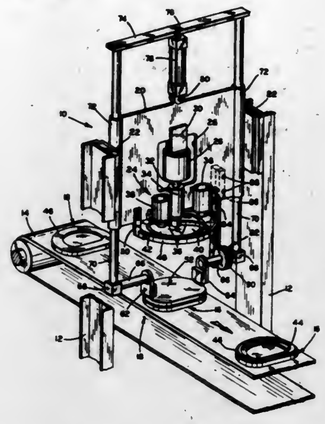
(g) a guide roller of a diameter less than one half the diameter of said main roller and less than the diameters of said first and second rollers and fabricated from a material which is relatively soft as compared to said first roller, said guide roller positioned above said first roller and in contact therewith with said thin foil sheet directed solely between said guide roller and said first roller to direct said foil sheet in a path transverse to said paper sheet to a second collection site, whereby said paper sheet and said foil sheets are separated and directed to separate locations, and another coacting pair of rollers located a predetermined distance from said guide roller and within the path of said foil sheet, with said sheet of foil passing between said pair of coacting rollers.

4,273,607

APPARATUS FOR APPLYING GASKET-FORMING MATERIAL

William A. Paul, 1808 Parkside Blvd., Toledo, Ohio 43607

Filed Nov. 1, 1979, Ser. No. 90,466
Int. Cl.³ B44C *1/00*
U.S. Cl. 156—540 14 Claims



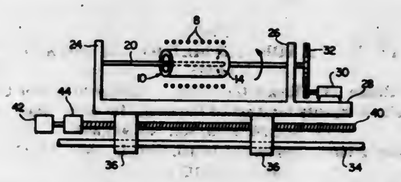
1. Apparatus for applying a bead of gasket-forming material in a pattern of predetermined size and shape to a mateable surface of a workpiece, said apparatus comprising a source of gasket-forming material, a transfer pad having at least one transfer surface conforming to the mateable surface of the workpiece to which the bead of gasket-forming material is to be applied, said transfer surface being wider than the bead of gasket-forming material and larger than the overall size of the pattern of the material so as to be capable of being used with patterns of the gasket-forming material in a variety of sizes and shapes, applicator means for applying gasket-forming material to said transfer surface of said pad from said source in the shape of the bead to be applied to the mateable surface, means for supporting the workpiece, and means for moving said transfer pad from a position with the transfer surface adjacent the mateable surface of the workpiece when on said support to a position with the transfer surface adjacent said applicator means.

4,273,608

METHOD OF FORMING A SHEET OF SINGLE CRYSTAL SEMICONDUCTOR MATERIAL

Allen L. Kerlin, 1009 Adrienne Dr., Alamo, Calif. 94507

Filed Jan. 4, 1979, Ser. No. 990
Int. Cl.³ C30B *11/08, 29/00*
U.S. Cl. 156—605 11 Claims



1. The method of forming a sheet of crystalline semiconductor material comprising the steps of

providing a rotatable container having a generally cylindrical interior surface,

placing material in said container,

spinning and heating said container at a temperature above the melting point of said material whereby all material is liquid, and

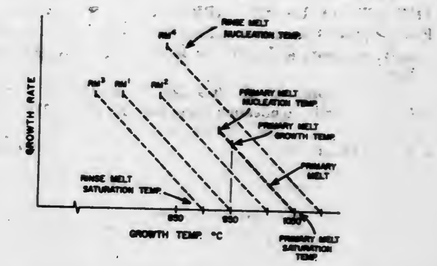
slowly cooling said container beginning at one end thereof whereby said material solidifies directionally as a thin layer confined by said interior surface.

4,273,609

RINSE MELT FOR LPE CRYSTALS

Gary L. Nelson, Eagan, and William A. Harvey, Minneapolis, both of Minn., assignors to Sperry Corporation, New York, N.Y.

Filed Oct. 25, 1978, Ser. No. 954,511
Int. Cl.³ C30B *19/02*
U.S. Cl. 156—624 10 Claims



1. In a liquid phase epitaxial process for growing a magnetic garnet crystal on a supporting garnet substrate from a garnet phase, primary melt, comprised of a solute and a solvent, at a growth temperature within the saturation to nucleation temperature range of said garnet phase, primary melt, an improvement therein for solvating adhered primary melt residue from the epitaxially grown magnetic garnet crystal comprising:

preparing a garnet phase, rinse melt mixture having a solvent different from that used in said primary melt and a saturation to nucleation temperature range which includes said growth temperature;

heating said garnet phase, rinse melt mixture to a temperature within the common range of the saturation to nucleation temperature ranges of said respective primary melt and said rinse melt mixture, thereby producing a rinse melt; and

immersing said epitaxially grown magnetic garnet crystal, upon withdrawal from said primary melt and while said magnetic garnet crystal is approximately at said growth temperature, in said rinse melt until said adhered primary melt residue is solvated from said epitaxially grown magnetic garnet crystal.

4,273,610

METHOD FOR CONTROLLING THE RESONANCE FREQUENCY OF YTTRIUM IRON GARNET FILMS

Howard L. Glass, Orange, and Michael T. Elliott, Cypress, both of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 11, 1979, Ser. No. 74,263
Int. Cl.³ B32B *0/00*
U.S. Cl. 156—624 1 Claim

1. A method for controlling the resonance frequency of a liquid phase epitaxy grown, single crystal, yttrium iron garnet film through the incorporation of lead as a partial substituent for the yttrium component of said film which comprises the steps of:

(a) forming a molten flux consisting essentially of 1278.8 grams of PbO, 23.737 grams of B_2O_3, 84.712 grams of Fe_2O_3 and 5.989 grams of Y_2O_3;

(b) maintaining said flux at a growth temperature of from about 819.0° to 884° centigrade while simultaneously

immersing a [111] crytal oriented gadollnum gallium garnet substrate into said flux for a period of time sufficient to effect the deposition of a single crystal, lead substituted, yttrium iron garnet thin film on to the surface of said substrate such that said lead substituted component is present in an amount of up to about three weight percent; and

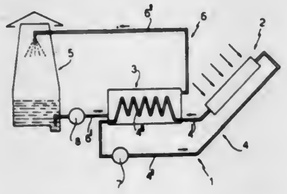
(c) removing said film covered substrate from said molten flux, whereby said film is characterized by a resonance frequency ranging from a minimum value of 2558 Oe to a maximum value of 2601 Oe.

4,273,611

METHOD FOR TREATING A SPENT EMULSION OF OIL IN WATER USED IN AN INDUSTRIAL PROCESS, AND THE APPARATUS FOR CARRYING OUT THE METHOD

Pietro Blasio, Florence, and Maurizio Talini, Lucca, both of Italy, assignors to Le Metalli Industrialle S.p.A., Florence, Italy

Filed Jul. 27, 1979, Ser. No. 61,256
Claims priority, application Italy, Jan. 30, 1979, 67196 A/79
Int. Cl.³ B01D *1/00*
U.S. Cl. 159—47 WL **5 Claims**



1. A method for treating a spent emulsion of oil in water used in an industrial process, in particular an emulsion of cutting oil in water, comprising at least one stage in which heat energy is supplied continuously to said emulsion for evaporating a predetermined quantity of the water contained therein and to raise the concentration of said oil in the emulsion to a value such as to enable this latter to be burnt in an industrial burner, said heat energy being at least partly provided by utilising solar energy, and further comprising at least one stage of burning the emulsion of said oil concentration in a burner in an industrial or heating plant.

4,273,612

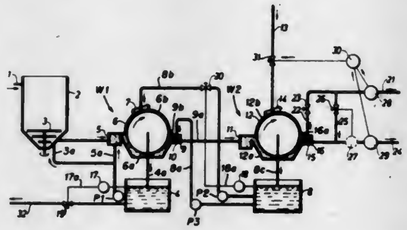
PROCESS AND APPARATUS FOR CONTINUOUSLY WASHING AQUEOUS FIBROUS SUSPENSIONS AND CONTROLLING THE VOLUME OF WASH LIQUID

Per A. R. Hillstrom, Domsjo, and Lars G. Norehall, Ornskoldsvik, both of Sweden, assignors to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden

Continuation of Ser. No. 785,487, Apr. 7, 1977, abandoned. This application Jun. 8, 1979, Ser. No. 46,742
Claims priority, application Sweden, Apr. 14, 1976, 7604430
The portion of the term of this patent subsequent to Feb. 6, 1996, has been disclaimed.
Int. Cl.³ D21C *9/02*
U.S. Cl. 162—49 **9 Claims**

1. A process for continuously washing fibrous suspensions having a varying consistency in aqueous suspending liquors containing dissolved impurities, dissolving said impurities by exchanging aqueous suspending liquid for the aqueous suspending liquor containing impurities, while controlling the dilution of the washed fibrous suspension that is obtained, which comprises in a continuous flow washing system having at least one washing stage washing fibrous material of the suspension with aqueous suspending liquid substantially free from dissolved impurities; and forming a washed fibrous suspension in said aqueous suspending liquid substantially free from dissolved impurities; separating from the washed fibrous suspension and withdrawing and recirculating back to a washing stage aqueous suspending washing liquid containing dissolved impurities washed out from the fibrous suspension; diluting the washed fibrous suspension from the washing stage by adding aqueous suspending liquid substantially free from dissolved impurities to the washed fibrous suspension; measuring (1) the volume amount of diluting aqueous suspending liquid added; and (2) the volume amount of diluted washed fibrous suspension; and then using these measured values to adjust continuously the volume amount of washing liquid added according to the consistency of the washed fibrous suspension, to maintain substantially constant any difference between the amount of washing liquid added and the liquid content of the undiluted washed fibrous suspension.

8. Apparatus for continuously washing fibrous suspensions having a varying consistency in aqueous suspending liquors containing dissolved impurities dissolving said impurities by exchanging aqueous suspending liquid for the aqueous suspending liquor containing impurities while controlling the dilution of the washed fibrous suspension that is obtained,



which comprises in a continuous flow washing system having at least one washing stage means for washing fibrous material of the suspension with aqueous suspending liquid substantially free from dissolved impurities; and forming a washed fibrous suspension in said aqueous suspending liquid substantially free from dissolved impurities; means for separating from the washed fibrous suspension and withdrawing and recirculating back to a washing stage aqueous suspending washing liquid containing dissolved impurities washed out from the fibrous suspension; means for diluting the washed fibrous suspension from the washing stage by adding aqueous suspending liquid substantially free from dissolved impurities to the washed fibrous suspension; means for measuring the volume amount of diluting aqueous suspending liquid added; means for measuring the volume amount of diluted washed fibrous suspension; and means for calculating continuously using these measured values to adjust the volume amount of washing liquid added according to the consistency of the washed fibrous suspension, to maintain substantially constant any difference between the amount of washing liquid added and the liquid content of the undiluted washed fibrous suspension.

4,273,613

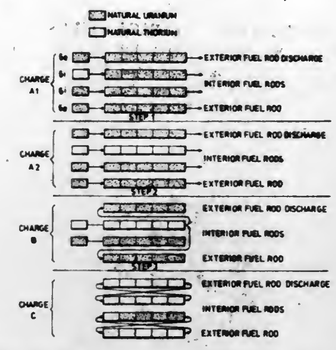
NUCLEAR REACTOR AND METHOD OF OPERATING SAME

Alvin Radkowsky, Ramat Gan, Israel, assignor to Ramot University Authority for Applied Research, Tel Aviv, Israel

Filed Sep. 26, 1978, Ser. No. 945,897
Claims priority, application Israel, Oct. 13, 1977, 53122
Int. Cl.³ G21C *19/20*
U.S. Cl. 176—30 **25 Claims**

1. A method of operating a heavy-water-moderated nuclear reactor having an active core comprising a pressure tube including a cluster of fuel rods of natural-uranium-containing rod segments, some of which rods occupy exterior positions in the cluster and the remainder of which rods occupy interior positions in the cluster, said method comprising the Phases:

A. providing interior rod positions at one end of the cluster with thorium-containing rod segments to irradiate the thorium until its multiplication factor is built up to about that of natural uranium; and



B. utilizing said thorium-containing rod segments irradiated in the interior rod positions of the cluster to refuel exterior rod positions at the charge end of the cluster.

4,273,614

CLOSURE DEVICE FOR FUEL ASSEMBLY POT

Pierre Pomie, Aix en Provence, and Charley Renaux, Jouques, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Nov. 13, 1978, Ser. No. 959,732
Claims priority, application France, Nov. 29, 1977, 77 35844
Int. Cl.³ G21C *19/20*
U.S. Cl. 176—30 **11 Claims**



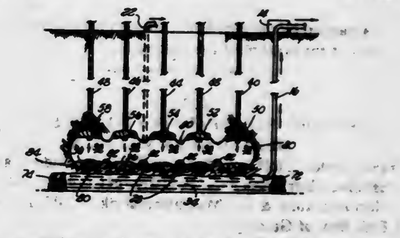
1. A handling device for a fast neutron reactor cooled by a liquid metal such as sodium and of the type comprising a container with a vertical axis containing the core and a given volume of sodium contained in said container, defining above the core a free level surmounted by an inert gas cushion, a thick horizontal slab placed above the gas cushion and constituting the upper closure of a protective caisson surrounding the container, an inclined ramp which passes into the container up to a loading and unloading station located in the vicinity of the core and extending at its opposite end into a handling chamber supported by the slab, a second inclined ramp connecting the inside of the handling chamber to a second loading and unloading station positioned externally of the caisson in a storage container, a carriage carrying a handling pot able to move along the said ramps and moving the pot from a position where it is submerged below the sodium level to a position where it is introduced into the inert gas atmosphere above the sodium level, said pot being open at its upper end so as to permit the introduction or removal of the assembly to be handled when it is positioned vertically on its carriage with respect to said loading and unloading stations provided for this purpose in the reactor vessel and in the storage container, wherein during its displacement between said stations the carriage is associated, to the right of the upper open end of the pot, with a generally cylindrical enclosure which is open towards the bottom and provided with an upper part and in which is mounted a hollow member, whereof at least the lower part has a spherical shape, whereby the hollow member bears via the spherical lower part against the upper open end of the pot when the latter emerges above said level.

4,273,615

OIL STIMULATION PROCESS

Farrokh Hirbod, 6424 Via Colinita, Rancho Palos Verdes, Calif. 90274

Filed Jul. 17, 1978, Ser. No. 925,576
Int. Cl.³ E21B *43/263*
U.S. Cl. 176—39 **10 Claims**



1. A method of converting organic matter having a multiplicity of organic molecular structures to petroleum products by exploding an explosive device which forms an earth cavity comprising the steps of:

combining the organic matter with water to form an organic slurry;

pumping the organic slurry into a first earth strata having an ambient temperature less than about 150° F.;

allowing anaerobic digestion of the slurry in the first earth strata to occur;

providing at least one explosive device in a region above the first earth strata the distance between the explosive device and the first earth strata and the yield of the explosive device being selected so that the cavity formed upon ignition fo the explosive device does not penetrate the first earth strata; and

igniting the explosive device for providing heat and pressure indirectly against the organic slurry after anaerobic digestion occurs for facilitating chemical and molecular alteration of the organic molecular structures of the organic slurry for producing petroleum compounds from the organic slurry.

4,273,616

HIGH BURNUP NUCLEAR FUEL ROD

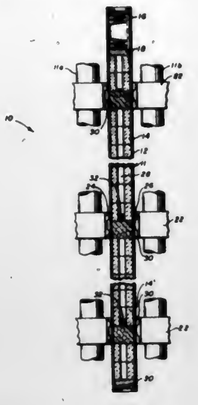
Mesa G. Andrews, Newington, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Mar. 23, 1979, Ser. No. 23,436
Int. Cl.³ G21C *3/02*
U.S. Cl. 176—68 **5 Claims**

1. In a nuclear fuel rod having a column of vertically aligned, hollow fuel pellets contained within an encapsulating cladding such that a central passage is formed along the length of the column, the improvement comprising:

a spacer plug having a solid cross section at least as large as the passage, the plug being interposed between proximate

fuel pellets at selected locations along the column, whereby any fuel pellet debris falling through the passage



is trapped by the next lower spacer rather than accumulating at the bottom of the column.

4,273,617

METHOD AND APPARATUS FOR QUENCHING HEATED BULK MATERIAL

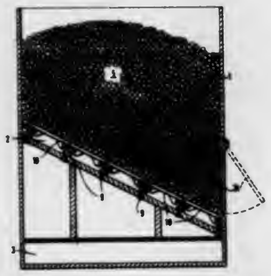
Franz Goedde, Stolberg; Wolfgang Schrank, Alsdorf, and Fritz Schulte, Meerbusch, all of Fed. Rep. of Germany, assignors to Hartung, Kuhn & Co. Maschinenfabrik GmbH, Duesseldorf, Fed. Rep. of Germany

Filed Jul. 15, 1980, Ser. No. 169,039

Claims priority, application Fed. Rep. of Germany, Jul. 20, 1979, 2929390

Int. Cl.³ C10B *39/04, 39/14*

U.S. Cl. 201—39 **7 Claims**



1. A method for quenching heated bulk material, especially coke, in a quenching chamber closed off from the atmosphere during the quenching, comprising the following steps: flowing a predetermined quantity of quenching liquid from the top downwardly through the bulk material so that the resulting steam also flows downwardly in parallel to the quenching liquid flow until the steam attains a certain temperature, said quantity of quenching liquid being such that it evaporates substantially completely except for a certain residual moisture in the coke, providing a carry-off resistance for the quenching steam which is inversely proportional to the respective bulk height above a bulk retaining, perforated grating, compensating the flow resistance of the quenching medium through the bulk material in such a manner that the flow resistance per unit area is substantially constant over the entire surface area of said grating, and distributing said quenching liquid quantity over the surface area of the bulk material such that the distributed quenching liquid is proportional to the bulk material height above said grating.

4,273,618

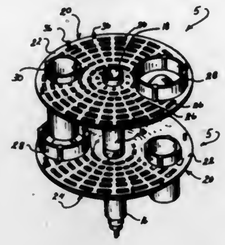
BAFFLE FOR ALCOHOL STILLS

Robert E. Strang, Sr., North Liberty, Ind., assignor to Injection Plastics & Manufacturing Co., LaPaz, Ind.

Filed Jul. 28, 1980, Ser. No. 172,752

Int. Cl.³ B01D *3/02*

U.S. Cl. 202—158 **6 Claims**



1. A baffle for an alcohol still, said baffle comprising a body having an upper cooking surface and lower refracting surface and a plurality of concentric series of spaced openings therethrough, a collection cup extending upwardly from said cooking surface, an open-ended downcomer tube carried by said body and projecting above said cooking surface and below said refracting surface, spacer means carried by said baffle and including an upwardly projecting socket and a downwardly projecting portion axially aligned with said socket, said downwardly projecting spacer of one baffle interfitting with and supported by the socket of another baffle, said spacer means being substantially centrally located on said body, said collection cup and downcomer tube being arranged in complementary relation for alignment with cooperating complementary parts of adjacent baffles, said refracting surface having a plurality of substantially radial ribs and a plurality of spaced concentric ribs projecting downwardly from said refracting surface.

4,273,619

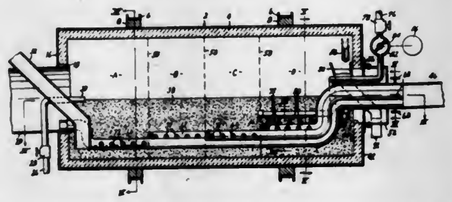
APPARATUS FOR CONTINUOUSLY CARBONIZING AND ACTIVATING CARBONACEOUS MATERIALS

James F. Angelo, II, P.O. Box 212, Jonesboro, Ark. 72401

Filed Nov. 19, 1979, Ser. No. 95,366

Int. Cl.³ C10B *1/10;* C01B *31/08*

U.S. Cl. 202—211 **2 Claims**



1. An apparatus for carbonizing a carbonaceous raw material to reduce it to a char, and for activating said char to produce activated carbon, comprising:

a. an elongated cylindrical retort having its axis inclined slightly from horizontal,

b. means operable to rotate said retort slowly about its axis,

c. means operable to introduce said raw material in particulate form into the higher end of said retort, whereby it is advanced through said retort in the form of a tumbling bed by the rotation of said retort,

d. means operable to remove the material from the lower end of the retort,

e. means operable to induce a continuous draft in said retort toward the higher end thereof,

f. means operable to inject air into the higher end zone of said retort, and to so regulate the air so injected that the carbonization reaction is completed within said higher retort end zone, and

g. means operable to inject an oxdizing but non-combustible gas, but not air, into the lower end zone of said retort, said oxidizing gas being preheated to a temperature at least as high as that at which the material of the tumbling bed enters said lower end zone of the retort, said oxidizing gas injection means including nozzles spaced from the interior cylindrical wall of said retort and disposed above and in close proximity to said tumbling bed of material and operable to deliver forcible jets of oxidizing gas downwardly and directly into said tumbling bed of material only within said lower retort end zone, whereby to stir and agitate said material to provide improved permeation thereof by said gas.

4,273,620

PROCESS FOR RECONCENTRATING MOIST GLYCOL

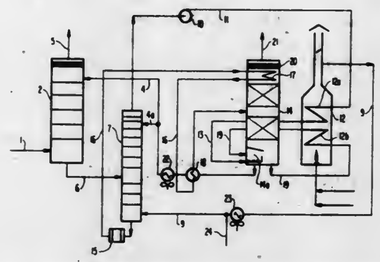
Walter Knobel, Kerpen, Fed. Rep. of Germany, assignor to Davy International AG, Frankfurt, Fed. Rep. of Germany

Filed Jun. 26, 1978, Ser. No. 919,234

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1977, 2728745

Int. Cl.³ B01D *3/00, 53/26;* C07C *29/26*

U.S. Cl. 203—18 **8 Claims**



1. In a process for reconcentrating glycol which has been used to remove moisture from moist natural gas, whereby said natural gas is treated with glycol to absorb moisture from said natural gas and whereby the resulting moisture-containing glycol is reconcentrated by removal of moisture therefrom, the improvement which comprises:

(a) heating said moisture-containing glycol to a temperature of from about 100° to 210° C. by heat exchange with flue gas from a reboiler; and thereafter

(b) drying the flue gas from the reboiler by contact with glycol,

(c) stripping additional moisture from said moisture-containing glycol with dried flue gas from said reboiler.

4,273,621

PROCESS FOR DEHYDRATING ETHANOL AND FOR THE PRODUCTION OF GASOHOL THEREFROM

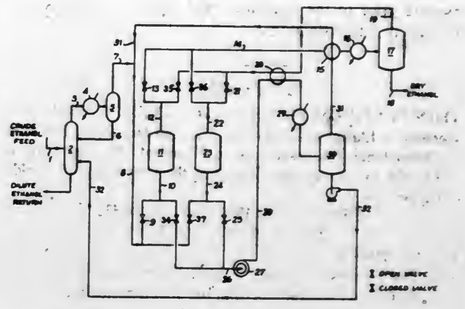
Louis L. Fornoff, Cedar Grove, N.J., assignor to The Lummus Company, Bloomfield, N.J.

Filed May 5, 1980, Ser. No. 146,550

Int. Cl.³ B01D *3/00, 53/04*

U.S. Cl. 203—19 **23 Claims**

23. A process for the production of an ethanol-gasoline fuel for internal combustion engines, comprisng distilling, at a pressure of at least about 50 p.s.i.a., a crude fermentation aqueous ethanol product to produce a gaseous ethanol-H_2O admixture containing about 78 mole % ethanol; diluting said admixture with an amount of gaseous CO_2; drying said diluted gaseous admixture with a type 3A crystalline zeolite; said pressure and said amount being sufficient to permit condensation of a



dried ethanolic product at ambient temperatures; condensing the dried ethanolic product at an ambient temperature; recovering the anhydrous ethanol product; and mixing said anhydrous ethanol with sufficient gasoline so as to produce an ethanol-gasoline blend suitable for use as said fuel.

4,273,622

METHOD OF TREATING ALPHA-METHYLBENZYLALCOHOL DEHYDRATION PRODUCTS

Mitchell Becker, Teaneck, N.J., assignor to Halcon Research & Development Corp., New York, N.Y.

Continuation of Ser. No. 918,124, Jun. 22, 1978, abandoned, which is a continuation-in-part of Ser. No. 870,543, Jan. 16, 1978, abandoned. This application Nov. 26, 1979, Ser. No. 97,452

Int. Cl.³ B01D *3/10;* C07C *7/04, 15/46*

U.S. Cl. 203—28 **10 Claims**

1. A process for the recovery of monomeric values from the polymeric components of a first polymer-containing residue obtained in the preparation of styrene from alpha-methylbenzyl alcohol by dehydration of alpha-methylbenzyl alcohol to styrene which comprises distilling said residue in a first step to produce monomeric values from at least some of said residue and to remove at least some of said monomeric values as distillate and to leave a second polymer-containing residual material and thereafter distilling the second residual material remaining from the first stage in a second stage at a temperature higher than the temperature prevailing in the first stage and for a longer period of time to produce additional monomeric values from said polymer-containing residual material while removing said additional monomeric values as distillate, at least a part of said monomeric values being produced by the conversion of the polymeric components to monomeric values.

4,273,623

PROCESS FOR RECOVERY OF RESORCIN

Isao Hashimoto, Iwakuni; Toru Taguchi, Ichihara, and Hirohiko Nambu, Iwakuni, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,342

Claims priority, application Japan, May 30, 1978, 53/63781

Int. Cl.³ B01D *3/34*

U.S. Cl. 203—92 **5 Claims**

1. In the process for the preparation of resorcin, by the steps of acid-decomposing m-diisopropylbenzene dihydroperoxide in an inert solvent in the presence of an acid catalyst, separating the catalyst from the acid-decomposition reaction mixture and subjecting the reaction mixture to distillation to separate a resorcin-containing concentrate from acetone formed as a

by-product and the inert solvent, the improvement comprising carrying out the acid-decomposition of the dihydroperoxide in the presence of an acidic solid catalyst in an amount of 50 to 200% by weight based on the dihydroperoxide, adding water to the acid decomposition reaction mixture in an amount of 20 to 70% by weight based on resorcin contained in the reaction mixture prior to the distillation and subjecting the resulting mixture to said distillation.

4,273,624

THIN PLATINUM FILMS ON TIN OXIDE SUBSTRATES

Herbert A. Laitinen, Gainesville, Fla., and Donald C. Thornton, Philadelphia, Pa., assignors to Board of Regents, State of Florida, for the use and benefit of the University of Florida, Gainesville, Fla.

Filed Mar. 28, 1979, Ser. No. 24,531
Int. Cl.[2] C25D 5/18, 3/50
U.S. Cl. 204—23 7 Claims

1. The process of coating a tin oxide substrate with a thin film of platinum wherein the film has a weight not greater than about 1 microgram per square centimeter of coated substrate surface, which comprises the steps of exposing an uncoated tin oxide substrate to a platinum-containing electrolyte and applying a current density of less than 1 milliampere per square centimeter to the surface of the tin oxide substrate.

4,273,625

METHOD OF TREATING OBJECTS THE SURFACE OF WHICH CONSISTS OF TIN

Renaat E. Van de Leest; Gerrit Krijl, and Ewoud A. Boonzajer Flaes, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 14, 1980, Ser. No. 178,045
Claims priority, application Netherlands, Aug. 28, 1979, 7906441
Int. Cl.[3] C25D 11/00
U.S. Cl. 204—56 R 3 Claims

1. A method of treating objects of which at least the surface consists of tin, the objects being alternately subjected to a cathodic and to an anodic potential in an electrolyte solution, characterized in that the objects are subjected to an electrolytic treatment in an aqueous solution of a tungstate in a concentration of at least 0.02 M, and having a pH from 4 to 11, a periodically reversed current being applied whose frequency is at least 0.2 Hz but not more than 2 Hz, the current density in an absolute value of the maximum current density being at least 0.2 A/dm^2 but not more than 1 A/dm^2, the ratio of the anodic current density to the cathodic current density being at least 0.5 and not more than 1 and the ratio of the anodic to the cathodic pulse durations being not more than 2 and not less than 0.02 during a time sufficient to produce a layer having a thickness between 0.03 and 0.2 μm.

4,273,626

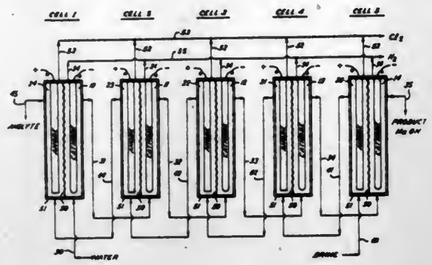
ELECTROLYTE SERIES FLOW IN ELECTROLYTIC CHLOR-ALKALI CELLS

Bobby R. Ezzell, and Marius W. Sorenson, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 924,268, Jul. 13, 1978, Pat. No. 4,197,179. This application Oct. 1, 1979, Ser. No. 80,814
Int. Cl.[3] C25B 1/34, 1/02
U.S. Cl. 204—98 13 Claims

10. In the process of producing hydrogen, aqueous alkali metal hydroxide and chlorine gas by the electrolysis of aqueous alkali metal chloride solution in a bank of a plurality of membrane cells, said hydrogen and alkali metal hydroxide being produced at cathodes in catholyte portions, said chlorine being produced at anodes in anolyte portions, said membrane providing a substantially hydraulically-impermeable divider between catholyte portions and anolyte portions, the improvement which comprises:

flowing an aqueous alkali metal chloride as anolyte for the anolyte portions, said flowing being done in sequence from



anolyte portion to anolyte portion, removing spent anolyte from the last anolyte portion of the sequence, and

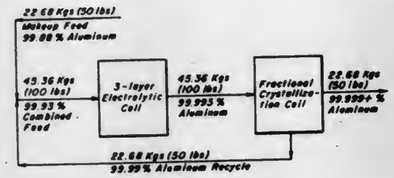
flowing an aqueous catholyte from catholyte portion to catholyte portion in sequence and in countercurrent manner to the anolyte flow, removing caustic-enriched catholyte from the last catholyte portion of the sequence.

4,273,627

PRODUCTION OF EXTREME PURITY ALUMINUM

Robert K. Dawless, Monroeville, and Stanley C. Jacobs, Lower Burrell, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 973,141, Dec. 26, 1979. This application Dec. 26, 1979, Ser. No. 107,138
Int. Cl.[3] C25C 3/06
U.S. Cl. 204—67 3 Claims



1. An improved process for purifying aluminum containing impurities comprising:

(a) introducing said aluminum to the anode layer of an electrolytic cell of the type having a bottom layer of molten aluminum constituting said anode layer and having a top layer of molten aluminum constituting a cathode layer, said anode layer separated from said cathode layer by an electrolyte layer;

(b) electrolytically transporting aluminum from said anode layer through said electrolyte layer to said cathode layer while leaving said impurities in said anode thereby partially purifying said aluminum;

(c) thereafter, removing a portion of said partially purified molten aluminum from said cathode layer;

(d) treating said portion of partially purified molten aluminum with a carbonaceous material to substantially lower the amount of magnesium contained therein;

(e) fractionally crystallizing said molten aluminum portion in a crystallization cell to remove eutectic impurities therefrom by solidifying a fraction of said molten aluminum, said solid fraction having a higher purity than that constituting the remaining molten aluminum fraction, thereby concentrating said eutectic impurities in said molten fraction; and

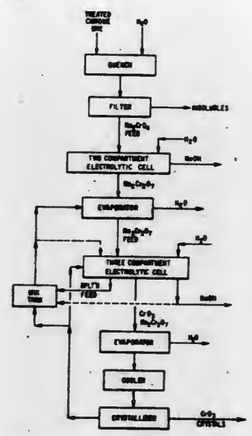
(f) separating said molten fraction from said solid fraction to provide said purified aluminum.

4,273,628

PRODUCTION OF CHROMIC ACID USING TWO-COMPARTMENT AND THREE-COMPARTMENT CELLS

William E. Kidon, Chardon; Nicholas Shuster, Perry, and Andrew D. Babinsky, Chagrin Falls, all of Ohio, assignors to Diamond Shamrock Corp., Dallas, Tex.

Filed May 29, 1979, Ser. No. 43,377
Int. Cl.[3] C25B 1/14, 1/22
U.S. Cl. 204—87 37 Claims



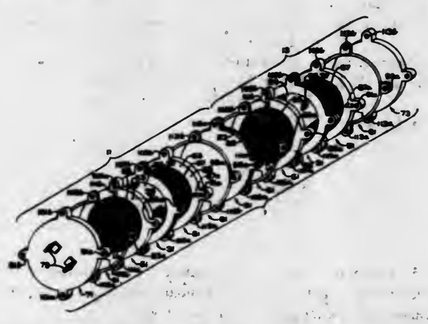
6. The process of claims 3, 4, or 5 wherein solution is withdrawn from said mix tank and introduced in step (F) to said three-compartment electrolytic cell.

4,273,629

SOLID POLYMER ELECTROLYTE CHLOR-ALKALI PROCESS AND ELECTROLYTIC CELL

Malcolm Korach, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 23, 1979, Ser. No. 14,468
Int. Cl.[3] C25B 1/34, 1/46, 9/00, 11/04
U.S. Cl. 204—98 9 Claims



6. In an electrolytic cell having a solid polymer electrolyte with an anodic electrocatalyst on an anodic, first surface thereof and a cathodic electrocatalyst on an opposite, cathodic second surface means thereof, for feeding oxidant to the cathodic, second surface of the solid polymer electrolyte, and an HO_2^- disproportionation catalyst in contact with the cathodic, second surface of the solid polymer electrolyte, the improvement wherein the HO_2^- disproportionation catalyst comprises a porous electroconductive carbon substrate having a porous, hydrophobic, fluorocarbon surface thereof.

4,273,630

PROCESS FOR THE START-UP OF MEMBRANE CELLS FOR THE ELECTROLYSIS OF AQUEOUS SALT SOLUTIONS

Steven J. Specht, Mentor, Ohio, assignor to Olin Corporation, New Haven, Conn.

Filed Jan. 23, 1980, Ser. No. 114,481
Int. Cl.[3] C25B 15/00, 15/02, 15/08, 1/34
U.S. Cl. 204—98 11 Claims

1. A process for the start-up of membrane cells for the electrolysis of an aqueous salt solution, said cells having an anode compartment containing a plurality of anodes, a cathode compartment containing a plurality of cathodes, and an ion exchange membrane separating said anode compartment from said cathode compartment, said process which comprises the steps of:

(a) feeding simultaneously said aqueous salt solution to said anode compartment and a liquid to said cathode compartment while maintaining substantially equal pressure on said membrane from each of said compartments,

(b) applying pressure to said membrane from said anode compartment,

(c) applying pressure to said membrane from said cathode compartment, and

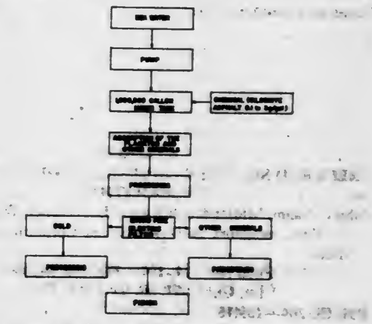
(d) cyclically repeating steps b and c during the start-up period.

4,273,631

PROCESS FOR THE CONTINUOUS RECOVERY OF GOLD AND OTHER METALS FROM SEA WATER

Vincent W. Layton, 1306 SW. 6th St., Miami, Fla. 33135, and Ernest Mueller, 39 Painter Hill Rd., Woodbury, Conn. 06798

Filed Jun. 13, 1979, Ser. No. 48,286
Int. Cl.[3] C25C 1/20
U.S. Cl. 204—109 9 Claims



1. A process for recovering gold and trace elements from plankton in plankton-containing water, comprising treating said water with means to cause coagulation and precipitation of plankton containing gold cations and other cations into particles of filterable size, filtering the thus treated water to separate the precipitate from a filtrate, treating the said filtered precipitate so as to cause it to dissolve into a solution adaptable for use with electrolytic separation means and processing the said solution to separate gold and other trace elements from the solution by electrolytic separation means, wherein the means to cause coagulation and precipitation of said plankton is asphaltum that is added to the water.

4,273,632

AMINOPLAST-CONTAINING RADIATION CURING COATING COMPOSITIONS

Bizhan M. Zarnegar, Metuchen, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Continuation of Ser. No. 679,412, Apr. 22, 1976, abandoned.
This application Apr. 18, 1979, Ser. No. 31,084
Int. Cl.[3] C08J 3/28; C08L 61/28
U.S. Cl. 204—159.15 14 Claims

1. A liquid radiation-curable coating composition comprising a mixture of polyethylenically unsaturated compound, liquid monoethylenically unsaturated hydroxy functional polyether, and from 1-25%, based on the total weight of ethylenically unsaturated material, of an aminoplast, whereby a thermal cure following the radiation cure yields a cured coating which exhibits an increased ability to withstand fabrication stresses without loss of adhesion to the substrate.

4,273,633

RADIATION CURABLE DISPERSIONS CONTAINING HIGH MOLECULAR WEIGHT ESSENTIALLY NONPOLYMERIZABLE VINYL RESINS

Charles H. Carder, Amma, and Joseph V. Koleske, Charleston, both of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jun. 11, 1979, Ser. No. 47,237
Int. Cl.[3] C08F 259/04
U.S. Cl. 204—159.17 8 Claims

1. A dispersion comprising essentially (A) from about 10 to about 50 weight percent of an essentially non-polymerizable, high molecular weight vinyl chloride resin having an inherent viscosity above about 0.7 measured at 30° C. using cyclohexanone as the solvent and a concentration of 0.2 gram of resin per deciliter of solution dispersed in (B) from about 50 to about 90 weight percent of a mixture of acrylyl compounds, said mixture of acrylyl compounds constituted of from about 35 to about 85 weight percent of monofunctional acrylyl compound and from about 15 to about 65 weight percent of polyfunctional acrylyl compound.

4,273,634

PRECURED SILICONE EMULSION AND METHOD FOR PREPARATION

John C. Saam, Midland, and Robert L. Wegener, Bay City, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Nov. 14, 1979, Ser. No. 94,268
Int. Cl.[3] C08L 83/06; C08F 77/40
U.S. Cl. 204—159.15 11 Claims

1. An aqueous silicone emulsion which provides an elastomeric product upon removal of the water under ambient conditions, comprising a continuous water phase and a dispersed phase of crosslinked silicone prepared by

(A) first forming a stabilized dispersion of hydroxyl endblocked polydiorganosiloxane in water, the polydiorganosiloxane containing sufficient vinyl-substituted siloxane units to facilitate the crosslinking of the polydiorganosiloxane and having a weight average molecular weight of at least 5,000, and then

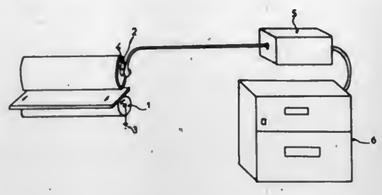
(B) treating the dispersion to provide a crosslinking action by forming radicals within the dispersed polydiorganosiloxane.

4,273,635

PROCESS AND APPARATUS FOR THE TREATMENT OF FIBROUS WEBS

Claudius Beraud, Tassin-la-Demi-Lune, and Jean Jacquemart, Chatenay-Malabry, both of France, assignors to Institut Textile de France, Boulogne-Sur-Seine, France

Filed May 29, 1979, Ser. No. 43,257
Claims priority, application France, May 30, 1979, 78 16817
Int. Cl.[3] C08F 2/52
U.S. Cl. 204—165 9 Claims



1. A process for treatment of a bulky fibrous web formed at least in part of thermoplastic fibers and the web having considerable thickness comprising the steps of:

(a) passing the web between at least one pair of rotating cylindrical metallic electrodes, the electrodes being spaced apart to provide an insulating gap therebetween and one electrode connected to a high frequency generator and the other electrode to earth and one electrode being covered with a layer of dielectric material having a smooth surface;

(b) compressing the web between the electrodes and the web being driven by the electrodes; and

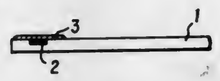
(c) creating glow discharges between the electrodes from the high frequency generator and the discharge path extending only a part of the insulating gap separating the two electrodes, and the glow discharge starting from the electrode covered with dielectric material and extending to near the surface of the other electrode through substantially the thickness of the web whereby cohesion is imparted to the web which retains its bulk, thickness and textile characteristics existing before the web is subjected to the above steps.

4,273,636

SELECTIVE CHEMICAL SENSITIVE FIELD EFFECT TRANSISTOR TRANSDUCERS

Kiyoo Shimada; Makoto Yano, both of 1660, Sakazu, Kurashiki; Kyoichiro Shibatani, 1000-107, Hajima, Kurashiki, and Tsutomu Makimoto, 1660, Sakazu, Kurashiki, all of Japan

Filed May 19, 1978, Ser. No. 907,729
Claims priority, application Japan, May 26, 1977, 52-62445; May 26, 1977, 52-62446; May 26, 1977, 52-62447
Int. Cl.[3] G01N 27/30, 27/40
U.S. Cl. 204—195 P 12 Claims



5. A selective chemically sensitive FET transductor which selectively detects specific chemical substances to which the transducor is exposed, which comprises:

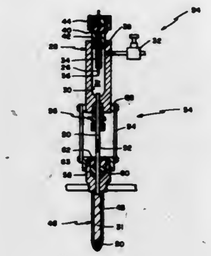
an FET transducer whose gate region is overlayed with a chemically selective sensitive membrane, which reacts or interacts with a specific chemical substance(s) and which is provided with a semipermeable membrane having a water content greater than 10%, overlying said chemically selective sensitive membrane, said semipermeable membrane being formed of a hydrophilic material selected from the group consisting of a polymethacrylate, a polyacrylate, a polyacrylamide, a polyvinylpyrrolidone, a polyvinyl alcohol and copolymers thereof.

4,273,637

PRESSURE BALANCED EXTERNAL REFERENCE ELECTRODE ASSEMBLY AND METHOD

Digby D. MacDonald, Columbus, Ohio, and Arthur C. Scott, Cupertino, Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Continuation-in-part of Ser. No. 13,621, Feb. 21, 1979, abandoned. This application Jan. 23, 1980, Ser. No. 114,618
Int. Cl.[3] G01N 27/30
U.S. Cl. 204—195 F 16 Claims



1. An external reference electrode assembly for use in measuring the potential between a working electrode in housing means providing a pressurized, high temperature environment containing a solution which supports electrolytic conduction and a reference electrode located outside said environment, said assembly comprising: a first rigid housing adapted to be positioned outside said environment and including a first inner chamber filled with an electrolytic solution; a reference electrode located in said electrolytic solution within said chamber and adapted for connection with a voltage measuring means along with said working electrode for measuring the potential between the two electrodes; a second housing including a flexible section adapted to be positioned in its entirety within said pressurized, high temperature environment and defining a second inner chamber filled with said electrolytic solution, said second housing including a liquid junction adapted to be interposed between said environment and said second chamber for providing an electrolytic conduction path between the solutions within said environment and said second chamber; a rigid tube connected with said first and second housing and defining a passageway in fluid communication with and extending between said chambers and filled with said electrolytic solution, said tube being of a material which establishes a temperature gradient between said chambers along said passageway; and pressure control means adapted to vary the combined volume of said first and second chambers and said passageway in response to changes in pressure in said environment in a way which maintains the pressure in said first chamber substantially equal to the pressure in said environment, said pressure control means including said flexible section, the latter being sufficiently flexible to vary the volume within said second chamber depending on the pressure in said environment to provide said equal pressures.

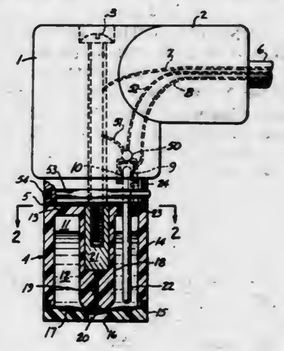
4,273,638

ELECTROCHEMICAL SENSING PROBE

Dorian J. Swartz, Yorba Linda, Calif., assignor to American Hospital Supply Corporation, Evanston, Ill.

Continuation of Ser. No. 970,890, Dec. 19, 1978, abandoned.
This application Apr. 21, 1980, Ser. No. 142,488
Int. Cl.[3] G01N 27/54
U.S. Cl. 204—195 P 23 Claims

1. A sensing probe having a disposable electrolyte housing coupled to a reusable connector, which connector has a pair of electrical leads, wherein the improvement comprises: a sealed housing containing an electrolyte and two electrodes both of which are in contact with the same electrolyte; said housing including a one-piece molded thermoplastic body member that includes an outer peripheral wall, integral top wall, and an integral post depending from this top wall; said integral post having an integral closed bottom wall through which extends an electrical conductor; said post having a cavity extending downwardly from the body member's top wall; a threaded socket secured in the post's cavity; a membrane supporting cap sealing off a bottom opening of the housing, whereby the housing can be turned upside down and filled through its bottom opening prior to assembling the bottom cap, and no electrolyte can leak into the post cavity because of the integral end wall of the post; two noncoaxial conductors which extend through a wall of the sealed housing and connect to the electrodes; and noncoaxial make and break electrical contact joints



between each conductor and its corresponding electrical lead on the connector, whereby the contact joints prevent rotational movement of the disposable housing relative to the reusable connector.

17. A sensing probe having a disposable electrolyte housing coupled to a reusable connector, which connector has a pair of electrical leads, wherein the improvement comprises: a sealed housing containing an electrolyte and two electrodes both of which are in contact with the same electrolyte; two noncoaxial conductors which extend through a wall of the sealed housing and connect to the electrodes; noncoaxial make and break electrical contact joints between each conductor and its corresponding electrical lead on the connector, whereby the contact joints prevent rotational movement of the disposable housing relative to the reusable connector; and a spacer located between the connector and housing with the connector and housing each having protruding stubs, and the spacer includes coupled conductive sockets for receiving the protruding stubs.

4,273,639

CAPILLARY BRIDGE IN APPARATUS FOR DETERMINING IONIC ACTIVITY

William F. Gottermeier, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 20, 1979, Ser. No. 50,845
Int. Cl.[3] G01N 27/46, 27/58
U.S. Cl. 204—195 R 10 Claims



1. In a device having an electrically insulative frame and a

pair of solid electrodes mounted on a surface of the frame in a spaced-apart relationship for generating therein an electrical potential having a predetermined relationship to the amount of ionic analyte activity present in a contacting sample of an aqueous solution; the improvement comprising:

an integral cover sheet extending over both electrodes and substantially the full surface of the frame upon which the electrodes are mounted, said cover sheet being formed of a nonporous material and being bonded to the frame to secure the electrodes therebetween;

a fluid access hole aligned with each electrode, extending through said cover sheet for receiving a sample of the solution in contact with the electrodes; and

an elongated ribbon of porous material encapsulated in said cover sheet and extending at least between said fluid access holes for providing ionic flow between solution samples in each fluid access hole.

4,273,640

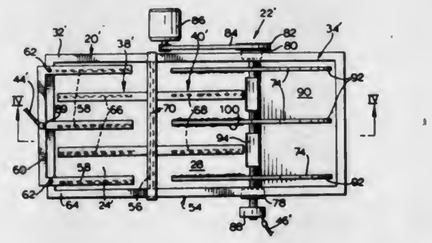
ZINC EXTRACTION APPARATUS

Richard H. C. LeB. Ross, 1701 Avoca Apartments, 10 Avoca Ave., Toronto, Ontario, Canada (M4T 2B7)

Division of Ser. No. 863,190, Dec. 22, 1977, Pat. No. 4,183,794, and a continuation-in-part of Ser. No. 777,270, Mar. 14, 1977, abandoned. This application Nov. 21, 1979, Ser. No. 96,354

Int. Cl.³ C25D *17/02, 21/12, 17/12*

U.S. Cl. 204—216 **5 Claims**



1. Apparatus for use in extracting primary zinc metal from an acid zinc sulfate solution derived from an ore concentrate, the apparatus comprising:

first and second electrolytic cells, the first cell being intended to receive the acid zinc sulfate solution and having an anode which is insoluble in the solution, and the second cell being intended to receive an alkaline electrolyte and having a cathode which is insoluble in said electrolyte;

said first and second electrolytic cells being defined by a common tank having an internal wall dividing said tank into first and second compartments, said first compartment being intended to receive said acid zinc sulfate solution, and said second compartment being intended to receive said alkaline electrolyte;

said acid cell having a plurality of anodes disposed in spaced positions transversely of the cell; and said alkaline cell having a corresponding plurality of cathodes disposed in spaced positions transversely of the cell corresponding generally to the positions of the anodes in the acid cell;

a plurality of common electrodes which are insoluble both in the acid zinc sulfate solution and in the alkaline electrolyte and which comprise first and second common electrodes electrically coupled together and arranged so that the first common electrodes can be disposed generally between said anodes of the acid cell and the second common electrodes can be disposed generally between said cathode of the alkaline cell, and said common electrodes can be transferred between the cells;

whereby in use, said acid zinc sulfate solution can be subjected to electrolysis in said first cell with said first common electrodes acting as cathodes, thereby causing primary zinc metal to be deposited as a coating on the electrodes, and the coated electrodes can be subsequently transferred from said first cell to said second cell in which said alkaline electrolyte can be subjected to electrolysis so that said primary zinc metal is transferred from the first common electrodes to the cathodes of the second cell in sponge-like form, from which it may be mechanically removed, and whereby said electrolysis of the zinc sulfate solution and of said alkaline electrolyte may be performed simultaneously in the respective cells so that zinc metal is deposited on electrodes in the acid cell, while previously deposited zinc is stripped from electrodes in the alkaline cell, the electrodes being transferable between the cells to permit previously coated electrodes from said acid cell to be stripped in said alkaline cell while the previously stripped electrodes from said alkaline cell are redeposited with the zinc in the acid cell.

4,273,641

IMPROVEMENTS IN ELECTROLYZERS

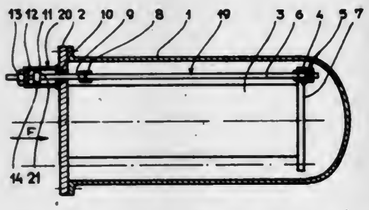
Gerard Pere, Le Breull, France, assignor to Creusot-Loire, Paris, France

Filed Feb. 1, 1980, Ser. No. 117,652

Claims priority, application France, Jul. 2, 1979, 79 03796

Int. Cl.³ C25B *9/00*

U.S. Cl. 204—253 **2 Claims**



1. In an electrolyzer of the type consisting of a stack of elemental electrolytic cells, said stack being held between two end plates connected by tie rods, the improvement wherein each of said tie rods includes a device for variable tightening which is remote-controlled and equipped with a device for measurement of said tightening, and in that the whole of the said devices are connected to a common force and position control cabinet.

4,273,642

ELECTROLYTIC CELL

Matti Sello, Harjavalta, Finland, assignor to Outokumpu Oy, Helsinki, Finland

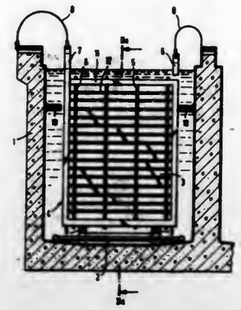
Filed Oct. 17, 1979, Ser. No. 85,632

Claims priority, application Finland, Oct. 17, 1978, 783156

Int. Cl.³ C25B *9/00, 9/02*

U.S. Cl. 204—286 **2 Claims**

1. An electrolytic cell, comprising: a container for electrolyte having a bottom and side walls; a plurality of vertical platelike electrodes in spaced mutually parallel relationship, said electrodes being supported at a distance from each other on the bottom of the container; a lug attached to the upper part of each electrode such that the position thereof is offset in relation to the lugs of each adjacent electrode; an external source of current having two poles; and means for connecting each second electrode to one pole and the electrode therebetween to the other pole; each second electrode connected to said one pole comprising an electrically conducting frame with said lug attached thereto; attached to said frame a plurality of spaced, separated and substantially parallel electrically conducting wires extending from one side of the frame to the opposite side; and attached to said frame vertically extending



means of an electrically insulating material on both sides of said electrode for separating the electrodes from each other.

4,273,643

PROCESS FOR PRODUCTION OF SYNTHETIC CRUDE OIL, ALCOHOLS, AND CHARS DURING LOW TEMPERATURE CARBONIZATION OF COALS

Harold L. Bennett, Upper Marlboro, Md., assignor to Bennett Engineering Inc., Camp Springs, Md.

Filed Oct. 1, 1979, Ser. No. 80,293

Int. Cl.³ C10G *1/00, 1/06;* **C10B** *57/00;* **B09B** *3/00*

U.S. Cl. 208—8 R **12 Claims**

1. In a process for preparing an essentially sulfur free synthetic crude oil including the steps of roasting carbonaceous materials at a temperature of about 400° to 600° C. for about two to four hours, continuously collecting and condensing the distillation gases, separating the low temperature tars from the condensed gaseous products contacting the low temperature tars with a first hydrogen carrying catalyst in a fixed bed system heated to a temperature of 300° to 700° C. and a pressure of 500 to 2000 psi in the presence of hydrogen added in an amount of 1200 to 1500 cubic feet of hydrogen per barrel of low temperature tars, cooling the effluent from the reactor and separating the gaseous products therefrom, and recovering the essentially sulfur free synthetic crude oil product, the improvement comprising the derivation of a char comprising the steps of heating said carbonaceous materials up to 600° C., blending into said carbonaceous materials with continuous agitation additional carbonaceous materials selected from the group consisting of carbonaceous industrial waste, municipal waste, sewerage solids, and peat to reduce agglomeration and increase the quantity and quality of the low temperature tars, chars and gases derived during the char production, and treating the char with a gas selected from the group consisting of live steam, super heated steam and H_2 for at least two minutes and up to 120 minutes to remove a substantial amount of sulfur from the hot char.

4,273,644

PROCESS FOR SEPARATING BITUMINOUS MATERIALS

Samuel W. Harris, and Jack W. Roach, both of Oklahoma City, Okla., assignors to Kerr-McGee Refining Corporation, Oklahoma City, Okla.

Filed Jun. 30, 1980, Ser. No. 164,607

Int. Cl.³ B65D *85/46*

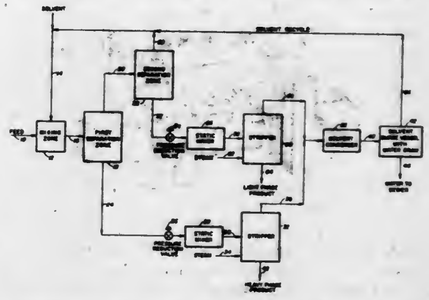
U.S. Cl. 208—321 **11 Claims**

1. A process comprising:

separating an admixture comprising a fluid-like bituminous material and a solvent in a separation zone into at least a fluid-like light phase comprising a portion of said bituminous material and solvent and a fluid-like heavy phase comprising the remainder of said bituminous material and solvent by maintaining the admixture at an elevated temperature and pressure;

reducing the pressure on said heavy phase to vaporize at least a portion of the solvent present therein and form a mixture of fluid-like bituminous material in association with said vaporized solvent together with undesired fine particles of bituminous material dispersed therein;

introducing said mixture into a static mixer to cause said fine particles of bituminous material to coalesce by turbulent contacting with said fluid-like bituminous material in said mixture to form a coalesced mixture of fluid-like bituminous material in association with said vaporized solvent, said vaporized solvent of said coalesced mixture being



substantially free of any fine particles of bituminous material;

introducing said coalesced mixture of fluid-like bituminous material in association with vaporized solvent into a steam stripper;

introducing steam into said steam stripper to contact said coalesced mixture to separate at least a portion of any nonvaporized solvent remaining therein and to form at least one stream comprising the fluid-like bituminous material and one other stream comprising vaporized solvent and steam; and

recovering said vaporized solvent and steam from said steam stripper substantially free of any fine particle size bituminous material.

4,273,645

SOLVENT EXTRACTION PRODUCTION OF LUBE OIL FRACTIONS

Costandi A. Audeh; Israel J. Hellwell; James R. White, all of Princeton, N.J., and Tsoung Y. Yan, Philadelphia, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Filed May 11, 1979, Ser. No. 37,967

Int. Cl.³ C10G *21/02*

U.S. Cl. 208—323 **3 Claims**

1. In an improved method for producing lubricating oils by a liquid-liquid solvent extraction process which comprises contacting a lube oil-containing hydrocarbon charge under conditions of solvent selectivity to permit the recovery of a raffinate phase which upon dewaxing will provide a lube oil product, the improvement whereby there is present in the extraction system from about 0.002% to about 0.2% by weight of the solvent a water soluble polyethylene oxide resin to facilitate phase separation and to increase raffinate yield, the solvent being selected from the group consisting of furfural, phenol, cresylic acid and sulfur dioxide.

4,273,646

MAGNETIC SEPARATOR HAVING INTERSECTING CONVEYOR BELTS

Heinrich Spodig, Netteberge 202, D-4714 Selm/Westf, Fed. Rep. of Germany

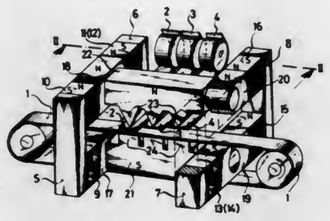
PCT No. PCT/DE78/00010, § 371 Date Apr. 4, 1979, § 102(e) Date Mar. 19, 1979, PCT Pub. No. WO79/00085, PCT Pub. Date Feb. 22, 1979.

This PCT application filed Mar. 19, 1979, Ser. No. 24,651

Claims priority, application Fed. Rep. of Germany, Aug. 4, 1977, 2735150

Int. Cl.³ B03C *1/22*

U.S. Cl. 209—223 R **6 Claims**



1. A magnetic separator having intersecting, elongated, endless conveyor belt means positioned one above the other with each said conveyor belt means being defined by an upper and lower run, the lower belts means serving to transport the material to be separated and the upper belt means serving as discharge means for the separated material as well as first and second soft-iron pieces forming the working gap and being magnetized in opposite directions by a magnetic system with the first pole piece being arranged below the upper run of the lower belt means and the second pole piece being arranged above the lower run of the upper belt means, the first pole piece having a pole surface of large area and the second pole piece having at least one smaller pole surface for concentrating the magnetic flux and extending in the longitudinal direction of the upper belt means, said magnetic system comprising two frames that are spaced apart in the direction of the lower belt means with each of said frames surrounding the upper run of the lower belt means, one of said frames being arranged along each of the longitudinal sides of the upper belt means, said frames comprising two symmetrical halves of alternatingly successive permanent magnets and soft-iron parts, said frames being connected by said two first mentioned soft-iron pole pieces.

4,273,647

APPARATUS FOR AND A METHOD OF SEPARATING GRINDING BODIES AND GROUND MATERIAL IN AN AGITATOR MILL

Willy John, Selb, Fed. Rep. of Germany, assignor to Gebruder Netzsch Maschinenfabrik GmbH & Co., Fed. Rep. of Germany

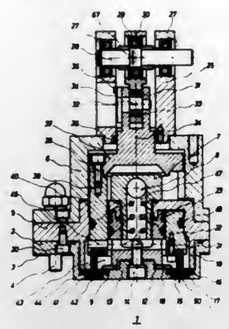
Filed Aug. 22, 1979, Ser. No. 68,799

Claims priority, application Fed. Rep. of Germany, Aug. 24, 1979, 2836969

Int. Cl.³ B07B *7/06*

U.S. Cl. 209—250 **20 Claims**

1. A separator for separating grinding bodies and ground material in an agitator mill, comprising separator members which border on a grinding chamber and define at least one gap between them of a nominal width smaller than the nominal size of the grinding bodies in the grinding chamber, at least one separator member being arranged to be stationary and at least one separator member being designed to be movable and connected with a drive means adapted to impart oscillating motions to the movable separator member in the direction of flow and contrary to the direction of flow of the ground material passing through the gap, comprising at least one of the separator members (15, 16, 17; 55, 59; 74, 75; 80) being so tapered at



its side facing the gap (41, 42; 62; 76) that the gap narrows from its nominal width (70) to a minimum value (73) whenever the movable separator member (17; 59; 74; 80) moves against the flow of the ground material.

4,273,648

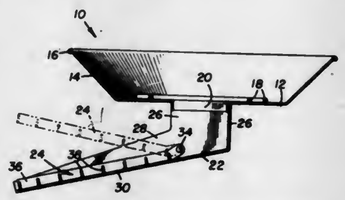
QUICK MINER'S PAN

Robert E. Legg, 39463 Royal Palm Dr., Fremont, Calif. 95438

Filed Mar. 10, 1980, Ser. No. 129,085

Int. Cl.³ B03B *5/02*

U.S. Cl. 209—447 **4 Claims**



1. A device for separating heavy precious metals from a placer material comprising:

a pan having a generally circular bottom and an upwardly and outwardly extending side wall formed integrally therewith,

a centrally located aperture leading to a trough formed integrally with said pan, said trough sloping downwardly from the pan at least 10° and not more than 45°, and

a ladder-like structure within said trough for retrieving said precious metals from said placer material.

4,273,649

APPARATUS AND PROCESS FOR WEIGHING ARTICLES SUCCESSIVELY

William H. Leverett, P.O. Box 1404, LaGrange, Ga. 30241

Filed Nov. 24, 1978, Ser. No. 963,581

Int. Cl.³ B07C *5/16*

U.S. Cl. 209—539 **35 Claims**

1. An article weighing machine for weighing and sorting according to weight ranges, articles of fruit or vegetables comprising:

(a) a feed conveyor for conveying spaced successive articles on said conveyor along a prescribed path through a weighing zone;

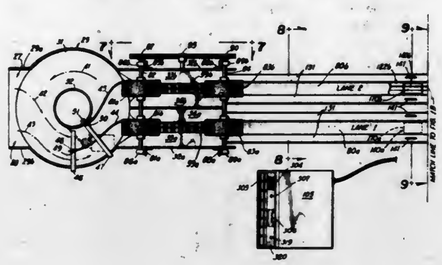
(b) sensing means for sensing the presence of each article in said path;

(c) weighing means in said weighing zone for weighing said successive articles;

(d) gate means connected to said weighing means for ejecting the articles from said feed conveyor at different locations along said path;

(e) counting means connected to said conveyor for providing clock signals proportional in number to the distance travelled by said conveyor; and

(f) random access computer means having weight ranges written into its memory, said computer means being connected to said weighing means and said gate means and said counting means and said sensing means, said com-



puter being actuated by said sensing means and said weighing means for accessing the memory for the distances which the respective articles are to travel along said path and for actuating the ejecting operation of selected gate means, according to the weight of the respective articles when the clock pulses indicate tht such distances have been travelled by such articles, so as to eject articles within a similar first weight range in one location along said path and articles within a similar second weight range in another location.

4,273,650

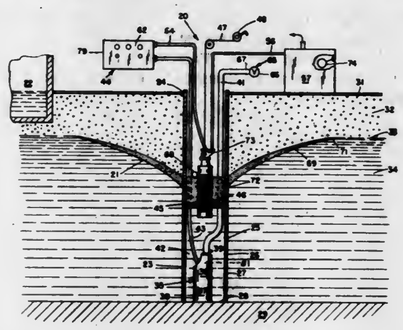
APPARATUS AND METHOD FOR RECOVERING POLLUTANT LIQUIDS

Harold W. Solomon, Nashua, N.H., assignor to Emtek Incorporated, Amherst, N.H.

Filed Jan. 10, 1979, Ser. No. 111,012

Int. Cl.³ E02B *15/08*

U.S. Cl. 210—104 **12 Claims**



1. An automatic, pollutant recovery system for use in recovering pollutant from a recovery well in an area known to have pollutant spilled into the ground water, said system comprising:

an apertured, screen-like, well casing having a side wall with holes therein, extending from ground level down to substantially below the static water table to allow free movement of water and pollutants into the well;

a submergible, draw-down, electrically powered pump submerged at the bottom of said well and having a water discharge conduit for discharging water therefrom;

water discharge control means including said pump and a pump switch for controlling the flow of water from said well to establish and maintain by gravity flow a predetermined water level at a spaced distance below the static water table and thereby establish and maintain a cone of depression encircling said well without centrifugal separation;

a pollutant recovery tank;

combined pollutant pump and sensor means including an electrically powered pollutant pump, a pump switch and sensors, responsive to pollutant level to actuate said switch, supported in said well at the level of the apex of said cone of depression and at the water level maintained by said draw down pump and by said water discharge control means, for sensing a low level water/pollutant interface and energizing said pollutant pump to pump pollutant into said tank while permitting the water/pollutant interface to rise and for sensing a high level water/pollutant interface and de-energizing said pollutant pump.

4,273,651

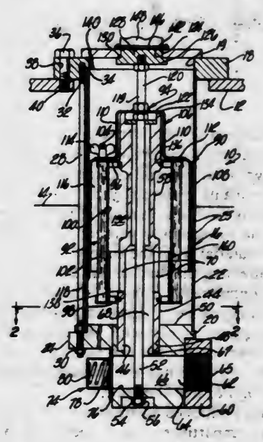
RETURN LINE FILTER

Nils O. Rosaen, 5490 Waldon, Clarkston, Mich. 48016

Filed Aug. 20, 1979, Ser. No. 67,446

Int. Cl.³ B01D *27/10*

U.S. Cl. 210—130 **13 Claims**



1. For use with a fluid system having a fluid reservoir at least partly filled with fluid to a fluid level, a fluid filtering device comprising:

an elongated housing having an open top at least a partially open bottom and an inner portion extending upwardly from said bottom, said housing being positioned within said reservoir so that the lower end of the housing is submerged in the fluid reservoir fluid, said housing having a fluid inlet formed on its lower end;

a filter assembly comprising a tubular filter element open at each end and a holder assembly detachably secured at one end to one axial end of the tubular filter element, the other end of the filter element being slidably insertable through the open top of the housing and over a portion of said housing so that said housing inner portion extends entirely axially through said filter element, said filter element being spaced radially outwardly from said housing inner portion thus forming an annular inlet chamber therebetween;

means for fluidly sealing both axial ends of the filter element to said housing inner portion;

fluid passage means formed through said housing for fluidly connecting said housing inlet with said annular inlet chamber; and

means attached to said holder assembly for diverting fluid flow through said filter element toward the partially open bottom of the housing which is positioned below fluid level.

4,273,652

INSTALLATION FOR FILTRATION OF A CONTAMINATED FLUID

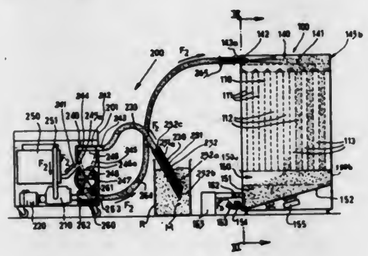
Jean-Claude Lucas, Saint Nom La Breteche, and Pierre Messirejean, Chantilly, both of France, assignors to Societe Sofiltra-Poelman and Societe Industrielle de Filtration, both of La Garenne Colombes, France

Filed Aug. 28, 1979, Ser. No. 70,424

Claims priority, application France, Sep. 8, 1978, 78 25837

Int. Cl.³ B01D *15/02*

U.S. Cl. 210—189 19 Claims



18. An installation for the filtration of a contaminated fluid stream, the installation comprising, in combination:

a supply of granular material capable of adsorbing or absorbing contaminants in the stream;

a filtration tank having a plurality of baffles therein to define at least one substantially vertical filter bed for receiving granular material from the supply;

means for directing the fluid stream through the filter bed to remove contaminants from the stream;

a charging compartment disposed above the filtration tank in close juxtaposition therewith, the charging compartment having a pair of opposed end walls and a perforated bottom plate for permitting the passage of granular material therethrough to the filter bed;

nozzle means positioned adjacent one of the end walls of the charging compartment and including an injection nozzle for directing granular material horizontally along a discharge axis which extends perpendicular to the planes of said baffles, the discharged material accumulating on the perforated bottom plate and passing through the perforations therein to fill the filter bed;

a discharging compartment beneath the filtration tank in communication with the filter bed therein, the discharging compartment including a hopper having a discharge fitting and a dihedron shaped bottom, the arris of the bottom being inclined with respect to the horizontal; and

aspirating means selectively connectable to the charging compartment and the discharging compartment, the aspirating means including a receptacle for contaminated granular material, a discharge conduit communicating with the receptacle, a centrifugal dust-removing device having an inlet and a pair of outlets, and a pressure-reducing device communicating with one of said outlets, the inlet of the dust-removing device communicating with the supply of granular material and the other outlet communicating with the nozzle means when the aspirating means is connected to the charging compartment, and the inlet communicating with said receptacle and the discharge conduit communicating with the discharge fitting on said hopper when the aspirating means is connected to the discharging compartment.

4,273,653

MICROCHROMATOGRAPHIC SYSTEM FOR MEDICAMENT INTAKE CONTROL

Michael Uihlein, Kriftel, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Feb. 19, 1980, Ser. No. 122,732

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1979, 7904648[U]

Int. Cl.³ B01H *15/08*

U.S. Cl. 210—198.3 3 Claims



1. Microchromatographic system, which consists of a test tube serving as developing chamber (2) and being closed by a stopper (3), and a thin-layer plate or foil in the form of a strip (1) fitting into the test tube, said plate or foil being coated in its lower quarter with a layer for concentration and purification (a) which merges without interruption into a thin-layer chromatographic separating layer (b) covering the remainder of the strip.

4,273,654

SEPARATION DEVICE

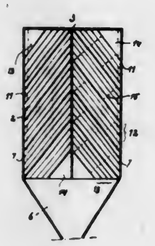
Jacob Pielkenrood, Krommenie, Netherlands, assignor to Pielkenrood-Vinitex B.V., Assendelft, Netherlands

Filed Jun. 20, 1980, Ser. No. 161,289

Claims priority, application Netherlands, Jun. 27, 1979, 7905021

Int. Cl.³ B01D *21/00*

U.S. Cl. 210—232 8 Claims



1. A device for separating from a liquid components suspended therein, comprising an assembly of substantially parallel corrugated plates arranged in a basin at an angle with the horizontal plane, between which plates separation passages are defined, which plates are provided with mutually parallel

corrugations having generatrices which include an angle of less than 90° with the line of maximum inclination of the plates, two opposite transverse walls of the basin, joining the oblique lateral edges of the plates, forming a connection with a liquid supply and discharge chamber respectively, the shape and dimensions thereof substantially corresponding to the cross-section of the plate assembly parallel to these walls, which chambers are connected to a liquid supply and discharge duct respectively, in such a manner that the liquid flow between these chambers is directed substantially transversely to the corrugations of these plates, the lowest or highest terminal edges respectively of these plates joining collecting ducts for heavy or light components respectively, which are collected in the lowest or highest parts respectively of the plate corrugations and slide along these parts towards the extremity in question, at which extremity of the corrugated plates guiding baffles are provided which are directed towards a collecting chamber for the component in question, which baffles are adapted to prevent a liquid flow past the plate assembly, said corrugated plates extending up to the lateral walls in question of the basin, and contacting the lateral walls of the basin compartment in which the plates are arranged, at their lower edges with their corrugation tops and at their higher edges with their corrugation valleys, there being a distance between the corrugation valleys and tops respectively and the lateral wall in question, and, thus, forming a discharge passage for the separated component flowing off at that extremity, and in that the guiding baffles are mounted against the lateral wall in question, and are aligned with a series of superposed corrugation valleys or tops respectively.

4. The device of claim 1, further in which the plate assembly consists of subassemblies, each comprising a plurality of interconnected plates of substantially the same length kept at the correct distance by means of distance pieces, which subassemblies have a substantially parallelogram-shaped cross-section in a plane through corresponding generatrices of superposed plates.

4,273,655

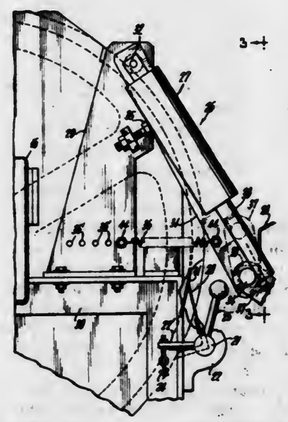
DOCTOR BLADE CLEANING METHOD AND APPARATUS

Robert A. Reid, Charlton City, Mass., assignor to CPC Engineering Corporation, Starbridge, Mass.

Filed Dec. 10, 1979, Ser. No. 102,235

Int. Cl.³ B01D *33/36*; A46B *13/02*

U.S. Cl. 210—396 10 Claims



1. Means for cleaning a doctor blade positioned in engagement with a rotating structure for the removal of solids from the surface thereof, said cleaning means comprising a cleaning blade extending lengthwise of said doctor blade and means for moving said cleaning blade transversely of said doctor blade through an arcuate path from one position in contact with said doctor blade, over the surface of said doctor blade to a second retracted position extending away from said doctor blade, said cleaning blade includes a fixedly positioned offset end portion extending toward the line of engagement of said doctor blade with said rotating structure when in said one position and said cleaning means includes means for periodically and arcuately moving said cleaning blade from said retracted position to and from said one position and means coupled to said moving means for urging the offset portion of said cleaning blade into pressure contact with said doctor blade.

4,273,656

FILTER FOR FLUID PASSAGE

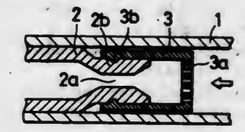
Hisaharu Arai, Nagoya, Japan, assignor to Aisan Industry Co., Ltd., Aichi, Japan

Filed Apr. 26, 1979, Ser. No. 33,663

Claims priority, application Japan, May 9, 1978, 53-54601

Int. Cl.³ B01D *27/00*

U.S. Cl. 210—448 7 Claims



1. A filter for use in a fluid passage, comprising

a solid non-porous non-deformable cylindrical filter body having a bottom wall and one open end portion having a terminal end of said filter body remote from said bottom wall, said bottom wall constituting a filter screen formed with a plurality of bores,

said filter body having an annular projection formed on said open end portion on one circumferential surface thereof,

said filter body constituting an integral one-piece unit made of elastic material, said filter body having elasticity at said one open end portion,

a restriction member disposed in said fluid passage and having a narrowed constricting portion defining an outer peripheral surface spaced from an inner surface of the fluid passage, said restriction member defining a central opening therethrough,

said cylindrical filter body at said open end portion being fitted around said constricting portion of said restriction member covering said constricting portion and with said filter screen disposed adjacent said central opening of said constricting portion,

said outer peripheral surface of said constricting portion and the inner surface of the fluid passage constituting peripheral surfaces,

said annular projection on said open end portion of said filter body being elastically radially press-fitted onto one of said peripheral surfaces constituting elastic connecting element means for connecting said cylindrical filter body fluid-tightly to said one of said peripheral surfaces, said other of said peripheral surfaces being annularly spaced from said cylindrical filter body.

4,273,657

TWO-STAGE FLOTATION PURIFICATION OF NaOH

Raymond H. Consigaki, Montague, Mich., and Joseph D. Pacitti, Corpus Christi, Tex., assignors to E. I. Du Pont de Nemours & Co., Wilmington, Del.

Filed Jun. 14, 1979, Ser. No. 48,589

Int. Cl.³ B03D *1/02*

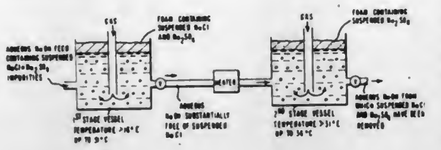
U.S. Cl. 210—703 10 Claims

1. A process for purifying an aqueous solution containing less than 52 weight percent of NaOH and containing suspended NaCl and Na_2SO_4 impurities, comprising:

(i) bubbling a gas into the impurity-containing NaOH solution at a temperature above 16° C. up to 31° C., to transport suspended impurities to the surface of the NaOH solution and form a surface foam layer on the NaOH solution;

(ii) separating the surface foam layer of impurities from the NaOH solution;

(iii) bubbling a gas into the NaOH solution from step (ii) at a temperature above 31° up to about 36° C., to transport



suspended impurities to the surface of the NaOH solution and form a surface foam layer on the NaOH solution;

(iv) separating the surface foam layer of impurities from the aqueous NaOH solution;

whereby substantially all of the suspended NaCl impurity is removed by steps (i) and (ii);

whereby substantially all of the suspended Na_2SO_4 impurity remaining after steps (i) and (ii) is removed by steps (iii) and (iv).

4,273,658

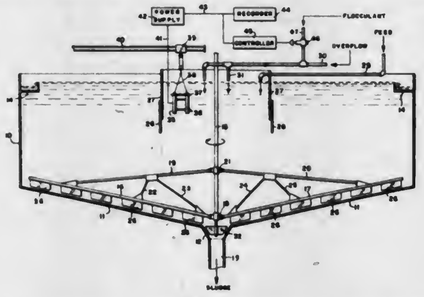
THICKENER CONTROL PROCESS

James S. Karman, Evansville, Wyo., assignor to Exxon Production Research Company, Houston, Tex.

Continuation of Ser. No. 843,471, Oct. 19, 1977, abandoned. This application Sep. 25, 1979, Ser. No. 78,973

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—709 12 Claims



1. A method for controlling the operation of a continuous gravity sedimentation unit having a feed well into which a slurry of suspended solids and a flocculating agent are introduced to effect separation of said slurry into a clarified solution that is recovered from said unit as an overflow liquid and a sludge that is withdrawn from the bottom of said unit whereby consumption of flocculating agent is reduced comprising the steps of establishing a slime level within a predetermined optimum distance from the bottom of said feed well by varying the flow rates to and from said unit, detecting changes in the density of the downflowing slurry over a vertical interval in said feed well, correlating said density changes in the solids settling rate within said well, and continuously varying the rate at which said flocculating agent is introduced into said feed well in response to said changes in density and whereby control of both settling rate and slime level is obtained.

4,273,659

REMOVING POTASSIUM SALTS FROM DISTILLER'S WASH

Andrea Robertiello, and Ludwig Degen, both of Rome, Italy, assignors to E.N.I. Ente Nazionale Idrocarburi, Rome, Italy

Filed Sep. 12, 1979, Ser. No. 74,742

Claims priority, application Italy, Sep. 19, 1978, 27827 A/78

Int. Cl.³ C02F *1/54*

U.S. Cl. 210—728 2 Claims

1. A process for the removal of potassium ions from distillers' wash which is a waste product from the distillation of beet molasses consisting essentially of: adding to said distillers' wash an acid the potassium salts of which are poorly soluble, said acid is selected from the group consisting of sulphuric, nitric, hydrochloric, perchloric, iodic, chromic, tartaric and oxalic acids, and an organic solvent selected from the group consisting of aliphatic alcohols, the ketones, and the volatile esters, in quantities sufficient to cause said potassium ions to precipitate as potassium salts; separating out the precipitated salts from the solvent and the distillers' wash; and recovering said organic solvent from the distiller's wash by distillation.

4,273,660

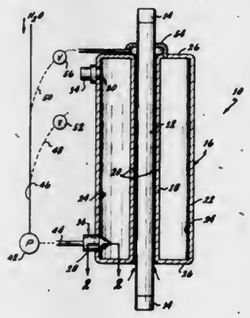
PURIFICATION OF WATER THROUGH THE USE OF OZONE AND ULTRAVIOLET LIGHT

Stuart W. Beitzel, 1480 Cabrillo Park Dr. #A, Santa Ana, Calif. 92701

Division of Ser. No. 13,145, Feb. 21, 1979, Pat. No. 4,189,363. This application Oct. 29, 1979, Ser. No. 89,139

Int. Cl.³ C02F *1/50*

U.S. Cl. 210—760 17 Claims



1. A process for killing microbiological contaminants in water which comprises:

transmitting ultraviolet radiation from an ultraviolet radiation source having an elongated, tubular shape through a separating wall of a cylindrical tube concentrically surrounding and spaced from said radiation source, which separating wall is spaced from said radiation source so that the space between said radiation source and said separating wall serves as a first container, said separating wall being transparent to ultraviolet radiation, said wall serving as an interior wall of a second container having a cylindrical outer wall located concentrically around said separating wall, said separating wall separating said first and said second containers so that the radiation from said source is present within both of said containers,

passing a stream of air along said radiation source through said first container from one end thereof to the other end thereof so as to allow said ultraviolet radiation in said first container to convert oxygen therein to ozone so as to form an ozone-air mixture,

entraining the ozone-air mixture within a stream of water so as to form a liquid-gas mixture,

subjecting said gas-liquid mixture to a shearing action while compressing said mixture so as to break up the gas bubbles within said mixture while concurrently introducing said mixture into said second container adjacent to an end thereof,

passing said liquid-gas mixture through said second container between the ends thereof so that said liquid-gas mixture is exposed to ultraviolet radiation within said second container as said mixture passes between the ends of said second container.

12. An apparatus for killing microbiological contaminants in water which comprises:

first and second elongated tubular, concentric cylindrical containers separated by a common wall transparent to ultraviolet radiation,

an ultraviolet radiation source for transmitting ultraviolet radiation through the interiors of both of said containers and through said wall concentrically located along the axis of said first container,

means for allowing air to enter one end of said first container,

means for withdrawing air from the other end of said first container and for entraining said withdrawn air with a stream of water and for conveying said entrained air-water mixture to adjacent to an end of said second container,

nozzle means for introducing said entrained air-water mixture into said second container adjacent to said end of said second container so that said air-water mixture will move under turbulent conditions to the other end of said second container, said nozzle means including an internal restriction within which said air-water mixture is compressed and is subjected to a shearing action as said air-water mixture is introduced into said second container, and

means for removing an air-gas mixture from said other end of said second container.

4,273,661

ARTICLE FOR DISPENSING LIQUID BLEACH SOFTENER COMPOSITION

Seymour Grey, Somerset, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Filed May 25, 1978, Ser. No. 909,331

Int. Cl.² D06M *13/34*

U.S. Cl. 252—8.8 13 Claims

1. An article for dispersing liquid bleach-softener composition in one or more of the wash, rinse and tumble dry cycles of a fabric laundering process comprising a flexible, foam retaining, open cell polymeric foam substrate impregnated with a liquid composition containing an effective bleaching and softening amount of water soluble peroxy bleaching agent and water soluble softener of the quaternary ammonium and/or heterocycle imide type in a weight ratio of softener to bleach of about 5:7 to 5:1, at least about 50% of said peroxy bleach being hydrogen peroxide.

4,273,662

2-OXABICYCLOOCTANE DERIVATIVES, PROCESSES FOR PREPARING SAME AND ORGANOLEPTIC USES THEREOF

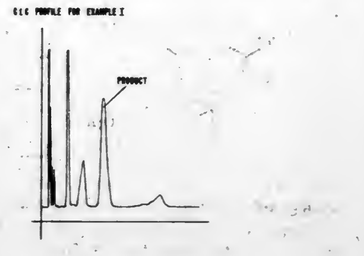
Mark A. Sprecker, Sea Bright; Frederick L. Schmitt, Holmdel; Manfred H. Vock, Locust; Joaquin F. Vinals, Red Bank, all of N.J., and Jacob Kiwala, Brooklyn, N.Y., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 52,335, Jun. 27, 1979, Pat. No. 4,235,729, which is a division of Ser. No. 8,924, Feb. 2, 1979, Pat. No. 4,197,238, which is a continuation-in-part of Ser. No. 953,128, Oct. 20, 1978, Pat. No. 4,195,099. This application Feb. 8, 1980, Ser. No. 120,103

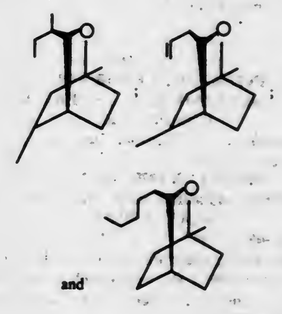
Int. Cl.³ D06M *13/18*

U.S. Cl. 252—8.9 1 Claim

1. A process for augmenting or enhancing the aroma of an optical brightener composition comprising the step of intimately admixing with an optical brightener composition an aroma augmenting or enhancing quantity of at least one cyclic



chemical compound having a structure selected from the group consisting of:



and

4,273,663

QUATERNARY AMMONIUM DIESTER SALT COMPOSITION AND LUBRICATING OIL CONTAINING SAME

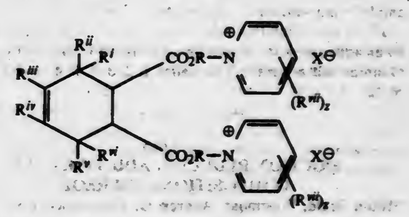
Kenneth G. Hammond, and Harry Chafetz, both of Poughkeepsie, N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,481

Int. Cl.³ C10M *1/32*

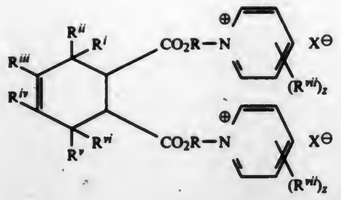
U.S. Cl. 252—34 31 Claims

1. A quaternary ammonium diester salt composition represented by the formula:



in which R^i, R^{ii}, R^{iii}, R^{iv}, R^v R^{vi} represent hydrogen, alkyl or alkenyl hydrocarbyl radicals at least one of which is a hydrocarbyl radical having from 50-200 carbon atoms, R is a divalent radical having from 2-10 carbon, or carbon and oxygen atoms, R^{vii} is hydrogen or a hydrocarbyl radical, z has a value from 0-4 and X is an anion selected from the group consisting of halides, sulfates, carbonates, sulfites, borates, carboxylates, and phosphates.

13. A lubricating oil composition comprising a major portion of a mineral lubricating oil and a minor dispersant amount of a quaternary ammonium diester salt composition represented by the formula:



in which R^i, R^{ii}, R^{iii}, R^{iv}, R^v, and R^{vi} represent hydrogen, alkyl or alkenyl hydrocarbyl radicals at least one of which is a hydrocarbyl radical having from 50–200 carbon atoms, R is a divalent radical having from 2–10 carbon, or carbon and oxygen atoms, R^{vii} is hydrogen or a hydrocarbyl radical, z has a value from 0 to 4, and X is an anion selected from the group consisting of halides, sulfates, carbonates, sulfites, borates, carboxylates, and phosphates.

4,273,664

RUST-PREVENTING AGENT FOR AQUEOUS SYSTEMS AND RUST-INHIBITING LUBRICATING COMPOSITIONS

Ernesto Brandolese, Graffignana, Italy, assignor to Snamprogetti S.p.A., Milan, Italy

Filed May 22, 1979, Ser. No. 41,437
Claims priority, application Italy, Jun. 2, 1978, 24135 A/78
Int. Cl.³ C10M *1/06*
U.S. Cl. 252—49.5 **14 Claims**

1. Rust-preventing agent for aqueous systems composed of the amine salt which is the monoamide of adipic acid with propanolaniline, the acidic function of said amide being salified with monoethanolamine.

4. Rust-preventing agent for aqueous systems composed of the amine salt which is the monoamide of adipic acid with aniline and which has been N-oxyethylated with 5 moles of ethylene oxide, the acidic function of said amide being salified with monoethanolamine.

7. Rust-preventing agent for aqueous systems composed of the amine salt which is the monoamide of maleic acid with p.nitro-N-methylaniline, the acidic function of said amide being salified with monoethanolamine.

10. Rust-preventing agent for aqueous systems composed of the amine salt which is the monoamide of glutaric acid with dodecylamino-N-(polyoxyethylene) amine in which the degree of oxyethylation is equal to 10, the acidic function of said amide being salified with monoethanolamine.

13. A rust-inhibiting lubricating composition characterized by an aqueous mixture containing from 0.5% to 50% by weight of amine salt as set forth in claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 or 12.

4,273,665

FRICTION REDUCING ADDITIVES AND COMPOSITIONS THEREOF

Milton Braid, Westmont; Andrew G. Horodysky, Cherry Hill, and Joan M. Kaminski, Clementon, all of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 9, 1979, Ser. No. 83,068
Int. Cl.³ C10M *1/32*
U.S. Cl. 252—49.6 **20 Claims**

1. A lubricant composition comprising a major proportion of an oil of lubricating viscosity or a grease prepared therefrom and a minor effective proportion of a friction reducing or friction modifying additive selected from the group consisting of a hydrolyzed derivative of a 1-(2-hydroxyalkyl)-2-alkylimidazoline, a 1-(2-hydroxyalkyl)-2-alkenylimidazoline and borated derivatives thereof wherein said alkyl or alkenyl portion of said imidazoline contains from about 9 to 29 carbon atoms and said alkyl portion of the hydroxyalkyl moiety contains from 1 to 6 carbon atoms.

4,273,666

HYDRATED $MG(NO_3)_2$ REVERSIBLE PHASE CHANGE COMPOSITIONS

George A. Lane, and Harold E. Rossow, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 2, 1979, Ser. No. 90,784
Int. Cl.³ C09K *5/06*
U.S. Cl. 252—70 **17 Claims**

1. A reversible liquid/solid phase change composition comprising hydrated $Mg(NO_3)_2$ and as a nucleating additive, one or more of $Sr(OH)_2$, $SrCO_3$, $Ba(OH)_2$, BaO, $BaCO_3$ or $NaBO_2$, added to the composition in an amount effective to suppress average supercooling of the $Mg(NO_3)_2$ liquid phase to about 2° C. or less.

4,273,667

THERMAL ENERGY STORAGE MATERIAL COMPRISING HYDRATED COMPOUND AND WATER-SWOLLEN CROSS-LINKED POLYMER

Peter J. C. Kent, High Wycombe, and John K. R. Page, Camberley, both of England, assignors to The Calor Group Limited

Continuation-in-part of Ser. No. 88,514, Oct. 26, 1979, abandoned. This application Feb. 27, 1980, Ser. No. 125,263
Claims priority, application United Kingdom, Nov. 10, 1978, 44117/78
Int. Cl.³ C09K *5/06*
U.S. Cl. 252—70 **11 Claims**

1. In a thermal energy storage material which comprises at least one hydrated compound which has a reversible transition to the anhydrous or a less hydrated form and a minor amount of hydrogel throughout which said compound is dispersed, the improvement comprising that the hydrogel comprises a water-swollen cross-linked polymer formed by cross-linking a synthetic hydrophilic polymer by a covalent cross-linking mechanism.

4,273,668

ARYLSULFONIUM SALT-SOLVENT MIXTURES

James V. Crivello, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 833,146, Sep. 14, 1977, Pat. No. 4,161,478, which is a continuation-in-part of Ser. No. 789,419, Apr. 21, 1977, Pat. No. 4,136,102, which is a division of Ser. No. 574,006, May 2, 1975, which is a continuation-in-part of Ser. No. 466,374, May 2, 1974, abandoned, Ser. No. 466,375, May 2, 1974, abandoned, and Ser. No. 466,378, May 2, 1974, abandoned. This application Jun. 18, 1979, Ser. No. 49,296
Int. Cl.³ B01J *31/12*; G03C *1/68*
U.S. Cl. 252—182 **6 Claims**

1. A stable aryl onium salt-solvent mixture comprising

(A) 1% to 75% by weight of aryl onium salt of the formula,

$$[(R)_a(R^1)_b(R^2)_cX]^+[MF_6]^-$$

and

(B) 99% to 25% by weight of a cyclic carbonate selected from the class consisting of ethylene carbonate and propylene carbonate based on the total weight of (A) and (B), where R is a monovalent aromatic organic radical, R^1 is a monovalent organic aliphatic radical, selected from alkyl, cycloalkyl and derivatives thereof, R^2 is a polyvalent organic radical forming a heterocyclic or fused ring structure, selected from aliphatic radicals and aromatic radicals, X is a Group VIa element selected from sulfur and selenium, M is selected from P, As and Sb, a is a whole number equal to 0 to 3 inclusive, b is a whole number equal to 0 to 2 inclusive, c is a whole number equal to 0 or 1 and the sum of a+b+c is equal to 3 or the valence of X.

4,273,669

LATENT CURING AGENT FOR THERMOSETTING AMINOPLAST RESINS, ITS MANUFACTURE AND ITS USE

Steffen Piesch, Oberursel; Peter Dörries, Frankfurt am Main; Ewald Schmidt, Hanau, and Richard Hensel, Maintal, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main-Fechenheim, Fed. Rep. of Germany

Filed Mar. 17, 1980, Ser. No. 130,701
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1979, 2911265
Int. Cl.³ C08K *3/30, 5/05, 5/17*
U.S. Cl. 252—182 **6 Claims**

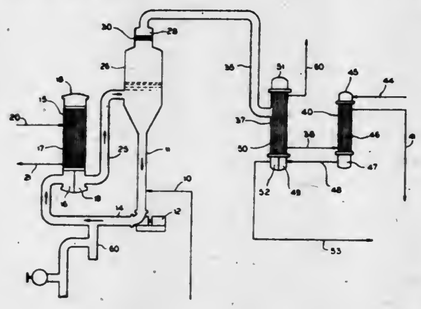
1. A latent curing agent for aminoplast resins comprising the reaction product of diethanolamine, glycidol and SO_2 in a molar ratio of 1:(1.0 to 1.2):(0.5 to 1.0), respectively.

4,273,670

APPARATUS FOR AND METHOD OF REMOVING RADIOACTIVE BOTTOMS FROM AN EVAPORATOR

Peter J. Cheng, Wheaton; Jay D. Dockendorff, Downers Grove, and Ernest L. Wright, Lombard, all of Ill., assignors to HPD Incorporated, Naperville, Ill.

Filed Mar. 16, 1979, Ser. No. 20,642
Int. Cl.³ G21F *9/08*
U.S. Cl. 252—301.1 W **5 Claims**



1. In an apparatus for concentrating low radioactive aqueous waste containing dispersed and dissolved materials including a forced circulation evaporator, a feed tank for holding said low radioactive aqueous waste, and a conduit for supplying low radioactive aqueous waste from the feed tank to the evaporator, the improvement comprising:

a drain valve in the evaporator for removing concentrated radioactive bottoms from the evaporator,

a drain conduit from the drain valve to a pump,

a rinse water conduit, containing a first valve, communicating with the drain conduit,

a delivery conduit, from the pump to a bottoms storage tank, containing a second valve,

a branch conduit, in communication with the delivery conduit between the pump and the second valve and extending to said feed tank, containing a third valve,

means operating the pump, with the drain valve closed and the drain conduit delivery conduit and branch conduit full of rinse water, and opening the drain valve and the third valve to thereby convey the water in the said conduits to the feed tank before bottoms removed from the evaporator reach the third valve,

means closing the third valve and opening the second valve to deliver the bottoms removed from the evaporator to the bottoms tank,

means opening the first valve in the rinse water conduit, closing the second valve to the bottoms tank and opening the third valve to the feed tank to back flush the drain valve and dilute bottoms in the conduits and deliver the diluted bottoms to the feed tank,

means closing the drain valve to discontinue removal of bottoms from the evaporator while flushing the conduits with rinse water by maintaining the first valve open and delivering the rinse water to the feed tank, and

means closing the first valve, the third valve and stopping the pump with the conduits and pump full of rinse water.

4,273,671

FLUORESCENT DETECTION OF FLAWS

Sidney Allinikov, Yellow Springs, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 18, 1979, Ser. No. 76,631
Int. Cl.³ G09K *11/06*; G01N *19/08*
U.S. Cl. 252—301.19 **3 Claims**

1. A product for use in the non-destructive testing of a workpiece to detect cracks or flaws in the surface thereof which consists essentially of a multiplicity of dry, non porous, spherical, thin walled, compressible plastic microcapsules each having encapsulated therein a fluorescent dye detectible by ultraviolet light, and each of said microcapsules having a diameter ranging from 1 to 150 microns together with a wall thickness of about 0.5 to 1.0 microns.

4,273,672

MICROENCAPSULATION PROCESS

Anthony E. Vassiliades, Deerfield, Ill., assignor to Champion International Corporation, Stamford, Conn.

Continuation of Ser. No. 174,045, Aug. 23, 1971, Pat. No. 3,886,084, which is a continuation-in-part of Ser. No. 583,046, Sep. 29, 1966, abandoned. This application Mar. 6, 1974, Ser. No. 448,731
The portion of the term of this patent subsequent to May 27, 1992, has been disclaimed.
Int. Cl.³ B01J *13/02*
U.S. Cl. 252—316 **6 Claims**

1. A process for the formation of microcapsules having non-proteinaceous walls, in the absence of coacervation, which comprises the steps of:

(A) forming a primary oil-in-water emulsion, which emulsion comprises a water-immiscible oily material dispersed in the form of microscopic droplets in a colloidal solution of a non-proteinaceous, polymeric emulsifying agent having about the same hydrophil-lipophil balance as the oily material, said emulsifying agent being selected from the group consisting of an emulsifying agent possessing cross-linkable groups and an emulsifying agent possessing complexing sites; and

(B) forming an impermeable coating around said dispersed oil droplets solely by adding to the aqueous phase of said emulsion a member different from said emulsifying agent and selected from the group consisting of gum tragacanth and a borate under conditions of brisk agitation, said member reacting with said non-proteinaceous emulsifying agent so as to form a non-proteinaceous impermeable coating around said dispersed oil droplets.

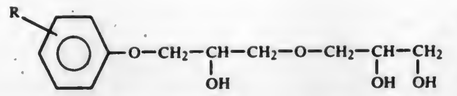
4,273,673

RUST INHIBITORS AND COMPOSITIONS OF SAME

Shoji Kimura, Heiwa, and Noboru Ishida, Kanagawa, both of Japan, assignors to Nippon Oil Company Ltd., Tokyo, Japan

Division of Ser. No. 958,632, Nov. 8, 1978, abandoned. This application Aug. 23, 1979, Ser. No. 68,901
Claims priority, application Japan, Nov. 30, 1977, 52-142682
Int. Cl.³ C23F *11/12*
U.S. Cl. 252—396 **4 Claims**

1. A composition having rust preventing ability which comprises (A) a glycerol-1-alkylphenoxy-3-glycerol ether of the formula



wherein R is an alkyl radical with 9, 12 or 15 carbon atoms and (B) a mineral oil in a weight ratio of 0.01-20 parts of (A) per 100 parts of (B).

4,273,674

THERMAL DETECTING PAINT COMPOSITIONS

Woodfin V. Ligon, Jr., Schenectady, and Jimmy L. Webb, Ballston Lake, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 869,140, Jan. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 806,600, Jun. 15, 1977, abandoned. This application Nov. 26, 1979, Ser. No. 97,350

Int. Cl.³ C09D 5/26, 3/58, 3/64; C09K 3/00; G01K 11/00, 13/00

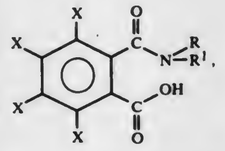
U.S. Cl. 252—408 28 Claims

1. A composition for application to designated portions of a turbine generator and which is useful in determining the location of overheating, said composition comprising

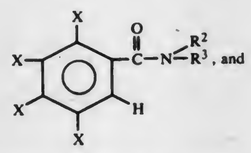
(a) a coating composition comprising an organic resin having a thermal particulation temperature below 250° C. and

(b) from 0.1% to 0.5% by weight of a tagging compound selected from the group consisting of:

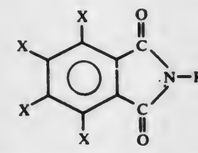
(1) an organic compound of the formula



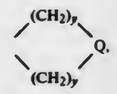
(2) an organic compound of the formula,



(3) an organic compound of the formula,



where X is a halogen radical, R and R^1 are separately selected from $C_{(1-23)}$ alkyl radicals, which together total $C_{(12-24)}$ carbon atoms, $C_{(6-20)}$ cycloalkyl radicals and heterocyclic radicals, where the divalent heterocyclic radical joined to N has the formula,



Q is selected from —O—, —S— and $—SO_2—$, y and z are integers having a value of 1 to 23 inclusive while together total 12 to 24, R^2 and R^3 are separately selected from $C_{(1-23)}$ alkyl radicals, which together total $C_{(12-24)}$ carbon atoms and $C_{(6-20)}$ cycloalkyl radicals, R^4 is selected from $C_{(6-20)}$ alkyl and cycloalkyl.

17. A coating composition in accordance with claim 1, wherein the tagging compound has been microencapsulated with a natural or synthetic resin.

4,273,675

PROCESS FOR THE PREPARATION OF SPHERICAL CARBON PARTICLES AND SPHERICAL ACTIVATED CARBON PARTICLES

Zenya Shiiki, and Kazuhiro Watanabe, both of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 31, 1979, Ser. No. 62,299

Claims priority, application Japan, Aug. 11, 1978, 53/97820

Int. Cl.³ C01B 31/10, 31/08, 31/02; B01J 21/18

U.S. Cl. 252—424 8 Claims

1. A process for producing spherical carbon particles, wherein a pitch or a heavy oil of a softening point below 150° C. is mixed with an organic solvent to reduce the viscosity thereof, the mixture is fused and shaped into spherical particles, said organic solvent in said spherical particles is extracted with a solvent incapable of dissolving said pitch or heavy oil but capable of dissolving said organic solvent to obtain porous spherical particles, the thus obtained porous spherical particles are subjected to a treatment of infusibilization in an oxidizing atmosphere whereafter the thus infusibilized particles are carbonized, characterized in that

at least one material capable of elevating said softening point of said pitch or heavy oil and selected from the group consisting of mononitro aromatic compounds, polynitro aromatic compounds, quinones and polycarboxylic acid anhydrides, and

a material capable of preventing the formation of voids within said particles and selected from the group consisting of fluid paraffin, solid paraffin, polyethylene, alicyclic hydrocarbons, alkylcyclohexanes, stearyl alcohol, lauryl alcohol, cetyl alcohol, and silicone oil,

are mixed with said pitch or heavy oil thereby to elevate the softening point of said pitch or heavy oil and to prevent said formation of voids within said spherical particles.

2. A process according to claim 1, wherein said material capable of elevating said softening point of said pitch or heavy oil is used in an amount of 0.2 to 20% by weight based on said pitch or heavy oil.

5. A process for producing spherical activated carbon particles, wherein a pitch or heavy oil of a softening point below 150° C. is mixed with an organic solvent to reduce the viscosity thereof, the mixture is fused and shaped into spherical particles, said organic solvent in said spherical particles is extracted with a solvent incapable of dissolving said pitch or heavy oil but capable of dissolving said organic solvent to obtain porous spherical particles, the thus obtained porous spherical particles are subjected to a treatment of infusibilization in an oxidizing atmosphere, carbonizing the thus infusibilized particles, whereafter the thus carbonized particles are activated, characterized in that,

at least one material capable of elevating said softening point of said pitch or heavy oil and selected from the group consisting of mononitro aromatic compounds, polynitro aromatic compounds, quinones and polycarboxylic acid anhydrides, and

a material capable of preventing the formation of voids within said particles and selected from the group consisting of fluid paraffin, solid paraffin, polyethylene, alicyclic hydrocarbons, alkylcyclohexanes, stearyl alcohol, lauryl alcohol, cetyl alcohol, and silicone oil,

are mixed with said pitch or heavy oil thereby to elevate the softening point of said pitch or heavy oil and to prevent said formation of voids within said spherical particles.

4,273,676

PROCESS FOR PRODUCING METHACRYLIC ACID AND A CATALYST

Mutsumi Matsumoto; Hideki Sugi, both of Takasaki, and Atsushi Sudo, Annaka, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1978, Ser. No. 948,761

Claims priority, application Japan, Oct. 31, 1977, 52-129685

Int. Cl.³ B01J 27/14

U.S. Cl. 252—435 3 Claims

1. A catalyst having a heteropoly-acid structure and the general formula:

$$Mo_aV_bP_cCu_dX_eO_f$$

wherein Mo, V, P, Cu and O represent respectively molybdenum, vanadium, phosphorus, copper and oxygen, X represents one or more elements selected from the group consisting of tin, thorium, germanium, nickel, iron, cobalt, magnesium, zinc, titanium, lead, rhenium, zirconium and chromium and a, b, c, d, e and f represent the atomic ratio of the elements where,

a is 10

b is a number of 3 or less than 3 excluding 0,

c is a number of 0.5 to 3,

d is a number of 3 or less than 3 excluding 0,

e is a number of 3 or less than 3 excluding 0,

f is a number determined depending on the valency and atomic ratio of other elements.

4,273,677

PREPARATION OF THALLIUM PROMOTED $VO(PO_3)_2$ OXIDATION CATALYST

James C. Vartuli, West Chester, Pa., and Lee R. Zehner, Dublin, Ohio, assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 19, 1979, Ser. No. 105,367

Int. Cl.³ B01J 27/14, 31/02

U.S. Cl. 252—435 14 Claims

1. A method for the preparation of a thallium promoted single phase crystalline vanadium(IV)bis(metaphosphate) hydrocarbon oxidation catalyst which comprises the steps of:

forming a slurry of vanadyl sulfate, thallic oxide, acetic anhydride and phosphorus pentoxide with the liberation of exothermic heat;

introducing said slurry into a heating zone and maintaining said zone at a temperature of at least about 325° C. for a period sufficient for the liberation of gases and forming a thallium-vanadium-phosphorus reaction product;

cooling the reaction product and washing with water to essentially remove any soluble residue;

drying the water washed product and calcining in air to obtain a thallium containing single phase crystalline vanadium(IV)bis(metaphosphate) catalyst.

4,273,678

METHOD OF PREPARING AN OXYCHLORINATION CATALYST

Ruth M. Lane, and Martyn H. Stacey, both of Runcorn, England, assignors to Imperial Chemical Industries Limited, London, England

Division of Ser. No. 878,473, Feb. 16, 1978, abandoned, which is a continuation of Ser. No. 431,323, Dec. 28, 1973, abandoned. This application May 11, 1979, Ser. No. 38,076

Claims priority, application United Kingdom, Jan. 9, 1973, 1118/73

Int. Cl.³ B01J 21/04, 21/10, 23/72

U.S. Cl. 252—463 6 Claims

1. A method of preparing an oxychlorination catalyst which is an intimate mixture of the oxides of magnesium, aluminum and copper obtained by calcining, wherein the proportion of magnesium oxide is in the range 0.25 to 2.0 moles per mole of aluminum oxide (Al_2O_3), said catalyst having a magnesia/alumina spinel structure but not in excess of 40%, said method comprising the steps of precipitating the hydrated oxides of magnesium and aluminum from an aqueous solution of their salts, drying and calcining the hydrated oxides at a temperature in the range 300° C. to 700° C. to form a mixed oxide of magnesium and aluminum, then treating the mixed oxide with a solution of a salt of copper and finally again calcining at a temperature in the range 300° C. to 700° C. to provide the copper oxide.

4,273,679

ALUMINUM ALLOYS HAVING A HIGH REDUCING CAPACITY AND PREPARATION THEREOF

Jenö Ghyczy, , assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

Filed May 31, 1979, Ser. No. 44,034

Claims priority, application Hungary, Jun. 3, 1978, GI 278

Int. Cl.³ B01J 21/04, 23/44, 23/72, 23/74

U.S. Cl. 252—466 J 20 Claims

1. A process for the preparation of a discontinuous heterodisperse superficial aluminum alloy having a high reducing capacity which comprises the step of:

superficially activating a granular aluminum alloy having a particle size of 0.1 to 1.5 mm wherein the alloying metal has a normal electrode potential greater than that of aluminum by treatment with an acid or base in the presence of a protic solvent to remove an oxide layer present on the aluminum alloy surface and to form in situ a precipitate of the alloying metal dissolved in the protic solvent.

4,273,680

SUPPORTED NON-FERROUS GROUP VIII ALUMINATE COPRECIPITATED HYDROGENATION CATALYSTS AND PROCESS FOR THEIR PREPARATION

Albert P. Halluin, and Allan E. Barnett, both of Westfield, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 6, 1979, Ser. No. 91,835

Int. Cl.³ B01J 21/04, 21/08, 21/12, 23/74

U.S. Cl. 252—466 J 22 Claims

1. A supported coprecipitated catalyst consisting essentially of one or more metals selected from the non-ferrous metals of Group VIII of the Periodic Table of the Elements, aluminum and solid porous particles, said catalyst being characterized as having a B.E.T. total surface area ranging from about 150 to about 350 m^2/g wherein the total amount of metal in the catalyst ranges from about 25 wt. % to about 70 wt. % based on the total weight of the catalyst after calcination and reduction, and wherein said catalyst has been prepared by coprecipitating aluminum ions and ions of said one or more metals, with the solid porous particles.

4,273,681

SUPPORT MATRIX FOR A CATALYTIC REACTOR FOR SCRUBBING EXHAUST GASES IN AN INTERNAL COMBUSTION ENGINE

Manfred Noaeamann, Schwieberdingen, Fed. Rep. of Germany, assignor to Süddeutsche Kühlerfabrik Julius Fr. Behr GmbH & Co. KG, Fed. Rep. of Germany

Filed Jan. 17, 1980, Ser. No. 113,136

Claims priority, application Fed. Rep. of Germany, Jan. 25, 1979, 2902779

Int. Cl.³ B01J 23/74, 35/02

U.S. Cl. 252—472 17 Claims

1. A support matrix for a catalytic reactor for scrubbing exhaust gases from internal combustion engines, comprising alternating steel panels coated with catalyst, at least one of said panels being corrugated, and at least one of the steel panels being provided with projections and/or depressions, said de-

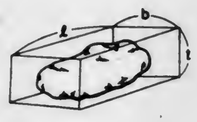
pressions being apertures and wherein according to the invention said apertures extend over the entire longitudinal extent of the panel, thereby separating at least one of said panels into narrow strips disposed at a transverse separation from one another.

4,273,682

PRESSURE-SENSITIVE ELECTRICALLY CONDUCTIVE ELASTOMERIC COMPOSITION

Katsuhiko Kanamori, Hiratsukashi, Japan, assignor to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 862,855, Dec. 12, 1977, abandoned.
This application Oct. 10, 1979, Ser. No. 83,367
Claims priority, application Japan, Dec. 24, 1976, 51-155107; Dec. 12, 1977, 52-148045
Int. Cl.³ H01B 1/06
U.S. Cl. 252—511 6 Claims



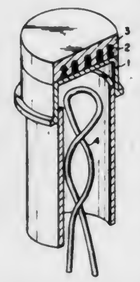
1. A pressure-sensitive, electrically conductive elastomeric composition consisting essentially of a substrate composed of an organic flexible material and electrically conductive particles incorporated and dispersed therein, wherein said electrically conductive particles are angle-chipped, roundish pebble-like particles of artificial graphite having: (a) a Wadell roundness of at least 0.7; (b) a size passable through a sieve having a mesh size of 180 μm but not passable through a sieve having a mesh size of 40 μm; and (c) a particle size distribution such that the ratio of the size of the minimum particle to the size of the maximum particle is in the range of 1:1 to 1:1.7.

4,273,683

OXIDE CATHODE AND PROCESS FOR PRODUCTION THEREOF

Takao Kawamura, Chiba, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 13, 1978, Ser. No. 969,179
Claims priority, application Japan, Dec. 16, 1977, 52-150545; Dec. 16, 1977, 52-150546
Int. Cl.³ H01B 1/02
U.S. Cl. 252—513 13 Claims



1. In an oxide cathode wherein an oxide layer comprising oxides of alkaline earth metals including Ba is formed on the surface of a base made of an alloy comprising Ni as a main component and at least one reducing element selected from the group consisting of Mg, W, Zr, Si, C and Al, the improvement which comprises 0–40% by mole BaO content in the inner portion of the oxide layer contacting with the base and 40–80% by mole BaO content in the superficial portion of the oxide layer, wherein the content of BaO in said inner portion being 20–80% by mole less than the content of BaO in said superficial portion.

4,273,684

TRANSPARENT DETERGENT BAR

Tetsuya Nagashima, Ogose; Yasunori Usuba, Tokyo; Takahisa Ogawa, Kawagoe, and Masahiro Takehara, Fujisawa, all of Japan, assignors to Ajinomoto Co., Inc. and Kawaken Fine Chemicals Co., Ltd., both of Tokyo, Japan

Filed May 22, 1980, Ser. No. 152,176
Claims priority, application Japan, May 3, 1979, 54-66788; Feb. 13, 1980, 55-15555
Int. Cl.³ C11D 1/10, 3/43, 11/00, 17/00
U.S. Cl. 252—544 10 Claims

1. A transparent detergent bar possessing good foaming power and detergency in hard water consisting essentially of at least one basic amino acid salt of N-long chain acyl-optically active acidic amino acid prepared by the neutralization reaction of 1 mol of N-long chain acyl-optically active acidic amino acid with 1 to 2 mols to basic amino acid and water, the amount of water being in the range of 5 to 25% by weight of the detergent bar apart from water when the neutralization degree of the basic amino acid salt is 1.0 to 1.5 equivalent and 5 to 35% by weight of the detergent bar apart from water when the neutralization degree is 1.6 to 2.0 equivalent.

5. A transparent detergent bar as set forth in claim 1, further containing urea, wherein the ratio by weight of the amount of basic amino acid salt of N-long chain acyl-optically active acidic amino acid to the amount of urea is from 95:5 to 50:50.

4,273,685

RUBBER MODIFIED ASPHALT COMPOSITIONS

Alfred Marzocchi; Michael G. Roberts; Charles E. Bolen, and Edward R. Harrington, Jr., all of Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Continuation-in-part of Ser. No. 881,108, Feb. 24, 1978, abandoned. This application Jun. 4, 1979, Ser. No. 45,047
Int. Cl.³ C08L 95/00
U.S. Cl. 260—28.5 R 12 Claims

1. A chemically-modified asphalt composition comprising an asphalt which has been reacted with (1) a polymerizable vinyl aromatic monomer and (2) a rubbery polymer, the reaction having been carried out at a temperature at which the vinyl aromatic monomer and the rubbery polymer react with the asphalt.

4,273,686

EPOXY BASED SYNTHETIC SOLDER

James S. Noland, New Canaan, Conn., and Miroslav Hajek, Bel Air, Md., assignors to American Cyanamid Company, Stamford, Conn.

Continuation-in-part of Ser. No. 70,948, Aug. 30, 1979, abandoned. This application May 1, 1980, Ser. No. 145,300
Int. Cl.³ C08G 59/46, 50/60
U.S. Cl. 260—9 10 Claims

1. An epoxy based synthetic solder comprising at least one epoxy resin having a plurality of 1,2-epoxy groups, at least one filler, and an effective curing amount of 1,1'-o-phenylenebis(3,3-dimethylurea) wherein the phenyl moiety is optionally substituted with up to two alkyl (C_{1-3}) groups and dicyandiamide.

4,273,687

PREPARATION OF GUANIDINE PHOSPHATE FOR HARDBOARD FLAME RETARDANT USE

Richard W. Cummins, Cranbury; Robert J. Fuchs, Clark, and James L. Thomas, Hamilton Square, all of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Dec. 14, 1979, Ser. No. 103,689
Int. Cl.³ C08L 1/00; C09K 3/28
U.S. Cl. 260—17.2 22 Claims

1. A process for the manufacture of a guanidine phosphate composition containing monoguanidine phosphate and diguanidine phosphate, said composition being characterized by a weight loss of no more than 1.0% when heated for one hour at 220° C. which comprises reacting about equimolar quantities of phosphoric acid and cyanoguanidine by mixing together the two compounds to form a reaction mixture and heating the reaction mixture with agitation in the presence of a surfactant to a temperature in the range of about 200° C. to about 240° C. for about two hours to about one hour.

15. A flame resistant class II hardboard comprising a uniform mixture of about 100 parts of hardboard chips and from about 20 to 30 parts of a heat stable guanidine phosphate composition containing monoguanidine phosphate and diguanidine phosphate; said guanidine phosphate composition being obtained by heating with agitation for about one to about two hours at a temperature of about 240° C. to about 200° C. a reaction mixture of about equimolar quantities of phosphoric acid and cyanoguanidine in the presence of a surfactant; said uniform mixture being bound together by a thermosetting resin to form the hardboard.

4,273,688

WOOD TEXTURED AQUEOUS LATEX CONTAINING WOOD PARTICLES WITH SORBED ORGANIC SOLVENT

Rita E. Porzel, Lisle, and Cathryn D. Betor, Des Plaines, both of Ill., assignors to DeSoto, Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 941,184, Sep. 11, 1978, Pat. No. 4,202,804. This application Dec. 3, 1979, Ser. No. 96,020
The portion of the term of this patent subsequent to May 13, 1997, has been disclaimed.
Int. Cl.³ C08L 97/02; B29J 5/02
U.S. Cl. 260—17.4 R 9 Claims

1. A viscosity stable, stainable, wood textured, aqueous latex composition comprising from 5% to 30% of the weight of the composition of wood particles having sorbed therein a water immiscible organic solvent in an amount of at least about 60% of the weight of the wood to provide a free-flowing, solvent-wet powder, an aqueous emulsion of film-forming plasticized resin particles coalescable at room temperature or below; said emulsion constituting about 35% to about 70% by weight of the composition, the proportion of wood particles, the resin solids content of said aqueous emulsion and the plasticization of the resin particles providing a viscous mass, and said organic solvent providing viscosity stability.

4,273,689

FILLED, TWO-PART PLASTIC-PRODUCING SYSTEM

Robert W. Smearing, Ballston Lake, N.Y., assignor to General Electric Company, Waterford, N.Y.

Filed Jul. 30, 1979, Ser. No. 62,161
Int. Cl.³ C08L 67/02
U.S. Cl. 260—22 CB 20 Claims

1. A filled two-part plastic-producing system comprising:
(i) (a) unsaturated polyester resin which is at least 30% by weight fumarate polyester, and (b) vinyl monomer and (c) up to 30% by total weight of alcohol, said vinyl monomer present in an amount of from 5% to 20% in excess of that required for curing said resin; and
(ii) a curing agent paste of benzoyl peroxide in a liquid carrier, said curing agent paste containing between 0.2% and 5% by total weight of stearate salt, at least one of components (i) and (ii) additionally containing an essentially inert filler.

4,273,690

COATING COMPOSITIONS OF AN ALKYD-ACRYLIC GRAFT COPOLYMER

Aloysius N. Walus, Troy, Mich., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 9, 1979, Ser. No. 82,554
Int. Cl.³ C09D 3/66, 3/68
U.S. Cl. 260—22 CB 28 Claims

1. A coating composition comprising a liquid diluent and about 10–70% by weight, based on the weight of the coating composition, of a binder in which the binder comprises a graft copolymer having an acrylic backbone which comprises about 25–90% by weight, of the graft copolymer and alkyd resin side chains which comprise about 10–75% by weight of the graft copolymer, wherein
the backbone of the graft copolymer comprises polymerized ethylenically unsaturated acrylic monomers and about 0.1–20% by weight, based on the weight of the copolymer, of polymerized isocyanato alkyl acrylate or isocyanato alkyl methacrylate and
the alkyd resin side chains being attached to the acrylic backbone by an isocyanato group wherein the isocyanato group being reacted with a hydroxyl or carboxyl group of the alkyd resin.

4,273,691

FLAME RETARDANT COMPOSITIONS AND COATED ARTICLE

Michael R. MacLeury, Rexford, and Fred F. Holub, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 18, 1979, Ser. No. 85,900
Int. Cl.³ B32B 25/20; C08L 83/04; D02G 3/00
U.S. Cl. 260—23 S 15 Claims

1. Flame retardant compositions comprising by weight
(A) 70 to 98% of polyolefin,
(B) 1 to 10% of silicone, and
(C) 1 to 20% of Group IIa metal $C_{(6-20)}$ carboxylic acid salt.

12. An electrical conductor comprising a metallic conductive element insulated with a composition comprising polyolefin, a silicone and a Group IIa metal $C_{(6-20)}$ carboxylic acid salt in the following proportions by weight
(D) 70% to 98% of polyolefin
(E) 1 to 10% of silicone and
(F) 1 to 20% of Group IIa metal $C_{(6-20)}$ carboxylic acid salt.

4,273,692

POLYCARBONATE COMPOSITION CONTAINING HALOGEN-FREE ORGANOTIN PLASTICIZER

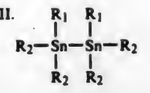
Victor Mark, Evansville, Ind., and Phillip S. Wilson, Louisville, Ky., assignors to General Electric Company, Pittsfield, Mass.

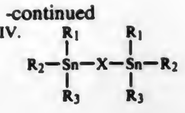
Continuation-in-part of Ser. No. 946,538, Sep. 28, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,512
Int. Cl.³ C08J 3/18; C08K 3/34
U.S. Cl. 260—29.1 R 7 Claims

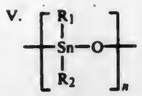
1. A halogen-free plasticized polycarbonate composition comprising an admixture of a high molecular weight aromatic polycarbonate and a plasticizing amount of a halogen-free organotin plasticizer represented by the following general formulae:

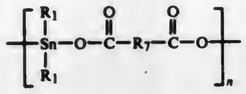
I. R_2 (with R_1—Sn—R_3, R_4) II. R_5—Sn—R_6

-continued

III. 

IV. 

V. 

IV. 

wherein R_1 and R_2 can independently be C_1 to C_{20} alkyl, cycloalkyl of 4 to 14 carbon atoms, alkenyl of 2 to 20 carbon atoms, aryl, and substituted aryl of 6 to 14 carbon atoms wherein the substituents on said substituted aryl can be alkoxy of 1 to 20 carbon atoms, alkaryl of 7 to 36 carbon atoms, and aralkyl of 7 to 36 carbon atoms; R_3 and R_4 can independently be C_1 to C_{20} alkyl, cycloalkyl of 4 to 14 carbon atoms, alkoxy of 1 to 20 carbon atoms, cycloalkoxy of 4 to 14 carbon atoms, aryloxy, and substituted aryloxy of 6 to 14 carbon atoms wherein the substituents on said substituted aryloxy can be alkyl of 1 to 20 carbon atoms, acyloxy of 1 to 30 carbon atoms including aliphatic, cycloaliphatic, aromatic and substituted aromatic radicals wherein the substituents on said substituted aromatic radicals can be alkyl of 1 to 20 carbon atoms; R_5 and R_6 can independently be acyloxy radicals of 1 to 30 carbon atoms including aliphatic, cycloaliphatic, aromatic and substituted aromatic radicals wherein the substituents on said substituted aromatic radicals can be alkyl of 1 to 20 carbon atoms; R_7 is a divalent organic radical of 1 to 20 carbon atoms selected from the group consisting of alkylene, cycloalkylene, alkenylene, arylene, alkylidene and cycloalkylidene radicals; X is a divalent oxygen radical; and, n is an integer of 1 to 20.

4,273,693

PREPARATION OF FURAN POLYMERS

Young D. Kim, Columbus, Ohio, assignor to Ashland Oil, Inc., Ashland, Ky.

Filed Mar. 19, 1980, Ser. No. 131,562

Int. Cl.³ C08J 3/00; C08L 61/00

U.S. Cl. 260—29.2 N **28 Claims**

1. A process for preparing a water-compatible nitrogen-containing furan polymer which comprises:

providing a composition containing at least one saturated aliphatic monohydric alcohol having 1–3 carbon atoms, water, furfuryl alcohol, and aldehyde;

subjecting the composition to condensation reaction at an acidic pH in the presence of an acidic catalyst until the free aldehyde content is about 18 to about 22% by weight;

adding a nitrogen-containing compound containing at least one

H_2NC group

when said free aldehyde content is about 18 to about 22% by weight; and

then continuing the condensation reaction at an acidic pH for a time sufficient to provide a polymer composition having a viscosity of about 0.5 to bout 7 strokes at 25° C., and thereby obtaining said water-compatible furan polymer.

4,273,694

CERTAIN ACID SALTS OF POLYESTER AMINOORGANOSILANES

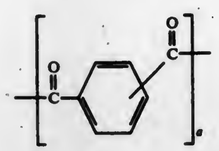
Enrico J. Pepe, and James G. Marsden, both of Amawalk, N.Y., assignors to Union Carbide Corporation, New York, N.Y.

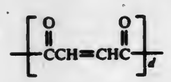
Filed Apr. 1, 1980, Ser. No. 136,362

Int. Cl.³ C08J 3/00; C08G 77/26

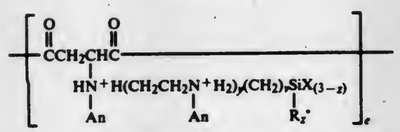
U.S. Cl. 260—29.2 E **6 Claims**

1. A polyester polymer product having a molecular weight of greater than 1000 and comprising units of the formulae





$+ORO+_y$



wherein R is a divalent hydrocarbon radical, R^o is a monovalent alkyl, aryl, or aralkyl group, X is a monovalent alkoxy, hydroxy, or oxy- group, y is 0 or 1, v is an integer of from 1 to 6, z is 2, 1, or 0, a is 0 or a mole fraction of from 0.004 to 0.6, b and e are mole fractions ranging from about 0.004 to about 0.6, and d is a mole fraction ranging from about 0.4 to about 0.6, with the proviso that d is greater than, equal to, or slightly less than the sum of a, b, and e, and An is the anion of a strong monovalent mineral acid which has a pKa of less than −3.

4,273,695

ETHYLENE-ACRYLIC ENAMELS

Robin N. Greene, Wilmington, Del., and Walter R. Hertler, Kennett Square, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 20, 1979, Ser. No. 105,642

Int. Cl.³ C08L 61/28

U.S. Cl. 260—29.4 UA **14 Claims**

1. Curable coating composition containing the film-forming ingredient consisting essentially of, with the sums of the parts by weight and the mole percentages being 100 and 100%, respectively:

(1) about 55–95 parts by weight of a copolymer of

(a) 20–70 mole % ethylene,

(b) 20–60 mole % methyl methacrylate,

(c) 1–15 mole % of a hydroxyalkyl ester of acrylic acid or methacrylic acid in which the hydroxyalkyl group contains 2–4 carbon atoms, and

(d) 0–9 mole % of an α,β-unsaturated carboxylic acid selected from acrylic acid, methacrylic acid, itaconic acid, crotonic acid, 2-ethylacrylic acid, and 2-propylacrylic acid, or of maleic aphydride, and

(2) about 5–45 parts by weight of a nitrogen-resin crosslinking agent.

4,273,696

POLYVINYLCHLORIDE COMPOSITIONS CONTAINING PHENOXY ALKANOL DICARBOXYLIC ACID ESTER PLASTICIZERS

Dennis Marshall, and Harry C. Murfitt, both of Wilton, England, assignors to Imperial Chemical Industries Limited, London, England

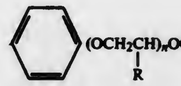
Filed Nov. 27, 1978, Ser. No. 963,885

Claims priority, application United Kingdom, Nov. 30, 1977, 49838/77

Int. Cl.³ C08K 5/10; C07C 69/40, 69/42, 69/44

U.S. Cl. 260—31.4 R **6 Claims**

1. A polyvinyl chloride composition which is plasticized with a compound of formula:



in which

Y is a phenylene or $(CH_2)_m$ group in which m is an integer having a value of 1 to 8,

Z is an alkyl group having 4 to 13 carbon atoms,

n is an integer in the range of 1 to 5, and

R represents either a hydrogen atom or a methyl group.

4,273,697

ELECTRICALLY CONDUCTIVE CURABLE LIQUID ORGANOPOLYSILOXANE COMPOSITIONS

Shinichi Sumimura, and Koji Shimuzu, both of Ichihara, Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Feb. 19, 1980, Ser. No. 122,782

Claims priority, application Japan, Mar. 9, 1979, 54-26760

Int. Cl.³ C08L 83/04

U.S. Cl. 260—37 SB **10 Claims**

1. A curable liquid composition comprising (A) 100 parts by weight of a curable liquid organopolysiloxane comprising a liquid polyorganosiloxane and a cross-linking agent and (B) 0.1 to 70 parts by weight of carbon black whose specific surface area is at least 900 m^2/g and which are hollow-shell-shaped particles.

4,273,698

SELF-BONDING ROOM TEMPERATURE VULCANIZABLE SILICONE RUBBER COMPOSITIONS

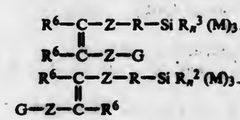
Alfred H. Smith, Jr., Ballston Lake; George P. De Zuba, Mechanicville, and Tyrone D. Mitchell, Colonie, all of N.Y., assignors to General Electric Company, Waterford, N.Y.

Filed Feb. 28, 1979, Ser. No. 16,254

Int. Cl.³ C08L 83/06

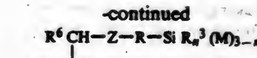
U.S. Cl. 260—37 SB **30 Claims**

1. A self-bonding room temperature vulcanizable silicone rubber composition comprising (a) 100 parts by weight of a silanol-terminated diorganopolysiloxane having a viscosity varying from 300 to 10,000,000 centipoise at 25° C. where the organo is a monovalent hydrocarbon radical; (b) from 5 to 200 parts by weight of a filler; (c) from 2 to 10 parts by weight of a crosslinking agent selected from the class consisting of carboxylic functional silanes and hydrocarbonoxy functional silanes; (d) from 0.01 to 5 parts by weight of a curing catalyst selected from the class consisting of carboxylic acid salts and titanates; and (e) from 0.1 to 3 parts by weight of a self-bonding additive selected from the groups consisting of



, and

-continued



where Z is selected from



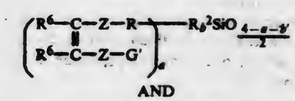
phenylene,



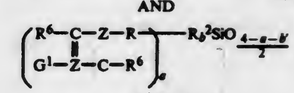
CONH and $CONR_2^2$ G is selected from the class consisting of hydrogen, R', R^4 Si R_n^2 $(M)_{3-n}$ where R' is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, R and R^4 is a divalent hydrocarbon radical, R^2 is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, M is selected from R^3O and R^3



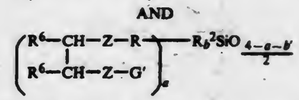
radicals R^3 is selected from monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals, R^6 is selected from hydrogen, and alkyl radicals of up to 10 carbon atoms, and n is a whole number that varies from 1 to 3, and self-bonding polysiloxane additives selected from the group consisting of the formulas,



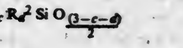
AND



AND



where G' is selected from the class consisting of hydrogen, R' and



and where Z, R', R^4, R^2, R^6 and R are as previously defined, a varies from 0.005 to 2.0, b' varies from 1.0 to 2.5 the sum of a+b varies from 1.005 to 3.0, c varies from 0 to 1.0, d varies from 1.0 to 2.5 and the sum of c+d varies from 1.0 to 2.0.

4,273,699

FRICTION MATERIALS

John Chester, Stockport, England, assignor to Ferodo Limited, Manchester, England

Filed Jul. 31, 1978, Ser. No. 929,535

Claims priority, application United Kingdom, Aug. 10, 1977, 33458/77

Int. Cl.³ C08K 3/10, 7/14, 7/04

U.S. Cl. 260—38 **4 Claims**

1. An asbestos-free friction material composition for molded

friction pads consisting essentially of thermosetting binder, a fiber-based reinforcement and other fillers and additives, wherein

(a) the thermoset binder comprises a phenol-formaldehyde resin,

(b) the thermoset binder constitutes 20% to 60% by volume of the composition of which at least half is said phenol formaldehyde resin,

(c) the fiber-based reinforcement consists essentially of a mixture of staple steel fibers and short lengths of milled glass fiber,

(d) the fiber-based reinforcement constitutes 10% to 35% by volume of the composition, and

(e) the balance of the composition consists essentially of inorganic friction and wear modifiers and particulate inorganic fillers.

4,273,700

POLYOL RESIN BINDER COMPOSITIONS AND PROCESS

Khe-Bing J. Kho, New City, N.Y., assignor to Reichhold Chemicals, Incorporated, White Plains, N.Y.

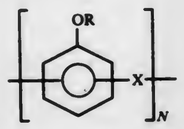
Filed Oct. 17, 1979, Ser. No. 85,528
Int. Cl.³ C08K *3/36*
U.S. Cl. 260—38 **28 Claims**

1. A process for preparing self-curing coated aggregate product comprising mixing together to form a homogeneous admixture

(I) a foundry aggregate containing sand as its major component

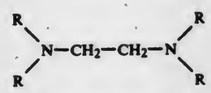
(II) from about 0.1 percent to about 10 percent by weight, based upon the weight of the aggregate used, of a resin binder composition containing an admixture of polyhydroxy polyols with a substantial portion of the polyols containing ether linkages, said polyhydroxy polyols comprising a mixture of

(a) from about 90 to about 15 percent by weight, based upon the total weight of said resin binder, of a phenolic-based alkoxy polyol having repeating units of the general formula

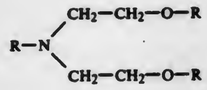


wherein X is CH_2 or H and the CH_2 group may be in the ortho, meta or para position or mixtures thereof, N is an integer greater than one, and R represents an aliphatic carbinol radical having from 2 to 4 carbon atoms; and

(b) from about 10 to about 85 percent by weight, based upon the total weight of said resin binder, of an admixture of a tertiary hydroxy diamine polyol of the general formula



and a tertiary alkoxy hydroxy amine polyol of the general formula



wherein R represents an aliphatic carbinol radical having 2 to 4 carbon atoms, and

(III) from about 40 percent to about 60 percent of a polyisocyanate based upon the total weight of component (II), whereby said admixture of said resin binder composition reacts with said polyisocyanate to form on said foundry aggregate a self-curing polyurethane coating.

4,273,701

COLORANT-THICKENER DISPERSIONS FOR UNSATURATED POLYESTER RESIN COMPOSITIONS

Martin L. Feldman, East Brunswick, and James T. De Groff, Oldwick, both of N.J., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.

Division of Ser. No. 44,724, Jun. 1, 1979. This application Feb. 8, 1980, Ser. No. 119,718
Int. Cl.³ C08L *67/00*
U.S. Cl. 260—40 R **9 Claims**

1. An unsaturated polyester resin composition that comprises

(a) an unsaturated polyester resin formed by condensing a saturated dicarboxylic acid and an unsaturated dicarboxylic acid with a dihydric alcohol,

(b) an unsaturated monomer capable of reacting with the unsaturated polyester to form cross-linkages, and

(c) a colorant-thickener dispersion that comprises

(1) 20% to 50% by weight of a thickener comprising a Group II-A metal oxide or hydroxide,

(2) 5% to 20% by weight of a pigment component, and

(3) 30% to 75% by weight of an unsaturated polyester vehicle that comprises

((a)) 80% to 98% by weight of an unsaturated polyester that is the product of the reaction of a dicarboxylic acid component containing 80 to 90 mole % of at least one unsaturated aliphatic dicarboxylic acid having 4 to 8 carbon atoms and 10 to 20 mole % of at least one saturated aromatic dicarboxylic acid with an alcohol component containing 40 to 60 mole % of at least one glycol having 2 to 6 carbon atoms and 40 to 60 mole % of at least one monohydric alcohol having 6 to 12 carbon atoms, in the amount of 0.4 mole to 0.6 mole of the dicarboxylic acid component per mole of the alcohol component, and

((b)) 2% to 20% by weight of an unsaturated monomer capable of reacting with said unsaturated polyester to form cross-linkages.

4,273,702

COBALT ALUMINATE INTERNAL COLORANTS FOR DIOL BIS (ALLYL CARBONATE)

Ivan R. Leatherman, Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Feb. 4, 1980, Ser. No. 118,290
Int. Cl.³ C08K *8/22*
U.S. Cl. 260—42.53 **12 Claims**

1. A liquid composition comprising diol bis (allyl carbonate) monomer and $CoAl_2O_4$.

4,273,703

INTERFERON PRODUCT AND PROCESS FOR ITS PREPARATION

Kurt B. Osther, Naerum, and Werner K. Jensen, Roskilde, both of Denmark, assignors to Ess-Food Eksport-Svineslagteriernes Salgsforening, Copenhagen, Denmark

Filed Oct. 27, 1978, Ser. No. 955,389
Claims priority, application Denmark, Nov. 1, 1977, 4859/77
Int. Cl.³ A61K *45/02, 37/00*; C07G *7/00*
U.S. Cl. 260—112 R **4 Claims**

1. A process for preparing exogenic porcine leucocyte interferon which shows antiviral protective activity in human cells comprising:

harvesting and isolating porcine leucocytes:

treating said porcine leucocytes with an interferon inductor;

incubating said treated porcine leucocytes;

adding a protein source which in immunoelectrophoreses is substantially composed of bands which are identical or partially identical with corresponding bands in human agammaserum when using, as precipitating antibody, antitotal human serum protein, antihuman IgG, antihuman IgA, antihuman IgM or antihuman albumin.

4,273,704

N-ADAMANTANE-SUBSTITUTED TETRAPEPTIDE AMIDES

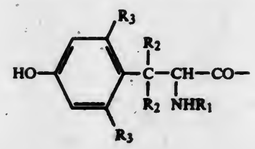
Robert H. Mazur, Deerfield, Ill., assignor to G. D. Searle & Co., Chicago, Ill.

Filed Dec. 3, 1979, Ser. No. 99,765
Int. Cl.³ C07C *103/52*
U.S. Cl. 260—112.5 R **17 Claims**

1. A compound of the formula

W—X—Gly—Y—Z

wherein W represents tyrosine or a radical of the formula

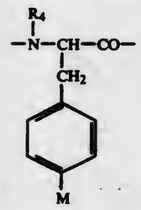


wherein

R_1, R_2, and R_3 may each independently be hydrogen or an alkyl group having 1 to 4 atoms;

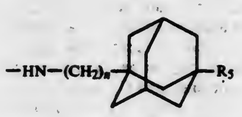
X represents methionine, methionine sulfoxide, dehydro-α-aminobutyric acid, 1-aminocyclopropane carboxylic acid, alanine, O-methylhomoserine, proline or norleucine;

Y represents phenylalanine, dehydrophenylalanine, cyclohexylalanine, or a radical of the formula

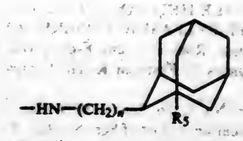


wherein R_4 represents hydrogen or an alkyl group having 1 to 4 carbon atoms, and M represents hydrogen, nitro or halogen;

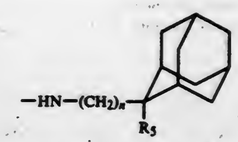
Z represents a radical of the formula



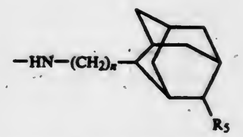
wherein R_5 represents hydrogen, carboxyl, methoxycarbonyl, carboxamide, or hydroxymethyl, and n is 0, 1, or 2; a radical of the formula



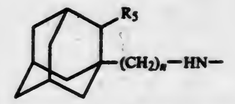
wherein R_5 and n are defined as hereinbefore; a radical of the formula



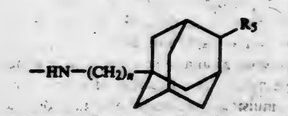
wherein R_5 and n are defined as hereinbefore; a radical of the formula



wherein R_5 and n are defined as hereinbefore; a radical of the formula



wherein R_5 and n are defined as hereinbefore; or a radical of the formula



wherein R_5 and n are defined as hereinbefore; the stereochemical configuration of each of the optically active amino acid residues may independently be D, L or DL; and the pharmacologically acceptable salts thereof.

4,273,705

METHOD FOR PREPARING COLLAGEN FILAMENTS FOR USE IN MEDICAL TREATMENTS

Tadaaki Kato, Tokyo, Japan, assignor to Koken Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1979, Ser. No. 91,343
Claims priority, application Japan, Oct. 4, 1979, 54-128158
Int. Cl.³ C07G *7/00*; C08H *1/06*; C08L *89/06*
U.S. Cl. 260—123.7 **3 Claims**

1. A method for preparation of collagen filaments for use in medical treatments comprising the steps of dispersing in an aqueous acidic solution a finely shredded insoluble collagen material, from which impurities have been removed without use of enzymes, alkali or heavy metals, and of subjecting the thus dispersed collagen material to irradiation of ultrasonic waves.

4,273,706
NONDIFFUSIBLE HETEROCYCLYLAZONAPHTHOL DYE-RELEASING COMPOUNDS

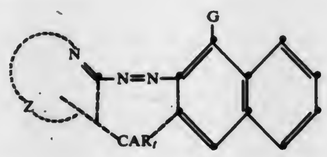
Derek D. Chapman, Rochester, and E-ming Wu, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 2,126, Jan. 9, 1979, Pat. No. 4,204,870, which is a continuation-in-part of Ser. No. 927,785, Jul. 25, 1978, abandoned, Division of Ser. No. 832,309, Sep. 12, 1977, abandoned. This application Sep. 14, 1979, Ser. No. 75,443

Int. Cl.³ C09B *29/033, 29/036, 29/039, 29/15*

U.S. Cl. 260—156 **15 Claims**

1. A nondiffusible compound having at least one releasable 2-(2-heterocyclylazo)-1-naphthol dye moiety, said compound having the formula:



wherein:

G is hydroxy, a salt thereof, or a hydrolyzable precursor thereof; or a group which together with



is CAR, said CAR being bonded to the naphthalene group through the oxygen of said



group;

Z represents the atoms necessary to complete a heterocyclyl moiety not being substituted with a nitro group, said heterocyclyl moiety being selected from the group consisting of pyridine, pyrimidine, quinoline, isoquinoline, pyrazine, pyridazine, thiazole, thiadiazole, triazole, benzothiazole and acinaphthothiazole;

CAR represents a ballasted carrier moiety which will release said dye moiety as a function of development of a silver halide emulsion layer under alkaline conditions; and

t is a positive integer of 1 to 2.

4,273,707
MONOAZO AND DISAZO DYES CONTAINING AT LEAST ONE SULFO GROUP AND AT LEAST TWO BASIC OR CATIONIC GROUPS

Reinhard Pedrazzi, Allschwil, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

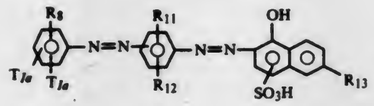
Filed Apr. 20, 1979, Ser. No. 31,781

Claims priority, application Switzerland, Apr. 26, 1978, 4500/78; Apr. 26, 1978, 4501/78

Int. Cl.³ C09B *31/02, 29/22*

U.S. Cl. 260—187 **34 Claims**

1. A compound of the formula

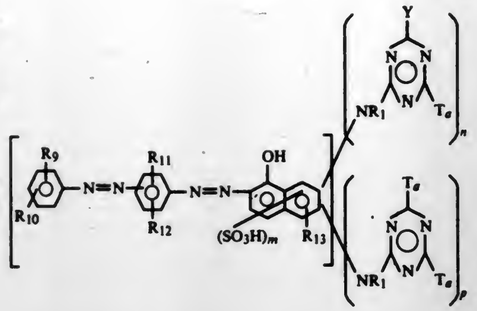


(a)

or

-continued

(b)



or an external salt thereof,

wherein each

R_1 is independently hydrogen or C_{1-4}alkyl,

R_8 is hydrogen, C_{1-4}alkyl, C_{1-4}alkoxy, halo, C_{1-4}alkylamino, di-(C_{1-4}alkyl)amino, $-SO_2NR_1R_1$ or $-CONR_1R_1$,

wherein each R_1 is independently hydrogen or C_{1-4}alkyl,

R_9 is hydrogen, halo, C_{1-4}alkyl, C_{1-4}alkoxy, phenoxy, $-NHCOR_{14}$, $-SO_2R_{14}$, $-SO_2NR_1R_1$ or $-CONR_1R_1$,

wherein each

R_1 is independently hydrogen or C_{1-4}alkyl, and

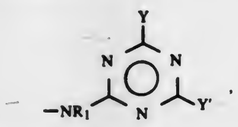
R_{14} is C_{1-4}alkyl or phenyl,

R_{10} is hydrogen, halo, C_{1-4}alkyl or C_{1-4}alkoxy,

R_{11} is hydrogen, halo, C_{1-4}alkyl, C_{1-4}alkoxy, (C_{1-4}alkyl)carbonylamino, ureido, $-NHCO-(CH_2)_k-N(C_{1-4}alkyl)_2$ or $-NHCO-(CH_2)_k-N^{\oplus}(CH_3)_3$, wherein k is 1, 2 or 3,

R_{12} is hydrogen, C_{1-4}alkyl or C_{1-4}alkoxy,

R_{13} is hydrogen; amino; (C_{1-4}alkyl)carbonylamino; benzamido; substituted benzamido having, on the phenyl ring, 1 or 2 substituents selected from halo, nitro, amino, C_{1-4}alkyl and C_{1-4}alkoxy; or



wherein

R_1 is hydrogen or C_{1-4}alkyl,

Y is chloro, hydroxy, amino or an amino group having at least one aliphatic, cycloaliphatic or aromatic substituent, and

Y' is hydroxy, amino or an amino group having at least one aliphatic, cycloaliphatic or aromatic substituent,

each T_a is independently $-NR_2'-Q-NR_3'R_4'$ or $-NR_2'-Q-N^{\oplus}R_5'R_6'R_7'$,

wherein

R_2' is hydrogen or methyl,

each of R_3' and R_4' is independently hydrogen, C_{1-6}alkyl, n-C_{2-3}-hydroxyalkyl or benzyl,

each of R_5' and R_6' is independently C_{1-6}alkyl, n-C_{2-3}hydroxyalkyl or benzyl or

R_3' and R_4' or R_5' and R_6' taken together and with the nitrogen atom to which they are joined form a pyrrolidine, piperidine or morpholine ring,

R_7' is methyl, ethyl or benzyl, and

Q is linear or branched C_{2-6}alkylene,

each T_{la} is independently $-CO-T_a$ or $-SO_2-T_a$, wherein T_a is as defined above,

each Y is independently chloro, hydroxy, amino or an amino group having at least one aliphatic cycloaliphatic or aromatic substituent,

m is 1 or 2,

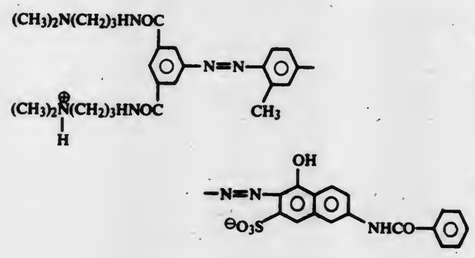
n is 0, 1, 2, 3 or 4, and

p is 0, 1, 2 or 3,

with the proviso that $n+2p \geq m+1$,

with the provisos that (i) the two $-N=N-$ radicals in (a) are meta or para to each other, (ii) the two $-N=N-$ radicals in (b) are meta or para to each other, (iii) each basic group is independently in free base, internal salt or acid addition salt form, (iv) the positive charge of each cationic group is independently balanced by the negative charge of a $-SO_3^{\ominus}$ group of the molecule or an external non-chromophoric anion, and (v) the number of basic groups in internal salt form and cationic groups the positive charge of which is balanced by the negative charge of a $-SO_3^{\ominus}$ group of the molecule does not exceed the number of sulfo groups present in the molecule.

10. The compound according to claim 9 having the formula



4,273,708
CARBONYL-SUBSTITUTED CYAN AZO DYE-PROVIDING MATERIALS

Kenneth N. Kilminster, Leighton-Linslade, and Colin Holstead, Abbots Langley, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

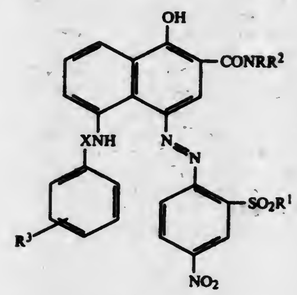
Division of Ser. No. 934,454, Aug. 17, 1978, Pat. No. 4,195,993. This application Jun. 6, 1979, Ser. No. 46,137

Claims priority, application United Kingdom, Dec. 12, 1977, 51648/77

Int. Cl.³ C07C *107/04;* **C09B** *29/20, 29/22, 29/36*

U.S. Cl. 260—199 **9 Claims**

1. A nondiffusible compound which releases a cyan dye, said compound having a formula as follows:



wherein:

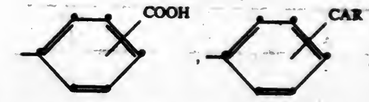
R^1 is selected from the group consisting of aryl, alkyl and $NR^{11}R^{12}$ wherein R^{11} is alkyl or aryl and R^{12} is alkyl, or R^{11} and R^{12}, taken together with the nitrogen atom to which they are attached, is a heterocyclic group;

X is —CO— or $-SO_2-$;

R^3 is —COOH or —CAR and is attached in the meta or para position to X in the benzene ring;

R is alkyl;

R^2 is



or taken together with R and the nitrogen atom to which it is attached form a heterocyclic ring, unsubstituted or substituted with a carboxy group; and

CAR is a ballasted carrier moiety which, as a function of oxidation under alkaline conditions, releases said cyan dye, with the proviso that the compound must contain at least one CAR moiety and, except when R and R^2 form a heterocyclic group and X is $-SO_3-$, must contain at least one carboxy group.

4,273,709
PROCESS FOR THE PREPARATION OF THIENAMYCIN AND INTERMEDIATES

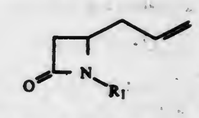
Burton G. Christensen, Scotch Plains; Ronald W. Ratcliffe, Matawan, and Thomas N. Salzmann, North Plainfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jul. 23, 1979, Ser. No. 59,842

Int. Cl.³ C07D *205/08, 487/04*

U.S. Cl. 260—239 A **4 Claims**

1. The compound of the formula



wherein R^1 is triloweralkylsilyl, wherein the alkyl moieties have from 1 to 6 carbon atoms.

4,273,710
PROCESS FOR PREPARING FLUNISOLIDE

Richard E. Jones, Palo Alto, Calif., and Jacquelyn A. Smithers, Concepcion, Chile, assignors to Syntex Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 40,830, May 21, 1979, abandoned. This application May 16, 1980, Ser. No. 150,400

Int. Cl.³ C07J *71/00*

U.S. Cl. 260—239.55 D **6 Claims**

1. A process for preparing a crystalline form of flunisolide which contains 2.0±0.2% by weight water exhibits an X-ray diffraction pattern as set forth in Table A.

TABLE A

d A	I/I_1 %	Θ deg.
10.04	50	4.4
9.82	60	4.5
9.20	80	4.8
7.69	50	5.8
6.91	50	6.4
6.32	10	7.0
5.98	90	7.4
5.53	100	8.0
5.21	60	8.5
5.06	60	8.8
4.79	10	9.3
4.55	70	9.8
4.33	1	10.3
4.13	10	10.8
3.95	10	11.3
3.86	5	11.5
3.70	5	12.0
3.63	10	12.3
3.36	1	13.3
3.30	2	13.5
3.21	2	13.9

TABLE A-continued

d A	I/I1 %	Θ deg.
3.03	1	14.8
2.88	2	15.5
2.67	2b	16.8
2.63	1	17.0
2.60	1	17.3
2.56	1	17.5
2.40	3	18.8
2.31	1	19.5
2.28	1	19.8
2.13	1	21.3
2.10	1	21.5
1.97	1	23.0
1.88	2	24.3

which process comprises crystallizing said steroid from a solution of said steroid in a liquid alkanol of three or four carbon atoms containing 0.2 to 5% water by volume.

4,273,711

PROCESS FOR THE PREPARATION OF 4-HYDROXYCARBAZOLE

Karl Lauer, Schriesheim, and Einhart Kiegel, Mannheim, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed Jun. 26, 1980, Ser. No. 163,253

Claims priority, application Fed. Rep. of Germany, Jul. 14, 1979, 2928483

Int. Cl.³ C07D *209/88*

U.S. Cl. 260—315 **7 Claims**

1. Process for the preparation of 4-hydroxycarbazole which process comprises dehydrating 1,2,3,4-tetrahydro-4-oxocarbazole in aqueous alkaline solution using a Raney nickel catalyst.

4,273,712

METHOD FOR MAKING AROMATIC ETHER IMIDES

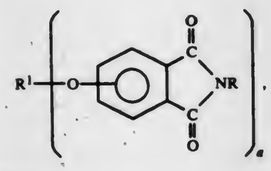
Frank J. Williams, III, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 9, 1979, Ser. No. 37,441

Int. Cl.³ C07D *209/48*

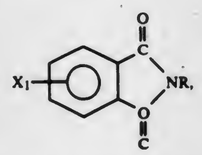
U.S. Cl. 260—326 N **15 Claims**

1. A method for making aromatic ether imides of the formula,



which comprises

(A) heating at 25° to 150° C. under substantially anhydrous conditions, a mixture consisting essentially of substituted phthalimide of the formula,



and an alkali metal phenoxide salt of the formula,

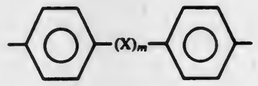
$R^1—OM)_a$,

in the presence of a nonpolar organic solvent and an effective amount of a phase transfer catalyst of the formula,

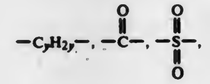
$(R^2)_4QY$,

(B) agitating the resulting mixture with a precipitating or extractive organic solvent for the resulting bisimide or allowing the mixture to cool and

(C) recovering the bisimide from the mixture of (B), where R is a monovalent group selected from hydrogen, a $C_{(1-8)}$ alkyl group, a $C_{(6-13)}$ aryl group and a and a $C_{(6-13)}$ haloaryl group, R^1 is an aromatic group selected from the group consisting of a $C_{(6-30)}$ aromatic carbocyclic group, a halogenated $C_{(6-30)}$ aromatic carbocyclic group and an alkylated $C_{(6-30)}$ aromatic carbocyclic group and a divalent organic group of the formula,



where X is a member selected from the group consisting of divalent groups of the formula,



—O—, and —S—, m is 0 or 1, y is a whole number from 1 to 5, R^2 is selected from a $C_{(1-16)}$ alkyl radical and a $C_{(6-13)}$ aromatic carbocyclic radical, Q is a Group Va element selected from N and P, Y is a halogen or carbethoxy radical, X_1 is a member selected from the group consisting of nitro and halo, and a is an integer equal to 1 or 2, and when a is 1, R^1 is monovalent and when a is 2, R^1 is divalent.

4,273,713

PHENYL AND LOWER ALKYL SUBSTITUTED PYRROLE-3-ACRYLONITRILES

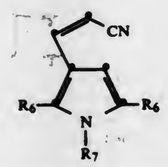
Malcolm R. Bell, and Rudolf Oesterlin, both of East Greenbush, N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 928,456, Jul. 27, 1978, Pat. No. 4,239,697, which is a division of Ser. No. 839,328, Oct. 4, 1977, Pat. No. 4,140,854, which is a division of Ser. No. 703,949, Jul. 9, 1976, Pat. No. 4,098,797, which is a division of Ser. No. 558,807, Mar. 17, 1975, Pat. No. 4,008,250, which is a continuation-in-part of Ser. No. 346,005, Mar. 29, 1973, Pat. No. 3,928,380. This application Sep. 17, 1979, Ser. No. 76,125

Int. Cl.³ C07D *207/337*

U.S. Cl. 260—326.62 **3 Claims**

1. A compound having the formula



where each R_6 is lower-alkyl; and R_7 is lower-alkyl or phenyl, or phenyl substituted in the phenyl nucleus by a lower-alkyl group.

4,273,714

TRICYCLIC LACTONES

Joseph J. Becker, Geneva, Switzerland, assignor to Firmenich, S.A., Geneva, Switzerland

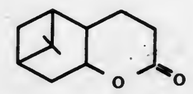
Filed Apr. 21, 1980, Ser. No. 142,051

Claims priority, application Switzerland, Apr. 27, 1979, 3972/79

Int. Cl.³ C07D *311/74*

U.S. Cl. 260—343.21 **3 Claims**

1. A compound of the formula



(I)

possessing a single or a double bond in the position indicated by the dotted line.

4,273,715

N-(HYDROXYALKYL)-7-HYDROXYCOUMARIN-3-CARBOXAMIDES

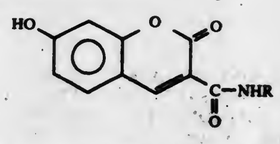
Robert T. Buckler, Edwardsburg, Mich., and John F. Burd, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed Apr. 14, 1980, Ser. No. 140,019

Int. Cl.³ C07D *311.16*

U.S. Cl. 260—343.45 **3 Claims**

1. A compound of the formula:



wherein R is hydroxy substituted lower alkyl.

4,273,716

2-DECARBOXY-2-HYDROXYMETHYL-11A-HOMO-TXA$_2$ COMPOUNDS

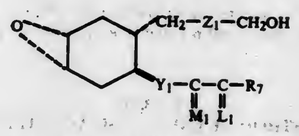
Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 35,143, May 1, 1979, Pat. No. 4,218,378. This application Jan. 28, 1980, Ser. No. 115,969

Int. Cl.³ C07D *309/06*

U.S. Cl. 260—345.9 P **2 Claims**

1. A thromboxane analog of formula IV



wherein Y_1 is

(1) trans-CH=CH—,

(2) cis—CH=CH—,

(3) —CH_2CH_2—, or

(4) —C≡C—,

wherein M_1 is α—R_5:β—OH, α—OH:β-R_5, or α—H:β-H, wherein R_5 is hydrogen or methyl, and wherein L_1 is α-R_3:β-R_4, α-R_4:β-R_3, or a mixture of α-R_3:β-R_4 and β-R_3:α-R_4, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro, or wherein —C(M_1)—C(L_1)— is trans—CH=CH—;

wherein Z_1 is

(1) cis-13 CH=CH—CH_2—$(CH_2)_g$—CH_2—,

(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,

(3) cis—CH_2—CH=CH—$(CH_2)_g$—CH_2—,

(4) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,

(5) —$(CH_2)_3$—$(CH_2)_g$—CF_2—,

(6) —CH_2—O—CH_2—$(CH_2)_g$—CH_2—,

(7) —$(CH_2)_2$—O—$(CH_2)_g$—CH_2—, or

(8) trans—CH_2—$(CH_2)_g$—CH_2—CH=CH—;

(9) —(m-Ph)—O—$(CH_2)_g$—, or

(10) —(m-Ph)—CH_2—$(CH_2)_g$—,

wherein g is one, 2, or 3 and —(m—Ph)— is meta-phenylene, and

wherein R_7 is

(1) —$(CH_2)_m$—CH_3, wherein m is an integer from one to 5, inclusive;

(2) phenoxy;

(3) phenoxy substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;

(4) phenyl;

(5) phenyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;

(6) phenylmethyl, phenylethyl, or phenylpropyl; or

(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, two or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different.

4,273,717

MONOCAPPED BISPHENOL SALTS AND METHOD OF MAKING

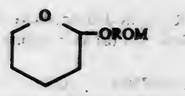
James C. Carnahan, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 942,957, Sep. 18, 1978, abandoned. This application Dec. 17, 1979, Ser. No. 104,424

Int. Cl.³ C07D *309/22*

U.S. Cl. 260—345.9 R **5 Claims**

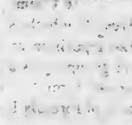
1. Monocapped bisphenol salts of the formula,



where R is a $C_{(6-30)}$ divalent organic radical selected from the class consisting of $C_{(6-13)}$ divalent aromatic hydrocarbon radicals and halogenated derivatives thereof and divalent organic radicals of the formula,

—R^1—Q—Rha 1—,

where R^1 is selected from divalent $C_{(6-13)}$ aromatic hydrocarbon radicals and halogenated derivatives thereof and Q is selected from —O—, —S—, —Si—,



fluorenyl, cyclohexyl, and $-C_yH_{2y}-$, where y is an integer having a value of from 1-5 inclusive.

4,273,718

2-DECARBOXY-2-HYDROXYMETHYL-9-DEOXY-6ε,9α-EPOXY-16,16-DIFLUORO-19-HYDROXY-PGF$_1$

John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 054,811, Jul. 5, 1979, Pat. No. 4,225,508. This application Mar. 3, 1980, Ser. No. 126,483
Int. Cl.[3] C07D *307/935*
U.S. Cl. 260—346.22 1 Claim

1. 2-Decarboxy-2-hydroxymethyl-9-deoxy-6ξ,9α-epoxy-16,16-difluoro-19-hydroxy-PGF$_1$.

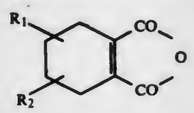
4,273,719

PROCESS FOR PREPARING 3,4,5,6-TETRAHYDROPHTHALIC ANHYDRIDES OR DERIVATIVES THEREOF

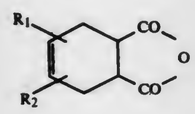
Shoji Tani, and Kenji Nishio, both of Kyoto, Japan, assignors to New Japan Chemical Company, Ltd., Japan

Filed Nov. 21, 1979, Ser. No. 96,373
Int. Cl.[3] C07D *307/89*
U.S. Cl. 260—346.3 7 Claims

1. A process for preparing a 3,4,5,6-tetrahydrophthalic anhydride or a derivative thereof represented by the formula



wherein R_1 and R_2 are each hydrogen or methyl, in high yields of high purity comprising isomerizing a 1,2,3,6,-tetrahydrophthalic anhydride or a derivative thereof represented by the formula



wherein R_1 and R_2 are as defined above in the presence of (a) a palladium catalyst, and (b) an inorganic salt and/or a sulfur compound.

4,273,720

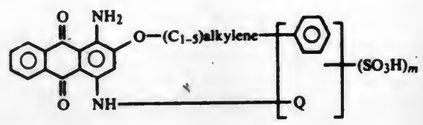
2-ARALKOXY-ANTHRAQUINONE DYESTUFFS

Roland Wald, Huningue, France, assignor to Sandoz Ltd., Basel, Switzerland

Filed Sep. 18, 1978, Ser. No. 943,339
Claims priority, application Switzerland, Sep. 21, 1977, 11550/77; Sep. 21, 1977, 11551/77
Int. Cl.[3] C07C *143/665*
U.S. Cl. 260—374 16 Claims

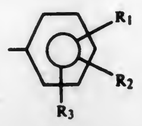
1. A 1-amino-4-arylamino anthraquinone dyestuff which is unsubstituted in the 3-position and bears in the 2-position an aralkoxy group, and in which at least one aryl group bears a sulpho group, which dyestuff is in free acid or salt form.

9. A compound which in the free acid form, is of formula I,



I

in which Q is a group (a)



(a)

in which

R_1 is hydrogen, hydroxy, halogen, (C_{1-4})alkyl, (C_{1-4})alkoxy or mono- or di(C_{1-4})alkylamino,

R_2 is hydrogen, halogen or (C_{1-4})alkyl, and

R_3 is hydrogen, (C_{1-9})alkyl, phenyl, phenoxy, halophenoxy or phenyl(C_{1-3})alkyl,

and m is a number from 1 up to the total sum of the benzene rings, excluding the anthraquinone nucleus, in the molecule,

and in which the sulpho groups are bound to such benzene rings with the proviso that each benzene ring bears no more than one sulpho group, which compound is in free acid or salt form.

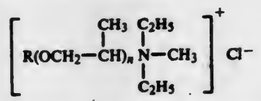
4,273,721

TERTIARY AMINE POLYALKYLENE GLYCOL ESTERS, THEIR ADDITION SALTS AND THEIR QUATERNARY AMMONIUM COMPOUNDS

Ara Nersesian, Livingston, N.J., assignor to Bristol-Myers Company, New York, N.Y.

Division of Ser. No. 415,062, Nov. 12, 1973, abandoned, which is a continuation of Ser. No. 86,965, Nov. 4, 1970, abandoned. This application Sep. 21, 1977, Ser. No. 835,480
Int. Cl.[3] C09F *5/00*; C07C *67/02*; A61K *7/06*
U.S. Cl. 260—404 6 Claims

1. Compounds of the formula:



wherein R is selected from the group consisting of acetyl, stearyl and lauroyl and n has an average value of 8 or 25.

4,273,722

METHOD OF ENHANCING ACTIVITY OF HOMOGENEOUS ZIEGLER-TYPE COPPER CATALYSTS

Sambasivarao Koritala, Peoria, Ill., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Aug. 8, 1980, Ser. No. 176,235
Int. Cl.[3] C11C *3/12*
U.S. Cl. 260—409 8 Claims

1. In a method for hydrogenating polyunsaturated oil with a homogeneous Ziegler-type copper catalyst, the improvement comprising conducting said hydrogenation in the presence of an effective amount of an insoluble material selected from the group consisting of alumina, silica, alumina-silica, siliceous clays, and titanium dioxide.

4,273,723

PROCESS FOR PREPARING SILVER SALT OF ORGANIC CARBOXYLIC ACID

Yoshio Hayashi; Takeki Matsui; Tetsuo Shiga; Kageyasu Akashi; Minoru Akiyama, and Takeo Kimura, all of Fuji, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Sep. 5, 1979, Ser. No. 72,852
Claims priority, application Japan, Sep. 14, 1978, 53-112363
Int. Cl.[3] C11C *1/00*
U.S. Cl. 260—414 10 Claims

1. A process for preparing a silver salt of a fatty acid with 12 to 24 carbon atoms consisting essentially of reacting an alkali metal salt of the fatty acid with a water-soluble silver salt, and wherein the reaction is effected in a reaction system consisting essentially of (I) the alkali metal salt of the fatty acid, (II) the water-soluble silver salt, (III) at least one water-soluble or partially water-soluble C_3–C_8 alcohol and (IV) water, the volume ratio of the component (III) to the component (IV) being 1/5 to 5/1.

4,273,724

HYDROCARBON SYNTHESIS FROM CO AND H_2 USING TITANIUM PROMOTED BULK NICKEL CATALYSTS

Edwin L. Kugler, Summit, N.J., and Robert L. Garten, Cupertino, Calif., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jul. 9, 1979, Ser. No. 56,111
Int. Cl.[3] C07C *1/04*
U.S. Cl. 518—715 5 Claims

1. A process for the synthesis of higher molecular weight paraffinic hydrocarbons of from C_2 to C_7 carbon number comprising the steps of passing CO and H_2 at a CO/H_2 ratio of from 10 to 0.1, at a space velocity of from 100 hr^{-1} to 50,000 hr^{-1}, at a temperature of from 100° to 500° C. and at pressures of from 103 to 1.03×10^5 kPa over a catalyst comprising bulk nickel promoted with from 0.07 to 10 wt.% titanium containing oxide (calculated as TiO_2) for a time sufficient to effect the generation of the desired paraffinic products.

4,273,725

PROCESS FOR PREPARING CHLOROTHIOLFORMATES

James A. Cook, Jr., Barberton, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jul. 25, 1979, Ser. No. 60,319
Int. Cl.[3] C07C *153/01*; C07B *29/00*; C07C *51/58*
U.S. Cl. 260—455 R 21 Claims

1. In the process of preparing organic chlorothiolformates by reacting an organic mercaptan having the formula,

R—SH

with phosgene, the improvement which comprises conducting said reaction in the presence of a catalytic amount of a secondary amine catalyst having the formula,

R_1R_2NH or $R_1R_2NH.HCl$

wherein R is alkyl, cycloalkyl, cycloalkylmethyl, lower alkenyl, aryl, alkaryl, aralkyl, haloaryl, haloarylalkyl and carboalkoxyalkyl, and R_1 and R_2 are each selected from the group consisting of C_1–C_{12} alkyl, C_3–C_4 alkenyl, C_3–C_6 cycloalkyl, C_3–C_6 cycloalkylmethyl, lower alkyl substituted C_3–C_6 cycloalkyl, C_6–C_{10} aryl, halo-substituted C_6–C_{10} aryl, lower alkyl substituted C_6–C_{10} aryl, C_6–C_{10} aralkyl and halo-substituted C_6–C_{10} aralkyl.

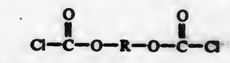
4,273,726

POLYOL (ALLYL CARBONATE) SYNTHESIS UTILIZING SOLID ALKALI METAL HYDROXIDE

Senol Altuglu, Doylestown, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 13, 1979, Ser. No. 93,424
Int. Cl.[3] C07C *68/02*
U.S. Cl. 260—463 2 Claims

1. In a method of reacting
(1) a linear diol bis(chloroformate) having the formula:



where R is chosen from the group consisting of ethylene, trimethylene, methylethylene, tetramethylene, ethylethylene, pentamethylene, hexamethylene, 2-methylhexamethylene, octamethylene, decamethylene, $-CH_2-O-CH_2-$, $-CH_2CH_2-O-CH_2CH_2-$, $-CH_2-O-CH_2CH_2-$, $-CH_2CH_2CH_2-O-CH_2CH_2CH_2-$, $-CH_2CH_2-O-CH_2CH_2-O-CH_2CH_2-$, and $-CH_2-O-CH_2CH_2-O-CH_2-$ groups; with
(2) an allyl alcohol in the presence of sodium hydroxide and water to form the linear diol bis(allyl carbonate) thereof, the improvement comprising feeding aqueous and anhydrous sodium hydroxide to the reaction, where said sodium hydroxide is from 54 to 61 weight percent of the total sodium hydroxide, anhydrous basis, and water initially fed to the reaction.

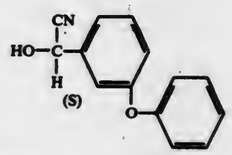
4,273,727

(S) α-CYANO-3-PHENOXY-BENZYL ALCOHOL

Jacques Martel, Bondy; Jean Tessier, Vincennes; Andre Teche, Nanterre, and Jean-Pierre Demoute, Montreuil-sous-Bois, all of France, assignors to Roussel Uclaf, Paris, France

Filed Dec. 28, 1978, Ser. No. 973,791
Claims priority, application France, Jan. 31, 1978, 78 02621
Int. Cl.[3] C07C *121/75*
U.S. Cl. 260—465 F 2 Claims

1. (S) α-cyano-3-phenoxy-benzyl alcohol of the formula



free of its (R) form.

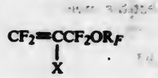
4,273,728

POLYFLUOROALLYLOXY COMPOUNDS, THEIR PREPARATION AND COPOLYMERS THEREFROM

Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 20,384, Mar. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 850,729, Nov. 11, 1977, abandoned, which is a continuation-in-part of Ser. No. 747,029, Dec. 2, 1976, abandoned. This application May 1, 1980, Ser. No. 145,757
Int. Cl.[3] C07C *121/30, 121/34*
U.S. Cl. 260—465.6 7 Claims

1. A polyfluoroallyloxy compound having the formula:



wherein X is —Cl or —F, and R_F is:

$$-CFR^1CFCN \quad (i)$$
$$\quad\;\; Y \quad Y'$$

wherein R^1 is a carbon-carbon bond or a linear or branched perfluoroalkylene group of 1 to 12 carbon atoms; Y and Y', independently, are —F or $-CF_3$ providing that only one of Y and Y' can be $-CF_3$; or

$$-CF(CF_2CN)_2 \quad (ii)$$

$$-(CF_2CFO)_nR^3CN \quad (iii)$$
$$\quad\;\; Y$$

wherein R^3 is a linear or branched perfluoroalkylene group of carbon content such that the moiety

$$-(CF_2CFO)_nR^3$$
$$\quad\;\; Y$$

does not exceed 15 carbon atoms; Y is —F or $-CF_3$; and n is 1 to 4.

4,273,729

POLYFLUOROALLYLOXY COMPOUNDS, THEIR PREPARATION AND COPOLYMERS THEREFROM

Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 20,354, Mar. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 850,729, Nov. 11, 1977, abandoned, which is a continuation-in-part of Ser. No. 747,029, Dec. 2, 1976, abandoned. This application May 1, 1980, Ser. No. 145,758

Int. Cl.³ C07C *143/16, 57/76*

U.S. Cl. 260—543 F **12 Claims**

1. A polyfluoroallyloxy compound having the formula:

$$CF_2{=}CCF_2OR_F$$
$$\quad\;\; X$$

wherein

X is —Cl or —F, and

R_F is:

$$-CFR^1CFQ \quad (i)$$
$$\quad\;\; Y \quad Y'$$

wherein

R^1 is a carbon-carbon bond or a linear or branched perfluoroalkylene group of 1 to 12 carbon atoms;

Q is $-SO_2F$ or —COF;

Y and Y', independently, are —F or $-CF_3$ providing that only one of Y and Y' can be $-CF_3$; or

(ii) $-CF(CF_2COF)_2$, or

$$-(CF_2CFO)_nR^3Q' \quad (iii)$$
$$\quad\;\; Y$$

wherein R^3 is a linear or branched perfluoroalkylene group of carbon content such that the moiety

$$-(CF_2CFO)_nR^3$$
$$\quad\;\; Y$$

does not exceed 15 carbon atoms; Y is —F or $-CF_3$; n is 1 to 4; and Q' is defined as for Q above; or

$$-CF_2CF_2CCF_2COF. \quad (iv)$$
$$\quad\quad\quad\;\; O$$

4,273,730

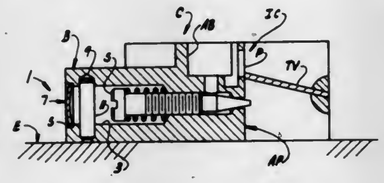
TAMPER RESISTANT IDLE ADJUSTMENT SCREW

Thomas J. Byrnes, Jr., St. Charles, Mo., assignor to ACF Industries, Incorporated, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,465

Int. Cl.³ F02M *3/08*

U.S. Cl. 261—41 D **3 Claims**



1. In a carburetor for an internal combustion engine, the carburetor having a body through which an air passage extends and an idle speed fuel circuit for supplying fuel to the passage to mix with air and form an air-fuel mixture combusted in the engine, and an idle adjustment screw for adjusting the quantity of fuel mixed with air to make the resultant mixture richer or leaner, the idle adjustment screw being settable during flow testing of the carburetor to an initial adjustment position, the improvement comprising means for making the idle adjustment screw tamper resistant to inhibit further adjustment of the screw after the carburetor is installed on the engine, the carburetor body having a cavity formed for the screw and a bore transverse to the longitudinal axis of the cavity, the tamper resistant means including a plug for sealing the open end of the cavity and a blocking pin inserted into the bore, the location of the bore being such that the blocking pin is between the idle adjustment screw and the plug, the length and diameter of the pin being such as to substantially block the cavity so an adjustment tool cannot be brought to bear on the idle adjustment screw even if the seal formed by the plug is violated and the length of the blocking pin further being such that the blocking pin is captured in the bore by staking or the like and cannot be removed therefrom whereby the tamper resisting means inhibits adjustment of the idle adjustment screw to produce an air-fuel mixture for which relatively higher engine emissions are produced than are produced with the idle adjustment screw set to its initial adjustment.

4,273,731

GAS/LIQUID EXCHANGE APPARATUS

Alec H. Laurie, 21 Lyndewode Rd., Cambridge, and John H. Kalicki, Old Farm Cottages, Stubbs Walden, Doncaster, both of England

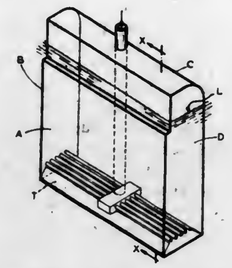
Filed Oct. 26, 1976, Ser. No. 735,396

Claims priority, application United Kingdom, Oct. 31, 1975, 45397/75

Int. Cl.³ C02B *1/34*

U.S. Cl. 261—77 **6 Claims**

1. A gas injection or aeration device of the kind adapted to be immersed in a liquid and supplied with gas under pressure so that the gas emerges through diffusion nozzles of the device as a large quantity of small bubbles to form a gas/liquid mixture, wherein the diffusion nozzles are disposed in an upwardly extending bore of an open-ended conduit submerged in the liquid, the nozzles being located between 20 and 100 centimeters below the surface of the liquid and at least 20 centimeters below the upper open end of the conduit, and wherein the nozzles are disposed at a region where the bore of the conduit is restricted to an area which is between one sixth and one twelfth of the area of the remainder of the bore above said restricted region, the diffusion nozzles being constituted by a plurality of holes each arranged to introduce gas into the bore in a direction perpendicular to the direction of flow of liquid past said holes, said holes being arranged laterally of at least two pipes which pipes extend transversely across the bore of the conduit, the said restricted area of the bore comprising at



least two elongated passages defined at least in part by said pipes, and wherein the diffusion nozzles open directly into these passages, the holes constituting the diffusion nozzles having diameters not exceeding 10 millimeters and the width of the passages not exceeding four times the diameter of the holes in order to establish laminar flow of liquid adjacent said holes to shear off bubbles of gas leaving said holes thereby producing a large number of small bubbles having a resultant combined large surface area, the flow of liquid past said holes inducing turbulence in the region of the riser tube above the diffusion nozzles to thus promote gas/liquid interchange.

4,273,732

METHOD AND APPARATUS FOR RAISING AN AERATION APPARATUS FOR LIQUIDS

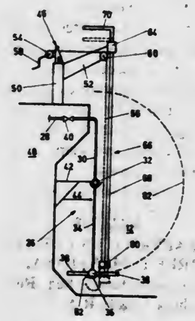
Walter H. Roediger, Frankfurt am Main, Fed. Rep. of Germany, assignor to Wilhelm Roediger GmbH & Co., Hanau am Main, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,997

Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850119

Int. Cl.³ B01F *3/04*

U.S. Cl. 261—122 **7 Claims**



1. An apparatus for raising a liquid aeration apparatus submerged in a basin and including a generally horizontal air distributing pipe (36) having a plurality of ceramic aeration tubes (38) extending outwardly therefrom, said aeration apparatus being connected with a stationary support (42) by means of an air supply pipe (34) through a joint (32) about which said aeration apparatus can be pivotally raised, a cable (56), a carrier element (62) coupled to a free end of the cable for engaging the air distributing pipe, and a boom (52) disposed above the surface of a liquid over the free end of which boom said cable is guided, characterized by:

(a) the free end of said boom being disposed vertically above the submerged air distributing pipe,

(b) guide means (64) mounted on the free end of said boom,

(c) a guide rod (66) mounted in said guide means for:

(1) axially slidable movement, and

(2) limited pivotal movement in a plane perpendicular to the air distributing pipe,

(d) means for detachably connecting the carrier element to a lower end of the guide rod, and

(e) the boom being movably mounted to the basin for operative placement at a plurality of sites, whereby the guide rod may be pivoted out of the path of the aeration tubes to prevent their damage, the carrier element may be lowered by the guide rod to a depth greater than that of the air distributing pipe and thereafter brought beneath the pipe by pivoting back the guide rod, the rod may be detached from the carrier element and retracted, and the cable may be taken up to raise the carrier element and aeration apparatus engaged thereby.

6. A method for raising a submerged liquid aeration apparatus including an air distributing pipe (36) and a plurality of ceramic aeration tubes (38) extending perpendicularly therefrom, a stationary support (42), an air supply pipe (34) connected at one end to the air distributing pipe and connected at its other end with the stationary support through a rotatable joint (32) about which the aeration apparatus can be pivoted, a cable (56) having a carrier element (62) coupled to its free end for engaging the air distributing pipe, a boom (52) mounted above the surface of the liquid with its free end disposed vertically above the air distributing pipe, means for guiding the cable over said free end of the boom, guide means (64) mounted on the free end of the boom, and a guide rod (66) slidably mounted in the guide means for guiding the carrier element into engagement with the air distributing pipe, characterized by the following steps:

(a) connecting the guide rod to the carrier element,

(b) lowering the guide rod into the liquid until a short shank (70) of the guide rod comes into abutment with the guide means,

(c) disconnecting the guide rod from the carrier element, and

(d) taking in the cable to rotate the aeration apparatus upwardly.

4,273,733

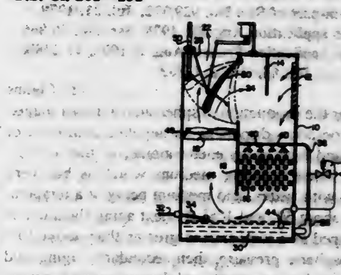
APPARATUS FOR COOLING FLUIDS

Walter Kals, Hastings-on-Hudson, N.Y., assignor to Niagara Blower Company, New York, N.Y.

Filed Jul. 30, 1979, Ser. No. 61,725

Int. Cl.³ F28D *5/02*

U.S. Cl. 261—151 **25 Claims**



1. A heat device for cooling a fluid, said device comprising:

housing means having an air duct means passing therethrough;

propeller means disposed in said air duct means, said propeller means being operative to draw a stream of air through said air duct means;

cooling means disposed in said air duct means upstream of said propeller means;

conduction means in operative connection with said cooling means for conducting fluid through said cooling means whereby said stream of air passing over said cooling means absorbs heat from said fluid being conducted through said cooling means;

recirculation means disposed downstream of said propeller means for selectively recirculating portions of said air stream in said air duct means downstream of said propeller means back to said air duct means at a point upstream of said cooling means, said recirculation means comprising a blade means of an air foil configuration pivoted about its trailing edge to be selectively positioned, to recirculate all, some or none of the air stream passing through said air duct means; and

the air duct portions adjacent the upstream and downstream sides of said propeller means being of a substantially straight flow path configuration when said blade means is disposed to preclude recirculation of said air stream.

4,273,734

CASTING OF POLYELECTROLYTES IN HYDROGEL MOLDS

Maurice Selderman, 3306 Deronda Dr., Hollywood, Calif. 90068

Filed Sep. 24, 1979, Ser. No. 78,196
Int. Cl.³ B29D 11/00
U.S. Cl. 264—1.1 8 Claims

1. The method of preparing a three-dimensional, irreversibly gelled shaped article, which method comprises diffusing gel-forming ions into a solution of a polyelectrolyte capable of insolubilization upon interaction with said gel-forming ions, whereby to produce the irreversibly gelled insoluble shaped polyelectrolytic article, the said gel-forming ions being diffused into the polyelectrolyte solution by transport from a hydrogel which defines a mold cavity and is swollen with a solution comprising said gel-forming ions.

4,273,735

PRODUCTION OF SPHEROIDAL ALUMINA SHAPED ARTICLES

Roland Jacques, Ales, and Regis Poisson, Sevres, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Continuation-in-part of Ser. No. 929,772, Jul. 31, 1978, abandoned. This application Aug. 29, 1979, Ser. No. 70,866
Claims priority, application France, Aug. 3, 1977, 77 23880
Int. Cl.³ B01J 37/02
U.S. Cl. 264—5 30 Claims

1. A process for the production of spheroidal alumina shaped articles, which comprises dispersing an ungelled admixture of an alumina sol and hexamethylenetetramine, in the form of droplets, into a liquid forming medium which is but very slightly miscible with water, said medium being at a temperature of between about 50° and 105° C., next aging the alumina spheres thus shaped at a temperature greater than about 105° C. at superatmospheric pressure, then secondarily aging said alumina spheres in a basic medium, and thence washing, drying and calcining said aged alumina spheres.

4,273,736

METHOD FOR PREPARING PACKING FOR A SODIUM-MERCURY AMALGAM DECOMPOSER REACTOR

Harshad M. Patel, Cleveland, Tenn., assignor to Olin Corporation, New Haven, Conn.

Division of Ser. No. 910,166, May 26, 1978, Pat. No. 4,165,981, which is a division of Ser. No. 666,027, Mar. 11, 1976, Pat. No. 4,105,441. This application May 3, 1979, Ser. No. 35,563
Int. Cl.³ B29D 27/00; B29J 1/00
U.S. Cl. 264—45.3 13 Claims

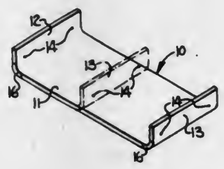
1. The method of preparing a packing composition for use as a packing in a decomposer reactor for sodium mercury amalgam which comprises admixing particles of a surface active element selected from the group consisting of iron, cobalt, nickel, graphite, molybdenum, vanadium, and mixtures thereof with particles of a resin capable of being cured to a thermally stable condition, wherein said resin is selected from the group consisting of polyphenylene sulfide resins, polyphenylene oxide resins, imid resins, heating the resulting mixture to cure said resin to form a polymeric matrix having discrete particles of said surface active element dispersed therein, and forming the resulting cured mixture into granules having an average diameter in the range from about 6 to about 70 millimeters.

4,273,737

METHOD AND APPARATUS FOR MANUFACTURING FURNITURE

Erich Grachten, Detmold, Fed. Rep. of Germany, assignor to Burris Industries, Inc., Lincolnton, N.C.

Filed Feb. 13, 1975, Ser. No. 549,519
Int. Cl.³ B29C 5/00; B29D 27/04; B29C 27/00
U.S. Cl. 264—46.5 6 Claims



1. A method of manufacturing furniture by joining panels and making corners, the method comprising the steps of providing wooden panels each having generally parallel generally planar major faces and a generally planar end surface substantially perpendicular to and bounding one edge of said major faces, heating the panels to an elevated temperature, arranging mold instrumentalities and two heated panels to form a mold cavity bounded by the repsective end surfaces of the two panels and the mold instrumentalities, depositing in the mold cavity reactants for forming structural foam and bonding the two heated panels together with the foam while confining the foam within the mold cavity and shaping the foam into a predetermined corner configuration.

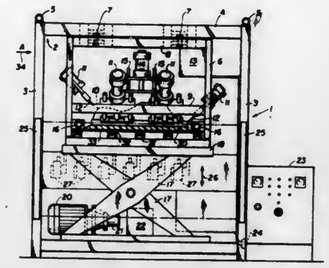
4,273,738

METHOD AND APPARATUS FOR FORMING, AND TRIMMING, THREE-DIMENSIONAL WORK PIECES

Ernst M. Spengler, Heusenstamm, Fed. Rep. of Germany, assignor to Stanztechnik GmbH R & S, Bergen-Enkheim, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 965,745
Int. Cl.³ B29C 1/16, 17/10; B26D 1/06
U.S. Cl. 264—154 18 Claims

1. A method for three-dimensionally cutting or trimming a three-dimensional work piece, comprising the steps of moving a work piece support which carries first three-dimensional tool means against second three-dimensional tool means to thereby securely hold a three-dimensional work piece introduced between said first and second three-dimensional tool means, maintaining at least one of said first and second three-dimensional tool means substantially stationary when the first and second three-dimensional tool means hold said three-dimensional work piece in a cutting or trimming position, then rigidly locking the first and second three-dimensional tool means in a fixed position relative to a main frame for introducing the cutting or trimming pressure into said main frame, then moving independent third tool means through at least one of said first



and second tool means for performing said three-dimensional cutting or trimming along three-dimensionally extending contours, and supporting said second three-dimensional tool means and at least one of the independent third tool means including actuator means for said at least one independent third tool means on secondary frame means removably attached to said main frame in an exchangeable manner whereby the secondary frame means and the second and third tool means attached thereto are exchangeable as a unit for facilitating the retooling.

4,273,739

METHOD OF DEFORMING THERMOPLASTIC POLYMERS USING AMMONIA AS A REVERSIBLE PLASTICIZER

Roger S. Porter, and Anagnostis E. Zachariades, both of Amherst, Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 12, 1979, Ser. No. 56,767
Int. Cl.³ D01F 1/02
U.S. Cl. 264—211 10 Claims

1. In a method of deforming thermoplastic polymers with interchain hydrogen bonding, the steps of

exposing the polymer to ammonia so as to have sufficient ammonia absorbed therein to serve as a plasticizer;

deforming said treated polymer in a manner that permits said ammonia to remain in said polymer during the deformation process; and

releasing said ammonia thereafter from the deformed polymer.

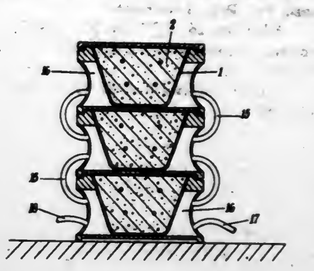
4,273,740

PROCESS AND APPARATUS FOR MANUFACTURING SINGLE PIECE RAILROAD TIES OF PRESTRESSED CONCRETE

Sergio Marchesi, and Gino Fachin, both of Rome, Italy, assignors to Vianini, S.p.A., Rome, Italy

Continuation of Ser. No. 825,557, Aug. 18, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 82,481
Claims priority, application Italy, Dec. 30, 1976, 52836 A/76
Int. Cl.³ B28B 23/04, 21/78
U.S. Cl. 264—228 2 Claims

1. A process for manufacturing prestressed concrete items, including the steps of pretensioning tendons in a mold, pouring concrete into the mold, placing the mold with concrete therein in a controlled environment having a temperature of between about 60° C. to 80° C. until the concrete is sufficiently cured to support the pretensioned load in the tendons, releasing the tendons from the mold and removing the cast concrete from the mold wherein the improvement comprises heating the concrete prior to said step of pouring the concrete into the



mold, sealing the mold substantially immediately after the step of pouring the concrete into the mold and heating the mold substantially immediately after the step of pouring the concrete into the mold.

4,273,741

DEVICE FOR OBTAINING STOOL SAMPLES

Robert A. Levine, 31 Pilgrim La., Guilford, Conn. 06437

Continuation-in-part of Ser. No. 55,636, Jul. 9, 1979. This application Jan. 7, 1980, Ser. No. 110,437
Int. Cl.³ G01N 1/02, 33/52, 33/72
U.S. Cl. 422—56 3 Claims



1. A stool sampling device for obtaining direct anal stool samples, said device comprising:

(a) a first sheet of pliant impermeable material;

(b) a pad secured to one side of said first sheet, said pad being operable to receive a stool smear when said device is drawn across a patient's anus after defecation;

(c) a second sheet of pliant material disposed on said first sheet, said second sheet overlying said one side of said first sheet, and said second sheet including stool volume controlling openings therethrough aligned with said pad;

(d) first releasable adhesive means securing said second sheet to said first sheet whereby said second sheet can be peeled off of said first sheet after a stool smear has been deposited on said pad;

(e) means for hermetically sealing said pad within said first sheet after a stool smear has been deposited on said pad;

(f) means forming an opening in said first sheet which opening is aligned with said pad when the latter is sealed within said first sheet;

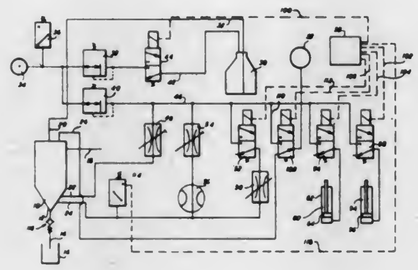
(g) a pliant impermeable cover sheet hermetically sealing said opening in said first sheet; and

(h) second releasable adhesive means securing said cover sheet to the other side of said first sheet, said second adhesive means forming means whereby said cover sheet can be peeled away from said first sheet to uncover said opening in said first sheet to expose said pad for the application of detecting reagents to the stool smear, and whereby said cover sheet can be resealed to said first sheet after the stool smear has been tested.

4,273,742
DRAIN APPARATUS FOR THE REACTION VESSEL IN AN ATOMIC ABSORPTION INSTRUMENT

Bernhard Huber, and Winfried Gönner, both of Überlingen, Fed. Rep. of Germany, assignors to Bodenseewerk Perkin-Elmer, Überlingen, Fed. Rep. of Germany

Filed Sep. 26, 1979, Ser. No. 78,977
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1978, 2851058
Int. Cl.³ G01N *27/66, 21/13, 33/20*
U.S. Cl. 422—80 5 Claims



1. A system for the measurement of the atomic absorption of gaseous samples comprising:

a reaction vessel,

first, second and third conduit means for supplying a liquid sample, a carrier gas, and at least one reagent, respectively, to said reaction vessel,

a discharge conduit means coupled between said reaction vessel and a measuring cell of an atomic absorption spectrometer,

a valve means disposed in said discharge conduit means for permitting the flow of a gaseous sample from said reaction vessel to said measuring cell when said valve is open and for preventing the flow of said gaseous sample from said reaction vessel to said measuring cell when the valve is closed,

control means for controlling the flow of liquid sample, carrier gas, reagent and gaseous sample through said first, second, third and gaseous discharge conduit means, respectively, in accordance with a predetermined program for making consecutive measurements and including means coupled to said valve means for closing said valve means at the end of the first measurement and opening said valve means for a subsequent measurement,

means for draining said reaction vessel including a drain conduit means and a relief valve in said conduit means,

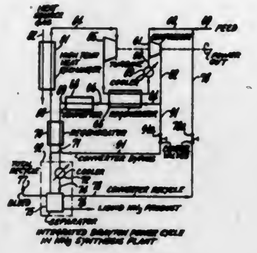
a pressure sensor in communication with said carrier gas conduit means for sensing pressure in said reaction vessel above a specified pressure indicative of incomplete draining of said reaction vessel and below said specified pressure indicative of a substantially complete draining of said reaction vessel,

said control means being coupled to said pressure sensor and responsive to a pressure above said specified pressure in said reaction vessel to disable the system from a subsequent measurement.

4,273,743
COMBINATION CHEMICAL PLANT AND BRAYTON-CYCLE POWER PLANT

Everett M. Barber, Wappingers Falls; James R. Muenger, Beacon, and David L. Alexander, Fishkill, all of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Division of Ser. No. 956,958, Nov. 2, 1978, Pat. No. 4,224,299, which is a continuation of Ser. No. 765,475, Feb. 4, 1977, abandoned. This application Dec. 10, 1979, Ser. No. 101,599
Int. Cl.³ C01C *1/04*; B01J *8/02*; G05D *7/00*; F01K *25/08*
U.S. Cl. 422—148 7 Claims



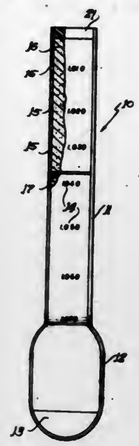
1. An ammonia synthesis plant wherein gaseous nitrogen and hydrogen are subjected to high pressure catalytic reaction to produce ammonia comprising a compressor, fluid conduit means for supplying gaseous nitrogen and hydrogen to said compressor, first indirect heat exchange means, fluid conduit means for supplying compressed gases from said compressor to said first indirect heat exchange means, a catalytic converter for converting gaseous nitrogen and hydrogen to ammonia, fluid conduit means for supplying compressed gaseous nitrogen and hydrogen from said first indirect heat exchange means to said converter, second indirect heat exchange means, fluid conduit means supplying ammonia-containing gases from said converter to said second indirect heat exchange means, a first cooler, fluid conduit means supplying ammonia-containing gases from said second indirect heat exchange means to said first cooler, separator means for separating liquid ammonia from unconverted gaseous nitrogen and hydrogen, fluid conduit means for supplying unconverted gaseous nitrogen and hydrogen to said separator means from said first cooler, liquid ammonia product recovery means connected to said separator, third indirect heat exchange means, fluid conduit means for passing unconverted gaseous nitrogen and hydrogen from said separator through said second indirect heat exchange means to said third indirect heat exchange means, a gas turbine operatively connected to said compressor, fluid conduit means supplying heated unconverted gaseous nitrogen and hydrogen from said third indirect heat exchange means to said gas turbine, fluid conduit means for passing exhaust gaseous nitrogen and hydrogen from said gas turbine to said first indirect heat exchange means, a second cooler, fluid conduit means for supplying cooled exhaust gaseous nitrogen and hydrogen from said first indirect heat exchange means to said second cooler and fluid conduit means for supplying resulting cooled unconverted gaseous nitrogen and hydrogen from said second cooler to said compressor.

4,273,744
DEVICE FOR AUTOMATIC ADDITION OF A CORROSION INHIBITOR TO A COOLANT SYSTEM

Robert H. Krueger, Palatine, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Continuation of Ser. No. 964,225, Nov. 27, 1978, abandoned. This application Oct. 16, 1979, Ser. No. 85,344
Int. Cl.³ B01D *11/02*
U.S. Cl. 422—265 3 Claims

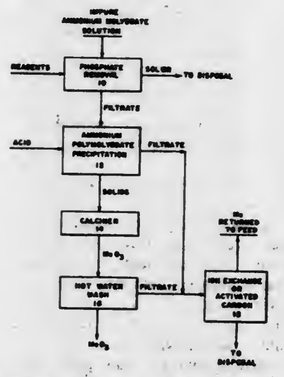
1. A device for the automatic addition of corrosion inhibitor to a coolant system, comprising a hydrometer having an elongated hollow stem with an enlarged weighted lower end, the hollow stem having an upper portion adapted to receive a corrosion inhibitor, said stem having a plurality of small openings opposite the corrosion inhibitor to allow ingress of liquid therein to dissolve the inhibitor when the position of the hydrometer drops relative to the liquid level as the specific gravity of the liquid decreases, said openings being spaced axially along the hollow stem in annular rows so as to dissolve layers of inhibitor sequentially, and separators in said hollow stem to divide the inhibitor into several equal portions with an annular row of openings opposite each portion.



4,273,745
PRODUCTION OF MOLYBDENUM OXIDE FROM AMMONIUM MOLYBDATE SOLUTIONS

John M. Laferty, Wheat Ridge; Dennis L. Howe, Arvada, both of Colo., and Roger F. Sebenik, Ann Arbor, Mich., assignors to AMAX Inc., Greenwich, Conn.

Filed Oct. 3, 1979, Ser. No. 81,412
Int. Cl.³ C01G *39/02*
U.S. Cl. 423—54 14 Claims

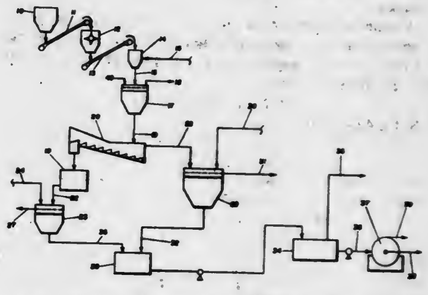


1. A process for recovering molybdenum trioxide from an ammonium molybdate solution containing phosphate anions and more than about 500 ppm U_3O_8 which comprises aging the ammonium molybdate solution to lower the U_3O_8 content to less than about 10 ppm, digesting a precipitant of at least one water-soluble compound of at least one metal selected from the group consisting of iron, calcium, aluminum and magnesium in small but effective amounts to precipitate at least about 50% of the phosphate anions in the ammonium molybdate solution for a time sufficient to precipitate the phosphate anions, separating the phosphate precipitate from the ammonium molybdate solution, then acidifying the ammonium molybdate solution with at least one mineral acid selected from the group consisting of sulfuric acid and nitric acid to provide a final pH value of between about 2.5 and about 4.5 to precipitate an ammonium polymolybdate compound and calcining the ammonium polymolybdate compound at a temperature below about 700° C. to produce a molybdenum trioxide product.

4,273,746
DESULFATION OF BATTERY MUD

Michael A. Kolakowski, Milltown, N.J., assignor to NL Industries, Inc., New York, N.Y.

Filed Oct. 10, 1978, Ser. No. 950,873
Int. Cl.³ C01G *21/14*
U.S. Cl. 423—92 2 Claims



1. A process for desulfating battery mud, comprising:

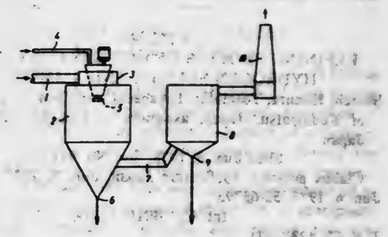
(a) Adding an aqueous solution containing an ammonium reagent selected from the group consisting of ammonium carbonate, ammonium bicarbonate, and admixtures thereof to a lead sulfate-containing battery mud maintained at a temperature of less than about 140° F. at substantially atmospheric pressure to form an aqueous slurry of ammonium sulfate and precipitated lead carbonate having a solids content of from about 10% to 20%, and

(b) separating said ammonium sulfate slurry from said lead carbonate containing battery mud.

4,273,747
PROCESS FOR REMOVAL OF MERCURY VAPOR FROM WASTE GASES

Elisabeth L. Rasmussen, Holte, Denmark, assignor to A/S Niro Atomizer, Soborg, Denmark

Filed May 16, 1980, Ser. No. 150,585
Claims priority, application Denmark, May 18, 1979, 2051/79
Int. Cl.³ B01D *53/34*
U.S. Cl. 423—210 4 Claims



1. A process for removal of mercury vapor from a stream of fly ash-containing waste gas resulting from the incineration of

refuse, said stream having a temperature of at least 200° C., comprising the steps of

(a) atomizing an aqueous liquid into said stream without previous removal of fly ash therein, said liquid being atomized in a quantity higher than the one which would cool said stream to a temperature of 160° C., but which quantity is lower than the one which would give incomplete water evaporation from the atomized liquid or condensation of water vapor in subsequent handling of the gas stream, and

(b) separating the fly ash together with a substantial part of the mercury originally present as vapor in a particle collector unit.

4,273,748

PROCESS FOR REMOVING HARMFUL COMPONENTS FROM GAS

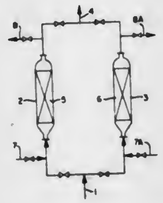
Toshihiko Takahashi; Morihisa Maruko, and Shoichi Kimura, all of Kudamatsu, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 771,911, Feb. 25, 1977, abandoned. This application Jun. 1, 1979, Ser. No. 44,583

Claims priority, application Japan, Feb. 27, 1976, 51-19902; Feb. 27, 1976, 51-19931

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—230 33 Claims



1. A process for removing hydrogen sulfide and ammonia from a reducing gas containing hydrogen sulfide and ammonia, which comprises contacting said reducing gas containing hydrogen sulfide and ammonia with a first removing agent at a temperature in the range of 450°–700° C., said first removing agent including at least one of nickel and nickel oxides or at least one of iron and iron oxides and being capable of converting hydrogen sulfide in the reducing gas to nickel sulfide or iron sulfide but being substantially incapable of decomposing ammonia at a temperature in the range of 450°–700° C., thereby converting hydrogen sulfide contained to nickel sulfide or iron sulfide and removing hydrogen sulfide from the gas, and removing less than 10% of the ammonia from the reducing gas, then contacting the reducing gas with a second removing agent at a temperature greater than 700° C., said second removing agent including at least one of nickel and oxides and nitrides of nickel or at least one of iron and oxides and nitrides of iron and being capable of decomposing ammonia at a temperature greater than 700° C., thereby decomposing ammonia and removing ammonia contained from the reducing gas.

4,273,749

REFINING PROCESS OF HOT GAS CONTAINING HYDROGEN SULFIDE AND AMMONIA

Shoichi Kimura; Toshihiko Takahashi, and Zensuke Tamura, all of Kudamatsu, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 5, 1978, Ser. No. 912,949

Claims priority, application Japan, Jun. 3, 1977, 52-64713; Jun. 6, 1977, 52-65793

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—231 21 Claims

1. A process for refining hot gas containing hydrogen sulfide and ammonia, comprising the steps of:

providing a gas containing substantial amounts of hydrogen sulfide and ammonia that are desired to be removed from the gas;

contacting the gas at a temperature in the range of 600°–850° C. with an iron oxide catalyst in a first container to remove hydrogen sulfide;

contacting the gas at a temperature in the range of 700°–900° C. with a catalyst obtained by reducing iron oxide with a reducing agent to produce elemental iron, to remove ammonia from the gas in a second container; and

contacting the gas at a temperature of 600° C. or less in a third container with iron oxide to remove hydrogen sulfide remaining in the gas after the first hydrogen sulfide removal step and the ammonia removal step.

4,273,750

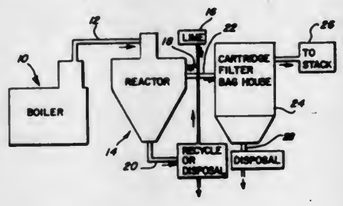
FLUE GAS DESULFURIZATION APPARATUS AND METHOD

Grant T. Hollett, Jr., Elmhurst, and Francis S. Flick, Oak Brook, both of Ill., assignors to Energy and Pollution Controls, Inc., Bensenville, Ill.

Filed Apr. 24, 1979, Ser. No. 32,872

Int. Cl.³ B01D *53/08*

U.S. Cl. 423—244 24 Claims



1. An apparatus for removing gaseous and particulate pollutants from a polluted gas, comprising:

a chamber;

means communicating with said chamber for receiving gas cleaned by said apparatus;

a conduit having an inlet and a discharge and defining a substantially vertical gas flow path, said inlet communicating with a source of said polluted gas and said discharge communicating with said chamber and said clean gas receiving means;

means for introducing substantially dry, particulate sorbent or reactant to said gas flow path;

means mounted in said gas flow path for receiving and distributing at least a portion of said dry sorbent or reactant particles across said gas flow path to entrain said sorbent or reactant particles in said gas;

means for separating said sorbent or reactant particles and said polluted particles from said gas and directing said gas to said clean gas receiving means; and,

means mounted within said gas flow path for recirculating by counterflow at least a portion of said gas, said sorbent or reactant particles and said pollutant particles therein

prior to separation of said sorbent or reactant particles and said pollutant particles from said gas.

22. A method of removing gaseous and particulate pollutants from flue gas by sorption or reaction of said pollutants on or with discrete particles of substantially liquid-free sorbent or reactant, said method comprising the consecutive steps of:

(a) defining a substantially vertical gas flow path from a source of said flue gas to a clean gas discharge means;

(b) causing polluted flue gas to flow downwardly through said flow path;

(c) uniformly distributing said discrete sorbent or reactant particles across said gas flow path to effect intimate contact between said flue gas and said sorbent or reactant particles and to entrain at least a portion of said sorbent or reactant particles in said gas;

(d) recirculating at least a portion of said polluted flue gas and entrained sorbent or reactant particles and said pollutant particles within said gas flow path by counterflow to enhance the time of contact between said polluted flue gas and said sorbent or reactant particles;

(e) changing the direction of flow of said flue gas and entrained sorbent or reactant particles and said pollutant particles to separate said entrained particles from said gas; and

(f) directing said gas into said clean gas discharge means.

4,273,751

REMOVAL OF ACIDICA CONTAMINANTS FROM GAS STREAMS BY CAUSTIC IMPREGNATED ACTIVATED CARBON

Rabindra K. Sinha, Ranchi, India; Charles K. Polinsky, Pittsburgh, Pa.; Stephen D. Cifrulak, Sr., Sewickley, Pa., and Norman J. Wagner, Pittsburgh, Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 959,137, Nov. 9, 1978, Pat. No. 4,215,096. This application Apr. 9, 1980, Ser. No. 138,636

Int. Cl.³ B01D *53/34*

U.S. Cl. 423—244 5 Claims

1. A process for the removal of sulfur oxide gases and vapors from gas streams which comprises contacting the gas stream with activated carbon impregnated with about 0.5% to about 20% by weight of sodium hydroxide and about 4% to about 50% by weight of moisture.

4,273,752

PROCESS FOR MAKING RED PHOSPHORUS

Klaus Lehr, Hürth-Knapsack; Gero Heymer, Erftstadt; Hans-Werner Stephan, Cologne, and Ursus Thümmler, Erftstadt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 20, 1980, Ser. No. 123,106

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907059

Int. Cl.³ C01B *25/01, 25/02, 25/04*

U.S. Cl. 423—322 6 Claims

1. A process of converting yellow phosphorus to red phosphorus which comprises: preheating a closed ball mill containing iron balls occupying it to an extent up to 20% of its volume and being provided with at least one hollow shaft to a temperature within the range 280° to 590° C.; introducing an inert gas into the preheated ball mill; continuously dosing molten yellow phosphorus into the preheated ball mill in portions per unit time permitting the temperature prevailing in the ball mill to be practically maintained until said ball mill has been filled with yellow phosphorus to an extent of at most 50% its volume; annealing the phosphorus in the ball mill kept rotating over a period of up to 15 hours at temperatures within the range 200° to 590° C.; allowing resulting red phosphorus to cool down to room temperature in the rotating ball mill; opening the ball mill and pouring water in it up to at least 75% its volume; closing the ball mill again; subjecting to wet grinding the red phosphorus in the ball mill by rotating the latter; and removing an aqueous suspension of red phosphorus from the ball mill.

4,273,753

DE-ALUMINIZATION OF ALUMINOSILICATES

Clarence D. Chang, Princeton, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Sep. 10, 1979, Ser. No. 74,174

Int. Cl.³ C01B *33/28*

U.S. Cl. 423—328 18 Claims

1. A process for removing aluminum from crystalline aluminosilicate zeolites which comprises contacting a crystalline aluminosilicate zeolite with an inorganic halide or inorganic oxyhalide comprising a halogen and a non-halogen component to form an aluminum halide or aluminum oxyhalide and to deposit said non-halogen component in the crystalline aluminosilicate zeolite structure, at temperatures sufficiently high enough to volatilize the formed aluminum halide or aluminum oxyhalide and under conditions sufficient to remove the aluminum halide or aluminum oxyhalide from the crystalline aluminosilicate zeolite as a vapor.

14. The process of claim 1 wherein said crystalline aluminosilicate zeolite is mordenite.

4,273,754

PROCESS FOR PRODUCING AQUEOUS SOLUTION OF CALCIUM NITRITE

Makoto Endo, and Kohji Kusahara, both of Fuchumachi, Japan, assignors to Nissan Chemical Industries Ltd., Tokyo, Japan

Filed Apr. 9, 1980, Ser. No. 138,667

Int. Cl.³ C01B *21/20*

U.S. Cl. 423—385 6 Claims

1. In a process for producing an aqueous solution of calcium nitrite having high purity and high concentration by contacting a nitrogen oxides containing gas with an aqueous slurry of calcium hydroxide, the improvement wherein a gas having a temperature of 190°–300° C. and having a nitrogen oxide concentration of 5 to 12 vol. % and a molar ratio of NO/NO_2 of 1.6 to 2.5 is contacted with the aqueous slurry having 20 to 40 wt. % of a calcium hydroxide content at 75° to 110° C. under a pressure high enough to prevent condensation of said slurry until the calcium hydroxide content is reduced to a range of 2 to 10 wt. % as a first stage; and the unabsorbed and unreacted gas is separated and the gas is oxidized at 85°–150° C. to form a gas having a nitrogen oxides concentration of 1 to 5 vol. % and a molar ratio of NO/NO_2 of 1.6 to 2.5 and the resulting gas is contacted with the aqueous slurry separated from the first stage and having 2 to 10 wt. % of a calcium hydroxide content and containing calcium nitrite, at 75° to 110° C. under a pressure high enough to prevent condensation of said slurry to reduce the calcium hydroxide content to less than 3 wt. % as a second stage and filtering the resulting solution.

4,273,755

PREPARATION OF PLATINUM COMPLEXES

Richard N. Rhoda, Suffern, N.Y., and Jeffrey N. Crosby, Worcester, England, assignors to MPD Technology Corporation, Wyckoff, N.J.

Filed Aug. 16, 1979, Ser. No. 65,553

Int. Cl.³ C01G *55/00*

U.S. Cl. 423—463 9 Claims

1. A process for preparing cis-$Pt(NH_3)_2Cl_2$ of high purity and in high yield comprising adding an aqueous solution of ammonium hydroxide to an aqueous dispersion of potassium tetraiodoplatinum(II), said tetraiodo compound having the formula K_2PtI_4, under a controlled gradually rising temperature profile while controlling the ammonium hydroxide addition so that the pH does not exceed about 7.5, to precipitate cis-$Pt(NH_3)_2I_2$, separating washing and drying the cis-$Pt(NH_3)_2I_2$ precipitate, treating the washed and dried cis-$Pt(NH_3)_2I_2$ with $AgNO_3$ to form a solution containing cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ and a AgI precipitate by a method

comprising slowly adding the washed and dried cis-$Pt(NH_3)_2I_2$ to an aqueous solution of $AgNO_3$ at room temperature and with rapid stirring, warming the silver-containing mixture to a maximum temperature of about 50° C. and maintaining the temperature of about 50° C. for a period of time sufficient substantially to complete the reaction, then cooling the resultant silver-containing reaction mixture to room temperature and separating the precipitated AgI from the solution containing cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$, treating the solution containing cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ to precipitate cis-$Pt(NH_3)_2Cl_2$ by addition of MCl, where M=Na or K, by the method comprising adding solid MCl rapidly to the solution of cis-$[Pt(NH_3)_2(H_2O)_2](NO_3)_2$ at room temperature, elevating the temperature of the cis-$Pt(NH_3)_2Cl_2$-forming mixture to a maximum temperature of about 75° C., maintaining the elevated temperature for a period of time sufficient to maximize formation of cis-$Pt(NH_3)_2Cl_2$, and then cooling the reaction mixture and separating the cis-$Pt(NH_3)_2Cl_2$ precipitate.

4,273,756

IMMUNOASSAY FOR CLASS SPECIFIC ANTIBODIES

Chung-Mei Ling, Antioch; Richard H. Decker, and Ruben Chairez, both of Deerfield, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Jul. 28, 1978, Ser. No. 928,651
Int. Cl.[2] G01N *33/16*; A61K *39/00, 43/00*
U.S. Cl. 424—1 18 Claims

1. A method for determining a class specific antibody to an antigen comprising:

(a) binding an antibody for a specific immunoglobulin class to a solid support to provide a class specific antibody reagent;

(b) reacting the class specific antibody reagent with test sample;

(c) removing unbound test sample to provide an antigen reagent;

(d) reacting the antigen reagent with a known labeled antigen, and

(e) removing unbound labeled antigen and measuring the amount of bound labeled antigen, thereby determining the amount of class specific antibody to the known antigen.

4,273,757

DETERMINATION OF TRANSCOBALAMINS

Jacob Selhub, Chicago, Ill.; Bracha Rachmilewitz, and Nathan Grossowicz, both of Jerusalem, Israel, assignors to Yissum Research Development Company, Jerusalem, Israel

Continuation-in-part of Ser. No. 802,379, Jun. 2, 1977, Pat. No. 4,167,556. This application Nov. 17, 1978, Ser. No. 961,771
The portion of the term of this patent subsequent to Sep. 11, 1996, has been disclaimed.
Int. Cl.[3] G01N *33/48*; A61K *43/00*
U.S. Cl. 424—1 22 Claims

1. A method for the quantitative determination of the individual and total unsaturated Vitamin B-12 binding capacities of the three transcobalamins TC-I, TC-II, and TC-III in serum, which method comprises the steps of incubating a predetermined quantity of serum with a solution of ^{57}Co Vitamin B-12 whereby the unsaturated Vitamin B-12 binding sites on the transcobalamins in said quantity of serum become occupied by the radioactive Vitamin B-12; contacting the resulting mixture with (a) a TC-II adsorbent whereby the TC-II from said quantity of serum becomes adsorbed thereto, and (b) a DEAE-cellulose adsorbent whereby the TC-I and TC-III from said quantity of serum becomes adsorbed thereto; washing away from said adsorbents the ^{57}Co Vitamin B-12 not bound to any of the transcobalamins; measuring the total radioactivity of said adsorbents, which radioactivity is a function of the total unsaturated Vitamin B-12 binding capacity of the serum tested; selectively desorbing TC-III from said DEAE-cellulose by washing with a monopotassium phosphate solution of about 0.05 M and at a pH of about 4.6; measuring the individual radioactivity of said adsorbents, which radioactivity of said TC-II adsorbent is a function of the TC-II unsaturated Vitamin B-12 binding capacity of the serum tested and that of said DEAE-cellulose adsorbent is a function of the TC-I unsaturated Vitamin B-12 binding capacity of the serum tested; and calculating the difference in radioactivity of said total radioactivity measurement and the sum of said individual radioactivity measurements, which difference is a function of the TC-III unsaturated Vitamin B-12 binding capacity of the serum tested.

4,273,758

DENTIFRICE AND ITS METHOD OF MANUFACTURE

Weilin Liau, 73-9,, Aza-Hounachi, Utashinai-shi, Hokkaido, Japan (073-04)

Filed Nov. 6, 1979, Ser. No. 91,817
Int. Cl.[3] A61K *7/16*
U.S. Cl. 424—49 2 Claims

1. A method for the manufacture of a dentifrice composition which comprises adding tannic acid to hot water, cooling the mixture, adding glycerine to the cooled mixture, adding the remaining essential ingredients for a dentifrice composition and mixing.

4,273,759

ANTIBACTERIAL ORAL COMPOSITION

Abdul Gaffar, and Maria C. Gaffar, both of Somerset, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed May 18, 1979, Ser. No. 40,357
Int. Cl.[3] A61K *7/16, 7/20, 7/22*
U.S. Cl. 424—54 4 Claims

1. In a method for reducing the amount of dental plaque in the oral cavity comprising applying to the oral cavity an oral composition having a pH of about 4.5 to about 9 and containing an oral vehicle and an effective plaque inhibiting amount of cetylpyridinium chloride or benzethonium chloride antibacterial antiplaque agent whose use has been observed to lead to staining or discoloration of dental surfaces, the improvement comprising including in said composition, as anti-stain additive, an effective stain-inhibiting amount of a peroxydiphosphate salt.

4,273,760

SHAMPOO COMPOSITIONS

F. Theodore Koehler, Plainfield; Albert L. Micchelli, Middletown, and Frank A. Nowak, Jr., Somerville, all of N.J., assignors to National Starch and Chemical Corporation, Bridgewater, N.J.

Continuation of Ser. No. 9,572, Feb. 5, 1979, abandoned, which is a continuation of Ser. No. 833,281, Sep. 14, 1977, abandoned. This application Sep. 14, 1979, Ser. No. 75,720
Int. Cl.[3] A61K *7/06*
U.S. Cl. 424—70 7 Claims

1. A conditioning shampoo composition consisting essentially of an aqueous solution of:

(1) from 0.1 to 10.0%, by weight of the total solution, of a water-soluble acid salt of an aminoalkyl ester of a cationic polymer having a molecular weight of 5,000 to 250,000 and selected from the group consisting of the water-soluble acid salts of aminoalkyl esters of (a) a homopolymer of a homopolymerizable unsaturated carboxylic acid having 3 to 5 carbon atoms; (b) a copolymer of a copolymerizable mixture of unsaturated carboxylic acid having 3 to 5 carbon atoms, and (c) a copolymer formed of (i) an unsaturated carboxylic acid having 3 to 5 carbon atoms and (ii) at least one copolymerizable ethylenically unsaturated comonomer selected from the group consisting of vinyl acetate, vinyl propionate, vinyl methyl ether, vinyl ethyl ether, the C_1–C_8 alkyl esters of maleic and the C_1–C_8 alkyl esters of fumaric acids, an amide of acrylic acid and an amide of methacrylic acid, C_1–C_{18} alkyl ester of acrylic acid, a C_1–C_{18} alkyl ester of methacrylic acid, a C_2–C_4 hydroxyl-alkyl ester of acrylic acid and a C_2–C_4 hydroxyalkylester of methacrylic acid, wherein the copolymers of group (c) are prepared with at least 50 mole percent of the unsaturated carboxylic acid component (i); and

(2) from 5.0 to 30.0%, by weight active solids, based on the weight of the total solution, of at least one anionic surfactant selected from the group consisting of a higher fatty alcohol sulfate, an alkylaryl sulfonate, an alkali metal higher alkyl sulfosuccinate, and an alkali metal salt of an alkylarylpolyethoxyethanol sulfate or an alkali metal salt of an alkylarylpoly-ethoxyethanol sulfonate,

said shampoo composition being prepared in the absence of an amphoteric surfactant and characterized by depositing the cationic polymer on the hair during use, rendering the hair to be more manageable.

4,273,761

METHOD OF ENHANCING ABSORPTION OF ANTITUMOR AGENT INTO GASTROINTESTINAL TUMOR SITE AND ORALLY ADMINISTRABLE ANTITUMOR COMPOSITIONS THEREFOR

Akira Matsuda, Omiya; Osamu Yoshioka, Yono; Katsutoshi Takahashi, Tokyo; Koichi Yoshida, Soka, and Hiroshi Nisomiya, Sayama, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 10, 1978, Ser. No. 894,844
Claims priority, application Japan, Apr. 12, 1977, 52-41687; Jul. 14, 1977, 52-83528
Int. Cl.[3] A61K *31/78*
U.S. Cl. 424—81 12 Claims

1. A peroral antitumor composition containing an effective amount of 5-fluorouracil, a sufficient amount of an alkali metal salt of polyacrylic acid having molecular weight 1,000,000 to 10,000,000 to enhance absorption of said active compound into the gastrointestinal tumor site, and a pharmaceutical adjuvant or adjuvants.

4,273,762

LYOPHILIZATION PROCESS FOR LIVE VIRAL COMPOSITIONS

William J. McAleer, Ambler, and Henry Z. Markus, Wyncote, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Dec. 3, 1979, Ser. No. 99,772
Int. Cl.[3] A61K *39/12, 39/165*
U.S. Cl. 424—89 6 Claims

1. A method for preparing an aqueous live virus composition for subsequent lyophilization comprising

preparing a concentrated virus-diluent composition having a volume substantially less than the volume to which it is to be reconstituted at time of use, wherein the virus-diluent composition contains a phosphate salt which phosphate salt has been added to the diluent as the final ingredient.

4,273,763

PHARMACEUTICAL AND DIETARY COMPOSITIONS

David F. Horrobin, Montreal, Canada, assignor to Efamol Limited, London, England

Filed Jan. 19, 1979, Ser. No. 4,924
Claims priority, application United Kingdom, Jan. 23, 1978, 2642/78; Feb. 7, 1978, 4921/78; Apr. 19, 1978, 15481/78; Aug. 17, 1978, 33682/78; Oct. 24, 1978, 41761/78
Int. Cl.[3] A61K *33/30, 31/54, 31/315, 31/20*
U.S. Cl. 424—145 17 Claims

1. A method of treating schizophrenia comprising administering to a person suffering therefrom an effective amount of a β-lactam antibiotic in an acceptable pharmaceutical or dietary vehicle.

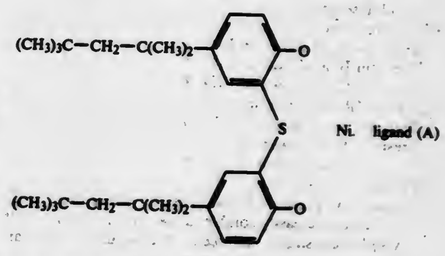
4,273,764

STABILIZATION OF 2,2-DIMETHYL-4,5-BENZOSPIRO[2,4]HEPTA-4,6-DIENE-1-CARBOXYLIC ACID, α-CYANO-M-PHENOXYBENZYL ESTER

Arnold Zweig, Westport, and Arthur K. Hoffmann, New Canaan, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 685,944, May 13, 1976, which is a continuation-in-part of Ser. No. 470,763, May 17, 1974, abandoned, which is a continuation-in-part of Ser. No. 403,366, Oct. 4, 1973, abandoned. This application Aug. 30, 1979, Ser. No. 70,758
Int. Cl.[3] A01N *25/22*; C07C *69/74*; A01N *37/00*; C07C *121/50*
U.S. Cl. 424—174 6 Claims

1. A process for stabilizing 2,2-dimethyl-4,5-benzospiro[2,4-]hepta-4,6-diene-1-carboxylic acid, α-cyano-m-phenoxybenzyl ester which comprises adding thereto in an amount to effect stabilization a compound of the formula:



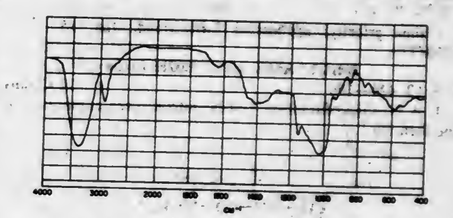
wherein the ligand (a) is an aliphatic primary amine of 4–12 carbon atoms.

4,273,765

AMINO SUGAR DERIVATIVES CONTAINING TREHALOSE

Yasuji Sahara; Kiyoshi Ogawa, both of Yokohama; Kazutaro Yokose, Urayasu, and Kimihiro Watanabe, Ayase, all of Japan, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Feb. 9, 1979, Ser. No. 11,082
Claims priority, application United Kingdom, Feb. 14, 1978, 5834/78
Int. Cl.[3] A61K *31/73*; C07H *5/06*
U.S. Cl. 424—180 2 Claims



1. The novel amino sugar derivatives Trestatin A, Trestatin B and Trestatin C and salts and mixtures thereof having trehalose as a common structural feature and having the following properties:

(a) Elementary analysis:

	C %	H %	N %	O %
Trestatin A:	46.72	7.13	2.08	43.28
Trestatin B:	46.27	7.04	1.65	44.69

-continued

	C %	H %	N %	O %
Trestatin C:	47.55	7.15	2.29	42.66

(b) Molecular weight (Osmometry):
Trestatin A: 1470
Trestatin B: 975
Trestatin C: 1890
(c) Melting point:
Trestatin A: 221°-232° C. (dec.)
Trestatin B: 209°-219° C. (dec.)
Trestatin C: 230°-237° C. (dec.)
(d) Specific rotation:
Trestatin A: $[\alpha]_D^{24} = +177°$ (c=1.0, H_2O)
Trestatin B: $[\alpha]_D^{26} = +187°$ (c=1.0, H_2O)
Trestatin C: $[\alpha]_D^{23} = +169.5°$ (c=1.0, H_2O)
(e) Ulraviolet absorption spectrum (in water):
Each of Trestatin A, Trestatin B and Trestatin C shows end absorption
(f) Infrared absorption spectrum (in KBr):
Trestatin A: as shown in FIG. 1
Trestatin B: as shown in FIG. 2
Trestatin C: as shown in FIG. 3
(g) ^1H NMR spectrum (in D_2O at 100 MHz):
Trestatin A: as shown in FIG. 4
Trestatin B: as shown in FIG. 5
Trestatin C: as shown in FIG. 6
(h) Solubility in solvents:
Trestatin A, Trestatin B and Trestatin C and their hydrochlorides are easily soluble in water; soluble in dimethylsulfoxide; slightly soluble in ethanol and acetone; and insoluble in ethyl acetate and chloroform;
(i) Color reaction:
Each of Trestatin A, Trestatin B and Trestatin C is positive to permanganate and anthrone reactions, and negative to Sakaguchi reaction.

2. Amylase inhibiting compositions containing Trestatin A, Trestatin B or Trestatin C as defined in claim 1, or a salt of mixtures thereof in admixture with an organic or inorganic inert carrier material suitable for enteral application.

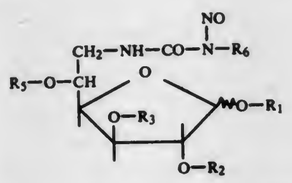
4,273,766

NITROSO-UREA DERIVATIVES

Jaroslav Stanek, Birsfelden, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 913,776, Jun. 8, 1978, abandoned, and a continuation-in-part of Ser. No. 14,195, Feb. 22, 1979, abandoned. This application Apr. 12, 1979, Ser. No. 29,495
Claims priority, application Switzerland, Jun. 15, 1977, 7359/77
Int. Cl.³ A61K 31/70; C07H 15/04
U.S. Cl. 424—180 14 Claims

1. A N_1-Glucofuranosid-6-yl-N_3-nitroso-urea compound of the formula I



(I)

wherein anyone of R_1, R_2, R_3 and R_5 represent hydrogen, lower alkyl, lower alkyl substituted by hydroxy, lower alkoxy or halogen, phenyl-lower alkyl or naphthyl-lower alkyl, phenyl-lower alkyl or naphthyl-lower alkyl substituted in the phenyl or naphthyl moiety by lower alkyl, hydroxy, lower alkyl, lower alkylendioxy, halogen or trifluroromethyl, an acyl residue of an organic carboxylic acid having 2 to 18 carbon atoms, a lower alkylsulphonic acid, a phenylsulphonic acid or a lower alkyl-phenylsulphonic acid, or R_1 and R_2 together or R_3 and R_5 together represent also a lower alkylidene or a cycloalkylidene having 5 to 6 carbon atoms, and R_6 represents lower alkyl or lower alkyl substituted by hydroxy, lower alkoxy or halogen.

13. A pharmaceutical preparation useful for inhibition of tumors of Ehrlich's ascitic carcinoma or solid Harding - Passey's melanoma or Yoshida's ascitic sarcoma, or leukaemia L 1210 or Rauscher's leukaemia in mice and rats, which comprises a therapeutically effective amount of a compound claimed in claim 1 and a pharmaceutically acceptable carrier thereof.

14. A method of inhibiting tumors of Ehrlich's ascitic carcinoma, solid Harding-Passey's melanoma or Yoshida's ascitic sarcoma, or leukaemia L 1210 or Rauscher's leukaemia in mice and rats, comprising admistering to said animals a therapeutically effective amount of a compound of claim 1.

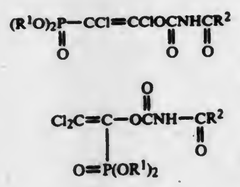
4,273,767

COMBATING PLANT PESTS WITH PHOSPHORYLATED CARBAMOYL COMPOUNDS

Engelbert Kühle, Berg.-Gladbach; Hermann Hagemann, Cologne; Wolfgang Behrenz, Overath; Ingeborg Hammann, Cologne, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 9, 1980, Ser. No. 110,585
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1979, 2903592
Int. Cl.³ A01N 9/40; C07F 57/20, 57/22
U.S. Cl. 424—211 10 Claims

1. A phosphorylated carbamoyl compound of the formula



or

in which
R^1 represents a lower alkyl radical and
R^2 represents an alkoxy radical with 1–6 C atoms (which can optionally be substituted by halogen, alkoxy, aryloxy, alkylthio or dialkylamino) an alkenoxy or alkynoxy radical with up to 6 C atoms, a cycloalkoxy radical with 5–7 C ring atoms (which can optionally be substituted by lower alkyl), an aralkoxy radical with 7–12 C atoms (which can optionally be substituted by halogen, nitro, akyl, alkoxy or trihalogenomethyl), an aryloxy radical (which can optionally be substituted by halogen, nitro, alkyl alkoxy or trihalogenomethyl), an alkylmercapto, cycloalkylmercapto or aralkylmercapto radical (which can optionally be substituted by alkoxy, alkylmercapto or dialkylamino), an arylmercapto radical (which can optionally be substituted by halogen, nitro, alkyl or trihalogenomethyl), NH_2, a primary or secondary aliphatic, cycloaliphatic or araliphatic amine radical with 1–10 C atoms, an aryl amino radical (which can optionally be substituted by halogen, nitro, alkyl, alkoxy, trihalogenomethyl, trihalogenomethoxy or trihalogenomethylmercapto), or an oximino radical that is derived from an aliphatic, cycloaliphatic, araliphatic or aromatic oxime.

9. A method of combating arthropods or nematodes which comprises applying to the arthropods or nematodes, or to a habitat thereof, an arthropodicidally or nematicidally effective amount of a compound according to claim 1.

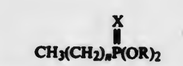
4,273,768

CONTROL OF NEMATODES AND OTHER HELMINTHS

Jan P. Kochansky, Adelphi; Julius Feldmeuser, and William E. Robbins, both of Silver Spring, all of Md., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed May 19, 1980, Ser. No. 151,068
Int. Cl.³ A01N 57/00
U.S. Cl. 424—222 2 Claims

1. A method of controlling nematodes comprising exposing said nematodes to a lethally effective amount of a compound of the formula



wherein n is a number from 5 to 17, X is oxygen or sulfur, and R is one of CH_3,CH_2CH_3,$CH_2CH_2CH_3$, or $(CH_2)_3CH_3$.

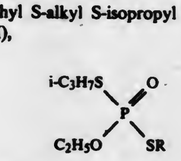
4,273,769

O-ETHYL S-ALKYL S-ISOPROPYL PHOSPHORO-DITHIOLATE, AND THEIR USE AS NEMATOCIDE

Rokuo Koyanagi, Ibaraki; Yoshio Fujita, Kawanishi, and Kunio Mukai, Takarazuka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Apr. 14, 1980, Ser. No. 139,990
Claims priority, application Japan, Apr. 20, 1979, 54-49208
Int. Cl.³ A01N 57/12; C07F 9/165
U.S. Cl. 424—224 5 Claims

1. An O-ethyl S-alkyl S-isopropyl phosphorodithiolate of the formula (I),



(I)

wherein R is methyl or ethyl group.

3. A method for controlling a nematode with a nematocidally effective amount of a compound according to claim 1.

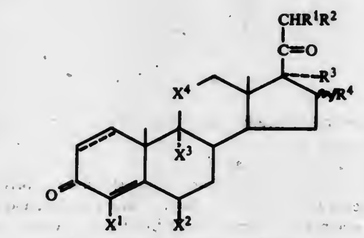
4,273,770

4-HALO STEROIDS

Francisco S. Alvarez, Sunnyvale, Calif., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

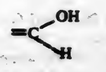
Continuation-in-part of Ser. No. 893,641, Apr. 5, 1978, abandoned. This application Aug. 20, 1979, Ser. No. 67,984
Int. Cl.³ C07J 5/00
U.S. Cl. 424—241 54 Claims

1. A compound chosen from those represented by the formula

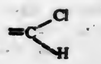


(I)

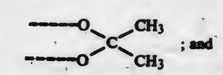
wherein
X^1 is fluoro or chloro;
X^2 is hydrogen, fluoro or chloro;
X^3 is hydrogen, fluoro, chloro or bromo;
X^4 is =C=O or



or may be

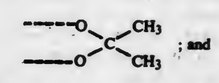


when X^3 is chloro;
R^1 is hydrogen, fluoro, chloro, bromo, hydroxy or methoxy;
R^2 is fluoro, chloro, bromo, hydroxy or alkanoyloxy of 2 through 6 carbon atoms when R^1 is hydrogen or R^2 is the same as R^1 when R^1 is fluoro, chloro, hydroxy or methoxy;
R^3 is alkanoyloxy of 2 through 6 carbon atoms when R^4 is α-methyl or β-methyl or R^3 and R^4 together are



; and

the solid and broken lines between the 1- and 2-positions in the A ring of the steroid nucleus represents a single or a double bond when R^3 and R^4 together are



; and

and a double bond when R^3 is alkanoyloxy and R^4 is α-methyl or β-methyl.

54. A method of relieving a topical inflammatory condition in a mammal which comprises administering a therapeutically effective amount of the compound of claim 1 to said mammal.

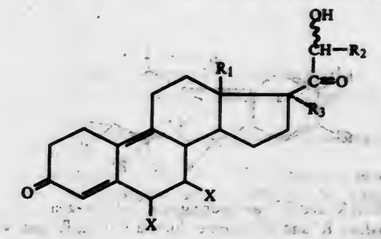
4,273,771

NOVEL $\Delta^{4,9}$-GONADIENE-21-OL-3,20-DIONES

Daniel Counediere, Montfermeil, France, assignor to Roussel Uclaf, Paris, France

Filed Jul. 5, 1979, Ser. No. 55,019
Claims priority, application France, Jul. 13, 1978, 78 20973
Int. Cl.³ C07J 71/00; A61K 31/56
U.S. Cl. 424—242 24 Claims

1. A $\Delta^{4,9}$-gonadiene-3,20-dione of the formula



wherein X is selected from the group consisting of hydrogen and tritium, R_1 is alkyl of 1 to 3 carbon atoms, R_2 is alkyl of 1 to 12 carbon atoms and R_3 is alkyl of 1 to 4 carbon atoms in the form of 21R or 21S epimers or mixtures thereof.

17. A method of inducing progestomimetic and antiestro-

genic activity in warm-blooded animals comprising administering to warm-blooded animals a progestomimetically and antiestrogenically effective amount of at least one compound of claim 1, wherein X is hydrogen.

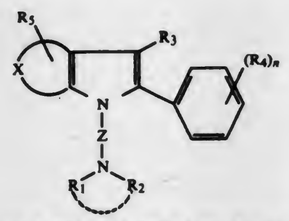
4,273,772

METHOD OF REDUCING GASTRIC SECRETION

Richard C. Allen, Flemington, N.J., assignor to Hoechst-Roussel Pharmaceuticals, Inc., Bridgewater, N.J.

Filed Aug. 17, 1979, Ser. No. 67,223
Int. Cl.³ A61K *27/00, 31/495, 31/445, 31/40*
U.S. Cl. 424—248.54 **32 Claims**

1. A method of reducing gastric secretion in a mammal which comprises administering to a mammal in need thereof an effective anti-secretory amount of a substituted N-aminoalkylpyrrole having the formula



wherein Z is a straight or branched saturated or olefinically unsaturated hydrocarbon chain of from 2 to 5 carbon atoms; R_1 is hydrogen or alkyl of from 1 to 3 carbon atoms; R_2 is alkyl of from 1 to 3 carbon atoms or phenyl; or R_1 and R_2 together with the nitrogen atom to which they are attached form a heterocyclic selected from the group consisting of pyrrolidinyl, piperidino, piperazinyl, imidazolidonyl and morpholino; R_3 is hydrogen or phenyl or substituted phenyl; R_4 is alkyl of from 1 to 6 carbon atoms; alkoxy of from 1 to 4 carbon atoms; halogen, trifluoromethyl, hydroxy, nitro, cyano, amino, acetamido, phenyl or substituted phenyl; n is an integer from 0 to 3, inclusive; X is alkylene of from 3 to 7 carbon atoms; and R_5 is hydrogen, alkyl of from 1 to 5 carbon atoms, alkoxy of from 1 to 2 carbon atoms or halogen; or a physiological tolerable acid addition salt thereof.

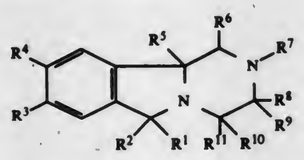
4,273,773

ANTIHYPERTENSIVE TRICYCLIC ISOINDOLE DERIVATIVES

Christopher A. Demerson, Montreal; Leslie G. Humber, Dollard des Ormeaux, and Jean-Marie Feriand, St. Laurent, all of Canada, assignors to American Home Products Corporation, New York, N.Y.

Filed Sep. 24, 1979, Ser. No. 78,547
Int. Cl.³ A61K *31/495;* C07D *241/36*
U.S. Cl. 424—250 **52 Claims**

1. A compound of formula Ia



(Ia)

in which R^1 and R^{11} are hydrogen; R^2 is hydrogen or hydroxymethyl; or R^1 and R^2 together form a ketone; R^3 and R^4 each is hydrogen, lower alkoxy, lower alkyl, halo or hydroxy; R^5 is hydrogen, lower alkyl or phenylmethyl; R^6 is hydrogen or lower alkyl; R^7 is hydrogen, lower alkyl, lower alkanoyl, cyclohexylcarbonyl, phenylmethyl, benzoyl, 4-nitrobenzoyl, 4-aminobenzoyl, a radical of formula $(CH_2)_nNR^{12}R^{13}$ wherein n is an integer from two to six, and R^{12} and R^{13} each is lower alkyl, or a radical of formula $CO—(CH_2)_{n-1}NR^{12}R^{13}$ wherein n, R^{12} and R^{13} are as defined herein; R^8, R^9 and R^{10} each is hydrogen or lower alkyl, with the proviso that when R^6 is lower alkyl then R^1, R^2, R^5, R^8 and R^9 are hydrogen or R^1 and R^2 together form a ketone, or a therapeutically acceptable acid addition salt thereof.

48. A method of treating hypertension in a mammal, which comprises administering to said mammal an effective antihypertensive amount of a compound of formula Ia or a therapeutically acceptable acid addition salt thereof, as claimed in claim 1.

4,273,774

CENTRAL NERVOUS SYSTEM COMPOSITIONS AND METHOD

Arthur Scherm, Bad Homburg, Fed. Rep. of Germany, assignor to Merz & Co., Frankfurt, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,419
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856393
Int. Cl.³ A61K *31/52, 31/135*
U.S. Cl. 424—253 **11 Claims**

6. A method for influencing the central nervous system which is especially useful in the treatment of hyperkinesis and rigidity, comprising concurrently administering to a host in need of such treatment the compound (a) 1,3-dimethyl-5-aminoadamantane or a pharmaceutically-acceptable salt thereof and (b) a methylxanthine compound, selected from caffeine and theophylline, in an amount up to about fifteen milligrams of the methylxanthine compound per milligram of the 1,3-dimethyl-5-aminoadamantane compound, the combination of (a) and (b) constituting an effective antihyperkinesic dose.

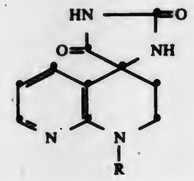
4,273,775

HYDANTOIN DERIVATIVES, ANTI-DIABETIC COMPOSITIONS THEREOF, AND METHOD OF USE THEREOF

Reinhard Sarges, Mystic, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 48,004, Jun. 13, 1979. This application May 27, 1980, Ser. No. 153,154
Int. Cl.³ C07D *471/20;* A61K *31/42*
U.S. Cl. 424—256 **6 Claims**

1. A compound of the formula:



II

and the pharmaceutically acceptable acid addition salts thereof, wherein

R is hydrogen or lower alkyl.

6. A composition suitable for oral administration comprising a pharmaceutically acceptable carrier and a compound as claimed in claim 1 in an amount effective for the treatment of ocular or neuritic diabetes-associated chronic complications.

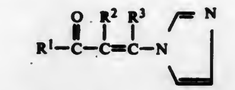
4,273,776

ANTIBACTERIAL AND ANTIFUNGAL DERIVATIVES OF 3-(1H-IMIDAZOL-1-YL)-2-PROPEN-1-ONES

Hans Hoehn, Tegernheim, Fed. Rep. of Germany, assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Jan. 30, 1980, Ser. No. 117,139
Int. Cl.³ A61K *31/44, 31/415;* C07D *233/60, 409/06*
U.S. Cl. 424—263 **7 Claims**

1. A compound of the formula



wherein R^1 is phenyl; substituted phenyl wherein the phenyl group bears one or two halogen, hydroxy, lower alkyl, lower alkoxy, lower alkylthio, cyano or nitro groups; 5- or 6-membered monocyclic aromatic heterocyclic containing one O, S or N atom selected from the group consisting of furan, pyridine and thiophene; or substituted 5- or 6-membered monocyclic aromatic heterocyclic as defined above wherein the heterocyclic bears one halogen, hydroxy, lower alkyl, lower alkylthio, lower alkoxy, cyano or nitro group;

R^2 is halogen,

R^3 is hydrogen, lower alkyl, halogen, phenyl or substituted phenyl wherein the phenyl group bears one halogen, hydroxy, lower alkyl, lower alkoxy, lower alkylthio, cyano or nitro group,

or a physiologically acceptable acid-addition salt thereof.

7. A method for treating bacterial or fungal infections in mammals which comprises administering to a mammalian host an effective amount of a compound as defined in claim 1.

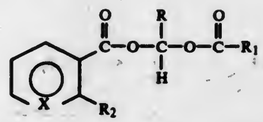
4,273,777

METHODS OF TREATING MAMMALS SUFFERING FROM INFLAMMATION AND PAIN

Mario A. Los, Capital Federal, Argentina, assignor to Laboratorios Bago S.A., Argentina

Division of Ser. No. 44,944, Jun. 4, 1979, which is a continuation-in-part of Ser. No. 2,225, Jan. 9, 1979. This application May 13, 1980, Ser. No. 149,435
Int. Cl.³ A61K *31/44*
U.S. Cl. 424—263 **4 Claims**

1. A method of alleviating pain and inflammation in mammals, including humans, suffering from pain and inflammation, which comprises; administering to the mammal an effective amount of a compound selected from those of the formula:



(I)

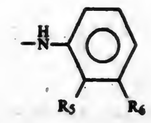
wherein X represents a moiety of formula:

R taken independently is hydrogen; R_1 taken independently is isobutyl; and R and R_1 when taken together form the divalent moiety of formula:



; and

R_2 is a group of formula:



wherein when R_1 and R are taken together, then R_5 is methyl and R_6 is chlorine, and when R_1 is isobutyl and R is hydrogen, then R_5 is selected from the group consisting of hydrogen and methyl and R_6 is selected from the group consisting of chlorine and trifluoromethyl; and the pharmaceutically acceptable acid addition salts thereof.

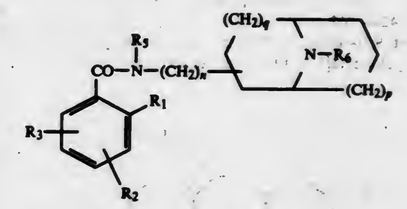
4,273,778

PHARMACEUTICALLY ACTIVE AZA-BICYCLO-BENZAMIDE DERIVATIVES

Michael S. Hadley, Sawbridgeworth, and Francis D. King, Newport, both of England, assignors to Beecham Group, Limited, England

Filed Dec. 26, 1979, Ser. No. 107,413
Claims priority, application United Kingdom, Dec. 30, 1978, 50380/78; Mar. 15, 1979, 09262/79; Aug. 9, 1979, 27831/79
Int. Cl.³ C07D *451/04, 451/14;* A61K *31/46, 31/455*
U.S. Cl. 424—265 **41 Claims**

1. A compound of the formula (I) and pharmaceutically acceptable salts thereof:



(I)

wherein:

R_1 is a C_{1-6} alkoxy group;

R_2 and R_3 are the same or different and are hydrogen, halogen, CF_3, C_{2-7} acyl, C_{2-7} acylamino, or amino or aminocarbonyl optionally substituted by one or two C_{1-6} alkyl groups, or nitro;

R_5 is hydrogen or C_{1-6} alkyl;

R_6 is C_{1-7} alkyl or a group $—(CH_2)_sR_7$ where s is 0 to 2 and R_7 is a C_{3-8} cycloalkyl group, or a group $—(CH_2)_tR_8$ where t is 1 or 2 and R_8 is C_{2-5} alkenyl or a phenyl group optionally substituted by one or two substituents selected from C_{1-6} alkyl, C_{1-4} alkoxy, trifluoromethyl and halogen; and

n, p and q are independently 0 to 2.

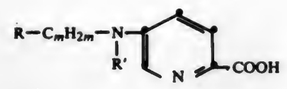
4,273,779

TREATING HYPERTENSION WITH SUBSTITUTED-5-AMINO-2-PYRIDINECARBOXYLIC ACIDS

Neville Finch, West Orange, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 753,973, Dec. 15, 1976, abandoned. This application Oct. 17, 1977, Ser. No. 842,946
Int. Cl.² A61K *31/455*
U.S. Cl. 424—266 **3 Claims**

1. A method of treating hypertension in mammals, which comprises administering to said mammals in need of such treatment enterally or parenterally a composition comprising a hypotensively effective amount of a compound of the formula



wherein R is hydrogen, phenyl, or phenyl substituted by up to two members selected from lower alkyl, lower alkoxy, halogeno, trifluoromethyl, cyano, carbamoyl or phenoxy, R' is hydrogen, lower alkyl or benzyl, m is an integer from 1 to 4, or a therapeutically acceptable ammonium, alkali metal or acid addition salt thereof, together with a pharmaceutical excipent.

4,273,780

ANTI-ALLERGIC ANTI-9,10-DIHYDRO-4-(1-METHYL-4-PIPERIDYLIDENE)-4H-BENZO[4,5]CYCLOHEPTA[1,2-B]THIOPHEN-10(9H)-ONE OXIME

Erwin Waldvogel, Aesch; Jean-Michel Bastian, Therwil, and Gustav Schwarb, Allschwil, all of Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

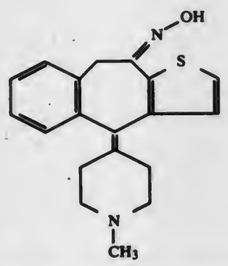
Continuation of Ser. No. 37,720, May 11, 1979, abandoned, which is a continuation of Ser. No. 869,101, Jan. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 754,984, Dec. 28, 1976, abandoned. This application Jan. 8, 1980, Ser. No. 110,443

Claims priority, application United Kingdom, Jan. 2, 1976, 50/76

Int. Cl.³ A61K *31/445*; C07D *409/02*

U.S. Cl. 424—267 **3 Claims**

1. Anti-9,10-dihydro-4-(1-methyl-4-piperidylidene)-4H-benzo[4,5]cycloheptа[1,2-b]thiophen-10(9H)-one oxime of formula,



containing less than 5% of the corresponding syn-isomer.

3. A method of preventing or treating allergic conditions which comprises administering to an animal in need of such treatment an anti-allergic effective amount of the anti-isomer of claim 1.

4,273,781

TREATMENT OF PAIN, FEVER, AND INFLAMMATION WITH COMPOSITIONS CONTAINING PIPERIDINOBUTAN-AND 3-BUTEN-2-ONES

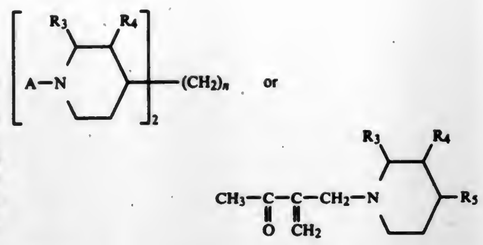
Nathaniel Grier, Englewood; Richard A. Dybas, Somerville, and Bruce E. Witzel, Rahway, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 59,404, Jul. 20, 1979. This application Jul. 17, 1980, Ser. No. 169,566

Int. Cl.³ A61K *31/445*

U.S. Cl. 424—267 **6 Claims**

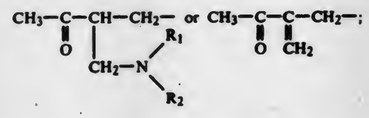
1. A method of treating a condition exhibiting at least one of the symptoms of pain, fever, and inflammation, comprising administering to a patient in need of such treatment a therapeutically effective amount of a compound of the formula:



wherein

R_1 and R_2 are independently selected from hydrogen; C_{1-8} alkyl; C_{2-8} alkenyl; hydroxy C_{1-8} alkyl; and cyclo C_4 alkyl; or R_1 and R_2 taken together with the nitrogen atom from a five- or six-membered saturated heterocyclic ring substituted at the 2-, 3-, and 4-position with R_3, R_4, and R_5, respectively; and

R_3, R_4, and R_5 are selected from hydrogen; C_{1-3} alkyl; C_{2-3} alkenyl; hydroxy; hydroxy C_{1-3} alkyl; phenyl; carboxyl; carboxamido; C_{1-4} alkyl N-mono- and N,N-disubstituted carbonylamino; C_{1-4} alkoxycarbonyl; 1-pyrrolidinyl; and 1-piperidinyl; A is



and n is 0 to 3; and acid addition and quaternary salts thereof.

4,273,782

INHIBITION OF THROMBOXANE SYNTHETASE BY 3-(1-IMIDAZOLYLALKYL) INDOLES

Peter E. Cross, Canterbury, and Roger P. Dickinson, Dover, both of England, assignors to Pfizer Inc., New York, N.Y.

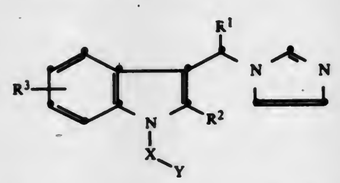
Filed Mar. 5, 1980, Ser. No. 127,298

Claims priority, application United Kingdom, Mar. 7, 1979, 08123/79

Int. Cl.³ A61K *31/415*; C07D *403/06*

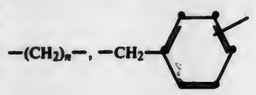
U.S. Cl. 424—273 R **27 Claims**

1. A compound of the formula

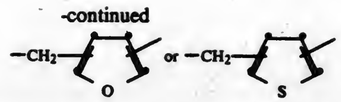


(I)

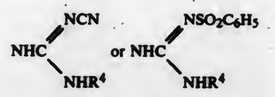
wherein R^1 is hydrogen or C_1–C_4 lower alkyl; R^2 is hydrogen, C_1–C_6 alkyl, C_3–C_6 cycloalkyl, phenyl, or phenyl monosubstituted with C_1–C_4 lower alkyl, C_1–C_4 lower alkoxy, fluorine, chlorine or bromine; R^3 is hydrogen, C_1–C_4 lower alkyl, C_1–C_4 alkoxy, hydroxy, trifluoromethyl, di(C_1–C_4 lower alkyl-)amino, fluorine, chlorine or bromine; X is



-continued



wherein n is an interger of from 1 to 3; Y is CO_2R^4, $CONHR^5$, $CON(C_1$–C_4 lower alkyl$)_2$, CN, 5-tetrazolyl, $CONHCOR^6$, CONHCN or $CONHSO_2R^6$; or, when X is $(CH_2)_n$ and n is 2 or 3, Y is NH_2, $NHCOR^6$, $NHCO_2(C_1$–C_4 lower alkyl), $NHCONHR^5$, $NHSO_2R^6$,



R^4 is hydrogen or C_1–C_4 lower alkyl; R^5 is hydrogen, C_1–C_4 lower alkyl, C_3–C_6 cycloalkyl, phenyl, 2-thiazolyl, 2-pyridyl, 2-pyrazinyl, 2-pyrimidinyl, or 2-pyridazinyl; R^6 is C_1–C_4 lower alkyl, C_3–C_6 cycloalkyl, 2-pyridyl, phenyl or phenyl monosubstituted with C_1–C_4 lower alkyl, C_1–C_4 lower alkoxy, fluorine, chlorine or bromine or a pharmaceutically acceptable acid addition salt thereof.

20. A method of inhibiting the action of thromboxane synthetase enzyme in an animal in need of treatment comprising administering to said animal an effective amount of a compound of claim 1.

4,273,783

(1-ALKYL-5-NITRO-2-IMIDAZOLYL)-VINYL-GLYOXAL-DIACETALS, THEIR PREPARATION AND THEIR USE

Eugen Diethelm, Triesen, Liechtenstein, assignor to Grisenan Chemicals Limited, England

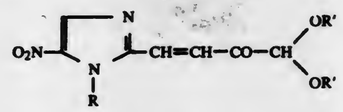
Filed Jun. 18, 1979, Ser. No. 49,313

Claims priority, application United Kingdom, Jun. 22, 1978, 27635/78

Int. Cl.³ A61K *31/415*; C07D *233/64*

U.S. Cl. 424—273 R **5 Claims**

1. (1-Alkyl-5-nitro-imidazolyl)-vinyl-glyoxal-diacetal of the formula:



(I)

in which R and R', which may be the same or different, each represent straight or branched chain alkyl groups of 1 to 5 carbon atoms each.

4,273,784

ORGANIC COMPOUNDS

Pietro Bollinger, Bottmingen, Switzerland, assignor to Sandoz Ltd., Basel, Switzerland

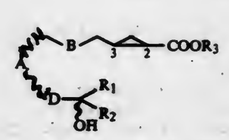
Continuation of Ser. No. 848,814, Nov. 7, 1977, abandoned, which is a continuation of Ser. No. 749,497, Dec. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 720,315, Sep. 3, 1976, abandoned, and Ser. No. 645,546, Dec. 31, 1975, said ser. No. 720,315 is a continuation-in-part of said Ser. No. 645,546, which is a continuation-in-part of Ser. No. 642,189, Dec. 18, 1975 and Ser. No. 485,310, Jul. 2, 1974, abandoned, said Ser. No. 642,189 is a continuation of said Ser. No. 485,310.

Claims priority, application Switzerland, Jul. 9, 1973, 9959/73; May 4, 1974, 6049/74; Feb. 11, 1975, 1651/75; Sep. 5, 1975, 11593/75; Oct. 1, 1975, 12727/75; Dec. 12, 1975, 16143/75; Dec. 16, 1975, 16281/75; Jan. 7, 1976, 102/76; Jan. 7, 1976, 103/76

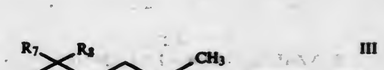
Int. Cl.³ C07C *177/00*

U.S. Cl. 424—305 **41 Claims**

1. A compound of the formula



where R_1 is a radical of formula III,



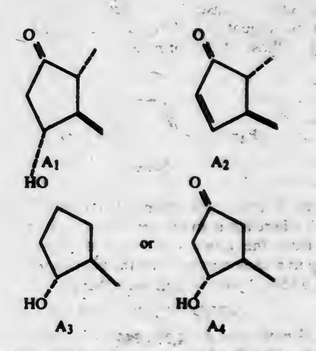
III

wherein

R_7 and R_8 are, independently, hydrogen or alkyl of 1 to 4 carbon atoms, and

R_2 is hydrogen, and

A is a group of the formula



and

B is (cis—CH=CH— and

D is (trans)—CH=CH— and

R_3 is

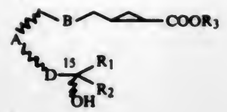
(i) hydrogen

(ii) alkyl of 1 to 8 carbon atoms,

(iii) cycloalkyl of 3 to 10 carbon atoms, or

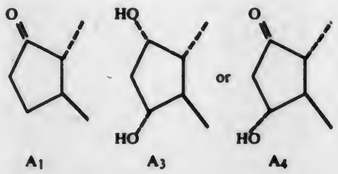
(iv) aralkyl of 7 to 12 carbon atoms.

26. A compound of the formula



wherein

A is a group of the formula



A_1 A_3 A_4

B is (cis)-CH=CH-, and

D is (trans)-CH=CH-, and

R_1 is n-pentyl, and

R_2 is alkyl of 1 to 7 carbon atoms, and

R_3 is

(i) hydrogen,

(ii) alkyl of 1 to 8 carbon atoms

(iii) cycloalkyl of 3 to 10 carbon atoms or

(iv) aralkyl of 7 to 12 carbon atoms.

40. The compound of claim 1 which is (5Z, 11α, 13E, 15S)-11,15-dihydroxy -15-methyl-9-oxo-2,3-(+)-trans-methylene-prosta-5,13-dienoic acid.

4,273,785

BENZALDEHYDES, ALKANOPHENONES, AND BENZOPHENONES AND DERIVATIVES THEREOF CONTAINING A 4-MONOALKYLAMINO GROUP

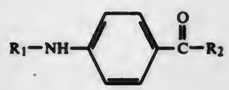
Robert G. Shepherd, South Nyack, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Sep. 27, 1977, Ser. No. 836,947

Int. Cl.³ A61K *31/135, 31/205;* C07C *95/08*

U.S. Cl. 424—316 **17 Claims**

1. The method of treating hyperlipidemia and hyperlipoproteinemia and/or altering the lipoprotein pattern in a mammal comprising administration to said mammal of an effective lipid-altering amount of a compound selected from the group consisting of those of the formula:



wherein R_1 is a straight chain alkyl group of the formula $C_nH_{2n}+1$ wherein n is an integer from 8 to 19, inclusive; R_2 is selected from the group consisting of hydrogen and alkyl having up to 6 carbon atoms; and the pharmaceutically acceptable acid addition and cationic salts thereof.

4,273,786

INHIBITION OF CONDITIONS ARISING FROM MICROBIAL PRODUCTION OF AMMONIA

Kenneth S. Kraskin, Milltown, N.J., assignor to Personal Products Company, Milltown, N.J.

Continuation-in-part of Ser. No. 595,985, Jul. 14, 1975, abandoned, which is a division of Ser. No. 478,663, Jun. 12, 1974, Pat. No. 3,935,862. This application Apr. 13, 1977, Ser. No. 787,238

Int. Cl.³ A61K *31/195*

U.S. Cl. 424—319 **4 Claims**

1. A method for inhibiting the development of odor and inflammatory conditions of the skin in the pelvic area caused by ammonia arising from microbial degradation of urea in excreted urine without significant detrimental effect on the growth of said microbes comprising: contacting the skin surface in the pelvic area with a composition comprising a vehicle suitable for topical application and, as the sole active ingredient, a water-soluble salt of an aminopolycarboxylic acid compound wherein said aminopolycarboxylic acid compound is an acid selected from the group consisting of ethylenediaminetetraacetic acid, diethylenetriaminepentaacetic acid and N-hydroxyethylethylenediaminetriacetic acid; and wherein said water-soluble salt is supplied in an amount to provide a concentration of from about 0.01% to about 5% by weight, based on the weight of said aminopolycarboxylic acid compound in excreted urine.

4,273,787

1-ALKYL,1-PHENYL-BUTENES

Eugene E. Galantay, Liestal, Switzerland, assignor to Sandoz, Inc., E. Hanover, N.J.

Continuation of Ser. No. 656,785, Feb. 10, 1976, abandoned, which is a continuation-in-part of Ser. No. 626,943, Oct. 29, 1975, abandoned, which is a continuation-in-part of Ser. No. 390,032, Aug. 20, 1973, abandoned. This application Aug. 9, 1979, Ser. No. 65,277

Int. Cl.³ C07C *49/223;* A01N *35/00;* C07C *49/225;* A61K *31/12;* C07C *49/217*

U.S. Cl. 424—331 **13 Claims**

1. A compound of the formula

wherein R is a hydrogen atom or halo having an atomic weight of from about 19 to 80;

R^1 is alkyl having from 1 to 3 carbon atoms; and

X is a hydrogen atom, halo having an atomic weight of from about 19 to 80, or alkoxy having from 1 to 4 carbon atoms.

5. A pharmaceutical composition suitable for use as an anti-inflammatory comprising an amount of a compound of claim 1 effective in reducing inflammation and a pharmaceutically acceptable carrier for said compound.

4,273,788

BULK PACKAGED MIXTURE OF HARD AND SOFT PET FOODS

David P. Bone, Palatine, and Lynda Robleski, Skokie, both of Ill., assignors to The Quaker Oats Company, Chicago, Ill.

Filed Oct. 19, 1979, Ser. No. 86,569

Int. Cl.³ B65B *23/00, 25/06;* A23K *1/00*

U.S. Cl. 426—104 **15 Claims**

1. A bulk packaged pet food product comprising a closed package containing a mixture of discrete pieces of hard dry pet food and soft dry or soft semi-moist pet food, in which the hard dry pet food pieces are roughly spherical bite-size pieces, and the soft pet food pieces consist essentially of slender cut burger strands, such strands being between 1.4 and three times greater in length than the largest dimension of the dry pet food pieces, the largest transverse dimension of the strands being between about 0.15 and 0.25 times the largest dimension of the hard, bite-size pieces, said large dimension of said bite-size pieces being between 0.5 and 1.0 inches, wherein the soft pieces are present in an amount between 10 and 40 percent by weight of the mixture.

4,273,789

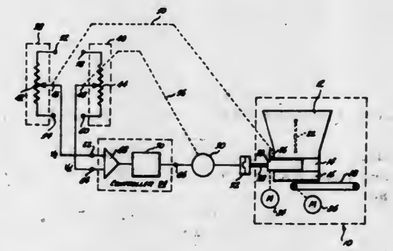
METHOD FOR AUTOMATIC CONTROL OF FOOD FORMING MACHINES

Clifton E. Zimmerman, 13331-178th Ave. SE., Renton, Wash. 98055

Division of Ser. No. 746,403, Dec. 1, 1976, Pat. No. 4,147,485. This application Jan. 19, 1979, Ser. No. 4,937

Int. Cl.³ A22C *7/00*

U.S. Cl. 426—231 **2 Claims**



1. In a process for forming a shapable food substance into a molded food product wherein the food substance is compressed under an adjustable forming pressure that is controlled by a rotatable rod which is rotated in a first direction to increase said forming pressure and rotated in a second direction to decrease said forming pressure, a method of controlling the density of said molded food product comprising the steps of:

sensing the temperature of said food substance being formed into said molded food product and supplying a first electrical signal representative of the temperature of said food substance; and

controlling said adjustable forming pressure as an inverse function of said temperature of said food substance by supplying a second electrical signal representative of the angular position of said rotatable rod, comparing said first and second electrical signals, automatically turning said rotatable rod in said first direction when said first electrical signal is less than said second electrical signal and automatically turning said rotatable rod in said second direction when said first electrical signal is greater than said second electrical signal.

4,273,790

LOW-FAT LIQUID SPREAD AND PROCESS

Peter M. Bosco, Brookfield Center, and William L. Sledzieski, Norwalk, both of Conn., assignors to Standard Brands Incorporated, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,643

Int. Cl.³ A23D *3/00, 5/00*

U.S. Cl. 426—335 **19 Claims**

9. A process for preparing a low-fat spread, which comprises: preparing an oil-in-water emulsion by admixing a dispersed phase comprising from 5 to 40%, based on the weight of the emulsion, of a fat having an SFI profile within the following ranges

50° F.—0–35%

70° F.—0–25%

92° F.—<8%

with a continuous aqueous phase, including a stabilizer, and a emulsifier system comprising a combination of lipophilic emulsifier and a hydrophilic emulsifier, the emulsifier system being present in an amount of from 0.1 to 4.0%, based on the total weight of the spread, and each of the lipophilic and hydrophilic emulsifiers being present at levels of at least 0.025% on the same bases, and the relative and total amounts of the emulsifiers and stabilizer being effective to provide a stable emulsion and a product which is liquid at about 40° F.; and homogenizing the emulsion under conditions effective to form a stable product which is liquid at about 40° F.

4,273,791

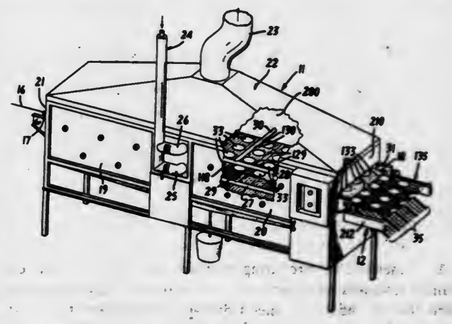
TACO SHELL MANUFACTURING PROCESS FEATURING AGEING TORTILLAS BY TEMPERING FOR RELATIVELY SHORT TIME IN LOW PRESSURE STEAM CHAMBER

Sheldon H. Hanson; Craig B. Thompson, and James E. Olson, all of Stoughton, Wis., assignors to Heublein, Inc., Hartford, Conn.

Division of Ser. No. 822,737, Aug. 8, 1977, Pat. No. 4,197,793. This application Oct. 26, 1979, Ser. No. 88,410

Int. Cl.³ A21D *15/04*

U.S. Cl. 426—439 **3 Claims**



1. A process of making fried taco shells comprising producing masa dough from ground corn; sheeting the dough and cutting disk tortillas therefrom; passing laterally through a heated baking oven on laterally-moving, open web support means, successive, appreciably longitudinally spaced, transverse rows of pluralities of the disk tortillas to transfer equipment for delivering the resultingly baked tortillas in such pattern of relative arrangement to and into the open entrance end of an elongated steam chamber; passing on said transverse rows of said baked tortillas successively through said steam chamber from the entrance end thereof to an outlet end thereof in a time period of about a few seconds to about a few minutes for submission therein to low pressure steam during this period of time to effect tempering in the form of equilibriation of moisture in the baked tortillas; and then transferring said tempered tortillas successively into and through deep fat frying apparatus.

4,273,792

BANANA PROCESSING

William P. Johnson, Queretaro, Mexico, and Elissa H. Harter, San Jose, Costa Rica, assignors to Gerber Products Company, Fremont, Mich.

Continuation of Ser. No. 958,752, Nov. 8, 1978, abandoned. This application Feb. 25, 1980, Ser. No. 124,152

Int. Cl.³ A23L *1/212*

U.S. Cl. 426—482 **5 Claims**

1. In a process for forming a cooked storage-stable banana puree free of seeds from fresh bananas by the steps of peeling, mashing, and heating, followed by cooling and storing, the improvement comprising accomplishing the heating by sub-

jecting the peeled, mashed bananas to be deseeded to contact with live steam at a temperature greater than the atmospheric boiling temperature of water for a time sufficient to accomplish cooking of the mashed bananas and thereafter subjecting the resulting cooked mashed bananas to flashing in a finisher having a screen so as to form a puree free of discoloration and substantially free of seeds, peel rag and other naturally occurring fibrous materials, said puree then being cooled prior to storing.

4,273,793

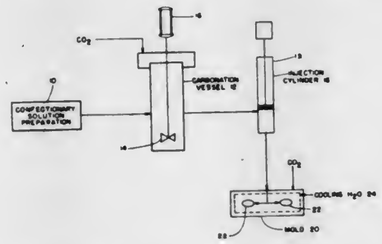
APPARATUS AND PROCESS FOR THE PREPARATION OF GASIFIED CONFECTIONARIES BY PRESSURIZED INJECTION MOLDING

Harry F. Fariel, Suffern, N.Y.; Marvin J. Rudolph, Bethel; Richard B. Hynson, New Fairfield, both of Conn.; Pradip K. Roy, Yorktown, and Fredric Kleiner, New City, both of N.Y., assignors to General Foods Corporation, White Plains, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,485

Int. Cl.³ A23L 1/07; A23G 3/12; A23P 1/00; B29D 27/00

U.S. Cl. 426—572 **21 Claims**



1. A method for preparing gasified candy, having gas entrained at superatmospheric pressure in the final candy product such that as the candy melts during consumption thereof it releases the gas to produce a tingling popping effect in the mouth, by pressurized injection in a mold, comprising:

a. preparing a confectionary solution;

b. subjecting the confectionary solution to a superatmospheric gas pressure in a pressurized vessel for a sufficient length of time to cause absorption of an amount of gas into the solution;

c. pressurizing an injection mold at a superatmospheric pressure;

d. injecting the gasified confectionary solution into said superatmospherically pressurized injection mold at a pressure above the superatmospheric gas pressure utilized in said pressurizing vessel and;

e. allowing the confectionary solution to solidify in the mold to entrain therein gas at a superatmospheric pressure in the resultant candy product, whereby as the candy melts during consumption it releases the gas to produce a tingling popping effect in the mouth.

4,273,794

COMPOSITION CONTAINING HONEY

Georg von Stering-Krugheim, Bendestorf, Fed. Rep. of Germany, assignor to E.R.E. Europe Representation Establishment, Vaduz, Liechtenstein

Filed Oct. 3, 1979, Ser. No. 81,329

Claims priority, application Fed. Rep. of Germany, Oct. 19, 1978, 2845570

Int. Cl.³ A23L 2/38, 1/08

U.S. Cl. 426—590 **9 Claims**

1. A composition comprising honey, 0.8 to 2 g of levorotatory ascorbic acid and 15 to 50 g of citric acid per kilogram of honey.

4,273,795

LOW-FAT SPREAD AND PROCESS

Peter M. Bosco, Brookfield Center, and William L. Sledzieski, Norwalk, both of Conn., assignors to Standard Brands Incorporated, New York, N.Y.

Filed Nov. 19, 1979, Ser. No. 95,644

Int. Cl.³ A23D 3/00, 5/00

U.S. Cl. 426—602 **30 Claims**

1. A low-fat spread comprising: a dispersed phase comprising from 5 to 40%, based on the weight of the spread, of fat having an SFI profile with the following ranges

50° F.—40–80%

70° F.—25–50%

92° F.—<10%

a continuous aqueous phase including a stabilizer; and an emulsifier system comprising a combination of a lipophilic emulsifier and a hydrophilic emulsifier, the emulsifier system being present in an amount of from 0.3 to 4.0%, based on the total weight of the spread, and each of the lipophilic and hydrophilic emulsifiers are present at levels of at least 0.05% on the same basis; the relative and total amounts of the emulsifiers and the stabilizer being effective to provide a stable emulsion and a product which is solid at 40° F.

4,273,796

PREPARATION OF DEHYDRATED SUGAR TREATED BEANS

Thomas A. Maxcy, Lincoln, Nebr., and John S. Denny, Minneapolis, Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Jan. 21, 1980, Ser. No. 113,833

Int. Cl.³ A23L 1/20

U.S. Cl. 426—634 **8 Claims**

1. A method of preparing precooked dried leguminous beans, consisting essentially of the steps of:

A. cooking leguminous beans in an aqueous solution of from about 5% to 7% by weight sugar from about 30 minutes to 3 hours until the leguminous beans are from about 62% to 70% by weight water at from about 180° F. to 350° F.; and, thereafter;

B. dehydrating leguminous beans to form dried legumes having a moisture content of from about 4% to 12% by weight.

4,273,797

METHOD OF DETECTING PINHOLES IN A MAGNETIC RECORDING MEDIUM

Goro Akashi; Yasuyuki Yamada; Masaaki Fujiyama, and Nobutaka Yamaguchi, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 835,662, Sep. 22, 1977, abandoned, which is a continuation of Ser. No. 364,264, May 29, 1973, abandoned. This application Apr. 16, 1979, Ser. No. 30,538

Claims priority, application Japan, Jun. 2, 1972, 47/55476

Int. Cl.³ B05D 5/12

U.S. Cl. 427—10 **6 Claims**

1. A method of detecting pinholes in the magnetic recording layer of a magnetic recording medium where said medium comprises a plastic film having on one side said magnetic recording layer and, on the opposite side, a backing layer containing (1) a light colored powder selected from the group consisting of ZnO and TiO_2 and mixtures thereof, (2) a further substance selected from the group consisting of carbon black; graphite and mixtures thereof in an amount of about 3 to about 30 parts by weight based on 100 parts by weight of said powder; and (3) a polymeric binder, said light colored powder and said further substance being present in an amount of from about 80 to 600 parts by mixed weight, based on 100 parts by weight of said binder, said backing layer being from 0.5 to 5 microns in dry thickness and transmitting more than 3% of white light at a thickness of 2 microns and said backing layer having a surface electrical resistance of less than $10^{10}\Omega/cm^2$, said method comprising transmitting light through said recording medium so that said pinholes can be detected.

4,273,798

PROCESS FOR COATING METAL TUBES WITH PLASTIC MATERIALS

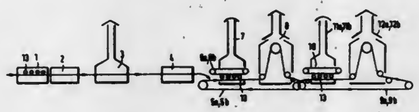
Werner Scheiber, Frankfurt am Main, Fed. Rep. of Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jan. 29, 1979, Ser. No. 53,654

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830593

Int. Cl.³ B05D 1/06, 7/22

U.S. Cl. 427—27 **1 Claim**



1. In a process of applying a coating of plastic material to both the inside surface and the outside surface of a metal tube of finite length wherein the metal tube is by means of a plurality of successively disposed, horizontally extending carrying conveyors which contact and support said tube in different locations, passed in a direction of travel such that its longitudinal axis is perpendicular to said direction of travel the improvement wherein the metal tube is coated according to the following sequence of process steps:

(A) The metal tube is heated to a temperature above the melting point of the plastic material to be applied thereto,

(B) the plastic material in the form of a powder is together with air applied to the so-heated metal tube on the inside surface thereof and said plastic material is fritted onto said inside surface.

(C) said metal tube is then rotated and subsequently coated on the outside surface thereof except for its end portion which are supported by said conveyor in a plurality of steps with plastic material sprayed thereon by an electrostatic spray process, and

(D) thereafter the end portions are coated with a plastic material by an electrostatic spray process while said tube is supported by said conveyor in a different location, and

(E) after each stage in which the plastic material is applied to the outside surface of the tube and at the stage wherein the plastic material is applied to the end portions of the tube, the tube is heated to melt and cure the plastic material applied to the outside surface or end portion and the plastic material which had been applied to the corresponding area of the inside surface.

4,273,799

METHOD FOR PRODUCING A SYNTHETIC RESIN MOLDED PRODUCT HAVING AN ABRASION RESISTANT SURFACE

Kazumasa Kamada; Kenji Kushi, both of Ohtake; Keisuke Yoshihara, Yokohama, and Hideo Nakamoto, Nagoya, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Division of Ser. No. 878,830, Feb. 17, 1978, Pat. No. 4,199,421. This application May 2, 1979, Ser. No. 35,401

Claims priority, application Japan, Feb. 23, 1977, 52-19038

The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.

Int. Cl.³ B05D 3/06

U.S. Cl. 427—44 **22 Claims**

1. A coating composition which comprises 100 parts by weight of a monomer mixture (A) comprising 30–98% by weight of a polyfunctional monomer having at least three substituents selected from the group consisting of acryloyloxy groups and methacryloyloxy groups in one molecule and 70–2% by weight of at least one monomer selected from the group consisting of methoxyethyl (meth)acrylate, ethoxyethyl (meth)acrylate, butoxyethyl (meth)acrylate, methoxydiethylene glycol (meth)acrylate and dipropylene glycol mono(meth)acrylate and 0–10 parts by weight of a photosensitizer and which can form a crosslinked hardened film excellent in abrasion resistance upon irradiation with actinic radiation in an air atmosphere.

4,273,800

COATING MASS CONTROL USING MAGNETIC FIELD

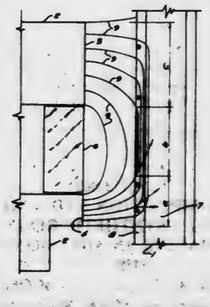
Paul Reid, New Lambton, Australia, assignor to John Lysaght (Australia) Limited, Australia

Filed Nov. 24, 1978, Ser. No. 963,239

Claims priority, application Australia, Nov. 24, 1977, PD 2536

Int. Cl.³ B05D 3/14

U.S. Cl. 427—47 **10 Claims**



1. A method for controlling the thickness of a liquid metal coating on a metal substrate comprising the steps of:

advancing said substrate in an advance direction;

disposing a magnetic yoke having two spaced apart pole faces so that each pole face is adjacent the substrate and on the same side thereof with respect to the advance direction;

generating in said magnetic yoke a pulsating or alternating magnetic flux to produce flux in a looped path which enters said coating at an entry zone, passes along one surface of said coating and said substrate, and exits from said coating at an exit zone, said zones both being on the external surface of said one surface of said coating and spaced apart with respect to said advance direction; and

controlling the frequency and intensity of said flux so as to exert on said coating surface a force which opposes viscous drag forces exerted therein by said moving substrate.

4,273,801

PASSIVE BUBBLE GENERATOR

William D. Doyle, Dresher, Pa., assignor to Sperry Corporation, New York, N.Y.

Filed Aug. 1, 1979, Ser. No. 62,842

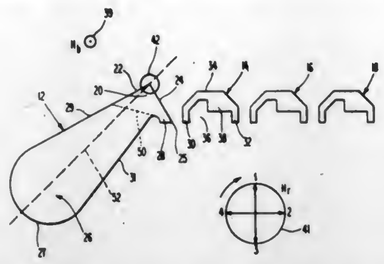
Int. Cl.³ B05D 3/14

U.S. Cl. 427—48 **5 Claims**

1. In a method for controllably generating magnetic bubbles in a planar layer of material in which said bubbles exist in stable form when said layer is in the presence of a bias field of a predetermined value and oriented substantially perpendicular to said layer, and on which is present a pattern of permalloy elements defining a path along which said bubbles can move in response to a rotating magnetic field, which magnetic field rotates in the plane of said layer of material, the improvement comprising the steps of:

(a) providing a nucleating permalloy element with a nucleating angle portion and a contiguous area portion larger than the area of said angle portion; and

(b) passively nucleating material bubbles by pulsing said in-plane rotating magnetic field when said field is at a



predetermined orientation with respect to said nucleating angle portion.

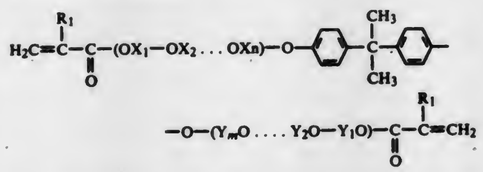
4,273,802

COATING COMPOSITION AND A METHOD FOR PRODUCING A SYNTHETIC RESIN MOLDED PRODUCT HAVING AN ABRASION RESISTANT SURFACE

Kazumasa Kamada; Kenji Kushi, both of Ohtake; Keisuke Yoshihara, Yokohama, and Hideo Nakamoto, Nagoya, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Division of Ser. No. 878,830, Feb. 17, 1978, Pat. No. 4,199,421. This application May 2, 1979, Ser. No. 35,398
Claims priority, application Japan, Feb. 23, 1977, 52/19038
Int. Cl.³ B05D 3/06; C08F 2/46, 8/00
U.S. Cl. 427—54.1 **27 Claims**

13. A method for producing an abrasion resistant synthetic resin molded product, which comprises coating on the surface of a synthetic resin molded product a coating composition which comprises 100 parts by weight of a monomer mixture (A) comprising 30–98% by weight of a polyfunctional monomer having at least three groups selected from acryloyloxy group and methacryloyloxy group in one molecule and 70–2% by weight of a monomer having two groups selected from acryloyloxy group and methacryloyloxy group and 0–10 parts by weight of a photosensitizer and which can form a crosslink-hardened film excellent in abrasion resistance by irradiation with actinic radiation in an air atmosphere and then irradiating the coating film with actinic radiation to form a crosslink-hardened flim of 1–30μ thick on the surface of the synthetic resin molded product, wherein said monomer having said two groups has the formula:



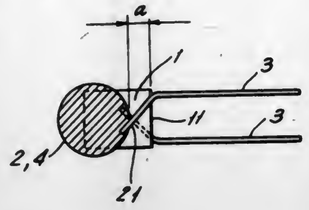
(wherein R_1 is hydrogen atom or methyl, X_1, X_2 . . . Xn and Y_1, Y_2 . . . Ym are the same or different alkylene groups of not more than six carbon atoms or those in which one hydrogen atom is substituted with hydroxyl group, and n and m are integers of 0–5).

4,273,803

PROCESS FOR COVERING OR COATING ELECTRICAL COMPONENTS

Kurt Jöhnk, Neustadt, Fed. Rep. of Germany, assignor to Dralo-ric Electronic GmbH, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 53,910
Int. Cl.³ B05D 5/12
U.S. Cl. 427—58 **10 Claims**



1. A process for covering or coating an electric component having leads extending away from and beyond an edge of the electric component, comprising the steps of:

wetting the electric component with a solvent;

thereafter directing a jet of insulative liquid covering material against a surface of the electric component, the jet of liquid covering material having a peripheral edge parallel to the direction of motion of the covering material in the jet; the jet of covering material being so directed that the portion of the peripheral edge of the jet that is nearest the edge of the electric component beyond which the leads extend impinges upon the surface receiving the jet of covering material and is spaced approximately a predetermined distance from the edge of the electric component beyond which the leads extend.

4,273,804

PROCESS USING ACTIVATED ELECTROLESS PLATING CATALYSTS

Nathan Feldstein, 63 Hemlock Cir., Princeton, N.J. 08540

Division of Ser. No. 941,044, Sep. 11, 1978, Pat. No. 4,180,600, which is a continuation-in-part of Ser. No. 820,904, Jan. 1, 1977, Pat. No. 4,131,699, which is a continuation of Ser. No. 625,326, Oct. 23, 1975, Pat. No. 4,048,354. This application Dec. 21, 1979, Ser. No. 105,865
The portion of the term of this patent subsequent to Sep. 13, 1994, has been disclaimed.
Int. Cl.³ C23C 3/02
U.S. Cl. 427—97 **20 Claims**

1. A process for the electroless or chemical plating of a non-conductor substrate comprising the steps;

(1) etching said substrate,

(2) contacting said substrate with an activated colloidal dispersion wherein said colloidal dispersion comprises a metal which in one of its oxidation states is capable of electroless or chemical plating initiation, and wherein said metal may be in an elemental state, or an alloy, or compound, and mixtures thereof and further wherein said activated colloidal dispersion comprises at least one primary stabilizer which alone renders the colloidal dispersion weakly active and at least one reactivity modifier and wherein said primary stabilizer and said reactivity modifier are inherently colloid stabilizers however they are different materials, and

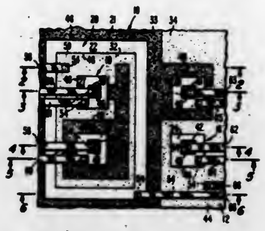
(3) contacting the treated substrate with a compatible electroless plating bath for the deposition of a metal.

4,273,805

PASSIVATING COMPOSITE FOR A SEMICONDUCTOR DEVICE COMPRISING A SILICON NITRIDE (Si_3N_4) LAYER AND PHOSPHOSILICATE GLASS (PSG) LAYER

Robert H. Dawson, Princeton, N.J., and George L. Schnable, Lansdale, Pa., assignors to RCA Corporation, New York, N.Y.

Filed Jun. 19, 1978, Ser. No. 917,106
Int. Cl.³ H01L 7/44
U.S. Cl. 427—88 **8 Claims**



1. An improved method of passivating an integrated circuit device of the type comprising a substrate of semiconductor material having semiconductor devices formed therein, said semiconductor devices being covered by a first layer of insulating material, the improvement comprising the steps of:

(a) forming contact openings through said first layer of insulating material;

(b) covering said first layer of insulating material which an impervious layer of silicon nitride; then

(c) covering said impervious layer with a phosphosilicate glass layer; then

(d) forming contact openings through said phosphosilicate glass layer which align with said contact openings formed through said first layer of insulating material; then

(e) heating said phosphosilicate glass layer in the presence of steam at a temperature sufficient to cause the edges of said contact openings formed in said phosphosilicate glass layer to become rounded, said temperature not being sufficient to affect said impervious layer; then

(f) extending said contact openings through those portions of said impervious layer which are exposed through the contact openings formed in the phosphosilicate glass layer; and

(g) applying a metal over the surface of said phosphosilicate glass layer, whereby said metal will extend through said contact openings to make electrical contact to underlying portions of the semiconductor material which are exposed through said contact openings.

4,273,806

METHOD OF FORMING ELECTRICAL INSULATION BY EXTRUDING POLYMERIC COMPOSITIONS CONTAINING HOLLOW MICROSPHERES

Bernard G. Stechler, 766 Brady Ave., Bronx, N.Y. 10462

Continuation of Ser. No. 892,788, Apr. 3, 1978, abandoned, which is a continuation of Ser. No. 788,231, Mar. 22, 1977, abandoned, which is a division of Ser. No. 709,877, Jul. 29, 1976, abandoned. This application Oct. 15, 1979, Ser. No. 84,637
Int. Cl.³ B05D 5/12
U.S. Cl. 427—119 **1 Claim**

1. In a method of forming electrical insulation about a wire conductor by passing said wire conductor through a bath of a thermoplastic resin whereby said resin adheres to and forms a coating around said wire and pulling the resin coated wire through a circular die of an extruder while allowing the polymeric resin to solidify by cooling down in the ambient atmosphere, whereby the coated wire is pulled through the circular die at a rate equivalent to the cooling down rate of the polymeric resin, the improvement comprising using as said thermoplastic polymeric resin the composition comprising a uniform mixture of a thermoplastic polymeric material which is selected from the group consisting of polyethylene, polypropylene and polyvinyl chloride resin and, as a filler, from 5 to 50 percent by volume of inert silica-alumina, hollow, microspheres ranging from about 5 to about 300 microns in diameter and further characterized by a specific gravity of from about 0.35 to about 0.7; a true particle density of from about 0.4 to about 0.6 grams per cubic centimeter; a bulk density of from about 11 to 25 pounds per cubic foot; a melting point of 1200° C.; a MOH's particles hardness of about 5; a shell thickness which is about 10 percent of the particle radius; and a composition which includes from about 55–60 percent by weight silica (SiO_2); 30–35 percent by weight alumina (Al_2O_3); 4–10 percent by weight iron oxide (Fe_2O_3); and about 1–3 percent by weight of alkali and alkaline earth metals or their oxides, wherein the relationship between the operating pressure in the extruder and temperature increase (ΔT) and the volume percent of the hollow microsphere filler particles is expressed in terms of the following table:

Volume (%) of Microspheres	Extrusion Operating Pressure (psi)	ΔT (°C.)
5–20	1600	80
25	1550	90
30	1500	100
35	1430	110
40	1350	120
45	1210	140
50	1100	150

wherein ΔT represents the difference between the temperature of the polymer resin in the extruder and the polymer temperature before it enters the extruder, the minimum diameter of said die being not less than one-sixteenth inch.

4,273,807

ACICULAR α-IRON PARTICLES AND RECORDING MEDIA EMPLOYING SAME

Kenneth L. Berry, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 21,811, Mar. 19, 1979, Pat. No. 4,207,092, which is a continuation-in-part of Ser. No. 774,138, Mar. 3, 1977, abandoned. This application Nov. 16, 1979, Ser. No. 95,872
Int. Cl.³ B05D 5/12
U.S. Cl. 427—132 **5 Claims**

1. Particulate product containing at least 75 weight % iron (total iron content) and at least 25 weight % acicular α-iron metal, said particulate product having a length less than 1μ, a length to diameter ratio of at least 10:1, a coercivity (iH_c) of greater than 800 oersteds, a saturation magnetization (σ_s) of at least 110 emu/g, a residual magnetization (σ_r) of at least 50 emu/g and a ratio of σ_r/σ_s of at least about 0.45.

4. Magnetic recording medium comprising a magnetizable layer carried on a nonmagnetizable support, the magnetizable layer comprising a non-magnetizable organic polymeric binder material having uniformly dispersed therein finely divided acicular ferromagnetic particles, said recording medium characterized in that the ferromagnetic particles are comprised of the particulate product of claim 1.

4,273,808
PROCESS FOR THE INSULATION OF ORIGINAL PAINT LAYERS

Albert Neiryack, L'Isle-Adam, and Roger Duflos, Viarmes, both of France, assignors to Societe Francaise Duco, Puteaux, France

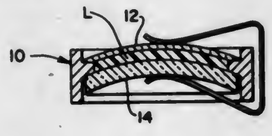
Filed Aug. 27, 1979, Ser. No. 70,108
Claims priority, application France, Aug. 29, 1978, 78 24910
Int. Cl.³ B32B 35/00
U.S. Cl. 427—142 7 Claims

1. Process for the repair of original paint layers, particularly on vehicle bodies, comprising applying on the original paint to be repaired a layer of a liquid film forming composition comprising a dicarboxylic acid- and diamine-based polyamide resin dissolved in a solvent selected from alcohols and water-alcohol mixtures, allowing the resulting protective layer to dry, and then applying thereon the new paint used for the repair.

4,273,809
METHOD OF PREPARING CAST RESIN LENSES

Norman U. LaLiberte, Woodstock, Conn., and Don H. Rotenberg, Westboro, Mass., assignors to American Optical Corporation, Southbridge, Mass.

Filed Oct. 25, 1979, Ser. No. 88,318
Int. Cl.³ B05D 7/02, 5/06
U.S. Cl. 427—155 9 Claims



1. The method of making a post-cured cast resin lens comprising the steps of:
- casting an allyl diglycol carbonate resin in a mold to the shape desired of said lens;
- partially curing said resin in said mold to produce a lens body;
- removing the partially cured lens body from said mold;
- coating the partially cured lens body with a readily removable material which is impervious to oxygen;
- exposing the coated lens body to a post-curing temperature above room temperature until substantially complete polymerization of all portions and surfaces of said lens body beneath said coating takes place; and
- removing the aforesaid coating for exposure and use of the post-cured lens which features high surface cure and abrasion resistance.

4,273,810
METHOD FOR PREVENTING SINTERING IN FORGING BLOCKS

Erwin Dötsch, Dortmund; Jürgen Pötschke, Essen, and Ottmar Knacke, Aachen-Verlautenheide, all of Fed. Rep. of Germany, assignors to Brown, Boveri & Cie Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

Filed Jul. 13, 1979, Ser. No. 57,312
Claims priority, application Fed. Rep. of Germany, Jul. 14, 1978, 2830921
Int. Cl.³ B21J 1/06
U.S. Cl. 427—156 7 Claims

1. Method for preventing lined-up work pieces of iron or iron alloys in a heating zone, the surfaces of which touch each other at elevated temperature and simultaneously under mechanical pressure, from sticking together, which comprises applying a finely-divided material of predominantly iron oxide, directly to the touching surfaces of the work pieces.

4,273,811
METHOD OF APPLYING SLIP TO INTERIOR SURFACES OF A CLOSED TANK TO PROVIDE AN ENAMEL COATING

Joji Okamoto; Hitoshi Azuma; Katsushi Arai; Takemi Naito, all of Yanai; Seiji Kawai, Yamaguchi, and Minoru Goto, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 27, 1977, Ser. No. 836,951
Claims priority, application Japan, Oct. 8, 1976, 51-120357
Int. Cl.³ G01N 33/02
U.S. Cl. 427—232 16 Claims



1. A method of applying slip to interior surfaces of a closed tank to provide an enamel coating thereon, comprising the steps of:
- (a) introducing the slip for forming the enamel coating into the interior of the closed tank in an amount that is larger than that actually required for forming the enamel coating but smaller than the internal volume of the tank, said slip having a particle size, specific gravity and viscosity preselected to provide said enamel coating;
- (b) immediately after the introduction of slip into the tank, introducing pressurized air into said closed tank;
- (c) applying slip to an interior surface of the tank during rotation of said tank whereby the rate at which the slip flows across the interior surface of the tank being coated results in an enamel coating of a desired thickness; and
- (d) forcibly draining from the tank that excess slip which has not been applied to the interior surface of the tank by the pressurized gases introduced into said tank, said excess slip being drained from the tank at a rate which results in an enamel coating on an interior surface of the tank of a desired thickness.

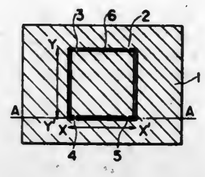
4,273,812
METHOD OF PRODUCING MATERIAL PATTERNS BY EVAPORATING MATERIAL THROUGH A PERFORATED MASK HAVING A REINFORCING BRIDGE

Ken Tsutsui, Hachioji; Akira Sasano, Hinodemachi; Toshio Nakano, Hinodemachi; Haruo Matsumaru, Hinodemachi, and Eiichi Maruyama, Kodaira, all of Japan, assignors to Hitachi, Ltd. and Hitachi Denshi Kabushiki Kaisha, both of Tokyo, Japan

Filed Feb. 1, 1979, Ser. No. 8,587
Claims priority, application Japan, Feb. 1, 1978, 53/9263
Int. Cl.³ H05K 3/10; C23C 13/00, 13/02
U.S. Cl. 427—248.1 17 Claims

1. A method of producing material patterns on a substrate, by deposition of the material in evaporated form through a perforated mask onto the substrate surface, said perforated mask having at least one opening, which at least one opening corresponds to said material patterns, and at least one reinforcing bridge which extends across part of said at least one opening to reinforce said mask, characterized in that during the deposition said perforated mask is spaced from the substrate surface, and further characterized in that the step of depositing the material includes orienting the mask-substrate combination, relative to at least one evaporation source, such that the material is evaporated onto the substrate from at least two

different directions chosen so that no gap is left in the material deposited on the substrate surface beneath the at least one



reinforcing bridge after the deposition, whereby said material patterns, having no gap on the substrate surface beneath the at least one reinforcing bridge, are formed.

4,273,813
METHOD OF PROVIDING WATERPROOF COATING FOR MASONRY WALLS

Michael D. Meddaugh, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

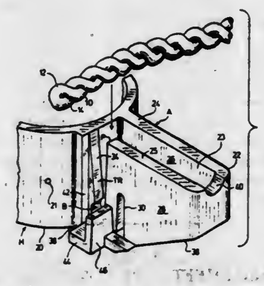
Filed May 19, 1980, Ser. No. 150,867
Int. Cl.³ B05D 3/02
U.S. Cl. 427—387 6 Claims

1. A method of waterproofing a masonry wall to prevent liquid water from passing through the wall, said masonry wall having at least two surfaces, an inner surface and an outer surface, said outer surface being in a location which allows exposure to hydrostatic pressure from ground and surface liquid water, said method comprising
- (I) coating said inner surface with an elastomeric silicone emulsion consisting essentially of 100 parts by weight of an anionically stabilized, hydroxyl endblocked polydiorganosiloxane in the form of an aqueous emulsion, greater than 1 part by weight of amorphous silica, and an organic tin salt, the elastomeric silicone emulsion having a pH of 9 or greater and having a solids content of greater than 35 percent by weight and
- (II) drying the elastomeric silicone emulsion coated inner surface.

4,273,814
ARTIFICIAL SHRUBS OF IMPROVED CONSTRUCTION

Rudolph A. Koehler, Willowdale, Canada, assignor to Noma Lites Canada Limited, Scarborough, Canada

Filed Nov. 5, 1979, Ser. No. 91,097
Int. Cl.³ A47G 33/06
U.S. Cl. 428—8 21 Claims

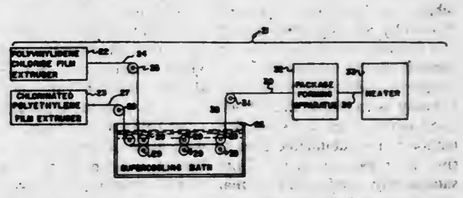


1. A holder for artificial branches of an artificial shrub or the like, said holder comprising:
- a central support element;
- a support arm extending outwardly from said central support element and joined thereto, said arm providing a slot in which one of said branches is swingable in a plane between one position in which it is generally aligned with said central support element and another position in which it is outspread therefrom;
- a bearing adjacent the juncture of the central support element and said support arm for a pivot element at the end of a said branch and in which said pivot element is receivable and rotatable to permit swinging of the branch in said slot between its two positions aforesaid;
- a passageway providing the entrance for said pivot element into said bearing;
- a trap in said passageway which is yieldable to permit insertion of said pivot element into said bearing and resistant to the withdrawal of said pivot element from said bearing.

4,273,815
LAMINATED FILM PACKAGES

Maurice J. Gifford; Oscar E. Seiferth, and Paul E. Grindrod, all of Madison, Wis., assignors to Oscar Mayer & Co. Inc., Madison, Wis.

Division of Ser. No. 48,929, Jun. 19, 1970, Pat. No. 3,698,979, which is a continuation of Ser. No. 612,964, Jan. 31, 1967, abandoned. This application Mar. 16, 1972, Ser. No. 235,291
Int. Cl.³ B32B 27/08, 27/10
U.S. Cl. 428—35 8 Claims

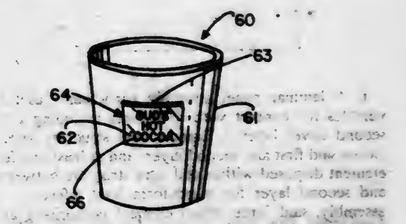


1. A package comprising a product enclosed between first and second sheets of packaging material, said first and second sheets having respective first and second seal forming surfaces which are releasably adhered to each other without an adhesive layer therebetween to define a hermetic seal area which can be readily separated when access to said product is desired and being reclosable for effective resealing after access to said product has been obtained, at least said first sheet being a laminated film in which a polyvinylidene chloride film is adhered to a chlorinated polyethylene film having a chlorine content in the range of 30% to 60% by weight, said chlorinated polyethylene film being the seal forming surface of said sheet.

4,273,816
FOAM BASED STRUCTURE

Henry B. Tollette, Sacramento, Calif., assignor to Custom Made Packaging Inc., Sacramento, Calif.

Filed Jul. 30, 1979, Ser. No. 61,981
Int. Cl.³ B32B 1/02, 5/18, 7/06, 7/10
U.S. Cl. 428—35 20 Claims



20. A container having a printed indicia thereon comprising a foam container, having a layer of paper adhered to said foam

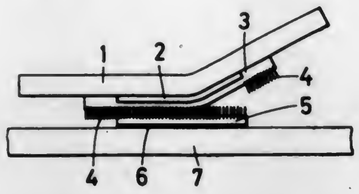
container, and a layer of reverse printed film adhesed at least to said paper.

4,273,817

HEAT-TRANSFERRABLE APPLIQUE

Mototsugu Matsuo, 4-36, Nishi 2-chome, Nakazaki, Kita-ku, Osaka-shi, Osaka-fu, and Kazuo Otomine, 533, Sanjo-cho, Takamatsu-shi, Kagawa-ken, both of Japan

Filed Jun. 29, 1979, Ser. No. 53,201
Int. Cl.³ B44C 3/02
U.S. Cl. 428—90 4 Claims



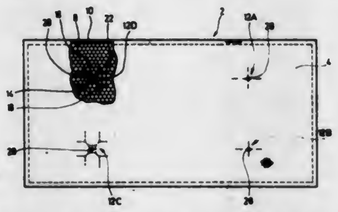
1. A heat-transferrable applique comprising a base sheet; a sublimable dye layer on the surface of the base, which layer is formed by printing sublimable dyes of relatively low sublimation fastness on the base sheet; a short fiber layer temporarily bonded to the sublimable dye layer by means of a porous temporary adhesive layer, said adhesive layer having such porosity as to enable the sublimable dye to pass therethrough upon sublimation, said short fiber layer being dyable by sublimation of the sublimable dyes by application of heat; an adhesive layer located on the short fiber layer with its position substantially conforming to that of the sublimable dye layer, said adhesive layer having on its surface a granulated or pulverized heat-sensitive layer, wherein said short layer being dyed by the sublimation of the sublimable dye layer upon the application of heat.

4,273,818

FORCE INFEED ELEMENT FOR LAMINAR PANEL ASSEMBLY

Wolfgang Bucha, Valley, Fed. Rep. of Germany, assignor to Messerschmitt-Bölkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Filed Sep. 17, 1979, Ser. No. 75,993
Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840807
Int. Cl.³ B32B 3/12
U.S. Cl. 428—116 15 Claims



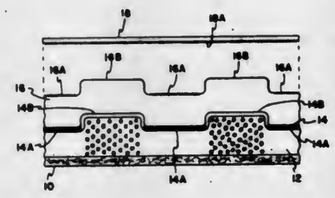
1. A laminar panel assembly particularly useful in space vehicles for contact with solar cells including a first and a second cover layer, a support core structure interposed between said first and second layers and at least one force infeed element disposed within said core structure between said first and second layer for punctiform load infeed to said panel assembly, said force infeed element comprising at least one solid central piece extending between said cover layers for punctiform load infeed, and shear resistant webs extending between said cover layers from said central piece disposed substantially perpendicularly to said cover layers, said shear resistant webs being arranged to connect said cover layers and to extend into partial areas of said support core structure surrounding said central piece and being surface-bonded therewith, said force infeed element being constructed with said shear resistant webs extending radially outwardly from said central piece in a branched formation such that the number of shear resistant webs increases with increasing radial distance from said central piece.

4,273,819

DIFFERENTIAL GLOSS PRODUCTS AND METHODS OF MAKING THE SAME

Claude J. Schmidle, Trenton, N.J., and Seevaram N. Varadhachary, Newtown, Pa., assignors to Congoleum Corporation, Kearny, N.J.

Filed Jul. 10, 1980, Ser. No. 168,844
Int. Cl.³ B32B 5/20, 31/22, 31/26
U.S. Cl. 428—159 13 Claims



1. A differential gloss resinous sheet material comprising:
a base resinous material, portions of which are blown or foamed and portions of which are unblown or unfoamed;
a printing ink composition on said base resinous material in the form of a predetermined pattern or design, some printed portions of which contain a blowing or foaming inhibitor and some printed portions of which contain a polymerization promoter, said blowing or foaming inhibitor and said polymerization promoter occupying the same or different portions; and
a substantially monomer-free resinous wear layer, substantially all surface portions of which contain substantially completely polymerized and/or cross-linked and thermoset polymeric materials derived from the polymerization and/or cross-linking and thermosetting of reactive polymerizable monomeric materials brought about by the activation or decomposition of free radical polymerization initiators or catalysts, some surface portions of said substantially monomer-free resinous wear layer being elevated or chemically embossed and other surface portions being of normal height or chemically unembossed and some surface portions of said substantially monomer-free resinous wear layer having a shiny or lustrous, smooth, high gloss surface and other surface portions having a dead or dull, mechanically embossed, low gloss surface,
combinations of (1) said blown or foamed and unblown or unfoamed portions, and (2) said printed portions containing said blowing or foaming inhibitors and said polymerization promoters, and (3) said high gloss and said low gloss surface portions being in substantially perfect registry.

4,273,820

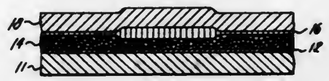
EMBOSSED SHEET TYPE COVERING MATERIAL

William F. Swietzer, Danielsville, Pa., assignor to GAF Corporation, New York, N.Y.

Filed Aug. 5, 1976, Ser. No. 711,813
Int. Cl.³ B32B 3/30, 31/26
U.S. Cl. 428—159 17 Claims

1. A process for making decorative sheet type covering material comprising the steps of:

(a) forming an embossed foamed plastic layer adhered to a substrate;
(b) subsequently covering said embossed layer with a layer of heat curable, translucent plastic; and
(c) heating the material sufficiently to cure said layer of translucent plastic and to allow embossed portions of the embossed layer to partially expand to form raised portions in the layer of translucent plastic corresponding to embossed portions of the embossed layer.



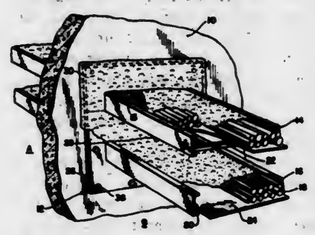
10. Decorative sheet type covering material comprising:
(a) a substrate;
(b) an embossed, foamed plastic layer adhered to said substrate; and
(c) a translucent, heat cured plastic layer adhered to said embossed layer and having raised portions corresponding to embossed portions of the embossed layer.

4,273,821

FIRE PROTECTIVE TAPE

J. Watson Podlow, P.O. Box 33, Media, Pa. 19063

Continuation-in-part of Ser. No. 872,820, Jan. 27, 1978, Pat. No. 4,189,619. This application Nov. 6, 1979, Ser. No. 92,063
The portion of the term of this patent subsequent to Feb. 19, 1997, has been disclaimed.
Int. Cl.³ B32B 7/00, 9/04, 5/16; H02G 3/04
U.S. Cl. 428—215 12 Claims



1. An electrical arc and fire protective tape for disposition about electrical equipment, cables, cable splices, appurtenant equipment or the like, comprising a resinous mixture coated as a wet mastic mixture and dried upon a fabric base or plastic sheet or film substrate, said mastic comprising an essentially halogen-free mixture of solids and thermoplastic binder resins dispersed as an emulsion in water, said solids including heat intumescing and expanding substances in approximate quantity of 4 to 25% to expand the mastic to porous heat insulating foam, ceramic frits in approximate quantity of 5 to 40% to provide a ceramic glaze upon the surface of the dry expanded mastic when exposed to high temperatures developed by fire, hydrated substances in approximate quantity of 10 to 40% and having bonded water evolvable only by application of sufficient heat to decompose and evolve water vapors, and a resinous thermoplastic binder in approximate quantity of 5 to 40% to bind said solids to the form of a flexible film in coated form of the mastic, said binder being dispersed as an emulsion in water, there being sufficient water in the emulsion to convert said solids into a fluidized form for application as a coating upon said base or substrate, said percentages being by weight, the said solids quantity being based on the total solids of the composition.

4,273,822

GLAZING PASTE FOR BONDING A METAL LAYER TO A CERAMIC SUBSTRATE

Kenneth R. Babe, Skillman, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 18, 1977, Ser. No. 816,712
Int. Cl.³ B32B 5/16, 15/04, 17/06
U.S. Cl. 428—216 17 Claims

1. A glazing paste comprising:
(a) about 80 to about 95 percent by weight of a glass frit;
(b) about 5 to about 20 percent by weight of a metal oxide powder selected from the group consisting of aluminum oxide, magnesium oxide, calcium oxide and zinc oxide; and
(c) an organic vehicle wherein the glass frit and the metal oxide powder is suspended in the vehicle to form a paste.

8. A hybrid microcircuit device comprising a ceramic substrate, a first glass-rich layer on the substrate and a second metal layer bonded to the substrate by the first layer wherein the first layer is prepared by sintering to the substrate a glazing paste comprising:
(a) about 80 to about 95 percent by weight of a glass frit;
(b) about 5 to about 20 percent by weight of a metal oxide powder selected from the group consisting of aluminum oxide, magnesium oxide, calcium oxide and zinc oxide; and
(c) an organic vehicle wherein the glass frit is suspended in the vehicle to form a paste.

4,273,823

GEAR CRIMPED POLYESTER YARNS

Frederick W. Shaw, and William E. Whale, both of Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England

Filed Oct. 9, 1979, Ser. No. 82,924
Claims priority, application United Kingdom, Oct. 27, 1978, 42271/78
Int. Cl.³ D03D 3/08; D02G 3/00
U.S. Cl. 428—224 7 Claims



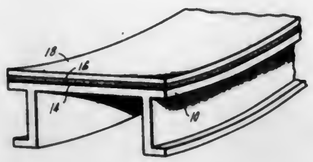
1. A drawn gear-crimped polyester yarn with latent bulk characterised by an initial crimp as defined of at least 1.5% and a mechanical crimp stability as defined of above 0%.

4,273,824

CERAMIC FACED STRUCTURES AND METHODS FOR MANUFACTURE THEREOF

Charles C. McComas, Stuart, and Larry S. Sokol, West Palm Beach, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed May 11, 1979, Ser. No. 38,042
Int. Cl.³ B32B 15/18; F01D 11/08; F04D 29/08
U.S. Cl. 428—256 28 Claims



1. A method for fabricating a ceramic faced article, comprising the steps of:

forming a porous pad of metallic material to the general contour of the desired finished surface;

impregnating the porous pad with an underlayment coating of MCrAlY type material at the contoured surface of the pad to provide a roughened surface including the application of said underlayment coating at coating particle velocities on the order of four thousand feet per second (4000 fps) to attain deep impregnation of the coating into the porous pad; and

applying a ceramic material over the roughened surface of the pad to form the ceramic surfaced article.

11. A ceramic faced structure of the type suited for use in high temperature environments comprising:

a porous pad of metallic material having a low modulus of elasticity which is formed to the general contour of the desired ceramic faced structure;

an underlayment coating of MCrAlY type material having an equivalent depth of greater than five thousandths of an inch (0.005 in.) but less than ten thousandths of an inch (0.010 in.) which has been impregnated into the porous pad to provide a roughened surface for adherence of the ceramic;

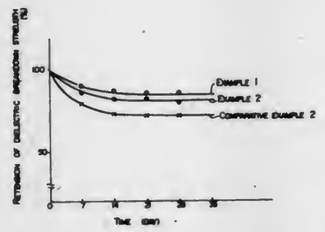
a ceramic material which has been applied over the underlayment coating to form the ceramic facing on the structure.

4,273,825

ELECTRIC INSULATING SHEET

Ryota Nishiyama; Takashi Kolke, and Shunji Seino, all of Tokyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Jul. 23, 1979, Ser. No. 60,633
Claims priority, application Japan, Jul. 27, 1978, 53/91889
Int. Cl.³ B32B 5/16
U.S. Cl. 428—223 4 Claims



1. An electric insulating laminated sheet comprising:

(i) a heat resistant wet-formed base web layer consisting essentially of pulp-like particles of an aromatic polyamide or an aromatic polyamide-imide and short fibers of said aromatic polyamide or aromatic polyamide-imide; and

(ii) a wet-formed web layer of a mixture consisting essentially of tiny mica flakes in an amount of at least 91 parts by weight with pulp-like particles of an aromatic polyamide or an aromatic polyamide-imide in an amount of at most 9 parts by weight,

wherein said laminated sheet is bonded together without an adhesive by hydrogen bonding within the mica layer (ii) and the heat-resistant base layer (i), as well as between the two layers.

4,273,826

PROCESS OF MAKING GLASS ARTICLES HAVING ANTIREFLECTIVE COATINGS AND PRODUCT

Howard L. McCollister, Albuquerque, N. Mex., and Norman L. Boling, Santa Rosa, Calif., assignors to Owens-Illinois, Inc., Toledo, Ohio

Filed Dec. 3, 1979, Ser. No. 99,452
Int. Cl.³ B32B 3/26, 5/18; C03C 15/00, 17/02
U.S. Cl. 428—304 10 Claims

1. A process of making a glass article containing a thin surface film antireflective coating which comprises

(1) providing a dispersion of organic derivatives of more than one inorganic cation, said dispersion containing at least one metallo-organic compound in solution in a liquid solvent, the components of said dispersion being capable of decomposition and reaction together under the influence of heat to form an inorganic oxide glass capable of phase separation into two immiscible phases on further heating,

(2) depositing a thin coating of such dispersion on the glass article, heating the coating to drive off the solvent and to decompose the organic components, thus forming a glass film layer from the remaining inorganic oxide components, further heating the glass film layer to cause phase separation thereof into to immiscible phases, and thereafter etching and leaching such film to dissolve out preferentially one of the phases of the phase separated glass, leaving a skeletonized surface film having a graded refractive index.

4. A process according to claim 1 wherein the said phase separated glass film layer is less than 1 micron thick.

7. A process of claim 4 wherein the thickness of said skeletonized surface film is less than that of the total glass film applied to the surface of said glass article according to said process.

9. A product of the process of claim 7 wherein the inorganic oxide glass of paragraph (1) has a composition different than glass article of paragraph (2).

4,273,827

ADHESIVE ASSEMBLY

Theodore J. Sweeney, Grosse Pointe City, and John G. Haviland, Orchard Lake, both of Mich., assignors to Theodore Sweeney & Company, Detroit, Mich.

Filed Jun. 9, 1978, Ser. No. 914,003
Int. Cl.³ B32B 5/16
U.S. Cl. 428—307 4 Claims

1. An adhesive assembly comprising;

a. a first adhesive;

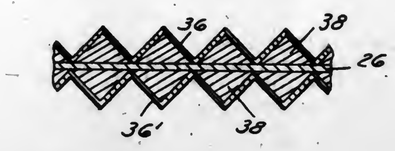
b. a second adhesive which is of a different chemical composition than the first adhesive and wherein the adhesive is encapsulated or is retained in bubbles of a plastic film; and

c. positioned between said first and second adhesives, a barrier means for preventing contamination of the respective adhesives or the substrates to which they adhere, wherein said barrier means is also a carrier means for carrying said adhesives; and components a, b and c being an integral assembly, wherein the adhesive assembly is selected from the adhesive group consisting of:

(1) the second adhesive is comprised of an anaerobic adhesive and the first adhesive is comprised of a spongy adhesive mass;

(2) the second adhesive is comprised of an anaerobic adhesive and the first adhesive is comprised of a foam or spongy layer with an adhesive layer atop said spongy layer; and

(3) the second adhesive is comprised of a silicone or urethane adhesive and the first adhesive is comprised of a foam or spongy layer with an adhesive layer atop said spongy foam.



4,273,828

BULK GLASS HAVING IMPROVED PROPERTIES

Chester E. Tracy, South River, and Werner Kern, Hightstown, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 14, 1979, Ser. No. 66,334
Int. Cl.³ B32B 9/00
U.S. Cl. 428—336 7 Claims

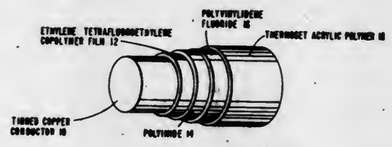
1. A shaped bulk glass body having a film on at least a portion of the surface thereof of a plasma deposited amorphous polymeric hydrogenated silicon-silicon nitride of the formula $-Si_xN_yH_z-_n$, where x, y, z, and n are integers, said film being at least 500 angstroms in thickness and having a compressive strength of at least about 0.7×10^9 dynes/cm² and said bulk glass body having a resistance to deformation sufficient to limit the deformation induced by the film on the surface to less than about 5%.

4,273,829

INSULATION SYSTEM FOR WIRE AND CABLE

Ahmé J. Perreault, South Burlington, Vt., assignor to Champlain Cable Corporation, Wilmington, Del.

Filed Aug. 30, 1979, Ser. No. 71,205
Int. Cl.³ B32B 15/08; H01B 7/04, 7/18; B32B 27/30
U.S. Cl. 428—383 5 Claims



1. An insulated electrical conductor comprising a metallic conductor insulated with (A) a film selected from ethylene tetrafluoroethylene copolymer and fluorinated ethylene-propylene (FEP) copolymer coated polyimide, and (B) a topcoat insulation system comprising a first layer of insulation consisting essentially of a high melting polyimide coating adhering to said film, a second layer of insulation consisting essentially of polyvinylidene fluoride coating adhering to the surface of the polyimide coating and a third layer of insulation consisting essentially of a crosslinked acrylic polymer coating adhering to the surface of the polyvinylidene fluoride.

4,273,830

FIBRILS OF CROSS LINKED POLYESTER RESIN HAVING A VESICULATED STRUCTURE

John Gillan, Langwarrin, and Colin M. Richards, Black Rock, both of Australia, assignors to Dulux Australia Limited, Melbourne, Australia

Filed Aug. 21, 1979, Ser. No. 68,391
Claims priority, application Australia, Sep. 12, 1978, PD5907
Int. Cl.³ D02G 3/00
U.S. Cl. 428—398 2 Claims

1. Fibrils of vesiculated crosslinked polyester resin wherein the diameter is from 1 μm to 2 mm, the length from 50 μm–5 cm and the aspect ratio from 10 to 50.

4,273,831

POWDERED POLYMER COMPOSITIONS PRODUCED BY ELECTRON BEAM POLYMERIZATION OF POLYMERIZABLE COMPOSITIONS

James D. Singelyn, Middletown, Conn., assignor to Kemtec, Inc., Middletown, Conn.

Continuation-in-part of Ser. No. 938,891, Sep. 1, 1978, Pat. No. 4,172,776, which is a continuation-in-part of Ser. No. 699,864, Jun. 25, 1976, abandoned. This application Jul. 23, 1979, Ser. No. 58,926
Int. Cl.³ B32B 5/16
U.S. Cl. 428—402 3 Claims

1. A powdered polymer product composition consisting essentially of a polymer and at least one dispersed component therein selected from the group consisting of pigments, fillers, and the combination thereof, said polymer product composition comprising substantially spherical particles of a relatively uniform particles size of up to about 10 mils, said particles being formed from a liquid polymerizable composition including

(a) a liquid polymerizable compound selected from the group consisting of monomers, reactive unsaturated polymers, and mixtures thereof, capable of free radical polymerization, and

(b) at least one component dispersed therein selected from the group consisting of pigments, fillers, and the combination thereof,

said product having been produced by polymerizing said liquid polymerizable composition by a method in which

(a) said liquid composition is formed into a finely divided atomized spray in an inert atmosphere, said composition and spray being substantially free from solvent for said polymerizable compound, and

(b) said spray is passed through a beam of high energy electrons to polymerize substantially completely the polymerizable compound of said finely divided atomized spray of said liquid polymerizable composition while said composition is in the form of said atomized spray and in less than about one second into said powdered polymer product composition.

4,273,832

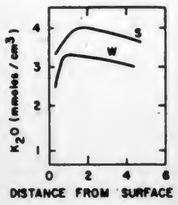
GLASS ARTICLE STRENGTHENED BY ION EXCHANGE SUBSTITUTION

Patrick M. Hogan, DuBois, Pa., assignor to Brockway Glass Company, Inc., Brockway, Pa.

Division of Ser. No. 930,938, Aug. 4, 1978, Pat. No. 4,218,230. This application Feb. 4, 1980, Ser. No. 118,193
Int. Cl.³ B32B 7/02; C03C 17/22, 21/00
U.S. Cl. 428—410 1 Claim

1. A soda-lime-silicate glass article which has been strengthened by substituting potassium ions for sodium ions in the surface layer in the glass to produce a compressive layer, said substitution comprising spraying an aqueous exchange solution consisting essentially of at least 5% by weight potassium ions, from about 1 to about 6 weight percent of sodium ions and water to form a coating upon the glass at a temperature from about 200° C. to just below the annealing point of the glass,

maintaining said glass at a temperature below the annealing point for a time sufficient to cause ion exchange to occur, and



cooling to room temperature, whereby sodium ions are evenly and quickly replaced by potassium ions beneath the surface of the glass with reduced pitting or etching of the glass surface.

4,273,833

ANTI-FOULING OVERCOATING COMPOSITION AND USE THEREOF

Charles F. De Long, Washington, D.C., assignor to United States Trading International, Inc., Washington, D.C.

Continuation-in-part of Ser. No. 614,927, Sep. 19, 1975, Pat. No. 4,082,884. This application Mar. 30, 1978, Ser. No. 891,837
The portion of the term of this patent subsequent to Apr. 4, 1995, has been disclaimed.
Int. Cl.[3] B05D *3/02*
U.S. Cl. 428—411 **20 Claims**

1. A method of reducing the fouling tendency of watercraft and stationary underwater structures consisting of applying below the water line of the watercraft or underwater structure a hard-surface leaching-type anti-fouling paint, drying the anti-fouling paint, overcoating the dried paint with an outer coating composition consisting essentially of an aqueous solution or dispersion of a carboxylated hydrophilic acrylic copolymer, a cross-linking agent for the carboxylated hydrophilic acrylic copolymer, a higher polyalkylenepolyamine or a hydrophilic higher polyalkylenepolyamine derivative and an effective amount of an ultraviolet-absorbing agent, and drying the outer coating composition over the paint.

4,273,834

MASKING OF ABRASION INJURY ON GLASS ARTICLES

Shuichi Yokokura; Yu Horie, both of Takasaki; Minoru Takamizawa, Annaka; Yoshio Inoue, Annaka, and Hiroshi Yoshioka, Annaka, all of Japan, assignors to Kirin Beer Kabushiki Kaisha and Shin-Etsu Kagako Kogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Oct. 9, 1979, Ser. No. 83,125
Claims priority, application Japan, Oct. 14, 1978, 53-126590
Int. Cl.[3] B32B *17/10*
U.S. Cl. 428—429 **5 Claims**

1. A scuff-masking composition for glass articles which comprises:

a Component A which is an organopolysiloxane represented by the average compositional formula

$$(C_6H_5)_x\cdot(CH_3)_y\cdot(OR)_z\cdot Si\cdot O_{[4-(x+y+z)/2]}$$

wherein R is an alkyl group having 1 to 4 carbon atoms, and x, y and z are the numbers having the relationship

$$1 \leqq x+y < 2$$

$$1 < y/x < 10$$

$$0.4 \leqq z < 2; \text{ and}$$

a Component B which is a curing catalyst for the component A; the composition being curable at a temperature up to about 50° C. and the cured product being removable by aqueous alkali.

2. The composition as set forth in claim 1, in which the composition is in the form of an alcohol solution.

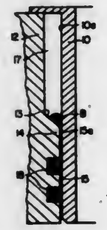
5. A glass article which has a coat film on at least a part of its surface thereby masking scuffs on the surface, the film being a cured product of the composition claimed in claim 1 or 2.

4,273,835

METHOD FOR PREPARING A CYLINDER LINER FOR LIQUID-COOLED ENGINES HAVING A BANDLIKE SEALANT ON THE OUTER-SURFACE THEREOF

Senji Higuchi, Hino, Japan, assignor to Three Bond Co., Ltd., Tokyo, Japan

Filed Aug. 17, 1979, Ser. No. 67,586
Claims priority, application Japan, Feb. 6, 1979, 54-12465
Int. Cl.[3] B32B *9/04*
U.S. Cl. 428—446 **4 Claims**



1. A method for preparing a cylinder liner for liquid-cooled engines having a bandlike sealant on the outer-surface thereof comprising the steps of

coating a putty silicone resin on the outer-surface of said cylinder line to form a belt-like layer,

curing said resin completely,

further applying said resin on said completely cured resin, and

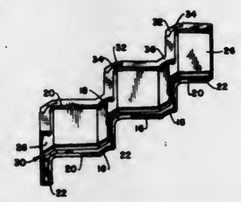
half curing said applied resin to form a two-layer laminate of silicone resin having a completely cured inner layer and a half-cured outer layer.

4,273,836

CORE STRIP BLANK, CORE STRIP AND METHOD OF MAKING SAME

James R. Campbell, South Laguna, and Roy L. Anspach, Anaheim, both of Calif., assignors to Thomas P. Mahoney, Balboa Island, Calif.

Filed Oct. 2, 1978, Ser. No. 948,011
Int. Cl.[3] B32B *3/04, 3/10, 3/28*
U.S. Cl. 428—595 **8 Claims**



1. A metallic core element for use in conjunction with a plurality of identical elements in fabricating a metallic core structure of honeycomb configuration including, an elongated, corrugated strip, said strip having a web with right angularly oriented upper and lower flanges thereupon with doublers disposed, respectively, in underlying relationship with said upper flange and overlying relationship with said lower flange,

the corrugations of said strip providing alternate male and female nodes and said male nodes of one strip being fitted within the female nodes of an adjacent identical strip to provide a honeycomb core configuration.

4,273,837

PLATED METAL ARTICLE

Miguel Coll-Palagos, Rye, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Continuation of Ser. No. 569,526, Apr. 18, 1975, abandoned. This application Nov. 22, 1976, Ser. No. 743,550
Int. Cl.[3] B32B *15/01, 15/18*
U.S. Cl. 428—647 **10 Claims**

1. A metal plated metallic article comprising:

an aluminum substrate;

an intermediate metallic coating on said aluminum substrate, said intermediate metallic coating comprising between about 0.01% and about 99.99% nickel and between about 99.99% and about 0.01% tin and having a thickness between about 0.005 mil and about 3 mils; and,

a plated metal coating on said intermediate metallic coating, said plated metal coating being selected from the group consisting of copper and nickel and chromium, wherein the interface of said aluminum substrate and said intermediate metallic coating is bonded by a region of a first intermetallic composition, said first intermetallic composition being comprised of said aluminum substrate and said intermediate metallic coating, and the interface of said plated metal coating and said intermediate metallic coating is bonded by a region of a second intermetallic composition being comprised of said plated metal coating and said intermediate metallic coating.

7. A metal plated metallic article comprising:

a zinc substrate;

an intermediate metallic coating on said zinc substrate, said intermediate metallic coating comprising between about 0.01% and about 99.99% nickel and between about 99.99% and about 0.01% tin and having a thickness between about 0.005 mil and about 3 mils; and,

a plated metal coating on said intermediate metallic coating, said plated metal coating being selected from the group consisting of copper and nickel and chromium,

wherein the interface of said zinc substrate and said intermediate metallic coating is bonded by a region of a first intermetallic composition, said first intermetallic composition being comprised of said zinc substrate and said intermediate metallic coating, and the interface of said plated metal coating is bonded by a region of a second intermetallic composition being comprised of said plated metal coating and said intermediate metallic coating.

4,273,838

WELD METAL RESISTANT TO NEUTRON-BOMBARDMENT EMBRITTLEMENT

Eric C. Bienmiller, Warehouse Point, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

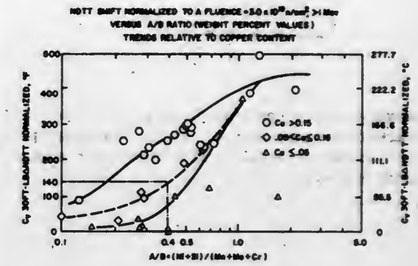
Continuation-in-part of Ser. No. 664,609, Mar. 8, 1976, abandoned. This application Jan. 28, 1977, Ser. No. 763,475
Int. Cl.[2] B23K *9/00*
U.S. Cl. 428—683 **16 Claims**

1. In the method of constructing nuclear-reactor pressure vessels wherein forging or plate-material pressure-vessel parts are joined to form the pressure vessel, the improvement wherein the joining step comprises welding the nuclear-reactor pressure-vessel parts by depositing a weldment that exhibits resistance to neutron-induced changes sufficient to prevent the weldment from being a limiting factor in reactor operations, said weldment, as deposited, consisting by weight percentages of:

Carbon	0.00 to 0.15
Manganese	1.00 to 2.20

-continued

Phosphorus	0.000 to 0.015
Sulfur	0.00 to 0.02
Silicon	0.00 to 0.40
Nickel	0.00 1.20
Chromium	0.00 to 2.50
Molybdenum	0.30 to 1.20
Copper	0.00 to 0.10
Vanadium	0.00 to 0.05



the balance being essentially iron having a ferritic structure, and wherein in said weldment the sum of the weight percentages of nickel and silicon bears a ratio of 0.4 or less to the sum of the weight percentages of manganese, chromium, and molybdenum.

9. An article comprising steel parts welded together by depositing a weldment that exhibits resistance to neutron-induced changes sufficient to prevent the weldment from being a limiting factor in operations, said weldment, as deposited, consisting by weight percentages of:

Carbon	0.00 to 0.15
Manganese	1.00 to 2.20
Phosphorus	0.000 to 0.015
Sulfur	0.00 to 0.02
Silicon	0.00 to 0.40
Nickel	0.00 1.20
Chromium	0.00 to 2.50
Molybdenum	0.30 to 1.20
Copper	0.00 to 0.10
Vanadium	0.00 to 0.05

the balance being essentially iron having a ferritic structure, and wherein in said weldment the sum of the weight percentages of nickel and silicon bears a ratio of 0.4 or less to the sum of the weight percentages of manganese, chromium, and molybdenum, the article having been exposed to neutron fluences greater than 10^{17} neutrons/cm^2.

4,273,839

ACTIVATING CARBONACEOUS ELECTRODES

Peter Carr, Utica, and Alfred F. Leathem, Sterling Heights, both of Mich., assignors to Energy Development Associates, Inc., Madison Heights, Mich.

Filed Jul. 30, 1979, Ser. No. 62,108
Int. Cl.[3] H01M *2/38*
U.S. Cl. 429—51 **19 Claims**

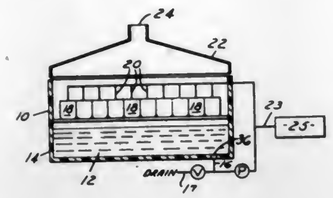
1. A method for activating a carbonaceous electrode comprising the steps;

1. Providing a negative electrode and a carbonaceous positive electrode spaced apart from each other;

2. Providing an aqueous electrolyte with a current carrying water soluble material therein; and

3. Closing the circuit and passing a current between the positive and negative electrodes through the electrolyte

thereby generating oxygen for a period of time sufficient to activate the positive electrode, wherein the current is passed for a period of time from about 5 mAh/cm^2 to



about 1000 mAh/cm^2 of electrode surface of the positive electrode and a sample of gas generated during said period of time contains gaseous oxides of carbon in amount of 0.5% to 30% by volume.

4,273,840

BATTERY SEPARATOR AND METHOD OF PRODUCING THE SAME

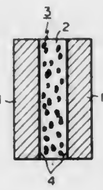
Sueo Machi, Takasaki; Isao Ishigaki, Maebushi; Takanobu Sugo, Gunma; Kazuo Murata; Shiro Tanso, both of Takatsuki, and Keizi Senoo, Takasaki, all of Japan, assignors to Japan Atomic Energy Research Institute, Tokyo and Yuasa Battery Co. Ltd., Osaka, both of, Japan

Filed Feb. 4, 1980, Ser. No. 118,100

Claims priority, application Japan, Feb. 5, 1979, 54/11990

Int. Cl.^{3} H01M *2/16*

U.S. Cl. 429—144 **18 Claims**



1. A battery separator comprising: a first layer of polymer having two major sides and containing a substance capable of catching a positive or negative active material in a metal ionic form, at least one second layer integrally bonded to at least one of said sides of the first layer of polymer forming a composite sheet of film and which contains no more such substance than that contained in said first layer of polymer, and a monomer having hydrophilic or electrolytic group grafted to said sheet of film.

4,273,841

TERNARY ELECTROLYTE FOR SECONDARY ELECTROCHEMICAL CELLS

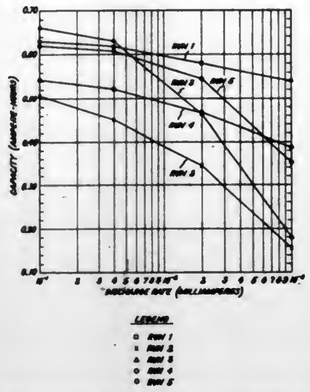
Eric J. Carlson, Reminderville, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 14, 1980, Ser. No. 178,373

Int. Cl.^{3} H01M *10/26*

U.S. Cl. 429—199 **5 Claims**

1. In a secondary electrochemical cell wherein the active material of one of the electrodes is a zinc-active material, an electrolyte comprised of an aqueous solution of 5 weight % to 10 weight % potassium hydroxide, 5 weight % to 15 weight %



potassium fluoride and 10 weight % to 20 weight % potassium phosphate.

4,273,842

PROCESS FOR FORMING PATTERNWISE COATED POWDER LAYER

Saburo Nonogaki; Hajime Morishita, both of Tokyo; Michiaki Hashimoto, Kokubunji; Toshikatsu Manabe, Ome; Yoshifumi Tomita, and Masahiro Nishizawa, both of Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 11, 1978, Ser. No. 895,372

Claims priority, application Japan, Apr. 13, 1977, 52-41465; Oct. 14, 1977, 52-122390

Int. Cl.^{3} G03C *5/00*

U.S. Cl. 430—25 **42 Claims**



1. A process for forming a patternwise coated layer on a phosphor screen of a color picture tube, which comprises:

(1) a first step of applying a photosensitive composition containing an aromatic diazonium salt decomposable through exposure to ultraviolet light, whose photolytic product is hygroscopic, to an inside surface of a face plate of the color picture tube as a thin layer,

(2) a second step of exposing the thin layer to ultraviolet light patternwise through a shadow mask, thereby making the exposed parts sticky due to the hygroscopicity of said photolytic product and absorption of moisture by said photolytic product, and then contacting powder particles with the thin layer, whereby the powder particles adhere to said exposed parts, which are sticky, and then removing residual powder particles from the thin layer, and

(3) a third step of fixing the photolytic product resulting from the exposure to the ultraviolet light, thereby firmly binding the powder particles to said exposed parts.

4,273,843

METHOD OF DETECTING TONER CONCENTRATION IN ELECTROPHOTOGRAPHIC COPYING MACHINE

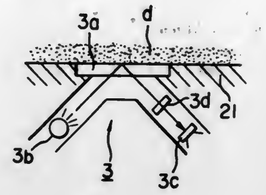
Hisao Fujita, and Kiyoshi Kimura, both of Hachioji, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

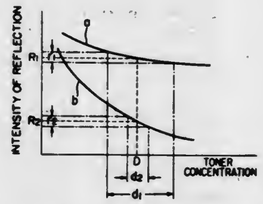
Filed Jun. 5, 1979, Ser. No. 45,759

Claims priority, application Japan, Jun. 12, 1978, 53-69929; Jun. 12, 1978, 53-69930

Int. Cl.^{3} G03G *15/08*

U.S. Cl. 430—30 **7 Claims**





1. In a method for maintaining substantially constant the concentration of toner in a two-component developer of the type containing toner and carrier particles, the steps of:

projecting light onto the developer, and

varying the amount of toner in the developer in accordance with the intensity of light of a preselected wavelength reflected from the developer, said preselected wavelength being of a value selected to maximize the intensity of reflected light in response to variations in toner concentration substantially independently of the reflection characteristics of the developer.

4. In a method according to claims 1 or 2, the preselected wavelength of the light reflected from the developer corresponding to the substantial intersection of a spectral curve of light reflected from the carrier of the developer prior to use thereof and a spectral curve of light reflected from the carrier of the developer after use.

4,273,844

HEAT-DEVELOPABLE PHOTOSENSITIVE MEMBER FOR FORMING ELECTROSTATIC PRINTING MASTERS

Hajime Kobayashi, Mitaka; Yasuhiro Yaso, Tokyo, and Ichiro Endo, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 761,069, Jan. 21, 1977, abandoned. This application Aug. 9, 1978, Ser. No. 932,282

Claims priority, application Japan, Jan. 26, 1976, 51-7733; Jan. 26, 1976, 51-7742

Int. Cl.^{3} G03G *13/14*

U.S. Cl. 430—48 **10 Claims**

1. A process for electrostatic printing comprising the steps of:

(a) imagewise exposing a heat-developable photosensitive member which comprises:

a support having a resistance of not higher than 10^9 Ω-cm.;

an organic silver salt layer (B) comprising an organic silver salt (a), a halide (b), a toning agent (c) dispersed in an electrically insulating resinous binder (d), said organic silver salt layer, when treated by a process including exposure to image light, provides a silver image portion corresponding to said image light, said silver image portion having a specific resistance $\rho 1$ less than 10^{13} Ω-cm., the remaining portion of said layer having a specific resistance $\rho 2$ more than 10^{11} Ω-cm., and $\rho 1$ is less than $\rho 2$ by a factor of two powers of ten or more, said organic silver salt layer having a thickness of from 1–50 microns sufficient to form an exposed silver portion adapted to give sufficient contrast and image for use as a master in electrophotography; and

a surface protecting layer (C) having a thickness of from 0.5–15 microns having substantially no charge retentivity, having a high property of development and a high cleaning property upon electrostatic printing, and directly or with an intervening layer, overlying the organic silver salt layer (B);

a reducing agent (E) being contained in the organic silver salt layer (B), or at least one layer adjacent to the organic silver salt layer (B), or the organic silver salt layer (B) and at least one layer adjacent to the organic silver salt layer (B) and a stabilizer (g) being contained in an amount of from $2\text{–}10^{-7}$ mole per one mole of said organic silver salt (a) in the organic silver salt layer (B), or at least one layer adjacent to the organic silver salt layer (B), or the organic silver salt layer (B) and at least one layer adjacent to the organic silver salt layer (B) to form a latent silver image thereon,

(b) heat developing said latent silver image to form a silver image,

(c) employing said developed member as an electrostatic printing master by forming on electrostatic latent image thereon,

(d) developing said electrostatic latent image and

(e) transferring said developed image to an image receiving sheet.

4,273,845

HEAT-DEVELOPABLE PHOTOSENSITIVE MATERIAL

Hajime Kobayashi, Mitaka; Yasuhiro Yaso, Tokyo, and Ichiro Endo, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 761,368, Jan. 21, 1977, abandoned. This application Feb. 28, 1980, Ser. No. 125,672

Claims priority, application Japan, Jan. 23, 1976, 51/6497; Jan. 26, 1976, 51/7731; Jan. 26, 1976, 51/7732; Jan. 26, 1976, 51/7734

Int. Cl.^{3} G03G *13/14*

U.S. Cl. 430—48 **2 Claims**

1. In a process for electrostatic printing comprising the steps of:

(i) imagewise exposing a supported heat developable photosensitive member having a layer formed by dispersing uniformly an organic silver salt compound in an insulating medium, to form a latent silver image;

(ii) heating with or after said imagewise exposure to develop said latent image and form a conductive metallic silver grain image;

(iii) employing said supported developed member as a master by forming an electrostatic latent image thereon;

(iv) developing said latent image and,

(v) transferring the developed image to a transfer material, the improvement comprising; employing a heat-developable photosensitive member for producing an electrostatic printing master having improved electrostatic characteristics comprises a support,

(a) an organic silver salt,

(b) an organic acid,

(c) a halide,

(d) a reducing agent, and

(e) a binder, having an equilibrium moisture content of not more than 3% at a relative humidity ranging from 20 to

100% at least the organic silver salt (a) and the organic acid (b) being dispersed in the binder (e), the amount of the organic silver salt (a) being at least 10 molar percent based on the sum of the organic silver salt (a) and the organic acid (b), and the amount of the binder (e) being 0.02-20 parts by weight based on one part of the organic silver salt (a).

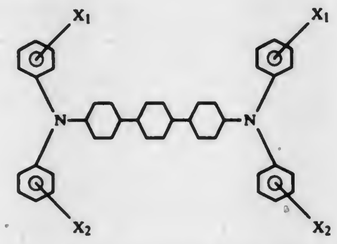
4,273,846

IMAGING MEMBER HAVING A CHARGE TRANSPORT LAYER OF A TERPHENYL DIAMINE AND A POLYCARBONATE RESIN

Damodar M. Pai, Fairport; S. Richard Turner; John F. Yanus, both of Webster; Dale S. Renfer, Rochester, and Milan Stolka, Fairport, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 23, 1979, Ser. No. 97,024
Int. Cl.³ G03G 5/10, 5/14
U.S. Cl. 430—59 9 Claims

1. An imaging member comprising a charge generation layer comprising a layer of photoconductive material and a contiguous charge transport layer of an electrically inactive polycarbonate resin material having dispersed therein from about 25 to about 75 percent by weight of one or more diamine compound having the general formula:



wherein X_1 and X_2 are independently selected from the group consisting of a lower alkyl group having from 1 to about 4 carbon atoms, chlorine in the ortho, meta or para position, a para phenyl group and combinations thereof, said photoconductive layer exhibiting the capability of photogeneration of holes and injection of said holes and said charge transport layer being substantially nonabsorbing in the spectral region at which the photoconductive layer generates and injects photogenerated holes but being capable of supporting the injection of photogenerated holes from said photoconductive layer and transporting said holes through said charge transport layer.

4,273,847

INKS FOR PULSED ELECTRICAL PRINTING AND METHODS OF PRODUCING SAME

Donald J. J. Lennon; John R. Hagerstrom, both of Acton, and C. Frederick W. Ekman, Bedford, all of Mass., assignors to EPP Corp., Boston, Mass.

Continuation of Ser. No. 710,282, Jul. 30, 1976, abandoned. This application Dec. 12, 1979, Ser. No. 102,876
Int. Cl.³ G03G 9/08
U.S. Cl. 430—106 7 Claims

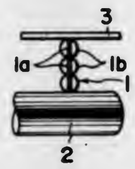
1. A printing ink comprising particles each having
a body of fusible resin with a colorant dispersed therein, said body being about two to ten microns in size, and
an electrically conductive coating overlying the surface of said body and consisting of electrically conductive carbon particles adhering thereto substantially by van der Waals forces, said particles being in sufficiently close mutual proximity for continuous electrical conduction therebetween within said coating and forming a layer of average thickness substantially exceeding the diameters of the particles, said printing ink having a volume resistivity of from 10 to 10^3 ohm cm. measured at between one and two volts per cm., said coating comprising between 5 and 10 percent by weight of said printing ink.

4,273,848

ORIENTED MAGNETIC TONER

Sanji Inagaki; Koji Nagai, and Hiromi Kameda, all of Itami, Japan, assignors to Minolta Camera Kabushiki Kaisha, Japan

Filed Mar. 5, 1979, Ser. No. 17,535
Claims priority, application Japan, Mar. 14, 1978, 53-28893
Int. Cl.³ G03G 9/14
U.S. Cl. 430—107 3 Claims



1. A particulate magnetic toner for magnetic brush development of latent electrostatic images to toner images, which toner comprises:
a first and third portion consisting predominantly of an insulating, substantially non-magnetic resin and a
second portion comprising a magnetic material sandwiched between said first and third portions, said second portion portion being exposed at least at opposed surfaces of the toner particles and
said toner exhibiting a relatively low resistivity during development of said latent electrostatic images to toner images while exhibiting a relatively high resistivity during transfer of said toner images to a sheet for receiving said images.

4,273,849

METHOD OF USING LIQUID ELECTROGRAPHIC DEVELOPERS CONTAINING POLYMERIC QUATERNARY SALTS

Stewart H. Merrill; Alec N. Mutz, and Frederick A. Stahly, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 43,860, May 29, 1979, Pat. No. 4,229,513, which is a continuation-in-part of Ser. No. 824,132, Aug. 12, 1977, abandoned. This application Mar. 31, 1980, Ser. No. 135,757
Claims priority, application United Kingdom, Aug. 11, 1978, 33132/78
Int. Cl.³ G03G 13/10
U.S. Cl. 430—119 11 Claims

1. A process for developing a latent electrostatic charge image comprising forming said electrostatic charge image on an insulating electrographic element and by contacting it with a liquid developer comprising an electrically insulating carrier liquid having dispersed therein a soluble quaternary ammonium salt copolymer that is free of cations of alkali metals and alkaline earth metals, a soluble acrylic polar copolymer, and a halogenated polymer.

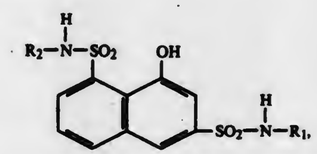
4,273,850

TWO-COMPONENT DIAZOTYPE MATERIAL

Hans-Dieter Frommeld, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Feb. 25, 1980, Ser. No. 124,575
Claims priority, application Fed. Rep. of Germany, Feb. 26, 1979, 2907446
Int. Cl.³ G03C 1/58, 1/54
U.S. Cl. 430—173 8 Claims

1. In a two-component diazotype material, composed of a support and of an acid-stabilized light-sensitive layer applied to the support, said layer containing at least one benzene diazonium salt as the light-sensitive component and at least one coupler,
the improvement being that said diazonium salt includes at least one 2,5-dialkoxy-4-mercaptobenzene diazonium salt and said coupler includes at least one compound of the general formula



in which R_1 and R_2 are identical or different and denote hydrogen or alkyl, alkenyl, aralky, aryl or cycloalkyl groups, which can be further substituted.

4,273,851

METHOD OF COATING USING PHOTOPOLYMERIZABLE LATEX SYSTEMS

Thaddeus M. Muzyczko, and Daniel C. Thomas, both of Melrose Park, Ill., assignors to Richardson Graphics Company, Des Plaines, Ill.

Division of Ser. No. 43,478, May 29, 1979, Pat. No. 4,224,398, which is a division of Ser. No. 873,383, Jan. 30, 1978, Pat. No. 4,186,069. This application Mar. 26, 1980, Ser. No. 134,275
Int. Cl.³ B05D 3/06; G03F 7/08
U.S. Cl. 430—175 18 Claims

1. A method of coating a substrate with an oleophilic matrix, comprising: forming a light-sensitive latex coating composition that is a three-phase precursor polymer emulsion of an emulsified water-insoluble polymer particulate component in an aqueous medium containing a water-soluble or water-dispersible light-sensitive polymer component having multiple light-sensitive moieties; applying said three-phase precursor polymer emulsion to a substrate; drying said precursor emulsion by removing most of the water phase therefrom; and exposing said dried emulsion to actinic radiation for curing and water-insolubilizing said light-sensitive polymer and simultaneously forming a matrix of cross-linked light-sensitive polymer with said polymer particulates dispersed therethrough.

4,273,852

INSTANT FILM UNIT

Gerald A. Lange, and Charles J. Simpson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 26, 1979, Ser. No. 106,643
Int. Cl.³ G03C 5/54; G03D 9/00
U.S. Cl. 430—209 9 Claims

1. In a film unit including first and second superposed sheets, said first sheet carrying photosensitive material for recording a processable latent image and said second sheet serving to aid in the distribution of a processing fluid over the photosensitive material, said film unit further including a mask between said sheets having an aperture defining an imaging area, side rails between said sheets spaced laterally on opposite sides of the aperture, and a pouch at one end of the imaging area for supplying the processing fluid; such film unit being adapted for use with processing apparatus which includes a pressure nip of predetermined length sufficient to span the aperture for rupturing the pouch and distributing the fluid between the sheets across the imaging area; the film unit improvement comprising:
said mask having a predetermined thickness for controlling the nominal depth of the distributed processing fluid;
said side rails having a predetermined thickness spacing the lateral edges of the sheets apart by an amount significantly greater than the nominal depth of the distributed fluid; and
said lateral spacing between said side rails being slightly greater than the length of the pressure nip, whereby said rails are disposed outside of the nip during the distribution of the processing fluid where they accommodate fluid of greater depth than said nominal depth ahead of the nip and enhance the uniformity of the distribution controlled by the mask.

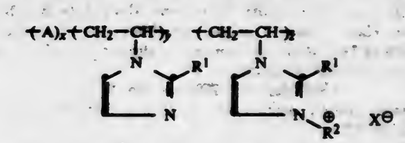
4,273,853

METAL COMPLEXES OF COPOLYMERS COMPRISING VINYLIMIDAZOLE AND THEIR USE IN PHOTOGRAPHIC ELEMENTS

Ignazio S. Ponticello; Henry J. Sniadoch, and George Villard, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 30, 1979, Ser. No. 25,686
Int. Cl.³ G03C 7/00, 1/40, 5/54
U.S. Cl. 430—213 15 Claims

1. In an image transfer film unit to be processed by an alkaline processing composition, said film unit comprising:
(1) a support having thereon at least one layer containing a photosensitive silver halide emulsion having associated therewith a dye-forming material; and
(2) a dye image-receiving layer located between said support and said layers containing the silver halide emulsion;
the improvement wherein the dye image-receiving layer contains a copolymer having the recurring units



wherein:
A is a unit derived from an ethylenically unsaturated monomer;
R^1 is H, alkyl or alkyl substituted with a metal-coordinating group or salts thereof;
R^2 is alkyl or aralkyl;
$X^\ominus$ is an acid anion;
x is 10 to 80 mole percent;
y is 10 to 80 mole percent; and
z is 5 to 20 mole percent;
said polymer having associated therewith metal ions, said metal ions being either in the same layer as the polymer or in a layer between the support and the layer containing said polymer.

4,273,854

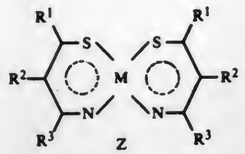
METHOD FOR IMPROVING THE LIGHT FASTNESS OF ORGANIC SUBSTRATE MATERIALS INCLUDING PHOTOGRAPHIC DYE IMAGES

Hiroshi Hara, Asaka; Kotaro Nakamura, and Yoshiaki Suzuki, both of Minami-ashigara, all of Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

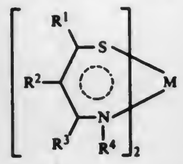
Division of Ser. No. 969,520, Dec. 14, 1978. This application May 15, 1980, Ser. No. 150,114
Claims priority, application Japan, Dec. 14, 1977, 52-150346
Int. Cl.³ G03C 1/10, 1/40, 1/84
U.S. Cl. 430—216 2 Claims

1. A diffusion transfer color photographic material compris-

ing a photosensitive element and an image-receiving element, said image-receiving element comprising a support having thereon a mordanting layer containing a complex of the formula (I) or (II)



(I)



(II)

wherein M represents a Cu, Co, Ni, Pd or Pt atom; R^1 and R^4, which may be the same or different, each represents an alkyl group or an aryl group; R^2 and R^3, which may be the same or different, each represents a hydrogen atom, an alkyl group or an aryl group; or R^1 and R^2, and R^3 and R^4 combine with each other to represent a non-metallic atomic group necessary for forming a 6-membered ring; and Z represents the non-metallic atomic group necessary to complete a 5-membered ring, a 6-membered ring, an 8-membered ring or a 10-membered ring.

4,273,855

PHOTOGRAPHIC DIFFUSION TRANSFER PROCESS AND MATERIAL FOR THE PRODUCTION OF COLOR IMAGES AND SUITABLE COMPOUNDS THEREFOR

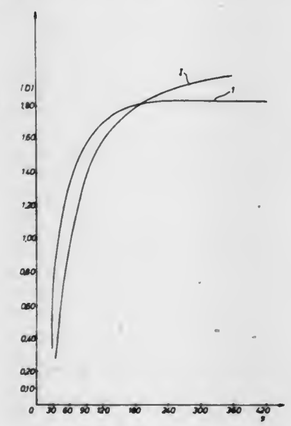
Jan Jacken, Hove; André Verhecken, Mortsel, both of Belgium; Hans Vetter, Cologne, and Paul Marx Leverkusen, both of Fed. Rep. of Germany, assignors to Agfa-Gevaert N.V., Mortsel, Belgium

Filed Mar. 12, 1979, Ser. No. 19,582

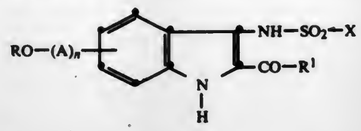
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1978, 2811720

Int. Cl.³ G03C *1/40, 1/10, 7/00, 5/54*

U.S. Cl. 430—242 **3 Claims**



1. Photographic diffusion transfer process for making colour images according to which a photographic material with at least one light-sensitive silver halide emulsion layer and associated with this layer a non-migratory colour-providing compound, which in its oxidized form and in alkaline medium is capable of releasing a diffusing dye, is image-wise exposed and developed with a silver halide developing agent, which in its oxidized form oxidizes the non-migratory colour-providing compound as a result of which oxidation the latter is split by a developer alkali under formation of an image-wise distribution of the released diffusing dye, characterized in that the non-migratory colour-providing compound corresponds to the following general formula:



wherein:

R represents an alkyl group of 1 to 4 C atoms;

A represents an oxyalkylene group;

n is 1 or 2;

X represents a dye residue or a dye precursor, which is bound to the SO_2-group either directly or through Z acting as an intermediate link;

Z represents an alkylene group of 1 to 6 C atoms, an arylene group or a heterocyclic group, which is linked to the residue X either directly or by means of —O—, —S—, —SO_2—, —NR— (R being hydrogen or an alkyl group), —CO—, —CONH— or —SO_2NH—;

R^1 represents —OR^2, —SR^2 or



R^2 being hydrogen, an alkyl group with 1 to 22 C atoms, a cycloalkyl group or an aryl group, R^3 being one of the residues defined under R^2 or being an acyl residue which is derived from an aliphatic or aromatic carboxylic or sulphonic acid, and R^4 being hydrogen or an alkyl group with 1 to 22 C atoms.

4,273,856

POSITIVE RESIST TERPOLYMER COMPOSITION AND METHOD OF FORMING RESIST PATTERN

Yasuhiro Yoneda; Toshisuke Kitakohji, both of Yokohama, and Kenro Kitamura, Fujisawa, all of Japan, assignors to Fujitsu Limited, Japan

PCT No. PCT/JP78/00021, § 371 Date Jul. 2, 1979, § 102(e) Date Jul. 7, 1979, PCT Pub. No. WO79/00283, PCT Pub. Date May 31, 1981

This PCT application filed Jul. 2, 1979, Ser. No. 112,309

Claims priority, application Japan, Nov. 7, 1977, 52-133336

Int. Cl.³ G23C *1/68*

U.S. Cl. 430—270 **7 Claims**

1. A cross-linkable positive working resist polymer composition comprising, a terpolymer comprised of

(a) from about 70 to about 99% by mole of units derived from a methacrylic acid ester of the formula:

$$CH_2=C(CH_3).COOR$$

where R is selected from the group consisting of alkyls having from 1 to 6 carbon atoms, haloalkyls having from 1 to 6 carbon atoms, benzyl and cyclohexyl,

(b) from about 1 to about 20% by mole of units derived from methacrylamide, and

(c) from about 0.05 to about 20% by mole of units derived from methacrylic acid chloride;

each amount of the units (a), (b) and (c) being based on the total moles of the units (a), (b) and (c).

4,273,857

POLYMERIC BINDERS FOR AQUEOUS PROCESSABLE PHOTOPOLYMER COMPOSITIONS

Ernst Leberzammer, New Brunswick, and Leo Roos, New Shrewsbury, both of N.J., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 654,171, Jan. 30, 1976, abandoned, which is a continuation-in-part of Ser. No. 463,310, Apr. 23, 1974, abandoned. This application Aug. 14, 1979, Ser. No. 66,374

Int. Cl.³ G03C *1/68*

U.S. Cl. 430—281 **10 Claims**

1. In a photpolymerizable composition containing 0.1 to 10% by weight of an organic radiation-sensitive free radical-generating photoinitiator system, 7.5 to 35% by weight of a nongaseous ethylenically unsaturated compound capable of forming a high polymer by free radical-initiated chain addition polymerization, and 30 to 92.4% by weight of polymeric binder the improvement wherein the binder, is comprised of a mixture of from 15 to 60% by weight each of two free acid containing polymers which are insoluble in water at 85° F., the first polymer (A)

(1) being film forming when cast from solution in volatile solvent onto copper after evaporation of the solvent, the film having (a) a thickness of 0.0003 to 0.0023 inch; (b) good adhesion to copper as measured by zero delamination in the scribe cross hatch test; and (c) complete solubility within five minutes to a spray of dilute aqueous alkali at 0.04 normal NaOH, 20 p.s.i., and 80°–85° F.;

(2) having a molecular weight of at least 30,000; and

(3) having an acid number of at least 20, and the second polymer (B)

(1) having an acid number of at least 5; and

(2) when in film form of 0.0003 to 0.00023 inch thickness, being insoluble for at least 5 minutes to a spray of dilute aqueous alkali at 0.04 normal NaOH, 20 p.s.i., and 80°–85° F.

4,273,858

RESIST MATERIAL FOR MICRO-FABRICATION WITH UNSATURATED DICARBOXYLIC MOIETY

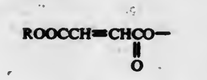
Kohtaro Nagasawa, Tokyo; Hideo Ochi, Kawasaki; Fujio Tanaka, Koshigaya, and Yumi Shibata, Tokyo, all of Japan, assignors to Somar Manufacturing Co., Ltd., Tokyo, Japan

Filed Jul. 19, 1978, Ser. No. 926,067

Int. Cl.³ G03C *5/00*

U.S. Cl. 430—296 **5 Claims**

1. A method of producing a resist pattern which comprises, irradiating with electrons, X-rays, or deep UV radiation having a wavelength of 3,000 Angstroms or less a substrate having thereon a thin film of a resist material consisting essentially of a polymer having a backbone formed of monomer units wherein about 1 to 100% of said monomer units contain functional group(s) bonded to an α,β-unsaturated dicarboxylic moiety of the formula (I):



(I)

wherein R represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group, or an aralkyl group, the resist material being substantially non-light-sensitive but curable by electromagnetic radiation with a wavelength less than about 3,000 Å.

4,273,859

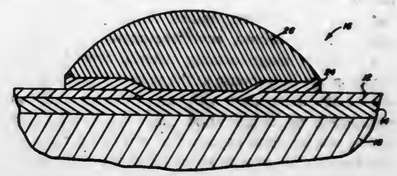
METHOD OF FORMING SOLDER BUMP TERMINALS ON SEMICONDUCTOR ELEMENTS

Arthur H. Mones, Phoenix, Ariz.; Jack A. Sartell, Bloomington, and Vahram S. Kardashian, Plymouth, both of Minn., assignors to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Dec. 31, 1979, Ser. No. 108,760

Int. Cl.³ H01L *21/88*

U.S. Cl. 430—315 **10 Claims**



1. Method of forming solder bump terminals on semiconductor elements of a silicon wafer, each element having a metalization layer, and a passivation layer overlying the metalization layer, vias formed through the passivation layer providing access to the metalization layer where solder bump terminals are to be formed;

the method comprising the steps of:

applying a layer of heat resistant photoresist material over the passivation layer of the elements of the wafer;

exposing the photoresist through a photomask so that the areas of the photoresist layer overlying the via openings are unpolymerized;

developing the photoresist to remove the unpolymerized areas of the photoresist area so that the vias are exposed;

depositing barrier metal layers on the wafer;

removing the layers of barrier metal overlying the photoresist and photoresist material from the wafer;

applying a second layer of photoresist material over the surface of the wafer;

exposing the second layer of photoresist layer through a photomask causing the areas of the photoresist material overlying the barrier metal layers of each via to remain unpolymerized;

developing the exposed photoresist to remove the unpolymerized photoresist material overlying the barrier metal layers;

depositing a layer of tin/lead solder on the wafer;

stripping the layer of photoresist material and the layer of tin/lead solder overlying the remaining photoresist material; and

heating the wafer to cause the solder to reflow to form raised solder bump terminals over the barrier metal layers of each via, said solder terminals having a substantially spherical exposed surface.

4,273,860

INHIBITION OF IMAGE FORMATION UTILIZING COBALT(III) COMPLEXES

Anthony Adin, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 865,275, Dec. 28, 1977, abandoned. This application Dec. 28, 1978, Ser. No. 971,469

Int. Cl.³ G03C *5/24, 1/00, 1/52*

U.S. Cl. 430—338 **50 Claims**

1. In an imaging element comprising, in one or more operatively associated layers,

an energy-activatible image precursor composition including at least a cobalt(III) complex containing releasable ligands selected from amines, dimethylglyoxime, ethyl, aquo, chloro, bromo, acetylacetonato, nitro, and superoxo, and an image-forming material capable of generating an image in response to the release of said ligands;

the improvement comprising, in reactable association with

said precursor composition, a photoinhibitor composition capable of inhibiting said ligand release upon exposure to activating radiation of a wavelength longer than about 300 nm, said photoinhibitor composition containing a photolytic acid-generating compound.

43. A process for forming a negative or positive image in an imaging element comprising, in one or more operatively associated layers,

an energy-activatible image precursor composition including at least a cobalt(III) complex containing releasable ligands selected from amines, dimethylglyoxime, ethyl, aquo, chloro, bromo, acetylacetonato, nitro, and superoxo, and an image-forming material capable of generating an image in response to the release of said ligands, and in reactable association with said precursor composition, a photoinhibitor composition capable of inhibiting said ligand release upon exposure to activating radiation of a wavelength longer than about 300 nm, said photoinhibitor composition containing a photolytic acid-generating compound; the process comprising the steps of:

(a) imagewise activating by selective exposure, one of said image precursor composition and said photoinhibitor composition, whereby either ligands are released or are inhibited from release; and

(b) overall activating by exposure the other of said compositions, whereby a negative image or a positive image is produced, respectively.

4,273,861

MULTILAYER COLOR PHOTOGRAPHIC MATERIALS UTILIZING AN INTERLAYER CORRECTION COUPLER

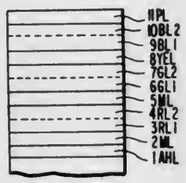
Keisuke Shiba; Takeshi Hirose; Jun Hayashi; Atsuaki Arai; Nobuo Furutachi, and Harumi Katsuyama, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Continuation of Ser. No. 480,802, Jun. 19, 1974, Pat. No. 3,961,960. This application Feb. 23, 1976, Ser. No. 660,581

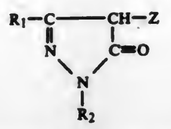
Claims priority, application Japan, Jun. 19, 1973, 48-68892

Int. Cl.³ G03C 7/00, 1/76

U.S. Cl. 430—382 **11 Claims**

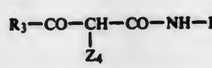


11. A process for forming color photographic images which comprises imagewise exposing a multilayer color photographic material comprising a support having coated thereon at least two photosensitive silver halide emulsion layer units which provide dye images having substantially different colors from each other by color development, at least one of said photosensitive emulsion layer units containing a coupler (A) capable of undergoing a coupling reaction with the oxidation product of a primary aromatic amine color developing agent and an interlayer color correction coupler (B) capable of providing an interlayer interimage effect, which provides a dye having a different color than that of the dye formed by the coupling reaction of said coupler (A) and the oxidation product of the primary aromatic amine color developing agent, wherein in said photosensitive emulsion layer units the dye images provided by said coupler (A) and said coupler (B) are of the same type and developing the image exposed multilayer color photographic material with a color developer solution at a temperature of 30° to 60° C., said couplers (A) and said interlayer color correction couplers (B) being couplers represented by the following general formula (I)



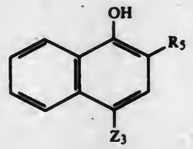
(I)

wherein R_1 represents an alkyl group, an aryl group, an alkoxy group, an aryloxy group, a heterocyclic ring, an amino group, a carbonamido group, or a ureido group; R_2 represents an alkyl group, an aryl group, or a heterocyclic group; and Z_1 represents in the case of coupler (A) a hydrogen atom or a group which is releasable on color development but which is not a development inhibitor and in the case of the interlayer color correction coupler (B), a group which is released as a or releases a development inhibitor at color development; the general formula (II)



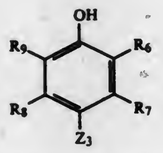
(II)

wherein R_3 represents an alkyl group or an aryl group; R_4 represents an aryl group; and Z_2 represents in the case of coupler (A) a hydrogen atom or a group which is releasable on color development but which is not a development inhibitor and in the case of the interlayer color correction coupler (B), a group which is released as a or releases a development inhibitor at color development; the general formula (III)



(III)

wherein R_5 represents a carbamyl group, a sulfamyl group, an alkoxy carbonyl group, or an aryloxycarbonyl group; and Z_3 represents in the case of coupler (A) a hydrogen atom or a group which is releasable on color development but which is not a development inhibitor and in the case of the interlayer color correction coupler (B), a group which is released as a or releases a development inhibitor at color development; or the general formula (IV)



(IV)

wherein R_6 represents an alkyl group, an aryl group, a heterocyclic group, an amino group, a carbonamido group, a sulfonamido group, a sulfamyl group, or a carbamyl group; R_7, R_8, and R_9 each represents a halogen atom, an alkoxy group, an alkyl group, an aryl group, a heterocyclic group, an amino group, a carbonamido group, a sulfonamido group, a sulfamyl group, or a carbamyl group; and Z_3 represents in the case of coupler (A) a hydrogen atom or a group which is releasable on color development but which is not a development inhibitor and in the case of the interlayer color correction coupler (B), a group which is released as a or releases a development inhibitor at color development and with the proviso that in any given photosensitive emulsion layer unit, coupler (A) and coupler (B) are not both selected from compounds represented by the same formula above and are not both selected from compounds represented by formulas (III) or (IV) above.

4,273,862

DIRECT-POSITIVE SILVER HALIDE PHOTOGRAPHIC SENSITIVE MATERIALS

Akio Yoshida, and Seigo Ebato, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Continuation of Ser. No. 906,350, May 15, 1978, abandoned. This application Sep. 24, 1979, Ser. No. 78,304

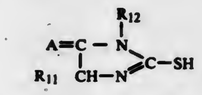
Claims priority, application Japan, Jun. 11, 1977, 52/69156; Jun. 23, 1977, 52/74844

Int. Cl.³ G03C 5/24

U.S. Cl. 430—412 **17 Claims**

1. A process comprising developing a direct-positive silver halide photographic sensitive material containing a silver halide emulsion layer with an alkaline infections developer solution containing hydroquinone as single developing agent, characterized in that (1) the silver halide emulsion is an externally fogged direct-positive silver halide which contains not less than 70 mole % of bromide, and at least one anionic cyanine dye having a polarographic oxidation halfwave potential of not less positive than +0.3 V and (2) a development accelerator is incorporated in at least one of the layers constituting the silver halide photographic sensitive material, said development accelerator being selected from the group consisting of

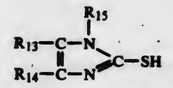
(1) 2-mercaptoimidazoline and its derivatives of the general formula



(XI)

wherein R_{11} and R_{12} each represents hydrogen atom or an alkyl group having 4 or less or carbon atoms (for example, methyl and ethyl radicals), A represents oxygen atom, two hydrogen atoms, or one hydrogen atom and an alkyl group having 4 or less carbon atoms,

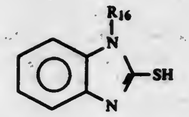
(2) 2-mercaptoimidazole and its derivatives of the general formula



(XII)

wherein R_{13}, R_{14} and R_{15} each represents hydrogen atom or an alkyl group having 4 or less carbon atoms,

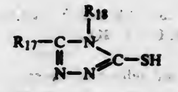
(3) 2-mercaptobenzimidazole and its derivatives of the general formula



(XIII)

wherein R_{16} represents hydrogen atom or an alkyl group having 4 or less carbon atoms,

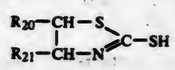
(4) 2-mercaptotriazole and its derivatives of the general formula



(XIV)

wherein R_{17} represents hydrogen atom or an alkyl group having 4 or less carbon atoms, R_{18} represents hydrogen atom, an alkyl group having 4 or less carbon atoms, allyl group or a group represented by the formula NH-R_{19}, where R_{19} represents hydrogen atom or an acyl group having 4 or less carbon atoms (for example, acetyl group or propionyl group),

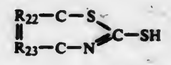
(5) 2-mercaptothiazoline and its derivatives of the general formula



(XV)

wherein R_{20} and R_{21} each represents hydrogen atom or an alkyl group having 4 or less carbon atoms,

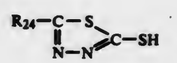
(6) 2-mercaptothiazole and its derivatives of the general formula



(XVI)

wherein R_{22} and R_{23} each represents hydrogen atom or an alkyl group having 4 or less carbon atoms, and

(7) 2-mercaptothiadiazole and its derivatives of the general formula



(XVII)

wherein R_{24} represents hydrogen atom, an alkyl group having 4 or less carbon atoms, or a group represented by the formula NH-R_{25}, where R_{25} represents hydrogen atom or an alkyl group having 4 or less carbon atoms.

2. A process comprising developing a direct-positive silver halide photographic sensitive material containing a silver halide emulsion layer with an alkaline infectious developer solution containing hydroquinone as single developing agent, characterized in that the silver halide emulsion is externally fogged direct-positive silver halide emulsion containing not less than 70 mole-% of bromide and at least one anionic cyanine dye having a polarographic oxidation halfwave potential not less positive than +0.4 V.

4,273,863

PROCESS OF FORMATION OF COLOR IMAGES, PHOTOGRAPHIC PRODUCT AND TREATING SOLUTIONS USEFUL FOR PUTTING THE PROCESS INTO PRACTICE

Jean Dealtrigas, Aix-En-Provence; Yves Ferre, Le Perreux-Sur-Marne, and Claude Gonnaut, Chelles, all of France, assignors to Eastman Kodak Company, Rochester, N.J.

Division of Ser. No. 837,778, Sep. 29, 1977, Pat. No. 4,186,004. This application Jul. 27, 1979, Ser. No. 61,773

Int. Cl.³ G03C 7/00, 5/30

U.S. Cl. 430—467 **6 Claims**

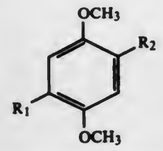
1. An alkaline processing composition comprising an amino acid selected from the group consisting of 6-aminohexanoic acid and 11-aminoundecanoic acid.

4,273,864
COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS

Tsutomu Hamaoka; Masakazu Morigaki; Satoru Sawada; Takayoshi Kamio, and Kotaro Nakamura, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 20, 1979, Ser. No. 105,485
Claims priority, application Japan, Dec. 28, 1978, 53-165359
Int. Cl.³ G03C 1/40
U.S. Cl. 430—551 7 Claims

1. A color photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer containing a 3-anilino-5-pyrazolone type magenta coupler and at least one of the compounds represented by the formula (I)



(I)

wherein R_1 and R_2 represent each a tertiary alkyl group having 4 to 20 carbon atoms.

4,273,865
INSOLUBILIZED BIOCHEMICAL MATERIALS

Otto von Stetten, Rodgau, and Helmut Schmidt, Wuerzburg, both of Fed. Rep. of Germany, assignors to Byk-Mallinckrodt Chemische Produkte GmbH, Dietzenbach-Steinberg, Fed. Rep. of Germany

Filed Dec. 26, 1978, Ser. No. 972,846
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1977, 2758507
Int. Cl.³ G01N 33/54; C12N 11/14
U.S. Cl. 435—7 27 Claims

27. A stabilized biochemical composition comprising a biochemical material selected from the group consisting of antigens, antibodies, hormones, amino acids, haptens and enzymes, covalently bound to a coating of condensed heteropolysilicic acid on a mechanically strong support, the condensed heteropolysilicic acid being a copolymer of the following components:

(a) at least one substituted silane of the general formula $SiR_nR''_{(4-n)}$, —wherein R represents hydrogen, halogen, lower alkoxy or —NR'_2, wherein each R' group may be hydrogen or lower alkyl, R'' represents lower alkyl, lower alkenyl, phenyl or phenyl lower alkyl, and n is a whole number in the range of 1-3; said substituted silane expressed as oxide being present in an amount from about 60-90% (w/w), and

(b) at least one functional silane of the general formula $SiR_n(R'''Y)_{(4-n)}$, wherein R has the meaning given above, R''' represents lower alkylene, phenylene, lower alkenyl phenylene, or lower alkylenephenylene; Y represents halogen, an optionally substituted amino, anilino, aldehyde, keto, carboxy, hydroxy, mercapto, cyano, hydroxyphenyl, carboxylic acid lower alkyl ester, sulfonic acid, or phosphoric acid group; and n is as defined above; said functional silane expressed as oxide being present in an amount from about 1-15% (w/w).

4,273,866
LIGAND ANALOG-IRREVERSIBLE ENZYME INHIBITOR CONJUGATES AND METHODS FOR USE

Houston F. Voss; Jacob Plattner, both of Libertyville, and Thomas R. Herrin, Waukegan, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Feb. 5, 1979, Ser. No. 9,007
Int. Cl.³ G01N 33/54; C12N 9/99
U.S. Cl. 435—7 3 Claims

1. A method for determining ligands in test samples comprising intermixing with the test sample a ligand analog-irreversible enzyme inhibitor conjugate and a binding protein bindable to the ligand and the ligand analog-irreversible enzyme inhibitor conjugate and wherein the amount of ligand analog-irreversible enzyme inhibitor conjugate bound by the binding protein is related to the amount of ligand in the test sample, said binding protein inactivating the irreversible enzyme inhibitor when bound to the ligand analog portion of the conjugate; intermixing an enzyme which is irreversibly inhibited by the ligand analog-irreversible enzyme inhibitor conjugate unbound by the binding protein; and intermixing substrate to the enzyme and monitoring the enzyme substrate reaction, wherein the enzyme is acetylcholinesterase and the irreversible enzyme inhibitor is an organophosphorous enzyme inhibitor which reacts with acetylcholinesterase to form covalent bonds.

4,273,867
METHOD AND REAGENT FOR COUNTERACTING LIPEMIC INTERFERENCE

Wayne H. T. Lin, Chesterfield; James J. Grib, and Larry D. Mosier, both of St. Louis, all of Mo., assignors to Mallinckrodt, Inc., St. Louis, Mo.

Filed Apr. 5, 1979, Ser. No. 27,388
Int. Cl.³ G01N 33/54, 31/00, 33/48
U.S. Cl. 435—7 15 Claims

1. In a double antibody immunoassay for a substance in a lipid-containing sample, wherein the improvement comprises (a) mixing with the sample a finely-divided adsorbent selected from the group consisting of charcoal, silica gel, talc, bentonote, clay base materials, aluminia base materials, magnesia base materials, and cellulose base materials having a surface area of at least 50 square meters per gram and having an affinity for lipids in an amount sufficient to adsorb lipids present in said sample, and a nonionic, water-soluble polhydroxypolymer having a molecular weight of about 1,000 to 100,000 in an amount sufficient to accelerate precipitation of adsorbed lipids in said sample, (b) precipitating said adsorbent containing adsorbed lipids in said sample and (c) measuring said sample for said substance.

13. A reagent useful for counteracting lipemic interference in double antibody immunoassay of a lipid-containing sample, which comprises: a finely-divided adsorbent having a surface area of at least 50 square meters per gram and having a high affinity for lipids in an amount sufficient to adsorb lipids; and polyethylene glycol having a molecular weight of about 1,000 to 100,000 in an amount sufficient to accelerate precipitation of adsorbed lipids in said sample.

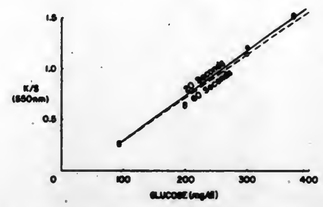
4,273,868
COLOR STABLE GLUCOSE TEST

Bert Walter, South Bend, Ind., assignor to Miles Laboratories, Inc., Elkhart, Ind.

Filed Feb. 23, 1979, Ser. No. 14,500
Int. Cl.³ C12Q 1/54
U.S. Cl. 435—14 1 Claim

1. A composition for the determination of glucose in a body fluid sample which comprises glucose oxidase, peroxidase, a buffer effective to maintain a pH of from about 4 to about 7.5,

a stabilizing agent and 3,3',5,5'tetramethylbenzidine, wherein the 3,3',5,5'tetramethylbenzidine is present in a concentration

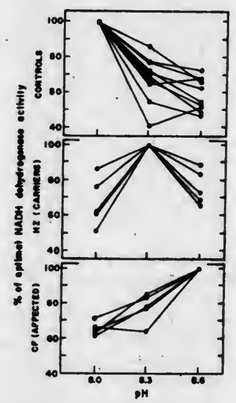


of at least about 2.6 millimoles per thousand International Units of glucose oxidase activity.

4,273,869
CYSTIC FIBROSIS DETECTION METHOD

Burton L. Shapiro, St. Paul, Minn., assignor to The Regents of the University of Minnesota, Minneapolis, Minn.

Filed Apr. 16, 1979, Ser. No. 30,179
Int. Cl.³ C12Q 1/32
U.S. Cl. 435—26 17 Claims



10. A method for the diagnosis of cystic fibrosis, the detection of non-symptomatic carriers of the disease and identification of non-affected normal individuals, which method comprises:

(A) obtaining a sample of venous blood from a human subject,

(B) isolating the lymphocytes from said blood sample,

(C) preparing a homogenate of the lymphocyte cells,

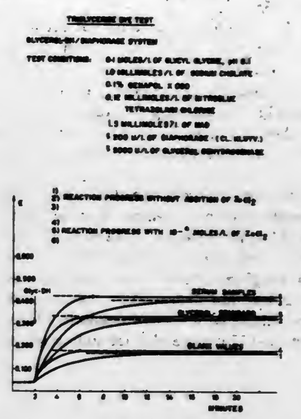
(D) performing a kinetic assay of the NADH dehydrogenase enzyme complex of the first energy conserving site of the mitochondrial electron transport system of the lymphocyte cells by determination of the pH optimum for activity of said enzyme at pH values of about 8.0, 8.3 and 8.6, and

(E) evaluating the assay by comparison with standards established as the result of similar assays of other subjects of known conditions.

4,273,870
METHOD AND COMPOSITION FOR THE DETERMINATION OF GLYCEROL

Hans Möllering, Tutzing, and Siegfried Loeser, Weilheim, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim-Waldhof, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,728
Claims priority, application Fed. Rep. of Germany, Jul. 18, 1978, 2831580
Int. Cl.³ C12Q 1/32
U.S. Cl. 435—26 9 Claims



1. Method for the determination of glycerol, which method comprises contacting a sample with glycerol dehydrogenase, an electron transfer agent, NAD and a tetrazolium salt in amounts suitable for enzymatic activity and, in addition, at least one microgram of zinc, in the form of a water soluble zinc salt, per 50 units of glycerol dehydrogenase under conditions suitable for enzymatic activity; and determining the glycerol initially present in the sample by measuring the formation of dye.

3. Reagent for the determination of glycerol comprising glycerol dehydrogenase, an electron transfer agent, NAD, tetrazolium salt, and buffer, in amounts suitable for enzymatic acitivity; and at least one microgram of zinc, in the form of a water soluble zinc salt, for every 50 units of glycerol dehydrogenase.

4,273,871
PRODUCTION OF ANGIOGENIC FACTOR BY CELL CULTURE

William R. Tolbert, Manchester; Mary M. Hitt, St. Louis, and Joseph Feder, University City, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Mar. 3, 1980, Ser. No. 126,810
Int. Cl.³ C12P 1/00
U.S. Cl. 435—41 5 Claims

1. Process for the production of human angiogenic factor in vitro comprising growing cells of human foreskin fibroblast cell line on support surface in nutrient culture medium at about 35°-38° C. for a sufficient time to elaborate angiogenic factor and isolating the resulting angiogenic factor from the cells or cell product.

4,273,872

METHOD FOR THE MICROBIOLOGICAL CONVERSION OF STEROIDS

Pasquale Zaffaroni, Mentana; Vincenza Vitobello, and Anna M. Gamalerio, both of Rome, all of Italy, assignors to Snamprogetti S.p.A., Milan, Italy

Continuation of Ser. No. 926,232, Jul. 20, 1978, abandoned, which is a continuation of Ser. No. 797,877, May 17, 1977, abandoned. This application Nov. 13, 1979, Ser. No. 93,913

Claims priority, application Italy, May 18, 1976, 23359 A/76

Int. Cl.³ C12P *33/16*

U.S. Cl. 435—55 8 Claims

1. A method for the mircobiological preparation of Δ-4-cholestene-3-one from cholesterol which comprises adding cholesterol and a mixture of n-parafins to a culture of an organism selected from the group cosisting of SP2T, SP3T bis, SP5T, and SP7T/1; incubating the culture for a sufficient time to produce Δ-4-cholestene-3-one; and thereafter extracting the culture with a water immiscible solvent to obtain Δ-4-cholestern-3-one.

8. A method for the production of Δ 4-androstene-3,17-dione and Δ 1,4-androstadiene-3,17-dione from progesterone which comprises adding progesterone and a mixture of n-parafins to a culture of SP 731 RO or SP 742 XXA and incubating the culture for a sufficient time to produce Δ 4-androstene-3,17-dione and Δ 1,4-androstadiene-3,17-dione; and thereafter extracting the culture with a water immiscible solvent to obtain Δ 4-androstene-3,17-dione and Δ 1,4-androstadiene-3,17-dione.

4,273,873

PREPARATION OF ANTITHROMBOGENIC POLYMERIC MATERIALS

Akio Sugitachi, Uozaki-kitamachi; Kunihiko Takagi, Kyoto, and Yasunori Yabushita, Uji, all of Japan, assignors to Unitika Ltd., Amagasaki, Japan

Filed Oct. 25, 1977, Ser. No. 844,856

Int. Cl.³ C12N *11/08*; A61F *1/00*

U.S. Cl. 435—180 11 Claims

1. A process for preparing an antithrombogenic polymeric material, which comprises treating a polymeric material selected from the group consisting of polyacrylic acid, polymaleic acid, polyglutamic acid, alginic acid, polyethyleneimine, polymethacryloyl chloride, a polymer of bisphenol A and epichlorohydrin, polyacrolein, polymaleic anhydride, a polyamide, poly(ethylene terephthalate), a polyurethane, a silicone rubber, polyethylene, polypropylene, polyvinyl chloride, polyvinyl alcohol, polyacrylonitrile, cellulose, cellulose acetate, poly(methylmethacrylate), a polyester elastomer, poly(vinylbenzyl trialkyl ammonium ion), poly(vinylbenzyl dialkyl sulfonium ion), poly(vinylbenzyl trialkyl phosphonium ion), poly(dialkyloctamethylene ammonium ion), poly(N,N-dialkyl-3,5-methylenepiperidinium ion), and poly(dialkylaminoethyl methacrylate), with a solution of a synthetic compound which contributes to dissolution of fibrin, said synthetic compound being selected from the group consisting of a 1,2-diphenylpyrazolidine derivative, an anthranilic acid derivative, a salicylic acid derivative, a cinnamic acid derivative, a β-aryl substituted aliphatic acid, and a carboxylic acid containing a heterocyclic ring thereby to cause the synthetic compound to bond covalently or ionically to the polymeric material.

10. A process for preparing an antithrombogenic polymeric material, which comprises treating a polymeric material with a solution of a synthetic compound which contributes to dissolution of fibrin, said synthetic compound being selected from the group consisting of a 1,2-diphenylpyrazolidine derivative, an anthranilic acid derivative, a salicylic acid derivative, a cinnamic acid derivative, a β-aryl substituted aliphatic acid, and a carboxylic acid containing a heterocyclic ring, and with a solution of a fibrinolytic enzyme, thereby to cause a covalent bonding or ionic bonding of said synthetic compound and of the enzyme to the polymeric material.

4,273,874

ACIDIC URICASE AND PROCESS FOR PRODUCTION THEREOF

Toru Nakanishi, Atsugi, and Yoshimi Shigemasa, Machida, both of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Dec. 14, 1979, Ser. No. 103,579

Claims priority, application Japan, Dec. 14, 1978, 53/153648

Int. Cl.³ C12N *9/06*; C12Q *1/62*

U.S. Cl. 435—191 5 Claims

1. Acidic uricase having an optimum pH in the range of 4.7 to 5.1, and characterized by catalyzing the oxidation of uric acid to allantoin.

4,273,875

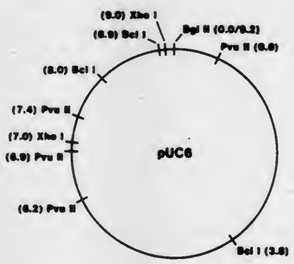
PLASMID AND PROCESS OF ISOLATING SAME

Jack J. Manis, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed Mar. 5, 1979, Ser. No. 17,812

Int. Cl.³ C12N *1/20*

U.S. Cl. 435—253 5 Claims



1. Essentially pure plasmid pUC6 which is characterized by a molecular weight of approximately 6.0 megadaltons, and a restriction endonuclease cleavage map as shown in the drawing.

2. A biologically pure culture of *Streptomyces espinosus* biotype 23724a, having the deposit accession number NRRL 11439, and which also contains about 20 to about 40 copies of plasmid pUC6 per cell.

4,273,876

ENZYMATIC BATING METHOD

Rolf Mousbeimer, Darmstadt-Eberstadt, and Ernst Pfleiderer, Darmstadt-Arheilgen, both of Fed. Rep. of Germany, assignors to Röhm GmbH, Darmstadt, Fed. Rep. of Germany

Filed Dec. 18, 1979, Ser. No. 104,832

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856320

Int. Cl.³ C14C *1/00*

U.S. Cl. 435—265 1 Claim

1. A method for the enzymatic bating of dehaired pelts with simultaneous removal of scud, which method comprises bating said pelts at a pH between 3 and 6 in the presence of an acid protease and of an amylase having concomitant proteolytic activity and an optimum hydrolytic activity against polysaccharides, with splitting of the α-1→4 glycosidic linkage, at a pH below 7.

4,273,877

SPIRAL PLATING APPARATUS

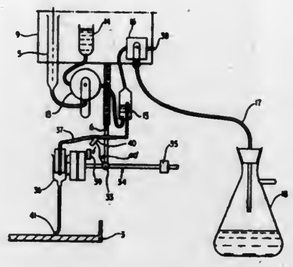
Gerasimos D. Anagnostopoulos, Twickenham, England, assignor to National Research Development Corporation, London, England

Filed Jun. 11, 1979, Ser. No. 47,478

Claims priority, application United Kingdom, Jun. 13, 1978, 26794/78

Int. Cl.³ C12M *1/32*

U.S. Cl. 435—293 20 Claims



1. An inoculator assembly for use in a spiral plating apparatus, comprising an inoculator holder; a pivot on said inoculator holder; an arm mounted to balance on said pivot; an inoculator mounted on said arm and adapted to pass over a growth medium to be inoculated, the inoculator including a fine hollow needle through which inoculum can be dispensed, and the needle having a curved tip which can ski over the surface of the growth medium without penetrating it; and means separate from said arm for exerting a force on said inoculator such that the curved tip of the needle thereof can continuously keep contact with and follow contours on said growth medium.

4,273,878

POLYAMINE-CROSSLINKED ANION EXCHANGE RESIN

David R. Amick, Chalfont, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 927,196, Jul. 24, 1978, Pat. No. 4,191,814. This application Jun. 4, 1979, Ser. No. 45,366

Int. Cl.³ C08F *8/32*; B01J *41/08*

U.S. Cl. 521—32 6 Claims

1. A process for preparing anion exchange resin beads which comprises forming poly(chloromethylstyrene) beads under suspension polymerization conditions, stabilizing the beads, swelling the beads with an organic solvent, and reacting the swollen beads with a polyamine which will simultaneously crosslink and functionalize the beads, said polyamine containing at least two tertiary amine groups of which at least one is a terminal group.

4,273,879

INTUMESCENT FIRE RETARDANT COMPOSITES

Roger L. Langer, Hudson; Richard R. Licht, New Richmond, both of Wis., and Alan J. Marlor, Minneapolis, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Continuation of Ser. No. 891,397, Mar. 31, 1978, abandoned, which is a continuation-in-part of Ser. No. 795,936, May 11, 1977, abandoned. This application Jan. 28, 1979, Ser. No. 52,742

Int. Cl.³ C08J *9/00*

U.S. Cl. 521—91 4 Claims

1. Dense, solid, flexible, heat expandable, fire retardant composite material capable of subsisting substantially indefinitely in sheet or putty form and having increased thermal insulating and sealing efficiency when exposed to temperatures above about 110° C., and capable of expanding at least up to two times its original volume consisting essentially of about 15 to 80 weight percent of sodium silicate in granular form as the intumescent component, the individual sodium silicate granules each enlarging solely upon the application of heat, about 15 to 40 weight percent of a polychloroprene binder component, up to about 40 weight percent of a phenol-formaldehyde organic char-forming resin and up to about 50 weight percent filler comprising up to about 20 weight percent active filler and up to about 40 weight percent inactive filler.

4,273,880

FOAMED POLYETHYLENE FILMS

Wichard Pump, Mulheim an der Ruhr; Wolfgang Becker, Hilden, and Edwin Woldenberg, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 19, 1979, Ser. No. 58,822

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1978, 2832287

Int. Cl.³ C08J *9/10*

U.S. Cl. 521—93 4 Claims

1. A process for the continuous production of foamed films of polyethylene and/or copolymers of ethylene/vinyl acetate using azodicarbonamide as a blowing agent by the known extrusion processes of blown film, wherein from 0.1 to 1.0% by weight of a calcium salt of an aliphatic fatty acid and from 0.4 to 2.5% by weight of a zinc salt of an aliphatic fatty acid are added to the polyethylenes and/or copolymers of ethylene/vinyl acetate before or during processing.

4,273,881

ORGANO-PHOSPHORUS FLAME-RETARDANT FOR POLYURETHANE FOAMS PREPARED FROM GRAFT POLYOXYALKYLENE POLYETHER POLYOLS

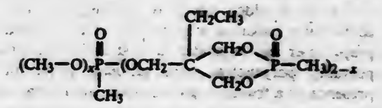
Jay G. Otten, Flat Rock, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 3, 1979, Ser. No. 99,817

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—108 4 Claims

1. A flame-retardant, flexible, high-resiliency polyurethane foam prepared by the reaction of a polyoxyalkylene polyether polyol having an average equivalent weight of from 200 to 2500, a vinylic copolymer content of at least 10 parts by weight per 100 parts of polyol, and an organic polyisocyanate in the presence of a blowing agent and an effective amount of a flame-retardant compound having the following formula



wherein x is equal to 0 or 1.

4,273,882

PREPARATION OF THERMALLY STABLE RIGID POLYURETHANE FOAM

Robert J. Raynor, North Branford, Conn., assignor to Olin Corporation, New Haven, Conn.

Filed Jun. 2, 1980, Ser. No. 155,371

Int. Cl.³ C08G *18/14*

U.S. Cl. 521—110 11 Claims

1. A process for preparing a rigid polyurethane foam which comprises reacting a polyether polyol reactant with an organic polyisocyanate reactant in the presence of a foaming agent having a proportion of water ranging from about 2 to about 44 parts by weight per 100 parts of the total polyol reactant, said proportion being effective in promoting the formation of urea structures to enhance the thermal stability of said foam, said polyether polyol reactant including:

a main polyol having a hydroxyl number of about 250–650

and being the product of reacting a mixture of a carbohydrate and a member selected from the group consisting of ethylene diamine, the ethanolamines and a mixture thereof, with an oxide selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide and a mixture thereof, said member being employed in a molar ratio ranging from about 1 to about 12 moles per mole of said carbohydrate;

a first supplemental polyol having a hydroxyl number of about 50–250 and being the product of reacting an aliphatic diol, triol or a mixture thereof with an alkylene oxide having 2–4 carbon atoms; and

a second supplemental polyol having a hydroxyl number of about 300–800 and being an adduct of ethylene oxide and an amine selected from the group consisting of an aliphatic amine having 1–8 carbon atoms, an aromatic primary amine having 6–8 carbon atoms, an alkanolamine in which each alkanol group contains 2–5 carbon atoms, and a mixture thereof; and wherein:

said main polyol is employed in a proportion of from about 30 to about 80 percent, said first supplemental polyol is employed in a proportion of from about 35 to about 10 percent, and said second supplemental polyol is employed in a proportion of from about 35 to about 10 percent, all percentages being based upon the total weight of said polyol reactant; and

said polyisocyanate reactant is used in an amount so as to provide about 1.0 to about 4.0 NCO groups per hydroxy group in the reaction system.

4,273,883

UREA-FORMALDEHYDE POLYMERS HAVING REDUCED FORMALDEHYDE EMISSION AND CELLULAR UREA FORMALDEHYDE FOAM WHICH IS RESISTANT TO ACID-INDUCED HYDROLYSIS

Heinz L. Korf, 4394 Beaconshillsfield Ave., Montreal NDG Quebec, Canada

Filed Apr. 8, 1980, Ser. No. 133,591
Int. Cl.³ C08J 9/30
U.S. Cl. 521—113 **7 Claims**

1. A method of preparing a urea formaldehyde foam that is resistant to acid-induced hydrolysis, comprising:

mixing together an aqueous solution of a urea-formaldehyde resin prepolymer to which an amount of p-methoxybenzaldehyde is added which is capable of reacting with acidic but not alkaline solutions of said urea-formaldehyde prepolymer and an acidic catalyst solution containing a polyalkyl polynuclear metal sulfonate surfactant in the presence of a foaming gas, the sulfonate interacting with reactive groups of the prepolymer to give a structurally stable foam and a foam having a substantially neutral pH, thereby inhibiting the effect of acid-induced hydrolysis of the foam.

4,273,884

STABLE EMULSIONS OF POLYOLS AND CROSSLINKERS FOR POLYURETHANES

Richard J. G. Dominguez, Austin, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed May 12, 1980, Ser. No. 149,287
Int. Cl.³ C08G 18/14
U.S. Cl. 521—114 **7 Claims**

1. An emulsion of a polyol having an hydroxy number of from about 56 to about 24 and ethylene glycol and an emulsifier comprising an ethylene oxide/propylene oxide block copolymer diol having an average molecular weight of above about 12,000 and an ethylene oxide content of from about 70% to about 90%.

4,273,885

NOVEL CATALYST SYSTEM FOR RIM ELASTOMERS

Richard J. G. Dominguez, and Doris M. Rice, both of Austin, Tex., assignors to Texaco Development Corp., White Plains, N.Y.

Filed Apr. 1, 1980, Ser. No. 136,199
Int. Cl.³ C08G 18/14
U.S. Cl. 521—115 **4 Claims**

1. In a method for making a polyurethane elastomer of significantly improved properties wherein an aromatic polyisocyanate, a polyol of above about 500 equivalent weight, a chain extending agent comprising a low molecular weight active hydrogen containing compound of at least 2 functionality and a catalyst system is injected via a RIM machine into a mold cavity of the desired configuration the improvement which comprises using as the catalyst system dimorpholinodiethylether, dibutyltin dilaurate and an alkyltin mercaptide.

4,273,886

POLYIMIDES

John Gagliani, San Diego, Calif., assignor to International Harvester Company, Chicago, Ill.

Division of Ser. No. 935,378, Aug. 21, 1978, which is a continuation-in-part of Ser. No. 877,516, Feb. 13, 1978, abandoned. This application Feb. 15, 1980, Ser. No. 121,793
Int. Cl.³ C08J 9/02
U.S. Cl. 521—185 **10 Claims**

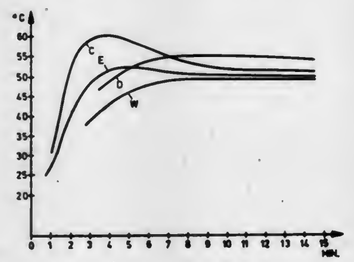
1. A copolyimide foam made by a process which includes the steps of: preparing a resinous precursor by forming a composition which is essentially a stoichiometric mixture of aromatic diamine and tetracarboxylic acid ester constituents and dispersing a filler composed of particulate or fibrous solids in said composition; heating said resinous precursor to a temperature in the range of 210–315° C. to produce a polyimide foam artifact of selected configuration; and then heating said artifact under a pressure in the range of 3–20 psig and at a temperature in the range of 230–315° C. for a time sufficient to produce a permanent set in said foam and thereby increase the rigidity and structural strength of the artifact.

4,273,887

PROCESS FOR PREPARATION OF FOAMS BY CONDENSATION REACTIONS

Per L. Wolff, Birkerod, Denmark, assignor to Koninklijke Emballage Industrie Van Leer B.V., Amstelveen, Netherlands

Filed Aug. 14, 1979, Ser. No. 66,582
Claims priority, application Netherlands, Jul. 10, 1979, 7905379
Int. Cl.³ B29D 27/04
U.S. Cl. 521—188 **14 Claims**



1. A process for the preparation of a foam having a predetermined shape, wherein in the presence of a catalyst, a blowing agent and additives a reactive resin component is subjected to a condensation reaction, characterized in reacting the starting materials in an enclosed mould cavity under conditions wherein the water formed during the reaction is substantially free to move out into a space adjacent to and in communication with said foam, and controlling the temperature and the cure of said foam by regulation of the wet bulb temperature of the gaseous mass inside said space.

14. Thermoset insulation foam products, manufactured in a shaped form by a process according to claim 1.

4,273,888

MACROMONOMERS

Clive W. Graetz, Glen Waverly, Australia, assignor to Imperial Chemical Industries Limited, London, England

Filed Dec. 7, 1979, Ser. No. 101,265
Claims priority, application United Kingdom, Dec. 7, 1978, 47584/78
Int. Cl.³ C08G 63/76; C08L 67/00
U.S. Cl. 525—31 **7 Claims**

1. A macromonomer which is obtained by (i) reacting a polyethylene glycol or a monomethyl or monoethyl ether thereof with a cyclic carboxyl anhydride in an amount of at least one mole of the anhydride per hydroxyl group present in the said glycol or ether, and (ii) reacting the product so obtained with a compound containing in the molecule a single epoxide group and a single polymerisable double bond in such proportions that all carboxyl groups in the said product are thereby esterified.

6. A graft copolymer obtained by copolymerising a macromonomer as claimed in claim 1, with other monomers containing a single polymerisable double bond.

4,273,889

THERMOSETTING RESIN COMPOSITIONS AND THE CURED PRODUCTS THEREOF

Noboru Yamazaki, Nagoya, and Yoshio Morimoto, Tokai, both of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

Filed Aug. 29, 1979, Ser. No. 70,613
Claims priority, application Japan, Sep. 6, 1978, 53-108513
Int. Cl.³ C08L 63/00
U.S. Cl. 525—109 **11 Claims**

1. Thermosetting resin compositions consisting essentially of a linear homopolymer of p-isopropenyl phenol having a polymerization degree of from 2 to about 418 and an epoxy resin having at least two epoxy groups and being present in such an amount that the ratio of the number of OH groups in the phenol to the number of epoxy groups in the resin ranges from 0.5 to 2.

4,273,890

PLASTIFIERS, METHOD OF PREPARATION AND PVC COMPOSITIONS CONTAINING SAME

John W. Hirzy, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 864,553, Dec. 27, 1977, Pat. No. 4,212,957. This application Mar. 21, 1980, Ser. No. 132,484
Int. Cl.³ C08G 63/76; C08L 27/06, 75/06
U.S. Cl. 525—129 **9 Claims**

1. An ordered, solid, block copolyesterurethane having from about 15 to about 50 percent by weight amorphous end blocks and from about 85 to about 50 percent by weight ordered copolymer center block having from 20 to about 100 percent crystallinity based on heat of fusion, said copolyesterurethane having from about 20 to about 95 percent crystallinity based on heat of fusion, said ordered copolymer consisting essentially of crystalline or semi-crystalline prepolymer blocks coupled via ester or urethane linkages said crystalline prepolymer prepared by reacting equivalent amounts of dicarboxylic acid and crystallizing dihydroxy compound, said semi-crystalline prepolymer being prepared by reacting dicarboxylic acid with a mixture of noncrystallizing dihydroxy compound and crystallizing dihydroxy compound in a ratio of non-crystallizing dihydroxy compound to crystallizing dyhydroxy compound from about 0.1 to about 0.5, and said end blocks and center block being isocyanate-coupled.

6. Composition comprising a halogen-containing polymer and a copolyesterurethane of claim 1.

4,273,891

HYDROCARBON-SUBSTITUTED METHYLOL PHENOLS

John F. Pindar, Euclid; Jerome M. Cohen, University Heights, and Charles P. Bryant, Euclid, all of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Continuation-in-part of Ser. No. 613,664, Sep. 15, 1975, Pat. No. 4,053,428, which is a continuation-in-part of Ser. No. 540,470, Jan. 13, 1975, Pat. No. 3,980,569, which is a continuation-in-part of Ser. No. 451,644, Mar. 15, 1974, abandoned. This application Sep. 6, 1977, Ser. No. 830,931
Int. Cl.³ C08G 8/10, 8/36; C08L 61/14; C10M 1/28
U.S. Cl. 525—145 **15 Claims**

1. A lubricant and liquid fuel additive or intermediate for such additives selected from the group consisting of (I) hydroxy aromatic compounds having:

(a) at least one hydroxyl substituent bonded directly to a carbon atom of an aromatic moiety, Ar,

(b) at least one hydrocarbon-based substituent of at least about 50 and up to about 300 aliphatic carbon atoms bonded directly to a carbon atom of the aromatic moiety, Ar, and

(c) at least one methylol or lower hydrocarbon-based substituted methylol substituent bonded directly to a carbon atom of the aromatic moiety, Ar, said compound containing no alkylene linkages between carbon atoms of two aromatic nuclei, (II) ether condensates of said hydroxy aromatic compounds and mixtures of (I) and (II).

4,273,892

PREPARATION OF HYDROPHILIC POLYOLEFIN FIBERS FOR USE IN PAPERMAKING

Terence W. Rave, Wilmington, Del., assignor to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 818,364, Jul. 25, 1977, Pat. No. 4,156,628, which is a continuation-in-part of Ser. No. 721,133, Sep. 7, 1976, abandoned, which is a continuation-in-part of Ser. No. 653,188, Jan. 28, 1976, Pat. No. 4,035,229, which is a division of Ser. No. 521,002, Nov. 4, 1974, abandoned. This application Jan. 25, 1979, Ser. No. 6,969
The portion of the term of this patent subsequent to Jul. 12, 1994, has been disclaimed.
Int. Cl.³ C08L 77/06, 61/22
U.S. Cl. 525—180 **2 Claims**

1. A blend of cationic and anionic water-soluble, nitrogen-containing polymers wherein the cationic polymer is the reaction product of epichlorohydrin and the aminopolyamide derived from adipic acid and diethylenetriamine and wherein the anionic polymer is the reaction product of glyoxal and the polymer obtained by partial hydrolysis of a branched, water-soluble poly(β-alanine) and wherein the ratio of said cationic polymer to said anionic polymer in said blend is in the range of from about 1:3 to about 1:7 by weight.

4,273,893

TERNARY BLENDS OF LOW DENSITY ETHYLENE POLYMERS, ETHYLENE-ALKYL ACRYLATE COPOLYMERS AND AMORPHOUS ISOBUTYLENE POLYMERS

Khalid A. Karim, and James H. Rea, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Jul. 31, 1980, Ser. No. 174,300
Int. Cl.³ C08L 23/06, 23/08, 23/20, 33/08
U.S. Cl. 525—227 **8 Claims**

1. A compatible blend of polymers consisting essentially of:

(a) A low density ethylene polymer,

(b) An ethylene copolymer, and

(c) A solid amorphous isobutylene polymer;

said low density ethylene polymer having a density of less than

about 0.945 and a melt index of about 0.5–20; said ethylene copolymer having polymerized therein about 70 to 98 weight % of ethylene and the balance an alkyl ester of acrylic or methacrylic acid; said isobutylene polymer having a molecular weight of at least about 10,000; said ethylene copolymer being present in an amount constituting about 15–50 weight % of the total weight of the low density ethylene polymer and the ethylene copolymer; and said isobutylene polymer being present in the amount of said 15–75 parts by weight for each 100 parts of combined weight of the low density ethylene polymer and the ethylene copolymer.

4,273,894

THERMOPLASTIC COMPOSITION COMPRISING CHLORINATED POLYOLEFIN AND ACRYLATE POLYMER

Rainer Mücke, Burgkirchen; Johann Schiller, Neuötting, and Herbert Säckl, Unteras, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 21, 1980, Ser. No. 170,881

Claims priority, application Fed. Rep. of Germany, Jul. 24, 1979, 2929959

Int. Cl.³ C08L 23/28, 33/08, 33/10

U.S. Cl. 525—228 10 Claims

1. Thermoplastic composition essentially consisting of

(a) 60 to 95% by weight of at least one chlorinated polyolefin and

(b) 5 to 40% by weight of at least one copolymer of butadiene, styrene and an ester of acrylic acid or methacrylic acid.

4,273,895

PROCESS FOR PREPARING THERMOPLASTIC RESIN

Hiroyuki Minematsu, Niihama; Kojiro Matsumoto, Takarazuka; Tadashi Saeki, and Akira Kishi, both of Niihama, all of Japan, assignors to Sumitomo Naugatuck Co., Ltd., Japan

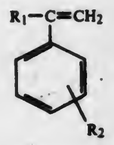
Filed Jul. 3, 1979, Ser. No. 54,507

Claims priority, application Japan, Jul. 4, 1978, 53-81753

Int. Cl.³ C08F 279/02

U.S. Cl. 525—264 6 Claims

1. A process for preparing a thermoplastic resin which comprises emulsion polymerization, in the presence of a radical initiator, of a mixture comprising a monomer mixture consisting essentiall of 35 to 70% by weight of the monomer mixture of an α-alkylstyrene of the formula:



wherein R_1 is C_1–C_3 alkyl and R_2 is hydrogen, C_1–C_3 alkyl or halo C_1–C_3 alkyl, 10 to 60% by weight of the monomer mixture of methyl methacrylate, and 3 to 30% by weight of the monomer mixture of an unsaturated nitrile and a diene rubber latex containing particles at least 30% of which have a particle size of 400 to 900 Å, the weight proportion of the monomeric mixture and the diene rubber latex (solids) being from 60:40 to 95:5.

4,273,896

SILYLATED POLYMERS AND SILYLATED ORGANIC-ORGANOPOLYSILOXANE BLOCK COPOLYMERS

Eugene R. Martin, Onsted, Mich., assignor to SWS Silicones Corporation, Adrian, Mich.

Continuation-in-part of Ser. No. 924,111, Jul. 12, 1978, abandoned, which is a division of Ser. No. 813,157, Jul. 5, 1977, Pat. No. 4,148,838. This application Mar. 26, 1980, Ser. No. 134,004

Int. Cl.³ C08F 6/02, 297/02

U.S. Cl. 525—271 10 Claims

1. A method for preparing a terminated silylated copolymer which comprises (1) forming a carbanion containing organic polymer by polymerizing a monomer having carbon-to-carbon double bonds in the presence of a carbanion forming catalyst, (2) reacting the carbanion containing organic polymer with a vinyl containing silane having at least one group selected from halogen, acyloxy radicals and perchlorato radicals to form a silylated copolymer and thereafter (3) reacting the silylated copolymer containing a carbanion with a compound which will react with the carbanion to form a terminated silylated copolymer, said compound is selected from the group consisting of water, carboxylic acids, carboxylic acid anhydrides, inorganic acids, alcohols and silanes which are free of aliphatic unsaturation and have at least one group selected from the class consisting of halogen, acyloxy, phosphato, sulfato, hydrocarbonoxy and perchlorato radicals.

4,273,897

VULCANIZABLE RUBBER COMPOSITIONS WITH AMINO ACIDS

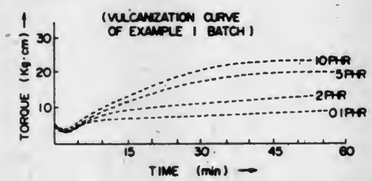
Masao Onizawa, Kusatsu, Japan, assignor to Sanyo Trading Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 625,874, Oct. 24, 1975, abandoned. This application May 23, 1979, Ser. No. 41,632

Claims priority, application Japan, Oct. 29, 1974, 49-124031; Oct. 2, 1975, 50-118242

Int. Cl.³ C08F 8/32; C08C 19/22; C08F 8/34

U.S. Cl. 525—351 5 Claims



1. A vulcanizable composition comprising bromobutyl rubber and at least one amino acid selected from the group consisting of arginine, lysine, hydroxylysine, ornithine, cystine, asparagine, glutamine and citrulline, the amino acid component being present in an amount of 0.1 to 50 parts by weight per 100 parts by weight of the bromobutyl rubber.

4,273,898

BLOCK COPOLYMER OF POLYETHERAMIDE AND RANDOM COPOLYMER OF POLYAMIDE AND POLYETHERAMIDE

Edward M. Kohn, Philadelphia, Pa.; Stephen L. Nickol, and Robert M. Thompson, both of Wilmington, Del., assignors to Suntech, Inc., Philadelphia, Pa.

Filed Sep. 6, 1979, Ser. No. 73,331

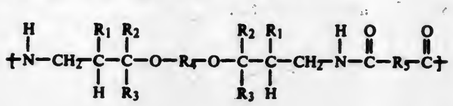
Int. Cl.³ C08L 77/00; C08G 69/40

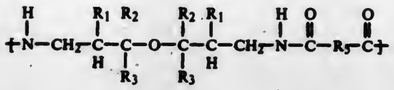
U.S. Cl. 525—432 3 Claims

1. A block copolymer comprising blocks of polyetheramide and blocks of a random copolymer of polyetheramide precursors and precursors of ether-free polyamide and wherein the block copolymer is free from ether-free polyamide block segments and the block copolymer has the following repeating structural formula

$$-X-_w-Y-_z$$

wherein —X— is a polyetheramide selected from the group consisting of the following structural formulas:





wherein R_1, R_2 and R_3 each are selected from the group consisting of H, C_1–C_{10} alkyls and C_3–C_{10} isoalkyls and R_4 is selected from the group consisting of C_1–C_{10} alkylenes and C_3–C_{10} isoalkylenes and R_5 is selected from the group consisting of C_0–C_{10} alkylenes, C_3–C_{10} isoalkylenes and C_6–C_{20} arylenes and wherein —Y— is a bivalent radical of a random copolymer containing an etheramide distributed randomly throughout a polyamide structure and wherein the amount of the etheramide contained in the polyamide structure is sufficient to form a copolymer having a lower melting point than a corresponding homopolymer of the polyamide and wherein w and z each have a value in the range between from about 4 to about 200.

4,273,899

FIRE-RETARDANT THERMOPLASTIC POLYESTER COMPOSITION

Noritsugu Saiki, Iwakuni, and Takashi Kaneko, Matsuyama, both of Japan, assignors to Teijin Limited, Osaka and Teijin Chemicals, Ltd., Tokyo, both of, Japan

Continuation of Ser. No. 803,774, Jun. 6, 1977, abandoned. This application May 31, 1979, Ser. No. 44,242

Claims priority, application Japan, Jun. 11, 1976, 51-67589

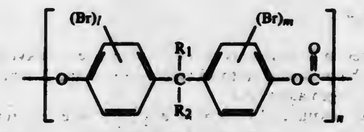
Int. Cl.³ C08G 63/62; C08L 67/02

U.S. Cl. 525—439 8 Claims

1. A fire-retardant thermoplastic polyester resin composition consisting of essentially of

(A) 100 parts by weight of an aromatic polyester resin,

(B) 1 to 100 parts by weight of a fire retardant which is a medium molecular weight polymer of a carbonate of a brominated dihydric phenol of the formula



wherein l and m each represent an integer of 1 to 4, n represents a number of about 22 to about 50, and R_1 and R_2 each represent a hydrogen atom or an alkyl group containing 1 to 5 carbon atoms, or taken together, represent a cycloalkane containing 5 to 12 carbon atoms, the carbonate polymer having a melting point of more than 300° C.,

or both said carbonate polymer and 1 to 100 parts by weight of an antimony compound, the amount of the antimony compound being calculated as metallic antimony, the composition containing no other aromatic carbonate polymer.

(C) 1 to about 120 parts by weight of glass fibers, and

(D) 0 to about 10 parts by weight of at least one additive selected from the group consisting of stabilizers, coloring agents, mold releasing agents, nucleating agents, lubricants, inorganic fillers other than the glass fibers and blowing agents.

4,273,900

DIAPHRAGM FOR ACOUSTIC EQUIPMENT

Kosaku Murata, Kobe; Satoshi Takayama, Moriguchi, and Mitsuru Ieki, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 903,798, May 8, 1978, abandoned. This application Jul. 9, 1979, Ser. No. 55,780

Claims priority, application Japan, May 7, 1977, 52/262

Int. Cl.³ C08L 67/02

U.S. Cl. 525—444 4 Claims

1. A diaphragm for a sound transducing device having a lowest resonant frequency lower than or equal to 480 Hz and an inner loss between 0.04 and 0.20 which is prepared by molding a composition mainly consisting of a copolymer of poly (tetramethyleneoxide) glycol with polytetramethyleneterephthalate.

4,273,901

DISPERSIBLE VINYLIDENE CHLORIDE POLYMER MICROGEL POWDERS AS ADDITIVES FOR POLYMERS

Dale S. Gibbs; Jack H. Benson, and Reet T. Fernandez, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 942,512, Sep. 15, 1978, Pat. No. 4,232,129. This application Nov. 5, 1979, Ser. No. 91,281

Int. Cl.³ C08K 5/05, 5/13; C08G 18/06

U.S. Cl. 525—455 3 Claims

1. In a method of forming a polyurethane material by reacting a polyfunctional isocyanate with an active-hydrogen-containing material, the improvement characterized by including in the reactant mixture a crosslinked vinylidene chloride polymer microgel powder obtained by a method comprising the steps of

(I) preparing a microgel latex by emulsion polymerizing (a) about 50 to about 90 parts by weight of vinylidene chloride, (b) about 10 to about 50 parts by weight of a copolymerizable ethylenically unsaturated comonomer, and (c) a minor amount of a copolymerizable crosslinking polyfunctional comonomer, wherein the microgels in the resulting latex have a gel content of about 25 to 99 percent and a second order transition temperature of at least about 30° C., and

(II) recovering the microgel powder from the latex;

wherein the microgels prior to recovery have a diameter less than about 1 micron.

4,273,902

DENTAL SILICONE COMPOSITIONS AND THE METHOD OF USING THE SAME

Kentaro Tomioka, Chofu; Kazuhiro Watanabe, Kamifukuoka, and Eiji Iwata, Tokyo, all of Japan, assignors to G-C Dental Industrial Corp., Tokyo, Japan

Filed Jun. 15, 1979, Ser. No. 48,979

Claims priority, application Japan, Jun. 30, 1978, 53-78745

Int. Cl.³ C08L 83/06

U.S. Cl. 525—476 2 Claims

1. A room temperature setting dental silicone composition comprising (a) an organopolysiloxane having in its molecule at least two vinyl groups, (b) an organohydrogen polysiloxane having in its molecule hydrogen atoms bonded to at least two silicone atoms, (c) a catalyst for accelerating the addition of the hydrogen atoms bonded to the silicone atoms with respect to the vinyl groups, and (d) hydrophobic fillers and characterized in that it further includes 0.5 ppm or more of finely divided palladium and/or a finely divided palladium alloy containing 10% by weight or more of palladium relative to the total silicone polymer components, which absorbs hydrogen gas

generated in the reaction of the polysiloxane having vinyl groups with the polysiloxane having Si-H bonds, without inhibiting the addition reaction.

4,273,903

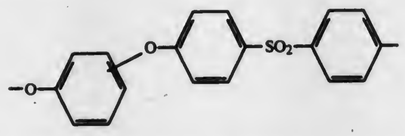
SULPHONATED POLYARYLETHERSULPHONE COPOLYMERS

John B. Rose, Letchworth, England, assignor to Imperial Chemical Industries Limited, England

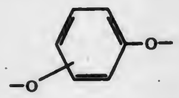
Filed Aug. 21, 1979, Ser. No. 68,466
Claims priority, application United Kingdom, Sep. 5, 1978, 35589/78; Jan. 24, 1979, 02490/79
Int. Cl.³ C08G 65/40, 75/23
U.S. Cl. 525—534 6 Claims

1. A polyarylethersulphone copolymer which is a hydrophilic sulphonated copolymer having 1 to 99 mole % of repeat units based on the repeat unit which, with no sulphonation, has the formula

A

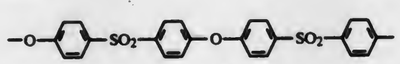


wherein substantially all of said repeat units are sulphonated, the sulphonation present being in the sub-units



with monosulphonation thereof in the case of the ether linkages being ortho or para disposed and disulphonation thereof in the case of the ether linkages being meta disposed; and 99 to 1 mole % of substantially non-sulphonated repeat units of formula

B



4,273,904

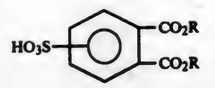
PROCESS FOR PRODUCING HOMOPOLYMERS OR COPOLYMERS OF VINYL OR VINYLIDENE MONOMERS BY EMULSION POLYMERIZATION

Charles N. Bush, Bay Village; Charles A. Daniels, and Ralph F. Koebel, both of Avon Lake, all of Ohio, assignors to The B. F. Goodrich Company, Akron, Ohio

Filed Jul. 20, 1979, Ser. No. 59,341
Int. Cl.³ C08F 2/26, 14/08, 14/06
U.S. Cl. 526—91 14 Claims

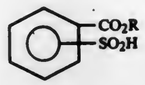
1. A process for producing polymers of vinyl and vinylidene halides and copolymers thereof with each other or either with one or more vinylidene monomers having at least one terminal $CH_2{=}C<$ grouping comprising forming in a reaction zone a polymerization mixture containing an aqueous reaction medium, the monomer or monomers to be polymerized, from about 0.01% to about 1.0% by weight of a free-radical yielding catalyst based on the weight of the monomer or monomers being polymerized, from about 0.25% to about 5.0% by weight, based on the weight of the monomer(s) being polymerized of an emulsifier selected from the group consisting of compounds having the formula

(1)



compounds having the formula

(2)



wherein R in (1) and (2) is an alkyl or chlorinated alkyl group containing from 6 to 20 carbon atoms, or an aryl-alkyl group wherein the alkyl group contains from 1 to 20 carbon atoms and more than one alkyl group can be attached to the aryl group, alkali metal salts of (1) and (2), and ammonium salts of (1) and (2), agitating said mixture at a temperature below the reactivity of the catalyst or catalysts employed therein, polymerizing said mixture in said zone at a temperature in the range of about 30° C. to about 70° C., maintaining the pH in the reaction zone in the range of about 2.0 to about 13.0 until the reaction is complete, and thereafter recovering the polymer or copolymer, whereby polymer buildup in said reaction zone is substantially reduced and wherein the polymer so produced gives enhanced plastisol bloom properties.

4,273,905

PROCESS FOR PRODUCING PROPYLENE POLYMER OR COPOLYMER

Mamoru Asada; Akinobu Shiga; Kiyoshi Matsuyama, and Masahiro Kakugo, all of Ehime, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 814,579, Jul. 11, 1977, abandoned. This application Jan. 8, 1979, Ser. No. 1,651
Claims priority, application Japan, Jul. 9, 1976, 51-82374
The portion of the term of this patent subsequent to Oct. 31, 1995, has been disclaimed.
Int. Cl.³ C08F 4/66, 10/06
U.S. Cl. 526—142 7 Claims

1. A process for producing a propylene polymer or copolymer which comprises polymerizing (a) propylene or (b) a mixture of propylene and another unsaturated hydrocarbon monomer in liquid propylene in the presence of a catalyst system of

(A) a titanium trichloride composition;

(B) an organoaluminum compound having the general formula:

$$R_2AlX$$

wherein R represents an alkyl group or an aralkyl group, each containing up to 18 carbon atoms, and X represents a halogen atom; and

(C) an unsaturated carboxylic acid ester selected from the group consisting of methyl acrylate, methyl methacrylate, methyl maleate, methyl itaconate, ethyl acrylate, butyl acrylate and butyl methacrylate;

while adjusting the amount of the polymer produced to at least 8,000 g per gram of the titanium trichloride composition, wherein the molar ratios of unsaturated carboxylic acid ester (C) and organoaluminum compound (B) to titanium trichloride composition (A) are 0.01–2:1 and 1–100:1, respectively, and the titanium trichloride composition (A) is a composition obtained by reducing titanium tetrachloride with an organoaluminum compound of the general formula:

$$R'_nAlX'_{3-n}$$

wherein R' represents a straight chain or branched chain alkyl group, an alicyclic hydrocarbon group or an aromatic hydrocarbon group, each containing up to 18 carbon atoms, X' represents a halogen atom or a hydrogen atom, and n is a number of $1 \leqq n \leqq 3$, at a temperature of about −100° C. to about 60° C.; treating the resulting solid reduction product with an ether in an amount of about 0.05 to 3 times by mole based on the titanium trichloride contained in the solid product at a temperature of about 0° to 100° C.; contacting the resulting ether-treated solid with an aluminum compound having the general formula:

$$R''_pAlX_{3-p}$$

wherein R'' represents a straight chain or branched chain alkyl group, an alicyclic hydrocarbon group or an aromatic hydrocarbon group, each containing up to 18 carbon atoms, X represents a halogen atom, and p is a number of $1 \leqq p < 1.5$ in an amount of about 0.1 to 10 times by mole based on the titanium trichloride contained in the ether-treated solid at about room temperature to about 200° C.; and thereafter contacting the aluminum compound-treated solid with a mixture of a halogenated hydrocarbon of the general formula:

$$CH_qX_{4-q}$$

wherein X is a halogen atom and q is an integer satisfying the relationship $0 \leqq q < 4$; and an ether in amounts of 0.001 to 1.0 and 0.001 to 5 times by mole based on the titanium trichloride contained in the aluminum compound-treated solid, respectively.

4,273,906

POLYMERIZABLE ACETYLENIC OLIGOMERS

James Economy, and Mary Ann Flanders, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 956,517, Oct. 31, 1978, abandoned. This application Mar. 20, 1980, Ser. No. 132,245
Int. Cl.³ C08F 4/50, 38/00, 238/00
U.S. Cl. 526—285 4 Claims

1. A soluble, polymerizable oligomer having a number average molecular weight of from about 200 to about 10,000 obtained by reacting triethynylbenzene with an oxygen-carrying amine-basic cupric salt complex catalyst in the presence of a molar excess over the monomer of an aromatic monoacetylenic capping agent.

4,273,907

BENZOIN-BONDED ORGANOPOLYSILOXANES AND METHOD FOR THE PREPARATION THEREOF

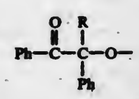
Minoru Takamizawa, Annaka; Fumio Okada, Takasaki; Yasuaki Hara, and Hisashi Aoki, both of Gunma, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,539
Int. Cl.³ C08G 77/04
U.S. Cl. 528—29 12 Claims

1. A benzoin-bonded organopolysiloxane represented by the general formula

$$(Q)_a(R^1)_{3-a}Si{-}O{-}Si(Q)(R^2){-}O]_m[Si(R^2)_2O]_n\cdot Si(Q)_a(R^1)_{3-a}$$

Where Q is a benzoin group represented by the general formula



Ph is a phenyl group, R is a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms, R^1 is a monovalent hydrocarbon group having from 1 to 6 carbon atoms, R^2 is a substituted or unsubstituted monovalent hydrocarbon group, a is a number of 0, 1 or 2, m is 0 or a positive integer with the proviso that a and m are not simultaneously equal to zero, and n is zero or a positive integer.

4,273,908

PROCESS FOR THE PRODUCTION OF POLY (POLYISOCYANATE-POLYOL-ALKALI METAL SILICATE SOLID

David H. Blount, 5450 Lea St., San Diego, Calif. 92105

Continuation-in-part of Ser. No. 36,350, May 7, 1979, which is a continuation-in-part of Ser. No. 889,932, Mar. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 663,924, Mar. 4, 1976, Pat. No. 4,097,424, which is a continuation-in-part of Ser. No. 599,000, Jul. 7, 1975, Pat. No. 4,072,637, which is a continuation-in-part of Ser. No. 262,485, Jun. 14, 1972, abandoned, which is a continuation-in-part of Ser. No. 71,628, Sep. 11, 1970, abandoned. This application May 5, 1980, Ser. No. 146,474
Int. Cl.³ C08J 9/00
U.S. Cl. 528—44 23 Claims

1. The improved process for the production of poly (polyisocyanate-polyol-alkali metal silicate) products by mixing and reacting the following components:

(a) the improvement comprises of producing an emulsion of an alkali metal silicate, which contains only water molecules that are attached to the alkali metal silicate,

(b) an organic polyisocyanate or polyisothiocyanate.

4,273,909

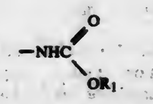
ONE-PART SOLVENT-FREE THERMOSETTABLE BLOCKED PREPOLYMER COMPOSITION CONTAINING A DIENE, TOGETHER WITH CHAIN EXTENDER, CHAIN TERMINATOR AND A DIENOPHILE

Manuel J. Arco, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 22, 1980, Ser. No. 142,651
Int. Cl.³ C08G 18/10
U.S. Cl. 528—45 16 Claims

1. A one-part, solvent-free, thermosettable adhesive and coating composition, comprising in admixture:

(A) a prepolymer having terminal isocyanate substituents of the formula:



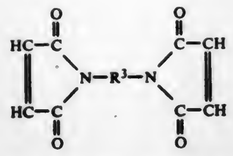
wherein R_1 is C_6H_5— or a radical of the formula $(R^2)_2C{=}N$— wherein each R^2 is the same or different and is selected from the group consisting of hydrogen atoms, aliphatic radicals of 1 to 6 carbon atoms, and phenyl radicals, and wherein said prepolymer has a number average molecular weight greater than 400 and a melting point less than 95° C.;

(B) about 50 to about 100 mole percent, based on the number of moles of said prepolymer, of at least one difunctional primary or secondary amine or difunctional primary or secondary alcohol chain extender, said chain extender being soluble in said prepolymer at 95° C.;

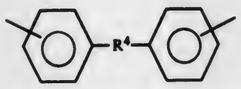
(C) up to 100 mole percent, based on the number of moles of said prepolymer, of at least one monofunctional primary or secondary amine or monofunctional primary or secondary alcohol chain terminator, said chain terminator being soluble in said prepolymer at 95° C.; and

(D) a dienophile selected from the group consisting of:

(i) bis-maleimides of the formula:

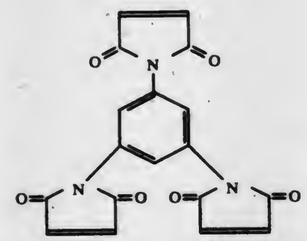


wherein R^3 is phenylene, alkylene, or a radical of the formula:



wherein R^4 is —O—, —S—, methylene, or isopropylene;

(ii) tris-maleimides of the formula:



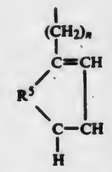
(iii) α,β unsaturated diketones having 6 to 22 carbon atoms;

(iv) diacrylates having 8 to 22 carbon atoms;

(v) α,β unsaturated dialdehydes having 8 to 22 carbon atoms; and

(vi) α,β unsaturated dinitriles having 8 to 22 carbon atoms;

wherein said dienophile is soluble in said prepolymer at 95° C., and wherein at least one of said prepolymer, said chain extender, or said chain terminator has furyl or furfuryl substituents of the formula:



wherein R^5 is a carbon, oxygen, sulfur, or nitrogen atom and n is 0 to 10, and wherein the number of moles of dienophilic sites in said dienophile is between about 10 and about 100 percent of the total number of moles of said furyl or furfuryl substituents in said prepolymer, said chain extender, and said chain terminator.

4,273,910

COLD HARDENING BINDING AGENT FOR PARTICULATE SOLIDS, SUCH AS MOLDING SAND, CONTAINING A NITROGEN BASIC POLYOL

Gernot Lederer, Speyer, Fed. Rep. of Germany, assignor to Woellner-Werke, Rhein, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 100,438, Dec. 5, 1979, abandoned. This application Mar. 19, 1980, Ser. No. 131,782

Int. Cl.³ C08G 18/38

U.S. Cl. 528—48 12 Claims

1. A cold hardening binding agent for binding particulate solid materials which is obtained by mixing a polyhydroxy compound having at least two hydroxyl groups and a polyisocyanate, characterized in that the polyhydroxy compound consists at least in part of a sufficient quantity of nitrogen basic polyol to achieve hardening of the binding agent.

4,273,911

METHOD FOR THE MANUFACTURE OF LOW-MELTING POLYURETHANES HAVING IMPROVED STRENGTH PROPERTIES USING A MIXTURE OF A POLYDIOL HAVING A MOLECULAR WEIGHT BETWEEN 500 AND 5,000 AND A MIXTURE OF AT LEAST THREE DIOLS

Bertram Freudenberg; Günter Schuhmacher, both of Weinheim an der Bergstrasse, and Horst Mühlfeld, Grasellenbach, all of Fed. Rep. of Germany, assignors to Firma Carl Freudenberg, Weinheim an der Bergstrasse, Fed. Rep. of Germany

Filed Jan. 30, 1980, Ser. No. 116,838

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1979, 2906136

Int. Cl.³ C08G 18/32

U.S. Cl. 528—49 26 Claims

1. A method for preparing a polyurethane which melts below about 150° C. which comprises preparing a chain-extended polyurethane from at least one diisocyanate, at least one polydiol having a molecular weight between about 500 and 5000, and at least three diols wherein at least one diol is branched or includes an ether group, and wherein at least one diol is unbranched, said diols having a molecular weight of less than about 500; and wherein the hydroxyl group content of the reaction mixture exceeds or equals the isocyanate content of the reaction mixture.

4,273,912

POLYURETHANE FLOOR VARNISH AND FLOOR MATERIALS COATED THEREWITH

Walter L. Harmer, Arden Hills, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Sep. 24, 1979, Ser. No. 78,463

Int. Cl.³ C08G 18/32, 18/72; B32B 27/40

U.S. Cl. 528—67 14 Claims

1. A tough, wear-resistant polyurethane coating composition particularly suited for providing a protective coating on an elastomeric flooring material, said composition consisting essentially of the moisture-cured reaction product of an organic isocyanate-terminated prepolymer produced by reacting

(a) a diol component having a weighted average molecular weight between about 500 and 1200 and two primary hydroxyl groups; and

(b) sufficient diisocyanate compound having two terminal isocyanate groups to provide an NCO:OH equivalent ratio of about 1.4:1 to 2.1:1; said reacting being accomplished in the presence of sufficient compatible catalyst to facilitate the cure of said composition in a commercially acceptable period of time, said protective coating being characterized by having a Taber abraser value less than 10 milligrams average weight loss per 1000 cycles using an H-18 wheel under a 500 g load.

8. A floor material comprising a member having a traffic surface coated with a tough, wear-resistant polyurethane coating composition consisting essentially of the moisture-cured

reaction product of an organic diisocyanate-terminated prepolymer produced by reacting in the presence of a suitable catalyst

(a) a diol component having a weighted average molecular weight between about 500 and 1200 and two primary hydroxyl groups; and

(b) sufficient diisocyanate compound having two terminal isocyanate groups to provide an NCO:OH equivalent ratio of about 1.4:1 to 2.1:1, said protective coating being characterized by having a Taber abraser value less than 10 milligrams average weight loss per 1000 cycles using an H-18 wheel under a 500 g load.

4,273,913

ISOCYANATE CAPPED URETHANE-CONTAINING PREPOLYMER PREPARED FROM POLYOLS OBTAINED FROM EPIHALOHYDRIN

Louis L. Wood, Rockville, and Donald W. Larsen, Marriotsville, both of Md., assignors to W. R. Grace & Co., New York, N.Y.

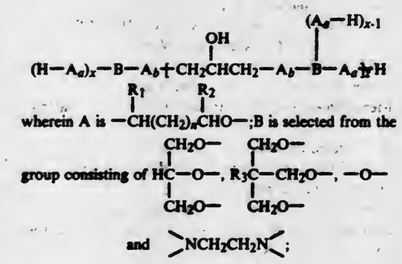
Continuation-in-part of Ser. No. 23,912, Mar. 26, 1979, abandoned. This application Dec. 13, 1979, Ser. No. 103,248

Int. Cl.³ C08G 18/10

U.S. Cl. 528—77 3 Claims

1. An isocyanate capped, urethane-containing prepolymer comprising the reaction product of

(a) a polyol composition containing at least three OH groups of the general formula:



wherein A is $-CH(CH_2)_nCHO-$; B is selected from the group consisting of , and ;

at least one of R_1 and R_2 is H and the other is independently selected from the group consisting of H, CH_3 and phenyl; R_3 is H, CH_3, CH_2CH_3 or $—OCH_2—$; n is 0 or 2; x is 1–3; z is 1–10 and a and b are independently selected from 1 to 1000 and from a stoichiometric amount up to a 20% excess per equivalent OH in the polyol of

(b) a polyisocyanate containing at least two NCO groups.

4,273,914

PRE-REACTED CARBOXYLIC ACID ANHYDRIDE COMPLEXES AS LOW TEMPERATURE CURING AGENTS FOR EPOXY RESINS

James D. B. Smith, Wilkins Township, Allegheny County, and Arthur W. Ott, Wilkinsburg, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 6, 1980, Ser. No. 127,615

Int. Cl.³ C08G 59/42, 59/68, 59/72

U.S. Cl. 528—89 21 Claims

1. An electron charge transfer complex, useful as a curing agent, consisting essentially of a mixture of liquid organic carboxylic acid anhydride selected from the group consisting of monofunctional anhydrides, polyfunctional anhydrides and mixtures thereof, and Lewis Acid catalyst selected from the group consisting of $SnCl_4$, $TiCl_4$, $SbCl_5$, SbF_5, BF_3, PF_5 and mixtures thereof, forming carboxylic cationic species.

4,273,915

PROCESS FOR THE PREPARATION OF GLYCIDYL POLYETHERS OF POLYPHENOLS

Gerard Soula, Meyzieu, and Jean-Louis Locatelli, Vienne, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Feb. 29, 1980, Ser. No. 125,777

Claims priority, application France, Mar. 2, 1979, 79 05919

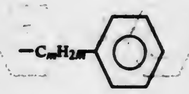
Int. Cl.³ C08G 59/06

U.S. Cl. 528—93 26 Claims

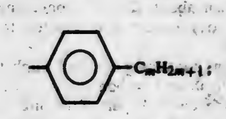
1. A process for the preparation of glycidyl polyethers of polyphenols which comprises reacting, in an anhydrous and essentially aprotic medium, at least one polyphenol alkali metal salt with at least one 2,3-epoxy-1-haloalkane in the presence of at least one compound of the formula

$$N[CHR_1—CHR_2—O—(CHR_3—CHR_4—O)_n—R_5]_3 \quad (I)$$

wherein n is an integer from 0 to 10 inclusive; R_1, R_2, R_3, and R_4, which can be the same or different, are each a hydrogen atom or an alkyl radical having 1 to 4 carbon atoms; R_5 is selected from the group consisting of a hydrogen atom, an alkyl radical having 1 to 12 carbon atoms, a cycloalkyl radical having 3 to 12 carbon atoms, a phenyl radical, a radical of the formula



and a radical of the formula



and m is an integer from 1 to 12 inclusive.

4,273,916

CURABLE CYCLOALIPHATIC EPOXY-POLYIMIDE COMPOSITIONS

Robert J. Jones, Hermosa Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Continuation-in-part of Ser. No. 12,097, Feb. 14, 1979. This application Jan. 13, 1980, Ser. No. 159,413

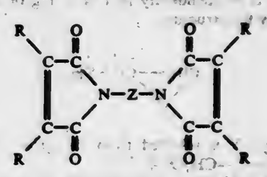
Int. Cl.³ C08G 73/10, 59/40

U.S. Cl. 528—117 17 Claims

1. A low temperature curable composition comprising:

(a) at least one curable polyimide prepolymer formed at a temperature sufficient to cause thermal reaction between heated components of a mixture of:

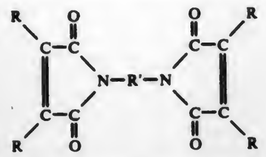
(i) at least one aliphatic bismaleimide of the formula:



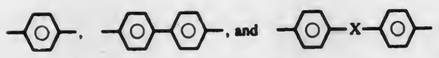
wherein Z is a polyaliphatic ether in which each aliphatic group individually contains from one to about six carbon atoms, and in which each R is independently selected from the group consisting of hydrogen, an aliphatic group containing one or two carbon atoms, a benzenoid radical and a halogen;

(ii) at least one aromatic polyamine;

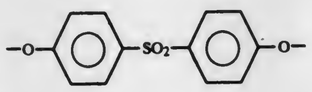
(iii) at least one aromatic bismaleimide of the formula:



wherein each R is independently selected from a group consisting of hydrogen, an aliphatic group containing one or two carbon atoms, a benzenoid radical and a halogen and wherein R' is a bifunctional benzenoid radical selected from the group consisting of:



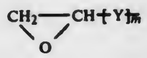
wherein X is selected from the group consisting of: —O—, —S—, $—SO_2—$, $—CH_2—$, C_2H_4—, —CO—, $—C_3H_6—$, and



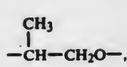
and;

(b) at least one cycloaliphatic epoxy resin having melting point less than about 120° F., containing at least two functional epoxy groups and selected from the group consisting of:

(i) epoxy resins containing one cycloaliphatic ring formed of from 4 to about 8 carbon atoms in which each epoxy group is independently part of the ring or coupled to the ring by the structure:

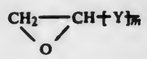


wherein Y is selected from the group consisting of $—CH_2—$, $—CH_2CH_2O—$,

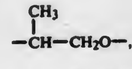


—O—, —NH—, and —S— and m is from 0 to about 20;

(ii) epoxy resins containing two fused cycloaliphatic rings each cycloaliphatic ring independently containing from 4 to about 8 carbon atoms and in which each epoxy group is independently part of a ring or coupled to a ring by the structure:

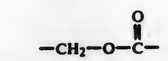


wherein Y is selected from the group consisting of $—CH_2—$, $—CH_2O—$,

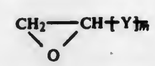


—O—, —NH—, and —S— and m is from 0 to about 20, and

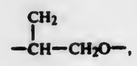
(iii) epoxy resins containing two bridged cycloaliphatic rings, each cycloaliphatic ring independently containing from 4 to about 8 carbon atoms and coupled by a carbon-carbon bond or a group selected from —O—, $—CH_2—$, —S— and



and in which each epoxy group is independently part of a ring or coupled to a ring by the structure:



wherein Y is selected from the group consisting of $—CH_2—$, $—CH_2O—$, $—CH_2CH_2O—$,



—O—. —NH—, —S— and m is from 0 to about 20.

4,273,917

ACID-TERMINATED POLYESTER IMIDE WIRE ENAMELS

Otto S. Zamek, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1979, Ser. No. 100,212

Int. Cl.³ C08G 63/44, 69/44

U.S. Cl. 528—288 **8 Claims**

1. An electrical wire enamel comprising:

an acid-terminated polyester imide obtained by heating ingredients comprising

(a) an aromatic diamine;

(b) an aromatic carboxylic anhydride containing at least one additional carboxylic group;

(c) terephthalic acid or a reactive derivative thereof;

(d) a polyhydric alcohol having at least three hydroxyl groups;

(e) an alkylene glycol; and

(f)

(i) an alkylene glycol monoether or monoester;

(ii) a polyalkylene glycol monoether or monoester; or

(iii) a mixture of (i) and (ii),

until an acid number of not lower than 6 to 7 is attained, discontinuing the heating, and then dissolving the acid-terminated polyester imide in a solvent therefor comprising predominantly that defined under (f) above.

4,273,918

PREPARATION OF CROSSLINKED 1,2,4-OXADIAZOLE POLYMER

Robert W. Roeser; Ibrahim M. Shalhoub, both of San Jose, and Hanoi Kwong, Sacramento, all of Calif., assignors to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 28,301, Apr. 9, 1979. This application Apr. 30, 1980, Ser. No. 145,284

Int. Cl.³ C08G 73/08

U.S. Cl. 528—310 **5 Claims**

1. A process for the preparation of a crosslinked 1,2,4-oxadiazole polymer, which comprises heating under reduced pressure at temperatures within the range of about 50° C. to about 210° C., a compound of the formula $H_2N(HON)—R—Q$, wherein: R is a bivalent organic radical selected from the class consisting of alkylene radicals of the formula $—(CX_2)_p—$ and alkylether radicals of the formula

$—CFY(OCF_2CFY)_mO(CX_2)_pO(CFYCF_2O)_n—CFY—$,

or a mixture thereof, wherein X is fluorine or hydrogen, Y is fluorine or trifluoromethyl, p ranges from 1 to about 18, and m+n ranges from 2 to about 7; and Q is a ring-forming group selected from the class consisting of nitrile, amidine, a mixture of nitrile and amidoxime, and a mixture of amidine and amidoxime.

4,273,919

METHOD FOR PRODUCING POLYLAUROLACTAM POWDER COMPOSITIONS FOR THE COATING OF METALS AT HIGH TEMPERATURES AND THEIR USE IN THE MANUFACTURE OF PIGMENTED POWDERS BY THE DRY-BLEND PROCESS

Rainer Feldmann; Karl-Adolf Müller, and Karl-Heinz Hornung, all of Marl, Fed. Rep. of Germany, assignors to Chemische Werke Hüls Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Nov. 21, 1979, Ser. No. 96,416

Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2855920

Int. Cl.³ C08G 69/14, 69/16, 69/46

U.S. Cl. 528—313 **18 Claims**

1. A method of producing polylaurolactam powders comprising:

(a) polymerizing laurolactam in the presence of about 2 to 10 percent by weight of water, based on said laurolactam, about 0.3 to 0.7 percent by weight of phosphoric acid, based on said laurolactam and at a temperature of about 265° to 300° C., in the absence of chain stabilizers under an internal pressure of about 14 to 25 bars to a polylaurolactam having a relative viscosity of about 1.50 to 1.80 measured in a 0.5 percent meta-cresol solution at 25° C.;

(b) granulating said polylaurolactam of (a);

(c) extracting said granulated polylaurolactam with ethanol or methanol at a temperature of about 25° to 100° C.;

(d) reducing to powdered form said extracted polylaurolactam of (c) at a temperature of about −100° to 0° C.; and

(e) grading and separating said powdered polylaurolactam into a grain size distribution of at least 99% by weight greater than 40 microns, but less than 250 microns.

4,273,920

POLYMERIZATION PROCESS AND PRODUCT

Robert S. Nevin, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Sep. 12, 1979, Ser. No. 75,296

Int. Cl.³ C08G 63/06, 63/04

U.S. Cl. 528—361 **11 Claims**

1. A copolymer derived from the polymerization of about 60 to about 95 weight percent of lactic acid and about 40 to about 5 weight percent of glycolic acid, having an inherent viscosity in chloroform of about 0.08 to about 0.30 and a molecular weight of about 6000 to about 35000, said copolymer being substantially free of polymerization catalyst.

4,273,921

WATER-SOLUBLE EPOXY RESINS AND PROCESS FOR THEIR PREPARATION

James L. Bertram, and Pong Su Sheih, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 67,988, Aug. 20, 1979, abandoned, which is a continuation-in-part of Ser. No. 895,168, Apr. 11, 1978, abandoned, which is a division of Ser. No. 401,915, Sep. 28, 1978, Pat. No. 4,110,354, which is a continuation-in-part of Ser. No. 67,234, Aug. 26, 1970, abandoned, which is a continuation-in-part of Ser. No. 852,061, Aug. 21, 1969, abandoned, which is a continuation-in-part of Ser. No. 782,611, Dec. 10, 1968, abandoned. This application Apr. 21, 1980, Ser. No. 142,495

Int. Cl.³ C08G 59/04

U.S. Cl. 528—405 **5 Claims**

1. A Water-soluble epoxy resin which is the dehydrohalogenated Lewis Acid catalyzed reaction product, in the presence of a non-aqueous inert solvent in which the glycerine is at least partially soluble and in which the resulting halohydrin ether reaction product is sufficiently soluble to form a single phase, of an epoxyalkyl halide, wherein the epoxy group is in the α, β position relative to the halogen atom, with a mixture containing

(a) from about 10% to about 75% by weight of polyhydroxyl-containing compound, other than glycerine, which is soluble in glycerine to the extent of at least about 10 percent by weight at the reaction temperature and

(b) from about 90% to about 25% by weight of glycerine;

wherein the quantity of said epoxyalkyl halide per mole of combined components (a) and (b) is in the range of from about 2.0 to about 2.6 and when the Lewis Acid is $SnCl_4$ or HF in the range of from about 2.0 to about 3.0 epoxide equivalents and the product contains less than about 2 percent by volume of water-insoluble constituents; and wherein the dehydrohalogenation is conducted in the presence of an inert solvent which will maintain at least the glycidyl ether of glycerine in solution.

4,273,922

KETOSE SUGARS FROM ALDOSE SUGARS

Kevin B. Hicks, Glenside, Pa., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 21, 1980, Ser. No. 132,995

Int. Cl.³ C07H 3/02, 3/04

U.S. Cl. 536—1 **5 Claims**

1. A process for producing ketose sugars in high yield comprising reacting an aldose sugar and boric acid in aqueous medium in the presence of a tertiary or quaternary amine, said boric acid and aldose sugar being present in a molar ratio of about one to one.

4,273,923

PROCESS FOR PREPARING AMINOGLYCOSIDE DERIVATIVES

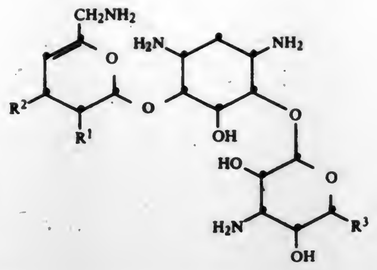
Kikuo Igarashi, Itami, and Tamio Sugawara, Mino, both of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Aug. 20, 1979, Ser. No. 68,103

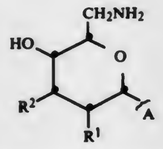
Int. Cl.³ A61K 31/71; C07H 15/22

U.S. Cl. 536—10 **3 Claims**

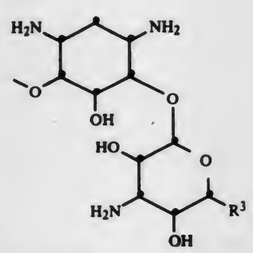
1. A process for preparing a compound of the formula:



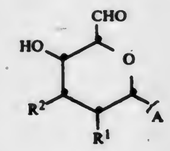
wherein
R^1 is hydroxy or amino;
R^2 is hydrogen or hydroxy; and
R^3 is hydroxymethyl or carbamoyloxymethyl
which comprises reacting an aminoglycoside of the formula:



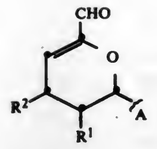
wherein A represents a group of the formula:



and in which the amino groups other than the 6'-amino group are preliminarily protected with ethoxycarbonyl group with a carbonyl compound selected from the group consisting of mesitylglyoxal, 3-nitromesitylglyoxal, and 3,5-dinitromesitylglyoxal to give the corresponding Schiff base, subjecting the latter to prototropic rearrangement on treatment with a base selected from the group consisting of triethylamine, 1,5-diazabicyclo[5.4.0]undecene-5, 1,5-diazabicyclo[3.4.0]nonene-5, sodium methoxide, and sodium ethoxide, and subsequent acid decomposition with an acid selected from the group consisting of acetic acid, oxalic acid, and pyruvic acid to give a compound of the formula:



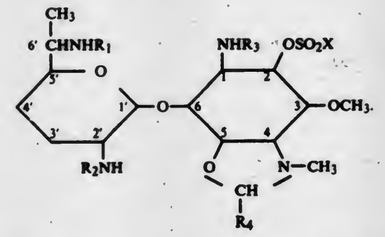
subjecting the latter to dehydration with an acid selected from the group consisting of acetic acid, oxalic acid, and pyruvic acid to give a compound of the formula:



and subjecting the latter to reductive amination by reaction with an alcoholic ammonia or hydroxylamine and a metal hydride and to deprotection by hydrolysis.

4,273,924
2-O-HYDROCARBONSULFONYL-4,5-OXAZOLIDINE FORTIMICIN B DERIVATIVES
Jerry R. Martin; John S. Tadanier, both of Waukegan, and Paulette Collum, Zion, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.
Division of Ser. No. 863,009, Dec. 21, 1979, Pat. No. 4,192,867. This application Apr. 27, 1979, Ser. No. 71,344
Int. Cl.³ C07H *15/22*
U.S. Cl. 536—17 R **4 Claims**

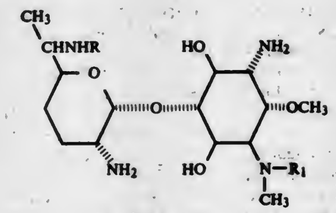
1. A compound of the formula



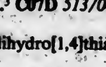
wherein R_1,R_2 and R_3 each are the same or different members of the group consisting of hydrogen or benzyloxycarbonyl; R_4 is selected from the group consisting of hydrogen, loweralkyl, monocyclicaryl, or aralkyl; X is a hydrocarbon having from 1 to 8 carbon atoms; and the pharmaceutically acceptable salts thereof.

4,273,925
1,2-MODIFIED FORTIMICINS A AND B, INTERMEDIATES THEREFOR AND METHOD FOR THEIR MANUFACTURE
Jerry R. Martin; John S. Tadanier, both of Waukegan, and Paulette Johnson, Zion, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.
Filed Sep. 26, 1979, Ser. No. 79,135
Int. Cl.³ C07H *15/22*
U.S. Cl. 536—17 R **17 Claims**

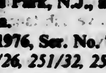
1. A 2-amino-1-deamino-2-deoxy-1-hydroxyfortimicin represented by the formula



wherein R is hydrogen or loweralkyl; and R_1 is selected from the group consisting of hydrogen, loweralkyl, aminoloweralkyl, diaminoloweralkyl, N-loweralkylaminoloweralkyl, N,N-diloweralkylaminoloweralkyl, hydroxyloweralkyl, aminohydroxyloweralkyl, N-loweralkylaminohydroxyloweralkyl, N,N-diloweralkylaminhydroxyloweralkyl, acyl of the formula



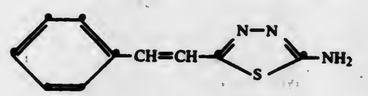
wherein R_2 is loweralkyl, aminoacyl, hydroxyacyl, hydroxysubstituted aminoacyl, diaminoacyl, hydroxy-substituted diaminoacyl, hydroxy-substituted N-loweralkylaminoacyl and hydroxy-substituted N,N-diloweralkylaminoacyl wherein each acyl is of the formula



R_2 being loweralkyl; and the pharmaceutically acceptable salts thereof.

4,273,926
AZO DYES FROM 2-AMINO-5-STYRYL-1,3,4-THIADIAZOLES
Mark D. Frishberg, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 6,965, Jan. 25, 1979. This application Feb. 8, 1980, Ser. No. 119,697
Int. Cl.³ C07D *285/12*
U.S. Cl. 542—458 **1 Claim**

1. The process for the preparation of the compound



comprising reacting in water at from about 40° to about 100° C., ferric ammonium sulfate dodecahydrate and cinnamaldehyde thiosemicarbazone wherein the reactants are present in a mole ratio of from about 1:1 to about 5:1.

4,273,927
CONVERTING ENZYME INHIBITOR
Ralph L. White, Jr., and David E. Portlock, both of Norwich, N.Y., assignors to Morton-Norwich Products, Inc., Norwich, N.Y.
Filed Aug. 14, 1980, Ser. No. 177,905
Int. Cl.³ C07D *513/04*
U.S. Cl. 544—32 **1 Claim**

1. The compound 5,6-dihydro[1,4]thiazino[4,3-a]quinoline-1(2H),4(4aH)-dione.

4,273,928
PREPARATION OF SALTS OF DIHALOGENATED ISOCYANURATES BY OXIDATIVE HYDROLYSIS OF AMINO SUBSTITUTED TRIAZINES
Sidney Berkowitz, Highland Park, N.J., assignor to FMC Corporation, Philadelphia, Pa.
Filed Sep. 8, 1976, Ser. No. 721,297
Int. Cl.³ C07D *251/26, 251/32, 251/34, 251/36*
U.S. Cl. 544—190 **21 Claims**

1. A process for preparing a salt of dihalogenated isocyanurate from an amino substituted triazine selected from the group consisting of melamine; ammeline, ammelide, ammeline:ammelide complex, cyanuric acid:melamine complex, and crude cyanuric acid, which comprises:

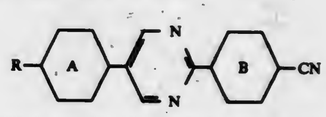
reacting the amino substituted triazine with at least stoichiometric amounts of a halogen containing compound selected from the group consisting of sodium hypochlorite, lithium hypochlorite, potassium hypochlorite, sodium hypobromite, lithium hypobromite, potassium hypobromite, and calcium hypochlorite in an aqueous medium at a temperature of 35° to 70° C., and at a pH value of 6.5 to 11.0 for less than about five minutes to completely N-halogenate all of the available sites on the triazine molecule that can be N-halogenated and to remove any N, N-dihalogenated exocyclic nitrogens;

cooling the reaction medium to precipitate a salt of a dihalogenated isocyanurate; and

recovering the salt of a dihalogenated isocyanurate.

4,273,929
HETEROCYCLIC COMPOUNDS
Arthur Boller, Binningen; Martin Schadt, Seltisberg, and Alois Villiger, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.
Filed Jan. 29, 1980, Ser. No. 116,518
Claims priority, application Switzerland, Feb. 5, 1979, 1102/79; Jun. 27, 1979, 5996/79; Nov. 13, 1979, 10126/79
Int. Cl.³ C09K *3/34*; G02F *1/13*; C07D *239/26*
U.S. Cl. 544—242 **7 Claims**

1. A compound of the formula

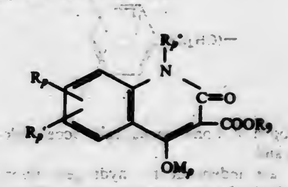


I

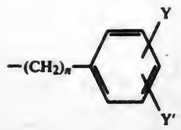
wherein at least one of the rings A and B is a trans-1,4-disubstituted cyclohexane ring and the other optionally is aromatic and R is straight-chain alkyl or alkoxy of 1 to 10 carbon atoms or a branched-chain alkyl of the formula C_2H_5—(CH(CH-3)—$(CH_2)_n$—wherein n is 1, 2 or 3.

4,273,930
4-HYDROXY-2-QUINOLINONE-3-CARBOXYLIC ACID ESTERS
Goetz E. Hardtmann, Morristown, N.J., assignor to Sandoz, Inc., E. Hanover, N.J.
Division of Ser. No. 807,898, Jun. 20, 1977, Pat. No. 4,190,659, which is a continuation-in-part of Ser. No. 662,148, Feb. 27, 1976, abandoned, which is a continuation-in-part of Ser. No. 557,984, Mar. 12, 1975, abandoned, which is a division of Ser. No. 454,070, Mar. 25, 1974, abandoned, which is a continuation-in-part of Ser. No. 303,099, Nov. 2, 1972, abandoned, and Ser. No. 392,082, Aug. 27, 1973, abandoned. This application Aug. 9, 1979, Ser. No. 65,278
Int. Cl.³ C07D *215/56, 491/04*
U.S. Cl. 546—90 **42 Claims**

1. A compound of the formula:



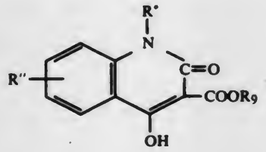
wherein R_9 is alkyl of 1 to 4 carbon atoms, wherein R_9' is alkenyl of 3 to 6 carbon atoms, alkynyl of 3 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, cycloalkylalkyl in which the cycloalkyl is of 3 to 6 carbon atoms and the alkyl portion is of 1 or 2 carbon atoms, or



M_p is hydrogen or a pharmaceutically acceptable cation,
n is 0 or 1,
Y and Y' are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 3 carbon atoms, alkoxy of 1 to 3 carbon atoms, trifluoromethyl or nitro with the proviso that only one of Y and Y' can be from the group of nitro and trifluoromethyl, and
R_p and R_p' are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, nitro or trifluoromethyl, with the proviso that only one of R_p and R_p' can be from the group consisting of nitro and trifluoromethyl,

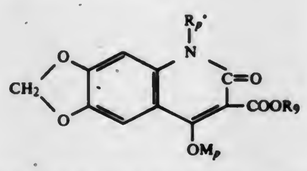
with the further proviso that the unsaturation in any alkenyl or alkynyl is on other than the alpha carbon atom.

21. A compound of the formula:

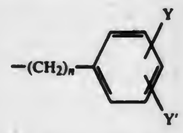


wherein
R^o is alkyl of 1 to 6 carbon atoms,
R'' is hydrogen, fluoro, chloro, bromo or alkoxy of 1 to 4 carbon atoms, and
R_9 is alkyl of 1 to 4 carbon atoms.

32. A compound of the formula:



wherein R_9 is alkyl of 1 to 4 carbon atoms, wherein
R_p^o is hydrogen, alkyl of 1 to 6 carbon atoms, alkenyl of 3 to 6 carbon atoms, alkynyl of 3 to 6 carbon atoms, cycloalkyl of 3 to 6 carbon atoms, cycloalkylalkyl in which the cycloalkyl is of 3 to 6 carbon atoms and the alkyl portion is of 1 or 2 carbon atoms, or



M_p is hydrogen or a pharmaceutically acceptable cation,
n is 0 or 1, and
Y and Y' are independently hydrogen, fluoro, chloro, bromo, alkyl of 1 to 3 carbon atoms, alkoxy of 1 to 3 carbon atoms, trifluoromethyl or nitro, with the proviso that only one of Y and Y' can be from the group consisting of nitro and trifluoromethyl,

with the further proviso that the unsaturation in any alkenyl or alkynyl is on other than the alpha carbon atom.

4,273,931
REDUCTION OF ALKYL ESTERS OF CARBONIC-CARBOXYLIC ANHYDRIDES TO ALCOHOLS

Aldo Garzia, Lodi; Giorgio Vittadini, Milan; Andrea Bottazzi, Lodi; Domenico Pelagalli, Lodi, and Costantino Coccoli, Lodi, all of Italy, assignors to Istituto Chemioterapico Italiano, S.p.A., Milan, Italy

Filed Dec. 20, 1979, Ser. No. 105,537
Int. Cl.³ C07C 33/20
U.S. Cl. 546—344 8 Claims

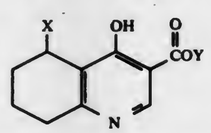
1. A method of making alcohols which comprises reducing an alkyl ester of a carbonic-carboxylic acid anhydride with hydrogen at temperatures of at least about 40° C. and elevated pressure, and in the presence of a catalyst comprising platinum group metal on a solid carrier.

4,273,932
4-HYDROXY-5,6,7,8-TETRAHYDROQUINOLINE-3-CARBOXYLIC ACIDS AND DERIVATIVES

Akira Matsubara, Yokohama; Hideaki Sakai, Fujisawa; Makoto Odate, and Takuo Nakano, both of Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Incorporated, Tokyo, Japan

Filed Jan. 29, 1980, Ser. No. 116,560
Claims priority, application Japan, Mar. 9, 1979, 54/26748
Int. Cl.³ C07D 215/56, 499/68; A61K 31/47
U.S. Cl. 546—156 16 Claims

1. Quinoline derivative having the general formula:



wherein X represents an oxygen atom, an =NOR¹ group in which R^1 is a hydrogen atom or a lower alkyl radical of from 1 to 5 carbon atoms, a hydroxyl group, or an —NHR² group in which R^2 is either a hydrogen atom or an R^1CO— group in which R^1 is a lower alkyl radical of from 1 to 5 carbon atoms, and wherein Y represents a hydrogen atom, a lower alkyl radical of from 1 to 5 carbon atoms, or a salt-forming radical selected from the group consisting of inorganic salt-forming radicals and organic salt-forming radicals.

4,273,933
MODIFIED CATALYST FOR STEREO-DIFFERENTIATING REDUCTION OF CARBONYL COMPOUNDS AND PROCESS FOR REDUCTION WITH SAME CATALYST

Tadao Harada, Takarazuka; Yoshiharu Izumi, Kobe, and Shinichiro Komatsu, Kawagoe, all of Japan, assignors to Kawaken Fine Chemicals Co., Ltd., Tokyo, Japan

Filed Apr. 25, 1979, Ser. No. 33,150
Int. Cl.³ C07C 69/675, 31/26, 31/20, 33/26
U.S. Cl. 560—179 4 Claims

1. A process for stereo-differentially reducing a carbonyl compound, wherein the carbonyl compound is contacted with a modified nickel catalyst prepared by soaking a nickel catalyst in an aqueous modifying medium having dissolved therein at least one optically active substance selected from the group consisting of optically active hydroxycarboxylic acids and optically active amino acids, and, then, separating the so-treated catalyst from the aqueous modifying medium, characterized in that the aqueous modifying medium has dissolved therein, in addition to the optically active substance, at least one inorganic salt said inorganic salt being contained in the modifying medium in an amount of from 0.006 to 25 times, by weight, based on the amount of metallic nickel in said nickel catalyst.

4,273,934
PREPARATION OF 3-HYDROXY-2,2,4-TRIMETHYLPENTYL ISOBUTYRATE

Franz Merger, Frankenthal, and Hans-Juergen Foerster, Bobenheim-Roxheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 31,013
Claims priority, application Fed. Rep. of Germany, May 11, 1978, 2820518
Int. Cl.³ C07C 67/00, 69/28
U.S. Cl. 560—238 8 Claims

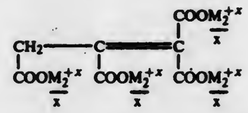
1. A process for the preparation of 3-hydroxy-2,2,4-trimethylpentyl isobutyrate by reacting isobutyraldehyde in the presence of a basic compound and water, wherein isobutyraldehyde is reacted in the presence of from 1.5 to 5 percent by weight, based on isobutyraldehyde, of a carboxylic acid selected from the group consisting of isobutyric acid, 2,2,4-trimethyl-3-hydroxy-pentanoic acid, 2-ethylhexanecarboxylic acid, benzoic acid, phenylpropionic acid and α-methylpentanecarboxylic acid in the form of the free acid, or an alkali metal salt and/or alkaline earth metal salt thereof, and in the presence of from 0.01 to 0.1 mole of an alkaline earth metal hydroxide selected from the group consisting of barium hydroxide, strontium hydroxide and calcium hydroxide and from 0.04 to 1 mole of water per mole of isobutyraldehyde, for a reaction time of from 10 to 300 minutes.

4,273,935
SALTS OF PROPENE 1,1,2,3-TETRACARBOXYLIC ACID

Eddie N. Gutierrez, Fort Lee, and Vincent Lamberti, Upper Saddle River, both of N.J., assignors to Lever Brothers Company, New York, N.Y.

Division of Ser. No. 905,720, May 15, 1978, abandoned, which is a division of Ser. No. 642,850, Dec. 22, 1975, Pat. No. 4,123,458. This application Sep. 12, 1979, Ser. No. 74,702
Int. Cl.³ C07C 57/02
U.S. Cl. 562—595 2 Claims

1. A propene 1,1,2,3-tetracarboxylate salt of the formula



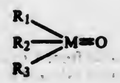
wherein M_2 is a lithium, sodium, potassium, calcium, strontium or barium cation and wherein x is 1 or 2 and is equivalent to the valency of M_2.

4,273,936
RHODIUM-CATALYZED OXIDATION PROCESS FOR PRODUCING CARBOXYLIC ACIDS

Rocco A. Fiato, Charleston, W. Va., and Roy L. Pruett, New Providence, N.J., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 79,884, Sep. 28, 1979, abandoned. This application Jan. 16, 1980, Ser. No. 159,859
Int. Cl.³ C07C 53/122, 51/145, 51/235
U.S. Cl. 562—606 24 Claims

1. A process for preparing at least one of a carboxylic acid and its anhydride directly from an olefin comprising reacting the olefin with carbon monoxide, hydrogen and oxygen in the presence of a rhodium complex catalyst consisting essentially of rhodium stabilized by a pentavalent Group V ligand represented by the formula



wherein R_1, R_2 and R_3, which may be the same or different, each represents a member selected from the group consisting of an alkyl group, an aryl group, an alkyl-substituted aryl group and an aryl-substituted alkyl group; and wherein M represents a Group V element selected from the group consisting of phosphorus, arsenic and antimony.

4,273,937
ORGANIC AMINE COMPOSITIONS

Mary L. Gum, Granite Springs, and Nancye D. Kearns, Ossining, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Dec. 19, 1979, Ser. No. 105,243
Int. Cl.³ C07C 85/26; C07D 295/02, 265/30, 213/02
U.S. Cl. 564—2 13 Claims

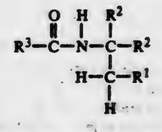
1. Organic amine compositions which are substantially free from nitrosamine contaminants comprising an organic amine and a small inhibiting amount of an inhibiting additive which is a member selected from the group consisting of 1,4-naphthoquinone, 1,4-naphthohydroquinone, alkyl-substituted derivatives of said quinones, and mixtures of the same.

4,273,938
PREPARATION OF N-SUBSTITUTED CARBOXYLIC ACID AMIDES

Franz Merger, Frankenthal; Gerhard Nestler, Ludwigshafen, and Uwe Kempe, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 25, 1979, Ser. No. 6,524
Claims priority, application Fed. Rep. of Germany, Feb. 23, 1978, 2807659
Int. Cl.³ C07C 102/08, 102/00
U.S. Cl. 564—124 13 Claims

1. A process for the preparation of an N-substituted carboxylic acid amide of the formula



I

where R^1 and the individual radicals R^2 are identical or different and each is an aliphatic radical, two of the radicals R^1 and R^2 can also each be hydrogen, and R^3 is hydrogen or an aliphatic, araliphatic or aromatic radical, by reaction of an olefin with a cyano compound, wherein an olefin of the formula



II

where R^1 and R^2 have the above meanings, is reacted with a cyano compound of the formula

R^3CN III

where R^3 has the above meaning, and with water, in the presence of from 10 to 80 percent by weight, based on starting material II, of an organic cation exchanger containing sulfonic acid groups.

4,273,939
PROCESS FOR HYDROGENATING ORGANIC COMPOUNDS BY USE OF NON-FERROUS GROUP VIII ALUMINUM COPRECIPITATED CATALYSTS

Allan E. Barnett, and Albert P. Hallum, both of Westfield, N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Nov. 6, 1979, Ser. No. 91,836
Int. Cl.³ C07C 85/12, 5/10, 29/14; C11C 3/12
U.S. Cl. 564—358 18 Claims

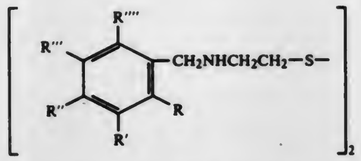
1. A process for hydrogenating organic compounds which comprises contacting at least one hydrogenatable organic compound with hydrogen in the presence of a supported co-precipitated catalyst consisting essentially of one or more metals selected from the non-ferrous metals of Group VIII of the Periodic Table of the Elements, aluminum and solid porous particles, said catalyst being characterized as having a B.E.T. total surface area ranging from about 150 to about 350 m^2/g wherein the total amount of metal in the catalyst ranges from about 25 wt. % to about 70 wt. % based on the total weight of the catalyst after calcination and reduction, and wherein said catalyst has been prepared by coprecipitating aluminum ions and ions of said one or more metals, with the solid porous particles.

4,273,940
BIS-(2-BENZYLAMINOETHYL)-DISULFIDES

Fortuna Haviv, Vernon Hills, and George W. Carter, Mundelein, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Continuation-in-part of Ser. No. 86,854, Oct. 22, 1979, abandoned, which is a continuation-in-part of Ser. No. 962,513, Nov. 20, 1978, abandoned. This application May 13, 1980, Ser. No. 149,390
Int. Cl.³ C07C 87/28
U.S. Cl. 564—372 16 Claims

1. A compound of the formula



wherein R and R'''' independently are hydrogen, hydroxy, loweralkyloxy or halogen, R' and R''' independently are hydrogen, halogen or loweralkyl, and R'' is hydrogen or hydroxy, with the proviso that at least one of these substituents is different from hydrogen or loweralkyl, or a nontoxic acid addition salt thereof.

4,273,941
PROCESS FOR PRODUCING P-HYDROXYBENZALDEHYDE

Masao Kawamura, Akashi; Tadaaki Nishi, Kakogawa; Kunioki Kato, Akashi; Hiroshi Mizokami, Kakogawa, and Tadashi Kanazawa, Hyogo, all of Japan, assignors to Seitetsu Kagaku Co., Ltd., Hyogo, Japan

Division of Ser. No. 938,125, Aug. 30, 1978, Pat. No. 4,195,041. This application Jul. 6, 1979, Ser. No. 55,414
Claims priority, application Japan, Sep. 7, 1977, 52-108084; Sep. 7, 1977, 52-108085; Sep. 8, 1977, 52-108552; Oct. 3, 1977, 52-119355
The portion of the term of this patent subsequent to Mar. 25, 1997, has been disclaimed.
Int. Cl.³ C07C 85/11, 89/00
U.S. Cl. 564—416 12 Claims

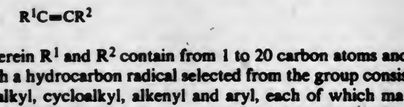
1. In a process for producing p-aminobenzaldehyde from p-nitrotoluene comprising reacting p-nitrotoluene with sodium polysulphide in a mixed solvent consisting of at least one alcohol and an alkali aqueous solution in the presence of an aprotic polar compound to produce the p-aminobenzaldehyde.

4,273,942
PLASTICIZED POLYCARBONATE COMPOSITION

Victor Mark, Evansville, Ind., and Phillip S. Wilson, Louisville, Ky., assignors to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 37,922, May 9, 1979, which is a continuation-in-part of Ser. No. 957,353, Nov. 3, 1978, abandoned, which is a division of Ser. No. 781,054, Mar. 24, 1977, Pat. No. 4,184,994. This application Jun. 12, 1980, Ser. No. 158,647
Int. Cl.³ C07C 49/76
U.S. Cl. 568—42 1 Claim

1. A novel compound having the formula:



4,273,943
PROCESS FOR PREPARING METHYLVANILLYL KETONE FROM ISOEUGENOL

George Gal, Watchung, and Seemon H. Pines, Murray Hill, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Sep. 28, 1979, Ser. No. 79,750
Int. Cl.³ C07C 45/58, 67/08
U.S. Cl. 568—319 5 Claims

1. A process for preparing methylvanillyl ketone in a single step, through process comprising:

oxidizing isoeugenol with an oxidation reagent selected from the group consisting of peroxides, peracids, iodine-silver oxide, iodine-mercuric oxide, N-bromosuccinimide-perchloric acid or thallium triacetate in an aqueous solution of an organic acid selected from the group consisting of C_{1-5} alkanoic acid, trifluoroacetic acid and trichloroacetic acid at a temperature of about 25°–100° C. to form a glycol monoester; and

converting in situ the resulting glycol monoester by refluxing with a strong acid selected from the group consisting of sulfuric acid, alkyl or aryl sulfonic acid, hydrochloric acid, hydrobromic acid, and phosphoric acid in an inert solvent to obtain said methylvanillyl ketone therefrom without isolation of any intermediates.

4,273,944
METHOD FOR SELECTIVE PREPARATION OF CIS ISOMERS OF ETHYLENICALLY UNSATURATED COMPOUNDS

Shigeru Ohno, Kanagawa; Haruya Tezuka, Omiya, and Toshinobu Ishihara, Niigata, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 30, 1979, Ser. No. 89,466
Claims priority, application Japan, Nov. 8, 1978, 53-137543
Int. Cl.³ C07C 5/09, 45/62, 29/17
U.S. Cl. 568—396 6 Claims

1. A method for the selective preparation of the cis isomer of a disubstituted ethylenically unsaturated compound by the partial hydrogenation of a disubstituted acetylenically unsaturated compound which comprises pressurizing a disubstituted acetylenically unsaturated compound having the formula

$$R^1C{\equiv}CR^2$$

wherein R^1 and R^2 contain from 1 to 20 carbon atoms and are each a hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl, alkenyl and aryl, each of which may be substituted with hydroxy, carboxyl, aldehyde, or carbonyl

with hydrogen in the presence of a catalyst containing from 3% to 15% by weight of palladium borne on an alumina carrier and partially inactivated with a poisoning element selected from the group consisting of zinc, lead and tin, water and a hydroxide or a basic salt selected from the group consisting of carbonate, hydrogen carbonate or acetate of a metallic element selected from the group consisting of alkali metals and alkaline earth metals and wherein the reaction of partial hydrogenation is carried out at a temperature in the range from 20° to 200° C. and under a hydrogen pressure in the range from 1 to 100 kg/cm^2G.

4,273,945
PREPARATION OF SATURATED ALIPHATIC, CYCLOALIPHATIC AND ARALIPHATIC ALDEHYDES

Gerd Heilen, Speyer; Axel Nissen, Leimen; Wolfgang Körnig, Dossenheim; Michael Horner, Neustadt; Werner Fliege, Otterstadt, and Günter Boettger, Bad Durkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,889
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832699
Int. Cl.³ C07C 45/62
U.S. Cl. 568—420 3 Claims

1. In a process for the preparation of saturated aliphatic, cycloaliphatic and araliphatic aldehydes by selective hydrogenation of the corresponding olefinically unsaturated aldehydes with hydrogen in the liquid phase over a palladium-containing catalyst at a pressure of from 1 to 100 bar and at a temperature of from 20° to 250° C., the improvement which comprises using a catalyst in which the active constituents consist essentially of

(a) 2–90% by weight of palladium and

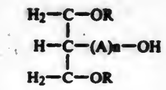
(b) 10–98% by weight of an oxide or salt of a rare earth metal or a mixture consisting essentially of oxides and/or salts of rare earth metals, the weight ratio of Pd to rare earth metal being from 2:98 to 90:10.

4,273,946
FIBER LUBRICANTS DERIVED FROM THE OXYALKYLATION OF A GLYCEROL-1,3-DIALKYLETHER

David D. Newkirk, and Robert B. Login, both of Woodhaven, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Division of Ser. No. 956,052, Oct. 30, 1978, Pat. No. 4,217,390. This application Oct. 10, 1979, Ser. No. 83,466
Int. Cl.³ C07C 43/11
U.S. Cl. 568—625 5 Claims

1. A compound useful as a synthetic fiber lubricant having the structural formula:



wherein R is an alkyl radical having about 3 to about 22 carbon atoms; A is a mixture of the residues of ethylene oxide and at least one other lower alkylene oxide; n has a value to produce a molecular weight of about 300 to about 3000; and said compound is derived by oxyalkylating the reaction product of an epihalohydrin and a fatty alcohol.

4,273,947
HYDROGENATION OF FLUORINE-CONTAINING CARBOXYLIC ACIDS

Miroslav Novotny, Deaville, N.J., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jan. 31, 1979, Ser. No. 7,875
Int. Cl.³ C07C 31/38, 31/40
U.S. Cl. 568—842 7 Claims

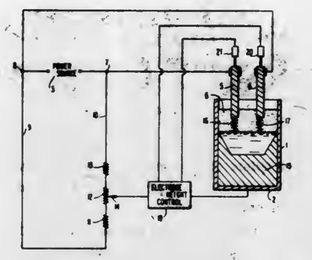
1. A process for hydrogenating the carboxy group in 2,2,2-trifluoroacetic acid to the primary alcohol group comprising the step of contacting said acid in the liquid phase with an atmosphere containing hydrogen gas in the presence of a supported or unsupported solid rhodium or iridium catalyst, employed as the metal, metallic oxide, or mixture thereof; at temperature of about 50°–150° C. and pressure of about 5–15 atmospheres.

4,273,948

ELECTRODE HEIGHT CONTROL IN ELECTRO-SLAG REMELTING PROCESSES

Pasquale Masucci, Rome, and Paolo Sommovigo, Pomezia, both of Italy, assignors to Centro Sperimentale Metallurgico S.p.A., Rome, Italy

Filed Oct. 24, 1979, Ser. No. 87,868
Claims priority, application Italy, Oct. 31, 1978, 51713 A/78
Int. Cl.³ H05B *3/60*
U.S. Cl. 13—9 ES **2 Claims**



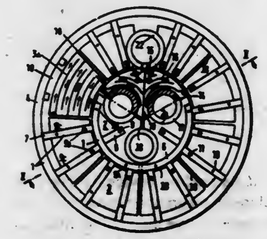
2. Apparatus for controlling the position of the two electrodes in electro-slag remelting processes, comprising an independent descent control mechanism for each of the electrodes, means connecting the two electrodes in series with a relatively high electric potential sufficient to conduct electro-slag remelting and in parallel with a relatively low electric potential and with a group of three resistances that are in series with each other, a slider on the central resistance by which the central resistance is variable according to the position of said slider thereon, means for establishing a potential of the slider characteristic of equal distance of the lower ends of the two electrodes from the metal undergoing electro-slag remelting, and means for selectively individually altering the descent of one of the electrodes in the course of electro-slag remelting, to maintain said predetermined potential substantially constant.

4,273,949

ARC FURNACE ROOF

Otto Fischer; Wilfried Pulvermacher, and Bernd Koch, all of Bochum, Fed. Rep. of Germany, assignors to Fried. Krupp Hüttenwerke Aktiengesellschaft, Bochum, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 30,862, Apr. 17, 1979, abandoned. This application Jul. 24, 1979, Ser. No. 60,182
Int. Cl.³ F27D *1/02, 1/12*
U.S. Cl. 13—35 **6 Claims**



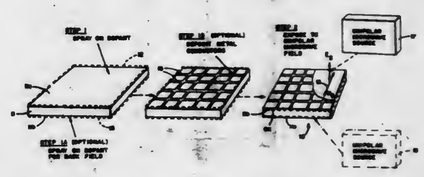
1. An arc furnace roof formed by an annular outer group of metal segments and an inner circular group of metal segments and overhead means for individually suspending the segments to form a roof structure, the segments not being otherwise held to each other, the segments of the inner group being shaped as circular sectors and having interfacing radial side walls of which at least two have semicircular side wall portions cooperatively forming at least one arcing electrode passage and having a refractory electrically insulating bushing in said passage, each of the segments of the inner group being hollow and having at least one cooling fluid inlet and outlet and internally containing a series of baffles for guiding cooling fluid as alternately reversing flows extending from the inlet to the outlet, and each having a bottom wall exposed to the interior of an arc furnace using the roof and which is free from refractory thermal insulation.

4,273,950

SOLAR CELL AND FABRICATION THEREOF USING MICROWAVES

Sanjiv R. Chitre, Reseda, Calif., assignor to Photowatt International, Inc., Tempe, Ariz.

Filed May 29, 1979, Ser. No. 43,149
Claims priority, application France, Dec. 9, 1977, 7737769
Int. Cl.³ H01L *31/04*; H01G *9/20*; H01L *21/225*
U.S. Cl. 136—255 **8 Claims**



1. A process for making solar cells or like junction devices comprising:

providing a dopant adjacent the surface of a polycrystalline silicon semiconductor substrate, and

exposing said dopant and substrate to a unipolar microwave field so as to drive atoms from said dopant into said substrate to a selected depth, while controlling one or more of the microwave field parameters of frequency, power, duty cycle and on/off time so as to obtain said selected depth, and wherein:

said parameters are selected so that said dopant atoms are driven into grains of said substrate to a depth sufficient to form a shallow junction therein, concurrent drive-in of dopant atoms into grain boundaries of said substrate being insufficient to convert said boundaries to conductive short circuits for said shallow junction, the dopant level of said grain boundaries being lower than that of said grains.

4,273,951

OIL-FILLED CABLE POTHEAD WITH VENTING MEANS AND TOOL THEREFOR

Anthony N. Terreri, 340 Hillside Ave., Livingston, N.J. 07039

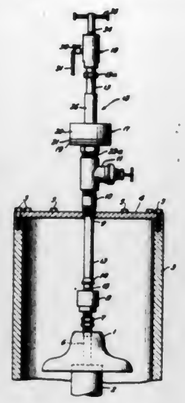
Filed Oct. 9, 1979, Ser. No. 82,966
Int. Cl.³ H02G *15/22*
U.S. Cl. 174—11 BH **18 Claims**

6. An oil filled cable termination comprising a pothead secured to the end of said cable, said pothead having a channel communicating with said cable and extending to the exterior of said pothead for conveying oil from said cable, a first valve connected to said channel, said first valve having a manually operable control member and said first valve being connected to said channel so that said control member is urged to its closed position by oil in said channel, a gas tight tank surrounding said pothead, and a manually operable valve with a through passageway, said last-mentioned valve being mounted on a wall of said tank opposite to and spaced from said first valve, but with its said passageway aligned with said first valve to permit operation of said control member and opening of said first valve through said passageway.

12. A tool for providing a connection with a valve within a gas tight enclosure, said enclosure having a through passageway which may be opened and closed, said tool comprising:

a mounting unit adapted to be secured to said enclosure at the exterior end of said passageway;

a relatively long and narrow tube in fluid-tight engagement with said mounting unit but movable longitudinally with respect to said mounting unit, said tube having a length sufficient to extend from said valve to the side of said mounting unit remote from said valve, said tube having means at one end thereof for securing it to said valve and having means at the other end thereof for closing said



other end of said tube, said means for closing said other end of said tube comprising a housing secured to said other end of said tube, said housing having a cavity in fluid communication with the interior of said tube; and

a rod extending through said housing and into said tube, said rod being movable lengthwise with respect to said housing and said tube and having a length sufficient to extend from said housing to at least said one end of said tube.

4,273,952

BUS BAR FOR A CARD FRAME FOR CIRCUIT CARDS

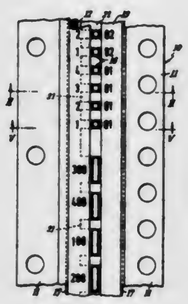
Harald Weiss, Bremen-Arsten, Fed. Rep. of Germany, assignor to Vero Electronics GmbH, Bremen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 790,558, Apr. 25, 1977, abandoned. This application Dec. 18, 1978, Ser. No. 970,802

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1976, 7613433[U]

Int. Cl.³ H02G 5/00

U.S. Cl. 174—68 B 5 Claims



1. A bus bar for a card frame for receiving circuit cards, said bus bar comprising a carrier having a recess of U-section, an electrically insulating housing press fitted into said recess and having side walls which are relatively movable, and a plurality of electrically conducting strips, separated by electrically insulating foils, the strips being disposed side by side within the housing and held therein by lateral pressure from said housing.

4,273,953

SPLICE FOR LEAD-SHEATHED CABLE

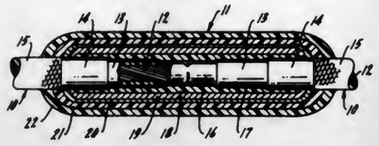
Raymond L. Guzy, Morton Grove, Ill., assignor to Centrilift, Inc., Tulsa, Okla.

Filed Jan. 18, 1979, Ser. No. 4,256

The portion of the term of this patent subsequent to Nov. 18, 1997, has been disclaimed.

Int. Cl.³ H02G 15/18

U.S. Cl. 174—84 R 7 Claims



1. A cable splice comprising a metallic sleeve member extending over conductor end portions and frictionally engaging the conductor end portions;

a layer of adhesive covering said sleeve member and extending over the exposed cable insulation and exposed lead sheath;

an insulation layer of uncured thermosetting elastomeric polymer tape surrounding said layer of adhesive in a helical wrap;

an overlapped layer of fabric surrounding said insulation layer;

an overlapped layer of foil surrounding said layer of fabric;

a helically-wrapped layer of heat-shrinkable polymeric material tape surrounding said layer of foil; and

a sleeve of heat-shrinkable polymeric material surrounding the layer of heat-shrinkable polymeric material tape.

4,273,954

COORDINATE READING DEVICE

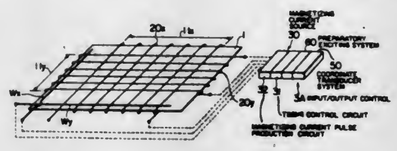
Shinziro Takeuchi; Toshiro Kikuchi; Norio Mitsumoto; Toyoki Takahashi; Hidekatsu Hayashi, and Satoshi Ichioka, all of Toda, Japan, assignors to Mishima Kosan Co., Ltd., Fukuoka, Japan

Filed Nov. 24, 1978, Ser. No. 963,264

Claims priority, application Japan, Nov. 25, 1977, 52/141356; Apr. 29, 1978, 53/51166

Int. Cl.³ G08C 21/00

U.S. Cl. 178—19 10 Claims



1. In a coordinate reading device having a coordinate reading means including magnetostrictive vibration transmission media of a magnetostrictive material to attain coordinate readings along at least one dimension thereof upon the operation of a manual switch, the improvement comprising:

at least one fixed magnetizing coil mounted adjacent at least one surface of said vibration transmission media to substantially uniformly magnetize an effective coordinate reading region of the media, and

at least one magnetizing current supply means to apply magnetizing current to said at least one fixed magnetizing coil.

4,273,955

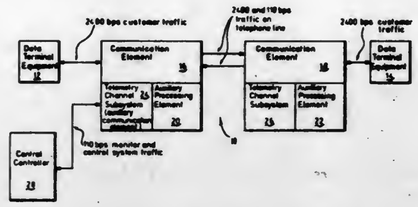
SYSTEM FOR IN-SERVICE QUANTITATIVE PERFORMANCE ANALYSIS OF DATA COMMUNICATIONS SYSTEM

Thomas R. Armstrong, Largo, Fla., assignor to Paradyne Corporation, Largo, Fla.

Filed Mar. 2, 1979, Ser. No. 17,041

Int. Cl.³ G06F 11/00; H04J 1/10; H04B 1/72; H04M 1/24

U.S. Cl. 178—69 G 4 Claims



1. A data communications system comprising: first data terminal equipment provided at a first location; second data terminal equipment provided at a second location; first communications equipment at said first location interconnected with said first data terminal equipment; second communications equipment at said second location interconnected with said second data terminal equipment; a communications channel interconnecting said first and second communications equipment; a first auxiliary signal processor at said first location interfaced with said first communications equipment; a second auxiliary signal processor at said second location interfaced with said second communications equipment, said auxiliary signal processors being adapted to compute and store information relating to the performance of the communications channel; a central controller; first auxiliary communications equipment at said first location interfaced with said first auxiliary signal processor; second auxiliary communications equipment at said second location interfaced with said second auxiliary signal processor; and a communications link interconnecting said first and second auxiliary communications equipment with said central controller.

4,273,956

AUDIOSCOPE PROJECT

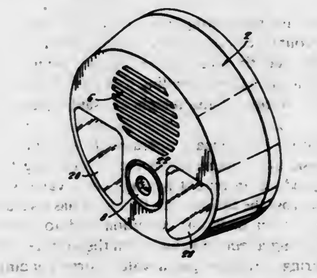
Maynard F. Wolfe, Hong Kong, Hong Kong, assignor to Jag International Sales Limited, Hong Kong

Filed Oct. 2, 1978, Ser. No. 948,055

Claims priority, application United Kingdom, Oct. 3, 1977, 41035/77

Int. Cl.³ H04M 11/00

U.S. Cl. 179—1 H 9 Claims



1. An audio-visual caller identification device for attachment to a partition to permit audio and visual access from one side to the other side thereof, comprising

(a) an outside unit for attachment at the outer side of said partition;

(b) an inside unit for attachment at the inner side of said partition;

(c) a viewing tube adapted to be secured to said partition in a position in which it extends from said one side to said other side thereof through an aperture therein;

(d) a switch on said inside unit, movable from its "on" position in which it projects from the surface of said inside unit, to its "off" position in which it is depressed toward said surface of said inside unit; and

(e) a cover associated with said inside unit and movable from a first position in which it covers the inner end of said viewing tube and retains said switch in its "off" position, to a second position in which said inner end of said viewing tube is uncovered, releasing said switch to its "on" position;

(f) said outside and inside units each comprising an audio device comprising microphone means and speaker means, to facilitate audio-communication between individuals located on opposite sides of said partition.

4,273,957

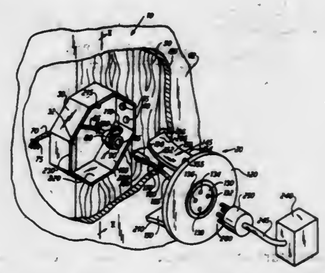
TELECOMMUNICATIONS ACCESS APPARATUS

William J. Kolling, Jr., 3059 N. Olcott, Chicago, Ill. 60635

Filed Jan. 6, 1979, Ser. No. 45,996

Int. Cl.³ H04M 1/00

U.S. Cl. 179—1 PC 19 Claims



1. A modular communication access apparatus to attach a selected telecommunication device to a telecommunication line, having at least two conductors, which has been brought to a junction box mounted in a supporting wall, the apparatus comprising:

a first keyed socket having a plurality of socket terminations, of a first selected shape and size each operatively attached to one of the conductors in the telecommunications cable;

a mechanical support member having a body portion and an attachment portion, said body portion being capable of receiving and clamping said first keyed socket and said attachment portion being rigidly affixable to an interior region of the junction box mounted in the wall;

an attachment structure having;

a face plate; and, an outwardly oriented second keyed, socket, affixed to said face plate, said second keyed socket having a selected number of socket terminations of a selected size and shape different from said selected size and shape of said socket terminations of said first socket; and

a low power telecommunications wire of a selected length and a selected number of conductors, said selected number of conductors of said low-power telecommunications wire being operatively connected, at a first end, to said selected number of said socket terminations in said second keyed socket in said face plate; said selected number of conductors of said low-power telecommunications wire being connected, at a second end, to a selected set of plug

terminations in a keyed plug of a selected body size and shape; and

a face plate retaining means attached to said face plate and operative to removably affix said attachment structure to the junction box mounted in the wall;

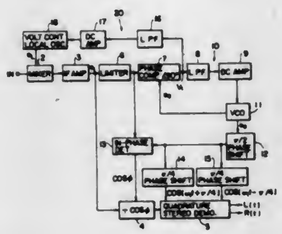
said body of said keyed plug being removably insertable into said first keyed socket with said plug terminations conductively engaging said socket terminations of said first keyed socket so as to provide a selected number of electrical paths between the telecommunications cable within the junction box, said low-power telecommunications wire and said selected number of socket terminations in said outwardly oriented second socket in order that a selected telecommunications device may be plug-connected thereto and access the telecommunications line in the box.

4,273,958

QUADRATURE RECEIVER

Hitoshi Hirata, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,284
Claims priority, application Japan, Dec. 1, 1978, 53-149482
Int. Cl.³ H04H *5/00*
U.S. Cl. 179—1 GS **6 Claims**



4. A quadrature stereophonic receiver circuit comprising: means for producing a local oscillation signal, means for mixing said local oscillation signal with a received signal to produce an intermediate frequency signal, a phase-locked loop circuit including means for comparing the phase of said intermediate frequency signal with an output signal of a voltage-controlled oscillator of said phase-locked loop, and means for controlling the frequency of said local oscillation signal in response to an output signal of said phase comparing means.

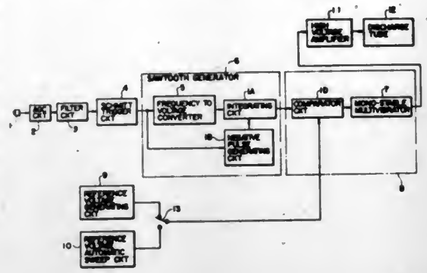
4,273,959

LARYNX STROBOSCOPE DEVICE

Koji Tuda, Tokyo; Hironobu Nagashima, and Masatoshi Marui, both of Kami Fukuoka, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1978, Ser. No. 960,544
Claims priority, application Japan, Nov. 14, 1977, 52-136434
Int. Cl.³ G10L *1/02*
U.S. Cl. 179—1 SC **14 Claims**

1. A larynx stroboscope comprising; saw tooth wave generating means for generating in synchronization with vocal cord vibrations at least one saw tooth wave; a reference voltage generating circuit having a variable output voltage; and a discharge tube light emission control signal generating circuit for generating a discharge tube light emission control signal in a phase shift range with respect to said vocal cord vibrations by comparing the instantaneous voltage of said saw tooth wave with the output of said reference voltage generating circuit, said discharge tube light emission control signal being generated in a desired phase of said vocal cord vibration over a



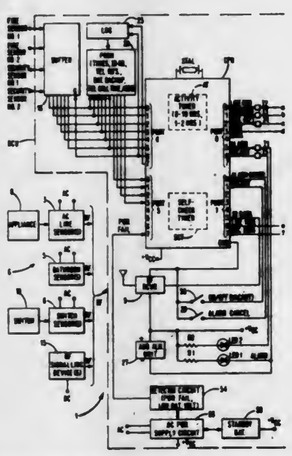
predetermined repetition rate period of said vocal cord vibrations.

4,273,960

APPARATUS FOR MONITORING USAGE OF A TELEPHONE

Robert J. Fahey, Framingham, and Martin L. Resnick, Chestnut Hill, both of Mass., assignors to GTE Products Corporation, Stamford, Conn. and GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 14, 1979, Ser. No. 94,014
Int. Cl.³ H04M *11/04*
U.S. Cl. 179—5 R **10 Claims**



1. Apparatus for monitoring usage of a telephone, said telephone being connected across tip and ring terminals of a telephone system, said tip and ring terminals having a voltage thereacross of a value corresponding to the on/hook condition or off/hook condition of the telephone, said apparatus comprising:

status monitor circuit means operative to examine on a frequent basis the voltage across the tip and ring terminals and to produce an output having a first value when the voltage across the tip and ring terminals has a value corresponding to an on/hook condition and to produce an output having a second value when the voltage across the tip and ring terminals has a value corresponding to an off/hook condition;

activity timer means arranged to be set to a count of a predetermined first value;

count altering means operative to alter each count of the first value to which the activity timer means has been set so as to have a predetermined second value at the expiration of a predetermined period of time;

alarm means operative when the count in the activity timer means has been altered to its second value to produce an alarm condition;

first means arranged to receive the outputs produced by the status monitor circuit means and to examine the values of said outputs to detect the occurrence of transitions in said outputs between the first and second values representing transitions between on/hook and off/hook conditions of the telephone, said first means being operative in response to detecting the occurrence of transitions in said outputs from the first value to the second value representing a transition of the telephone from its on/hook condition to its off/hook condition to produce a first output, and operative in response to detecting the occurrence of transitions in said outputs from the second value to the first value representing a transition of the telephone from its off-/hook condition to its on/hook condition to produce a second output; and

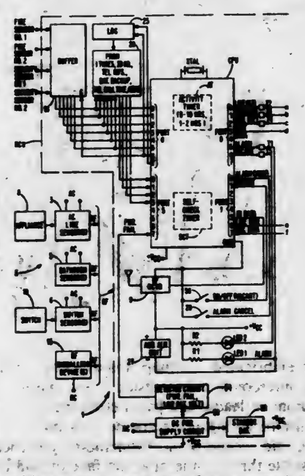
second means arranged to receive the first and second outputs produced by the first means and operative in response to each such output to cause the activity timer means to be set to the count of the first value, whereby if an output is produced by the first means during the predetermined period of time associated with the activity timer means the existing count of the activity timer means is replaced by the new count of the first value and the count altering means thereupon operates to alter the new count instead of the previous count.

4,273,961

APPARATUS FOR COMMUNICATING WITH PROCESSING APPARATUS OVER A TELEPHONE NETWORK

Hans G. Blank, and Martin L. Resnick, both of Chestnut Hill, Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Nov. 14, 1979, Ser. No. 94,017
Int. Cl.³ H04M *11/04*
U.S. Cl. 179—5 R **18 Claims**



1. In a signalling system, apparatus for communicating with processing apparatus over a telephone network, comprising:

first means operative under prescribed circumstances to produce an alarm condition for initiating an alarm communication over the telephone network;

second means operative at a prescribed time of day to produce a self-check condition for initiating a self-check communication over the telephone network;

memory means arranged to store therein telephone number data representing a plurality of telephone numbers; and

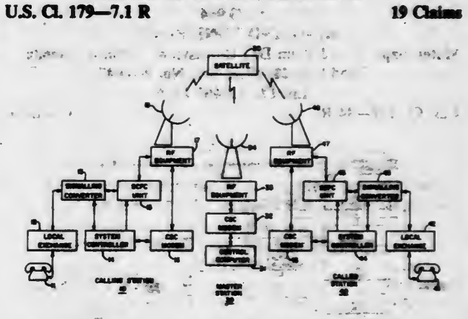
third means operative following an alarm condition produced by the first means to obtain and employ selectively in a repeated sequential fashion the telephone number data stored in the memory means representing the plurality of telephone numbers, each up to a predetermined corresponding maximum number of times, in dialing operations for attempting a successful communication with the processing apparatus over the telephone network, and operative at or following a self-check condition produced by the second means and in the absence of an alarm condition produced by the first means to obtain and employ the telephone number data stored in the memory means representative of one, and only one, of the telephone numbers continuously for an indefinite number of times in dialing operations for attempting a successful communication with the processing apparatus over the telephone network, whereby the telephone number data stored in the memory means representative of the other telephone numbers is reserved exclusively for use in dialing operations following an alarm condition produced by the first means.

4,273,962

IMPULSE METERING OF LOCAL TELEPHONE SWITCHING OFFICES VIA A DAMA DOMSAT COMMUNICATION SYSTEM

William H. Wolfe, Satellite Beach, Fla., assignor to Harris Corporation, Cleveland, Ohio

Filed Aug. 29, 1978, Ser. No. 937,802
Int. Cl.² H04B *7/185*; H04M *15/12*
U.S. Cl. 179—7.1 R **19 Claims**

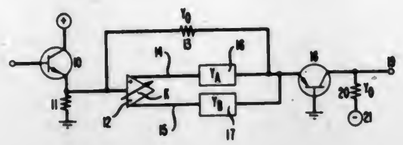


1. In a communication network wherein a communication link between relatively remotely located calling and called subscribers is established by a control facility separate and remote from respective calling and called stations to which said calling and called subscribers are coupled by way of associated local telephone exchanges, a system for supplying toll metering information to the local telephone exchange to which the calling subscriber is coupled comprising:

first means, located at said control facility, for storing data representative of the toll metering rate applicable to the call between said calling and called subscribers and for forwarding a message representative of said data to said calling station to which the local telephone exchange associated with said calling subscriber is coupled; and

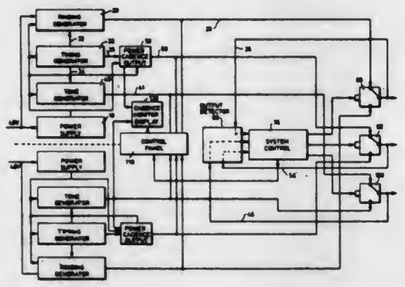
second means, located at said calling station, and responsive to said message from said control facility, for generating metering impulse signals corresponding to said applicable toll metering rate and supplying said metering impulse signals to the local telephone exchange to which said calling subscriber is coupled.

4,273,963
AUTOMATIC EQUALIZATION FOR DIGITAL TRANSMISSION SYSTEMS
Harold Seidel, Warren, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed May 25, 1979, Ser. No. 42,453
Int. Cl.³ H04B 3/14
U.S. Cl. 179—16 F 11 Claims



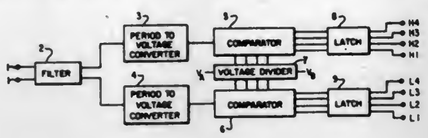
1. A broadband equalizer for telephone subscriber loops characterized by
a variable gain amplifier having a positive and a negative output,
a first resistive-capacitive network connected to said positive output,
a second resistive-capacitive network connected to said negative output,
a resistance connected from the input of said amplifier to a common connection to said first and second networks, and
means responsive to signals on said telephone subscriber loops for varying the gain of said amplifier.

4,273,964
RING AND TONE PLANT
Motek Szpindel, 73 Palm Dr., Downsview, Toronto, Canada
Filed Sep. 21, 1978, Ser. No. 944,647
Int. Cl.³ H04M 1/26
U.S. Cl. 179—84 R 14 Claims



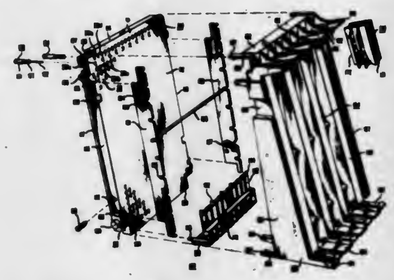
1. Telephone ringing current circuit comprising an AC supply and a D.C. supply, and a output line, first switching means responsive to a first control signal for connecting over a first connection said D.C. supply and said AC supply, in series, to said output line and responsive to a second control signal for the disconnection of said AC supply from said output line, second switching means, operable on said second control signal, for connecting over a second connection, said D.C. supply to said output line, said second switching means being controlled to open said second connection when said first connection is made,
wherein means are provided for completing said first connection responsive to said first control signal at approximately a zero crossing of said AC supply.

4,273,965
TONE DECODING CIRCUIT
Michael C. J. Cowpland, Ottawa, and Patrick R. Beirne, Stittsville, both of Canada, assignors to Mitel Corporation, Kanata, Canada
Filed Mar. 26, 1979, Ser. No. 23,999
Claims priority, application Canada, Oct. 6, 1978, 312903
Int. Cl.³ H04M 1/50
U.S. Cl. 179—84 VF 11 Claims



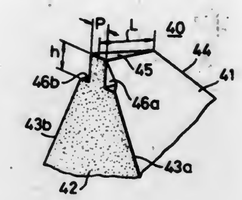
1. A tone decoder comprising:
(a) filter means for separating a group of high tone multifrequency signals and a group of low tone multifrequency signals,
(b) means for converting the period of the high tone and low tone signals to individual voltage levels relating to said periods, including means for generating first and second square wave signals in phase with each of the high tone and low tone signals respectively, first and second integrating means for integrating each of the corresponding square waves, means for sampling the integrated signal to form said voltage levels,
(c) means for comparing said voltage levels with a plurality of predetermined voltage ranges, and
(d) means for providing individual output signals upon coincidence of said voltage levels with related individual ones of the voltage ranges.

4,273,966
TERMINAL APPARATUS FOR TELECOMMUNICATIONS LINES
Paul R. Briggs, Jr., Andover, and Louis J. Scerbo, Succasunna, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Sep. 26, 1979, Ser. No. 79,063
Int. Cl.³ H04Q 1/14
U.S. Cl. 179—98 18 Claims



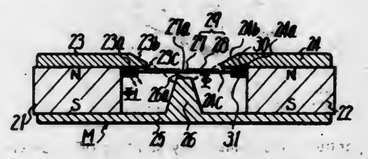
1. A prefabricated modular main frame interconnection panel for interconnecting outside plant wires with central office equipment leads, said panel comprising
means for receiving protector devices on one face of said panel, said receiving means including electrical terminals accessible through the opposite face of said panel,
connector means for terminating said wires,
jumper means for joining said connector means to a first grouping of said terminals, said equipment leads terminating on a second grouping of said terminals, and
means for rotatably snap-mounting said panel into said main frame.

4,273,967
STYLUS FOR REPRODUCING CAPACITIVE VIDEODISC
Yoshiyo Wada; Kunio Goto, and Hisao Kinjo, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan
Continuation of Ser. No. 852,366, Nov. 16, 1977, Pat. No. 4,199,782. This application Apr. 18, 1979, Ser. No. 31,035
Claims priority, application Japan, Nov. 17, 1976, 51-137216; Feb. 25, 1977, 52-20065; Mar. 28, 1977, 52-34106
The portion of the term of this patent subsequent to Apr. 22, 1997, has been disclaimed.
Int. Cl.³ H04N 5/80
U.S. Cl. 369—126 4 Claims



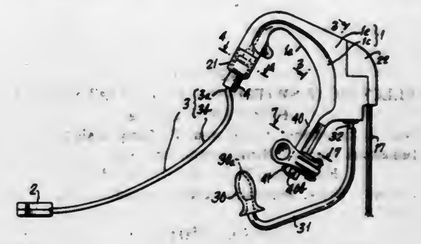
4. A reproducing stylus for tracing a track of a recording medium, in which track an information signal is recorded as variations of geometrical shape, and for reproducing as variations in capacitance the information signal thus recorded, said stylus having multiple facets comprising a tip of the stylus, one of the facets being disposed with an electrode which contacts at one end thereof a surface of the recording medium to reproduce the information signal, other two ends of the electrode being substantially parallel to each other so that the width of the electrode is maintained substantially constant at said one end despite wear of the tip, another of said facets being for slidingly contacting the surface of the medium and increasing its contacting area by enlarging its length in the direction of tracking as the wear progresses.

4,273,968
ELECTROACOUSTIC TRANSDUCER WITH MAGNETIC FLUX DIRECTED SLANTLY ACROSS A DIAPHRAGM
Hideo Suyama, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed May 17, 1979, Ser. No. 39,909
Claims priority, application Japan, May 22, 1978, 53/60842
Int. Cl.³ H04R 7/26, 9/02
U.S. Cl. 179—115.5 PV 6 Claims



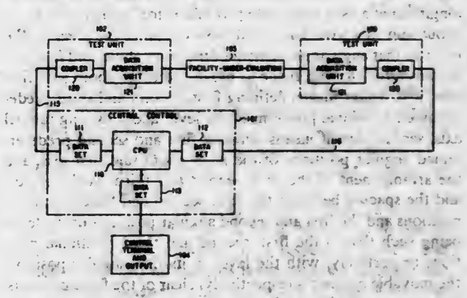
1. An electroacoustic transducer comprising:
(a) a magnetic circuit consisting of a pair of permanent magnets parallely positioned with respect to each other;
(b) a yoke magnetically coupled to said pair of magnets and having a center pole and a pair of plates magnetically coupled to said magnets, said center pole being positioned equidistant from said plates;
(c) a pair of air gaps formed by said center pole and each of said plates; and
(d) a diaphragm having a conductor disposed in said air gaps, wherein said plates position above one side surface of said diaphragm and said center pole positions under the other side surface of said diaphragm, whereby magnetic flux flows through said air gaps so as to be slantly across the conductor of said diaphragm.

4,273,969
COMMUNICATIONS HEADSET MOUNTABLE OVER THE EAR
James P. Foley, Astoria; Bernard F. Kloek, Brooklyn, and Michael D'Agostino, Staten Island, all of N.Y., assignors to Roanwell Corporation, New York, N.Y.
Filed Jun. 1, 1979, Ser. No. 44,572
Int. Cl.³ H04M 1/05
U.S. Cl. 179—156 A 17 Claims



1. A communications headset including:
a. a capsule adapted to fit over the ear of a wearer, said capsule having a transversely rounded inner surface adapted to contact the periphery of the auricle of the wearer's ear, tangential surfaces diverging from the rounded surface to form a tapering portion of the capsule whose thickness increases in the direction away from the ear, and a peripheral portion of the capsule having lateral surfaces adjoining the tangential surfaces at the thicker end of the tapering portion;
b. microphone means supported on one end of the capsule; and
c. acoustic tube means communicating with the capsule and adapted to engage the wearer's ear.

4,273,970
INTERMODULATION DISTORTION TEST
David L. Favin; Peter F. Lynn, both of Little Silver, and Paul J. Snyder, Linden, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 28, 1979, Ser. No. 107,788
Int. Cl.³ H04M 3/26
U.S. Cl. 179—175.3 R 10 Claims



1. Apparatus (FIG. 1) for obtaining a measure of nonlinear distortion of a communications facility (105) of the type including means for obtaining measurements of second order intermodulation distortion products and third order intermodulation products by transmitting test signals on the facility (105), CHARACTERIZED BY,
means (FIG. 2, 220, 222, 208, 209, etc.) for generating a first

test signal (3-tone) to be applied to the communication facility (105) including first (A), second (B) and third (B+3Δ), tones, having predetermined amplitudes, a prescribed one of said tones having an amplitude in predetermined relationship to, and different from, the amplitudes of remaining ones of said tones, to obtain a test signal having a prescribed amplitude density function.

4,273,971

ELECTRICAL SWITCH HAVING ROTATABLE AND PIVOTABLE LEVER

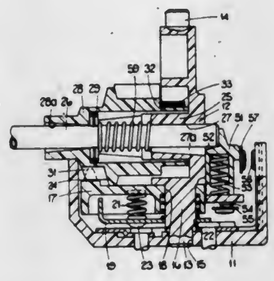
Steven J. Tregurtha, Accrington, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Mar. 23, 1979, Ser. No. 23,278

Claims priority, application United Kingdom, Mar. 28, 1978, 11969/78

Int. Cl.³ H01H 9/00

U.S. Cl. 200—4 9 Claims



1. An electrical switch including a body, a rotor mounted in the body for rotation relative thereto about a first axis, a movable electrical contact movable with the rotor, first, second and third fixed electrical contacts supported by the body and engageable slidably by the moving contact in its movement about said first axis, an operating lever extending from the body transverse to said first axis, means coupling said operating lever to said rotor whereby rotation of said lever about its longitudinal axis is transmitted to said rotor to move the rotor about said first axis, said means also coupling the lever to the rotor so that angular movement of the lever about said first axis is transmitted to said rotor to move the rotor about said first axis, first detent means defining first, second and third predetermined rotational positions of the lever about its longitudinal axis, second detent means defining first and second predetermined angular positions of the lever about said first axis, and the arrangement of the first, second and third fixed contacts and the spacing between the first, second and third rotational positions and the first and second angular positions of the lever being such that in the first, second and third rotational positions respectively, with the lever in its first angular position, the movable contact is respectively, clear of the fixed contacts, in engagement with the first fixed contact, and in engagement with the first and second fixed contacts, whereas in the first, second and third rotational positions respectively, with the lever in its second angular position, the movable contact is respectively, clear of the fixed contacts, in engagement with the first and second fixed contacts, and in engagement with the first and third fixed contacts.

4,273,972

JOYSTICK CONTROL ELECTRIC SWITCH

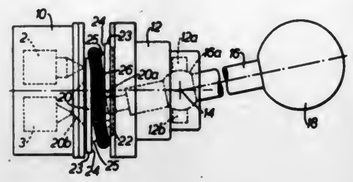
Edmund M. Butterworth, Bedford, England, assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 20, 1979, Ser. No. 105,665

Claims priority, application United Kingdom, Jan. 3, 1979, 141/79

Int. Cl.³ H01H 25/00

U.S. Cl. 200—6 A 4 Claims



1. An electric switch joystick controller, comprising:

(a) a joystick having opposite ends;

(b) pivoting means pivotally supporting the joystick intermediate its end so as to be manually movable from one of its ends about the pivot;

(c) electric switch means adjacent the other end of the joystick and having respective actuators cooperating with said other end of the joystick in predetermined pivotal positions of the joystick;

(d) a pair of axially aligned ring members, one ring member being fixed relative to said pivoting means and the other ring member being slidable radially relative to the fixed ring member upon pivoting of the joystick; and

(e) a resilient band encircling the two ring members and providing a bias on the joystick, tending to return it to a neutral position.

4,273,973

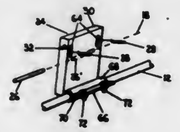
AUTOMATIC ELECTRIC DOWNRIGGER SHUT-OFF SWITCH

Roger C. Bruins, 1503 Broadview, Jenison, Mich. 49428, and Earl D. Hart, 2621 Thornapple River Dr., SE., Grand Rapids, Mich. 49508

Filed Dec. 17, 1979, Ser. No. 104,431

Int. Cl.³ H01H 15/14; B65H 17/52

U.S. Cl. 200—47 11 Claims



1. Apparatus for automatically shutting off a downrigger having an electric motor-operated reel, a power source electrically connected to the motor, and an electrically conductive downrigger cable extending outwardly from the reel, the apparatus comprising:

a pair of separated electrical contacts;

means for mounting the electrical contacts in a predetermined position on the downrigger, such that the contacts are in continuous physical contact with the cable as it extends from the reel, the cable forming a conductive path between the contacts;

means connected to the electrical contacts and the electrical connections for the electric motor for disconnecting the power source from the electric motor when said conductive path between the contacts is broken; and

means mounted on the cable for breaking the conductive path between the contacts when the cable reaches the predetermined position as it is reeled in by the motor.

4,273,974

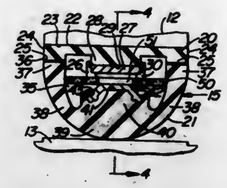
ELONGATE SWITCH CONSTRUCTION

Norman K. Miller, Concord Industrial Park, Concordville, Pa. 19331

Filed Mar. 12, 1979, Ser. No. 19,428

Int. Cl.³ H01H 3/16

U.S. Cl. 200—61.43 4 Claims



1. A switch construction comprising an elongate base, an elongate resiliently flexible working member extending longitudinally of and in facing relation with said base, said working member being transversely concave toward said base and combining therewith to define a longitudinally extending internal hollow, an elongate base contact disposed longitudinally within said hollow and carried by said base facing toward said working member, a flexible tongue on said working member extending internally of said hollow toward and terminating short of said base contact, and an elongate tongue contact carried by said tongue in facing spaced relation and displaceable into engagement with said base contact upon flexure of said working member, said working member being of arcuate generally constant cross-section and comprising a pair of relatively thick longitudinal edge portions secured to said base and tapering in the direction away from said base to a pair of relatively thin longitudinally extending intermediate portions, said tongue being defined by a relatively thick longitudinally extending medial portion of said working member between said intermediate portions and isolated from said edge portions for relatively free movement of the tongue and tongue contact generally toward said base upon application of external force, by the initial flexing tendency of said relatively thin intermediate portions and the relative resistance to flexing of the edge portions.

4,273,975

ELECTRIC CIRCUIT BREAKER

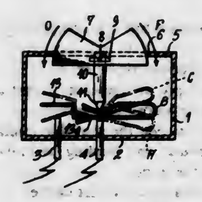
Philippe L. Vandame, Versailles, France, assignor to Nordic Finance and Trade (Panama) Ltd. Inc., Panama, Panama

Continuation of Ser. No. 760,510, Jan. 19, 1977, abandoned. This application Apr. 9, 1979, Ser. No. 28,202

Claims priority, application France, Jan. 20, 1976, 76 01443; Jan. 6, 1977, 77 00282

Int. Cl.³ H01H 1/18, 5/22

U.S. Cl. 200—67 C 7 Claims



1. An electric switch comprising:

a casing with a bottom;

a rocking lever pivotally mounted in the casing, said rocking lever having at least one tapered end;

at least two terminals fixedly mounted in the bottom of said casing; and

a blade of resilient material, formed as a single piece, having an upper and a lower portion, said upper portion of said blade having a shaped free end and said lower portion of said blade having a flat part, said flat part being slidingly mounted on at least one of said terminals, the said shaped free end of said blade being located essentially above the central region of the said lower portion such that, as the blade slides and swivels, the resilient material provides a spring action causing the said blade to snap into contact after sliding over center, while remaining at all times in contact with said tapered end of said pivoted lever, the tapered end of said lever engaging said shaped free end of the upper portion of said blade whereby actuation of the said pivoted lever causes the lower portion of the said blade to rotate about and to slide on at least one of said terminals and bring said lower portion of said blade into contact with another of said terminals.

4,273,976

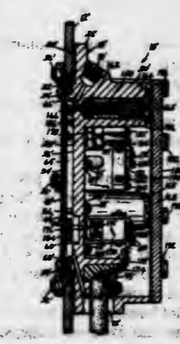
PRESSURE RESPONSIVE SWITCH DEVICE

Byron F. Wolford, Fergus Falls; John F. Rose, Underwood, and James Thunselle, Fergus Falls, all of Minn., assignors to Proximity Controls, Inc., Fergus Falls, Minn.

Filed Jun. 6, 1979, Ser. No. 45,926

Int. Cl.³ H01H 35/34

U.S. Cl. 200—83 L 32 Claims



1. A switch device for monitoring a fluid pressure source comprising:

a housing;

a plurality of switches supported within said housing;

a movable member supported external of said housing and movable in response to fluid pressure, said member having a first face adapted to face a fluid pressure source and a second face facing an external wall of said housing;

a plurality of first magnets connected to said member at different locations thereon;

a plurality of second magnets supported within said housing, each of said second magnets being connected to one of said switches for activation of a respective switch, and each of said second magnets being disposed adjacent one of said first magnets whereby motion of one of the first magnets causes one of said second magnets to move and activate one of said switches connected thereto; and

a plurality of discrete first biasing means for biasing said member away from said wall of said housing, each first biasing means providing a biasing force at a different location on said member, and at least two of said first biasing means having different biasing forces for biasing

different portions of said member away from said housing with different forces;

a plurality of second adjustable biasing means supported within said housing and biasing said second magnets to oppose the activation movement of said first magnets.

4,273,977

CIRCUIT INTERRUPTER

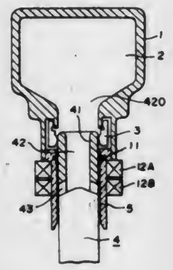
Masami Kii, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 14, 1978, Ser. No. 933,532

Claims priority, application Japan, Aug. 31, 1977, 52-105165; Aug. 31, 1977, 52-105166; Aug. 31, 1977, 52-105167; Aug. 31, 1977, 52-105168

Int. Cl.³ H01H 9/44, 33/18

U.S. Cl. 200—147 R 7 Claims



1. A circuit interrupter comprising:

a housing;

a chamber in said housing forming a volumetric space for storing a fluid for arc extinction;

a fixed contact in said housing;

a movable contact in said housing, said movable contact initially contacting said fixed contact;

means for moving said movable contact to form an arc;

an arc space in said housing for said arc, said arc space being connected to said chamber by a first passage;

a second passage in said housing for discharging fluid from said chamber out of said housing via said arc chamber; and

means for forming in said arc space a magnetic field, transverse to the direction of movement of said movable electrode, said means for forming comprising an arcing electrode in said arc space and at least two coils surrounding said arc space on said housing and connected between said arcing electrode and said fixed electrode, said at least two coils forming at least two transverse magnetic fields of opposite polarity, whereby said arc is extinguished.

4,273,978

LIQUID INTERRUPTER MODULE

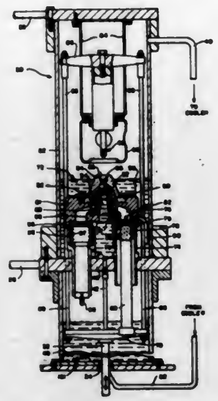
Joseph R. Rostron, Murrysville, Pa., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Jun. 9, 1978, Ser. No. 914,026

Int. Cl.³ H01H 33/82

U.S. Cl. 200—148 R 14 Claims

1. A current interrupter comprising: an enclosure, a fixed contact in said enclosure, a movable contact in said enclosure, said movable contact being movable into electrical contact with said fixed contact, a dielectric located within said enclosure wherein the temperature and pressure conditions are such that said dielectric exists in a gaseous form in the upper part of said enclosure and in a liquid form in the lower part of said enclosure, a boundary being defined between the gaseous form and liquid form of said dielectric, a cylinder positioned in the lower part of said enclosure to be below the boundary defined by the gaseous form and liquid form of said dielectric, a pump piston supported movement in said cylinder, a flow passageway extending from an opening of said cylinder to said fixed contact to establish fluid communication therebetween for the flow of the liquid form of said dielectric into the vicinity of said fixed contact, a first check valve in said flow passageway for permitting unidirectional flow from said cylinder to said fixed contact, a refill passage in said enclosure for establishing fluid communication between said cylinder and the liquid form of said dielectric for refilling said cylinder with the dielectric



liquid, and means for moving said pump piston and said movable contact to separate and reclose said contacts and to drive said pump piston in said cylinder, said pump piston forcing the liquid form of said dielectric through said flow passageway upon contact separation and drawing the liquid form of said dielectric into said cylinder by way of said refill passage upon contact reclosure.

4,273,979

LOW-VOLTAGE CIRCUIT BREAKER WITH MEANS FOR LIMITING CONTACT LIFTING

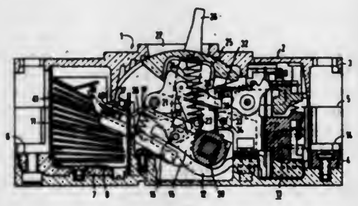
Klaus-Günther Berndt; Manfred Krüger, and Wolfgang Nawrot, all of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,825

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1978, 2817668

Int. Cl.³ H01H 3/60

U.S. Cl. 200—286 1 Claim



1. A low voltage circuit breaker comprising:

a fixed contact;

a movable, pivoted contact carrier;

a movable contact, pivoted around a joint on the contact carrier and having a contact overlay;

a pressure spring between the movable contact carrier and the movable contact and tending to move the movable contact around the joint;

an arm extending from the contact carrier approximately to the contact-making end of the movable contact; and

an adjustable stop for limiting lifting of the movable contact from the "on" position, the adjustable stop positioned on the arm to act centrally of the contact overlay;

the contact spring located next to the stop between the stop and the joint.

4,273,980

SPRING-LOADED CATCH MECHANISM FOR PUSH-BUTTONS OF ELECTRICAL APPARATUS

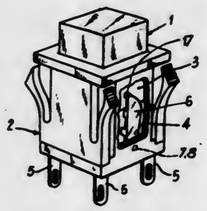
Jean Rogero, Rue de l'Industrie, 82270 Montpezat de Quercy, France

Filed Oct. 24, 1979, Ser. No. 88,074

Claims priority, application France, Oct. 26, 1978, 78 30436

Int. Cl.³ H01H 3/14, 13/56

U.S. Cl. 200—328 6 Claims



1. A spring-loaded catch mechanism for a push-button of an electrical apparatus, said push-button being slidably guided in a housing relatively to which it is urged outwardly by a return spring, which catch mechanism includes a catching lever of plastic material pivotally mounted on said housing through a pivot and including a depressed area which is limited at least partly at its outer periphery through projecting ramps and near the center of which projects an integral stud member bounded by a notch and by further ramps,

said push-button being provided with a pin accommodated in the depressed area of said catching lever and said ramps being shaped and arranged so that, when push-button is depressed from a rest position and then released, said ramps reciprocate the catching lever about its pivot and thus constrain the pin to by-pass the stud member along one side thereof and then to lie under said stud member, after which said return spring urges the pin into the notch and holds it therein in a working position, whereas, when the push-button is depressed from this working position and then released, said ramps reciprocate the catching lever about its pivot and thus constrain the pin to by-pass the stud member along the opposite side thereof and then to lie above said stud member, after which said return spring urges the push-button to and holds it in its rest position, and so on,

braking means being provided for braking the movements of the catching lever,

wherein the catching lever is made integral with its pivot which is accommodated in a hole provided in a wall of the housing as well as with the braking means, said catching lever including as said braking means a relatively thin, resiliently deformable finger portion which at rest projects locally relatively to the whole of the catching lever from the same side as the pivot and thus presses on that housing wall provided with said hole with a pressure sufficient to prevent the catching lever from rotating in the absence of any forces exerted through engagement of the pin with said ramps.

4,273,981

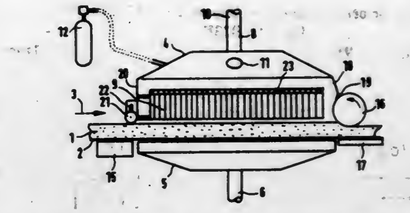
APPARATUS FOR HEATING A FLEECE

Herbert Nopper, Kuppenheim, Fed. Rep. of Germany, assignor to Custnir Kust GmbH & Co. K.G., Gernsbach, Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 85,762

Int. Cl.³ H05B 5/08

U.S. Cl. 219—10.49 R 14 Claims



1. A device for heating a fleece, comprising a heating station having two chambers arranged so as to be opposite to each other with respect to a fleece passing therebetween, a moving perforated fleece carrier on which said fleece is disposed, a fan connected to said chambers to maintain one of said chambers at a higher pressure than the other of said chambers, said fan being connected to the high pressure one of said chambers by a pressure conduit and to the low pressure one of said chambers by a suction conduit so as to form a closed circuit, and a heating radiator having heating elements therein learning clear between themselves flow channels for a gas heating and flowing through the fleece.

4,273,982

UNDERWATER CUTTING AND GOUGING METHOD

Myron D. Stepath, Lancaster, Ohio, assignor to Arcair Company, Lancaster, Ohio

Filed May 19, 1976, Ser. No. 687,939

Int. Cl.³ B23K 9/00, 35/10

U.S. Cl. 219—70 12 Claims



1. A method of removing metal from an object submerged in a liquid medium comprising the steps of:

establishing an electric arc between an elongated solid electrode and the workpiece thus heating and melting that portion of the object under the arc; and

removing the molten metal from the portion of the object being heated by and beneath the arc by directing, from a location spaced from said electrode at least one stream of high pressure liquid to pass between the electrode and the object being heated to impinge upon and carry the molten metal away from the object.

4,273,983

METHOD OF RESISTANCE WELDING

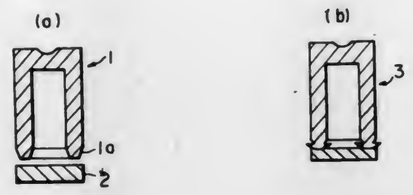
Masahiro Ogawa, Toyoake, and Tugio Mizobe, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Continuation-in-part of Ser. No. 850,192, Nov. 10, 1977, abandoned, which is a continuation of Ser. No. 715,876, Aug. 19, 1976, abandoned, which is a continuation-in-part of Ser. No. 486,872, Jul. 9, 1974, abandoned. This application Jul. 17, 1979, Ser. No. 58,172

Claims priority, application Japan, Jul. 14, 1973, 48-78909

Int. Cl.³ B23K *11/20*

U.S. Cl. 219—93 30 Claims



1. A method for resistance welding two members made of dissimilar metals that includes the steps of placing a surface of a first member made of one metallic material into electrically conductive contact with a surface of a second member made of another metallic material different from the first material, passing an electrical welding current across the contact area between the two members for a time sufficient to render plastic a portion of the metallic material of one of the members, and pressing the first and second members together with sufficient force to squeeze any surface impurities and intermetallic compounds to the edges of the contact area, wherein the improvement comprises:

forming at least one small, integral, tapered, flattopped projection of trapezoidal cross section on the first member, the projection having a predetermined height, divided into a top portion, an intermediate portion and a base portion, and a predetermined width of the flat-topped surface, and opposite sides of the tapered projection each making a predetermined angle with a line perpendicular to the flat-topped surface such that passage of a welding current through the projection will generate a temperature distribution that decreases continuously from the top portion to the base portion, and further, that the projection radially spreads in a plastic flow;

pressing the top surface of the at least one projection of the first member against the surface of the second member with a high welding pressure selected to be approximately in the range of 15–100 kg/mm^2 of top surface area of the projection, but which does not exceed a force that will deform the projection prior to the application of welding current, and;

passing a predetermined high welding current density approximately in the range of 0.75 to 3.4 KA/mm^2 to top surface area of the projection for a short time period approximately in the range of 0.5 to 10 cycles at 60 Hz, such that the contacting surfaces of the two members are melted, said intermediate portion of the projection flows plastically under said welding pressure and the base portion of the projection does not plastically flow, and due to said plastic flow, obtaining welded surfaces having no intermetallic compound of said dissimilar metals remaining at said welded surfaces.

4,273,984

FLASH BUTT WELDING APPARATUS

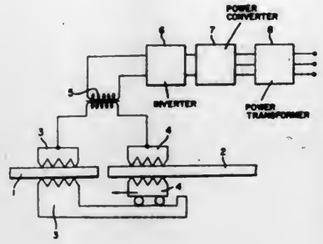
Katsunori Hara; Toshihiko Baba, and Takio Okada, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Amagasaki, Japan

Continuation of Ser. No. 763,116, Jan. 27, 1977, abandoned. This application Sep. 22, 1978, Ser. No. 945,009

Claims priority, application Japan, Feb. 6, 1976, 51-11886

Int. Cl.³ B23K *11/04*

U.S. Cl. 219—97 5 Claims



1. A flash butt welding apparatus for welding the opposing ends of two workpieces together which comprises:

DC power source means for supplying a DC output voltage;

inverter means coupled to said DC power source means for converting the DC output voltage of said DC power source means to a rectangular waveform AC voltage;

first electrode means for electrically contacting one of said work pieces and movable therewith;

second electrode means for electrically contacting the other of said workpieces, said second electrode means being stationary;

a welding transformer having at least one primary winding and at least one secondary winding, the primary winding of said transformer being connected to the output of said inverter means and the secondary winding of said transformer being connected between said first electrode means and said second electrode means such that the rectangular waveform AC voltage output of said welding transformer appears between said first and said second electrode means;

means for gradually and continually moving said first electrode means and the workpiece contacted by said first electrode means toward said second electrode means and said other workpiece contacted by said second electrode means to cause a series of successive partial contacts between portions of the opposing ends of said two workpieces such that an AC current from said transformer flows through each area of partial contact, said AC current operating to successively melt each area of partial contact and to successively scatter each of said melted areas as flash, said flash scattering forming gaps in the opposing ends of said workpieces resulting in the formation of electric arcs between said workpieces, and for rapidly pushing said workpieces together to complete the butt weld when the temperature of the opposing ends of said workpieces has been raised sufficiently by said successive melting and flashing, the direction of motion of said workpieces under control of said moving means being constant throughout the flash butt welding operation.

4,273,985

INTERNAL RESISTANCE PIPE BUTT WELDER

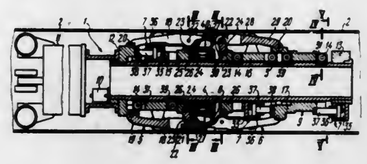
Boris E. Paton, ulitsa Chkalova, 41a, kv. 26, Kiev; Boris E. Scherbina, Kholzunov pereulok, 10, kv. 35, Moscow; Vladimir K. Lebedev, ulitsa Engelsa, 25, kv. 12, Kiev; Oleg M. Ivantsov, Aptekarsky pereulok, 98/2, kv. 23, Moscow; Sergei I. Kuchuk-Yatsenko, ulitsa Filatova, 1/22, kv. 47, Kiev; Vasily A. Sakharnov, ulitsa Solomenskaya, 41, kv. 93, Kiev; Boris A. Galina, ulitsa Lenina, 88/92, kv. 110, Kiev; Mikhail R. Usigovsky, ulitsa Pushkinskaya, 21, kv. 33, Kiev, and Orest M. Serafin, ulitsa Dirizhabelnaya, 28, korpus 1, kv. 45, Dolgoprudny, all of U.S.S.R.

Filed May 4, 1979, Ser. No. 36,166

Claims priority, application U.S.S.R., May 4, 1978, 2625038

Int. Cl.³ B23K *11/04, 37/04*

U.S. Cl. 219—101 14 Claims



1. A resistance butt welder adapted to be accommodated inside pipes to be welded for aligning a new pipe relative to a pipeline and forming a weld joint, comprising: a housing having a longitudinal axis matched with the axis of pipes to be welded; an annular welding transformer with first and second poles, mounted on said housing coaxially therewith and disposed inside said pipes and lying beneath the weld joint to be formed; a first pipe clamping mechanism and a second pipe clamping mechanism, both mounted on said housing and electrically connected to said welding transformer; a pipe flashing and upsetting mechanism mounted on said housing and kinematically coupled to one of said pipe clamping mechanisms; two hydraulic drives, each intended to move the respective pipe clamping mechanism along the axis of said housing; a hydraulic drive for moving said pipe flashing and upsetting mechanism along the axis of said housing; a hydraulic pump mounted on said housing and adapted to supply working fluid to said hydraulic drives of said first and second pipe clamping mechanisms and said pipe flashing and upsetting mechanism; a mechanism to drive the welder along the axis of pipes to be welded, mounted on said housing; first and second bearing discs rigidly mounted at the opposite ends of said housing; three clips having end faces and being mounted on said housing so as to be movable along the axis of said hosing, two of said clips are incorporated in said first and second pipe clamping mechanisms, respectively, whereas the third clip is incorporated in the pipe flashing and upsetting mechanism; said clip of said first pipe clamping mechanism being interposed between the welding transformer and the first bearing disc and is coupled to said first bearing disc by means of said hydraulic drive of said first pipe clamping mechanism; said clip of said pipe flashing and upsetting mechanism being arranged close to the second bearing disc and is coupled thereto by means of said hydraulic drive of said pipe flashing and upsetting mechanism; said clip of said second pipe clamping mechanism being interposed between said clip of said first pipe clamping mechanism and said clip of said pipe flashing and upsetting mechanism and is coupled to sid clip of said pipe flashing and upsetting mechanism by means of said hydraulic drive of said second pipe clamping mechanism; a kinematic coupling is disposed between said clip of said first pipe clamping mechanism and the first bearing disc; and a kinematic coupling is disposed between said clip of said second pipe clamping mechanism and said clip of said pipe flashing and upsetting mechanism.

4,273,986

METHOD AND APPARATUS FOR ARC BUTT WELDING

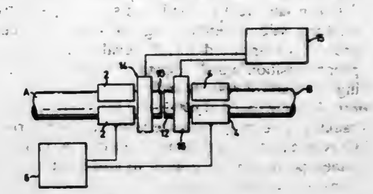
Donald Edson, Newton, and Albert W. Carter, Stapleford, both of England, assignors to Blacks Equipment Limited, Bromley, England

Filed Nov. 15, 1979, Ser. No. 94,754

Claims priority, application United Kingdom, Nov. 15, 1978, 44654/78

Int. Cl.³ B23K *9/08*

U.S. Cl. 219—123 14 Claims



1. A method of joining two parts by an arc butt welding process, comprising the steps of striking an arc between the two faces to be joined, moving the arc over the faces by means of a magnetic field, relatively moving the two faces in a plane generally parallel to the faces such that the overlapping area of the two faces changes during the arc-heating period, so that the magnetic field and the relative movement constrain the arc roots to move over substantially the whole of each face, and then bringing the faces into registration and applying forging pressure across the said faces.

4,273,987

METHOD OF CONTROLLING SYNCHRONIZED MOVEMENT OF BACKING SHOE IN AUTOMATIC ONE-SIDE WELDING

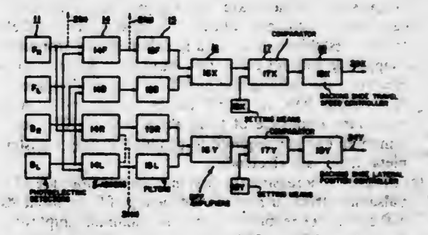
Hirokazu Nomura; Yukihiko Sato, both of Tsu, and Yoshikazu Sato, Mie, all of Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 12, 1979, Ser. No. 75,204

Claims priority, application Japan, Sep. 19, 1978, 53-114070

Int. Cl.³ B23K *9/12*

U.S. Cl. 219—124.34 1 Claim



1. In an automatic one-side welding process of the type wherein a light-transmittable backing material is placed in contact with a back surface of a welding joint of base metals, and a backing shoe movable in synchronism with movement of a welding apparatus is held in contact with the back surface of said welding joint just below an electrode through said backing material to thereby effect the welding of said base metals, a method of controlling the synchronized movement of said backing shoe in one-side welding, said method comprising the steps of:

producing an electric signal by each of four photoelectric detecting means adapted to receive light from the back surface of said welding joint through said backing material to produce electric signals corresponding to the amount of light received thereby, said photoelectric detecting means being embedded in the surface of said backing shoe placed

in contact with said backing material at four positions of right-front, right-back, left-front and left-back relative to just below said electrode with respect to a direction of welding, said positions being arranged with predetermined longitudinal and lateral spaces therebetween;

adding said signals corresponding to said front positions, said back positions, said right positions and said left positions, respectively, to obtain front and back sum signals and right and left sum signals;

producing difference signals corresponding to the difference between said front and back sum signals and the difference between said right and left sum signals, respectively;

comparing said difference signals with a predetermined proper synchronized travel signal and a predetermined proper position signal, respectively, to obtain corresponding comparison results; and

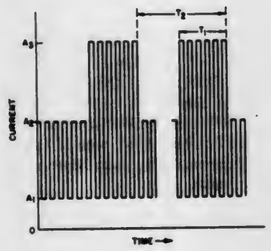
controlling the speed of travel and the lateral position of said backing shoe in accordance with said comparison results so as to maintain said below-electrode-point at a predetermined position with respect to said light receiving positions on said backing shoe.

4,273,988

PULSE WELDING PROCESS

William F. Iceland, Los Alamitos, and Donald P. Viri, Simi Valley, both of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 23, 1979, Ser. No. 69,028
Int. Cl.³ B23K 9/09
U.S. Cl. 219—137 PS 11 Claims



1. A gas-shielded metal-arc welding process comprising:

(a) applying a sufficient voltage to a consumable metal electrode to establish an arc in a gas shielded environment;

(b) supplying a direct current of about 15 to 80 amps to said electrode and pulsing said direct current at a frequency of from about 5000 to 25,000 pulses per second to a first maximum amplitude of from about 100 to 125% of the minimum current required to produce a spray transfer of metal from said electrode;

(c) cyclically increasing the first maximum amplitude of said pulsating direct current at a frequency of from about 90 to 400 cycles per second to a second maximum amplitude of from about 150 to 600% of the minimum current required for spray transfer of metal and maintaining said second amplitude for a time of from about 5 to 50% of each cycle.

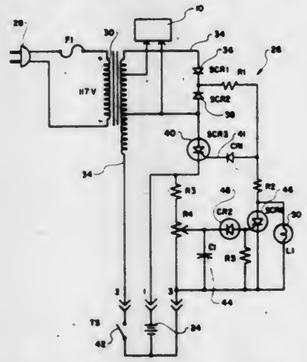
4,273,989

BATTERY POWERED THERMAL GARMENT WITH FAST AND EFFICENT RECHARGING CIRCUIT

David O. Hinton, 4700 Hiddenbrook Dr., Raleigh, N.C. 27609, and Jean G. French, 1045 Huntingdon Ct., Stone Mountain, Ga. 30083

Filed Jun. 30, 1980, Ser. No. 164,825
Int. Cl.³ H05B 1/02
U.S. Cl. 219—211 4 Claims

1. A battery powered thermal garment and battery recharging circuit comprising: a thermal garment designed to be worn about the body of an individual and provided with heating element means disposed therein; and a power package for directing current to said thermal garment and powering the same including a battery package and a recharging circuit for recharging said battery package; said battery package being adapted to connect to said thermal garment and to selectively energize said heating element means therein; said recharging circuit being adapted to connect to said battery package for recharging the same and including means for connecting to an AC voltage source and directing the resulting AC voltage to said recharging circuit; transformer means for receiving said AC voltage and reducing the AC voltage to a selected secondary voltage; first tap means operatively associated with said transformer means and directed therefrom for directing a first current from said transformer means that can be directly coupled to said thermal garment for powering the same independently of said battery package; second tap means operatively



associated with said transformer means and directed therefrom for generating a second recharging current within said recharging circuit; rectifying means for receiving said second recharging current and rectifying the same; switch means disposed within said recharging circuit and further operatively connected to said battery package for directing the recharging rectified current thereto for charging the same; means disposed within said recharging circuit for sensing the charge on said battery package and effectively controlling the flow of current through said switch means to said battery package in response to said battery package having a certain charge level; and thermal switch means operatively associated with said battery package for sensing the temperature of said battery package and terminating the flow of recharging current thereto in response to the temperature of said battery package being equal to or above a selected temperature.

4,273,990

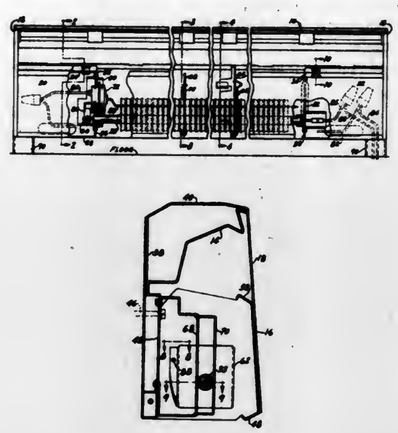
BASEBOARD HEATER WITH HIGH TEMPERATURE CUT-OFF SWITCH

Robert E. Steiner, Columbus, Ind., and Thomas J. Long, Florence, S.C., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Dec. 14, 1979, Ser. No. 103,605
Int. Cl.³ H05B 1/02
U.S. Cl. 219—363 2 Claims

1. A baseboard heater comprising an elongated casing mounted horizontally against a wall of a room and spaced from the floor, the bottom and upper front side of said casing being open so as to permit the free vertically upward and then forward flow of air therethrough, said casing including a rear sidewall lying against the room wall and a partial front sidewall enclosing the lower front side of said casing, an elongated electrical resistance heating element positioned in the lower portion of said casing adjacent the open bottom thereof and extending longitudinally between said casing sidewalls, a high temperature cut-off switch controlling the flow of energy to said heating element, actuating means for said switch including

a capillary tube containing a thermally expansible fluid which when heated sufficiently effects actuation of said switch, said heating element is equipped with a plurality of longitudinally, radially extending fins fixed thereon, and in which said capil-



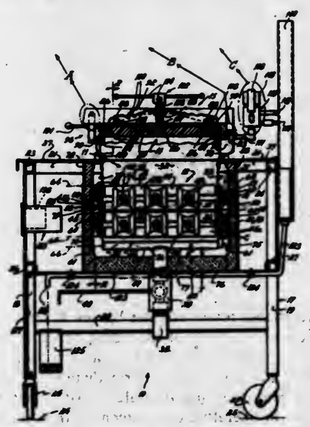
lary tube extends between a sidewall of said casing and the adjacent peripheries of said fins, and is connected to said adjacent peripheries of at least some of said fins so as to lie in and be cooled by the upward flow of substantially unheated air entering said open casing bottom.

4,273,991

PRESSURE COOKER

Donald R. Barnhill, Hamilton, Ohio, assignor to B & W Metals Company, Inc., Fairfield, Ohio

Filed Nov. 29, 1979, Ser. No. 98,673
Int. Cl.³ F27D 11/02
U.S. Cl. 219—440 3 Claims



1. A pressure cooker comprising

a tank positioned within a housing, said tank having plural walls and a floor, the floor of said tank sloping downwardly toward the center thereof from the bottom edges of at least two of said walls,

a cover receivable in sealing relation with the top of said tank,

a plurality of generally linear strip electrical resistance heater elements mounted to said plural walls on the exterior surfaces thereof, said strip heater elements being spaced one from the other and being disposed generally parallel one to the other, said heater elements being disposed generally parallel to the bottom edges of said at least two walls, and the lowest of said heater elements on each of said at least two walls being spaced above the bottom edge of said wall from which said floor slopes downwardly,

a heat reflector panel associated with each of said plural walls, said panel having a coefficient of heat reflectivity between about 0.7 and about 1.0, said heat reflector panels being spaced from said tank walls so as to define an air space between said panels and said tank walls around the periphery of said tank, and said plural walls, said heater elements and said reflector panels functioning to define a hot air blanket for each of said plural walls when said cooker is in use to enhance control and homogeneity of the cooking temperature within the tank as established by said heater elements,

an electric circuit that includes said heater elements, said electric circuit cooperating with said heater elements for applying heat to said tank, and

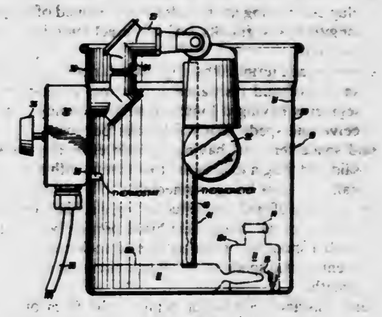
insulation interposed between said heat reflector panels and said housing.

4,273,992

ELECTRIC HEATING APPARATUS FOR HEAT-TREATING PHARMACEUTICALS

Arend J. Thomas, 1361 Chestnut Ave., Annapolis, Md. 21403

Filed Dec. 13, 1979, Ser. No. 103,105
Int. Cl.³ H05B 1/00; A61M 5/00; F24C 7/04
U.S. Cl. 219—521 3 Claims



1. An apparatus for heat-treating pharmaceuticals, such as mannitol solutions contained in sealed enclosures, the apparatus comprising:

a receptacle for receiving the sealed enclosure, said receptacle having a reflective inneq surface, an open top and a closed bottom;

a light bulb for providing radiant energy to the interior of said receptacle whereby the energy reflects from the reflective inner surface and onto the sealed enclosures to heat the pharmaceutical therein;

means mounted on the receptacle for supporting the light bulb within the receptacle, beneath the top of the receptacle and in substantial spaced relation to the bottom of the receptacle, wherein the light bulb is above the sealed enclosures, said light bulb and the support being of a dimension less than that of the open top of the receptacle wherein visual observation to the bottom of the receptacle is unobstructed and the presence of sealed enclosures in the receptacle can be determined by looking through the open top of the receptacle, said supporting means including a joint allowing horizontal movement of the light bulb

to provide convenient access to the interior of said receptacle for removal of the sealed enclosures; and

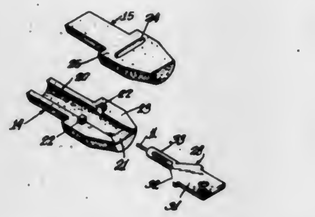
means for controlling the temperature within the receptacle by controlling energy supplied to the light bulb.

4,273,993

TERMINATIONS FOR ELECTRIC HEATING ELEMENTS

Wayne R. Seeley, Pulaski, Va., assignor to Emerson Electric Co., St. Louis, Mo.

Filed May 12, 1980, Ser. No. 148,821
Int. Cl.³ H05B *3/08*
U.S. Cl. 219—541 **4 Claims**





1. A termination for an electric heater having a tubular sheath and a resistance conductor extending longitudinally within said sheath, said termination comprising,

an end plug for closing an open end of said sheath, said end plug comprising an insulator body formed of a plurality of longitudinal segments which interact laterally to form said end plug,

a metal spade terminal having a tubular portion connected to an end of said resistance conductor, at least one of said segments having a longitudinally-extending recess to receive said spade terminal tubular portion,

said spade terminal having a blade extending axially from said end plug and adapted to connect with a female terminal, the latter being connectable to a power conductor,

at least one of said segments having a socket for receiving a portion of said blade, said blade portion being engageable with a shoulder provided by said socket to restrict movement of said spade terminal in a direction inwardly of said sheath,

said resistance conductor being in the form of a helically-coiled wire which is stressed to resiliently hold said blade portion against said shoulder, and

said end plug having an end portion adapted to seat within said tubular sheath open end.

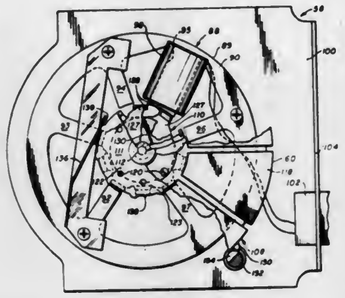
4,273,994

ROTARY ELECTROMAGNETIC INDICATOR

Donald W. Fleischer, Wethersfield, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed Dec. 17, 1979, Ser. No. 104,045
Int. Cl.³ G06M *1/10*
U.S. Cl. 235—92 A **9 Claims**

1. In a rotary electromagnetic indicator comprising an indicating rotor with an even plurality of equiangularly spaced digital indicating positions and having a permanent magnet with an annular arrangement of an even plurality of alternating north and south salient poles for said plurality of equiangularly spaced digital indicating positions respectively, and a stator with a stator core with a plurality of angularly spaced salient poles, each adapted to be aligned with each pole of the rotor permanent magnet as the indicating rotor is rotated by the stator in a forward angular direction through 360°; the improvement wherein the salient poles of the stator core comprises a master salient pole with forward and rearward angular pole face sections in approximately one-half digit out of phase relationship and first and second groups of salient poles with respective pole faces in approximately one-half digit out of phase relationship, each pole face of the first salient pole group being angularly spaced from the rearward pole face section of the master salient pole for respective alignment with rotor poles of opposite polarity, the second salient pole group having



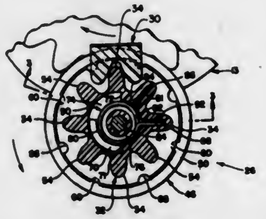
at least one more salient pole than the first group, and each pole face of the second pole group being angularly spaced from the forward pole face section of the master salient pole for respective alignment with rotor poles of opposite polarity, and a stator coil winding on the master salient pole for selectively magnetizing the master salient pole in each direction and the remaining salient poles of the stator in the opposite direction for indexing the rotor one digit in said forward angular direction.

4,273,995

FUEL PUMP COUNTER TRANSFER PINION

Raymond H. Devaney, Winsted, Conn., assignor to Veeder Industries Inc., Hartford, Conn.

Filed Dec. 10, 1979, Ser. No. 101,837
Int. Cl.³ G06C *15/42, 15/26*; B67D *5/22*; F16H *55/18*
U.S. Cl. 235—139 R **14 Claims**



1. In a resettable rotary counter having at least two coaxial resettable counter wheels of ascending order of significance adapted to be rotated in a first angular direction thereof for accumulating a count, and an intermediate rotary torque control transfer pinion having separate coaxial input and output gear sections in operative engagement with adjacent counter wheels of lower and higher order respectively for being intermittently indexed a predetermined transfer angle in one angular direction thereof, by rotation of the lower order counter wheel in said first angular direction, for indexing the higher order counter wheel one count in said first angular direction, the improvement wherein the transfer pinion comprises cooperating abutment means permitting rotation of the input gear section relative to the output gear section in at least said one angular direction from a first relative angular position thereof

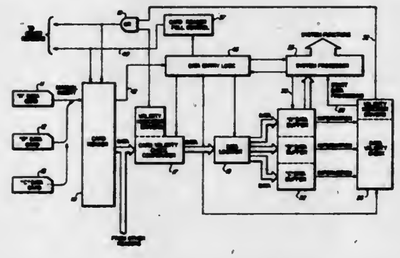
and engageable to accurately establish said first relative angular position, and torsion spring means angularly biasing the abutment means into engagement to angularly bias the output and input gear sections to said first relative angular position and permitting rotation of the input gear section relative to the output gear section in at least said one angular direction against the bias of the torsion spring means, the said relative rotation of the input and output gear sections being at least approximately equal to the predetermined transfer angle of the transfer pinion to permit the input gear section to be dynamically indexed said predetermined transfer angle in said one angular direction by the lower order counter wheel generally independently of the following dynamic rotation of the higher order counter wheel by the output gear section.

4,273,996

SEQUENTIAL CARD READER SYSTEM

Dan G. Weimer, Scottsdale, Ariz., assignor to Engineered Systems, Inc., Tempe, Ariz.

Filed Jun. 25, 1979, Ser. No. 51,988
Int. Cl.³ G06K *7/00, 5/00*
U.S. Cl. 235—435 **4 Claims**



1. A document controlled utilization system responsive to transaction data encoded on two or more documents of a set of documents for use therewith, each document of the set having a portion of the information data for the transaction encoded thereon and having unique locator data identifying the position of the document in the set also encoded thereon, the system including in combination:

document reading means for reading data from documents of a set sequentially inserted therein in any order, each of such documents having a capacity of data which is less than the total amount of the transaction data required by the utilization system;

buffer storage means for storing data read by said reading means and having storage areas equal in number to the number of documents of a set of documents, each of said storage areas being identified by and corresponding to the unique locator data of the document of a set to which said storage area corresponds;

data locator means connected with said reading means and said buffer storage means and responsive to locator data read from documents by said reading means for causing storage of information data read from a document in the one of said storage areas of said buffer storage means corresponding to the unique locator data encoded on such document irrespective of the sequential order in which the documents of a set are inserted into said reading means; and

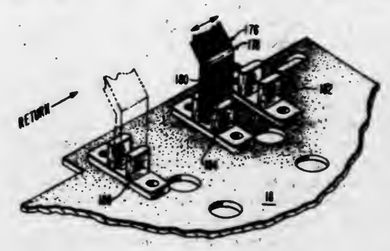
means for coupling said buffer storage means with the utilization system for transferring information from said buffer storage means to the utilization system.

4,273,997

AUTOMATIC PASSBOOK READER/WRITER APPARATUS

Donald L. Bumgardner, South Lyon, and James N. Schreiber, Livonia, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Aug. 3, 1979, Ser. No. 63,422
Int. Cl.³ G06K *7/08, 15/02*; G11B *25/04*
U.S. Cl. 235—449 **11 Claims**



5. An automatic bank account passbook reader/writer transport apparatus comprising,

a self contained, unitary, demountable, modular assembly having a data read/write transducer and a synchronizing timing track transducer,

means mounting said transducers for reciprocatory movement relative to an intelligence bearing media,

a demountable flexible timing track disposed adjacent said timing track transducer,

means for moving said transducers back and forth adjacent to said timing track and said intelligence bearing media effective to cause said transducers to alter the intelligence carried by said intelligence bearing media, and

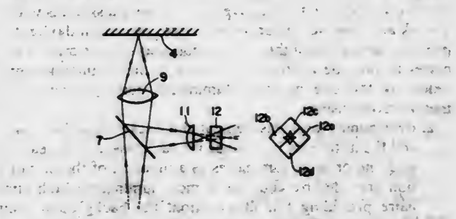
means for coupling said unitary assembly to an operably associated printing apparatus such that information data derived from said intelligence bearing media can be transferred to said printing apparatus for printing upon a record member and recording upon a magnetizable medium carried by said record member, said means mounting said transducers for reciprocatory movement comprising a wear compensating suspension including a shaft supported by bearing means arranged to move in a horizontal plane, and means operably coupled to said bearing means to provide zero clearance regardless of wear.

4,273,998

SERVO UNIT FOR OPTICAL TYPE INFORMATION READING DEVICE

Hitoshi Kanamaru, Tokorozawa, Japan, assignor to Universal Pioneer Corporation, Tokyo, Japan

Filed Jun. 18, 1979, Ser. No. 49,862
Claims priority, application Japan, Jun. 19, 1978, 53-73976
Int. Cl.³ G01J *1/36*
U.S. Cl. 250—204 **6 Claims**



1. In a servo unit in an optical type information reading device having a focussing lens for focussing an irradiation light beam on the record surface of a disk; a moyable mirror for positioning the focal point of said irradiation light beam

formed by said focussing lens, on the track of said disk; the improvement comprising:

a cylindrical lens arranged with the central axis of the cylinder forming a 45° angle with the track direction of said disk, thereby allowing a light beam from said record surface to pass through cylindrical lens,

focussing light receiving means having receiving units with light receiving surfaces, said light receiving surfaces having centers arranged on two orthogonal lines, said focussing light receiving means receiving a focus controlling light beam passing through said cylindrical lens at a distance at least twice as long as the focal distance of said cylindrical lens;

tracking light receiving elements having light receiving surfaces provided on both sides of said focussing light receiving means such that the light receiving surfaces receive a pair of tracking controlling light beams;

adjusting means for positioning the focal point of said irradiation light beam formed by said focussing lens on said record surface of said disk in response to an output of said focussing light receiving means; and

means for adjusting the position of said movable mirror so that said focal point is positioned on the track of said disk in response to outputs of said pair of tracking light receiving elements,

said focussing light receiving means arranged so that one of said two orthogonal lines coincides with the cylindrical axis of the cylinder of said cylindrical lens, and

said tracking light receiving elements arranged on a tracking line which forms a 45° angle with said cylindrical axis.

4,273,999

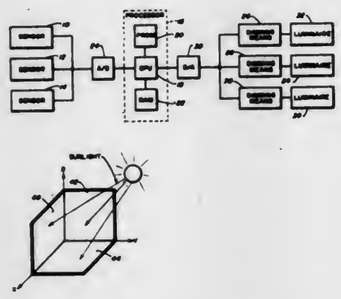
EQUI-VISIBILITY LIGHTING CONTROL SYSTEM

William Pierpoint, Camarillo, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 18, 1980, Ser. No. 113,426

Int. Cl.³ G01J *1/32*

U.S. Cl. 250—205 **4 Claims**



1. A method for providing a substantially constant specified relative visibility with time over one or more task areas within a work area having one or more sources of natural daylight to provide natural daylight illumination and one or more luminaires to provide artificial illumination, the illumination provided by the one or more luminaires being variable, said method comprising:

a. determining by measurement the background luminance and the difference luminance for each task area for each of said one or more luminaires as a function of the illumination provided by said one or more luminaires; each luminaire providing full illumination, the background luminance and difference luminance for each task area being a linear function of the illumination provided by each luminaire;

b. determining the background luminance and difference luminance for each task area as a function of the natural daylight illumination entering said work area through said one or more sources of natural daylight, comprising:

b1. sensing the natural daylight illumination entering said work area through said one or more sources of natural light with said sensor means providing a plurality of simultaneous signals related to the intensity of said natural daylight illumination;

b2. measuring the background luminance and difference luminance for each task area with an Equivalent Sphere Illumination meter for each set of three simultaneous sensor signals;

b3. repeating steps b1 and b2 to obtain the simultaneous sensor signals and background luminance and difference luminance readings as the natural daylight illumination varies over time; and

b4. correlating the plurality of simultaneous sensor signals with the background luminance and difference luminance for each task to reestablish the background luminance and difference luminance as a function of the three sensor signals;

c. measuring the natural daylight illumination entering said work area through said one or more sources of natural light, comprising:

disposing sensor means in the path of the sun's rays entering said work area through said one or more sources of natural daylight, a sensor means associated with each said source of natural daylight to measure the natural daylight entering said work area, each said sensor means including a plurality of light detecting surfaces disposed in intersecting planes so that the light detecting surfaces are oriented differently relative to the direction of the sun's rays, the sun's rays thereby striking the light detecting surfaces at a different angle;

d. correlating the present artificial illumination provided by said one or more luminaires with the background luminance and difference luminance at each said task area as a function of the artificial illumination to determine the background luminance and difference luminance at each said task area due to said artificial illumination;

e. correlating the measured natural daylight illumination entering said work area with the background luminance and difference luminance at each said task area as a function of the natural daylight entering said work area to determine the background luminance and difference luminance at each task area due to the natural daylight illumination;

f. calculating the relative visibility at each said task area based on the present difference luminance and background luminance at each said task area due to the combined artificial and daylight illumination;

g. comparing the relative visibility calculated in step f. with the specified relative visibility;

h. varying the artificial illumination from said one or more luminaires to provide the specified relative visibility at each said task area, the artificial illumination being increased by an incremental amount for the luminance producing the maximum relative visibility increase per incremental increase in illumination if the calculated relative visibility is less than the specified relative visibility, the artificial illumination being decreased by an incremental amount for each luminaire if the calculated relative visibility is greater than the specified relative visibility; and

i. continuously periodically repeating step (c) through step (h) to maintain the specified relative visibility.

4,274,000

X-RAY POWDER DIFFRACTOMETER

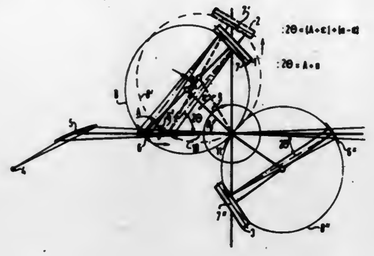
Herbert Goebel, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 16, 1980, Ser. No. 112,463

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1979, 2907160

Int. Cl.³ G01N *23/20*

U.S. Cl. 250—272 **5 Claims**



5. An X-ray powder diffractometer functioning as a goniometer, comprising: an X-ray source; a sample; a detector means for position sensitive behavior; transport means for advance of the detector means along an arc suited for a Guinier Method for transmission and/or back reflection beam direction and which has a Guinier circle associated therewith; analysis means for preparing an intensity diagram of a local distribution of diffracted radiation for a given position location 2θ of the detector means; the position sensitive detector means being located diametrically opposite the sample on the Guinier circle so as to form an assembly; and the assembly being positioned and rotated in the primary beam such that the primary beam always impinges on the sample and the detector is always in a focus of the diffracted radiation.

4,274,001

SCANNING TYPE SCINTILLATION CAMERA

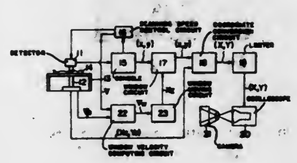
Yasuo Nagasawa, Kashiwa, Japan, assignor to Hitachi Medical Corporation, Japan

Filed Dec. 15, 1978, Ser. No. 969,824

Claims priority, application Japan, Dec. 16, 1977, 52-150586

Int. Cl.³ G01T *1/20*

U.S. Cl. 250—363 S **1 Claim**



1. A scanning type scintillation camera arranged that bright spots of radiation are detected while moving the detector of the camera relative to the body of the subject under examination and that the positions of the bright spots noted in a first coordinate system set for the inherent range of detection of the camera are converted to a second coordinate system intended for imaging the whole body of the subject by adding them to or subtracting them from the distance covered by the detector, said scintillation camera further including means for shifting the position of a spatial "window" intended for limiting the detection range of the camera back and forth in the direction of scanning at such speed as will ensure the sum of the velocity of movement of this "window" and the velocity of actual scanning of the detector to always represent a predetermined scanning velocity of this detector.

4,274,002

SCINTILLATION CAMERA

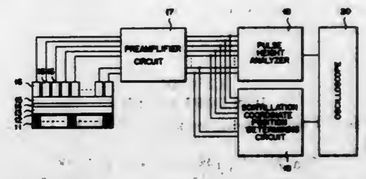
Yutaka Tomita, Tokyo, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Dec. 1, 1978, Ser. No. 965,476

Claims priority, application Japan, Dec. 2, 1977, 52-144867

Int. Cl.² G01T *1/208*

U.S. Cl. 250—366 **5 Claims**



1. A scintillation camera comprising a collimator for collimating gamma rays, a scintillator disposed on said collimator for converting the gamma rays into photons; a plurality of photo-converter elements arranged in close vicinity to said scintillator; a plurality of preamplifiers connected to said photoconverter elements for amplifying electric signals from said photo-converter elements, respectively; a plurality of nonlinear amplifying means connected between the outputs of each two adjacent amplifiers of said preamplifiers for amplifying the output signals of said two adjacent amplifiers correspondingly to the correlation between said two output signals in accordance with a prescribed nonlinear characteristic, thereby producing two output signals; a plurality of weighting resistor circuits severally connected to the outputs of said nonlinear amplifying means and each including a pair of resistors to which said two output signals of each said nonlinear amplifying means are delivered respectively, said resistors having a resistance value in accordance with one corresponding position of said photo-converter elements; a summing amplifier for adding the output signals of said nonlinear amplifying means through said weighting resistor circuits; and a display device connected to said summing amplifier for displaying an image corresponding to a distribution of the gamma rays in accordance with the signals therefrom.

4,274,003

X-RAY DIAGNOSTIC GENERATOR COMPRISING MEANS FOR OBTAINING A SIGNAL CORRESPONDING TO THE X-RAY TUBE VOLTAGE

Werner Knabenschuh, Uttenreuth, and Manfred Rattner, Buckenhof, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 31, 1979, Ser. No. 108,719

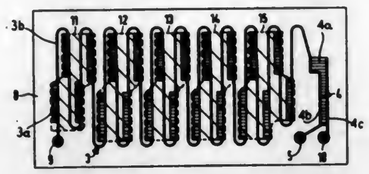
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1979, 2903340

Int. Cl.³ H05G *1/32*

U.S. Cl. 250—409 **1 Claim**

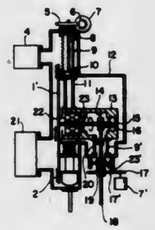
1. In an x-ray diagnostic generator for supplying an x-ray tube wherein, in order to obtain a signal corresponding to the x-ray tube voltage, a voltage divider comprises resistance means connected in parallel with the x-ray tube, and wherein capacitance means provides a shunt path with respect to said resistance means characterized in that a substrate (8) is provided, the resistance means of the voltage divider (3, 4) comprising resistance portions (3a) applied in thick film technique and connected in series to form a meander path on one side of

the substrate (8), and said capacitance means comprising conductive layers (11-15) applied on the other side of the sub-



strate, each conductive layer capacitively bridging over a portion of the meander path.

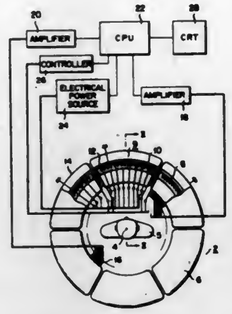
4,274,004
ION IMPLANTER
Norio Kanai, Chofu, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 17, 1980, Ser. No. 112,818
Claims priority, application Japan, Feb. 2, 1979, 54-10377
Int. Cl.[3] G21K *5/10*
U.S. Cl. 250—442 14 Claims



1. An ion implanter comprising a specimen chamber; a specimen carrier disposed within said specimen chamber; an ion source positioned to direct an ion beam at said specimen carrier to bombard one or more specimen carried thereon; drive means for simultaneously imparting both rotational and rectilinear motion to said specimen carrier; vacuum exhausting means for evacuating said specimen chamber; and means within said specimen chamber for enclosing said drive means so as to completely isolate said drive means from the atmosphere of said specimen chamber.

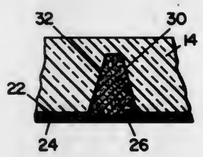
4,274,005
X-RAY APPARATUS FOR COMPUTED TOMOGRAPHY SCANNER
Toshio Yamamura; Takeshi Muraki, both of Yokohama, and Heihachi Miura, Kawasaki, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Aug. 14, 1979, Ser. No. 66,765
Claims priority, application Japan, Sep. 29, 1978, 53-119205
Int. Cl.[3] G03B *41/16*
U.S. Cl. 250—445 T 24 Claims

1. An X-ray apparatus for a computed tomography scanner which has a central axis thereof, comprising:
two or more X-ray tube segments each segment including:
means for generating electron beams,
a target substantially extending along a circular arc around the central axis and adapted to be scanned by the electron beams to emit X-rays toward the central axis, and
an airtight envelope receiving said electron beam generating means, said target having a metal member made of good heat conductive material and having an inner surface on which said target is supported and an outer surface,
said X-ray tube segments combinedly arranged along the circular arc and each metal member of an X-ray tube segment being coupled to the adjacent metal members of adjacent X-ray tube segments to provide a circular array of such metal members;



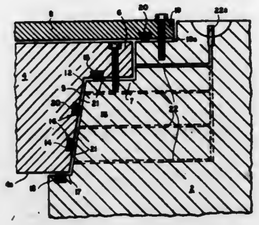
X-ray detecting means comprising a plurality of detector elements for detecting the X-ray beams transmitted through a central region including the central axis; and
means for cooling said target including a liquid-cooling jacket fitted to said metal members defining a coolant circulating path between the outer surface of the circular array of the metal members and the liquid-cooling jacket.

4,274,006
UNIVERSAL X-RAY FILM MARKER
Richard D. Caine, 13352 Sayre St., Sylmar, Calif. 91340
Filed Jan. 17, 1980, Ser. No. 112,947
Int. Cl.[3] G03B *41/16*
U.S. Cl. 250—476 8 Claims



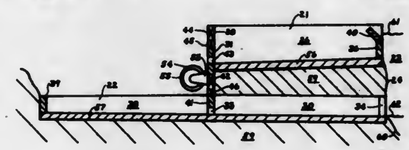
1. An X-ray film indentification plate of universal applicability including tomographic and other applications where there is a change in the angle of incidence of the X-rays on the film, comprising:
a plastic plate carrying letters which may be read from the front of said plate, said plate being substantially transparent;
recesses forming the outline of said letters extending into said plate from the rear of said plate, and recesses being wider at the rear surface of said plate and tapering to a substantially narrower width at the end of each said recess near the front of said plate;
lead powder mounted in said recesses;
means including a hardened binder material firmly securing said lead powder into letter form in said recesses; and
a thin plastic layer secured to and covering the back of said plate.

4,274,007
RADIATION-SHIELDING TRANSPORT AND STORAGE VESSEL
Henning Bantz, Essen, and Dieter Rittscher, Heiligenhaus, both of Fed. Rep. of Germany, assignors to GNS Gesellschaft für Nuklear-Service mbH, Essen, Fed. Rep. of Germany
Filed Feb. 8, 1980, Ser. No. 120,108
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1979, 2905094
Int. Cl.[3] G21F *5/00*
U.S. Cl. 250—506 7 Claims



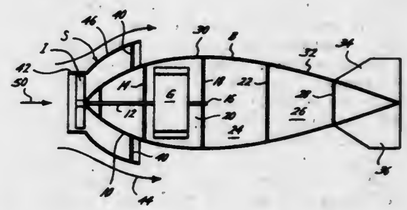
1. A radiation shielding transport and storage vessel comprising:
a cast metal upright receptacle having a wall surrounding a space adapted to receive radioactive material and a bottom unitary with said wall, said space opening at the top of said vessel in a recess;
a plug-type radiation-shielding cover received in said recess and complementarily fitting said space, whereby said recess and said cover have complementary and confronting surfaces;
a plurality of annular seals disposed between and bridging said surfaces so as to define at least one control compartment between;
means forming at least one passage accessible from outside the vessel and communicating with said control compartment for monitoring a control gas in said vessel; and
a safety cover overlying said plug cover and peripherally overhanging same while being recessed in said receptacle.

4,274,008
TIDE GENERATOR
Bruce D. Feltenberger, 404 W. 10th St., Erie, Pa. 16501
Filed Dec. 18, 1978, Ser. No. 970,640
Int. Cl.[3] F03B *13/12*
U.S. Cl. 290—42 9 Claims



1. A tidewater power system comprising a high tide water reservoir (21) and a low tide water reservoir (30) disposed below said high tide water reservoir,
said reservoirs being adapted to be disposed adjacent a body of water subject to tidal action wherein the level of said water changes periodically from high tide level to low tide level,
said high tide reservoir having an inlet gate adjacent said body of water and an outlet,
said low tide reservoir having a bottom disposed substantially at said low tide water level,
said outlet from said high tide reservoir being on the side of said high tide reservoir remote from said body of water,
said low tide reservoir being disposed to receive water discharged from said outlet gate from said high tide reservoir,
drain lines from said low tide reservoir for returning water from said low tide reservoir to said body of water at low tide,
and a water wheel supported on the side of said high tide reservoir and said low tide reservoir remote from said body of water between said high tide reservoir and said low tide reservoir in the path of water from said high tide reservoir to said low tide reservoir whereby water from said outlet gate acts on said wheel driving it to generate electricity.

4,274,009
SUBMERGED HYDROELECTRIC POWER GENERATION
George Parker, Sr., 3105 Brawner Pkwy., Corpus Christi, Tex. 78415
Continuation-in-part of Ser. No. 854,651, Nov. 25, 1977, abandoned. This application Nov. 9, 1978, Ser. No. 959,217
Int. Cl.[3] F03B *13/10*
U.S. Cl. 290—43 27 Claims

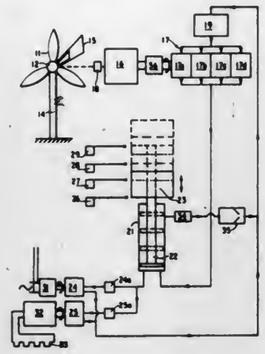


1. An apparatus for generating energy in response to the flow of fluid therepast while submerged in a body of water, comprising
a body member having a streamlined external configuration from a front end to a rear end thereof for ease of water flow therepast;
a rotatable energy converting device mounted in said body member for converting, when driven, energy of rotation into a second type of energy;
an impeller blade rotatably mounted with said front end of said body member for driving said energy converting device in response to flow of water therepast; and
an inlet shroud mounted with said front end of said body member and containing said impeller blade therein, said inlet shroud comprising
an inlet for conveying the water to said impeller blade; and
a guide shroud, overlapping said body member and having a terminal edge spaced from said body member, for diverting water flowing externally of the apparatus to an angle transverse the horizontal flow and discharging the externally flowing water along said terminal edge at a location spaced from said body member, the guide shroud comprising means for generating a nappe, exhibiting lower pressure than water surrounding said body member, bounded in part by said terminal edge and the exterior of said body member, the nappe communicating with the inlet shroud and reducing the water pressure within said shroud to cause flow of the water past said impeller blade.

4,274,010
ELECTRIC POWER GENERATION

Henry Lawson-Tancred, Boroughbridge, England, assignor to Sir Henry Lawson-Tancred, Sons & Co., Ltd., Yorkshire, England

Filed Nov. 29, 1977, Ser. No. 855,688
Claims priority, application United Kingdom, Mar. 10, 1977, 10085/77; Apr. 26, 1977, 17272/77
Int. Cl.³ F03D 9/02
U.S. Cl. 290—55 11 Claims

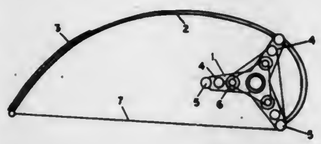


1. A method for generating electricity comprising:
(a) converting energy from a non-uniformly operating energy source into hydraulic energy,
(b) accumulating said hydraulic energy in a piston-in-cylinder arrangement acting against a constant load,
(c) measuring the amount of hydraulic medium in the cylinder by electrically determining the position of the piston,
(d) converting said hydraulic energy into kinetic energy in a hydraulic motor only when the amount of hydraulic medium in the cylinder, as measured by said electrically determining step, exceeds a predetermined value, and
(e) driving an electric generator by said hydraulic motor.

4,274,011
WIND TURBINE FOR MARINE PROPULSION

Marvin Garfinkle, 943 E. McPherson St., Philadelphia, Pa. 19150

Filed Mar. 14, 1980, Ser. No. 130,512
Int. Cl.³ B63H 13/00; F03D 9/00
U.S. Cl. 290—55 5 Claims

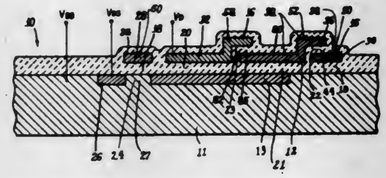


1. A wind turbine mechanically connected to electric generating means wherein the action of the wind upon said turbine causes rotation of said turbine about an essentially vertical mast thereby converting wind power to electric power for the propulsion motors of a screw-propelled ship comprised of a number of hubs rotatably mounted and equally spaced along the length of a vertical mast;
each of said hubs supporting radially disposed arms equally spaced about the circumference of said hubs;
said arms vertically alligned by torque tubes coaxial with said mast and situated between adjacent hubs and connected to them;
two horizontally disposed flexible yards vertically alligned with each other and sufficiently spaced apart to form a slot between them, said yards secured tangentially to the end of each of said arms;
all of each set of vertically alligned yards secured at their yardarms by a vertically disposed and circumferentially situated brace member;
each of said brace members secured by cables, said cables spaced in said slots and alligned by sheaves rotatably mounted upon each of said arms;
the free length of each of said cables controlled by a windlass rotatably mounted upon each of said arms;
and sail cloth secured to said yards, said sail cloth stretched between adjacent yards of said adjacent hubs.

4,274,012
SUBSTRATE COUPLED FLOATING GATE MEMORY CELL

Richard T. Simko, Los Altos, Calif., assignor to Xicor, Inc., Los Altos, Calif.

Filed Jan. 24, 1979, Ser. No. 6,030
Int. Cl.³ H03K 5/00; H01L 29/78, 27/02; G11C 11/34
U.S. Cl. 307—238.3 26 Claims



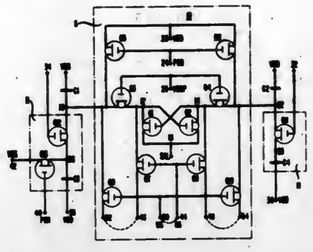
1. A nonvolatile electrically alterable semiconductor device comprising
a semiconductor layer of one conductivity type, an electrically isolatable bias electrode at the surface of said semiconductor layer, and of conductivity type opposite that of said substrate, an electrically isolated floating gate conductor overlying said bias electrode and in capacitive relationship therewith, a programming electrode adjacent said floating gate for introducing electrons to said floating gate, an erase/store electrode adjacent said floating gate for removing electrons from said floating gate upon the development of an electrical field between said floating gate and said erase/store electrode, said erase/store electrode overlying and being in capacitive relationship to said bias electrode, means for electrically isolating said bias electrode and for providing a predetermined electrical potential thereto, and means for sensing the electrical potential of said floating gate.

4,274,013
SENSE AMPLIFIER

Donald G. Clemons, Walnutport, and William R. Huber, III, Center Valley, both of Pa., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Feb. 9, 1979, Ser. No. 10,740
Int. Cl.³ G11C 7/00
U.S. Cl. 307—530 9 Claims

1. Circuitry comprising cross-coupled circuitry (Q1, Q2) having first (12) and second (14) inner terminals and first (18) and second (22) outer terminals and separate buffer means (Q3, Q4) serially connected between the first inner and outer terminals (12, 18) and between the second inner and outer terminals (14, 22), and read circuitry (Q7, Q8) and write circuitry (Q9, Q10), and characterized in that:



the read circuitry (Q7, Q8) is connected to the pair of inner terminals (14, 12) and the write circuitry (Q9, Q10) is connected to the pair of outer terminals (18, 22).

4,274,014
SWITCHED CURRENT SOURCE FOR CURRENT LIMITING COMPLEMENTARY SYMMETRY INVERTER

Otto H. Schade, Jr., N. Caldwell, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Dec. 1, 1978, Ser. No. 965,581
Int. Cl.³ H03K 17/60
U.S. Cl. 307—585 9 Claims

1. A switched current source for selectively supplying load means a predetermined level of output current in response to a first level of a binary-signal control voltage and for completely interrupting the supplying of output current responsive to a second level of control voltage, said switched current source comprising:
first and second and third transistors, of similar conductivity type, each having respective first and second electrodes that define the ends of its respective principal current conduction path and having respective third electrode, the potential between its first and third electrodes controlling the conduction of its principal current conduction path, said first and second transistors requiring voltages between their first and third electrodes that exceed substantially equal threshold values for conditioning each of them to conduct between its first and second electrodes;
a first terminal for receiving a first operating potential to which the first electrodes of said first and third transistors connect without substantial intervening impedance;
a second terminal for receiving said control voltage at the third electrode of said third transistor, a first level of said control voltage conditioning said third transistor for conduction between its first and second electrodes and a second level of said control voltage conditioning said third transistor for non-conduction between its first and second electrodes;
a third terminal connecting to said load means for conducting said output current, to which third terminal the second electrode of said second transistor connects; and
means connecting said first and second transistors for functioning as a current mirror amplifier whenever said third transistor conducts between its first and second electrodes, to constrain said output current to a prescribed level proportional to a first bias current, that means additionally including
a connection without substantial intervening impedance between the first electrode of said second transistor and the second electrode of said third transistor,
means for supplying said first bias current to a first node to which the second electrode of said first transistor connects, and
means direct coupling said first node to an interconnection between the third electrodes of said first and second transistor for completing a direct coupled feedback loop that conditions said first transistor to conduct substantially all of said first bias current through its principal current conduction path.

4,274,015
SELF-RESETTING JOSEPHSON DIGITAL CURRENT AMPLIFIER

Sadeg M. Faris, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,652
Int. Cl.³ H03K 5/02, 3/38
U.S. Cl. 307—264 27 Claims

1. A digital current amplifier comprising:
a current source which provides a given current magnitude,
a first superconducting switchable device connected to said current source,
a load circuit, and,
inductive means interconnecting said current source and said load circuit for applying a current magnitude greater than said given current magnitude to said load circuit, said inductive means including a first resistance and an inductance disposed in series with each other and connected in parallel with said first device, a second superconducting switchable device connected in parallel with said load circuit, a second resistance disposed in series with said second device, the latter and said second resistance being connected in parallel with said inductance.

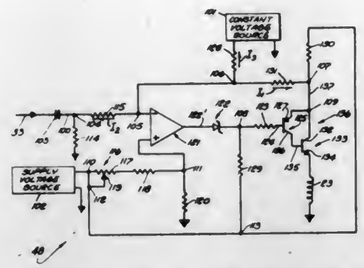
4,274,016
VOLTAGE-TO-CURRENT CONVERTER

Iraj Ghahramani, Los Angeles, Calif., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Feb. 7, 1979, Ser. No. 10,021
Int. Cl.³ H03K 3/01
U.S. Cl. 307—270 25 Claims

1. A voltage-to-current converter comprising a differential amplifier having an inverting input, a non-inverting input and an output lead for carrying an output signal, an input voltage source having an output voltage including an A.C. component; an unregulated supply voltage source; a regulated supply voltage source; an output voltage junction; first means connected from said unregulated source to said non-inverting input to maintain it at an approximately predetermined potential; a first resistor connected from said input source to said inverting input; a second resistor connected from said regulated source

to said inverting input; a feedback resistor connected from said output junction to said inverting input; a third resistor connected from said unregulated source to said output junction; an inductive winding having a grounded end and an end opposite said grounded end; a controllable current path between said output junction and said inductive winding opposite end; and



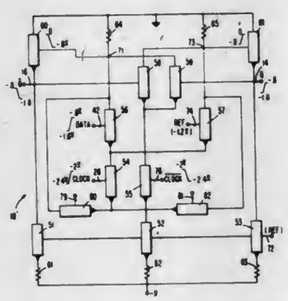
second means connected from said differential amplifier output lead to control said current path in a manner to cause said inverting input to be driven effectively to the same potential as said noninverting input potential and to cause a current to flow in said inductive winding, said current having an A.C. component directly proportional to the A.C. component of the output voltage of said input voltage source.

4,274,017

CASCODE POLARITY HOLD LATCH HAVING INTEGRATED SET/RESET CAPABILITY

Eric L. Carter, Endicott, and Eugene J. Nosowicz, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,426
Int. Cl.³ H03K *3/29*
U.S. Cl. 307—289 **1 Claim**



1. In a polarity hold latch circuit having a plurality of semiconductor switching devices interconnected to provide a bistable circuit and including, a first semiconductor switching device coupled to such bistable circuit and having an input terminal for receiving a binary data signal, a second semiconductor switching device coupled in circuit with the first semiconductor switching device and having an input terminal for receiving a clock signal to assist in enabling the binary level of the data signal supplied to the first device to determine the state of the bistable circuit and a third semiconductor switching device for supplying a reference voltage source under predetermined input conditions also coupled in the bistable circuit through its output between said first and second devices to assist in enabling, upon receipt of a clock signal by the second device, a change in the state of the bistable circuit, the improvement comprising:

a fourth semiconductor switching device coupled across the first and second device and having an input terminal for receiving a set signal and in response thereto overriding the actions of any signals received by the first and second devices and forcing the bistable circuit to a set state; and

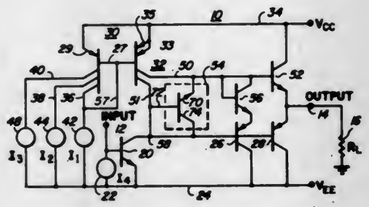
a fifth semiconductor switching device coupled across the second and third devices and having an input terminal for receiving a reset signal and in response thereto overriding the actions of any signals received by the first and second devices and forcing the bistable circuit to a reset state.

4,274,018

SATURATION LIMITED BIAS CIRCUIT FOR COMPLEMENTARY TRANSISTORS

David L. Cave, and Robert B. Davies, both of Tempe, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 2, 1979, Ser. No. 60
Int. Cl.³ H03K *19/003, 19/082*
U.S. Cl. 307—300 **7 Claims**



1. A circuit for limiting the saturation of a multiple collector transistor of a first conductivity type having at least first and second collector electrodes, including in combination:

driver circuit means having an output terminal thereof connected to the first collector electrode of the multiple collector transistor, said driver circuit means tending to allow the first collector-to-base junction of the multiple collector transistor to forward bias thereby forcing said multiple collector transistor into a high degree of saturation;

output transistor means having a control electrode connected to the second collector electrode of the multiple collector transistor; and

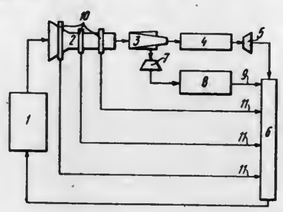
clamp transistor means of the second conductivity type having a control electrode connected to the first collector electrode, a first main electrode connected to said output terminal of said driver circuit means, and a second main electrode connected to the second collector electrode and to said control electrode of said output transistor means, said clamp transistor means being rendered conductive in response to the potential at the output terminal of the driver circuit means approaching the saturation level of the first collector-to-base junction of the multiple collector transistor so that at least part of the current otherwise provided through the first collector-to-base junction of the multiple collector transistor is provided to said control electrode of said output transistor means.

4,274,019

LIQUID-METAL MAGNETOHYDRODYNAMIC CONVERTER

Ivan T. Aladiev, ulitsa Marshala Birjuzova, 43, kv. 21, Moscow; Vazha A. Dzhanardzhashvili, ulitsa Guramishvili, 17, kv. 61; Manana A. Dikhashidze, ulitsa Bakhtrionskaya, 1 korpus, kv. 21, both of, Tbilisi; Sergei V. Teplov, Leninsky prospekt, 52, kv. 54, Moscow, and David G. Tskhvirashvili, ulitsa Kipshidze, 6, kv. 14, Tbilisi, all of U.S.S.R.

Filed Jul. 12, 1979, Ser. No. 56,844
Claims priority, application U.S.S.R., Jul. 14, 1978, 2645231
Int. Cl.³ H02K *45/00*
U.S. Cl. 310—11 **2 Claims**



1. A liquid-metal magnetohydrodynamic converter comprising:

a heat source having an inlet and an outlet;

a two-phase nozzle having an inlet and an outlet and hydraulically connected via said inlet thereof to said outlet of said heat source;

steam-bleeding units of said two-phase nozzle located in different sections of said two-phase nozzle over its length, each having individual outlets;

a separator having an inlet, a first outlet and a second outlet and hydraulically connected via said inlet thereof to said outlet of said two-phase nozzle;

a magnetohydrodynamic generator having an inlet and an outlet and hydraulically connected via said inlet thereof to said first outlet of said separator;

a liquid diffuser having an inlet and an outlet and hydraulically connected via said inlet thereof to said outlet of said magnetohydrodynamic generator;

a cyclic heat-regenerating means having an inlet, a group of steam inlets to suit the number of said steam-bleeding units and an outlet and hydraulically connected via said inlet thereof to said outlet of said liquid diffuser, via said steam inlets to said outlets of said steam-bleeding units and via said outlet to said inlet of said heat source;

a steam diffuser having an inlet and an outlet and hydraulically connected via said inlet thereof to said second outlet of said separator;

a condenser having an inlet and an outlet and hydraulically connected via said inlet thereof to said outlet of said steam diffuser and via said outlet to said inlet of said heat-regenerating means.

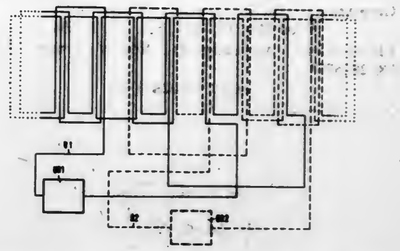
4,274,020

SYNCHRONOUS LINEAR MOTOR

Claus P. Parsch, Forchheim, and John P. Gibson, Fürth-Vach, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 26, 1979, Ser. No. 79,101
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2842099
Int. Cl.³ H02K *41/02*
U.S. Cl. 310—13 **1 Claim**

1. In a synchronous linear motor, especially a long stator motor, the excitation device of which is designed as a moving translator and is arranged on a track-bound vehicle, having a traveling field winding divided into switching sections which are installed in meander fashion along the line and supplied from respective stationary controlled static converters, the current carrying rails of the traveling field winding being designed as conductor ribbons with several individual conductors, the improvement comprising, at a change of switching sections, the individual conductors of the conductor ribbons



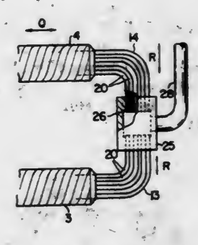
being sequentially interchanged in such a manner that, at intervals which correspond to an integral multiple of a pole pitch division, successive individual conductors of the one switching section are brought out and individual conductors of the next switching section looped in.

4,274,021

LIQUID COOLED STATOR WINDING FOR A ROTARY ELECTRIC MACHINE HAVING REDUCED THERMAL ELONGATION STRESSES

Hiroyuki Kamiya; Seiji Watanabe; Masatosi Taniguchi; Tomokichi Okawara; Fumitake Aki, all of Hitachi, and Yasuyuki Wachi, Takahagi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 775,747, Mar. 9, 1977, abandoned. This application Mar. 8, 1979, Ser. No. 18,526
Claims priority, application Japan, Mar. 12, 1976, 51-26152
Int. Cl.³ H02K *9/00*
U.S. Cl. 310—54 **3 Claims**

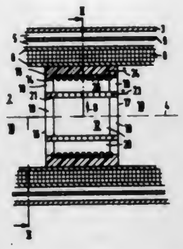


1. A liquid cooled stator winding of a rotary electric machine comprising an upper and a lower stator bar each composed of a plurality of hollow conductive elements, said bars being disposed partly within a slot of a stator core and extending outwardly from the stator core in a generally axial direction thereof, and a liquid coolant header coupled to a coolant pipe for supplying a cooling liquid to the header, said headeh being fixedly mounted on the ends of said stator bars by heat welding for directly cooling the conductive elements by circulating liquid coolant through the hollow passages of the conductive elements, wherein said stator bars are bent at their end portions to enter said header in a direction generally radial with respect to the axis of the rotary electric machine so as to oppose each other at their ends, and said header is interconnected between the opposed ends of said stator bars, wherein said liquid coolant header comprises a sleeve having a pair of counterbores at its opposite ends with the hollow conductive elements constituting each of said bars being secured, at their end portions, into a respective one of said counterbores of the header.

4,274,022
EVACUATING DEVICE FOR GENERATING AN INSULATING VACUUM AROUND THE SUPERCONDUCTING WINDING OF A ROTOR

Werner Elsel, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed May 16, 1979, Ser. No. 39,654
Claims priority, application Fed. Rep. of Germany, Jun. 16, 1978, 2826501
Int. Cl.³ H02K 9/00
U.S. Cl. 310—62 6 Claims

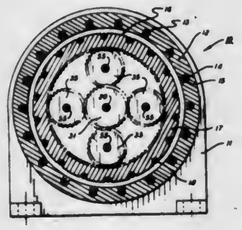


1. In an evacuating device for generating an insulating vacuum around the superconducting winding of the rotor of an electric machine with an inner space which is defined at its inner circumference by a support cylinder and is surrounded by the winding and is permeated by the magnetic field of the winding, comprising at least one ion getter pump operating according to the sputter principle, disposed in the inner space coupled to the support cylinder so as to co-rotate with the rotor, said pump having at least one anode electrode and at least a cathode electrode arranged at least approximately perpendicular with respect to the magnetic field in said space.

4,274,023
COMPACT VARIABLE SPEED DRIVE FOR ELECTRIC MOTOR

Donald F. Lamprey, 114 Glenwood Dr., Liverpool, N.Y. 13088

Filed May 10, 1979, Ser. No. 37,682
Int. Cl.³ H02K 7/10
U.S. Cl. 310—83 4 Claims

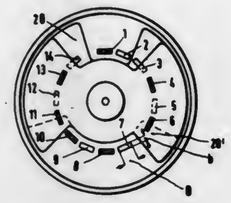


1. An electric motor having stationary stator windings secured to the motor casing and rotor windings supported within the stator windings for rotation about the axis of the motor, the motor further including
- an internal ring gear formed as an integeral part of the rotor windings whereby the ring gear turns with said rotor windings,
- a main drive shaft rotatably supported within the casing along the axis of the motor,
- a sun gear secured to the main shaft for rotation therewith within the ring gear, and
- a planetary gear cluster mounted in meshing engagement with the sun gear and the ring gear whereby the shaft is driven directly through the gears by the rotor windings.

4,274,024
SELF-STARTING SYNCHRONOUS MOTOR WITH DEFINED DIRECTION OF ROTATION

Detlef Gottschalk, Berlin, Fed. Rep. of Germany, assignor to Schleicher GmbH & Co. Relais-Werke KG, Berlin, Fed. Rep. of Germany

Filed Mar. 29, 1979, Ser. No. 24,993
Claims priority, application Fed. Rep. of Germany, Jul. 5, 1978, 2829946
Int. Cl.³ H02K 21/12
U.S. Cl. 310—162 4 Claims



1. A self-starting synchronous motor having a defined direction of rotation, a permanent magnetic rotor and a claw-pole type stator, said synchronous motor comprising:
- an operating winding having a plurality of poles with several poles being combined to form main pole groups and auxiliary pole groups, said auxiliary pole groups being loaded with short-circuiting discs;
- said synchronous motor having a defined direction of rotation which is not preset by means of a directional blockage;
- said poles being located on a circular ring and disposed so as to protrude from oppositely located frontal sides of said stator; and
- said poles being combined to form two main pole groups and two auxiliary pole groups in which the total number of main poles is smaller than the total number of auxiliary poles, an equal number of main poles protrude from each of both of said frontal sides of said stator and an equal number of auxiliary poles protrude from each of both of said frontal sides of said stator.

4,274,025
POLYESTER FILMS CONTAINING SUBSTANTIALLY SPHERICAL PARTICLES USEFUL AS SLOT LINERS

Mohanlal S. Nerurkar, Welwyn Garden City, and Peter G. Knowles, Luton, both of England, assignors to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 781,870, Mar. 28, 1977, abandoned. This application Apr. 6, 1979, Ser. No. 27,841
Claims priority, application United Kingdom, Apr. 29, 1976, 17489/76
Int. Cl.³ C08K 3/36; H02K 3/34
U.S. Cl. 310—215 9 Claims

1. A slot liner or slot closure for an electrical machine produced from a film or sheet of a linear polyester which contains particles of an inert inorganic material present in an amount ranging from 0.2 to 0.9% by weight based on the weight of the linear polyester, said particles having a substantially spherical shape and a nominal particle size ranging from 3 to 10 μm and a hardness measured on the moh scale ranging from 2.5 to 7, said slot liner or slot closure having a static coefficient of friction in the range 0.30 to 0.38 and a kinetic coefficient of friction in the range of 0.27 to 0.36.

9. A process for the production of a slot liner or slot closure for an electrical machine in which the slot liner or slot closure is cut and shaped from a film or sheet of a linear polyester which contains particles of an inert inorganic material present in an amount ranging from 0.2 to 0.9% by weight based on the weight of the linear polyester, said particles having a substantially spherical shape and a nominal particle size ranging from 3 to 10 μm and a hardness measured on the moh scale ranging from 2.5 to 7.

4,274,026
ELECTRIC ROTATING MACHINE

Arthur W. Haydon, Middlebury, and John J. Dean, Oxford, both of Conn., assignors to Tri-Tech, Inc., Waterbury, Conn.

Continuation-in-part of Ser. No. 864,395, Dec. 27, 1977. This application Nov. 9, 1978, Ser. No. 959,010
Int. Cl.³ H02K 1/14
U.S. Cl. 310—254 11 Claims



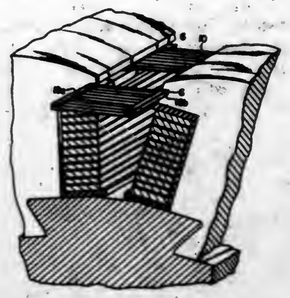
1. An electric rotating machine comprising, in combination:
- a thin cylindrical rotor having a pair of rotor poles;
- a stator pole piece assembly having first and second sets of salient stator poles respectively cooperating with different portions of the rotor, there being not more than two salient stator poles in each of said sets and the stator poles in the respective sets being angularly spaced apart by approximately ninety electrical degrees with at least one of said stator poles subtending an angle of at least about one hundred and twenty mechanical degrees with respect to the axis of said rotor, each of said stator poles being in magnetic flux relationship with said pair of rotor poles;
- first and second field coils for supplying magnetic flux to the respective sets of salient stator poles; and
- means for applying current to the first and second field coils to produce a magnetic flux field in each of said sets of stator poles.

4,274,027
SALIENT POLE ROTOR WITH SHIELDING RODS BETWEEN ADJACENT POLES

Shigeo Higuchi, Hitachi-shi; Tsutomu Iwasaki, Mito; Koji Sato, Hitachi; Yukio Hirama, Hitachi; Masatoshi Watanabe, Hitachi; Yasuyuki Washi, Takahagi, and Yasuhiro Yasuka, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 20, 1979, Ser. No. 77,734
Claims priority, application Japan, Sep. 20, 1978, 53-114556
Int. Cl.³ H02K 1/24
U.S. Cl. 310—269 14 Claims

1. A rotor for electric rotating machine comprising; a rotor rim, a plurality of salient poles mounted around said rotor rim, each of said salient poles including a field core secured to said rotor rim and a field coil wound around the core, and a plurality of shielding rod assemblies mounted between every adjacent two of said field cores so as to provide said rotor with a substantially cylindrical configuration each of said rod assemblies comprising a plurality of rod members extending transversely and closely side by side between the associated adjacent two field cores and fixed at their respective opposing ends

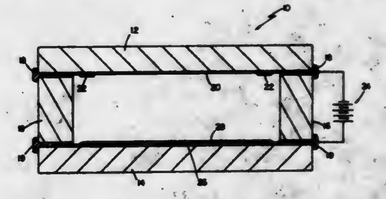


into slots formed in respective opposing sides of said adjacent two field cores.

4,274,028
ULTRAVIOLET LIGHT GENERATION

Norman J. Frame, Milwaukee, Wis., assignor to W. H. Brady Company, Milwaukee, Wis.

Continuation of Ser. No. 948,978, Oct. 5, 1978, abandoned. This application Aug. 13, 1979, Ser. No. 66,059
Int. Cl.³ H01J 63/06, 40/06, 31/50
U.S. Cl. 313—101 15 Claims



1. Apparatus for generating high intensity ultraviolet light, comprising
- an input substrate,
- an electron-emitting cathode layer on said input substrate,
- an output window,
- a cathodoluminescent anode layer on said output window, said layer comprising phosphor luminescent in substantially only the ultraviolet spectrum,
- an evacuated region separating said cathode and anode layers, and
- a D.C. voltage source connected across said layers for generating a longitudinal electric field,
- whereby electrons emitted by said cathode layer are accelerated by the electric field through said evacuated region and impinge on said cathodoluminescent layer causing a substantially pure, high-intensity ultraviolet light output through said output window.

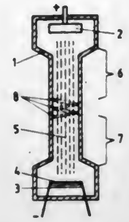
4,274,029
GAS DISCHARGE DEVICE WITH METAL OXIDE CARRIER IN DISCHARGE PATH

Charley Buxbaum, Baden, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Apr. 6, 1979, Ser. No. 27,734
Claims priority, application Switzerland, Apr. 28, 1978, 4628/78
Int. Cl.³ H01J 61/10, 61/26, 61/30
U.S. Cl. 313—204 14 Claims

1. A gas discharge device containing oxide wall portions,

which device is used as a radiation source and the oxide wall portions of which are permeable to radiation of a wavelength of from 10 to 1,000 nm and which has an anode and an oxide or sub-oxide activated cathode, and which device further contains located therein a metallic carrier bearing an additional metal oxide extending into the discharge path between the anode and the oxide or sub-oxide activated cathode, on the side of the device immediately adjacent to the cathode, between the



cathode and the oxide wall portions, wherein said additional metal oxide has a free enthalpy ΔG, under the pressure and temperature conditions prevailing in the device, which is both greater than the free enthalpy of the oxides from which the oxide wall portions of the device are constructed and is greater than the free enthalpy of the cathode activating oxide or sub-oxide and wherein the metallic carrier is insulated from the other parts of the device and is at a floating potential.

4,274,030

THERMIONIC CATHODE

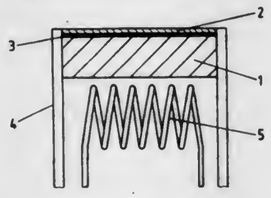
Charley Buxbaum, Baden, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Apr. 3, 1979, Ser. No. 26,649

Claims priority, application Switzerland, May 5, 1978, 4890/78

Int. Cl.³ H01J *1/14, 19/06;* H01K *1/14*

U.S. Cl. 313—346 R **9 Claims**



1. A thermionic dispenser cathode comprising:

a high-melting point metal support comprising an activator substance in the form of an oxide of a metal of group IIIb and a reducing agent in the form of a carbide of the metal support;

a layer of diffusion promoting additive for promoting diffusion of the activator substance; and

a layer of material on said metal support beneath the diffusion promoting layer for inhibiting self-diffusion of the diffusion-promoting additive inwards away from the active cathode surface.

4,274,031

COLOR TUBE HAVING SHIELD CORRECTING FOR TERRESTRIAL MAGNETISM

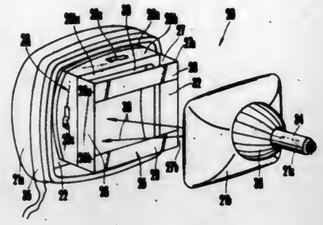
Yuji Saito, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Japan

Filed Feb. 12, 1979, Ser. No. 11,633

Claims priority, application Japan, Feb. 17, 1978, 63-17805

Int. Cl.³ H01J *29/06, 29/07, 29/81*

U.S. Cl. 313—407 **3 Claims**



1. A color picture tube comprising:

an envelope including an end panel having a plurality of stripe-shaped phosphors thereon forming a fluorescent viewing screen, a funnel portion and a neck portion;

a shadow mask assembly disposed in the enlarged end of said funnel portion at a predetermined distance from said end panel, said shadow mask assembly including a rectangular supporting frame and a shadow mask supported thereby on the side thereof facing said end panel, said rectangular supporting frame comprising a pair of vertically extending short sides and a pair of horizontally extending long sides, said frame being open on the side thereof away from the end panel;

a demagnetizing coil surrounding the enlarged end of said funnel portion in the vicinity of said shadow mask assembly;

a terrestrial magnetism correcting assembly comprising a pair of terrestrial magnetism correcting vertical side plates having the planar surfaces thereof substantially at right angles to the plane of the end panel, said vertical side plates being disposed adjacent respective short sides of the rectantular supporting frame and being of substantially the same length, and a pair of horizontal side plates extending in the direction of the long sides of said rectantular supporting frame and having the planar surfaces thereof substantially perpendicular to the vertical side plates and parallel to the end panel, said horizontal side plates being disposed at the top and the bottom ends of said terrestrial magnetism correcting vertical side plates on the sides thereof away from said end panel to thereby form open spaces between said pair of horizontal side plates and said pair of horizontally extending long sides of said supporting frame for the shadow mask assembly to reduce magnetic coupling between said demagnetizing coil and the terrestrial magnetism correcting assembly and to improve the flow of thermal convection currents away from said shadow mask assembly; and

an electron gun assembly contained in said neck portion for producing an electron beam that is projected through said funnel portion, the terrestrial magnetism correcting assembly and the shadow mask assembly to selectively impinge on the stripe-shaped phosphors formed on said end panel.

4,274,032

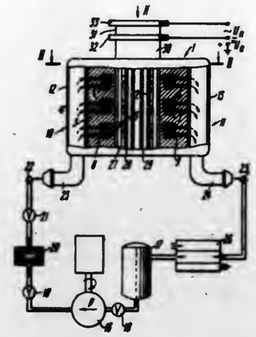
HIGH POWER LIQUID COOLED DOUBLE STRAPPED VANE TYPE MAGETRON

Jury I. Dodonov, Profsojuznaya ulitsa, 93, korpus 2, kv. 384, Moscow, and Valentina F. Obidina, poselok Moserntgen, 6, kv. 35., Moskovskaya oblast, both of U.S.S.R.

Filed Jul. 6, 1979, Ser. No. 55,441

Int. Cl.³ H01J *25/50*

U.S. Cl. 315—39.51 **2 Claims**



1. A high power liquid cooled double strapped vane type magnetron, comprising:

a generally cylindrical anode block having a plurality of circumferentially disposed evacuated resonator cavities therein, with vanes separating adjacent cavities;

first and second hollow ring-like electrically conductive straps comprising strapping tubes traversing said cavities and electrically interconnecting alternate ones of said vanes, to form a first set of alternate vanes having like polarity at the π-mode of electromagnetic oscillation of said magnetron and a second set of alternate vanes having a given different polarity at said mode of oscillation;

said vanes having windows through which said straps extend, with each strap being thermally and electrically connected to the vanes of the corresponding set;

said vanes having a generally radial orientation, with a number of radially extending coolant flow channels corresponding to the number of said strapping tubes in at least two vanes of each set for communicating a coolant fluid into and out of the interior of the corresponding strap; and

means for exciting and sustaining said electromagnetic oscillation.

4,274,033

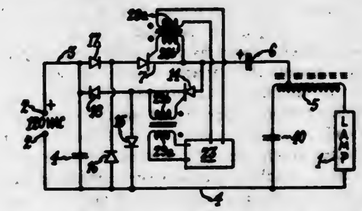
HIGH-FREQUENCY LAMP OPERATING CIRCUIT

Joe A. Nuckolls, Hendersonville, N.C., assignor to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 350,520, Apr. 12, 1973, abandoned. This application Jun. 18, 1979, Ser. No. 49,193

Int. Cl.³ H05B *37/02, 39/04, 41/36*

U.S. Cl. 315—209 R **12 Claims**



1. A high frequency starting, operating and automatic control circuit comprising, in combination, a source of current, a load connected to said source of current, impedance means connected between said load and said source of current in series therewith, first controlled semiconductor switching means connected between said source of current and said impedance means in series therewith, second controlled semiconductor switching means connected in parallel with said series-connected impedance means and said load, unidirectional current means in series with each of said controlled semiconductor switching means for directing energy pulses to said load and blocking normal source current flow, and control means including triggering means connected to said first and second controlled semiconductor switching means for alternate actuation thereof, whereby the alternate energizing of said first and second controlled semiconductor switching means applies high frequency energy pulses to said load for starting, operating and controlling the same.

4,274,034

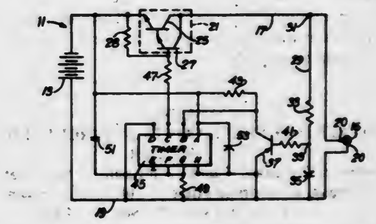
GLOW PLUG DRIVER

Charles W. Conklin, Huntington Beach, Calif., assignor to C&D Enterprises, Huntington Beach, Calif.

Filed Oct. 15, 1979, Ser. No. 84,652

Int. Cl.³ H05B *37/00, 39/00, 41/14*

U.S. Cl. 315—240 **11 Claims**



1. A glow plug driver adapted to be coupled to a power supply and a glow plug wherein the glow plug is adapted to be placed in a fuel-air mixture where the temperature and resistance of the glow plug can vary, said glow plug driver comprising:

first and second conductive leads for coupling the glow plug to the power supply;

electronic switch means coupled to at least one of said leads and having conductive and nonconductive states whereby pulses of electrical energy can be supplied to the glow plug from the power supply when the glow plug is coupled to said leads and said electronic switch means is in said conductive state;

a conductive path coupled to the first lead to form a junction at which the voltage varies with the resistance of the glow plug when the glow plug is coupled to the first lead;

a resistor and a capacitor in said conductive path so that the capacitor can charge when the electronic switch means is in said conductive state at a rate which is a function of the voltage at said junction and discharge through said resistor when said electronic switch means is in said nonconductive state; and

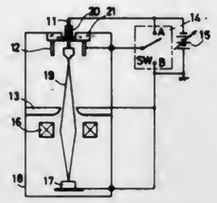
control means responsive to said capacitor discharging to a predetermined level to place the electronic switch means in said conductive state, said control means including means for placing said electronic switch means in said nonconductive state whereby when the glow plug is coupled to said leads the time between the pulses supplied to the glow plug varies with the resistance of the glow plug.

4,274,035

FIELD EMISSION ELECTRON GUN

Satoru Fukuhara, Kokubunji; Hideo Todokoro, Tokyo, and Yoshio Sakitani, Saitama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 11, 1979, Ser. No. 56,527
Claims priority, application Japan, Jul. 21, 1978, 53-88407
Int. Cl.³ G21K 7/00
U.S. Cl. 315—357 9 Claims



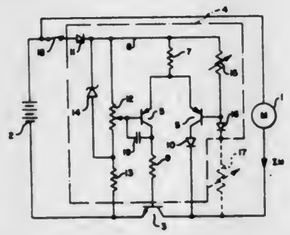
1. A field emission electron gun comprising a cathode, a control electrode disposed in the vicinity of said cathode, and anode disposed along a beam path extending from said cathode for accelerating electrons emitted from said cathode, a variable D.C. voltage source connected between said cathode and said anode, switch means connected between said voltage source and said control electrode for changing-over the potential of said control electrode between ground potential and the potential of said cathode, and means for varying the position of said cathode relative to said control electrode said anode being fixed in position relative to one of said cathode and said control electrode at a position downstream of said control electrode along said beam path.

4,274,036

ROTATIONAL SPEED CONTROL CIRCUIT FOR A D.C. MOTOR

Yoshinori Fukasaku, Hitachi, and Kunihiro Noto, Katsuta, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 4,881
Claims priority, application Japan, Feb. 3, 1978, 53-10504
Int. Cl.³ H02P 5/16
U.S. Cl. 318—331 10 Claims



1. A rotational speed control circuit for a D.C. motor comprising:

(a) a power transistor having a base, emitter and collector with its emitter-collector path connected in series with the D.C. motor and a D.C. power supply with the emitter being connected to said D.C. power supply and the collector being connected to said D.C. motor, said power transistor being controllable in response to a control signal applied to the base thereof;

(b) a differential amplifier including first and second transistors each having a base, emitter and collector, the emitters of said first and second transistors being coupled with each other, the collector of said first transistor being connected to the base of said power transistor and the collector of said second transistor being connected to the collector of said power transistor;

(c) a first divider circuit for dividing a voltage of said D.C. power supply to apply to the base of said first transistor, said divider circuit including means for stabilizing the base voltage of said first transistor without regard to a change in voltage across the D.C. motor; and

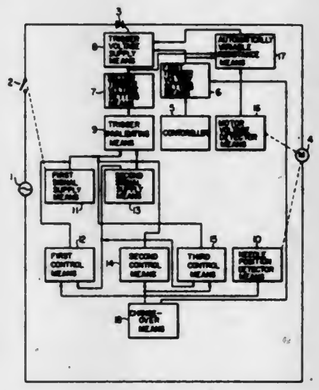
(d) a second divider circuit for dividing the voltage across said D.C. motor to apply to the base of said second transistor.

4,274,037

MOTOR SPEED CONTROL SYSTEM

Katsuji Soeda, Sukagawa, Japan, assignor to Yamamoto Electric Industrial Co., Ltd., Sukagawa, Japan

Filed Jun. 14, 1979, Ser. No. 48,369
Claims priority, application Japan, Jun. 16, 1978, 53-72962; Aug. 25, 1978, 53-103634
Int. Cl.³ H02P 5/16, 3/08
U.S. Cl. 318—331 13 Claims



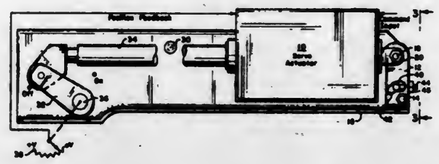
1. A speed control system for a motor comprising: a main motor circuit for supplying a motor current to the motor from an AC power supply through a main switch, a full-wave rectifier circuit and a semiconductor element with a control electrode; a variable voltage setting means connected to said full-wave rectifier circuit; a charge-discharge element impressed with a voltage set by said variable voltage setting means connected therewith; a trigger voltage supply element connected to said charge-discharge element, said trigger voltage supply element applying and releasing the charge in said charge-discharge element to said control electrode of said semiconductor element as a trigger voltage when the charge voltage of said charge-discharge element reaches a predetermined value; detector means for detecting the electromotive force of said motor, said detector means having a predetermined time constant; and automatically variable resistance means connected to said charge-discharge element and to said detector means, wherein the resistance value of said variable resistance means automatically varies in response to said motor electromotive force detected by said electromotive force detector means, said automatically variable resistance means controlling the charging current to said charge-discharge element in accordance with the resistance value thereof, the conduction phase of said semiconductor element being retarded with an increase in the motor electromotive force and advanced with a decrease in the electromotive force.

4,274,038

ELECTRICAL SERVO ACTUATOR BRACKET

Ralph V. Sawyer, Lancaster, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 28, 1980, Ser. No. 135,056
Int. Cl.³ G05B 1/06
U.S. Cl. 318—663 3 Claims



1. In a bracket for mounting a linear servo actuator having a control rod which extends to rotate a crank arm through a limited angle in a direction to move an element to be controlled to an extreme position when the control rod is extended to its full control position in response to a zero input signal, said servo actuator having a position feedback potentiometer for cancelling the input signal, the combination comprising

a fixed mounting bracket,

a support arm,

means for pivotally supporting said support arm at a first fixed point on said bracket,

means for pivotally supporting said crank arm at a second fixed point on said bracket displaced from said first fixed point, said crank arm being pivotally connected to the end of said control rod remote from said actuator,

a slot in said fixed mounting bracket,

means for pivotally connecting said servo actuator to said support arm at the end thereof remote from said first fixed point, said means having a rigid extension protruding through said slot in said fixed mounting bracket,

a coil spring connected between said extension through said slot and a fixed point between said first and second points, whereby said actuator and control rod are biased to move to said extreme position when said control rod is fully extended, and

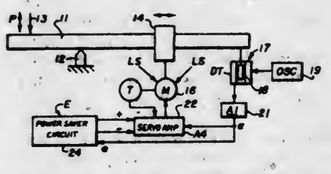
limit means for limiting the extent of movement of said support arm under the force of said spring in a direction to rotate said crank arm to an extreme position when said control rod is fully extended.

4,274,039

SERVO-AMPLIFIER CIRCUIT

Gene Glassey, San Diego, and Aldan D. Gomez, El Cajon, both of Calif., assignors to Fluid Data Systems, San Diego, Calif.

Filed Feb. 25, 1980, Ser. No. 124,623
Int. Cl.³ G05B 11/01
U.S. Cl. 318—678 8 Claims



1. In a servo circuit of the type having a transducer, a differential amplifier for said transducer, a second amplifier, sources of + and − DC power for said second amplifier, the voltage output of said first amplifier controlling said second amplifier and a servo motor driven from said second amplifier, the improvement which comprises:

a first resistor connected to the voltage output of said first amplifier and to a summing point,

a non-linear gain characteristic third amplifier connected to the voltage output of said first amplifier,

a second resistor of one-half the value of said first resistor connected to the output of said third amplifier and to said summing point,

a source of reference currents connected to said summing point,

a fourth amplifier receiving all of the signals at said summing point,

off-on first switch means connected to said fourth amplifier operable only the voltage output of said fourth amplifier exceeds a pre-selected threshold level,

a second switch between said source of + DC current and said second amplifier, and

a third switch between said source of − DC current and said second amplifier,

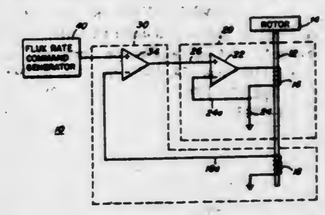
said first switch being arranged to open both said second and said third switches only when said first switch is operable.

4,274,040

SOLENOID TORQUER SYSTEM

Leo Spiegel, Sharon, Mass., assignor to Northrop Corporation, Los Angeles, Calif.

Filed Oct. 29, 1979, Ser. No. 89,554
Int. Cl.³ G05B 17/00
U.S. Cl. 318—689 11 Claims



1. A solenoid torquer system including a torquer coil and associated core, said core having a B-H hysteresis characteristic including a first peak value $+\phi_{M1}$, a second peak value $-\phi_{M2}$, a first residue value $-\Delta_1$ and a second residue value $+\Delta_2$, where ϕ_{M1}, ϕ_{M2}, Δ_1 and Δ_2 are greater than zero, Δ_1 is less than ϕ_{M1} and Δ_2 is less than ϕ_{M2}, means for generating a coil current signal representative of the current in said coil, means for generating a coil drive signal proportional to the difference between an applied coil current command signal and said coil current signal, means for applying said coil drive signal to said coil, wherein the improvement comprises:

means for generating a flux rate signal representative of the rate of change of flux in said coil, and

means for generating said coil current command signal, said coil current command signal being proportional to the difference between said flux rate signal and an applied flux rate command signal.

4,274,041

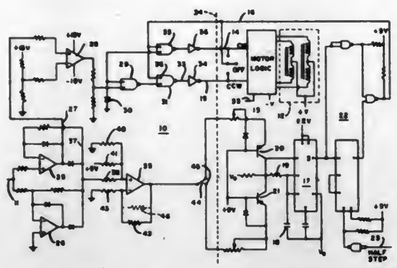
VOLTAGE COMMANDED STEPPING MOTOR CONTROL CIRCUIT

Edward F. Mosel, Bristol, Conn., assignor to The Superior Electric Company, Bristol, Conn.

Filed Jul. 13, 1978, Ser. No. 924,265
Int. Cl.² H02K 37/00
U.S. Cl. 318—696 6 Claims

1. A voltage commanded stepping motor control circuit for having the value of a command voltage control the direction and rate of movement produced by a stepping motor in which each pulse received is translated into a step comprising fermi-nal means connected to receive the command voltage with the voltage having a value within a range that includes a neutral

voltage, direction means connected to the terminal means for providing a signal indicative of the direction of the command voltage from the neutral value, oscillator means for producing pulses in accordance with the value of a received electrical signal, means for producing an electrical signal to the oscillator



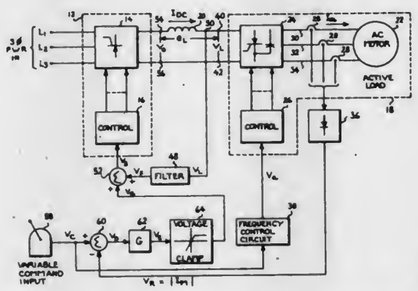
means that is related to the absolute value of the command voltage and motor logic means for receiving the pulses and the direction signal and directing the motor to produce a step in the direction dictated by the direction signal for at least every other pulse.

4,274,042

AC MOTOR DRIVE SYSTEM HAVING CLAMPED COMMAND ERROR SIGNAL

Loren H. Walker, Salem, and John H. Cutler, Roanoke, both of Va., assignors to General Electric Company, Salem, Va.

Filed Apr. 24, 1979, Ser. No. 32,893
Int. Cl.³ H02P 5/34, 7/42, 5/28, 7/36
U.S. Cl. 318—803 **14 Claims**



1. A system for limiting the change with respect to time, of an electrical current supplied to the input of an active load from the output of a signal controlled variable output power source coupled to a main source of electrical power, comprising the combination of:

(a) an inductive reactance linking the output of said signal controlled power source to the input of said active load;

(b) first and second error signal paths respectively adapted to carry first and second error signals;

(c) circuit means, coupled to said signal controlled power source, including a first summing junction coupled to said first and second error signal paths and being operable to sum said first and second error signals and generate in accordance therewith a control signal which is applied to and operable to control said controlled power source;

wherein said first error signal path includes,

(d) circuit means coupled between said first summing junction and a circuit connection common to the inductive reactance and the input of said active load to provide a positive feedback signal to said summing junction corresponding to the signal appearing at the input of said active load, and

wherein said second signal path includes, (e) circuit means for developing a signal corresponding to the actual current supplied to said active load,

(f) means for developing a signal corresponding to a desired current to be supplied to said active load,

(g) a second summing junction coupled to the last two recited circuit means and being operable to provide a difference signal corresponding to the difference between the actual and the desired current supplied to said active load, and

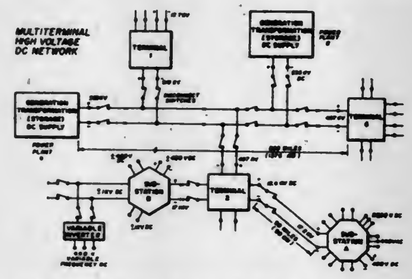
(h) circuit means coupled to said second summing junction and being responsive to said difference signal and operable to generate a clamped output signal, said clamped output signal comprising another feedback signal applied to said first summing junction, said first summing junction combining said feedback signals to generate a composite control signal which is applied to said variable output power source and being operable to limit the rate of change of current supplied to said active load for a change in the signal level of said signal corresponding to a desired current to be supplied to said active load.

4,274,043

EFFICIENT, HIGH POWER BATTERY MODULE; D.C. TRANSFORMERS AND MULTI-TERMINAL D.C. POWER NETWORKS UTILIZING SAME

Robert G. Heitz, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Filed Dec. 21, 1978, Ser. No. 972,111
Int. Cl.³ H02J 3/36, 7/00
U.S. Cl. 320—6 **18 Claims**



1. A high power battery module adapted for use in D.C. transformers and multiterminal D.C. power distribution systems based on such transformers, said module comprising:

(a) a battery of series-connected, rechargeable cell units, said battery having an open circuit voltage (E_{oc}) of at least 400 volts and each of said cell units consisting of a single cell or a plurality of cells in parallel and being capable of maintaining an electrical efficiency of about 95% or more while being continuously cycled for a period of at least 1000 hours, from the open circuit voltate (e_{oc}) it has when fully charged to a lesser e_{oc}, and back, at an average rate of at least 80 watts per pound of electrochemically reactive materials in the cell unit, said efficiency being defined as 100 (W_o/W_i), where W_o is the total watt-hours delivered by the unit and W_i is the total watt-hours supplied to it,

(b) an individual means associated with each of said cell units and adapted to respond automatically to development of an excessive load voltage across said cell unit by establishing a by-pass connection across it so that the series circuit through the battery is maintained,

(c) individual fuse means connected one to one in series with each of said cells,

(d) switching means operable by control signals to make or break a discharge circuit through said battery and to break or make a charging circuit through said battery, said switching means comprising two connect/disconnect switches and a solid state load breaker, one of said switches being connected directly to one of the poles of said battery and the other switch being connected to the other pole through said load breaker,

(e) automatic monitoring means for determining the voltage across said battery and the current therethrough, the latter means being adapted to supply an output, characteristic of the magnitudes of said voltage and current, to a means for developing said control signals, when a latter such control means is connected to said monitoring means,

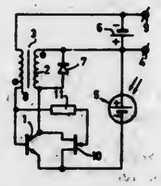
(f) connecting means by which said switching and monitoring means can be connected to said control means.

4,274,044

DC-DC CONVERTER FOR CHARGING A BATTERY BY MEANS OF A SOLAR CELL

Claude Barre, Paris, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 4, 1979, Ser. No. 45,490
Claims priority, application France, Jun. 30, 1978, 78 19659
Int. Cl.³ H02J 7/10; H02M 3/335; H03K 17/60
U.S. Cl. 320—21 **7 Claims**



1. A d.c.-d.c. converter for charging a battery by means of a solar cell comprising, a transformer having a primary winding and a secondary winding, a switching transistor having a base, a collector and an emitter, a field-effect transistor having a drain, a source and a gate electrode, means connecting a first end of the primary winding of the transformer to the collector of the switching transistor and the base to a first end of said secondary winding, a resistor, means connecting said field-effect transistor drain and source electrodes directly to the collector and the emitter, respectively, of said transistor, means connecting said gate electrode to the base of the switching transistor via said resistor, and means connecting the second ends of the transformer primary and secondary windings to first and second output terminals respectively of the converter, between which output terminals the battery is adapted to be connected, and wherein the solar cell is adapted to be connected between the first output terminal and the emitter of the switching transistor.

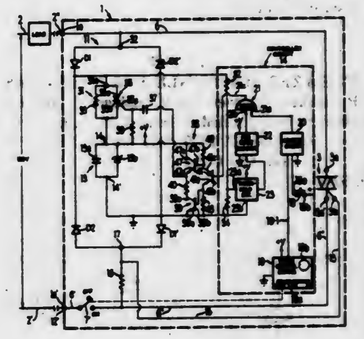
4,274,045

POWER SUPPLY AND CONTROL CIRCUIT FOR SERIES CONNECTED CONTROLLER

Richard Goldstein, 1671 E. Mission Hills Rd., Northbrook, Ill. 60062

Filed Apr. 9, 1979, Ser. No. 28,052
Int. Cl.³ H05B 37/02
U.S. Cl. 323—319 **17 Claims**

1. In a DC power supply and control circuit including a pair of AC input terminals to be connected across and energized from one AC power line and one conductor extending to one terminal of a load device whose other terminal is to be connected to another AC power line, said AC power lines being the source of an applied AC voltage to energize and operate the power supply and control circuit and load device, said power supply and control circuit further including a triggerable power conducting power switch having a pair of load terminals coupled to said AC input terminals and a control terminal for receiving a trigger signal which triggers said power switch into a conductive state which continues until current flow therethrough drops below a given holding current level during the half cycle of the applied AC voltage involved; and controller means for effecting operation of said power switch either in a non-conductive mode where the switch is continuously non-conductive or in a conductive mode where the switch is conductive repeatedly for a portion of the half cycles involved which begin after the beginning of the half cycles involved, said controller means during the conductive mode of operation of said switch generating a power switch triggering control signal fed to said control terminal of said power switch which signal causes conduction thereof a short time interval after the AC voltage applied to said power switch load terminals passes through zero; the improvement comprising a DC power supply circuit for energizing said controller means, said DC power supply circuit being coupled across said AC input terminals so that the circuit is shunted by said switch when the switch is conducting, said DC power supply circuit including energy storing means



which is coupled to said controller means to energize the same, and

a series circuit for feeding current to said energy storing means from said pair of AC input terminals, said series circuit including rectifier means for converting AC to DC and a relatively large impedance connected in series with said rectifier means and energy storing means, said impedance means being of such a greater magnitude than the impedance of said load device that only a small amount of power compared to the normal load power is drawn by said power supply circuit when said power switch is continuously non-conductive, and means operative only during the conductive mode of operation of the power switch for shunting said impedance means with a low impedance during the short intervals at the beginning of the half cycle conducting periods of the power switch when said power switch is still non-conductive so that said energy storing means is rapidly charged to permit conduction of said power switch starting at a low value of the applied AC voltage.

4,274,046

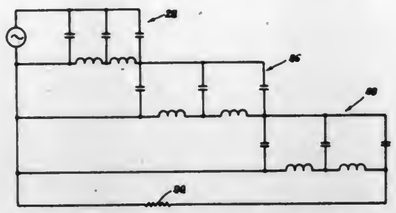
AC RESONANCE TRANSFORMER

John L. Harrison, San Diego, Calif., assignor to Maxwell Laboratories, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 909,115, May 24, 1978, abandoned. This application Jun. 19, 1978, Ser. No. 916,781
Int. Cl.² G05F 3/04
U.S. Cl. 323—355 **23 Claims**

1. An a.c. resonance transformer for operating at a predetermined frequency, comprising a first resonant stage including a first four terminal network, a second four terminal network connected to the output of said first network, and a third four terminal network connected to the output of said second net-

work, said first and said third networks each including a shunt reactor of a first type, said second network including two series connected second type reactors and a first type reactor shunt connected to the junction between said second type reactor, and means for applying said predetermined frequency to the



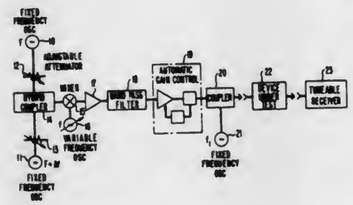
input of said first network, the reactors in said second network having values such as to provide a 180° phase shift at said predetermined frequency between the phase angle of its input and output voltage vectors and to provide a zero input impedance when its output is short circuited.

4,274,047

ANALYZER FOR NONLINEAR NETWORKS

Rudolf P. Hecken, Andover, Mass., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 7, 1979, Ser. No. 101,136
Int. Cl.³ G01R *27/00, 27/04*
U.S. Cl. 324—57 R **7 Claims**



1. Apparatus for analyzing a two-port network including an input portion having a transfer characteristic $H_A(f)$; an output portion having a transfer characteristic $H_B(f)$; and a resistive nonlinear portion therebetween;

said apparatus comprising:

means (21) for generating a first signal at a frequency f_1;

means (10, 15, 16) for generating a second signal having a variable frequency f_2;

means (11, 15, 16) for generating a third signal having a variable frequency $f_3 = f_2 \pm \Delta f$, where Δf is a fixed frequency difference;

means (20) for applying said signals to said two-port; and

means (23) for measuring the magnitude of the third order intermodulation distortion generated by said two-port as a function of frequency f.

4,274,048

THREE-DIMENSIONAL MEASUREMENT OF RADIANT ENERGY SCATTERING CHARACTERISTICS WITH A TURNTABLE-TYPE SCANNING INTERFEROMETER

Gus P. Tricoles, San Diego, and Eugene L. Rope, El Cajon, both of Calif., assignors to General Dynamics Corporation, Electronics Division, San Diego, Calif.

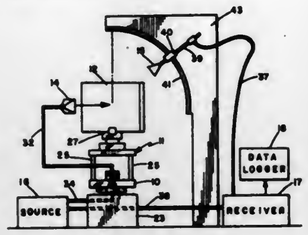
Continuation-in-part of Ser. No. 970,527, Dec. 18, 1978. This application Dec. 20, 1979, Ser. No. 105,770
Int. Cl.³ G01R *27/04*
U.S. Cl. 324—58 R **13 Claims**

1. A scanning interferometer, for enabling measurement of radiant energy scattering characteristics of a test panel, comprising

a turntable;

support means on the turntable for supporting a test panel in a selected position along the axis of the turntable;

a first antenna radially mounted to the turntable for rotation with the turntable and directed toward the selected position of a said supported test panel; and



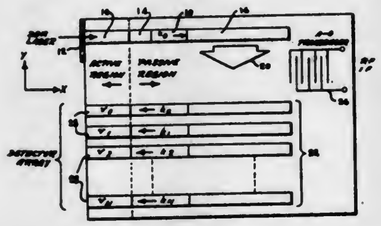
a second antenna mounted for selective positioning along a circular arc within a plane that includes the axis of the turntable, which arc extends at least ninety degrees from said axis, wherein the second antenna is radially directed toward the selected position of a said supported test panel at all positions along said arc.

4,274,049

INTEGRATED OPTICAL R-F SPECTRUM ANALYZER

Harold M. Stoll, Palos Verdes Peninsula, Calif., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 28, 1979, Ser. No. 70,454
Int. Cl.³ G01R *23/16*
U.S. Cl. 324—77 K **8 Claims**



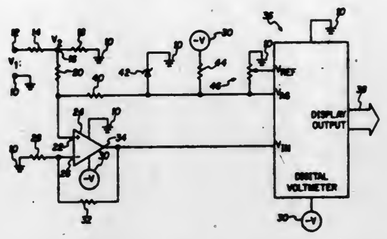
1. An integrated optical, real time R-F spectrum analyzer comprising a substrate; an active material overlying the substrate; a lasing medium located in the active material; waveguide means associated with the lasing medium for directing light generated from said lasing medium; a first distributed Bragg deflector means overlying the waveguide for directing light in the waveguide in a direction transverse to the longitudinal axis of the waveguide through said active material; a second distributed Bragg deflector matched to said first Bragg deflector for receiving light therefrom; a plurality of waveguides of preselected resonances in said substrate adjacent said second distributed Bragg deflector manifold adapted to resonate at preselected light angles; detectors connected to the waveguides of said deflector manifold producing an output signal when a waveguide resonates, and a surface acoustic wave transmitter driven by a radio frequency and transmitting a strain wave whereby light transmitted from said first distributed Bragg deflector to said second distributed Bragg deflector manifold is altered through an angle characteristic of the frequency of the input to the transmitter and one of the preselected resonances in the said plurality of waveguides.

4,274,050

VOLTAGE MEASURING APPARATUS

Thomas F. Martin, Richardson, Tex., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 13, 1979, Ser. No. 66,262
Int. Cl.³ G01R *17/06*; H03B *3/02*
U.S. Cl. 324—99 D **4 Claims**



1. Apparatus for measuring a bipolar potential signal using a unipolarity power supply and a normally bipolarity powered digital voltmeter (DVM) comprising, in combination:

DVM including upper potential limit terminal means, reference voltage means, measured signal input means and display output means;

apparatus reference potential means;

power supply means for supplying unipolarity power between a given polarity supply terminal and said apparatus reference potential means;

dividing means, connected between said given polarity supply terminal and said apparatus reference potential means for supplying to said upper potential limit terminal means and said reference voltage means of said DVM, signals which are intermediate in voltage the given polarity supply terminal of said power supply means and said apparatus reference potential means;

measured voltage input means; and

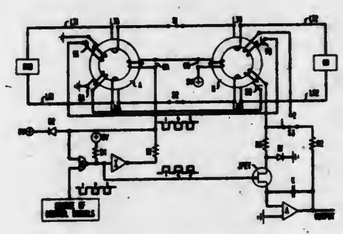
signal level shifting means, connected between said measured voltage input means and said measured signal input means of said DVM.

4,274,051

ELECTROMAGNETIC ARRANGEMENT FOR MEASURING ELECTRICAL CURRENT

Joseph H. Condon, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jul. 27, 1979, Ser. No. 61,464
Int. Cl.³ G01R *33/00*; H04M *3/22*
U.S. Cl. 324—117 R **21 Claims**



1. An arrangement for measuring an electrical line current flowing in a line circuit comprising:

(A) a magnetic structure having magnetic characteristics such that the slope of the hysteresis characteristic changes substantially as the magnetizing intensity H changes between a zero amount of H and a finite amount of H;

(B) means electromagnetically coupling the line circuit to the structure so that a particular amplitude and polarity of line current causes in the structure a corresponding finite amount and polarity of line H;

(C) means for supplying a succession of control signals;

(D) a control circuit controlled by each control signal so that a corresponding pulse of particular amplitude and duration and polarity electrical control current flows in the control circuit;

(E) means electromagnetically coupling the control circuit to the structure so that each control current pulse causes in the structure a corresponding change of control H where the change of control H is of a particular finite amount and of a particular polarity;

(F) each change of control H being such as to cause the magnetic induction B in the structure to undergo a corresponding change the amount and polarity of which are determined by the combined amount and polarity of line H and control H;

(G) means controlled by each control signal and by the corresponding change of B to produce a corresponding voltage pulse the amplitude and duration and polarity of which are a measure of the amount and polarity of line H in the structure;

(H) means controlled by a plurality of successive voltage pulses

(1) to perform cumulative algebraic integration of the successive voltage pulses

(2) and to provide a changing output voltage the amplitude and polarity of which are a measure of the cumulative integration;

(I) and, means controlled by the output voltage to cause in the structure an amount of feedback H where

(1) the amount of feedback H is according to the amplitude of the output voltage

(2) and the polarity of the feedback H is opposite to the polarity of any line H;

(J) whereby

(1) the amplitude of the output voltage becomes essentially constant when in the structure the amount of feedback H essentially equals the amount of line H

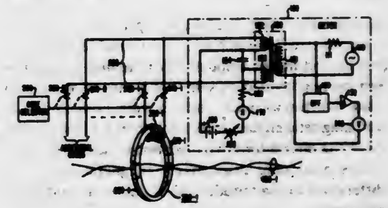
(2) and the amplitude and polarity of the constant output voltage are a measure of the amplitude and polarity of the line current.

4,274,052

CURRENT METER USING CORE SATURATION

James H. Gentry, Jr., New Monmouth, and Gilbert J. Stiles, Sr., Wayside, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 13, 1979, Ser. No. 65,947
Int. Cl.³ G01R *33/00, 1/20*
U.S. Cl. 324—117 R **2 Claims**



1. A current meter including a first voltage source (110) for providing a first frequency signal to a winding (300-1) enclosing a magnetic core (200-1), said core adapted to be coupled to the magnetic field surrounding a conductor (400-1),

means responsive to said first frequency signal for measuring the current through said conductor,

said measuring means including means (120) for detecting a harmonic of said first frequency signal, and

means for reducing said detected harmonic and characterized in that said meter further comprises means adapting

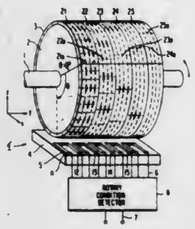
said meter for remotely measuring current through a plurality of conductors (400-1, . . .400-N),
said remote measuring means including means (500, 510-1, . . .510-N, 520-1, . . .520-N) for selecting one of said conductors,
means for extending said first frequency signal to a selected one of a plurality of windings (300-1, . . .300-N), said selected winding enclosing a selected one of a plurality of magnetic cores (200-1, . . .200-N), said selected core adapted to be coupled to the magnetic field surrounding said selected conductor, and
said harmonic reducing means including a second voltage source (190),
means (150, 600, 160) for extending a reference current from said second voltage source through said selected winding, and
means (170) for displaying the magnitude of said reference current,
means (180) for controlling the magnitude of said reference current, and
means (140) for displaying the magnitude of said harmonic whereby the magnitude of said reference current equals the magnitude of the current in said selected conductor when said harmonic is minimized.

4,274,053

MAGNETIC ROTARY ENCODER FOR DETECTION OF ABSOLUTE VALUES OF ANGULAR DISPLACEMENT

Susumu Ito, and Kaoru Toki, both of Tokyo, Japan, assignors to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1979, Ser. No. 17,770
Claims priority, application Japan, Mar. 6, 1978, 53-25818
Int. Cl.³ G01P *3/48, 3/54*
U.S. Cl. 324—174 **26 Claims**



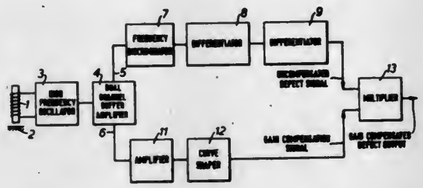
1. A magnetic rotary encoder comprising:
first means fixedly attachable to a rotatable shaft;
plural second means respectively retaining magnetic signals and being provided on said first means so as to form more than two tracks, each track having boundaries between said magnetic signals, said tracks being substantially parallel to the circumferential direction of said first means, said tracks producing respectively magnetic fields changing differently in magnitude and direction as said first means revolves;
plural ferro-magneto-resistors fixedly provided in the vicinity of the rotating paths of said tracks and responsive to said magnetic field and producing analog signals indicative of changes in their electrical resistance, said plural ferro-magneto-resistors within 45° of being parallel to said boundaries; and
a rotary condition detector electrically connected to said magneto-resistors receiving said analog signals and producing output signals indicative of the rotated angular distance of said first means in an absolute value.

4,274,054

DUAL CHANNEL APPARATUS FOR DETECTING SURFACE DEFECTS IN ELONGATE METALLIC MEMBERS WITH LIFTOFF COMPENSATION

David H. Savidge, Rotherham, and Eric Wadsworth, Sheffield, both of England, assignors to British Steel Corporation, London, England

Filed Nov. 22, 1978, Ser. No. 962,945
Claims priority, application United Kingdom, Nov. 22, 1977, 48597/77
Int. Cl.³ G01N *27/72*; G01R *33/00*
U.S. Cl. 324—225 **5 Claims**



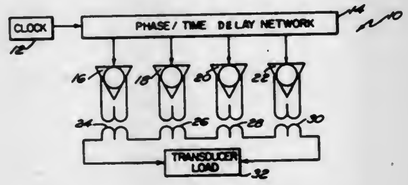
1. Apparatus for inspecting the surface of an elongate metallic member comprising a high-frequency energised eddy-current probe for scanning over the surface of the member, said probe forming the inductive part of a tuned high-frequency oscillator circuit in which the amplitude of the voltage developed across the probe is determined by the resistive properties of the impedance of the probe, and the frequency of oscillation of said developed voltage is determined by the reactive properties of said probe impedance, a buffer amplifier connected to receive output signals from the oscillator circuit and to transmit amplified frequency-characteristic signals to one channel of a dual-channel receiver and amplified amplitude-characteristic signals to the second channel of said dual-channel receiver, a frequency discriminator in circuit in said one channel connected to receive said frequency-characteristic signals and to transmit demodulated signals to a first input of a multiplier, a curve shaper in circuit in said second channel of said dual-channel receiver and connected to receive said amplitude-characteristic signals and to transmit gain-compensated signals to a second input of said multiplier, said input signals being processed within said multiplier to provide output signals representative of the surface condition of the member under inspection compensated for changes in sensitivity resulting from changes in the probe spacing during scanning.

4,274,055

SYNTHESIZED SINUSOID GENERATOR

Gerald L. Assard, Waterford, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 16, 1979, Ser. No. 20,902
Int. Cl.³ H03B *19/00, 27/00*
U.S. Cl. 328—14 **8 Claims**



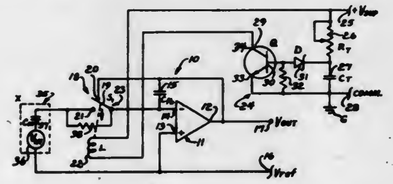
1. A sinusoid generator for synthesizing a sinusoidal signal of a specified tonal purity which comprises:
a clock for generating pulses of a preselected frequency as output thereof;
a phase/time delay network receiving an input thereof from the output of said clock;
a first plurality of equal gain switching amplifiers receiving inputs thereof from the output of said phase/time delay network sequentially as a function of the time period of said pulses of said clock and having means for providing equal amplitude output signals in response to the input signals; and
a transducer load being coupled to the outputs of said first plurality of switching gain amplifiers.

4,274,056

CHARGE AMPLIFIER WITH MINIMUM OFFSET VOLTAGE

Henry J. Lukes, Bellevue; Walter Kamphorst, Redmond, and Romeal F. Asmar, Bellevue, all of Wash., assignors to Sundstrand Data Control, Inc., Redmond, Wash.

Filed Nov. 8, 1978, Ser. No. 958,685
Int. Cl.³ H03F *3/70, 3/72, 1/08*
U.S. Cl. 328—162 **18 Claims**



1. In a charge amplifier circuit including a charge amplifier, a transducer connected to a source of reference voltage, and a feedback capacitor connected between an inverting input terminal and output terminal of the amplifier, the improvement comprising:
double-throw break-before-make switch means alternatively (a) connected across said capacitor shorting the capacitor and concurrently disconnecting said transducer from said inverting input terminal, and (b) connecting said transducer to said inverting input terminal and concurrently discontinuing shorting of the capacitor; and
resetting circuit means for selectively operating said switch means to first disconnect the switch means from across the capacitor and subsequently effect connection of the transducer to the inverting input terminal whereby said capacitor is charge-free at the time the switch means connects the transducer to said inverting input terminal.

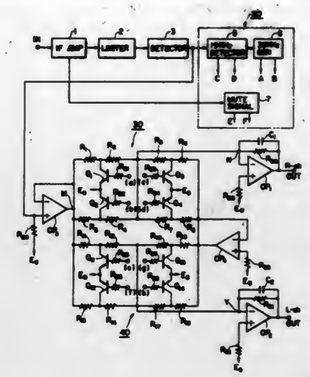
4,274,057

MPX STEREOPHONIC DEMODULATION

Kohji Ishida, and Tatsuo Numata, both of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 2, 1979, Ser. No. 54,116
Claims priority, application Japan, Jun. 30, 1978, 53-80010
Int. Cl.³ G01P *3/48, 3/54*
U.S. Cl. 329—167 **13 Claims**

1. An MPX stereophonic demodulation circuit comprising: first and second switching circuits to transmit a composite input signal to respective output terminals; a reference voltage line; each of said switching circuits having (i) first and second transmission paths and (ii) first and second switching elements connected respectively between points on said transmission paths and said reference voltage line; a voltage follower circuit; each of said switching circuits further comprising (i) first and second parallel resistor paths between said voltage follower circuit and one of said output terminals and (ii) third and fourth switching elements connected respectively between points on said resistor paths and said reference voltage line; and means to render opposite pairs of switching elements in said two switching circuits to be conductive at the same time whereby said composite input signal is demodulated at said output terminals.

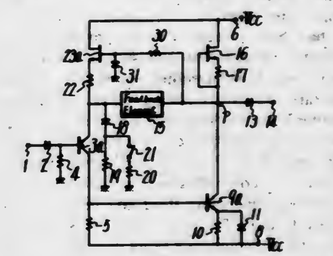


4,274,058

AMPLIFIER WITH SEPARATE AC AND DC FEEDBACK LOOPS

Tadao Suzuki, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 16, 1979, Ser. No. 30,388
Claims priority, application Japan, Apr. 18, 1978, 53/45618
Int. Cl.³ H03F *3/45*
U.S. Cl. 330—253 **11 Claims**



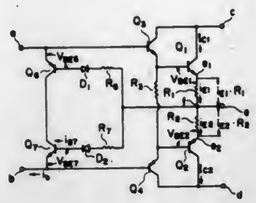
1. An amplifier with separate AC and DC feedback loops comprising:
(a) a DC voltage source having first and second output terminals;
(b) first and second transistors differentially connected between said first and second output terminals of said DC voltage source and each having first, second and third electrodes, the first electrode of said first transistor being supplied with an input signal to be amplified, the second electrodes of said first and second transistors being connected to each other, the third electrode of said first transistor being connected to one of the first and second output terminals of said DC voltage source through a first load;
(c) a third transistor having first, second and third electrodes, the first electrode of said third transistor being DC-coupled to the third electrode of said first transistor, the second electrode of said third transistor being connected to said one output terminal of said DC voltage source, and the third electrode of said third transistor being connected to the other output terminal of said DC voltage source through a constant current source means.

4,274,059

SINGLE ENDED PUSH-PULL AMPLIFIER

Yasuhisa Okabe, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Nov. 27, 1978, Ser. No. 963,901
Claims priority, application Japan, Dec. 1, 1977, 52/144257
Int. Cl.³ H03F 3/30
U.S. Cl. 330—266 8 Claims



1. A single ended push-pull amplifier responsive to a preamplifier of a Class A amplifier so that current flows to the push-pull amplifier from the preamplifier even when no signal is applied to the preamplifier output signal comprising:

(a) first and second transistor-amplifying stages for respectively amplifying each half cycle of the output signal of the preamplifier, said first and second stages forming a final stage of a single ended push-pull arrangement;

(b) first and second resistors respectively interposed in the collector-emitter paths of said first and second transistor-amplifying stages;

(c) a base bias controlling circuit for controlling base bias voltages of said first and second transistor-amplifying stages, said bias controlling circuit including two complementary transistors having series connected collector-emitter paths, the series connected paths of said two transistors being interposed between the base circuits of said first and second transistor amplifying stages; and

(d) means for controlling said base bias controlling circuit, said means including third and fourth resistors respectively forming first and second closed loops, said first closed loop including a series circuit comprising:

(a) said first resistor,

(b) the base circuit of said first transistor-amplifying stage,

(c) the base-emitter path of one of said two complementary transistors and said third resistor,

so that the amount of electric current flowing through said third resistor varies in accordance with the current flowing through said first resistor, and all of the current flowing through the base of said transistor included in said first closed loop flows through said third resistor, said second closed loop including a series circuit comprising:

(a) said second resistor,

(b) the base circuit of said second transistor-amplifying stage,

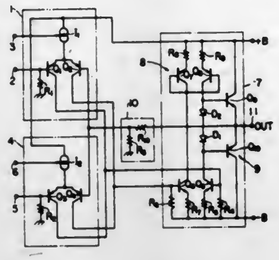
(c) the base-emitter path of the other of said two complementary transistors and said fourth resistor, so that the amount of electric current flowing through said fourth resistor varies in accordance with the current flowing through said second resistor, and all of the current flowing through the base of said transistor included in said second closed loop flows through said fourth resistor, said first closed loop being responsive to said input signal, said second closed loop being connected to a load of said input signal.

4,274,060

SIGNAL CHANGE-OVER AMPLIFIER

Yoshihiro Kawanabe, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 13, 1979, Ser. No. 93,561
Claims priority, application Japan, Nov. 15, 1978, 53/156836[U]
Int. Cl.³ H03F 3/68, 3/45
U.S. Cl. 330—295 4 Claims



1. A signal change-over amplifier for selectively amplifying one input signal among a plurality of input signals comprising: a plurality of input signal control sections, each of said control sections being provided for each of said input signals; an output section having an output terminal to which is coupled a selected input signal, said input signal control sections being subjected to ON-OFF control in response to corresponding control signals, each of said input signal control sections including a first transistor having an emitter, a base and a collector, the base of said first transistor being coupled to receive one of said input signals; a second transistor having an emitter, a base and a collector, the emitter of said second transistor being commonly connected to the emitter of said first transistor so that said first and said second transistors are coupled in a differential circuit; a constant current source connected to supply current to the commonly connected emitters of said first and said second transistors, said constant current source being activatable in response to the corresponding control signal; said collectors and bases of said second transistor and said collector of said first transistor of each of said control input sections being respectively interconnected; and said output section including third and fourth transistors each having a base and a collector, the bases of said third and fourth transistors being respectively connected to the collectors of said first and said second transistors of said control sections; current producing means having input and output terminals respectively connected to the collectors of said fourth and said third transistors; and a push-pull circuit connected to the output terminal of said current producing means.

4,274,061

REFERENCE VOLTAGE SOURCE, IN PARTICULAR FOR AMPLIFIER CIRCUITS

Horst Kraemer, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Oct. 10, 1979, Ser. No. 83,249
Claims priority, application Fed. Rep. of Germany, Nov. 23, 1978, 2850826
Int. Cl.³ H03F 3/04, 3/45
U.S. Cl. 330—296 5 Claims

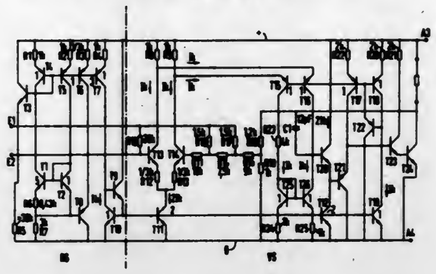
1. A reference voltage source comprising:

first and second transistors each including a base, an emitter and a collector, said base of said second transistor connected to its collector and to said base of said first transistor;

a reference potential terminal and an operating voltage terminal;

first and second resistors connected in series between said emitter of said first transistor and said reference potential and including a junction therebetween connected to said emitter of said second transistor;

a current mirror circuit connected between said operating voltage terminal and said collectors of said first and second transistors, said current mirror circuit comprising a third transistor including an emitter-collector circuit connected to said operating voltage terminal; and



a fourth transistor including an emitter-collector circuit connected in series with said emitter-collector circuit of said third transistor, and forming a tap therebetween, and connected to said reference voltage terminal, and a base connected to said emitter of said second transistor,

said tap providing an output reference voltage for a circuit supplied by the reference voltage source.

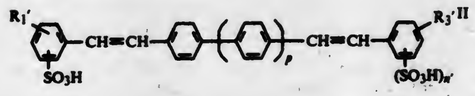
4,274,062

DYESTUFF LASER

Uwe Brinkmann; Helmut Telle, both of Cologne; Roderich Raue, Leverkusen, and Carl-Wolfgang Schellhammer, Bergisch-Gladbach, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 3, 1978, Ser. No. 866,522
Claims priority, application Fed. Rep. of Germany, Jan. 5, 1977, 2700292
Int. Cl.² H01S 3/20
U.S. Cl. 331—94.5 L 6 Claims

1. Dyestuff laser consisting of a reservoir, with a laser dyestuff solution contained therein, and a pump light source connected thereto, which is capable of exciting the dyestuff solution to produce an emission, characterised in that the dyestuff solution contains a dyestuff which, in the form of the free acid corresponds to the formula



wherein

R_1' and R_3' independently of one another represent hydrogen, methyl or chlorine and

n' and p each represent 1,

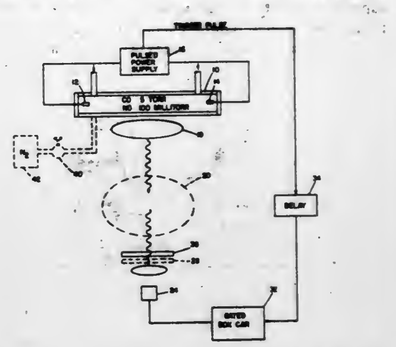
in a solvent which does not interfere with the emission, at a concentration, which emits laser beams, of, preferably, 10^{-2} to 10^{-5} mols/liter.

4,274,063

INFRARED SPECTROSCOPIC LAMPS AND GAS DETECTORS INCORPORATING SUCH LAMPS

Ali Javan, 12 Hawthorn St., Cambridge, Mass. 02138

Continuation-in-part of Ser. No. 755,463, Dec. 30, 1976, abandoned. This application Apr. 24, 1978, Ser. No. 899,573
Int. Cl.³ H01S 3/22
U.S. Cl. 331—94.5 R 15 Claims



1. An enhanced emission spectroscopic lamp for trace gas detection of a given molecular gas, said lamp adapted to produce spectral radiation at selected spontaneous emission frequencies in the infrared corresponding to an absorbing molecular rotation-vibration transition band of said given gas, said lamp comprising means defining a gas discharge chamber, excitation means for creating a gaseous discharge within said chamber, a gas mixture within said chamber providing both an excitable buffer gas and a quantity of said given gas, and radiation transmissive means for transmitting emissions from said given gas in said chamber to a point of utilization located outside of said chamber, said buffer gas having a first state excitable by said excitation means and matched to said given gas in the manner that energy from said state of said buffer gas can transfer via collisions to said given gas an excite the upper levels of said absorbing transition band, whereby resultant radiative decay of said upper levels to the lower levels of said absorbing transition band produces the desired selected spontaneous emissions from said given gas enhanced by said buffer gas, said gas mixture having the characteristic, in response to said excitation means, of producing undesired other spontaneous emissions as a result of excitation of other levels whose decay time is short relative to the period of said desired emission of said given gas, said lamp combined with means periodically to interrupt said excitation means, and delay means adapted to delay the transmission of emission from the lamp to said point of utilization for a period of time following de-energization of said excitation means to a second period when said other levels whose decay time is relatively short are decayed and said given gas continues to emit at the desired transition.

4,274,064

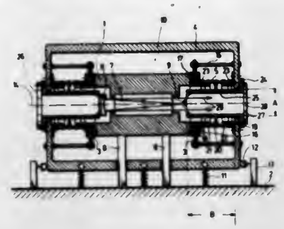
APPARATUS FOR MECHANICALLY DECOUPLING A RESONATOR OF A GAS DYNAMIC LASER

Gunther Sepp, Ottobrunn; Gunthard Bora, Taufkirchen, and Werner Malberg, Neubiberg, all of Fed. Rep. of Germany, assignors to Messerschmitt-Bolkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Filed Jul. 6, 1978, Ser. No. 922,210
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1977, 2731346
Int. Cl.³ H01S 3/02
U.S. Cl. 331—94.5 G 5 Claims

1. An apparatus for mechanically decoupling the resonator means (4) for resonating the laser vibration in a gas dynamic laser from other components of said gas dynamic laser, com-

prising laser medium flow channel means (7) for flowing a laser medium therethrough, said laser medium flow channel means having a longitudinal axis as well as first and second open ends, elastic sealing means (5) operatively connected to said resonator means (4) and to said first and second open ends of said flow channel means (7) for sealing said flow channel means from said resonator means in a vacuum tight manner, base means (2) for operatively supporting said resonator means, support means (6) for rigidly securing said flow channel means to said base means, damping means (11, 12, 13) for operatively connecting said resonator means (4) to said base means (2), and



securing means (15, 3) including ring disk membrane means (3) for operatively securing said first and second open ends of said flow channel means (7) to said resonator means (4), said ring disk membrane means (3) having a given first spring stiffness for applying a damping and restoring action to said resonator means, said elastic sealing means (5) and said damping means (11, 12, 13) having a second given spring stiffness smaller than said given first spring stiffness of said ring disk membrane means (3), whereby the sealing action of said elastic sealing means (5) is substantially independent of said damping and restoring action of said ring disk membrane means (3).

4,274,065

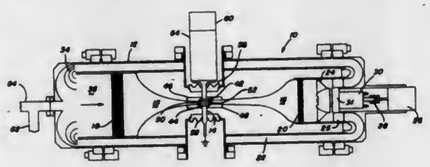
CLOSED CYCLE ANNULAR-RETURN GAS FLOW ELECTRICAL DISCHARGE LASER

Alan Garscadden, Yellow Springs; Peter Bletzinger, Fairborn; Siegfried H. Hasinger; Robert A. Olson, both of Kettering, and Benjamin Sarka, Enon, all of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jul. 31, 1979, Ser. No. 62,591

Int. Cl.³ H01S *3/03*

U.S. Cl. 331—94.5 G **4 Claims**



1. An electrical discharge laser, comprising: a hermetically sealed envelope; a laser flow channel within said envelope; a gas mixture in said laser flow channel; means for providing a high velocity uniform flow of said gas mixture through said laser flow channel; means for producing an electric discharge in said gas mixture; and an optical resonant cavity having a optical axis perpendicular to said laser flow channel; said optical resonant cavity having laser mirror means for directing the optical axis through said electric discharge and removing optical energy generated by said electric discharge in said gas mixture; said means for providing a high velocity uniform flow of gas mixture through the laser flow channel including means for providing an annular gas flow return path surrounding the laser flow channel.

4,274,066

QUARTZ CRYSTAL OSCILLATOR

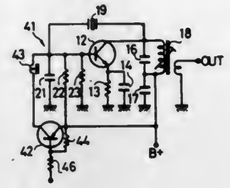
Akiyuki Yoshisato, and Katsumi Tobita, both of Soma, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 958,246, Nov. 6, 1978, which is a continuation of Ser. No. 805,860, Jun. 13, 1977, abandoned. This application Oct. 22, 1979, Ser. No. 86,807

Claims priority, application Japan, Jun. 18, 1976, 51-79913

Int. Cl.³ H03B *5/36*

U.S. Cl. 331—116 R **5 Claims**



1. A crystal oscillator comprising:

a resonant circuit including a crystal;

an active element comprised by a first transistor connected to said resonant circuit for applying a driving excitation to said resonant circuit;

feedback means connected between said resonant circuit and said active element for applying a feedback signal from said resonant circuit to said active element;

switch means including a switching transistor for increasing the bias voltage applied to said first transistor above a normal value for a predetermined length of time after initial energization of the oscillator; and

a bias resistor for applying a bias voltage to said first transistor, the switching transistor being connected across the bias resistor in such a manner as to short out the bias resistor when switched on for the predetermined length of time.

4,274,067

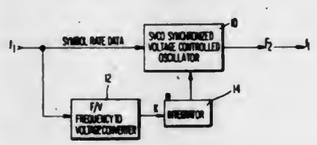
UNIVERSAL CLOCK RECOVERY NETWORK FOR QPSK MODEMS

Vasil Uzunoglu, Ellicot City, Md., assignor to Communications Satellite Corporation, Washington, D.C.

Filed Sep. 27, 1979, Ser. No. 79,653

Int. Cl.³ H03K *3/282*; H03L *7/24*

U.S. Cl. 331—172 **10 Claims**



1. A clock recovery network for receiving an input data stream having a symbol clock rate and providing as an output a clock signal synchronized with said input data stream, said network comprising:

oscillator means for receiving said input data stream and providing at its output a clock signal synchronized with said input data stream, said oscillator means being synchronized to said input data stream by means of synchronizing pulses generated from said input data stream, the free-running frequency of said oscillator means in the absence of said synchronizing pulses being determined by a coarse control voltage; and

coarse control voltage generating means for generating and providing to said oscillator means a coarse control voltage corresponding to a desired output frequency of said clock recovery network.

4,274,068

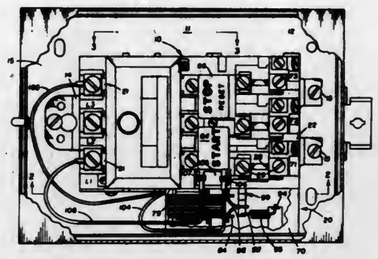
UNDERVOLTAGE PROTECTOR FOR MANUAL MOTOR CONTROLLER

Carl Thompson, Jr., Westminster, Md., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jun. 26, 1979, Ser. No. 52,289

Int. Cl.³ H01H *73/06*

U.S. Cl. 335—20 **10 Claims**



1. Electrical switching apparatus including a controller and a trip unit for automatically opening said controller when operating voltage applied to the latter falls below a predetermined level; said controller including cooperating contact means, an operating mechanism for selectively opening and closing said contact means, automatic trip means which when actuated by detecting the occurrence of predetermined fault current conditions releases said mechanism whereby the latter opens said contact means; said trip unit comprising an electromagnet having an armature mounted for movement between first and second positions, an operating coil which when energized at a predetermined level by voltage applied to said controller generates magnetic flux in said armature which holds the latter in said first position, biasing means urging said armature toward said second position, means operatively engaging said armature with said automatic trip means for actuating the latter while said armature is being moved by said biasing means from said first to said second position, with said armature resting generally at said second position said biasing means being ineffective to prevent automatic resetting of said trip means when said operating voltage again rises above approximately said predetermined level.

4,274,069

LOCKING ARRANGEMENT FOR ELECTRIC CIRCUIT BREAKERS

Werner Troebel, and Klaus-Dieter Habedank, both of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich & Berlin, Fed. Rep. of Germany

Filed Mar. 6, 1979, Ser. No. 17,919

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1978, 2810233

Int. Cl.³ H01H *73/02, 75/00*

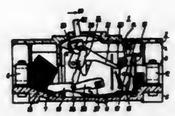
U.S. Cl. 335—21 **4 Claims**

1. In a locking arrangement for electric circuit breakers including:

(a) a locking strap rotatably or tiltable supported, by means of two pivots lying on a common ideal axis, in support openings in stationary parts, the cross section of the pivots being rectangular; and

(b) a latch held, in the closed position of the circuit breaker, against a biasing force by said locking strap, said biasing force applied to said locking strap by said latch in such a manner that one of the small surfaces of the pivots is acted upon by said biasing force the improvement comprising:

(c) the support openings having a convex surface along a short surface thereof and a further convex surfaces along two opposed long surface thereof and the one small surface of each pivot being disposed opposite said convex surface of the corresponding support opening and the long





surfaces of each pivot each being disposed, with play, opposite said further convex surface of the support opening.

4,274,070

PROXIMITY INSTANT-ON SWITCH FOR MEDICAL AND DENTAL INSTRUMENTS

Paul G. Thiene, Laguna, Calif., assignor to Surgical Mechanical Research Corp., St. Louis, Mo.

Filed Aug. 14, 1979, Ser. No. 66,507

Int. Cl.³ H01H *9/00*

U.S. Cl. 335—205 **2 Claims**



1. A proximity instant-on switch for an electrical medical or dental instrument that is adapted to seat in a holder disposed on a medical or dental unit, comprising magnetic switching means including a permanent magnet embedded in said holder and a magnetically-responsive switch member electrically connected to the instrument load and disposed in the handle of the instrument such that when the instrument is placed in said holder the instrument is de-energized by said magnetic switching means and when the instrument is removed from said holder the instrument is automatically energized by said magnetic switching means.

4,274,071

THREE-PHASE FERRORESONANT TRANSFORMER STRUCTURE EMBODIED IN ONE UNITARY TRANSFORMER CONSTRUCTION

Edgar L. Pfarre, Madison, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Nov. 16, 1979, Ser. No. 95,094

Int. Cl.³ H01F *33/00, 27/24*

U.S. Cl. 336—12 **8 Claims**

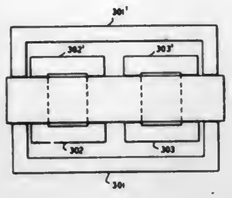
1. A three-phase ferroresonant transformer structure comprising;

a first and second closed flux path positioned adjacent each other and encircling a first and second window;

a third closed flux path encircling said first and second closed flux paths;

first and second magnetic shunts joining opposite portions of the first and second closed flux paths and bridging the first and second windows; respectively

a third magnetic shunt joining opposite portions of the third closed flux path and bridging the first and second windows; and



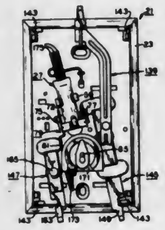
said first, second and third magnetic shunts each being independent and isolated from the other two magnetic shunts and magnetically coupled only to its related magnetic shunt path.

4,274,072

THERMOSTAT AND ASSEMBLY THEREFOR

Ralph W. Gustafson, Morrison, Ill., assignor to General Electric Company, Fort Wayne, Ind.

Filed Oct. 25, 1977, Ser. No. 845,383
Int. Cl.³ H01H *71/16*
U.S. Cl. 337—75 **50 Claims**



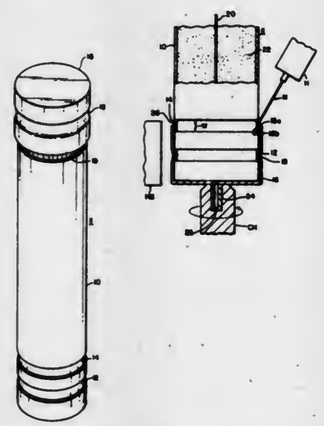
1. A thermostat adapted for effecting regulation of the temperature of a space in which the thermostat may be located, the thermostat comprising:
a casing including a base;
a post rotatably mounted to said base;
bimetal means adapted for movement to adjusted positions and movable in respective ones of the adjusted positions for sensing the temperature of the space, said bimetal means having a generally spiral configuration with generally radially spaced inner and outer ends and said inner end being secured to said post so as to be conjointly rotatable therewith;
a temperature selector manually movable with respect to said casing within a predetermined range of temperature settings so as to set a preselected temperature for the space and operably connected with said post to conjointly rotate said post and said bimetal means to a respective one of the adjusted positions of said bimetal means correlative with the preselected temperature set by said temperature selector upon the manual movement thereof;
a switch device including a pair of spaced apart terminals, a first pair of contacts mounted in opposed relation on said terminal pair, a third terminal disposed between said terminal pair and including a movable armature, a second pair of contacts mounted to said armature for making engagement with and breaking disengagement from said first contact pair, and means for encapsulating said switch device with parts of said terminal pair and said third terminal disposed exteriorly of said encapsulating means so as to define circuit connection sections, respectively;
means secured to said base and embracing at least in part said encapsulating means for mounting said switch device in a predetermined position with respect to said post;
a bracket associated with said bimetal means so as to be conjointly movable therewith and including a pair of arms disposed generally adjacent said encapsulating means and on opposite sides of said terminal pair therein, respectively, means extending generally across said encapsulating means for integrally interconnecting said arm pair, and means on said bracket for securing engagement with said outer end of said bimetal means; and
a pair of magnet means mounted on said arm pair and adapted for magnetic coupling relation with said armature, respectively, said magnet means pair being conjointly movable generally in one direction and another direction opposite thereto toward and away from said terminal pair so as to attract said armature in one of the one and another directions and effect the circuit completing engagement of one of said contacts of said second contact pair with one of said contacts of said first contact pair upon the conjoint movement of said bracket with said bimetal means in response to the temperature sensing movement of said bimetal means in the respective one of its adjusted positions.

4,274,073

SUBMERSIBLE FUSE

Russell M. Luck, Monroeville, and Gordon C. Gainer, Penn Hills, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 30, 1976, Ser. No. 755,772
Int. Cl.³ H01H *85/14, 85/16*
U.S. Cl. 337—248 **4 Claims**



1. An oil submersible fuse, comprising:
(a) hollow elongated insulating tubular barrel means having a continuous annular groove in the outer surface thereof, said groove being longitudinally disposed proximate to one end of said barrel means;
(b) first ferrule means securely and directly disposed upon said one end of said barrel means to enclose said barrel means at said one end thereof, said first ferrule means terminating in an opened end which is characterized by a circumferential ferrule edge, said first ferrule means having a circumferentially continuous inner surface portion which is longitudinally contiguous with said edge, said edge and said inner surface portion of said first ferrule means longitudinally aligning with only a longitudinal measured portion of said groove;
(c) second ferrule means securely disposed upon the other end of said barrel means to enclose said barrel means at said other end;

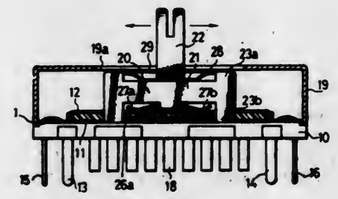
(d) fusible means disposed within said hollow barrel means in a disposition of electrical contact with said first ferrule means and said second ferrule means for being fused at an appropriate electrical condition; and
(e) flexible sealing material disposed in said annular groove in a condition of adhesion with said barrel means and said inner surface portion of said first ferrule means to seal the internal portion of said enclosed barrel means from the oil of an oil bath in which said barrel means is disposed, said sealing material being effective as an oil resistant adhesive seal in a temperature range from −40° C. to +150° C.

4,274,074

SLIDE TYPE VARIABLE RESISTOR HAVING DUAL TRACKS

Nozomu Sakamoto, Tokyo, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jun. 8, 1979, Ser. No. 47,344
Claims priority, application Japan, Sep. 6, 1978, 53-78764[U]
Int. Cl.³ H01C *10/30*
U.S. Cl. 338—160 **8 Claims**



1. A variable resistance apparatus of slide type comprising:
a housing;
an insulating base plate secured in said housing;
first and second resistor units provided on said insulating base plate, each of said first and second resistor units including a resistor member having conductive portions connected to the opposite ends thereof and including a plurality of conductive taps extending transversely from said resistor member, said conductive taps being arranged in parallel with respect to one another;
a central isolation band provided between said first and second resistor units;
an elongated bridge member consisting of insulating material and being provided above said first and second resistor units;
first and second conductive bands provided on said bridge member, said conductive bands being insulated from and arranged in parallel with respect to each other; and
a slider holder movably mounted in said housing and holding first and second sliders, said first and second sliders being adapted to slidingly contact with the conductive portions and the conductive taps in said first and second resistor units, respectively, and with the corresponding conductive bands on said bridge member.

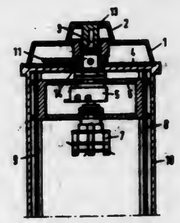
4,274,075

ELECTRONIC MULTI-RANGE VARIABLE RESISTOR

Helmut Schleicher, Berlin, Fed. Rep. of Germany, assignor to Schleicher GmbH & Co. Relais-Werke KG, Fed. Rep. of Germany

Continuation of Ser. No. 821,806, Aug. 4, 1977, abandoned. This application Jun. 18, 1979, Ser. No. 49,339
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1976, 7636488[U]
Int. Cl.³ H01H *19/18*
U.S. Cl. 338—172 **5 Claims**

1. An electronic multi-range resistor with a variable adjustment for the selection of resistances within each range comprising:
a housing including a front end;
a frontal plate enclosing the front end;
a scale located on the frontal plate;
a bridge support disposed in the housing comprising a pair of spaced plates spaced from the frontal plate with central apertures formed in the plates aligned with apertures in the center of the scale and frontal plate, the apertures being concentric to each other;
a hollow shaft potentiometer located between the bridge plates and mounted to the one bridge plate nearest the frontal opening, with the hollow shaft projecting through the apertures for variable resistance selection;
a turning knob including a transparent upper frontal section spaced from and overlapping the scale, said turning knob



further including a slip proof, rippled, and slanted peripheral area substantially enclosing the scale and engaging the frontal plate, the turning knob attached to the hollow shaft for rotation therewith;
a pointer attached to the hollow shaft for rotation therewith and continuously movable across the scale;
a selection switch with individual fixed resistors affixed to the other bridge plate defining a plurality of ranges of resistance;
a shaft of the selection switch passing centrally through the hollow shaft and protruding through the turning knob; and
a knob radially smaller than the turning knob, and concentrically disposed therewith, said knob attached to an end of the selection switch shaft for the selection of certain of the fixed resistors.

4,274,076

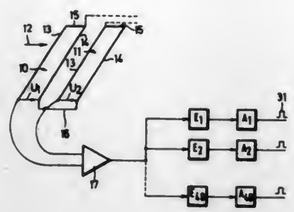
DEVICE FOR DETERMINING THE MOMENT WHEN COMPETITORS IN A RACE ARE PASSING THE FINISH LINE

Winfried Hermanns, Lutticherstr. 181, D-5100, Aachen, Fed. Rep. of Germany; Heinz Laeg, Aachen, Fed. Rep. of Germany; Hanno Blackert, Aachen, Fed. Rep. of Germany, and Dirk Wimmenauer, Aachen, Fed. Rep. of Germany, assignors to Winfried Hermanns, Aachen, Fed. Rep. of Germany

Filed Mar. 25, 1980, Ser. No. 133,839
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1979, 2914114
Int. Cl.³ G08C *21/00*
U.S. Cl. 340—38 L **8 Claims**

1. A system for determining the moment when competitors in a race pass the finish line, in which race the competitors are each fitted with a transmitter, said system comprising:
at least two receiving antennae arranged at the finish line, the signals from said antennae being combined and supplied to an evaluating equipment comprising:
means for coupling said signals from said antennae in opposite sense to form a difference signal therebetween,
a rectifier receiving said difference signal, and

an output signal circuit connected to said rectifier and responsive to a voltage change of the rectified differ-



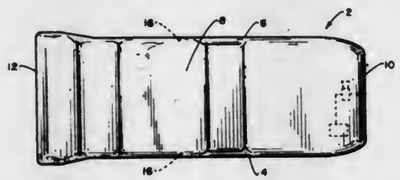
ence signal for generating a system output signal indicating that a competitor has passed the finish line.

4,274,077

VEHICLE COVER AND ALARM SYSTEM THEREFOR

Jerrold C. Feiger, 11820 Mayfield Ave., Los Angeles, Calif. 90049

Filed Nov. 26, 1979, Ser. No. 97,344
Int. Cl.³ B60R *25/10*
U.S. Cl. 340—63 **11 Claims**



1. An anti-tamper device for vehicles and the like comprising the combination: a conformable material cover having depending side panels to enshroud at least the major body portion of a vehicle; at least one sensor removably secured to each of said side panels and adapted to energize and de-energize an electrical circuit upon movement of said cover; electrical connector means connecting said sensors with an alarm system adapted to produce an alarm signal whereby in the normal covered state said sensors are in the non-energizing position and otherwise are in the energizing position to energize said alarm system to generate an alarm signal.

4,274,078

MIRROR ASSEMBLY WITH INDICATOR

Takayuki Isobe, Yokohama, and Mikio Matsuzaki, Isehara, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama and Ichiko Industries Limited, Tokyo, both of, Japan

Filed May 22, 1979, Ser. No. 41,335
Claims priority, application Japan, May 22, 1978, 53-67725
Int. Cl.³ G02B *5/08*
U.S. Cl. 340—98 **4 Claims**

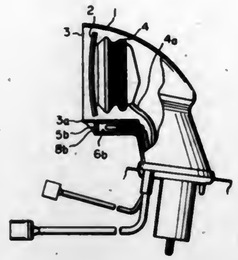
1. In a vehicle equipped with various condition indicating devices, a rear vision mirror assembly comprising:

a housing including a cowl portion having an opening;

a mirror disposed within said cowl portion and adapted to be observed through said opening;

means adjacent the mirror in said housing defining a plurality of containers each of which receive illuminable indicator means therein, said containers being sequestered with respect to the level of said opening so as to be shaded by said cowl portion; and

means for interconnecting said illuminable indicator means with means for monitoring said various devices of said vehicle and for selectively illuminating said illuminable



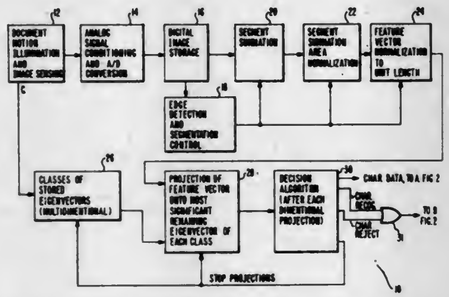
indicator means in response to the operation of said various devices.

4,274,079

APPARATUS AND METHOD FOR DYNAMIC FONT SWITCHING

Robert Todd, Farmington Hills, and Frank J. Haas, Livonia, both of Mich., assignors to Burroughs Corporation, Detroit, Mich.

Filed Jul. 12, 1979, Ser. No. 57,070
Int. Cl.³ G06K *9/70*
U.S. Cl. 340—146.3 FT **8 Claims**



1. An apparatus for recognizing a presented pattern as being in one of a plurality of predetermined classes of patterns, having generating means for generating a predetermined combination of signals representing the geometric configuration of the presented pattern, said predetermined combination of signals defining a feature vector of the presented pattern, projecting means for projecting said feature vector onto one of a plurality of sets of predetermined multi-dimensional subspaces, each of said sets characterizing a specific predetermined class of patterns, selector means for selecting one of said patterns as the presented character according to a predetermined algorithm employing the results of said projections prior to said entire projection process being completed wherein the improvement comprises:

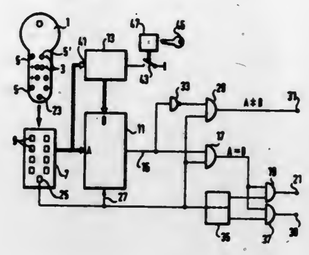
switching means operative to sense said presented pattern as being a switch character within one of said predetermined classes of patterns and in response thereto projecting said feature vector onto the set of predetermined multi-dimensional subspaces containing said switch character.

4,274,080

MAGNETIC SECURITY SYSTEM

Gerd Brunken, Dittelbrunn, Fed. Rep. of Germany, assignor to Sachs-Systemtechnik GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Oct. 23, 1979, Ser. No. 87,539
Claims priority, application Fed. Rep. of Germany, Nov. 3, 1978, 2847730
Int. Cl.³ H04Q *9/00*
U.S. Cl. 340—149 R **5 Claims**



1. A magnetic security system particularly for alarm devices with an electrically actuated lock mechanism comprising: magnetic key means having a plurality of magnet devices defining an operating code; sensor means including magnetic sensors responsive to said magnetic devices operative to read a code defined on said key means when said key means is operatively interposed relative to said sensor means; code storage means operatively associated with said sensor means for storing information representative of a code and for releasing said sensor means when magnetic key means bearing a code stored in said storage means is operatively interposed relative to said sensor means; electrical control means operatively associated with said sensor means for delivering an electrical signal determined by the code on said key means sensed by said sensor means; and means for changing the code stored in said code storage means including lock means for enabling and disabling changes in said stored code; said lock means comprising a mechanical lock, an electrical contact operated by actuation of a push-button and a flap member operative to cover and uncover said push-button to prevent and enable access thereto, said mechanical lock operating to control said flap means.

4,274,081

DATA INPUT APPARATUS

Nobutaka Nomura, Hadano; Hiroshi Kido, Hiratsuka, and Kazunari Yamada, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

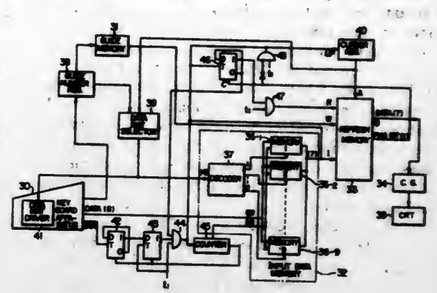
Filed Aug. 7, 1979, Ser. No. 64,507
Claims priority, application Japan, Aug. 11, 1978, 53-97201
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—153 **21 Claims**

1. A data input apparatus for inputting various types of data comprising:

display means for displaying a selected one of a plurality of types of guidance information representative of different types of data to be inputted and the order in which the data is to be inputted, said display means including cursor means for designating an area corresponding to a part of said displayed information into which data is to be inputted;

an input device including a plurality of data entry means and definition determining means having a plurality of definitions for each of said entry means for providing each of said entry means with a selected one of said definitions; and

selection means coupled to said definition determining means for selecting one of said definitions for said entry



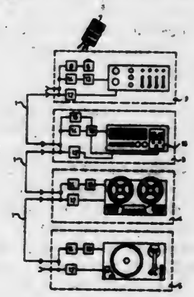
means in response to the area designated by said cursor means and the type of guidance information selected.

4,274,082

TRANSMISSION SYSTEM FOR THE DIGITAL CONTROL OF DEVICES

Heinz Litz; Volker Hallwirth, both of St. Georgen, and Karl Storz, Hardt, all of Fed. Rep. of Germany, assignors to Dual Gebrüder Steidinger, St. Georgen, Fed. Rep. of Germany

Filed Sep. 28, 1979, Ser. No. 79,721
Int. Cl.³ H04Q *5/14, 7/00*
U.S. Cl. 340—167 R **2 Claims**



1. Transmission system for the digital control of electrical devices, by means of uniform releaseable pulse combinations corresponding to the desired control operations, which pulse combinations selectively can be sent from at least a first and a second of the devices to be controlled to a line system, the line system connecting all devices in parallel, particularly for the remote control of electronic devices used in the entertainment field comprising

a two-conductor connection line (1) to which all devices to be controlled are connectable in parallel,

an energy supply circuit means (12) disposed in a first one of the devices to be controlled, said circuit means (12) for making available a constant voltage, said constant voltage, upon connection of the device to the connection line (1), being provided as bias voltage to the connection line (1),

a hand-operable control means (6, 7) for the production of the previously mentioned pulse combinations and for making these pulses available as electrical pulses,

a first conversion circuit means (8) in said first device (2), connectable to said connection line (1) with the connection of said first device (2) with the connection line (1) and containing a first circuit means (24, 20, 23), said first circuit means (24, 20, 23) for reducing the bias voltage of the connection line (1) for the duration of a pulse which is received by said hand-operable control means (6, 7) by a

first amount, which amount corresponds to a part of its value, and

a microprocessor means (13) arranged in the second device (3) equipped for transmission of pulse combinations to a first terminal (38) for control of the devices to be controlled and equipped for transmission of a signal voltage to a second terminal (28, 29), said signal voltage being essentially constant for the duration of the transmission of said previously mentioned pulse combinations,

adjustment means (16) for the predeterminable adjustment of the point in time when said microprocessor means (13) of the second device (3) transmits said previously mentioned pulse combinations for the control of the devices and for said signal voltage,

a second conversion circuit means (15) arranged in said second device (3), and containing a first circuit and a second circuit, both said first circuit and said second circuit on the one hand with the connection of the second device (3) with said connection line (1) being connectable to the connection line (1) and on the other hand with said first circuit being connected to said first terminal (38) and said second circuit to said second terminal (28, 29) of said microprocessor means (13) of said second device (3),

second circuit means (37, 39) arranged in said first circuit for reducing the bias voltage of the connection line (1) for the duration of a pulse by an amount which corresponds approximately to double the amount of the first conversion circuit (8),

third circuit means (25, 26) arranged in the second circuit for lowering the bias voltage of the connection line (1) for the duration of the signal voltage by about the same amount as the first circuit means of the first conversion circuit means (8),

another microprocessor means (13) arranged in another device to be controlled for controlling desired device functions after receiving corresponding pulse combinations,

a third conversion circuit means (14) arranged in the another device to be controlled and with the connection of the latter device with said connection line (1) on the one hand said third conversion circuit means (14) is connectable to said connection line (1), and on the other hand is connected with said another microprocessor means (13) inside the latter device to be controlled and contains electrical switching means (40 to 48), said electrical switching means for coupling out free of direct current the pulse-like voltage reductions of the connection line (1) and for retransmitting to the said another microprocessor means (13) for triggering of corresponding functions.

4,274,083

APPARATUS FOR IDENTIFYING MOVING OBJECTS

Eiichi Tomoeda, 17-4-503, Sengoku 3-chome, Bunkyo-ku, Tokyo, Japan

Filed Dec. 12, 1978, Ser. No. 968,680

Claims priority, application Japan, Dec. 16, 1977, 52-151477; May 26, 1978, 53-63073

Int. Cl.³ H04Q *9/00*; G08G *1/00*; G01S *9/56*

U.S. Cl. 340—171 R **6 Claims**

1. Apparatus for identifying each of a plurality of moving objects comprising:

an electromagnetic field generator for radiating over a given area an electromagnetic field having a predetermined frequency,

a plurality of moving object identification signal generators, each adapted for mounting on one of said movable objects and comprising

a receiver unit tuned to said predetermined frequency,

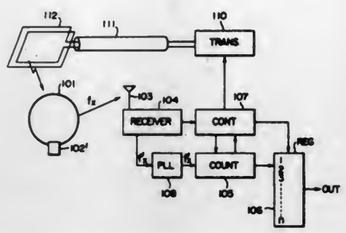
a transmitter unit for transmitting an unmodulated signal at a specific frequency, said specific frequency identifying the particular object on which the signal generator is mounted, and

a timer unit energized by said receiver unit upon receipt of said predetermined frequency, said timer unit then operating said transmitter unit for a predetermined interval which is the same for each of said plurality of signal generators, and

identifying apparatus comprising

a receiver for receiving the unmodulated signals generated by the transmitter units of said signal generators,

a phase locked loop circuit coupled to the output of said receiver, said phase locked loop circuit stabilizing the output of said receiver by generating an output signal



having a frequency coinciding with that of the signal of greatest magnitude among a plurality of signals at the output of said receiver, and

a counter coupled to the outputs of said receiver and said phase locked loop circuit, said counter counting the output of said phase locked circuit when the output of said receiver exceeds a predetermined level to generate an output signal having a code corresponding to the specific frequency of the received signal of greatest magnitude.

4,274,084

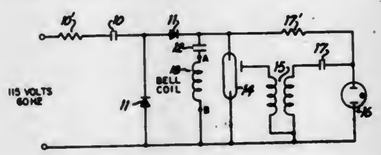
AUDIO-VISUAL SIGNAL CIRCUITS

Rein Haus, Manasquan, N.J., assignor to Wheelock Signals, Inc., Long Branch, N.J.

Filed Oct. 26, 1979, Ser. No. 88,632

Int. Cl.³ G08B *7/00*

U.S. Cl. 340—326 **5 Claims**



1. A circuit for producing an audio-visual alarm comprising:

a flashtube;

voltage signal generator means for generating and storing a first voltage across said flashtube and a second voltage on the trigger terminal of said flashtube, said first and second voltages increasing in amplitude to a point at which said flashtube operates, discharging the stored voltage and delivering current from said generator means through said flashtube; and

audio signal generator means including a coil located in series with said flashtube and said voltage signal generator means, for producing an audible sound in response to the flow of current from said voltage signal generator means, upon discharge of said stored voltage, the inductance of said coil being such that the current flow through it and the operation of the flashtube are not adversely affected.

4,274,085

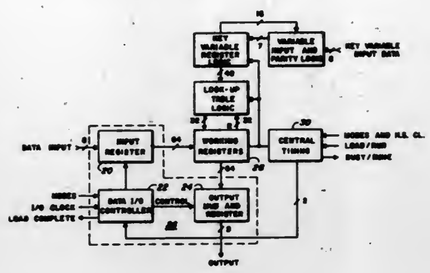
FLEXIBLE MODE DES SYSTEM

Joseph T. Marino, Jr., Chandler, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 28, 1979, Ser. No. 53,018

Int. Cl.³ G06F *5/04*

U.S. Cl. 340—347 DD **4 Claims**



1. In a digital processing system, the combination comprising:

at least one working register, said at least one working register having an input and outputs, said outputs further comprising:

a predetermined byte position output; and

a plurality of byte position outputs;

an input register, said input register being controllable for accepting one of serial and parallel inputs, said input register further comprising a plurality of switching means for switching a plurality of sub-registers of said input register to one of serial and parallel configuration;

an output circuit, said output circuit having connections to said at least one working register for accepting one of a single byte from said predetermined position in said at least one working register and a plurality of bytes from said plurality of byte positions in said at least one working register, said output circuit being controllable for outputting one of a serial bit stream and a serial stream of parallel bytes, said output circuit being connected to said input register;

a control circuit, said control circuit being connected to said input register, said at least one working register and to said output circuit, said control circuit being adapted to select one of said outputs of said at least one working register for application to said output circuit, one of said serial and parallel inputs to said input register and one of said outputs of said output circuit, said control circuit being adapted to supply clock pulses to said input register, said working register and said output circuit, said clock pulses having timing sequences responsive to a combination of said selections of said control circuit.

4,274,086

SECURITY ALARM SYSTEM

Wolfgang Beeckendorff, Peissenberg, and Hans Kübler, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

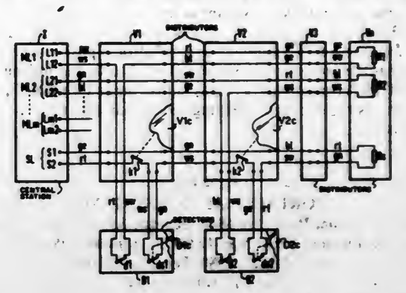
Filed Jul. 2, 1979, Ser. No. 53,685

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1978, 2834143

Int. Cl.³ G08B *23/00*, *17/00*

U.S. Cl. 340—506 **4 Claims**

1. In an alarm system of the type in which a plurality of current paths extend as alarm lines from a central station to a plurality of detectors by way of a plurality of distributors, and in which the current path alarm lines are defined by a first cable section extending between the central station and a first distributor, a plurality of second cable sections extending between adjacent distributors, and a plurality of third cable sections extending between the distributors and respective detectors, and in which the cable sections have color-coded conductors therein for the alarm lines, the improvement wherein:



the color-coded conductors of each of the cable sections being randomly interconnected with different color-codes connected to one another such that each color-coded conductor of each cable section defines a different current path alarm line between their respective system elements connected thereby.

4,274,087

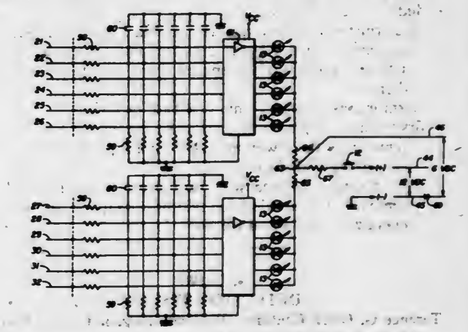
ANNUNCIATOR MONITOR CIRCUIT

Dan E. Swanson, 1340 Paradise Dr., Martinez, and Frederick A. Reschert, 2734 Kevin Rd., San Pablo, both of Calif.

Filed Aug. 22, 1979, Ser. No. 68,836

Int. Cl.³ G08B *25/00*

U.S. Cl. 340—525 **10 Claims**



1. An annunciator monitor for use with a protection loop having a plurality of series connected status switches, said annunciator monitor comprising:

power input terminal means adapted to be coupled to a source of electrical power;

a plurality of status signal input terminals adapted to be coupled in a preferred order between said status switches, each of said status signal input terminals being adapted to be coupled between a different pair of said plurality of status switches;

a plurality of input resistor divider networks each coupled between a different one of said status signal input terminals and ground for providing a minimum operating voltage threshold signal at an output terminal thereof, each said resistor divider network having a relatively high input resistance;

a plurality of high sensitivity low power gating circuits each having an input terminal coupled to the output terminal of a different one of said plurality of input resistance divider networks;

a plurality of light emitting diode indicators each having a cathode terminal coupled to a different one of said plurality of gating circuits and an anode terminal coupled to a common junction; and

power application means coupled between said common junction and said power input terminal means for enabling the anode terminal of each of said light emitting diode indicators to be coupled to said electrical power source so that the presence of a status signal of sufficient magnitude at the corresponding status signal input terminal causes the associated light emitting diode indicator to be illuminated.

4,274,088

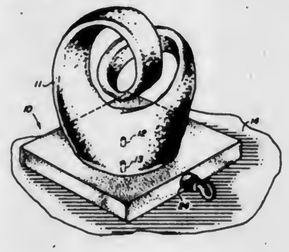
PORTABLE ALARM SYSTEM

Don H. Pierson, P.O. Box 1849, Sedona, Ariz. 86336, and Robert D. Pierson, 10943 N.E. 133rd St., Kirkland, Wash. 98033

Filed May 27, 1980, Ser. No. 153,169

Int. Cl.³ G08B *13/14*

U.S. Cl. 340—568 **10 Claims**



1. A portable alarm system for protecting exposed valuables including in combination;

an alarm housing base member having a lower surface for placement on a support member and having an upper article support surface spaced from said lower surface thereof;

alarm means located within said base member;

first means coupled with said alarm means for sensing the removal of the lower surface from a support member for energizing said alarm means; and

second means coupled with said alarm means for sensing removal of an article from said upper support surface for energizing said alarm means.

4,274,089

DETECTION SYSTEM

Terence G. Giles, Coulsdon, England, assignor to U.S. Philips Corporation, New York, N.Y.

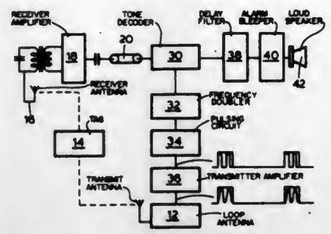
Filed May 21, 1979, Ser. No. 41,225

Claims priority, application United Kingdom, May 19, 1978, 20705/78

Int. Cl.³ G08B *13/22*

U.S. Cl. 340—572 **9 Claims**

1. A detection system comprising an oscillator for generating a signal having a first frequency, a transmitter having an aerial for transmitting an interrogating signal, a responder movable relative to the aerial having a first resonant circuit for detecting the interrogating signal, having a second resonant circuit for transmitting a reply signal, the resonant circuits being tuned to frequencies mathematically related to each other and being interconnected by a coupling device which activates the second resonant circuit in response to the detection of the interrogating signal, the system further comprising a receiver having an aerial for receiving the reply signal, a detector coupled to a receiver output and an indicator coupled to a detector output and signalling the presence of a responder characterized in that a frequency changer is connected between the oscillator and the transmitter for producing as said interrogating signal a second signal having a second frequency which is related mathematically to the first frequency, that the first resonant circuit is tuned to the second frequency and the second resonant circuit is tuned to the first frequency and that



the detector comprises a comparator connected to the oscillator for comparing a signal from the oscillator having the first frequency with a signal from the receiver having substantially the first frequency for producing an output if the two frequencies are substantially the same.

4,274,090

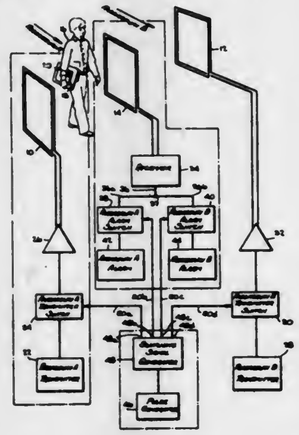
DETECTION OF ARTICLES IN ADJACENT PASSAGEWAYS

Michael N. Cooper, Flushing, N.Y., assignor to Knogo Corporation, Hicksville, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,807

Int. Cl.³ G08B *13/24*

U.S. Cl. 340—572 **8 Claims**



1. An article theft detection system for identifying which of two ciosely positioned passageways a protected article passes through, said system comprising

transmitter means including, first and second transmitter antennas for producing electromagnetic interrogation signals in the vicinity thereof,

receiver means including a single receiver antenna positioned between said first and second transmitter antennas to define first and second adjacent passageways each extending between said receiver antenna and a different one of said transmitter antennas so that each passageway has produced therein the interrogation signal for its associated transmitter antenna,

at least one electronic target capable of being mounted on an article for protecting said article, said target comprising an electrical device which, when present in one of said passageways, reacts with the interrogation signal therein to produce predetermined electromagnetic disturbances at said single receiver antenna,

said receiver means being responsive to said predetermined electromagnetic disturbances to produce electrical alarm signals at a receiver output,

first and second alarm means each being operable by said electrical alarm signal to produce a recognizable alarm,

first switching means arranged to cause said first and second transmitter antennas to produce said interrogation signals alternately during successive time intervals, and

further switching means connected between the receiver output and said first and second alarm means to apply receiver outputs, including said alarm signals, to said first and second alarm means alternately during said successive time intervals.

4,274,091

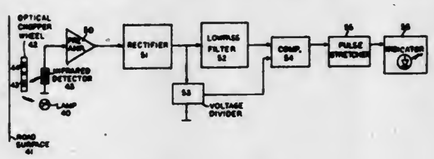
ROAD SURFACE ICE DETECTOR AND METHOD FOR VEHICLES

Peter W. Decker, Sausenheimer Str. 29, 6718 Grunstadt 1, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 884,908, Mar. 9, 1978, abandoned. This application Jan. 17, 1979, Ser. No. 4,173

Int. Cl.³ G01J *3/34*; G08B *21/00*

U.S. Cl. 340—583 **11 Claims**



1. A method of detecting from vehicles the presence of ice on traveling surfaces comprising:

generating a train of light pulses from light originating at the vehicle and reflected from the traveling surface for return to the vehicle for detection, and processing said light pulse train to comprise interleaved measurement light pulses and reference light pulses, said measurement light pulses comprising frequencies in at least one absorption band for ice, and said reference pulses comprising frequencies outside the absorption bands of ice;

detecting at the vehicle said light pulse train and generating electrical signal pulses corresponding in amplitude to the detected light pulses, thereby providing a train of interleaved measurement and reference electrical signal pulses;

dividing said generated electrical signal pulse train along first and second parallel electrical paths; deriving a mean value voltage signal from the amplitude of the measurement and reference pulses of the electrical signal pulse train along said first path;

adjusting the amplitude of the pulses in said second path to equal or not exceed the mean value voltage derived in the first path with no ice on the traveling surface when the measuring and reference pulses are substantially unchanged;

comparing the amplitude of signals in the first and second paths and generating pulses when each reference pulse in the second path exceeds the mean value voltage in the first path by a threshold difference;

processing said comparison threshold difference indicating pulses for indicating the presence of ice on the traveling surface.

4,274,092

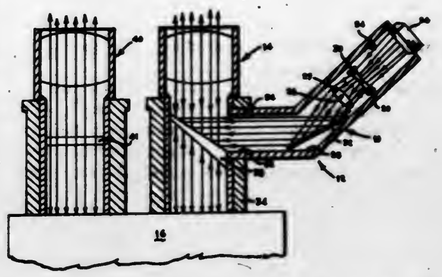
DISPLAY SYSTEM FOR MICROSCOPIC OPTICAL INSTRUMENTS

Richard S. Vonsen, and Jeffrey P. Woodard, both of Rome, N.Y., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 7, 1979, Ser. No. 91,991

Int. Cl.³ G06F *3/14*

U.S. Cl. 340—705 **8 Claims**



1. In an optical viewing instrument having at least one eyepiece incorporated therein and said eyepiece having a surrounding side wall and an opening at an end thereof for viewing imagery in optical alignment therewith, the improvement therein being in the form of a display system, said display system comprising an aperture located in said side wall of said eyepiece, a hollow housing having a pair of open ends, said housing being connected adjacent one of said open ends thereof to said side wall of said eyepiece and in optical alignment with said aperture, a display means operably connected to the other of said open ends of said housing for providing a beam of radiant energy containing information, focusing means located within said housing and in optical alignment with said beam of radiation containing information for directing said beam through said aperture in said eyepiece, directing means located within said eyepiece adjacent said aperture and in optical alignment with said beam of radiant energy for directing both said imagery and said beam through said opening in said eyepiece to an observer using said optical instrument, said information from said display means being superimposed over said imagery, whereby said observer can utilize said optical instrument for viewing both said imagery located in optical alignment with said optical instrument and said information from said display means.

4,274,093

KEYBOARD-DISPLAY COMBINATION

John F. X. Judge, Yorktown Heights, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Feb. 26, 1979, Ser. No. 15,018

Int. Cl.³ G06F *3/14*

U.S. Cl. 340—712 **10 Claims**



1. A keyboard-display arrangement in combination with a controlled system capable of performing a plurality of system functions, comprising:

a flexible screen having extended upper and lower surfaces;

a series of keys which are functionally and structurally integral with said screen and disposed in an array, each of said keys being substantially invisible when disabled and visible when enabled at said upper surface of said screen, each of said keys being operative to initiate a particular system function and comprising a contact switch responsive to and actuated upon depression of a corresponding surface portion of said screen, said controlled system being responsive to each of said keys, as selectively actuated, to initiate said particular system function;

first means for enabling selected ones of said keys;

means for rendering said enabled keys visible at said upper surface of said screen; and

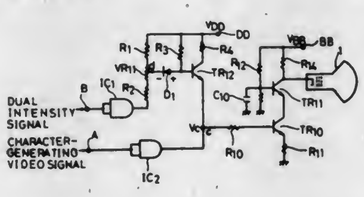
second means responsive to said keys, as selectively actuated, for controlling said first means to enable others of said keys operative to initiate other system functions in proper sequence with said particular system function by a selected one of said keys and for disabling remaining ones of said keys.

4,274,094

CATHODE-RAY TUBE DISPLAY APPARATUS

Satoshi Noguchi, Fujisawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 5, 1979, Ser. No. 45,766
Claims priority, application Japan, Jun. 13, 1978, 53-71709
Int. Cl.³ G08B 5/36
U.S. Cl. 340—723 **14 Claims**



1. A video amplifier circuit for cathode ray tube display apparatus comprising:

a cathode ray tube,

a first switching element for receiving an input video signal and for making a switching action in response to said input video signal,

a second switching element for receiving an input dual intensity signal for shifting the intensity level of selected parts of the images displayed on a screen of said cathode ray tube into a brighter accentuated intensity level and a darker non-accentuated intensity level, and

a video signal amplifying stage,

a variable voltage feeding circuit comprising a variable voltage dividing circuit connected between an output terminal of said second switching element and a power supply terminal,

a transistor connected by its collector substantially to said power supply terminal and by its emitter to an output terminal of said first switching element and to an input terminal of said video signal amplifying stage,

a diode connected between a variable voltage output terminal of said variable voltage feeding circuit and the base of said transistor, the direction of said diode being backward to the direction of the base current of said transistor, and

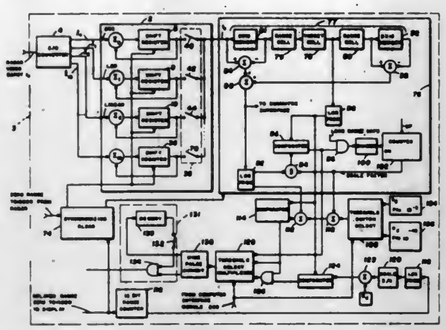
a base resistor connected to said base to feed the base current of said transistor.

4,274,095

RADAR VIDEO CONVERTER

Joe Phipps, Westminster; Robert E. Thurber, Silver Spring, and Richard J. Prengaman, Severna Park, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 21, 1979, Ser. No. 22,402
Int. Cl.³ G02S 7/44
U.S. Cl. 343—7 A **8 Claims**



1. A radar video converter for interfacing a two-dimension sweeping radar and a digital computer, comprising:

an adaptive video processor which comprises:

an azimuth integration stage, having video returns in digital form as inputs, for summing the video returns at each of a plurality of azimuths, the sum for each azimuth being taken over a plurality of ranges, and for providing an output corresponding to the sum of video returns at each respective azimuth,

a mean level detector stage for receiving the output from the azimuth integration stage and for suggesting the presence of a target at a given azimuth when a target cell signal corresponding to the video return at the given azimuth at a given time exceeds a background threshold derived from signals at neighboring azimuths combined in a predetermined fashion,

a batch/batch correlation stage for determining target detection correlation between successive sums of video returns summed at a given range on subsequent sweeps,

means for providing a plurality of fixed threshold levels,

means for separately comparing the fixed threshold levels with the target cell signal of the mean level detector stage, and

threshold selection multiplexer means for selecting the mean level detector output or one of the fixed threshold comparing means outputs for use in determining a target detection output.

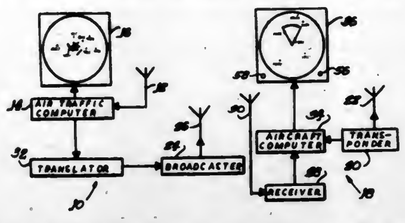
4,274,096

AIRCRAFT PROXIMITY MONITORING SYSTEM

Terry A. Dennison, 1133 Elizabeth, Naperville, Ill. 60540

Filed Jul. 9, 1979, Ser. No. 55,992
Int. Cl.³ G01S 3/02
U.S. Cl. 343—112 TC **19 Claims**

1. An aircraft proximity monitoring system comprising: ground-based means for continuously and repeatedly deriving and transmitting signal information representative of the speeds and positions relative to a first location of each and every one of a plurality of aircraft within a predetermined range of said first location, means on at least one of said plurality aircraft within said range of said first location for receiving said signal information, means on said one aircraft for identifying the portion of said signal information corresponding to said one aircraft, means for transposing said signal information so as to form second signal information corresponding to the positions of others of said plurality of aircraft relative to the position of said one aircraft and means on said one aircraft responsive to said second signal information for aiding in the navigation of said one aircraft with respect to the positions of at least selected ones of said other aircraft relative to the position of said one aircraft.

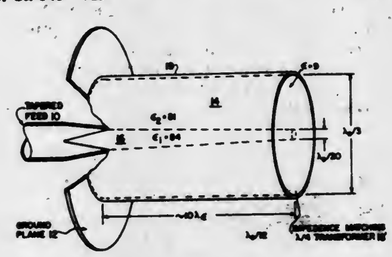


4,274,097

EMBEDDED DIELECTRIC ROD ANTENNA

Albert D. Krall, Rockville, and Albert M. Syeles, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 565,292, Mar. 25, 1975, abandoned. This application Mar. 21, 1980, Ser. No. 132,457
Int. Cl.³ H01Q 13/24
U.S. Cl. 343—719 **25 Claims**



1. An end-fired antenna element for projecting a narrow beam of energy into the surrounding environment, comprising:

feed means terminating in an aperature;

a dielectric rod of a material having a dielectric constant ϵ_1 coupled to the aperture and extending longitudinally therefrom;

a dielectric material surrounding said dielectric rod along the length thereof having a dielectric constant $\epsilon_2 \geq 81$ and substantially greater than the dielectric constant of the environment but less than the dielectric constant ϵ_1.

4,274,098

LOSS-FREE SCANNING ANTENNA

Jacques Reass, Culver City; James W. Curtis, Riverside; Donald S. Nicholson, and Frank L. Hennessey, both of Los Angeles, all of Calif., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 7, 1980, Ser. No. 128,343
Int. Cl.³ H01Q 19/19
U.S. Cl. 343—781 CA **3 Claims**

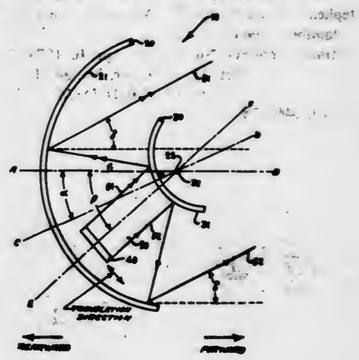
1. A two dimensional scan, loss-free, Cassegrain antenna system, comprising:

a. a stationary primary reflector in the geometric form of a parabolic surface having a front surface, a focal point, a focal length (f_1), and an axis passing through said focal point;

b. a movable subreflector in the geometric form of a parabolic surface having a rear surface and a focal length (f_2), with said subreflector being smaller than, confocal with, forward of, and facing away from said front surface of said stationary primary reflector, and with said movable subreflector having an axis passing through said focal point of said stationary primary reflector whereat this axis intersects said stationary primary reflector axis and these said intersecting axes define an angle of rotation (α) of said movable subreflector, and wherein said focal length (f_2) of said movable subreflector and said focal length (f_1) of said stationary primary reflector are related to each other in accordance with the ratio expression:

$(f_1/f_2) > 1$;

c. and, a plane wave, movable, electromagnetic radiation source emitting a collimated beam and having an axis passing through said focal point of said stationary primary reflector whereat this axis intersects said stationary primary reflector axis and these intersecting axes define an angle of rotation (β) of said movable source, with said source interposed between said stationary primary reflector and said movable subreflector, and with said source simultaneously disposed such that all rays of said collimated beam emitted by said source impinge upon, and are reflected by, said rear surface of said movable subreflector and, in turn, impinge upon, and are reflected by, said front surface of said stationary primary reflector at a constant, preselected, scan angle (δ), wherein said scan angle is determined by use of the equations



$$\delta = \beta - 2\alpha \text{ and } \sin(\beta - \alpha) = (f_1/f_2)\sin\delta$$

where:

δ = constant scan angle

β = angle of rotation of said movable source

α = angle of rotation of said movable subreflector;

whereby a relationship is established among the angles δ, β and α; and whereby said collimated electromagnetic radiation beam emitted by said source can be scanned, without loss, by said stationary primary reflector at a constant, preselected, scan angle without moving said primary reflector, and by rotating said source and said subreflector about said focal point of said primary reflector, while maintaining said relationship established by said equation.

4,274,099

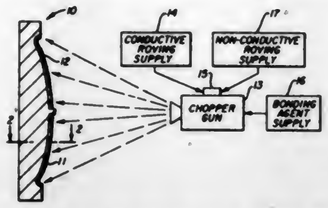
RANDOM CONDUCTIVE ROVING REFLECTIVE SURFACING FOR ANTENNAS AND GUIDES

James W. Downs, 3917 Villanova, Dallas, Tex. 75225

Filed Feb. 26, 1979, Ser. No. 15,866
Int. Cl.³ H01Q 15/14
U.S. Cl. 343—912 **43 Claims**

1. In a RF signal reflective surface equipped structure: conductive roving element lengths randomly positioned and held in place by bonding agent means; with said conductive roving

element lengths with said bonding agent means having a molded surface in the selected RF signal reflective surface shape; and wherein said conductive roving element lengths are



cut lengths of conductive material coated fiberglass fibers randomly deposited to desired density in a layer of conductive roving enclosed in said bonding agent means.

4,274,100

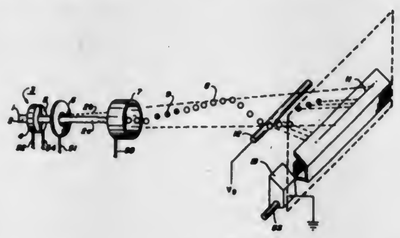
ELECTROSTATIC SCANNING INK JET SYSTEM

Stephen F. Pond, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 894,799, Apr. 10, 1978. This application Oct. 11, 1979, Ser. No. 84,010

Int. Cl.³ G01D *15/18*

U.S. Cl. 346—75 **24 Claims**



1. A fluid drop scanning recording system, comprising

drop generation means including means for ejecting conductive fluid from a nozzle in a continuous stream toward a print plane and means for exciting the fluid to break up the continuous stream into drops at a point of drop formation,

charging electrode means positioned between the nozzle and the print plane in close proximity to the continuous stream at the point of drop formation for selectively charging the drops,

scanning electrode means located between the nozzle and charging means for periodically, electrostatically deflecting the continuous stream prior to the point of drop formation to obtain a lateral distribution of the drops formed from the stream,

drop collection means located between the charging means and print plane and

electrostatic deflection means for deflecting charged drops to either the collection means or the print plane.

4,274,101

LASER RECORDER WITH PIEZOELECTRIC BIMORPH FOCAL LENGTH VIBRATOR

Keiji Katsuka, Kawagoe; Kimio Tatsuno, Kokubunji, and Susumu Saito, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 17, 1979, Ser. No. 76,427

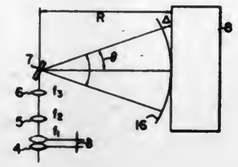
Claims priority, application Japan, Sep. 18, 1978, 53-126960

Int. Cl.³ G01D *9/42*; G02B *7/02, 27/17*

U.S. Cl. 346—108 **4 Claims**

1. In an information recording apparatus comprising a laser source for emitting a laser beam, an optical scanner for deflecting said laser beam at a predetermined deflection angle, recording means having a surface on which the deflected laser beam is recorded, and optical means for guiding to the surface of said recording means said laser beam emitted from said laser source,

the improvement in that said optical means includes at least one optical element attached to a piezoelectric bimorph



element, said piezoelectric bimorph element being driven by drive means which generates a predetermined electric signal for displacing said optical element in correspondence to the deflection angle of the laser beam deflected by said optical scanner, whereby the deflected laser beam is converted into a predetermined small light spot at any position on the surface of said recording means.

4,274,102

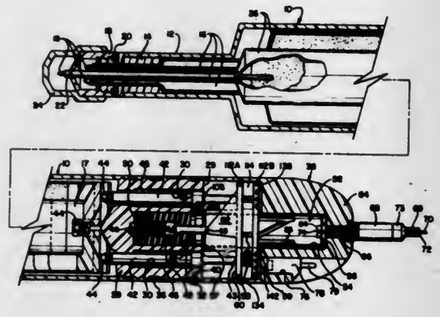
MULTI-ELEMENT WRITING INSTRUMENT

Victor Lum, 17 Pollard St., North Billerica, Mass. 08162

Continuation of Ser. No. 831,610, Sep. 8, 1977, abandoned. This application Mar. 2, 1979, Ser. No. 17,060

Int. Cl.³ G01D *9/30*

U.S. Cl. 346—139 R **26 Claims**



18. In a writing instrument of the type comprising an elongated hollow body having at one end thereof an exit opening, a plurality of elongated writing elements disposed in said body, each including a writing point at one end, said writing elements being positioned substantially parallel to and radially spaced from a center axis and mounted so that said elements can be selectively and sequentially moved substantially parallel to said axis between a retracted position wherein the writing point of a selected one of said elements is disposed within said body and an extended position wherein the writing point of said selected element extends through said exit opening; selection means for selectively and sequentially moving each of said elements from its retracted position to its extended position; and means for moving each of said elements from said extended position to said retracted position, the improvement wherein:

said selection means comprises (1) first camming means including a cylinder coaxially mounted with respect to said axis and having a cam formed on the cylindrical surface so as to provide a continuous path around said surface, said first camming means being movable, relative to said body, substantially only linearly along said axis in response to an axial force applied to said first camming means in the direction of said axis; and (2) second camming means mounted coaxially with said first camming means and including at least one follower in engagement with said cam so that in response to said axial force said second camming means moves, relative to said body, exclusively angularly about said axis.

4,274,103

AVALANCHE PHOTODIODE WITH SEMICONDUCTOR HETERO STRUCTURE

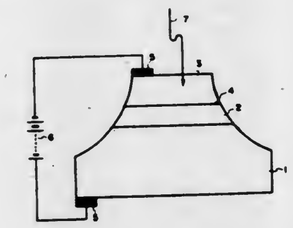
Takaya Yamamoto, Niza; Kazuo Sakai, Tokyo, and Shigeyuki Akiba, Tanashi, all of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 21, 1979, Ser. No. 50,628

Claims priority, application Japan, Jul. 17, 1978, 53-86130

Int. Cl.³ H01L *29/90, 29/161, 27/14*

U.S. Cl. 357—13 **4 Claims**



3. An avalanche semiconductor photodiode comprising: a semiconductor substrate; a first semiconductor layer formed on a surface of said substrate and conducting in an avalanche mode, in operation; and a second semiconductor layer formed on a surface of said first semiconductor layer opposite said substrate, said second semiconductor layer receptive of light energy from light incident thereon in use for rendering the photodiode conductive, and said second semiconductor layer having a composition including chemical components different than the composition of said first semiconductor layer and having lattice constants substantially matched with the lattice constants of said first semiconductor layer, wherein said first and said second semiconductor layers are respectively comprised of one of the pairs of compounds selected from the group consisting of

$In_{1-x}Ga_xAs_yP_{1-x}$ and GaAs,

$In_{1-x}Ga_xSb_yP_{1-y}$ and InP,

$In_{1-x}Ga_xAs_yP_{1-y}$ and InP,

$Al_{1-x}Ga_xAs_ySb_{1-y}$ and GaSb, and

$In_{1-x}Ga_xAs_ySb_{1-y}$ and InAs.

4,274,104

ELECTROOPTICAL INTEGRATED CIRCUIT COMMUNICATION

Frank F. Fang, and Roland Y. Hung, both of Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 21, 1979, Ser. No. 41,115

Int. Cl.³ H01L *31/12*

U.S. Cl. 357—19 **6 Claims**

1. An integrated circuit structure comprising in combination:

a semiconductor member of a material having at least in selected areas the semiconductor properties of both high carrier mobility and high electrooptical conversion;

at least one optical signal output member operable to communicate information signals from said semiconductor member;

an electrical-to-light electrooptical conversion means employing said material of said semiconductor member positioned in a discrete area of said semiconductor member adjacent to and in optical coupling relationship with each said optical signal output member;

at least one optical signal input member operable to communicate information signals to said semiconductor member;

an optical-to-electrical electrooptical conversion means employing the material of said semiconductor member



positioned in a discrete area of said semiconductor member adjacent to and in optical coupling with each said optical signal input member; and

at least one active semiconductor in a discrete area of said semiconductor member employing said material of said semiconductor member and operable to process signals between said at least one input and said at least one output.

4,274,105

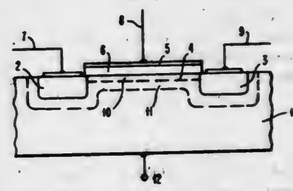
MOSFET SUBSTRATE SENSITIVITY CONTROL

Billy L. Crowder, Putnam Valley; Fritz H. Gaensslen, Yorktown Heights, both of N.Y., and Richard C. Jaeger, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,594

Int. Cl.³ H01L *29/78, 29/167*

U.S. Cl. 357—23 **3 Claims**



1. A metal oxide semiconductor field effect transistor comprising in combination:

a substrate of a semiconductor material having a first conductivity type;

a source region and a drain region separated by a channel region in a first surface of said substrate each said source region and said drain region being of a conductivity type opposite to said first conductivity type of said substrate;

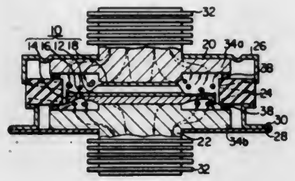
a gate electrode adjacent to and separated by an oxide layer from said channel region positioned between said source region and said drain region; and

a substrate sensitivity control region in said substrate aligned with said gate and spaced from said first surface containing low diffusivity deep level impurities of the opposite conductivity type to said first conductivity type in sufficient quantities to provide substantially equivalent opposite charges to compensate for the increase in charges that occur in said channel region as a result of an increase in source region to substrate voltage over the range of operation of said transistor.

4,274,106
EXPLOSION PROOF VIBRATION RESISTANT FLAT PACKAGE SEMICONDUCTOR DEVICE

Mitsuo Obdate, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 3, 1978, Ser. No. 957,330
Claims priority, application Japan, Nov. 7, 1977, 52-133787; Nov. 7, 1977, 52-149700[U]; Nov. 30, 1977, 52-144320; Jun. 9, 1978, 53-70098
Int. Cl.³ H01L 23/42, 23/44, 23/46
U.S. Cl. 357—79 17 Claims



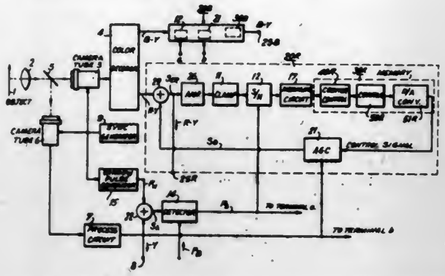
1. A flat package semiconductor device comprising, in combination, a hollow electrically insulating cylinder, a pair of opposed electrodes disposed on opposite end surfaces of said hollow electrically insulating cylinder, a semiconductor element sandwiched between said pair of cylindrical electrodes, a thin metallic annulus hermetically connected to each of said end surfaces of said hollow electrically insulating cylinder and supporting each of said electrodes to form a hermetic enclosure with said hollow electrically insulating cylinder and said electrodes, said electrically insulating cylinder having an internal inwardly extending circumferential protrusion between said electrodes, a circumferential protrusion within said hermetic enclosure radially extending from each of said electrodes opposite said internal protrusion of said hollow electrically insulating cylinder and spaced axially therefrom, and means for isolating physically said circumferential protrusions and said semiconductor element from said electrically insulating cylinder and each of said thin metallic annuli, said means being maintained in a mechanically compressed state due to a pressure applied across said electrodes and said means maintaining said internal protrusion of said electrically insulating cylinder between said circumferential protrusions of said electrodes and permitting said electrodes to be displaced with respect to said electrically insulating cylinder axially thereof.

4,274,107
MEMORY-TYPE AUTOMATIC ADJUSTMENT SYSTEM

Eiji Tamura, Tama, and Takashi Nakamura, Hadano, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Feb. 27, 1978, Ser. No. 881,372
Claims priority, application Japan, Feb. 28, 1977, 52-21848
Int. Cl.³ H04N 9/535; H03K 21/36
U.S. Cl. 358—29 19 Claims

1. A memory-type control system for producing and storing a control signal, comprising:
- signal providing means for providing a signal having a level to be controlled;
- detecting means for receiving said signal for detecting when said level is within a predetermined range;
- a source of clock pulses;
- UP/DOWN counting means for counting said clock pulses, said UP/DOWN counting means being responsive to said detecting means for counting in one direction when said level is greater than said predetermined range, for counting in a second direction when said level is less than said predetermined range and for ceasing said counting when said level is within said range so as to store the last-attained count;
- level control means coupled to said counting means for using said count as a control signal to adjust said level so as to bring said level within said predetermined range;
- preset means for presetting said counting means with a predetermined count; and

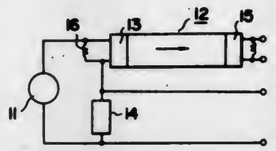


- switch means having a first condition to inhibit said counting means and being operable to a second condition to load said counting means with said predetermined count and to enable said counting means for initiating a level adjustment operation by said detecting means, said counting means and said level control means.

4,274,108
INTERLEAVED MULTIPLE SIGNAL SEPARATING CIRCUIT

Takeo Yokoyama, Ebina; Kiyoshi Fukumoto, Sagamihara, and Hiroshi Matsuura, Yokohama, all of Japan, assignors to Showa Electric Wire & Cable Co., Ltd., Kawasaki, Japan

Filed Jun. 27, 1979, Ser. No. 52,466
Claims priority, application Japan, Jul. 3, 1978, 53-80731; Apr. 28, 1979, 54-52764
Int. Cl.³ H04N 9/535
U.S. Cl. 358—31 5 Claims

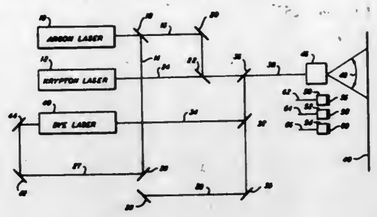


1. An interleaved multiple signal separating circuit in which a luminance signal and a chrominance signal are separated by a circuit for adding a composite video input signal including said luminance signal and chrominance signal which is delayed by a predetermined period of time by an ultrasonic solid delay line to said composite video input signal and by a circuit for subtracting said delayed composite video input signal from said composite video input signal; comprising:
- a series circuit of an input transducer of said ultrasonic solid delay line and a voltage division load connected to said input transducer,
- said input signal being applied across said series circuit,
- a delay output signal fqom an output transducer of said ultrasonic solid delay line and a signal across said voltage division load being combined to provide the sum and the difference of said two signals.

4,274,109
SCANNED BEAM COLOR VIDEO GENERATOR

Clyde M. Whitby, Duncanville, Tex., assignor to The Singer Company, Binghamton, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,051
Int. Cl.³ H04N 9/10
U.S. Cl. 358—53 9 Claims

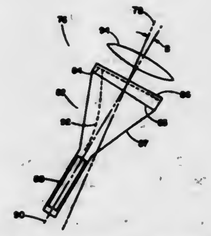


1. A scanned light beam color video signal generation apparatus for use in conjunction with a scene colored by at least two different pigments, comprising:
- (a) photoelectric means for detecting incident light thereon and providing as an output three signals containing information as to the relative spectral content of the incident light in each of three primary color wavelength regions, respectively, such that said three signals comprise a color video signal;
- (b) light beam generating means for generating a beam of white light comprising four monochromatic spectral components, wherein three of said components comprise primary color components in the red, green and blue spectral regions, respectively, and said fourth component comprises a monochromatic component intermediate in wavelength of two of said primary color components such that said fourth component lies in wavelength approximately between adjacent color distinguishable pigment reflectance fall-off regions; and
- (c) scanning means for scanning said beam of white light onto said scene, whereby the portion of said beam of white light which is reflected off of said scene is said incident light which said photoelectric means detects.

4,274,110
PROJECTION TELEVISION SYSTEM

Stanley E. Lehnert, Addison, Ill., assignor to Zenith Radio Corporation, Glenview, Ill.

Filed Jan. 8, 1980, Ser. No. 110,413
Int. Cl.³ H04N 9/31, 9/18, 5/74
U.S. Cl. 358—60 17 Claims

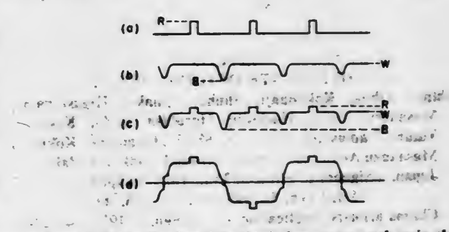


1. For use in a projection television system having a projection screen for displaying a light image cast thereon, said screen being spaced apart from at least one light projection means whose projection optical axis lies at a non-zero, acute-angle A with respect to the screen axis, said light projection means comprising:
- cathode ray tube means having a cathodoluminescent screen on the inside surface of a face panel thereof whose axis is substantially parallel to said projection optical axis, and electron-beam generating means disposed on the cathode ray tube electron-optical axis for forming an electron image on said cathodoluminescent screen which is converted to a visible image by said screen;
- lens means on said projection optical axis for projecting on said projection screen the light image of the electron-formed visible image on said cathodoluminescent screen, said light image inherently having non-linear magnification distortion attributable to the location of said projection means off said projection screen axis;
- said system being characterized by the cathode ray tube electron-optical axis defining a non-zero, acute-angle B with respect to the axis of said cathodoluminescent screen, the value of said angle B and the orientation of said electron-optical axis being selected to cause said electron-formed visible image to have an orientation and non-linear magnification distortion effective to substantially compensate for said off-axis-induced non-linear magnification distortion of said projected light image.

4,274,111
COLOR FACSIMILE SIGNAL TRANSMISSION SYSTEM

Katsuo Murase, Hachioji, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 140,113
Claims priority, application Japan, Apr. 18, 1979, 54-47550
Int. Cl.³ H04N 1/46, 9/36, 1/41
U.S. Cl. 358—75 3 Claims



1. A color facsimile signal transmission system wherein the transmitting side comprises means for setting a color signal at a level higher than that of a black-and-white signal, means for combining said color signal and said black-and-white signal to form a composite signal wherein said color signal is superimposed upon said black-and-white signal, means for converting said composite signal into a three-value signal, and means for modulating and transmitting said three-value signal; and the receiving side comprises means for receiving and demodulating said transmitted three-value signal, means for converting said demodulated three-value signal into a binary signal, and means for detecting the level of said binary signal and for separating said color signal and said black-and-white signal therefrom.

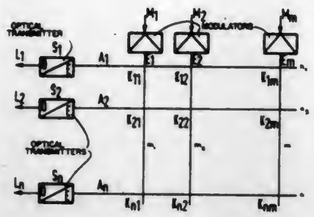
4,274,112
SWITCHING MATRIX FOR SELECTIVELY CONNECTING INCOMING SIGNALS TO DESIRED OUTPUT PATHS

Hans Leysieffer, Icking, and Klaus Panzer, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 28, 1979, Ser. No. 53,090
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1978, 2828662
Int. Cl.³ H04N 5/22
U.S. Cl. 358—181 9 Claims

1. A circuit arrangement for selectively connecting a plurality of input lines to a plurality of output lines for passing or blocking wide band modulated carrier signals which are pulse, phase, pulse duration, pulse phase, or pulse frequency modu-

lated, comprising a plurality of modulators to which said plurality of input lines are connected and performing modulation on signals passing therethrough, an electronic switching matrix with a plurality of row and column lines which cross each

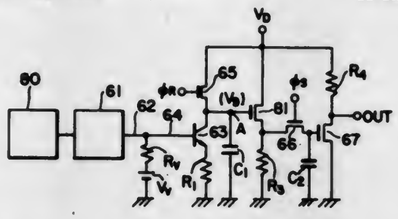


other with electronic switching means at the crossing points, the outputs of said plurality of modulators connected to said plurality of column lines, a plurality of optical transmitters connected to said plurality of row lines, and a plurality of output lines connected to said plurality of optical transmitters.

4,274,113
SOLID-STATE IMAGING DEVICE

Shinya Ohba, Kokubunji; Shuhei Tanaka, Higashiyamato; Masaharu Kubo, Hachioji; Haruhisa Ando, Kokubunji; Yataro Yamashita, Hachioji; Shoji Hanamura, Kokubunji; Masakazu Aoki, Hachioji, and Masaaki Nakai, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 5, 1980, Ser. No. 118,743
Claims priority, application Japan, Feb. 7, 1979, 54-12248
Int. Cl.³ H04N 3/12, 3/14
U.S. Cl. 358—212 **11 Claims**

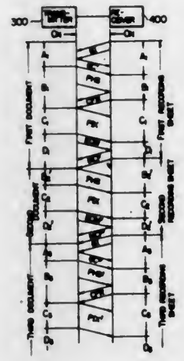


1. In a solid-state imaging device having a sensor portion which reads out photo information stored in a plurality of photodiodes disposed in a surface region of a semiconductor body, with a discontinuous horizontal scanning pulse train, and a signal processing circuit which integrates and eliminates noise components of video signals provided from said sensor portion; a solid-state imaging device characterized in that said signal processing circuit comprises a first emitter (source) follower circuit in which a first transistor receiving the video signals and a first load are connected in series, a second transistor which is connected in series with said first emitter (source) follower circuit and which receives a reset signal, a capacitance which is connected between a collector of said first transistor and a ground terminal, and a second emitter (source) follower circuit which receives a collector (drain) output of said first transistor and which detects an integration value of a discharge current of said capacitance.

4,274,114
PICTURE INFORMATION TRANSMITTING METHOD FOR FACSIMILE

Yasuyuki Kozima, Hitachi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 1, 1979, Ser. No. 90,430
Claims priority, application Japan, Nov. 6, 1978, 53-135811
Int. Cl.³ H04N 1/32, 1/36
U.S. Cl. 358—257 **8 Claims**

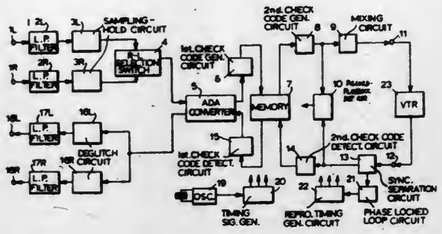


1. A picture information transmitting method for a facsimile system comprising steps of;
- sending a group identifying signal by receiver informing that the receiver is in a reception ready mode,
- transmitting a group command signal by a transmitter which has determined a transmitting mode in response to the received group identifying signal,
- transmitting a phasing signal by the transmitter in succession to termination of the group command signal,
- sending a reception-ready signal by the receiver when preparatory conditions for receiving picture information have been established in the receiver on the basis of the group command signal and the phasing signal,
- transmitting the picture information signal of document to be transmitted by the transmitter after the reception of the reception-ready signal,
- recording the picture information as received by the receiver,
- transmitting the end-of-message signal by the transmitter upon completed transmission of the picture information signal of the document,
- sending a message confirmation signal by the receiver after reception of the end-of-message signal,
- wherein transmission of the picture information of a second document in succession to the picture information of the first document in the same transmitting mode, the transmission and the reception of at least the group identifying signal and the group command signal are omitted, which omission is previously informed to the receiver so that the receiver remains in the state ready for reception of the picture information of the second document, whereby the picture information of the second document as sent out from the transmitter is immediately received and recorded by the receiver.

4,274,115
APPARATUS FOR DETECTING RECORDING AND REPRODUCING STATE

Ryoichi Wada, Habikino; Takanori Senoo, Katano, and Kanji Odagi, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 9, 1979, Ser. No. 37,331
Claims priority, application Japan, May 12, 1978, 53-56917
Int. Cl.³ G11B 15/12, 27/36
U.S. Cl. 360—62 **6 Claims**

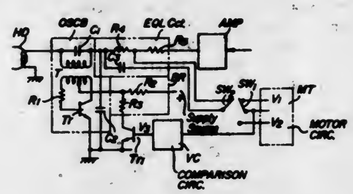


1. In a pulse code modulation adapter apparatus used with a video tape recorder for converting audio band signals to pulse code modulation codes used for recording and reproduction, an apparatus for detecting recording and reproducing state, comprising signal processing means for comparing for a predetermined period data from signals transmitted from the pulse code modulation adapter apparatus to the video tape recorder with data from the signals received by the pulse code modulation adapter apparatus from the video tape recorder, wherein the result of said data comparison is used for detecting whether the video tape recorder is in the recording or reproducing state.

4,274,116
TAPE RECORDER

Masatoshi Ida, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 25, 1978, Ser. No. 927,831
Claims priority, application Japan, Jul. 29, 1977, 52-91174
Int. Cl.³ G11B 5/45, 5/02
U.S. Cl. 360—65 **9 Claims**

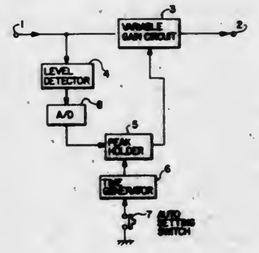


1. A tape recorder having a tape speed changing mechanism and comprising a magnetic recording and reproducing head, an oscillation circuit connected to the head, an equalizing circuit connected to the oscillation circuit, a biasing circuit connected to the oscillation circuit, a motor control circuit for setting a motor speed, a speed changing switch connected to the motor control circuit for changing the motor speed, a second switch interlocked with the speed changing switch, characterized in changing means for changing the bias of the biasing circuit in accordance with the position of the speed changing switch and for changing the frequency characteristics of the equalizing circuit in response to the second switch which is interlocked with the speed changing switch, said changing means including a transistor responsive to the position of said speed changing switch for grounding a portion of the current in said biasing circuit, said speed changing switch when in one position exhibiting one of the voltages in said motor control circuit and when in the other position exhibiting another voltage of said motor control circuit, said transistor responding to the voltage at said switch, a comparison circuit connected to the speed changing switch for sensing the voltage at the speed changing switch and connected to the transistor for varying the conductivity of the transistor.

4,274,117
DIGITAL RECORD LEVEL SETTING SYSTEM

Masao Tomita, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 5, 1979, Ser. No. 91,498
Claims priority, application Japan, Nov. 6, 1978, 53-137108; Nov. 17, 1978, 53-142592
Int. Cl.³ G11B 5/02
U.S. Cl. 360—68 **10 Claims**



1. A digital record level setting system comprising:
- a variable gain circuit located within an input terminal and an output terminal;
- a level detector which detects the level of the signal applied to said input terminal;
- an A-D converter which converts to digital signal the analog voltage at said level detector;
- an operation switch for setting the record level automatically;
- a time generator of which the pulse width determines the period to search a maximum level of said level detector; and
- a peak hold means which holds the maximum value of said digital signal during said pulse width at said pulse generator, whereby the amplitude of said input signal applied to said input terminal is controlled in accordance with digital signal from peak holder so as to respond to the maximum input level for a constant period.

4,274,118
SYSTEM FOR THE RECORDING AND PLAY-BACK OF VIDEO SIGNALS

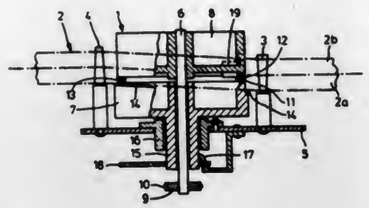
Hans Mangold, Fuerth, Fed. Rep. of Germany, assignor to Grundig E.M.V., Fed. Rep. of Germany

Filed Aug. 13, 1979, Ser. No. 65,875
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1979, 2847550
Int. Cl.³ G11B 5/08, 5/55, 5/56, 15/60
U.S. Cl. 360—84 **5 Claims**

1. 1. In a system for the recording and playback of inclined track video signals wherein a length of magnetic tape is supported by guide means to extend partially about a head drum having at least one video head thereon, the improvement comprising:
- said tape being divided longitudinally with the slant tracks on one half the tape width being disposed to be recorded/played back when the tape is fed in one direction and the slant tracks on the other half of the tape width being disposed to be recorded/played back when the tape is fed in the opposite direction;

tape means for feeding said tape past said head and for automatically reversing the direction of feed of said tape when at least one end of said tape reached; and,

means for changing the relative position of said video head with respect to said tape when said tape feed means reverses direction whereby said video head is in operative position for the inclined tracks on one half the tape width when the tape travels in one direction and said video head is in operative position for the inclined tracks in the other



half of the tape width when the tape travels in the opposite direction,

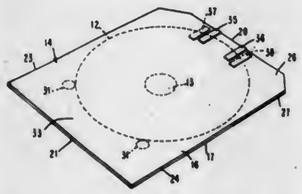
said position changing means including means for shifting said head drum in the direction perpendicular to the direction of travel of said tape and said head drum includes a first rotating portion supported on a second portion, said guide means includes a tape support extending helically about said second portion, and means for pivoting said second portion 180° each time said tape changes direction.

4,274,119

RECORDING DISK COVER AND PLAYER APPARATUS FOR REMOVING COVER

Curtis E. Hayward, Wappingers Falls, and Friedhelm Maurer, Poughquag, both of N.Y., assignors to Discovision Associates, Costa Mesa, Calif.

Filed Dec. 26, 1978, Ser. No. 973,421
Int. Cl.³ G11B 5/012, 23/02, 25/04
U.S. Cl. 360—97 8 Claims



1. A record cover for a video disk or the like comprising:

an upper part and a lower part of a non-magnetic material having a generally rectangular perimeter sealed together along a back edge, open along a front edge and sealed only along a part of each side edge to form separable front flaps, and

a first insert of a paramagnetic material carried by the flap of the upper cover part and extending rearwardly for a predetermined distance from the front edge of the flap,

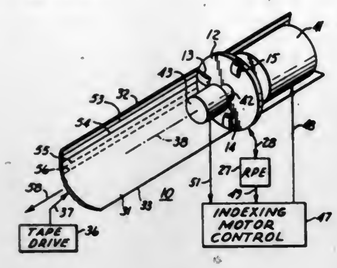
a second insert of paramagnetic material carried by the lower flap, the first and second inserts being laterally offset from each other.

4,274,120

INFORMATION RECORDING METHODS AND APPARATUS

Stewart E. Farnham, Mountain View, Calif., assignor to Bell & Howell Company, Chicago, Ill.

Filed Jan. 22, 1979, Ser. No. 5,539
Int. Cl.³ G11B 5/54, 21/08
U.S. Cl. 360—106 15 Claims



1. A method of recording information in several parallel tracks with a recording device on a recording tape having edges parallel to said tracks, comprising in combination the steps of:

curving said tape between said parallel edges;

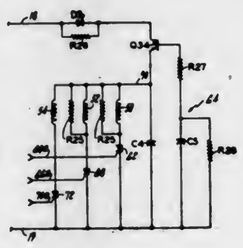
applying said recording device to said tape in information transducing relationship and recording information serially in said parallel tracks by moving said tape relative to said applied recording device in a direction parallel to said edges, selectively applying information to said recording device for recordation on said tape, restraining said recording device against any movement having a component extending away from either of said edges as long as an information recordation takes place in any of said tracks, and selectively releasing said restraint, between recordations in different tracks and incrementing said recording device angularly along the curvature of said curved tape from one to another of said different tracks.

4,274,121

TARGET CIRCUIT FOR CIRCUIT BREAKER STATIC TRIP UNIT

Edward K. Howell, Simsbury, Conn., assignor to General Electric Company, New York, N.Y.

Filed Jul. 31, 1979, Ser. No. 62,386
Int. Cl.³ H02H 3/04
U.S. Cl. 361—96 15 Claims



1. In a circuit breaker static trip unit having at least one current transformer for developing a secondary current proportional to a distribution circuit phase current flowing in its primary, a rectifier for rectifying the secondary current, a trip unit power supply connected with the rectifier for developing from the rectified secondary current a supply voltage across first and second buses to power the trip unit, a burden resistor

connected with the rectifier for developing a signal voltage proportional to the rectified secondary current, separate overcurrent trip mode networks for processing the signal voltage pursuant to developing a trip signal for triggering a thyristor into conduction to draw activating current from the trip unit power supply buses through a trip coil then operating to trip the circuit breaker, a target indicator circuit including, in combination:

A. a target;

B. a target thyristor electrically connected in series with said target between a third bus and the second trip unit supply bus;

C. a driver circuit electrically connected with said target thyristor and operable to trigger said target thyristor into conduction;

D. control means operating in conjunction with the tripping of the circuit breaker to activate said driver circuit to trigger said target thyristor into conduction; and

E. a target power supply including

(1) a storage capacitor connected between said third bus and the second trip unit supply bus,

(2) a transistor having an emitter-collector circuit connected between the first trip unit supply bus and said third bus, and a base-emitter junction, and

(3) an RC network connected between the first and second trip unit supply buses through said base-emitter junction;

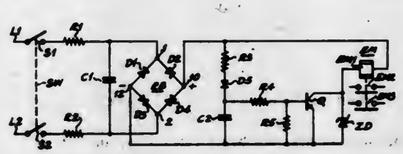
(4) whereby said storage capacitor is dynamically charged from the trip unit power supply through said emitter-collector circuit under the control of said RC network, and said storage capacitor discharging through said target when said target thyristor is triggered into conduction.

4,274,122

ENERGIZING AND QUICK DEENERGIZING CIRCUIT FOR ELECTROMAGNETIC CONTACTORS OR THE LIKE

James E. Hansen, Oak Creek, and Jerome G. Heinz, Milwaukee, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jun. 20, 1979, Ser. No. 50,482
Int. Cl.³ H01H 47/32
U.S. Cl. 361—159 6 Claims



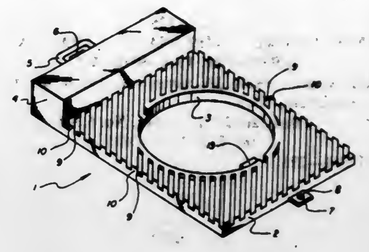
1. In combination, a full wave rectifier bridge having input terminals for connection to and disconnection from a source of alternating potential, an electromagnetic device having a control coil, and means including a first solid state device connected in circuit with the control coil of said electromagnetic device across the DC output terminals of said rectifier bridge for energizing said operating coil with unidirectional current only when AC potential is applied to the input terminals of said rectifier bridge and a second solid state device connected in parallel with the main current conducting circuit of said first solid state device which is rendered active when alternating potential to the rectifier bridge is disconnected to provide rapid discharge circuit for said control coil inclusive of portions of said rectifier bridge.

4,274,123

ANIMAL REPELLANT APPARATUS

Thurmond J. Rogers, Jr., 7245 Fairbanks, N. Houston, Houston, Tex. 77040

Filed Aug. 1, 1979, Ser. No. 62,722
Int. Cl.³ H05C 1/02
U.S. Cl. 361—232 10 Claims



1. An animal repellant apparatus comprising

a flat mat of an insulating elastomeric material having at least one opening of a size and shape to receive a trash can,

an electric power source secured on said mat,

said mat having spaced ridges and grooves in the surface thereof,

a plurality of wires extending along the surface of at least some of said grooves, with at least part of said wires embedded partly in said surface and having their upper surfaces exposed and uninsulated,

means connecting alternate ones of said wires to one side of said power source, and

means connecting the remaining wires to the other side of said power source,

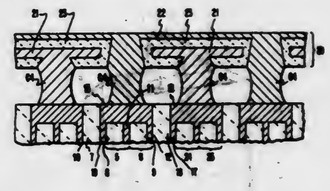
whereby an animal stepping on any two adjacent wires will be shocked and repelled, and whereby said grooves provide for drainage of water from said mat to prevent short circuiting said wires.

4,274,124

THICK FILM CAPACITOR HAVING VERY LOW INTERNAL INDUCTANCE

Irving Feinberg, Poughkeepsie, and Leon L. Wu, Hopewell Junction, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 26, 1979, Ser. No. 106,640
Int. Cl.³ H01G 1/147
U.S. Cl. 361—275 6 Claims



1. A capacitor comprising a multiplicity of closely spaced conductive plates,

some of said plates being connected to a first terminal, the remainder of said plates being connected to a second teraminal, said terminals comprising first and second parallel levels of metal separated by a first dielectric layer, said first and second levels of metal extending in a direction perpendicular to the direction of said plates,

said plates being spaced from each other by second dielectric layers, and

means for connecting said plates at the same ends thereof to respective ones of said terminals whereby the current of said capacitor flows in opposite spacial directions in the adjacent facing plates,

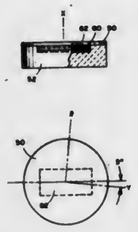
said means for connecting comprising a matrix of discrete connectors forming spaced parallel rows and spaced parallel columns at right angles to said rows.

4,274,125

TEMPERATURE COMPENSATED CAPACITANCE PRESSURE TRANSDUCER

Ronald F. Vogel, DeKalb, Ill., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jan. 23, 1979, Ser. No. 6,301
Int. Cl.³ H01G *7/00*
U.S. Cl. 361—283 **12 Claims**



1. A pressure transducer comprising:

a crystalline deflection plate;

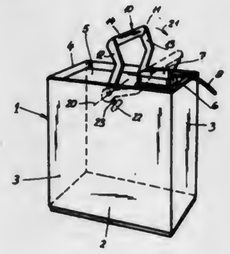
a clamping plate having a rectangular recess therein, said deflection plate and clamping plate being held together at least at the periphery thereof so that said deflection plate deflects into said recess in response to pressure difference thereacross, the crystallographic axes of said deflection plate being arranged with respect to the longitudinal axis of said recess to produce a quadradic transducer deflection versus temperature curve.

4,274,126

HOUSING FOR FLASH APPARATUS WITH AT LEAST ONE FLASH BULB SOCKET

Walter Haberthur-Heilig, Hofstetten/SO, Switzerland, assignor to Bron Elektronik AG, Allschwil bei Basel, Switzerland

Filed Dec. 20, 1978, Ser. No. 971,534
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1977, 7739045[U]
Int. Cl.³ H02B *1/08*
U.S. Cl. 361—334 **6 Claims**



1. An accessory combination for a flash apparatus which includes: a housing that receives a condenser arranged therein with at least one socket having a plug-in opening and arranged on said housing for connection with flash tubes, an adjustable blocking device provided on said housing and including at least one adjustable blocking member movable into a blocking position for blocking said socket, and also including at least one movable control member adjustable together with said blocking member, and a network switch having a control pin arranged within the path of movement of said at least one movable control member, said blocking member and said control member assuring against unintended flashing and arcing in said socket, said network switch being a microswitch, said at least one movable control member comprising arm means pivotally mounted on said housing and having one end from which said blocking member projects at an angle of at least nearly 90°, said blocking member when in its blocking position being located above the plug-in opening of said socket covered thereby, said blocking member forming a U-shaped handle, said at least one movable control member simultaneously forming a control cam for said microswitch, said at least one movable control member of said blocking device being pivotable about an axis, and said at least one movable control member with regard to said axis in radial and circumferential direction being a cam disc, said adjustable blocking device comprising a yoke with two parallel arms having their free end sections pivotally supported by two oppositely located wall sections of said housing.

4,274,127

VEHICLE SAFETY ILLUMINATION DEVICE

Blaine E. Beck, Redfox Rd., Rt. 2, Camden, S.C. 29020, and Charles J. Corris, 2924 Aintree Dr., Columbia, S.C. 29206

Filed Jun. 9, 1976, Ser. No. 694,217
Int. Cl.² B62J *5/00*
U.S. Cl. 362—72 **4 Claims**



1. An illumination device for a multi-wheeled venicle comprising:

a housing member for being carried by said vehicle;

said housing member constructed for receiving and containing a source of power;

a hollow pole member extending from said housing so as to extend generally vertically above a vehicle frame portion;

a translucent lamp housing carried by said pole at an upper end portion thereof substantially above said vehicle frame;

a lamp socket carried in a lower portion of said lamp housing for holding a lamp for emitting a light when operatively connected to said power source;

an elongated optic rod member carried by an upper portion of said lamp housing in light receiving relationship with light emitted by said lamp;

said rod member including a plurality of circumferentially spaced light transferring grooves, each said groove having a plurality of spaced serrations formed in an outer surface along the length thereof for transferring light

received from said lamp along the length of said rod member providing a solidly illuminated rod; and

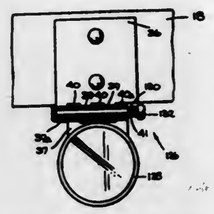
a frosted upper surface formed adjacent a remote end of said rod member for containing said light to illuminate said rod member substantially uniformly over its length providing an extended source of illumination having increased visibility.

4,274,128

FRICTION HINGED HEADLAMP OR THE LIKE

Leonard I. Malis, 219-44 Peck Ave., Hollis Hills, N.Y. 11423

Division of Ser. No. 901,486, May 1, 1978, Pat. No. 4,196,966. This application Nov. 6, 1979, Ser. No. 91,717
Int. Cl.³ F21L *15/08*; G02B *27/02*; A61B *1/06*; E05F *1/12*
U.S. Cl. 362—105 **9 Claims**



1. A head-worn lamp suitable for placement on the head of a surgeon to provide illumination during surgical procedures which comprises a harness adapted to fit the head of the wearer including an annular band for encircling the head of the wearer, a generally cylindrical light projecting element, a fiber optical light cable having one end thereof connected to said light projecting element, a plate member fixedly attached to the front portion of said annular band and having at the lower end thereof a hinge member, a mating hinge member attached to a rearward location of said light projecting element, a pin member pivotally joining said hinge members to pivotally connect said light projecting element to said plate, and resilient means urging said hinge members into frinctional engagement to prevent pivotal movement of said light projecting element without the application of external force thereto, said pin being of a length greater than the length of the mated hinge members and said resilient means comprising a spring member disposed on said pin member at an end thereof extending beyond said hinge members.

4,274,129

NOVELTY PUMP LAMP

Garland A. Stevens, Silverhill, Ala., assignor to Huff-Ste., Inc., Silverhill, Ala.

Filed Nov. 19, 1979, Ser. No. 95,659
Int. Cl.³ F21V *33/00*
U.S. Cl. 362—109 **4 Claims**

1. A novelty lamp comprising:

(a) a base member;

(b) a pump housing rigidly secured to said base member;

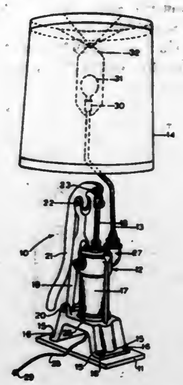
(c) a pump rod having a portion thereof extending above and vertically movable within said housing;

(d) a pump handle pivotally secured at one end to the top of said pump rod and having intermediate the length thereof a pivotal support on said housing;

(e) a light bulb, shade and support arrangement secured above and to a top portion of said housing and including a tubular support portion containing wiring for energizing said bulb;

(f) a switch mounted in an interior base portion of said housing and having a vertically positionable actuator in vertical alignment with said pump rod's path of vertical movement enabling the lower end of said pump rod to engage and be released from said actuator to control selective positioning of said switch; and

(g) an electrical supply cord having a wall outlet plug at one end and connected through said switch to said wiring connected to said bulb thereby enabling said bulb to be



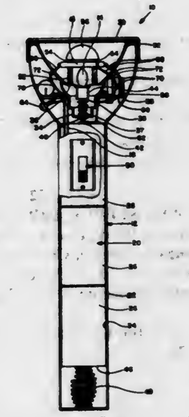
energized through circuitry established by positioning of said switch actuator through an up and down pump-like motion of said handle.

4,274,130

COMBINATION FLASHLIGHT AND HIGH INTENSITY LIGHT SOURCE

John B. Elliott, 410 Clarence La., Escondido, Calif. 92025

Filed Aug. 27, 1979, Ser. No. 69,871
Int. Cl.³ F21L *5/00, 15/02*
U.S. Cl. 362—184 **33 Claims**



1. A flashlight comprising:

a case,

a flashlight bulb, and a high intensity flash lamp in said case for transmitting light in the same direction from said case, and

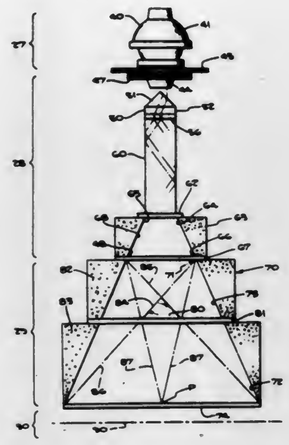
circuit means for selectively energizing said light bulb and flash lamp to continuously illuminate said bulb and flash said lamp, whereby said flashlight may be used to selectively illuminate a given area with continuous light from said bulb and illuminate the same area with high intensity light bursts from said lamp.

4,274,131

LIGHT DIFFUSING MEANS FOR A PHOTOGRAPHIC ENLARGER

Michael F. Praamsma, Santa Monica, Calif., assignor to Vivitar Corporation, Santa Monica, Calif.

Filed Jun. 14, 1979, Ser. No. 48,622
Int. Cl.³ G03B 27/54; F21V 11/00
U.S. Cl. 362—355 9 Claims



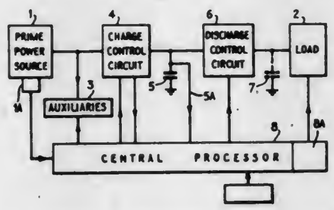
7. A light diffusing means comprising:
a diffuser body member having a light inlet opening, a light outlet opening, and an internal light reflecting chamber of frustoconical form expanding from said inlet opening to said outlet opening;
light transmitting and diffusing discs at said inlet and outlet light openings;
a transparent support means betweeen said inlet and outlet openings;
and means for increasing the amount of light intensity distributed in a radial direction at peripheral margins of the light outlet opening,
said means being supported from said transparent support means and arranged on the optical axis of said body member and spaced generally midway between said light inlet and outlet openings.

4,274,132

POWER SUPPLY ARRANGEMENTS

Robert B. Molyneux-Berry, Danbury, England, assignor to The Marconi Company Limited, Chelmsford, England

Filed Feb. 16, 1979, Ser. No. 12,727
Claims priority, application United Kingdom, Feb. 18, 1978, 6517/78
Int. Cl.³ H02M 3/335
U.S. Cl. 363—21 10 Claims



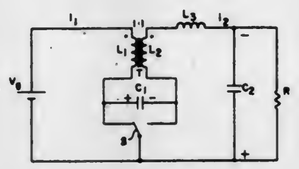
1. A power supply arrangement in which a power source is connected to supply a load which requires varying amounts of electrical power, and comprising reservoir storage means for receiving a variable level of electrical energy from said source, charge control circuit means connected between said reservoir storage means and said source for varying the level of electrical energy transferred to said storage means, discharge control circuit means connected between said storage means and the load for supplying the load with the varying amounts of electrical power required thereby, and processor means, having a first input connected to said source, a second input connected to said storage means, a first output connected to said charge control circuit means and a second output connected to said discharge control circuit means, and programmed to monitor the state of said power source to determine its capability for providing power to said reservoir storage means and to control said charge control circuit to achieve optimum charging thereof and to control said discharge control circuit to supply power to said load as required and consistent with the state of charge of said reservoir storage means and the capability of said power source.

4,274,133

DC-TO-DC CONVERTER HAVING REDUCED RIPPLE WITHOUT NEED FOR ADJUSTMENTS

Slobodan M. Cuk, Huntington Beach, and Robert D. Middlebrook, Pasadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jun. 20, 1979, Ser. No. 50,179
Int. Cl.³ H02J 1/02
U.S. Cl. 363—39 13 Claims



1. In a switching dc-to-dc converter having: inductance in series with a voltage source to form an input circuit and in series with a load to form an output circuit, energy transfer capacitance coupling one terminal of said input circuit to a corresponding terminal of said output circuit; switching means for alternately connecting said capacitance to said input circuit in series to close a current path from the source back to the source and to said output circuit in series to close a current path from the load back to the load; and means for achieving unbalanced current ripple reduction in said input and output circuits without any adjustments required in circuit components after assembly.

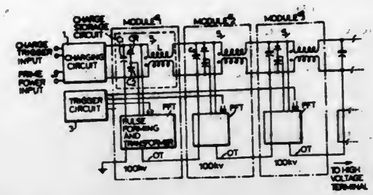
4,274,134

METHOD OF AND APPARATUS FOR HIGH VOLTAGE PULSE GENERATION

Paul R. Johannessen, Lexington, Mass., assignor to Megapulse Incorporated, Bedford, Mass.

Filed Apr. 9, 1979, Ser. No. 28,117
Int. Cl.³ H02M 3/18
U.S. Cl. 363—59 18 Claims

1. High voltage generator apparatus having, in combination, repetitively triggered charging circuit means; a plurality of successively connected similar pulse-generating modules connected with the charging circuit means and each comprising charge storage circuit means and pulse forming and transformer circuit means; trigger circuit means operable upon each charging of said charge storage circuit means of each module for thereupon triggering the transfer of the energy of such charging to the corresponding module pulse forming and transformer circuit means in order to form therein a stepped-up high-voltage output pulse, with the said high-voltage output pulse of each module thereby occurring at substantially the same instant of time, producing a resultant high-voltage output pulse corresponding to the totality of the output pulses of the pulse forming and transformer circuit means of the plurality of modules; and means cooperative with the connections between



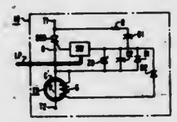
the successive modules for preventing the peak voltage within each module from exceeding the peak output voltage of the module independent of the position of the module in the plurality of modules, such that module failure results only in a reduction in the resultant output pulse power and enables continual operation even in the presence of such failure.

4,274,135

GATING CIRCUIT FOR HIGH VOLTAGE THYRISTOR STRINGS

John Rosa, and Laszlo Gyugyi, both of Penn Mills, Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 26, 1979, Ser. No. 6,831
Int. Cl.³ H02M 7/00
U.S. Cl. 363—68 16 Claims



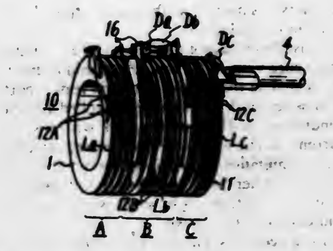
1. A current-actuated switch, compriaing:
(a) switch means with main conducting terminals for interconnection with a circuit to be controlled by said switch means and with an actuating terminal for causing said switch means to conduct current at said main terminals thereof when said actuating terminal is energized with a predetermined value of energy;
(b) first electrical energizing means disposed in cooperation with a conductor in which electrical current flows, said first electrical energizing means having a first electrical energizing means output terminal which provides electrical energy in relation to said electrical current;
(c) second electrical energizing means disposed in cooperation with said main terminals of said switch means, said second electrical energizing means having a second electrical energizing means output terminal which provides electrical energy in relation to said voltage drop; and
(d) energy storage means interconnected with said actuating terminal, said first electrical energizing means output terminal and said second electrical energizing means output terminal for storing energy which is provided to said energy storage means by either of said first or second electrical energizing means and for releasing energy of said predetermined value from said energy storage means for said actuating terminal at an appropriate time for causing said actuating switch means to conduct.

4,274,136

BOBBIN STRUCTURE FOR HIGH VOLTAGE TRANSFORMERS

Toshio Onodera, Kamakura, and Ken Tanimura, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 30, 1979, Ser. No. 71,198
Claims priority, application Japan, Sep. 1, 1978, 53-119951[U]; Sep. 1, 1978, 53-119952[U]; Oct. 20, 1978, 53-144831[U]
Int. Cl.³ H02M 7/00; H01F 27/30
U.S. Cl. 363—68 6 Claims



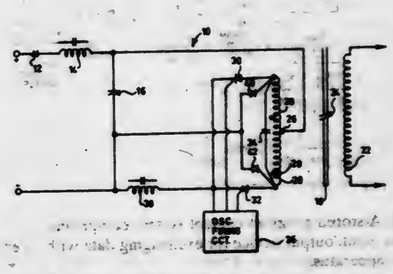
1. A fly-back transformer comprising a coil bobbin comprising a plurality of parallel spaced discs with a first adjacent plurality of said disc formed with delta shaped slots having first edges which extend tangentially to a first winding direction and a first winding wound on said first adjacent plurality of said discs in said first winding direction, a second adjacent plurality of said discs formed with delta shaped slots having first edges which extend tangentially to a second winding direction opposite said first winding direction and a second winding wound on said second adjacent plurality of said discs in said second winding direction, a third adjacent plurality of said discs formed with delta shaped slots having first edges which extend tangentially to said first winding direction and a third winding wound on said third adjacent plurality of said discs in said first winding direction and said second plurality of adjacent discs mounted between said first and third plurality of adjacent discs.

4,274,137

INVERTER CIRCUITS

Alfred M. Hase, 6 Manorwood Rd., Scarborough, Ontario, Canada

Filed Sep. 19, 1979, Ser. No. 76,859
Int. Cl.³ H02M 7/515
U.S. Cl. 363—139 5 Claims



1. In an inverter circuit having a direct current input and an alternating current output, the combination comprising:
(a) an input diode connected to said direct current source with its polarity arranged so as to be conductive under normal operation conditions of said inverter;

(b) an input filter choke in series with said direct current input and said input diode;
(c) a polarized capacitor across said direct current and said input diode and input choke, with the positive side of said capacitor facing the positive side of said direct current source;
(d) a pair of silicon controlled rectifiers facing in the same direction with respect to said direct current input, and an unpolarized commutation capacitor connected so as to be facing the side of each of said silicon controlled rectifiers which is remote from said direct current source;
(e) a drive circuit connected to the gates of said silicon controlled rectifiers so as to drive said silicon controlled rectifiers in a manner so that, at any time, one or the other of them is conductive;
(f) a transformer having a primary and a secondary winding, and a core with an air gap, where said primary winding is connected so that at any instant at least a portion thereof is in series with the silicon controlled rectifier which is conductive at that instant, and where said alternating current output is from said secondary winding;
(g) a commutation choke in series with said silicon controlled rectifiers and connected so that each of said silicon controlled rectifiers is in series with at least a portion of said commutation choke;
(h) and a feedback circuit comprising at least one diode arranged so as to be in counter-polarity to said polarized capacitor and connected to the opposite polarity side of said polarized capacitor at one side of said diode, and facing the primary winding of said transformer at the other side of said diode;

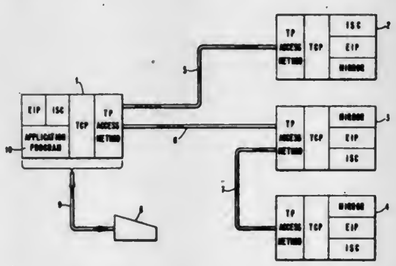
said inverter circuit thereby having fixed frequency, 180 electrical degrees direct current commutation, where the commutation is independent of the load conditions on said inverter; and having closed loop feedback which is electrically isolated from the load on said converter; and where said unpolarized commutation capacitor is a very low impedence capacitor; and said primary winding of said transformer is wound in such a manner as to substantially eliminate leakage flux.

4,274,139

DIGITAL TELECOMMUNICATION NETWORK HAVING IMPROVED DATA PROCESSING SYSTEMS

Susan D. Hodgkinson, Winchester, and Peter Homan, Romsey, both of England, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 16, 1979, Ser. No. 30,663
Claims priority, application United Kingdom, Jun. 15, 1978, 27003/78
Int. Cl.³ G06F *15/16*
U.S. Cl. 364—200 3 Claims



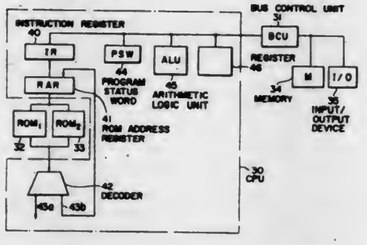
1. In a data processing system wherein a plurality of program-controlled data processing systems are interconnected as nodes in a telecommunication network, at least one of said nodes including an input/output device, and wherein each node of the network is capable of processing data according to resources associated with that node by setting up and executing a transaction process in response to each particular data processing request and any related requests presented thereto, the combination of:
means at each node of the system for determining when a local data processing request involves a transaction that requires the use of a resource held at another node of the system,
means at each node for transmitting the transaction request for the use of such a resource to the other node containing that resource,
means at each of said nodes for receiving transaction requests from other nodes in the system and for presenting each received transaction request to the data processing system at the receiving node in the same manner as though such request had originated locally at that node, thereby enabling the local data processing system to perform the transaction process associated with a request from another node as it would perform a transaction process associated with a like request originated at the local node, and
means at each of said nodes for transmitting the data resulting from said process to the requesting node.

4,274,138

STORED PROGRAM CONTROL SYSTEM WITH SWITCHING BETWEEN INSTRUCTION WORD SYSTEMS

Yoshiyuki Shimokawa, Hachioji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Feb. 13, 1979, Ser. No. 11,912
Claims priority, application Japan, Jul. 31, 1976, 51-90847
Int. Cl.³ G06F *9/22*
U.S. Cl. 364—200 3 Claims



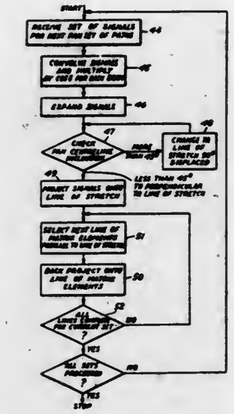
1. A stored program control system comprising:
an input/output device for exchanging data with an external apparatus,
a main memory device for storing data and instruction words including a set of universal instruction words and a set of sequence instruction words, said set of sequence instruction words containing a portion of said set of universal instruction words and,
a central processing unit including a plurality of general registers and means storing a program status word, said central processing unit controlling said input/output device and said main memory device, a portion of the bits of said program status word having a status representing selection of either said set of universal instruction words or said set of sequence instruction words, said central processing unit further including means responsive to a processed instruction word or to an internal processing sequence executed at the time of receipt of an interruption message for determining the status of said portion of bits and for selectively executing said set of universal instruction words or said set of sequence instruction words in accordance with the status of said bit portions of said program status word.

4,274,140

ARRANGEMENTS FOR CONSTRUCTING REPRESENTATIONS OF PARTS OF BODIES

David M. Watson, 17, Latchmoor Way, Gerrards Cross, Buckinghamshire, England

Filed May 9, 1979, Ser. No. 37,530
Claims priority, application United Kingdom, May 12, 1978, 19149/78
Int. Cl.³ G06F *15/42*
U.S. Cl. 364—414 9 Claims



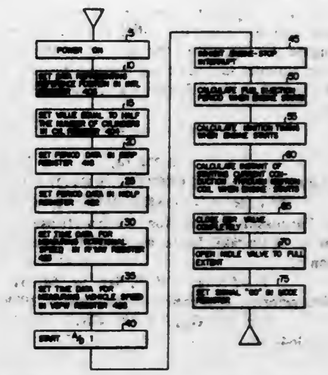
1. An apparatus for processing electrical signals derived from a computerized tomographic scanner and relating to attenuation suffered by X-radiation on traversing each of many substantially linear paths across a cross-sectional slice of a body under examination, said scanner supplying the signals in groups relating to sets of paths, the paths of each set diverging from a focus and the focus for each set being disposed at a different angular location relative to the cross-sectional slice and the signals in each group being supplemented as required by signals which are formed by interpolation between the first mentioned signals to represent attenuation for divergent paths not actually irradiated, the processing apparatus including a matrix store having a plurality of locations each of which is allocated to one of a plurality of elemental regions of the body, said elemental regions being disposed in a rectangular array in said slice; means for selecting and distributing to the locations of the matrix store contributions from the signals, both measured and interpolated, relating to path traversing the corresponding elemental regions of the body; the means for selecting and distributing including;
(a) a further store having a plurality of locations, representing a plurality of equally spaced positions on a line defined as being parallel to a plurality of parallel lines of the elemental regions,
(b) means for distributing the contributions from the signals of a group to the locations of said further store, each location receiving that contribution relating to the path passing closest to the corresponding one of said spaced positions, and,
(c) means for distributing at least a part of the contribution in said location, of the further store, to locations of the matrix store, corresponding to elemental regions of the body intersecting a line joining the corresponding one of said spaced positions to the said focus.

4,274,141

METHOD AND APPARATUS FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE, PARTICULARLY THE STARTING UP OF THE ENGINE

Hiroatsu Tokuda, Katsuta, and Toshio Furuhashi, Mito, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 18, 1978, Ser. No. 952,532
Claims priority, application Japan, Oct. 19, 1977, 52-125979
Int. Cl.³ F02D *5/00*; F02P *5/04*; G05B *15/02*
U.S. Cl. 364—431 68 Claims



1. In a method for controlling an internal combustion engine comprising
a step of detecting the operating conditions of said engine in the normal operation;
a step of calculating desired values representative of the desired operating conditions of said engine, on the basis of the detected operating conditions;
a step of setting said desired values in respective reference registers;
a step of successively comparing the content of selected one of instantaneous registers storing instantaneous conditions of said engine respectively corresponding to said desired values with said desired value set in the corresponding one of said reference registers; and
a step of supplying control signals to means for controlling the operation of said engine in accordance with the result of the each comparison so as to optimally control said engine,
said method further comprising, prior to said detecting step, the steps of:
starting a preset program in response to the turn on of the key switch,
setting in said reference registers desired initial values representing the desired operating conditions of said engine at the time of starting in accordance with said preset program, and
starting the operation of comparing one of said desired initial values with corresponding one of said instantaneous conditions of said engine successively.

7. In a microprocessor-controlled apparatus for controlling the operation of an internal combustion engine comprising means for detecting the operating conditions of said engine;
a control apparatus comprsing:
means for controlling the operating conditions of said engine;
a reference register group consisting of reference registers for respectively holding said desired values delivered from said microprocessor;
an instantaneous register group consisting of instantaneous registers for respectively holding the pieces of data repesenting the instantaneous conditions of said engine respectively corresponding to said desired values;
means for comparing successively the selected one of said

desired values in said reference registers with the corresponding one of said pieces of data representing said instantaneous conditions of said engine, held in said instantaneous registers and for supplying the results of the comparison as control signals to said means for controlling said operating conditions of said engine; and

a selecting means for sequentially selecting one of said desired values in said reference registers in a predetermined order, simultaneously reading said instantaneous conditions selectively out of the corresponding instantaneous registers, and supplying the read conditions to said comparison means, and

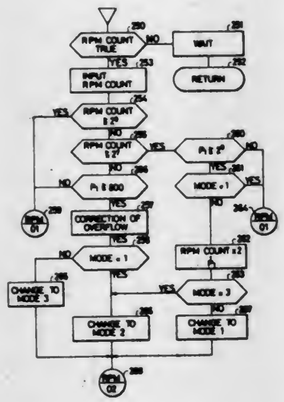
wherein said microprocessor sets in said reference registers said desired values for initial control at the start of said engine in response to the turn on of the key switch and then actuates said selecting means after the completion of the setting of said desired values in said reference registers.

4,274,142

APPARATUS FOR DETECTING REVOLUTIONS OF AN INTERNAL COMBUSTION ENGINE

Toshio Furuhashi; Osamu Abe; Kotaro Hirasawa, and Masumi Imai, all of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 7, 1979, Ser. No. 64,431
Claims priority, application Japan, Aug. 7, 1978, 53-95482
Int. Cl.³ G01P *3/488*; G01R *23/02*
U.S. Cl. 364—465 **37 Claims**



8. In an electronic control apparatus for detecting the speed of a first member moving relative to a second member comprising:

sensor means, coupled with said first and second members, for generating an output pulse for a prescribed displacement of said first and second members relative to each other;

a data processing unit for carrying out data processing operations and providing output data; and

an input/output unit coupled with said sensor means and said data processing unit;

said input/output unit comprising:

first means, coupled to said sensor means, for storing a first code, the value of which is modified in response to output pulses generated by said sensor means during a prescribed period of time; and

second means for controlling the duration of said prescribed period of time in response to output data provided by said data processing unit, said second means including

means for storing a second code, the value of which is modified of a preselected rate, and

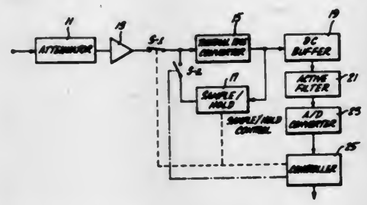
means for generating an output signal, representative of said prescribed period of time during which the value of the first code stored by said first means is modified, in response to the value of said second reaching a predetermined value.

4,274,143

RECIRCULATING RMS AC CONVERSION METHOD AND APPARATUS

Benjamin T. Brodie, and Henriecus Koeman, both of Edmonds, Wash., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed Aug. 2, 1979, Ser. No. 62,923
Int. Cl.³ G01R *15/10*
U.S. Cl. 364—483 **21 Claims**



7. Apparatus for accurately determining the RMS value of an unknown signal comprising:

(a) RMS conversion means having a relatively smooth transfer curve for converting an unknown signal into a DC signal proportional to the RMS value of the unknown signal;

(b) recirculating means connected to the output of said conversion means for recirculating the output of said conversion means back to the input of said conversion means;

(c) control means connected to said RMS conversion means and said recirculating means for controlling the application of signals to said RMS conversion means such that an input unknown signal and the output of said recirculating means are sequentially applied to said RMS conversion means; and,

(d) combining means connected to said RMS conversion means for receiving the outputs of said RMS conversion means produced when said input unknown signal and the output of said recirculating means are sequentially applied to said RMS conversion means and combining said outputs in accordance with the relationship $2Y_1 - Y_2$ to accurately determine the RMS value of the unknown signal, where Y_1 is directly related to the output produced by said RMS conversion means when said input unknown signal is applied to said RMS conversion means Y_2 is directly related to the output produced by said RMS conversion means when said output of said recirculating means is applied to said RMS conversion means.

4,274,144

FUEL CONTROL SYSTEM DEVELOPMENT APPARATUS

Paul M. Meyer, East Alton; Robert H. Beckwith, Elsah, both of Ill.; Richard D. Allman, Bridgeton, and Mark Jefferis, Webster Groves, both of Mo., assignors to ACF Industries, Incorporated, New York, N.Y.

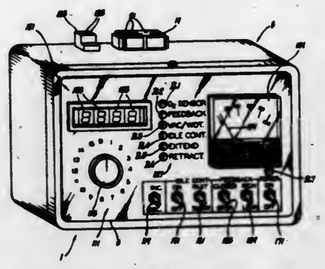
Filed Dec. 31, 1979, Ser. No. 108,496
Int. Cl.³ G06F *15/20*; G01M *15/00*
U.S. Cl. 364—551 **16 Claims**

1. Apparatus for use in developing and testing a control system for an internal combustion automobile engine, the system utilizing electromechanical devices attached to a carburetor mounted on the engine, sensors for sensing various engine operating parameters and electrical circuitry including a programmable memory having a plurality of addresses for controlling operation of the devices in response to inputs from the sensors, the apparatus comprising:

a housing locatable about the automobile in a location where it can be visually observed by an operator of the automobile, the electrical circuitry being installed in the housing;

a wiring harness for interconnecting the sensors and the electromechanical devices with the electrical circuitry;

means for selectably accessing an address in the memory, different addresses in the memory containing information relating to different aspects of the system;



means for changing the information stored in a selected memory address and thereby the operating characteristics of the system;

means for visually displaying the contents stored in a selected address so an operator of the system can visually verify the information stored therein; and

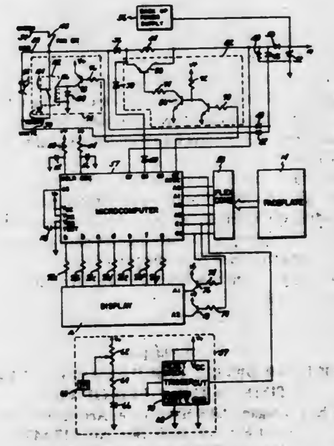
means for visually monitoring operation of the system while the engine is running thereby to determine system performance during road tests, performance of the system thus being observable under actual driving conditions.

4,274,145

DIGITAL THERMOSTAT

Donald B. Hendricks, Bloomington, and Robert M. Knight, Greenwood, both of Minn., assignors to MicroComm Corporation, Minneapolis, Minn.

Filed Dec. 31, 1979, Ser. No. 108,342
Int. Cl.³ G06F *15/20*; G05D *23/00*; F23N *5/20*
U.S. Cl. 364—557 **23 Claims**



1. A programmable temperature control apparatus for providing control signals for controlling temperature during a sequence of time intervals, the apparatus comprising:

temperature sensing means for providing a temperature signal indicative of a sensed temperature;

a plurality of heat registers for storing a plurality of time values and associated control temperature values;

a time-of-day register for storing a time-of-day value;

a heat set key for selecting one of the heat registers, recalling the contents of the heat registers, and altering the stored time values, the heat set key having a non-actuated and a user-actuated state;

a plurality of temperature keys for altering the stored temperature values, each key having a non-actuated and user-actuated state and being representative of a predetermined range of temperature values;

display means;

means responsive to the heat set key and the plurality of temperature keys for controlling the display means and the heat registers;

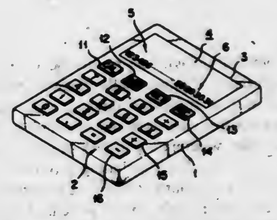
means for providing the control signals as a function of the temperature signal, the time and control temperature values, and the time-of-day value.

4,274,146

CALENDAR DATA DISPLAY DEVICE FOR AN ELECTRONIC DEVICE

Mikio Yanagawa, Akishima, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1979, Ser. No. 44,631
Claims priority, application Japan, Jun. 12, 1978, 53-70506; Jun. 14, 1978, 53-71801; Jun. 16, 1978, 53-72934; Jun. 21, 1978, 53-74077; Aug. 28, 1978, 53-104662
Int. Cl.³ G06F *15/02*; G04B *19/24*
U.S. Cl. 364—705 **35 Claims**



1. A calendar data display device for an electronic device, comprising:

display means including a numerical data display section for displaying various numerical data and a calendar display section for forming a calendar showing a desired arrangement of the dates of at least one month;

display drive means connected to said display means for driving said display means;

input means including: at least one calendar designating unit for generating a signal instructing that data for forming a calendar of a desired month be supplied to said display drive means; and at least one date data designating unit for generating a signal instructing that data displayed by said numerical data display section is preset;

control means connected to said input means for generating, in response to the output signal of said at least one calendar designating unit, a control signal instructing that the calendar of the desired month is formed;

calendar preparation means connected to said control means for preparing the calendar of the desired month under control of said control means and connected to said display drive means for supplying said display drive means with signals corresponding to the calendar prepared, said prepared calendar being formed by using the data representing the date corresponding to a specific day of the week and/or another data; and

memory means connected to said calendar preparation means and/or said input means for storing the data for forming the calendar of the desired month and/or date

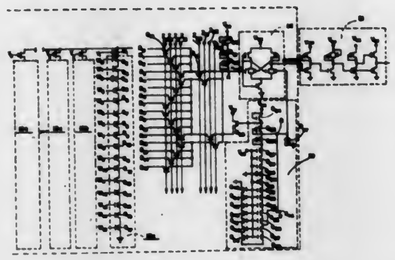
data which are to be read out upon actuation of said input means and to be displayed by said display means.

4,274,147

STATIC READ ONLY MEMORY

Clarence W. Padgett, Westminster; Melvin L. Marmet, Corona, and Mark R. Tennyson, Anaheim, all of Calif., assignors to Rockwell International Corporation, El Dequndo, Calif.

Filed Sep. 4, 1979, Ser. No. 72,383
Int. Cl.[3] G11C *7/00, 7/06*
U.S. Cl. 365—189 10 Claims



1. In combination with an electronic memory of the type having a plurality of substantially identical memory cells each composed of one transistor device, each transistor device including a control electrode and first and second conduction path electrodes, wherein a plurality of such memory cells are arranged in sets, each set including a plurality of input rows and a plurality of output columns, the control electrode of the transistor devices in each input row being formed in common, and the first conduction path electrodes of the transistor devices within each output column being connected in electrical series to the second conduction path electrode of adjacent transistor devices in each output column, so that a control electrode-controlled series conduction path is established through each output column of transistor devices in each set:

means connecting each corresponding input row in a group of said sets of memory cells to form common input lines;

means connecting each of said output columns in a group to form a single common bit line, each of said bit lines in a group being connected to a single common group output line;

a source of relatively positive and a source of relatively negative potential, said source of relatively positive potential being selectively connectable with said single common group output line so as to be connectable with one end of said series conduction path through each output column of transistors, the other end of said series conduction path being connected to said source of relatively negative potential;

a sense amplifier having a first input selectively connectable with said single common group output line by first and second series connected MOS field effect transistors, and a second input; and

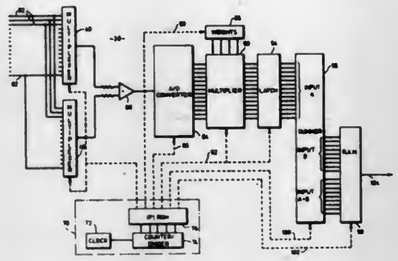
a tracking reference voltage circuit connected to one of said inputs of said sense amplifier, said voltage reference comprising a series circuit of field effect transistors having a first end terminal, an intermediate terminal, and a second end terminal connected to ground.

4,274,148

DIGITAL TIME-DELAY BEAMFORMER FOR SONAR SYSTEMS

Adrian van't Hullenaar, deceased, late of Smithville, Canada (by Christina Maria van't Hullenaar, executrix), assignor to Westinghouse Canada Limited, Hamilton, Canada

Filed Aug. 29, 1979, Ser. No. 70,686
Claims priority, application Canada, Sep. 8, 1978, 310882
Int. Cl.[3] G01S *3/80*
U.S. Cl. 367—122 3 Claims



1. An interleaved method of sampling a multi-element symmetrical array in order to form a beam related to one or more directional elements wherein the total number of samples to be taken is given as:

$$Z = Mn$$

where M is the total number of beams to be formed and n is the number of sample-sets desired to form any beam m, said method comprising the steps of:

(A) sampling each i element symmetrically disposed to the left and right of the one or more directional elements for beam m during each consecutive sampling interval z where i is defined as $o \leqq i \leqq n-1$, z is defined as $o \leqq z \leqq Z$, and m is given by:

$$m = \text{Remainder}\left[\frac{\frac{z-di}{n}+M}{M}\right]+1$$

where di is the time delay of the ith sample to the right and left of beam m with respect to its first sample expressed as an integer number of sampling intervals z and di is chosen such that Remainder [di/n] has a different integer value for each value of i, and i is determined from the remainder of di divided by n which remainder is equal to the remainder [z/r];

(B) summing together each sample taken from i elements to the right and left of beam m to form a sample-set;

(C) adding each sample-set taken to its corresponding partial sum of sample-sets and storing the partial sum; and

(D) forming the beam from the partial sum of sample-sets for each beam when the beam's respective sample-sets have been summed.

4,274,149

BINOCULAR DEVICE FOR DISPLAYING ELAPSED TIME IN THE FIELD OF VIEW

Charles E. Flanagan, 2208 Shadydale, Arlington, Tex. 76012

Filed Feb. 19, 1980, Ser. No. 117,647
Int. Cl.[3] G04B *47/00*; G02B *27/14*
U.S. Cl. 368—10 28 Claims

1. Apparatus for providing a superimposed readout of digital information onto the field of view in binoculars, comprising:

(a) binoculars, including a housing having two generally co-extensive barrels;

(b) a chronometer device for measuring elapsed time, with said device being mounted in the binocular housing and including a digital display for displaying the information generated by a time-keeping portion of said chronometer device, and said digital display being positioned within the



binocular housing so as to be visible and in focus when a user places the binocular housing adjacent his eyes for viewing something within his field of view; and

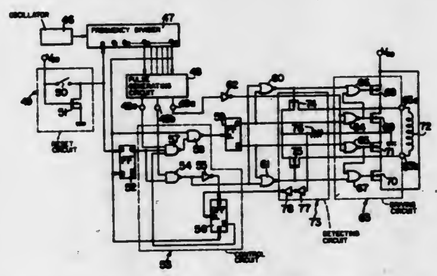
(c) switch means mounted on said binocular housing for controlling operation of said chronometer device.

4,274,150

ELECTRONIC WATCH

Masataka Ikenishi; Joichi Miyazaki; Shozo Kushida; Hiromasa Nakanishi; Makoto Ueda, and Masaharu Shida, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Jun. 27, 1978, Ser. No. 919,611
Claims priority, application Japan, Jun. 28, 1977, 52/77314
Int. Cl.[3] G04B *17/12*
U.S. Cl. 368—185 5 Claims



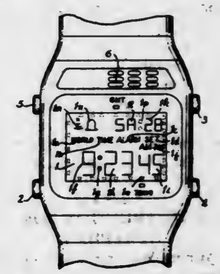
1. An electronic timepiece, comprising: an oscillator circuit for generating an oscillatory time standard signal; a divider circuit receptive of the oscillatory time standard signal for generating a plurality of repetitive pulse output signals having different respective frequencies; pulse generating means receptive of the pulse output signals from said divider circuit for generating a detecting pulse signal, a reversing pulse signal and a reference pulse signal having predetermined relative timings determined by the pulse output signals from said divider circuit; a stepping motor having a rotor and a coil for receiving electrical driving pulses; a drive circuit responsive to a control signal for applying electrical driving pulses having polarities determined by the control signal for rotating said stepping motor rotor; control circuit means responsive to output pulses from said pulse generating means and having a normal operating mode for applying to said drive circuit the control signal effective to control said drive circuit to apply alternate polarity electrical drive pulse to said stepping motor coil to rotate said stepping motor rotor in a normal direction; mechanical display means driven by said stepping motor for displaying time, said mechanical display means including a time-indicating hand which changes position to indicate the value of a unit of time; reset circuit means including a manually operable switch for resetting said divider circuit to correct the time kept by the timepiece; means actuated by said manually operable switch for stopping said time-indicating hand at one of a plurality of spaced predetermined positions when said divider circuit is reset by said reset circuit means; and rotor position detecting means for detecting whether said stepping motor is in a position to rotate in response to a forthcoming electrical drive pulse after said divider circuit has been reset by said reset circuit means and for generating and applying an electrical signal to said control circuit means which indicates whether or not said stepping motor rotor is in a position to rotate, and said control circuit means being responsive to the electrical signal generated by said rotor position detecting means for applying a driving pulse having a polarity effective to rotate said stepping motor rotor after said divider circuit has been reset.

4,274,151

ELECTRONIC WATCH HAVING AN ALARM FUNCTION AND A GLOBAL TIME DISPLAY FUNCTION

Osamu Kamiwaki, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Dec. 3, 1979, Ser. No. 99,689
Claims priority, application Japan, Dec. 4, 1978, 53-150181
Int. Cl.[3] G04B *19/22, 23/02*
U.S. Cl. 368—21 12 Claims



1. An electronic watch for use in a plurality of globel time zones, comprising:

signal-generating and signal-dividing means for generating standard signals for time data;

display means for selectively displaying time data for any of said plurality of global time zones;

means for selecting any one of said plurality of time zones for display of corresponding time data;

means for setting a global alarm time for any selected one of said plurality of time zones;

alarm function means for attracting a user's attention, said alarm function means triggering when the displayed time coincides with said global-set alarm time; and

means for coincidentally changing the global-set alarm time by an amount corresponding to the time difference between zones when the time zone for display is changed by operation of said means for selecting time zones,

whereby said alarm function means is triggered upon the occurrence in the time zone where said alarm time is set of the global-set alarm time, regardless of the zone of the time data selected for current display.

4,274,152

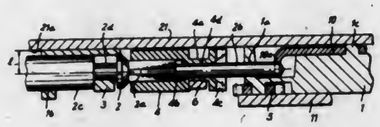
SETTING MECHANISM OF A WATCH

Toshimasa Ikegami, Suwa, Japan, assignor to Kabushiki Kaisha Suwa Seikosha, Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,689
Claims priority, application Japan, Apr. 19, 1978, 53-51653[U]
Int. Cl.[3] G04B *27/04, 19/24, 29/00, 19/20*
U.S. Cl. 368—192 19 Claims

1. A setting mechanism of a watch comprising a dial plate, a

winding stem interior to said dial plate and essentially parallel thereto, frame plate means for supporting said winding stem for rotation and for axial translation, clutch wheel means coaxially mounted on said stem and movable therewith, and a member actuatable in response to axial movement of said clutch wheel means, a first portion of said winding stem within said clutch wheel having a first cross-section for mating with said clutch wheel means for rotating said clutch wheel means with rotation of said winding stem and moving said clutch wheel means in an axial direction, said clutch wheel means having an



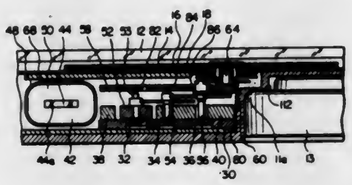
engaging annular groove around the outside surface thereof for engaging therein said member and moving said member in said axial direction, said groove being in registry with a second portion of said winding stem within said clutch wheel, said second portion of said winding stem having a second cross-section, the maximum distance in said second cross-section from the stem axis of rotation to said clutch wheel being less than the maximum distance in said first cross-section from said axis to said clutch wheel, whereby said groove can extend inwardly closer to said axis and the watch can be thinner.

4,274,153

MOVEMENT CONSTRUCTION FOR ELECTRONIC TIMEPIECE

Kazunari Kume; Minoru Watanabe, both of Tokorozawa; Hideshi Ohno, Sayama, and Munetaka Tamaru, Tokyo, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan

Continuation-in-part of Ser. No. 787,410, Apr. 14, 1977, abandoned. This application Oct. 4, 1978, Ser. No. 948,591
Claims priority, application Japan, Apr. 30, 1976, 51-49544
Int. Cl.³ G04B *19/04*
U.S. Cl. 368—80 **15 Claims**



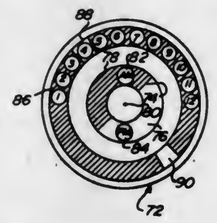
1. A movement structure for an electronic timepiece having a stepping motor and time indicating hands driven by said stepping motor, comprising:
- a time dial;
- a wheel train bridge disposed in spaced relationship with respect to said time dial;
- a base plate spaced from said wheel train bridge;
- a rotor forming part of said stepping motor and rotatably supported between said wheel train bridge and said base plate, said rotor having a rotor pinion;
- a first reduction gear rotatably supported between said wheel train bridge and said base plate, said first reduction gear meshing said rotor pinion of said rotor and having a pinion;
- a second reduction gear disposed between said wheel train bridge and said base plate and meshing said pinion of said first reduction gear, said second reduction gear being mounted on a shaft having its lower end provided with a reduction gear pinion directly and rotatably supported by said wheel train bridge;
- a center wheel disposed between said wheel train bridge and said time dial and meshing said reduction gear pinion of said second reduction gear, said center wheel driving said indicating hands.

4,274,154

LUMINOUS CLOCK DISPLAY USING OPTICAL FIBERS

A. S. Dostoomian, and Alan C. Traub, both of Canton, Mass., assignors to Vanzetti Infrared & Computer Systems, Inc., Canton, Mass.

Filed Mar. 14, 1980, Ser. No. 130,291
Int. Cl.³ G04C *19/00*
U.S. Cl. 368—82 **8 Claims**



1. A clock having a luminous display, comprising:
- (a) an enclosed housing having a display face visible at one side thereof;
- (b) a stationary light source within the housing;
- (c) optical fiber light conductors disposed to receive light at first ends from the light source and to conduct such received light to pre-determined points on the display face, said first ends being arranged in patterns within annular concentric bands, each of the bands corresponding to a different time period from the group consisting A.M./P.M., hours, minutes and seconds;
- (d) a clock motor providing a rotational output on a shaft corresponding to the longest said time periods;
- (e) an opaque disc attached to the shaft to rotate therewith, said opaque disc having transparent filter windows located in annular segments of said disc, said disc being positioned between the light source and the concentric bands of light conductor ends, so that light is blocked to the first ends within a concentric band except where a filter window is aligned with and between the light source and the first ends.

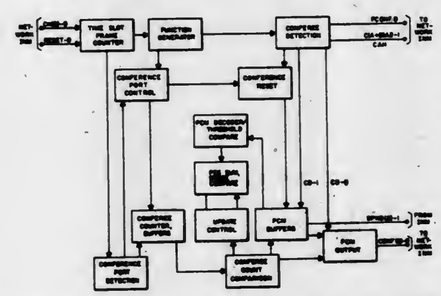
4,274,155

MULTIPORT CONFERENCE CIRCUIT WITH MULTI-FRAME SUMMING AND VOICE LEVEL CODING

Tim Funderburk, Villa Park, and Donald W. McLaughlin, Naperville, both of Ill., assignors to GTE Automatic Electric Laboratories Inc., Northlake, Ill.

Filed Aug. 6, 1979, Ser. No. 64,201
Int. Cl.³ H04J *3/02*; H04M *3/56*
U.S. Cl. 370—62 **8 Claims**

1. In a pulse code modulated (PCM) communication system,
- a plurality of communication channels arranged on a multiplexed basis,
- a switching system including a memory, a memory access for said communication channels and a conference circuit arrangement including,
- a first register connected to said memory and operated to store the pulse code modulated value of information from each of said channels conducted sequentially through said memory,
- a voice level coding means connected to said first register responsive to said information to output a code value representative of the voice level of said information, above an established threshold level,
- a second register connected to said first register and including an output circuit,
- a conferee sum storage means including an output circuit,
- binary adder means having a first input means connected to said coding means and a second input means connected to said first and said second inputs to provide an output,
- a third register connected to receive said output of said binary adder means and including an output circiut,
- a first comparator circuit connected to said binary adder means and to said third register output circuit and operated to compare said outputs and in response to a determination that the value of information stored in said binary adder means is less than the value of information stored in said third register to provide a first output signal,
- said third register operated in response to said first comparator circuit first output signal to store said binary adder means output,
- first counting means connected to said memory and periodically incremented in reponse to signals from said memory,
- a fourth register connected to said counting means and arranged to store the count of said counting means,
- a fifth register connected to said fourth register,



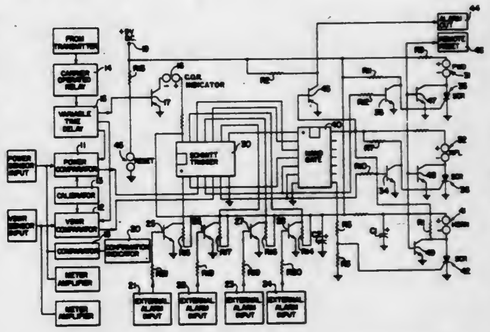
- a second comparator circuit connected to said counting means and fifth register(s) and operated in response to a determination that the count stored in said counting means and fifth register(s) are equal to provide an output signal,
- a second counting means connected to said memory and operated to count the number of sequences of said memory to provide an output signal upon the passage of a predetermined number of sequences,
- and means responsive to said second counting means output signal to operate said fifth register to accept the count stored in said fourth register,
- a sixth register connected to the output of said second register and having an output to said switching system and operated in response to said signal from said second counting means for transfer of said pulse code modulated value of information from said second register to said channels under control of said switching system,
- and gating control means connected to said first and second comparator circuits and selectively operated in response thereto to provide an update signal,
- said update signal coupled to said conferee sum storage means to operate it to accept the pulse code modulated value of information from said binary adder means for storage therein, said update signal further being coupled to said fourth register to operate the latter to transfer the count in said counting means into storage in said fourth register.

4,274,156

MONITOR FOR RF TRANSMITTER

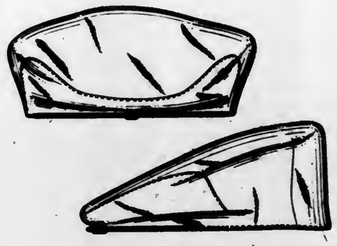
Ralph P. Trefsey, Valley View, Ohio, assignor to Bird Electronic Corporation, Solon, Ohio

Filed Jan. 18, 1978, Ser. No. 870,340
Int. Cl.³ H04B *1/04, 17/00*
U.S. Cl. 455—115 **1 Claim**



1. A device for monitoring operating conditions of an RF transmitter having an output carrier wave, said operating conditions including the RF power output and reflected voltage wave thereof, and for promptly switching off said transmitter when a faulty condition is detected, comprising:
- first comparator means comprising solid state circuit elements for comparing an input voltage signal representative of said RF power output with a predetermined reference voltage and for generating a first output signal when said voltage signal varies a predetermined amount from said predetermined reference voltage,
- second comparator means comprising solid state circuit elements for comparing another input voltage signal representative of said reflected voltage wave with another predetermined reference voltage and for generating a second output signal when said other voltage signal varies a predetermined amount from said predetermined reference voltage,
- relay means operated by the output carrier wave of said transmitter for activating said first and second comparator means,
- time delay means operatively associated with said relay means so that said first and second comparator means are actuated only when said transmitter is switched on and has reached a normal operating condition,
- a Schmitt trigger for conditioning said output voltage signals from said comparators to provide uniform steady voltage signals for transmission therefrom;
- a NAND gate adapted to receive a plurality of voltage signals from said Schmitt trigger, including voltage signals representative of said output signals from said comparators, and to output an alarm signal voltage whenever at least one voltage signal is received whereby said alarm signal voltage may be used to switch off said transmitter.

259,520
CAP
Milton Rappaport, New York, N.Y., assignor to Vendome Headwear Inc., New York, N.Y.
Filed Mar. 2, 1979, Ser. No. 16,858
Term of patent 14 years
Int. Cl. D02—*03*
U.S. Cl. D2—244



259,521
ICE SKATING BOOT WARMER
Joy L. Barr, 3 Triphammer La., Ithaca, N.Y. 14850
Filed Jun. 21, 1979, Ser. No. 51,288
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—272



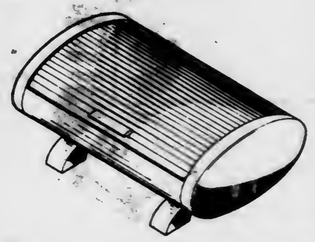
259,522
BABY SHOE
Pierre Bidegain, Pau, France, assignor to Bidegain S.A., Pau, France
Filed Feb. 6, 1979, Ser. No. 9,810
Claims priority, application France, Nov. 21, 1978, 78 855
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—278



259,523
CROCHET TOOL
M. Almeda Hopper, 19265 Mallory Canyon Rd., Salinas, Calif. 93907
Filed Jul. 30, 1979, Ser. No. 62,143
Term of patent 14 years
Int. Cl. D2—*07*
U.S. Cl. D3—28



259,524
TAMBOUR JEWELRY BOX
Bruce Erdman, 300 W. Main St., Mt. Horeb, Wis. 53572
Filed Jul. 19, 1979, Ser. No. 59,126
Term of patent 14 years
Int. Cl. D3—*01*
U.S. Cl. D3—75



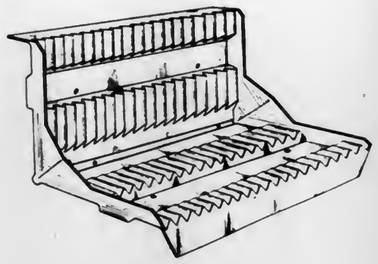
259,525
COMBINED TABLE AND UMBRELLA
Shirley Kane, 108 Fairlane Dr., Joliet, Ill. 60435
Filed Jan. 22, 1979, Ser. No. 5,611
Term of patent 14 years
Int. Cl. D6—*05*
U.S. Cl. D6—4



259,526
COMBINATION TENNIS RACKET AND HAND GRIP MATERIAL DISPLAY STAND
Larry L. Ralston, Jr., Cabarrus Country Club P.O. Box 281, Weddington Rd., Concord, N.C. 28025
Filed Nov. 23, 1979, Ser. No. 96,786
Term of patent 14 years
Int. Cl. D20—*02*; D21—*02*
U.S. Cl. D6—23



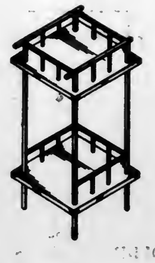
259,527
STACKABLE TRAY OR SIMILAR ARTICLE
Dominic R. Bartholomew, Jr., Fountain Valley, and Albert R. Waltz, Fullerton, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.
Filed Oct. 10, 1978, Ser. No. 949,489
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—114



259,528
DISPLAY STAND FOR MERCHANDISE
Robert Crane, Piscataway, and Seymour Mayerson, Somerset, both of N.J., assignors to Burlington Industries, Inc., Greensboro, N.C.
Filed Jan. 16, 1979, Ser. No. 3,933
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—157



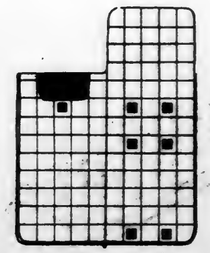
259,529
STAND FOR PLANTS OR FLOWERS
Walter T. Kola, 1418 Highland Ave., Joliet, Ill. 60435
Continuation of Ser. No. 922,088, Jul. 5, 1978, abandoned. This application Oct. 17, 1978, Ser. No. 952,121
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—179



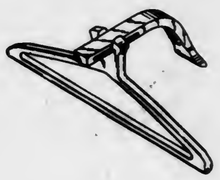
259,530
PLANT LADDER
Edward S. Korzon, Beacon Falls, Conn., assignor to Dura Plastics of New York, Bridgeport, Conn.
Filed Jul. 18, 1979, Ser. No. 58,618
Term of patent 14 years
Int. Cl. D6—*06*, *99*
U.S. Cl. D6—183



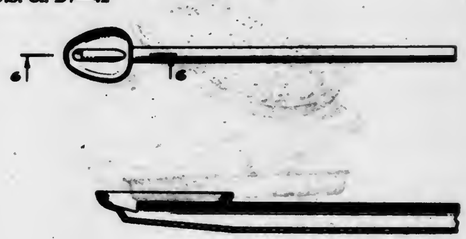
259,531
CLOSEABLE WEATHERPROOF BLANKET FOR CHILDREN
Thomas D. Prouty, 3860 Ballantrae Rd., Eagan, Minn. 55122, and Bruce A. Smith, Lions Field, Charles City, Iowa 50616
Filed Jan. 26, 1978, Ser. No. 919,403
Term of patent 14 years
Int. Cl. D6—*09*; D2—*99*
U.S. Cl. D6—201



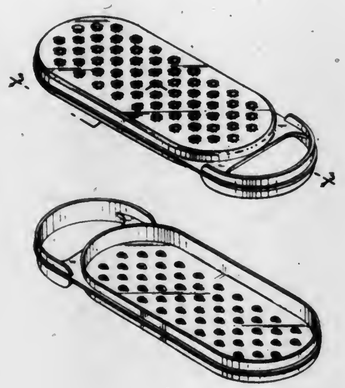
259,532
COMBINED GARMENT HANGER AND OVER-THE-SHOULDER CARRIER
Walter E. Steele, Braintree, and George W. Upham, Lynn, both of Mass., assignors to Heritage Products Corp., Reading, Mass.
Filed Jan. 2, 1979, Ser. No. 289
Term of patent 14 years
Int. Cl. D6—*08*; D8—*08*
U.S. Cl. D6—249



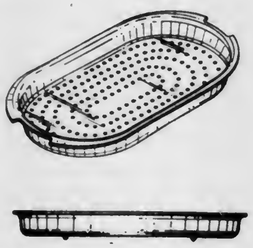
259,533
SPOON STRAW
Vaughn D. Frodsham, Tustin, Calif., assignor to Howard L. Huntington, Anaheim, Calif., a part interest
Filed Aug. 31, 1978, Ser. No. 938,428
Term of patent 14 years
Int. Cl. D07—*06*
U.S. Cl. D7—42



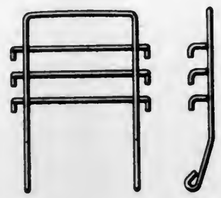
259,534
GRATER OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, and Pieter K. J. De Coster, Aalst, both of Belgium, assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Mar. 12, 1979, Ser. No. 19,963
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—47



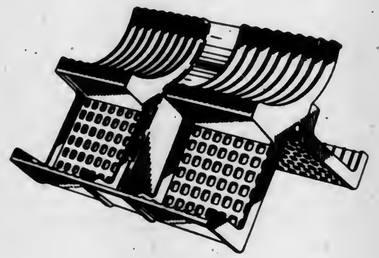
259,535
COLANDER OR THE LIKE
Robert H. C. M. Daenen, Hekelgem, Belgium, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed May 3, 1979, Ser. No. 35,571
Term of patent 14 years
Int. Cl. D07—*04*
U.S. Cl. D7—47



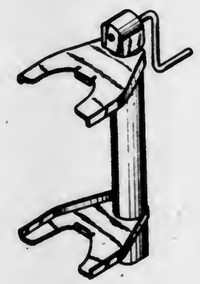
259,536
HEIGHT ADJUSTMENT MEANS FOR SELECTIVE SPACING BETWEEN CIRCULAR COOKING GRILL AND HANGING FIRE GRATE
Fred O. Douglas, Columbus, Ga., assignor to W. C. Bradley Co., Columbus, Ga.
Filed Nov. 24, 1978, Ser. No. 963,455
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—129



259,537
FOLDING DISH DRAINER
William D. Taylor, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jan. 12, 1979, Ser. No. 3,007
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—188



259,538
SPRING-COMPRESSING TOOL
B. David Bowling, 14846 Acton Dr., San Jose, Calif. 95124
Filed Jun. 2, 1977, Ser. No. 802,669
Term of patent 14 years
Int. Cl. D8—*05*
U.S. Cl. D8—59



299,539
KNOB
Teresa R. B. Pittenger, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill.
Filed Dec. 21, 1979, Ser. No. 106,236
The portion of the term of this patent subsequent to Apr. 3, 1993, has been disclaimed.
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—310



299,540
SAFETY HOOK
Stig Svensson, Ramnas, Sweden, assignor to Bulten-Kanthal AB, Hallstahammar, Sweden
Filed Jun. 15, 1978, Ser. No. 915,944
Claims priority, application Sweden, Jun. 25, 1978, 780208
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367



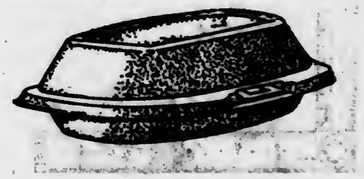
259,541
FLUID DISPENSER
Jack Halbeisen; Peter A. Basile, both of Hudson, and Carl E. Bochmann, Brecksville, all of Ohio, assignors to The Clorox Company, Oakland, Calif.
Filed Jul. 21, 1978, Ser. No. 927,110
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—300



259,542
BOTTLE OR SIMILAR ARTICLE
Vincent M. Shortino, Independence, Mo., assignor to Ethyl Development Corporation, Baton Rouge, La.
Filed Dec. 19, 1977, Ser. No. 862,238
The portion of the term of this patent subsequent to Apr. 8, 1994, has been disclaimed.
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—403



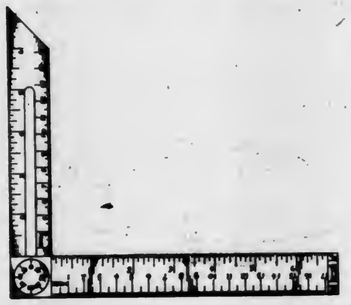
259,543
COVERED CONTAINER OR THE LIKE
Nicholas D. Cummino, Victor, and Dwight O. Palmer, Rochester, both of N.Y., assignors to Mobil Oil Corporation, New York, N.Y.
Filed Apr. 17, 1978, Ser. No. 896,878
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—426



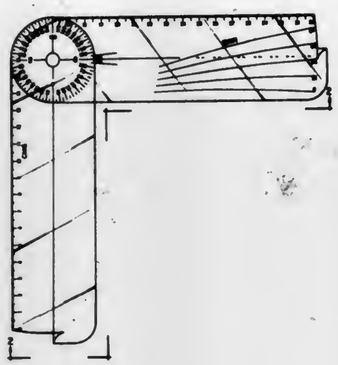
259,544
TWIST TIE DISPENSING PACKAGE
Anton Haagedoorn, Bedford, and Philip Merlin, Spring Valley, both of N.Y., assignors to A.L.A. Industries, Inc., Harrison, N.Y.
Filed Mar. 16, 1979, Ser. No. 21,240
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—419



259,545
MULTI-RULE
Ulric M. Rocheleau, 135 Pearl St., St. Albans, Vt. 05478
Filed Nov. 1, 1978, Ser. No. 956,633
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—65



259,546
DESIGN FOR COMBINED RULER AND MAGNIFYING CALIPER
Morris Simon, 8 Otis Pl., Beacon Hill, Boston, Mass. 02108
Filed Feb. 21, 1979, Ser. No. 13,053
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—65

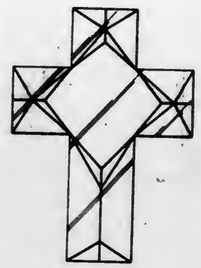


259,547
PEN RING
Genaro Texidor, 522 W. 136th St., New York, N.Y. 10031
Filed Jun. 11, 1979, Ser. No. 47,487
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—2

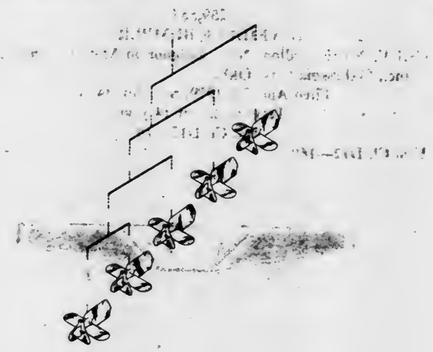




259,548
DIAMOND
Benayahu L. Najjar, 104-20 Queens Blvd., Forest Hills, N.Y. 11375
Filed Nov. 2, 1978, Ser. No. 957,239
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—90



259,549
MOBILE
Andre Jacobs, 24 rue Fernand Neuray, Ixelles, Belgium
Filed Sep. 20, 1978, Ser. No. 943,985
Term of patent 3½ years
Int. Cl. D11—*02*
U.S. Cl. D11—141



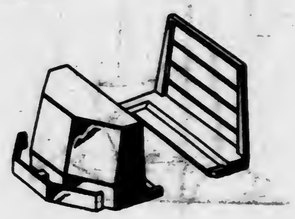
259,550
HORSEMAN FIGURE
Charles A. MacLean, 23073 Brentt, Dearborn, Mich. 48124
Filed Apr. 27, 1979, Ser. No. 33,871
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



259,551
TELEVISION SUPPORT STAND OR SIMILAR ARTICLE
Lloyd L. Outman, 8830 E. Calle Bogota, Tucson, Ariz. 85715
Filed Jan. 25, 1979, Ser. No. 6,273
Term of patent 14 years
Int. Cl. D12—*02*
U.S. Cl. D12—25



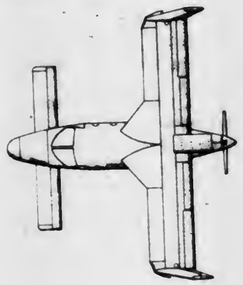
259,552
REMOTE CONTROLLED FORK TRUCK
Olof H. Lindfors, Goteborg, Sweden, assignor to Aktiebolaget Volvo, Goteborg, Sweden
Filed Nov. 24, 1978, Ser. No. 963,569
Claims priority, application Sweden, May 25, 1978, 781359
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D12—57



259,553
SUBMARINE
Richard T. Robinson, Los Angeles, Calif., assignor to August G. Carloni, Los Angeles, Calif.
Filed Jun. 22, 1978, Ser. No. 918,285
Term of patent 14 years
Int. Cl. D12—*06*
U.S. Cl. D12—308

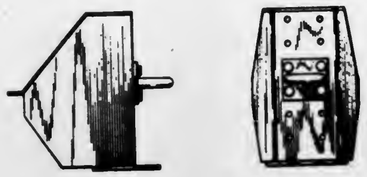


259,554
AIRCRAFT
Carl Parise, 1990 Pheasant La., Reno, Nev. 89509, and Lawrence K. Heuberger, 10605 Whitehawk La., Reno, Nev. 89506
Filed Jul. 5, 1978, Ser. No. 922,143
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—332

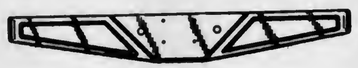




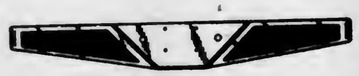
259,555
TRAILER HITCH
Edward J. Lazzeroni, Racine, Wis., assignor to Miller Tilt-Top Trailer, Inc., Milwaukee, Wis.
Filed Sep. 29, 1978, Ser. No. 947,245
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—162



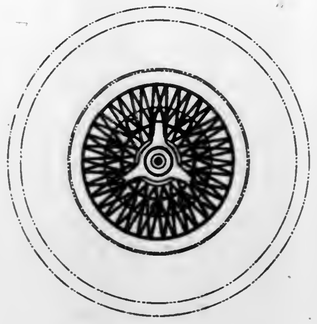
259,556
VEHICLE BUMPER
Carl V. Norris, Fallon, Nev., assignor to Metalfab Industries, Inc., Oklahoma City, Okla.
Filed Feb. 12, 1979, Ser. No. 11,317
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—169



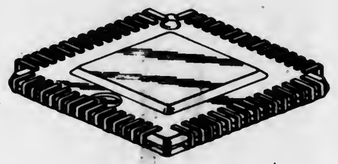
259,557
VEHICLE BUMPER
Carl V. Norris, Fallon, Nev., assignor to Metalfab Industries, Inc., Oklahoma City, Okla.
Filed Apr. 30, 1979, Ser. No. 34,363
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—169



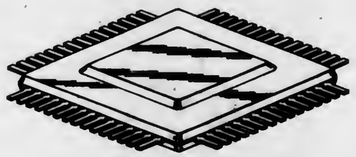
259,558
WIRE WHEEL CENTER FOR A TRUCK
Lee Simpson, 220 Clovis Ave., Apt. 102, Clovis, Calif. 93706
Filed Feb. 21, 1979, Ser. No. 13,620
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



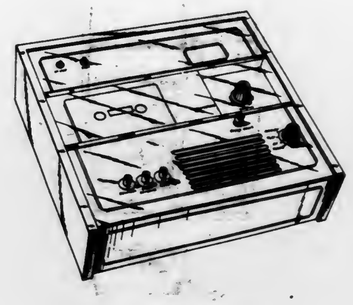
259,559
SEMICONDUCTOR
Hidetoshi Mochizuki, Fuchu; Keizo Otsuki, Higashiyamato; Hideki Kosaka, Kodaira, and Gen Murakami, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 24, 1979, Ser. No. 6,199
Claims priority, application Japan, Jul. 28, 1978, 53-31692
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—99



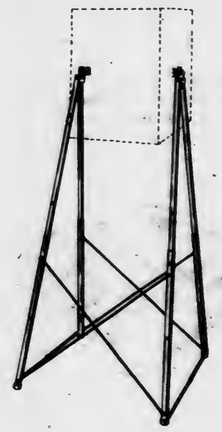
259,560
SEMICONDUCTOR
Hidetoshi Mochizuki, Fuchu; Keizo Otsuki, Higashiyamato; Hideki Kosaka, Kodaira, and Gen Murakami, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 24, 1979, Ser. No. 6,200
Claims priority, application Japan, Jul. 28, 1978, 53-31689; Jul. 28, 1978, 53-31690; Jul. 28, 1978, 53-31691; Jul. 28, 1978, 53-31697; Jul. 28, 1978, 53-31698
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—99



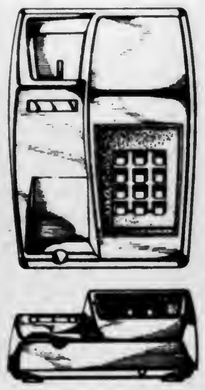
259,561
TELEPHONE ANSWERING MACHINE
Elliot I. Baum, Dix Hills, N.Y., assignor to Quasar Microsystems, Inc., Brentwood, N.Y.
Filed Jan. 8, 1979, Ser. No. 1,922
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—4



259,562
SPEAKER STAND
Darrell A. Schoenig, 432 Clover La., Ft. Collins, Colo. 80521
Filed Sep. 25, 1978, Ser. No. 945,338
Term of patent 14 years
Int. Cl. D14—*99*
U.S. Cl. D14—38



259,563
TELEPHONE INSTRUMENT STAND
Anthony M. Marshall, 30 Lakeshore Rd., Apt. 1009, Pointe Claire, Quebec, Canada
Filed Jul. 14, 1978, Ser. No. 924,870
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—60

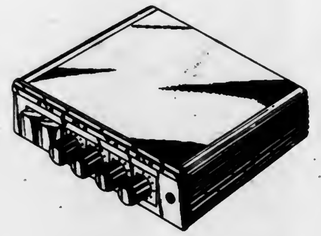


259,564
PORTABLE RADIO TRANSMITTER AND RECEIVER HOUSING
Robert R. Huntington, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.
Filed Aug. 28, 1978, Ser. No. 937,492
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—68

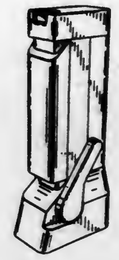




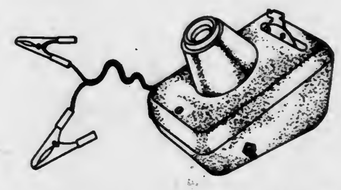
259,565
MOUNTED AMPLIFIER
Ikuo Watanabe, Tokyo, Japan, assignor to Godo Kigyo Co., Ltd., Tokyo, Japan
Filed Apr. 3, 1978, Ser. No. 893,169
Claims priority, application Japan, Dec. 21, 1977, 52-50186
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—96



259,567
CARBONATING MACHINE FOR DRINKS
Kenneth Grange, London, England, assignor to Kenwood Cascade Company Limited, Havant, England
Filed Feb. 9, 1979, Ser. No. 10,882
Claims priority, application United Kingdom, Aug. 15, 1978, 985932/78
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D15—112



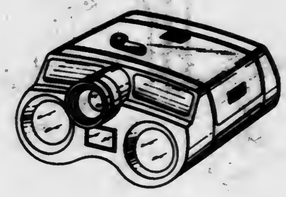
259,568
PLUG CLEANER
Kendall Swenson, Torrance, Calif., assignor to Orion Industries, Inc., Compton, Calif.
Filed Dec. 8, 1978, Ser. No. 967,710
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—125



259,566
CARPET EXTRACTOR
Paul E. Phillips, Whitehall, Mich., assignor to Clarke-Gravely Corporation, Muskegon, Mich.
Filed Mar. 28, 1979, Ser. No. 24,541
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—49



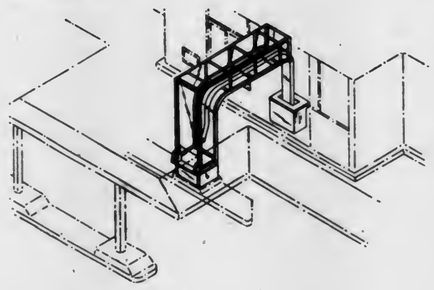
259,569
COMBINED CAMERA AND BINOCULARS
Shigeo Nishioka, Tokyo, Japan, assignor to J. Gerber and Co., (Japan) Ltd., Tokyo, Japan
Filed Nov. 27, 1978, Ser. No. 964,107
Claims priority, application Japan, May 30, 1978, 53-21951
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—01



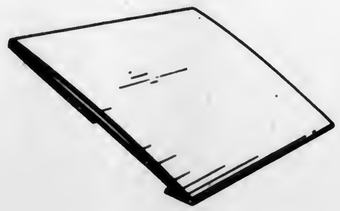
259,570
STRINGED INSTRUMENT HEAD
Masao Hoshino, Aichi, Japan, assignor to Hishino Gakki Ten, Inc., Nagoya, Japan
Filed Jun. 8, 1978, Ser. No. 914,232
Term of patent 14 years
Int. Cl. D17—*03*
U.S. Cl. D17—20

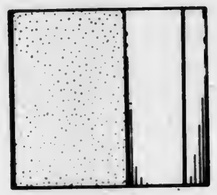


259,571
REMOTE SERVICE CONVEYOR UNIT
Stanley J. Arasim, Jr., West Milford, and Edward J. Voltas, Mahwah, both of N.J., assignors to The Mosler Safe Company, New York, N.Y.
Filed Sep. 14, 1978, Ser. No. 942,223
Term of patent 14 years
Int. Cl. D12—*05*
U.S. Cl. D18—35

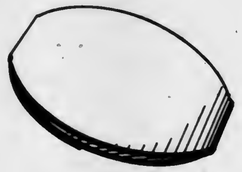


259,572
GREETING CARD
Jean-Claude Renaud, 10725 Verville St., Montreal, Canada (H3L 3G1)
Filed Sep. 18, 1978, Ser. No. 943,414
Term of patent 14 years
Int. Cl. D19—*05*
U.S. Cl. D19—1





259,573
GREETING CARD
Jean-Claude Renaud, 10725 Verville St., Montreal, Canada (H3L 3G1)
Filed Sep. 18, 1978, Ser. No. 943,520
Term of patent 14 years
Int. Cl. D19—*05*
U.S. Cl. D19—1





259,574
CASING FOR A WRITING INSTRUMENT
Olof V. Anderson, North Kingstown, R.I., assignor to Anson Incorporated, Providence, R.I.
Filed Jul. 13, 1978, Ser. No. 924,451
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—48



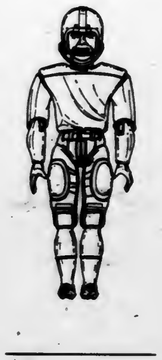
259,575
HANDLE FOR A TOY ARTICLE OF FLATWARE
Larry R. Nagode, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Jan. 14, 1980, Ser. No. 111,541
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—109



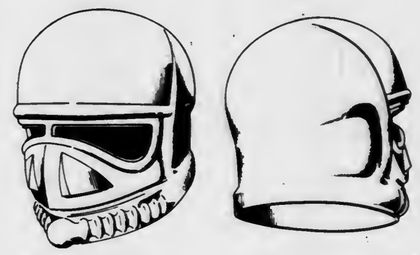
259,576
TOY TELEPHONE
Joseph J. Clement, 1220 DeNarvaez Ave., Bradenton, Fla. 33505
Filed Oct. 13, 1978, Ser. No. 951,287
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—111



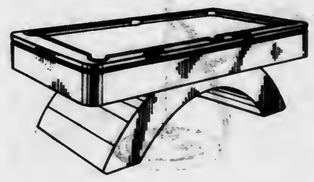
259,577
TOY FOOTBALL PLAYER FIGURE
Armando Baeza, 5543 Westmont Rd., Whittier, Calif. 90601
Filed Feb. 26, 1979, Ser. No. 15,169
Term of patent 7 years
Int. Cl. D21—*01*
U.S. Cl. D21—177



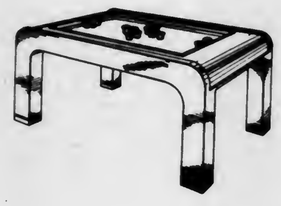
259,578
TOY HELMET
Ronald Carreiro, 28 Sargent Rd., South Weymouth, Mass. 02190
Filed Dec. 11, 1978, Ser. No. 968,395
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—190



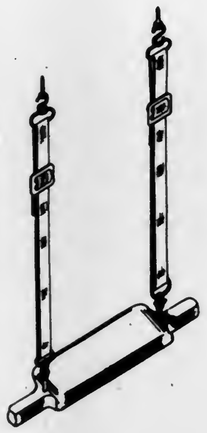
259,579
POOL TABLE
Arnold Kaye, Westport, Conn., assignor to Irving Kaye Company, Inc., Stamford, Conn.
Filed Jul. 30, 1979, Ser. No. 61,649
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—232



259,580
POOL TABLE
Arnold Kaye, Westport, Conn., assignor to Irving Kaye Company, Inc., Stamford, Conn.
Filed Jul. 30, 1979, Ser. No. 61,817
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—232



259,582
SWING
Amos Aquarian, 1127 Alapapa St., P.O. Box 1394, Kailua, Hi. 96734
Filed Jul. 25, 1979, Ser. No. 60,381
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—246



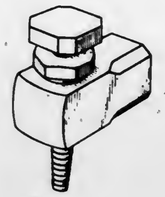
259,581
MAGNETIC TOY
Eric H. Kretschmer, 2210 Wilshire Blvd., #146, Santa Monica, Calif. 90403
Filed Mar. 5, 1979, Ser. No. 17,713
Term of patent 14 years
Int. Cl. D11—*02*; D21—*01*
U.S. Cl. D21—240



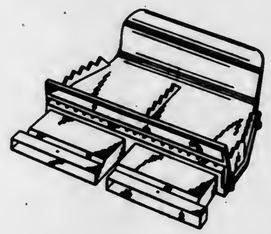
259,583
INSECT ELECTROCUTER
Dennis L. Mulee, 304 Samoset La., Schaumburg, Ill. 60193
Filed Aug. 17, 1979, Ser. No. 68,003
Term of patent 14 years
Int. Cl. D22—*06*
U.S. Cl. D22—19



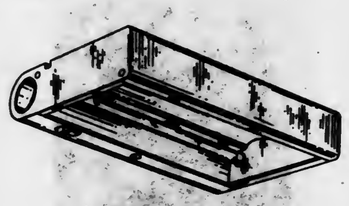
259,584
VALVE
Charles D. Riley, Durham, and Charles G. Waddell, Hillsborough, both of N.C., assignors to Hydro Service & Supplies, Inc., Durham, N.C.
Filed Jul. 24, 1978, Ser. No. 927,711
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—19



259,585
FIREPLACE HEAT EXCHANGER
Thomas V. Metz, Portland, and W. James Sirois, Beaverton, both of Oreg., assignors to Pacific Fireplace Furnishings, Inc., Portland, Oreg.
Filed Dec. 7, 1978, Ser. No. 967,377
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—95



259,586
TASK LIGHT FIXTURE
Dennis E. Johnson, Grafton, Wis., assignor to McGraw-Edison Company, Rolling Meadows, Ill.
Filed Feb. 26, 1979, Ser. No. 15,415
Term of patent 14 years
Int. Cl. D26—*05*
U.S. Cl. D26—76



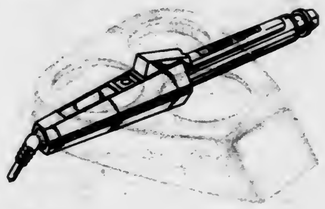
259,587
SMOKING PIPE
Philip E. Jorgensen, Berkeley, Calif., assignor to Proto Plast Inc., Willits, Calif.
Filed Jan. 8, 1979, Ser. No. 1,968
Term of patent 14 years
Int. Cl. D27—*02*
U.S. Cl. D27—03



259,588
LIGHTER
Franz A. Stutzer, Muhlheim, Fed. Rep. of Germany, assignor to Rowenta-Werke GmbH, Offenbach am Main, Fed. Rep. of Germany
Filed Oct. 12, 1978, Ser. No. 950,764
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1978, 510095
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—42



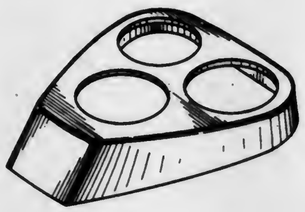
259,589
HAIR STYLER
Bing-Yiu Chin, Tsuen Wan, Hong Kong, assignor to Goodway Manufacturing Limited, New Territories, Hong Kong
Filed Dec. 8, 1978, Ser. No. 967,754
Claims priority, application United Kingdom, Jun. 14, 1978, 985833/78
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—35



259,590
ELECTRIC DRY SHAVER
Knut O. Yran, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 6, 1978, Ser. No. 949,302
Claims priority, application United Kingdom, Aug. 8, 1978, 985834/78
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—50



259,591
SHAVING CUTTER HOLDER
Knut O. Yran, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 6, 1978, Ser. No. 949,303
Claims priority, application United Kingdom, Apr. 11, 1978, 984174/78
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—50



259,592
FLEXIBLE LINK FASTENER FOR HORSE BLANKETS OR THE LIKE
Albert E. Ostermaier, 4710 Sunnyslope Ave., Sherman Oaks, Calif. 91403
Filed Nov. 20, 1978, Ser. No. 962,356
Term of patent 14 years
Int. Cl. D30—*01*
U.S. Cl. D30—37



259,593
COMBINED AQUARIUM COVER AND STAND
David A. Gross, 267 Reed Ave., Marion, Ohio 43302
Filed Oct. 1, 1979, Ser. No. 80,463
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—10





259,594
EMBOSSED PLASTIC SHEET MATERIAL
Irving Weitzman, Toledo, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio
Filed Apr. 25, 1979, Ser. No. 33,271
Term of patent 14 years
Int. Cl. D5—*06*
U.S. Cl. D92—1.1



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TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Ahlstrom Osakeyhtio: *See*—
Niskanen, Toivo, 4,273,562, Cl. 55-52.000.
A/S Niro Atomizer: *See*—
Rasmussen, Elisabeth L., 4,273,747, Cl. 423-210.000.
A. und K. Muller GmbH & Co. KG: *See*—
Moldenhauer, Hermann; and Muller, Kurt, 4,273,154, Cl. 137-490.000.
AB Volvo: *See*—
Holmer, Heinz E. A., 4,273,084, Cl. 123-179.00L.
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Haviv, Fortuna; and Carter, George W., 4,273,940, Cl. 564-372.000.
Ling, Chung-Mei; Decker, Richard H.; and Chairez, Ruben, 4,273,756, Cl. 424-1.000.
Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, 4,273,924, Cl. 536-17.00R.
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Voss, Houston F.; Plattner, Jacob; and Herrin, Thomas R., 4,273,866, Cl. 435-7.000.
Abe, Osamu: *See*—
Furuhashi, Toshio; Abe, Osamu; Hirasawa, Kotaro; and Imai, Masumi, 4,274,142, Cl. 364-465.000.
Abel, Heinz, to Ciba-Geigy Corporation. Process for dyeing textile cellulose material which has not been pre-cleaned. 4,273,554, Cl. 8-557.000.
Abreu, Mario E.: *See*—
Hoffman, Jacob S.; and Abreu, Mario E., 4,272,955, Cl. 60-39.360.
ACF Industries, Incorporated: *See*—
Byrnes, Thomas J., Jr., 4,273,730, Cl. 261-41.00D.
Meyer, Paul M.; Beckwith, Robert H.; Allman, Richard D.; and Jefferis, Mark, 4,274,144, Cl. 364-551.000.
Morrison, Bertram L., 4,273,309, Cl. 251-174.000.
Acker, G. Marts: *See*—
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Adin, Anthony, to Eastman Kodak Company. Inhibition of image formation utilizing cobalt(III) complexes. 4,273,860, Cl. 430-338.000.
AFA Corporation, The: *See*—
Quinn, David R., 4,273,290, Cl. 239-493.000.
Agence Nationale de Valorisation de la Recherche (ANVAR): *See*—
Roux, Jacques, 4,273,491, Cl. 414-109.000.
AGFA Gevaert, A.G.: *See*—
Borowski, Kurt; Wagensonner, Eduard; and Cocron, Istvan, 4,273,428, Cl. 354-23.00D.
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Jacken, Jan; Verhecken, Andre; Vetter, Hans; and Marx, Paul, 4,273,855, Cl. 430-242.000.
Air Products and Chemicals, Inc.: *See*—
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Aisan Industry Co., Ltd.: *See*—
Arai, Hisaharu, 4,273,656, Cl. 210-448.000.
Ajinomoto Co., Inc.: *See*—
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, 4,273,684, Cl. 252-544.000.
Akado, Hajime: *See*—
Sugie, Hiromichi; Akado, Hajime; and Yamashita, Akira, 4,273,564, Cl. 55-267.000.
Akashi, Goro; Yamada, Yasuyuki; Fujiyama, Masaaki; and Yamaguchi, Nobutaka, to Fuji Photo Film Co., Ltd. Method of detecting pinholes in a magnetic recording medium. 4,273,797, Cl. 427-10.000.
Akashi, Kageyasu: *See*—
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Aki, Fumitake: *See*—
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.
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Yamamoto, Takaya; Sakai, Kazuo; and Akiba, Shigeyuki, 4,274,103, Cl. 357-13.000.
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Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, 4,273,723, Cl. 260-414.000.
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Pehrsson, Anders L., 4,273,545, Cl. 440-75.000.
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Barber, Everett M.; Muenger, James R.; and Alexander, David L., 4,273,743, Cl. 422-148.000.
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Alexander, Ronald R. Tonneau cover apparatus for pickup truck vehicles. 4,273,377, Cl. 296-100.000.
Aley, Michael H.; Bowen, James A.; and Glass, Cecil A., to United States of America, Navy. Surface-launched fuel-air explosive minefield clearance round. 4,273,048, Cl. 102-363.000.
Alferness, Rodney C., to Bell Telephone Laboratories, Incorporated. Optical wavelength filter. 4,273,411, Cl. 350-96.140.
Allen, Richard C., to Hoechst-Roussel Pharmaceuticals, Inc. Method of reducing gastric secretion. 4,273,772, Cl. 424-248.540.
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Frankila, John W., 4,273,301, Cl. 242-107.200.
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Allman, Richard D.: *See*—
Meyer, Paul M.; Beckwith, Robert H.; Allman, Richard D.; and Jefferis, Mark, 4,274,144, Cl. 364-551.000.
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Aloi, Michael J.; and Hancock, Kevin J., II. Built-in solar panel. 4,273,108, Cl. 126-450.000.
Alpha Solarco Inc.: *See*—
Uroshevich, Miroslav, 4,273,103, Cl. 126-438.000.
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Alps Electric Co., Ltd.: *See*—
Sakamoto, Nozomu, 4,274,074, Cl. 338-160.000.
Yoshisato, Akiyuki; and Tobita, Katsumi, 4,274,066, Cl. 331-116.00R.
Alshin, Richard A.: *See*—
Wyman, Ransome J.; Alshin, Richard A.; and Gilbert, Charles H., 4,273,176, Cl. 152-327.000.
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Altuglu, Senol, to PPG Industries, Inc. Polyol (allyl carbonate) synthesis utilizing solid alkali metal hydroxide. 4,273,726, Cl. 260-463.000.
Aluminum Company of America: *See*—
Dawless, Robert K.; and Jacobs, Stanley C., 4,273,627, Cl. 204-67.000.
Alvarez, Francisco S., to Syntex (U.S.A.) Inc. 4-Halo steroids. 4,273,770, Cl. 424-241.000.
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Laferty, John M.; Howe, Dennis L.; and Sebenik, Roger F., 4,273,745, Cl. 423-54.000.
Ambrosch, Friedrich; and Schwaebel, Rudolf, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Method of and device for avoiding rotor instability to enhance dynamic power limit of turbines and compressors. 4,273,510, Cl. 415-119.000.
Amchem Products, Inc.: *See*—
Kelly, Timm L., 4,273,592, Cl. 148-6.270.
American Can Company: *See*—
Herdzina, Frank J.; and Vandlik, Robert P., 4,273,507, Cl. 414-750.000.
American Cyanamid Company: *See*—
Noland, James S.; and Hajek, Miroslav, 4,273,686, Cl. 260-9.000.
Shepherd, Robert G., 4,273,785, Cl. 424-316.000.
Zweig, Arnold; and Hoffmann, Arthur K., 4,273,764, Cl. 424-174.000.
American Gas Furnace Company: *See*—
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American Home Products Corporation: *See*—
Demerson, Christopher A.; Humber, Leslie G.; and Ferland, Jean-Marie, 4,273,773, Cl. 424-250.000.
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Swartz, Dorian J., 4,273,638, Cl. 204-195.00P.
American Optical Corporation: *See*—
LaLiberte, Norman U.; and Rotenberg, Don H., 4,273,809, Cl. 427-155.000.
American Safety Equipment Corporation: *See*—
Tanaka, Akira, 4,273,368, Cl. 292-53.000.
American Standard Inc.: *See*—
Morris, Robert B.; and Kyllonen, Allen W., 4,273,218, Cl. 188-18.00A.

Ameron, Inc.: *See*—
McLaughlin, Hugh T., 4,273,161, Cl. 138-149.000.

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Piazza, Andre L.; Krenek, Michael J.; and Ames, Thomas J., 4,273,472, Cl. 405-211.000.

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AMP Incorporated: *See*—
Bendiksen, Leonard F.; and Schumacher, William L., 4,273,413, Cl. 350-96.200.
Hughes, Donald W. K., 4,273,402, Cl. 339-91.00R.
Myers, Ronald W.; and Nardone, Daniel V., 4,273,399, Cl. 339-17.00C.

Anagnostopoulos, Gerasimos D., to National Research Development Corporation. Spiral plating apparatus. 4,273,877, Cl. 435-293.000.

Anagnostopoulos, Stavros M., to Exxon Research & Engineering Co. Tape tensioning mechanism. 4,273,454, Cl. 400-234.000.

Anderson, Bazeel B. Safety dispensing spout. 4,273,265, Cl. 222-189.000.

Anderson, Bruce H., to ComCoach Corporation. Vehicle door. 4,272,923, Cl. 49-360.000.

Anderson, Dean B.: *See*—
Thompson, David E.; Yao, Shi-Kay; August, Rudolf R.; and Anderson, Dean B., 4,273,445, Cl. 356-350.000.

Anderson, Harold E., to Sea Terminals Limited. Oil storage vessel, mooring apparatus and oil delivery for the off-shore production of oil. 4,273,066, Cl. 114-256.000.

Anderson, James D.: *See*—
Wigby, Jon; Piatt, Ralph L.; and Anderson, James D., 4,272,879, Cl. 29-566.200.

Anderson, William B.: *See*—
Blanc, Max A., 4,273,272, Cl. 222-464.000.

Andert, Charles M.: *See*—
Corley, John E.; Mitchell, Joseph M.; and Andert, Charles M., 4,273,481, Cl. 408-14.000.

Ando, Haruhisa: *See*—
Ohba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Yataro; Hanamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.

Andrews, Mena G., to Combustion Engineering, Inc. High burnup nuclear fuel rod. 4,273,616, Cl. 176-68.000.

Andros Incorporated: *See*—
Jassawalla, Jal S., 4,273,121, Cl. 128-214.00F.

Angel, Richard R., to Phillips Petroleum Company. Insulated flexible pipe coupling. 4,273,363, Cl. 285-47.000.

Angelo, James F., II. Apparatus for continuously carbonizing and activating carbonaceous materials. 4,273,619, Cl. 202-211.000.

Angle, Rodney L., to RCA Corporation. Method for making a closed gate MOS transistor with self-aligned contacts with dual passivation layer. 4,272,881, Cl. 29-571.000.

Anspach, Roy L.: *See*—
Campbell, James R.; and Anspach, Roy L., 4,273,836, Cl. 428-595.000.

Anthone, Leo E.; and Berglund, Sidney J., to Minnesota Mining and Manufacturing Company. Continuous film carrier wire connecting system. 4,272,883, Cl. 39-751.000.

Anthony, Myron L. Solar energy system. 4,273,102, Cl. 126-435.000.

Aoki, Hisashi: *See*—
Takamizawa, Minoru; Okada, Fumio; Hara, Yasuaki; and Aoki, Hisashi, 4,273,907, Cl. 528-29.000.

Aoki, Masakazu: *See*—
Ohba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Yataro; Hanamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.

Arai, Atsuaki: *See*—
Shiba, Keisuke; Hirose, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Arai, Hisaharu, to Aisan Industry Co., Ltd. Filter for fluid passage. 4,273,656, Cl. 210-448.000.

Arai, Katsushi: *See*—
Okamoto, Joji; Azuma, Hitoshi; Arai, Katsushi; Naito, Takemi; Kawai, Seiji; and Goto, Minoru, 4,273,811, Cl. 427-232.000.

Arcair Company: *See*—
Stepath, Myron D., 4,273,982, Cl. 219-70.000.

Arco Industries Ltd.: *See*—
Tsui, Kwok W., 4,272,909, Cl. 46-39.000.

Arco, Manuel J., to Minnesota Mining and Manufacturing Company. One-part solvent-free thermosettable blocked prepolymer composition containing a diene, together with chain extender, chain terminator and a dienophile. 4,273,909, Cl. 528-45.000.

Arenhold, Knut. Mud flap. 4,273,349, Cl. 280-154.50R.

Arisaka, Kunio; and Namioka, Kenta, to Copal Company Limited. Electric shutter device provided with an electric self-timer. 4,273,429, Cl. 354-30.000.

Armstrong Cork Company: *See*—
Schluter, Wolfram, 4,272,928, Cl. 52-1.000.

Armstrong, Thomas R., to Paradyne Corporation. System for in-service quantitative performance analysis of data communications system. 4,273,955, Cl. 178-69.00G.

Arnold, Dan M.; and Pitts, Robert W., Jr., to Texaco Inc. Fluid flow meter for mixed liquid and gas. 4,272,982, Cl. 73-19.000.

ARP Instruments, Inc.: *See*—
Dodds, Philip V. W.; and Smith, Mark L., 4,273,017, Cl. 84-1.100.

Artin, Robert L.; and Eimerman, Allen C., to Sunbeam Corporation. Slicing machine. 4,273,013, Cl. 83-167.000.

Asada, Mamoru; Shiga, Akinobu; Matsuyama, Kiyoshi; and Kakugo, Masahiro, to Sumitomo Chemical Co., Ltd. Process for producing propylene polymer or copolymer. 4,273,905, Cl. 526-142.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, 4,273,723, Cl. 260-414.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Tuda, Koji; Nagashima, Hironobu; and Marui, Masatoshi, 4,273,959, Cl. 179-1.0SC.

Asano, Tamoru, to Kai Cutlery Center Co., Ltd. Shaver unit. 4,272,886, Cl. 30-47.000.

Asberg, Sture L., to SKF Nova AB. Device for axial adjustment of a rotatable body. 4,273,391, Cl. 308-174.000.

Ashland Oil, Inc.: *See*—
Gardikes, John J., 4,273,179, Cl. 164-43.000.
Kim, Young D., 4,273,693, Cl. 260-29.20N.

Asmar, Romeal F.: *See*—
Lukes, Henry J.; Kamphorst, Walter; and Asmar, Romeal F., 4,274,056, Cl. 328-162.000.

Assard, Gerald L., to United States of America, Navy. Synthesized sinusoid generator. 4,274,055, Cl. 328-14.000.

Asztalos, Stefan: *See*—
Turnwald, Ernst; Asztalos, Stefan; and Rosenmeier, Rudolf, 4,273,028, Cl. 91-275.000.

Athanasiades, Neocles: *See*—
McLoughlin, John; Rotblum, Yehuda; and Athanasiades, Neocles, 4,273,360, Cl. 280-751.000.

Atlantic Richfield Company: *See*—
Vartuli, James C.; and Zehner, Lee R., 4,273,677, Cl. 252-435.000.

Atlas Powder Company: *See*—
Olney, Robert S., 4,273,147, Cl. 137-13.000.

Auburn Enterprises, Inc.: *See*—
Olsen, C. Eric, 4,273,131, Cl. 128-341.000.

Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., to Mobil Oil Corporation. Solvent extraction production of lube oil fractions. 4,273,645, Cl. 208-323.000.

August, Rudolf R.: *See*—
Thompson, David E.; Yao, Shi-Kay; August, Rudolf R.; and Anderson, Dean B., 4,273,445, Cl. 356-350.000.

Aumann, James T.; and White, Harold G., to Christensen, Inc. Pressure core barrel flushing system. 4,272,987, Cl. 73-153.000.

Auth, David C.; and Rushmer, Robert F., to Research Corporation. Method for cutting and coagulating tissue. 4,273,127, Cl. 128-303.100.

Autoflug GmbH: *See*—
Nitzbon, Karl-Heinz, 4,273,210, Cl. 180-268.000.

Automated Building Components, Inc.: *See*—
Seipos, Andrew G., 4,272,938, Cl. 52-509.000.

Automobiles M. Berliet: *See*—
Fadda, Jean; and Pernet, Jean P., 4,273,563, Cl. 55-189.000.

Automobiles Peugeot: *See*—
Duguet, Pierre; and Robert, Christian, 4,273,376, Cl. 296-65.00R.

Avtex Fibers Inc.: *See*—
Smith, Frederick R., 4,273,118, Cl. 128-156.000.

Azuma, Hitoshi: *See*—
Okamoto, Joji; Azuma, Hitoshi; Arai, Katsushi; Naito, Takemi; Kawai, Seiji; and Goto, Minoru, 4,273,811, Cl. 427-232.000.

B. F. Goodrich Company, The: *See*—
Bush, Charles N.; Daniels, Charles A.; and Koebel, Ralph F., 4,273,904, Cl. 526-91.000.

B & W Metals Company, Inc.: *See*—
Barnhill, Donald R., 4,273,991, Cl. 219-440.000.

Baatz, Henning; and Rittscher, Dieter, to GNS Gesellschaft fur Nuklear-Service mbH. Radiation-shielding transport and storage vessel. 4,274,007, Cl. 250-506.000.

Baba, Toshihiko: *See*—
Hara, Katsunori; Baba, Toshihiko; and Okuda, Takio, 4,273,984, Cl. 219-97.000.

Babcock & Wilcox Company, The: *See*—
Myers, Julius D.; and Russell, John X., 4,272,927, Cl. 51-322.000.

Babinsky, Andrew D.: *See*—
Kidon, William E.; Shuster, Nicholas; and Babinsky, Andrew D., 4,273,628, Cl. 204-87.000.

Bachman, Joseph L.: *See*—
Ginther, George E., Sr.; Johnson, A. David, Jr.; and Bachman, Joseph L., 4,273,322, Cl. 271-149.000.

Backhaus, Hans-Gerd: *See*—
Scholz, Hansjurgen; Backhaus, Hans-Gerd; and Brambilla, Luigi, 4,273,359, Cl. 280-740.000.

Baenen, Paul W., to J. I. Case Company. Cable saw for tree harvesting apparatus. 4,273,169, Cl. 144-34.00R.

Bailey, David C., to Harris Corporation. Apparatus for storing and randomly accessing planar film records. 4,273,427, Cl. 353-27.00A.

Baker, Alan C.: *See*—
Keran, Vitie P.; and Baker, Alan C., 4,273,314, Cl. 266-145.000.

Baker, Donald E.; and Bouette, David W., to E. T. Oakes Limited. Drive arrangement. 4,273,521, Cl. 418-48.000.

Baker, Eugene E.; Szarka, David D.; Davis, Odie R. S.; and Workman, Nolan M., to Halliburton Company. Method and apparatus for gravel packing multiple zones. 4,273,190, Cl. 166-278.000.

Balfour Beatty Limited: *See*—
Cyfka, Tadeusz R., 4,273,468, Cl. 405-132.000.

Bally Manufacturing Corporation: *See*—
Nicolaus, Frank G., 4,273,333, Cl. 273-143.00R.

Bankhead Enterprises, Inc.: *See*—
Blanar, Gregory G., 4,273,484, Cl. 410-12.000.

Barber, Everett M.; Muenger, James R.; and Alexander, David L., to Texaco Inc. Combination chemical plant and Brayton-cycle power plant. 4,273,743, Cl. 422-148.000.

Barkalow, Clare E.; and Elam, James O., to Michigan Instruments, Inc. Cardiopulmonary resuscitator, defibrillator and monitor. 4,273,114, Cl. 128-53.000.

Barnett, Allan E.; and Hallwin, Albert P., to Exxon Research & Engineering Co. Process for hydrogenating organic compounds by use of non-ferrous group VIII aluminum coprecipitated catalysts. 4,273,939, Cl. 564-358.000.

Barnett, Allan E.: *See*—
Hallwin, Albert P.; and Barnett, Allan E., 4,273,680, Cl. 252-466.00J.

Barnhill, Donald R., to B & W Metals Company, Inc. Pressure cooker. 4,273,991, Cl. 219-440.000.

Barre, Claude, to U.S. Philips Corporation. DC-DC Converter for charging a battery by means of a solar cell. 4,274,044, Cl. 320-21.000.

Bartholomew, Alan E.: *See*—
Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., 4,273,173, Cl. 81-177.00M.

BASF Aktiengesellschaft: *See*—
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.
Merger, Franz; and Foerster, Hans-Juergen, 4,273,934, Cl. 560-238.000.
Merger, Franz; Nestler, Gerhard; and Kempe, Uwe, 4,273,938, Cl. 564-124.000.

BASF Wyandotte Corporation: *See*—
Newkirk, David D.; and Login, Robert B., 4,273,946, Cl. 568-625.000.
Otten, Jay G., 4,273,881, Cl. 521-108.000.

Bassetti, Henry; and Spector, George. Electrified doll house fireplace. 4,272,908, Cl. 46-12.000.

Bastian, Jean-Michel: *See*—
Waldvogel, Erwin; Bastian, Jean-Michel; and Schwarb, Gustav, 4,273,780, Cl. 424-267.000.

Bates, Edson C.; and King, Jeanne A., to Owens-Illinois, Inc. Foam specimen apparatus and method. 4,273,012, Cl. 83-17.000.

Bator, Cathryn D.: *See*—
Porzel, Rita E.; and Bator, Cathryn D., 4,273,688, Cl. 260-17.40R.

Bauer, Egon: *See*—
Beeskow, Bruno; Bauer, Egon; and Pfundstein, Wolfgang, 4,273,030, Cl. 91-450.000.

Baugh, K. Boyd: *See*—
Nall, Clive; Long, Leo E.; Rigby, Sterling C.; and Baugh, K. Boyd, 4,273,327, Cl. 272-97.000.

Bayer Aktiengesellschaft: *See*—
Berg, Dieter; Frommer, Werner; Schmidt, Delf; Schmidt, Robert R.; and Schafer, Dietmar, 4,273,571, Cl. 71-79.000.
Brinkmann, Uwe; Telle, Helmut; Rase, Roderich; and Schellhammer, Carl-Wolfgang, 4,274,062, Cl. 331-94.50L.
Grohe, Klaus; and Larnaea, Klaus, 4,273,573, Cl. 71-90.000.
Harms, Wolfgang; Jager, Horst; von Oertzen, Klaus; and Wunderlich, Klaus, 4,273,553, Cl. 8-549.000.
Kotulla, Bernhard; Haas, Hans; Weiser, Martin; Forster, Rolf; Preis, Lothar; and Schmidt, Rudolf, 4,273,476, Cl. 405-258.000.
Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hammann, Ingeborg; and Stendel, Wilhelm, 4,273,767, Cl. 424-211.000.
Pump, Wichard; Becker, Wolfgang; and Woldenberg, Edwin, 4,273,880, Cl. 521-93.000.

Bayly, William I.; Rumbolo, Louis J.; Fazekas, Ernest E.; and Korzeb, Frank, to American Gas Furnace Company. Rotary furnace volumetric feeder with sealed chute. 4,273,493, Cl. 414-221.000.

Bazilevich, Sergei V., deceased: *See*—
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Bazilevich, Tatyana N., administrator: *See*—
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

BBC Brown, Boveri & Company, Limited: *See*—
Buxbaum, Charley, 4,274,029, Cl. 313-204.000.
Buxbaum, Charley, 4,274,030, Cl. 313-346.00R.
Thoma, Kurt; and Ulrich, Urban, 4,273,185, Cl. 165-80.00B.

Beaufort Air-Sea Equipment Ltd.: *See*—
Oldham, Walter, 4,272,857, Cl. 9-345.000.

Beck, Blaine E.; and Corris, Charles J. Vehicle safety illumination device. 4,274,127, Cl. 362-72.000.

Becker, Joseph J., to Firmenich, S.A. Tricyclic lactones. 4,273,714, Cl. 260-343.210.

Becker, Mitchell, to Halcon Research & Development Corp. Method of treating alpha-methylbenzylalcohol dehydration products. 4,273,622, Cl. 203-28.000.

Becker, Wolfgang: *See*—
Pump, Wichard; Becker, Wolfgang; and Woldenberg, Edwin, 4,273,880, Cl. 521-93.000.

Beckwith, Robert H.: *See*—
Meyer, Paul M.; Beckwith, Robert H.; Allman, Richard D.; and Jefferis, Mark, 4,274,144, Cl. 364-551.000.

Becton, Dickinson and Company: *See*—
Selleck, Robert W., 4,273,240, Cl. 198-835.000.

Beecham Group, Limited: *See*—
Hadley, Michael S.; and King, Francis D., 4,273,778, Cl. 424-265.000.

Beeskow, Bruno; Bauer, Egon; and Pfundstein, Wolfgang, to Daimler-Benz Aktiengesellschaft. Pressure relief valve for the working pressure of a servo-steering system. 4,273,030, Cl. 91-450.000.

Behnke, Edward R.; and Sanderson, Floyd W., to Columbus McKinnon Corporation. Claw hook assembly. 4,273,371, Cl. 294-78.00R.

Behrenz, Wolfgang: *See*—
Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hammann, Ingeborg; and Stendel, Wilhelm, 4,273,767, Cl. 424-211.000.

Beirne, Patrick R.: *See*—
Cowpland, Michael C. J.; and Beirne, Patrick R., 4,273,965, Cl. 179-84.0VF.

Beitzel, Stuart W. Purification of water through the use of ozone and ultraviolet light. 4,273,660, Cl. 210-760.000.

Belebashev, Eduard K.: *See*—
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebashev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P., 4,273,180, Cl. 164-49.000.

Bell, David A., to Interprovincial Steel and Pipe Corporation, Ltd. Pipeline leak detection method and control device therefor. 4,272,984, Cl. 73-40.50R.

Bell & Howell Company: *See*—
Farnham, Stewart E., 4,274,120, Cl. 360-106.000.
Stocker, Lester H., 4,273,319, Cl. 270-21.100.

Bell, Malcolm R.; and Oesterlin, Rudolf, to Sterling Drug Inc. Phenyl and lower alkyl substituted pyrrole-3-acrylonitriles. 4,273,713, Cl. 260-326.620.

Bell, Richard S., to Mighty-Mac, Inc. Garment with shoulder attached supporting straps. 4,272,852, Cl. 2-94.000.

Bell, Robert E. Instrumental mute. 4,273,022, Cl. 84-400.000.

Bell Telephone Laboratories, Incorporated: *See*—
Alferness, Rodney C., 4,273,411, Cl. 350-96.140.
Briggs, Paul R., Jr.; and Scerbo, Louis J., 4,273,966, Cl. 179-98.000.
Clemons, Donald G.; and Huber, William R., III, 4,274,013, Cl. 307-530.000.
Condon, Joseph H., 4,274,051, Cl. 324-117.00R.
Favin, David L.; Lynn, Peter F.; and Snyder, Paul J., 4,273,970, Cl. 179-175.30R.
Gentry, James H., Jr.; and Stiles, Gilbert J., Sr., 4,274,052, Cl. 324-117.00R.
Hecken, Rudolf P., 4,274,047, Cl. 324-57.00R.
Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., 4,273,594, Cl. 148-33.300.
Pfarre, Edgar L., 4,274,071, Cl. 336-12.000.
Seidel, Harold, 4,273,963, Cl. 179-16.00F.

Bellot, Ramon: *See*—
Hess, Anton; and Bellot, Ramon, 4,272,872, Cl. 29-113.00R.

Bea-Dor, Effraim; and Lemelson, Jerome H. Roller skate. 4,273,345, Cl. 280-11.200.

Benckendorff, Wolfgang; and Kubler, Hans, to Siemens Aktiengesellschaft. Security alarm system. 4,274,086, Cl. 340-506.000.

Bendiksen, Leonard F.; and Schumacher, William L., to AMP Incorporated. Photoelectric element/optical cable connector. 4,273,413, Cl. 350-96.200.

Bendix Corporation, The: *See*—
Vogel, Ronald F., 4,274,125, Cl. 361-283.000.

Bennett Engineering Inc.: *See*—
Bennett, Harold L., 4,273,643, Cl. 208-8.00R.

Bennett, George R.: *See*—
Hinchcliffe, Dennis; Bennett, George R.; and Heybourn, Frank, 4,273,233, Cl. 198-347.000.

Bennett, Harold L., to Bennett Engineering Inc. Process for production of synthetic crude oil, alcohols, and chars during low temperature carbonization of coals. 4,273,643, Cl. 208-8.00R.

Benson, Jack H.: *See*—
Gibbs, Dale S.; Benson, Jack H.; and Fernandez, Reet T., 4,273,901, Cl. 525-455.000.

Benson, Richard L.; Hill, Horace E.; and Soderberg, Mark S., to Boeing Company, The. Motor quick-change chuck system for tool having cylindrically shaped adapter portion. 4,273,344, Cl. 279-75.000.

Benson, Robert W. Bodyguide and holddown system usable with dump trucks and trailers. 4,273,382, Cl. 298-38.000.

Bentley, George W., to Brown & Williamson Tobacco Corporation. Firmness improvement in cigarette rod. 4,273,139, Cl. 131-280.000.

Bentzien, Lea, to Universal Foods Corporation. Product reclamation in a fluid bed dryer. 4,272,895, Cl. 34-10.000.

Beraud, Claudius; and Jacquemart, Jean, to Institut Textile de France. Process and apparatus for the treatment of fibrous webs. 4,273,635, Cl. 204-165.000.

Berecz, Imre. Progressive stage forging machine. 4,272,978, Cl. 72-335.000.

Berg, Dieter; Frommer, Werner; Schmidt, Delf; Schmidt, Robert R.; and Schafer, Dietmar, to Bayer Aktiengesellschaft. Organic chemical compound, microbiological process for its preparation, and its use as a herbicide. 4,273,571, Cl. 71-79.000.

Bergles, Eduard, to Pickel & Sachs AG. Bicycle chain-shifting device. 4,273,546, Cl. 474-82.000.

Berglund, Sidney J.: *See—*
Anthone, Leo E.; and Berglund, Sidney J., 4,272,883, Cl. 39-751.000.

Berko, Peter, to D. W. Zimmerman Mfg., Inc. Apparatus for manipulating signature bundles. 4,273,499, Cl. 414-626.000.

Berkowitz, Sidney, to FMC Corporation. Preparation of salts of dihalogenated isocyanurates by oxidative hydrolysis of amino substituted triazines. 4,273,928, Cl. 544-190.000.

Berndt, Klaus-Gunther; Kruger, Manfred; and Nawrot, Wolfgang, to Siemens Aktiengesellschaft. Low-voltage circuit breaker with means for limiting contact lifting. 4,273,979, Cl. 200-286.000.

Berne, Jean, to Societe Nouvelle des Ateliers et Chantiers du Havre. Ship stabilizer. 4,273,063, Cl. 114-126.000.

Berry, Kenneth L., to Du Pont de Nemours, E. I., and Company. Acicular α-iron particles and recording media employing same. 4,273,807, Cl. 427-132.000.

Bertram, James L.; and Sheih, Pong Su, to Dow Chemical Company, The. Water-soluble epoxy resins and process for their preparation. 4,273,921, Cl. 528-405.000.

Bessouat, Roger; and Marjollet, Jacques, to Stein Industrie. Vertical steam separator-superheater. 4,273,077, Cl. 122-483.000.

Bibeau, Jean-Marie; and Bibeau, Marcel. Dump body for mounting on the frame of a vehicle. 4,273,381, Cl. 298-1.00H.

Bibeau, Marcel: *See—*
Bibeau, Jean-Marie; and Bibeau, Marcel, 4,273,381, Cl. 298-1.00H.

Biemiller, Eric C., to Combustion Engineering, Inc. Weld metal resistant to neutron-bombardment embrittlement. 4,273,838, Cl. 428-683.000.

Bio-Melktechnik Swiss Hoefelmayr & Co.: *See—*
Hoefelmayr, Tilman, 4,273,070, Cl. 119-14.510.

Biochem International Inc.: *See—*
Ricciardelli, Robert H., 4,273,134, Cl. 128-635.000.

Bird Electronic Corporation: *See—*
Trefney, Ralph P., 4,274,156, Cl. 455-115.000.

Birkhofer, Herbert; Diekhoner, Gunther; and Hoffler, Hans-Otto, to Schaeffer-Homberg GmbH. Machine for the attachment of rivets, buttons or the like on clothing pieces. 4,273,280, Cl. 227-107.000.

Bisch, Jeffery R. Simulated monster toy and game. 4,272,913, Cl. 46-123.000.

Bisczat, John J.; Lisk, Robert R.; McCray, William R.; and Sizemore, James L., to International Business Machines Corporation. Paper insertion apparatus for a typewriter. 4,273,456, Cl. 400-550.000.

Bittner, Klaus-Jurgen: *See—*
Kostner, Armin; Lenhart, Richard; and Bittner, Klaus-Jurgen, 4,273,551, Cl. 493-243.000.

Bjorksten, Thorolf R.: *See—*
Brown, Vaikai K.; Bjorksten, Thorolf R.; and Walter, Llewellyn L., 4,273,224, Cl. 192-4.00A.

Black & Decker Inc.: *See—*
Sauerwein, William D., 4,272,996, Cl. 74-50.000.

Black, Paul W.: *See—*
Pringle, Ronald E.; and Black, Paul W., 4,273,194, Cl. 166-323.000.

Blackert, Hanno: *See—*
Hermanns, Winfried; Lueg, Heinz; Blackert, Hanno; and Wimmenauer, Dirk, 4,274,076, Cl. 340-38.00L.

Blacks Equipment Limited: *See—*
Edson, Donald; and Carter, Albert W., 4,273,986, Cl. 219-123.000.

Blanar, Gregory G., to Bankhead Enterprises, Inc. Quick release winch tie down and ramp assembly. 4,273,484, Cl. 410-12.000.

Blanc, Max A., to Anderson, William B.; and Blanc, Max Alain, part interest to each. Liquid dispenser. 4,273,272, Cl. 222-464.000.

Blanc, Max Alain: *See—*
Blanc, Max A., 4,273,272, Cl. 222-464.000.

Blanche, Stephen A.; and Portrais, Lee, to Victor Electric Wire & Cable. Connector having low profile contact element. 4,273,409, Cl. 339-206.00P.

Blank, Hans G.; and Resnick, Martin L., to GTE Laboratories Incorporated. Apparatus for communicating with processing apparatus over a telephone network. 4,273,961, Cl. 179-5.00R.

Blanz, John H. Torquer/thruster. 4,273,199, Cl. 173-149.000.

Blasio, Pietro; and Talini, Maurizio, to Le Metalli Industrialle S.p.A. Method for treating a spent emulsion of oil in water used in an industrial process, and the apparatus for carrying out the method. 4,273,611, Cl. 159-47.0WL.

Blattermann, Karl-Gunther; Neuhaus, Gunter; and Nolte, Gunther, to Conrad Scholtz AG. Cover belt conveyor with closure strips. 4,273,238, Cl. 198-605.000.

Blawert, Dieter; Rademacher, Karl-Heinz; and Sodler, Walter, to Sartorius GmbH. Apparatus for overload protection of precision scales. 4,273,203, Cl. 177-187.000.

Blee, Leonard J. Servo controlled vehicle suspension. 4,273,317, Cl. 267-64.00A.

Bletzinger, Peter: *See—*
Garscadden, Alan; Bletzinger, Peter; Hasinger, Siegfried H.; Olson, Robert A.; and Sarka, Benjamin, 4,274,065, Cl. 331-94.50G.

Blomsma, Everhard C.; and Holtslag, Paulus T. M., to Shell Oil Company. Offshore production riser with flexible connector. 4,273,470, Cl. 405-202.000.

Blount, David H. Process for the production of poly (polyisocyanate-polyol-alkali metal silicate solid. 4,273,908, Cl. 528-44.000.

Blum, Alvin S. Indicating test tube rack. 4,273,416, Cl. 350-239.000.

Board of Regents, State of Florida, for the use and benefit of the University of Florida: *See—*
Laitinen, Herbert A.; and Thornton, Donald C., 4,273,624, Cl. 204-23.000.

Bode, Rudolf: *See—*
Nauroth, Peter; Each, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.

Bodenseewerk Perkin-Elmer: *See—*
Huber, Bernhard; and Gonner, Winfried, 4,273,742, Cl. 422-80.000.

Boebel, Manfred, to Richard Wolf GmbH. Forceps for applying clips to fallopian tubes. 4,273,129, Cl. 128-326.000.

Boehringer Mannheim GmbH: *See—*
Lauer, Karl; and Kiegel, Einhart, 4,273,711, Cl. 260-315.000.
Mollering, Hans; and Looser, Siegfried, 4,273,870, Cl. 435-26.000.

Boeing Company, The: *See—*
Benson, Richard L.; Hill, Horace E.; and Soderberg, Mark S., 4,273,344, Cl. 279-75.000.
Davert, Edward J., 4,272,890, Cl. 33-174.00G.
Somm, Paul T., 4,273,303, Cl. 244-104.0FP.

Boettger, Guenter: *See—*
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.

Bokros, Jack C., to Carbomedics, Inc. Bi-leaflet heart valve. 4,272,854, Cl. 3-1.500.

Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., to International Business Machines Corporation. Belt printer control architecture. 4,273,041, Cl. 101-93.140.

Bolen, Charles E.: *See—*
Marzocchi, Alfred; Roberts, Michael G.; and Bolen, Charles E., 4,273,588, Cl. 106-273.00N.
Marzocchi, Alfred; Roberts, Michael G.; Bolen, Charles E.; and Harrington, Edward R., Jr., 4,273,685, Cl. 260-28.50R.

Boling, Norman L.: *See—*
McCollister, Howard L.; and Boling, Norman L., 4,273,826, Cl. 428-304.000.

Boller, Arthur; Schadt, Martin; and Villiger, Alois, to Hoffmann-La Roche Inc. Heterocyclic compounds. 4,273,929, Cl. 544-242.000.

Bollinger, Pietro, to Sandoz Ltd. Organic compounds. 4,273,784, Cl. 424-305.000.

Bolton, Jimmie B.; and Crews, Sam T., to Smith International, Inc. Earth boring apparatus with multiple welds. 4,273,159, Cl. 138-109.000.

Bompard, Bruno, to Commissariat a l'Energie Atomique. Filiform textile material. 4,272,950, Cl. 57-232.000.

Bonaguidi, Orland H. Inverted roof system. 4,272,936, Cl. 52-309.120.

Bone, David P.; and Robleski, Lynda, to Quaker Oats Company, The. Bulk packaged mixture of hard and soft pet foods. 4,273,788, Cl. 426-104.000.

Boonzajer Flaes, Ewoud A.: *See—*
Van de Leest, Renaat E.; Krijl, Gerrit; and Boonzajer Flaes, Ewoud A., 4,273,625, Cl. 204-56.00R.

Borg-Warner Corporation: *See—*
Krueger, Robert H., 4,273,744, Cl. 422-265.000.

Borgeaud, Gaston; and Pfister, Johann K., to Schweizerische Lokomotiv-und Maschinenfabrik. Railway vehicle traction and braking force transmitting system. 4,273,055, Cl. 105-199.00F.

Borichevsky, Donald J., to Telescope Folding Furniture Co., Inc., The. Collapsible chair. 4,273,379, Cl. 297-56.000.

Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; by Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; by Sergeeva, Valentina I., administrator; and by Sergeeva, Elena V., administrator. Apparatus for crushing agglomerated mass. 4,273,298, Cl. 241-189.00R.

Borisof, Bernard. Self-adhering educational devices for constructing letters, figures, designs and the like. 4,273,537, Cl. 434-83.000.

Born, Gerhard: *See—*
Wahl, Alois; Elsner, Paul; and Born, Gerhard, 4,273,236, Cl. 198-432.000.

Born, Gunthard: *See—*
Sepp, Gunther; Born, Gunthard; and Malburg, Werner, 4,274,064, Cl. 331-94.50G.

Borodin, Alexandr A. Shutoff device. 4,273,156, Cl. 137-601.000.

Borowski, Kurt; Wagensonner, Eduard; and Cocron, Istvan, to AGFA Gevaert, A.G. Digital exposure-duration control circuit with upper limit on exposure duration. 4,273,428, Cl. 354-23.00D.

Bosco, Peter M.; and Sledzieski, William L., to Standard Brands Incorporated. Low-fat liquid spread and process. 4,273,790, Cl. 426-335.000.

Bosco, Peter M.; and Sledzieski, William L., to Standard Brands Incorporated. Low-fat spread and process. 4,273,795, Cl. 426-602.000.

Bosse, Frank, to Windmoller & Holscher. Braking apparatus for tape rollers of weaving shuttles. 4,273,162, Cl. 139-13.00A.

Bottazzi, Andrea: *See—*
Garzia, Aldo; Vittadini, Giorgio; Bottazzi, Andrea; Pelagalli, Domenico; and Coccoli, Costantino, 4,273,931, Cl. 546-344.000.

Bouette, David W.: *See—*
Baker, Donald E.; and Bouette, David W., 4,273,521, Cl. 418-48.000.

Bourgeois, Ronald D. Conveyor storage system. 4,273,234, Cl. 198-347.000.

Bowditch, Malcolm R., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State in Her Britannic Majesty's Government of the. Methods of making adhesive bonds. 4,273,598, Cl. 156-94.000.

Bowen, James A.: *See—*
Aley, Michael H.; Bowen, James A.; and Glass, Cecil A., 4,273,048, Cl. 102-363.000.

Bowthorpe-Hellermann Limited: *See—*
McCormick, Mathew, 4,272,870, Cl. 24-16.0PB.

Bradley, Alan V. Combination funnel and siphon. 4,273,166, Cl. 141-95.000.

Bragin, Jury S.: *See—*
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Braid, Milton; Horodysky, Andrew G.; and Kaminski, Joan M., to Mobil Oil Corporation. Friction reducing additives and compositions thereof. 4,273,665, Cl. 252-49.600.

Brambilla, Luigi: *See—*
Scholz, Hansjurgen; Backhaus, Hans-Gerd; and Brambilla, Luigi, 4,273,359, Cl. 280-740.000.

Brandolese, Ernesto, to Saamprogetti S.p.A. Rust-preventing agent for aqueous systems and rust-inhibiting lubricating compositions. 4,273,664, Cl. 252-49.500.

Brasa, Umberto. Serigraphic printing machine printing a number of objects in several colors. 4,273,044, Cl. 101-193.000.

Bremer, Clemens; and Post, Lothar, to Rheinmetall GmbH. Belt-advance mechanism for an automatic gas-loading belt-feed weapon, especially a machine gun. 4,273,025, Cl. 89-33.0CA.

Briggs, Paul R., Jr.; and Scerbo, Louis J., to Bell Telephone Laboratories, Incorporated. Terminal apparatus for telecommunications lines. 4,273,966, Cl. 179-98.000.

Briggs, Richard: *See—*
Gundal, Peter H.; and Briggs, Richard, 4,273,230, Cl. 192-150.000.

Brinkmann, Uwe; Telle, Helmut; Raue, Roderich; and Schellhammer, Carl-Wolfgang, to Bayer Aktiengesellschaft. Dyestuff laser. 4,274,062, Cl. 331-94.50L.

Bristol-Myers Company: *See—*
Nersesian, Ara, 4,273,721, Cl. 260-404.000.

British Steel Corporation: *See—*
Savidge, David H.; and Wadsworth, Eric, 4,274,054, Cl. 324-225.000.

Britt, Lilla V.: *See—*
Martinez, John; and Britt, Lilla V., 4,273,395, Cl. 312-205.000.

Brockway Glass Company, Inc.: *See—*
Hogan, Patrick M., 4,273,832, Cl. 428-410.000.

Brodie, Benjamin T.; and Koeman, Henriecus, to John Fluke Mfg. Co., Inc. Recirculating RMS AC conversion method and apparatus. 4,274,143, Cl. 364-483.000.

Bron Elektronik AG: *See—*
Haberthur-Hellig, Walter, 4,274,126, Cl. 361-334.000.

Brooks, Jeffrey S. Footwear. 4,272,899, Cl. 36-129.000.

Broussard, Garfford J. Orthodontic appliance and clasp therefor. 4,273,530, Cl. 433-6.000.

Brown, Boveri & Cie Aktiengesellschaft: *See—*
Dotsch, Erwin; Potschke, Jurgen; and Knacke, Ottmar, 4,273,810, Cl. 427-156.000.

Brown, Claude H., to Jet Research Center, Inc. Placement method for Q.D. charges using minimum diving time. 4,273,050, Cl. 102-321.000.

Brown, F. Barton: *See—*
Erickson, John W.; Brown, F. Barton; and White, Thomas A., Jr., 4,273,509, Cl. 415-111.000.

Brown, J. James, to Girard Equipment, Inc. Vibration resistant pressure actuated vacuum breaker. 4,273,153, Cl. 137-454.500.

Brown & Root, Inc.: *See—*
Weidler, Jay B., 4,273,474, Cl. 405-225.000.

Brown, Vaikai K.; Bjorksten, Thorolf R.; and Walter, Llewellyn L., to Towmotor Corporation. Vehicle control system with conditional transmission-brake interlock. 4,273,224, Cl. 192-4.00A.

Brown, William J.: *See—*
Fischer, Wolfgang; and Brown, William J., 4,273,485, Cl. 410-34.000.

Brown & Williamson Tobacco Corporation: *See—*
Bentley, George W., 4,273,139, Cl. 131-280.000.
Luke, John A., 4,273,600, Cl. 156-180.000.

Brugman, Johannes Antonius H., to Hunter Douglas International N.V. Panel construction. 4,272,937, Cl. 52-483.000.

Bruins, Roger C.; and Hart, Earl D. Automatic electric downrigger shut-off switch. 4,273,973, Cl. 200-47.000.

Brunken, Gerd, to Sachs-Systemtechnik GmbH. Magnetic security system. 4,274,080, Cl. 340-149.00R.

Bryant, Charles P.: *See—*
Pindar, John F.; Cohen, Jerome M.; and Bryant, Charles P., 4,273,891, Cl. 525-145.000.

Bube, Kenneth R., to RCA Corporation. Glazing paste for bonding a metal layer to a ceramic substrate. 4,273,822, Cl. 428-216.000.

Bucher-Guyer AG: *See—*
Schmid, Alfred, 4,273,000, Cl. 74-206.000.

Buchs, Wolfgang, to Messerschmitt-Bolkow-Blohm GmbH. Force infeed element for laminar panel assembly. 4,273,818, Cl. 428-116.000.

Buck, Gordon H.; and Amamoto, Kenneth I., to Mattel, Inc. Toy racing apparatus. 4,273,332, Cl. 273-86.00R.

Buckler, Robert T.; and Burd, John F., to Miles Laboratories, Inc. N-(hydroxyalkyl)-7-hydroxycoumarin-3-carboxamides. 4,273,715, Cl. 260-343.450.

Budd Company, The: *See—*
Dickhart, William W., III; and Marvin, Richard H., 4,273,498, Cl. 414-556.000.
Hulse, David O., 4,273,347, Cl. 280-80.00B.

Buddenhagen, Uwe, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Air-compressing direct injection internal combustion engine. 4,273,079, Cl. 123-276.000.

Buhler, Harald: *See—*
Nauroth, Peter; Each, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.

Buhler, William J. Baseball player's chest protector. 4,272,847, Cl. 2-2.000.

Bulk Unit Load Systems Limited: *See—*
Snape, George W., 4,273,266, Cl. 222-199.000.

Bumgardner, Donald L.; and Schreiber, James N., to Burroughs Corporation. Automatic passbook reader/writer apparatus. 4,273,997, Cl. 235-449.000.

Bundy, Gordon L., to Upjohn Company, The. 2-Decarboxy-2-hydroxymethyl-11a-homo-TXA$_2$ compounds. 4,273,716, Cl. 260-345.90P.

Buneta, Paul. Bowler's finger support. 4,273,330, Cl. 273-54.00B.

Bunn, Christopher B.: *See—*
Bunn, Norman W.; and Bunn, Christopher B., 4,273,522, Cl. 425-113.000.

Bunn, Norman W.; and Bunn, Christopher B., to Dyform Engineering Limited. Reinforcing member support in concrete extruders. 4,273,522, Cl. 425-113.000.

Burd, John F.: *See—*
Buckler, Robert T.; and Burd, John F., 4,273,715, Cl. 260-343.450.

Burke, Ben G., to Chevron Research Company. Marine-drilling subbase assembly for a soft-bottom foundation. 4,273,471, Cl. 405-203.000.

Burnham, Paul W.: *See—*
Huggins, Raymond W.; Burnham, Paul W.; and Torrey, Arthur L., 4,273,069, Cl. 118-658.000.

Burris Industries, Inc.: *See—*
Grachten, Erich, 4,273,737, Cl. 264-46.500.

Burroughs Corporation: *See—*
Bumgardner, Donald L.; and Schreiber, James N., 4,273,997, Cl. 235-449.000.
Todd, Robert; and Haas, Frank J., 4,274,079, Cl. 340-146.3FT.

Bush, Charles N.; Daniels, Charles A.; and Koebel, Ralph F., to B. F. Goodrich Company, The. Process for producing homopolymers or copolymers of vinyl or vinylidene monomers by emulsion polymerization. 4,273,904, Cl. 526-91.000.

Bush, George E. Dispensing of fluent materials. 4,273,260, Cl. 222-135.000.

Butler Greenwich Inc.: *See—*
Crowley, Bucky, 4,273,045, Cl. 101-211.000.

Butt, Frederick A., to Owens-Corning Fiberglas Corporation. Process for reinforcing polyvinyl chloride pipe by wrapping with glass fibers coated with a polyester resin composition. 4,273,599, Cl. 156-172.000.

Butterworth, Edmund M., to Eaton Corporation. Joystick control electric switch. 4,273,972, Cl. 200-6.00A.

Buxbaum, Charley, to BBC Brown, Boveri & Company, Limited. Gas discharge device with metal oxide carrier in discharge path. 4,274,029, Cl. 313-204.000.

Buxbaum, Charley, to BBC Brown, Boveri & Company, Limited. Thermionic cathode. 4,274,030, Cl. 313-346.00R.

B.V. Arenco P.M.B.: *See—*
Eijsermans, Petrus A. H., 4,273,140, Cl. 131-328.000.

Byk-Mallinckrodt Chemische Produkte GmbH: *See—*
von Stetten, Otto; and Schmidt, Helmut, 4,273,865, Cl. 435-7.000.

Bykov, Mikhail S.: *See—*
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Byrnes, Thomas J., Jr., to ACF Industries, Incorporated. Tamper resistant idle adjustment screw. 4,273,730, Cl. 261-41.00D.

Bytzek, Klaus K., to Drive Manufacturing Inc. Method of pulley manufacture and product. 4,273,547, Cl. 474-170.000.

C&D Enterprises: *See—*
Conklin, Charles W., 4,274,034, Cl. 315-240.000.

Cabot Corporation: *See—*
Schwarz, Brian L., 4,273,566, Cl. 62-27.000.

Caine, Richard D. Universal X-ray film marker. 4,274,006, Cl. 250-476.000.

Cairns, Thomas M., to Ford Motor Company. Locking structure for electrical connectors. 4,273,403, Cl. 339-91.00R.

Calgon Corporation: *See—*
Sinha, Rabindra K.; Polinsky, Charles K.; Cifrulak, Stephen D., Sr.; and Wagner, Norman J., 4,273,751, Cl. 423-244.000.

California Institute of Technology: *See—*
Cuk, Slobodan M.; and Middlebrook, Robert D., 4,274,133, Cl. 363-39.000.

Calor Group Limited, The: *See—*
Kent, Peter J. C.; and Page, John K. R., 4,273,667, Cl. 252-70.000.

Camco, Incorporated: *See—*
Pringle, Ronald E.; and Black, Paul W., 4,273,194, Cl. 166-323.000.

Campbell, James R.; and Anapach, Roy L., to Mahoney, Thomas P. Core strip blank, core strip and method of making same. 4,273,836, Cl. 428-595.000.

Canon Kabushiki Kaisha: *See—*
Iwama, Hideto; Toyama, Masamichi; Shimazaki, Mamoru; and Ichiyanagi, Toshikazu, 4,273,426, Cl. 352-169.000.
Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, 4,273,844, Cl. 430-48.000.

Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, 4,273,845, Cl. 430-48.000.
Matsuda, Mutsuhide; Tamamura, Hideo; Taguchi, Tetsuya; Okino, Tadashi; and Yazaki, Mutsunobu, 4,273,432, Cl. 354-145.000.
Noda, Atsushi, 4,273,457, Cl. 400-705.100.

Canzek, Ludvik, to Kern & Co. A.G. High speed catadioptric objective lens system. 4,273,425, Cl. 350-444.000.

Capuano, Terry D., to Lamson & Sessions Co., The. Thread convolution. 4,273,175, Cl. 411-168.000.

Carbomedics, Inc.: *See*—
Bokros, Jack C., 4,272,854, Cl. 3-1.500.

Cardet, Charles H.; and Koleske, Joseph V., to Union Carbide Corporation. Radiation curable dispersions containing high molecular weight essentially nonpolymerizable vinyl resins. 4,273,633, Cl. 204-159.170.

Carefree Bicycle Tire Company: *See*—
Wyman, Ransome J.; Alshin, Richard A.; and Gilbert, Charles H., 4,273,176, Cl. 152-327.000.

Carl Freudenberg, Firma: *See*—
Freudenberg, Bertram; Schuhmacher, Gunter; and Muhlfeld, Horst, 4,273,911, Cl. 528-49.000.

Carlo Erba Strumentazione S.p.A.: *See*—
Sisti, Giorgio; Riva, Ermete; and Italiano, Pietro, 4,272,983, Cl. 73-38.000.

Carlson, Eric J., to General Electric Company. Ternary electrolyte for secondary electrochemical cells. 4,273,841, Cl. 429-199.000.

Carnahan, James C., to General Electric Company. Monocapped bisphenol salts and method of making. 4,273,717, Cl. 260-345.90R.

Carpenter, Leon G.: *See*—
Carrier, Lee A.; and Carpenter, Leon G., 4,273,362, Cl. 283-6.000.

Carpenter, Neil L. Method and apparatus for recovering natural gas from geopressured salt water. 4,273,189, Cl. 166-266.000.

Carr, Peter; and Laethem, Alfred F., to Energy Development Associates, Inc. Activating carbonaceous electrodes. 4,273,839, Cl. 429-51.000.

Carrera, June F.: *See*—
Carrera, Michael A.; Carrera, June F.; Littner, Melvyn S.; and Littner, Lorna C., 4,273,337, Cl. 273-243.000.

Carrera, Michael A.; Carrera, June F.; Littner, Melvyn S.; and Littner, Lorna C. Family sex education board game. 4,273,337, Cl. 273-243.000.

Carrier, Lee A.; and Carpenter, Leon G., to Ludlow Corporation. Information-bearing article for conveying information which cannot be surreptitiously detected. 4,273,362, Cl. 283-6.000.

Carrieri, Louis F., to Gulf & Western Manufacturing Company. Load equalizer for press tooling. 4,272,980, Cl. 72-404.000.

Carter, Albert W.: *See*—
Edson, Donald; and Carter, Albert W., 4,273,986, Cl. 219-123.000.

Carter, Eric L.; and Nosowicz, Eugene J., to International Business Machines Corporation. Cascode polarity hold latch having integrated set/reset capability. 4,274,017, Cl. 307-289.000.

Carter, George W.: *See*—
Haviv, Fortuna; and Carter, George W., 4,273,940, Cl. 564-372.000.

Casimir Kast GmbH & Co. K.G.: *See*—
Nopper, Herbert, 4,273,981, Cl. 219-10.49R.

Casio Computer Co., Ltd.: *See*—
Yanagawa, Mikio, 4,274,146, Cl. 364-705.000.

Cassella Aktiengesellschaft: *See*—
Piesch, Steffen; Dorries, Peter; Schmidt, Ewald; and Hensel, Richard, 4,273,669, Cl. 252-182.000.

Cassimally, K. A. I.; and Frommelt, Horace, to Cassimally, K. A. I. Combined portable case and luggage trolley. 4,273,222, Cl. 190-18.00A.

Caterpillar Tractor Co.: *See*—
Cleveland, Gary L.; and Taylor, Clyde O., 4,273,081, Cl. 123-41.080.
Goloff, Alexander, 4,273,087, Cl. 123-299.000.
Goloff, Alexander, 4,273,178, Cl. 164-4.000.

Cave, David L.; and Davies, Robert B., to Motorola, Inc. Saturation limited bias circuit for complementary transistors. 4,274,018, Cl. 307-300.000.

Cavitron Corporation: *See*—
Enderby, Charles E., 4,273,109, Cl. 128-6.000.

Cedergren, Stig. Locking security container. 4,273,478, Cl. 406-189.000.

Central Pre-Mix Concrete Co.: *See*—
Hodneland, Jan, 4,273,231, Cl. 193-10.000.

Centrilift, Inc.: *See*—
Guzy, Raymond L., 4,273,953, Cl. 174-84.00R.

Centro Sperimentale Metallurgico S.p.A.: *See*—
Masucci, Pasquale; and Sommovigo, Paolo, 4,273,948, Cl. 13-9.0ES.

Chafetz, Harry: *See*—
Hammond, Kenneth G.; and Chafetz, Harry, 4,273,663, Cl. 252-34.000.

Chairez, Ruben: *See*—
Ling, Chung-Mei; Decker, Richard H.; and Chairez, Ruben, 4,273,756, Cl. 424-1.000.

Champion International Corporation: *See*—
Vassiliades, Anthony E., 4,273,672, Cl. 252-316.000.

Champlain Cable Corporation: *See*—
Perreault, Aime J., 4,273,829, Cl. 428-383.000.

Chandler, Earl E. Apparatus for supportingly organizing and displaying miscellaneous articles. 4,273,394, Cl. 312-184.000.

Chanel: *See*—
Lehmann, Myrtil B., 4,273,248, Cl. 215-331.000.

Chang, Clarence D., to Mobil Oil Corporation. De-aluminization of aluminosilicates. 4,273,753, Cl. 423-328.000.

Chang, Pek S. Adjustable-height support apparatus. 4,273,306, Cl. 248-421.000.

Chapman, Derek D.; and Wu, E-ming, to Eastman Kodak Company. Nondiffusible heterocyclylazonaphthol dye-releasing compounds. 4,273,706, Cl. 260-156.000.

Charland, Raymond J., to Litton Industrial Products, Inc. Stem seal for a fire safe ball valve. 4,273,148, Cl. 137-72.000.

Chartered Industries of Singapore Private Limited: *See*—
Waters, Frank E., 4,272,902, Cl. 42-25.000.

Chemische Werke Huls Aktiengesellschaft: *See*—
Feldmann, Rainer; Muller, Karl-Adolf; and Hornung, Karl-Heinz, 4,273,919, Cl. 528-313.000.

Cheng, Peter J.; Dockendorff, Jay D.; and Wright, Ernest L., to HPD Incorporated. Apparatus for and method of removing radioactive bottoms from an evaporator. 4,273,670, Cl. 252-301.10W.

Chester, John, to Ferodo Limited. Friction materials. 4,273,699, Cl. 260-38.000.

Chevron Research Company: *See*—
Burke, Ben G., 4,273,471, Cl. 405-203.000.
Singer, Malcolm S., 4,273,572, Cl. 71-86.000.

Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt.: *See*—
Ghyczy, Jeno; Szoke, Sandor; and Csermely, Gyorgy, 4,273,679, Cl. 252-466.00J.

Chiquet, Claude. Device for external fixation of bone fragments. 4,273,116, Cl. 128-92.00A.

Chitre, Sanjiv R., to Photowatt International, Inc. Solar cell and fabrication thereof using microwaves. 4,273,950, Cl. 136-255.000.

Choisel, Daniel P. L. Prefabricated wall structure for forming an enclosure such as a horse-box. 4,273,072, Cl. 119-27.000.

Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., to Merck & Co., Inc. Process for the preparation of thienamycin and intermediates. 4,273,709, Cl. 260-239.00A.

Christensen, Inc.: *See*—
Aumann, James T.; and White, Harold G., 4,272,987, Cl. 73-153.000.

Chun, Hugh, to Greer Hydraulics, Incorporated. Pressure pulse dampening device. 4,273,158, Cl. 138-30.000.

Ciba-Geigy Corporation: *See*—
Abel, Heinz, 4,273,554, Cl. 8-557.000.
Finch, Neville, 4,273,779, Cl. 424-266.000.
Stanek, Jaroslav, 4,273,766, Cl. 424-180.000.

Cifrulak, Stephen D., Sr.: *See*—
Sinha, Rabindra K.; Polinsky, Charles K.; Cifrulak, Stephen D., Sr.; and Wagner, Norman J., 4,273,751, Cl. 423-244.000.

Citizen Watch Company Limited: *See*—
Kume, Kazunari; Watanabe, Minoru; Ohno, Hideshi; and Tamaru, Munetaka, 4,274,153, Cl. 368-80.000.

Clark, Colin R.; Shore, Arthur R.; and Corbett, Robert A., to Sun Valley Poultry Limited. Containers for transporting poultry. 4,273,071, Cl. 119-17.000.

Clark, Keith H.; and Johnston, James D., to United States of America, National Aeronautics and Space Administration. Pneumatic inflatable end effector. 4,273,505, Cl. 414-735.000.

Claudius Peters AG: *See*—
Krauss, Werner, 4,273,451, Cl. 366-101.000.

Clear Corporation, The: *See*—
Cowden, Ernest A.; and Lauber, Leo E., 4,272,934, Cl. 52-202.000.

Clemons, Donald G.; and Huber, William R., III, to Bell Telephone Laboratories, Incorporated. Sense amplifier. 4,274,013, Cl. 307-530.000.

Cleveland, Gary L.; and Taylor, Clyde O., to Caterpillar Tractor Co. Vent valve for engine cooling systems. 4,273,081, Cl. 123-41.080.

CMI Corporation: *See*—
Rosenbaum, Glen F., 4,273,369, Cl. 293-1.000.

Coachmen Industries, Inc.: *See*—
Krein, Reuben J., 4,272,874, Cl. 29-235.000.

Coca-Cola Company, The: *See*—
Harvill, William A., 4,272,968, Cl. 62-394.000.

Coccoli, Costantino: *See*—
Garzia, Aldo; Vittadini, Giorgio; Bottazzi, Andrea; Pelagalli, Domenico; and Coccoli, Costantino, 4,273,931, Cl. 546-344.000.

Cocron, Istvan: *See*—
Borowski, Kurt; Wagensonner, Eduard; and Cocron, Istvan, 4,273,428, Cl. 354-23.00D.

Cogliano, Joseph A., to W. R. Grace & Co. Passive solar heating and cooling panels. 4,273,100, Cl. 126-433.000.

Cohen, Jerome M.: *See*—
Pindar, John F.; Cohen, Jerome M.; and Bryant, Charles P., 4,273,891, Cl. 525-145.000.

Colgate-Palmolive Company: *See*—
Gaffar, Abdul; and Gaffar, Maria C., 4,273,759, Cl. 424-54.000.
Grey, Seymour, 4,273,661, Cl. 252-8.800.

Coll-Palagos, Miguel, to Stauffer Chemical Company. Plated metal article. 4,273,837, Cl. 428-647.000.

Collum, Paulette: *See*—
Martin, Jerry R.; Tadasier, John S.; and Collum, Paulette, 4,273,924, Cl. 536-17.00R.

Columbus McKinnon Corporation: *See*—
Behnke, Edward R.; and Sanderson, Floyd W., 4,273,371, Cl. 294-78.00R.

Combustion Engineering, Inc.: *See*—
Andrews, Mena G., 4,273,616, Cl. 176-68.000.
Biemiller, Eric C., 4,273,838, Cl. 428-683.000.

ComCoach Corporation: *See*—
Anderson, Bruce H., 4,272,923, Cl. 49-360.000.

Commissariat a l'Energie Atomique: *See*—
Bompard, Bruno, 4,272,950, Cl. 57-232.000.
Ponse, Pierre; and Renaux, Charley, 4,273,614, Cl. 176-30.000.

Commonwealth Industrial Gases Limited, The: *See*—
McMahon, John B., 4,273,251, Cl. 220-361.000.

Communications Satellite Corporation: *See*—
Uzunoglu, Vasil, 4,274,067, Cl. 331-172.000.

Compton, James, Jr.: *See*—
Herzberg, Norman; and Compton, James, Jr., 4,273,170, Cl. 144-115.000.

Conagcaki, Raymond H.; and Paciotti, Joseph D., to Du Pont de Nemours, E. I., and Company. Two-stage flotation purification of NaOH. 4,273,657, Cl. 210-703.000.

Conca, Gilbert G., to Societe Anonyme dite: Transitube-Project. Device for extracting and proportioning pulverulent products. 4,273,267, Cl. 222-318.000.

Concept Development Institute, Inc.: *See*—
Morgan, Burton D., 4,273,099, Cl. 126-426.000.

Condon, Joseph H., to Bell Telephone Laboratories, Incorporated. Electromagnetic arrangement for measuring electrical current. 4,274,051, Cl. 324-117.00R.

Congoleum Corporation: *See*—
Schmidle, Claude J.; and Varadhachary, Seevaram N., 4,273,819, Cl. 428-159.000.

Conklin, Charles W., to C&D Enterprises. Glow plug driver. 4,274,034, Cl. 315-240.000.

Conrad Scholtz AG: *See*—
Blattermann, Karl-Gunther; Neuhaus, Gunter; and Nolte, Gunther, 4,273,238, Cl. 198-605.000.

Conti-Form Machine Tools Limited: *See*—
LLoyd, William M.; and Lloyd, Brian M., 4,273,482, Cl. 409-80.000.

Contran Conveyors & Systems, Inc.: *See*—
Thwaites, John A.; and Ferrara, Ronald A., 4,273,239, Cl. 198-781.000.

Cook, James A., Jr., to PPG Industries, Inc. Process for preparing chlorothioloformates. 4,273,725, Cl. 260-455.00R.

Cooper, Michael N., to Knogo Corporation. Detection of articles in adjacent passageways. 4,274,090, Cl. 340-572.000.

Copal Company Limited: *See*—
Arisaka, Kunio; and Namioka, Kenta, 4,273,429, Cl. 354-30.000.

Corbett, Robert A.: *See*—
Clark, Colin R.; Shore, Arthur R.; and Corbett, Robert A., 4,273,071, Cl. 119-17.000.

Cordrey, Robert E.: *See*—
Giordano, George P.; Cordrey, Robert E.; and Eberts, Allen F., 4,272,916, Cl. 46-253.000.

Corley, John E.; Mitchell, Joseph M.; and Andert, Charles M., to McDonnell Douglas Corporation. Hydraulic stop. 4,273,481, Cl. 408-14.000.

Corning Glass Works: *See*—
Flannery, James B.; Morgan, David W.; Rosplock, Sara E.; and Szarbaniewicz, Stella A., 4,273,586, Cl. 106-52.000.
Scholl, John J.; and Staley, Warren D., 4,273,567, Cl. 65-72.000.
Scholl, John J.; and Staley, Warren D., 4,273,568, Cl. 65-76.000.
Staley, Warren D., 4,273,569, Cl. 65-360.000.

Corrigan, James H.; and Jahnsen, Egil J., to Falconbridge Nickel Mines Limited. Electric arc furnace operation. 4,273,576, Cl. 75-11.000.

Corris, Charles J.: *See*—
Beck, Blaine E.; and Corris, Charles J., 4,274,127, Cl. 362-72.000.

Cottell, Eric C. Fuel supply system. 4,273,078, Cl. 123-25.00R.

Coulter Electronics, Inc.: *See*—
Hogg, Walter R., 4,273,443, Cl. 356-343.000.

Coussediere, Daniel, to Roussel Uclaf. Novel $\Delta^{4,9}$-gonadiene-21-ol-3,20-diones. 4,273,771, Cl. 424-242.000.

Couturier, Bernard: *See*—
Peronnet, Roland; Couturier, Bernard; and Fombert, Christian, 4,273,603, Cl. 156-236.000.

Cowden, Ernest A.; and Lauber, Leo E., to Clear Corporation, The. Panel structure for blocking windows. 4,272,934, Cl. 52-202.000.

Cowpland, Michael C. J.; and Beirne, Patrick R., to Mitel Corporation. Tone decoding circuit. 4,273,965, Cl. 179-84.0VF.

CPC Engineering Corporation: *See*—
Reid, Robert A., 4,273,655, Cl. 210-396.000.

CPG Products Corp.: *See*—
Giordano, George P.; Cordrey, Robert E.; and Eberts, Allen F., 4,272,916, Cl. 46-253.000.

Crane, Walton B., to Industrial Designs & Services. Method and device for folding blanks to form boxes. 4,273,548, Cl. 493-162.000.

Cranjer Company, Inc.: *See*—
Rio, Gerald J., 4,273,311, Cl. 254-93.00R.

Cremo Supply Ltd.: *See*—
Cronk, Allan D., 4,273,467, Cl. 404-26.000.

Creusot-Loire: *See*—
Pere, Gerard, 4,273,641, Cl. 204-253.000.

Crews, Sam T.: *See*—
Bolton, Jimmie B.; and Crews, Sam T., 4,273,159, Cl. 138-109.000.

Cribbs, Robert W., to Litton Industrial Products, Inc. Scanning method and apparatus. 4,272,991, Cl. 73-621.000.

Crivello, James V., to General Electric Company. Arylsulfonium salt-solvent mixtures. 4,273,668, Cl. 252-182.000.

Cronewitz, Theodor; and Schiweck, Hubert, to Suddeutsche Zucker-Aktiengesellschaft. Process for obtaining pressed beet pulp with high dry-substance content. 4,273,590, Cl. 127-44.000.

Cronk, Allan D., to Cremo Supply Ltd. Adjustable manhole cover support. 4,273,467, Cl. 404-26.000.

Crosby, Jeffrey N.: *See*—
Rhoda, Richard N.; and Crosby, Jeffrey N., 4,273,755, Cl. 423-463.000.

Cross, Clifford W.: *See*—
Lindsay, Ronald J.; and Cross, Clifford W., 4,273,065, Cl. 114-219.000.

Cross, Peter E.; and Dickinson, Roger P., to Pfizer Inc. Inhibition of thromboxane synthetase by 3-(1-Imidazolylalkyl) indoles. 4,273,782, Cl. 424-273.00R.

Crowder, Billy L.; Gaenslen, Fritz H.; and Jaeger, Richard C., to International Business Machines Corporation. MOSFET Substrate sensitivity control. 4,274,105, Cl. 357-23.000.

Crowhurst, Brian H. Food preparation appliances. 4,273,318, Cl. 269-13.000.

Crowley, Bucky, to Butler Greenwich Inc. Printing machine registration target. 4,273,045, Cl. 101-211.000.

Csermely, Gyorgy: *See*—
Ghyczy, Jeno; Szoke, Sandor; and Csermely, Gyorgy, 4,273,679, Cl. 252-466.00J.

Cuches, Walter T.: *See*—
Seuffer, Clifton K.; and Cuches, Walter T., 4,273,407, Cl. 339-177.00R.

Cuk, Slobodan M.; and Middlebrook, Robert D., to California Institute of Technology. DC-to-DC Converter having reduced ripple without need for adjustments. 4,274,133, Cl. 363-39.000.

Cummins, Richard W.; Fuchs, Robert J.; and Thomas, James L., to FMC Corporation. Preparation of guanidine phosphate for hardboard flame retardant use. 4,273,687, Cl. 260-17.200.

Cuppleditch, Brian; and Lewis, Clive. Device for containing and dispensing particles such as tablets. 4,273,254, Cl. 221-196.000.

Curtis, James W.: *See*—
Renau, Jacques; Curtis, James W.; Nicholson, Donald S.; and Hennessey, Frank L., 4,274,098, Cl. 343-781.0CA.

Cusi, Dante S. Method and apparatus for stabilizing operation of a press. 4,273,035, Cl. 100-37.000.

Custer, Milton F.: *See*—
Holland, Kenneth M.; and Custer, Milton F., 4,273,115, Cl. 128-90.000.

Custom Made Packaging Inc.: *See*—
Tollette, Henry B., 4,273,816, Cl. 428-35.000.

Cutler, John H.: *See*—
Walker, Loren H.; and Cutler, John H., 4,274,042, Cl. 318-803.000.

Cyfka, Tadeusz R., to Balfour Beatty Limited. Tunnelling shields and like moveable apparatus. 4,273,468, Cl. 405-132.000.

D. W. Zimmerman Mfg., Inc.: *See*—
Berko, Peter, 4,273,499, Cl. 414-626.000.

D'Agostino, Michael: *See*—
Foley, James P.; Kloek, Bernard F.; and D'Agostino, Michael, 4,273,969, Cl. 179-156.00A.

Daiichi Dentsu Kabushiki Kaisha: *See*—
Doniwa, Tabito, 4,273,198, Cl. 173-1.000.

Daimler-Benz AG: *See*—
Scholz, Hansjergen; Backhaus, Hans-Gerd; and Brambilla, Luigi, 4,273,359, Cl. 280-740.000.

Daimler-Benz Aktiengesellschaft: *See*—
Beeskow, Bruno; Bauer, Egon; and Pfundstein, Wolfgang, 4,273,030, Cl. 91-450.000.
Gutjahr, Manfred A.; and Heinrich, Hans, 4,273,582, Cl. 75-222.000.
Reinhard, Theodor; Haug, Ernst; Hoffmann, Rudiger; and Feichtiger, Dieter, 4,273,027, Cl. 91-32.000.

Dainichi-Nippon Cables, Ltd.: *See*—
Otsugawa, Michihide; and Ishii, Ryouji, 4,273,579, Cl. 75-106.000.

Damron, Tony R. Pressure-fluid supply system. 4,273,503, Cl. 414-694.000.

Danforth, Michael B. Method for making hyperextension orthosis. 4,272,878, Cl. 29-526.00R.

D'Angelo, Paul F.; and Metzler, Richard B., to Union Carbide Corporation. Detergent resistant compositions. 4,273,584, Cl. 106-3.000.

Daniels, Charles A.: *See*—
Bush, Charles N.; Daniels, Charles A.; and Koebel, Ralph F., 4,273,904, Cl. 526-91.000.

Danz, William R. Ocular prosthetic or the like. 4,272,910, Cl. 46-46.000.

Davert, Edward J., to Boeing Company, The. Lattice template. 4,272,890, Cl. 33-174.00G.

Davies, Robert B.: *See*—
Cave, David L.; and Davies, Robert B., 4,274,018, Cl. 307-300.000.

Davis, George B., Jr. Hand held electric caulking gun. 4,273,269, Cl. 222-326.000.

Davis, Odie R. S.: *See*—
Baker, Eugene E.; Szarka, David D.; Davis, Odie R. S.; and Workman, Nolen M., 4,273,190, Cl. 166-278.000.

Davy International AG: *See*—
Knobel, Walter, 4,273,620, Cl. 203-18.000.

Dawless, Robert K.; and Jacobs, Stanley C., to Aluminum Company of America. Production of extreme purity aluminum. 4,273,627, Cl. 204-67.000.

Dawson, Jean H., to United States of America, Agriculture. Method of applying herbicide. 4,272,920, Cl. 47-58.000.

Dawson, Robert H.; and Schnable, George L., to RCA Corporation. Passivating composite for a semiconductor device comprising a silicon nitride (Si_3N_4) layer and phosphosilicate glass (PSG) layer. 4,273,805, Cl. 427-88.000.

DBS, Inc.: *See*—
Strohschneider, Heinz F., 4,273,038, Cl. 101-45.000.
Deabriges, Jean; Ferre, Yves; and Goumont, Claude, to Eastman Kodak Company. Process of formation of color images, photographic product and treating solutions useful for putting the process into practice. 4,273,863, Cl. 430-467.000.
Dean, John J.: *See*—
Haydon, Arthur W.; and Dean, John J., 4,274,026, Cl. 310-254.000.
Deaton, Thomas M.: *See*—
Pearce, Joseph L.; Yonker, John H.; and Deaton, Thomas M., 4,273,186, Cl. 166-72.000.
Deborah Fluidised Combustion Limited: *See*—
Robinson, Edwin, 4,273,073, Cl. 122-4.00D.
Decker, Peter W. Road surface ice detector and method for vehicles. 4,274,091, Cl. 340-583.000.
Decker, Richard H.: *See*—
Ling, Chung-Mei; Decker, Richard H.; and Chairez, Ruben, 4,273,756, Cl. 424-1.000.
Deere & Company: *See*—
Dolberg, Dale R.; and Guiter, Jack L., 4,272,948, Cl. 56-246.000.
Pauli, Klaus H., 4,273,138, Cl. 130-27.00T.
Degen, Ludwig: *See*—
Robertiello, Andrea; and Degen, Ludwig, 4,273,659, Cl. 210-728.000.
De Groff, James T.: *See*—
Feldman, Martin L.; and De Groff, James T., 4,273,701, Cl. 260-40.00R.
de Lange, Tinus, to Wavin B.V. Branch piece. 4,273,364, Cl. 285-197.000.
Delatorre, Leroy C.: *See*—
Rapson, William J., Jr.; Delatorre, Leroy C.; and Thompson, Charles L., 4,272,985, Cl. 73-49.200.
Della Croce, John B. Method for constructing dentures. 4,273,533, Cl. 433-55.000.
De Long, Charles F., to United States Trading International, Inc. Anti-fouling overcoating composition and use thereof. 4,273,833, Cl. 428-411.000.
DeMag Aktiengesellschaft: *See*—
Middeldorf, Martin, 4,273,348, Cl. 280-112.00A.
Demerson, Christopher A.; Humber, Leslie G.; and Ferland, Jean-Marie, to American Home Products Corporation. Antihypertensive tricyclic isoindole derivatives. 4,273,773, Cl. 424-250.000.
Demoute, Jean-Pierre: *See*—
Martel, Jacques; Tessier, Jean; Teche, Andre; and Demoute, Jean-Pierre, 4,273,727, Cl. 260-465.00F.
DeNardo, John M. Guide for a cutting torch. 4,273,313, Cl. 266-66.000.
Dennison, Terry A. Aircraft proximity monitoring system. 4,274,096, Cl. 343-112.0TC.
Denny, John S.: *See*—
Maxcy, Thomas A.; and Denny, John S., 4,273,796, Cl. 426-634.000.
Dent, Thomas H.: *See*—
Lahoda, Edward J.; and Dent, Thomas H., 4,273,076, Cl. 122-382.000.
DeSoto, Inc.: *See*—
Porzel, Rita E.; and Bator, Cathryn D., 4,273,688, Cl. 260-17.40R.
Deubler, Josef. Process for the production of a liquid alkaline fertilizer containing clays and trace elements. 4,273,570, Cl. 71-21.000.
Deutsch, Ralph, to Kawai Musical Instrument Mfg. Co., Ltd. Nonlinear tone generation in a polyphonic tone synthesizer. 4,273,018, Cl. 84-1.220.
Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See*—
Nauroth, Peter; Esch, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.
Devanney, Raymond H., to Veeder Industries Inc. Fuel pump counter transfer pinion. 4,273,995, Cl. 235-139.00R.
De Voogd, Albert H., to Maatschappij van Berkel's Patent N.V. Clamping device for oscillatory strings in a weight sensing cell for a weighing apparatus. 4,273,205, Cl. 177-210.0FP.
De Zuba, George P.: *See*—
Smith, Alfred H., Jr.; De Zuba, George P.; and Mitchell, Tyrone D., 4,273,698, Cl. 260-37.0SB.
Diamant Boart: *See*—
Lambot, Joseph H., 4,273,200, Cl. 173-166.000.
Diamond Shamrock Corp.: *See*—
Kidon, William E.; Shuster, Nicholas; and Babinsky, Andrew D., 4,273,628, Cl. 204-87.000.
Dickhart, William W., III; and Marvin, Richard H., to Budd Company, The. Railway car trap door lift. 4,273,498, Cl. 414-556.000.
Dickinson, Roger P.: *See*—
Cross, Peter E.; and Dickinson, Roger P., 4,273,782, Cl. 424-273.00R.
Dickson, John D.: *See*—
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Diekhoner, Gunther: *See*—
Birkhofer, Herbert; Diekhoner, Gunther; and Hoffler, Hans-Otto, 4,273,280, Cl. 227-107.000.
Diesel Kiki Co., Ltd.: *See*—
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Takefuta, Hideyasu; Shinoda, Akira; and Shibauta, Teruyoshi, 4,273,226, Cl. 192-35.000.
Diethelm, Eugen, to Grissman Chemicals Limited. (1-Alkyl-5-nitro-2-imidazolyl)-vinyl-glyoxal-diacetals, their preparation and their use. 4,273,783, Cl. 424-273.00R.
Dietrich, Robert, to J. M. Voith GmbH. Stone roller. 4,272,873, Cl. 29-123.000.
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Aladiev, Ivan T.; Dzhamardzhashvili, Vazha A.; Dikhashidze, Manana A.; Teplov, Sergei V.; and Takhvirashvili, David G., 4,274,019, Cl. 310-11.000.
Dill, Randy B. Therapist's patient evaluation and training device. 4,273,540, Cl. 434-262.000.
Direct Reduction Corporation, The: *See*—
Keran, Vitie P.; and Baker, Alan C., 4,273,314, Cl. 266-145.000.
Discovision Associates: *See*—
Hayward, Curtis E.; and Maurer, Friedhelm, 4,274,119, Cl. 360-97.000.
Dlask, Jiri: *See*—
Farr, Garth M.; McCoy, Terence D.; and Dlask, Jiri, 4,273,010, Cl. 81-57.180.
Dobersch, Gerhard. Steel tube scaffold. 4,273,463, Cl. 403-246.000.
Dockendorff, Jay D.: *See*—
Cheng, Peter J.; Dockendorff, Jay D.; and Wright, Ernest L., 4,273,670, Cl. 252-301.10W.
Dr. Ing. h.c.F. Porsche Aktiengesellschaft: *See*—
Sivers, Rolf V.; Herrmann, Rudolf; and Layher, Ulrich, 4,273,207, Cl. 180-70.00P.
Dr. Johannes Heidenhain GmbH: *See*—
Nelle, Gunther, 4,273,447, Cl. 356-373.000.
Dodds, Philip V. W.; and Smith, Mark L., to ARP Instruments, Inc. Piano action keyboard with roller and elastic diaphragm transducer. 4,273,017, Cl. 84-1.100.
Dodonov, Jury I.; and Obidina, Valentina F. High power liquid cooled double strapped vane type magetron. 4,274,032, Cl. 315-39.510.
Dohring, Edward F.: *See*—
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Dolberg, Dale R.; and Guiter, Jack L., to Deere & Company. Oscillating knife cutting apparatus. 4,272,948, Cl. 56-246.000.
Dominguez, Richard J. G., to Texaco Inc. Stable emulsions of polyols and crosslinkers for polyurethanes. 4,273,884, Cl. 521-114.000.
Dominguez, Richard J. G.; and Rice, Doris M., to Texaco Development Corp. Novel catalyst system for RIM elastomers. 4,273,885, Cl. 521-115.000.
Doniwa, Tabito, to Daiichi Dentsu Kabushiki Kaisha. Motor-driven clamping method and device. 4,273,198, Cl. 173-1.000.
Doorley, Richard B.: *See*—
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Dorr, John A.; and Nomm, Matt, to Westinghouse Electric Corp. Oil and gas well kick detector. 4,273,212, Cl. 181-102.000.
Dorries, Peter: *See*—
Piesch, Steffen; Dorries, Peter; Schmidt, Ewald; and Hensel, Richard, 4,273,669, Cl. 252-182.000.
Dostoomian, A. S.; and Traub, Alan C., to Vanzetti Infrared & Computer Systems, Inc. Luminous clock display using optical fibers. 4,274,154, Cl. 368-82.000.
Dotsch, Erwin; Potschke, Jurgen; and Knacke, Ottmar, to Brown, Boveri & Cie Aktiengesellschaft. Method for preventing sintering in forging blocks. 4,273,810, Cl. 427-156.000.
Dow Chemical Company, The: *See*—
Bertram, James L.; and Sheih, Pong Su, 4,273,921, Cl. 528-405.000.
Ezzell, Bobby R.; and Sorenson, Marius W., 4,273,626, Cl. 204-98.000.
Gibbs, Dale S.; Benson, Jack H.; and Fernandez, Reet T., 4,273,901, Cl. 525-455.000.
Heitz, Robert G., 4,274,043, Cl. 320-6.000.
Lane, George A.; and Rossow, Harold E., 4,273,666, Cl. 252-70.000.
Dow Corning Corporation: *See*—
Meddaugh, Michael D., 4,273,813, Cl. 427-387.000.
Saam, John C.; and Wegener, Robert L., 4,273,634, Cl. 204-159.150.
Downen, Jim L.: *See*—
Sutliff, Wayne N.; and Downen, Jim L., 4,273,520, Cl. 417-434.000.
Downs, James W. Random conductive roving reflective surfacing for antennas and guides. 4,274,099, Cl. 343-912.000.
Doyle, William D., to Sperry Corporation. Passive bubble generator. 4,273,801, Cl. 427-48.000.
Draloric Electronic GmbH: *See*—
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Dravo Corporation: *See*—
Phillips, William R., Jr.; Tate, Ronald D.; and Tolman, Radon, 4,273,312, Cl. 266-44.000.
Drell, Philip, to Sima Products Corporation. Device for supporting and preventing curling of photographic film during developing thereof. 4,273,436, Cl. 354-344.000.
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Graham, Richard B., 4,272,952, Cl. 59-84.000.
Drive Manufacturing Inc.: *See*—
Bytzek, Klaus K., 4,273,547, Cl. 474-170.000.
Dual Gebruder Steidinger: *See*—
Litz, Heinz; Hallwirth, Volker; and Storz, Karl, 4,274,082, Cl. 340-167.00R.
Duflos, Roger: *See*—
Neirynck, Albert; and Duflos, Roger, 4,273,808, Cl. 427-142.000.
Duguet, Pierre; and Robert, Christian, to Automobiles Peugeot; and Societe Anonyme Automobiles Citroen. Convertible seat structures for automobile vehicles. 4,273,376, Cl. 296-65.00R.
Dulux Australia Limited: *See*—
Gillan, John; and Richards, Colin M., 4,273,830, Cl. 428-398.000.

Du Pont de Nemours, E. I., and Company: *See*—
Berry, Kenneth L., 4,273,807, Cl. 427-132.000.
Consaeski, Raymond H.; and Paciotti, Joseph D., 4,273,657, Cl. 210-703.000.
Greene, Robin N.; and Hertler, Walter R., 4,273,695, Cl. 260-29.4UA.
Knapan, Carl G., 4,273,728, Cl. 260-465.600.
Knapan, Carl G., 4,273,729, Cl. 260-543.00F.
Leberzammer, Ernst; and Roos, Leo, 4,273,857, Cl. 430-281.000.
Tyran, Leo W., 4,273,583, Cl. 75-251.000.
Walus, Aloysius N., 4,273,690, Cl. 260-22.0CB.
Durafab Division of Texel Industries, Inc.: *See*—
Goldstein, Lynn E., 4,272,851, Cl. 2-79.000.
Dybas, Richard A.: *See*—
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,273,781, Cl. 424-267.000.
Dyform Engineering Limited: *See*—
Bunn, Norman W.; and Bunn, Christopher B., 4,273,522, Cl. 425-113.000.
Dzhamardzhashvili, Vazha A.: *See*—
Aladiev, Ivan T.; Dzhamardzhashvili, Vazha A.; Dikhashidze, Manana A.; Teplov, Sergei V.; and Takhvirashvili, David G., 4,274,019, Cl. 310-11.000.
E.N.I. Ente Nazionale Idrocarburi: *See*—
Robertiello, Andrea; and Degen, Ludwig, 4,273,659, Cl. 210-728.000.
E.R.E. Europe Representation Establishment: *See*—
von Stering-Krugheim, Georg, 4,273,794, Cl. 426-590.000.
E. R. Squibb & Sons, Inc.: *See*—
Hoehn, Hans, 4,273,776, Cl. 424-263.000.
E. T. Oakes Limited: *See*—
Baker, Donald E.; and Bouette, David W., 4,273,521, Cl. 418-48.000.
Earls, William L., to Schenley Industries, Inc. Bottle closure-cup assembly. 4,273,247, Cl. 215-228.000.
Eastman Kodak Company: *See*—
Adin, Anthony, 4,273,860, Cl. 430-338.000.
Chapman, Derek D.; and Wu, E-ming, 4,273,706, Cl. 260-156.000.
Deabriges, Jean; Ferre, Yves; and Goumont, Claude, 4,273,863, Cl. 430-467.000.
Frishberg, Mark D., 4,273,926, Cl. 542-458.000.
Gottermeier, William F., 4,273,639, Cl. 204-195.00R.
Kilminster, Kenneth N.; and Holstead, Colin, 4,273,708, Cl. 260-199.000.
Lange, Gerald A.; and Simpson, Charles J., 4,273,852, Cl. 430-209.000.
Merrill, Stewart H.; Mutz, Alec N.; and Stahly, Frederick A., 4,273,849, Cl. 430-119.000.
Posticello, Ignazio S.; Sniadoch, Henry J.; and Villard, George, 4,273,853, Cl. 430-213.000.
Eastman Whipstock, Inc.: *See*—
Scott, Anthony C., 4,273,464, Cl. 403-348.000.
Eaton Corporation: *See*—
Butterworth, Edmund M., 4,273,972, Cl. 200-6.00A.
Hansen, James E.; and Heinz, Jerome G., 4,274,122, Cl. 361-159.000.
Ebato, Seigo: *See*—
Yoshida, Akio; and Ebato, Seigo, 4,273,862, Cl. 430-412.000.
Eberts, Allen F.: *See*—
Giordano, George P.; Cordrey, Robert E.; and Eberts, Allen F., 4,272,916, Cl. 46-253.000.
Economy, James; and Flanders, Mary Ann, to International Business Machines Corporation. Polymerizable acetylenic oligomers. 4,273,906, Cl. 526-285.000.
Edling, Ernst G. S., to Molnlycke AB. Device for cutting out blanks from a web of material. 4,273,014, Cl. 83-333.000.
Edman, Walter W.: *See*—
Klemm, Ernest J.; Edman, Walter W.; Erskine, Frances E.; and McDonough, Everett G., 4,273,143, Cl. 132-7.000.
Edson, Donald; and Carter, Albert W., to Blacks Equipment Limited. Method and apparatus for arc butt welding. 4,273,986, Cl. 219-123.000.
Edwards, Allen W. Automatic air register. 4,273,283, Cl. 236-49.000.
Edwards, Donald W.; Young, Paul R.; and Zukovich, Thomas M., to International Minerals & Chemical Corp. Method of blasting a field with ANFO and TL-136. 4,273,049, Cl. 102-312.000.
Efamol Limited: *See*—
Horrobin, David F., 4,273,763, Cl. 424-145.000.
Eheim, Franz: *See*—
Hofer, Gerald; Koarath, Karl; Eheim, Franz; Weiss, Otmar; Schmitt, Edgar; Faupel, Werner; and Gotz, Edgar, 4,273,090, Cl. 123-502.000.
Eijsermans, Petrus A. H., to B.V. Arenco P.M.B. Device for spreading individual tobacco leaf halves. 4,273,140, Cl. 131-328.000.
Eimerman, Allen C.: *See*—
Artin, Robert L.; and Eimerman, Allen C., 4,273,013, Cl. 83-167.000.
Ekeborg, Bo G.: *See*—
Lofgren, Stig-Gunnar; and Ekeborg, Bo G., 4,273,056, Cl. 111-2.000.
Ekman, C. Frederick W.: *See*—
Lennon, Donald J. J.; Hagerstrom, John R.; and Ekman, C. Frederick W., 4,273,847, Cl. 430-106.000.
Ekstrom, Olov; and Nilsson, Kenth, to Siemens Aktiengesellschaft. Two-part fluid conduit with means for connecting the sections thereof. 4,273,366, Cl. 285-332.000.
Elam, James O.: *See*—
Bartalow, Clare E.; and Elam, James O., 4,273,114, Cl. 128-53.000.
Electric Power Research Institute, Inc.: *See*—
MacDonald, Digby D.; and Scott, Arthur C., 4,273,637, Cl. 204-195.00F.
Rostron, Joseph R., 4,273,978, Cl. 200-148.00R.
Electro-Optik GmbH & Co. K.G.: *See*—
Menke, Josef F., 4,273,410, Cl. 350-6.200.
Eli Lilly and Company: *See*—
Nevin, Robert S., 4,273,920, Cl. 528-361.000.
Elliott, John B. Combination flashlight and high intensity light source. 4,274,130, Cl. 362-184.000.
Elliott, Michael T.: *See*—
Glass, Howard L.; and Elliott, Michael T., 4,273,610, Cl. 156-624.000.
Elsel, Werner, to Siemens Aktiengesellschaft. Evacuating device for generating an insulating vacuum around the superconducting winding of a rotor. 4,274,022, Cl. 310-62.000.
Elsner, Paul: *See*—
Wahl, Alois; Elsner, Paul; and Born, Gerhard, 4,273,236, Cl. 198-432.000.
Wahl, Alois; and Elsner, Paul, 4,273,237, Cl. 198-445.000.
Emerson Electric Co.: *See*—
Seeley, Wayne R., 4,273,993, Cl. 219-541.000.
Steiner, Robert E.; and Long, Thomas J., 4,273,990, Cl. 219-363.000.
Emtek Incorporated: *See*—
Solomon, Harold W., 4,273,650, Cl. 210-104.000.
Enderby, Charles E., to Cavitron Corporation. Fiber optic light delivery apparatus and medical instrument utilizing same. 4,273,109, Cl. 128-6.000.
Endo, Ichiro: *See*—
Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, 4,273,844, Cl. 430-48.000.
Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, 4,273,845, Cl. 430-48.000.
Endo, Makoto; and Kusahara, Kohji, to Nissan Chemical Industries Ltd. Process for producing aqueous solution of calcium nitrite. 4,273,754, Cl. 423-385.000.
Endter, Horst, to Maschinenfabrik Hasenclever Gesellschaft mit beschraakter Haftung. Workpiece manipulator for forging press. 4,272,981, Cl. 72-405.000.
Energy Development Associates, Inc.: *See*—
Carr, Peter; and Laethem, Alfred F., 4,273,839, Cl. 429-51.000.
Energy and Pollution Controls, Inc.: *See*—
Hollett, Grant T., Jr.; and Flick, Francis S., 4,273,750, Cl. 423-244.000.
Enertek Energy Engineering Inc.: *See*—
Methvin, James, 4,273,107, Cl. 126-445.000.
Engine Technology, Inc.: *See*—
McCusker, James D., 4,273,543, Cl. 440-4.000.
Engineered Systems, Inc.: *See*—
Weimer, Dan G., 4,273,996, Cl. 235-435.000.
Envirotech Corporation: *See*—
Mar, Danny M., 4,273,558, Cl. 23-230.0PC.
Epoxy Technology Inc.: *See*—
Tamulevich, Thomas W., 4,272,926, Cl. 51-216.00R.
EPP Corp.: *See*—
Lennon, Donald J. J.; Hagerstrom, John R.; and Ekman, C. Frederick W., 4,273,847, Cl. 430-106.000.
Erickson, John W.; Brown, F. Barton; and White, Thomas A., Jr., to Kobe, Inc. Self-powered cleaning unit for a fluid pump. 4,273,509, Cl. 415-111.000.
Ernst Leitz Wetzlar GmbH: *See*—
Fritsche, Rainer; and Schaefer, Klaus-Dieter, 4,273,430, Cl. 354-31.000.
Erskine, Frances E.: *See*—
Klemm, Ernest J.; Edman, Walter W.; Erskine, Frances E.; and McDonough, Everett G., 4,273,143, Cl. 132-7.000.
Esch, Heinz: *See*—
Nauroth, Peter; Esch, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.
Ess-Food Eksport-Svineslagterierness Salgsforening: *See*—
Oether, Kurt B.; and Jensen, Werner K., 4,273,703, Cl. 260-112.00R.
Essex Group, Inc.: *See*—
Maier, Thomas A., 4,273,089, Cl. 123-417.000.
Etsusaki, Yuji; and Hayakawa, Shusichi, to Kabushiki Kaisha Komatsu Seisakusho. Automatic control system for maintaining blade in predetermined relationship to laser beam. 4,273,196, Cl. 172-4.500.
Euerle, Karl. Back-pressure valve for heating installations. 4,273,155, Cl. 137-543.170.
Evdokimov, Viktor G.: *See*—
Fomichev, Mikhail M.; Schepakin, Mikhail B.; Gudz, Anatoly G.; Evdokimov, Viktor G.; Lakisnov, Nikolai E.; Romanchenko, Irina A.; and Selnikov, Andrei F., 4,273,508, Cl. 415-1.000.
Ex-Cell-O Corporation: *See*—
Schollbrock, Sylvanus L., 4,273,285, Cl. 239-121.000.
Exner, Gerhard; and Festinori, Volfango, to Kraftwerk Union Aktiengesellschaft. Device for turning the nuts on studs for closing a pressure vessel. 4,273,011, Cl. 81-57.380.
Exxon Production Research Company: *See*—
Karman, James S., 4,273,658, Cl. 210-709.000.
Exxon Research & Engineering Co.: *See*—
Anagnostopoulos, Stavros M., 4,273,454, Cl. 400-234.000.

Barnett, Allan E.; and Halluin, Albert P., 4,273,939, Cl. 564-358.000.
Halluin, Albert P.; and Barnett, Allan E., 4,273,680, Cl. 252-466.00J.
Krohn, David A.; Saitzer, Elias; and Raber, Peter E., 4,273,585, Cl. 106-47.00R.
Kugler, Edwin L.; and Garten, Robert L., 4,273,724, Cl. 518-715.000.
Levenspiel, Octave; and Kamholz, Kenneth, 4,272,893, Cl. 34-1.000.
Worley, Arthur C., 4,273,565, Cl. 55-343.000.

Ezzell, Bobby R.; and Sorenson, Marius W., to Dow Chemical Company, The. Electrolyte series flow in electrolytic chlor-alkali cells. 4,273,626, Cl. 204-98.000.

Fachin, Gino: *See*—
Marchesi, Sergio; and Fachin, Gino, 4,273,740, Cl. 264-228.000.

Fadda, Jean; and Pernet, Jean P., to Automobiles M. Berliet. Cooling system for an internal combustion engine. 4,273,563, Cl. 55-189.000.

Fahey, Robert J.; and Resnick, Martin L., to GTE Products Corporation; and GTE Laboratories Incorporated. Apparatus for monitoring usage of a telephone. 4,273,960, Cl. 179-5.00R.

Falconbridge Nickel Mines Limited: *See*—
Corrigan, James H.; and Jahnsen, Egil J., 4,273,576, Cl. 75-11.000.

Fang, Frank F.; and Hung, Roland Y., to International Business Machines Corporation. Electrooptical integrated circuit communication. 4,274,104, Cl. 357-19.000.

Fardo, Obie L.: *See*—
Griffin, Dennis B.; and Fardo, Obie L., 4,272,862, Cl. 17-21.000.

Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, to General Foods Corporation. Apparatus and process for the preparation of gasified confectionaries by pressurized injection molding. 4,273,793, Cl. 426-572.000.

Faris, Sadeg M., to International Business Machines Corporation. Self-resetting Josephson digital current amplifier. 4,274,015, Cl. 307-264.000.

Farmer, Zane M.; and Yobaccio, Edward A., to Polaroid Corporation. Adapter for coupling a photographic camera with a viewing device. 4,273,431, Cl. 354-59.000.

Farnham, Stewart E., to Bell & Howell Company. Information recording methods and apparatus. 4,274,120, Cl. 360-106.000.

Farr, Garth M.; McCoy, Terence D.; and Dlask, Jiri. Power tong. 4,273,010, Cl. 81-57.180.

Farr, Glyn P. R., to Lucas Industries Limited. Control valve assemblies. 4,273,386, Cl. 303-6.00C.

Farr, Glyn P. R., to Girling Limited. Pumps for fluids. 4,273,516, Cl. 417-214.000.

Faupel, Werner: *See*—
Hofer, Gerald; Konrath, Karl; Eheim, Franz; Weiss, Otmar; Schmitt, Edgar; Faupel, Werner; and Gotz, Edgar, 4,273,090, Cl. 123-502.000.

Favin, David L.; Lynn, Peter F.; and Snyder, Paul J., to Bell Telephone Laboratories, Incorporated. Intermodulation distortion test. 4,273,970, Cl. 179-175.30R.

Fazekas, Ernest E.: *See*—
Bayly, William I.; Rumbolo, Louis J.; Fazekas, Ernest E.; and Korzeb, Frank, 4,273,493, Cl. 414-221.000.

Feder, Joseph: *See*—
Tolbert, William R.; Hitt, Mary M.; and Feder, Joseph, 4,273,871, Cl. 435-41.000.

Fee, Robert W.: *See*—
Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., 4,273,173, Cl. 81-177.00M.

Feichtiger, Dieter: *See*—
Reinhard, Theodor; Haug, Ernst; Hoffmann, Rudiger; and Feichtiger, Dieter, 4,273,027, Cl. 91-32.000.

Feiger, Jerrold C. Vehicle cover and alarm system therefor. 4,274,077, Cl. 340-63.000.

Feinberg, Irving; and Wu, Leon L., to International Business Machines Corporation. Thick film capacitor having very low internal inductance. 4,274,124, Cl. 361-275.000.

Feldman, Martin L.; and De Groff, James T., to Tenneco Chemicals, Inc. Colorant-thickener dispersions for unsaturated polyester resin compositions. 4,273,701, Cl. 260-40.00R.

Feldmann, Rainer; Muller, Karl-Adolf; and Hornung, Karl-Heinz, to Chemische Werke Huls Aktiengesellschaft. Method for producing polylaurolactam powder compositions for the coating of metals at high temperatures and their use in the manufacture of pigmented powders by the dry-blend process. 4,273,919, Cl. 528-313.000.

Feldmesser, Julius: *See*—
Kochansky, Jan P.; Feldmesser, Julius; and Robbins, William E., 4,273,768, Cl. 424-222.000.

Feldstein, Nathan. Process using activated electroless plating catalysts. 4,273,804, Cl. 427-97.000.

Feltenberger, Bruce D. Tide generator. 4,274,008, Cl. 290-42.000.

Ferakarn Limited: *See*—
Shore, David; and Lintonbon, Robert F., 4,273,514, Cl. 417-15.000.

Ferland, Jean-Marie: *See*—
Demerson, Christopher A.; Humber, Leslie G.; and Ferland, Jean-Marie, 4,273,773, Cl. 424-250.000.

Fernandez-Moran Villalobos, Humberto. Ultrasharp polycrystalline diamond edges, points, and improved diamond composites, and methods of making and irradiating same. 4,273,561, Cl. 51-307.000.

Fernandez, Reet T.: *See*—
Gibbs, Dale S.; Benson, Jack H.; and Fernandez, Reet T., 4,273,901, Cl. 525-455.000.

Ferodo Limited: *See*—
Chester, John, 4,273,699, Cl. 260-38.000.

Ferrara, Ronald A.: *See*—
Thwaites, John A.; and Ferrara, Ronald A., 4,273,239, Cl. 198-781.000.

Ferraro, Armand J.: *See*—
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,273,041, Cl. 101-93.140.

Ferraro, Frank A., to Warner-Lambert Company. Shaving cartridge. 4,272,885, Cl. 30-47.000.

Ferre, Yves: *See*—
Deabriges, Jean; Ferre, Yves; and Goumont, Claude, 4,273,863, Cl. 430-467.000.

Festinori, Volfango: *See*—
Exner, Gerhard; and Festinori, Volfango, 4,273,011, Cl. 81-57.380.

F'Geppert, Erwin, to United States of America, Army. Drive mechanism. 4,272,998, Cl. 74-99.00R.

Fiato, Rocco A.; and Pruett, Roy L., to Union Carbide Corporation. Rhodium-catalyzed oxidation process for producing carboxylic acids. 4,273,936, Cl. 562-606.000.

Fichtel & Sachs AG: *See*—
Bergles, Eduard, 4,273,546, Cl. 474-82.000.

Finch, Neville, to Ciba-Geigy Corporation. Treating hypertension with substituted-5-amino-2-pyridinecarboxylic acids. 4,273,779, Cl. 424-266.000.

Firmenich, S.A.: *See*—
Becker, Joseph J., 4,273,714, Cl. 260-343.210.

Fischer, Michael A.; and Pepi, Jerome S., to Grinnell Fire Protection Systems Company, Inc. Fire protection sprinkler head with air-current diverting fins. 4,273,195, Cl. 169-39.000.

Fischer, Otto; Pulvermacher, Wilfried; and Koch, Bernd, to Fried. Krupp Huttenwerke Aktiengesellschaft. Arc furnace roof. 4,273,949, Cl. 13-35.000.

Fischer, Werner. Tennis-racket. 4,273,331, Cl. 273-73.00D.

Fischer, Wolfgang; and Brown, William J., to PPG Industries, Inc. Semi-trailer shipping support structure. 4,273,485, Cl. 410-34.000.

Fisher, Albert W., to RCA Corporation. Method of laying out an integrated circuit with specific alignment of the collector contact with the emitter region. 4,272,882, Cl. 29-578.000.

Fitch, James B., to General Signal Corporation. Liquid ring pump. 4,273,515, Cl. 417-62.000.

FitzGerald, Joseph M.: *See*—
White, Jack H.; and FitzGerald, Joseph M., 4,272,967, Cl. 62-236.000.

Flanagan, Charles E. Binocular device for displaying elapsed time in the field of view. 4,274,149, Cl. 368-10.000.

Flandera, Mary Ann: *See*—
Economy, James; and Flandera, Mary Ann, 4,273,906, Cl. 526-285.000.

Flannery, James E.; Morgan, David W.; Rosplock, Sara E.; and Szczerbaniewicz, Stella A., to Corning Glass Works. Tinted glassware. 4,273,586, Cl. 106-52.000.

Fleek, Arthur E.: *See*—
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,273,041, Cl. 101-93.140.

Fleischer, Donald W., to Veeder Industries Inc. Rotary electromagnetic indicator. 4,273,994, Cl. 235-92.00A.

Flick, Francis S.: *See*—
Hollett, Grant T., Jr.; and Flick, Francis S., 4,273,750, Cl. 423-244.000.

Fliege, Werner: *See*—
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.

Florian, John, to Mobil Oil Corporation. Sandwich container. 4,273,249, Cl. 220-4.00E.

Fluid Data Systems: *See*—
Glassey, Gene; and Gomez, Aldan D., 4,274,039, Cl. 318-678.000.

FMC Corporation: *See*—
Berkowitz, Sidney, 4,273,928, Cl. 544-190.000.
Cummins, Richard W.; Fuchs, Robert J.; and Thomas, James L., 4,273,687, Cl. 260-17.200.
Jensen, Lyle B.; and Wittman, Leroy L., 4,273,244, Cl. 212-181.000.
Piazza, Andre L.; Krenek, Michael J.; and Ames, Thomas J., 4,273,472, Cl. 405-211.000.

Foerster, Hans-Juergen: *See*—
Merger, Franz; and Foerster, Hans-Juergen, 4,273,934, Cl. 560-238.000.

Foley, James P.; Kloek, Bernard F.; and D'Agostino, Michael, to Roanwell Corporation. Communications headset mountable over the ear. 4,273,969, Cl. 179-156.00A.

Foley, Michael S.; and Pierson, Mark V., to USM Corporation. Automatic component dispensor. 4,273,393, Cl. 312-97.100.

Fombert, Christian: *See*—
Peronnet, Roland; Couturier, Bernard; and Fombert, Christian, 4,273,603, Cl. 156-236.000.

Fomichev, Mikhail M.; Schepakin, Mikhail B.; Gudz, Anatoly G.; Evdokimov, Viktor G.; Lukianov, Nikolai E.; Romanchenko, Irina A.; and Salnikov, Andrei F. Method for automatic control of power plant and power plant of compressor station of gas pipeline system, wherein said method is effected. 4,273,508, Cl. 415-1.000.

Fontaine, Marc F.: *See*—
Saadeh, Fuad T.; and Fontaine, Marc F., 4,273,192, Cl. 166-312.000.

Ford Motor Company: *See*—
Cairns, Thomas M., 4,273,403, Cl. 339-91.00R.
Strutt, Derek W., 4,273,005, Cl. 74-492.000.

Winterhalter, Donald L.; and Perkey, Conrad G., 4,273,182, Cl. 164-137.000.

Fornoff, Louis L., to Lummus Company, The. Process for dehydrating ethanol and for the production of gasohol therefrom. 4,273,621, Cl. 203-19.000.

Forster, Rolf: *See*—
Kotulla, Bernhard; Haas, Hans; Weiser, Martin; Forster, Rolf; Preis, Lothar; and Schmidt, Rudolf, 4,273,476, Cl. 405-258.000.

Forsythe, Glenn: *See*—
Phillips, Paul S.; and Forsythe, Glenn, 4,273,202, Cl. 175-385.000.

Fortunato, Gilbert J. Plastic cesta. 4,273,339, Cl. 273-326.000.

Foster, Manford H., to Smith, Roy H., Jr. Modular housing system. 4,272,930, Cl. 52-79.100.

Frame, Norman J., to W. H. Brady Company. Ultraviolet light generation. 4,274,028, Cl. 313-101.000.

Francis, Grosvenor F.: *See*—
Maher, Jack; and Francis, Grosvenor F., 4,272,946, Cl. 56-13.500.

Francklyn, Gilbert W. Crab pot handling apparatus and method. 4,272,904, Cl. 43-4.500.

Frankila, John W., to Allied Chemical Corporation. Seat belt retractor with emergency release and reduced spooling. 4,273,301, Cl. 242-107.200.

Franks, Gerald N.; and Franks, Mae P. Rotary lawn mower edging attachment. 4,272,949, Cl. 56-255.000.

Franks, Mae P.: *See*—
Franks, Gerald N.; and Franks, Mae P., 4,272,949, Cl. 56-255.000.

Freeburn, Lewis R. Vehicle-towed roadway grinding machine. 4,273,384, Cl. 299-41.000.

Freeman, Murray E. Control valve assembly with onstream seal removal feature. 4,273,152, Cl. 137-315.000.

Freihage, Dean A. Heat generating device. 4,273,075, Cl. 122-26.000.

Freistadt, Margo S. Convertible handbag and backpack. 4,273,274, Cl. 294-141.000.

French, Jean G.: *See*—
Hinton, David O.; and French, Jean G., 4,273,989, Cl. 219-211.000.

Freudenberg, Bertram; Schuhmacher, Gunter; and Muhlfeld, Horst, to Carl Freudenberg, Firma. Method for the manufacture of low-melting polyurethanes having improved streagth properties using a mixture of a polydiol having a molecular weight between 500 and 5,000 and a mixture of at least three diols. 4,273,911, Cl. 528-49.000.

Frey, Otto, to Sulzer Brothers Limited. Anchoring surface for a bone implant. 4,272,855, Cl. 3-1.900.

Fried. Krupp Huttenwerke Aktiengesellschaft: *See*—
Fischer, Otto; Pulvermacher, Wilfried; and Koch, Bernd, 4,273,949, Cl. 13-35.000.

Frishberg, Mark D., to Eastman Kodak Company. Azo dyes from 2-amino-5-styryl-1,3,4-thiadiazoles. 4,273,926, Cl. 542-458.000.

Fritsche, Rainer; and Schaefer, Klaus-Dieter, to Ernst Leitz Wetzlar GmbH. Photographic camera. 4,273,430, Cl. 354-31.000.

Fritz Buser Maschinenfabrik AG: *See*—
Hess, Anton; and Bellot, Ramon, 4,272,872, Cl. 29-113.00R.

Froesl, Horst. Method and apparatus for data collection and preparation. 4,273,440, Cl. 355-40.000.

Frommeld, Hans-Dieter, to Hoechst Aktiengesellschaft. Two-component diazotype material. 4,273,850, Cl. 430-173.000.

Frommelt, Horace: *See*—
Cassimally, K. A. I.; and Frommelt, Horace, 4,273,222, Cl. 190-18.00A.

Frommer, Werner: *See*—
Berg, Dieter; Frommer, Werner; Schmidt, Delf; Schmidt, Robert R.; and Schafer, Dietmar, 4,273,571, Cl. 71-79.000.

Froech, Robert A.; Lawing, Pierce L.; and Pagel, LaVerne L. Cooling system for high speed aircraft. 4,273,304, Cl. 244-117.00A.

Fu-Tsai, Lee. Socket joint for torque wrench. 4,272,973, Cl. 64-29.000.

Fuchs, Robert J.: *See*—
Cummins, Richard W.; Fuchs, Robert J.; and Thomas, James L., 4,273,687, Cl. 260-17.200.

Fuji Electric Co., Ltd.: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyoti; Matuo, Hiroa; Onishi, Akuro; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.
Watanabe, Atsuo; and Uno, Masahiro, 4,273,450, Cl. 356-433.000.

Fuji Photo Film Co., Ltd.: *See*—
Akashi, Goro; Yamada, Yasuyuki; Fujiyama, Masaaki; and Yamaguchi, Nobutaka, 4,273,797, Cl. 427-10.000.
Hamaoka, Tsutomu; Morigaki, Masakazu; Sawada, Satoru; Kamio, Takayoshi; and Nakamura, Kotaro, 4,273,864, Cl. 430-551.000.
Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, 4,273,854, Cl. 430-216.000.
Shiba, Keisuke; Hiroe, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Fujikoshi Machinery Corporation: *See*—
Masuko, Masami; and Ichikawa, Chikanobu, 4,272,924, Cl. 51-165.00R.

Fujishiro, Yuji, to Kabushiki Kaisha Tokyo Kikai Seisakusho. Folding mechanism for a printing press. 4,273,320, Cl. 493-427.000.

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Yamashita, Hiroshi; Iwahana, Takehiko; and Fujiwara, Shunsuke, 4,273,054, Cl. 104-281.000.

Fujiyama, Masaaki: *See*—
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Fukasaku, Yoshinori; and Noto, Kunihiro, to Hitachi, Ltd. Rotational speed control circuit for a D.C. motor. 4,274,036, Cl. 318-331.000.

Fukuchi, Shigeki, to Metako Kigyo Co., Ltd. Joint unit. 4,273,462, Cl. 403-171.000.

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Shiba, Keisuke; Hiroe, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Fusari, Mario P., to Illinois Tool Works Inc. Electronic gear checker. 4,272,891, Cl. 33-179.50B.

G-C Dental Industrial Corp.: *See*—
Tomioka, Kentaro; Watanabe, Kazuhiro; and Iwata, Eiji, 4,273,902, Cl. 525-478.000.

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Mazur, Robert H., 4,273,704, Cl. 260-112.50R.

GA Industries, Inc.: *See*—
Saline, Louis E., 4,273,513, Cl. 417-12.000.

Gaenslen, Fritz H.: *See*—
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Swietzer, William F., 4,273,820, Cl. 428-159.000.

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Gainer, Gordon C.: *See*—
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Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Usigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.

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Zaffaroni, Pasquale; Vitobello, Vincenzo; and Gamalerio, Anna M., 4,273,872, Cl. 435-55.000.

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Gardikes, John J., to Ashland Oil, Inc. Phenolic resin-polyisocyanate binder systems containing dibasic ester solvents. 4,273,179, Cl. 164-43.000.

Garfinkle, Marvin. Wind turbine for marine propulsion. 4,274,011, Cl. 290-55.000.

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Kugler, Edwin L.; and Garten, Robert L., 4,273,724, Cl. 518-715.000.

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Gaslevic, Emeric: *See—*
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Geary, Joseph M., to United States of America, Air Force. Light-scattering disc collector. 4,273,419, Cl. 350-320.000.
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Pollmann, Josef, 4,273,295, Cl. 241-46.110.
Geller, Douglas A.: *See—*
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General Electric Company: *See—*
Carlson, Eric J., 4,273,841, Cl. 429-199.000.
Carnahan, James C., 4,273,717, Cl. 260-345.90R.
Crivello, James V., 4,273,668, Cl. 252-182.000.
Gustafson, Ralph W., 4,274,072, Cl. 337-75.000.
Hoffman, Jacob S.; and Abreu, Mario E., 4,272,955, Cl. 60-39.360.
Howell, Edward K., 4,274,121, Cl. 361-96.000.
Ligon, Woodfin V., Jr.; and Webb, Jimmy L., 4,273,674, Cl. 252-408.000.
MacLaury, Michael R.; and Holub, Fred F., 4,273,691, Cl. 260-23.00S.
Mark, Victor; and Wilson, Phillip S., 4,273,692, Cl. 260-29.10R.
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Nuckolls, Joe A., 4,274,033, Cl. 315-209.00R.
Orr, Wallace H., 4,273,408, Cl. 339-198.00G.
Silverstein, Seth D., 4,273,098, Cl. 126-417.000.
Smearing, Robert W., 4,273,689, Cl. 260-22.0CB.
Smetana, Andrew, 4,273,241, Cl. 206-520.000.
Smith, Alfred H., Jr.; De Zuba, George P.; and Mitchell, Tyrone D., 4,273,698, Cl. 260-37.0SB.
Walker, Loren H.; and Cutler, John H., 4,274,042, Cl. 318-803.000.
Williams, Frank J., III, 4,273,712, Cl. 260-326.00N.
Zamek, Otto S., 4,273,917, Cl. 528-288.000.
General Foods Corporation: *See—*
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,273,793, Cl. 426-572.000.
General Mills, Inc.: *See—*
Maxcy, Thomas A.; and Denny, John S., 4,273,796, Cl. 426-634.000.
General Motors Corporation: *See—*
Kopich, Leonard F., 4,272,993, Cl. 74-711.000.
General Signal Corporation: *See—*
Fitch, James B., 4,273,515, Cl. 417-62.000.
Gentry, James H., Jr.; and Stiles, Gilbert J., Sr., to Bell Telephone Laboratories, Incorporated. Current meter using core saturation. 4,274,052, Cl. 324-117.00R.
George, Frederick W. Convertible ski boot and binding equipment. 4,273,354, Cl. 280-614.000.
Gerasin, Michael N.: *See—*
Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,273,479, Cl. 407-113.000.
Gerber Products Company: *See—*
Johnson, William P.; and Harter, Elton H., 4,273,792, Cl. 426-482.000.
Gerbracht, Osceola J.: *See—*
Snellman, Donald L.; and Gerbracht, Osceola J., 4,273,326, Cl. 271-288.000.
Gewerkschaft Eisenhutte Westfalia: *See—*
Griesbach, Hans-Theodor, 4,273,383, Cl. 299-23.000.
Ghahramani, Iraj, to International Telephone and Telegraph Corporation. Voltage-to-current converter. 4,274,016, Cl. 307-270.000.
Ghyczy, Jeno; Szoke, Sandor; and Csermely, Gyorgy, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Aluminum alloys having a high reducing capacity and preparation thereof. 4,273,679, Cl. 252-466.00J.
Gibbs, Dale S.; Benson, Jack H.; and Fernandez, Reet T., to Dow Chemical Company, The. Dispersible vinylidene chloride polymer microgel powders as additives for polymers. 4,273,901, Cl. 525-455.000.
Gibbs, James W., to Gibbs-Ryder Materials Handling Systems, Inc. Material handling apparatus. 4,273,053, Cl. 104-168.000.
Gibbs-Ryder Materials Handling Systems, Inc.: *See—*
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Gibson, Duane M.: *See—*
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Gifford, Maurice J.; Seiferth, Oscar E.; and Grindrod, Paul E., to Oscar Mayer & Co. Inc. Laminated film packages. 4,273,815, Cl. 428-35.000.
Gilbert, Charles H.: *See—*
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Giles, Terence G., to U.S. Philips Corporation. Detection system. 4,274,089, Cl. 340-572.000.
Gillan, John; and Richards, Colin M., to Dulux Australia Limited. Fibrils of cross linked polyester resin having a vesiculated structure. 4,273,830, Cl. 428-398.000.
Gillen, Adelbert M., to Jade Corporation, The. Capacitive force load cell for weighing scale. 4,273,204, Cl. 177-210.00C.
Gillespie, Richard L.; and Geller, Douglas A., to WHAM-0 Mfg. Co. Mirror for producing optical illusions. 4,273,418, Cl. 350-289.000.
Gilson, Alan P.; and Siryj, Bohdan W., to RCA Corporation. Protective cartridge for optical discs. 4,273,342, Cl. 369-32.000.
Gindler, E. Melvin, to Sherwood Medical Industries Inc. Determination of urea. 4,273,556, Cl. 23-230.00B.
Ginther, George E., Sr.; Johnson, A. David, Jr.; and Bachman, Joseph L., to Wayne Automation Corporation. Gate mechanism for carton erecting machine. 4,273,322, Cl. 271-149.000.
Ginzler, Peter. Device for blocking or releasing fluid flow. 4,273,310, Cl. 251-211.000.
Giordano, George P.; Cordrey, Robert E.; and Eberts, Allen F., to CPG Products Corp. Proximity responsive toy. 4,272,916, Cl. 46-253.000.
Girard Equipment, Inc.: *See—*
Brown, J. James, 4,273,153, Cl. 137-454.500.
Girling Limited: *See—*
Farr, Glyn P. R., 4,273,516, Cl. 417-214.000.
Taft, Phillip A., 4,273,358, Cl. 280-708.000.
Glaenzer Spicer: *See—*
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Glass, Cecil A.: *See—*
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Glass, Howard L.; and Elliott, Michael T., to United States of America, Air Force. Method for controlling the resonance frequency of yttrium iron garnet films. 4,273,610, Cl. 156-624.000.
Glassey, Gene; and Gomez, Aldan D., to Fluid Data Systems. Servo-amplifier circuit. 4,274,039, Cl. 318-678.000.
Global Marine, Inc.: *See—*
McNary, James F., 4,273,068, Cl. 114-264.000.
GNS Gesellschaft fur Nuklear-Service mbH: *See—*
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Gobelt, Reiner, to Rowenta-Werke, GmbH. Gas lighter. 4,273,528, Cl. 431-255.000.
Goebel, Herbert, to Siemens Aktiengesellschaft. X-ray powder diffractometer. 4,274,000, Cl. 250-272.000.
Goedde, Franz; Schrank, Wolfgang; and Schulte, Fritz, to Hartung, Kuhn & Co. Maschinenfabrik GmbH. Method and apparatus for quenching heated bulk material. 4,273,617, Cl. 201-39.000.
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Goldstein, Lynn E., to Durafab Division of Texel Industries, Inc. Hazardous environment suit. 4,272,851, Cl. 2-79.000.
Goldstein, Richard. Power supply and control circuit for series connected controller. 4,274,045, Cl. 323-319.000.
Goloff, Alexander, to Caterpillar Tractor Co. Dual fuel rotary controlled pilot and main injection. 4,273,087, Cl. 123-299.000.
Goloff, Alexander, to Caterpillar Tractor Co. Vibrator casting system with feedback. 4,273,178, Cl. 164-4.000.
Gombas, Laszlo A. Method and apparatus for necking-in and flanging a container body. 4,272,977, Cl. 72-121.000.
Gomez, Aldan D.: *See—*
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Gomi, Masae: *See—*
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Gordon, David R. Blind pressure pilot. 4,273,149, Cl. 137-83.000.
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Goto, Mitsuhiro, to Kabushiki Kaisha Suwa Seikosha. Electronic tone generator. 4,273,019, Cl. 84-1.240.
Gottermeier, William F., to Eastman Kodak Company. Capillary bridge in apparatus for determining ionic activity. 4,273,639, Cl. 204-195.00R.
Gottschalk, Detlef, to Schleicher GmbH & Co. Relais-Werke KG. Self-starting synchronous motor with defined direction of rotation. 4,274,024, Cl. 310-162.000.
Gotz, Edgar: *See—*
Hofer, Gerald; Konrath, Karl; Eheim, Franz; Weiss, Otmar; Schmitt, Edgar; Faupel, Werner; and Gotz, Edgar, 4,273,090, Cl. 123-502.000.
Gould Inc.: *See—*
Thompson, Carl, Jr., 4,274,068, Cl. 335-20.000.
Gould, Walter M. Composite synthetic roofing structure with integral solar collector. 4,273,106, Cl. 126-444.000.
Goumont, Claude: *See—*
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Grachten, Erich, to Burris Industries, Inc. Method and apparatus for manufacturing furniture. 4,273,737, Cl. 264-46.500.
Graetz, Clive W., to Imperial Chemical Industries Limited. Macromonomers. 4,273,888, Cl. 525-31.000.
Graham, Richard B., to Dresser Industries, Inc. Plastic chain and tubular link pin. 4,272,952, Cl. 59-84.000.
Grane, Christian; and Kohnke, Ole B., to Hesse, Ruth Lea. Attachment device for tracheal aspirator. 4,273,126, Cl. 128-276.000.
Graves, Louis N., to Louis N. Graves Co., Inc. Sharpening apparatus. 4,272,925, Cl. 51-211.00R.
Greene, Robin N.; and Hertler, Walter R., to Du Pont de Nemours, E. I., and Company. Ethylene-acrylic enamels. 4,273,695, Cl. 260-29.4UA.
Greer Hydraulics, Incorporated: *See—*
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Grey, John C. Torque-transmitting devices. 4,273,227, Cl. 192-56.00R.
Grey, Seymour, to Colgate-Palmolive Company. Article for dispensing liquid bleach softener composition. 4,273,661, Cl. 252-8.800.
Grib, James J.: *See—*
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Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., to Merck & Co., Inc. Treatment of pain, fever, and inflammation with compositions containing piperidinobutan-and 3-buten-2-ones. 4,273,781, Cl. 424-267.000.
Grier, William R.: *See—*
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Griffin, Dennis B.; and Fardo, Obie L., to Jay Gee Manufacturing Company. Skinning apparatus. 4,272,862, Cl. 17-21.000.
Griffis, William T. Revolver reloading device. 4,272,903, Cl. 42-89.000.
Grigorov, Sergei S.: *See—*
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Grindrod, Paul E.: *See—*
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Grinnell Fire Protection Systems Company, Inc.: *See—*
Fischer, Michael A.; and Pepi, Jerome S., 4,273,195, Cl. 169-39.000.
Griesbach, Hans-Theodor, to Gewerkschaft Eisenhutte Westfalia. Mineral winning machines. 4,273,383, Cl. 299-23.000.
Grinsmen Chemicals Limited: *See—*
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Grohe, Klaus; and Lurssen, Klaus, to Bayer Aktiengesellschaft. Agents for regulating plant growth using 2-thiazolone-5-carboxylic acid compounds. 4,273,573, Cl. 71-90.000.
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Selhub, Jacob; Rachmilewitz, Bracha; and Grossowicz, Nathan, 4,273,757, Cl. 424-1.000.
Groth, Willis G., to H. A. Phillips & Co. Drive mechanism. 4,272,997, Cl. 74-89.220.
Groux, Jean. Ultraviolet endoscope. 4,273,110, Cl. 128-6.000.
Grove, John L., to JLG Industries, Inc. Track mounted aerial lift platform apparatus. 4,273,214, Cl. 182-2.000.
Grunder, Werner; and Loch, Ernst, to Zellweger Uster, Ltd. Device for obtaining a control signal corresponding to the density of the fibre web lying on a fibre-carrying element of a card. 4,272,868, Cl. 19-240.000.
Grundig E.M.V.: *See—*
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GTE Automatic Electric Laboratories Inc.: *See—*
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Blask, Hans G.; and Resnick, Martin L., 4,273,961, Cl. 179-5.00R.
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Gubelmann, W. S., deceased; by Gubelmann, Walter S., executor; and Grier, William R., to Realty and Industrial Corporation. Justifying text writing composing machine. 4,273,455, Cl. 400-309.000.
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Gulf Oil Corporation: *See—*
Karim, Khalid A.; and Rea, James H., 4,273,893, Cl. 525-227.000.
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Gulf Research & Development Company: *See—*
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Carrieri, Louis F., 4,272,980, Cl. 72-404.000.
Gum, Mary L.; and Kearns, Nancye D., to Union Carbide Corporation. Organic amine compositions. 4,273,937, Cl. 564-2.000.
Gundal, Peter H.; and Briggs, Richard, to Packaging Industries, Inc. Indexing drive disconnect. 4,273,230, Cl. 192-150.000.
Gunn, Kenneth M., to Texaco Inc. Manifolded fuel vapor. 4,273,164, Cl. 141-7.000.
Gunter Wulff-Apparatebau GmbH: *See—*
Schone, Siegfried; and Ramlow, Joachim, 4,273,334, Cl. 273-143.00R.
Gurtler, Richard W., to Motorola, Inc. Semiconductor lifetime measurement method. 4,273,421, Cl. 350-353.000.
Gustafson, Ralph W., to General Electric Company. Thermostat and assembly therefor. 4,274,072, Cl. 337-75.000.
Gutierrez, Eddie N.; and Lamberti, Vincent, to Lever Brothers Company. Salts of propene 1,1,2,3-tetracarboxylic acid. 4,273,935, Cl. 562-595.000.
Gutierrez, William A.; and Pollard, John H., to United States of America, Army. Method of preparing a monolithic intrinsic infrared focal plane charge coupled device imager. 4,273,596, Cl. 148-171.000.
Gutjahr, Manfred A.; and Heinrich, Hans, to Daimler-Benz Aktiengesellschaft. Process for the manufacture of sintered metal bodies, in particular battery electrodes. 4,273,582, Cl. 75-222.000.
Guzy, Raymond L., to Centrilift, Inc. Splice for lead-sheathed cable. 4,273,953, Cl. 174-84.00R.
Gyugyi, Laszlo: *See—*
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Kotulla, Bernhard; Haas, Hans; Weiser, Martin; Forster, Rolf; Preis, Lothar; and Schmidt, Rudolf, 4,273,476, Cl. 405-258.000.
Haase, Jost-Michael: *See—*
Hiemann, Klaus; and Haase, Jost-Michael, 4,272,990, Cl. 73-586.000.
Habedank, Klaus-Dieter: *See—*
Troebel, Werner; and Habedank, Klaus-Dieter, 4,274,069, Cl. 335-21.000.
Haberthur-Heilig, Walter, to Bron Elektronik AG. Housing for flash apparatus with at least one flash bulb socket. 4,274,126, Cl. 361-334.000.
Hackett, James L. Horseshoe stake support apparatus. 4,273,340, Cl. 273-336.000.
Hadley, Michael S.; and King, Francis D., to Beecham Group, Limited. Pharmaceutically active aza-bicyclo-benzamide derivatives. 4,273,778, Cl. 424-265.000.
Haftmann, Johannes, to Nixdorf Computer AG. Selectively engageable ribbon re-inking device for ink ribbon cartridge. 4,273,453, Cl. 400-196.100.
Hagar, Donald K. Expansion joint and fabric therefor. 4,273,365, Cl. 285-229.000.
Hagemann, Hermann: *See—*
Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hannmann, Ingeborg; and Stendel, Wilhelm, 4,273,767, Cl. 424-211.000.
Hagerstrom, John R.: *See—*
Lennon, Donald J. J.; Hagerstrom, John R.; and Ekman, C. Frederick W., 4,273,847, Cl. 430-106.000.
Hajek, Miroslav: *See—*
Noland, James S.; and Hajek, Miroslav, 4,273,686, Cl. 260-9.000.
Halcon Research & Development Corp.: *See—*
Becker, Mitchell, 4,273,622, Cl. 203-28.000.
Halliburton Company: *See—*
Baker, Eugene E.; Szarka, David D.; Davis, Odie R. S.; and Workman, Nolan M., 4,273,190, Cl. 166-278.000.
Halluin, Albert P.; and Barnett, Allan E., to Exxon Research & Engineering Co. Supported non-ferrous group VIII aluminate coprecipitated hydrogenation catalysts and process for their preparation. 4,273,680, Cl. 252-466.00J.
Halluin, Albert P.: *See—*
Barnett, Allan E.; and Halluin, Albert P., 4,273,999, Cl. 564-358.000.
Hallwirth, Volker: *See—*
Litz, Heinz; Hallwirth, Volker; and Storz, Karl, 4,274,082, Cl. 340-167.00R.
Hamase, Masumi: *See—*
Ishihara, Takeo; Hayashi, Tsutomu; and Hamase, Masumi, 4,273,008, Cl. 74-752.00E.
Hamaoka, Tsutomu; Moriguki, Masakazu; Sawada, Satoru; Kawano, Takayoshi; and Nakamura, Kotaro, to Fuji Photo Film Co., Ltd. Color photographic light-sensitive materials. 4,273,864, Cl. 430-551.000.
Hannmann, Ingeborg: *See—*
Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hannmann, Ingeborg; and Stendel, Wilhelm, 4,273,767, Cl. 424-211.000.
Hammond, Kenneth G.; and Chaletz, Harry, to Texaco Inc. Quaternary ammonium diester salt composition and lubricating oil containing same. 4,273,663, Cl. 252-34.000.

Hasamura, Shoji: *See*—
Obba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Ystaro; Hasamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.

Hancock, Kevin J., II: *See*—
Aloi, Michael J.; and Hancock, Kevin J., II, 4,273,108, Cl. 126-450.000.

Hannebaum, Harold. Fireplace. 4,273,096, Cl. 126-120.000.

Hannigan, Thomas N., to Portec, Inc. Insulated rail joint. 4,273,284, Cl. 238-160.000.

Hannon, Albert H. Fluid pressure containment actuator. 4,273,031, Cl. 92-88.000.

Hansen, James E.; and Heinz, Jerome G., to Eaton Corporation. Energizing and quick deenergizing circuit for electromagnetic contactors or the like. 4,274,122, Cl. 361-159.000.

Hanson, Bror H. Tower and method of construction. 4,272,929, Cl. 52-40.000.

Hanson, Sheldon H.; Thompson, Craig B.; and Olson, James E., to Heublein, Inc. Taco shell manufacturing process featuring ageing tortillas by tempering for relatively short time in low pressure steam chamber. 4,273,791, Cl. 426-439.000.

Hanson, Spencer R. Rotary dispenser apparatus. 4,273,262, Cl. 222-144.000.

Happe, Ralph A. Method of constructing trumpet or other brass instrument. 4,273,020, Cl. 84-394.000.

Hara, Hiroshi; Nakamura, Kotaro; and Suzuki, Yoshiaki, to Fuji Photo Film Co., Ltd. Method for improving the light fastness of organic substrate materials including photographic dye images. 4,273,854, Cl. 430-216.000.

Hara, Katsunori; Babe, Toshihiko; and Okuda, Takio, to Mitsubishi Denki Kabushiki Kaisha. Flash butt welding apparatus. 4,273,984, Cl. 219-97.000.

Hara, Shinji: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.

Hara, Yasuaki: *See*—
Takamizawa, Minoru; Okada, Fumio; Hara, Yasuaki; and Aoki, Hisashi, 4,273,907, Cl. 528-29.000.

Harada, Tadao; Izumi, Yoshiharu; and Komatsu, Shinichiro, to Kawaken Fine Chemicals Co., Ltd. Modified catalyst for stereo-differentiating reduction of carbonyl compounds and process for reduction with same catalyst. 4,273,933, Cl. 560-179.000.

Harder, Fenton J.: *See*—
Hill, Amos G.; and Harder, Fenton J., 4,273,488, Cl. 414-44.000.

Hardtmann, Goetz E., to Sandoz, Inc. 4-Hydroxy-2-quinolinone-3-carboxylic acid esters. 4,273,930, Cl. 546-90.000.

Hardy, Pierre J. Squeegee device for liquid dispensing bottle. 4,273,459, Cl. 401-139.000.

Harmer, Walter L., to Minnesota Mining and Manufacturing Company. Polyurethane floor varnish and floor materials coated therewith. 4,273,912, Cl. 528-67.000.

Harms, Wolfgang; Jager, Horst; von Oertzen, Klaus; and Wunderlich, Klaus, to Bayer Aktiengesellschaft. Anthraquinone reactive dyestuffs. 4,273,553, Cl. 8-549.000.

Harrington, Edward R., Jr.: *See*—
Marzocchi, Alfred; Roberts, Michael G.; Bolen, Charles E.; and Harrington, Edward R., Jr., 4,273,685, Cl. 260-28.50R.

Harris Corporation: *See*—
Bailey, David C., 4,273,427, Cl. 353-27.00A.
Hillegonds, Clarence G., 4,273,412, Cl. 350-96.200.
Lowry, Robert K.; and Miller, Larry A., 4,272,986, Cl. 73-73.000.
Wolfe, William H., 4,273,962, Cl. 179-7.10R.

Harris, Samuel W.; and Roach, Jack W., to Kerr-McGee Refining Corporation. Process for separating bituminous materials. 4,273,644, Cl. 208-321.000.

Harrison, John L., to Maxwell Laboratories, Inc. AC Resonance transformer. 4,274,046, Cl. 323-355.000.

Hart, Earl D.: *See*—
Bruins, Roger C.; and Hart, Earl D., 4,273,973, Cl. 200-47.000.

Harter, Elton H.: *See*—
Johnson, William P.; and Harter, Elton H., 4,273,792, Cl. 426-482.000.

Hartinger Machalek, Pio. Insulated glass vessel. 4,273,245, Cl. 215-13.00R.

Hartlaub, Jerome T.; Thompson, David L.; and McDonald, Ray S., to Medtronic, Inc. Digital cardiac pacemaker with threshold margin check. 4,273,132, Cl. 128-419.0PT.

Hartlaub, Jerome T.; McDonald, Ray S.; and Rossing, Martin A., to Medtronic, Inc. Programmable digital cardiac pacemaker with means to override effects of reed switch closure. 4,273,133, Cl. 128-419.0PG.

Hartmeister, Ruben J. Parallel action cutting hand tool. 4,272,888, Cl. 30-229.000.

Hartung, Kuhn & Co. Maschinenfabrik GmbH: *See*—
Goedde, Franz; Schrank, Wolfgang; and Schulte, Fritz, 4,273,617, Cl. 201-39.000.

Harvey, William A.: *See*—
Nelson, Gary L.; and Harvey, William A., 4,273,609, Cl. 156-624.000.

Harvill, William A., to Coca-Cola Company, The. Convertible dispenser. 4,272,968, Cl. 62-394.000.

Hase, Alfred M. Inverter circuits. 4,274,137, Cl. 363-139.000.

Hasegawa, Kiyoshi. Root canal measuring apparatus. 4,273,531, Cl. 433-27.000.

Hashimoto, Isao; Taguchi, Toru; and Nambu, Hirohiko, to Mitsui Petrochemical Industries, Ltd. Process for recovery of resorcin. 4,273,623, Cl. 203-92.000.

Hashimoto, Michiaki: *See*—
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Manabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.

Hasinger, Siegfried H.: *See*—
Gencadden, Alan; Bletzinger, Peter; Hasinger, Siegfried H.; Olson, Robert A.; and Sarka, Benjamin, 4,274,065, Cl. 331-94.50G.

Hass, Martin A. Edentulous impression correlator and method of using same. 4,273,532, Cl. 433-37.000.

Hasselbacher, Annemarie: *See*—
Hasselbacher, Wilhelm; and Schalm, Wolfgang, 4,272,941, Cl. 52-731.000.

Hasselbacher, Wilhelm; and Schalm, Wolfgang, to Hasselbacher, Annemarie. Thermally-insulating connecting elements for coupling two component parts, and also compound, thermally-insulating profile members and a process for their manufacture. 4,272,941, Cl. 52-731.000.

Hastings, Donald R., to Nordson Corporation. Nozzle assembly for electrostatic spray guns. 4,273,293, Cl. 239-705.000.

Haug, Ernst: *See*—
Reinhard, Theodor; Haug, Ernst; Hoffmann, Rudiger; and Feichtiger, Dieter, 4,273,027, Cl. 91-32.000.

Haus, Rein, to Wheelock Signals, Inc. Audio-visual signal circuits. 4,274,084, Cl. 340-326.000.

Haviland, John G.: *See*—
Sweeney, Theodore J.; and Haviland, John G., 4,273,827, Cl. 428-307.000.

Haviv, Fortuna; and Carter, George W., to Abbott Laboratories. Bis-(2-benzylaminoethyl)-disulfides. 4,273,940, Cl. 564-372.000.

Hawes, Richard J., to Nacton Works. Reversible ploughs. 4,273,197, Cl. 172-225.000.

Hayakawa, Isaci: *See*—
Oda, Isao; Kaneno, Masayuki; and Hayakawa, Isaci, 4,273,587, Cl. 106-73.400.

Hayakawa, Shunichi: *See*—
Etsusaki, Yuji; and Hayakawa, Shunichi, 4,273,196, Cl. 172-4.500.

Hayashi, Hidekatsu: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.

Hayashi, Jun: *See*—
Shiba, Keisuke; Hirose, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Hayashi, Tsutomu: *See*—
Ishihara, Takeo; Hayashi, Tsutomu; and Hamane, Masumi, 4,273,008, Cl. 74-752.00E.

Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for preparing silver salt of organic carboxylic acid. 4,273,723, Cl. 260-414.000.

Hayden, Robert K. Device and method for freeing frozen engine cylinders. 4,273,086, Cl. 123-198.00R.

Haydon, Arthur W.; and Dean, John J., to Tri-Tech, Inc. Electric rotating machine. 4,274,026, Cl. 310-254.000.

Hayes, Arthur S.: *See*—
Garner, John N.; and Hayes, Arthur S., 4,273,597, Cl. 156-48.000.

Hayward, Curtis E.; and Maurer, Friedhelm, to Discovision Associates. Recording disk cover and player apparatus for removing cover. 4,274,119, Cl. 360-97.000.

Heberlein Hispano S.A.: *See*—
Schopper, Alf, 4,272,867, Cl. 19-159.00R.

Hecken, Rudolf P., to Bell Telephone Laboratories, Incorporated. Analyzer for nonlinear networks. 4,274,047, Cl. 324-57.00R.

Hedlund, Rolf E.; and Hynes, Thomas J., to Scanorama, Inc. Resiliently supported electrical floor installation. 4,273,404, Cl. 339-93.00R.

Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, to BASF Aktiengesellschaft. Preparation of saturated aliphatic, cycloaliphatic and araliphatic aldehydes. 4,273,945, Cl. 568-420.000.

Heilmann, Steven M.: *See*—
Larimore, Franklin C.; and Heilmann, Steven M., 4,273,135, Cl. 128-640.000.

Heilweil, Israel J.: *See*—
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yan, Tsoung Y., 4,273,645, Cl. 208-323.000.

Heine, Helmut A.; Rosenbusch, Helmut W.; and Kratzer, Rudolf, to Propper Manufacturing Co., Inc.; and Heine Optotechnik GmbH & Co. KG. Laryngoscope. 4,273,112, Cl. 128-11.000.

Heine Optotechnik GmbH & Co. KG: *See*—
Heine, Helmut A.; Rosenbusch, Helmut W.; and Kratzer, Rudolf, 4,273,112, Cl. 128-11.000.

Heinrich, Hans: *See*—
Gutjahr, Manfred A.; and Heinrich, Hans, 4,273,582, Cl. 75-222.000.

Heinz, Jerome G.: *See*—
Hansen, James E.; and Heinz, Jerome G., 4,274,122, Cl. 361-159.000.

Heitz, Robert G., to Dow Chemical Company, The. Efficient, high power battery module; D.C. transformers and multi-terminal D.C. power networks utilizing same. 4,274,043, Cl. 320-6.000.

Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., to Bell Telephone Laboratories, Incorporated. Gallium arsenide devices having reduced surface recombination velocity. 4,273,594, Cl. 148-33.300.

Hendricks, Donald B.; and Knight, Robert M., to MicroComm Corporation. Digital thermostat. 4,274,145, Cl. 364-557.000.

Hennessey, Frank L.: *See*—
Renau, Jacques; Curtis, James W.; Nicholson, Donald S.; and Hennessey, Frank L., 4,274,098, Cl. 343-781.0CA.

Hennessy, Thomas F., to Lori Engineering Corporation. Dead bolt lock. 4,272,974, Cl. 70-129.000.

Hensel, Richard: *See*—
Piesch, Steffen; Dorries, Peter; Schmidt, Ewald; and Hensel, Richard, 4,273,669, Cl. 252-182.000.

Hercules Incorporated: *See*—
Rave, Terence W., 4,273,892, Cl. 525-180.000.

Herdzina, Frank J.; and Vasdlik, Robert P., to American Can Company. Transfer mechanism. 4,273,507, Cl. 414-750.000.

Hermanns, Winfried; Lueg, Heinz; Blackert, Hanno; and Wimmenauer, Dirk, to Hermanns, Winfried. Device for determining the moment when competitors in a race are passing the finish line. 4,274,076, Cl. 340-38.00L.

Herrin, Thomas R.: *See*—
Voss, Houston F.; Plattner, Jacob; and Herrin, Thomas R., 4,273,866, Cl. 435-7.000.

Herrmann, Rudolf: *See*—
Sivers, Rolf V.; Herrmann, Rudolf; and Layher, Ulrich, 4,273,207, Cl. 180-70.00P.

Hertler, Walter R.: *See*—
Greene, Robin N.; and Hertler, Walter R., 4,273,695, Cl. 260-29.4UA.

Herzberg, Norman; and Compton, James, Jr., to Herzberg, Norman. Precision reed trimming machine. 4,273,170, Cl. 144-115.000.

Herzfeld, Michael O. H., to Producer Manufacturers Pty. Ltd. Jointing construction. 4,272,939, Cl. 52-527.000.

Hess, Anton; and Bellot, Ramon, to Fritz Buser Maschinenfabrik AG. Device for holding a thin-walled metal cylinder. 4,272,872, Cl. 29-113.00R.

Hesse, Ruth Lea: *See*—
Grane, Christian; and Kohnke, Ole B., 4,273,126, Cl. 128-276.000.

Heston Corporation: *See*—
Hill, Amos G.; and Harder, Fenton J., 4,273,488, Cl. 414-44.000.

Hestair Eagle Limited: *See*—
Mealing, Barrie E.; and Scott, Roderick A., 4,273,497, Cl. 414-517.000.

Heublein, Inc.: *See*—
Hanson, Sheldon H.; Thompson, Craig B.; and Olson, James E., 4,273,791, Cl. 426-439.000.

Hewelt, Robert K.; and Dohring, Edward F., to Hewelt, Robert K. Method and arrangement for eliminating ammonia vapors from developed diazo copy material. 4,273,435, Cl. 354-299.000.

Hewlett Packard Company: *See*—
Lao, Zong S.; and Woodcock, Todd M., 4,273,039, Cl. 101-93.020.

Hexcel Corporation: *See*—
Holland, Kenneth M.; and Custer, Milton F., 4,273,115, Cl. 128-90.000.

Heybourn, Frank: *See*—
Hinchcliffe, Dennis; Bennett, George R.; and Heybourn, Frank, 4,273,233, Cl. 198-347.000.

Heyl, Walter, to Linde Aktiengesellschaft. Control device for an axial piston machine. 4,273,517, Cl. 417-222.000.

Heymer, Gero: *See*—
Lehr, Klaus; Heymer, Gero; Stephan, Hans-Werner; and Thummler, Ursus, 4,273,752, Cl. 423-322.000.

Hice, Jaxon O., to Research Associates, Ltd. Method and apparatus for flash cooking food. 4,273,033, Cl. 99-349.000.

Hickam, William M.: *See*—
Phillips, David C.; Hickam, William M.; and Smith, James D. B., 4,272,988, Cl. 73-339.00R.

Hicks, Kevin B., to United States of America, Agriculture. Ketose sugars from aldose sugars. 4,273,922, Cl. 536-1.000.

Hiemann, Klaus; and Hasse, Jost-Michael, to Polygram GmbH. Device for the measurement of acoustic reverberation time and method. 4,272,990, Cl. 73-586.000.

Higuchi, Seaji, to Three Bond Co., Ltd. Method for preparing a cylinder liner for liquid-cooled engines having a headlike sealant on the outer-surface thereof. 4,273,835, Cl. 428-446.000.

Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, to Hitachi, Ltd. Salient pole rotor with shielding rods between adjacent poles. 4,274,027, Cl. 310-269.000.

Hill, Amos G.; and Harder, Fenton J., to Heston Corporation. Bale stacking wagon. 4,273,488, Cl. 414-44.000.

Hill, Horace E.: *See*—
Beason, Richard L.; Hill, Horace E.; and Soderberg, Mark S., 4,273,344, Cl. 279-75.000.

Hillegonds, Clarence G., to Harris Corporation. Optical fiber coupling fitting. 4,273,412, Cl. 350-96.200.

Hillstrom, Per A. R.; and Norvhall, Lars G., to Mo och Domsjo Aktiebolag. Process and apparatus for continuously washing aqueous fibrous suspensions and controlling the volume of wash liquid. 4,273,612, Cl. 162-49.000.

Hinchcliffe, Dennis; Bennett, George R.; and Heybourn, Frank, to Mollins, Limited. Apparatus for conveying rod-like articles. 4,273,233, Cl. 198-347.000.

Hinds, Charles M., to Spar Aerospace Limited. Satellite servicing. 4,273,305, Cl. 244-158.00R.

Hinkle, Ernest G. Gig with removable tines. 4,272,905, Cl. 43-6.000.

Hinton, David O.; and French, Jean G. Battery powered thermal garment with fast and efficent recharging circuit. 4,273,980, Cl. 219-211.000.

Hinton, John R. Drain auger controlling tool. 4,272,860, Cl. 15-257.00R.

Hirama, Yukio: *See*—
Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, 4,274,027, Cl. 310-269.000.

Hirano, Kazuo: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.

Hirasawa, Kotaro: *See*—
Furuhashi, Toshio; Abe, Osamu; Hirasawa, Kotaro; and Inui, Masumi, 4,274,142, Cl. 364-465.000.

Hirata, Hitoshi, to Pioneer Electronic Corporation. Quadrature receiver. 4,273,958, Cl. 179-1.0GS.

Hirbod, Farrokh. Oil stimulation process. 4,273,615, Cl. 176-39.000.

Hirose, Takeshi: *See*—
Shiba, Keisuke; Hirose, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Hirzy, John W., to Monsanto Company. Plastifiers, method of preparation and PVC compositions containing same. 4,273,890, Cl. 525-129.000.

Hitachi Denshi Kabushiki Kaisha: *See*—
Tsutsui, Ken; Sasano, Akira; Nakano, Toshio; Matsumaru, Haruo; and Maruyama, Eiichi, 4,273,812, Cl. 427-248.100.

Hitachi, Ltd.: *See*—
Fukasaku, Yoshinori; and Noto, Kunihiro, 4,274,036, Cl. 318-331.000.
Fukuhara, Satoru; Todokoro, Hideo; and Sakitani, Yoshio, 4,274,035, Cl. 315-357.000.
Furuhashi, Toshio; Abe, Osamu; Hirasawa, Kotaro; and Inui, Masumi, 4,274,142, Cl. 364-465.000.
Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, 4,274,027, Cl. 310-269.000.
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatoyo; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.
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Kawamura, Takao, 4,273,683, Cl. 252-513.000.
Kimura, Shoichi; Takahashi, Toshihiko; and Tamura, Zensaku, 4,273,749, Cl. 423-231.000.
Kozima, Yasuyuki, 4,274,114, Cl. 358-257.000.
Kumagai, Yoshio, 4,272,964, Cl. 60-657.000.
Nomura, Nobutaka; Kido, Hiroshi; and Yamada, Kazunari, 4,274,081, Cl. 340-153.000.
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Manabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.
Obba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Ystaro; Hasamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.
Okamoto, Joji; Azuma, Hitoshi; Arai, Katsuaki; Naito, Takeni; Kawai, Seiji; and Goto, Minoru, 4,273,811, Cl. 427-232.000.
Saito, Cyuichi; and Tsunaishi, Katsuya, 4,273,232, Cl. 198-335.000.
Takahashi, Toshihiko; Maruko, Morihisa; and Kimura, Shoichi, 4,273,748, Cl. 423-230.000.
Tokuda, Hirostsu; and Furuhashi, Toshio, 4,274,141, Cl. 364-431.000.
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Watanabe, Takeshi; Sudo, Ryoichi; Shoji, Fuzuji; Takamoto, Isao; and Yokono, Hitoshi, 4,273,420, Cl. 350-341.000.

Hitachi Medical Corporation: *See*—
Nagasawa, Yasuo, 4,274,001, Cl. 250-363.00S.

Hitt, Mary M.: *See*—
Tolbert, William R.; Hitt, Mary M.; and Feder, Joseph, 4,273,871, Cl. 435-41.000.

Hizume, Akio: *See*—
Shima, Ichiji; Yamamoto, Tetsuo; Yoshikuyuki, Shigeru; Tashima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyoso; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.

Hlustik, John, to K. Shoemakers Limited. Method of making a moccasin shoe. 4,272,858, Cl. 12-142.08C.

Hobbs, James R. Compression refrigeration system. 4,272,970, Cl. 62-511.000.

Hodgkinson, Susan D.; and Homan, Peter, to International Business Machines Corporation. Digital telecommunication network having improved data processing systems. 4,274,139, Cl. 364-200.000.

Hodeokand, Jan, to Central Pre-Mix Concrete Co. Chute brake for concrete mixing vehicles. 4,273,231, Cl. 193-10.000.

Hoechst Aktiengesellschaft: *See*—
Frommeld, Hans-Dieter, 4,273,850, Cl. 430-173.000.
Kostner, Armin; Leubert, Richard; and Bittner, Klaus-Jurgen, 4,273,551, Cl. 493-243.000.
Lehr, Klaus; Heymer, Gero; Stephan, Hans-Werner; and Thummler, Ursus, 4,273,752, Cl. 423-322.000.
Mucha, Rainer; Schiller, Johann; and Saeki, Herbert, 4,273,894, Cl. 525-228.000.
Neumann, Jurgen, 4,273,437, Cl. 355-3.00R.

Nischwitz, Ehrenfried, 4,273,552, Cl. 8-471.000.
Uihlein, Michael, 4,273,653, Cl. 210-198.300.

Hoechst-Roussel Pharmaceuticals, Inc.: *See*—
Allen, Richard C., 4,273,772, Cl. 424-248.540.

Hoefelmayr, Tilman, to Bio-Melktechnik Swiss Hoefelmayr & Co. Milking hose. 4,273,070, Cl. 119-14.510.

Hoehn, Hans, to E. R. Squibb & Sons, Inc. Antibacterial and antifungal derivatives of 3-(1H-imidazol-1-yl)-2-propen-1-ones. 4,273,776, Cl. 424-263.000.

Hofer, Gerald; Konrath, Karl; Eheim, Franz; Weiss, Otmar; Schmitt, Edgar; Faupel, Werner; and Gotz, Edgar, to Robert Bosch GmbH. Fuel injection pump. 4,273,090, Cl. 123-502.000.

Hofer, Gerald; Hubl, Ewald; and Schneider, Steffen, to Robert Bosch GmbH. Hydraulic brake system. 4,273,387, Cl. 303-10.000.

Hoffler, Hans-Otto: *See*—
Birkhofer, Herbert; Diekhoner, Gunther; and Hoffler, Hans-Otto, 4,273,280, Cl. 227-107.000.

Hoffman, Jacob S.; and Abreu, Mario E., to General Electric Company. Diffusing means. 4,272,955, Cl. 60-39.360.

Hoffmann, Arthur K.: *See*—
Zweig, Arnold; and Hoffmann, Arthur K., 4,273,764, Cl. 424-174.000.

Hoffmann-La Roche Inc.: *See*—
Boller, Arthur; Schadt, Martin; and Villiger, Alois, 4,273,929, Cl. 544-242.000.
Suhara, Yasuji; Ogawa, Kiyoshi; Yokose, Kazuteru; and Watanabe, Kimihiro, 4,273,765, Cl. 424-180.000.

Hoffmann, Rudiger: *See*—
Reinhard, Theodor; Haug, Ernst; Hoffmann, Rudiger; and Feichtiger, Dieter, 4,273,027, Cl. 91-32.000.

Hofmann, Eberhard; Ritter, Ernst; and Staudt, Heinrich, to Robert Bosch GmbH. Apparatus for setting the angular relationship between rotating driving, and driven members. 4,273,088, Cl. 123-502.000.

Hofstein, Steven R., to World Medical Marketing Corporation. Foot exerciser. 4,273,113, Cl. 128-25.00B.

Hogan, Frank M. Slingshot. 4,273,094, Cl. 124-20.00R.

Hogan, Patrick M., to Brockway Glass Company, Inc. Glass article strengthened by ion exchange substitution. 4,273,832, Cl. 428-410.000.

Hogg, Walter R., to Coulter Electronics, Inc. Method and apparatus for measurement of reradiation in particle flow cell systems. 4,273,443, Cl. 356-343.000.

Holland, Kenneth M.; and Custer, Milton F., to Hexcel Corporation. Moldable plastic orthopedic cast. 4,273,115, Cl. 128-90.000.

Hollely, David J. E.; and Shepherd, Norris W., to Air Products and Chemicals, Inc. Method and apparatus for cryogenic grinding. 4,273,294, Cl. 241-18.000.

Hollett, Grant T., Jr.; and Flick, Francis S., to Energy and Pollution Controls, Inc. Flue gas desulfurization apparatus and method. 4,273,750, Cl. 423-244.000.

Holly, Harry H. Method for making food patty. 4,272,864, Cl. 17-45.000.

Holmer, Heinz E. A., to AB Volvo. Fuel injection system for diesel engines. 4,273,084, Cl. 123-179.00L.

Holmes, John. Articulator for interconnecting front and rear vehicle chassis portions. 4,273,353, Cl. 280-483.000.

Holstead, Colin: *See*—
Kilminster, Kenneth N.; and Holstead, Colin, 4,273,708, Cl. 260-199.000.

Holtslag, Paulus T. M.: *See*—
Blomsma, Everhard C.; and Holtslag, Paulus T. M., 4,273,470, Cl. 405-202.000.

Holub, Fred F.: *See*—
MacLaury, Michael R.; and Holub, Fred F., 4,273,691, Cl. 260-23.00S.

Homan, Peter: *See*—
Hodgkinson, Susan D.; and Homan, Peter, 4,274,139, Cl. 364-200.000.

Honda Giken Kogyo Kabushiki Kaisha: *See*—
Ishihara, Takeo; Hayashi, Tsutomu; and Hamane, Masumi, 4,273,008, Cl. 74-752.00E.
Sakata, Mamoru; Kami, Yozo; and Mitsui, Tetsuro, 4,273,356, Cl. 280-675.000.

Honeywell Information Systems Inc.: *See*—
Mones, Arthur H.; Sartell, Jack A.; and Kardashian, Vahram S., 4,273,859, Cl. 430-315.000.

Honma, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Print head for a dot printer. 4,273,452, Cl. 400-124.000.

Hoofnagle, Shirley B. Moisture-relieving garment. 4,272,848, Cl. 2-2.000.

Hoosier, Jack D. Nail holding hammer head. 4,273,172, Cl. 145-30.00R.

Horie, Yu: *See*—
Yokokura, Shuichi; Horie, Yu; Takamizawa, Minoru; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,273,834, Cl. 428-429.000.

Horner, Michael: *See*—
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.

Hornung, Karl-Heinz: *See*—
Feldmann, Rainer; Muller, Karl-Adolf; and Hornung, Karl-Heinz, 4,273,919, Cl. 528-313.000.

Horodysky, Andrew G.: *See*—
Braid, Milton; Horodysky, Andrew G.; and Kaminski, Joan M., 4,273,665, Cl. 252-49.600.

Horrobin, David F., to Efamol Limited. Pharmaceutical and dietary compositions. 4,273,763, Cl. 424-145.000.

Hoshall, Tom C. Material moving apparatus. 4,273,296, Cl. 241-60.000.

Howard, Curtis E.: *See*—
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,273,187, Cl. 166-250.000.

Howe, Dennis L.: *See*—
Laferty, John M.; Howe, Dennis L.; and Sebenik, Roger F., 4,273,745, Cl. 423-54.000.

Howell, Edward K., to General Electric Company. Target circuit for circuit breaker static trip unit. 4,274,121, Cl. 361-96.000.

HPD Incorporated: *See*—
Cheng, Peter J.; Dockendorff, Jay D.; and Wright, Ernest L., 4,273,670, Cl. 252-301.10W.

Hradel, Joseph R. Simultaneous oil recovery and waste disposal process. 4,273,191, Cl. 166-305.00R.

Huber, Bernhard; and Gonner, Winfried, to Bodenseewerk Perkin-Elmer. Drain apparatus for the reaction vessel in an atomic absorption instrument. 4,273,742, Cl. 422-80.000.

Huber, Lothar, to Luk Lamellen und Kupplungsbau GmbH. Friction clutch. 4,273,228, Cl. 192-89.00B.

Huber, Willi, to J. Wagner AG. Atomizer head for paint spray guns. 4,273,287, Cl. 239-299.000.

Huber, William R., III: *See*—
Clemons, Donald G.; and Huber, William R., III, 4,274,013, Cl. 307-530.000.

Hubl, Ewald: *See*—
Hofer, Gerald; Hubl, Ewald; and Schneider, Steffen, 4,273,387, Cl. 303-10.000.

Hudson Lock, Inc.: *See*—
Patriquin, George P., 4,272,975, Cl. 70-369.000.

Huff-Ste., Inc.: *See*—
Stevens, Garland A., 4,274,129, Cl. 362-109.000.

Huggins, Raymond W.; Burnham, Paul W.; and Torrey, Arthur L., to Xerox Corporation. Development system. 4,273,069, Cl. 118-658.000.

Hughes, Donald W. K., to AMP Incorporated. Electrical connector receptacle. 4,273,402, Cl. 339-91.00R.

Hull Corporation: *See*—
Smith, John A., 4,273,524, Cl. 425-450.100.

Hullenaar, Christina Maria van't, executrix: *See*—
van't Hullenaar, Adrian, deceased, 4,274,148, Cl. 367-122.000.

Hulse, David O., to Budd Company, The. Interlock system for a trailer and bogie. 4,273,347, Cl. 280-80.00B.

Humber, Leslie G.: *See*—
Demerson, Christopher A.; Humber, Leslie G.; and Ferland, Jean-Marie, 4,273,773, Cl. 424-250.000.

Hung, Roland Y.: *See*—
Fang, Frank F.; and Hung, Roland Y., 4,274,104, Cl. 357-19.000.

Hunter Douglas International N.V.: *See*—
Brugman, Johannes Antonius H., 4,272,937, Cl. 52-483.000.

Huss, Otto: *See*—
Marker, Hannes; and Huss, Otto, 4,273,062, Cl. 114-91.000.

Hynes, Thomas J.: *See*—
Hedlund, Rolf E.; and Hynes, Thomas J., 4,273,404, Cl. 339-93.00R.

Hynson, Richard B.: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hynson, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,273,793, Cl. 426-572.000.

Iceland, William F.; and Viri, Donald P., to Rockwell International Corporation. Pulse welding process. 4,273,988, Cl. 219-137.0PS.

Ichikawa, Chikanobu: *See*—
Masuko, Masami; and Ichikawa, Chikanobu, 4,272,924, Cl. 51-165.00R.

Ichiko Industries Limited: *See*—
Isobe, Takayuki; and Matsuzaki, Mikio, 4,274,078, Cl. 340-98.000.

Ichioka, Satoshi: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.

Ichiyanagi, Toshikazu: *See*—
Iwama, Hideto; Toyama, Masamichi; Shimazaki, Mamoru; and Ichiyanagi, Toshikazu, 4,273,426, Cl. 352-169.000.

Ida, Masatoshi, to Olympus Optical Co., Ltd. Tape recorder. 4,274,116, Cl. 360-65.000.

Ieki, Mitsuru: *See*—
Murata, Kosaku; Takayama, Satoshi; and Ieki, Mitsuru, 4,273,900, Cl. 525-444.000.

Igarashi, Kikuo; and Sugawara, Tamio, to Shionogi & Co., Ltd. Process for preparing aminoglycoside derivatives. 4,273,923, Cl. 536-10.000.

Ignatiev, Jury P.: *See*—
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebeshev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P., 4,273,180, Cl. 164-49.000.

IHC Holland N.V.: *See*—
Visser, Teunis, 4,273,343, Cl. 277-53.000.

Ikegami, Toshimasa, to Kabushiki Kaisha Suwa Seikosha. Setting mechanism of a watch. 4,274,152, Cl. 368-192.000.

Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, to Kabushiki Kaisha Daini Seikosha. Electronic watch. 4,274,150, Cl. 368-185.000.

Iki, Tetsuo: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.

Illinois Tool Works Inc.: *See*—
Fusari, Mario P., 4,272,891, Cl. 33-179.50B.

Imai, Masumi: *See*—
Furuhashi, Toshio; Abe, Osamu; Hirasawa, Kotaro; and Imai, Masumi, 4,274,142, Cl. 364-465.000.

Imanishi, Nobuyuki: *See*—
Fujita, Isao; Imanishi, Nobuyuki; Tsutaya, Tadao; Watanabe, Ryo; and Kawai, Takao, 4,273,577, Cl. 75-41.000.

Imperial Chemical Industries Limited: *See*—
Graetz, Clive W., 4,273,888, Cl. 525-31.000.
Lane, Ruth M.; and Stacey, Martyn H., 4,273,678, Cl. 252-463.000.
Marshall, Dennis; and Murfitt, Harry C., 4,273,696, Cl. 260-31.40R.
Nerurkar, Mohanlal S.; and Knowles, Peter G., 4,274,025, Cl. 310-215.000.
Rose, John B., 4,273,903, Cl. 525-534.000.
Shaw, Frederick W.; and Whale, William E., 4,273,823, Cl. 428-224.000.
Stratton, Andrew, 4,273,051, Cl. 102-202.200.
Thomson, Robert P.; and Robertson, James R., 4,273,506, Cl. 414-735.000.

Inagaki, Sanji; Nagai, Koji; and Kameda, Hiromi, to Minolta Camera Kabushiki Kaisha. Oriented magnetic toner. 4,273,848, Cl. 430-107.000.

Incoe Corporation: *See*—
Reitan, David M., 4,273,525, Cl. 425-549.000.

Industrial Designs & Services: *See*—
Crane, Walton B., 4,273,548, Cl. 493-162.000.

Injection Plastics & Manufacturing Co.: *See*—
Strang, Robert E., Sr., 4,273,618, Cl. 202-158.000.

Inman, Frank S.: *See*—
Lamere, Garland C.; Inman, Frank S.; and Mitchell, Ronald B., 4,272,956, Cl. 60-242.000.

Inoue-Japax Research Incorporated: *See*—
Inoue, Kiyoshi, 4,273,581, Cl. 75-214.000.
Inoue, Kiyoshi; and Kaneko, Hideo, 4,273,595, Cl. 148-103.000.

Inoue, Jun: *See*—
Tanaka, Shunroku; Inoue, Jun; Yukimachi, Katsurou; and Minamino, Keiichi, 4,273,184, Cl. 165-59.000.

Inoue, Kiyoshi, to Inoue-Japax Research Incorporated. Sintering method. 4,273,581, Cl. 75-214.000.

Inoue, Kiyoshi; and Kaneko, Hideo, to Inoue-Japax Research Incorporated. Method of preparing thermomagnetically treated magnetically anisotropic objects. 4,273,595, Cl. 148-103.000.

Inoue, Tsutomu, to Takara Co., Ltd. Multi-position remote controlling device for toys. 4,272,918, Cl. 46-266.000.

Inoue, Yoshio: *See*—
Yokokura, Shuichi; Horie, Yu; Takamizawa, Minoru; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,273,834, Cl. 428-429.000.

Institut Textile de France: *See*—
Bernad, Claudius; and Jacquemart, Jean, 4,273,635, Cl. 204-165.000.

Instytut Obrobki Plastycznej: *See*—
Rut, Tadeusz, 4,272,979, Cl. 72-356.000.

Intel Corporation: *See*—
Pashley, Richard D., 4,272,880, Cl. 29-571.000.

Interlake, Inc.: *See*—
Swain, James C.; Dickson, John D.; and Schluer, Larry E., 4,273,494, Cl. 414-266.000.

International Business Machines Corporation: *See*—
Biczat, John J.; Link, Robert R.; McCray, William R.; and Sizemore, James L., 4,273,456, Cl. 400-550.000.
Bolcavage, Richard D.; Ferraro, Armand J.; and Fleek, Arthur E., 4,273,041, Cl. 101-93.140.
Carter, Eric L.; and Nosowicz, Eugene J., 4,274,017, Cl. 307-289.000.
Crowder, Billy L.; Garnsalen, Fritz H.; and Jaeger, Richard C., 4,274,105, Cl. 357-23.000.
Economy, James; and Flandera, Mary Ann, 4,273,906, Cl. 526-285.000.
Fang, Frank F.; and Hung, Roland Y., 4,274,104, Cl. 357-19.000.
Faris, Sadeg M., 4,274,015, Cl. 307-264.000.
Feinberg, Irving; and Wu, Leon L., 4,274,124, Cl. 361-275.000.
Hodgkinson, Susan D.; and Homan, Peter, 4,274,139, Cl. 364-200.000.
Markham, Harvey R.; and Shepherd, Roger D., 4,273,439, Cl. 355-14.00C.
Sebrosky, Robert A.; and Thorne, William D., 4,273,040, Cl. 101-93.040.

International Flavors & Fragrances Inc.: *See*—
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,273,662, Cl. 252-8.900.

International Harvester Company: *See*—
Gagliani, John, 4,273,886, Cl. 521-185.000.
Pollard, Lorne R., 4,273,057, Cl. 111-85.000.

International Minerals & Chemical Corp.: *See*—
Edwards, Donald W.; Young, Paul R.; and Zakovich, Thomas M., 4,273,049, Cl. 102-312.000.

International Telephone and Telegraph Corporation: *See*—
Ghahramani, Iraj, 4,274,016, Cl. 307-270.000.

Interproduct B.V.: *See*—
van de Wetering, Martinus B., 4,273,373, Cl. 294-101.000.

Interprovincial Steel and Pipe Corporation, Ltd.: *See*—
Bell, David A., 4,272,984, Cl. 73-40.50R.

Irvine, Michael D.: *See*—
Swearingen, Judson S.; and Irvine, Michael D., 4,273,390, Cl. 308-168.000.

Ishida, Kohji; and Numata, Tatsuo, to Pioneer Electronic Corporation. MPX Stereophonic demodulation. 4,274,057, Cl. 329-167.000.

Ishida, Noboru: *See*—
Kimura, Shoji; and Ishida, Noboru, 4,273,673, Cl. 252-396.000.

Ishigaki, Isao: *See*—
Machi, Seco; Ishigaki, Isao; Sugo, Takanobu; Murata, Kazuo; Tano, Shiro; and Senoo, Keizi, 4,273,840, Cl. 429-144.000.

Ishihara, Takeo; Hayashi, Tsutomu; and Hamane, Masumi, to Honda Giken Kogyo Kabushiki Kaisha. Automatic transmission. 4,273,008, Cl. 74-752.00E.

Ishihara, Toshinobu: *See*—
Ohno, Shigeru; Tezuka, Haruya; and Ishihara, Toshinobu, 4,273,944, Cl. 568-396.000.

Ishii, Ryougi: *See*—
Okugawa, Michihide; and Ishii, Ryougi, 4,273,579, Cl. 75-106.000.

Ishiyama, Shozo, to Gakken Co., Ltd. Clock for educational purposes. 4,273,541, Cl. 434-304.000.

Isobe, Takayuki; and Matsuzaki, Mikio, to Nissan Motor Company, Limited; and Ichiko Industries Limited. Mirror assembly with indicator. 4,274,078, Cl. 340-98.000.

Istituto Chemioterapico Italiano, S.p.A.: *See*—
Garzia, Aldo; Vittadini, Giorgio; Bottazzi, Andrea; Pelagalli, Domenico; and Coccoli, Costantino, 4,273,931, Cl. 546-344.000.

Italiano, Pietro: *See*—
Sisti, Giorgio; Riva, Ernesto; and Italiano, Pietro, 4,272,983, Cl. 73-38.000.

Itatani, Hiroshi: *See*—
Sato, Mitsuhiro; Itatani, Hiroshi; and Matsuda, Kenji, 4,273,007, Cl. 74-745.000.

Ito, Hiroshi, to Tokico Ltd. Friction pad of disc brake. 4,273,219, Cl. 188-256.000.

Ito, Michinobu: *See*—
Shirai, Makoto; Ito, Michinobu; and Kato, Osamu, 4,273,480, Cl. 407-114.000.

Ito, Susumu; and Toki, Kaoru, to Nippon Electric Co., Ltd. Magnetic rotary encoder for detection of absolute values of angular displacement. 4,274,053, Cl. 324-174.000.

Ivanov, Vladlen M.: *See*—
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Ivantsov, Oleg M.: *See*—
Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Usigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.

Iwahana, Takehiko: *See*—
Yamashita, Hiroshi; Iwahana, Takehiko; and Fujiwara, Shunsuke, 4,273,054, Cl. 104-281.000.

Iwai, Yoshio: *See*—
Takeuchi, Keizo; Iwai, Yoshio; Yamanaka, Tadashi; and Misra, Tatsuo, 4,272,877, Cl. 29-403.200.

Iwama, Hideto; Toyama, Masamichi; Shimazaki, Mamoru; and Ichiyanagi, Toshikazu, to Canon Kabushiki Kaisha. Motion picture system. 4,273,426, Cl. 352-169.000.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company Limited. Transmission throttle valve for use in hydraulic control system of automatic power transmission. 4,273,009, Cl. 74-869.000.

Iwasaki, Tsutomu: *See*—
Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, 4,274,027, Cl. 310-269.000.

Iwata, Eiji: *See*—
Tomioka, Kestaro; Watanabe, Kazuhiro; and Iwata, Eiji, 4,273,902, Cl. 525-478.000.

Izumi, Yoshiharu: *See*—
Harada, Tadao; Izumi, Yoshiharu; and Komatsu, Shinichiro, 4,273,933, Cl. 560-179.000.

J. I. Case Company: *See*—
Baenen, Paul W., 4,273,169, Cl. 144-34.00R.
Maurer, Herman J.; and Smith, Wayne G., 4,273,502, Cl. 414-694.000.

J. M. Ney Company, The: *See*—
Winer, Irving G., 4,273,181, Cl. 164-114.000.

J. M. Voith GmbH: *See*—
Dietrich, Robert, 4,272,873, Cl. 29-123.000.

J. T. Posey Company: *See*—
Larkey, Orval W., 4,273,336, Cl. 273-189.00R.

J. Wagner AG: *See*—
Huber, Willi, 4,273,287, Cl. 239-299.000.

Jackson, Edward L. Method and apparatus for custom closing or modifying building openings. 4,272,942, Cl. 52-741.000.

Jackson, Jay W.: *See*—
Thomerson, Clarence; and Jackson, Jay W., 4,273,473, Cl. 405-212.000.

Jacobs, Stanley C.: *See*—
Dawless, Robert K.; and Jacobs, Stanley C., 4,273,627, Cl. 204-67.000.

Jacquemart, Jean: *See*—
Bernad, Claudius; and Jacquemart, Jean, 4,273,635, Cl. 204-165.000.

Jacques, Roland; and Poisson, Regis, to Rhone-Poulenc Industries. Production of spheroidal alumina shaped articles. 4,273,735, Cl. 264-5.000.

Jade Corporation, The: *See*—
Gillen, Adelbert M., 4,273,204, Cl. 177-210.00C.

Jaeger, Richard C.: *See*—
Crowder, Billy L.; Geensalen, Fritz H.; and Jaeger, Richard C., 4,274,105, Cl. 357-23.000.

Jaeken, Jan; Verhecken, Andre; Vetter, Hans; and Marx, Paul, to AGFA-GEVAERT N.V. Photographic diffusion transfer process and material for the production of color images and suitable compounds therefor. 4,273,855, Cl. 430-242.000.

Jag International Sales Limited: *See*—
Wolfe, Mrynard F., 4,273,956, Cl. 179-1.00H.

Jagenberg Werke Aktiengesellschaft: *See*—
Philipp, Helmut, 4,273,324, Cl. 271-183.000.

Jager, Horst: *See*—
Harms, Wolfgang; Jager, Horst; von Oertzen, Klaus; and Wunderlich, Klaus, 4,273,553, Cl. 8-549.000.

Jahnsen, Egil J.: *See*—
Corrigan, James H.; and Jahnsen, Egil J., 4,273,576, Cl. 75-11.000.

James, Ian R., to Lovejoy, Inc. Universal joint. 4,272,972, Cl. 64-17.05P.

James, Raymond E., to Palletron Incorporated. Stacking apparatus. 4,273,490, Cl. 414-95.000.

Jan Van Tilburg. Smoke filters. 4,273,141, Cl. 131-336.000.

Janik, Leon P., Jr. Air starter. 4,273,085, Cl. 123-179.00F.

Japan Atomic Energy Research Institute: *See*—
Machi, Sueo; Ishigaki, Isao; Sugo, Takanobu; Murata, Kazuo; Tasao, Shiro; and Senoo, Keizi, 4,273,840, Cl. 429-144.000.

Japanese National Railways: *See*—
Yamashita, Hiroshi; Iwahana, Takehiko; and Fujiwara, Shunsuke, 4,273,054, Cl. 104-281.000.

Jasuwalla, Jal S., to Andros Incorporated. Medical infusion system. 4,273,121, Cl. 128-214.00F.

Javan, Ali. Infrared spectroscopic lamps and gas detectors incorporating such lamps. 4,274,063, Cl. 331-94.50R.

Jay Gee Manufacturing Company: *See*—
Griffin, Dennis B.; and Fardo, Obie L., 4,272,862, Cl. 17-21.000.

Jefferis, Mark: *See*—
Meyer, Paul M.; Beckwith, Robert H.; Allman, Richard D.; and Jefferis, Mark, 4,274,144, Cl. 364-551.000.

Jensen, Lyle B.; and Wittman, Leroy L., to FMC Corporation. Crane upperstructure self-transferring system. 4,273,244, Cl. 212-181.000.

Jensen, Werner K.: *See*—
Osther, Kurt B.; and Jensen, Werner K., 4,273,703, Cl. 260-112.00R.

Jet Research Center, Inc.: *See*—
Brown, Claude H., 4,273,050, Cl. 102-321.000.
Rommer, T. James, 4,273,047, Cl. 102-310.000.

Jette, Emile. Showerhead spray texture control. 4,273,289, Cl. 239-458.000.

JLG Industries, Inc.: *See*—
Grove, John L., 4,273,214, Cl. 182-2.000.

Johannessen, Paul R., to Megapulse Incorporated. Method of and apparatus for high voltage pulse generation. 4,274,134, Cl. 363-59.000.

John D. Hollingsworth on Wheels, Inc.: *See*—
Schmolke, Karl H., 4,272,865, Cl. 19-97.000.

John Fluke Mfg. Co., Inc.: *See*—
Brodie, Benjamin T.; and Koeman, Henriecus, 4,274,143, Cl. 364-483.000.

John Lysaght (Australia) Limited: *See*—
Reid, Paul, 4,273,800, Cl. 427-47.000.

John, Willy, to Gebruder Neizsch Maschinenfabrik GmbH & Co. Apparatus for and a method of separating grinding bodies and ground material in an agitator mill. 4,273,647, Cl. 209-250.000.

Johnk, Kurt, to Draloric Electronic GmbH. Process for covering or coating electrical components. 4,273,803, Cl. 427-58.000.

Johnson, A. David, Jr.: *See*—
Ginther, George E., Sr.; Johnson, A. David, Jr.; and Bachman, Joseph L., 4,273,322, Cl. 271-149.000.

Johnson, Donald R. Dome head punch. 4,273,015, Cl. 83-670.000.

Johnson, Neal W., to Phillips Petroleum Company. Cooling tower operation with automated pH control and blowdown. 4,273,146, Cl. 137-5.000.

Johnson, Paulette: *See*—
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, 4,273,925, Cl. 536-17.00R.

Johnson, Raynor A.: *See*—
Wegener, Jack; and Johnson, Raynor A., 4,272,856, Cl. 5-81.00R.

Johnson, William P.; and Harter, Elton H., to Gerber Products Company. Banana processing. 4,273,792, Cl. 426-482.000.

Johnston, James D.: *See*—
Clark, Keith H.; and Johnston, James D., 4,273,505, Cl. 414-735.000.

Johnston, Orin B. Heat bonding device. 4,273,604, Cl. 156-382.000.

Jones, Richard E.; and Smithers, Jacquelyn A., to Syntex Corporation. Process for preparing flunisolide. 4,273,710, Cl. 260-239.55D.

Jones, Robert J., to TRW Inc. Curable cycloaliphatic epoxy-polyimide compositions. 4,273,916, Cl. 528-117.000.

Jordan, Heinz, to Technische Gerate -u. Entwicklungsgesellschaft m.b.H. Aircraft with counterrotating members. 4,273,302, Cl. 244-23.00C.

Jorgensen, Robert, to Kawneer Company, Inc. Traffic responsive control system for automatically operated doors. 4,272,921, Cl. 49-30.000.

Jorgenson, Lyle A. Combination push and tow bar. 4,273,352, Cl. 280-481.000.

Jos. Schneider & Co., Optische Werke: *See*—
Sonnet, Gunther, 4,273,415, Cl. 350-465.000.

Judge, John F. X., to Technicon Instruments Corporation. Keyboard-display combination. 4,274,093, Cl. 340-712.000.

Juranas, David L., to Malliackrodt, Inc. Limulus lysate procedure for determining endotoxins. 4,273,557, Cl. 23-230.00B.

K. Shoemakers Limited: *See*—
Hlustik, John, 4,272,858, Cl. 12-142.0MC.

Kabushiki Kaisha Daini Seikosha: *See*—
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.

Kabushiki Kaisha Komatsu Seisakusho: *See*—
Etsusaki, Yuji; and Hayakawa, Shunichi, 4,273,196, Cl. 172-4.500.

Kabushiki Kaisha Morita Seisakusho: *See*—
Yamamoto, Hajime; and Yoshikawa, Shogo, 4,273,535, Cl. 433-216.000.

Kabushiki Kaisha Sato Kenkyusho: *See*—
Sato, Yo, 4,273,046, Cl. 101-348.000.

Kabushiki Kaisha Suwa Seikosha: *See*—
Goto, Mitsuhiro, 4,273,019, Cl. 84-1.240.
Ikegami, Toshimasa, 4,274,152, Cl. 368-192.000.
Kamiwaki, Osamu, 4,274,151, Cl. 368-21.000.

Kabushiki Kaisha Tokyo Kikai Seisakusho: *See*—
Fujishiro, Yuji, 4,273,320, Cl. 493-427.000.

Kai Cutlery Center Co., Ltd.: *See*—
Asano, Tamoru, 4,272,886, Cl. 30-47.000.

Kajita, Tosifumi, to Marubeni Kogyo K.K. Wheelchair lift. 4,273,217, Cl. 187-9.00R.

Kakugo, Masahiro: *See*—
Asada, Mamoru; Shiga, Akinobu; Matsuyama, Kiyoshi; and Kakugo, Masahiro, 4,273,905, Cl. 526-142.000.

Kalicki, John H.: *See*—
Laurie, Alec H.; and Kalicki, John H., 4,273,731, Cl. 261-77.000.

Kals, Walter, to Niagara Blower Company. Apparatus for cooling fluids. 4,273,733, Cl. 261-151.000.

Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, to Mitsubishi Rayon Co., Ltd. Method for producing a synthetic resin molded product having an abrasion resistant surface. 4,273,799, Cl. 427-44.000.

Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, to Mitsubishi Rayon Co., Ltd. Coating composition and a method for producing a synthetic resin molded product having an abrasion resistant surface. 4,273,802, Cl. 427-54.100.

Kamal, Nabil. X-Y Alternating drive profiling system. 4,273,059, Cl. 112-121.140.

Kameda, Hiromi: *See*—
Inagaki, Sanji; Nagai, Koji; and Kameda, Hiromi, 4,273,848, Cl. 430-107.000.

Kamholz, Kenneth: *See*—
Levenspiel, Octave; and Kamholz, Kenneth, 4,272,893, Cl. 34-1.000.

Kami, Yozo: *See*—
Sakata, Mamoru; Kami, Yozo; and Mitsui, Tetsuro, 4,273,356, Cl. 280-675.000.

Kaminski, Joan M.: *See*—
Braid, Milton; Horodysky, Andrew G.; and Kaminski, Joan M., 4,273,665, Cl. 252-49.600.

Kamio, Takayoshi: *See*—
Hamaoka, Tsutomu; Morigaki, Masakazu; Sawada, Satoru; Kamio, Takayoshi; and Nakamura, Kotaro, 4,273,864, Cl. 430-551.000.

Kamiwaki, Osamu, to Kabushiki Kaisha Suwa Seikosha. Electronic watch having an alarm function and a global time display function. 4,274,151, Cl. 368-21.000.

Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomotkichi; Aki, Fumitake; and Wachi, Yasuyuki, to Hitachi, Ltd. Liquid cooled stator winding for a rotary electric machine having reduced thermal elongation stresses. 4,274,021, Cl. 310-54.000.

Kamp, Ewald A., to Union Carbide Corporation. Method for producing a flat bottom plastic bag. 4,273,550, Cl. 493-240.000.

Kamphorst, Walter: *See*—
Lukea, Henry J.; Kamphorst, Walter; and Asmar, Romeal F., 4,274,056, Cl. 328-162.000.

Kanai, Norio, to Hitachi, Ltd. Ion implanter. 4,274,004, Cl. 250-442.000.

Kanamaru, Hitoshi, to Universal Pioneer Corporation. Servo unit for optical type information reading device. 4,273,998, Cl. 250-204.000.

Kanamori, Katsuhiko, to Yokohama Rubber Co., Ltd., The. Pressure-sensitive electrically conductive elastomeric composition. 4,273,682, Cl. 252-511.000.

Kanamori, Kyozo: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.

Kanazawa, Tadashi: *See*—
Kawamura, Masao; Nishi, Tadaaki; Kato, Kunioki; Mizokami, Hiroshi; and Kanazawa, Tadashi, 4,273,941, Cl. 564-416.000.

Kaneko, Hideo: *See*—
Inoue, Kiyoshi; and Kaneko, Hideo, 4,273,595, Cl. 148-103.000.

Kaneko, Takashi: *See*—
Saiki, Noritsugu; and Kaneko, Takashi, 4,273,899, Cl. 525-439.000.

Kaneko, Tamaki; Mizuma, Kenich; and Okuzawa, Tugio, to Ricoh Co., Ltd. Sheet feeding apparatus for copying machine, printing machine, etc. 4,273,323, Cl. 271-157.000.

Kaneno, Masayuki: *See*—
Oda, Isao; Kaneno, Masayuki; and Hayakawa, Isei, 4,273,587, Cl. 106-73.400.

Kao Soap Co., Ltd.: *See*—
Sakurai, Akira, 4,273,125, Cl. 128-263.000.

Kar Fabricators, Inc.: *See*—
Trahan, Karl W., Sr.; and Smith, Timothy S., 4,273,466, Cl. 404-4.000.

Kardashian, Vahram S.: *See*—
Mones, Arthur H.; Sartell, Jack A.; and Kardashian, Vahram S., 4,273,859, Cl. 430-315.000.

Karim, Khalid A.; and Rea, James H., to Gulf Oil Corporation. Ternary blends of low density ethylene polymers, ethylene-alkyl acrylate copolymers and amorphous isobutylene polymers. 4,273,893, Cl. 525-227.000.

Karman, James S., to Exxon Production Research Company. Thickener control process. 4,273,658, Cl. 210-709.000.

Kataoka, Keiji; Tatsuno, Kimio; and Saito, Susumu, to Hitachi, Ltd. Laser recorder with piezoelectric bimorph focal length vibrator. 4,274,101, Cl. 346-108.000.

Katayama, Morimitsu: *See*—
Miyahara, Masayoshi; Katayama, Morimitsu; and Kisaka, Hiroyuki, 4,273,001, Cl. 74-359.000.

Kato, Kunioki: *See*—
Kawamura, Masao; Nishi, Tadaaki; Kato, Kunioki; Mizokami, Hiroshi; and Kanazawa, Tadashi, 4,273,941, Cl. 564-416.000.

Kato, Osamu: *See*—
Shirai, Makoto; Ito, Michinobu; and Kato, Osamu, 4,273,480, Cl. 407-114.000.

Kato, Tadaaki, to Kureha Kagaku Kogyo Kabushiki Kaisha. Method for preparing collagen filaments for use in medical treatments. 4,273,705, Cl. 260-123.700.

Katsuyama, Harumi: *See*—
Shiba, Keisuke; Hirose, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, 4,273,861, Cl. 430-382.000.

Katzin, Leonard. Zero insertion force electrical connector. 4,273,401, Cl. 339-47.00R.

Kawai Musical Instrument Mfg. Co., Ltd.: *See*—
Deutsch, Ralph, 4,273,018, Cl. 84-1.220.

Kawai, Seiji: *See*—
Okamoto, Joji; Azuma, Hitoshi; Arai, Katsushi; Naito, Takemi; Kawai, Seiji; and Goto, Minoru, 4,273,811, Cl. 427-232.000.

Kawai, Takao: *See*—
Fujita, Isao; Imanishi, Nobuyuki; Tsutaya, Tadao; Watanabe, Ryo; and Kawai, Takao, 4,273,577, Cl. 75-41.000.

Kawaken Fine Chemicals Co., Ltd.: *See*—
Harada, Tadao; Izumi, Yoshiharu; and Komatsu, Shinichiro, 4,273,933, Cl. 560-179.000.
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, 4,273,684, Cl. 252-544.000.

Kawamura, Masao; Nishi, Tadaaki; Kato, Kunioki; Mizokami, Hiroshi; and Kanazawa, Tadashi, to Seitetsu Kagaku Co., Ltd. Process for producing p-hydroxybenzaldehyde. 4,273,941, Cl. 564-416.000.

Kawamura, Takao, to Hitachi, Ltd. Oxide cathode and process for production thereof. 4,273,683, Cl. 252-513.000.

Kawasabe, Yoshihiro, to Pioneer Electronic Corporation. Signal change-over amplifier. 4,274,060, Cl. 330-295.000.

Kawneer Company, Inc.: *See*—
Jorgensen, Robert, 4,272,921, Cl. 49-30.000.

Kazumi, Nakahara, to NGK Spark Plug Co., Ltd. Piezoelectric ignition device. 4,273,529, Cl. 431-255.000.

Kearns, Nancye D.: *See*—
Gum, Mary L.; and Kearns, Nancye D., 4,273,937, Cl. 564-2.000.

Keeney, Gary E.; Zurcher, Allen K.; and Loomis, Ervin C., to Plasta-Plug, Inc. Pipe coupling. 4,273,367, Cl. 285-419.000.

Kelly, Timm L., to Amchem Products, Inc. Coating solution for metal surfaces. 4,273,592, Cl. 148-6.270.

Kempe, Uwe: *See*—
Merger, Franz; Nestler, Gerhard; and Kempe, Uwe, 4,273,938, Cl. 564-124.000.

Kemtec, Inc.: *See*—
Singelyn, James D., 4,273,831, Cl. 428-402.000.

Kent, Peter J. C.; and Page, John K. R., to Calor Group Limited, The. Thermal energy storage material comprising hydrated compound and water-swollen cross-linked polymer. 4,273,667, Cl. 252-70.000.

Kerea, Vitie P.; and Baker, Alan C., to Direct Reduction Corporation, The. Direct reduction rotary kiln with improved air injection. 4,273,314, Cl. 266-145.000.

Kerlin, Allen L. Method of forming a sheet of single crystal semiconductor material. 4,273,608, Cl. 156-605.000.

Kern & Co. A.G.: *See*—
Canzek, Ladvik, 4,273,425, Cl. 350-444.000.

Kern, Werner: *See*—
Tracy, Chester E.; and Kern, Werner, 4,273,828, Cl. 428-336.000.

Kerr-McGee Coal Corporation: *See*—
Tompkins, John C., 4,273,193, Cl. 166-314.000.

Kerr-McGee Refining Corporation: *See*—
Harris, Samuel W.; and Roach, Jack W., 4,273,644, Cl. 208-321.000.

Khemlani, Moti T.: *See*—
Viscovich, Paul W.; and Khemlani, Moti T., 4,272,962, Cl. 60-648.000.

Kho, Kha-Bing J., to Reichhold Chemicals, Incorporated. Polyol resin binder compositions and process. 4,273,700, Cl. 260-38.000.

Kido, Hiroshi: *See*—
Nomura, Nobutaka; Kido, Hiroshi; and Yamada, Kazuari, 4,274,081, Cl. 340-153.000.

Kidoa, William E.; Shuster, Nicholas; and Babinsky, Andrew D., to Diamond Shamrock Corp. Production of chromic acid using two-compartment and three-compartment cells. 4,273,628, Cl. 204-97.000.

Kiegel, Einhart: *See*—
Lauer, Karl; and Kiegel, Einhart, 4,273,711, Cl. 260-315.000.

Kii, Masami, to Mitsubishi Denki Kabushiki Kaisha. Circuit interrupter. 4,273,977, Cl. 200-147.00R.

Kikuchi, Toshiro: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Matsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.

Kilminster, Kenneth N.; and Holstead, Colin, to Eastman Kodak Company. Carbonyl-substituted cyan azo dye-providing materials. 4,273,708, Cl. 260-199.000.

Kim, Young D., to Ashland Oil, Inc. Preparation of furan polymers. 4,273,693, Cl. 260-29.20N.

Kimura, Kiyoshi: *See*—
Fujita, Hisao; and Kimura, Kiyoshi, 4,273,843, Cl. 430-30.000.

Kimura, Shoichi; Takahashi, Toshihiko; and Tamura, Zensuke, to Hitachi, Ltd. Refining process of hot gas containing hydrogen sulfide and ammonia. 4,273,749, Cl. 423-231.000.

Kimura, Shoichi: *See*—
Takahashi, Toshihiko; Maruko, Morihisa; and Kimura, Shoichi, 4,273,748, Cl. 423-230.000.

Kimura, Shoji; and Ishida, Nobuo, to Nippon Oil Company Ltd. Rust inhibitors and compositions of same. 4,273,673, Cl. 252-396.000.

Kimura, Takeo: *See*—
Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, 4,273,725, Cl. 260-414.000.

King, Donald W.: *See*—
Norvell, Gordon S.; and King, Donald W., 4,273,282, Cl. 228-116.000.

King, Francis D.: *See*—
Hadley, Michael S.; and King, Francis D., 4,273,778, Cl. 424-265.000.

King, Jeanne A.: *See*—
Bates, Edson C.; and King, Jeanne A., 4,273,012, Cl. 83-17.000.

Kinghorn, Mark D., Jr.: *See*—
Kinghorn, Mark D., Sr.; and Kinghorn, Mark D., Jr., 4,273,250, Cl. 220-220.000.

Kinghorn, Mark D., Sr.; and Kinghorn, Mark D., Jr. Sealing system for liquid storage tanks. 4,273,250, Cl. 220-220.000.

Kinjo, Hisao: *See*—
Wada, Yoshiyo; Goto, Kunio; and Kinjo, Hisao, 4,273,967, Cl. 369-126.000.

Kirin Beer Kabushiki Kaisha: *See*—
Yokokura, Shuichi; Horie, Yu; Takamizawa, Minoru; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,273,834, Cl. 428-429.000.

Kirkpatrick, Joel L., to Gulf Oil Corporation. 2-[3-(4-Chlorophenoxy)-propylthio]-5-(1,3,3-trimethylvaleido)-1,3,4-thiadiazole and use as a post-emergent herbicide. 4,273,574, Cl. 71-90.000.

Kisaka, Hiroyuki: *See*—
Miyahara, Masayoshi; Katayama, Morimitsu; and Kisaka, Hiroyuki, 4,273,001, Cl. 74-359.000.

Kishi, Akira: *See*—
Minematsu, Hiroyuki; Matsumoto, Kojiro; Saeki, Tadashi; and Kishi, Akira, 4,273,895, Cl. 525-264.000.

Kitakohji, Toshisuke: *See*—
Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, 4,273,856, Cl. 430-270.000.

Kitamura, Kenro: *See*—
Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, 4,273,856, Cl. 430-270.000.

Kiwala, Jacob: *See*—
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,273,662, Cl. 252-8.900.

Kjaer, Per. Device for collecting and removing dog droppings or the like. 4,273,370, Cl. 294-1.00B.

Kjellstrand, Gunnar M. T.; Olofsson, Olof; and Linder, Anders G. Coupling of the ball-and-socket joint type. 4,273,461, Cl. 403-125.000.

Kleiner, Fredric: *See*—
Fariel, Harry F.; Rudolph, Marvin J.; Hymon, Richard B.; Roy, Pradip K.; and Kleiner, Fredric, 4,273,793, Cl. 426-572.000.

Klemm, Ernest J.; Edman, Walter W.; Erskine, Frances R.; and McDonough, Everett G., to Zotos International, Inc. Permanent wave composition. 4,273,143, Cl. 132-7.000.

Klockner-Humboldt-Deutz Aktiengesellschaft: *See*—
Kramer, Peter, 4,273,378, Cl. 296-146.000.
Pluequet, Heinz, 4,273,080, Cl. 123-41.500.
Tholen, Paul, 4,273,082, Cl. 123-41.310.

Klock, Bernard F.: *See*—
Foley, James P.; Klock, Bernard F.; and D'Agostino, Michael, 4,273,969, Cl. 179-156.00A.

Knacke, Ottmar: *See*—
Detsch, Erwin; Potschke, Jurgen; and Knacke, Ottmar, 4,273,810, Cl. 427-156.000.

Knight, Robert M.: *See*—
Hendricks, Donald B.; and Knight, Robert M., 4,274,145, Cl. 364-557.000.

Knobel, Walter, to Davy International AG. Process for reconcentrating moist glycol. 4,273,620, Cl. 203-18.000.

Knogo Corporation: *See*—
Cooper, Michael N., 4,274,090, Cl. 340-572.000.
Knowles, Peter G.: *See*—
Nerurkar, Mohanlal S.; and Knowles, Peter G., 4,274,025, Cl. 310-215.000.
Kobayashi, Fumiaki, to Toyota Jidosha Kogyo Kabushiki Kaisha. Device for preventing air-conditioning warm or cool blast from blowing through under a seat. 4,273,375, Cl. 296-65.00R.
Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, to Canon Kabushiki Kaisha. Heat-developable photosensitive member for forming electrostatic printing masters. 4,273,844, Cl. 430-48.000.
Kobayashi, Hajime; Yano, Yasuhiro; and Endo, Ichiro, to Canon Kabushiki Kaisha. Heat-developable photosensitive material. 4,273,845, Cl. 430-48.000.
Kobe, Inc.: *See*—
Erickson, John W.; Brown, F. Barton; and White, Thomas A., Jr., 4,273,509, Cl. 415-111.000.
Kobe Steel, Limited: *See*—
Fujita, Isao; Imanishi, Nobuyuki; Tsutaya, Tadao; Watanabe, Ryo; and Kawai, Takao, 4,273,577, Cl. 75-41.000.
Koch, Bernd: *See*—
Fischer, Otto; Pulvermacher, Wilfried; and Koch, Bernd, 4,273,949, Cl. 13-35.000.
Kochansky, Jan P.; Feldmesser, Julius; and Robbins, William E., to United States of America, Agriculture. Control of nematodes and other helminths. 4,273,768, Cl. 424-222.000.
Koebel, Ralph F.: *See*—
Bush, Charles N.; Daniels, Charles A.; and Koebel, Ralph F., 4,273,904, Cl. 526-91.000.
Koehler, F. Theodore; Micchelli, Albert L.; and Nowak, Frank A., Jr., to National Starch and Chemical Corporation. Shampoo compositions. 4,273,760, Cl. 424-70.000.
Koehler, Rudolph A., to Noma Lites Canada Limited. Artificial shrubs of improved construction. 4,273,814, Cl. 428-8.000.
Koeman, Henriecus: *See*—
Brodie, Benjamin T.; and Koeman, Henriecus, 4,274,143, Cl. 364-483.000.
Koeneker, William V.; and Newkirk, Franklin D., to UMC Industries, Inc. Flood control for a beverage vendor. 4,273,259, Cl. 222-108.000.
Koernig, Wolfgang: *See*—
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.
Kohn, Edward M.; Nickol, Stephen L.; and Thompson, Robert M., to Suntech, Inc. Block copolymer of polyetheramide and random copolymer of polyamide and polyetheramide. 4,273,898, Cl. 525-432.000.
Kohnke, Ole B.: *See*—
Grane, Christian; and Kohnke, Ole B., 4,273,126, Cl. 128-276.000.
Koike, Takashi: *See*—
Nishiyama, Ryota; Koike, Takashi; and Seino, Shunji, 4,273,825, Cl. 428-223.000.
Kojima, Takeshi: *See*—
Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Kokusai Denshin Denwa Kabushiki Kaisha: *See*—
Yamamoto, Takaya; Sakai, Kazuo; and Akiba, Shigeyuki, 4,274,103, Cl. 357-13.000.
Kolakowski, Michael A., to NL Industries, Inc. Desulfation of battery mud. 4,273,746, Cl. 423-92.000.
Kolene Corp: *See*—
Wood, William G.; and Pilznienski, John F., 4,273,591, Cl. 134-11.000.
Koleske, Joseph V.: *See*—
Carder, Charles H.; and Koleske, Joseph V., 4,273,633, Cl. 204-159.170.
Kolling, William J., Jr. Telecommunications access apparatus. 4,273,957, Cl. 179-1.0PC.
Komatsu, Shinichiro: *See*—
Harada, Tadao; Izumi, Yoshiharu; and Komatsu, Shinichiro, 4,273,933, Cl. 560-179.000.
Koninklijke Emballage Industrie Van Leer B.V.: *See*—
Wolff, Per L., 4,273,887, Cl. 521-188.000.
Konishiroku Photo Industry Co., Ltd.: *See*—
Fujita, Hisao; and Kimura, Kiyoshi, 4,273,843, Cl. 430-30.000.
Nagoshi, Mitsuru, 4,273,441, Cl. 355-67.000.
Konrath, Karl: *See*—
Hofer, Gerald; Konrath, Karl; Eheim, Franz; Weiss, Otmar; Schmitt, Edgar; Faupel, Werner; and Gotz, Edgar, 4,273,090, Cl. 123-502.000.
Stumpp, Gerhard; Greiner, Max; Weiss, Otmar; and Konrath, Karl, 4,273,091, Cl. 123-506.000.
Kopaska, Arnold F. Machine for rolling crops into round bales. 4,273,036, Cl. 100-88.000.
Kopich, Leonard F., to General Motors Corporation. Hydraulically controlled differential. 4,272,993, Cl. 74-711.000.
Korach, Malcolm, to PPG Industries, Inc. Solid polymer electrolyte chlor-alkali process and electrolytic cell. 4,273,629, Cl. 204-98.000.
Korf, Heinz L. Urea-formaldehyde polymers having reduced formaldehyde emission and cellular urea formaldehyde foam which is resistant to acid-induced hydrolysis. 4,273,883, Cl. 521-113.000.
Koritala, Sambasivarao, to United States of America, Agriculture. Method of enhancing activity of homogeneous Ziegler-type copper catalysts. 4,273,722, Cl. 260-409.000.
Korytov, Vladimir A.: *See*—
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebashev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P., 4,273,180, Cl. 164-49.000.
Korzeb, Frank: *See*—
Bayly, William I.; Rumbolo, Louis J.; Fazekas, Ernest E.; and Korzeb, Frank, 4,273,493, Cl. 414-221.000.
Kosaka, Takao; and Tahara, Yukio, to Mitsubishi Paper Mills, Ltd. Heat-sensitive recording material. 4,273,602, Cl. 156-234.000.
Kostka, Hana, to Siemens Aktiengesellschaft. Method for operating combustion devices. 4,273,560, Cl. 48-212.000.
Kostner, Armin; Lenhart, Richard; and Bittner, Klaus-Jurgen, to Hoechst Aktiengesellschaft. Double-walled hollow rod of flexible tubular material. 4,273,551, Cl. 493-243.000.
Kotulla, Bernhard; Haas, Hans; Weiser, Martin; Forster, Rolf; Preis, Lothar; and Schmidt, Rudolf, to Bayer Aktiengesellschaft. Reinforcement of armored earth work constructions. 4,273,476, Cl. 405-258.000.
Koyanagi, Rokuo; Fujita, Yoshio; and Mukai, Kunio, to Sumitomo Chemical Company, Limited. O-Ethyl S-alkyl S-isopropyl phosphoro-dithiolate, and their use as nematocide. 4,273,769, Cl. 424-224.000.
Kozima, Yasuyuki, to Hitachi, Ltd. Picture information transmitting method for facsimile. 4,274,114, Cl. 358-257.000.
Kraemer, Horst, to Siemens Aktiengesellschaft. Reference voltage source, in particular for amplifier circuits. 4,274,061, Cl. 330-296.000.
Kraftwerk Union Aktiengesellschaft: *See*—
Exner, Gerhard; and Festinori, Volfango, 4,273,011, Cl. 81-57.380.
Krall, Albert D.; and Syeles, Albert M., to United States of America, Navy. Embedded dielectric rod antenna. 4,274,097, Cl. 343-719.000.
Kramer, Peter, to Klockner-Humboldt-Deutz Aktiengesellschaft. Vehicle door, especially for a driver's cab. 4,273,378, Cl. 296-146.000.
Kraskin, Kenneth S., to Personal Products Company. Inhibition of conditions arising from microbial production of ammonia. 4,273,786, Cl. 424-319.000.
Kratzer, Rudolf: *See*—
Heine, Helmut A.; Roesenbusch, Helmut W.; and Kratzer, Rudolf, 4,273,112, Cl. 128-11.000.
Krauss, Werner, to Claudius Peters AG. Mixing chamber silo with improved mixing. 4,273,451, Cl. 366-101.000.
Kray, George C. Trigger actuated air pressure dispensing gun. 4,273,270, Cl. 222-327.000.
Krein, Reuben J., to Coachmen Industries, Inc. Apparatus for stuffing compressible products into flexible covers. 4,272,874, Cl. 29-235.000.
Krenek, Michael J.: *See*—
Piazza, Andre L.; Krenek, Michael J.; and Ames, Thomas J., 4,273,472, Cl. 405-211.000.
Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Polyfluoroallyloxy compounds, their preparation and copolymers therefrom. 4,273,728, Cl. 260-465.600.
Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Polyfluoroallyloxy compounds, their preparation and copolymers therefrom. 4,273,729, Cl. 260-543.00F.
Krijl, Gerrit: *See*—
Van de Leest, Renaat E.; Krijl, Gerrit; and Boonzajer Flaes, Ewoud A., 4,273,625, Cl. 204-56.00R.
Krohn, David A.; Snitzer, Elias; and Raber, Peter E., to Exxon Research & Engineering Co. Sealing glass. 4,273,585, Cl. 106-47.00R.
Kronogard, Sven-Olof, to United Turbine AB & Co., Kommanditbolag. Gas turbine having a ceramic rotor. 4,272,954, Cl. 60-39.16R.
Krueger, Robert H., to Borg-Warner Corporation. Device for automatic addition of a corrosion inhibitor to a coolant system. 4,273,744, Cl. 422-265.000.
Krueger, Wallace F. Metering apparatus. 4,273,261, Cl. 222-135.000.
Kruger, Manfred: *See*—
Berndt, Klaus-Gunther; Kruger, Manfred; and Nawrot, Wolfgang, 4,273,979, Cl. 200-286.000.
Kubler, Hans: *See*—
Benckendorff, Wolfgang; and Kubler, Hans, 4,274,086, Cl. 340-506.000.
Kubo, Kimio; and Miyamae, Ryuichi, to Sharp Kabushiki Kaisha. Electronic sphygmomanometer. 4,273,136, Cl. 128-680.000.
Kubo, Masaharu: *See*—
Ohba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Ystaro; Hanamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.
Kubota, Ltd.: *See*—
Miyahara, Masayoshi; Katayama, Morimitsu; and Kisaka, Hiroyuki, 4,273,001, Cl. 74-359.000.
Nakai, Osamu, 4,273,308, Cl. 251-88.000.
Sato, Mitsuhiro; Itatani, Hiroshi; and Matsuda, Kenji, 4,273,007, Cl. 74-745.000.
Kuchuk-Yatsenko, Sergei I.: *See*—
Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Unigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.
Kuehnel, Werner; and Rattner, Manfred, to Siemens Aktiengesellschaft. X-ray diagnostic generator comprising means for obtaining a signal corresponding to the x-ray tube voltage. 4,274,003, Cl. 250-409.000.
Kugelfischer Georg Schafer & Co.: *See*—
Voll, Horst, 4,273,229, Cl. 192-105.0CF.
Kugler, Edwin L.; and Garten, Robert L., to Exxon Research & Engineering Co. Hydrocarbon synthesis from CO and H_2 using titanium promoted bulk nickel catalysts. 4,273,724, Cl. 518-715.000.

Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hamann, Ingeborg; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating plant pests with phosphorylated carbamoyl compounds. 4,273,767, Cl. 424-211.000.
Kuhlmann, Herbert, to Sidepal Societe Anonyme Societe Industrielle de Participations Luxembourgeois. Cooling device for hot gases in pipes. 4,273,074, Cl. 122-7.00R.
Kuhlmann, Robert: *See*—
Nauroth, Peter; Esch, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.
Kumagai, Yoshio, to Hitachi, Ltd. Steam generating apparatus. 4,272,964, Cl. 60-657.000.
Kume, Kazunari; Watanabe, Minoru; Ohno, Hideshi; and Tamaru, Munetaka, to Citizen Watch Company Limited. Movement construction for electronic timepiece. 4,274,153, Cl. 368-80.000.
Kunreuther, Steven: High strength needle assembly with sharpenable cutting edge. 4,273,279, Cl. 227-67.000.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Kato, Tadaaki, 4,273,705, Cl. 260-123.700.
Shiiki, Zenya; and Watanabe, Kazuhiro, 4,273,675, Cl. 252-424.000.
Kusahara, Kohji: *See*—
Endo, Makoto; and Kusahara, Kohji, 4,273,754, Cl. 423-385.000.
Kushi, Kenji: *See*—
Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, 4,273,799, Cl. 427-44.000.
Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, 4,273,802, Cl. 427-54.100.
Kushida, Shozo: *See*—
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.
Kuwakado, Satoei: *See*—
Takei, Toshihiro; Kuwakado, Satoei; Takakuwa, Eiji; and Shimogawa, Toshiaki, 4,273,361, Cl. 280-805.000.
Kwong, Hanoi: *See*—
Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi, 4,273,918, Cl. 528-310.000.
Kyllonen, Allen W.: *See*—
Morris, Robert B.; and Kyllonen, Allen W., 4,273,218, Cl. 188-18.00A.
Kyowa Hakko Kogyo Co., Ltd.: *See*—
Nakanishi, Toru; and Shigemasa, Yoshimi, 4,273,874, Cl. 435-191.000.
La Societe Pyral: *See*—
Peronnet, Roland; Couturier, Bernard; and Fombert, Christian, 4,273,603, Cl. 156-236.000.
Laboratorios Bago S.A.: *See*—
Los, Mario A., 4,273,777, Cl. 424-263.000.
Laethem, Alfred F.: *See*—
Carr, Peter; and Laethem, Alfred F., 4,273,839, Cl. 429-51.000.
Lafargue, Marcel A. S.: *See*—
Mouille, Rene L.; and Lafargue, Marcel A. S., 4,273,511, Cl. 416-134.00A.
Laferty, John M.; Howe, Dennis L.; and Sebenik, Roger F., to AMAX Inc. Production of molybdenum oxide from ammonium molybdate solutions. 4,273,745, Cl. 423-54.000.
Lagneaux, Jean, to Societe Generale pour l'Emballage. Dispensing head for beverages. 4,273,288, Cl. 239-419.300.
Laboda, Edward J.; and Dent, Thomas H., to Westinghouse Electric Corp. Steam generator sludge lancing apparatus. 4,273,076, Cl. 122-382.000.
Laitinen, Herbert A.; and Thornton, Donald C., to Board of Regents, State of Florida, for the use and benefit of the University of Florida. Thin platinum films on tin oxide substrates. 4,273,624, Cl. 204-23.000.
LaLiberte, Norman U.; and Rotenberg, Don H., to American Optical Corporation. Method of preparing cast resin lenses. 4,273,809, Cl. 427-155.000.
Lamberti, Vincent: *See*—
Gutierrez, Eddie N.; and Lamberti, Vincent, 4,273,935, Cl. 562-595.000.
Lambot, Joseph H., to Diamant Boart. Drive mandrel for a drilling stem. 4,273,200, Cl. 173-166.000.
Lamere, Garland C.; Inman, Frank S.; and Mitchell, Ronald B., to Thiokol Corporation. Time delay device for deployable rocket nozzle skirts. 4,272,956, Cl. 60-242.000.
Lamprey, Donald F. Compact variable speed drive for electric motor. 4,274,023, Cl. 310-83.000.
Lamson & Sessions Co., The: *See*—
Capuano, Terry D., 4,273,175, Cl. 411-168.000.
Lane, George A.; and Rossow, Harold E., to Dow Chemical Company, The. Hydrated $Mg(NO_3)_2$ reversible phase change compositions. 4,273,666, Cl. 252-70.000.
Lane, Ruth M.; and Stacey, Martyn H., to Imperial Chemical Industries Limited. Method of preparing an oxychlorination catalyst. 4,273,678, Cl. 252-463.000.
Lange, Gerald A.; and Simpson, Charles J., to Eastman Kodak Company. Instant film unit. 4,273,852, Cl. 430-209.000.
Langer, Roger L.; Licht, Richard R.; and Marlor, Alan J., to Minnesota Mining and Manufacturing Company. Intumescent fire retardant composites. 4,273,879, Cl. 521-91.000.
Lapierre, Philippe. Airplane model with flexible strut assembly. 4,272,912, Cl. 46-79.000.
Larimore, Franklin C.; and Hellmann, Steven M., to Minnesota Mining and Manufacturing Company. Biomedical electrode. 4,273,135, Cl. 128-640.000.
Larkey, Orval W., to J. T. Posey Company. Golf swing aid. 4,273,336, Cl. 273-189.00R.
Larsen, Donald W.: *See*—
Wood, Louis L.; and Larsen, Donald W., 4,273,913, Cl. 528-77.000.
Lary, Banning G. Coronary cutting and dilating instrument. 4,273,128, Cl. 128-305.000.
Lauber, Leo E.: *See*—
Cowden, Ernest A.; and Lauber, Leo E., 4,272,934, Cl. 52-202.000.
Lauer, Karl; and Kiegel, Einhart, to Boehringer Mannheim GmbH. Process for the preparation of 4-hydroxycarbazole. 4,273,711, Cl. 260-315.000.
Laurie, Alec H.; and Kalicki, John H. Gas/liquid exchange apparatus. 4,273,731, Cl. 261-77.000.
Law, Joseph P., to Thomas & Betts Corporation. Jacketed metal clad cable connector. 4,273,405, Cl. 339-94.00R.
Lawing, Pierce L.: *See*—
Frosch, Robert A.; Lawing, Pierce L.; and Pagel, LaVerne L., 4,273,304, Cl. 244-117.00A.
Lawson-Tancred, Henry, to Sir Henry Lawson-Tancred, Sons & Co., Ltd. Electric power generation. 4,274,010, Cl. 290-55.000.
Lay, Giles P., to Layco, Inc. Cyclic energy transformation apparatus. 4,272,963, Cl. 60-655.000.
Layco, Inc.: *See*—
Lay, Giles P., 4,272,963, Cl. 60-655.000.
Layher, Ulrich: *See*—
Sivers, Rolf V.; Herrmann, Rudolf; and Layher, Ulrich, 4,273,207, Cl. 180-70.00P.
Layton, Vincent W.; and Mueller, Ernest. Process for the continuous recovery of gold and other metals from sea water. 4,273,631, Cl. 204-109.000.
Le Metalli Industrialle S.p.A.: *See*—
Biasio, Pietro; and Talini, Maurizio, 4,273,611, Cl. 159-47.0WL.
Leamy, Harry J.: *See*—
Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., 4,273,594, Cl. 148-33.300.
Lear Siegler, Inc.: *See*—
White, Jack H.; and FitzGerald, Joseph M., 4,272,967, Cl. 62-236.000.
Leatherman, Ivan R., to PPG Industries, Inc. Cobalt aluminate internal colorants for diol bis (allyl carbonate). 4,273,702, Cl. 260-42.530.
Lebedev, Vladimir K.: *See*—
Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Unigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.
Leberzammer, Ernst; and Roos, Leo, to Du Pont de Nemours, E. I., and Company. Polymeric binders for aqueous processable photopolymer compositions. 4,273,857, Cl. 430-281.000.
Lederer, Gernot, to Woellner-Werke. Cold hardening binding agent for particulate solids, such as molding sand, containing a nitrogen basic polyol. 4,273,910, Cl. 528-48.000.
Legg, Howard W. Spreader marker having a ground wheel actuated aerosol supply. 4,273,264, Cl. 222-162.000.
Legg, Robert E. Quick miner's pan. 4,273,648, Cl. 209-447.000.
Leggett, Paul. Safety harness for hunters. 4,273,215, Cl. 182-3.000.
Legille, Edouard; and Mailliet, Pierre, to Paul Wurth, S.A. Charging device for shaft furnaces. 4,273,492, Cl. 414-160.000.
Lehmann, Myrtil B., to Chanel. Shaped caps and containers. 4,273,248, Cl. 215-331.000.
Lehnert, Stanley E., to Zenith Radio Corporation. Projection television system. 4,274,110, Cl. 358-60.000.
Lehr, Klaus; Heymer, Gero; Stephan, Hans-Werner; and Thumaier, Ursus, to Hoechst Aktiengesellschaft. Process for making red phosphorus. 4,273,752, Cl. 423-322.000.
Lemelson, Jerome H. Syringe and needle cover. 4,273,123, Cl. 128-218.00N.
Lemelson, Jerome H.: *See*—
Ben-Dor, Effraim; and Lemelson, Jerome H., 4,273,345, Cl. 280-11.200.
Lenhart, Richard: *See*—
Kostner, Armin; Lenhart, Richard; and Bittner, Klaus-Jurgen, 4,273,551, Cl. 493-243.000.
Lennon, Donald J. J.; Hagerstrom, John R.; and Ekman, C. Frederick W., to EPP Corp. Inks for pulsed electrical printing and methods of producing same. 4,273,847, Cl. 430-106.000.
Lester, David; and Alexander, Robert R., to Polymerics, Inc. High molecular weight vinyl acrylic combined with low molecular weight vinyl acetate-maleate for controlled permanent tack and method of making same. 4,273,145, Cl. 132-1.000.
Levens, Joseph A., to Nipak, Inc. Sweep elt production apparatus. 4,273,523, Cl. 425-326.100.
Levenspiel, Octave; and Kambola, Kenneth, to Exxon Research & Engineering Co. Enhancing the characteristics of magnetically stabilized fluidized beds. 4,272,893, Cl. 34-1.000.
Lever Brothers Company: *See*—
Gutierrez, Eddie N.; and Lamberti, Vincent, 4,273,935, Cl. 562-595.000.
Leverett, William H. Apparatus and process for weighing articles successively. 4,273,649, Cl. 209-539.000.
Levine, Robert A. Device for obtaining stool samples. 4,273,741, Cl. 422-56.000.
Lewis, Clive: *See*—
Coppleditch, Brian; and Lewis, Clive, 4,273,254, Cl. 221-196.000.
Lewis, Geoffrey A.; and Lloyd, Arthur L., to Lucas Industries Limited. Fuel control system for a ram jet engine. 4,272,957, Cl. 60-243.000.

Leysieffer, Hans; and Panzer, Klaus, to Siemens Aktiengesellschaft. Switching matrix for selectively connecting incoming signals to desired output paths. 4,274,112, Cl. 358-181.000.

Liau, Weilin. Deatifrice and its method of manufacture. 4,273,758, Cl. 424-49.000.

Licht, Richard R.: *See*—
Langer, Roger L.; Licht, Richard R.; and Marlor, Alan J., 4,273,879, Cl. 521-91.000.

Liebling, Gary. Closeable fish net. 4,272,906, Cl. 43-11.000.

Liermann, Peter, to WABCO Fahrzeugbremsen GmbH. System for controlling the speed of an automotive vehicle. 4,273,208, Cl. 180-179.000.

Ligon, Woodfin V., Jr.; and Webb, Jimmy L., to General Electric Company. Thermal detecting paint compositions. 4,273,674, Cl. 252-408.000.

Limited-Liability Company: *See*—
Luther, Erich; and Maelzer, Martin, 4,273,321, Cl. 271-10.000.

Lin, Wayne H. T.; Grib, James J.; and Mosier, Larry D., to Mallinckrodt, Inc. Method and reagent for counteracting lipemic interference. 4,273,867, Cl. 435-7.000.

Linde Aktiengesellschaft: *See*—
Heyl, Walter, 4,273,517, Cl. 417-222.000.
Turnwald, Ernst; Asztalos, Stefan; and Rosenmeier, Rudolf, 4,273,028, Cl. 91-275.000.

Linder, Anders G.: *See*—
Kjellstrand, Gunnar M. T.; Olofsson, Olof; and Linder, Anders G., 4,273,461, Cl. 403-125.000.

Lindsay, Ronald J.; and Cross, Clifford W., to Goodyear Tire & Rubber Company, The. Energy absorbing device. 4,273,065, Cl. 114-219.000.

Ling, Chung-Mei; Decker, Richard H.; and Chairez, Ruben, to Abbott Laboratories. Immunoassay for class specific antibodies. 4,273,756, Cl. 424-1.000.

Lingl Corporation: *See*—
Lingl, Hans, Jr.; and Schwarz, Josef, 4,273,489, Cl. 414-60.000.

Lingl, Hans, Jr.; and Schwarz, Josef, to Lingl Corporation. Process and apparatus for forming of set layers from brick blanks. 4,273,489, Cl. 414-60.000.

Lintonbon, Robert F.: *See*—
Shore, David; and Lintonbon, Robert F., 4,273,514, Cl. 417-15.000.

Liou, Sydarsia. Educational toy. 4,272,896, Cl. 434-340.000.

Lisk, Robert R.: *See*—
Bisczat, John J.; Lisk, Robert R.; McCray, William R.; and Sizemore, James L., 4,273,456, Cl. 400-550.000.

Littner, Lorna C.: *See*—
Carrera, Michael A.; Carrera, June F.; Littner, Melvyn S.; and Littner, Lorna C., 4,273,337, Cl. 273-243.000.

Littner, Melvyn S.: *See*—
Carrera, Michael A.; Carrera, June F.; Littner, Melvyn S.; and Littner, Lorna C., 4,273,337, Cl. 273-243.000.

Litton Industrial Products, Inc.: *See*—
Charland, Raymond J., 4,273,148, Cl. 137-72.000.
Cribbs, Robert W., 4,272,991, Cl. 73-621.000.

Litton Systems, Inc.: *See*—
Norvell, Gordon S.; and King, Donald W., 4,273,282, Cl. 228-116.000.

Litz, Heinz; Hallwirth, Volker; and Storz, Karl, to Dual Gebruder Steidinger. Transmission system for the digital control of devices. 4,274,082, Cl. 340-167.00R.

Litzinger, Bernardo C.; and Schmeling, Udo F. M., to Mineracoes Brasileiras Reunidas S.A. Process for transforming fines of iron or manganese into raw-material for sintering. 4,273,575, Cl. 75-3.000.

Lloyd, Arthur L.: *See*—
Lewis, Geoffrey A.; and Lloyd, Arthur L., 4,272,957, Cl. 60-243.000.

Lloyd, Brian M.: *See*—
LLoyd, William M.; and Lloyd, Brian M., 4,273,482, Cl. 409-80.000.

Lloyd, Samuel H., III; and Goren, Yoram, to Santa Fe International Corporation. Method of operating twin hull semisubmersible derrick barge. 4,273,067, Cl. 114-258.000.

LLoyd, William M.; and Lloyd, Brian M., to Conti-Form Machine Tools Limited. Automatic tool-moving machine. 4,273,482, Cl. 409-80.000.

Locatelli, Jean-Louis: *See*—
Soula, Gerard; and Locatelli, Jean-Louis, 4,273,915, Cl. 528-93.000.

Loch, Ernst: *See*—
Grunder, Werner; and Loch, Ernst, 4,272,868, Cl. 19-240.000.

Locher, Frank S. Lift centering device. 4,273,243, Cl. 212-153.000.

Lofgren, Stig-Gunnar; and Ekeborg, Bo G., to Mo och Domsjo Aktiebolag. Digging and planting machine. 4,273,056, Cl. 111-2.000.

Login, Robert B.: *See*—
Newkirk, David D.; and Login, Robert B., 4,273,946, Cl. 568-625.000.

Long, Leo E.: *See*—
Nall, Clive; Long, Leo E.; Rigby, Sterling C.; and Baugh, K. Boyd, 4,273,327, Cl. 272-97.000.

Long, Thomas J.: *See*—
Steiner, Robert E.; and Long, Thomas J., 4,273,990, Cl. 219-363.000.

Loomis, Ervin C.: *See*—
Keeney, Gary E.; Zurcher, Allen K.; and Loomis, Ervin C., 4,273,367, Cl. 285-419.000.

Looser, Siegfried: *See*—
Mollering, Hans; and Looser, Siegfried, 4,273,870, Cl. 435-26.000.

Lopes, Rosario. Mobile home anchor. 4,272,933, Cl. 52-149.000.

Lori Engineering Corporation: *See*—
Hennessy, Thomas F., 4,272,974, Cl. 70-129.000.

Los, Mario A., to Laboratorios Bago S.A. Methods of treating mammals suffering from inflammation and pain. 4,273,777, Cl. 424-263.000.

Louis N. Graves Co., Inc.: *See*—
Graves, Louis N., 4,272,925, Cl. 51-211.00R.

Lovejoy, Inc.: *See*—
James, Ian R., 4,272,972, Cl. 64-17.0SP.

Lovtsov, Dmitry P.: *See*—
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebashev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P., 4,273,180, Cl. 164-49.000.

Lowles, David C., to Parker-Hannifin Corporation. High pressure hose. 4,273,160, Cl. 138-124.000.

Lowry, Robert K.; and Miller, Larry A., to Harris Corporation. Method and means for measuring moisture content of hermetic semiconductor devices. 4,272,986, Cl. 73-73.000.

Loyd, Morris S.; and McGann, Timothy W., to Rockwell International Corporation. Reinforced tubular structure. 4,272,971, Cl. 64-1.00S.

Lubbers, Dietrich W., to Max Planck Gesellschaft zur Forderung der Wissenschaften e.V. Spectral photometer for medical applications. 4,273,442, Cl. 356-326.000.

Lubrizol Corporation, The: *See*—
Pindar, John F.; Cohen, Jerome M.; and Bryant, Charles P., 4,273,891, Cl. 525-145.000.

Lucas Industries Limited: *See*—
Farr, Glyn P. R., 4,273,386, Cl. 303-6.00C.
Lewis, Geoffrey A.; and Lloyd, Arthur L., 4,272,957, Cl. 60-243.000.
Tregurtha, Steven J., 4,273,971, Cl. 200-4.000.

Lucas, Jean-Claude; and Messirejean, Pierre, to Societe Sofiltra-Poelman; and Societe Industrielle de Filtration. Installation for filtration of a contaminated fluid. 4,273,652, Cl. 210-189.000.

Luck, Russell M.; and Gainer, Gordon C., to Westinghouse Electric Corp. Submersible fuse. 4,274,073, Cl. 337-248.000.

Ludlow Corporation: *See*—
Carrier, Lee A.; and Carpenter, Leon G., 4,273,362, Cl. 283-6.000.

Ludwig, George C., to Tom McGuane Industries, Inc. Three way butterfly valve. 4,273,157, Cl. 137-887.000.

Lueg, Heinz: *See*—
Hermanns, Winfried; Lueg, Heinz; Blackert, Hanno; and Wimmenauer, Dirk, 4,274,076, Cl. 340-38.00L.

Luk Lamellen und Kupplungsbau GmbH: *See*—
Huber, Lothar, 4,273,228, Cl. 192-89.00B.

Lukas, Sidney; Golden, Timothy E.; Lunarola, Patrick J.; and Mard, Michael G., to Retro-Flex, Inc. Field-installed insulation and apparatus for and method of making and installing the same. 4,272,935, Cl. 52-309.110.

Luke, John A., to Brown & Williamson Tobacco Corporation. Bonding fibrillated polypropylene smoke filter with ethylene-vinylacetate emulsion. 4,273,600, Cl. 156-180.000.

Lukes, Henry J.; Kamphorst, Walter; and Asmar, Romeal F., to Sundstrand Data Control, Inc. Charge amplifier with minimum offset voltage. 4,274,056, Cl. 328-162.000.

Lukianov, Nikolai E.: *See*—
Fomichev, Mikhail M.; Schepakin, Mikhail B.; Gudz, Anatoly G.; Evdokimov, Viktor G.; Lukianov, Nikolai E.; Romanchenko, Irina A.; and Salnikov, Andrei F., 4,273,508, Cl. 415-1.000.

Lum, Victor. Multi-element writing instrument. 4,274,102, Cl. 346-139.00R.

Lummus Company, The: *See*—
Fornoff, Louis L., 4,273,621, Cl. 203-19.000.

Lunarola, Patrick J.: *See*—
Lukas, Sidney; Golden, Timothy E.; Lunarola, Patrick J.; and Mard, Michael G., 4,272,935, Cl. 52-309.110.

Lundberg, Thorsten, to Gotaverken Arendal AB. Floating dock. 4,273,061, Cl. 114-45.000.

Lunde, Peter A., to Santa Fe International Corporation. System and method for laying subsea pipelines. 4,273,469, Cl. 405-158.000.

Luo, Zong S.; and Woodcock, Todd M., to Hewlett Packard Company. Impact printing apparatus and method using reluctance switching and a closed loop drive system. 4,273,039, Cl. 101-93.020.

Lursen, Klaus: *See*—
Grobe, Klaus; and Lursen, Klaus, 4,273,573, Cl. 71-90.000.

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Luther, Erich; and Maelzer, Martin, 4,273,321, Cl. 271-10.000.

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De Voogd, Albert H., 4,273,205, Cl. 177-210.0FP.

MacDonald, Digby D.; and Scott, Arthur C., to Electric Power Research Institute, Inc. Pressure balanced external reference electrode assembly and method. 4,273,637, Cl. 204-195.00F.

Machi, Sueo; Ishigaki, Isao; Sugo, Takanobu; Murata, Kazuo; Tanso, Shiro; and Senoo, Keizi, to Japan Atomic Energy Research Institute; and Yuasa Battery Co. Ltd. Battery separator and method of producing the same. 4,273,840, Cl. 429-144.000.

Machida, Saneto, to Toshin Kogyo Co., Ltd. Automatic screen printing process and apparatus. 4,273,042, Cl. 101-123.000.

Mackie, Robert D. Mutes for wind instruments. 4,273,021, Cl. 84-400.000.

MacLarty, Bernard G.; and Sidders, Bryan, to Promex Plastics (Proprietary) Limited. Identity band. 4,272,900, Cl. 40-21.00C.

MacLaury, Michael R.; and Holub, Fred F., to General Electric Company. Flame retardant compositions and coated article. 4,273,691, Cl. 260-23.00S.

Madgavkar, Ajay M.: *See*—
Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., 4,273,188, Cl. 166-256.000.

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Maher, Jack; and Francis, Grosvenor F. Mobile hammer-mill. 4,272,946, Cl. 56-13.900.

Mahoney, Thomas P.: *See*—
Campbell, James R.; and Anspach, Roy L., 4,273,836, Cl. 428-595.000.

Maier, Thomas A., to Essex Group, Inc. Open loop computer-controlled spark ignition timing system. 4,273,089, Cl. 123-417.000.

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Russell, Robert J., 4,272,943, Cl. 53-492.000.

Mailliet, Pierre: *See*—
Legille, Edouard; and Mailliet, Pierre, 4,273,492, Cl. 414-160.000.

Maitani, Yoshihisa; and Sato, Yuichi, to Olympus Optical Co., Ltd. Photographic camera. 4,273,434, Cl. 354-288.000.

Major Sports Sales, Inc.: *See*—
Nall, Clive; Long, Leo E.; Rigby, Sterling C.; and Baugh, K. Boyd, 4,273,327, Cl. 272-97.000.

Makimoto, Tsutomu: *See*—
Shimada, Kiyoe; Yano, Makoto; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,273,636, Cl. 204-195.00P.

Malburg, Werner: *See*—
Sepp, Gunther; Born, Gunthard; and Malburg, Werner, 4,274,064, Cl. 331-94.50G.

Malinski, Richard F.; and Sikorcin, John, to Vapor Corporation. Clutch for valve actuator. 4,273,307, Cl. 251-69.000.

Malis, Leonard I. Friction hinged headlamp or the like. 4,274,128, Cl. 362-105.000.

Mallinckrodt, Inc.: *See*—
Jurasse, David L., 4,273,557, Cl. 23-230.00B.
Lin, Wayne H. T.; Grib, James J.; and Mosier, Larry D., 4,273,867, Cl. 435-7.000.

Malone, Richard L.: *See*—
Smith, Jay, III; and Malone, Richard L., 4,272,917, Cl. 46-254.000.

Mamiya Koki Kabushiki Kaisha (Mamiya Camera Co., Ltd.): *See*—
Nasjoh, Yehsuke, 4,273,424, Cl. 350-431.000.

Manabe, Toshikatsu: *See*—
Nonogaki, Seburo; Morishita, Hajime; Hashimoto, Michiaki; Manabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.

Mangold, Hans, to Grundig E.M.V. System for the recording and play-back of video signals. 4,274,118, Cl. 360-84.000.

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Manabein, James W.; and Martz, William M., to Textron Inc. Writing implement. 4,273,458, Cl. 401-109.000.

Mar, Danny M., to Envirotech Corporation. Determination of total organic carbon in an aqueous sample containing halide ion. 4,273,558, Cl. 23-230.0PC.

Marathon LeTourneau Company: *See*—
Schaper, Donald W., 4,273,242, Cl. 212-147.000.

Marchello, John L. Breathing mask for horses. 4,273,119, Cl. 128-201.130.

Marchesi, Sergio; and Fachin, Gino, to Viasini, S.p.A. Process and apparatus for manufacturing single piece railroad ties of prestressed concrete. 4,273,740, Cl. 264-228.000.

Marconi Company Limited, The: *See*—
Molyneux-Berry, Robert B., 4,274,132, Cl. 363-21.000.

Mard, Michael G.: *See*—
Lukas, Sidney; Golden, Timothy E.; Lunarola, Patrick J.; and Mard, Michael G., 4,272,935, Cl. 52-309.110.

Marino, Joseph T., Jr., to Motorola, Inc. Flexible mode DES system. 4,274,085, Cl. 340-347.0DD.

Marjollet, Jacques: *See*—
Bonnoust, Roger; and Marjollet, Jacques, 4,273,077, Cl. 122-483.000.

Mark, Victor; and Wilson, Phillip S., to General Electric Company. Polycarbonate composition containing halogen-free organotin plasticizer. 4,273,692, Cl. 260-29.10R.

Mark, Victor; and Wilson, Phillip S., to General Electric Company. Plasticized polycarbonate composition. 4,273,942, Cl. 568-42.000.

Marker, Hannes; and Huss, Otto, to Marker, Hannes. Device for connecting a sailboat to a sailboard. 4,273,062, Cl. 114-91.000.

Markham, Harvey R.; and Shepherd, Roger D., to International Business Machines Corporation. Document feeder system having a suspending/commencing mode with a judgment decision capability. 4,273,439, Cl. 355-14.00C.

Markus, Henry Z.: *See*—
McAleer, William J.; and Markus, Henry Z., 4,273,762, Cl. 424-89.000.

Marlor, Alan J.: *See*—
Langer, Roger L.; Licht, Richard R.; and Marlor, Alan J., 4,273,879, Cl. 521-91.000.

Marmet, Melvin L.: *See*—
Padgett, Clarence W.; Marmet, Melvin L.; and Tennyson, Mark R., 4,274,147, Cl. 365-189.000.

Marquip, Inc.: *See*—
Rodewald, Dennis W., 4,273,325, Cl. 271-220.000.

Marsden, James G.: *See*—
Pepe, Enrico J.; and Marsden, James G., 4,273,694, Cl. 260-29.20E.

Marshall, Dennis; and Murfitt, Harry C., to Imperial Chemical Industries Limited. Polyvinylchloride compositions containing phenoxy alkanol dicarboxylic acid ester plasticisers. 4,273,696, Cl. 260-31.40E.

Marshall, Larry J., to Raychem Corporation. Taped products processor. 4,273,252, Cl. 221-13.000.

Martel, Jacques; Tessier, Jean; Teche, Andre; and Demoute, Jean-Pierre, to Roussel Uclaf. (S) α-Cyano-3-phenoxy-benzyl alcohol. 4,273,727, Cl. 260-465.00F.

Martin, Eugene R., to SWS Silicones Corporation. Silylated polymers and silylated organic-organopolysiloxane block copolymers. 4,273,896, Cl. 525-271.000.

Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, to Abbott Laboratories. 2-O-Hydrocarbonsulfonyl-4,5-oxazolidine fortimicin B derivatives. 4,273,924, Cl. 536-17.00R.

Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, to Abbott Laboratories. 1,2-Modified fortimicins A and B, intermediates therefor and method for their manufacture. 4,273,925, Cl. 536-17.00R.

Martin, John K., III: *See*—
Whitney, Douglass G.; and Martin, John K., III, 4,273,122, Cl. 128-218.00A.

Martin, Thomas F., to Rockwell International Corporation. Voltage measuring apparatus. 4,274,050, Cl. 324-99.00D.

Martinez, John; and Britt, Lilla V. Adjustable box. 4,273,395, Cl. 312-205.000.

Martino, Peter V. Label making apparatus. 4,273,043, Cl. 101-143.000.

Martushev, Daniel. Embroidery needle assembly. 4,273,058, Cl. 112-80.000.

Martz, William M.: *See*—
Manaheim, James W.; and Martz, William M., 4,273,458, Cl. 401-109.000.

Marubeni Kogyo K.K.: *See*—
Kajita, Tosifumi, 4,273,217, Cl. 187-9.00R.

Marui, Masatoshi: *See*—
Tuda, Koji; Nagashima, Hironobu; and Marui, Masatoshi, 4,273,959, Cl. 179-1.0SC.

Maruko, Morihisa: *See*—
Takahashi, Toshihiko; Maruko, Morihisa; and Kimura, Shoichi, 4,273,748, Cl. 423-230.000.

Maruyama, Eiichi: *See*—
Tsutsui, Ken; Sasano, Akira; Nakano, Toshio; Matsumaru, Haruo; and Maruyama, Eiichi, 4,273,812, Cl. 427-248.100.

Marvin, Richard H.: *See*—
Dickhart, William W., III; and Marvin, Richard H., 4,273,498, Cl. 414-556.000.

Marz, Paul: *See*—
Jaekea, Jan; Verheecken, Andre; Vetter, Hans; and Marz, Paul, 4,273,855, Cl. 430-242.000.

Marzocchi, Alfred; Roberts, Michael G.; and Boles, Charles E., to Owens-Corning Fiberglas Corporation. Asphalt compositions modified with organo silane compounds. 4,273,588, Cl. 106-273.00N.

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Maschinenfabrik Augsburg-Nuernberg Aktiengesellschaft: *See*—
Ambrosch, Friedrich; and Schwaebel, Rudolf, 4,273,510, Cl. 415-119.000.

Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See*—
Buddenhagen, Uwe, 4,273,079, Cl. 123-276.000.
Muller, Eckart, 4,273,291, Cl. 239-533.120.

Maschinenfabrik Hasenclever Gesellschaft mit beschrankter Haftung: *See*—
Endter, Horst, 4,272,981, Cl. 72-405.000.

Mastrangelo, Albert J., to SCM Corporation. Metal-joining paste and vehicle therefor. 4,273,593, Cl. 148-24.000.

Masucci, Pasquale; and Sommovigo, Paolo, to Centro Sperimentale Metallurgico S.p.A. Electrode height control in electro-slag remelting processes. 4,273,948, Cl. 13-9.0ES.

Masuko, Minoru; and Ichikawa, Chikamobu, to Fujikoshi Machinery Corporation. Method of ultrasonic control for lapping and an apparatus therefor. 4,272,924, Cl. 51-165.00R.

Matsubara, Akira; Sakai, Hideaki; Odate, Makoto; and Nakano, Takao, to Mitsui Toatsu Chemicals, Incorporated. 4-Hydroxy-5,6,7,8-tetrahydroquinoline-3-carboxylic acids and derivatives. 4,273,932, Cl. 546-156.000.

Matsuda, Akira; Yoshioka, Osamu; Takahashi, Katsunobi; Yoshida, Kocichi; and Ninomiya, Hiroshi, to Nippon Kayaku Kabushiki Kaisha. Method of enhancing absorption of antitumor agent into gastrointestinal tumor site and orally administrable antitumor compositions therefor. 4,273,761, Cl. 424-81.000.

Matsuda, Kenji: *See*—
Sato, Mitsuhiro; Itatani, Hiroshi; and Matsuda, Kenji, 4,273,007, Cl. 74-745.000.

Matsuda, Matsuhide; Tamamura, Hideo; Taguchi, Tetsuya; Okino, Tadashi; and Yazaki, Matsunobu, to Canon Kabushiki Kaisha. Motor driven camera. 4,273,432, Cl. 354-145.000.

Matsui, Takeki: *See*—
Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, 4,273,723, Cl. 260-414.000.

Matsumaru, Haruo: *See*—
Tsutsui, Ken; Sasano, Akira; Nakano, Toshio; Matsumaru, Haruo; and Maruyama, Eiichi, 4,273,812, Cl. 427-248.100.

Matsumoto, Kojiro: *See*—
Minematsu, Hiroyuki; Matsumoto, Kojiro; Saeki, Tadashi; and Kishi, Akira, 4,273,895, Cl. 525-264.000.

Matsumoto, Mutsumi; Sugi, Hideki; and Sudo, Atsushi, to Nippon Kayaku Kabushiki Kaisha. Process for producing methacrylic acid and a catalyst. 4,273,676, Cl. 252-435.000.

Matsuo, Mototsugu; and Otomine, Kazuo. Heat-transferrable applique. 4,273,817, Cl. 428-90.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Murata, Kosaku; Takayama, Satoshi; and Ieki, Mitsuru, 4,273,900, Cl. 525-444.000.
Noguchi, Satoshi, 4,274,094, Cl. 340-723.000.
Tomita, Masao, 4,274,117, Cl. 360-68.000.
Wada, Ryoichi; Senoo, Takanori; and Odagi, Kanji, 4,274,115, Cl. 360-62.000.

Matsuura, Hiroshi: *See*—
Yokoyama, Takeo; Fukumoto, Kiyoshi; and Matsuura, Hiroshi, 4,274,108, Cl. 358-31.000.

Matsuyama, Kiyoshi: *See*—
Asada, Mamoru; Shiga, Akinobu; Matsuyama, Kiyoshi; and Kakugo, Masahiro, 4,273,905, Cl. 526-142.000.

Matsuzaki, Mikio: *See*—
Isobe, Takayuki; and Matsuzaki, Mikio, 4,274,078, Cl. 340-98.000.

Mattel, Inc.: *See*—
Buck, Gordon H.; and Amamoto, Kenneth I., 4,273,332, Cl. 273-86.00R.

Matthews, David R. Lighted address sign. 4,272,901, Cl. 40-574.000.

Matuo, Hiroei: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhiro; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hiroei; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.

Maurer, Friedhelm: *See*—
Hayward, Curtis E.; and Maurer, Friedhelm, 4,274,119, Cl. 360-97.000.

Maurer, Herman J.; and Smith, Wayne G., to J. I. Case Company. Boom lock means. 4,273,502, Cl. 414-694.000.

Max Planck Gesellschaft zur Forderung der Wissenschaften e.V.: *See*—
Lubbers, Dietrich W., 4,273,442, Cl. 356-326.000.

Maxcy, Thomas A.; and Denny, John S., to General Mills, Inc. Preparation of dehydrated sugar treated beans. 4,273,796, Cl. 426-634.000.

Maxwell Laboratories, Inc.: *See*—
Harrison, John L., 4,274,046, Cl. 323-355.000.

Mazur, Robert H., to G. D. Searle & Co. N-Adamantane-substituted tetrapeptide amides. 4,273,704, Cl. 260-112.50R.

Mazziotti, Philip J.: *See*—
Morrison, William M.; and Mazziotti, Philip J., 4,273,004, Cl. 74-473.00R.

McAleer, William J.; and Markus, Henry Z., to Merck & Co., Inc. Lyophilization process for live viral compositions. 4,273,762, Cl. 424-89.000.

McCollister, Howard L.; and Boling, Norman L., to Owens-Illinois, Inc. Process of making glass articles having antireflective coatings and product. 4,273,826, Cl. 428-304.000.

McComas, Charles C.; and Sokol, Larry S., to United Technologies Corporation. Ceramic faced structures and methods for manufacture thereof. 4,273,824, Cl. 428-256.000.

McCormick, Mathew, to Bowthorpe-Hellermann Limited. Synthetic plastics tie member. 4,272,870, Cl. 24-16.0PB.

McCoy, Terence D.: *See*—
Farr, Garth M.; McCoy, Terence D.; and Dlask, Jiri, 4,273,010, Cl. 81-57.180.

McCray, William R.: *See*—
Bisczat, John J.; Lisk, Robert R.; McCray, William R.; and Sizemore, James L., 4,273,456, Cl. 400-550.000.

McCusker, James D., to Engine Technology, Inc. Emergency marine propulsion using existing propeller shaft. 4,273,543, Cl. 440-4.000.

McDonald, Ray S.: *See*—
Hartlaub, Jerome T.; Thompson, David L.; and McDonald, Ray S., 4,273,132, Cl. 128-419.0PT.
Hartlaub, Jerome T.; McDonald, Ray S.; and Rossing, Martin A., 4,273,133, Cl. 128-419.0PG.

McDonnell Douglas Corporation: *See*—
Corley, John E.; Mitchell, Joseph M.; and Andert, Charles M., 4,273,481, Cl. 408-14.000.
Woodbury, James R., 4,273,006, Cl. 74-710.500.

McDonough, Everett G.: *See*—
Klemm, Ernest J.; Edman, Walter W.; Erskine, Frances E.; and McDonough, Everett G., 4,273,143, Cl. 132-7.000.

McGann, Timothy W.: *See*—
Loyd, Morris S.; and McGann, Timothy W., 4,272,971, Cl. 64-1.00S.

McLaughlin, Donald W.: *See*—
Funderburk, Tim; and McLaughlin, Donald W., 4,274,155, Cl. 370-62.000.

McLaughlin, Hugh T., to Ameron, Inc. Insulated plastic pipe product and method. 4,273,161, Cl. 138-149.000.

McLennan, Richard E., to Satron, Inc. Cargo tie-down anchor. 4,273,487, Cl. 410-105.000.

McLoughlin, John; Rotblum, Yehuda; and Athanasiades, Neocles. Safety bar for fire trucks. 4,273,360, Cl. 280-751.000.

McMahon, John B., to Commonwealth Industrial Gases Limited, The. Safety device. 4,273,251, Cl. 220-361.000.

McNary, James F., to Global Marine, Inc. Connection of cold water riser pipes to supporting structures. 4,273,068, Cl. 114-264.000.

Mealing, Barrie E.; and Scott, Roderick A., to Hestair Eagle Limited. Refuse storage and discharge apparatus. 4,273,497, Cl. 414-517.000.

Meddaugh, Michael D., to Dow Corning Corporation. Method of providing waterproof coating for masonry walls. 4,273,813, Cl. 427-387.000.

Medtronic, Inc.: *See*—
Hartlaub, Jerome T.; Thompson, David L.; and McDonald, Ray S., 4,273,132, Cl. 128-419.0PT.
Hartlaub, Jerome T.; McDonald, Ray S.; and Rossing, Martin A., 4,273,133, Cl. 128-419.0PG.

Meenan, Cyril F. Multiple fuel burning system for furnaces or the like. 4,273,527, Cl. 431-177.000.

Megapulse Incorporated: *See*—
Johannessen, Paul R., 4,274,134, Cl. 363-59.000.

Mego Corp.: *See*—
Noble, Sidney, 4,272,915, Cl. 46-232.000.

Meinert, Leo L.: *See*—
Rymarchyk, Nicholas M.; and Meinert, Leo L., 4,272,989, Cl. 73-432.00R.

Meister, Michael L.: *See*—
Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., 4,273,173, Cl. 81-177.00M.

Mendicino, Lyle J. Deglazing tool. 4,273,483, Cl. 409-178.000.

Menke, Josef F., to Electro-Optik GmbH & Co. K.G. Polygonal cylinder for use in optical picture scanning systems. 4,273,410, Cl. 350-6.200.

Menzel, Stanley W. O., to RIS Irrigation Systems. Conduit for drip irrigation systems. 4,273,286, Cl. 239-272.000.

Mercer, Stanley L. Aural pitch recognition teaching device. 4,273,023, Cl. 84-454.000.

Merck & Co., Inc.: *See*—
Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., 4,273,709, Cl. 260-239.00A.
Gal, George; and Pines, Seemon H., 4,273,943, Cl. 568-319.000.
Grier, Nathaniel; Dybas, Richard A.; and Witzel, Bruce E., 4,273,781, Cl. 424-267.000.
McAleer, William J.; and Markus, Henry Z., 4,273,762, Cl. 424-89.000.

Merger, Franz; and Foerster, Hans-Juergen, to BASF Aktiengesellschaft. Preparation of 3-hydroxy-2,2,4-trimethylpentyl isobutyrate. 4,273,934, Cl. 560-238.000.

Merger, Franz; Nestler, Gerhard; and Kempe, Uwe, to BASF Aktiengesellschaft. Preparation of N-substituted carboxylic acid amides. 4,273,938, Cl. 564-124.000.

Merges, Veit, to Messerschmitt-Bolkow-Blohm GmbH. Solar energy system. 4,273,101, Cl. 126-435.000.

Merrill, Stewart H.; Mutz, Alec N.; and Stahly, Frederick A., to Eastman Kodak Company. Method of using liquid electrographic developers containing polymeric quaternary salts. 4,273,849, Cl. 430-119.000.

Merz & Co.: *See*—
Scherm, Arthur, 4,273,774, Cl. 424-253.000.

Messerschmitt-Bolkow-Blohm GmbH: *See*—
Buchs, Wolfgang, 4,273,818, Cl. 428-116.000.
Merges, Veit, 4,273,101, Cl. 126-435.000.
Sepp, Gunther; Born, Gunthard; and Malburg, Werner, 4,274,064, Cl. 331-94.50G.

Messirejean, Pierre: *See*—
Lucas, Jean-Claude; and Messirejean, Pierre, 4,273,652, Cl. 210-189.000.

Mesta Machine Company: *See*—
Pizzedaz, Ronald D., 4,272,976, Cl. 72-45.000.

Metacon AG: *See*—
Tinnes, Bernhard, 4,273,315, Cl. 266-236.000.

Metako Kigyo Co., Ltd.: *See*—
Fukuchi, Shigeki, 4,273,462, Cl. 403-171.000.

Metallgesellschaft Aktiengesellschaft: *See*—
Scheiber, Werner, 4,273,798, Cl. 427-27.000.

Methvin, James, to Enertek Energy Engineering Inc. Tracking solar energy collector. 4,273,107, Cl. 126-445.000.

Metzler, Richard B.: *See*—
D'Angelo, Paul F.; and Metzler, Richard B., 4,273,584, Cl. 106-3.000.

Meyer, Gunter: *See*—
Voegele, Gunther; and Meyer, Gunter, 4,273,263, Cl. 222-148.000.

Meyer, Paul M.; Beckwith, Robert H.; Allman, Richard D.; and Jefferis, Mark, to ACF Industries, Incorporated. Fuel control system development apparatus. 4,274,144, Cl. 364-551.000.

Micchelli, Albert L.: *See*—
Koehler, F. Theodore; Micchelli, Albert L.; and Nowak, Frank A., Jr., 4,273,760, Cl. 424-70.000.

Michigan Instruments, Inc.: *See*—
Barkalow, Clare E.; and Elam, James O., 4,273,114, Cl. 128-53.000.

MicroComm Corporation: *See*—
Hendricks, Donald B.; and Knight, Robert M., 4,274,145, Cl. 364-557.000.

Middeldorf, Martin, to DeMag Aktiengesellschaft. Roll stabilizing apparatus for vehicles. 4,273,348, Cl. 280-112.00A.

Middlebrook, Robert D.: *See*—
Cuk, Slobodan M.; and Middlebrook, Robert D., 4,274,133, Cl. 363-39.000.

Mighty-Mac, Inc.: *See*—
Bell, Richard S., 4,272,852, Cl. 2-94.000.

Miles Laboratories, Inc.: *See*—
Buckler, Robert T.; and Burd, John F., 4,273,715, Cl. 260-343.450.
Walter, Bert, 4,273,868, Cl. 435-14.000.

Miller, Barry: *See*—
Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., 4,273,594, Cl. 148-33.300.

Miller, Larry A.: *See*—
Lowry, Robert K.; and Miller, Larry A., 4,272,986, Cl. 73-73.000.

Miller, Norman K. Elongate switch construction. 4,273,974, Cl. 200-61.430.

Minamino, Keiichi: *See*—
Tanaka, Shuaroku; Inoue, Jun; Yukimachi, Katsurou; and Minamino, Keiichi, 4,273,184, Cl. 165-59.000.

Minematsu, Hiroyuki; Matsumoto, Kojiro; Saeki, Tadashi; and Kishi, Akira, to Sumitomo Naagatuck Co., Ltd. Process for preparing thermoplastic resin. 4,273,895, Cl. 525-264.000.

Mineracoes Brasileiras Reunidas S.A.: *See*—
Litzinger, Bernardo C.; and Schmeling, Udo F. M., 4,273,575, Cl. 75-3.000.

Minnesota Mining and Manufacturing Company: *See*—
Anthone, Leo E.; and Berglund, Sidney J., 4,272,883, Cl. 39-751.000.
Arco, Manuel J., 4,273,909, Cl. 528-45.000.
Harmer, Walter L., 4,273,912, Cl. 528-67.000.
Langer, Roger L.; Licht, Richard R.; and Marlor, Alan J., 4,273,879, Cl. 521-91.000.
Larimore, Franklin C.; and Heilmann, Steven M., 4,273,135, Cl. 128-640.000.

Minolta Camera Kabushiki Kaisha: *See*—
Inagaki, Sanji; Nagai, Koji; and Kameda, Hiroeni, 4,273,848, Cl. 430-107.000.
Uesugi, Kyozo, 4,273,423, Cl. 350-429.000.

Mishima Kosan Co., Ltd.: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.

Mitchell, Joseph M.: *See*—
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Mitchell, Ronald B.: *See*—
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Mitchell, Tyrone D.: *See*—
Smith, Alfred H., Jr.; De Zuba, George P.; and Mitchell, Tyrone D., 4,273,698, Cl. 260-37.0SB.

Mitel Corporation: *See*—
Cowpland, Michael C. J.; and Beirne, Patrick R., 4,273,965, Cl. 179-84.0VF.

Mitsubiahi Denki Kabushiki Kaisha: *See*—
Hara, Katsunori; Baba, Toshihiko; and Okuda, Takio, 4,273,984, Cl. 219-97.000.
Kii, Masami, 4,273,977, Cl. 200-147.00R.
Ohdate, Mitsuo, 4,274,106, Cl. 357-79.000.
Ozawa, Masayuki, 4,273,093, Cl. 123-653.000.

Mitsubishi Paper Mills, Ltd.: *See*—
Kosaka, Takao; and Tahara, Yukio, 4,273,602, Cl. 156-234.000.
Nishiyama, Ryota; Koike, Takashi; and Seino, Shunji, 4,273,825, Cl. 428-223.000.
Yoshida, Akio; and Ebato, Seigo, 4,273,862, Cl. 430-412.000.

Mitsubishi Rayon Co., Ltd.: *See*—
Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, 4,273,799, Cl. 427-44.000.
Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, 4,273,802, Cl. 427-54.100.

Mitsui Petrochemical Industries, Ltd.: *See*—
Hashimoto, Isao; Taguchi, Toru; and Nambu, Hirohiko, 4,273,623, Cl. 203-92.000.

Mitsui, Tetsuro: *See*—
Sakata, Mamoru; Kami, Yozo; and Mitsui, Tetsuro, 4,273,356, Cl. 280-675.000.

Mitsui Toatsu Chemicals, Incorporated: *See*—
Matsubara, Akira; Sakai, Hideaki; Odate, Makoto; and Nakano, Takuo, 4,273,932, Cl. 546-156.000.
Yamazaki, Noboru; and Morimoto, Yoshio, 4,273,889, Cl. 525-109.000.

Mitsumoto, Norio: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.

Mitsuoka Electric Mfg. Co., Ltd.: *See*—
Okagami, Kusi, 4,273,406, Cl. 339-147.00P.

Mittelhauser, Bernhard. Rear view mirror for automotive vehicles. 4,273,417, Cl. 350-289.000.

Miura, Heihachi: *See*—
Yamamura, Toshio; Muraki, Takeshi; and Miura, Heihachi, 4,274,005, Cl. 250-445.00T.

Miura, Tatsuo: *See*—
Takeuchi, Keizo; Iwai, Yoshio; Yamanaka, Tadashi; and Miura, Tatsuo, 4,272,677, Cl. 29-403.200.

Miyahara, Masayoshi; Katayama, Morimitsu; and Kisaka, Hiroyuki, to Kubota, Ltd. Gear transmission. 4,273,001, Cl. 74-359.000.

Miyamae, Ryuichi: *See*—
Kubo, Kimio; and Miyamae, Ryuichi, 4,273,136, Cl. 128-680.000.

Miyazaki, Joichi: *See*—
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.

Mizobe, Tugio: *See*—
Ogawa, Masahiro; and Mizobe, Tugio, 4,273,983, Cl. 219-93.000.

Mizokami, Hiroshi: *See*—
Kawamura, Masao; Nishi, Tadaaki; Kato, Kunieki; Mizokami, Hiroshi; and Kanazawa, Tadashi, 4,273,941, Cl. 564-416.000.

Mizuma, Kenich: *See*—
Kaneko, Tamaki; Mizuma, Kenich; and Okuzawa, Tugio, 4,273,323, Cl. 271-157.000.

Mizzi, Joseph M. Topping cutter for a cane harvester. 4,272,947, Cl. 56-63.000.

Mo och Domsjo Aktiebolag: *See*—
Hillstrom, Per A. R.; and Norehall, Lars G., 4,273,612, Cl. 162-49.000.
Lofgren, Stig-Gunnar; and Ekeborg, Bo G., 4,273,056, Cl. 111-2.000.

Mobil Oil Corporation: *See*—
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yen, Tsoung Y., 4,273,645, Cl. 208-323.000.
Braid, Milton; Horodysky, Andrew G.; and Kaminski, Joan M., 4,273,665, Cl. 252-49.600.
Chang, Clarence D., 4,273,753, Cl. 423-328.000.
Florian, John, 4,273,249, Cl. 220-4.00E.
Zarnegar, Bizhan M., 4,273,632, Cl. 204-159.150.

Moiroux, Auguste. Distribution system for the intake and exhaust of a super charged internal combustion engine. 4,273,083, Cl. 123-79.00R.

Moldenhauer, Hermann; and Muller, Kurt, to A. und K. Muller GmbH & Co. KG. Device for regulating the vacuum in a vacuum line system, especially for milking installations. 4,273,154, Cl. 137-490.000.

Molins, Limited: *See*—
Hinchcliffe, Dennis; Bennett, George R.; and Heybourn, Frank, 4,273,233, Cl. 198-347.000.

Molitorisz, Joseph. Bale forming apparatus. 4,273,034, Cl. 100-8.000.

Mollering, Hans; and Looser, Siegfried, to Boehringer Mannheim GmbH. Method and composition for the determination of glycerol. 4,273,870, Cl. 435-26.000.

Molnlycke AB: *See*—
Edling, Ernst G. S., 4,273,014, Cl. 83-333.000.

Molyneux-Berry, Robert B., to Marconi Company Limited, The. Power supply arrangements. 4,274,132, Cl. 363-21.000.

Moses, Arther H.; Sartell, Jack A.; and Kardashian, Vahram S., to Honeywell Information Systems Inc. Method of forming solder bump terminals on semiconductor elements. 4,273,859, Cl. 430-315.000.

Monsanto Company: *See*—
Hirzy, John W., 4,273,890, Cl. 525-129.000.
Tolbert, William R.; Hitt, Mary M.; and Feder, Joseph, 4,273,871, Cl. 435-41.000.

Monsheimer, Rolf; and Pfleiderer, Ernst, to Rohm GmbH. Enzymatic bating method. 4,273,876, Cl. 435-265.000.

Moore, Glenn T. Shoe-tying training toy. 4,273,539, Cl. 434-260.000.

Morgan, Burton D., to Concept Development Institute, Inc. Solar heated building. 4,273,099, Cl. 126-426.000.

Morgan, David W.: *See*—
Flannery, James E.; Morgan, David W.; Rospiock, Sara E.; and Szczerbaniewicz, Stella A., 4,273,986, Cl. 106-52.000.

Morganroth, Shila. Hair parting and liquid spreading device. 4,273,144, Cl. 132-88.700.

Morigaki, Masakazu: *See*—
Hamaoka, Tsutomu; Morigaki, Masakazu; Sawada, Satoru; Kamio, Takayoshi; and Nakamura, Kotaro, 4,273,864, Cl. 430-551.000.

Morimoto, Yoshio: *See*—
Yamazaki, Noboru; and Morimoto, Yoshio, 4,273,889, Cl. 525-109.000.

Morishita, Hajime: *See*—
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Manabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.

Morris, Robert B.; and Kyllonen, Allen W., to American Standard Inc. Flexible mounting hub for disc member. 4,273,218, Cl. 188-18.00A.

Morrison, Bertram L., to ACF Industries, Incorporated. Valve mechanism incorporating universal seat spring. 4,273,309, Cl. 251-174.000.

Morrison, William M.; and Mazziotti, Philip J. Gear selector mechanism. 4,273,004, Cl. 74-473.00R.

Morton-Norwich Products, Inc.: *See*—
White, Ralph L., Jr.; and Portlock, David E., 4,273,927, Cl. 544-32.000.

Mosel, Edward F., to Superior Electric Company, The. Voltage commanded stepping motor control circuit. 4,274,041, Cl. 318-696.000.

Moshofsky, Jerome F.: *See*—
Smith, Lawrence M.; and Acker, G. Marts, 4,273,281, Cl. 227-152.000.

Moster, Larry D.: *See*—
Lin, Wayne H. T.; Grib, James J.; and Moster, Larry D., 4,273,867, Cl. 435-7.000.

Motorola, Inc.: *See*—
Cave, David L.; and Davies, Robert B., 4,274,018, Cl. 307-300.000.
Gurtler, Richard W., 4,273,421, Cl. 350-353.000.
Marino, Joseph T., Jr., 4,274,085, Cl. 340-347.0DD.

Mouille, Rene L.; and Lafergne, Marcel A. S., to Societe Nationale Industrielle Aerospatiale. Main rotor for a helicopter. 4,273,511, Cl. 416-134.00A.

MPD Technology Corporation: *See*—
Rhoda, Richard N.; and Crosby, Jeffrey N., 4,273,755, Cl. 423-463.000.
MTU Motoren-und Turbinen-Union Munchen GmbH: *See*—
Weiler, Wolfgang, 4,273,512, Cl. 416-188.000.
Mucke, Rainer; Schiller, Johann; and Sackl, Herbert, to Hoechst Aktiengesellschaft. Thermoplastic composition comprising clorinated polyolefin and acrylate polymer. 4,273,894, Cl. 525-228.000.
Mueller, Ernest: *See*—
Layton, Vincent W.; and Mueller, Ernest, 4,273,631, Cl. 204-109.000.
Muenger, James R.: *See*—
Barber, Everett M.; Muenger, James R.; and Alexander, David L., 4,273,743, Cl. 422-148.000.
Muhlfeld, Horst: *See*—
Freudenberg, Bertram; Schuhmacher, Gunter; and Muhlfeld, Horst, 4,273,911, Cl. 528-49.000.
Mukai, Kunio: *See*—
Koyanagi, Rokuo; Fujita, Yoshio; and Mukai, Kunio, 4,273,769, Cl. 424-224.000.
Muller, Eckart, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Fuel injector for internal combustion engines. 4,273,291, Cl. 239-533.120.
Muller, Karl-Adolf: *See*—
Feldmann, Rainer; Muller, Karl-Adolf; and Hornung, Karl-Heinz, 4,273,919, Cl. 528-313.000.
Muller, Kurt: *See*—
Moldenhauer, Hermann; and Muller, Kurt, 4,273,154, Cl. 137-490.000.
Muller, Zdenek. Air brake safety mechanism. 4,273,388, Cl. 303-89.000.
Munz, Erich. Element for sonic and vibratory absorption. 4,273,213, Cl. 181-207.000.
Muraki, Takeshi: *See*—
Yamamura, Toshio; Muraki, Takeshi; and Miura, Heihachi, 4,274,005, Cl. 250-445.00T.
Murase, Katsuo, to Ricoh Co., Ltd. Color facsimile signal transmission system. 4,274,111, Cl. 358-75.000.
Murata, Kazuo: *See*—
Machi, Sueo; Ishigaki, Isao; Sugo, Takanobu; Murata, Kazuo; Tanso, Shiro; and Senoo, Keizi, 4,273,840, Cl. 429-144.000.
Murata, Kosaku; Takayama, Satoshi; and Ieki, Mitsuru, to Matsushita Electric Industrial Co., Ltd. Diaphragm for acoustic equipment. 4,273,900, Cl. 525-444.000.
Murata, Morihiro: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.
Murdock, Mark W. Door cutting template. 4,273,016, Cl. 83-743.000.
Murfitt, Harry C.: *See*—
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Murphy, John T., to R & M Associates, Inc. Method and apparatus for installing a dry bulk off-loading system. 4,273,477, Cl. 406-39.000.
Mursau, Gust: *See*—
Wojtowicz, Walter; and Mursau, Gust, 4,273,300, Cl. 242-56.00R.
Mutexil: *See*—
Vanhove, Jacques, 4,272,859, Cl. 12-142.00K.
Mutz, Alec N.: *See*—
Merrill, Stewart H.; Mutz, Alec N.; and Stahly, Frederick A., 4,273,849, Cl. 430-119.000.
Muzyczko, Thaddeus M.; and Thomas, Daniel C., to Richardson Graphics Company. Method of coating using photopolymerizable latex systems. 4,273,851, Cl. 430-175.000.
Myers, Julius D.; and Russell, John X., to Babcock & Wilcox Company, The. Method of manufacturing a broaching tool. 4,272,927, Cl. 51-322.000.
Myers, Ronald W.; and Nardone, Daniel V., to AMP Incorporated. Transducer supporting and contacting means. 4,273,399, Cl. 339-17.00C.
Nacton Works: *See*—
Hawes, Richard J., 4,273,197, Cl. 172-225.000.
Nagai, Koji: *See*—
Inagaki, Sanji; Nagai, Koji; and Kameda, Hiromi, 4,273,848, Cl. 430-107.000.
Nagasawa, Kohtaro; Ochi, Hideo; Tanaka, Fujio; and Shibata, Yumi, to Somar Manufacturing Co., Ltd. Resist material for micro-fabrication with unsaturated dicarboxylic moiety. 4,273,858, Cl. 430-296.000.
Nagasawa, Yasuo, to Hitachi Medical Corporation. Scanning type scintillation camera. 4,274,001, Cl. 250-363.00S.
Nagashima, Hironobu: *See*—
Tuda, Koji; Nagashima, Hironobu; and Marui, Masatoshi, 4,273,959, Cl. 179-1.0SC.
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, to Ajinomoto Co., Inc.; and Kawaken Fine Chemicals Co., Ltd. Transparent detergent bar. 4,273,684, Cl. 252-544.000.
Nagati, Rashed N., to Pennsylvania Engineering Corporation. Metallurgical vessel suspension system. 4,273,316, Cl. 266-246.000.
Nagoshi, Mitsuru, to Konishiroku Photo Industry Co. Ltd. Electrophotographic copying apparatus. 4,273,441, Cl. 355-67.000.
Naito, Takemi: *See*—
Okamoto, Joji; Azuma, Hitoshi; Arai, Katsushi; Naito, Takemi; Kawai, Seiji; and Goto, Minoru, 4,273,811, Cl. 427-232.000.
Nakai, Masaaki: *See*—
Obba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Yataro; Hasamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.
Nakai, Osamu, to Kubota, Ltd. Rotary valve. 4,273,308, Cl. 251-88.000.
Nakajima, Kazuhira: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.
Nakamoto, Hideo: *See*—
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Kamada, Kazumasa; Kushi, Kenji; Yoshihara, Keisuke; and Nakamoto, Hideo, 4,273,802, Cl. 427-54.100.
Nakamura, Kotara: *See*—
Hara, Hiroshi; Nakamura, Kotara; and Suzuki, Yoshiaki, 4,273,854, Cl. 430-216.000.
Nakamura, Kotaro: *See*—
Hamaoka, Tsutomu; Morigaki, Masakazu; Sawada, Satoru; Kamio, Takayoshi; and Nakamura, Kotaro, 4,273,864, Cl. 430-551.000.
Nakamura, Takashi: *See*—
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Nakanishi, Hiromasa: *See*—
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.
Nakanishi, Toru; and Shigemasa, Yoshimi, to Kyowa Hakko Kogyo Co., Ltd. Acidic uricase and process for production thereof. 4,273,874, Cl. 435-191.000.
Nakano, Takuo: *See*—
Matsubara, Akira; Sakai, Hideaki; Odate, Makoto; and Nakano, Takuo, 4,273,932, Cl. 546-156.000.
Nakano, Toshio: *See*—
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Nakazima, Tetuyosi: *See*—
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.
Nall, Clive; Long, Leo E.; Rigby, Sterling C.; and Baugh, K. Boyd, to Major Sports Sales, Inc. Ski exercising apparatus. 4,273,327, Cl. 272-97.000.
Nambu, Hirohiko: *See*—
Hashimoto, Isao; Taguchi, Toru; and Nambu, Hirohiko, 4,273,623, Cl. 203-92.000.
Namioka, Kenta: *See*—
Arisaka, Kunio; and Namioka, Kenta, 4,273,429, Cl. 354-30.000.
Nanjoh, Yuhsuke, to Mamiya Koki Kabushiki Kaisha (Mamiya Camera Co., Ltd.). Variable aberration lens system. 4,273,424, Cl. 350-431.000.
Nara, Ryuichi: *See*—
Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Nardone, Daniel V.: *See*—
Myers, Ronald W.; and Nardone, Daniel V., 4,273,399, Cl. 339-17.00C.
National Research Development Corporation: *See*—
Anagnostopoulos, Gerasimos D., 4,273,877, Cl. 435-293.000.
Perry, Forbes G. D., 4,272,999, Cl. 74-200.000.
National Starch and Chemical Corporation: *See*—
Koehler, F. Theodore; Micchelli, Albert L.; and Nowak, Frank A., Jr., 4,273,760, Cl. 424-70.000.
Natsume, Kenzo: *See*—
Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Nauroth, Peter; Esch, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Precipitated silicic acid, method and compositions containing same. 4,273,589, Cl. 106-308.00Q.
Nawrot, Wolfgang: *See*—
Berndt, Klaus-Gunther; Kruger, Manfred; and Nawrot, Wolfgang, 4,273,979, Cl. 200-286.000.
Nazyrov, Ravil N.: *See*—
Pravoverov, Nikolai L.; Nazyrov, Ravil N.; Grigorov, Sergei S.; and Turova, Lidia S., 4,273,137, Cl. 128-784.000.
Neirynck, Albert; and Duflos, Roger, to Societe Francaise Duco. Process for the insulation of original paint layers. 4,273,808, Cl. 427-142.000.
Nelle, Gunther, to Dr. Johannes Heidenhain GmbH. Pivotable mount for scanning unit. 4,273,447, Cl. 356-373.000.
Nelson, Gary L.; and Harvey, William A., to Sperry Corporation. Rinse melt for LPE crystals. 4,273,609, Cl. 156-624.000.
Nelson, Norvell J., to Varian Associates, Inc. Elemental superselective gas chromatographic detection apparatus and method. 4,273,559, Cl. 23-232.00E.
Nelson, Ronald J.: *See*—
Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., 4,273,594, Cl. 148-33.300.
Nersesian, Ara, to Bristol-Myers Company. Tertiary amine polyalkylene glycol esters, their addition salts and their quaternary ammonium compounds. 4,273,721, Cl. 260-404.000.
Nererkar, Mohanlal S.; and Knowles, Peter G., to Imperial Chemical Industries Limited. Polyester films containing substantially spherical particles useful as slot liners. 4,274,025, Cl. 310-215.000.
Ness, Virginia V. Holder for rolls of paper. 4,273,299, Cl. 242-55.540.

Nestler, Gerhard: *See*—
Merger, Franz; Nestler, Gerhard; and Kempe, Uwe, 4,273,938, Cl. 564-124.000.
Nesvadba, Paul; and Weigl, Gisela, to W. C. Heraeus GmbH. Method for recovering rhodium. 4,273,578, Cl. 75-83.000.
Neuhaus, Gunter: *See*—
Blattermann, Karl-Gunther; Neuhaus, Gunter; and Nolte, Gunther, 4,273,238, Cl. 198-605.000.
Neuhauser, Hans G. Apparatus for drilling bone. 4,273,117, Cl. 128-92.00E.
Neula, Allen. Self-closing shower head. 4,273,292, Cl. 239-562.000.
Neumann, Jurgen, to Hoechst Aktiengesellschaft. Bearing plate for a band of photoconductive recording medium. 4,273,437, Cl. 355-3.0BE.
Nevin, Robert S., to Eli Lilly and Company. Polymerization process and product. 4,273,920, Cl. 528-361.000.
New Japan Chemical Company, Ltd.: *See*—
Tani, Shoji; and Nishio, Kenji, 4,273,719, Cl. 260-346.300.
Newkirk, David D.; and Login, Robert B., to BASF Wyandotte Corporation. Fiber lubricants derived from the oxyalkylation of a glycerol-1,3-dialkylether. 4,273,946, Cl. 568-625.000.
Newkirk, Franklin D.: *See*—
Koeneker, William V.; and Newkirk, Franklin D., 4,273,259, Cl. 222-108.000.
Nezworski, James E., to Perlick Company, Inc., The. In-line relief valve. 4,273,151, Cl. 137-115.000.
NGK Insulators, Ltd.: *See*—
Oda, Isao; Kaneno, Masayuki; and Hayakawa, Issei, 4,273,587, Cl. 106-73.400.
NGK Spark Plug Co., Ltd.: *See*—
Kazumi, Nakahara, 4,273,529, Cl. 431-255.000.
Shirai, Makoto; Ito, Michinobu; and Kato, Osamu, 4,273,480, Cl. 407-114.000.
Niagara Blower Company: *See*—
Kals, Walter, 4,273,733, Cl. 261-151.000.
Nicholson, Donald S.: *See*—
Renau, Jacques; Curtis, James W.; Nicholson, Donald S.; and Hennessey, Frank L., 4,274,098, Cl. 343-781.0CA.
Nickol, Stephen L.: *See*—
Kohn, Edward M.; Nickol, Stephen L.; and Thompson, Robert M., 4,273,898, Cl. 525-432.000.
Nicolaus, Frank G., to Bally Manufacturing Corporation. Gear train governors in spinning reel games. 4,273,333, Cl. 273-143.00R.
Nicolls, Ted. Interlocking building block. 4,272,940, Cl. 52-592.000.
Niemann, Eugene E.; and Niemann, Kelly E. Cooling system utilizing outside air. 4,272,966, Cl. 62-180.000.
Niemann, Kelly E.: *See*—
Niemann, Eugene E.; and Niemann, Kelly E., 4,272,966, Cl. 62-180.000.
Nilsson, Kenth: *See*—
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Ninomiya, Hiroshi: *See*—
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Nipak, Inc.: *See*—
Levens, Joseph A., 4,273,523, Cl. 425-326.100.
Nippon Electric Co., Ltd.: *See*—
Ito, Susumu; and Toki, Kaoru, 4,274,053, Cl. 324-174.000.
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Nippon Kayaku Kabushiki Kaisha: *See*—
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Matsumoto, Mutsumi; Sugi, Hideki; and Sudo, Atsushi, 4,273,676, Cl. 252-435.000.
Yamada, Yasushi; Ozawa, Hiroshi; Gomi, Masae; and Nomura, Hideshiro, 4,273,555, Cl. 8-673.000.
Nippon Kokan Kabushiki Kaisha: *See*—
Nomura, Hirokazu; Sato, Yukihiko; and Sato, Yoshikazu, 4,273,987, Cl. 219-124.340.
Nippon Oil Company Ltd.: *See*—
Kimura, Shoji; and Ishida, Noboru, 4,273,673, Cl. 252-396.000.
Nippon Soken, Inc.: *See*—
Takei, Toshihiro; Kuwakado, Satoei; Takakuwa, Eiji; and Shimogawa, Toshiaki, 4,273,361, Cl. 280-805.000.
Nippon Thompson, Co., Ltd.: *See*—
Takai, Takamoto, 4,273,389, Cl. 308-6.00C.
Nippondenso Co., Ltd.: *See*—
Sagie, Hiromichi; Akado, Hajime; and Yamashita, Akira, 4,273,564, Cl. 55-267.000.
Takeuchi, Keizo; Iwai, Yoshio; Yamanaka, Tadashi; and Miura, Tatsuo, 4,272,877, Cl. 29-403.200.
Nischwitz, Ehrenfried, to Hoechst Aktiengesellschaft. Process for the pretreatment of cellulose fibers to be printed according to the thermotransfer printing method. 4,273,552, Cl. 8-471.000.
Nishi, Tadaaki: *See*—
Kawamura, Masao; Nishi, Tadaaki; Kato, Kunioki; Minokami, Hiroshi; and Kanazawa, Tadashi, 4,273,941, Cl. 564-416.000.
Nishikawa, Masaji, to Olympus Optical Co., Ltd. Electrostatographic printing method and apparatus. 4,273,438, Cl. 355-14.0CU.
Nishio, Kenji: *See*—
Tani, Shoji; and Nishio, Kenji, 4,273,719, Cl. 260-346.300.
Nishiyama, Ryota; Koike, Takashi; and Seino, Shunji, to Mitsubishi Paper Mills, Ltd. Electric insulating sheet. 4,273,825, Cl. 428-223.000.
Nishizawa, Masahiro: *See*—
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Masabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.
Niskanen, Toivo, to A. Ahlstrom Osakeyhtio. Method and apparatus for pumping gaseous liquids and separating the gaseous components therefrom. 4,273,562, Cl. 55-52.000.
Nissan Chemical Industries Ltd.: *See*—
Endo, Makoto; and Kusahara, Kohji, 4,273,754, Cl. 423-385.000.
Nissan Motor Company, Limited: *See*—
Isobe, Takayuki; and Matsuzaki, Mikio, 4,274,078, Cl. 340-98.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhito; and Ohtsuka, Kunio, 4,273,009, Cl. 74-869.000.
Shimotake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Ueno, Mitsuo, 4,273,460, Cl. 403-1.000.
Yamane, Ken, 4,272,959, Cl. 60-602.000.
Nissen, Axel: *See*—
Heilen, Gerd; Nissen, Axel; Koernig, Wolfgang; Horner, Michael; Fliege, Werner; and Boettger, Guenter, 4,273,945, Cl. 568-420.000.
Nitzboa, Karl-Heinz, to Autoflug GmbH. Roller unit for winding-up safety belts for motor vehicles. 4,273,210, Cl. 180-268.000.
Nixdorf Computer AG: *See*—
Haftmann, Johannes, 4,273,453, Cl. 400-196.100.
NL Industries, Inc.: *See*—
Kolakowski, Michael A., 4,273,746, Cl. 423-92.000.
Noble, Sidney, to Mego Corp. Audio-visual amusement device. 4,272,915, Cl. 46-232.000.
Noda, Atsushi, to Canon Kabushiki Kaisha. Recording device for use with recording media of various widths. 4,273,457, Cl. 400-705.100.
Noguchi, Kenzo: *See*—
Shima, Ichiji; Yamamoto, Tetsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.
Noguchi, Satoshi, to Matsushita Electric Industrial Co., Ltd. Cathode-ray tube display apparatus. 4,274,094, Cl. 340-723.000.
Nolas, Lily P. Filing case having removable, expanding file. 4,273,397, Cl. 312-237.000.
Noland, James S.; and Hajek, Miroslav, to American Cyanamid Company. Epoxy based synthetic solder. 4,273,686, Cl. 260-9.000.
Nolte, Gunther: *See*—
Blattermann, Karl-Gunther; Neuhaus, Gunter; and Nolte, Gunther, 4,273,238, Cl. 198-605.000.
Noma Lites Canada Limited: *See*—
Koehler, Rudolph A., 4,273,814, Cl. 428-8.000.
Nomm, Matt: *See*—
Dorr, John A.; and Nomm, Matt, 4,273,212, Cl. 181-102.000.
Nomura, Hideshiro: *See*—
Yamada, Yasushi; Ozawa, Hiroshi; Gomi, Masae; and Nomura, Hideshiro, 4,273,555, Cl. 8-673.000.
Nomura, Hirokazu; Sato, Yukihiko; and Sato, Yoshikazu, to Nippon Kokan Kabushiki Kaisha. Method of controlling synchronized movement of backing shoe in automatic one-side welding. 4,273,987, Cl. 219-124.340.
Nomura, Nobutaka; Kido, Hiroshi; and Yamada, Kazunari, to Hitachi, Ltd. Data input apparatus. 4,274,081, Cl. 340-153.000.
Nonnenmann, Manfred, to Suddeutsche Kuhlerfabrik Julius Fr. Behr GmbH & Co. KG. Support matrix for a catalytic reactor for scrubbing exhaust gases in an internal combustion engine. 4,273,681, Cl. 252-472.000.
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Masabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, to Hitachi, Ltd. Process for forming patternwise coated powder layer. 4,273,842, Cl. 430-25.000.
Nopper, Herbert, to Casimir Kast GmbH & Co. K.G. Apparatus for heating a fleece. 4,273,981, Cl. 219-10.49R.
Nordic Finance and Trade (Panama) Ltd. Inc.: *See*—
Vandame, Philippe L., 4,273,975, Cl. 200-67.00C.
Nordson Corporation: *See*—
Hastings, Donald R., 4,273,293, Cl. 239-705.000.
Norehall, Lars G.: *See*—
Hillstrom, Per A. R.; and Norehall, Lars G., 4,273,612, Cl. 162-49.000.
Norfin, Inc.: *See*—
Snellman, Donald L.; and Gerbracht, Osceola J., 4,273,326, Cl. 271-288.000.
Norris, Philip R., to Polaroid Corporation. Two-bladed shutter mechanism for microfiche camera. 4,273,433, Cl. 354-246.000.
Northern Telecom Limited: *See*—
Garner, John N.; and Hayes, Arthur S., 4,273,597, Cl. 156-48.000.
Northrop Corporation: *See*—
Spiegel, Leo, 4,274,040, Cl. 318-689.000.
Norvell, Gordon S.; and King, Donald W., to Litton Systems, Inc. Glass-or ceramic-to-metal seals. 4,273,282, Cl. 228-116.000.
Nosowicz, Eugene J.: *See*—
Carter, Eric L.; and Nosowicz, Eugene J., 4,274,017, Cl. 307-289.000.
Noto, Kunihiro: *See*—
Fukuoka, Yoshinori; and Noto, Kunihiro, 4,274,036, Cl. 318-331.000.

Notta, Adolf; and Scovell, Ian A., to Wetrok, Inc. Carpet cleaning device. 4,272,861, Cl. 15-320.000.

Novikov, Alexei V.: *See—*
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebashev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P., 4,273,180, Cl. 164-49.000.

Novotny, Miroslav, to Allied Chemical Corporation. Hydrogenation of fluorine-containing carboxylic acids. 4,273,947, Cl. 568-842.000.

Nowak, Frank A., Jr.: *See—*
Koehler, F. Theodore; Micchelli, Albert L.; and Nowak, Frank A., Jr., 4,273,760, Cl. 424-70.000.

Nuckolls, Joe A., to General Electric Company. High-frequency lamp operating circuit. 4,274,033, Cl. 315-209.00R.

Numata, Tatsuo: *See—*
Ishida, Kohji; and Numata, Tatsuo, 4,274,057, Cl. 329-167.000.

Nybakken, George H., to Uniroyal, Inc. Pneumatic radial tire with folded ply breaker having soft cushion surrounding breaker edge. 4,273,177, Cl. 152-360.000.

Obidina, Valentina F.: *See—*
Dodonov, Jury I.; and Obidina, Valentina F., 4,274,032, Cl. 315-39.510.

Obrist, Albert. Process and apparatus for the production of a guarantee closure. 4,272,945, Cl. 53-557.000.

Occidental Petroleum Corporation: *See—*
Wahl, Edward F., III, 4,272,960, Cl. 60-641.00D.

Occidental Research Corporation: *See—*
Sadhukhan, Pasupati, 4,272,961, Cl. 60-641.00D.

Ochi, Hideo: *See—*
Nagasawa, Kohtaro; Ochi, Hideo; Tanaka, Fujio; and Shibata, Yumi, 4,273,858, Cl. 430-296.000.

Oda, Isao; Kaneno, Masayuki; and Hayakawa, Issei, to NGK Insulators, Ltd. Polycrystalline transparent spinel sintered body and a method for producing the same. 4,273,587, Cl. 106-73.400.

Odagi, Kanji: *See—*
Wada, Ryoichi; Senoo, Takanori; and Odagi, Kanji, 4,274,115, Cl. 360-62.000.

Odate, Makoto: *See—*
Matsubara, Akira; Sakai, Hideaki; Odate, Makoto; and Nakano, Takuo, 4,273,932, Cl. 546-156.000.

Oesterlin, Rudolf: *See—*
Bell, Malcolm R.; and Oesterlin, Rudolf, 4,273,713, Cl. 260-326.620.

Ogasawara, Hiroomi; and Ogasawara, Masaomi. Face gear assembly. 4,273,002, Cl. 74-462.000.

Ogasawara, Masaomi: *See—*
Ogasawara, Hiroomi; and Ogasawara, Masaomi, 4,273,002, Cl. 74-462.000.

Ogawa, Kiyoshi: *See—*
Suhara, Yasuji; Ogawa, Kiyoshi; Yokose, Kazuteru; and Watanabe, Kimihiro, 4,273,765, Cl. 424-180.000.

Ogawa, Masahiro; and Mizobe, Tugio, to Toyota Jidosha Kogyo Kabushiki Kaisha. Method of resistance welding. 4,273,983, Cl. 219-93.000.

Ogawa, Shuichi: *See—*
Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.

Ogawa, Takahisa: *See—*
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, 4,273,684, Cl. 252-544.000.

Ohba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Yataro; Hanamura, Shoji; Aoki, Masakazu; and Nakai, Masaaki, to Hitachi, Ltd. Solid-state imaging device. 4,274,113, Cl. 358-212.000.

Ohdate, Mitsuo, to Mitsubishi Denki Kabushiki Kaisha. Explosion proof vibration resistant flat package semiconductor device. 4,274,106, Cl. 357-79.000.

Ohno, Hideshi: *See—*
Kume, Kazunari; Watanabe, Minoru; Ohno, Hideshi; and Tamaru, Munetaka, 4,274,153, Cl. 368-80.000.

Ohno, Shigeru; Tezuka, Haruya; and Ishihara, Toshinobu, to Shin-Etsu Chemical Co., Ltd. Method for selective preparation of cis isomers of ethylenically unsaturated compounds. 4,273,944, Cl. 568-396.000.

Ohno, Yasuya: *See—*
Teragaki, Takeshi; Ohno, Yasuya; and Yokoyama, Etsuso, 4,273,396, Cl. 312-223.000.

Ohtsuka, Kunio: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,273,009, Cl. 74-869.000.

Okabe, Yasuhisa, to Victor Company of Japan, Limited. Single ended push-pull amplifier. 4,274,059, Cl. 330-266.000.

Okada, Fumio: *See—*
Takamizawa, Minoru; Okada, Fumio; Hara, Yasuaki; and Aoki, Hisashi, 4,273,907, Cl. 528-29.000.

Okagami, Kuni, to Mitsuoka Electric Mfg. Co., Ltd. Electrical cord adapter. 4,273,406, Cl. 339-147.00P.

Okamoto, Joji; Azuma, Hitoshi; Arai, Katsushi; Naito, Takemi; Kawai, Seiji; and Goto, Minoru, to Hitachi, Ltd. Method of applying slip to interior surfaces of a closed tank to provide an enamel coating. 4,273,811, Cl. 427-232.000.

Okawara, Tomokichi: *See—*
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.

Okino, Tadashi: *See—*
Matsuda, Mutsuhide; Tamamura, Hideo; Taguchi, Tetsuya; Okino, Tadashi; and Yazaki, Mutsunobu, 4,273,432, Cl. 354-145.000.

Okuda, Takio: *See—*
Hara, Katsunori; Baba, Toshihiko; and Okuda, Takio, 4,273,984, Cl. 219-97.000.

Okugawa, Michihide; and Ishii, Ryougi, to Dainichi-Nippon Cables, Ltd. Process for treating liquid containing Au-CN compound. 4,273,579, Cl. 75-106.000.

Okuzawa, Tugio: *See—*
Kaneko, Tamaki; Mizuma, Kenich; and Okuzawa, Tugio, 4,273,323, Cl. 271-157.000.

Oldham, Walter, to Beaufort Air-Sea Equipment Ltd. Lifejacket. 4,272,857, Cl. 9-345.000.

Olin Corporation: *See—*
Patel, Harshad M., 4,273,736, Cl. 264-45.300.
Raynor, Robert J., 4,273,882, Cl. 521-110.000.
Specht, Steven J., 4,273,630, Cl. 204-98.000.

Oliver Industries, Inc.: *See—*
Storm, Manfred, 4,273,278, Cl. 224-321.000.

Olney, Robert S., to Atlas Powder Company. Transportation and placement of water-in-oil explosive emulsions. 4,273,147, Cl. 137-13.000.

Olofsson, Olof: *See—*
Kjellstrand, Gunnar M. T.; Olofsson, Olof; and Linder, Anders G., 4,273,461, Cl. 403-125.000.

Olsen, C. Eric, to Auburn Enterprises, Inc. Surgical stylet. 4,273,131, Cl. 128-341.000.

Olson, James E.: *See—*
Hanson, Sheldon H.; Thompson, Craig B.; and Olson, James E., 4,273,791, Cl. 426-439.000.

Olson, Robert A.: *See—*
Garscadden, Alan; Bletzinger, Peter; Hasinger, Siegfried H.; Olson, Robert A.; and Sarka, Benjamin, 4,274,065, Cl. 331-94.50G.

Olson, Robert K.: *See—*
Paduch, Stanley R.; and Olson, Robert K., 4,273,150, Cl. 137-85.000.

Olympus Optical Co., Ltd.: *See—*
Ida, Masatoshi, 4,274,116, Cl. 360-65.000.
Maitani, Yoshihisa; and Sato, Yuichi, 4,273,434, Cl. 354-288.000.
Nishikawa, Masaji, 4,273,438, Cl. 355-14.0CU.
Tsukaya, Takashi, 4,273,111, Cl. 128-6.000.

Omark Industries, Inc.: *See—*
Scott, Lewis A.; and Gibson, Duane M., 4,272,889, Cl. 30-371.000.

Omnicomp, Inc.: *See—*
Rose, Stanley E., 4,272,892, Cl. 33-185.00R.

Onaka, Hidemi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Exhaust gas recirculation system with engine load dependent performance. 4,273,092, Cl. 123-568.000.

Onishi, Akura: *See—*
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hirosi; Onishi, Akura; and Hirano, Kazuo, 4,273,253, Cl. 221-75.000.

Onizawa, Masao, to Sanyo Trading Co., Ltd. Vulcanizable rubber compositions with amino acids. 4,273,897, Cl. 525-351.000.

Onodera, Toshio; and Tanimura, Ken, to Sony Corporation. Bobbin structure for high voltage transformers. 4,274,136, Cl. 363-68.000.

Orain, Michel A., to Glaenzer Spicer. Power transmitting device and applications thereof. 4,273,209, Cl. 180-254.000.

Orenstein, Henry. Rocket car. 4,272,914, Cl. 46-209.000.

Orr, Wallace H., to General Electric Company. Terminal block assembly. 4,273,408, Cl. 339-198.00G.

Osaka Gas Kabushiki Kaisha: *See—*
Tanaka, Shunroku; Inoue, Jun; Yukimachi, Katsuroo; and Minamino, Keiichi, 4,273,184, Cl. 165-59.000.

Oscar Mayer & Co. Inc.: *See—*
Gifford, Maurice J.; Seiferth, Oscar E.; and Grindrod, Paul E., 4,273,815, Cl. 428-35.000.

Osther, Kurt B.; and Jensen, Werner K., to Ess-Food Eksport-Svineslagteriernes Salgsforening. Interferon product and process for its preparation. 4,273,703, Cl. 260-112.00R.

Oswell, Hugh H. B., to Submarine Products Limited. Underwater breathing apparatus. 4,273,120, Cl. 128-204.260.

Otis Engineering Corporation: *See—*
Pearce, Joseph L.; Yonker, John H.; and Deaton, Thomas M., 4,273,186, Cl. 166-72.000.

Otomine, Kazuo: *See—*
Matsuo, Mototsugu; and Otomine, Kazuo, 4,273,817, Cl. 428-90.000.

Ott, Arthur W.: *See—*
Smith, James D. B.; and Ott, Arthur W., 4,273,914, Cl. 528-89.000.

Otten, Jay G., to BASF Wyandotte Corporation. Organo-phosphorus flame-retardant for polyurethane foams prepared from graft polyoxyalkylene polyether polyols. 4,273,881, Cl. 521-108.000.

Outokumpu Oy: *See—*
Seilo, Matti, 4,273,642, Cl. 204-286.000.

Overall, Kenneth D. Newspaper dispenser. 4,273,255, Cl. 221-213.000.

Owens-Corning Fiberglas Corporation: *See—*
Butt, Frederick A., 4,273,599, Cl. 156-172.000.
Marzocchi, Alfred; Roberts, Michael G.; and Boles, Charles E., 4,273,588, Cl. 106-273.00N.
Marzocchi, Alfred; Roberts, Michael G.; Boles, Charles E.; and Harrington, Edward R., Jr., 4,273,685, Cl. 260-28.50R.

Owens-Illinois, Inc.: *See—*
Bates, Edson C.; and King, Jeanne A., 4,273,012, Cl. 83-17.000.

McCollister, Howard L.; and Boling, Norman L., 4,273,826, Cl. 428-304.000.

Ozawa, Hiroshi: *See—*
Yamada, Yasushi; Ozawa, Hiroshi; Gomi, Masao; and Nomura, Hidesaburo, 4,273,555, Cl. 8-673.000.

Ozawa, Masayuki, to Mitsubishi Denki Kabushiki Kaisha. Non-contactor ignition system for internal combustion engines. 4,273,093, Cl. 123-653.000.

Ozbey, Ahmet M.: *See—*
Ozbey, Suzan N.; Ozbey, Amber L.; and Ozbey, Ahmet M., 4,273,328, Cl. 272-137.000.

Ozbey, Amber L.: *See—*
Ozbey, Suzan N.; Ozbey, Amber L.; and Ozbey, Ahmet M., 4,273,328, Cl. 272-137.000.

Ozbey, Suzan N.; Ozbey, Amber L.; and Ozbey, Ahmet M. Chest muscle and posture developer. 4,273,328, Cl. 272-137.000.

Paciotti, Joseph D.: *See—*
Conagenki, Raymond H.; and Paciotti, Joseph D., 4,273,657, Cl. 210-703.000.

Packaging Industries, Inc.: *See—*
Gundel, Peter H.; and Briggs, Richard, 4,273,230, Cl. 192-150.000.

Padgett, Clarence W.; Marmet, Melvin L.; and Tennyson, Mark R., to Rockwell International Corporation. Static read only memory. 4,274,147, Cl. 365-189.000.

Paduch, Stanley R.; and Olson, Robert K., to United Technologies Corporation. Leverless pressure transducer. 4,273,150, Cl. 137-85.000.

Page, John K. R.: *See—*
Kent, Peter J. C.; and Page, John K. R., 4,273,667, Cl. 252-70.000.

Pagel, LaVerne L.: *See—*
Frosch, Robert A.; Lawing, Pierce L.; and Pagel, LaVerne L., 4,273,304, Cl. 244-117.00A.

Pai, Damodar M.; Turner, S. Richard; Yanus, John F.; Renfer, Dale S.; and Stolka, Milan, to Xerox Corporation. Imaging member having a charge transport layer of a terphenyl diamine and a polycarbonate resin. 4,273,846, Cl. 430-59.000.

Pallatron Incorporated: *See—*
James, Raymond E., 4,273,490, Cl. 414-95.000.

Pannell Manufacturing Corporation: *See—*
Pannell, Robert T., 4,273,495, Cl. 414-272.000.

Pannell, Robert T., to Pannell Manufacturing Corporation. Apparatus and method for laying compost in a mushroom bed. 4,273,495, Cl. 414-272.000.

Panzer, Klaus: *See—*
Leyrieffer, Hans; and Panzer, Klaus, 4,274,112, Cl. 358-181.000.

Papalexis, Gregory C. Device for depanning freshly baked pizza or other baked goods. 4,273,496, Cl. 414-417.000.

Paradyne Corporation: *See—*
Armstrong, Thomas R., 4,273,955, Cl. 178-69.00G.

Parker, Alonzo E., Jr. Shackling apparatus for live poultry. 4,272,863, Cl. 17-44.100.

Parker, George, Sr. Submerged hydroelectric power generation. 4,274,009, Cl. 290-43.000.

Parker-Hannifin Corporation: *See—*
Lowles, David C., 4,273,160, Cl. 138-124.000.

Parkinson, Bruce A.: *See—*
Heller, Adam; Leamy, Harry J.; Miller, Barry; Nelson, Ronald J.; and Parkinson, Bruce A., 4,273,594, Cl. 148-33.300.

Parkview Associates, Inc.: *See—*
Thoms, Richard W., 4,272,965, Cl. 62-104.000.

Paruch, Claas P.; and Gibson, John P., to Siemens Aktiengesellschaft. Synchronous linear motor. 4,274,020, Cl. 310-13.000.

Paskow, William B., to Sheller-Globe Corporation. Vehicle suspension system. 4,273,357, Cl. 280-697.000.

Peabley, Richard D., to Intel Corporation. MOS/SOS Process. 4,272,880, Cl. 29-571.000.

Patel, Harshad M., to Olin Corporation. Method for preparing packing for a sodium-mercury amalgam decomposer reactor. 4,273,736, Cl. 264-45.300.

Paton, Boris E.; Scheirbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Unigovsky, Mikhail R.; and Serafin, Orest M. Internal resistance pipe butt welder. 4,273,985, Cl. 219-101.000.

Patriquin, George P., to Hudson Lock, Inc. Cylinder lock with key removable core. 4,272,975, Cl. 70-369.000.

Paul, William A. Apparatus for applying gasket-forming material. 4,273,607, Cl. 156-540.000.

Paul Wurth, S.A.: *See—*
Legille, Edouard; and Maillet, Pierre, 4,273,492, Cl. 414-160.000.

Pauli, Klaus H., to Deere & Company. Discharge arrangement for an axial flow rotary separator. 4,273,138, Cl. 130-27.00T.

Pavicic, Ivan. Sailing vessel. 4,273,060, Cl. 114-39.000.

Pearce, Joseph L.; Yonker, John H.; and Deaton, Thomas M., to Otis Engineering Corporation. Well safety valve system. 4,273,186, Cl. 166-72.000.

Pedlow, J. Watson. Fire protective tape. 4,273,821, Cl. 428-215.000.

Pedrazzi, Reinhard, to Sandoz Ltd. Monoazo and disazo dyes containing at least one sulfo group and at least two basic or cationic groups. 4,273,707, Cl. 260-187.000.

Peerless Electronics Research Corp.: *See—*
Schmid, Carl J., 4,273,449, Cl. 356-411.000.

Pehrsson, Anders L., to Aktiebolaget Karlstads Mekaniska Werkstad. Marine propeller unit. 4,273,545, Cl. 440-75.000.

Pelagalli, Domenico: *See—*
Garzia, Aldo; Vittadini, Giorgio; Bottazzi, Andrea; Pelagalli, Domenico; and Coccoli, Costantino, 4,273,931, Cl. 546-344.000.

Pennsylvania Engineering Corporation: *See—*
Nagati, Rashad N., 4,273,316, Cl. 266-246.000.

Pepe, Enrico J.; and Marsden, James G., to Union Carbide Corporation. Certain acid salts of polyester aminoorganosilanes. 4,273,694, Cl. 260-29.20E.

Pepi, Jerome S.: *See—*
Fischer, Michael A.; and Pepi, Jerome S., 4,273,195, Cl. 169-39.000.

Pere, Gerard, to Creusot-Loire. Improvements in electrolyzers. 4,273,641, Cl. 204-253.000.

Perkey, Conrad G.: *See—*
Winterhalter, Donald L.; and Perkey, Conrad G., 4,273,182, Cl. 164-137.000.

Perkins, Neale A., to Safariland Ltd. Inc. Holster with adjustable safety strap. 4,273,276, Cl. 224-243.000.

Perlick Company, Inc., The: *See—*
Nezworski, James E., 4,273,151, Cl. 137-115.000.

Pernet, Jean P.: *See—*
Fadda, Jean; and Pernet, Jean P., 4,273,563, Cl. 55-189.000.

Peronnet, Roland; Couturier, Bernard; and Fombert, Christian, to La Societe Pyral. Process for transfer of a magnetic layer from a temporary to a permanent support. 4,273,603, Cl. 156-236.000.

Perreault, Aime J., to Champlain Cable Corporation. Insulation system for wire and cable. 4,273,829, Cl. 428-383.000.

Perrelli, Nicholas J. Automatic damper control. 4,273,526, Cl. 431-20.000.

Perry, Forbes G. D., to National Research Development Corporation. Fluid pressure operated actuator. 4,272,999, Cl. 74-200.000.

Personal Products Company: *See—*
Kraskin, Kenneth S., 4,273,786, Cl. 424-319.000.

Pezzana, Francesco; and Quacquarella, Cesare, to W. R. Grace & Co. Process for making multi-walled plastic bag. 4,273,549, Cl. 493-196.000.

Pfarre, Edgar L., to Bell Telephone Laboratories, Incorporated. Three-phase ferroresonant transformer structure embodied in one unitary transformer construction. 4,274,071, Cl. 336-12.000.

Pfarrwaller, Erwin, to Sulzer Brothers Limited. Fabric take-off device. 4,273,163, Cl. 139-308.000.

Pfister, Johann K.: *See—*
Borgeaud, Gaston; and Pfister, Johann K., 4,273,055, Cl. 105-199.00F.

Pfizer Inc.: *See—*
Cross, Peter E.; and Dickinson, Roger P., 4,273,782, Cl. 424-273.00R.
Sarges, Reinhard, 4,273,775, Cl. 424-256.000.

Pfleiderer, Ernst: *See—*
Monsheimer, Rolf; and Pfleiderer, Ernst, 4,273,876, Cl. 435-265.000.

Pfundstein, Wolfgang: *See—*
Beeskow, Bruno; Bauer, Egon; and Pfundstein, Wolfgang, 4,273,030, Cl. 91-450.000.

Philipp, Helmut, to Jagenberg Werke Aktiengesellschaft. Suction braking apparatus. 4,273,324, Cl. 271-183.000.

Phillips, David C.; Hickam, William M.; and Smith, James D. B., to Westinghouse Electric Corp. Multiple signal thermoparticulating coating. 4,272,988, Cl. 73-339.00R.

Phillips, Paul S.; and Forsythe, Glenn, to Woodings Industrial Corporation. Drilling bit for blast furnace tap holes. 4,273,202, Cl. 175-385.000.

Phillips Petroleum Company: *See—*
Angel, Richard R., 4,273,363, Cl. 285-47.000.
Johnson, Neal W., 4,273,146, Cl. 137-5.000.
Reed, Edwin E., 4,272,994, Cl. 73-807.000.

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Pielkenrood, Jacob, to Pielkenrood-Vinitex B.V. Separation device. 4,273,654, Cl. 210-232.000.

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Pierpoint, William, to United States of America, Navy. Equi-visibility lighting control system. 4,273,999, Cl. 250-205.000.

Pierson, Don H.; and Pierson, Robert D. Portable alarm system. 4,274,088, Cl. 340-568.000.

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Pierson, Robert D.: *See—*
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Pines, Seemon H.: *See*—
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Pioneer Electronic Corporation: *See*—
Hirata, Hitoshi, 4,273,958, Cl. 179-1.0GS.
Ishida, Kohji; and Numata, Tatsuo, 4,274,057, Cl. 329-167.000.
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Pitts, Robert W., Jr.: *See*—
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Pizzedaz, Ronald D., to Mesta Machine Company. Hot strip rolling mill stand. 4,272,976, Cl. 72-45.000.
Plasta-Plug, Inc.: *See*—
Keeney, Gary E.; Zurcher, Allen K.; and Loomis, Ervin C., 4,273,367, Cl. 285-419.000.
Plattner, Jacob: *See*—
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Pluequet, Heinz, to Klockner-Humboldt-Deutz Aktiengesellschaft. Exhaust gas conduit system for multi-cylinder reciprocating piston internal combustion engines. 4,273,080, Cl. 123-41.500.
Poag, Mary K. Combination valise and backrest. 4,273,221, Cl. 190-8.000.
Poehlmann, Paul W. Pivoting blade knife. 4,272,887, Cl. 30-161.000.
Pohle, Richard H., to United States of America, Air Force. Light spot position sensor for a wavefront sampling system. 4,273,446, Cl. 356-354.000.
Poisson, Regis: *See*—
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Norris, Philip R., 4,273,433, Cl. 354-246.000.
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Pollard, Lorne R., to International Harvester Company. Planting apparatus for a grain drill. 4,273,057, Cl. 111-85.000.
Pollmann, Josef, to Gebruder Netzsch, Maschinenfabrik GmbH & Co. Agitator mill. 4,273,295, Cl. 241-46.110.
Polygram GmbH: *See*—
Hiemann, Klaus; and Haase, Jost-Michael, 4,272,990, Cl. 73-586.000.
Polymerics, Inc.: *See*—
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Pomie, Pierre; and Renaux, Charley, to Commissariat a l'Energie Atomique. Closure device for fuel assembly pot. 4,273,614, Cl. 176-30.000.
Ponce, Gerald J. Steel shank support for molded unit sole. 4,272,897, Cl. 36-24.500.
Pond, Stephen F., to Xerox Corporation. Electrostatic scanning ink jet system. 4,274,100, Cl. 346-75.000.
Ponticello, Ignazio S.; Sniadoch, Henry J.; and Villard, George, to Eastman Kodak Company. Metal complexes of copolymers comprising vinylimidazole and their use in photographic elements. 4,273,853, Cl. 430-213.000.
Pool, Robert H.; and Sellers, Glenn W., to Rockwell International Corporation. Interferometer gyroscope having relaxed detector linearity requirements. 4,273,444, Cl. 356-350.000.
Porsch, Allan W.; and Sorensen, Fred L., to GTE Products Corporation. Protective means for CRT base. 4,273,400, Cl. 339-36.000.
Portec, Inc.: *See*—
Hannigan, Thomas N., 4,273,284, Cl. 238-160.000.
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Woolner, John H.; Gaslevic, Emeric; and Doorley, Richard B., 4,273,052, Cl. 104-17.00R.
Porter, Roger S.; and Zachariades, Anagnostis E., to United States of America, Navy. Method of deforming thermoplastic polymers using ammonia as a reversible plasticizer. 4,273,739, Cl. 264-211.000.
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Post, Lothar: *See*—
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Potschke, Jurgen: *See*—
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Leatherman, Ivan R., 4,273,702, Cl. 260-42.530.
Praamsma, Michael F., to Vivitar Corporation. Light diffusing means for a photographic enlarger. 4,274,131, Cl. 362-355.000.
Prager, Irwin D. Window guard support. 4,272,922, Cl. 49-55.000.
Pravoverov, Nikolai L.; Nazyrov, Ravil N.; Grigorov, Sergei S.; and Turova, Lidia S. Electrical conductor for implantation into human body. 4,273,137, Cl. 128-784.000.
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Herzfeld, Michael O. H., 4,272,939, Cl. 52-527.000.
Promex Plastics (Proprietary) Limited: *See*—
MacLarty, Bernard G.; and Sidders, Bryan, 4,272,900, Cl. 40-21.00C.
Propper Manufacturing Co., Inc.: *See*—
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Propst, Robert L. Apparatus and method for harvesting trees. 4,273,168, Cl. 144-3.00D.
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Pump, Wichard; Becker, Wolfgang; and Woldenberg, Edwin, to Bayer Aktiengesellschaft. Foamed polyethylene films. 4,273,880, Cl. 521-93.000.
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Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, to Valeron Corporation, The. Cutter assembly for broaching. 4,273,479, Cl. 407-113.000.
Rave, Terence W., to Hercules Incorporated. Preparation of hydrophilic polyolefin fibers for use in papermaking. 4,273,892, Cl. 525-180.000.

Raychem Corporation: *See*—
Marshall, Larry J., 4,273,252, Cl. 221-13.000.
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Reed, Edwin E., to Phillips Petroleum Company. Constant pressure apparatus and method. 4,272,994, Cl. 73-807.000.
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Rehrig, Houston. Over-the-counter cart with hingedly attached plastic basket and retracting front gate. 4,273,346, Cl. 280-33.99F.
Reichhold Chemicals, Incorporated: *See*—
Kho, Khe-Bing J., 4,273,700, Cl. 260-38.000.
Reid, Paul, to John Lysaght (Australia) Limited. Costing mass control using magnetic field. 4,273,800, Cl. 427-47.000.
Reid, Robert A., to CPC Engineering Corporation. Doctor blade cleaning method and apparatus. 4,273,655, Cl. 210-396.000.
Reinhard, Theodor; Haag, Ernst; Hoffmann, Rudiger; and Feichtiger, Dieter, to Daimler-Benz Aktiengesellschaft. Pneumatic actuating arrangement, especially for central locking systems, and shifting valves therefor. 4,273,027, Cl. 91-32.000.
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Reschert, Frederick A.: *See*—
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Rhoda, Richard N.; and Crosby, Jeffrey N., to MPD Technology Corporation. Preparation of platinum complexes. 4,273,755, Cl. 423-463.000.
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Rice, Doris M.: *See*—
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Rigby, Sterling C.: *See*—
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Roach, Jack W.: *See*—
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Thompson, David E.; Yao, Shi-Kay; August, Rudolf R.; and Anderson, Dean B., 4,273,445, Cl. 356-350.000.
Rodewald, Dennis W., to Marquip, Inc. Shingled sheet alignment. 4,273,325, Cl. 271-220.000.
Roediger, Walter H., to Wilhelm Roediger GmbH & Co. Method and apparatus for raising an aeration apparatus for liquids. 4,273,732, Cl. 261-122.000.
Rogero, Jean. Spring-loaded catch mechanism for push-button of electrical apparatus. 4,273,980, Cl. 200-328.000.
Rogers, Thurmond J., Jr. Animal repellant apparatus. 4,274,123, Cl. 361-232.000.
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Rose, John; and Gyugyi, Laszlo, to Westinghouse Electric Corp. Gating circuit for high voltage thyristor strings. 4,274,135, Cl. 363-68.000.
Rossen, Nils O. Return line filter. 4,273,651, Cl. 210-130.000.
Rose, John B., to Imperial Chemical Industries Limited. Sulphonated polyarylethersulphone copolymers. 4,273,903, Cl. 525-534.000.
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Rose, Stanley E., to Omnicomp, Inc. Automatic test probe positioning apparatus. 4,272,892, Cl. 33-185.00R.
Rosenbaum, Glen F., to CMI Corporation. Reversible push block-rear bumper assembly. 4,273,369, Cl. 293-1.000.
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Ross, Arnold S., 4,273,538, Cl. 434-178.000.
Ross, Louis A. R. Internal lining and sealing of hollow ducts. 4,273,605, Cl. 156-286.000.
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Swearingen, Judson S.; and Irvine, Michael D., 4,273,390, Cl. 308-168.000.
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Gobelt, Reiner, 4,273,528, Cl. 431-255.000.
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Vadnais, Kenneth, 4,273,275, Cl. 224-101.000.
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Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., 4,273,173, Cl. 81-177.00M.
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Perkins, Neale A., 4,273,276, Cl. 224-243.000.
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Kataoka, Keiji; Tatsuno, Kimio; and Saito, Susumu, 4,274,101, Cl. 346-108.000.
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Sakata, Mamoru; Kami, Yozo; and Mitsui, Tetsuro, to Honda Giken Kogyo Kabushiki Kaisha. Rear wheel suspension device for vehicles. 4,273,356, Cl. 280-675.000.
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Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Unigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.
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Salamander, Michael G. Multipurpose trailer. 4,273,351, Cl. 280-414.00R.
Salina, Louis E., to GA Industries, Inc. Pump failure protection for liquid transmission pipe lines. 4,273,513, Cl. 417-12.000.
Salnikov, Andrei F.: *See*—
Fomichev, Mikhail M.; Schepakin, Mikhail B.; Gudz, Anatoly G.; Evdokimov, Viktor G.; Lukianov, Nikolai E.; Romanchenko, Irina A.; and Salnikov, Andrei F., 4,273,508, Cl. 415-1.000.
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Salviati, Antonio, 4,272,894, Cl. 34-9.000.
Salzmann, Thomas N.: *See*—
Christensen, Burton G.; Ratcliffe, Ronald W.; and Salzmann, Thomas N., 4,273,709, Cl. 260-239.00A.
Sanderson, Floyd W.: *See*—
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Sandoz, Inc.: *See*—
Galantay, Eugene E., 4,273,787, Cl. 424-331.000.
Hardtmann, Goetz E., 4,273,930, Cl. 546-90.000.
Sandoz Ltd.: *See*—
Bollinger, Pietro, 4,273,784, Cl. 424-305.000.
Pedrazzi, Reinhard, 4,273,707, Cl. 260-187.000.
Wald, Roland, 4,273,720, Cl. 260-374.000.
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Sarmiento, Alberto G. Fixed pivot single pedal accelerator and brake control mechanism. 4,273,211, Cl. 180-333.000.
Sartell, Jack A.: *See*—
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Nomura, Hirokazu; Sato, Yukihiko; and Sato, Yoshikazu, 4,273,987, Cl. 219-124.340.
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Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., to Texaco Inc. Petroleum recovery chemical retention prediction technique. 4,273,187, Cl. 166-250.000.
Sauerwein, William D., to Black & Decker Inc. Scotch yoke having a curved track. 4,272,996, Cl. 74-50.000.
Savidge, David H.; and Wadsworth, Eric, to British Steel Corporation. Dual channel apparatus for detecting surface defects in elongate metallic members with liftoff compensation. 4,274,054, Cl. 324-225.000.
Sawada, Satoru: *See*—
Hamaoka, Tsutomu; Morigaki, Masakazu; Sawada, Satoru; Kamio, Takayoshi; and Nakamura, Kotaro, 4,273,864, Cl. 430-551.000.
Sawyer, Ralph V., to United States of America, National Aeronautics and Space Administration. Electrical servo actuator bracket. 4,274,038, Cl. 318-663.000.
Saxe, Robert L., to Research Frontiers Incorporated. Light valve containing liquid suspension including polymer stabilizing system. 4,273,422, Cl. 350-362.000.
Scanorama, Inc.: *See*—
Hedlund, Rolf E.; and Hynes, Thomas J., 4,273,404, Cl. 339-93.00R.
Scerbo, Louis J.: *See*—
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Schade, Otto H., Jr., to RCA Corporation. Switched current source for current limiting complementary symmetry inverter. 4,274,014, Cl. 307-585.000.
Schadt, Martin: *See*—
Boller, Arthur; Schadt, Martin; and Villiger, Alois, 4,273,929, Cl. 544-242.000.
Schaefer, Klaus-Dieter: *See*—
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Schaeffer-Homberg GmbH: *See*—
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Schafer, Dietmar: *See*—
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Schaper, Donald W., to Marathon LeTourneau Company. Stabilizing device. 4,273,242, Cl. 212-147.000.
Scheiber, Werner, to Metallgesellschaft Aktiengesellschaft. Process for coating metal tubes with plastic materials. 4,273,798, Cl. 427-27.000.
Schellhammer, Carl-Wolfgang: *See*—
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Scherm, Arthur, to Merz & Co. Central nervous system compositions and method. 4,273,774, Cl. 424-253.000.
Schiller, Frederick S. Measuring method and apparatus. 4,273,448, Cl. 356-374.000.
Schiller, Johann: *See*—
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Schiweck, Hubert: *See*—
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Schleicher GmbH & Co. Relais-Werke KG: *See*—
Gottschalk, Detlef, 4,274,024, Cl. 310-162.000.
Schleicher, Helmut, 4,274,075, Cl. 338-172.000.
Schleicher, Helmut, to Schleicher GmbH & Co. Relais-Werke KG. Electronic multi-range variable resistor. 4,274,075, Cl. 338-172.000.
Schluer, Larry E.: *See*—
Swain, James C.; Dickson, John D.; and Schluer, Larry E., 4,273,494, Cl. 414-266.000.
Schluter, Wolfram, to Armstrong Cork Company. Roof construction-subceiling assembly. 4,272,928, Cl. 52-1.000.
Schmeling, Udo F. M.: *See*—
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Schmid, Alfred, to Bucher-Guyer AG. Drive mechanism for a drum. 4,273,000, Cl. 74-206.000.
Schmid, Carl J., to Peerless Electronics Research Corp. Radiation measuring apparatus. 4,273,449, Cl. 356-411.000.
Schmidle, Claude J.; and Varadhachary, Seevaram N., to Coagoleum Corporation. Differential gloss products and methods of making the same. 4,273,819, Cl. 428-159.000.
Schmidt, Delf: *See*—
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Schmidt, Evald G. Seed carrier and method of producing same. 4,272,919, Cl. 47-56.000.
Schmidt, Ewald: *See*—
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Schmidt, Helmut: *See*—
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Schmitt, Frederick L.: *See*—
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Schmitz, Vincent O. Method of repairing one-way clutch drive assemblies. 4,272,876, Cl. 29-402.060.
Schmolke, Karl H., to John D. Hollingsworth on Wheels, Inc. Method of making a beater roll. 4,272,865, Cl. 19-97.000.
Schnable, George L.: *See*—
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Schneider, Steffen: *See*—
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Schoen, Otmar, Pipe clamp. 4,273,465, Cl. 403-391.000.
Scholbrock, Sylvanus L., to Ex-Cell-O Corporation. Weed spraying assembly. 4,273,285, Cl. 239-121.000.
Scholl, John J.; and Staley, Warren D., to Corning Glass Works. Method and apparatus for forming glass parisons. 4,273,567, Cl. 65-72.000.
Scholl, John J.; and Staley, Warren D., to Corning Glass Works. Press and blow glass forming. 4,273,568, Cl. 65-76.000.
Scholz, Hansjurgen; Backhaus, Hans-Gerd; and Brambilla, Luigi, to Daimler-Benz AG. Deformation member arranged in the impact area of the knee. 4,273,359, Cl. 280-740.000.
Schone, Siegfried; and Ramlow, Joachim, to Gunter Wulff-Apparatebau GmbH. Reel mechanism for use in a playing device. 4,273,334, Cl. 273-143.00R.
Schopper, Alf, to Heberlein Hispano S.A. Apparatus for loading a rope-like strand of fibers into spinning cans. 4,272,867, Cl. 19-159.00R.
Schrank, Wolfgang: *See*—
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Schreiber, James N.: *See*—
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Schuessler, Walter E. Cold weather hood for safety hat. 4,272,853, Cl. 2-424.000.
Schuhmacher, Gunter: *See*—
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Schultz, Donald C. Check valve bearing lubricator. 4,273,803, Cl. 74-467.000.
Schumacher, William L.: *See*—
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Schwaebel, Rudolf: *See*—
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Schwarb, Gustav: *See*—
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Schwarz, Brian L., to Cabot Corporation. Method and system for the fractionation of ethane-propane mixtures. 4,273,566, Cl. 62-27.000.
Schwarz, Josef: *See*—
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Schweizerische Lokomotiv-und Maschinenfabrik: *See—*
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Schwitzgebel, Fernand. Method for refrigerating fresh products and keeping them fresh, as well as refrigerator for carrying out this method. 4,272,969, Cl. 62-419.000.

SCM Corporation: *See—*
Mastrangelo, Albert J., 4,273,593, Cl. 148-24.000.

Scott, Anthony C., to Eastman Whipstock, Inc. Wire line anchor. 4,273,464, Cl. 403-348.000.

Scott, Arthur C.: *See—*
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Scott, Lewis A.; and Gibson, Duane M., to Omark Industries, Inc. Portable saw. 4,272,889, Cl. 30-371.000.

Scott, Roderick A.: *See—*
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Sczerbaniewicz, Stella A.: *See—*
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Sea Terminals Limited: *See—*
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Seaquist Valve Co., Div. of Pittway: *See—*
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Sebenik, Roger F.: *See—*
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Sebrosky, Robert A.; and Thorne, William D., to International Business Machines Corporation. Segmented drum bar helix printer. 4,273,040, Cl. 101-93.040.

Seeley, Wayne R., to Emerson Electric Co. Terminations for electric heating elements. 4,273,993, Cl. 219-541.000.

Seid, Paul A., to Sultan Dental Products, Inc. Amalgam carrier and dispenser. 4,273,534, Cl. 433-90.000.

Seidel, Harold, to Bell Telephone Laboratories, Incorporated. Automatic equalization for digital transmission systems. 4,273,963, Cl. 179-16.00F.

Seiderman, Maurice. Casting of polyelectrolytes in hydrogel molds. 4,273,734, Cl. 264-1.100.

Seiferth, Oscar E.: *See—*
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Seilo, Matti, to Outokumpu Oy. Electrolytic cell. 4,273,642, Cl. 204-286.000.

Seino, Shunji: *See—*
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Seipos, Andrew G., to Automated Building Components, Inc. Sheet metal clip for assembly of building components. 4,272,938, Cl. 52-509.000.

Seitetsu Kagaku Co., Ltd.: *See—*
Kawamura, Masao; Nishi, Tadaaki; Kato, Kunioki; Mizokami, Hiroshi; and Kanazawa, Tadashi, 4,273,941, Cl. 564-416.000.

Seitz-Werke GmbH: *See—*
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Wahl, Alois; and Elsner, Paul, 4,273,237, Cl. 198-445.000.

Selhub, Jacob; Rachmilewitz, Bracha; and Grossowicz, Nathan, to Yissum Research Development Company. Determination of transcobalamins. 4,273,757, Cl. 424-1.000.

Selleck, Robert W., to Becton, Dickinson and Company. Variable pitch sprockets for conveyor system. 4,273,240, Cl. 198-835.000.

Sellers, Glenn W.: *See—*
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Senoo, Keizi: *See—*
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Sepp, Gunther; Born, Gunthard; and Malburg, Werner, to Messerschmitt-Bolkow-Blohm GmbH. Apparatus for mechanically decoupling a resonator of a gas dynamic laser. 4,274,064, Cl. 331-94.50G.

Serafin, Orest M.: *See—*
Patoa, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivantsov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galian, Boris A.; Unigovsky, Mikhail R.; and Serafin, Orest M., 4,273,985, Cl. 219-101.000.

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Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Sergeeva, Elena V., administrator: *See—*
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Sergeeva, Valentina I., administrator: *See—*
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.

Shalhoub, Ibrahim M.: *See—*
Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi, 4,273,918, Cl. 528-310.000.

Shapiro, Burton L., to University of Minnesota, The Regents of the. Cystic fibrosis detection method. 4,273,869, Cl. 435-26.000.

Sharp Kabushiki Kaisha: *See—*
Kubo, Kimio; and Miyamae, Ryuichi, 4,273,136, Cl. 128-680.000.

Shaw, Frederick W.; and Whale, William E., to Imperial Chemical Industries Limited. Gear crimped polyester yarns. 4,273,823, Cl. 428-224.000.

Sheih, Pong Su: *See—*
Bertram, James L.; and Sheih, Pong Su, 4,273,921, Cl. 528-405.000.

Shelcore, Inc.: *See—*
Strauss, Manfred, 4,272,911, Cl. 46-47.000.

Shell Oil Company: *See—*
Bloemsma, Everhard C.; and Holtslag, Paulus T. M., 4,273,470, Cl. 405-202.000.

Sheller-Globe Corporation: *See—*
Pashkow, William B., 4,273,357, Cl. 280-697.000.

Shepherd, Norris W.: *See—*
Hollely, David J. E.; and Shepherd, Norris W., 4,273,294, Cl. 241-18.000.

Shepherd, Robert G., to American Cyanamid Company. Benzaldehydes, alkanophenones, and benzophenones and derivatives thereof containing a 4-monoalkylamino group. 4,273,785, Cl. 424-316.000.

Shepherd, Roger D.: *See—*
Markham, Harvey R.; and Shepherd, Roger D., 4,273,439, Cl. 355-14.00C.

Sheppard, Richard H. Power steering gear with improved responsiveness. 4,273,029, Cl. 91-422.000.

Sherwood Medical Industries Inc.: *See—*
Gindler, E. Melvin, 4,273,556, Cl. 23-230.00B.
Smith, James C.; and Reed, Richard D., 4,273,257, Cl. 222-43.000.

Sheshtawy, Adel A., to Standard Oil Company (Indiana). Apparatus for use in lowering casing strings. 4,273,372, Cl. 294-86.150.

Shiba, Keisuke; Hiroae, Takeshi; Hayashi, Jun; Arai, Atsuaki; Furutachi, Nobuo; and Katsuyama, Harumi, to Fuji Photo Film Co., Ltd. Multilayer color photographic materials utilizing an interlayer correction coupler. 4,273,861, Cl. 430-382.000.

Shibata, Yumi: *See—*
Nagasawa, Kohtaro; Ochi, Hideo; Tanaka, Fujio; and Shibata, Yumi, 4,273,858, Cl. 430-296.000.

Shibatani, Kyoichiro: *See—*
Shimada, Kiyoo; Yano, Makoto; Shibatani, Kyoichiro; and Makimoto, Tsutomu, 4,273,636, Cl. 204-195.00P.

Shibauta, Teruyoshi: *See—*
Takefuta, Hideyasu; Shinoda, Akira; and Shibauta, Teruyoshi, 4,273,226, Cl. 192-35.000.

Shibuya, Tsunenori, to Diesel Kiki Co., Ltd. Swash-plate type compressor. 4,273,518, Cl. 417-269.000.

Shida, Masaharu: *See—*
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.

Shiga, Akinobu: *See—*
Asada, Mamoru; Shiga, Akinobu; Matsuyama, Kiyoshi; and Kakugo, Masahiro, 4,273,905, Cl. 526-142.000.

Shiga, Tetsuo: *See—*
Hayashi, Yoshio; Matsui, Takeki; Shiga, Tetsuo; Akashi, Kageyasu; Akiyama, Minoru; and Kimura, Takeo, 4,273,723, Cl. 260-414.000.

Shigemasa, Yoshimi: *See—*
Nakanishi, Toru; and Shigemasa, Yoshimi, 4,273,874, Cl. 435-191.000.

Shiiki, Zenya; and Watanabe, Kazuhiro, to Kureha Kagaku Kogyo Kabushiki Kaisha. Process for the preparation of spherical carbon particles and spherical activated carbon particles. 4,273,675, Cl. 252-424.000.

Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo. Torsional vibration monitoring method for rotating shaft system. 4,272,992, Cl. 73-650.000.

Shimada, Kiyoo; Yano, Makoto; Shibatani, Kyoichiro; and Makimoto, Tsutomu. Selective chemical sensitive field effect transistor transducers. 4,273,636, Cl. 204-195.00P.

Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, to Nissan Motor Company, Limited. Industrial robot system capable of pressure applied machining operations. 4,273,504, Cl. 414-728.000.

Shimazaki, Mamoru: *See—*
Iwama, Hideto; Toyama, Masamichi; Shimazaki, Mamoru; and Ichiyanagi, Toshikazu, 4,273,426, Cl. 352-169.000.

Shimogawa, Toshiaki: *See—*
Takei, Toshihiro; Kuwakado, Satosi; Takakuwa, Eiji; and Shimogawa, Toshiaki, 4,273,361, Cl. 280-805.000.

Shimojima, Masatoshi, to Vivitar Corporation. Zoom lens. 4,273,414, Cl. 350-429.000.

Shimokawa, Yoshiyuki, to Tokyo Shibaura Denki Kabushiki Kaisha. Stored program control system with switching between instruction word systems. 4,274,138, Cl. 364-200.000.

Shimuzu, Koji: *See—*
Suminura, Shinichi; and Shimuzu, Koji, 4,273,697, Cl. 260-37.0SB.

Shin-Etsu Chemical Co., Ltd.: *See—*
Ohno, Shigeru; Tezuka, Haruya; and Ishihara, Toshinobu, 4,273,944, Cl. 568-396.000.
Takamizawa, Minoru; Okada, Fumio; Hara, Yasuaki; and Aoki, Hisashi, 4,273,907, Cl. 528-29.000.

Shin-Etsu Kagako Kogyo Kabushiki Kaisha: *See—*
Yokokura, Shuichi; Horie, Yu; Takamizawa, Minoru; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,273,834, Cl. 428-429.000.

Shinoda, Akira: *See—*
Takefuta, Hideyasu; Shinoda, Akira; and Shibauta, Teruyoshi, 4,273,226, Cl. 192-35.000.

Shionogi & Co., Ltd.: *See—*
Igarashi, Kikuo; and Sugawara, Tamio, 4,273,923, Cl. 536-10.000.

Shirai, Makoto; Ito, Michinobu; and Kato, Osamu, to NGK Spark Plug Co., Ltd. Throwaway tip. 4,273,480, Cl. 407-114.000.

Shoher, Itzhak; and Whiteman, Aharon E. Reinforced jacket crown and method of construction. 4,273,580, Cl. 75-165.000.

Shoji, Fusaji: *See—*
Watanabe, Takeshi; Sudo, Ryoichi; Shoji, Fusaji; Takemoto, Isaei; and Yokono, Hitoshi, 4,273,420, Cl. 350-341.000.

Shore, Arthur R.: *See—*
Clark, Colin R.; Shore, Arthur R.; and Corbett, Robert A., 4,273,071, Cl. 119-17.000.

Shore, David; and Lintonbon, Robert F., to Ferakarn Limited. Waste gas recovery systems. 4,273,514, Cl. 417-15.000.

Showa Electric Wire & Cable Co., Ltd.: *See—*
Yokoyama, Takeo; Fukumoto, Kiyoshi; and Matsuura, Hiroshi, 4,274,108, Cl. 358-31.000.

Shum, Yick M.: *See—*
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,273,187, Cl. 166-250.000.

Shuster, Nicholas: *See—*
Kidon, William E.; Shuster, Nicholas; and Babinsky, Andrew D., 4,273,628, Cl. 204-87.000.

Sidders, Bryan: *See—*
MacLarty, Bernard G.; and Sidders, Bryan, 4,272,900, Cl. 40-21.00C.

Sidepal Societe Anonyme Societe Industrielle de Participations Luxembourgeois: *See—*
Kuhlmann, Herbert, 4,273,074, Cl. 122-7.00R.

Siemens Aktiengesellschaft: *See—*
Benckendorff, Wolfgang; and Kubler, Hans, 4,274,086, Cl. 340-506.000.
Berndt, Klaus-Gunther; Kruger, Manfred; and Nawrot, Wolfgang, 4,273,979, Cl. 200-286.000.
Ekstrom, Olov; and Nilsson, Kenth, 4,273,366, Cl. 285-332.000.
Eisel, Werner, 4,274,022, Cl. 310-62.000.
Goebel, Herbert, 4,274,000, Cl. 250-272.000.
Kostka, Hana, 4,273,560, Cl. 48-212.000.
Kraemer, Horst, 4,274,061, Cl. 330-296.000.
Kuehnel, Werner; and Rattner, Manfred, 4,274,003, Cl. 250-409.000.
Leysieffer, Hans; and Panzer, Klaus, 4,274,112, Cl. 358-181.000.
Parsch, Claus P.; and Gibson, John P., 4,274,020, Cl. 310-13.000.
Troebel, Werner; and Habedank, Klaus-Dieter, 4,274,069, Cl. 335-21.000.
Vogelsberg, Dieter, 4,272,951, Cl. 57-293.000.

Sih, John C., to Upjohn Company, The. 2-Decarboxy-2-hydroxymethyl-9-deoxy-6c,9αepoxy-16,16-difluoro-19-hydroxy-PGF$_1$. 4,273,718, Cl. 260-346.220.

Sikorcin, John: *See—*
Malinski, Richard F.; and Sikorcin, John, 4,273,307, Cl. 251-69.000.

Silvander, Frank O. Device to align the end fittings in the casting of concrete piles. 4,272,875, Cl. 29-271.000.

Silverstein, Seth D., to General Electric Company. Transparent composite laminar structure, solar collector and method. 4,273,098, Cl. 126-417.000.

Silvestri, Margaret W. Beach accessory. 4,273,380, Cl. 297-191.000.

Sima Products Corporation: *See—*
Drell, Philip, 4,273,436, Cl. 354-344.000.

Simko, Richard T., to Xicor, Inc. Substrate coupled floating gate memory cell. 4,274,012, Cl. 307-238.300.

Simpson, Charles J.: *See—*
Lange, Gerald A.; and Simpson, Charles J., 4,273,852, Cl. 430-209.000.

Simpson, Judith V. Constrictor. 4,273,130, Cl. 128-327.000.

Singelyn, James D., to Kemtec, Inc. Powdered polymer compositions produced by electron beam polymerization of polymerizable compositions. 4,273,831, Cl. 428-402.000.

Singer Company, The: *See—*
Whitby, Clyde M., 4,274,109, Cl. 358-53.000.

Singer, Malcolm S., to Chevron Research Company. N-Alkyl or alkoxy-N'-substituted hydrocarbyl urea. 4,273,572, Cl. 71-86.000.

Sinha, Rabindra K.; Polinsky, Charles K.; Cifrulak, Stephen D., Sr.; and Wagner, Norman J., to Calgon Corporation. Removal of acidica contaminants from gas streams by caustic impregnated activated carbon. 4,273,751, Cl. 423-244.000.

Sir Henry Lawson-Tancred, Sons & Co., Ltd.: *See—*
Lawson-Tancred, Henry, 4,274,010, Cl. 290-55.000.

Siryj, Bohdan W.: *See—*
Gilson, Alan P.; and Siryj, Bohdan W., 4,273,342, Cl. 369-32.000.

Sisti, Giorgio; Riva, Ermete; and Italiano, Pietro, to Carlo Erba Strumentazione S.p.A. Apparatus for porosimetric measurements. 4,272,983, Cl. 73-38.000.

Sivers, Rolf V.; Herrmann, Rudolf; and Layher, Ulrich, to Dr. Ing. h.c.F. Porsche Aktiengesellschaft. Supporting pipe to constitute a drive unit for an automotive vehicle. 4,273,207, Cl. 180-70.00P.

Sizemore, James L.: *See—*
Bisczat, John J.; Lisk, Robert R.; McCray, William R.; and Sizemore, James L., 4,273,456, Cl. 400-590.000.

Skapura, Victor. Animal trap. 4,272,907, Cl. 43-92.000.

SKF Nova AB: *See—*
Asberg, Sture L., 4,273,391, Cl. 308-174.000.

Sledzieski, William L.: *See—*
Bosco, Peter M.; and Sledzieski, William L., 4,273,790, Cl. 426-335.000.
Bosco, Peter M.; and Sledzieski, William L., 4,273,795, Cl. 426-602.000.

Smearing, Robert W., to General Electric Company. Filled, two-part plastic-producing system. 4,273,689, Cl. 260-22.0CB.

Smetana, Andrew, to General Electric Company. Reflector unit for photoflash array. 4,273,241, Cl. 206-520.000.

Smith, Alfred H., Jr.; De Zuba, George P.; and Mitchell, Tyrone D., to General Electric Company. Self-bonding room temperature vulcanizable silicone rubber compositions. 4,273,698, Cl. 260-37.0SB.

Smith, Charles E. Aquatic recreational vehicles. 4,273,544, Cl. 440-30.000.

Smith Engineering: *See—*
Smith, Jay, III; and Malone, Richard L., 4,272,917, Cl. 46-254.000.

Smith, Franklin G.: *See—*
Smith, Lawrence M.; and Acker, G. Marts, 4,273,281, Cl. 227-152.000.

Smith, Frederick R., to Avtex Fibers Inc. Fibers of high fluid holding capacity. 4,273,118, Cl. 128-156.000.

Smith International, Inc.: *See—*
Bolton, Jimmie B.; and Crews, Sam T., 4,273,159, Cl. 138-109.000.

Smith, James C.; and Reed, Richard D., to Sherwood Medical Industries Inc. Jar mounted pipettor. 4,273,257, Cl. 222-43.000.

Smith, James D. B.; and Ott, Arthur W., to Westinghouse Electric Corp. Pre-reacted carboxylic acid anhydride complexes as low temperature curing agents for epoxy resins. 4,273,914, Cl. 528-89.000.

Smith, James D. B.: *See—*
Phillips, David C.; Hickam, William M.; and Smith, James D. B., 4,272,988, Cl. 73-339.00R.

Smith, Jay, III; and Malone, Richard L., to Smith Engineering. Steering assembly rendering car unstable in a turn. 4,272,917, Cl. 46-254.000.

Smith, John A., to Hull Corporation. Platen type molding press. 4,273,524, Cl. 425-450.100.

Smith, Lawrence M.; and Acker, G. Marts, to Smith, Franklin G.; and Moshofsky, Jerome F., part interest to each. Internal surgical stapler. 4,273,281, Cl. 227-152.000.

Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., to S/V Tool Company, Inc. Device for transmitting torque. 4,273,173, Cl. 81-177.00M.

Smith, Mark L.: *See—*
Dodds, Philip V. W.; and Smith, Mark L., 4,273,017, Cl. 84-1.100.

Smith, Roy H., Jr.: *See—*
Foster, Manford H., 4,272,930, Cl. 52-79.100.

Smith, Timothy S.: *See—*
Trahan, Karl W., Sr.; and Smith, Timothy S., 4,273,466, Cl. 404-4.000.

Smith, Wayne G.: *See—*
Maurer, Herman J.; and Smith, Wayne G., 4,273,502, Cl. 414-694.000.

Smithers, Jacquelyn A.: *See—*
Jones, Richard E.; and Smithers, Jacquelyn A., 4,273,710, Cl. 260-239.55D.

Snamprogetti S.p.A.: *See—*
Brandolese, Ernesto, 4,273,664, Cl. 252-49.500.
Zaffaroni, Pasquale; Vitobello, Vincenza; and Gamalerio, Anna M., 4,273,872, Cl. 435-55.000.

Snape, George W., to Bulk Unit Load Systems Limited. Method and apparatus for discharging material from bulk containers. 4,273,266, Cl. 222-199.000.

Snellman, Donald L.; and Gerbracht, Osceola J., to Norfin, Inc. Collator. 4,273,326, Cl. 271-288.000.

Sniadoch, Henry J.: *See—*
Posticello, Ignazio S.; Sniadoch, Henry J.; and Villard, George, 4,273,853, Cl. 430-213.000.

Snitzer, Elias: *See—*
Krohn, David A.; Snitzer, Elias; and Raber, Peter E., 4,273,585, Cl. 106-47.00R.

Sneffer, Clifton K.; and Cachea, Walter T. Coaxial connector assembly for attachment to circuit board. 4,273,407, Cl. 339-177.00R.

Snyder, Paul J.: *See—*
Fevin, David L.; Lyan, Peter F.; and Snyder, Paul J., 4,273,970, Cl. 179-175.30R.

Societe Anonyme Automobiles Citroen: *See—*
Duguet, Pierre; and Robert, Christian, 4,273,376, Cl. 296-65.00R.

Societe Anonyme dite: Transitubo-Project: *See—*
Conca, Gilbert G., 4,273,267, Cl. 222-318.000.

Societe Francaise Duco: *See—*
Neiryack, Albert; and Duflos, Roger, 4,273,808, Cl. 427-142.000.

Societe Generale pour l'Emballage: *See—*
Laganeux, Jean, 4,273,288, Cl. 239-419.300.

Societe Industrielle de Filtration: *See*—
Lucas, Jean-Claude; and Messirejean, Pierre, 4,273,652, Cl. 210-189.000.
Societe Nationale Industrielle Aerospatiale: *See*—
Mouille, Rene L.; and Lafargue, Marcel A. S., 4,273,511, Cl. 416-134.00A.
Societe Nouvelle des Ateliers et Chantiers du Havre: *See*—
Berne, Jean, 4,273,063, Cl. 114-126.000.
Societe Sofiltra-Poelman: *See*—
Lucas, Jean-Claude; and Messirejean, Pierre, 4,273,652, Cl. 210-189.000.
Soderberg, Mark S.: *See*—
Beason, Richard L.; Hill, Horace E.; and Soderberg, Mark S., 4,273,344, Cl. 279-75.000.
Sodler, Walter: *See*—
Blawert, Dieter; Rademacher, Karl-Heinz; and Sodler, Walter, 4,273,203, Cl. 177-187.000.
Soeda, Katsuji, to Yamamoto Electric Industrial Co., Ltd. Motor speed control system. 4,274,037, Cl. 318-331.000.
Sokol, Larry S.: *See*—
McComas, Charles C.; and Sokol, Larry S., 4,273,824, Cl. 428-256.000.
Solomon, Harold W., to Emtek Incorporated. Apparatus and method for recovering pollutant liquids. 4,273,650, Cl. 210-104.000.
Sonar Manufacturing Co., Ltd.: *See*—
Nagasawa, Kohtaro; Ochi, Hideo; Tanaka, Fujio; and Shibata, Yumi, 4,273,858, Cl. 430-296.000.
Somm, Paul T., to Boeing Company, The. Adaptive airplane landing gear. 4,273,303, Cl. 244-104.0FP.
Sommovigo, Paolo: *See*—
Masucci, Pasquale; and Sommovigo, Paolo, 4,273,948, Cl. 13-9.0ES.
Sonnet, Gunther, to Jos. Schneider & Co., Optische Werke. Optical objective. 4,273,415, Cl. 350-465.000.
Sony Corporation: *See*—
Onodera, Toshio; and Tanimura, Ken, 4,274,136, Cl. 363-68.000.
Suyama, Hideo, 4,273,968, Cl. 179-115.5PV.
Suzuki, Tadao, 4,274,058, Cl. 330-253.000.
Tamura, Eiji; and Nakamura, Takashi, 4,274,107, Cl. 358-29.000.
Sorensen, Fred L.: *See*—
Porsch, Allan W.; and Sorensen, Fred L., 4,273,400, Cl. 339-36.000.
Sorenson, Marius W.: *See*—
Ezzell, Bobby R.; and Sorenson, Marius W., 4,273,626, Cl. 204-98.000.
Soula, Gerard; and Locatelli, Jean-Louis, to Rhone-Poulenc Industries. Process for the preparation of glycidyl polyethers of polyphenols. 4,273,915, Cl. 528-93.000.
Spain, Robert C. Ventilator apparatus. 4,273,032, Cl. 98-63.000.
Spar Aerospace Limited: *See*—
Hinds, Charles M., 4,273,305, Cl. 244-158.00R.
Spaulding, Bert W., Sr. Dual action combination firewood cutting and splitting machine. 4,273,171, Cl. 144-193.00A.
Specht, Steven J., to Olin Corporation. Process for the start-up of membrane cells for the electrolysis of aqueous salt solutions. 4,273,630, Cl. 204-98.000.
Spector, George: *See*—
Bassetti, Henry; and Spector, George, 4,272,908, Cl. 46-12.000.
Thurston, Jay D.; and Spector, George, 4,272,849, Cl. 2-16.000.
Speer, Richard. Pneumatically-operated ball projecting device. 4,273,095, Cl. 124-56.000.
Spengler, Ernst M., to Stanztechnik GmbH R & S. Method and apparatus for forming, and trimming, three-dimensional work pieces. 4,273,738, Cl. 264-154.000.
Sperry Corporation: *See*—
Doyle, William D., 4,273,801, Cl. 427-48.000.
Nelson, Gary L.; and Harvey, William A., 4,273,609, Cl. 156-624.000.
Spiegel, Leo, to Northrop Corporation. Solenoid torquer system. 4,274,040, Cl. 318-689.000.
Spodig, Heinrich. Magnetic separator having intersecting conveyor belts. 4,273,646, Cl. 209-223.00R.
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, to International Flavors & Fragrances Inc. 2-Oxabicyclooctane derivatives, processes for preparing same and organoleptic uses thereof. 4,273,662, Cl. 252-8.900.
Stacey, Martyn H.: *See*—
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Stahly, Frederick A.: *See*—
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Staley, Warren D., to Corning Glass Works. Neck ring mechanism. 4,273,569, Cl. 65-360.000.
Staley, Warren D.: *See*—
Scholl, John J.; and Staley, Warren D., 4,273,567, Cl. 65-72.000.
Scholl, John J.; and Staley, Warren D., 4,273,568, Cl. 65-76.000.
Standard Brands Incorporated: *See*—
Bosco, Peter M.; and Sledzieski, William L., 4,273,790, Cl. 426-335.000.
Bosco, Peter M.; and Sledzieski, William L., 4,273,795, Cl. 426-602.000.
Standard Oil Company (Indiana): *See*—
Sheshtawy, Adel A., 4,273,372, Cl. 294-86.150.
Stanek, Jaroslav, to Ciba-Geigy Corporation. Nitroso-urea derivatives. 4,273,766, Cl. 424-180.000.
Stanizzo, John A. Prefabricated shell assembly for window trim. 4,272,931, Cl. 52-98.000.
Stanztechnik GmbH R & S: *See*—
Spengler, Ernst M., 4,273,738, Cl. 264-154.000.
Staudt, Heinrich: *See*—
Hofmann, Eberhard; Ritter, Ernst; and Staudt, Heinrich, 4,273,088, Cl. 123-502.000.
Stauffer Chemical Company: *See*—
Coll-Palagos, Miguel, 4,273,837, Cl. 428-647.000.
Stechler, Bernard G. Method of forming electrical insulation by extruding polymeric compositions containing hollow microspheres. 4,273,806, Cl. 427-119.000.
Stein Industrie: *See*—
Bessoust, Roger; and Marjollet, Jacques, 4,273,077, Cl. 122-483.000.
Steiner, Robert E.; and Long, Thomas J., to Emerson Electric Co. Baseboard heater with high temperature cut-off switch. 4,273,990, Cl. 219-363.000.
Stendel, Wilhelm: *See*—
Kuhle, Engelbert; Hagemann, Hermann; Behrenz, Wolfgang; Hammann, Ingeborg; and Stendel, Wilhelm, 4,273,767, Cl. 424-211.000.
Stepath, Myron D., to Arcair Company. Underwater cutting and gouging method. 4,273,982, Cl. 219-70.000.
Stephan, Hans-Werner: *See*—
Lehr, Klaus; Heymer, Gero; Stephan, Hans-Werner; and Thummler, Ursus, 4,273,752, Cl. 423-322.000.
Sterling Drug Inc.: *See*—
Bell, Malcolm R.; and Oesterlin, Rudolf, 4,273,713, Cl. 260-326.620.
Stevens, Garland A., to Huff-Ste., Inc. Novelty pump lamp. 4,274,129, Cl. 362-109.000.
Stevenson, Charlene. Tooth paste dispenser. 4,273,258, Cl. 222-103.000.
Stiles, Gilbert J., Sr.: *See*—
Gentry, James H., Jr.; and Stiles, Gilbert J., Sr., 4,274,052, Cl. 324-117.00R.
Stillwell, David J. Trash bag holder. 4,273,167, Cl. 141-314.000.
Stinson, Constance E. Tissue roll holder. 4,273,392, Cl. 312-42.000.
Stocker, Lester H., to Bell & Howell Company. Document sequencer. 4,273,319, Cl. 270-21.100.
Stolka, Milan: *See*—
Pai, Damodar M.; Turner, S. Richard; Yanus, John F.; Renfer, Dale S.; and Stolka, Milan, 4,273,846, Cl. 430-59.000.
Stoll, Harold M., to United States of America, Air Force. Integrated optical R-F spectrum analyzer. 4,274,049, Cl. 324-77.00K.
Stone, H. Spencer. Visor-connected tape cartridge holder. 4,273,277, Cl. 224-312.000.
Storandt, Ralf, to Vereinigte Baubeschlagfabriken, Gretsch & Co. GmbH. Ski safety binding. 4,273,355, Cl. 280-614.000.
Storm, Manfred, to Oliver Industries, Inc. Adjustable luggage rack. 4,273,278, Cl. 224-321.000.
Storz, Karl: *See*—
Litz, Heinz; Hallwirth, Volker; and Storz, Karl, 4,274,082, Cl. 340-167.00R.
Strang, Robert E., Sr., to Injection Plastics & Manufacturing Co. Baffle for alcohol stills. 4,273,618, Cl. 202-158.000.
Stratton, Andrew, to Imperial Chemical Industries Limited. Electric device. 4,273,051, Cl. 102-202.200.
Strauss, Manfred, to Shelcore, Inc. Spinning toy. 4,272,911, Cl. 46-47.000.
Strohschneider, Heinz F., to DBS, Inc. Portable transaction log recorder. 4,273,038, Cl. 101-45.000.
Structural Composites Industries, Inc.: *See*—
Weingart, Oscar, 4,273,601, Cl. 156-189.000.
Strutt, Derek W., to Ford Motor Company. Steering column assembly. 4,273,005, Cl. 74-492.000.
Stumpp, Gerhard; Greiner, Max; Weiss, Otmar; and Koarath, Karl, to Robert Bosch GmbH. Fuel injection pump for internal combustion engines. 4,273,091, Cl. 123-506.000.
Submarine Products Limited: *See*—
Oswell, Hugh H. B., 4,273,120, Cl. 128-204.260.
Suddeutsche Kuhlerfabrik Julius Fr. Behr GmbH & Co. KG: *See*—
Nonnenmann, Manfred, 4,273,681, Cl. 252-472.000.
Suddeutsche Zucker-Aktiengesellschaft: *See*—
Cronewitz, Theodor; and Schiweck, Hubert, 4,273,590, Cl. 127-44.000.
Sudo, Atsushi: *See*—
Matsumoto, Mutsumi; Sugi, Hideki; and Sudo, Atsushi, 4,273,676, Cl. 252-435.000.
Sudo, Ryoichi: *See*—
Watanabe, Takeshi; Sudo, Ryoichi; Shoji, Fusaji; Takemoto, Isei; and Yokono, Hitoshi, 4,273,420, Cl. 350-341.000.
Suga, Tadoru. Apparatus for continuously wrapping successive articles under vacuum in heat-sealable film. 4,272,944, Cl. 53-511.000.
Sugano, Kazuhiko: *See*—
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,273,009, Cl. 74-869.000.
Sugawara, Tamio: *See*—
Igarashi, Kikuo; and Sugawara, Tamio, 4,273,923, Cl. 536-10.000.
Sugi, Hideki: *See*—
Matsumoto, Mutsumi; Sugi, Hideki; and Sudo, Atsushi, 4,273,676, Cl. 252-435.000.
Sugie, Hiromichi; Akado, Hajime; and Yamashita, Akira, to Nippondenso Co., Ltd. Air cleaner of internal combustion engines. 4,273,564, Cl. 55-267.000.
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, to Unitika Ltd. Preparation of antithrombogenic polymeric materials. 4,273,873, Cl. 435-180.000.

Sugo, Takanobu: *See*—
Machi, Suso; Ishigaki, Isao; Sugo, Takanobu; Murata, Kazuo; Taneo, Shiro; and Senoo, Keizi, 4,273,840, Cl. 429-144.000.
Suhara, Yasuji; Ogawa, Kiyoshi; Yokoee, Kazutere; and Watanabe, Kinihiro, to Hoffmann-La Roche Inc. Amino sugar derivatives containing trehalose. 4,273,765, Cl. 424-180.000.
Sultan Dental Products, Inc.: *See*—
Said, Paul A., 4,273,534, Cl. 433-90.000.
Sulzer Brothers Limited: *See*—
Frey, Otto, 4,272,855, Cl. 3-1.900.
Pfarrwaller, Erwin, 4,273,163, Cl. 139-308.000.
Sumimura, Shinichi; and Shimuzu, Koji, to Toray Silicone Company, Ltd. Electrically conductive curable liquid organopolysiloxane compositions. 4,273,697, Cl. 260-37.0SB.
Sumitomo Chemical Co., Ltd.: *See*—
Asada, Mamoru; Shiga, Akinobu; Matsuyama, Kiyoshi; and Kakugo, Masahiro, 4,273,905, Cl. 526-142.000.
Koyanagi, Rokuo; Fujita, Yoshio; and Mukai, Kunio, 4,273,769, Cl. 424-224.000.
Sumitomo Naugatuck Co., Ltd.: *See*—
Miaematsu, Hiroyuki; Matsumoto, Kojiro; Saeki, Tadashi; and Kishi, Akira, 4,273,895, Cl. 525-264.000.
Summers, Tommy L.; and Yenawine, David L., to Texas Instruments Incorporated. Method and apparatus for manufacturing gas-filled tubes and the like. 4,273,398, Cl. 316-20.000.
Sun Valley Poultry Limited: *See*—
Clark, Colin R.; Shore, Arthur R.; and Corbett, Robert A., 4,273,071, Cl. 119-17.000.
Sunbeam Corporation: *See*—
Artin, Robert L.; and Eimerman, Allen C., 4,273,013, Cl. 83-167.000.
Sundstrand Data Control, Inc.: *See*—
Lukes, Henry J.; Kamphorst, Walter; and Asmar, Romeal F., 4,274,056, Cl. 328-162.000.
Sunstech, Inc.: *See*—
Kohn, Edward M.; Nickol, Stephen L.; and Thompson, Robert M., 4,273,898, Cl. 525-432.000.
Superior Electric Company, The: *See*—
Mosel, Edward F., 4,274,041, Cl. 318-696.000.
Surgical Mechanical Research Corp.: *See*—
Thiene, Paul G., 4,274,070, Cl. 335-205.000.
Sutliff, Wayne N.; and Downen, Jim L. Deep well pump. 4,273,520, Cl. 417-434.000.
Sutton, Robert W. Hatch cover. 4,273,064, Cl. 114-203.000.
Suyama, Hideo, to Sony Corporation. Electroacoustic transducer with magnetic flux directed slantly across a diaphragm. 4,273,968, Cl. 179-115.5PV.
Suzuki, Tadao, to Sony Corporation. Amplifier with separate AC and DC feedback loops. 4,274,058, Cl. 330-253.000.
Suzuki, Yoshiaki: *See*—
Hara, Hiroshi; Nakamura, Kotara; and Suzuki, Yoshiaki, 4,273,854, Cl. 430-216.000.
Swain, James C.; Dickson, John D.; and Schluer, Larry E., to Interlake, Inc. Storage rack entry vehicle. 4,273,494, Cl. 414-266.000.
Swanson, Carl R. Electrically operated mast for laser-controlled leveling system. 4,273,225, Cl. 192-7.000.
Swanson, Dan E.; and Reichert, Frederick A. Annunciator monitor circuit. 4,274,087, Cl. 340-525.000.
Swanson, Gerald T.; and Treinary, John, to Teledyne Industries, Inc. Smoking filters. 4,273,142, Cl. 131-339.000.
Swartz, Dorian J., to American Hospital Supply Corporation. Electrochemical sensing probe. 4,273,638, Cl. 204-195.00P.
Swearingen, Judson S.; and Irvine, Michael D., to Rotoflow Corporation. Bearing system with thrust compensation means. 4,273,390, Cl. 308-168.000.
Sweeney, Theodore J.; and Haviland, John G., to Theodore Sweeney & Company. Adhesive assembly. 4,273,827, Cl. 428-307.000.
Swietzer, William F., to GAF Corporation. Embossed sheet type covering material. 4,273,820, Cl. 428-159.000.
Swift, Harold E.: *See*—
Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., 4,273,188, Cl. 166-256.000.
SWS Silicones Corporation: *See*—
Martin, Eugene R., 4,273,896, Cl. 525-271.000.
Syeles, Albert M.: *See*—
Krall, Albert D.; and Syeles, Albert M., 4,274,097, Cl. 343-719.000.
Syntex Corporation: *See*—
Jones, Richard E.; and Smithers, Jacquelyn A., 4,273,710, Cl. 260-239.55D.
Syntex (U.S.A.) Inc.: *See*—
Alvarez, Francisco S., 4,273,770, Cl. 424-241.000.
Szarka, David D.: *See*—
Baker, Eugene E.; Szarka, David D.; Davis, Odie R. S.; and Workman, Nolan M., 4,273,190, Cl. 166-278.000.
Szoke, Sandor: *See*—
Ghyczy, Jeno; Szoke, Sandor; and Csermely, Gyorgy, 4,273,679, Cl. 252-466.00J.
Szpindel, Motek. Ring and tone plant. 4,273,964, Cl. 179-84.00R.
Szwartz, Henry S. Automatic fireplace damper. 4,273,097, Cl. 126-285.00B.
T.I.C. - Citizen Co., Ltd.: *See*—
Teragaki, Takeshi; Ohno, Yasuya; and Yokoyama, Etsuso, 4,273,396, Cl. 312-223.000.
Tadanier, John S.: *See*—
Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, 4,273,924, Cl. 536-17.00R.
Martin, Jerry R.; Tadanier, John S.; and Johnson, Paulette, 4,273,925, Cl. 536-17.00R.
Taft, Phillip A., to Girling Limited. Suspension means for vehicles. 4,273,358, Cl. 280-708.000.
Taguchi, Tetsuya: *See*—
Matsuda, Mutsuhide; Tamamura, Hideo; Taguchi, Tetsuya; Okino, Tadashi; and Yazaki, Mutsunobu, 4,273,432, Cl. 354-145.000.
Taguchi, Toru: *See*—
Hashimoto, Isao; Taguchi, Toru; and Nambu, Hirohiko, 4,273,623, Cl. 203-92.000.
Tahara, Yukio: *See*—
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Takagi, Kunihiko: *See*—
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, 4,273,873, Cl. 435-180.000.
Takagishi, Haruyoshi: *See*—
Shimotake, Hirokazu; Natsuume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Takahashi, Katsutoshi: *See*—
Matsuda, Akira; Yoshioka, Osamu; Takahashi, Katsutoshi; Yoshida, Kooichi; and Nisomiya, Hiroshi, 4,273,761, Cl. 424-81.000.
Takahashi, Toshihiko; Maruko, Morihisa; and Kimura, Shoichi, to Hitachi, Ltd. Process for removing harmful components from gas. 4,273,748, Cl. 423-230.000.
Takahashi, Toshihiko: *See*—
Kimura, Shoichi; Takahashi, Toshihiko; and Tamura, Zensuke, 4,273,749, Cl. 423-231.000.
Takahashi, Toyoki: *See*—
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, 4,273,954, Cl. 178-19.000.
Takai, Takamoto, to Nippon Thompson, Co., Ltd. Ball spline bearing assembly. 4,273,389, Cl. 308-6.00C.
Takakuwa, Eiji: *See*—
Takei, Toshihiro; Kuwakado, Satosi; Takakuwa, Eiji; and Shimogawa, Toshiaki, 4,273,361, Cl. 280-805.000.
Takamizawa, Minoru; Okada, Fumio; Hara, Yasuaki; and Aoki, Hisashi, to Shin-Etsu Chemical Co., Ltd. Benzoin-bonded organopolysiloxanes and method for the preparation thereof. 4,273,907, Cl. 528-29.000.
Takamizawa, Minoru: *See*—
Yokokura, Shuichi; Horie, Yu; Takamizawa, Minoru; Inoue, Yoshio; and Yoshioka, Hiroshi, 4,273,834, Cl. 428-429.000.
Takara Co., Ltd.: *See*—
Inoue, Tsutomu, 4,272,918, Cl. 46-266.000.
Takayama, Satoshi: *See*—
Murata, Kosaku; Takayama, Satoshi; and Ieki, Mitsuru, 4,273,900, Cl. 525-444.000.
Takefuta, Hideyasu; Shinoda, Akira; and Shibuta, Teruyoshi, to Diesel Kiki Co., Ltd. Electromagnetic spring-wound clutch. 4,273,226, Cl. 192-35.000.
Takehara, Masahiro: *See*—
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, 4,273,684, Cl. 252-544.000.
Takei, Toshihiro; Kuwakado, Satosi; Takakuwa, Eiji; and Shimogawa, Toshiaki, to Nippon Soken, Inc. Seat belt system for vehicle. 4,273,361, Cl. 280-805.000.
Takemoto, Isei: *See*—
Watanabe, Takeshi; Sudo, Ryoichi; Shoji, Fusaji; Takemoto, Isei; and Yokono, Hitoshi, 4,273,420, Cl. 350-341.000.
Takeuchi, Keizo; Iwai, Yoshio; Yamanaka, Tadashi; and Miura, Tatsuo, to Nippondenso Co., Ltd. Method of manufacturing mechanical parts from metal scrap. 4,272,877, Cl. 29-403.200.
Takeuchi, Shinziro; Kikuchi, Toshiro; Mitsumoto, Norio; Takahashi, Toyoki; Hayashi, Hidekatsu; and Ichioka, Satoshi, to Mishima Kosan Co., Ltd. Coordinate reading device. 4,273,954, Cl. 178-19.000.
Talini, Maurizio: *See*—
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Tamamura, Hideo: *See*—
Matsuda, Mutsuhide; Tamamura, Hideo; Taguchi, Tetsuya; Okino, Tadashi; and Yazaki, Mutsunobu, 4,273,432, Cl. 354-145.000.
Tamaru, Munetaka: *See*—
Kume, Kazunari; Watanabe, Minoru; Ohno, Hideshi; and Tamaru, Munetaka, 4,274,153, Cl. 368-80.000.
Tamulevich, Thomas W., to Epoxy Technology Inc. Face finishing tool for fiber optic communication cable. 4,272,926, Cl. 51-216.00R.
Tamura, Eiji; and Nakamura, Takashi, to Sony Corporation. Memory-type automatic adjustment system. 4,274,107, Cl. 358-29.000.
Tamura, Zensuke: *See*—
Kimura, Shoichi; Takahashi, Toshihiko; and Tamura, Zensuke, 4,273,749, Cl. 423-231.000.
Tanaka, Akira, to American Safety Equipment Corporation. Dual latching mechanism for a flexible deck lid. 4,273,368, Cl. 292-53.000.
Tanaka, Fujio: *See*—
Nagasawa, Kohtaro; Ochi, Hideo; Tanaka, Fujio; and Shibata, Yumi, 4,273,858, Cl. 430-296.000.
Tanaka, Nobuyasu; Nakajima, Kazuhira; Yamaguchi, Kaoru; Hara, Shinji; Murata, Morihiro; Nakazima, Tetuyosi; Matuo, Hiroei; Chiaki, Akura; and Hirano, Kazuo, to Fuji Electric Co., Ltd. Automatic vending machine. 4,273,253, Cl. 221-75.000.
Tanaka, Shuhei: *See*—
Obba, Shinya; Tanaka, Shuhei; Kubo, Masaharu; Ando, Haruhisa; Yamashita, Yutaro; Hatamura, Shoji; Aoki, Masaharu; and Nakai, Masaaki, 4,274,113, Cl. 358-212.000.

Tanaka, Shunroku; Inoue, Jun; Yukimachi, Katsurou; and Minamino, Keiichi, to Osaka Gas Kabushiki Kaisha. Solar heat utilized air-conditioning system. 4,273,184, Cl. 165-59.000.
Tani, Shoji; and Nishio, Kenji, to New Japan Chemical Company, Ltd. Process for preparing 3,4,5,6-tetrahydrophthalic anhydrides or derivatives thereof. 4,273,719, Cl. 260-346.300.
Taniguchi, Masatosi: *See*—
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.
Tanimura, Ken: *See*—
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Tansill, Horace A. Resin-coated fiber mass containing catalyst-filled hollow fibers. 4,272,898, Cl. 36-44.000.
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Tate, Ronald D.: *See*—
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Tatina, Richard A., to Portec, Inc. Winch and chain attachment assembly. 4,273,486, Cl. 410-103.000.
Tatsuno, Kimio: *See*—
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Taylor, Clyde O.: *See*—
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Teche, Andre: *See*—
Martel, Jacques; Tessier, Jean; Teche, Andre; and Demoute, Jean-Pierre, 4,273,727, Cl. 260-465.00F.
Technicon Instruments Corporation: *See*—
Judge, John F. X., 4,274,093, Cl. 340-712.000.
Technische Gerate -u. Entwicklungsgesellschaft m.b.H: *See*—
Jordan, Heinz, 4,273,302, Cl. 244-23.00C.
Tecumseh Products Company: *See*—
Gannaway, Edwin L., 4,273,519, Cl. 417-273.000.
Teijin Chemicals, Ltd.: *See*—
Saiki, Noritsugu; and Kaneko, Takashi, 4,273,899, Cl. 525-439.000.
Teijin Limited: *See*—
Saiki, Noritsugu; and Kaneko, Takashi, 4,273,899, Cl. 525-439.000.
Teledyne Industries, Inc.: *See*—
Swanson, Gerald T.; and Trenary, John, 4,273,142, Cl. 131-339.000.
Telescope Folding Furniture Co., Inc., The: *See*—
Borichevsky, Donald J., 4,273,379, Cl. 297-56.000.
Telle, Helmut: *See*—
Briakmann, Uwe; Telle, Helmut; Raue, Roderich; and Schellhammer, Carl-Wolfgang, 4,274,062, Cl. 331-94.50L.
Ten Eyck, Richard E.: *See*—
Smith, Lloyd T.; Bartholomew, Alan E.; Fee, Robert W.; Meister, Michael L.; Robbins, Richard J.; and Ten Eyck, Richard E., 4,273,173, Cl. 81-177.00M.
Tenneco Chemicals, Inc.: *See*—
Feldman, Martin L.; and De Groff, James T., 4,273,701, Cl. 260-40.00R.
Tennyson, Mark R.: *See*—
Padgett, Clarence W.; Marmet, Melvin L.; and Tennyson, Mark R., 4,274,147, Cl. 365-189.000.
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Aladiev, Ivan T.; Dzhamardzhashvili, Vazha A.; Dikhashidze, Manana A.; Teplov, Sergei V.; and Takhvirashvili, David G., 4,274,019, Cl. 310-11.000.
Teragaki, Takeshi; Ohno, Yasuya; and Yokoyama, Etsuso, to T.I.C. - Citizen Co., Ltd. Display unit. 4,273,396, Cl. 312-223.000.
Teranishi, Katsuya: *See*—
Saito, Cyuichi; and Teranishi, Katsuya, 4,273,232, Cl. 198-335.000.
Terreri, Anthony N. Oil-filled cable pothead with venting means and tool therefor. 4,273,951, Cl. 174-11.0BH.
Terry, Melvin D. Roll handling device. 4,273,501, Cl. 414-680.000.
Tertishnikov, Anatoly S.; Platunov, Boris P.; Novikov, Alexei V.; Gordeev, Nikolai A.; Belebashev, Eduard K.; Lovtsov, Dmitry P.; Korytov, Vladimir A.; and Ignatiev, Jury P. Process and apparatus for continuous casting of metal in electromagnetic field. 4,273,180, Cl. 164-49.000.
Teshima, Hiroshi: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.
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Texaco Development Corp.: *See*—
Dominguez, Richard J. G.; and Rice, Doris M., 4,273,885, Cl. 521-115.000.
Texaco Inc.: *See*—
Arnold, Dan M.; and Pitts, Robert W., Jr., 4,272,982, Cl. 73-19.000.
Barber, Everett M.; Muenger, James R.; and Alexander, David L., 4,273,743, Cl. 422-148.000.
Dominguez, Richard J. G., 4,273,884, Cl. 521-114.000.
Gunn, Kenneth M., 4,273,164, Cl. 141-7.000.
Hammond, Kenneth G.; and Chafetz, Harry, 4,273,663, Cl. 252-34.000.
Saadeh, Fuad T.; and Fontaine, Marc F., 4,273,192, Cl. 166-312.000.
Satter, Abdus; Widmyer, Richard H.; Shum, Yick M.; and Howard, Curtis E., 4,273,187, Cl. 166-250.000.
Texas Instruments Incorporated: *See*—
Summers, Tommy L.; and Yenawine, David L., 4,273,398, Cl. 316-20.000.
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Theodore Sweeney & Company: *See*—
Sweeney, Theodore J.; and Haviland, John G., 4,273,827, Cl. 428-307.000.
Thiene, Paul G., to Surgical Mechanical Research Corp. Proximity instant-on switch for medical and dental instruments. 4,274,070, Cl. 335-205.000.
Thiokol Corporation: *See*—
Lamere, Garland C.; Inman, Frank S.; and Mitchell, Ronald B., 4,272,956, Cl. 60-242.000.
Tholen, Paul, to Klockner-Humboldt-Deutz Aktiengesellschaft. Cooling system for vehicle drive. 4,273,082, Cl. 123-41.310.
Thoma, Kurt; and Ulrich, Urban, to BBC Brown, Boveri & Company, Limited. Device for holding a disc-shaped semiconductor element. 4,273,185, Cl. 165-80.00B.
Thomas, Arend J. Electric heating apparatus for heat-treating pharmaceuticals. 4,273,992, Cl. 219-521.000.
Thomas & Betts Corporation: *See*—
Law, Joseph P., 4,273,405, Cl. 339-94.00R.
Thomas, Daniel C.: *See*—
Muzyczko, Thaddeus M.; and Thomas, Daniel C., 4,273,851, Cl. 430-175.000.
Thomas, James L.: *See*—
Cummins, Richard W.; Fuchs, Robert J.; and Thomas, James L., 4,273,687, Cl. 260-17.200.
Thomerson, Clarence; and Jackson, Jay W., to Regal Tool & Rubber Co., Inc. Shock absorbing column. 4,273,473, Cl. 405-212.000.
Thompson, Carl, Jr., to Gould Inc. Undervoltage protector for manual motor controller. 4,274,068, Cl. 335-20.000.
Thompson, Charles L.: *See*—
Rapson, William J., Jr.; Delatorre, Leroy C.; and Thompson, Charles L., 4,272,985, Cl. 73-49.200.
Thompson, Craig B.: *See*—
Hanson, Sheldon H.; Thompson, Craig B.; and Olson, James E., 4,273,791, Cl. 426-439.000.
Thompson, David E.; Yao, Shi-Kay; August, Rudolf R.; and Anderson, Dean B., to Rockwell International Corporation. Interferometer gyroscope formed on a single plane optical waveguide. 4,273,445, Cl. 356-350.000.
Thompson, David L.: *See*—
Hartlaub, Jerome T.; Thompson, David L.; and McDonald, Ray S., 4,273,132, Cl. 128-419.0PT.
Thompson, M. Leonard: *See*—
Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,273,479, Cl. 407-113.000.
Thompson, Mortimer S. Bottles with attached handles and a method of forming the same. 4,273,246, Cl. 215-100.00A.
Thompson, Robert M.: *See*—
Kohn, Edward M.; Nickol, Stephen L.; and Thompson, Robert M., 4,273,898, Cl. 525-432.000.
Thoms, Richard W., to Parklawn Associates, Inc. Method and apparatus for controlling and conserving energy in an absorption refrigeration system. 4,272,965, Cl. 62-104.000.
Thomson, Robert P.; and Robertson, James R., to Imperial Chemical Industries Limited. Industrial manipulator for placing articles in close proximity to adjacent articles. 4,273,506, Cl. 414-735.000.
Thorne, William D.: *See*—
Sebrosky, Robert A.; and Thorne, William D., 4,273,040, Cl. 101-93.040.
Thornton, Donald C.: *See*—
Laitinen, Herbert A.; and Thornton, Donald C., 4,273,624, Cl. 204-23.000.
Three Bond Co., Ltd.: *See*—
Higuchi, Senji, 4,273,835, Cl. 428-446.000.
Thummler, Ursus: *See*—
Lehr, Klaus; Heymer, Gero; Stephan, Hans-Werner; and Thummler, Ursus, 4,273,752, Cl. 423-322.000.
Thunselle, James: *See*—
Wolford, Byron F.; Rose, John F.; and Thunselle, James, 4,273,976, Cl. 200-83.00L.
Thurber, Robert E.: *See*—
Phipps, Joe; Thurber, Robert E.; and Prengaman, Richard J., 4,274,095, Cl. 343-7.00A.
Thurston, Jay D.; and Spector, George. Flexible form fitting glove. 4,272,849, Cl. 2-16.000.
Thwaites, John A.; and Ferrara, Ronald A., to Contran Conveyors & Systems, Inc. Zero pressure accumulator and braking apparatus therefor. 4,273,239, Cl. 198-781.000.
Tietjens, Eduard W., to U.S. Philips Corporation. Shaving apparatus. 4,272,884, Cl. 30-43.600.
Tiger, Howard L. Volumetric dispenser. 4,273,271, Cl. 222-454.000.
Tilkens, Lucien, to Yamaha Hatsudoki Kabushiki Kaisha. Oleo dampers having variable orifices. 4,273,220, Cl. 188-282.000.
Tinnes, Bernhard, to Metacon AG. Slide closure for the tapping channel of a molten metal container. 4,273,315, Cl. 266-236.000.
Tobita, Katsumi: *See*—
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Todd, Robert; and Haas, Frank J., to Burroughs Corporation. Apparatus and method for dynamic font switching. 4,274,079, Cl. 340-146.3FT.
Todokoro, Hideo: *See*—
Fukuhara, Satoru; Todokoro, Hideo; and Sakitani, Yoshio, 4,274,035, Cl. 315-357.000.
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Ito, Susumu; and Toki, Kaoru, 4,274,053, Cl. 324-174.000.
Tokico Ltd.: *See*—
Ito, Hiroshi, 4,273,219, Cl. 188-256.000.
Tokuda, Hiroatsu; and Furuhashi, Toshio, to Hitachi, Ltd. Method and apparatus for controlling an internal combustion engine, particularly the starting up of the engine. 4,274,141, Cl. 364-431.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Honma, Hiroshi, 4,273,452, Cl. 400-124.000.
Shimokawa, Yoshiyuki, 4,274,138, Cl. 364-200.000.
Tomita, Yutaka, 4,274,002, Cl. 250-366.000.
Yamamura, Toshio; Muraki, Takeshi; and Miura, Heihachi, 4,274,005, Cl. 250-445.00T.
Tolbert, William R.; Hitt, Mary M.; and Feder, Joseph, to Monsanto Company. Production of angiogenic factor by cell culture. 4,273,871, Cl. 435-41.000.
Tollette, Henry B., to Custom Made Packaging Inc. Foam based structure. 4,273,816, Cl. 428-35.000.
Tolman, Radon: *See*—
Phillips, William R., Jr.; Tate, Ronald D.; and Tolman, Radon, 4,273,312, Cl. 266-44.000.
Tom McGuane Industries, Inc.: *See*—
Ludwig, George C., 4,273,157, Cl. 137-887.000.
Tomioka, Kentaro; Watanabe, Kazahiro; and Iwata, Eiji, to G-C Dental Industrial Corp. Dental silicone compositions and the method of using the same. 4,273,902, Cl. 525-478.000.
Tomita, Masao, to Matsushita Electric Industrial Co., Ltd. Digital record level setting system. 4,274,117, Cl. 360-68.000.
Tomita, Yoshifumi: *See*—
Nonogaki, Saburo; Morishita, Hajime; Hashimoto, Michiaki; Manabe, Toshikatsu; Tomita, Yoshifumi; and Nishizawa, Masahiro, 4,273,842, Cl. 430-25.000.
Tomita, Yutaka, to Tokyo Shibaura Denki Kabushiki Kaisha. Scintillation camera. 4,274,002, Cl. 250-366.000.
Tomlinson, Lenore E. Protective insert for use with soft-sided luggage. 4,273,223, Cl. 190-41.00C.
Tomoeda, Eiichi. Apparatus for identifying moving objects. 4,274,083, Cl. 340-171.00R.
Tompkins, John C., to Kerr-McGee Coal Corporation. Process for use in degasification of subterranean mineral deposits. 4,273,193, Cl. 166-314.000.
Tomra Systems A/S: *See*—
Rustand, Willy, 4,273,235, Cl. 198-372.000.
Tool, Eduard A.: *See*—
Boriskin, Ivan K.; Bragin, Jury S.; Bykov, Mikhail S.; Gubanov, Valentin I.; Ivanov, Vladlen M.; Tool, Eduard A.; Bazilevich, Sergei V., deceased; Bazilevich, Tatyana N., administrator; Sergeev, Vitaly A., deceased; Sergeeva, Valentina I., administrator; and Sergeeva, Elena V., administrator, 4,273,298, Cl. 241-189.00R.
Toray Silicone Company, Ltd.: *See*—
Suminura, Shinichi; and Shimuzu, Koji, 4,273,697, Cl. 260-37.0SB.
Torrey, Arthur L.: *See*—
Huggins, Raymond W.; Burnham, Paul W.; and Torrey, Arthur L., 4,273,069, Cl. 118-658.000.
Toshin Kogyo Co., Ltd.: *See*—
Machida, Saneto, 4,273,042, Cl. 101-123.000.
Towmotor Corporation: *See*—
Brown, Valkai K.; Bjorksten, Thorolf R.; and Walter, Llewellyn L., 4,273,224, Cl. 192-4.00A.
Toyama, Masamichi: *See*—
Iwama, Hideto; Toyama, Masamichi; Shimazaki, Mamoru; and Ichiyanagi, Toshikazu, 4,273,426, Cl. 352-169.000.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Kobayashi, Fumiaki, 4,273,375, Cl. 296-65.00R.
Ogawa, Masahiro; and Mizobe, Tagio, 4,273,983, Cl. 219-93.000.
Onaka, Hidemi, 4,273,092, Cl. 123-568.000.
Tracy, Chester E.; and Kera, Werner, to RCA Corporation. Bulk glass having improved properties. 4,273,828, Cl. 428-336.000.
Trahan, Karl W., Sr.; and Smith, Timothy S., to Kar Fabricators, Inc. Basin. 4,273,466, Cl. 404-4.000.
Traub, Alan C.: *See*—
Dostoomian, A. S.; and Traub, Alan C., 4,274,154, Cl. 368-82.000.
Trefney, Ralph P., to Bird Electronic Corporation. Monitor for RF transmitter. 4,274,156, Cl. 455-115.000.
Tregartha, Steven J., to Lucas Industries Limited. Electrical switch having rotatable and pivotable lever. 4,273,971, Cl. 200-4.000.
Trenary, John: *See*—
Swanson, Gerald T.; and Trenary, John, 4,273,142, Cl. 131-339.000.
Tri-Tech, Inc.: *See*—
Haydon, Arthur W.; and Dean, John J., 4,274,026, Cl. 310-254.000.
Tricoles, Gus P.; and Rope, Eugene L., to General Dynamics Corporation, Electronics Division. Three-dimensional measurement of radiant energy scattering characteristics with a turntable-type scanning interferometer. 4,274,048, Cl. 324-58.00R.
Trigg, Donald L.; and Portolan, Richard V. Flag pin attachment including ball distance measuring line and turf repair tool. 4,273,329, Cl. 273-32.00B.
Trilli, Pasquale. Combination laminator and separator. 4,273,606, Cl. 156-388.000.
Troebel, Werner; and Hebedank, Klaus-Dieter, to Siemens Aktiengesellschaft. Locking arrangement for electric circuit breakers. 4,274,069, Cl. 335-21.000.
Trutzschler GmbH & Co. KG: *See*—
Vollrath, Ulrich, 4,272,866, Cl. 19-150.000.
TRW Inc.: *See*—
Jones, Robert J., 4,273,916, Cl. 528-117.000.
Takhvirashvili, David G.: *See*—
Aladiev, Ivan T.; Dzhamardzhashvili, Vazha A.; Dikhashidze, Manana A.; Teplov, Sergei V.; and Takhvirashvili, David G., 4,274,019, Cl. 310-11.000.
Tsui, Kwok W., to Arco Industries Ltd. Toy medical monitor unit. 4,272,909, Cl. 46-39.000.
Tsukaya, Takashi, to Olympus Optical Co., Ltd. Endoscope with bend angle control. 4,273,111, Cl. 128-6.000.
Tsutaya, Tadao: *See*—
Fujita, Isao; Imanishi, Nobuyuki; Tsutaya, Tadao; Watanabe, Ryo; and Kawai, Takao, 4,273,577, Cl. 75-41.000.
Tsutsui, Ken; Sanno, Akira; Nakano, Toshio; Matsumaru, Haruo; and Maruyama, Eiichi, to Hitachi, Ltd.; and Hitachi Denshi Kabushiki Kaisha. Method of producing material patterns by evaporating material through a perforated mask having a reinforcing bridge. 4,273,812, Cl. 427-248.100.
Tuda, Koji; Nagashima, Hironobu; and Marui, Masatoshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Laryax stroboscope device. 4,273,959, Cl. 179-1.0SC.
Turk, Gunter: *See*—
Nauroth, Peter; Esch, Heinz; Kuhlmann, Robert; Bode, Rudolf; Reisert, Arthur; Buhler, Harald; and Turk, Gunter, 4,273,589, Cl. 106-308.00Q.
Turner, S. Richard: *See*—
Pai, Damodar M.; Turner, S. Richard; Yanus, John F.; Renfer, Dale S.; and Stolka, Milan, 4,273,846, Cl. 430-59.000.
Turnwald, Ernst; Aaztalos, Stefan; and Rossmanier, Rudolf, to Linde Aktiengesellschaft. Valves and operating system for expansion machines. 4,273,028, Cl. 91-275.000.
Turova, Lidia S.: *See*—
Pravoverov, Nikolai L.; Nazyrov, Ravil N.; Grigorov, Sergei S.; and Turova, Lidia S., 4,273,137, Cl. 128-784.000.
Tyran, Leo W., to Du Pont de Nemours, E. I., and Company. Flake silver powders with chemisorbed monolayer of dispersant. 4,273,583, Cl. 75-251.000.
Uchida, Shigeru: *See*—
Shimatake, Hirokazu; Natsume, Kenzo; Kojima, Takeshi; Ogawa, Shuichi; Nara, Ryuichi; Uchida, Shigeru; and Takagishi, Haruyoshi, 4,273,504, Cl. 414-728.000.
Ueda, Makoto: *See*—
Ikenishi, Masataka; Miyazaki, Joichi; Kushida, Shozo; Nakanishi, Hiromasa; Ueda, Makoto; and Shida, Masaharu, 4,274,150, Cl. 368-185.000.
Ueno, Mitsuo, to Nissan Motor Company, Limited. Axle construction for four wheel drive vehicles or the like. 4,273,460, Cl. 403-1.000.
Uesugi, Kyozo, to Minolta Camera Kabushiki Kaisha. Zoom lens barrel assembly for constant magnification. 4,273,423, Cl. 350-429.000.
Uihlein, Michael, to Hoechst Aktiengesellschaft. Microchronotographic system for medicament intake control. 4,273,653, Cl. 210-198.300.
Ulrich, Urban: *See*—
Thoma, Kurt; and Ulrich, Urban, 4,273,185, Cl. 165-80.00B.
UMC Industries, Inc.: *See*—
Koenecker, William V.; and Newkirk, Franklin D., 4,273,299, Cl. 222-108.000.
Unigovsky, Mikhail R.: *See*—
Paton, Boris E.; Scherbina, Boris E.; Lebedev, Vladimir K.; Ivanstov, Oleg M.; Kuchuk-Yatsenko, Sergei I.; Sakharnov, Vasily A.; Galina, Boris A.; Unigovsky, Mikhail R.; and Serafin, Ornst M., 4,273,985, Cl. 219-101.000.
Union Carbide Corporation: *See*—
Carder, Charles H.; and Koleske, Joseph V., 4,273,633, Cl. 204-159.170.
D'Angelo, Paul F.; and Metzler, Richard B., 4,273,584, Cl. 106-3.000.
Fiato, Rocco A.; and Fruett, Roy L., 4,273,936, Cl. 562-606.000.
Gum, Mary L.; and Kearns, Nancye D., 4,273,937, Cl. 564-2.000.
Kamp, Ewald A., 4,273,550, Cl. 493-240.000.
Pepe, Enrico J.; and Morales, James G., 4,273,694, Cl. 260-29.20E.
Uniroyal, Inc.: *See*—
Nybakken, George H., 4,273,177, Cl. 152-360.000.
United Kingdom of Great Britain and Northern Ireland, The Secretary of State in Her Britannic Majesty's Government of the: *See*—
Bowditch, Malcolm R., 4,273,598, Cl. 156-94.000.
U.S. Emission Systems, Inc.: *See*—
Waltrip, Owen R., 4,272,958, Cl. 60-309.000.
United States of America
Agriculture: *See*—
Dawson, Jean H., 4,272,920, Cl. 47-58.000.
Hicks, Kevin B., 4,273,922, Cl. 536-1.000.
Kochansky, Jan P.; Feldmeser, Julius; and Robbins, William E., 4,273,764, Cl. 424-222.000.
Koritala, Sambasivarao, 4,273,722, Cl. 260-409.000.
Air Force: *See*—
Allnikov, Sidney, 4,273,671, Cl. 252-301.100.
Altor, Frank E.; and Winn, William H., 4,273,183, Cl. 165-32.000.
Garscadden, Alan; Bletzinger, Peter; Hasinger, Siegfried H.; Olson, Robert A.; and Sarka, Benjamin, 4,274,065, Cl. 331-94.50G.

Geary, Joseph M., 4,273,419, Cl. 350-320.000.
Glass, Howard L.; and Elliott, Michael T., 4,273,610, Cl. 156-624.000.
Pohle, Richard H., 4,273,446, Cl. 356-354.000.
Renau, Jacques; Curtis, James W.; Nicholson, Donald S.; and Hennessey, Frank L., 4,274,098, Cl. 343-781.0CA.
Stoll, Harold M., 4,274,049, Cl. 324-77.00K.
Vonusa, Richard S.; and Woodard, Jeffrey P., 4,274,092, Cl. 340-705.000.
Walter, Albert F., 4,273,026, Cl. 89-37.00R.
Wick, Ralph E., 4,273,536, Cl. 434-14.000.

Army: *See*—
F'Geppert, Erwin, 4,272,998, Cl. 74-99.00R.
Gutierrez, William A.; and Pollard, John H., 4,273,596, Cl. 148-171.000.

National Aeronautics and Space Administration: *See*—
Clark, Keith H.; and Johnston, James D., 4,273,505, Cl. 414-735.000.
Rosser, Robert W.; Shalhoub, Ibrahim M.; and Kwong, Hanoi, 4,273,918, Cl. 528-310.000.
Sawyer, Ralph V., 4,274,038, Cl. 318-663.000.

Navy: *See*—
Aley, Michael H.; Bowen, James A.; and Glass, Cecil A., 4,273,048, Cl. 102-363.000.
Assard, Gerald L., 4,274,055, Cl. 328-14.000.
Krall, Albert D.; and Syeles, Albert M., 4,274,097, Cl. 343-719.000.
Phipps, Joe; Thurber, Robert E.; and Prengaman, Richard J., 4,274,095, Cl. 343-7.00A.
Pierpoint, William, 4,273,999, Cl. 250-205.000.
Porter, Roger S.; and Zachariades, Anagnostis E., 4,273,739, Cl. 264-211.000.

U.S. Philips Corporation: *See*—
Barre, Claude, 4,274,044, Cl. 320-21.000.
Giles, Terence G., 4,274,089, Cl. 340-572.000.
Tietjens, Eduard W., 4,272,884, Cl. 30-43.600.
Van de Leest, Renaat E.; Krijl, Gerrit; and Boonzajer Flaes, Ewoud A., 4,273,625, Cl. 204-56.00R.
Weistra, Marten P., 4,272,995, Cl. 73-861.090.

United States Trading International, Inc.: *See*—
De Long, Charles F., 4,273,833, Cl. 428-411.000.

United Technologies Corporation: *See*—
McComas, Charles C.; and Sokol, Larry S., 4,273,824, Cl. 428-256.000.
Paduch, Stanley R.; and Olson, Robert K., 4,273,150, Cl. 137-85.000.

United Turbine AB & Co., Kommanditbolag: *See*—
Kronogard, Sven-Olof, 4,272,954, Cl. 60-39.16R.

Unitika Ltd.: *See*—
Sugitachi, Akio; Takagi, Kunihiko; and Yabushita, Yasunori, 4,273,873, Cl. 435-180.000.

Universal Foods Corporation: *See*—
Bentzien, Len, 4,272,895, Cl. 34-10.000.

Universal Pioneer Corporation: *See*—
Kanamaru, Hitoshi, 4,273,998, Cl. 250-204.000.

University of Minnesota, The Regents of the: *See*—
Shapiro, Burton L., 4,273,869, Cl. 435-26.000.

Uno, Masahiro: *See*—
Watanabe, Atsuo; and Uno, Masahiro, 4,273,450, Cl. 356-433.000.

Upjohn Company, The: *See*—
Bundy, Gordon L., 4,273,716, Cl. 260-345.90P.
Manis, Jack J., 4,273,875, Cl. 435-253.000.
Sih, John C., 4,273,718, Cl. 260-346.220.

Uroshevich, Miroslav, to Alpha Solarco Inc. Solar energy receivers. 4,273,103, Cl. 126-438.000.

Uroshevich, Miroslav, to Alpha Solarco Inc. Solar energy collectors. 4,273,104, Cl. 126-439.000.

Uroshevich, Miroslav, to Alpha Solarco Inc. Solar energy collector. 4,273,105, Cl. 126-443.000.

USM Corporation: *See*—
Foley, Michael S.; and Pierson, Mark V., 4,273,393, Cl. 312-97.100.

Uson Corporation: *See*—
Rapeon, William J., Jr.; Delatorre, Leroy C.; and Thompson, Charles L., 4,272,985, Cl. 73-49.200.

Usuba, Yasunori: *See*—
Nagashima, Tetsuya; Usuba, Yasunori; Ogawa, Takahisa; and Takehara, Masahiro, 4,273,684, Cl. 252-544.000.

Uzunoglu, Vasil, to Communications Satellite Corporation. Universal clock recovery network for QPSK modems. 4,274,067, Cl. 331-172.000.

Vadnais, Kenneth, to S & S Industries, Inc. Toy accessory. 4,273,275, Cl. 224-101.000.

Valeron Corporation, The: *See*—
Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,273,479, Cl. 407-113.000.

Vandame, Philippe L., to Nordic Finance and Trade (Panama) Ltd. Inc. Electric circuit breaker. 4,273,975, Cl. 200-67.00C.

Van de Leest, Renaat E.; Krijl, Gerrit; and Boonzajer Flaes, Ewoud A., to U.S. Philips Corporation. Method of treating objects the surface of which consists of tin. 4,273,625, Cl. 204-56.00R.

van der Lely, Cornelis. Torque converter. 4,273,206, Cl. 180-6.00Z.

van de Wetering, Martinus B., to Interproduct B.V. Hoist clamp. 4,273,373, Cl. 294-101.000.

Vandlik, Robert P.: *See*—
Herdzina, Frank J.; and Vandlik, Robert P., 4,273,507, Cl. 414-750.000.

Vanhove, Jacques, to Mutexil. Method for manufacturing overshoes made of non-woven fabric. 4,272,859, Cl. 12-142.00K.

van't Hullenaar, Adrian, deceased (by Hullenaar, Christina Maria van't, executrix), to Westinghouse Canada Limited. Digital time-delay beamformer for sonar systems. 4,274,148, Cl. 367-122.000.

Vanzetti Infrared & Computer Systems, Inc.: *See*—
Dostoomian, A. S.; and Traub, Alan C., 4,274,154, Cl. 368-82.000.

Vapor Corporation: *See*—
Malinski, Richard F.; and Sikorcin, John, 4,273,307, Cl. 251-69.000.

Varadhachary, Seevaram N.: *See*—
Schmidle, Claude J.; and Varadhachary, Seevaram N., 4,273,819, Cl. 428-159.000.

Varian Associates, Inc.: *See*—
Nelson, Norvell J., 4,273,559, Cl. 23-232.00E.

Vartuli, James C.; and Zehner, Lee R., to Atlantic Richfield Company. Preparation of thallium promoted $VO(PO_3)_2$ oxidation catalyst. 4,273,677, Cl. 252-435.000.

Vassiliades, Anthony E., to Champion International Corporation. Microencapsulation process. 4,273,672, Cl. 252-316.000.

Veeder Industries Inc.: *See*—
Devanney, Raymond H., 4,273,995, Cl. 235-139.00R.
Fleischer, Donald W., 4,273,994, Cl. 235-92.00A.

Veloni, Bob R. Apparatus and method for extracting stuck ammunition cases from sizer dies. 4,273,024, Cl. 86-1.00R.

Vereinigte Baubeschlagfabriken, Gretsch & Co. GmbH: *See*—
Storandt, Ralf, 4,273,355, Cl. 280-614.000.

Verhecken, Andre: *See*—
Jaeken, Jan; Verhecken, Andre; Vetter, Hans; and Marx, Paul, 4,273,855, Cl. 430-242.000.

Vero Electronics GmbH: *See*—
Weiss, Harald, 4,273,952, Cl. 174-68.00B.

Vetter, Hans: *See*—
Jaeken, Jan; Verhecken, Andre; Vetter, Hans; and Marx, Paul, 4,273,855, Cl. 430-242.000.

Vianini, S.p.A.: *See*—
Marchesi, Sergio; and Fachin, Gino, 4,273,740, Cl. 264-228.000.

Victor Company of Japan, Limited: *See*—
Okabe, Yasuhisa, 4,274,059, Cl. 330-266.000.
Wada, Yoshiyo; Goto, Kunio; and Kinjo, Hisao, 4,273,967, Cl. 369-126.000.

Victor Electric Wire & Cable: *See*—
Blanche, Stephen A.; and Portrais, Lee, 4,273,409, Cl. 339-206.00P.

Villard, George: *See*—
Ponticello, Ignazio S.; Sniadoch, Henry J.; and Villard, George, 4,273,853, Cl. 430-213.000.

Villiger, Alois: *See*—
Boller, Arthur; Schadt, Martin; and Villiger, Alois, 4,273,929, Cl. 544-242.000.

Vinals, Joaquin F.: *See*—
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,273,662, Cl. 252-8.900.

Viri, Donald P.: *See*—
Iceland, William F.; and Viri, Donald P., 4,273,988, Cl. 219-137.0PS.

Viscovich, Paul W.; and Khemlani, Moti T., to Westinghouse Electric Corp. Pressure controller for dual purpose steam turbine power plant. 4,272,962, Cl. 60-648.000.

Visser, Teunis, to IHC Holland N.V. Shaft seal. 4,273,343, Cl. 277-53.000.

Vitobello, Vincenza: *See*—
Zaffaroni, Pasquale; Vitobello, Vincenza; and Gamalerio, Anna M., 4,273,872, Cl. 435-55.000.

Vittadini, Giorgio: *See*—
Garzia, Aldo; Vittadini, Giorgio; Bottazzi, Andrea; Pelagalli, Domenico; and Coccoli, Costantino, 4,273,931, Cl. 546-344.000.

Vivitar Corporation: *See*—
Praamsma, Michael F., 4,274,131, Cl. 362-355.000.
Shimojima, Masatoshi, 4,273,414, Cl. 350-429.000.

Vock, Manfred H.: *See*—
Sprecker, Mark A.; Schmitt, Frederick L.; Vock, Manfred H.; Vinals, Joaquin F.; and Kiwala, Jacob, 4,273,662, Cl. 252-8.900.

Voegele, Gunther; and Meyer, Gunter, to Robert Bosch GmbH. Filling apparatus for fluid media. 4,273,263, Cl. 222-148.000.

Vogel, Roger F.; Madgavkar, Ajay M.; and Swift, Harold E., to Gulf Research & Development Company. In situ combustion process for the recovery of liquid carbonaceous fuels from subterranean formations. 4,273,188, Cl. 166-256.000.

Vogel, Ronald F., to Beadix Corporation, The. Temperature compensated capacitance pressure transducer. 4,274,125, Cl. 361-283.000.

Vogelsberg, Dieter, to Siemens Aktiengesellschaft. Apparatus for the SZ twisting of power cable conductors with sector-shaped conductor cross section. 4,272,951, Cl. 57-293.000.

Voll, Horst, to Kugelfischer Georg Schafer & Co. Elastic mounting for high-speed rotor. 4,273,229, Cl. 192-105.0CF.

Vollrath, Ulrich, to Trutzschler GmbH & Co. KG. Web guiding device for a carding machine. 4,272,866, Cl. 19-150.000.

von Oertzen, Klaus: *See*—
Harms, Wolfgang; Jager, Horst; von Oertzen, Klaus; and Wunderlich, Klaus, 4,273,553, Cl. 8-549.000.

von Stering-Krugheim, Georg, to E.R.E. Europe Representation Establishment. Composition containing honey. 4,273,794, Cl. 426-590.000.

von Stetten, Otto; and Schmidt, Helmut, to Byk-Mallinckrodt Chemische Produkte GmbH. Insolubilized biochemical materials. 4,273,865, Cl. 435-7.000.

Vonusa, Richard S.; and Woodard, Jeffrey P., to United States of America, Air Force. Display system for microscopic optical instruments. 4,274,092, Cl. 340-705.000.

Voss, Houston F.; Plattner, Jacob; and Herria, Thomas R., to Abbott Laboratories. Ligand analog-irreversible enzyme inhibitor conjugates and methods for use. 4,273,866, Cl. 435-7.000.

W. C. Heraeus GmbH: *See*—
Nesvadba, Paul; and Weigl, Gisela, 4,273,578, Cl. 75-83.000.

W. H. Brady Company: *See*—
Frame, Norman J., 4,274,028, Cl. 313-101.000.

W. H. Brine Company: *See*—
Rule, Robert J., 4,272,850, Cl. 2-24.000.

W. R. Grace & Co.: *See*—
Cogliano, Joseph A., 4,273,100, Cl. 126-433.000.
Pezzana, Francesco; and Quacquarella, Cesare, 4,273,549, Cl. 493-196.000.
Wood, Louis L.; and Larsen, Donald W., 4,273,913, Cl. 528-77.000.

WABCO Fahrzeugbremsen GmbH: *See*—
Liermann, Peter, 4,273,208, Cl. 180-179.000.

Wachi, Yasuyuki: *See*—
Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, 4,274,027, Cl. 310-269.000.
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.

Wada, Ryoichi; Senoo, Takanori; and Odagi, Kanji, to Matsushita Electric Industrial Co., Ltd. Apparatus for detecting recording and reproducing state. 4,274,115, Cl. 360-62.000.

Wada, Yoshiyo; Goto, Kunio; and Kinjo, Hisao, to Victor Company of Japan, Limited. Stylus for reproducing capacitive videodisc. 4,273,967, Cl. 369-126.000.

Wadsworth, Eric: *See*—
Savidge, David H.; and Wadsworth, Eric, 4,274,054, Cl. 324-225.000.

Wagensonner, Eduard: *See*—
Borowski, Kurt; Wagensonner, Eduard; and Cocron, Istvan, 4,273,428, Cl. 354-23.00D.

Wagner, Norman J.: *See*—
Sinha, Rabindra K.; Polinsky, Charles K.; Cifrulak, Stephen D., Sr.; and Wagner, Norman J., 4,273,751, Cl. 423-244.000.

Wahl, Alois; Elsner, Paul; and Born, Gerhard, to Seitz-Werke GmbH. Method and apparatus for handling bottles. 4,273,236, Cl. 198-432.000.

Wahl, Alois; and Elsner, Paul, to Seitz-Werke GmbH. Device for feeding containers, especially bottles, to processing machines, especially container cleaning machines. 4,273,237, Cl. 198-445.000.

Wahl, Edward F., III, to Occidental Petroleum Corporation. Process and system for recovery of working fluid for direct contact heat exchange. 4,272,960, Cl. 60-641.00D.

Wald, Roland, to Sandoz Ltd. 2-Aralkoxy-anthraquinone dyestuffs. 4,273,720, Cl. 260-374.000.

Waldvogel, Erwin; Bastian, Jean-Michel; and Schwarb, Gustav, to Sandoz Ltd. Anti-allergic anti-9,10-dihydro-4-(1-methyl-4-piperidylidene)-4H-benzo[4,5]cyclohepta[1,2-b]thiophen-10(9H)-one oxime. 4,273,780, Cl. 424-267.000.

Walker, Loren H.; and Cutler, John H., to General Electric Company. AC Motor drive system having clamped command error signal. 4,274,042, Cl. 318-803.000.

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Walter, Llewellyn L.: *See*—
Brown, Vaikai K.; Bjorksten, Thorolf R.; and Walter, Llewellyn L., 4,273,224, Cl. 192-4.00A.

Waltrip, Owen R., to U.S. Emission Systems, Inc. Anti-pollution treating device. 4,272,958, Cl. 60-309.000.

Walus, Aloysius N., to Du Pont de Nemours, E. I., and Company. Coating compositions of an alkyd-acrylic graft copolymer. 4,273,690, Cl. 260-22.0CB.

Wappler, Joachim H. R. Telescopic boom. 4,272,932, Cl. 52-118.000.

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Ferraro, Frank A., 4,272,885, Cl. 30-47.000.

Warrix, John T., to Wolverine Toy Company. Game apparatus including projectile and pivotal targets. 4,273,341, Cl. 273-357.000.

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Watanabe, Kazuhiro: *See*—
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Watanabe, Kimihiro: *See*—
Suhara, Yasuji; Ogawa, Kiyoshi; Yokose, Kazuteru; and Watanabe, Kimihiro, 4,273,765, Cl. 424-180.000.

Watanabe, Masatoshi: *See*—
Higuchi, Shigeo; Iwasaki, Tsutomu; Sato, Koji; Hirama, Yukio; Watanabe, Masatoshi; Wachi, Yasuyuki; and Yasaka, Yasuhiro, 4,274,027, Cl. 310-269.000.

Watanabe, Minoru: *See*—
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Watanabe, Ryo: *See*—
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Watanabe, Seiji: *See*—
Kamiya, Hiroyuki; Watanabe, Seiji; Taniguchi, Masatosi; Okawara, Tomokichi; Aki, Fumitake; and Wachi, Yasuyuki, 4,274,021, Cl. 310-54.000.

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Waters, Frank E., to Chartered Industries of Singapore Private Limited. Fire-arms. 4,272,902, Cl. 42-25.000.

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Wavin B.V.: *See*—
de Lange, Tinus, 4,273,364, Cl. 285-197.000.

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Ginther, George E., Sr.; Johnson, A. David, Jr.; and Buchman, Joseph L., 4,273,322, Cl. 271-149.000.

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Ligon, Woodfin V., Jr.; and Webb, Jimmy L., 4,273,674, Cl. 252-408.000.

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Saam, John C.; and Wegener, Robert L., 4,273,634, Cl. 204-159.150.

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Weigl, Gisela: *See*—
Nesvadba, Paul; and Weigl, Gisela, 4,273,578, Cl. 75-83.000.

Weiler, Wolfgang, to MTU Motoren-und Turbinen-Union Muenchen GmbH. Compressor rotor wheel and method of making same. 4,273,512, Cl. 416-188.000.

Weimer, Dan G., to Engineered Systems, Inc. Sequential card reader system. 4,273,996, Cl. 235-435.000.

Weingart, Oscar, to Structural Composites Industries, Inc. Method for the production of elongated resin impregnated filament composite structures. 4,273,601, Cl. 156-189.000.

Weinhold, Karl. Hose coupling. 4,272,871, Cl. 24-270.000.

Weiser, Martin: *See*—
Kotulla, Bernhard; Haas, Hans; Weiser, Martin; Forster, Rolf; Preis, Lothar; and Schmidt, Rudolf, 4,273,476, Cl. 405-258.000.

Weiss, Harald, to Vero Electronics GmbH. Bus bar for a card frame for circuit cards. 4,273,952, Cl. 174-68.00B.

Weiss, Otmar: *See*—
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Stumpp, Gerhard; Greiner, Max; Weiss, Otmar; and Konrath, Karl, 4,273,091, Cl. 123-506.000.

Weissmann, Rita H. Safety jacket. 4,273,216, Cl. 182-3.000.

Weistra, Marten P., to U.S. Philips Corporation. Ionization flow meter. 4,272,995, Cl. 73-861.090.

Wenner, Hans. Apparatus for dispensing printed products. 4,273,256, Cl. 221-230.000.

Westinghouse Canada Limited: *See*—
van't Hullenaar, Adrian, deceased, 4,274,148, Cl. 367-122.000.

Westinghouse Electric Corp.: *See*—
Dorr, John A.; and Nomm, Matt, 4,273,212, Cl. 181-102.000.
Lahoda, Edward J.; and Dent, Thomas H., 4,273,076, Cl. 122-382.000.
Luck, Russell M.; and Gainer, Gordon C., 4,274,073, Cl. 337-248.000.
Phillips, David C.; Hickam, William M.; and Smith, James D. B., 4,272,988, Cl. 73-339.00R.
Ross, John; and Gyugyi, Laszlo, 4,274,135, Cl. 363-68.000.
Smith, James D. B.; and Ott, Arthur W., 4,273,914, Cl. 528-89.000.
Viscovich, Paul W.; and Khemlani, Moti T., 4,272,962, Cl. 60-648.000.

Wetrok, Inc.: *See*—
Notta, Adolf; and Scovell, Ian A., 4,272,861, Cl. 15-320.000.

Whale, William E.: *See*—
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WHAM-O Mfg. Co.: *See*—
Gillespie, Richard L.; and Geller, Douglas A., 4,273,418, Cl. 350-289.000.

Wheelock Signals, Inc.: *See*—
Haus, Rein, 4,274,084, Cl. 340-326.000.

Whitby, Clyde M., to Singer Company, The. Scanned beam color video generator. 4,274,109, Cl. 358-53.000.

White, Harold G.: *See*—
Aumann, James T.; and White, Harold G., 4,272,987, Cl. 73-153.000.

White, Jack H.; and FitzGerald, Joseph M., to Lear Siegler, Inc. Self-contained portable air-conditioning system. 4,272,967, Cl. 62-236.000.

White, James R.: *See*—
Audeh, Costandi A.; Heilweil, Israel J.; White, James R.; and Yea, Tsoung Y., 4,273,645, Cl. 208-323.000.

White, Ralph L., Jr.; and Portlock, David E., to Morton-Norwich Products, Inc. Converting enzyme inhibitor. 4,273,927, Cl. 544-32.000.

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Erickson, John W.; Brown, F. Barton; and White, Thomas A., Jr., 4,273,509, Cl. 415-111.000.

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Shoher, Itzhak; and Whiteman, Aharon E., 4,273,580, Cl. 75-165.000.
Whitney, Douglass G.; and Martin, John K., III. Self contained powered injection system. 4,273,122, Cl. 128-218.00A.
Wick, Ralph E., to United States of America, Air Force. Gun simulator system. 4,273,536, Cl. 434-14.000.
Wickenberg, Chester, to Seaquist Valve Co., Div. of Pittway. Fluid spray pump. 4,273,268, Cl. 222-321.000.
Widmyer, Richard H.: *See*—
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Wigby, Jon; Piatt, Ralph L.; and Anderson, James D. Methods and apparatus for making electrical connectors. 4,272,879, Cl. 29-566.200.
Wilhelm Roediger GmbH & Co.: *See*—
Roediger, Walter H., 4,273,732, Cl. 261-122.000.
Williams, Frank J., III, to General Electric Company. Method for making aromatic ether imides. 4,273,712, Cl. 260-326.00N.
Williams, Patrick Y. Folding wheelchair. 4,273,350, Cl. 280-242.0WC.
Willner, Nancy J. Unitized attachment device. 4,272,869, Cl. 24-3.00R.
Wilson, Phillip S.: *See*—
Mark, Victor; and Wilson, Phillip S., 4,273,692, Cl. 260-29.10R.
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Wimmenauer, Dirk: *See*—
Hermanns, Winfried; Lueg, Heinz; Blackert, Hanno; and Wimmenauer, Dirk, 4,274,076, Cl. 340-38.00L.
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Winer, Irving G., to J. M. Ney Company, The. Centrifugal casting machine. 4,273,181, Cl. 164-114.000.
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Altoz, Frank E.; and Winn, William H., 4,273,183, Cl. 165-32.000.
Winterhalter, Donald L.; and Perkey, Conrad G., to Ford Motor Company. Core assembly and the method of making and using such assembly. 4,273,182, Cl. 164-137.000.
Wittman, Leroy L.: *See*—
Jessen, Lyle B.; and Wittman, Leroy L., 4,273,244, Cl. 212-181.000.
Witzel, Bruce E.: *See*—
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Woellner-Werke: *See*—
Lederer, Gernot, 4,273,910, Cl. 528-48.000.
Wojtowicz, Walter; and Mursau, Gust. Flexible element rolling and handling apparatus. 4,273,300, Cl. 242-56.00R.
Woldenberg, Edwin: *See*—
Pump, Wichard; Becker, Wolfgang; and Woldenberg, Edwin, 4,273,880, Cl. 521-93.000.
Wolfe, Maynard F., to Jag International Sales Limited. Audioscope project. 4,273,956, Cl. 179-1.00H.
Wolfe, William H., to Harris Corporation. Impulse metering of local telephone switching offices via a DAMA DOMSAT communication system. 4,273,962, Cl. 179-7.10R.
Wolff, Per L., to Koninklijke Emballage Industrie Van Leer B.V. Process for preparation of foams by condensation reactions. 4,273,887, Cl. 521-188.000.
Wolford, Byron F.; Rose, John F.; and Thunselle, James, to Proximity Controls, Inc. Pressure responsive switch device. 4,273,976, Cl. 200-83.00L.
Wolverine Toy Company: *See*—
Warrix, John T., 4,273,341, Cl. 273-357.000.
Wood, Louis L.; and Larsen, Donald W., to W. R. Grace & Co. Isocyanate capped urethane-containing prepolymer prepared from polyols obtained from epihalohydrin. 4,273,913, Cl. 528-77.000.
Wood, William G.; and Pilznienski, John F., to Kolene Corp. Method and apparatus for prevention of clogging of exhaust systems. 4,273,591, Cl. 134-11.000.
Woodard, Jeffrey P.: *See*—
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Woodbury, James R., to McDonnell Douglas Corporation. Aircraft horizontal stabilizer drive. 4,273,006, Cl. 74-710.500.
Woodcock, Todd M.: *See*—
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Woodings Industrial Corporation: *See*—
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Woolner, John H.; Gaslevic, Emeric; and Doorley, Richard B., to Portec, Inc. Spike driving apparatus. 4,273,052, Cl. 104-17.00R.
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World Medical Marketing Corporation: *See*—
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Wright, Ernest L.: *See*—
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Wyman, Ransome J.; Alshin, Richard A.; and Gilbert, Charles H., to Carefree Bicycle Tire Company. Non-pneumatic tire. 4,273,176, Cl. 152-327.000.
Xerox Corporation: *See*—
Huggins, Raymond W.; Burnham, Paul W.; and Torrey, Arthur L., 4,273,069, Cl. 118-658.000.
Pai, Damodar M.; Turner, S. Richard; Yanus, John F.; Renfer, Dale S.; and Stolka, Milan, 4,273,846, Cl. 430-59.000.
Pond, Stephen F., 4,274,100, Cl. 346-75.000.
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Yabushita, Yasunori: *See*—
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Yaeger, Michael. Game apparatus with notched game board. 4,273,338, Cl. 273-282.000.
Yamada, Kazunari: *See*—
Nomura, Nobutaka; Kido, Hiroshi; and Yamada, Kazunari, 4,274,081, Cl. 340-153.000.
Yamada, Yasushi; Ozawa, Hiroshi; Gomi, Masae; and Nomura, Hideshiro, to Nippon Kayaku Kabushiki Kaisha. Azo compounds. 4,273,555, Cl. 8-673.000.
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Yamamoto, Hajime; and Yoshikawa, Shogo, to Kabushiki Kaisha Morita Seisakusho. Device for preventing tooth decay by laser beam irradiation and method of preventing tooth decay by use of the same. 4,273,535, Cl. 433-216.000.
Yamamoto, Takashi: *See*—
Shima, Ichiji; Yamamoto, Tatsuo; Yoshibayashi, Shigeru; Teshima, Hiroshi; Hizume, Akio; Iki, Tetsuo; Yamamoto, Takashi; Kanamori, Kyozo; and Noguchi, Kenzo, 4,272,992, Cl. 73-650.000.
Yamamoto, Takaya; Sakai, Kazuo; and Akiba, Shigeyuki, to Kokusai Denshin Denwa Kabushiki Kaisha. Avalanche photodiode with semiconductor hetero structure. 4,274,103, Cl. 357-13.000.
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Yamamura, Toshio; Muraki, Takeshi; and Miura, Heihachi, to Tokyo Shibaura Denki Kabushiki Kaisha. X-ray apparatus for computed tomography scanner. 4,274,005, Cl. 250-445.00T.
Yamanaka, Tadashi: *See*—
Takeuchi, Keizo; Iwai, Yoshio; Yamanaka, Tadashi; and Miura, Tatsuo, 4,272,877, Cl. 29-403.200.
Yamane, Ken, to Nissan Motor Company, Limited. Diaphragm breakage condition detecting device for a pressure control device. 4,272,959, Cl. 60-602.000.
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Yamashita, Hiroshi; Iwahana, Takehiko; and Fujiwara, Shunsuke, to Japanese National Railways. Vehicle vibration damping method in the induced repulsion type magnetically suspended railway vehicle. 4,273,054, Cl. 104-281.000.
Yamashita, Yataro: *See*—
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Yamazaki, Noboru; and Morimoto, Yoshio, to Mitsui Toatsu Chemicals, Incorporated. Thermosetting resin compositions and the cured products thereof. 4,273,889, Cl. 525-109.000.
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Yokono, Hitoshi: *See*—
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Yokoyama, Takeo; Fukumoto, Kiyoshi; and Matsuura, Hiroshi, to Showa Electric Wire & Cable Co., Ltd. Interleaved multiple signal separating circuit. 4,274,108, Cl. 358-31.000.
Yoneda, Yoshiro; Kitakohji, Toshisuke; and Kitamura, Kenro, to Fujitsu Limited. Positive resist terpolymer composition and method of forming resist pattern. 4,273,856, Cl. 430-270.000.
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Zaffaroni, Pasquale; Vitobello, Vincenza; and Gamalerio, Anna M., to Snamprogetti S.p.A. Method for the microbiological conversion of steroids. 4,273,872, Cl. 435-55.000.
Zamek, Otto S., to General Electric Company. Acid-terminated polyester imide wire enamels. 4,273,917, Cl. 528-288.000.
Zarnegar, Bizhan M., to Mobil Oil Corporation. Aminoplast-containing radiation curing coating compositions. 4,273,632, Cl. 204-159.150.
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Zellweger, Shea. Devices for displaying or performing operations in a two-valued system. 4,273,542, Cl. 434-433.000.
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Zenri, Hideomi. Hand carrier for cans or bottles. 4,273,273, Cl. 294-87.200.
Zimmerman, Clifton E. Method for automatic control of food forming machines. 4,273,789, Cl. 426-231.000.
Zimmerman, J. Earl. Nasal canaula. 4,273,124, Cl. 128-245.000.
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Klemm, Ernest J.; Edman, Walter W.; Erskine, Frances E.; and McDonough, Everett G., 4,273,143, Cl. 132-7.000.
Zukovich, Thomas M.: *See*—
Edwards, Donald W.; Young, Paul R.; and Zukovich, Thomas M., 4,273,049, Cl. 102-312.000.
Zurcher, Allen K.: *See*—
Keesey, Gary E.; Zurcher, Allen K.; and Loomis, Ervin C., 4,273,367, Cl. 285-419.000.
Zweig, Arnold; and Hoffman, Arthur K., to American Cyanamid Company. Stabilization of 2,2-dimethyl-4,5-benzoapiro[2,4]hepta-4,6-diene-1-carboxylic acid, α-cyano-m-phenoxybenzyl ester. 4,273,764, Cl. 424-174.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Blose, Thomas L., to Hydril Company. Tubular connection. Re. 30,647, Cl. 285-332.200.

Carolina Peanuts of Robersonville, Inc.: *See*—
Green, William M., Re. 30,651, Cl. 426-262.000.

Daclon, Ferruccio: *See*—
Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, Re. 30,652, Cl. 357-28.000.

Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, to Hoechst Aktiengesellschaft. Dispersing and stabilizing agents for dyestuffs. Re. 30,650, Cl. 8-560.000.

Diery, Helmut: *See*—
Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, Re. 30,650, Cl. 8-560.000.

Falesiedi, Roberto: *See*—
Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, Re. 30,652, Cl. 357-28.000.

Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, to Snamprogetti S.p.A. Method for constructing a thermoelectric module and the module so obtained. Re. 30,652, Cl. 357-28.000.

Green, William M., to Carolina Peanuts of Robersonville, Inc. Process for producing a roasted peanut product. Re. 30,651, Cl. 426-262.000.

Hetz, Walter: *See*—
Ohlrogge, Wilhelm; and Hetz, Walter, Re. 30,648, Cl. 297-318.000.

Hobart Corporation: *See*—
Thompson, James W., Re. 30,649, Cl. 366-169.000.

Hoechst Aktiengesellschaft: *See*—
Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, Re. 30,650, Cl. 8-560.000.

Hydril Company: *See*—
Blose, Thomas L., Re. 30,647, Cl. 285-332.200.

International Shoe Machine Corporation: *See*—
Vornberger, Walter; and Vornberger, Karl F., Re. 30,646, Cl. 118-411.000.

Klinner, Wolfgang: *See*—
Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, Re. 30,650, Cl. 8-560.000.

List, Karl-Hermann: *See*—
Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, Re. 30,650, Cl. 8-560.000.

Losciale, Francesco: *See*—
Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, Re. 30,652, Cl. 357-28.000.

Merzagora, Nicola: *See*—
Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, Re. 30,652, Cl. 357-28.000.

Ohlrogge, Wilhelm; and Hetz, Walter, to Siemens Aktiengesellschaft. Chair for dental patients. Re. 30,648, Cl. 297-318.000.

Potomac Applied Mechanics, Inc.: *See*—
Stubbings, James H., Re. 30,645, Cl. 72-129.000.

Siemens Aktiengesellschaft: *See*—
Ohlrogge, Wilhelm; and Hetz, Walter, Re. 30,648, Cl. 297-318.000.

Snamprogetti S.p.A.: *See*—
Germano, Giovanni; Losciale, Francesco; Falesiedi, Roberto; Daclon, Ferruccio; and Merzagora, Nicola, Re. 30,652, Cl. 357-28.000.

Stubbings, James H., to Potomac Applied Mechanics, Inc. Method and apparatus for cutting sheet metal wrappers or the like. Re. 30,645, Cl. 72-129.000.

Thompson, James W., to Hobart Corporation. Food processing apparatus. Re. 30,649, Cl. 366-169.000.

Uhrig, Heinz: *See*—
Deubel, Reinhold; Diery, Helmut; Klinner, Wolfgang; List, Karl-Hermann; and Uhrig, Heinz, Re. 30,650, Cl. 8-560.000.

Vornberger, Karl F.: *See*—
Vornberger, Walter; and Vornberger, Karl F., Re. 30,646, Cl. 118-411.000.

Vornberger, Walter; and Vornberger, Karl F., to International Shoe Machine Corporation. Cement side and heel lasting machine. Re. 30,646, Cl. 118-411.000.

LIST OF DESIGN PATENTEES

A.L.A. Industries, Inc.: *See*—
Haagedoorn, Anton; and Merlin, Philip, 259,544, Cl. D9-419.000.

Aktiebolaget Volvo: *See*—
Lindfors, Olof H., 259,552, Cl. D12-57.000.

Amerock Corporation: *See*—
Pittenger, Teresa R. B., 259,539, Cl. D8-310.000.

Anderson, Olof V., to Anson Incorporated. Casing for a writing instrument. 259,574, 6-16-81, Cl. D19-48.000.

Anson Incorporated: *See*—
Anderson, Olof V., 259,574, Cl. D19-48.000.

Aquarian, Amon. Swing. 259,582, 6-16-81, Cl. D21-246.000.

Arasim, Stanley J., Jr.; and Voitas, Edward J., to Mosler Safe Company, The. Remote service conveyor unit. 259,571, 6-16-81, Cl. D18-35.000.

Baeza, Armando. Toy football player figure. 259,577, 6-16-81, Cl. D21-177.000.

Barr, Joy L. Ice skating boot warmer. 259,521, 6-16-81, Cl. D2-272.000.

Bartholomew, Dominic R., Jr.; and Waltz, Albert R., to Hughes Aircraft Company. Stackable tray or similar article. 259,527, 6-16-81, Cl. D6-114.000.

Basile, Peter A.: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,541, Cl. D9-300.000.

Baum, Elliot I., to Quasar Microsystems, Inc. Telephone answering machine. 259,561, 6-16-81, Cl. D14-4.000.

Bidegain, Pierre, to Bidegain S.A. Baby shoe. 259,522, 6-16-81, Cl. D2-278.000.

Bidegain S.A.: *See*—
Bidegain, Pierre, 259,522, Cl. D2-278.000.

Bochmann, Carl E.: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,541, Cl. D9-300.000.

Bowling, B. David. Spring-compressing tool. 259,538, 6-16-81, Cl. D8-59.000.

Bulten-Kanthal AB: *See*—
Svensson, Stig, 259,540, Cl. D8-367.000.

Burlington Industries, Inc.: *See*—
Crane, Robert; and Mayerson, Seymour, 259,528, Cl. D6-157.000.

Carloni, August G.: *See*—
Robinson, Richard T., 259,553, Cl. D12-308.000.

Carreiro, Ronald. Toy helmet. 259,578, 6-16-81, Cl. D21-190.000.

Chin, Bing-Yiu, to Goodway Manufacturing Limited. Hair styler. 259,589, 6-16-81, Cl. D28-35.000.

Clarke-Gravely Corporation: *See*—
Phillips, Paul E., 259,566, Cl. D15-49.000.

Clement, Joseph J. Toy telephone. 259,576, 6-16-81, Cl. D21-111.000.

Clorox Company, The: *See*—
Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., 259,541, Cl. D9-300.000.

Commisso, Nicholas D.; and Palmer, Dwight O., to Mobil Oil Corporation. Covered container or the like. 259,543, 6-16-81, Cl. D9-426.000.

Crane, Robert; and Mayerson, Seymour, to Burlington Industries, Inc. Display stand for merchandise. 259,528, 6-16-81, Cl. D6-157.000.

Daenen, Robert H. C. M.; and De Coster, Pieter K. J., to Dart Industries Inc. Grater or the like. 259,534, 6-16-81, Cl. D7-47.000.

Daenen, Robert H. C. M., to Dart Industries Inc. Colander or the like. 259,535, 6-16-81, Cl. D7-47.000.

Dart Industries Inc.: *See*—
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 259,534, Cl. D7-47.000.
Daenen, Robert H. C. M., 259,535, Cl. D7-47.000.

De Coster, Pieter K. J.: *See*—
Daenen, Robert H. C. M.; and De Coster, Pieter K. J., 259,534, Cl. D7-47.000.

Douglas, Fred O., to W. C. Bradley Co. Height adjustment means for selective spacing between circular cooking grill and hanging fire grate. 259,536, 6-16-81, Cl. D7-129.000.

Dura Plastics of New York: *See*—
Korzon, Edward S., 259,530, Cl. D6-183.000.

Erdman, Bruce. Tambour jewelry box. 259,524, 6-16-81, Cl. D3-75.000.

Ethyl Development Corporation: *See*—
Shortino, Vincent M., 259,542, Cl. D9-403.000.

Frodsham, Vaughn D., to Huntington, Howard L., a part interest. Spoon straw. 259,533, 6-16-81, Cl. D7-42.000.

General Electric Company: *See*—
Huntington, Robert R., 259,564, Cl. D14-68.000.

Godo Kigyo Co., Ltd.: *See*—
Watanabe, Ikuo, 259,565, Cl. D14-96.000.

Goodway Manufacturing Limited: *See*—
Chin, Bing-Yiu, 259,589, Cl. D28-35.000.

Grange, Kenneth, to Kenwood Cascade Company Limited. Carbonating machine for drinks. 259,567, 6-16-81, Cl. D15-112.000.

Gross, David A. Combined aquarium cover and stand. 259,593, 6-16-81, Cl. D30-10.000.

Haagedoorn, Anton; and Merlin, Philip, to A.L.A. Industries, Inc. Twist tie dispensing package. 259,544, 6-16-81, Cl. D9-419.000.

Halbeisen, Jack; Basile, Peter A.; and Bochmann, Carl E., to Clorox Company, The. Fluid dispenser. 259,541, 6-16-81, Cl. D9-300.000.

Heritage Products Corp.: *See*—
Steele, Walter E.; and Upham, George W., 259,532, Cl. D6-249.000.

Heuberger, Lawrence K.: *See*—
Parise, Carl; and Heuberger, Lawrence K., 259,554, Cl. D12-332.000.

Hishino Gakki Ten, Inc.: *See*—
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Hitachi, Ltd.: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,559, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,560, Cl. D13-99.000.

Hopper, M. Almeda. Crochet tool. 259,523, 6-16-81, Cl. D3-28.000.

Hoshino, Masao, to Hishino Gakki Ten, Inc. Stringed instrument head. 259,570, 6-16-81, Cl. D17-20.000.

Hughes Aircraft Company: *See*—
Bartholomew, Dominic R., Jr.; and Waltz, Albert R., 259,527, Cl. D6-114.000.

Huntington, Howard L.: *See*—
Frodsham, Vaughn D., 259,533, Cl. D7-42.000.

Huntington, Robert R., to General Electric Company. Portable radio transmitter and receiver housing. 259,564, 6-16-81, Cl. D14-68.000.

Hydro Service & Supplies, Inc.: *See*—
Riley, Charles D.; and Waddell, Charles G., 259,584, Cl. D23-19.000.

Irving Kaye Company, Inc.: *See*—
Kaye, Arnold, 259,579, Cl. D21-232.000.
Kaye, Arnold, 259,580, Cl. D21-232.000.

J. Gerber and Co., (Japan) Ltd.: *See*—
Nishioka, Shigeo, 259,569, Cl. D16-01.000.

Jacobs, Andre. Mobile. 259,549, 6-16-81, Cl. D11-141.000.

Jergenson, Philip E., to Proto Plant Inc. Smoking pipe. 259,587, 6-16-81, Cl. D27-03.000.

Johnson, Dennis E., to McGraw-Edison Company. Task light fixture. 259,586, 6-16-81, Cl. D26-76.000.

Kane, Shirley. Combined table and umbrella. 259,525, 6-16-81, Cl. D6-4.000.

Kaye, Arnold, to Irving Kaye Company, Inc. Pool table. 259,579, 6-16-81, Cl. D21-232.000.

Kaye, Arnold, to Irving Kaye Company, Inc. Pool table. 259,580, 6-16-81, Cl. D21-232.000.

Kenwood Cascade Company Limited: *See*—
Grange, Kenneth, 259,567, Cl. D15-112.000.

Kola, Walter T. Stand for plants or flowers. 259,529, 6-16-81, Cl. D6-179.000.

Korzon, Edward S., to Dura Plastics of New York. Plant ladder. 259,530, 6-16-81, Cl. D6-183.000.

Kosaka, Hideki: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,559, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,560, Cl. D13-99.000.

Kretschmer, Eric H. Magnetic toy. 259,581, 6-16-81, Cl. D21-240.000.

Lazzeroni, Edward J., to Miller Tilt-Top Trailer, Inc. Trailer hitch. 259,555, 6-16-81, Cl. D12-162.000.

Lindfors, Olof H., to Aktiebolaget Volvo. Remote controlled fork truck. 259,552, 6-16-81, Cl. D12-57.000.

MacLean, Charles A. Horseman figure. 259,550, 6-16-81, Cl. D11-159.000.

Marshall, Anthony M. Telephone instrument stand. 259,563, 6-16-81, Cl. D14-60.000.

Mayerson, Seymour: *See*—
Crane, Robert; and Mayerson, Seymour, 259,528, Cl. D6-157.000.

McGraw-Edison Company: *See*—
Johnson, Dennis E., 259,586, Cl. D26-76.000.

Merlin, Philip: *See*—
Haagedoorn, Anton; and Merlin, Philip, 259,544, Cl. D9-419.000.

Metalfab Industries, Inc.: *See*—
Norris, Carl V., 259,556, Cl. D12-169.000.
Norris, Carl V., 259,557, Cl. D12-169.000.

Metz, Thomas V.; and Sirois, W. James, to Pacific Fireplace Furnishings, Inc. Fireplace heat exchanger. 259,585, 6-16-81, Cl. D23-95.000.

Miller Tilt-Top Trailer, Inc.: *See*—
Lazzeroni, Edward J., 259,555, Cl. D12-162.000.

Mobil Oil Corporation: *See*—
Commisso, Nicholas D.; and Palmer, Dwight O., 259,543, Cl. D9-426.000.

Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, to Hitachi, Ltd. Semiconductor. 259,559, 6-16-81, Cl. D13-99.000.

Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, to Hitachi, Ltd. Semiconductor. 259,560, 6-16-81, Cl. D13-99.000.

Moeler Safe Company, The: *See*—
Arasim, Stanley J., Jr.; and Voitas, Edward J., 259,571, Cl. D18-35.000.

Mulee, Dennis L. Insect electrocuter. 259,583, 6-16-81, Cl. D22-19.000.

Murakami, Gen: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,559, Cl. D13-99.000.
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,560, Cl. D13-99.000.

Nagode, Larry R., to Quaker Oats Company, The. Handle for a toy article of flatware. 259,575, 6-16-81, Cl. D21-109.000.

Najjar, Benayahu L. Diamond. 259,548, 6-16-81, Cl. D11-90.000.

Nishioka, Shigeo, to J. Gerber and Co., (Japan) Ltd. Combined camera and binoculars. 259,569, 6-16-81, Cl. D16-01.000.

Norris, Carl V., to Metalfab Industries, Inc. Vehicle bumper. 259,556, 6-16-81, Cl. D12-169.000.

Norris, Carl V., to Metalfab Industries, Inc. Vehicle bumper. 259,557, 6-16-81, Cl. D12-169.000.

Oatman, Lloyd L. Television support stand or similar article. 259,551, 6-16-81, Cl. D12-25.000.

Orion Industries, Inc.: *See*—
Swenson, Kendall, 259,568, Cl. D15-125.000.

Ostermaier, Albert E. Flexible link fastener for horse blankets or the like. 259,592, 6-16-81, Cl. D30-37.000.

Otsuki, Keizo: *See*—
Mochizuki, Hidetoshi; Otsuki, Keizo; Kosaka, Hideki; and Murakami, Gen, 259,559, Cl. D13-99.000.
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Owens-Corning Fiberglas Corporation: *See*—
Weitzman, Mark R., 259,594, Cl. D92-1.100.

Pacific Fireplace Furnishings, Inc.: *See*—
Metz, Thomas V.; and Sirois, W. James, 259,585, Cl. D23-95.000.

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Commisso, Nicholas D.; and Palmer, Dwight O., 259,543, Cl. D9-426.000.

Parise, Carl; and Heuberger, Lawrence K. Aircraft. 259,554, 6-16-81, Cl. D12-332.000.

Phillips, Paul E., to Clarke-Gravely Corporation. Carpet extractor. 259,566, 6-16-81, Cl. D15-49.000.

Pittenger, Teresa R. B., to Amerock Corporation. Knob. 259,539, 6-16-81, Cl. D8-310.000.

Proto Plant Inc.: *See*—
Jergenson, Philip E., 259,587, Cl. D27-03.000.

Prouty, Thomas D.; and Smith, Bruce A. Closeable weatherproof blanket for children. 259,531, 6-16-81, Cl. D6-201.000.

Quaker Oats Company, The: *See*—
Nagode, Larry R., 259,575, Cl. D21-109.000.

Quasar Microsystems, Inc.: *See*—
Baum, Elliot I., 259,561, Cl. D14-4.000.

Ralston, Larry L., Jr. Combination tennis racket and hand grip material display stand. 259,526, 6-16-81, Cl. D6-23.000.

Rappaport, Milton, to Vendome Headwear Inc. Cap. 259,520, 6-16-81, Cl. D2-244.000.

Renaud, Jean-Claude. Greeting card. 259,572, 6-16-81, Cl. D19-1.000.

Renaud, Jean-Claude. Greeting card. 259,573, 6-16-81, Cl. D19-1.000.

Riley, Charles D.; and Waddell, Charles G., to Hydro Service & Supplies, Inc. Valve. 259,584, 6-16-81, Cl. D23-19.000.

Robinson, Richard T., to Carloni, August G. Submarine. 259,553, 6-16-81, Cl. D12-308.000.

Rocheleau, Ulric M. Multi-rule. 259,545, 6-16-81, Cl. D10-65.000.

Rowenta-Werke GmbH: *See*—
Stutzer, Franz A., 259,588, Cl. D27-42.000.

Rubbermaid Incorporated: *See*—
Taylor, William D., 259,537, Cl. D7-188.000.

Schoenig, Darrell A. Speaker stand. 259,562, 6-16-81, Cl. D14-38.000.

Shortino, Vincent M., to Ethyl Development Corporation. Bottle or similar article. 259,542, 6-16-81, Cl. D9-403.000.

Simon, Morris. Design for combined ruler and magnifying caliper. 259,546, 6-16-81, Cl. D10-65.000.

Simpson, Lee. Wire wheel center for a truck. 259,558, 6-16-81, Cl. D12-205.000.

Sirois, W. James: *See*—
Metz, Thomas V.; and Sirois, W. James, 259,585, Cl. D23-95.000.

Smith, Bruce A.: *See*—
Prouty, Thomas D.; and Smith, Bruce A., 259,531, Cl. D6-201.000.

Steele, Walter E.; and Upham, George W., to Heritage Products Corp. Combined garment hanger and over-the-shoulder carrier. 259,532, 6-16-81, Cl. D6-249.000.

Stutzer, Franz A., to Rowenta-Werke GmbH. Lighter. 259,588, 6-16-81, Cl. D27-42.000.

Svensson, Stig, to Bulten-Kanthal AB. Safety hook. 259,540, 6-16-81, Cl. D8-367.000.

Swenson, Kendall, to Orion Industries, Inc. Plug cleaner. 259,568, 6-16-81, Cl. D15-125.000.

Taylor, William D., to Rubbermaid Incorporated. Folding dish drainer. 259,537, 6-16-81, Cl. D7-188.000.

Texidor, Genaro. Pen ring. 259,547, 6-16-81, Cl. D11-2.000.

U.S. Philips Corporation: *See*—
Yran, Knut O., 259,590, Cl. D28-50.000.
Yran, Knut O., 259,591, Cl. D28-50.000.

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Steele, Walter E.; and Upham, George W., 259,532, Cl. D6-249.000.

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Riley, Charles D.; and Waddell, Charles G., 259,584, Cl. D23-19.000.

Waltz, Albert R.: *See*—
Bartholomew, Dominic R., Jr.; and Waltz, Albert R., 259,527, Cl. D6-114.000.

Watanabe, Ikuo, to Godo Kigyo Co., Ltd. Mounted amplifier. 259,565, 6-16-81, Cl. D14-96.000.

Weitzman, Mark R., to Owens-Corning Fiberglas Corporation. Embossed plastic sheet material. 259,594, 6-16-81, Cl. D92-1.100.

Yran, Knut O., to U.S. Philips Corporation. Electric dry shaver. 259,590, 6-16-81, Cl. D28-50.000.

Yran, Knut O., to U.S. Philips Corporation. Shaving cutter holder. 259,591, 6-16-81, Cl. D28-50.000.

LIST OF PLANT PATENTEES

Auvil Fruit Co., Inc.: *See*—
Cooper, Calvin L., 4,741, Cl. 34.000.

Cooper, Calvin L., to Auvil Fruit Co., Inc., a part interest. Granny Smith apple tree (greenspur strain). 4,741, 6-16-81, Cl. 34.000.

Hope, Claude, to Pan-American Plant Company. Kalanchoe named Pueblo. 4,744, 6-16-81, Cl. 68.000.

Hope, Claude, to Pan-American Plant Company. Kalanchoe named Yucatan. 4,745, 6-16-81, Cl. 68.000.

Mikkelsen, James C.; and van den Berg, Cornelis P., to Mikkelsens Inc. Begonia plant. 4,743, 6-16-81, Cl. 68.000.

Mikkelsens Inc.: *See*—
Mikkelsen, James C.; and van den Berg, Cornelis P., 4,743, Cl. 68.000.
Van den Berg, Cornelis P., 4,742, Cl. 68.000.

Pan-American Plant Company: *See*—
Hope, Claude, 4,744, Cl. 68.000.
Hope, Claude, 4,745, Cl. 68.000.

Van den Berg, Cornelis P., to Mikkelsens Inc. Begonia plant. 4,742, 6-16-81, Cl. 68.000.

van den Berg, Cornelis P.: *See*—
Mikkelsen, James C.; and van den Berg, Cornelis P., 4,743, Cl. 68.000.

CLASSIFICATION OF PATENTS

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371 4,272,889

CLASS 33
174 G 4,272,890
179.5 B 4,272,891
185 R 4,272,892

CLASS 34
1 4,272,893
9 4,272,894
10 4,272,895

CLASS 36
24.5 4,272,897
44 4,272,898
129 4,272,899

CLASS 39
751 4,272,883

CLASS 40
21 C 4,272,900
574 4,272,901

CLASS 42
25 4,272,902
89 4,272,903

CLASS 43
4.5 4,272,904
6 4,272,905
11 4,272,906
92 4,272,907

CLASS 46
12 4,272,908
39 4,272,909
45 4,272,910
47 4,272,911
79 4,272,912
123 4,272,913
209 4,272,914
232 4,272,915
253 4,272,916
254 4,272,917
266 4,272,918

CLASS 47
56 4,272,919
58 4,272,920

CLASS 48
212 4,273,560

CLASS 49
30 4,272,921
55 4,272,922
360 4,272,923

CLASS 51
165 R 4,272,924
211 R 4,272,925
216 R 4,272,926
307 4,273,561
322 4,272,927

CLASS 52
1 4,272,928
40 4,272,929
79.1 4,272,930
98 4,272,931
118 4,272,932
149 4,272,933
202 4,272,934
309.11 4,272,935
309.12 4,272,936
483 4,272,937
509 4,272,938
527 4,272,939
592 4,272,940
731 4,272,941
741 4,272,942

CLASS 53
492 4,272,943
511 4,272,944
557 4,272,945

CLASS 55
52 4,273,562
189 4,273,563
267 4,273,564
343 4,273,565

CLASS 56
13.5 4,272,946
63 4,272,947
246 4,272,948
255 4,272,949

CLASS 57
232 4,272,950
293 4,272,951

CLASS 59
84 4,272,952

CLASS 60
39.04 4,272,953
39.16 R 4,272,954
39.36 4,272,955
242 4,272,956
243 4,272,957
309 4,272,958
602 4,272,959
641 D 4,272,960
4,272,961
648 4,272,962
655 4,272,963
657 4,272,964

CLASS 62
27 4,273,566
104 4,272,965
180 4,272,966
236 4,272,967
394 4,272,968
419 4,272,969
511 4,272,970

CLASS 64
1 S 4,272,971
17 SP 4,272,972
29 4,272,973

CLASS 65
72 4,273,567
76 4,273,568
360 4,273,569

CLASS 70
129 4,272,974
369 4,272,975

CLASS 71
21 4,273,570
79 4,273,571
86 4,273,572
90 4,273,573
4,273,574

CLASS 72
45 4,272,976
121 4,272,977
129 Re.30,645
335 4,272,978
356 4,272,979
404 4,272,980
405 4,272,981

CLASS 73
19 4,272,982
38 4,272,983
40.5 R 4,272,984
49.2 4,272,985
73 4,272,986
153 4,272,987
339 R 4,272,988
432 R 4,272,989
586 4,272,990
621 4,272,991
650 4,272,992
807 4,272,994
861.09 4,272,995

CLASS 74
50 4,272,996
89.22 4,272,997
99 R 4,272,998
200 4,272,999
206 4,273,000
359 4,273,001
462 4,273,002
467 4,273,003
473 R 4,273,004
492 4,273,005
710.5 4,273,006
711 4,272,993
745 4,273,007
752 E 4,273,008
869 4,273,009

CLASS 75
3 4,273,575
11 4,273,576
41 4,273,577
83 4,273,578
106 4,273,579
165 4,273,580
214 4,273,581
222 4,273,582
251 4,273,583

CLASS 81
57.18 4,273,010
57.38 4,273,011
177 M 4,273,173

CLASS 83
17 4,273,012
167 4,273,013
333 4,273,014
670 4,273,015
743 4,273,016

CLASS 84
1.1 4,273,017
1.22 4,273,018
1.24 4,273,019
394 4,273,020
400 4,273,021
4,273,022
454 4,273,023

CLASS 86
1 R 4,273,024

CLASS 89
33 CA 4,273,025
37 R 4,273,026

CLASS 91
32 4,273,027
275 4,273,028
422 4,273,029
450 4,273,030

CLASS 92
88 4,273,031

CLASS 98
63 4,273,032

CLASS 99
349 4,273,033

CLASS 100
8 4,273,034
37 4,273,035
88 4,273,036
91 4,273,037

CLASS 101
45 4,273,038
93.02 4,273,039
93.04 4,273,040
93.14 4,273,041
123 4,273,042
143 4,273,043
193 4,273,044
211 4,273,045
348 4,273,046

CLASS 102
202.2 4,273,051
310 4,273,047
312 4,273,049
321 4,273,050
363 4,273,048

CLASS 104
17 R 4,273,052
164 4,273,053
281 4,273,054

CLASS 105
199 F 4,273,055

CLASS 106
3 4,273,584
47 R 4,273,585
52 4,273,586
73.4 4,273,587
273 N 4,273,588
308 Q 4,273,589

CLASS 111
2 4,273,056
85 4,273,057

CLASS 112
80 4,273,058
121.14 4,273,059

CLASS 114
39 4,273,060
45 4,273,061
91 4,273,062
126 4,273,063
203 4,273,064
219 4,273,065
256 4,273,066
258 4,273,067
264 4,273,068

CLASS 118
411 Re.30,646
658 4,273,069

CLASS 119
14.51 4,273,070
17 4,273,071
27 4,273,072

CLASS 122
4 D 4,273,073
7 R 4,273,074
26 4,273,075
382 4,273,076
483 4,273,077

CLASS 123
25 R 4,273,078
41.08 4,273,081
41.31 4,273,082
41.5 4,273,080
79 R 4,273,083
179 F 4,273,085
179 L 4,273,084
198 R 4,273,086
276 4,273,079
299 4,273,087
417 4,273,089
502 4,273,088
4,273,090
506 4,273,091
568 4,273,092
653 4,273,093

CLASS 124
20 R 4,273,094
56 4,273,095

CLASS 126
120 4,273,096
285 B 4,273,097
417 4,273,098
426 4,273,099
433 4,273,100
435 4,273,101
4,273,102
438 4,273,103
439 4,273,104
443 4,273,105
444 4,273,106
445 4,273,107
450 4,273,108

CLASS 127
44 4,273,590

CLASS 128
6 4,273,109
4,273,110
4,273,111
11 4,273,112
25 B 4,273,113
53 4,273,114
90 4,273,115
92 A 4,273,116
92 E 4,273,117
156 4,273,118
201.13 4,273,119
204.26 4,273,120
214 F 4,273,121
218 A 4,273,122
218 N 4,273,123
245 4,273,124
263 4,273,125
276 4,273,126
303.1 4,273,127
305 4,273,128
326 4,273,129
327 4,273,130
341 4,273,131
419 FG 4,273,133
419 PT 4,273,132
635 4,273,134
640 4,273,135
680 4,273,136
784 4,273,137

CLASS 130
27 T 4,273,138

CLASS 131
280 4,273,139
328 4,273,140
336 4,273,141
339 4,273,142

CLASS 132
1 R 4,273,145
7 4,273,143
88.7 4,273,144

CLASS 134
11 4,273,591

CLASS 136
255 4,273,950

CLASS 137
5 4,273,146
13 4,273,147
72 4,273,148
83 4,273,149
85 4,273,150
115 4,273,151
315 4,273,152
454.5 4,273,153
490 4,273,154
543.17 4,273,155
601 4,273,156
887 4,273,157

CLASS 138
30 4,273,158
109 4,273,159
124 4,273,160
149 4,273,161

CLASS 139
13 A 4,273,162
308 4,273,163

CLASS 141
7 4,273,164
87 4,273,165
95 4,273,166
314 4,273,167

CLASS 144
3 D 4,273,168
34 R 4,273,169
115 4,273,170
193 A 4,273,171

CLASS 146
30 R 4,273,172

CLASS 148
6.27 4,273,592
24 4,273,593
33.3 4,273,594
103 4,273,595
171 4,273,596

CLASS 150
3 4,273,174

CLASS 152
327 4,273,176
360 4,273,177

CLASS 156
48 4,273,597
94 4,273,598
172 4,273,599
180 4,273,600
189 4,273,601
234 4,273,602
236 4,273,603
286 4,273,605
382 4,273,606
388 4,273,606
540 4,273,607
605 4,273,608
624 4,273,609
4,273,610

CLASS 159
47 WL 4,273,611

CLASS 162
49 4,273,612

CLASS 164
4 4,273,178

43 4,273,179
49 4,273,180
114 4,273,181
137 4,273,182

CLASS 165

32 4,273,183
59 4,273,184
80 B 4,273,185

CLASS 166

72 4,273,186
250 4,273,187
256 4,273,188
266 4,273,189
278 4,273,190
305 R 4,273,191
312 4,273,192
314 4,273,193
323 4,273,194

CLASS 169

39 4,273,195

CLASS 172

4.5 4,273,196
225 4,273,197

CLASS 173

1 4,273,198
149 4,273,199
166 4,273,200

CLASS 174

11 BH 4,273,951
68 B 4,273,952
84 R 4,273,953

CLASS 175

107 4,273,201
385 4,273,202

CLASS 176

30 4,273,613
4,273,614
39 4,273,615
68 4,273,616

CLASS 177

187 4,273,203
210 C 4,273,204
210 FP 4,273,205

CLASS 178

19 4,273,954
69 G 4,273,955

CLASS 179

1 GS 4,273,958
1 H 4,273,956
1 PC 4,273,957
1 SC 4,273,959
5 R 4,273,960
4,273,961
7.1 R 4,273,962
16 F 4,273,963
84 R 4,273,964
84 VF 4,273,965
98 4,273,966
115.5 PV 4,273,968
156 A 4,273,969
175.3 R 4,273,970

CLASS 180

6 Z 4,273,206
70 P 4,273,207
179 4,273,208
254 4,273,209
268 4,273,210
333 4,273,211

CLASS 181

102 4,273,212
207 4,273,213

CLASS 182

2 4,273,214
3 4,273,215
4,273,216

CLASS 187

9 R 4,273,217

CLASS 188

18 A 4,273,218
256 4,273,219
282 4,273,220

CLASS 190

8 4,273,221
18 A 4,273,222
41 C 4,273,223

CLASS 192

4 A 4,273,224
7 4,273,225
35 4,273,226
56 R 4,273,227
89 B 4,273,228

105 CF 4,273,229
150 4,273,230

CLASS 193

10 4,273,231

CLASS 198

335 4,273,232
347 4,273,233
4,273,234
372 4,273,235
432 4,273,236
445 4,273,237
605 4,273,238
781 4,273,239
835 4,273,240

CLASS 200

4 4,273,971
6 A 4,273,972
47 4,273,973
61.43 4,273,974
67 C 4,273,975
83 L 4,273,976
147 R 4,273,977
148 R 4,273,978
286 4,273,979
328 4,273,980

CLASS 201

39 4,273,617

CLASS 202

158 4,273,618
211 4,273,619

CLASS 203

18 4,273,620
19 4,273,621
28 4,273,622
92 4,273,623

CLASS 204

23 4,273,624
56 R 4,273,625
67 4,273,627
87 4,273,628
98 4,273,626
4,273,629
4,273,630
109 4,273,631
159.15 4,273,632
4,273,634
159.17 4,273,633
165 4,273,635
195 F 4,273,637
195 P 4,273,636
4,273,638
195 R 4,273,639
216 4,273,640
253 4,273,641
286 4,273,642

CLASS 206

520 4,273,241

CLASS 208

8 R 4,273,643
321 4,273,644
323 4,273,645

CLASS 209

223 R 4,273,646
250 4,273,647
447 4,273,648
539 4,273,649

CLASS 210

104 4,273,650
130 4,273,651
189 4,273,652
198.3 4,273,653
232 4,273,654
396 4,273,655
448 4,273,656
703 4,273,657
709 4,273,658
728 4,273,659
760 4,273,660

CLASS 212

147 4,273,242
153 4,273,243
181 4,273,244

CLASS 215

13 R 4,273,245
100 A 4,273,246
228 4,273,247
331 4,273,248

CLASS 219

10.49 R 4,273,981
70 4,273,982
93 4,273,983
97 4,273,984
101 4,273,985
123 4,273,986
124.34 4,273,987

137 PS 4,273,988
211 4,273,989
363 4,273,990
440 4,273,991
521 4,273,992
541 4,273,993

CLASS 220

4 E 4,273,249
220 4,273,250
361 4,273,251

CLASS 221

13 4,273,252
75 4,273,253
196 4,273,254
213 4,273,255
230 4,273,256

CLASS 222

43 4,273,257
103 4,273,258
108 4,273,259
135 4,273,260
4,273,261
144 4,273,262
148 4,273,263
162 4,273,264
189 4,273,265
199 4,273,266
318 4,273,267
321 4,273,268
326 4,273,269
327 4,273,270
454 4,273,271
464 4,273,272

CLASS 224

101 4,273,275
243 4,273,276
312 4,273,277
321 4,273,278

CLASS 227

67 4,273,279
107 4,273,280
152 4,273,281

CLASS 228

116 4,273,282

CLASS 235

92 A 4,273,994
139 R 4,273,995
435 4,273,996
449 4,273,997

CLASS 236

49 4,273,283

CLASS 238

160 4,273,284

CLASS 239

121 4,273,285
272 4,273,286
299 4,273,287
419.3 4,273,288
458 4,273,289
493 4,273,290
533.12 4,273,291
562 4,273,292
705 4,273,293

CLASS 241

18 4,273,294
46.11 4,273,295
60 4,273,296
99 4,273,297
189 R 4,273,298

CLASS 242

55.54 4,273,299
56 R 4,273,300
107.2 4,273,301

CLASS 244

23 C 4,273,302
104 FP 4,273,303
117 A 4,273,304
158 R 4,273,305

CLASS 248

421 4,273,306

CLASS 250

204 4,273,998
205 4,273,999
272 4,274,000
363 S 4,274,001
366 4,274,002
409 4,274,003
442 4,274,004
445 T 4,274,005
476 4,274,006
506 4,274,007

CLASS 251

69 4,273,307

88 4,273,308
174 4,273,309
211 4,273,310

CLASS 252

8.8 4,273,661
8.9 4,273,662
34 4,273,663
49.5 4,273,664
49.6 4,273,665
70 4,273,666
4,273,667
182 4,273,668
4,273,669
301.1 W 4,273,670
301.19 4,273,671
316 4,273,672
396 4,273,673
408 4,273,674
424 4,273,675
435 4,273,676
4,273,677
463 4,273,678
466 J 4,273,679
4,273,680
472 4,273,681
511 4,273,682
513 4,273,683
544 4,273,684

CLASS 254

93 R 4,273,311

CLASS 260

9 4,273,686
17.2 4,273,687
17.4 R 4,273,688
22 CB 4,273,689
4,273,690
23 S 4,273,691
28.5 R 4,273,685
29.1 R 4,273,692
29.2 E 4,273,694
29.2 N 4,273,693
29.4 UA 4,273,695
31.4 R 4,273,696
37 SB 4,273,697
4,273,698
38 4,273,699
4,273,700
40 R 4,273,701
42.53 4,273,702
112 R 4,273,703
112.5 R 4,273,704
123.7 4,273,705
156 4,273,706
187 4,273,707
199 4,273,708
239 A 4,273,709
239.55 D 4,273,710
315 4,273,711
326 N 4,273,712
326.62 4,273,713
343.21 4,273,714
343.45 4,273,715
345.9 P 4,273,716
345.9 R 4,273,717
346.22 4,273,718
346.3 4,273,719
374 4,273,720
404 4,273,721
409 4,273,722
414 4,273,723
455 R 4,273,725
463 4,273,726
465 F 4,273,727
465.6 4,273,728
543 F 4,273,729

CLASS 261

41 D 4,273,730
77 4,273,731
122 4,273,732
151 4,273,733

CLASS 264

1.1 4,273,734
5 4,273,735
45.3 4,273,736
46.5 4,273,737
154 4,273,738
211 4,273,739
228 4,273,740

CLASS 266

44 4,273,312
66 4,273,313
145 4,273,314
236 4,273,315
246 4,273,316

CLASS 267

64 A 4,273,317

CLASS 269

13 4,273,318

CLASS 270

21.1 4,273,319

CLASS 271

10 4,273,321
149 4,273,322
157 4,273,323
183 4,273,324
220 4,273,325
288 4,273,326

CLASS 272

97 4,273,327
137 4,273,328

CLASS 273

32 B 4,273,329
34 B 4,273,330
73 D 4,273,331
86 R 4,273,332
143 R 4,273,333
4,273,334
144 B 4,273,335
189 R 4,273,336
243 4,273,337
282 4,273,338
326 4,273,339
336 4,273,340
357 4,273,341

CLASS 277

53 4,273,343

CLASS 279

75 4,273,344

CLASS 280

11.2 4,273,345
33.99 F 4,273,346
80 B 4,273,347
112 A 4,273,348
154.5 R 4,273,349
242 WC 4,273,350
414 R 4,273,351
481 4,273,352
483 4,273,353
614 4,273,354
4,273,355
675 4,273,356
697 4,273,357
708 4,273,358
740 4,273,359
751 4,273,360
805 4,273,361

CLASS 283

6 4,273,362

CLASS 285

47 4,273,363
197 4,273,364
229 4,273,365
332 4,273,366
332.2 Re.30,647
419 4,273,367

CLASS 290

42 4,274,008
43 4,274,009
55 4,274,010
4,274,011

CLASS 292

53 4,273,368

CLASS 293

1 4,273,369

CLASS 294

1 B 4,273,370
78 R 4,273,371
86.15 4,273,372
87.2 4,273,373
101 4,273,373
141 4,273,274

CLASS 296

19 4,273,374
65 R 4,273,375
4,273,376
100 4,273,377
146 4,273,378

CLASS 297

56 4,273,379
191 4,273,380
318 Re.30,648

CLASS 298

1 H 4,273,381
38 4,273,382

CLASS 299

23 4,273,383
41 4,273,384
42 4,273,385

CLASS 303

6 C 4,273,386

10 4,273,387
89 4,273,388

CLASS 307

238.3 4,274,012
264 4,274,015
270 4,274,016
289 4,274,017
300 4,274,018
530 4,274,013
585 4,274,014

CLASS 308

6 C 4,273,389
168 4,273,390
174 4,273,391

CLASS 310

11 4,274,019
13 4,274,020
54 4,274,021
62 4,274,022
83 4,274,023
162 4,274,024
215 4,274,025
254 4,274,026
269 4,274,027

CLASS 312

42 4,273,392
97.1 4,273,393
184 4,273,394
205 4,273,395
223 4,273,396
237 4,273,397

CLASS 313

101 4,274,028
204 4,274,029
346 R 4,274,030
407 4,274,031

CLASS 315

39.51 4,274,032
209 R 4,274,033
240 4,274,034
357 4,274,035

CLASS 316

20 4,273,398

CLASS 318

331 4,274,036
4,274,037
663 4,274,038
678 4,274,039
689 4,274,040
696 4,274,041
803 4,274,042

CLASS 320

6 4,274,043
21 4,274,044

CLASS 323

319 4,274,045
355 4,274,046

CLASS 324

57 R 4,274,047
58 R 4,274,048
77 K 4,274,049
99 D 4,274,050
117 R 4,274,051
4,274,052
174 4,274,053
225 4,274,054

CLASS 328

14 4,274,055
162 4,274,056

CLASS 329

167 4,274,057

CLASS 330

253 4,274,058
266 4,274,059
295 4,274,060
296 4,274,061

CLASS 331

94.5 G 4,274,064
4,274,065
94.5 L 4,274,062
94.5 R 4,274,063
116 R 4,274,066
172 4,274,067

CLASS 338

20 4,274,068
21 4,274,069
205 4,274,070

CLASS 336

12 4,274,071

CLASS 337

75 4,274,072
248 4,274,073

CLASS 338

160 4,274,074
172 4,274,075

CLASS 339

17 C 4,273,399
36 4,273,400
47 R 4,273,401
91 R 4,273,402
4,273,403
93 R 4,273,404
94 R 4,273,405
147 P 4,273,406
177 R 4,273,407
198 G 4,273,408
206 P 4,273,409

CLASS 340

38 L 4,274,076
63 4,274,077
98 4,274,078
146.3 FT 4,274,079
149 R 4,274,080
153 4,274,081
167 R 4,274,082
171 R 4,274,083
326 4,274,084
347 DD 4,274,085
506 4,274,086
525 4,274,087
568 4,274,088
572 4,274,089
4,274,090
583 4,274,091
705 4,274,092
712 4,274,093
723 4,274,094

CLASS 343

7 A 4,274,095
112 TC 4,274,096
719 4,274,097
781 CA 4,274,098
912 4,274,099

CLASS 346

75 4,274,100
108 4,274,101
139 R 4,274,102

CLASS 350

6.2 4,273,410
96.14 4,273,411
96.20 4,273,412
4,273,413
239 4,273,416
289 4,273,417
4,273,418
320 4,273,419
341 4,273,420
353 4,273,421
362 4,273,422
429 4,273,414
4,273,423
431 4,273,424
444 4,273,425
465 4,273,415

CLASS 352

169 4,273,426

CLASS 353

27 A 4,273,427

CLASS 354

23 D 4,273,428
30 4,273,429
31 4,273,430
59 4,273,431
145 4,273,432
246 4,273,433
288 4,273,434
299 4,273,435
344 4,273,436

CLASS 355

3 BE 4,273,437
14 C 4,273,439
14 CU 4,273,438
40 4,273,440
67 4,273,441

CLASS 356

326 4,273,442
343 4,273,443
350 4,273,444
4,273,445
354 4,273,446
373 4,273,447
374 4,273,448
411 4,273,449
433 4,273,450

CLASS 367

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19 4,274,104
23 4,274,105
28 Re.30,652
79 4,274,106

CLASS 388

29 4,274,107
31 4,274,108
53 4,274,109
60 4,274,110
75 4,274,111
181 4,274,112
212 4,274,113
257 4,274,114

CLASS 360

62 4,274,115
65 4,274,116
68 4,274,117
84 4,274,118
97 4,274,119
106 4,274,120

CLASS 361

96 4,274,121
159 4,274,122
232 4,274,123
275 4,274,124
283 4,274,125
334 4,274,126

CLASS 362

72 4,274,127
105 4,274,128
109 4,274,129
184 4,274,130
355 4,274,131

CLASS 363

21 4,274,132
39 4,274,133
59 4,274,134
68 4,274,135
4,274,136
139 4,274,137

CLASS 364

200 4,274,138
4,274,139
414 4,274,140
431 4,274,141
483 4,274,143
551 4,274,144
557 4,274,145
705 4,274,146

CLASS 365

189 4,274,147

CLASS 366

101 4,273,451
169 Re.30,649

CLASS 367

122 4,274,148

CLASS 368

10 4,274,149
21 4,274,151
80 4,274,153
82 4,274,154
185 4,274,150
192 4,274,152

CLASS 369

32 4,273,342
126 4,273,967

CLASS 370

62 4,274,155

CLASS 400

124 4,273,452
196.1 4,273,453
234 4,273,454
309 4,273,455
530 4,273,456
705.1 4,273,457

CLASS 401

109 4,273,458
139 4,273,459

CLASS 403

1 4,273,460
125 4,273,461
171 4,273,462
246 4,273,463
348 4,273,464
391 4,273,465

CLASS 404

4 4,273,466
26 4,273,467

CLASS 405

132 4,273,468
158 4,273,469
202 4,273,470
203 4,273,471
211 4,273,472
212 4,273,473
225 4,273,474
229 4,273,475
258 4,273,476

CLASS 406

39 4,273,477
189 4,273,478

CLASS 407

113 4,273,479
114 4,273,480

CLASS 408

14 4,273,481

CLASS 409

80 4,273,482
178 4,273,483

CLASS 410

12 4,273,484
34 4,273,485
103 4,273,486
105 4,273,487

CLASS 411

168 4,273,175

CLASS 414

44 4,273,488
60 4,273,489
95 4,273,490
109 4,273,491
160 4,273,492
221 4,273,493
266 4,273,494
272 4,273,495
417 4,273,496
517 4,273,497
556 4,273,498
626 4,273,499
642 4,273,500
680 4,273,501
694 4,273,502
4,273,503
728 4,273,504
735 4,273,505
4,273,506
790 4,273,507

CLASS 415

1 4,273,508
111 4,273,509
119 4,273,510

CLASS 416

134 A 4,273,511
188 4,273,512

CLASS 417

12 4,273,513
15 4,273,514
62 4,273,515
214 4,273,516
222 4,273,517
269 4,273,518
273 4,273,519
434 4,273,520

CLASS 418

48 4,273,521

CLASS 422

56 4,273,741
80 4,273,742
148 4,273,743
265 4,273,744

CLASS 423

54 4,273,745
92 4,273,746
210 4,273,747
230 4,273,748
231 4,273,749
244 4,273,750
4,273,751
322 4,273,752
328 4,273,753
385 4,273,754
463 4,273,755

CLASS 424

1 4,273,756
4,273,757
49 4,273,758
54 4,273,759
70 4,273,760
81 4,273,761
89 4,273,762
145 4,273,763
174 4,273,764
180 4,273,765
4,273,766
211 4,273,767
222 4,273,768
224 4,273,769
241 4,273,770
242 4,273,771
248.54 4,273,772
250 4,273,773
253 4,273,774
256 4,273,775
263 4,273,776
4,273,777
265 4,273,778
266 4,273,779
267 4,273,780
4,273,781
273 R 4,273,782
4,273,783
305 4,273,784
316 4,273,785
319 4,273,786
331 4,273,787

CLASS 425

113 4,273,522
326.1 4,273,523
450.1 4,273,524
549 4,273,525

CLASS 426

104 4,273,788
231 4,273,789
262 Re.30,651
335 4,273,790
439 4,273,791
482 4,273,792
572 4,273,793
590 4,273,794
602 4,273,795
634 4,273,796

CLASS 427

10 4,273,797
27 4,273,798
44 4,273,799
47 4,273,800
48 4,273,801
54.1 4,273,802
58 4,273,803
88 4,273,805
97 4,273,804
119 4,273,806
132 4,273,807
142 4,273,808
155 4,273,809
156 4,273,810
232 4,273,811
248.1 4,273,812
387 4,273,813

CLASS 428

8 4,273,814
35 4,273,815
4,273,816
90 4,273,817
116 4,273,818
199 4,273,819
4,273,820
215 4,273,821
216 4,273,822
223 4,273,825
224 4,273,823
256 4,273,824
304 4,273,826
307 4,273,827
336 4,273,828
383 4,273,829
398 4,273,830
402 4,273,831
410 4,273,832
411 4,273,833
429 4,273,834
446 4,273,835
595 4,273,836
647 4,273,837
683 4,273,838

CLASS 429

51 4,273,839
144 4,273,840
199 4,273,841

CLASS 430

25 4,273,842
30 4,273,843
48 4,273,844
4,273,845
59 4,273,846
106 4,273,847
107 4,273,848
119 4,273,849
173 4,273,850
175 4,273,851
209 4,273,852
213 4,273,853
216 4,273,854
242 4,273,855
270 4,273,856
281 4,273,857
296 4,273,858
315 4,273,859
338 4,273,860
382 4,273,861
412 4,273,862
467 4,273,863
551 4,273,864

CLASS 431

20 4,273,526
177 4,273,527
255 4,273,528
4,273,529

CLASS 430

6 4,273,530
27 4,273,531
37 4,273,532
55 4,273,533
90 4,273,534
216 4,273,535

CLASS 434

14 4,273,536
83 4,273,537
178 4,273,538
260 4,273,539
262 4,273,540
304 4,273,541
340 4,272,896
433 4,273,542

CLASS 438

7 4,273,865
4,273,866
4,273,867
14 4,273,868
26 4,273,869
4,273,870
88 4,273,871
41 4,273,872
55 4,273,873
180 4,273,874
191 4,273,875
253 4,273,876
265 4,273,877
293 4,273,878

CLASS 440

4 4,273,543
30 4,273,544
75 4,273,545
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CLASS 474

82 4,273,546
170 4,273,547

CLASS 480

14 4,273,548
83 4,273,549
240 4,273,550
243 4,273,551
427 4,273,320

CLASS 518

715 4,273,724

CLASS 521

32 4,273,878
91 4,273,879
93 4,273,880
108 4,273,881
110 4,273,882
113 4,273,883
114 4,273,884
115 4,273,885
185 4,273,886
188 4,273,887

CLASS 525

31 4,273,888
109 4,273,889
129 4,273,890
145 4,273,891
180 4,273,892
227 4,273,893
228 4,273,894
264 4,273,895
271 4,273,896
351 4,273,897
432 4,273,898
439 4,273,899
444 4,273,900
455 4,273,901
478 4,273,902
534 4,273,903

CLASS 526

91 4,273,904
142 4,273,905
285 4,273,906

CLASS 528

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44 4,273,908
45 4,273,909
48 4,273,910
49 4,273,911
67 4,273,912
77 4,273,913
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93 4,273,915
117 4,273,916
288 4,273,917
310 4,273,918
313 4,273,919
361 4,273,920
405 4,273,921

CLASS 536

1 4,273,922
10 4,273,923
17 R 4,273,924
4,273,925

CLASS 542

458 4,273,926

CLASS 544

32 4,273,927
190 4,273,928
242 4,273,929

CLASS 546

90 4,273,930
156 4,273,932
344 4,273,931

CLASS 549

179 4,273,933
238 4,273,934

CLASS 562

595 4,273,935
606 4,273,936

CLASS 564

2 4,273,937
124 4,273,938
358 4,273,939
372 4,273,940
416 4,273,941

CLASS 568

42 4,273,942
319 4,273,943
396 4,273,944
420 4,273,945
625 4,273,946
842 4,273,947

CLASSIFICATION OF DESIGNS

D2—	244	259,520	D7—	42	259,533			259,546	D13—	99	259,559	D18—	35	259,571	D22—	19	259,583
	272	259,521		47	259,534	D11—	2	259,547			259,560	D19—	1	259,572	D23—		259,584
	278	259,522			259,535		90	259,548	D14—	4	259,561			259,573		95	259,585
D3—	28	259,523		129	259,536		141	259,549		38	259,562		48	259,574	D26—	76	259,586
	75	259,524		188	259,537		159	259,550		60	259,563	D21—	109	259,575	D27—	03	259,587
D6—	4	259,525	D8—	59	259,538	D12—	25	259,551		68	259,564		111	259,576		42	259,588
	23	259,526		310	259,539		57	259,552		96	259,565		177	259,577	D28—	35	259,589
	114	259,527		367	259,540		162	259,555	D15—	49	259,566		190	259,578		50	259,590
	157	259,528	D9—	300	259,541		169	259,556		112	259,567		232	259,579			259,591
	179	259,529		403	259,542			259,557		125	259,568			259,580	D30—	10	259,593
	183	259,530		419	259,544		205	259,558	D16—	01	259,569		240	259,581		37	259,592
	201	259,531		426	259,543		308	259,553	D17—	20	259,570		246	259,582	D92—	1.1	259,594
	249	259,532	D10—	65	259,545		332	259,554									

CLASSIFICATION OF PLANTS

P.—	34	4,741	68	4,742	4,743	4,744	4,745			

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6 :	4,272,849		4,273,176		4,273,999		4,274,055		4,273,537		4,273,539
	4,273,161		4,273,181		4,274,006		4,274,121		4,273,550	24 :	Re.30,645
	4,273,390		4,273,221		4,274,012	10 :	4,273,695		4,273,670		4,272,848
9 :	4,272,879		4,273,225		4,274,016		4,273,728		4,273,672		4,272,965
01 :	4,273,305		4,273,240		4,274,034		4,273,729		4,273,688		4,272,996
	4,274,129		4,273,249		4,274,038		4,273,807		4,273,704		4,273,086
04 :	4,272,892		4,273,252		4,274,039		4,273,892		4,273,722		4,273,100
	4,273,094		4,273,257		4,274,043	11 :	4,273,833		4,273,744		4,273,183
	4,273,377		4,273,274		4,274,046	12 :	4,272,864		4,273,750		4,273,212
	4,273,394		4,273,276		4,274,048		4,272,878		4,273,756		4,273,269
	4,273,421		4,273,282		4,274,049		4,272,905		4,273,757		4,273,328
	4,273,859		4,273,292		4,274,070		4,272,938		4,273,788		4,273,643
	4,273,996		4,273,299		4,274,077		4,272,986		4,273,851		4,273,768
	4,274,018		4,273,327		4,274,087		4,273,015		4,273,866		4,273,913
	4,274,085		4,273,329		4,274,098		4,273,053		4,273,924		4,273,992
	4,274,088		4,273,332		4,274,120		4,273,128		4,273,925		4,274,067
05 :	4,272,874		4,273,336		4,274,130		4,273,222		4,273,940		4,274,088
	4,273,107		4,273,346		4,274,131		4,273,289		4,273,953		4,274,095
	4,273,619		4,273,354		4,274,133		4,273,290		4,273,957		4,274,097
06 :	4,272,847		4,273,368		4,274,147		4,273,412		4,274,045	25 :	Re.30,646
	4,272,854		4,273,401	08 :	4,272,888		4,273,416		4,274,072		4,272,852
	4,272,869		4,273,418		4,272,977		4,273,427		4,274,096		4,272,926
	4,272,880		4,273,445		4,273,102		4,273,443		4,274,110		4,272,955
	4,272,887		4,273,446		4,273,142		4,273,624		4,274,125		4,272,975
	4,272,898		4,273,471		4,273,312		4,273,631		4,274,144		4,273,017
	4,272,903		4,273,487		4,273,439		4,273,824		4,274,155		4,273,038
	4,272,913		4,273,509		4,273,745		4,273,955	18 :	4,273,139		4,273,045
	4,272,917		4,273,520	09 :	4,272,885		4,273,962		4,273,250		4,273,145
	4,272,936		4,273,532		4,272,974	13 :	4,272,968		4,273,618		4,273,199
	4,272,958		4,273,548		4,273,085		4,273,122		4,273,692		4,273,230
	4,272,980		4,273,556		4,273,148		4,273,397		4,273,888		4,273,234
	4,272,961		4,273,558		4,273,150		4,273,484		4,273,920		4,273,362
	4,272,967		4,273,559		4,273,177		4,273,649		4,273,942		4,273,374
	4,272,971		4,273,572		4,273,246	16 :	4,273,039		4,273,990		4,273,380
	4,272,978		4,273,601		4,273,271		4,273,096	19 :	4,272,876		4,273,392
	4,272,991		4,273,608		4,273,311	17 :	4,272,853		4,272,948		4,273,393
	4,273,006		4,273,610		4,273,339		4,272,891		4,273,036		4,273,407
	4,273,016		4,273,615		4,273,385		4,272,972		4,273,075		4,273,431
	4,273,018		4,273,638		4,273,616		4,272,980		4,273,244		4,273,433
	4,273,020		4,273,688		4,273,686		4,272,997		4,273,285		4,273,515
	4,273,023		4,273,640		4,273,741		4,273,081		4,273,340		4,273,655
	4,273,031		4,273,710		4,273,764		4,273,087		4,273,367		4,273,739
	4,273,048		4,273,734		4,273,775		4,273,130		4,273,444		4,273,847
	4,273,067		4,273,770		4,273,790		4,273,178		4,273,458		4,273,980
	4,273,068		4,273,816		4,273,795		4,273,268		4,273,502		4,273,981
	4,273,106		4,273,836		4,273,809		4,273,284	20 :	4,272,934		4,274,040
	4,273,108		4,273,886		4,273,831		4,273,307		4,273,173		4,274,047
	4,273,109		4,273,906		4,273,838		4,273,333		4,273,488		4,274,083
	4,273,115		4,273,908		4,273,882		4,273,436	21 :	4,272,952		4,274,102
	4,273,121		4,273,916		4,273,994		4,273,486		4,273,456		4,274,134
	4,273,131		4,273,918		4,273,995		4,273,490	22 :	4,273,149		4,274,154
	4,273,158		4,273,920		4,274,026		4,273,507		4,273,201	26 :	4,272,901
	4,273,170		4,273,988		4,274,041		4,273,527		4,273,466		4,272,921

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4,272,882
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June 23, 1981 Volume 1007 Number 4

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90–95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,812,735, Re. S.N. 247,921, Filed Mar. 26, 1981, Cl. 74/371, TRANSMISSION, Roland L. Von Kaler, et al., Owner of Record: *Tecumseh Products Co., Tecumseh, Mich.,* Attorney or Agent: George A. Gust, et al., Ex. Gp.: 352

3,984,947, Re. S.N. 244,200, Filed Mar. 16, 1981, Cl. 52/1, ROOF STRUCTURE INCLUDING A ONE-WAY VAPOR VENT, Francis J. Patry, Owner of Record: *Johns-Manville Corp., Arapahoe, Colo.,* Attorney or Agent: Robert M. Krone, et al., Ex. Gp.: 254

4,080,413, Re. S.N. 241,999, Filed Mar. 9, 1981, Cl. 264/29.2, POROUS CARBON FUEL CELL SUBSTRATES AND METHOD OF MANUFACTURE, George K. Layden, et al., Owner of Record: *United Technologies, Corp., Hartford, Conn.,* Attorney or Agent: Harry J. Gwinnell, Ex. Gp.: 147

4,142,679, Re. S.N. 241,087, Filed Mar. 6, 1981, Cl. 237/54, BUILDING HEATING SYSTEM, Donald C. McKillop, Sr., Owner of Record: *Inventor,* Attorney or Agent: J. Michael Rosso, Ex. Gp.: 344

4,147,176, Re. S.N. 249,345, Filed Mar. 31, 1981, Cl. 137/102, DIAPHRAGM ASSEMBLY FOR THE DEMAND REGULATOR OF A BREATHING APPARATUS, Raymond A. Christianson, Owner of Record: *Inventor,* Attorney or Agent: W. Robert Spensley, et al., Ex. Gp.: 341

4,174,169, Re. S.N. 234,388, Filed Feb. 13, 1981, Cl. 354/324 ANTI-OXIDATION FLUID REPLENISHER CONTROL SYSTEM FOR PROCESSOR OF PHOTOSENSITIVE MATERIAL, Theodore A. Melander, et al., Owner of Record: *Pako Corp., Minneapolis, Minn.,* Attorney or Agent: David R. Fairbairn, et al., Ex. Gp.: 211

4,195,916, Re. S.N. 248,458, Filed Mar. 7, 1981, Cl. 350/346, LIQUID CRYSTAL COMPOUNDS, David Coates, et al., Owner of Record: *The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland London, England,* Attorney or Agent: Ellsworth H. Mosher, et al., Ex. Gp.: 257

4,198,873, Re. S.N. 250,914, Filed Apr. 3, 1981, Cl. 74/217 B, SPEED CHANGING DEVICE FOR A BICYCLE AND THE LIKE, Masashi Nagano, et al., Owner of Record: *Shimano Industrial Co., Ltd., Osaka, Japan,* Attorney or Agent: Davidson C. Miller, et al., Ex. Gp.: 352

4,223,504, Re. S.N. 243,277, Filed Mar. 13, 1981, Cl. 52/479, WALL SYSTEM, Timothy K. Potter, et al., Owner of Record: *Gotaverken Aluminum AB., Goteborg, Sweden,* Attorney or Agent: Elliott I. Pollock, et al., Ex. Gp.: 354

4,236,086, Re. S.N. 247,839, Filed Mar. 26, 1981, Cl. 307/149, APPARATUS FOR THE DETECTION AND PROCESSING OF ELECTRIC SIGNALS, Peter Hoebel, Owner of Record: *Siemens Aktiengesellschaft, Berlin and Munich, Germany,* Attorney or Agent: James Van Santen, et al., Ex. Gp.: 217

4,239,635, Re. S.N. 243,455, Filed Mar. 13, 1981, Cl. 252/34, NOVEL DIAMIDE AND LUBRICANTS CONTAINING SAME, Walter E. Rieder, Owner of Record: *Cincinnati Milacron, Inc., Cincinnati, Ohio,* Attorney or Agent: Jack J. Earl, et al., Ex. Gp.: 116

4,245,551, Re. S.N. 248,812, Filed Mar. 30, 1981, Cl. 98/115, COATING BOOTH FOR ELECTROSTATIC APPLICATION OF PULVERIZED MATERIALS, Adolf Berkmann, Owner of Record: *Nordson Corp., Amherst, Ohio,* Attorney or Agent: Herbert C. Brinkman, et al., Ex. Gp.: 344

DEPARTMENT OF COMMERCE

Patent and Trademark Office

37 CFR Part 1

Rules of Practice in Patent Cases; Reexamination Proceedings

AGENCY: Patent and Trademark Office, Commerce.

ACTION: Final rule.

SUMMARY: The Patent and Trademark Office is amending its rules of practice in patent cases to provide procedures for the reexamination of patents. Public Law 96–517 amended the patent act to authorize reexamination proceedings as a means for improving the quality of United States patents. The Patent and Trademark Office intends, through this amendment of its rules, to provide patent owners and the public with guidance on the procedures the Office will follow in conducting reexamination proceedings.

DATE: Effective date: July 1, 1981.

FOR FURTHER INFORMATION CONTRACT: Mr. R. Franklin Burnett by telephone at [703]557-3054 or by mail marked to his attention and addressed to the Commissioner of Patents and Trademarks. Washington, D.C. 20231.

SUPPLEMENTARY INFORMATION: This rule change relates to a procedure for reexamination of patents as provided for in Public Law 96–517, section 1 of which relates to reexamination and becomes effective on July 1, 1981.

Background

A notice of proposed rulemaking was published in the Federal Register on Jan. 13, 1981 at 46 FR 3162–3175 and in the *Official Gazette* on Feb. 17, 1981 at 1003 O.G. 36–47.

The proposed rulemaking set forth two somewhat distinct procedures directed towards determining and improving the quality and reliability of United States patents. The procedures were (1) provisions for reexamination of patents as provided for in Pub. L. 96–517, section 1 of which relates to reexamination and becomes effective on July 1, 1981, and (2) provisions for inter partes protest proceedings in a patent application between the patent applicant and a member (or members) of the public who has (have) access to the application file.

An oral hearing was held on Apr. 16, 1981. Fifty-nine written letters and statements were submitted. Nineteen persons testified at the oral hearing which resulted in 107 pages of testimony.

Discussion of General Issues Involved

After careful consideration of the comments which have been received, the part of the proposed rulemaking relating to reexamination of patents as set forth in new Chapter 30 which Pub. L. 96–517 added to Title 35 of the United States Code [35 U.S.C. 301–307] is being adopted with certain changes. The remainder of the proposal relating to inter partes protest proceedings is not being adopted.

The comments relating to the proposed rules for inter partes protest proceedings were generally mixed, with a majority of persons and associations submitting comments either opposed to these proposed rules or indicating that adoption of the proposed rules should be delayed or deferred for further study and consideration.

A number of comments were received requesting some further changes to the rules be made. The thrust of some of the suggested changes would be to remove public access to reissue applications and to limit public participation in the examination of reissue applications. The changes suggested included restoring the rules in these areas to essentially their pre-1977 form. In particular, it was suggested that §1.175 be amended to eliminate paragraph (a)(4). These changes were not a part of the published proposal and are not being adopted at this time. Their consideration and adoption would require a new notice of proposed rulemaking.

Further, since the subject matter of reissue applications is already known to the public the necessity for maintaining them in confidence is not compelling. The elimination of paragraph (a)(4) of §1.175 would not have a significant effect since less than one-fourth of the currently filed reissue applications are based solely upon the 1977 change to §1.175. Under the present circumstances, it is more appropriate to defer any consideration of such changes until this issue has been reviewed further and possibly until some experience is gained under the rules adopted herein relating to reexamination. Such experience may indicate the desirability of either retaining the 1977 change to §1.175, deleting the 1977 change, or making different changes in the rules.

The comments relating to reexamination were generally favorable with most of the comments indicating general approval of the proposed rules. Among the more often mentioned specific comments were suggestions relating to public notice of reexamination requests and/or orders. A number of comments also related to requester and/or third party participation in the reexamination proceeding and also to the scope of the proceeding.

After careful review of the comments and suggestions it has been decided to adopt the suggestions relating to the publication in the *Official Gazette* of requests for reexamination for which the fee has been paid. In addition, any reexaminations ordered at the initiative of the Commissioner will also be announced in the *Official Gazette.* The announcement will include at least the date of the request or any Commissioner initiated order, a reexamination request or order control number, the patent number, title, class and subclass, name of the inventor, name of the patent owner of record, and the examining group to which the reexamination is assigned.

The suggestions and comments relating to more participation in the reexamination proceeding by the requester and third parties have been adopted only to a limited degree. The requester will in general have only that participation provided by the rules as proposed. However, any citations under §1.501 by any person will be entered in the patent file up until the date of an order to reexamine. The essentially ex parte nature of the proceeding is believed to be in keeping with the spirit and intent of the statute even though the statute does not require ex parte proceedings. Ex parte proceedings will minimize the costs and other effects of reexamination requests on patentees, especially individuals and small businesses.

The scope of the reexamination proceeding which was originally proposed has been essentially adopted in the final rules. The suggestions that the rules be broadened to include other issues have not been adopted since the other issues would unduly complicate the proceedings, raise the expense of the proceedings and raise questions whether such issues can be considered under Pub. L. 96–517.

Discussion of the Major Specific Issues Involved

The rules relating to reexamination proceedings are directed to the procedures set forth in new Chapter 30 of Title 35 of the United States Code (35 U.S.C. 301–307). This Chapter provides for the citation of prior art in patents, filing of requests for reexamination, decisions on such requests, reexamination and appeal from reexamination decisions, and the issuance of a certificate at the termination of the reexamination proceedings. Present §§1.1, 1.5, 1.11, 1.33, 1.34, 1.36, 1.104, 1.107, 1.109, 1.111, 1.112, 1.113, 1.115, 1.116, 1.121, 1.191, 1.192, 1.196, 1.197, 1.231, 1.248, 1.301, and 1.303 are amended to provide for reexamination procedures. A new "Subpart D-Reexamination of Patents" includes new §§1.501, 1.510, 1.515, 1.520, 1.525, 1.530, 1.535, 1.540, 1.550, 1.552, 1.555, 1.560, 1.565, and 1.570. Paragraph (b) of §1.291, relating to prior art citations in patents, is deleted, since provisions therefor appear in §1.501.

Section 1.1, as amended, provides for communications relating to reexamination proceedings to be marked "Box Reexam" to speed internal Office mail processing. No comments were received concerning this section. The proposal has been modified to indicate that only requests should be marked "Box Reexam".

Section 1.5, as amended, provides for all letters relating to a reexamination proceeding to be identified by patent number and a reexamination request control number. No comments were received concerning this section. Section 1.5 has been modified to also include reference to the Group Art Unit and the examiner, if known.

Section 1.11, as amended, provides for all papers made of record in reexamination proceedings to be open to inspection and copying by the public. Eighteen comments were received relating to publication of a notice in the *Official Gazette.* A new paragraph (c) has been added which provides for the publication of requests with sufficient fees paid and orders initiated by the Commissioner. Proposed paragraph "c" has been adopted as paragraph "d".

Section 1.33, as amended, has a new paragraph (c) relating to which address communications for the patent owner will be sent and who may sign papers filed. Four comments were received on this section relating to whom the mail should be addressed. One proposal, which suggested use of the current address of the attorney or agent of record, was adopted.

Section 1.34, as amended, provides for the appointment of an attorney or agent in a reexamination proceeding. Only one comment was received on this section which proposed a rule specifically allowing attorneys to file requests without identifying their clients. Since any person may request reexamination, such a rule is not felt necessary.

Section 1.36, as amended, provides for the revocation and withdrawal of powers of attorney in a reexamination proceeding. No comment was received. Section 1.36 is adopted as proposed with an additional change which added "or her" near the end.

Section 1.104, as amended, broadens the present section to also include reexamination. Three comments were received on §1.104. All comments indicated that the examiner should not make a prior art search. Although no complete new search by the examiner is required, the use of patents and printed publications in addition to those submitted by the requester is clearly indicated in 35 U.S.C. 303(a). According, §1.104 is adopted as proposed.

Section 1.107, as amended, provides for the citation of prior art by the examiner in a reexamination proceeding. The amended rule also refers to foreign published applications, as well as patents. No comments were received on this section. It is adopted as proposed.

Section 1.109, as amended, provides for the examiner to supply reasons for allowance in a reexamination proceeding if the examiner believes that the record does not make clear the reasons for allowing a claim or claims. No comments were received on this section. Except for a clarifying change in language, it is adopted as proposed.

Section 1.111, as amended, provides for replies by the patent owner in a reexamination proceeding. One comment was received which suggested a clarification. The suggestion was adopted. Other non-substantive changes have been made in the proposed section to shorten the sentences for clarity.

Section 1.112, as amended, provides for reexamination and reconsideration of the patent under reexamination after responses by the patent owner. Three comments were received on this section.

The wording has been changed as suggested to avoid any confusion between "reexamination" and "reexamine". The sentences have also been shortened for clarity.

Section 1.113, as amended, provides for a final rejection or action in a reexamination proceeding. One comment was received which pointed out a possible conflict between the amendment rights of section 305 and the final rejection of section 1.113. No problem is seen in this regard because of the provision of section 305 which states that "reexamination will be conducted according to the procedures established for initial examination." The section is adopted as proposed with the last sentence being divided into two sentences for clarity.

Section 1.115, as amended, provides for amendments by the patent owner in a reexamination proceeding. No comments were received concerning this section. The section is adopted as proposed with minor changes for clarity.

Section 1.116, as amended, provides for amendments after final action in reexamination proceedings. One comment was received which was the same as that mentioned and responded to in Section 1.113 above. The sentences have been shortened for clarity.

Section 1.121, as amended, contains a new paragraph (f) which requires a complete copy of any new or amended claim when presented during reexamination proceedings. Two persons commented on this section. One proposed side-by-side presentation of amended and original claims. The other proposed that exactly the same procedure be used as is now in effect for amending reissue claims. Neither suggestion was adopted since neither lends itself to printing only the amended claims in a certificate as easily as the procedure set forth in §1.121(f). The proposed section was revised to also provide for the amendment of the description. In addition, the last three sentences of §1.510(e) have been inserted as the last three sentences of §1.121(f) in order to provide a more complete description therein of the manner of making amendments, including the numbering of claims, the restriction on scope of the claims and the prohibition against the introduction of new matter.

Section 1.191, as amended, provides for appeal to the Board of Appeals by the patent owner from any decision adverse to patentability, in accordance with 35 U.S.C. 306. One comment was received on proposed §1.191 which urged that the requester should also be entitled to appeal. This proposal was not adopted because it is not provided for in the law and could result in harassment if permitted. The section is adopted as proposed except that "primary" contained in the existing rule is retained.

Section 1.192, as amended, provides two months from the date of the Notice of Appeal for the patent owner to file an appeal brief in a reexamination proceeding. Five comments were received relating to §1.192 which proposed that the period for filing an appeal brief in a reexamination appeal be two months as in other appeals. The proposed rule has been adopted with the suggested two month period. The sentences have been shortened for clarity.

Section 1.196 and §1.197 are being amended to refer to "appellants", which is a term which includes both applicants and patent owners.

These two sections were not published for comment, however, the issues involved were presented in proposed §§1.191 and 1.192. Paragraph (c) of §1.197 has also been rewritten for clarity.

Section 1.231(a)(1), as amended, provides for a motion that a patent claim is unpatentable in an interference proceeding where reexamination thereof has also been requested.

Three comments were received concerning §1.231. All comments related to when interference or reexamination proceedings would be suspended. Section 1.565 provides basis for such suspensions. Decisions will be made on a case by case basis, depending on the particular fact situation. The sentences in §1.231(a)(1) have been shortened and rearranged for clarity.

An amendment was proposed to delete the last two sentences of §1.247 relating to proof of service. No comments were received concerning this section but, on reconsideration, no need for such deletion is felt necessary and no change is being adopted.

Section 1.248, as amended, includes a new paragraph (b) relating to methods of serving papers and proof of service. No comments were received concerning this section. The section is adopted as proposed with minor changes for clarity and to conform to the Federal Rules of Civil Procedure.

Section 1.291, as amended, deletes paragraph (b). Former paragraph (b) dealt with the citation of prior art provisions. It was deleted since the provisions are now covered by §1.501. Five persons commented on §1.291. One comment relating to filing protests in reexamination proceedings was not adopted since such proceedings are ex parte in nature and are limited to consideration of prior art patents and printed publications cited by the public prior to the order. Two persons mentioned providing a procedure for citation of prior art by patentees. Citation of prior art by patentees is included in §1.501. The two other comments related to the content of protest proceedings, which are not part of this final rule. Section 1.291 is adopted as proposed except that the paragraph designation of (c) is not being changed.

Section 1.301, as amended, provides for appeal by the owner of a patent in reexamination proceedings to the U.S. Court of Customs and Patent Appeals. Four comments were received relating to §1.301. One person suggested the insertion of "any" as the fourth word in the section. This suggestion was adopted. The other three comments related to appeals in inter partes protest proceedings which are not a part of this promulgation. Section 1.301 is adopted as proposed with only the above mentioned change.

Section 1.303, as amended, provides for remedy by civil action under 35 U.S.C. 145 for the owner of a patent in reexamination proceedings. No comments were received concerning this section. The changes from the proposal are the insertion of "any" as the fourth word in the section as suggested in §1.301 and the addition of, "306" to the title.

New §1.501 provides a system for citation of patents and printed publications to the Patent and Trademark Office for placement in the patent file by any person during the period of enforceability of the patent in accordance with 35 U.S.C. 301. Seventeen persons commented on §1.501. Nine comments indicated that citations should be limited to patents or printed publications. Six comments indicated that persons citing art should be required to apply it to at least one claim. Three persons held the opposite view. The final rule wording provides for citations limited to patents and printed publications where the person making the citation states the pertinency and applicability of the citation to the patent and the bearing the citation has on the patentability of at least one claim of the patent. The final rule provides that a citation made by the patent owner may include an explanation of how the claims differ from the prior art cited. Any citations which include items other than patents and printed publications will not be entered in the patent file. This does not, of course, limit in any manner the kinds and types of information which can be relied upon in protests against pending patent applications, whether such be original applications or reissue applications. Four persons stated that a separate letter requesting confidentiality should be required in cases desiring confidentiality. This provision was not considered to be necessary. One comment requested clarification of the term "period of enforceability of a patent." The meaning of this term appears to be clear since it includes any period for which recovery can be had for infringement. Under usual circumstances, this would be the term of the patent plus the six years provided by 35 U.S.C. 286. Five comments were received relating the paragraph (c) concerning service of citations on the patent owner. The wording has been clarified. A suggestion was made that prior art copies and translations of non-English documents be required. This suggestion was not adopted since such documents are not absolutely essential until a request for reexamination has been filed. However, if the person citing the patents or printed publications desires that they be considered in any subsequent reexamination proceedings, copies and any necessary English translation should be included with the citation. A proposal was also made to charge a fee to prevent harassment. This proposal was not adopted since the mere citation of prior art is not considered to constitute harassment. A suggestion was made to change the title of the section. This suggestion was adopted in slightly modified form.

New §1.510 sets forth procedures for any person to request reexamination in accordance with 35 U.S.C. 302. Paragraph (a) of new §1.510 limits the period for such request to the period of enforceability of the patent for which the request is filed and requires payment of the fee for requesting reexamination. Paragraph (b) of new §1.510 indicates what each request for reexamination must include. Paragraph (c) of new §1.510 indicates under which conditions a request for reexamination will be considered. Paragraph (d) of new §1.510 indicates the date on which the entire fee is received will be considered to be the date of the request for reexamination. Upon reconsideration of the paragraph as proposed, it was considered more appropriate to base the filing date of the request for reexamination on the receipt of the fee for requesting reexamination rather than include other matters. Proposed paragraph (d) has been amended accordingly and is adopted. Paragraph (e) of new §1.510 covers amendments which a patent owner can propose. Such amendments can accompany a request for reexamination by the patent owner. The paragraph, with changes in wording for clarity, is adopted as proposed. A new paragraph (f) was added to clarify that requests for reexamination may be filed by attorneys or agents on behalf of a requester. Nineteen persons commented on §1.510. One person inquired as to whether confidential requests would be accepted. In response thereto, §1.510 provides that any person may file a request for reexamination. That person's name will not be maintained in confidence. One suggestion was made to permit comment and rebuttal before the decision under §1.515. No need for such a procedure is seen since the only question to be considered is whether or not a substantial new question of patentability has been raised. An opportunity for comment and rebuttal is provided after the issuance of the order. One comment was received which desired provision for supplemental requests at a reduced fee. This proposal was not adopted since it is felt that all requesters should share equally in the cost. One comment was received which proposed that duplicate copies of the request be filed in the Office so that one copy would be available for public inspection at all times. This proposal was not adopted since it would appear to create more problems than it would solve. One comment was received that only "readily available" translations should be required. It is felt that if a document is considered to be sufficiently pertinent to request reexamination, that an English translation should be provided to insure complete and proper consideration. A suggestion was made relating to paragraph (b)(5) that direct service be limited to registered patent attorneys. No need for such a restriction is seen. Various other comments relating to procedures were considered but were not adopted.

New §1.515 relates to a determination as to whether the request has presented a substantial new question of patentability under 35 U.S.C. 303. Paragraph (a) of new §1.515 requires that the determination be made within 3 months of the filing date of the request. Paragraph (b) of new §1.515 refers to the refund provisions. Paragraph (c) of new §1.515 provides for review by petition to the Commissioner of any decision refusing reexamination. Seven persons commented on §1.515. Several comments were received suggesting that the term "reexamination" should be dropped before "examiner". This proposal was adopted. Several persons requested that all art cited in the patent file at the time of the order under §1.525 be considered when deciding whether a substantial new question of patentability is presented in the request. This is possible under the provision of §1.515(a) which permits "consideration of other patents or printed publications", but is not required insofar as prior art not relied upon in the request is concerned. One person suggested that "is" be changed to-affirms-in paragraph (c). This proposal has been adopted. One commentor questioned whether a right to review was available under paragraph (c) if reexamination was ordered. No right to review exists in such a case because all claims will be reviewed in view of all prior art during the reexamination under §1.550.

New §1.520 provides for reexamination at the initiative of the Commissioner under the provisions of the last sentence of paragraph (a) of 35 U.S.C. 303. Six persons commented on §1.520. One comment was received that indicated that the section did not include a reference to patents "discovered by the Commissioner" which is contained in 35 U.S.C. 303(a). This phrase has been added to the rule. A request was made that the sentence "Normally requests from outside-will not be considered." be deleted from the rule. The sentence is being retained since the rule wording provides an easy reference for Office policy. Two comments were received that indicated a desire to have any decisions not to reexamine in Commissioner initiated situations be made part of the patent file. This proposal was not adopted since the basis for not reexamining may involve many policy issues in addition to whether a substantial new question of patentability exists in the case. If all papers in such a case would be made part of a file, it may lead to conclusions that there are no new questions of patentability when this question may not have been addressed because the reexamination was not ordered for other reasons such as little or no interest in a patent about to expire. One comment stated that the section safeguards the rights of the patentee. The language referring to the designation and delegation of authority to appropriate Patent and Trademark Office officials is deleted as unnecessary since the Commissioner's authority to designate and delegate is implicit and understood.

New §1.525 provides for ordering reexamination where a substantial new question of patentability has been found pursuant to §§1.515 or 1.520. Six comments were received relating to §1.525. One comment was made that the attorney should be able to return notices

to the sender if he is unable to contact the patent owner. This topic has not been added to the rules but will be handled on a case by case basis. One comment requested that the patent owner have the option to request that the reexamination be performed by an examiner (1) other than the original examiner, or (2) other than the examiner who issued the order. Comments were also received on both sides of the question as to whether the original examiner should conduct the reexamination. In response, it would appear to be inappropriate to allow an interested party to select the examiner. Under the section, the only limitation placed on the selection of the examiner by the Office is that the same examiner whose decision was reversed on petition ordinarily will not conduct the reexamination. Paragraph (b) has been changed to provide that the notices published in the *Official Gazette* will be considered to be constructive notice.

New §1.530 relates to the statement and proposed amendments provided for in the second sentence of 35 U.S.C. 304. Amendments submitted by the patent owner cannot enlarge the scope of a claim in the patent. Amendments will not be effectively entered into the patent until the certificate under §1.570 and 35 U.S.C. 307 is issued. Nine comments were received on §1.530. Several persons felt that the patent owner should be allowed to comment before the decision under §1.515 is made. Providing for such a comment would delay the decision under §1.515 which must be made within three months following the filing date of the request. Further, no need is seen for a statement relating to whether a new question of patentability is present since the patent owner has the opportunity to address any issues of patentability only after the first Office action. One comment questioned whether paragraph (d) also related to the description. This paragraph has been amended to clarify the matter. One person questioned whether an amendment could be filed with a statement. Paragraph (b) clearly answers this question in the affirmative. Several comments requested more time than two months for the patent owner to file a statement. In reply, the law in section 304 indicates that a reasonable period of not less than two months be provided for the patent owner's statement. If the period is too short in particular situations, extensions of time can be requested. It is felt that two months should be retained in the rule in view of the "Special Dispatch" required in reexamination cases. The proposed second sentence of paragraph (b) has not been adopted since §1.525(b) now provides for the publication of notices of the filing of all requests which are accompanied by the proper fee.

New §1.535 provides for reply by the reexamination requester to the statement under §1.530 of the patent owner and for service on the patent owner of any such reply. The last sentence of proposed §1.540 has been added as the last sentence of §1.535. Five persons commented on §1.535. Four persons indicated that the requester should be given additional opportunity to comment. The reasons for the limited participation are that it is all that is required under the law, it prevents to a great degree, harassment of a patent owner, it results in a less expensive proceeding for all parties, and it results in an earlier conclusion of the proceedings.

New §1.540 relates to the consideration of statements under §1.530 and replies under §1.535. One comment was received that the phrase "may result in their being refused" was worded too loosely. In the absence of any specific suggestion, the proposed wording is considered to be adequate and is adopted as proposed. In addition, it is appropriate that the Office retain discretion as to consideration in such cases.

New §1.550 covers the basic items relating to the conduct of reexamination proceedings. These proceedings basically follow the same procedures used for examining patent applications. The patent owner will be required to serve the reexamination requester with any response by the patent owner to the Office, in order to remove the necessity of the requester having to continuously monitor the file wrapper. Fourteen persons commented on §1.550.

Several persons commented that they felt that at least some input by third parties should be permitted. Paragraph (e) has been revised to permit third party input up until the time of the order. Several comments were received that the periods for response should be extended to be similar to those in regular application Office actions. Although problems may arise in certain cases and extensions of time may be granted, it is felt that relatively short response times are necessary in order to process reexaminations with "special dispatch." A question was raised as to the effect of failure to respond to an Office action. Paragraph (d) has been amended to clarify this matter.

New §1.552 covers the scope of reexamination in a reexamination proceeding. While it is not intended that the examiners will routinely complete a new search when conducting reexamination, the examiners will be free to, and will, very likely, conduct additional searches and cite and apply additional prior patents and publications when they consider it is appropriate and beneficial to do so. Insofar as the actual reexamination is concerned, the examination as to original patent claims is only on the basis of patents or printed publications. However, narrowed amended claims or new claims limited to the original disclosure will also be examined for compliance with other sections of the statute (35 U.S.C. 112 and 132) which are necessary in order to ensure that any amended or new claims are supported, valid, and do not introduce new matter. New §1.552 also provides that questions relating to matters other than those identified in paragraphs (a) and (b) of the section would merely be noted by the examiner as being an open question in the record. Patent owners could then file a reissue application if they wish such questions to be resolved. Ten persons commented on §1.552. Several persons commented that the question of fraud should be considered in reexamination proceedings. Comments were also received that the proceedings should be limited to patents and printed publications. The rules have been written to follow the statute which speaks only to reexamination based on patents and printed publications. Mixed comments were also received concerning the retention of the second sentence of paragraph (c). The paragraph is being adopted as proposed with the addition of a reference to the fact that the examiner will note the existence of unresolved questions in an Office action. In addition, the phrase "raised or" has been deleted from paragraph (c) as unnecessary.

New §1.555 covers the duty of disclosure by a patent owner in a reexamination proceeding involving the owner's patent. Nine persons commented on §1.555. Four persons supported placing a duty of disclosure on the patent owner. One comment was received that an oath or declaration be required of the patent owner in a reexamination so as to minimize the appearance and occurrence of any fraudulent acts and to emphasize the patentee's obligation of candor. While the suggestion for an oath or declaration has not been adopted, §1.555 does place an obligation of candor on the patent owner insofar as bringing patents or printed publications to the attention of the Office is concerned. The necessity for an oath or declaration in addition to the obligation placed on the patent owner by §1.555 is not apparent at this time. Accordingly, the suggestion has not been adopted. Two persons felt the duty of disclosure should apply to both the patent owner and requester. This proposal was not adopted since no sanction could be easily applied against the requester who violated such a rule. One person suggested broadening the duty requirements to include information in addition to patents and printed publications. Although such a practice may be desirable, no need is seen to require information under the reexamination rules which cannot be used during the reexamination. One person felt that there should be no duty of disclosure requirement in reexamination proceedings since the Office will be considering specific prior art and the presence or absence of other prior art does not seem terribly relevant. This suggestion was not adopted since the issue of patentability is not limited to the specific prior art presented and the duty to disclose is consistent with current practice under §1.56. The section is adopted as proposed except for the indication that prior art statements should be filed in accordance with §1.98. Also, the section has been divided into two sentences for clarity.

New §1.560 relates to the conduct of interviews in reexamination proceedings. Seven comments were received directed to §1.560. One comment requested elimination of interviews. This suggestion was not adopted since interviews have been found to be very helpful in resolving issues. Five comments were received which indicated that the requester should be permitted to attend all interviews. This suggestion was not adopted because of the otherwise ex parte nature of the examination. Two comments were received which indicated that interviews should be permitted before the first Office action. This suggestion was not adopted since such interviews would be held at a time when the Office has not yet taken a position on the allowability of the claims under reexamination. Section 1.560 is adopted as proposed.

New §1.565 provides for the Commissioner to determine which, if any, proceedings should be stayed, consolidated, or suspended, if concurrent proceedings involving the patent under reexamination are instituted or in progress. Four comments were received concerning §1.565. One comment pointed out the desirability of combining copending reexamination proceedings. This concept has been accepted and a new paragraph (c) has been added to cover this matter. Two comments voiced concern over the possibility of delay resulting from stayed, suspended or combined cases. Although some delay may result, it is felt that a resolution of all issues should occur at an earlier date. Decisions as to whether to delay or combine cases will be made on a case by case basis to minimize delays and to protect the interests of all parties concerned. One comment was made to allow the patent owner to comment prior to any decision to stay proceedings by the Commissioner. The desirability of such comment will be decided on a case by case basis and is not considered desirable for placement in the rules. The addition of paragraph (c) and the insertion of "is or" before "becomes" in the first sentence of paragraph (b) are the only changes from the proposed rule.

New §1.570 concerns the issuance of the reexamination certificate under 35 U.S.C. 307 after conclusion of reexamination proceedings. The certificate will cancel any patent claims determined to be unpatentable, confirm any patent claims determined to be patentable, and incorporate into the patent any amended or new claim determined to be patentable. Three commentors mentioned §1.570. Two persons questioned the statutory authority for paragraph (d). In response to the concern for statutory authority, it is the position of the Office that once all of the claims have been canceled from the patent, the patent ceases to be enforceable for any purpose. Accordingly, any pending reissue or other Office proceeding relating to a patent in which such a certificate has been issued will be terminated. This provides a degree of assurance to the public that patents with all the claims canceled via reexamination proceedings will not again be asserted. One commentor indicated that copies of the certificate should be part of subsequently sold copies of the patent. Such a practice is intended but is not being made part of the regulations.

Environmental, energy, and other consideration: The rule change will not have a significant impact on the quality of the human environment or the conservation of energy resources.

The rule change will not have a significant adverse economic impact on a substantial number of small entities (Regulatory Flexibility Act, Pub. L. 96-354).

The Patent and Trademark Office has determined that this rule change is not a major rule under Executive Order 12291.

Amendment of Regulations

For the reasons set out in the preamble and under the authority given to the Commissioner of Patents and Trademarks by 35 U.S.C. 6, Part 1 of Title 37 CFR is amended as set forth below.

1. Section 1.1 is revised to read as follows:

§1.1 All communications to be addressed to Commissioner of Patents and Trademarks.

(a) All letters and other communications intended for the Patent and Trademark Office must be addressed to "Commissioner of Patents and Trademarks," Washington, D.C. 20231. When appropriate, a letter should also be marked for the attention of a particular officer or individual.

(b) Letters and other communications relating to international applications during the international stage and prior to the assignment of a national serial number should be additionally marked "Box PCT."

(c) Requests for reexamination should be additionally marked "Box Reexam."

Note.—§§1.1 to 1.26 are applicable to trademark cases as well as to national and international patent cases except for provisions specifically directed to patent cases. See §1.9 for definitions of "national application" and "international application." (Pub. L. 94—131, 89 Stat. 685)

2. Section 1.5 is amended by adding a new paragraph (d) to read as follows:

§1.5 Identification of application, patent or registration

* * * * *

(d) A letter relating to a reexamination proceeding should identify it as such by the number of the patent undergoing reexamination, the reexamination request control number assigned to such proceeding and if known, the group art unit and name of the examiner to which it has been assigned.

3. Section 1.11 is amended by adding new paragraphs (c) and (d) to read as follows:

§1.11 Files open to the public.

* * * * *

(c) All requests for reexamination for which the fee under §1.21 (x) has been paid, will be announced in the *Official Gazette*. Any reexaminations at the initiative of the Commissioner pursuant to §1.520 will also be announced in the *Official Gazette*. The announcement shall include at least the date of the request, if any, the reexamination request control number or the Commissioner initiated order control number, patent number, title, class and subclass, name of the inventor, name of the patent owner of record, and the examining group to which the reexamination is assigned.

(d) All papers or copies thereof relating to a reexamination proceeding which have been entered of record in the patent or reexamination file are open to inspection by the general public, and copies may be furnished upon paying the fee therefor.

4. Section 1.33 is amended by revising the heading and adding a new paragraph (c) to read as follows:

§1.33 Correspondence respecting patent applications, reexamination proceedings, and other proceedings.

* * * * *

(c) All notices, official letters, and other communications for the patent owner or owners in a reexamination proceeding will be directed to the attorney or agent of record (see §1.34(b)) in the patent file at the address listed on the register of patent attorneys and agents maintained pursuant to §§1.341 and 1.347 or, if no attorney or agent is of record, to the patent owner or owners at the address or addresses of record. Amendments and other papers filed in a reexamination proceeding on behalf of the patent owner must be signed by the patent owner, or if there is more than one owner by all the owners, or by an attorney or agent of record in the patent file, or by a registered attorney or agent not of record who acts in a representative capacity under the provisions of §1.34(a). Double correspondence with the

patent owner or owners and the patent owner's attorney or agent, or with more than one attorney or agent, will not be undertaken. If more than one attorney or agent is of record and a correspondence address has not been specified, correspondence will be held with the last attorney or agent made of record.

5. Section 1.34 is revised to read as follows:

§1.34 Recognition for representation.

(a) When a registered attorney or agent acting in a representative capacity appears in person or signs a paper in practice before the Patent and Trademark Office in a patent case, his or her personal appearance or signature shall constitute a representation to the Patent and Trademark Office that under the provisions of this part and the law, he or she is authorized to represent the particular party in whose behalf he or she acts. In filing such a paper, the attorney or agent should specify his or her registration number with his or her signature. Further proof of authority to act in a representative capacity may be required.

(b) When an attorney or agent shall have filed his or her power of attorney, or authorization, duly executed by the person or persons entitled to prosecute an application or a patent involved in a reexamination proceeding, he or she is a principal attorney of record in the case. A principal attorney or agent, so appointed, may appoint an associate attorney or agent who shall also then be of record.

6. Section 1.36 is revised to read as follows:

§1.36 Revocation of power of attorney or authorization, withdrawal of attorney or agent.

A power of attorney or authorization of agent may be revoked at any stage in the proceedings of a case, and an attorney or agent may withdraw, upon application to and approval by the Commissioner. An attorney or agent, except an associate attorney or agent whose address is the same as that of the principal attorney or agent, will be notified of the revocation of his or her power of attorney or authorization, and the applicant or patent owner will be notified of the withdrawal of the attorney or agent. An assignment will not of itself operate as a revocation of a power or authorization previously given, but the assignee of the entire interest may revoke previous powers and be represented by an attorney or agent of his or her own selection.

7. In §1.104, paragraphs (a) and (b) are revised to read as follows:

§1.104 Nature of examination, examiner's action.

(a) On taking up an application for examination or a patent in a reexamination proceeding, the examiner shall make a thorough study thereof and shall make a thorough investigation of the available prior art relating to the subject matter of the claimed invention. The examination shall be complete with respect both to compliance of the application or patent under reexamination with the applicable statutes and rules and to the patentability of the invention as claimed, as well as with respect to matters of form, unless otherwise indicated.

(b) The applicant, or in the case of a reexamination proceeding, both the patent owner and the requester, will be notified of the examiner's action. The reasons for any adverse action or any objection or requirement will be stated and such information or references will be given as may be useful in aiding the applicant, or in the case of a reexamination proceeding the patent owner, to judge the propriety of continuing the prosecution.

* * * * *

8. Section 1.107 is revised to read as follows:

§1.107 Citation of references.

(a) If domestic patents are cited by the examiner, their numbers and dates, and the names of the patentees, and the classes of inventions must be stated. If foreign published applications or patents are cited, their nationality or country, numbers and dates, and the names of the patentees must be stated, and such other data must be furnished as may be necessary to enable the applicant, or in the case of a reexamination proceeding, the patent owner, to identify the published applications or patents cited. In citing foreign published applications or patents, in case only a part of the document is involved, the particular pages and sheets containing the parts relied upon must be identified. If printed publications are cited, the author (if any), title, date, pages or plates, and place of publication, or place where a copy can be found, shall be given.

(b) When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons.

9. Section 1.109 is revised to read as follows:

§1.109 Reasons for allowance.

If the examiner believes that the record of the prosecution as a whole does not make clear his or her reasons for allowing a claim or claims, the examiner may set forth such reasoning. The reasons shall be incorporated into an Office action rejecting other claims of the application or patent under reexamination or be the subject of a separate communication to the applicant or patent owner. The applicant or patent owner may file a statement commenting on the reasons for allowance within such time as may be specified by the examiner. Failure to file such a statement shall not give rise to any implication that the applicant or patent owner agrees with or acquiesces in the reasoning of the examiner.

10. Section 1.111 is revised to read as follows:

§1.111 Reply by applicant or patent owner.

(a) After the Office action, if adverse in any respect, the applicant or patent owner, if he or she persists in his or her application for a patent or reexamination proceeding, must reply thereto and may request reconsideration or further examination, with or without amendment.

(b) In order to be entitled to reconsideration or further examination, the applicant or patent owner must make request therefor in writing. The reply by the applicant or patent owner must distinctly and specifically point out the supposed errors in the examiner's action and must respond to every ground of objection and rejection in the prior Office action. If the reply is with respect to an application, a request may be made that objections or requirements as to form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. The applicant's or patent owner's reply must appear throughout to be a bona fide attempt to advance the case to final action. A general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section.

(c) In amending in response to a rejection of claims in an application or patent undergoing reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. (See §§1.135 and 1.136 for time for reply.)

11. Section 1.112 is revised to read as follows:

§1.112 Reconsideration.

After response by applicant or patent owner (§1.111), the application or patent under reexamination will be reconsidered and again examined. The applicant or patent owner will be notified if claims are rejected, or objections or requirements made, in the same manner as after the first examination. Applicant or patent owner may respond to such Office action in the same manner provided in §1.111, with or without amendment. Any amendments after the second Office action must ordinarily be restricted to the rejection or to the objections or requirements made. The application or patent under reexamination will be again considered, and so on repeatedly, unless the examiner has indicated that the action is final.

12. Section 1.113 is amended by revising paragraph (a) to read as follows:

§1.113 Final rejection or action.

(a) On the second or any subsequent examination or consideration the rejection or other action may be made final, whereupon applicant's or patent owner's response is limited to appeal in the case of rejection of any claim (§1.191), or to amendment as specified in §1.116. Petition may be taken to the Commissioner in the case of objections or requirements not involved in the rejection of any claim (§1.181). Response to a final rejection or action must include cancellation of, or appeal from the rejection of, each rejected claim. If any claim stands allowed, the response to a final rejection or action must comply with any requirements or objection as to form.

* * * * *

13. Section 1.115 is revised to read as follows:

§1.115 Amendment.

The applicant may amend before or after the first examination and action and also after the second or subsequent examination or reconsideration as specified in §1.112 or when and as specifically required by the examiner. The patent owner may amend in accordance with §§1.510(e) and 1.530(b) prior to reexamination, and during reexamination proceedings in accordance with §§1.112 and 1.116.

14. Section 1.116 is amended by revising paragraphs (a) and (b) to read as follows:

§1.116 Amendments after final action.

(a) After final rejection or action (§1.113) amendments may be made cancelling claims or complying with any requirement of form which has been made. Amendments presenting rejected claims in better form for consideration on appeal may be admitted. The admission of, or refusal to admit, any amendment after final rejection, and any proceedings relative thereto, shall not operate to relieve the application or patent under reexamination from its condition as subject to appeal or to save the application from abandonment under §1.135.

(b) If amendments touching the merits of the application or patent under reexamination are presented after final rejection, or after appeal has been taken, or when such amendment might not otherwise be proper, they may be admitted upon a showing of good and sufficient reasons why they are necessary and were not earlier presented.

* * * * *

15. Section 1.121 is amended by adding a new paragraph (f) to read as follows:

§1.121 Manner of making amendments.

* * * * *

(f) Proposed amendments presented is patents involved in reexamination proceedings must be presented in the form of a full copy of the text of (1) each claim which is amended and (2) each paragraph of the description which is amended. Matter deleted from the patent shall be placed between brackets and matter added shall be underlined. Copies of the printed claims from the patent may be used with any additions being indicated by carets and deleted material being placed between brackets. Claims must not be renumbered and the numbering of the claims added for reexamination must follow the number of the highest numbered patent claim. No amendment may enlarge the scope of the claims of the patent. No new matter may be introduced into the patent.

16. Section 1.191 is revised to read as follows:

§1.191 Appeal to Board of Appeals.

(a) Every applicant for a patent or for reissue of a patent, or every owner of a patent under reexamination, any of the claims of which have been twice rejected, or who has been given a final rejection (§1.113), may, upon the payment of the fee required by law, appeal from the decision of the primary examiner to the Board of Appeals within the time allowed for response.

(b) The appeal in an application must identify the rejected claim or claims appealed, and must be signed by the applicant or duly authorized attorney or agent. An appeal in a reexamination proceeding must identify the rejected claim or claims appealed, and must be signed by the patent owner or duly authorized attorney or agent.

(c) Except as otherwise provided by §1.206, an appeal when taken must be taken from the rejection of all claims under rejection which the applicant or patent owner proposes to contest. Questions relating to matters not affecting the merits of the invention may be required to be settled before an appeal can be considered.

17. Section 1.192 is amended by revising paragraph (a) to read as follows:

§1.192 Appellant's brief.

(a) The appellant shall, within 2 months from the date of the notice of appeal under §1.191 in an application, reissue application, or patent under reexamination, or within the time allowed for response to the action appealed from, if such time is later, file a brief in triplicate. The brief must be accompanied by the requisite fee and must set forth the authorities and arguments on which the appellant will rely to maintain the appeal. The brief must include a concise explanation of the invention which should refer to the drawing by reference characters, and a copy of the claims involved. Appellant must also indicate at the time of filing the brief if an oral hearing is desired. Upon a showing of sufficient cause, the Commissioner may grant extensions of time for filing the brief. The determination of such requests may be delegated by the Commissioner to appropriate Patent and Trademark Office officials. All requests for extensions must be filed prior to the expiration of the period sought to be extended. The filing of a request for extension of time does not stay any period unless and until granted.

* * * * *

18. Section 1.196 is amended by revising paragraphs (b), (c) and (d) to read as follows:

§1.196 Decision by the Board of Appeals.

* * * * *

(b) Should the Board of Appeals have knowledge of any grounds not involved in the appeal for rejecting any appealed claim, it may include in the decision a statement to that effect with its reasons for so holding, which statement shall constitute a rejection of the claims. The appellant may submit an appropriate amendment of the claims so rejected or a showing of facts, or both, and have the matter reconsidered by the primary examiner. The statement shall be binding upon the primary examiner unless an amendment or showing of facts not previously of record be made which, in the opinion of the primary examiner, avoids the additional ground for rejection stated in the decision. The appellant may waive such reconsideration before the primary examiner and have the case reconsidered by the Board of Appeals upon the same record before them. Where request for such reconsideration is made the Board of Appeals shall, if necessary, render a new decision which shall include all grounds upon which a patent is refused. The appellant may waive reconsideration by the Board of Appeals and treat the decision, including the added grounds for rejection given by the Board of Appeals, as a final decision in the case.

(c) Should the decision of the Board of Appeals include an explicit statement that a claim may be allowed in amended form, appellant shall have the right to amend in conformity with such statement, which shall be binding on the primary examiner in the absence of new references or grounds of rejection.

(d) Although the Board Appeals normally will confine its decision to a review of rejections made by the primary examiner, should it have knowledge of any grounds for rejecting any allowed claim that it believes should be considered, it may include in its decision a statement to that effect and remand the case to the primary examiner for consideration thereof. In such event, the Board shall set a period, not less than one month, within which the appellant may submit to the primary examiner an appropriate amendment, or a showing of facts or reasons, or both, in order to avoid the grounds set forth in the statement of the Board of Appeals. If the primary examiner rejects the previously allowed claim or claims on the basis of such statement, the appellant may appeal to the Board of Appeals from the rejection. Whenever a decision of the Board of Appeals includes a remand, that decision shall not be considered as a final decision in the case, but the Board of Appeals shall, upon conclusion of the proceedings before the primary examiner on remand, either adopt its decision as final or render a new decision on all of the claims on appeal, as it may deem appropriate.

19. Section 1.197 is amended by revising paragraphs (a) and (c) to read as follows:

§1.197 Action following decision.

(a) After decision by the Board of Appeals, the case shall be returned to the primary examiner, subject to the appellant's right of appeal or other review, for such further action by the appellant or by the primary examiner, as the condition of the case may require, to carry into effect the decision.

* * * * *

(c) Proceedings are considered terminated by the dismissal of an appeal or the failure to timely file an appeal to the court or a civil action (§1.304) except (1) where claims stand allowed in an application or (2) where the nature of the decision requires further action by the examiner. In such cases, the date of termination of proceedings is the date on which the appeal is dismissed or the date on which the time for appeal to the court or review by civil action (§1.304) expires. If an appeal to the court or a civil action has been filed, proceedings are similarly considered terminated when the appeal or civil action is terminated.

20. Section 1.231 is amended by revising paragraph (a)(1) to read as follows:

§1.231 Motions before the primary examiner.

(a) Within the period set in the notice of interference for filing motions any party to an interference may file a motion seeking:

(1) To dissolve as to one or more counts, except that such motion based on facts sought to be established by affidavits, declarations or evidence outside of official records and printed publications will not normally be considered. A motion to dissolve an interference in which a patentee is a party on the ground that the claims corresponding to the courts are unpatentable to the patentee over patents or printed publications will be considered through reexamination if it complies with the requirements of §1.510(b) and is accompanied by the fee for requesting reexamination set in §1.21(x). Otherwise, a motion to dissolve an interference in which a patentee is a party will not be considered if it would necessarily result in the conclusion that the claims of the patent which correspond to the counts are unpatentable to the patentee on a ground which is not ancillary to priority. Where a motion to dissolve is based on prior art, service on opposing parties must include copies of such prior art. A motion to dissolve on the ground that there is no interference in fact will not be considered unless the interference involves a design or plant patent or application or unless it relates to a count which differs from the corresponding claim of an involved patent or of one or more of the involved applications as provided in §§1.203(a) and 1.205(a).

* * * * *

21. Section 1.248 is revised to read as follows:

§1.248 Service of papers; manner of service; proof of service.

(a) Service of papers must be on the attorney or agent of the party if there be such or on the party if there is no attorney or agent, and may be made in any of the following ways:

(1) By delivering a copy of the paper to the person served;

(2) By leaving a copy at the usual place of business of the person served with someone in his employment;

(3) When the person served has no usual place of business, by leaving a copy at the person's residence, with some person of suitable age and discretion who resides there;

(4) Transmission by first class mail. When service is by mail the date of mailing will be regarded as the date of service.

(5) Whenever it shall be satisfactorily shown to the Commissioner that none of the above modes of obtaining or serving the paper is practicable, service may be by notice published in the *Official Gazette.*

(6) Papers filed in the Patent and Trademark Office which are required to be served shall contain proof of service. Proof of service may appear on or be affixed to papers filed. Proof of service shall include the date and manner of service. In the case of personal service, proof of service shall also include the name of any person served, certified by the person who made service. Proof of service may be made by (1) an acknowledgement of service by or on behalf of the person served or (2) a statement signed by the attorney or agent containing the information required by this section.

22. Section 1.291 is amended by revising the title, removing and reserving paragraph (b) and revising paragraph (c) to read as follows:

§1.291 Protests by public.

* * * * *

(b) (Reserved)

(c) Protests by the public and any accompanying papers should either (1) reflect that a copy of the same has been served upon the applicant in accordance with §1.248 or (2) be filed with the Office in duplicate in the event service is not possible.

23. Section 1.301 is revised to read as follows:

§1.301 Appeal to U.S. Court of Customs and Patent Appeals.

Any applicant or any owner of a patent involved in a reexamination proceeding dissatisfied with the decision of the Board of Appeals, and any party to an interference dissatisfied with the decision of the Board of Patent Interferences, may appeal to the U.S. Court of Customs and Patent Appeals. The appellant must take the following steps in such an appeal: (a) In the Patent and Trademark Office give notice to the Commissioner and file the reasons of appeal (see §§1.302 and 1.304); (b) in the court, file as petition of appeal and a certified transcript of the record within a specified time after filing the reasons of appeal, and pay the fee for appeal, as provided by the rules of the court. The transcript will be transmitted to the Court by the Patent and Trademark Office on order of and at the expense of the appellant. Such order should be filed with the notice of appeal, but in no case should it be filed later than 15 days thereafter.

24. Section 1.303 is revised to read as follows:

§1.303 Civil Action under 35 U.S.C. 145,146,306.

(a) Any applicant or any owner of a patent involved in a reexamination proceeding dissatisfied with the decision of the Board of Appeals, and any party dissatisfied with the decision of the Board of Patent Interferences, may, instead of appealing to the U.S. Court of Customs and Patent Appeals (§1.301), have remedy by civil action under 35 U.S.C. 145 or 146, as appropriate. Such civil action must be commenced within the time specified in §1.304.

(b) If an applicant in an ex parte case or an owner of a patent involved in a reexamination proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, he or she thereby waives his or her right to proceed under 35 U.S.C. 145.

(c) If a defeated party to an interference proceeding has taken an appeal to the U.S. Court of Customs and Patent Appeals, and any adverse party to the interference shall, within twenty days after the appellant shall have filed notice of the appeal to the court (§1.302), file notice with the Commissioner that he or she elects to have all further proceedings conducted as provided in 35 U.S. C. 146, certified copies of such notices will be transmitted to the U.S. Court of Customs and Patent Appeals for such action as may be necessary. The notice of election must be served as provided in §1.248.

25. A new "Subpart D—Reexamination of Patents" is added to read as follows:

Subpart D—Reexamination of Patents

Citation of Prior Art

Sec.

1.501 Citation of prior art in patent files.

Request for Reexamination

1.510 Request for reexamination.
1.515 Determination of the request for reexamination.
1.520 Reexamination at the initiative of the Commissioner.

Reexamination

1.525 Order to reexamine.
1.530 Statement and amendment by patent owner.
1.535 Reply by requester.
1.540 Consideration of responses.
1.550 Conduct of reexamination proceedings.
1.552 Scope of reexamination in reexamination proceedings.
1.555 Duty of disclosure in reexamination proceedings.
1.560 Interviews in reexamination proceedings.
1.565 Concurrent Office proceedings.

Certificate

1.570 Issuance of reexamination certificate after reexamination proceedings.

Subpart D—Reexamination of Patents

Citation of Prior Art

§1.501 Citation of prior art in patent files.

(a) At any time during the period of enforceability of a patent, any person may cite to the Patent and Trademark Office in writing prior art consisting of patents or printed publications which that person states to be pertinent and applicable to the patent and believes to have a bearing on the patentability of any claim of a particular patent. If the citation is made by the patent owner, the explanation of pertinency and applicability may include an explanation of how the claims differ from the prior art. Citations by the patent owner under §1.555 and by a reexamination requester under either §1.510 or §1.535 will be entered in the patent file during a reexamination proceeding. The entry in the patent file of citations submitted after the date of an order to reexamine pursuant to §1.525 by persons other than the patent owner, or a reexamination requester under either §1.510 or §1.535, will be delayed until the reexamination proceedings have been terminated.

(b) If the person making the citation wishes his or her identity to be excluded from the patent file and kept confidential, the citation papers must be submitted without any identification of the person making the submission.

(c) Citation of patents or printed publications by the public in patent files should either (1) reflect that a copy of the same has been mailed to the patent owner at the address as provided for in §1.33(c); or in the event service is not possible (2) be filed with the Office in duplicate.

Request for Reexamination

§1.510 Request for reexamination.

(a) Any person may, at any time during the period of enforceability of a patent, file a request for reexamination by the Patent and Trademark Office of any claim of the patent on the basis of prior art patents or printed publications cited under §1.501. The request must be accompanied by the fee for requesting reexamination set in §1.21(x).

(b) Any request for reexamination must include the following parts:

(1) a statement pointing out each substantial new question of patentability based on prior patents and printed publications.

(2) An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited prior art to every claim for which reexamination is requested. If appropriate the party requesting reexamination may also point out how claims distinguish over cited prior art.

(3) A copy of every patent or printed publication relied upon or referred to in paragraph (b) (1) and (2) of this section accompanied by an English language translation of all the necessary and pertinent parts of any non-English language patent or printed publication.

(4) The entire specification (including claims) and drawings of the patent for which reexamination is requested must be furnished in the form of cut-up copies of the original patent with only a single column of the printed patent securely mounted or reproduced in permanent form on one side of a separate paper. A copy of any dislcaimer, certificate of correction, or reexamination certificate issued in the patent must also be included.

(5) A certification that a copy of the request filed by a person other than the patent owner has been served in its entirety on the patent owner at the address as provided for in §1.33(c). The name and address of the party served must be indicated. If service was not possible, a duplicate copy must be supplied to the Office.

(c) If the request does not include the fee for requesting reexamination or all of the parts required by paragraph (b) of this section, the person identified as requesting reexamination will be so notified and given an opportunity to complete the request within a specified time. If the fee for requesting reexamination has been paid but the defect in the request is not corrected within the specified time, the determination whether or not to institute reexamination will be made on the request as it then exists. If the fee for requesting reexamination has not been paid, no determination will be made and the request will be placed in the patent file as a citation if it complies with the requirements of §1.501(a).

(d) The filing date of the request is: (1) the date on which the request including the entire fee for requesting reexamination is received in the Patent and Trademark Office; or (2) the date on which the last portion of the fee for requesting reexamination is received.

(e) A request filed by the patent owner, may include a proposed amendment in accordance with §1.121(f).

(f) If a request is filed by an attorney or agent identifying another party on whose behalf the request is being filed, the attorney or agent must have a power of attorney from that party or be acting in a representative capacity pursuant to §1.34(a).

§1.515 Determination of the request for reexamination.

(a) Within three months following the filing date of a request for reexamination, an examiner will consider the request and determine whether or not a substantial new question of patentability affecting any claim of the patent is raised by the request and the prior art cited therein, with or without consideration of other patents or printed publications. The examiner's determination will be based on the claims in effect at the time of the determination and will become a part of the official file of the patent and will be given or mailed to the patent owner at the address as provided for in §1.33(c) and to the person requesting reexamination.

(b) Where no substantial new question of patentability has been found, a refund of a portion of the fee for requesting reexamination will be made to the requester in accordance with §1.26(c).

(c) The requester may seek review by a petition to the Commissioner under §1.181 within one month of the mailing date of the examiner's determination refusing reexamination. Any such petition must comply with §1.181(b). If no petition is timely filed or if the decision on petition affirms that no substantial new question of patentability has been raised, the determination shall be final and nonappealable.

§1.520 Reexamination at the initiative of the Commissioner.

The Commissioner, at any time during the period of enforceability of a patent, may determine whether or not a substantial new question of patentability is raised by patents or printed publications which have been discovered by the Commissioner or which have been brought to the Commissioner's attention even though no request for reexamination has been filed in accordance with §1.510. The Commissioner may initiate reexamination without a request for reexamination pursuant to §1.510. Normally requests from outside the Patent and Trademark Office that the Commissioner undertake reexamination on his own initiative will not be considered. Any determination to initiate reexamination under this section will become a part of the official file of the patent and will be given or mailed to the patent owner at the address as provided for in §1.33(c).

Reexamination

§1.525 Order to reexamine.

(a) If a substantial new question of patentability is found pursuant to §§1.515 or 1.520, the determination will include an order for reexamination of the patent for resolution of the question. If the order for reexamination resulted from a petition pursuant to §1.515(c), the reexamination will ordinarily be conducted by an examiner other than the examiner responsible for the initial determination under §1.515(a).

(b) If the order for reexamination of the patent mailed to the patent owner at the address as provided for in §1.33(c) is returned to the Office undelivered, the notice published in the *Official Gazette* under §1.11(c) will be considered to be constructive notice and reexamination will proceed.

§1.530 Statement and amendment by patent owner.

(a) Except as provided in §1.510(e), no statement or other response by the patent owner shall be filed prior to the determinations made in accordance with §§1.515 or 1.520. If a premature statement or other response is filed by the patent owner it will not be acknowledged or considered in making the determination.

(b) The order for reexamination will set a period of not less than two months from the date of the order within which the patent owner may file a statement on the new question of patentability including any proposed amendments the patent owner wishes to make.

(c) Any statement filed by the patent owner shall clearly point out why the subject matter as claimed is not anticipated or rendered obvious by the prior art patents or printed publications, either alone or in any reasonable combinations. Any statement filed must be served upon the reexamination requester in accordance with §1.248.

(d) Any proposed amendments to the description and claims must be made in accordance with §1.21(f). No amendment may enlarge the scope of the claims of the patent or introduce new matter. No amended or new claims may be proposed for entry in an expired patent. Moreover, no amended or new claims will be incorporated into the patent by certificate issued after the expiration of the patent.

(e) Although the Office actions will treat proposed amendments as though they have been entered, the proposed amendments will not be effective until the reexamination certificate is issued.

§1.535 Reply by requester.

A reply to the patent owner's statement under §1.530 may be filed by the reexamination requester within two months from the date of service of the patent owner's statement. Any reply by the requester must be served upon the patent owner in accordance with §1.248. If the patent owner does not file a statement under §1.530, no reply or other submission from the reexamination requester will be considered.

§1.540 Consideration of responses.

The failure to timely file or serve the documents set forth in §1.530 or in §1.535 may result in their being refused consideration. No submissions other than the statement pursuant to §1.530 and the reply by the requester pursuant to §1.535 will be considered prior to examination.

§1.550 Conduct of reexamination proceedings.

(a) All reexamination proceedings, including any appeals to the Board of Appeals, will be conducted with special dispatch within the Office. After issuance of the reexamination order and expiration of the time for submitting any responses thereto, the examination will be conducted in accordance with §§1.104–1.119 and will result in the issuance of a reexamination certificate under §1.570.

(b) The patent owner will be given at least 30 days to respond to any Office action. Such response may include further statements in response to any rejections and/or proposed amendments or new claims to place the patent in a condition where all the claims, if amended as proposed, would be patentable.

(c) The time for reply set in paragraph (b) of this section will be extended only for sufficient cause, and for a reasonable time specified. Any request for such extension must be filed on or before the day on which action by the patent owner is due, but in no case will the mere filing of the request effect any extension.

(d) If the patent owner fails to file a timely and appropriate response to any Office action, the reexamination proceeding will be terminated and the Commissioner will proceed to issue a certificate under §1.570 in accordance with the last action of the Office.

(e) The reexamination requester will be sent copies of Office actions issued during the reexamination proceeding. Any document filed by the patent owner must be served on the requester in the manner provided in §1.248. The document must reflect service or the document may be refused consideration by the Office. The active participation of the reexamination requester ends with the reply pursuant to §1.535, and no further submissions on behalf of the reexamination requester will be acknowledged or considered. Further, no submissions on behalf of any third parties will be acknowledged or considered unless such submissions are (1) in accordance with §1.510 or (2) entered in the patent file prior to the date of the order to reexamine pursuant to §1.525. Submissions by third parties, filed after the date of the order to reexamine the pursuant to §1.525, must meet the requirements of and will be treated in accordance with §1.501(a).

§1.552 Scope of reexamination in reexamination proceedings.

(a) Patent claims will be reexamined on the basis of patents or printed publications.

(b) Amended or new claims presented during a reexamination proceeding must not enlarge the scope of the claims of the patent and will be examined on the basis of patents or printed publications and also for compliance with the requirements of 35 U.S.C. 112 and the new matter prohibition of 35 U.S.C. 132.

(c) Questions other than those indicated in paragraphs (a) and (b) of this section will not be resolved in a reexamination proceeding. If such questions are discovered during a reexamination proceeding, the existence of such questions will be noted by the examiner in an Office action, in which case the patent owner may desire to consider the advisability of filing a reissue application to have such questions considered and resolved.

§1.555 Duty of disclosure in reexamination proceedings.

The owner of a patent involved in a reexamination proceeding who is aware, or becomes aware, of patents or printed publications material to the reexamination which have not been previously made of record in the patent file must bring such patents or printed publications to the attention of the Office. A prior art statement, preferably in accordance with §1.98, should be filed within two months of the date of the order for reexamination, or as soon thereafter as possible in order to bring such patents or printed publicatons to the attention of the Office.

§1.560 Interviews in reexamination proceedings.

(a) Interviews in reexamination proceedings pending before the Office between examiners and the owners of such patents or their attorneys or agents of record must be had in the Office at such times, within Office hours, as the respective examiners may designate. Interviews will not be permitted at any other time or place without the authority of the Commissioner. Interviews for the discussion of the patentability of claims in patents involved in reexamination proceedings will not be had prior to the first official action thereon. Interviews should be arranged for in advance. Requests that reexamination requesters participate in interviews with examiners will not be granted.

(b) In every instance of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the patent owner. An interview does not remove the necessity for response to Office actions as specified in §1.111.

§1.565 Concurrent office proceedings.

(a) In any reexamination proceeding before the Office, the patent owner shall call the attention of the Office to any prior or concurrent proceedings in which the patent is or was involved such as interferences, reissue, reexaminations, or litigation and the results of such proceedings.

(b) If a patent in the process of reexamination is or becomes involved in interference proceedings or a reissue application is filed for the patent, or litigation is instituted, the Commissioner shall determine whether or not to stay the reexamination, reissue or interference proceeding. If reexamination is stayed for the conduct of a reissue proceeding, the reissue proceeding shall take into account prior art provided by the requester for reexamination and the reexamination requester will be granted at least the same degree of participation in the reissue proceeding which the requester would have had in the reexamination proceeding. Any reexamination proceeding stayed for the conduct of a reissue proceeding shall be terminated by the grant of the reissued patent.

(c) If reexamination is ordered while a prior reexamination proceeding is pending, the reexamination proceedings will be consolidated and result in the issuance of a single certificate under §1.570.

Certificate

§1.570 Issuance of reexamination certificate after reexamination proceedings.

(a) Upon the conclusion of reexamination proceedings, the Commissioner will issue a certificate in accordance with 35 U.S.C. 307 setting forth the results of the reexamination proceeding and the content of the patent following the reexamination proceeding.

(b) A certificate will be issued in each patent in which a reexamination proceeding has been ordered under §1.525. Any statutory disclaimer filed by the patent owner will be made part of the certificate.

(c) The certificate will be mailed on the day of its date to the patent owner at the address as provided for in §1.33(c). A copy of the certificate will also be mailed to the requester of the reexamination proceeding.

(d) If a certificate has been issued which cancels all of the claims of the patent, no further Office proceedings will be conducted with regard to that patent or any reissue applications or reexamination requests relating thereto.

(e) If the reexamination proceeding is terminated by the grant of a reissued patent as provided in §1.565(b), the reissued patent will constitute the reexamination certificate required by this section and 35 U.S.C. 307.

(f) A notice of the issuance of each certificate under this section will be published in the *Official Gazette* on its date of issuance.

RENE D. TEGTMEYER,
May 12, 1981. *Acting Commissioner of Patents and Trademarks.*

ROBERT B. ELLERT,
May 15, 1981. *Acting Assistant Secretary for Productivity, Technology, and Innovation.*

[FR Doc. 81-16031 Filed 5-26-81; 8:45 am]
BILLING CODE 3510-16-M

PUBLIC LAW 96–517—DEC. 12, 1980

Public Law 96–517
96th Congress

An Act

To amend the patent and trademark laws.

Dec. 12, 1980
[H.R. 6933]

Patent and trademark laws, amendment.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That title 35 of the United States Code, entitled "Patents", is amended by adding after chapter 29 the following new chapter 30:

"CHAPTER 30—PRIOR ART CITATIONS TO OFFICE AND REEXAMINATION OF PATENTS

"Sec.
"301. Citation of prior art.
"302. Request for reexamination.
"303. Determination of issue by Commissioner.
"304. Reexamination order by Commissioner.
"305. Conduct of reexamination proceedings.
"306. Appeal.
"307. Certificate of patentability, unpatentability, and claim cancellation.

"§301. Citation of prior art

35 USC 301.

"Any person at any time may cite to the Office in writing prior art consisting of patents or printed publications which that person believes to have a bearing on the patentability of any claim of a particular patent. If the person explains in writing the pertinency and manner of applying such prior art to at least one claim of the patent, the citation of such prior art and the explanation thereof will become a part of the official file of the patent. At the written request of the person citing the prior art, his or her identity will be excluded from the patent file and kept confidential.

"§302. Request for reexamination

35 USC 302.

"Any person at any time may file a request for reexamination by the Office of any claim of a patent on the basis of any prior art cited under the provisions of section 301 of this title. The request must be in writing and must be accompanied by payment of a reexamination fee established by the Commissioner of Patents pursuant to the provisions of section 41 of this title. The request must set forth the pertinency and manner of applying cited prior art to every claim for which reexamination is requested. Unless the requesting person is the owner of the patent, the Commissioner promptly will send a copy of the request to the owner of record of the patent.

Fee.

Post, p. 3017.

"§303. Determination of issue by Commissioner

35 USC 303.

"(a) Within three months following the filing of a request for reexamination under the provisions of section 302 of this title, the Commissioner will determine whether a substantial new question of patentability affecting any claim of the patent concerned is raised by the request, with or without consideration of other patents or printed publications. On his own initiative, and any time, the Commissioner may determine whether a substantial new question of patentability is raised by patents and publications discovered by him or cited under the provisions of section 301 of this title.

"(b) A record of the Commissioner's determination under subsection (a) of this section will be placed in the official file of the patent, and a copy promptly will be given or mailed to the owner of record of the patent and to the person requesting reexamination, if any.

Record.

"(c) A determination by the Commissioner pursuant to subsection (a) of this section that no substantial new question of patentability has been raised will be final and nonappealable. Upon such a determination, the Commissioner may refund a portion of the reexamination fee required under section 302 of this title.

Refund.

"§304. Reexamination order by Commissioner

35 U.S.C. 304.

"If, in a determination made under the provisions of subsection 303(a) of this title, the Commissioner finds that a substantial new question of patentability affecting any claim of a patent is raised, the determination will include an order for reexamination of the patent for resolution of the question. The patent owner will be given a reasonable period, not less than two months from the date a copy of the determination is given or mailed to him, within which he may file a statement on such question, including any amendment to his patent and new

Filing period.

claim or claims he may wish to propose, for consideration in the reexamination. If the patent owner files such a statement, he promptly will serve a copy of it on the person who has requested reexamination under the provisions of section 302 of this title. Within a period of two months from the date of service, that person may file and have considered in the reexamination a reply to any statement filed by the patent owner. That person promptly will serve on the patent owner a copy of any reply filed.

"§305. Conduct of reexamination proceedings

35 USC 305.

"After the times for filing the statement and reply provided for by section 304 of this title have expired, reexamination will be conducted according to the procedures established for initial examination under the provisions of sections 132 and 133 of this title. In any reexamination proceeding under this chapter, the patent owner will be permitted to propose any amendment to his patent and a new claim or claims thereto, in order to distinguish the invention as claimed from the prior art cited under the provisions of section 301 of this title, or in response to a decision adverse to the patentability of a claim of a patent. No proposed amended or new claim enlarging the scope of a claim of the patent will be permitted in a reexamination proceeding under this chapter. All reexamination proceedings under this section, including any appeal to the Board of Appeals, will be conducted with special dispatch within the Office.

35 USC 132,13

"§306. Appeal

35 USC 306.

"The patent owner involved in a reexamination proceeding under this chapter may appeal under the provisions of section 134 of this title, and may seek court review under the provisions of sections 141 to 145 of this title, with respect to any decision adverse to the patentability of any original or proposed amended or new claim of the patent.

35 USC 134.
35 USC 141-14

"§307. Certificate of patentability, unpatentability, and claim cancellation

35 USC 307.

"(a) In a reexamination proceeding under this chapter, when the time for appeal has expired or any appeal proceeding has terminated, the Commissioner will issue and publish a certificate canceling any claim of the patent finally determined to be unpatentable, confirming any claim of the patent determined to be patentable, and incorporating in the patent any proposed amended or new claim determined to be patentable.

"(b) Any proposed amended or new claim determined to be patentable and incorporated into a patent following a reexamination proceeding will have the same effect as that specified in section 252 of this title or reissued patents on the right of any person who made, purchased, or used anything patented by such proposed amended or new claim, or who made substantial preparation for the same, prior to issuance of a certificate under the provisions of subsection (a) of this section."

35 USC 252.

SEC. 2. Section 41 of title 35, United States Code, is amended to read as follows:

"§41. Patent fees

35 USC 41.

"(a) the Commissioner of Patents will establish fees for the processing of an application for a patent, from filing through disposition by issuance or abandonment, for maintaining a patent in force, and for providing all other services and materials related to patents. No fee will be established for maintaining a design patent in force.

"(b) By the first day of the first fiscal year beginning on or after one calendar year after enactment of this Act, fees for the actual processing of an application for a patent, other than for a design patent, from filing through disposition by issuance or abandonment, will recover in aggregate 25 per centum of the estimated average cost to the

Office of such processing. By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for the processing of an application for a design patent, from filing through disposition by issuance or abandonment, will recover in aggregate 50 per centum of the estimated average cost to the Office of such processing.

"(c) By the fifteenth fiscal year following the date of enactment of this Act, fees for maintaining patents in force will recover 25 per centum of the estimated cost to the Office, for the year in which such maintenance fees are received, of the actual processing all applications for patents, other than for design patents, from filing through disposition by issuance or abandonment. Fees for maintaining a patent in force will be due three years and six months, seven years and six months and eleven years and six months after the grant of the patent. Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period. The Commissioner may require the payment of a surcharge as a condition of accepting within such six-month grace period the late payment of an applicable maintenance fee.

"(d) By the first day of the first fiscal year beginning on or after one calendar year after enactment, fees for all other services or materials related to patents will recover the estimated average cost to the Office of performing the service or furnishing the material. The yearly fee for providing a library specified in section 13 of this title with uncertified printed copies of the specifications and drawings for all patents issued in that year will be $50. 35 USC 13.

"(e) The Commissioner may waive the payment of any fee for any service or material related to patents in connection with an occasional or incidental request made by a department or agency of the Government, or any officer thereof. The Commissioner may provide any applicant issued a notice under section 132 of this title with a copy of the specifications and drawings for all patents referred to in that notice without charge. Waiver. 35 USC 132.

"(f) Fees will be adjusted by the Commissioner to achieve the levels of recovery specified in this section; however, no patent application processing fee or fee for maintaining a patent in force will be adjusted more than once every three years.

"(g) No fee established by the Commissioner under this section will take effect prior to sixty days following notice in the Federal Register." Notice.

SEC. 3. Section 42 of title 35, United States Code, is amended to read as follows:

"§42. Patent and Trademark Office funding 35 USC 42.

"(a) All fees for services performed by or materials furnished by the Patent and Trademark Office will be payable to the Commissioner.

"(b) All fees paid to the Commissioner and all appropriations for defraying the costs of the activities of the Patent and Trademark Office will be credited to the Patent and Trademark Office Appropriation Account in the Treasury of the United States, the provisions of section 725e of title 31, United States Code, notwithstanding.

"(c) Revenues from fees will be available to the Commissioner of Patents to carry out, to the extent provided for in appropriation Acts, the activities of the Patent and Trademark Office.

"(d) The Commissioner may refund any fee paid by mistake or any amount paid in excess of that required." Refund.

SEC. 4. Section 154 of title 35, United States Code, is amended by deleting the word "issue".

* * * * *

Examination

Pursuant to the provisions of 37 C.F.R. 1.341(c), an examination for persons seeking registration before the United States Patent and Trademark Office as patent attorneys or agents will be held on Tuesday, October 6, 1981.

With the exception of those former patent examiners for whom the examination is waived, all persons recognized for practice before the Patent and Trademark Office in patent cases must pursuant to the noted rule, pass the examination. Those passing the examination do not thereby qualify for recognition for practice before the Patent and Trademark Office in trademark cases. Recognition for practice in trademark cases is governed by Rule 2.12 of the Trademark Rules of Practice, which does not require the passing of an examination.

37 C.F.R. 1.341(f) provides, in pertinent part, "Officers and employees of the United States who are disqualified by statute (18 U.S.C. 203, 205) from practicing as attorneys or agents in proceedings or other matters before Government departments or agencies, may not be registered, *** but officers or employees whose official duties require the preparation and prosecution of applications for patent may be registered (on compliance with the regulations in this part) or recognized to practice, to the extent necessary to carry out their official duties." If you are an officer or employee of the United States, your application for registration must be accompanied by your supervisor's verified statement that your official duties as a United States officer or employee require that you prepare and prosecute applications for patent.

The examination will be given under the supervision of the Office of Personnel Management (formerly Civil Service Commission), and may be taken in any of the cities in which the Office of Personnel Management regularly conducts examinations. Applications to take the examination must be filed in the Patent and Trademark Office together with a $35 fee not later than July 31, 1980.

Application blanks may be obtained from the clerk of the Committee on Enrollment, Bldg. 3, 11th Floor, Room C16, Crystal Plaza, Arlington, Va. or by mail addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231, and directed to the attention of the Clerk of the Committee on Enrollment.

LUTRELLE F. PARKER,
Chairman, Committee on Enrollment.

May 19, 1981.

PATENT NOTICES

Certificates of Correction for the Week of June 23, 1981

4,006,704	4,231,693	4,246,638	4,253,505
4,062,096	4,231,874	4,246,652	4,254,045
4,095,036	4,231,932	4,247,351	4,254,331
4,097,675	4,232,528	4,247,611	4,254,510
4,117,024	4,232,738	4,247,700	4,254,857
4,143,664	4,234,422	4,247,921	4,255,719
4,153,488	4,234,579	4,248,129	4,256,008
4,157,495	4,235,916	4,248,389	4,256,461
4,158,632	4,235,979	4,248,608	4,256,657
4,171,447	4,236,996	4,248,616	4,256,877
4,174,442	4,237,171	4,248,629	4,257,006
4,191,135	4,238,651	4,248,654	4,257,112
4,192,762	4,241,065	4,248,795	4,257,500
4,196,229	4,241,636	4,248,921	4,258,693
4,197,942	4,241,674	4,249,509	4,258,803
4,199,604	4,242,189	4,249,533	4,258,875
4,199,813	4,242,332	4,249,744	4,259,362
4,205,333	4,242,251	4,249,803	4,259,385
4,208,870	4,242,597	4,250,205	4,259,492
4,211,719	4,242,832	4,250,234	4,259,958
4,216,218	4,243,010	4,250,317	4,260,652
4,216,952	4,243,156	4,251,183	4,260,735
4,218,414	4,243,608	4,251,274	4,260,804
4,218,513	4,243,708	4,251,283	4,260,905
4,221,809	4,243,732	4,251,398	4,261,212
4,224,913	4,244,272	4,251,475	4,261,243
4,225,923	4,244,439	4,251,586	4,261,676
4,226,673	4,244,977	4,252,305	4,261,722
4,227,063	4,245,169	4,252,914	4,262,157
4,227,176	4,245,382	4,252,941	4,262,158
4,228,246	4,245,562	4,253,035	4,262,305
4,230,618	4,246,045	4,253,153	4,263,170
4,231,509	4,246,078		

Disclaimers

3,401,521.—*John R. Plate,* Milwaukee, Wis. HYDRAULIC CONTROL VALVE. Patent dated Sept. 17, 1968. Disclaimer filed Apr. 1, 1981, by the assignee, *Allis-Chalmers Corp.*

Hereby enters this disclaimer to claims 1 and 2 of said patent.

3,460,739.—*Norman John Asman,* Appleton, Wis. END CLOSURES FOR LIQUID CONTAINER. Patent dated Aug. 12, 1969. Disclaimer filed Feb. 23, 1981, by the assignee, *American Can Co.*

Hereby enters this disclaimer to all claims, 1 through 10 of said patent.

3,751,693.—*Andrew Gabor,* Danville, Calif. MOVING COIL MOTOR WITH NO STRAY FLUX. Patent dated Aug. 7, 1973. Disclaimer filed Feb. 9, 1981, by the assignee, *Xerox Corp.*

Hereby enters this disclaimer to all claims of said patent.

3,527,316.—*Elborn William Jones, Jr.,* West Allis and *Robert E. Schott,* New Berlin, Wis. STEERING MECHANISM. Patent dated Sept. 8, 1970. Disclaimer filed Mar. 26, 1981, by the assignee, *Allis-Chalmers Corp.*

Hereby enters this disclaimer to claims 1 through 7 of said patent.

4,119,853.—*Peter Stephen Shelley,* Brookfield; *William Darrell Love* and *Barry Newell Stone,* Waukesha, Wis. MULTICELL X-RAY DETECTOR. Patent dated Oct. 10, 1978. Disclaimer filed Apr. 24, 1981, by the assignee, *General Electric Co.*

Hereby enters this disclaimer to claims 1, 2, 6, 9, 15 and 26 of said patent.

Dedication

3,407,684.—*Andrew J. Van Noord,* Grand Rapids, Mich. REMOTE CONTROL MIRROR. Patent dated Oct. 29, 1968. Dedication filed Dec. 29, 1980, by the inventor.

Hereby dedicates to the Public the entire term of said patent.

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing.

Copies of patents cited are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231, for $.50 each. Requests for copies of patents must include the patent number.

Copies of patent applications cited are available from the National Technical Information Service (NTIS), Springfield, Va. 22161 for $5.00 each ($10.00 outside North American Continent). Requests for copies of patent applications must include the patent application number. Claims are deleted from patent application copies sold to avoid premature disclosure. Claims and other technical data will usually be made available to serious prospective licensees upon execution of a non-disclosure agreement.

Requests for information on the licensing of particular inventions should be directed to:

Office of Government Inventions and Patents
U.S. Department of Commerce
P.O. Box 1423
Springfield, Va. 22151

DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF AGRICULTURE

Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-193,862. Stickless Burley Tobacco Curing Frames. Filed Oct. 3, 1980.

Patent application 6-202,397, Apparatus for Making No-Twist Yarn. Filed Oct. 30, 1980.

U.S. DEPARTMENT OF ENERGY

Assistant General Counsel for Patents
Washington, D.C. 20545

Patent application 6-058,339. Apparatus for Measuring the Local Void Fraction in a Flowing Liquid Containing a Gas. Filed July 17, 1979.

Patent application 6-061,114. Servo Control Booster System for Minimizing Following Error. Filed July 26, 1979.

Patent application 6-064,594. Self-Modulating Pressure Gauge. Filed Aug. 7, 1979.

Patent application 6-065,033. Combined Hydraulic and Regenerative Braking System. Filed Aug. 9, 1979.

Patent application 6-065,771. Coal-Feeding Mechanism for a Fluidized Bed Combustion Chamber. Filed Aug. 13, 1979.

Patent application 6-066,107. Laser Pulse Detector. Filed Aug. 13, 1979.

Patent application 6-067,858. Acceleration Switch. Filed Aug. 20, 1979.

Patent application 6-070,545. Acceleration Switch. Filed Aug. 29, 1979.

Patent application 6-070,546. Device for Absorbing Mechanical Shock. Filed Aug. 29, 1979.

Patent application 6-070,547. Wet Powder Seal for Gas Containment. Filed Aug. 29, 1979.

Patent application 6-076,644. Apparatus for Controlling the Firing of Rectifiers in Polyphase Rectifying Circuits. Filed Sept. 18, 1979.

Patent 4,181,882. Corrosion Monitoring Apparatus. Filed Jan. 19, 1978. Patented Jan. 1, 1980. Not available NTIS.

Patent 4,184,514. Valve System Incorporating Single Failure Protection Logic. Filed Jan. 11, 1978. Patented Jan. 22, 1980. Not available NTIS.

Patent 4,184,536. Heat Rejection System. Filed Feb. 22, 1978. Patented Jan. 22, 1980. Not available NTIS.

Patent 4,184,662. Valve for Controlling Solids Flow. Filed July 25, 1978. Patented Jan. 22, 1980. Not available NTIS.

Patent 4,187,738. Rim for Rotary Inertial Energy Storage Device and Method. Filed May 10, 1978. Patented Feb. 12, 1980. Not available NTIS.

Patent 4,187,764. Fast-Acting Valve Actuator. Filed July 12, 1972. Patented Feb. 12, 1980. Not available NTIS.

Patent 4,188,038. Seal Arrangement for Intersecting Conduits. Filed Apr. 10, 1968. Patented Feb. 12, 1980. Not available NTIS.

Patent 4,189,686. Combination Free Electron and Gaseous Laser. Filed Sept. 27, 1977. Patented Feb. 19, 1980. Not available NTIS.

Patent 4,189,693. Superconducting Magnet. Filed Dec. 28, 1977. Patented Feb. 19, 1980. Not available NTIS.

Patent 4,189,944. Hydrodynamic Ultrasonic Probe. Filed Nov. 3, 1978. Patented Feb. 26, 1980. Not available NTIS.

Patent 4,190,160. Accident Resistant Transport Container. Filed Mar. 6, 1979. Patented Feb. 26, 1980. Not available NTIS.

Patent 4,191,928. Laser System Using Regenerative Amplifier. Filed Jan. 11, 1978. Patented Mar. 4, 1980. Not available NTIS.

Patent 4,193,422. Annular Flow Diverter Valve. Filed Nov. 24, 1978. Patented Mar. 18, 1980. Not available NTIS.

Patent 4,194,170. Shifting of Infrared Radiation Using Rotational Raman Resonances in Diatomic Molecular Gases. Filed Nov. 13, 1978. Patented Mar. 18, 1980. Not available NTIS.

Patent 4,195,813. Valve. Filed May 15, 1972. Patented Apr. 1, 1980. Not available NTIS.

Patent 4,196,353. Microradiographic Microsphere Manipulator. Filed Jan. 24, 1979. Patented Apr. 1, 1980. Not available NTIS.

Patent 4,196,423. Acoustic Emission Intrusion Detector. Filed Aug. 9, 1978. Patented Apr. 1, 1980. Not available NTIS.

Patent 4,196,522. Alignment Fixture. Filed Apr. 30, 1979. Patented Apr. 8, 1980. Not available NTIS.

Patent 4,196,613. Device for measuring the Fluid Density of a Two-Phase Mixture. Filed Nov. 30, 1978. Patented Apr. 8, 1980. Not available NTIS.

Patent 4,198,740. Method for Forming or Bonding a Liner. Filed July 24, 1978. Patented Apr. 22, 1980. Not available NTIS.

Patent 4,202,931. Superconducting Articles of Manufacture and Method of Producing Same. Filed Sept. 23, 1974. Patented May 13, 1980. Not available NTIS.

Patent 4,203,303. Torque-Balanced Vibrationless Rotary Coupling. Filed July 28, 1978. Patented May 20, 1980. Not available NTIS.

Patent 4,204,882. Thermocouple Split Follower. Filed Dec. 3, 1965. Patented May 27, 1980. Not available NTIS.

Patent 4,217,192. Decontamination of Metals Using Chemical Etching. Filed June 11, 1979. Patented Aug. 12, 1980. Not available NTIS.

Patent 4,218,908. Device and Method for Shortening Reactor Process Tubes. Filed Jan. 24, 1979. Patented Aug. 26, 1980. Not available NTIS.

Patent 4,219,237. Method for Maximizing Shale Oil Recovery from an Underground Formation. Filed Sept. 30, 1977. Patented Aug. 26, 1980. Not available NTIS.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6-217,143. Everting Tube Device with Relative Advance Control. Filed Dec. 16, 1980.

U.S. DEPARTMENT OF THE INTERIOR

Branch of Patents
18th and C Streets, N.W.
Washington, D.C. 20240

Patent application 6-177,975. A Method for Clarifying Slimes. Filed Aug. 14, 1980.

Patent application 6-177,976. Extraction of Metal Ions from Aqueous Solution. Filed Aug. 14, 1980.

Patent application 6-180,188. Ozone Treatment of Wet-Process Phosphoric Acid. Filed Aug. 22, 1980.

Patent application 6-186,090. Recovery of Bismuth from Chloride Process Solutions. Filed Sept. 11, 1980.

Patent application 6-200,110. In situ Tritium Borehole Probe for Measurement of Tritium. Filed Oct. 24, 1980.

Patent 4,223,014. Spray Immunization of Fish. Filed May 8, 1978. Patented Sept. 16, 1980. Not available NTIS.

Patent 4,231,866. Recovery of Organic and Aqueous Phases from Solvent Extraction Emulsions. Filed Aug. 24, 1978. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,231,994. Separation of Zirconium from Hafnium by Solvent Extraction. Filed Aug. 27, 1979. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,239,547. Recycling Spent Asphaltic Concrete. Filed Jan. 12, 1979. Patented Dec. 16, 1980. Not available NTIS.

Patent 4,242,192. Electrolytic Stripping Cell. Filed Sept. 6, 1979. Patented Dec. 30, 1980. Not avaiable NTIS.

Patent 4,242,312. Removal of Sodium Sulfate from a Sulfate-Containing Sodium Chloride Solution in a Process for Separating Zirconium and Hafnium. Filed Aug. 7, 1979. Patented Dec. 30, 1980. Not available NTIS.

U.S. DEPARTMENT OF THE NAVY
Director, Navy Patent Program/
Patent Council for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-097,480. Case Mounted Mooring System. Filed Nov. 26, 1979.

Patent application 6-160,880. Self-Aligned Recessed Gate with Low Source Resistance. Filed June 16, 1980.

Patent application 6-167,866. Flexible Loop Slip Ring Brush. Filed July 14, 1980.

Patent application 6-174,292. Electronically Simulated Rotating Prism for Ultrasonic Beam Scanning. Filed Aug. 1, 1980.

Patent application 6-206,403. Method for the Separation of Uranium Isotopes. Filed Nov. 3, 1980.

Patent application 6-210,188. Multiple Thin Film Absorption of Reflected Substrate Modes in Waveguide System. Filed Nov. 25, 1980.

Patent application 6-214,926. Refractory Passivated Ion-Implanted GaAs Ohmic Contacts. Filed Dec. 10, 1980.

Patent application 6-216,715. Improved Pseudo-Atmospheric Noise Generator with Control of Temporal Characteristics. Filed Dec. 15, 1980.

Patent application 6-216,878. Adaptive Digital Communication System. Filed Dec. 15, 1980.

Patent application 6-217,306. Simplified Fabrication Method for High-Performance FET. Filed Dec. 17, 1980.

Patent application 6-217,977. High Performance Bipolar Microwave Transistor. Filed Dec. 19, 1980.

Patent application 6-219,662. Radar Tracking System. Filed Dec. 23, 1980.

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The libraries listed herein, designated as patent depository libraries, receive current issues of U.S. Patents and maintain collections of earlier issued patents. The scope of these collections varies from library to library, ranging from patents of only recent months or years in some libraries to all or most of the patents issued since 1870, or earlier, in other libraries.

These patent collections are open to public use and each of the patent depository libraries, in addition, offers the publications of the patent classification system (e.g. The Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions, etc.) and provides technical staff assistance in their use to aid the public in gaining effective access to information contained in patents. With one exception, as noted in the table following, the collections are organized in patent number sequence.

Depending upon the library, the patents may be available in microfilm, in bound volumes of paper copies, or in some combination of both. Facilities for making paper copies from either microfilm in reader-printers or from the bound volumes in paper-to-paper copies are generally provided for a fee.

Owing to variations in the scope of patent collections among the patent depository libraries and in their hours of service to the public, anyone contemplating use of the patents at a particular library is advised to contact that library, in advance, about its collection and hours, so as to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Birmingham Public Library	(205) 254-2555
California	Los Angeles Public Library	(213) 626-7555 Ext. 274
	Sacramento: California State Library	(916) 323-4572
	Sunnyvale Patent Library*	(408) 736-0795
Colorado	Denver Public Library	(303) 573-5152 Ext. 223
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4519
Illinois	Chicago Public Library	(312) 269-2814
Massachusetts	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Detroit Public Library	(313) 833-1458
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 214
Nebraska	Lincoln: University of Nebraska-Lincoln, Love Library	(404) 472-3411
New Jersey	Newark Public Library	(201) 733-7740
New York	Albany: New York State Library	(518) 474-5125
	Buffalo and Erie County Public Library	(716) 856-7525 Ext. 267
	New York Public Library (The Research Libraries)	(212) 790-6291
North Carolina	Raleigh: D. H. Hill Library, N.C. State University	(919) 737-3280
Ohio	Cincinnati & Hamilton County Public Library	(513) 369-6969
	Cleveland Public Library	(216) 623-2932
	Columbus: Ohio State University Libraries	(614) 422-6286
	Toledo/Lucas County Public Library	(419) 242-7361 Ext. 258
Oklahoma	Stillwater: Oklahoma State University Library	(405) 624-6546
Pennsylvania	Philadelphia: Franklin Institute Library	(215) 448-1226
	Pittsburgh: Carnegie Library of Pittsburgh	(412) 622-3128
	University Park: The Pennsylvania State Libraries	(814) 865-4861
Rhode Island	Providence Public Library	(401) 521-7722 Ext. 224
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 528-2957
Texas	Dallas Public Library	(214) 748-9071
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext. 2587
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Engineering Library, University of Wisconsin	(608) 262-6845
	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 16, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director ..... Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director ..... Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	02-05-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director .... Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director ..... Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director ..... Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	01-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director ..... Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT ..... Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director ..... Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director ..... Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	03-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director ..... Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director ..... Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	01-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director ... Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-06-78
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director ..... Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director ..... Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director ..... Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	06-22-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents ..... Numbers 3,131,397 to 3,134,980, inclusive

Plant Patents ..... Numbers 2,399 to 2,406, inclusive

REISSUES

JUNE 23, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,653

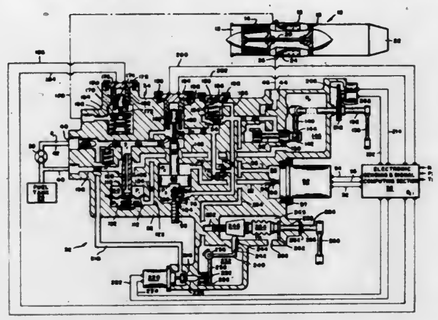
FUEL CONTROL FOR GAS TURBINE ENGINE

Robert W. Schuster, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Original No. 4,033,112, dated Jul. 5, 1977, Ser. No. 616,731, Sep. 25, 1975. Application for reissue Nov. 26, 1979, Ser. No. 97,574

Int. Cl.³ F02C *9/08*

U.S. Cl. 60—39.28 R **12 Claims**



1. Fuel control apparatus for a combustion engine comprising:

a fuel supply conduit for conducting a flow of pressurized fuel from a pressurized source to said engine;

first positionable valve means operatively connected to said supply conduit for establishing a controlled flow of fuel therethrough to said engine;

first fuel pressure differential responsive means operatively connected to said first valve means for actuating the same;

second valve means operatively connected to said supply conduit in series flow relationship with said first valve means and downstream therefrom for creating a predetermined back pressure against fuel flow through said first valve means [and] *by* restricting fuel flow *in the supply conduit* to establish a predetermined fuel pressure differential [in said supply conduit], *said second valve having a wall that moves in an opened direction in response to said predetermined fuel pressure differential to allow fuel to flow to said engine;*

resilient means operatively connected to said second valve means for urging the same toward a closed position in opposition to the fuel pressure upstream therefrom

[second fuel pressure differential responsive means vented to said supply conduit upstream and downstream from said second valve means and responsive to the fuel pressure differential therebetween for actuating said second valve means in an opening direction in opposition to said resilient means;] *to establish a minimum fuel pressure differential;*

first passage means connected to said supply conduit in parallel flow relationship with said second valve means;

second passage means connecting said first fuel pressure differential responsive means to said supply conduit downstream from said second valve means;

a restriction in said first passage means;

a *first* variable area valve in said first passage means for controlling the fuel pressure intermediate said restriction and said variable area valve; and

control means responsive to a plurality of variable conditions of engine operation operatively connected to said variable area valve for actuating the same;

said first fuel pressure differential responsive means being [verted] *vented* to said first passage means intermediate said restriction and said variable area valve and responsive to the fuel pressure differential between said intermediate fuel pressure and said fuel pressure in said second passage means.

Re. 30,654

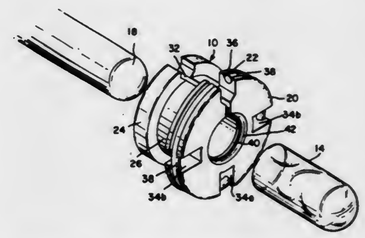
STRIPPER RING FOR A CAPSULE-MAKING MACHINE

Larry E. Dittmann, Harrisburg; Wayne L. Milhimes, Hershey, and Glenn A. Steinbauer, Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Original No. 4,153,406, dated May 8, 1979, Ser. No. 900,045, Apr. 25, 1978. Application for reissue Oct. 9, 1979, Ser. No. 83,037

Int. Cl.³ B29C *1/00*; B29D *23/00*

U.S. Cl. 425—438 **8 Claims**



8. In molding apparatus, for forming a hollow article on a mandrel, and having a slotted stripper ring, with a passageway therethrough, for removing said article from said mandrel, the improvement comprising: a spring metal insert embedded in the ring adjacent the front face thereof with the interior edge defining at least one surface of the passageway and with a pair of ears extending outwardly from said insert with each ear being on one side of and near the slot in the ring.

Re. 30,655

PROCESS FOR PREPARING 3-THIENYL-ACETATE DERIVATIVES

Charles Pigerol; Marie-Madeleine Chandavoine; Michel Chignac, and Paul de Cointet de Fillain, Sisteron, all of France, assignors to Labaz, Paris, France

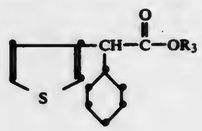
Original No. 4,186,137, dated Jan. 29, 1980, Ser. No. 778,498, Mar. 17, 1977. Continuation-in-part of Ser. No. 651,174, Jan. 21, 1976, abandoned, which is a continuation of Ser. No. 549,938, Feb. 14, 1975, abandoned, which is a continuation-in-part of Ser. No. 501,855, Aug. 29, 1974, abandoned. Application for reissue Jun. 27, 1980, Ser. No. 163,500

Claims priority, application France, Aug. 30, 1973, 73 31321

Int. Cl.³ C07D *333/16*

U.S. Cl. 549—79 **1 Claim**

1. In a process for the preparation of a thiophene compound corresponding to the formula:



wherein R_3 represents methyl or ethyl, by the reaction in one step between methyl or ethyl 3-thienyl-acetate and cyclohexyl bromide at a temperature between −15° C. and −10° C. in the presence of sodium hydride in dimethylformamide, the improvement which comprises:

(a) premixing said methyl or ethyl 3-thienyl-acetate with cyclohexyl bromide, and
(b) adding at −15° C. said methyl or ethyl 3-thienyl-acetate/cyclohexyl bromide mixture to said mixture of sodium hydride in dimethylformamide.

PLANT PATENTS

GRANTED JUNE 23, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,746
IMPATIENS PLANT
John J. Ryan, 39877 Sundale Dr., Fremont, Calif. 94538
Filed May 16, 1980, Ser. No. 150,301
Int. Cl.³ A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct form of Impatiens plant as described and illustrated, known by the cultivar name Mohegan.

PATENTS

GRANTED JUN. 23, 1981

ERRATA

For CLASS	See PATENT NO.
474–023	4,274,295
411–433	4,274,323
411–038	4,274,324
411–083	4,274,460
294–147	4,274,571
369–286	4,275,100
369–286	4,275,101
369–022	4,275,274
369–044	4,275,275
254–227	4,275,295

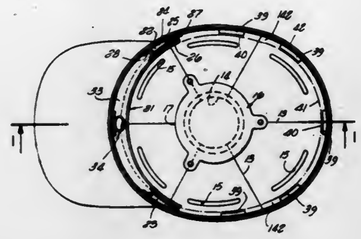
4,274,157
HAT OR CAP WITH ADJUSTABLE BAND

Ogden W. Boden, 1580 Gaywood Dr., Altadena, Calif. 91001

Continuation-in-part of Ser. No. 879,054, Feb. 21, 1978, abandoned. This application Apr. 27, 1978, Ser. No. 900,758

Int. Cl.³ A42B *1/22*

U.S. Cl. 2—181.4 8 Claims



1. A ventilated hat or cap comprising:

a crown;

means forming a primary band at the bottom of said crown;

an inner adjusting sweat band extending along an inner side of said primary band at a location to engage and extend across the front of a user's head and having two ends essentially at opposite sides of the user's head;

first and second connections at said two ends respectively of said inner band connecting said ends thereof to said primary band at opposite sides of the user's head;

each of said connections including two sets of Velcro projections carried by said two bands respectively and interengageable to secure the corresponding end of the inner band to the primary band detachably and in any of a series of different positions adjusted longitudinally of the primary band, in a relation adjusting the effective size of the hat or cap, and in at least some settings of said connections maintaining an air circulation gap between the primary band and the inner band, with the width of said gap varing in correspondence with the setting of said connections; and

a third detachable connection between said bands at an intermediate location circularly between said first and second connections and attaching said bands together in any of different spaced relationships in different settings of the first and second connections;

said third connection including a flexible attaching tube secured to one of said bands at said intermediate location, first Velcro projections carried by said attaching tube, and second Velcro projections carried by the other band and detachably connectible to said first Velcro projections carried by said attaching tube;

said attaching tube being adapted to flex in a relation permitting movement of said first Velcro projections carried thereby toward and away from said one band, to thereby maintain the attachment between said bands at said intermediate location in said different spaced relationships of the bands, and permitting complete detachment of the inner band by separation of the Velcro projections of all of said first, second and third connections.

7. A ventilated hat or cap comprising:

a crown;

means forming a primary band at the bottom of said crown;

an inner adjusting sweat band extending along an inner side of said primary band at a location to engage and extend across the front of a user's head and having two ends essentially at opposite sides of the user's head;

first and second connections at said two ends respectively of said inner band connecting said ends thereof to said primary band at opposite sides of the user's head;

each of said connections including two sets of Velcro projections carried by said two bands respectively and interengageable to secure the corresponding end of the inner band to the primary band detachably and in any of a series of different positions adjusted longitudinally of the primary band, in a relation adjusting the effective size of the hat or cap, and in at least some settings of said connections maintaining an air circulation gap between the primary band and the inner band, with the width of said gap varying in correspondence with the setting of said connections; and

a third detachable connection between said bands at an intermediate location circularly between said first and second connections and attaching said bands together in any of different spaced relationships in different settings of the first and second connections;

said third connection including a flexible attaching tube secured at one side thereof to one of said bands at said intermediate location, first Velcro projections on the opposite side of said attaching tube, and second Velcro projections carried by the other band and detachably connectible to said first Velcro projections on the tube;

said attaching tube being adapted to flex in a relation permitting movement of said first Velcro projections carried thereby toward and away from said one band, to thereby maintain the attachment between said bands at said intermediate location in said different spaced relationships of the bands, and permitting complete detachment of the inner band by separation of the Velcro projections of said first, second and third connections.

4,274,158
EVACUATED DIVING SUIT INSULATION

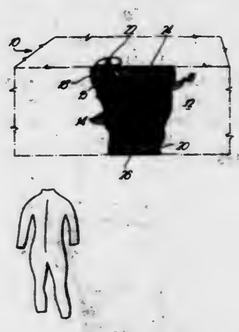
Louis A. Pogoruki, Toronto, and Lorne A. Kuehn, Downsview, both of Canada, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence, Ontario, Canada

Filed Apr. 2, 1979, Ser. No. 26,304

Claims priority, application Canada, Apr. 14, 1978, 301157

Int. Cl.³ A62B *17/00*

U.S. Cl. 2—2.1 R 17 Claims

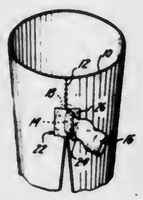


1. An insulating material suitable for use in diving suits and the like, comprising a multiplicity of layers of a flexible, stretchable material, said layers including a central core consisting of a gas permeable layer of a material that is substantially non-compressible when at least partially evacuated and subject to hydrostatic pressure when immersed in water, said layers further including two other layers impermeable to gase-

ous fluids, each of said two other layers being of a stretchable material, the central core being disposed intermediate said two other layers and means connected to said central core for selectively inflating and deflating it.

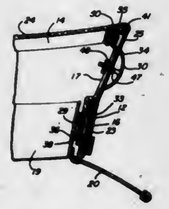
9. A diver's garment suitable for wear by a diver in a cold submarine environment; said garment having arm and leg sections, and a body section, said sections being joined together and provided with at least one fastening means to enable the garment to be put on and taken off; each section of said garment comprising a multiplicity of layers of a flexible, stretchable material, and including a central core consisting of a gas permeable multicomponent layer of a material that is substantially incompressible when at least partially evacuated and subject to a hydrostatic pressure in said submarine environment, said layers further including two other layers each impermeable to gases and fluids and being positioned on opposite sides of the central core, there further being provided sealable closure means in one of the gas impermeable layers, thereby to enable the central core, selectively, to be placed under a sub-atmospheric or superatmospheric pressure.

4,274,159
WATERPROOF ZIPPER
Robert Schmidt, 314 Fourth St., Saddle Brook, N.J. 07662
Filed May 22, 1980, Ser. No. 152,259
Int. Cl.³ A41D *13/00*
U.S. Cl. 2—2 2 Claims



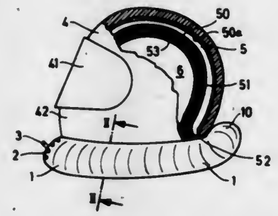
1. A waterproof relief outlet in a chest wader, comprising:
(a) a waterproof foldable tubular funnel, sealably attached to the wader in the vicinity of the wader crotch;
(b) a funnel housing;
(c) means for restraining the tubular funnel in a fluid-tight folded condition;
whereby a wearer of the chest wader can relieve himself by removing the restraining means and unfolding the tubular funnel to project out of the housing.

4,274,160
UNIFORM CAP
Bernard Bloom, Chicago, Ill., assignor to Midway Cap Company, Chicago, Ill.
Filed Jan. 30, 1978, Ser. No. 873,351
Int. Cl.³ A42B *1/02*
U.S. Cl. 2—195 1 Claim



1. In a uniform cap having a frame, a flexible cover adapted to be fitted over said frame, a resilient grommet within said cover extending peripherally at the top thereof to exert outward pressure thereon, a holder secured adjacent the front of said frame defining an upwardly opening slot, and an upstanding support member of molded plastic material, the support member having a connecting portion removably received in the holder slot, the improvement comprising:
a loop portion extending rearwardly adjacent the top edge of said support member defining a slot, said loop portion having releasable connector means for engaging cooperating connector means, said support member allowing the grommet to be joined to said loop portion by cooperating connector means carried by said grommet and engage with said releasable connector means, and
a strap carried by said grommet, said strap in turn carrying said cooperating connector means adapted to engage said releasable connector means.

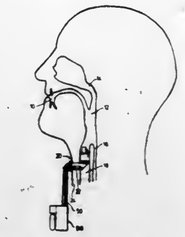
4,274,161
CRASH HELMET COLLAR
Brian J. Littler, Frankfurter Strasse 84, D-6051 Nieder-Roden, Fed. Rep. of Germany
Filed Nov. 21, 1977, Ser. No. 853,525
Claims priority, application Fed. Rep. of Germany, Nov. 29, 1976, 2654051
Int. Cl.³ A42B *3/02*; A41B *3/00*
U.S. Cl. 2—413 17 Claims



1. A collar device for use with a protective helmet having a bottom edge for the protection of a motorcyclist in an accident, comprising:
an elongated inflatable tubular body adapted to substantially surround a motorcyclist's neck, said body being sized and positioned, when inflated to be in contact substantially with the entire lower edge rim of the helmet and the upper trunk of the motorcyclist's body, to transmit to, and cushion against, the motorcyclist's body, forces generated at the helmet, thereby to protect the neck;
securing means operable in a closed mode for securing the ends of the collar in adjacent relationship to close the collar around the neck; and in an open mode to release the ends for removal of said collar from the neck.

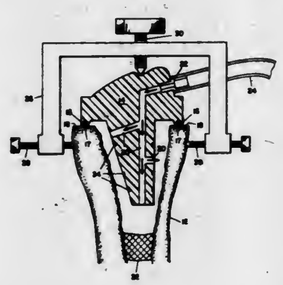
4,274,162
ARTIFICIAL REPLACEMENT FOR A LARYNX
Michael Joy, 118 Burnhamthorpe Rd., Islington, Ontario; Richard E. Moon, 100 Wellesley St. E., Apt. 1013, Toronto, Ontario; Abul Quashem, 93 Hanson Rd., Mississauga, Ontario; Alex Lo, 89 Wilcock St., Toronto, Ontario, and Vijay S. Dayal, 12 Harper Ave., Toronto, Ontario, all of Canada
Filed May 23, 1979, Ser. No. 41,960
Int. Cl.³ A61F *1/20*
U.S. Cl. 3—1.3 10 Claims

1. A larynx replacement for installation in a patient's trachea, and comprising:
a sleeve adapted for surgical insertion into the trachea to extend along the axis of length thereof, the exterior of said sleeve being adapted to fit in substantially airtight manner against the interior walls of the trachea;
a passageway extending lengthwise through said sleeve, so as to form a part of the trachea after installation of the sleeve therein;
a valve operable to open and close said passageway;
sensing means located at the upper part of said sleeve, above the valve, and operatively connected to cause movement of the valve in response to conditions sensed by said sensing means;



a conduit extending transversely of said sleeve and providing air communication between the trachea, at a point below the valve, and the exterior of a patient's neck after surgical installation of said larynx replacement therein.

4,274,163
PROSTHETIC FIXATION TECHNIQUE
Lawrence L. Malcom, San Diego, and F. Richard Convery, La Jolla, both of Calif., assignors to The Regents of the University of California, Berkeley, Calif.
Filed Jul. 16, 1979, Ser. No. 57,822
Int. Cl.³ A61F *1/00*
U.S. Cl. 3—1.91 20 Claims



1. A method for securing an implant to a bone comprising the steps of:
sealing the implant to the bone to form an enclosed space between the implant and the bone; and
providing a source of medical cement at high pressure;
supplying medical cement at high pressure from said source through a closed channel to the space between the implant and the bone; and
maintaining the medical cement under pressure while the medical cement solidifies.

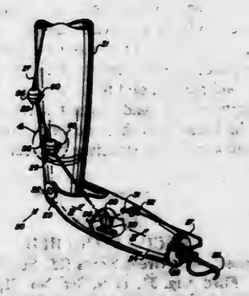
4,274,164
ENDOPROSTHESIS FOR A HIP JOINT, ESPECIALLY FOR THE HIP JOINT OF A HUMAN BEING
Günther Rehder, Stahr, and Johann Rusdea, Wiesbaden, both of Fed. Rep. of Germany, assignors to Orthoplant Orthopaedische Implantate GmbH & Co. KG, Bremen, Fed. Rep. of Germany
Filed May 29, 1979, Ser. No. 42,811
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1978, 2834298
Int. Cl.³ A61F *1/03*
U.S. Cl. 3—1.913 8 Claims

1. A femur head cap for a hip joint endoprosthesis which can be implanted without cement, comprising:
an inner plastic shell to be placed on a femur head, said inner shell including a top section the inner surface of which conforms to the end face of the femur head and the outer surface of which is generally hemispherically shaped, and a jacket extending from said top section for fitting about a treated circumferential surface of the femur head, the inner surface of said jacket conically narrowing in the direction away from said top section, said inner shell having a slot which extends between the free edge of said jacket and the center of said top section to enable said jacket to expand to slip over the largest diameter of the femur head when said inner shell is placed over the femur head; and
a metallic outer shell having a generally hemispherical inner surface which corresponds to the outer surface of said top



section of said inner shell so that said outer shell can be fitted over said top section, said outer shell also having a generally hemispherical outer surface wherein the height of said outer shell as measured from the free end plane to the center of the outer surface of said outer shell is less than the radius of curvature of the outer surface of said outer shell, said outer shell including an end section adjacent the free end thereof for engaging the outer surface of said jacket of said inner shell, the inner surface of said end section conically narrowing in the direction toward the free end of said outer shell, and a pin extending from the center of the inner surface of said outer shell for engaging said inner shell when said outer shell is fitted over said inner shell to operatively align both of said shells.

4,274,165
SELF-ALIGNING CABLE GUIDE ASSEMBLY
Joseph J. Ivko, and Renette Ivko, both of 1644 Magellan Dr., Sarasota, Fla. 33589
Filed Feb. 11, 1980, Ser. No. 120,155
Int. Cl.³ A61F *1/06*
U.S. Cl. 3—12 12 Claims

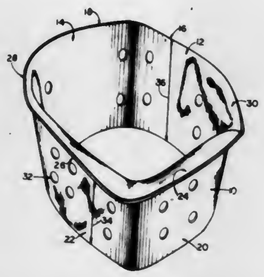


1. A self-aligning cable guide assembly operatively associated with a support surface and adapted to receive and guide a cable therethrough in a substantially stress-free relationship therewith, said assembly comprising:
mounting means attachable to a support surface;
a ball member having a cable guide hole defined therethrough;

a connecting member operatively associated with said mounting means and extendable outwardly therefrom for operative engagement with said ball member; and

a band member circumferentially disposed about said ball member for operative engagement with said ball member to secure said connecting member to said ball member.

4,274,166
SOCKET OR CAST BRIM
Gary R. Chambers, 705 McFarland St., Morristown, Tenn. 37814
Filed May 3, 1979, Ser. No. 35,461
Int. Cl.[3] A61F *1/02*
U.S. Cl. 3—17 R 6 Claims



1. A semi-rigid upper thigh brim suitable for use with a cast for treating fractures comprising:

a sleeve having top and bottom edges and having a preselected cross-section corresponding to the cross-section of the upper thigh of a human being, said sleeve for fitting around the upper thigh of a patient and being made of a resilient material suitable for conforming substantially to the upper thigh of said patient, said sleeve including a front and outside thigh portion having substantially straight sides of a first selected length, and each of said front and outside straight sides having feathered top edges, and a back portion and inside thigh portion of a second selected length, which second selected length is less than said first selected length, said sleeve being suitable for bonding thereto a pliable cast material which subsequently cures to a hard and rigid material suitable for bracing and immobilizing a fracture and said sleeve defining a multiplicity of apertures to receive said pliable cast material to strengthen said bond; and

contact surfaces integrally moded to said top edges of said back portion and said inside thigh portion of said sleeve and shaped to form a smooth transistion from said feathered top edges of said front and outside portions and to provide padding and support to the buttocks and groin areas of said patient, said front, back inside thigh, outside thigh portions and said contact surfaces being molded with a thickness such that said brim provides both cushioning and a semirigid structure between said cast and said patient.

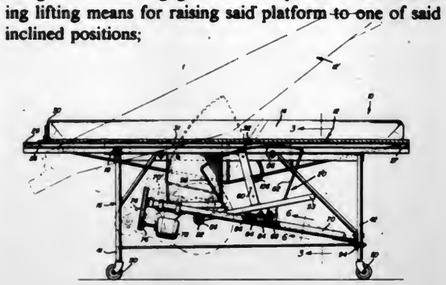
4,274,167
OSCILLATING BED
Joseph D. Immel, 4809 Green Acres Rd., St. Joseph, Mo. 64506
Filed Aug. 31, 1979, Ser. No. 71,689
Int. Cl.[3] A62G *7/10*
U.S. Cl. 5—62 11 Claims

1. In a therapeutic bed, the combination of:

a bed support frame having ground engaging legs;

a platform for supporting a user of the bed; said platform having a pivot joint connected toward one end thereof, said pivot joint also being connected to said bed support frame for allowing said platform to pivot about a horizontal axis to a plurality of inclined positions;

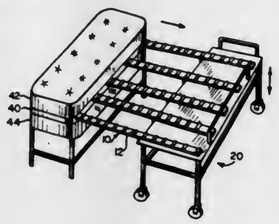
a lifting mechanism engaged with said platform and including lifting means for raising said platform to one of said inclined positions;



an eccentric shaft mounting said lifting mechanism, said lifting mechanism including at least one arcuate support slidably engaging the bottom of said platform and connected for rotative movement about said eccentric shaft for raising said platform; and

power means for rotating said eccentric shaft to cause vibratory motion of said lifting mechanism and said platform.

4,274,168
PATIENT TRANSFER APPARATUS
Norma M. Depowski, 1089 Hunter Dr., Elgin, Ill. 60120
Filed Sep. 17, 1979, Ser. No. 75,925
Int. Cl.[3] A61G *7/10*
U.S. Cl. 5—81 B 4 Claims



1. An apparatus for transferring a patient on a mattress between a hospital bed base member, and a cart comprising: projections affixed to the upper surface of the cart having anti-friction means mounted thereon for conveying loads, a foundation member interposed between the bed base member and the mattress, wherein said foundation member has grooves defined therein for receiving said projections, whereby the mattress is supported by said anti-friction means on said projections when said projections are inserted into said foundation member.

4,274,169
BED COVERING HAVING TUCKABLE PORTION
Natalie C. Standiford, 1 Englewood Rd., Baltimore, Md. 21210
Filed May 3, 1979, Ser. No. 35,545
Int. Cl.[3] A47G *9/02*
U.S. Cl. 5—502 6 Claims

1. A reversible bed covering, which comprises:

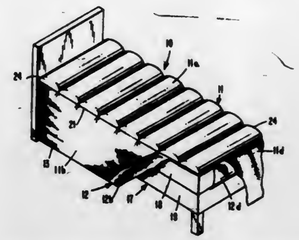
a first layer of fabric material having a head portion, two side edges and a foot edge extending completely between the side edges;

a second layer of fabric having a head portion, two side edges and a foot edge extending completely between the side edges;

the first and second layers being of the same size and placed in interfacing relation;

the head portion and the side edges of the first layer being secured, respectively, to the head portion and the side edges of the second layer;

the foot edges of the first and second layers being unsecured between the side edges of the first and second layers;



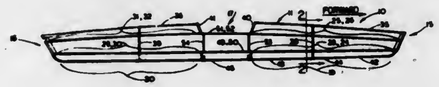
each of the first and second layers of fabric material being formed with a central portion which normally rests atop a bed;

the central portions of the first and second layers being in interfacing relation;

a plurality of pockets formed in the first and second layers, in the area of the central portions;

and heat-insulating material located within the plurality of pockets.

4,274,170
COLLAPSIBLE KAYAK
Douglass E. Simpson, 2 - 3443 West 2nd Ave., Vancouver, British Columbia, Canada (V6R 1J3)
Filed Aug. 28, 1978, Ser. No. 937,540
Int. Cl.[3] B63B *37/72, 7/04*
U.S. Cl. 9—1.4 16 Claims



1. A collapsible kayak having a framework characterized by a plurality of longitudinal members including forward and aft keelson member portions, forward and aft port and starboard chine and gunwale member portions, and forward and aft longitudinal deck members; formers and a cockpit structure, the longitudinal members releasably interconnecting the cockpit structure with the bow and stern of the kayak; the cockpit structure including:

(a) a keelson member mid portion, port and starboard chine member mid portions spaced on opposite sides of the keelson member mid portion, and port and starboard gunwale member mid portions spaced above the chine member mid portions, the mid portions interconnecting longitudinally the respective forward and aft longitudinal members,

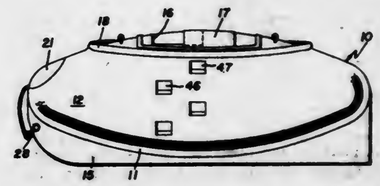
(b) forward and aft interconnecting members interconnecting adjacent member mid portions so as to form a frame of generally parallel mid portions, each interconnecting member having a respective port and starboard portion which is rigidly and non-hingedly fixed to the respective port and starboard chine and gunwale member mid portions to form rigid port and starboard cockpit frame halves,

(c) the port and starboard cockpit frame havles being hinged relative to each other about the keelson member mid portion by at least one of said port and starboard portions of said interconnecting members being hinged to said keelson member mid portion to effectively permit the cockpit structure to be folded about the keelson member mid portion to permit the port and starboard mid portions to approach each other,

(d) forward and aft transverse deck members adapted to extend between the gunwale member mid portions to define with the gunwale member mid portions a cockpit opening to receive a kayakist, each transverse deck member having at least one end releasably connected adjacent an opposite end of one of the gunwale member mid portions, the forward and aft longitudinal deck members being releasably connected to the forward and aft transverse deck members.

so that when the framework is assembled the forward and aft keelson, chine and gunwale member portions are connected to the respective keelson, chine and gunwale member mid portions of the cockpit structure to form a generally smoothly curved framework.

4,274,171
LIFEBOAT
Clayton T. Eazias, Jr., 3 Edgewater Dr., Wareham, Mass. 02571
Filed Feb. 27, 1978, Ser. No. 881,644
Int. Cl.[3] B63C *9/02*
U.S. Cl. 9—4 R 4 Claims



1. Lifeboat, comprising:

(a) a main body having an outer skin with an outer surface of a generally prolate spheroidal shape and an inner skin with an inner surface generally concentric with the outer surface of said outer skin 72, said outer and inner skins being formed of a fiberglass-reinforced, high-density polymer 73 to form a compartment therebetween,

(b) a keel formed of heavy material extending from end to end of the main body along a bottom portion, a portion of said keel being a body of circular segmental form in cross-section integrally formed in the bottom portion of the inner chamber and having a flat upper surface that acts as a floor for the inner chamber,

(c) a hatchway aperture located at the top of the main body intermediate of the ends thereof,

(d) a hatch having the general shape of the aperture slidably carried on the main body and movable from a first position where it resides in sealing relation to the aperture to a second position where it is non-coextensive with the aperture, a downwardly-extending apron being integrally formed with both the inner and the outer skins and extending inwardly from the inner surface of the inner skin in the form of a closed plane figure that extends around the hatchway aperture, the apron serving to trap air in the upper portion of the inner chamber, the hatchway aperture and the hatch being of generally rectangular shape and straight guides being integrally formed on the outer

skin of the main body parallel to the sides of the aperture to carry the hatch for sliding movement relative to the aperture,

(e) an outwardly and upwardly-extending flange integrally formed on the outer skin surface of the main body in the form of a closed plane figure that extends around and is substantially spaced from the hatchway aperture, the flange serving to inhibit wave flow into the aperture and to collect rain water,

(f) a storage recess formed on the surface of the main body,

(g) a cover carried in the recess with an outer surface that forms an even and smooth continuity with the outer surface of the main body,

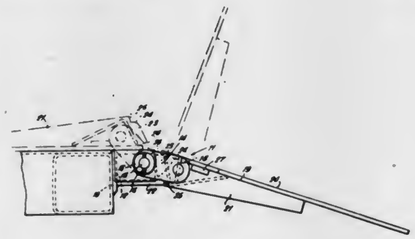
(h) means for locking the cover in place, which means is releasable from the inner chamber, and

(i) a drogue stored within the recess and released by release of the cover.

4,274,172
RAMPS

Leslie C. Franklin, Hitchin, England, assignor to Ratcliff Tail Lifts Limited, Hertfordshire, England

Filed Mar. 23, 1979, Ser. No. 23,314
Claims priority, application United Kingdom, Mar. 29, 1978, 12312/78
Int. Cl.³ E01D 1/00
U.S. Cl. 14—69.5 16 Claims



1. A platform and ramp apparatus comprising a ramp and means for securing the ramp to the platform, the securing means comprising link means rotatably mounted on the platform to rotate about a first axis of rotation fixed relative to the platform, the ramp being rotatably mounted on the link means to rotate about a second axis of rotation parallel to the first axis of rotation, stop means being provided on the platform and engagement means being provided on the ramp, which engagement means comprise a first engagement portion and a second engagement portion, the first engagement portion engaging the stop means to define a first ramp position in which the ramp provides surface sloping downwardly from the platform, and the second engagement portion engaging the stop means to define a second ramp position in which the ramp provides a surface sloping upwardly from the platform to form a barrier, rotation of the link means about the first axis of rotation allowing disengagement of the stop means and engagement means whereby the ramp may be moved between the two ramp positions.

4,274,173
POWER DRIVEN BRUSH ASSEMBLY

Howard Cohen, 2791 W. 5th St., Brooklyn, N.Y. 11224

Filed Jul. 5, 1979, Ser. No. 54,943
Int. Cl.³ A46B 13/02
U.S. Cl. 15—28 3 Claims

1. A power driven brush assembly for cleaning teeth or the like, said assembly comprising:

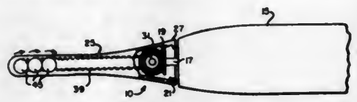
a hollow handle element;

a hollow extension for said handle element;

drive means providing energy to said extension;

a plurality of brush supports in said extension at an end thereof remote from said handle element

a power transmission between said drive means and at least two of said brush supports;

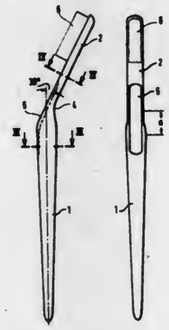


and a plurality of brushes at least one of said brushes contoured with a cup-shaped cavity at one end thereof remote from said shaft, implementing the facility with which the outer edges of the brush may be bent to approximate the contours of the surface to be brushed said brush supports mounted in said handle extension so that adjacent brush segments move in opposed directions.

4,274,174
TOOTHBRUSH

Ulrike Ertel, Munich, Fed. Rep. of Germany, assignor to G.R.P. Gesellschaft für Rationelle Psychologie oHG, Fed. Rep. of Germany

Continuation of Ser. No. 4,921, Jan. 19, 1979, abandoned. This application Feb. 6, 1980, Ser. No. 119,016
Int. Cl.³ A46B 9/04, 5/02
U.S. Cl. 15—143 R 9 Claims



1. A toothbrush body having a stem-like grip to be gripped in the hand of a human operator, this grip adjoining a bristle carrier in an intervening bend region so that the bristle carrier extends forwards, and the grip extends rearwards from this bend region, said bristle carrier having a front side and a back side, said toothbrush body comprising:

(a) said grip outside of said bend region extending conically rearwardly, decreasing in transverse cross-sectional area from said bend region towards a rear tip;

(b) said grip being of such length as to rearwardly extend to beyond the gripping hand of the operator when the operator's hand grips said grip, with the operator's opposed thumb and forefinger being on or forwardly of said bend region;

(c) said bristol carrier being elongated, straight and rounded on a back side thereof, said bristle carrier extending forwardly from said bend region at an angle of about 25° to about 35° to the longitudinal axis of said grip;

(d) said bristle carrier having a length of about 70 mm to about 80 mm and a substantially constant width along a longitudinally extending axis;

(e) said grip within said bend region extending conically forwardly, decreasing in transverse cross-sectional area as it extends axially towards said bristle carrier within said bend region, thereby forming a depression on the back side of said toothbrush body in said bend region;

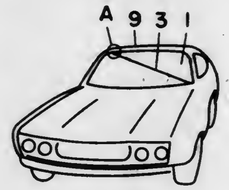
(f) surface means defining a flat, longitudinally elongated continuous grip depression of substantially constant width in the front side of said toothbrush body extending longitudinally over the entire bend region and both rearwardly into said stem-like grip rearwardly of said bend region and forwardly into said bristle carrier along at least a fourth the length of said bristle carrier outside said bend region; and

(g) a bristle zone defined on the front side of said bristle carrier and extending longitudinally thereon for substantially less than half the length of said bristle carrier from adjacent the forward end of said bristle carrier with said bristle carrier front side being substantially planar in said bristle zone.

4,274,175
WIPING DEVICE

Tadashi Nishikawa, 1-32 Nakanodori, Higashi-Sumiyoshi, Osaka, Japan

Filed Oct. 4, 1978, Ser. No. 948,411
Int. Cl.³ B60S 1/06
U.S. Cl. 15—250.24 6 Claims

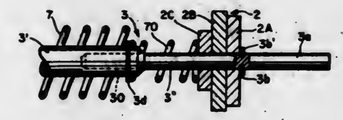


1. A wiping device comprising: an annular belt adapted to revolve along the entire periphery of a windowpane, said periphery of said windowpane being non-circular; and a wiper blade joined at its opposite ends to said annular belt and extending across the windowpane said wiper blade having a variable length, capable of varying in response to positioning of said opposite ends on said annular belt.

4,274,176
VACUUM OPERATED DESOLDERING TOOL

Hans Undin, Akersberga, and Hans Wiener, Täby, both of Sweden, assignors to Toolema AB, Stockholm, Sweden

Filed Nov. 20, 1979, Ser. No. 96,026
Int. Cl.³ A47L 5/20
U.S. Cl. 15—341 8 Claims

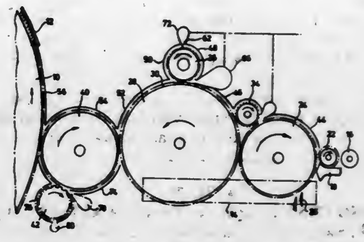


1. A vacuum operated desoldering tool comprising a tubular body, means defining a nozzle at one end of said tubular body, piston means mounted for reciprocal movement within said tubular body to produce a suction effect through said nozzle, said piston means including a piston rod and a piston member slideably mounted on said piston rod for movement relative thereto, spring means operably interposed between said piston rod and said piston member applying a spring force urging said piston member relative to said piston rod in a direction toward said nozzle, and stop means interposed between said piston rod and said piston member to limit the movement of said piston member relative to said piston rod in a direction toward said nozzle.

4,274,177
CARDING

Keith Grimshaw, Todmorden, and Roy Taylor, Oldham, both of England, assignors to The English Card Clothing Company Limited, West Yorkshire, England

Continuation of Ser. No. 869,297, Jan. 13, 1978, abandoned. This application Jan. 14, 1979, Ser. No. 48,376
Claims priority, application United Kingdom, Jan. 21, 1977, 2431/77
Int. Cl.³ D01G 15/02, 15/40
U.S. Cl. 19—99 22 Claims

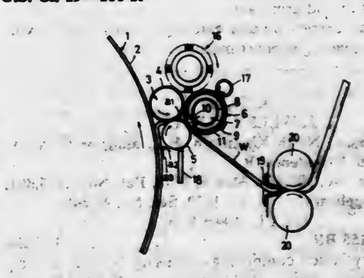


1. A flat type carding machine which includes a roller with card-clothing having flat-topped teeth; a trash removing roller set close to said card-clothed roller and adapted to remove trash projecting above the teeth of said card-clothed roller; a trash deflector arranged close to the part of said card-clothed roller which is on the approach side to said trash removing roller, and having a trailing end close to said trash removing roller; a cowling enclosing at least the part of said trash removing roller which is moving away from said card-clothing roller, and having an inlet end close to said card-clothed roller, said cowling at least in the region adjacent said inlet end being spaced radially from the periphery of said trash removing roller; said cowling and said trailing end of said deflector defining an opening through which trash struck off said card-clothed roller can escape, and a suction nozzle arranged with its inlet closely adjacent to said opening for keeping said opening free from blockage, the arrangement of said deflector, said cowling and said suction nozzle substantially preventing trash travelling around with said trash removing roller.

4,274,178
DEVICE FOR STRIPPING A FIBROUS WEB FROM A DOFFER IN A CARDING MACHINE

Kyoichi Hotta, Nagoya, Japan, assignor to Kabushiki Kaisha Kyowa Kikai Seisakusho, Japan

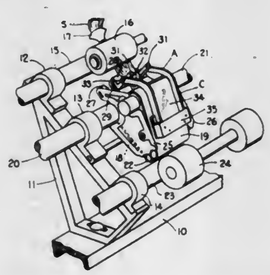
Filed Mar. 28, 1979, Ser. No. 24,528
Int. Cl.³ D01G 15/46
U.S. Cl. 19—106 R 6 Claims



1. A device for stripping a fibrous web from a doffer in a carding machine, said device comprising:

a doffing roller having in its periphery a mechanical stripping means corresponding in width with said doffer, said doffing roller being provided adjacent to and in parallel with said doffer to be positively rotated in the same direction as said doffer for stripping said web from said doffer;
a guide roller provided under said doffing roller in parallel with said doffer and adapted to be positively rotated in a direction opposite to the direction of rotation of said doffing roller for guiding said web along its surface as said web is stripped from said doffer;
a suction roller provided adjacent to said guide roller in parallel with said doffing roller on the side of said doffing roller and said guide roller opposite said doffer, said suction roller having a porous punched roller positively rotated in the same direction with said doffer, and a stationary duct extending longitudinally within said punched roller, said duct having an elongate suction port facing said guide roller and extending along the entire effective length of said punched roller, said suction port being located immediately inwardly of the inner surface of said punched roller; and
a source of negative pressure connected with said duct for drawing air from the vicinity of said doffing and guide rollers into said duct through said suction port.

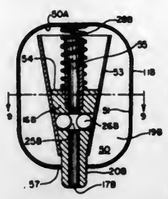
4,274,179
SPINNING FRAME APRON CLEARER ATTACHMENT
Kenneth P. Swanson, Ft. Lauderdale, Fla., assignor to Progressive Equipment, Inc., Simpsonville, S.C.
Filed Jun. 18, 1979, Ser. No. 49,300
Int. Cl.³ D01H 5/60
U.S. Cl. 19—245 **3 Claims**



1. An apron clearer attachment for use and positioning upon an upper mounting support portion of a sliver guide through which an individual sliver is fed to an apron comprising:
aligned upwardly extending arms spaced to accommodate a single sliver guide;
disengageable mounting means carried adjacent one end of said arms for attachment adjacent said upper mounting support portion;
downwardly extending support means carried adjacent the other end of said arms; and
a clearer pad carried by and extending across said downwardly extending support means.

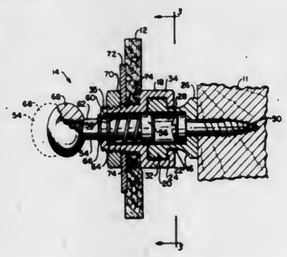
4,274,180
JEWELRY CLUTCH
Olof V. Anderson, North Kingstown, R.I., assignor to Auson Incorporated, Providence, R.I.
Division of Ser. No. 903,484, May 8, 1978, Pat. No. 4,195,391. This application Jun. 18, 1979, Ser. No. 49,340
Int. Cl.³ A44B 9/00
U.S. Cl. 24—155 BR **1 Claim**

1. A jewelry clutch comprising a housing circular in cross section and having oppositely located end walls, said housing fabricated from two vertical half sections fastened together to form a chamber, a circular tapered rail fastened to said housing within said chamber, a circular tapered carrier, said last mentioned taper being complementary to said first mentioned tapered rail and slidably mounted therein, said carrier having a neck, an axial bore, a lateral passageway, a bottom and a stem, or orifice in one of said oppositely located end walls, said neck



projecting through said orifice, said lateral passageway aligned with said axial bore, a plurality of gripping devices located in said lateral passageway, a spring interposed between said bottom and the other of said oppositely located end walls, and a pin slidably mounted in said axial bore for engagement and disengagement with said plurality of gripping devices.

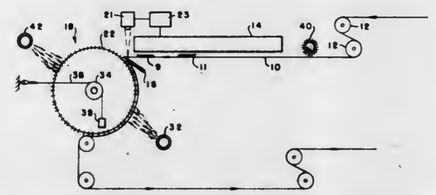
4,274,181
PIVOTAL AND RELEASABLE STRAP COUPLING
Helmut F. K. Schaller, Kuckucksweg 16, 8501 Feucht, Fed. Rep. of Germany
Filed Aug. 8, 1979, Ser. No. 64,888
Int. Cl.³ G10G 5/00; F16B 21/07
U.S. Cl. 24—201 A **9 Claims**



9. A coupling for pivotally and releasably connecting one end of a strap to a musical instrument or other body, said coupling comprising a post adapted to be fixed to a body and a catch adapted to be fixed to a strap, said post having an upper end with a generally circular head portion and also having a generally circular neck portion immediately below said head portion of smaller diameter than said head portion, said post also having an opening of generally circular cross section extending axially downwardly from its upper end, said catch having a cavity with a laterally facing mouth and a bottom wall defining the bottom of said cavity which bottom wall has a slot therein communicating with said mouth and extending some distance inwardly therefrom, said slot having a width slightly greater than the diameter of said post neck portion and less than the diameter of said post head portion, said head portion of said post being movable into and out of said cavity by being moved laterally of said catch through said mouth with said neck portion of said post extending through and moving along said slot in said bottom wall, a plunger carried by said catch body for vertical movement between lower and upper limited positions relative to said body, and a spring biasing said plunger to said lower limited position, said plunger extending upwardly beyond said catch body and having an exposed upper part which may be grasped by a user to lift said plunger from said lower to said upper position, said plunger also having a lower part which in said lower position of said plunger extends downwardly into said cavity and is receivable

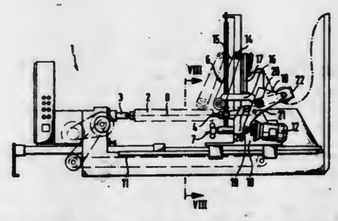
in said opening of said post to hold said post and said catch in connected condition while nevertheless allowing said catch to pivot relative to said post, and said lower end of said plunger when said plunger is raised to its upper position being located above the path of said post as it is moved laterally into and out of said cavity so that when said plunger is raised to said upper position said post may be moved laterally into and out of said cavity.

4,274,182
APPARATUS FOR PRODUCING A SIMULATED STRIA FABRIC
John M. Greenway, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.
Filed Jul. 10, 1978, Ser. No. 922,874
Int. Cl.³ D06C 23/04
U.S. Cl. 26—2 R **1 Claim**



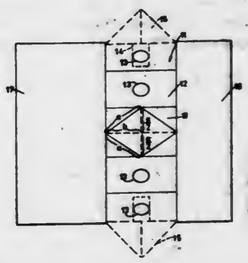
1. Apparatus for patterning fabric having a thermoplastic pile, including: heater means for heating the pile of said pile fabric to above its glass transition temperature without disturbing the orientation of fibers in the pile of said fabric; cool pattern roll means arund which said pile fabric is wrapped, the pile of said pile fabric contacting said cool pattern roll means; means for cooling the pile of said pile fabric to a temperature which is below the glass transition temperature of said pile fabric while the pile is in contact with said cool pattern roll means; and means for advancing said pile fabric past said heater means and around said pattern roll means, said apparatus including an arcuate support means over which said fabric may be passed closely adjacent and substantially parallel to the periphery of said pattern roll, said arcuate support means including an arcuate support member having a plurality of slits formed therein to stabilize the shape of said arcuate support means against warping.

4,274,183
APPARATUS FOR COPY-MACHINING OF A WORKPIECE
Erich Schmidt, Mauerbach, Austria, assignor to Maschinenfabrik Zackermann Komm. Ges., Austria
Filed May 16, 1979, Ser. No. 39,607
Claims priority, application Fed. Rep. of Germany, May 18, 1978, 2821788
Int. Cl.³ B23B 3/28
U.S. Cl. 29—28 **9 Claims**



1. In apparatus for copy-machining a workpiece from a master model, the apparatus being moved along the workpiece by a feed mechanism in response to the scanning of said master model, the improvement comprising:
a first tool and a second tool mounted on said feed mechanism, a pivot arm for supporting the second tool for movement relative to the first tool in the direction of movement along said workpiece, and means for locking said pivot arm and second tool at a desired position, said first and second tools engaging the workpiece in staggered relationship to one another, with reference to the direction of movement along said workpiece, wherein the relative positions of said first and second tools are adjustable by movement of the second tool in response to movement of the pivot arm and locking the pivot arm and second tool at the desired position.

4,274,184
MESH DISTRIBUTION WHEELS
Svein Norditvedt, Blomvikveien 27, Breivik, 5074 Godvik, Norway
Filed Oct. 11, 1978, Ser. No. 950,287
Claims priority, application Norway, Oct. 20, 1977, 773596; Aug. 31, 1978, 782965
Int. Cl.³ B65H 17/38
U.S. Cl. 29—121.1 **20 Claims**

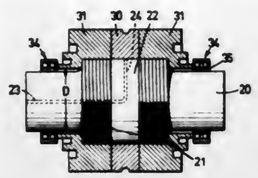


1. Mesh distribution wheel for handling seine lines or like net materials and provided with a series of pins directed radially outwards, said pins being adapted to engage their respective meshes in a series of meshes in said seine line or like net material and being arranged in series with a mutual pitch corresponding to the number of divisions of the series of meshes at a definite degree of mesh inlay and wherein the pins, at least when regarded in the one lateral direction, have a saw-toothed course from foot portion to outer portion and each pin in a region adjacent its root portion has a definite cross-section selected from (a) one corresponding to the area of a mesh opening in a mesh having a definite mesh size and definite mesh form and (b) one which together with a neighbouring pin defines a cross-section corresponding to the area of a mesh opening in a mesh having a definite mesh size and definite mesh form.

4,274,185
ROLL ASSEMBLY FOR USE IN ROLLING A WIRE ROD
Teruo Mifune; Keiji Noto, both of Muroran; Yasuo Otsu, Amagasaki, and Kotaro Hagiwara, Takarazuka, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Tokyo, Japan
Continuation of Ser. No. 812,627, Jul. 5, 1977, abandoned. This application Feb. 28, 1980, Ser. No. 125,748
Int. Cl.³ B21B 31/08
U.S. Cl. 29—123 **5 Claims**

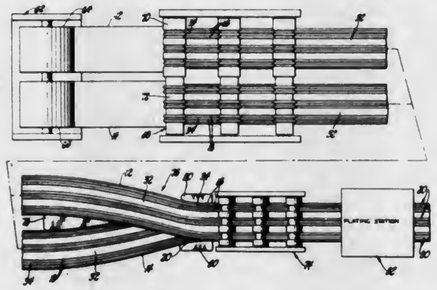
1. A roll assembly for use in rolling a wire rod comprising an arbor having a slightly tapered periphery at the middle portion thereof, a liquid pressure applying channel provided in the arbor extending to the tapered periphery, a cemented carbide sleeve fitted with an interference fit around the tapered periphery, opposing tightening means securely holding the sleeve by constricting it at both ends, and a roll neck bearing mounted

around each end portion of the arbor, at least one of said opposing tightening means being a tightening ring threaded onto the arbor, the ring having an integral fillet member at the



end remote from the sleeve with the inside diameter of the fillet member being larger than the outside diameter of the inner race of the roll neck bearing.

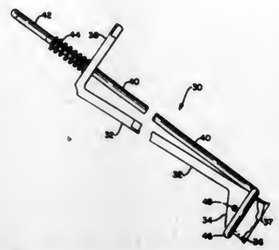
4,274,186
HEAT EXCHANGER
William L. Pringle, Grosse Pointe Shores, Mich., assignor to United States Steel Corporation, Pittsburgh, Pa.
Division of Ser. No. 910,129, May 26, 1978, abandoned. This application Oct. 1, 1979, Ser. No. 80,241
Int. Cl.³ B23P *15/26*
U.S. Cl. 29—157.3 D 3 Claims



1. A method of making a heat exchanger assembly including the steps of; rolling longitudinal grooves in a pair of plates on a common mill, aligning the plates and mating the longitudinal grooves to define fluid-carrying channels by crossing over the plates to allow the plates to be aligned with the grooves mating to define fluid-carrying channels and simultaneously seam-welding the plates together along engaging surfaces of the plates.

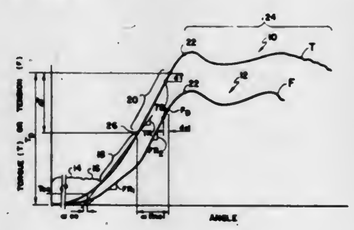
4,274,187
SPRING INSTALLATION TOOL FOR ARTICLE LOADING MACHINE
P. Eric Painter, Stow, and Curtis P. Fisher, Cuyahoga Falls, both of Ohio, assignors to A-T-O, Inc., Willoughby, Ohio
Filed Jun. 20, 1979, Ser. No. 50,181
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—225 7 Claims

1. A tool for installing a spring on an article loading machine, comprising:
a frame member;
a spring receiving means connected to a first end of said frame member for receiving a spring thereon, said spring receiving means having a tapered bore passing therethrough and a flared lip about an end circumference thereof; and



reciprocating means interconnected with said frame means between a second end thereof and said first end for removing the spring from said spring receiving means.

4,274,188
TENSION CONTROL OF FASTENERS
Siavash Eshghy, Pittsburgh, Pa., assignor to Rockwell International Corporation, Pittsburgh, Pa.
Continuation of Ser. No. 912,151, Jun. 2, 1978, Pat. No. 4,179,786, which is a continuation-in-part of Ser. No. 712,554, Aug. 9, 1976, abandoned, and a continuation-in-part of Ser. No. 766,429, Feb. 7, 1977, Pat. No. 4,106,570. This application Aug. 17, 1979, Ser. No. 67,510
Int. Cl.³ B23P *19/06*
U.S. Cl. 29—240 2 Claims

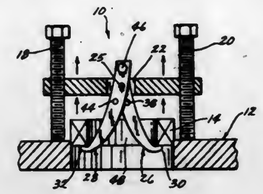


1. Apparatus for tightening seriatim a multiplicity of substantially identical joints having components including at least one threaded fastener to a final desired stress value, below the yield point of any component that can be correlated with stress, appearing in the fastener, comprising
means for rotating the fastener;
means for monitoring a tension related function applied to the fastener and a function of rotation applied to the fastener;
means for calculating a stress value in the fastener below the yield point of any joint component that can be correlated with stress and the location thereof; and
means for stopping the rotating means at a second angle location measured from the first mentioned location.

4,274,189
PILOT BEARING PULLER
Louis M. Conover, 808 S. St. Joseph Ave., Hastings, Nebr. 68901
Filed May 19, 1980, Ser. No. 150,928
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—256 5 Claims

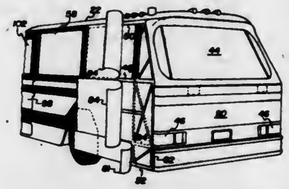
1. An apparatus for pulling a bearing from a flywheel or the like, comprising,
a support means,
a pair of spaced-apart bolt members threadably mounted in said support means,

said support means having a central opening formed therein between said bolt members,
first and second jaw members pivotally mounted on said support means within said central opening and extending therefrom for engagement with the inner diameter of the bearing,
one end of each of said bolt members being adapted to be placed in engagement with the flywheel on opposite sides of the bearing whereby said jaw members will pull the



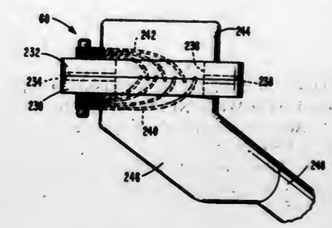
bearing from the flywheel when said bolt members are threadably rotated in one direction relative to said support means,
each of said jaw members having spaced-apart first, second and third openings formed therein and wherein a third bolt member extends through said support means and the said second openings in said jaw members,
and a fourth bolt member extending through the said first openings in said jaw members to limit the pivotal movement thereof.

4,274,190
TRANSIT BUS MODERNIZATION METHOD
Michael J. Slattery, Roslindale, Mass., assignor to Charles J. Monahan, Quincy, Mass.
Filed May 11, 1979, Ser. No. 38,269
Int. Cl.³ B23P *7/00*
U.S. Cl. 29—401.1 7 Claims



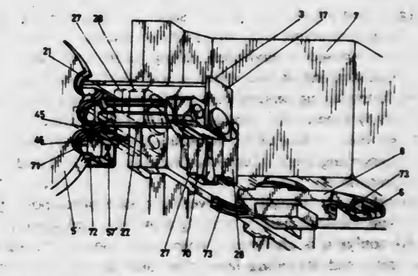
1. A method of modernizing the exterior of a bus and converting same from monocoque to frame construction, said method comprising:
(a) stripping away the existing sheathing along the sides of said bus beneath the roof line;
(b) removing the existing window frames and the emergency door from the sides of said bus;
(c) fabricating a rigid generally plane-defining side framework between said side sheathing support beams on each side of said bus to support an exterior skin;
(d) installing new framed windows and an emergency door in said framework;
(e) stretching an exterior skin over said framework; and
(f) attaching said skin to said framework.

4,274,191
METHOD AND APPARATUS FOR GAPPING WOVEN SLIDE FASTENER STRINGER HAVING ELEMENTS MOUNTED ON LONGITUDINAL MEMBER IN EDGE OF TAPE
James K. Ervin, Meadville, and Nicholas L. Salamon, Linesville, both of Pa., assignors to Textron, Inc., Meadville, Pa.
Filed May 21, 1979, Ser. No. 40,790
Int. Cl.³ B23P *19/04*; B26D *1/06*
U.S. Cl. 29—408 8 Claims



1. A method of gapping a slide fastener stringer which has a woven tape and a plurality of spaced fastening elements secured on a longitudinal support member which is secured in the edge of the tape by parallel weft thread segments of the tape extending around the support member between the fastening elements, the method comprising the steps of
severing the longitudinal member in the spaces between fastening elements on each side of each of a group of the fastening elements, and
pulling the slide fastener stringer longitudinally between opposed biased blades engaging the elements on opposite sides of the slide fastener stringer to strip the group of fastening elements from the tape.

4,274,192
TOOL SHIFTER
Michio Norimatsu, Ozza Koguchi, Japan, assignor to Kabushiki Kaishi Yamazaki Tekkosho, Aichi, Japan
Continuation-in-part of Ser. No. 875,537, Jan. 30, 1978, abandoned. This application Sep. 28, 1979, Ser. No. 79,994
Claims priority, application Japan, Feb. 4, 1977, 52-12025
Int. Cl.³ B23Q *3/157*
U.S. Cl. 29—568 4 Claims



1. A tool shifter for a machine tool having a magazine for holding tools with their axes at an angle to the main shaft of the machine tool and having a tool exchange means for exchanging tools on said main shaft, said tool shifter comprising guide means for extending along an axis between the magazine and the tool exchange means, clamp means for engaging the shank of an exchangeable tool and movable along said guide means between a first position adjacent the magazine at which said clamp means is in position to grasp a tool shank of a tool in the magazine and a second position adjacent the tool exchange

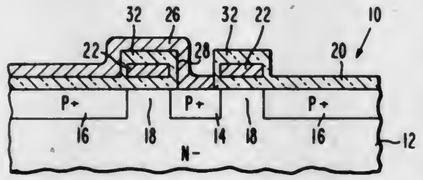
means at which said clamp means is in a position to deliver a tool to the tool exchange means, means on said guide means for turning said clamp means around the axis of the guide means as said clamp means moves along said guide means, clamp opening means adjacent said one position engageable by said clamp means for opening said clamp means when said clamp means engages said clamp opening means, and a single hydraulic cylinder connected to said clamp means for moving said clamp means back and forth along said guide means between said first and second positions.

4,274,193

METHOD FOR MAKING A CLOSED GATE MOS TRANSISTOR WITH SELF-ALIGNED CONTACTS

Rodney L. Angle, Somerville, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jul. 5, 1979, Ser. No. 54,981
Int. Cl.³ H01L 21/26
U.S. Cl. 29—571 17 Claims



1. The method of making a closed gate geometry MOS transistor comprising the steps of:

(a) selecting a semiconductor substrate of a first conductivity type;

(b) forming a first insulating layer on a surface of said substrate;

(c) forming a conductive layer of semiconductor material on the surface of said first insulating layer;

(d) forming a second insulating layer on the surface of said conductive layer;

(e) forming a masking layer on the surface of said second insulating layer;

(f) defining said masking layer into the form of closed gate geometries;

(g) removing the portions of said second insulating layer, said conductive layer, and said first insulating layer which are exposed through said making layer, there being some undercutting of said masking layer during this step;

(h) introducing conductivity modifiers, opposite in conductivity type to the conductivity of said substrate, into the exposed surface of said substrate, said conductivity modifiers being used to form the drain and source of said MOS transistor;

(i) reforming an insulating layer over the exposed portions of said substrate and on the edges of said conductive layer;

(j) applying a photoresist layer over the surface of said reformed insulating layer, and defining and developing said photoresist layer to expose portions of said reformed insulating layer where ohmic contact is to be made to said substrate;

(k) removing the portions of said reformed insulating layer which directly underlies the edges of said masking layer;

(l) removing the remaining portions of said photoresist layer and said masking layer; and

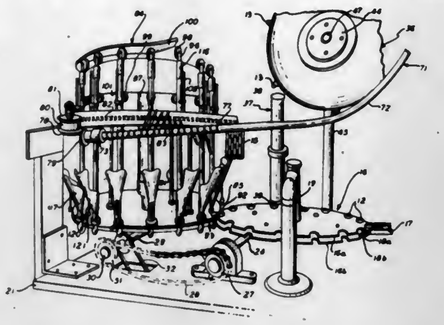
(m) applying a metal layer over the surface of said device, and defining said metal layer to provide ohmic contacts and interconnects.

4,274,194

MACHINE FOR ASSEMBLING ELASTIC BULBS TO FRAGILE TUBULAR ELEMENTS

Olympio C. Rizzo, R.D. #Box 231, Bloomsbury, N.J. 08804

Filed Aug. 29, 1978, Ser. No. 937,747
Int. Cl.³ B23Q 15/00; B23P 21/00
U.S. Cl. 29—717 9 Claims



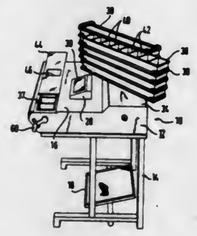
1. Apparatus for automatically assembling the cap, bulb and pipette components of liquid droppers comprising, a rotatable feed wheel having a plurality of receptacles spaced circumferentially therearound, means for rotating said feed wheel, a cap feeding station for placing caps in said receptacles as the feed wheel rotates past said cap feeding station, a bulb feeding station for placing bulbs in said caps as the feed wheel rotates past said bulb feeding station, a rotatable assembly wheel positioned adjacent said feed wheel and having a plurality of assembly fixtures spaced therearound, means for transferring the respective cap and bulb assemblies from the feed wheel to the assembly fixtures on said assembly wheel, means for inserting a pipette into each said assembly fixture after a cap and bulb has been transferred thereto, and means for pressing the cap, bulb and pipette in each said assembly fixture into fully assembled relationship.

4,274,195

ASSEMBLY APPARATUS, PARTICULARLY FOR THE ASSEMBLY OF COMPONENTS UPON CARRIER PLATES

Bernhard Spörer, Münchener Strasse 12a, D-8011 Faistenhaar, Fed. Rep. of Germany

Filed May 8, 1979, Ser. No. 37,116
Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821926
Int. Cl.³ H05K 3/30
U.S. Cl. 29—741 20 Claims



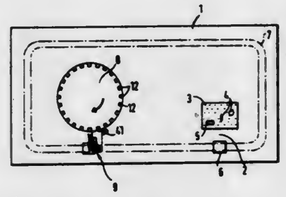
1. Assembly apparatus particularly for use in the manual assembly of components upon carrier plates comprising: means defining a working surface having removal opening means formed therethrough through which said components may be grasped by an operator; receptacle means including individual discrete receptacles located beneath said working surface and accessible to an operator through said removal opening means; closed loop support means having said receptacle means mounted thereon for moving said receptacle means through a closed loop path in first generally parallel opposed directions relative to said working surface; guide frame means having said closed loop support means operatively associated therewith and movable relative thereto for moving said receptacle means relative to said working surface in second generally parallel opposed directions perpendicular to said first directions; said closed loop support means and said guide frame means cooperating to enable said receptacle means to be driven to selectively bring said discrete receptacles individually into operative alignment with said removal opening means to enable components contained therein to be removed by an operator.

4,274,196

ASSEMBLY TABLE FOR CONDUCTOR BOARDS

Alfred Lemmer, Machtilfingerstrasse 24, D-8000 Munchen 70, Fed. Rep. of Germany

Filed Oct. 15, 1979, Ser. No. 84,827
Claims priority, application Fed. Rep. of Germany, Oct. 24, 1978, 2846262
Int. Cl.³ H05K 3/30
U.S. Cl. 29—741 28 Claims



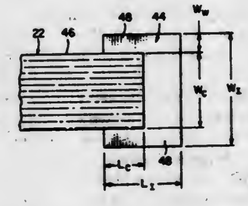
1. An assembly table for assembling conductor boards, said table comprising means forming an assembly station, a magazine in which integrated circuits are contained in a predetermined arrangement so that they may be picked up in preassigned position with integrated circuit assembly tongs and inserted into conductor boards at the assembly station, a plurality of trays having recesses formed in them to receive said integrated circuits, means for conveying said trays from said magazine to said assembly station and transfer means positioned at said magazine and movable in one direction to pick up an integrated circuit from said magazine and in another direction to place said integrated circuit into a recess in one of said trays.

4,274,197

METHOD OF MAKING AN ENVIRONMENTAL SEAL

Gary C. Bethurum, El Segundo, Calif., assignor to Thomas & Betts Corporation, Raritan, N.J.

Filed Sep. 21, 1979, Ser. No. 77,560
Int. Cl.³ H01R 43/04
U.S. Cl. 29—861 6 Claims



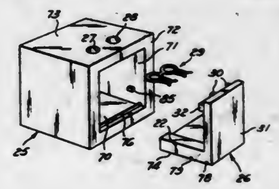
1. The method of environmentally sealing the end of a severed multiconductor cable having a first surface and a second surface and sealing joints between the conductors of such cable and electrical contacts to be placed in insulation-piercing relation with said cable, comprising the steps of: forming a blank of a soft, pliant tape having a flowable pressure-sensitive adhesive on both surfaces thereof, said blank being at least as wide as such cable and having a length at least equal to the lengths between such joints and such cable end; adhering a portion of said blank to a first surface of such cable adjacent its severed end; extending the remainder of said blank over the severed end of such cable to overlie the second surface of such cable adjacent such severed end; adhering the overlying portion of said blank to said second surface; and joining said contacts and said conductors by forcing said contacts through said blank.

4,274,198

SELF-STRIPPING ELECTRICAL TERMINAL

Jean-Claude A. Bouley, Dole, France, assignor to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Feb. 9, 1979, Ser. No. 10,667
Claims priority, application France, Feb. 20, 1978, 78 04786
Int. Cl.³ H01R 43/00, 11/12
U.S. Cl. 29—866 14 Claims



11. A self-stripping electrical connector for making electrical connection with at least one insulated electric wire, comprising: an insulating box member defining an inner chamber; a movable member slidably received within said chamber; and terminal means mounted on said movable member and movable therewith, said terminal means comprising a forward pair of U-shaped portions and a rearward pair of U-shaped portions, the U-shaped portions of each pair being in a common plane generally parallel to the U-shaped portions of the other pair, each U-shaped portion of each pair being formed of a base and two branches extending therefrom, said branches defining an open ended slot therebetween to resiliently engage the conductor of an insulated wire, each U-shaped portion further including an opening between said branches adjacent said base and said opening being wider than said slot to receive an insulated wire inserted thereinto in a direction generally transversely of the plane of said U-shaped portion, said box including a bore in alignment with each of said openings when said movable member is in a first position and said opening is positioned for accepting the insulated wire, and said bore is aligned with a portion of the respective slot remote from said opening when said movable member is in a second position, the slots of said forward pair of U-shaped portions being in alignment with the slots of said rearward pair of U-shaped portions, and the slots of said forward pair of U-shaped portions being wider than the slots of said rearward pair of U-shaped portions so that narrow diameter wires can be inserted through the slots of said forward U-shaped portions without interference for termination with the rearward U-shaped portions.

4,274,199
ELECTRIC SHAVER
George P. Gallanis, Des Plaines; Albert R. Spohr, Park Ridge, and Robert R. Lube, Countryside, all of Ill., assignors to Sunbeam Corporation, Chicago, Ill.
Division of Ser. No. 46, Feb. 2, 1979, Pat. No. 4,233,733. This application Apr. 3, 1980, Ser. No. 137,075
Int. Cl.³ B26B 19/00
U.S. Cl. 30—34.1 16 Claims



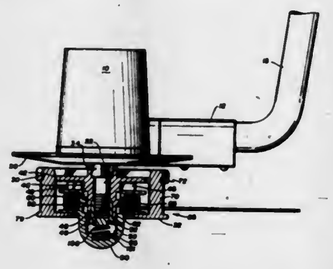
1. A shaver comprising a housing, a shaving head removably mounted on said housing, a clipper assembly mounted in said shaving head, drive means mounted in said housing for driving said clipper assembly, said clipper assembly including a movable cutting blade reciprocated by said drive means and a guard assembly adjacent said blade, said guard assembly including a clipper guard slideably mounted in said shaving head for movement toward and away from said blade, a slide member slideably mounted on said shaving head, said clipper guard including an elongated, sloped slot and a cut-away portion with an inclined edge, said inclined edge including at least one indentation, said slide member including at least one spring arm having a button slideably positioned in said sloped slot and a pin mounted in said slide member and biased against said inclined edge.

4,274,200
LOCK OPEN FOLDING KNIFE WITH SIDE RELEASE
James E. Coder, Bradford, Pa., assignor to W. R. Case Sons Cutlery Company, Bradford, Pa.
Filed Dec. 5, 1979, Ser. No. 100,392
Int. Cl.³ B26B 1/00
U.S. Cl. 30—161 2 Claims



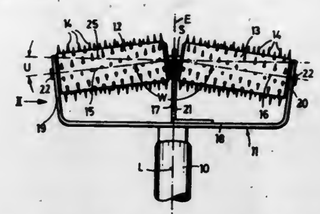
1. In a folding knife including a handle, a blade and blade pivot element to permit the blade to be rotated in a plane from a closed to an open position comprising
(a) a rotatable blade having a tang with a tang notch therein;
(b) a handle in turn comprising a central tumbler spring member including a base portion including a notch therein remote from the blade and a flexible blade-engageable arm; a first side frame piece on one side of the central member and a second side frame piece on the other side of the central member substantially parallel to and spaced apart from the first frame piece with both pieces being secured to the central member;
(c) a cavity within the handle defined by the spaced-apart frame pieces and the arm of central member, and further defined by the notch in the base of the central member, a first slot in the first frame piece and a second slot in the second frame piece;
(d) a flexible lock spring mounted for operable movement within said handle cavity in a plane perpendicular to the plane of rotation of the blade to lock and unlock the blade, said spring having a blade-remote end fixed in said central member base portion notch, a projection extending into the slot of second frame piece, an elbow portion of the spring accommodated by and positioned in a slot in the first frame piece during movement of the spring, and a blade-adjacent end portion releasably engageable with the blade tang.

4,274,201
ROTARY CUTTING ASSEMBLY WITH FILAMENT FEED
Gary R. Oberg, and Robert L. McMickle, both of Spirit Lake, Iowa, assignors to Berkley and Company, Inc., Spirit Lake, Iowa
Division of Ser. No. 877,248, Feb. 13, 1978, which is a continuation of Ser. No. 733,286, Oct. 18, 1976, abandoned. This application Jan. 25, 1979, Ser. No. 6,447
Int. Cl.³ A01D 50/00
U.S. Cl. 30—276 28 Claims



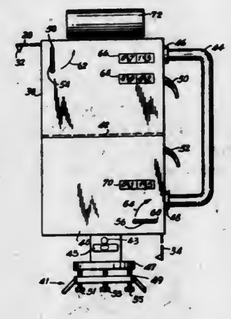
1. A rotary cutting assembly comprising, a driven member rotatable in a cutting plane about a drive axis and having a concentrically located spool storage area therein, said driven member including first and second parts positioned in spaced parallel relationship and defining the spool storage area within the driven member, means included in the first part of the driven member to couple the first part to a driven shaft defining the drive axis for the driven member, coupling means positioned on the second part to space and releasably couple the second part to the first part of the driven member, ratchet means positioned on said first part of said driven member, a spool with cutting line positioned thereon mounted over the ratchet means on said first part of driven member and having second ratchet means associated therewith to cooperate with the ratchet means on the first part, a ground engaging hub coupled to said spool and adapted to slide said spool and said ratchet means associated therewith toward said first part to allow relative rotation between said spool and said first part to unwind a predetermined amount of cutting line thereon from said spool, and bias means biasing said spool and said hub toward said second part, one end of said cutting line extending from said spool between the coupling means for rotation in the cutting plane upon rotation of the driven member and being supported in part on said coupling means.

4,274,202
PERFORATING DEVICE
Detlef Petrick, Wermelskirchen, Fed. Rep. of Germany, assignor to Bonnwerke Tigges & Winckel GmbH & Co. KG, Velbert, Fed. Rep. of Germany
Filed Jan. 25, 1980, Ser. No. 162,734
Claims priority, application Fed. Rep. of Germany, Jul. 9, 1979, 2927677
Int. Cl.³ B26F 1/00
U.S. Cl. 30—365 10 Claims



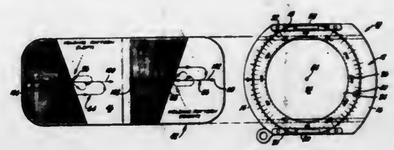
1. A device for perforating wallpaper to be stripped from a wall comprising an elongated handle; supporting means on said handle; a pair of elongated rollers mounted on said supporting means for free rotation about respective axes which include with one another an angle having an apex located intermediate said rollers and a plurality of spikes arranged on said rollers and projecting radially with reference to the respective axis so that, upon reciprocating movement of said device over wallpaper to be perforated said spikes will have respective components of movement lengthwise and inclined to the direction of reciprocation and thus perforate the wallpaper in form of elongated holes through which liquid may subsequently reach the rearside of the wallpaper.

4,274,203
LEVEL DEVICE
Anthony J. Vasile, 68 Grandview Ave., Monsey, N.Y. 10952
Filed Sep. 24, 1979, Ser. No. 78,172
Int. Cl.³ G01B 3/10, 11/00
U.S. Cl. 33—1 LE 19 Claims



1. Measuring apparatus comprising a casing, a coiled measuring means within said casing and adapted for being selectively uncoiled and withdrawn from said casing and recoiled and retracted into said casing, sighting means on said casing to sight a target, said sighting means including level means for determining when said sighting means is sighting along a horizontal line, and a second coiled measuring means operatively associated with the first of said coiled measuring means and adapted for being uncoiled and recoiled in a direction generally perpendicular to that of the first said coiled measuring means, said sighting means including level means for indicating level along a line perpendicular to said horizontal line to establish a reference for said second measuring means.

4,274,204
AIRCRAFT TRAFFIC PATTERN COMPUTER
Freddy R. Self, 933 Parkside Dr., Richmond, Calif. 94803
Filed Oct. 9, 1979, Ser. No. 82,951
Int. Cl.³ G01C 21/20
U.S. Cl. 33—1 SD 4 Claims

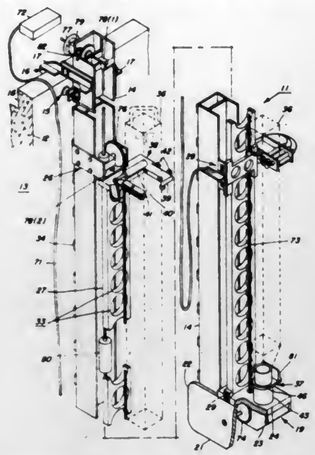


1. In an aircraft traffic pattern computer including a slotted frame including a window on at least one side thereof, and a compass rose having azimuth indicia adjacent said window, said compass rose being movable about a pivot, the improvement comprising:
a. a placard having at least a first surface, said placard slidably fitting within the slot of the frame such that said at least a first surface of said placard is viewable through the window of the slotted frame, said placard including means for representing at least a first and a second aircraft movement pattern each oriented in relation to reference point and at least one reference line upon said at least a first surface;
b. means for selectively aligning said first and second aircraft movement pattern reference points with the center of the compass rose, including providing the compass rose with a marking indicating the center point thereof; and
c. means for indicating at least one selected course heading for an aircraft upon selective alignment of said first and second aircraft movement pattern reference points with said marking indicating the center of the compass rose and alignment of said selected first and second aircraft movement pattern reference lines with the compass rose including at least one marking on said at least first surface of said placard indicating a particular course heading capable of being placed immediately adjacent the azimuth indicia of the compass rose.

4,274,205
MEASURING FIXTURE
James A. Starr, and James R. Punches, both of San Jose, Calif., assignors to General Electric Company, San Jose, Calif.
Filed Apr. 23, 1979, Ser. No. 32,112
Int. Cl.³ G21C 17/06; G01C 7/02
U.S. Cl. 33—174 L 23 Claims

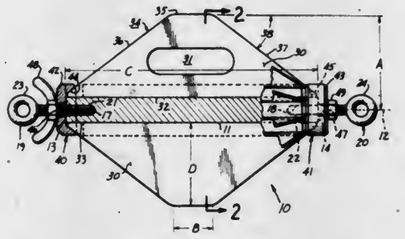
1. A device for measuring dimensional characteristics of an elongated component comprising: a vertically positioned elongated support beam; an elongated straight edge member supported and held in a position generally parallel to said support beam by support means at its ends secured to said support beam, the support means at one end of said straight edge providing freedom of longitudinal expansion and contraction of said straight edge and freedom from torsional constraint thereof, the support means at the other end of said straight edge providing torsional constraint whereby said straight edge is torsionally constrained only at said other of its ends; means for mounting said component in generally parallel alignment with said straight edge; a carriage mounted on said straight edge for movement along the length thereof adjacent said

component; and at least one measuring device mounted on said carriage for indicating variation of the distance between said



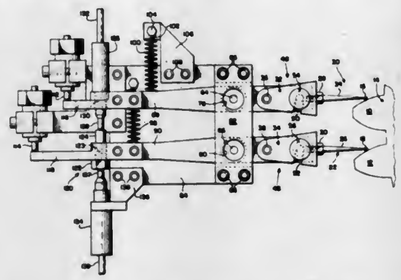
component and said carriage as said carriage is moved along said straight edge.

4,274,206
GO/NO GO PIPE DEFLECTION GAUGE
Jules Moolenaar, Santa Barbara, Calif., assignor to Phos Incorporated, Carpinteria, Calif.
Filed Jul. 16, 1979, Ser. No. 58,063
Int. Cl.[3] G01B 3/34
U.S. Cl. 33—178 B 10 Claims



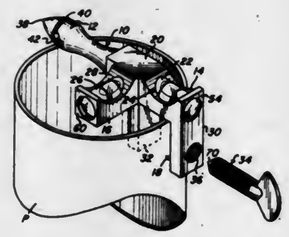
1. A go/no pipe deflection gauge to be pulled through a pipe to determine whether the pipe wall has been deflected from a circular cross-section, said gauge comprising:
a center spindle having an axis of length and a pair of ends; cable attachment means on both of said ends to which a cable can be attached for pulling said gauge through said pipe; and a plurality of vanes extending radially from said spindle, angularly spaced from one another and parallel to said axis, each of said vanes having an outer boundary which includes a central substantially straight segment parallel to said axis, and having a pair of ends, and a pair of end segments extending from respective ends of said central segment toward said axis, said vanes being stiff and resistant to bending, and there being no occlusion between any two adjacent vanes from the spindle to the outer boundaries, said spindle having a plurality of axially extending, laterally directed slots; base portions on each of said vanes fitting closely into said slots whereby to be held in place and restrained against substantial fittings; retainer means at each end of said spindle comprising a cap having a shoulder overhanging a respective end of each of said vanes to hold said vanes in said slot, and having lateral dimensions which do not appreciably exceed those of said spindle, whereby not to appreciably occlude the region between adjacent vanes, at least one of said caps being removable to permit removal and replacement of said vanes.

4,274,207
DIFFERENTIAL CHECKING HEAD
Heary J. Flair, Franklin Park, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.
Filed Jul. 7, 1980, Ser. No. 166,208
Int. Cl.[3] G01B 5/20, 7/28
U.S. Cl. 33—179.5 R 11 Claims



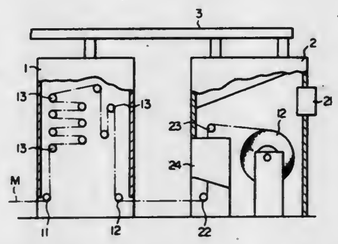
1. A contact sensor for sensing workpiece profiles comprising a frame, first and second sensing fingers which contact said workpiece profile, first and second sensing arms pivotally mounted about first and second pivot points, respectively, which support said first and second sensing fingers, respectively, a first sensor secured to said first arm and having a moveable operating means, said first pivot point for said first sensing arm being located intermediate said first sensor and said workpiece and said second pivot means being located intermediate said operating means and said workpiece, actuator means secured to said second arm so that said actuator means remains in contact with said operating means as said sensing arms undergo pivotal motion in response to the motion of said sensing fingers on the workpiece profile which allows said sensor to develop an output signal that is representative of the differential motion of said sensing fingers, and resilient return means for returning said sensing arms to an initial position when said sensing fingers are removed from contact with said workpiece profile.

4,274,208
PRECISION BENDING LEVEL
James E. Yakkel, 18576 SE. 246 Pl., Kent, Wash. 98031
Filed Aug. 31, 1979, Ser. No. 71,138
Int. Cl.[3] G01C 9/28
U.S. Cl. 33—371 9 Claims



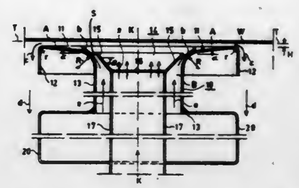
1. A precision bending level, comprising
(a) an elongated body aligned along a longitudinal axis having a rear and front end, the body having at the rear end a handle with an end knob and a tapered waist forward of the knob; and forward of the handle having a shank and first level vial barrel respectively axially aligned, having mutually coplanar top, bottom, and opposite side surfaces, the level vial barrel having a level vial therein axially aligned with said shank and having an end wall at the front end of the axis and perpendicular thereto, and having a level vial viewing port in the top surface of the level vial barrel;
(b) a second level vial barrel connected to said body along a transverse axis perpendicular to the axis thereof and having top and bottom surfaces coplanar with the top and bottom surfaces of said shank and first level vial barrel, and forward and rearward side surfaces perpendicular to and joined to one of said opposite side surfaces of the shank and first level vial barrel, the second level vial barrel having a level vial axially aligned with the transverse axis, a level vial viewing portion in said top surface, and an end wall perpendicular to the transverse axis; and
(c) an attaching fork depending from the bottom side of the body.

4,274,209
APPARATUS FOR IMPROVED AFTERTREATMENT OF TEXTILE MATERIAL BY APPLICATION OF MICROWAVES
Bunshire Kawaguchi, Kyoto, Japan, assignor to The Ichikin, Ltd., Japan
Filed Dec. 28, 1979, Ser. No. 107,790
Int. Cl.[3] F26B 3/34
U.S. Cl. 34—1 4 Claims



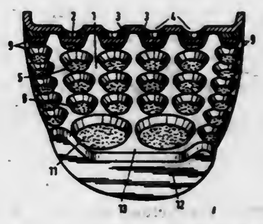
1. Apparatus for improved aftertreatment of textile material by application of microwaves comprising
a preparatory heating chamber arranged on the travelling path of said textile material which said textile material travels through and is provided with means for feeding steam into the interior of said chamber, and
an almost confined microwave irradiation chamber arranged on the downstream side of said preparatory heating chamber,
said microwave irradiation chamber being provided with means for winding up said textile material into a roll, means for rotating said roll following a programmed sequence, an applicator of said microwaves and means for feeding steam into the interior of said microwave irradiation chamber.

4,274,210
GAS NOZZLE FOR USE IN TREATING MATERIAL WEBS
Charles Stengard, Turku, Finland, assignor to Valmet Oy, Finland
Filed Sep. 11, 1979, Ser. No. 74,558
Claims priority, application Finland, Sep. 11, 1978, 782774
Int. Cl.[3] F26B 13/20
U.S. Cl. 34—156 10 Claims



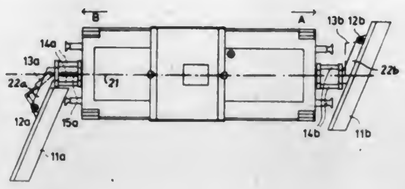
1. A nozzle for use in connection with web treatment apparatus whereby a gaseous medium is directed into contiguity with the web and wherein the web is supported without contact for treatment, comprising: a carrying surface exteading substantially parallel to the web; guide members defining an annular slit located in a central region of said carrying surface so that said carrying surface surrounds said annular slit, said guide members being formed such that gaseous medium flowing therethrough will flow in substantial contiguity with said carrying surface in a substantially radial flow field relative to said annular slit and in a direction substantially parallel to the web; and means for directing the flow of gaseous medium into the nozzle, whereby the gaseous medium exits from said annular nozzle slit and flows in substantially contiguity with said carrying surface in a substantially radial flow field relative to said annular slit and in a direction substantially parallel to the web.

4,274,211
SHOE SOLES WITH NON-SLIP PROFILE
Herbert Funck, Am Wasserbogen 43, 8032 Gräfelfing-Lochham, Fed. Rep. of Germany
Filed Mar. 28, 1979, Ser. No. 25,448
Claims priority, application Fed. Rep. of Germany, Mar. 31, 1978, 2813958
Int. Cl.[3] A43B 13/12, 13/18, 13/20; A43C 15/00
U.S. Cl. 36—30 R 9 Claims



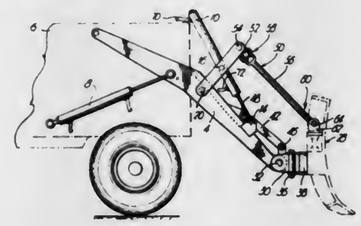
1. Shoe soles made of flexible rubber material with non-slip profiling on the wearing side, comprising: at least a section of the shoe sole which covers the ball of the foot having two largely flat sole layers of soft flexible deformable sole material, said sole layers having holes of a preset shape and size and which remain open, layer elements of a bottom layer of the sole being directed towards said holes in the top layer of the sole, layer elements of both layers of the sole being connected integrally on all sides by sloping wall sections limiting the holes, both of said sole layers providing resilience to the sole, parts forming the lower layer with holes being relatively wide.

4,274,212
FLOW APPARATUS FOR WORK VEHICLES
Matti Kurkela, Tampere; Leo Lahtinen, Jyväskylä, and Raimo Ylivakeri, Pirkkala, all of Finland, assignors to Valmet, Finland
Filed Oct. 16, 1979, Ser. No. 85,296
Claims priority, application Finland, Oct. 19, 1978, 783192
Int. Cl.³ E01H 8/04; E02F 5/22
U.S. Cl. 37—29 7 Claims



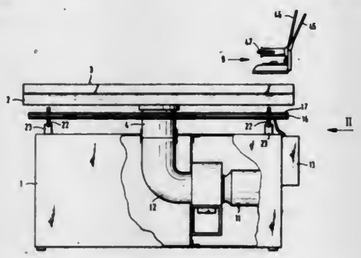
1. In combination with a work vehicle such, for example, as a work vehicle which travels on rails, said work vehicle having first and second ends constituting front and rear ends depending on the direction of movement of the vehicle and a center-line extending in the direction of movement thereof, a plow assembly comprising:
at least one plow plate;
means for pivotally mounting said at least one plow plate on one of said first and second ends of said vehicle so that said plow plate is pivotable through an angle of about 180° between a front plowing position in the track of the vehicle and a slide plowing position on the side of the vehicle about a vertical axis which is laterally offset to one side of said vehicle center-line; and
means for pivoting said at least one plow plate,
whereby as the driving direction of the vehicle is changed, said plow plate can be pivoted from the front plowing position to the slide plowing position and vice versa.

4,274,213
SCRAPER BLADE MOUNTING ASSEMBLY
Gene Yadlowsky, La Corey, Alberta, Canada
Filed Sep. 24, 1979, Ser. No. 78,501
Claims priority, application Canada, Oct. 2, 1978, 312454
Int. Cl.³ E02F 3/76
U.S. Cl. 37—117.5 1 Claim



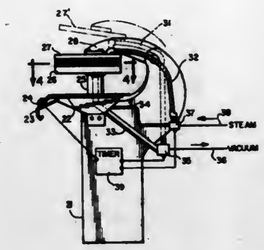
1. Apparatus for converting an earth or snow moving machine having a forwardly mounted bucket pivotable about a horizontal axis to a machine having a scraper or dozer blade pivotally mounted about a vertical axis, and wherein the machine having the forwardly mounted bucket is of the type having a pair of parallel forwardly projecting boom arms having forward ends separately pivotally secured to the bucket for movement of the bucket about a horizontal axis, and a pair of first hydraulic cylinder-pistons to control the positioning of the boom arms and elevation of the bucket, and one of a pair of second hydraulic cylinder-pistons carried by each boom arm to control positioning of the bucket with respect to a horizontal axis, the piston of each second hydraulic cylinder-piston being pivotally secured to its respective boom arm and the cylinder of each second hydraulic cylinder-piston being pivotally secured to an upstanding link arm, the lower end of each link arm being pivotally secured to its respective boom arm and the upper end of each link arm being pivotally secured to one of a pair of link rods which extend forwardly for separate pivotal securement to the bucket, and control valve means for effecting movement of the second cylinder-pistons,
the conversion apparatus comprising
a first cross-member for extending between and for pivotal securement to the forward ends of the boom arms and which first cross-member has a centrally positioned forwardly extending bracket,
and a scraper blade pivotally secured to the said bracket enabling movement of the blade about a vertical axis,
and a stabilizing link having a first end secured to the first cross-member and having a second end secured to a second cross-member which extends between and is fixedly secured to the boom axis at a distance rearwardly from the first cross-member, the stabilizing link maintaining the first cross-member in set angular relationship with respect to the boom arms,
and a pair of centrally articulated link members having forward ends separately pivotally secured to the scraper blade and rearward ends pivotally secured to the upper ends of their respective link arms,
the connections between the second cylinder-pistons and the control valve being reversed enabling angling of the scraper blade about a vertical axis.

4,274,214
IRONING TABLE
Georg Haüser, Munich, Fed. Rep. of Germany, assignor to J. Strobel & Sohne GmbH & Co., Munich, Fed. Rep. of Germany
Filed Oct. 4, 1978, Ser. No. 948,441
Claims priority, application Fed. Rep. of Germany, Oct. 4, 1977, 2744507
Int. Cl.³ D06F 69/00
U.S. Cl. 38—1 C 16 Claims



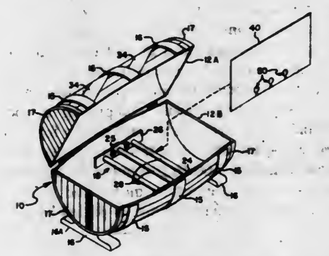
1. An ironing table comprising an ironing surface and a fan for applying suction or blowing air over the ironing surface and a switch to be actuated by an operator for electrically controlling the fan characterized in that the switch is a capacitive proximity switch having a first capacitor element in the form of a rod which extends in front of the ironing table below the ironing surface and is shaped to match the outline of the ironing surface, and a second shield shaped capacitor element of substantially semi-cylindrical cross-section is disposed between the ironing table and the first capacitor element.

4,274,215
METHOD OF SMOOTHING FLAT GOODS
Don L. Pertl, Columbia, S.C., assignor to Western Automation Corporation, Redmond, Wash.
Filed Jan. 9, 1979, Ser. No. 2,093
Int. Cl.³ D06F 71/34
U.S. Cl. 38—144 3 Claims



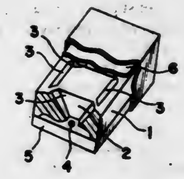
1. A method of smoothing flat goods comprising fabrics having no-iron characteristics consisting of the steps of first laundering said fabrics, thereafter disposing of said fabrics in a stack of layers of substantially uniform dimensions widthwise and lengthwise, the layers being superimposed upon one another to form a stack of multiple layers numbering 130 or less, thereafter subjecting said stack of layers to mechanical pressure between upper and lower platens, supplying a first flow of fresh steam to one of said platens and simultaneously applying suction to the other of said platens, thereby causing said first flow of the steam to flow through the entire stack in one direction for a predetermined time period while maintaining said mechanical pressure thereon, and subsequently supplying a second flow of fresh steam to said other platen and simultaneously applying suction to said one platen causing said second flow of the steam to flow through the entire stack in the opposite direction for a second predetermined time period while maintaining said mechanical pressure thereon, and thereafter releasing said mechanical pressure.

4,274,216
WINE LIST DISPLAY CONTAINER APPARATUS
Ron V. Boyd, 1318 Montegut St., New Orleans, La. 70117
Filed Feb. 4, 1980, Ser. No. 118,442
Int. Cl.³ G09F 19/00
U.S. Cl. 40—306 1 Claim



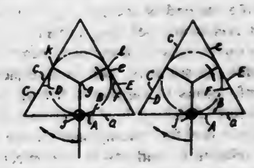
1. A wine list display container comprising:
a. a horizontal barrel having a horizontal division cut therethrough providing bisymmetrical upper lid and lower base portions, having coinciding mating face portions;
b. hinge means for connecting said upper lid and lower base portions, said lid being movable between closed and open positions;
c. base feet means on said base for securely supporting said horizontal barrel on a flat surface, such as a dinner table;
d. inner rack means within said barrel for supporting a plurality of substantially equal sized information cards; and
e. a plurality of equally sized information cards temporarily and removably attachable to said rack within said barrel, said cards and said rack being contained within said barrel when said lid assumes a closed position with said face portions mating.

4,274,217
DISPLAY DEVICE
Masaaki Ohshima, Tottori, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi and Tottori Sanyo Electric Co., Ltd., Tottori, both of, Japan
Filed Jul. 25, 1979, Ser. No. 60,627
Claims priority, application Japan, Jul. 25, 1978, 53-102858[U]; Oct. 30, 1978, 53-134888
Int. Cl.³ G09F 3/04
U.S. Cl. 40—451 15 Claims



1. A display device which comprises
at least one light emitting diode supported on supporting means,
means for supporting electric power to the light emitting diode,
light reflecting block means supported on the supporting means and having at least one light path defined by wall members surrounding the light emitting diode for reflecting the light emitted therefrom, said light path being provided with an elongated opening for forming a display segment opposed to the light emitting diode,
first composite lens means having a plurality of juxtaposed lens columns, positioned above the light reflecting block means to cover the elongated opening, and
second composite lens means having a Fresnel lens portion positioned relative to the first composite lens means, whereby the light emitted from the electrically activated light emitting diode is passed through the light path, the first composite lens means and the second composite lens means.

4,274,218
DISPLAY DEVICES
Brian F. Harvey, Liverpool, England, assignor to Colin Robert Alty, Lancashire, England
Filed Aug. 20, 1979, Ser. No. 68,105
Int. Cl.³ G09F 11/06
U.S. Cl. 40—505 4 Claims



1. A display device comprising a plurality of rotary carriers mounted for rotation about respective axes which are parallel

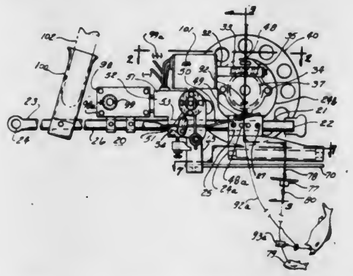
to each other, each of said carriers having mounted thereon, for rotation about respective second axes which are parallel to and equiangularly spaced about the said axis of rotation of the carrier, three supports each carrying means providing two elongate display faces which are disposed back to back and whose respective lengthwise axes are substantially coincident with the said second axis of rotation of the support, the arrangement of the carriers and supports being such that each display face on each carrier is capable of forming with a display face on each of the other carriers a substantially continuous display surface, motor means connected to rotate the carriers in rotational steps of 120° in unison to move each support on the carrier in turn into a position in which a display face thereof is in a display position, means associated with each carrier for rotating the support which is being moved out of said display position through 180° about said second axis during that 120° rotational step of the carrier, and means for oscillating each of the other two supports rotationally to and fro about their respective second axes during such 120° rotational step for providing a clearance between the longitudinal edges of the display faces on the support being rotated through 180° and the longitudinal edges of the display faces on the other two supports.

4,274,219

AUTOMATIC POWER FISHING REEL

Merton B. Way, 5300 John R. Rd., Troy, Mich. 48098

Filed Aug. 3, 1978, Ser. No. 930,817
Int. Cl.³ A01K 87/04
U.S. Cl. 43—27.2 3 Claims



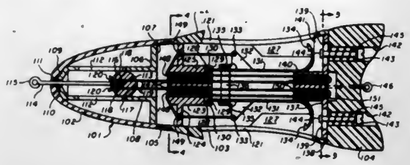
1. In trolling tackle, the combination comprising a fishing line, a sinker, a sinker release device connecting said sinker to said fishing line, a sinker line secured to the sinker for retrieving the sinker when it is released from the fishing line by said release device, a cantilevered pole having a free extremity, means for securing the end of the pole opposite said free extremity to a boat, reel means including a reel for the sinker line, power means for operating said sinker reel, means to secure the reel in an operative position on said pole adjacent the free extremity thereof, means to support a fishing pole for said fishing line inluding a fishing line guide member mounted adjacent said sinker reel for holding said fishing line in a selected position relative to said sinker line, means associated with said fishing line and sinker line for regulating the depth of said sinker, and means responsive to said fishing line for automatically de-energizing said depth regulating means when the sinker is lowered to a selected depth.

4,274,220

FISHING LURE

Thurmond J. Rogers, Jr., 7245 Fairbanks N., Houston, Tex. 77040

Filed Aug. 1, 1979, Ser. No. 62,721
Int. Cl.³ C10L 11/08
U.S. Cl. 43—35 1 Claim



1. A fishing lure comprising
a lure body having a leading end, a trailing end, and a peripheral surface or periphery, and having a longitudinally extending cavity therein and a plurality of longitudinally extending slots equally spaced around the periphery thereof and opening into said cavity,
a first fixed member positioned in said cavity toward said leading end of said lure body and including pivotal hook-supporting means
a plurality of hooks having hook ends and pivot ends,
said hooks each having lever abutments thereon and being pivotally supported on said fixed member hook-supporting means and guided in said slots between a retracted position within said lure body at the trailing end thereof and an extended position with said hook ends extending substantially outside said lure body,
elastically operated means comprising an elastic band surrounding said hooks and biasing said hooks toward said retracted position,
said elastically operated means including a ball shaped supporting member supported and guided for longitudinal movement in said cavity and operable upon movement in one direction to effect movement of said hooks to said extended position and upon movement in another direction to permit said hooks to move to said retracted position,
a second fixed member positioned in said cavity at the leading end of said lure body and being of tubular construction and having said ball-shaped member guided for longitudinal movement therein
a third fixed member at the trailing end portion of said cavity,
said first and third fixed members having a plurality of aligned apertures therein,
a plurality of lines connected from said ball-shaped member extending through apertures in said first and third fixed members and back through apertures in said first fixed member and connected to said lever abutments
fishing lure supporting means comprising a rod-shaped member having an eye outside said cavity for connection to a fishing line and extending into said cavity and secured in said ball-shaped supporting member for effecting longitudinal movement thereof to move said hooks to said extended position when said lure is pulled by a fish.

4,274,221

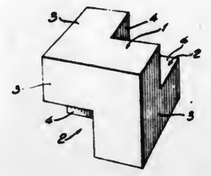
TOY BUILDING BLOCK

Gilles Boutet, 5127 Royale Ave., Boischatel, Canada (GOA 1HO)

Filed Dec. 13, 1979, Ser. No. 103,054
Int. Cl.³ A63H 33/06
U.S. Cl. 46—25 1 Claim

1. A set of toy building blocks, each block of the set being identical as to size and shape, each block consisting of a single piece in the shape of a cube having two cubic shaped recesses

located in two diagonally opposite corners of said block respectively, the remaining six corners of said cube being free of any such recess, each recess having three square faces each



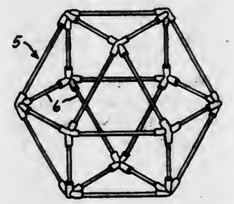
parallel to a side of said cube, said faces being equal in dimension and devoid of connecting means, and wherein said dimension is one-half the length of a side of said block, each of said faces and sides being uninterruptedly planar.

4,274,222

CONSTRUCTION ELEMENT AND THROWING TOY MADE THEREFROM

David C. Zahn, and Ancl B. Slovak, both of R.F.D. #1, Box 177, East Calais, Vt. 05650

Filed Apr. 13, 1979, Ser. No. 29,727
Int. Cl.³ A63H 33/10
U.S. Cl. 46—29 17 Claims



1. A flexible joint comprising:
first and second lengths of flexible material each comprising means therein for defining a respective transverse opening therethrough capable of accommodating the passage of the other length of material,
both of said opening defining means including elastic sidewall means for compressively surrounding said other length of material in its respective opening, and
one of said lengths having said other length of material held in its respective opening with both of said openings cooperating such that the outer elastic sidewall means compressively collapses the inner elastic sidewall means to form a generally cruciform flexible joint.

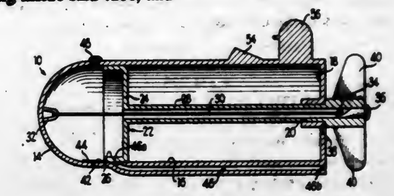
4,274,223

WATER TOY

Howard J. Morrison, Deerfield, and Harry Disko, South Barrington, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Feb. 8, 1980, Ser. No. 119,821
Int. Cl.³ A63H 23/06
U.S. Cl. 46—95 21 Claims

1. A water toy propelled by a jet of water, comprising:
an elongated body portion having an externally opening outlet nozzle;
an internal cylinder in said body, communicating with said nozzle for containing a variable volume of water;
a piston slideably disposed in said cylinder and means in said body for biasing said piston in one direction to decrease the volume of water by discharging a stream of water from said nozzle;
said biasing means including an elongated stretchable bias element secured at one end to said cylinder and at an opposite end to an elongated stem on said piston, said stem including a hollow tube in coaxial alignment with a longitudinal axis of said cylinder and said bias element extending inside said tube; and



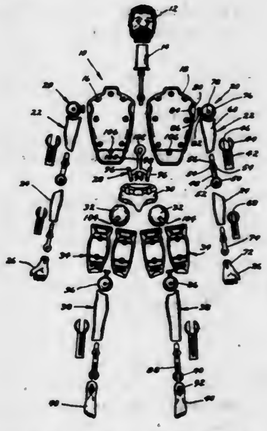
valve means in said body permitting the filling of said cylinder with water when said piston is moved in an opposite direction.

4,274,224

TOY FIGURE HAVING MOVABLE LIMB MEMBERS

William A. G. Pugh, Anstey; Robert I. Edmunds, Barwell; Peter B. Mansell, Hinckley; Robert Brochin, Thringstone, and Hubert A. Langton, Leicester, all of England, assignors to CPG Products Corp., Minneapolis, Minn.

Filed Nov. 17, 1978, Ser. No. 961,450
Claims priority, application United Kingdom, Nov. 21, 1977, 48465/77
Int. Cl.³ A63H 3/20, 3/46
U.S. Cl. 46—161 16 Claims



1. An articulated toy figure having a torso and at least one limb member connected to said torso for movement relative thereto, a skeletal structure for said limb member, said skeletal structure comprising first and second elements, said first element including an elongate tubular member having first and second ends, a first jointing portion formed at a first end thereof, said first jointing portion including a slot whose general plane is parallel to the length of said first element, for the rotatable reception of another jointing portion in the form of a tongue, said first jointing portion being substantially ball-shaped with a diametric slot, said second element including an elongate member a first end of which is insertable into the second end of the tubular member, said elongate member being axially rotatable relative to said tubular member, means for preventing said second element from being withdrawable relative to said tubular member, and a second jointing portion being formed at the second end of said second element, said

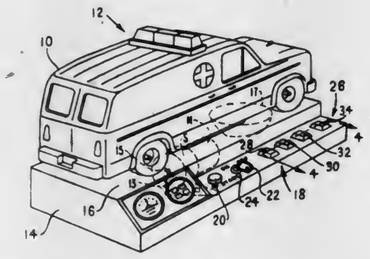
second jointing portion on said second element being a tongue whose general plane is parallel to the length of the element, for rotatable reception in a slot of another jointing portion, said tongue being disc-shaped and having a pair of oppositely extending axial pivot pins for rotatable reception in complementary apertures in the opposite walls of said slot.

4,274,225

MODEL WITH TWO-POLE MOTOR ACTUATED SIREN AND FLASHING LIGHTS

Robert J. Knauff, West Hollywood; David R. Fisher, Rancho Palos Verdes; Kenneth D. Johnson, Carson; Darrell B. Zipp, Newhall, and Frederick W. John, Pacific Palisades, all of Calif., assignors to Revell, Incorporated, Venice, Calif.

Filed Sep. 11, 1978, Ser. No. 941,287
Int. Cl.³ A63H *33/26, 5/00*
U.S. Cl. 46—227 **4 Claims**



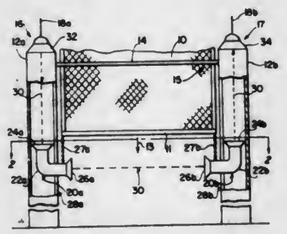
1. A model assembly including an electrical circuit for producing motor responsive effects, which comprises:
(a) a base,
(b) a model mounted on said base,
(c) a plurality of electrical circuit elements forming at least a part of an electrical circuit mounted in said base, said electrical circuit including at least one two-pole motor and at least one effect producing means in circuit therewith, and
(d) a control panel for said electrical circuit on said base, said control panel including start means comprising a lever pivotally mounted on the base and having a gear segment engaging a gear on and to impart sufficient rotary motion to said motor to start its rotation and pulsating effect upon said at least one effect producing means.

4,274,226

DETECTION OF OBJECT IN PATH OF MOVING GATE

Edward N. Evans, Long Beach, Calif., assignor to Park Mobile, Inc., New York, N.Y.

Filed Aug. 6, 1979, Ser. No. 63,868
Int. Cl.³ E05F *15/20*
U.S. Cl. 49—25 **16 Claims**



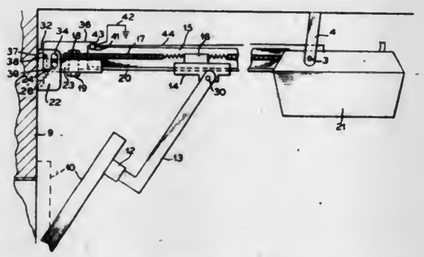
1. An electromagnetic radiation detection system for detecting when an object is located in the path of a sliding gate that travels between two hollow legs, said system comprising:
a source of electromagnetic radiation, fixed with respect to a first hollow leg and in communication therewith;
a detector of electromagnetic radiation fixed with respect to a second hollow leg and in communication therewith;
a sliding gate movable in a direction generally parallel to the legs;
a first redirecting means slidable in the first leg for receiving the radiation emitted from said source and redirecting the radiation toward said second leg;
a second redirecting means slidable in the second leg for receiving the radiation from said first redirecting means and redirecting the received radiation to said detector; and
means for moving said first and second redirecting means in said first and second legs respectively upon movement of said sliding gate such that the radiation from said source is projected in a beam that travels ahead of the sliding gate when sliding.

4,274,227

OBSTRUCTION SENSOR FOR ELECTRO-MECHANICALLY OPERATED GARAGE DOORS

Robert B. Toenjes, Waverly, Iowa, assignor to Chamberlain Manufacturing Corporation, Elmhurst, Ill.

Filed Aug. 30, 1979, Ser. No. 71,113
Int. Cl.³ E05F *15/02*
U.S. Cl. 49—28 **7 Claims**



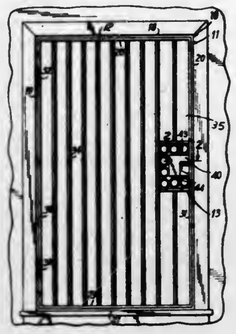
1. An obstacle reversing apparatus for a garage door operator comprising, a motor and motor control unit, support means pivotally supporting said motor and motor control unit, a longitudinal rail member with one end attached to said motor and motor control unit, a trolley connected to said door and movably mounted on said rail member, driving means mounted in said rail member for driving said trolley back and forth on said rail member and said driving means connected to said motor, a bracket means connected to the second end of said rail member to support it, a vertical slot formed in said bracket member, a transverse member attached to said second end of said rail member and receiveable in said slot of said bracket member, and a motor reversing switch connected to said motor mounted relative to said bracket and said second end of said rail member such that said reversing switch is actuated when an obstacle is encountered by said door which causes relative movement between said bracket and said rail due to the rails pivotal movement caused by the pivotal connection of said support means to said motor and motor control unit.

4,274,228

WINDOW GATE CONSTRUCTION

Witold Kondracki, New York, N.Y., assignor to Manhattan Protection, Inc., New York, N.Y.

Filed Oct. 3, 1979, Ser. No. 81,568
Int. Cl.³ E06B *3/68*
U.S. Cl. 49—56 **4 Claims**



1. In an improved security gate construction including a relatively fixed rectangular frame element adapted to be secured within a window opening, a rectangular foraminous gate element hingedly supported by said frame element for relative movement, and means for selectively fixing the position of said gate element in coplanar position relative to said frame element, the improvement in said last mentioned means comprising: a box-like housing secured to a first surface of said gate element, said housing including a plurality of walls defining an enclosure, and having an opening in at least one of said walls permitting limited access to said enclosure, said opening being positioned adjacent a free edge of said gate element, and configured to prevent manual access thereto from an oppositely disposed second surface of said gate element; bolt receiving means on said frame element, an elongated bolt in said housing having a first end selectively engaging said bolt receiving means to effect a locking function; means on said housing for supporting said bolt for sliding movement, resilient means continuously urging said bolt into engagement with said bolt receiving means; a bolt handle extending laterally from said bolt adjacent a second end thereof, said handle being moved interiorly of said housing upon moving said bolt to disengaged condition with respect to said bolt receiving means.

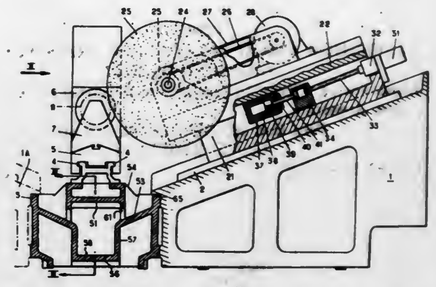
4,274,229

FRAMES OF GRINDING MACHINES

Paul Favrot, Gagny, France, assignor to Constructions de Clichy, France

Filed Nov. 17, 1978, Ser. No. 961,681
Claims priority, application France, Nov. 22, 1977, 77 34988
Int. Cl.³ B24B *5/02, 55/02*
U.S. Cl. 51—95 WH **2 Claims**

1. A production grinding machine for finishing a workpiece, the combination of a frame defining an upper stationary table having inclined slideways which terminate at a lower front edge of the stationary table;
a carriage, means supporting the carriage on the ininclined slideways of the stationary table, and means operable to move the carriage toward and away from the front edge,
a grinding-wheel and means mounting the grinding-wheel rotatably on the carriage,
an elongated bed disposed along the front edge of the stationary table,
said bed having a medial upper portion provided with slideways, and a movable table supported to move along the bed on the slideways,
a headstock and a tailstock carried respectively on the movable table and operable for supporting the workpiece,
said bed being hollow below said slideways and having top web means extending laterally from opposite sides of the slideways and terminated at side webs, and the side webs being terminated adjacent lower interior web means operable to define an interior chute positioned to receive flow from said side webs;
the top web means being provided with opening means in communication with the chute, and said side webs defining duct means therein to establish communication from above the top webs to the chute;



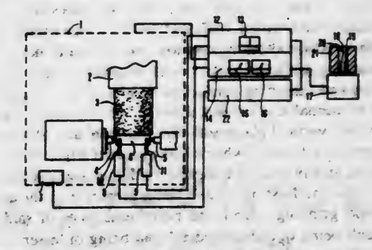
the top and interior web means further being inclined, and opening means at the lower end of the chute forming an outlet, and
said stationary table front edge positioned in flow communication with the bed chute,
whereby free-flowing paths are defined for carrying coolant liquid applied onto the grinding-wheel and draining therefrom and off the stationary table via the outlet and away from the grinding machine.

4,274,230

APPARATUS FOR CONTROLLING A MACHINE TOOL DURING THE MACHINING OF A FIRST WORKPIECE TO BE MATCHED WITH A SECOND WORKPIECE ALREADY MACHINED

Gerhard Thalheim, Künzi, Switzerland, assignor to Sidco, SA, Geneva, Switzerland

Filed Jul. 2, 1979, Ser. No. 54,223
Claims priority, application Switzerland, Jul. 6, 1978, 7352/78
Int. Cl.³ B24B *49/04*
U.S. Cl. 51—165 R **11 Claims**



1. Apparatus for controlling a machine tool during the machining of a part of a first workpiece to be matched with a part already machined of a second workpiece, comprising:
first measuring means adapted to cooperate with said part of the first workpiece for providing a first signal and a second signal for checking respectively two dimensions on two distinct sections of said part of the first workpiece;
second measuring means adapted to cooperate with said part already machined for providing a third signal for checking a dimension of the part already machined; and

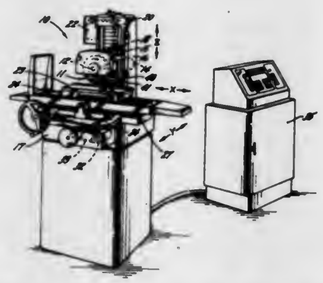
processing and control means coupled to the first and second measuring means to receive said first, second and third signal, the processing and control means being adapted to process the first and second signal for controlling and regulating the machine tool for correcting the deviations of the part of the first workpiece from a determined shape and to process the first and the third signal for controlling the machine tool for obtaining a pre-set matching between said parts.

4,274,231

METHOD AND APPARATUS FOR DRESSING A GRINDING WHEEL

James Verega, Cicero, Ill., assignor to Boyar-Schultz Corporation, Broadview, Ill.

Filed Dec. 20, 1978, Ser. No. 971,641
Int. Cl.³ B24B *53/14*
U.S. Cl. 51—165.71 4 Claims



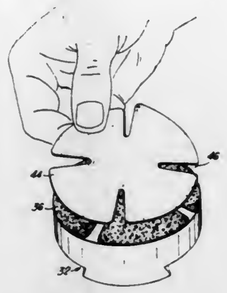
3. A grinding machine having a powerdriven grinding wheel rotatable about a generally horizontal axis which coincides with the axis of the wheel, a generally horizontal table underlying said grinding wheel and adapted to support a workpiece, a first reversible power-operated actuator for moving said grinding wheel upwardly and downwardly along a generally vertical path to establish the depth of cut of the grinding wheel into the workpiece, a second reversible power-operated actuator for moving said table transversely back and forth along a generally horizontal axis extending parallel to the axis of said grinding wheel to traverse the workpiece across the peripheral face of the grinding wheel, and two dressing wheels for dressing the peripheral face of said grinding wheel, said grinding machine being characterized in that said dressing wheels are movable transversely with said table and are mounted on said table to rotate about a common and generally horizontal axis coinciding with the axis of each dressing wheel and located below and extending parallel to the axis of said grinding wheel, the rotational axis of said dressing wheels being located in a common vertical plane with the rotational axis of said grinding wheel, said dressing wheels being located adjacent to but being spaced axially from one another with the axial spacing between the adjacent dressing wheels being greater than the axial width of said grinding wheel, the peripheral faces of said dressing wheels being of different shape and being of lesser axial width than the axial width of said grinding wheel, and power-operated means movable with said table for rotating said dressing wheels about their rotational axis whereby the peripheral face of said grinding wheel may be dressed by rotating all wheels about their respective axes, by moving said table transversely with said second actuator to traverse first one dressing wheel and then the other dressing wheel across said grinding wheel, and by moving said grinding wheel upwardly and downwardly with said first actuator to control the depth of cut of each dressing wheel into said grinding wheel.

4,274,232

FRICTION GRIP PAD

Stephen J. Wylde, Croydon, England, assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Jul. 7, 1978, Ser. No. 922,785
Claims priority, application United Kingdom, Sep. 14, 1977, 38352/77; Oct. 7, 1977, 41810/77
Int. Cl.³ B24B *13/02*; B24D *17/00*
U.S. Cl. 51—358 6 Claims



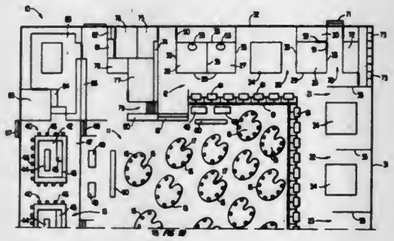
1. A tool for working on the surface of an optical lens comprising a base having a curved working surface, a base pad having an abrasive coated surface composed of a layer of binder material in which is distributed grains of hard mineral material and a mounting surface opposite said abrasive coated surface, adhesive means for bonding said base pad to said curved working surface, and a working pad laid on and conforming to the abrasive coated surface of said base pad, said working pad having a first surface means adapted for working on a lens surface and a second relatively soft surface means, opposite said first surface means, to frictionally engage with said abrasive coated surface, said abrasive coated surface being sufficiently rough to frictionally engage with said second surface means and being the sole means to retain said working pad on said tool while said tool curved surface is being urged against the surface of a lens being worked on.

4,274,233

BUILDING LAYOUT FOR RESTAURANT AND ARTIST WORK/EXHIBIT AREA

Glorys A. Currier, P.O. Box 34-1213, Coral Gables, Fla. 33134

Filed Aug. 17, 1979, Ser. No. 67,374
Int. Cl.³ E04H *3/04*
U.S. Cl. 52—33 8 Claims



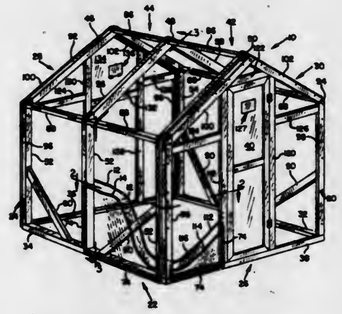
1. A building structure which houses a restaurant with integral artist work area and exhibit area, comprising: an enclosed space defining at least one restaurant dining area having a plurality of dining tables located therein and with access from outside the building to allow dining customers to proceed to and from said dining area; an enclosed space defining a plurality of artist work areas located around the periphery of the restaurant dining area, each of said work areas having means for working in a particular art medium which is separate and distinct from the art mediums in the other work areas, each of said work areas further having means for exhibiting works of art; means for communicating the dining area with the artist work areas to allow access between said dining area and said artist work areas and also to allow observation of the artist work areas by dining customers in the dining area; means for cleaning the air in said artist work area to prevent dust particles and odors from being transmitted to the dining area; at least one food preparation and serving area adjacent said dining area; and means for communicating the dining area with the preparation and serving area.

4,274,234

DOUBLE-WALL GREENHOUSE WITH FLEXIBLE FILM WALLS

Irwin R. Abell, Portland, Oreg., assignor to Hartwig-Hartoglass, Inc., Woodstock, Ill.

Filed Feb. 22, 1979, Ser. No. 14,169
Int. Cl.³ E04B *1/12*
U.S. Cl. 52—63 12 Claims



1. In a double-wall building structure with flexible walls, a structural member comprising:

two upright portions having lower ends for positioning along opposite sides of said structure to support sidewalls thereof;

a connecting portion extending between said upright portions opposite said lower ends to support a roof of said structure;

the structural member having an uninterrupted inner surface beginning at the lower end of one of said upright portions, extending along the lower side of said connecting portion, and continuing along the other of said upright portions to the lower end thereof;

the structural member also having an outer surface opposite said inner surface and extending along outer and upper sides of said member; and

glazing fastener means along said inner and outer surfaces for attaching said flexible walls along an unbroken line to each of the inner and outer surfaces of said member;

the structural member including at least two separable submembers joined together by lap joints;

the glazing fastener means including channel means and glazing strip means;

the channel means defining a pair of parallel channels on each of the inner and outer surfaces of the structural member, one of said channels extending along each side of said lap joint to continue said unbroken line from one submember to another;

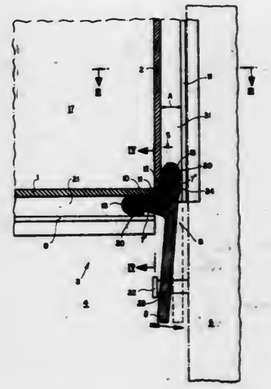
the glazing strip means including an insert flange for insertion into the channel together with a margin of said flexible walls, the insert flange having ribs such that it can be progressively inserted into said channel to stretch said flexible walls in a two-stage operation to impart tension in said inner and outer walls to rigidify said structure.

4,274,235

WINDOW-FRAME ASSEMBLY

Günter Langenhorst, Bad Sassendorf, Fed. Rep. of Germany, assignor to top-element Bauelemente für Innenausbau & Raumgestaltung GmbH & Co. KG, Hamm, Fed. Rep. of Germany

Filed Jan. 8, 1980, Ser. No. 110,365
Claims priority, application Fed. Rep. of Germany, Jan. 10, 1979, 2900693
Int. Cl.³ E06B *1/04*
U.S. Cl. 52—213 10 Claims



1. A frame assembly for mounting between a pair of generally parallel members, said assembly comprising:

four elongated frame elements each having two ends such having a longitudinally outwardly open recess, said elements being arrayed in a rectangle with two of said elements parallel to each other and lying against said members and the other two of said elements being parallel to each other and extending generally perpendicular to said members, said elements meeting at corners at said members;

respective Y-shaped corner pieces at said corners each having a pair of generally perpendicular arms received in the respective recesses and a central leg, one of said arms of each piece being elastically deflectable toward and away from the other arm of the respective piece; and

means for displacing said central legs from positions spaced from into positions closely juxtaposed with the respective members and for simultaneously elastically urging one of the members at the respective corner with the respective arm against the other member at the respective corner.

4,274,236

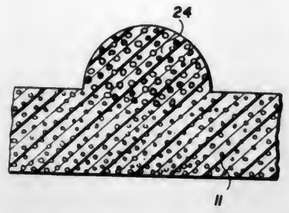
HIGH STIFFNESS CELLULAR PLASTIC SIDING

Gerald Kessler, Box 389, McClurg Rd. at Southern Blvd., Youngstown, Ohio 44512

Filed Aug. 28, 1978, Ser. No. 937,455
Int. Cl.³ E04C *1/00*
U.S. Cl. 52—309.8 7 Claims

1. An insulated, stiff and tear-resistant siding panel of integral and unitary extruded foam plastic construction comprising a main body portion having an upper end and a lower end and a back and a front, a hook-like flange projecting outwardly from the front of said main body portion near the upper end thereof, and a second flange projecting outwardly from the back of said main body substantially at the lower end thereof, said siding panel having a backing skin surface and a facing

skin surface, said main body portion having a thickness of about 55–85 mils, a plurality of integral crossing ribs extending from said backing surface and unitary therewith, said ribs having a thickness of about 25–65 mils, said facing surface



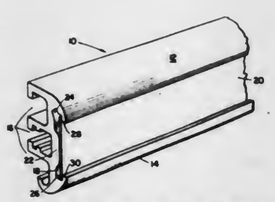
being substantially flat, said foam plastic of said main body portion being on the order of about ½ by volume cells, and said foam plastic of said ribs being on the order of about ¼ by volume cells.

4,274,237

HOLDER FOR A DECORATIVE TRIM STRIP

Arthur A. Hagstrom, Hoffman Estates, Ill., assignor to Teletype Corporation, Skokie, Ill.

Filed Aug. 3, 1979, Ser. No. 63,613
Int. Cl.³ B44F 7/00
U.S. Cl. 52—312 3 Claims



1. An elongated trim strip holder **10** defining a longitudinally oriented open trim channel **18** for receiving a generally flat, elongated trim strip **20**, the opening of said channel **18** being defined by parallel, opposed, first and second ledges **28, 30** said holder **10** further defining within said trim channel **18** a pair of opposed, parallel, first and second recesses **24, 26** spaced apart by a distance greater than the width of the trim strip **20** to be accommodated, each of said first and second recesses **24, 26** being located adjacent and coextensive with a respective one of said first and second ledges **28, 30**, a raised, elongated ridge **22** extending the length of said channel **18** and disposed between said first and second recesses **24, 26**, characterized in that:

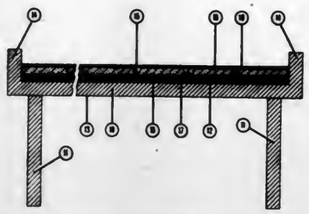
a surface of said first ledge **28** defining said first recess **24** defines a notch **36** coextensive with said first ledge **28**; a surface **40** of said notch **36** is spaced from and generally parallel to the longitudinal axis of said second recess **26**; the distance between said notch surface **40** and a wall **42** defining the second recess **26** is substantially equal to the width of the trim strip **20**; the distance between the wall of said first recess **24** and the opposite edge of said second ledge **30** is greater than the width of the trim strip **20** so that the trim strip **20** may be freely placed within said channel **18** without substantial deformation of the trim strip **20** and will be securely held in place by the notch **36** and said second recess **26** in cooperation with said ridge **22**.

4,274,238

ROOF STRUCTURE

Diarmuid O'Riordain, Condae Luimnighe, Ireland, assignor to Southern Chemicals Limited, Limerick, Ireland

Filed Aug. 23, 1978, Ser. No. 936,310
Int. Cl.³ E04B 5/00
U.S. Cl. 52—408 8 Claims



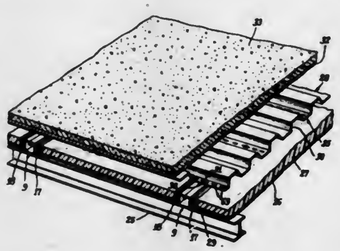
1. A flat roof structure comprising a roof deck supported in a conventional manner on a roof support means and, four discrete layers in the stated order, (i) a water impermeable layer on the upper surface of the roof deck, (ii) a drainage board adapted to allow water to pass freely therethrough in both vertical and horizontal directions, (iii) a layer of cellular thermal insulation material adapted to allow water to pass freely therethrough, and (iv) a water permeable protective and weighting layer on the upper surface of the cellular thermal insulation material adapted to allow water to pass freely therethrough and to provide weight for said roof structure.

4,274,239

BUILDING STRUCTURE

Frank E. Carroll, Barrington, Ill., assignor to Carroll Research, Inc., Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 720,353, Sep. 3, 1976, Pat. No. 4,120,131. This application Oct. 17, 1978, Ser. No. 952,057
The portion of the term of this patent subsequent to Oct. 17, 1995, has been disclaimed.
Int. Cl.³ E04B 5/52
U.S. Cl. 52—443 24 Claims



1. A sheet metal structural shape for use in building construction which is symmetrical about a bisecting plane having:

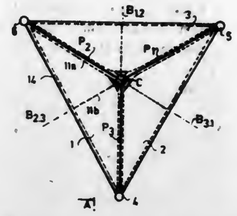
opposing generally parallel equal length sides, a flange extending outwardly at substantially 90° from one end of each of said sides, a base closure extending from the outermost end of one of said outwardly extending flanges to the outward end of the other of said outwardly extending flanges forming a closure between said parallel sides at said one end, and flanges projecting inwardly from the other end of each of said parallel sides, the terminal ends of said inwardly projecting flanges turned inwardly in continuous longitudinal abutment with each other.

4,274,240

CONCRETE FLOOR SLAB CONSTRUCTED FROM BASIC PREFABRICATED SLABS

René Soum, 2 rue Jolimont, 31500 Toulouse, France

Filed May 3, 1979, Ser. No. 35,620
Claims priority, application France, Jul. 18, 1978, 78 21636
Int. Cl.³ E04C 1/24
U.S. Cl. 52—583 4 Claims



1. A concrete floor slab adapted to be supported on pillars or the like comprising:

(a) at least three basic prefabricated concrete slabs having triangular shapes and arranged around and encircling a central point,

(b) said basic slabs being arranged such that adjacent sides of adjacent basic slabs lie along lines converging at said central point,

(c) each of said basic slabs having an apex coinciding with said central point and two apices supported on pillars,

(d) at least three anchoring members arranged adjacent said central point, each of said anchoring members being at least partially embedded in one of said basic slabs in such a manner as to be anchored in the concrete of the respective basic slab,

(e) a central joining unit situated at said central point between said basic slabs,

(f) means for connecting each of said anchoring members to said central joining unit,

(g) said anchoring members and said connecting means being arranged symmetrically for each slab about a line bisecting the angle between the adjacent sides of each slab for distributing forces on said basic slab about the line of symmetry,

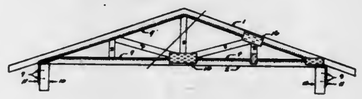
(h) each of said anchoring members including reinforcement means extending into adjacent sides of the corresponding basic slab symmetrically about said line for distributing forces exerted on said anchoring means to said basic slab.

4,274,241

METAL REINFORCED WOOD TRUSS AND TIE MEANS

S. Walter Lindal, 1120-Eighth Ave., #1702, Seattle, Wash. 98101

Filed May 4, 1979, Ser. No. 24,113
Int. Cl.³ E04C 3/292, 3/18
U.S. Cl. 52—642 3 Claims



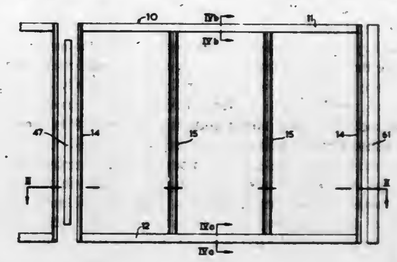
1. A webbed wood truss whose chords are reinforced by chord length strips of sheet metal attached to the chords by integral nail-like teeth punched out of the surface of the metal and pressed into the wood; said steel strips also serve as connector plates to hold the truss together.

4,274,242

BUILDING SYSTEMS

Derek Linton, and John M. Boydell, both of Wolverhampton, England, assignors to Pauling and Company Limited, London, England

Continuation of Ser. No. 759,514, Jan. 14, 1977, abandoned. This application Oct. 12, 1978, Ser. No. 950,874
Int. Cl.³ E02D 27/00
U.S. Cl. 52—741 10 Claims



1. A method of constructing in situ a building structure having a plurality of building frame wall units disposed upon a supporting base foundation, said method comprising the steps of:

(a) juxtaposing a plurality of elongate sub-frame sections to define a horizontal skeletal base sub-frame,

(b) releasably fastening adjacent sub-frame sections together externally of the sub-frame,

(c) releasably fastening a plurality of separate individual base plate means to said sub-frame sections,

(d) connecting tie rods between at least some of the base plate means to brace the sub-frame sections of the base sub-frame,

(e) leveling and trueing the sub-frame to fix all the base plate means in precise predetermined final positions with respect to each other before casting, then

(f) casting a molded floor slab of rigid hard-setting molding material within said sub-frame to fix said base plate means and tie rods into said floor slab; and

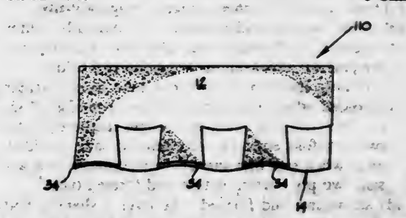
(g) removing said sub-frame sections so that the base sub-frame is dismantled and the base plate means and tie rods remain fixed into the floor slab to provide the supporting base foundation of the building structure.

4,274,243

ASPHALT SHINGLE FOR SIMULATING A TILED ROOF

Raymond L. Corbin, Littleton, and Robert F. Reinhart, Aurora, both of Colo., assignors to Johns-Manville Corporation, Denver, Colo.

Filed Dec. 18, 1978, Ser. No. 970,720
Int. Cl.³ E04D 5/10
U.S. Cl. 52—748 8 Claims



1. A method of forming a laminated roofing shingle comprising:

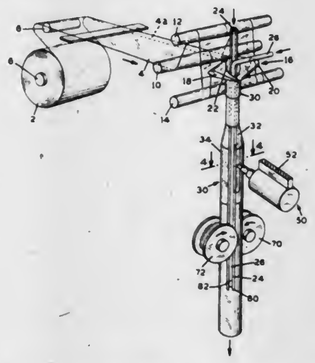
(a) providing an indefinite length of asphalt-impregnated, felted material;
(b) adhering a coating of mineral granules to at least one surface of said felted material;
(c) cutting said material in a repeating pattern along the longitudinal dimension of said material so as to form an interleaved series of tabs of pairs of overlay members, each said tab, defined by said step of cutting, being of substantially identical shape and the lower edge of each said tab being defined by a smoothly curving negatively contoured edge;
(d) making pairs of underlay members in a similar manner as above but wherein the lower edges of the underlay members are defined by a substantially continuously curving sinuous cut having a uniform periodic shape and amplitude such that each pair of underlay members thus formed are substantially identical; and
(e) laminating said underlay members to said overlay members so as to form a series of shingles having substantially the same overall shape, wherein said step of laminating further includes the step of positioning said negatively contoured edge of each said tab directly over a substantially correspondingly curving portion of the lower edge of each said underlay member so as to simulate a series of alternating ridges and valleys of a portion of a tile covered roof.

4,274,244

METHOD AND APPARATUS FOR SEALING POLYESTER FILM IN MINE BOLT CAPSULE

Peter T. Gilbert, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 18, 1979, Ser. No. 40,217
Int. Cl.³ B65B *9/12*
U.S. Cl. 53—451 **7 Claims**



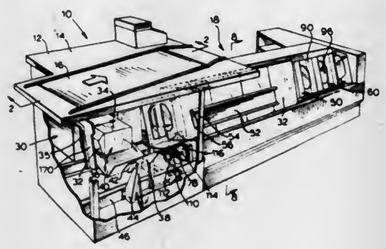
1. A method for making a tubular container having an inner, smaller tubular container extending longitudinally from film sheet material comprising the steps of:
(a) feeding said film sheet material longitudinally;
(b) while feeding said material longitudinally folding one edge of said film sheet onto said sheet and forming a two ply portion with said one edge and said fold;
(c) forming the film sheet into a tube by overlapping the unfolded other sheet edge with the open edge of said two ply fold with said overlapped edges staggered so that said two ply fold edge projects beyond said unfolded sheet edge when said film sheet is formed into a tube and with said two ply portion within said formed tube;
(d) advancing said formed tube over a shaping body and passing the overlapped edges of said formed tube between an anvil and a pair of parallel ultrasonically energized styluses and heating and fusing said edges so that one stylus heats and fuses said two ply fold projecting edge and the other stylus heats and fuses said unfolded sheet edge to the film sheet material underlying said unfolded sheet edge, and
(e) with said edges fused, filling the tube formed by the two ply portion, within the formed tube, with a curing agent and the formed tube with a resin.

4,274,245

CHECKOUT COUNTER

Marinus J. M. Langen, Rexdale, and Edgar H. Strauss, Toronto, both of Canada, assignors to H. J. Langen & Sons Ltd., Rexdale, Canada

Filed Nov. 7, 1978, Ser. No. 958,429
Int. Cl.³ B65B *5/02, 5/08, 67/02*
U.S. Cl. 53—558 **17 Claims**



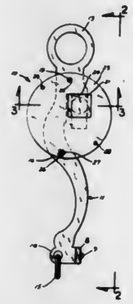
1. A checkout counter comprising,
(a) a housing having a compartment formed therein, a counter top formed on the housing, a bagging station opening outwardly from the housing and a transfer passage extending from said compartment to said bagging station,
(b) a bag-making machine in said compartment adapted to make a self-supporting open bag within said compartment,
(c) transfer means arranged to engage an open bag located within said compartment and transfer it in the open configuration from said compartment through said transfer passage into said bagging station in an upright upwardly open self-supporting configuration.

4,274,246

UNIVERSAL BIT APPARATUS

William M. Stewart, 6620 NW. 61st St., Ocala, Fla. 32670

Filed Mar. 17, 1980, Ser. No. 130,740
Int. Cl.³ B68B *1/04, 1/06*
U.S. Cl. 54—6 R **9 Claims**



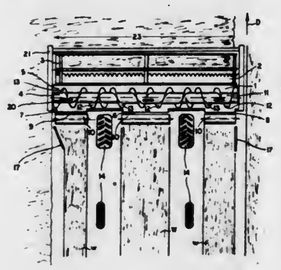
1. An interchangeable mouthpiece bit for use with horses or the like comprising:
a pair of spaced apart shank members adapted at one end thereof for connection to a means for attachment to one portion of a horse's head and adapted at the other end thereof for connection to reins;
mouthpiece means attached to an intermediate portion of each of said shank members for insertion into the mouth of a horse; and
connection means for selectively detaching and re-attaching said mouthpiece to said shank members whereby one pair of shank members can be used with a plurality of different mouthpiece means, said connection means comprising:
a post means rigidly attached at one end thereof to one of an intermediate portion of each of said shank members and said mouthpiece means;
post receiving means connected to the other of said intermediate portion of each of said shank members and said mouthpiece means for being slideable onto said post means and extending around said post means far enough to allow only said slideable movement between said post means and said post receiving means when said post receiving means is disposed on said post means; and
locking means attached to one of an intermediate portion of said shank members and said mouthpiece means for selectively preventing said slideable movement between said post means and said post receiving means.

4,274,247

WINDROW-FORMING HARVESTER

Gerhard Schmidt, Kirchau; Christian Noack, Guttau; Klaus Ulrich, Neustadt; Volker Hänel, Neustadt; Bernd Kretschmar, Neustadt; Hans-Jochen Kloth, Uhyst A.T.; Wolfgang Pietsch, Neustadt; Peter Hesche, Bad Schandau; Theodor Eistert, Neustadt; Klaus Oliva, Langburkersdorf, and Manfred Kreidler, Schnitz, all of German Democratic Rep., assignors to Veb Kombinat Fortschritt, Landmaschinen, Sachsen, German Democratic Rep.

Filed Oct. 10, 1978, Ser. No. 949,453
Claims priority, application German Democratic Rep., Oct. 12, 1977, 201476
Int. Cl.³ A01D *49/00*
U.S. Cl. 56—14.4 **10 Claims**



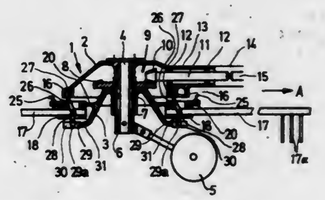
1. A harvester comprising:
a chassis;
a pair of wheels supporting said chassis on the ground for displacement in a normal travel direction and spaced apart in a direction transverse to said travel direction;
a crop cutter mounted on said chassis ahead of said wheels in said travel direction and extending transversely substantially the full width of said chassis for cutting a swath of crop having a width generally equal to the width of said chassis;
a central crop conditioner on said chassis behind said cutter in said travel direction and between said wheels in said transverse direction;
a pair of outer crop conditioners on said chassis behind said cutter in said travel direction and each outside a respective wheel in said transverse direction; and
transverse conveyor means on said chassis between said conditioners and said cutter for receiving cut crop from said cutter and conveying same in respective outer and central portions to said conditioners, whereby the cut crop can form a central windrow between said wheels, a pair of outer windrows each outside a respective wheel, and a pair of generally crop-free gaps between said windrows at said wheels.

4,274,248

HAY HARVESTING MACHINE

Hans-Ulrich Hauser, Niederwenigen, Switzerland, assignor to Bucher-Guyer AG Maschinenfabrik, Niederwenigen, Switzerland

Filed Nov. 16, 1979, Ser. No. 94,966
Claims priority, application Switzerland, Nov. 21, 1978, 11902/78
Int. Cl.³ A01D *79/00*
U.S. Cl. 56—370 **15 Claims**



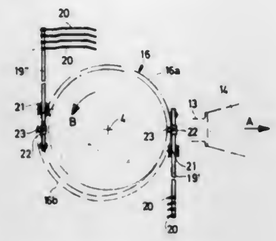
1. A hay harvesting machine comprising:
at least one rake wheel rotatable about a substantially vertical axis;
said rake wheel comprising:
a substantially upright shaft defining said vertical axis;
a housing containing a driven rotatable housing portion;
means for rotatably mounting said rotatable housing portion upon said upright shaft;
a plurality of tine supports, each having a lengthwise axis;
each of said tine supports being selectively movable between two operating positions by rotation of the tine support about an axis extending transversely with respect to its lengthwise axis and approximately parallel with respect to the upright shaft;
a control element provided for each tine support;
hinge connection means for connecting each tine support with its control element;
control track means non-rotatably connected with said upright shaft;
each of the control elements being continuously in engagement with the control track means;
said two operating positions defining a first operating position and a second operating position;
a control connection prevailing between the control element and the related tine support in the first operating position by blocking the hinge connection means;
said control connection causing pivoting of the tine support about its lengthwise axis during its revolving motion;
in the second operating position no control connection prevailing between the control element and the tine support by releasing the hinge connection means and the tine supports being secured against pivoting about their lengthwise axis; and
said control track means extending in a plane disposed essentially perpendicular to the upright shaft.

4,274,249

HAY HARVESTING MACHINE

Hans-Ulrich Hauser, Niederweningen, Switzerland, assignor to Bucher-Guyer AG Maschinenfabrik, Niederweningen, Switzerland

Filed Nov. 16, 1979, Ser. No. 94,967
Claims priority, application Switzerland, Nov. 21, 1978, 11901/78
Int. Cl.³ A01D 79/00
U.S. Cl. 56—370 15 Claims



1. A hay harvesting machine comprising:
at least one rake wheel revolving about a vertical axis;
said rake wheel comprising:
a substantially upright shaft defining said vertical axis;
a driven rotatable housing portion;
means for rotatably mounting said driven rotatable housing portion for rotation at said upright shaft;
a plurality of tine supports each having a lengthwise axis;
said tine supports each being provided with rake tines;
each of said tine supports being arranged at the rotatable housing portion so as to be rotatable about their lengthwise axis;
control track means non-rotatably connected with said upright shaft;
said tine supports being operatively connected with said control track means;
said tine supports being movable out of a first position where they are operatively connected with said control track means into a second position where they are uncoupled from said control track means and secured against rotation;
means for selectively arresting the tine supports in each of said positions;
said control track means extending in a plane disposed essentially perpendicular to said upright shaft;
said tine supports extending approximately in tangential direction;
pivot shaft means extending substantially transversely with respect to the lengthwise axis of the tine supports and disposed practically perpendicular to the upright shaft; and
said tine supports being pivotably mounted by said pivot shaft means at said rotatable housing portion.

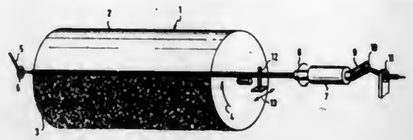
4,274,250

PROCESS AND ARRANGEMENT FOR THE COVERING OF A SPINNING CARRIER WITH FIBER MATERIAL

Peter Lippmann, Gassner Feld 15, D–8212 Ubersee am Chiemsee, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,621
Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830669
Int. Cl.³ D02G 3/36; D01H 1/12
U.S. Cl. 57—5 3 Claims

1. In a process for the spin-covering of a spinning carrier, particularly yarn, threads or filaments, with a fiber material, particularly wool, cotton or synthetic fibers, including pulling said spinning carrier at a distance past a collector drum for the fiber material and setting said spinning carrier into rotation, said collector drum being the pickup of a carding device and the spinning carrier being pulled in an axial direction past and at a distance to the surface of a pickup supporting the fiber nap of the fiber material, the improvement comprising: imparting a so rapid rotation to said spinning carrier by a fly-frame tenter



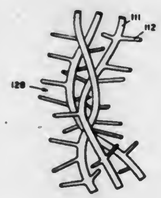
arranged behind the pickup in the direction of movement of said spinning carrier and generating a false rotation whereby the surface speed of said spinning carrier is higher than the circumferential speed of said collector drum.

4,274,251

YARN STRUCTURE HAVING MAIN FILAMENTS AND TIE FILAMENTS

Charles W. Kim, Wilmington; Chia-Seng Liu, and Richard MacDuff, both of Newark, all of Del., assignors to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 896,547, Apr. 14, 1978, Pat. No. 4,186,781, which is a division of Ser. No. 750,982, Dec. 15, 1976, Pat. No. 4,101,358, which is a division of Ser. No. 590,664, Jun. 26, 1975, abandoned, which is a division of Ser. No. 324,028, Jan. 16, 1973, Pat. No. 3,922,329. This application Oct. 16, 1978, Ser. No. 951,801
Int. Cl.³ D02G 3/22; D01D 5/42, 5/253
U.S. Cl. 57—206 3 Claims



1. A yarn comprising at least one main filament uniaxially oriented along its longitudinal axis and having protruding therefrom along its length a plurality of portions of tie filaments which have no substantial portion thereof crossing over the main filament, each of said portions of tie filaments protruding from said main filament being substantially perpendicular to said main filament at the junction between each of said portions of tie filaments and said main filament and each of said portions of tie filaments having its longitudinal axis in axial alignment with the longitudinal axis of the corresponding portion of tie filament protruding from the other side of said main filament at the junction between each of said portions of tie filaments and said main filament.

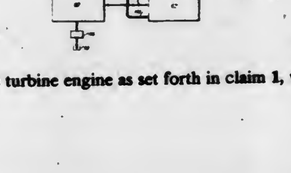
4,274,252

SWIVEL LOCKING DEVICE

John L. Cavender, P.O. Box 685, Moorhead, Miss. 38761

Filed Jun. 4, 1979, Ser. No. 45,060
Int. Cl.³ F16G 15/08
U.S. Cl. 59—86 8 Claims

1. A swivel locking device comprising two members defining a hole in each therethrough;
a means passing through said holes for joining said two members in such a manner that each member is freely rotatable about a first axis defined by the axis of the joining means and with respect to each other, wherein at least one of said members includes two portions extending to form part of a loop, each of said extending portions containing a hole in proximity to the end thereof oriented such that the two holes define a second axis substantially perpendicular to the first axis of the means and an additional hole in the end of at least one extending portion perpendicular to the other hole;
a detachable loop portion having two ends that fit together with said extending portions of said member to form an unyielding closed loop, said detachable loop portion further comprising holes in proximity to the ends thereof that align with the holes of the extending portions on said second axis, and an additional hole in at least one end perpendicular to the other hole;



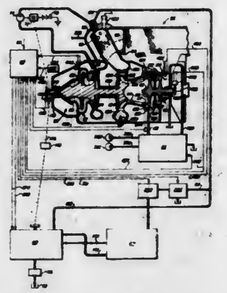
a rod member extending along said second axis and through all of said holes on the second axis to thereby join said extending portions of the member with said detachable loop portion, said rod member being enlarged at one end thereof, and in proximity to the opposite end having a hole therein, said hole in said rod member being alignable with said additional holes formed in proximity to at least one end of the extending portion of the member and at least one end of the detachable loop portion, said holes aligning along a third axis substantially perpendicular to the first axis and the second axis; and
a fastening means for securing the position of said rod member with respect to the extending portions and the detachable loop portion inserted through said hole in said rod and said additional aligned holes in said extending and detachable loop portions.

4,274,253

CONTROL FOR TURBINE AND RECUPERATOR INLET TEMPERATURES

Frederic E. Bolliger; Geoffrey D. Woodhouse, both of Phoenix; George B. Mattson, Scottsdale; Bruce S. Anson, Phoenix, all of Ariz., and Robert A. Hatch, Boca Raton, Fla., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 22, 1977, Ser. No. 863,365
Int. Cl.³ F02C 9/02, 9/04
U.S. Cl. 60—39.03 6 Claims



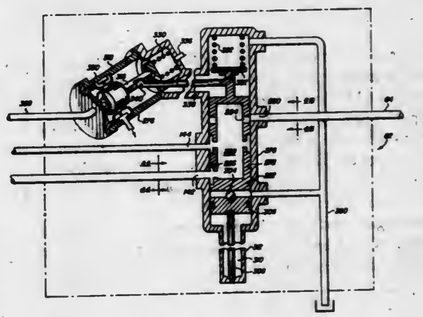
5. A gas turbine engine as set forth in claim 1, wherein said adjusting means comprises a set of variable incidence guide vanes disposed in the path of said motive gas flow.

4,274,254

TURBINE ENGINE FUEL SCHEDULE VALVE AND METHOD

Harvey B. Jansen; Milton R. Adams, both of Tempe; Robert B. Sumegi, Phoenix, all of Ariz.; Klaus K. G. Huber, Xenia, Ohio, and John A. Salisbury, deceased, late of Phoenix, Ariz. (by Judith M. Salisbury, administratrix), assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 22, 1977, Ser. No. 863,570
Int. Cl.³ F02C 3/10, 9/04
U.S. Cl. 60—39.03 31 Claims



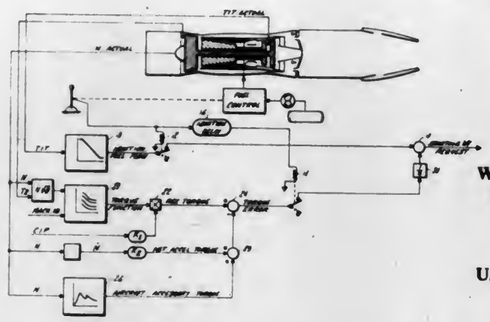
1. A method for controlling fuel flow to the combustor of a gas generator section of a gas turbine engine receiving a supply of heated, pressurized air from a compressor, comprising the steps of:
sensing the temperature of inlet air being supplied to the combustor;
sensing the pressure maintained within said combustor;
delivering pressurized fuel flow through a pair of ducts in parallel flow arrangement to a fuel scheduling valve having a single output passage directing the pressurized fuel flow to the combustor;
metering fuel flow through one of said pair of ducts upstream of said scheduling valve in relation to an input signal whereby relatively unrestricted maximum flow is permitted through said one duct to said scheduling valve during acceleration operation, and severely restricted minimum flow is permitted through said one duct to said scheduling valve during deceleration operation of said engine;
maintaining the temperature of gas exhausting from said combustor at a substantially constant level during at least one portion of the acceleration operation by metering fuel flow through said single output passage of said scheduling valve along a first preselected, empirical schedule as a predetermined function of said sensed temperature and said sensed pressure; and
maintaining a continuous combustion process within said combustor during said deceleration operation by metering fuel flow delivered through the said other of said pair of outlet ducts in said scheduling valve along a second preselected, empirical schedule as a second predetermined function of said sensed pressure.

4,274,255

CONTROL FOR START-UP OF A GAS TURBINE ENGINE

Robert R. Pollak, North Palm Beach, Fla., assignor to United Technologies Corporation, Hartford, Conn.

Filed May 7, 1979, Ser. No. 36,721
Int. Cl.³ F02C 7/26
U.S. Cl. 60—39.14 R 11 Claims



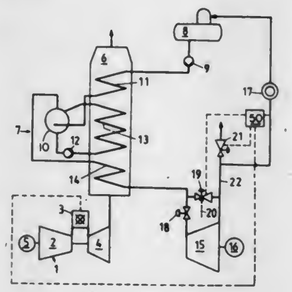
1. A system for controlling fuel flow to a turbine type power plant for starting the engine from ignition to idle speed mode of operation including means responsive to certain engine operating parameters to schedule a reference torque signal, means responsive to the actual torque produced by said engine upon engine start-up for being compared to said referenced torque signal and means, including a fuel control for regulating fuel flow in accordance with the difference of said referenced torque signal and said actual torque signal for regulating the amount of fuel being fed to the engine during said mode of power plant operation.

4,274,256

TURBINE POWER PLANT WITH BACK PRESSURE TURBINE

Jörg Kalt, Nussbaumen, and Rolf Kehlhofer, Dielsdorf, both of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed May 21, 1979, Ser. No. 40,722
Claims priority, application Switzerland, May 19, 1978, 5458/78
Int. Cl.³ F02C 6/18; F02G 5/02
U.S. Cl. 60—39.18 B 9 Claims



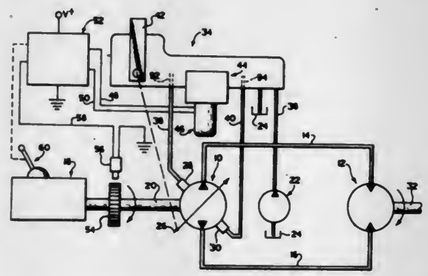
1. A combined gas/steam turbine power plant, comprising:
a gas turbine having a combustion chamber;
steam generation means for utilizing exhaust from the gas turbine to generate steam;
a steam turbine, said steam turbine being selectively supplied with said steam from the steam generation means;
first means for utilizing the steam downstream of the steam turbine;
second means for compensating for relatively small fluctuations in back pressure of the steam upstream of the first means and downstream of the steam turbine, said second means selectively varying a delivery of fuel to the combustion chamber of the gas turbine;
third means for compensating for relatively large fluctuations in the back pressure of the steam upstream of the first means and downstream of the steam turbine, said third means selectively supplying live steam directly to the first means and selectively venting said live steam.

4,274,257

ANTI-STALL CONTROLLER

William E. Koch, Jr., Marshall, and Michael A. Klimowicz, Kalamazoo, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jan. 8, 1979, Ser. No. 1,809
Int. Cl.³ F04B 1/26; F16D 31/02
U.S. Cl. 60—431 9 Claims



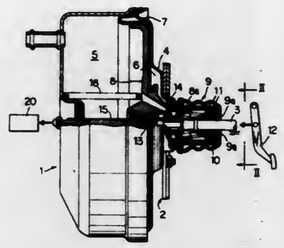
1. In a control system for a hydrostatic transmission of the type including a prime mover driven variable displacement pump; a fluid motor; fluid operable means for varying the displacement of the pump, the fluid operable means defining first and second fluid pressure chambers for varying the displacement of the pump in first and second opposite directions; a source of pressurized control fluid for operating the fluid operable means; supply conduit means in fluid communication with the source of control fluid, main control means operable to control the flow of control fluid from the supply conduit means to one of the first and second fluid pressure chambers through one of first and second fluid conduit means, respectively, and to control the flow of control fluid from the other of the first and second fluid chambers to a reservoir; the improvement comprising:
(a) auxiliary anti-stall override control valve means defining control conduit means operable to communicate control fluid from said one of the first and second fluid conduit means to said other of the first and second fluid conduit means;
(b) said auxiliary control valve means including an on-off, electro-hydraulic valve disposed in said control conduit means to prevent fluid communication therethrough in response to an electrical input signal in one condition, and to permit fluid communication therethrough in response to an electrical input signal in another condition;
(c) control logic means operable in response to variations in an input condition to alternate said electrical input signal between said one condition and said another condition at a duty cycle determined by the deviation of said input condition from a normal operating condition, said input condition comprises the speed of operation of the prime mover, and said normal operating condition comprises a prime mover reference setting speed.

4,274,258

DUST-BOOT FOR A VACUUM BOOSTER

Akira Shirai, Toyoake, and Sigeo Nagasawa, Toyota, both of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Jul. 7, 1978, Ser. No. 922,733
Claims priority, application Japan, Jul. 9, 1977, 52/91297[U]
Int. Cl.³ F15B 9/10; F16J 15/18
U.S. Cl. 60—547 R 17 Claims



1. A dust-boot for capping to protect a sliding portion of a power piston for a vacuum booster means which sliding portion protrudes from a dash-panel into a driver's compartment of a vehicle having a forward compartment, the dash-panel separating the driver's compartment from the forward compartment and the piston delivering a pedal-depressing force after having boosted the same to a master cylinder, the dust boot comprising a main body having a major surface provided with at least one air sucking aperture therein in fluid communication with said driver's compartment, said at least one aperture having a given axis along a given air flow path; a firmly formed noise-preventing wall spaced from said main body of the dust-boot and in said driver's compartment said noise-reducing wall being spaced from said major surface, extending over said at least one air-sucking aperture in spaced relation therewith and thus defining with said major surface an air flow passage from the driver's compartment which is dissimilar in direction of air flow from that of said given air flow path of said at least one air-sucking aperture in the outgoing direction of air flow from said driver's compartment, whereby air-sucking sounds reaching the driver by a linear path are at least reduced.

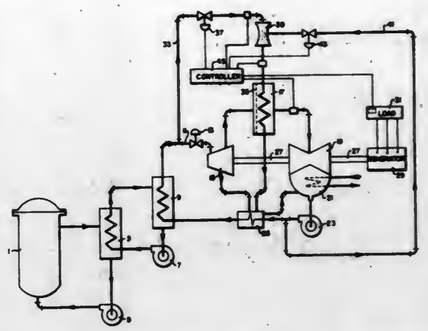
4,274,259

SUPERHEATED STEAM POWER PLANT WITH STEAM TO STEAM REHEATER

George J. Silvestri, Jr., Upper Chichester, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 728,475, Sep. 30, 1976, abandoned. This application Mar. 2, 1978, Ser. No. 882,831
Int. Cl.² F01K 7/22
U.S. Cl. 60—663 2 Claims

1. A power plant comprising in combination means for supplying superheated steam, a first turbine receiving said superheating steam and exhausting steam at a lower pressure and temperature, a second turbine receiving exhaust steam from said first turbine, said turbines being connected to a load, a reheater disposed between said first and second turbine to reheat the steam flowing from said first to said second turbine, said reheater utilizing superheated steam from within said power plant as the heating medium, a desuperheater disposed to desuperheat the superheated steam from within said power plant before it enters said reheater, a controller responsive to the pressure of said steam entering said desuperheater, the temperature of the steam leaving said desuperheater, the temperature of the steam entering said second turbine and said load to control said desuperheater and throttling means disposed to throttle the steam from within the power plant before it enters the desuperheater, said controller also controlling said throttling means, whereby the reheater may be operated with low



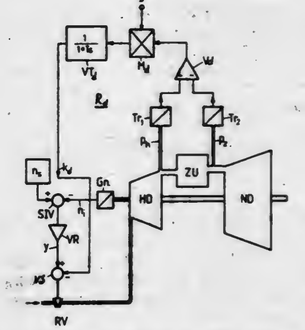
temperature gradients reducing thermal shock and extending the life of the reheater.

4,274,260

METHOD AND APPARATUS FOR REGULATING A STEAM TURBINE

Jerzy Bukajlo, Bois Colombes, France, assignor to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed Jan. 24, 1979, Ser. No. 6,476
Claims priority, application Switzerland, Jan. 31, 1978, 1014/78; Feb. 17, 1978, 1759/78
Int. Cl.³ F01K 13/02
U.S. Cl. 60—663 5 Claims



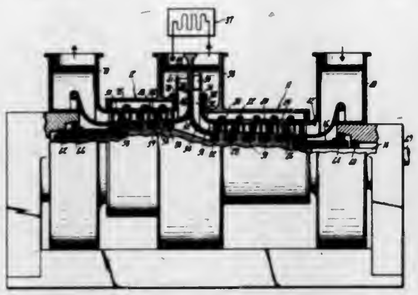
1. A method of regulating a steam turbine comprising at least one resuperheater arranged between a high pressure section having an impeller casing and a low pressure section having an impeller casing, comprising the steps of:
generating an actual-value signal proportional to the rotational speed of said turbine;
providing a reference-value signal;
comparing said actual-value and reference value signals to generate a first difference signal;
generating a first pressure signal proportional to the pressure in the impeller casing of said high pressure stage;
generating a second pressure signal proportional to the output pressure of said resuperheater;
producing a feedback magnitude signal proportional to the difference of said first and second pressure signals; and
subtracting said feedback magnitude signal from said first difference signal to produce a regulating signal for regulating said turbine.

4,274,261

CLOSED CYCLE CONTRAROTATING GAS TURBINE POWER PLANT UTILIZING HELIUM AS THE WORKING MEDIUM

John J. Horgan, Wethersfield, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Sep. 25, 1978, Ser. No. 945,655
Int. Cl.³ F02C 1/04
U.S. Cl. 60—682 4 Claims



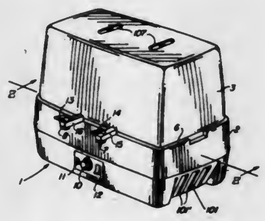
1. A self-contained power unit having an elongated enclosed casing rotatably supporting stages of axial flow compressors and turbines, said stages of compressors and turbines including alternate rows of compressor blades and alternate rows of turbine blades being in contrarotating relationship, said casing having an inlet ahead of the stages of the compressor and an outlet behind the stages of the turbine and passage means interconnecting said outlet and said inlet, helium being utilized as the working medium in said self-contained power unit, means external of said casing for adding heat to said helium, a split scroll between the said stages of said compressor and said stages of said turbine for directing the discharged helium from said compressor to a heat source and returning it to the turbine, an innershaft in said enclosed casing supporting alternate rows of said compressor blades and turbine blades of said stages of said compressor and said turbine for one direction of rotation, said casing supporting alternate rows of said compressor blades and turbine blades of said stages of compressor and turbine for an opposite direction of rotation, and said scroll means including means interconnecting said casing driven by said turbine blades with said casing driving said compressor blades.

4,274,262

THERMOELECTRIC JUG COOLER AND CONTROL CIRCUIT

Michael A. Reed, Tucson, Ariz.; Ian Hatcher, Barrie, Canada; Kingstone L. H. Reed, Barrie, Canada, and William Danchuk, Barrie, Canada, assignors to Koolatron Industries, Limited, Barrie, Canada

Filed Mar. 21, 1980, Ser. No. 132,696
Int. Cl.³ F25B 21/02; F25D 3/08
U.S. Cl. 62—3 4 Claims



1. A thermoelectric apparatus for changing the temperature of a quantity of liquid from a first temperature to a second temperature, said thermoelectric apparatus comprising in combination:

(a) a first container for containing the quantity of liquid, said first container having a top, said first container having a major surface area;

(b) thermally conductive means for thermally contacting said first container, said thermally conductive means being shaped to minimize thermal resistance between said container and said thermally conductive means;

(c) support means for supporting said thermally conductive means, said support means having first and second walls having first and second holes therein, respectively;

(d) a removable cover disposed on said base means for cooperating with said support means to bound and thermally insulate a region in which said first container is disposed;

(e) an elongated duct disposed in said support means, said duct extending from said first opening to said second opening to allow air to pass through said duct and said first and second holes;

(f) a heat exchanger disposed in said duct, said heat exchanger including a plurality of spaced fins disposed such that substantially all air passing through said duct must pass between various ones of said fins;

(g) electric fan means disposed in said duct for forcing air to flow through said duct and said first and second holes;

(h) thermoelectric means for effecting flow of thermal energy between said heat exchanger and said thermally conductive support means to cause the temperature of the liquid to change from the first temperature to the second temperature;

(i) first circuit means responsive to the temperature of said thermally conductive means for producing a first voltage if the temperature of said thermally conductive means is greater than a first temperature and producing a second voltage if the temperature of said thermally conductive means is less than said first temperature;

(j) second circuit means responsive to said first circuit means for coupling an electric power source to said electric fan means and said thermoelectric means in response to said second voltage and decoupling said electric power source from both said thermoelectric means and said electric fan means in response to said first voltage; and

(k) third circuit means responsive to the temperature of said heat exchanger for producing an override signal if the temperature of said heat exchanger exceeds a second temperature, said second circuit means being responsive to said override signal to decouple both said thermo-electric means and said electric fan means from said electric power source if the temperature of said heat exchanger exceeds said second temperature.

4,274,263

CONTINUOUSLY REFRIGERATED, AUTOMATICALLY EJECTED BLOCK ICE MACHINE

David W. Goushaw, R.R. 1, Box 814, Sahuarita, Ariz. 85629

Division of Ser. No. 899,533, Apr. 24, 1978, Pat. No. 4,205,534.
This application Feb. 11, 1980, Ser. No. 120,551
Int. Cl.³ F25C 5/02
U.S. Cl. 62—71 4 Claims

1. A method for the continuously refrigerated, automatically ejected making of block ice comprising the steps of:

receiving water from a water supply, said step including the steps of

measuring the volume of water received, and

generating a signal when the specific volume of water has been measured;

selectively distributing the water to one of a plurality of ice product cells, said step including the steps of

directing the water to the ice product cell so selected through water lines,

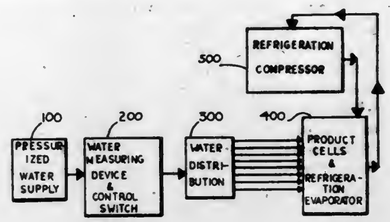
filling the ice product cell with water,

receiving the signal generated when the specific volume of water has been measured,

holding the water in the ice product cell,

draining away water in the water line proximate the ice product cell, and

distributing the water to a new ice product cell when the signal indicating a specific volume of water which had been measured is received;



ejecting a previously formed ice block in the ice product cell so selected; and

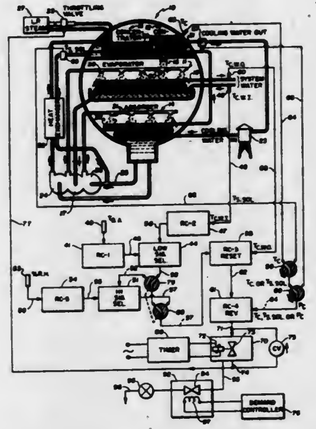
freezing the water in the ice product cell to form a new block of ice.

4,274,264

CHILLER CONTROL

Robert W. Andres, Burnsville, Minn., assignor to Owens Service Corporation, Minneapolis, Minn.

Filed Feb. 1, 1980, Ser. No. 117,393
Int. Cl.³ F25B 15/00, 41/00, 1/00
U.S. Cl. 62—148 22 Claims



1. A control means for a refrigeration system using a refrigerant to chill a fluid medium through a closed system having a chiller and a condenser, the chiller receiving the fluid medium to be chilled and discharging the fluid medium upon being chilled, refrigeration means in communication with the chiller and condenser to provide refrigeration to chill the fluid medium in the chiller, refrigerant pump means in communication with the refrigeration means for pumping the same through the system, refrigerant capacity control means in communication with the refrigerant for controlling the refrigeration capacity of the refrigerant, and a control means operably connected to said refrigerant capacity control means for controlling the refrigeration system, said control means comprising:

(a) first temperature sensor means providing an output signal representative of the outside air temperature;

(b) first amplifier means operably connected to said first sensor means providing an amplified signal representative of the outside air temperature;

(c) second temperature sensor means providing an output signal representative of the return chilled water temperature;

(d) second amplifier means operably connected to said second sensor means providing an amplified signal representative of the returned chilled water temperature;

(e) a low signal selector means operably connected to said first and second amplifier means providing an output signal representative of the lowest amplitude of said temperature signals;

(f) third temperature sensor means providing an output signal representative of the supply chilled water temperature;

(g) a dual input settable controller operably connected to said third temperature sensor and to said low signal selector means to provide an output signal representative of the increase or decrease in amplitude from the set point of said settable controller;

(h) fourth sensor means sensing a distinct overriding condition and providing an output signal representative of said condition, said signal having an amplitude for overriding the amplitude of said other output signals;

(i) a reverse signal settable controller operably connected to said fourth sensor means and to said dual input settable controller providing a signal representative of the reverse change in amplitude from the set point of said reverse signal settable controller;

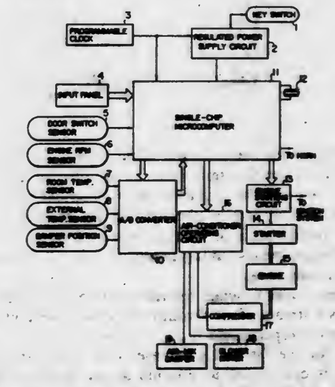
(j) and a control mechanism having an input operably connected to said reverse signal settable controller and an output operably connected to the refrigerant capacity control means, said control mechanism providing a signal representative of the capacity of said refrigeration system.

4,274,265

METHOD AND APPARATUS FOR AUTOMATICALLY OPERATING CAR-MOUNTED AIR-CONDITIONER

Shunji Okumura, Aichi, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 28, 1979, Ser. No. 52,923
Claims priority, application Japan, Aug. 4, 1978, 53/95718
Int. Cl.³ G05D 23/32; F25B 19/00; B60H 3/04
U.S. Cl. 62—158 8 Claims



1. An apparatus for automatically air-conditioning a vehicle having an engine and an air-conditioner powered by said engine comprising:

manually operable input means for generating a first input data signal representing a desired room temperature in said vehicle and a second input data signal representing an appointed time at which said vehicle is air-conditioned;

room temperature sensor means for sensing the room tem-

perature of said vehicle to generate an output signal representing the room temperature thereof;

programmable clock means, responsive to said second input data signal, for generating a start signal when a time measured by said clock means coincides with said appointed time;

means for controlling said air-conditioner; and

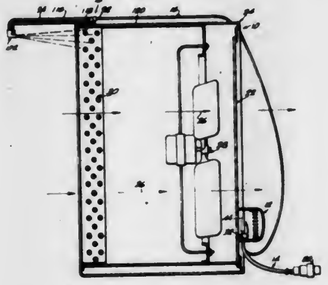
a microcomputer having input terminals connected to said manually operable input means and said room temperature sensor means, an output terminal connected to said air-conditioner controlling means, and an interrupt request input terminal connected to said programmable clock means, said microcomputer being energized upon closing of a key switch of said engine for comparing the output signal of said room temperature sensor means with said first input data signal to operate said air-conditioner controlling means when a temperature difference between said room temperature and said desired room temperature exceeds a predetermined value, and said microcomputer being energized and interrupted in response to said start signal to execute an operation for comparing the output signal of said room temperature sensor means with said first input data signal to start said engine only when the temperature difference between said room temperature and said desired room temperature exceeds the predetermined value.

4,274,266

WATER COOLING SYSTEM FOR AIR COOLED AIR CONDITIONERS

Donald Shires, 1214 Normandy Dr., Miami Beach, Fla. 33141

Filed May 15, 1979, Ser. No. 39,112
Int. Cl.³ F28D *3/00*; B05B *15/06*
U.S. Cl. 62—171 **13 Claims**



1. An attachment comprising a water cooling system to be mechanically mounted exteriorly on an installed air cooled air conditioner without the requirement of electrical connection to the electrical system of the existing air conditioner and which air conditioner is of the type provided with:

condenser coil means having an upper zone and a first and a second main face,

a fan means which, when the air conditioner is energized, directs a stream of air through the condenser coil means generally perpendicularly to the main faces,

a frame for the fan and condenser coil means and which frame is configured to provide an air stream inlet and outlet with the inlet having an upper zone, and

said frame including a first and second flow through grill work covering said inlet and outlet,

said water cooling system comprising:

nozzle means to direct a spray of water into the frame through the upper zone of the inlet and onto the upper zone of the condenser coil means within the frame,

water conduit means including means to connect to a pressurized water source and to said nozzle means,

normally closed valve means in said conduit means between said source and nozzle means, and

valve operating means to be mounted exteriorly of the frame and on the first grill work and at the air stream outlet, said valve operating means including a paddle with an air stream impact face to be oriented in generally parallel relation to the main faces of the frame, said valve operating means including tiltable means mounting said paddle to said valve operating means to accommodate swinging movement of the paddle from a normally valve means closed attitude to a valve means open attitude, said valve operating means being responsive to air stream forces when the air conditioner is energized to open said normally closed valve upon tilting movement from said valve closed attitude toward said valve open attitude to permit a flow of pressurized water from the source to the nozzle means,

positioning, orienting and holding means included in said nozzle means to attach said nozzle means exteriorly of the frame and to direct water into the frame through the upper zone of the inlet and onto the upper zone of the condenser coil means to trickle down the condenser coil means from the upper zone, and

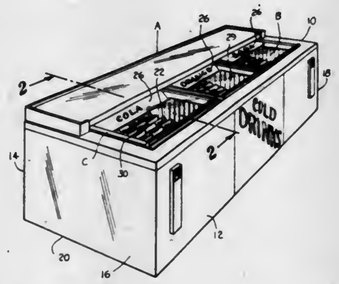
attachment means to attach the valve operating means exteriorly of the frame and in the flow path and including orienting structure to orient said paddle face in generally parallel relation to the frame main faces when attached to an air conditioner.

4,274,267

HORIZONTAL MERCHANDISING COOLER

David H. James, and Manuel F. Junco, both of Spartanburg, S.C., assignors to Tastetics, Inc., Erie, Pa.

Filed Aug. 30, 1979, Ser. No. 71,303
Int. Cl.³ A47F *3/04*; F25D *11/02*
U.S. Cl. 62—252 **5 Claims**



1. A refrigerated drink box for merchandising drink packaging containers of several brands and the like comprising:

an elongated horizontal open top receptacle including elongated spaced front and back sidewalls, integral spaced end walls, and an integral bottom floor defining an interior space in said receptacle;

a plurality of compartment areas within said interior space accommodating placement of said drink packaging containers in a manner making the brand names on said drink packaging containers readily ascertainable and visible;

a plurality of transparent door closure members overlying respective compartment areas affording illumination and permitting visual inspection of the interior of said compartment areas and being manually openable and closable for access to said compartment areas, one each of said transparent closure members overlying a respective one of said compartment areas;

brand name indicia disposed beneath each said transparent door closure member enlarged and corresponding to a single brand name of drink displayed and contained directly therebelow to define an individual compartment within said compartment area from which said single brand name of drink is merchandized;

said brand name indicia being carried by said receptacle depending downwardly beneath said transparent door closure adjacent thereto and disposed at an angle relative to said door closure and drink packaging containers in a respective compartment so as to be simultaneously visible to a person upon approaching the drink box;

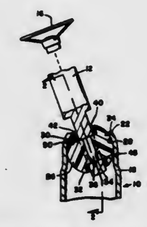
whereby the brand name is attractively and simultaneously displayed in close juxtaposed proximity to said drink packaging containers and brand name appearing thereon enhancing the merchandising thereof and enabling positive identification of said drink by brand name avoiding unnecessary and unintended opening of said door enclosures.

4,274,268

UNIVERSAL JOINT

Alistair G. Taig, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Jul. 2, 1979, Ser. No. 54,365
Int. Cl.³ F16D *3/02*
U.S. Cl. 64—7 **3 Claims**



1. In a joint for connecting a pair of members which transmit rotation between said pair of members, one of said members defining a cavity for receiving a portion of said other member, a pair of sockets rotatably disposed within said cavity for rotation in a first plane, one of said pair of sockets including means to pivotally secure said other member for rotation in a second plane substantially perpendicular to said first plane, and means releasably cooperating with said pair of sockets and said other member to prevent separation between said pair of members when said means is coupled with one of said sockets and to permit separation between said members when said means is spaced from said one socket, said means comprising at least one spring clip disposed between said other member and one of said pair of sockets and said one spring clip being releasably coupled to said one socket.

4,274,269

MANUALLY CONNECTABLE FLEXIBLE COUPLING

Gordon C. Trabue, Louisville, Ky., assignor to Chemetron Process Equipment, Inc., Louisville, Ky.

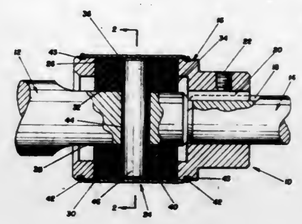
Filed May 2, 1979, Ser. No. 35,359
Int. Cl.³ F16D *3/52*
U.S. Cl. 64—11 R **10 Claims**

1. In a flexible mechanical coupling of the type comprising a pair of generally axially aligned shafts, a tubular collar adapted to receive the proximal ends of said shafts, and first and second locking means securing the respective shafts to said collar, the improvement wherein one of said locking means comprises a connector releasable by direct manual manipulation without the use of tools, including:

a cutout extending through the side wall of said collar;

a flat formed in the diameter of one of said shafts and adapted to be disposed beneath said cutout when the one shaft is received within said collar;

a resilient locking member loosely fitted to said cutout and adapted to be removably received therewithin in abutment against said flat, but detached from said one shaft



and said collar, for restricting relative rotation between the collar and said one shaft, and

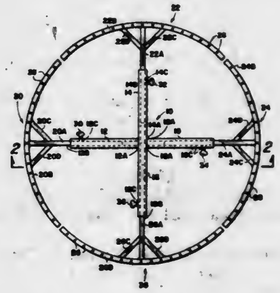
a retainer on said collar manually shiftable to and from a position retaining said locking member in its rotation-restricting position within said cutout.

4,274,270

APPARATUS FOR STRETCHING AN ANIMAL HIDE

Thomas H. Johnson, Rte. 3, Anderson, Mo. 64831

Filed Oct. 1, 1979, Ser. No. 80,255
Int. Cl.³ C14B *1/26*; D06C *3/08*
U.S. Cl. 69—19.3 **4 Claims**

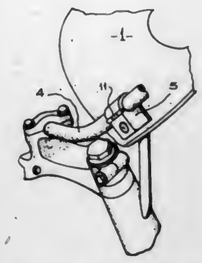


1. Apparatus for stretching an animal hide comprising:

a central frame in the form of a plurality of tubular members one end of each of which is affixed to a common central point;

a plurality of stretcher members extending radially from said frame, each stretcher member including a radially extending leg portion telescopically received in a said frame tubular member, and including means of retaining each said stretcher leg portion at selected telescopic positions, each stretcher member having an arcuate outer circumferential portion, the stretcher members and outer circumferential portions lying in a common plane; and a plurality of spaced prongs extending from each of said arcuate portions adaptable to engage an animal hide adjacent the periphery thereof.

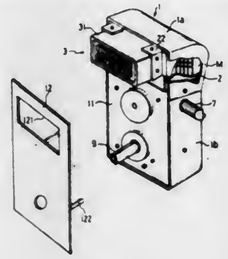
4,274,271
HELMET LOCKING DEVICE
John Todd, and Gregory M. K. West, both of 2 Campbellfield Ave., Campbelltown, N.S.W., 2560, Australia
Filed Apr. 6, 1979, Ser. No. 27,822
Claims priority, application Australia, Apr. 17, 1978, PD4060
Int. Cl.³ E05B 67/36, 69/00
U.S. Cl. 70—59 3 Claims



1. A device for locking a motorcycle safety helmet to a constructional element of a motorcycle comprising:
a body portion securable to said constructional element;
a locking member having a pair of projecting parallel pins, said pins being extendable through cooperating apertures in a wall of said motorcycle safety helmet and thence into said body portion;
and a pin-tumbler cylinder lock in said body portion; said body portion being composed of a U-shaped member and a cavitied member, said U-shaped and cavitied members being hingedly connected together to define therebetween a cylindrical bore clampable about said constructional element, and said U-shaped member having one limb thereof elongated, which elongated limb overlies said cavitied portion and is securable thereto when said body portion is clamped about said constructional element; said pin-tumbler cylindrical lock being contained within said cavitied portion having a lock barrel portion of said cylinder lock including a pair of spring jaws attached thereto, and at least one projecting pin of said locking member having a cooperating free end including a pair of opposed notches engageable with said spring jaws; said spring jaws disengaging from said notches upon forcible disengagement of said helmet from said constructional element, thereby preventing serious damage to said helmet.

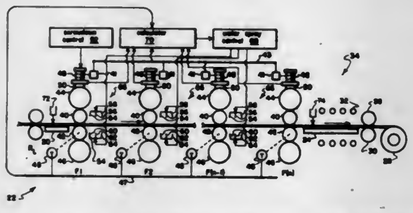
4,274,272
MECHANICAL DIGITAL LOCK
David T. Wang, Taipei, and Sun-Tong De, Taichung, both of Taiwan
Filed Sep. 22, 1978, Ser. No. 944,786
Int. Cl.³ E05B 37/16
U.S. Cl. 70—214 23 Claims

1. A mechanical digital lock for use on a door which opens and closes within a frame, said lock comprising:
a casing mountable on the door,
latch means carried by said casing and movable into and from locking engagement with the door frame,
manually actuable handle means carried by said casing and accessible externally of the casing,
latch actuating means displaceably carried by said casing and operably connected to said handle means and said latch means so as to be displaced in response to actuation of said handle means to move said latch means into and from said locking engagement;
a plurality of key means carried by said casing, each key means including a manually displaceable key accessible externally of said casing,
a plurality of selecting means carried by said casing and each arranged to be engaged and displaced by an associated one of said key means when the key thereof is displaced,
identifying means carried by said casing and actuable by said selecting means to permit displacement of said latch actuating means for moving said latch from said locking position, said identifying means comprising:
a plurality of independently movable elements arranged to be engaged and moved to a release mode by an associated one of said selecting means when the latter is displaced by its associated key means,
each element including gate means arranged to prevent displacement of said latch actuating means to unlock said latch means unless said element is in its release mode;
all of said elements, except an initially actuable one of said



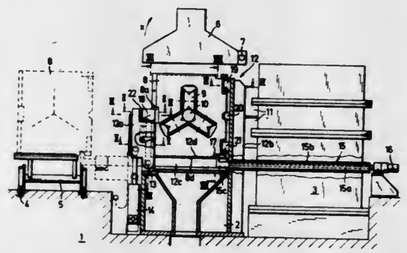
elements, including stop means normally preventing movement to said release mode,
all of said elements, except a finally actuable one of said elements, including stop-deactivating means response to movement of said element to its release mode for deactivating the stop means of the subsequent element to permit the latter to move to its release mode, so that all of said elements can be moved to the release mode only when actuated in proper sequence,
retaining means carried by said casing for releasably holding each of said elements in a release mode, and
resetting means carried by said casing and operably connected to said handle means and retaining means to release said retaining means when said handle means is moved to lock said latch for enabling said elements to move out of said release mode.

4,274,273
TEMPERATURE CONTROL IN HOT STRIP MILL
Donald J. Fapiano, Salem, and Michael A. Smith, Roanoke, both of Va., assignors to General Electric Company, Salem, Va.
Filed Oct. 3, 1979, Ser. No. 81,563
Int. Cl.³ B21B 37/10, 37/08, 45/02
U.S. Cl. 72—13 17 Claims



1. In a hot strip rolling mill including at least one mill stand having opposed work rolls where a metal workpiece is reduced in thickness by passing the workpiece between said opposed work rolls, said mill stand having means to sense the force applied to the workpiece and at least one controllable water spray means positioned adjacent thereto, a method for controlling the temperature of the workpiece during the rolling process, comprising the steps of:
(a) sensing the force applied to the workpiece at said mill stand during a plurality of successive time intervals;
(b) determining the reduction in workpiece thickness at said mill stand during each of said intervals;
(c) developing the deformation resistance of said workpiece, during each of said intervals, from the ratio of the force applied to the workpiece to the reduction in workpiece thickness;
(d) determining an apparent temperature change in the workpiece, if any, as a function of the differences between the initial and each successively developed deformation resistance; and,
(e) controlling the application of a water spray from said spray means onto said workpiece as a function of said apparent temperature change to thereby control the temperature of said workpiece.

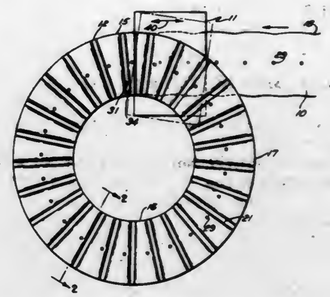
4,274,274
ROLLING MILLS
Theodor Zacharias, Meerbusch, and Bernhard Terdenge, Düsseldorf, both of Fed. Rep. of Germany, assignors to Kocks Technik GmbH & Co., Düsseldorf, Fed. Rep. of Germany
Filed Sep. 20, 1979, Ser. No. 77,317
Claims priority, application Fed. Rep. of Germany, Oct. 16, 1978, 2845051
Int. Cl.³ B21B 31/10
U.S. Cl. 72—239 11 Claims



1. A rolling mill having interchangeable stands arranged in tandem in mountings of a rolling mill frame, and a rolling mill drive at one side of the stands, the mill being provided with at least one change-over trolley which is movable parallel to the rolling axis at the operating side remote from the mill drive for the purpose of conveying the stands when removed from the rolling mill frame, which stands are selectively insertable into the mountings of the rolling mill frame or in mountings of the change-over trolley, the mountings of the rolling mill frame being of substantially U-shaped construction and open at the top and having hinged limbs which are swingable up at the operating side remote from the rolling mill drive, the hinged limbs of the mountings being usable as clamping means for the stands during the rolling operation, and being usable as bridges between the rolling mill frame and the change-over trolley during transfer of the stands between the frame and the trolley.

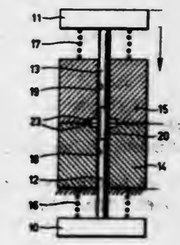
4,274,275
METHOD OF FORMING A CORRUGATED ANNULUS
Edward Battersby, 229 High St., Cumberland, R.I. 02864
Filed Mar. 21, 1979, Ser. No. 22,683
Int. Cl.³ B21D 13/10
U.S. Cl. 72—307 3 Claims

1. The method of forming a radially convoluted partial annulus from flat strip stock wherein a first and second forming tool is mounted on a rotatable assembly which comprises clamping the stock, a first tapered tool engaging and bending the stock laterally of its longitudinal extent at substantially right angles to provide a first corrugated wall as said assembly rotates a finite amount in a first direction, then while holding the bent stock in the bent position, oppositely bending the stock about the engaged first tapered tool by a second tool while allowing said assembly of the tools to rotate a further amount to substantially provide a second wall of a corrugation substantially parallel to the first wall, the corrugation being



tapered to extend a greater depth at one edge than the other, said stock taking an arcuate form in generally the plane of feed as it exits the assembly, then releasing the stock and rotating the assembly of both bending tools in a reverse direction relative to the stock, feeding the stock forwardly and again clamping the stock and performing the first and second bending operations and repeating until at least a partial annulus is formed.

4,274,276
METHOD AND APPARATUS FOR PRODUCING A WORKPIECE BY EXTRUSION MOLDING
Karl Mettler, Vaduz, Liechtenstein, assignor to Etablissement Supervis, Vaduz, Liechtenstein
Filed Jul. 31, 1978, Ser. No. 929,716
Int. Cl.³ B21J 13/02
U.S. Cl. 72—354 4 Claims



1. A method of producing a workpiece from a blank of cold flowable material by extrusion molding, said method comprising the steps of:
placing said blank in a mold cavity comprising two mold halves symmetrical about a separation line between said mold halves, a fixed punch closing one end of the cavity in the first mold half and a movable punch closing the opposite end of the cavity in the second mold half, the respective mold halves being connected to their punches by elastic means having substantially identical elastic force;
moving said movable punch toward said fixed punch by a predetermined distance; and simultaneously
together moving said mold halves toward said fixed punch by a distance substantially equal to half said predeter-

mined distance, whereby said fixed and movable punches travel at the same speed and for the same distance with respect to the separation line, said mold halves remaining stationary with respect to each other;

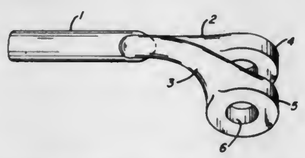
whereby the pressure on said blank exerted by said fixed punch and said movable punch is symmetrical, said two mold halves move symmetrically with respect to said punches and the material of the workpiece blank flows within the mold cavity symmetrically with respect to the separation line of the mold coincident with the plane between the mold halves.

4,274,277

METHOD OF MAKING RAILWAY CAR BRAKE-ROD JAW

Roland E. Cale, Cortland, Ohio, assignor to Schaefer Equipment Inc., Warren, Ohio

Division of Ser. No. 961,499, Nov. 17, 1978, Pat. No. 4,196,642.
This application Sep. 19, 1979, Ser. No. 77,097
Int. Cl.³ B21K *1/74*
U.S. Cl. 72—356 **2 Claims**



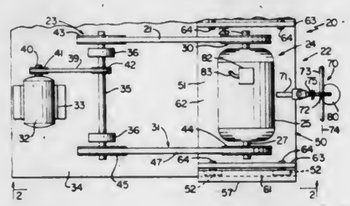
1. The method of making a railway car brake-rod jaw, comprising forging metal stock into a blank consisting of a rod-like shank joined at one end to the inner ends of a pair of forks having enlarged flattened outer ends projecting laterally of the forks in the same direction and provided with pin-receiving openings therethrough, said forging forming one fork substantially in axial alignment with said shank and forming the other fork longer than said one fork and extending laterally away from the shank and then outwardly beside said one fork with its enlarged end projecting toward the other enlarged end, then twisting both forks in the same direction to turn said enlarged ends into laterally spaced parallel planes inclined approximately 45° to the laterally extending portion of said other fork, and then bending the outwardly extending portion of said other fork relative to said laterally extending portion to move the enlarged end of that fork into a position in which its pin-receiving opening is axially aligned with the opening in the other enlarged end.

4,274,278

TRANSMISSION TESTING MACHINE AND METHOD

Gene L. Patterson, Springfield, Mo., assignor to Dayco Corporation, Dayton, Ohio

Filed Nov. 13, 1979, Ser. No. 93,327
Int. Cl.³ G01M *13/02*
U.S. Cl. 73—7 **30 Claims**



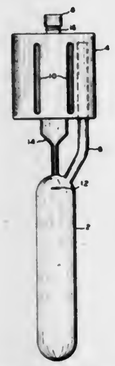
1. In a machine for testing a power transmission device comprising a drive for driving said power transmission device and means for loading said power transmission device, the improvement wherein said loading means comprises a power recovery system comprising, a coupling having an input shaft and an output shaft, said shafts being free of mechanical connections therebetween, first means operatively connecting said power transmission device to said input shaft, and second means operatively connecting said output shaft to said drive, said coupling having integral means operating to drive said output shaft at a speed which approaches but is less than the speed of said input shaft to thereby provide supplementary power for said drive in driving said power transmission device, said system providing testing for any desired loading of said power transmission device with only the power necessary to overcome losses in said machine thereby resulting in a substantial power recovery.

4,274,279

VISCOSITY MEASURING DEVICE

John J. Meister, Gainesville, Fla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 28, 1978, Ser. No. 964,400
Int. Cl.³ G01N *11/06*
U.S. Cl. 73—55 **3 Claims**



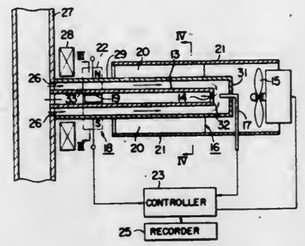
1. An apparatus suitable for measuring viscosity comprising a top container and a bottom container, a restricted flow conduit in open communication with the bottom portion of the top container and the top portion of the bottom container, a pressure equalizing conduit in open communication with a locus within the top portion of the bottom container and with a locus within the top portion of the top container, said equalizing conduit entering into said top portion of the top container through the bottom of said top container, a filling means in the top portion of said top container, said apparatus being adapted to receive into the bottom container a measured quantity of liquid, the viscosity of which is to be measured and to pass said measured quantity of liquid at least through said equalizing tube into said top container from said bottom container upon inverting said apparatus so that the time taken for a measured quantity of said liquid to flow from said top container to said bottom container through said restricted flow conduit upon returning said apparatus to its upright position can be measured, said upper container having a diameter greater than said bottom container and said equalizing tube being entirely comprised within the outermost periphery of said top container.

4,274,280

PLUGGING INDICATOR

Hiromichi Nei; Ryoichi Ohtani, both of Yokohama; Iwao Ohshima, Kawasaki, and Yuji Horikawa, Tokyo, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Sep. 26, 1979, Ser. No. 79,203
Claims priority, application Japan, Oct. 2, 1978, 53/120415
Int. Cl.³ G01N *11/00*
U.S. Cl. 73—61 LM **2 Claims**



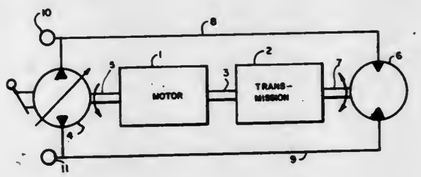
1. A plugging indicator comprising concentric outer and inner pipes one ends of which are connected to a main conduit through which liquid metal passes, said inner pipe being provided with a first opening at an end wall thereof remote from said main conduit to act as a plugging orifice and a second opening through the side wall thereof near said main conduit to act as a bypass orifice, an electromagnetic pump mounted on said outer pipe for branching said liquid metal passing through said main conduit into said outer pipe, means for measuring flow quantity of the liquid metal passing through said outer pipe, cooling means mounted on said outer pipe, means for measuring temperature at said plugging orifice, a blower for supplying cooling air to said cooling means, and means for controlling said blower in response to the flow quantity at said flow quantity measuring means and the temperature at said plugging orifice.

4,274,281

HYDRAULIC TESTING SYSTEM

Louis S. Hoodwin, Rte. 1, Box 246, Sawyer, Mich. 49125

Filed Sep. 27, 1978, Ser. No. 946,156
Int. Cl.³ G01M *13/02*
U.S. Cl. 73—118 **1 Claim**



1. A hydraulic testing apparatus consisting of

a power transmitting component on which a torque load is to be applied, said component having two or more rotary coupling terminals;

a variable displacement hydraulic pump coupled mechanically to a terminal on one power side of the power transmitting component;

a hydraulic motor or motors coupled mechanically to each terminal on the other power side of the power transmitting component;

a closed hydraulic interconnecting system whereby the above hydraulic units are all fluid connected in series;

a rotary power source with means to rotate the terminals of the power transmitting component;

a means for varying the displacement of the pump thus creating a differential hydraulic pressure between the input and output sides of the pump and also creating a torque load on the power transmitting component, and

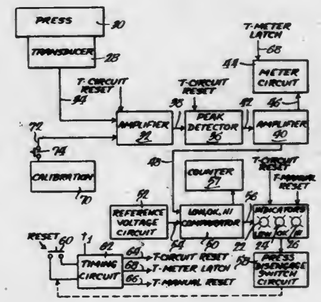
a means for measuring the torque load.

4,274,282

SENSOR FOR RECIPROCATING PRESS

Tadas Budraitis, Midlothian, and Gerald W. Seliga, Frankfort, both of Ill., assignors to Prodsetronix, Inc., Oak Forest, Ill.

Division of Ser. No. 920,714, Jun. 30, 1978, Pat. No. 4,195,563.
This application Jun. 25, 1979, Ser. No. 51,852
Int. Cl.³ G01L *5/00*
U.S. Cl. 73—862.64 **6 Claims**



1. In a cyclically operating machine having a transducer for providing a voltage proportional to load during a cycle of the machine, an improved load measuring circuit comprising:

a first operational amplifier, a first capacitor and a diode, said first capacitor connected to said first operational amplifier for storing the voltage received from the transducer, said diode connected in parallel with the capacitor for dissipating a voltage of reverse polarity, said operational amplifier amplifying the voltage across the first capacitor;

means for discharging said first capacitor to remove any stored voltage remaining thereupon upon the completion of a cycle of the machine;

amplitude detecting means coupled to said first amplifier for detecting the amplitude of the transducer load signal;

means for establishing a HI reference voltage;

means for establishing a LOW reference voltage;

means for comparing the voltage of the transducer load signal with said HI reference voltage and said LOW reference voltage; and

indicator means responsive to the comparing means for indicating if said load signal voltage is greater or less than each of the LOW reference voltage and the HI reference voltage.

4,274,283

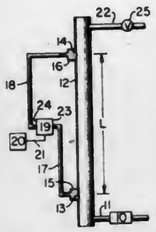
APPARATUS AND METHOD FOR MEASURING FLUID GEL STRENGTH

L. Donald Mann, and George G. Binder, Jr., both of Houston, Tex., assignors to Exxon Production Research Company, Houston, Tex.

Continuation-in-part of Ser. No. 952,022, Oct. 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 883,555, Mar. 6, 1978, abandoned. This application Sep. 20, 1979, Ser. No. 77,219
Int. Cl.³ E21B *47/06*
U.S. Cl. 73—153 **22 Claims**

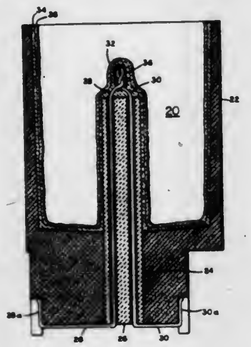
1. An apparatus for measuring the properties of a liquid which comprises:

(a) a nonhorizontal conduit positioned to conduct liquid therethrough,
(b) means for measuring the pressure differential between two vertically spaced locations in said conduit,
(c) means for flowing liquid through said conduit at a rate where the shear rate of the flowing liquid is in the range of greater than zero to about 20 sec^{-1},



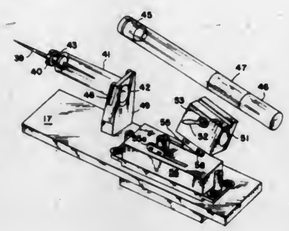
(d) means for cyclically interrupting flow of liquid through said conduit to provide a flow interval and a static interval, and
(e) means for measuring the differential pressure between said spaced locations during the static interval.

4,274,284
EXPANDABLE PHASE CHANGE DETECTOR DEVICE
Richard J. Hance, Philadelphia, Pa., assignor to Leeds & Northrup Company, North Wales, Pa.
Filed Apr. 14, 1980, Ser. No. 140,353
Int. Cl.³ G01K *13/12*
U.S. Cl. 73—354 **6 Claims**



1. An expendable phase change detector device for determining the composition of molten metal by thermal analysis, comprising:
a cup,
a thermocouple junction located in a central area of said cup,
a refractory coating covering said thermocouple junction, and
means responsive to the temperature of said thermocouple junction for ablating said refractory coating from said thermocouple junction when molten metal to be analyzed is poured into said cup and contacts said refractory coating on said thermocouple junction.

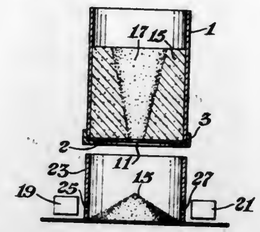
4,274,285
AUTOMATED SYRINGE SAMPLER
Gerald C. Purgold, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Filed Jan. 11, 1980, Ser. No. 111,438
Int. Cl.³ G01N *1/14*
U.S. Cl. 73—683.31 **9 Claims**



1. Apparatus for remotely sampling a fluid medium comprising:
at least one evacuated sample receiving container disposed within the fluid medium to be sampled;
a resilient septum sealingly disposed within an opening in said sample receiving container;
a double ended hollow needle disposed such that one end thereof is adjacent to said resilient septum;
signal responsive means for effecting selective relative linear movement of said sample container and said double ended needle toward and away from each other whereby when said sample container and said double ended needle move relatively toward each other said double ended needle will penetrate said resilient septum and permit the fluid medium to enter said evacuated sample container and when said sample container and said double ended needle are linearly moved relatively away from each other said needle will be removed from said resilient septum to seal the fluid sample within said container;
said signal responsive means being an electrically actuated servo-mechanism;
a base plate for said apparatus;
means for fixedly securing said servo-mechanism to said base plate;
an exposed linearly movable actuator arm disposed on said servo-mechanism;
a sample container bracket secured to said actuator arm; and,
said bracket being provided with a pair of jaws serving to receive said sample container.

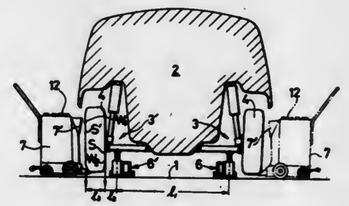
4,274,286
POWDER FLOWABILITY TEST EQUIPMENT
Alberto Gioia, Como, Italy, assignor to Gruppo Lepetit S.p.A., Milan, Italy
Filed Aug. 6, 1979, Ser. No. 64,150
Int. Cl.³ G01N *11/04*
U.S. Cl. 73—432 R **9 Claims**
1. A powder flowability test device which essentially con-

sists in a cylinder which is fitted at the bottom with a disk containing a central hole of varying diameter closed by a



removable plate, said cylinder having an inside diameter which is larger than the largest hole diameter.

4,274,287
METHOD FOR MEASURING UNBALANCED WHEELS OF AN AUTOMOTIVE VEHICLE
Reiken Kaneda, Kawasaki, Japan, assignor to Kobgiken Corporation, Tokyo, Japan
Filed Dec. 21, 1979, Ser. No. 106,085
Claims priority, application Japan, Dec. 28, 1978, 53/161233
Int. Cl.³ G01M *1/28*
U.S. Cl. 73—457 **4 Claims**



1. A method for on-the car measuring of static and dynamic unbalance of the wheels of an automotive vehicle, said method comprising the steps of:
supporting the vehicle at two laterally spaced apart points of an imaginary axis that connects the center of the right and left wheels in a pair of wheels, the support being provided by a transducer at each point;
rotating the wheel to be balanced about the imaginary axes;
detecting oscillations in the wheel due to an unbalance thereof by means of the transducers;
measuring the distance between the two points on which the vehicle is supported;
measuring the distance between the inside surface of the rotating wheel and a first one of the two points on which the vehicle is supported;
measuring the distance between the inside and outside surface of the wheel; and
applying a correction weight at the location determined by said detection step, the value of said correction weight being determined by the equations:

$$f_1=(l_1+l_2)R_1+l_2 \cdot R_2$$

and

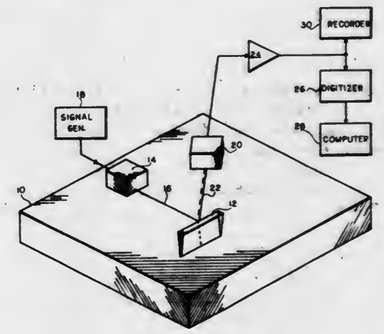
$$f_1=(l_1+l_2+l_3)R_1+(l_2+l_3)R_2$$

wherein:
l_1=the distance determined by said first measuring step;
l_2=the distance determined by said second measuring step;
l_3=the distance determined by said third measuring step;
f_1 and f_2=centrifugal forces due to unbalance; and
R=a detected force
and by the equation:

$$w=g\omega^2 rf_1^1$$

wherein:
W=value of the unbalance weight
g=gravity (9.8 m/S^2)
ω=angular speed
r=radius of rotation of the unbalance weight
f_1^1=peak value of f_1

4,274,288
METHOD FOR MEASURING THE DEPTH OF SURFACE FLAWS
Bernhard R. Tittmann, and Lloyd A. Ahlberg, both of Thousand Oaks, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Jul. 23, 1979, Ser. No. 59,822
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—602 **12 Claims**

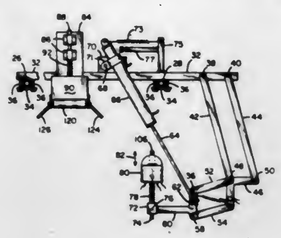


1. A method for measuring the depth a of a surface breaking flaw in an object, comprising the steps of:
(a) irradiating the flaw with an incident acoustic surface wave signal;
(b) detecting a reflected acoustic surface wave signal, including a first portion reflected from the surface edge of the flaw and a second portion reflected from the bottom of the flaw; and
(c) determining the depth of the flaw by analyzing the interference between the first and second portions of the reflected signal.

4,274,289
TRANSDUCER POSITIONING SYSTEM FOR ULTRASONIC TIRE TESTING APPARATUS
Arnold A. Weiss, David C. Christensen, and Bruce H. Sikkema, all of Minneapolis, Minn., assignors to AMF Incorporated, Santa Ana, Calif.
Filed Aug. 29, 1979, Ser. No. 70,688
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—618 **7 Claims**
1. In an ultrasonic vehicle tire test system:
(a) a fixture for holding a tire casing totally in air and rotating same about a central axis, said fixture including an articulated arm which is movable between a first and a second disposition with respect to said tire casing;
(b) a first transducer array including a plurality of ultrasonic transducers, each producing a directional beam of ultrasonic energy when pulsed by electrical impulses of a predetermined frequency, said first transducer array being

affixed to said arm with the individual transducers disposed in a compact cluster arrangement; and

(c) actuator means connected to said arm for moving said first transducer away from a first disposition outside of the opening defined by a sidewall of said tire casing to a second disposition within said tire casing between the



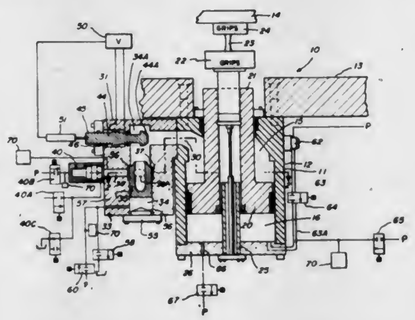
sidewalls with the individual transducers of said first transducer array being in a close but non-contact relationship with respect to the tread portion of said tire casing and oriented to direct their individual beams of ultrasonic energy in a combined fashion so as to span the entire width of said tire casing.

4,274,290

RAPID OPENING, HIGH FLOW CONTROL VALVE FOR HYDRAULIC ACTUATOR

Martin M. Gram, Minneapolis, Minn., assignor to MTS Systems Corporation, Eden Prairie, Minn.

Filed Oct. 30, 1978, Ser. No. 955,807
Int. Cl.³ F15B *21/00*; G01N *3/10*
U.S. Cl. 73—837 **5 Claims**



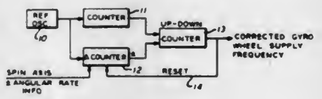
1. In a specimen testing system, an actuator utilized for compression or tension testing of a specimen at a controllable velocity and for a controlled distance along a linear axis, an actuator cylinder having an internal piston and a control rod connected to said specimen, the improvement comprising a high rate fast opening valve to control incompressible fluid under pressure to act on said cylinder including a valve body, accumulator means comprising a chamber having an output connection and being formed in part by a movable piston defining an output chamber portion having a known amount of incompressible fluid therein, pressurized gas means urging said movable piston to provide the known quantity of incompressible fluid at the output connection of the accumulator means, a bore in said valve body having an inlet port and an outlet port, passageway means connecting the output connection of the accumulator means to the inlet port, said actuator being fluidly coupled to said outlet port, a poppet valve piston mounted in said bore and movable from a closed position wherein it closes off flow from said inlet port to said outlet port to an open position where said poppet valve piston permits flow from said inlet port to said outlet port, said poppet valve piston having portions open to said substantially incompressible fluid under pressure at said inlet port when the poppet valve piston is in closed position, and being urged thereby toward open position, menas to provide a second compressible fluid under pressure on said poppet valve piston urging said poppet valve piston to position closing off flow from said inlet port to said outlet port, means to permit selectively reducing the second fluid under pressure to a level which permits the poppet valve piston to start to move to open position, substantial surface portions of said poppet valve piston thereafter being acted on by the first fluid to move the poppet valve piston to open position at a substantially increased force and to fully open the poppet valve piston and discharge the output chamber portion of the accumulator means and to provide only the known quantity of the incompressible fluid to the actuator to load said attached specimen rapidly for a controlled amount of movement, and an adjustable throttle valve means positioned in the fluid flow path between said poppet valve piston and said outlet port to adjustably control the size of the flow path for the known quantity of incompressible fluid under pressure.

4,274,291

GYRO WHEEL SPEED COMPENSATION

George F. Schroeder, Wayne, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed Oct. 30, 1978, Ser. No. 955,864
Int. Cl.³ G01C *19/08*
U.S. Cl. 74—5.37 **6 Claims**



1. A strapdown inertial gyro system comprising:

a source of timing signals for driving the wheel of the gyro of said system,

means for scaling down the frequency of said source of timing signals,

a source of signals indicative of the spin axis angular rate of said inertial system,

means responsive to said spin axis angular rate signals and said reference signals for providing a pulse rate signal proportional to the spin axis angular rate of the inertial system, and

means responsive to said scale down means and said means for providing a signal proportional to the angular rate for counting said outputs to provide a signal correcting the gyro wheel momentum.

4,274,292

COMPACT STARTER ASSEMBLY

Robert D. Arnett, Jr., 4534 College Park, Dallas, Tex. 75229

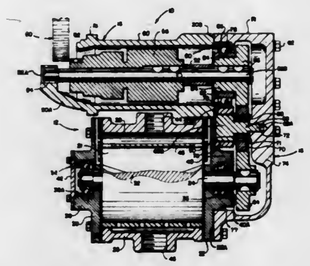
Filed Oct. 11, 1979, Ser. No. 83,766
Int. Cl.³ F02N *7/08, 15/02*
U.S. Cl. 74—6 **3 Claims**

1. A compact starter assembly comprising, in combination:

a drive motor assembly including a housing formed with a bore, an end plate covering the bore on one end of the housing, and a rotor body having a power shaft journalled on the drive motor housing for rotation in the housing bore, the rotor body extending through the bore with the power shaft projecting through the end plate;

the end plate having an annular coupling surface concentric with the power shaft;

a drive pinion assembly including a housing, a pinion shaft extending through the pinion housing and having one end journalled for rotation on the pinion housing and the opposite end projecting out of the pinion housing, and a drive pinion gear axially movable on the pinion shaft into and out or mesh engagement with the flywheel gear of an engine to be started;



the pinion housing end through which the pinion shaft projects having an annular coupling surface concentric with the pinion shaft; and

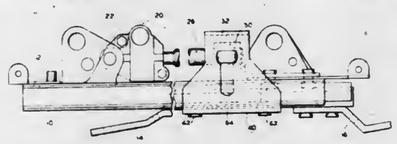
a gear train assembly coupling the power shaft in driving engagement with the pinion shaft, the gear train assembly including a housing having a first coupling surface disposed in mating engagement with the end plate coupling surface and a second coupling surface disposed in mating engagement with the pinion housing coupling surface, the drive pinion assembly and the drive motor assembly being mounted on the gear train housing in side-by-side relation with the drive motor power shaft extending in parallel relation with the pinion shaft.

4,274,293

DRIVE BLOCK STRUCTURE FOR AN ADJUSTABLE VEHICLE SEAT TRACK

Dean L. Ruger, Manitou Beach, Mich., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed May 23, 1979, Ser. No. 41,650
Int. Cl.³ F16H *29/20*
U.S. Cl. 74—89.15 **8 Claims**



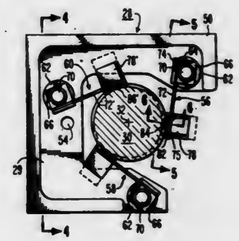
1. In an adjusting mechanism for a vehicle seat track having a lower track adapted to be secured stationarily to a vehicle and an upper track movable relative to said lower track to provide adjustable movement between a seat and said vehicle, and in which there is a lead screw mated with a drive block for controlling relative movement of the upper track relative to the lower track in response to rotation of the screw in the drive block, in which there is a drive block holding mechanism affixed to one track and with lead screw rotating means coupled to the other track, the invention in which the block holding mechanism has a pair of transversely spaced, opposed brackets with a slot in each bracket in alignment with one another, each of said slots having an opening, and comprising a drive block with its body extending between said brackets, said drive block including mounting lugs resting in said openings and extending therethrough, and each mounting lug including a head externally of the bracket with each head periphery greater than the size of the bracket opening thereby to hold the drive block firmly between said brackets.

4,274,294

APPARATUS FOR CONVERTING ROTARY MOTION TO LINEAR MOTION

Bohdan W. Siryj, Cinnaminson, and Loren D. Moore, Palmyra, both of N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jul. 2, 1979, Ser. No. 53,922
Int. Cl.³ F16H *27/02, 29/02*
U.S. Cl. 74—89.15 **8 Claims**



1. Apparatus for converting rotary motion of a screw about a given axis to linear motion parallel to that axis in the presence of distortion of the screw from said axis during said rotary motion comprising:

a frame member,

a plurality of nut segments each including a set of parallel, linear teeth adapted to tangentially engage the threads of said screw, said teeth having their roots undercut and crests removed leaving a tooth structure comprising a side wall which lies substantially along the pitch diameter of said screw, and

a like plurality of resilient segment mounting means secured to said frame, each mounting means resiliently securing a different segment to the frame for resilient radial displacement of that segment in a direction normal to said given axis and further securing that segment from displacement in a direction normal to said radial direction, said segments being circumferentially equally spaced about said given axis whereby said segments translate uniformly in a direction along said given axis with respect to said rotating screw while radially resiliently deflecting in response to said distortion during said translation.

4,274,295

VARIABLE RATIO BELT DRIVE

William L. Grube, 410 Green St., Lake Bluff, Ill. 60044

Continuation of Ser. No. 611,867, Sep. 10, 1975, abandoned. This application Aug. 9, 1977, Ser. No. 823,037
Int. Cl.³ F16H *55/52*
U.S. Cl. 474—23 **3 Claims**

2. A variable speed belt drive mechanism comprising:

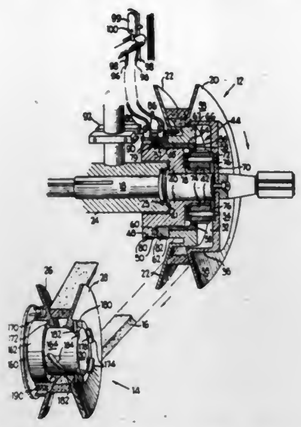
(a) an input drive shaft;

(b) two pulley halves mounted upon said drive shaft for receiving rotational power from said input shaft and transmitting same to a flexible drive member;

(c) annular control means mounted concentrically upon said drive shaft and extending radially therefrom for journaling one of said pulley halves for rotation with said other pulley half and for effecting axial movement of said pulley half; and

(d) said control means including a first and second collar operatively connected to a gear, brake means mounted on one of said collars to effect relative rotation of said gear

and at least one of said collars relative to said input drive shaft, said control means including a threaded connection



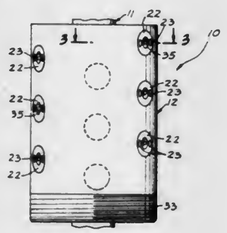
for effecting axial movement of said pulley half upon actuation of said brake means.

4,274,296

SELF-CENTERING SELF-ALIGNING ANTI-FRICTION ROTOR AND SCREW

Lawrence J. Miller, Whittier, Calif., and Raymond W. Born, 4211 First St., Santa Ana, Calif. 92703, assignors to Raymond W. Born, Santa Ana, Calif.

Filed Mar. 19, 1979, Ser. No. 21,626
Int. Cl.³ F16H 1/18
U.S. Cl. 74—424.8 R 20 Claims



1. A rotor for use with a threaded shaft to convert rotary movement of one thereof to linear movement of the other comprising:

thick walled tube having an internal diameter larger than a threaded shaft useable therewith;

said tube having a plurality of rollers journalled in and coaxially of non-radial bores extending through the wall thereof and having their axes lying in a helix having the same pitch as the threaded shaft useable with said rotor, the inner ends of said rollers projecting beyond the inner wall of said tube and adapted to have rolling contact with the thread sidewall of a threaded shaft; and

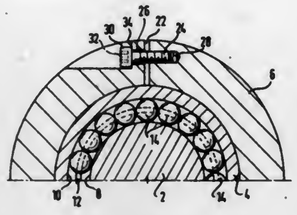
the axes of said rollers being offset axially along said helix in the same direction and parallel to a respective radial plane containing the axis of said rotor, the offset distance being so related to the pitch of said helix and the diameter of the inner ends of said rollers that said inner ends are adapted to have non-scuffing rolling contact with the thread sidewall of a threaded shaft.

4,274,297

SPINDLE DRIVE MECHANISM WITH CIRCULATING BALLS

Günter Blaurock, Niederwerrn, and Ernst Albert, Sand, both of Fed. Rep. of Germany, assignors to Deutsche Star Kugelhalter GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Jan. 25, 1979, Ser. No. 6,483
Claims priority, application Fed. Rep. of Germany, Feb. 7, 1978, 2805141
Int. Cl.³ F16H 29/20
U.S. Cl. 74—424.8 R 34 Claims



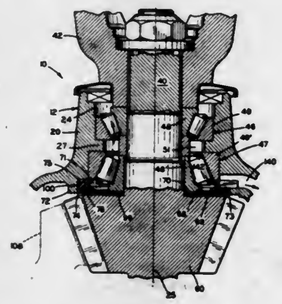
1. A spindle drive mechanism comprising: spindle means having external thread means formed thereon; spindle nut means having internal thread means formed thereon; said external and internal thread means being of equivalent pitch and defining therebetween ball duct means; a plurality of circulating balls operatively engaged within said ball duct means for effecting transmission of axial forces between said spindle means and said spindle nut means upon relative rotative movement therebetween; ball circulating means including means defining ball inlet means and ball outlet means in said ball duct means for effecting circulation of said balls through said ball duct means and between said ball outlet means and said ball inlet means; and compensating means for enabling adjustment of the diametral dimension of said spindle nut means to effect adjustment of the operating pressure between said spindle means and said spindle nut means thereby to provide for compensation of the degree of play between said balls and said ball duct means; said internal and external thread means each being constructed in the form of grooves having flanks which approach each other obliquely at the groove bottoms, each of said grooves being shaped to engage said balls at two points of contact.

4,274,298

DRIVE UNIT SEAL ASSEMBLY

Robert J. Ostrander, 7132 Putt La., Fort Wayne, Ind. 46815

Filed Jul. 6, 1979, Ser. No. 55,420
Int. Cl.³ F16H 57/04; F01M 9/10
U.S. Cl. 74—467 2 Claims



1. A drive assembly comprising
a housing defining a bore;

a shaft extending through said bore and rotatable relative to said housing, said shaft having a generally radially extending surface adjacent said bore;

an annular lubricant chamber at least partially defined by said bore and said surface, said lubricant chamber having an outlet; and

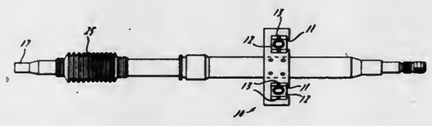
a seal within said lubricant chamber, said seal comprising means for providing a seal between said bore and said surface, said seal further comprising a protuberance extending into said outlet for preventing rotation of said seal with respect to said housing.

4,274,299

COLLAPSIBLE STEERING COLUMN

Bryan Jones, Chelmsford, England, assignor to Ford Motor Company, Dearborn, Mich.

Filed Dec. 26, 1978, Ser. No. 973,279
Claims priority, application United Kingdom, Feb. 4, 1978, 4560/78
Int. Cl.³ B62D 1/16
U.S. Cl. 74—492 2 Claims



1. A steering column for a motor vehicle comprising:

a first and second steering shaft sections extending coaxially along the length of said column;

a member interconnecting said shaft sections constructed to transmit stearing torque between them;

said member being axially deformable under an axially directed impact load applied to either of said shaft sections;

said first shaft section having an end telescopically received in one end of the second shaft section;

said telescopically interconnected ends being constructed to function as an axial guide for relative movement of said shaft sections under impact causing the collapse of said member;

one of said ends of said first shaft section being of non-circular cross section and being telescopically received with a recess of similar non-circular cross section in the receiving end of the second shaft section wherein the receiving end forms a clearance fit with respect to the said one end of the first shaft section to allow limited relative rotation between the two shaft sections when the torque transmitting deformable member does not transmit torque from one shaft section to the other section, said limited relative rotation being noticeable to an operator of a motor vehicle.

4,274,300

APPARATUS FOR AUTOMATICALLY MAINTAINING THE TAUTNESS OF A MECHANICAL COUPLING BETWEEN AN ACTUATABLE DEVICE AND AN ASSOCIATED ACTUATING MECHANISM

Gary L. Golobay, Augusta, Kans., assignor to Conchemco, Incorporated, Lenexa, Kans.

Filed Sep. 24, 1979, Ser. No. 77,989
Int. Cl.³ F16C 1/22; F16D 65/44
U.S. Cl. 74—501.5 R 8 Claims

1. In apparatus for automatically maintaining the tautness of mechanical coupling means extending between and oppositely coupled with a shiftable component of an actuatable device and a shiftable part of an actuating mechanism operably associated with said device and disposed in spaced relationship to said device, wherein said component is normally urged generally away from said mechanism and into an unactuated position thereof but is movable from said unactuated position generally toward said mechanism and into an actuated position thereof in response to application thereto of a force directed generally toward said mechanism, and wherein said part has a standby position relatively nearest said device but is movable from said standby position generally away from said device and into an actuating position thereof for applying said force to said component to actuate said device:

structure disposed generally between said device and said mechanism and in fixed relationship thereto;

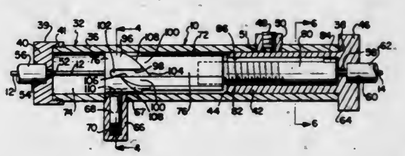
a shiftable element disposed generally between said device and said mechanism;

motion restricting means operably coupling said structure with said element for restraining said element against rotation about an axis extending generally along at least a portion of the path of extension of said mechanical coupling means between said device and said mechanism,

said element being reciprocable along said axis;

a shiftable member disposed generally between said device and said mechanism and along said axis,

said member being both rotatable about said axis and reciprocable along said axis;



threaded connecting means operably intercoupling said element and said member along said axis for reciprocation of said element and said member together as a single assembly along said axis and for automatically drawing the remote extremities of said assembly of said element and said member disposed along said axis closer to each other when said member is rotated about said axis in one direction relative to said element;

cooperating rotary cam and follower means having continuously interengaged cam and follower parts operably intercoupling said member and said structure for rotating said member about said axis in said one direction relative to said element when said assembly is reciprocated back and forth along said axis through a distance greater than a predetermined range of desired reciprocation thereof; and

means for operably intercoupling said assembly in series interposed relationship within said mechanical coupling means between said component of said actuating device and said part of said actuating mechanism.

4,274,301

HANDLE STEM FIXING DEVICE FOR A BICYCLE AND THE LIKE

Hitoshi Katayama, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Jun. 30, 1978, Ser. No. 921,068
Claims priority, application Japan, Jul. 12, 1977, 52-92841[U]
Int. Cl.² B62K 21/16; F16B 13/10
U.S. Cl. 74—551.1 7 Claims

1. A fixing device for fixing a hollow handle stem to a front fork of a bicycle comprising:

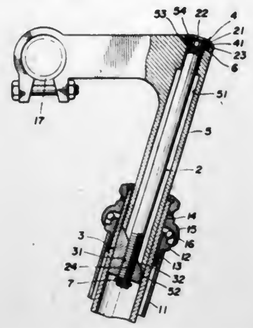
a bolt having a screw thread and being inserted through said handle stem;

a cone screwed with said thread; and

retaining means for retaining said bolt to said handle stem in relation of being substantially axially fixed;

said bolt having a head with a rotary control adapted to permit rotating of the bolt, said head including a larger diameter portion than the stud of said bolt, said retaining means comprising at least one retainer being engaged with said larger diameter portion of the bolt permitting relative rotation of said bolt with respect to said retainer and

connected with said handle stem so as to substantially fix said bolt axially with respect to said handle stem, whereby when said bolt is turned said retainer remains stationary



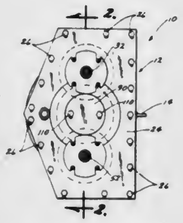
and restricts axial movement of said bolt and said cone is axially moved from said handle stem by use of the thrust of the screw thread of said cone, whereby said handle stem is made detachable from the front fork.

4,274,302

GEAR REDUCTION APPARATUS

Saul Herscovici, Waterloo, Iowa, assignor to Power Engineering and Manufacturing, Ltd., Waterloo, Iowa

Filed Mar. 12, 1979, Ser. No. 19,744
Int. Cl.³ F16H *37/06*
U.S. Cl. 74—661 **7 Claims**



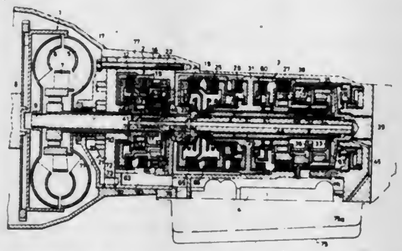
1. A gear reduction apparatus comprising,
a housing means,
a first input shaft rotatably mounted in said housing means and adapted to be connected to a power source, said first input shaft having a toothed gear means thereon,
a second input shaft rotatably mounted in said housing means and adapted to be connected to a power source, said second input shaft having a toothed gear means thereon,
an output power means rotatably mounted on said housing means and adapted to be connected to a driven member,
means for operatively connecting said output power means to said toothed gear means of said first and second input shafts for rotation of said output power means in response to rotation of said first and second input shafts,
a first flywheel mounted on said first input shaft, and
a second flywheel mounted on said second input shaft,
said means for connecting the output power means to the toothed gear means on the first and second input shafts comprising a toothed gear means mounted on said output power means and being in mesh with said toothed gear means of said first and second input shafts,
the toothed gear means on said first input shaft including a first toothed gear portion and a second toothed gear portion having a fewer number of teeth than said first toothed gear portion,
said toothed gear means on said output power means including a first toothed gear portion in mesh with the first toothed gear portion of said first input shaft and a second toothed gear portion in mesh with the second toothed gear portion of said first input shaft, said second toothed gear portion of said output power means having a greater number of teeth than the first toothed gear portion thereof, and
means for selectively coupling one of said first and second toothed gear portions on said output power means to the output power means for rotation therewith.

4,274,303

AUTOMATIC TRANSMISSION WITH OVERDRIVE

Yoshio Shindo, and Hiroshi Ito, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Aichi, Japan

Continuation of Ser. No. 832,828, Sep. 13, 1977, abandoned. This application Dec. 5, 1978, Ser. No. 966,592
Claims priority, application Japan, Apr. 27, 1977, 52-47877
Int. Cl.³ F16H *37/00, 57/02*
U.S. Cl. 74—740 **8 Claims**



1. An automatic transmission with overdrive comprising:
a hydrokinetic torque converter having a pump impeller, stator vanes and turbine vanes;
a housing encompassing the outer periphery of said torque converter therein;
an oil pump having an oil pump body positioned adjacent to said torque converter, and an oil pump cover partitioning a pump chamber from said oil pump body;
an overdrive gear mechanism positioned adjacent to said oil pump but in coaxial relation to said torque converter, with an input side of said mechanism being coupled to said turbine vanes in said torque converter, thereby transmitting torque from an input side to an output side at a gear reduction ratio not greater then 1;
an overdrive case surrounding said overdrive gear mechanism in cooperation with said oil pump cover and having a multiple disc brake operatively mounted within an inner circumferential face of said overdrive case;
an underdrive gear mechanism positioned adjacent to said overdrive gear mechanism but in coaxial relation to said torque converter, having an input shaft coupled to an output side of said overdrive gear mechanism, thereby transmitting torque from an input side to an output side of said underdrive gear mechanism at a plurality of reduction ratios of not less than 1, said overdrive case including a bush rotatably supporting therein said input shaft of said underdrive gear mechanism;
a transmission case encompassing the top and side of elements of said underdrive gear mechanism in cooperation with said overdrive case;
a hydraulic control device arranged under said underdrive gear mechanism and controlling a hydraulic pressure to be delivered to said overdrive gear mechanism and underdrive gear mechanism; and
an oil pan encompassing the undersurface of said underdrive gear mechanism;

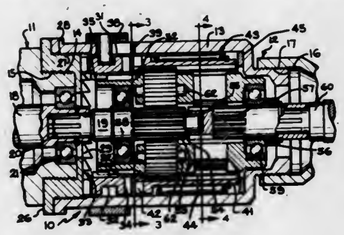
said overdrive case being formed with a first passage connected to an inlet port of said oil pump, a second passage connected to a discharge port of said oil pump, a third passage connected to an inlet port of said torque converter, and a fourth passage connected to an outlet port of said torque converter, with the second, third, and fourth passages being connected to said hydraulic control device through oil passages within the transmission case corresponding to the oil passages thereof.

4,274,304

IN-LINE REVERSING MECHANISM

George R. Curtiss, Chardon, Ohio, assignor to Cooper Industries, Inc., Houston, Tex.

Filed Mar. 29, 1978, Ser. No. 891,186
Int. Cl.³ F16H *3/44, 57/10*; E02D *7/02*
U.S. Cl. 74—792 **10 Claims**



1. A reversing mechanism for a power tool comprising, in combination, a housing, an input shaft having gear teeth, an output shaft having gear teeth, a rotatable cage disposed about said shafts and having gear teeth on its inner surface, a gear carrier intermediate said shafts and said cage, a pair of gears mounted within said carrier and meshed with said input shaft gear teeth and said cage gear teeth, a pair of gear trains each including two meshed gears mounted within said carrier, one gear of each of said gear trains meshed with said output shaft gear teeth and the other gear of each of said gear trains meshed with said cage gear teeth, and a brake collar operatively engaged with said gear carrier and having a first position in which said collar is coupled to said cage and a second position in which said collar is coupled to said housing, whereby bidirectional rotation of said output shaft is achieved from unidirectional rotation of said input shaft by selective positioning of said collar.

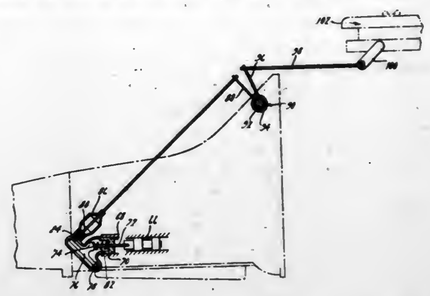
4,274,305

TRANSMISSION THROTTLE VALVE ACTUATOR FOR AN AUTOMATIC TRANSMISSION

Hesham A. Rousbdy, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 9, 1979, Ser. No. 28,132
Int. Cl.³ B60K *41/06*; G05G *1/00*
U.S. Cl. 74—865 **2 Claims**

1. A mechanical linkage system for operating a transmission throttle valve and an automatic control valve circuit for an automatic transmission in an automotive vehicle driveline that includes an internal combustion engine with a carburetor throttle, said linkage comprising a first linkage element adapted to be connected mechanically to the engine carburetor throttle at one end, a force multiplying lever actuator means for moving the transmission throttle valve, a second linkage element having one end thereof connected to said actuator, a preloaded torsion spring connecting the other end of said first linkage element with the other end of the second linkage element whereby an initial throttle valve actuating force is applied to the transmission throttle valve upon initial movement of the carburetor throttle and wherein an increase in the magnitude of the force applied to said transmission throttle valve is accompanied by flexure of said torsion spring which permits independent movement of said first linkage element with respect to said second linkage element, said torsion spring comprising a coiled spring mounted on a stationary portion of said



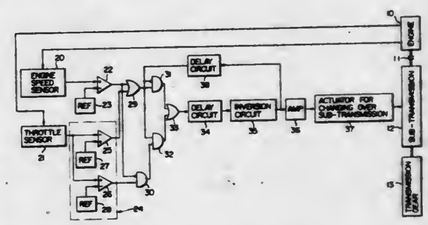
transmission mechanism and having lever arms extending from each side of said spring, one arm being connected to said other end of said linkage element and the other arm being connected to the other end of said first linkage element.

4,274,306

VEHICLE TRANSMISSION SHIFT CONTROL APPARATUS

Takeshi Yokoi, and Noritaka Yanagihara, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 16, 1979, Ser. No. 39,609
Claims priority, application Japan, Aug. 30, 1978, 53-105828
Int. Cl.³ B60K *41/10, 41/06*
U.S. Cl. 74—866 **5 Claims**



1. In a vehicle which is driven by an engine via a transmission, a transmission shift control device for minimizing the brake specific fuel consumption of the vehicle, said device comprising:
a throttle sensor which detects the value which represents the throttle opening of the engine and generates a throttle signal;
an engine speed sensor which detects a value which represents the engine rotational speed and generates an engine speed signal;
a throttle comparator which receives at least one reference signal which it compares with the throttle signal which it receives from said throttle sensor and generates a signal resulting from the comparison;
an engine speed comparator which receives a reference signal and compares it with the engine speed signal which it receives from said engine speed sensor and generates a signal as a result of the comparison; and
a switching circuit means which generates either an upshift command or a downshift command and sends it to the transmission on the basis of said signals fed to it from said throttle and engine speed comparators, said upshift command being generated when said brake specific fuel consumption of said vehicle is lowered by said engine speed being reduced while maintaining the engine output power

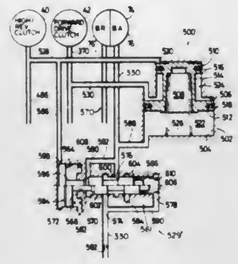
constant, and said downshift command being generated when said brake specific fuel consumption is lowered by said engine speed being increased while maintaining the engine output power constant.

4,274,307

SHOCK CONTROL ARRANGEMENT IN HYDRAULIC CONTROL SYSTEM OF AUTOMATIC POWER TRANSMISSION

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Nov. 6, 1978, Ser. No. 957,781
Claims priority, application Japan, Aug. 30, 1978, 53-105897
Int. Cl.³ B60K *41/10*
U.S. Cl. 74—869 **11 Claims**



1. In an automatic power transmission having an automatic forward drive range condition, a reverse drive gear condition and first, second and third gear ratios in the automatic forward drive range condition and including a transmission mechanism having incorporated therein a fluid operated first frictional unit contributive to the selection of the reverse drive gear condition and the shifting from the second gear ratio to the third gear ratio in the automatic forward drive range, a fluid operated second frictional unit contributive to the shifting from the first gear ratio to the second gear ratio in the automatic forward drive range condition and a fluid operated third frictional unit contributive to the selection of the automatic forward drive range condition, and a hydraulic control system including control fluid pressure generating means for producing a control fluid pressure throughout the automatic forward drive range and reverse drive range conditions, a shock control arrangement for reducing shocks to be produced during selection of any of the automatic forward drive range and reverse drive gear conditions or upshifting between any two of the first, second and third gear ratios in the automatic forward drive range condition, comprising

a pressure accumulator unit operatively intervening between the control fluid generating means and each of the first, second and third frictional units and including a fluid operated piston having a first pressure acting area to be acted upon by a fluid pressure and urge the piston to move in a first direction when the first frictional unit is to be actuated, a second pressure acting area to be acted upon by a fluid pressure and urge the piston to move in a second direction opposite to the first direction when the second frictional unit is to be actuated and a third pressure acting area to be acted upon by a fluid pressure and urge the piston to move in the first direction when the third frictional unit is to be actuated, and biasing means for constantly urging the piston to move in the second direction;

passageway means for discharging the fluid pressure to act on the second pressure acting area;

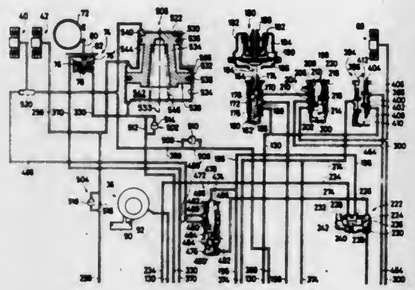
valve means operatively intervening between the second frictional unit and the control pressure generating means and responsive to the fluid pressure to actuate the first frictional unit and act on the first pressure acting area, said valve means including a valve element which is movable into and out of a limit position providing communication between the second frictional unit and the control pressure generating means and closing said passageway means and which is responsive to the fluid pressure to actuate the first frictional unit for being urged to move away from said limit position thereof, and biasing means for constantly urging the valve element toward the limit position thereof.

4,274,308

SHOCK CONTROL ARRANGEMENT IN HYDRAULIC CONTROL SYSTEM

Kazuyoshi Iwanaga, Yokohama; Kazuhiko Sugano, Tokyo, and Kunio Ohtsuka, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation-in-part of Ser. No. 957,782, Nov. 6, 1978, abandoned. This application Mar. 23, 1979, Ser. No. 23,475
Int. Cl.³ B60K *41/06*
U.S. Cl. 74—869 **31 Claims**



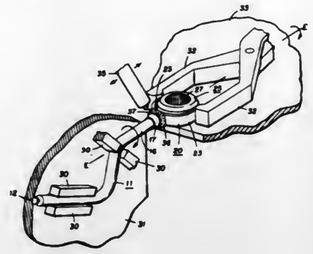
1. An automatic power transmission having an automatic forward drive range condition, a reverse drive gear condition and predetermined two gear ratios in the automatic forward drive range condition and including a transmission mechanism having incorporated therein a fluid operated first frictional unit contributive to the selection of said reverse drive gear position, a fluid operated second frictional unit contributive to shifting from one of said gear ratios to the other and a fluid operated third frictional unit contributive to the selection of said automatic forward range condition, and a hydraulic control system including first control pressure generating means for producing a first control fluid pressure variable with engine load and second control pressure generating means for producing a second control fluid pressure variable with and not lower than said first control fluid pressure, a shock control arrangement for reducing shocks to be produced during selection of any of said automatic forward drive range conditions and said reverse drive range condition or during shifting between said gear ratios, the arrangement comprising: a pressure accumulator unit operatively intervening between said second control pressure generating means and each of the first, second and third frictional units, said pressure accumulator unit being in fluid communication with said first, second and third frictional units, said pressure accumulator unit including a fluid operated piston having a first pressure acting area to be acted upon by a fluid pressure and urge the piston to move in a first direction when said first frictional unit is to be actuated, a second pressure acting area to be acted upon by a fluid pressure and to urge the piston to move in a second direction opposite to said first direction when said second frictional unit is to be actuated and a third pressure acting area to be acted upon by a fluid pressure for urging the piston to move in said first direction when said third frictional unit is to be actuated, and resilient biasing means for urging said piston to move in said second direction; and hydraulic fluid circuit means for directing said second control fluid pressure selectively to said first, second and third frictional units.

4,274,309

METHOD OF MANUFACTURE OF CERTAIN HAND WRENCHES AND THE LIKE

Paul E. Leaker, c/o Davenport Tool Company, 1132 E. LeClaire Rd., Eldridge, Iowa 52748

Filed Feb. 22, 1980, Ser. No. 123,669
Int. Cl.³ B21K *5/16*
U.S. Cl. 76—114 **7 Claims**



1. In the manufacture of hand tools, each including an extending operating handle and a generally U-shaped yoke for carrying the housing of a work performing assembly adapted for pivoting about a first axis between the legs of the yoke, said axis being defined by a pair of axially aligned trunnions extending from opposite locations on the assembly housing and a corresponding pair of axially aligned trunnion journals in the yoke legs adjacent the ends thereof, one end of the handle adjoining the exterior of the yoke intermediate its legs such that the yoke and a longitudinal portion of the handle adjacent said end thereof are symmetrically disposed with respect to a pair of planes normal to each other, the first axis lying in one of said planes, whereby said handle end and the yoke legs form a pair of opposite shoulder areas and a pair of opposite face areas therebetween, the shoulder areas being disposed at right angles relative to the face areas with respect to a second axis defined by the intersection of said planes, an improved method of manufacturing said tools comprising: fabricating the yoke including said journals by punching from sheet or strap material and then partially bending to shape; positioning the assembly housing between the yoke legs with their respective trunnions and journals in axial alignment with each other; holding the handle, the yoke and the assembly housing in their aforesaid positions relative to each other while rotating the same about said second axis; and adding material in and adjacent said shoulder and face areas by welding means disposed adjacent thereto as said areas pass the welding means during said rotation while compressing the yoke legs upon the assembly housing to fully engage the housing trunnions in their journals.

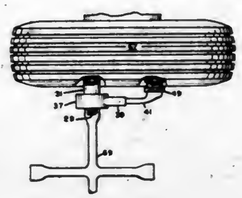
4,274,310

TORQUE MULTIPLICATION DEVICE

Robert P. Michaud, Altamont, N.Y., assignor to Roberta H. Wessendorf, Guilderland, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,564
Int. Cl.³ B25B *13/00*; G01L *5/24*
U.S. Cl. 81—57.36 **11 Claims**

1. A torque multiplication device for use in tightening or loosening a nut, lug, bolt head and the like; said torque multiplication device comprising planetary transmission means of operatively engaged sun, planet and orbit gear means for producing an output torque constituting an input torque applied to said transmission means and multiplied by a multiplication factor through said transmission means, said transmission means having input drive means to receive such applied torque input and output drive means to transmit such output torque to said nut, lug, bolt head and the like for tightening or loosening same, and brake means for braking said orbit gear means, said brake means carrying an anchoring socket for securement with another nut, lug, bolt head and the like to brake said orbit gear means, said anchoring socket carrying locking screw means, said anchoring socket freely mounting in a rotary direction a ring gear, said ring gear operatively engaging said locking screw means to advance inwardly said locking screw means



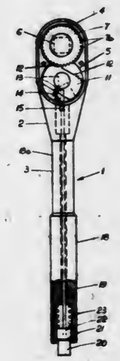
for locking engagement of said locking screw means with the faces of such another nut, lug, bolt head and the like or to withdraw outwardly said locking screw means for release from such locking engagement.

4,274,311

RATCHET WRENCH HANDLE

Emil Ebert, 2900 S. 9th Ave., Broadview, Ill. 60153

Filed Jul. 23, 1979, Ser. No. 59,588
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—63 **7 Claims**



1. A reversible ratchet handle for a socket wrench comprising a head portion and an elongated lever arm portion attached to the head portion and extending in the opposite direction therefrom,

said head portion comprising first and second sections adjacent to each other and formed in said head portion in the shape of circular recessed areas intersecting one another,

a tool driver being rotatably mounted in said recessed area of said first section for engaging a socket wrench,

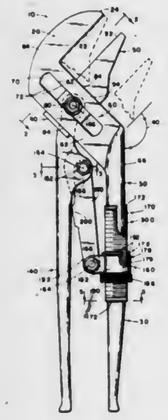
a switching member pivotably mounted in said recessed area of said second section, for selectively engaging said tool driver and changing the rotation thereof from one direction to an opposite direction, means for actuating said switching member so that it selectively engages and changes direction of rotation of said tool driver, and

means for locking said switching member in position so that it continuously engages said tool driver in rotation in a predetermined direction,

said lever arm portion including an elongated tube integrally formed with said head portion, and said actuating means including a rod telescopically and longitudinally disposed in said tube, the inner end thereof engaging said switching member, and a plunger-type push-button mounted at the outer end of said tube, said push-button being attached to

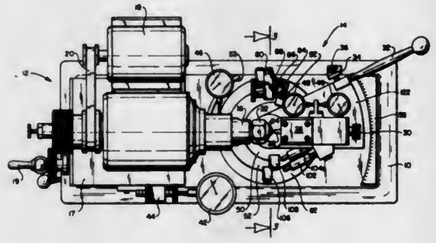
the outer end of said rod and engaging the same such that each time said push-button is actuated, said rod engages said switching member to pivotally rotate and disengage one of its toothed portions from engagement with said toothed edge of said ratchet wheel, while at the same time moving another of its toothed portions into engagement with said toothed edge of said ratchet wheel, so as to effect a change in rotation of said ratchet wheel from one direction to the opposite direction thereof.

4,274,312
TOGGLE WRENCH
Kenneth F. Finn, R.R. Box 468, Macomb, Ill. 61455
Filed Jul. 31, 1979, Ser. No. 62,479
Int. Cl.³ B25B 7/04
U.S. Cl. 81—356 **13 Claims**



1. A toggle wrench comprising a first jaw having a first compression surface on a rearward side thereof and disposed substantially in a first plane and having a terminal end, first elongated handle extending rearwardly in a direction at an obtuse angle with respect to said first compression surface, a second jaw having a second compression surface disposed substantially in a second plane parallel to said first plane, a track section interconnecting an inner end of said first jaw and the forward end of said first handle, said track section having an elongated track extending at a right angle to and substantially rearwardly from said first compression surface, said second jaw having track follower means thereon cooperatively correlated with said track section and slidably secured to said track section in a manner permitting said second jaw to slide along said track section toward and away from said first jaw while said second compression surface is always maintained in substantial parallelism with said first compression surface, a second elongated handle, means pivotally attaching said second handle to said second jaw in a manner for the pivoting of said second handle about a forward axis disposed parallel to said first plane and at a right angle to the elongation of said track, said second handle extending away from said forward axis in a direction at sugstantially a right angle to said forward axis and at times in directions alongside said first handle, a toggle link pivotally attached to said second handle for rotation about an intermediate axis disposed in parallelism with said forward axis, a connector, means pivotally attaching said connector to said toggle link for pivoting of said toggle link with respect to said connector about a rearward axis parallel to and rearwardly of said intermediate axis, a first threaded means extending around and along said first handle and attached to said first handle, a second threaded means threadedly engaged with said first threaded means whereby rotation in each of two opposite directions of said first and second threaded means with respect to each other will cause said second threaded means to move in opposite directions forwardly and rearwardly along said first handle, said connector being operably attached to said second threaded means so that as said second threaded means moves in said opposite directions along said first handle said rearward axis will move toward and away from said track section.

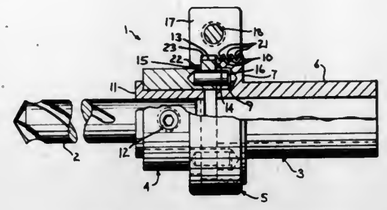
4,274,313
APPARATUS FOR CUTTING ASPHERICAL SURFACES ON CONTACT LENSES AND THE LIKE
Sekula Vulic, 319 E. 17th Ave., Columbus, Ohio 43201
Filed Jun. 19, 1978, Ser. No. 916,601
Int. Cl.³ B23B 3/28
U.S. Cl. 82—12 **13 Claims**



1. In a lathe for forming a lense shaped surface on a workpiece, said lathe being of the type having a support base, a headstock mounted to said support base and including a rotatably driven spindle for supporting a workpiece and a tool carriage mounted to said support base including a tool chuck supporting a tool, said chuck being pivotable about a pivot axis which is perpendicular to the axis of said spindle and adjustably translatable along its axis for positioning the tool a selected radial distance on either side of said pivot axis, an improved tool carriage comprising:

(a) a support frame mounted to said support base;
(b) an eccentric ring member having an inner and an outer circular bearing which are eccentric to each other;
(c) an outer bearing member mounted to said support frame and having a circular, inside bearing for rotatably mating with the outer bearing of said eccentric ring member;
(d) an inner bearing member supporting said tool chuck and having a circular, outside bearing which is concentric with said pivot axis for rotatably mating with the inner bearing of said eccentric ring member;
(e) cooperating catch means attached to said inner bearing member and said eccentric ring member for being selectively positioned to engage at a selected angle of rotation for effecting the rotation of said eccentric ring member simultaneously with the rotation of said inner bearing member and said tool subsequent to said engagement; and
(f) a stop means adjustably attached to said outer bearing member and said eccentric ring member for preventing pivotal movement of said eccentric ring member in one direction beyond zero reference angular alignment, said stop means being adjustable to selected angular positions about the center of said bearing of said outer bearing member to adjustably select the position of said zero reference angular alignment.

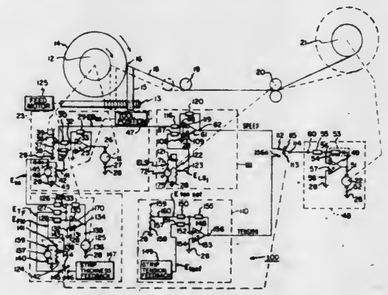
4,274,314
CLAMPING DEVICE
Bernard Repinski, 120 North St., Sharon, Wis. 53585
Filed Mar. 28, 1980, Ser. No. 135,076
Int. Cl.³ B23B 29/00, 5/22, 31/10
U.S. Cl. 82—36 R **16 Claims**



1. In a tool holder the combination comprising:

(a) an axially extending body member having an axially facing stop surface;
(b) a tool receiving member positioned axially alongside said body member with an axially directed abutment face opposing said stop surface;
(c) one of said members having an external first oblique camming surface that extends circumferentially of such member;
(d) the other of said members having a holding surface directed axially away from the member with said first oblique camming surface;
(e) a clamping member radially outside said body and tool receiving members, said clamping member having a radially inward directed second oblique camming surface that extends circumferentially in meshing relation with said first oblique camming surface, and a clamp surface axially opposing said holding surface of said member; and
(f) said clamping member being radially contractible to draw said first and second oblique camming surfaces together with a resultant axial positioning of the members.

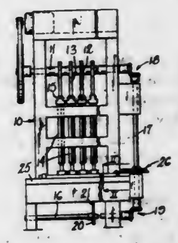
4,274,315
ELECTRONIC CONTROL SYSTEM FOR STRIP PEELING APPARATUS
Donald E. Varner, Hanover, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Jul. 25, 1979, Ser. No. 60,323
Int. Cl.³ B23B 1/00, 7/00, 3/04
U.S. Cl. 82—47 **15 Claims**



1. In an electronic control system for a strip peeling machine including a drive circuit providing electrical signals for operating a motor to rotate a billet of material supported on a spindle at a first speed and advancing a cutting tool into said rotating billet for peeling a continuous strip of said material with a predetermined thickness therefrom for attachment to a wind up spindle, a strip speed regulating circuit for supplying an electrical signal to cause a second drive circuit to operate a second motor to rotate said wind up spindle to pull and move said strip at a second speed, said signal supplied by said regulating circuit being proportional to the difference between said speed of said moving strip and said speed of said rotating billet, the improvement comprising:

tension regulating means having a tension sensing circuit for sensing tension on said strip and supplying an input signal to an input terminal of a first amplifier circuit for causing said first amplifier circuit to provide an output signal to said second drive circuit for operating said second motor to rotate said wind up spindle and automatically maintain a predetermined tension on said strip;
switching means for selectively disconnecting said strip speed regulating circuit from said second drive circuit and connecting said tension regulating circuit means to said second drive circuit;
feed motor means having a second amplifier circuit for supplying electrical signals to a feed motor coupled to said cutting tool in response to a first input electrical signal proportional to said first speed for operating said feed motor to advance said cutting tool at a first rate into said rotating billet for peeling said strip; and
means for sensing strip thickness and selectively supplying a proportional electrical signal to an input terminal of said second amplifier circuit to cause said second amplifier circuit to supply an electrical signal for operating said feed motor to advance said cutting tool at a second rate into said rotating billet to automatically maintain said predetermined thickness of said peeled strip.

4,274,316
CRANK PRESS BLANK HOLDER AND STRIPPER MECHANISM
Donald A. Roy, Waterbury; George F. O'Keefe, Southington, and Carl R. Kutella, Bristol, all of Conn., assignors to Textron, Inc., Cheshire, Conn.
Filed Feb. 6, 1980, Ser. No. 119,118
Int. Cl.³ B21D 45/08
U.S. Cl. 83—23 **8 Claims**



1. In a blank forming press including a frame, a vertically reciprocable plunger, a die bed positioned below said plunger, a main drive shaft rotatably mounted in said frame above said bed, said drive shaft having a crank thereon, a connecting rod actuated by said crank to impart a forming force to said plunger, a cam shaft rotatably mounted in said frame, drive means coupling said cam shaft to said drive shaft for synchronous operation therewith, a punch carried by the plunger, a stripper associated with the punch and adapted to act on a blank, a lever operative to move the stripper vertically, cam means on the cam shaft, and adjustable means operatively connecting said cam means to said lever, said cam means and adjustable means being adjusted and operated to hold the stripper in blank-retaining position adjacent the die while the punch bottoms, to accompany the blank upward out of the die upon retraction of the punch and to strip the blank from the punch.

4,274,317

METHOD OF MONITORING A CONTINUOUSLY ADVANCING STRING MATERIAL

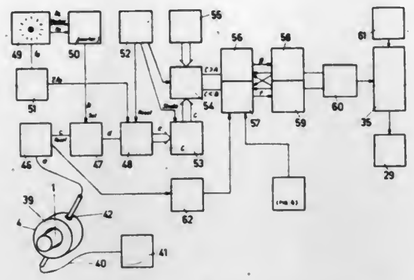
Philippe Vullieu, Palezieux-Gare, Switzerland, assignor to Baumgartner Papiers S.A., Crissier, Switzerland

Filed Apr. 4, 1979, Ser. No. 26,905

Claims priority, application Switzerland, Jan. 19, 1979, 535/79

Int. Cl.[3] A24C 5/28

U.S. Cl. 83—74 24 Claims



1. In a method of monitoring a continuously advancing string material of the kind comprising a continuous alternating succession of string sections of different material quality and-/or structural configuration with regard to the cutting of said string into discrete plugs of identical type, each comprising at least two sections of different material quality and/or different structural configuration, for the purpose of checking and automatically correctively adjusting the spacing of a cut made by a severing device relative to an immediately succeeding different section,

comprising the steps of

scanning the continuously advancing string before cutting it by a sensor unit which responds to individual string sections of different material quality and/or structural configuration;

detecting the start as well as the end of each string section;

generating concurrently an output signal by a device associated with the severing device to indicate the point in time at which the string is cut;

obtaining, from the moment at which the output signal appears, to the moment at which the sensor unit issues a signal corresponding to detection of the end of the string section to be severed, a measured value which is independent of the rate of feed of the string, and which is proportional to the length of the string section between the two signals;

comparing the measured value with at least one predetermined reference value; and

correctively adjusting the operative stroke of the severing device when a certain number of successive measured values deviate in the same direction from the predetermined reference value.

4,274,318

APPARATUS FOR SHAPING BATTS OF LOOSELY COMPACTED FIBROUS MATERIALS

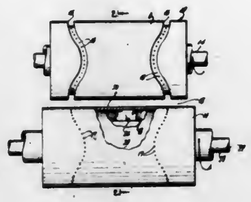
Anthony Passaflume, Burbank; Clarence F. Lamber, Country Hills Club, and William Dickover, Richton Park, all of Ill., assignors to Johnson & Johnson, New Brunswick, N.J.

Division of Ser. No. 888,818, Mar. 21, 1978, Pat. No. 4,216,687. This application Dec. 17, 1979, Ser. No. 104,519

Int. Cl.[3] B26F 1/26, 3/00

U.S. Cl. 83—177 7 Claims

1. Apparatus for shaping a batt of loosely compacted short fibers comprising; a first roll and a second roll disposed adjacent each other with their axes parallel and with their outer periphery spaced apart to form a nip for the passage of the batt to be shaped there between, the first roll being rotatable and having a recessed pattern disposed about the periphery of the roll in the shape desired to be produced in the batt, the second roll comprising a stationary inner shell and a rotatable outer shell, the outer shell having openings matching the recessed pattern of the first roll, means for rotating the first roll and said outer shell in opposite directions and at the same peripheral linear speed so that the openings in the outer shell are complimentary to the recessed pattern in the first roll, said inner shell



having an opening disposed transverse of its periphery and in a position adjacent to the first roll and directed there towards, means for presenting high-pressure air to the inner shell, said outer shell rotating about said inner shell so that the high-pressure air is directed continuously through the opening of the inner shell to the pattern of openings in the outer shell to the recessed pattern in the oppositely rotating first roll while a batt passes through the nip formed by the said rolls to form and sever the batt into the desired shape.

4,274,319

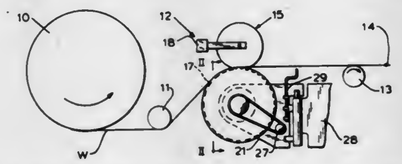
SLITTER FOR HIGH BULK TRAVELING PAPER WEB MATERIAL

Kenneth G. Frye, Lee, Mass., and Donald C. Fitzpatrick, Chatham, N.Y., assignors to Lenox Machine Company, Inc., Lenox, Mass.

Continuation-in-part of Ser. No. 810,575, Jun. 27, 1977, Pat. No. 4,157,672. This application Apr. 12, 1979, Ser. No. 29,398

Int. Cl.[3] B26D 1/24

U.S. Cl. 83—430 11 Claims



1. A slitter for high bulk traveling paper web material and adapted to be located between a web source and subsequent processing equipment comprising:

means for guiding the traveling web along a longitudinal axis of movement;

first and second rotary slitter blades having peripheral slitting edges cooperating at a web slitting cut point;

said first blade having its axis of rotation transverse to said longitudinal axis of movement of the web and having its slitting edge rotational in a plane which is parallel to said longitudinal axis of movement of the web;

said blades having their slitting edges at less than 0.030 inch overlap;

said second blade having its slitting edge at a rake angle of 0–10 minutes relative to the slitting edge of said first blade at said cut point;

and said second blade slitting edge being at a toe-in angle of 5 to 30 minutes relative to said first blade slitting edge at said cut point.

4,274,320

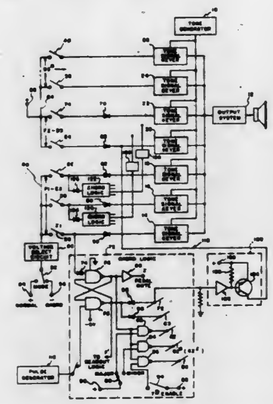
ONE KEY CHORDING SYSTEM FOR ELECTRONIC KEYBOARD INSTRUMENT

Robert A. Finch, Palos Park, Ill., assignor to CBS Inc., New York, N.Y.

Filed Jun. 8, 1979, Ser. No. 47,171

Int. Cl.[3] G10H 1/00

U.S. Cl. 84—1.01 13 Claims



1. In an electronic keyboard instrument which includes:

a tone signal generating system for generating tone signals corresponding to notes in the musical scale;

an output system for translating tone signals into audible musical tones;

a set of tone signal keyers, each receiving one of said tone signals and being responsive to a keying signal on a keying terminal to key said tone signal to said output system; and

a keyboard having a plurality of single pole, single throw keyswitches, each identified in standard musical terms with a particular note of the musical scale;

a one key chording system comprising:

means connecting a preselected first group of said keyswitches to a first common bus;

means connecting each keyswitch of said first group to the keying terminal of a respective tone signal keyer and normally operative in response to a predetermined D.C. potential of one polarity on said first common bus and actuation of a keyswitch to supply a primary keying signal to the keying terminal of the respective tone signal keyer;

a set of chord logic circuits, each connected to one keyswitch of said first group and operative in response to a predetermined D.C. potential of opposite polarity on said first common bus and actuation of said one keyswitch to supply auxiliary keying signals to the keying terminal of a plurality of tone signal keyers of a preselected group of keyers such that said auxiliary keying signals will actuate a group of tone signal keyers associated with notes comprising a musical chord; and

mode control means connected to said first common bus for selectively applying a D.C. potential of either said one polarity or said opposite polarity to said first common bus for providing a one-key chording mode or a normal play mode, respectively.

4,274,321

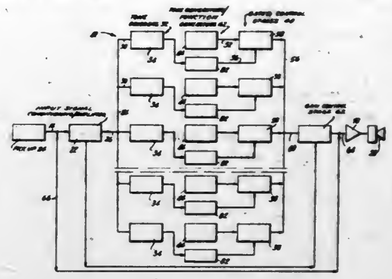
HARMONY AUTHORIZATION DETECTOR SYNTHESIZER

Jerome Swartz, 2 Marwood Pl., Stony Brook, N.Y. 11790

Filed Jul. 30, 1979, Ser. No. 61,854

Int. Cl.[3] G10H 1/38, 3/18, 5/00

U.S. Cl. 84—1.03 12 Claims



1. A harmony synthesizer for use with an instrument that successively has played thereon different single selected original aural notes of a melody to serve as a substitute player of a harmony for a melody played by a musician on said instrument, said synthesizer comprising a transducer for converting a single original aural note at a time emanating from the instrument into an original electric signal retaining at least the fundamental of the wave form of said original aural note, plural means responsive to the original electric signals for emitting for each single original aural note an associated harmony electric signal at a frequency which is in harmony with the fundamental of the original aural note, decay means for modulating the harmony electric signals so that they will fade at approximately the same rate as the single original aural notes, means to regulate the amplitude of the harmony electric signals so that they are functions of the amplitudes of the original electric signals, and means to combine each original electric signal with each associated harmony electric signal so that the two signals can be jointly fed to an output transducer which generates audible sounds from said combined signals.

4,274,322

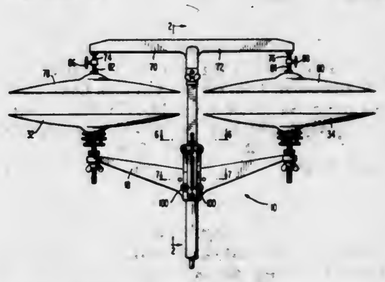
DOUBLE HI-HAT SUPPORT BRACKETS

Charles P. Cordes, 27 Kenneth Pl., Clark, N.J. 07066

Filed Oct. 11, 1979, Ser. No. 83,711

Int. Cl.[3] G10G 5/00

U.S. Cl. 84—422 R 4 Claims



1. A double hi-hat support bracket comprising upper bracket means having first attachment means for securing said upper bracket means to the upper end of the vertically reciprocable rod of a conventional hi-hat support, a pair of horizontal upper arms attached to and extending outwardly from opposite sides of said first attachment means and support means on the outer end of each arm for supporting the upper cymbal of a cymbal set on each upper arm, lower bracket means having second

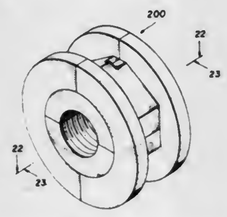
attachment means for securing said lower bracket means to the upper end of the hollow tube of a standard hi-hat support, a pair of horizontal lower arms attached to and extending outwardly from opposite sides of said second attachment means and support means on the outer end of each lower arm for supporting the lower cymbal of a cymbal set on each lower arm, spring means connected between said upper and lower bracket means for normally maintaining said upper bracket means in spaced relation to said lower bracket means, and complementary guide means on said upper and lower bracket means for guiding said upper bracket means for vertical reciprocatory movement relative to said lower bracket means and for maintaining said upper arms in substantially vertical alignment with said lower arms, said guide means being comprised of a flat elongated guide blade secured to and extending downwardly from said upper bracket means and at least one pair of low friction guide members secured to said lower bracket means engaging said blade to prevent all lateral movement of said blade and rotary movement of said blade about the longitudinal axis thereof.

4,274,323

SHAFT-MOUNTED ASSEMBLY

Herbert Resnicow, 107 Weeks Rd., East Williston, Long Island, N.Y.

Filed May 8, 1979, Ser. No. 37,200
Int. Cl.³ F16B *43/00*
U.S. Cl. 411—433 **15 Claims**



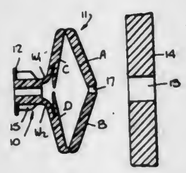
1. An assembly which may be mounted on a shaft without passing over the end of the shaft, said assembly comprising four segments which are sized and shaped to encircle the shaft and which interlock with each other, each of said four segments having two radially spaced pairs of projecting tongues and two radially spaced grooves, each of which is sized and shaped to receive a projecting tongue from each of two of the other segments, thereby interlocking all four segments in two radially spaced places.

4,274,324

HOLLOW WALL SCREW ANCHOR

Louis N. Gianuzzi, 4 Shelter Dr., Cos Cob, Conn. 06807

Division of Ser. No. 897,368, Apr. 18, 1978, Pat. No. 4,197,781. This application May 16, 1979, Ser. No. 39,322
Int. Cl.³ F16B *35/04*
U.S. Cl. 411—38 **10 Claims**



1. A screw anchor for installation in a hole drilled in a hollow wall, said anchor being molded of synthetic plastic material and comprising:

A. a shank constituted by a pair of front legs and a pair of rear legs in a diamond-like configuration, said front legs being hinged together by a front apex living hinge having an opening therein, said front legs being joined to said rear legs by side apex living hinges, the ends of said rear legs defining a rear apex;

B. a socket attached to said shank adjacent said rear apex by a pair of normally outstretched resilient webs that merge with said rear legs, said webs having a memory resulting in the return of the webs to their normal state when the webs are flexed and thereafter released, whereby when said diamond-like shank is compressed at said side apex hinges, it is transformed into a tongue which is insertable in said hole, making it possible to seat said socket therein; said tongue, after passing through the hole, then being caused by the webs to resume its diamond-like configuration, said webs having a length permitting hinging thereof adjacent the inner surface of said hollow wall at a point determined by the length of the socket relative to the thickness of said hollow wall, said socket having a bore in registration with said front apex opening; and

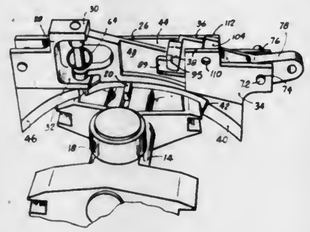
C. a screw which is turnable into said bore and is threadably engaged thereby, the turning screw then advancing to engage the ends of said rear legs and to spread them apart to transform the shank into a truss whose bottom chord is formed by said rear legs and is pressed against the inner surface of said wall to prevent removal of said anchor, the point of said advancing screw then entering and threadably engaging the opening in the front apex hinge to define a central strut between the front apex of the truss and the socket, whereby the truss may be collapsed by withdrawal of the screw to permit removal of the anchor from the hole.

4,274,325

SAFING MECHANISM FOR HIGH RATE OF FIRE REVOLVING BATTERY GUN

Ronald R. Snyder, Georgia, and Lincoln L. Sibley, Jr., South Burlington, both of Vt., assignors to General Electric Company, Burlington, Vt.

Filed Jul. 17, 1979, Ser. No. 58,359
Int. Cl.³ F41D *7/04*
U.S. Cl. 89—12 **4 Claims**



1. In a Gatling type gun having:
a housing;
a rotor journaled for rotation with respect to said housing along a longitudinal axis;
said rotor having a plurality of gun bolts disposed in an annular row with respective firing pin assemblies; and
switchable firing pin assembly control means fixed with respect to said housing for sequentially engaging each of said firing pin assemblies and having a first disposition for positively precluding searing of each firing pin assembly and a second disposition for forcing timely searing of each firing pin,
said firing pin assembly control means including
first means having

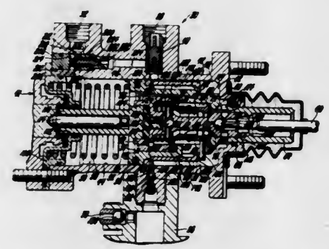
a first annular cam surface having
a longitudinally forward, lower portion,
a longitudinally rearward, higher portion, and
therebetween a lacuna in said cam surface,
the improvement of:
a second means having
a second cam surface disposed in said lacuna and transversely pivotally mounted and actuated for longitudinal movement to and between a first disposition whereat said second cam surface provides a continuum and a gradual decline between said higher portion to said lower portion of said first cam surface, and a second disposition whereat it provides a gradual return to said lower portion of said first cam surface from within said lacuna.

4,274,326

HYDRAULIC BOOSTER WITH BACK PRESSURE CONTROL

Deany L. Peeples, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Feb. 28, 1979, Ser. No. 16,086
Int. Cl.³ F15B *9/10*
U.S. Cl. 91—49 **3 Claims**



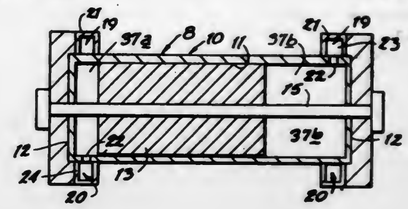
1. In an open center hydraulic booster having a hydraulic fluid inlet and a hydraulic fluid outlet, a power piston having a power chamber on one side connected to said inlet and an exhaust chamber on the other side connected to said outlet, an open center control valve means permitting hydraulic fluid flow from said power chamber to said exhaust chamber and operable to actuate said booster by restricting or preventing said flow to cause hydraulic power pressure to be impressed in said power chamber, the improvement comprising:
a back pressure control valve positioned fluidly intermediate said open center control valve means and said fluid outlet and having an inactive condition providing substantially no flow restriction downstream of said open center control valve means, said back pressure control valve comprising a valve piston reciprocably movable in a bore operatively connecting said fluid inlet and said fluid outlet, a port forming a part of said fluid outlet and positioned to be restricted by said valve piston in accordance with movement of said valve piston toward said fluid outlet in response to booster actuating pressure in said fluid inlet acting thereon, said valve piston restricting flow of hydraulic fluid downstream of said open center control valve means and creating a hydraulic back pressure on said open center control valve means which is substantially less than the booster actuating pressure in said fluid inlet and said power chamber and which decreases valve noise generated by booster actuating operation of said open center control valve means,
said valve piston having a bore therethrough with a valve seat formed therein, and a spring loaded, normally closed, pressure relief valve in said valve piston bore cooperating with said valve seat and responsive to a predetermined maximum booster actuating pressure at said fluid inlet to open and bypass hydraulic fluid from said fluid inlet to said fluid outlet to limit booster actuating pressure to said predetermined maximum pressure.

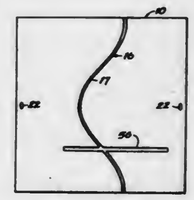
4,274,327

EXPANSIBLE CHAMBER DEVICE

Orin J. Olsgaard, 527 Ford, Missoula, Mont. 59801

Filed Feb. 16, 1979, Ser. No. 12,610
Int. Cl.³ F01B *15/00*; F01L *17/00*
U.S. Cl. 91—196 **19 Claims**





1. An expansible chamber device, comprising:
a stationary base;
a cylinder block;
an elongated enclosed bore formed within the cylinder block along a central axis;
means mounting said block to said base for rotation of the block relative to the base about said axis;
a piston slidably received within the bore for coaxial reciprocating motion therein, along said axis forming expansible chambers within the bore at opposite ends thereof;
rod means interconnecting said piston and base for preventing rotational movement of the piston about the axis relative to the base;
motion transmitting means connecting the cylinder block and piston for directly relating rotational movement of the cylinder block about the axis and reciprocal movement of the piston along said axis through a defined stroke;
intake means associated with said cylinder block operative in response to rotation of the cylinder block relative to the base for sequentially admitting a fluid into an expansible chamber within the bore; and
exhaust means associated with said cylinder block operative in response to rotation of the cylinder block relative to the base for sequentially directing a fluid out of an expansible chamber within the bore.

4,274,328

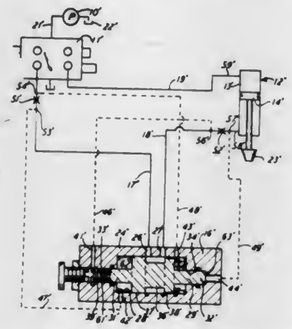
AUTOMATIC HYDRAULIC SHUT-OFF SYSTEM

Carl O. Pedersen, Burlington, Iowa, assignor to J. I. Case Company, Racine, Wis.

Continuation of Ser. No. 803,696, Jun. 6, 1977, abandoned, which is a division of Ser. No. 672,133, Mar. 31, 1976, Pat. No. 4,063,489. This application Jul. 16, 1979, Ser. No. 57,660
Int. Cl.³ F15B *13/042*; F16K *17/30*
U.S. Cl. 91—445 **4 Claims**

1. In an automatic hydraulic shut-off system having a operator controlled directional hydraulic valve unit, a valve housing, a hydraulic responsive apparatus for applying a mechani-

cal force in response to hydraulic pressure applied to said apparatus, a plurality of hydraulic flow lines connected between said housing and said valve unit and said apparatus, the improvement comprising said valve housing having two opposite end portions and a plurality of fluid ports at each of said housing end portions, two fluid ports being adjacent each other in a side wall of said housing and in flow communication with each other and with two of said flow lines being respectively hydraulically connected between said two fluid ports and said valve unit and said apparatus, a fluid-flow restrictor connected in each of said two of said flow lines for restricting flow therethrough, four other of said flow lines being respectively connected between said two flow lines and said housing at four other of said fluid ports, the connection of said four other of



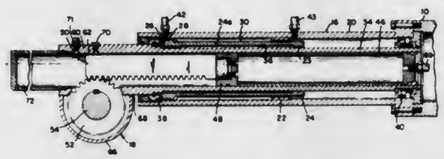
said flow lines to said two of said flow lines being in pairs which are located on both sides of each of said restrictors, the said lines of said connections in each of said pairs connected to opposite said housing end portions, a valve closure movably disposed in said housing and exposed to and operative on all said fluid ports and being arranged for flow communication between the said two fluid ports, and said valve closure having a fluid-sealing portion operative relative to said two fluid ports and having four oppositely faced surfaces respectively exposed to said four other fluid ports for moving said closure in said housing in response to a fluid pressure difference at said surfaces, to thereby move said closure fluid-sealing portion to a position to fluid seal said two fluid ports when a break occurs in the flow line between said valve unit and said valve housing.

4,274,329

ROTARY ACTUATOR APPARATUS

Paul P. Weyer, 48811 284th S.E., Enumclaw, Wash. 98022

Filed Nov. 13, 1978, Ser. No. 960,044
Int. Cl.³ F01B *3/08, 21/02*
U.S. Cl. 92—33 **7 Claims**



1. A compound rotary actuator apparatus for a workpiece manipulating robot, boom supported rock drill machine or the like having a member to be articulated and a frame, comprising:

a first rotary actuator having internal helical spline means, a first external cylindrical housing, an internal first output member, and first piston means operable for acting on said spline means to provide rotation of said output member about a first longitudinal axis of said first external cylindrical housing by reciprocation of said first piston means along said axis,

a second rotary actuator coupled to said first rotary actuator and having a second external housing with a longitudinal axis coincident to said first axis, second piston means reciprocating within said second external housing along said longitudinal axis and a second output member rotatable in response to reciprocation of said second piston means about an axis perpendicular to the axis of rotation of said first output member, said second external housing coupled to said first output member for rotation therewith,

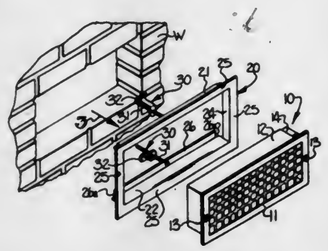
means coupling said first external housing to a frame and means coupling said second output member to a member to be articulated whereby reciprocation of said first and second piston means will provide rotation of said articulated member about two right angle axes, said second output member being rotatably mounted in a third external housing, said second external housing being joined to said third external housing without threads by welding whereby the rotation of said first output member, which is directly transferred to said second external housing, will not release from said third external housing but will transmit the rotational torque in either direction to said third external housing.

4,274,330

VENTILATOR AND MOUNTING FRAME ASSEMBLY

Alvin E. Witten, and Howard W. Green, both of Gastonia, N.C., assignors to Witten Automatic Vent Company, Inc., Gastonia, N.C.

Filed Jul. 9, 1979, Ser. No. 55,605
Int. Cl.³ F24F *7/00*
U.S. Cl. 98—37 **17 Claims**



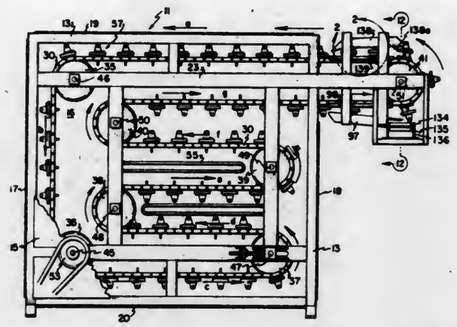
12. A mounting frame for a ventilator constructed for quick and simple installation of the ventilator in a wall of a building from the exterior side of the wall, said frame comprising respective opposing pairs of interconnected generally horizontal and generally vertical walls defining an opening of predetermined size, said frame having an outwardly extending peripheral flange at the front thereof adapted to engage the exterior face of the building wall and having clamping means extending rearwardly of said peripheral flange for engaging the interior face of the wall and clamping the frame in place in the wall, respective abutment means carried by one of said pairs of walls and extending inwardly into said opening and adapted for engaging the rear of a ventilator positioned in the opening to limit rearward movement of the ventilator, and said abutment means being located rearwardly of the other of said pairs of side walls a sufficient distance to permit the ventilator to be slidingly positioned in the opening with the rear of the ventilator engaging said abutment means and with opposite ends of the ventilator located behind said other walls to limit forward movement of the ventilator and thus hold the ventilator in place in the opening.

4,274,331

WAFER BAKING MACHINE

Billy M. Jensen, Sandy; Ronald H. M. Brunner, Salt Lake City, both of Utah, and Lang S. Wong, 875 N. 1500 West, Salt Lake City, Utah 84101, assignors to Lang S. Wong, Salt Lake City, Utah

Filed Jun. 10, 1974, Ser. No. 478,111
Int. Cl.³ A47J *37/00*; A21B *5/00*
U.S. Cl. 99—373 **13 Claims**



1. In a baking machine including an oven and a single endless conveyor which travels through the oven, the improvement comprising:

a. a plurality of baking units fixedly mounted on said single endless conveyor, each of said baking units including:

(i) an upper platen and an associated lower platen, comprising a pair, between which goods are baked, the face of said upper platen which is directed toward said lower platen being flat; and

(ii) connecting means which connect said upper and lower platens of said pair for movement towards and away from one another while maintaining face-to-face parallelism therebetween, said connecting means normally maintaining said upper and lower platens clamped together during a baking cycle;

(iii) a cupped member fixed on said lower platen to face the said upper platen;

b. opening means mounted to said oven at a selected position to move said associated upper and lower platens apart when said baking units are in an inverted position; and

c. a pusher member mounted to push the baked wafers from said flat face of a said upper platen when said baking units are inverted and said upper and lower platens are parted, said pusher member including:

(i) a body section that is pivotally mounted to said oven and a nose portion that extends from one end of said body section; and

(ii) a roller mounted at the opposite end of said body section; said pusher member being positioned such that, when said associated upper and lower platens are parted, said roller rides onto said flat face of said upper platen and said nose portion engages a baked good lying thereon to push the same from said upper platen.

4,274,332

DIE CHANGING APPARATUS FOR PRESS

Iwao Nakamura, c/o Futaba Denshi Kogyo K.K. 629, Oshiba, Mobara-shi, Chiba-ken, Japan

Filed Apr. 4, 1980, Ser. No. 137,268
Claims priority, application Japan, Apr. 11, 1979, 54-42963
Int. Cl.³ B30B *15/02*
U.S. Cl. 100—299 **10 Claims**

1. A die changing apparatus for press comprising:

a base having a plurality of holes;

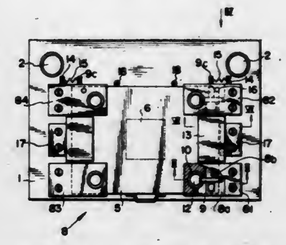
a base plate for mounting a die to be fixed to the surface thereof having guide holes at positions corresponding to the holes of the base;

brackets mounted on the base overhanging over the surface of the base so as to have gaps between the surface of the base and the underside of the brackets for positioning the base plate;

the brackets being provided with holes at the positions corresponding to the guide holes of the base plate and the holes of the base as to be communicated therewith;

eccentric shafts supported by the brackets horizontally extending through the brackets in parallel relationship with the base plate;

the eccentric shafts being provided with eccentric cams and



pinions coaxially mounted thereon for clamping and positioning the base plate with respect to the base;

guide pins being reciprocatable within the holes in the brackets for positioning the base plate with respect to the base to be tightly inserted into the guide holes of the base plate and the holes of the base;

the guide pins being provided with racks engaging with the pinions provided on the eccentric shafts; and

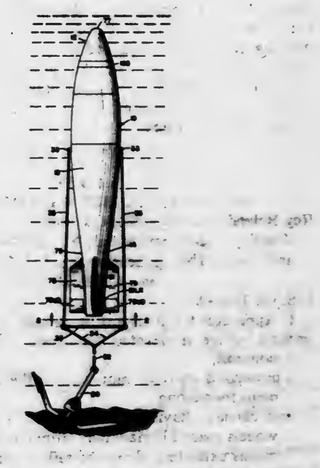
a means for biasing the guide pins in the position of entering into the guide holes of the base plate and the holes of the base.

4,274,333

DEEPWATER TARGET-SEEKING MINES

Glen T. Lampton, Santa Monica, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 28, 1959, Ser. No. 862,432
Int. Cl.³ F42B *22/04, 19/00*
U.S. Cl. 102—418 **5 Claims**



1. A buoyant target-seeking mine comprising, a hollow casing having nose, body, and tail sections, a hydrophone assembly mounted in said nose section, steering elements

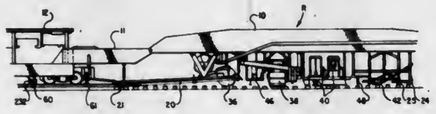
mounted on said tail section, amplifying circuit means connected to said hydrophone assembly, means influenced by said circuit means to move said steering elements in a direction to steer said mine toward a target producing sound above a predetermined amplitude, an orifice in said tail section for the passage of water ballast into and out of said casing, a first independent buoyancy control means for maintaining a predetermined amount of said ballast water in said casing during descent of said mine to anchorage, said ballast water being retained in said casing during said anchorage, a second buoyancy control means under the control of said circuit means for exhausting said ballast water, means for releasing the mine from said anchorage when said sound producing target influences said circuit means whereby said mine is free to rise rapidly to the surface of the water by reason of the increased buoyancy of said casing, and means under the control of said circuit for steering said mine toward said noise-producing target during its rise to the surface.

4,274,334

MACHINE FOR CHANGING RAILS

Raymond R. Lund, West Columbia, S.C., assignor to Canron Corporation, West Columbia, S.C.

Filed Oct. 13, 1978, Ser. No. 951,133
Int. Cl.³ E01B *29/05*
U.S. Cl. 104—2 **35 Claims**



1. A machine for adzing at two laterally spaced locations corresponding to the desired locations of new rails, the upper surfaces of wooden ties of a railway track from which old rails and tie plates have been removed, the machine comprising a main frame having a forward end mounted on first rail engaging means adapted to run on the old rails and a rearward end mounted on second rail engaging means adapted to run on the new rails, a pivotal frame carried on the main frame at a position between and remote from the first and second rail engaging means, two adzers mounted at two laterally spaced locations on the pivotal frame, and means for pivoting the pivotal frame selectively about approximately one adzer location or approximately the other adzer location, whereby both adzers can be positioned substantially perpendicular to the ties even on superelevated track.

4,274,335

MONORAIL POLICE PATROL VEHICLE

Roy Boland, P.O. Box 304, Claymont, Del. 19703

Continuation-in-part of Ser. No. 827,983, Aug. 26, 1977, abandoned. This application Sep. 5, 1979, Ser. No. 72,645
Int. Cl.³ B61B *3/02*
U.S. Cl. 104—93 **6 Claims**

1. Apparatus for transporting people rapidly either along a ground surface or elevated therefrom, comprising:

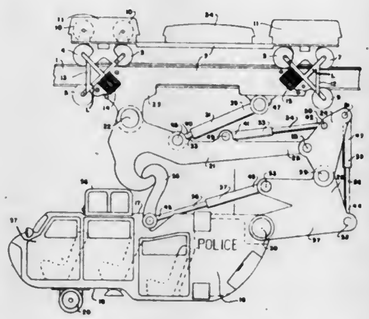
a monorail,

a motorized carriage mounted on the monorail for movement therealong,

said carriage having front and rear sets of rail engaging wheels spaced horizontally from one another, and chassis means extending along the rail to connect said front and rear sets of wheels together,

a gondola disposed below said motorized carriage, said gondola having forward and aft ends and at least one wheel affording movement of the gondola along the ground,

means for raising and lowering said gondola even while said carriage is in motion, including, an elongated fixed-length boom pivotally connected at one end to said chassis and having a free end, an hydraulic cylinder connected to said chassis and said boom adjacent said boom pivot connection for pivoting said boom from a retracted position disposed along the underside of said carriage to an extended position depending substantially vertically downward therefrom, and cooperating link and hydraulic cylinder means carried by the free end of said boom and operatively connected to the aft end of said gondola for raising and lowering the gondola as the boom pivots,



means carried in said gondola for controlling said hydraulic cylinders, and

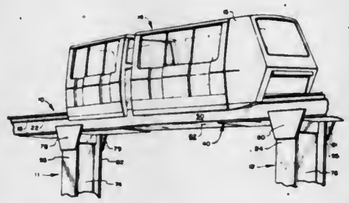
cooperating latch means mounted atop the gondola and depending from the boom for mechanically securing the gondola in its uppermost elevated position, said latch means including a hook depending from said boom adjacent its pivot connection to said chassis and a latch member projecting upwardly from said gondola a spaced distance from the aft end of the gondola, said hook and latch member being shaped to interengage one another when the gondola is in its uppermost elevated position to restrain pivotal movement of the gondola about its aft end and to restrain said gondola from relative movement lengthwise of the boom.

4,274,336

MONORAIL GUIDEWAY ASSEMBLY

Hendrik Pater, 4154 Parkview Dr., Salt Lake City, Utah 84117, and G. Earl Torgersen, Salt Lake City, Utah, assignors to Hendrik Pater, Salt Lake City, Utah

Filed Aug. 11, 1978, Ser. No. 932,828
Int. Cl.³ E01B *25/08*
U.S. Cl. 104—124 **18 Claims**



1. A monorail guideway assembly supported upon at least one column, the guideway assembly comprising:

at least one running surface;

a truss assembly joined to and supporting the running surface, said truss assembly defining a hollow channel beneath the running surface; and

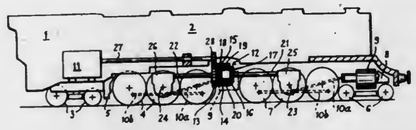
the bottom of said truss assembly at locations immediately adjacent to the at least one support column, comprising a size which exceeds the size of the bottom of the truss at locations between the support columns, so that the variation in stresses applied to the running surface is compensated for while minimizing overall weight.

4,274,337

MODEL LOCOMOTIVES

Christopher W. Shaw, Kirkbymoorside, England, assignor to Micro Metalsmiths Limited, North Yorkshire, England

Filed Jul. 2, 1979, Ser. No. 53,730
Claims priority, application United Kingdom, Jul. 5, 1978, 28959/78
Int. Cl.³ B61C *9/30, 15/14;* B61F *3/04*
U.S. Cl. 105—99 **6 Claims**



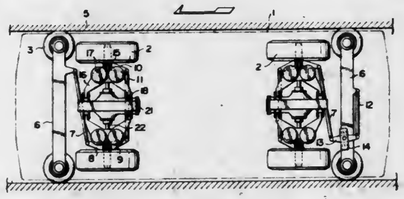
1. In a model of a steam locomotive which has two independent front and rear sets of driving wheels, each set of driving wheels of said model including a plurality of pairs of driving wheels interconnecting by axles, connecting rods interconnecting the individual pairs of driving wheels in each said set, and a single electric motor coupled to axles of both sets of driving wheels for driving said model, the improvement comprising means for permitting relative rotation between the wheels of each said set with respect to the wheels of the other said set and comprising differential gear means including an input wheel and two output gears, output shafts connected to said output gears and extending towards said two sets of driving wheels, respectively, gearbox means coupling each of said output shafts to the axle of one pair of said driving wheels of the associated set, and means coupling said electric motor to said input wheel of said differential gear means, whereby the wheels of each said set can drift in and out of synchronisation with the wheels of the other said set to provide for more realistic operation of the model steam locomotive.

4,274,338

TRANSVERSELY ADJUSTABLE SUSPENSION SYSTEM

Yukio Uozumi, Kobe, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Hyogo, Japan

Filed Apr. 2, 1979, Ser. No. 26,544
Claims priority, application Japan, Apr. 3, 1978, 53-38967
Int. Cl.³ B61B *13/04;* B61F *9/00, 13/00*
U.S. Cl. 105—144 **8 Claims**



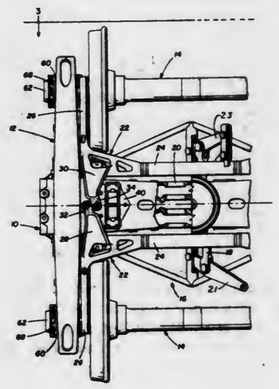
1. An automatically guided vehicle comprising a body and rubbertired steerable running wheels, each having an axle, a suspension system including transversely extending upper and lower link arms which are parallel with each other and have equal arm lengths, each of said links having one end connected with the wheel axle through universal joint means at least for steering movement about a vertical axis and a rotative movement about a longitudinal axis and the other end connected at two longitudinally spaced portions with the vehicle body for rotative movement about a second longitudinal axis, at least one of the link arms being connected with the vehicle body at said longitudinally spaced portions for independent transverse adjustments, air spring means disposed between one of the links and the vehicle body for normally maintaining said links substantially horizontally to thereby maintain the associated wheel always vertical.

4,274,339

RADIALLY STEERING RAILWAY TRUCK ASSEMBLY

Geoffrey W. Cope, Williamsville, N.Y., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed May 29, 1979, Ser. No. 43,199
Int. Cl.³ B61F *3/08, 5/38, 5/52*
U.S. Cl. 105—168 **15 Claims**



1. An improved steering arm assembly for a radially steerable railway car truck having a transversely extending bolster, a side frame mounted at each end portion of the bolster, and a wheel set mounted transversely between oposed ends of the side frames with bearing adapters and resilient bearing adapter pads between the wheel sets and the side frames at each jaw of the side frames; the improved steering arm assembly, comprising:

(a) a pair of generally U-shaped steering arms, with one of said arms being mounted on the truck on the forward side of said bolster and the other of said arms on the rear side of said bolster, with said steering arms each having a transverse segment with an extremity extending from each end portion of said transverse segment wherein end portions of the extremities are attached to bearing adapter means of the associated wheel set and the transverse segment is positioned along side of the bolster;

(b) a connector post extending from the juncture of each said extremity and said transverse segment to a location spaced from said bolster thereby forming pairs of connector posts in substantially vertical alignment with and spaced from each end portion of said bolster; and

(c) linkage means joining each of said pairs of connector posts to maintain said connector posts in a fixed dimension and in a pivotal relation to one another;

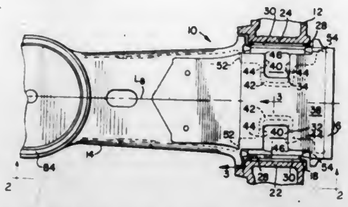
said steering arm assembly being operable upon displacement of one of said wheel sets to a radially disposed orientation to displace the other wheel set to a coordinated corresponding position.

4,274,340

RAILWAY CAR TRUCK FRICTIONAL SNUBBING ARRANGEMENT

Otto W. Neumann, Itasca, and James A. Henkel, Park Forest, both of Ill., assignors to AMSTED Industries Incorporated, Chicago, Ill.

Filed Oct. 15, 1979, Ser. No. 84,669
Int. Cl.³ B61F 5/06, 5/12, 5/24, 5/50
U.S. Cl. 105—197 DB 2 Claims



1. In a railroad car truck including a pair of spaced side frames joined by a transversely positioned bolster having ends resiliently carried in a window formed in each said side frame, the improvement therein comprising,

a pair of friction shoe pockets formed in each said end of said bolster, one each of said pair facing to a front and to a rear of said truck, each said pocket having by a pair of spaced friction members each having a double sloped friction surface formed on a downward and outward angle to form an overall concave-like receiving area, and

a set of four friction shoes, one each of said shoes disposed in each of said friction shoe pockets, each said shoe having a pair of spaced double sloped wear surfaces formed on a downward and outward angle to form an overall convex-like seating area for complementary engagement with said bolster pocket receiving area, an area of said contact between said bolster receiving area and said friction shoe seating area being substantial,

wherein said shoe remains centered within said pocket to provide a three-dimensional wedging effect to improve dynamic stability of said truck by maintaining said side frames and said bolster in a squared relationship while each said friction shoe regulates in part vertical movements of said bolster.

2. A railroad car truck having a pair of spaced elongated side frames positioned in a parallel manner, each said side frame formed with a centrally located window defined by a bottom tension member, a top compression member and spaced sidewalls, and an elongated bolster positioned laterally between said side frames with ends resiliently supported by a set of springs carried on the bottom tension member of each side frame window, the improvement in said truck comprising,

friction shoe pockets formed one each on each side of a longitudinal axis of said bolster at said ends of said bolster, each said pocket defined by a bottom member and a top member having a centrally located and outwardly facing recess formed therein, said top member joined to said bottom member by a U-shaped partition aligned with said recess, said partition having downwardly sloped end walls connected with sidewalls of said pocket by spaced friction members, each said friction member having a double sloped friction surface formed on a downward and outward angle, and

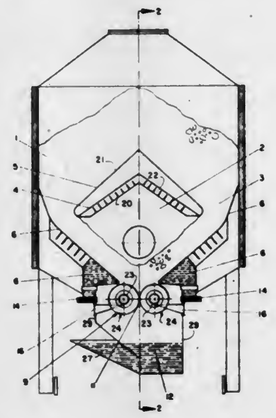
a friction shoe carried one each in said bolster friction shoe pockets, said shoe including a central body portion having a bottom prepared to receive an upper end of a compression spring carried on said pocket bottom member, and a pair of triangular spaced wings each having an end flange, one each of said wings carried on each side of said body member, each said wing having a double sloped wear surface formed on a downward and outward angle, said shoe disposed in said pocket with said friction shoe body portion loosely carried within said U-shaped partition and with each said flange forming a guide in a groove defined by each said pocket friction member and a rib carried on each said pocket sidewall, said spaced wear surfaces of said shoes engaging with said spaced friction surfaces of said pockets with areas of said engagement of said surfaces being substantial to produce a wedging effect to maintain said shoes centered and squared within said bolster pockets respectively, said shoes maintaining said bolster and said side frame in a squared relationship during operation of said truck as vertical movements of said bolster are dampened by a vertical friction surface of each said shoe engaging with a vertical wear plate fastened to each said sidewall of said side frame windows respectively.

4,274,341

COAL GASIFYING BURNER WITH ROTATING GRILL

Huseyin C. Ozaltay, Kucukesat Caddesi, 55/13, Ankara, Turkey

Filed Aug. 13, 1979, Ser. No. 65,877
Claims priority, application Turkey, Dec. 7, 1978, 101848
Int. Cl.³ F23K 1/00; C10J 1/00
U.S. Cl. 110—229 7 Claims



1. A coal gasifying burner comprising a coal storage, a combustion cell positioned beneath said coal storage, narrow gap means with rounded edges through which coal flows continuously from said coal storage to said combustion cell, a roof for said combustion cell separating said combustion cell from said coal storage, an air bearing insulation partition placed on said roof for separating the coal in said coal storage from said roof, sloping side walls made of sheet metal having slopes compatible with coal flow, a nozzle for burning coal gas generated by burning coal in said combustion cell, a jacket surrounding said nozzle, and secondary air means connected to said jacket for cooling said roof and for supporting combustion of coal gas at said burner, whereby gasification is obtained of an abundance of coal located on said sloping side wall around a narrow area where coal combustion takes place, and combustion of the generated gas outside of the burner at said nozzle by secondary air which previously cooled the roof and thus gets heated itself by the cooling process.

4,274,342

APPARATUS FOR CARBONIZING AN AGRICULTURAL PRODUCT

William K. Nider, 32 Sunnyside La., Orinda, Calif. 94563

Filed Jul. 16, 1979, Ser. No. 57,560
Int. Cl.³ F23G 5/06
U.S. Cl. 110—246 9 Claims

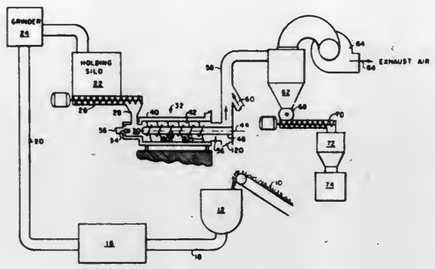
1. An apparatus for carbonizing an agricultural product comprising

means defining a rotatable cylindrical vessel having an inlet end and an outlet end and having a horizontal axis of rotation coincident with the cylindrical axis of said vessel,

means for controlling the volume flow of air from said inlet end to said outlet end,

first means attached to the inside surface of said rotatable cylindrical vessel for creating a vortex of said air passing through said rotatable cylindrical vessel,

a non-rotatable support member extending the length of said rotatable cylindrical vessel,



second means attached to said non-rotatable support member for creating a vortex of said air passing through said rotatable cylindrical vessel,

means for conveying said agricultural product to said inlet end of said cylindrical vessel,

means proximate said inlet end for igniting said agricultural product and creating hot gases to volatilize various constituents of said agricultural product, and

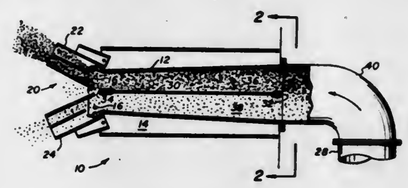
means for conveying said agricultural product away form said outlet end of said rotatable cylindrical vessel.

4,274,343

LOW LOAD COAL NOZZLE

Angelos Kokkinos, New Hartford, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Apr. 13, 1979, Ser. No. 29,606
Int. Cl.³ F23K 3/02
U.S. Cl. 110—263 7 Claims



1. In a pulverized coal-fired steam generator having a furnace, a pulverizer for pulverizing coal, a main fuel pipe for conveying a mixture of primary air and pulverized coal from the pulverizer to the furnace, and a main fuel pipe outlet elbow disposed at the outlet end of the main fuel pipe; an improved fuel-air admission assembly having a coal delivery pipe having an inlet end for receiving the coal-air mixture from the main fuel pipe outlet elbow and an outlet end for discharging the coal-air mixture into the furnace, a first coal nozzle pivotally mounted to the outlet end of said coal delivery pipe so as to tilt about an axis transverse to the longitudinal axis of said coal delivery pipe, and a second coal nozzle pivotally mounted to the outlet end of said coal delivery pipe so as to tilt about an axis transverse to the longitudinal axis of said coal delivery pipe; wherein the improvement comprises:

means disposed within said coal delivery pipe for separating the coal-air mixture received from the main fuel pipe outlet elbow into a higher coal-air ratio portion and a lower coal-air ratio portion, and maintaining the separation between the higher and lower coal-air ratio portions for a substantial portion of the length of said coal delivery pipe so that the higher coal-air ratio portion is directed into the furnace through said first coal nozzle and the lower coal-air ratio portion is directed into the furnace through said second coal nozzle.

5. A method of operating a pulverized coal-fired furnace wherein a mixture of pulverized coal and primary air is discharged into the furnace as a higher coal-air ratio portion and a lower coal-air ratio portion comprising:

a. turning the pulverized coal and primary air mixture through an elbow so that the pulverized coal is concentrated by centrifugal forces along the outer radius of the elbow thereby forming a higher coal-air ratio portion and a lower coal-air ratio portion within the pulverized coal and primary air mixture;

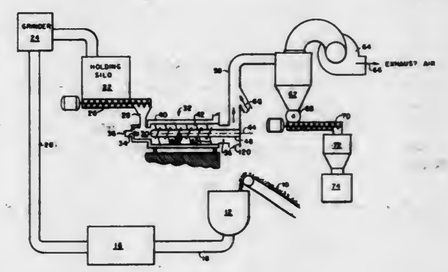
b. directing said higher coal-air ratio portion into and through a first flow pathway extending from the elbow to the furnace, and directing said lower coal-air ratio portion into and through a second flow pathway extending from the elbow to the furnace, the first and second flow pathways forming separate pathways to the furnace, whereby the coal-air ratios obtained in turning the elbow are maintained until said higher and lower coal-air ratio portions are independently directed into the furnace.

4,274,344

PROCESS FOR CARBONIZING AN AGRICULTURAL PRODUCT

William K. Nider, 32 Sunnyside La., Orinda, Calif. 94563

Filed Jul. 16, 1979, Ser. No. 57,558
Int. Cl.³ F23G 5/06
U.S. Cl. 110—346 9 Claims



1. In a process for treating an agricultural product having a high silica content comprising the steps of

supplying said agricultural product to a combustion zone,

supplying hot gasses and combustion air to said combustion zone,

dispersing said agricultural product in said hot gases and combustion air for controlled burning of said agricultural product at a temperature below that which causes fusion of said skeletal silica in said agricultural product but sufficient to cause evolution and combustion of volatile constituents and organic matter in said agricultural product, the improvement comprising

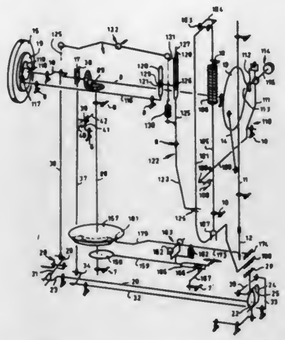
arresting the combustion process of said agricultural product after evolution of said volatile constituents and organic matter and prior to oxidation of carbon constituents remaining in said agricultural product.

4,274,345

MACHINE FOR SEWING TOGETHER WORKPIECE PARTS HAVING EDGES OF EQUAL OR UNEQUAL LENGTH BY MEANS OF A BEAD SEAM

Gerhard Schneider; Rolf Ludwig, and Jochen Fischer, all of Bielefeld, Fed. Rep. of Germany, assignors to Kochs Adler AG, Bielefeld, Fed. Rep. of Germany

Filed Feb. 6, 1978, Ser. No. 875,417
Int. Cl.³ D05B *15/00, 35/10, 27/08, 27/06*
U.S. Cl. 112—51 **4 Claims**



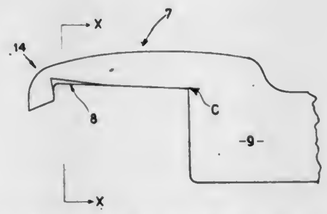
1. A sewing machine for sewing an edge of a first layer of a workpiece to a second workpiece layer having a protruding edge with respect to said edge of said first layer comprising: stitch forming means including a needle and a looptaker mechanism; workpiece feeding means; a workpiece press pad; an edge guide for said first layer and said second layer; and means for forming said protruding edge of said second layer to a bead seam, said forming means comprising a forming edge at said edge guide for prefolding said protruding edge of said second layer and a driven folding means operating in an area in front of said needle for folding said prefolded protruding edge about the edge of said first layer and imparting work feeding motions to said protruding edge of said second layer in the direction to said needle.

4,274,346

CUT PILE LOOPER

Garth A. Carnaby, Christchurch, New Zealand, assignor to Wool Research Organization, Canterbury, New Zealand

Filed Aug. 10, 1978, Ser. No. 932,661
Claims priority, application New Zealand, Aug. 10, 1977, 184895
Int. Cl.³ D05C *15/22*
U.S. Cl. 112—79 R **2 Claims**



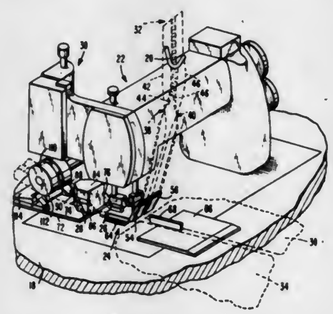
1. In a tufting machine for producing cut-pile, the machine including a looper and an independently operable cutting blade movable relative thereto for effecting a cutting of yarn loops, the looper having a base portion, a forward hook-shaped end and a yarn engaging portion around which a loop of yarn is formed extending between said base portion and said forward end, said yarn engaging portion having a cutting edge formed along the entire length thereof so that the cutting blade can periodically cooperate therewith to cut at least one of a series of accumulated loops collected on said yarn engaging portion, the improvement wherein said yarn engaging portion has smooth contours adjacent only said forward end of the looper to thereby eliminate said cutting edge thereat, the remainder of said length of said yarn engaging position having said cutting edge formed thereon for effecting the cutting upon the cooperation with said blade of said at least one of the series of accumulated loops, whereby any catching, cutting or breaking of the loop of yarn before being periodically cut by the cutter blade is substantially avoided.

4,274,347

APPARATUS FOR SEWING SLIDE FASTENER CHAIN TO ARTICLE PANELS

Robert L. Rohrer, Meadville, Pa., assignor to Textron, Inc., Providence, R.I.

Filed Aug. 18, 1980, Ser. No. 179,199
Int. Cl.³ D05B *3/12, 29/00, 27/10*
U.S. Cl. 112—104 **3 Claims**



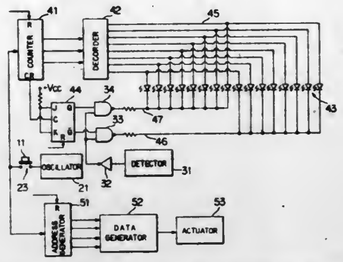
1. An apparatus for sewing a slide fastener chain to a pair of article panels wherein the slide fastener chain has a pair of tapes and a pair of interlocking rows of fastening elements mounted on inner edges of the respective tapes, each tape together with each corresponding row of fastening elements defining a stringer, the apparatus comprising
- means for disengaging the pair of rows of fastening elements to separate the stringers,
- a dual needle sewing machine having a sewing station for sewing the tapes of the separated stringers to the respective article panels by respective lines of stitches,
- said dual needle sewing machine including presser foot means for guiding the pair of separated stringers through the sewing station with the inner tape edges and the fastening elements being turned to the outside and with the outer tape edges being turned to the inside and aligned relative to inner edges of the respective article panels,
- a turning and pull-up device positioned behind the sewing station,
- said turning and pull-up device including turning means for turning the separated stringers so that the inner tape edges and the fastening elements are reoriented to the inside and for folding inner edge portions of the article panels along the lines of stitches,
- said turning and pull-up device also including pull-up means for reinterlocking the fastening elements of the stringers after the separated stringers have been turned, and
- a chain pulling mechanism operated by the sewing machine for pulling the slide fastener chain with attached and folded article panels from the turning and pull-up device.

4,274,348

MULTIPLE PATTERN SEWING MACHINE

Masataka Kato, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Nov. 16, 1979, Ser. No. 94,880
Claims priority, application Japan, Feb. 10, 1979, 54-14829
Int. Cl.³ D05B *3/02;* G08B *5/36*
U.S. Cl. 112—158 E **3 Claims**



1. In a multiple pattern sewing machine having stitch forming instrumentalities, manually operable means for selecting a desired stitch pattern from among a plurality of predetermined stitch patterns, pattern displaying means on the front of the machine for indicating each of said stitch patterns, and supplying means responsive to the operation of said manually operable means for supplying an indication signal to said pattern displaying means so as to indicate the selected stitch pattern, the improvement comprising:
- (a) detecting means for generating a trouble signal upon occurrence of trouble in the machine which prevents an appropriate sewing operation; and
- (b) interrupting means responsive to the trouble signal for interrupting feed of the indication signal to said pattern displaying means upon occurrence of trouble,

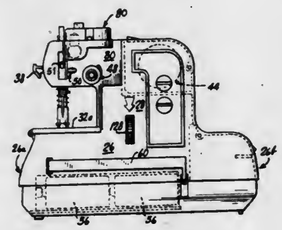
whereby indication of all said stitch patterns disappears from said pattern displaying means thereby warning an operator of occurrence of the trouble.

4,274,349

TOY ELECTRIC SEWING MACHINE

John S. Doyel, 404 W. 20th St., New York, N.Y. 10011

Filed Apr. 5, 1979, Ser. No. 27,358
Int. Cl.³ D05B *1/02*
U.S. Cl. 112—169 **4 Claims**



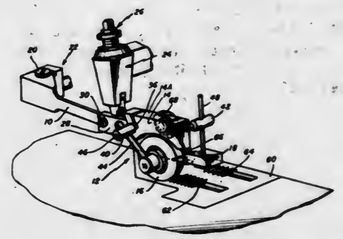
1. A toy electric sewing machine comprising:
- a housing formed of a left and a right molded plastic half shell joined at seams running generally front to back, said housing including a base having a front portion, a column extending up from a part of the base which is back of its front portion and a head extending forwardly from the top part of the column and overhanging said front portion of the base;
- a throat plate covering the top of said front portion of the base and having a top defining a working surface;
- a presser foot rod extending through the head and down from it and having a presser foot at its bottom end, said presser foot and rod being biased toward a sewing position in which the presser foot presses against the working surface but being movable up to and being lockable in an up position in which the presser foot clears the working surface by a clearance sufficient to freely insert working fabric but not the fingers of a user between the working surface and the presser foot;
- a stitch forming mechanism including a needle rod mounted in the head for reciprocating up and down in the head and a needle depending from the needle rod and movable therewith in said reciprocating movement up and away from the working surface and down and into the working surface, means for feeding thread to the needle, loop forming means movable cooperatively with the needle to form stitch loops therewith, means for feeding working fabric along the working surface when the presser foot is in its sewing position, and means for driving the needle, the loop forming means and the feeding means in synchronism with each other to thereby move the working fabric along the working surface while forming stitches thereon, said driving means including an electric motor mounted inside the housing, gearing means also mounted inside the housing for transmitting power from the motor to the needle, loop forming means and feeding means and an electric power supply located at least partly underneath the column and the throat plate, and means for selectively connecting electrically the motor to the power supply to thereby selectively energize the motor and operate the sewing machine.

4,274,350

SEWING MACHINE ATTACHMENT

Merrill H. Walter, Natick, Mass., and Stanley Jacobs, Ft. Lauderdale, Fla., assignors to Beatrice Foods Company, Chicago, Ill.

Filed Feb. 4, 1980, Ser. No. 118,488
Int. Cl.³ D05B *29/00*
U.S. Cl. 112—235 **10 Claims**

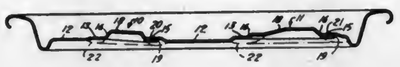


1. A sewing machine attachment for pressing a fabric to be stitched against feed dogs, comprising;
- an arm adapted to be supported at one end and carrying a wheel assembly frame at the other end,
- a wheel mounted on the assembly frame for rotation about a substantially horizontal axis and having a yieldable material-engaging surface adapted to overlie a feed dog of the machine;
- presser foot means mounted on the assembly frame beside the wheel and having a lower pressing surface disposed closely adjacent to the plane of the material engaging surface of the wheel and adapted to overlie a second feed dog of the machine,
- and means for adjusting the height of the wheel and the presser foot means on the assembly frame.

4,274,351
CAN END CLOSURE

Alfred H. Boardman, Hamilton, Canada, assignor to American Can Company, Greenwich, Conn.

Division of Ser. No. 55,897, Jul. 9, 1979, Pat. No. 4,213,538.
This application Feb. 5, 1980, Ser. No. 118,680
Int. Cl.³ B21D *51/46*
U.S. Cl. 113—1 F 1 Claim



1. A method of forming a closure including inwardly displaceable tap portions for venting and pouring including the following steps:

forming a generally circular container end having an outer rim adapted for double seaming to a container and a substantially flat circular central panel with outer and inner surfaces,

reforming said central panel to include outwardly displaced hat-shaped sections of circular configuration with one of said sections being larger in diameter than the other;

scoring along approximately one-half of the perimeter of circles defining each of said sections said score extending from an area which remains unscored and unsevered as a hinge;

leaving a residual of unscored material beneath said score and co-extensive thereto for supporting said inwardly displaceable tab portions against undesired opening;

severing the remaining semi-circular circumference of said sections to form a curvilinear cut line between the ends of said scoring away from said hinge;

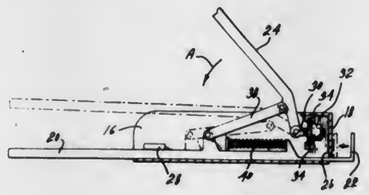
coining margins of each said severed hat section in order to extend same beneath the adjacent central panel from which same was severed, and

sealing the cut edge of said severed inwardly displaceable tab portions with a polymeric material applied to the inner part of said central panel and said margins.

4,274,352
PORTABLE CRIMPING TOOL FOR ATTACHMENT OF SHEET METAL PLATES TO A FRAME

Emilien Hamel, 8602 Tellier St., Montreal, Canada (H1L 3A7)

Continuation of Ser. No. 866,769, Jan. 3, 1978, abandoned. This application Aug. 7, 1979, Ser. No. 64,568
Int. Cl.³ B21D *19/10*
U.S. Cl. 113—57 1 Claim



1. A portable manually operated crimping tool for attachment of a sheet metal plate to a frame comprising:

(a) an elongated housing of U-shaped cross-section having a forward end and a rear end and formed of a bottom wall and spaced side walls and having an integrally-formed pressure member closing the forward end thereof, the rear end of said housing being open;

(b) an elongated force member having a front portion slidably mounted and guided along the bottom wall of said housing longitudinally of the latter, said elongated force member having a front end carrying an integral 90-degree finger-like element located outside the forward end of said housing, facing said pressure member and adapted to engage the edge of the sheet metal plate inserted between said pressure member and said finger like element, said force member having a back portion protruding from the rear end of said housing and of a length such as to be adapted to be grasped by an operator's hand;

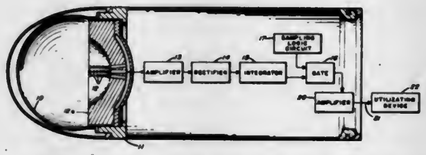
(c) means for operating said force member between an open position and a closed position, wherein the edge of the sheet metal plate is forced toward the pressure member by the pressure exerted by the force member, said means for operating said force member comprising an indexing wheel rotatably mounted in opposite slots made in the side walls of said housing rearwardly of and close to said pressure member, a threaded eye bolt screwed into said indexing wheel, whereby rotation of said indexing wheel relative to said housing adjusts the position of said eye bolt longitudinally of said housing, a manually-operated handle pivotally connected to said eye bolt at its inner end and pivotable between said side walls toward and away from said back portion of said force member, between a closed position corresponding to the closed position of said force member and in which said handle is substantially parallel to and co-extensive with said force member, and an open position corresponding to the open position of said force member and in which said handle makes an angle with said force member, an arm having a front end pivoted on said handle at a point nearer the inner end than the outer end of said handle, said arm having its rear end pivotally connected to said force member at a point rearwardly spaced from the pivotal connection of said handle to said eye bolt, said handle and said arm forming a toggle lever system; and

(d) compression spring means disposed between and interconnecting said force member and said housing for biasing said force member to its open position.

4,274,353
ACOUSTIC IMAGING SYSTEM FOR WIRE GUIDED TORPEDO

Rene N. Foss, Seattle, and Sidney Levine, Bothell, both of Wash., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 22, 1967, Ser. No. 694,025
Int. Cl.³ F42B *19/10*; F41G *7/02*
U.S. Cl. 114—21 A 7 Claims



1. A target detector for use with a torpedo comprising:

means mounted in the nose of the torpedo for receiving acoustic energy;

means coupled to said receiving means for converting the acoustic energy into D.C. potential;

means connected to said converting means for sampling the D.C. potential;

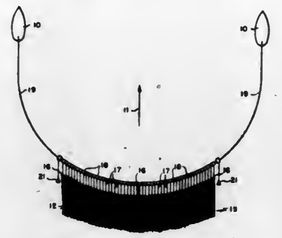
utilization means for displaying the sample D.C. potential; and

means connecting the sampling means with the utilization means for transmitting the D.C. potential to the utilization means and for receiving guidance signals back from said utilization means to the torpedo.

4,274,354
PRESSURE MINE SWEEPING

Louis F. Jones, Panama City, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 28, 1963, Ser. No. 293,226
Int. Cl.³ B63B *21/66*; F42B *22/42*
U.S. Cl. 114—244 1 Claim

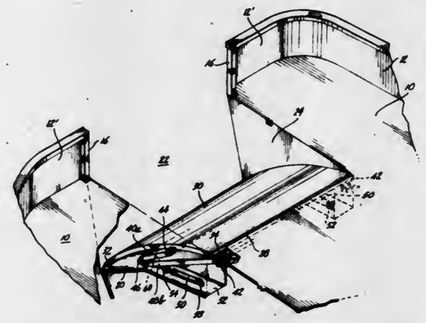


1. In a device for sweeping a pressure ground mine, the combination of an elongated tow cable adapted to be towed laterally at a substantially fixed distance above and parallel to the bottom of a seaway, a mop-like array of lines having their proximal ends secured to said tow cable and having the major portion of length, including their trailing ends, dragging on the adjacent to the bottom of the seaway, said lines being individually provided with bristly thrums.

4,274,355
CONVERTIBLE BULWARK AND RAMP SYSTEM FOR MARINE VESSELS

George G. Fulton, 8514 46th St. W., Tacoma, Wash. 98466

Filed May 6, 1980, Ser. No. 146,477
Int. Cl.³ B63B *35/18*
U.S. Cl. 114—255 7 Claims

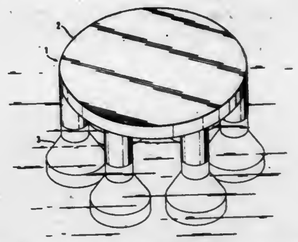


1. In a marine vessel, the combination comprising a hull-bulwark panel having a generally horizontal lower edge hinged in the hull below deck level to permit swinging said panel between an upright bulwark-forming position projecting above deck level and a sloping ramp-forming position projecting inwardly of the hull and upwardly at an incline substantially to deck level, a foldable multi-part deck-forming panel having substantially parallel opposite edges, a first such edge hingedly connected to the bulwark panel at an intermediate height level on the latter and a second such edge hingedly mounted on the vessel to swing vertically on an axis that is substantially at deck level, parallel to and spaced inwardly from the bulwark panel's hinge axis, said deck-forming panel being unfolded with its parts coextending in substantially planar relationship at deck level with the hull-bulwark panel in its upright bulwark-forming position and being stowed with its parts folded one over another beneath the hull-bulwark panel in its ramp-forming position, and operating means to move the panels between such positions.

4,274,356
SEMI-SUBMERSIBLE FLOATING STRUCTURE

Klemens Finsterwalder, Mörlbach, Fed. Rep. of Germany, assignor to Dyckerhoff & Widmann Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jul. 12, 1978, Ser. No. 923,986
Claims priority, application Fed. Rep. of Germany, Jul. 14, 1977, 2731788
Int. Cl.³ B63B *35/44*
U.S. Cl. 114—265 7 Claims



1. A semi-submersible floating structure including a storage space for liquids, such as crude oil, liquid gas and the like, comprising a generally horizontally arranged platform formed of concrete, a plurality of laterally spaced buoyant bodies secured to and extending downwardly from said platform, each said buoyant body comprising an upper part having an upper end and a lower end spaced downwardly from the upper end with the upper end secured to said platform and with the upper part extending downwardly from said platform and a lower part secured to the lower end of said upper part and extending downwardly therefrom, said upper part comprising a tubular column, wherein the improvement comprises that said lower part comprises a closed container formed of one of reinforced concrete and prestressed concrete and having a vertically extending axis with the outer surface thereof shaped as a generatrix of a body of rotation with at least a part thereof being curved, said tubular column secured to said platform by a bending-resistant connection, said platform is a plate shaped member formed of one of reinforced concrete and prestressed concrete and said tubular column being closed off at the upper and lower ends thereof and forming therein a hollow space for use as a tank, such as for ballast water, said lower part has a top end and a bottom end spaced apart in the vertical direction, the open horizontal cross-sectional area within said lower part being greater for at least a major portion of the height thereof than the open cross-sectional area within said tubular column, the generatrix forming the outer surface of said lower part extends rectilinearly outwardly ad downwardly relative to the axis of said lower part to a horizontal plane intermediate the top and bottom ends and continues from the intermediate plane along a curvilinear path to the bottom end of said lower part with the curvilinear portion of the generatrix extending inwardly to the bottom end, a vertically extending annular wall laterally encloses at least some of said buoyant bodies, the upper end of said annular wall being connected to the rectilinear portion of the outer surface of the said lower part and the lower end of said annular wall extending downwardly at least to a horizontal plane including the bottom end of said lower part, said annular wall being spaced radially outwardly from said lower part below the connection of the upper end of said annular wall to said lower part and the inner surface of said annular wall and the outer surface of said lower part forming an annular chamber therebetween closed at the upper end by

the connection of said annular wall to said lower part and open at the lower end thereof.

4,274,357
POWER OPERATED SURFBOARD
Edward S. Dawson, St. Paul, Minn., assignor to Surf-Jet Corporation, St. Paul, Minn.
Filed Nov. 26, 1979, Ser. No. 97,412
Int. Cl.³ B63B *35/72*; B63H *11/02*
U.S. Cl. 114—270 **12 Claims**



1. A power operated surfboard with a body having a lower surface designed to move readily through the water and an upper surface which is relatively flat over the forward portion thereof to enable a rider to stand on the surfboard, the body having a floor and a raised rear hollow portion above said floor and containing an engine compartment therein,

an impeller housing rigidly secured to and resting within the raised rear hollow portion of said body below said engine compartment, with a water intake passage extending through the floor of the body and a water exhaust passage extending rearwardly from the rear hollow portion,

an impeller in said housing mounted for rotation about a vertical axis,

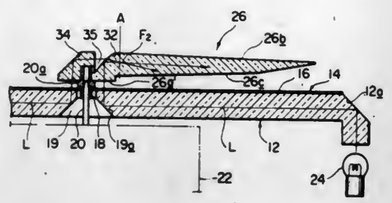
an internal combustion engine disposed in said engine compartment above said impeller housing, means securing said internal combustion engine and said impeller housing in rigid relationship to each other, said engine having a vertical output shaft connected to the drive shaft of the impeller for driving the same about its vertical axis, said internal combustion engine further having a cooling jacket and an exhaust passage,

an exhaust gas housing surrounding said impeller housing and having the walls thereof substantially spaced from the impeller housing to form a substantial gas chamber around said impeller housing, said exhaust gas housing being secured to said impeller housing in a substantially gastight manner, said gas chamber having an inlet opening communicating in a substantially gastight relation with the exhaust passage of the engine and having an outlet opening,

and discharge means disposed adjacent the floor of the surfboard and connected to the outlet opening of the exhaust gas housing for discharging the exhaust gas rearwardly beneath the floor of the surfboard,

said exhaust gas chamber acting to provide a gas cushion therein to retard the entrance of water through said discharge means into the exhaust passage of the engine when the surfboard is not being operated.

4,274,358
ILLUMINATED INDICATOR GAUGE
Kenji Nakamura, Yokosuka; Masao Ishikawa, Yokohama, and Akio Ajimine, Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Jun. 8, 1979, Ser. No. 46,616
Claims priority, application Japan, Jun. 26, 1978, 53-86694[U]
Int. Cl.³ G01D *11/28*
U.S. Cl. 116—288 **10 Claims**



1. An illuminated indicator gauge comprising:

a dial board of transparent material having a hole formed therethrough;

a spindle passing through said hole;

a pointer of transparent material having an indicating section and a hub section connected to said spindle to move over a front face of said dial board in response to rotation of said spindle about its axis;

light sources producing light rays which are to be transmitted entirely within said dial board in directions parallel with said front face of the dial board toward said hole;

light reflecting means for reflecting light rays, which have come to said hole through said dial board from said light sources, toward the hub section of said pointer; and

first and second light reflecting surfaces formed on said hub section of said pointer at opposite portions with respect to the axis of said spindle for reflecting light rays, which have come thereto from said light reflecting means, toward an indicating section of said pointer, one of said first and second light reflecting surfaces being formed by a recess in that part of said hub section adjacent to said spindle and to the indicating section of said pointer,

and wherein the other one of said first and second light reflecting surfaces is a curved surface which is constructed to allow light rays, which have come thereto through said hub section from said light reflecting means, to be focused in said pointer at a preselected portion between said curved surface and said indicating section of said pointer for providing uniform illumination thereof.

4,274,359
BIOLOGICAL SLIDE STAINING APPARATUS
Joseph P. Di Maggio, Jr., Bergenfield; Henry Eng, Clifton; Donald A. Ball, Warren, and Kenneth J. Walenciak, Wayne, all of N.J., assignors to A.J.P. Scientific, Inc., Clifton, N.J.
Filed Apr. 19, 1978, Ser. No. 897,884
Int. Cl.² B05C *11/12, 13/02*
U.S. Cl. 118—56 **9 Claims**

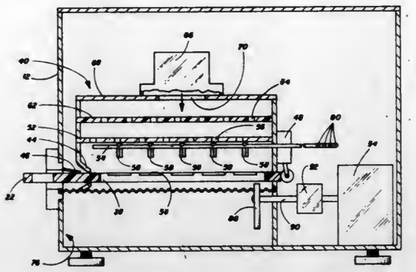
1. An apparatus for the staining of a plurality of biological slides which comprises:

a slide support tray adapted to hold a plurality of slides in parallel position adjacent each other,

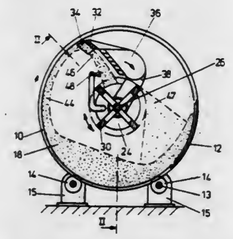
a support tray rack assembly adapted to slidably receive said support tray, said rack assembly including a stain composition dispensing assembly providing a plurality of dispensing spigots, said spigots mounted on said rack assembly in overhead relation to said support tray when said support tray is fully received within said rack assembly, and

means for removing excess stain composition and drying said slides,

wherein said support tray is adapted for removable insertion and securement within said rack assembly and comprises a generally rectangular outer tray frame defining a central rectangular aperture therein, a rectangular slide shelf adapted to nest within said aperture and hingably associated with said aperture along at least one side thereof, a plurality of seats defined within said shelf for the parallel disposition thereon of said slides, and said slide shelf is adapted to pivot in relation to said frame in a plane transverse to the direction of insertion of said slide support tray into said rack assembly.



4,274,360
APPARATUS FOR REGENERATING USED FOUNDRY SAND
Franz Hofmann, Neuhausen, and Franz Satmer, Schaffhausen, both of Switzerland, assignors to Georg Fischer Aktiengesellschaft, Switzerland
Filed Apr. 4, 1979, Ser. No. 26,891
Claims priority, application Switzerland, Apr. 14, 1978, 4011/78
Int. Cl.³ B05C *5/00*
U.S. Cl. 118—303 **3 Claims**



1. An apparatus for the regeneration treatment of used predominantly clay-bonded foundry sand for use instead of new sand comprising

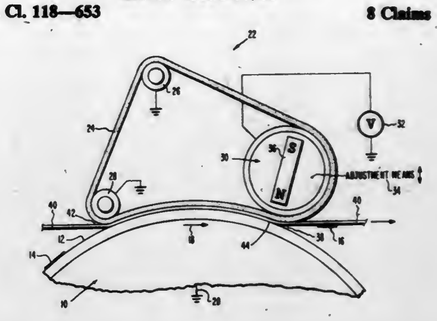
a drum for receiving a quantity of used sand for processing;

means for mounting said drum for rotation about a horizontal axis;

rotating impact tool means mounted within said drum for repeatedly contacting and accelerating sand dropping from an upper portion of the interior of said drum; and

pneumatic dust removal means mounted within said drum adjacent the path of dropping sand between said drum and said impact tool means, said removal means including conduit means extending out of the drum for removing the fine material therefrom.

4,274,361
ELECTROSTATIC AND MAGNETIC TRANSFER ENHANCING APPARATUS FOR CONDUCTING AND MAGNETICALLY ATTRACTING TONER
John R. Sanders, Maitland; Richard L. Poythress, Longwood; Richard E. Shultz, Maitland; William F. Buboltz, and Richard C. Fedder, both of Longwood, all of Fla., assignors to Burroughs Corporation, Detroit, Mich.
Filed Nov. 2, 1979, Ser. No. 90,743
Int. Cl.³ G03G *15/08*
U.S. Cl. 118—653 **8 Claims**



1. Electrostatic-magnetic transfer apparatus for automatically controllably transferring an electrostatic toned image from a dielectric surface to a secondary substrate comprising,

a movable member having a dielectric surface thereon, said movable member being at ground potential and said surface provided with an electronically conductive, electrostatically toned image,

endless semi-conductive means arranged adjacent to said dielectric surface,

a secondary substrate movable with said dielectric surface and said semi-conductive means,

means operably associated with said semi-conductive means for applying suitable tension to said means and for configuring said means to said dielectric surface,

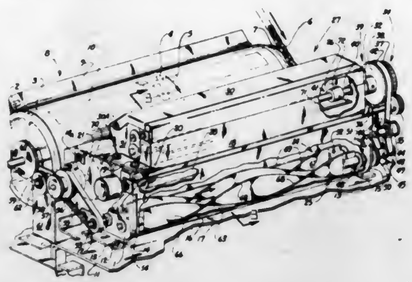
cylindrical movable means disposed within said endless semi-conductive means including means for applying an electrical potential thereto, and

magnetic means disposed internally of said movable means having a fixed magnetic polar orientation relative to the periphery of said dielectric surface providing a potential transfer point perpendicular to said dielectric surface such that the magnetic lines of force from said magnetic means are in an aiding direction relative to the electrostatic forces on said dielectric surface causing said electronically conductive toner to adhere to said secondary substrate at the potential transfer point in a dense, well defined image pattern without scattering characteristic of the image pattern previously carried by said dielectric surface.

4,274,362
MAGNETIC BRUSH MIXING AUGERS
Christian A. Beck, Ridgefield; Walter J. Jurkowski, Fairfield, and Charles E. Pegg, Danbury, all of Conn., assignors to Pitney Bowes, Inc., Stamford, Conn.
Filed Dec. 5, 1979, Ser. No. 100,577
Int. Cl.³ G03G *15/09*
U.S. Cl. 118—657 **1 Claim**

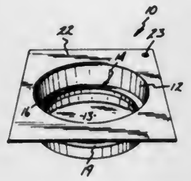
1. In a developing apparatus for use in an electrostatic copying machine, the developing apparatus having a sump for holding two-component developing material consisting of a marking constituent and a magnetic carrier constituent, a magnetic applicator means rotatably mounted in the sump for withdrawing developing material from the sump and conveying it past a photoconductive member having an electrostatic image therein so as to deposit a quantity of the marking constituent on the electrostatic image to render it visible, an elongate

mixing member having opposed flat surfaces rotatably mounted in the sump for continuously mixing together the marking and carrier constituents of the developing material, the mixing member being formed from an elongate strip of rigid material which is twisted to form a helix, and means for rotating the mixing member, the improvement comprising said



mixing member having (a) a helical configuration which comprises said mixing member being twisted between its end so as to have one convolution therebetween and (b) an axial edge configuration which comprises an arcuate surface portion extending between the opposed flat surfaces of said mixing member.

4,274,363
WHELPER STRUCTURE
Barbara A. Root, 4194 W. 44th St., Edina, Minn. 55424
Filed Jan. 9, 1980, Ser. No. 110,783
Int. Cl.³ A01K *29/00*
U.S. Cl. 119—1 24 Claims



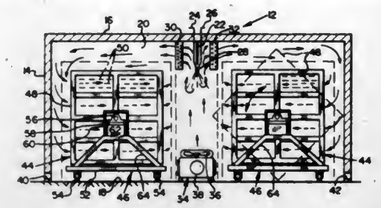
18. A structure for use by a female animal and her offspring comprising: a base having an outer annular peripheral edge, an upright annular side wall joined to the outer annular peripheral edge of the base, said base and side wall providing a generally cylindrical space having an open top, and continuous rail means attached to said side wall above the base and projected into the space to protect the offspring from the female animal, said rail means having top and bottom annular portions and an inside annular portion joined to the top and bottom annular portions, said inside annular portion being spaced inwardly from the side wall.

4,274,364
INCUBATION METHOD
Dean A. Forseth, Corvallis, Oreg., assignor to Hensway, Inc., Corvallis, Oreg.
Filed Dec. 26, 1979, Ser. No. 107,497
Int. Cl.³ A01K *41/00, 41/04*
U.S. Cl. 119—35 7 Claims

1. In the incubation of eggs where eggs are stored under a controlled atmosphere, the method comprising:

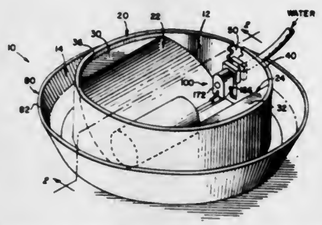
during the incubating of the eggs periodically making weight indicative measurements of the dry-down which has occurred in the eggs, and

adjusting the relative humidity of the atmosphere under which the eggs are stored to produce a change in the rate of dry-down when the weight indicative measurements



indicate the dry-down rate differs from a predetermined dry-down target rate.

4,274,365
AUTOMATIC WATERING DEVICE
William H. Peters, R.R. #3, Bryan, Ohio 43506
Filed May 14, 1980, Ser. No. 149,575
Int. Cl.³ A01K *7/00*
U.S. Cl. 119—78 10 Claims



1. A device for automatically providing controlled amounts of clean, fresh drinking water to livestock, and the like, comprising:

a basin;

a trough attached to said basin;

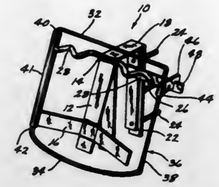
a partition separating said basin and said trough;

a slot defined in said partition, said slot establishing fluid communication between said basin and said trough and having side walls which each include a first undulating portion and a second straight portion;

water supply means fluidly connected to said basin;

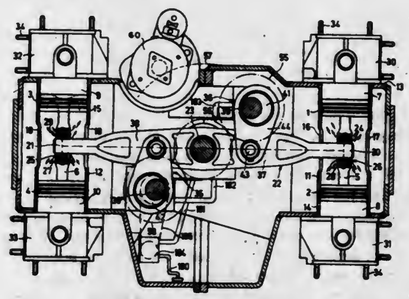
flow control means fluidly interposed between said water supply means and said basin to control the flow of liquid into said basin from said water supply means, said flow control means including a body movably mounted in said slot and having a fluid passage defined therethrough, a housing pivotally mounted on said body in said basin, a stopper mounted on said housing to occlude said fluid passage when a water level in said basin reaches a desired level, and a float attached to said housing and located within said basin for sensing the liquid level in said basin and for moving said stopper over said fluid passage to prevent further liquid from entering said basin via said passage when the liquid level in said basin reaches a predetermined level and for moving said stopper away from said fluid passage when the liquid level in said basin drops below a predetermined level to permit replenishing of the water in said basin and said trough.

4,274,366
PIG RESTRAINING DEVICE
Kenneth L. Adam, 1472 Helser Hall, Ames, Iowa 50010
Filed Feb. 19, 1980, Ser. No. 122,569
Int. Cl.³ A61D *3/00*; A01K *29/00*
U.S. Cl. 119—98 10 Claims



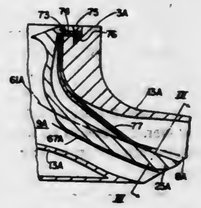
1. An animal restraint, comprising a main body including means for the mounting thereof on a support elevated above the ground, said body including upper pocket-like means spaced apart laterally for receiving the hocks of the hind legs of the animal, first gripping means carried by the body for movement between a closed position cooperative with the pocket means for grasping the hocks to suspend the animal in a head down, belly front position and an open position for receiving and releasing the hocks, said body further including second means spaced below the first means and providing a forwardly facing saddle structure for receiving the animal's back, and second gripping means carried by the body for movement between a closed position overlying the animal's belly and cooperative with the saddle structure to confine the animal and an open position for receiving and releasing the animal, said first and second gripping means being interconnected for movement in unison relative to the body.

4,274,367
RECIPROCATING PISTON BEAM ENGINE
Alfred Gerber, Susenbergstrasse 191, Zürich, Switzerland, and Francesco Sparro, Les Tulleries de Grandson, Switzerland, assignors to Alfred Gerber, Zürich, Switzerland
Filed May 9, 1978, Ser. No. 904,242
Claims priority, application Switzerland, May 11, 1977, 5913/77; May 11, 1977, 5914/77; Jul. 14, 1977, 8733/77
Int. Cl.³ F02B *75/26*
U.S. Cl. 123—52 A 23 Claims



1. A reciprocating combustion engine including at least one engine unit comprising: at least two cylinder assemblies each defining a generally centrally located rectilinear longitudinal axis, said cylinder assemblies being located spaced apart alongside each other with said longitudinal axes extending generally parallel to each other, each of said cylinder assemblies comprising housing means defining a pair of coaxial cylinders of generally equivalent size; a first and a second pair of pistons operatively arranged, respectively, in each of said cylinder assemblies, with each one of the pistons of said piston pairs being operatively associated with one of each of said cylinders; a longitudinal beam having a first and a second end; central support means pivotally supporting said beam about a pivot axis located equidistantly between said first and said second end of said beam; connecting rod means operatively connecting each of said pairs of pistons to one of said ends, respectively, of said longitudinal beam, with said pistons operating within said cylinders to drive said beam to reciprocally pivot said beam about said central pivot axis; power output shaft means for said engine unit arranged to be rotatively driven relative to said housing means defining said cylinders; a primary eccentric mechanism connected to said longitudinal beam at a location thereon intermediate said first end of said beam and said central pivot axis, said primary eccentric mechanism being connected to effect transmission of power between said longitudinal beam and said power output shaft means of said engine unit; and balancing means connected to said longitudinal beam at a location thereon intermediate said second end of said beam and said central pivot axis providing a balancing effect against the effect of said primary eccentric mechanism, said balancing means and the other moving parts of said engine being arranged so that the common center of mass of the moving parts of said engine is located substantially on said central pivot axis of said beam and within a plane having therein both said rectilinear axes of said cylinder assemblies; said primary eccentric mechanism being connected to said beam at a point spaced a greater distance from the connection of said connecting rod means to said first end of said beam than from said central pivot axis.

4,274,368
TUNEABLE INTAKE MANIFOLD
Donald J. Shaffer, Box 88, Upper Strasburg, Pa. 17265
Continuation-in-part of Ser. No. 19,930, Mar. 12, 1979, Pat. No. 4,210,107, which is a continuation of Ser. No. 760,402, Jan. 18, 1977, abandoned. This application May 16, 1980, Ser. No. 150,364
Int. Cl.³ F02B *17/18*
U.S. Cl. 123—52 M 9 Claims



1. An intake manifold for an internal combustion engine having an intake valve port, comprising:

an air inlet coupling at one end of the manifold for connection to a source of at least air and an outlet coupling at an opposite end for connection directly to the intake valve port of the engine;

at least one intake runner having opposite open ends, connected at one end to receive said air from said air inlet coupling and connected at its opposite end to said outlet coupling and thereby directly to said engine for conducting said air to the intake valve port of the engine;

said intake runner being defined by and having side walls forming an inlet passageway having a central axis extending along the path of air flow through the passageway;

at least one of said walls of said passageway being mounted via a mounting for movement towards and away from said central axis of said passageway to effectively decrease and increase the through flow cross sectional area as measured in a plane perpendicular to said axis throughout the length along said passageway, respectively, with said mounting including a pivotal connection, about a pivot axis gener-

ally perpendicular to the adjacent portion of said central axis and spaced therefrom for the end of said movable wall adjacent said air inlet coupling to said runner; and

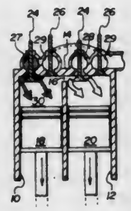
spring means biasing said movable wall about said pivot axis in the direction to decrease the through flow cross sectional area of the passageway for maintaining said movable wall in an adjusted position automatically in response to engine speed.

4,274,369

STRATIFIED CROSS COMBUSTION ENGINE

Jack L. Rhoads, P.O. Box 573, Taylor, Ariz. 85939

Filed Sep. 4, 1979, Ser. No. 71,987
Int. Cl.³ F02B *25/12*
U.S. Cl. 123—53 A **1 Claim**



1. A stratified cross combination engine comprising:

(a) a first cylinder and a second substantially identical cylinder sharing a common cylinder head which defines a common combustion chamber linking said cylinders;

(b) a power piston operatively disposed in each of said cylinders and each piston being substantially identical to the other in diameter and displacement and means for concommitantly reciprocating said pistons substantially in phase to produce substantially identical cylinder pressures in all but the combustion cycle;

(c) said first cylinder having an intake valve, ignition means, and means for introducing a rich fuel-air mixture therein;

(d) said second cylinder having an intake valve and means to introduce a lean fuel air mixture therein; and

(e) at least one exhaust valve disposed in one of said cylinders, whereby a rich fuel air mixture introduced into said first cylinder can be ignited, caused by the ensuing pressure increase to flow through said common combustion chamber to power the piston in said second cylinder to complete combustion prior to exhausting through said exhaust valve.

4,274,370

SELF-CONTAINED TYPE LASH ADJUSTER

Hisashi Kodama, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Mar. 23, 1979, Ser. No. 23,505
Claims priority, application Japan, Mar. 23, 1978, 53-37272[U]; Mar. 23, 1978, 53-37274[U]; Mar. 23, 1978, 53-37275[U]
Int. Cl.³ F01L *1/14*
U.S. Cl. 123—90.55 **5 Claims**

1. A self-contained type lash adjuster comprising:

an adjuster body having an axial hollow;

a plunger body disposed for reciprocation within said axial hollow of said adjuster body;

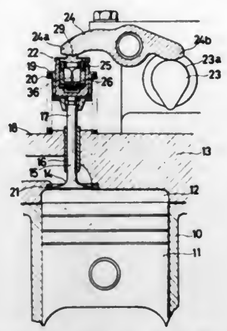
a cap closing the upper open end of said adjuster body;

said plunger body being hollow to define a reservoir chamber in said plunger body;

a pressure chamber formed in said axial hollow of said adjuster body between said adjuster body and said plunger body;

a check valve operatively associated with a passage in said plunger body permitting an oil flow only in the direction from said reservoir chamber to said pressure chamber;

a diaphragm including a stationary portion and an elastic portion with said stationary portion being secured to said



plunger body in the upper portion of said reservoir chamber; and

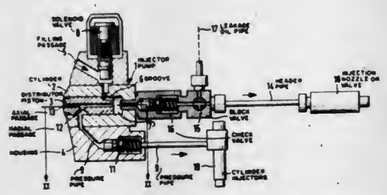
a plunger return spring being positioned between said adjuster body and said plunger body and biasing said plunger body.

4,274,371

APPARATUS FOR PREHEATING THE INTAKE AIR FOR AIR-COMPRESSING INTERNAL COMBUSTION ENGINES

Alfred Neitz, Röthenbach, and Nunzio D'Alfonso, Nuremberg, both of Fed. Rep. of Germany, assignors to Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Nuremberg, Fed. Rep. of Germany

Filed Sep. 25, 1978, Ser. No. 945,634
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1977, 2743134
Int. Cl.³ F02N *17/00*
U.S. Cl. 123—179 H **3 Claims**



1. An apparatus for preheating intake air passing through high pressure pipes leading to cylinders of air-compressing internal combustion engines with a fuel delivery having at least a fuel delivery pump and a high pressure injection pump distributing the fuel to individual injectors on the cylinders, the apparatus communicating through a header pipe means with the fuel delivery system and comprising in combination at least one injection nozzle and an ignition system, injection valve means provided at one end of all high pressure pipes leading to the engine cylinders and arranged to open at a predetermined pressure, a branch-off means provided with each of the high pressure pipes, and an isolating change-over valve means provided to shut-off said branch-off means, all of said branch-off means being brought together to common header pipe means supplying the preheating equipment with fuel under high pressure all branch-off means being arranged to be individually and in series connectable to the header pipe means as the engine is cranked to supply the preheating apparatus intermittently with fuel subject to a high pressure, said injection valve means at the

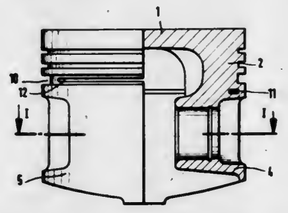
end of the high pressure pipes releasing fuel admission to individual cylinders only when all of said branch-off means remain closed, a leakage oil pipe connectable by said change-over valve means to said header pipe means when all branch-off means are closed, and a distributor piston rotatably and slidably movable in the high pressure injection pump so that all high pressure pipes are capable of being individually supplied with fuel and isolated again, the branch-off means being formed directly by a pressure space portion in the high pressure injection pump, said header pipe means communicating directly with said pressure space portion, said isolating change-over valve means shutting-off the branch-off means being formed as an isolating change-over valve in said header pipe means.

4,274,372

LIGHTWEIGHT PISTON FOR INTERNAL COMBUSTION ENGINES

Walter Kelm, Neuenstadt-Stein, and Ulrich Landau, Oedheim, both of Fed. Rep. of Germany, assignors to Karl Schmidt GmbH, Neckarsulm, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,213
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1978, 2841980
Int. Cl.³ F16J *1/14, 1/04*
U.S. Cl. 123—193 P **7 Claims**



1. A cast light-alloy piston comprising a skirt, piston pin bosses, said skirt being recessed adjacent to said bosses, said skirt being non-symmetrical on both sides of the plane of the piston pin, said skirt

(a) being connected on one side to said piston pin bosses by first supporting ribs which extend at an angle of 30 to 60 degrees to the piston pin axis,

(b) being connected on the other side to the piston pin bosses by second supporting ribs which extend at an angle of 90 degrees to the piston pin axis.

4,274,373

COMBINED SPLIT ENGINE AND CLOSED LOOP MIXTURE CONTROL OPERATION WITH ENRICHED FUEL DURING PARTIAL CYLINDER MODE

Fukashi Sugasawa, Yokohama; Haruhiko Iizuka, and Junichiro Matsumoto, both of Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jun. 7, 1979, Ser. No. 46,350
Claims priority, application Japan, Jun. 16, 1978, 53-72851
Int. Cl.³ F01N *3/15*
U.S. Cl. 123—440 **4 Claims**

1. A control system for an internal combustion engine having first and second cylinder groupings, comprising

split engine control means for operating said engine on full cylinders in which said first and second cylinder groupings are activated to give higher engine power when the magnitude of engine load is above a predetermined value or operating said engine on partial cylinder in which only said second cylinder grouping is activated to give lower engine power when the engine load magnitude is below said predetermined value and said first cylinder is deactivated to allow air to be pumped therethrough;

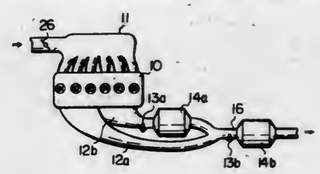
first and second upstream exhaust conduits for passing the exhaust gases from said first and second cylinder groupings when the engine is operated on full cylinders, respectively, to a common junction and for passing the pumped air from said first cylinder grouping and the exhaust gases from said second cylinder grouping to said common junction when the engine is operated on partial cylinder;

a common downstream exhaust conduit connected to said common junction for passing said gases therethrough to the atmosphere;

a first exhaust gas sensor and a first catalytic converter disposed in said second exhaust conduit;

a second exhaust gas sensor and a second catalytic converter disposed in said common conduit; and

feedback means selectively responsive to a signal from said first exhaust gas sensor during the partial cylinder engine operation for correcting the air-fuel ratio of mixture supplied to said second cylinder grouping to the rich side of stoichiometric point, and responsive to a signal from said second exhaust gas sensor during the full cylinder engine operation for correcting the air-fuel ratio of mixture supplied to both said first and second cylinder groupings to said stoichiometric point, whereby during said partial cylinder engine operation the NOx component of the gases from said second cylinder grouping is purified in said first catalytic converter at a maximum conversion efficiency and the HC and CO components thereof are mixed with said pumped air and purified in said second catalytic converter at a maximum conversion efficiency, and during the full cylinder engine operation the NOx, HC and CO components of the gases from said first and second cylinder groupings are purified simultaneously in said second and first catalytic converters, respectively.

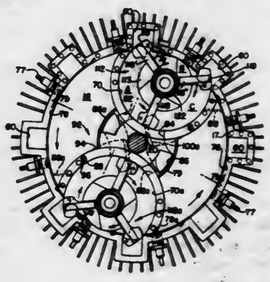


4,274,374

AIR-COOLED ROTARY INTERNAL COMBUSTION ENGINE

Choong G. Lee, 1943 Vancouver Dr., Honolulu, Hi. 96822

Filed Jan. 10, 1979, Ser. No. 2,367
Int. Cl.³ F02B *53/00*
U.S. Cl. 123—241 **10 Claims**



1. An air-cooled, rotary internal combustion engine, comprising:

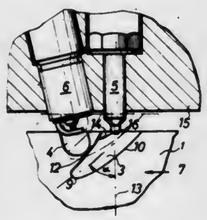
a housing having a substantially circular interior chamber

and a plurality of radially-extending recesses spaced along the periphery of said chamber;
a plurality of heat-transfer elements disposed on the exterior surface of said housing;
a rotor rotatably disposed within said chamber and having a substantially circular recess formed in one surface;
a lever assembly disposed within said circular recess and rotatable within said recess about an axis offset from the rotational axis of said rotor, said assembly having a plurality of radially-extending arms, the end of each arm engaging successive ones of said recesses during rotation of said lever assembly and said rotor;
a sealing element pivotally disposed on the end of each of said arms and engageable with the peripheral surface of said circular recess to provide a fluid seal;
a plurality of rotatable combustion chambers defined between adjacent arms of said lever assembly;
means for introducing a combustible mixture into the interior of said circular recess;
ignition means in said housing adjacent to each of said recesses for igniting said combustible mixture within the volume between two adjacent arms, the ends of said two adjacent arms simultaneously engaging consecutive recesses, whereby the force of combustion tends to pivot said lever assembly about the end of one of said arms in engagement with one of said recesses to drive the geometric axis of rotation of said lever assembly about the rotational axis of said rotor;
fan means coaxially disposed on the rotational axis of said rotor to draw air over the exterior surface of said housing and said heat transfer elements;
means including an exhaust blower coaxially disposed on the rotational axis of said rotor and said fan to remove exhaust gases from the interior of said circular recess; and
means including flow-directing channels in said housing, said rotor and said lever assembly for circulating a lubricant through said engine.

4,274,375
PISTON, ESPECIALLY FOR INTERNAL COMBUSTION ENGINES

Heinz Küpper, Troisdorf-Sieglar, and Helmut Busch, Lohmar, both of Fed. Rep. of Germany, assignors to Klöckner-Humboldt-Deutz Aktiengesellschaft, Cologne, Fed. Rep. of Germany

Filed Aug. 29, 1979, Ser. No. 70,798
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838130
Int. Cl.³ F02B *19/08*
U.S. Cl. 123—263 **10 Claims**

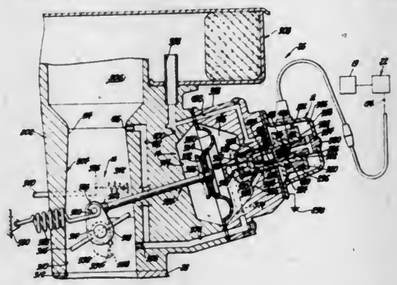


1. A piston, especially for internal combustion engines, having means for introducing and producing a rotating movement of combustion air, a fuel injection nozzle, and an ignition device, said piston comprising:
a combustion chamber depression in said piston, said depression having a bottom, and an at least nearly cylindrical wall for accommodating combustion air rotation about an axis extending in the longitudinal direction of said piston;
a first recess adapted to communicate with said fuel injection nozzle, said first recess being provided in said at least nearly cylindrical wall and being formed by a sharp-edged trough, said trough being inclined to a pertaining surface line of said combustion chamber depression and pointing in the direction of said rotating movement of air in said depression, said trough presenting a flattened terminating portion at that end furthest from said fuel injection nozzle, whereby fuel having a direction-component in the direction of said rotating movement of air is adapted to be injected onto a pertaining wall of said trough;
a second recess adapted to communicate with said ignition device, said second recess also being provided in said at least nearly cylindrical wall closely adjacent to said first recess, said second recess pointing in the direction opposite to the direction of said rotating movement of air and being positioned at an angle to said first recess; and
a separating formation arranged between said first recess and said second recess.

4,274,376
GOVERNOR APPARATUS AND SYSTEM

Chong L. Tsiang, Utica, and Robert O. Koch, Warren, both of Mich., assignors to Colt Industries Operating Corp., New York, N.Y.

Continuation of Ser. No. 724,741, Sep. 20, 1976, abandoned. This application Dec. 26, 1978, Ser. No. 973,228
Int. Cl.³ F02D *11/10*
U.S. Cl. 123—360 **3 Claims**

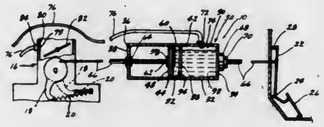


1. A carburetor and governor assembly for an internal combustion engine, comprising body means, induction passage means formed through said body means and having an inlet end and an outlet end, a venturi situated within said induction passage means and generally between said inlet and outlet ends, variably positionable throttle valve means situated in said induction passage means for variably controlling the rate of flow of motive fluid through said induction passage means and into said engine, a fluid pressure responsive motor means comprising first and second chamber means generally separated by a pressure responsive movable diaphragm, connecting means operatively interconnecting said diaphragm with said throttle valve means, first conduit means communicating between a source of ambient atmosphere and said first chamber means, second conduit means adapted to communicate as between said source of ambient atmosphere and said second chamber means, third conduit means adapted to communicate as between a source of engine vacuum and said second chamber means, actuatable control valving means generally interposed in fluid circuit in said second and third conduit means, said control valving means when actuated toward a first position being effective to permit a relatively proportionally greater communication between said second chamber means and said source of ambient atmosphere and a relatively proportionately lesser communication between said second chamber means and said source of engine vacuum, said control valving means when actuated in a direction opposite from said first position and toward a second position also being effective to permit a relatively proportionally lesser communication between said second chamber means and said source of ambient atmosphere and a relatively proportionally greater communication between said second chamber means and said source of engine vacuum, said diaphragm being effective to move said throttle valve means toward a more nearly closed throttle position when said communication as between said second chamber means and said source of engine vacuum becomes sufficiently great to cause a pressure differential of sufficient magnitude across said diaphragm, and fourth conduit means effectively communicating between said second chamber means and said induction passage means generally in the vicinity of said venturi, said fourth conduit means being effective for communicating a venturi generated vacuum to said second chamber means, each of said third and fourth conduit means comprising calibrated passage means, said third and fourth conduit means being interconnected to each other, said third conduit means communicating with said induction passage means generally downstream of said throttle valve means, and said communication between said fourth conduit means and said second chamber means being controlled by said valving means in the same manner and relationship with respect to said ambient atmosphere as is said communication between said source of engine vacuum and said second chamber means.

4,274,377
VACUUM RESPONSIVE CARBURETOR LINKAGE

Stanley P. Kraw, Jr., 7403 S. 48th St., Omaha, Nebr. 68157

Filed Apr. 28, 1980, Ser. No. 144,246
Int. Cl.³ F02B *11/08*
U.S. Cl. 123—396 **5 Claims**

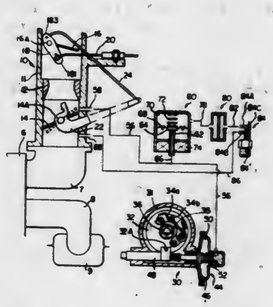


1. A vacuum responsive carburetor linkage adapted for connection between the accelerator pedal linkage and carburetor throttle lever of an internal combustion engine, comprising,
a housing,
said housing at least partially defining a vacuum chamber therein,
a movable wall engageable with said housing and further defining said vacuum chamber,
said wall being movable relative to said housing between fully extended and retracted positions such that said chamber is extended and retracted in response to movement of said wall toward said fully extended and retracted positions respectively,
means for connecting said housing to one of said accelerator pedal linkage and carburetor throttle lever,
means for connecting said movable wall to the other of said accelerator pedal linkage and carburetor throttle lever, and
vacuum conduit means having one end in communication with said chamber and an opposite end adapted for connection to a vacuum source of the internal combustion engine,
said end wall being movable toward said extended position in response to movement of said accelerator pedal linkage when the carburetor vaccum is low whereby lost motion occurs between said accelerator pedal linkage and carburetor throttle lever and said end wall being urged toward said retracted position when the carburetor vacuum is high for movement of said carburetor throttle lever in substantially direct response to movement of said accelerator pedal linkage,
a stationary baffle disposed within said housing interiorly of said piston, said baffle including an orifice at a lower portion thereof for fluid communication therethrough,
a liquid disposed within said housing between said one end and said piston, and
said orifice being positioned adjacent a lower edge of said baffle, the level of said liquid being at least as high as said orifice, when the movable wall is in the fully extended position therefor.

4,274,378
IGNITION CONTROL SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Takao Tate, Susono, Japan, assignor to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed May 29, 1979, Ser. No. 43,464
Claims priority, application Japan, Dec. 8, 1978, 53/167963[U]
Int. Cl.³ F02P *5/04*
U.S. Cl. 123—421 **4 Claims**



1. An internal combustion engine comprising:
an engine body;
an intake system;
an exhaust system;
a catalytic converter arranged in the exhaust system;
a throttle valve arranged in the intake system;
a choke valve arranged upstream of the throttle valve;
a choke operating mechanism;
a lever-link mechanism co-operating with the choke operating mechanism for maintaining the throttle valve in its slightly opened position when the choke valve is in its closed condition in order to start the engine which is cold;
ignition control means for igniting, at every operational cycle of the engine, the combustible mixture introduced into the engine body via the intake system;
vacuum actuator means having an advance control chamber for controlling, in accordance with the vacuum level therein, the ignition timing;
a vacuum line connecting the advance control chamber with a first vacuum port formed in the intake system at a position located slightly upstream of the fully closed throttle valve; and
a vacuum control valve means, comprising:
a valve seat which is on one end thereof opened to the vacuum line and which is on the other end thereof opened to the atmosphere;
a valve member normally resting on the valve seat to disconnect the vacuum line from the atmosphere;
a spring urged diaphragm to which the valve member is attached and a vacuum chamber formed on one side thereof remote from the valve seat;
a second vacuum line connecting a second port, formed in

the intake system at a position always located downstream of the throttle valve, with the vacuum chamber;

a temperature sensitive valve to connect said second vacuum line with said vacuum chamber when the temperature of the engine is lower than a predetermined value and to connect said second vacuum line with atmosphere when the temperature of the engine is above a predetermined value; and

a time-delay orifice arranged in the second vacuum line between said temperature sensitive valve and said vacuum chamber to delay application of vacuum from said second vacuum line to said vacuum chamber;

said vacuum control valve means introducing atmospheric air into the vacuum line for controlling, in a cold condition of the engine, the vacuum level in the advance control chamber of the actuator means after a predetermined period of time has elapsed from the start of the engine, whereby the ignition timing is, firstly, advanced to obtain a stabilized idle operation, then, delayed to rapidly activate the catalytic converter and again advanced after the engine is fully warmed-up.

4,274,379

METHOD AND SYSTEM FOR CONTROLLING IGNITION TIMING OF INTERNAL COMBUSTION ENGINES

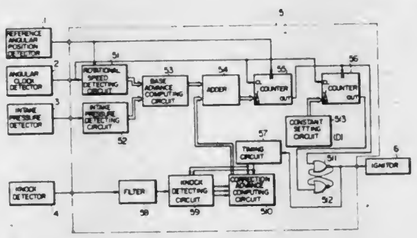
Toshiharu Iwata, Aichi; Tadashi Hattori; Siniti Mukainakano, both of Okazaki; Kenji Goto, and Daisaku Sawada, both of Susono, all of Japan, assignors to Nippon Soken, Inc., Nishio and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Jun. 12, 1979, Ser. No. 47,935

Claims priority, application Japan, Jun. 13, 1978, 53-71246; Jun. 13, 1978, 53-71248

Int. Cl.³ F02P 5/04

U.S. Cl. 123—425 **4 Claims**



1. A method for controlling the ignition timing of an internal combustion engine responsive to the knocking of the engine, comprising the steps of:

sensing the knocking of the engine;

detecting the magnitude of the knocking with respect to at least first, second and third predetermined magnitude levels during each combustion cycle of the engine and generating first, second and third knocking signals whenever the magnitude of the sensed knocking exceeds said first, second and third predetermined magnitude levels, respectively;

sampling said knocking signals for a sampling period of not less than several tens of times of combustion cycles of the engine and counting respective numbers of said first, second and third knocking signals produced during said sampling period;

comparing said numbers of said first, second and third knocking signals respectively with three different reference ranges and generating an ignition timing correction signal to effect either a retard or an advance of ignition timing depending on whether at least one of said numbers exceeds a corresponding one of said three different reference ranges or all of said numbers are below respective ones of said three different reference ranges.

4,274,380

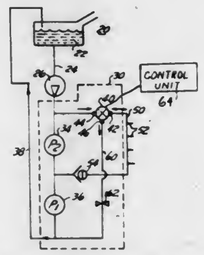
CHECK VALVE CENTRAL METERING INJECTION SYSTEM

Didier J. de Vulpillieres, Southfield, Mich., assignor to The Bendix Corporation, Southfield, Mich.

Filed Feb. 1, 1979, Ser. No. 8,463

Int. Cl.³ B05B 9/06

U.S. Cl. 123—456 **16 Claims**



1. A fuel system for supplying fuel to an internal combustion engine having at least one fuel injector, a control unit for generating control signals in timed relation to the combustion processes therein, and a source of pressurized fuel, the system comprising:

fuel rail means having a first and a second end for receiving pressurized fuel and having means for delivering said fuel to the at least one fuel injector;

bi-level means in fluid communication with the source of pressurized fuel for selectively maintaining the pressure within said fuel rail means at a first and second level of pressure, said bi-level means further including a first and a second pressure regulator connected in series, said series combination having an input, an output and common node;

a check valve means in fluid communication with said second end of said fuel rail means for permitting fluid to flow from said common node into said fuel rail means;

a three-way valve means having first, second and third orifices in fluid communication with said bi-level means and said fuel rail means, for selectively communicating, in response to external control signals, fuel at said first and at said second pressure levels to said fuel rail means;

a first conduit means for providing fluid communication between said first orifice and the inlet of said bi-level means;

a second conduit means for providing fluid communication between said second orifice and the first end of said fuel rail;

a third conduit means for providing fluid communication between said third orifice and the outlet of said bi-level means; and

exit conduit means in fluid communication with said third orifice and said outlet of said bi-level means for permitting fuel to exit therefrom.

4,274,381

AIR/FUEL RATIO CONTROL SYSTEM EQUIPPED WITH A TEMPERATURE SENSOR FAIL-SAFE SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

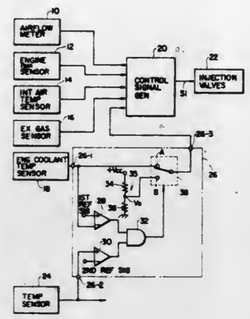
Toshimi Abo, Yokohama, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan

Filed May 2, 1979, Ser. No. 35,302

Claims priority, application Japan, Jun. 26, 1978, 53/76438

Int. Cl.³ F02D 5/00

U.S. Cl. 123—479 **8 Claims**



1. In an air/fuel ratio control system for an internal combustion engine, including sensors for detecting engine parameters, said sensors including an engine temperature sensor for producing an output signal indicative of the engine temperature, a control signal generator responsive to the detected engine parameters, and one of a fuel supply mechanism and air/fuel mixture supply mechanism responsive to a control signal from said control signal generator for supplying one of fuel and air/fuel mixture to said engine; wherein the improvement comprises:

(a) first means for providing an engine parameter signal indicative of the engine temperature;

(b) second means for detecting whether said engine temperature sensor is in a normal or abnormal operative condition in view of said engine parameter signal;

(c) third means for producing a predetermined voltage having a magnitude which corresponds to a voltage of the output signal of said engine temperature sensor under conditions of normally high temperatures; and

(d) fourth means for selectively transmitting the output signal of said engine temperature sensor and said predetermined voltage in accordance with a normal or abnormal condition of said engine temperature sensor detected by said second means.

4,274,382

APPARATUS FOR PERFORMING STEPWISE REACTIVATION OF CYLINDERS OF AN INTERNAL COMBUSTION ENGINE UPON DECELERATION

Fukashi Sugasawa, Yokohama; Haruhiko Iizuka, and Junichiro Matsumoto, both of Yokosuka, all of Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Apr. 30, 1979, Ser. No. 34,262

Claims priority, application Japan, May 12, 1978, 53-56891

Int. Cl.³ F02D 5/00, 13/06

U.S. Cl. 123—481 **23 Claims**

12. Apparatus for controlling the number of enabled cylinders of an internal combustion engine having a plurality of cylinders during deceleration, comprising:

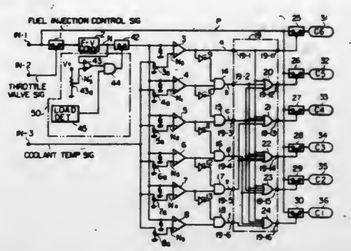
(a) first means for producing a first signal indicative of the rotational speed of a crankshaft of said engine;

(b) second means for producing a second signal indicative of deceleration of said engine;

(c) third means responsive to said first signal for producing a plurality of control signals, the number of which varies progressively in response to said first signal;

(d) fourth means responsive to said second signal for enabling said third means to produce said control signals upon deceleration of said engine;

(e) a plurality of switching means respectively responsive to each of said control signals for respectively disabling each of said cylinders;



(f) fifth means for generating a third signal indicative of the running of at least one auxiliary power consuming unit driven by said engine; and

(g) sixth means responsive to said third signal for decreasing the number of said control signals so as to increase the number of enabled cylinders for compensating the load increasing caused by the operation of said power consuming unit.

4,274,383

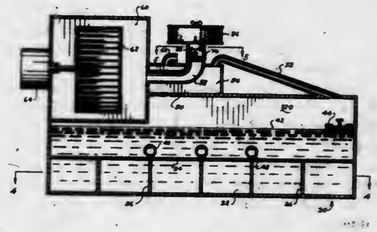
FUEL VAPORIZER

Jerry W. Adams, Wellington, Tex., assignor to Vapor Matic Corporation, Wellington, Tex.

Filed Aug. 20, 1979, Ser. No. 67,879

Int. Cl.³ F02M 31/00

U.S. Cl. 123—523 **11 Claims**



1. A fuel vaporizer comprising:

a. a hot water compartment having

(i) a plurality of baffles located therein,

(ii) a hot water inlet,

(iii) a return water outlet, and

(iv) the top of said hot water compartment being

(v) a hot plate,

b. an air inlet system having

(i) a vaporizer air filter,

(ii) an air inlet connecting the filter to

(iii) a fan within

(iv) a fan cage,

(v) said fan rotatable by

(vi) a fan motor connected thereto,

c. a vapor compartment having

(i) said hot plate forming the bottom thereof,

(ii) a vaporizer liquid fuel inlet line terminating in

(iii) a fuel float valve for maintaining a liquid fuel pool in the vapor compartment,

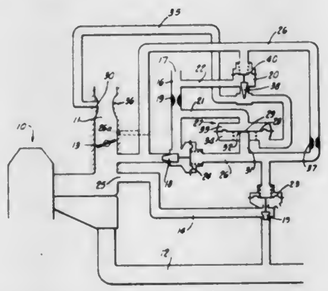
(iv) an air conduit leg from the fan cage,
(v) a vapor conduit and holes in the top of the vapor compartment connecting the vapor compartment with
d. a vapor-air mixture compartment having
(i) another air conduit leg from said fan cage,
(ii) a vapor-air outlet connected to
e. a vapor line which extends to an engine carburetor.

4,274,384

ENGINE EXHAUST GAS RECIRCULATION SYSTEM

Keiichi Osawa, Asaka; Kiyoshi Ishii, Tachikawa, and Hiroyuki Nishimura, Kounosu, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 27, 1979, Ser. No. 70,024
Claims priority, application Japan, Sep. 12, 1978, 53-111320; Sep. 14, 1978, 53-112185
Int. Cl.³ F02B *47/08*
U.S. Cl. 123—568 **4 Claims**



1. In an internal combustion engine having an intake passage for delivering an air-fuel mixture into the engine, a throttle valve in the intake passage, and an exhaust passage for carrying exhaust gases from the engine, the improvement comprising, in combination: a passageway connecting the exhaust passage to the intake passage downstream from the throttle valve for recirculating exhaust gases into said engine, a first control valve in said passageway, an air conduit connecting said intake passage downstream from said throttle valve to atmosphere, a second control valve in said air conduit, each of said control valves having a vacuum responsive actuator, said air conduit having a restriction device located between its opening to atmosphere and said second control valve, a vacuum line connected to said intake passage upstream from said throttle valve, a regulating valve responsive to differential pressure between vacuum pressure in said vacuum line and vacuum pressure in said air control line downstream from said restriction device, a control pipe system connecting said vacuum responsive actuators to said intake passage near said throttle valve, means whereby said regulating valve acts through said control pipe system to operate said vacuum responsive actuators for said control valves, and an air induction valve responsive to vacuum pressure in said control pipe system and operatively positioned to change said differential pressure.

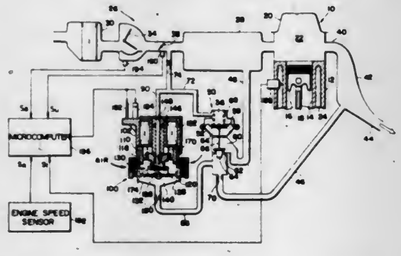
4,274,385

EXHAUST GAS RECIRCULATION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Haruo Yuzawa, and Tsuneomi Yano, both of Tokyo, Japan, assignors to Nissan Motor Company, Limited, Japan

Filed Nov. 26, 1979, Ser. No. 97,383
Claims priority, application Japan, Dec. 6, 1978, 53-149939
Int. Cl.³ F02B *47/08*
U.S. Cl. 123—571 **17 Claims**

1. An exhaust gas recirculation system for an internal combustion engine having an air-fuel mixture supply system and an exhaust system, comprising:
exhaust gas recirculation passageway means for providing communication between the exhaust system and the mixture supply system of the engine,
an exhaust recirculation rate control valve assembly provided in said passageway means, said passageway means including a flow restriction located between said valve assembly and the exhaust system of the engine,
vacuum passageway means for providing communication between said mixture supply system and said valve assembly for introducing into the valve assembly a vacuum developed in the mixture supply system during operation of the engine, the valve assembly being responsive to the vacuum developed therein and being operative to control the recirculation rate of exhaust gases therethrough depending upon the relationship between the vacuum developed in the valve assembly and the exhaust gas pressure developed in said recirculation passageway means between said flow restriction and said valve assembly,
a vacuum compensating valve assembly comprising a stationary solenoid unit, a valve element movable between a first position providing communication between said vacuum passageway means and the open air and a second position blocking said communication, the valve element being moved between the first and second positions as said solenoid unit is energized and de-energized, and a flexible diaphragm deformable in response to the exhaust gas pressure developed in said recirculation passageway means between said flow restriction and said recirculation rate control valve assembly, said diaphragm being engageable with said valve element for forcing the valve element to stay in said first position thereof when the exhaust gas pressure acting on the diaphragm is at a subatmospheric level, and
a microcomputer electrically connected to said solenoid unit and responsive to variation in prescribed operational parameters of the engine for energizing and de-energizing the solenoid unit in accordance with the variation in said parameters.



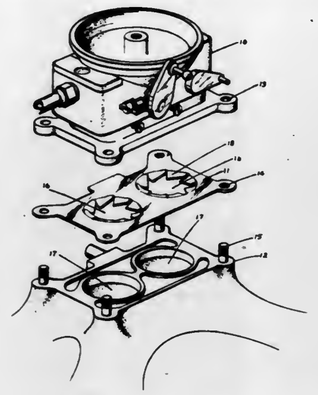
4,274,386

TURBO PLATE VAPORIZER

Jose Reyes, 1427 5th Ave., Bay Shore, N.Y. 11706

Filed Aug. 24, 1979, Ser. No. 69,255
Int. Cl.³ F02M *29/00*
U.S. Cl. 123—591 **4 Claims**

1. Apparatus inserted between the bottom of a carburetor and the top of the intake manifold of the internal combustion engine using gasoline, helping to further atomize and vaporize the fuel mixture, which apparatus comprises:
(a) a plate that fits between the carburetor and and the intake manifold fastened to both, and
(b) openings in the plate coinciding with similarly placed openings from the carburetor and openings leading to the intake manifold;
(c) with a plurality of triangularly convex shaped funnel like vanes acting as liquid fuel collectors set in the openings of the plate with the bases of the vanes contiguous to another forming the outer circumference of the plate opening, then, gently sloping down into the openings and toward their centers, forming an inner circumference at the points of the vanes smaller in size than the outer circumference, and
(d) with each of the vanes slanted in a counterclockwise direction with the larger side of the vanes at the outer circumference first forming a slightly raised shoulder and then dropping gently toward the center of the opening forming a cup shaped convex curved surface, curving in toward the center of the opening, meeting the other side of the vane also similarly curved at the apex of the vanes funneling liquid fuel particles to the center of the openings; and
(e) which vanes cause the fuel mixture to swirl with greater turbulence, collecting any liquid fuel particles into the center of the air stream, generating greater vaporization with a continuing pattern of atomization and vaporization.

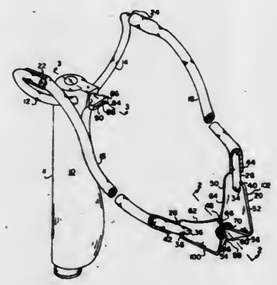


4,274,387

SLINGSHOT

George H. McBride, 7612 Teal Dr., Huntsville, Ala. 35802

Filed Apr. 18, 1980, Ser. No. 141,285
Int. Cl.³ F41B *7/00*
U.S. Cl. 124—20 A **3 Claims**



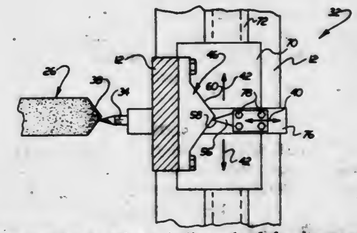
1. A slingshot comprising:
an elongated handle;
a pair of forked prongs extending from and supported by an end of said handle;
a pouch comprising a flexible, pliant, elongated strap;
a first elastic line connected between one of said prongs and one end region of said elongated strap, and a second elastic line connecting between the other of said prongs and an opposite end region of said elongated strap; and
said strap having a pair of oppositely positioned, variable depth pleats, one pleat extending inward on each of opposite sides of the strap, and each pleat being formed by two symmetrically positioned, triangular-shaped regions which join along a generally straight common crease which extends orthogonally inward from a side edge of said strap, and by two creases, in an opposite direction to that of said common creases, and in which the line of the two creases extends inward from an outer edge and bisects the line of said common crease, whereby, with said pleats partially formed, a sloping pocket is formed into which shot may be deposited and then the pocket essentially closed by pressing end regions of said strap together to contain the shot and ready the slingshot for shooting.

4,274,388

METHOD AND APPARATUS FOR DRESSING GRINDING WHEELS

Leonard L. Ivel, Leicester, Mass., assignor to The Warner & Swasey Company, Cleveland, Ohio

Filed Oct. 15, 1979, Ser. No. 84,717
Int. Cl.³ B24B *53/08*
U.S. Cl. 125—11 TP **5 Claims**



5. An apparatus for dressing grinding wheels having operating surfaces with differing configurations comprising means for positioning the grinding wheel in a fixed position relative to a base structure, carriage means mounted on said base structure and adapted for movement in a first direction relative to the grinding wheel, a slide bar mounted on said carriage means being movable toward and away from the grinding wheel in a second direction which is transverse to said first direction, dressing means mounted on said slide bar for contacting the operating surface of the grinding wheel and removing portions thereform, a single cam surface mounted in a fixed position relative to said base and the grinding wheel and a plurality of interchangeable cam followers, each cam follower having a follower surface with configuration differing from the configuration of the remaining cam followers, each cam follower being selectively mountable on said slide bar so the follower surface of each cam follower engages the cam surfaces whereby each cam follower defines a differing path of movement for the dressing tool when in abutment with said cam surface and thereby, forms a different operating surface on the different grinding wheels.

4,274,389

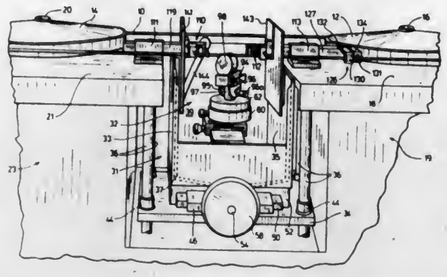
CUTTING APPARATUS FOR SEMI-CONDUCTOR MATERIALS

Arnold G. White, Trail; James K. Tarbet, Montrose; Dennis A. Vanness; Gordon J. Woods, both of Trail, and William F. H. Micklethwaite, Rossland, all of Canada, assignors to Cominco Ltd., Vancouver, Canada

Filed Mar. 17, 1980, Ser. No. 130,933
Claims priority, application Canada, Jan. 25, 1980, 344392
Int. Cl.³ B28D *1/08*; B26D *1/54*
U.S. Cl. 125—21 **9 Claims**

1. A cutting apparatus comprising a pair of spaced-apart co-planar rotatable wheels, a continuous metallic band passing over said wheels, means for driving one of said wheels to move said band unidirectionally through a path encompassing said

wheels and through a linear cutting region, means for moving the other wheel towards and away from the driven wheel for tensioning the metallic band, workpiece support means stationed in the cutting region adapted to raise a workpiece to the metallic band at a controlled speed, means for supplying an abrasive slurry to said metallic band in the cutting region



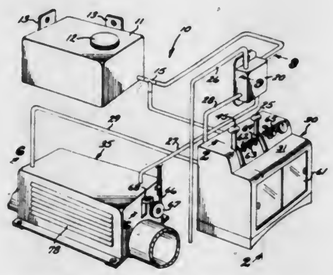
upstream of the workpiece, and guide-wipers upstream and downstream of the cutting region each comprising a pair of opposed, laterally and linearly offset wipers for dampening lateral motion of the metallic band, maintaining the band in alignment across the workpiece and wiping the band of abrasive slurry before the band passes over the driven wheel.

4,274,390

AUTOMOTIVE HOT WATER HEATER

Shinsuke Azuma, 6020 Lindley Ave., Encino, Calif. 91316

Filed Mar. 19, 1979, Ser. No. 21,599
Int. Cl.³ F24B *1/00*
U.S. Cl. 126—19.5 **4 Claims**



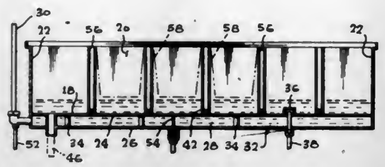
1. A heating assembly for use in an automobile, comprising:
- a heat exchange housing adapted to be secured to an exhaust pipe of said automobile, said housing including a heating coil deployed for translation relative said pipe and pivotal support means connected to said coil for articulation thereof;
- a storage container mounted in said automobile for receiving water therein;
- pressure relief means connected to said coil and to said storage container for relieving gases under pressure in said coil and for replacing said relieved gases with water;
- dispensing means operatively connected to said coil and said storage container including dispensing valves for releasing water therefrom;
- temperature indicating means connected to sense the temperature of the water in said coil for providing a visual indication thereof; and
- manual control means connected to said pivotal support means for articulating said coil in and out of proximity of said exhaust pipe.

4,274,391

STEAM TABLE

Vahe Karapetian, 762 E. Slauson, Los Angeles, Calif. 90011

Filed Oct. 23, 1978, Ser. No. 953,649
Int. Cl.³ F24B *9/00*; F24D *1/00*; A47J *27/06*
U.S. Cl. 126—33 **16 Claims**



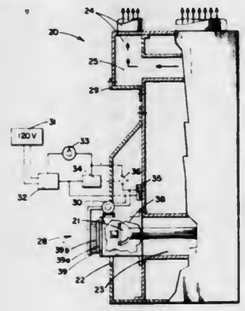
1. A steam table comprising an open top tank, said tank having a double bottom comprising an upper base and a lower base defining a water tank integral with said steam table beneath said upper base, said water tank having a water inlet and a water outlet, and means in said water tank for eliminating air bubbles in the water tank which enter the water tank when water is fed into the water tank through said water inlet.

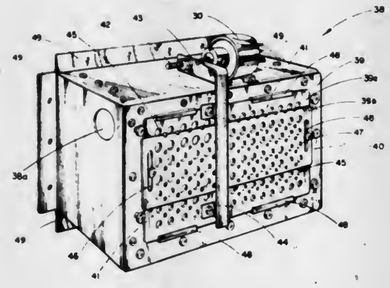
4,274,392

CONTROLLED AIR INTAKE APPARATUS FOR FURNACES AND THE LIKE

Delbert L. Myers, 3229 W. 32nd St., Anderson, Ind. 46011

Filed Sep. 17, 1979, Ser. No. 76,341
Int. Cl.³ F24H *3/00*; G05D *23/00*
U.S. Cl. 126—112 **10 Claims**





1. A controlled air intake apparatus for a furnace of the type which includes a burner air inlet opening, a combustion zone, a flue and a flue updraft opening, said controlled air intake apparatus comprising:

a first closure member disposed over the updraft opening of the flue said closure member comprising a fixed plate means for completely closing said flue updraft opening under all operating conditions;

a second closure member disposed over the burner air inlet opening, said second closure member including a first plurality of apertures arranged into a first pattern and adapted for introducing air into said combustion zone via said burner air inlet opening; and

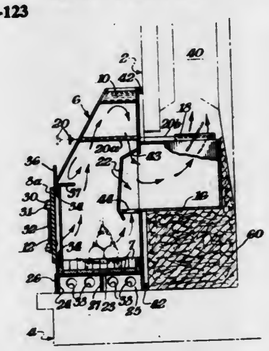
a movable cover plate disposed relative to said second closure member, said movable cover plate defining a plurality of openings arranged into a second pattern and further, said movable cover plate being movable between a first position wherein said second pattern of openings is in registration with said first pattern of apertures and a second position wherein said first and second patterns are completely out of registration with each other such that air flow into said combustion zone via first plurality of apertures is prevented.

4,274,393

FIREPLACE ASSEMBLY

Robert T. Scaran, Newark, Del., assignor to R. Scaran, Inc., Newark, Del.

Filed Jul. 20, 1979, Ser. No. 59,395
Int. Cl.³ F24C *15/30*
U.S. Cl. 126—123 **10 Claims**



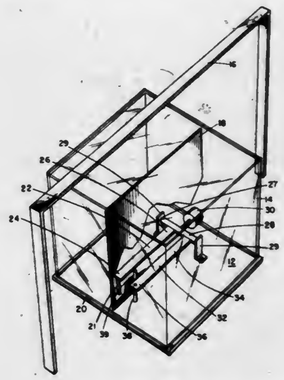
1. A fireplace assembly comprising a firebox installed upon the hearth of a fireplace in which to support combustion, said firebox having at least one door through which fuel may be introduced into the combustion zone, each such door having controllable draft means through which the flow of air to support combustion may be controlled, and having a smoke outlet box mounted on the rear of said firebox extending into the fireplace opening, there being an opening in the rear wall of said firebox into said outlet box through which the generated smoke passes into said smoke outlet box and thence through controllable damper means located on said smoke outlet box and opening into the chimney of said fireplace, said damper means controlling the amount of smoke and heat passing up said chimney, and having a spark shield located in said firebox attached to the rear wall thereof and at least partially covering said opening into said smoke outlet chamber, said spark shield extending into said combustion chamber from above said opening into said smoke outlet box in a direction forwardly and downwardly from said opening and substantially covering said opening but providing a gap between said shield and said opening at both substantially vertical sides of said shield and at the lower, substantially horizontal, side of said shield, and having a smoke shelf protruding from the front wall of said firebox substantially horizontally and rearwardly into said combustion chamber and being located at a vertical position between the top and bottom of said spark shield, whereby said spark shield and smoke shelf cooperatively coact to provide enhanced heat circulation and spark control within said firebox.

4,274,394

ELECTROMECHANICAL SOLAR TRACKING APPARATUS

Robert P. Stromberg, Albuquerque, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 17, 1979, Ser. No. 30,806
Int. Cl.³ F24J *3/02*; G02B *5/08*
U.S. Cl. 126—425 **8 Claims**



1. Apparatus for controlling orientation of a solar collector comprising; a member rotatable about a longitudinal axis thereof; a first bimetallic element having one end fixedly positioned at a first location spaced from said member and another end secured to said member, heat-induced flexing of said first element effecting rotation of said member; a second bimetallic element having one end secured to said member at a position spaced from said first element for movement in response to rotation of the member, heat induced flexing of said second element effecting movement of another end thereof to enhance or cancel the effects of the movement on said end; a pair of electric terminals spaced from opposing sides of the other end of said second element; shade means for selectively exposing said elements to the sun, the elements being equally exposed to the sun when in a desired orientation and unequally exposed to the sun when in an undesired orientation, equal exposure to the sun effecting substantially equal heatings and compensatory flexings of the bimetallic elements, and unequal exposure to the sun effecting substantially unequal heatings and unequal flexings of the bimetallic elements thereby causing contact by the other end of said second element with one said terminals.

4,274,395

SOLAR ENERGY ABSORBER

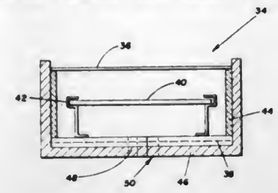
John R. Bangs, 12 Randall Rd., Princeton, N.J. 08540

Filed Sep. 25, 1978, Ser. No. 945,648
Int. Cl.³ F24J *3/02*
U.S. Cl. 126—432 **7 Claims**

1. A solar heat collector, comprising:
- (a) at least one cover plate capable of passing solar energy having a major surface with predetermined peripheral dimensions and shape;
- (b) a solar energy absorber having peripheral dimensions and shape similar to said cover plate;
- (c) at least one infrared absorbing member interiorly supported, disposed and spaced between said cover plate and solar energy absorber and having peripheral dimensions smaller than said cover plate and said solar energy absorber;

(d) means for mounting said cover plate and solar energy absorber in spaced relation with said infrared absorbing member;

(e) inlet means defining an area through which a heat transfer fluid may pass into said collector under, above, and



around the infrared absorbing member to permit turbulent flow of the heat transfer fluid through the collector in close proximity to said absorber and infrared absorbing member; and

(f) outlet means defining an area through which the heat transfer fluid passes out of said collector.

4,274,396

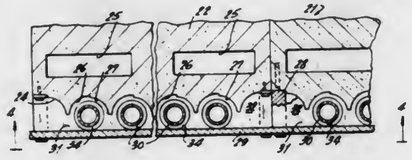
STRUCTURAL SOLAR ENERGY COLLECTOR

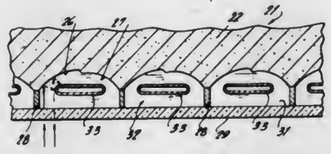
Melville F. Peters, Livingston, N.J., and Walter T. Peters, Harbor Rd., East Dennis, Mass. 02641, assignors to Walter Todd Peters; Margot Elizabeth Peters, both of East Dennis, Mass. and Albert F. Kronman, Locust Valley, N.Y.

Continuation-in-part of Ser. No. 901,581, May 1, 1978, abandoned. This application Aug. 24, 1979, Ser. No. 69,623

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—438 5 Claims





1. A structural solar energy collector for a building comprising at least one outer surface a series of spaced elongated recesses in the outer wall, a first and a second elongated arcuate solar light reflecting member longitudinally disposed within the recesses, a fluid bearing line assembly including a plurality of elongated tubes supported upon the outer wall and disposed at least partially within the spaced elongated recesses to receive solar energy coming from the light reflecting surfaces, said tubes being disposed along the center of curvature of the arcuate solar reflecting surfaces, a solar energy transmitting cover member overlying the fluid bearing lines and means to interconnect the fluid bearing lines into a continuous circulating heat transfer system in which the said first arcuate reflecting member has a radius of curvature of:

$$R^1m = r(\sin(i_r + i_s) - \cos i_r(\sin i_r - \sin i_s)/\sin i_r \cos i_r \sin(i_r + i_s)$$

and the said second arcuate reflecting member has a radius of curvature of:

$$R^2m = r(\sin(i_r + i_s) + \cos i_s(\sin i_r - \sin i_s)/\sin i_s \cos i_s \sin(i_r + i_s)$$

where R^1m is the radius of the reflecting member on the sun rise side of the arcuate reflector, R^2m is the radius of the reflecting member on the sun set side of the arcuate reflector, r is the radius of the fluid bearing tubes, i_r is the angle of incidence of solar rays after sun rise, i_s is the angle of incidence of solar rays before sun set.

4,274,397

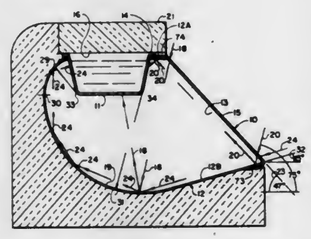
SOLAR HEATER

Clifford W. Hill, 844 S. Thunderbird Rd., Florence, S.C. 29501

Filed Mar. 16, 1978, Ser. No. 887,216

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—451 2 Claims



1. A solar heater for humidification and cooking within a building comprising

(a) a curvalinear non-parabolic reflector defining the rear wall of the solar heater and having top and bottom edges defining corresponding edges of a front window therebetween, side walls extending between the top and bottom walls to define the side edges of the window and said window facing toward a source of light.

(b) a transparent cover enclosing the window,

(c) a container having an absorptive surface,

(d) means removably supporting the container within the reflective radius of the reflector,

(e) thermal insulation extending about the reflector and walls,

(f) said curvalinear reflector including a curvature through a minor radius and a major radius about the bottom and rear walls of said container, the minor radius of the reflector being centered at the bottom rear corner of the container and extending rearwardly and upwardly therefrom a distance equal to the height of the container and the major radius of the reflector being centered at the bottom front corner of the container and extending rearwardly therefrom at least half the distance to the tangent of the minor radius and downwardly and forwardly therefrom beneath the container, and

(g) said reflector including a forward extension extending from the lower edge of the reflector at an angle of approximately fifteen degrees to the horizontal.

4,274,398

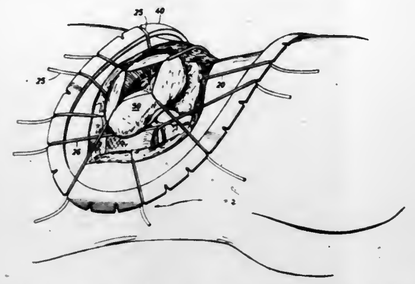
SURGICAL RETRACTOR UTILIZING ELASTIC TUBES FRICTIONALLY HELD IN SPACED NOTCHES

Frank B. Scott, Jr., 6720 Bertner, Houston, Tex. 77030

Filed May 14, 1979, Ser. No. 38,469

Int. Cl.³ A61B *17/02*

U.S. Cl. 128—20 1 Claim



1. A surgical retractor for use in performing surgery upon a portion of the body having a surface contour, which comprises:

a generally annular frame conformed to fit the surface contour of the portion of the body to be operated upon, said frame having a periphery, said periphery having a plurality of notches having a width and depth spaced thereabout;

a stay which includes an elastic member having a length and a width and tissue holding means attached thereto, wherein the width of said elastic member is greater than the width of said notches such that said elastic member is held in place by friction when inserted into one of said notches; and

said elastic member includes a section of elastic tubing and said tissue holding means including a hook having a handle portion inserted in said tubing.

4,274,399

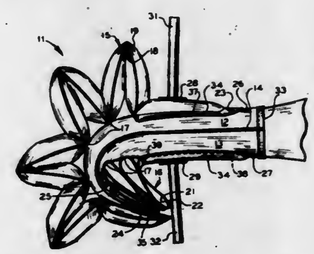
THERAPEUTIC APPLIANCE FOR FLEXING JOINTS

Thomas A. Mummert, Perrysburg, Ohio, assignor to Jobst Institute, Inc., Toledo, Ohio

Filed Jan. 29, 1980, Ser. No. 116,489

Int. Cl.³ A61H *1/02*

U.S. Cl. 128—26 21 Claims



1. A therapeutic appliance for flexing an animal body joint comprising a flexible and non-extensible member for positioning on portions of the animal body in overlying relationship to the joint; means securing said member to portions of the animal body on each side of the joint; a plurality of chambers of fluid impervious flexible material having proximate side walls, said chambers being mounted on the side of said member spaced from the underlying body portion and secured at said proximate side walls to said member at points on opposite sides of the joint, said chambers having a wall of greater length between said points which are adjacent than the spacing of said points on said member; and means to admit pressurized fluid to said chambers.

4,274,400

MASSAGE SHOWER HAVING A GUIDE RAIL

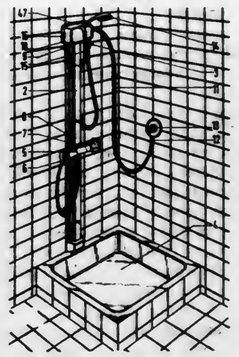
Heinz G. Baus, Ulmenweg 46, CH-3601 Thun, Switzerland

Filed Nov. 29, 1979, Ser. No. 98,349

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1978, 2852265

Int. Cl.³ A61H *7/00*

U.S. Cl. 128—53 9 Claims



1. Massage shower with a substantially vertical guide rail comprising a massage head for delivering service water, said massage head being automatically displaceable upwardly and downwardly along the guide rail and fixable in a selective position thereon, and means driven and controlled by the service water for driving the massage head in longitudinal direction of the guide rail, said means for driving the massage head in longitudinal direction of the guide rail being constructed as a reversing drive comprising a turbine housing, a turbine wheel mounted for rotation in said turbine housing and means, including a slide valve, for selectively supplying service water in two tangential directions corresponding to opposite rotary directions of the turbine wheel.

4,274,401

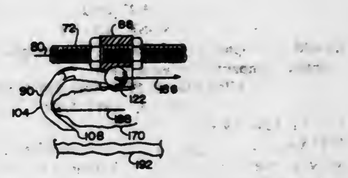
APPARATUS FOR CORRECTING SPINAL DEFORMITIES AND METHOD FOR USING

Don B. W. Miskew, 422 Ridge Ave., Winnetka, Ill. 60093

Filed Dec. 8, 1978, Ser. No. 967,599

Int. Cl.³ A61F *5/00*

U.S. Cl. 128—69 34 Claims



1. A method for correcting scoliosis and rotational deformities of the spine by posterior surgical procedures, which method comprises:

surgically exposing the spine posteriorly;

hooking onto the cephalad side of a lamina of a first vertebra (170*f*) on one side of the spinous processes of said spine with a first hook (90*f*);

hooking onto the caudad side of a lamina of a second vertebra (170*e*) on said one side of the spinous processes of said spine with a second hook (90*e*);

hooking onto a first transverse process (184*b*) on said one side of said spinous processes of said spine of a third vertebra that is intermediate of said first and second vertebrae with a third hook (90*h*);

applying a first force to said first (170*f*) and second (170*e*) vertebrae by changing the distance between said first (90*f*) and second (90*e*) hooks;

applying a second force to said third vertebra that moves said first transverse process (184*b*) towards one (170*f* or 170*e*) of the other two said vertebrae, and that moves said first transverse process (184*b*) posteriorly thereby rotating said third vertebra;

hooking onto a second transverse process (184*a*) on said one side of said spinous processes of said spine of a fourth vertebra that is intermediate of said second and third vertebrae; and

applying a third force to said fourth vertebra that comprises moving said fourth vertebra away from said third vertebra and that moves said second transverse process (184*a*) posteriorly thereby rotating said fourth vertebra in the same direction as said third vertebra is rotated.

4. An apparatus (166*a* or 166*b* of FIG. 26) of the type used in the correction of spinal deformities by posterior surgical procedures, having an elongated member (72*a* or 72*b* of FIG. 26, or 72 of FIG. 9) with first (174*a* or 174*b*) and second (178*a* or 178*b*) ends and with a longitudinal axis (80 of FIG. 9), having a first hook (90*a* or 90*e* of FIG. 26, or 90 of FIGS. 15 and 16) that includes both a first attaching portion (100) and a first hooking portion (104) that is disposed around a first hook axis (106), having a second hook (90*b* or 90*f* of FIG. 26, or 90 of FIGS. 15 and 16) that includes both a second attaching portion (100) and a second hooking portion (104) that is disposed around a second hook axis (106), and having means for operatively attaching said first and second hooks (90) to said elongated member with said hooking portions (104) opening substantially toward opposite ones (174*a* and 178*a*, or 174*b* and 178*b*) of said ends of said elongated member (72*a* or 72*b*), and for longitudinally positioning one of said hooks (90) with respect to the other of said hooks (90), the improvement which comprises:

said means for operatively attaching said first hook (90) to said elongated member (72) comprises means (88 of FIGS. 9–14) for operatively attaching said first attaching portion (100) to said elongated member (72) at a radially spaced distance from said longitudinal axis (80), for permitting said first attaching portion (100) to move circumferentially (120 of FIG. 10) with respect to said longitudinal axis (80) at said radially spaced distance therefrom, and for permitting said first attaching portion (100) to move rotationally (118 of FIG. 10) about a pivot axis (116 of FIGS. 9–11) that is substantially parallel to longitudinal axis (80) and that is at said radially spaced distance from said longitudinal axis (80).

4,274,402
NOSE SPLINT

Ronald D. Shippert, Englewood, Colo., assignor to The Denver Splint Company, Littleton, Colo.

Filed May 3, 1979, Ser. No. 35,918
Int. Cl.³ A61F 5/04
U.S. Cl. 128—89 R **4 Claims**

1. A splint for application to a traumatized nose of a human body to prevent swelling, including bones to be knitted together, said splint comprising:

a base layer of thin, flexible, resilient material;

a layer of adhesive on one side of said resilient material and adaptable to be adhesively secured to the traumatized portion;

a layer of removable material overlying said adhesive layer prior to application of said splint to the traumatized nose of the human body to protect the adhesive layer; and

a restraining layer of malleable metallic material attached permanently to the other side of said resilient material, said restraining layer being manually formable in situ to correspond to the shape of the traumatized portion and securable in place against the nose by said adhesive layer



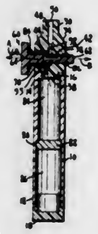
to minimize any swelling or change in the size and shape of the traumatized nose during recovery; and

said base layer being thicker along an area adapted to overlie the bridge of a tramatized nose.

4,274,403
INHALER

Roger L. Struve, P.O. Box 12573, New Brighton, Minn. 55112

Filed Aug. 29, 1979, Ser. No. 70,733
Int. Cl.³ A61M 15/00
U.S. Cl. 128—203.15 **15 Claims**



1. An inhaler for administering a powdered drug nasally, which comprises:

(a) storage means for containing a quantity of the powdered drug, wherein the storage means includes:

(i) an elongate body divided into first and second chambers by a moisture permeable plug, said first chamber being suited for receiving a powdered drug and said second chamber being suited for receiving a dessicating agent which withdraws moisture from the powdered drug, wherein said second chamber is closed to the external environment and opens only into said first chamber, through said moisture permeable plug;

(ii) a feed hole opening into said first chamber through which the powdered drug may be removed therefrom; and

(b) dispensing means operatively connected to the feed hole of the storage means for dispensing the powdered drug nasally, wherein the dispensing means comprises:

(i) nozzle means suited to be received in one of the nasal passages of the user;

(ii) means for measuring and transferring a predetermined charge of the powdered drug from the storage means to the nozzle means, wherein the pre-determined charge has a volume less than the stored quantity of the powdered drug originally contained in the storage means;

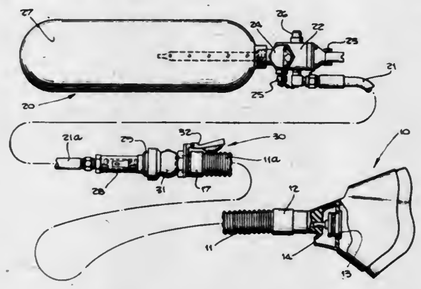
(iii) vent means for allowing ambient air to be drawn into the nozzle means for carrying the powdered charge therein upwardly into the nasal passage of the user upon inhalation of the user; and

(iv) means for positively sealing the feed hole of the storage means from the external environment whenever the inhaler is not in use so that the powdered drug contained therein is stored in an air-tight manner.

4,274,404
OXYGEN SUPPLY SYSTEM CONTROLLED BY USER EXHALATION

Albert R. Molzan, Alhambra, and James D. Cleary, Monrovia, both of Calif., assignors to American Safety Flight Systems, Inc., Glendale, Calif.

Filed Apr. 13, 1979, Ser. No. 29,824
Int. Cl.³ A62B 7/00
U.S. Cl. 128—204.25 **2 Claims**



1. In a constant-volume oxygen supply system including a source of pressure regulated oxygen, an oxygen inhalation means for human use for inhalation of oxygen and exhalation to atmosphere, and fluid conduit means for connecting said source with said inhalation means, the improvement comprising the provision of:

an inhalation valve means, disposed in said inhalation means, and fluidly connected to said conduit means, for normally opening to allow oxygen to flow to said inhalation means from said oxygen source at a relatively constant volume flow rate under the fluid pressure of oxygen normally in said conduit means, and for closing on exhalation of the human user into the inhalation means, said closing of said inhalation valve means by exhalation resulting in a buildup of oxygen pressure in said conduit means, whereby oxygen from said source is supplied to the human user at a predetermined volumetric flow rate, without requiring any effort by the human user, until the user exhales;

oxygen flow control means fluidly connected into said conduit means for supplying oxygen and for shutting off oxygen flow from said source to said inhalation means when in respective oxygen flow supplying and shut-off positions; and

pressure responsive actuator means, for actuating said control means to said oxygen supplying position solely in response to said source pressure and to said oxygen flow shut-off position when said pressure buildup reaches a predetermined level, thereby preventing further pressure buildup in said conduit means, whereby the human user is able to exhale without having to overcome the pressure level of said oxygen source, and for providing an oxygen flow path between said oxygen supply and said inhalation means when said inhalation means is open;

said oxygen flow control means including an oxygen flow restrictor nozzle means having an outlet orifice disposed in said conduit means and fluidly connected to said oxygen source for restricting the volume rate of fluid flow of oxygen through said conduit means to supply oxygen at a constant volume rate of fluid flow to said inhalation means;

said pressure responsive actuator means including a pressure responsive diaphragm means concentrically disposed in said conduit means about said nozzle means and secured to said nozzle means and said conduit means, said diaphragm means communicating with atmosphere at the upstream side thereof and communicating with pressure in said conduit means at the downstream side thereof, said actuator means further including valve seat means extending from said diaphragm means and disposed adjacent said outlet orifice to abuttingly engage and close said nozzle means in response to said oxygen pressure buildup; and

air inlet means connected into said conduit means for introducing ambient air into said inhalation means in response to user inhalation at a fluid volume flow rate in excess of said constant volume flow rate of oxygen being supplied to said user through said nozzle means whereby

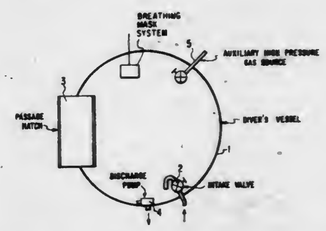
(i) the user receives oxygen at said constant volume flow rate through said normally-open inhalation means without any inhalation effort, and

(ii) the user receives a mixture of air and oxygen at a greater volume than said constant volume by inhaling a volume of fluid greater than said constant volume of oxygen supplied to the user.

4,274,405
METHOD FOR VARYING THE AMBIENT PRESSURE IN A VESSEL

Thomas C. Schmidt, Lake Park, and Charles R. Yemington, Palm Beach Gardens, both of Fla., assignors to Perry Oceanographics, Inc., Riviera Beach, Fla.

Filed Jun. 20, 1979, Ser. No. 50,487
Int. Cl.³ A62B 11/36
U.S. Cl. 128—205.26 **21 Claims**



1. A method for varying the ambient pressure of the environment of an individual totally enclosed within a vessel between an upper and lower pressure value, comprising: providing the vessel with a mass of gas and with a mass of liquid, the mass of liquid being sufficient to fill at least a substantial part of the vessel when the pressure is at the upper value; and varying the quantity of liquid in the vessel in order to cause the pressure therein to vary correspondingly between the upper and lower values.

4,274,406
TRACHEOTOMY MASK

Victor L. Bartholomew, 40843 Marion, Hemet, Calif. 92343

Filed Sep. 4, 1979, Ser. No. 72,128
Int. Cl.³ A61M 15/00
U.S. Cl. 128—206.21 **7 Claims**

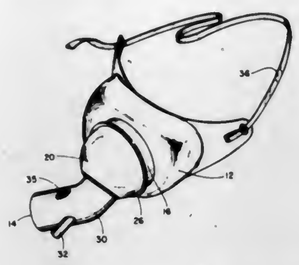
1. An oxygen mask comprising

a mask body for being secured against a patient's face or throat and in sealing engagement therewith, and having an enlarged circular port,

rotatable adapter extending forwardly of said mask body having a spherical surface portion and secured on said body at said enlarged port and rotatable about a single, first axis extending normal to a plane extending across said enlarged port, and having a pipe attachment port through said spherical surface portion, the center of which pipe

attachment center of which port is offset relative to said first axis, and

a pipe angled between first and second ends thereof, a first end being rotatably secured on said adapter in said pipe attachment port on said spherical surface portion and rotatable about a single second axis whereby each of said ends is directed along a different axis,



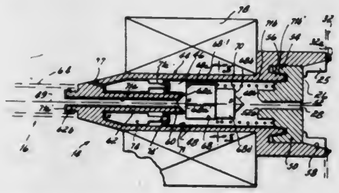
said first and second axes having an acute angle therebetween whereby said port on said spherical surface and said angle between said first and second ends of said pipe are such that said adapter and said pipe are cooperatively rotatable so that said second end of said pipe may be pointed in substantially any direction forwardly of said mask body.

4,274,407

FLUID INJECTION SYSTEM

John A. Scarlett, Southfield, Mich., assignor to Med Pump, Inc., Lansdowne, Pa.

Filed Nov. 13, 1979, Ser. No. 93,288
Int. Cl.³ A61J 7/00
U.S. Cl. 128—213 R **27 Claims**



1. A fluid injection system comprising:

a fluid reservoir having a fluid exit port,

fluid pressurization means for pressurizing fluid in said reservoir to provide pressurized fluid at said reservoir exit port,

a conduit insertable in the body having a passage through which fluid passes for injection into the body,

a combined valve and pump assembly having

(a) an internal fluid charge accumulation chamber of predetermined constant maximum volume provided with a fluid inlet port in fluid communication with said reservoir exit port and a fluid outlet port in fluid communication with said conduit passage,

(b) a valve closure element located within said chamber and movable between a charge accumulation position in which said closure element seals said fluid outlet port and unseals said fluid inlet port to facilitate admission of pressurized fluid into said chamber to accumulate said charge, and a charge injection position in which said closure element seals said inlet port and unseals said outlet port to permit said accumulated charge to be pumped from said chamber to said conduit for injection.

(c) a pump element located for movement through a pumping stroke of preset length within said chamber between a nonpumping position in which the volume of said chamber is at said maximum to facilitate accumulation of a fluid charge of preset volume in said chamber when said closure element is in said charge accumulation position, and a pumping position in which the volume of said chamber is reduced to less than said maximum to transfer said accumulated fluid charge of preset volume from said chamber into said conduit when said closure element is in said charge injection position, and

(d) actuating means for selectively alternatively placing said closure element and said pump element (1) in said charge accumulation and nonpumping positions, respectively, to facilitate transfer of a fluid charge from said pressurized reservoir to said chamber, or (2) in said charge injection and pumping positions, respectively, to facilitate pumped transfer of said accumulated fluid charge from said chamber to said conduit for injection into said body.

4,274,408

METHOD FOR GUIDE-WIRE PLACEMENT AND NOVEL SYRINGE THEREFOR

Beatrice Nimrod, 24 Wallace St., New Britain, Conn. 06051

Filed Mar. 26, 1979, Ser. No. 23,644
Int. Cl.³ A61M 5/00
U.S. Cl. 128—214.4 **11 Claims**



1. A syringe device for inserting a catheter guide wire comprising:

a. a hollow body member providing a cavity therewithin and an end wall at one end thereof providing a hub portion and having an opening extending therethrough;

b. a needle on said hub portion and extending therefrom, said needle having a needle lumen extending therethrough and aligned with said opening in said end wall for communication of said lumen with said cavity;

c. a plunger extending through an opening in the opposite end of said body member and slidably received in said cavity, the peripheral surface of said plunger being in sliding and sealing engagement with a cooperating peripheral surface of said body member, said plunger having a plunger passage extending therethrough in alignment with said opening in said one end wall;

d. a feeder tube slidably received in said plunger passage, extending outwardly of said plunger, having inner and outer ends, and having a feeder passage extending from said outer end through said feeder tube to said inner end; and

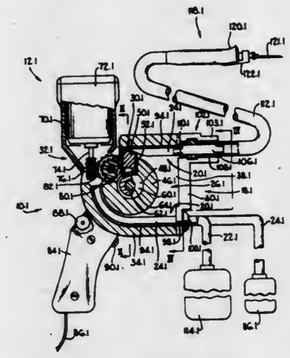
e. closure means normally sealing said plunger passage on the needle side of said feeder tube but permitting said feeder tube to pass therethrough upon application of force to said feeder tube in the direction of said needle, and thereby against said closure means, said inner end of said feeder tube thereby being slidable to a position adjacent said hub for communication of said feeder passage with said needle lumen to guide a catheter guide wire introduced through said outer end of said feeder tube into said needle lumen.

4,274,409

DISPENSING OF FLUENT MATERIALS

George E. Bush, 65 Hillman St., Woodmead East, Sandton, Transvaal Province, South Africa

Filed Jan. 18, 1979, Ser. No. 4,253
Claims priority, application South Africa, Feb. 3, 1978, 78/0674
Int. Cl.³ A61M 5/00
U.S. Cl. 128—215 **13 Claims**



1. A dispensing device for use in dispensing measured quantities of fluent materials through a plurality of resiliently compressible dispensing tubes, the device comprising:

a housing having a tube zone for receiving a plurality of dispensing tubes;

collapsing means for collapsing, in compression zones, dispensing tubes when located in the tube zone;

said collapsing means including a plurality of displaceable compression members slideably connected to said collapsing means and projecting beyond the periphery thereof;

displacement means for displacing the collapsing means to advance the compression zones along compression paths to dispense fluent materials through said dispensing tubes;

a plurality of independently adjustable cam members adapted to cooperate with the respective compression members to control the effective length of the compression paths during operation of the collapsing means.

4,274,410

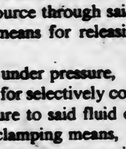
INTRAVAGINAL CONTRACEPTIVE AND DRUG RELEASE DEVICE AND METHOD FOR MAKING AND USING SAME

Milos Chvapil, Tucson, Ariz., assignor to Medi-Coll, Inc., Tucson, Ariz.

Division of Ser. No. 720,563, Sep. 7, 1976, abandoned. This application Jan. 16, 1980, Ser. No. 112,157
Int. Cl.³ A61F 13/20
U.S. Cl. 128—270 **12 Claims**

1. A contraceptive device for insertion in the upper vault of the vagina proximate the cervix comprising:

(a) a reconstituted collagen mass having a size and shape for insertion in the upper vault of the vagina;



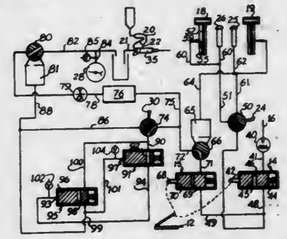
(b) said collagen mass having a porous sponge structure with pore diameters ranging from 80u to 1400u.

4,274,411

FLUID OPERATED OPHTHALMIC IRRIGATION AND ASPIRATION DEVICE

Robert S. Dotson, Jr., 535 Peabody Sq., Memphis, Tenn. 38104

Filed Mar. 30, 1979, Ser. No. 25,537
Int. Cl.³ A61M 1/00
U.S. Cl. 128—276 **5 Claims**



1. An ophthalmic irrigation and aspiration device comprising;

(a) a source of irrigation liquid,

(b) a vacuum source,

(c) a handpiece, including a needle for insertion into the site of use, said handpiece being adapted to carry outlets for the irrigation liquid and the vacuum from the respective sources thereof,

(d) a vacuum control valve for selectively connecting said vacuum outlet in the handpiece to said vacuum source,

(e) pulsing means for cyclically operating said vacuum control valve,

(f) irrigation control means for controlling the flow of said irrigation liquid through the outlet for irrigation liquid in said handpiece, characterized in that said irrigation control means includes first clamping means for stopping the flow of said irrigation liquid through said handpiece,

(g) aspiration control means for controlling the application of said vacuum source through said handpiece,

(h) fluid operated means for releasing said first clamping means,

(i) a source of fluid under pressure,

(j) first valve means for selectively connecting said source of fluid under pressure to said fluid operated means for releasing said first clamping means,

(k) a fluid operated vacuum generating device,

(l) a second valve for selectively directing fluid under pressure from said first valve to said vacuum generating device,

(m) a first toggle valve for selectively connecting said fluid under pressure to said pulsing means and to said vacuum control valve,

(n) said pulsing means including a first fluid operated valve having an input, an output, and a valve operating port, a second fluid operated valve having an input, an output, and a valve operating port,

(o) said output of said first fluid operated valve being in

communication with said valve operating port of said second fluid operated valve, and

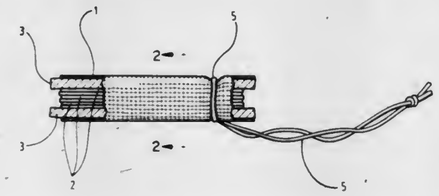
(p) said output of said second fluid operated valve being in communication with said valve operating port of said first fluid operated valve, said output of said second fluid operated valve being connected to said vacuum control valve.

4,274,412

TAMPON CONTAINING BLENDED SUPERABSORBENT MATERIAL

Jared A. Austin, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 22, 1979, Ser. No. 87,221
Int. Cl.³ A61F *13/20*
U.S. Cl. 128—285 **8 Claims**



1. A tampon comprising in combination:

(a) an absorbent core including a plurality of discrete essentially planar, abutting plies of a compressed blend of superabsorbent fibers and short cellulosic fibers selected from the class consisting of wood pulp fibers and cotton linters;

(b) an absorbent layer located on the bottom and the top of said core having textile length fibers;

(c) a fluid permeable outer cover surrounding the top and sides of the absorbent surfaces; and

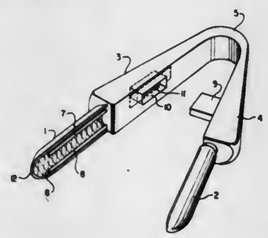
(d) withdrawal means attached to one end of the tampon.

4,274,413

DEPILATORY TWEEZER

Robert H. Hahn; Neva N. Hahn, both of 333 Pembroke Mews, Toronto, Canada (M5A 2N6), and Noah Salzman, 7461 Kingsley Rd., Cote St. Luc, Canada (H4W 1P4)

Filed Dec. 1, 1978, Ser. No. 965,672
Claims priority, application Canada, Oct. 6, 1978, 312902
Int. Cl.³ A61B *17/41*
U.S. Cl. 128—303.13 **20 Claims**



1. A depilatory tweezer comprising means for retaining a hair between a pair of electrodes, said means including:

(i) a pair of arms resiliently biased away from each other, each of said arms having a section adjacent its end parallel to the other at their closest adjacency,

(ii) said sections having electrically conductive surfaces,

(iii) insulative spacer means extending outwardly from one of said surfaces toward the other, the spacer means extending only so far as to allow retention of a hair between and in contact with the electrically conductive surfaces when the arms are in closest adjacency, without interference by the insulative spacer means, and

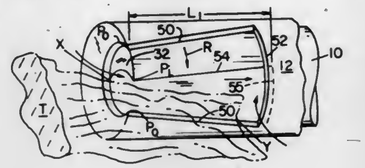
(iv) means for conducting radio frequency current to said electrically conductive surfaces.

4,274,414

SURGICAL INSTRUMENT

Lanny L. Johnson, Okemos, Mich., and Leonard J. Bonnell, Medford, Mass., assignors to Dyonics, Inc., Woburn, Mass.

Filed Feb. 21, 1979, Ser. No. 13,407
Int. Cl.³ A61B *17/32*
U.S. Cl. 128—305 **12 Claims**



1. In a surgical instrument of the type comprising coaxial inner and outer tubes having coacting cutting edges in a distal region, the inner tube being rotatably driven while the outer tube is stationary, and means to maintain fluid flow from the cutting region through the instrument, the improvement wherein

a limited segment of the side of each tube is open, said opening of each tube extending to the distal extremity of the side of said tube,

and at least the portion of the end of each tube that corresponds with the respective opening in the side of the tube being open,

whereby at a first position of rotation of the inner tube, body tissue can protrude through the end and side openings of said tubes into the volume of the inner tube,

said tubes bounding said side openings defining initial tissue-penetrating sharp pointed portions located where the tubes first come together during rotation of said inner tube, said pointed portions located at the distal extremity of the sides of the tubes,

and cutting edges extend from said initial tissue-penetrating pointed portions both transversely across the end of and longitudinally along the sides of the tubes,

whereby following initiation of gripping and cutting at said pointed portions located inwardly on the tissue from an exposed edge of the tissue, cutting can proceed in two angular directions toward the exposed edge of the tissue to complete the cut.

4,274,415

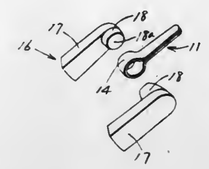
SURGICAL CLIP AND ITS ASSEMBLY

Sakumi Kanamoto, Mukoshi, and Akio Ishida, Kameokashi, both of Japan, assignors to Maruho Co., Ltd., Osaka, Japan

Continuation-in-part of Ser. No. 765,742, Feb. 4, 1977, abandoned. This application Jan. 23, 1979, Ser. No. 5,867
Claims priority, application Japan, Jul. 16, 1976, 51-95530; Jul. 21, 1976, 51-87824; Jul. 23, 1976, 51-99088
Int. Cl.³ A61B *17/12, 17/28*
U.S. Cl. 128—321 **6 Claims**

6. A combination of a blood circulation stopping clip and a forceps for opening and closing said clip in which said blood circulation stopping clip is formed of a resilient strip piece and comprises a pair of elongated clip legs for clipping a blood vessel therebetween and an annular bight portion connecting said clip legs at their respective one ends, each of said clip legs being formed in an elongated tongue shape having tapered side edges, each of said clip legs having opposed surfaces which are normally urged to be in contact with each other substantially

over their whole area owing to the resilience of said bight portion which can be opened when the inner diameter of said bight portion is forcibly spread and said forceps for opening and closing said clip is provided with a pair of frusto-conical tips at its working ends, said frusto-conical tips having round end surfaces opposed to each other and being engageable with said bight portion of said clip to forcibly spread said bight



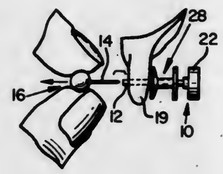
portion when said forceps is closed, the outer diameter of the frusto-conical tips of said forceps being slightly greater than the inner diameter of the annular bight portion of said blood circulation clip so that the opposed surfaces of said clip legs of said clip may be opened by a fixed angle at a point where the smaller round end surfaces of the frusto-conical tips contact each other whenever the frusto-conical tips of said forceps are inserted into said annular bight portion to the fullest extent.

4,274,416

METHOD OF USING A GUIDE FOR REPLACEMENT OF EARRINGS IN PIERCED EARS

David J. Sorensen, 1012 NE. Knoles Dr., Vancouver, Wash. 98665

Division of Ser. No. 901,181, Apr. 28, 1978, abandoned. This application Nov. 20, 1979, Ser. No. 95,974
Int. Cl.³ A61B *17/00*
U.S. Cl. 128—330 **4 Claims**



1. The method of removing and reinstalling a stud type earring in a pierced ear comprising:

(a) placing over the exposed extremity of the stud of the earring, which is in place in an opening in the ear and has its clasp removed, a guide having an elongate tubular rod with an inside diameter arranged to loosely receive said stud;

(b) forcing said guide completely over the stud and through the opening in the ear;

(c) thereafter removing the earring from said guide and the ear leaving said guide in place in the ear;

(d) reinserting said stud into said rod and back through the opening;

(e) removing said guide from the opening leaving said stud located therein; and

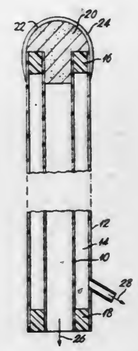
(f) placing said clasp back onto said stud.

4,274,417

INSTRUMENTS FOR USE IN THE MEASUREMENT OF GASES IN BODY FLUIDS

David T. Delpy, London, England, assignor to National Research Development Corporation, London, England

Filed Sep. 18, 1979, Ser. No. 76,724
Claims priority, application United Kingdom, Sep. 22, 1978, 37801/78
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—632 **6 Claims**



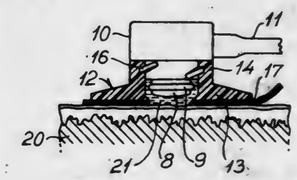
1. An instrument for use in the measurement of gases in body fluids comprising a flexible catheter having an inner tube within an outer tube, the tubes being of such diameters that there is a substantially cylindrical passage between the tubes; sealing means to seal the cylindrical passage at each end of the catheter; at one end of the catheter a gas permeable closure covering one end of the inner tube, and at the other end of the catheter first connection means to allow connection of the cylindrical passage to a gas flow system and second connection means to allow connection of the inner tube to a gas analysis apparatus.

4,274,418

ELECTROCHEMICAL MEASURING DEVICE

Peter K. R. Vesterager, Maalov, and Borge Jeppesen, Glostrup, both of Denmark, assignors to Radiometer A/S, Copenhagen, Denmark

Continuation of Ser. No. 802,113, May 31, 1977, abandoned. This application Jun. 5, 1979, Ser. No. 45,689
Claims priority, application Denmark, Jun. 1, 1976, 2398/76
Int. Cl.³ A61B *5/00*
U.S. Cl. 128—635 **8 Claims**



1. An electrochemical measuring device for transcutaneous measurement of the partial pressure of a gas, said electrochemical measuring device comprising:

a sensor unit including an electrochemical type sensor responsive to a gas to be measured, and a semi-permeable membrane permeable by the gas to be measured and covering the electrochemical type sensor for permitting the gas to be measured to reach the electrochemical type sensor;

an annular mounting member having a front annular skin

opposing surface for being adhered in use to the skin of a patient and an opposite back for being spaced in use from the skin of the patient, a stop surface backward of said front annular skin opposing surface, and an open bore extending through the annular mounting member and opening at the front annular skin opposing surface and at the back of the annular member; and

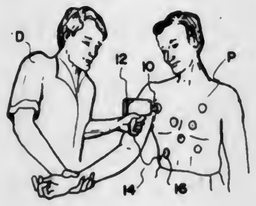
connecting means for releasably connecting said sensor unit to the back of said annular mounting member in a position to close the back opening of the bore and engage said stop surface and oriented with said semi-permeable membrane within said open bore and said connecting means being effective to permit releasing of said sensor unit from said annular mounting member and to permit connection of said sensor unit to said annular mounting member while said annular mounting member is adhered in use to the skin of a patient, said stop surface being positioned relative to said skin opposing surface such that when said sensor unit is engaged therewith said semi-permeable membrane is spaced a distance of 0.05 to 0.5 mm back from said skin opposing surface of said annular mounting member, wherein said sensor unit closing the back opening of said bore, the walls of said bore and the skin of a patient together define a measuring chamber for containing gases which permeated the skin of the patient and entered the measuring chamber including the gas which is to be measured when the measuring device is adhered in use to the skin of a patient.

4,274,419

SKIN PREPARATION DEVICE AND METHOD USED IN THE APPLICATION OF MEDICAL ELECTRODES

Hak W. Tam, Kirkland, and Vernon E. Modes, Kent, both of Wash., assignors to Quinton Instrument Co., Seattle, Wash.

Filed Oct. 19, 1979, Ser. No. 86,590
Int. Cl.³ A61B *5/04*
U.S. Cl. 128—639 **17 Claims**



1. A method of preparing the skin of a patient to provide proper electrical contact between the skin and a medical electrode to be secured to the skin of the patient, comprising:

applying a reference electrode to a prepared site on the skin of the patient;

abrading an unprepared site on the skin of the patient with an abrasive pad impregnated with an electrolyte;

measuring the difference of the impedance between the abrasive pad and the reference electrode during abrading of the skin with the abrasive pad; and

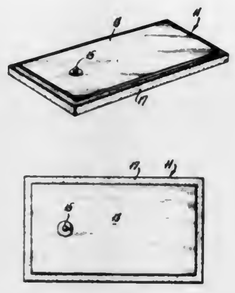
terminating abrasion with the abrasive pad when the difference of the impedance between the abrasive pad and the reference electrode reaches a preset value.

4,274,420

MONITORING AND STIMULATION ELECTRODE

Alan C. Hymes, Hopkins, Minn., assignor to LecTec Corporation, Eden Prairie, Minn.

Continuation-in-part of Ser. No. 849,405, Nov. 7, 1977, Pat. No. 4,125,110, which is a continuation of Ser. No. 785,225, Apr. 6, 1977, abandoned, which is a continuation of Ser. No. 635,008, Nov. 25, 1975, abandoned. This application Oct. 12, 1978, Ser. No. 950,625
The portion of the term of this patent subsequent to Nov. 14, 1995, has been disclaimed.
Int. Cl.³ A61B *5/04*
U.S. Cl. 128—641 **15 Claims**



1. An electrode for establishing electrical connection to a patient's skin, comprising:

an electrically conductive backing and current distribution member;

electrical terminal means attached to said member, said terminal means being adapted for connection of the electrode to an electrical wire; and

a substrate attached to said backing and current distribution member for interfacing with the patient's skin, said substrate comprising a homogeneous material having adhesive properties for securing the electrode to the skin, said substrate being sufficiently pliant to permit formation of the shape of the electrode to the body contours, said substrate being sufficiently firm to prevent penetration of the body contours through the substrate thereby preventing contact of the backing member with the skin, and said substrate being uniformly conductive thereby providing a homogeneous conducting surface to the skin, said substrate comprising a karaya gum matrix, said matrix supporting an electrically conductive fluid, said fluid comprising an organic fluid and being a continuous phase.

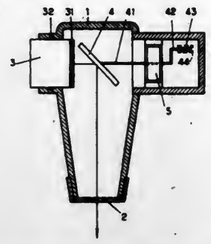
4,274,421

ECHO SOUND APPARATUS INCLUDING AN OSCILLATING MIRROR FOR USE IN MEDICAL DIAGNOSIS

Jacques Dory, Meaux, France, assignor to C. G. R. Ultra Sonic, France

Filed Nov. 1, 1978, Ser. No. 956,706
Claims priority, application France, Nov. 23, 1977, 77 35201
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—660 **5 Claims**

1. An echo sounding apparatus comprising: a fluidtight housing having side walls and a bottom wall, at least part of the surface of said bottom wall being transparent to ultrasonic waves; a transmitting-receiving ultrasonic probe fixedly mounted in a surface portion of said side-walls and having a transmitting-receiving surface within said housing substantially at right angles with the bottom wall; a liquid contained in the housing and adapted to transmit the ultrasonic waves from the probe to the bottom wall; an electric motor, of a type having no rotating contacts, fixedly mounted within the housing, and immersed in the said liquid; a spindle, supported and rotated by the said motor, along an axis at right angles with the said transmitting-receiving surface; a plane mirror, rotatably mounted about said spindle within said housing and facing said transmitting-receiving surface, said mirror being inclined at 45° with respect to said spindle; control means for controlling the



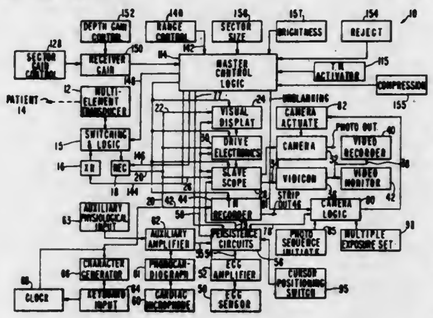
said motor so as to generate an oscillatory conical motion of the mirror about the said axis, said control means comprising means, immersed in the liquid and having no contact with the mirror, for providing an electrical signal corresponding to the angular position of the mirror; pulse transmitter-receiver circuit means connected to the said probe and display means, coupled to the transmitter-receiver circuit means.

4,274,422

SECTOR SCANNER DISPLAY AND RECORDING SYSTEM FOR ULTRASONIC DIAGNOSIS

Weston A. Anderson; Lloyd D. Clark, both of Palo Alto, and William L. Beaver, Los Altos Hills, all of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Continuation of Ser. No. 673,500, Apr. 5, 1976, abandoned. This application Jun. 12, 1978, Ser. No. 914,323
Int. Cl.³ A61B *10/00*
U.S. Cl. 128—661 **9 Claims**



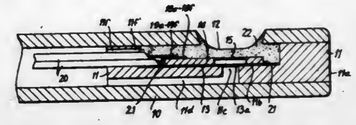
1. An ultrasonic patient diagnostic device comprising means including a phased array transducer means for generating and displaying a fan shaped, two-dimensional, real time, operator viewable image of a region of a patient being examined from ultrasonic energy directed into and reflected out of said patient region, and means responsive to said means for generating said image for effecting, simultaneously with said real time image, a TM recording corresponding to a preselected region of said real time image viewable during patient examination.

4,274,423

CATHETER TIP PRESSURE TRANSDUCER

Masakazu Mizuno, Nagoya; Isemi Igarashi, Aichi, and Hazime Inagaki, Nagoya, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Nagoya, Japan

Filed Dec. 8, 1978, Ser. No. 967,815
Claims priority, application Japan, Dec. 15, 1977, 52-150885
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—675 **28 Claims**



1. A catheter tip pressure transducer comprising: a needle tube having a pressure inlet hole opened in a side wall thereof proximate an end thereof;

a support member disposed within said needle tube said support member being positioned opposite said pressure inlet hole of said catheter;

a pressure sensor disposed within said needle tube, said pressure sensor comprising a semi-conductor block, said block including a recess located opposite to said support member, a thinner flat portion defined by said recess and being a pressure-sensitive diaphragm and located opposite to said pressure inlet hole, and a remaining thicker portion formed integrally with said thinner flat portion, said thicker portion of said pressure sensor being seated on said support member without being rigidly attached thereto and said diaphragm being located below the outer surface of said side wall of said needle tube; and

at least one strain gauge disposed on a surface of said pressure-sensitive diaphragm opposite to a face of said diaphragm facing said recess, said at least one strain gauge having lead wires, whereby the pressure at said inlet hole acts on said diaphragm and said at least one strain gauge to change the electrical characteristics of said at least one strain gauge in proportion to said pressure, and

said pressure sensor is unaffected by thermal stresses in said support member because of said unrigid attachment.

4,274,424

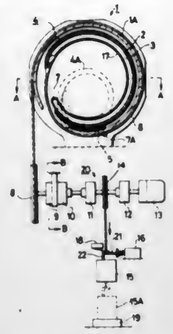
DEVICE FOR AUTOMATICALLY WINDING A BLOOD PRESSURE MEASURING CUFF

Shigenobu Kimura; Yoshiro Kubo; Shigeru Bando; Akio Ose; Yukuo Kinoshita; Ryoichi Higashizono, and Ikuo Hanamiya, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jun. 7, 1979, Ser. No. 46,413
Claims priority, application Japan, Jun. 12, 1978, 53-69841
Int. Cl.³ A61B *5/02*
U.S. Cl. 128—686 **8 Claims**

1. Apparatus for automatically winding a blood preasure measuring cuff around a part of the human body, comprising; a flexible band having a part fixedly secured to a surrounding member adapted to receive a part of the human body, said flexible band extending circumferentially along the inner wall of said surrounding member, one end of said flexible band pulled circumferentially to be wound around a part of the human body, a flexible fluid chamber provided along the inner wall of said flexible band interposed between said flexible band and a part of the human body, a weight connected to one end of said flexible band, weight hoisting means for hoisting said weight and, weight holding means for holding said weight at a

predetermined hoisting position, wherein a pulling force caused by said weight when said holding means is released is



applied to the one end of said flexible band to wrap said flexible band about a part of the human body.

4,274,425

MOUTHPIECE FOR A REDOX GAS MEASURING DEVICE

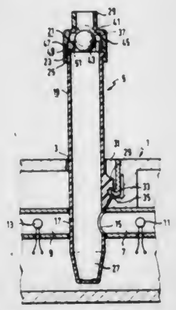
Dieter Lutz, Schweinfurt; Peter Krause, Schonungen; Axel Terveen, and Volker Eibl, both of Munich, all of Fed. Rep. of Germany, assignors to Sachs-Systemtechnik GMbH, Schweinfurt, Fed. Rep. of Germany

Filed Apr. 30, 1979, Ser. No. 34,853

Claims priority, application Fed. Rep. of Germany, May 12, 1978, 2820916

Int. Cl.³ A61B 5/08

U.S. Cl. 128—719 **20 Claims**



1. Mouthpiece for a device for measuring the concentration of redox gases, especially alcohol, in exhaled air, comprising an axially elongated tubular member forming an axially extending passageway and having a first end forming an opening through which air is exhaled into the passageway and a second end, means formed on the outside surface of said tubular member for releasably securing said tubular member to the measuring device, valve means in combination with said tubular member forming a check valve within the passageway in said tubular member for permitting the flow of exhaled air from the first end toward the second end past said check valve while preventing an induced flow of air through the passageway around the check valve to the first end, said tubular member being closed at the second end thereof and having at least one outlet opening therefrom intermediate and spaced from said check valve and the second end of said tubular member, and the passageway in said tubular member between said outlet opening and the second end thereof forming a moisture chamber for collecting saliva at a location within said passageway downstream of the location of said outlet opening where the flow of exhaled air can enter the measuring device, and after use said mouthpiece being removable from the measuring device and being disposable.

4,274,426

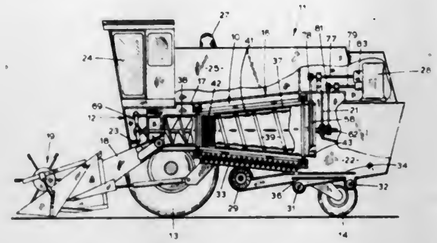
THRESHING APPARATUS

Dennis W. Williams, Rte. 1, Box 51, Toston, Mont. 59643

Filed Mar. 31, 1980, Ser. No. 135,256

Int. Cl.³ A01F 7/06

U.S. Cl. 130—27 T **3 Claims**



1. Apparatus for threshing grain material and separating the threshed grain from the residual grain material comprising:

(a) an elongated supporting frame,

(b) a shaft extended longitudinally of and rotatably supported on said frame,

(c) a threshing unit mounted on said shaft for rotation therewith including a tapered cylindrical body member having a continuous peripheral surface and a rub bar helically extended about said surface,

(d) a rotatable grain separating cylinder having a peripheral surface tapered over the axial length thereof,

(e) means for rotatably mounting said separating cylinder on said frame in a coaxial concentrically spaced relation about said threshing unit, to form a threshing zone therebetween having an inlet and an outlet, said cylindrical body member and separating cylinder being substantially coextensive in axial length,

(f) concave grates and separating grates arranged circumferentially of and over substantially all of the peripheral surface of said grain separating cylinder,

(g) means for rotating said threshing unit and grain separating cylinder at relative rotational speeds,

(h) means for supplying the grain material to be threshed into the inlet of said threshing zone, with the clean grain in the threshing zone being moved through said concave grates and separating grates by centrifugal force, concurrently with the travel of the grain material from said inlet toward said outlet,

(i) means for collecting the clean grain passing through said separating cylinder, and

(j) means for removing the residual material only from the outlet end of said threshing zone.

4,274,427

METHOD OF INCREASING FILLING POWER OF TOBACCO PRODUCTS

Andrew T. Lendvay, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Filed Aug. 30, 1978, Ser. No. 938,118

Int. Cl.³ A24B 3/18

U.S. Cl. 131—293 **34 Claims**

25. An improved tobacco filler of expanded shredded tobacco wherein the improvement comprises expanded pectinaceous substances of said tobacco bound by multivalent salts, consisting 0.2% to 7.5% by dry weight of said tobacco filler, selected from the group consisting of aluminum sulfate, magnesium sulfate, diammonium magnesium sulfate, potassium aluminum sulfate, aluminum citrate, calcium acetate, calcium levulinate, calcium sulfamate and calcium gluconate individually and in combinations thereof, to retain said expansion.

4,274,428

MATERIAL WEB FOR THE MANUFACTURE OF FILTER RODS FOR TOBACCO PRODUCTS AND APPARATUS AND PROCESS FOR PRODUCING SUCH WEB

Paul A. Müller, 9497 Triesenberg 405, Liechtenstein, and Hans Muster, Sellerwis 1, 8606 Greifensee, Switzerland

Division of Ser. No. 844,389, Oct. 21, 1977, abandoned. This application Nov. 14, 1979, Ser. No. 94,180

Claims priority, application Switzerland, Aug. 11, 1977, 9888/77

Int. Cl.³ A24D 3/04

U.S. Cl. 131—331 **7 Claims**



1. A web of paper-like fibrous material adapted to be gathered transversely and enclosed in a wrapper to make a filter cord subdividable into filter rods and filter plugs for tobacco products, said web being provided with:

closely-spaced narrow longitudinal corrugations wherein said material has been stretched laterally to loosen and expose fibers; and

closely-spaced generally-transverse narrow zones wherein said material has been compressed and compacted to produce a denser structure.

4,274,429

UMBRELLA

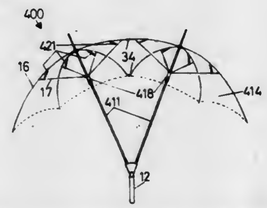
Ernst Kinski, Prinz-Georg-Strasse 94, 4000 Düsseldorf, Fed. Rep. of Germany

Division of Ser. No. 823,202, Aug. 9, 1977, Pat. No. 4,144,900. This application Oct. 10, 1978, Ser. No. 949,559

Claims priority, application Fed. Rep. of Germany, Aug. 20, 1976, 2637502; Jun. 28, 1977, 2729026

Int. Cl.³ A45B 19/00, 25/14

U.S. Cl. 135—20 A **6 Claims**



1. An umbrella for the protection of persons against weather conditions comprising handle means enabling said umbrella to be gripped by a user, stick means attached at one end thereof to said handle means, a plurality of ribs pivotally mounted with said stick means, a canopy attached upon said ribs, slider means on said stick means slideably movable to open and close said canopy of said umbrella, a plurality of stays each pivotally mounted at opposite ends thereof, respectively to said ribs and to said slider means, said ribs extending from said stick means radially therefrom and being circumferentially distributed thereabout, with movement of said slider means on said stick means operating through said stays to cause pivotal motion of said ribs about said mounting on said stick means to open and close said canopy by stretching said canopy when said ribs are extended radially outwardly from said stick means, said canopy being brought to a folded condition about said stick means when said slider means is moved to bring said ribs in a generally parallel condition relative to said stick means, said umbrella further comprising tension springs which are engaged between each of said ribs and said stays, said spring means operating to spring load the angle between said stays and said ribs toward the open condition of said umbrella, with release of said slider operating to effect changes in the angle between said stays and said ribs as a result of the biasing force of said spring means to move said slider along said stick means toward the open position of said umbrella.

4,274,430

WALKING CANE APPARATUS

Cecil F. Schaaf, and Craig R. Schaaf, both of 3015 Palmer Rd., Standish, Mich. 48658

Filed Aug. 15, 1979, Ser. No. 66,531

Int. Cl.³ A61H 3/00

U.S. Cl. 135—65 **7 Claims**



1. A walking cane apparatus for assisting a person in walking on generally level surfaces and also on stairs and the like comprising:

a cane having a lower end operable to contact a walking surface and having an upper end portion operable to be grasped by a person using the cane apparatus;

a support structure including a platform surface which is operable to receive and support a foot of a person using the cane apparatus when the platform surface is in a first, generally upwardly facing position; and

means for attaching the support structure to the cane near its lower end to permit placing the platform surface in its first position and in a second position generally nearer the cane than the first position.

4,274,431

FUEL VENT WITH GRAVITY VALVE

Russell D. Keller, 1750 SE. Risley, Milwaukie, Oreg. 97222

Filed Jan. 10, 1979, Ser. No. 2,242

Int. Cl.³ F16K 17/36

U.S. Cl. 137—43 **11 Claims**

1. A motor vehicle fuel tank vent apparatus comprising:

a vent body adapted to be secured within an opening in a liquid fuel tank on a motor vehicle and having a passageway with longitudinal axis extending through said vent body from a vent inlet to a vent outlet;

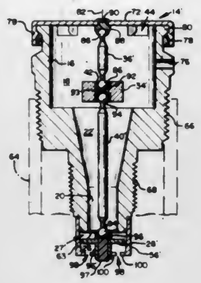
valve means including a movable valve member for controlling the flow of fluid through said passageway;

gravity operated control means for opening and closing said valve means in accordance with the position of the axis of said passageway so that said valve means is open when the vent body is upright and said axis is positioned substantially vertical, is closed when said axis is moved to an

angle greater than a predetermined angle with respect to said vertical position to prevent leakage and reopens when said axis returns to said vertical position;

said control means including a gravity operated weight member pivotally supported by a support means in a position above the valve means;

connector means for connecting said weight member to said valve member with a pivot connection between said con-



nector means and said valve member for opening and closing said valve means by movement of said weight; and

said support means and connector means comprising a pair of link rods including an upper link rod and a lower link rod which are pivotally connected at one end to the weight by ball and socket connections, with the lower rod being pivotally connected at its other end to the valve member by a ball and socket connection.

4,274,432

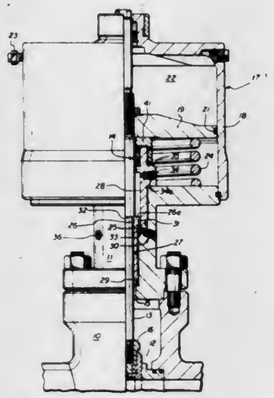
VALVE

Karl N. Tunstall, Farmers Branch, and M. L. Warren, Carrollton, both of Tex., assignors to Otis Engineering Corporation, Dallas, Tex.

Filed Jan. 21, 1980, Ser. No. 113,731

Int. Cl.³ F16K *43/00*

U.S. Cl. 137—315 **6 Claims**



1. A valve comprising,

a valve body,

a bonnet on said valve body,

a valve member assembly including a valve member and valve stem in said body and bonnet movable between open and closed positions,

seal means between said bonnet and valve stem,

a back seat in said bonnet,

said valve member assembly including a back valve member cooperable with said back seat and when seated isolating said seal means from pressure fluid within the valve body,

means for moving said valve member assembly between open and closed positions,

a pressure chamber including an auxiliary piston means for moving said valve member assembly to a position seating said back valve member on said valve back seat, and

a port providing access to said pressure chamber from the exterior of the valve for pressurization of said pressure chamber from an auxiliary source whereby when said pressure chamber is pressurized said auxiliary piston means maintains said back valve member against said back seat and isolates pressure fluid within the valve body permitting repair of portions of said valve on the side of the back valve member remote from said valve member.

4,274,433

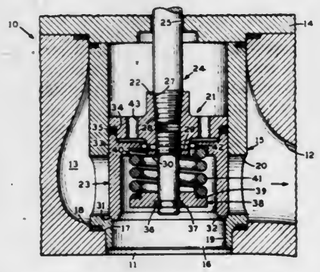
PACKED PLUG FOR A FLUID VALVE

Ira H. Schnall, Erie, Pa., assignor to White Consolidated Industries, Inc., Cleveland, Ohio

Continuation of Ser. No. 956,742, Nov. 1, 1978, abandoned. This application Jun. 9, 1980, Ser. No. 157,502

Int. Cl.³ F16K *39/02*

U.S. Cl. 137—454.6 **10 Claims**



1. In a valve structure including a valve body having an inlet and outlet passage and an internal web portion intermediate the inlet and outlet passages, means arranged in said web portion forming a closeable flow path between said inlet and outlet passages, and a valve stem associated with said web portion, a valve plug apparatus to provide a leak-tight valve shut-off, characterized by

(a) a two-member valve plug comprising a lower plug member and an upper plug member,

(b) said lower and upper plug members being mounted in a generally axially spaced relation on said valve stem, whereby said two-member valve plug is controllable by the valve stem to close said closeable flow path means,

(c) packing means arranged between and held by said lower and upper plug members,

(d) at least one of said plug members being slidably associated with said valve stem whereby the relative axial orientation of the plug members is variable to vary the holding force on said packing means, and

(e) means associated with said two-member valve plug operative upon said lower and upper plug members and said packing means whereby the packing means is maintained in a snug fit between the lower and upper plug members for all axial positions of said valve stem,

(f) said valve stem being in a direct, force-transmitting relation with said upper plug member and said upper plug member only when said valve and valve stem are in fully closed positions for all axial positions of the valve stem after the valve is in said fully closed position whereby the force produced by the valve stem when the valve and stem are in said fully closed positions will be transmitted solely and directly through said upper plug member to urge the two plug members together with a force proportional to the closing force applied by said stem thereby increasing the holding force on the packing means in proportion to the closing force applied by said stem for all axial positions of the valve stem after the valve is in said fully closed position to form a leak-tight seal around the valve plug and through the packing means to the lower plug member to provide a tight valve shut-off.

4,274,434

AUTOMATIC LOW-FRICTION CHECK VALVE

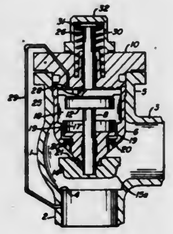
Carl-Heinz Hiifele, Bergstrasse 83, 4050 Mönchen-Gladbach 1, Fed. Rep. of Germany

Division of Ser. No. 969,527, Dec. 14, 1978, abandoned. This application Jun. 6, 1980, Ser. No. 156,954

Claims priority, application Fed. Rep. of Germany, Dec. 22, 1977, 2757352

Int. Cl.³ F16K *15/06*

U.S. Cl. 137—498 **11 Claims**



1. An automatic check valve including a valve body having an annular valve seat interposed between inlet and outlet ports, a valve element including a truncated cone portion adapted to move through an opening formed in the valve body by said valve seat and shaped to gradually reduce the cross-sectional area of the space between the valve seat and the valve element as the valve element moves toward the seat whereby the movement of the valve element will be damped as it approaches the valve seat, an annular sealing surface on said valve element surrounding the large diameter end of said truncated cone portion and engageable with said valve seat, and a damping piston connected to the valve element and adapted to enter a cylinder containing a fluid which is displaced through an orifice as the damping piston and valve approach the valve seat, said damping piston entering said cylinder only during the final phase of movement of the valve element toward the valve seat.

4,274,435

EXCESS PRESSURE VALVE PARTICULARLY FOR A FLUID PRESSURE OPERATED TELESCOPIC SUPPORTING ELEMENT EMPLOYED IN UNDERGROUND MINING

Siegmar Block, Essen, Fed. Rep. of Germany, assignor to Thyssen Industrie AG, Fed. Rep. of Germany

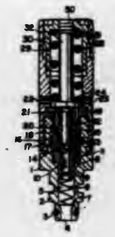
Filed Jun. 19, 1979, Ser. No. 50,104

Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2832964

Int. Cl.³ F16K *31/122*

U.S. Cl. 137—508 **5 Claims**

1. An excess pressure valve particularly for mine props having telescopic parts which are extensible and retractable by fluid under pressure, comprising a valve housing have a bore extending therethrough from a connection end connectable to a source of fluid under pressure to an opposite open end, a tubular sleeve in said bore having a passageway extending therethrough for a passage of the fluid under pressure, said tubular sleeve having an annular inlet end face with an outwardly extending flange facing the connection end and an opposite annular pressure end face, a piston in said bore between said tubular sleeve and the open end, said piston having an inlet end face opposing said pressure end face of said tubular sleeve and an opposite piston pressure end face, spring means biasing said piston in a direction toward said sleeve, an additional pressure spring continuously biasing said sleeve toward said piston over a predetermined range of movement and the fluid under pressure maintaining a space between said piston and said tubular sleeve, seal means defined in said bore and isolating the space between said piston and said tubular sleeve from said opposite open end over a predetermined range of movement of said piston and said tubular sleeve, a discharge relieving bore located intermediate the length of said housing and connected to said bore through the space between said piston and said tubular sleeve when said tubular sleeve is positioned downstream of said seal means to relieve the fluid under pressure therebetween, said piston being operative to move further downstream from said seal means responsive to a further increase in pressure of the fluid under pressure, and a pressure fluid discharge passage uncoverable by said further movement of said piston further downstream from said seal means communicating with said space between said piston and said sleeve to permit the discharge of additional fluid from the bore, and said housing including a shoulder defined therein against which the flange abuts when said sleeve moves to a position at which the said pressure fluid discharge passage is uncovered by said piston, so that further subsequent movement of said piston separates said piston inlet end face from said sleeve pressure end face.



4,274,436

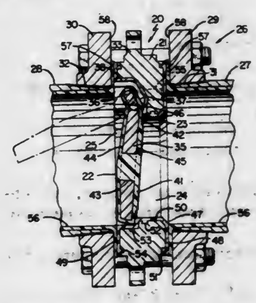
WAFER-TYPE SWING CHECK VALVE CONSTRUCTION

Russell G. Smith, Cincinnati, Ohio, assignor to Xomox Corporation, Cincinnati, Ohio

Filed Aug. 16, 1979, Ser. No. 67,056

Int. Cl.³ F16K *15/03*

U.S. Cl. 137—515.7 **13 Claims**



1. In a wafer-type swing check valve construction having a metallic housing body provided with an inlet and an outlet interconnected together by a valve seat that is adapted to be opened and closed by the effect of a pressure differential acting across a metallic valve disc pivotally mounted to said housing

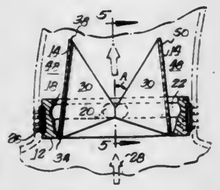
body by a pivot pin-like part of said disc that has opposed ends thereof rotatably received in cooperating recess means in said housing body to provide a pivot arrangement for said valve disc, said valve disc cooperating with said valve seat to define a seating area therewith, the improvement comprising resilient corrosion resistant plastic material completely covering said valve disc and said pivot pin-like part thereof and all of the wettable areas of said housing body so that said housing body and said valve disc and said pivot pin-like part thereof are completely protected from corrosive fluids and the like that might be passed through said valve construction, said plastic material alsc providing for corrosion free pivoting action of said pivot pin-like part in said recess means as said valve disc is moved by said pressure differential relative to said valve seat and permitting said valve disc to form a tight seal with said valve seat when said pressure differential closes said valve disc against said valve seat, said housing body initially having opening means passing therethrough and said plastic material filling said opening means to close the same and integrally join together parts of said plastic material disposed on opposite sides of said housing body, said opening means connecting with said portions of said housing body that define the parts of said recess means that contact said plastic material on said pivot pin-like part of said valve disc.

4,274,437

HEART VALVE

Len S. Watts, 510 Hastings Dr., Benicia, Calif. 94510

Filed Feb. 28, 1980, Ser. No. 125,481
Int. Cl.³ F16K *15/03*; A61F *1/22*
U.S. Cl. 137—527 **10 Claims**



1. A valve comprising

an annular valve body having an interior surface which defines a central passageway therethrough for the flow of liquid in a predetermined direction generally along the axis of said passageway,

said annular body having a groove in its interior passageway-defining surface which extends 360° therearound, and

a pair of valve members proportioned to fit together and block flow through said passageway when in the closed position,

said valve members each including two oppositely extending rounded pivots proportioned to be pivotally received in said groove,

said valve members each having an outward facing convex surface,

the upstream end of each of said valve members having a substantially semi-circular outward edge that seals against said interior surface of said valve body,

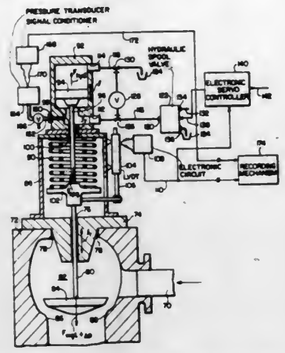
whereby said valve members pivot between their open and closed positions as a result of fluid pressures developed at opposite ends thereof and as a result of said pivotal movement gradually orbit with respect to the axis of said valve body passageway.

4,274,438

METHOD OF DIAGNOSTIC VALVE TESTING

Bernard L. La Coste, Wilmington, Del., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 21, 1979, Ser. No. 13,701
Int. Cl.³ F16K *37/00*; G01D *9/28*
U.S. Cl. 137—551 **3 Claims**



1. A method of testing a hydraulically operated steam turbine admission valve assembly which includes a support structure having a valve cavity disposed therein, said cavity adapted to have steam flow therethrough from an input port to an output port thereof; a movable mechanism having a portion thereof adjustedly oriented in said valve cavity to regulate the flow of steam therethrough; a hydraulic actuator linked to said movable mechanism and actuated by hydraulic fluid pressure to adjust the orientation of said movable mechanism, said support structure additionally including a plurality of guide clearances having a frictional force associated therewith for impeding the movement of said movable mechanism, said method comprising the steps of:

regulating the hydraulic fluid pressure of said hydraulic actuator to encourage adjustment of the orientation of the portion of said movable mechanism in one direction about a quiescent valve stroke position orientation;

regulating the hydraulic fluid pressure of said hydraulic actuator to encourage adjustment of the orientation of the portion of said movable mechanism in another direction about said quiescent valve stroke position orientation;

measuring the values of the hydraulic fluid pressure of said hydraulic actuator during the regulation thereof;

measuring the orientation of the movable mechanism to detect movement of the portion thereof in the one and the other directions about the quiescent orientation;

identifying a first measured value of hydraulic fluid pressure which occurs substantially at a time of detected initial movement of the movable mechanism in the one direction about the quiescent valve stroke position orientation, and a second measured value of hydraulic fluid pressure which occurs during detected movement of the movable mechanism in the one direction;

identifying a third measured value of hydraulic fluid pressure which occurs substantially at a time of detected initial movement of the movable mechanism in the other direction about the quiescent valve stroke position orientation, and a fourth measured value of hydraulic fluid pressure which occurs during detected movement of the movable mechanism in the other direction;

deriving a mean value from the identified measured values of hydraulic fluid pressure;

establishing values representative of break away and moving frictional forces, which impede movement of the movable mechanism in the one direction about the quiescent valve stroke position orientation, based on said derived mean value and said identified first and second measured values of hydraulic fluid pressure; and

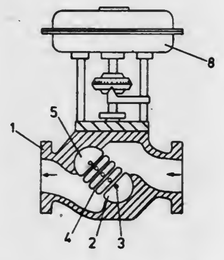
establishing values representative of break away and moving frictional forces, which impede movement of the movable mechanism in the other direction about the quiescent valve stroke orientation, based on said derived mean value and said identified third and fourth measured values of hydraulic fluid pressure.

4,274,439

CONTROL VALVE HAVING A DISC SHAPED THROTTLE

Fritz Kolb, Odenthal; Silvan Fehlisch; Otto Ziegert, both of Dormagen; Hans Bender, Mannheim, and Manfred Schmitt, Bobenheim-Roxheim, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 23, 1977, Ser. No. 799,616
Claims priority, application Fed. Rep. of Germany, May 22, 1976, 2623079
Int. Cl.³ F16K *13/00*, *47/02*
U.S. Cl. 137—601 **4 Claims**



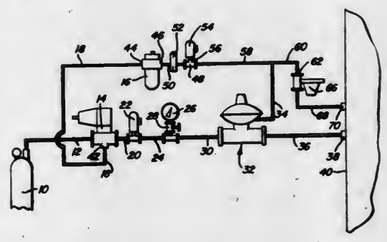
1. A control valve for controlling fluid flow comprising a valve housing, a set of parallel spaced apart superposed flat discs all having their main surfaces lying in parallel planes, means mounting each disc in the housing for rotation in the same direction about an axis parallel to the plane of the disc to effect a variable clearance ranging from zero to a maximum clearance between adjacent discs which is adjustable in response to rotation of the discs in the same direction, wherein the ratio of the maximum clearance to the thickness of the disc is less than or equal to 1:5, and a roller sealing element disposed between each end of the set of discs and the housing.

4,274,440

PRECISION GAS PRESSURE REGULATION

Samuel J. Richard, Jr., P. O. Box 8246, South Charleston, W. Va. 25303

Filed Dec. 29, 1978, Ser. No. 368
Int. Cl.³ G05D *16/00*
U.S. Cl. 137—613 **4 Claims**



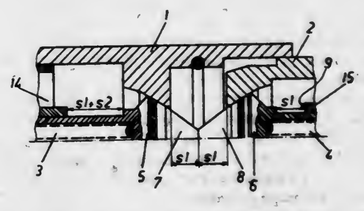
1. A gas pressure regulation system for maintaining a predetermined pressure of gas in a vessel comprising; a supply of pressurized gas, a pressure reducing regulator positioned downstream from said gas supply, said pressure reducing regulator including a connection thereon having first and second outlets, a safety relief valve providing a redundant safety relief in the event said reducing regulator fails, said safety relief valve being downstream said first outlet, a pressure gauge downstream said safety relief valve, a first connecting line for supplying said supply of pressurized gas to said pressure reducing regulator, said safety relief valve, said pressure guage and to said pressurized vessel downstream from said pressure gauge, said gas being supplied to said vessel at a pressure higher than said predetermined pressure into a first inlet connection with said vessel, and a control means for sensing said predetermined pressure in said vessel through a second inlet connection with said vessel separate from said first inlet connection, said control means comprising a gauge regulator downstream said second outlet from said reducing regulator, a controlled leak means connected to an outlet of said gauge regulator, a safety valve downstream from said gauge regulator for providing redundant safety relief should internal relief in said gauge regulator fail, a second connecting line from said second outlet to said gauge regulator, said safety valve and from said safety valve to a pilot regulator for supplying control gas through said pilot regulator, said pilot regulator positioned downstream from said safety valve and having adjustable flow means for adjusting the flow therethrough into said second inlet connection into said vessel, whereby the pressure of control gas in said second connecting line is determined by the gas pressure balance between said controlled leak means and said pilot regulator, said control means further including a diaphragm regulator positioned between said pressure gauge and said first inlet connection for control of the rate of flow of gas in said first connecting line to said inlet connection from said reducing pressure regulator, and a gas adjusting line communicating between said second connecting line and said diaphragm regulator whereby the flow of supply gas to said first inlet connection is controlled in response to the pressure of control gas in said second connecting line.

4,274,441

CONNECTION COUPLING CONNECTABLE UNDER PRESSURE

Wolf E. Fischer, Ettlingen, Fed. Rep. of Germany, assignor to Semperit AG, Vienna, Austria

Filed Sep. 5, 1978, Ser. No. 939,863
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1977, 2741027
Int. Cl.³ F16L *29/00*, *37/28*
U.S. Cl. 137—614.05 **14 Claims**



1. A connection coupling which can be connected under pressure for use with hydraulic lines, comprising:

a non-pressure loaded coupling half and a pressure loaded coupling half coacting with one another;

a respective valve guide substantially centrally arranged in each coupling half;

a respective spring-loaded, hydraulically loadable valve arranged to be axially displaceable within each valve guide;

each valve having a valve head;

said valve heads being pressed against one another during the coupling operation;

the non-pressure loaded valve being displaced through ap-

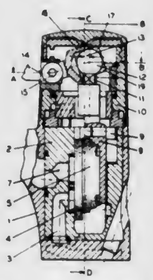
proximately twice the possible valve stroke of the pressure loaded valve;
spring means for loading each of said valves;
said spring means loading the non-pressure loaded valve constituting a stronger spring means than the spring means loading the pressure loaded valve;
stop means provided for the pressure loaded coupling half;
said stronger spring means being effective such that during pressure equalization the previously pressure loaded valve is pressed in an open position against said stop means provided in the previously pressure loaded coupling half, thereby forming a maximum valve-passage cross-section at the region of both valves;
each coupling half having a passage cross-section about the valve guide of the related coupling half; and
the free passage cross-section about the valve guide at least of the non-pressure loaded coupling half being clearly greater than the free passage cross-section of the valve-passage cross-section.

4,274,442

MIXER VALVE FOR SANITARY ENGINEERING

Georg Bernat, Meaden; Karl-Heinz Nolting, Hemer, both of Fed. Rep. of Germany, and Claus John, Sonderborg, Denmark, assignors to Friedrich Grohe Armaturenfabrik GmbH & Co., Hemer, Fed. Rep. of Germany

PCT No. PCT/DE78/00020, § 371 Date May 4, 1979, § 102(e) Date May 4, 1979, PCT Pub. No. WO79/00134, PCT Pub. Date Mar. 22, 1979
This PCT application filed May 4, 1979, Ser. No. 63,563
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1977, 2740205
Int. Cl.³ F16K *11/06*
U.S. Cl. 137—625.17 **4 Claims**



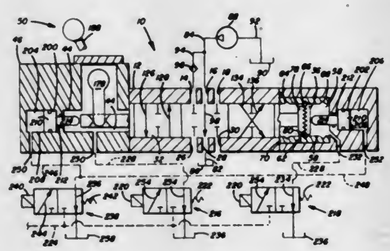
1. A single-handle mixing valve for mixing hot and cold water sources and providing an output thereof, comprising:
a housing having a longitudinal axis, first and second inlet bores communicating respectively with said hot and cold water sources, a discharge passage, and a valve receiving chamber;
a handle means;
a first valve plate fixably mounted within said chamber and having a first surface parallel to said longitudinal axis and having first, second and third passages respectively communicating with said first inlet bore, said second inlet bore and said discharge passage;
a valve support means having a first portion extending into said chamber and a second portion coupled to said handle means;
a second valve plate carried by said support means first portion and having a second surface parallel to said longitudinal axis and adapted to slidably engage said first surface, said second surface having a mixing recess;
said valve support means second portion comprises a head-piece having a central axis spaced apart a predetermined distance from said longitudinal axis;
said handle means comprising a jacket portion rotatable around said longitudinal axis and a lever pivotally mounted on said jacket portion and pivotally connected to said head piece;
slidable pivot means for translating a rotational displacement of said jacket portion in a first direction to a pivotal displacement of said valve plate and for translating axial displacement of said lever in a second direction to a displacement of said valve plate parallel to said longitudinal axis, said central axis of said head-piece being disposed between said longitudinal axis and said slidable pivotal means, wherein displacement of said lever in said first direction varies the mixture of said hot and cold water in nonlinear relationship and wherein displacement of said lever in said second direction varies the volume of said mixture through said discharge passage.

4,274,443

DIRECTIONAL CONTROL VALVE

James E. Faix, Pittsburgh, Pa., assignor to Consolidation Coal Company, Pittsburgh, Pa.

Division of Ser. No. 879,906, Feb. 21, 1978, Pat. No. 4,185,660.
This application Aug. 20, 1979, Ser. No. 67,614
Int. Cl.³ F15B *13/043*
U.S. Cl. 137—625.64 **3 Claims**



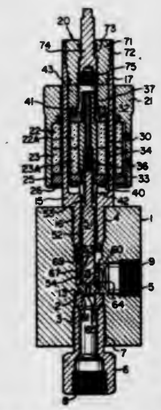
1. In a directional control valve having a valve housing with a chamber therein,
inlet port means in said housing and opening into said chamber for supplying fluid from a source to said chamber,
a plurality of outlet ports in said housing and opening into said chamber,
a valve member slidably positioned in said valve chamber,
said valve member being operable to place said inlet port means and said outlet ports in fluid communication in a preselected arrangement with each other,
the improvement comprising,
pilot valve control means for moving said valve member in said chamber in a first direction to a first end position to place in a first arrangement said inlet port means in fluid communication with said outlet ports and in a second direction to a second end position to place in a second arrangement said inlet port means in fluid communication with said outlet ports,
centering means having a predetermined length of travel between a first position and a second position for shifting said valve member from either one of said first and second end positions in said chamber a distance corresponding to said predetermined length of travel of said centering means to a center position between said first and second end positions,
actuating means for moving said centering means from said first position to said second position to position said valve member in said center position,
said pilot valve control means including a first pilot operated valve and a second pilot operated valve,
said first pilot operated valve being operable to convey fluid to one end of said valve member for shifting said valve member to said first end position to convey fluid in a first direction from the valve housing,
said second pilot operated valve being operable to convey fluid to the opposite end of said valve member for shifting said valve member to said second end position to convey fluid in a second direction from the valve housing, and
said actuating means including a third pilot operated valve for conveying fluid under pressure to said centering means for moving said centering means to said second position to shift said valve member to said center position to convey fluid in a third direction from the valve housing.

4,274,444

MAGNETICALLY ACTUATED RISING STEM VALVE

Robert F. Ruyak, Erie, Pa., assignor to Autoclave Engineers, Inc., Erie, Pa.

Filed May 17, 1979, Ser. No. 39,899
Int. Cl.³ F16K *31/10*
U.S. Cl. 137—630.14 **4 Claims**



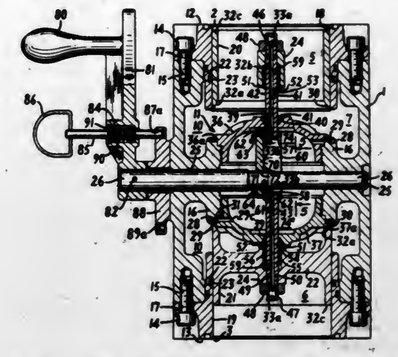
1. A valve comprising a pressurizable valve body defining an annular valve seat, an inlet fluid passage in communication with one side of the valve seat and an outlet passage in communication with the other side of the valve seat and a valve actuator passage extending away from the valve seat,
a nonmagnetic tubular pressurizable bonnet having an extending axis passing through the space circumscribed by the annular valve seat and in direct fluid communication with the passages in said valve body,
a cylindrical holder coaxial with and surrounding said tubular bonnet, said holder mounted rotatable thereto, said holder carrying rare earth cobalt magnets defining an even number of north and south poles,
a driven magnet assembly carrying rare earth cobalt magnets defining an even number of north and south poles rotatably supported in the bonnet by thrust bearings to resist axial movement of the driven magnet assembly,
a valve stem journaled for free axial movement in the valve actuator passage threadably engaging the driven magnet assembly,
a valve closure element fixed to said valve stem which when engaged in said valve seat prevents flow between the inlet and outlet fluid passages, means for keying the valve stem to prevent rotation thereof,
whereby rotation of said drive magnet assembly in one direction raises the valve stem and rotation of said driven magnet assembly in the other direction lowers said valve stem.

4,274,445

PRESSURE BALANCED THREE-WAY TRANSFER VALVE

Roydon B. Cooper, Locust Valley, N.Y., assignor to Pall Corporation, Glen Cove, N.Y.

Filed Apr. 10, 1979, Ser. No. 28,752
Int. Cl.³ F16K *11/18, 35/02, 31/44;* **B01D** *33/00*
U.S. Cl. 137—636.1 **8 Claims**



1. A pressure-balanced three-way transfer valve for controlling fluid flow into one of two fluid lines, comprising, in combination:
(1) a housing;
(2) a valve chamber in the housing;
(3) first, second and third fluid flow ports in the housing;
(4) first, second and third fluid flow passages in the housing, intercommunicating the valve chamber with the first, second and third fluid flow ports;
(5) a first valve member in the valve chamber movable between open and closed positions across the first fluid flow passage, and controlling flow through the first fluid flow port;
(6) a second valve member in the valve chamber movable between open and closed positions across the second fluid flow passage, and controlling flow through the second fluid flow port;
(7) first cam-following valve-actuating means in the valve chamber operatively connected to the first valve member;
(8) second cam-following valve-actuating means in the valve chamber operatively connected to the second valve member;
(9) a cam in the housing separated from the valve chamber and exposed to a pressure lower than fluid pressure; movable between first and second positions and operatively connected with the first and second cam-following valve-actuating means in a manner such that
(a) with the cam in the first position, the first valve member is open and the second valve member is closed;
(b) with the cam in the second position, the second valve member is open and the first valve member is closed; and
(c) with the cam in intermediate positions, both the first and second valve members are open at least partially;
(10) means for moving the cam between the first and second positions, thereby opening and closing the valves;
(11) a first pressure-equalizing chamber defined by the first cam-following valve-actuating means and the first valve member;
(12) a second pressure-equalizing chamber defined by the second cam-following valve-actuating means and the second valve member;
(13) a first fluid passage through the first cam-following valve-actuating means intercommunicating the pressure lower than fluid pressure with the first pressure-equalizing chamber;
(14) a second fluid passage through the second cam-following valve-actuating means intercommunicating the pres-

sure lower than fluid pressure with the second pressure-equalizing chamber;

(15) the first and second valve members each having pressure-receiving surfaces exposed to fluid pressure in the valve chamber and opposed pressure-receiving surfaces exposed to a pressure lower than fluid pressure in the pressure-equalizing chamber;

(16) the first and second cam-following valve-actuating means each having pressure-receiving surfaces exposed to fluid pressure in the valve chamber and opposed pressure-receiving surfaces exposed to pressure lower than fluid pressure; and

(17) the opposed pressure-receiving surfaces of the first and second valve members and first and second cam-following valve-actuating means being of such surface areas that the fluid pressure and lower pressure acting on the opposing pressure-receiving surfaces of the cam-following valve actuating means and valve members are substantially balanced;

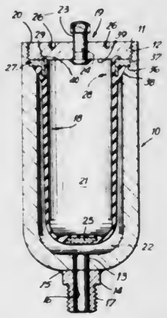
whereby such fluid pressures do not interfere with movement of the first and second valve members.

4,274,446

LOW COST REPAIRABLE ACCUMULATOR

Abduz Zahid, Los Angeles, Calif., assignor to Greer Hydraulics, Incorporated, Chatsworth, Calif.

Filed Oct. 24, 1979, Ser. No. 87,656
Int. Cl.³ F16L 55/04
U.S. Cl. 138—30 **4 Claims**



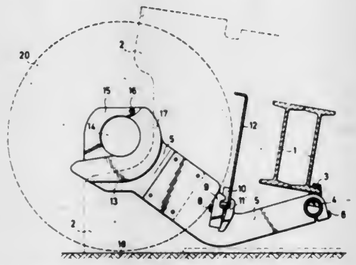
1. A pressure vessel having an oil charging port at one end and an open mouth portion at the other end, a retainer thread surrounding said open mouth portion, an annular stop shoulder formed on the interior of said vessel in proximate spaced relation to said open mouth portion, an annular bevel area of lesser diameter than said shoulder formed on an interior wall of said vessel, said bevel area forming a downward continuation of said shoulder and tapering inwardly toward the axis of said vessel, a bladder assembly comprised of resilient elastomeric material disposed within said vessel, said assembly including a thickened rim portion, an annular metallic retainer ring member bonded to said thickened rim portion, said retainer ring including a flange projecting radially beyond said rim portion and a depending cylindrical stem, the peripheral portion of said rim between said flange and said stem being inclined toward the axis of said vessel at an angle substantially matching the angle of said bevel portion, said thickened rim portion, in the unstressed condition thereof, including an annular band projecting radially outwardly therefrom at a position intermediate said inclined peripheral portion, a cap assembly mounted in said mouth portion and including a thread section engaging said retainer thread and a depending shoulder, said cap assembly being complementally threaded into said retainer thread and clamping said retainer ring against said stop shoulder, said annular band of said rim portion, in said clamped position of said cap assembly, being deformed into conforming relation with said bevel area, the elastomeric material of said thickened rim, in the area bounded by said bevel portion, said flange and said stem of said retainer ring, being of greater density in said clamped than in said unstressed condition.

4,274,447

BEARING MOUNT FOR A WARP BEAM

Eberhard Seifert, Rickenbach-Sulz, and Philippe John, Winterthur, both of Switzerland, assignors to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jan. 29, 1980, Ser. No. 116,614
Claims priority, application Switzerland, Feb. 19, 1979, 1615/79
Int. Cl.³ D03D 49/02
U.S. Cl. 139—97 **7 Claims**



1. In a weaving machine having a frame and a main beam extending transversely of said frame;

a bearing mounting for a warp beam, said bearing mounting including

a holder secured to and extending along said main beam;

a support arm adjustably mounted on said holder for movement in a vertical plane and along said main beam, said support arm extending from said holder transversely of said main beam;

a bearing at a free end of said support arm for journalling a warp beam therein;

a second beam extending transversely of said frame between said main beam and said bearing; and

means for adjustably clamping said support arm to said second beam.

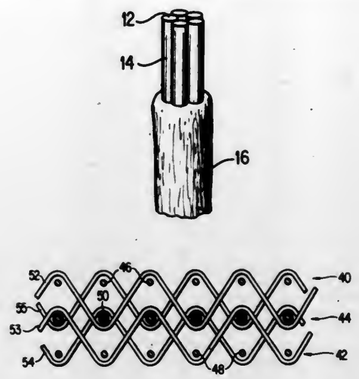
4,274,448

DRYER FELT WITH ENCAPSULATED, BULKY CENTER YARNS

William T. Westhead, Waycross, Ga., assignor to Scapa Dryers, Inc., Waycross, Ga.

Filed Aug. 9, 1978, Ser. No. 932,360
Int. Cl.³ D03D 15/00
U.S. Cl. 139—383 A **18 Claims**

1. A dryer felt comprising: a plurality of machine direction and cross machine direction yarns interwoven in a binding relationship to provide a multiple-plane fabric having at least a base plane, a top plane and an intermediate plane positioned between said base plane and said top plane, said base plane being defined by a first plurality of said cross machine direction yarns, said top plane being defined by a second plurality of said cross machine direction yarns, and said intermediate plane being defined by a third plurality of said cross machine direction yarns, wherein a plurality of the yarns of said third plurality are encapsulated yarns so as to provide a soft, bulky intermediate plane, each of said encapsulated yarns comprising a plurality of filaments treated with a heat resistant resin so that said filaments together act as a monofilament core, and an encapsulating sheath surrounding the full length of said core, said sheath defining a soft, bulky outer surface which, when woven into said fabric, acts to prevent shifting of said encapsulated yarns in said fabric, wherein said encapsulated yarns



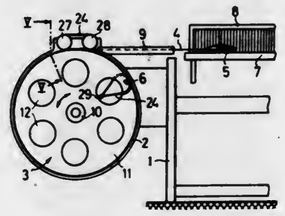
reduce fabric permeability while contributing to fabric stability.

4,274,449

BAND GUIDE FOR SHUTTLELESS LOOMS

Erhard Freisler, Bubikon; Friedrich Lutz, Dürnten, and Hans Zollinger, Tann-Rüti, all of Switzerland, assignors to Ruti Machinery Works Ltd., Ruti, Switzerland

Filed May 29, 1979, Ser. No. 43,328
Claims priority, application Switzerland, May 31, 1978, 5951/78; Apr. 9, 1979, 3359/79
Int. Cl.³ D03D 47/12
U.S. Cl. 139—449 **14 Claims**



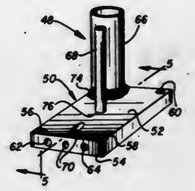
1. An apparatus for the insertion of the filling thread on a shuttleless loom having a band wheel driven in alternating directions or rotation, a flexible insertion band which bears an insertion member and is imparted, while being wound and unwound on the circumference of the band wheel, an oscillating movement transverse to the warp threads, and having a guide member to prevent the lifting of the insertion band from the circumference of the band wheel, characterized by the fact that the guide member is formed of a cable which is movable in oscillating fashion synchronously with the insertion band and rests from the outside against the insertion band under an initial stress.

4,274,450

UNIVERSAL CLIP AND STRUCTURE FOR MAKING SAME

Gail W. Doerge, Kilgore, Tex., assignor to Michael Andrew Sproles; Dennis Gary Decker; Rex Houston, all of Henderson and Larry Wayne Castleberry, Longview, all of, Tex., part interest to each

Division of Ser. No. 895,246, Apr. 10, 1978, abandoned. This application Aug. 6, 1979, Ser. No. 63,975
Int. Cl.³ B21F 45/16, 45/22
U.S. Cl. 140—82 **4 Claims**



1. A kit for mounting on a work table for making a universal clip comprising:

a substantially rectangular base having at least one horizontal top surface and at least one vertical side surface, said base having mounting apertures disposed in said horizontal top surface and extending through said base;

structure engaging the mounting apertures to mount said base on the work table;

a metallic wire of a predetermined diameter having sufficient plastic and elastic material characteristics to function as a loop spring and be plastically deformed by bending, said wire for being bent and shaped to form the universal clip;

a metal cylinder extending upwardly in a vertical direction from the horizontal top surface of said base and being dimensioned to form a loop spring portion in said wire by wrapping said wire once around said cylinder;

a substantially vertical bore of a first bore depth in the horizontal top surface and extending partially through said base at a first predetermined distance from said cylinder;

a metallic pin disposed in said bore and extending upwardly from the horizontal top surface of said base at the first predetermined distance from said cylinder such that said wire when wrapped around said cylinder may be forced against said pin to place a first pair of crooks in said wire to form two arms extending from the loop spring portion in the wire, the position of the first pair of crooks being determined by the first predetermined distance between said cylinder and said pin;

a second bore of a second bore depth extending in a substantially horizontal direction through the vertical side surface of said base, said second bore being dimensioned to receive the ends of the wire to form a second pair of crooks to extend each end of the wire outwardly such that the end of each of the two arms extends away from the other arm, the position of said second pair of crooks being determined by the second bore depth of said second bore;

a third bore of a third predetermined depth extending in a substantially horizontal direction through the vertical side surface of said base, said third bore being dimensioned to receive the ends of the wire to form a third pair of crooks to extend each end of the wire inwardly such that the ends of each of the two arms extends towards the other arm, the position of said third pair of crooks being determined by the depth of said second bore; and

a fourth bore extending at an oblique angle through the horizontal top surface and the vertical side surface of the base, said bore being dimensioned to receive said wire for shaping and bending said wire at any point along the wire to form said clip.

4,274,451

MOLDING DEVICE FOR THE STATOR COIL WINDING HEADS OF ELECTRIC MACHINES

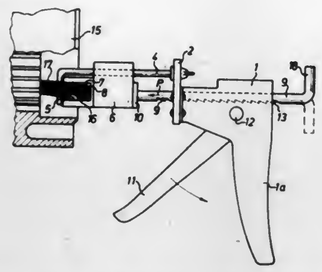
Franz Veser, Kanalstr. 16, D-7980 Ravensburg, Fed. Rep. of Germany

Filed Aug. 14, 1979, Ser. No. 66,549

Claims priority, application Fed. Rep. of Germany, Aug. 16, 1978, 7834310[U]

Int. Cl.³ B21F *1/00*

U.S. Cl. 140—106 **4 Claims**



1. Molding device for flattening a coil winding head of a stator coil comprising

a handle having a housing including a pistol grip and a control lever;

a push rod extending through said housing, one end of said push rod formed as an angle and the other end of said push rod extending longitudinally therefrom;

a forming die mounted at the other end of said push rod, said forming die having a hollow portion adapted to surround the coil winding head, and said forming die including a convex portion adapted to abut the surface of the coil winding head within said hollow portion;

mounting means located on said housing;

a plurality of hook rods extending from said mounting means toward the other end of said push rod, each of said hook rods having draw hooks formed at their remote ends, the length of said hook rods being such that each draw hook abuts the surface of the coil winding head juxtaposed from said convex portion abutment; and

a thrust mechanism provided within said handle whereby actuation of said pistol grip thrusts said push rod and said mounting die so as to flatten the coil wnding head against a holding force provided by the abutment of said draw hooks.

4,274,452

DIAPHRAGM VALVES AND VALVE SYSTEMS

Friedrich W. Schmitt, Gau-Algesheim, Fed. Rep. of Germany, assignor to Robert J. Albert, Salem, N.H.

Continuation-in-part of Ser. No. 923,062, Jul. 10, 1978, abandoned. This application Dec. 26, 1978, Ser. No. 972,904

Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821801

Int. Cl.³ B65B *3/04*; F16K *11/10, 31/365*

U.S. Cl. 141—1 **38 Claims**

1. A valve comprising a housing,

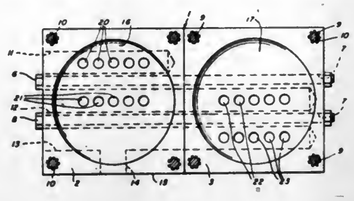
said housing defining three discrete channel means for carrying fluids,

a flexible valve actuator lying on one side of said channel means and defining with said housing a first valve chamber on one side of said actuator,

port means for permitting access of two of said channel means to said first valve chamber with one channel means having no connection with said first valve chamber,

said housing further defining with said valve actuator a second valve chamber lying on a second side of said actuator,

control hole means for permitting fluid pressure control of said actuator to establish a first position of said actuator blocking said access by said port means and a second



position of said actuator whereby said first valve chamber is interconnected with said at least two channel means.

4,274,453

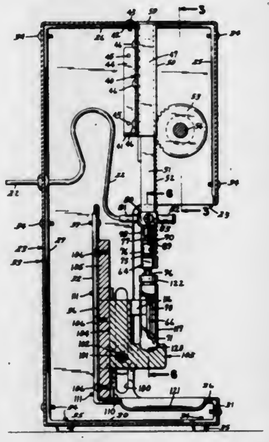
ASEPTIC FLUID TRANSFER

Peter F. Lee, Edina, Minn., assignor to Southland Instruments, Inc., Houston, Tex.

Filed Feb. 21, 1979, Ser. No. 13,078

Int. Cl.³ B65B *3/04*

U.S. Cl. 141—1 **12 Claims**



12. The method of obtaining a blood specimen for an automatic hemotology analyzer which comprises the steps of connecting the analyzer to a tubular member having a closed cross bore;

positioning a container of blood, sealed by a resilient penetrable closure, with the closure uppermost;

penetrating the closure by said tubular member;

unclosing the cross bore;

and aspirating blood from said container through said cross bore and tubular member while admitting replacement air to said container through the penetration.

4,274,454

METHOD AND APPARATUS FOR SEALING CONTAINERS

John P. Cook, Chattanooga, Tenn., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Feb. 26, 1979, Ser. No. 14,860

Int. Cl.³ B65B *5/00*

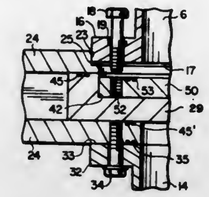
U.S. Cl. 141—1 **10 Claims**

1. An apparatus for sealing two containers, comprising:

(a) first and second co-axial containers each having planar sealing surfaces that face each other;

(b) a slideable, carrier closure member in the form of a plate;

(c) carrier closure guide means housing the carrier closure member and positioned between the sealing surfaces of the first and second containers, said guide means being adapted for permitting the carrier closure member to slide between a closed position and an open position, in said closed position the carrier closure member blocks the openings of the first and second containers and in said open position the carrier closure member is displaced from the openings of the first and second containers so that said containers are in communication;



(d) a closure member retained in a recess in the face of the carrier closure member;

(e) means for disengagably connecting said closure member with said second container; and

(f) sealing means carried on the closure member for establishing a seal between the closure member and the second container when the closure member is engaged with said second container by said connecting means.

4,274,455

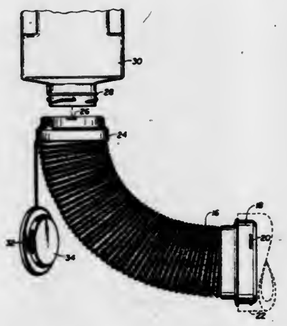
TONER LOADING DEVICE

Peter B. Simons, Los Altos, Calif., assignor to TBS, Inc., Mountain View, Calif.

Filed Apr. 13, 1979, Ser. No. 29,687

Int. Cl.³ B65B *1/04*; B67C *9/00*

U.S. Cl. 141—1 **6 Claims**



1. A method of loading toner from a canister into a machine of the type having a toner hopper, the method comprising the steps of:

removably connecting one end of an expandable hose to the machine to empty into the hopper,

removably connecting the other end of the hose to the toner canister;

stretching the hose from the machine while simultaneously emptying the canister into the hose,

detaching the canister from the hose,

closing off the hose end which has been detached from the canister, and

compressing the hose in the direction of its length while simultaneously emptying the bulk of the toner within the hose into the hopper.

4,274,456

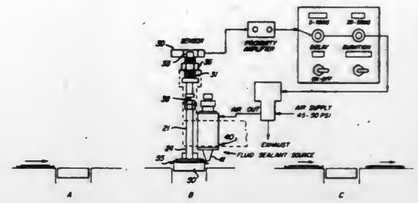
APPARATUS FOR DISPENSING FLUID SEALANT

Stanley S. Huffman, Golden, Colo., assignor to Coors Container Company, Golden, Colo.

Filed Dec. 6, 1979, Ser. No. 100,847

Int. Cl.³ B65B *43/42*

U.S. Cl. 141—157 **8 Claims**



1. An apparatus for repeatably dispensing predetermined amounts of fluid sealant accurately into an annular recess of separately presented can end articles comprising:

a dispenser arm pivotally mounted at one end thereof for horizontal and vertical arcuate movement;

releasable clamping means located centrally of said dispenser arm for accurately positioning said dispenser arm in a horizontal plane;

can end engaging means, including;

a rotatable vertically reciprocating member located at the end of said dispenser arm opposite the pivot mounting end, for engaging a rotating upwardly moving can end;

electronic sensing means responsive to the vertical movement of said rotatable vertically reciprocating member to sense when the can end is vertically proximate to said dispenser arm; and

dispensing means mounted on the dispensing arm proximate said can end engaging means and including a discharge nozzle aligned with the annular groove of a can end when said can end is engaged by said can end engaging means and said can end in its reciprocal vertical movement is proximate to said discharge nozzle, said dispensing means including means responsive to said electronic sensing means to discharge fluid sealant from said discharge nozzle into the annular groove of the can end when the can end is rotating and proximate the discharge nozzle of said dispensing means.

4,274,457

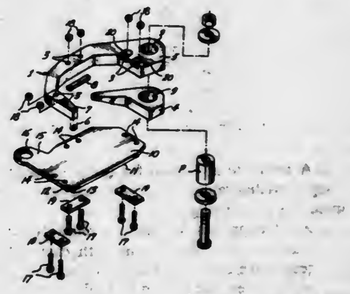
TREE SHEAR BLADE STRUCTURE

Christopher Nilsen, 1101 W. Birch St., Shelton, Wash. 98584

Filed Dec. 13, 1979, Ser. No. 103,397

Int. Cl.³ A01G *23/08*

U.S. Cl. 144—34 E **17 Claims**



1. In blade structure for a tree shear including a shear blade

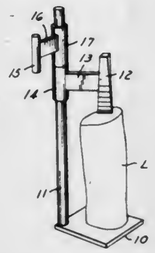
having a cutting edge, a blade carrier for carrying and reinforcing the blade, means for detachably mounting the blade on the blade carrier and power drive means for moving the blade to shear a tree, the improvement comprising means for connecting the blade directly to the power drive means independently of the blade carrier.

4,274,458

LOG SPLITTERS

Gilbert R. Dueweke, 17435 Stephens Dr., and John J. Krobock, 17425 Stephens Dr., both of East Detroit, Mich. 48021

Filed Nov. 19, 1979, Ser. No. 95,255
Int. Cl.³ B27L *7/00*
U.S. Cl. 144—193 D **3 Claims**



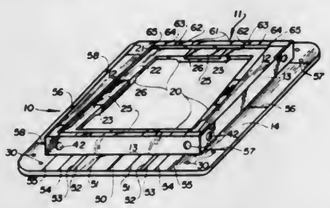
1. A log splitter comprising
a wedge,
means for supporting said wedge in overlying position with respect to a log to be split and for guiding said wedge toward said log when the wedge is struck by a hammer,
an auxiliary driver,
means for supporting said driver for movement into and out of alignment with said wedge and for movement with said wedge such that when a log is initially split by the wedge and becomes jammed in the log or is driven into the log so that the hammer cannot reach it, the auxiliary driver may be brought into alignment with the wedge and the hammer will then strike the auxiliary driver and drive the wedge through the log.

4,274,459

TEMPLATE HOLDER AND TEMPLATES

John E. Galajda, 1161 Elaine Rd., Columbus, Ohio 43227

Filed Sep. 21, 1979, Ser. No. 77,615
Int. Cl.³ B27Q *35/04*; B27C *5/10*
U.S. Cl. 144—144.5 R **24 Claims**



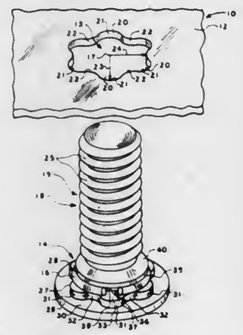
1. A template apparatus for use in guiding of a work tool along a predetermined path with respect to a workpiece, said apparatus comprising
a set of templates including a plurality of individual templates of thin sheet form with each template having a respective character cutout through which the work tool is projected and guided in duplicating of the character on the workpiece, the characters in said set of templates having configurations such that there are at least two different lateral space requirements for respective ones of the characters in the forming thereof in side by side relationship along the predetermined path, and
a template holder having a structural frame including a template supporting surface for support of a template thereon in predetermined relationship and a base portion positionable on a surface of a workpiece with said template supporting surface being in relatively spaced relationship to the workpiece surface, said template holder having spacing reference indicia provided for the different lateral spacings of respective template characters with said reference indicia providing orientation of the holder with respect to a preceding formed character and position referencing for a succeeding character to be formed.

4,274,460

PANEL FASTENER JOINT

Ronald J. Egner, Birmingham, Mich., assignor to Textron, Inc., Providence, R.I.

Filed Jun. 20, 1979, Ser. No. 50,157
Int. Cl.³ F16B *39/00*
U.S. Cl. 411—83 **15 Claims**



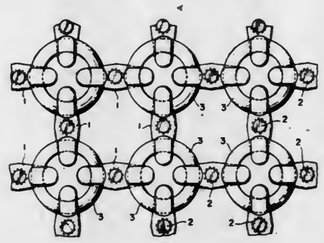
1. A joint comprising: a workpiece such as a section of sheet material, or the like, having a predetermined thickness and including an aperture formed therein, said aperture having a center and being defined by a periphery having a non-constant radial dimension from said center including a minimum radial dimension and a maximum radial dimension; and a fastener assembly mountable with said workpiece comprising a fastener member having a head portion and a shank portion extending axially therefrom, said head portion including a first enlarged head section having an outer peripheral dimension which is greater than that of said aperture, a second section extending axially from said first enlarged head section towards said shank portion and having a non-constant peripheral radial dimension corresponding in shape to said aperture dimension and receivable within said aperture, a third section intermediate said second section and said shank portion which includes a circumferential groove, said groove being spaced from said first enlarged head section by a distance only slightly greater than the thickness of said workpiece and a resilient retaining ring disposed within said circumferential groove, said shank portion and said head third section being dimensioned for passing through said aperture, said retaining ring having a free form dimension such that it is loosely carried within said circumferential groove, and with a maximum outer radial dimsneion greater than the minimum radial dimension of said aperture, and said groove having a depth which permits said ring to be contracted resiliently in a radial direction within said groove such that said ring may be received through said aperture, and due to the spacing of said groove from the enlarged head section said ring, upon returning to said free form dimension after passing through said aperture, will engage the surface of said workpiece opposite that engaged by said first enlarged head section, said ring cooperating with said first enlarged head section to retain said fastener assembly in mounted relation with respect to said apertured workpiece, thereby maintaining said head second section disposed within said aperture and the corresponding peripheral dimensions of said aperture and said head second section co-acting to prevent rotation of said fastener assembly within said aperture.

4,274,461

ASSEMBLY-TYPE TIRE PROTECTOR

Satoshi Yamamoto, Yokohama, Japan, assignor to Mitsubishi Seiko Kabushikikaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 740,966, Nov. 11, 1976, abandoned. This application Oct. 23, 1978, Ser. No. 953,618
Claims priority, application Japan, Jun. 23, 1976, 51-73293
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—167 **10 Claims**



1. An assembly-type tire protector comprising a plurality of weld free annular members disposed substantially parallel to the tire surface and a plurality of link members disposed substantially perpendicular to the tire surface, said annular members having an uninterrupted, uniform continuous surface and each of said annular members being connected together to the next adjacent annular member by said link members to form a net, said link members being uniformly distributed throughout the net, each of said link members comprising a body which is provided at both of its ends with opposing hook-like arms and bent portions for interconnecting said annular members, said opposing hook-like arms and said bent portions defining an opening, a pin disposed upright in said body, said pin having a head portion and a base portion, and the top of said pin being substantially coplanar with the bent portions of said body, said head portion substantially occupying said opening, said body of the link member containing a blind hole including a substantially flat bottom portion for receiving said base portion of the pin, and expanding means disposed in said hole for expanding said base portion of the pin within said hole for locking said pin in position in said hole around a portion of said expanding means, said base portion of said pin including an aperture and said means for expanding said base portion being a wedge means for expanding the aperture and said base portion to a size larger than the entrance to said blind hole.

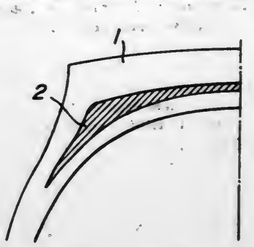
4,274,462

PNEUMATIC TIRE HAVING AN IMPROVED RESISTANCE AGAINST HEAT BUILD-UP EMPLOYING SYNDIOTACTIC-1,2-POLYBUTADIENE FIBERS IN TREAD BASE RUBBER

Masaki Ogawa, Sayama; Tamio Araki, Musashino, and Shinji Yamamoto, Ichihara, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo and Ube Industries, Ltd., Ube, both of, Japan

Filed Apr. 5, 1979, Ser. No. 27,414
Claims priority, application Japan, Apr. 6, 1978, 53-39677
Int. Cl.³ B60C *11/00, 1/00*; C08L *7/00*
U.S. Cl. 152—209 R **4 Claims**

1. A pneumatic tire having a cap/base structured tread and having an improved resistance against heat build-up, comprising a tread base rubber formed from a vulcanizate, which has a rebound resilience value of at least 50% defined in JIS K6301, of a rubber composition comprising 3 to 40 parts by weight of preformed short fibers of syndiotactic-1,2-polybutadiene having a maximum diameter of not more than



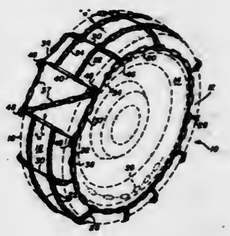
10μ and an average diameter of less than 1μ, 20 to 100 parts by weight of carbon black and 0.2 to 2 parts by weight of sulfur, on a basis of 100 parts by weight of a rubber selected from natural rubbers, synthetic rubbers and blends thereof in an optional blending ratio.

4,274,463

TIRE TRACTION ENHANCING APPARATUS

Marshall Freeman, 1305 Camino Pablo, San Jose, Calif. 95125

Filed Oct. 25, 1979, Ser. No. 88,020
Int. Cl.³ B60C *27/00*
U.S. Cl. 152—213 R **6 Claims**



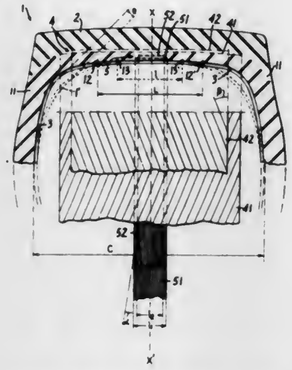
1. In a tire traction enhancing apparatus including at least two circumferential chains connected at discrete points by perpendicular chains and extending about the surface of a vehicular tire, the improvement comprising:
a bridle member attached to one end of the outermost and innermost circumferential chains with respect to the tire, the bridle member being generally "U-shaped" and having equal length arms and a bit portion, the length of said bit portion being less than the sidewall-to-sidewall width of the inflated tire, and the length of said arms being less than the tread to rim depth of the inflated tire, the attachment to the outermost and innermost circumferential chains being made at the ends of said arms, and the bridle member having loop eyes for receiving chain at the intersections of said arms and said bit portion.

4,274,464

RADIAL CARCASS TIRE, PARTICULARLY FOR EARTH-MOVING EQUIPMENT EMPLOYING CARCASS EXPANSION LIMITING BLOCK

Jean Pommier, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France

Continuation-in-part of Ser. No. 19,180, Mar. 9, 1979, abandoned. This application Jan. 30, 1980, Ser. No. 117,037
Claims priority, application France, Mar. 10, 1978, 78 07386
Int. Cl.³ B60C 9/20, 9/08
U.S. Cl. 152—352 R 11 Claims



1. A tire with a radial carcass reinforcement anchored on both sides to at least one bead ring and with a tread reinforcement having a meridian curvature less than that of the radial carcass reinforcement and which, on the one hand, is formed of at least two superimposed plies of wires or cables parallel in each ply and crossed from one ply to the other forming angles of less than 30° with the longitudinal direction of the tire and, on the other hand, is parallel to the radial carcass reinforcement along an equatorial zone, the radial carcass reinforcement having in the radially outer half a meridian profile whose minimum curvature is located between the shoulders of the tire and whose maximum curvature is located at the place of the shoulders, characterized by the fact that, in the equatorial zone where the tread reinforcement is parallel to the radial carcass reinforcement and between these two reinforcements, there is arranged a limiting block formed of two superimposed plies of wires or cables of low extensibility which are parallel to each other in each ply and crossed from one ply to the other forming with the longitudinal direction angles of opposite sign, each being both other than zero and less in absolute value than one-half of the smallest angle used in the tread reinforcement, this limiting block having a width less than the width of the equatorial zone along which the tread reinforcement is parallel to the radial carcass reinforcement and further characterized by the fact that the wires or cables of low extensibility of the limiting block have a relative elongation less than 0.2% under a load equal to 10% of their rupture load.

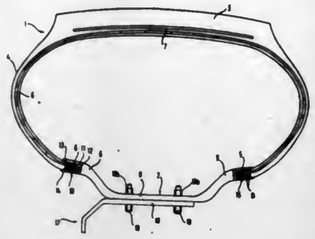
4,274,465

PNEUMATIC TIRE AND WHEEL RIM ASSEMBLY

Barrie J. Allbert; Tom French, both of Sutton Coldfield; Ian Kemp, Tamworth, and Michael R. Corner, Coventry, all of England, assignors to Dunlop Limited, London, England

Filed Sep. 13, 1979, Ser. No. 75,529
Claims priority, application United Kingdom, Sep. 27, 1978, 38454/78
Int. Cl.³ B60B 21/10, 25/02
U.S. Cl. 152—379.5 13 Claims

1. A pneumatic tire and wheel rim assembly comprising a tire having a tread, a pair of sidewalls and a pair of axially spaced tire beads and a wheel rim the lateral margins of which are profiled to define a pair of axially spaced circumferential grooves in each of which a respective one of said tire beads is located, each groove comprising a base portion and a pair of opposed side portions integral therewith, said side portions of each groove having projections integral therewith in engagement with the associated tire bead, and said groove side portions being formed of a deformable material allowing said groove side portions to be relatively convergent subsequent to insertion of the associated tire bead therebetween, whereby the grip exerted by said projections on said tire bead is increased.

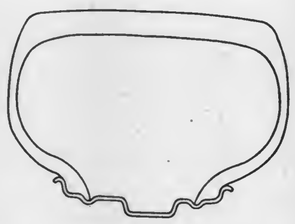


4,274,466

TIRE AND WHEEL RIM ASSEMBLIES

Tom French, Sutton Coldfield; William E. Mitchell, Coventry; Michael J. Kenney, and Thomas Holmes, both of Sutton Coldfield, all of England, assignors to Dunlop Limited, London, England

Continuation of Ser. No. 801,319, Dec. 5, 1977, Pat. No. 4,148,348. This application Nov. 20, 1978, Ser. No. 962,096
Claims priority, application United Kingdom, Jun. 4, 1976, 23099/76; Sep. 24, 1976, 39670/76; Sep. 24, 1976, 39672/76; Mar. 1, 1977, 08501/77; Mar. 4, 1977, 09161/77
The portion of the term of this patent subsequent to Apr. 10, 1996, has been disclaimed.
Int. Cl.³ B60C 7/24
U.S. Cl. 152—381.3 11 Claims



10. A one piece wheel rim for a pneumatic tire of a motor vehicle, said tire having beads with extended toe portions projecting axially and radially inwardly of each said bead;

said wheel rim comprising in cross-section, a pair of radially outwardly extending flanges and an open well between said flanges of a radial depth at least as great as the radial height of said flanges so that a tire can be mounted on the rim by use of the open well;

a pair of bead seats immediately adjacent the flanges, each tapering slightly toward said well;

means to prevent axial inward movement of the beads of a tire on said bead seats, said means comprising a pair of circumferential bead toe locating grooves in the rim immediately adjacent the inside edge of each bead seat and positioned to receive said toe portion;

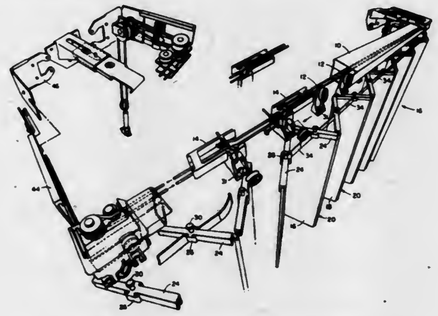
an intermediate rim portion between the groove and the well having a diameter approximately equal to that of the tapered bead seat at its outer edge but greater than the diameter of the tapered bead seat at its inner edge, the edges of said grooves presenting surfaces for abutment of the extended bead toe when the tire bead is subject to a force tending to move the bead off its seat, said locating grooves being substantially "U" shaped and smoothly curved from the inside edge of the adjacent bead seat so as to form a pocket to snugly receive said extended toe portion in a manner so that the forces tending to dislodge the bead will compress the extended toe into its locating groove and against said abutment surfaces so as to prevent dislodgement of said bead from its seat.

4,274,467

DRAPERY AND SUPPORT COMBINATION

Paul E. Comeau, Warwick, R.I., assignor to Kenney Manufacturing Company, Warwick, R.I.

Continuation-in-part of Ser. No. 23,071, Mar. 23, 1979, Pat. No. 4,254,815. This application Apr. 5, 1979, Ser. No. 27,466
Int. Cl.³ E06B 3/48; E05D 15/26; A47H 5/00
U.S. Cl. 160—84 R 8 Claims



1. A drapery and support combination comprising:

(a) a horizontally disposed curtain rod mounted on a base;

(b) a curtain made up of a plurality of elongated slats arranged to form a curtain which moves between opened and closed positions in accordion fashion;

(c) slat supporting means at the upper end of each slat for suspending same in sliding and pivoting relation from said rod;

(d) means associated with said slat supporting means for holding the angle between adjacent slats, when said curtain is in the closed position, at a predetermined angle relative to the axis of said rod, independently of the means for joining the lateral edges of the slats; and

the slat supporting means having a central support member and a pair of slots therein positioned relative to the pivot axis of said slat such that tension applied to said central support member along a line parallel to and in a common vertical plane with the axis of said curtain, pivots said slat to said predetermined angle.

4,274,468

TRIPLE-SASH DOUBLE-HUNG STORM WINDOW

Shelvey C. McPhail, 4924 NW. 31st St., Oklahoma City, Okla. 73122

Filed Sep. 10, 1979, Ser. No. 73,916
Int. Cl.³ A47H 1/00
U.S. Cl. 160—90 19 Claims

1. A triple-sash, double-hung window assembly comprising:

a first, generally rectangular inside window sash adapted for mounting within the window opening in the wall of a house;

an inside sash upper window panel assembly mounted in the upper portion of said first, inside window sash;

an inside sash lower window panel assembly slidably mounted in the lower portion of said first, inside window sash for vertical sliding movement in said inside window sash;

a framing element extending around said inside window sash;

a facing strip secured to said framing element and spaced horizontally from, and extending around the perimeter of, said first inside window sash;

a multiple channeled, double-sash rectangular frame which includes:

a peripheral mounting flange secured to said facing strip;

a pair of vertically extending, horizontally spaced, substantially parallel side framing plates each secured to, and extending substantially normal to, said peripheral mounting flange, lying in planes extending normal to said inside window sash;

a horizontally extending top plate extending across and interconnecting the upper ends of said side framing plates;

a first series of three substantially parallel, vertically extending flanges secured to, and projecting substantially perpendicularly from, each of said side framing plates and toward the other of said side framing plates, each of said first series of three substantially parallel flanges defining a pair of contiguous intermediate sash side channels which form a portion of an intermediate window sash, the pair of intermediate sash side channels associated with one of said side framing plates being in coplanar alignment with a pair of intermediate sash side channels associated with the other of said side framing plates;

a second series of three substantially parallel flanges secured to, and projecting substantially perpendicularly from, said top plate and defining a pair of contiguous intermediate sash upper channels forming a portion of an intermediate window sash, the pair of contiguous intermediate sash upper channels associated with said top plate being in coplanar alignment with the pair of intermediate sash side channels associated with each of said side framing plates;

a third series of three substantially parallel flanges each associated with each of said side framing plates, each of said flanges in each of said third series projecting in a plane which extends substantially normal to each of said side framing plates, and each connected to one of said side framing plates and projecting therefrom toward the other of said side framing plates, each of said third series of flanges being positioned on its respective side framing plate nearer to the other of the two side framing plates than are the flanges in said first series of flanges carried on the same side plate, each of said third series

of flanges defining a pair of contiguous outer sash side channels forming a portion of an outer window sash, the pair of contiguous outer sash side channels associated with one of said side framing plates being in coplanar alignment with the pair of outer sash side channels associated with the other of said side framing plates, said outer sash side channels being spaced horizontally from said intermediate sash side channels, and being disposed a lesser horizontal distance from each other than said intermediate sash side channels; and

at least two parallel flanges disposed in a fourth series of flanges projecting perpendicularly from said top plate and spaced horizontal from said second series of flanges on said top plate, said parallel flanges in said fourth series of flanges projecting vertically downward from said top plate by a greater distance than the flanges in said second series of flanges, and said fourth series of flanges defining at least one outer sash upper channel, said outer sash upper channel being in coplanar alignment with one of the outer sash side channels associated with each of said side framing plates;

an intermediate sash upper window light assembly dimensioned to pass through the opening in said rectangular inside window sash when said lower window panel assembly of said inside sash is slid vertically to an open position, said intermediate sash upper window light assembly including means removably and slidably supporting said intermediate sash upper window light assembly in the upper portion of the ones of said intermediate sash side channels associated with each of said side framing plates which are spaced the farthest from said inside sash of said two contiguous intermediate sash side channels;

an intermediate sash lower window light assembly dimensioned to pass through the opening in said rectangular inside window sash when said lower window panel assembly of said inside sash is slid vertically to an open position, said intermediate sash lower window light assembly including means removably and slidably supporting said intermediate sash lower window light assembly in the lower portion of the other ones of said intermediate sash side channels associated with each of said side framing plates which are the closest of the two contiguous intermediate sash side channels to said inside sash;

an outer sash upper window light assembly dimensioned to pass through the opening in said rectangular inside window sash when said lower window panel assembly of said inside window sash is slid vertically to an open position, and further dimensioned to pass through the opening defined between said side framing plates, top plate and the first and second series of flanges carried thereon, respectively, when said intermediate sash lower window light assembly is slid vertically to an open position in substantial horizontal alignment with said intermediate sash upper window light assembly, said outer sash upper window light assembly including means supporting said outer sash upper window light assembly in the upper portion of the ones of said outer sash side channels associated with each of said side frame member plates which are spaced farthest from the inside sash and from said intermediate sash of said two contiguous outer sash side channels; and

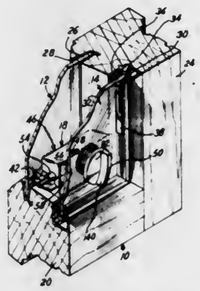
an outer sash lower window light assembly dimensioned to pass through the opening in said rectangular inside window sash when said lower window sash assembly of said inside sash is slid vertically to an open position, and further dimensioned to pass through the opening defined between said side framing plates, top plate and the first and second series of flanges carried thereon, respectively, when said intermediate sash lower window light assembly is slid vertically to a position in which it is substantially aligned with said intermediate sash upper window light assembly, said outer sash lower window light assembly including means slidably and removably supporting said outer sash lower window light assembly in the lower portion of the ones of the contiguous outer sash side channels associated with each of said side framing plates which are spaced relatively closer to said intermediate sash and inside sash than are the contiguous outer sash side channels in which said outer sash upper window light assembly is supported.

4,274,469

OPERATOR FOR A SLAT SHADE ASSEMBLY

Herman S. Kuyper, Knoxville; Robert S. Evers, and John Regal, both of Pella, all of Iowa, assignors to Rolscreen Company, Pella, Iowa

Filed Oct. 30, 1978, Ser. No. 955,709
Int. Cl.[3] E06B *3/32*
U.S. Cl. 160—107 10 Claims



1. A mechanism for operating a slat shade assembly of the type located between two glazing panels of a window sash construction, said mechanism comprising, in combination, a window sash frame, first and second glazing panels supported by said frame, said first glazing panel being removably mounted on said frame, a surface defined on said frame between said glazing panels, a slat shade assembly operatively carried by said frame between said glazing panels and being movable between first and second positions, a mechanism assembly having a coupling member operatively directly interconnected to a selected portion of one of said slat shades for moving said slat shade between said first and second positions, said mechanism assembly including a housing and a drive mechanism operatively mounted and completely contained within said housing, separate fastener means for securing said housing directly to a selected portion of said surface of said frame, said fastener means defining the sole means for sleectively mounting or removing said assembly to or from said frame, said drive mechanism including said coupling member, said drive mechanism including a gear train, said gear train being constructed and arranged for resisting undesired movement of said slat shade assembly following the positioning thereof, normally caused by spring action in said slat shade assembly, an opening in said first glazing panel adjacent said mechanism, a manual control member operatively mounted on said first glazing panel passing through said opening and having means for operative connection of said control member with said drive mechanism, said control member being accessible for manual operation from the exterior of the space defined between said glazing panels.

4,274,470

BOTTOM BLOCKS FOR ELECTROMAGNETIC CASTING

John C. Yarwood, Madison, and Derek E. Tyler, Cheshire, both of Conn., assignors to Olin Corporation, New Haven, Conn.

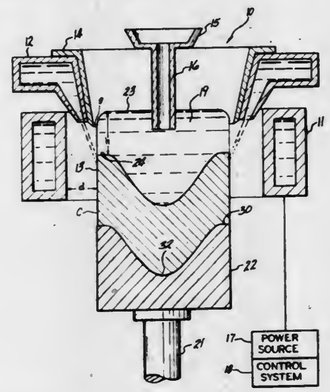
Division of Ser. No. 957,219, Nov. 2, 1978. This application Aug. 20, 1979, Ser. No. 68,313
Int. Cl.[3] B22D *27/02*
U.S. Cl. 164—49 16 Claims

1. In a process for casting a metal by electromagnetically containing and forming molten metal into a desired shape, said

electromagnetic containing and forming including the steps of pouring molten metal into a bottom block, providing an inductor for applying a magnetic field to said molten metal, and applying an alternating current to said inductor to generate said magnetic field, said inductor in operation being spaced from said molten metal by a gap extending from the surface of the molten metal to the opposing surface of the inductor, the improvement wherein said process further comprises:

closely matching the electrical resistivity of said bottom block to the electrical resistivity of the metal to be cast, whereby during start up advantageous containment of the initial surge of molten metal is accomplished.

12. In a process for casting a metal by electromagnetically containing and forming molten metal into a desired shape, said electromagnetic containing and forming including the steps of



pouring molten metal from a spout into a bottom block, providing an inductor for applying a magnetic field to said molten metal and applying an alternating current to said inductor to generate said magnetic field, said inductor in operation being spaced from said molten metal by a gap extending from the surface of the molten metal to the opposing surface of the inductor, the improvement wherein said process further comprises:

providing a bottom block having a continuously curved deeply hollowed out central section in the top surface thereof, said hollowed out central section having a contour which approximates the contour of the steady state solidification front of said shape,

whereby the initial surge of molten metal into the casting apparatus during start up can be restrained thereby preventing run out of the molten metal.

4,274,471

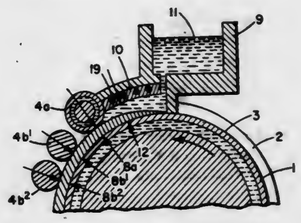
PROCESS FOR CONTINUOUS CASTING OF METALS AND AN APPARATUS THEREFOR

Michinori Minoura, Nagoya, and Nobuo Tsuno, Kasugai, both of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Filed Mar. 12, 1979, Ser. No. 19,591
Claims priority, application Japan, Mar. 15, 1978, 53-28753
Int. Cl.[3] B22D *11/06*
U.S. Cl. 164—87 11 Claims

1. A process for continuous casting of metals which comprises forming a roll system with a main roll cooled from the inner portion and a plurality of sub-rolls, said sub-rolls being provided along the outer periphery surface of the main roll forming and holding a given gap against the main roll, supplying a molten metal into the gap formed by the main roll and the sub-rolls while rotating the main roll and the sub-rolls mutually in a direction carrying with the molten metal, covering the flow path of the molten metal from a molten metal source to a first sub-roll with a tunnel made of a heat resistant material, said tunnel preventing dissipation of heat from the molten metal surface at the tunnel side at the section between the position where the molten metal falls down to the main roll and the first sub-roll, initiating solidification of said molten metal in said tunnel, said molten metal passing through the tunnel smoothly and increasingly solidifying in one direction from the main roll surface as it passes through said tunnel, said tunnel restraining variations of the cross-sectional dimension of the molten metal, which disturbs the stable growth of the solidified shell from the main roll surface side, completing solidification of said molten metal at said sub-rolls, and taking the solidified metal continuously from said roll system.

6. An apparatus for continuous casting of metals, which comprises a roll system including a main roll having a large diameter and capable of being cooled from the inner portion and a plurality of sub-rolls, said sub-rolls being arranged along the outer periphery surface of the main roll, forming and holding a given gap against the main roll, means for driving said



roll system, means for cooling the main roll, means for supplying a molten metal to a gap formed by the main roll and the sub-rolls, and a tunnel which is made of a heat resisting material and covers the flow path of the molten metal from a molten metal source to a first sub-roll, said tunnel preventing dissipation of heat from the molten metal surface at the tunnel side at the section between the position where the molten metal falls down to the main roll and the first sub-roll, said tunnel and main roll causing initiation and increasing solidification of molten metal passing through said tunnel, said tunnel causing smooth passage of molten metal therethrough, said molten metal in the tunnel solidifying in one direction from the main roll surface, said tunnel restraining variations of the cross-sectional dimension of the molten metal, which disturbs the stable growth of the solidified shell from the main roll surface side and preventing complete solidification of said molten metal therein, said sub-rolls completing solidification of said molten metal.

4,274,472

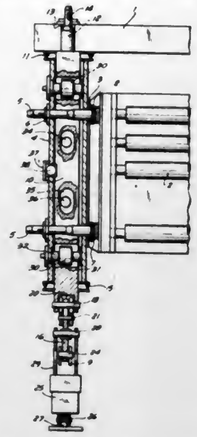
CONTINUOUS CASTING INSTALLATION

Joel Cazaux, Chelles, France, assignor to Fives-Cail Babcock, Paris, France

Filed Jun. 14, 1979, Ser. No. 48,438
Claims priority, application France, Jun. 26, 1978, 78 18944
Int. Cl.[3] B22D *11/04*
U.S. Cl. 164—416 9 Claims

1. An installation for casting molten metal into a continuous strand, which comprises an oscillatory mold receiving the molten metal and discharging the continuous metal strand, a mold discharge guide rack including an assembly of guide elements for the continuous metal strand and means for supporting the guide elements, means for imparting oscillations to the mold, the oscillation imparting means including means for guiding the oscillations and a control lever operatively associated with the guiding means, and two fluidtight housings, the

housings being affixed to the supporting means at respective sides of the guide rack and enclosing only the guiding means of



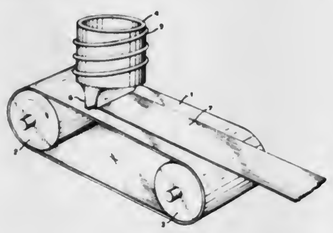
the oscillation imparting means, each housing and enclosed guiding means constituting a structural unit.

4,274,473

CONTOUR CONTROL FOR PLANAR FLOW CASTING OF METAL RIBBON

John R. Bedell, Madison; Sheldon Kavesh, Whippany; Naim S. Hemmat, Mendham; Seymour Draizen, Old Bridge, and Robert W. Smith, Long Valley, all of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Jan. 14, 1980, Ser. No. 111,748
Int. Cl.³ B22D *11/06*
U.S. Cl. 164—423 8 Claims



1. An apparatus for planar flow casting of metal ribbon comprising a movable chill surface, a reservoir for holding molten metal and a nozzle in communication at its top with the reservoir and having at its bottom two lips adjacent to the chill surface, a first lip and a second lip numbered in the direction of movement of the chill surface, wherein

the lips are separated by and define a slot for depositing molten metal on the chill surface,

the leading and trailing edges of the slot are substantially parallel to each other and are generally perpendicular to the direction of movement of the chill surface,

the second lip has a substantially planar bottom surface,

the first lip has a bottom surface at least part of which is upstream from the leading edge of the slot and not parallel to the bottom surface of the second lip,

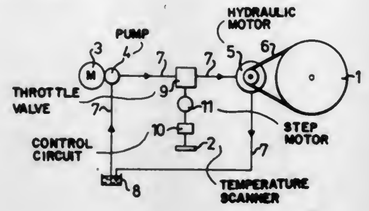
the leading edge of the first lip is separated from the chill surface by at least about 0.02 mm and is as close or closer to the chill surface than is any other point on the nozzle and no point on the bottom surface of the nozzle is more than about 1 mm from the chill surface.

4,274,474

HYDRAULIC CONTROL AND DRIVE DEVICE FOR ROTARY HEAT EXCHANGER

Lars A. Bergkvist, Gottne, 890 42, Mellansel, Sweden

Filed Jan. 23, 1979, Ser. No. 5,725
Claims priority, application Sweden, Jan. 30, 1978, 7801121
Int. Cl.³ F28D *19/00*
U.S. Cl. 165—7 3 Claims



1. A control and drive device for rotary heat exchangers, comprising: a temperature scanning means; drive means for connection to rotary heat exchangers: said drive means comprising a hydraulic pump, a hydraulic motor, a second motor drive coupled mechanically to said pump, and means providing fluid communication between said pump and said hydraulic motor supplying a fluid pressure medium at sufficient pressure and rate; a valve provided in the fluid communication means between said pump and said hydraulic motor said valve preferably having an adjustment range substantially from a closed to fully open; a throttle means connected between said temperature scanning means and said valve to control the valve position whereby the rate and pressure of said pressure medium from the pump to the hydraulic motor, and therewith the rotary speed of the hydraulic motor, are determined according to a function predetermined in relation to the scanned temperature, said throttle means comprising a control circuit and a stepping motor including a rotary shaft carried camming device; said valve having an adjustment member connected to be positioned by said camming device; said stepping motor being controlled to assume a predetermined angular position responsive to a signal condition from said temperature scanner predetermined in relation to the scanned temperature.

4,274,475

CONTROL APPARATUS FOR REGULATING BUILDING PERIMETER TEMPERATURE CHANGE SYSTEM

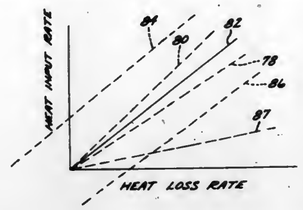
Dieter Rail, 405 Catalina Dr., Newport Beach, Calif. 92663; David R. Hornbaker, 1520 Cole Way, La Habra, Calif. 90631, and William W. Sawyer, 1202 Longwood Rd., Lake Forest, Ill. 60045

Filed Jan. 4, 1979, Ser. No. 45,279
Int. Cl.³ G01K *17/00*; G05D *23/00*
U.S. Cl. 165—12 12 Claims

1. Control apparatus for regulating a building temperature change system, said apparatus comprising:

a heat flow sensor adapted to be mounted in contacting, heat exchange relation to a surface of a thermally conductive building element whose exterior surface is exposed to outside weather conditions, said sensor being reactive to heat flow to or from said building element, independently of the temperature to which said sensor is subjected, to generate a sensor signal proportional to the direction and magnitude of said heat flow; and

controller means responsive to said sensor signal to operate a building temperature change system for changing the



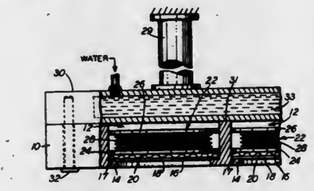
rate of heat addition to or heat extraction from the building interior in proportion to the value of said sensor signal.

4,274,476

METHOD AND APPARATUS FOR REMOVING HEAT FROM A WORKPIECE DURING PROCESSING IN A VACUUM CHAMBER

Robert W. Garrett, Reading, Pa., assignor to Western Electric Company, Inc., New York, N.Y.

Filed May 14, 1979, Ser. No. 38,741
Int. Cl.³ F28D *15/00*
U.S. Cl. 165—80 E 6 Claims



1. A workpiece holding apparatus for use in a manufacturing operation performed in a vacuum, comprising:

(a) a holding plate having at least one void therethrough from one surface to another surface, said void having a first portion for receiving a workpiece and having a predetermined cross-sectional area, and a second portion for retaining the workpiece and having a predetermined cross-sectional area less than said first portion cross-sectional area;

(b) an expandable heat pipe placed in said first portion of said void in good thermal contact with a workpiece, said expandable heat pipe having a length in the direction of expansion at ambient pressure such that the combined height of the workpiece and the heat pipe is less than the depth of the first portion of said void; and

(c) a cold plate placed in good thermal contact with the surface of said holding plate adjacent to said first portion of said void for providing a heat sink to said expandable heat pipe, said expandable heat pipe being adapted to expand during the drawing of a vacuum sufficiently to span the gap between the workpiece and said cold plate.

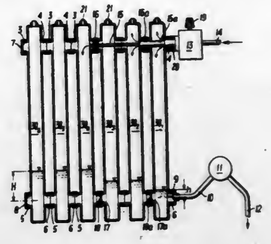
4,274,477

RADIATOR FOR LOW-PRESSURE STEAM HEATING SYSTEMS

Zivomir Nikolic, U1.V1.Nazora 24, 51262 Kraljevica, Yugoslavia

Filed Jan. 11, 1980, Ser. No. 111,218
Int. Cl.³ F28F *27/02*; F24D *9/02*
U.S. Cl. 165—101 4 Claims

1. A radiator for use with low-pressure steam heating systems, comprising at least two series of heating elements, each series having at least one heating element, upper and lower means for consecutively interconnecting said elements in upper and in lower portions thereof, means for independently interconnecting an upper portion of an element of each of said series to a low pressure steam source and for selectively disconnecting at least one of said series from the steam source,



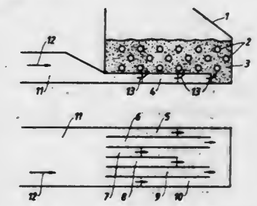
condensate drain valve means for maintaining condensate level in said elements higher than the level of said lower means for consecutively interconnecting lower portions of said elements to each other, and means for connecting said lower portions of each of said elements to said condensate drain valve means.

4,274,478

APPARATUS FOR COOLING DUST-CONTAINING GAS

Gunnar Stendahl, Linkoping, Sweden, assignor to STAL-LAVAL Apparat AB, Linkoping, Sweden

Filed Feb. 22, 1979, Ser. No. 14,104
Claims priority, application Sweden, Feb. 23, 1978, 7802096
Int. Cl.³ F28D *13/00*; F23C *11/02*
U.S. Cl. 165—104.16 5 Claims



1. Apparatus for cooling, feeding and distribution of dust-containing gas, comprising:

a bed containing a powdered or granular material mixture; and

means for blowing gas under pressure into said material mixture to form a fluidized bed with said material mixture being maintained floating and including a plurality of straight, horizontally extending tubes at the lower portion of the bed for the supply of the dust-containing gas, said tubes each having a different length and an orifice at each tube end within the bed, such that the orifices are distributed over the bottom area of the bed.

4,274,479

SINTERED GROOVED WICKS

George Y. Eastman, Lancaster, Pa., assignor to Thermacore, Inc., Lancaster, Pa.

Filed Sep. 21, 1978, Ser. No. 944,541
Int. Cl.³ F28D *15/00*
U.S. Cl. 165—104.26 5 Claims

1. A heat pipe comprising:

an outer casing means forming a vacuum tight enclosure; and

a wick means constructed from sintered material in intimate surface contact with the inner surface of the casing

means, said wick means containing at least one longitudinal capillary groove located on the surface of the wick



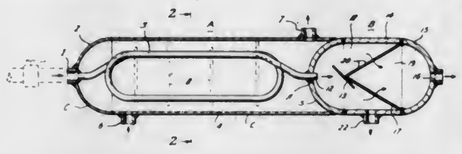
means adjacent to an open volume intended as the heat pipe vapor space and designed to provide longitudinal capillary pumping of the liquid.

4,274,480

GAS CHROMATOGRAPH SAMPLE CONDITIONER

Joseph R. McGee, 114 Howald Ct., LaPorte, Tex. 77571

Filed Sep. 25, 1978, Ser. No. 945,522
Int. Cl.³ F28B *3/00;* **F28F** *9/02;* **B01D** *15/08*
U.S. Cl. 165—111 **5 Claims**



1. A sample conditioner, comprising:
a heat exchange chamber comprising a coolant jacket with coolant inlet and outlet means for receiving and discharging a liquid coolant and a sample inlet means;
a vapor conduit located within said coolant jacket and having one terminus sealingly secured to the sample inlet means;
a series of baffles affixed within the heat exchange chamber which receive and support said vapor conduit and insure thorough circulation of a coolant about said conduit;
a separation chamber comprising a container means having an opening for receiving the second terminus of the vapor conduit which is sealingly affixed to the container means along the periphery of said opening, a vapor outlet means formed in said container means, a mist coalescer affixed along the periphery of the interior wall of said container means at a point between the second terminus of the vapor conduit and the vapor outlet means, a deflector plate located between the mist coalescer and the second terminus of the vapor conduit and a condensate outlet formed in said container means.

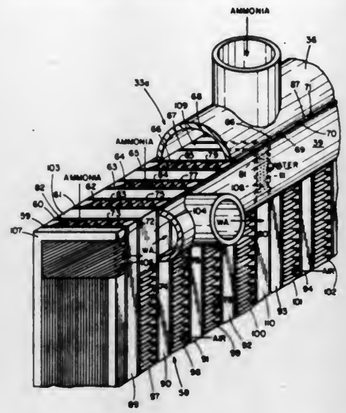
4,274,481

DRY COOLING TOWER WITH WATER AUGMENTATION

Robert G. Ireland, and Vernon N. Tramontini, both of Indianapolis, Ind., assignors to Stewart-Warner Corporation, Chicago, Ill.

Filed Oct. 22, 1979, Ser. No. 86,750
Int. Cl.³ F28B *9/06;* **F28F** *9/02;* **F28D** *21/00*
U.S. Cl. 165—122 **16 Claims**

1. A cooling system for condensing the exhaust steam in a power plant, comprising; a condenser for passing the exhaust system in out-of-contact heat exchange relation to a cooling fluid, a heat exchanger for cooling the cooling fluid including a plurality of spaced plates defining therebetween a plurality of side by side fluid passes, a plurality of fins in at least some of said passes, a plurality of said passes having closed sides and defining cooling fluid passes, a second plurality of said passes having closed sides and defining water passes positioned directly adjacent and in heat exchange relation with said cooling fluid passes, a third plurality of said passes being open at the sides and defining air passes, means to convey cooling fluid from the condenser to the heat exchanger cooling fluid passes, and means to convey water to the heat exchanger water passes.

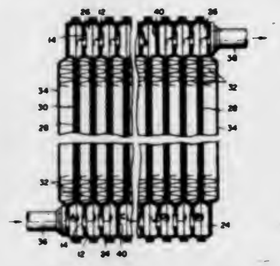


4,274,482

LAMINATED EVAPORATOR

Noriaki Sonoda, Sagamihara, Japan, assignor to Nihon Radiator Co., Ltd., Tokyo, Japan

Filed Aug. 21, 1978, Ser. No. 935,460
Int. Cl.³ F28F *9/16, 9/22*
U.S. Cl. 165—153 **13 Claims**



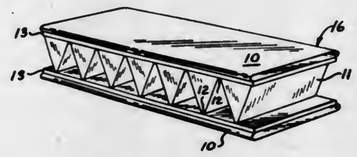
1. A heat exchanger type laminated evaporator, which comprises a plurality of sets of complementary liquid passage pipe units arranged side-by-side to form flat liquid passage pipes which are formed by complementary shallow, flat portions of said units and reservoirs at each end thereof formed by complementary bulges at both ends of said flat portions, which reservoirs communicate with each other through penetrating holes in common, contiguous walls forming manifolds for the sets of said liquid passage pipes, wherein adjacent said manifolds are separated by a contiguous wall having no penetrating hole therein, and wherein the imperforate, contiguous wall between adjacent manifolds at one end of said liquid passage pipes is staggered in relation to the imperforate, contiguous wall between adjacent manifolds at the other end thereof, whereby liquid is constrained to flow in one direction from an inlet manifold through a set of said liquid passage pipes and then in the opposite direction through an adjacent set of liquid passage pipes and so on, until the outlet manifold is reached; and inlet means for introducing liquid into said inlet manifold; and outlet means for conducting liquid out of said outlet manifold.

4,274,483

REACTION BONDING OF FERROUS METALS

Andrew J. Cottone, and Zalman P. Saperstein, both of Racine, Wis., assignors to Modine Manufacturing Company, Racine, Wis.

Filed Aug. 1, 1979, Ser. No. 62,893
Int. Cl.³ B23K *1/20, 35/34*
U.S. Cl. 165—153 **3 Claims**



1. The method of bonding together a plurality of ferrous metal members, comprising: assembling said members with aluminum metal comprising a plurality of superimposed aluminum foil strips between and in contact with the assembled members; coating the resulting assembly with a liquid bonding composition comprising a fluxing agent, a liquid solvent having the characteristics of a Lewis base toward zinc halide as a Lewis acid by forming with said zinc halide a coordinate complex decomposing on heating while in contact with said aluminum and said ferrous metal members to yield nascent zinc, and an amount of zinc halide between about 10 weight percent of said bonding composition and substantially complete saturation of said solvent; draining said liquid bonding composition from said assembly; and heating said assembly at a temperature between about 500°–1500° F. whereby said aluminum displaces nascent zinc from said zinc halide, the nascent zinc thereby uniting with the ferrous metal to form a secure joint comprising iron-zinc alloy, said zinc halide being either zinc chloride, zinc bromide, zinc iodide or mixtures thereof.

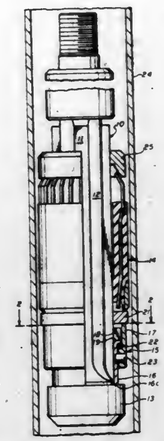
4,274,484

DUMP VALVE

Jack C. Webber, Houston, Tex., assignor to Double Diamond Company, Mathis, Tex.

Filed Oct. 26, 1979, Ser. No. 88,343
Int. Cl.³ E21B *37/10*
U.S. Cl. 166—188 **15 Claims**

1. A swab assembly comprising,
a mandrel having a flowway therethrough,
a swab cup on the mandrel, and
a dump valve supported on the mandrel below the swab cup controlling flow through said flowway as the assembly is moved upwardly,
said dump valve having a normally closed valve member supporting said swab cup and positionable in open position by said swab cup when said swab cup is subjected to a predetermined force,
said dump valve having inner and outer concentric rings with the outer ring slidable over the inner ring,
one of the rings providing said valve member,
frangible means between the inner and outer rings supporting said valve member in upper position relative to the other ring, and



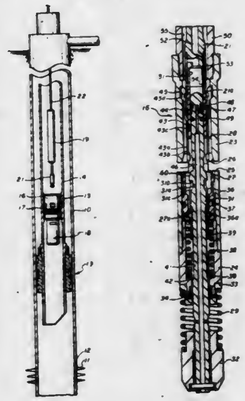
means sealing between the rings when said valve member is held in upper position.

4,274,485

METHOD AND SYSTEM FOR WELL TESTING

John V. Fredd, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Sep. 25, 1979, Ser. No. 78,712
Int. Cl.³ E21B *34/14, 43/12, 47/00;* **F16K** *31/44*
U.S. Cl. 166—250 **14 Claims**



12. A well system comprising,
a landing nipple,
a locking mandrel landed in said nipple,
a by-pass valve carried by said locking mandrel,
a valve member in said valve,
resilient means urging said valve member to one of open or closed positions,
a probe,
means for releasably latching said probe to said valve member,
said valve member moved to the other of open or closed positions by raising of said probe and to said one position by said resilient means upon lowering of said probe,
said probe released from said valve upon upward movement a selected distance beyond that movement required to move said valve member to said other position.

13. The method of testing a well having a tubing with a landing nipple and a by-pass valve in said landing nipple comprising,

running a transducer probe into the tubing and landing the probe in the by-pass valve,

alternately flowing the well and shutting in the well by raising and lowering said probe after it is landed in the valve,

determining well conditions while said well is shut-in, and

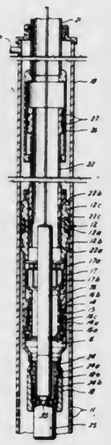
raising said probe a distance beyond that required to move the valve between open and closed positions to release the probe from the valve.

4,274,486

APPARATUS FOR AND METHOD OF OPERATING A WELL

John V. Fredd, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Nov. 16, 1979, Ser. No. 94,941
Int. Cl.³ E21B *23/02, 33/12, 34/10, 47/06*
U.S. Cl. 166—250 **9 Claims**



6. A well system comprising,

a packer having a bore therethrough, a depending foot valve, and a landing nipple,

a pressure sensing device in said landing nipple,

a foot valve actuator having a sliding seal with said packer bore and engageable with said foot valve to move said foot valve between open and closed positions,

a tubular telescoping joint attached to said actuator,

said telescoping joint having a seal area of greater diameter than said seal between the actuator and packer bore exposed to pressure externally of said joint on the actuator side of the joint and to pressure within said joint on the side opposite said actuator.

9. The method of operating a well comprising,

providing in a well a packer, a foot valve and pressure sensing means below the packer exposed to formation fluids, and a separate tubing landed in the packer providing an annulus above the packer and exterior of the tubing and including a pressure responsive valve actuator extending through the packer and engageable with said foot valve,

alternately raising and lowering annulus pressure to raise and lower said valve actuator between valve open position to flow the well and valve closed position to shut-in the well to determine flow characteristics of the well and formation pressures, and

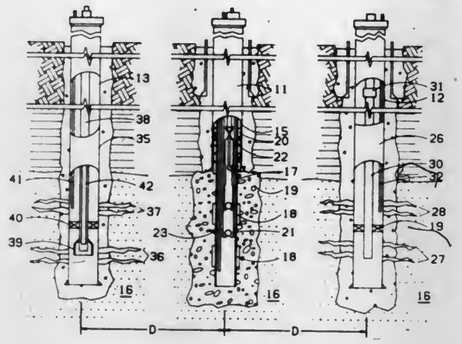
raising the tubing at any time during the test procedure to close the foot valve to isolate the formation to permit conditioning of fluids in the well above the packer.

4,274,487

INDIRECT THERMAL STIMULATION OF PRODUCTION WELLS

Frank H. Hollingsworth, Tulsa, Okla.; George R. Jenkins, Edmonton, Canada; John W. Kirkpatrick, and Lawrence N. Mower, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jan. 11, 1979, Ser. No. 2,495
Int. Cl.³ E21B *43/24, 43/243*
U.S. Cl. 166—261 **5 Claims**



1. A method of indirectly thermally stimulating a well to be used as a production well in a thermal frontal drive in a reservoir of heavy oil or tar sands comprising of the following steps:

a. installing in said well at said reservoir a casing carrying a sand screen and installing a gravel pack around said screen and adjacent said reservoir, said pack extending above the top of said screen,

b. drilling an adjacent thermal stimulation well into said reservoir at a spacing ranging from about 10 to about 50 feet, and cementing casing in said well to at least the lowermost contact of said well and said reservoir,

c. perforating said casing of said adjacent well into said reservoir at two vertically separated zones, the lower perforations into a lower part of said reservoir and upper perforations into an upper part of said reservoir,

d. separately and simultaneously flowing an aqueous divertant through said upper perforations and forcing a thermal stimulating gas chosen from the group consisting of steam or an oxygen-containing gas through said lower perforations for in the order of 10 to 90 days, to permit local heating of organic matter in said reservoir around said production well, and

e. producing hot organic matter from said reservoir through said production well to increase the flow capacity of fluids between a more distant thermal frontal drive injection well and said production well.

4,274,488

COSURFACTANT IN PREFLUSH FOR SURFACTANT FLOOD SYSTEM

James H. Hedges, and Gilbert R. Glinsmann, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 31, 1979, Ser. No. 71,608
Int. Cl.³ E21B *43/22*
U.S. Cl. 166—273 **13 Claims**

1. A process for recovering oil from a subterranean oil-bearing reservoir comprising the steps of:

(a) injecting into said reservoir through at least one injection well a preflush comprising water, an electrolyte, and 0.1 to 10 weight percent cosurfactant based on the total weight of said preflush;

(b) thereafter injecting into said reservoir through at least one injection well an aqueous surfactant system comprising water, electrolyte, surfactant and cosurfactant, which surfactant system is characterized by forming a microemulsion by mixing with oil corresponding to that in said reservoir which microemulsion is immiscible with said oil;

(c) thereafter injecting into said reservoir through at least one injection well a drive fluid thus forcing said oil toward at least one recovery well; and

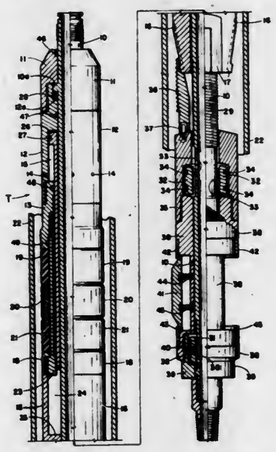
(d) recovering said oil.

4,274,489

RETRIEVABLE BRIDGE PLUG AND METHOD OF SETTING

Monty E. Harris, Cleveland, Okla., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jan. 11, 1979, Ser. No. 47,401
Int. Cl.³ E21B *23/06, 33/129*
U.S. Cl. 166—315 **8 Claims**



7. Method for plugging off a well casing with a bridge plug tool, the tool including an elongate mandrel having a first thread segment, and a second thread segment thereon, the first thread segment being engageable with a set of lock members on the tool, and the second thread segment being engageable with a set of control members on the tool, the method comprising:

running the tool into the casing to a desired point for plugging off the casing;

positioning the mandrel during the run-in, such that the first thread segment is disengaged from the lock members, and the second thread segment is fully engaged with the control members;

rotating the mandrel several turns, to cause the mandrel to move downwardly and disengage the mandrel from the control members;

setting weight on the mandrel from above the tool, to cause the mandrel to move further downwardly and engage the first thread segment on the mandrel with the lock members;

forcing a cone member on the tool downwardly against a set of slip members, to cause the slip members to move outwardly and set against the inside wall of the casing; and

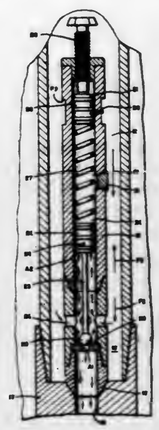
compressing a set of packing elements between the cone member and a coupling member on the tool, to cause the elements to expand and set against the inside wall of the casing.

4,274,490

INTERNAL FLUID CONTROL VALVE FOR USE IN OIL WELL REMEDIAL OPERATIONS

Leonard Huckaby, P.O. Box 152, Wayne, Okla. 73095

Filed Sep. 13, 1979, Ser. No. 74,968
Int. Cl.³ E21B *34/08*
U.S. Cl. 166—325 **5 Claims**



1. An internal control valve for use in a pipe section of a pipe string through which special fluid is passed for treating well casing perforations in oil well remedial operations, said internal control valve including, in combination:

(a) an adapter collar threadedly receivable between the lower end of said pipe section and the upper end of the next normally provided pipe section in said string, said adapter having a central reduced diameter bore;

(b) a valve seat having a lower opening communicating with said reduced diameter bore and having an upper opening for communication with the interior of said pipe section;

(c) a ball seated on said valve seat so as to be on the upstream side of any fluid flow from the interior of said pipe section through said valve seat and adapter to the remaining lower pipe sections; and

(d) means connected to said ball and responsive to a fluid pressure in said pipe section exceeding a predetermined value to lift said ball from said seat, whereby special treating fluid can be forced down through said pipe string at a pressure exceeding said predetermined pressure to pass through said valve for treating perforations in said well casing, said valve closing when said pressure applied to the treating fluid is reduced below said predetermined value, so that fluid in the said pipe section and other pipe sections thereabove is held when connecting further pipe sections.

4,274,491

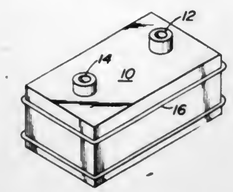
PROCESS AND APPARATUS FOR CONTINUOUS DISCHARGE OF MATERIAL AT LOCALIZED DAMAGE POINT

William B. Tarpley, Jr., West Chester, Pa., assignor to Energy and Minerals Research, Co., Exton, Pa.

Filed Sep. 26, 1978, Ser. No. 945,969
Int. Cl.³ A62C *35/10*
U.S. Cl. 169—46 **2 Claims**

1. A dispenser in combination with chamber means containing a flammable or explosive material, said dispenser comprising means defining a confined space associated with said chamber means and containing a pressurized thixotropically gelled fire suppressant, and thixotropically gelled fire suppressant comprising a thixotropically gelled suspension of fire suppressant powder pressurized by a gas selected from the group

consisting of nitrogen and carbon dioxide, said means defining said confined space being constructed of a substance selected



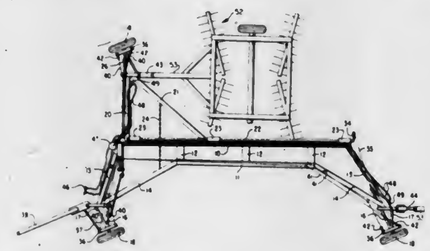
from the group consisting of breakable and meltable substances so as to allow discharge of said material when said substance is broken or melted.

4,274,492

FOLDABLE DEVICE FOR TRANSPORTING FARM IMPLEMENTS

Harold B. Peterson, R.R. 2, Larchwood, Iowa 51241

Filed Aug. 2, 1979, Ser. No. 62,909
Int. Cl.³ A01B *73/00, 69/08*
U.S. Cl. 172—285 **9 Claims**



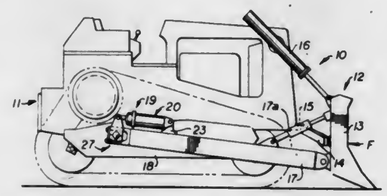
1. A device adapted to trail two farm implements on varying paths comprising a framework, wheels on said framework adapted to make it readily transportable, said framework comprising two parts hingedly connected on a longitudinal hinge line, drawbar means on each of said two parts whereby the lateral spacing of said drawbars can be varied by opening and closing of said hinged parts, said drawbars being connectable to said implements.

4,274,493

CUSHIONED BULLDOZER BLADE

Gary P. Freese, Joliet, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Dec. 13, 1978, Ser. No. 969,027
Int. Cl.³ E02F *3/76*
U.S. Cl. 172—816 **13 Claims**



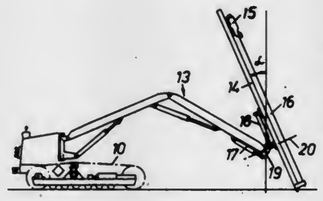
1. In a vehicle, (**10**) comprising a main frame (**15**), a sub-frame (**18**) disposed on each outboard side of said main frame (**15**), pivot means (**45**) for pivotally mounting said sub-frame (**18**) on said main frame (**15**), a work tool (**13**) disposed forwardly of said main frame (**15**), a push arm (**17**) disposed on an outboard side of said sub-frame (**18**) and having first and second ends interconnected directly between said work tool (**13**) and one of said sub-frame (**18**) and said pivot means (**45**), respectively, the improvement comprising cushioning means (**19**) for directly absorbing pushing forces imposed on said push arm (**17**), said cushioning means (**19**) including a cushioning cylinder (**20**) having a first end connected directly to said push arm (**17**) and a second end connected to one of said sub-frame (**18**) and said pivot means (**45**), and lost-motion means (**30**) for connecting the second end of said push arm (**17**) on said sub-frame (**18**) and for permitting reciprocal movement of said push arm (**17**) on and relative to said sub-frame (**18**), said cushioning cylinder (**20**) being independent of said lost-motion means (**30**).

4,274,494

METHOD AND DEVICE FOR SETTING THE DIRECTION AND/OR THE INCLINATION OF AN ELONGATED ROCK DRILLING APPARATUS

Claes-Gustav Bergström, Saltsjöbaden, Sweden, assignor to Atlas Copco Aktiebolag, Nacka, Sweden

Filed Apr. 18, 1978, Ser. No. 897,515
Claims priority, application Sweden, May 16, 1977, 7705669; Aug. 4, 1977, 7708873
Int. Cl.³ E21B *7/02, 7/04*
U.S. Cl. 173—2 **12 Claims**



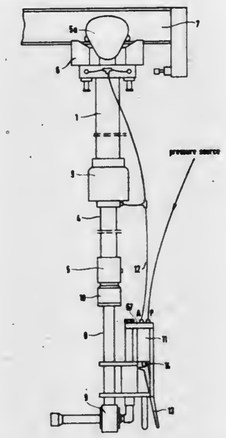
2. A rock drilling apparatus comprising:
a carrier (**10, 13**);
a feed beam (**14**) pivotally mounted to said carrier so as to be pivotable in a first plane about a first axis (**19**) and to be pivotable in a second plane about a second axis (**20**) that is at right angles to said first axis (**19**);
a rock drill (**15**) movable along said feed beam and arranged to drill a hole that is parallel with said feed beam;
first power means (**17**) coupled to said feed beam (**14**) to effect swinging of said feed beam about said first axis;
second power means (**18**) coupled to said feed beam (**14**) to effect swinging of said feed beam about said second axis;
a first member (**25**) affixed to said feed beam (**14**);
a second member (**23,12**) universally pivotably but nonrotatably carried by said first member (**25**);
indicating means (**21, 22**) affixed to said second member (**23, 12**) for indicating when an axis of said second member (**23**) is vertical;
means (**29**) for adjustment of said second member (**23**) relative to said first member (**25**) in order to adjust the angle between said axis of said second member (**23**) and an axis that is parallel with said feed beam (**14**); and
means (**26,34**) coupled to said second member (**23**) for swinging said second member about said axis that is parallel with said feed beam such that said axis of said second member (**23**) follows a conical path about said axis that is parallel with said feed beam;
said indicating means (**21,22**) comprising:
a first indicating device (**21**) arranged to indicate movements of said feed beam (**14**) in said first plane irrespective of the actual relative position between said first and second members (**25** and **23**, respectively); and
a second indicating device (**22**) arranged to indicate movements of said feed beam (**14**) in said second plane irrespective of the actual relative position between said first and second members.

4,274,495

TOOL BALANCING APPARATUS

Günter Otto, Heerweg, 7306 Denkendorf, Fed. Rep. of Germany

Filed Oct. 3, 1979, Ser. No. 81,543
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843727
Int. Cl.³ E21B *3/00*
U.S. Cl. 173—162 R **40 Claims**



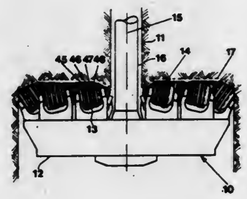
1. An extensible weight compensating means for balancing the weight of a tool, comprising a spring means for producing a tool weight-balancing force, having a first end mounted to a mounting means and having a second end which is the end capable of extension movement, means at said second end for mounting a tool thereon, and a rigid support means adapted to form a bracing connection operable between said second end of the spring means and said mounting means whereby a force produced by the tool in operation thereof is transmitted to said mounting means by by-passing the spring means.

4,274,496

METHOD AND DEVICE IN EARTH CUTTING

Bernt S. Liljekvist, and Anders E. Persson, both of Sandviken, Sweden, assignors to Sandvik Aktiebolag, Sandviken, Sweden

Filed Jan. 23, 1980, Ser. No. 114,339
Claims priority, application Sweden, Feb. 2, 1979, 7900922
Int. Cl.³ E21B *10/16, 10/20, 10/28*
U.S. Cl. 175—57 **7 Claims**



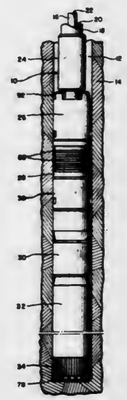
1. A method of varying the distance between circular cuts made by a boring head of the type rotatable about a first axis and comprising a plurality of roller cutters, each cutter having a plurality of circumferentially extending rows of cutting means, which rows are spaced along a second axis of rotation of said cutter, and a plurality of mounting means arranged in pairs, the mounting means of each pair being located on opposite sides of said first axis and at the same distance therefrom, said cutters being interchangeable in said mounting means, said method comprising the steps of:
providing said roller cutters in the form of different first and second sets of roller cutters, each roller cutter in a set having the same number of rows of cutting means as the other roller cutters of such set, and the number of rows of cutting means on one cutter of said first set being at least as great as the number of rows of cutting means on one cutter of said second set, and
selectively interchanging cutters of said first and second sets relative to at least a first pair of mounting means between first and second modes of operation whereby:
in said first mode said one cutter of said first set and said one cutter of said second set are mounted in said first pair of mounting means so that at least one row of cutting means of said one cutter of said first set makes a circular cut having a radius different than the radii of circular cuts made by the rows of cutting means of said one cutter of said second set, and
in said second mode two cutters of the same set are mounted in said first pair of mounting means so that at least one row of cutting means of one of said two cutters makes a circular cut having a radius equal to the radius of a circular cut made by a row of cutting means of the other of said two cutters.

4,274,497

SKIRTED HAMMER SUB FOR DUAL TUBE DRILLING

Clyde A. Willis, Wichita, and George A. Ford, Houston, both of Tex., assignors to Walker-Neer Manufacturing Co., Inc., Wichita Falls, Tex.

Filed Apr. 11, 1977, Ser. No. 786,449
Int. Cl.³ E21B *49/02*
U.S. Cl. 175—100 **13 Claims**



1. A crossover sub for interconnecting a dual concentric drill string with a fluid hammer for driving a percussion bit, comprising:
means for receiving fluid from the annular space defined between the inner and outer tubular elements of said drill string;
means for directing said fluid to said hammer for operation thereof;
a tubular skirt at one end of said sub adapted to encircle said hammer and to define therebetween means for receiving exhaust fluid and entrained cuttings from said bit; and

means for directing said exhaust fluid and entrained cuttings into the inner tubular element of said drill string.

4,274,498

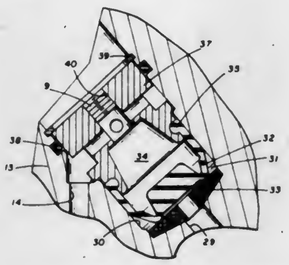
ROCK BIT LUBRICATION SYSTEM UTILIZING EXPELLABLE PLUG FOR OBTAINING EXPANSION SPACE

Samuel L. Penny, Lancaster, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 812,287, Jul. 1, 1977. This application May 7, 1979, Ser. No. 36,472

Int. Cl.³ E21B *10/24*

U.S. Cl. 175—228 4 Claims



1. A method of constructing a lubrication system for a rotary rock bit, comprising the steps of:

providing a lubricant reservoir cavity in said rotary rock bit;

positioning a flexible diaphragm in said lubricant reservoir cavity so that the flexible diaphragm divides the cavity into a lubricant portion and an expansion portion;

positioning a low melting point plug in said expansion portion;

filling said lubricant portion of said lubricant reservoir cavity with a lubricant; and

raising the temperature of said low melting point plug causing said plug to melt and run out of said expansion portion of said lubricant reservoir.

4,274,499

PROCESS AND DEVICE FOR CONTROLLING THE CONTENT OF CLOSED PACKAGES AS TO COMPLETENESS

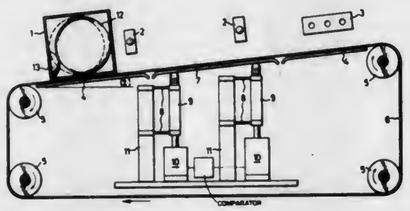
Hermann Grimminger, Hofheim, and Hans-Joachim Reimer, Kelkheim, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Feb. 13, 1979, Ser. No. 11,942

Claims priority, application Fed. Rep. of Germany, Feb. 15, 1978, 2806281

Int. Cl.³ G01G *15/00*

U.S. Cl. 177—1 6 Claims



1. A process for controlling as to completeness the content of closed packages wherein a plurality of packed articles are distributed over the volume of the package and not fixed therein, which process comprises the steps of moving the package along an inclined plane, measuring the distribution of weight in the package at said inclined plane by simultaneously measuring the weight of the package at at least two spaced points on said plane, and comparing the measured value of the weight distribution as determined by comparing the values of said simultaneous measurements with a specific limiting value.

4,274,500

ELECTRICALLY PRICE-CALCULATING BALANCE

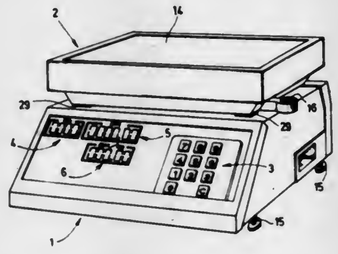
Ernst Kuhnle, Balingen, Fed. Rep. of Germany, assignor to Bizerba-Werke Wilhelm Kraut KG, Balingen, Fed. Rep. of Germany

Filed Aug. 13, 1979, Ser. No. 65,843

Claims priority, application Fed. Rep. of Germany, Aug. 17, 1978, 2836010

Int. Cl.³ G01G *23/22, 21/00, 21/28*

U.S. Cl. 177—25 5 Claims



1. An electrically price-calculating balance, comprising

(a) an indicator unit (1) including an upper generally horizontal support surface;

(b) a weighing unit (2) mounted on said indicator unit support surface; and

(c) hinge means for pivotally connecting said weighing unit with said indicator unit, said hinge means including

(1) stub means (21) extending downwardly from the lower surface of said weighing unit adjacent the rear face thereof; and

(2) clip means (23) having a fork-like configuration and extending upwardly from said indicator unit support surface, said clip means being adapted to receive said stub means.

4,274,501

MASS AND FORCE METER

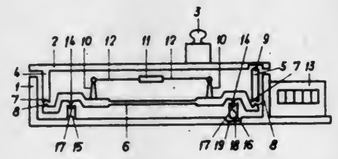
Mario Gallo, and Johannes Wirth, both of Zurich, Switzerland, assignors to Wirth, Gallo & Co., Zurich, Switzerland

Filed Nov. 28, 1979, Ser. No. 98,028

Claims priority, application European Pat. Off., Sep. 19, 1979, 792005258

Int. Cl.³ G01G *3/16*

U.S. Cl. 177—210 FP 6 Claims



1. In a mass and force meter a frame, a load support, a measuring system receiving only a part of the weight of the mass to be measured or of the force to be measured, an intermediate body mounted between said frame and said load support comprising two rigid parts linked by at least one resilient part, a number of load connections on said rigid parts by means of which said load support is supported by said intermediate body, an equal number of supporting connections on said rigid parts by means of which said intermediate body is supported by said frame, a spring mounted on each of said rigid parts, said springs being outside the plane of said resilient part and having free ends connected to said measuring system.

4,274,502

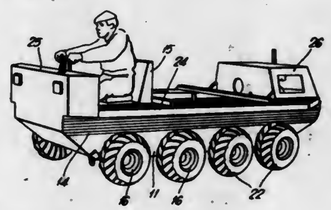
ALL-TERRAIN AMPHIBIOUS VEHICLE

Michael Somerton-Rayner, Thatchway, Quarley, Nr. Andover, Hampshire, England

Filed Apr. 3, 1979, Ser. No. 26,692

Int. Cl.³ B62D *11/02*

U.S. Cl. 180—6.2 9 Claims



9. An automotive vehicle having

a chassis having first and second longitudinally extending frame members each disposed along a different side of said vehicle,

a first set of fixed stub shafts each mounted along said first frame member,

a second set of fixed stub shafts each mounted along said second frame member,

a ground engaging wheel mounted on each of said stub shafts,

a generally annular tire mounted on each said ground engaging wheel,

means for rotating said wheels mounted on said first set of stub shafts at the same rates of rotation,

means for rotating said wheels mounted on said second set of stub shafts at the same rates of rotation,

means capable of controlling the relative rates of rotation of said wheels associated with said first and said second sets of stub shafts whereby to steer said vehicle, and

means for reducing wandering of said vehicle,

said means for reducing including means for angling said wheels inward and downward at an angle of approximately 5 degrees from the vertical axis of said vehicle.

4,274,503

POWER OPERATED WHEELCHAIR

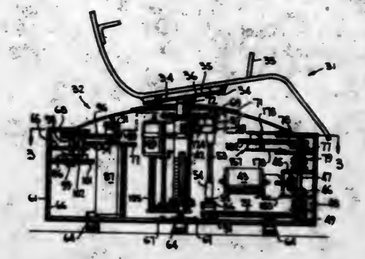
Charles Mackintosh, 3838 Oakwood Ave., Los Angeles, Calif. 90004

Filed Sep. 24, 1979, Ser. No. 78,096

Int. Cl.³ B62D *61/10*

U.S. Cl. 180—23 23 Claims

1. A wheelchair assembly including a seat having a plurality of ground-engaging wheels, comprising, a undercarriage on which said wheels are mounted for rolling movement about horizontal axes lying parallel to one another, means engaging said wheels for simultaneously driving same in at least one rolling direction, said wheels being mounted for pivotal movement about vertical axes, means engaging said wheels for simultaneously steering same by pivoting said wheels together about said vertical axes, said seat being mounted on said undercarriage for rotary movement about a vertical axis, said steering means being coupled with said seat for effecting the rotary movement thereof, and control means for operating said driving means and said steering means, whereby both said wheels and said seat are moved about their respective axes by said steering means upon actuation of said control means.



4,274,504

POWER STEERING DEVICE

Minoru Kawabata, Aichi; Mikio Suzuki, Hekinan, and Kenji Takahashi, Kariya, all of Japan, assignors to Toyoda Koki Kabushiki K., Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Aug. 17, 1979, Ser. No. 67,456

Claims priority, application Japan, Aug. 24, 1978, 53-103113; Aug. 24, 1978, 53-103114

Int. Cl.³ B62D *5/08*

U.S. Cl. 180—143 5 Claims

2. A power steering device for a vehicle comprising:

a hydraulic actuator having two cylinder chambers for supplementing manual steering torque;

servo valve means for controlling directions of fluid pressure to be supplied to said hydraulic actuator in response to manual steering;

a valve housing formed with first and second ports respectively communicating said two cylinder chambers of said hydraulic actuator;

a first spool valve member slidably received in said valve housing and provided with bottom and stepped portions to be supplied with a steering pressure generated in response to the manual steering torque from said first and second ports, respectively, for movement in one direction, said bottom portion being provided with a third port communicating with said first port;

a second spool valve member slidably received in said first spool valve member and supplied with a control pressure depending upon the vehicle speed for movement in the one direction relative to said first spool valve member;

bypass means formed on said first and second spool valve members to be opened by the displacement of said second spool valve member relative to said first spool valve member caused by the control pressure to communicate said first and second ports with each other; and

first spring means interposed between said valve housing and said second valve member to urge said second spool valve member in the other direction to close said bypass means and second spring means between said first and second

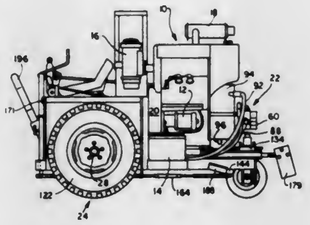
spool valve members to urge said second spool valve member in the one direction, said first and second spring means being calibrated in such a manner that the displacement of said first spool valve member by the steering torque causes displacement of said second spool valve member by an amount smaller than that of said first spool valve member thereby to act to close said bypass means.

4,274,505

HYDROSTATIC-DRIVE TRACTOR

Gale E. Maust, 8669 Pigeon Rd., Bay Port, Mich. 48720

Filed Sep. 18, 1978, Ser. No. 942,927
Int. Cl.³ B60K *5/00*
U.S. Cl. 180—215 **20 Claims**



1. A narrow gauge, hydrostatic-drive tractor comprising an air-cooled prime mover having a rearwardly-projecting drive shaft, a variable-displacement, reversible hydraulic pump having a forwardly-projecting driven shaft coupled with the drive shaft of said prime mover by direct mechanical coupling, a fixed-displacement hydraulic motor having a forwardly-projecting drive shaft and being hydraulically-coupled to said pump by means of a hydraulic circuit in which the output of said pump is supplied directly to the input of said motor and the output of said motor is supplied directly to the input of said pump;

a fan and fan housing at the forward end of said prime mover;

an air conduit means extending vertically-upward from said fan housing for supplying ambient air to cool said prime mover;

cooling means disposed in said air conduit means in heat-exchange with the ambient air drawn in, said cooling means functioning to cool the hydraulic fluid in said hydraulic circuit, and said motor being disposed directly beneath said fan housing with its drive shaft projecting beyond said housing;

differential means having transverse axles and a rearwardly-projecting driven shaft which driven shaft is disposed directly above the drive shaft of said motor and mechanically-coupled thereto; and drive wheels mounted on said axles.

4,274,506

NOISE SHIELD

Rolf B. J. R. Blomgren, Akerbyvagen 98, S-103 35 Täy, and Nils H. Edlund, Nybygget, Sandemar, S-130 54 Dalarö, both of Sweden

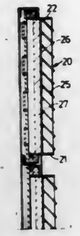
Filed Sep. 26, 1978, Ser. No. 946,037
Claims priority, application Sweden, Sep. 28, 1977, 7710836
Int. Cl.³ E04B *1/82*; E04H *17/00*
U.S. Cl. 181—210 **8 Claims**

1. A noise shield adapted for mounting on a piece of ground for the reduction of noise produced from external sources, comprising:

at least two posts anchored into said ground;

a plurality of support beams mounted on said posts and extending between said at least two posts in a substantially perpendicular orientation therewith; and

shielding means supported by said plurality of support beams for providing a shield against said noise being generated from said external sources, said shielding means further comprising a plurality of shield module means assembled together to form a plurality of row-like shields, each of said plurality of row-like shields being supported by one of said plurality of support beams, all of said plurality of row-like shields collectively constituting said shielding means, each of said plurality of shield module means including a noise absorbent means removably inserted into



each of said shield module means for absorbing said noise being generated from said external sources, the removable noise absorbent means including,

frame means for providing structural support for said noise absorbent means,

a noise absorbent material supported within said frame means, and

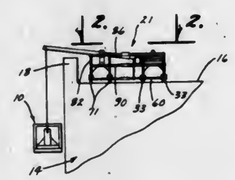
a plurality of substantially parallel planks supported within said frame means and positioned adjacent to said noise absorbent material within said frame means.

4,274,507

PORTABLE SUPPORT FOR A SCAFFOLD

Albert Williams, 4506 Laurel Ave., Omaha, Nebr. 68104

Filed Aug. 1, 1979, Ser. No. 62,723
Int. Cl.³ E04G *3/10*
U.S. Cl. 182—12 **6 Claims**



1. A portable support for a scaffold, comprising, a first portable wheeled support member, a plurality of weights on said first support member, an elongated member having one end pivotally connected to

said first suppport member, a second portable wheeled support member spaced from said first

support member, said elongated member being connected, intermediate its length,

to said second support member, the other end of said elongated member being adapted to support

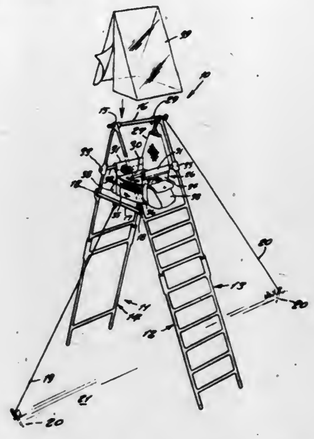
a scaffold extending downwardly therefrom, and length-adjustable means operatively secured to and extending between said support members whereby, upon extension of said length-adjustable means, the leverage afforded by said plurality of weights is increased.

4,274,508

OUTLOOK LADDER SEAT

Tommy L. Hughes, c/o George Spector 3615 Woolworth Building, 233 Broadway, and George Spector, 3615 Woolworth Building, 233 Broadway, both of New York, N.Y. 10007

Filed Feb. 20, 1980, Ser. No. 123,006
Int. Cl.³ E06C *7/16*
U.S. Cl. 182—116 **3 Claims**



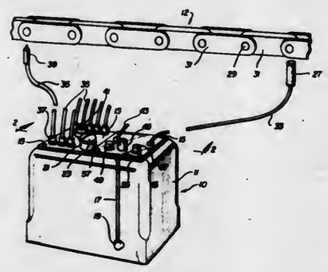
1. An outlook ladder seat, comprising in combination, a collapsible A-frame made of tubular aluminum one leg of said A-frame including a ladder, and a seat suspended from a top of said A-frame, a triangular tent removably fitted over a top of said A-frame enclosing said seat from overhead rain.

4,274,509

ELECTRICAL LUBRICATING APPARATUS

Ronald E. Thomson, Cambridge, and Robert M. Dombroski, McFarland, both of Wis., assignors to Madison-Kipp Corporation, Madison, Wis.

Continuation-in-part of Ser. No. 909,480, May 25, 1978, abandoned. This application Aug. 24, 1979, Ser. No. 69,322
Int. Cl.³ F16N *7/24*
U.S. Cl. 184—15 B **13 Claims**



11. In electrical lubricating apparatus for applying shots of lubricating fluid to a movable mechanical system, including a pump for receiving lubricating fluid and dispensing shots of lubricating fluid through at least one conduit line to said movable mechanical system in response to sensing means sensing the movement of said mechanical system, the improvement comprising:

said sensing means including trigger means for generating electrical trigger pulses responsive to said sensing means sensing the movement of said mechanical system; and

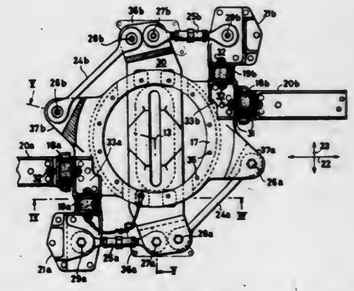
an electrical constant pulse width generator coupled to said trigger means, said constant pulse width generator being triggered by said trigger pulses to generate constant pulse width pulses, said constant pulse width pulses being coupled to said pump and enabling said pump to deliver metered shots of lubricating fluid to said movable mechanical system for a precise time interval corresponding to said constant pulse width.

4,274,510

MULTI-DIRECTIONAL SUSPENSION MEANS FOR ROTOR AIRCRAFT

Rene L. Mouille, Aix en Provence, and Edwin Ortega, Marseilles, both of France, assignors to Societe Nationale Industrielle Aerospatiale, Paris, France

Filed Mar. 19, 1979, Ser. No. 21,778
Claims priority, application France, Mar. 20, 1978, 78 08001; Nov. 15, 1978, 78 32281
Int. Cl.³ B64C *27/00*; B64D *27/00*
U.S. Cl. 188—1 B **14 Claims**



1. A multidirectional suspension system for a member carried by a support in a fixed structure, the member being subject to torque about an axis of rotation and to static and dynamic stresses in directions perpendicular to said axis, said suspension system absorbing the torque into the fixed structure and providing an elastic connection between the said member and the fixed structure so as to transmit static stresses and simultaneously dampen vibration, said suspension system comprising:

a baseplate fixed to said member for conjoint movement therewith and situated in a plane substantially perpendicular to said axis of rotation, said baseplate having a pair of diametrically opposed radially extending shoulders,

a rigid cross member extending diametrically between the shoulders of said baseplate and disposed freely between said baseplate and said fixed structure,

two sets of first and second fittings secured to the fixed structure and disposed symmetrically on opposite sides of said baseplate in association with said respective shoulders, and in proximity to the respective ends of said cross member,

said shoulders and said first fittings having paired bearing surfaces extending parallel to a first direction perpendicular to the axis of rotation, said shoulders and said second fittings having paired bearing surfaces extending parallel to a second direction perpendicular to both the axis of rotation and said first direction,

resilient compression means secured between each of said paired bearing surfaces permitting translatory deflection of said baseplate in each of said first and second directions,

first link rods articulatingly connecting each end of said cross member with the first fitting in the set of fixed fittings proximate thereto,

second link rods extending opposite to said first link rods and articulatingly connecting each of the ends of the cross member and said baseplate adjacent the shoulder associated with the set of fittings remote from the end of said cross member, said link rods being adapted to resiliently

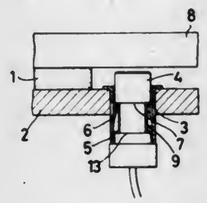
inhibit said baseplate from rotating about said axis and being articulatable during translatory movement.

4,274,511

ARRANGEMENT FOR MOUNTING A WEAR DETECTOR FOR BRAKE PAD

Michio Moriya, Itami, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Aug. 29, 1979, Ser. No. 70,832
Claims priority, application Japan, Sep. 18, 1978, 53-128915
Int. Cl.³ F16D *66/02*
U.S. Cl. 188—1 A **1 Claim**



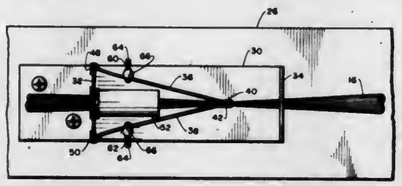
1. A wear detector for a brake pad and means for mounting it in a hole through a backing plate for the brake pad and comprising a tubular holder for mounting in the hole in said backing plate, said holder having a flange at the top engageable with the backing plate when the holder is in the hole, and further having a plurality of claws projecting inwardly into said holder, and a sleeve mounted around said wear detector, said wear detector having a shoulder therearound, said sleeve having at its top a flange abutting said shoulder on said wear detector, said sleeve having a slit extending axially throughout the height thereof for enabling the sleeve to be mounted on said wear detector, said claws on the holder engaging the flange on said sleeve to hold said sleeve and said wear detector in position in said holder.

4,274,512

ROVING BRAKE

David W. Goelz, Burbank, Calif., assignor to Poly-Glas Systems, Sun Valley, Calif.

Continuation-in-part of Ser. No. 871,284, Jan. 23, 1978, abandoned. This application Jan. 29, 1979, Ser. No. 7,074
Int. Cl.³ B65H *59/10*
U.S. Cl. 188—65.1 **2 Claims**



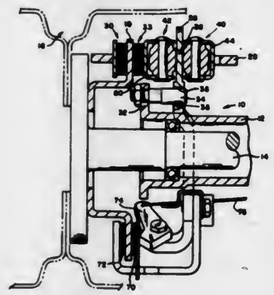
1. A braking device for maintaining tension on roving comprising:
- a U-shaped bracket having a base portion with first and second parallel flanges extending outwardly therefrom;
- said first flange having parallel side edges;
- mounting means for mounting said bracket to a surface such as a boom;
- a pair of leaf springs located between said first and second flanges and respectively mounted on said side edges of said first flange, said pair of leaf springs extending toward one another with only a short portion at one terminal end of said leaf springs in mutually biased engagement;
- said leaf springs each having a preformed flange on the other end thereof adapted to slidably engage the respective side edges of said first flange;
- abutment means abutting an outer surface of each said spring for holding said one end of said springs in mutually biased relationship and said preformed flanges of said springs on said first flange;
- each said abutment means comprising a post extending through an elongated slot in said base portion and being connected to said base portion, whereby the biasing force of said leaf springs may be varied by the positioning of said post in said slot; and
- roving guide means in said first flange for guiding roving between the mutually biased engaged ends of said leaf springs.

4,274,513

DISC BRAKE AND ACTUATING LEVER THEREFOR

John T. Kasselmann, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.

Filed Mar. 26, 1979, Ser. No. 23,929
Int. Cl.³ F16D *55/224*
U.S. Cl. 188—72.7 **3 Claims**



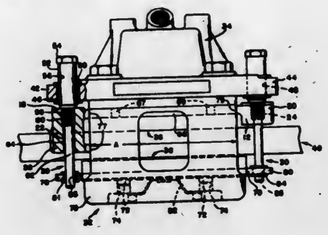
1. A disc brake assembly and actuator therefor comprising, in combination:
- a rotatable member rotating relative to a support;
- a frame movably carried by said support and including a central opening;
- a pair of friction elements disposed within said frame central opening and engageable with said rotatable member; and
- an actuator assembly extending into said frame central opening and cooperating with said frame and said pair of friction elements to bias the latter into engagement with said rotatable member as said actuator assembly moves from a neutral position to a braking position, said actuator assembly being pivotally mounted on said support substantially adjacent said pair of friction elements, said actuator assembly being engageable with said rotatable member substantially remote from said pair of friction elements such that said rotatable member moves said actuator assembly within said frame central opening from the neutral position to the braking position, said actuator assembly including a cam member and a pair of rollers, said frame central opening receiving said cam and said pair of rollers, and the movement of said actuator assembly causing said pair of rollers to separate from each other to bias said pair of friction elements into engagement with said rotatable member.

4,274,514

PIN SLIDER DISC BRAKE

Robert T. DuCharme, and Robert E. Herzog, both of South Bend, Ind., assignors to The Bendix Corporation, Southfield, Mich.

Continuation of Ser. No. 937,679, Aug. 28, 1978, abandoned. This application Sep. 26, 1979, Ser. No. 78,854
Int. Cl.³ F16D *55/224*
U.S. Cl. 188—73.3 **1 Claim**



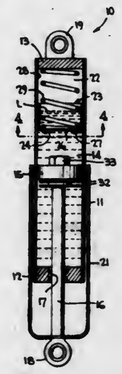
1. In a disc brake assembly having a torque member which is fixedly coupled to a vehicle frame adjacent a rotatable disc, a caliper movably disposed relative to the torque member and extending over a portion of the periphery of the disc, a pair of brake shoes which are movable into engagement with the disc, and at least one pin cooperating with the torque member and the caliper to form a slidable connection therebetween, the improvement wherein the torque member includes a flange extending axially over the periphery of the disc, said flange including a bore for receiving the one pin, said flange also defining an abutment surface slidably engageable with said caliper to absorb braking torque, said bore extending through said flange adjacent said abutment surface and including a first portion threadably engaging the one pin and a second adjoining portion defining a clearance with the one pin, said slidable connection being defined by a thermoplastic sleeve on the one pin and a resilient bushing on the caliper, said resilient bushing forming an opening to slidably receive said thermo-plastic sleeve, and the one pin threadably engaging the torque member and including a recess to carry and retain said thermo-plastic sleeve independently of the torque member.

4,274,515

SHOCK ABSORBER

Christian Bourcier de Carbon, 64, Boulevard Maurice-Barres, 92, Neuilly-sur-Seine, France

Filed Mar. 28, 1979, Ser. No. 24,715
Claims priority, application France, Mar. 29, 1978, 78 09031
Int. Cl.³ F16F *9/06, 9/40*
U.S. Cl. 188—269 **9 Claims**



1. In a shock absorber of the hydraulic-pneumatic type including a cylindrical casing enclosing a cylindrical chamber and having upper and lower ends thereof sealed closed, piston means disposed for reciprocation in said chamber, a piston rod extending from said piston means outwardly through a packed opening in one of said ends, said chamber being partially filled with a liquid damping medium, the level of said liquid being spaced below said upper end, said piston means being adapted to move in said damping liquid and dividing said chamber into two portions of reciprocally variable capacity, said piston means including a piston having valve controlled passages to facilitate passage of said liquid from one of said chamber portions to the other as said piston reciprocates, a quantity of gaseous fluid under superatmospheric pressure occupying the space above said liquid level, and means located in the vicinity of the boundary surface between said liquid and said gaseous fluid for minimizing any liquid-gas emulsion, the improvement wherein: said minimizing means comprising a cup-shaped anti-splash device including a partition having at least one opening therein, said partition being surrounded by a side wall of oval-shaped cross-section, said side wall being inwardly deformable along its major axis for effecting a frictional engagement between said device and said casing; said device at an initial position lying slightly below said level of said liquid damping medium and being frictionally mounted at a predetermined frictional force which exceeds the force exerted on said partition by said liquid damping medium during its movement upon reciprocation of said piston; said anti-splash device and said piston means being arranged relative to each other as to permit contact therebetween during reciprocation of said piston toward said device; said frictional force being less than the force exerted by said piston during its reciprocation; and said anti-splash device having means thereon extending outwardly of said partition for spacing said partition away from said piston during said contact between said device and said piston means; whereby flow of said liquid between opposite sides of said piston is unimpeded during reciprocation of said piston means against said anti-splash device, and whereby any oil-gas emulsion is avoided during piston reciprocation by reason of said device lying at said initial position below said liquid level, said partition remaining stationary in said casing during the movement of said liquid damping medium upon reciprocation of said piston, although said partition is displaceable upon impact by said piston during said reciprocation.

4,274,516

ROTARY VIBRATION DAMPERS

Geoffrey W. Barley, Kislingbury, England, assignor to UOP Inc., Des Plaines, Ill.

Filed May 16, 1979, Ser. No. 39,635
Claims priority, application United Kingdom, May 20, 1978, 20979/78
Int. Cl.³ F16F *9/14, 9/34*
U.S. Cl. 188—310 **6 Claims**



1. A rotary vibration damper comprising,
- a housing,
- a rotor,
- one or more vanes secured to said rotor,
- means mounting said rotor for rotational oscillatory movement within and relative to said housing,
- the housing having an arcuate wall and other walls co-operable with said vane or vanes to define chambers which, in use, are filled with damper fluid and whose volumes are complementary, the relative volumes of the complemen-

tary chambers being variable in dependence on the rotational position of the vane or vanes,

means defining one or more restricted fluid flow paths interconnecting the complementary chambers through which vibration-damper fluid can flow at a restricted rate,

the damper further comprising

a partition wall member and,

means mounting said partition wall member for movement along the rotary axis of the vane of said damper within a constant volume damper fluid-filled space and the flow area of the restricted flow path or paths being dependent on the axial position of said member, said partition wall member being a piston mounted within the housing and having a leakage path through or thereabout to allow a leakage flow of damper fluid to pass from one side of the partition wall member to the other and thereby permit said axial movement of the partition wall member.

4,274,517

HYDRAULIC SHOCK ABSORBER

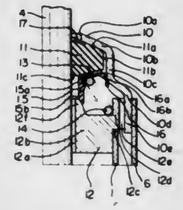
Tetuo Kato, Musashino, and Ieaki Miura, Yokohama, both of Japan, assignors to Tokico, Ltd., Kawasaki, Japan

Filed Mar. 30, 1979, Ser. No. 25,745

Claims priority, application Japan, Apr. 1, 1978, 53-42874[U]

Int. Cl.³ F16F *9/36*

U.S. Cl. 188—315 **3 Claims**



1. A double tube type hydraulic shock absorber comprising:

an inner cylinder filled with a working fluid and an outer cylinder surrounding said inner cylinder and defining an annular reservoir chamber with said inner cylinder, the lower portion of said reservoir chamber being filled with working fluid and the upper portion of said reservoir chamber being filled with pressurized gas, a piston slidable within the inner cylinder and having a piston rod thereon protruding from one end of the inner cylinder, a piston rod guide closing said one end of the inner cylinder and having a valve seat thereon, said piston rod being spaced from said rod guide for defining therebetween a passage for connecting the inner cylinder with the reservoir chamber, a cap closing the one end of said outer cylinder, a seal member spaced outwardly along said piston rod from said rod guide, a spring loaded annular retaining plate acting on the lower side of said seal member for urging said seal member against the inner surface of said cap, said seal member being slidable along the piston rod toward the interior of the cylinder against the action of said retaining plate for forming a gas filling inlet between the inner surface of said cap and the outer surface of said seal member, a non-return valve having a lip-like valve member and being firmly attached to the annular retaining plate and said lip-like valve member being resiliently urged against the valve seat on the rod guide for permitting flow of gas from said passage and blocking flow of gas in the opposite direction, and a further valve member for further sealing said gas filling inlet, said further valve member being secured to said annular retaining plate on the opposite face of said retaining plate from said seal member at or close to the outer periphery thereof and having a resilient lip extending beyond the outer periphery of said retaining plate and abutting the inner surface of said cap and curving away from said seal member for permitting flow of gas from said gas inlet into said outer cylinder and blocking flow of gas in the opposite direction.

4,274,518

BRAKE FORCE REGULATOR FOR A MOTORCYCLE HYDRAULIC BRAKE SYSTEM

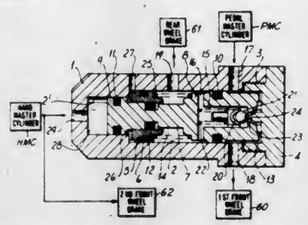
Volker Berisch, Hattersheim, Fed. Rep. of Germany, assignor to ITT Industries, Inc., New York, N.Y.

Filed Sep. 20, 1979, Ser. No. 77,418

Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847562

Int. Cl.³ B60T *8/26*

U.S. Cl. 188—344 **9 Claims**



1. A brake force regulator for a motorcycle hydraulic brake system having a rear-wheel brake and a first front-wheel brake actuated by pressure from a pedal master cylinder, and a second front-wheel brake actuated by pressure from a hand master cylinder, said brake force regulator controlling the pressure supplied to said rear-wheel brake dependent on the pressure produced by said hand master cylinder during the time when said pedal master cylinder and said hand master cylinder are simultaneously actuated, said brake force regulator comprising:

a control piston including

a stepped piston portion disposed in and coaxial of a longitudinal axis of a housing axially slidable against the force of a control spring, said stepped piston portion having a first effective area exposed to the pressure from said pedal master cylinder and a second effective area exposed to the pressure in said rear-wheel brake, and

a pressure piston portion disposed in said housing coaxial of said axis in tandem relationship with said stepped piston portion, said pressure piston portion having one end surface thereof in permanent association with the end surface of the smaller step of said stepped piston portion and the other end surface receiving pressure supplied by said hand master cylinder; and

a valve disposed in a bore of said stepped piston portion coaxial of said axis, said valve being closed upon displacement of said stepped piston portion and said pressure piston portion against the force of said control spring to interrupt a fluid connection through said bore from said pedal master cylinder to said rear-wheel brake.

4,274,519

LOCK-UP CLUTCH FOR A HYDRAULIC UNIT

Shuzo Moroto, Handa, and Kouji Kobayashi, Toyoda, both of Japan, assignors to Aisin-Warner K.K., Aichi, Japan

Filed Apr. 19, 1979, Ser. No. 31,505

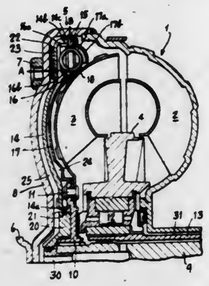
Claims priority, application Japan, Apr. 28, 1978, 53-51162

Int. Cl.³ F16D *3/66*

U.S. Cl. 192—3.28 **8 Claims**

1. A torque converter consisting of a pump impeller connected mechanically with a power shaft of a prime mover; a turbine runner which transmits a driving force given by said pump impeller through a fluid to said power shaft; a lock-up clutch which is installed between said pump impeller and said turbine runner to transmit directly input from the power shaft

of said prime mover to said turbine runner by mechanical connection without an intermediate fluid; a vibration damper which is installed outside of the circulation flow passage of said fluid near the inlet opening of said turbine runner to absorb the torsional vibration from the prime mover or the power shaft when said lock-up clutch is operated; a stator which forces the circulating flow of the fluid to said pump impeller from said turbine runner; and a one-way clutch which restricts unilaterally the direction of rotation of said stator; said lock-up clutch consisting of an annular piston having a power transmission surface which is a friction material engaging a power transmission surface installed on a casing connecting with said pump impeller and movable in an axial direction, a driving plate connected with said annular piston to be driven on the plane



crossing at nearly right angles to the axis of the torque converter, a driven plate equipped between said turbine runner and said annular piston, a resistance member placed between said driving plate and said driven plate to give a proper drag resistance to the relative rotational motion of said driving plate and said driven plate, and a plain bearing supporting the reciprocating motion of said annular piston and the relative rotatory motion of said turbine runner and said casing; said vibration damper being between the outside circumference of said driven plate which is fixed to the root of said turbine runner at its inside circumference and having an outside diameter nearly equal to the entrance diameter of said turbine runner and the inside circumference of said driving plate, the outside circumference of said driving plate being connected with the outside circumference of said annular piston.

4,274,520

TRANSMISSION HAVING VARIABLE V-BELT UNIT AND HYDRODYNAMIC UNIT

Frederik E. C. Van der Hardt Aberson, Eindhoven, Netherlands, assignor to Van Doorne's Transmissie B.V., Tilburg, Netherlands

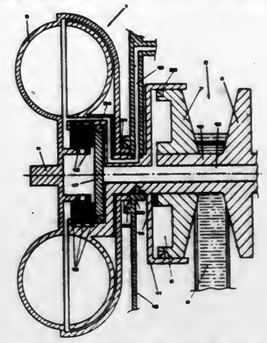
Filed Jul. 16, 1979, Ser. No. 58,111

Claims priority, application Netherlands, Jul. 14, 1978, 7807579

Int. Cl.³ B60K *41/02*; F16H *55/52*

U.S. Cl. 192—3.32 **3 Claims**

1. A transmission comprising a hydrodynamic transmission unit having an output drivingly connected to the input of a variable ratio V-belt transmission unit, the hydrodynamic transmission unit including a lock-up means operative to lock the hydrodynamic transmission unit in a direct-drive mode and the variable ratio V-belt transmission unit having a fluid pressure cylinder which controls the axial position of a conical pulley disc forming part of the V-belt transmission unit to thereby control the ratio of the V-belt transmission unit, and control means responsive to the fluid pressure in said fluid



pressure cylinder for actuating said direct-drive lock-up means.

4,274,521

SYNCHRONIZED HYDROPNEUMATIC CONTROL OF CLUTCH AND GEARBOX

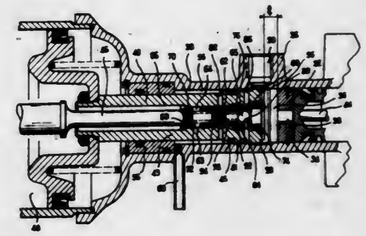
Leonardo Cadeddu, Crema, Italy, assignor to Benditalia S.p.A., Crema, Italy

Filed Mar. 16, 1979, Ser. No. 21,039

Claims priority, application Italy, Mar. 23, 1978, 21540 A/78

Int. Cl.³ B60K *41/22*; F16D *67/00*

U.S. Cl. 192—3.57 **4 Claims**

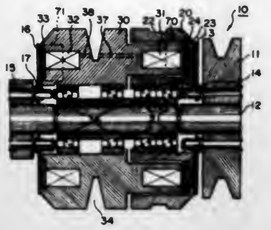


1. A hydropneumatic clutch control for a motor vehicle, comprising a casing provided with a bore which slidably receives a control piston, the latter being movable from a rest position under the influence of hydraulic pressure received in a chamber and with the assistance of a pneumatic motor, the latter being supplied with compressed air through a feed valve controlled by a second piston movable under the influence of the hydraulic pressure in said chamber, said vehicle comprising a source of pressurized fluid and a hydraulic utilizing circuit, said hydropneumatic clutch control being characterized in that said control piston comprises a larger diameter portion and a smaller diameter portion and defines with said bore an auxiliary chamber which communicates with said chamber through a pilot valve which is mounted in said control piston and which is normally open when the pressure prevailing in said chamber is substantially zero, said auxiliary chamber being connected to said utilizing circuit for supplying the latter with fluid under pressure when said control piston is displaced away from its rest position.

4,274,522
LOW SPEED ADAPTOR

Chen H. Min, 81, Sec. 6, Tswei Hua St., Pan Chiao City, Taiwan

Filed Jan. 4, 1979, Ser. No. 918
Int. Cl.³ F16D 67/06
U.S. Cl. 192—9 4 Claims



1. An adaptor for changing the sewing speed of a sewing machine driven by a main motor comprising:

a clutch member having a grooved rim to serve as a first transmission belt pulley adapted for engaging, by means of a first transmission belt, the pulley of an auxiliary motor rotating at a low speed;

an adaptor body provided with a grooved rim, a clutch winding at one end and a brake winding at the other end to provide distinct magnetic paths when energized, said clutch member being disposed adjacent to said clutch winding;

a shaft having two ends and on which said adaptor body and clutch member are rotatably mounted, said shaft extending through the central axis of said adaptor body and said clutch member;

a second transmission pulley which is secured to one end of said shaft, said second transmission pulley being adapted to engage the pulleys of the sewing machine and the main motor by means of a second transmission belt;

a clutch disc secured to said second transmission pulley and normally urged away from said clutch member, said clutch disc being formed of a material capable of being attracted by the magnetism generated in said clutch winding upon energizing thereof whereby said clutch disc slides along the longitudinal axis of said shaft to frictionally engage said clutch member;

a brake wheel secured at the other end of said shaft;

a brake disc secured to said brake wheel and normally urged away from said brake wheel, said brake disc being formed of a material capable of being attracted by the magnetism generated in said brake winding upon energizing thereof whereby said brake disc slides along the longitudinal axis of said shaft to frictionally engage said brake wheel.

4,274,523
AUTOMATICALLY ENGAGEABLE JAW CLUTCH

Hans Sigg, Mutschellen, Switzerland, assignor to Maag Gear-Wheel & Machine Co. Ltd., Zurich, Switzerland

Filed Oct. 30, 1978, Ser. No. 956,040
Claims priority, application Switzerland, Nov. 10, 1977, 13705/77
Int. Cl.³ F16D 11/10, 23/02
U.S. Cl. 192—21 5 Claims

1. An automatically engageable jaw clutch comprising:

a toothed drive hub;

a toothed power take-off hub;

a clutch star axially displaceable with respect to the power take-off hub;

a first gear tooth system provided at the clutch star for continuously connecting for conjoint rotation the clutch star with the drive hub;

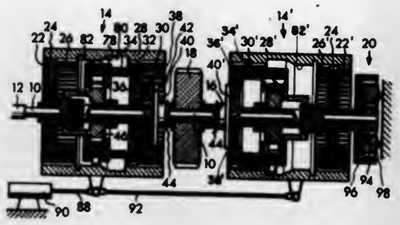
a second gear-tooth system provided for said clutch star which can be brought into engagement with the teeth of the power take-off hub by axial displacement of the clutch star;

a screw socket;

a pair of coarse-pitch thread means for connecting the screw socket with the power take-off hub;

said screw socket only being conjointly axially displaceable together with the clutch star and rotatable relative thereto;

a pawl blocking device composed of pawls and a pawl gear-tooth system;



said screw socket being entrainable by the clutch star by means of the pawl blocking device when the drive hub overtakes the power take-off hub;

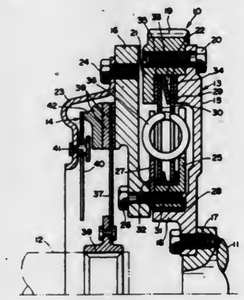
a switching device for optionally rendering ineffectual the pawls;

said switching device comprising sleeve means axially shiftable in relation to the clutch star and having a ramp surface which in a predetermined axial position of the sleeve means in relation to the clutch star hinders the pawls from engaging in the pawl gear-tooth system.

4,274,524
ROTATIONAL TORQUE TRANSMISSION MECHANISM

Mototaka Nakane, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya and Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, both of, Japan

Filed Aug. 3, 1979, Ser. No. 63,524
Claims priority, application Japan, Aug. 3, 1978, 53-94794
Int. Cl.³ F16D 7/02; F16F 15/12
U.S. Cl. 192—48.3 5 Claims



1. A rotational torque transmission mechanism interposed between an input member and an output member, comprising inertia members including a first member fixed to said input member and a second member cooperating with said output member, and means interposed between said first and second members for transmitting a rotational torque of said input member to said output member therethrough, said means including dampers and a torque limiting clutch for limiting the rotational torque transmission, said dampers comprising two parallel discs mounted on said first member, two parallel driven plates fixed to said second member, and resilient elements carried on said discs and driven plates to transmit the torque from said discs to said driven plates, and said torque limiting clutch comprising a spring interposed between said two discs for urging said two discs in an axially opposite direction.

4,274,525
CLUTCH DISC

Harald Raab, Schweinfurt, and Helmuth Weissenberger, Theilheim, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Feb. 13, 1980, Ser. No. 121,305
Claims priority, application Fed. Rep. of Germany, Feb. 21, 1979, 2906675
Int. Cl.³ F16D 3/14
U.S. Cl. 192—106.2 10 Claims

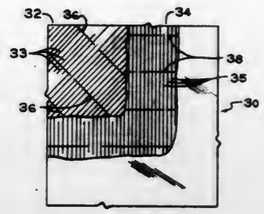


1. A clutch disc comprising an axially extending hub, a flange disc projecting radially outwardly from said hub, a friction lining carrier having a clutch friction lining thereon, said carrier projecting radially outwardly from said hub, said carrier being rotatable relative to said flange disc about said hub axis for a limited axial extent, at least portions of said friction lining carrier and said flange disc being radially coextensive and said friction lining carrier and flange disc each forming stop faces spaced apart in the circumferential direction, a plurality of springs seated between said stop faces on said friction lining carrier and flange disc, and a plurality of friction discs axially resiliently clamped between said friction lining carrier and flange disc, wherein the improvement comprises that at least one contact member is located between said friction lining carrier and said flange disc and is secured to one of said friction lining carrier and said flange disc, at least one friction member secured to the other one of said friction lining carrier and said flange disc, said at least one friction member located in the circumferential path of movement of said contact member when said friction lining carrier rotates relative to said flange disc, said at least one friction member having a surface facing toward said contact member, said contact member having a surface extending in the circumferential direction relative to said hub axis and said surface extending obliquely relative to the facing surface of said at least one friction member so that as said friction lining carrier rotates relative to said flange disc said oblique surface moves in the circumferential direction into contact with the facing surface of said at least one friction member for varying the axial force applied against said at least one friction member in accordance with the extent of the relative rotational movement of said friction lining carrier relative to said flange disc.

4,274,526
INFLATABLE STRUCTURES OF RUBBERIZED FABRIC

Gerald S. Sims, Clinton, Ohio, assignor to The B. F. Goodrich Company

Filed Jan. 25, 1979, Ser. No. 51,560
Int. Cl.³ A62B 1/20
U.S. Cl. 193—25 B 3 Claims

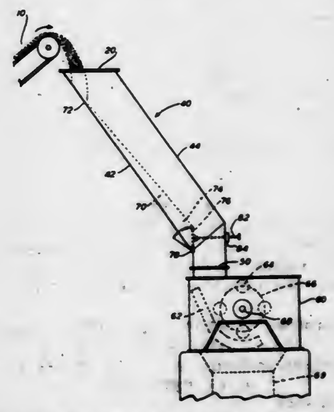


1. In an inflatable emergency device consisting essentially of structural elements forming an inflatable chamber composed of rubberized fabric sheeting, the improvement wherein at least one of said structural elements is a laminate sheet material consisting essentially of an outer and inner ply of rubberized fabric, said inner ply being disposed nearer said inflatable chamber than said outer ply, and wherein said inner ply comprises nylon fabric material with warp members thereof extending in a predetermined direction, said outer ply comprises aramid fabric material with warp members extending at an acute angle relative to said predetermined direction and the tenacity of said aramid material is substantially greater than the tenacity of said nylon material.

4,274,527
APPARATUS AND METHOD FOR UNIFORMLY SPREADING A FLOWING STREAM OF DRY SOLIDS

John H. Baker, R.D. #2, Box 109B, Port Murray, N.J. 07865

Filed Sep. 27, 1977, Ser. No. 837,206
Int. Cl.³ B65G 11/20
U.S. Cl. 193—32 6 Claims



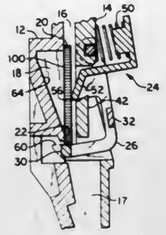
4. In a spreading device for spreading a dry solids stream as it flows down a chute, an adjustable dam having a crest which is curved transversely with respect to the direction of flow of said stream for stopping the flow of a portion of said dry solids to form a stationary mass thereof having an upper convex surface over which the flowing particles of the stream pass after the said stationary mass has formed, and means for adjusting said dam to vary the convexity of the said surface of said stationary mass for increasing or decreasing the degree of spreading of the stream flowing thereover.

4,274,528

COIN SEPARATOR ASSEMBLY

Robert N. Walters, and Kristen H. Dietz, both of Florissant, Mo., assignors to Coin Acceptors, Inc., St. Louis, Mo.

Filed Oct. 19, 1979, Ser. No. 86,682
Int. Cl.³ G07F 3/02
U.S. Cl. 194—102 **8 Claims**



1. A coin separator assembly, comprising:
(a) a first plate,
(b) a second plate, disposed in spaced relation from said first plate to define a coin chute,
(c) one of said plate including a coin engageable abutment means,
(d) a separator member including a hinge axis, said member being mounted to one of said plates in swinging relation thereto, and said separator member including:
1. a first coin engageable means disposed in spaced relation from the hinge axis, and
2. a second coin engageable means disposed in spaced relation from the hinge axis below said first coin engageable means,
(e) biasing means tending to bias said separator member from a first position, in which a coin of one diameter range is supported against sideways movement by said abutment means on one side and said first engageable means on the other side and supported against downward movement by said second engageable means, into a second position, in which a coin of lesser diameter is tilted by said first engagement means to one of side and said second engagement means is moved away from supporting engagement with said coin of lesser diameter to permit said coin to move in a generally downward direction, and
(f) said second coin engageable means including:
1. a rail supporting said coin of one diameter range in said first position to direct said coin in a generally transverse direction, and
2. a space adjacent said rail receiving said tilted coin in said second position.

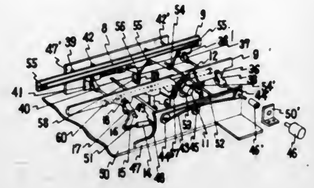
4,274,529

FEED-RETRIEVE DEVICE FOR SHEET BOARDS

Kazuhiro Mori; Yoshihiko Misawa, both of Katano; Kiyoshi Mayahara, Kadoma, and Shigeru Araki, Katano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 861,192, Dec. 14, 1977. This application Nov. 23, 1979, Ser. No. 96,694
Claims priority, application Japan, Dec. 20, 1976, 51-153994
Int. Cl.³ B65G 47/00
U.S. Cl. 198—339 **7 Claims**

1. A feed-retrieve device for sheet boards comprising:
a pair of parallel rails for holding said sheet boards in a horizontal position and guiding side edges of said sheet boards thereon in a horizontal direction,
at least one belt conveyor which runs along said rails,
a rigid table face having a processing position,
a sheet board supporting means having a supporting face, and
a means to move said rails together with said at least one belt conveyer both in said horizontal direction and in a vertical direction between a first position where said rails are apart at least in said horizontal direction from said processing position on said rigid table face to process said sheet



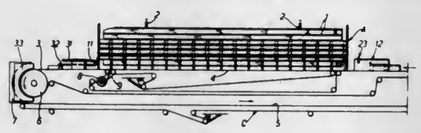
boards and a second position where said rails are close to and at a level that is flush with said supporting face of said sheet board supporting means.

4,274,530

PACKET HANDLING APPARATUS

David C. M. Carter; George C. Leigh; Barry G. Applegate; Robert J. Green, all of London, and Martin D. Morgan, Great Brickhill, Nr. Milton Keynes, all of England, assignors to Molins Limited, London, England

Filed Jul. 10, 1979, Ser. No. 56,255
Claims priority, application United Kingdom, Jul. 10, 1978, 29318/78
Int. Cl.³ B65G 47/57, 47/31
U.S. Cl. 198—347 **6 Claims**



1. Packet handling apparatus including a conveyor for moving packets in line; a transfer region along the conveyor, said conveyor having separately-drivable sections respectively in said transfer region and downstream of said transfer region; a reversible accumulator arranged to receive batches of packets from or return batches to the conveyor in the transfer region; gate means at or near the exit from the transfer region; including a gate movable into an operative position to stop packets on the conveyor when it is required to transfer a batch from the conveyor to the accumulator; and means for increasing the spacing between packets on the conveyor to allow the gate to be inserted in a line of packets, said means including means for temporarily causing said downstream section of the conveyor to run faster than said upstream section.

4,274,531

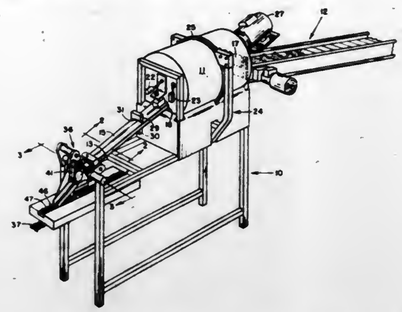
APPARATUS FOR ORIENTING OBLONG ARTICLES

Henry B. Whitmore, Rte. 5, Box 369, San Antonio, Tex. 78211

Filed Sep. 21, 1979, Ser. No. 77,856
Int. Cl.³ B65G 47/24
U.S. Cl. 198—397 **15 Claims**

1. An article aligning device comprising:
a. a rotating drum including a feed opening and a discharge opening adapted to receive articles from an input conveyor,
b. a counter-rotating shaft conveyor projecting through said drum adapted to receive articles in said drum and move articles to,

c. a loading mechanism adapted to position individual articles on an output conveyor, and



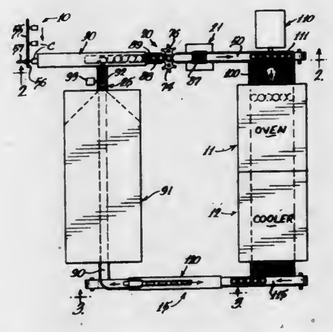
d. feed control tilt flaps tiltably mounted in said drum and adapted to control the rate of feed of a conveyor.

4,274,532

CAN HANDLING SYSTEM

Fred I. Johnson, 369 Montrose Ave., Elmhurst, Ill. 60126

Filed Jul. 26, 1979, Ser. No. 61,651
Int. Cl.³ B65G 37/00, 25/04, 47/31
U.S. Cl. 198—429 **15 Claims**



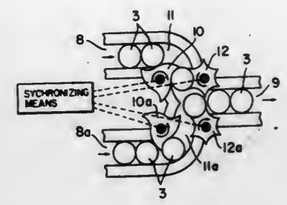
1. A can handling system for transporting cans with an open end through an oven comprising, a plurality of free-standing can carriers each having can alignment means loosely engageable within a can to hold a can in inverted position and a base of a size to prevent contact between two cans when a pair of can carrier bases are in contact, means including a pin chain conveyor for advancing cans sequentially at uniformly spaced intervals to a loading station, means for advancing can carriers sequentially to said loading station to have the can-engaging means of the carriers at the same center-to-center distance as said cans carried by the pin chain conveyor to each receive a can thereon, and means for conveying said can carriers to and through said oven and to an unloading station where the cans are removed from the can carriers.

4,274,533

DEVICE FOR AUTOMATICALLY GUIDING AND REGULATING TRAVEL OF BOTTLES OR THE LIKE IN A CONVEYING SYSTEM

Ichiro Abe, Takasaki, Japan, assignor to Kirin Beer Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 5, 1979, Ser. No. 45,705
Claims priority, application Japan, Jun. 15, 1978, 53/82300[U]
Int. Cl.³ B65G 29/00
U.S. Cl. 198—450 **5 Claims**

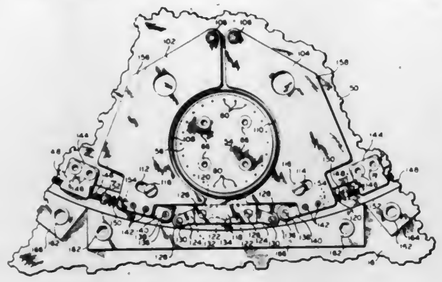


1. A conveyor system for conveying articles of circular section, said system comprising a guide device for automatically guiding and regulating articles travelling in substantially the same direction along three substantially parallel input side straight passages into a single file travelling along an exit passage oriented substantially perpendicularly to said input side straight passages, said guide device comprising:
guide means which define a first guide passage which is arcuate and is joined at the upstream and downstream ends thereof respectively to the downstream end of the most outside one of said straight guide passages and to the upstream end of said exit passage, and second and third guide passages which are joined at their upstream ends to the corresponding input side straight passages respectively and at their downstream ends to the upstream ends of said exit passage, each of said second and third guide passages comprising an upstream arcuate passage portion and a downstream arcuate passage portion, which arcuate passage portions are joined together in tandem with inflected curvature to form a fair S-shaped guide passage;
first, second and third specific starwheels concentrically disposed, respectively, relative to said first guide passage, the upstream portion of the second guide passage and the upstream portion of the third guide passage and supported rotationally in the direction generally coincident with the direction of travel of articles in the respective guide passages, and each specific starwheel having two teeth with respective tips spaced at equal angular intervals and lying in a rotational path extending partly into the respective guide passage, each tooth of each specific starwheel having a special profile shape defined by leading and trailing edges, said leading edge having a concave arcuate shape of a radius of curvature corresponding substantially to the radius of said circular cross section of the articles to be conveyed and extending from the tip inward so as to be joined with the inner end of the trailing edge of the forwardly adjacent tooth, and said trailing edge having a convex curved shape and extending outward to the tip of the rearwardly adjacent tooth, whereby said leading and trailing edges form a fair S-shaped curve adapted for establishing securely a predetermined distance between the output side adjacent articles; and
first and second timing establishing normal starwheels which are disposed at the downstream portions of said second and third guide passages respectively, said normal starwheels each having six teeth and symmetrical concave arcuate tooth surfaces the diameter of which corresponds to the cross-section of the articles to be conveyed, whereby the articles fed from said straight passages are merged and entered alternately into said exit passage.

4,274,534
CLAMPING APPARATUS FOR USE WITH A MULTI-STATION PACKAGING MACHINE OR THE LIKE

William R. Eddy, Kansas City, Mo., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,659
Int. Cl.³ B65G 29/00
U.S. Cl. 198—479 7 Claims



1. Apparatus for transferring generally cylindrically shaped rings from one station to another station in a multi-station packaging machine, comprising:

a plate rotatable about an axis of rotation and having an upper surface and a plurality of ring receiving means on said upper surface each adapted for receiving one of said generally cylindrically shaped rings thereon;

a plurality of clamp means positioned respectively adjacent each of said ring receiving means and adapted for selectively alternately gripping and releasing a corresponding generally cylindrically shaped ring;

clamp actuating means positioned adjacent said plate and operatively related to said clamp means for causing each of said clamp means to grippingly engage one of said rings on one of said ring receiving means as said ring receiving means is revolved by said rotating plate from a first position adjacent a first one of said stations to a second position adjacent a second one of said stations, and, alternately, for releasing gripping engagement of one of said rings on one of said ring receiving means as said ring receiving means is revolved by said rotating plate from a third position adjacent a third one of said stations;

a pair of clamp jaws each pivotally secured to said plate intermediate a respective one of said ring receiving means and the axis of rotation of said plate, said clamp jaws being disposed on opposite sides of said ring receiving means;

bias means operatively engaging said pair of clamp jaws and adapted to continuously urge said pair of clamp jaws toward said respective ring receiving means so as to grippingly engage one of said rings positioned thereon;

cam follower means operatively related to each of said pair of clamp jaws;

cam means positioned adjacent said plate for engaging said cam follower means whereby, in response to rotation of said plate about its axis of rotation relative to said cam means, said cam follower means are revolved about said axis of rotation and engage said cam means as said ring receiving means is revolved from said third position adjacent a third one of said stations whereby each said pair of clamp jaws are cammed apart about their respective pivotal axes against the urging of the respective bias means so as to release gripping engagement with a respective one of said rings, each pair of said clamp jaws remaining in the thus cammed apart position until the respective ring receiving means is revolved to a position wherein said cam follower means disengages from said cam means whereby each pair of said clamp jaws are urged toward said respective ring receiving means under the urging of said respective bias means so as to grippingly engage another one of said rings; and

said cam follower means further includes:

a pair of rigid members each having first and second ends;

pivot means pivotally securing the first end of each of said rigid members to said plate intermediate said clamp jaws;

roller follower means journaled on the second end of each of said rigid members and adapted to rollingly engage said cam means;

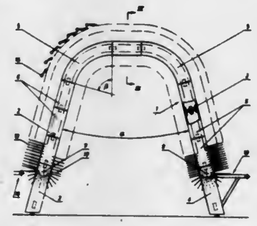
second roller means journaled on each of said clamp jaws and adapted to engage the roller follower means of a respective one of said rigid members; and

said roller follower means, said rigid members and said second roller means being adapted to operatively relate to said cam means whereby engagement of said roller follower means with said cam means causes said rigid members to revolve about their respective pivot means toward said plate and said roller follower means to thus abut the respective second roller means and revolve their respective clamp jaws about their respective pivotal securements to said plate so that each pair of clamp jaws are thereby forced apart against the urging of the respective bias means away from a respective one of said ring engaging means.

4,274,535
WAFER SHEET COOLER

Franz Haas, Sr., Gerstlgasse 25, Wien, Austria (1210); Franz Haas, Jr., Castellezgasse 32, Wien, Austria (1020), and Johann Haas, Wiener Strasse 209-215, Spillern (Nö), Austria (2104)

Filed Sep. 29, 1978, Ser. No. 946,945
Claims priority, application Austria, Oct. 6, 1977, 7126/77
Int. Cl.³ B65G 17/12, 47/22
U.S. Cl. 198—493 17 Claims

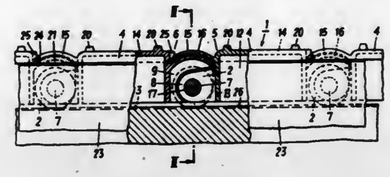


1. In a wafer sheet cooler in the frame of which two driven conveyor chains are mounted, which are adapted to be advanced in timed sequence and which carry a multiplicity of compartments, the improvement comprising: a frame; means for allowing a human attendant to readily pass through said frame, said allowing means including an arched configuration of said frame, said arched configuration defining a passageway through said frame the conveyor chains being guided parallel to the frame; two sets of chain wheels coupled with the conveyor chains, at least one of the sets of chain wheels being driven, the conveyor chains having reversal points at which their directions of travel are reversed, the reversal points being provided by the sets of chain wheels; a plurality of slide rails coupled with the frame, the conveyor chains carrying the compartments being guided on the frame over substantially the entire length of the chains by the slide rails and otherwise being guided at the reversal points by the sets of guide wheels.

4,274,536
SHIELDED ROLLER CHAIN

Ernst Riegler, Enns, and Manfred Schmidt, Linz, both of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Mar. 27, 1979, Ser. No. 24,304
Claims priority, application Austria, Apr. 4, 1978, 2358/78
Int. Cl.³ B65G 17/06
U.S. Cl. 198—851 3 Claims



1. In a conveying arrangement of the type including a roller supporting chain having chain links movable on a runway, articulation pins provided for connecting said chain links at their ends, and projections located at the end of said chain links and overlapping each other, the improvement which is characterized in that:

a plane cover plate is provided on each one of said chain links;

load supports are provided on each plane cover plate for accommodating and conveying slabs, in particular for conveying slabs in a flame scarfing plant, said load supports rising above said projections in terms of height;

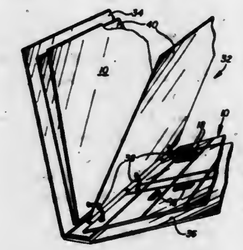
said projections are formed by an outer projection and an inner projection provided on each of said chain links, said outer projection of one chain link overlapping said inner projection of a neighboring chain link; and

side flanges are provided on said outer projections, said side flanges overlapping each inner projection in the transverse direction of said roller supporting chain, each of said side flanges, in the direction towards said runway, is provided with a straight-line limitation edge parallel to said runway, each of said side flanges, together with its straight-line limitation edge, extends over the length of said chain links from the outer projection up to the start of said inner projection arranged at the opposite end of said chain link.

4,274,537
INTEGRATED CIRCUIT STORAGE CATALOG

Jerry D. Cooper, Odessa, Tex., assignor to Cosmetex, Inc., Odessa, Tex.

Filed Sep. 24, 1979, Ser. No. 78,245
Int. Cl.³ B65D 73/02, 85/38
U.S. Cl. 206—329 9 Claims



1. An integrated circuit storage catalog for storage of a plurality of integrated circuit chips, wherein each of the chips includes a body from which a plurality of electrical contacts extend in like direction, in spaced relation to one another;

said catalog comprises a sheet of bendable plastic material having a thickness greater than the length of the contacts;

means forming indicia on one face of said sheet which provides said face of said sheet with a plurality of areas;

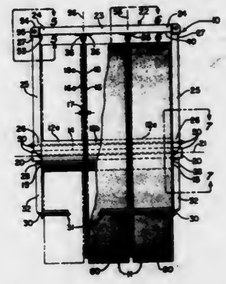
a plurality of like chips mounted within one said area, the contacts of each chip being forced into said sheet until the chip body abuts the face of the sheet, thereby releasably attaching the chip to the face of the sheet;

said indicia is also applied to each said area to indicate the characteristics of the chip stored thereon.

4,274,538
PACKAGE AND METHOD OF PACKAGING FOR FLAT ELONGATED MATERIAL

James E. McGraner, Columbus, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Nov. 19, 1979, Ser. No. 95,198
Int. Cl.³ B65D 85/671; B65H 75/25
U.S. Cl. 206—394 8 Claims



1. A package for winding, shipment, storage and individual dispensing of at least two side-by-side lengths of flat elongated sheet material comprising:

(a) two cylindrical outer shells each having a central bore extending axially therethrough, inner and outer ends, and a divider plate being rigidly joined to the inner end thereof, said divider plate extending radially outwardly beyond the circumference of said shells, said shells being positioned end-to-end, with their central bores aligned and their divider plates adjacent to and aligned with one another to form a pair of parallel plates having axially adjacent and axially most distant parallel surfaces;

(b) an elongated central member passing through the aligned central bores of said end-to-end shells, and extending axially beyond the outer ends of said end-to-end shells;

(c) a frame including an upper member extending axially and generally horizontally an amount about equal to the combined axial dimension of said end-to-end shells;

(d) a side member rigidly joined with and depending from each end of said upper member, each side member having its radially inner end rigidly joined to said central member and the outer end of the respective shell to prevent axial movement of said shells with respect to said central member;

(e) at least two tie members spaced substantially equally apart in the circumferential direction of said shells from one another and from said upper member, said tie members each having a portion spaced radially outwardly from the outer circumference of said shells and extending axially an amount about equal to the combined axial dimension of said end-to-end shells; said tie members each having a portion extending radially inwardly from each end of said axial portion and overlying part of an outer end of said end-to-end shells, each said radial portion being rigidly joined to a respective one of said axial por-

tions and a respective outer end of said end-to-end shells, and

(f) a plurality of bifurcated members whose legs extend at right angles to one another with one leg of each bifurcated member extending radially inwardly and being rigidly joined to a radially inwardly facing surface of said upper member and the other leg of each bifurcated member extending radially inwardly and being rigidly joined to one of the axially most distant surfaces of a pair of parallel plates.

4,274,539

PACKAGED SEALED-END TUBULAR THERMOPLASTIC NET BAGGING

Kenneth H. Rabeneck, 3714 Stratford La., Louisville, Ky. 40207; Jerry R. Kantlehner, Rte. 1, Box 327, and David E. Gallaher, 30001 Tattersalle La., both of Prospect, Ky. 40059

Division of Ser. No. 945,020, Sep. 22, 1978, Pat. No. 4,190,690. This application Sep. 27, 1979, Ser. No. 79,525

Int. Cl.³ B65D *85/62, 30/06, 33/36*

U.S. Cl. 206—554 **2 Claims**



1. A packaged product, comprising:

(a) a plurality of individual one sealed end/one open end bags of tubular thermoplastic melting material arranged parallel to one another in a group, said bags being formed by repetitively angularly twisting a continuous rope-like feedstock of tubular thermoplastic net bagging material sufficiently to substantially radially condense said feedstock, melting an axially short segment of said radially condensed feedstock to form a converted feedstock containing every so often a single melted and molded massive integral seal nugget incorporating substantially all strands of said feedstock within said segment, and severing said converted feedstock beside each succeeding seal nugget to produce said individual bags in each of which said sealed end is constituted by a said seal nugget;

(b) a tubular plastic film sack sleeving said group and being permanently closed at both ends thereof for containing said group;

(c) means providing a ring of intermittent perforations through said sack intermediate the ends thereof, providing a grab-out closure, which may be grabbed and torn out to provide a corresponding grab hole permitting withdrawal of individual ones of said bags from said sack.

4,274,540

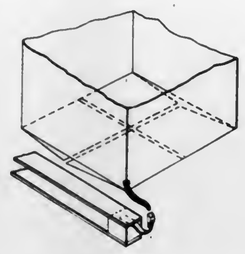
CONTAINERS AND SUPPORT COMBINATIONS

Eric R. Coles, 2 Charnwood Grove, and Rex K. Walden, 20 Forest Rd., both of Bingham, Nottinghamshire, England

Filed Oct. 4, 1977, Ser. No. 839,291

Int. Cl.³ B65D *19/44*

U.S. Cl. 206—597 **7 Claims**



1. A pallet and container assembly comprising in combination:

a container for goods having four sides and a base, on which goods are to rest, which comprises bottom flaps folded towards one another from the four sides of the container, the folds thereby defining a lower peripheral edge around the container, four corner apertures extending through the lower peripheral edge and defined between lateral edges of each pair of next adjacent ones of said bottom flaps;

a pallet which in use spaces the container base from the ground;

a flexible strap-like tongue extending through each of said four corner apertures and comprising an enlarged head, within the container, to prevent the tongues being pulled completely through said apertures;

clips firmly secured to the pallet at points which align with said tongues when the container is positioned on the pallet, said tongues being formed so as to be interlocked with said clips and so secure the underside of the container to and pull the underside progressively more tightly against the pallet without the tongues being pulled completely through the apertures; and

said tongues being cuttable to release the container from the pallet.

4,274,541

CLOSURE SYSTEM FOR CONTAINERS, IN PARTICULAR FOR NON-RETURNABLE CONTAINERS OF SEMI-RIGID MATERIAL, MADE OUT OF AT LEAST TWO DISH-SHAPED PARTS WHICH ARE JOINED TOGETHER

Werner Festag; Hans-Ueli Müller, and Oldrich Stanek, all of Schaffhausen, Switzerland, assignors to Swiss Aluminium Ltd., Chippis, Switzerland

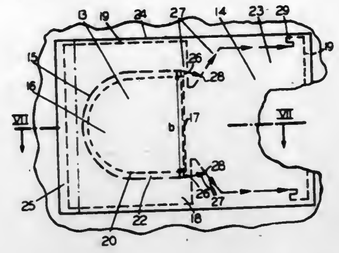
Filed Nov. 28, 1978, Ser. No. 964,123

Claims priority, application Switzerland, Nov. 29, 1977, 14580/77

Int. Cl.³ B65D *5/70*

U.S. Cl. 206—613 **15 Claims**

1. In combination, a container and a closure system therefor, said container having an opening for filling same and an adjacent tear flap for enlarging said opening, wherein said opening is defined by a cut line and an uncut base portion and said tear flap is defined by tear lines adjacent said cut line, said tear flap



including a narrow necked down portion adjacent said base portion.

4,274,542

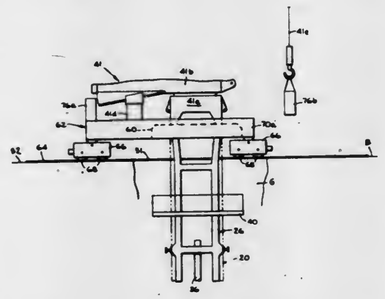
METHOD FOR TRANSFER OF CRANE FROM TOWER

John H. Barclay, Radnor, Pa., assignor to FMC Corporation, San Jose, Calif.

Filed Feb. 26, 1979, Ser. No. 15,273

Int. Cl.³ B66C *11/02*

U.S. Cl. 212—270 **12 Claims**



1. The method of transferring a crane from a multi-section tower formed from a plurality of interconnected sections to a site adjacent the top of the tower comprising the steps of disconnecting the crane from the uppermost section of the tower, elevating the crane above the uppermost section of the tower, assembling a structure which includes a mobile portion on the site under the elevated crane, lowering the crane onto said mobile portion of the structure, and moving the mobile portion of the structure away from the tower over the uppermost section of the tower.

4,274,543

VIAL AND CLOSURE STRUCTURE

George W. Braymer, Jr., Ross Township; Kalamazoo County, MI, and Stephen H. Diaz, Los Altos, Calif., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Jan. 23, 1978, Ser. No. 871,398

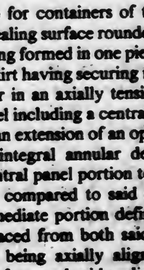
Int. Cl.³ B65D *81/32*

U.S. Cl. 215—6 **12 Claims**

1. In a two-compartment container having a constriction between the two compartments capable of receiving a removable plug which provides a liquid-tight barrier between the two compartments, said container having a neck communicating with one of said compartments and said neck having an annular rim adjacent the free end thereof, and a closure structure for the neck, the closure structure comprising:

a resiliently flexible, substantially cylindrical stopper having a first portion with an outside diameter slightly larger than the inside diameter of said neck and snugly receivable into said neck and a second portion of reduced diameter projecting beyond the free end of said neck;

resiliently flexible cap means of substantially circular cross section having a fastening portion telescopically receivable onto the free end of said neck, said fastening portion having means for gripping said rim, said fastening portion including means overlying the upper edge of the stopper first portion so as to oppose its removal from the container, and said cap means having a sleeve portion of



reduced diameter snugly but slidably receivable onto the second portion of said stopper, said sleeve portion being attached to said fastening portion by manually fracturable means, said sleeve portion being slidably receivable with the second portion of said stopper into said neck by the application of force urging said sleeve portion toward said container; and

means attached to said outer end of said sleeve portion of said cap means for closing the outer end thereof.

4,274,544

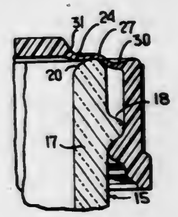
SINGLE-PIECE PLASTIC CLOSURE HAVING INTEGRAL SEAL FORMING MEANS

James E. Westfall, Western Springs, Ill., assignor to The Continental Group, Inc., Stamford, Conn.

Filed Mar. 11, 1980, Ser. No. 129,443

Int. Cl.³ B65D *53/00*

U.S. Cl. 215—344 **16 Claims**



1. A closure cap for containers of the jar and bottle type having a terminal sealing surface rounded in transverse section, said closure cap being formed in one piece of a plastics material and comprising a skirt having securing means for retaining said skirt on a container in an axially tensioned state, and an end panel, said end panel including a central panel portion of a size to be aligned with an extension of an open end of an associated container and an integral annular deformable sealing strip connecting said central panel portion to said skirt, said sealing strip being thin as compared to said skirt, said sealing strip including an intermediate portion defining an annular sealing surface radially spaced from both said skirt and said central panel portion and being axially alignable with a container terminal sealing surface, and said sealing strip having a transition portion between said intermediate sealing strip portion and said skirt, said transition portion increasing in thickness toward said skirt and forming means for effecting a drawing of

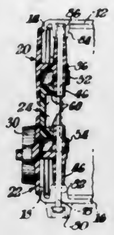
a radially outer part of said sealing surface down and around a radially outer part of a container rounded terminal sealing surface.

4,274,545

INSTRUMENT HOUSING

Peter A. Peroni, Pottstown, Pa., assignor to LaFrance Corporation, Philadelphia, Pa.

Filed Jun. 14, 1979, Ser. No. 48,591
Int. Cl.³ B65D 6/00; H05K 5/02
U.S. Cl. 220—4 R **23 Claims**



1. In an expander for forming a side wall of an electrical housing or the like having end panels fit into tracks on the inner surface of the housing wherein said expander is of generally rectangular shape with upper and lower horizontal channel sections formed by an outer wall and an inner wall spaced therefrom with a rib laterally therebetween separating said channel sections for telescopically receiving a pair of side members with one of said side members sliding downwardly into the space between said outer wall and said inner wall and the other of said side members sliding upwardly into said space between said outer wall and said inner wall, the improvement being said inner wall being of generally open construction comprising a plurality of spaced wall segments, said outer wall having an inturned flange at each of its ends thereof, said inturned flanges comprising two of said wall segments which are adapted to fit against the end panel tracks, said rib being on said outer wall projecting toward said inner wall, a generally flat plate-shaped blade mounted to said rib and extending both upwardly above and downwardly below said rib, and said blade comprising a further of said wall segments with substantial open spaces between said blade and each of said inturned flanges whereby said blade is adapted to be spaced laterally away from the end panel tracks.

21. In an electrical housing or the like having a top cover with downwardly directed flanges and a bottom cover with upwardly directed flanges and with side walls and with end panels held in tracks on the inner surface of the housing, wherein each of said side walls includes a generally rectangularly shaped expander having an outer wall spaced from an inner wall and said outer and inner walls being laterally interconnected by a rib therebetween to form a pair of upper and lower channel sections, the improvement being each of said side walls comprising a lower one of said expanders and an upper one of said expanders with a filler plate therebetween, the inner surface of said filler plate including said end panel tracks, said inner wall of each of said expanders being of generally open construction comprising a plurality of spaced wall segments, said outer wall of each of said expanders having an inturned flange at each of its ends thereof disposed adjacent said end panel tracks, said inturned flanges comprising two of said wall segments, said rib being on said outer wall projecting toward said inner wall, a generally flat plate shaped blade mounted to said rib and extending upwardly above and downwardly below said rib, said blade comprising a further of said wall segments with substantial open spaces between said blade and each of said inturned flanges with said blade spaced from said end panel tracks, said downwardly directed flanges of said top cover being telescoped into said upper channel sections of said upper expanders, said upwardly directed flanges of said bottom cover being telescoped into said lower channel sections of said lower expanders, and said filler plates being telescoped into said lower channel sections of said upper expanders and into said upper channel sections of said lower expanders.

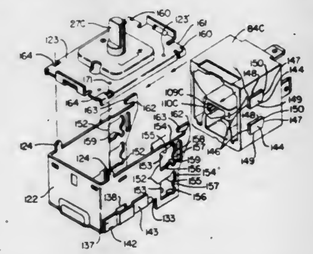
22. A filler plate for securement between an upper expander and a lower expander for forming a side wall of an electrical housing or the like wherein each expander is of generally rectangular shape with upper and lower channel sections formed by an outer wall and an inner wall spaced therefrom with a rib laterally therebetween for telescopically receiving complementary side members, said filler plate being of generally the same thickness as the spacing between said inner and outer walls of said expanders and being telescopically received between a respective set of inner and outer walls of said upper expander and said lower expander, said filler plate having an inner face and an outer face with upper and lower edges connecting said inner face and said outer face, said innner face of said filler plate having a first pair of inwardly disposed loops extending from said lower edge and a second pair of inwardly disposed loops extending from said upper edge in line with said first pair of loops for receiving longitudinal posts on the expanders, and said aligned loops of said first and said second pairs being interconnected by a stiffener.

4,274,546

CONDITION RESPONSIVE ELECTRICAL SWITCH CONSTRUCTION AND PARTS AND METHODS THEREFOR

Charles D. Branson, Greensburg, and Harvey J. Shopsky, Latrobe, both of Pa., assignors to Robertshaw Controls Company, Richmond, Va.

Division of Ser. No. 865,594, Dec. 29, 1977, Pat. No. 4,194,102.
This application Oct. 1, 1979, Ser. No. 83,160
Int. Cl.³ B65D 6/24
U.S. Cl. 220—4 B **10 Claims**



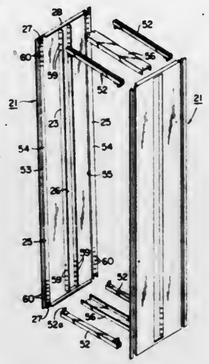
1. In a housing construction for an electrical switch construction or the like and having one housing member partially telescoped inside another housing member to have a pair of opposed ear means of said one housing member respectively project through a pair of opposed slot means in said other housing member together with a cover member secured to one of said housing members to hold the same in their assembled and telescoped relation, the improvement wherein each said slot means of said other housing member is defined in part by a pair of opposed surface means of said other housing member one of which comprises a flexible biasing section, each said ear having opposed edge means respectively pressfitted between said surface means of its respective slot means and flexing said biasing section thereof outwardly from its respective other surface means whereby said biasing sections hold one of said edge means of said ears against the other surface means of said slot means.

4,274,547

ENCLOSED SWITCHBOARD

Masatomo Takagi, Hachioji; Tsuguo Noritake, and Mitsuo Ogaki, both of Fuchu, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1979, Ser. No. 98,024
Claims priority, application Japan, Dec. 4, 1978, 53-149057
Int. Cl.³ B65D 6/28; A47B 55/00
U.S. Cl. 220—4 R **7 Claims**



1. In an enclosed switchboard having a pair of side plates disposed in parallel with and to confront each other and connecting members for connecting the side plates to each other to form a vertical box, the improvement wherein

each side plate comprises a substantially flat sheet provided, along both edges thereof, with vertically extending ribs having U-shaped cross-section protruding toward the confronting side plate,

the upper and the lower ends of each rib are provided with substantially U-shaped cutaway portions,

both ends of each connecting member are formed to fit in the U-shaped cutaway portions, and

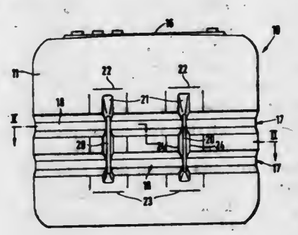
each side plate is provided with a vertically extending opening and a bent portion protruding from an edge of said opening toward the confronting side plate.

4,274,548

PLASTIC TANK, PARTICULARLY FOR THE STORAGE OF FUEL OIL AND THE LIKE

Helmhold Schneider, Kolner Strasse 59, D-5230 Altenkirchen, Fed. Rep. of Germany

Continuation of Ser. No. 793,828, May 4, 1977, abandoned. This application Jul. 23, 1979, Ser. No. 60,254
Claims priority, application Fed. Rep. of Germany, May 4, 1976, 2619590; May 21, 1976, 2622737
Int. Cl.³ B65D 1/44, 88/02
U.S. Cl. 220—72 **20 Claims**



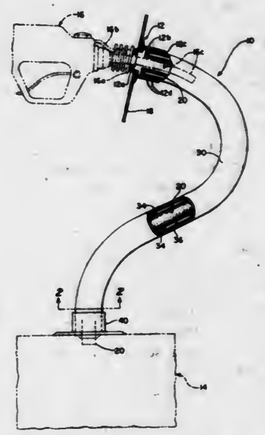
1. A blow-molded plastics storage tank comprising a substantially parallelepiped basic shape and strengthened by at least one elongated recess extending across a pair of opposed tank walls, and at least one rectilinear elongated groove extending perpendicular to the at least one recess, each groove intersecting each recess in the same wall and extending beyond the at least one recess and each groove having a base portion forming a flat web which is disposed parallel to and attached to the flat web of a corresponding groove in the opposite tank wall, whereby the said tank walls are interconnected and supported relative to one another by said webs in the interior of the tank.

4,274,549

APPARATUS FOR FUEL VAPOR RECOVERY

Lee A. Germain, Tallmadge, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sep. 27, 1979, Ser. No. 79,400
Int. Cl.³ B65B 3/18
U.S. Cl. 220—86 R **15 Claims**

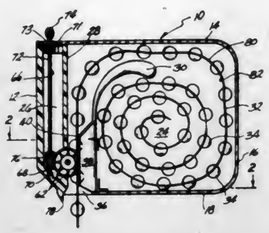


1. Apparatus mounted in association with an entry fueling port and a fuel tank having an inlet nipple, said apparatus providing fuel entry into the tank and recovery of fuel vapor from the tank while being serviced from a fuel dispensing nozzle having vapor recovery means and comprising:

inner and outer coaxially aligned tubes, the inner tube a fuel delivery tube having a bore diameter sufficient for receiving the dispensing nozzle therein and the outer tube characterized by a plurality of longitudinal ribs formed on the inside surface of its bore such as to define a plurality of valley-pathways between the coaxially aligned tubes, said tubes connected to the entry fueling port and to the inside of the tank inlet nipple; and

baffle means mounted within the bore of the tank inlet nipple to receive fuel delivery tube in a locking engagement and provide fuel entry into the tank as dispensed from the nozzle, said baffle having a bore slightly smaller than the outside diameter of the fuel delivery tube to provide a force-fit engagement with said tube when it is inserted therethrough in the tank direction but which opposes extraction thereof in the opposite direction, and having a plurality of access ports about its periphery to provide a vapor path from the tank to the valley-pathways between the tubes and to the nozzle vapor recovery means.

4,274,550
MEDICAMENT DISPENSING DEVICE
George Feldstein, Cresskill, N.J., assignor to Myer B. Shimelman, Woodridge, Conn.
Filed May 7, 1979, Ser. No. 36,567
Int. Cl.³ B65D 83/04; B65H 5/28
U.S. Cl. 221—71 7 Claims



1. A low cost throwaway medicament dispensing device characterized by structural integrity for dispensing a medicament to a user in a time controlled manner so as to discourage the taking of an overdose of the medicament by the user without interfering with the dispensing of a prescribed amount of the medicament comprising:

housing means having a medicament disposed therein, said housing means comprising a unitary integral structure characterized by integrity against access to the interior thereof;

feed means interior of said housing means for feeding said medicament from said container to said user;

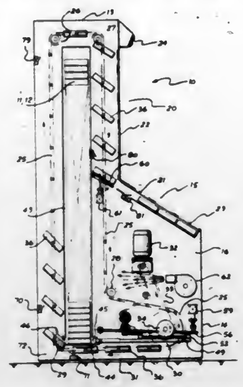
guide means interior of said housing for guiding said medicament, said guide means comprising a pair of grooves for receiving said feed means as said feed means feeds said medicament;

drive means exterior of said housing means for driving said feed means; and

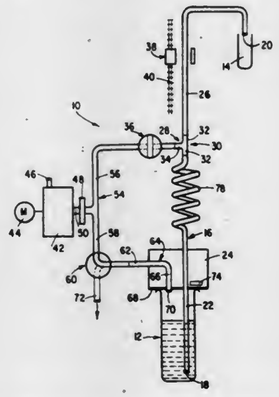
transmission means between said drive means and said feed means for feeding a lethal dose of said medicament to said user over a time frame of from about 1 to 5 minutes thereby allowing sufficient time to discourage the user from taking said lethal dose.

4,274,551
DISPENSING APPARATUS HAVING CONTINUOUSLY DRIVEN CONVEYOR
Kevin J. Hicks, 36 Northarm Rd., Middle Cove, New South Wales, Australia
Filed Jun. 14, 1978, Ser. No. 915,432
Int. Cl.³ A47F 3/02
U.S. Cl. 221—78 11 Claims

1. An article dispensing apparatus comprising a storage zone for receiving articles which are to be dispensed, a conveyor having distributed along its length holders for conveying the articles through the apparatus, means for continuously driving the conveyor past the storage zone and past a dispensing zone into which a said article can be moved from a said holder and from which the article can be removed, a loading zone at which an article from the storage zone can be loaded into a vacant said holder, first detection means for detecting whether a holder which is at any one time approaching the loading zone is vacant, loading means operable responsive to detection of a vacant holder to effect loading of an article into the vacant holder in the loading zone whilst the conveyor continues to move, second detection means for detecting the presence of a vacancy in the dispensing zone, transfer means operable responsive to detection of a vacancy within the dispensing zone to effect transfer of an article from a holder and into the dispensing zone whilst the conveyor continues to move, and means for rendering the transfer means inoperable if a vacancy is not detected in the dispensing zone by the second detection means, whereby an article which otherwise would be transferred into the dispensing zone from a holder is recycled through the apparatus.

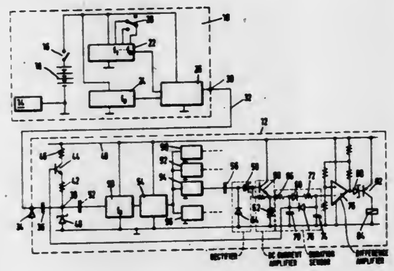


4,274,552
LIQUID DISPENSER
Oscar Proni, Hollywood, Fla., assignor to Coulter Electronics, Inc., Hialeah, Fla.
Filed Mar. 26, 1979, Ser. No. 23,959
Int. Cl.³ B67D 5/08
U.S. Cl. 222—61 7 Claims



1. A liquid dispenser for drawing a calibrated quantity of liquid from a source container and for dispensing same at a location distant from the container, comprising a conduit having an inlet end opening adapted to be located below the level of the liquid in the container and having an outlet end opening located at said location, said conduit having an intermediate portion of known interior volume to provide determinable volumetric confinements of liquid therein, a source of fluid under pressure, first and second flow path means connecting the pressurized fluid source both to the container, and to said conduit angularly thereto at a first location along said intermediate portion thereof, respectively, means effecting a sealed coupling between the source container and the inlet end of said conduit, sensor means at a second location proximate said intermediate portion and operable to sense the leading end of said flowing liquid at the second location along said intermediate portion, first and second valve means interposed in said first and second flow path means, respectively, whereby alternatively to direct pressurized fluid to the container to apply a pressure head to the liquid therein whereby to force the liquid through said inlet end along said conduit toward the outlet end thereof past the intermediate portion and to direct pressurized fluid only to said conduit at said first location along said intermediate portion effective thereby to interrupt the liquid flow therein and to drive that liquid located between the second location and the interrupted first location toward the outlet end opening of the conduit and said first and second valve means being operatively coupled to said sensing means to effect said interruption and driving.

4,274,553
SAFETY SPRAYING DEVICE
Heinz Evers, Dillenburg, and Hartmut Goedecke, Weilburg-Kubach, both of Fed. Rep. of Germany, assignors to Frank'sche Eisenwerke AG, Niederscheld, Dillkreis, Fed. Rep. of Germany
Filed Jul. 18, 1979, Ser. No. 58,708
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832771
Int. Cl.³ B67D 5/08
U.S. Cl. 222—76 13 Claims



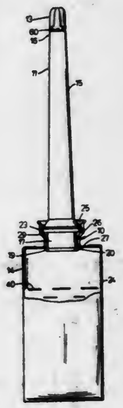
1. A spraying device for cleaning apparatus, plant protecting apparatus or the like, comprising a hand tool connected to a pressure and heat generator by conduit means for distributing a liquid or vaporous agent under high pressure; a switch lever adapted to be held in an on position during operation, said switch lever controlling a switch for actuating a transmitter of electric or electromagnetic waves being arranged in the hand tool, said transmitter upon actuation sending a switch-on command signal to a receiver arranged at said pressure and heat generator, said receiver including a switch for controlling said pressure and heat generator, whereby upon release of said lever such as when said hand tool is unintentionally released in the event of danger, said switch-on command signal is interrupted and said pressure and heat generator switched off, variable resistor means disposed at the input of said receiver (50–62) between the output of said transmitter (22, 24, 26) and the receiver, the resistance of said variable resistor means being varied in accordance with an output signal of an amplifier (60, 62) of said receiver in accordance with an input signal for determining input signal attenuation, said output signal of said amplifier being coupled to means (68, 72, 74) for coupling through said input signal only after a minimum duration time, and means (78, 80, 82, 84) for coupling said input signal to said switch for controlling said pressure and heat generator (12).

4,274,554
PACKAGING OF LIQUIDS
Charles H. Malpas, P.O. Box 10, Leopold, 3221, Victoria, Australia
Filed May 30, 1978, Ser. No. 910,764
Claims priority, application Australia, Jul. 11, 1977, PD0781; Aug. 10, 1977, PD1177
Int. Cl.³ B65D 35/08
U.S. Cl. 222—107 4 Claims



1. A flexible, collapsible container filled with liquid, said liquid being subject to deterioration when exposed to air, comprising a construction wherein first and second sheets of plastics ply material are sealed together around their entire peripheries, said first sheet having an aperture provided therein and a first socket member fastened thereto in registration with said aperture for filling said container with liquid, and wherein a second socket member is fastened to said container at a location to allow for dispensing of liquid contents from said container, said second socket member being fastened to one of said sheets of plastics ply material such that a portion of said one sheet extends across the innermost end of said second socket member thereby defining a frangible diaphragm, said second sheet being fused to said first sheet around the entire periphery of said aperture to isolate said first socket member and said aperture and thereby prevent escape of liquid from the interior of said container to said filling aperture, said construction minimizing the quantity of air residual in said container prior to filling and the quantity of air and other contaminants introduced into said container during filling.

4,274,555
FLEXIBLE SYRINGE WITH NOZZLE CLOSURE
Vincent R. Saelder, 3422 Hallcrest Dr., Atlanta, Ga. 30319
Filed Dec. 7, 1978, Ser. No. 967,462
Int. Cl.³ A61M 1/00, 7/02
U.S. Cl. 222—107 8 Claims



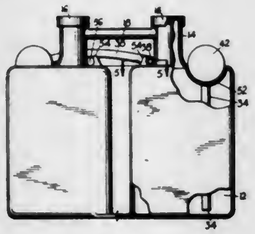
1. A disposable syringe having a flexible bag for containing fluid, said bag having only a single entrance that also provides a discharge exit, said syringe having an entrance portion sized and shaped to receive and retain a stem end of a hollow nozzle, the syringe and nozzle including:

(a) a hollow nozzle of at least semi-rigid material and defining a hollow spray stem having an outlet end and an inlet end;

(b) an outwardly extending ring-like portion formed inte-

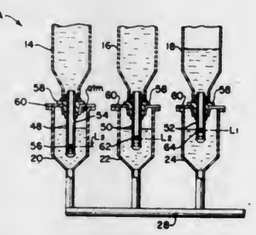
grally on said nozzle, said ring-like portion spaced a selected short distance from the inlet end and substantially normal to the axis of said stem, the downward facing surface of said ring-like portion being a shoulder surface substantially normal to the axis of said stem;
(c) a plurality of discontinuous outwardly sprag-like tooth portions formed on said hollow nozzle and adjacent the inlet end of said nozzle, the upward facing surfaces of the sprag-like tooth portions having shoulder surfaces substantially normal to the axis of said stem;
(d) a syringe bag having a flexible side wall terminating with a neck portion having a passage therethrough and whose outer entrance at the outlet end is flexible and provides a washer portion sized so as to receive a spout end of a filling faucet, said neck portion and the passageway therethrough having a resilient capability to at least partially deflect and pass the sprag-like tooth portions on said nozzle, the neck portion otherwise sized to slidably retain the stem of the nozzle, the neck portion where it joins the bag providing a wall that for at least a short distance forms a shoulder surface substantially normal to the axis through the neck portion, and
(e) a groove formed in the neck portion of the bag and inwardly of the washer portion, this groove sized and shaped to receive and retain said outwardly extending ring-like portion formed on the nozzle, the upward facing surface of the groove providing a shoulder surface substantially normal to the axis through the neck portion whereby said inlet end of the nozzle is placed in the neck of the filled syringe and is manipulated to advance the nozzle and the sprag-like tooth portions through the neck portion so that the sprag-like end portion passes through the neck whereby the upwardly formed shoulders of the sprag-like portions engage the inner shoulder surface of the bag while said outwardly extending ring-like portion enters and is seated in said groove in the neck of the syringe bag, said selected distance from the downward facing surface on the ring-like portion of the stem and the upward facing surfaces of the sprag-like tooth portions also on said stem being sufficiently less than the upward facing surface of the groove in the neck portion and the shoulder surface provided by the wall of the bag next to the neck portion insures that the nozzle stem is retained and a fluid tight, resilient connection is provided between said nozzle stem and the neck of the bag and said nozzle is prevented by the sprag portions from removal from the neck passageway.

4,274,556
DUAL DISPENSING CONTAINER
Eldon D. Thiessen, 888 Southwest River Dr., Dallas, Oreg. 97338
Filed Mar. 12, 1979, Ser. No. 19,518
Int. Cl.³ B65D *1/00, 25/38*
U.S. Cl. 222—135 **4 Claims**



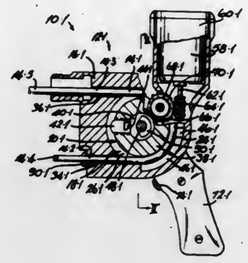
1. A dual dispensing container, comprising:
(a) a one-piece housing defining a pair of laterally separated chambers for containing liquids, the housing having a top wall,
(b) a pair of hollow filler necks extending upwardly from the top wall of the housing and communicating one with each chamber,
(c) a carrying handle secured to and extending between the filler necks,
(d) a dispenser pump for each chamber, each pump including a hollow body secured to the top wall of the housing, an infeed tube extending from the body into the chamber, and an elongated flexible outfeed dispenser tube extending from the body outwardly thereof, and
(e) a projection extending upwardly from the top wall of the housing adjacent each filler neck and forming therewith a retainer notch for frictionally retaining an intermediate portion of one of the dispenser tubes.

4,274,557
BEVERAGE DISPENSER PUMPING SYSTEM
Joseph W. Shannon, Kent, Ohio, assignor to American Beverage Control, Mogadore, Ohio
Filed Nov. 17, 1976, Ser. No. 742,693
Int. Cl.³ B67D *5/56*
U.S. Cl. 222—136 **10 Claims**



1. Apparatus for dispensing fluids out of a pouring head, comprising:
a dispensing line terminating at one end thereof at the pouring head;
pump means connected to another end of the dispensing line for forcing fluids through said line;
first valve means in said line for enabling the flow of fluid from said pump means, through said line, and out of the pouring head when open at the beginning of a dispensing cycle and prohibiting such flow when closed at the end of a dispensing cycle; and
second valve means in said line between the pouring head and said first valve means for enabling the flow of fluid through said line and out of the pouring head when said first valve means is open and allowing the fluid within said line to withdraw from the pouring head when said first valve means closes at the end of a dispensing cycle, said dispensing line being elastically expandable and contractable between said first and second valve means, said second valve means comprising:
an inlet port in communication with said line from the first valve means;
an outlet port in communication with said line to the dispensing head;
a chamber interconnecting said inlet and outlet ports; and
a sealing ball engageable with a seat at the point of interconnection of the inlet port and chamber.

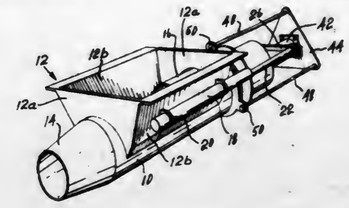
4,274,558
DISPENSING OF FLUENT MATERIALS
Anthony R. Clausen, 7 Klip St., Observatory, Johannesburg, Transvaal Province, South Africa
Filed Jul. 6, 1978, Ser. No. 922,270
Claims priority, application South Africa, Jul. 7, 1977, 77/4095
Int. Cl.³ B65D *37/00*
U.S. Cl. 222—214 **8 Claims**



1. A dispensing device for use in dispensing measured quantities of fluent material through a resilient, compressible dispensing tube, the device comprising:
a housing having a generally cylindrical recess therein, said recess having an open top and said recess having a base defined by a base wall, and said recess having a side defined by a peripheral wall extending from said base;
a cover for said recess including a peripheral flange extending into said recess in confronting relationship to said base wall and spaced apart therefrom;
a rotatable member having an annular section and a bearing section, said bearing section rollably engaging said housing and supporting said annular section for rotation in said recess;
the circumferential portion of said annular section projecting into the space between the confronting surface of said cover flange and said base wall and spaced radially apart from the peripheral wall to define a compression zone;
an inlet passage to said recess through said housing and said peripheral wall;
an outlet from said recess through said housing and said peripheral wall;
a compression member projecting from said annular section into said compression zone toward said housing peripheral wall; and,
adjustment means to adjust the effective length of a tube presented to the compression member in said compression zone.

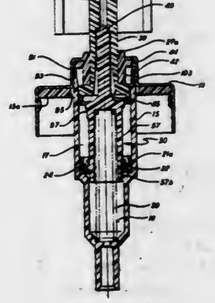
4,274,559
PUMP FOR PUMPING VISCOUS MIXTURES
Camille Menier, 68 Lariviere St., St. Constant, Quebec, Canada (J0L 1X0)
Filed May 30, 1979, Ser. No. 43,660
Claims priority, application United Kingdom, May 30, 1978, 23857/78
Int. Cl.³ B67D *5/46;* **G01F** *11/02*
U.S. Cl. 222—217 **4 Claims**

1. A pump for pumping viscous mixtures comprising:
(a) a horizontally-disposed cylindrical casing having a discharge outlet at one end and an elongated feeding opening intermediate the ends of said casing, said feeding opening made in the top and sides of said casing, a hopper for receiving viscous mixtures disposed over and fully communicating with said feeding opening, said hopper having end walls and side walls joining with the edges of said feeding opening, said side walls diverging upwardly from a level below the longitudinal axis of said casing;
(b) a tube slidably mounted in said casing for movement towards said discharge outlet for trapping a certain quantity of viscous mixtures;
(c) a piston slidably mounted in said tube for discharging said quantity of viscous mixtures through the discharge outlet of said casing,



(d) first power means for moving said tube and exerting an advancing force on said tube at a point above the longitudinal axis of said tube; and
(e) second power means for operating said piston and exerting a force on the latter at a point co-axial with the longitudinal axis of said piston.

4,274,560
ATOMIZING PUMP DISPENSER
Miro S. Cater, Newtown, Conn., assignor to Emson Research Incorporated, Bridgeport, Conn.
Continuation-in-part of Ser. No. 682,059, Apr. 30, 1976, abandoned. This application Feb. 8, 1977, Ser. No. 765,701
Int. Cl.³ B05B *9/043*
U.S. Cl. 222—321 **25 Claims**



24. An improved pump for use with a container of liquid material for dispensing and atomizing the liquid material without dribble comprising:
(a) means defining a pump chamber of substantially fixed volume having an inlet, said pump chamber having an opening at the inner end thereof and being of essentially constant inner diameter;
(b) valving means disposed at said inlet for preventing a back flow from said pump chamber;
(c) a pump stem having a piston on the end thereof disposed for reciprocal motion in said pump chamber;
(d) said pump stem having a passageway therethrough with a dispensing outlet at the outer end of said passageway and an axial inlet port located inwardly thereof;
(e) a rigid valve member made of plastic having a first end portion cooperating with said axial inlet port to close off said port and a second end portion of a predetermined cross-sectional sealing area, the axial length of said second end portion of predetermined cross-sectional area being at

least equal to the range of movement of said pump stem over which dispensing occurs;

(f) a plastic annular member having a flexible sealing surface inserted in said pump chamber at the inner end thereof, forming a throat at said inner end of said chamber for guiding said second end portion, said second portion cooperating with said throat to form means sealing the bottom of said pump chamber with a surface to surface seal at said throat as said pump is operated by depressing said pump stem to prevent any flow from said pump chamber through said throat when said pump is dispensing;

(g) means to retain said annular member in place;

(h) means for supplying liquid in a container to said valving means;

(i) means biasing said valve member outwardly so that the first end portion thereof closes off said inlet port, and thereby also biasing said pump stem outwardly;

(j) means for venting said pump;

(k) an annular flange on the outward portion of said means defining a pump chamber;

(l) a mounting cup containing a least two detent portions, said flange being retained in said mounting cup by said detent portions;

(m) a collar having an annular flange extending from an intermediate point on its side wall so as to form an upper collar portion above said flange and a lower collar portion below said flange, said upper portion inserted through an opening in said mounting cup and said lower portion sealing against the top of said piston, said collar frictionally engaging said stem when said stem in in an unoperated position, with said valving means permitting communication into said pump chamber, to thereby prevent spillage of the liquid stored therein; and

(n) the cross-sectional area closed off at said inlet port being smaller than the cross-sectional area of said second end portion of said valve member at the point where it is sealingly guided, whereby, as said pump is operated by pressing said pump stem, the pressure in the pump chamber is increased until, at a predetermined pressure, said biasing is overcome and said valve member is moved away from said pump stem to open said inlet port and permit pressurized material to be discharged through said passageway and dispensing outlet.

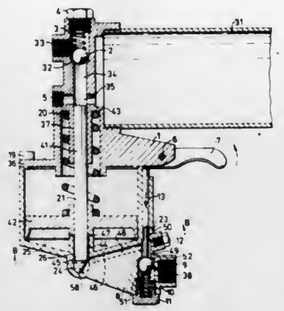
4,274,561

DISPENSER PREFERABLY DRIVEN BY COMPRESSED-AIR FOR CONTINUOUSLY DISPENSING A SUBSTANCE FROM A CONTAINER, AND IN PARTICULAR A VISCOUS OR PASTE-LIKE MATERIAL

Morgan Andersson, OPE 2760, 831 00 Östersund, Sweden

Filed Sep. 26, 1979, Ser. No. 79,223
Claims priority, application Sweden, Oct. 6, 1978, 7810482
Int. Cl.³ G01F *11/00*
U.S. Cl. 222—334 **5 Claims**

1. A compressed-air operated dispenser for continuously dispensing a substance enclosed in a container, particularly a viscous or paste like substance, said dispenser comprising a substance outlet-passage extending from said container to an outlet; a first valve normally closing said substance outlet-passage; a piston which is moved reciprocally by compressed air and which is arranged to exert pressure on the substance in said substance-outlet passage and to open said first valve; trigger means for initiating the supply of compressed air in order to operate said piston; a second valve arranged to be moved by said piston and by an overpressure in a first chamber to a starting position, in which position a second pressure chamber on one side of the head of said piston is closed with the exception of a constriction passage around the end of said piston between said first and said second chambers for passing compressed air into said second chamber for moving the piston to a first movement end piston in which position said substance is pressurized and said first valve is opened and in which said piston ceases to act on said second valve, and an air-return passage is opened to move said second valve to a second, opposite position in which an exhaust hole for compressed air in said second chamber is opened to the atmosphere and the piston returns to a second end position, said constriction passage being so narrow that the second valve is moved to its starting position by the compressed air before the air pressure in the second chamber becomes the same as that in the first chamber upon the subsequent movement of the piston to its



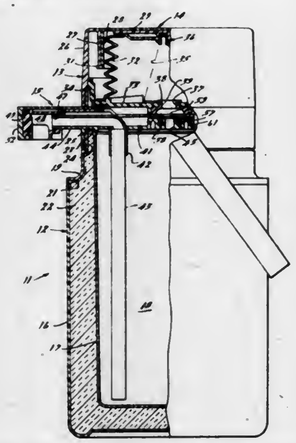
first end position, said trigger means being arranged to open a third valve in the feed path for compressed air in order to supply compressed air to said first chamber which is defined by a first surface of the piston and is connected over said constriction passage to the second chamber which is defined by a second, larger surface of the piston, said second surface when pressure-actuated being arranged to move the piston in the same direction as when pressure acts on said first surface.

4,274,562

SLIDABLE VALVE FOR DISPENSING FROM AN INSULATED BOTTLE

David E. Medeiros, Jewett City, and Richard A. Tarozzi, Gales Ferry, both of Conn., assignors to King-Seeley Thermos Co., Prospect Heights, Ill.

Filed Aug. 20, 1979, Ser. No. 68,000
Int. Cl.³ B67D *5/42*
U.S. Cl. 222—401 **9 Claims**



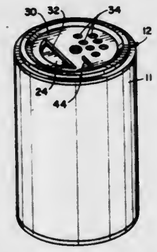
1. In a dispensing container having a body portion defining a cavity for containing a liquid, pump means carried on the top of said body portion, said pump means having an outlet port in communication with said cavity for generating a pressure upon the liquid therein upon operation of said pump means, dispensing means extending laterally of the body portion and fixed relative thereto for delivering liquid from said cavity upon actuation of said pump means, the improvement comprising valve means movable between an opened position and a closed position, said valve means being effective to simultaneously close communication of said outlet port with said cavity and prevent liquid passage through said dispensing means when said valve means is in its closed position.

4,274,563

PLASTIC END CLOSURE FOR HERMETICALLY SEALED CONTAINER

Lewis L. Otterson, Chagrin Falls, Ohio, assignor to Weatherchem Corporation, Twinsburg, Ohio

Filed Jul. 30, 1979, Ser. No. 61,609
Int. Cl.³ A47G *19/24*; B65D *47/10*
U.S. Cl. 222—480 **3 Claims**



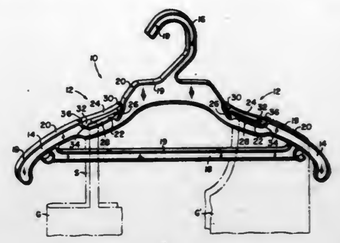
1. In a reclosable end cap closure container having a cylindrical end or neck, said closure including a plastic cap proper having a rim portion for sealing engagement with the end or neck of the container and an end wall portion generally depressed below the rim portion, said end wall portion of said cap proper including a center region and a radially intermediate region between said center region and said rim, said radially intermediate region of said end wall portion containing, within itself and to the exclusion of said center region, a tab, said tab being readily breakable by manual force exerted on the tab, in a direction toward the interior of a container on which the cap is placed, to open said tab and form a window, a rotatable disc with openings therein alignable with said tab or window, said disc being rotatably attached to the cap proper at said center region thereof with the bottom surface of said disc in sliding face-to-face contact with the top surface of the cap proper to close said window, after it is formed by opening of said tab, when said openings in said disc are turned out of alignment with said window, the improvement which comprises the cap proper constituting a hermetically sealed closure member prior to opening of said tab, an integral central upstanding boss formed on and permanently integrally associated with said end wall portion of said cap proper at said center region thereof, said disc being received on said upstanding boss and being permanently rotatively associated with said end wall portion, retainer means at the free end of the boss and slidably engaging the top side of the disc to thereby clamp the bottom surface of the boss-mounted disc in said sliding face-to-face contact with the top surface of said end wall portion, the height of the boss and retainer means being limited to avoid projection thereof above the plane of the upper extent of the rim portion, the disc being free of contact with structure radially outward of said end wall portion of the cap proper whereby the disc is retained on a hermetically sealed end closure prior to opening of the tab and remains rotatably associated with the end closure after opening of the tab to provide reclosability without gapping between said disc and said end wall portion and without springing of the disc from the end wall portion.

4,274,564

UNITARY GARMENT RETAINING HANGER

John Warmath, Brooklyn, N.Y., assignor to Cut Rate Plastic Hangers, Inc., Brooklyn, N.Y.

Filed Mar. 23, 1979, Ser. No. 22,963
Int. Cl.³ A41D *27/22*
U.S. Cl. 223—93 **13 Claims**



1. In a unitary garment hanger having at least a garment supporting shoulder, garment-retaining means on the hanger shoulder comprising:

an elongated arm disposed in and moving in the plane of the hanger shoulder,

connecting means integral with said arm and integrally connecting said arm proximate one end thereof to the hanger shoulder so as to define a free end of said arm at an end thereof opposite said connection with the hanger shoulder, said connecting means normally biasing the arm such that its free end is normally urged away from the hanger shoulder,

arcuately configured latching head means carried on the free end of said arm,

a recess defined in the hanger shoulder adjacent the elongation of said arm to define a normally open garment-receiving cavity between the hanger shoulder and said arm, said recess including a deformable keeper notch substantially arcuately conforming to the configuration of said latching head and deformable for receiving said head in positive latching engagement with said notch to close said garment-receiving cavity and thereby enable retention of a portion of a garment within said recess and for maintaining the latched engagement of said latching head in said keeper notch and against the resilient bias of said connecting means to prevent an unintended escape of said latching head from engagement with said keeper notch,

and a finger operator portion integrally carried on said one end of the arm for operating said arm in response to the application of finger pressure on said operator portion to effect pivotal disengaging movement about said connecting means in the plane of the hanger shoulder and release of said latching head from said keeper notch and thereby open said garment-receiving cavity for insertion or removal of a garment portion therewithin.

4,274,565

METHOD OF THREADING A LACING NEEDLE

Buel O. Russell, 6605 S. Hulen, Apt. 211, Fort Worth, Tex. 76133

Continuation of Ser. No. 875,376, Feb. 6, 1978, abandoned. This application Dec. 14, 1978, Ser. No. 969,405
Int. Cl.³ D05B *85/00*
U.S. Cl. 223—102 **2 Claims**

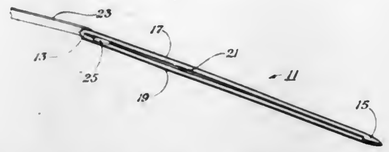
1. A method of threading a needle with lacing comprising the steps of:

providing a needle with two resilient wire portions placed parallel to each other, and secured together at both of their ends so that they are inherently biased together and form a point on one end; then

spreading the portions apart to define an eye of the needle; then

inserting the lacing transversely between the portions with an excess end of the lacing protruding past the portions; then

releasing the portions, allowing them to close against the lacing; then



drawing the lacing along the eye until it bears against an end opposite the end serving as the point; and then

trimming off the excess end of the lacing flush with the side of the needle.

4,274,566

VEHICLE DRINKING APPARATUS

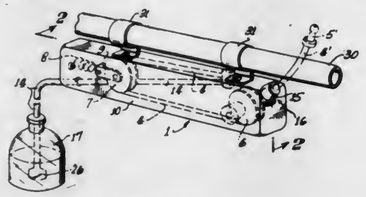
V. Lopez Rowe, 2680 Saturn Ave., Huntington Park, Calif. 90255

Filed May 14, 1979, Ser. No. 38,628

The portion of the term of this patent subsequent to Jun. 20, 1995, has been disclaimed.

Int. Cl.³ B62J *11/00*

U.S. Cl. 224—35 **4 Claims**



1. A drinking apparatus for the rider of a two-wheeled vehicle, comprising:

a container for a potable liquid and means to attach said container to said vehicle;

retracting reel means in an elongated narrow housing and means to attach said housing to said vehicle near said rider;

a flexible drinking tube with a mouthpiece and retractably retained in said reel means for convenient manual withdrawal by said rider; and

a supply tube connected non-rotatably to said drinking tube and extending into said container to provide a continuous conduit from said container to said mouthpiece,

said reel means having only two sheaves, a first sheave on a fixed shaft and a second sheave supported tor linear translation of its axis toward and away from said first sheave, and further comprising a spring means urging said second sheave away from said first sheave,

said drinking tube passing over both said sheaves and being manually pullable out from an opening in the end portion of said housing, said spring means automatically retracting said drinking tube when it is released.

4,274,567

SHOPPING CART ORGANIZER

Patricia F. Sawyer, 402 E. Royal Palm, Phoenix, Ariz. 85020

Filed Jan. 2, 1979, Ser. No. 89

Int. Cl.³ B60R *11/00*

U.S. Cl. 224—42.43 **7 Claims**

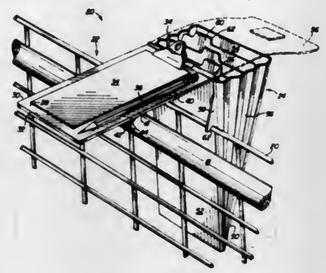
1. A shopping cart organizer securable to a conventional shopping cart of the type having transverse handle and a forwardly spaced apart frame member, said organizer comprising:

(a) a substantially rigid desk panel having a first upper surface and a second opposite generally coplanar bottom surface, said upper surface including means thereon for securement of writing materials;

(b) a receptacle having a front and rear, said receptacle being hingedly secured to said first panel means and defining a compartment therein for reception of materials;

(c) hanger means hingedly secured to said desk panel, said hanger means including hook means adapted to engage said frame member;

(d) fastener means on the bottom surface of the desk panel adapted to secure said panel to said cart handle; and



(e) having a first use position with said desk panel disposed in a generally horizontal position partially supported by said cart handle, for use as a desk and providing access to said writing materials, with said fastener means engaged about said handle and said hanger means engaging said frame member at a location adjacent the rear of said receptacle with said receptacle suspended in a generally vertical position, with the top of said receptacle substantially at the elevation of said deck panel, for providing easy access to the compartment therein and having a second folded position with the desk panel and receptacle juxtapositioned whereby the organizer may be inserted in a handbag or carried separately as a purse.

4,274,568

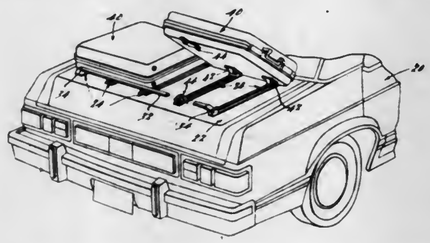
COMBINATION OF LUGGAGE CARRIER AND PERSONAL LUGGAGE

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

Filed May 15, 1979, Ser. No. 39,196

Int. Cl.³ B60R *9/04, 11/00*

U.S. Cl. 224—319 **10 Claims**



1. The combination of a luggage carrier permanently mounted on a generally longitudinally extending exterior automobile body surface and a personal luggage case removably attached to said carrier, said carrier including elongated slats mounted on said body surface, said slats forming trackways with upwardly opening channels, tiedown elements adjustably disposed in said channels, attachment openings in the tiedown elements in alignment with said channels, interlocking projections fixed to the underside of said luggage case, disposed adjacent one edge thereof, and receivable in said openings upon relative movement between said slats and said luggage case to provide an interlock therebetween.

4,274,569

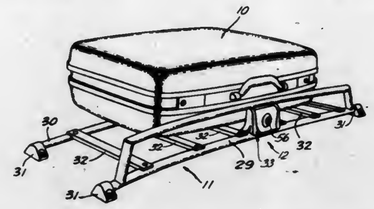
LUGGAGE CASE AND VEHICLE RACK THEREFOR

Roger D. Winter, Lakewood, Colo., and John P. Sarbell, Norcross, Ga., assignors to Samsonite Corporation, Denver, Colo.

Filed Sep. 14, 1979, Ser. No. 75,405

Int. Cl.³ A45F *1/16*

U.S. Cl. 224—319 **20 Claims**



1. Apparatus for releasably mounting a luggage case onto a rack, comprising:

plate means mounted onto an outer surface of the luggage case having an edge spaced from said case surface;

a rodlike member mounted on the luggage case outer surface and spaced along said surface from said plate;

an outer surface of the luggage case including an elongated groove;

the rack having a support member fittingly received within the luggage case groove, and said rack further including securing means having,

first retention means with a slot into which the plate edge is received, and

second retention means clampingly engaging the rodlike member, and said second retention means being selectively rotatable to a position releasing clamping engagement of said rodlike member.

4,274,570

LUGGAGE CARRIER ASSEMBLY

John A. Bott, 931 Lakeshore Dr., Grosse Pointe Shores, Mich. 48236

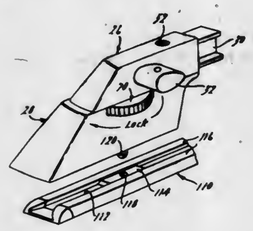
Division of Ser. No. 845,846, Oct. 27, 1977, Pat. No. 4,162,755.

This application Apr. 17, 1979, Ser. No. 30,720

The portion of the term of this patent subsequent to Jul. 11, 1995, has been disclaimed.

Int. Cl.³ B60R *9/04*

U.S. Cl. 224—324 **19 Claims**



1. A luggage carrier assembly for an automotive vehicle comprising

a pair of spaced parallel slat members secured to a horizontal surface of said vehicle, each said slat member defining an upwardly opening groove and each groove having a mounting member longitudinally slidable therewithin;

a pair of spaced parallel article constraining members and a pair of stanchion elements associated with each of said members, at least one of said stanchion elements having means defining a passage arranged at generally right angles to the surface of the vehicle upon which the assembly is mounted;

a fastening member disposed in part within said passage and having a lower end portion adapted for detachable engagement with said slat members;

wherein each said mounting member of said slat members includes means adapted for detachable engagement with said fastening member; and

manually engageable means cooperable with the upper end of said fastening member, whereby said fastening member may be manually biased between engaged and disengaged relationship with said mounting member for selectively securing said at least one stanchion element and at least one of said article constraining members to said vehicle, and for detaching the same from said vehicle.

4,274,571

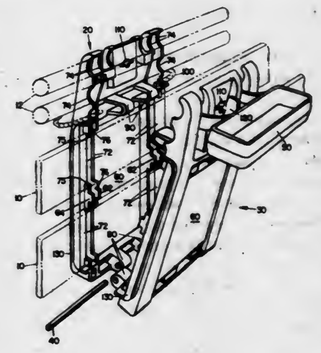
CARRIER FOR SKIS AND SKI POLES

Earl W. Lafreniere, General Knox Rd., Russell, and Douglas S. Jack, Birch Bluff Rd., Montgomery, both of Mass. 01071

Filed Mar. 4, 1980, Ser. No. 127,190

Int. Cl.³ A45C *71/00*

U.S. Cl. 294—147 **6 Claims**



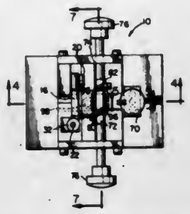
1. A device for accommodating a pair of skis and a pair of ski poles in the stored position or the transported position as mounted atop a vehicle or the transported position as hand-carried comprising in combination: identical elongated clamping members each defining four inwardly-opening recesses mutually spaced therealong, two of the recesses each adapted to receive a central portion of a ski and two of the recesses each adapted to receive a central portion of a ski pole with the skis and poles being disposed in a side-by-side relationship along a common plane and along parallel axes normal to the longitudinal axes of the clamping members; the ski recesses being of generally rectangular configuration in cross section with stepped opposite side walls defining first portions spaced a certain distance apart from each other for accommodating skis of one width and second portions spaced apart from each other a distance greater than the said certain distance for accommodating skis of another width, hinge means interconnecting the clamping members for pivotal movements between an opened position wherein the central portions of the skis and ski poles are receivable between the clamping members and a closed position wherein the inner faces of the clamping members are in confrontation for holding the skis and ski poles therebetween, latching means for releasably holding the clamping members in the closed position, and handle means carried by one of the clamping members adjacent an end thereof for carrying the device.

4,274,572

APPARATUS FOR SEVERING AN OPTICAL FIBER

William M. Dunn, Philadelphia, Pa., and Malcolm H. Hodge, Claymont, Del., assignors to TRW Inc., Philadelphia, Pa.

Filed Jan. 16, 1980, Ser. No. 112,514
Int. Cl.³ B26F 3/00; C03B 33/06
U.S. Cl. 225—96.5 10 Claims



10. An apparatus for severing an optical fiber for use in a connector assembly having a connector assembly component for clamping the optical fiber against axial displacement comprising:

a base member;

a first clamp means fixedly disposed at a first longitudinal side of said base member, said first clamp means for positioning the connector assembly component with the optical fiber projecting longitudinally across said base member;

a support member displaceably disposed in said member, and having an initial longitudinal position relative to said first clamp means;

a second clamp means spaced from and disposed in axial alignment with said first clamp means and disposed on said displaceable support member, said second clamp means operable to clamp said projecting optical fiber when said support member is in said initial position;

bias means for urging said support member away from said first clamp means to thereby apply axial tension to the optical fiber;

first scoring means disposed between said first and second clamp means at a first predetermined distance from said first clamp means for scoring the optical fiber to produce a break therein at said first predetermined distance from said first clamp means when said fiber is subjected to axial tension, and

second scoring means disposed between said first and second clamp means at a second predetermined distance from said first clamp means for scoring the optical fiber to produce a break therein at said second predetermined distance from said clamp means when said optical fiber is subjected to axial tension, said first and said second scoring means being selectively operable to score the fiber.

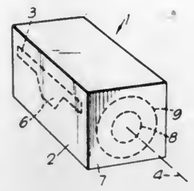
4,274,573

DISPENSER FOR WEB-LIKE MATERIAL

Oscar P. Finkelstein, 14/18 Ein Rogel St., Jerusalem, Israel

Filed Mar. 16, 1979, Ser. No. 21,315
Claims priority, application Switzerland, Mar. 7, 1979, 24446/79
Int. Cl.³ B26F 3/02
U.S. Cl. 225—106 9 Claims

1. A dispenser for a coreless material wound into a hollow, cylindrical, self-supporting roll contained therein, wherein the dispenser comprises a wall portion adjacent to the circumference of the roll and two ends adjacent to the end faces of said roll, said wall portion being provided with at least one first elongated aperture means through which the material, unwindable from the outside of said cylindrical roll, can be drawn from said dispenser, and wherein at least one of the two dispenser ends adjacent to the end faces of said roll is provided with second aperture means through a central zone of which passes the roll axis, through which second aperture means the



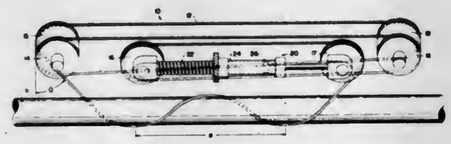
material, unwindable from the inside of said roll, can be drawn from said dispenser.

4,274,574

LINEAR MOTION CABLE DRIVE

Bernard F. Bishop, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill.

Filed Jan. 16, 1980, Ser. No. 112,666
Int. Cl.³ B65H 17/24
U.S. Cl. 226—170 10 Claims



1. A linear cable drive means comprising:

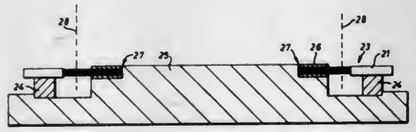
a plurality of drive assemblies cooperating to drive a cable which has a base peripheral dimension, each assembly including a drive cable helically engaged around the periphery of the driven cable, means to drive said cable in said helical path, means to rotate the cable and its drive means about the axis of the driven cable at such a rate and in a direction so as to unwrap the forward end of the drive cable to negate any rotational forces imparted to the driven cable by said helical path, and means to allow passage of a length of driven cable which has a peripheral dimension that varies from said base peripheral dimension without imparting rotational forces thereto.

4,274,575

METHOD OF MANUFACTURING BRUSH SEALS

Ralph F. J. Flower, "Littledean", Bath Rd., Devizes, England

Filed May 30, 1979, Ser. No. 43,887
Claims priority, application United Kingdom, May 31, 1978, 24737/78
Int. Cl.³ B23K 31/02
U.S. Cl. 228—160 14 Claims



1. A method of manufacturing a brush seal, which method comprises the steps of:

(a) assembling a multiplicity of bristle elements in a holding tube with said bristle elements projecting from the holding tube by a pre-set distance thereby forming a brush element;

(b) assembling a plurality of said brush elements on a carrier with said brush elements lying at pre-set angles relative to said carrier;

(c) affixing to a root member the free end portions of said bristle elements projecting from their holding tubes;

(d) severing all said bristle elements part-way between their holding tubes and said root member so that said severed bristle elements project for a predetermined distance from said root member; and

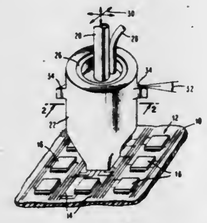
(e) removing said carrier with said holding tubes, leaving a brush seal with projecting bristles.

4,274,576

CRYOGENIC CHIP REMOVAL TECHNIQUE

Rafique S. Shariff, LaGrangeville, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1979, Ser. No. 93,321
Int. Cl.³ B23K 28/00
U.S. Cl. 228—264 8 Claims



1. The method of removing a semiconductor chip attached to a ceramic substrate by a plurality of solder columns, comprising the steps of:

chilling said columns to cause embrittlement thereof,

rupturing said columns which so chilled by moving said chip relative to said substrate, and

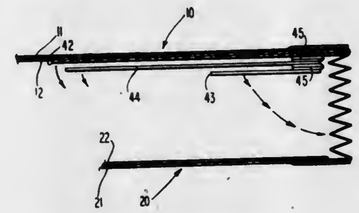
therefter moving said chips away from said substrate.

4,274,577

EXPANSION FILING CONTAINER

Charles B. Walsh, Jr., 5 Tanglewood Clr., Wallingford, Pa. 19086

Filed May 16, 1979, Ser. No. 39,516
Int. Cl.³ B65D 5/48
U.S. Cl. 229—1.5 R 2 Claims



1. An expandable container comprising:

(a) a back panel;

(b) a front panel;

(c) connecting means between said back and front panels for connecting said back and front panels, said connecting means being expandable and collapsible to vary the distance between said front and back panels; and

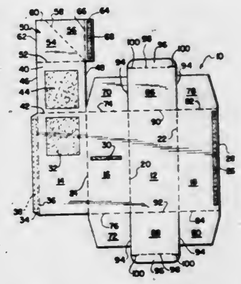
(d) flap means comprising a plurality of pairs of foldable flap members of various widths hingedly connected to at least one of said front and back panels for spanning the distance between said front and back panels and adapted to open in sequence as said distance increases from fully closed to fully opened.

4,274,578

CARTON WITH TWO COMPARTMENTS AND BLANK FOR FORMING SAME

James Montealegre, 2045 Christensen Ave., #332, W. St. Paul, Minn. 55118

Filed Apr. 4, 1980, Ser. No. 137,238
Int. Cl.³ B65D 5/50, 5/48
U.S. Cl. 229—27 9 Claims



1. A carton with two compartments, comprising:

a plurality of wall panels hingedly coupled at adjacent edges thereof along fold lines; and

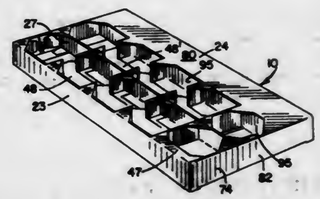
a collapsible divider panel hingedly coupled at an end edge thereof by a first means to an interior surface of a first of said wall panels and at a side edge thereof by a second means to an interior surface of a second of said wall panels adjacent to said first wall panel, said end and side edges of said divider panel meeting at a corner thereof, said divider panel having a fold line formed therein and extending from said divider panel corner at acute angles to said side and end edges.

4,274,579

CELLULAR TRAY-TYPE CARTON

Francis V. Kulig, Morris, Ill., assignor to Federal Paper Board Company, Inc., Montvale, N.J.

Filed Aug. 22, 1979, Ser. No. 68,647
Int. Cl.³ B65D 5/48
U.S. Cl. 229—28 R 10 Claims



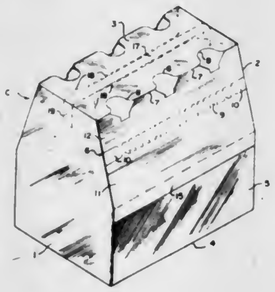
1. A multi-cell carton structure in the form of a tray (10) which is formed from a cut and scored blank (12) of paperboard or similar foldable material, which carton structure comprises a tubular body with a rectangular cross section and having an abutting double row of article receiving cells of relatively shallow depth which open upwardly and which double rows of cells are in side by side relation with the tops thereof in the plane of a top wall forming panel structure (24, 37) which has a dimension lengthwise of the double row of cells substantially greater than the combined width of the rows

of cells, so as to provide a display panel (80) having substantial width extending along one side only of the abutting double row of cells, said cells in each of the rows thereof being formed by depressing a panel (48, 48') which is cut in the material constituting the top wall forming panel Structure (24, 37) and which is connected thereto by cross partition forming panel members (63, 63') which cross partition forming panel members (63, 63') are hinged to an upstanding position when said connected panel (48, 48') is depressed and said cross partition forming panel members (63, 63') when in said upstanding position defining one side of each of the cells in the row thereof, said rows of cells being separated only by an upstanding partition panel (94, 27) having a double thickness of material.

4,274,580
CONTAINER CARRIER

Clayton R. Arnold, Bolingbrook, Ill., assignor to Alton Box Board Company, Alton, Ill.

Filed Aug. 13, 1979, Ser. No. 66,240
Int. Cl.³ B65D *5/02, 5/46, 5/54, 75/00*
U.S. Cl. 229—52 B 7 Claims



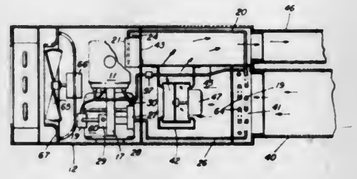
1. In a side loading container carrier having a rectangular bottom wall, a pair of end walls connectible with said bottom wall, and a carrier top structure foldably secured to the end wall panels to form a tubular structure that facilitates its side loading, side walls connectible to either side of the carrier to provide closure at both sides of the tubular formed structure, adhesive means securing said side walls to the end wall panels, each side wall formed having a pair of panels, said first panel comprising a bottom panel and being secured at both its end edges with the end walls, the second panel being hinged along its length with the top structure and arranged along an incline for connection with the upper edge of the first panel, and a tear strip provided along the length of each second panel of the side walls and when removed providing an upper flap allowing its pivoting upwardly with respect to the permanent top structure for removal of containers from the carrier, and integral flanges for foldably connecting along the sides of each end wall, and the first panel and that portion of the second panel below the tear strip being permanently affixed to the proximate end wall flanges.

4,274,581
PACKAGE HEAT EXCHANGER SYSTEM FOR HEATING AND COOLING

Herbert G. Hays, Homestead, and Ralph W. Sweitzer, Williamsburg, both of Iowa, assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 422,397, Dec. 6, 1973, abandoned, which is a division of Ser. No. 185,631, Oct. 1, 1971, abandoned. This application Dec. 6, 1978, Ser. No. 967,180
Int. Cl.³ F24H *3/06*
U.S. Cl. 237—7 10 Claims

1. A package heat exchange system control comprising:
a first heat exchanger;
means for supplying heat from the products of combustion to said first heat exchanger for supplying heat to a first fluid comprising a liquid;
conduit means connected between said first heat exchanger and a second heat exchanger for directing said fluid through said second heat exchanger;
blower means for directing air through said second heat exchanger;
blower control means responsive to the temperature of said first fluid; and

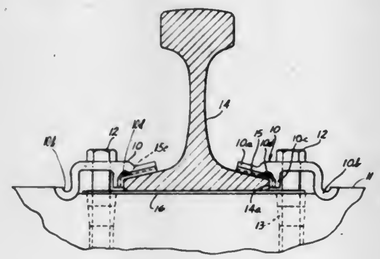


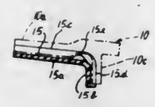
means for preventing boiling of said liquid comprising means, responsive to the temperature of said first fluid emerging from said first heat exchanger, for controlling the circulation of said first fluid through said first and second heat exchangers and for maintaining said circulation after the supply of heat to said first heat exchanger has terminated and until said temperature is reduced to a predetermined value below the boiling point of said liquid in said system.

4,274,582
SEPARATE INSULATOR PAD BETWEEN A CLIP AND A RAILROAD RAIL

Graham M. Fee, Geneva, Ohio, assignor to True Temper Corporation, Cleveland, Ohio

Filed Sep. 4, 1979, Ser. No. 71,884
Int. Cl.³ E01B *9/30*
U.S. Cl. 238—349 18 Claims





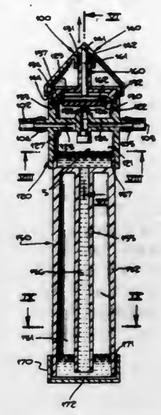
1. An integral insulator pad of synthetic resin for use with a resilient clip for fastening a railroad rail to a cross support, said rail having a bottom flange to rest on said support, said flange having an upper surface sloping downwardly and outwardly at a certain angle to the flange outer end, said clip being of a predetermined width measured lengthwise of the rail and having a length at right angles to said width extending from an inner end resting on said flange to an outer end resting on said cross support, said clip having a downwardly extending leg just outside the outer end of said flange and terminating slightly short of said cross support, there being a through opening in said clip between said leg and said clip outer end to receive a fastener bolt to enter into said support for drawing said clip against said rail flange and said support, said inner end of said clip having a lower flat surface sloping downwardly and outwardly at said certain angle lengthwise of said clip inner end for a substantial distance extending from said clip inner end to part way to said leg, resulting in a clip which has a short upward bend adjacent said downwardly extending leg of said clip, and intermediate said leg and said lower surface, characterized in that said insulator pad is of electrically insulating material and comprises a central flat portion of a width to receive the entire predetermined width of said clip, said flat portion having flat upper and lower surfaces commencing respectively adjacent the plane of said inner end of said clip and the innermost end edge of said pad to contact snugly respectively said inner end of said clip and said rail flange upper surface sloping downwardly and outwardly at said certain angle, each of said upper and lower surfaces of said flat portion being disposed in a respective single plane extending parallel to one another and to the plane of said upper surface of said rail flange, said insulator pad then having a portion along its entire width extending vertically downward and of a thickness adapted to rest snugly between said leg and said flange outer end, said flat portion of said pad having a considerably greater length as compared to the length of said downwardly extending portion of said pad resulting in a generally L-shaped configuration for said pad in side elevation, said inner end of said clip engaging said upper surface of said pad commencing immediately adjacent said innermost end edge of said pad and extending lengthwise therealong for a predetermined substantial distance, said pad commencing adjacent said innermost end edge thereof having integral upstanding shoulder portions along parallel side edges of said central flat portion of said pad at right angles to the rail direction and spaced to receive the full width of said clip between them, said upstanding shoulder portions extending toward said leg continuously along said inner end of said clip and generally past said upward bend in said clip, said shoulder portions then curving and extending down said downwardly extending portion of said insulator pad, said pad having rib means extending from said shoulder portions transverse of said pad upper surface and extending upwardly from said pad upper surface, said rib means being adapted for generally snug reception in said short bend of the clip for aiding in locating the pad relative to the clip, whereby said pad, when fastened, may be firmly held between said clip inner end and said rail flange and also held between said leg and said rail flange outer end, and said shoulder portions will prevent slippage between said pad and said clip in the longitudinal direction of said rail.

4,274,583
MOISTURE AND PRESSURE RESPONSIVE IRRIGATION SYSTEM

Edwin J. Hunter, Rancho Santa Fe, Calif., assignor to The Toro Company, San Marcos, Calif.

Filed Jul. 6, 1979, Ser. No. 55,182
Int. Cl.³ A01G *25/16*
U.S. Cl. 239—1 4 Claims

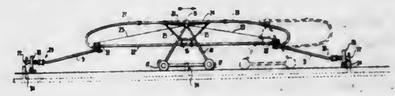
1. A method of irrigation which is responsive to moisture variations within the environment of said system and maintains water pressure within said system at or above a predetermined level by selective operation of portions of said system comprising the steps of:
placing one or more dispensing devices at spaced locations, said dispensing devices being in water supply relation with a water supply source, said supply source supplying water under pressure;
connecting a pilot valve to each said dispensing device for operation between closed and open positions; and
controlling said pilot valve by operating a device responsive to moisture in the surrounding environment and calibrated to provide opening of said pilot valve only when the water pressure at said dispensing device is equal to or in excess of a predetermined level.



4,274,584
LAND IRRIGATION SYSTEM AND METHOD

Allen T. Noble, P.O. Box 1201, Boise, Id. 83701

Continuation-in-part of Ser. No. 887,792, Mar. 17, 1978. This application Sep. 28, 1979, Ser. No. 80,060
Int. Cl.³ A01G *25/09;* F16L *27/08*
U.S. Cl. 239—1 51 Claims



1. For use in connection with a land irrigation system including an elongated water main having a plurality of outlet valves located in hydrants projecting upwardly from the main at substantially equally spaced points along its length and an elongated water sprinkler line extending laterally to and movable along the length dimension of the water main, an apparatus for successively connecting the outlet valves to the sprinkler line comprising,
tractor means for moving along the length dimension of the water main at a rate substantially equal to the rate of movement of the sprinkler line,
elongated track means mounted on the tractor means and extending in the direction of movement of the tractor means,
a pair of elongated water pipe means each having an inner end,
support means mounting the inner ends of the water pipe means on the track means for limited free movement therealong, the respective water pipe means extending outwardly from the tractor means in generally opposite directions generally parallel to the direction of movement of the tractor means and each terminating in an outer end portion having coupling means thereon,
each said coupling means including means for connecting the coupling means to an outlet valve to supply water under pressure to the water pipe means associated therewith and for disconnecting the coupling means from the outlet valve,
movable conduit means connecting the inner end of each

said water pipe means with the sprinkler line to provide a water flow path therebetween,

carriage means including ground engaging wheel means supporting the outer end portion of each water pipe means, and

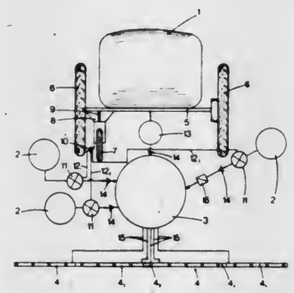
drive means for independently moving each carriage means and the water pipe means supported thereon longitudinally of the track means and of the water main to successively engage each coupling means with each outlet valve.

4,274,585

CONTROL APPARATUS FOR AGRICULTURAL SPRAYERS HAVING A MIXING CHAMBER

Maurice C. J. Lestradet, 291 rue de Marechal de Lattre de Tassigny, 51230 Fere Champeneise, France

Filed May 4, 1979, Ser. No. 35,854
Claims priority, application France, Jun. 1, 1978, 78 16420
Int. Cl.³ B05B *9/00*
U.S. Cl. 239—124 **7 Claims**



1. An apparatus for automatically regulating the application of a spray solution on the basis of speed changes of a sprayer vehicle, and on the basis of the number of operating segments of a distribution bank carried by said sprayer vehicle for applying said spray solution, comprising:

a main reservoir for storage of a primary component of said spray solution;

a mixing chamber joined to said main reservoir by a connecting pipe;

a secondary reservoir for storage of a possible additional component of said spray solution,

said secondary reservoir being connected to said mixing chamber by a connecting pipe;

volume means responsive to the speed of the vehicle for effecting a first regulation of the flow of fluid from said secondary reservoir to said mixing chamber through said connecting pipe between said secondary reservoir and said mixing chamber as a function of the speed of said vehicle;

a distribution bank comprising a given plural number of independent segments;

connecting pipes respectively putting said segments in communication with said mixing chamber, and

means for effecting a second regulation of flow of fluid from said secondary reservoir to said mixing chamber, said second regulation being superimposed on said first regulation in said connecting pipe between said secondary reservoir and said mixing chamber for the purpose of regulating the flow of fluid from said secondary reservoir to said mixng chamber also as a function of the member of said segments in use;

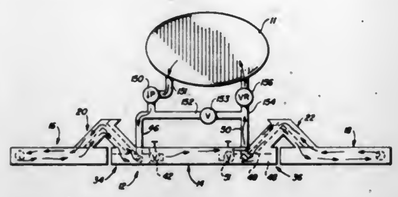
the size of said mixing chamber being considerably larger than the sectional size of said connecting pipes.

4,274,586

FLUID SPREADING APPARATUS

Francis K. Hill, P.O. Box 259, Wickenburg, Ariz. 85358

Filed Jan. 10, 1980, Ser. No. 110,810
Int. Cl.³ B05B *1/20*
U.S. Cl. 239—125 **8 Claims**



1. A fluid spreading apparatus for mounting on a fluid carrying vehicle comprising:

(a) a fixed spray bar having a fluid flow passage therein and mountable transversely on the rear of the vehicle;

(b) an extender spray bar adjacent one end of said fixed spray bar and having a fluid flow passage therein;

(c) a swing jont having a stationary portion mounted on said fixed spray bar and defining an axis which extends angularly upwardly and outwardly from the one end of said fixed spray bar and having a swing portion mounted for rotation about said axis, said extender spray bar mounted on the swing portion for rotation therewith between an operating position where said extender spray bar is axially aligned with said fixed spray bar and an upright stowed position where said extender spray bar is at substantially a right angle with respect to said fixed spray bar, said swing joint having a first fluid flow passage extending therethrough which is in communication with one end of the fluid flow passage of said extender spray bar and having a second fluid flow passage extending therethrough which is in communication with the other end of the fluid flow passage of said extender spray bar;

(d) fluid direciting means on one end of said fixed spray bar and having a first chamber connectable to receive fluid under pressure from the vehicle and in communication with the first fluid flow passage of said swing joint and having a second chamber which is in communication with the second fluid flow passage of said swing joint and in communication with the fluid flow passage of said fixed spray bar; and

(e) valve means forming a fluid flow passage between the first chamber of said fluid directing means and the fluid flow passage of said fixed spray bar and optionally operable between open and closed positions.

4,274,587

WATER COOLED BURNER NOZZLE FOR SOLVENT REFINED COAL

Paul L. Cioffi, Massillon; William Downs, Alliance; William C. Kish, and William E. Newkirk, both of Akron; all of Ohio, assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Jan. 22, 1979, Ser. No. 5,041
Int. Cl.³ B05B *15/00*
U.S. Cl. 239—132.3 **7 Claims**

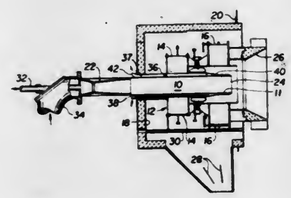
1. A fouling inhibiting burner nozzle for a solvent refined coal fuel burner comprising:

means defining a tubular chamber having a fuel inlet and a fuel outlet end, said chamber defining means being located in a burner throat;

means defining a hollow jacket isolated from said chamber along the circumference of said chamber defining means, said jacket defining means having a first port for inlet of liquid cooling fluid and a second port for outlet of liquid cooling fluid adjacent said full inlet end;

said jacket defining means comprising a thin-walled shell means defining a taper along said chamber from a first point to a second point which is at said fuel outlet end and which terminates in a sharp edge of minimal wall thickness and minimal jacket thickness around said fuel outlet end for minimizing the likelihood of eddy formation by fluids and the like flowing externally along said chamber; and

means defining a plurality of channels for the cooling fluid within said jacket defining means, said channel defining means defining a first channel having a fluid inlet and a fluid outlet, said first channel being circumferentially disposed about said chamber defining means between said first point and said second point adjacent said fuel outlet end and within said taper communicating with said first port for directing cooling fluid flow in a first direction



circumferentially about said chamber defining means, and a second channel having an inlet communicating with the first channel fluid outlet and an outlet in fluid communication with said second port, said second channel having a substantially larger cross-sectional area in the direction of flow of cooling fluid therein than said first channel and being circumferentially disposed between said first channel and said fuel inlet end about said chamber defining means for directing cooling fluid circumferentially about said chamber defining means, the fluid velocity in said first channel being substantially greater than fluid velocity in said second channel without changing the volume rate of flow in response to uniform pressure in order to maximize cooling of said nozzle adjacent said outlet end with cooling fluid in a manner sufficient to inhibit deposition of solvent refined coal residue on said chamber defining means at said edge.

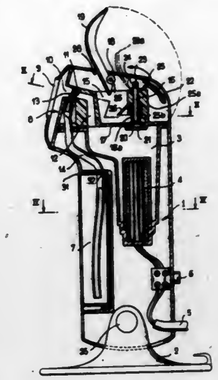
4,274,588

STEAM DISPENSER, FOR DOMESTIC USE, FOR SKIN CARE

Pierre Schwob, Lyons, France, assignor to SEB S.A., Selongey, France

Filed Aug. 27, 1979, Ser. No. 69,984
Claims priority, application France, Jul. 10, 1979, 79 17842
Int. Cl.³ B05B *1/24*
U.S. Cl. 239—138 **4 Claims**

1. A steam dispenser, for domestic use, for skin care, comprising a steam generator containing an electric heating resistance element and connected to a dispensing nozzle, a reservoir for a lotion to be mixed with steam dispensed by said nozzle, and a water feed chamber having an opening provided with a cover and separated from the steam generator by an electrically insulating wall provided with an opening closable by a valve, said valve having a steam cooperating with an articulated actuating lever which projects through the opening of the feed chamber and prevents closing of the cover when the



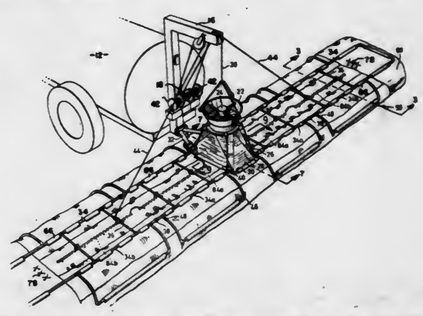
valve is opened and closes the valve automatically when the cover of the feed chamber is closed.

4,274,589

SPRAYING APPARATUS EMPLOYING A SKIRT STRUCTURE

Derek Jones, Hamilton, Canada, assignor to A.C. Sprayers Inc., Hamilton, Canada

Continuation-in-part of Ser. No. 820,110, Jul. 29, 1977, abandoned. This application Nov. 13, 1978, Ser. No. 959,723
Int. Cl.³ B05B *7/00*; B60V *1/16*
U.S. Cl. 239—167 **15 Claims**



1. Spraying apparatus employing a skirt structure comprising:

a sprayer boom frame,

a bag skirt structure carried by the frame and when inflated extending downwards therefrom to have its smoothly contoured convex lowermost portion in close proximity to the ground,

the bag skirt structure forming an enclosure which is open to the ground,

means for injecting air under pressure into the bag skirt and into the skirt enclosure whereby the bag skirt is inflated and the boom and the skirt structure will be supported above the ground and can be moved over the ground,

said air bag structure comprising at least one air bag, the inner wall or walls of which comprise respectively the corresponding inside parallel leading and trailing wall parts or leading and trailing walls of the enclosure, and into which air bag or bags the air is injected under pressure and from which air passes into the enclosure,

the said air passing from the said bag skirt structure into the

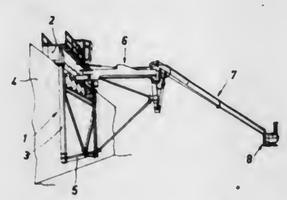
enclosure via aperture means in the air bag or bags inner wall parts or walls respectively,
each such aperture means extending the full length of the respective air bag inner wall part or wall,
wherein an aperture means in the leading inner wall part or leading inner wall is disposed close to the ground, while an aperture means in the training inner wall part or trailing inner wall is disposed closely adjacent to a roof of the enclosure, and
dispensing means mounted by the boom frame to deliver spray material to the skirt enclosure.

4,274,590

APPARATUS FOR TREATING UPRIGHT SURFACES

Paul Hammelmann, Zum Sundern 17, 4740 Oelde 1, Fed. Rep. of Germany

Filed Nov. 9, 1979, Ser. No. 92,943
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1978, 2849040
Int. Cl.³ B05B *3/18*
U.S. Cl. 239—185 **9 Claims**



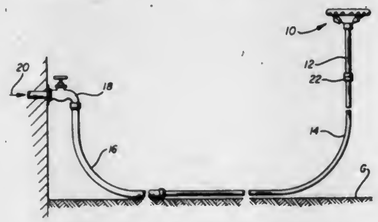
1. Apparatus for treating upright surfaces, particularly ship hulls, comprising a carriage movable horizontally along a support; an outrigger projecting from said carriage and being tiltable relative to the carriage about a vertical and a horizontal axis, said outrigger having a free end portion; an L-shaped support connected to said free end portion and having a generally horizontal leg; a pivot bearing having a lower part immovably connected to said leg, and an upper part turnable about an upright axis relative to said lower arm; a U-shaped carrier connected to and turnable with said upper part and having transversely spaced arms; and a surface-treating working device mounted on said carrier and located between said arms thereof.

4,274,591

WATER PROPELLED HOVER DEVICE

Richard B. Sunshine, and Randall D. Severen, both of Dallas, Tex., assignors to The Cona Company, Inc., Dallas, Tex.

Filed Apr. 2, 1979, Ser. No. 26,285
Int. Cl.³ B05B *3/00*; A63H *29/10*
U.S. Cl. 239—188 **9 Claims**



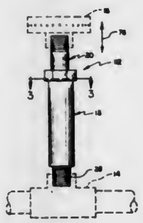
1. A rotatable tethered hover toy adapted for use with a grounded source of water under pressure, comprising:
a fluid supply chamber having a central longitudinal spin axis extending therethrough;
said fluid supply chamber having a bottom end with an inlet coaxial with the spin axis, and plural outlets arranged substantially symmetrically with said spin axis;
a circular rim independent of said fluid supply chamber and surrounding said fluid supply chamber;
structure rigidly connected between said fluid supply chamber and rim for generating lifting force upon rotation with said fluid supply chamber and rim about the spin axis;
a first tubing section having upper and lower ends;
a first rotary connection coupled between the upper end of said first tubing section and the inlet of said fluid supply chamber;
a second tubing section having upper and lower ends and being relatively longer than said first tubing section;
a second rotary connection coupled between the lower end of said first tubing section and the upper end of said second tubing section;
the lower end of said second tubing section being adapted for connection to the grounded water pressure source; and
a plurality of generally radially extending fluid discharge conduits each having an inner end connected to an outlet of said fluid supply chamber and an outer end, the outer ends of said conduits terminating at said rim and being oriented downwardly and outwardly such that reaction forces due to water discharging therefrom cause said rim, fluid supply chamber and connecting structure to spin and hover while tethered by said first and second tubing sections.

4,274,592

ADJUSTABLE RISER MEMBER

Daryl L. Westhusin, 4940 N. Maize Rd., Maize, Kans. 67101

Filed Nov. 5, 1979, Ser. No. 91,261
Int. Cl.³ B05B *15/06*
U.S. Cl. 239—200 **2 Claims**



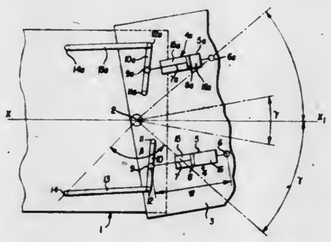
1. An adjustable riser member mountable between an inlet supply line and a discharge sprinkler head usable in a yard sprinkler system, comprising:
(a) a main support body assembly having a lower end connected to the inlet supply line;
(b) a riser assembly mounted in said main support body assembly and movable axially thereof to raise or lower the discharge sprinkler head;
(c) a seal assembly mounted in said main support body assembly and contacts said riser assembly to seal thereagainst and permit flowing only in said adjustable riser member to the discharge sprinkler head;
(d) said main support body assembly includes a cylindrical support body member having said lower end connected to the inlet supply line;
(e) an integral upper top head section of hexagonal shape so as to be grasped by a crescent or box end wrench for installing and holding same for adjustment purposes;
(f) said top head section having an upper stepped section to receive said seal assembly therein;
(g) a threaded support assembly mounted in said main support body assembly having threads thereon; and
(h) said threaded support assembly constructed with a semicircular body section that inserts into said main support body assembly with said threads being female threads to engage with said threaded section of said riser assembly to control adjustable axial movement of said riser assembly.

4,274,593

MOVABLE BLAST PIPES FOR JET ENGINES

Raymond J. M. Joubert, Savigny sur Orge, France, assignor to Societe Nationale de'Etude et de Constr. de Moteurs d'Aviation, Victor, France

Filed Sep. 27, 1979, Ser. No. 79,434
Claims priority, application France, Sep. 27, 1978, 78 28167
Int. Cl.³ B64C *15/04*
U.S. Cl. 239—265.35 **8 Claims**



1. A movable blast pipe for a jet engine comprising:
a fixed element joined to the engine;
a movable element into which fluid is ejected from the fixed element, pivotably mounted at the rear of the fixed element along a pivoting axis perpendicular to the longitudinal axis of said fixed element;
means for the watertight and airtight mounting of said fixed and movable elements, one with relation to the other, comprising cooperating spherical elements;
two pairs of screw jacks for two-way guidance positioned on each side of said pivoting axis, each of said screw jacks including a body mounted and joined to the movable element and a sliding shaft; and
lever means comprising a first lever and a second interconnected lever, the first lever being connected to said fixed element and said second lever being joined at one end to the movable element at a junction point upstream from the screw jack and at the other end to said first lever wherein said sliding shaft is joined to a middle portion of said second lever.

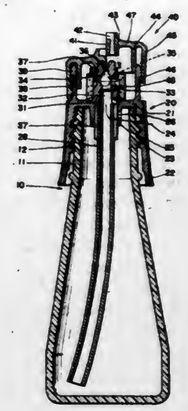
4,274,594

FOAM GENERATING AND DISPENSING DEVICE

Kazuo Ito, Kamakura, Japan, assignor to Toyo Seikan Kaisha Ltd., Tokyo, Japan

Filed Dec. 6, 1977, Ser. No. 858,082
Int. Cl.³ B65D *1/32*; B05D *7/30*; A61M *11/02*
U.S. Cl. 239—327 **8 Claims**

1. A squeeze-type foamed liquid dispensing device comprising a flexible container, an inner cap threaded on said container and defining a mixing chamber, a check valve chamber and an air intake port above said mixing chamber, an outer cap releasably fitted on said inner cap and defining a jet orifice in communication with said mixing chamber for receiving foamed liquid therefrom, an air discharge tube depending from said inner cap and opening directly into said mixing chamber, and



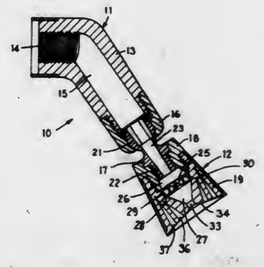
a porous foaming member attached to said inner cap and also opening directly into said mixing chamber.

4,274,595

SHOWER HEAD

Amilcar F. Yamin, Rodovia Presidente Dutra Km. 380 (trevo Bonsucesso), Guarulhos (Estado de Sao Paulo), Brazil

Filed Nov. 19, 1979, Ser. No. 95,881
Claims priority, application Brazil, Nov. 20, 1978, 7807588
Int. Cl.³ B05B *1/34*
U.S. Cl. 239—383 **2 Claims**



1. Improvements in a shower head assembly which is constituted by an upper body mountable on a water supply pipe or an electric water heater, and a lower body articulately mounted on the upper body through a hollow sphere, wherein the sphere is swivably seated on the upper body and has a projecting pipelike part which is threadably engaged with and surrounded by an upper part of the lower body, the sphere and the pipelike part having a flow channel extending axially therethrough, the lower body also having a lower part which is threadably fixed to said upper part, said lower body having a cylindrical cavity defined therein, said cavity being in communication and substantially coaxially aligned with said channel, said cylindrical cavity being defined in part at one end by a lower annular seat formed on said lower part, a rotorlike element freely and rotatably positioned within said cylindrical cavity and rotatably supported on said lower seat, said rotorlike element having a plurality of inclined blades for causing the stream of water when passing therethrough to be divided into a plurality of smaller streams which are deflected in different directions and are imparted with a circumferential swirling motion, said lower part also including a frusto-conical chamber which is in direct communication with and disposed directly

below said cylindrical cavity, said frusto-conical chamber being coaxially aligned with and extending axially away from said cylindrical cavity and being of a converging funnel-like shape which terminates at a small discharge orifice located at the lower end of said lower part, said upper part also including a further frusto-conical chamber disposed directly above and in direct coaxial communication with said cylindrical cavity, said further frusto-conical chamber extending axially from the lower end of said flow channel and diverging radially outwardly with a funnel-like shape and terminating at the upper end of said cylindrical cavity, said upper part terminating at its lower end in an upper annular seat which surrounds the large-diameter end of said further frusto-conical chamber, said upper annular seat being axially spaced from but disposed opposite said lower annular seat, said rotorlike element being confined between said upper and lower parts by being confined solely within said cylindrical cavity and axially between said upper and lower annular seats, said rotorlike element being free of any fixed or structural connection to said upper and lower parts.

4,274,596

FUEL INJECTION NOZZLES

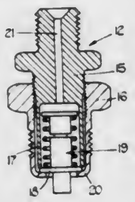
Peter Howes, 45 Birchdale, Gerrards Cross, Buckinghamshire, England

Filed Sep. 28, 1979, Ser. No. 80,162

Claims priority, application United Kingdom, Nov. 17, 1978, 45088/78

Int. Cl.³ F02M *61/20*

U.S. Cl. 239—533.9 **6 Claims**



1. A fuel injection nozzle for supplying fuel to a compression ignition engine comprising a hollow body part, a valve assembly including a resiliently loaded valve member and a seating, the valve assembly being located within the body part with a valve head forming part of the assembly being exposed at or beyond one end of the body part, and a fuel inlet communicating with the interior of the body part, the arrangement being such that in use, when fuel under pressure is supplied to the inlet, the fuel pressure within the body part acting upon the components of the valve assembly will effect movement of the valve head away from the body and the seating to permit fuel to flow past the valve head and seating into in use, the respective combustion chamber of the associated engine, the nozzle being characterized by an annular elongated part located within the body part, said elongated part surrounding the portion of the valve assembly lying within the body part, said elongated part acting to define part of the wall of a chamber to which fuel under pressure is supplied from the inlet and from which fuel flows when the head is moved out of contact with the seating, the wall thickness of said elongated part being such that the wall deflects outwardly during the initial delivery of fuel to the nozzle thereby to store part of the initial flow of fuel whereby the initial rate of flow of fuel past the valve head and seating will be at a reduced rate.

4,274,597

WATERING HEAD

Alajos Dobos; Gyula Kiss; Julia Jony nee Acs; Laszlo Sasdi, and Vilma Bisits nee Zsilinszky, all of Budapest, Hungary, assignors to Agrober Mezögazdasagi es Elelmiszeripari Tervezö, Beruhazasivallalat, Budapest, Hungary

Filed Oct. 17, 1979, Ser. No. 85,797

Claims priority, application Hungary, Nov. 15, 1978, B 901

Int. Cl.³ B05B *1/02*

U.S. Cl. 239—542 **4 Claims**



1. A drop-feed irrigating head adapted to be connected to a pipe, comprising:
- a tubular fitting penetrating said pipe and affixed thereto;
- a cylindrical housing connected to said fitting and having a free end spaced from said pipe;
- a receiving sleeve in said housing communicating with said fitting for receiving water through said fitting from said pipe; and
- a braking duct connected at one extremity to said sleeve and disposed in said housing while terminating at said end of said housing in a water-discharge orifice, said duct having a polygonal helical configuration of a plurality of turns with each turn consisting of a plurality of straight branches successively connected to one another at angular vertices lying along a helix within said housing.

4,274,598

ELECTROMAGNETIC FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

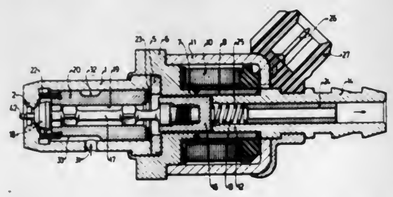
Thomas Wilfert, Markgrönigen; Rudolf Babitzka, Kirchberg, and Walter Schlagmüller, Schwiebergingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,535

Claims priority, application Fed. Rep. of Germany, Feb. 18, 1978, 2807052

Int. Cl.³ B05B *1/30*

U.S. Cl. 239—585 **1 Claim**



1. An electromagnetic fuel injection valve for internal combustion engines, in particular vehicle engines with intake manifold injection comprising
- a housing having a valve seat and an injection port downstream of said valve seat,
- a spin chamber located immediately upstream of said valve seat into which chamber the fuel enters in a swirl path via at least one inflow bore,
- an annular body defining an annular chamber encompassing said spin chamber,

- a plurality of bores in said annular body for introducing fuel tangentially and upstream into said spin chamber,
- each of said plurality of bores having a calibrated diameter to provide a throttle point for metering the introduction of fuel into said spin chamber,
- said spin chamber having a return flow bore for fuel flow therethrough with the return flow bore connected with a return line to a pressure-generating supply pump,
- said valve including a closing body having a projection extending into said injection port and extending outwardly beyond the housing, said projection having a diameter of a dimension that the fuel undergoes no further throttling in the injection port and the apportionment function of the calibrated bores is not restricted,
- said closing body also including an auxiliary valve in said return flow bore which extends from said spin chamber to said pressure-generating supply pump,
- said auxiliary valve arranged to monitor said injection port and close said return flow bore when the valve needle of said closing body opens said injection port, and vice versa.

4,274,599

ORE GRINDING PROCESS INCLUDING A GRINDING AID OF AN ANIONIC POLYELECTROLYTE

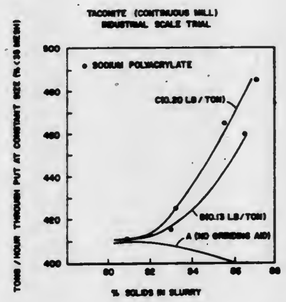
Willy Manfroy, Carmel, Ind., and Richard R. Klimpel, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 853,737, Nov. 21, 1977, abandoned, which is a continuation-in-part of Ser. No. 805,252, Jun. 10, 1977, abandoned. This application Aug. 11, 1978, Ser. No. 932,871

The portion of the term of this patent subsequent to Jan. 30, 1996, has been disclaimed.

Int. Cl.³ B02C *23/18*

U.S. Cl. 241—16 **21 Claims**



1. A process for grinding coal or ores containing metal values comprising carrying out said grinding in the presence of a liquid medium and a grinding aid comprising an anionic polyelectrolyte dispersible in said medium and having a polyethylenic backbone and a plurality of pendant anionic groups, said grinding aid being employed in an amount effective to provide increased grinding efficiency.

4,274,600

METHOD OF AND A GRINDER FOR GRINDING WOOD UNDER PRESSURE

Pekka O. Haikkala, Tampere, Finland, assignor to OY. Tampella AB, Tampere, Finland

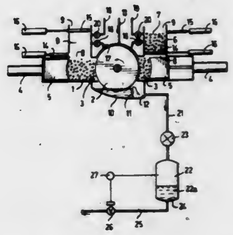
Filed Jan. 24, 1979, Ser. No. 6,156

Claims priority, application Finland, Feb. 16, 1978, 780514

Int. Cl.³ B02C *23/24*

U.S. Cl. 241—18 **3 Claims**

1. A method of grinding wood under pressurized conditions in a gas-filled grinding chamber, comprising the steps of
- (a) feeding a batch of wood to be ground into a feeding chamber by way of an input opening thereof, said feeding chamber having an output opening which leads into said grinding chamber and is closed in pressure-tight manner;
- (b) closing the input opening of the feeding chamber in pressure-tight manner;
- (c) opening the output opening of the feeding chamber;
- (d) passing said batch of wood from the feeding chamber into the grinding chamber by way of said output opening;
- (e) closing said output opening in pressure-tight manner;
- (f) substantially continuously grinding said batch of wood under pressurized conditions in the grinding chamber to form a primary groundwood stock and, while so doing, opening said input opening, repeating steps (a) and (b) and discharging primary groundwood stock from the grinding chamber;
- (g) repeating steps (c), (d) and (e) while discharging primary groundwood stock from the grinding chamber;



- (h) repeating step (f);
- (i) passing the primary groundwood stock discharged from the grinding chamber to a stick crusher while maintaining the stock under superatmospheric pressure;
- (j) employing the stick crusher to crush sticks present in the primary groundwood stock, while maintaining the stock under superatmospheric pressure, thereby to produce a secondary groundwood stock under superatmospheric pressure;
- (k) passing the secondary groundwood stock to a valve having an outlet to atmospheric pressure while maintaining the stock under superatmospheric pressure; and
- (l) continuously discharging secondary groundwood stock to atmospheric pressure through the valve outlet while preserving a hydraulic seal of secondary groundwood stock upstream of said valve.

4,274,601

IMP MILL HAVING ADJUSTMENT MEANS

Richard L. Musto, Homewood, Ill., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Jul. 23, 1979, Ser. No. 59,704

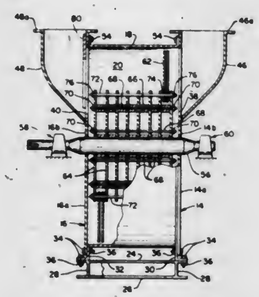
Int. Cl.³ B02C *13/286, 13/288*

U.S. Cl. 241—186.2 **6 Claims**

1. An apparatus that is particularly suited for the fine and medium-fine grinding of softer nonmetallic minerals and coals, and which is capable of selectively being operated as either a fine grinder or a coarse grinder, comprising:
- a. a housing having a grinding chamber formed therewithin, a first opening communicating with said grinding chamber and operable as an inlet thereto, and a second opening communicating with said grinding chamber and operable as an outlet therefrom;
- b. inlet means having one end thereof connected in fluid flow relation with said first opening and having the other end thereof connectable to a source of grindable material, said inlet means being operative to provide grindable material from the supply thereof to said grinding chamber;
- c. grinding means supported within said grinding chamber, said grinding means operative to effect the grinding of the grindable material disposed within said grinding chamber;
- d. outlet means comprising an outlet duct having first and

second ends, said first end being joined to said housing in juxtaposed relation to said second opening for receiving ground material from said grinding chamber after the grinding thereof therewithin, said second end terminating in a flange capable of being connected to a receiver of ground material; and

e. adjustment means cooperatively associated with said outlet means, said adjustment means including a plate-like baffle member and mounting means mounting said plate-like baffle member in said outlet duct in juxtaposed relation to said second opening such that said plate-like baffle member is slidably movable in a plane parallel to the plane defined by the diameter of said second opening, said plate-like baffle member having an arcuate edge embodying a radius of curvature corresponding to the radius curvature of said second opening, said mounting means including a pair of spaced slots formed in said outlet duct adjacent to said first end thereof and a pair of fasteners fixedly attached to said plate-like baffle member, said pair of fasteners being received in said pair of spaced slots for sliding movement therewithin, said pair of fasteners when positioned at a first location within said pair of spaced slots being operative to position said plate-like baffle member relative to said second opening such that said arcuate edge of said plate-like baffle member projects into said second opening thereby defining an abutment relative thereto operative to impede the flow of material through said second opening from said grinding chamber and thereby causing the apparatus to operate as a fine grinder, said pair of fasteners when positioned at a second location within said pair of spaced slots being operative to position said plate-like baffle member relative to said second opening such that said arcuate edge of said plate-like baffle member is coterminous with the periphery of said second opening thereby enabling material to freely flow through said second opening from said grinding chamber and thereby causing the apparatus to operate as a coarse grinder.



4,274,602

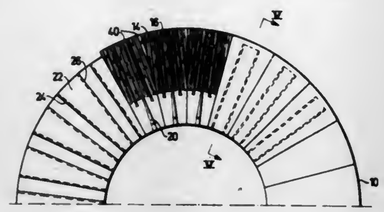
ROTARY GRINDING DISC FOR DEFIBRATING APPARATUS

Johan G. I. Johansson, Taby, Sweden, assignor to Defibrator Aktiebolag, Stockholm, Sweden

Filed Feb. 28, 1979, Ser. No. 16,320
Claims priority, application Sweden, Mar. 3, 1978, 7802471
Int. Cl.³ B02C *7/12*
U.S. Cl. 241—298 **2 Claims**

1. In a defibrating apparatus in which fibrous puip material, such as wood chips, is ground in an interspace defined between two opposed relatively rotating discs (10) having a central opening for introducing the material into a central feed-in zone and supporting a plurality of arcuate grinding plate segments disposed annularly about the rotating disc and extending radially inwardly from the periphery to said feed-in zone, said grinding plate segments having a radially outer peripheral grinding section (12) having a grinding surface comprising ribs (14) and ridges (16) and a radially inner section (19) for conveying the material from said central feed-in zone into said grinding section, the improvement providing relatively thin and relatively light segment plates comprising:

(a) dovetail-shaped grooves (22, 28) in said disc (10) defined between converging side walls (24, 26) and extending with progressively decreasing width from an outer peripheral portion of said disc (10) towards a radially inner portion thereof;



(b) tongues (34, 35) projecting from the surface opposite said grinding surface on said grinding plate segments and having a wedge profile corresponding to said dovetail-shaped grooves (22, 28) for wedging said grinding plate segment in dovetail fashion into said disc (10); and

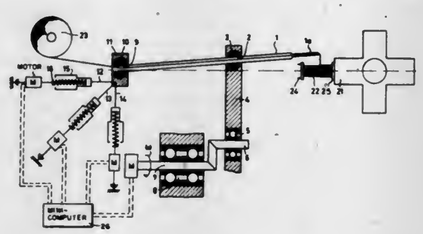
(c) a removable ring member (36) surrounding the periphery of said disc (10) and engaging said tongues (34, 35) to secure the latter in their wedged dovetailed location in said grooves during the rotation of the disc.

4,274,603

MACHINE FOR WINDING WIRE COILS

Wilhelmus L. L. Lenders, and Martinus J. van Hirtum, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 5, 1979, Ser. No. 1,118
Claims priority, application Netherlands, Jan. 6, 1978, 7800156
Int. Cl.³ H01F *41/00, 41/04;* B65H *57/28*
U.S. Cl. 242—7.14 **12 Claims**



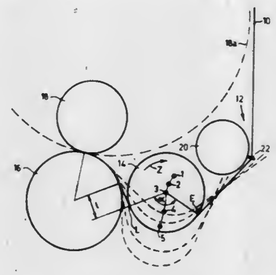
1. A machine for winding a wire coil, comprising a spool holder for stationarily supporting a spool on which the coil is to be wound, a wire supply, a wire guide for guiding a wire from the wire supply onto a spool supported by the holder, means for mounting the wire guide so that it is movable around the spool and is capable of traversing the spool in a direction parallel the axis thereof, the wire guide comprising a tubular winding finger having an end portion for delivering the wire to the spool, said mounting means comprising, means for supporting the tubular winding finger at a first point spaced from said end portion in a bearing which is capable of performing an orbital movement about an axis which coincides with the axis of the spool supported by the holder, the path of said orbital movement lying in a plane which extends transversely of said axis, and means pivotally coupling the winding finger to three actuating elements at a second point which is spaced further from said end portion of the winding finger than the first point, said three actuating elements being displaceable in different directions by associated controllable drive devices such that the pivotal coupling is displaceable in any direction by the combined operation of the actuating elements.

4,274,604

WINDING MACHINE

Walter Vetterli, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed Apr. 2, 1979, Ser. No. 26,047
Int. Cl.³ B65H *54/28, 59/00*
U.S. Cl. 242—43 R **14 Claims**



7. A winding machine for winding a filament into a package, comprising

first means for receiving and rotating a bobbin to wind a filament onto the bobbin, and

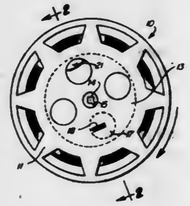
tension control means adapted to be contacted by the filament with sliding friction therebetween prior to the filament reaching said first means, said tension control means including a grooved roller for contacting the filament at the end of a package and means for adjusting the position of said roller to vary the wrap angle of the filament around said roller thereby varying the contact length of the filament with said roller to adjust the filament tension downstream of said tension control means while maintaining a drag length between a point where a filament leaves said grooved roller and a point where the filament engages said first means near constant for all positions of said grooved roller.

4,274,605

REEL TECHNOLOGY

George P. Gruber, Jr., 14930 - 130th St. N., Stillwater, Minn. 55082

Filed Jan. 24, 1980, Ser. No. 114,740
Int. Cl.³ B65H *75/00*
U.S. Cl. 242—55 **15 Claims**



1. A use-registering reel for flexible tape, said reel having a pair of lateral disk-like members in spaced parallel relationship and an axially centered core structure to which said disk-like members are united, said core structure comprising

(a) an axial hub for fixing said reel on a horizontal reel-support shaft of a tape processing machine,

(b) a cylindrical tape-support member at the radially outer perimeter of said core structure, said tape-support member being between said disk-like members and coaxially about said hub but spaced radially outward therefrom,

(c) wall means forming a housing within a radial segment of said core structure, whereby said housing is eccentric to the axis of said hub and undergoes orbital movement about said axis during rotation of said reel, said wall means including a transparent window at a lateral side of said reel, said housing being united to said core structure, and

(d) a counter assembly mounted in tamper-resistant condition in said housing for orbital movement therewith during rotation of said reel, said counter assembly including

(i) actuatable indicating means for registering revolutions of said reel, said indicating means being viewable through said window of said housing at least during one predetermined direction of rotation of said reel,

(ii) action means for actuating said indicating means responsively to rotation of said reel, and

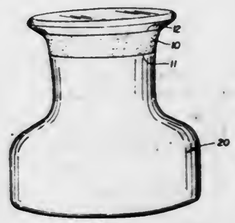
(iii) selective means responsive solely to the direction of rotation of said reel, said selective means being inoperative to disable said action means during rotation of said reel in said one predetermined direction and operative to disable said action means when said reel is rotated in the opposite direction, whereby said counter effectively registers revolutions of said reel in said one predetermined direction only.

4,274,606

SELF-TAILING WINCH

Hans Bernwall, 133 Granada Dr., Corte Madera, Calif. 94925; Lars Lundberg, Box 28, 45071 Fjällbacka, Sweden, and Carl Seipel, 44 Laurel Grove Ave., Kentfield, Calif. 94904

Filed Aug. 30, 1979, Ser. No. 71,268
Int. Cl.³ B65H *75/18*
U.S. Cl. 242—117 **13 Claims**



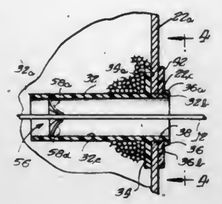
1. In a winch for the retrieval of rope on a sailboat having a spool rotatable about the axis of the winch wherein said spool has a base, drum and flange and wherein said drum is configured to be narrower than said base and flange and is capable of accepting multiple turns of said rope for rectrieval, the improvement comprising means for increasing the coefficient of friction on the surface of said spool only in an area substantially at the intersection of said drum and flange wherein only the last turn of said rope around the winch would contact the area of increased friction.

4,274,607

GUIDE DEVICE FOR USE IN ELONGATE FILAMENT DISPENSING PACKAGE AND THE LIKE

James D. Priest, New Paris, Ohio, assignor to Belden Corporation, Geneva, Ill.

Filed Dec. 3, 1979, Ser. No. 99,464
Int. Cl.³ B65H 55/02
U.S. Cl. 242—163 12 Claims



1. A device for guiding an elongate filament from a coil of said filament, comprising a tubular guide sleeve having first and second ends, a radially disposed retainer formed on said sleeve adjacent one of said ends, said retainer having an outer peripheral surface tapered inwardly toward said one end of said sleeve and defining a substantially planar stop surface spaced a predetermined longitudinal distance from said one end of said sleeve, a radial annular flange formed on said sleeve in predetermined longitudinally spaced relation from said stop surface on said retainer and defining with said retainer a locking recess therebetween, said retainer being of lesser radial extent than said flange so as to enable insertion of said one of said ends and said retainer through an opening of predetermined diameter in a panel member with said flange abutting the side of the panel from which said retainer is inserted, a locking member adapted for releasable cooperation with said locking recess and said retainer to maintain said sleeve in mounted relation on said panel member when said one of said ends is inserted through said opening in said panel member, and restraint means comprising a plurality of generally radially inwardly directed fingers disposed internally of said tubular sleeve and extending about substantially the full periphery of the inner surface of said sleeve, said fingers being spaced longitudinally from said retainer and flange toward the other end of said sleeve and having sufficient flexibility to enable insertion of an elongate filament generally centrally therebetween in a predetermined direction while maintaining frictional engagement with the peripheral surface of the elongate filament so as to substantially restrain movement of the filament in a direction reverse to said predetermined direction.

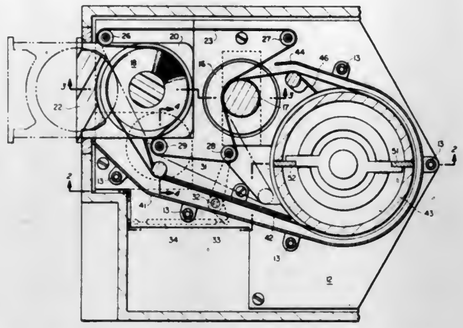
4,274,608

TAPE TRANSPORT

Paul A. Gilovich, Saratoga, and Thomas A. Hickox, San Jose, both of Calif., assignors to Microcomputer Systems Corp., Sunnyvale, Calif.

Filed Jun. 4, 1979, Ser. No. 45,429
Int. Cl.³ G03B 1/04; G11B 15/32
U.S. Cl. 242—192 4 Claims

1. A tape transport for presenting tape to a rotating drum comprising:
- a take-up reel including a hub,
- a drive pulley,
- at least three spaced guide rollers,
- a drive belt extending over spaced guide rollers and said drive pulley,
- spring-loaded means for mounting one of said spaced guide rollers adjacent one side of said take-up reel to move the roller in a direction to tension said belt,
- means for mounting another one of said spaced guide rollers on the other side of said take-up reel whereby the tensioned tape rides on said hub,
- means for receiving a tape supply roll to bring the roll into engagement with said belt whereby said belt is engaged and the roller is moved to accommodate the tape supply roll with the belt in engagement with the surface of said roll,
- a drive means for driving said drive pulley to drive the belt whereby to feed the tape from the tape supply roll over the tape drum and onto the hub under the belt,



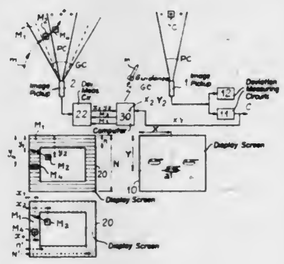
and means to guide the end of said tape as it travels from the supply roll over said tape drum and onto the take-up reel hub after the roll is initially inserted into said tape apparatus and the drive means is energized.

4,274,609

TARGET AND MISSILE ANGLE TRACKING METHOD AND SYSTEM FOR GUIDING MISSILES ON TO TARGETS

Noël H. L. Ferrier, Montmorency, and Dominique C. N. E. M. de Ruffi de Ponteves, Versailles, both of France, assignors to Societe d'Etudes et de Realisations Electroniques and Societe de Fabrication d'Instruments de Mesure (SFIM), both of, France

Filed Apr. 26, 1978, Ser. No. 900,331
Claims priority, application France, May 6, 1977, 77 13911
Int. Cl.³ F41G 7/28
U.S. Cl. 244—3.14 26 Claims



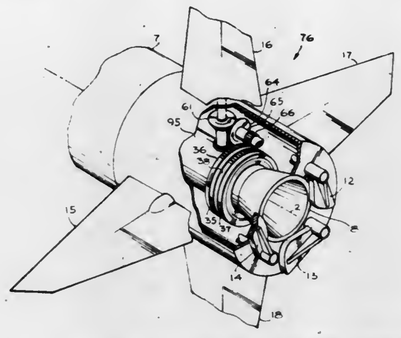
1. A method of guiding passive missiles fired from a helicopter in particular at multiple targets, comprising the steps of observing and locating each of the targets and the missiles by image forming optronic pick-ups, transmitting their information in the form of electric signals, launching several missiles successively and guiding them simultaneously to their respective targets by electronically determining the angular coordinates of a target after selection and pursuit of the corresponding image formed by a pick-up, and by guidance of each missile toward the target according to the differences between the angular coordinates of the target and the angular coordinates of the missile, which coordinates are determined in a first phase with a large field and in a second phase in a small field of vision after selection and pursuit of the corresponding image received by said pick-ups.

4,274,610

JET TAB CONTROL MECHANISM FOR THRUST VECTOR CONTROL

Thomas W. Bastian, Fullerton, Calif., assignor to General Dynamics, Pomona Division, Pomona, Calif.

Filed Jul. 14, 1978, Ser. No. 924,595
Int. Cl.³ F42B 15/18
U.S. Cl. 244—3.22 9 Claims



1. A thrust vector control system for a missile comprising:
- a cylindrical missile body;
- rocket propulsion means acting along the axis of the body to propel the missile;
- a plurality of fins pivotably mounted external to the body, each being pivotable about an axis normal to the cylindrical surface of the missile body for aerodynamically controlling direction of the missile in flight;
- a servo motor associated with each fin for controlling the angular position of the fin relative to the missile body;
- control circuitry for commanding the servo motors to control the pivoting of the fins;
- a plurality of thrust vector control jet tabs effective to provide pitch and yaw moments by deflecting rocket exhaust gas;
- a coupler effective to transmit fin servo motor commands to the thrust vector control jet tabs; and
- actuator means coupled to said coupler and the tabs and containing means to rotate the thrust vector control jet tabs in response to pitch or yaw servo motor commands.

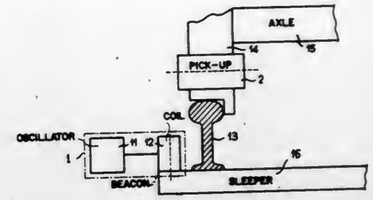
4,274,611

DEVICE FOR THE DETECTION OF THE POSITION OF A RAILWAY VEHICLE

Jean Salmon, Aulnay Sous Bois, France, assignor to Jeumont-Schneider, Puteaux, France

Filed Jul. 5, 1979, Ser. No. 54,818
Claims priority, application France, Jul. 17, 1978, 78 21169
Int. Cl.³ B61L 25/02
U.S. Cl. 246—34 R 6 Claims

1. A device for the detection of the position of a vehicle running on a railway track, characterized in that it includes:
- at least one emitter beacon for emitting a beacon frequency, said beacon including a generator of alternating current and a coil having a vertical axis located at a predetermined point on the track, near to one of the running rails;
- aboard the vehicle, near to one of the rails, a pick-up unit including two groups of two receiver coils the axes of which are horizontal and perpendicular to the running rail, the two coils of each group being connected in accordance with a differential system to the inputs to a differential amplifier means;
- a filtering and detection unit connected to the outputs from the differential amplifier means, said unit including two bandpass filter circuits, the central frequency of which is equal to said beacon frequency, each filter circuit being connected to the output from said differential amplifier means;



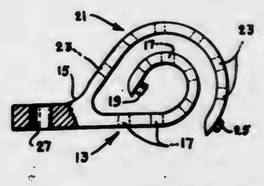
- circuit means for multiplying together the output signals from the two filter circuits; and
- circuit means for detecting and comparing output signals from the multiplying circuit means with a predetermined threshold in order to deliver a logical signal representative of the presence of said beacon frequency.

4,274,612

MULTIPLE DIAMETER WIRE BUNDLE SUPPORT

Dalton L. Massey, Benbrook, Tex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 15, 1979, Ser. No. 48,874
Int. Cl.³ B65D 63/00; F16L 3/08
U.S. Cl. 248—74 PB 2 Claims



1. A multiple diameter wire bundle support for fixedly retaining various numbers and diameters of wires and the like in position on a subassembly structure comprising a first arm extending outwardly from a common anchor point, a second arm extending outwardly from the same common anchor point, a first pin member fixedly attached near the outer end of said first arm and extending inwardly therefrom, a second pin member fixedly attached near the outer end of said second arm and extending outwardly therefrom, the inner ends of said first and second arms meeting to form a common anchor portion, a series of equally spaced holes along the length of said first and second arms, and an opening in the anchor portion for attaching the support to a subassembly structure, the outer ends of said first and second arms being adjustably attachable to one another by the insertion of said first pin member into one of the holes in said second arm and the insertion of said second pin member into one of the holes in said first arm, thereby forming a substantially circular enclosure for housing wire bundles of various diameters therein.

4,274,613

DISPLAY STAND WITH THREE-SIDED BASE HAVING PARTIAL REAR WALL

Ronald H. Taub, 1154 Sheridan Rd., Highland Park, Ill. 60035

Filed Sep. 25, 1978, Ser. No. 945,244
Int. Cl.[2] A47G *23/02*
U.S. Cl. 248—150 **8 Claims**



1. A display stand base fabricated from a single blank of sheet material and being collapsible along pre-scored fold lines to provide a compact package for shipment and storage,

said base comprising an upstanding front wall and a pair of side walls hingedly joined to said front wall at lateral marginal limits thereof, a juncture of said front wall with opposed said side walls being defined by a pre-scored vertical fold line, each of said side walls extending rearwardly of said front wall at either opposed sides thereof and generally normally thereto,

said front wall having a horizontal cut at a predetermined level intermediate upper and lower edges thereof and extending across the full expanse of said front wall to divide said front wall into a rearwardly shiftable upper section and a fixed lower section,

each of said side walls having a horizontal cut extending from a forward edge thereof rearwardly a predetermined distance but terminating short of a rear edge of said side walls, said cut in each of said side walls being an uninterrupted extension of said cut in the front wall and at substantially the same level as said cut in the front wall,

said side walls defining at respective rearward limits of each horizontal cut therein a pre-scored vertical hinge line projecting generally normally to and upwardly of said horizontal cut to an upper terminal edge of each of said side walls to divide each of said side walls into a pivotal forward segment and a fixed rear panel,

each said pivotal forward segment constituting a physical rearward continuation of said upper section of said front wall and being joined thereto along said vertical fold line, said pivotal forward segment of each of said side walls being folded rearwardly along each corresponding said hinge line to lie contiguously against a corresponding said fixed rear panel, and

said shiftable upper section of said front wall being displaced rearwardly of and generally paralleling said fixed lower section of said front wall to form a rear wall for said base.

4,274,614

LOCKING DEVICE AND THE LIKE

Anthony C. Worrallo, 15 Sprott Rd., Auckland 5, New Zealand

Filed May 24, 1978, Ser. No. 909,264
Int. Cl.[3] A47G *29/02*
U.S. Cl. 248—243 **9 Claims**

1. A locking structure comprising

an element having

a web,

flanges extending from opposite ends of said web, and

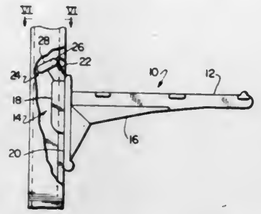
a pair of laterally spaced, oppositely directed lips extending from said flanges which define a mouth therebetween, each of said lips having an inner face formed with longitudinally extending serrations and having an outer face; and

a bracket having

a main portion with an abutting surface,

a neck protruding from said main portion with one end coupled to said main portion and a free end remote from said main portion, said neck being dimensioned so it may pass through said mouth, and

a locking formation mounted on said free end of said neck and extending laterally from each side of said neck, the



dimensions of said locking formation in a direction transverse of said neck being greater than the width of said mouth, said locking formation having an abutting face adapted to abut said serrations on said inner faces of said lips;

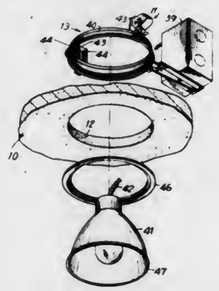
whereby, when said neck is located in said mouth and said bracket is located in position relative to said element, said abutting surface of said main portion is brought into abutting relationship with said outer face of said lips and said abutting face of said locking formation is brought into abutting relationship with said serrations on said inner faces of said lips.

4,274,615

ATTACHMENT CLAMP FOR LIGHTING FIXTURE

Kingsley Chan, Rutherford, and Neil Russo, Howell, both of N.J., assignors to Lightolier Incorporated, Jersey City, N.J.

Filed Jul. 9, 1979, Ser. No. 56,030
Int. Cl.[3] B42F *13/00*
U.S. Cl. 248—343 **5 Claims**



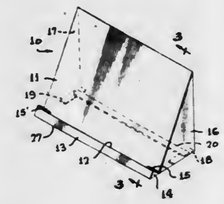
1. An attachment clamp for securing a lighting fixture to a ceiling of sheet material, such as wall board, acoustical tile or the like, comprising an integral resilient metallic bifurcate body portion including a spaced pair of upstanding legs, a support foot extending from the lowermost end of said legs in a direction perpendicular thereto and projecting to one side of said body portion, an adjustment arch extending to said one side of said body portion in upwardly spaced relation to said foot, said arch including an upper branch extending from the upper end of said body portion, a lower branch and an arcuate connector portion extending between said braches, a clamp portion extending from said lower branch, said clamp portion projecting outwardly through the space between said legs and including a depending spanner portion having a locking finger formed thereon, said finger being disposed to said one side of said body portion in parallel spaced relation to said support foot, and threaded adjustment means extending between said upper and lower branches for variably spacing said branches in accordance with the adjusted position of said threaded means, thereby to shift said locking finger toward and away from said support foot for clamping engagement of a ceiling portion between said foot and finger.

4,274,616

BOOK STAND

Alfred G. Radtke, 2351 N. Fernview, Simi Valley, Calif. 93065

Filed Apr. 20, 1979, Ser. No. 32,101
Int. Cl.[3] A47B *97/04*
U.S. Cl. 248—459 **5 Claims**



1. A reading stand comprising the combination of:

a blank of sheet material divided into a plurality of integral parts;

score lines intended to be folded over so that said integral parts provide an upright structure supportable on a flat surface;

said upright structure including said integral parts having a back member angularly related to said flat surface and a forward extending lip arranged normal to said back member whereby said back member and said lip cooperate in an engagingly manner to receive and hold a book;

side elements at each side of said back member bracing said back member on said flat surface;

base support means carried on said side elements and said lip for rigidizing and stabilizing said upright structure; and

said base support means including a flap strip foldably carried on the lower edge of each of said side elements being folded towards each other and a brace strip detachably interconnecting said flap strips together.

4,274,617

ACTUATOR FOR CORE OR STRIPPER OF A MULTIPART MOLD

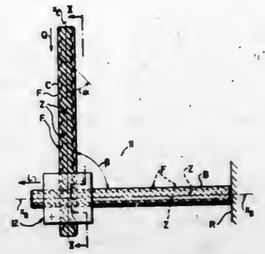
Karl-Hermann Schriever, Pretoria, South Africa, assignor to Hasco-Normalien Hasenclever & Co., Lüdenscheid, Fed. Rep. of Germany

Filed May 2, 1980, Ser. No. 146,330
Claims priority, application Fed. Rep. of Germany, May 3, 1979, 2917799
Int. Cl.[3] B29D *1/022*
U.S. Cl. 249—63 **10 Claims**

1. In combination with a mold having at least two primary mold parts movable in a primary direction away from each other from a closed position defining a mold cavity to an open position at least one secondary mold part movable in a secondary direction transverse to said primary direction relative to said primary mold parts, and drive mens for displacing said mold parts between said positions, an actuator comprising:

a primary rack extending parallel to said primary direction;

a secondary rack extending parallel to said secondary direction and secured to said secondary mold part, said racks having respective primary and secondary rows of teeth having substantially parallel tooth flanks inclined to said directions, said primary row meshing with said secondary row of teeth; and



means securing one of said racks to one of said primary mold parts for joint displacement therewith in said primary direction relative to the other of said racks.

4,274,618

STRAND LIFTING SYSTEM

James A. Orr, 1570 Guadalajara Dr., San Jose, Calif. 95120

Filed Aug. 20, 1979, Ser. No. 68,146
Int. Cl.[3] F21B *19/00*
U.S. Cl. 254—29 A **6 Claims**

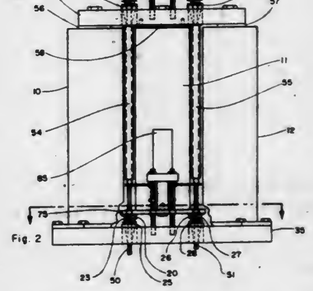


Fig. 2

1. A strand lifting system comprising:

at least one strand for lifting and lowering a selected load;

upper and lower plate means, each plate means defining at least as many openings therethrough in a substantially matching arrangement as there are strands, for passage of one of said strands therethrough each with the upper and lower plate means being aligned with respect to the other to substantially align the openings in each plate means with those in the other;

jack means disposed between said upper and lower plate means for providing a selected separation between them and for maintaining alignment of the plate means openings, one plate means with respect to the other;

chamber means within each opening in the upper and lower plate means defining a tappered hole therethrough and having a strand pass unrestrictedly therethrough;

chuck means disposed adjacent to each chamber means for engaging the strand passing therethrough upon the seating of the chuck means within the chamber means in response to a seating force; and for permitting the unrestricted passage of the strand when the chuck means is disengaged from the chamber means;

bias means coupled to each of said chuck means for biasing said chuck means in the disengaged position from said chamber means; and

seating means for providing said applied seating force to the chuck means;

said chuck means each having:

an outwardly projecting flange portion, the top surface being adjacent to the seating means for communication of said seating force thereto;

a nose portion being tapered on its outer surface to substantially match the taper of said chamber means; and

a shank portion intermediate said flange and nose portions, said shank portion having substantially uniform thickness over its entire length;

the lower surface of said flange portion sloping inwardly and away from its top surface at a selected angle toward the shank portion;

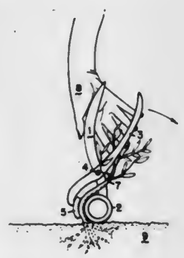
said chuck means also defining an interior cylindrical hole along its longitudinal axis with the diameter of said hole through the flange and shank portions being greater than that of the nose portion.

4,274,619

WEED EXTRACTION APPARATUS

William C. Redmond, 7675 Verdugo Crestline Dr., Tujunga, Calif. 91042

Filed Oct. 22, 1979, Ser. No. 86,904
Int. Cl.³ B66F *3/00*
U.S. Cl. 254—132 **1 Claim**



1. A weed puller comprising;

(a) a plier having a joint (4,11 or 14) and a pair of handles (1,3),

(b) an elongated rigid whole cylindrical element (2') rigidly attached at right angles to one part of the plier adjacent to said joint, and

(c) an elongated segment of a rigid cylindrical element (5') rigidly attached to the other part of the plier adjacent to said joint,

being disposed to contact the full extent of said elongated rigid whole cylindrical element when the handles are together, and

adjacent ends of said whole rigid cylindrical element (2') and said elongated segment of a rigid cylindrical element (5') being shaped obliquely (17) with respect to the axis of said whole rigid cylindrical element to form a spade.

4,274,620

ANCHOR WINDLASS

Edmond Uher, Oberägi, Switzerland, assignor to Dieter Delwing, Zug, Switzerland

Filed Sep. 27, 1979, Ser. No. 79,544
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1978, 2842814
Int. Cl.³ B66D *1/14*
U.S. Cl. 254—351 **10 Claims**

1. A winch comprising:

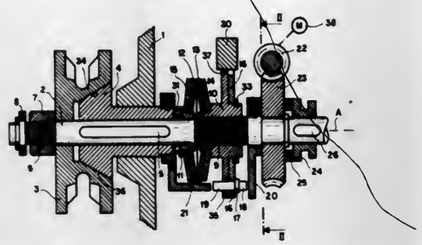
a housing;

a shaft centered on and rotatable about a shaft axis in said housing;

a wheel rotatable on said shaft about said axis, whereby a flexible element can be spanned over said wheel;

an abutment axially fixed on said shaft and juxtaposed with said wheel;

an entrainment element rotationally fixed but axially displaceable on said shaft and engageable with said wheel, whereby said element can be moved axially forward into engagement with said wheel to wedge same against said abutment and rotationally couple said wheel to said shaft;



a nut threaded on said shaft adjacent said entrainment element;

a compression spring braced axially between said nut and said entrainment element for force transmission therebetween; and

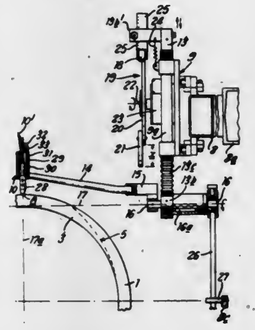
means including a pawl for temporarily rotationally arresting said nut, whereby, when said shaft is rotated in one direction with said nut rotationally arrested, said nut will be screwed forwardly on said shaft to bear via said spring on said entrainment element.

4,274,621

TUBES AND STRUCTURES FORMED THEREBY

Jan Illakowicz, 43, Barn Way, Wembley, Middlesex, and Derek B. Enfield, Unit 14, Alston Works, Barnes, Hertsford, both of England

Continuation of Ser. No. 665,769, Mar. 11, 1976, abandoned. This application Apr. 20, 1978, Ser. No. 898,200
Claims priority, application United Kingdom, Mar. 14, 1975, 10716/75
Int. Cl.³ B23K *7/04, 7/10*
U.S. Cl. 266—61 **16 Claims**



1. Apparatus for forming a profiled end face of a tube having a substantial wall thickness to enable said tube to be joined to an intersecting surface which comprises:

a cutter disposed in cutting position relative to the wall of the tube;

drive means to produce relative rotational movement between said cutter and the tube;

means for moving the cutter axially along the wall of the tube to follow a predetermined profile;

means for pivoting said cutter about a secondary axis which is perependicular to the axis of the tube and is intersected by the center line of the cutter to dispose the cutter at a desired angular position relative to the axis of the tube;

cutter control means comprising a displaceable mounting for moving said secondary axis radially across the thickness of the end face; and

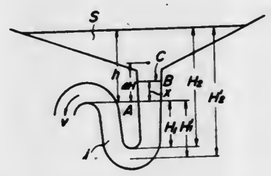
means synchronizing the radial movement of said secondary axis with said rotational movement to move the intersection of said secondary axis and the center line of said cutter along a desired path across the end face of said tube as said tube is moved relative to said cutter.

4,274,622

DEVICE FOR SEPARATING SLAG FROM MOLTEN BATH

Hisashi Ohmori, Kurashiki, Japan, assignor to Kawasaki Steel Corporation, Kobe, Japan

Filed Dec. 20, 1979, Ser. No. 105,721
Claims priority, application Japan, Jan. 11, 1979, 54-955
Int. Cl.³ F27D *3/14*
U.S. Cl. 266—227 **5 Claims**



1. A device for separating slag from molten bath for use with a molten bath container for enclosing therein a molten bath composed of molten metal and slag floating on and covering the free surface of said molten metal, said device comprising a member having a U-shaped refractory tubular passage firmly secured to a discharge outlet of said container, and stationarily disposed beneath said container, when said container is brought into its molten bath discharge position, said U-shaped refractory tubular passage being so shaped and arranged that the static pressure of that portion of the molten bath, which is in said U-shaped refractory tubular passage after said molten bath has been discharged from said container, is kept in balance with the static pressure of the slag following said flow of the molten bath, thereby preventing discharge of said slag out of said U-shaped refractory tubular passage.

4,274,623

METHOD AND APPARATUS FOR STACKING PRINTED PRODUCTS CONTINUOUSLY ARRIVING IN A SUBSTANTIALLY FISH SCALE OVERLAPPING ARRANGEMENT

Walter Reist, Hinwil, and Werner Honegger, Rüti, both of Switzerland, assignors to Ferag AG, Hinwil, Switzerland

Continuation of Ser. No. 578,357, May 16, 1975, abandoned. This application Oct. 22, 1979, Ser. No. 87,093
Claims priority, application Switzerland, May 28, 1974, 7234/74
Int. Cl.³ B65H *31/04, 31/10*
U.S. Cl. 271—217 **7 Claims**

1. An apparatus for stacking flat printed products arriving in a continuous imbricated stream into a substantially spiral-shaped stack, comprising:

conveying means for conveying said imbricated stream, said conveying means having an outfeed portion;

a rotatable stack support defining a substantially plane support surface and having an axis of rotation;

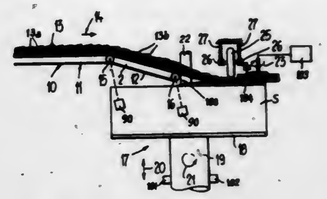
means for rotating the stack support about its axis of rotation;

said stack support being positioned below said outfeed portion;

said outfeed portion being directed along a substantially straight line path in a direction radially offset with respect to said axis of rotation;

deflection means operatively associated with said stack support and arranged downstream with respect to said outfeed portion;

said deflection means individually deflecting each of the printed products delivered by said outfeed portion in the plane of each such printed product so as to form a spiral-shaped stack which comprises a plurality of successive



windings, each of which has printed products partially overlapping one another;

said deflection means including stop means positioned to engage an edge of each infed printed product and pressure exerting means radially offset from and effective at least substantially in the direction of said axis of rotation;

means to move said outfeed portion relative to said stack support in a direction parallel to said axis of rotation; and

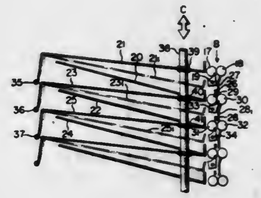
wherein said stop means is arranged at the region of the axis of rotation of the stack support and includes a detachably mounted tube arranged at the stack support, said tube serving as a core for the spiral-shaped stack.

4,274,624

DUAL-MODE SHEET SORTING APPARATUS

Tadashi Sato, Kokubunji; Shigeru Yoshimura, Yokohama, and Kiyomichi Ichikawa, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 30, 1979, Ser. No. 89,456
Claims priority, application Japan, Oct. 30, 1978, 53/133374; Oct. 30, 1978, 53/133375; Nov. 16, 1978, 53/141388
Int. Cl.³ B65H *31/24, 39/11*
U.S. Cl. 271—292 **6 Claims**



1. A dual-mode sheet sorting apparatus, comprising:

first sheet storing means for storing sorted sheets, said first sheet storing means including a plurality of first bin members fixed to a frame of the apparatus;

second sheet storing means including a plurality of second bin members movable relative to said frame and disposed in alternating sequence with respect to said first bin mem-

bers, the number of said second bin members corresponding to the number of said first bin members; and

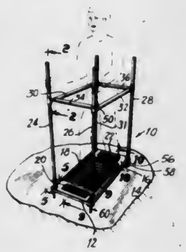
driving means for selectively moving said second sheet storing means relative to said frame and said first sheet storing means between a retracted position for permitting passage of the sheets into said first sheet storing means but blocking passage of the sheets into said second sheet storing means, and a storing position for permitting passage of the sheets into said second sheet storing means but blocking passage of the sheets into said first sheet storing means.

4,274,625

EXERCISING APPARATUS

Salvatore Gaetano, 130-16 115th St., South Ozone Park, Queens, N.Y. 11420

Filed Dec. 26, 1978, Ser. No. 972,669
Int. Cl.³ A63B 23/06
U.S. Cl. 272—69 **16 Claims**



1. An exercising apparatus, comprising:

a base member; a roller assembly positioned on said base member and comprising an array of discrete rollers, and a frame upwardly extending from said base member and defining an enclosed exercising area; said roller assembly comprising a series of parallel axles, a plurality of closely spaced rollers mounted on said axles for individual rotation thereon, and support means for supporting said axles; said support means comprising a series of elongated support bars spacedly positioned from each other and being in perpendicular relationship with said axles, aligned bores formed in said support bars for rotatingly receiving said axles therethrough, said rollers being located along the sections of said axles between the support bars, such that there are a pair of closely spaced rollers located on each axle between adjacent support bars with the support bars being closely spaced to the rollers, and further comprising a longitudinal channel formed along the top of each support bar, a vertical opening downwardly extending from the top of each bar to the respective bores in that bar, whereby lubricating oil placed into the channel of a bar can flow therefrom to each bore in the bar and then along the axles to thereby lubricate the roller assembly.

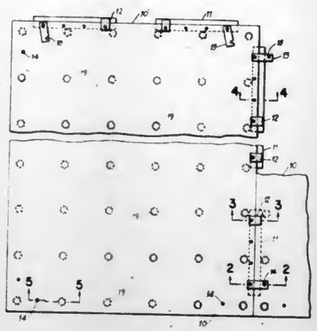
4,274,626

EXERCISE FLOOR

Richard W. Grosser, Boone, and Virgil L. Long, Sr., Jefferson, both of Iowa, assignors to AMF Incorporated, White Plains, N.Y.

Filed Apr. 30, 1979, Ser. No. 34,230
Int. Cl.³ A63B 5/00; E04F 15/22
U.S. Cl. 272—109 **3 Claims**

1. A portable gymnastic exercise floor, comprising a plurality of like sized boards which are edge butted and latched together, the butt edge of one of a pair of abutted boards having spaced top and bottom overhanging tabs affixed thereto, the butt edge of the other of said pair of abutted boards being positioned between said tabs, and notched latches along one of said butt edges and latch posts along the other of said butt edges for having said latches hooked thereon to latch said pair of abutted boards together, said boards comprising 4×8 plywood, said tabs and latches comprising flat metallic stock,



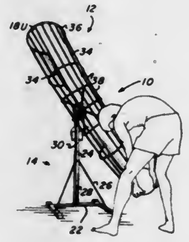
said latch posts comprising a nut and bolt subassembly, and like nut and bolt subassemblies connecting said tabs and latches to their respective boards.

4,274,627

EXERCISE APPARATUS

Robert M. Fenner, Rte. 3, Box 156, Conifer, Colo. 80433, and Edward P. Franz, 3764 Avocado Blvd., La Mesa, Calif. 92041

Filed Oct. 22, 1979, Ser. No. 86,688
Int. Cl.³ A63B 23/02
U.S. Cl. 272—117 **11 Claims**



1. Exercise apparatus comprising: support means defining a substantially horizontal axis of pivotal movement elevated above ground level, and a generally tubular chute open at both ends and mounted intermediate its ends for rotational movement upon said support means axis, said chute being curved with the concavity therein facing away from the support means, said chute having an arc of curvature lying between approximately 45° and 90°, and wherein the chute is slit longitudinally along the concavity therein, and said slit is of a width subtending an angle of substantially less than 180° so as to prevent removal of a ball from the chute except at its open ends.

4,274,628

WEIGHT LIFTING BAR APPARATUS

Jesse Hoagland, 333 Bellevue Ave., Trenton, N.J. 08618

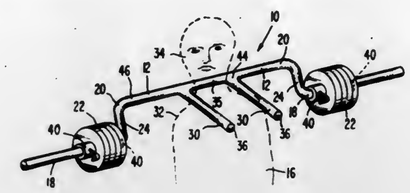
Filed Sep. 12, 1979, Ser. No. 75,281
Int. Cl.³ A63B 13/00
U.S. Cl. 272—123 **11 Claims**

1. A weight lifting bar apparatus, particularly adapted for use in performing leg exercises such as deep knee bends and toe lifts, which comprises:

(a) a support bar means extending laterally and adapted to be supported by the user to hold the weight lifting apparatus;

(b) a weight retaining bar means spaced laterally outward from each end of said support bar means, said weight retaining bar means being adapted to hold the weight of the weight lifting apparatus thereon;

(c) a displacement coupling means interconnecting said weight retaining bar means with the ends of said support bar means in a displaced parallel orientation wherein the axis of said weight retaining bar means is displaced below



and parallel with respect to the axis of said support bar means; and

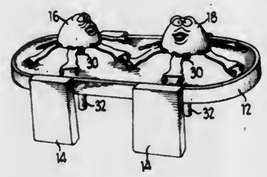
(d) a projecting support means secured to said support bar means and extending laterally therefrom and downwardly to rest upon the shoulders and chest of the user to facilitate retaining of the apparatus by the user and to more evenly distribute the weight thereof said support means pressing against the chest of a user under the influence of weights on the weight retaining bar means.

4,274,629

COMBATIVE GAME APPARATUS

Michael J. Ferris, and Henry Arias, both of Chicago, Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Oct. 9, 1979, Ser. No. 82,541
Int. Cl.³ A63F 9/00
U.S. Cl. 273—1 R **12 Claims**



1. A combative toy, comprising:

a playing surface:

a movable member rotatably mounted on said playing surface;

means for rotating said movable member;

at least one appendage detachably secured to said movable member; and

a second movable member rotatably mounted on said playing surface, means for rotating said second member, at least one appendage detachably secured to said second member, said appendage on each movable member including at an outer end thereof means for hooking the corresponding means for hooking defined on the appendage detachably secured to the other movable member;

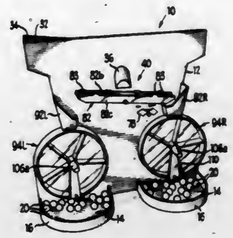
said appendage including an inner end with means for connecting said appendage to said movable member, said connecting means allowing vertical movement of said appendage relative to said playing surface due to centrifugal force upon rotation of said movable member.

4,274,630

GAME APPARATUS USING VISUAL/MOTOR SKILLS

Ralph J. Kulesza, Chicago, and Jeffrey D. Breslow, Highland Park, both of Ill., assignors to Marvin Glass & Associates, Chicago, Ill.

Filed Apr. 21, 1980, Ser. No. 142,343
Int. Cl.³ A63F 7/02
U.S. Cl. 273—1 R **14 Claims**



1. Game apparatus comprising:

a plurality of playing pieces having different identifying indicia thereon:

hopper means for holding said pieces having an outlet;

dispensing means for directing said pieces from said hopper outlet alternately between a plurality of spaced apart dispensing positions; and

receiving means at each position including a plurality of separate compartments therein and manually movable to align a selected compartment into position for receiving a playing piece from said discharge means having an indicia corresponding to indicia of said selected compartment.

4,274,631

BASEBALL PRACTICE BAT

Tadao Hayazaki, 497-1 Naoe Yourou-cho, Yourougun, Gifu-ken, Japan

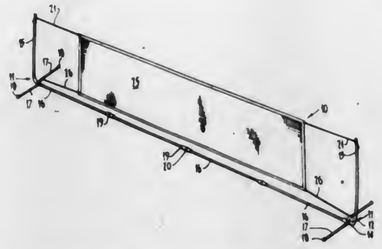
Filed Mar. 8, 1979, Ser. No. 18,788
Claims priority, application Japan, Mar. 8, 1978, 53-030113
Int. Cl.³ A63B 69/36
U.S. Cl. 273—26 B **4 Claims**



1. A baseball practice bat comprising a body with a hollow interior, a pipe fastened within the body with one of its ends fitting into a cap at one end of said bat and its other end fitting into the handle at the other end of said bat, a pair of diametrically opposed, guide slits longitudinally formed in said pipe, a weight slidably mounted exteriorly around said pipe, a supporting pin extending through said guide slits and said weight and slidably fixing said weight to said pipe, and an elongated elastic member extending inside the pipe having one of its ends

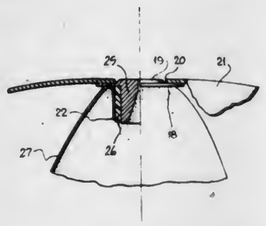
fixed to the weight at the pin and its other end fixed at the handle of the bat.

4,274,632
SUPPORTING MEANS FOR NETS AND THE LIKE FOR SPORTING ACTIVITIES
Brian J. Jacobs, 34 Patty St., Mentone, Victoria, Australia (3194)
Filed Oct. 23, 1978, Ser. No. 953,744
Int. Cl.³ A63B *69/00*
U.S. Cl. 273—29 BC **7 Claims**



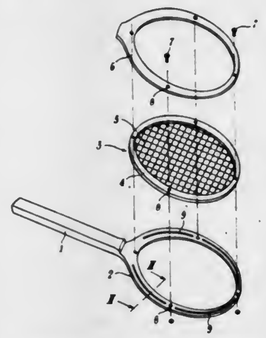
1. A free standing net support for sporting activities comprising a pair of substantially upright posts, a post support receiving each of said posts, rigid spacing means received in said post supports adjacent the base thereof and retaining said posts in a predetermined spaced relationship, said spacing means adapted to rest on a surface, a pair of legs attached to each support and extending laterally to opposite sides of each of said supports and of said spacing means, said legs being angularly adjustable relative to said supports, said posts being angled upwardly relative to said surface and outwardly from each other and being resilient and adapted to be pulled into a substantially vertical position when a net cord is attached thereto and strained, said laterally extending legs preventing tilting of said net support in a direction transverse to the plane of said net.

4,274,633
INFLATABLE BLADDER AND VALVE
Hugo Benscher, Bondi, Australia, assignor to Benscher & Sons Pty. Limited, Botany, Australia
Filed Aug. 30, 1979, Ser. No. 71,151
Claims priority, application Australia, Sep. 8, 1978, PD5868; Nov. 27, 1978, PD6936; May 8, 1979, 46867/79
Int. Cl.³ A63B *41/04*
U.S. Cl. 273—65 C **1 Claim**



1. In the combination of an inflatable bladder and valve for inflating the bladder for use with a ball cover in which the cover is of a predetermined thickness having inner and outer surfaces and an opening of a predetermined size through which the bladder and valve may be selectively inserted when said bladder is in a deflated condition, the improvement comprising said valve means including a valve body having an air passageway for communicating between a valve inlet at one end of the valve body and a valve outlet at the other innermost end of the valve body, said valve having a continuous single flange of flexible material surrounding and extending laterally of said body from a point spaced from the inlet end of said body by a distance substantially equal to the predetermined thickness of the ball cover, said flange being of a dimension to continuously contact the internal surface of the ball cover surrounding the opening therein, said inlet of said valve having lateral dimensions substantially equal to the dimension of the opening in the ball cover, elastic compression ring means surrounding said body of said valve in airtight relationship and extending along a portion of said body between said continuous flange and said outlet end of said valve, said bladder having an opening therein defined by an inverted neck portion, said inverted neck portion surrounding and being attached in airtight relationship along said compression ring means so as to extend between said flange and said outlet of said valve, whereby said continuous flange is urged against the inner surface of said ball cover when said bladder in inflated.

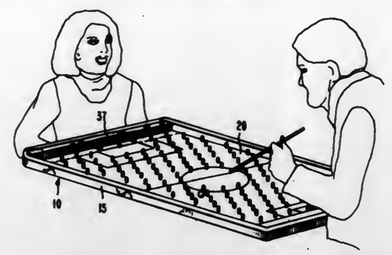
4,274,634
TENNIS RACKETS
Nando Berluti, No. 8, Piazza Rosselli, 60044 Fabriano, Italy
Filed Nov. 29, 1979, Ser. No. 99,194
Claims priority, application Italy, Sep. 21, 1979, 50320 A/79
Int. Cl.³ A63B *49/02, 49/04*
U.S. Cl. 273—73 L **2 Claims**



2. A racket comprising a replaceable string-frame and a racket-frame with a handle, said frames having the same shape and a continuous annular periphery, a plurality of Allen screws for fastening said string-frame to said racket-frame to form a single rigid frame, said screws having their heads sunk in respective holes of said counter-frame, and their shank screwed in holes of said racket-frame, said holes being uniformly distributed along the annular periphery of said frames, said racket-frame having on its surface abutting said string-frame a peripheral groove between each adjacent hole pairs, said grooves being intended to receive weight elements for balancing the racket.

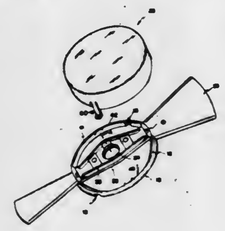
4,274,635
COMBINATION SOCCER/HOCKEY GAME BOARD
Sarkis B. Pakogian, P.O. Box 9440, Alexandria, Va. 22304
Filed Feb. 6, 1980, Ser. No. 118,871
Int. Cl.³ A63F *7/06, 7/36*
U.S. Cl. 273—85 R **8 Claims**

1. A combination soccer/hockey game board for use with a rolling sphere comprising;
a playing surface surrounded by a vertical wall member,
a plurality of obstructions disposed on said playing surface in rows which extend in four directions,
said rows from lanes which permit the rolling sphere to travel in three of said directions, while impeding the travel of said sphere in the fourth direction,
two goal elements are positioned at opposite ends of the playing surface having obstructions disposed at the midpoint of their respective openings,
a plurality of removable wall member elements disposed



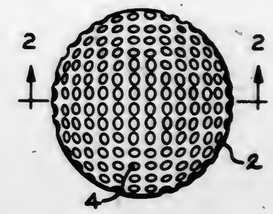
behind the respective goal elements, the presence of which conforms the playing surface to a soccer field, and the absence of which conforms the playing surface to a hockey ring.

4,274,636
FLYING TARGET PIGEONS
Ludovico Lante-Montefeltro, Avda. Libertador Edif-Siclar., 2° Piso, Ofic. No. 23, Caracas, Venezuela
Continuation-in-part of Ser. No. 604,069, Aug. 12, 1975, abandoned, Ser. No. 679,135, Apr. 21, 1976, Pat. No. 4,077,384, and Ser. No. 762,019, Jan. 24, 1977, Pat. No. 4,133,532. This application Mar. 1, 1978, Ser. No. 882,907
Int. Cl.² F41J *9/16*
U.S. Cl. 273—365 **26 Claims**



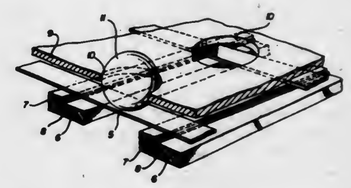
1. A target pigeon comprising:
a cup-shaped cap having a side wall centered on a cap axis and having a pair of axially opposite ends, and an end wall closing said side wall at one of said ends;
a generally flat and circular ring centered on a ring axis and having a plurality of angularly equispaced similar major side portions of predetermined relatively short axial height and a plurality of angularly equispaced similar minor side portions alternating with said major portions and of predetermined relatively long axial height;
means including interengaging formations on said ring and on the other end of said side wall for holding said cap and ring releasably together with said axes aligned and said other end of said side wall bearing on said ring and for freeing said cap and ring from each other when impacted; and
respective radially extending vanes on said ring at said minor portions thereof, said vanes being tipped propeller-fashion relative to each other, said cap, ring, formation, and vanes being made of at least limitedly elastic high-impact material.

4,274,637
GOLF BALL HAVING CELLULAR COVER
Robert P. Molitor, South Hadley, Mass., assignor to Questor Corporation
Continuation-in-part of Ser. No. 7,964, Jan. 31, 1979, abandoned. This application Jun. 2, 1980, Ser. No. 155,658
Int. Cl.³ A63B *37/12*
U.S. Cl. 273—235 R **24 Claims**



1. A golf ball having a center and a cover wherein said cover is formed from a cellular natural or synthetic polymer.

4,274,638
GAME SWITCH MATRIX
Graham A. Jullien, Windsor, Canada, assignor to James J. Ogilvy, Windsor, Canada
Filed Oct. 19, 1978, Ser. No. 952,736
Claims priority, application Canada, Nov. 14, 1977, 290796
Int. Cl.³ A63F *3/08*
U.S. Cl. 273—238 **8 Claims**



1. A game switch matrix comprising:
(a) a plurality of first spaced parallel strips of conductive, flexible resilient material,
(b) a plurality of second spaced parallel strips of conductive material disposed orthogonal to, below, in a plane parallel to, and spaced from the first plurality of strips,
(c) means for supporting the first plurality of strips, said supporting means being comprised of insulators of unyieldable material having a first strip supporting surface which is higher than the upper contacting surface of the second strips, disposed along lines parallel to each strip of the second plurality of strips, providing an insulating air gap between the first and second plurality of strips, whereby, upon depression of one strip of said first plurality of strips at a point adjacent one strip of said second plurality of strips, said one strip of the first plurality of strips is caused to pass through said air gap and make electrical contact with said one strip of the second plurality of strips, and said one of said first plurality of strips is restricted from contacting any other of said second plurality of strips,
(d) a table overlying the top of the first plurality of parallel strips, the table containing holes over said first strips to accommodate balls for depression of said one strip of the first plurality of strips,
(e) the strips being spaced leaving gaps between each of said first strips and gaps between each of the second strips, the gaps having their narrowest dimension larger than a predetermined diameter, further including means for allow-

ing the table to be shifted to orient the holes over said gaps, so as to shift any playing balls which may be inserted by a player within said holes to positions over said gaps and thereby allow them to fall through said gaps, and further including a sink disposed below said plurality of said second strips having a ball channelling outlet leading to a ball containment chamber.

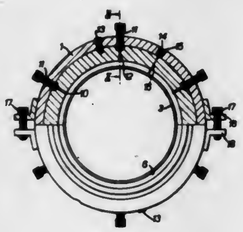
4,274,639
EXERCISE AND GAME APPARATUS
Ralph W. Flanders, 19726 Rolling Acre, South Bend, Ind. 46614
Filed Aug. 2, 1979, Ser. No. 63,248
Int. Cl.[3] A63B 63/08, 21/00; A63H 33/22
U.S. Cl. 273—402 8 Claims



1. An exercise game apparatus comprising a ball, shaft means extending outwardly from said ball and forming a rotational axis for said ball, a hoop-like supporting structure for said ball and said shaft means, a weight means connected to said ball and offset from the rotational axis thereof for causing said ball to spin as said ball is moved in an orbital manner, a means including a bar connected to said hoop-like ball supporting structure and extending outwardly therefrom for use in manipulating the apparatus, a fastening portion at the end of said bar means for attachment to a belt, and a handle extending outwardly from said bar means for steadying said apparatus.

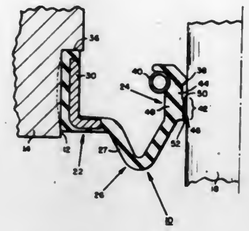
2. An exercise and game apparatus as defined in claim 1 in which two of said manipulating bar means are diametrically opposed to each other on said hoop-like structure.

4,274,640
SEALING DEVICES
Barrie J. A. Cook, Penarth, Wales, assignor to Sibex (Constructions) Limited, Glamorganshire, England
Filed Aug. 1, 1979, Ser. No. 62,614
Int. Cl.[3] F16J 15/06; F16L 55/18
U.S. Cl. 277—9 8 Claims



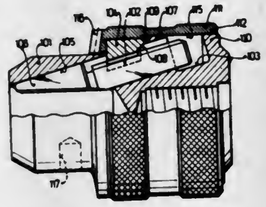
1. A sealing device for insertion between opposed end flanges of adjacent pipeline sections, comprising a split ring with an annular sealing member seated therein to be exposed at one axially facing side, and cam means operable from the radially outward side for urging said sealig member outwardly, in the axial direction, from said ring.

4,274,641
SHAFT SEAL AND METHOD
Douglas A. Cather, Jr., Gastonia, N.C., assignor to Garlock Inc., Longview, Tex.
Filed Oct. 29, 1979, Ser. No. 89,281
Int. Cl.[3] F16J 15/32
U.S. Cl. 277—153 37 Claims



1. An annular shaft seal for sealing against the flow of fluid through an annular space between a bore of a housing and a shaft extending through the bore, comprising:
(a) an annular bore retention section;
(b) an annular sealing element;
(c) an annular convoluted flex section connecting said bore retention section to said sealing element and adapted to allow said sealing element to move freely radially with a shaft and relative to said bore retention section; and
(d) said sealing element including: (1) a sealing lip adapted to sealingly contact a shaft extending through said seal and also including (2) a bearing member having a cylindrical low friction bearing surface adjacent said sealing lip adapted to contact a shaft in sealing contact with said sealing lip.

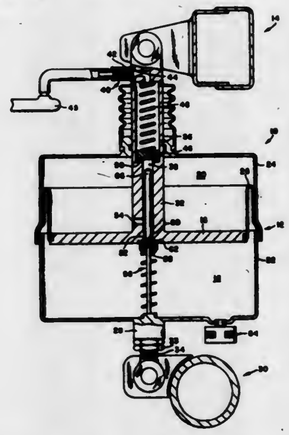
4,274,642
TOOL CHUCK
Steffen Wünsch, Dettenhausen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany
Filed Jan. 29, 1979, Ser. No. 7,260
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1978, 2808253
Int. Cl.[3] B23B 31/04
U.S. Cl. 279—62 4 Claims



1. A tool chuck particularly for a hammer or percussion drill to receive a tool at a tool receiving end thereof having
a collet, the collet having oblique passages for holding and guiding a plurality of chuck jaws, said chuck further including a rotatable structure having a threaded ring surrounding said collet and engaging said chuck jaws, and a bushing coaxially surrounding said threaded ring and secured thereto to rotate therewith,
and a friction brake to prevent relative rotation of the rotatable structure and said collet in one direction, while permitting rotation in the other, and automatically tightening upon blows in axial direction, comprising

an inner support surface formed on said threaded ring adjacent the tool receiving end thereof;
and outer conical surfaces formed on said collet in engagement with the inner conical surfaces of said threaded ring, the conical surfaces having their larger diameter positioned remote from the tool receiving end of the chuck.

4,274,643
VEHICLE LEVELING DEVICE
Richard T. Hendrickson, South Bend, Ind., assignor to The Bendix Corporation, Southfield, Mich.
Filed Oct. 2, 1978, Ser. No. 947,330
Int. Cl.[3] B60G 3/14
U.S. Cl. 280—6.1 9 Claims



1. A leveling device for a vehicle having a vacuum source comprising:
a housing disposed between a wheel supporting assembly for the vehicle and a body assembly for the vehicle, said housing being connected to one of said assemblies;
a piston movably disposed within said housing and cooperating with said housing to define a pair of chambers, said piston including a rod extending outwardly of said housing to connect with the other of said assemblies;
passage means normally communicating said pair of chambers with each other, and
a control member cooperating with the piston and the passage means to close communication between the chambers and open communication between the vacuum source and one of the chambers when the body assembly moves a predetermined distance relative to the wheel supporting assembly, the other chamber being vented to atmosphere so as to create a pressure differential across the piston to oppose the movement of the body assembly relative to the wheel supporting assembly,
said piston rod including a bore which forms a portion of said passage means, said control member extending into the bore and opposing a first valve member which normally closes communication between the vacuum source and the pair of chambers.

4,274,644
FOUR WHEELED HAND TRUCK
Frank E. Taylor, 1440 S. Seneca, Wichita, Kans. 67213
Filed Aug. 30, 1979, Ser. No. 71,320
Int. Cl.[3] B62B 3/02
U.S. Cl. 280—39 3 Claims

1. A hand truck comprising a platform; a pair of wheel-connecting bars rotatably attaching to the platform; a plurality of wheels connecting to the bars, at least two of said wheels being rotatable thereon; a handle member pivotally connecting at two points on an end of said platform and circumscribing three sides of the perimeter of the platform when the handle member is in a closed position; a first gear means connected to the end of said wheel-connecting bars; a second gear means meshing with the first gear means and connecting to the handle member in proximity to the points of pivotation with the platform; handle release and locking means attached to the platform and locking the handle member either in an open or in the closed position; said wheels folding up underneath the platform and lying horizontally with respect thereto when the handle member is in the closed position; said wheels folding out from underneath the platform toward an eventual perpendicular position with respect to the underside of the platform as the handle member is released by the handle release and locking means and is pulled away from the platform while pivoting at said points of pivotation, simultaneously causing said first gear means to engage and turn said second gear means resulting in the wheel-connecting bars rotating to fold out said wheels to the perpendicular position wherein said handle member is postured in the open position forming an oblique angle with respect to the top of the platform, said hand truck additionally including a pair of plates, each having an aperture for an open position and an aperture for a closed position, and each oppositely situated with respect to each other and integrally bound to said handle member in proximity to said points of pivotation of said handle member with said platform, said handle release and locking means is connected underneath the platform and thereto; said handle release and locking means comprises a pair of spring-biased locking pins oppositely situated with respect



to each other, one of said pins inserting into the aperture for an open position of one plate and the other pin inserting into the aperture for an open position of the other plate when said handle member is in the open position, and when said handle member is in the closed position, one of said pins inserts into the aperture for a closed position of one plate and the other pin inserts into the aperture for a closed position of the other plate; and a spring-biased pin contracting means attached to said spring-biased pins to contract said spring-biased pins to release said handle member from either the open position or the closed position.

3. A hand truck comprising a platform; a first wheel-connecting bar and a second wheel-connecting bar, both rotatably attaching to said platform; a plurality of wheels connecting to said first and second bar, at least two of said plurality of wheels being rotatable thereon; a wheel-position bar pivotally engaging the first bar and pivotally connected to the second bar; a handle member pivotally connecting at two points on an end of said platform and circumscribing three sides of the perimeter of the platform when the handle member is in a closed position, said handle member being additionally bound to said first wheel-connecting bar to rotate same as said handle is pivoted about the points of pivotation with the platform; handle release and locking means attaching to the platform and locking the handle member either in an open or in the closed position; said wheels folding up underneath the platform and being horizontally with respect thereto when the handle member is in the closed position; said wheels folding out from underneath the platform toward an eventual perpendicular position with re-

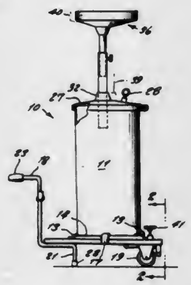
spect to the underside of the platform as the handle member is released by the handle release and locking means and is pulled away from the platform while pivoting at said points of pivotation, simultaneously causing said first wheel-connecting bar to rotate and engage the wheel-position bar resulting in said wheel-position bar rotating said second wheel bar, in order to fold out said wheels to the perpendicular position wherein said handle member is postured in the open position, a cylindrical retention member having a structure defined by at least one recess, said retention member being integrally bound to said first wheel-connecting bar, said handle release and locking means is connected underneath the platform and thereto, said retention member including an open recess and a closed recess, said handle release and locking means comprises a spring-biased pin situated at an end of the platform, said pin being inserted into the open recess when said handle member is locked in the open position and said pin being inserted into the closed recess when said handle is postured in the closed position.

4,274,645

PORTO AUTO OIL EASY DRAIN

Arthur Ferguson, c/o George Spector, 3615 Woolworth Bldg., 233 Broadway, and George Spector, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Jun. 15, 1979, Ser. No. 48,719
Int. Cl.³ B62B *1/18*
U.S. Cl. 280—47.26 **1 Claim**



1. A porto auto oil easy drain device, comprising in combination a tank mounted upon a hand cart, said cart including a frame with a wheel support at the front and a leg support at its rear, said frame including a handle at its rear, said tank having a drain valve at its bottom, an upper end of said tank being open and closable by a cover rotatably mounted thereon having an eccentrically positioned, vertical pipe inlet therethrough supporting a funnel rotatably mounted in said pipe, including means for affixing said cover and said funnel wherein said funnel comprises a pipe outlet mounted in said inlet and a basin eccentrically mounted thereupon, said means comprising a ring retainer fitted about said cover and a set screw connecting said inlet and outlet, said drain valve disposed within said frame having an outlet orifice adjacent said front.

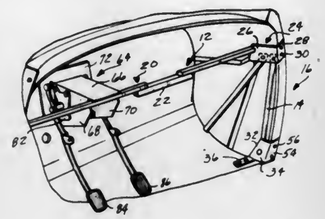
4,274,646

STEERING COLUMN AND COWL SUPPORT FRAME

Rainer C. Olligschlager, Howel, and Nelson R. Turner, Monroe, both of Mich., assignors to The Model A and Model T Motor Car Reproduction Corporation, Battle Creek, Mich.

Filed Sep. 28, 1979, Ser. No. 79,997
Int. Cl.³ B62D *1/18*
U.S. Cl. 280—779 **3 Claims**

1. An automotive body construction comprising
a pair of parallel, longitudinal frame rails,
a floor pan superimposed on the frame,
a substantially vertical fire wall and upstanding side walls cooperating with said floor pan to enclose a cowl space,
a pair of spaced vertically aligned door hinge support brackets mounted on each of said side walls,
a horizontal cross brace generally parallel to said fire wall and joining the upper hinge support brackets of the two side walls,
a pedal support bracket secured to said fire wall and projecting therefrom into contact with said cross brace,



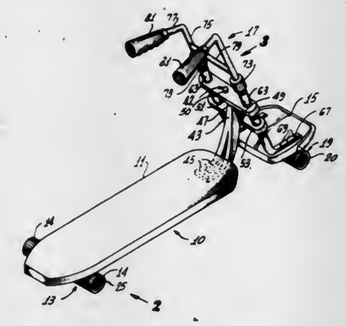
means securing said pedal support bracket to said cross brace,
means interconnecting the vertically aligned hinge support brackets on each side wall, and
a diagonal, downwardly and forwardly inclined side brace interconnecting each of the upper hinge support brackets, respectively, to said frame forwardly of said cross brace.

4,274,647

MANUALLY STEERABLE SKATEBOARD

Louis V. Drake, Jr., 1138 Fourth Ave., Los Angeles, Calif. 90019

Filed Mar. 9, 1979, Ser. No. 19,157
Int. Cl.³ A63C *17/14*
U.S. Cl. 280—87.04 A **6 Claims**



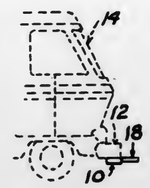
2. A generally elongated skateboard of the type having at least two sets of wheels, a structure connecting said sets of wheels, and a steering apparatus, wherein the steering apparatus comprises the combination of:
a joint in the structure located between the sets of wheels, about which joint a forward portion of the structure is capable of articulated movement with respect to the rearward portion of the structure about a substantially vertical axis; and
one of said sets of wheels being mounted in a dirigible truck and supporting said forward portion of the structure, and another of said sets of wheels being mounted in a dirigible truck and supporting said rearward portion of the structure, each of said trucks being arranged to steer said skateboard in response to rotation of said skateboard about a longitudinal axis thereof.

4,274,648

VEHICLE BUMPER STEP

Robert R. Robins, 721 Woodland, Minneapolis, Kans. 67467

Filed Apr. 5, 1979, Ser. No. 27,422
Int. Cl.³ B60R *3/02*
U.S. Cl. 280—166 **3 Claims**



1. A retractable step for a vehicle bumper having a generally vertical portion and upper and lower laterally projecting flanges normal to the plane of said vertical portion, the improvement comprising:
an upwardly open frame having forward and rearward ends and having lateral sides spaced longitudinally of said bumper;
clamp means secured to the upper limit of said frame adjacent its respective sides for gripping one said bumper flange,
said clamp means comprising a clamp member projecting outwardly from said frame and doubled back upon itself to describe a U-shape having parallel legs, and,
a stud bolt projecting through one said leg normal to the plane thereof;
arm means connected with said frame and projecting toward said bumper in the direction of said clamp means for stabilizing the position of said frame relative to said bumper,
said arm means comprising an elongated arm, a stub arm overlapping the end portion of said arm opposite said frame and having a longitudinal slot therein, and,
bolt means securing said stub arm to said elongated arm;
a step movable from a first position nested by said frame to a second position projecting beyond and normal to the vertical portion of said bumper; and,
hook means for normally preventing separation of said step relative to said frame.

4,274,649

BICYCLE TRAILER AND HITCH

Ed W. Vanderhorst, 6718 Whitaker Ave., and Heary L. Vanderhorst, 6536 Langdon Ave., both of Van Nuys, Calif. 91406

Filed Feb. 15, 1979, Ser. No. 12,529
Int. Cl.³ B60D *1/06*; B62K *27/12*
U.S. Cl. 280—204 **3 Claims**



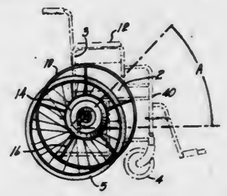
1. A quick release hitch assembly for releasably coupling a trailer to a vehicle comprising:
a coupling member having an upstanding post and a spherical ball portion attached to the top of the upstanding post, the coupling member being attached to the vehicle;
a swivel member having a socket portion for permanently mounting the swivel member essentially on the ball portion, the swivel member having a ball receiving socket therein, slightly less than half of the sphere of the ball portion being positioned in the ball receiving socket, the swivel member further having a retention disc with a central orifice having an interior chamfered edge, the central orifice of the retention disc having a diameter less than the diameter of the ball member, the ball member being loosely retained in the ball receiving socket by the retention disc when the retention disc is attached to the swivel member about the peripheral edge of the ball receiving socket whereby the swivel member is freely movable about the ball portion, the swivel member further having a hitch portion having a swivel member end surface, a first closed-ended, substantially straight, passageway extending from the swivel member end surface into the hitch portion, and a second open-ended passageway therethrough intersecting the first passageway;
a connecting member permanently attached to the trailer and having a connecting member shoulder and an attachment portion extending from the connecting member shoulder for being releasably inserted into the first passageway, the attachment portion having an attachment orifice therethrough, the attachment orifice being positioned so that it will be aligned with the second passageway when the attachment portion is inserted in the first passageway and the swivel member end surface abuts against the connecting member shoulder; and
a pin for being removably inserted through the second passageway and the attachment orifice for essentially coupling the connecting member to the swivel member, the connecting member being released from the swivel member by removing the pin from the second passageway and the attachment orifice.

4,274,650

HAND DRIVE ASSEMBLY FOR A WHEELCHAIR

Hans Gilles, 249 Springhill, Rosemere, Quebec, Canada

Filed Jun. 21, 1979, Ser. No. 50,569
Int. Cl.³ B62M *1/14*
U.S. Cl. 280—242 WC **1 Claim**



1. In a wheelchair having a chassis, a seat, a back-rest, a pair of front, smaller diameter ground-engaging swivel wheels terminating below said seat, and a pair of back, large diameter ground-engaging driving wheels extending above said seat, said seat, back-rest and front and back wheels all carried by said chassis, said back wheels mounted on said chassis on each side of said seat for independent rotation about a horizontal axis transverse to and located below said seat in the region of said back-rest, the improvement comprising:
(a) a main gear gixed to, and co-axial with, each back wheel;
(b) a plate fixed to each side of said chassis;
(c) a pair of hand-operated driving rings of a diameter substantially equal to the diameter of said back wheels and carried by said plate for rotation about a transverse horizontal rotation axis parallel to the rotation axis of said back wheels and upwardly and forwardly spaced from said last-named rotation axis, the rotation axis of said

driving rings being spaced from the rotation axis of said back wheels by a distance which is less than the diameter of said rings and back wheels, said rings being located on the outside of the respective back wheels and overlapping the latter;

(d) a driving gear fixed to, and co-axial with, each driving ring; and

(e) transmission means drivingly interconnecting said main gear and said driving gear for rotation of said gears in the same direction.

4,274,651

WHEELCHAIR

Hubert H. Dumont, 2543 Lincoln Ave., Miami, Fla. 33133

Filed Aug. 9, 1979, Ser. No. 65,182
Int. Cl.³ B62M 1/14
U.S. Cl. 280—242 WC 18 Claims



1. A hand-propelled wheelchair for transporting persons, such as paraplegics and patients, in a sitting position, comprising:

a frame assembly having a pair of generally upright side frames, a back frame including a generally upright back support and a seat extending between and connecting said side frame;

a plurality of wheels operatively connected to said frame assembly for traveling upon a surface such as a ramp, said wheels including a pair of front wheels and a pair of rear wheels, each of said rear wheels having a diameter substantially greater than each of said front wheels; and

manual drive means operatively connected to said frame assembly for manually driving at least one of said rear wheels and for substantially preventing said rear wheel from rolling backwards while climbing said ramp, said manual drive means including:

a driven sprocket operatively connected to one of said rear wheels, said driven sprocket and said rear wheel rotating together about a common axis of rotation,

a drive sprocket for driving said driven sprocket,

a flexible chain connecting said drive sprocket to said driven sprocket,

a rotatable hand crank positioned adjacent one of said side frames at a location for permitting the person in the wheelchair to comfortably rotate said crank, said hand crank having an arm, a cam integrally connected to one end of said arm, and a handle connected to the other end of said arm for rotating said cam integrally with said arm, and

clutch means responsive to said cam for drivingly connecting said hand crank to said drive sprocket,

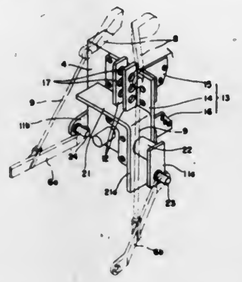
said cam being moveable by said handle from a drive position for cammingly engaging said clutch means to drive said rear wheel, to a neutral free-wheeling position spaced from said clutch means for permitting said rear wheel to coast.

4,274,652

STRUCTURE FOR ATTACHING AN IMPLEMENT TO AN OFFSET-TYPE TRACTOR

Masayori Kajino, Osaka; Takashi Yoshii, Sakai, and Tomeaki Tama, Hashimoto, all of Japan, assignors to Kubota, Ltd., Naniwa, Japan

Filed Jul. 23, 1979, Ser. No. 59,621
Claims priority, application Japan, Jul. 31, 1978, 53-105902
Int. Cl.³ B60D 1/00
U.S. Cl. 280—460 A 7 Claims



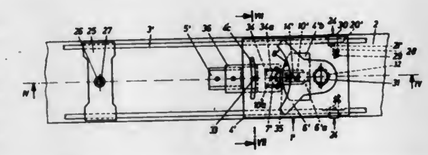
1. In an offset-type tractor having a vertical, longitudinal center plane, and a transmission case disposed offset to one lateral side of said center plane, the improvement comprising means for mounting a three point implement hitch to said transmission case, said hitch including a top link and first and second, laterally spaced lower links, said mounting means comprising: a mounting base assembly detachably mounted to the rear of said transmission case; a plate fixed to said base assembly and projecting rearwardly therefrom; an arm having one end fixed to said plate and a second end projecting laterally from said tractor; a first bracket having an upper end fixed to said second end of said arm, and a lower end; means for pivotally mounting said first lower link to said lower end of said first bracket; a second bracket fixed to said base assembly on said one lateral side of said center plane; means for pivotally mounting said second lower link to said second bracket; an upper bracket mounted on said base assembly; and means for pivotally mounting said upper link to said upper bracket.

4,274,653

SAFETY SKI BINDING

Alois Himmetsberger, and Heinz Wittmann, both of Vienna, Austria, assignors to TMC Corporation, Baar, Switzerland

Division of Ser. No. 896,234, Apr. 13, 1978, Pat. No. 4,190,264.
This application Nov. 5, 1979, Ser. No. 91,447
Claims priority, application Austria, Apr. 15, 1977, 2635/77
Int. Cl.³ A63C 9/081
U.S. Cl. 280—618 9 Claims



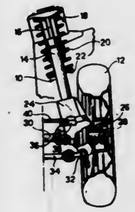
1. A safety ski binding comprising a pivotally supported sole plate provided adjacent a front end thereof with a jaw plate having a holding jaw pivotally supported for movement about an axis which is perpendicular with respect to an upper surface of a ski, said sole plate being maintained in a centered position at said front end by means of a locking mechanism which is released upon exceeding a predetermined torque, the improvement comprising wherein said locking mechanism has a mounting plate secured to said ski, said jaw plate having means defining a recess therein, the axis of said recess extending parallel to the longitudinal axis of said sole plate, slide piece means slidably mounted in said recess for reciprocal movement therein, said slide piece means having first connecting means thereon, said holding jaw having extension means thereon with second connecting means operatively connected to said first connecting means for reciprocal movement capability with said slide piece means, said first and second connecting means operatively effecting a locking of said holding jaw in a fixed position on said jaw plate by urging said slide piece means to a position within said recess, and means responsive to a pivotal movement of said sole plate for effecting a movement of said slide piece means out of said recess to thereby unlock said holding jaw from said jaw plate to permit a pivotal movement of said holding jaw on said jaw plate.

4,274,654

STRUT FOR MACPHERSON-TYPE SUSPENSIONS FOR MOTOR-VEHICLES

Giuseppe Travaglio, Via U. Foscolo 4, Asti, Italy

Filed Feb. 11, 1980, Ser. No. 120,852
Int. Cl.³ B60G 11/58
U.S. Cl. 280—668 23 Claims



1. In a strut for MacPherson-type suspensions for motor vehicles, of the type comprising an upper tubular member of sheet metal which forms the cylinder of a telescopic shock absorber, and a sheet metal housing having upper wall with a circular aperture, a lower wall with a hole for the attachment of one of the parts of a ball-and-socket joint of a suspension wishbone, a lateral end wall defining a flange for the attachment of a bearing bush or bearing spindle and a static part of a wheel brake, and a pair of opposing faces, a lower portion of the tubular member being engaged in the circular aperture of the upper wall of the housing and fixed to the housing by welding; the improvement therewith: wherein an additional reinforcing member of sheet metal is welded to the housing to define a supplementary wall adjacent to the upper wall of the housing, the supplementary wall having a circular aperture aligned with and spaced from the circular aperture of the upper wall, and wherein the lower portion of the tubular member is engaged with a close fit into said two aligned apertures and is fixed by welding to an edge of at least one of the apertures.

4,274,655

RESILIENT MOUNT FOR MACPHERSON STRUT

Frederick E. Lederman, Sandusky, Ohio, assignor to General Motors Corporation, Detroit, Mich.

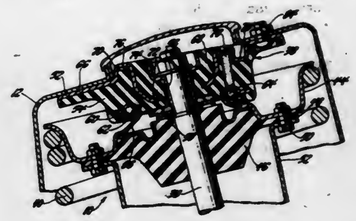
Filed Oct. 29, 1979, Ser. No. 88,838
Int. Cl.³ B60G 11/42
U.S. Cl. 280—688 4 Claims

1. A resilient mount for the upper end of a vehicle suspension strut comprising a shock absorber having an outer casing and a piston rod extending out of its upper end, and a coil spring surrounding the shock absorber and supported at its lower end by a spring plate attached to the outer casing, comprising:

an annular mounting plate for securing the resilient mount to vehicle support structure bonded to an upper surface of an elastomeric ring for cushioning the loads of the coil spring as well as the loads of the shock absorber during suspension jounce and rebound,

an upper race ring bonded to a lower surface of the elastomeric ring and spaced from a cup-shaped central portion of the annular mounting plate embedded in the elastomeric ring,

thrust bearing means for rotatably supporting the upper end of the coil spring comprising the upper race ring bonded to the elastomeric ring, and a complement of bearing



elements and a lower race ring retained in assembly with the elastomeric ring by integral flexible lips at the lower end of the elastomeric ring which engage the lower race ring to seal the inner and outer ends of the thrust bearing means, and

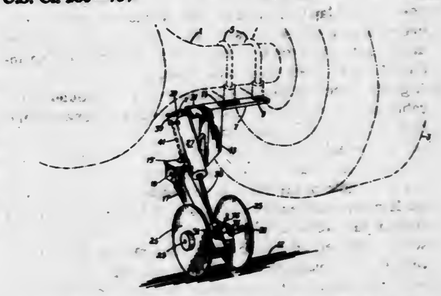
a central sleeve secured to the elastomeric ring for attaching the end of the piston rod of the shock absorber having an enlarged head disposed inside of the cup-shaped central portion of the annular mounting plate with a portion of the elastomeric ring disposed therebetween.

4,274,656

APPARATUS FOR PREVENTING VEHICLES FROM SLIPPING SIDEWAYS AND GOING OUT OF CONTROL UNDER SNOW AND ICE CONDITIONS

Earney R. Warren, Fordland, Mo., assignor to Customized Components Co., Springfield, Mo.

Filed Jul. 26, 1979, Ser. No. 60,777
Int. Cl.³ B60R 27/00
U.S. Cl. 280—757 7 Claims



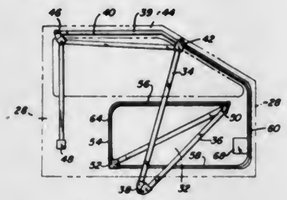
1. Apparatus for preventing vehicles from slipping sideways on slick road surfaces comprising a freely rotatable disc structure having a shaft parallel to the axis of the vehicle wheels and a pair of separate discrete discs mounted in spaced relation with each other on the respective end portions of said shaft to define between them a radially deep circumferential space and each having a single metal platelike circumferential edge capable of cutting into pavement ice and the like, support structure including a mounting element arranged for securement to an upsprung portion of a vehicle and an arm extending rearwardly from said element, a pivotal connection located at the forward end of said arm on an axis parallel to the axis of the vehicle wheels, means rotatably mounting said shaft on the rear end portion of said arm, said discs being positioned on

opposite sides of said arm, and selectively actuatable means for extending and retracting said arm comprising a fluid cylinder and piston assembly connected at one end to said mounting element and at its other end to said arm.

4,274,657
VEHICLE PASSIVE OCCUPANT RESTRAINING SYSTEM

Richard F. Johnson, Bloomfield Hills, and John W. Wiers, Washington, both of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.

Filed May 21, 1979, Ser. No. 40,656
Int. Cl.³ B60R 21/10
U.S. Cl. 280—803 **7 Claims**



6. An automatic belt restraint system for use in a motor vehicle of the type having a passenger compartment which includes doors having a metal frame around a window opening therein, said vehicle doors having a forward edge connected to the vehicle body by a hinged connection, said belt restraining system comprising:

a shoulder and a lap belt for restraining an occupant in said vehicle;

a first end of said shoulder and lap belts attached to the body of said vehicle inboard of a seat;

a shoulder and lap belt drive assembly located on said door of said vehicle;

said drive assembly including a single loop guide track having a horizontal section set along the upper portion of the metal frame of said door above said window for positioning said shoulder belt, the forward edge of said door, the lower portion of said door along a central area of said door then vertically upward at a point located to correctly position said lap belt and a final horizontal portion running under said window towards said forward edge of said door, said guide track having bends therein with an included angle of 90 degrees or greater;

said guide assembly includes a helically wire wound drive cable having sufficient rigidity to be driven forward and backward in said guide track;

means for attaching a second end of each of said shoulder and lap belts to said drive cable for movement therewith;

a motor capable of driving a gear which in turn drives said guide cable, said motor and said gear located within said door of said vehicle; and

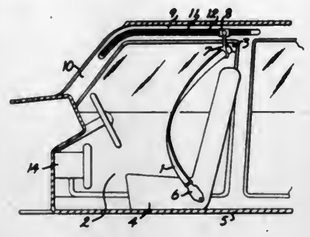
a switch mounted on said forward edge of said door of said vehicle for sensing the entering or leaving of said occupant, said switch actuating said cable drive to release said restraining belts when said occupant desires to exit said vehicle and engage said system when said occupant closes said door of said vehicle.

4,274,658
VEHICLE OCCUPANT RESTRAINT SYSTEM

Juichiro Takata, 3-12-1, Shinmachi Setagayaku, Tokyo, Japan

Filed Jun. 25, 1979, Ser. No. 51,969
Int. Cl.³ B60R 21/10
U.S. Cl. 280—804 **7 Claims**

1. A vehicle occupant restraint system for restraining an occupant of a seat located adjacent a door that is hinged along the front edge comprising a shoulder belt having an outboard end secured to an anchor affixed to the upper rear portion of the door, an intermediate portion extending down and in across the seat to the inboard rear portion of the seat and an inboard end portion wound onto an emergency locking retractor; an elongated guide rail mounted on the edge of the roof to rock within a predetermined range in a generally vertical plane

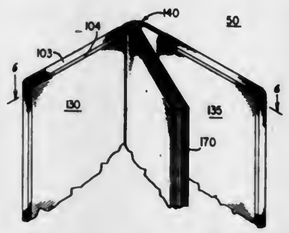


about generally its center of gravity and extending generally coextensively with the upper edge of the door; a slider received by the guide rail for sliding movement therealong; and a belt guide ring movably attached to the slider and receiving the intermediate portion of the belt for movement therethrough.

4,274,659
ADJUSTABLE BOOK COVER

Joseph J. D'Ambrosio, 13970 Peach Grove St., Sherman Oaks, Calif. 91423

Filed Jul. 6, 1979, Ser. No. 55,687
Int. Cl.³ B42D 3/00
U.S. Cl. 281—34 **9 Claims**



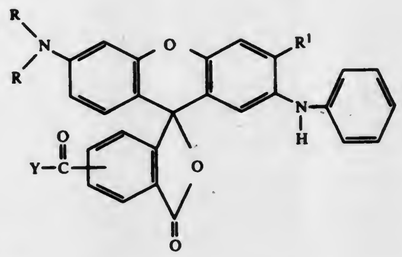
1. A protective and adjustable book cover for paperback books and magazines and the like, said cover comprising two complimentary sized cover sections, each of said cover sections having opposed and spaced apart rigid plies of substantially the same size connected along three edges thereof forming a pocket with the remaining edges open, means maintaining said rigid plies spaced apart a distance sufficient to receive therebetween a cover of an associated book or magazine, a spine connecting said complimentary pocket shaped cover sections and having a transverse dimension substantially coextensive with the open edges of said cover sections, and means resiliently connecting said spine to at least one of said cover sections to provide an adjustable rigid book cover for paperback books or magazines of various thicknesses and size.

4,274,660
CARBONLESS DUPLICATING AND MARKING SYSTEMS

Paul J. Schmidt, Sharonville, and William Mo-Wei Hung, Cincinnati, both of Ohio, assignors to Sterling Drug Inc., New York, N.Y.

Filed May 14, 1979, Ser. No. 39,017
Int. Cl.³ B41M 5/16, 5/18, 5/22
U.S. Cl. 282—27.5 **10 Claims**

1. A pressure-sensitive carbonless duplicating system or thermal marking system comprising a support sheet coated with a layer containing as a color-forming substance a 2-anilino-3-R^1-6-(R)$_2$amino-5'/6'-Y-carbonylfluoran of the formula



wherein:

R represents a non-tertiary C_1 to C_4 alkyl;

R^1 represents hydrogen or a non-tertiary C_1 to C_4 alkyl; and

Y represents OR^2 in which R^2 represents hydrogen, a non-tertiary C_1 to C_{18} alkyl, benzyl, alkali metal cation or ammonium cation.

4,274,661
COMPOSITE WEB OF PRESSURE SENSITIVE LABELS

William A. Jenkins, Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio

Continuation-in-part of Ser. No. 607,317, Aug. 25, 1975, abandoned, which is a continuation-in-part of Ser. No. 475,730, Jun. 3, 1974, and a continuation-in-part of Ser. No. 475,728, Jun. 3, 1974, which is a division of Ser. No. 366,919, Jun. 4, 1973, abandoned, which is a division of Ser. No. 206,061, Dec. 8, 1971, Pat. No. 3,783,083, which is a continuation-in-part of Ser. No. 155,740, Jun. 23, 1971, abandoned, said Ser. No. 475,730, is a division of Ser. No. 366,919, Jun. 4, 1973, abandoned. This application Sep. 26, 1979, Ser. No. 79,001
The portion of the term of this patent subsequent to Jan. 1, 1991, has been disclaimed.
Int. Cl.³ G09F 3/10
U.S. Cl. 283—21 **4 Claims**

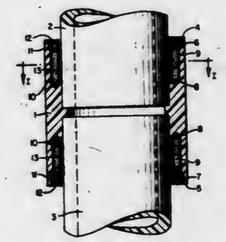


1. A composite label web for use in a label dispensing apparatus having a toothed driver and a label separating delaminator, the composite label web comprising an elongated carrier web of flexible supporting material, a series of longitudinally disposed labels on the carrier web, pressure sensitive adhesive on the labels and releasably securing each label to the carrier web, a series of longitudinally spaced groups of cuts in the carrier web and located under the labels, each group of cuts including spaced converging bar cuts defining in the carrier web a flap portion attached to an overlying label by the pressure sensitive adhesive, each flap portion being integrally connected to the carrier web at a leading location by a narrow frangible portion defined between closely spaced portions of the converging bar cuts, each frangible portion having sufficient strength to maintain the flap portion in the plane of the carrier web when the carrier web is pulled around the delaminator by the toothed driver and to effect peeling the corresponding flap portion from the pressure sensitive adhesive on the overlying label, and each frangible portion having sufficient weakness to rupture in response to engagement of the corresponding flap portion by the toothed driver.

4,274,662
PYROTECHNICAL WELDING SLEEVE CONNECTOR FOR THE JOINING OF MOLDED COMPONENTS, ESPECIALLY PIPES, OF A THERMOPLASTIC SYNTHETIC RESIN

Willem J. de Groot, Jona, Switzerland; Horst Penner, Furth; Irene Schmied, Nuremberg, both of Fed. Rep. of Germany, and Peter Weber, Jona, Switzerland, assignors to Dynamit Nobel AG, Troisdorf, Fed. Rep. of Germany and Geberit AG, Rapperswil, Switzerland

Filed Dec. 28, 1979, Ser. No. 107,861
Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2856895
Int. Cl.³ F16L 47/02
U.S. Cl. 285—21 **10 Claims**



1. A welding sleeve connector for the connection of molded components made of a thermoplastic synthetic resin which comprises a thermoplastic sleeve, a plurality of pyrotechnical heating charges for producing welding energy, each charge being individually enclosed in a casing of a solid material arranged in the sleeve, and said heating charges being separately positioned in the sleeve at predetermined spacing from each other over the circumference of the sleeve, and means for igniting said heating charges.

4,274,663
MULTIPLE WALL DRILL PIPE

Floyd W. Becker, and Richard R. Reginbal, both of Calgary, Canada, assignors to Drill Systems, Inc., Calgary, Canada

Filed Mar. 27, 1978, Ser. No. 890,068
Int. Cl.³ F16L 35/00
U.S. Cl. 285—24 **29 Claims**

1. A section of multiple wall pipe for use in a drill pipe string, comprising:

an outer pipe member;

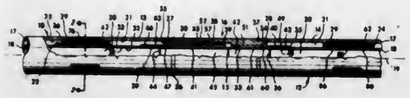
an inner pipe member mounted within the outer pipe member; and

releasable connecting means for holding the inner pipe member and the outer pipe member in fixed axial relationship under force loads applied in use during a drilling operation while enabling relative rotary movement between the inner pipe member and the outer pipe member in use during the drilling operation to relieve torsional stress and for permitting the removal of the inner pipe member by relative axial displacement relative to the outer pipe member by application of an axially directed force in excess of

the axially directed force loads applied to the length of pipe in use during a drilling operation; said connecting means comprising:

resiliently compressible ring means for connecting said outer pipe member to said inner pipe member;

outer groove means located in fixed relationship relative to



said outer pipe member, for receiving and releasably holding an outer peripheral portion of said resiliently compressible ring means; and

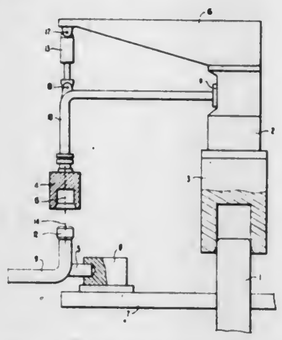
inner groove means located in fixed relationship relative to said inner pipe member in axial alignment with said outer groove means for receiving and holding an inner peripheral portion of said resiliently compressible ring means.

4,274,664

PIPE JOINING DEVICE FOR UNDERSEAS PETROLEUM PIPELINE

Georges M. Thominet, Toulon, France, assignor to Compagnie Francaise des Petroles, Paris, France

Filed Aug. 3, 1978, Ser. No. 930,836
Claims priority, application France, Aug. 5, 1977, 77 24269
Int. Cl.³ F16L 35/00
U.S. Cl. 285—24 6 Claims



1. A coupling apparatus for connecting a coupling pipe fixedly attached to a first structure to a second pipe means fixedly positioned in approximate prealignment with said coupling pipe and fixedly attached to a second structure, the coupling apparatus comprising: means to move said first and second structures relatively toward and away from one another;

an end of said coupling pipe remote from said first structure being displaceable;

support means for said coupling pipe in the region adjacent said first structure;

a first end part carried by said end of said coupling pipe remote from the first structure;

a second end part carried by the second pipe means;

one of said first and second end parts being a male member and the other being a female member, said male and female members engageable together to make a connection and having cooperating surfaces which cooperate to guide said first and second end parts if misaligned when offered to one another into alignment as said end parts engage;

relative movement of said first and second structures toward one another bringing said first and second end parts to a proximate relationship; and

means provided to complete the engagement of the first end part and the second end part;

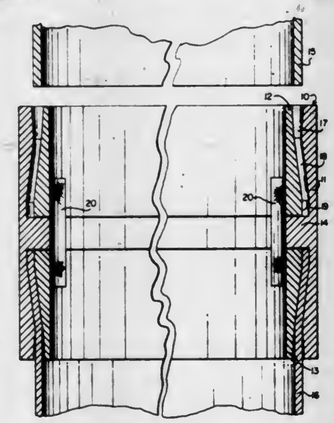
wherein said coupling pipe is curved and said means for completing the engagement of said end parts comprise a jack coupled between points spaced along the length of said coupling pipe between which points said coupling pipe is curved, said jack being operable upon completion of relative movement of said structures to move said first end part into engagement with said second end part by varying the configuration of said first and second end parts towards and away from one another.

4,274,665

WEDGE-TIGHT PIPE COUPLING

Richard O. Marsh, Jr., 703 Standard Life Bldg., Pittsburgh, Pa. 15222

Filed Apr. 2, 1979, Ser. No. 26,087
Int. Cl.³ F16L 13/14
U.S. Cl. 285—177 14 Claims



1. A force fit coupling for so joining two sections of plain end pipe and pipe pile as to form a high tensile strength joint, said coupling comprising a retaining sleeve having a radial projection thereon and two separate wedge sleeves positioned in concentric coaxial relation to the retaining sleeve at opposite sides of the radial projection, each of said wedge sleeves having an outer conical surface which matches a corresponding inner conical surface on said retaining sleeve and abuts said radial projection so as to provide an annular socket therebetween wherein said sleeves are engaged by a pipe and pipe pile that is driven axially therein by force to deform said pipe sections radially, said wedge sleeves serving not only to deform pipe sections when driven axially into said socket but also to strengthen them against redeformation by pull-out forces.

4,274,666

LOCK FOR SLIDING WINDOWS AND DOORS

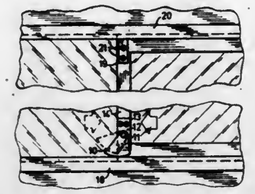
Almo E. Peck, 56 W. Sunset Avenue, Salt Lake City, Utah 84115

Filed Nov. 5, 1979, Ser. No. 91,045
Int. Cl.³ E05C 3/04
U.S. Cl. 292—257 4 Claims

1. Locking means for sliding windows and doors, comprising:

rotatable eccentric cam means for mounting on a window sash adjacent a window frame, said cam means having a generally arc-shaped contact face for engaging the window frame, said face having a leading edge and a trailing edge, with the radius between said face and the pivot point of said cam means gradually increasing from the leading edge to the trailing edge, so as to apply increasing pressure on the frame as the window is attempted to be opened;

mounting means for mounting on the sash, and having means



on which said cam means is rotatably mounted at said pivot point; and

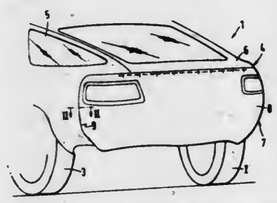
a pressure block for fixedly mounting on the window sash adjacent the window frame on the opposite side of the window from said cam means, so that when said cam means applies pressure on the frame, the frame transfers the pressure to said mounting block.

4,274,667

BUMPER FOR MOTOR VEHICLES

Peter Dietmar, Stuttgart-Feuerbach, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Jun. 13, 1979, Ser. No. 48,028
Claims priority, application Fed. Rep. of Germany, Jun. 13, 1978, 2825838
Int. Cl.³ B60R 19/00
U.S. Cl. 293—102 12 Claims



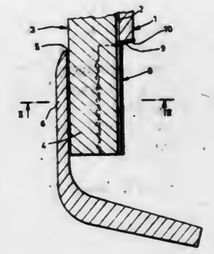
1. A bumper for motor vehicles having a rigid support and a covering made of elastic material, said material being attachable to the body of a motor vehicle by means of a fastening section and by means of boltable fastening elements, characterized by the fact that the covering has at least two arms extending from an edge of the covering that is adjacent the body in use, whereby a first of said arms is located within the outside contour of the covering and includes the fastening section and a section of said arms forms an extension of the outside contour of the covering and further characterized by the fact that the first arm is connected with a U-shaped section having a cross-arm connecting a pair of legs, said cross-arm being elastic and forming a flexible hinge-like member.

4,274,668

PROTECTIVE BAND, IN PARTICULAR A BUMPER COVER FOR AUTOMOBILES

Hans Klaus, Wolfsburg, and Janez Lampic, Monchen-Gladbach, both of Fed. Rep. of Germany, assignors to Volkswagenwerk AG, Wolfsburg and Peguform-Werke GmbH, Bötzingen, both of, Fed. Rep. of Germany

Filed Apr. 9, 1979, Ser. No. 28,521
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1978, 2815263
Int. Cl.³ B60R 13/04
U.S. Cl. 293—142 3 Claims



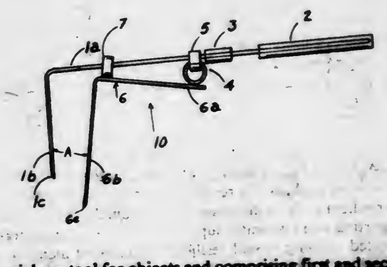
1. A protective band, such as a bumper cover for automobiles, has a profiled component provided with a longitudinal groove on one outer surface for receiving a resilient element useful as a decorative strip, the ends of the entire element project through clearances in an end wall of the profiled component to an area under pocket-like covers integral with the profiled component, the cross-section of which area exceeds that of the groove and the end wall extends across the entire cross section of the profiled component, said ends are protected against sliding out of said area, characterized in that the longitudinal groove is undercut and the element is provided with a longitudinal resilient web means for forming a clip connection with the groove, the element has a cross section which is constant over its entire length and exceeds the cross section of the web means, and safety clamps are applied to the ends of the element for forming stops directed perpendicular to the element, said clamps being designed in such a manner that the ends of the element provided with them can be introduced through the clearances in the end walls into the area under the pocket-like covers and yet form stops against said end walls preventing the element from sliding out of the area.

4,274,669

PICK-UP TOOL FOR OBJECTS

Curtis Williams, 200 Center Plz., Tulsa, Okla. 74119

Filed Oct. 22, 1979, Ser. No. 86,824
Int. Cl.³ B65G 7/12
U.S. Cl. 294—16 5 Claims



1. A pick-up tool for objects and comprising first and second gripping elements movable in directions away from and

toward each other for alternate engagement and disengagement with the object and slidably and pivotally secured together, wedge means slidably secured to the first of said gripping elements and selectively engageable with the second of said gripping elements for adjusting the distance and angular disposition therebetween, one of said gripping elements comprising a substantially L-shaped member having one leg thereof substantially flat to provide a first gripping jaw, and the other of said gripping elements being substantially L-shaped providing a pair of mutually perpendicular plates, one of said plates being a press plate engageable by said wedge means and the other of said plates being a second gripping jaw.

4,274,670

PIVOTABLE HATCHBACK FOR A STREAMLINED REAR OF AN AUTOMOBILE

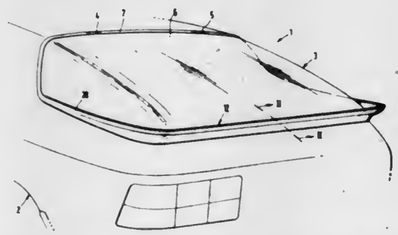
Gregor Pitzmann, Schwieberdingen, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,845

Claims priority, application Fed. Rep. of Germany, May 10, 1978, 781407[U]

Int. Cl.³ B62D *35/00*

U.S. Cl. 296—1 S **11 Claims**



10. A pivotal hatchback for a streamlined rear of an automobile, said hatchback comprising a glass pane, a frame circumferentially bordering said glass pane, and an aerodynamic drag reducing device provided in a rear section of the hatchback, said device comprising an elastic body extending across the width of the hatchback and continuing around the corners of the hatchback and tapering along forwardly extending lateral parts of the frame.

4,274,671

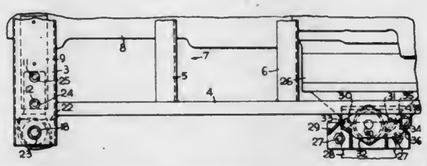
DEVICE FOR REPLACING RESILIENT ISOLATORS

Michael L. Slosiarek, Greenfield, and William J. Zajichek, New Berlin, both of Wis., assignors to Allis-Chalmers Corporation, Milwaukee, Wis.

Filed Dec. 12, 1979, Ser. No. 102,653

Int. Cl.³ B62D *23/00*

U.S. Cl. 296—190 **10 Claims**



1. A device for replacing an isolator on the vehicle comprising, a vehicle chassis, a resiliently supported member, at least one resilient isolator mounted on said vehicle chassis resiliently supporting said resiliently supported member, means defining a threaded opening in said resiliently supported member axially aligned with a pressure surface on said vehicle chassis, a bolt for reception in said threaded opening to press against said pressure surface for raising said resiliently supported member from said vehicle chassis and thereby allow removing of said resilient isolator from said chassis and supported member and replacing said isolator with another.

4,274,672

SUNSHADE SYSTEM IN SLIDING ROOF SYSTEM OF VEHICLE

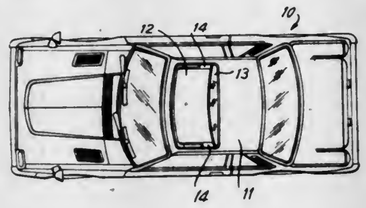
Hiroshi Kuroda, Kamifukuoka, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 12, 1979, Ser. No. 84,173

Claims priority, application Japan, Oct. 16, 1978, 53-141828[U]

Int. Cl.³ B62D *25/06*

U.S. Cl. 296—216 **7 Claims**



1. A sliding roof construction for a vehicle comprising a slide roof member formed of a transparent material and which is movable forwardly and rearwardly to close and open an opening provided in the roof of the vehicle, a sunshade slidably mounted beneath said transparent slide roof member for selectively covering said opening, said sunshade being made of an opaque material, guide rail means on said roof at the lateral edges of said opening for slidably supporting said slide roof member at its opposite lateral sides, said guide rail means each having first and second guide grooves spaced laterally of each other, said slide roof member including front stays slidably supported in laterally inner ones of said guide grooves and rear stays slidably supported in laterally outer ones of said guide grooves, and slider means on said sunshade slidably engaged in said laterally inner guide grooves and which are engaged by said front stays of said slide roof member, said slider means being positioned rearwards of said front stays and displaced thereby as the slide roof member is opened, so that the sunshade is concurrently opened.

4,274,673

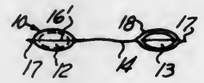
DISPOSABLE ADJUSTABLE HEADREST AND PILLOW

Harry P. Kifferstein, 27250 Harvard Rd., Southfield, Mich. 48076

Filed Oct. 2, 1978, Ser. No. 947,501

Int. Cl.³ A47C *7/46*; A47G *9/00*

U.S. Cl. 297—220 **12 Claims**



1. A disposable adjustable headrest comprising in combination a rectangular pillowcase closed on its two longer sides and on one of its shorter sides, said pillowcase being open on one of its shorter sides, and two relatively narrow elongated separate resilient pillow units, said pillow units being removably and independently disposed freely in said pillowcase normally substantially parallel to each other, one of said pillow units being manually displaceable relative to the other from proximate thereto to substantially away therefrom, one of said pillow units being positioned proximate the shorter closed side of said pillowcase and extending along said one shorter closed side between the two other closed longer sides of said pillowcase, and said pillowcase having a length substantially greater than the combined width of said pillow units and a width snuggly accepting said pillow units when said one of said pillow units is positioned proximate said one shorter closed side of said pillowcase and the other of said pillow units is disposed substantially parallel to said one of said pillow units, whereby the other of said pillow units is accessible through said open shorter side of said pillowcase for manual adjustment proximate to and away from said one of said pillow units.

4,274,674

SAFETY SEAT FOR TRANSPORTING A CHILD IN A MOTOR VEHICLE

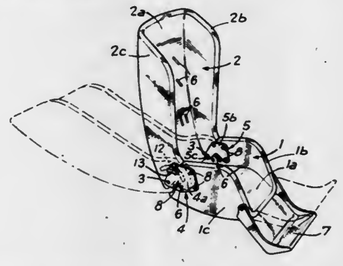
Bernard Deloustal, Anglet, France, assignor to Baby Relax, Anglet, France

Filed Sep. 10, 1979, Ser. No. 73,704

Claims priority, application France, Sep. 11, 1978, 78 26041; Sep. 21, 1978, 78 27039; Jun. 13, 1979, 79 15156

Int. Cl.³ A47C *1/026, 1/027*; A47D *11/00*

U.S. Cl. 297—250 **8 Claims**



1. A reclinable safety seat for supporting and holding a child, designed to be fitted in a motor vehicle by means of two straps adapated to be respectively stretched between a fastening point provided in the vehicle and an anchoring point found on the seat, the end of each strap being provided with a tab for its attachment to the anchoring point, the back-rest and the seating portion, which comprise side walls, being hinged together by one of their ends, wherein the back-rest and the seating portion are each constituted by a half-shell having the overall shape of a trough with thick side walls, wherein the said anchoring point is situated on one of the said walls adjacent the hinged connection, and wherein the said attachment tab comprises rigid means for coupling the corresponding side wall of the back-rest to the corresponding side wall of the seating portion for at least two maximum and minium reclining positions of the seat, the said tab being fastenable to the said anchoring point only when the said coupling means are operated and lock the seat in at least the said two reclining positions.

4,274,675

SHAFT-SINKING APPARATUS WITH MILLING HEAD AND CENTRAL WORM CONVEYOR

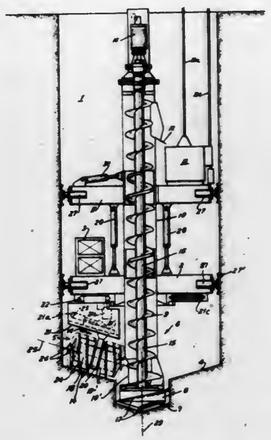
Friedrich W. Paurat, Kasselweg 29, Wesel, and Roland Paurat, Lippestrasse 32, Voerde 2, both of Fed. Rep. of Germany

Filed Aug. 23, 1979, Ser. No. 69,162

Claims priority, application Fed. Rep. of Germany, Aug. 26, 1978, 2837348; Nov. 8, 1978, 2848349

Int. Cl.³ E21D *1/03*

U.S. Cl. 299—31 **14 Claims**



1. An apparatus for sinking a shaft which comprises:

a main platform adapted to be positioned in an excavation above a floor to be cut away to sink a shaft;

a pilot bore unit mounted on said main platform and provided with:

a pilot bore head adapted to sink a pilot bore centrally in said floor, and

a worm conveyor connected to said head and extending upwardly therefrom through said platform for conveying detritus from the pilot bore formed by said head away therefrom, said worm conveyor including an upwardly extending tube opening at said head and a worm rotatable in said tube for elevating detritus therethrough, said worm being adjacent said head;

a milling drum mounted on said main platform laterally over and above said head and provided internally with a drive for milling away said floor around said pilot bore and transferring detritus to said conveyor, said head being formed with a cutting drum and a multiplicity of cutters arranged in a conveyor flight to feed detritus to said tube;

means on said main platform or orbiting said milling drum around said pilot bore unit; and

a loading platform spaced above said main platform and provided with transport means for carrying detritus away from said excavation, said worm conveyor reaching upwardly towards the loading platform for transferring detritus to said transport means, said milling drum being formed with teeth disposed in a worm pattern inducing detritus to move to said pilot bore.

4,274,676

APPARATUS FOR REMOVING MATERIAL

Nimrod T. Chapel, 3804 Green Oaks Way, Edmond, Okla. 73034

Filed Jan. 18, 1980, Ser. No. 113,192

Int. Cl.³ B24B *27/00*

U.S. Cl. 299—64 **4 Claims**

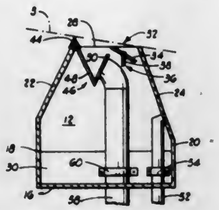
1. An apparatus for removing asbestos from a surface and for preventing the removed asbestos particles from escaping into

the ambient environment by using a coagulant, said apparatus comprising:

a housing having a cavity extending into said housing from an opening formed in the wall of said housing;

spray means disposed within said housing, for applying a coating of the coagulant to the asbestos to be removed;

a rotatable cutter member having a blade extending therefrom, said cutter member rotatably connected to said housing so that the blade extends through the opening when said member rotates for scraping the surface to



thereby loosen the asbestos contained therein and mounting means having a biasing element for yieldably receiving said member;

a trough disposed within said housing and disposed within the cavity for receiving the loosened, coagulant-coated asbestos as it is removed from the scraped surface;

suction means, connected to said trough, for withdrawing the loosened, coagulant-coated asbestos therefrom; and

a resilient member attached to said housing along one edge of the opening and extending outwardly of said housing for operative association with said surface.

4,274,677

MINERAL CUTTER PICK ARRANGEMENT

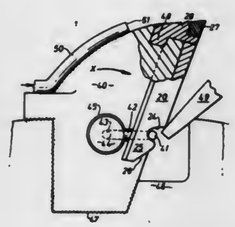
Sidney E. Proctor, Amersham, England, assignor to Pars Engineering Company Limited, London, England

Continuation-in-part of Ser. No. 817,155, Jul. 20, 1977, abandoned. This application May 22, 1979, Ser. No. 41,484

Claims priority, application United Kingdom, Jul. 23, 1976, 30908/76; Dec. 7, 1976, 51077/76; May 11, 1977, 19856/77; May 26, 1978, 23129/78

Int. Cl.³ E21C *35/18*

U.S. Cl. 299—92 20 Claims



1. A mineral cutter pick arrangement comprising a cutter pick holder having an elongated leading edge and an upper surface, a cutter pick comprising a body member having a leading edge, a rear surface, an upper end and a bottom end, the widest dimension of the cutter pick body member transverse to the forward direction of movement of the cutter pick at least adjacent the upper end being greater than the corresponding dimension of the cutter pick holder, the cutter pick body member being formed at said upper end with a top member having a rearmost surface and an under-surface, said top member extending rearwardly of the leading end of said body member, the rearmost surface of said top member being at an angle which diverges from the normal to the under-surface of the said top member to abut against a surface of the pick holder which conforms to the shape of said rearmost surface, the upper surface of said holder and the lower surface of said top member being provided with interengaging means enabling the cutter pick body member to be located on the holder with said rearmost surface in abutment with said conforming surface of said holder and a cutter tip secured within a recess with said top member along the leading edge thereof.

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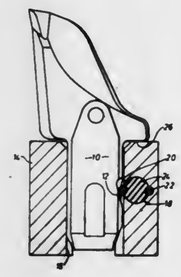
SOCKETED BOSS HAVING MEANS FOR RETAINING A TOOL SHANK

Frederick Herridge, Buckinghamshire, England, assignor to Austin Hoy and Company Limited, High Wycombe, England

Filed Jul. 11, 1979, Ser. No. 56,726

Int. Cl.³ E21C *35/18*

U.S. Cl. 299—92 10 Claims



1. A boss having a socket therein for the reception of a shank of a tool and a locking arrangement for retaining the shank, the locking arrangement comprising a plug received in a bore extending through the boss transversely of the socket the arrangement being such that the bore intersects the socket along one side thereof, the plug comprising a body of a resilient material having bonded into the periphery thereof at spaced locations a plurality of metallic members which form semi-cylindrical protrusions from the surface of the resilient body, one of which semi-cylindrical protrusions protrudes from the bore into the socket for frictional engagement with the shank of the tool so as to retain the tool in position, the other(s) of the semi-cylindrical protrusions being disposed within semi-cylindrical extension means of the bore within said boss, and the arrangement of the metallic members being such that the plug may be axially removed from the bore, rotated and axially re-inserted to change the metallic member which protrudes into the socket.

4,274,679

WHEEL COVER LOCKING MEANS

Thomas F. Brinson, Lake Park, and Jack A. Bayman, Valdosta, both of Ga., assignors to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Oct. 3, 1979, Ser. No. 81,336

Int. Cl.³ B60B *7/00*

U.S. Cl. 301—37 AT 14 Claims

1. A locking device for securing a wheel cover to a vehicle wheel rim said wheel cover having a generally curcular mounting plate including retention means at the peripheral portions thereof for mounting said wheel cover on said wheel rim and having a center cap mounted to said mounting plate, said device comprising in combination:

a first threaded fastener;

means for mounting said first threaded fastener to said wheel rim wherein the mounted fastener projects axially outwardly and through an opening in said mounting plate of said wheel cover;

a tubular member mounted to and depending axially inwardly from an access opening in said center cap of said wheel cover coaxially with said fastener; and,

a second threaded fastener slidably mounted in said tubular member and captured therein between said mounting

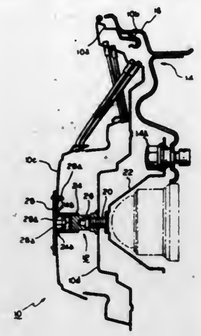


plate and said center cap for unengaged movement toward and away from said first threaded fastener and being threadedly engageable therewith to limit the axially outward movement of said mounting plate with respect to said wheel rim.

4,274,680

SELECTIVE ANTI-SPIN BRAKE SYSTEM

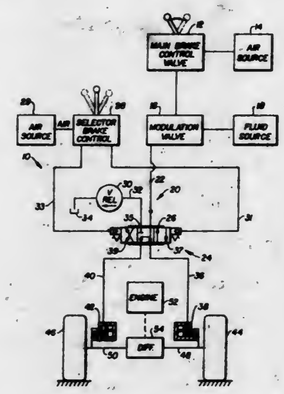
Alfred W. Sieving, Venedy, and James M. Stanley, Oreana, both of Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US79/00597, § 371 Date Aug. 13, 1979, § 102(e) Date Aug. 13, 1979, PCT Pub. No. WO81/00384, PCT Pub. Date Feb. 19, 1981

This PCT application filed Aug. 13, 1979, Ser. No. 108,971

Int. Cl.³ B60T *13/22*

U.S. Cl. 303—6 A 6 Claims



1. In a vehicle fluid brake system (10) having right and left spring applied, fluid pressure released wheel brakes (38,42), a source of fluid pressure (18), and a brake valve (16) for modulating said source (18) and delivering a controlled pressure signal (20) for simultaneous control of said brakes (38,42), the improvement comprising:

valve means (24) for modulating said controlled pressure signal (20) and independently controlling the degree of engagement of either brake.

4,274,681

PRESSURE CONTROL VALVE ASSEMBLY FOR A FLUID BRAKE SYSTEM

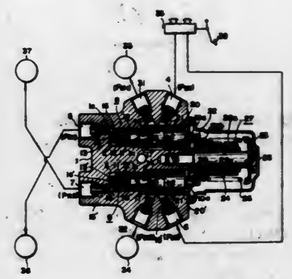
Yoshitaka Tsuda, Tokyo; Kaoru Sodeyama, Kokubunji, and Naomasa Tsunada, Hachioji, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Mar. 13, 1980, Ser. No. 129,854

Claims priority, application Japan, Mar. 20, 1979, 54-35927[U]

Int. Cl.³ B60T *13/00*

U.S. Cl. 303—6 C 2 Claims



1. In a pressure control valve assembly for an automotive split brake system having a master cylinder and a brake cylinder, the pressure control valve assembly comprising a housing having a stepped bore and a wall section defining part of said bore, a concavity formed in said wall section, a shock absorbing abutment member in said concavity, a differential piston within said bore, said piston being abuttingly engageable at its one end portion with said shock absorbing member upon movement into its extreme position and having a hollow section, biasing means for urging said piston into said extreme position and including a spring seat movable toward and away from said housing, and valve means mounted in the hollow section of said piston, said piston being exposed to the fluid pressures in the master cylinder and the brake cylinder and assuming a position governed by said fluid pressures for selectively opening and closing said valve means such that the rate of the pressure increases in said brake cylinder to the pressure increase in said master cylinder is increased beyond a predetermined switchover point pressure,

said abutment member being formed with a fluid passage providing constant communication between said stepped bore and said concavity.

4,274,682

SELF-LAPPING SEAL FOR TRACK CHAIN

Richard E. Livesay, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Continuation of Ser. No. 938,551, Aug. 31, 1978. This application Jan. 15, 1979, Ser. No. 48,899

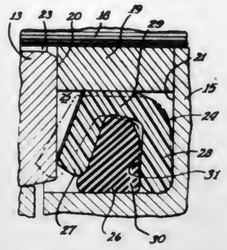
Int. Cl.³ B62D *55/20*

U.S. Cl. 305—11 35 Claims

23. A seal assembly (33) for sealing two relatively movable members comprising:

seal means (24) having at least one sealing surface (34) adapted to sealingly engage said one of said movable members, said sealing surface (34) further including lapping means (32) for lapping said one of said movable members as a result of relative movement between said

sealing surface (34) and said one of said movable members to provide an improved seal therebetween; and



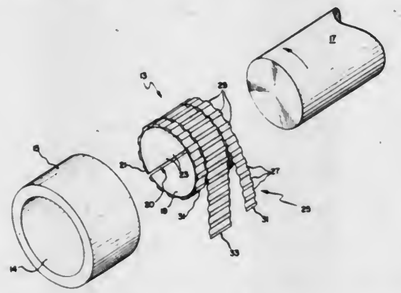
means (30) for urging said sealing surface (34) into sealing engagement with said one of said movable members.

4,274,683

SUPPORT ELEMENT FOR COMPLIANT HYDRODYNAMIC JOURNAL BEARINGS

Stanley Gray, Skaneateles, and Bharat Bhushan, Watervliet, both of N.Y., assignors to Mechanical Technology Incorporated, Latham, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,263
Int. Cl.³ F16C *32/06, 17/02*
U.S. Cl. 308—9 **23 Claims**



1. A compliant hydrodynamic fluid film journal bearing comprising:
- a journal bearing sleeve and a rotatable shaft defining therebetween a gap;
- a resilient support element positioned in said gap and connected to said sleeve, said element having a series of raised compliant resilient projections;
- a flexible bearing sheet connected to said sleeve and overlying said support element and being supported thereby;
- said support element having a primary zone, and having two end zones at different axial positions along said sleeve from said primary zone, said zones each including at least one circumferentially extending strip running generally parallel to the direction of relative movement of said shaft;
- said end zones having portions which are compliant independently of said primary zone and each other, and having a compliance different from that of said primary zone.

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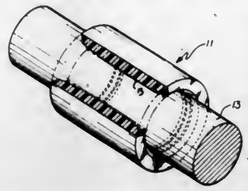
PERMANENTLY LUBRICATED BEARING

Steven E. Richfield, 10032-31st Ave. NE., Seattle, Wash. 98125

Filed Mar. 24, 1978, Ser. No. 889,656
Int. Cl.³ F16C *33/72*
U.S. Cl. 308—36.1 **28 Claims**

1. A dripless bearing, comprising:

load-carrying, substantially rigid bearing means having a bearing surface, in or on which bearing means a shaft moves relative thereto, wherein frictional contact between the bearing surface and the shaft is minimized by bearing lubricant, said bearing means having at least one recess in the bearing surface which opens onto an end boundary of said bearing means, wherein the spacial volume of said recess is larger than the volume of bearing



lubricant in said bearing means between the bearing surface and the shaft, said recess having such a configuration that the bearing lubricant tends to remain in the bearing means during operation, wherein the recess is defined by a boundary wall which is radially roughened to assist in retrieval of bearing lubricant back into the bearing, and which terminates in an abrupt edge at the end boundary.

4,274,685

ENTERTAINMENT CENTER CABINET

Bruce E. Bradshaw, Jamestown, N.Y., assignor to Jamestown Lounge Company, a Division of Arbor Industries, Inc., Jamestown, N.Y.

Filed Aug. 20, 1979, Ser. No. 68,208
Int. Cl.³ A47B *81/06*; A47F *3/10*
U.S. Cl. 312—7 TV **4 Claims**



1. A cabinet comprising in combination a cabinet frame, said cabinet frame including in part cabinet top, bottom, opposite side and rear panels, said top, bottom and opposite side panels defining a front opening, said bottom panel having upper and lower horizontally disposed surfaces; a closure sized for removably covering an upper portion of said front opening; and a slide assembly including a horizontally disposed substantially rectangular base slidably supported by said cabinet frame for horizontal movements through said front opening between a cabinet frame inserted position in which it lies essentially coextensive with and adjacent said bottom panel upper surface and a fully extended position in which it is essentially removed from within the confines of said cabinet frame, said base having upper and lower horizontally disposed surfaces, a cabinet front rail depending from and at least coextensive with a front marginal edge of said base and cooperating with said closure to close said front opening when said base is in said inserted position, said front rail vertically extending at least to said bottom panel lower surface when said base is in said inserted position, base anti-tilt means in the form of caster means depending from said base lower surface adjacent said front rail for movement with said base and said front rail to support said base against tilting as the same is moved from its inserted position, whereat said caster means is located horizontally within the confines of said cabinet front opening, to its fully extended position, whereat said caster means is removed from the confines of said cabinet, said front rail having a vertical dimension below said base lower surface of sufficient extent

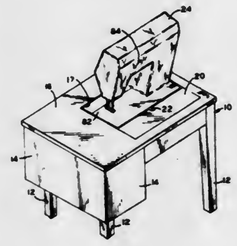
with respect to that of said caster means to substantially hide said caster means from view, a swivel mechanism carried by said base upper surface to upstand centrally thereof and an entertainment unit supporting shelf supported by said swivel mechanism to reside horizontally above and in essential alignment with said base and for rotational movements about a vertically disposed axis.

4,274,686

FREE ARM SEWING MACHINE CABINET MOUNTING MECHANISM

Ralph B. White, 2526 Castle Dr., Fort Wayne, Ind. 46816

Filed Jul. 11, 1979, Ser. No. 56,547
Int. Cl.³ A47B *81/00*
U.S. Cl. 312—27 **29 Claims**



1. In a sewing machine cabinet having a top with an opening therein, a mounting mechanism for supporting a free arm sewing machine selectively in an upper use position, a lower use position, and a storage position, said mechanism comprising:
- an upper support arm pivotally connected to and depending from said cabinet top,
- a lower support arm pivotally connected to said upper support arm,
- a sewing machine support platform pivotally connected to said lower support arm,
- lower use lock means for releasably locking said platform in a lower use position, and
- upper use lock means for releasably locking said platform in an upper use position, the upper use position of said platform being generally above the lower use position thereof,
- said mechanism being movable to a storage position wherein the platform is positioned such that a sewing machine operably attached thereto would be disposed below the cabinet top.

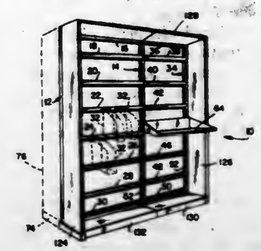
4,274,687

SUSPENSION FILE ASSEMBLY

Richard A. Bayles, 8 Idlewild Park Dr., Cornwall-on-Hudson, N.Y. 12520, and Philip Shuster, Monsey, N.Y., assignors to Richard A. Bayles, Cornwall-on-Hudson, N.Y.

Filed May 14, 1979, Ser. No. 38,892
Int. Cl.³ A47B *45/00*; A47G *29/02*
U.S. Cl. 312—205 **10 Claims**

1. A suspension file assembly comprising a plurality of spaced apart leg assemblies, each including an upright vertical member supported by a horizontal base member, a plurality of horizontal suspension members extending between said vertical members and having connecting means for removably mounting said suspension members on said vertical members, whereby said horizontal suspension members are supported by said leg assemblies, a plurality of record storage bins adapted to be suspended from said horizontal suspension members, said horizontal base members being rigidly affixed to the bottom end of the respective vertical members and projecting perpendicularly from the forward face thereof only in a forward direction to support the weight of said bins suspended on the forward face of said horizontal suspension members, a plurality of auxiliary horizontal base members, and means including a tongue-and-slot coupling for selectively and removably mounting said auxiliary members on the lower end of the respective vertical members with said auxiliary members being



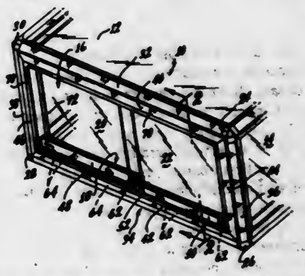
aligned with the respective horizontal base member and projecting perpendicularly from the rear face of said vertical members in a direction opposite to said horizontal base members, whereby to support the weight of bins suspended on the rear face of said horizontal suspension members.

4,274,688

SLIDING DOOR STRUCTURE

Ralf G. Zacky, 4491 Deanwood Dr., Woodland Hills, Calif. 91364

Filed Nov. 13, 1979, Ser. No. 93,159
Int. Cl.³ F16B *12/00*; A47F *3/00*; E05D *15/06*
U.S. Cl. 312—304 **11 Claims**



1. A sliding door structure for use with a display case including
- an outer frame located within a particular plane including at least four tubular members each having substantially the same cross-section and interconnected at end portions by joints to form the outer frame, and with the four tubular members located within the particular plane,
- an inner frame located within the particular plane including at least four unitary moldings extending along and complementary to the tubular members to form the inner frame, and with the inner frame located within the outer frame and within the particular plane,
- the unitary moldings each including a groove extending along the length of the molding and with the groove having a configuration to receive a portion of the outer surface of the tubular member and with the grooves providing for the inner frame interlocked within the outer frame,
- a pair of sliding doors, each formed by a sliding member and a panel member, and with the sliding member including a top portion for receiving and supporting the panel member and a bottom portion for receiving and supporting guide members,
- the bottom molding including a pair of upwardly extending support portions each extending along the length of the molding and parallel to each other, and with the support portions each receiving and supporting the bottom por-

tion of the sliding member, and with the guides providing for an ease of movement of the sliding doors, and wherein the bottom molding includes additional outer upstanding wall members forming an outer configuration for the bottom molding matching the outer configuration of the top and side moldings, and

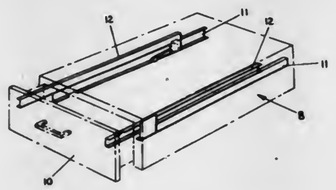
the upper molding including a pair of channels extending along the length of the molding and parallel to each other for receiving and supporting the upper end of the panel members of the sliding door, and the side moldings each including a channel extending along the length of the molding for receiving side portions of the sliding doors.

4,274,689

DRAWER GLIDE ASSEMBLY

Robert J. Vander Ley, Jenison, and Frederick G. Sherman, Grand Rapids, both of Mich., assignors to Leslie Metal Arts Company, Grand Rapids, Mich.

Filed Sep. 10, 1979, Ser. No. 73,705
Int. Cl.³ A47B *88/00*; F16C *21/00*
U.S. Cl. 312—333 **11 Claims**



1. A drawer glide assembly comprising:

first and second longitudinally extending channel members, each of said channel members including a central web and a pair of spaced parallel side webs perpendicular to the plane of said central web, said channel members being disposed in a vertical arrangement with the lower side web of said first channel member adjacent the upper side web of said second channel member and the central webs in a laterally spaced parallel relationship;

a mounting bracket secured to and extending from each of said channel members at an end thereof;

a roller rotatably mounted on each mounting bracket and extending into the guide channel defined by said side webs of an opposing track member;

a lever arm pivotably mounted on said mounting bracket secured to said first channel member;

a stop member disposed on the lever arm and in sliding engagement with the lower side web of said second channel member; and

stop means on the lower side web of said second channel member for engaging said stop member so as to limit relative longitudinal displacement of said channel members;

wherein said stop member pivots downwardly with respect to said lower side web of said second channel member upon alignment of the stop member and said stop means.

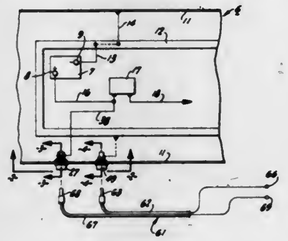
4,274,690

JUMPER CABLE ARRANGEMENT FOR A VEHICLE

Jerry D. Hargett, and Alfred C. Nash, both of Hilmar, Calif., assignors to N & H Manufacturing, Inc., Turlock, Calif.

Filed Aug. 17, 1979, Ser. No. 67,559
Int. Cl.³ H01R *13/44*
U.S. Cl. 339—10 **1 Claim**

1. A jumper cable arrangement for a vehicle having an electrically conducting body panel and a storage battery with two poles comprising means defining a first aperture in said body panel and defining a second aperture in said body panel; a first conducting bushing adapted to extend through said first aperture and having a first head and a stem with a relatively large bore therein; an insulating first sleeve adapted to slip over said first stem and to abut said head, said first sleeve having an internal first groove therein adjacent said first head; a first insulating washer disposed in said first groove and abutting said first head; means for retaining said first washer in said first groove; an insulating second washer around said first bushing and abutting said body panel; means interengaging with said first stem and said second washer for holding said first sleeve against said body panel; means for electrically connecting said first conducting bushing to one pole of said storage battery; a second conducting bushing adapted to extend through said second aperture and having a second head and a second stem



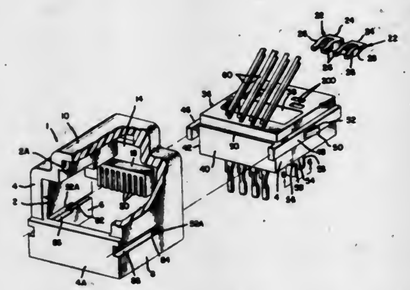
and a relatively small bore therein; an insulating second sleeve adapted to slip over said second stem and to abut said second head, said second sleeve having an internal second groove therein; an insulating third washer in said second groove; means for retaining said third washer in said second groove; conducting means interengaging with said second stem and in electrical contact with said body panel for holding said second sleeve against said body panel; means for electrically connecting said body panel to the other pole of said storage battery; and a conductor having a first plug of substantially a relatively large size and adapted to fit into said relatively large bore in said first bushing and having a second plug of substantially a relatively small size and adapted to fit said relatively small bore in said second bushing.

4,274,691

MODULAR JACK

Lynn W. Abernethy, Advance, and Elvert S. Watts, Walkertown, both of N.C., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of Ser. No. 966,693, Dec. 5, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,859
Int. Cl.³ H01R *31/08, 13/54*
U.S. Cl. 339—19 **7 Claims**



1. In a jack type connector having a molded base and a molded cover cooperating to form an internal cavity and a plurality of elongated spring contacts mounted in said base and projecting into said cavity for engaging electrically the electrical terminals of a plug type connector when the same is pluggably inserted into said cavity, the improvement comprising:

said contacts having electrical lead portions depending outwardly of said base for pluggable connection in a circuit board which mounts said base,

said contacts having resilient free ends projecting outwardly of said base and into said cavity,

said cover includes a first end wall having an opening communicating with said cavity and profiled to compliment the profile of said plug type connector,

a second end wall of said cover having a base receiving opening,

side walls of said cover connecting said end walls,

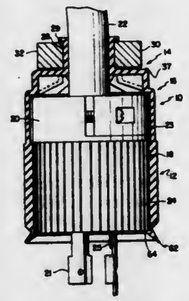
projecting rails along sides of said base slidably received along grooves in said cover side walls and extending from said base receiving opening toward said first end wall, said rails projecting from an end of said base and impinging sides of said first end wall.

4,274,692

TORSIONALLY FLEXIBLE CONNECTOR COVER

Ernest G. Hoffman, Middlefield, and Michael J. D'Amato, North Haven, both of Conn., assignors to Harvey Hubbell Incorporated, Orange, Conn.

Filed Sep. 18, 1979, Ser. No. 76,793
Int. Cl.³ H01R *13/52*
U.S. Cl. 339—60 M **5 Claims**



1. A protective cover of elastomeric material for use in combination with an electrical connector portion securable to an electrical cable, the connector portion of the type having a plurality of electrically conductive connector elements, a non-conductive holder for supporting the connector elements for cooperative engagement with connector elements in a mating connector portion, means for releasably locking the mating connector portions in their engaged relationship, and a generally cylindrical sleeve rotatable about the longitudinal axis thereof for operating the means for locking, the cover comprising:

a gripping sleeve receivable over and frictionally engagable with the surface of said rotatable member;

a cable clamping portion on the cover; and

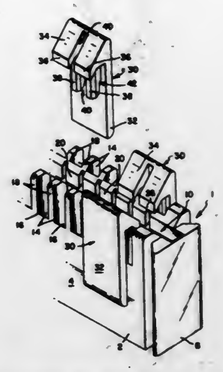
a torsionally flexible portion comprising a series of resilient pleats connected between and joining said gripping sleeve and said cable clamping portion, permitting relative rotation about said longitudinal axis of said member between said member and said cable clamping portion, each of said pleats having a substantially inverted V-shaped cross section and the apices of said pleats extending radially from the longitudinal axis of said sleeve.

4,274,693

SNAP ON CARD STRAIGHTENER

Robert F. Cobaugh, Elizabethtown, and David W. Mendenhall, Hershey, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 5, 1979, Ser. No. 100,668
Int. Cl.³ H01R *13/62*
U.S. Cl. 339—65 **8 Claims**



5. A card guide adapted for snap on mounting to a card edge connector provided with a card receiving cavity and electrical contacts mounted in channels along opposite sides of said cavity, comprising:

a first leg adapted for engaging an external wall of said connector,

a second leg adapted to overlie said connector and having a card supporting surface adapted to engage and support a card during insertion into said card edge connector, and

a pair of jaws on said first leg adapted to enter selected ones of said channels,

said jaws resiliently engaging therebetween a wall separating said selected channels,

said jaws having hook portions hooked over lip sections of said wall.

4,274,694

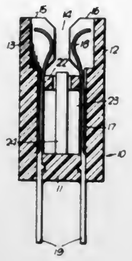
ELECTRICAL CONNECTOR HAVING A PLURALITY OF IN-LINE CONTACTS

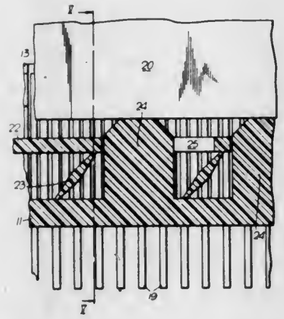
Russell A. Leather, Perth, Scotland, assignor to Ferranti Limited, Cheadle, England

Filed May 31, 1979, Ser. No. 44,320
Claims priority, application United Kingdom, May 31, 1978, 25471/78
Int. Cl.³ H01R *13/62*
U.S. Cl. 339—74 R **9 Claims**

1. An electrical connector which includes a housing of electrically-insulating material having a base and two side walls together defining a longitudinal slot from which extend a plurality of transverse openings, a plurality of electrically-conducting contact members located one in each of at least some of the transverse openings such that a contact portion of each contact member extends into the longitudinal slot, and control means located within the longitudinal slot and comprising a rigid bar member capable of limited movement along the slot and supported in such a manner that such movement causes a

change in the distance between the bar member and the bottom of the longitudinal slot, each contact member being so shaped





that movement of the bar member causes movement of each contact member into or out of its transverse opening.

4,274,695

DEVICE FOR ELECTRICALLY CONNECTING SPARK PLUG TO HIGH-VOLTAGE CABLE

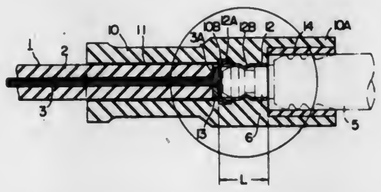
Yukitsugu Fukumori, Yokohama; Masazumi Sone, Chigasaki; Hiromitsu Nagae, Katsuta; Masami Shida, Katsuta; Tsutomu Kooriyama, Katsuta, and Koji Harada, Hitachi, all of Japan, assignors to Hitachi, Ltd. and Nissan Motor Company, Limited, both of Tokyo, Japan

Filed Jan. 31, 1979, Ser. No. 8,088

Claims priority, application Japan, Feb. 3, 1978, 53-10461; Mar. 24, 1978, 53-32987; Aug. 2, 1978, 53-93572; Oct. 13, 1978, 53-125069

Int. Cl.³ H01R *13/514*

U.S. Cl. 339—97 S **25 Claims**



1. An electrical connecting device comprising connecting means disconnectedably connectable with a spark plug for electrically connecting the spark plug to a high-voltage cable supplying a high voltage to the spark plug from an ignition coil, wherein a maximum length of said connecting means in an axial direction of said spark plug is selected to be not longer than 25 mm, and said connecting means is integrally combined with said high-voltage cable by a reinforcing means.

4,274,696

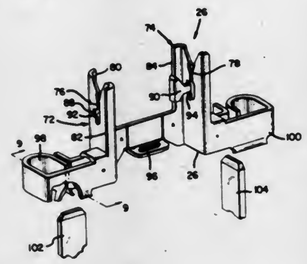
ELECTRICAL CONNECTING DEVICE FOR WIRING SYSTEMS

William B. Long, Camp Hill, and John A. Zimmerman, Jr., Hershey, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 23, 1979, Ser. No. 96,964

Int. Cl.³ H01R *4/24, 13/58*

U.S. Cl. 339—103 R **2 Claims**



1. An electrical device capable of terminating a wiring system of the type formed by three or four conductor cables enclosed in an insulating jacket, said device comprising:

a generally rectangular housing of rigid insulating material having at least one access opening in a forward face and a rearwardly directed cavity;

at least two terminals mounted in said cavity, each said terminal having at least one rearwardly directed conductor plate each with an insulation displacing slot therein, a recess in a sidewall of said slot toward the bottom of each said slot, a tine extending from an outer edge of said plate and being folded back upon itself to lie in a respective recess, said tine biting into a respective conductor at an acute angle thereby acting as a strain relief for said conductor;

a cable receiving cover member profiled to mate with said housing to enclose said cavity, said cavity and said cover member being polarized, said cover member having means to latchingly secure it to said housing and defining a cable passage with pusher means therein for each conductor of said cable; and

mounting means to detachably secure said device in an aperture of a wall or the like.

4,274,697

GROUND PIN BLADE AND ELECTRICAL CONNECTOR PLUG

Donald M. Dodge, Huntington Beach, and Ernest Dietz, Torrance, both of Calif., assignors to Pacific Electricord Company, Gardena, Calif.

Filed Nov. 13, 1979, Ser. No. 93,740

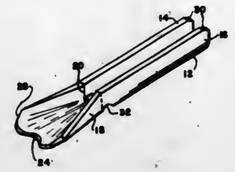
Int. Cl.³ H01R *13/04*

U.S. Cl. 339—103 R **13 Claims**

1. A ground pin blade for a molded electrical plug, said blade comprising:

an elongated channel having an arcuate bottom, and further having side walls which are parallel throughout a first channel portion extending from the outer end of said channel to a transition section, the upper edges of said side walls progressively flaring laterally outwardly throughout a second channel portion extending from said transition section to the inner end of said channel, the included angle defined between said side walls at said inner end being between 60 and 120 degrees, the length of said second channel portion being between 30 and 40 percent

of the length of said channel; and a wire conductor aperture extending through said bottom of said channel and located somewhere along the length of an aperture region which includes that part of said first channel portion



adjacent said transition section, and which further includes that part of said second channel portion adjacent said transition section and constituting no more than 35 percent of the length of said second channel portion.

4,274,698

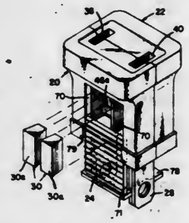
FUSED ELECTRIC PLUG WITH SNAP-FITTED BODY PARTS

Joseph M. Ahroni, 1631-16th Ave. #413, Seattle, Wash. 98119

Filed Feb. 21, 1979, Ser. No. 13,319

Int. Cl.³ H01R *13/514, 33/04;* H01H *85/02*

U.S. Cl. 339—147 P **6 Claims**



1. A fused plug comprising:

a plug body formed by front and rear mating shells, said body having top and bottom end faces interconnected by side faces and front and rear faces, said rear shell being formed with a fuse recess area having a closed back wall, said front shell having a front access to said fuse recess area,

a pair of electrical conductor means in said body having respective exposed terminal portions at the upper end portion of said fuse recess area,

a pair of conductor prong members projecting through the bottom end of said body for insertion into a socket and presenting respective exposed contact members at the bottom end portion of said fuse recess area,

fuse means providing a pair of fuses in said fuse recess area, each fuse having a fuse body and respective elongated fuse links of thin, electrically conductive strip material secured flat against the fuse body and arranged to engage and connect respective of said terminal portions to respective of the prong contact members, said fuse means being adapted to pass through said front access,

door means on said front shell for covering said front access when in a closed position and for giving access to said fuses when in an open position, said door means having a sliding interfit with said plug body and having inwardly projecting means engaging the top of the fuse means when the door means is in closed position, and

interfitting means at the back of said front shell and at the front of said rear shell integral with the shells whereby said shells can be fitted together for assembly.

4,274,699

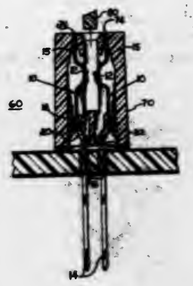
PRESS FIT TERMINAL WITH SPRING ARM CONTACT FOR EDGECARD CONNECTOR

Kenneth J. Keim, Lewisberry, Pa., assignor to E. I. Du Pont De Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 900,486, Apr. 27, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,552

Int. Cl.³ H01R *13/40*

U.S. Cl. 339—176 MP **8 Claims**





1. An elongated electrical terminal having a contact at each end and a deformable mounting portion therebetween, said mounting portion comprising:

a generally cylindrical body having symmetrically opposed generally oval-shaped voids impressed therein, the major axes of said oval voids extending parallel to the longitudinal axis of said body, the body having a generally bow-tie shaped cross section with convex surfaces at its ends and symmetrically-opposed, dish-shaped impressions formed in its sides to define a reduced center portion in said cross section, said mounting portion upon press fitting into a round circuit board aperture having the convex surfaces at each end of the bow-tied shaped cross section in intimate contact with the inside surface of said round aperture and said reduced center being plastically deformed.

4,274,700

LOW COST ELECTRICAL CONNECTOR

Josef Keglewitsch, Addison, and Daniel P. Vladic, Berwyn, both of Ill., assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Continuation of Ser. No. 841,272, Oct. 12, 1977, abandoned. This application Feb. 21, 1979, Ser. No. 14,004

Int. Cl.³ H01R *13/52*

U.S. Cl. 339—192 R **29 Claims**

1. An electrical connector comprising:

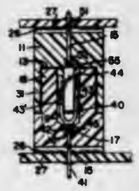
a dielectric body member including a main body portion having first and second exterior surfaces adapted to be positioned in cooperative juxtaposition with associated members having electrically conductive elements, said main body portion having a plurality of spaced-apart, contact-receiving apertures extending therethrough between said surfaces;

each aperture having a narrow cavity region extending inwardly from said first exterior surface, a shoulder cavity region wider than said narrow cavity region and extend-

ing inwardly from said narrow cavity region toward said second exterior surface, and a wide cavity region wider than said shoulder cavity region and extending from said shoulder cavity region to said second exterior surface;

said shoulder cavity region communicating with said narrow cavity region and cooperating therewith to define an offset shoulder surface disposed substantially normal to the longitudinal axis of said narrow cavity region; and

a plurality of electrical contacts disposed in respective ones of said apertures, each contact including a terminal portion, a shoulder portion and an active contact portion, each said terminal portion being shaped complementary to and disposed snugly in said narrow cavity region of said aperture and extending outwardly beyond said first exterior surface for connection to another electrically conductive element;



each said shoulder portion being shaped complementary to and disposed in a water-tight fit in said shoulder cavity region of said aperture in mating engagement with said shoulder surface, each said shoulder portion having at least one ridge on opposite faces thereof isolated from said narrow cavity region and said wide cavity region and extending in a direction substantially normal to the longitudinal axis of said aperture;

said active contact portion extending into said wide cavity region for connection to another electrical component;

whereby said snug fit of said terminal portion, said water-tight fit of said shoulder portion, said offset shoulder surface and said ridge together define a substantially irregular and constricted path through said aperture to thereby provide an essentially liquid impervious juncture which prevents seepage to said active contact portion.

4,274,701

LOCKABLE CONTACT SOCKET FOR INSERTION INTO A PLUG CONNECTOR

Johann Bannert, Traubing, and Guenter Nagel, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Feb. 24, 1978, Ser. No. 881,013

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1977, 2713894

Int. Cl.³ H01R *13/428*

U.S. Cl. 339—217 S **1 Claim**



1. An electrical assembly comprisinng a plug connector casing having a spring chamber with one end being arranged to receive a connecting pin,

a contact socket in said spring chamber and having contact arms extending toward said one end of the spring chamber and having first ends providing respective contact portions for engaging a connecting pin inserted into said spring chamber through said one end thereof,

said contact arms having second ends (6) with a resilient transverse element (5) extending therebetween at one side of the spring chamber to form a U-shaped spring configuration, the forward edge of the transverse element (5) providing a stop for determining the insertion depth of the contact socket into the spring chamber, and the second end of one of the contact arms providing a rearwardly directed locking edge for releasably retaining the contact socket against removal from the spring chamber,

the plug connector casing including a locking means (8) lying behind said locking edge of the second end of the one of said contact arms, and a further locking means (9) lying in front of said forward edge of said transverse element (5), and

means providing clearance along the side of the spring chamber confronting said one of said contact arms for accommodating insertion of a blade through the one end of the spring chamber for the purpose of deflecting said locking edge of said one contact arm out of engagement with said locking means (8) to enable removal of the contact socket from the spring chamber,

the contact socket having an elastic element (11) and an actual connecting region (10), the spring arms and the transverse element (5) being connected with the region (10) via said elastic element (11),

said resilient transverse element of said U-shaped spring configuration consisting essentially of a rectilinear generally planar strip (5) of metal having a rear margin parallel to said forward edge, and having lateral margins defining a longitudinal dimension of said strip (5), said rear margin of said strip (5) lying generally in a common plane with said locking edge which common plane is perpendicular to said strip (5), said second ends (6) being integral with and contiguous to the respective lateral margins of said rectilinear strip (5) over the entire extent of said second ends (6) such that the locking edge is contiguous to and directly merges with said rear margin of said strip without any gap therebetween, said elastic element (11) being of S configuration and comprising a first rectilinear strip portion integral with the rear margin of said strip (5) and generally coplanar therewith, said first strip portion extending rearwardly from the generally common plane of said locking edge and said rear margin,

said elastic element (11) further comprising a second rectilinear strip portion joining integrally with said first strip portion and forming a first bend therewith which first bend is parallel with said rear margin of said strip (5),

said second strip portion having a longitudinal extent such that the second strip portion overlies a major proportion of a height dimension to which the locking edge extends from said strip (5) which height dimension is perpendicular to said strip (5),

said elastic element (11) further comprising a third strip portion joining with the second strip portion and forming a second bend therewith which second bend is substantially parallel to said first bend and is of a configuration such that the third strip portion extends rearwardly and is offset from the first strip portion in the direction perpendicular to said strip (5) by approximately the height dimension to which said locking edge extends from said strip (5),

said connecting region (10) being connected with said third strip portion, said connecting region (10) being connected with said second strip portion only via said second bend, and being connected with said first strip portion only via said second bend, said second strip portion, and said first bend.

4,274,702

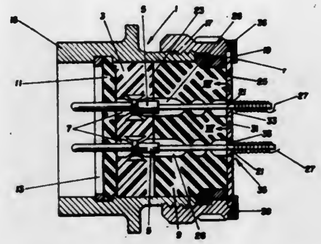
ANTIROTATION MEANS FOR WIRE WRAP ELECTRICAL CONNECTOR ASSEMBLIES

Joseph M. Buck, Binghamton; David O. Gallusser, Oneonta, and David L. Frear, Binghamton, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Nov. 14, 1979, Ser. No. 94,138

Int. Cl.³ H01R *4/14, 13/52*

U.S. Cl. 339—217 R **4 Claims**



1. In an electrical connector assembly having a plurality of electrical contacts and a dielectric insert member associated with a moisture sealing grommet member, each of said members having forward and rearward faces and each including a plurality of passages extending between their respective said faces, the rearward face of the insert abutting the forward face of the grommet and the passages of one member being associated with the passages of the other member such that the passages of each are axially aligned, each of the contacts being mounted within one respective passage of the insert and each having a non-circular terminating end portion extending from the rearward face of the grommet, said non-circular terminating end portions being adapted to electrically terminate a wire wrapped therearound, the improvement comprising:

means for separately preventing each individual contact from rotating relative to its associated passages, the rotation preventing means comprising:

a locking template secured to the rear of the grommet, said template having a plurality of apertures extending therethrough and through which the contacts will pass, each of the apertures being in register with the associated passages and each having at least two locking grooves cooperating therewith;

a plurality of locking elements of dielectric material, each of said locking elements being shaped to fit within one of the apertures in the locking template and each having at least two locking lugs extending outwardly therefrom and adapted to be received within the locking grooves of the template to prevent the locking element from rotating relative to its associated groove, each locking element being provided with a non-circular bore through which the non-circular terminating end portion of the contact extends and thereby hold the contact against rotation upon wrapping of the terminal with a conductive connecting wire; and

at least one unlocking slot cooperating with each of said apertures.

4,274,703

HIGH-EFFICIENCY SYMMETRICAL SCANNING OPTICS

Tibor Fisli, Los Altos Hills, Calif., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 821,006, Aug. 1, 1977, abandoned. This application Oct. 29, 1979, Ser. No. 88,804

Int. Cl.³ G02B *27/17*

U.S. Cl. 350—6.8 **6 Claims**

1. A flying spot optical scanning system for sweeping an optical scanning spot across an imaging surface, said system comprising the combination of

a source for supplying a light beam

a beam scanning element having a plurality of reflective facets circumferentially distributed in a tangential plane about an axis of rotation;

means for rotating said scanning element on said axis of rotation, whereby said facets serially intercept and reflect said light beam;



lens means optically interposed between said source and said surface for serially focusing the light beam onto successive ones of said facets and for refocusing light reflected from said facets onto said surface, said lens means being substantially symmetrical about an optical axis which is essentially normal to said axis of rotation, said light beam underfilling and remaining fully seated on the facet upon which it is focused while the reflected light is scanned through a predetermined scan angle.

4,274,704

ENDOSCOPES INCORPORATING A BEAM SPLITTER

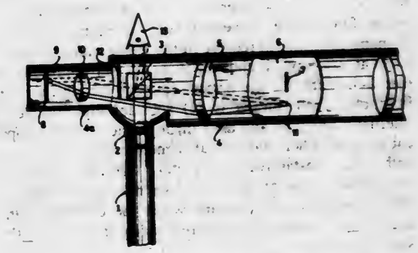
Jürgen Zobel, Bretten-Sprantal, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

Filed Aug. 2, 1979, Ser. No. 63,073

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 7825297[U]

Int. Cl.³ G02B *27/32, 23/08*

U.S. Cl. 350—10 **1 Claim**



1. In an endoscope of the kind incorporating a beam splitter for simultaneous direct observation and joint observation, and also incorporating for joint observation an articulated optical system substantially larger in diameter than the endoscope shaft, or for alternative connection of a film or television camera to the last tube of the articulated optical system, which optical system includes within a first tube, fixed to the endoscope, both an achromatic lens and a field lens, the improvement in that an opaque plate (8) and related lens (10) are mounted in a tubular member relative to the axis of the endoscope (1) opposite to the first tube member of said articulated optical system, said opaque plate having a small opening radially spaced from the center of said tubular member arranged to pass light to said related lens, by which a spot or image of the opening is transmitted via, or adjacent the side of, said beam splitter to said achromatic lens (5) and in juxtaposition with the reflected image, reflected by the beam splitter, of the object of the endoscope in a common plane in said field lens (6), and said light spot then being guided in juxtaposition with the object image via the lens system of said articulated optical system to an eye piece of said articulated optical system so that at the eye

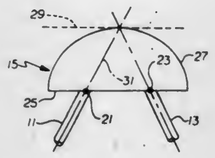
piece the real attitude of the object is denoted by the light spot juxtaposed thereto.

4,274,705

FIBEROPTIC-FED FLUID LEVEL SENSOR USING A HEMIELLIPSOIDAL OPTICAL ELEMENT

Glen E. Miller, Redondo, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Sep. 24, 1979, Ser. No. 78,214
Int. Cl.³ G02B 5/14; G01N 21/85
U.S. Cl. 350—96.15 10 Claims



1. A sensor apparatus useful in determining fluid level comprising:

an optically-transparent optical element having a convex hemiellipsoidal front surface, the boundary of the optical element encompassing the first and second foci of the front surface, such that (1) light entering said optical element through said first focus at substantially any angle, if reflected from the front surface of said optical element, exits through the second focus, and (2) light entering through the first focus impinges on the front surface at substantially the same angle of incidence substantially regardless of the angle at which the light entered through the first focus; and

first and second fiberoptic cable means connected to the optical element in a fixed relationship thereto, terminating at the respective foci thereof, one of said fiberoptic cable means functioning to permit light to enter the optical element, the other to receive light exiting from the optical element, said optical element being further configured so that light entering the optical element through the one fiberoptic cable means is (1) substantially completely internally reflected and exits through the other fiberoptic cable means when said optical element is in a first medium, and is (2) substantially completely transmitted through said optical element and thus does not exit through the other fiberoptic cable means when the element is in a second medium having a different index of refraction than said first medium.

4,274,706

WAVELENGTH MULTIPLEXER/DEMULTIPLEXER FOR OPTICAL CIRCUITS

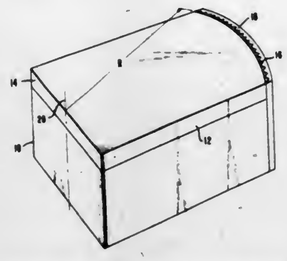
Gregory L. Tangonan, Oxnard, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 30, 1979, Ser. No. 71,323
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.19 9 Claims

1. A multimode wavelength selective beam coupler for optical circuits comprising:

(a) an optically transparent waveguide having sufficient thickness for multimode propagation and having first and second major surfaces, a planar input/output end surface and a focussing end surface both intersecting said first and second major surfaces, said focussing end surface being convex and cylindrical and having its axis of curvature perpendicular to said first and second major surfaces and within the plane of said input/output end surface, said focussing end surface constituting a means for imaging multimode light propagated thereto from said input/output end surface back onto said input/output end surface; and

(b) a reflective diffraction grating formed on a thin flexible material, said thin flexible material being affixed contiguously on said focussing end surface, said grating having lines substantially perpendicular to said first and second major surfaces, whereby an optical beam having a plural-



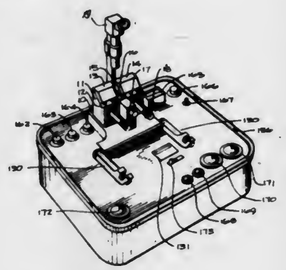
ity of wavelength components propagating multimode from said input/output end surface to said focussing end surface is diffracted by said grating into a set of beams having angles dependent on said wavelength components and brought to a focus by said focussing end surface in the plane of said input/output end surface wherein each of said wavelength components forms a spatially separated image.

4,274,707

APPARATUS FOR FUSION SPLICING OF OPTICAL FIBERS

Grant K. Pacey, Nepean, Canada, and Jaroslav M. Hvezda, Playa Del Rey, Calif., assignors to Northern Telecom Limited, Montreal, Canada

Filed Jun. 14, 1979, Ser. No. 48,669
Int. Cl.³ G02B 5/14; B23K 9/00
U.S. Cl. 350—96.20 4 Claims



1. Apparatus for fusion splicing of optical fibers, comprising:

a support housing;

a fiber gripping head on said support housing the gripping head including two fiber holding members spaced apart laterally to hold two fibers in end-to-end axial alignment with the fiber ends in opposition at a predetermined position between the holding members, the gripping head including a Vee groove extending longitudinally in the direction of the axes of said fibers, said holding members spaced apart along the Vee groove, said Vee groove having two levels, a first level for reception of coated portions of fibers, and a second, higher, level for reception of uncoated end portions of fibers, said first level in two portions spaced on either side of said second level;

each said fiber holding member comprising a finger pivotally mounted at a rear end on a rear part of the gripping head and extending forward over said Vee groove, each finger including a first part for locating a coated portion of a fiber in a first level of said Vee groove and a second part for locating and resiliently holding an uncoated end portion of a fiber in a second level of said Vee groove, said second part comprising a laterally extending spring member having an end portion extending towards the Vee groove, the second parts of the fingers extending towards each other and said end portions adjacent to and on either side of said predetermined position;

means resiliently pivoting said fingers in a direction towards said Vee groove, and an extension on each finger for lifting the finger away from said Vee groove;

two electrodes spaced in a direction normal to said Vee groove, an electrode on each side of said Vee groove at said predetermined position;

means for supplying electrical power to said electrodes for formation of an arc therebetween for fusion splicing of opposed fiber ends;

control means in said support housing for controlling the supply of electrical power to said electrodes; and

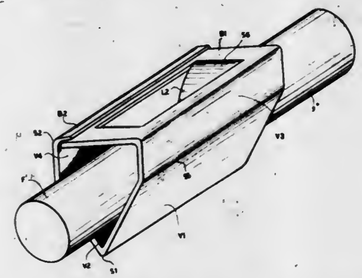
means on said support housing for presetting said control means.

4,274,708

DEVICES FOR SPLICING OPTICAL FIBRES AND CABLES

Giuseppe Cocito, S. Giusto Can. se Torino, and Leonardo Michetti, Almese-Torino, both of Italy, assignors to Cselt-Centro Studie Laboratori Telecommunicazioni S.p.A., Torino, Italy

Filed May 5, 1978, Ser. No. 903,060
Claims priority, application Italy, May 10, 1977, 68043 A/77; Jul. 20, 1977, 68689 A/77; Jul. 20, 1977, 68690 A/77; Sep. 5, 1977, 68970 A/77
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.21 18 Claims



1. A device for the splicing of optical fibers, comprising:

an elongate channel member of constant cross-section forming a downwardly converging longitudinal bottom groove with opposite open ends for the insertion of respective fiber trunks to be joined together; and

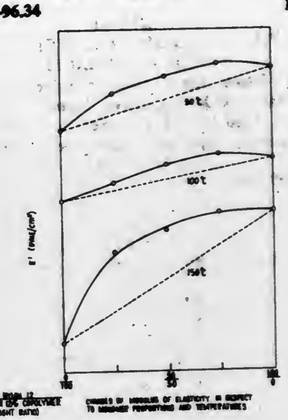
a retaining member of sheet material fixedly positioned on said channel member and substantially longitudinally coextensive therewith, said retaining member being provided with a slot and with a pair of resilient formations extending from opposite boundaries of said slot toward said groove for engaging the inserted fiber trunks while being sufficiently separated to facilitate the introduction therebetween of bonding and refractive-index-matching material into said groove.

4,274,709

OPTICAL FIBER FOR TRANSMISSION

Sigeru Asai, Kawagoe, Japan, assignor to Daicel Ltd., Osaka, Japan

Filed Nov. 21, 1979, Ser. No. 96,278
Claims priority, application Japan, Nov. 30, 1978, 53-148210
Int. Cl.³ G02B 5/14
U.S. Cl. 350—96.34 13 Claims



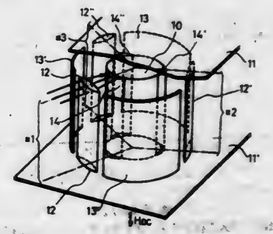
1. An optical fiber for optical transmission comprising an optical fiber core for optical transmission, said core being covered with a coating layer consisting essentially of a mixture of (1) from 5 to 95 percent by weight of nylon 11 or nylon 12 and, correspondingly, (2) from 95 to 5 percent by weight of nylon copolymer of two or more different nylon-forming monomers selected from the group consisting of (a) lactams having 4 to 16 carbon atoms, (b) ω-amino carboxylic acids having 4 to 16 carbon atoms and (c) salts of alkylene diamines having 4 to 16 carbon atoms and alkylene dicarboxylic acids having 4 to 16 carbon atoms.

4,274,710

OPTICAL WAVE CIRCULATORS

Tsukasa Nagao, 4-75, Maberi, Yokosuka-shi, Kanagawa-ken, Japan

Filed May 2, 1980, Ser. No. 145,896
Claims priority, application Japan, May 8, 1979, 54/55933
Int. Cl.³ G02B 27/00
U.S. Cl. 350—375 8 Claims



1. An optical wave circulator comprising

a magneto-optic cylindrical structure made of magneto-optic material having optical anisotropy under biasing magnetic field to act given magneto-optic effects on signal light beam, said magnetic being optic structure being positioned on the common axis,

plural numbers of optical guiding couplers for guiding said light beam, each coupler being placed in rotational symmetry around said common axis,

said plural numbers of reflecting mirrors being counterposi-

tioned to said couplers in said rotational symmetry around said common axis,

two plates supporting said magneto-optic structure and said reflecting mirrors,

and means for magnetically biasing said magneto-optic structure in the direction parallel to said common axis.

4,274,711

BRIGHT PHOTOGRAPHIC LENS SYSTEM WITH REAR STOP DIAPHRAGM

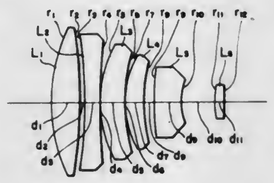
Hirokumi Matsuo, Asaka, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 15, 1979, Ser. No. 94,620

Claims priority, application Japan, Dec. 27, 1978, 53/163316

Int. Cl.³ G02B 9/62

U.S. Cl. 350—464 3 Claims



1. A lens system comprising front and rear lens groups, said front lens group comprising, in order from the object, a first positive lens L_1, a second negative lens L_2, a third positive lens L_3 and a fourth positive lens L_4, and said rear lens group comprising, in order from the object, a fifth negative lens L_5 and a sixth positive lens L_6, said lenses being characterized by:

Aperture 1:2.8, Overall Focal F = 100, Viewing 2ω = 17°
Ratio Length Angle

	Radius of Curvature	Distance or Thickness	Refractive Index	Abbe Number
L_1	$r_1 = 65.3546$	$d_1 = 12.701$	$n_1 = 1.5687$	$\nu_1 = 63.2$
	$r_2 = -180.5426$	$d_2 = 2.303$		
L_2	$r_3 = -156.0779$	$d_3 = 5.778$	$n_2 = 1.6034$	$\nu_2 = 38.0$
	$r_4 = 308.9377$	$d_4 = 0.286$		
L_3	$r_5 = 48.4589$	$d_5 = 10.269$	$n_3 = 1.5687$	$\nu_3 = 63.2$
	$r_6 = 74.0163$	$d_6 = 0.286$		
L_4	$r_7 = 38.5400$	$d_7 = 8.310$	$n_4 = 1.5163$	$\nu_4 = 64.1$
	$r_8 = 81.0961$	$d_8 = 4.134$		
L_5	$r_9 = 159.3317$	$d_9 = 12.315$	$n_5 = 1.7408$	$\nu_5 = 27.8$
	$r_{10} = 21.6571$	$d_{10} = 14.832$		
L_6	$r_{11} = 51.8114$	$d_{11} = 4.005$	$n_6 = 1.6727$	$\nu_6 = 32.1$
	$r_{12} = -385.0579$			

4,274,712

SOLAR RADIATION REFLECTORS ADAPTED TO TRACK THE INCIDENT RAYS OF THE SUN

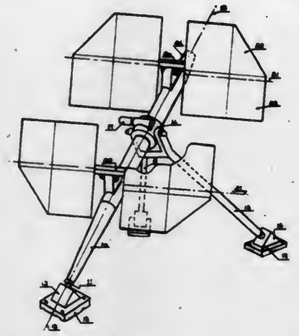
Julio F. Sintes, Madrid, Spain, assignor to Sener, Ingenieria y Sistemas, S.A., Spain

Filed Jan. 24, 1979, Ser. No. 3,720

Int. Cl.³ G02B 7/18

U.S. Cl. 350—299 7 Claims

1. A solar radiation reflector which comprises a bearing column, a plurality of secondary structures mounted on the bearing column and a series of reflecting surfaces mounted on the secondary structures, the bearing column is mounted in an inclined position with respect to the local horizontal plane, the bearing column being mounted to have the ability to swing freely around its axis, a first drive mechanism connected with the bearing column for fixing the swing position of the column in any location around its axis, the secondary structures each being articulatedly mounted to the bearing column so that each secondary structure has the ability to swing with respect to the bearing column around a respective axis of articulation, a second drive mechanism connected with the secondary structures for swinging them around the respective axes of articulation, supports for supporting the column including one support located at the lower end of the column which for being anchored directly to the ground, and a second support at an intermediate point along the column, the second support is supported by a flat structure that extends to a bottom thereof and the flat structure is anchored at the bottom to the ground and the flat structure is located in a plane substantially perpendicular to the axis of swing of the bearing column.



4,274,713

DEVICE WITH A SCATTER-FREE LIGHT VALVE

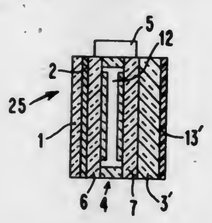
Hans Krueger, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 26, 1978, Ser. No. 928,069

Claims priority, application Fed. Rep. of Germany, Aug. 4, 1977, 2735195

Int. Cl.³ G02F 1/133

U.S. Cl. 350—347 R 1 Claim



1. In a device including a scatter-free light valve comprising a cell having two carrier plates which are arranged in parallel to one another to form a chamber therebetween, the surfaces of said plates facing said chamber being provided with electrically conductive, transparent coatings and said chamber receiving a liquid crystal layer, which can be switched between different optical states, the improvement comprising said device being a rear view mirror in a motor vehicle, said device having a reflective mirror layer in direct contact with one of the carrier plates and a circular polarizer being disposed in front of the other carrier plates to circularly polarize light entering the cell, said liquid crystal layer while in a rest state having a twisted homeogeneously orientation and with increasing voltages assumes a homeotropic orientation, and said device including a light sensitive element electrically connected to the transparent coatings of the light valve so that the liquid crystal layer is constantly changing its light transmittance in response to the intensity of the light radiation falling onto the light sensitive element.

4,274,714

REAR VIEWER FOR AUTOMOBILE

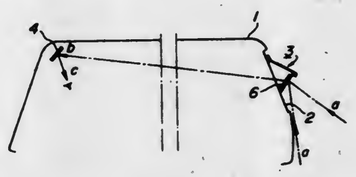
Makoto Okamura, No. 1567-4, Sakata, Okegawa City, Japan

Filed Jul. 3, 1979, Ser. No. 54,536

Claims priority, application Japan, Jul. 15, 1978, 53/97419[U]

Int. Cl.³ G02B 3/08

U.S. Cl. 350—452 3 Claims



1. An arrangement for enabling the driver of an automobile having a rear window to see in a rear view mirror the area adjacent and below the rear end of the automobile, comprising an elongated box member of substantially triangular cross section perpendicular to the longitudinal axis of said box member, and having a roof wall on the upper side thereof extending along one side of said triangular cross section, a first opening extending along another side of said substantially triangular cross section and a second opening extending along the remaining side of said substantially triangular cross section, and including Fresnel light refracting optical means formed from synthetic resin and located in said second opening, bonding means being provided around the edges of said first opening for bonding said box member to the outside surface of said rear window, in such manner that said optical means is directed towards said area adjacent and below the rear end of the automobile, whereby light from said area is refracted by said optical means to the rear view mirror.

4,274,715

METHOD AND APPARATUS FOR THE PROJECTION OF OPTICAL TEST OBJECTS

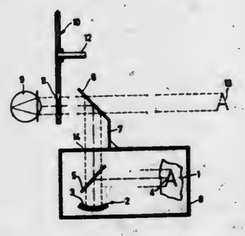
Josef Reiner, Cologne, Fed. Rep. of Germany, assignor to Herbert Schwind GmbH & Co. KG, Aschaffenburg, Fed. Rep. of Germany

Filed Mar. 30, 1979, Ser. No. 25,644

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2815121

Int. Cl.³ A61B 3/02, 3/10

U.S. Cl. 351—30 5 Claims



1. An apparatus for the projection of optotypes for use in the subjective determination of eye refraction, the apparatus comprising:

a. a housing;

b. a collimator disposed within the housing;

c. means disposed within the housing the forming illuminated optotypes at the object focal plane of the collimator; and

d. means coactive with the eye under examination and receptive of the image from the collimator for projecting same into free space in a line of sight defined by the eye and the projected image which is outside of said housing, the projecting means comprising means defining an output aperture in the housing through which the collimator image passes and a beam splitter mirror outisde of the housing and in said line of sight and receptive of the collimator image through the aperture.

4,274,716

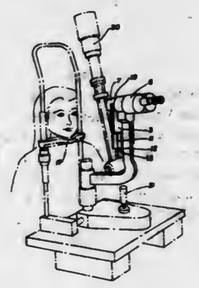
OCULAR FIXATION DEVICE

James A. Gammon, 8907 Winands Rd., Randallstown, Md. 21133

Filed Jul. 5, 1979, Ser. No. 55,042

Int. Cl.³ A61B 3/10, 3/02, 3/00

U.S. Cl. 351—36 6 Claims



1. An ocular fixation device for use with a binocular microscope ophthalmological instrument used for examining the eyes of a patient comprising:

a pair of light emitters;

electric circuit means connected to said emitters enabling an examiner to selectively, individually energize said emitters;

a transparent shield formed for mounting on said microscope substantially perpendicular to the optical axes thereof; and

said emitters being mounted on said shield in a normally horizontal spaced relation corresponding generally to the interpupillary spacing of the patient for individual left and right eye viewing by the patient.

4,274,717

OPHTHALMIC PROGRESSIVE POWER LENS AND METHOD OF MAKING SAME

Lawrence J. Davenport, Downey, Calif., assignor to Younger Manufacturing Company, Los Angeles, Calif.

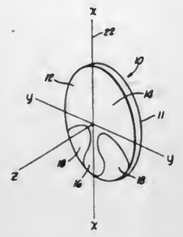
Filed May 18, 1979, Ser. No. 40,235

Int. Cl.³ G02C 7/06

U.S. Cl. 351—169 8 Claims

1. An improved ophthalmic lens with progressively varying focal length having two refractive surfaces, one of which is divided into first, second and third viewing zones intended respectively for distant vision, intermediate vision and near vision, said one surface including a meridional curve passing through the optical center of the lens and traversing said zones, said meridional curve being defined by a sequence of points on said one surface and substantial peripheral portions of the lower half of said one surface and having a substantially con-

stant curvature providing a substantially constant focal length for distant vision, said third viewing zone occupying a lower portion of said one surface providing a substantially constant focal length for near vision, and said second viewing zone lying between said first and third viewing zones providing for intermediate vision, said second viewing zone further having



on each side of the meridian substantially symmetrical zones of astigmatism aberrations said one surface of said second viewing zone being generated by portions of a family of circles developed by passing an inclined plane through a multiplicity of spheres of predetermined radius, each of said spheres being tangent to said sequence of points defining said meridional curve.

4,274,718

SOUND MOTION PICTURE CAMERA

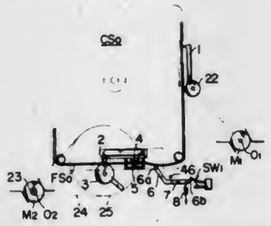
Yutaka Kohtani, and Yoshio Komine, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 961,766, Nov. 17, 1978, abandoned. This application Oct. 30, 1979, Ser. No. 89,453

Claims priority, application Japan, Nov. 18, 1977, 52-139267; Oct. 13, 1978, 53-126564

Int. Cl.³ G03B *31/02*

U.S. Cl. 352—14 **43 Claims**



1. A sound motion picture camera for use with a film, comprising:

(A) trigger means for triggering the camera, said trigger means producing a trigger signal during the camera triggering;

(B) an exposure aperture for exposing the film to scene lights;

(C) first film transport means for transporting the film for filming near said exposure aperture;

(D) sound recording means for recording sound signals on the film, said sound recording means being disposed at a location remote from said exposure aperture;

(E) second film transport means for transporting the film for sound recording near said sound recording means;

(F) loop detecting means for detecting a variation in the film loop length formed between said exposure aperture and said sound recording means, said loop detecting means producing a first signal representing an increase in film loop length when it detects an increase therein over a predetermined loop length and producing a second signal during the other time;

(G) signal output means capable of responding to both the trigger signal produced by said trigger means and the first signal produced by said loop detecting means, said signal output means producing a third signal in response to the trigger signal from said trigger means until at least a predetermined time elapses after camera trigger and when said first and second signals are alternately emitted by said loop detecting means after camera trigger, said signal output means being responsive thereto to continue to emit said third signal even after the lapse of said predetermined time; and

(H) film transport speed control means for controlling the film transport speed of said first film transport means in accordance with the first and second signals produced from said loop detecting means and the third signal emitted by said signal output means, said transport speed control means being capable of selecting the film transport speed of said first film transport means from among a first transport speed corresponding to the film transport speed to be set to said second film transport means, a second transport speed higher than said first transport speed and a third transport speed lower than said first transport speed, and selecting said second transport speed when it receives both the third signal from said signal output means and the second signal from said loop detecting means, selecting said third transport speed when it receives both the third signal from said signal output means and the first signal from said loop detecting means, and selecting said first transport speed when it receives only the second signal from said loop detecting means.

23. A sound motion picture camera for use with a film, comprising:

(A) trigger means for triggering the camera;

(B) an exposure aperture for exposing the film to scene lights;

(C) first film transport means for transporting the film for filming near said exposure aperture;

(D) sound recording means for recording sound signals on the film, said sound recording means being disposed at a location remote from said exposure aperture;

(E) second film transport means for transporting the film for sound recording near said sound recording means;

(F) film transport speed control means for controlling the film transport speed of said first film transport means, said speed control means being changeable over between a first control mode for controlling the film transport speed of said first film transport means so that the film transport speed of said first film transport means is constant and a second control mode for changeable controlling the film transport speed of said first film transport means so that the amount of the film loop formed between said exposure aperture and said sound recording means is maintained substantially at a predetermined loop amount, said second control mode having a sub-mode for setting at least, the film transport speed of said first film transport means to a transport speed higher than the film transport speed of said second film transport means to increase the film loop;

(G) mode control means for determining the speed control mode of said film transport speed control means, said mode control means including:

(G-1) timer means for setting the time for holding said film transport speed control means in said sub-mode in response to said trigger means;

(G-2) loop detecting means for detecting a variation in film loop formed between said exposure aperture and said sound recording means; and

(G-3) control circuit means capable of responding to both of said timer means and said loop detecting means, said control circuit means setting said film transport speed control means to said sub-mode within said time set by said timer means after camera trigger, and setting said speed control means to said second control mode when said loop detecting means detects a variation in film loop length during said time, and setting said speed control means to said first control mode with the lapse of the time set by said timer means when said loop detecting means does not detect a variation in film loop length.

4,274,719

SLIDE PROJECTOR

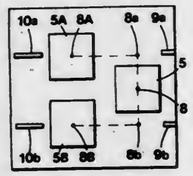
Charles-Louis Rochat, Chemin des Tournettes, Veyrier, Geneva, Switzerland

Filed Sep. 5, 1979, Ser. No. 72,607

Claims priority, application Switzerland, Sep. 16, 1978, 9666/78

Int. Cl.³ G03B *23/02, 21/14*

U.S. Cl. 353—103 **4 Claims**



1. A projector for slides comprising, means constituting a vertical channel for receiving slides, said means comprising an upper removable magazine portion and a lower portion for receiving slides after being shown, two juxtaposed slide supports adjacent said channel, two juxtaposed light projecting means arranged to project light through slides in said supports, carriage means in said channel for transporting a slide from the magazine to either of two positions each in line with one or the other of said slide supports, first pusher members for pushing a slide from either of said positions to the corresponding slide support, and second pusher members for pushing a slide from one or the other of said slide supports back to the corresponding position, said carriage means being formed of two parts adapted to be separated to allow passage of slides between them.

4,274,720

AUTOMATIC FOCUS CONTROL DEVICE FOR OBJECTIVE LENS EXCHANGEABLE CAMERAS

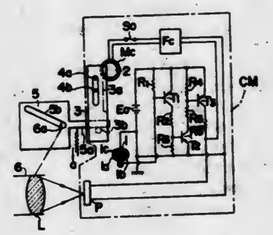
Kayoshi Tsujimoto, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Apr. 20, 1979, Ser. No. 31,925

Claims priority, application Japan, Apr. 21, 1978, 53-47900

Int. Cl.³ G03B *3/10*

U.S. Cl. 354—25 **6 Claims**



1. An automatic focusing system for an objective lens exchangeable camera, comprising: an exchangeable lens having a lens group movable for focusing the lens; a fixed member with a mount for mounting said exchangeable lens on said camera, and a lens drive member movable relative to said fixed member for driving said lens group along the optical axis thereof, said mount including an aperture; a camera body including a movable member movable to any position corresponding to any position of said movable lens group, and means for determining the position of said movable member; an intermediate member for interconnecting said movable member and said lens drive member upon coupling of said exchangeable lens with said camera body such that the position of said movable member determines the position of said movable lens group, said intermediate member being included in said exchangeable lens and extending through said aperture of said lens mount, said movable member including an abutting member abutting with said intermediate member from one direction to form one-directional engagement therewith; and

biasing means for abutting said intermediate member and said abutting member.

4,274,721

METERING DEVICE OF A CAMERA

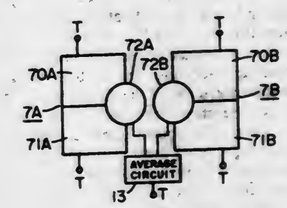
Toru Fukuhara, Isehara, and Takashi Saegusa, Sagamihara, both of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Feb. 7, 1980, Ser. No. 119,454

Claims priority, application Japan, Feb. 28, 1979, 54-24089[U]

Int. Cl.³ G03B *7/099*

U.S. Cl. 354—31 **3 Claims**



1. A metering device of a camera comprising:

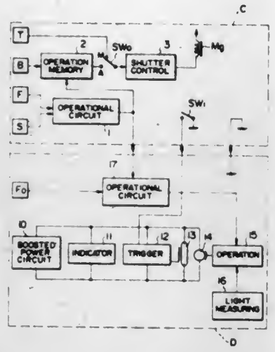
a first photoelectric device provided with a light-receiving surface divided into a plurality of light-receiving portions each having a predetermined configuration;

a second photoelectric device provided with a light-receiving surface divided into a plurality of light-receiving portions having configurations corresponding to said plurality of light-receiving portions of said first photoelectric device; and

optical means for forming an object field image on the light-receiving surfaces of said first and second photoelectric devices so that metering areas metered by the light-receiving surfaces of said first and second photoelectric devices partly overlap each other on a phototaking picture and that the entire phototaking picture is substantially covered by said metering areas;

said photoelectric devices being disposed so that the metering area, on said phototaking picture, of each of the light-receiving portions of the light-receiving surface of said first photoelectric device and the metering area, on said phototaking picture, of each of the light-receiving portions of the light-receiving surface of said second photoelectric device corresponding to the light-receiving portions of said first photoelectric device are substantially symmetrical with respect to a bisector of said phototaking picture.

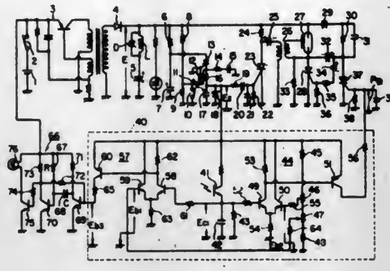
4,274,722
AUTOMATIC FLASH LIGHT CONTROL DEVICE FOR CAMERA
Saburo Numata, Urawa, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan
Filed Aug. 25, 1978, Ser. No. 936,691
Claims priority, application Japan, Aug. 31, 1977, 52-104638
Int. Cl.³ G03B 15/05
U.S. Cl. 354—33 1 Claim



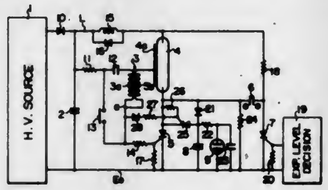
1. In a camera having a camera body, and a flash light device removable from said body, an automatic flash light control device for a single lens reflex camera having an interchangeable lens and provided with an exposure control means of the aperture size priority type in which the amount of light emitted by an electronic flash light tube is controlled by a control means according to the light reflected by an object to be photographed and illuminated by light from the flash light tube in view of the film sensitivity of the film in the camera and the selected diaphragm aperture size of the taking lens of the camera represented in terms of the displacement of the selected diaphragm aperture size from the full aperture size of the taking lens, wherein the improvement comprises: a full aperture size information input means provided in said flash light device and connected with said control means for giving information on the full aperture size of the taking lens to said control means, whereby said control means controls the amount of light emitted by the electronic flash light tube in accordance with the combination of the film sensitivity of the film in the camera, the selected diaphragm aperture size of the taking lens of the camera represented in terms of the displacement thereof from the full aperture size of the taking lens, and the full aperture size of the taking lens.

4,274,723
AUTO ELECTRONIC FLASH UNIT
Sigemi Igarashi, Tokyo, Japan, assignor to Sato Koki Company, Ltd., Tokyo, Japan
Filed Jan. 11, 1979, Ser. No. 2,593
Claims priority, application Japan, Apr. 30, 1978, 53-51506
Int. Cl.³ G03B 15/05
U.S. Cl. 354—33 4 Claims

1. An auto-electronic flash unit comprising: a photosensing means for receiving light from a subject; a flash tube for emitting flash light by discharging current from a main condenser for illumination of said subject; a primary integral circuit means; interruption circuit means for interrupting the illumination from said flash tube when the amount of light reflected from the subject and received by said photo-sensing means exceeds a predetermined setting in said primary integral circuit means by application of an electric signal from said primary integral circuit circuit means; a secondary integral means; said secondary integral circuit means adapted to generate an electric signal when the light reflected from the subject is less than the predetermined value set in said primary integral circuit means for energizing said interrupting means, but equal to or more than a predetermined setting in said secondary integral circuit means at which proper exposure can occur; adjusting means for adjusting the predetermined setting in said primary and secondary integral circuit means; indicating means receiving the electric signal generated by said secondary integral circuit means for indicating proper exposure when the distance between the camera and subject is beyond the range of operation of the primary integral circuit means and proper exposure can still occur.

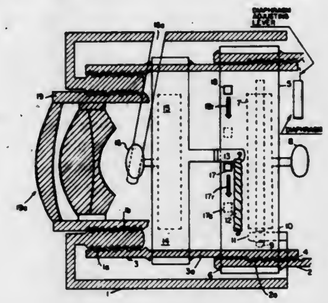


4,274,724
INDICATOR CIRCUIT FOR AUTO-STROBO UNIT
Yukio Nakajima, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan
Filed Mar. 16, 1979, Ser. No. 21,161
Claims priority, application Japan, May 25, 1978, 53/62566
Int. Cl.³ G03B 15/05; H01J 7/42; H05B 37/03, 41/32
U.S. Cl. 354—33 11 Claims



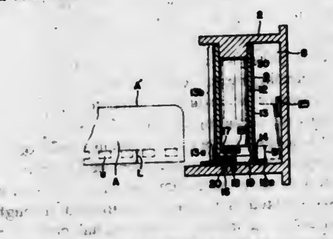
1. In an electronic flash unit including:
a flash discharge tube;
first normally-off switch means coupled to said flash discharge tube for completing a discharge path through said flash discharge tube when turned on;
trigger means for turning on said first switch means to operate said electronic flash unit, thus providing a flashlight illumination;
exposure level control means for receiving the reflected light from a subject during the operation of the flashlight illumination of said flash discharge tube for operating said first switch means to the off condition when the amount of flashlight illumination of said flash discharge tube reaches a predetermined exposure level;
a capacitor being selectively charged by a current from said flash discharge tube when said first switch means is turned off;
indicator means being directly connected to said capacitor for selective operation by the charge developed across said capacitor;
the improvement comprising:
a discharge circuit including second switch means in series with said first switch means, said second switch means being coupled between said capacitor and said first switch means, said second switch means including control means for turning on said second switch means responsive to the operation of said trigger means to actuate said discharge circuit for discharging any remaining charge from said capacitor to prevent further illumination of said indicator means.

4,274,725
DEPTH OF FIELD OBJECTIVE
Walter O. Gross, Lausanne, Switzerland
Continuation of Ser. No. 656,607, Feb. 12, 1976, abandoned.
This application Jan. 11, 1978, Ser. No. 868,707
Claims priority, application Fed. Rep. of Germany, Mar. 13, 1975, 2510941
Int. Cl.³ G03B 3/00
U.S. Cl. 354—196 7 Claims



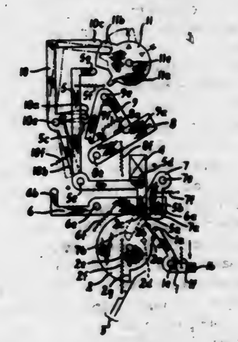
3. An objective for photographic cameras, comprising an optical system; means for focusing said optical system upon objects located at different distances from the objective, including means for moving said optical system in the direction of the optical axis; means in the objective for storing information pertaining to various positions of said optical system; means for actuating said information storing means; and means for automatically shifting said optical system to an exposure position substantially midway between spaced-apart first and second positions in each of which said information storing means was actuated so that the photographic camera embodying the objective is ready to make an exposure of objects located within the depth of field range bounded by points upon which said system was focused in said first and second positions thereof.

4,274,726
AUTOMATIC FILM WINDER FOR CAMERA
Saburo Yoneyama, Akikawa; Minoru Yamada, Hachioji; Yasutsugu Nakagawa, Tokyo; Shizuo Ishii, Tokyo, and Masao Kamio, Tokyo, all of Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan
Filed May 29, 1980, Ser. No. 154,571
Claims priority, application Japan, Jun. 1, 1979, 54-69240
Int. Cl.³ G03B 1/04; B65H 75/28
U.S. Cl. 354—173 23 Claims



1. An automatic film winding device for camera, and said camera having therein a film winding chamber for containing a roll of film of the type in which the leading end of the film is wound on a film winding member by dint of a frictional force, a sprocket disposed at the entrance of said film winding chamber including said film winding member, gear trains for connecting said film winding member and said sprocket, the peripheral speed of said film winding member being larger than that of said sprocket, improvement of the device which comprising the film winding member of which the outer peripheral portion at one end is formed larger in diameter than the other outer peripheral portion, said member including a flange formed at said larger diameter end.

4,274,727
FAIL-SAFE SYSTEM FOR THE ELECTRONIC SHUTTER OF A CAMERA
Ichiro Nemoto, and Eiichi Onda, both of Yotsukaido, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 17, 1979, Ser. No. 85,465
Claims priority, application Japan, Oct. 23, 1978, 53-145635[U]
Int. Cl.³ G03B 9/08
U.S. Cl. 354—234 6 Claims

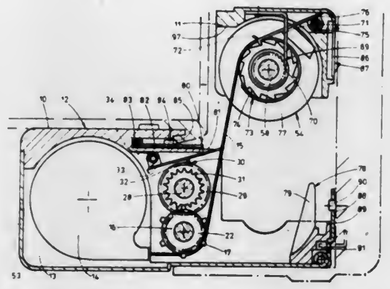


1. A camera shutter mechanism, comprising: an electromagnet an armature lever mounted for pivoting toward and away from said electromagnetic and having an armature which is attracted by said electromagnetic when said electromagnet is energized for holding said armature lever against said electromagnet; a movable shutter regulating member enagagable with said armature lever and movable between a charged position forcing said armature against said electromagnet and a second position at which said armature lever is free to pivot away from said electromagnet and at which said shutter regulating member effectuates shutter opening; means urging said armature lever away from said electromagnet when said electromagnet is deenergized toward a position where said armature lever effectuates shutter closing; stopping means for stopping movement of said shutter regulating member and for stopping movement of said armature lever prior to shutter opening when said electromagnet is insufficiently energized to hold said armature from pivoting away from said electromagnet to the position where said armature lever effectuates shutter closing; and an operating member movable to and from a position at which said armature lever is moved by said operating member towards said electromagnet to permit said shutter regulating member to continue pivoting to effectuate shutter opening after said shutter regulating member had been stopped by said stopping means.

4,274,728
FILM CASSETTE

Heinz Waaske, Am Hasengarten 2, 3300 Braunschweig, Fed. Rep. of Germany

Filed Jun. 3, 1980, Ser. No. 156,210
Claims priority, application Fed. Rep. of Germany, Jun. 23, 1979, 2925496
Int. Cl.³ G03B 17/26, 17/36
U.S. Cl. 354—275 34 Claims



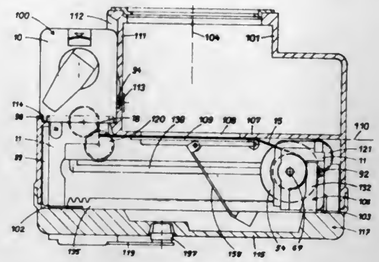
1. A film cassette for use in a photographic camera having a film transport means and a cassette control means, said cassette comprising a main part for receiving a supply of film, and a detachable part movable by the control means between an end position in the camera spaced from said main cassette part, and a closed position in which it forms with the main part a light tight housing unit, said detachable part including a rotary take-up spool driven by the film transport means and by the cassette control means to rotate in the film advancing direction, said main part supporting for rotation a sprocket roller engageable with the film, a first driving element engageable with said transport means, a clutch provided between said sprocket roller and said driving element, a clutch control mechanism arranged on said main part and cooperating with the film transport means to engage said clutch with said driving element and including a manually operated control element to disengage said clutch from said driving member, means for blocking said sprocket roller when said detachable part is in said end position, and take-up spool arresting means arranged in said detachable part to permit the rotation of said spool in direction opposite to said film advancing direction when at least a portion of the film is wound up on the spool and to arrest the rotation of the spool in said opposite direction when the spool is empty.

4,274,729
PHOTOGRAPHIC STILL CAMERA

Heinz Waaske, Am Hasengarten 2, 3300 Braunschweig, Fed. Rep. of Germany

Filed Jul. 10, 1980, Ser. No. 167,316
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1979, 2944137
Int. Cl.³ G03B 17/26, 17/00, 17/42
U.S. Cl. 354—275 57 Claims

1. A photographic still camera having a housing formed with an aperture for an objective centered about an optical axis, comprising an exposure framing platform fixedly mounted in said housing in a film plane extending at right angles to said optical axis, said framing platform having a film gate aligned with said objective aperture, a film cassette receptacle formed at an outer lateral wall of said housing and communicating with the interior of said housing behind said framing platform when considered in the direction of incoming light, said receptacle being designed for receiving a bipartite film cassette assembled of a main cassette part and a detachable cassette part, a cassette guiding track provided in the interior of said housing behind said framing platform and including guiding means directed transversely to said optical axis, a sliding carriage guided on said guiding means to move between a starting position in said receptacle and a working end position past said film gate, said carriage including at least one

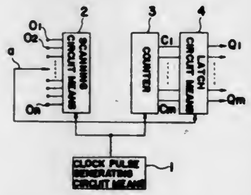


entrainment piece engageable with said detachable cassette part to carry the same between said starting position and said end working position, and a film pressure plate arranged behind said guiding track and being operable for movement in the direction of said optical axis to abut against said film gate.

4,274,730
SYSTEM FOR INPUTTING INFORMATION INTO DIGITAL CONTROL CIRCUIT MEANS OF A CAMERA

Nobuyuki Taniguchi, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Mar. 27, 1979, Ser. No. 25,443
Claims priority, application Japan, Mar. 30, 1978, 53/37894
Int. Cl.³ G03B 17/18
U.S. Cl. 354—289 29 Claims



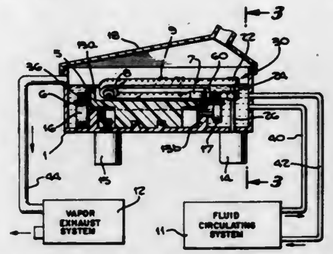
1. A system for inputting information into a digital control circuit means of a camera, comprising:

at least one clock pulse generating circuit means; scanning circuit means having a plurality of output terminals to be successively scanned one by one in synchronism with consecutive pulses of a clock pulse train; at least one terminal selecting means for selecting at least one of said output terminals according to predetermined selection; and at least one counting circuit means for counting said pulses of said clock pulse train, wherein at least one digitalized information signal, output from said counting circuit means at a predetermined time when one of said output terminals selected is scanned, is inputted through said terminal selecting means to said digital control circuit means as a digitalized information word in correspondence with said selection.

4,274,731
TOTAL IMMERSION CONTINUOUS LOOP APPARATUS AND METHOD

William D. Carter, Rancho Palos Verdes, and Martin S. Mueller, Torrance, both of Calif., assignors to Carter Equipment Co., Inc., Lawndale, Calif.

Filed Oct. 18, 1979, Ser. No. 85,910
Int. Cl.³ G03B 27/52
U.S. Cl. 355—30 6 Claims



1. A method of supplying a master picture negative, a master sound track, or other flexible web material to a dry or wet motion picture printing machine comprising the steps of:

arranging the master picture negative, master sound track, or other flexible web material in a continuous loop arrangement having a multi-loop portion and an extended loop portion;

threading the extended loop portion of said master picture negative, master sound track, or other flexible web material into and through said dry or wet motion picture printing machine;

immersing the multi-loop portion of the master picture negative, master sound track, or other flexible web material in a tank which contains a liquid that is compatible with the master picture negative, master sound track, or other flexible web material; and

then driving the master picture negative, master sound track or other flexible web material in a continuous loop path through the printing machine.

2. An apparatus for supplying a flexible web material to a motion picture printing machine comprising:

a tank;

liquid filling the entire tank;

a flexible web material arranged in a continuous loop and having a multi-loop portion and an extended loop portion;

said liquid being physically compatible with said flexible web material;

a thin-walled cylindrical member having a gap in its periphery;

a ring shaped sheet member having a cavity in its central portion, said cylindrical member being disposed above said sheet member and about said gap;

said multi-loop portion of said flexible web material being arranged so it surrounds said cylindrical member and is disposed above said ring-shaped sheet member while being immersed in said liquid;

a solid cylindrical piece of material containing a central cavity, being positioned inside said tank so that it rests on the base of said tank;

multiple support rollers surrounding said solid cylindrical piece of material inside said tank;

said multi-loop portion of said flexible web material being placed inside said tank so that said cylindrical member surrounds said cylindrical piece of material and said ring-shaped sheet member rests on said support rollers;

driving means to cause said ring-shaped sheet member and said flexible web material to rotate in a circular fashion;

two separate sprockets located inside said cavity of said cylindrical piece of material with one vertical sprocket vertically so aligned as to fit adjacent the gap in said cylindrical member and the other sprocket aligned in an angle;

a spindle containing two sprockets along its shaft and vertically aligned next to and on the outside surface of said multiple portion of said flexible web material;

said extended portion of said flexible web material being threaded through a motion picture printing machine;

said extended portion of said flexible web material being arranged so that one end passes around said sprocket located inside said cavity of said cylindrical piece of material and passes around one of said sprockets on said spindle located adjacent said multi-loop portion of said flexible web material and then exits said tank and enters said motion picture printing machine;

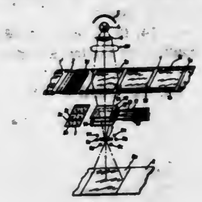
said extended portion of said flexible web material further arranged so that said extended portion of said flexible web material returning from said motion picture printing machine enters said tank, passes around the second sprocket on said spindle located adjacent said multi-loop portion of said flexible web material, and then travels to and becomes part of the outer circumference of said multi-loop portion of said flexible web material; and

means for continuously circulating and filtering said liquid while said apparatus is in operation.

4,274,732
METHOD AND APPARATUS FOR MAKING REPRODUCTIONS OF COLOR FILM FRAMES

Siegfried Thurm, Voiswinkel, and Konrad Bunge, Cologne, both of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Jan. 22, 1979, Ser. No. 5,514
Claims priority, application Fed. Rep. of Germany, Jan. 26, 1978, 2803381
Int. Cl.³ G03B 27/73
U.S. Cl. 355—38 24 Claims



16. Apparatus for reproducing images which are exposed on a color original, particularly a color negative before the original is treated in a developing machine, said original being provided with exposures of a series of gray filters having different densities, comprising signal generating means for monitoring the density of said exposures in each of the primary colors; signal generating means for monitoring the density of said images in each of the primary colors; and means for regulating the quantity of copying light in each of the primary colors for the making of reproductions of said images on photosensitive material on the basis of signals furnished by both said monitoring means.

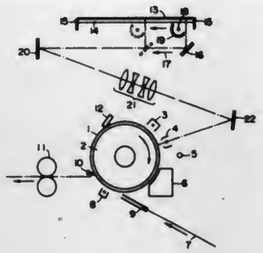
4,274,733
COPYING APPARATUS WITH STATIONARY ORIGINAL SUPPORT TABLE AND NOVEL IMAGING LENS SYSTEM

Munehara Sugiura, Tokyo, and Setsuo Minami, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1979, Ser. No. 29,109
Claims priority, application Japan, Apr. 19, 1978, 53/47084
Int. Cl.³ G03B 27/34
U.S. Cl. 355—60 5 Claims

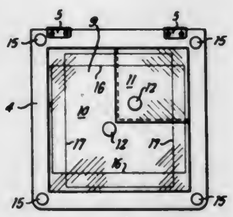
1. A copying apparatus for copying a stationary original, comprising:

a planar stationary original support table;
at least one mirror linearly moveable in a plane parallel to said original support table to scan the surface of an original placed on said original support table;
a photosensitive member for receiving the information of said surface of the original; and
an imaging lens system including plural lens groups, said system being provided between said mirror and said photosensitive member, wherein a constant magnification of



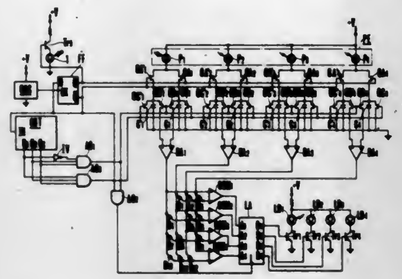
the image on said photosensitive member and an optical conjugate relationship between the original and said photosensitive member are maintained only by displacing at least one of said lens groups along its optical axis in synchronism with the displacement of said mirror.

4,274,734
MASKING FRAME
Brian F. Moss, Rayleigh, United Kingdom, assignor to Ciba-Geigy AG, Basel, Switzerland
Filed Nov. 14, 1979, Ser. No. 94,247
Claims priority, application United Kingdom, Nov. 20, 1978, 45288/78
Int. Cl.³ G03B 27/58
U.S. Cl. 355—74 6 Claims



1. A photographic masking frame which comprises a base plate and a raisable frame which holds the print material flat on the base when in the working position and which has an aperture therein, the aperture in the said raisable frame being closed by a removable square mask formed in two portions, one portion being L shaped and covering substantially three quarters of the area of the aperture and the other portion being square and covering the remaining quarter area of the aperture, the said removable mask which can be lifted as a single unit fitting into a square recess of like dimensions formed in the top surface of the raisable frame, the area of the recess being greater than the area of the aperture in the frame, the said square portion of the mask being raisable without disturbing the L shaped portion of the mask and overlapping the adjacent edges of the L shaped portion of the mask so as to render the join light tight.

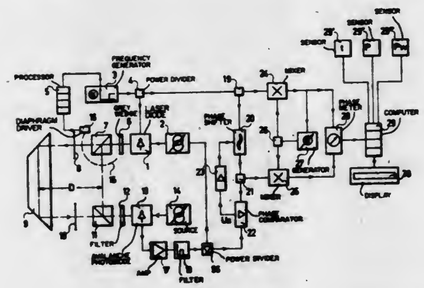
4,274,735
DISTANCE MEASURING DEVICE
Shuichi Tamura; Yukichi Niwa, both of Yokohama; Masahiko Ogawa, Hino; Mitsutoshi Owada, Yokohama, and Noriyuki Asano, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 18, 1979, Ser. No. 40,473
Claims priority, application Japan, May 25, 1978, 53-63048
Int. Cl.³ G01C 3/00, 5/00; G03B 7/08
U.S. Cl. 356—1 16 Claims



1. A distance measuring device comprising:
(a) light projecting means for projecting light to a target object;
(b) light receiving means provided in a position for receiving the reflected light from said target object to produce an electrical signal corresponding to the reflected light from said target object, said light receiving means having a plurality of light receiving elements independent of each other and arranged in such positions so as to correspond to different object distances from each other;
(c) memory means coupled to the output terminals of said light receiving means to memorize the electrical signals from said light receiving means, said memory means having a first memory group consisting of a plurality of memory elements connected to the respective light receiving elements, and a second memory group consisting of a plurality of memory elements connected to said respective light receiving elements;
(d) control means coupled to said light projecting means to intermittently energize said light projecting means;
(e) first means coupled to said first memory group to permit the transfer of the electrical signals produced from the light receiving means in synchronism with energization of said light projecting means to said first memory group, each of the plurality of memory elements of the first memory group memorizing a plurality of electrical signals generating from the corresponding light receiving elements in synchronism with each of the plurality of de-energizations of said light projecting means;
(f) second means coupled to said second memory group to permit the transfer of the electrical signals produced from the light receiving means in synchronism with de-energization of said light projecting means to said second memory group, each of the plurality of memory elements of the second memory group memorizing a plurality of electrical signals generating from the corresponding light receiving elements in synchronism with each of the plurality of de-energizations of said light projecting means;
(g) differential means having a plurality of differential elements connected to the outputs of the memory elements in said first memory group and the outputs of the second memory elements in said second memory group corresponding to said memory elements to produce signals corresponding to the differences between the outputs of the memory elements in the first memory group and the outputs of the memory elements in the second memory group corresponding to said memory elements; and

(h) comparing means for producing a signal corresponding to said target object distance by comparing the outputs of said plurality of differential elements.

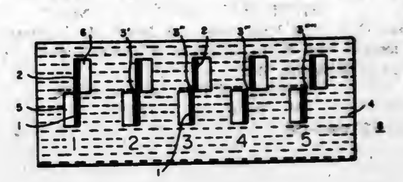
4,274,736
METHOD AND APPARATUS FOR ELECTROOPTICAL DISTANCE MEASUREMENT
Beat Balmer, Unterkulm, Switzerland, assignor to Kern & Co. AG, Aarau, Switzerland
Filed Sep. 26, 1979, Ser. No. 79,102
Claims priority, application Switzerland, Oct. 11, 1978, 10573/78
Int. Cl.³ G01C 3/08
U.S. Cl. 356—5 17 Claims



1. A method for electrooptical distance measurement, whereby a beam of modulated light is transmitted over the distance and after reception is converted into an electrical signal corresponding to the modulation of light, said signal being compared with respect to time with reference signal used for modulating the light beam, at least one of said signals being shifted with respect to the other one until a given time relation between the signals is reached, and the distance being found from the extent of said signal shift, comprising the steps
(a) mixing for temporal comparison the signal converted from the modulated light and the reference signal used for modulating the light beam,
(b) time-shifting the reference signal by means of a control circuit and a driving signal obtained from said mixing step, until a given time relation with respect to the converted signal is reached,
(c) frequency converting to a lower frequency the shifted as well as the unshifted reference signals, and
(d) measuring the temporal difference of the frequency-converted reference signals to determine the temporal shift of the reference signal obtained in said time-shifting step.

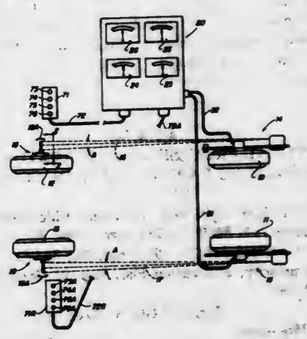
4,274,737
TEST PATTERNS FOR LENS EVALUATION
Bradford Howland, Cambridge, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.
Filed Oct. 19, 1979, Ser. No. 86,574
Int. Cl.³ G01M 11/02
U.S. Cl. 356—124.5 5 Claims

1. A lens testing chart comprising,
a plurality of pairs of black lines,
the black lines of each pair being substantially aligned along their lengths but transversely displaced by a different amount in each pair,
each of the black lines of each pair having a white region along one of its sides and a grey region along the other of its sides, the white region for one of the black lines of a pair being on one side of the one black line of the pair and



the white region for the other black line of the pair being on the other side of the other black line of the pair.

4,274,738
ROTARY BODY RUN-OUT REMOTE SENSING METHOD AND APPARATUS ESPECIALLY APPLICABLE TO VEHICLE WHEEL ALIGNERS
William J. Hollandsworth, Town & Country, and Dana O. Grubbs, Manchester, both of Mo., assignors to Hunter Engineering Company, Bridgeton, Mo.
Filed Jun. 14, 1979, Ser. No. 48,624
Int. Cl.³ G01B 11/275
U.S. Cl. 356—155 11 Claims



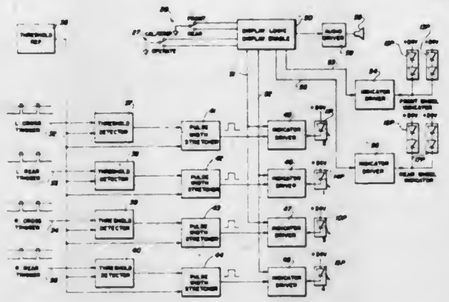
1. A method for finding wobble run-out characteristics of a rotary body mounted on a fixed axis and using the findings to compensate measurement of its angular orientation relative to the fixed axis, said method comprising: attaching a plano-reflective means to the body in a predetermined relation to the fixed axis; projecting from a remote location a radiant energy beam onto the plano-reflective means; rotating the body into predetermined positions displaced from a known starting position to cause the plano-reflective means to move according to the existing wobble run-out and thereby causing the projected beam to move correspondingly, sensing the amount of said motion of the projected beam and generating separate and independent signals indicative of the rotational orientation of the body relative to the fixed axis at the predetermined positions; and processing the generated signals.

4,274,739

APPARATUS FOR MONITORING OPERATIONAL STATUS AND DIAGNOSIS OF ELECTRONIC VEHICLE WHEEL ALIGNMENT EQUIPMENT

Dean O. Grubbs, Manchester, and James M. Groesman, Chesterfield, both of Mo., assignors to Hunter Engineering Company, Bridgeton, Mo.

Filed Aug. 15, 1979, Ser. No. 66,846
Int. Cl.[3] G01B *11/275*
U.S. Cl. 356—155 4 Claims



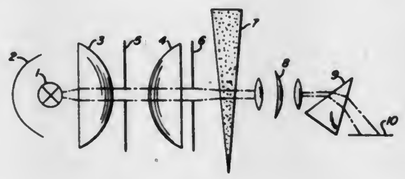
1. In display apparatus associated with alignment equipment on the front and rear vehicle wheels producing signals representing the operation of the alignment equipment at the wheels; a panel presenting to viewing by vehicle service persons a diagrammatic representation of the vehicle wheels and the alignment equipment thereon; first radiant energy display means positioned adjacent each of the wheel positions in said diagrammatic representation presented by said panel; second radiant energy display means spaced around the representation of the vehicle on said panel for monitoring the alignment equipment operation; and means interconnecting said alignment equipment and said first and second radiant energy display means including display logic circuit means and mode selection means connected to said first and second radiant energy display means for selectively indicating which of the alignment equipment is being monitored and causing said associated radiant energy display means to blink during proper operation of said equipment.

4,274,740

OPTICAL PROCESS AND APPARATUS FOR DETERMINING PARTICLE SIZE OF COLLOIDAL SOLUTION

Herrn H. Eidenschink, and Marianne Eidenschink, both of Gutenbergstr. 1, 5609 Hückeswagen, Fed. Rep. of Germany

Filed Jul. 19, 1979, Ser. No. 59,081
Claims priority, application Fed. Rep. of Germany, Jul. 21, 1978, 2832091
Int. Cl.[3] G01N *15/02*
U.S. Cl. 356—336 10 Claims



1. A method for determining the particle size of a colloidal solution, especially a synthetic resin dispersion, the method including the steps of: providing a colloidal solution sample with a thickness which varies in a given direction; directing a light beam to propagate through the colloidal solution sample in the direction normal to said given direction; causing the emerging light beam from the sample to undergo chromatic dispersion and to be incident onto an image screen; establishing, by a relative displacement between the light beam and the varying thickness of the colloidal solution sample, a sample position which results in only the long-wave part of the visible spectrum to appear on the screen; determining the thickness of the colloidal solution section which is traversed by the beam at said position; and, determining the particle size of the colloidal solution in accordance with the formula:

$$r = \frac{1}{c \cdot d \cdot E_{(c)} \cdot n}$$

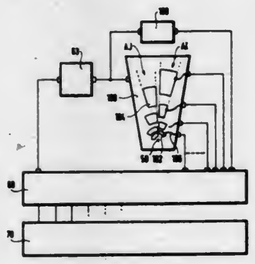
where
r = radius of the particle (μm),
c = concentration of the colloidal solution in volume %,
d = thickness of measured colloidal solution sample section (mm),
$E_{(c)}$ = concentration factor at concentration c, and
n = a constant.

4,274,741

DEVICE FOR DETERMINING THE GRANULOMETRIC COMPOSITION OF A MIXTURE OF PARTICLES BY DIFFRACTION OF LIGHT

Jean Cornillault, Nozay, France, assignor to Compagnie Industrielle des Lasers, Marcoussis, France

Filed Sep. 26, 1979, Ser. No. 79,007
Int. Cl.[3] G01N *15/02*
U.S. Cl. 356—336 9 Claims



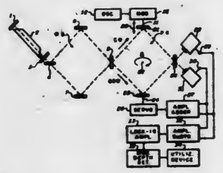
1. A device for determining the granulometric composition of a mixture of particles by light-diffraction, said device including:
a source of monochromatic light which emits a parallel beam (1);
means (2) for making the mixture pass through the beam;
an optical system for forming the diffraction pattern in the focal plane 4 of the beam by the mixture, the pattern being circularly symmetrical about a centre (5) constituted by the image of the parallel beam;
a system for scanning the diffraction pattern, said system including a set of light detectors (102, 104) each of which receives the light flux which passes through a light-integration area (AI, AJ), each area being constituted by a predetermined portion of the diffraction pattern and having substantially the form of a segment of a circular ring which is concentric with the pattern, the ring being defined by its inner and outer radii, each detector supplying a detection signal which is representative of the light flux which it receives; and
a circuit (70) for processing the data constituted by the detection signals; characterized in that said scanning system includes at least two successions (AI,AJ) of increasing inner and outer radii;
the inner radius of each integration area of each succession (AI) being greater than the outside radius of the preceding integration area so as to allow unoccupied ranges in the continuous sequence of the values of the radii, the ranges being located between two consecutive integration areas in the continuous sequence and being narrower than the areas;
the inner and outer radii of the areas of any one of these successions being shifted with respect to those of the areas of each other successions so that in said continuous sequence the areas of these other succesions occupy the unoccupied ranges of any succession in question, extending beyond these ranges on either side.

4,274,742

PASSIVE RING LASER RATE OF TURN DEVICES

Claude D. Lustig, Lexington, Mass., assignor to Sperry Corporation, New York, N.Y.

Filed Nov. 29, 1979, Ser. No. 98,467
Int. Cl.[3] G01C *19/64*
U.S. Cl. 356—350 17 Claims



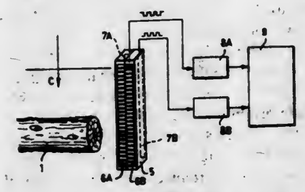
1. A passive ring resonator rate of turn device including:
first mirror means forming passive resonator means for the propagation of clockwise and counter-clockwise beams of electromagnetic energy and having clockwise and counter-clockwise resonant frequencies,
source means for introducing said clockwise and counter-clockwise beams into said passive resonator means,
modulator means for oscillating said clockwise and counter-clockwise resonant frequencies between respective first and second frequencies,
detector means for producing signals representative of the instantaneous amplitudes of said clockwise and counter-clockwise beams,
circuit means responsive to said detector means for producing an output representative of an algebraic combination of the amplitudes of said clockwise and counter-clockwise beams, and
utilization means responsive to said circuit means output.

4,274,743

METHOD AND APPARATUS FOR OPTICAL MEASUREMENT OF THE DIMENSION OF AN OBJECT

Erkki U. Nauslapää, Turnkatie 4, 01490 Vantaa 49, and Pekka Halko, Albertinkatu 17 B 28, 00120 Helsinki 12, both of Finland

Filed Jan. 10, 1979, Ser. No. 2,447
Claims priority, application Finland, Jan. 18, 1978, 780164
Int. Cl.[3] G01B *11/02*
U.S. Cl. 356—387 4 Claims



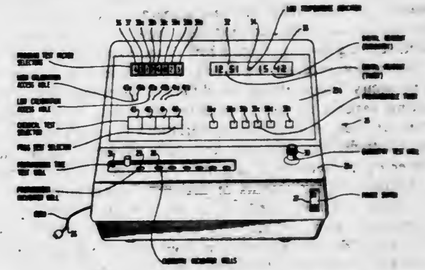
1. Apparatus for optical measurement of the dimension of an object by sweeping a ray of light with a sweeping means which displaces a ray of light without changing its direction across a photoelectrical transformer for receiving light pulses and for converting same into electrical pulses through a grid placed in front of said transformer, said grid comprising alternating non-transparent and transparent increments such that the photoelectrical transformer receives light pulses, whereby the object to be measured is placed in front of the grid such that it prevents access of the light ray onto the grid and, accordingly, to the photoelectrical transformer within an area corresponding to the dimension to be measured, and the received light pulses are converted into electrical pulses, the number of which enables a calculation of the measured dimension, characterized in that said grid is divided into at least two component grids with equally divided grid area arrangements which are placed parallel to and overlapping each other; the light pulses received from said component grids being sensed and counted separately for each component grid by said photoelectrical transformer which is accordingly divided into at least two separate component transformers for receiving the light pulses from the different component grids; and counting and comparison means for counting and processing the electrical pulses coming from the component transformers.

4,274,744

DIRECT READING DIGITAL COLORIMETER

Charles H. Chae, Greenfield; Donald E. Black, and Ramesh M. Shah, both of Indianapolis, all of Ind., assignors to Medico Electronic, Inc., Indianapolis, Ind.

Filed Nov. 21, 1978, Ser. No. 962,682
Int. Cl.[3] G01N *21/27*
U.S. Cl. 356—414 10 Claims



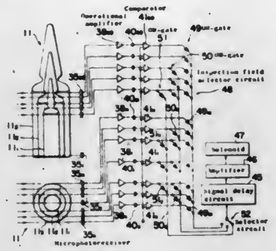
1. In a direct reading digital colorimeter for performing a plurality of chemical constituent concentration analyses of liquid samples irradiated by light of preselected wavelengths of the type wherein a console contains a light source, filter means for isolating selectively a plurality of frequency ranges emitted by said source for irradiating a sample inserted in a cuvette well means provided in said console, sensing means including digital readout means and analog-to-digital computing circuit means controlling said readout means in response to the intensity of light received by the sensing means from a sample irradiated by a particular one of said frequency ranges to provide a direct digital readout of the constituent concentration of a particular sample, the improvement comprising;
switching means comprising a plurality of user manually operable elements for individually adjusting electrical values of components of said computing circuit means and for individually selecting ranges of slope of said filter means for providing a plurality of particular chemical analyses, and;
at least one other user operable switching means independent of said first mentioned manually operable elements comprising a single manually operable element pre-programmed to adjust said electrical values and a range of slope for conducting at least one particular chemical analysis.

4,274,745

METHOD AND APPARATUS FOR DETECTING FOREIGN MATTERS IN LIQUIDS

Toshio Takahashi, Honjo, and Ryosaku Tagaya, Isesaki, both of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1978, Ser. No. 900,350
Claims priority, application Japan, May 12, 1977, 52-54607; Feb. 1, 1978, 53-10685
Int. Cl.³ G01N 21/24
U.S. Cl. 356—427 3 Claims



1. An apparatus including a photodetector and of the type for detecting foreign matters in liquids by the steps of turning a transparent container filled with a liquid at high speed, bringing the container to a standstill and therewith permitting foreign suspended matters to swirl within the liquid, illuminating the liquid and foreign matters and therewith causing the transmitted light to be received by the light sensitive surface of the photodetector opposed to the container, and measuring the quantity of light received, said apparatus including the improvement comprises in that said light sensitive surface is divided along its length into a row of sections eachconstituting a microphotoreceiver including a photoelectric element, a multiplicity of operational amplifiers of differential input type having variable resistors connected thereto to make uniform their DC output level despite variations in sensitivity among the photoelectric elements, and each having a signal input driven by its own one of said microphotoreceivers, capacitors in series with the outputs of said operational amplifiers for removing DC components from said outputs but passing AC components proportional to the size of foreign matters passing in front of the corresponding microphotoreceiver, a comparator for each microphotoreceiver, said comparators each having one input driven thereby through the corresponding said operational amplifier and capacitor, each said comparator having a reference signal input, means for applying a reference signal to said reference signal inputs, at least one inspection field selection circuit having its inputs respectively connected to the outputs of the comparators for a desired portion of said row of mirophotoreceivers, and output circuit means actuable by an output from said inspection field selection circuit to indicate an unsatisfactory foreign matters condition in a container being inspected, said reference signal applying means including a selector switch and a plurality of different reference voltage terminals individually selectable by said switch for application of reference signals to the reference input of said comparator of several magnitudes dependent on several minimum sizes of foreign matters to be detected;

wherein one portion of said microphotoreceivers is arranged in one or more rows extending vertically to the maximum effective height of the containers to be inspected and a further portion of said microphotoreceivers is arranged in one or more rows extending horizontally to the maximum effective width of the containers to be inspected and visually opposed to the bottom portion of the containers, a said inspection field selection circuit being connected to the outputs of a group of microphotoreceivers including both a vertical row and a horizontal row of microphotoreceivers which vertical and horizontal rows correspond in length respectively to the height and diameter of the containers to be inspected, said inspection field selection circuit comprising diode matrix circuits which are built so that the number of the microphotoreceivers to be employed is changed according to the size of the transparent container,

said diode matrix circuits including a first set of diodes respectively connecting the outputs of corresponding ones of a first set of said comparators to a first alternately selectable input of said selection circuit, a second set of diodes respectively connecting the outputs of only a portion of said comparators of said first set to a second alternately selectable input of said selection circuit, a third set of diodes respectively connecting the outputs of only part of said portion of said comparators of said first set to a third alternatively selectable input of said selection circuit, said first, second and third sets of diodes serving at least one vertical row of microphotoreceivers;

fourth, fifth and sixth sets of diodes connected like said first, second and third sets but with their inputs fed by further comparators serving at least one said horizontal row of microphotoreceivers;

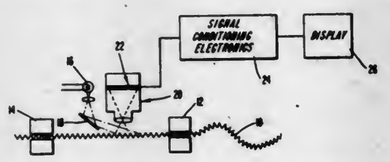
first, second and third output lines alternatively connecting said inspection field selection circuit to said output circuit through alternative selection means, the outputs of said first and fourth diode sets connecting to said first output line, the outputs of said second and fifth diode sets connecting to said second output line, and the outputs of said third and sixth diode sets connecting to said third output line.

4,274,746

METHOD AND APPARATUS FOR OPTICALLY MEASURING CRIMP FREQUENCY

Max L. Cardell, Shelby, and John R. Holt, Charlotte, both of N.C., assignors to Fiber Industries, Inc., New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,260
Int. Cl.³ G01N 21/86, 21/89
U.S. Cl. 356—429 20 Claims



1. Apparatus for measuring the crimp frequency of a crimped tow, comprising:

means for illuminating the tow in the longitudinal direction of the tow with light having a shallow angle of incidence such that the crimps in the tow reflect the light to produce alternate bright and shadowed areas on the tow;

means for optically scanning the illuminated portion of the tow and producing an output signal which is amplitude modulated in accordance with the pattern of bright and shadowed areas on the tow;

means for measuring the frequency of said output signal; and

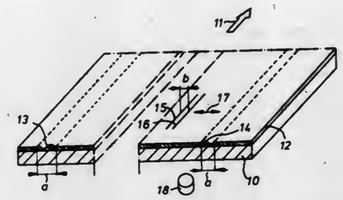
means for displaying the measured frequency as a function of crimps per unit length of the tow.

4,274,747

METHOD AND DEVICE FOR INSPECTING A MOVING SHEET MATERIAL FOR STREAKLIKE DEFECTS

Walter P. Van Beeck, Sinaai; Alfons J. Dictus, Ekeren; Maurits Geens, Haacht; Roger J. Simons, Antwerp, and Jean Burtin, Mol, all of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Jun. 21, 1979, Ser. No. 50,792
Claims priority, application United Kingdom, Jun. 26, 1978, 27863/78
Int. Cl.³ G01N 21/89
U.S. Cl. 356—431 15 Claims



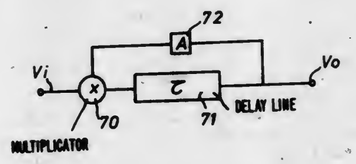
1. Method of inspecting sheet material for streak-like defects during travel of such material along a certain path, which method comprises the following steps: scanning across at least part of the width of said path with one or more beams of radiation, each beam of which at any given instant irradiates a narrow zone which is elongated in the direction of travel of the material; receiving radiation which has been transmitted through or reflected by the successively irradiated zones of the material on a photocell; deriving from such photocell a multiplicity of sequential signals, each representative of a particular one of said elongated narrow zones; and, comparing said successive signals with a preceding or following signal to establish amplitude differences between the thus-compared signals and from said differences to indicate the presence of said defects.

4,274,748

METHOD AND DEVICE FOR INSPECTING A MOVING SHEET MATERIAL FOR STREAKLIKE DEFECTS

Jean Burtin, Mol, and Maurits Geens, Haacht, both of Belgium, assignors to AGFA-GEVAERT N.V., Mortsel, Belgium

Filed Oct. 17, 1979, Ser. No. 85,711
Claims priority, application United Kingdom, Oct. 19, 1978, 41163/78
Int. Cl.³ G01N 21/89
U.S. Cl. 356—431 10 Claims



1. In a method for inspecting at least one longitudinal section of a moving sheet material for streaklike defects, by repeatedly transversely scanning during a period P each such section of the material by means of radiant energy capable of being modulated by said sheet material, and by receiving said modulated energy on at least one photocell thereby to produce at said at least one photocell at least one train of measurement signals V_m periodically recurring in response with the scanning of the material and which vary in intensity as an indication of the presence of said defects, wherein the S/N ratio of those having a S/N ratio of greater than one is improved by electronic correlation, the improvement wherein said correlation comprises the following steps:

delaying the measurement signals V_m in the train during one scan over a time delay t corresponding with the scanning period P;

multiplying the measurement signals during a following scan with a factor that is proportional to the corresponding delayed signals, and is greater than 1;

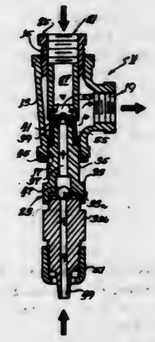
delaying the thus multiplied signals over said time delay t and multiplying the measurement signals produced during a subsequent scan with a factor that is proportional to said corresponding previous multiplied signals, and so on for a number of scanning periods.

4,274,749

POLYMER DISPERSION DEVICE

Robert J. Lake, Pontiac, and Kimberly L. Chapman, Rochester, both of Mich., assignors to Clow Corporation, Oak Brook, Ill.

Filed Oct. 1, 1979, Ser. No. 80,500
Int. Cl.³ B01F 3/08, 5/04
U.S. Cl. 366—132 11 Claims



1. A device for dispersing fluid polymeric material in a liquid diluent, which device comprises

a body providing a generally T-shaped interior cavity having a pair of opposed inlets and a side outlet which is located therebetween,

a liquid diluent injection assembly in one of said inlets with the front end thereof located in said interior cavity of said body,

a polymer injection assembly in said other inlet with the front end thereof located in said interior cavity,

the juxtaposition of said front ends of said injection assemblies within said interior cavity being such as to create a zone where countercurrently flowing diluent and polymeric material are pre-mixed and also being such as to create an orifice there between wherein the polymeric material is subjected to high shear forces, and

means for adjusting the relative positions of said injection assemblies within said interior cavity to control diluent flow rate by changing the size of said orifice, whereby the dilute stream exiting from said side outlet contains polymeric material which has been dispersed into the diluent without substantial degradation of the polymer chain length.

4,274,750

GRAIN STIRRER DRIVE ASSEMBLY

Edward H. Smit, Sheffield, Iowa, assignor to Sukup Manufacturing Co., Sheffield, Iowa

Filed Sep. 7, 1978, Ser. No. 940,436
Int. Cl.³ B01F 7/24
U.S. Cl. 366—261 8 Claims

1. In apparatus for moving grain within a storage bin comprising a laterally extending sweep member suspended at an

inner end portion by a pivotal support means and at an outer end portion by a track means secured to the storage bin; said sweep member including a sweep drive element in supporting and drive-engaging relation with said track means, and an auger support and movement element rotatable directionally independently of said drive element; at least one stirring member movably carried on said auger support and movement element and depending therefrom; and means for moving said stirring member inwardly and outwardly along said auger support and movement element in accordance with the direction of rotation of said auger support and movement element;



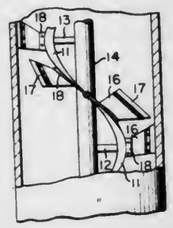
the improvement comprising drive means connected to said support and movement element for selectively effecting rotation and counterrotation thereof, and selective reversible drive means connected for unidirectional rotation drive of said sweep drive element in response to such rotation and counterrotation of said support and movement element whereby said drive element propels the outer end of said sweep member along said track means in one direction while said selective rotation of said auger support and movement element causes selective movement of said stirring member inwardly and outwardly along said sweep member.

4,274,751

SCRAPED WALL AGITATOR

James L. Rector, Vienna, W. Va., and Paul R. Weber, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 26, 1980, Ser. No. 134,228
Int. Cl.³ B01F *7/24*
U.S. Cl. 366—310 **3 Claims**



1. In a tubular vessel, an agitator to mix the contents of the vessel and to clean the wall of the vessel, which agitator comprises

(a) a shaft axially and centrally positioned in the vessel, which shaft is connectable to an outside rotational drive source,

(b) at least one spiral blade positioned helically around the shaft and supported away from the shaft by rigid supporting arms attached to the blade and the shaft, such blade proportioned in length and diameter to impel the contents in predetermined motion,

(c) a series of straight plate segments spaced at predetermined uniform intervals along the blade and attached to the blade such that the segments extend from the blade toward the interior wall of the tubular vessel, the plane of each plate relative to axis of rotation being approximately the same angle as the helix angle of the periphery of the blade, but the plane of the plate relative to the helical blade being positioned to slant either away from or toward the direction of rotation of the shaft, said plate being constructed to flex with predetermined controlled pressure at the interior wall,

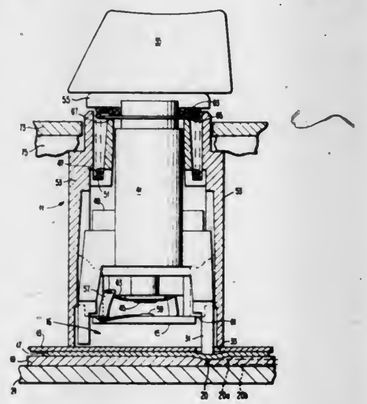
(d) a flexible tip attached to the end of each segment and positioned and contoured such that by overlap of each tip with respect to the adjacent tip ends, all portions of the interior wall of the tubular vessel are contacted during a single revolution of the shaft.

4,274,752

KEYBOARD MULTIPLE SWITCH ASSEMBLY

Daniel L. Huber; Thomas M. Paulson, and James M. Williams, all of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 2, 1979, Ser. No. 25,825
Int. Cl.³ B41J *5/08*
U.S. Cl. 400—477 **8 Claims**



1. A keyboard switch assembly comprising:

a plurality of manually movable keys;

a capacitive switch assembly including a circuit board having individual circuit elements associated with individual keys, plural members each responsive to movement of an associated keybutton for moving relative to the associated individual circuit elements, capacitive sensing means for sensing a change in relative position between individual ones of said plural members and said associated individual circuit elements;

a contact switch located below said circuit board and including a grounded planar member forming a first switch member and a ground plane electrical shield for said capacitive switch assembly, a second switch member having an electrical potential applied thereto, sensing means for sensing contact between the first and second switch members; and

means extending through said circuit board and responsive to further movement of an associated keybutton for causing contact between said first and second switch members.

4,274,753

NON-ORAL COMMUNICATION DEVICE

David L. Brown, R.R. 1, Box 126, Park Rapids, Minn. 56470

Filed Oct. 2, 1978, Ser. No. 947,474
Int. Cl.³ B41J *5/30*
U.S. Cl. 400—87 **9 Claims**

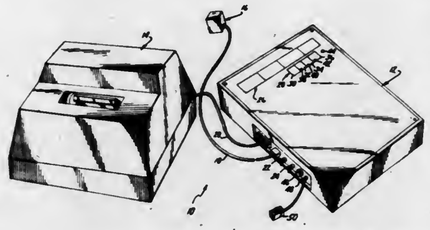
1. A non-oral communication device comprising:

a single electrical switch actuable by an operator and movable between a first and a second position;

a memory for storing a plurality of plural word messages at a plurality of locations indexed by plural digit numbers, said memory being capable of storing said messages at locations indexed by numbers having at least three digits;

a selector circuit for selecting one of said plural word messages by its indexed plural digit number;

said selector circuit including numeral display means actuated by said switch, said numeral display means having at least three digit locations at which numerals can be displayed, means for cyclically indicating different numerals at each of said at least three digit locations, means actuated by said switch for choosing a displayed numeral at each of said at least three digit locations, said cyclical indicating



means cyclically indicating different numerals at one of said at least three digit locations until said switch actuates said choosing means to choose a numeral being indicated, said numeral display means displaying a numeral chosen, said cyclical indicating means cyclically indicating different numerals at a succeeding digit location after a numeral has been chosen at a preceding digit location, and means actuated by said switch for transmitting the numerals chosen to said memory after a complete plural digit number of a desired plural word message has been chosen; and

means for signaling a message display means to display a selected plural word message indexed by a chosen plural digit number.

4,274,754

DOUBLE LOCKING DEVICE

Murray Cohen, Seaford, N.Y., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Oct. 31, 1979, Ser. No. 89,771
Int. Cl.³ F16D *1/00*
U.S. Cl. 403—14 **7 Claims**



1. Means to double lock a connection, said means comprising:

a first part to be used in the connection;

a second part to be joined with the first part in making the connection;

a lock key to be interposed with said first part and said second part, said lock key having a shelf to extend over one of said first part or said second part;

a jam nut to locate said lock key, said jam nut having a peripheral surface of a predetermined diameter which is greater than the internal diameter prescribed by the shelf; and

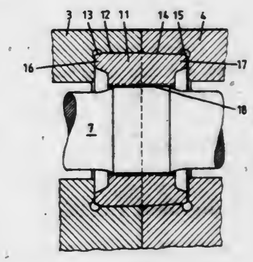
a dog screw insertable through the shelf to said first part or said second part whichever lies thereunder, to secure said lock key.

4,274,755

RIGID COUPLING, ESPECIALLY FOR TURBOGENERATORS

Felix R. Bernasconi, Zollikerberg, Switzerland, assignor to BBC Brown Boveri & Company Limited, Baden, Switzerland

Filed Apr. 30, 1979, Ser. No. 34,497
Claims priority, application Switzerland, Jun. 30, 1978, 7147/78
Int. Cl.³ F16D *1/02*
U.S. Cl. 403—337 **7 Claims**



1. A rigid coupling for joining together first and second shaft ends, especially in a turbomachine, comprising:

a first flange fixed with respect to the first shaft end;

a second flange fixed with respect to the second shaft end;

at least one annular shearing bushing arranged between said first and second flanges, the at least one shearing bushing having a first portion received within a bore of the first flange and a second portion received within a bore of the second flange;

said first portion including a generally cylindrical outer wall surface having a diameter which is greater than the diameter of the bore in the first flange, and which first portion is inserted into said bore by means of a shrink fit;

said second portion including a generally conical outer wall surface and said bore in the second flange having a conical shape which substantially corresponds to the conical shape of the outer wall surface of said second portion; and

means for axially urging the first and second shaft ends together.

4,274,756

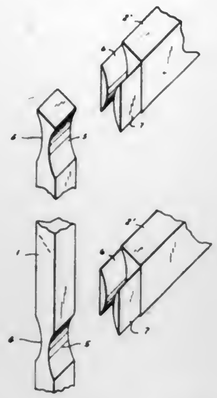
FIXED JOINT, ESPECIALLY FOR JOINING STRUCTURAL PARTS OF WOODEN FURNITURE

Gerd Lange, Kapsweyer, Fed. Rep. of Germany, assignor to Schlaap-Möbel GmbH & Co., KG, Neu-Anspach, Fed. Rep. of Germany

Filed Nov. 13, 1978, Ser. No. 959,874
Int. Cl.³ F16B *12/00*
U.S. Cl. 403—382 **15 Claims**

1. A joint of a plurality of construction pieces, comprising a first joint portion including a pair of concave recesses provided on opposite sides of one of said construction pieces; a second joint portion including a pair of facing convex surfaces provided on at least one of the other construction pieces, said

convex surfaces snugly fitting said concave recesses when said other construction piece is joined transversely to said one



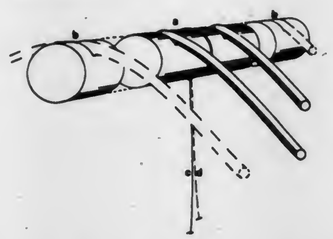
construction piece; and connecting means for securing said convex surfaces in said concave recesses.

4,274,757

IMMERSION/SUSPENSION METHOD FOR THE SUBMARINE DEPLOYMENT OF HIGH VOLTAGE TRANSMISSION CABLE

Richard D. Francisco-Arnold, P.O. Box 452, Bronxville, N.Y. 10708

Filed Oct. 14, 1976, Ser. No. 732,211
Int. Cl.³ F16L *1/04*
U.S. Cl. 405—161 2 Claims



1. A bouyant support apparatus for the subsurface suspension deployment of a number of thermally active electrical power transmission cable; and which comprises at least a single flotation element provided with supporting means and attachment recepticle projecting out from and attached to the flotation element, and interconnectable to other like means to form a network support configuration so as to space the said cable from one another, where multiply employed, at a point adjacent to the flotation element; and additionally providing attachment means for securing the support means to the flotation means, as well as one another.

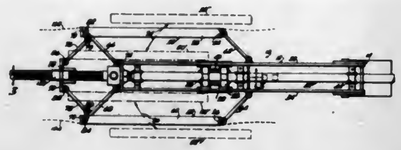
4,274,758

DEVICE TO SECURE AN UNDERGROUND PIPE INSTALLER IN A TRENCH

William O. Schosek, 7942 Marx Dr., North Fort Myers, Fla. 33903

Continuation-in-part of Ser. No. 68,151, Aug. 20, 1979. This application May 12, 1980, Ser. No. 149,172
Int. Cl.³ F16L *1/02*
U.S. Cl. 405—184 9 Claims

1. A device to secure an underground pipe installer relative to opposed generally vertical side walls of an operating trench, the pipe installer device being of a type which includes reversible power operated means to drive a rod assembly, formed of a plurality of coupled rod lengths, forwardly through the ground from the operating trench for penetration into a target trench, in a forward drive mode, and to withdraw the rod assembly, in a reverse drive mode, with a pipe or other conduit means attached to a leading end thereof, into an installed position within the hole formed in the ground by the rod assembly, the device to secure comprising a pair of elongated abutment members in a generally parallel arrangement outwardly of respective side walls of a main length of the underground pipe



installer, pivotal link means connecting said abutment members to respective side walls of the main length in a manner whereby said pair of elongated abutment members may be synchronously pivoted to oppositely outwardly expanded, generally parallel positions, from inwardly retracted positions, adjacent to the main length; and means to connect a trailing end of a hole forming rod length, operably engaged in the installer, to said link means in a manner so as to forcably drive said abutment members from said retracted positions to said expanded positions when the power operated means is operated in the forward drive mode; and lock means to secure said abutment members in said expanded positions.

4,274,759

NON-RETURN HOT WATER DIVING SUIT

Richard W. Long, and Robert T. Stinton, both of San Diego, Calif., assignors to Diving Unlimited International, Inc., San Diego, Calif.

Continuation of Ser. No. 835,679, Sep. 22, 1977, abandoned. This application Feb. 12, 1979, Ser. No. 11,200
Int. Cl.³ B63C *11/02*
U.S. Cl. 405—186 11 Claims



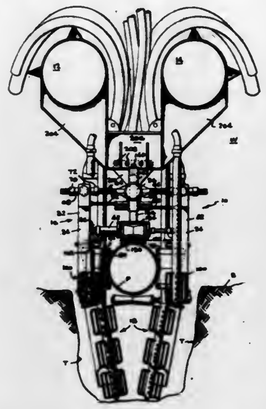
1. A non-return hot water diving suit, comprising:
a waterproof body encasing suit providing a sealed interior to protect the body against cold exterior water;
the suit having inlet means for connection to a supply of hot water to admit the hot water into the interior of the suit;
the suit further having a single hot water outlet for allowing hot water to be exhausted from the interior of the suit therethrough, the outlet including a positive shut-off valve; and
flow restricting means disposed between the interior of the suit and the outlet for allowing hot water to be exhausted from the interior of the suit through the outlet at a predetermined substantially constant first rate and for preventing cold exterior water from surging into the interior of the suit through the outlet at a second rate significantly greater than the first rate due to pumping action in the suit or failure of the hot water supply.

4,274,760

SELF-PROPELLED UNDERWATER TRENCHING APPARATUS AND METHOD

Robert M. Norman, P.O. Drawer 53475, Lafayette, La. 70501

Continuation of Ser. No. 829,350, Aug. 31, 1977, abandoned. This application Feb. 2, 1979, Ser. No. 8,849
Int. Cl.³ E02F *5/02, 5/14*
U.S. Cl. 405—163 68 Claims



1. An underwater trenching apparatus for burying pipeline and the like comprising:
a frame for positioning about the pipeline to be buried,
said frame including frame members positioned on each side of said pipeline,
roller means connected to at least one of said frame members for engagement with said pipeline,
pivot means positioned on said frame for pivoting each said frame member about a substantially horizontal axis parallel to the pipeline transversely toward and away from roller engagement with said pipeline,
means operative upon said frame for laterally moving said pivot means and said horizontal axis to shift said frame members transversely to the axis of the pipeline, and
cutting means secured to said apparatus for cutting a trench in a formation whereby said pipeline is buried.

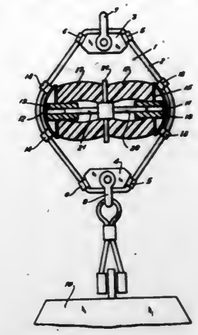
4,274,761

SUSPENSION ARRANGEMENT FOR SUSPENDING OF VIBRATING ELEMENTS AND THE LIKE

Kurt Bogath, Ratingen, Fed. Rep. of Germany, assignor to Tuenkers GmbH, Ratingen, Fed. Rep. of Germany

Filed May 25, 1979, Ser. No. 42,717
Claims priority, application Fed. Rep. of Germany, Jun. 1, 1978, 2823953
Int. Cl.³ E02D *7/00*
U.S. Cl. 405—232 19 Claims

1. A suspension arrangement for suspending a vibratory ram and the like vibratory devices or bodies, comprising a sling element having two first upper and lower ends spaced from one another in a vehicle first direction and two second lateral ends spaced from one another in a second transverse direction which is transverse to said first vertical direction; carrying plates mounted at the respective first ends; first and second suspending means each connected to one of said carrying plates so that, when said sling element is suspended from one of said suspending means and a vibrating element is suspended from the other of said suspending means, said sling element varies its shape whereby the respective distances between said first ends and between said second ends are varied; and a dampening element located between said second ends of said sling element and movable in said transverse direction so that when said sling element is loaded by the vibrating element suspended on said one first end and the distance between said



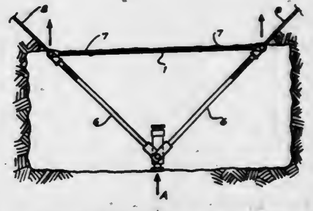
second ends is varied, a compressing force acts upon said damping element in said transverse direction.

4,274,762

PRESTRESSED ROCK TRUSS

Stanley F. Johnson, 80 Sydney St., Maxwellbrook, New South Wales 2333, Australia, assignor to Frederick Johnson, Lithgow, Australia

Filed Feb. 26, 1979, Ser. No. 15,034
Claims priority, application Australia, Mar. 3, 1978, PD3580
Int. Cl.³ E21D *20/00*
U.S. Cl. 405—259 5 Claims



1. A method of supporting a roof of a mine gallery comprising the steps of placing an elongated truss with toggles at each end thereof against the roof to be supported; exerting a force against the toggles such that the truss is under tension; drilling bolt holes in the roof, using a hole in each toggle as a guide, at an angle to the roof; installing roof bolts into said bolt holes through said holes in the toggles such that the roof bolts extend beyond the width of the mine gallery; and securing said roof bolts to said toggles and in said bolt holes.

4,274,763

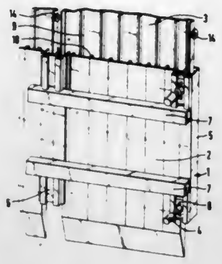
EXCAVATING SHEETING UNIT

Josef Krings, Haus-Boeckler-Str. 23, D-5138 Heinsberg-Oberbruch, Fed. Rep. of Germany

Filed Apr. 16, 1979, Ser. No. 30,463
Claims priority, application Fed. Rep. of Germany, Apr. 18, 1978, 2816709
Int. Cl.³ E21D *5/00*
U.S. Cl. 405—282 16 Claims

1. An excavation sheeting unit having an outside adapted to bear against a trench surface or the like comprising a pair of spaced generally vertically disposed parallel guide rails, means for rigidly connected together said guide rails, a pair of relatively large sheeting plates each having opposite upstanding lateral edges, said lateral edges defining means for vertical sliding guiding motion relative to associated ones of said guide rails whereby said sheeting plates move in relative parallel

sliding motion with respect to each other, at least one supporting strut associated with each guide rail and being disposed generally transverse thereto, means for slideably mounting each supporting strut relative to its associated guide rail for



movement generally parallel to the relative sliding motion of said sheeting plates, and means for locking at least one of said sheeting plates in any of several predetermined positions of adjustment relative to the other of said sheeting plates.

4,274,764

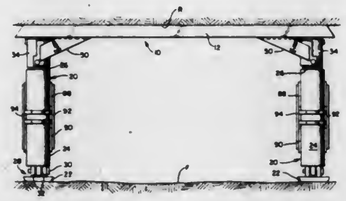
MINE ROOF SUPPORTING SYSTEM

Paul F. Curry, Box 775, Glade Spring, Va. 24340

Filed Dec. 26, 1979, Ser. No. 107,459

Int. Cl.³ E21D *15/44*

U.S. Cl. 405—291 **10 Claims**



1. In a self-advancing mine roof support system having a plurality of roof support units each including a generally horizontal beam supported at opposite ends by a pair of extensible, vertically oriented props so that any one of said units may be adjusted between a roof supporting condition in which the beam thereof is advanced upwardly by the props of that unit into engagement with a mine roof and a retracted condition in which the beam thereof is lowered away from the mine roof, the roof support units being arranged in tandem so that the several horizontal beams of the system are oriented in generally parallel relationship to each other and in transverse relationship to the direction of system advance under a mine roof, a pair of extensible struts extending between and connected to the respective props of each successive two of said units so that any one of said units may be adjusted to said retracted condition and advanced by said struts acting against another of said units adjusted to said roof supporting condition, and pivotal means connecting the upper end of each prop to said beams, the improvement comprising:

a pair of stabilizing brackets to yieldably retain the props and beam of each roof support unit in perpendicular relationship when each unit is adjusted to said retracted condition and to allow the props and beams of each unit to deflect from a perpendicular relationship when adjusted to said roof supporting condition;

each of said stabilizing brackets including a rigid angular member having a pair of mutually perpendicular abutment surfaces, one such surface to engage the beam of each unit and the other of such surfaces to engage one of the props of each unit, and tension spring means to bias said abutment surfaces into engagement.

4,274,765

MINING EQUIPMENT

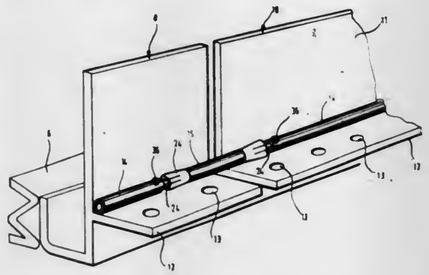
Adam M. Spence, Doncaster, and James R. Goff, Brockenhurst, both of England, assignors to Winster Engineering Limited, Ilkeston, England

Filed Nov. 17, 1978, Ser. No. 961,913

Claims priority, application United Kingdom, Nov. 19, 1977, 48282/77

Int. Cl.³ E21C *35/20*

U.S. Cl. 405—303 **10 Claims**



1. In a system for the supply of fluid under pressure to machinery of an underground mine working, the improvement wherein lengths of fixed conduit are permanently or semi-permanently secured to some at least of the individual sections of a mining conveyor at the underground mine working and, to the assembly of said sections, said lengths of fixed conduit are secured together by lengths of flexible conduit and by the use of quick release couplings, inter-engageable elements of which are secured to the ends of the fixed conduits and to the ends of the flexible conduits respectively.

4,274,766

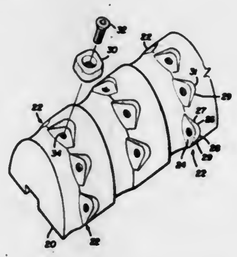
CUTTER ASSEMBLY FOR BROACHING

Arthur J. Raupp, Jr., Milford; Michael N. Gerasin, Drayton Plains, and M. Leonard Thompson, Livonia, all of Mich., assignors to The Valeron Corporation, Troy, Mich.

Filed Nov. 28, 1979, Ser. No. 98,228

Int. Cl.³ B26D *1/12*

U.S. Cl. 407—15 **2 Claims**



1. A broaching tool for finishing a portion of a cylindrical surface up to and including a complete cylinder, said broaching tool comprising:

a cutter body including a plurality of pockets formed therein, each pocket having sidewalls defining planar regions and an undercut radiused corner connecting said planar regions, said pockets being arranged on said cutter body in helical arrays with successive pairs of helical arrays having increasing radii as measured from the longitudinal axis of the cutter body;

a plurality of corresponding cutting inserts mounted to said pockets, each insert including a center, a top planar surface, a bottom planar surface, and a peripheral surface, the peripheral surface of each insert making an angle of less than 90° with the longitudinal axis of said cutter body, said peripheral surface bounding an inscribed circle which has a center coincident with the center of said insert, each of said inserts including a plurality of flat planar surfaces that are parallel to the longitudinal axis of said insert and a plurality of bulges, said flat planar surfaces being substantially tangent to said inscribed circle and each bulge being defined by a corresponding center of curvature and radius of curvature, the radius of curvature of each bulge being at least four times greater than the distance from the center of curvature of each bulge to the center of said inscribed circle, the top planar surface and bottom planar surface of each insert being substantially perpendicular to the longitudinal axis of said peripheral surface and the intersection of the top planar surface and bottom planar surface with the bulges on said peripheral surface defining a plurality of cutting edges; and

said flat planar surfaces and pocket planar regions providing an indexing mechanism for each insert whereby each insert is indexable in multiples of 90°.

4,274,767

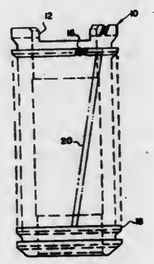
HELICAL TOOTHED BROACH

Eugene J. Bistrick, and Axel B. Abrahamsson, both of Warren, Mich., assignors to Lear Siegler, Inc., Santa Monica, Calif.

Filed Dec. 10, 1979, Ser. No. 102,119

Int. Cl.³ B26D *1/00*

U.S. Cl. 407—18 **9 Claims**



1. A finishing broach for finish cutting helical teeth of a work piece, comprising an elongated broach body having a multiplicity of series of helically aligned teeth arranged to finish cut previously formed teeth on a work piece, all of said teeth having side surfaces conforming to the profile shape of the spaces between adjacent teeth on the work piece, each tooth having side surfaces helically inclined to the longitudinal axis of the body to define obtuse and acute included angles with its front face;

the leading section of said broach having teeth which at the acute included angle side thereof have cutting edges which are progressively stepped laterally and backed off to take sequential cuts for substantially the full height of the adjacent sides of the work piece teeth,

the teeth of said leading section at the obtuse included angle sides thereof being neither laterally stepped nor backed off and which therefore provide guide surfaces in true helical alignment which cooperate with the adjacent side surfaces of the work piece teeth,

the following section of said broach having teeth all of which at the obtuse included angle side thereof are laterally stepped and backed off to take sequential cuts for substantially the full height of the adjacent sides of the work piece teeth,

the teeth of the following broach section at the acute included angle side thereof comprising in sequence a first few teeth which are not laterally stepped but in which the side surfaces are backed off,

a single following tooth which at its acute included angle side is neither laterally stepped nor backed off, but has its side surface substantially chamfered rearwardly from its front surface,

the remaining teeth of said following section at the acute included angle side thereof being neither laterally stepped nor backed off to provide guide surfaces in true helical alignment which cooperate with the adjacent side surfaces of the work piece teeth.

4,274,768

TAPPING SPINDLE

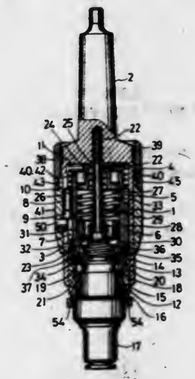
Taizo Kato, 3007-104, Obatakigashijima, Moriyamaku, Nagoya, Japan

Filed May 14, 1979, Ser. No. 38,704

Claims priority, application Japan, May 15, 1978, 53-65587[U]

Int. Cl.³ B23G *1/46, 3/00*

U.S. Cl. 408—142 **3 Claims**



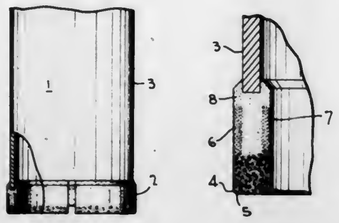
1. A tapping spindle comprising a first cylinder having a shank at the top thereof, opening at the bottom thereof and formed with at least one axial slot in a side wall thereof, a second cylinder reciprocatable and rotatable within said first cylinder and spring-urged axially inwardly of said first cylinder; said second cylinder having at leat one axial groove in an outer wall thereof, said groove opening at one end thereof, the open end having one edge of a substantially right angle and the outer edge contoured off; and a slidable roller normally engaging both said slot and groove and spring urged axially outwardly of said first cylinder

characterized by a sleeve reciprocatable around said first cylinder and having a radial pin fixed thereto and projecting radially inward to reciprocatably engage said slot; said pin stopping said roller from moving axially inwardly of said groove; and means for selectively holding said sleeve at predetermined axially various positions relative to said first cylinder.

4,274,769
IMPREGNATED DIAMOND DRILL BIT CONSTRUCTION

Leonid Multakh, Scranton, Pa., assignor to Acker Drill Company, Inc., Scranton, Pa. and Acker Drill Company, Inc., Scranton, Pa.

Continuation-in-part of Ser. No. 898,687, Apr. 21, 1978, Pat. No. 4,211,294. This application May 19, 1978, Ser. No. 907,507
Int. Cl.³ B23B 27/20
U.S. Cl. 408—145 9 Claims

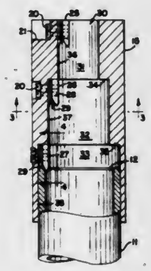


1. An impregnated diamond drill bit comprising: a generally cylindrical crown structure having a lower portion forming a cutting surface, said lower portion containing diamond particles randomly dispersed within a metal matrix and said crown structure having outside continuous sections formed by a layer of a material that is more wear resistant than said metal matrix, said outside layer lying outside of a central core section of said crown structure and being arranged above said cutting surface portion along portions of the circumferential side wall of said crown structure between water pathways in said crown structure, the thickness of said outside layer being only a small fraction of the thickness of said crown structure; and a shank member attached to said crown structure at its upper end.

4,274,770
HAND-HELD BURR REMOVER FOR CONDUIT AND PIPE

Karl Singer, 2282 Thorntree, Palatine, Ill. 60067, assignor to Karl Singer, Palatine and Wagner & Aubel, Ltd., Chicago, both of, Ill.

Filed Nov. 9, 1979, Ser. No. 93,026
Int. Cl.³ B23D 79/00
U.S. Cl. 408—211 5 Claims

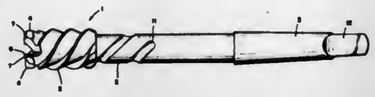


1. An apparatus for deburring leading edges of conduits and the like, said apparatus being capable of deburring conduits of a plurality of sizes, said apparatus including a plurality of successively smaller chambers, each communicating directly with adjacent chambers and being of a size approximating that of a standard size conduit, the largest of said chambers having an external opening, each chamber having a cutting means with a blade oriented towards said external opening, whereby the leading edges of any conduits of said standard sizes may be inserted into said external opening to engage one of said blades and be deburred upon the rotation of said apparatus relative to said conduit.

4,274,771
BORING REAMER WITH END MILL CUTTERS

Takayuki Nishimura, Nara, Japan, assignor to G. N. Tool Inc., Nara, Japan

Filed Jun. 28, 1979, Ser. No. 52,840
Int. Cl.³ B23B 51/00; B26D 1/12
U.S. Cl. 408—230 1 Claim

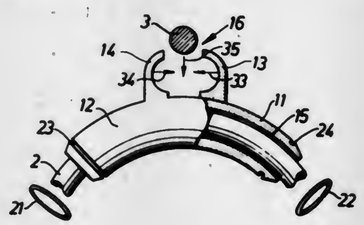


1. A boring reamer having a cutting portion comprising:
at its forward end, a end mill cutter portion formed with straight flutes; and
to the rear of said end mill cutter portion a fluted member portion larger in diameter compared to said end mill cutter portion and from four to five times as long, said fluted reamer portion being provided with an ultra-left-hand twist right-hand cut fluted cutting edge with a helix angle of about 50°–70°, the forward portion of said fluted reamer cutting edge having a chamfer angle of about 30°–20° and relieving angle of approximately 1°–10° and the rear portion of said fluted reamer cutting edge having a plurality of unrelieved burnishing portions each of from 0.1–0.5 mm in width.

4,274,772
HOLDER FOR CHUCK KEY

Sven H. Widigs, Gustafs, Sweden, assignor to Lars-Gösta Brändström and Karl-Peter Brändström, both of Söderhamn, Sweden

Filed Feb. 15, 1980, Ser. No. 121,731
Claims priority, application Sweden, Feb. 15, 1979, 7901356
Int. Cl.³ B23B 45/00
U.S. Cl. 408—241 R 4 Claims

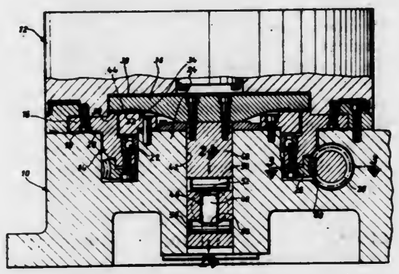


1. A chuck key holder for arrangement on a flexible power supply lead to rotatably carry a chuck key for adjusting the clamping jaws of a chuck on an electrically or pneumatically driven machine, such as a hand-held drilling machine, the holder including a channel for accommodating the power supply lead, and a mounting for the chuck key, characterized in that the holder has a basic structure consisting of two identically alike basic parts (11, 12), of which one (11) is turned 180° in relation to the other (12), there being formed in each part (11, 12) one half of the channel (15) for the lead and one half of the chuck key mounting (16), there also being fastening means arranged for keeping the basic parts (11, 12) together, each said holder basic part (11, 12) having a pair of surfaces adapted to slideably engage a mating oppositely facing pair of surfaces on the other basic part, and each basic part being slideable in respect to the other along said pairs of mating surfaces while a flexible lead of proper size is received therein, said chuck key mounting (16) being formed in portions (13, 14) projecting from said basic parts (11, 12), the common contact surfaces of the portions (13, 14) being perpendicular to the plane of partition for the basic parts (11, 12), in which is formed the channel (15) accommodating the lead (3), and facing each other, and formed in relation to each other and said pair of slideably engageable surfaces so as to limit the movement of said basic parts along the latter surfaces and to rotatably retain a chuck key when said portions 13, 14 engage, and attachment means comprising resilient rings (21, 22) receivable in mating grooves on said basic parts said grooves being positioned on the latter parts so as to be in proper relationship when said common contact surfaces of said key mounting portions are engaged.

4,274,773
ROTARY INDEX TABLE

Friedrich Burkhardt, Eislingen/Fils, and Hans Staiger, Göppingen, both of Fed. Rep. of Germany, assignors to Ex-Cell-O GmbH, Eislingen/Fils, Fed. Rep. of Germany

Filed May 1, 1979, Ser. No. 35,057
Claims priority, application Fed. Rep. of Germany, May 3, 1978, 2819412
Int. Cl.³ B23Q 3/18
U.S. Cl. 409—221 17 Claims

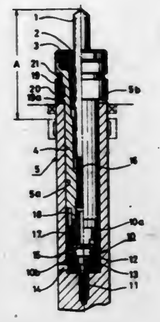


1. Rotary index table, comprising: a stationary table housing with a rotatable table plate for workpiece accomodation, a drive means for driving said rotatable table plate, said drive means having a worm gear arranged concentrically to the axis of said table plate and which engages a drive worm located on a drive shaft of the drive means, a plurality of three concentrically arranged Hirth-type serrations, a first serration of which being provided on said table housing, a second on said table plate in the same plane as said first serration, and a third serration adjacent to said first and second serrations being essentially non-rotatable but axially adjustable and being so designed that simultaneously with the two other Hirth-type serrations it can be engaged or disengaged for locking or unlocking said table, whereby, the table plate in the disengaged condition of the first and second Hirth-type serrations can steplesly be rotated by the drive means and be fixed in at least those angular positions that are established by the pitch of the Hirth-type serrations, characterized in that drive worm (28) can radially be deflected in the direction of worm gear (26) by means of an actuating mechanism and be brought under load into contact with the flanks of worm gear (26).

4,274,774
TOOL-FITTING DEVICE

Minoru Haga, and Kunio Kondo, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha and Fujiseiko K.K., both of, Japan

Filed May 18, 1978, Ser. No. 907,208
Int. Cl.³ B23B 31/06; B23C 5/28
U.S. Cl. 409—232 3 Claims



1. A tool-fitting device for a tool, comprising:
a spindle with an axially extending bore having a bottom surface portion;
a tool-fitting body separate from said tool and said spindle, a clamp piece inserted into said spindle bore, one end of said clamp piece being attached with the tool-fitting body which holds said tool and the other end of said clamp piece including a pair of anti-pull-out parts consisting of an axial rib and a circumferential rib;
a clamp socket, separate from said spindle, fixed to the bottom of said spindle bore and disposed between said other end of said tool-fitting body and said spindle bottom surface portion, said socket having two anti-pull-out bosses protruding in the radial direction and engaging the anti-pull-out parts of said clamp piece;
a screw member for decuring said clamp socket to said spindle;
a rotation-restraining engaged means which is restrained in its rotation relative to said spindle;
a rotation-restraining engaging means formed at one end of said body and restrained in its rotation relative to said tool-fitting body and, by engaging said engaged means, restrains the rotation of said tool-fitting body with respect to said spindle,
said engaging means including a switch collar which is axially slideable relative to said tool-fitting body and is spring urged in the direction of said engaged means.

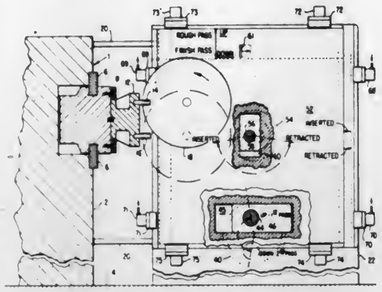
4,274,775
BROACHING MACHINE COMPOUND SHUTTLE

Vincent J. Girardi, Grosse Pointe Woods, Mich., assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Oct. 4, 1979, Ser. No. 81,706
Int. Cl.³ B23D 41/06
U.S. Cl. 409—251 4 Claims

1. A compound shuttle for a broaching machine having a plurality of spaced parallel broach trains secured to the face of a common slide which is reciprocable in stationary ways in forward and reverse passes past a work-piece, comprising, a first shuttle table, a support structure in which said first shuttle table is slidably mounted in a plane parallel to the face of said slide, a second shuttle table on which said work-piece is fixed slidably mounted on said first shuttle table in a plane transverse to said first plane, means for positioning said first shuttle table from a first fixed position wherein said work-piece is axially aligned with one of said broach trains to a second fixed position

wherein the work-piece is axially aligned with another one of said broach trains and means for positioning said second shuttle table from a first fixed position wherein the work-piece is in the



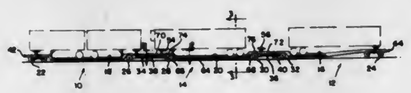
path of a broach train during forward passes of the slide to a second fixed position wherein the work-piece is out of the paths of the broach trains during reverse passes of the slide.

4,274,776

DEPRESSED CENTER SPINE PIGGYBACK/CONTAINER RAILCAR

H. Neil Paton, 2521 W. Montlake Pl., Seattle, Wash. 98112, and John B. Skilling, 3000 Webster Point R., Seattle, Wash. 98005

Filed Aug. 3, 1977, Ser. No. 821,539
Int. Cl.³ B60P *3/06*; B61D *3/16, 17/00*; B61F *3/08*
U.S. Cl. 410—57 **26 Claims**



1. A railcar, comprising:

a frame; and

a four point truck suspension operatively associated with said frame;

said frame including:

a spine, having a depressed center portion vertical load transmitting means projecting transversely from said spine adjacent both ends thereof for transmitting only vertical loads to said truck suspension at four vertical load support points, the load support points of each said pair being spaced apart in opposed transverse alignment with the longitudinal axis of said spine and constituting the sole load transmitting means projecting transversely from said spine adjacent both said ends, said depressed portion of the spine being located between said vertical load transmitting means;

first means for supporting a vertical load projecting from the depressed portion of said spine between said pairs, said means being adapted to support said load substantially at the level of said depressed portion, and

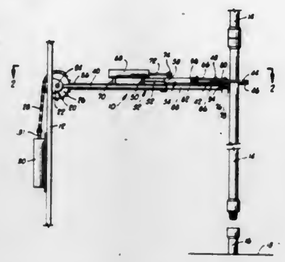
second means for supporting a vertical load projecting from said spine between one said pair and the adjacent end of said spine, whereby simultaneous vertical loads on said first and second vertical load support means establish opposed bending moments in said frame.

4,274,777

SUBTERRANEAN WELL PIPE GUIDING APPARATUS

Orville C. Scaggs, Box 430, Lindsay, Okla. 73052

Continuation-in-part of Ser. No. 931,150, Aug. 4, 1978. This application May 24, 1979, Ser. No. 42,001
Int. Cl.³ E21B *19/14*
U.S. Cl. 414—22 **6 Claims**



1. An improved pipe guiding apparatus for vertically aligning pipe section joints in a derrick having a worktable and an elevator for vertically suspending at least one pipe section above said worktable comprising:

rotary axle means for horizontal attachment to the derrick at a location above the worktable thereof;

a frame having a forward end and a rearward end, the rearward end of said frame being attached to said rotary axle means whereby when said axle means are rotated the forward end of said frame swings in a vertical arc;

means for rotating the axle of said rotary axle means to rotate said frame;

a pair of guide jaws pivotally attached to the forward end of said frame;

cylinder means attached to said guide jaws and to said frame for moving said guide jaws between open and closed positions; and

means for remotely operating said means for rotating said axle and said cylinder means so that said axle can be selectively rotated to position said frame whereby said guide jaws are adjacent a vertically suspended pipe section and said guide jaws are thereafter closed to secure said pipe section along a preselected vertical alignment.

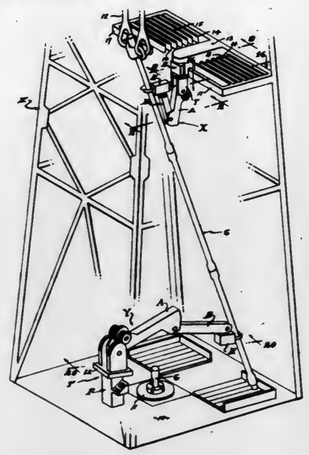
4,274,778

MECHANIZED STAND HANDLING APPARATUS FOR DRILLING RIGS

Paul S. Putnam, 931 S. Idaho St. #130, La Habra, Calif. 90631; Charles F. Cowgill, 518 Whitten Way, Placentia, Calif. 92670, and Frank J. Di Bella, 3950 Los Feliz Blvd. #109, Los Angeles, Calif. 90027

Continuation of Ser. No. 833,145, Sep. 14, 1977, abandoned. This application Jun. 5, 1979, Ser. No. 45,642
Int. Cl.³ E21B *19/15*
U.S. Cl. 414—22 **22 Claims**

1. Apparatus for racking stands in a derrick, and including; a turret mounting means disposed to turn on a vertical axis trunnion within the derrick and in spaced relation to said stands, actuating means to turn the turret mounting means on said vertical axis trunnion, an inner arm swinging from the turret mounting means on a first horizontal axis bearing fixedly related to the turret mounting means to turn therewith, an outer arm swinging from the end of the inner arm remote from the first mentioned horizontal axis bearing and on a second horizontal axis bearing fixedly related to the inner arm to swing therewith, actuating means within one of said arms and comprising a double acting means simultaneously shifting spaced racks engaged with primary and secondary gears positively driving the inner and outer arms respectively to angularly displace the inner arm from said vertical axis of the trunnion at a rate of movement and to angularly displace the outer arm from parallel relation to the said inner arm at a rate of movement twice that of said rate of movement of the said inner arm, a gripper head means engageable with said stands and pivoting at the end of the outer arm remote from the second mentioned horizontal axis bearing on a third horizontal axis



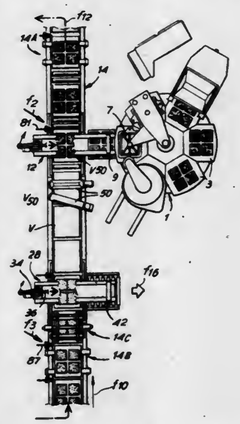
bearing fixedly related to the outer arm to swing therewith, said first second and third horizontal axes being parallel one with the other, and means to maintain the gripper head means normal to a vertical axis in parallel relation to the vertical turret mounting means axis trunnion.

4,274,779

HANDLING PLANT FOR CEMENT TILES OR THE LIKE WITH THE AID OF TRAYS UPON WHICH THE TILES ARE PLACED FOR SEASONING

Earico Longinotti, Via T. Bertelli 2, Florence, Italy

Filed Mar. 26, 1979, Ser. No. 23,783
Claims priority, application Italy, Mar. 30, 1978, 9398 A/78
Int. Cl.³ B65G *60/00*
U.S. Cl. 414—32 **8 Claims**



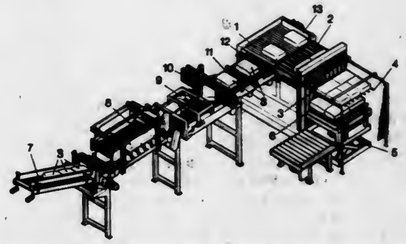
1. An improved apparatus, for handling articles of manufacture, such as cement tiles or the like and transporting the articles sequentially through a plurality of operating stations, comprising: a first conveying means, a charging station disposed adjacent said first conveying means, a plurality of trays adapted to be disposed on said first conveying means whereby said first conveyor means serially advances through trays through a first conveying path toward said charging station, said charging station including means overlying said first conveying path for stacking said articles onto the trays in said charging station, a tray station disposed downstream of said charging station, said tray piling station having means for stacking a plurality of trays containing said stacked articles one upon the other as the respective trays pass through said charging station, a second conveyor means having an end portion adapted to receive a plurality of stacked trays containing subsequently processed articles, a tray unpiling station associated with said second conveyor means, an article pick-up station disposed downstream from said unpiling station whereby the processed articles are removed from said unpiled trays, said tray unpiling station including means for sequentially removing said trays from said stacked trays whereby said unstacked trays are sequentially advanced toward said pick-up station to effect the removal of the articles from said trays, and said emptied trays being recycled to said first conveyor means on an interconnecting conveyor for advancement toward said charging station, and means for selectively moving said trays into said charging station through steps equal to submultiples of the tray length for sequentially receiving two or more stackings of said articles from said charging station.

4,274,780

APPARATUS FOR STACKING LAYERS OF OBJECTS

Günther Kaul; Wilfried Grünert, and Wilhelm Apfenvenne, all of Beckum, Fed. Rep. of Germany, assignors to Möllers Maschinenfabrik GmbH, Beckum, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,733
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1978, 2831621
Int. Cl.³ B65G *57/24*
U.S. Cl. 414—64 **12 Claims**



1. Apparatus for stacking objects such as bags of material, on a loading surface comprising means for conveying the objects one after another from a supply source, an inlet roll track arranged to receive the objects from said conveying means and including an abutment member acting as a stop for the objects moving onto the inlet roll track, an intermediate support member including laterally spaced fixed supporting elements arranged to receive rows of the objects from said inlet roll track for assembling the rows into a layer, a stack support member for receiving a stack of layers of the objects from said intermediate support member, vertical stripping members located between said intermediate support member and stack support member, and a forklift means movable in a closed path for lifting a layer of objects from said intermediate support member, for moving the layer over said stack support member, for lowering the layer toward said stack support member and for returning into position for lifting another layer from said intermediate support member, wherein the improvement comprises that said inlet roll track comprises a plurality of rollers extending transversely of the direction of movement of said conveying means, said abutment member extending in the same general direction as said rollers and spaced from said conveying means, said rollers being driven at a speed decreasing in the direction toward said abutment member, said abutment mem-

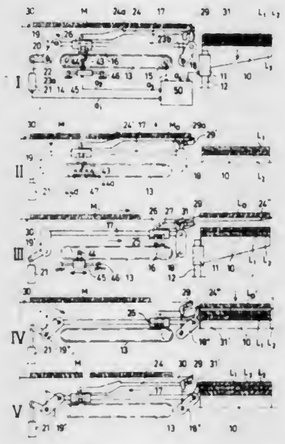
ber being displaceable away from the objects arriving on said rollers from said conveying means for facilitating the movement of a row of the objects on said inlet roll track to said intermediate support member, and said stack support member being vertically movable for receiving individual layers of the objects in approximately the same horizontal plane during progressive formation of a stack on said stack support member.

4,274,781

METHOD AND APPARATUS FOR PACKING TIMBER

Alpo Rysti, Friisilantie 36, 02240 Espoo 24, Finland

Filed Aug. 16, 1979, Ser. No. 67,007
Claims priority, application Finland, Jun. 15, 1979, 791913
Int. Cl.³ B65G 57/10
U.S. Cl. 414—83 **14 Claims**



1. A process for packeting timber, comprising; advancing the timber in the form of mat (M) with a conveyor (30), engaging said mat or a selected portion thereof by transfer means (24) and transferring said mat or said selected position thereof to timber lift means (10,11,12), and returning the transfer means to its initial position; wherein the movement of said transfer means includes raising of transfer arms, longitudinally reciprocatingly moving and lowering thereof, the longitudinal movement taking place independently of the raising and lowering movement in such a way that the longitudinal reciprocating movement takes place as a linear movement created by an actuator (13), and that the lowering and raising movement (24) takes place as a rotating movement created by actuators (18,19,20), said movements being independent of each other due to glide means (16,25 and 17,26) connected at one end of the transfer means.

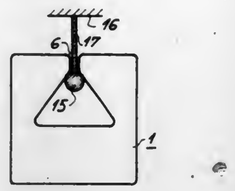
4,274,782

CLIP FOR CARRYING ARTICLES ENGAGING, DISENGAGING AND OVERLAPPING SYSTEM FOR SUCH A CLIP

Yvan de Rancourt de Mimerand, and Jean Goullet, both of Paris, France, assignors to Hotchkiss-Brandt Sogeme H.B.S., Paris, France

Filed Jun. 23, 1978, Ser. No. 918,964
Claims priority, application France, Jun. 28, 1977, 77 19823
Int. Cl.³ G07F 11/42
U.S. Cl. 414—104 **10 Claims**

1. A clip for carrying articles which forms a member providing a connection between the article and a support, the said clip containing a triangular shaped opening through which the support is inserted, wherein said opening terminates in a slot and has an outline shape which defines an area of increasing size from the slot to the base of the opening, thus enabling said support to be inserted "on the fly", and which results in a configuration of the walls conducive to sliding movement on the said support after its insertion and until a state of equilibrium has been established, said clip being made of a material which on the one hand has an elasticity capable of producing



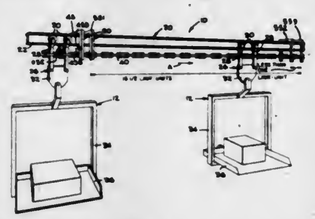
a spring effect which tends to restore the two parts of the clip situated on either side of the slot to the same plane whatever the stresses to which they are subjected and which on the other hand has a coefficient of friction which promotes the said sliding movement.

4,274,783

CHAIN MEASURING AND CONVEYOR CONTROL SYSTEM

Donald E. Eiselchner, San Jose, and Barclay J. Tullis, Palo Alto, both of Calif., assignors to FMC Corporation, San Jose, Calif.

Division of Ser. No. 800,834, May 26, 1977, Pat. No. 4,198,758.
This application Aug. 3, 1978, Ser. No. 930,771
Int. Cl.³ B65G 43/00, 47/34
U.S. Cl. 414—134 **11 Claims**



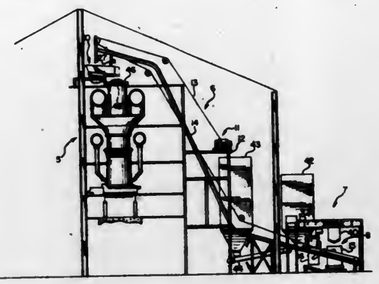
1. Apparatus for controlling a conveyor carrier driven by an endless chain to discharge a load at a selected one of a plurality of discharge stations comprising means to store data representing the distance from a reference point to said selected discharge station, said chain including a plurality of link-units of predetermined nominal length with a predetermined number of link-units defining a chain segment, means for counting chain link-units to provide a running total of the nominal length of chain between the moving carrier and said reference point, means including spaced sensors for measuring chain segments for determining errors between the nominal and actual length of the measured chain segments, means for substituting the actual length of each chain segment for the nominal length of associated chain segment while continuing to maintain a running total of the length of chain which total includes the nominal length of any fractional segment, and means to select and discharge a load from said conveyor carrier when said running total equals the distance between the reference point and said selected discharge station.

4,274,784

CUPOLA CHARGING

Philip J. Vacca, Blue Island, Ill., assignor to Whiting Corporation, Harvey, Ill.

Filed May 31, 1979, Ser. No. 44,092
Int. Cl.³ F27D 3/12
U.S. Cl. 414—168 **6 Claims**



1. In combination with a cupola installation including a skiphoist and wherein the stack of the cupola has a top charging opening and a retractable feeder having a charge-receiving pan is mounted on one side of the stack for shifting over and discharging material into said top opening,

a skip operative on said skiphoist between a bottom charge-loading position and a top charge-discharging position and comprising,

a carriage and two charging buckets mounted thereon, in said top position a first of said buckets being in load discharging position over said stack top opening and the second of said buckets being in load discharging position over said charge-receiving pan of said retractable feeder, and

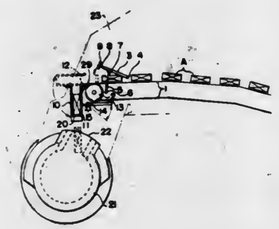
actuating means operative for concurrently discharging the contents of said first and second buckets into said stack top openings and said charge-receiving pan, respectively.

4,274,785

METHOD AND APPARATUS FOR CHARGING ANODE SCRAPS TO A CONVERTER FURNACE

Kunio Ogawa, and Hiromitsu Iio, both of Niihama, Japan, assignors to Sumitomo Metal Mining Co. Ltd., Tokyo, Japan

Filed Jul. 11, 1979, Ser. No. 56,638
Claims priority, application Japan, Aug. 1, 1978, 53-93961
Int. Cl.³ F27B 5/12
U.S. Cl. 414—173 **22 Claims**



1. A method for charging a converter furnace with anode scraps comprising the steps of forming an anode scrap pile by piling anode scraps to a predetermined height, conveying said anode scrap pile toward structure defining a substantially U-shaped anode scrap receiving pocket having opposed side walls and a bottom, the distance between said opposed side walls being slightly greater than the height of the anode scrap pile, pushing said anode scrap pile toward the bottom of the pocket, the side walls of the structure being positioned horizontally so as to receive said anode scrap pile, rotating the pocket defining structure into which the anode scrap pile has been pushed so that the bottom is downward and the side walls are in the vertical direction, and charging the anode scrap pile in said pocket into the converter furnace by pushing the pile through a fixed chute bridging said structure and means defining a window in a hood of the converter furnace.

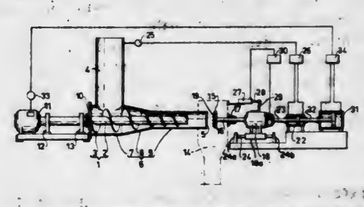
12. An apparatus for charging a converter furnace with anode scraps comprising means for forming an anode scrap pile by piling anode scraps to a predetermined height, means for conveying said anode scrap pile to structure defining a substantially U-shaped anode scrap receiving pocket having opposed side walls and a bottom, the distance between the side wall being slightly greater than the height of the anode scrap pile, means for pushing said anode scrap pile in toward the bottom of the pocket when the opening side between the said walls is directed in the horizontal direction and the side walls are positioned horizontally so as to receive said anode scrap pile, means for rotating the pocket defining structure into which said anode scrap pile has been pushed so that the bottom of the pocket is downward and the side walls are in the vertical direction, and means for charging the anode scrap pile in said pocket into a converter furnace by pushing said pile through a fixed chute bridging said structure and means defining a window in a hood for the converter furnace.

4,274,786

PROCESS AND APPARATUS FOR CONTINUOUSLY CONVEYING PARTICULATE COMPRESSIBLE FIBROUS MATERIAL FROM A ZONE AT A FIRST GAS PRESSURE TO A ZONE AT A SECOND GAS PRESSURE

Claes G. S. Svensson, Kode; Hans E. K. Eriksson, Örnsköldsvik, and Rolf B. Lundgren, Sundsvall, all of Sweden, assignors to Mo och Domsjo Aktiebolag, Örnsköldsvik, Sweden

Filed Feb. 7, 1979, Ser. No. 10,106
Claims priority, application Sweden, Feb. 10, 1978, 7801586
Int. Cl.³ D21C 7/06
U.S. Cl. 414—218 **13 Claims**



1. A process for continuously conveying particulate compressible fibrous cellulose pulp material having a solids content between 30 and 90% and a density within the range from about 10 to about 150 kg/m³ from a first zone at a first gas pressure to a second zone at a second gas pressure with a pressure differential therebetween of at least 0.5 bar while retaining the prevailing gas pressure in each zone, which comprises:

(1) continuously compressing the particulate material in the first zone into a gas-containing but gas-impermeable resilient mass of low density extending across the interface between the two zones;

(2) continuously passing the mass of material out from the first zone into the second zone at a flow rate within the range from about 0.5 to about 8 kg of pulp per second while maintaining the gas pressure in the mass constant at the gas pressure of the first zone; and

(3) continuously breaking up the mass entering the second zone into particulate material;

substantially without impairing the quality of the pulp fibers.

5. An apparatus for continuously conveying particulate compressible fibrous cellulose pulp material having a solids content between 0 and 90% and a density within the range from about 10 to about 150 kg/m³ from a first zone at a first gas pressure to a second zone at a second gas pressure with a

pressure differential therebetween of at least 0.5 bar while retaining the prevailing gas pressure in each zone, and substantially without impairing the quality of the pulp fibers, which comprises:

(1) screw conveyor means for continuously compressing the particulate material in the first zone into a gas-containing but gas-impermeable resilient mass of low density extending across the interface between the two zones; and for continuously passing the mass of cellulose pulp material out from the first zone into the second zone while maintaining the gas pressure in the mass constant at the gas pressure of the first zone constant; the screw conveyor comprising a conveyor housing extending across an interface between the two zones; a conveyor passage through the housing having an inlet in the first zone and an outlet in the second zone; the passage having a portion of larger diameter adjacent the inlet and a portion of lower diameter adjacent the outlet, and a tapered portion connecting the inlet and outlet portions; a helical screw arranged for rotation in the passage and having an outer periphery extending through the passage portions spaced at a distance of from 2 to 5 mm from the housing wall with a correspondingly larger diameter in the inlet portion than the outlet portion for conveying cellulose pulp material along the passage from the inlet towards the outlet;

(2) means for continuously breaking up the mass entering the second zone into particulate material; comprising a rotatable restraining device movable between positions across and closing off the outlet and spaced from the outlet sufficiently to allow material conveyed by the screw to be discharged through the outlet; and having a substantially planar surface facing and contacting and arranged to seal against the mass of cellulose pulp material at the discharge opening and apply pressure to the mass sufficient to cause the mass to seal against both the walls of the conveyor passage and the planar surface of the restraining device while it is being discharged from the outlet; and

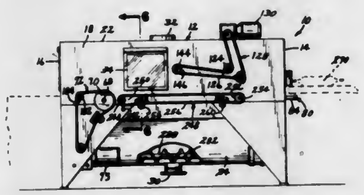
(3) disintegrating means operatively connected with the restraining device for rotation therewith for breaking up the mass of cellulose pulp material; whereby gas entrained in the mass is maintained therewithin substantially without loss and at substantially the same pressure as the gas pressure in the first zone until it is released in break-up of the mass of cellulose pulp material by the disintegrating means.

4,274,787

BAG OPENING AND EMPTYING APPARATUS

Edward E. Mueller, Tonka Bay, and Michael K. Harrod, Prior Lake, both of Minn., assignors to Whirl-Air-Flow Corporation, Minneapolis, Minn.

Filed Oct. 16, 1978, Ser. No. 951,755
Int. Cl.³ B65G 65/34
U.S. Cl. 414—412 **5 Claims**



1. Apparatus for automatically opening and emptying bags comprising:

(a) a substantially enclosed housing having a bag inlet, a bag outlet, and a bag contents collection hopper;

(b) endless conveyor means in said housing for transporting bags in a generally horizontally disposed plane between said inlet and said outlet, said conveyor means further comprising:

(i) a pair of conveyor carriages spaced apart in said generally horizontal plane;

(ii) an endless conveyor member mounted to each of said carriages;

(iii) a plurality of piercing members attached to each of said conveyor members, said piercing members defining a generally vertical plane;

(iv) means for adjustably positioning said carriages transversely with respect to the direction of transport of the bag whereby said piercing members may puncture various size bags along opposite lateral edges thereof, said means comprising first and second shafts rotatably mounted within said housing having substantially horizontal rotational axes parallel to each other and disposed transversely with respect to the direction of transport of the bag, each of said shafts having a first portion with right hand external threads and a second portion with left hand external threads; first and second right hand internally threaded members affixed to said first conveyor carriage in which are threadedly received said first portions of first and second shafts; first and second left hand internally threaded members affixed to said second conveyor carriage and in which are threadedly received said second portion of first and seshafts; and means for rotating said first and second shafts;

(c) a cutting disc mounted for rotation about a substantially horizontal axis and disposed in a substantially horizontal axis and disposed in a substantially vertical plane in the path of the bags to cut through opposite sides of the bags along a cut line between the opposite lateral edges of the bags; and

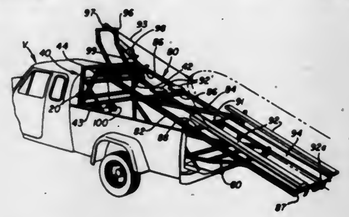
(d) means for rotatably driving said cutting disc.

4,274,788

VEHICLE MOUNTED CARRIAGE AND ELEVATING APPARATUS

Luther M. Sutton, P.O. Box 972, Pineville, La. 71360

Filed Jan. 17, 1980, Ser. No. 112,835
Int. Cl.³ B60R 9/00; B60P 3/10; B60N 9/00
U.S. Cl. 414—462 **5 Claims**



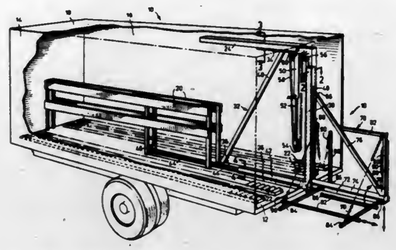
1. A method of loading a boat onto a vehicle comprising the steps of: moving the boat onto a carriage while the carriage is in an inclined position extending rearwardly of the vehicle; elevating the front end of the carriage to increase the angle of inclination of the carriage relative to a horizontal plane, which includes rotating a link, having a lower end pivotally secured to the vehicle and an upper end movably secured to the carriage, from a horizontal position to a vertical position; and elevating the rear end of the carriage to position the carriage and the boat secured thereto above the vehicle, which includes rotating a post, having a lower end pivotally secured to a vehicle and an upper end movably secured to the carriage, from a horizontal position to a vertical position; and holding the link in the vertical position while moving the carriage in a horizontal direction relative to the upper end of the link.

4,274,789

MECHANISM FOR LOADING AND UNLOADING PALLETS FROM VANS

John C. Martin, Toronto, and William C. McKee, Willowdale, both of Canada, assignors to Diesel Equipment Limited, Toronto, Canada

Filed Apr. 6, 1979, Ser. No. 27,864
Int. Cl.³ B60P 3/00
U.S. Cl. 414—501 **13 Claims**



1. A pallet loader comprising:

(a) guide means defining a longitudinally elongated guide path extending in a first generally horizontal plane,

(b) slide means comprising a vertically oriented guide post and means slidably supporting said post on said guide means for laterally restrained longitudinal movement along said guide path between a first position in which a said post is disposed at an elevating station, and a second position spaced longitudinally from said first position, said post being adapted to provide a vertically oriented slipway,

(c) elevator means mounted on said post so as to be disposed in said elevator station when said slide means is located in said first position, said elevator means comprising an elevator post slidably mounted in said slipway for laterally restrained vertical movement relative to said guide post when in said elevator station between an elevated position and a lowered position, and load engaging means mounted on said elevator post and arranged to releasably engage a palletized load to permit raising and lowering of the pallet load,

(d) drive means including means for raising and lowering said elevator post to raise and lower a palletized load and means for driving said slide member between said first and second positions so as to move a palletized load into and out of said elevator station.

4,274,790

GRANULAR MATERIAL UNLOADING VEHICLE WITH PRESSURE-RELIEF BOX

Walter D. Barker, R.R. 1, St. Paul, Ind. 47272

Filed Feb. 23, 1979, Ser. No. 14,699
Int. Cl.³ B60P 1/00
U.S. Cl. 414—502 **8 Claims**

1. A granular material unloading vehicle, comprising:

(a) a wheeled chassis;

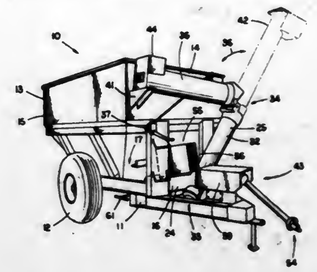
(b) a material bin mounted thereto;

(c) a first substantially horizontal screw conveying means for moving the material from said bin through a discharge opening therein;

(d) a second substantially vertical screw conveying means in mating relation with said first means outside said bin for further moving the material therethrough;

(e) a power transmission means for driving said first means in operative association with said second means; and

(f) a means for assisting with material conveyance from said bin by relieving pressure in the mating end of said first means during the start of material transfer therethrough, said pressure-relief means includes an elongated inverted box mounted atop said first means outside said bin and adjacent the mating junction with said second means, said



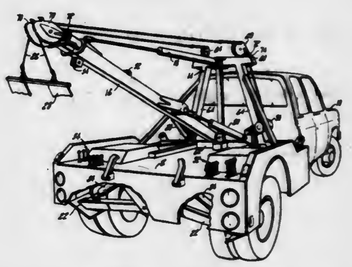
box enclosing an expansion chamber therein in material communication with said first means.

4,274,791

TOWING AND HOISTING APPARATUS

Gary D. Moon, 239 Vista Del Mar, Cannon Beach, Oreg. 97110

Filed Dec. 20, 1978, Ser. No. 971,369
Int. Cl.³ B60P 3/00
U.S. Cl. 414—563 **10 Claims**



1. Vehicle towing and hoisting apparatus of the type adapted for mounting on the afterbody of a truck, comprising:

an upright frame having a vertical center post affixed thereto; and

an extendable towing boom which is hingeably pinned and rotatably hung at the base of the center post and which is formed of

a base tube having a top roller and a bottom roller outwardly of the top roller,

a hydraulic actuator within the base tube, and

an outreach arm which is guideable by the top and bottom rollers to a retracted position around the actuating cylinder.

4,274,792

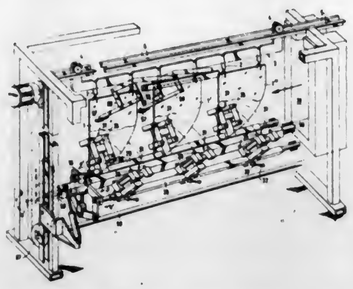
APPARATUS FOR THE AUTOMATIC UNFASTENING OF GLASS SHEETS SUSPENDED FROM PINCER-LIKE GRIPPING MACHINES

Mario Roth, Aachen; Werner Pagel, Herzogenrath; Heinz-Bernd Riesmann, and Karl-Christoph Happich, both of Aachen, all of Fed. Rep. of Germany, assignors to Saint Gobain Industries, Neuilly-sur-Seine, France

Filed May 23, 1979, Ser. No. 41,898
Claims priority, application France, Jul. 6, 1978, 78 17826
Int. Cl.³ B65G 67/04
U.S. Cl. 414—564 **18 Claims**

1. In an apparatus for automatically unfastening sheets of glass which are suspended vertically under the influence of

gravity from pincer-like gripping means and where the weight of the sheet causes the gripping means to automatically grip the sheet with the apparatus including a lifting element for engaging and lifting a sheet to move the sheet to a transporta-



tion means and including a release means for releasing the pincer-like gripper means for engagement with a sheet; the improvement comprising in that said lifting means has at least one gripper element movable in a horizontal direction toward a surface of a sheet to grip the same.

4,274,793

WORKING PLATFORM

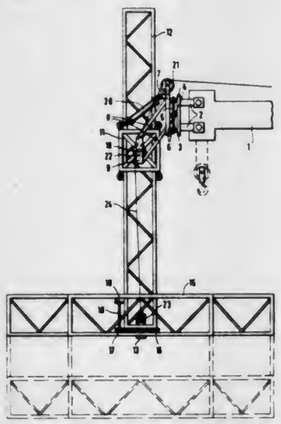
Paul Frey-Wigger, am Zeigerwald, Schötz, Switzerland (CH-6247)

Filed May 5, 1977, Ser. No. 793,970

Claims priority, application Switzerland, May 5, 1976, 5611/76

Int. Cl.³ B66F 9/06

U.S. Cl. 414—607 **5 Claims**



1. A working platform for attachment to a crane, comprising a substantially horizontal pivot bearing; means for detachably securing said pivot bearing to the end portion of the boom of a crane, including a plate, a plurality of lugs extending from said plate and having coaxial bores for reception of pins therein and braces securing said plate to said pivot bearing; a second bearing mounted in said pivot bearing; an elongated column reciprocably mounted in said second bearing; a gallery; means for movably mounting said gallery on said column; and means for securing a crane cable to said column so that, when in use, the cable moves said column with respect to said second bearing.

4,274,794

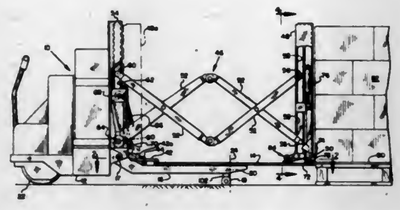
LIFT TRUCK HAVING ROTATABLE PLATEN FOR HANDLING UNPALLETIZED LOADS AND METHOD FOR USING SAME

John E. Olson, Portland, Oreg., assignor to Cascade Corporation, Portland, Oreg.

Filed Oct. 29, 1979, Ser. No. 88,751

Int. Cl.³ B66F 9/14

U.S. Cl. 414—663 **23 Claims**



1. A mobile lift truck for handling unpalletized loads comprising:

(a) a load-carrying platform;

(b) pivotal means rotatably mounting said load-carrying platform upon said lift truck for permitting rotation of said platform with respect to said lift truck about a generally vertical axis of rotation between first and second rotatable positions substantially 90° apart from each other;

(c) a push frame mounted on said lift truck so as to face in a predetermined direction with respect to said lift truck for pushing a load off of said load-carrying platform in said predetermined direction;

(d) retraction means for retracting said push frame off of said load-carrying platform so as to permit rotation of said platform between said first and second rotatable positions without interference with said push frame;

(e) mounting means attaching said push frame to said lift truck for retaining said push frame in said predetermined direction during rotation of said platform between said first and second rotatable positions so as to enable said push frame to push loads off of said platform in said predetermined direction with respect to said lift truck in both of said respective rotatable positions of said platform; and

(f) means connected to said load-carrying platform and responsive to the position of said push frame for preventing rotation of said platform unless said push frame is retracted off of said platform.

4,274,795

LOAD CARRYING VEHICLES

Robert A. Taylor, Aylesbury, England, assignor to Lancer Boss Limited, England

Filed Aug. 9, 1978, Ser. No. 932,145

Claims priority, application United Kingdom, Apr. 5, 1978, 13332/78

Int. Cl.³ B66C 23/80

U.S. Cl. 414—673 **4 Claims**

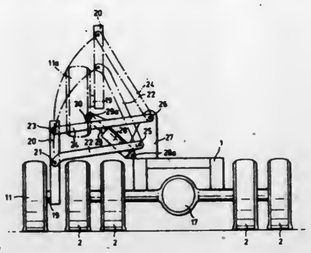
1. A load-carrying vehicle for raising and lowering loads, with an overturning moment about the axis of the vehicle front road wheels caused by supporting of a load, said load-carrying vehicle comprising

a chassis mounted on conventional road wheels,

load carrying means including

load raising and lowering means supported by said chassis, at least one additional road wheel,

parallel-like linkage means interconnecting said at least one additional road wheel and said chassis to articulate said at least one additional road wheel for movement with respect to said chassis, wherein in an inoperative position said at least one additional road wheel is supported by said parallel-like linking means above the front road wheels within the transverse outside spacing of the front road wheels, and in an operative load-bearing position said at least one additional road wheel is disposed in engagement with the ground beside the front road wheels of the vehicle, and



power operated means connected between said chassis and said parallel-like linkage means and operable in response to an overturning moment about the vehicle front road wheels when a load is supported by said load carrying means to move said at least one additional road wheel between said inoperative and operative positions.

4,274,796

MACHINE COMPRISING A ROTATABLE BOOM ASSEMBLY

Raymond J. Phillips, Matlock, England, assignor to Alexander Shand Services Limited, Matlock, England

Filed Apr. 4, 1979, Ser. No. 26,961

Int. Cl.³ E02F 5/00

U.S. Cl. 414—690 **12 Claims**



1. A machine comprising a rotatable telescopic boom assembly including an outer boom section, an intermediate boom section rotatably mounted within the outer boom section, and an inner boom section adapted to carry an implement at one end thereof, which inner boom section is located within the intermediate boom section in a telescopic relationship thereto and which is coupled to the intermediate boom section so as to rotate therewith within the outer boom section; a mounting to which the outer boom section is rigidly attached; and fluid pressure actuating means for rotatably driving the intermediate boom section within the outer boom section continuously through 360° in one direction of rotation and for reciprocating the inner boom section within the outer boom section.

4,274,797

BACKHOE EXCAVATING APPARATUS

David B. Coon, 8262 Michael Dr., Huntington Beach, Calif. 92647

Filed Jun. 25, 1979, Ser. No. 51,716

Int. Cl.³ E02F 3/75

U.S. Cl. 414—694 **3 Claims**

1. In backhoe excavating apparatus for mounting on the rear of a tractor and including a main arm fulcrumed at one end to a tractor-mount in pivotal relationship therewith, a dipper stick arm pivotally supported at one end by a horizontal pivot at the free end of said main arm and formed of elongated telescoping members which are extendable and retractable by actuator means enclosed therein, a digging bucket pivotally mounted to swing at the free end of the dipper stick arm, and actuator means carried by the main arm and by the dipper stick arm for articulating said latter arm and said bucket, an improved dipper stick arm comprising:

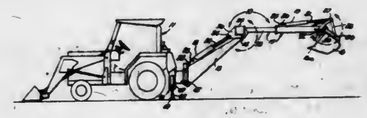
(a) a hydraulic rotator assembly forming the supported end of the dipper stick arm and including

(i) a cylindrical rotator housing bearing a radial inwardly-projecting dam member extending in an axial direction along one portion of the inner annular surface thereof, and

(ii) a cylindrical rotator element co-axially enclosed within said rotator housing and bearing a radial outwardly-projecting wing member extending in an axial direction along one portion of the outer annular surface thereof, said rotator element being mechanically connected through a portion thereof extending without said housing to the dipper stick arm to rotatably support said arm, and said wing member cooperating with the inner annular surface of said housing and said dam member cooperating with the outer annular surface of said rotator element to form two fluid tight compartments between said housing and said rotator element which are mutually expandable and contractable in response to rotational positioning of said rotator element within said housing;

(b) pivot means affixed to the housing of said rotator assembly for pivotally connecting said assembly and connected rotatably-supported dipper stick arm to the free end of the main arm of the backhoe excavating apparatus;

(c) actuator means for extending and retracting the telescoping members forming the dipper stick arm including



(i) a hydraulic cylinder enclosed within said arm and having its closed hydraulic fluid receiving end extending through the cylindrical rotator element of the hydraulic rotator assembly,

(ii) a piston driver actuator rod having its piston end extending into said hydraulic cylinder for positioning therein in response to hydraulic fluid introduced to or withdrawn from said cylinder and having its actuator end extending from said cylinder and through said arm for attachment thereto at its free end, and

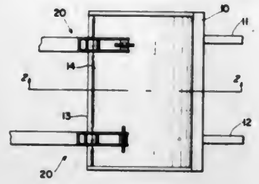
(iii) means associated with the closed end of said cylinder for the introduction of hydraulic fluid thereto and the withdrawal of hydraulic fluid therefrom for moving and positioning the piston driven actuator rod thereby extending or retracting said dipper stick arm; and

(d) means for introducing hydraulic fluid to one compartment of said rotator assembly while withdrawing hydraulic fluid from the other compartment of said assembly to mutually expand and contract said compartments whereby said wing member of said rotator element may be rotatably actuated and maintained with respect to said dam member for turing said dipper stick (and the digging bucket pivotally mounted thereon) to and positioning same in directions clockwise and counterclockwise from their normal vertical orientation for effecting trenching and excavating operations in which sloping trench walls and inclined excavated surfaces are developed by said backhoe excavating apparatus.

4,274,798
LOADER FORK

William H. Guest, 215 - Rte. 10, Dover, N.J. 07801

Filed May 23, 1979, Ser. No. 41,816
Int. Cl.³ B66F 9/12
U.S. Cl. 414—724 11 Claims



1. A loader fork for attachment to a bucket of a front end loader, the bucket having a bottom plate with a cutting edge and a thick lip portion rearwardly thereof, the loader fork comprising:

a tine, a riser secured to the tine, the arm above the tine extending rearwardly from the riser to provide a slot,

said riser being a rearwardly facing channel, and

means for distributing loads acting against said riser into said bucket bottom plate comprising:

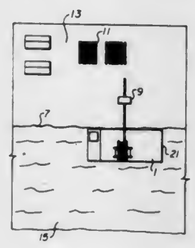
bearing bar means extending transversely of said arm rearwardly of said riser, and positioned to engage the upper surface of the thick lip portion of the bucket, and

clamp means for clamping said tine against the bottom surface of said bottom plate comprising a screw carried by said arm and located rearwardly of said bearing bar means.

4,274,799
METHOD AND APPARATUS FOR REELING PIPELINE

Benjamin C. Tisdale, III, River Ride, La., and William B. Nicholson, Corpus Christi, Tex., assignors to Martech International, Inc., Houston, Tex.

Filed Feb. 16, 1978, Ser. No. 878,302
Int. Cl.³ F16L 1/04
U.S. Cl. 414—747 7 Claims



1. In combination with a vessel having a reel supported thereon for laying pipeline unwinding from the reel onto the floor of a body of water as the vessel passes thereover, the axle of the reel being disposed normal to the longitudinal axle of the vessel when in the pipelaying position, the improvement including means for pivotally moving the reel about an axis extending vertically through the axle so that the reel axle is in a loading position which is different from the pipelaying position, when pipeline is being loaded onto the reel,

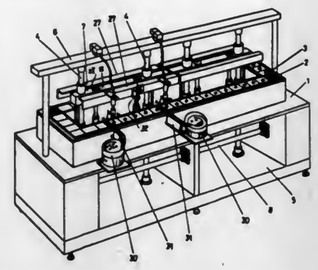
said means for pivotally moving the reel including a central axis about which pivotal movement takes place, and

means for moving the central axis laterally of the vessel axis so as to translate the reel away from the side of the vessel prior to pivotal movement thereof.

4,274,800
GENERAL PURPOSE ASSEMBLY MACHINE

Masayuki Tsuruha, Yawata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma City, Japan

Filed Dec. 21, 1978, Ser. No. 972,060
Claims priority, application Japan, Dec. 28, 1977, 52/159030; Dec. 28, 1977, 52/159031
Int. Cl.³ B65G 47/90
U.S. Cl. 414—750 7 Claims



1. A general purpose assembly machine comprising a pallet guide formed in a closed planar loop having at least two spaced longitudinally directed straight parallel portions for indexing said plurality of pallets;

a pair of vertical columns situated within said closed loop of said pallet guide;

an elevator block slidably mounted for vertical movement to said pair of vertical columns;

two parallel longitudinally elongated tool plates attached to said elevator block on opposite sides thereof reciprocable with predetermined strokes with respect to said elevator block in a plane parallel to the plane of said closed loop;

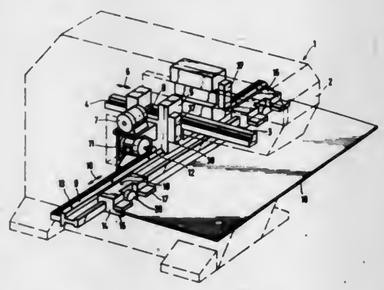
means for reciprocally moving said elevator block and said two tool plates together vertically in synchronous relation to said predetermined strokes; and

a plurality of means, mounted to said two tool plates at longitudinally spaced apart locations, for handling parts disposed on said pallets.

4,274,801
MACHINE TOOL WITH AN ADJUSTABLE MECHANISM FOR FIXING AND DISPLACING A WORKPIECE RELATIVE TO A TOOL

Eugen Herb, Ditzingen, and Berthold Leibinger, Gerlingen, both of Fed. Rep. of Germany, assignors to Trumpf Maschinen AG, Switzerland

Filed Feb. 1, 1979, Ser. No. 8,516
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1978, 2805532
Int. Cl.³ B23D 27/00
U.S. Cl. 414—751 12 Claims



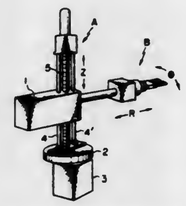
1. A machine tool construction, comprising, a support frame

having a bar portion, a carrier guide mounted on said bar portion for movement backwardly and forwardly therealong, a work carrier mounted on said carrier guide for backward and forward movement at right angles to said bar portion, at least one workpiece holder having means thereon for clamping a workpiece thereto and being mounted on said work carrier for movement backwardly and forwardly along said work carrier, a locking device overlying said work carrier and the path of movement of said workpiece holder including a locking element movable toward and away from said workpiece holder, said workpice holder having a top with a locking recess into which said locking element is enageable when said workpiece holder is precisely positioned with respect to said locking device.

4,274,802
AUTOMATED DEVICE

Hajimu Inaba, Hino, and Shigemi Inagaki, Musashino, both of Japan, assignors to Fujitsu Fanuc Limited, Hino, Japan

Filed Jan. 23, 1979, Ser. No. 5,773
Claims priority, application Japan, Jan. 31, 1978, 53/9661[U]
Int. Cl.³ B25J 9/00, 13/00, 17/00
U.S. Cl. 414—783 7 Claims



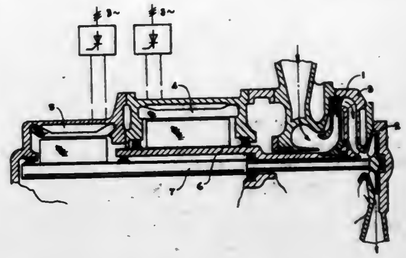
1. An automated device comprising: an arm; a supporting case mounted on the end of said arm; a rotary actuator mounted on the end of said supporting case; a wrist rotatably held by said rotary actuator; a hand fixed to said wrist; a replaceable stopper means operatively coupled to said rotary actuator and disposed within said supporting case, wherein said stopper means rotates with said rotary actuator and said static means are positioned for contacting said stopper means at predetermined positions during the rotation thereof thereby preventing further rotation thereof; and a cushion means positioned within said supporting case for contacting said stopper means prior to the contact of said stopper means and said static means, wherein said cushion means thereby slows down the velocity of rotation of said rotary actuator and said static means stops the rotation of said rotary actuator at said predetermined positions independent of the rotational force applied thereto, and wherein said stopper means has four surfaces, one of said surfaces abutting against one side of said cushion means when a second one of said surfaces abuts against one of said static means, a third one of said surfaces abutting against the other side of said cushion means when a fourth one of said surfaces abuts against the other of said static means; whereby said rotary actuator can stop rotating at two predetermined positions.

4,274,803
HIGH-PRESSURE CENTRIFUGAL PUMP UNIT

Hans Spengler, and Klaus Stoof, both of Halle, German Democratic Rep., assignors to VEB Kombinat Pumpen und Verdichter, Halle, German Democratic Rep.

Filed May 8, 1979, Ser. No. 37,022
Claims priority, application German Democratic Rep., May 29, 1978, 205616
Int. Cl.³ F04D 17/08
U.S. Cl. 415—70 10 Claims

1. A high-speed centrifugal pump, comprising a housing; a low-speed suction stage arranged in said housing and having an axis; at least one high-speed high-pressure stage also arranged in said housing and axially spaced from said low-speed suction stage, so that said housing has a suction side and a pressure side; and drive means operative for driving said stages independently of each other and including a first prime mover operative for driving said low-speed suction stage and a second

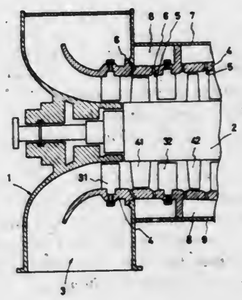


prime mover operative for driving said high-speed high-pressure stage, one of said prime movers which is operative for driving a respective one of said stages being flanged to said housing at a respective one of said sides, the other of said prime movers being flanged to said one prime mover in tandem arrangement.

4,274,804
AXIAL-FLOW TURBINE

Kiyomi Teshima; Toshio Tsuboi, and Yukimasa Kajitani, all of Tamano, Japan, assignors to Mitsui Engineering and Shipbuilding Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 918,463, Jun. 23, 1978, abandoned. This application Sep. 14, 1979, Ser. No. 75,595
Claims priority, application Japan, Jul. 15, 1977, 52-85314
Int. Cl.³ F01D 25/32
U.S. Cl. 415—121 A 12 Claims



1. An improved axial-flow turbine operable with a working fluid containing dust and moisture, comprising a turbine casing, a turbine shaft rotatably supported in a central portion thereof, stator blade means mounted within the turbine casing, and rotor blade means mounted about the outer periphery of the turbine shaft, said stator and rotor blade means being alternately disposed in the direction of the turbine shaft, in mutually opposing arrangement with respect to the angle of their disposition relative to the turbine shaft and having a turbine blade shape in cross-section, characterized in that an exit angle of a first-stage stator blade means with respect to the flow of the working fluid is less than 60° which is smaller than an exit angle of a second-stage stator blade means, and the height of the first-stage stator blade means is 0.8–1.0 times as large as the height of the second stage stator blade means, wherein the absolute exit velocity of the working fluid from the first-stage

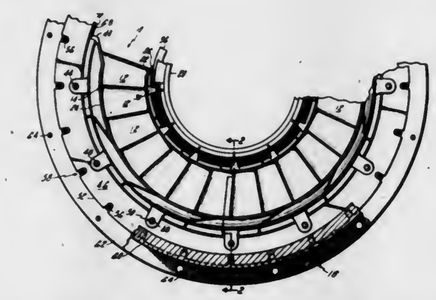
stator blade means is below 200 m/s which is smaller than the absolute exit velocity of the second-stage stator blade means, whereby the absolute exit velocity of the working fluid from each stator and rotor blade means includes a directionally same velocity component with respect to the turbine shaft axis, and the flow of the working fluid has the same directional vortical flow with the turbine shaft as the axis of the vortex.

4,274,805

FLOATING VANE SUPPORT

Trent H. Holmes, Rocky Hill, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Oct. 2, 1978, Ser. No. 948,289
Int. Cl.³ F01D 25/24
U.S. Cl. 415—138 **5 Claims**



1. A rotary machine having an axially extending flow path with an upstream end and a downstream end, which comprises:
an outer case having a central axis and a plurality of pins at the interior thereof wherein the pins are oriented in an essentially axial direction;
a continuous ring having splines extending outwardly therefrom to engage the pins wherein said pins and splines are adapted to accommodate relative differential growth of the ring with respect to the case;
a vane cluster disposed across the flow path and having an outer flange, the outer flange engaging the continuous ring wherein said vane cluster is adapted to adjust rearwardly with respect to the outer case; and
an axial support structure, which is adjoined to the outer case at a point downstream of the radial engagement between the continuous ring and the outer case, positioned to engage the vane cluster as the vane cluster adjusts rearwardly during operation.

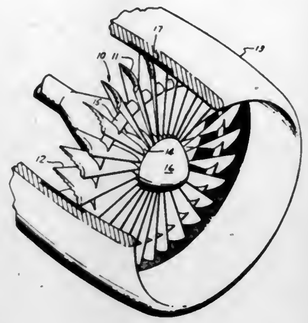
4,274,806

STAIRCASE BLADE TIP

Vicente C. Gallardo, Jr., Hamilton, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Jun. 18, 1979, Ser. No. 49,780
Int. Cl.³ F01D 5/20
U.S. Cl. 415—172 A **18 Claims**

1. An airfoil for rotation within a casing wall, including pressure and suction sides and a blade tip having a transverse planar surface defining an edge on the pressure side of said airfoil for rubbing against and effecting a seal with said casing wall, said edge comprising a plurality of discrete edge segments at least one of which extends substantially parallel to the airfoil axis of rotation, whereby upon rotation of said airfoil and rubbing of said edge thereof against said casing wall, a



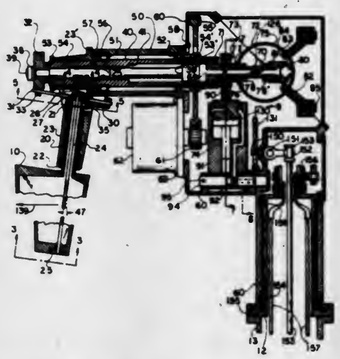
resultant force is exerted on said airfoil in a direction substantially normal to said airfoil axis of rotation.

4,274,807

SPEED CONTROL SYSTEM FOR A WINDMILL

Clarence E. Keaney, 119 Stuart Rd., Racine, Wis. 53406

Filed Jul. 31, 1978, Ser. No. 929,265
Int. Cl.³ F03D 7/04
U.S. Cl. 416—48 **5 Claims**



1. A windmill control system comprising a plurality of rotatably mounted windmill blades having a common axis of rotation, said blades being pivotal about the respective longitudinal axis of each of said blades to alter the pitch of said blades, a rotatably mounted hollow shaft disposed on the rotational axis of said blades and being rotatable with said blades, a piston assembly movably disposed within said hollow shaft and movable in response to fluid pressure in said shaft for decreasing the pitch of said blades, a fluid pressure generating mechanism in driven relation with said shaft and generating fluid pressure on said piston assembly in response to the rotation of said blades, a fluid pressure governor operatively connected with said generating mechanism for decreasing the fluid pressure on said piston assembly according to the speed of rotation of said blades, control mechanism interconnected between said piston assembly and said blades for adjusting the pitch of said blades in response to the movement of said piston assembly, and an elastic member disposed within each of said blades and connected thereto and being operatively connected with said control mechanism and being disposed and operative to transmit the centrifugal force of said blades to said shaft and to counter the force of fluid pressure on said piston assembly and

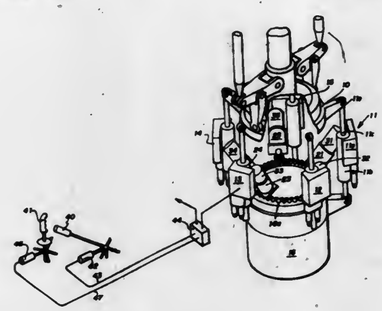
thereby increase the pitch of said blades when fluid pressure on said piston assembly is decreased.

4,274,808

SWASHPLATE DRIVE REDUNDANCY SYSTEM

Jimmy G. Garner, Hurst, and Kenneth F. Guinn, Fort Worth, both of Tex., assignors to Textron, Inc., Providence, R.I.

Filed Dec. 21, 1978, Ser. No. 971,712
Int. Cl.³ B64C 27/74
U.S. Cl. 416—114 **10 Claims**



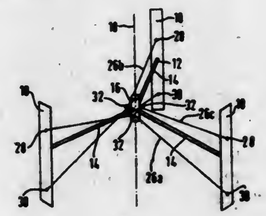
1. In a helicopter having a mast which drives a rotor and which is driven by a transmission and having a swashplate individually linked to pitch horns on each rotor blade, the improvement which comprises:
(a) at least four control channels coupled to said swashplate, three of which normally control the attitude and position of said swashplate;
(b) a separate unit to power each said control channel, each power unit being directly driven by said transmission and independent of every other power unit; and
(c) means to apply control of said swashplate from among said control channels.

4,274,809

VERTICAL AXIS WIND TURBINES

Patricio E. Delgado, and Barry A. Holmes, both of Alresford, England, assignors to P.I. Specialist Engineers Limited, London, England

Filed Oct. 11, 1979, Ser. No. 83,629
Claims priority, application United Kingdom, Oct. 11, 1978, 40088/78
Int. Cl.³ F03D 3/06, 7/06
U.S. Cl. 416—117 **11 Claims**



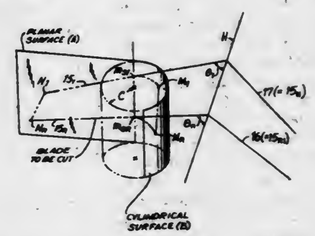
1. A vertical axis wind turbine, comprising:
a plurality of blade means;
support means for mounting the plurality of blade means thereto, said support means enabling the blade means to rotate around a vertical axis, subjecting said blade means to a centrifugal force, the blade means being hinged to the support means at a hinge position thereby permitting an angle of inclination of the blade means relative to a vertical axis passing through said support means to vary;
a plurality of tie wire means for intercoupling each of said plurality of blade means together via said support means, thereby reducing the bending stresses in said support means when said support means and said blade means rotate about said vertical axis, each of said plurality of tie wire means being connected at one end to one of said plurality of blade means at a position above said hinge position, and being connected at the other end to an adjacent one of said plurality of blade means at a position below said hinge position;
a plurality of member means connected to each of said plurality of tie wire means at an intermediate point between the two ends thereof for supporting each of said tie wire means, said member means tending to move in a direction corresponding to the movement of said blade means as said blade means and said support means rotate about said vertical axis; and
a plurality of inwardly-directed force control means connected to each of said plurality of member means and mounted on said support means for subjecting each of said member means to an inwardly-directed force.

4,274,810

DIAGONAL-FLOW FAN WHEEL WITH BLADES OF DEVELOPABLE SURFACE SHAPE

Yoshiyasu Nishikawa, Ono, Japan, assignor to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Filed Jun. 23, 1978, Ser. No. 918,556
Claims priority, application Japan, Jun. 29, 1977, 52-78168; Jul. 1, 1977, 52-79309
Int. Cl.³ F04D 29/28
U.S. Cl. 416—186 R **8 Claims**



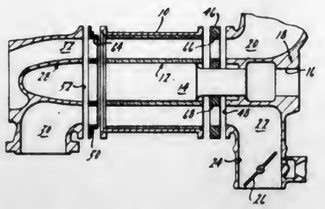
1. A fan wheel of a diagonal-flow fan for propelling a flow of a gas, said fan wheel comprising a rotational shaft, frustoconical main plate coaxially fixed to the shaft, a frustoconical side plate coaxially fixed with respect to the axis of rotation of the shaft and spaced apart from the main plate to form therebetween a diagonal flow path for the gas, the cone angle of the main plate being greater than the cone angle of the side plate, and a plurality of fan blades each fixed at respective opposite side edges to the inner surfaces of the main and side plates and having an inner entrance part and an outer exit part, said parts extending substantially transverse to said diagonal flow path, each of said fan blades comprising a plate of a surface shape conforming to a portion of a combination of developable surfaces joined to each other along a straight joining line in an algebraically continuous manner, said portion being formed of elements constituted by mutual intersection lines between said developable surfaces and successive coaxial conical surfaces varying between said conical surfaces of said main and side plates, said coaxial conical surfaces progressively diminishing in cone angle from said main plate to said side plate and having a common axis coinciding with said axis of rotation of the shaft, said straight joining line and said common axis lying in a common plane and forming an angle therebetween.

4,274,811

WAVE COMPRESSOR TURBOCHARGER

V. Durga Nageswar Rao, Bloomfield Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 23, 1979, Ser. No. 32,324
Int. Cl.³ F04F 11/00
U.S. Cl. 417—64 8 Claims



1. A turbo compressor for use with an air-fuel mixture intake manifold for an engine comprising a circular rotor mounted for rotation about its geometric axis, said rotor comprising a hub and axially disposed cells formed about the periphery of the hub, a cylindrical shroud surrounding said rotor and disposed with a close tolerance clearance between the interior surface of said shroud and the outer dimension of said rotor, an exhaust gas manifold and an air intake manifold for said engine, said exhaust gas manifold having formed therein a low pressure exhaust gas passage and a high-pressure, hot exhaust gas passage, said intake manifold having a low pressure intake air passage and a high pressure air outlet passage communicating with the air intake side of the engine, a first stator plate situated between said rotor and said air intake manifold and a second stator plate situated between said exhaust gas manifold and said rotor, said first stator plate having formed therein a low pressure air inlet port and a high pressure air outlet port, said second stator plate having formed therein a low pressure exhaust gas outlet port and a high pressure exhaust gas inlet port communicating respectively with said low pressure exhaust gas passage and said high pressure exhaust gas passage, the ports in said first stator plate communicating respectively with said low pressure intake air passage and said high pressure air-outlet passage, said rotor being formed of a material that has a low coefficient of thermal expansion relative to the coefficient of thermal expansion of the material of which the shroud is formed, thereby providing minimum change in clearance between said rotor and said shroud during operation of said compressor as temperature gradients are developed during an energy exchange that exists between the hot high pressure exhaust gases and the relatively cool low pressure inlet air.

4,274,812

JET PUMP

John H. K. Elvidge, and Charles J. Watkinson, both of 1 Brown Pl., Brown Lane Industrial Estate, Leeds 11, Yorkshire, England

Filed Dec. 1, 1978, Ser. No. 965,582
Int. Cl.³ F04F 5/46
U.S. Cl. 417—179 3 Claims



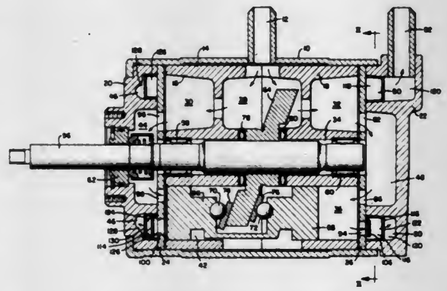
1. A jet pump comprising a cylindrical open-ended hollow chamber having a suction inlet at one end and a discharge tube at the opposite end; a streamlined body mounted in the chamber, with one end facing the suction inlet and the opposite end facing the discharge tube; a nozzle head situated at that end of the body which facs the discharge tube and with its discharge directed along said tube; a duct extending into the body through the wall of the chamber and communicating with the nozzle head; means to couple a primary flow of high-pressure fluid to the inlet of the duct; and means to couple a suction tube to the suction inlet of the chamber; the arrangement being such that, in use, the high-pressure primary fluid flow issuing from the nozzle and along the discharge tube will entrain material into and along the suction tube, over the streamlined surface of said body, and out along the discharge tube, in which the nozzle head incorporates multiple nozzles arranged in a ring around a central nozzle, and the nozzles are so angled in the head that the initially separate streams of high-pressure fluid which they discharge all converge downstream of the nozzle head, and in which channels are formed in the nozzle head between each nozzle and the circumferentially succeeding one, along which channels fluid can be entrained into the streams issuing, in use, from the nozzles.

4,274,813

SWASH PLATE TYPE COMPRESSOR

Atsuo Kishi, and Toshio Sudo, both of Ibaraki, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 12, 1978, Ser. No. 950,573
Claims priority, application Japan, Oct. 12, 1977, 52/121479
Int. Cl.³ F04B 1/12, 39/00
U.S. Cl. 417—269 16 Claims



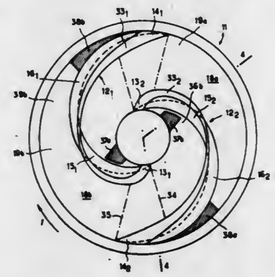
1. A swash plate type compressor comprising a cylindrical compressor housing having an inlet of coolant gas, a cylinder block assembly supported within said compressor housing and having a crank chamber communicated with the inlet at an axially central portion thereof, a drive shaft rotatably supported at its ends in said cylinder block assembly, said cylinder block assembly having a plurality of cylinder bores spaced radially outwardly from said drive shaft, front and rear side covers disposed at opposite ends of said cylinder block assembly, said side covers having a low pressure chamber at a radially central portion and a high pressure chamber spaced radially outwardly from the low pressure chamber, seal means disposed at one end of said drive shaft, front and rear valve plates interposed between said cylinder block assembly and respective ones of said side covers and having a first hole communicating the crank chamber with the low pressure chamber, second holes communicating the low pressure chamber with the cylinder bores and third holes communicating the cylinder bores with the high pressure chamber, a swash plate disposed in the crank chamber and keyed on said drive shaft so as to rotate therewith, and a plurality of pistons slidably arranged within the cylinder bores respectively, a rotating motion of said swash plate being converted to a reciprocating motion of said pistons, characterized in that the high pressure chamber is divided into a plurality of small rooms communicated in series, that the third holes communicate the cylinder bores with one end small room of the high pressure chamber, that the other end small room of the high pressure chamber in one of said side covers is communicated with an outlet of the compressed gas on the one of said side covers, and that the other end small room of the high pressure chamber in the other of said side covers is communicated with the high pressure chamber in the one of said side covers, and wherein said high pressure chamber is divided into said plurality of small rooms by a partition plate member having a U-shaped cross section, said partition plate member being inserted in the high pressure chamber so as to cover the third holes of said valve plates.

4,274,814

ROTATIVE MACHINE FOR FLUIDS

Eugeniusz M. Rylewski, 43bis, Ave. du Gal Leclerc, 78470 St. Remy les Chevreuse, France

Continuation of Ser. No. 797,311, May 16, 1977, abandoned.
This application Apr. 24, 1979, Ser. No. 33,015
Claims priority, application France, May 17, 1976, 76 14837
Int. Cl.³ F01C 1/00; F03C 2/00; F04C 2/00, 18/00
U.S. Cl. 418—15 11 Claims



1. In a positive-displacement machine in which the conversion of pressure energy of fluids is obtained by the circulation of at least two spaced vane members in at least one spiral-like passage of revolution defined by a pair of rib members having top surfaces and side walls and a bottom wall therebetween, wherein

said vane members are parts of at least two vane wheels,

each of said vane wheels is mounted for rotation about its own axis and housed in a slot formed in a first part of said machine,

said vane members circulating in said spiral-like passages of revolution formed in a second part of said machine,

at least one of said first and second parts of said machine is rotatable, the axis of rotation thereof constituting the main axis of rotation of said machine,

said spiral-like passages of revolution are generated by a combined rotation of said vane members about the axis of rotation of their respective vane wheels and by rotation of said first part of said machine in relation to said second part of said machine,

said spiral-like passages are closed across the top of said side walls by a surface of revolution formed on said first part of said machine housing said vane wheels,

said surface of revolution formed on said first part of said machine cooperating with a conjugated surface of revolution formed on said top surfaces of said ribs defining said passages on said second part of said machine,

said defined spiral-like passages of revolution having an inlet and an outlet and a continuous progressively varying cross-sectional area from the inlet to the outlet thereof,

each of said surface of revolution and said conjugated surface of revolution being generated about said main axis of rotation of said machine,

whereby the ratio and the gradient of compresson or expansion for a compressible fluid, and the constant volume flow for an incompressible fluid, flowing through said passages between said two spaced vane members circulating therein are imposed by the relative position and configuration of said cooperating conjugated surface of revolution to said surface of revolution generated by the rotation of said vane members about said main axis of said machine and by the difference of the distances of said vane members from said main axis of said machine during their travel from the inlet to the outlet of said spiral-like passages,

the improvement therein which comprises:

said at least one spiral-like passage of revolution having an extended operative portion which is defined by said bottom wall and by a single one of said pairs of rib members, and

said conversion of pressure energy of fluids takes place in the portion of said spiral-like passage of revolution bordered by said one rib member as well as in the portion thereof bordered by said pair of rib members.

4,274,815

ROTARY COMB''STION ENGINE OF TROCHOID DESIGN WITH OIL RETURN GROOVE

Rolf Lechler, Neckarsulm, and Wulf Leitermann, Bad Wimpfen, both of Fed. Rep. of Germany, assignors to Audi Nsu Auto Union Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany

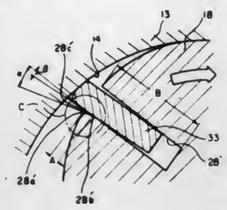
Filed Apr. 26, 1979, Ser. No. 33,795
Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819664
Int. Cl.³ F01C 1/00, 19/12, 21/06
U.S. Cl. 418—91 2 Claims

1. A rotary combustion engine of trochoid design comprising; a housing composed of a jacket having a multi-curved inner jacket face and two parallel side walls and a substantially horizontally disposed eccentric shaft which extends through circular apertures in the side walls, a liquid cooled piston rotatably mounted on the eccentric, oil control rings mounted on the piston end walls which coact with the sidefaces of the side walls, a disk provided in at least one piston end wall and rotating with the eccentric shaft concentrically with respect to the rotational axis of the piston and having a hub which extends into the aperture of the side wall, whereby the disk and the hub are provided with sealing rings in tight sealing engagement with the piston end wall and the wall of the aperture, respectively, the sealing rings sealing an annular chamber between said one piston end wall and the adjacent side wall which is limited radially outwardly by the oil control ring, a groove provided in the lower range of the wall of the aperture which receives the hub of the disk, whereby this groove is in communication with the annular chamber and is coupled at its lowermost point with a return line to the liquid cycle by means of a bore which will return liquid in the annular chamber at all times including when the engine is not in operation.

4,274,816
ROTARY VANE COMPRESSOR WITH CHAMFERED VANE SLOTS

Shigeru Kobayashi; Takemi Kanda, and Tsunenori Shibuya, all of Konan, Japan, assignors to Diesel Kiki Company, Ltd., Tokyo, Japan

Filed Jun. 28, 1979, Ser. No. 52,775
Claims priority, application Japan, Aug. 31, 1978, 53-119802[U]
Int. Cl.³ F04C 18/00, 29/00, 29/02
U.S. Cl. 418—93 2 Claims



1. A rotary compressor including a cylinder having a bore and an inlet and outlet communicating with the bore, a rotor rotatably disposed in the bore and formed with a plurality of radial slots, and a plurality of vanes slidably disposed in the slots respectively and being urged into engagement with a wall of the bore, the cylinder, rotor and vanes being configured in such a manner that fluid is displaced from the inlet to the outlet through the bore upon integral rotation of the rotor and vanes, characterized in that trailing outer edges of the slots are chamfered; and

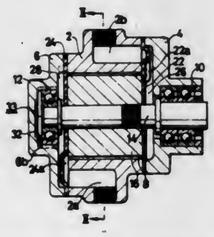
further comprising means for urging the vanes into engagement with the wall of the bore by applying pressurized fluid lubricant to inner ends of the vanes, clearances being provided between the vanes and respective slots which are sufficiently large to allow lubrication of the vanes and adjacent walls of the slots;

said clearances allowing tilting of the vanes in the slots by a predetermined angle, an angle of chamfering of the trailing outer edges of the slots being in the range from the predetermined angle plus 0.5° to the predetermined angle plus 1.5°.

4,274,817
ROTARY VANE PUMP WITH INLET AND DISCHARGE PORTS IN END SEALING PLATES

Hiroshi Sakamaki, Utsunomiya; Toshiyuki Maeda, Ageo; Fumihiro Ushijima, and Tadashi Saitou, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jun. 4, 1979, Ser. No. 45,356
Claims priority, application Japan, Jun. 6, 1978, 53/68111
Int. Cl.³ F04C 27/00, 29/00
U.S. Cl. 418—133 8 Claims



1. In a rotary fluid pump including a housing having a generally cylindrical cavity extending therethrough, a pair of recessed end heads assembled at opposite ends of the housing to form a pump cavity therewith, a drive shaft journalled in said end heads by bearings and extending into the interior of the pump cavity, a rotor mounted on the drive shaft within the pump cavity, a pair of sealing plates individually disposed between the ends of the housing and the end heads to divide the pump cavity into a pair of end chambers defined by the end heads and the sealing plates and an intermediate rotor chamber defined by the sealing plates and, a plurality of vanes slidingly disposed in grooves radially formed in the rotor, the improvement comprising;

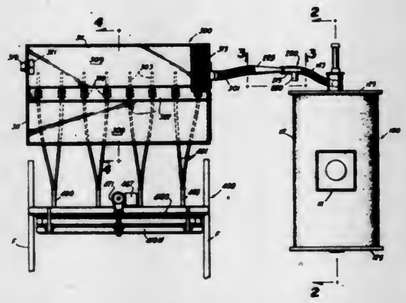
said sealing plates being resilient to allow for deformation and extending from said drive shaft radially outward to said housing;

fluid inlet and discharge ports provided in the resilient sealing plates in fluid communication with said pump cavity, and wherein said resilient plates isolate said end chambers to prevent fluid communication between said ports and said end chambers.

4,274,818
APPARATUS FOR PRE-EXPANDING AND MOLDING THERMOPLASTIC POLYMER PARTICLES

Robert L. Montgomery, and Stuart B. Smith, both of Conyers, Ga., assignors to Southeastern Foam Products, Inc., Conyers, Ga.

Division of Ser. No. 827,873, Aug. 26, 1977, abandoned. This application Aug. 31, 1979, Ser. No. 71,763
Int. Cl.³ B29D 27/00
U.S. Cl. 425—4 R 11 Claims

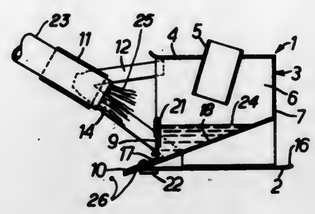


1. Apparatus for expanding and molding thermoplastic polymer particles comprising hopper means for receiving said particles, container means for receiving said particles from said hopper means, means to agitate and to heat said particles in a dry state within the container means, means for performing the functions of first evacuating the container means to draw the particles from the hopper means into the container means and second pressurizing the container means with a hot dry gaseous medium to uniformly soften said particles without expanding them and then evacuating the container means to a preselected degree of vacuum to expand the particles in the container means, means to mold expanded particles taken from the container means into an integral fused mass, and vacuum conveyor means interconnecting the container means and said molding means for extracting the expanded particles from the container means into the means to mold expanded particles.

4,274,819
APPARATUS FOR MAKING SHOT

Wilfred A. R. Talbot, 28, Middle La., Cherhill, Calne, Wiltshire, England

Filed Sep. 25, 1979, Ser. No. 78,848
Claims priority, application United Kingdom, Jun. 2, 1977, 23508/77
Int. Cl.³ B22D 11/01
U.S. Cl. 425—6 6 Claims



1. An apparatus for making shot which comprises:

a container for holding metal used to make shot, said container having a bottom wall and a side wall, openings formed in said side wall through which molten metal can pass;

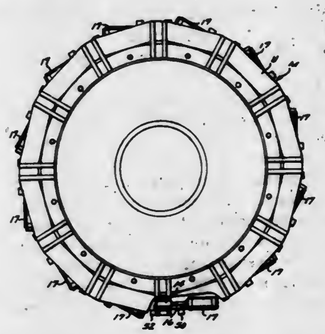
an inclined chute leading down and away from said container and below said openings;

a holder attached to said container adjacent said side wall and adapted to hold a heating means capable of melting metal to a flowing condition and cause heat to be directed toward said side wall, whereby to heat the metal in said container and optionally said side wall and said chute and melt said metal to a flowing condition, whereby molten metal passes through said openings and drops onto said chute.

4,274,820
LOCK SYSTEM FOR TIRE CURING APPARATUS

Louis T. Fike, Hacienda Heights, Calif. 91745

Filed May 27, 1980, Ser. No. 153,763
Int. Cl.³ B29H 5/02, 5/04
U.S. Cl. 425—29 9 Claims



1. A quick-release lock system for tire curing apparatus having a lower matrix that receives the lower part of a tire to be cured and an upper matrix that receives the upper part of the tire to be cured, with the matrices being vertically separable to receive said tire, and said apparatus further including tire inflating means for pressurizing said tire, said quick-release lock system comprising:

a plurality of lock arms having their lower ends secured to said lower matrix at circumferentially spaced points therearound, the upper portion of each of said lock arms having a keeper formed with a horizontal passage;

a plurality of lug means formed on said upper matrix at circumferentially spaced points therearound in general vertical alignment with said lock arms, said lug means each being formed with opening means that are horizontally aligned with the passages of said lock arm keepers when said upper matrix is positioned upon said lower matrix;

a plurality of wedge locks, each horizontally aligned with the opening means of each of one of said lug means and movable horizontally from an unlocked position to one side of the keeper passage of its respective lock arm to a locked position bridging said opening means and said passage so as to secure said upper matrix to said lower matrix;

power-operated means on said upper matrix for urging said wedge locks between their locked and unlocked positions;

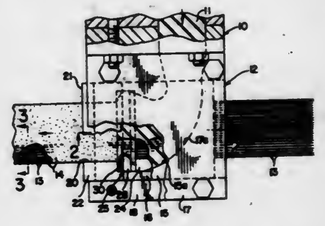
sensing means operatively associated with each of said wedge locks to detect whether or not each of said wedge locks have been urged into their locked position; and

means operated by said sensing means to prevent the tire inflating means from inflating said tire unless each of said wedge locks is disposed in its locked position.

4,274,821
DIE FOR EXTRUDING REINFORCED FABRIC

Ralph F. Kiesser, Akron, Ohio, assignor to The Steelastic Company, Akron, Ohio

Filed Feb. 28, 1980, Ser. No. 125,667
Int. Cl.³ B21C 3/02; B29F 3/10
U.S. Cl. 425—114 8 Claims



1. A die for extruding an elastomeric ribbon reinforced with laterally spaced longitudinal filaments, said die enclosing a guide insert having uniformly laterally spaced co-planar filament guide passageways therethrough, said insert being undercut on one side at its discharge end to form exposed groove extensions of said guide passageways, and said die having passageways forming a constricted throat around the discharge end of said insert for extruding elastomeric material around filaments emerging therefrom, whereby the exiting portions of said filaments are partially encapsulated before they leave the groove extensions.

4,274,822
APPARATUS FOR FORMING SEAL LINERS OF THERMOPLASTIC MATERIAL WITHIN CLOSURE CAP SHELLS

Shuichi Tamai, Osaka, and Norihide Matsuyama, Toyonaka, both of Japan, assignors to Osaka Nagayasugi Cork Ind., Co., Ltd., Osaka, Japan

Filed Aug. 28, 1979, Ser. No. 70,638
Claims priority, application Japan, Aug. 28, 1978, 53-105873
Int. Cl.³ B29D 27/00
U.S. Cl. 425—127 14 Claims

1. An apparatus for forming seal liners of thermoplastic foaming material within closure cap shells comprising:

a plurality of movable dies each having an inner die and an annular outer die,

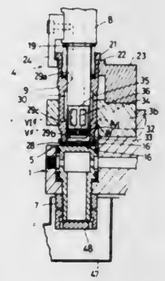
each of said inner and outer dies being movable up and down,

said inner die having a cylindrical lower end portion which is slidably disposed within said annular outer die and has a lower end wall for radially spreading a measured amount of fused thermoplastic foaming material placed on a horizontal wall of an interior surface of a cap shell, as said inner die takes its lowermost position,

said annular outer die having a cylindrical lower end portion whose external diameter is substantially equal to an internal diameter of said cap shell, so that a cylindrical external circumferential wall of said cylindrical lower end portion is in contact with a substantially upwardly extending wall of said interior surface of the cap shell when said outer die is in its lowermost position,

said inner die being so arranged as to still continue its downward movement to its lowermost position after said outer die has taken its lowermost position,

means for restricting downward movement of said outer die so as to prevent its lower end wall from contacting said horizontal wall of said cap shell thereby to provide a



certain constant clearance between said lower end wall of the outere die and said horizontal wall of said cap shell,

an annular recess formed in a lower end circumference of said inner die,

said annular recess being communicated with said clearance so that an annular foaming chamber of a constant capacity, for forming a thick annular pad portion of said seal liner, is formed beneath said lower end wall of the outer die when both of said outer and inner dies are in their lowermost positions,

means for restricting upward movement of said outer die when said thermoplastic foaming material is forcibly pushed into said foaming chamber,

a plurality of gas discharging grooves formed in a relatively slidable area existing between a cylindrical external surface of said cylindrical lower end portion of said inner die and a cylindrical internal surface of said cylindrical lower end portion of said outer die, said area being located above said annular foaming chamber and inwardly spaced apart from said upwardly extending wall of said interior surface of said cap shell, and

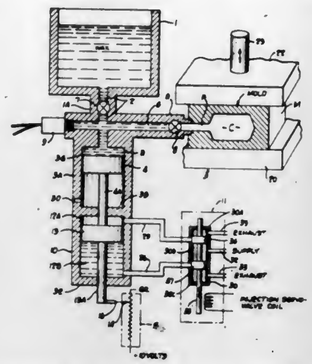
said foaming chamber being communicated with the atmosphere through said gas discharging grooves.

4,274,823

WAX INJECTION MOLDING APPARATUS AND CONTROL SYSTEM

Virgil V. Stanciu, Rocky River; Robert A. Cutler, Chardon, and Kenneth R. Kasper, Parma, all of Ohio, assignors to Tempcraft Tool & Mold Inc., Cleveland, Ohio

Filed Mar. 27, 1979, Ser. No. 24,263
Int. Cl.³ B29F *1/06*
U.S. Cl. 425—145 26 Claims



1. In combination, an investment pattern molding machine having a source of fluid molding material and a movable ram and a mold into which said material is to be forced under pressure by means of said movable ram moving through a predetermined distance in a fluid injection direction and thereafter returned to a fluid charging position, control means for initiating a molding cycle for injecting wax into said mold, a servo-control operably connected with said control means and responsive thereto to sense and control the movement of the movable ram and the pressure of said fluid molding material as generated by said movable ram forcing said material into said mold, said servo-control comprising means for actuating the movable ram and for effecting the movement thereof in a direction to initiate the injection of the fluid molding material into said mold, means operatively connected to said movable ram and to provide a first signal representative of the movement of the movable ram, means for providing a reference control signal that is representative of the movement desired for said ram in said molding cycle, means for comparing the first signal with the reference control signal and to provide a differential signal, and means for applying said differential signal to said ram actuating means effective corresponding to said differential signal to modify the movement of said ram and correspondingly regulate the injection of the fluid molding material into said mold, and means in said servo-control for limiting the quantum of the reference control signal comprising circuit means for providing a preselected maximum acceleration reference signal and a preselected maximum velocity reference signal which are representative respectively of the acceleration and velocity desired for said ram, and said servo-control having means for combining said acceleration and velocity reference signals to provide the reference control signal.

4,274,824

MOLD BOX APPARATUS

Wayne L. Mullins, 5001 E. Cactus, Scottsdale, Ariz. 85254

Continuation-in-part of Ser. No. 947,590, Oct. 2, 1978, Pat. No. 4,218,206. This application Apr. 10, 1980, Ser. No. 139,096
Int. Cl.³ A21C *3/00*
U.S. Cl. 425—253 11 Claims

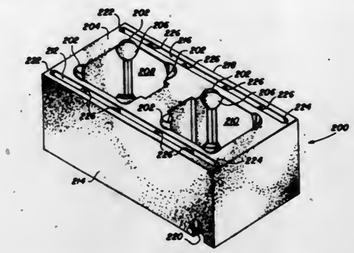
1. A mold box apparatus for casting cementitious blocks with a channel in at least one of the sidewalls thereof in which

thermally insulative foam is subsequently castable, said mold box apparatus comprising:

(a) a mold box die which is open at the top and bottom and has at least one compartment which forms the side and end walls of the block when cement is deposited therein;

(b) a pallet die positioned in engagement with said mold box die to close the bottom thereof;

(c) a core die assembly mounted on said mold box die so as to span the open top thereof, said core die assembly having a spaced pair of core dies depending therefrom into the compartment of said mold box die to form vertical passages centrally through the block formed upon deposition of cement therein; and



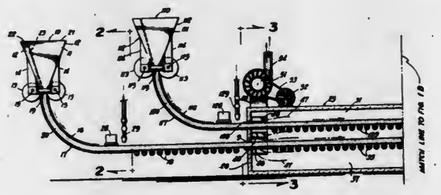
(d) at least one channel die assembly mounted on said mold box die so as to span the open top thereof and disposed to be laterally adjacent and parallel with respect to said core die assembly, said channel die assembly having a plurality of aligned channel dies depending therefrom to form a channel within one of the sidewalls of the block when cement is deposited in the compartment of said mold box die, said plurality of channel dies spaced from the mold box die, spaced from the pallet die and spaced from each other so that the channel formed in the block upon deposition of cement into said mold box die has its opposite ends closed by thin-wall cementitious webs, has its bottom closed by a thin-wall cementitious web, and has a plurality of cementitious thin-wall stabilizer webs formed transversely in the channel.

4,274,825

PROCESS AND APPARATUS FOR PRODUCING CELLULATED VITREOUS REFRACTORY MATERIAL IN PRESCRIBED SHAPES AND PRODUCTS THEREFROM

John W. North, 3467 Pierce Dr., NE., Chamblee, Ga. 30341

Division of Ser. No. 888,507, Mar. 20, 1978, Pat. No. 4,190,416. This application Dec. 10, 1979, Ser. No. 101,900
Int. Cl.³ F21B *14/00*
U.S. Cl. 432—13 33 Claims



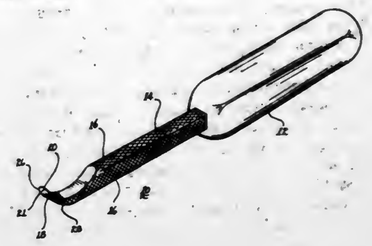
16. A process of providing a charge for a kiln, comprising in a die cavity covering the bottom thereof with a release agent, applying a mixture of solid carbonaceous aggregate and binder over said release agent, placing a charge of mineral and cellulating agent on said mixture and pressing same together.

4,274,826

DENTURE ADJUSTMENT TOOL

Elbert P. Huey, 4714 E. Lafayette Blvd., Scottsdale, Ariz. 85018, and Adrian W. Craig, 6703 E. McDonald Dr., Scottsdale, Ariz. 85253

Filed Oct. 18, 1979, Ser. No. 85,896
Int. Cl.³ A61C *3/06*
U.S. Cl. 433—144 2 Claims



1. A one piece multi-function manual denture adjustment tool, said tool comprising in combination:

(a) a handle for gripping said tool;

(b) a shank square in cross-section and extending from said handle, said shank including an abrasive surface disposed on the sides of said shank; and

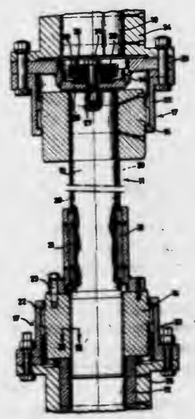
(c) a dual tapered claw disposed at the extremity of said shank, said claw including a terminal tip and a curved cutting edge extending from either side of said tip toward said shank, said claw further including two opposed sides of widths diminishing toward said tip and defining the curvature of said claw, said diminishing width opposed sides having abrasive surface and being extensions of respective ones of said abrasive sides of said shank to define variable width abrasive surfaces.

4,274,827

PROPULSION SYSTEM FOR A MARINE VESSEL

Wilhelmus M. Catsburg, Capelle A/D Ijssel, Netherlands, assignor to Schottel Nederland B.V., Netherlands

Filed Sep. 15, 1978, Ser. No. 942,624
Claims priority, application Netherlands, Sep. 19, 1977, 7710276
Int. Cl.³ B63H *5/12*
U.S. Cl. 440—54 1 Claim



1. A propulsion system for a marine vessel, comprising:

(A) a vertical sleeve;

(B) a drive motor located near the upper end of said sleeve and including a vertically extending output shaft;

(C) a steerable propeller comprising:

(1) a steering tube coupled to said sleeve for rotation about a vertical axis;

(2) swivel drive means coupled to the top of said steering tube for rotating said steering tube about said vertical axis;

(3) a telescopable drive shaft extending through said steering tube and including an upper portion and a lower portion, said upper portion being coupled to said output shaft of said motor by a footstep bearing including complementary concave and convex bearing parts, said concave bearing part being coupled to said upper portion of said drive shaft, said convex bearing part being coupled to said output shaft of said motor;

(4) said upper portion of said drive shaft being solid and said lower portion of said drive shaft being hollow and telescopically receiving said solid upper portion, said upper and lower portions being coupled for rotation with one another by a self-adjusting rotary coupling, said rotary coupling including inner and outer concentric rings;

(5) an underwater housing coupled to the bottom of said steering tube for rotation therewith, said underwater housing enclosing drive gears coupling a ship's propeller to said drive shaft; and

(D) means for raising and lowering an assembly including said steering tube, said lower portion of said drive shaft, said underwater housing and said swivel drive means between an upper position wherein said assembly is fully withdrawn into said sleeve and a lower position wherein said propeller extends below said sleeve; and

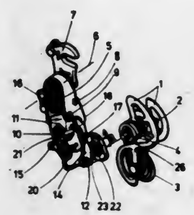
(E) said inner concentric ring having teeth which interlock with corresponding teeth on said upper portion of said drive shaft when said assembly is in said lower position, said inner ring also having a pair of spigots attached thereto, said spigots engaging respective grooves in said upper portion of said drive shaft such that the orientation of said upper and lower portions of said drive shaft remain constant as said lower portion of said drive shaft moves from said upper to said lower position to reengage said interlocking teeth.

4,274,828

DERAILLEUR GEAR-CHANGE ASSEMBLY FOR A BICYCLE

Roger Huret, 60, avenue Félix Faure, Nanterre, France

Filed Jan. 31, 1979, Ser. No. 7,990
Claims priority, application France, Feb. 2, 1978, 78 03271
Int. Cl.³ F16H *11/00*
U.S. Cl. 474—82 **3 Claims**



1. A derailleur gear-change assembly for a bicycle having a support cage itself carrying a chain-guide wheel and a chain tensioning wheel as well as a support means for said cage, said support means consisting of a deformable parallelogram for producing translatory movement of the cage under the action of a cable and for passing the chain from one sprocket wheel of a freewheel of the bicycle to another sprocket wheel, the improvement comprising a derailleur gear-change assembly in which several perforations are provided on the arm of the deformable parallelogram for the adjustable fixing of the cage.

4,274,829

CONTINUOUS DYEING PROCESS IN ORGANIC SOLVENT VAPORS

Jacques Zarbuchen, Pratteln, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 664,450, Mar. 8, 1976, abandoned. This application Oct. 4, 1978, Ser. No. 948,620
Claims priority, application Switzerland, Mar. 14, 1975, 3263/75; Apr. 3, 1975, 4222/75
Int. Cl.³ D06P *1/68*
U.S. Cl. 8—475 **18 Claims**

1. A process for the continuous dyeing of synthetic textile fibers from organic solvent, comprising the steps of

(1) Preheating the textile fibers to at least 100° C.;

(2) Impregnating the preheated textile fibers with a hot halogenated hydrocarbon liquor, containing dyestuff or optical brightener, to form impregnated textile fibers containing between 150 and 300% of liquor, based on the dry weight of the textile fibers; and

(3) Immediately passing the preheated and impregnated textile fibers through a vapor zone filled with superheated vapors of the halogenated hydrocarbon, in such a manner that during passage of the textile fibers through the vapor zone the absorbed liquor becomes concentrated on the textile fibers, whereby (a) the amount of halogenated hydrocarbon on the textile fibers is not increased by condensation of halogenated hydrocarbon vapor, and (b) more than 5% of absorbed liquor is present on the textile fibers when they emerge from the vapor zone, so that the textile fibers during the passage through the vapor zone never become dry.

4,274,830

COLORED MEDICINAL TABLET, NATURAL COLOR PIGMENT AND METHOD FOR USING THE PIGMENT IN COLORING FOOD, DRUG AND COSMETIC PRODUCTS

Edward J. Wozaicki, Douglassville; Lawrence J. Rossania, North Wales, and Keith Marshall, Ft. Washington, all of Pa., assignors to Colorcon, Inc., West Point, Pa.

Filed Sep. 27, 1977, Ser. No. 837,301
Int. Cl.³ D06P *3/58*; A61K *47/00, 9/36*
U.S. Cl. 8—495 **4 Claims**

1. A method of coloring a pharmaceutical tablet comprising:

suspending 100 g. of finely divided powdered corn starch in about 1800 ml. of water,

adding 50 g. of a 30% (W/V) aluminum chloride solution in water to the corn starch suspension,

heating the suspension to about 50° C.,

dissolving 10 g. of curcumin in 800 ml. of water containing 3.2 g. of sodium hydroxide to form a dye solution,

adding the dye solution in a fine stream to the corn starch suspension while stirring the suspension rapidly,

continuing the stirring until all the curcumin is attached to the corn starch particles,

filtering the resulting slurry to obtain a filtered cake,

washing the filtered cake with water, and

drying the filtered cake at about 50° C. in a hot air oven to obtain a powdered natural dye pigment, suspending said pigment in a coating solution and coating the tablet with said coating solution.

4,274,831

PROCESS FOR DYEING OR PRINTING SYNTHETIC FIBER MATERIALS BY MEANS OF DISPERSE DYES, AND COLORANT COMPOSITIONS UTILIZABLE FOR THIS PURPOSE

Gerard L.A. Belfort, Oissel, and Daniel P. A. Richer, Bosc Roger en Roumois, both of France, assignors to Produits Chimiques Ugine Kuhlmann, Courbevoie, France

Filed Jun. 30, 1978, Ser. No. 921,040
Claims priority, application France, Jul. 28, 1977, 77 23221
Int. Cl.³ D06P *3/872, 3/874, 1/673, 1/653*
U.S. Cl. 8—532 **10 Claims**

1. A process for dyeing materials containing synthetic fibers by means of disperse dyes which comprises carrying out the dyeing by the exhaustion method in the presence of at least one metallic salt of an inorganic or organic acid, the metal having an atomic number in the range of 24 through 30, said metallic salt being added in an amount of 0.2 to 2% by weight expressed as metal in relation to the disperse dye.

4,274,832

ANALYTICAL ELEMENT AND METHOD FOR ANALYSIS OF MULTIPLE ANALYTES

Tai-Wing Wu, Rochester, and Glen M. Dappen, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 12, 1979, Ser. No. 11,605
Int. Cl.³ G01N *33/00, 33/52, 33/72, 33/92*
U.S. Cl. 23—230 R **17 Claims**

17. A method for the analysis of analytes in a liquid, said method comprising

(a) contacting together said liquid an an analytical element having an essentially dry matrix permeable to said liquid, at least a portion of said matrix comprising

(i) a first interactive composition for the generation of a first radiometrically detectable species in an amount corresponding to the presence and/or concentration of one analyte, or a reaction or decomposition product thereof, and

(ii) a second interactive composition for the inhibition or the destruction of a second radiometrically detectable species in an amount corresponding to the presence and/or the concentration of a second analyte, or a reaction or decomposition product thereof;

said first and second interactive compositions being in liquid contact with one another within said matrix during use, with at least a portion of one of said interactive compositions contained in said reagent layer, and each of said first and second radiometrically detectable species having a characteristic, detectable absorption or emission peak; and

(b) radimetrically detecting, after a predetermined time, a separate detectable change occurring in said element in response to the presence and/or concentration of each of said analytes, at least one detectable change being the result of said inhibition or destruction of said second radiometrically detectable species.

4,274,833

NINHYDRIN REAGENT FOR USE IN AMINE AND AMINO ACID ANALYSES

Michael V. Pickering, 4081 Park Blvd., Palo Alto, Calif. 94306

Filed Oct. 18, 1979, Ser. No. 86,234
Int. Cl.³ C09K *3/00*; G01N *33/48, 31/22, 31/08*
U.S. Cl. 23—230 B **3 Claims**

1. A buffered aqueous ninhydrin reagent having from about 0.5 to 2 weight percent of ninhydrin, sulfolane and water at a ratio of from at least about 0.5 parts to not more than 1.5 part by weight of sulfolane per part of water, said reagent having a pH in the range of about 3 to 9.

3. In a method for analyzing an analyte which is one or a mixture of amino acids, primary or secondary amines, employing an ion exchange column and reacting the eluent from said ion exchange column with ninhydrin to reagent produce a colored product whose concentration is related to the amount

of analyte in said eluent, and monitoring the light absorption of said colored product in said eluent, the improvement which comprises employing as a ninhydrin reagent for production of such color, a composition according to claim 1.

4,274,834
PROCESS FOR PURIFICATION OF LITHIUM CHLORIDE

Patrick M. Brown, Exton, and Susan R. Jacob, Royersford, both of Pa., assignors to Foote Mineral Company, Exton, Pa.

Filed Apr. 11, 1979, Ser. No. 28,974
Int. Cl.³ C01D 3/08, 15/02
U.S. Cl. 23—302 R 3 Claims

1. A process for purifying lithium chloride containing small amounts of impurities such as sodium, potassium, calcium, boron, sulfate and/or organic compounds which comprises heating lithium chloride contaminated with one or more of said impurities to a temperature in the range of from about 270° to about 325° C., cooling said lithium chloride to ambient conditions, extracting said lithium chloride with isopropanol, separating the liquid phase from the solid phase, removing said isopropanol from said liquid phase, and recovering a solid lithium chloride product of high purity.

4,274,835
METHOD AND COMPOSITION FOR MODIFYING BURNING OF SULFUR IN COALS AND HYDROCARBON FUELS

Frederick L. Jordan, Santa Ana, Calif., assignor to Oryx, Inc., Santa Ana, Calif.

Filed Nov. 5, 1979, Ser. No. 91,065
Int. Cl.³ C10L 9/10, 1/10
U.S. Cl. 44—1 SR 7 Claims

1. The method of improving combustion efficiency and reducing sulfur combustion emissions from burning of coal comprising burning coal in the presence of small amounts of squalane, squalene, or a carotenoid, or mixtures thereof.

3. A liquid hydrocarbon fuel having intermixed therein small amounts, in the parts per million range, of carotene.

4,274,836
METHOD FOR IMPROVING BED FIRING CHARACTERISTICS AND INHIBITING COALESCENCE OF COAL PELLETS

Thomas E. Baa, South Euclid, and William H. Marlowe, Euclid, both of Ohio, assignors to Dravo Corporation, Pa.

Filed Apr. 20, 1979, Ser. No. 31,992
Int. Cl.³ C10L 5/32
U.S. Cl. 44—6 10 Claims

1. A method of reducing the swelling characteristics and bed coalescence characteristics of a pelletized fuel during a sintering operation comprising the steps of pulverizing the coal to form a powdery mass, forming said mass into discrete pellets, providing on the surface of said pellets a coating substance selected from the group consisting of sodium carbonate, burnt lime, and hydrated lime, drying said pellets and heating said pellets to a temperature exceeding 800° F.

4. A method according to claim 1, wherein the coating substance is initially mixed with the powdery mass and migrates to the surface of the pellets during the drying step.

7. A method according to claim 1, wherein said coated material is deposited directly on the surface of the pellet prior to drying the pellet.

4,274,837
DEPOSIT CONTROL ADDITIVES AND FUEL COMPOSITIONS CONTAINING THEM

Jennifer E. Lilburn, Berkeley, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Division of Ser. No. 931,232, Aug. 8, 1978, Pat. No. 4,197,409.
This application Jul. 2, 1979, Ser. No. 54,119
Int. Cl.³ C10L 1/22, 1/18
U.S. Cl. 44—63 17 Claims

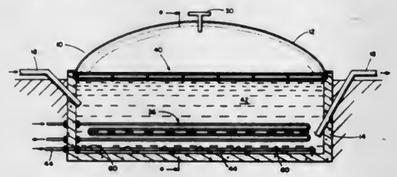
1. A fuel composition comprising a major amount of hydrocarbons boiling in the gasoline range and from 30 to 2,000 ppm of the deposit control additive hydrocarbylpoly(oxyalkylene) aminocarbamate having a molecular weight of from about 600 to 10,000, at least one C_1–C_{30} hydrocarbyl-terminated poly(oxyalkylene) chain and at least one basic nitrogen atom;

wherein said poly(oxyalkylene) chain comprises from one to five oxylkylene units each containing from 9 to 30 carbon atoms and other oxyalkylene units selected from 2 to 5 carbon oxyalkylene units.

4,274,838
ANAEROBIC DIGESTER FOR ORGANIC WASTE

Eugene M. Dale, Montevallo, Ala., and Jerry A. Malstrom, Ludington, Mich., assignors to Energy Harvest, Inc., Chicago, Ill.

Filed Oct. 1, 1979, Ser. No. 80,940
Int. Cl.³ C02F 11/04; C12M 1/04; C12P 5/02
U.S. Cl. 48—111 8 Claims



1. An anaerobic digester for producing combustible gas from organic waste comprising:

(a) a digester tank having an input end adapted to receive a fluid slurry containing said organic waste and an output end from which the slurry is discharged from the tank, said tank including an air tight flexible membrane and an outlet therefrom disposed over said tank into which the gas passes as it evolves from the slurry;

(b) means for introducing the slurry into said tank at said input end and means for removing the slurry from said output end after passage through said tank;

(c) means for heating the slurry to a temperature conducive to anaerobic digestion of the organic wastes thereby to generate said gas;

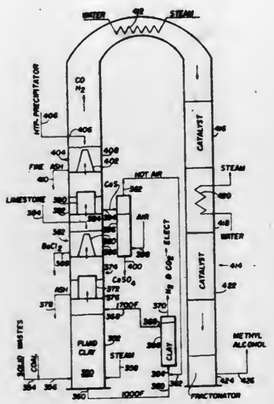
(d) means for suppressing the formation of scum on the surface of the slurry while resident in said tank, said suppressing means including a plurality of panels floatably positioned on the surface of said slurry, whereby scum is maintained below the surface of the slurry in a wet condition to ensure digestion;

(e) means for maintaining the panels in position to maintain spacing therebetween and means to prevent dislocation thereof when the slurry is above or below normal levels in said tank.

4,274,839
PROCESS FOR GASIFICATION OF COAL AND ORGANIC SOLID WASTES

Arnold M. Less, 122 N. 34th St. Towne House Village, Richmond, Ind. 47374

Filed Dec. 28, 1979, Ser. No. 108,110
Int. Cl.³ C10J 3/54
U.S. Cl. 48—202 10 Claims



1. A process for coal and organic solid waste gasification comprising the steps of:

converting water in an aqueous feed stock to steam;

gasifying coal and organic solid waste feedstocks in the presence of said steam using a granular fluidized clay to produce a gaseous product composed primarily of carbon monoxide and hydrogen;

removing hydrogen chloride from said gaseous product by injecting barium carbonate to react with hydrogen chloride to form barium chloride, and removing said barium chloride;

removing hydrogen sulfide from said gaseous product by contacting said gaseous product with lime to react with hydrogen sulfide to from calcium sulfide, and removing said calcium sulfide for external oxidation to calcium sulfate and recovering said calcium sulfate;

thereafter removing residual micronic particulates and vaporized metallic chlorides from said gaseous product using high temperature precipitating agents to finally clean the product gases consisting essentially of carbon monoxide and hydrogen;

regenerating barium carbonate by reacting said recovered barium chloride with a water solution of sodium carbonate to from barium carbonate and sodium chloride;

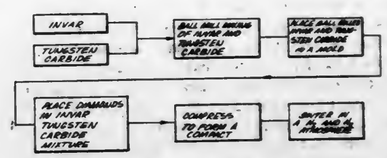
circulating carbon containing granular fluidized clay, used to gasify the coal and organic solid waste feedstocks in the presence of steam, to an air burner to burn said carbon to yield a producer gas containing carbon monoxide and carbon dioxide, and returning the decarbonized granular fluidized clay to gasify additional coal and organic solid waste feedstocks in the presence of steam; and

reducing a metal oxide with said carbon monoxide in said producer gas to produce a reduced metal, and reoxidizing said reduced metal to metal oxide with steam to generate hydrogen gas.

4,274,840
WEAR RESISTANT COMPOSITE INSERT, BORING TOOL USING SUCH INSERT, AND METHOD FOR MAKING THE INSERT

Robert J. Housman, Irvine, Calif., assignor to Smith International, Inc, Newport Beach, Calif.

Filed Jan. 8, 1979, Ser. No. 1,900
Int. Cl.³ C04B 35/52
U.S. Cl. 51—307 10 Claims



1. A method of making a wear resistant insert for earth boring tools and the like consisting essentially of the steps of:

(a) mixing powdered Invar with powdered tungsten-carbide;

(b) placing diamonds in a desired array in the mixture;

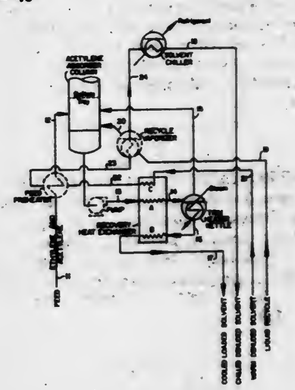
(c) compressing the mixture of Invar and tungsten-carbide and diamonds to consolidate them; and then

(d) sintering the Invar at a temperature below the melting point of Invar and in an atmosphere of nitrogen and hydrogen to form a matrix for the tungsten-carbide and diamonds.

4,274,841
ACETYLENE RECOVERY PROCESS AND APPARATUS

Harvey E. Andresen, and Thomas F. Persohn, both of Charleston, W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 28, 1980, Ser. No. 134,948
Int. Cl.³ B01D 53/16
U.S. Cl. 55—40 8 Claims



1. An improved process for the recovery of acetylene from gas containing acetylene and ethylene comprising: contacting said gas with an acetylene solvent to form a loaded solvent solution; warming and partially boiling said loaded solvent solution by passing through a first stream conduit of a heat exchange zone having a plurality of non-interconnecting stream conduits passing therethrough in heat exchange thermal contact; separating the resulting liquid/vapor mixture and passing the liquid phase to a second stream conduit of said heat exchange zone, thereby permitting the temperature thereof to drop substantially before said liquid phase passes on to a downstream further separation step for the removal of further purified acetylene product; and warm denuded acetylene solvent is cooled to lower temperature initially by passage through a

third stream conduit of said heat exchange zone and then further cooling before passage to said acetylene solvent contacting zone; whereby greater thermal efficiency is effected in the process.

7. Improved apparatus for the recovery of acetylene from a feed gas stream containing acetylene and ethylene and produced by the cracking of hydrocarbon feedstock, which comprises: absorber column means for contacting said gas stream under pressure with an acetylene solvent in a quantity sufficient for the absorption of substantially all of the acetylene and some of the ethylene of said feed gas stream to form a loaded solvent solution heater means for warming and partially boiling said loaded solvent solution by passing through a first set of stream conduits of a recovery heat exchanger having a first set of non-interconnecting stream conduits passing therethrough, each set in heat exchange thermal contact with the others so as to form a temperature gradient across said recovery heat exchanger; trim heat kettle means for separating the resulting liquid/vapor mixture; means for passing the separated liquid phase to a second set of stream conduits of said recovery heat exchanger to cause the temperature thereof to drop substantially before said liquid phase passes on to a downstream further separation step for the removal of further purified acetylene product; and means for cooling warm denuded acetylene solvent to lower temperature initially by passage through a third set of stream conduits of said recovery heat exchanger means for further cooling before passage of said denuded acetylene solvent to said absorber column.

4,274,842

METHOD OF PURIFYING GAS CONTAINING GASEOUS MERCURY

Leif A. V. Lindau, Växjö, Sweden, assignor to AB Svenska Flaktfabriken, Stockholm, Sweden

Filed Jan. 10, 1980, Ser. No. 111,126
Claims priority, application Sweden, Jan. 10, 1979, 7900209
Int. Cl.³ B01D *53/12*
U.S. Cl. 55—72 **3 Claims**

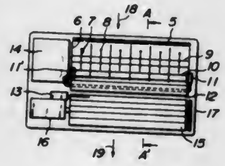
1. A method of purifying gases containing gaseous mercury, characterized in that the gas is caused to contact a solid sorbent consisting of powdered calcium hydroxide and of reaction from the reaction between calcium hydroxide and gaseous hydrogen chloride, whereafter the sorbent is separated in a dust separator.

4,274,843

ELECTROSTATIC TYPE CAR AIR PURIFIER

Masazumi Sone, Yokohama; Kazuhiko Suzuki, Yokosuka, and Yukitsugu Fukumori, Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama City, Japan

Filed Jul. 11, 1979, Ser. No. 56,808
Claims priority, application Japan, Jul. 19, 1978, 53-98328[U]
Int. Cl.³ B03C *3/32;* **B60H** *3/06*
U.S. Cl. 55—139 **1 Claim**



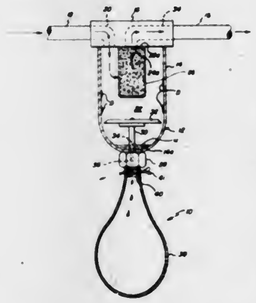
1. In an electrostatic type car air purifier having an air inlet and an air outlet comprising an electrostatic dust collector portion, a negative ion generator, and a high voltage generating portion having outputs for producing high voltages for operating respectively the dust collector portion and the negative ion generator, a system for reducing generation of electromagnetic noise from the high voltage generating portion comprising a high resistance means in series with rectifying diode means in the respective outputs of the high voltage generating portion, each of said high resistance means including a plurality of resistances connected in tandem to improve filtering by reduced stray capacitance across the resistance means and increased stray capacitance to a ground, wherein the resistance value of said high resistance means is between 500 kΩ and 2 MΩ.

4,274,844

EVAPORATOR

Richard C. Baughman, Geneseo, and Michael A. Giometti, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 21, 1979, Ser. No. 77,874
Int. Cl.³ B01D *46/00*
U.S. Cl. 55—196 **5 Claims**



1. In a filter adapted to be coupled to a pneumatic line for removing liquid from flow in such line, said filter including a liquid accumulating housing, and means for removing liquid from the flow and accumulating such liquid in the interior of said housing, the improvement comprising means for evaporating such accumulated liquid, said evaporating means including:

a wick of liquid absorbent, porous material located solely exteriorly of said housing and removably connected to the exterior of said housing for absorbing liquid and holding such liquid for evaporation to the atmosphere; and

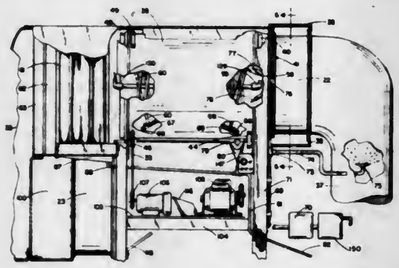
means for defining a passage for such liquid between the interior of said housing and said external wick so that accumulated liquid drains from said housing into said wick.

4,274,845

AIR-CLEANING, HEAT-EXCHANGE APPARATUS

Arthur G. Howard, 1134 Golfview Dr., Carmel, Ind. 46032

Filed Jul. 12, 1978, Ser. No. 923,713
Int. Cl.³ B01D *47/00*
U.S. Cl. 55—222 **14 Claims**



1. An air-cleaning, heat-exchange apparatus having means defining a flow path for removing grease and extracting heat from grease-laden, hot exhaust of a restaurant exiting from said restaurant by way of an exhaust stack, said air-cleaning, heat-exchange apparatus comprising:

a spiralled arrangement of metal tubing disposed in the flow path of said hot exhaust and rotatable about an axis which is substantially parallel with the flow direction of said hot exhaust, said spiralled arrangement being adapted for circulation of a heat-exchange working fluid therethrough and the exterior of said spiralled arrangement providing a contaminant-collecting surface;

means for circulating a heat-exchange working fluid through said spiralled arrangement and between said spiralled arrangement and a location of utilization;

a source of chemical solution wherein the grease of said grease-laden, hot exhaust is soluble to said chemical solution;

spray nozzle means directed at a first end of said spiralled engagement of metal tubing for dissolving grease buildup on the external, contaminant-collecting surface of said spiralled arrangement of metal tubing, said first end being disposed for being first contacted by the flow of said hot exhaust, and

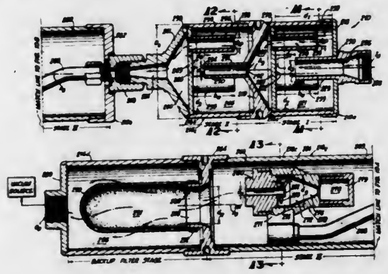
pump means for providing pulses of said chemical solution to said spray nozzle means.

4,274,846

PARTICLE SIZING SAMPLER

Michael L. Smith, Atlanta, Ga., assignor to Andersen Samplers Inc., Atlanta, Ga.

Filed Feb. 21, 1979, Ser. No. 13,401
Int. Cl.³ B01D *53/30*
U.S. Cl. 55—270 **13 Claims**



1. A multiple stage particle sizing sampling device for separating particles from a gaseous medium according to particle diameter so as to classify the particles as the gaseous medium is forced therethrough, said sampling device including first and second stages and comprising:

a housing defining a first stage impaction chamber and a second stage impaction chamber therein, both oriented about a common central axis;

impaction means including a first stage impaction member defining a first stage impaction surface thereon in said first stage impaction chamber oriented generally normal to the central axis, and a second stage impaction member defining a second stage impaction surface thereon in said second stage impaction chamber oriented generally normal to the central axis;

impaction nozzle means including a first stage impaction nozzle operatively associated with said first stage impaction chamber and a plurality of second stage impaction nozzles operatively associated with said second stage impaction chamber, said first stage impaction nozzle defining a first stage impaction jet passage therethrough oriented normal to said first stage impaction surface and having a first stage jet inlet thereto and the first stage jet outlet therefrom, said first stage jet inlet in communication with the gaseous medium to be sampled and said first stage jet outlet sized and located with respect to said first stage impaction surface to cause particles in the gaseous medium to be separated by jet impaction on said first stage impaction surface within said first stage impaction chamber so that said first stage has a first prescribed effective particle cut diameter when the gaseous medium is forced through said first stage impaction jet passage; each of said second stage impaction nozzles defining a second stage impaction jet passage therethrough oriented generally normal to said second stage impaction surface having a second stage jet inlet thereto and a second stage jet outlet therefrom, said second stage jet inlet in communication with the gaseous medium in said first stage impaction chamber and said jet outlet sized and located with respect to a second stage impaction surface to cause particles in the gaseous medium to be separated by jet impaction on said second stage impaction surface within said second stage impaction chamber so that second stage has a second prescribed effective particle cut diameter smaller than said first prescribed effective particle cut diameter when the gaseous medium is forced through said second stage impaction jet passages, said second stage impaction jet passages through said second stage impaction nozzles providing communication between said first stage impaction chamber and said second stage impaction chamber so that the gaseous medium moves from said first stage impaction chamber into said second stage impaction chamber through said second stage impaction jet passages, said second stage jet inlets located in said first stage impaction chamber and spaced from said first stage impaction surface a first exit distance greater than the distance between said first stage jet outlet from said first stage impaction jet nozzle and said first stage impaction surface; the size of said first stage impaction chamber, the first exit distance and the total cross-sectional area of said second stage jet inlets being such that the velocity of the gaseous medium through said first stage impaction chamber is less than one-tenth the velocity of the gaseous medium through said first stage jet outlet to permit the particles that bounce from said first stage impaction surface upon impaction to be collected out of the gaseous medium within said first stage impaction chamber, being such that the velocity of the gaseous medium passing out of said first stage impaction chamber through said second stage jet inlets is less than one-half the velocity of the gaseous medium through said first stage jet outlet to prevent the motion of the gaseous medium flowing out of said first stage impaction chamber into said second stage jet inlets from dislodging and re-entraining particles which have already been separated in said first stage impaction chamber, and being such that the residence time of the gaseous medium in said first stage impaction chamber is at least 0.2 second to permit agglomerated particles dislodged after separation in said first stage impaction chamber to settle out of the gaseous medium as it flows through said first stage impaction chamber; and

at least one second stage exit tube defining an exit passage therethrough having a second stage exit passage inlet thereto in communication with said second stage impaction chamber and a second stage exit passage outlet therefrom, said second stage exit passage inlet located in said second stage impaction chamber and spaced from said second stage impaction surface a second exit distance greater than the distance between said second stage jet outlets from said second stage impaction jet nozzles and said second stage impaction surface; the size of said second stage impaction chamber, the second exit distance and the total cross-sectional area of said second stage exit passage inlet being such that the velocity of the gaseous medium through said second stage impaction chamber is less than one-tenth the velocity of the gaseous medium through said second stage jet outlets into said second stage impaction chamber to permit the particles that bounce from said second stage impaction surface upon impaction

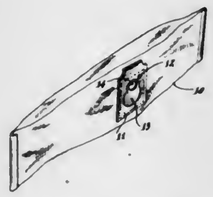
to be collected out of the gaseous medium within said second stage impaction chamber, being such that the velocity of the gaseous medium passing out of said second stage impaction chamber through said second stage exit passage inlet is less than one-half the velocity of the gaseous medium through said second stage jet outlets to prevent the motion of the gaseous medium flowing out of said second stage impaction chamber into said second stage exit passage inlet from dislodging and re-entraining particles which have already been separated in said second stage impaction chamber, and being such that the residence time of the gaseous medium in said second stage impaction chamber is at least 0.2 second to permit agglomerated particles dislodged after separation in said second stage impaction chamber to settle out of the gaseous medium as it flows through said second stage impaction chamber.

4,274,847

VACUUM CLEANER DUST BAG

Bengt O. Creser, Amal, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Sep. 6, 1979, Ser. No. 73,028
Claims priority, application Sweden, Sep. 25, 1978, 7810013
Int. Cl.³ B01D 46/02
U.S. Cl. 55—374 **3 Claims**



1. A vacuum cleaner dust bag having a container and a collar of relatively rigid material and adaptable to be connected to an inlet tube of a vacuum cleaner hose, said collar having an opening and comprising: an elastic diaphragm covering said opening on said collar and having an aperture therein forming an opening for said inlet tube which conveys dust from said vacuum cleaner hose to said dust bag, the opening in said collar having a shape such that the inlet tube having a pheripheral flange thereon can be moved through the aperture in said diaphragm without being significantly hindered by said surrounding collar and said collar can be moved laterally so that a portion of its opening which has a diameter that is smaller than the diameter of said peripheral flange engages the flange of the inlet tube and prevents axial displacement of said collar, said opening in said collar comprises a first zone into which the inlet tube is to be inserted and which merges into said portion which is a second zone of smaller proportion, the diaphragm in the second zone being retained on said inlet tube when said collar is moved laterally towards said second zone, and said diaphragm opening is so positioned that the major part of the area of the opening is in said second zone.

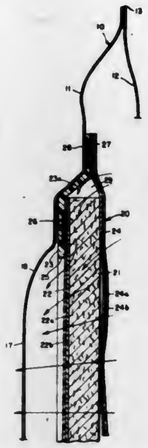
4,274,848

GAS-VENTING FILTER FOR COLLECTION APPLIANCE

Phillip A. La Gro, Des Plaines, Ill., assignor to Hollister Incorporated, Chicago, Ill.

Filed Sep. 24, 1979, Ser. No. 78,514
Int. Cl.³ A61F 5/44
U.S. Cl. 55—387 **22 Claims**

1. An odor-adsorbing gas filter assembly for use in collection appliances, comprising a porous filter pad having a pair of opposite planar faces and comprising a network of thermoplastic fibers coated with finely-divided activated carbon, a heat-sealable gas-pervious liquid barrier secured to one of said faces, a first panel of gas-impermeable thermoplastic material extending over said barrier and including a border portion projecting beyond the periphery of said pad, said panel having at least one central opening therethrough for the escape of gas flowing through said filter pad and being heat sealed to said barrier along a heat-seal zone extending uninterruptedly about said



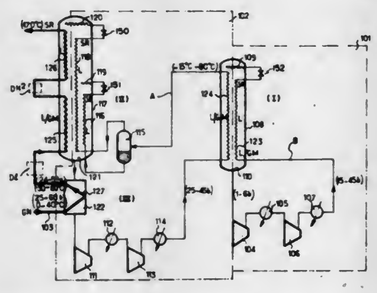
opening, said barrier being sealed by said heat seal against the transmission of gas through said zone, whereby, gas passing through said opening from the direction of said filter pad cannot by-pass said pad, and a second panel of porous material extending over the face of said pad opposite from said barrier and having a border portion projecting beyond the periphery of said pad, said border portions of said panels being sealed together to enclose said pad between said panels.

4,274,849

METHOD AND PLANT FOR LIQUEFYING A GAS WITH LOW BOILING TEMPERATURE

Christian Garier, and Henri Paradowski, both of Rueil-Malmaison, France, assignors to Campagnie Francaise d'Etudes et de Construction Technip, Paris, France

Continuation of Ser. No. 941,925, Sep. 13, 1978, abandoned, which is a continuation of Ser. No. 775,273, Mar. 7, 1977, abandoned, which is a continuation of Ser. No. 626,107, Oct. 28, 1975, abandoned. This application Aug. 21, 1979, Ser. No. 68,430
Claims priority, application France, Nov. 21, 1974, 74 38312
Int. Cl.³ F25J 1/02
U.S. Cl. 62—9 **45 Claims**



1. A method of liquefying a natural gas (NG) rich in methane and having a low boiling point, by means of a cold main refrigerant fluid (A) containing at least two hydrocarbons and a substance having a boiling point substantially lower than that of methane, said main refrigerant fluid (A) being precooled by an auxiliary refrigerant fluid (B) containing at least two hydrocarbons having from 1 to 4 carbon atoms, each of said refrigerant fluids being capable of existing in a liquid and a vapor state, said method comprising the steps of:

(1) conveying under pressure a flow of said auxiliary refrigerant fluid (B) along a first closed path of travel (101) which is physically and thermally separated from and independent of the path of travel of said natural gas (NG), said first closed path including at least four successive sections, the first three of which are thermally separated from each other, and processing said auxiliary refrigerant fluid (B) therein by successively:

(a) in the first section (104–106) of said four successive sections, compressing said auxiliary refrigerant fluid (B) from a gaseous state at a low pressure to a high pressure;

(b) in the second section (107) of said four successive sections, precooling, with an outer coolant, said compressed auxiliary refrigerent fluid (B) to liquefy at least a part of said compressed auxiliary refrigerant fluid (B);

(c) in the third section (123) of said four successive sections, said third section extending inside of the fourth section (108) of said four successive sections, successively at least fully liquefying (at L) and subcooling (at SR) said at least partly liquefied auxiliary refrigerant fluid (B) obtained from step (1) (b) as a first confined stream in thermally independent relation to said natural gas;

(d) expanding (at 152) said subcooled liquefied auxiliary refrigerant fluid (B) from step (1) (c), and passing said expanded auxiliary refrigerant fluid (B) through said fourth section (109, 108) and about said third section (123), thereby fully vaporizing said expanded auxiliary refrigerant fluid (B) through indirect heat exchange and in surrounding relationship with and in counter-current flow with respect to said auxiliary refrigerant fluid (B) flowing in said third section (123), to perform said at least full liquefaction and subcooling of said auxiliary refrigerant fluid (B) before said expansion thereof; and

(e) recycling said expanded and vaporized auxiliary refrigerant fluid (B) obtained after said heat exchange in step (1) (d) to said first section (104–106) for compression according to step (1) (a);

(2) conveying under pressure a flow of said main refrigerant fluid (A) along a second closed path of travel (102), said second closed path including at least six successive parts, the first four of which and the last of which are thermally separated from each other, and processing said main refrigerant fluid (A) therein by successively:

(a) in the first part (111–113) of said six successive parts, compressing said main refrigerant fluid (A) from a gaseous state at a low pressure to a high pressure;

(b) in the second part (114) of said six successive parts, precooling, with an outer coolant, said compressed main refrigerant fluid (A);

(c) in the third part (124) of said six successive parts, further precooling and partly liquefying said compressed and precooled main refrigerant fluid (A) obtained from step (2) (b) independently of said natural gas (NG); said compressed and precooled main refrigerant fluid being further precooled and partly liquefied as a first confined flow, said third part extending inside of said fourth section (108) of said first closed path, said precooling and partial liquefying being effected through indirect heat exchange with and in counter-current flow to said expanded and vaporized auxiliary refrigerant fluid (B) flowing in said fourth section (108) in surrounding relation to said third part (124), thereby forming a mixture of liquid and gaseous phases (L/GM) of said main refrigerant fluid (A);

(d) in the fourth part (116, 118) of said six successive parts, successively fully liquefying and subcooling said further precooled and partly liquefied main refrigerant fluid (A) from step (2) (c) as at least one second confined flow in said fourth part, said fourth part extending inside of the fifth part (117) of said six successive parts;

(e) expanding to a lower pressure and (at 150, 120, 151, 119) said subcooled liquefied main refrigerant fluid (A) from each second confined flow (118, 116) and passing said expanded main refrigerant fluid (A) through the fifth part (117) of said six successive parts and about said fourth part (118, 116) thereby fully vaporizing said expanded main refrigerant fluid (A) through indirect heat exchange with and in counter-current flow with respect to said main refrigerant fluid (A) flowing in said fourth part (118, 116), and in surrounding relationship therewith, to perform said full liquefaction and subcooling of said main refrigerant fluid (A) obtained according to step (2) (d) before said expansion thereof;

(f) in the sixth part (122) of said six successive parts, heating said expanded and vaporized main refrigerant fluid (A) obtained after step (2) (e) in thermally independent relation to said auxiliary refrigerant fluid (B) and to steps (2) (d) and (2) (e); and

(g) recycling said heated vaporized main refrigerant fluid (A) from step (2) (f) to said first part (111–113) for compression according to step (2) (a);

(3) conveying a continuous flow of said natural gas (NG) under pressure along an open path of travel (103) consisting of at least two successive portions and processing it by successively:

(a) precooling at least a part of said natural gas (NG) as a confined stream in the first portion (127) extending inside of said sixth part (122) of flow of said main refrigerant (A) through indirect heat exchange with said expanded and vaporized main refrigerant fluid (A) flowing in said sixth part (122) in surrounding relationship with said first portion (127), in thermally independent relation to steps (2) (d) and (2) (e);

(b) successively partially and then fully liquefying and subsequently subcooling said precooled natural gas (NG) from step (3) (a) as a confined stream in the second portion (125, 126) of said two successive portions, said second portion extending inside of said fifth part (117) of flow of said main refrigerant (A), through indirect heat exchange with at least said expanded and fully vaporized main refrigerant fluid (A) flowing through said fifth part (117) and about said second portion (125, 126) in counter-current relationship with said precooled natural gas (NG) and in thermally independent relation to said auxiliary refrigerant fluid (B); and

(c) recovering said thus liquefied subcooled natural gas (NG) from said second portion (126).

4,274,850

RECTIFICATION OF NATURAL GAS

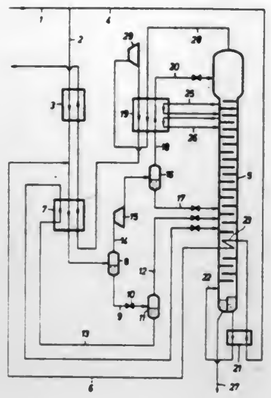
Hans Becker, Munich, Fed. Rep. of Germany, assignor to Linde Aktiengesellschaft, Wiesbaden, Fed. Rep. of Germany

Filed Nov. 14, 1979, Ser. No. 94,262
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849344
Int. Cl.³ F25J 3/02
U.S. Cl. 62—24 **7 Claims**

1. In a process for separating a C_{2+}-hydrocarbon fraction from the compressed natural gas by rectification, wherein the compressed natural gas is, prior to rectification, subjected to partial condensation and engine-expansion steps to achieve the desired pressure and temperature conditions in the rectification column and wherein said column is fed by resultant condensate of natural gas, the improvement comprising:

recovering a fluid from the engine expansion step; phase separating said fluid to obtain a liquefied fraction and an unliquefied gaseous fraction, passing said unliquefied gaseous fraction in indirect heat exchange relationship with engine-expanded overhead product from said column, whereby peak cooling and partial condensation of said

fraction is achieved, feeding resultant partially condensed unliquefied gaseous fraction to the top of said column, and



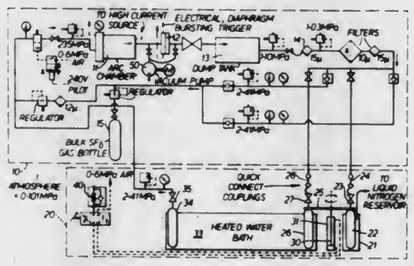
passing said liquefied fraction from the phase separation step to an intermediate point of said column.

4,274,851

GAS RECOVERY OF SULPHUR HEXAFLUORIDE

Anthony D. Stokes, Sydney, Australia, assignor to The University of Sydney, Sydney, Australia

Filed Mar. 28, 1979, Ser. No. 25,322
Int. Cl.³ F25J 3/08
U.S. Cl. 62—40 8 Claims



1. A gas recovery apparatus for recovering sulphur hexafluoride gas from the switching chamber of a high voltage circuit breaker, said recovery apparatus comprising:

a first high pressure gas supply line interconnecting the switching chamber with a quick-connect gas coupling;

a gas storage vessel having a closure valve connectable to the quick-connect gas coupling;

cryogenic means to reduce the temperature of the gas storage vessel below the phase transition temperatures of the sulphur hexafluoride gas in the range of pressures from the switching chamber pressure of the gas to almost pure vacuum pressure under cryopumping conditions set up upon opening of the closure valve, said cryogenic means including a dewar flask containing liquid nitrogen at atmospheric pressure;

means to ensure said closure valve and the inlet to the gas storage vessel are both maintained at another temperature which is always in excess of said phase transition temperatures;

a heating station for heating the stored gas in the gas storage vessel;

means to effect recharging of the switching chamber with stored gas from the heated storage vessel in the heating station via a second highpressure line, and,

means to interchange the gas storage vessel between the cryogenic means and the heating station, the interchange means including a carrier supporting the gas storage vessel and means actuable to lift the carrier and hence raise the vessel from the cryogenic means or the heating station and to generate movement of the carrier in order to effect the interchange.

4,274,852

MANUFACTURING GLASS WITH A BUSHING HAVING A DIRECTIONALLY ALIGNED DISPERSION STRENGTHENED TIP PLATE

Dennis L. McGarry, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 17, 1979, Ser. No. 67,590
Int. Cl.³ C03B 37/02; B22F 3/20
U.S. Cl. 65—2 8 Claims

1. In a fibrous glass manufacturing process comprising maintaining a pool of molten glass in a glass feeder having a foraminous bottom plate with a transverse axis shorter than a longitudinal axis thereof, and attenuating a glass stream issuing from said foraminous bottom plate into a glass fiber, said plate being formed of a dispersion strengthened precious metal, or alloy thereof, the improvement wherein said dispersion strengthened plate has a smaller creep rate along its transverse axis than its longitudinal axis.

4,274,853

METHOD AND APPARATUS FOR THE PRODUCTION OF GLASS FIBERS

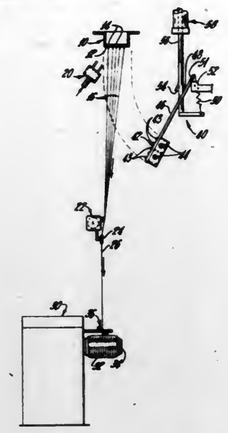
Terry J. Hanna, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Oct. 22, 1979, Ser. No. 86,897
Int. Cl.³ C03B 37/02
U.S. Cl. 65—2 12 Claims

1. A method of glass fiber production from a bushing of the type having an orifice plate with a plurality of closely-spaced orifices and a flat exterior surface comprising:

a. moving a plate member into spaced-apart relationship immediately below the orifice plate of the bushing, the plate member being substantially parallel to and below the entire orifice area of the orifice plate;

b. flowing heat-softened glass through the orifice plate to form a body of heat-softened glass between the plate member and the orifice plate and in engaging contact with the plate member; and



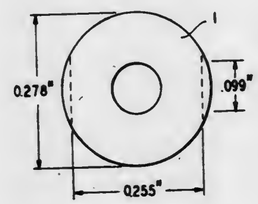
c. moving the plate member with the engaged body of glass from the orifice plate at a rate effective to form fibers.

4,274,854

POLARIZATION-PRESERVING OPTICAL FIBER

William Pleibel, Matawan, and Rogers H. Stolen, Rumson, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Continuation of Ser. No. 869,365, Jan. 13, 1978, abandoned. This application Nov. 6, 1979, Ser. No. 91,699
Int. Cl.³ C03B 37/00; C03C 25/02
U.S. Cl. 65—2 14 Claims



1. A method of making an optical fiber comprising the steps of:

fabricating a substrate tube having a wall with an outer surface and an inner surface of predetermined shape, the distance between said outer surface and said inner surface being the thickness of said wall,

depositing at least one cladding layer on the interior of said substrate tube by a vapor deposition process.

depositing a core layer on the interior of said at least one cladding layer by a vapor deposition process,

radially collapsing said substrate tube by a heating process to form an optical preform, and

drawing an optical fiber from said preform,

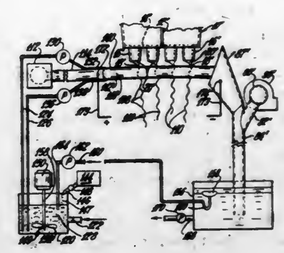
characterized in that said step of fabricating causes the thickness of the wall of said substrate tube to be substantially nonuniform in thickness, said nonuniformity in thickness being arranged about said wall so that maxima and minima of said thickness lie in planes which are substantially orthogonal, whereby said steps of collapsing said substrate tube and drawing an optical fiber from said preform form a polarization-preserving optical fiber.

4,274,855

METHOD AND APPARATUS FOR FORMING AND TREATING KINKY FIBERS FROM GLASS

Robert G. Russell, Granville, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Jan. 21, 1980, Ser. No. 114,030
Int. Cl.³ C03B 37/02; C03C 25/02
U.S. Cl. 65—2 14 Claims



1. The method of forming fibers of heat-softened glass including flowing streams of glass in a row from a feeder, attenuating the streams of glass to fibers, impinging a coherent stream of liquid against the glass streams to effect successive distortions of the glass streams, conveying current-conducting material in particulate form in the stream of liquid, establishing electrical potential in the stream of liquid whereby the potential causes micro arcing between adjacent current-conducting particles to effect a modification of the surfaces of the attenuated fibers, and cooling the glass streams at the distortions by the stream of liquid to form successive permanent bends in the attenuated fibers.

4,274,856

METHOD FOR DEVELOPING A RELEASE SURFACE ON A GLASS MOLD

William I. Frey, Cartisville, and William R. Beestrice, New Kensington, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 31, 1979, Ser. No. 108,931
Int. Cl.³ C03B 23/023
U.S. Cl. 65—24 6 Claims

1. A method for producing a non-transferring release surface on a glass substrate comprising the steps of:

a. treating a glass substrate with a combination of methylchlorosilane and water vapor for a sufficient time to form a film on the glass surface, wherein said film comprises an oily residue; and

b. cleaning the treated surface with a polar solvent to remove said residue.

4,274,857

TREATING COVERS FOR PRESS BENDING MOLDS, AND METHOD OF PRESS BENDING GLASS SHEETS

Terry L. Wolfe, Tyrone, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 2, 1979, Ser. No. 90,727
Int. Cl.³ C03B 23/03
U.S. Cl. 65—26 8 Claims

1. An apparatus for shaping a glass sheet having a portion of at least one surface painted wherein the apparatus is of the type having at least one shaping mold having a shaped surface; a cover of flexible fiber fabric on the shaping surface of the at least one shaping mold, the cloth having a normal dimensional yielding ability and means for transferring the sheet to the at least one shaping mold, the improvement comprising:

at least the portion of the fabric expected to contact the painted portion of the sheet coated with a boron nitride composition with a thickness sufficient to prevent transfer

of the paint from the painted portion of the sheet to the cover and at a thickness to permit the cloth to maintain its normal dimensional yielding ability.

4. A method of shaping a glass sheet having a portion of at least one surface painted, comprising the steps of:

providing at least one shaping mold having a flexible fiber fabric over the shaping surface, the fabric having a normal dimensional yielding ability;

coating at least the portion of the fabric to contact the painted portion of the sheet with a boron nitride composition with a thickness sufficient to prevent transfer of the paint from the painted portion of the sheet to the fabric and at a thickness to permit the fabric to maintain the normal dimensional yielding ability;

heating the sheet to its shaping temperature;

positioning the heated sheet on the fabric with the painted portion of the sheet overlying the coated portion of the fabric;

shaping the sheet; and

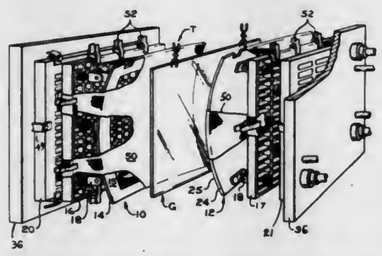
removing the sheet from the shaping mold.

4,274,858

MOLDS FOR PRESS BENDING GLASS SHEETS

George R. Claassen, New Kensington, and Raymond J. Mickelic, Springdale, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jan. 28, 1980, Ser. No. 115,965
Int. Cl.³ C03B 23/03
U.S. Cl. 65—273 7 Claims



1. Apparatus for press bending a heat-softened glass sheet by pressurized engagement thereagainst comprising:

1. a metal member deformable in the direction of its thickness and having a shaping surface whose shape approximates that of the shape desired for the glass sheet after bending and having sufficient rigidity to resist deformation during pressurized engagement against a heat-softened glass sheet,

2. a relatively rigid member more rigid that said metal member located in spaced relation behind and in facing relation to said metal plate, and comprising a grate with a plurality of elongated openings therein,

3. adjustable attachment means distributed in spaced relation throughout the area of said deformable member and said relatively rigid member by which the shape of said deformable member may be altered, and

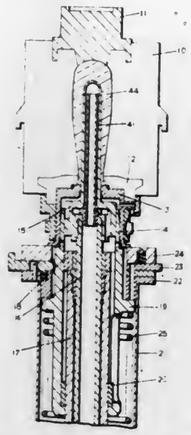
4. an organic thermosetting adhesive bonding said adjustable attachment means to the rear surface of said deformable metal member.

4,274,859

PLUNGER OPERATING MECHANISM FOR A GLASS FORMING MACHINE

Eustace H. Mumford, Ottawa Lake, Mich., assignor to Owens-Illinois, Inc., Toledo, Ohio

Filed Feb. 19, 1980, Ser. No. 122,409
Int. Cl.³ C03B 11/16
U.S. Cl. 65—314 9 Claims



1. Apparatus for pressing mold charges into parisons wherein the mold charge is delivered to a parison and a baffle is seated on the upper end of the mold and a neck ring carried at the lower end of the mold with a coaxially positioned plunger supported for axial movement through said neck ring into the interior of the parison mold by operation of a reciprocating motor, the improvement in the plunger operating motor comprising:

a first piston;

a rod connected to said first piston;

a second piston;

a hollow rod connected to said second piston;

said first piston positioned within a first cylinder formed in said second piston;

said rod being coaxial with respect to said hollow rod and said plunger mounted to said rod;

a second cylinder surrounding said second piston whereby high pressure fluid introduced to said second cylinder will move both pistons resulting in the plunger moving into the mold charge with a lower force.

4,274,860

METHOD FOR STIMULATING GROWTH IN FOLIAGE PLANTS

William C. Firth, Jr., Robbinsville, N.J., assignor to Union Camp Corporation, Wayne, N.J.

Continuation-in-part of Ser. No. 924,146, Jul. 13, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 109,794
Int. Cl.³ C05F 11/02
U.S. Cl. 71—24 4 Claims

1. A method of stimulating the growth of foliage plants selected from those of the group consisting of Calethea, Chamaedorea and Philodendron, which comprises; potting the plants in a conventional foliage plant potting media which includes as an active ingredient from 0.1 to 10 percent by volume of the potting media, of a humate, said humate being characterized in part by a carbon to hydrogen ratio (weight to weight) of from 9.5–17.5:1.0, a carbon to oxygen ratio of 1.0–2.0:1.0; an aluminum content of 2.8 to 8.4 percent by weight; a titanium content of 0.5 to 1.5 percent by weight and a calcium content of less than 0.5 percent by weight provided that when the plant selected is Calethea, the percentage of active ingredient is within the range of 1.5 to 10.0 percent and when the plant selected is Chamaedorea, the percentage of active ingredient is within the range of 0.1 to 5 percent and when the plant selected is Philodendron, the percentage of active ingredient is within the range of 0.1 to 10 percent.

4,274,861

PLANT GROWTH STIMULANT

Alan Henderson, Gleadora, and L. E. Chamblee, Greenwood, both of Miss., assignors to Inter Chem, Ltd., Greenwood, Miss.

Continuation-in-part of Ser. No. 919,483, Jun. 27, 1978, abandoned, which is a continuation of Ser. No. 737,484, Nov. 1, 1976, abandoned. This application Apr. 26, 1979, Ser. No. 33,672
Int. Cl.³ A01N 37/38, 31/02
U.S. Cl. 71—117 13 Claims

1. A method for increasing stage of the growth cycle an aqueous composition comprising from about 60 to about 120 ppm by weight active 2,4-D Herbicide, from about 10,000 to about 80,000 ppm by weight lower aliphatic alcohol, a surfactant and an adhering agent each in amounts of from about 10 to about 10,000 ppm.

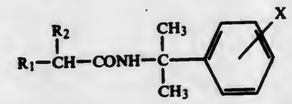
4,274,862

N-DIMETHYLBENZYLACETAMIDE DERIVATIVES, AND THEIR PRODUCTION AND USE

Osamu Kirino, Ashiya; Shunichi Hashimoto, Toyonaka; Hiroshi Matsumoto, Takarazuka, and Hiromichi Oshio, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 7, 1979, Ser. No. 91,871
Claims priority, application Japan, Nov. 13, 1978, 53-140071; Nov. 15, 1978, 53-141412
Int. Cl.³ C07C 103/737, 103/375, 103/38; A01N 9/20
U.S. Cl. 71—118 14 Claims

1. A compound of the formula:



wherein X is a hydrogen atom, a methyl group, a methoxy group or a chlorine atom, R_1 is a C_2–C_7 alkyl group or a C_5–C_7 cycloalkyl group and R_2 is a hydrogen atom, a halogen atom, a C_1–C_4 alkyl group or a methoxy group, or when R_1 and R_2 are taken together, they represent a C_4–C_6 alkylene group, provided that when R_1 is a tertiary alkyl group, R_2 does not represent a halogen atom.

14. A method for controlling weeds which comprises contacting the weeds with a herbicidally effective amount of at least one of the N-dimethylbenzylacetamide derivatives according to claim 1.

4,274,863

METHOD OF TREATING POLLUTANT-LADEN GASES, ESPECIALLY FROM A STEEL-MAKING OR COKING PLANT

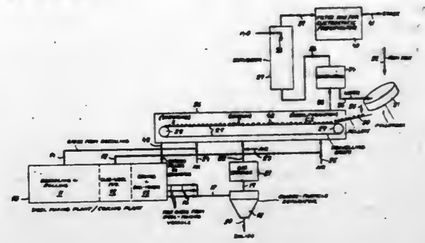
Paul Metz, Luxembourg, Luxembourg, assignor to Arbed S.A., Luxembourg, Luxembourg

Filed Dec. 22, 1978, Ser. No. 972,348
Claims priority, application Luxembourg, Dec. 30, 1977, 78900
Int. Cl.³ C22B 1/20
U.S. Cl. 75—5 6 Claims

1. A method of treating pollutant-laden gases from a metallurgical plant which produces a number of such gases of different compositions, said method comprising the steps of:

(a) transporting all of said gases from said plant to a central cleaning station;

(b) passing the gases at said central cleaning station in admixture in at least one stream through an incandescent mineral bed in the form of a sintered cake of an ore-sintering plant whose combustion air is at least partly replaced by at least some of the pollutant-laden gases from said metallurgical plant;



(c) obtaining gases after passage through said bed and subjecting the obtained gases to a supplementary cleaning in a further gas-cleaning station forming part of said sintering plant; and

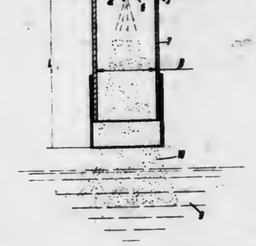
(d) condensing water from gases derived from said bed and using the condensed water as a moisturizer for a mixer or pelletizer of the sintering plant.

4,274,864

MAKING IRON POWDER

Dieter Bernhardt, Düsseldorf; Norbert Dautzenberg, Wegberg; Richard Lummer, Jüchen, and Georg Huber, Monchen-Gladbach, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Feb. 7, 1979, Ser. No. 10,146
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1978, 2806716
Int. Cl.³ B22F 1/04
U.S. Cl. 75—0.5 R 6 Claims



1. Method of making an iron powder of high compressibility and low bulk density by means of atomizing a stream of molten steel, comprising the steps of:

providing a conical jet of water at a water pressure prior to jet formation in excess of 80 bars and at a rate in excess of 10 cubic meters water per metric ton of steel, the cone of the jet having an angle so that the water impinges upon the stream at an angle between 40° and 60°;

providing air suction in a region upstream from the cone, adjacent to the stream at a pressure of 0.02 to 0.20 bars below ambient;

annealing the powder in a reducing atmosphere at a temperature from 1,000° C. to 1,200° C.; and

breaking a resulting cake to obtain a powder having a particle size distribution with a higher content of larger parti-

cles than the powder immediately resulting from the atomization.

4,274,865

PRODUCTION OF MAGNETIC POWDER

Shintaro Suzuki; Sadao Iizuka, both of Shibukawa; Yoshimi Moriya, Gunma, and Yuichi Omote, Shibukawa, all of Japan, assignors to Kanto Denka Kogyo Co., Ltd., Tokyo, Japan

Filed Mar. 7, 1979, Ser. No. 18,115
Claims priority, application Japan, Mar. 16, 1978, 53/30150
Int. Cl.³ B22F 9/18
U.S. Cl. 75—0.5 AA 20 Claims

1. A process for producing a magnetic powder consisting essentially of acicular iron powders and containing at least one metal selected from the group consisting of zinc, chromium and copper suitable for magnetic recording which comprises the steps of

(a) treating a finely divided starting material selected from the group consisting of (i) iron oxyhydroxide, (ii) iron oxyhydroxide containing a doping component selected from Co, Mn, Ni, Ti, Bi, Mo, Ag, Cr, Zn, Si, Al and mixtures thereof, (iii) iron oxides and (iv) iron oxides containing a doping component selected from Co, Mn, Ti, Bi, Mo, Ag, Cr, Zn, Si, Al and mixtures thereof, with an aqueous (i) solution or (ii) suspension of an applied metal compound selected from the group consisting of zinc, chromium and copper compounds and mixtures thereof or a mixture of said aqueous solution and said aqueous suspension so that said applied metal compound is applied to said starting material,

(b) filtering the thus treated material off the liquid medium to form a cake and drying said cake, and

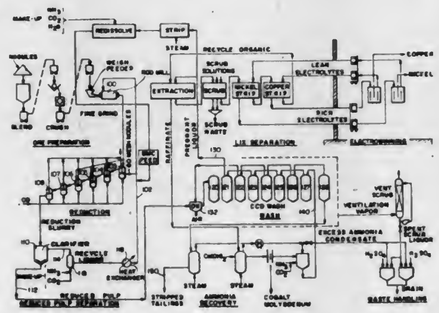
(c) reducing said dry cake in a reducing gas stream at a temperature up to about 600° C. to form an acicular magnetic powder consisting essentially of iron and said applied metal selected from the group consisting of zinc, chromium and copper and mixtures thereof.

4,274,866

FLOTATION AND SINTERING OF SYNTHETIC MANGANESE CARBONATE

Ralph W. M. Lai, Lexington, Mass., and Edwin L. Owen, San Antonio, Tex., assignors to Kennecott Copper Corporation, New York, N.Y.

Continuation of Ser. No. 927,273, Jul. 24, 1978, abandoned. This application Nov. 5, 1979, Ser. No. 91,077
Int. Cl.³ B03D 1/02; C22B 1/16
U.S. Cl. 75—5 6 Claims



1. A process for recovering a ferromanganese product from manganese nodules comprising the following steps:

a. reducing the manganese oxides in the nodules to enable non-manganese and non-iron metal values to be leached;

b. leaching non-manganese and non-iron metal values;

c. reacting the manganese to form a crystalline manganese carbonate phase which is distinct from a remaining phase;

d. froth floating the crystalline manganese carbonate phase and the remaining phase in a froth flotation cell to separate the crystalline manganese carbonate from the remaining phase, said froth flotation being performed in the presence of a fatty acid as a collector and sodium silicate as a dispersant, at a temperature between the range of 55°–80° C. and at a pH of 6.6 to 8.4;

e. withdrawing the crystalline manganese carbonate from the top of the flotation cell to collect a manganese concentrate; and

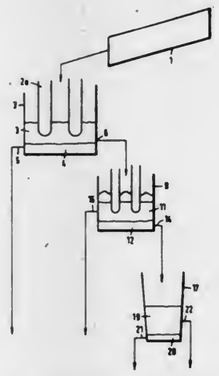
f. sintering the manganese concentrate to produce a ferromanganese product.

4,274,867

METHOD FOR PRODUCING LOW-CARBON STEEL FROM IRON ORES CONTAINING VANADIUM AND/OR TITANIUM

Friedrich Bardenheuer, Krefeld; Horst Konig, Duisburg; Alois Junker, Dusseldorf, and Gero Rath, Mulheim, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Sep. 4, 1979, Ser. No. 72,186
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1978, 2847403
Int. Cl.³ C21C 5/52
U.S. Cl. 75—13 6 Claims



1. A method of producing low carbon steel having a relatively high vanadium concentration from iron ore containing vanadium, comprising the steps of:

(a) pre-reducing said iron ore in a pre-reduction oven;

(b) lining an electro-slag resistance furnace with a refractory material selected according to the desired composition of the molten slag layer;

(c) charging said pre-reduced iron ore together with carbon carriers, the quantity of said carbon carriers being only slightly in excess of the stoichiometric quantity required to reduce said iron ore into said electro-slag resistance furnace;

(d) smelting said pre-reduced iron ore and carbon carriers in said electro-slag resistance furnace to produce steel having a relatively low vanadium concentration and a slag layer containing both vanadium and a relatively low concentration of iron oxides;

(e) tapping said steel from said electro-slag resistance furnace;

(f) separately tapping said slag layer from said electro-slag resistance furnace;

(g) charging said tapped slag layer into an electro-reduction furnace; and

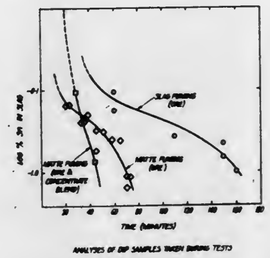
(h) processing said tapped slag layer in said electro-reduction furnace into smelted crude iron having a relatively high vanadium concentration.

4,274,868

RECOVERY OF TIN FROM ORES OR OTHER MATERIALS

William T. Denholm, Camberwell, and Kevin A. Foo, Carnegie, both of Australia, assignors to Commonwealth Scientific and Industrial Research Organization and Aberfoyle Services Pty. Ltd., both of, Australia

Continuation-in-part of Ser. No. 841,388, Oct. 12, 1977, abandoned. This application Aug. 9, 1979, Ser. No. 65,274
Int. Cl.³ C01G 19/00, 19/02
U.S. Cl. 75—21 12 Claims



1. A process for extracting tin values from a tin bearing iron sulphide ore containing silica, comprising charging said ore in particulate form into a refractory-lined reactor containing a pool of molten matte under temperature conditions such that said iron sulphides in said ore become molten and enter the matte pool, blowing oxidizing gas through the matte pool to oxidize said added iron sulphides thus producing iron oxide and generating the heat and gases required to smelt the charge and drive off the tin values from the charge in the form of volatile sulphides and oxides, said iron oxide combining with silica in the charge to form a layer of molten slag which floats on the matte bath, the conditions in the reacting mass being such that the oxidizing gas blown into the reactor always comes first into contact with the bottom pool of molten matte, the pool of molten matte being maintained in the reactor to act as a chemical buffer to stabilize the oxygen and sulphur partial pressures of said gases in a suitable range to sulphidize and volatilize the tin in the charge, withdrawing and collecting the volatilized tin values and withdrawing tin-depleted slag from the reactor.

4,274,869

DESULPHURIZATION OF METALS

Jan O. Kristiansen, Olmsted Falls, and C. Richard Lynham, Medina, both of Ohio, assignors to Foseco International Limited, Birmingham, England

Filed Apr. 21, 1980, Ser. No. 141,816
Claims priority, application United Kingdom, Apr. 19, 1979, 13616/79
Int. Cl.³ C21C 7/02
U.S. Cl. 75—53 20 Claims

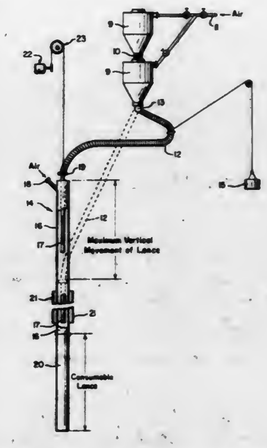
1. A method of desulphurising a molten ferrous metal selected from the group consisting of steel and iron comprising treating the molten metal with a composition in compacted form comprising lime, a metal fluoride selected from the group consisting of alkali metal and alkaline earth metal fluorides, and ballmill dust.

4,274,870

SMELTING OF COPPER CONCENTRATES BY OXYGEN INJECTION IN CONVENTIONAL REVERBERATORY FURNACES

John C. Yannopoulos, Danbury, Conn., assignor to Newmont Exploration Limited, Danbury, Conn.

Filed Apr. 25, 1979, Ser. No. 33,208
Int. Cl.³ C22B 15/00
U.S. Cl. 75—73 9 Claims



1. A process for the production of copper matte from finely-divided sulfidic iron-bearing copper concentrates by smelting in a conventional reverberatory furnace, for increasing the thermal efficiency of such furnace and for increasing the concentration of sulfur dioxide in the gas emanating from such furnace, which comprises establishing a molten cupriferous bath in such furnace, disposing a plurality of consumable lances vertically through the furnace roof adjacent the end of the furnace opposite the flue, the discharge end of each lance being positioned adjacent the surface of the molten bath, and wherein each lance is mounted for downward movement at substantially the rate at which its lower end is consumed in consequence of its proximity to the molten bath, and for retraction to above the furnace roof for repair when its lower end has been consumed, projecting a stream of said concentrates admixed with slag-forming agents together with a current of substantially pure oxygen through said lances with sufficient force to agitate the bath, whereby said concentrates are smelted to form matte and slag in the bath, maintaining the molten bath relatively quiescent in that portion of the furnace adjacent the flue, and withdrawing matte and slag separately from the bath where it is relatively quiescent.

4,274,871

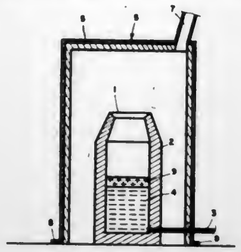
METHOD OF OBTAINING MANGANESE ALLOYS WITH A MEDIUM CARBON CONTENT

Michel Demange, and Louis Septier, both of Le Fayet, France, assignors to Societe Francaise d'Electrometallurgie-Sofrem, Paris, France

Filed Dec. 31, 1979, Ser. No. 108,844
Claims priority, application France, Jan. 22, 1979, 79 02574
Int. Cl.³ C22B 47/00
U.S. Cl. 75—134 M 14 Claims

1. A method of obtaining alloys based on manganese having a medium carbon content of from 0.5 to 2% by decarburization with a minimum loss of manganese, comprising decarburizing a bath of liquid ferro-manganese, containing from 3 to 8% of carbon and 0 to 7% of silicon, by the action of an oxidizing

agent in a reactor, characterized in that the oxidizing agent is introduced in the lower part of the bath of liquid ferro-manganese and maintaining the bath at a pressure above 1.5 bars during the decarburization reaction.



4,274,872

BRAZABLE SHAPE MEMORY ALLOYS

Keith Melton, Busslingen, and Olivier Mercier, Ennetbaden, both of Switzerland, assignors to BBC Brown, Boveri & Company, Baden, Switzerland

Filed Jun. 25, 1979, Ser. No. 51,747

Claims priority, application Switzerland, Aug. 10, 1978, 8508/78

Int. Cl.³ C22C *9/04*

U.S. Cl. 75—157.5 **2 Claims**

1. A brazable shape memory alloy of the β-brass type comprising a mixture of copper, zinc, aluminum and nickel wherein said alloy comprises about 0.5 to about 4 wt. % nickel, 6 to 15 wt. % aluminum, 1 to 25 wt. % zinc and 65 to 85 wt. % copper; and wherein the total amount of aluminum and zinc is greater than or equal to 15 wt. % and less than or equal to 31 wt. %.

4,274,873

DISPERSION STRENGTHENED METALS

Anil V. Nadkarni, Mentor, Ohio, assignor to SCM Corporation, New York, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,554

Int. Cl.³ B22F *3/00*

U.S. Cl. 75—211 **10 Claims**

1. In a process for dispersion strengthening metal including the steps of providing atomized powdered metal alloy of a relatively noble matrix metal and a solute metal, the matrix metal having a relatively low negative free energy of oxide formation and the solute metal having a relatively high negative free energy of oxide formation, and the step of internally oxidizing said powdered alloy, the improvement comprising:

providing atomized alloy metal particles having a particle size up to about 1000 microns to provide a first fraction of alloy metal particles between about 37 and 180 microns and a second fraction of oversize alloy metal particles larger than about 180 microns;

separating the second fraction of oversize alloy metal particles from the first fraction of alloy metal particles;

flattening said oversize metal particles to provide flaked alloy metal particles having a flake thickness less than about 180 microns;

mixing said flaked alloy metal particles with at least a portion of said first fraction of atomized alloy metal particles to provide a powdered alloy metal mixture of the first fraction atomized alloy particles and flaked alloy metal particles, said mixture containing by weight between about 20% and 80% of said flaked alloy metal particles;

consolidating said internally oxidized alloy metal mixture to provide a dispersion strengthened metal product.

10. The process for dispersion strengthening metal including the steps of providing atomized powdered metal alloy of a relatively noble matrix metal and a solute metal, the matrix metal having a negative free energy of oxide formation at 25° C. of up to 70 kilocalories per gram atom of oxygen, said solute metal having a negative free energy of oxide formation exceeding the negative free energy of oxide formation of said matrix metal by at least about 60 kilocalories per gram atom of oxygen at 25° C., the improvement comprising:

providing alloy metal particles having a particle size up to about 1000 microns to provide a first fraction of alloy metal particles less than about 180 microns and a second fraction of oversize alloy metal particles larger than about 180 microns;

separating the second fraction of oversize alloy metal particles from the first fraction of alloy metal particles;

flattening said oversize metal particles to provide flaked alloy metal particles having a flake thickness less than about 180 microns; and

mixing said flaked alloy metal particles with at least a portion of said first fraction of alloy metal particles to provide a powdered alloy metal mixture of the first fraction atomized alloy particles and flaked alloy metal particles, said mixture containing between about 20% and 80% by weight of said flaked alloy metal particles adapted to be dispersion strengthened.

4,274,874

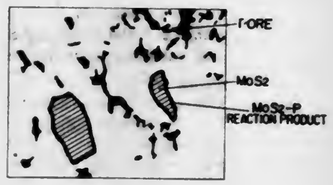
COPPER-TIN TYPE SINTERED ALLOY FOR OIL-IMPREGNATED BEARING EXCELLENT IN BEARING PERFORMANCE AS BEARING USED IN LOW-LOAD AND HIGH-VELOCITY REGION

Kunio Obara; Tohru Kohno, both of Urawa, and Hiroshi Sawaguchi, Ageo, all of Japan, assignors to Mitsubishi Kinzoku Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 21, 1979, Ser. No. 77,579

Int. Cl.³ B22F *5/00*

U.S. Cl. 75—231 **3 Claims**



1. A copper-tin type sintered alloy for an oil-impregnated bearing excellent in bearing performance particularly as a bearing used in low-load and high-velocity region, having a chemical composition consisting of, in weight percentage:

Tin	from 8 to 11%;
Phosphorus	from 0.2 to 1.7%;

at least one solid lubricant, having an average particle size of from 20 to 80 μm, selected from the group consisting of:

Molybdenum disulfide	from 1.1 to 11%,

-continued

and	
Tungsten disulfide	from 1.7 to 17%,

where,

the total amount of molybdenum disulfide and tungsten disulfide being up to 17%;

and

the balance copper and incidental impurities; and

said sintered alloy being prepared by sintering a green compact having said chemical composition at a temperature of from 650° to 750° C. for 10 to 30 minutes.

4,274,875

POWDER METALLURGY PROCESS AND PRODUCT

Terence M. Cadle, Coventry, and Martyn S. Lane, Nuneaton, both of England, assignors to Brico Engineering Limited, Coventry, Great Britain

Filed Jul. 19, 1978, Ser. No. 926,038

Claims priority, application United Kingdom, Jul. 20, 1977, 30361/77

Int. Cl.³ B22F *3/00*

U.S. Cl. 75—232 **4 Claims**

1. A sintered iron-based metal product suitable for use in wear-resistant applications, and produced by a process comprising:

(a) selecting an iron-based metal powder;

(b) adding powdered mica to the metal powder;

(c) mixing the metal powder and the mica powder;

(d) compacting the resulting mixture; and

(e) sintering the compacted powder.

4,274,876

SINTERED HARD METALS HAVING HIGH WEAR RESISTANCE

Yujiro Kodama; Nobuhito Kuroishi; Masato Sabao, and Yasumasa Kureha, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Feb. 26, 1979, Ser. No. 15,178

Claims priority, application Japan, Mar. 8, 1978, 53-27123

Int. Cl.³ B22F *5/00*

U.S. Cl. 75—243 **4 Claims**

1. Sintered hard metals having high wear resistance and consisting essentially of Ni: 0.5–10%, Cr: 0.2–5%, Mo: 4–12% and C: 0.7–2.0%, each by weight, the remainder being iron.

4,274,877

METAL POWDERS

Owen N. Collier, and Stephen J. Hackett, both of Reading, England, assignors to Johnson, Matthey & Co., Limited, London, England

Continuation-in-part of Ser. No. 702,727, Jul. 6, 1976, Pat. No. 4,130,506. This application Nov. 20, 1978, Ser. No. 962,790

Claims priority, application United Kingdom, Jul. 4, 1975, 28264/75

Int. Cl.³ B22F *1/02*

U.S. Cl. 75—252 **5 Claims**

1. A metal refractory composite powder suitable for use at high temperatures comprises an intimate mixture, other than a mere physical admixture, of particles of platinum, palladium, rhodium, ruthenium, iridium, osmium, gold or silver, or an alloy containing one or more of said metals, and particles of a refractory material, the particles of refractory material being positively charged over at least a portion of the surface thereof, the refractory material being naturally-occurring and being selected from the group consisting of clays, silica, alumina, titania, zirconia, bentonite, boehmite and sol-gel or mixtures thereof; the particle size of the metal component of the powder having a size falling within the range 0.2 to 2.0 microns and the percentage by weight of the refractory material in the powder being within the range 10 to 25%.

4,274,878

SULPHIDE PELLET MATERIALS

James A. Charles, Stapleford, England, assignor to Metallurgical Processes Limited and I.S.C. Smelting, both of, The Bahamas

Division of Ser. No. 54,872, Jul. 5, 1979, Pat. No. 4,231,791. This application May 12, 1980, Ser. No. 148,958

Claims priority, application United Kingdom, Jul. 5, 1978, 28729/78

Int. Cl.³ B22F *1/02*

U.S. Cl. 75—256 **3 Claims**

1. A composite pellet which is substantially spherical in shape and has a central core predominantly of lead sulphide and an outer shell predominantly of zinc sulphide.

4,274,879

SYNTHETIC BONE ASH

George D. Irvine, Greenock, Scotland, assignor to Tate & Lyle Limited, London, England

Continuation of Ser. No. 16,951, Mar. 5, 1979, abandoned. This application Jun. 3, 1980, Ser. No. 156,052

Int. Cl.³ C01B *15/16, 25/26*; C04B *35/00*

U.S. Cl. 106—39.5 **13 Claims**



1. A process for producing a hydroxyapatite which has less than 5% by weight content of orthophosphates which comprises contacting a stream of a slurry of hydrated lime with a stream of at least about 60% by weight phosphoric acid at an approximately stoichiometric ratio of 10 $Ca(OH)_2$ to 6 H_3PO_4 at a temperature of from about 80° to about 85° C. at a controlled substantially constant reaction mixture pH value which is in the range of from about 9.0 to about 11.0 by continuously introducing said streams into and withdrawing the resulting mixture from a reaction zone wherein the precipitated particulate hydroxyapatite resulting from said contacting is separated from said reactants and wherein the residence time in said reaction zone is up to 90 minutes.

4,274,880

TREATMENT OF HAZARDOUS WASTE

Christopher L. Chappell, Lichfield, England, assignor to Stablex A.G., Zug, Switzerland

Filed Oct. 30, 1979, Ser. No. 89,410

Claims priority, application United Kingdom, Nov. 8, 1978, 43654/78

Int. Cl.³ C04B *7/35*

U.S. Cl. 106—90 **8 Claims**

1. A method of treating an oily waste which is immiscible with water characterised by the step of mixing the oily waste with a solid substance capable of absorbing or adsorbing oil and a liquid hazardous waste capable of being contained in an

aqueous slurry and by the step of adding to the mixture a calcium-containing cement and aluminium silicate and/or an alumino-silicate thereby forming a flowable slurry which sets into a detoxified rock-like mass.

4,274,881

HIGH TEMPERATURE CEMENT

Christine A. Langton, 523 S. Atherton St., and Della M. Roy, 528 S. Pugh St., both of State College, Pa. 16801

Filed Jan. 14, 1980, Ser. No. 111,644
Int. Cl.³ C04B 7/02
U.S. Cl. 106—98 **16 Claims**

1. A high temperature, curable cement suitable for use in deep wells comprising:

serpentine which has been calcined sufficiently to form an aggregate reactive in the presence of calcium silicate and silica under hydrothermal curing conditions, said reactive matter comprising at least one of forsterite, enstatite or amorphous material;

fine grain silica of less than about 50 μm particle size; and at least one of dicalcium or tricalcium silicate

wherein said calcined serpentine, silica and silicate are present in amounts sufficient to form a hydrothermally crystallized diopside phase when said cement is cured at a temperature of 120° to 440° C. and a pressure of 30 to 30,000 psi for at least one day, said cement containing no more than 2% asbestos fibers.

4,274,882

FORMULATION CONTAINING TRINIDAD ASPHALT FOR MORE DUCTILE ASPHALTIC CONCRETE PAVEMENTS

LeRoy H. McAllister, Jr., R.R. 1, Zionsville, Ind. 46077

Continuation-in-part of Ser. No. 974,359, Dec. 29, 1978, abandoned, which is a continuation-in-part of Ser. No. 718,892, Aug. 30, 1976, abandoned. This application Apr. 9, 1980, Ser. No. 138,595
Int. Cl.³ C08L 95/00
U.S. Cl. 106—280 **17 Claims**

1. An asphaltic concrete, comprising a blended Trinidad asphalt cement, formed from 10% to 50% Trinidad asphalt and 50% to 90% refinery asphalt, said percentages being by weight of the resulting blended Trinidad asphalt cement, in combination with an aggregate mixture selected from one of the following, the total mixture being prepared at a temperature above 212° F., and the blended Trinidad asphalt cement being used in a weight percentage of from 4.0% to 8.0% of the pavement mixture:

Aggregate Sieve Size (Passing)	Type I	Type II
Passing ¾"	100	
Passing ½"	98–100	100
Passing ⅜"		98–100
No. 8 (Retained on)	40–60	30–50
Passing 200 mesh	3–8	3–9.

4,274,883

AQUEOUS DISPERSION OF A HYDROPHOBIC SILICA

Gerd Lumbeck, Hanau, and Horst Ferch, Bruchkobel, both of Fed. Rep. of Germany, assignors to Deutsche Gold- und Silber Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Sep. 18, 1979, Ser. No. 76,723
Claims priority, application Fed. Rep. of Germany, Oct. 10, 1978, 2844052
Int. Cl.³ C09C 3/12
U.S. Cl. 106—308 Q **8 Claims**

1. An aqueous dispersion consisting essentially of 0.1 to 50 parts of hydrophobic silica, 0 to 3 parts of wetting agent and 99.9 to 50 parts of water, the hydrophobic silica being either a pyrogenic silica hydrophobized with a silane or a precipitated silica hydrophobized with a silane.

4,274,884

METHOD OF REMOVING WALLPAPER

Jeffery Cartwright, Newton Abbot, England, assignor to Sterling Winthrop Group Limited, London, England

Continuation-in-part of Ser. No. 875,930, Feb. 7, 1978, abandoned. This application May 2, 1979, Ser. No. 35,299
Claims priority, application United Kingdom, Jul. 30, 1977, 32100/77
Int. Cl.³ B08B 7/04
U.S. Cl. 134—4 **19 Claims**

1. A method for removing, from a supporting surface, wallpaper having a surface coating of emulsion paint containing a plastics binder resin, wherein said method includes the steps of:

applying an emulsion-painted wallpaper remover to said surface coating,

leaving said wallpaper remover to plasticize said binder resin to form a cohesive, pliable paint film and thereafter,

scoring said paint film and underlying paper with a sharp instrument,

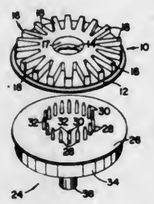
raising the edge of said paint film and adhering paper adjacent the score mark and pulling the raised edge away from said supporting surface to remove a strip of said paint film and adhering paper progressively from said surface, said wallpaper remover consisting essentially of: at least one organic compound capable of plasticizing said plastics resin, each said at least one compound having a flash point above 35° C., a boiling point above 120° C. and an evaporation number greater than 30, based on the evaporation number of diethyl ether being 1; an emulsifying agent; and a thickening and suspending agent.

4,274,885

METHOD FOR WASHING CENTRIFUGAL ANALYZER TEST DISKS

Bobbye J. Swartout, Rte. 2 Box 326, Etowah, Tenn. 37331

Filed Jul. 19, 1979, Ser. No. 59,119
Int. Cl.³ B08B 5/04
U.S. Cl. 134—21 **2 Claims**



1. The method of washing a centrifugal analyzer test disk having a multiplicity of radially extending test cells, each cell having a first and a second radially spaced aperature communicating with the cell interior, said method comprising:

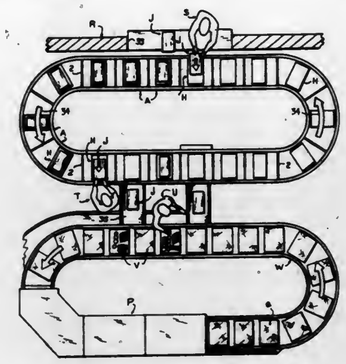
inserting into one of the first and second apertures of each cell a finger having a through bore so the bore is in flow communication with the respective cell, immersing said disk in a bath of washing solution so the solution may enter the other of said first and second apertures, and applying to the fingers a pressure lower than that of the bath to draw said solution through the cells with the fingers.

4,274,886

MOTOR DRIVEN ENDLESS TRAY ACCUMULATOR FOR DISHWASHING

Tore H. Noren, 3200 Lakeville Hwy., Petaluma, Calif. 94952

Filed Jul. 31, 1979, Ser. No. 62,293
Int. Cl.³ B08B 3/04
U.S. Cl. 134—25.2 **3 Claims**



1. The herein described steps in the method of:

(a) placing a plurality of trays with soiled dishware at random intervals in a succession of racks of an endless train of racks that are continuously moving about a closed loop;

(b) removing the trays from their racks at a station along the train of racks and transferring them to a second and adjacent endless train of moving dollies;

(c) moving these dollies with their soiled trays and dishware through a dishwashing area for removal as clean trays and dishware, any trays and dishware not being removed from the tray racks at the station then being moved about said closed loop to return the remaining trays and dishware to said station; and

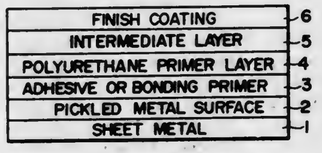
(d) removing these remaining trays and dishware and transferring them to the endless train of dollies for washing them.

4,274,887

LACQUER COATED METAL SURFACE

Dieter Pogoda, Hamburg, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 680,903, Apr. 28, 1976. This application Aug. 20, 1979, Ser. No. 68,056
Claims priority, application Fed. Rep. of Germany, May 2, 1975, 2519559
Int. Cl.³ B32B 15/20, 15/08
U.S. Cl. 148—31.5 **14 Claims**



1. A protected sheet metal comprising a pickled surface, an adhesive primer coating on said pickled surface, a polyurethane primer layer on said adhesive primer coating, an intermediate layer on said polyurethane primer layer and a finish coating on said intermediate layer, said intermediate layer being removable by a process which does not affect said polyurethane primer layer, said finish coating being removable by a process which does not affect said intermediate layer, thereby facilitating the renewal solely of the finish coating and protecting said polyurethane primer layer and the surface below the polyurethane primer layer.

4,274,888

MAGNETIC CORES

Heinrich Schaurbus; Horst Nelle, and Wilhelm Wolf, all of Essen, Fed. Rep. of Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Fed. Rep. of Germany

Filed Sep. 27, 1978, Ser. No. 946,417
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1977, 2744333
Int. Cl.³ C21D 1/04
U.S. Cl. 148—108 **16 Claims**

1. A process for preparing a magnetic core for use with unipolar pulses and having a maximum available flux density change of more than 1 T and have a high pulse permeability, comprising the steps of:

(1) melting an iron-nickel alloy containing from 49 to 56 weight percent nickel;

(2) shaping said melted alloy;

(3) rolling said alloy into a thin tape having a maximum thickness of 0.1 mm;

(4) forming said tape to form a magnetic core;

(5) treating said core in a hydrogen atmosphere at a temperature above 1000° C. for about 3 to 6 hours;

(6) cooling said core to room temperature;

(7) reheating said core to above Curie Point temperature; and

(8) cooling said core in a magnetic field transverse to the direction of the magnetic flux obtained in application.

4,274,889

METHOD FOR PRODUCING SUPERCONDUCTORS

Kyoji Tachikawa, Tokyo; Yoshiaki Tanaka, Sakura; Yuji Yoshida, Sakura, and Toshihiro Asano, Sakura, all of Japan, assignors to National Research Institute for Metals, Tokyo, Japan

Continuation of Ser. No. 10,123, Feb. 7, 1979, abandoned. This application May 20, 1980, Ser. No. 151,758
Claims priority, application Japan, Apr. 3, 1978, 53/38154
Int. Cl.³ H01L 39/24
U.S. Cl. 148—133 **14 Claims**

1. In a method for producing V_3Ga superconductors which comprises forming a composite of a core portion and a sheath portion surrounding said core portion, said sheath portion being composed of a gallium-containing alloy selected from the group consisting of copper-gallium and coppr-silver-gallium alloys, and said core portion being composed of a vanadium metal, elongating said composite, and heat-treating the resulting elongated composite to form a V_3Ga layer between said sheath and core portions; the improvement wherein the gallium-containing alloy has a gallium content of 0.1 to 30 atomic percent and additionally contains at least one metal selected from the group consisting of 0.05 to 5 atomic percent of magnesium, 0.1 to 10 atomic percent of cerium and 0.05 to 10 atomic percent of sodium, and the vanadium metal is a vanadium alloy containing 0.1 to 15 atomic percent of gallium.

4,274,890

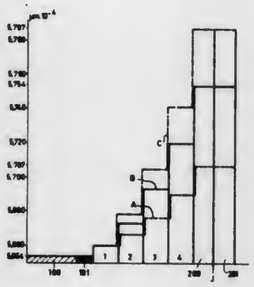
METHOD FOR THE EPITAXIAL MANUFACTURE OF A SEMICONDUCTOR DEVICE HAVING A MULTI-LAYER STRUCTURE

Jacques J. Varon, Troarn, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,257
Claims priority, application France, Sep. 8, 1978, 78 25861
Int. Cl.³ H01L 21/208
U.S. Cl. 148—171 **10 Claims**

1. A method for epitaxial manufacture of semiconductor devices having a multilayer structure consisting of a base semiconductor substrate extending to an upper active surface with

a p-n junction in proximity thereto comprising the steps of forming an epitaxial connection layer on said substrate having a chemical composition substantially identical to said substrate, forming a plurality of successive epitaxial intermediate layers on said connection layer, said intermediate layers being chemically formed by elements of said substrate with at least one additional complementary element, said complementary element in each intermediate layer substantially increasing in amount in each intermediate layer in proportion to distance from said substrate, said substrate having crystal lattice dimensions smaller than those of said intermediate layers, and forming at least one semiconductor layer on said intermediate lay-



ers, said semiconductor layer being chemically formed by elements of said substrate with at least one additional complementary element, said substrate having crystal lattice dimensions smaller than those of said semiconductor layer, wherein the relative increase of said crystal lattice dimensions of a first intermediate layer in closest proximity to said substrate is chosen to be less than 1.2×10^{-3} relative to the crystal lattice dimensions of said substrate, and wherein the relative increase of the crystal lattice dimensions a_n of the nth intermediate layer to the crystal lattice dimensions a_{n-1} of the $n-1$ intermediate layer is chosen to be equal to αn where α is a coefficient between 6×10^{-4} and 1.6×10^{-3}

4,274,891

METHOD OF FABRICATING BURIED INJECTOR MEMORY CELL FORMED FROM VERTICAL COMPLEMENTARY BIPOLAR TRANSISTOR CIRCUITS UTILIZING MONO-POLY DEPOSITION

Victor J. Silvestri, Mount Kisco; Denny D. Tang, Yorktown Heights, and Siegfried K. Wiedmann, Peekskill, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1979, Ser. No. 53,486
Int. Cl.³ H01L *21/20, 21/22*
U.S. Cl. 148—175 **34 Claims**

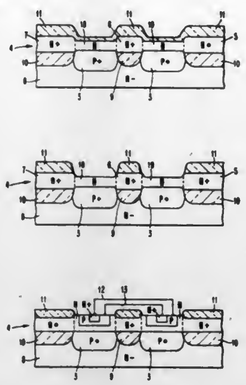
1. A method of manufacturing a semiconductor device having vertical complementary bipolar transistors comprising the steps of:

forming regions of dielectric isolation in contiguous relationship with a semiconductor substrate and a region of semiconductor of one conductivity type between said dielectric isolation regions said substrate being a semiconductor of opposite conductivity type,

depositing a layer of semiconductor material of said opposite conductivity type on said regions of dielectric isolation and on said semiconductor region of one conductivity type to form polycrystalline regions and a single crystal region on said regions of dielectric isolation and on said region of one conductivity type, respectively,

masking said single crystal region of opposite conductivity type,

introducing a dopant of opposite conductivity type into said polycrystalline regions to render said polycrystalline regions conductive, and,



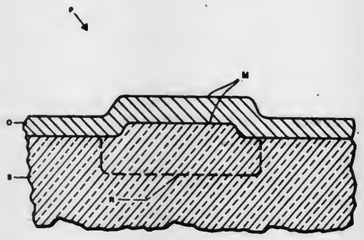
forming a zone of said one conductivity type in said region of single crystal semiconductor and a zone of said opposite conductivity in said zone of said one conductivity type.

4,274,892

DOPANT DIFFUSION METHOD OF MAKING SEMICONDUCTOR PRODUCTS

Alan S. Templin, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Dec. 14, 1978, Ser. No. 969,322
Int. Cl.³ H01L *21/225*
U.S. Cl. 148—188 **4 Claims**



1. The method of making a silicon semiconductor product having a patterned doped region, comprising the steps of:

forming on an unmasked surface of a silicon substrate a patterned layer of polycrystalline silicon doped with a dopant selected from Group III or Group V of the Periodic Table of Elements and surrounded by and rising above a bare surface portion of said substrate; and

heating said substrate and layer in an oxygen environment at a temperature and for a period of time sufficient to concurrently oxidize substantially all the polycrystalline silicon in said layer, diffuse said dopant into said substrate, and consume by oxidation said bare surrounding substrate surface portion, thereby forming a patterned upstanding mesa structure on said substrate and a correspondingly patterned buried doped region below and locationally marked by said mesa structure.

4,274,893

HIGH TEMPERATURE TWO COMPONENT EXPLOSIVE

James E. Mars, Vashon; Donald R. Poole, Woodinville; Eckart W. Schmidt, Bellevue, all of Wash., and Charles Wang, Lafayette, Ind., assignors to Rocket Research Company, Redmond, Wash.

Filed Mar. 26, 1979, Ser. No. 23,786
Int. Cl.³ C06B *45/00*
U.S. Cl. 149—2 **59 Claims**

1. A high temperature, thermally stable explosive composition comprising:

a low melting oxidizer selected from the group consisting of nitric acid, alkali or alkaline earth metal nitrates, nitrites, perchlorates and mixtures thereof,

a liquid or low melting organic fuel, said fuel and said oxidizer in admixture being thermally stable at temperatures on the order of 475° K. and having a relatively high energy of activation at temperatures on the order of 475° K.

4,274,894

ALUMINUM POWDER BLASTING SLURRY SENSITIZER

Wray G. McNeely; Stanton E. Jack, and John H. O'Dette, all of Kingston, Canada, assignors to Alcan Research and Development Limited, Montreal, Canada

Filed Jun. 15, 1978, Ser. No. 915,720
Claims priority, application United Kingdom, Jun. 24, 1977, *26636/77*
Int. Cl.³ C06B *45/34*
U.S. Cl. 149—7 **11 Claims**

1. A substantially non-dusting fine particle size water-dispersable aluminum powder composition containing, based on the weight of aluminum powder present, from 5% to 20% by weight of a polyvinylpyrrolidone resin and from 30% to 50% of a liquid medium chosen from either a hydrocarbon or a polar solvent capable of swelling or dissolving the polyvinylpyrrolidone resin.

4,274,895

METHOD OF MANUFACTURING A FLEXIBLE ELECTRIC CABLE WHICH HAS A TINNED STRANDED CONDUCTOR ON WHICH AN INSULATION IS APPLIED AT A HIGH TEMPERATURE

Edith Bascou, Dravell, and Jean-Pierre Ferlier, Yerres, both of France, assignors to Filotex, Dravell, France

Filed Jan. 28, 1980, Ser. No. 115,852
Claims priority, application France, Dec. 18, 1979, 79 30995
Int. Cl.³ H01B *1/02*
U.S. Cl. 156—53 **7 Claims**



1. A method of manufacturing a flexible electric cable with a tinned stranded conductor on which insulation is applied at a high temperature, said method including the following steps:

preparing a flexible conductor (1) constituted by several tinned copper strands which will not block; and

applying a conductor insulation sheath (2, 3) at a temperature at which there is a danger of melting the tin and of blocking the tin-plated strands together while causing partial diffusion of tin in copper; the improvement comprising:

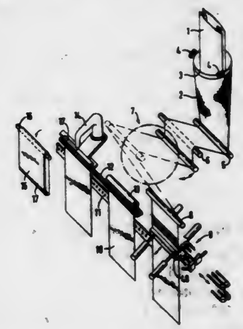
between and/or before said steps during which a flexible conductor (1) is formed and said conductor is insulated, forming a diffusion barrier, including heating of the individual strands or stranded conductor at a temperature and for a period which ensure previous diffusion of tin in copper in a quantity which is sufficient to cause subsequent diffusion of tin in copper during the insulation step to take place more slowly, so that there remains some pure tin at the end of the insulation step, although the layer of pure tin on the strands at the beginning of the insulation step is sufficiently thin to prevent blocking of the strands to occur.

4,274,896

METHOD FOR MAKING SACKS WHICH ARE OPEN AT ONE END AND COMPRISE AN OUTER SACK OF WOVEN PLASTICS TAPE FABRIC

Frank Bosse, Tecklenburg i. W., Fed. Rep. of Germany, assignor to Windmoller & Holscher, Lengerich, Fed. Rep. of Germany

Filed Sep. 27, 1979, Ser. No. 79,246
Claims priority, application Fed. Rep. of Germany, Oct. 2, 1978, 2842954
Int. Cl.³ B32B *31/08, 31/18, 31/20*; D03D *47/50*
U.S. Cl. 156—88 **5 Claims**



1. A method of making sacks which are open at one end and comprise a load-supporting outer sack of circular woven fabric comprising stretched plastics tapes and a sealing inner sack of thermoplastic film connected thereto by a base seam, the inner sack having a melting point less than the melting point of the outer sack, said method comprising:

weaving a tube of circular woven fabric defining the outer sack around a flattened tubular web defining the inner sack;

applying transversely-extending strips of hot-melt adhesive to both sides of the flattened tube of circular woven fabric;

contacting the strips of applied adhesive with rollers to thereby cool the adhesive;

separating individual tube sections from the tube by severing cuts through the cooled applied strips of adhesive;

applying a welding temperature below the relaxation temperature of the plastics tape through the webs of woven fabric to a narrow transverse zone spaced from the adhesive strips for a time period sufficient to form a transverse weld seam in the inner sack; and

applying a base seam engaging the inner and outer sacks to the tube section to complete formation of the individual sack.

4,274,897

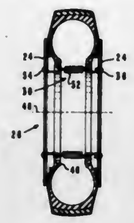
METHOD AND APPARATUS FOR VULCANIZING TIRES

Carlton K. Barefoot, 601 Shellbark, Muncie, Ind. 47304

Filed Jul. 13, 1979, Ser. No. 57,417
Int. Cl.³ B29H *17/36*
U.S. Cl. 156—96 **25 Claims**

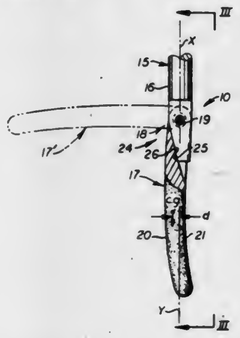
12. A method for retreading an unmounted tire with a precured premolded tread comprising the steps of:

a. covering the sides of a tire and a precured tread assembly with a thin flexible envelope which extends only from sidewall to sidewall around the outer perimeter of said tire,
b. positioning a sealing grid on each sidewall of said tire whereby an annular ring of said sealing grid urges the envelope against the sidewall,
c. detachably joining the sealing grids together,



d. placing the assembly, the envelope and the sealing grids in an autoclave,
e. evacuating the air trapped between the tire and the envelope,
f. subjecting the assembly, the envelope and the sealing grids to a heated pressurized environment to cause the tread to be vulcanized to the tire.

4,274,898
TIRE BUFFING TOOL AND METHOD
Thomas S. Hulting, Jr., East Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US79/00666, § 371 Date Aug. 30, 1979, § 102(e) Date Aug. 30, 1979, PCT Pub. No. WO81/00539, PCT Pub. Date Mar. 5, 1981
This PCT application filed Aug. 30, 1979, Ser. No. 93,074
Int. Cl.³ B29H *21/01*
U.S. Cl. 156—98 14 Claims



12. A method for buffing an internal surface (14) of a tire (13) comprising the steps of
inserting an elongated, pencil-like buffing tool (10,10*a*), having a shaft (15,15*a*) and a buffing tip (17,17*a*) pivotally connected thereon to form an aligned extension thereof, through an aperture (12) formed through said tire (13),
rotating said buffing tool (10,10*a*) while simultaneously moving the buffer tip (17,17*a*) thereof transversely relative to said shaft (15,15*a*) in response to centrifugal force imposed thereon, and
moving said buffer tip (17,17*a*) into buffing engagement with the internal surface (14) of said tire (13).

4,274,899
METHOD OF MANUFACTURING A TUBULAR TIRE FOR CYCLES
Jean-Christian Duttlinger, Soissons, France, assignor to Wolber, Soissons, France
Division of Ser. No. 935,316, Aug. 21, 1978, which is a continuation-in-part of Ser. No. 780,998, Mar. 24, 1977, abandoned. This application Nov. 14, 1979, Ser. No. 94,314
Claims priority, application France, Apr. 8, 1976, 76 10229
Int. Cl.³ B29H *17/14*
U.S. Cl. 156—123 R 10 Claims

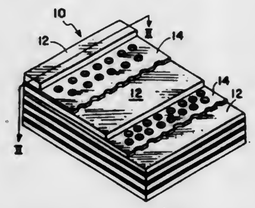


1. A method of forming a wholly enclosed tubular tire for cycles, said method comprising:
providing a non-vulcanized tire body in the form of a unitary and single endless band having opposite edges, an inner surface, and an outer surface having thereon a tread;
positioning said tire body around a cylindrical drum with said inner surface positioned radially outwardly and with said outer surface contacting said drum;
positioning a completely enclosed toroidal shaped inner tube formed of non-vulcanized material around said body and said cylindrical drum with said inner tube positioned on said inner surface of said tire body;
wrapping said tire body about said inner tube, and overlapping said opposite edges of said tire body over said inner tube, to thereby enclose said inner tube within said tire body;
joining said overlapped edges to thereby form a cycle tire having irremovably enclosed therein said inner tube, such that said overlapped and joined edges are formed at the outer circumference of said tire and said tread is positioned at the inner circumference of said tire;
twisting said tire such that said overlapped edges are positioned at said inner circumference of said tire and said tread is positioned at said outer circumference of said tire; and
thereafter vulcanizing said cycle tire.

4,274,900
MULTI-LAYER POLYESTER/POLYOLEFIN SHRINK FILM
Walter B. Mueller, Taylors; Henry G. Schirmer, Spartanburg; Julian H. Schoenberg, and Alan S. Weinberg, both of Greenville, all of S.C., assignors to W. R. Grace & Co., Duncan, S.C.
Division of Ser. No. 938,191, Aug. 30, 1978, Pat. No. 4,188,443.
This application Jul. 9, 1979, Ser. No. 55,734
Int. Cl.³ B32B *31/16, 31/28, 27/32, 27/36*
U.S. Cl. 156—229 2 Claims

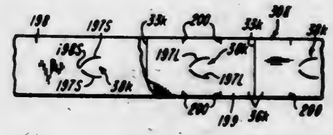
1. A process for producing a heat shrinkable polyolefin packaging film having moderate shrink tension comprising the steps of:
(A) coextruding at least three layers of polymeric material concentrically to form a multi-wall tube:
(1) at least one of said layers being an inner layer and comprising a polymer selected from the group consisting of:
(a) homopolymers, copolymers, and terpolymers of ethylene and
(b) blends of ethylene homopolymers or copolymers with butylene homopolymers or copolymers, said inner layer comprising 47% to 90% of the total thickness of said laminate;
(2) Another of said layers comprising a polymer selected from the group consisting of polyesters and copolyesters;
(B) rapidly cooling said extruded tube;
(C) heating said extrudate to a temperature in the range of 80° C. to 200° C.;
(D) biaxially stretching said heated tube until it has a total wall thickness in the range of 0.1 mil to 2.0 mil; and,
(E) rapidly cooling said tube while so stretched whereby the resulting shrink tension in the multi-layer film prepared by slitting said tube is in the range from about 100 p.s.i. to about 400 p.s.i.

4,274,901
METHOD OF MAKING A PARTIAL INTERLAMINAR SEPARATION COMPOSITE SYSTEM
Wolf Elber, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.
Division of Ser. No. 889,671, Mar. 24, 1978, Pat. No. 4,229,473.
This application Feb. 7, 1980, Ser. No. 119,337
Int. Cl.³ B32B *31/20*
U.S. Cl. 156—242 3 Claims



1. A method for enhancing interlaminar shear strength for composite laminates comprising:
providing prepreg resin impregnated fiber tape material having the fibers therein running the length of the tape;
cutting the prepreg tape into a plurality of desired lengths;
laying up and stacking the plurality of lengths of tape in layers of the desired dimensions and to a predetermined thickness;
providing a layer formed by a plurality of thin perforated polyester film strips of essentially the same length and width dimensions as the prepreg tape layers;
positioning one layer of the perforated film strips between each layer of prepreg tape and curing the stacked tape and film strip assembly into a unitary mass under vacuum, pressure and an elevated temperature of at least 465° K. for at least 60 minutes;
cooling the cured assembly to a minimum of 400° K. while maintaining the vacuum and pressure and, after releasing the vacuum and pressure, permitting the assembly to cool to room temperature to thereby yield a composite laminate structure having improved physical property characteristics.

4,274,902
METHOD OF DISPENSING LABELS
William A. Jenkins, Dayton, Ohio, assignor to Monarch Marking Systems, Inc., Dayton, Ohio
Continuation-in-part of Ser. No. 715,941, Aug. 19, 1976, abandoned, which is a division of Ser. No. 607,317, Aug. 25, 1975, which is a continuation-in-part of Ser. No. 475,728, Jun. 3, 1974, Pat. No. 3,948,172, and Ser. No. 475,730, Jun. 3, 1974, Pat. No. 3,941,289, which is a division of Ser. No. 366,919, Jun. 4, 1973, abandoned, which is a division of Ser. No. 206,061, Dec. 8, 1971, Pat. No. 3,783,083, which is a continuation-in-part of Ser. No. 155,740, Jun. 23, 1971, abandoned. This application Sep. 26, 1979, Ser. No. 79,123
The portion of the term of this patent subsequent to Jan. 1, 1991, has been disclaimed.
Int. Cl.³ B32B *1/00*
U.S. Cl. 156—344 4 Claims



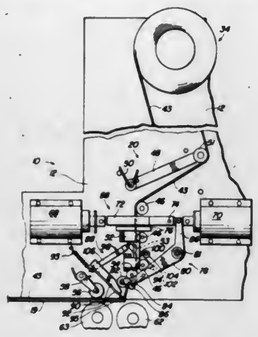
1. Method of dispensing labels, comprising the steps of: providing a plurality of labels releasably secured by pressure-sensitive adhesive to a longitudinally extending web of supporting material, the web having cuts disposed at longitudinally spaced-apart locations forming a series of flap portions extending initially in the plane of the web with each flap portion being integrally connected to the remainder of the web along its leading end to define a fold line and projecting upstream to define a trailing end, there being a further cut defining a feed edge at each fold line, providing a delaminator where the web is caused to undergo a sharp change in direction, orienting the web to travel toward the delaminator with all the leading ends of the flap portions and all the feed edges passing around the delaminator before the corresponding trailing ends and while remaining in the plane of the web, providing a toothed driver, engaging the toothed driver with the web downstream of the delaminator to fold successive flap portions at the fold lines out of the plane of the web and to drivingly engage the feed edges, and pulling on the web by advancing the driver while a tooth of the driver engages a respective feed edge in the web made accessible to the tooth when the flap portion is folded out of the plane of the web.

4,274,903
HIGH SPEED PROGRAMMABLE PRESSURE-SENSITIVE TRANSFER TAPE APPLICATOR
Vernon A. Mock, 2250 Linneman, Glenview, Ill. 60025
Filed Jul. 13, 1979, Ser. No. 57,209
Int. Cl.³ B26D *5/00*
U.S. Cl. 156—355 10 Claims

1. A high speed pressure-sensitive transfer tape applicator comprising:
(a) a frame having pedestals spaced on each side of the same;
(b) a top on said frame;
(c) a sheet feed means mounted between said pedestals on the level with said top;
(d) a support member mounted between said pedestals spaced above said feed means;
(e) a tape dispenser mounted on the support member above the sheet feed means;
(f) tape applicator means mounted on the support member above the sheet feed means and below the tape dispenser operationally-connected to said tape dispenser and said sheet feed means said tape applicator means having a track for guiding the tape from the tape dispenser to the sheet

feed means and a tape applicator roller adjacent to the sheet feed means mounted on an arm pivoted on the support member above and opposed to the direction of the sheet feed means relative to the tape guide track;

(g) a cutter guide track mounted on said support member above the sheet feed means and below the tape guide track directed generally along the bisecting angle between the same having a tape guide roller mounted on said support member just below said tape guide track and above the sheet feed means adjacent to the tape applicator roller;



(h) a cutter slidable in the cutter guide track having a spring operationally-connected thereto for urging a retraction from cut-off, and a step-up link and lever drive means operationally-connecting the tape applicator means with the cutter and said sheet feed means;

(i) programming means operationally-connected to said sheet feed means and to said tape applicator means; and

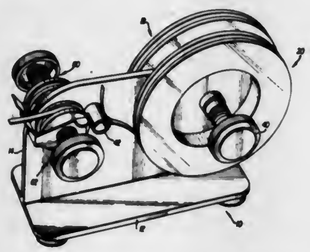
(j) sheet sensing means operationally-connected to the programming means and with the sheet feed means to start the program when sheet is present on the sheet feed means.

4,274,904

TAPE DISPENSER AND APPLICATOR ASSEMBLY

Thomas F. Harrison, 1531 Sherwood Ave., Baltimore, Md. 21239, and Donald I. Gill, 2805 Moorgate Rd., Dundalk, Md. 21222

Filed Jul. 20, 1979, Ser. No. 59,345
Int. Cl.³ B29C *17/00*
U.S. Cl. 156—461 **16 Claims**



1. An assembly capable of supplying a uniform pressure for wrapping a foil-like tape about an edge portion of glass or similar material, while automatically compensating for edge portions of varying thicknesses, and comprising:

a frame assembly, including a base portion and an attached upright portion;

drum means mounted on said upright portion for rotatably supporting at least one roll of foil-like tape of the type having a layer of adhesive on a radially outward side portion when in the rolled state;

applicator means including separate portions each tiltably mounted on a support shaft assembly extending outwardly from said frame for supporting a portion of said tape during application to said edge portion, while simultaneously pressing toward opposite sides of said edge portion with a substantially uniform pressure, causing uniform and smooth adherence of said tape to opposite sides of said edge portion;

groove means formed in adjacently disposed end surfaces of said separate portions of said applicator means for providing a uniform pressure to press a portion of said tape against opposite side wall surfaces of said edge portion of glass or the like during movement of said glass through said groove means;

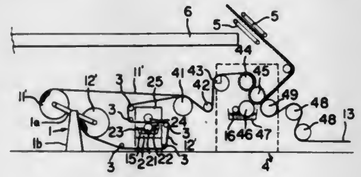
said groove means comprising a groove assembly of variable width including a first section having a width at least as wide as the width of said tape, a second section having a width less than a minimum width of said edge portion of glass and a third section extending between said second section and a bottom surface of said groove assembly, wherein said third section increases in width as the distance from a bottom surface of said groove assembly decreases.

4,274,905

APPARATUS FOR MAKING REINFORCED, DOUBLE FACED CORRUGATED BOARD

Shuji Itoh, Shimizu, and Yoji Yoshida, Nagoya, both of Japan, assignors to Kyokuto Fatty-Acid Corporation, Tokyo, Japan

Division of Ser. No. 853,568, Nov. 21, 1977, abandoned. This application Jun. 27, 1979, Ser. No. 52,581
Claims priority, application Japan, Sep. 17, 1975, 50-112377
Int. Cl.³ B31F *1/20, 1/00*
U.S. Cl. 156—462 **6 Claims**



1. An apparatus for forming a double-faced corrugated reinforced board which has first and second corrugated layers adhesively affixed to each other, a top facing liner adhesively affixed to said first corrugated layer, and a bottom facing liner adhesively affixed to said second corrugated layer, said apparatus comprising:

holding means for holding separate rolls of corrugating material which form said first and second corrugated layers;

coating means adjacent said holding means for coating one surface of said second corrugating material with an adhesive;

preheater roll means adjacent said coating means for contacting and affixing said adhesive-coated side of said second corrugating material to one side of said first corrugating material;

corrugating-facing means adjacent said preheater roll means for corrugating the resultant assembly of adhesively affixed corrugating layers, coating one side of said corrugated assembly with adhesive, and facing said adhesive-coated side of said assembly with said bottom facing liner to form a bottom faced assembly;

a plurality of guide roll means for directing said second corrugating material into, through, and out of said coating means adjacent said holding means, said plurality of guide roll means comprising guide rolls positioned with respect to each other in a manner for directing said second corrugating material beneath said coating means from said holding means to a position between said coating means and said corrugating-facing means, then through said coating means to a position between said coating means and said holding means, then upwardly and to a position above said coating means, and then to said preheater roll means;

bottom facing preheating means adjacent said corrugating-facing means for heating said bottom facing liner and supplying said heated bottom facing liner to said corrugating-facing means;

conveying means for withdrawing said bottom faced assembly away from said corrugating-facing means; and

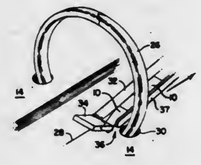
facing means adjacent said conveying means for applying said top facing liner to the top surface of said bottom faced assembly.

4,274,906

APPARATUS FOR AUTOMATICALLY APPLYING REINFORCING TABS TO LOOSE-LEAF SHEETS

Milton Clar, Bethesda, Md., assignor to Leonard S. Blondes, Bethesda, Md., a part interest

Filed Oct. 23, 1979, Ser. No. 87,634
Int. Cl.³ B32B *35/00*
U.S. Cl. 156—540 **10 Claims**



1. An apparatus that automatically applies a reinforcing tab carried on a carrier strip to a sheet in a loose-leaf binder at the region of the sheet between a hole in the sheet through which a ring of the loose-leaf binder passes and an adjacent edge of the sheet, comprising a tab guide projecting from a case, the tab guide sized to fit within the ring of the loose-leaf binder and to position the carrier strip between the edge of the sheet and the hole in the sheet through which the ring passes, means mounted on the case for advancing the carrier strip around an end of the tab guide within the ring, means for separating a tab from the carrier strip as it passes around said end, and means on the tab guide for pressing the tab onto the sheet.

4,274,907

METHOD OF CHEMICALLY POLISHING A DOUBLY ROTATED QUARTZ PLATE

John R. Vig, Colts Neck, and Ronald J. Brandmayr, Ocean, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 8, 1980, Ser. No. 147,778
Int. Cl.³ C03C *15/00, 19/00*
U.S. Cl. 156—637 **51 Claims**

1. Method of chemically polishing at least one side of a doubly rotated quartz plate whose theta (θ) angle is between about 33° and 36° and whose phi (ϕ) angle is between about 10° and 26°, comprising lapping the quartz plate with an abrasive and etching the lapped quartz plate in a fluoride type etchant selected from the group consisting of about a 5 percent to 25 percent solution of hydrofluoric acid (HF), about a 5 percent to 50 percent solution of ammonium bifluoride ($NH_4F.HF$), and a mixture of 40 percent ammonium fluoride with 49 percent hydrofluoric acid in the ratio ranging from about 1:3 to 10:1, said etching being carried out until a thickness is removed from the plate that is at least twice the average abrasive particle diameter in the final lapping abrasive.

4,274,908

CYANIDE FREE SOLUTION AND PROCESS FOR REMOVING GOLD-NICKEL BRAZE

Robert E. Fishter, Boca Raton, and Brian A. Manty, Lake Park, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 933,944, Aug. 15, 1978, abandoned. This application May 15, 1980, Ser. No. 150,276
Int. Cl.³ C09K *13/04*; C23F *1/00*
U.S. Cl. 156—637 **6 Claims**

1. A method for removing gold-nickel type braze material from brazed metallic articles selected from the group consisting of stainless steels, cobalt superalloys and nickel superalloys, without significant base metal attack consisting of:

immersing the brazed articles in a heated aqueous solution which contains from about 40 to about 50% concentrated nitric acid, about 0.01 to about 0.1 mole/l sulfate ions, from about 0.005 to about 0.2 mole/l chloride ions, and at least about 0.001 mole/l metal ions, said solution being held at a temperature between about 75° and 150° F., for a period of time sufficient to remove the braze without adversely affecting the metallic article.

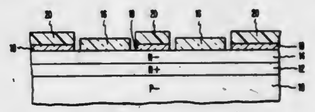
2. A process as in claim 1 wherein the solution is ultrasonically agitated to increase the rate of braze material removal.

4,274,909

METHOD FOR FORMING ULTRA FINE DEEP DIELECTRIC ISOLATION

Krishnamur Venkataraman, and Bob H. Yun, both of Hopewell Junction, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 17, 1980, Ser. No. 130,882
Int. Cl.³ H01L *21/20, 21/22, 21/308*
U.S. Cl. 156—648 **18 Claims**



11. A method for making a highly dense integrated circuit structure having fine, deep dielectric isolation in a silicon body between devices regions comprising:

forming a patterned first layer of material on said body over a first set of alternately designated device regions;

depositing a uniform thickness, continuous conformal coating over said layer and on said body in a second set of alternately designated device regions and the designated isolation regions separating said alternately designated first and second device regions;

said coating having a thickness which is less than the thickness of said first layer and is substantially the planned width of said isolation;

depositing a second layer over the entire surface of said conformal coating;

the said first layer and said conformal coating are composed of different materials and said first and second layers are composed of different materials;

planarizing the surface by removing said second layer and conformal coating from said first layer and said designated isolation regions above the level of the first layer wherein said second set of alternately designated device regions in said body are covered by said conformal coating and said second layer with portions of said conformal coating below the level of the first layer exposed;

removing the exposed portions of said conformal coating to

expose said designated isolation regions on the silicon body;

anisotropically etching a groove in said silicon body at the exposed regions, using said remaining conformal coating and first layer as an etch mask, to the desired depth of the said dielectric isolation in said designated isolation regions;

filling the said groove with dielectric material to form said deep dielectric isolation; and

forming semiconductor devices in said designated device regions.

4,274,910

EVAPORATOR FOR CONCENTRATING MINERAL ACID, PARTICULARLY SULPHURIC ACID

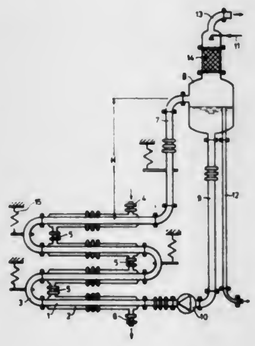
Hansruedi Forter, Ormalingen, Switzerland; Jürgen Groening, Siegburg, Fed. Rep. of Germany; Hans L. Kühnlein, Fuellinsdorf; Hans R. Küng, Frenkendorf, both of Switzerland; Joachim Maas, Bergheim, and Karl-Heinz Schultz, Krefeld, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 11, 1980, Ser. No. 158,422

Claims priority, application Switzerland, Jun. 13, 1979, 5513/79; Fed. Rep. of Germany, May 16, 1980, 3018662

Int. Cl.³ B01D *1/02*

U.S. Cl. 159—1 C **6 Claims**



1. A circulation evaporator for concentrating mineral acid, particularly sulphuric acid, comprising parts of, or at least coated with, enamel, characterised by a heat exchanger for heating the acid comprising at least one acid feed pipe provided with an enamel layer, means being provided to maintain the compressive stress in the enamel layer under all working conditions, said acid feed pipe being connected at its inlet end to a circulation pump and at its outlet end to a flash evaporator for concentrating the heated acid, this evaporator being connected by a circulation pipe to the pump inlet and to means for introducing the crude acid, for discharging the concentrate and for carrying away the vapours.

4,274,911

METHOD OF COOKING CELLULOSE MATERIAL AND PRESERVING THE HEAT AND TERPENTINE CONTENT OF THE COOKING LIQUOR

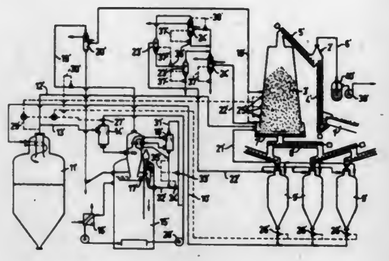
Erik G. Kroneld, and Per-Erik Andersson, both of Sundsvall, Sweden, assignors to Obbola Linerboard Aktiebolag, Sweden

Filed Jul. 26, 1979, Ser. No. 60,930

Claims priority, application Sweden, Jul. 27, 1978, 7808196; Aug. 23, 1978, 7808897

Int. Cl.³ D21C *1/02, 11/06*

U.S. Cl. 162—15 **18 Claims**



1. A method for producing chemical pulp by cooking cellulosic material containing terpentine comprising feeding said cellulosic material into a storage container so as to produce a bed of said cellulosic material therein, transporting said cellulosic material from said storage container into a digester, cooking said cellulosic material in said digester so as to produce a cooking liquor containing terpentine therein, removing said cooking liquor from said digester, producing expansion steam containing terpentine from said cooking liquor, introducing at least a portion of said expansion steam into the lower portion of said bed of cellulosic material in said storage container so as to transfer a substantial portion of the heat and terpentine contents of said expansion steam to said cellulosic material and produce a heated zone therein, regulating the flow of said expansion steam introduced into said bed of cellulosic material so that said heated zone is maintined below the surface of said bed, and withdrawing uncondensed gases from said storage container countercurrently to the flow of said cellulosic material into said storage container so as to prevent the entry of air contained in said cellulosic material into said storage container.

4,274,912

PROCESS FOR BLEACHING PREOXIDIZED PAPER PULP

Jacques E. Carles, and Michel Durand, both of Saint Gaudens, France, assignors to Groupement Europeen de la Cellulose, Paris, France

Filed Jul. 19, 1979, Ser. No. 59,256

Claims priority, application France, Aug. 1, 1978, 78 22719

Int. Cl.³ D21C *9/12*

U.S. Cl. 162—41 **12 Claims**

1. A process for bleaching an oxygen or peroxide preoxidized paper pulp to produce a pulp having a very high degree of whiteness with a limited number of treatment steps while reducing pollution without degrading the qualities of the pulp comprising essentially the combination of three successive treatment steps, namely:

(a) a first step of hot chlorination with gaseous chlorine, at a temperature of between about 30° and 80° C. in the presence of urea in an amount between about 0.5 to 5% by weight of the chlorine used, with a concentration of pulp between 3 and 30%, and a duration of retention of the chlorine of 30 seconds to 45 minutes;

(b) a second step of alkaline extraction in the presence of an oxidizing agent of the hypochlorite type, and in the presence of urea in an amount between about 1 to 10% by weight of the chlorine in the form of hypochlorite, at a temperature of between about 30° and 70° C. and a pH of between about 8 and 12; and

(c) a third step of treatment with chlorine dioxide, at a temperature of between about 60° and 90° C. at an initial pH of between about 5 and 11, and recycling effluent of at least one of second and third treatment steps for intermediate washing preceding the corresponding step.

4,274,913

PROCESS FOR PRODUCING ALKALI PULP

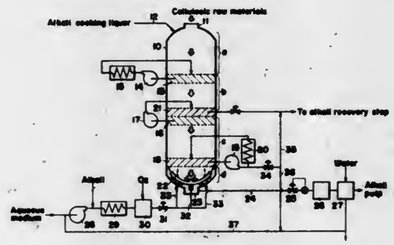
Makoto Kikuiri; Yoshimi Nakashio; Yasue Arai, and Toshio Hidaka, all of Kure, Japan, assignors to Toyo Pulp Co., Ltd., Tokyo, Japan

Filed May 22, 1979, Ser. No. 41,505

Claims priority, application Japan, May 23, 1978, 53-60638; Sep. 19, 1978, 53-114882; Dec. 15, 1978, 53-156026; Apr. 6, 1979, 54-41839

Int. Cl.³ D21C *3/26*

U.S. Cl. 162—65 **11 Claims**



1. In a process for producing alkali pulp by using a single, cylindrical pressurized reaction vessel having therein a liquor-impregnating zone, a cooking zone, a washing zone and a diluting zone in that order, and having a motor-driven scraping or agitating device and a pulp discharging outlet in the end portion of the diluting zone, which process comprises continuously introducing chip-form cellulosic raw materials into the reaction vessel, subjecting the cellulosic materials to impregnation of alkali cooling liquor, alkali cooking, washing and diluting, in succession, during their transfer inside the reaction vessel, and continuously discharging resulting pulp out of the vessel through the pulp discharging outlet, the improvement comprising:

continuously introducing alkaline aqueous medium containing dissolved oxgygen into the end portion of the diluting zone;

contacting a part of the introduced alkaline aqueous medium containing dissolved oxygen in a countercurrent manner with cooked cellulosic materials transferred from the washing zone to the diluting zone to proceed with oxygen-alkali delignification in the diluting zone, waste liquor produced during delignification due to the countercurrent contact being transferred to the washing zone where it is used as washing liquor and being finally discharged out of the vessel from the end portion of the cooking zone; and

contacting the remainder of the introduced alkaline aqueous medium containing dissolved oxygen with the cooked cellulosic materials in the diluting zone in a scraping or agitating manner by means of the motor-driven scraping or agitating device to proceed with oxygen-alkali delignification, said remainder of the alkaline aqueous medium being finally used as diluting liquor to be discharged out of the vessel accompanying the resulting pulp from the pulp discharging outlet.

4,274,914

FILTER MATERIAL

Charles H. Keith, Charlotte, and Richard O. Tucker, Locust, both of N.C., assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 937,228, Aug. 28, 1978, abandoned, which is a continuation of Ser. No. 730,039, Oct. 6, 1976, abandoned. This application Oct. 11, 1979, Ser. No. 84,004

Int. Cl.³ D21F *11/12*; B01D *39/04*

U.S. Cl. 162—109 **9 Claims**

1. As a tobacco smoke filter precursor, a corrugated binder-free non-woven fibrous cellulose ester sheet-like material, comprising from about 65% to about 95% cellulose ester staple fibers and from about 5% to about 35% precipitated cellulose ester fibrets, said fibrets having a surface area of from 12 to 25 square meters per gram and lengths of less than 1000 microns, said sheet-like material having a sheet weight of from 20 to 40 grams per square meter, a surface area in excess of 1 square meter per gram, a sheet breaking strength of from 200 to 1000 g/5 cm. and a porosity through a 1 inch diameter circular sheet of said non-woven fibrous cellulose ester material of between about 1 millimeter and 70 millimeters at a flow rate of 200 cc. per minute.

4,274,915

PROCESS FOR MANUFACTURING HEAT-SEALED PROOFED PAPER OR CARD ON A FOURDRINIER MACHINE

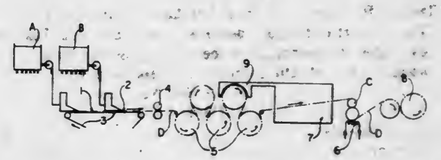
Giovanni Munari, Camposampiero (Padova), Italy

Filed Jan. 9, 1979, Ser. No. 2,164

Claims priority, application Italy, Jan. 13, 1978, 3308 A/78

Int. Cl.³ D21F *11/04, 5/20*

U.S. Cl. 162—129 **7 Claims**



1. A process for the production of heat-sealed, proofed, paper with a Fourdrinier machine, comprising the steps of

feeding a base layer of cellulose fibers onto a traveling support wire,

feeding a mix containing cellulose and approximately 60% polyolefin fibers distributed uniformly on top of the base layer to form two layers on the traveling support wire,

pressing the support wire and both layers while wet,

drying the pressed layers with steam over a plurality of drying rollers to a temperature above 100° C.,

further regulating and heating the top side of the layers, namely the mix containing the cellulose and approximately 60% polyolefin fibers, up to a predetermined temperature which is close to the melting point of the polyolefin fibers,

inserting the layers between rollers of a dry calender while the polyolefin fibers are still at the temperature close to their melting point,

compressing the layers at substantially high pressures at a pressing location between the rollers of the dry calender near the predetermined temperature close to the melting point of the polyolefin fibers such that the uniformly distributed polyolefin fibers interpenetrate between the cellulose fibers in the base layer until a combined continuous layer with heat sealing and impermeable properties is formed and substantially simultaneously but thereafter cooling a free side of said combined continuous layer, said free side then not contacting the rollers, while said top side is still contacting one of the rollers of the dry calender, with circulating water at an exit position from the

rollers of the dry calender remote from the pressing location in order to then lower the temperature of the combined continuous layer leaving the dry calender and to bring the temperature down to normal values, and
winding the combined continuous layer on reels.

4,274,916

DIMENSIONALLY STABLE BACKING MATERIALS FOR SURFACE COVERINGS AND METHODS OF MAKING THE SAME

Reginald E. Grose, Westminster, Md., assignor to Congoleum Corporation, Kearny, N.J.

Filed Oct. 1, 1979, Ser. No. 80,908
Int. Cl.³ D21F *11/00*
U.S. Cl. 162—145 **19 Claims**

1. A dimensionally stable fibrous sheet material comprising:
from about 0.2% to about 2% of a stable, water-soluble, cationic, quaternary modified acrylamide polymer having a high charge density of at least about 350 milliequivalents/milligram of unit weight and a high molecular weight of at least about 3 million;
from about 17% to about 34% of polypropylene fibers;
from about 6% to about 23% of glass fibers;
from about 20% to about 39% of wood pulp fibers;
from about 15% to about 60% of a filler or loading agent; and
from about 7% to about 27% of a synthetic resinous polymeric binder, all percentages being by weight, based on the total weight of said dimensionally stable fibrous sheet material.

4,274,917

PAPER PRODUCTS

Clarence R. Murphy; S. Paul Thackabeery, both of Houston, Tex.; Robert E. Boehme, deceased, late of Houston, Tex., and by Helen J. Boehme, sole beneficiary, Kalamazoo, Mich., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Feb. 28, 1979, Ser. No. 16,060
Int. Cl.³ D21H *5/12*
U.S. Cl. 162—146 **8 Claims**

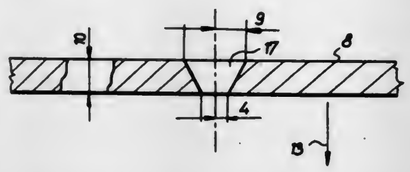
1. A process for improving the tear strength of water-laid cellulose paper sheets prepared from a cellulose furnish which consists essentially of preparing a furnish consisting essentially of at least 90 weight % of a cellulose pulp and about 0.5–10 weight % of olefin polymer fibrils, and forming a water-laid sheet from said furnish; said olefin polymer fibrils being incorporated in the furnish in an amount sufficient to improve the tear strength of water-laid sheet prepared from said furnish; said olefin polymer fibrils having been prepared by a process in which:
(a) the fibrils were prepared from an olefin polymer having a weight average molecular weight of at least one million,
(b) the fibrils were prepared by a multistep process consisting essentially of:
(1) introducing an olefin polymer and a solvent therefor into a first zone,
(2) heating said first zone to a temperature above the atmospheric boiling point of said solvent so as to maintain said olefin polymer in solution and to maintain said first zone under superatmospheric pressure,
(3) transferring polymer solution from said first zone to a second zone through an elongated tube like transfer member,
(4) feeding a propanol to said second zone to maintain liquid propanol above the discharge orifice of the transfer member,
(5) maintaining a temperature in said second zone such that:
(i) the propanol is maintained in the liquid state, and
(ii) the pressure is lower than the pressure in the first zone,
(6) stirring the liquid propanol in said second zone,
(7) precipitating olefin polymer in said second zone to form fibrils,
(8) distilling at least a portion of the polymer solvent from said second zone,
(9) removing a slurry of fibrils and propanol from said second zone,
(10) flash distilling the bulk of any polymer solvent remaining in the slurry recovered in step (9),
(11) passing the fibril-propanol slurry from step (10) through refining apparatus to refine the fibrils, and
(12) recovering refined fibrils and propanol from the slurry of step (11),
the solvent employed in step (1) being characterized in (i) having the capacity of dissolving at least about 1.0 weight % of the olefin polymer at the temperature employed in step (2), (ii) having the capacity of dissolving not more than about 0.2 weight % of the olefin polymer at ambient temperature when diluted with an equal volume of propanol, (ii) having an atmospheric boiling point of less than about 65° C., and (iv) not forming an azeotrope with the propanol employed in step (4),
(c) the fibrils from step (b) were refined in a low molecular weight oxygen containing liquid that is miscible with both hydrocarbons and water, and
(d) the refined fibrils of step (c) were treated in an aqueous solution of polyvinyl alcohol under high shearing forces so as to sorb at least 1.0% of polyvinyl alcohol on said fibrils.

4,274,918

BLADE CONVEYER FOR A CONTINUOUSLY OPERATING DIGESTER OF THE BAUER M AND D TYPE

Ladislav Zilka, Bratislava, Czechoslovakia, assignor to Vyskumny ustav papieru a celulozy, Bratislava, Czechoslovakia

Filed May 2, 1979, Ser. No. 35,388
Claims priority, application Czechoslovakia, Sep. 28, 1978, 6272-78
Int. Cl.³ D21C *7/00*
U.S. Cl. 162—237 **3 Claims**



1. In an apparatus for the continuous digestion of wood chips in the preparation of cellulose comprising an elongated vessel, inclined with respect to a horizontal base plane, having a head end and a tail end divided over a major portion of its length into an upper and lower longitudinally extending blade passage, an endless blade conveyor having apertured blades arranged within the vessel to move downward in the upper blade passage and upward in the lower blade passage, a supply port in communication with the upper blade passage and a discharge port in communication with the lower blade passage, the improvement which comprises blades having conical holes extending through the narrow thickness of the blades wherein the smaller diameter of the conical holes faces in the direction in which the blades move through the apparatus.

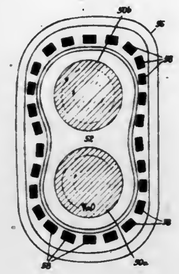
4,274,919

SYSTEMS FOR MERGING OF TOROIDAL PLASMAS

Torkil H. Jensen, Del Mar; Nobuyoshi Ohyabu, La Jolla, and Chung-Lih Hsieh, San Diego, all of Calif., assignors to General Atomic Company, San Diego, Calif.

Filed Nov. 14, 1977, Ser. No. 851,431
Int. Cl.² G21B *21/00*
U.S. Cl. 176—3 **7 Claims**

1. In a method for generating and confining toroidal plasmas in which a first toroidal plasma is provided in a vacuum chamber in a toroidal plasma confining magnetic field, an electric current is generated in said first plasma in the direction of the minor toroidal axis of the plasma to provide a poloidal magnetic field for plasma confinement, the improvement comprising the steps of providing a second toroidal magnetically confined plasma in the vacuum chamber adjacent said first plasma and having the same major toroidal axis as said first toroidal plasma but displaced from said first toroidal plasma in a direction along the major toroidal axis of both said first toroidal plasma and said second toroidal plasma, said second plasma being magnetically confined by the same toroidal magnetic field as said first plasma, generating an electric current in said second plasma in the direction of the minor toroidal axis of the second toroidal plasma, having a current polarity the same as that of said first toroidal plasma, and merging said first plasma and said second plasma to provide a combined plasma confined within the same poloidal and toroidal magnetic fields.

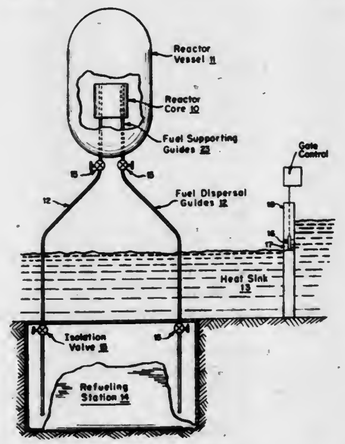


4,274,920

WATER-COOLED NUCLEAR REACTOR WITH PASSIVE EMERGENCY SHUTDOWN AND CORE COOLING CAPABILITY AND ON-LINE REFUELING

George Renko, Jackson Heights, N.Y., assignor to Gibbs & Hill, Inc., New York, N.Y.

Filed Apr. 13, 1977, Ser. No. 787,278
Int. Cl.³ G21C *3/30, 19/20*
U.S. Cl. 176—30 **28 Claims**



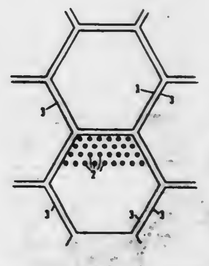
1. A water-cooled nuclear reactor which operates at an elevated temperature and pressure during normal operation having passive emergency shutdown and core cooling capability, comprising:
a reactor core comprising a plurality of columnar arrangements of nuclear fuel elements disposed during normal operation within a pressure vessel in a chain reacting relationship, said pressure vessel containing at least sufficient energy to disperse the bulk of the core fuel content by driving it from the core;
a plurality of hollow fuel dispersal guide conduits penetrating said pressure vessel at locations beneath said columnar arrangements and generally aligned therewith, said dispersal guide conduits being generally divergent at least along portions of their length substantially immediately beneath said pressure vessel for receiving nuclear fuel elements therefrom in the event of emergency shutdown and for guiding and dispersing said fuel elements whereby said fuel elements become spaced sufficiently to assume a non-critical dispersed configuration;
an external heat sink of capacity adequate to absorb the residual heat contained in the reactor core and spontaneously generated by said nuclear fuel elements after shutdown, said heat sink being disposed beneath said reactor core so that gravitational attraction aids in driving said nuclear fuel elements along said dispersal guide conduits into said dispersed configuration for cooling said nuclear fuel elements in the event of emergency shutdown; means positioned in series with each guide conduit for communicating said conduit with said pressure vessel for initiating transfer of fuel elements from said pressure vessel into said associated dispersal guide conduit in the event of emergency shutdown; and
means positioned in series with each guide conduit and adjacent said heat sink for permitting selective withdrawal of fuel elements from, and/or loading fuel elements into, said associated conduit.

4,274,921

FUEL ASSEMBLY FOR FAST NUCLEAR REACTORS

Wilfried Jung, Erlangen, and Peter Rau, Mittelehrenbach bei Forchheim, both of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Filed Dec. 6, 1978, Ser. No. 967,084
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1977, 2757396
Int. Cl.³ G21C *3/30*
U.S. Cl. 176—78 **5 Claims**



1. Fuel assembly for gas-cooled fast breeder nuclear reactors comprising a cluster of parallel-disposed fuel rods, and a steel casing surrounding said cluster of parallel-disposed fuel rods and defining a coolant flow configuration, the fuel rods being disposed in a manner that the axes thereof intersect imaginary coaxial circles, said casing being of circular cylindrical shape having a wall of lesser thickness than that of an hexagonal fuel-assembly casing of equal strength under like pressure and temperature stresses, so that the resultant increase in nuclear core volume of an assembly of a plurality of said circular-cylindrical fuel-assembly casings over the nuclear core volume of an assembly of hexagonal fuel-assembly casings due to a presence of wedge-shaped spaces between the circular-cylindrical

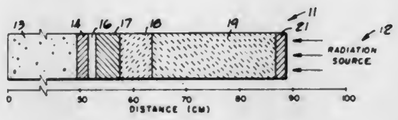
fuel-assembly casings is at most equal to a consequent reduction in nuclear core volume due to a reduction in the amount of steel of the less thicker walls of the circular-cylindrical fuel-assembly casings.

4,274,922

NUCLEAR REACTOR SHIELD INCLUDING MAGNESIUM OXIDE

Carl A. Rouse, Del Mar, and Massoud T. Simnad, La Jolla, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 11, 1978, Ser. No. 905,052
Int. Cl.³ G21C 5/12
U.S. Cl. 176—87 **16 Claims**



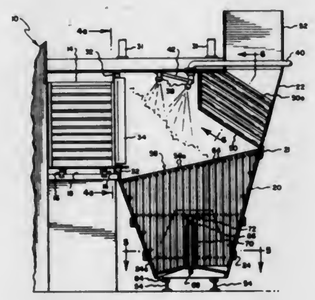
1. In a shield structure for a nuclear reactor characterized by substantial radiation of fast neutrons above an energy level of approximately 70 keV, the shield structure including means providing structural integrity, neutron absorption capability and at least limited neutron moderator capability, a substantial thickness of neutron moderator material being arranged adjacent an inner edge of the shield structure closest to the source of fast neutrons within the reactor, the improvement comprising the use of magnesium oxide as at least a substantial component of the moderator material of the shield structure.

4,274,923

AIR POLLUTION CONTROL METHOD AND APPARATUS FOR THE EXTRUSION AND QUENCHING OF COKE

Kevin D. Mahar, Buffalo, N.Y., assignor to Republic Steel Corporation, Cleveland, Ohio and The Hanna Furnace Corporation, Buffalo, N.Y.

Filed Feb. 22, 1979, Ser. No. 13,960
The portion of the term of this patent subsequent to Sep. 13, 1995, has been disclaimed.
Int. Cl.³ C10B 39/12
U.S. Cl. 201—39 **20 Claims**



1. In a method for controlling air pollution associated with a coke oven having a plurality of oven chambers adapted to process a corresponding plurality of coke masses and wherein hot coke masses are ejected from said oven chambers through an inlet end of a coke guide and through an outlet end thereof laterally spaced from said coke oven, the improvement comprising the steps of:

providing a vehicle means selectively movable past said oven chambers for indexing with said coke guide and carrying an open topped coke receiving container tiltable about a horizontal axis,

providing a hood to enclose within said hood in a substantially smoketight manner the air space over said container,

mating said hood with said container when in registry with one another,

extruding coke through said coke guide into said container while immobile, when one is indexed to the other, spraying the coke upon passage through said coke guide to said container with a predetermined quantity of liquid insufficient to quench the coke but sufficient to create a vapor atmosphere within said enclosed air space whereby particulate matter within said air space associated with the coke becomes wetted and entrained in said vapor and combustion of said coke in said air space is substantially retarded,

providing a restricted passage through said hood from said air space to ambient atmosphere for venting of said vapor and particulate matter entrained therein, said passage ncluding means to preclude open venting to ambient atmosphere whereby a back pressure of vapor is developed in said hood,

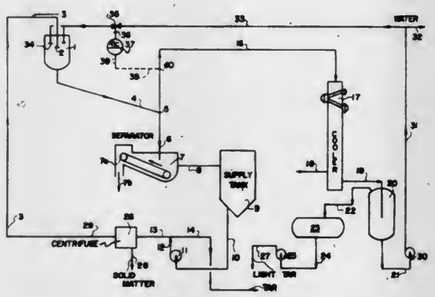
providing means responsive to said back pressure in said hood for removing said wetted, entrained particulate matter from the vapor flow through said passage.

4,274,924

APPARATUS FOR COOLING AND DEDUSTING DEGASIFICATION GASES ESCAPING FROM COAL DEGASIFICATION CHAMBERS

Heinrich Weber, Recklinghausen; Horst Dungs, Herne; Franz Beckmann, Alsdorf; Hugo Schmauch, Merchweiler, and Karl-Heinz Flasch, Bous, all of Fed. Rep. of Germany, assignors to Firma Carl Still GmbH & Co. KG, Fed. Rep. of Germany

Division of Ser. No. 856,039, Dec. 16, 1977. This application Jun. 8, 1979, Ser. No. 46,619
Claims priority, application Fed. Rep. of Germany, Nov. 30, 1976, 2654187
Int. Cl.³ C10B 27/04, 27/00
U.S. Cl. 202—255 **2 Claims**



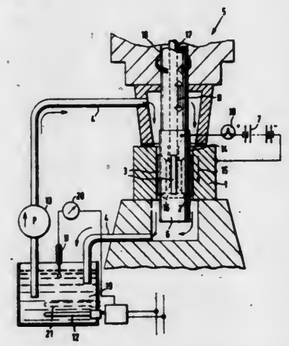
1. An apparatus for cooling and dedusting degasification gases which escape from coal degasification chambers comprising a collecting main, means for circulating a crude tar into the collecting main and into the gases therein to dedust the gases and thereby forming dedusted gases and liquid, means for metering water into said collecting main in addition to crude tar, conduit means connected to said collecting main for separating the dedusted gases and liquid, first separator means connected to said collecting main for receiving the liquid from said dedusted gases and for separating heavy tar and crude tar in the liquid, recirculating means connected to said first separator means for recirculating the separated crude tar back to said collecting main, a cooler for condensing part of the gases to form a condensate, a conduit for gases connected to said conduit means for passing the dedusted gases to said cooler, and temperature control means operatively connected to said metering means, operatively responsive to the temperature in said conduit for gases, for operating said metering means to inject an amount of said water into the collecting main relative to the degasification gases so as to completely evaporate the water in the collecting main.

4,274,925

METHOD OF ELECTROPLATING AND HONING LIGHT-ALLOY WORKPIECES

Wolfgang Bässler, Wiesloch, Fed. Rep. of Germany, assignor to Mahle GmbH, Stuttgart and Institut für Werkzeugmaschinen und Betriebstechnik Universität Karlsruhe, Karlsruhe, both of, Fed. Rep. of Germany

Filed Mar. 19, 1980, Ser. No. 131,691
Claims priority, application Fed. Rep. of Germany, Mar. 27, 1979, 2911979
Int. Cl.³ C25D 5/22, 5/30, 7/04
U.S. Cl. 204—26 **1 Claim**



1. A method of electrodepositing chromium on the internal surface of a cylindrical aluminium base alloy workpiece comprising

(a) placing the workpiece within a honing machine having honing stones and an electrolytic circuit including an electrolyte for said metal

(b) circulating said electrolyte over said surface at a speed of 5 to 6 meters per second at a current density of 250 to 750 A/dm² and a temperature of 30° to 40° C. whilst the honing stones are disengaged from the depositing metal and until a first coating of said metal is produced having a thickness of 20 to 50 μm.

(c) moving the honing stones radially so as to engage said deposited metal while continuing deposition of said metal under approximately the same conditions until a second coating is applied to the first coating with a thickness at least equal to that of the first coating.

4,274,926

PROCESS FOR THE ELECTROLYTIC DEPOSITION OF SILVER AND SILVER ALLOY COATINGS AND COMPOSITIONS THEREFORE

Franz Simon, Schmitten, and Manfred Schmidt, Rodenbach, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 135,765
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914880
Int. Cl.³ C25D 3/66
U.S. Cl. 204—39 **22 Claims**

1. A composition suitable for the electrolytic deposition of silver or a silver base alloy comprising an electrolyte which is a salt melt bath and consists essentially of a silver salt and an alkali metal thiocyanate or a mixture of a silver salt, alkali thiocyanate and a salt of at least one metal forming an alloy with silver and which salt melt bath contains water in amount of 20 to 200 ml per liter of melt.

4,274,927

PROCESS FOR THE ELECTROLYTIC DEPOSITION OF GOLD AND GOLD ALLOY COATINGS AND COMPOSITIONS THEREFORE

Franz Simon, Schmitten; Wolfgang Zilske, Hanau, and Manfred Schmidt, Rodenbach, all of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Mar. 31, 1980, Ser. No. 135,766
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1979, 2914879
Int. Cl.³ C25D 3/66
U.S. Cl. 204—39 **24 Claims**

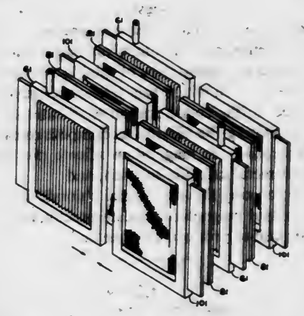
1. A composition suitable for the electrolytic deposition of gold or a gold base alloy comprising an electrolyte which is a salt melt bath and consists essentially of a gold salt and an alkali metal thiocyanate or a mixture of a gold salt, alkali metal thiocyanate and a salt of at least one metal forming an alloy with gold and which salt melt bath contains water in an amount of 20 to 200 ml per liter of melt.

4,274,928

PROCESS FOR ELECTROLYZING BRINE IN A PERMIONIC MEMBRANE ELECTROLYTIC CELL

Hugh Cunningham, Corpus Christi, Tex., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 928,645, Jul. 27, 1978. This application Jul. 30, 1979, Ser. No. 62,211
Int. Cl.³ C25B 1/34
U.S. Cl. 204—98 **4 Claims**



1. A method of conducting electrolysis in an electrolytic cell having an aqueous acidic anolyte in contact with anode means, an aqueous alkaline catholyte in contact with cathode means, said anolyte being separated from said catholyte by a permionic membrane,

(a) said cathode means comprising a cathode unit having:

(1) a picture frame of four peripheral walls;

(2) internal conduit means within said peripheral walls;

(3) a plurality of parallel, elongate, vertical cathodic elements; and

(b) said anode means comprising an anode unit substantially parallel to said cathode unit, and having a picture frame of four peripheral walls having internal conduit means, anodic elements within said picture frame, and bus bar means to said peripheral walls; and

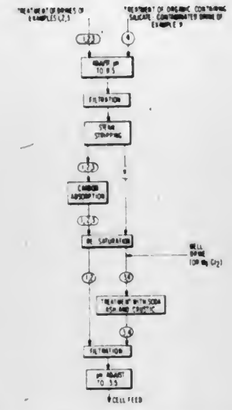
(c) a spacing element interposed between the cathodic elements and the membrane whereby the permionic membrane is nearer the anodic elements than the cathodic elements;

which method comprises feeding brine to the anolyte, passing an electrical current from the anode means to the cathode means, and recovering chlorine and alkali metal hydroxide.

4,274,929
CHEMICAL REMOVAL OF SILICON FROM WASTE BRINE STREAM FOR CHLOR-ALKALI CELL

Donald S. Novak, Chardon, Ohio, assignor to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jun. 23, 1980, Ser. No. 161,937
Int. Cl.³ C25B 1/46
U.S. Cl. 704—98 7 Claims



1. A process for reducing the silicate content of an aqueous alkali metal chloride solution containing soluble silicates in an amount in excess of about 20 ppm and for electrolyzing said solution in an electrolytic cell equipped with a diaphragm made at least in part of asbestos, comprising:

(a) adding at least one soluble magnesium compound to the soluble silicate containing alkali metal chloride solution to establish a concentration of soluble magnesium compound in the solution which is at least about stoichiometric with respect to the concentration of silicates in solution, and precipitating the silicates as compounds of magnesium;

(b) separating the magnesium silicate precipitate from the alkali metal chloride solution; and

(c) electolyzing the alkali metal chloride solution, separated from said magnesium silicate precipitate, in said electrolytic cell to produce chlorine and alkali metal hydroxide.

4,274,930
PROCESS FOR RECOVERING COBALT ELECTROLYTICALLY

Victor A. Ettel; Eric A. P. Devuyst; Juraj Babjak, all of Mississauga; John Ambrose, and Gerald V. Glaum, both of Oakville, all of Canada, assignors to The International Nickel Company, Inc., New York, N.Y.

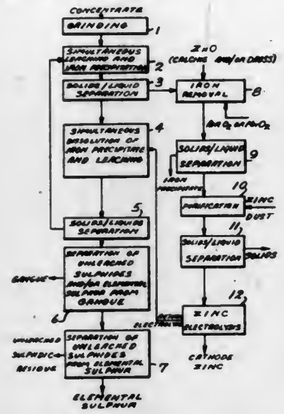
Filed Jul. 28, 1980, Ser. No. 172,751
Int. Cl.³ C25C 1/08
U.S. Cl. 204—112 12 Claims

1. A process in which a feed which consists of a cobaltic oxide hydrate precipitate is dissolved in a spent sulfate electrolyte from a cobalt electrowinning operation and in which at least one of the feed and spent electrolyte is contaminated with chloride ions, wherein the improvement comprises mixing the feed with the spent electrolyte to form a slurry, sparging air through the slurry for a period sufficient to liberate as gaseous chlorine substantially all of the chloride ions in the slurry, and thereafter treating the dechlorinated slurry with a reducing agent selected from the group consisting of sulfur dioxide, hydrogen peroxide and organic reagents capable of reducing cobalt to its divalent state; whereby substantially all of the cobalt in the feed is dissolved to provide a substantially chloride-free cobalt-containing solution from which pure cobalt can be electrowon.

4,274,931
LEACHING PROCESS FOR ZINC SULPHIDE CONTAINING MATERIALS

Bernard Verbaan, Randburg, South Africa, assignor to National Institute for Metallurgy, Randburg, South Africa

Filed Jan. 18, 1980, Ser. No. 113,284
Claims priority, application South Africa, Jan. 24, 1979, 70/0294
Int. Cl.³ C25C 1/14
U.S. Cl. 204—119 13 Claims



1. A process for the treatment of zinc sulphide containing materials comprising the steps of:

(i) contacting at a temperature of from 70° C. to 119° C., a sub-divided zinc sulphide material with an aqueous leach solution which has dissolved therein zinc and impurities, from 5 to 50 g/l iron, together with a maximum of 20 g/l sulphuric acid to dissolve zinc and other soluble metals in the zinc sulphide containing material by the oxidative action of ferric ions formed by the co-temporaneous oxidation of ferrous ions to their ferric state and cause precipitation of iron;

(ii) separating the solids and leach liquor resulting from step (i);

(iii) subjecting the leach liquor obtained in step (ii) to any required purification steps followed by electrowinning of zinc therefrom to leave a spent electrolyte having regenerated sulphuric acid therein;

(iv) contacting spent electrolyte resulting from step (iii) above with the solids resulting from step (ii) above to cause redissolution of iron precipitate and the further dissolution of zinc and metal impurities from the residue of the zinc sulphide containing material by the oxidative action of ferric ions resulting from the dissolution of the iron precipitate and also formed by the co-temporaneous oxidation of ferrous ions to their ferric state;

(v) separating the solids and leach solution resulting from step (iv), and;

(vi) utilising the leach solution resulting from step (v) as at least the major portion of the aqueous leach solution employed in step (i).

4,274,932
SEMI-CRYSTALLINE POLYMERS STABILIZED FOR IRRADIATION STERILIZATION

Joel Williams, Cary; Terry Dunn, and Vivian Stannett, both of Raleigh, all of N.C., assignors to Becton Dickinson and Company, Paramus, N.J.

Filed Sep. 10, 1979, Ser. No. 74,250
Int. Cl.³ C08F 8/00
U.S. Cl. 204—159.2 27 Claims

1. A flexible sterilized article, comprising:

polypropylene having a crystalline content of from 20 to 90 percent, said polypropylene having a narrow molecular weight distribution wherein the ratio of the weight average molecular weight to the number average molecular weight is no greater than 9.0, said polymer having been irradiated with a sterilizing amount of high energy radiation having incorporated therein a mobilizing amount of a non-crystalline mobilizing additive which increases the free volume of the polypropylene and retains the flexibility thereof.

11. A process for sterilizing a semi-crystalline polymer, comprising:

subjecting to a sterilizing amount of high energy irradiation a semi-crystalline polymer having a crystalline content of from 20-90%, said polymer having a narrow molecular weight distribution wherein the ratio of the weight average molecular weight to the number average molecular weight is no greater than 9.0, said polymer having incorporated therein a mobilizing amount of a non-crystalline liquid mobilizing additive which increases the free volume of the polymer and retains the flexibility thereof to thereby produce a sterilized polymer which retains its flexibility.

4,274,933
COATING COMPOSITION

Kazumasa Kamada; Isao Sasaki, and Kenji Kushi, all of Ohtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

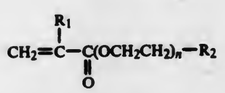
Filed Dec. 14, 1979, Ser. No. 103,626
Claims priority, application Japan, Dec. 28, 1978, 53-164683
Int. Cl.³ C08F 2/46
U.S. Cl. 204—159.24 12 Claims

1. A coating composition comprising

A. from about 5 to about 90 parts by weight of a monomer mixture which consists essentially of

(1) from about 20 to about 95% by weight of a polyfunctional monomer having at least three (meth)acryloyloxy groups in one molecule;

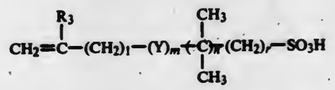
(2) from about 1 to about 25% by weight of a monomer represented by the formula:



(I)

wherein R_1 is hydrogen or a methyl group, R_2 is an alkoxy or (meth)acryloyloxy group of 1 to 5 carbon atoms and n is an integer of 5 to 30;

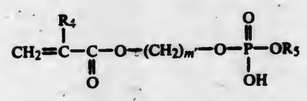
(3) from about 1 to about 15% by weight of a sulfonic acid type monomer represented by the formula:



(II)

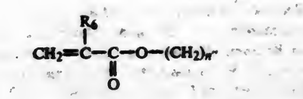
wherein R_3 is hydrogen or a methyl group, Y is a —CONH or —COO group and l, m, n' and r are integers of 0 to 5);

(4) from about 1 to about 20% by weight of a phosphoric acid ester-type monomer represented by the formula:



(III)

wherein R_4 is hydrogen or a methyl group, R_5 is hydrogen or a



group, R_6 is hydrogen or a methyl group and m' and n'' are integers of 1 to 15; and

(5) from about 2 to about 20% by weight of an ethanolamine-type compound represented by the formula:

$$NR_7R_8(CH_2CH_2OH) \quad \text{(IV)}$$

wherein each of R_7 and R_8 is independently hydrogen or an alkyl group of 1 to 15 carbon atoms or a CH_2CH_2C group; together with

B. from about 95 to about 10 parts by weight of at least one organic solvent that forms a uniform solution when mixed with said monomer mixture A; and

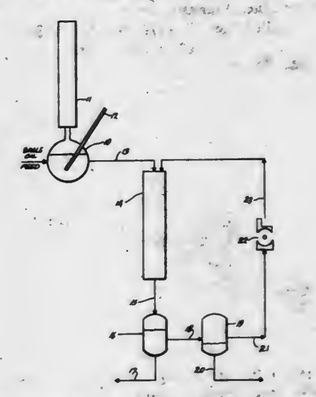
C. up to 10 parts by weight of a photosensitizing agent per 100 parts by weight of the total of the monomer mixture A and organic solvent B;

said coating composition capable of forming a dyeable, cross-linked hardened film high in abrasion resistance, surface smoothness and cloud prevention, said film having a permanent antistaticity when irradiated with active energy rays.

4,274,934
PROCESS FOR REMOVING NITROGEN FROM SHALE OIL USING PYRROLE POLYMERIZATION

Leslie E. Compton, Claremont, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 5, 1979, Ser. No. 55,007
Int. Cl.³ C07C 3/24; C10G 27/00, 21/14
U.S. Cl. 204—162 R 11 Claims



1. A process for reducing the nitrogen content of shale oil comprising polymerizing nitrogen-containing compounds selected from the group consisting of pyrroles, indoles, carbazoles and pyrrole-containing compounds by the steps of:

conditioning the shale oil by heating the shale oil to at least about 85° C., or oxygenating the shale oil with an oxygen-supplying gas, or irradiating the shale oil with actinic radiation for forming nitrogen-containing polymers that are insoluble in the shale oil; and

separating the shale oil from the insoluble polymers.

4,274,935

MAGNETIC MEMORY LAYER

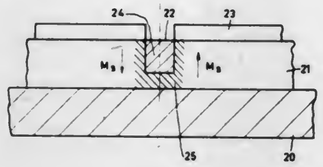
Christoph Schmelzer, Sahelm; Reimar Spohr, Darmstadt-Wixhausen; Jens-Peter Krumme; Klaus Witter, both of Hamburg, and Heinrich Heitmann, Reilingen, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 13, 1978, Ser. No. 924,369

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1977, 2732282

Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 M 7 Claims



1. A magnetic memory device comprising a magnetic layer for storing information in the form of a fixed two dimensional array of magnetic domains, which layer can be magnetized in either of two opposite directions, the boundaries of the domains being defined by local gradients in the magnetic properties of the magnetic layer, said magnetic properties including the value and direction of the magnetic anisotropy and the value and direction of the magnetic exchange energy, with the value of the magnetization remaining substantially unaltered;

wherein at the domain boundaries the magnetic layer has a higher defect density than at other areas of the layer and at the domain wall locations the magnetic layer contains implanted ions injected into the layer in a higher concentration than at other areas of the layer thereby causing a relative expansion of the crystal lattice of the layer.

4,274,936

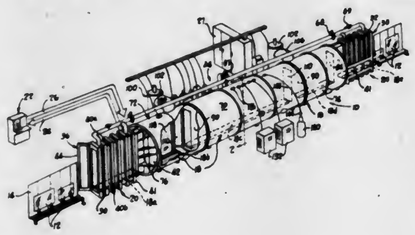
VACUUM DEPOSITION SYSTEM AND METHOD

Robert B. Love, Franklin, Tenn., assignor to Advanced Coating Technology, Inc., Franklin, Tenn.

Filed Apr. 30, 1979, Ser. No. 34,347

Int. Cl.³ C23C 15/00

U.S. Cl. 204—192 R 17 Claims



1. A system for sputtering material on substrates at extremely low pressures comprising:

(a) a working chamber comprising a coating chamber section and an isolation chamber section defined by a generally cylindrical pressure wall;

(b) an access chamber adjacent said isolation chamber section;

(c) structure defining pressure gates between said chamber sections and between said access chamber and ambient atmosphere;

(d) roughing vacuum pumping means for evacuating said access chamber to a first, roughing vacuum pressure;

(e) first and second molecular pumping means for evacuating said isolation and coating chamber sections, respectively, said first molecular pumping means effective to evacuate said isolation chamber from a second pressure level substantially less than said roughing vacuum pressure;

(f) a source of gas communicating with said coating chamber section for providing a controlled atmosphere in said coating chamber section; and,

(g) a conveyor system for supporting and moving substrates through said chambers via said gates;

(h) said access chamber formed by pressure wall structure extending closely about substrates conveyed therethrough to minimize the volume of said access chamber and said isolation chamber section defining an internal volume which is no less than about three times larger than said access chamber volume so that when said access and isolation chambers are communicated said isolation chamber effectively further evacuates the access chamber and reduces the pressure in said access chamber substantially to assure said second pressure level in said isolation chamber when said access and isolation chambers are communicated.

4,274,937

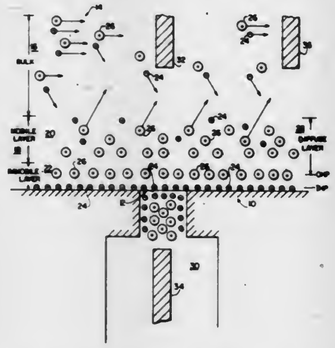
APPARATUS FOR SENSING ELECTRICAL POTENTIALS

Eugene Findl, Amityville, N.Y., and Robert J. Kurtz, Cliffside Park, N.J., assignors to Howmedica Inc., New York, N.Y.

Continuation of Ser. No. 815,072, Jul. 12, 1977, abandoned. This application Aug. 7, 1979, Ser. No. 64,601

Int. Cl.³ G01N 27/46

U.S. Cl. 204—195 R 13 Claims



1. Apparatus for sensing the voltage changes in the electrical potentials at the boundary formed between a flowing fluid and a solid whereby a double layer having an immobile layer in contact with the solid is formed between the boundary and the bulk of the flowing fluid, the apparatus including a sensor comprising:

a solid wall having a porous portion therein that is porous to ionic flow, but impervious to direct fluid communication therethrough;

inlet means for introducing a flowing fluid to one end portion of said solid wall;

means for directing the introduced fluid to flow along said wall;

outlet means for conducting the directed flowing fluid away from the other end portion of said solid wall, said inlet means, said wall, and said outlet means providing a flow path completely through said sensor;

a first passive electrode;

a well located at the same position in said flow path as said porous portion, said well being to fluid communication with said flow path, but having no flowing therethrough;

first means for mounting said first passive electrode in said well, and thus on one side of said porous portion and spaced from said wall out of said flow path and thus adapted to be in direct electrical contact with the bulk of the fluid on one side of the double layer formed at said porous portion when the fluid is flowing through said flow path along said solid wall;

a second passive electrode of substantially the same composition as said first electrode; and

second means for mounting said second passive electrode on the other side of said porous portion in electrical contact with a fluid when flowing through said flow path, said second electrode thereby being mounted out of physical and direct electrical contact with the fluid when flowing through said flow path and said second electrode thereby being mounted in electrical contact through said porous portion with the immobile layer of the fluid when flowing along said one side of said porous portion and thus on the other side of a formed double layer.

4,274,938

APPARATUS FOR THE PRODUCTION OF HYDROGEN AND OXYGEN

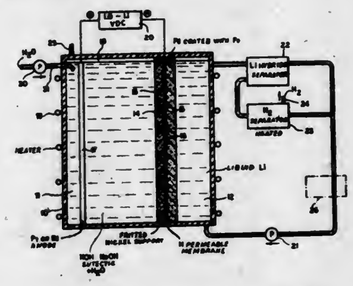
Rudolf Schulten, Aachen-Richterich; Friedrich Behr, Herzogenrath-Kohlscheid, and Helmut Wenzl, Jülich, all of Fed. Rep. of Germany, assignors to Kernforschungsanlage Jülich GmbH, Jülich, Fed. Rep. of Germany

Division of Ser. No. 12,746, Feb. 16, 1979, Pat. No. 4,235,863. This application Nov. 28, 1979, Ser. No. 97,968

Claims priority, application Fed. Rep. of Germany, Feb. 18, 1978, 2806984

Int. Cl.³ C25B 15/08; C25C 3/02; C25B 9/00, 13/04

U.S. Cl. 204—239 5 Claims



1. An apparatus for the production of hydrogen and oxygen or an oxidized compound, comprising:

an electrolysis cell subdivided by a membrane into an anode compartment and a cathode compartment, said membrane being permeable to hydrogen exclusively by absorption at said anode compartment and diffusion through the membrane, said anode compartment adapted to contain an electrolyte electrolytically disassociatable to produce hydrogen;

means for electrolyzing said electrolyte between an anode in said anode compartment and a cathode at said cathode compartment to disassociate a substance in said electrolyte and produce hydrogen which diffuses through said membrane to said cathode compartment;

means for continuously feeding a molten hydride-forming metal into said cathode compartment whereby said metal reacts with hydrogen and forms the corresponding hydride;

means external of said cathode compartment for thermally decomposing the metal hydride and generating hydrogen; and

means for recycling metal formed by thermal decomposition of the metal hydride to the cathode compartment.

4,274,939

ELECTRODE PACKAGE AND USE THEREOF

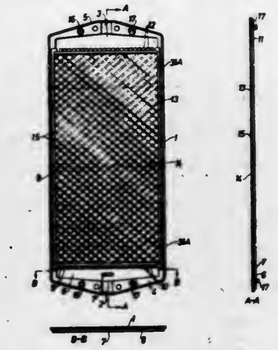
Ake B. Björklint, Vallentuna, Sweden, assignor to Svenska Utvecklingsaktiebolaget (SU) Swedish National Development Co., Stockholm, Sweden

Filed Apr. 10, 1980, Ser. No. 139,119

Claims priority, application Sweden, Apr. 20, 1979, 7903503

Int. Cl.³ C25B 9/02, 9/04, 15/08; H01M 2/14

U.S. Cl. 204—257 15 Claims



1. An electrode package intended for use in an electrochemical cell, especially in a membrane cell in an electrolyzer of the filter-press type, wherein a substantially flat electrode (32) is surrounded and located by two mutually engaging substantially flat inner frames (1) with inlet and outlet channels (2 and 3) for electrolyte, the central opening (8), defined by said inner frames, and allowing access of electrolyte to the electrode, being covered by a grid (13) on each inner frame; both inner frames in turn are surrounded by a substantially flat outer frame (20), having at least one hole (21, 22) for supply, and at least one hole (23, 24) for discharge of electrolyte, at least one of each of said holes (22 and 24, respectively) via its own channel (25, 26) being in communication with the respective inlet and outlet channels of the inner frames, the outer frame being locked between the two inner frames by means of locking means (16, 17); at least one inner frame, on the side facing towards the electrode and opposite the inlet channel (2) is provided with a boss-like projection (7) intended to serve as striking surface for incoming electrolyte and for distributing it laterally, and at least in its lower portion (6), with a plurality of constriction means (9) for the electrolyte in to the electrode; at least the other of the inner frames is provided in its upper portion (11) with a plurality of said constriction means (12); and the grids of the inner frames comprise ribs (14, 15) lying in two planes, which form oblique angles to the electrolyte flow fed to the electrode.

4,274,940

PROCESS FOR MAKING FERRO-NICKEL SHOT FOR ELECTROPLATING AND SHOT MADE THEREBY

Guy Plancqueel, and Irme Toth, both of Rambouillet, France, assignors to Societe Metallurgique le Nickel -S.L.N., Paris, France

Continuation-in-part of Ser. No. 974,447, Dec. 29, 1978, abandoned, which is a continuation of Ser. No. 713,432, Aug. 11, 1976, abandoned. This application Jun. 19, 1979, Ser. No. 50,095

Claims priority, application France, Aug. 13, 1975, 75 25178

Int. Cl.³ C25B 11/02, 11/04; B22F 9/08

U.S. Cl. 204—294 24 Claims

1. A process of making ferro-nickel shot suitable for electroplating having a Ni+Co/Ni+Co+Fe ratio ranging from about 20 to 90% by weight, an Fe content ranging from about 10 to 80% by weight, a Co/Ni+Co+Fe ratio ranging from about 0 to 20% and containing a granulating adjuvant wherein about 99.8% by weight of said ferro-nickel shot consists essen-

tially of iron, nickel, cobalt and said granulating adjuvant, comprising granulating in water a molten ferro-nickel alloy containing between 0.1 and 1% by weight of said granulating adjuvant containing silicon, carbon, magnesium, manganese and aluminum to thereby form said ferro-nickel shot, said ferro-nickel alloy containing from the granulating adjuvant about 0.01 to 0.5% silicon, about 0.02 to 0.2% carbon, about 0.01 to 0.4% magnesium, up to about 0.3% manganese, and up to about 0.1% aluminum.

14. A ferro-nickel shot which will withstand a compressive load of 5 metric tons without disintegrating, comprising by weight:

Ni + Co/Ni + Co + Fe	20 to 90%
Fe	10 to 80%
Co/Ni + Co + Fe	0 to 20%
Adjuvants	0.1 to 1.0%

wherein about 99.8% by weight of said ferro-nickel shot consists essentially of iron, nickel, cobalt and said adjuvants comprising silicon, carbon, magnesium, manganese and aluminum, said ferro-nickel shot containing from said adjuvants about 0.01 to 0.5% silicon, about 0.02 to 0.2% carbon, about 0.01 to 0.4% magnesium, up to about 0.3% manganese, and up to about 0.1% aluminum, said shot being prepared by forming a molten alloy having essentially the same composition of the shot, and granulating the alloy in water.

4,274,941

PROCESS FOR GENERATING COMBUSTIBLE GASES, LIQUID COAL BYPRODUCTS AND SUPERHEATED STEAM FROM COAL

Klaus Janssen, Essen; Werner Peters, Wattenscheid, and Hans-Dieter Schilling, Hattingen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Filed Oct. 8, 1975, Ser. No. 620,772

Claims priority, application Fed. Rep. of Germany, Oct. 10, 1974, 2448354

Int. Cl.³ C10G *1/00*; C10J *3/00*; C10B *47/00, 47/24*

U.S. Cl. 208—8 R **10 Claims**

1. A process for obtaining combustible gas and liquid byproducts from coal and generating steam by the combustion of the coal, the process comprising

(a) charging fine grain size coal into a degasifying first zone of a single generally horizontal fluidizing bed reactor while introducing into said degasifying zone a stream of hot solid ash particles acting as heat exchange particles;

(b) subjecting the coal in said degasifying zone to a fluidizing action at a temperature of about 450° to 600° C. whereby the coal particles are degassed and part of the combustion gas and liquid byproducts formed thereby may be recovered;

(c) passing the fluidized coke particles formed in said degasifying zone together with the hot ash particles into an adjoining second zone of the reactor acting as a combustion zone, the two zones being separated by a vertical partition wall,

the step of passing comprising

using a first syphon means comprised of a shorter inlet portion communicating with said degasifying zone, a longer outlet portion communicating with said combustion zone and a slanting intermediate portion slanting downwardly from the bottom of the inlet portion to the bottom of the outlet portion, the outlet portion being located to the same side of said partition wall as is said second zone, the outlet portion extending vertically upwards from the bottom of the slanting intermediate portion up into said second zone, and

introducing a propelling gas into the outlet portion at a location which is at the bottom of the outlet portion and which is located to the same side of said partition wall as is said second zone, to cause coke and ash particles in the degasifying zone to descend along the slanting intermediate portion under the force of gravity and be impelled upwards through the outlet portion to the top of the outlet portion and thereby enter said combustion zone;

(d) subjecting the coke particles in said combustion zone to fluidization with hot air and burning at a temperature of about 800° to 900° C. to effect the formation of additional ash particles and causing the heat of combustion produced in said combustion zone to be utilized for heating or steam generation purposes;

(e) continuously withdrawing hot ash particles from said combustion zone and feeding them back into said degasifying zone in order to provide said hot ash particles at (a) which are brought into contact with the charges of fresh coal, so as to heat up the coal particles and support their fluidization,

the step of withdrawing comprising

using a second syphon means comprised of a shorter inlet portion communicating with said combustion zone, a longer outlet portion communicating with said degasifying zone and a slanting intermediate portion slanting downwardly from the bottom of the inlet portion to the bottom of the outlet portion of said second syphon means, the outlet portion being located to the same side of said partition wall as is the first zone, the outlet portion extending vertically upwards from the bottom of the slanting intermediate portion up into said first zone, and

introducing a propelling gas into the outlet portion of said second syphon means at a location which is at the bottom of the outlet portion and which is located to the same side of said partition wall as is said first zone, to cause hot ash particles in said combustion zone to descend along the slanting intermediate portion of said second syphon means under the force of gravity and be impelled upwards through the outlet portion to the top of the outlet portion of the second syphon means and thereby enter said degasifying zone,

the steps of passing and withdrawing comprising

maintaining the pressures in the two zones sufficiently uniform to permit the flow of fluidized coke and heat exchange particles from said degasifying zone through said first syphon means into said combustion zone and the flow of hot ash particles from said combustion zone through said second syphon means into said degasifying zone,

the steps of passing and withdrawing furthermore comprising maintaining the level of material in said degasifying zone and in said combustion zone higher than the inlet and outlet portions of said first and second syphon means in order to prevent gases located above the level of material in said degasifying zone from freely passing into said combustion zone and in order to prevent gases located above the level of material in said combustion zone from freely passing into said degasifying zone.

4,274,942

CONTROL OF EMISSIONS IN FCC REGENERATOR FLUE GAS

David B. Bartholic, Watchung, and Don S. Chin, Woodbridge, both of N.J., assignors to Engelhard Minerals & Chemicals Corporation, Edison, N.J.

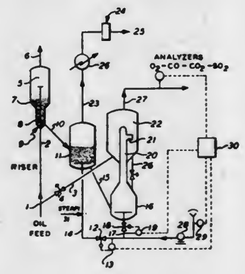
Filed Apr. 4, 1979, Ser. No. 26,935

Int. Cl.³ C10G *11/18*

U.S. Cl. 208—113 **25 Claims**

1. In a process for catalytic cracking of a sulfur containing hydrocarbon charge by contacting said charge at cracking temperature with a circulating inventory of cracking catalyst whereby the catalyst acquires an inactivating carbonaceous deposit containing sulfur, separating vaporous products of reaction from circulating catalyst inventory containing said carbonaceous deposit, regenerating said inventory with air at a temperature to burn said carbonaceous deposit thus generating oxides of carbon and sulfur and regenerating the catalyst, separating products of combustion from regenerated catalyst, and returning regenerated catalyst to renewed contact with hydrocarbon charge, the improvement which comprises:

regenerating said separated inventory by first contacting it with a source of O_2 in the presence of steam using a predetermined quantity of O_2 so limited as to partially oxidize carbon in said carbonaceous deposit while eliminating substantially all hydrogen therein, said contacting being further characterized by the use of steam in amount such that a reducing atmosphere is created by steam and by carbon monoxide resulting from partial oxidation of said carbon and being carried out under conditions to substantially reduce the content of sulfur in said carbonaceous



deposit and produce vaporous products of partial oxidation essentially free from oxides of sulfur and including hydrogen sulfide, carbon monoxide, as aforesaid, carbon dioxide and water vapor, separating said vaporous products of partial oxidation from the resulting partially regenerated inventory containing residual carbon now having a substantially reduced sulfur content, thereafter contacting said partially regenerated inventory with air to burn residual carbonaceous deposit and separating products of combustion from regenerated catalyst, whereby there are reduced amounts of oxides of sulfur and carbon in said products of combustion separated from regenerated catalyst as a result of prior reduction in the amount of sulfur and carbon in said carbonaceous deposit by partial oxidation as aforementioned.

4,274,943

REMOVAL OF METAL ALKARYL SULFONATES FROM HYDROCARBONS

Gifford G. McClaflin, Ponca City, Okla., assignor to Conoco, Inc., Ponca City, Okla.

Filed Sep. 18, 1979, Ser. No. 76,655

Int. Cl.³ C10M *11/00*

U.S. Cl. 208—181 **8 Claims**

1. A method of removing metal alkaryl sulfonate from a hydrocarbon solution containing the same, said method comprising:

(A) adding water, basic compound and recovery surfactant to a hydrocarbon solution of metal alkaryl sulfonate to form an admixture,

(B) agitating the admixture,

(C) allowing the admixture to form a hydrocarbon phase and an aqueous phase containing metal alkaryl sulfonate, and

(D) separating the hydrocarbon phase and the aqueous phase

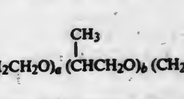
said method being characterized further in that

(a) the amount of basic compound is sufficient to provide a pH of at least 7.1,

(b) the amount of water to hydrocarbon is in the range of about 0.5 to about 10:1 on a weight basis,

(c) the amount of recovery surfactant is in the range of about 10 to about 10,000 parts per million by weight, based on the hydrocarbon,

(d) the metal alkaryl sulfonate is represented by the formula



wherein

A=hydrogen or a C_1-C_4 alkyl group

m=1 or 2 when A is alkyl

R=C_9-C_{18} alkyl group

n=1 or 2

M=alkali metal

when A is hydrogen, m=1

when A is alkyl the maximum number of carbon atoms in A(m) is 4, and

the total number of carbon atoms in A(m) and R is in the range of 12 to 22,

(e) the hydrocarbon is liquid and selected from the group consisting of crude oils and C_6-C_{18} straight and branched-chain hydrocarbons,

(f) the recovery surfactant is selected from the group consisting of

(i) ethoxylated alcohols represented by one of the formulae

$$RO(CH_2CH_2O)_nH$$

wherein R is an alkyl group containing from 10 to 20 carbon atoms and n is a number in the range of about 5 to about 40

or

$$R-(OCHCH_2)_m(CH_2CH_2O)_nOH \quad (CH_3 \text{ on } OCHCH_2)$$

wherein R is an alkyl group containing 10 to 20 carbon atoms, m is a number in the range of 1 to 32, and n is a number in the range of 2 to 30,

(ii) ethoxylated alcohol sulfates represented by the formula

$$[CH_3(CH_2)_xCH_2(OCH_2CH_2)_nOSO_3]M$$

wherein x is an integer in the range of about 8 to about 20, n is a number in the range of about 1 to about 50, and M is NH_4 or Na,

(iii) polyoxyethylene-polyoxypropylene block polymers represented by one of the formulae

$$HO(CH_2CH_2O)_a(CHCH_2O)_b(CH_2CH_2O)_cH \quad (CH_3 \text{ on } CHCH_2O)$$

wherein a and c are numbers in the range of 1 to 15, with the sum of a and c being in the range of 2 to 30, and b is a number in the range of 1 to 32,

or

$$HO(CHCH_2O)_a(CH_2CH_2O)_b(CHCH_2O)_cH \quad (CH_3 \text{ on both } CHCH_2O)$$

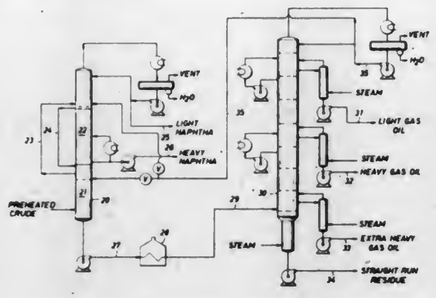
wherein a and c are numbers in the range of 1 to 16, with the sum of a and c being in the range of 2 to 32, and b is a number in the range of 2 to 30, and

(g) the basic compound is selected from the group consisting of alkali metal hydroxides and alkali metal carbonates.

4,274,944
FRACTIONATION PROCESS

Robert P. Bannon, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Dec. 21, 1979, Ser. No. 106,340
Int. Cl.³ B01D 3/06; C10G 7/00
U.S. Cl. 208—352 2 Claims



1. A process for fractionating crude oil which comprises:
(a) passing a crude oil feed stream into the flasher section of a first fractional distillation column, the fractional distillation column comprising said flasher section and a segregated naphtha splitter section, under conditions in said flasher section effective to fractionate said crude oil feed stream into a rectified vapor and a flashed crude bottoms;
(b) passing rectified vapor from the flasher section to an intermediate location in the naphtha splitter section and fractionally distilling said vapor under conditions effective to produce a light naphtha fraction, a heavy naphtha fraction, and a reflux liquid which is returned to the flasher section;
(c) passing the flashed crude bottoms to a second fractional distillation column and fractionally distilling said flashed crude bottoms to produce a product mix comprising a naphtha fraction, a gas oil, and residue; and
(d) passing at least the bulk of said naphtha fraction to said flasher section of said first fractional distillation column.

4,274,945
IRON ORE BENEFICIATION BY SELECTIVE FLOCCULATION

Richard M. Goodman, Norwalk, and Hans P. Panzer, Stamford, both of Conn., assignors to American Cyanamid Company, Stamford, Conn.

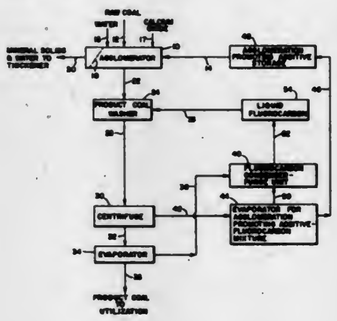
Filed Nov. 7, 1979, Ser. No. 92,002
Int. Cl.³ B03B 1/04
U.S. Cl. 209—5 5 Claims

1. A process of selective flocculation for iron ore values wherein a ground iron ore containing siliceous gangue is first dispersed in an aqueous medium and thereafter conditioned with an effective amount of a selective flocculant thereby selectively flocculating the iron-containing particles without causing a corresponding flocculation of the siliceous gangue wherein said selective flocculant is a partially carboxylated polyacrylamide containing from about 35 to 55 percent carboxyl groups and of a molecular weight in excess of one million.

4,274,946
AGGLOMERATION TYPE COAL RECOVERY PROCESSES

Clay D. Smith, and Douglas V. Keller, Jr., both of Lafayette, N.Y., assignors to Otisca Industries, Ltd., Syracuse, N.Y.

Continuation-in-part of Ser. No. 814,040, Jul. 8, 1977, which is a division of Ser. No. 662,888, Mar. 1, 1976, Pat. No. 4,055,480, which is a continuation-in-part of Ser. No. 460,558, Apr. 12, 1974, Pat. No. 3,941,679. This application May 21, 1979, Ser. No. 41,063
Int. Cl.³ B03B 1/04, 7/00
U.S. Cl. 209—5 12 Claims

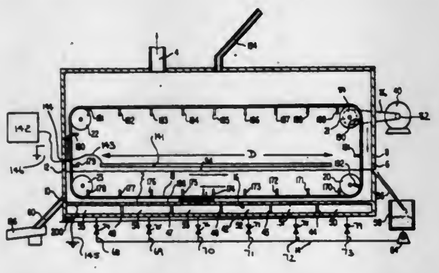


1. A process for recovering coal from a particulate composite in which said coal is associated with mineral matter, said process comprising the steps of: treating said composite in an aqueous carrier with a non-aqueous, organic agglomeration promoting additive with respect to which the coal is hydrophobic to effect a coalescence of the coal particles into product coal agglomerates and the ejection of mineral matter into dispersion in said aqueous carrier; recovering said product coal agglomerates from said aqueous carrier; and washing said product coal agglomerates with a fluorocarbon in which said additive is soluble to thereby effect a recovery of said agglomeration promoting additive from said product coal agglomerates.

4,274,947
ELECTROSTATIC METHOD AND APPARATUS FOR SORTING FLUIDIZED PARTICULATE MATERIAL

Jan M. Beeckmans, 856 Wellington St., London, Ontario, Canada (N6A 3S7), and Ion I. Inculet, 81 Lloyd Manor Crescent, London, Ontario, Canada (N6H 3Z4)

Filed Jan. 14, 1980, Ser. No. 112,084
Int. Cl.³ B03C 7/04
U.S. Cl. 209—12 12 Claims



1. A method of sorting fluidized particulate material which comprises:
(a) feeding particulate material to an elongated horizontally

extending container having a gas permeable base and at least a major, intermediate lengthwise extending portion of the interior thereof unobstructed by the container for the flow of particulate material towards both a first end and a second end thereof for fluidized material above the gas permeable base.
(b) fluidizing a bed of the particulate material in the container, and thereby tribo-electrically charging particles in said bed,
(c) generating a vertical electrostatic field across said bed between a pair of vertically spaced electrodes to attract in the upper strata of the bed particles whose tribo charges are opposite in polarity to the upper of said electrodes, and cause an enrichment of such particles in an upper portion of the bed,
(d) generating a recirculatory motion of particles in said bed so that an upper portion of the fluidized bed is moved towards a first end while a lower portion of the fluidized bed is moved towards a second end thereby causing a progressing enrichment of the fluidized bed in particles which are tribocharged to a polarity opposite to the polarity of said electrode towards the first end with reflux of particles therefrom, and a progressive enrichment of the fluidized bed in particles of opposite polarity towards the second end, with reflux of particles therefrom.
(e) removing the particulate material from the first end, and
(f) removing particulate material from the second end.

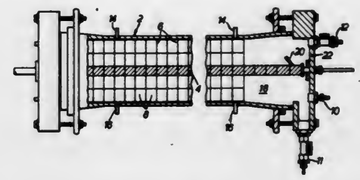
4. A fluidized particulate material sorting apparatus, comprising:
(a) a particulate material fluidizing container which is elongated in a horizontal direction and has a base which is gas permeable over substantially the whole area for fluidized particulate material above the gas permeable base, at least a major, intermediate lengthwise extending portion of the interior being unobstructed by the container for the flow of fluidized particulate material therealong, said container having an upper gas outlet,
(b) means for feeding particulate material to the container,
(c) means for removing particulate material from a first end of the container,
(d) means for removing particulate material from a second, end of the container opposite said first end,
(e) means for feeding pressurized gas to substantially the whole area of the underside of the base,
(f) drive means within said container and operable to generate a recirculatory motion of particles in said bed so that an upper portion of the fluidized bed is moved toward said first end while a lower portion of the fluidized bed is moved toward said second end.
(g) a pair of spaced electrodes, lying generally parallel to said base and connectible to means to generate a potential difference across said electrodes, whereby in operation, the recirculatory motion of particulate material and the potential difference across said electrodes causes a progressive enrichment of the fluidized bed in particles which are tribocharged to one polarity towards the first end, with reflux of particles therefrom, and a progressive enrichment of the fluidized bed in particles of opposite polarity towards the second end, with reflux of particles therefrom.

4,274,948
SEPARATION OF MINERALS

Lee F. Robinson, London, England, assignor to RTL Contactor Holding S.A., Switzerland

Filed Aug. 10, 1979, Ser. No. 65,432
Claims priority, application United Kingdom, Aug. 11, 1978, 33125/78
Int. Cl.³ B03B 1/00, 9/02
U.S. Cl. 209—9 9 Claims

1. A continuous process for the separation of solid impurities from an aqueous phase selected from aqueous slurries, dispersions and suspensions, comprising:
providing a multi-compartment rotary contactor;
passing a stream of said aqueous phase through said contactor;
separately passing through said contactor a stream of an organic phase comprising a non-polar organic liquid;
supplying the contactor with a collector reagent so as to be present during at least a part of the passage of the streams through the contactor, whereby the impurities are given a hydrophobic surface;

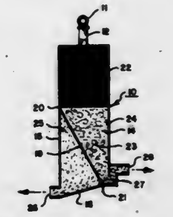


contacting the phases in the contactor by continuously bringing the aqueous and solvent phases into contact with one another while maintaining an interface between an upper and a lower of the two phases, whereby the impurities collect at the interface;
removing the two phases from the contactor; and
independently removing the interfacial layer containing at least a proportion of the impurities initially present in the aqueous phase.

4,274,949
FROTH SEPARATION APPARATUS

James R. McCarthy, c/o Coal Inc. 6417 Loisdale Rd., Springfield, Va. 22150

Filed Sep. 24, 1979, Ser. No. 78,591
Int. Cl.³ B03B 7/00; B03D 1/14
U.S. Cl. 209—17 8 Claims

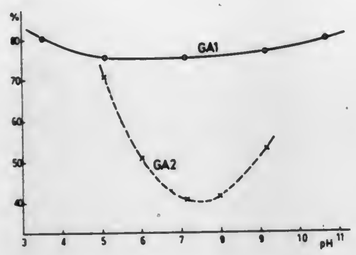


1. A froth separation apparatus comprising a stationary separation container of generally rectangular form having two spaced generally vertical side walls, two spaced generally vertical end walls, a bottom wall and a top, influent feed means delivering a suspension of solids in liquid into the interior of said container at spaced points along the top of said container, a reagent inlet into the influent feed means ahead of said container, generally diagonal froth retention planar screen means extending across the separation container from end to end and from a line intermediate the top and bottom of one side wall to a line adjacent the bottom of the other side wall, froth cresting means in said container above said screen means, froth discharge means on the said other side wall adjacent the bottom thereof and adjacent and above the screen means line adjacent the bottom of said other side wall for removal of froth and outlet means at the bottom of said one side for tailings discharge.

4,274,950
PROCESS FOR THE FLOTATION OF SULFIDE ORES

Etienne Larribau, Lons, and Pierre Tozzolino, Pau, both of France, assignors to Societe Nationale Elf Aquitaine (Production), France

Filed Jun. 25, 1979, Ser. No. 51,905
Claims priority, application France, Jun. 27, 1978, 78 19121; Jun. 8, 1979, 79 14692
Int. Cl.³ B03D 1/02
U.S. Cl. 209—166 8 Claims



1. A process of flotation of sulphide minerals, by using 10 to 500 ppm of a collector comprising a thio-organic compound, with respect to the weight of the mineral to be flotated, wherein the collector is an organic sulfide of the type R—S—$(CH_2)_n$—OH, in which R is a C_xH_y hydrocarbon radical where x is an integer from 2–20 and y is an integer from 2–41 and in which n is an integer from 1–18.

4,274,951
ORE DRESSING PROCESS

Lionel A. Goold, Wadeville, South Africa, assignor to Trochem (PTY) Limited, Wadeville, South Africa

Filed Dec. 14, 1978, Ser. No. 23,447
Claims priority, application South Africa, Dec. 14, 1977, 77/7448; Aug. 4, 1978, 78/4434
Int. Cl.³ B03D 1/06
U.S. Cl. 209—167 9 Claims

1. A froth flotation ore dressing process comprising forming a pulp of a phosphate-bearing ore, adding to said pulp a gangue depressant material comprising a guar gum ether of the formula

$$(R—O)_nG$$

wherein R is an acyclic hydrocarbon radical containing up to six carbon atoms or a cyclic hydrocarbon radical, O is oxygen, G is the guar moiety and n is an integer of one to nine, and subjecting the pulp to froth flotation to obtain a superior grade of phosphate than obtained in the absence of said guar gum ether.

4,274,952
APPARATUS FOR SEPARATING SOLIDS FROM A SUSPENSION

Reinhard Hanke, Leoben, and Kornel Jahn, Vienna, both of Austria, assignors to Voest-Alpine Aktiengesellschaft, Linz, Austria

Filed Oct. 29, 1979, Ser. No. 89,240
Claims priority, application Austria, Oct. 7, 1978, 7941/78
Int. Cl.³ B07B 1/06
U.S. Cl. 209—273 3 Claims

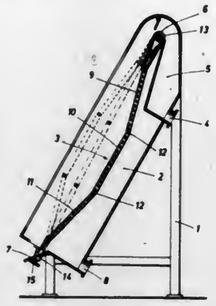
1. Apparatus for separating solids from a suspension, comprising

(a) a housing,

(b) a sieve chain disposed in said housing and having an upper end and a lower end, the suspension containing the solids flowing over said seive chain in a general direction from said upper end to said lower end and the sieve chain being comprised of

(1) a plurality of sieve sections and

(2) hinge means connecting adjacent ones of said seive sections in series from one end to the other end, each sieve section having an inclination in the general direction extending from said upper end to said lower end



and consisting of a plurality of sieve bars extending transversely to said general direction and said hinge means, the sieve bars defining sieve gaps therebetween,

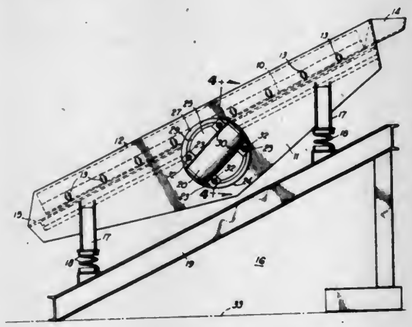
(c) a hinge connecting one of said sieve chain ends to said housing, and

(d) an adjusting device hingedly connecting the other one of said sieve chain ends to said housing.

4,274,953
VIBRATING SCREEN SEPARATOR

Allen S. Jackson, Atlanta, Ga., assignor to J & H Equipment, Inc., Roswell, Ga.

Filed May 27, 1980, Ser. No. 153,454
Int. Cl.³ B07B 1/38, 1/42
U.S. Cl. 209—326 3 Claims



1. A vibrating screen separator comprising a vibrating screen assembly having a material inlet and outlet, resilient means supporting the screen assembly for vibratory movement, a vibration motor on the exterior of each opposite side of the screen assembly in opposed alignment with the other vibration motor, and an adjustable and lockable rotational mounting for each vibration motor on each side of the screen assembly whereby each vibration motor is independently rotatable in opposite directions through a full circle of rotation relative to the other vibration motor, and each rotational mounting comprising a disc and a surrounding concentric ring fixed to one side of the screen assembly and defining between them a continuous annular passage, and at least a pair of spaced threaded fasteners carried by each vibration motor and extending into said annular passage and adapted to move through the passage in either direction circumferentially, said threaded fasteners adapted to be clampingly locked in selected adjusted positions relative to the annular passage.

4,274,954
MICROBIOLOGICAL PROCESS FOR REMOVING NON-IONIC SURFACE ACTIVE AGENTS, DETERGENTS AND THE LIKE FROM WASTEWATER

James E. Blair, Roanoke, Va., assignor to Sybron Corporation, Rochester, N.Y.

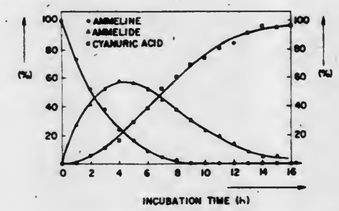
Filed May 1, 1979, Ser. No. 35,045
Int. Cl.³ C02F 3/34
U.S. Cl. 210—611 4 Claims

1. A process for removing anionic and/or nonionic surface active agents, and detergents from wastewater containing the same comprising treating wastewater containing the anionic and/or nonionic surface active agents, detergents and the like compounds with *Pseudomonas fluorescens* 3P, ATCC-31483, under aerobic conditions.

4,274,955
PROCESS FOR THE DEGRADATION OF CYANURIC ACID

Josef Zeyer, Zürich; Ralf Hütter, Gockhausen, and Peter Mayer, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jan. 6, 1979, Ser. No. 46,123
Claims priority, application Switzerland, Jan. 15, 1978, 6532/78
Int. Cl.³ C02F 3/34
U.S. Cl. 210—612 11 Claims



1. A microbial process for the degradation of cyanuric acid in waste water containing cyanuric acid, in which process the waste water containing cyanuric acid is brought into contact, under aerobic conditions, with cultures of fungi of the *Sporothrix schenkii* species.

4,274,956
EXTRACTION PROCESS USING SOLID STABILIZED EMULSIONS

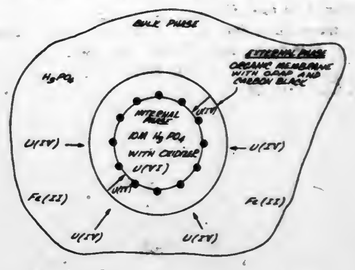
Robert D. Stewart, Yorba Linda, Calif., assignor to Occidental Research Corporation, Irvine, Calif.

Filed Jan. 10, 1979, Ser. No. 2,481
Int. Cl.³ B01D 11/00
U.S. Cl. 210—638 17 Claims

14. An extraction process which comprises:

(a) forming an emulsion of an aqueous solution phase containing at least one species to be extracted in an immiscible organic phase containing an extractant selective to such species and at least one insoluble particulate solid selected from the group consisting of fumed silica and carbon black which is substantially nonreactive with respect to constituents in each of such phases in an amount sufficient to form an emulsion of an internal aqueous phase containing said species and surrounded by an external organic phase containing said particulate solids;

(b) combining the formed emulsion with an aqueous bulk phase for a time sufficient to enable extraction of the species by the extractant of external solids-containing organic phase and transfer of the extracted species to the

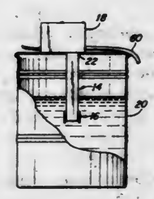


bulk aqueous phase but insufficient for transfer of the extracted species from the bulk aqueous phase to the internal aqueous phase.

4,274,957
SKIMMER HAVING A WIDE DRIVE ROLLER, A GUIDE MEANS, AND A TENSION MEANS

Joseph A. Koller, 1900 Old Willow Rd., Northfield, Ill. 60093

Filed Mar. 7, 1977, Ser. No. 775,195
Int. Cl.³ B01D 57/00, 43/00
U.S. Cl. 210—172 9 Claims



1. Skimming apparatus for removing a first liquid from a second liquid on which it is floating, comprising

a drive roller mounted for rotation about a substantially horizontal axis,

an endless belt having an outer surface preferentially wettable by said first liquid,

said belt extending over said roller and depending into said first liquid,

the width of said drive roller being greater than the width of said belt,

drive means for rotating said roller to drive said belt upwardly over said roller and downwardly into said liquid,

a second roller mounted above and in parallel relationship with said drive roller,

said second roller being urged downwardly against said belt toward the downwardly traveling surface of the upper portion of said drive roller to squeeze said first liquid from said belt and to provide a trough in which said first liquid squeezed from the surface of said belt is retained,

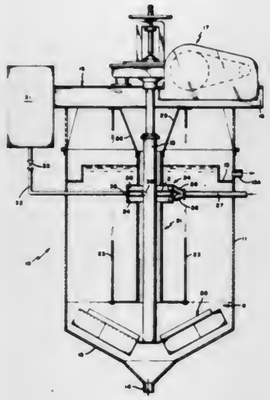
means for guiding said belt away from the edges of said drive roller to provide exposed end portions of said roller, whereby liquid may flow from said trough onto said exposed end portions of said roller, and

collector means mounted below said drive roller for collecting said first liquid which flows out of said trough onto said exposed end portions of said drive roller.

4,274,958
FLOCCULANT DISTRIBUTOR MEANS FOR FEEDWELL

Elliot B. Fitch, Auburn, Ala., assignor to Dorr-Oliver Incorporated, Stamford, Conn.

Continuation of Ser. No. 949,485, Oct. 10, 1978, abandoned. This application Feb. 19, 1980, Ser. No. 122,309
Int. Cl.³ B01D 21/16
U.S. Cl. 210—208 3 Claims



1. A settling tank which comprises in combination, feed supply means for delivering an influent feed suspension to the tank, overflow means for clarified liquor separated from the influent feed, a settled solids collecting zone at the bottom of the tank provided with settled solids discharge means, a movable rake structure for moving settled solids to said discharge means, and a feedwell for receiving the influent feed suspension, said feedwell comprising:

(a) a vertical hollow column arranged at the center of the tank and open at the bottom thereof to said settled solids collecting zone,

(b) a cylindrical feedwell located adjacent the top of said column spaced from said settled solids collecting zone and including vertically spaced upper and lower cylindrical channels located about the periphery of said column and open to the longitudinal axis of said column,

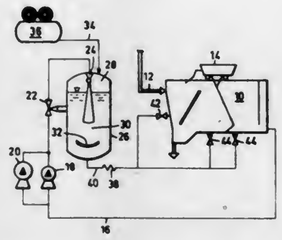
(c) influent feed inlet means for introducing the influent feed to said feedwell and including a feed pipe having branch feed pipes for splitting and tangentially directing like feed streams into said spaced upper and lower channels of said feedwell for rotation in respective clockwise and counterclockwise paths for discharge and remerging inwardly in a transverse zone of shear within an area of said feedwell surrounded and peripherally defined by said upper and lower channels, whereat the energy of the feed streams is converted into random turbulence and the energy of the influent feed is dissipated,

(d) a flocculant dispersing means provided in said feedwell comprising a third cylindrical channel about the periphery of said column and having a discharge into said feedwell and arranged at a location interposed between said vertically spaced upper and lower channels, a feed inlet to said third channel for dispersing a preselected dosage of diluted flocculant to said channel for discharge therefrom directly into said zone of shear for mixing with said remerged feed stream prior to its discharge from said feedwell.

4,274,959
APPARATUS FOR DISSOLVING AIR IN WATER AND SUBSEQUENT REDUCTION OF THE WATER SURFACE TENSION IN FLOTATION SYSTEMS

Haans E. Roediger, Stuttgart, Fed. Rep. of Germany, assignor to Techtransfer GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 16, 1979, Ser. No. 67,490
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1978, 2835709
Int. Cl.³ C02F 1/24
U.S. Cl. 210—221.2 4 Claims



1. An apparatus for the saturation dissolving of pressurized air in water and for thereafter discharging said air saturated water into a flotation basin containing contaminated waste water and sludge through pressure reducing valves to reduce the surface tension of the waste water and float sludge particles to the surface for skimming, said apparatus comprising:

(a) a pressure tank (26) containing water and compressed air thereabove,

(b) an ejector (24) having an inlet for supplying water to said tank and for simultaneously aspirating compressed air into said water being supplied,

(c) said ejector being mounted entirely within said pressure tank and having a discharge opening disposed below the level of water in said tank,

(d) an air aspiration opening in said ejector disposed above the level of water in said tank for the direct education of compressed air in said tank into the water being supplied by said ejector,

(e) an upwardly curved diverter plate (32) mounted within said tank below the discharge opening of said ejector for the swirling deflection of water and aspirated air supplied thereby,

(f) a flotation basin (10),

(g) conduit means (16) including pressure pump and control valve means for supplying water directly from the flotation basin to the inlet of said ejector, and

(h) a diverting device (46) mounted within the flotation basin spaced from an outlet (42) in a side wall of the basin for adding the air saturated water into the basin for deflecting said water upwardly towards an inlet (12) for waste and sludge disposed above said outlet,

(i) said diverting device being disposed at an angle such that the distance between it and said side wall of the basin (10) increases in an upwardly direction.

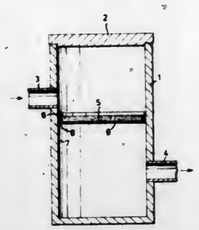
4,274,960
FILTER MEANS

Tage Abrahamsson, Skövde, Sweden, assignor to Metzeler AB, Tibro, Sweden

Continuation of Ser. No. 13,533, Feb. 21, 1979, abandoned, which is a continuation of Ser. No. 842,892, Oct. 17, 1977, abandoned. This application Nov. 26, 1979, Ser. No. 97,888
Int. Cl.³ B01D 23/02, 29/08
U.S. Cl. 210—221.1 5 Claims

1. A filter means for separating particles of oil from waste water, said means comprising a housing having an inlet and an outlet and at least one filter element arranged between said inlet and said outlet, characterized in that the filter element

comprises a self-supporting body comprising small pieces of a soft foamed plastics material having open cells, which material has been chopped and been subjected to mechanical non-distintegrating pressure shocks of a magnitude sufficient to rupture

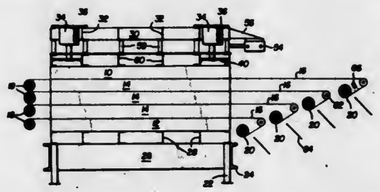


a substantial portion of the cell walls, whereafter the pieces of foamed plastics material have been joined together under pressure by means of a binding agent, said filter element having a bulk density of from 40 to 250 kg/m³.

4,274,961
PRESSURE FILTER

Gene Hirs, 6865 Meadow Lake Dr., Birmingham, Mich. 48010

Continuation-in-part of Ser. No. 739,755, Nov. 5, 1976, Pat. No. 4,230,572. This application Oct. 17, 1979, Ser. No. 85,657
Int. Cl.³ B01D 25/32
U.S. Cl. 210—225 5 Claims



1. In a liquid filtering apparatus of the pressure type having a plurality of vertically superimposed and vertically separable shells, including a top shell, at least one intermediate shell and a bottom shell; an individual filter media belt horizontally interposed between each adjacent shell pair, said filter media being imperforate to contaminant particles and perforate to liquid; each pair of adjacent shells and its interposed filter media defining one of a plurality of independent and parallel-connected filters; each shell having side walls which are imperforate to liquid; said top shell having a top surface which is imperforate to liquid, an open bottom and an inlet for receiving particle-contaminated pressurized liquid from a source; each of said intermediate shells having a horizontal impervious wall subdividing such shell into an open-topped upper chamber and an open-bottomed lower chamber, each upper chamber having an outlet through which filter liquid which has passed downwardly from the adjacent upper shell through the interposed filter media and the open top may be removed from the apparatus, and each lower chamber having an inlet for receiving particle-contaminated pressurized liquid from said source, which liquid may then flow downwardly through the open bottom and interposed filter media into the open top of the next adjacent lower shell; said bottom shell having an open top, a bottom surface which is impervious to liquid and an outlet through which filtrate liquid which has passed downwardly from the adjacent intermediate shell through the interposed filter media may be removed from the apparatus; each adjacent pair of said shells having opposed aligned peripheral surfaces provided with sealing means to selectively seal the interior of said shells from the exterior when the shells are in adjacent proximity for filtration; the improvement which comprises:

shell positioning means for vertically separating each shell from its adjacent shell to permit each of said filter media belts to be indexed for discharge of sludge outside of said shells, no more than one of said shells remaining fixed during said shell separating step;

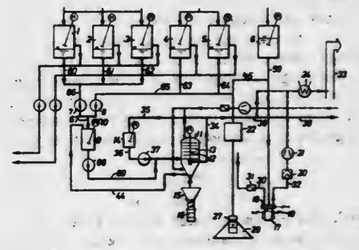
each of said filter media belts extending between its own pair of supply and take-up rolls, the supply and take-up rolls for each filter media belt being located at and secured to opposite ends of one of the shell pairs between which each respective filter media belt is interposed, whereby said filter media belt rolls move vertically to the same extent as the shells to which they are secured also move vertically;

and frictional drive means comprising a power-driven endless loop cable which frictionally engages cable-receiving means associated with a plurality of supply-take-up roll pairs for causing the associated filter media belts to index from said supply rolls to said take-up rolls to convey sludge accreted thereon out of said shells for discharge thereof, and thereafter causing a return indexing of said filter media belts along the same paths to their respective starting positions to resume filtration after said shells are brought back together by said shell positioning means.

4,274,962
APPARATUS FOR TREATING RADIOACTIVE CONCENTRATES

Horst Queiser, Maintal, and Othmar Meichsner, Raunheim, both of Fed. Rep. of Germany, assignors to Kraftwerk Union Aktiengesellschaft, Mühlheim, Fed. Rep. of Germany

Filed Feb. 4, 1976, Ser. No. 655,249
Claims priority, application Fed. Rep. of Germany, Apr. 11, 1975, 2515795
Int. Cl.³ C02F 9/00
U.S. Cl. 210—257.1 6 Claims



1. Apparatus for treating various radioactive concentrates having a liquid component: including a plurality of filter concentrate containers, an evaporator concentrate container, an intermediate storage container connected to the filler concentrate containers and to the evaporator concentrate container, a filter-cake-producing filter connected to the intermediate storage vessel for receiving concentrate therefrom, a storage drum having a fill opening and being connected to the filter concentrate containers and evaporator concentrate container via a metering vessel, a filling device between the storage drum and metering vessel for filling the storage drum, said filling device comprising a movable fill pipe, and a collecting vessel below the fill pipe and next to the fill opening in the storage drum, said movable fill pipe being movable between said collecting vessel and the fill opening in the storage drum.

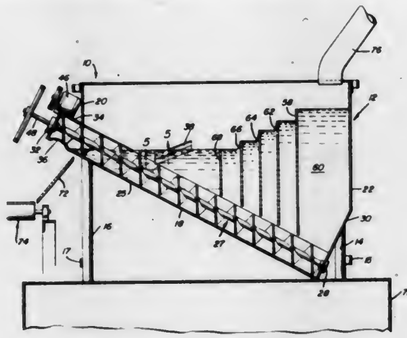
4,274,963
SOLIDS AND LIQUID SEPARATING APPARATUS

Robert D. Purvis, Rte. 1, Box 54, Sidney, Mont. 59270

Filed Feb. 14, 1979, Ser. No. 12,225
Int. Cl.³ B01D 43/00
U.S. Cl. 210—320 3 Claims

1. An apparatus for separating solid drilling bit cuttings from

drilling mud, said apparatus including a horizontally elongated container defining inlet and outlet ends and an inclined bottom extending between said ends, said bottom being V-shaped in transverse cross section and having its lower end disposed at said inlet end and its higher end disposed at said outlet end, an elongated inclined conveyor disposed in and paralleling the apex of said bottom, said apex of said bottom including a solid cuttings outlet in the upper end thereof to which said conveyor is operative to upwardly convey solid cuttings gravitating downwardly into said apex, said container including a mud outlet spaced below the level of said solid cuttings outlet, a plurality of upstanding transverse weir baffles mounted in said



container and laterally spaced apart longitudinally of the inlet end of said container, said mud outlet being spaced longitudinally of said container between said solid cuttings outlet and the adjacent weir baffles, said weir baffles extending upwardly to progressively lower elevations toward said outlet end of said container and extending downwardly therein to levels adjacent said conveyor, the upper extremity of the lowest weir baffle being horizontally aligned with said mud outlet, a well mud line discharge opening into said container on the side of the highest weir baffle remote from said outlet end of said container, and mud tank means operatively associated with said mud outlet for receiving mud discharged therefrom.

4,274,964

DIALYSATOR

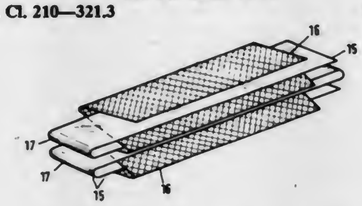
Gerd Krick, Bad Homburg; Peter Konang, Frankfurt am Main, both of Fed. Rep. of Germany; Jan-Erik Sigdell, Basel, Switzerland, and Klaus Heilmann, Friedrichsdorf, Fed. Rep. of Germany, assignors to Dr. Eduard Fresenius Chemisch-pharmazeutische Industrie KG, Apparatebau KG, Bad Homburg, Fed. Rep. of Germany

Filed Aug. 9, 1979, Ser. No. 65,075

Claims priority, application Fed. Rep. of Germany, Aug. 18, 1978, 2836192

Int. Cl.³ B01D *31/00*

U.S. Cl. 210—321.3 **8 Claims**



1. A method for producing a multilayer dialyzer having folded layers of a flattened membrane hose alternating with layers of netting wherein the folded membrane hose layers are embedded in a sealer and then opened at the creases to provide hose sections with open ends held together by said sealer, said open ends providing access for a liquid into said hose sections, and wherein said netting layers are interposed between adjacent hose sections which define spaces for another liquid, comprising the following steps:

(a) providing a substantially continuous length of said membrane hose with spacer means inside the hose to space the hose walls from each other by said spacer means,

(b) providing a substantially continuous length of said netting,

(c) simultaneously folding said membrane hose with the spacer means therein and said netting in the directions which cross each other (**15, 16**) whereby said alternating arrangement of hose sections and netting layers is formed and whereby the hose sections and netting layers are located in a mutually interlocking manner,

(d) providing the hose ends with said sealer and curing the sealer,

(e) opening the hose sections to provide said open hose ends, and

(f) removing said spacer means out of the open hose ends.

7. A dialyzer produced by the steps of claim 1.

4,274,965

LACTAM TERPOLYMER MEMBRANES

Joseph A. Carden, Jr., Durham, and Ray McKinney, Jr., Raleigh, both of N.C., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 913,175, Jun. 6, 1978, Pat. No. 4,181,606. This application Jun. 27, 1979, Ser. No. 52,381

Int. Cl.³ B01D *13/00, 31/00*

U.S. Cl. 210—500.2 **17 Claims**

1. A permselective membrane comprising a caprolactam-polyalkylene ether-polyacyl lactam block terpolymer of at least about 10 microns in thickness and having from 35 to 75% by weight polycaprolactam blocks and from 25 to 65 percent polyalkylene ether blocks.

12. The membrane of claim 1 in the form of a planar film.

13. The membrane of claim 1 in the form of a hollow fiber.

4,274,966

METHOD AND DEVICE FOR PURIFYING SEWAGE

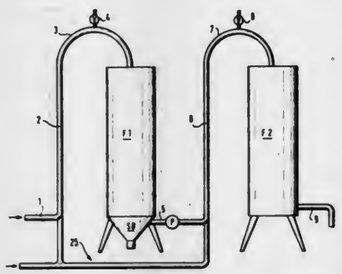
Willy F. Palmer, Von Vollmerstrasse 33, D 8160 Miesbach, Fed. Rep. of Germany

PCT No. PCT/DE78/00023, § 371 Date May 17, 1979, § 102(e) Date May 17, 1979, PCT Pub. No. WO79/00128, PCT Pub. Date Mar. 22, 1979

This PCT application filed May 17, 1979, Ser. No. 63,562

Int. Cl.³ C02F *3/10*

U.S. Cl. 210—618 **43 Claims**



13. A method of passing sewage water from a presettling basin through a filter system closed to atmosphere for purification of said water comprising:

feeding said water into an ascending pipe means having a portion thereof filled with packings for at least biological purification of said water,

introducing oxygen under pressure into said pipe means adjacent the lower end thereof for mixing with said water upstream of said packing portion,

supplying said water from said pipe means directly to a filter body container wherein said water passes through a series of filtration means including sieve devices, packings for mechanical purification of said water, and materials for biological purification of said water,

discharging said water from said filter body container directly into a further ascending pipe means having a further portion thereof filled with packings for at least biological purification of said water,

introducing oxygen under pressure into said further pipe means for mixing with said water,

supplying said water from said further pipe means directly to a further filter body container wherein said water passes through a series of further filtration means for at least mechanical and biological purification of said water, and

passing said water through said filter system in a continuous flow fashion such that said water does not settle in said filter system.

4,274,967

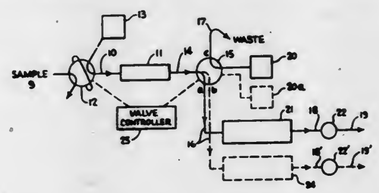
CHROMATOGRAPHIC APPARATUS AND METHOD

Lloyd R. Snyder, Yorktown Heights, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Continuation-in-part of Ser. No. 922,712, Jul. 7, 1978, Pat. No. 4,204,952, and Ser. No. 77,420, Sep. 20, 1979. This application Nov. 26, 1979, Ser. No. 97,463

Int. Cl.³ B01D *15/08*

U.S. Cl. 210—659 **14 Claims**



1. A method of increasing the throughput and separation power of a chromatographic system, which system is operated and fed a series of samples, each sample containing at least one particular constituent of interest, said method comprising the steps of:

(a) periodically passing a series of samples at a first controlled rate into a first chromatographic column for the purpose of separating a particular constituent of interest from each of said samples;

(b) obtaining eluant materials for each sample passing from said first chromatographic column and retaining in said chromatographic system only that fraction of each sample containing said particular constituent of interest;

(c) periodically passing the retained fraction of each sample into a second chromatographic column at a second controlled rate, said first controlled rate being in substantial synchronism with said second controlled rate;

(d) relating said first and said second controlled rates to provide sufficient separation between the particular constituent of interest of said sample fractions leaving said second chromatographic column and to provide that a number of sample fractions are concurrently passing through said second chromatographic column; and

(e) passing said sample fractions leaving said second column through at least one additional chromatographic column to recycle said sample fractions and effect a greater separation of constituents in each of said sample fractions.

4,274,968

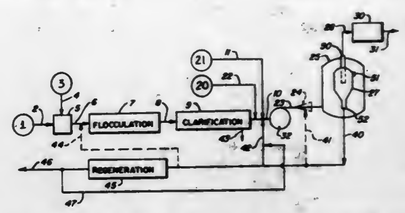
PROCESS FOR THE PURIFICATION OF WATER

James F. Grutsch, Hammond; Russell C. Mallatt, Crown Point, both of Ind., and Joe D. Walk, Homewood, Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jan. 15, 1977, Ser. No. 806,750

Int. Cl.³ C02F *1/28*

U.S. Cl. 210—666 **26 Claims**



1. A process of water treatment to produce potable water comprising:

adding an effective amount of chemical flocculant to the feed water and subjecting said water to flocculation;

passing the flocculated water to a clarifier or filter where suspended solids are separated from the partially purified water;

adding about 1 to about 100 parts powdered activated carbon per million parts of water from the clarifier or filter;

contacting the water with said carbon in a reaction zone so as to achieve substantial reduction of contaminants in the water;

separating the activated carbon from the purified water; and

recycling a portion of the separated activated carbon to the clarifier or filter effluent.

26. An apparatus for the treatment of water comprising:

an outer vessel having an inlet so that water and activated carbon or activated sludge can enter; and

a cyclone separator disposed within said outer vessel, said cyclone separator having approximately a cylindrical configuration having a top and bottom, the cyclone separator sides slanting inwardly at the bottom forming a conical configuration, said cyclone separator having at least one entry port near the top so that water can enter the separator near the top of the separator and form a spiraling flow pattern within the cyclone, said cyclone having an exit port near the bottom of the cyclone for removing separated activated carbon or sludge, and said cyclone having an exit port extending through the cyclone near the top to a central portion of the separator between the top and bottom so that separated water can be removed from the cyclone separator.

4,274,969

PROCESS FOR TREATING WASTE WATER FROM PROPYLENE OXIDATION PLANTS

Jean-Claude Lecoq, Chaponost, and Edouard Grimaud, Saint-Genis-Laval, both of France, assignors to Produits Chimiques Ugine Kuhlmann, Paris, France

Filed Oct. 30, 1979, Ser. No. 89,507

Claims priority, application France, Nov. 14, 1978, 78 32088

Int. Cl.³ C02F *1/52*

U.S. Cl. 210—721 **7 Claims**

1. A process for treating unsaturated compound-containing waste water from plants for the production of acrylic derivatives, said waste water containing acrylic monomers, which process comprises polymerizing the unsaturated compounds in the waste water at a temperature between 20° and 150° C. while adding a peroxygen compound in an amount of from about 1 to 50% based on the weight of acrylic monomers, neutralizing the waste water with a reagent producing polyvalent metal ions to form insoluble salts of the polymerized compounds, and separating from the liquid the insoluble salts of

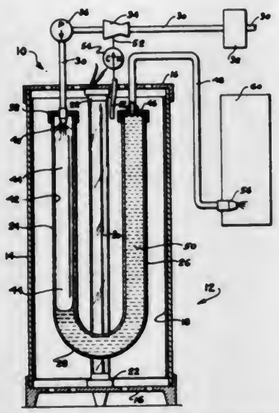
polymerized compounds so formed to reduce the chemical oxygen demand (COD) of the waste water.

4,274,970

METHOD AND APPARATUS FOR TREATING WATER

Stuart W. Beitzel, 1480 Cabrillo Park Dr., #A, Santa Ana, Calif. 92701

Filed Oct. 29, 1979, Ser. No. 89,140
Int. Cl.³ C02F 1/32, 1/78
U.S. Cl. 210—748 18 Claims



1. A method for treating water so as to kill microorganisms within said water and so as to oxidize oxidizable material within said water which comprises:

passing a thin film of water downwardly along an interior wall of a vertically extending first container in contact with a gaseous body maintained therein containing a gas reactant selected from the group consisting of oxygen, ozone and mixtures thereof while exposing both said film and said gaseous body to ultraviolet radiation of a frequency and of an intensity capable of causing the formation of ozone and killing microorganisms, said first container being substantially transparent to said untraviolet radiation,

said film being sufficiently thin to enable substantially all of said water within said film to be in contact with said gaseous body during movement of said film in contact with said gaseous body said film is formed by directing said water against an upper portion of said interior wall, said interior wall being of such a character that said water directed toward it adheres to said wall as a result of surface tension and moves downwardly along said interior wall as a result of the action of gravity,

collecting the water from within said film which has been in contact with said gaseous body at the bottom of said first container and passing said collected water in a body within a second container said gaseous body is maintained within said first container by restricting the flow of water through said containers,

exposing said body of water in said second container to ultraviolet radiation of a frequency and of an intensity capable of causing the formation of ozone and killing microorganisms while moving said water within said body under turbulent conditions sufficient to continuously mix with water within said liquid body, said second container being substantially transparent to said ultraviolet radiation.

9. An apparatus for treating water so as to kill microorganisms and so as to oxidize oxidizable material within said water which comprises:

first and second elongated, tubular containers, each of said containers having a top and a bottom and being substantially transparent to ultraviolet radiation,

connecting means placing the bottoms of said containers in liquid communication with one another,

inlet means for enclosing the top of said first container and for passing a stream of water into the top of said first container so that said stream of water forms a thin film of water along an interior wall within said first container which will pass downwardly toward the bottom of said first container through the action of gravity,

outlet means located at the top of said second container for creating a back pressure sufficient to retain a body of water within said second container and within said connecting means and a gaseous body in said first container,

a single ultraviolet radiation source means located adjacent to both of said containers and extending along the lengths of both of said containers for producing ultraviolet radiation of a frequency and of an intensity capable of causing the formation of ozone and killing microorganisms for exposing gas from said gaseous body trapped within said first container between the top and the bottom thereof and a film of water against said wall within said first container to ultraviolet radiation, and for exposing a body of water within said second container to ultraviolet radiation.

4,274,971

FILTRATION PROCESS USING POLYOLEFIN FIBRIDS AS FILTER AIDS

Edmund Hartinger, Baden; Elias Jülke, Wettingen, and Harald Sandmann, Nussbaumen, all of Switzerland, assignors to Maschinenfabrik Meyer AG, Switzerland

Filed Apr. 18, 1980, Ser. No. 141,352
Claims priority, application Switzerland, May 14, 1979, 4449/79
Int. Cl.³ B01D 37/02
U.S. Cl. 210—778 5 Claims

1. A process of filtering waste water comprising passing said water through a filter medium wherein a filter aid comprising polyolefin fibrids which have been rendered hydrophilic is added to said waste water before it is passed through the filter medium, the fibrids having a mean CFL of from about 0.5 to 2.5 mm., and a specific surface area of from about 5 to 10 m^2/g.

4,274,972

PROCESS FOR PREPARING DILUTE AQUEOUS COPPER ZIRCONIUM AMMONIUM CARBONATE SOLUTIONS CONTAINING LESS THAN ABOUT 0.5% CU AND 1.5% ZRO_2

Sherif A. Sherif, Ewing Township, Mercer County, and James E. Hachtmann, High Bridge, both of N.J., assignors to Magnesium Elektron Inc., Flemington, N.J.

Division of Ser. No. 5,412, Jan. 22, 1979, Pat. No. 4,200,672.
This application Oct. 12, 1979, Ser. No. 84,227
Int. Cl.³ D06M 13/50
U.S. Cl. 252—8.6 7 Claims

1. A process for preparing dilute aqueous copper zirconium ammonium carbonate solutions containing less than about 0.5% Cu and 1.5% ZrO_2, having a Cu:Zr atomic ratio within the range from about 0.5:1 to 1:1 and having an enhanced resistance to gelation and the formation of precipitates, upon storage at atmospheric temperatures, which comprises mixing aqueous solutions of ammonium copper carbonate and ammonium zirconyl carbonate in proportions selected to form copper zirconium ammonium carbonate in solution in water in a concentration within the range from about 0.1% to about 0.5% Cu, and an amount sufficient to inhibit gelation and precipitation of a vicinal diol compound having the general formula:

$$R_1—CHOH—CHOH—R_2$$

wherein R_1 and R_2 are selected from the group consisting of (1) carboxylic acids groups COOH and salts thereof COOM, where M is a cation, and (2) organic groups having at least two up to about twelve carbon atoms and at least one OH group; provided, that when only one of R_1 and R_2 is a carboxylic acid group or salt thereof, the other of R_1 and R_2 is an organic group having at least two carbon atoms and two OH groups.

4,274,973

AQUEOUS WATER-SOLUBLE SOAP LUBRICANT CONCENTRATES AND AQUEOUS LUBRICANTS CONTAINING SAME

James H. Stanton, Grosse Ile, and Donald F. Garvin, Wyandotte, both of Mich., assignors to The Diversey Corporation, Northbrook, Ill.

Filed Jun. 22, 1979, Ser. No. 51,008
Int. Cl.³ C10M 1/32, 1/06
U.S. Cl. 252—34.7 8 Claims

1. In an aqueous water-soluble soap lubricant concentrate, the improvement comprising the inclusion therein of neodecanoic acid in amount from about 0.1 to 50.0 percent by weight of said concentrate.

2. An aqueous water-soluble soap lubricant concentrate comprising 2 to 40 percent by weight water-soluble fatty acid soap, about 0 to 15 percent by weight chelating agent, about 0 to 45 percent by weight surfactant, from 20 to 80 percent by weight water, and about 0.1 to 50.0 percent by weight neodecanoic acid.

7. A lubricating composition consisting essentially of the concentrate according to claim 2 and water in a volumetric proportion of concentrate to water of about 1:50 to about 1:500.

4,274,974

PRODUCTION OF DETERGENT COMPOSITIONS

Frederik J. Kerkhoven, Vlaardingen, Netherlands, assignor to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 219,180, Jan. 19, 1972, abandoned. This application Aug. 30, 1974, Ser. No. 501,956
Claims priority, application United Kingdom, Feb. 3, 1971, 3791/71
Int. Cl.³ C11D 1/831, 3/075, 11/02, 17/06
U.S. Cl. 252—90 1 Claim

1. A process for preparing a spray-dried detergent composition comprising by weight 5–80% of builders, 0–50% fillers and 5–60% of active detergent materials consisting essentially of a mixture of 20–80% by weight of anionic detergents of which 10–90% by weight is a fatty acid soap, and 80–20% by weight of nonionic detergents, which process comprises forming approximately equal proportions of at least two aqueous slurries A and B, slurry A being composed of a builder slurry incorporating therein an active detergent component consisting essentially of 60–100% by weight of anionic detergents and 0–40% by weight of nonionic detergents, slurry B being composed of a builder slurry incorporating therein an active detergent component consisting essentially of 0–40% by weight of anionic detergents and 60–100% by weight of nonionic detergents, simultaneously spray drying said slurries A and B in one spray-drying tower through separate nozzle systems, having points of entry on the tower at substantially equal height level of the tower, and collecting/mixing the dried products to form a homogeneous mixture of particulate material comprising said detergent composition.

4,274,975

DETERGENT COMPOSITION

John M. Corkill, Wyoming; Bryan L. Madison, Cincinnati, and Michael E. Burns, Fairfield, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 450,266, Mar. 11, 1974, which is a continuation-in-part of Ser. No. 359,293, May 11, 1973, abandoned. This application Aug. 20, 1979, Ser. No. 67,867
Int. Cl.³ B01J 1/04; C02F 1/42; C11D 3/12, 3/14
U.S. Cl. 252—140 2 Claims

1. A detergent composition for use as a scouring cleanser and capable of rapidly reducing the free polyvalent metal ion content of an aqueous solution, comprising:

(a) from about 25% to about 95% by weight of an abrasive;

(b) from about 10% to about 35% by weight of a water-insoluble crystalline aluminosilicate ion exchange material of the formula

$$Na_z[(AlO_2)_z.(SiO_2)_y]\times H_2O$$

wherein z and y are integers of at least 6; the molar ratio of z to y is in the range from 1.0 to about 0.5, and x is an integer from about 15 to about 264; said aluminosilicate ion exchange material having a particle size diameter from about 0.1 micron to about 100 microns; a calcium ion exchange capacity on an anhydrous basis of at least about 200 milligrams equivalent of $CaCO_3$ hardness/gram; and a calcium ion exchange rate on an anhydrous basis of at least about 2 grains/gallon/minute/gram;

(c) from about 0% to about 20% by weight of an auxiliary builder salt selected from the group consisting of sodium tripolyphosphate, sodium carbonate, sodium bicarbonate, sodium silicate, sodium citrate, sodium oxydisuccinate, sodium mellitate, sodium nitrilotriacetate, sodium ethylenediaminetetraacetate, sodium polymaleate, sodium polyitaconate, sodium polymesaconate, sodium polyfumarate, sodium polyaconitate, sodium polycitraconate, sodium polymethylenemalonate, sodium carboxymethyloxymalonate, sodium carboxymethyloxysuccinate, sodium cis-cyclohexanehexacarboxylate, cis-cyclopentanetetracarboxylate, and sodium phloroglucinol trisulsulphonate; and

(d) from about 0.2% to about 10% by weight of a water soluble organic surface-active agent selected from the group consisting of anionic, nonionic, ampholytic and zwitterionic surface-active agents and mixtures thereof.

4,274,976

TREATMENT OF HIGH LEVEL NUCLEAR REACTOR WASTES

Alfred E. Ringwood, Red Hill, Australia, assignor to The Australian National University, Australia

Filed Jul. 3, 1979, Ser. No. 54,957
Claims priority, application Australia, Jul. 14, 1978, PD5096; Nov. 17, 1978, PD6822
Int. Cl.³ G21F 9/34
U.S. Cl. 252—301.1 W 27 Claims

1. A process for immobilising high level radioactive waste (HLW) calcine which comprises the steps of:

(1) mixing said HLW calcine in a minor proportion with a mixture of oxides, the oxides in said mixture and the relative proportions thereof being selected so as to form a mixture which, when heated and then cooled, crystallises to produce a mineral assemblage containing well-formed crystals capable of providing lattice sites in which elements of said HLW are securely bound, the crystals belonging to or possessing crystal structures closely related to crystals belonging to mineral classes which are resistant to leaching and alteration in appropriate geological environments and comprising crystals belonging to or possessing crystal structures closely related to at least two of the titanate mineral classes selected from the group consisting of perovskite ($CaTiO_3$), zirconolite ($CaZrTi_2O_7$) and hollandite-type ($BaAl_2Ti_6O_{16}$) mineral classes; and

(2) heating and then cooling said mixture so as to cause crystallisation of the mixture to a mineral assemblage having the elements of said HLW incorporated as solid solutions within the crystals thereof.

4,274,977

DEFOAMER PREPARATION AND PROCESSES FOR ITS PRODUCTION

Götz Koerner, and Hans-Ferdi Fink, both of Essen, Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 931,893, Aug. 8, 1978, abandoned. This application Sep. 28, 1978, Ser. No. 946,642

Claims priority, application United Kingdom, Aug. 9, 1977, 33416/77

Int. Cl.[2] B01D *17/00*

U.S. Cl. 252—358 10 Claims

1. A defoamer composition comprising

(a) 40–90 parts by weight of a water-insoluble defoamer oil;

(b) 2–50 parts by weight of an emulsifier which is soluble in water and insoluble in component (a); and

(c) 3–20 parts by weight of a mixture of finely divided hydrophobic and hydrophilic silica.

4,274,978

STANDARDS FOR DETERMINING GLYCOSYLATED HEMOGLOBIN

Edwin G. Moore, Libertyville, Ill., assignor to Abbott Laboratories, North Chicago, Ill.

Filed Dec. 7, 1979, Ser. No. 101,341

Int. Cl.[3] G01N *33/48;* C09K *3/00*

U.S. Cl. 252—408 6 Claims

1. A standard for determining glycosylated hemoglobin comprising a mixture of hemoglobin and 1% to 25% of the 2,4-dinitrophenyl derivative of hemoglobin wherein a 2,4-dinitrophenyl group blocks the allosteric binding site in hemoglobin.

4,274,979

MANUFACTURE OF ACTIVATED CARBON

Keith Simpson, Llandevaud, Wales, assignor to Clairaire Limited, Berkshire, England

Continuation of Ser. No. 925,925, Jul. 19, 1978, abandoned. This application Sep. 7, 1979, Ser. No. 73,227

Claims priority, application United Kingdom, Apr. 21, 1978, 15940/78

Int. Cl.[3] C01B *31/10, 31/12;* B01J *20/20;* D01F *9/12*

U.S. Cl. 252—422 34 Claims

1. A batch process for the manufacture of activated carbon, which comprises;

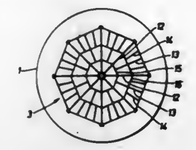
(a) treating a fibrous cellulosic material by contacting it with at least one Lewis acid selected from the group consisting of halides of zinc, aluminum, calcium, magnesium, iron, barium, ammonium and chromium;

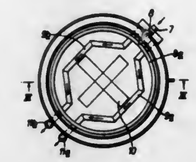
(b) drying the treated material;

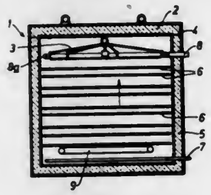
(c) subjecting the dried material to a mechanical softening treatment;

(d) suspending the softened material from a frame in a tensionless manner, said frame being positioned within a furnace adapted to effect carbonisation of the cellulosic material, the furnace having at least one heating element at its base and at least one heating element arranged on a side wall, each heating element being spaced apart from the suspended material, whereby said suspending places a plurality of the fibers in the fibrous cellulosic material transverse across the furnace;

(e) heating the suspended material in said furnace to effect carbonisation of the cellulosic material; in an environment which is substantially non-reactive towards the material, said heat being directed into the suspended material from a first direction on the side of the suspended material and from a second direction beneath the suspended material;







(f) activating the suspended carbonised material in an activating gas until the desired degree of activation has been produced; and

(g) thereafter cooling the activated material.

4,274,980

CHITIN- AND CHITOSAN-BASED IMMOBILIZED METAL CATALYSTS

Blaise J. Arena, Des Plaines, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Oct. 11, 1979, Ser. No. 83,926

Int. Cl.[3] B01J *31/02*

U.S. Cl. 252—430 2 Claims

1. A catalytic composition of matter comprising a support selected from the group consisting of chitin and chitosan having immobilized thereon in a highly dispersed state at least one metal in a concentration of from about 0.01 to about 10% by weight, wherein at least 51% of said metal is present in its zero-valent state.

4,274,981

CATALYST FOR PURIFYING EXHAUST GAS AND THE PROCESS FOR MANUFACTURING THEREOF

Yoshihiro Suzaki; Hiroo Kinoshita, and Naomi Akasaka, all of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

Filed Jan. 2, 1980, Ser. No. 109,148

Claims priority, application Japan, Jul. 6, 1979, 54-85670

Int. Cl.[3] B01J *23/10, 23/58, 23/64, 23/89*

U.S. Cl. 252—438 7 Claims

1. A catalyst for purifying exhaust gas comprising:

a catalyst carrier coated with a metal oxide material containing a spinel metal oxide of the formula: MAl_2O_4 wherein M is Sr, Cu, Mn, Mo, Zn, Fe, Co or Ni, said metal oxide coated carrier further being coated with Rh and Ce and Pt and/or Pd as the catalytically active components.

4,274,982

METHOD FOR MAINTAINING PARA-SELECTIVITY OF MODIFIED ZEOLITE CATALYST

Chin-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 12, 1979, Ser. No. 84,331

Int. Cl.[3] B01J *29/28*

U.S. Cl. 252—455 Z 11 Claims

1. A method for prolonging the useful life of para-selective modified zeolite catalysts comprising maintaining said selective zeolite catalyst at temperatures of at least 50° C., said zeolite being characterized by a silica to alumina mole ratio of at least about 12 and a constraint index within the approximate range of 1 to 12, and which zeolite has been modified by the addition thereto of at least 0.25 percent by weight of one or more difficulty reducible oxides.

3. A method as described in claim 1 wherein said zeolite is modified by the addition thereto of magnesium oxide in an amount of at least 0.25 percent by weight.

4,274,983

POLYMERIC CASTS

Eric G. Kent, Sarnia, Canada, assignor to Polysar Limited, Sarnia, Canada

Filed Feb. 5, 1979, Ser. No. 9,287

Claims priority, application Canada, Feb. 17, 1978, 297189

Int. Cl.[3] C08L *7/00*

U.S. Cl. 260—4 R 2 Claims

1. A composition of matter having thermoplastic properties comprising 70 to 80 parts by weight of poly(epsilon caprolactone), 15 to 20 parts by weight of natural rubber or cis-1,4-polybutadiene having at least 80% cis-1,4 content, from 5 to 10 parts by weight of ionomer which is a copolymer of ethylene and acrylic or methacrylic acid neutralized by reaction with mono- or di-valent metal ions (the total of these materials being 100 parts by weight), and 15 to 25 parts by weight of silica having an average particle size of from about 0.01 to 0.1 microns.

4,274,984

CHEMICALLY REDUCING RESIDUAL STYRENE MONOMER IN STYRENE POLYMERS AND SHAPED PRODUCTS FORMED THEREFROM

Edward F. Tokas, West Hatfield, Mass., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 951,503, Oct. 16, 1978, Pat. No. 4,221,905.

This application Sep. 14, 1979, Ser. No. 75,466

The portion of the term of this patent subsequent to Sep. 9, 1997, has been disclaimed.

Int. Cl.[3] C08K *5/01*

U.S. Cl. 260—4 AR 5 Claims

1. A shaped product formed of a thermoplastic polymer comprising at least about 10 weight percent of polymerized styrene monomer wherein walls thereof contain the reaction product of myrcene and styrene monomer.

4,274,985

CYCLODEXTRIN-POLYVINYL ALCOHOL POLYMERS AND A PROCESS FOR THE PREPARATION THEREOF IN A PEARL, FOIL, FIBER OR BLOCK FORM

Jozsef Szejtli; Eva Feayvesi; Sandor Zoltan; Bela Zsadon, and Ferenc Tudos, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt., Budapest, Hungary

Filed Jul. 9, 1979, Ser. No. 55,536

Claims priority, application Hungary, Jul. 13, 1978, CI 1845

Int. Cl.[3] C08L *5/16*

U.S. Cl. 260—17.4 ST 14 Claims

1. A cyclodextrin-polyvinyl alcohol polymer capable of forming an inclusion complex, and readily swellable in aqueous solution wherein the cyclodextrin and the polyvinyl alcohol are cross-linked with a polyfunctional coupling reactant capable of reacting with the cylcodextrin and the polyvinyl alcohol.

4,274,986

POLYACETAL MOLDING COMPOSITION

Yukio Ikenaga, and Osamu Matsuno, both of Shizuokaken, Japan, assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 66,252, Aug. 13, 1979, abandoned. This application May 5, 1980, Ser. No. 146,967

Claims priority, application Japan, Jun. 26, 1978, 53-77810

Int. Cl.[3] C08L *91/00*

U.S. Cl. 260—22 CQ 2 Claims

1. A polyacetal composition comprising a polyacetal and, incorporated therein, a polyhydric alcohol fatty acid ester including a hydroxy group and a polyethylene glycol.

4,274,987

COUPLING AGENTS FOR THERMOPLASTIC COMPOSITES

Edward J. Augustyn, Yardville, N.J., assignor to NL Industries, Inc., New York, N.Y.

Continuation of Ser. No. 941,080, Sep. 11, 1978, abandoned. This application Nov. 29, 1979, Ser. No. 98,578

Int. Cl.[3] C08J *3/10, 3/20, 3/22;* C08K *9/04*

U.S. Cl. 260—23 H 16 Claims

1. A composition comprising a thermoplastic resin containing a particulate inorganic mineral filler and a coupling agent, said coupling agent selected from the group consisting of mono-, di- and tri-long chain fatty acid esters of C_1 to C_{36} mono and polyhydric alcohols, wherein said long chain fatty acid comprises hydroxy fatty acids or acetyl derivatives thereof, and wherein said coupling agent comprises from about 0.5 to 7.5% by weight of said filler.

4,274,988

METHOD OF PREPARING DRY MIXTURES IN POWDER FORM FROM POLYVINYLCHLORIDE, LUBRICATING AGENTS AND STABILIZERS, AND THE MANUFACTURE OF OBJECTS THEREFROM

Martinus A. Snel, Haarlem, Netherlands, assignor to Nautamix B. V., Overveen, Netherlands

Continuation of Ser. No. 969,231, Dec. 13, 1978, abandoned. This application Mar. 18, 1980, Ser. No. 131,461

Claims priority, application Netherlands, Dec. 18, 1977, 7714021

Int. Cl.[3] C08K *5/09, 5/10;* C08L *27/06*

U.S. Cl. 260—23 XA 3 Claims

1. A process for preparing a dry powdered polyvinylchloride mixture which comprises, blending powdered polyvinylchloride with at least one lubricant and at least one stabilizer, said lubricant being liquid at room temperature and selected from the group consisting of isostearic acid, liquid esters and metal salts thereof, said blending being effected in the absence of added heat other than the normal heat physically inherent in the mechanical act of blending to promote and obtain penetration of the stabilizer, and lubricants in the polyvinylchloride, said blending being effected at ambient temperature to obtain said dry blend.

4,274,989

CATIONIC ELECTRODEPOSITABLE RESIN COMPOSITION

Akira Tominaga, and Reijiro Nishida, both of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Japan

Filed Sep. 25, 1979, Ser. No. 78,909

Claims priority, application Japan, Dec. 29, 1978, 53-162280

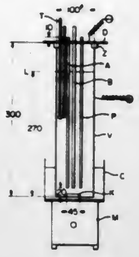
Int. Cl.[3] C08L *75/12;* C08G *59/14*

U.S. Cl. 260—29.2 TN 19 Claims

14. An aqueous bath for cationic electrodeposition, said bath consisting essentially of

(i) as a film-forming ingredient, the reaction product of (A)

an epoxy resin, or an adduct of an epoxy resin with a primary amine and/or a secondary amine, (B) an amino-terminated condensation product obtained by reacting a maleinized fatty acid and a polyamine until the acid value



of the reaction product becomes not more than 5, and (C) a partially blocked polyisocyanate,

(ii) a water-soluble aqueous inorganic or organic acid as a neutralization agent for said reaction product (i), and

(iii) an aqueous medium.

4,274,990

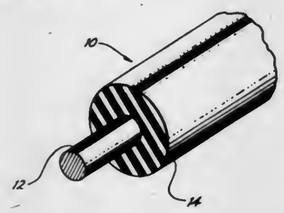
DIELECTRIC INSULATING POLYOLEFIN COMPOSITIONS CONTAINING NITRILE POLYSILOXANE FLUID, AND CONDUCTOR PRODUCTS INSULATED THEREWITH

Burton T. MacKenzie, Jr., 3144 Campfire Rd., Lawrence, Kans. 66044; Maurice Prober, 116 Deep Wood Rd., Fairfield, Conn. 06430, and Stanley E. Kiersztyn, 797 Riverside Dr., Orange, Conn. 06477

Division of Ser. No. 843,614, Oct. 19, 1977, Pat. No. 4,153,752. This application Feb. 5, 1979, Ser. No. 9,313

Int. Cl.³ C08L *83/08*; H01B *11/18*

U.S. Cl. 260—29.15 B **13 Claims**



1. A curable polyolefin compound having an ethylene-containing polymer component for use as a dielectric insulation for direct current, comprising at least one ethylene-containing polymer selected from the group consisting of homopolymers of ethylene and copolymers of ethylene and other polymerizable materials, nitrile polysiloxane fluid, and an organic peroxide curing agent.

4,274,991

ALKYL SULPHONIC ACID PHENYL ESTERS SUBSTITUTED BY CARBOXYLIC ACID ESTERS

Jürgen Hinz, Krefeld, and Karola Brudermanns, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

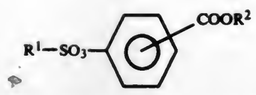
Filed Sep. 29, 1976, Ser. No. 727,644

Claims priority, application Fed. Rep. of Germany, Oct. 4, 1975, 2544552

Int. Cl.³ C08K *5/36*; C07C *143/68*

U.S. Cl. 260—30.8 R **6 Claims**

1. A compound of the formula



wherein R^1 is alkyl having 10 to 18 carbon atoms and R^2 is alkyl having 1 to 12 carbon atoms.

4. A composition comprising a polymer plasticized with a compound of claim 1 said polymer being selected from the group consisting of polyvinyl chloride, natural rubber, synthetic rubber and a copolymer of vinyl chloride with a member selected from the group consisting of a vinyl ester, an olefin, α,β-unsaturated monocarboxylic acid ester and α,β-unsaturated dicarboxylic acid ester.

4,274,992

LOW TEMPERATURE CURING POLYESTER RESINS AND COATING COMPOSITIONS

Peter R. Buechler, Wyncote; Earl E. Parker, Allison Park, and Kenneth L. Mollohan, Freeport, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 11, 1979, Ser. No. 102,493

Int. Cl.³ C08K *5/07*; C09L *67/00*

U.S. Cl. 260—32.8 R **14 Claims**

1. A coating composition capable of forming a film when cured at low temperatures, consisting essentially of:

(a) from about 10 percent to about 75 percent of a polyester resin having an allyloxy content of at least about 5 percent obtained by the reaction of (i) an alcohol having a hydroxyl functionality of at least one and an allyloxy functionality of at least one, provided the total hydroxyl and allyloxy functionalities are at least three, with (ii) a saturated dicarboxylic acid or anhydride; and

(b) from about 25 percent to about 90 percent of a vinyl monomer.

4,274,993

MOLDABLE POLYPHENYLENESULFIDE

Shigeyuki Narisawa; Hiroshi Yanase, and Fukuo Kanno, all of Yokohama, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed May 30, 1979, Ser. No. 43,907

Claims priority, application Japan, May 30, 1978, 53-63784; May 30, 1978, 53-63785

Int. Cl.³ C08L *81/02*

U.S. Cl. 260—37 R **11 Claims**

1. A moldable polyphenylenesulfide for injection or extrusion molding obtained by heat-treating a partially cross-linked polyphenylenesulfide at a temperature greater than 290° C. in an atmosphere substantially free of oxygen, said partially cross-linked polyphenylenesulfide being obtained by heating non-crosslinked polyphenylenesulfide at a temperature lower than its melting point in the presence of oxygen.

4,274,994

REACTIVE TERMINALLY UNSATURATED LIQUID POLYMERS IN UNSATURATED POLYESTERS

Changkiu K. Riew, Akron, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 73,160, Sep. 6, 1979. This application Jun. 13, 1980, Ser. No. 159,088

Int. Cl.³ C08L *67/06*

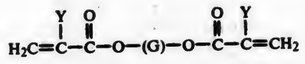
U.S. Cl. 260—40 R **13 Claims**

1. An unsaturated polyester molding composition comprising:

(a) An unsaturated polyester resin,

(b) A polymerizable vinyl monomer, and

(c) From about 2 to about 30 weight parts of a terminally unsaturated liquid epihalohydrin polymer having the formula



wherein Y is hydrogen or methyl, and G is a polymeric backbone comprising polymerized units of at least one epihalohydrin.

4,274,995

FILLED POLYOLEFIN COMPOSITIONS HAVING IMPROVED THERMAL STABILITY

Joseph Silberberg, Brooklyn, N.Y., assignor to Stauffer Chemical Company, Westport, Conn.

Filed Dec. 31, 1979, Ser. No. 109,747

Int. Cl.³ C08K *3/26, 3/34, 5/52, 9/04*

U.S. Cl. 260—42.14 **9 Claims**

1. A filled polyolefin composition having improved thermal stability comprising a polyolefin resin, an inorganic filler, and an effective amount for said improved stability of a composition comprising an alkoxylated alkyl acid phosphate.

4,274,996

THERMALLY STABILIZING POLYMERS OF ETHYLENE

Gil R. Hawley, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 1, 1979, Ser. No. 90,181

Int. Cl.³ C08K *5/54*

U.S. Cl. 260—45.9 R **7 Claims**

5. A composition of matter comprising a polymer of ethylene and a thermally stabilizing amount of a silane compound represented by the formula R_2SiA_2 or R_3SiA' in which each R is the same or different and is selected from aryl, alkaryl, or aralkyl groups containing from 6 to about 24 carbon atoms, each A is the same or different and is selected from hydrogen, azido, halogen, hydroxy, alkoxy groups in which the alkyl radical contains from 1 to about 10 carbon atoms, and alkenyl of 2 to 6 carbon atoms, and wherein one A being selected from lower alkyl of 1 to 6 carbon atoms the other A is selected from among azido, halogen, hydroxy, and alkoxy, lower alkyl and alkenyl as described above, and A' is selected from among halogen, hydrogen and hydroxy groups.

4,274,997

HALOGENATED POLYMERS STABILIZED WITH TRIAZOLES

Charles A. Schneider, Villa Hills, Ky., and Thomas C. Rees, Park Forest South, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio

Filed Nov. 29, 1978, Ser. No. 964,851

Int. Cl.³ C08K *3/10, 3/22, 5/34*

U.S. Cl. 260—45.75 W **9 Claims**

1. A halogenated polymeric composition containing a sufficient amount of an aromatic triazole to prevent degradation at temperatures exceeding 180° C. which comprises at least one polymer selected from the group consisting of polyvinyl chloride, polyvinylidene chloride and combinations thereof and a stabilizing amount of at least one aromatic triazole selected from the group consisting of benzotriazole, tolyltriazole and combinations thereof.

8. The polymer of claim 1 further characterized as containing a zinc compound.

4,274,998

DIESTER OF 3,5,3',5'-TETRABROMO-BISPHENOL A WITH HALOGENATED AROMATIC CARBOXYLIC ACID

Izumi Yamashita, Yokohama; Kunio Fukuda, Chigasaki, and Kichiya Tazaki, Yokohama, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan

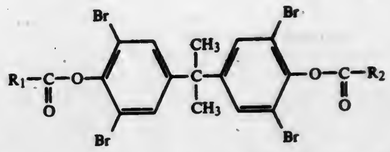
Filed Oct. 11, 1979, Ser. No. 83,956

Claims priority, application Japan, Oct. 20, 1978, 53/129292

Int. Cl.³ C08K *5/18, 5/17, 5/13, 5/10*; C07C *101/74, 69/78, 69/84, 69/76*

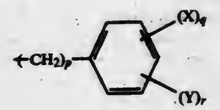
U.S. Cl. 260—45.75 B **25 Claims**

1. A compound of the formula (I):



(I)

wherein R_1 and R_2, which may be identical or different, represent the groups of the formula (II):



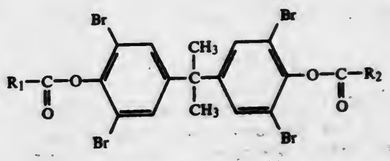
(II)

wherein X is bromine atom; Y at least one group selected from the group consisting of alkoxy groups having 1 to 4 carbon atoms, hydroxyl groups and primary, secondary or tertiary amino groups; p an integer of 0 to 4; q an integer of 1 to 4; r an integer of 1 to 4; and (q+r) is equal to an integer of not more than 5.

10. A polymeric material improved in flame-retardancy, comprising:

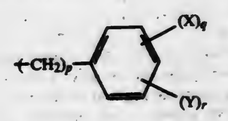
(a) at least one inflammable polymer selected from the group consisting of polystyrene, acrylonitrilestyrene resin, acrylonitrile-butadiene-styrene resin, polyphenylene oxide, polyester, polyamide, polyethylene, polypropylene, polyisoprene, polybutadiene, polyacrylate and polycarbonate; and

(b) at least one compound of the formula (I):



(I)

wherein R_1 and R_2, which may be identical or different, represent the groups of the formula (II):



(II)

wherein X is bromine atom; Y at least one group selected from the group consisting of, alkoxy groups having 1 to 4 carbon atoms, hydroxyl group and primary, secondary or tertiary amino groups; p an integer of 0 to 4; q an integer of 1 to 4; r an integer of 1 to 4; and (q+r) is equal to an integer of not more than 5.

4,274,999

COMPOSITIONS FOR STABILIZING A VINYL OR VINYLIDENE HALIDE POLYMER OR CHLORINATED POLYETHYLENE, POLYMER COMPOSITIONS COMPRISING SUCH A STABILIZER COMPOSITION AND SHAPED ARTICLES PREPARED THEREFROM

Joseph W. Burley, St. Helens; Peter Hope, Liverpool, and Malcolm G. Pritchard, Southport, all of England, assignors to Akzo N.V., Arnhem, Netherlands

Filed Apr. 15, 1980, Ser. No. 140,496

Claims priority, application United Kingdom, Apr. 17, 1979, 13202/79

Int. Cl.³ C08K 5/58

U.S. Cl. 260—45.75 S **10 Claims**

1. A composition for stabilizing a vinyl or vinylidene halide polymer or chlorinated polyethylene comprising a major proportion of (a) at least one organotin compound of the formula:

$$(R_1OC\,CH_2CH_2)_n\,Sn\,X_{4-n}$$

wherein n=1 or 2, R_1 is an alkyl group having from 1 to 18 carbon atoms and optionally carrying an alkoxy group having from 1 to 18 carbon atoms, a polyoxyalkylene group consisting of oxyalkylene groups having from 1 to 4 carbon atoms and carrying as the terminal group an alkyl group or a hydrogen atom, a cycloalkyl group having from 3 to 6 carbon atoms, and alkenyl group having 2 to 4 carbon atoms, or a phenyl group, X is ½ S, —S R_2, —S$(CH_2)_m$COO R_3 or —S$(CH_2)_2$ OCO R_4 wherein m=1 or 2 and R_2 is an unsubstituted or β-hydroxy substituted alkyl group having from 1 to 18 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms or a substituted or unsubstituted alkenyl, aryl, alkaryl or aralkyl group, R_3 is an alkyl group having from 1 to 18 carbon atoms and optionally carrying an alkoxy group having from 1 to 18 carbon atoms, a polyoxyalkylene group consisting of oxyalkylene groups having from 1 to 4 carbon atoms and carrying as the terminal group an alkyl group or a hydrogen atom, a cycloalkyl group having from 3 to 6 carbon atoms, an alkenyl group having from 2 to 4 carbon atoms or an aryl, alkaryl or aralkyl group, and R_4 is a substituted or unsubstituted alkyl group having from 1 to 17 carbon atoms or an unsubstituted or substituted aryl, alkaryl or aralkyl group, with the proviso that n is 2 when X is ½ S; and a minor proportion of (b) at least one unsubstituted or alkyl substituted o-dihydric phenol, the proportions of (a) and (b) being based on their combined weight.

7. A polymer composition which comprises a vinyl or vinylidene halide resin or chlorinated polyethylene and which incorporates therein a stabilizer composition as claimed in any one of claims 1 to 6.

4,275,000

PEPTIDE MACROMOLECULAR COMPLEXES

Walter C. J. Ross, Sunbury on Thames, England, assignor to National Research Development Corporation, London, England

Filed Aug. 21, 1978, Ser. No. 934,710

Claims priority, application United Kingdom, Aug. 22, 1977, 35173/77

Int. Cl.³ A61K 39/385, 39/44; C07G 7/00; C12N 9/96

U.S. Cl. 260—112 R **22 Claims**

1. A macromolecular complex which comprises a first and a second peptide macromolecular moiety, joined by a link derived from a linking agent having two or more reactive groups, one of these reactive groups being selected from the group consisting of activated acyl groups, isocyanates, isothiocyanates, iminoethers, iminothioethers and activated halogen atoms attached to aromatic rings and being capable of reacting with one of the macromolecules from which the macromolecular moieties are derived, under conditions where the remaining reactive group or groups which is or are each selected from the group consisting of aziridine rings, aryl azido groups and halogen atoms in an α-position relative to a carbonyl group or two carbon atoms removed from a hetero-atom carrying a lone pair of electrons, is or are substantially unreactive.

4,275,001

PROCESS FOR THE MANUFACTURE OF LH-RH AND LH-RH ANALOGS USING GLU-HIS(DNP)-OH

Wolfgang König; Volker Teetz, both of Hofheim; Georg Jäger, Bad Soden, and Rolf Geiger, Frankfurt, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Feb. 12, 1980, Ser. No. 120,924

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1979, 2905502

Int. Cl.³ C07C 103/52

U.S. Cl. 260—112.5 LH **4 Claims**

1. A method for making LH-RH or an LH-RH analog, which method comprises reacting

Glu-His(Dnp)-OH,

in a solvent used in peptide chemistry and in the presence of 3-hydroxy-4-oxo-3,4-dihydro-1,2,3-benzotriazine and a carbodiimide, with a corresponding peptide residue of LH-RH or of an LH-RH analog, said peptide residue having a free amino group and protected carboxy groups, and then splitting off the protective dinitrophenyl group from the resulting product.

4,275,002

PROCESS FOR PREPARING POLYMERIC COLORANTS HAVING A POLY(VINYLAMINE) BACKBONE

Richard D. Gless, Jr., Oakland; Daniel J. Dawson, Mountain View, and Robert E. Wingard, Palo Alto, all of Calif., assignors to Dynapol, Palo Alto, Calif.

Division of Ser. No. 520,530, Nov. 4, 1974, Pat. No. 4,018,826. This application Jan. 17, 1977, Ser. No. 760,201

Int. Cl.³ C07C 107/02, 107/08; C09B 31/30, 31/64

U.S. Cl. 260—144 **5 Claims**

1. The process for preparing a poly(vinylamine)-based polymeric colorant which comprises the steps of (a) reacting at a temperature of from 20° C. to 100° C. acetaldehyde and from two to four stoichiometric equivalents of acetamide in the presence of from 0.001 to 1 mole per mole of acetamide of an aqueous mineral acid catalyst to yield—a vinylacetamide and—ethylidene-bis-acetamide containing reaction product; (b) neutralizing the aqueous mineral acid catalyst and heating the ethylidene-bis-acetamide containing reaction product to 70° C. to 250° C. for from 0.2 to 5 hours in the presence of an inorganic nonacidic silicious oxide surface catalyst having a surface area of at least about 1 m^2/g to yield a decomposition product; (c) separating vinylacetamide from said decomposition product—by vacuum volatilization—; (d) contacting a solution of said vinylacetamide with a catalytically effective amount of free radical initiator polymerization catalyst at a temperature of from 25° C. to 125° C. for from 4 to 8 hours to yield poly(vinylacetamide); (e) hydrolyzing said poly(vinylacetamide) by contacting it with—from 1.05 to 3—stoichiometric—equivalents—of a mineral acid per equivalent of poly(vinylacetamide)—at a temperature of from 60° C. to 175° C. for from 1 to 36 hours to yield the poly(vinylamine) salt of said mineral acid,—and precipitating and recovering said poly(vinylamine) salt—; (f) contacting said poly(vinylamine) salt with not less than a stoichiometric amount of an aqueous solution of a strong base selected from the alkali and alkaline earth metal hydroxides, thereby forming poly(vinylamine); and (g) coupling, in solution, chromophoric groups to the amine functionalities of said poly(vinylamine).

4,275,003

PREPARATION OF AROMATIC AZOAMINES BY DIAZOTIZATION/COUPLING/REARRANGEMENT OF AROMATIC AMINES

Serge Ratton, La Verpilliere, and Bernard Botaanet, Luzinay, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed Feb. 9, 1978, Ser. No. 876,504

Claims priority, application France, Feb. 11, 1977, 77 04638

Int. Cl.³ C07C 107/06, 107/08; C09B 29/085, 29/095

U.S. Cl. 260—205 **13 Claims**

1. In a process for the preparation of an aromatic azoamine, comprising diazotizing an aromatic amine, coupling the thus prepared diazonium salt with the aromatic amine, and thence rearranging the resulting aromatic diazoamine, the improvement which comprises effecting said diazotization, coupling and rearrangement reactions by introducing vaporous nitrogen oxides comprising an admixture of nitric oxide, NO_1, and nitrogen peroxide, NO_2, or nitrogen trioxide, N_2O_3, wherein the molar ratio of said nitric oxide to said nitrogen peroxide or nitrogen trioxide is between about 2:1 and about 100:1, to a reaction medium including the aromatic amine [α], a salt of the aromatic amine [β], and water [γ], with the percentage weight relationship existing among the components α, β and γ being such that:

$10<\alpha<70$

$13<\beta$

$5<\gamma$

$\alpha+\beta+\gamma=100$.

4,275,004

HIGH CAUSTIC COUPLING PROCESS FOR PREPARING SUBSTITUTED 2-NITRO-2'-HYDROXYAZOBENZENES

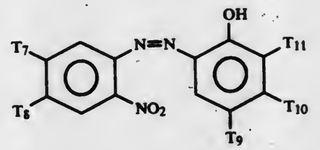
Roland A. E. Winter, Armonk, and Martin Dexter, Briarcliff Manor, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 918,984, Jun. 26, 1978, Pat. No. 4,226,763. This application May 16, 1979, Ser. No. 38,768

Int. Cl.³ C07C 107/06; C09B 29/12; C07D 249/20

U.S. Cl. 260—206 **11 Claims**

1. A process for the production of a compound of the formula



wherein

T_7 is hydrogen or chlorine,

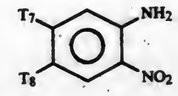
T_8 is hydrogen, chlorine, lower alkyl of 1 to 4 carbon atoms, lower alkoxy of 1 to 4 carbon atoms, carboalkoxy of 2 to 9 carbon atoms, carboxy or —SO_3H,

T_9 is alkyl of 1 to 12 carbon atoms, alkoxy of 1 to 4 carbon atoms, phenyl, phenyl substituted with alkyl groups, said alkyl groups having 1 to 8 carbon atoms, cycloalkyl of 5 to 6 carbon atoms, carboalkoxy of 2 to 9 carbon atoms, chlorine, carboxyethyl or arylalkyl of 7 to 9 carbon atoms,

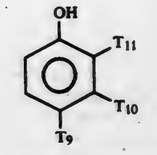
T_{10} is hydrogen, lower alkyl of 1 to 4 carbon atoms, lower alkoxy of 1 to 4 carbon atoms, chlorine or hydroxy, and

T_{11} is alkyl of 1 to 12 carbon atoms, chlorine, cycloalkyl of 5 to 6 carbon atoms or arylalkyl of 7 to 9 atoms,

which comprises adding an essentially stoichiometric to a small excess amount, relevant to the phenol to be coupled, of an aqueous mineral acid solution of a diazonium salt of an amine of the formula



where T_7 and T_8 are defined as above, to a strongly alkaline lower alkanol or aqueous lower alkanol solution of a phenol of the formula



where T_9 T_{10} and T_{11} are defined as above, containing alkali metal hydroxide in sufficient amount to neutralize completely the acid diazonium salt solution as added and to still provide an excess of hydroxyl ion concentration and to provide a pH value substantially over 11 throughout the coupling reaction in the reaction mixture, wherein the reaction solvent mixture is at least 50% by weight of lower alkanol, while maintaining the reaction temperature between −15° C. and +30° C., and acidifying the reaction mixture to isolate the product.

4,275,005

CARBAZOLYLMETHANE COMPOUNDS

Jean C. Petitpierre, Kaiseraugst, and Peter Burri, Reinach, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

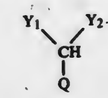
Division of Ser. No. 29,593, Apr. 12, 1979, Pat. No. 4,254,032. This application May 27, 1980, Ser. No. 153,481

Claims priority, application Switzerland, Apr. 24, 1978, 4389/78

Int. Cl.³ C07D 209/86

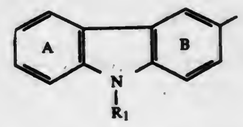
U.S. Cl. 260—315 **7 Claims**

1. A carbazolylmethane compound of the formula



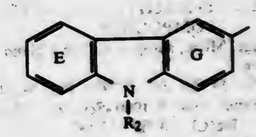
(1)

wherein Q represents a 3-carbazolyl radical of the formula



(1a)

and each of Y_1 and Y_2 independently, represents a 3-carbazolyl radical of the formula



(1d)

or a 3-carbazolyl radical of the formula (1a), each of R_1 and R_2

independently represents hydrogen, alkyl containing not more than 12 carbon atoms which is unsubstituted or substituted by halogen, hydroxyl, cyano or lower alkoxy, or represents alkenyl containing not more than 12 carbon atoms, acyl of 1 to 12 carbon atoms, phenyl, benzyl, or phenyl or benzyl which is substituted by halogen, lower alkyl, lower alkoxy or nitro, and the ring A is substituted by phenyl or one or two fused benzene nuclei, and the phenyl radical, the fused benzene nuclei and the rings B, E and G, each independently of the other, are unsubstituted or substituted by cyano, nitro, halogen, lower alkyl, lower alkoxy or lower alkoxycarbonyl.

4,275,006

PROCESS OF PREPARING DISPERSANT LUBRICATING OIL ADDITIVES

Timothy R. Erdman, San Rafael, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Filed Dec. 4, 1978, Ser. No. 966,179
Int. Cl.³ C07D *207/12*; C10M *1/38*
U.S. Cl. 260—326.5 SF **2 Claims**

1. A process for preparing a lubricating oil additive which comprises reacting at a temperature of from 20° to 200° C. an oil-soluble hydrocarbyl succinimide dispersant containing at least one primary or secondary amino group, with from 0.2 to 2 mols of SO_2 for every two mols of basic nitrogen present in said dispersant.

2. The process of claim 1 wherein said succinimide is prepared from a polyisobutylene succinic anhydride and triethylene tetraamine or tetraethylene pentamine.

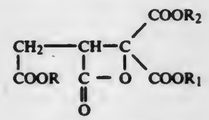
4,275,007

β-LACTONE ESTERS

Eddie N. Gutierrez, Fort Lee, and Vincent Lamberti, Upper Saddle River, both of N.J., assignors to Lever Brothers Company, New York, N.Y.

Division of Ser. No. 905,720, May 15, 1978, abandoned, which is a division of Ser. No. 642,850, Dec. 22, 1975, Pat. No. 4,123,458. This application Sep. 12, 1979, Ser. No. 74,703
Int. Cl.³ C07D *305/12*
U.S. Cl. 260—343.9 **2 Claims**

1. A beta lactone ester of the formula



wherein said R, R_1 and R_2 independently represent primary alkyl groups of 1–4 carbon atoms.

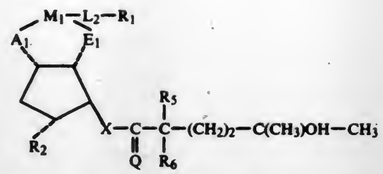
4,275,008

19-HYDROXY-19-METHYL-7A-HOMO-PGI$_2$ COMPOUNDS

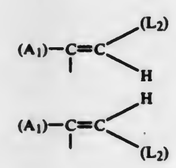
John C. Sih, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 54,720, Jul. 5, 1979, Pat. No. 4,225,507. This application Mar. 3, 1980, Ser. No. 126,501
Int. Cl.³ C07D *311/94*
U.S. Cl. 260—345.2 **7 Claims**

1. A prostacyclin-type compound of the formula



wherein A_1 is —O— (oxa) and E_1 is —CH_2CH_2—;
wherein L_2 is
(1) —$(CH_2)_j$—, wherein j is one to 4, inclusive,
(2) —$(CH_2)_q$—CF_2—, wherein q is one, 2, or 3, or
(3) —CH=CH—;
wherein M_1 is



wherein Q is oxo, α—H:β—H, α—OH:β—R_4, or α—R_4:β—OH,
wherein R_4 is hydrogen or alkyl of one to 4 carbon atoms, inclusive,
wherein R_1 is
(1) —$COOR_3$,
(2) —CH_2OH,
(3) —$CH_2N(R_7)(R_8)$,
(4) —CO—$N(R_7)(R_8)$,
(5) —CO—NH—SO_2—R_{15}, or
(6) tetrazolyl,
wherein R_3 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;
(g) —(Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) —CH_2—CO—R_{16},
wherein —(Ph)— is inter-phenylene and —(p—Ph) is inter-paraphenylene or para-phenyl;
wherein R_{16} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different, and wherein R_{15} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, phenyl, phenyl-substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of 2 to 4 carbon atoms, inclusive,
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_5 and R_6 are hydrogen, alkyl of one to 4 carbon atoms, inclusive, or fluoro, being the same or different, with the proviso that one of R_5 and R_6 is fluoro only when the other is hydrogen or fluoro, and
wherein X is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) —C≡C—, or
(4) —CH_2CH_2—.

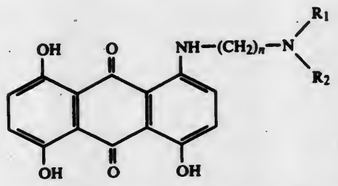
4,275,009

1-(AMINOALKYLAMINO)-5,8-DIHYDROXY-4-SUBSTITUTED-ANTHRAQUINONES

Keith C. Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed May 29, 1979, Ser. No. 43,271
Int. Cl.³ C09C *97/26*
U.S. Cl. 260—380 **8 Claims**

1. A compound selected from the group consisting of those of the formula:



wherein n is an integer from 2 to 4, inclusive; R_1 and R_2 are each individually selected from the group consisting of hydrogen, alkyl having from 1 to 4 carbon atoms and monohydroxyalkyl having from 2 to 4 carbon atoms and wherein the carbon atom alpha to the nitrogen atom may not bear an hydroxy group; with the proviso that the ratio of the total number of carbon atoms to the sum of the total number of oxygen atoms plus the total number of nitrogen atoms in the side chains at the 1-position may not exceed 4; and the pharmacologically acceptable acid-addition salts thereof.

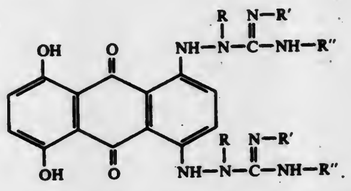
4,275,010

5,8-DIHYDROXY-1,4-BIS(GUANIDINYLAMINO)ANTHRAQUINONES

Keith C. Murdock, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Oct. 24, 1979, Ser. No. 87,908
Int. Cl.³ C07C *97/26*
U.S. Cl. 260—380 **6 Claims**

1. A compound selected from the group consisting of those of the formula:



(I)

wherein R, R′ and R″ are selected from the group consisting of hydrogen and straight or branched chain lower alkyl (C_1-C_4) groups.

4,275,011

METHOD OF PRODUCING IMPROVED GLYCERIDE BY LIPASE

Takashi Tanaka; Eiji Ono, both of Kawasaki, and Koichi Takinami, Yokohama, all of Japan, assignors to Ajinomoto Company, Incorporated, Tokyo, Japan

Filed Dec. 20, 1979, Ser. No. 105,713
Claims priority, application Japan, Dec. 20, 1978, 53-159517
Int. Cl.³ C11C *3/02*; C12P *7/64*
U.S. Cl. 260—410.7 **9 Claims**

1. A method of producing a glyceride, which comprises: interesterifying a glyceride mixture in the presence of a lipase as a catalyst and in the substantial absence of water with a dihydric alcohol, a trihydric alcohol, or a mixture thereof, said glyceride mixture being composed of at least two different glycerides or at least one glyceride and at least one fatty acid.

4,275,012

PROCESS FOR CONTINUOUS REFINING OF OILS AND FATS

Isao Kokubo, Wakayama, and Yoshiharu Kawahara, Osaka, both of Japan, assignors to Kao Soap Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1980, Ser. No. 140,393
Claims priority, application Japan, May 9, 1979, 54-56561
Int. Cl.³ C11C *3/02*
U.S. Cl. 260—421 **5 Claims**

1. A process for continuous refining of oils and fats characterized in that a starting oil or fat and a lower alcohol containing 0.06–0.15 wt. %, based on the starting oil or fat, of an acid catalyst are continuously fed into a multistage reaction tank provided with a stirring device wherein back mixing hardly occurs to effect the refining treatment of the oil or fat at a reaction temperature of below 67° C., thus refined oil or fat is continuously taken out together with the excessive lower alcohol containing the acid catalyst, they are then divided into a layer of the oil or fat and a layer of the lower alcohol and the major part of the lower alcohol layer is recycled into an inlet of the reaction tank.

4,275,013

NOVEL PROCESS FOR THE PREPARATION OF SALTS OF ALKANESULFONIC ACIDS

Richard Tokosh, Saddle Brook; Joseph Barillo, Glen Rock, and Warren Urban, River Vale, all of N.J., assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 535,771, Dec. 23, 1974, abandoned, which is a continuation of Ser. No. 334,514, Feb. 21, 1973, abandoned. This application May 5, 1976, Ser. No. 683,458
Int. Cl.³ C07B *13/00*; C07C *143/02*
U.S. Cl. 260—504 R **17 Claims**

1. A process for the preparation of an alkali or alkaline earth metal or ammonium salt of an alkanesulfonic acid which comprises:
(i) continuously and incrementally adding to a reaction mixture, under reflux, an admixture of a free radical initiator and a acyclic alpha-monoolefinic compound having a terminal double bond and containing from 5–30 carbon atoms or mixtures of said compounds, wherein said reaction mixture comprises:
(1) a cosolvent mixture of water and an aliphatic organic hydroxyl containing compound having from 1–6 carbon atoms wherein the ratio of said organic compound to water is from 4:1 to 1:9,
(2) an alkali or alkaline earth metal or ammonium bisulfite, and
(3) a first portion of a free radical initiator, said first portion of free radical initiator comprising up to about 25% of the total initiator, the remainder of the free radical initiator being admixed with said monoolefin and added simultaneously therewith to said reaction mixture and wherein the ratio of said monoolefin to said bisulfite varies from about 0.1/1.6 to about 1.0/1.6, and
(ii) upon the completion of the addition of initiator and olefin, continuing to reflux the reaction mixture, while maintaining the pH between 4 to 9 by the addition of an acid or acid-forming compound or a base until the reaction is complete.

4,275,014

N-(OXAZOLIDINOTHIO) IMIDES THAT PROVIDE SCORCH RETARDANT NONBLOOMING ELASTOMERIC COMPOSITIONS

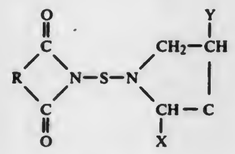
Ivan C. Popoff; Everett A. Mailey, and Paul G. Haines, all of Montgomery, Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Division of Ser. No. 909,596, May 23, 1978, Pat. No. 4,220,589. This application Dec. 3, 1979, Ser. No. 99,795

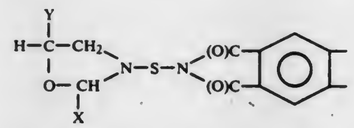
Int. Cl.³ C08K *5/35, 5/44;* C08L *7/00, 11/00*

U.S. Cl. 260—780 **24 Claims**

1. In a sulfur vulcanizable elastomeric polymer composition comprising an admixture of a sulfur vulcanizable elastomeric polymer, sulfur, and other rubber compounding ingredients, the improvement which comprises incorporation within the admixture of a scorch-retardant effective amount of at least one N-(oxazolidinothio) imide compound having the structural formula:



wherein R is an organic divalent radical selected from the group consisting of ortho-phenylene, 1,2-cyclohex-4-enediyl, 1,2-cyclohexanediyl, 4-methyl-1,2-cyclohexanediyl, 1,2-ethanediyl, nd 1,2-ethenediyl; furthermore R can be the divalent radical:



X is a monovalent organic radical selected from the group consisting of phenyl and trichloromethyl radicals; Y is hydrogen with the proviso that Y can be phenyl when X is trichloromethyl; to provide a polymer composition having a high scorch resistance, and final cured vulcanized articles that are bloom resistant.

4,275,015

CARBURETOR WITH MANUAL SELECTABLE FUEL METERING JETS

Edmund K. von Delden, 1203 Hickory Ave., Torrance, Calif. 90503

Filed Mar. 25, 1980, Ser. No. 133,817

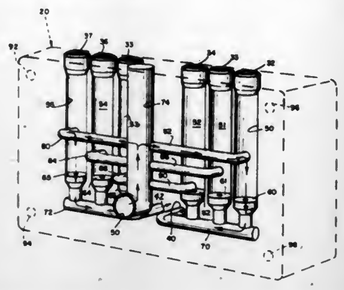
Int. Cl.³ F02M *7/14*

U.S. Cl. 261—23 A **12 Claims**

1. A selectable fuel jet carburetor comprising:

a modular constructed carburetor having a centrally located barrel assembly and a metering plate located adjacent the barrel assembly on one side and a fuel float assembly adapted to be attached to the opposite side of the metering plate,

a fuel jet selector plate containing a plurality of selectable fuel jets interposed between the fuel float assembly and the metering plate, and



a remotely controlled valve located in said fuel jet selector plate for selecting a desired fuel jet to feed the carburetor metering plate.

4,275,016

VARIABLE VENTURI TYPE CARBURETOR

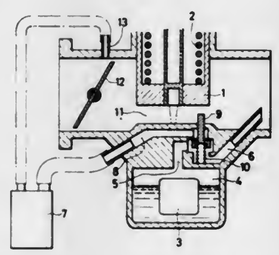
Toshiharu Morino, Mie, and Masayuki Okamura, Aichi, both of Japan, assignors to Aisan Industry Co., Ltd., Aichi, Japan

Filed Sep. 25, 1979, Ser. No. 78,742

Claims priority, application Japan, Oct. 27, 1978, 53-133070

Int. Cl.³ F02M *5/08*

U.S. Cl. 261—44 C **7 Claims**



1. A variable-venturi type carburetor having an intake passage, comprising

means comprising a suction piston disposed in said intake passage and adapted to be moved in a path of movement in dependency on the flow rate of intake air sucked into an engine through said intake passage,

a canister,

a carburetor housing forming an internal passage communicating with said intake passage, a vent passage, a valve chamber communicating with said internal passage and with said vent passage, respectively, and a fuel float chamber communicating with said vent passage and with said valve chamber via said vent passage,

means comprising an external passage for communicating said valve chamber with said canister,

said internal passage communicating between said valve chamber and the intake passage of said carburetor,

means comprising a rod valve disposed in said valve chamber for alternately communicating either said external passage with said vent passage via said valve chamber or said internal passage with said vent passage via said valve chamber depending on predetermined conditions of the engine, and

spring means for biasing said rod valve such that said rod valve in normal condition closes communication between said external passage and said vent passage,

said rod valve having a projecting end portion projecting into said intake passage spaced from and under said suction piston in the normal condition in the path of movement of said suction piston, said end portion constituting means for being pressed directly by said suction piston only when said suction piston is lowered in a direction opposite to the direction of biasing of said spring means, overcoming the force of said spring means so as to interrupt communication between said internal passage and said vent passage.

4,275,017

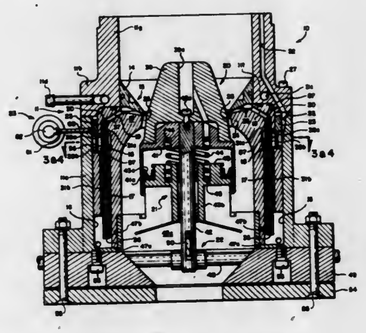
RING CONTROLLED VARIABLE VENTURI DOWNDRAFT CARBURETOR

Ralph T. Rollins, Salt Lake City, Utah, assignor to Clinton Graybill, Superior, Mont.

Continuation of Ser. No. 907,985, May 22, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 88,952

Int. Cl.³ F02M *7/24*

U.S. Cl. 261—53 **5 Claims**



1. A variable venturi carburetor, comprising:

a carburetor housing having a central passage extending therethrough;

a fixed venturi member having an annular surface fixed in the central passage;

a movable venturi member having an annular surface cooperating with the annular surface of the fixed venturi to form a venturi throat therebetween;

means for moving the movable venturi member with respect to the fixed venturi member to vary the size of the venturi throat;

a fuel chamber;

a plurality passage means interconnecting the fuel chamber and the venturi throat at angularly spaced locations through the fixed venturi member for delivering fuel to the venturi throat;

atmospheric air bleed means for bleeding atmospheric air into the passage means to vary the fuel-air mixture passing through the passage means to the venturi throat;

said atmospheric air bleed means including:

bleed ports associated with respective passage means for bleeding atmospheric air through the ports into the passage means;

an annular bleed control ring movably mounted on the fixed venturi member in juxta position to the bleed ports for angular movement with respect to the bleed ports;

said annular bleed control ring having apertures formed therein for registering with respective bleed ports; and

drive means responsive to engine vacuum and operatively connected to the annular control ring for moving the annular bleed control ring angularly to move the ring apertures into and out of registry with the bleed ports to vary the amount of atmospheric air passing into the passage means to vary the fuel air mixture passing through the passage means to the venturi throat.

4,275,018

GRID FOR CARRYING RANDOMLY DUMPED PACKING IN A MASS TRANSFER COLUMN

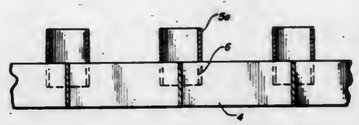
Roland Braun, Ludwigshafen am Rhein, Fed. Rep. of Germany, assignor to Raschig, G.m.b.H., Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 969,001, Dec. 13, 1978, abandoned, which is a continuation-in-part of Ser. No. 688,956, May 24, 1976, abandoned. This application Feb. 19, 1980, Ser. No. 122,578

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1975, 2526632

Int. Cl.³ B01D *3/32*

U.S. Cl. 261—94 **4 Claims**



1. In a mass transfer column for carrying randomly dumped packing comprising a grate, which said grate includes a plurality of grid walls defining equally-sized openings, the improvement comprising irregularly poured filler bodies, carried by the grate, having predetermined height and width dimensions equal to each other, the grate having openings smaller in size than the filler bodies received therein, and spacing members disposed at each intersection of the grid walls, for supporting the filler bodies, said spacing members being equally-spaced one from another and at a distance approximately equal to the width of each of said openings, said spacing members having a predetermined height which corresponds to at least one-half the height of a filler body, so as to prevent the filler bodies from covering and closing said openings, and said spacing members comprise cylindrical sleeves having open and closed ends, each of said cylindrical sleeves being provided with elongated vertical slots at the open end thereof for slipping said sleeves on said grid walls at the intersections thereof, said sleeves covering the central areas of the intersections.

4,275,019

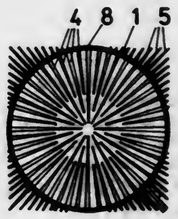
A MODULAR HEAPING-TYPE PACKING ELEMENT

Stanislaw Bedzarski, Cracow, Poland, assignor to Przedsiebiorstwo Wdrazania i Upowszechniania Postepu Technicznego i Organizacyjnego "Posteor", Poznan, Poland

Filed Jun. 21, 1979, Ser. No. 50,923

Int. Cl.³ B01F *3/04*

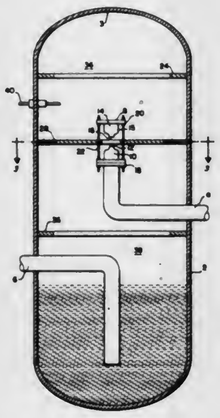
U.S. Cl. 261—98 **5 Claims**



1. A modular packing element for mass and heat exchange, adapted for coupling into an assembly having a vertical axis and a generally prismatic or rectangular shape in cross-section with open bases, comprising a continuous side wall element formed of rolled sheet material having both surfaces formed with an array of elongated, thin protrusions in form of needles, cones, spikes, or the like, of various lengths, extending both inwardly and outwardly of the wall element and located radially uniformly around a central portion of the side wall, and

located at generally equal distances from the longer edges of the sheet-like material.

4,275,020
GAS-LIQUID DISSOLVING TANK
David DiGregorio; Daniel McCarthy; Keith J. Mounteer, all of Salt Lake City, and Charles D. Thompson, Hunter, all of Utah, assignors to Envirotech Corporation, Menlo Park, Calif.
Filed Sep. 20, 1978, Ser. No. 944,116
Int. Cl.³ B01F 3/04; C02F 1/24
U.S. Cl. 261—111 9 Claims



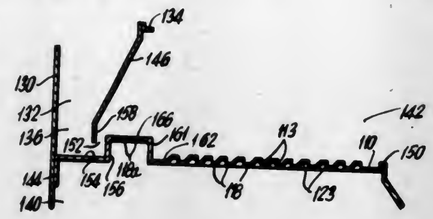
1. In an apparatus for continuously dissolving gas in a liquid, which apparatus includes a sealed tank, means for introducing gas under pressure into the tank, means for introducing liquid under pressure into the tank and means for discharging liquid containing dissolved gas from the tank, the improvement comprising:

a. a generally horizontally-disposed tray fixedly mounted within the tank to divide the tank into an upper reaction zone and a lower discharge zone, said tray having communication means formed centrally therethrough for fluid flow communication between said discharge zone and said reaction zone said tray also having formed therein at least one peripheral opening to allow liquid which collects on said tray to flow from said reaction zone to said discharge zone;

b. liquid feed means connected in flow communication with the liquid introduction means and positioned below said tray to discharge liquid upwardly through said communication means into said reaction zone past said tray such that liquid flowing from said reaction zone to said discharge zone through said communication means becomes entrained in said upwardly discharging liquid and is reintroduced to said reaction zone;

c. liquid distribution means mounted within the tank at a location spaced above said tray, said distribution means having flared sidewalls and a vertically-oriented distribution orifice formed therein, said distribution means being positioned so that a portion of the liquid discharging upwardly from said feed means impacts on said flared sidewalls and is thereby distributed as droplets within said reaction zone and another portion of the liquid discharging from said feed means passes upwardly through said distribution orifice toward the top of the tank.

4,275,021
GAS-LIQUID CONTACTING TRAY WITH IMPROVED INLET BUBBLING MEANS
Robert D. Kirkpatrick, Tonawanda, and David W. Weiler, Burt, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.
Filed Mar. 17, 1977, Ser. No. 778,797
Int. Cl.³ B01F 3/04
U.S. Cl. 261—114 JP 2 Claims



1. In a gas-liquid contacting tray of the double-pass, side-to-center flow slotted sieve-type for use in a distillation column to effect intimate contact between rising vapor and liquid flowing across a gas-liquid contacting member of the tray having main flat top and bottom surfaces from a liquid inlet adjacent one edge of the contacting member along a liquid flow path on said main top surface including a diverging flow section adjacent said inlet to a liquid discharge adjacent an opposite edge of said contacting member extending transversely from edge to edge of said tray along the tray transverse centerline, said liquid inlet including a substantially horizontally aligned imperforate inlet surface for receiving liquid extending transversely and parallelly oriented with respect to said liquid discharge, and in liquid flow communication with said contacting member, with a downcomer member adapted to be positioned substantially parallel to the distillation column inner wall, spaced above and coextensive with said inlet surface so as to form an exit path beneath the lower end of said downcomer member for introducing liquid to said inlet surface, with a plurality of fixed sized openings distributed across the contacting member and extending therethrough with walls normal to said main flat top and bottom surfaces for gas flow, and a plurality of elevated portions formed from said member across said surfaces each with an upper surface raised from said main flat top surface having a front leading edge separated from said main flat top surface to form an elongated slot opening therewith of greater width than height, the raised upper surface being inclined to said main flat top surface and having a back edge integral with such surface and each elevated portion being spaced from adjacent elevated portions by said main flat top surface entirely surrounding such elevated portion, the improvement comprising:

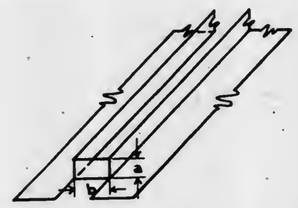
a first band portion of said contacting member adjacent to said liquid inlet and extending therefrom downstream for distance of from 20% to 50% of the length of the tray diametral streamline from said liquid inlet surface to said liquid discharge and extending transversely outwardly from the tray diametral streamline for distance at least 25% of the transverse length of said liquid inlet surface, with angular orientation of slot openings in said contacting member first band portion with respect to and away from the tray diametral streamline such that the slot angle of individual slots is greater than the angle formed by the diametral streamline and a tangent line at the contacting member outer edge at the point of intersection with said liquid inlet surface, said first band portion being bounded at each of its transverse outer extremities by adjacent second band portions of said contacting member each extending transversely to the contacting member outer edge and downstream to said liquid discharge, said second band portions having angular orientation of slot openings therein with respect to and away from the tray diametral streamline such that the slot angle of individual slots is between 15° and 45°, and said first band portion being bounded at its downstream extremity by an adjacent third band portion of said tray member extending transversely between said second band portions and downstream from said first band portion to said liquid discharge, said third band portion having lower slot density than said first and second band portions;

a first imperforate wall member contiguously associated and coextensive with an edge of said inlet surface transverse to the liquid flow path and extending substantially vertically upwardly from such edge to a substantially uniform height;

an intermediate wall member with main flat top and bottom surfaces contiguously associated and coextensive with the upper edge of said first wall member extending horizontally therefrom in the direction of said liquid discharge to a substantially uniform extent, with a plurality of fixed size openings uniformly distributed across said intermediate wall member and extending therethrough with walls normal to said main flat top and bottom surfaces for gas flow, to initiate bubbling in liquid flowing across said intermediate wall member from said inlet surface over said first imperforate wall member; and

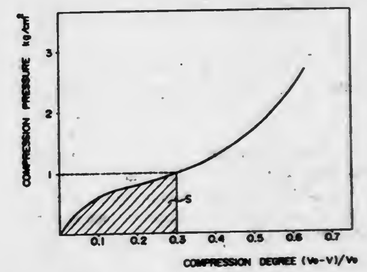
a second imperforate wall member contiguously associated and coextensive at its upper edge with the downstream edge of said intermediate wall member and extending substantially vertically downwardly therefrom and contiguously associated and coextensive at its lower edge with said one edge of said contacting member, whereby liquid which has been flowed across said intermediate wall member and in which bubbling has been initiated is introduced to said gas-liquid contacting member for flow thereacross to said liquid discharge.

4,275,022
BUBBLE CAP TRAY
Salvatore A. Guerrieri, 503 Beverly Rd., Newark, Del. 19711
Filed Mar. 31, 1980, Ser. No. 136,103
Int. Cl.³ B01F 3/04
U.S. Cl. 261—114 TC 9 Claims



1. An improved bubble cap tray for use in vapor-liquid contacting system constructed of channels of two different widths and thicknesses, each channel having a cross section shaped approximately like a block U, the wider channels forming the tray floor and chimneys, being spaced from each other with the sides of channels pointing upward and the space between two adjacent troughs being closed at each end by an end closure whereby the combination of the sides of two adjacent channels and the two end closures form a long, low, narrow chimney; the narrower channels, with sides pointing downward, and with each end closed by end closures, to form caps which are positioned over the chimneys, thereby providing a continuous vapor passage connecting the space below said channels with the space above them, said vapor passages being uniformly spaced across the diameter of the tower, with their long axes parallel to each other, and to the liquid stream as it flows from the inlet side of the tray to the outlet side, the improvement wherein the cap end closures, including centering tabs, are formed integrally with the sides and top of the cap from a single sheet of material, the tabs which center the caps on the chimneys being formed integrally with the cap end closures by bending inwardly the lower corners of the cap end closures for a distance approximately equal to the space between the inside face of the cap and the outside face of the chimney, and the chimney end closures of the tray channels being formed integrally with the tray channels.

4,275,023
EXPANDED PARTICULATE MATERIAL OF POLYOLEFIN RESIN
Hiroshi Shimizu; Hiroshi Sato; Nobuo Misra, all of Suzuka, and Shuzo Inada, Yokkaichi, all of Japan, assignors to Asahi-Dow Limited, Tokyo, Japan
Division of Ser. No. 127,301, Mar. 5, 1980, which is a continuation-in-part of Ser. No. 931,946, Aug. 8, 1978. This application Aug. 11, 1980, Ser. No. 176,775
Claims priority, application Japan, Aug. 15, 1977, 52/97588; Oct. 3, 1977, 52/117894
Int. Cl.³ C08J 9/22
U.S. Cl. 264—50 3 Claims

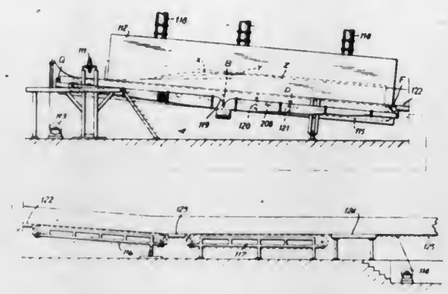


1. A process for producing expanded crosslinked polyolefin resin particles, which comprises first allowing particles of a crosslinked polyolefin resin containing a foaming agent to expand to an average expansion ratio of from 3 to 9 and thereafter imparting further expandability to the thus pre-expanded particles by impregnating with a gas under a presurized atmosphere, further allowing said pre-expanded particles to expand to an average expansion ratio of from 13 to 37, said average expansion ratio being based on the original volume of unexpanded resin particles said expanded particles having an average density of 0.12 to 0.028 g/cm³ and a compression coefficient ranging from 1.6×10^{-3} to 4.0×10^{-3} as determined from the following formula: $S/(R\times F)$ wherein S represents total energy for compression under pressure of 1 kg/cm², R average expansion ratio and F flowability, respectively, of the expanded crosslinked particles, said particles having an average particle size ranging from 1.4 to 5.5 millimeters.

4,275,024
PROCESS AND APPARATUS FOR ELIMINATION OF DENSIFIED AREAS IN BLOCKS OF PLIABLE POLYURETHANE FOAM
Roman Y. Lazces, Pontevedra, Spain, assignor to TEC Foam S.A., Vigo, Spain
Continuation-in-part of Ser. No. 945,893, Sep. 26, 1978, abandoned, which is a continuation-in-part of Ser. No. 777,840, Mar. 15, 1977, abandoned. This application Aug. 15, 1979, Ser. No. 66,839
Claims priority, application Spain, May 24, 1976, 448.190; Jan. 18, 1978, 466.182; Feb. 14, 1978, 466.951; Sep. 28, 1978, 473.730; Nov. 29, 1978, 475.522
Int. Cl.³ B29D 27/04
U.S. Cl. 264—51 23 Claims

1. In a method for manufacturing blocks of polyurethane foam by reacting a polyol with a polyisocyanate in the presence of a catalyst and a blowing agent in a foaming tunnel on a web of continuous material supported by a moving endless

belt, the improvement comprising varying the surface temperature of the endless belt so that in a first reaction zone located upstream of said endless belt a constant temperature from 30° to 70° C. is attained, and in a second consolidation zone another constant temperature from 10° to 15° C. higher than in the reaction zone and not higher than 80° C. is attained, said temperature values being constant for each type of foam, the time during which said temperature is maintained for each type



of foam being determined by the type of foam; after the block has emerged from the foaming tunnel, further heating the lower portion of the block which is maintained at a constant temperature from 100° to 250° C.; and removing the web of continuous material to which a thin film of foam remains adhered, a block of polyurethane foam being obtained having no densified bottom and having a uniform surface which does not require final trimming.

4,275,025

REFRACTORY METAL DIBORIDE ARTICLES BY COLD PRESSING AND SINTERING

Russell R. May, Jr., Wadsworth, Ohio, assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 792,640, May 2, 1977, abandoned. This application Apr. 10, 1978, Ser. No. 894,972

Int. Cl.³ C04B *35/58*

U.S. Cl. 264—63 **14 Claims**

1. A method of preparing a substantially flat plate of refractory Group IVb metal diboride powder by cold pressing and sintering, which comprises:

(1) placing refractory Group IVb metal diboride powder in a mold designed to yield the desired shape, said powder having distributed thereon between about 0.5 and 5 weight percent of hydrocarbon binder,

(2) cold pressing said powder in said mold to form a cold pressed flat plate of between about 40 and 65 percent of the theoretical density of the Group IVb metal diboride,

(3) enclosing the cold pressed flat plate in a thermally conductive solid receptacle from which volatile impurities have been removed, said receptacle being chemically inert to the cold pressed flat plate and stable under sintering conditions, said cold pressed flat plate being unconfined by the receptacle,

(4) heating the enclosed cold pressed flat plate substantially uniformly to the sintering temperature of the metal diboride powder without the simultaneous application of pressure to form a sintered metal diboride substantially flat plate having a density of at least about 90 percent of the theoretical density of the metal diboride, and

(5) maintaining the Group IVb metal diboride powder and cold pressed flat plate under an inert atmosphere during steps (1) through (4).

4,275,026

METHOD FOR PREPARING TITANIUM DIBORIDE SHAPES

John G. Hazel, Barberton, and Roger A. Steiger, Canal Fulton, both of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Nov. 2, 1979, Ser. No. 90,840

Int. Cl.³ C04B *35/58*

U.S. Cl. 264—67 **18 Claims**

1. A method for preparing cold formed and sintered titanium diboride shapes of high density, which comprises the steps of:

a. grinding particulate carbothermic titanium diboride having a surface area of less than about one square meter per gram in the presence of an inert substantially oxygen-free liquid grinding aid in a mill having non-contaminating grinding media for a time sufficient to reduce the particulate titanium diboride to a finely-divided powder having a surface area of at least about three square meters per gram;

b. cold forming the finely-divided titanium diboride powder into a desired shape; and

c. sintering the so-formed shape at temperatures of at least 1800° C. to produce a titanium diboride article having a density of at least about 95 percent of the theoretical density of titanium diboride.

4,275,027

POST-PRESS MOLDING OF MAN-MADE BOARDS TO PRODUCE CONTOURED FURNITURE PARTS

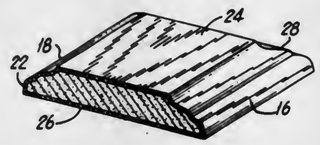
Allan J. Luck, Harvard; John T. Clarke, St. Charles, and Michael R. Hoffman, Elgin, all of Ill., assignors to Masonite Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 819,876, Jul. 28, 1977, Pat. No. 4,145,015, which is a continuation-in-part of Ser. No. 739,184, Nov. 5, 1976, Pat. No. 4,175,150. This application Nov. 19, 1979, Ser. No. 95,629

The portion of the term of this patent subsequent to Nov. 20, 1996, has been disclaimed.

Int. Cl.³ B29J *5/00*

U.S. Cl. 264—118 **15 Claims**



1. A method of molding a cellulosic fiber board having a skin on at least one surface, comprising:

(a) compressing a cellulosic fibrous mat to form a consolidated blank;

(b) cutting the consolidated blank to a shape slightly larger in at least two dimensions than corresponding interior dimensions of a closed mold cavity;

(c) applying to at least one surface of said blank a solution of urea in an amount of at least 5% by weight urea based on the dry weight of the surface fibers penetrated by said solution;

(d) inserting said cut blank in the open cavity of said mold;

(e) closing said mold;

(f) pressing said blank at a temperature of 525°–650° F. to compress said blank in at least two dimensions to the dimensions of the mold cavity to form a board and form a skin on at least one surface thereof, said skin defined by a thickness of material on said product having a composition different from the composition of the material on which the skin is formed;

(g) opening said mold; and

(h) removing said board.

4,275,028

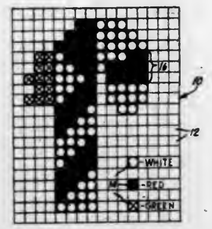
PLASTIC ORNAMENT AND METHOD OF MAKING SAME

Melvin Cohen, Roslyn Heights, N.Y., assignor to Holiday Industries, Inc., Bronx, N.Y.

Filed Jan. 24, 1980, Ser. No. 114,892

Int. Cl.³ B29C *27/00*; B29F *5/00*

U.S. Cl. 264—126 **8 Claims**



1. A method of making a self-supporting plastic product, comprising:

(a) placing a layer of plastic pellets onto an underlying mesh according to a predetermined pattern, said mesh made from a material having a higher melting point than said plastic pellets, each hole of said mesh being sized to accommodate a single pellet;

(b) heating the pellets and mesh to cause the pellets to fuse to each other into a self-supporting structure according to the predetermined pattern;

(c) allowing the fused pellets and the mesh to cool; and

(d) separating the mesh from the fused pellets.

4,275,029

METHOD FOR MANUFACTURING CONCRETE BRICK IN BLOCK LIKE ARTICLES AND FORMING SHIPPING PACKS THEREFROM

Don E. Denison, Paris, Texan., assignor to Lingl Corporation, Paris, Texas.

Filed Jun. 4, 1979, Ser. No. 44,935

Int. Cl.³ B29H *7/04*

U.S. Cl. 264—152 **7 Claims**

1. In a method of forming shipping packs of brick or block like objects formed from a plurality of vertical slices the improvement comprising forming individual slices, that will form each of the vertical slices, in a horizontal condition prior to curing by molding the brick or block like objects in a spaced apart condition on a curing board in the same configuration as desired for each vertical slice of the shipping pack, curing the brick or block like objects, moving the block like objects on the forming board next to one another into a vertical shipping pack slice, placing the vertical slice in its vertical position and forming a shipping pack from a plurality of such vertical slices.

4,275,030

INJECTION MOLDING ARTICLES OF MORE THAN ONE RESIN COMPONENT

Pedro Mares, Sancho de Avila, 105-111, Barcelona, Spain

Continuation-in-part of Ser. No. 872,645, Jan. 26, 1978, Pat. No. 4,157,883. This application May 8, 1979, Ser. No. 37,213

Claims priority, application Spain, May 10, 1978, 469.965

Int. Cl.³ B29C *5/00*; B29F *1/12*

U.S. Cl. 264—250 **5 Claims**

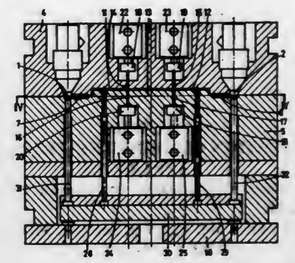
1. In a process for injection molding a compound structure having at least three serially disposed zones connected to form a single body, the molding being accomplished in a mold having at least three serially disposed adjoining cavities corresponding to said zones and connecting by passageways, the improvement comprising:

(1) filling said passageways between each of the outer end cavities and the respective adjoining cavity with a respective pair of movable abutting plates each having three uniformly spaced adjacent side and end edges for forming a passageway mold cavity,

(2) moving each said plate pair from a non-passageway-blocking position to a position for blocking the respective passageways,

(3) injecting respective thermoplastic materials into both of the outer end and adjoining cavities at different times, and

(4) moving said pairs of abutting plates to position said



passageway mold cavities respectively inbetween said adjoining and end cavities for unblocking the respective passageways blocked in step (2) while the thermoplastic material flat injected in step (3) is weldable to, upon contact with, the thermoplastic material last injected in step (3) to cause contact welding between the thermoplastic materials in the outer end and adjoining cavities and the development in said passageway mold cavities of respective uniform walled connections between said compound structure zones.

4,275,031

AGENT AND PROCESS FOR CARRYING OUT COLORIMETRIC OR PHOTOMETRIC DETERMINATIONS

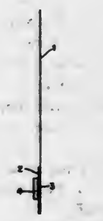
Wolfgang Fischer, and Brigitte Wissel, both of Darmstadt, Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Filed May 7, 1979, Ser. No. 36,709

Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2819645

Int. Cl.³ G01N *21/03, 31/22*

U.S. Cl. 422—57 **2 Claims**



1. A cuvette for carrying out a colorimetric or photometric determination in aqueous solution consisting essentially of:

a first film-shaped substrate made of non-absorbent, water-insoluble, optically clear material; and

a coating thereon of a solid or waxy organic polymer which dissolves in water to form an optically clear solution, said polymeric coating having a reagent for the determination embedded therein;

wherein the coating on the first substrate is covered by a second film-shaped substrate sealed to the first substrate, said second substrate having a stepped, rectangular cross

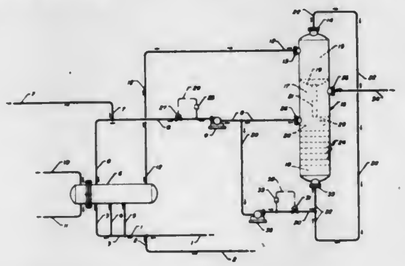
section thereby forming a hollow space of a thickness of 1–3 mm above said coating, said second substrate being made of non-absorbent, water-insoluble, optically clear material; and said hollow space being open on two sides such that a test solution will flow therethrough and fill the hollow space upon submersion of the cuvette in the solution.

4,275,032

ALKYLATION COMBINED SETTLER-SOAKER APPARATUS

Robert F. Anderson, La Grange, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jul. 12, 1979, Ser. No. 56,763
Int. Cl.[2] G01N *29/02*
U.S. Cl. 422—110 **3 Claims**



1. A combination soaking-settling apparatus for treating a reaction mixture from an acid-catalyzed alkylation reaction which comprises an elongated, vertically aligned, cylindrical vessel having an upper settling chamber, a middle settling chamber and a lower soaking chamber, said vessel being separated into said chambers by means of an upper imperforate plate and a lower imperforate plate traversing said vessel in a horizontal plane, and said chambers having outer walls in common with said vessel;

said upper chamber having an acid-hydrocarbon inlet means at a level below a hydrocarbon outlet means, and said chamber being in open communication with said middle chamber through a downspout having an acid inlet in a bottom portion of said upper chamber, and extending downwardly through said upper imperforate plate to provide an outlet at a point in the lower portion of said middle chamber;

said middle chamber having an acid outlet means in a lower portion thereof and a hydrocarbon outlet means in the upper portion thereof;

said lower chamber comprising a multitude of spaced, perforate trays traversing said chamber in a horizontal plane, said chamber further comprising an acid-hydrocarbon inlet means in the lower portion thereof, and said chamber being in open communication with said middle chamber through a chimney in said lower imperforate plate extending upwardly into said middle chamber to provide a hydrocarbon outlet at a point above the outlet of said downspout;

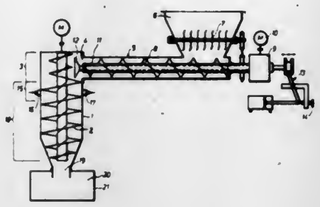
said hydrocarbon outlet means in said upper chamber discharging into an external hydrocarbon transfer conduit which passes downwardly and discharges into said acid-hydrocarbon inlet means in said lower chamber.

4,275,033

APPARATUS FOR PRODUCING A REACTION MIXTURE CONTAINING FILLERS FROM AT LEAST TWO COMPONENTS WHICH ARE CAPABLE OF FLOWING

Klaus Schulte, Leverkusen, and Robert Peters, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 842,427, Oct. 14, 1977, abandoned. This application Jul. 23, 1979, Ser. No. 59,835
Claims priority, application Fed. Rep. of Germany, Oct. 30, 1976, 2649996
Int. Cl.[3] B01F *15/02*
U.S. Cl. 422—133 **3 Claims**



1. An apparatus for producing a polyurethane foam reaction mixture containing filler from at least two components capable of flowing, comprising:

(a) a housing with a channel entering the upper zone, side inlets, and an outlet in the lower zone;

(b) a metering screw for mixing and conveying the filler, within the channel of said housing entering the upper zone;

(c) injection nozzles for feeding the at least two two components into the side inlets of said housing;

(d) an agitator within said housing, which is substantially at a right angle to said metering screw, for mixing the filler and at least two components;

(e) means for rotating said metering screw and said agitator; and

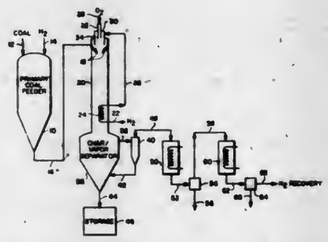
(f) means on said metering screw for closing the channel entering the upper zone of said housing, and thereby regulating the flow of filler.

4,275,034

HYDROGENATION APPARATUS

Joseph Friedman, Encino; Carl L. Oberg, Canoga Park, and Larry H. Russell, Agoura, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Division of Ser. No. 887,566, Mar. 17, 1978, Pat. No. 4,206,032. This application Sep. 4, 1979, Ser. No. 71,897
Int. Cl.[3] B01J *8/12*; C10G *1/06*; F27B *15/08, 15/10*
U.S. Cl. 422—194 **4 Claims**



1. A two-zone apparatus for providing a source of heat and

hydrogen in a first reaction zone for performing a hydrogenation reaction in a second reaction zone comprising:

a housing having walls and opposite ends defining the first reaction zone,

a gas inlet to the housing located in one of said ends and a gas outlet from the housing located in the other of said ends,

a first conduit attached to said gas inlet for introducing a stream of hydrogen into said first reaction zone via said gas inlet,

a second conduit axially disposed within and circumferentially surrounded by said first conduit for introducing a stream of oxygen into a central portion of the hydrogen stream introduced at said gas inlet, said first and second conduits having relative cross-sectional flow areas to provide said oxygen stream in an amount from about 5 to 30 wt. % of said hydrogen stream, said conduits being further disposed relative to each other for maintaining a boundary layer of hydrogen along the walls defining said first reaction zone,

heating means cooperatively associated with said hydrogen stream for heating said hydrogen to a temperature sufficient to initiate an exothermic reaction in said first reaction zone between the central portion of said hydrogen stream and said oxygen stream to produce a heated gas stream comprising a major amount of hydrogen and a minor amount of water vapor and having a temperature within the range of from about 1100° to 1900° C., while a boundary layer of unreacted hydrogen serves to maintain the wall temperature of said reaction zone at a substantially lower temperature than said heated gas stream,

a hydrogenation reaction chamber adjacent to and downstream from said housing, said chamber having inlet and outlet ends and defining a second reaction zone,

injector means located in the inlet end of said chamber for injecting a stream of the material to be hydrogenated into said second reaction zone, said injector means also being connected to and in fluid-flow communication with the gas outlet of said first reaction zone for receiving said heated gas stream from said first reaction zone and for injecting said heated gas stream into said second reaction zone and impinging said streams upon one another, said heated gas stream providing the source of heat and hydrogen for a hydrogenation reaction in said second zone,

discharge means located in the outlet end of said chamber for discharging hydrogenation reaction products from said hydrogenation reaction chamber, and

collection means adjacent to and in flow-communication with the discharge means of said hydrogenation reaction chamber for collecting said hydrogenation reaction products from said chamber.

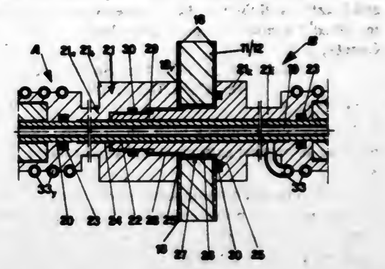
4,275,035

APPARATUS FOR ELECTRICAL FEED OF A HEATER IN A CRYSTAL-GROWING VESSEL

Maria R. Leonhardt, Mainauweg 9, D-7750 Konstanz 19, Sweden

Filed Dec. 30, 1977, Ser. No. 866,044
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1977, 2700856
Int. Cl.[3] C30B *13/20*
U.S. Cl. 422—250 **28 Claims**

1. Apparatus for growing crystals under vacuum and high pressure between 10^{-6} torr and 300 bars comprising a vessel subjected to high pressure or vacuum in an aggressive medium, a heater in said vessel and a feed line with electrical feed means therein connected to said heater and passing through said vessel for external connection with a high frequency power source for supplying high frequency electrical current to said heater, said electrical feed means comprising first means made of quartz or ceramic providing electrical isolation of said electrical feed means, and second means separate from said first means for sealing the passage of the feed means to said vessel, said electrical feed means further comprising inner and outer coaxial conductors of high-frequency current, said first means comprising a tubular insulating member coaxially interposed between the inner and outer conductors, said outer coaxial conductor including first and second coaxial parts, said second



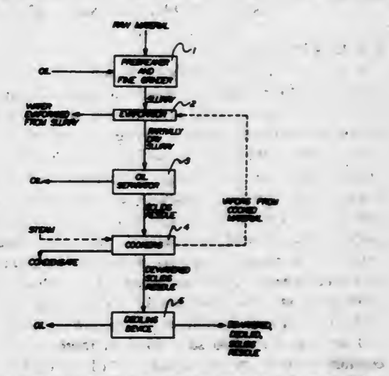
means comprising radial projecting means on said first and second coaxial parts and seal means interposed between said radial projecting means on said first and second parts and said vessel for sealing the passage of said feed means in said vessel.

4,275,036

RENDERING SYSTEMS

Richard R. Perry, 1113 Balthis Dr., Gastonia, N.C. 28052; Anthony G. Maras, 25698 Yeoman Dr., Westlake, Ohio 44145, and Anton G. Schols, T. H. Haismastr. 4, 9251 Av Bergum, Netherlands

Division of Ser. No. 82,015, Oct. 5, 1979. This application Jun. 18, 1980, Ser. No. 160,658
Int. Cl.[3] B01D *1/22, 17/02*
U.S. Cl. 422—286 **16 Claims**



1. Apparatus for rendering organic raw material comprising oil, water and solids, said apparatus comprising:

means for making a slurry by reducing the particle size of said organic raw material and adding at least enough additional oil to make a pumpable slurry;

means for evaporating a portion of said water by heating said slurry under a partial vacuum to form a partially dewatered slurry;

means for removing a portion of said oil from said partially dewatered slurry to form a hydrous solids residue having a lower water content than said raw material; and

means for cooking said hydrous solids residue to remove substantially all the remaining water to form a dewatered solids residue.

4,275,037

STRIPPING METALS FROM ORGANIC SOLVENT WITH AQUEOUS SOLUTION OF POLYMERIC PHOSPHATES

David J. Friedland, Sayder; Floyd L. Tewksbury, Williamsville, and Martin A. Robinson, East Amherst, all of N.Y., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Filed Dec. 26, 1978, Ser. No. 973,268
Int. Cl.³ C01G 43/00
U.S. Cl. 423—8 6 Claims

1. A process of stripping uranium from an organic solution containing an organic extractant and said uranium which comprises:

(a) contacting said organic solution with an aqueous solution of an inorganic polymeric phosphoric acid or salt thereof under conditions in which the inorganic polymeric phosphoric acid or salt thereof does not rapidly hydrolyze and in which uranium preferentially dissolves in the aqueous solution, and

(b) recovering uranium from said aqueous solution by hydrolyzing said inorganic polymeric phosphoric acid or salt thereof to ortho phosphates.

4,275,038

PROCESS FOR TREATING LOADED EXTRACTANT FROM PURIFICATION OF PHOSPHORIC ACID BY EXTRACTION AND RECOVERING NUTRIENTS

Subhas K. Sikdar, San Juan Capistrano; Donald E. Adam, Santa Ana, and Howard Winterbottom, Pomona, all of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Mar. 1, 1979, Ser. No. 16,650
Int. Cl.³ C01B 25/16
U.S. Cl. 423—321 S 11 Claims

1. In a process for purifying an aqueous phosphoric acid containing P_2O_5 values and dissolved ionic impurities comprising magnesium, iron and aluminum ions, wherein (a) said phosphoric acid is contacted with an organic extractant containing a water-immiscible organic sulfonic acid to form: a loaded organic extractant containing the organic sulfonic acid, extracted ionic metallic impurities and extracted P_2O_5 values, and a purified aqueous phosphoric acid; (b) the purified aqueous phosphoric acid is separated from the loaded organic extractant to provide a separated organic extractant; (c) said separated organic extractant is contacted with a solution containing calcium ions, under conditions whereby at least some of said extracted ionic metallic impurities are replaced by calcium and are transferred to said solution, thereby producing the calcium form of the extractant; and (d) said solution is separated from the contacted extractant comprising said calcium form of the extractant; the improvement comprising

(i) contacting said separated extractant, from step (c) comprising said calcium form of the extractant, with sulfuric acid to convert at least some of said calcium form of the extractant to the hydrogen or acid form thereby producing an acidified extractant, used sulfuric acid and solid calcium sulfate;

(ii) separating said solid calcium sulfate, said acidified extractant and the used sulfuric acid;

(iii) recycling said used sulfuric acid to step (i) for further contact with more loaded extractant; and

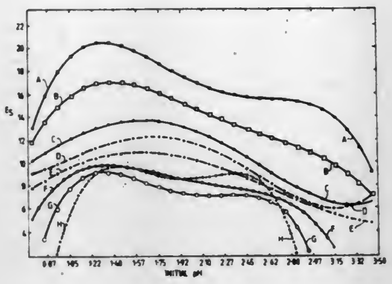
(iv) recycling said acidified extractant to step (a) for further contact with more phosphoric acid.

4,275,039

SEPARATION OF TUNGSTEN AND MOLYBDENUM BY SOLVENT EXTRACTION

Erol Özensoy, London, and Alfred R. Burkin, Brentwood, both of England, assignors to Interox Chemicals Limited, London, England

Filed Feb. 11, 1980, Ser. No. 120,294
Claims priority, application United Kingdom, Jan. 17, 1980, 01663/80
Int. Cl.³ C01G 39/00, 41/00
U.S. Cl. 423—54 19 Claims



1. A process for the separation of molybdenum and tungsten comprising the steps of:

(i) contacting an aqueous acidic solution of molybdenum and tungsten with an organic extractant composition, said aqueous solution containing sufficient hydrogen peroxide to prevent a precipitate forming in the aqueous phase and having a pH selected in combination with the amount of hydrogen peroxide in solution, the temperature of the process and the composition of the extractant solution so as to prevent a precipitate forming in the organic extractant phase, and said organic extractant composition comprising;

(a) from 5 to 20% of a substantially water-insoluble organic phosphoric acid,

(b) sufficient trialkyl phosphate in which each alkyl group contains from 4 to 12 carbon atoms, to ensure that component (a) remains in solution,

(c) a tri alkyl phosphine oxide in an amount of at least 1 to 5% by weight based on the organic composition, and

(d) the balance being a hydrocarbon diluent,

(ii) maintaining the aqueous and organic phases in contact until at least some molybdenum has been extracted into the organic phase and thereafter

(iii) separating the organic phase from the barren aqueous phase.

4,275,040

PROCESS FOR EXTRACTING TITANIUM VALUES FROM TITANIFEROUS BEARING MATERIAL

Brian R. Davis, Bricktown, N.J., assignor to NL Industries, Inc., New York, N.Y.

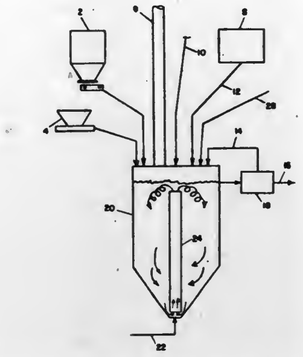
Filed May 30, 1980, Ser. No. 154,680
Int. Cl.³ C01G 23/00
U.S. Cl. 423—82 9 Claims

1. A process of extracting titanium values from titaniferous bearing material, which comprises:

(1) preparing a reaction mixture containing a titaniferous bearing material in an amount between about 10% and about 400% above the stoichiometric amount of titaniferous bearing material necessary to react with sulfuric acid to provide titanyl sulfate, and a dilute sulfuric acid solution having a concentration between about 25% and about 60% by weight;

(2) maintaining the temperature of the reaction mixture below about 140° C. in the reaction vessel;

(3) extracting the titanium values by circulating the reaction mixture in an agitation column located within the reaction vessel in a direction countercurrent to the flow of the reaction mixture in the annular space located between the agitation column and the inner vessel wall, said circulation being done in a manner to maintain the titaniferous bearing material in a continuous turbulent suspension flow in the agitation column;



(4) cooling the resulting reaction mixture to a temperature below about 110° C. without precipitating the reaction mixture; and

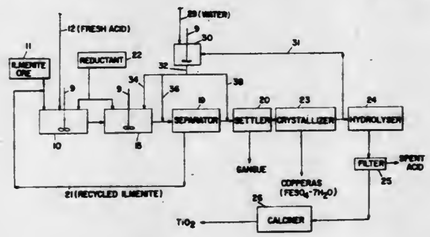
(5) discharging the reaction mixture from the reaction vessel and recovering the extracted titanium values.

4,275,041

PROCESS FOR MANUFACTURING A STABLE TITANYL SULFATE SOLUTION

Joseph L. Waldman, Elizabeth, N.J.; Edgar Klein, Odenthal-Oseaau; Achim Kulling, Leverkusen, both of Fed. Rep. of Germany, and Joseph A. Rahm, Long Branch, N.J., assignors to NL Industries, Inc., New York, N.Y.

Filed Sep. 19, 1980, Ser. No. 188,805
Int. Cl.³ C01G 23/053, 23/00
U.S. Cl. 423—82 8 Claims



1. A process for preparing a stable titanyl sulfate solution, which comprises:

(1) reacting a titaniferous bearing material in an amount between about 10% and about 400% above the stoichiometric amount of material necessary to react with sulfuric acid to provide titanyl sulfate with a dilute sulfuric acid solution having a concentration between about 25% and about 60% by weight, based upon the total weight of said solution, at a temperature below about 140° C.;

(2) cooling the resulting reaction mixture to a temperature below about 110° C. without precipitating the titanyl sulfate to produce a reaction mixture containing dissolved titanyl sulfate;

(3) diluting the reaction mixture containing titanyl sulfate with a sufficient amount of a diluent material selected from the group consisting of water, titanyl sulfate solution, and mixtures thereof, to produce a reaction mixture having the following properties in the absence of undissolved solids: an iron to titanium dioxide weight ratio of about 0.5–1.2:1.0, a titanium dioxide content of about 120 to about 180 grams per liter, a specific gravity of about 1.4 to about 1.8, and an active sulfuric acid to titanium dioxide mole ratio of about 1.4–1.9:1;

(4) separating undissolved solids and obtaining a stable titanyl sulfate solution.

4,275,042

REMOVAL OF OXALATE FROM BAYER PROCESS LIQUOR

Gordon Lever, Kingston, Canada, assignor to Alcan Research and Development Limited, Montreal, Canada

Filed Jan. 22, 1980, Ser. No. 114,281
Int. Cl.³ C01F 7/06, 7/46
U.S. Cl. 423—130 15 Claims

1. A method for controlling the level of sodium oxalate present in the process liquor in the Bayer process for the production of alumina trihydrate which method comprises the steps of treating spent liquor which contains in excess of 1 gram per liter (as organic carbon) of humic matter and is supersaturated with regard to sodium oxalate, with a cationic sequestrant in an amount to remove sufficient of the said humic matter but not more than 0.5 gram per liter from the said liquor and thereby destabilizing the said liquor with regard to precipitation of sodium oxalate, said sequestrant being an organic cationic sequestrant having a cationic center that interacts with a weakly acidic anionic center in the humic matter to form a product sufficiently insoluble in the Bayer liquor to be physically separable therefrom, holding the said liquor to allow precipitation of sodium oxalate, separating the precipitated sodium oxalate and spent cationic sequestrant and returning the said liquor to the Bayer process.

4,275,043

REMOVAL OF OXALATE FROM BAYER PROCESS LIQUOR

Bohdan Gayra, Kingston, Canada, assignor to Alcan Research and Development Limited, Montreal, Canada

Filed Jan. 22, 1980, Ser. No. 114,286
Claims priority, application United Kingdom, Jan. 31, 1979, 03410/79
Int. Cl.³ C01F 7/06, 7/46
U.S. Cl. 423—130 15 Claims

1. A method for controlling the level of sodium oxalate present in the process liquor in the Bayer process for the production of alumina trihydrate which method comprises the steps of treating spent liquor which contains in excess of 1 gram per liter (as organic carbon) of humic matter and is supersaturated with regard to sodium oxalate, with adsorbent material selected from the class consisting of activated carbon, activated alumina and activated clays, in an amount to remove sufficient of the said humic matter but not more than 0.5 gram per liter from the said liquor and thereby destabilizing the said liquor with regard to precipitation of sodium oxalate, holding the said liquor to allow precipitatiion of sodium oxalate, separating the precipitated sodium oxalate and spent adsorbent and returning the said liquor to the Bayer process.

4,275,044

SULFUR DIOXIDE DISPOSAL SYSTEM

John F. Kamody, Irwin, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 806,541, Jun. 14, 1977, abandoned, which is a continuation-in-part of Ser. No. 660,058, Feb. 23, 1976, abandoned, which is a continuation-in-part of Ser. No. 531,064, Dec. 9, 1974, abandoned. This application Dec. 26, 1978, Ser. No. 973,395

Int. Cl.³ C01B *17/00, 31/00, 17/02, 1/13*

U.S. Cl. 423—242 16 Claims

1. An improved process for reducing SO_2 using a carbonaceous fuel gasifier, comprising:

(a) gasifying a carbonaceous fuel in a gasifier in the presence of steam and oxygen to produce a raw gas rich in H_2 and CO;

(b) passing the raw gas from the gasifier at a temperature between 2000° F. and 3500° F. into an organic sulfur reducer along with recycle gas containing SO_2, H_2S, COS, CS_2 and mercaptans and maintaining sufficient residence time within the organic sulfur reducer to react the recycle gas with the raw gas, thereby reducing the COS, CS_2 and mercaptans in the recycle gas to predominantly H_2S and S_2;

(c) passing the raw gas and recycle gas mixture from the organic sulfur reducer into a SO_2 reducer and adding the SO_2 to be reduced to the SO_2 reducer;

(d) maintaining the temperature and residence time within the SO_2 reducer to reduce the SO_2 to predominantly H_2S vapor along with unconverted SO_2 and lesser amounts of COS, CS_2 and mercaptans;

(e) treating the gas from the SO_2 reducer for selective condensation of sulfur vapor to produce a sulfur vapor-free gas at a minimum temperature of 340° F.; and

(f) cooling and condensing water vapor from said sulfur vapor-free gas and then treating the said cooled gas for additional removal of remaining sulfurous gases, with said sulfurous gases recycled to said organic sulfur reduction stage;

(g) and recovering a sulfur free product gas rich in H_2 and CO.

4,275,045

METHOD OF EXTRACTION, TRAPPING AND STORAGE OF RADIOACTIVE IODINE CONTAINED IN IRRADIATED NUCLEAR FUELS

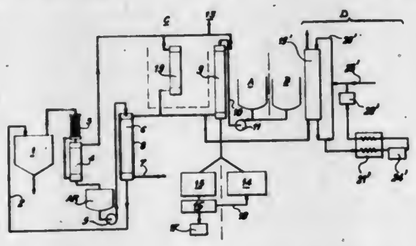
Maurice Anav, Villemoisson-sur-Orge; Jacques Duhayon, Clamart; Jean-Pierre Goumondy, Vitry-sur-Seine; Andre Leseur, Fontenay-aux-Roses, and Edmond Zellner, Gif-sur-Yvette, all of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Continuation of Ser. No. 589,248, Jun. 23, 1975, abandoned. This application Feb. 27, 1979, Ser. No. 15,778

Claims priority, application France, Jul. 3, 1974, 74 23139

Int. Cl.³ G21F *9/02;* C01B *7/14;* G21F *9/08, 9/12*

U.S. Cl. 423—249 10 Claims



1. A method of extraction, trapping and storage of radioactive iodine contained in irradiated nuclear fuels, comprising the steps of:

dissolving the fuels in a nitric acid medium;

passing the vapors resulting from this dissolution and consisting essentially of water, nitrogen oxides and elemental iodine into a condenser;

passing the vapors coming out of the condenser into a first absorption column for the absorption of the nitrous vapors, in which column is formed recombined nitric acid containing elemental iodine and nitrous ions;

separating out the iodine contained in the recombined acid from the acid in the presence of NO_2^- ions in the recombined acid, and

recovering the iodine in a storable form.

10. A method of extraction, trapping and storage of radioactive iodine contained in the irradiated nuclear fuels, comprising the steps of:

dissolving the fuels in a nitric acid medium;

passing into a condenser the vapors resulting from this dissolution and consisting essentially of water, nitrogen oxides and iodine;

passing the vapors issuing from the condenser into a first column for the absorption of the nitrous vapors, in which column is formed recombined nitric acid containing nitrous ions and iodine;

passing the recombined acid into a desorption column in counterflow to a carrier gas which is thereby loaded with iodine;

circulating said gas in a second absorption column in counterflow to an alkaline solution in which a reducing agent is added in said second absorption column, and

providing to the alkaline solution which leaves the second absorption column an addition of a metal salt, selected from the group consisting of soluble lead salts and soluble copper salts, which precipitates the iodine in the form of the corresponding iodide.

4,275,046

PREPARATION OF HIGH SURFACE AREA METAL FLUORIDES AND METAL OXYFLUORIDES, ESPECIALLY ALUMINUM FLUORIDE EXTRUDATES

Gary B. McVicker, Westfield, and Joseph J. Eggert, Rahway, both of N.J., assignors to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Jan. 16, 1978, Ser. No. 869,776

Int. Cl.³ C01G *43/06*

U.S. Cl. 423—258 25 Claims

1. A process for the preparation of high surface area metal fluorides comprising reacting a metal oxide selected from the group consisting of the oxides of sodium, potassium, lithium, cesium, magnesium, calcium, barium, strontium, tin, antimony, bismuth, titanium, zirconium, vanadium, chromium, manganese, iron, cobalt, rhodium, mercury, nickel, copper, silver, zinc, cadmium, lead, uranium, europium, indium, lutetium, neodymium, thallium and mixtures thereof with a fluorocarbon selected from the group consisting of $CH_{4-Q}F_Q$ wherein Q is 1 to 3 and partially and totally fluoridated C_2–C_6 alkanes, alkenes, alkynes and C_5–C_6 cyclic alkanes wherein the metal oxide and the fluorocarbon are contacted at a temperature of from 300° to 800° C. at a fluorocarbon partial pressure of from 0.001 to 100 atmospheres, for a time sufficient to effect the substantially complete conversion of the metal oxide into metal fluoride.

11. A process for the preparation of high surface area aluminum fluoride extrudates comprising reacting a high surface area alumina extrudate with a fluorocarbon selected from the group consisting of $CH_{4-Q}F_Q$ wherein Q is 1–3 and partially and totally fluoridated C_2–C_6 alkanes, alkenes, alkynes and C_5–C_6 cyclic alkane wherein the alumina extrudate and the fluorocarbon are contacted at a temperature of from 300° to 800° C. at a fluorocarbon pressure ranging from 0.001 to 100 atm for a time sufficient to affect the essentially complete conversion of the alumina to an aluminum fluoride extrudate.

4,275,047

ZEOLITE SYNTHESIS

Thomas V. Whittam, Stockton on Tees, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jul. 21, 1977, Ser. No. 817,674

Claims priority, application United Kingdom, Jul. 22, 1976, 30613/76

Int. Cl.³ C01B *33/28*

U.S. Cl. 423—329 6 Claims

1. In a method of making a zeolite of the ZSM-5 family consisting of ZSM-5, ZSM-8, ZSM-11, ZSM-12, zeta-1 and zeta-3, said family further characterized as having a SiO_2/Al_2O_3 ratio in the range 5 to 100, a port diameter in the range 6.0 to 6.5 Angstrom units corresponding to rings of $10SiO_4$ and AlO_4 and a characteristic X-ray diffraction pattern, by reacting an alkaline mixture comprising an alumina source, a silica source and alkali metal ions until the required zeolite has been formed, the improvement which comprises reacting said mixture in the presence of a seed quantity of a crystallized zeolite having a port diameter in the range 5.8 to 7.0 Angstrom units wherein the concentration of onium compound be such that the ratio of onium ions to (onium+alkali metal) ions is under 0.05 said crystallized zeolite being nu-1 or FU-1.

4,275,048

PROCESS FOR THE PREPARATION OF FINE DROPLET-REACTED ALUMINOSILICATES OF THE SMALLEST PARTICLE SIZE

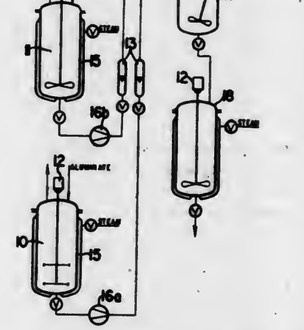
Werner Stein, and Peter Christophliemk, both of Düsseldorf, Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen and Deutsche Gold- und Silber Scheideanstalt vormals Roessler, Frankfurt am Main, both of, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,255

Claims priority, application Fed. Rep. of Germany, Dec. 27, 1978, 2856278

Int. Cl.³ C01B *33/26, 33/28*

U.S. Cl. 423—329 19 Claims



1. A process for the preparation of fine droplet-reacted sodium aluminosilicates with the smallest particle sizes, containing less than 0.1% by weight of granules exceeding 25 μm in size, said aluminosilicates being insoluble in water and containing some bound water, of the general formula

$$x\ Na_2O.Al_2O_3.y\ SiO_2$$

in which x is a number from 0.2 to 1.5 and y is a number from 1.5 to 10, prepared by reacting aqueous sodium aluminate with aqueous sodium silicate in the presence of an excess of aqueous sodium hydroxide and subsequent filtration, comprising the step of separately passing a solution of sodium aluminate with a composition corresponding to the molar ratios:

$$1\ Al_2O_3{:}1\ to\ 10\ Na_2O{:}20\ to\ 200\ H_2O$$

and a solution of sodium silicate with a composition corresponding to the molar ratios:

$$Na_2O{:}SiO_2 \text{ from } 0.1 \text{ to } 10 \text{ and}$$

$$H_2O{:}SiO_2 \text{ from } 5 \text{ to } 200$$

to a spray head, spraying the two solutions into intimate contact, at a ratio by weight corresponding the desired total composition within the molar ratios of:

$$1.5 \text{ to } 15\ Na_2O{:}1\ Al_2O_3{:}1 \text{ to } 15\ SiO_2{:}50 \text{ to } 400\ H_2O$$

at a temperature of between 0° and 103° C., employing a spray system with at least one spray head with at least two liquid channels, each terminating in a jet spray nozzle, one for each solution, in such a manner that the two solutions meet only after leaving the spray head at a velocity sufficient to form a fine mist of droplets, whereby the two reactants undergo reaction while still in the fine mist of droplets stage, with the formation of an X-ray-amorphous sodium aluminosilicate gel, allowing the droplets to settle and recovering an aqueous suspension of said X-ray-amorphous sodium aluminosilicate in a form adapted for crystallization.

4,275,049

CATALYTIC PROCESS FOR CONVERTING HYDROGEN CYANIDE INTO AMMONIA

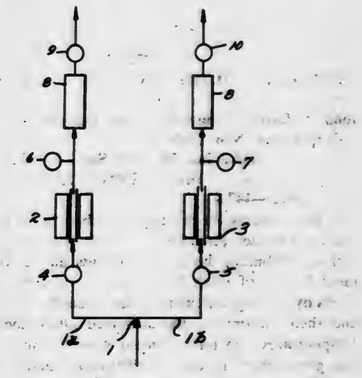
Carl Voigt, Rodenbach, and Peter Kleinschmit, Hanau, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Aug. 4, 1980, Ser. No. 174,828

Claims priority, application Fed. Rep. of Germany, Aug. 9, 1979, 2932322

Int. Cl.³ C01C *1/00*

U.S. Cl. 423—352 6 Claims



1. A catalytic process for the production of ammonia from hydrogen cyanide and hydrogen at elevated temperature comprising leading a hydrogen cyanide containing gas and hydrogen at a temperature of 100°–600° C. over an iridium catalyst prepared by reducing hexachloroiridium IV acid on active aluminum oxide, the amount of hydrogen being at least the equivalent amount required to convert all of the hydrogen cyanide to ammonia, and drawing off gas containing ammonia and practically free from hydrogen cyanide from the reaction space.

4,275,050

PRODUCTION OF ULTRA-HARD PARTICLES

Frederic A. French, and Douglas A. French, both of Portola Valley, Calif., assignors to TDC-Technology Development Corporation, Vancouver, Canada

Filed Nov. 8, 1979, Ser. No. 92,485
Int. Cl.³ C01B 31/00
U.S. Cl. 423—445 8 Claims

1. Ultra-hard particles having covalently bonded lattice structures composed largely of carbon on an atomic basis and produced by the reaction of Al_4C_3 with a member selected from the group consisting of

$CH_nX_AY_{(4-n)-A}$, $C_2H_{n'}X_{A'}Y_{(6-n')-A'}$, $C_2H_{n''}X_{A''}Y_{(4-n'')-A''}$ and X_2 wherein X and Y are different halogens selected from the group consisting of chlorine, bromine, iodine and fluorine, and wherein A is an integer from 0 to 4, A' is an integer from 0 to 6 and A'' is an integer from 0 to 4, and wherein n is an integer from 0 to 4, n' is an integer from 0 to 6 and n'' is an integer from 0 to 4, wherein A, A', A'', n, n' or n'' is the same integer in any particular member selected and wherein $n+A=4$, $n'+A'=6$ and $n''+A''=4$, said reaction being carried out at temperatures from about 100° to 700° C. and pressures from about 0.1 to 100 atmospheres or higher in a hot melt system having substantially no solvency capability for carbon while exhibiting substantial solvent and penetrant capability for Al_2O_3 and hydroxy aluminous complexes which naturally form on the surface of aluminum or aluminum carbide in the presence of oxygen or water, said hot melt system comprising a molten solution of more than one metal halide wherein the metals are selected from the group consisting of Group I, Group II and Group III metals of the periodic table and the halides are selected from the group consisting of chlorine, bromine, iodine and fluorine.

4,275,051

SPIN SIZE AND THERMOSETTING AID FOR PITCH FIBERS

John B. Barr, Strongsville, Ohio, assignor to Union Carbide Corporation, New York, N.Y.

Filed Jan. 29, 1979, Ser. No. 7,321
Int. Cl.³ D01F 9/12
U.S. Cl. 423—447.4 12 Claims

1. In a process for producing carbon fibers comprising extruding a molten pitch into the form of continuous pitch filaments, combining the pitch filaments into a single multifilament bundle of pitch fibers, thermally stabilizing the pitch fibers by heating the fibers in the presence of an oxidizing gas and then carbonizing the stabilized pitch fibers at elevated temperatures, the improvement whereby substantially all of the pitch fibers in the multifilament bundle are uniformly coated with a mixture containing graphite or carbon black particles and an oxidizing agent, the graphite or carbon black particles serving to separate the pitch fibers in the bundle and thereby to improve penatration of the oxidizing gas, said improvement comprising applying to the pitch fibers in the multifilament bundle prior to thermal stabilization an aqueous finishing composition comprising a dispersion of finely-divided graphite or carbon black particles in water in which is dissolved a first compound comprising a water-soluble oxidizing agent and a separate second compound comprising a water-soluble surfactant.

4,275,052

PROCESS FOR PREPARING HIGH SURFACE AREA ALUMINAS

Ji-Yong Ryu, Ramsey, N.J., assignor to UOP Inc., Des Plaines, Ill.

Filed May 2, 1980, Ser. No. 146,946
Int. Cl.³ C01F 7/04
U.S. Cl. 423—628 11 Claims

1. A method of preparing high surface area alumina comprising the steps of:

(a) preparing a first solution containing from about 5 vol. % to about 50 vol. % of an aluminum alkoxide and an organic solvent selected from the group consistng of ethers, ketones, aldehydes, and mixtures thereof;

(b) admixing with said first solution a second solution comprising from about 1 vol. % to about 50 vol. % water and an organic solvent selected from the group consisting of ethers, ketones, aldehydes and mixtures thereof to form a solid material, said solutions being admixed in amounts to provide a molar ratio of water aluminum alkoxide in the range of from about 1.5:1 to about 4:1; and

(c) drying and calcining said solid material to form alumina having a surface area of from about 300 square meters per gram to about 700 square meters per gram.

4,275,053

BLOOD CELL TYPING AND COMPATIBILITY TEST PROCEDURE

Richard E. Rosenfield, Bronx, and Shaul Kochwa, Queens, both of N.Y., assignors to Mt. Sinai School of Medicine of the City University of New York, New York, N.Y.

Continuation-in-part of Ser. No. 856,799, Dec. 2, 1977, abandoned, which is a continuation-in-part of Ser. No. 604,808, Aug. 14, 1975, abandoned. This application Jun. 14, 1978, Ser. No. 915,507
Int. Cl.³ A61K 39/00; G01N 31/00
U.S. Cl. 424—12 33 Claims

1. A method for assaying cell type or compatibility on a solid matrix comprising the steps of

(a) forming a first monolayer of cells irreversibly bound to a solid matrix, said cells having intrinsic or acquired antigens thereon;

(b) contacting said layer (a) with a solution containing antibodies, whereby a layer of antibodies is bound by immunoadsorption, to the extent that the antibodies of said solution are reactive with the antigens of the cells of said first layer;

(c) thereafter applying a suspension of second cells, said second cells having antigens thereon; and

(d) subsequently measuring the extent of immunoadherence of said second cells by antibody bound to said first layer of cells.

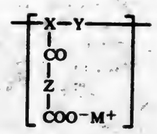
4,275,054

DEODORANTS OR DEODORISERS AND COMPOSITIONS CONTAINING THEM

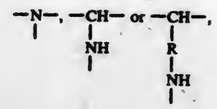
Henri Sebag; Alexandre Zyssman, both of Paris, and Guy Vanlerberghe, Claye Souilly, all of France, assignors to L'Oreal, Paris, France

Continuation of Ser. No. 841,926, Oct. 13, 1977, abandoned. This application Aug. 27, 1979, Ser. No. 69,859
Claims priority, application Luxembourg, Oct. 20, 1976, 76035
Int. Cl.³ C08F 8/44, 8/46; A61K 7/32, 9/14
U.S. Cl. 424—65 32 Claims

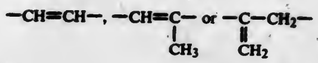
1. A polyanionic polyamide salt which comprises chain units of the formula:



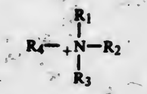
in which X denotes



R being an aliphatic radical containing 1 to 4 carbon atoms, each Y independently denotes a divalent aliphatic or cycloaliphatic radical, Z denotes a divalent radical of the formula:



and M^+ denotes a sodium ion, potassium ion or a quaternary ammonium ion of the formula:



in which each of R_1, R_2, R_3 and R_4 independently denotes a hydrogen methyl, ethyl, hydroxymethyl, hydroxyethyl, hydroxypropyl, methylhydroxypropyl or methyl-dihydroxypropyl radical, the viscosity of a 5% by weight aqueous solution of the salt being from 1 to 500 centipoises at a temperature of 25° C.

4,275,055

HAIR CONDITIONER HAVING A STABILIZED, PEARLESCENT EFFECT

Julius H. Nachtigal, Edison, and David C. Zajac, East Brunswick, both of N.J., assignors to Conair Corporation, Edison, N.J.

Filed Jun. 22, 1979, Ser. No. 51,433
Int. Cl.³ A61K 7/06
U.S. Cl. 424—70 10 Claims

1. In a hair conditioner having a stable pearlescent effect and containing hair conditioning agents, emulsifiers, preservatives, and deionized water, wherein the improvement for providing pearlescence consisting of including therein between about 2.5% and about 7.5% by weight of stearamidopropyl dimethyl benzylammonium chloride, between about 2.0% and about 5.0% by weight of stearyl dimethyl benzylammonium chloride, and sufficient chloride salt to provide a minimum viscoeity of 3,000 centipoise, and said hair conditioner having a pH between 3.0 and 4.0.

4,275,056

HGI-GLYCOPROTEIN CAPABLE OF STIMULATING PROLIFERATION AND DIFFERENTIATION OF HUMAN GRANULOCYTE, PROCESS FOR PREPARING SAME AND LEUKOPENIA CURATIVE CONTAINING SAME

Fumimaro Takaku, Utsunomiya; Katsuhiro Ogasa, Yokohama; Morio Kobayama, Tokyo; Minoru Saito, Konan; Noboya Yanai, Tokyo, and Masayuki Nishida, Osaka, all of Japan, assignors to Morinaga Milk Industry Co., Ltd., Tokyo and The Green Cross Corporation, Osaka, both of, Japan

Filed Mar. 19, 1979, Ser. No. 22,594
Claims priority, application Japan, Mar. 20, 1978, 53-31999
Int. Cl.³ A61K 35/22; C07G 7/00
U.S. Cl. 424—99 24 Claims

1. A glycoprotein in pure form from the urine of normal humans, which stimulates human bone marrow cells to form colonies of granulocytes, which has a molecular weight of 75,000 to 90,000 dalton as determined by gel filtration, which has an isoelectric point of pH 4.7±0.2 and which contains 78–85% by weight of protein and 13.0–20.0% by weight of polysaccharide.

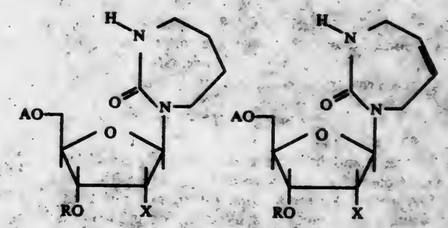
4,275,057

SEVEN-MEMBERED RING COMPOUNDS AS INHIBITORS OF CYTIDINE DEAMINASE

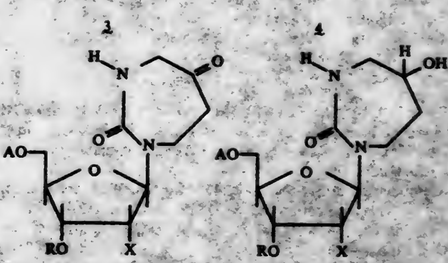
Victor E. Marquez, Gaithersburg; Paul S. Lin, Kensington, and John S. Driscoll, Rockville, all of Md., assignors to The United States of America as represented by the Department of Health, Education and Welfare, Washington, D.C.

Filed Jan. 28, 1980, Ser. No. 115,900
Int. Cl.³ A61K 31/70; C07H 17/02, 19/04
U.S. Cl. 424—180 7 Claims

1. Nucleoside compounds which are useful in the prevention of deaminating arabinosylcytosine (ara—C) selected from the group consisting of the following:



3

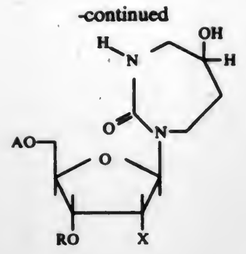


4

5

6

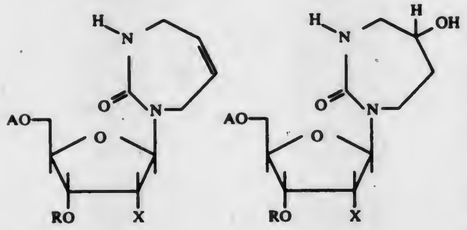
-continued



1

wherein R is selected from the group consisting of H, benzoyl, paranitrobenzoyl; X is selected from the group consisting of H, OR; A is selected from the group consisting of R, mono-, di- and tri-phosphates (PO_3E_2, $P_2O_6E_3$, $P_3O_9E_4$); and E is selected from the group consisting of H, Na.

5. A method of inhibiting cytidine deaminase which comprises utilizing an effective amount of a glycoside selected from the following:



4 6

wherein R is selected from the group consisting of H, benzoyl, paranitrobenzoyl; X is selected from the group consisting of H, OR; A is selected from the group consisting of R, mono-, di- and tri-phosphates (PO_3E_2, $P_2O_6E_3$, $P_3O_9E_4$); and E is selected from the group consisting of H, Na.

4,275,058

β-ADRENERGIC BLOCKING ALKANOLAMINE DERIVATIVES

Howard Tucker, Macclesfield, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Feb. 5, 1979, Ser. No. 9,362

Claims priority, application United Kingdom, Feb. 8, 1978, 5042/78

Int. Cl.³ N61K *31/135*; C07C *87/28*

U.S. Cl. 424—199 **6 Claims**

1. The compond erythro-1-(7-methylindan-4-yloxy)-3-isopropylaminobutan-2-ol or an acid-addition salt thereof.

6. A method for the treatment of tremor, migraine, anxiety, schizophrenia, glaucoma or hypertension in man which comprises administering to man an effective amount of the compound of claim 1 or an acid-addition salt thereof.

4,275,059

SALICYLATE ANTI-INFLAMMATORY COMPOSITION

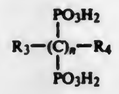
Lawrence Flora, Hamilton, and Marion D. Francis, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 782,143, Mar. 28, 1977, abandoned. This application Jul. 31, 1978, Ser. No. 929,471

Int. Cl.³ A61K *31/60, 31/61, 31/66, 31/615, 31/615*

U.S. Cl. 424—204 **21 Claims**

14. A method for treating or preventing pain and inflammation in animal tissues, comprising administering to an animal in need of such treatment from about 50 milligrams to about 6,000 milligrams per day of a salicylate-based anti-inflammatory compound selected from the group consisting of salicylic acid, acetylsalicylic acid, aloxiprin, calcium, carbaspirin, choline salicylate, methyl salicylate, salicoside, salicylamide, acetylsalicylsalicylic acid, salicylsulfuric acid, and pharmaceutically-acceptable salts and esters thereof, and from about 200 milligrams to about 2,000 milligrams per day of an organophosphonate compound selected from the group consisting of geminal organophosphonates of the formula



or pharmaceutically-acceptable salts thereof, wherein n is an integer from 1 to about 10; R_3 is selected from the group consisting of H, C_1–C_{20} alkyl or cycloalkyl, C_2–C_{20} alkenyl, aryl, phenylethyl, benzyl, halogen, amino, substituted amino, —CH_2COOH, —$CH_2(PO_3H_2)$, —$CH(PO_3H_2)(OH)$, or —$CH_2CH(PO_3H_2)_2$; and R_4 is selected from the group consisting of H, lower alkyl, amino, benzyl, halogen, —OH, —CH_2COOH, —$CH_2PO_3H_2$, or —$CH_2CH_2PO_3H_2$.

4,275,060

METHOD AND COMPOSITION FOR COMBATTING PEST

Quinton A. Geering, Little Eversden, England, assignor to Fisons Limited, London, England

Filed Jul. 17, 1979, Ser. No. 58,811

Claims priority, application United Kingdom, Jul. 19, 1978, 30420/78; Oct. 17, 1978, 40882/78; Nov. 23, 1978, 45861/78

Int. Cl.³ A01N *57/00, 43/16, 37/00, 37/34*

U.S. Cl. 424—218 **7 Claims**

1. A method of combating insects or destroying Insecta eggs comprising applying to the insects, eggs, a locus infested or liable to be infested therewith an insecticidally effective amount of

(A) bendiocarb; and

(B) methyl parathion; the proportions of (A) to (B) being from 1:10 to 1:1 by weight.

4,275,061

STEROIDS AND PROCESS FOR PREPARING THE SAME

Mario Riva, Monza, and Luciano Toscano, Milan, both of Italy, assignors to Pierrel S.p.A., Milan, Italy

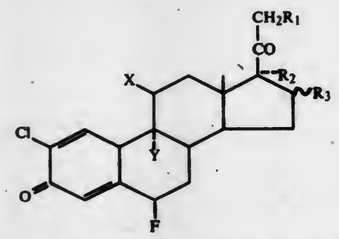
Continuation of Ser. No. 839,881, Oct. 6, 1977, abandoned, which is a continuation of Ser. No. 596,266, Jul. 16, 1975, abandoned. This application Mar. 27, 1979, Ser. No. 24,460

Claims priority, application United Kingdom, Jun. 14, 1975, 25478/75

Int. Cl.³ A61K *31/56*

U.S. Cl. 424—243 **23 Claims**

7. A compound having the formula:



(A)

wherein X is Br, Cl or OQ, Y is Br, Cl, F or H, R_1 is OQ, R_2 is OQ and R_3 is αOQ, and Q in the 16, 17 and 21 positions represents H and in the 11 position represents H or an acyl radical and pharmaceutically acceptable salts and esters of those compounds wherein Q in the 11 position represents a polycarboxylic or an inorganic acid radical.

14. A method of combatting inflammation in a patient comprising applying a compound according to claim 7 to the patient topically or systemically in a non-toxic pharmaceutically effective amount.

4,275,062

AMINOTHIAZOLYL UREIDO SULFOXIDE CEPHALOSPORINS

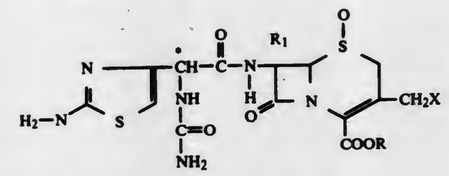
Hermann Breuer; Theodore Denzel, and Uwe D. Treuner, all of Regensburg, Fed. Rep. of Germany, assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Sep. 19, 1979, Ser. No. 77,056

Int. Cl.³ A61K *31/545*; C07D *501/34*

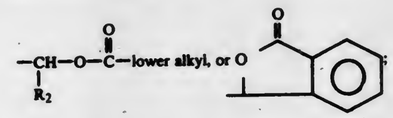
U.S. Cl. 424—122 **20 Claims**

1. A compound of the formula

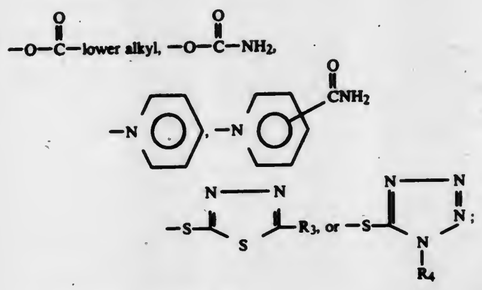


including the imino tautomer form wherein

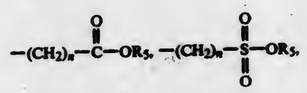
R is hydrogen, sodium, potassium, t-butyl, benzyl, p-methoxybenzyl, p-nitrobenzyl, diphenylmethyl, 2,2,2-trichloroethyl, trimethylsilyl, —CH_2—O-lower alkyl,



R_1 is in the α-configuration and is hydrogen or methoxy;
R_2 is hydrogen or lower alkyl;
X is hydrogen,

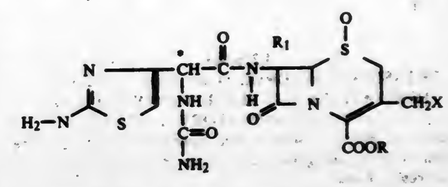


R_3 is hydrogen or lower alkyl;
R_4 is hydrogen, lower alkyl,

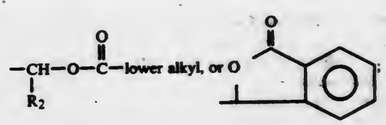


or —$(CH_2)_n$—N—(lower alkyl)$_2$;
R_5 is hydrogen, sodium or potassium; and
n is an integer from 1 to 4.

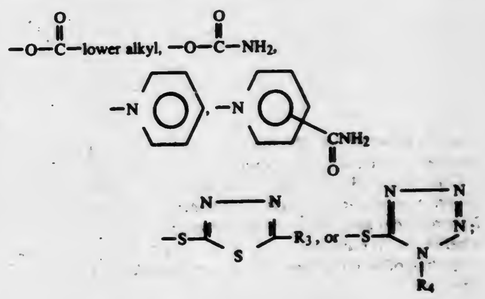
15. An antibecterial pharmaceutical composition comprising a pharmaceutically acceptable carrier and one or more antibacterially active compounds of the formula



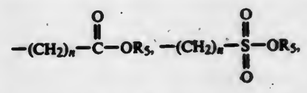
wherein R is hydrogen, sodium, potassium, —CH_2—O—lower alkyl,



R_1 is in the α-configuration and is hydrogen or methoxy; R_2 is hydrogen or lower alkyl; X is hydrogen,



R_3 is hydrogen or lower alkyl; R_4 is hydrogen, lower alkyl,



or —$(CH_2)_n$N(lower alkyl)$_2$; R_5 is hydrogen, sodium or potassium; and n is an integer from 1 to 4.

4,275,063

PHARMACEUTICAL COMPOSITIONS

Andrew M. Creighton, London, England, assignor to National Research Development Corporation, England

Continuation of Ser. No. 631,873, Nov. 12, 1975, abandoned, which is a continuation of Ser. No. 503,763, Sep. 6, 1974, abandoned, which is a continuation of Ser. No. 310,708, Nov. 30, 1972, abandoned, which is a continuation-in-part of Ser. No. 126,276, Mar. 19, 1971, abandoned, which is a continuation-in-part of Ser. No. 741,874, Jul. 2, 1968, abandoned. This application Feb. 14, 1977, Ser. No. 768,287

Claims priority, application United Kingdom, Jul. 3, 1967, 30617/67

Int. Cl.³ A61K *31/495*

U.S. Cl. 424—250 **32 Claims**

1. A pharmaceutical composition useful for aiding regression and palliation of sarcoma, lymphosarcoma and leukaemia in humans which comprises an amount therapeutically effective in aiding said regression and pallition of dl, d or l 1,2-bis(3,5-

dioxopiperazin-yl) propane, or an acid addition salt thereof with a physiologically acceptable inorganic or organic acid, in combination with a physiologically acceptable diluent which is sterile and pyrogen-free.

4,275,064

TRANSIENT PRO-DRUG FORMS OF XANTHINE DERIVATIVES AND THEIR USE AS TOPICAL ANTI-INFLAMMATORY AGENTS

Nicholas S. Bodor, Lawrence, and Kenneth B. Sloan, Eudora, both of Kans., assignors to INTERx Research Corporation, Lawrence, Kans.

Continuation of Ser. No. 832,448, Sep. 12, 1977, abandoned, which is a continuation-in-part of Ser. No. 655,786, Feb. 6, 1976, Pat. No. 4,061,753. This application Apr. 30, 1979, Ser. No. 34,630

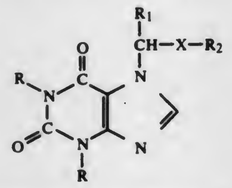
The portion of the term of this patent subsequent to Dec. 6, 1994, has been disclaimed.

Int. Cl.³ A61K *31/52*; C07D *473/08*

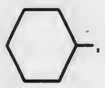
U.S. Cl. 424—253 **51 Claims**

1. A pro-drug compound of the formula:

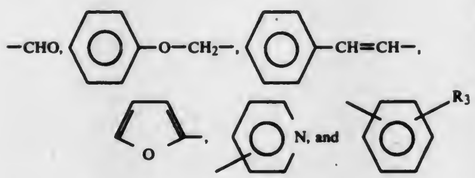
(I)



wherein R, which may be the same or different, represents a member selected from the group consisting of $—CH_3$, $—C_2H_5$, $—C_3H_7$, iso-C_3H_7, $—C_4H_9$, iso-C_4H_9, pentyl, benzyl, allyl, 2-hydroxyethyl, cyclohexyl, 2-isobutenyl, hydroxymethyl, 2-phenylethyl and $—CH_2O—R_2$, wherein R_2 is defined infra; wherein R_1 represents a member selected from the group consisting of H, C_1–C_7 straight or branched alkyl, CCl_3, CBr_3, CI_3,



$CH_3O—CH_2—$, $(CH_3)_2NCH_2—$,



wherein R_3 represents a member selected from the group consisting of —OH, halogen,

$—OCH_3$,

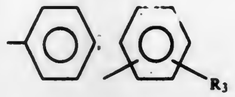
$—COOCH_3$, $—NO_2$ and $—OCOCH_3$; wherein X is —O—, —S—, or



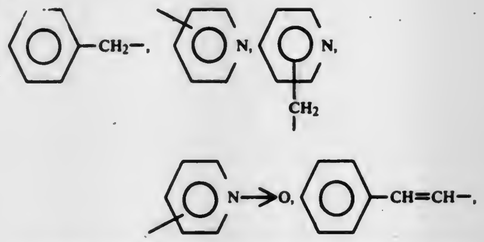
and wherein R_2 represents a member selected from the group consisting of



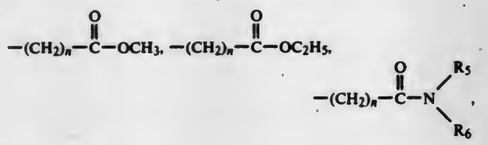
wherein R_4 is a member selected from the group consisting of C_2–C_{20} straight or branched alkyl, cyclo(C_3–C_{10})alkyl,



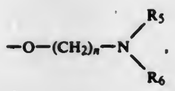
wherein R_3 is defined as above,



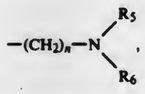
the residue of any naturally occurring amino acid, the residue of any N- substituted amino acid, wherein said substituent is any amino acid protective group cleavable via hydrogenolysis or hydrolysis, the residue of an N,N-C_1–C_5-dialkyl, cycloalkyl, N-heteroaromatic or N-C_1–C_5 alkyl aniline amino acid,



wherein n represents an integer of from 1-5 and R_5 and R_6 which may be the same or different represent C_1–C_5 alkyl or together form a heterocyclic ring with the N atom to which they are attached, imidazolyl, O—C_1–C_8 alkyl, O-benzyl, O-phenyl and



wherein n, R_5 and R_6 are defined as above; and wherein R_2 further represents a member selected from the group consisting of



wherein n, R_5 and R_6 are defined as above, phenyl, tolyl, xylyl, and $—SO_2—R_7$, wherein R_7 is a straight or branched C_1–C_{20} alkyl.

4,275,065

MODULATING THE IMMUNE RESPONSE WITH 2-SUBSTITUTED-3-HYDROXYTHIAZOLO[2,3-b]BENZO-(AND AZABENZO)THIAZOLIUM SALTS AND MESOIONIC DIDEHYDRO DERIVATIVES THEREOF

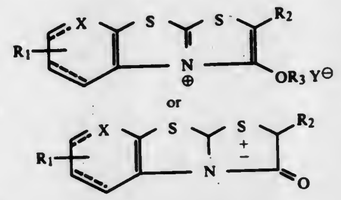
Peter H. L. Wei, Springfield, and Francis J. Gregory, Berwyn, both of Pa., assignors to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 50,847, Jun. 21, 1979, abandoned. This application Mar. 31, 1980, Ser. No. 130,483

Int. Cl.³ A61K *31/44, 31/425*; C07D *513/04, 513/14*

U.S. Cl. 424—256 **18 Claims**

18. A method of modulating the immune response in warm-blooded animals in need of modulation of the immune response which comprises administering to a warm-blooded animal an amount effective to bring about said modulation of the immune response of a compound having the general formula:



or

wherein

R_1 is hydrogen, halo, amino, lower alkyl, lower alkoxy, trifluoromethyl or hydroxy;

R^2 is lower alkyl, acetyl, trifluoroacetyl, phenyl, or phenyl substituted with fluorine, chlorine, bromine, lower alkyl, lower alkoxy, amino, nitro, and trifluoromethyl;

R_3 is hydrogen or lower alkanoyl;

X is CH or N; and

Y is $CF_3CO_2^{\ominus}$ or a halide and

where the dotted lines represent optional double bonds in the 5,6 and 7,8 positions.

4,275,066

ANTIREPRODUCTIVE TRICYCLIC ORTHO-FUSED NITROGEN CONTAINING COMPOUNDS

Umberto Guzzi, Milan; Amedeo Omodei-Sale', Voghera, and Giulio Galliani, Monza, all of Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

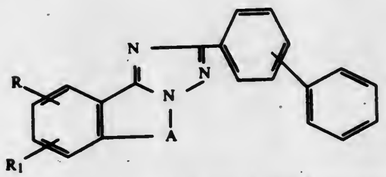
Filed Oct. 23, 1979, Ser. No. 87,371

Claims priority, application United Kingdom, Oct. 30, 1978, 42415/78

Int. Cl.³ A61K *31/47, 31/41*; C07D *471/04, 487/04*

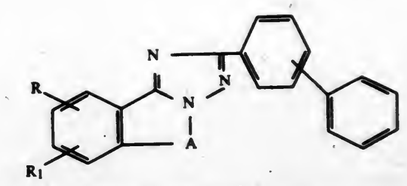
U.S. Cl. 424—258 **8 Claims**

1. A tricyclic ortho-fused nitrogen containing compound of formula



wherein R and R_1 are independently selected from hydrogen, fluoro, chloro, bromo and (C_{1-4}) alkoxy; A may be $—CH_2—$, $—CH_2—CH_2—$, —CH=CH— or $—(CH_2)_3—$; or a salt thereof with a pharmaceutically-acceptable acid.

5. A method for preventing reproduction in warm-blooded animals, which comprises administering to the animal an effective dosage varying from about 0.1 to about 25 mg/kg of body weight of a compound of formula



wherein A, R, and R_1 are defined as in claim 1.

4,275,067

DECARBOXYCLAVULANIC ACID THIO ETHERS, THEIR PREPARATION AND USE

Eric Hunt, Betchworth, England, assignor to Beecham Group Limited, England

Filed Aug. 10, 1978, Ser. No. 932,489

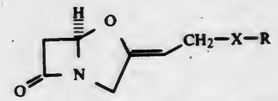
Claims priority, application United Kingdom, Sep. 14, 1977, 38286/77

Int. Cl.³ C07D *498/04*; A61K *31/42*

U.S. Cl. 424—263 **52 Claims**

1. A compound of the formula (II):

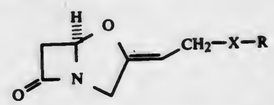
(II)



wherein X is S, SO or SO_2 and R is $—CH_2CO_2R^2$, $—CH_2—CH_2—R^3$ or R^4 wherein R^2 is a pharmaceutically acceptable salting ion, alkyl of up to 4 carbon atoms or benzyl, R^3 is OR^1, NHR^1, $NH.COR^1$ or CO_2R^2 wherein R^1 is hydrogen, alkyl of up to 4 carbon atoms or benzyl R^2 is as above defined and R^4 is thienyl, furyl, pyridyl, phenyl, or phenyl mono-substituted by fluorine, chlorine, bromine, methyl, OR^1, NHR^1, $NH.COR^1$ or CO_2R^2 wherein R^1 and R^2 are as above defined.

21. A method of treating fungal infections in humans and mammals which comprises administering to a human or mammal in need thereof an anti-fungally effective amount of a compound of the formula (II):

(II)



or a pharmaceutically acceptable salt thereof wherein X is S, SO or SO_2; and R is phenyl unsubstituted or mono-substituted by fluorine, chlorine, bromine, methyl, OR^1, NHR^1, $NH.COR^1$ or CO_2R^2 wherein R^1 is hydrogen alkyl of up to 4 carbon atoms or benzyl and R^2 is a pharmaceutically acceptable salting ion, alkyl of up to 4 carbon atoms or benzyl, in combination with a pharmaceutically acceptable carrier.

4,275,068

LIPID LOWERING ALKYLENE GLYCOLS AND ESTER DERIVATIVES THEREOF

Kurt Thiele; Quazi Ahmed; Ulrich Jahn, all of Zofingen, and Rudolf Adrian, Vordemwald, all of Switzerland, assignors to Siegfried AG, Zofingen, Switzerland

Filed Apr. 23, 1979, Ser. No. 40,536

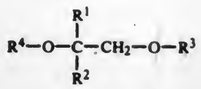
Claims priority, application Switzerland, Aug. 29, 1977, 010498/77; PCT Int'l Appl., Aug. 28, 1978, PCT/CH78/00015

Int. Cl.³ C07D *213/80*; C07C *69/90*; A61K *31/455, 31/60*

U.S. Cl. 424—266 **19 Claims**

1. A pharmaceutical composition for lowering cholesterol and lipid content of blood in human beings comprising an

effective amount of active lipid lowering alkylene glycol derivatives of the formula (1)

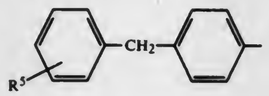


(1)

in which
R^1 is the hydrogen atom, an alkyl group having 1–4 C-atoms or benzyl,
R^2 is the hydrogen atom or an alkyl group having 1–4 C-atoms,
R^3 is the hydrogen atom or a group of the formula

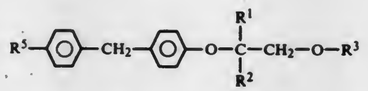


in which Z is an alkyl having 1 to 10 C-atoms, O-acetyloxyphenyl, or 3-pyridinyl and
R^4 is a residue of the formula



in which R^5 is the hydrogen or chlorine atom or the methyl group.

14. A compound of the Formula (1)



(1)

wherein R^1 is selected from the group consisting of hydrogen and alkyl groups having from 1 to 4 carbon atoms; R^2 is selected from the group consisting of hydrogen and alkyl groups having from 1 to 4 carbon atoms; R^3 is selected from the group consisting of hydrogen and acyl groups of the formula



wherein Z is selected from the group consisting of alkyl groups having from 1 to 10 carbon atoms, o-acetyloxy phenyl and pyridinyl; and R^5 is selected from the group consisting of hydrogen and chlorine with the proviso that R^5 is chlorine when R^3 is hydrogen.

4,275,069
ANTI-DIABETIC
1,2-DIHYDRO-2-OXO-6-ALKYL-NICOTINIC ACIDS
Gilbert A. Youngdale, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Continuation-in-part of Ser. No. 5,454, Jan. 22, 1979, Pat. No. 4,220,648. This application Nov. 28, 1979, Ser. No. 97,925
The portion of the term of this patent subsequent to Sep. 2, 1997, has been disclaimed.
Int. Cl.³ C07D *213/55*; A61K *31/44*
U.S. Cl. 424—266 **6 Claims**

1. A 1,2-dihydro-2-oxo-nicotinic acid derivative of the formula

where R_1 is hydrogen or alkyl of one to four carbon atoms, inclusive, and R_2 is alkyl of two to four carbon atoms, inclusive, or the pharmacologically acceptable salts thereof.

3. A method of treating a human suffering from adult-onset diabetes mellitus which comprises orally administering to said human an amount of exert a predetermined systemic antihyperglycemic effect of a 1,2-dihydro-2-oxo-nicotinic acid of the formula

wherein R_1 and R_2 are as defined in claim 1.

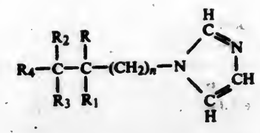
4,275,070
ANTIPSYCHOTIC PHARMACEUTICAL COMPOSITIONS OF THE LEVOROTATORY ENANTIOMERS OF 3-METHOXYCYPROHEPTADINE AND AN ANALOG THEREOF
David C. Remy, North Wales, Pa., assignor to Merck & Co., Inc., Rahway, N.J.
Division of Ser. No. 40,820, May 21, 1979, abandoned. This application May 19, 1980, Ser. No. 151,232
Int. Cl.³ A61K *31/445*
U.S. Cl. 424—267 **4 Claims**

1. A method of treating psychoses which comprises the administration to a patient in need of such treatment an effective antipsychotic amount of a racemic or levorotatory compound of formula:

or pharmaceutically acceptable salt thereof wherein R^1 is methyl or cyclopropylmethyl.

4,275,071
IMIDAZOLE DERIVATIVES
Dante Nardi; Alberto Tajana, and Maria J. Magistretti, all of Milan, Italy, assignors to Recordati S.A., Chiasso, Switzerland
Filed Jul. 10, 1979, Ser. No. 56,290
Claims priority, application Italy, Jul. 26, 1978, 26094 A/78
Int. Cl.³ C07D *233/60, 233/58*
U.S. Cl. 424—273 R **19 Claims**

1. An imidazole derivative of the general formula



wherein R_4 represents a 1,2,3,4-tetrahydro-6-naphthyl group or a phenyl group substituted in the 4-position by a phenyl, cyclohexyl, or phenylthio group, a 4-bibenzyl group or a 3,4-dihydroxy-phenyl group, n is 0, 1 or 2, and
(a) each of R and R_1, which may be the same or different represents a hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or a phenyl group, R or R_1 being a phenyl group when R_4 is biphenyl, one of R_2 and R_3 represents a hydrogen atom, and the other of R_2 and R_3 represents a hydroxyl group, R_2—C—R_3 being carbonyl when R_4 is 3,4 dihydroxy phenyl,
(b) n, R_4, R and R_1 are as defined in (a) and R_2 and R_3 together represent an oxygen atom, except when R_4 is phenyl substituted by 4-phenylthio, or

(c)



represents a vinylene group and
R_4 and n are the same as above, or
a pharamceutically acceptable acid addition salt thereof.

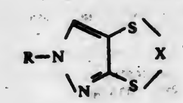
18. An anticonvulsant composition which comprises a pharmaceutically acceptable diluent or carrier and, as active ingredient, an effective amount of an imidazole derivative as claimed in claim 1, 2, 3, 4, 5, 6, 7, 8, 48–50, 69, 71, 75, 80, 98, or 99.

4,275,072
2,6-DICHLOROPHENYL-SUBSTITUTED AMINO-IMIDAZOLE DERIVATIVES AND USE AS HYPERTENSIVE AGENTS
Arto Karjalainen, and Kauko Karkola, both of Oulu, Finland, assignors to Farmos Group, Ltd., Turku, Finland
Continuation-in-part of Ser. No. 934,371, Aug. 16, 1978, abandoned. This application Nov. 13, 1979, Ser. No. 93,247
Int. Cl.³ A61K *31/415*; C07D *233/54*
U.S. Cl. 424—273 R **12 Claims**

1. A 2,6-dichlorophenyl-substituted amino-imidazole derivative having anti-hypertensive properties selected from the group consisting of 1-(2',6'-dichlorophenyl)-2-amino-4-methyl-imidazole, its non-toxic, pharmaceutically acceptable acid addition salts and mixtures thereof.

4,275,073
FUNGICIDAL COMPOUNDS
William K. Moberg, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.
Filed Apr. 29, 1980, Ser. No. 144,859
Int. Cl.³ A01N *43/56*; C07D *495/04, 487/00*
U.S. Cl. 424—273 P **30 Claims**

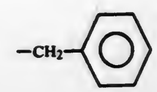
1. A compound of the formula

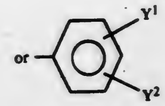


wherein
X is —S—S—S— or



and
R is H, C_1–C_6 alkyl, C_5–C_6 cycloalkyl,



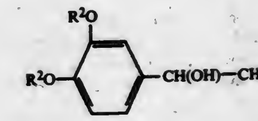


Y^1 and Y^2 independently are H, F, Cl, Br, p-methoxy or p-nitro.

21. A method for control of fungi on plants which comprises applying to a plant to be protected a fungicidally effective amount of a compound of claim 1.

4,275,074
CATECHOLAMINE TREATMENT OF OCULAR HYPERTENSION
Maurice E. Langham, Lutherville, Md., assignor to Graham J. Dobbie, Chicago, Ill., a part interest
Filed Mar. 9, 1979, Ser. No. 19,037
Int. Cl.³ A61K *31/365, 31/135, 31/22, 31/225*
U.S. Cl. 424—280 **18 Claims**

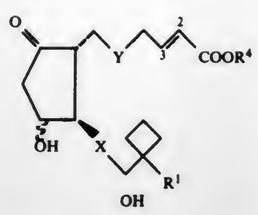
1. A method of treating ocular hypertension in a mammal which comprises topically applying to the eye of the mammal in need of such treatment an effective intraocular pressure-reducing amount, but less than an amount inducing substantial mydriasis, of a catecholamine of the general formula



wherein R^1 is a member of the group consisting of hydrogen and methyl, and R^2 is a member of the group consisting of hydrogen and acyl containing 1 to 8 carbon atoms, inclusive, or the pharmacologically acceptable acid addition salt thereof, together with an ophthalmic vehicle.

4,275,075
15-CYLOBUTYL-TRANS-Δ^2-PROSTAGLANDIN ANALOGUES
Masayasu Kurono, Osaka; Hisao Nakai, Takatsu-ku, and Shigeru Sakuyama, Nagaokakyo, all of Japan, assignors to ONO Pharmaceutical Co. Ltd., Osaka, Japan
Filed Jun. 14, 1978, Ser. No. 915,093
Claims priority, application United Kingdom, Jun. 14, 1977, 24867/77
Int. Cl.³ C07C *177/00*
U.S. Cl. 424—305 **9 Claims**

1. Prostaglandin analogues of the general formula:



wherein X represents trans-vinylene or ethylene, Y represents cis-vinylene or ethylene, R^1 represents a straight- or branched-chain alkyl group containing from 1 to 12 carbon atoms and R^4 represents

a hydrogen atom or a straight- or branched-chain alkyl group containing from 1 to 12 carbon atoms and the double bond between C_2–C_3 is trans; and cyclodextrin clathrates of such prostaglandin analogues and, when R^4 represents a hydrogen atom, the non-toxic salts thereof.

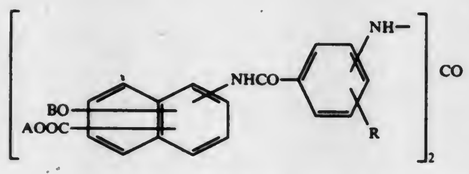
4,275,076

SUBSTITUTED NAPHTHOIC ACIDS

Ransom B. Conrow, Pearl River, and Seymour Bernstein, New City, both of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

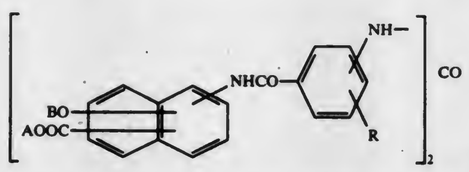
Filed Feb. 4, 1980, Ser. No. 118,006
Int. Cl.³ A61K *31/24*; C07C *101/52*
U.S. Cl. 424—309 **14 Claims**

1. A compound of the formula:



wherein A is selected from the group consisting of hydrogen, lower (C_1–C_6) alkyl and a pharmaceutically acceptable salt cation; B is selected from the group consisting of hydrogen, lower (C_1–C_6) alkanoyl and a pharmaceutically acceptable salt cation; and R is selected from the group consisting of hydrogen and lower (C_1–C_3)alkyl.

7. A method of inhibiting connective tissue destion in a warm-blooded animal which comprises administering to said animal an effective inhibiting amount of a compound of the formula:



wherein A is selected from the group consisting of hydrogen, lower (C_1–C_6)alkyl and a pharmaceutically acceptable salt cation; B is selected from the group consisting of hydrogen, lower (C_1–C_6)alkanoyl and a pharmaceutically acceptable salt cation; and R is selected from the group consisting of hydrogen and lower (C_1–C_3) alkyl.

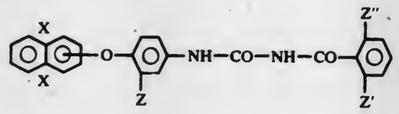
4,275,077

INSECTICIDAL ACYL UREA DERIVATIVES

Heinz-Manfred Becher, Bingen; Richard Sehring, Ingelheim am Rhein; Walter Wirtz, Darmstadt, and Ricarda Prokic-Immel, Mainz, all of Fed. Rep. of Germany, assignors to Celamerck GmbH & Co. KG, Ingelheim am Rhein, Fed. Rep. of Germany

Filed Jan. 8, 1980, Ser. No. 110,375
Claims priority, application Fed. Rep. of Germany, Jan. 15, 1979, 2901334; Jul. 5, 1979, 2927123
Int. Cl.³ A01N *9/20*; C07C *127/22*
U.S. Cl. 424—322 **8 Claims**

1. A compound of the formula



wherein

X and Y are each independently hydrogen, chlorine or bromine;

Z is hydrogen or chlorine;

Z′ is chlorine or fluorine; and

Z″ is hydrogen, chlorine or fluorine.

8. The method of killing insects or acarids, which comprises contacting the same with an effective insecticidal or acaricidal amount of a compound of claim 1.

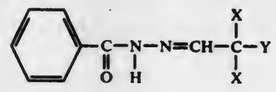
4,275,078

N-BENZOYL-N′-HALOGENOALKYLIDENEHYDRAZINE DERIVATIVES, PROCESS FOR PREPARING SAME, AND AGRICULTURAL AND HORTICULTURAL FUNGICIDE COMPRISING SUCH DERIVATIVES

Katsumichi Aoki; Takafumi Shida; Satoru Kumazawa; Masashi Ohtsuru, and Shiro Yamazaki, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1979, Ser. No. 29,010
Claims priority, application Japan, Apr. 24, 1978, 53-48493
Int. Cl.³ C07C *109/18*; A01N *9/20*
U.S. Cl. 424—324 **2 Claims**

1. An agricultural and horticultural fungicide composition comprising an effective amount of at least one of N-benzoyl-N′-halogenoalkylidenehydrazine derivatives of the formula:



wherein

X represents an atom of chloride or bromine, and

Y is a member selected from the group consisting of hydrogen, fluorine, chlorine, bromine, methyl and 1-chloroethyl, provided that when X is chlorine, Y is one of the above-defined members other than chlorine, and an agriculturally and horticulturally acceptable carrier.

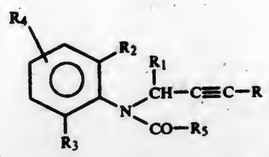
4,275,079

FUNGICIDAL N-ALKYNYLANILIDES

Franz Dorn, Dielsdorf, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

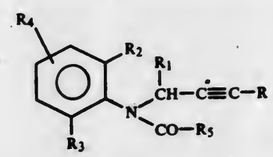
Filed May 7, 1980, Ser. No. 147,676
Claims priority, application Switzerland, May 18, 1979, 4675/79; Mar. 14, 1980, 2015/80
Int. Cl.³ C07C *103/58*; A01N *9/12, 9/20*
U.S. Cl. 424—324 **22 Claims**

1. A compound of the formula



wherein R is hydrogen, methyl or ethyl, R_1 is hydrogen or methyl, R_2 and R_3 each are alkyl of from 1 to 3 carbon atoms, alkoxy of from 1 to 3 carbon atoms or halogen, R_4 is hydrogen, alkyl of from 1 to 3 carbon atoms or halogen and R_5 is the group $—CH_2—O—R_6$ or $—CH_2—S—R_6$ in which R_6 is alkenyl of 3 or 4 carbon atoms or alkynyl of 3 or 4 carbon atoms, with the proviso that the total number of carbon atoms in substituents R_2, R_3 and R_4 does not exceed 6.

17. A fungicidal composition which comprises compatible carrier material and, as the active ingredient, an amount which is effective as a fungicide of a compound of the formula



wherein R is hydrogen, methyl or ethyl, R_1 is hydrogen or methyl, R_2 and R_3 each are alkyl of from 1 to 3 carbon atoms, alkoxy of from 1 to 3 carbon atoms or halogen, R_4 is hydrogen, alkyl of from 1 to 3 carbon atoms or halogen and R_5 is the group $—CH_2—O—R_6$ or $—CH_2—S—R_6$ in which R_6 is alkenyl of 3 or 4 carbon atoms or alkynyl of 3 or 4 carbon atoms, with the proviso that the total number of carbon atoms in substituents R_2R_3 and R_4 does not exceed 6.

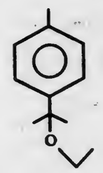
4,275,080

FLAVORING WITH 8-P-CYMENYL-ETHYL ETHER

Cynthia J. Mussinan, Bricktown; Braja D. Mookherjee, Holmdel; Manfred H. Vock, Locust; Frederick L. Schmitt, Holmdel, all of N.J.; Edward J. Shuster, Brooklyn, N.Y.; James M. Sanders, Estontown, N.J.; Bette M. Light, Highlands, N.J., and Edward J. Granda, Englishtown, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 12,798, Feb. 16, 1979, which is a division of Ser. No. 939,897, Sep. 5, 1978, Pat. No. 4,163,068, which is a division of Ser. No. 872,937, Jan. 27, 1978, Pat. No. 4,131,687. This application Oct. 26, 1979, Ser. No. 88,571
Int. Cl.³ A23L *1/226*
U.S. Cl. 426—3 **1 Claim**

1. A process for flavoring a foodstuff or chewing gum to impart a herbal, coumarin-like and green aroma characteristic with herbal, cumin-like, lemon juice-like, green, and oily flavor characteristics comprising the step of adding to a foodstuff or chewing gum from 0.5 ppm up to about 100 ppm of synthetically produced substantially pure 8-p-cymenyl ethyl ether having the structure:



4,275,081

FAT PROCESS AND COMPOSITION

Michael H. Coleman, Bedford, and Alasdair R. Macrae, Oakley, both of England, assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 846,303, Oct. 28, 1977, abandoned, which is a continuation of Ser. No. 766,117, Feb. 7, 1977, abandoned. This application Jan. 7, 1979, Ser. No. 46,523
Claims priority, application United Kingdom, Feb. 11, 1976, 5376/76
Int. Cl.³ A23D *5/00*; C12P *7/64*
U.S. Cl. 426—33 **21 Claims**

1. A process for the interesterification of glyceride oil or fat, comprising:

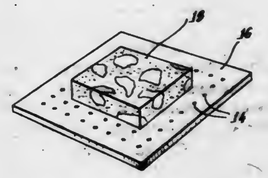
treating said oil or fat with a water-soluble microbial lipase enzyme under conditions to effect an interesterfication reaction, in the presence of up to 10% water wherein said water-soluble microbial lipase enzyme is adsorbed on an inert, powdered, water-insoluble dispersing agent and recovering from the reaction a glyceride product free from fatty acid and partial glycerides.

4,275,082

FROZEN PUFF PASTRY AND EDIBLE INSERT COMBINATION AND PROCESS

Ernest V. Dougan, Southport, Conn., assignor to Standard Brands Incorporated, New York, N.Y.

Filed Feb. 25, 1980, Ser. No. 124,497
Int. Cl.³ A21D *6/00, 13/08*; A23G *3/00*; A23L *1/31*
U.S. Cl. 426—92 **16 Claims**



1. A frozen food product which is adapted for the preparation of a filled pastry shell and comprises: an unbaked sheet of puff pastry dough comprising a central portion which is sufficiently disrupted to reduce normal rising, and a substantially-continuous peripheral portion which rises to a greater extent than the central portion during baking; and a frozen food insert comprising a sauce containing a thickener disposed over said central portion of said sheet of puff pastry dough, whereby the food insert will fill a recess formed as said peripheral portion of the sheet rises during baking to form a shell.

4,275,083

GASIFIED CANDY ENROBED WITH OLEAGINOUS MATERIAL

Frank P. Colten, Dover, Del.; Joseph J. Halik, Ossining; Robert J. Ravallo, Mahopac, both of N.Y.; Joseph L. Hegedorn, Ridgewood, N.J., and Richard B. Hynson, New Fairfield, Conn., assignors to General Foods Corporation, White Plains, N.Y.

Filed Oct. 26, 1979, Ser. No. 88,483
Int. Cl.³ A23G *3/00*
U.S. Cl. 426—96 **31 Claims**

1. A confection which comprises: an admixture of oleaginous material selected from the group consisting of chocolate, pastel, compound coating and peanut butter having a fat content of at least 20% and a gasified candy having a sizzling and/or popping sensation when eaten, having a particle size

distribution of −4 to +40 U.S. Sieve Series, having moisture content of 1–4% water and having 2 to 7 cm^3 of carbon dioxide gas per gram of candy, wherein said oleaginous material coats said candy which comprises 2–40% of the confection and is homogenously mixed therein.

4,275,084

FORMED FOOD PRODUCT OF MICROFIBRILLAR PROTEIN AND PROCESS FOR THE PRODUCTION THEREOF

Shuzo Ohyabu, Kurashiki; Syozi Kurosaki, Okayama; Keiji Matsumura; Hiroyuki Akasu, both of Kurashiki; Takeo Akiya, Takatsuki; Naoki Yagi, Suita; Kwang Y. Kim, Habikino; Tarushige Nakaji, Yao, and Akiko Miyasaka, Osaka, all of Japan, assignors to Kuraray Co., Ltd. and Minaminihon Rakuno Kyodo Kabushiki Kaisha, both of, Japan

Filed Dec. 11, 1979, Ser. No. 102,483
Claims priority, application Japan, Dec. 13, 1978, 53/155076
Int. Cl.³ A23J 3/00
U.S. Cl. 426—104 16 Claims

1. A formed food product of microfibrillar protein, which comprises one part by weight of a bundle of microfibrillar protein (A) having a diameter of fiber 10μ or less and a heat resistant index of at least 100, and about 0.02 to 0.67 part by weight of a microfibrillar protein (B) having a diameter of fiber of 10μ or less and a heat resistant index of from 55 to the heat resistant index of the component (A)—10, wherein said heat resistant index is defined as the maximum temperature at which 90% or more of the microfibrils remain when the microfibrillar protein is kept in water of pH 5.5 at a fixed temperature for 30 minutes.

4,275,085

METHOD OF MAKING DRIP-TYPE COFFEE

Richard Gregg, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Sep. 23, 1976, Ser. No. 726,073
Int. Cl.³ A23F 5/26
U.S. Cl. 426—433 9 Claims

1. In a drip coffee-making method for making varying amounts of coffee beverage primarily for immediate consumption, said method comprising passing a predetermined quantity of heated water through a drip brew basket-filter containing a bed of roasted and ground coffee over which said heated water is sprayed for drip extraction which heated water passes through said bed and through an aperture in said drip brew basket-filter into a container positioned below said drip brew basket-filter, the improvement comprising:

(a) dividing a predetermined quantity of water into an extraction portion and a bypass-dilution portion;

(b) passing said extraction portion of said water at a predetermined temperature of 120° F.–175° F. over said bed of roast and ground coffee at a sufficiently slow rate to cause a relatively strong filtered coffee extract to issue into said container; said extraction portion and said roasted and ground coffee having a weight ratio of from about 9:1 to about 14:1;

(c) diluting said relatively strong filter coffee extract in said container with said bypass-dilution portion of said water, wherein said bypass-dilution portion bypasses said bed of roasted and ground coffee and dilutes said filtered coffee extract to a predetermined beverage concentration; and

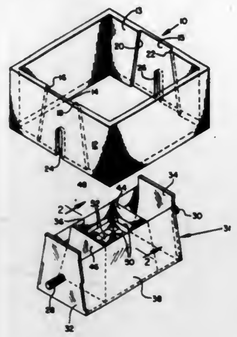
wherein said bypass-dilution portion of said water has a preselected temperature which upon dilution warms up the filtered coffee extract to a beverage serving temperature of about 170° F. to about 185° F.; and wherein a flavorful, ready-to-drink coffee beverage relatively low in bitterness is automatically provided.

4,275,086

METHOD OF PREPARING POTATO SEGMENTS

Roger A. Brown, Tigard, Oreg.; William F. Clyde, American Falls, Id., and Glenn D. Galusha, Moses Lake, Wash., assignors to AMFAC Foods, Inc., Portland, Oreg.

Continuation of Ser. No. 836,050, Sep. 23, 1977, abandoned. This application Dec. 4, 1978, Ser. No. 965,947
Int. Cl.³ B02C 18/00
U.S. Cl. 426—518 3 Claims



1. A method of cooking a mixture of elongated potato segments cut from various portions of a potato having a higher starch containing solids content in its outer portions than in its inner portion, comprising:

making a series of longitudinal cuts through said potato to divide it into multiple, elongated segments, said cuts being spaced a selected distance apart in said inner portion of said potato, and a distance apart greater than said selected distance in said outer portions of said potato, and said cuts being located to make the ratio of segment surface area to volume generally inversely proportional to the distance of a segment from the center of said potato;

combining said segments to form a mixture thereof; and,

blanching and cooking said mixture, whereby variations in segment texture, as measured by the amount of gelatinized starch per segment, are minimized, and segments of substantially the same texture are obtained.

4,275,087

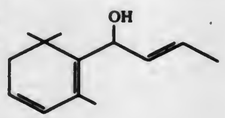
FLAVORING WITH 2,6,6-TRIMETHYL-α-PROPENYL-1,3-CYCLOHEXADIENE-1-METHANOL SUBSTANCES

Richard A. Wilson, Westfield; William L. Schreiber, Jackson; Braja D. Mookherjee, Holmdel, all of N.J.; Jacob Kiwala, Brooklyn, N.Y.; Joaquin F. Vinals, Red Bank, N.J.; Manfred H. Vock, Locust, N.J.; Gilbert Stork, Englewood, N.J., and Frederick L. Schmitt, Holmdel, N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 39,361, May 15, 1979. This application Feb. 8, 1980, Ser. No. 120,102
Int. Cl.³ A23L 1/226, 1/235
U.S. Cl. 426—538 2 Claims

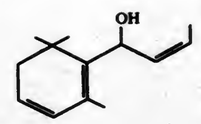
1. A process for augmenting or enhancing the aroma or taste of a foodstuff comprising adding thereto from about 0.05 parts per million up to about 100 parts per million based on the total composition of a substance selected from the group consisting of:

(a) a mixture of compounds having the structures:

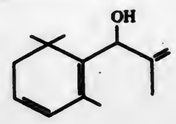


-continued

and



(b) a compound having the structure:



4,275,088

DRY MIX FOR LAYER CAKE CONTAINING CITRUS JUICE VESICLE SOLIDS

Patricia E. Hart, St. Paul, and Tisha Nichols, Osseo, both of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Feb. 7, 1979, Ser. No. 9,995
Int. Cl.³ A21D 10/04
U.S. Cl. 426—554 10 Claims

1. A cake mix of a layer-cake type which provides upon baking an enhanced moistness impression cake, comprising:

A. from about 35% to 45% by weight of said cake mix of wheat flour;

B. from about 40% to 54% by weight of said dry mix of sugar, said sugar being present in a weight ratio to flour of from about 1.20 to 1.35;

C. from about 6% to 16% by weight of emulsified shortening; said shortening containing from about 1% to 16% by weight of said shortening of a food grade emulsifier;

D. from about 0.2% to 10% by weight of processed juice vesicle solids, said processed juice vesicle solids having:

(1) a moisture content of from about 5% to 12%;

(2) a particle size of from about 50 to 400 microns; and

E. from about 0.5% to 4% of a chemical leavening agent.

4,275,089

PURIFICATION OF VEGETABLE OIL

George A. Kopas, 1607 - 35th Ave., San Francisco, Calif. 94122, and Merton E. Boomer, 4901 Stacy St., Oakland, Calif. 94605

Filed May 12, 1977, Ser. No. 796,447
Int. Cl.³ A23D 5/02
U.S. Cl. 426—601 6 Claims

1. A process for producing a pumpable animal feed material including the steps of extracting vegetable oil from vegetable matter with a solvent for the oil, stripping solvent from the oil with steam at a pressure from 0 to 28 inches of Hg below atomspheric preasure and at a temperature such that without further addition of H_2O after steam stripping of the solvent, sludge hydrated to a H_2O content between 5 percent and 15 percent is formed, separating said sludge from said oil and combining said sludge with at least 15 percent acidulated oil feed fat.

4,275,090

PROCESS FOR CARBON BEARING MCRALY COATING

Charles C. McComas, Stuart; James W. Morris, Jupiter, and Larry S. Sokol, West Palm Beach, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 949,926, Oct. 10, 1978, abandoned, which is a continuation-in-part of Ser. No. 842,838, Oct. 17, 1977, abandoned. This application Oct. 15, 1979, Ser. No. 85,132
Int. Cl.³ B05D 1/10
U.S. Cl. 427—34 5 Claims



1. A method of providing a coating having wear, corrosion, and oxidation resistance in a gas turbine environment, on a superalloy substrate, which comprises the steps of:

(a) mixing MCrAlY powders with Cr_3C_2 powders, wherein M is a metal selected from the group consisting of Ni, Co, Fe, or mixtures thereof, the powders having particle sizes less than 44 microns, with the Cr_3C_2 having a first average particle size and being present in sufficient quantity in the mixture to produce the composition and structure after spraying which is indicated in step (b);

(b) plasma spraying the powders so that they impinge on, adhere to the substrate, and interact during spraying to produce a coating which consists essentially of a MCrAlY matrix rich in carbon and containing fine carbides of the order of 1–2 microns size and coarse chromium carbides of the order of 12 microns size, the average size of the Cr_3C_2 carbides being smaller than the said first average particle size, and the coating having at least 0.6 weight percent carbon.

4,275,091

METHOD OF DUPLICATING PLASTICS INFORMATION CARRIERS

Gerardus J. M. Lippits; Arnoldus J. M. Van Den Broek; Adrianus J. G. Op Het Veld; Rinse Dijkstra, and Jelis De Jonge, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

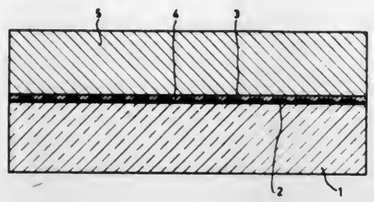
Continuation of Ser. No. 887,188, Mar. 16, 1978, abandoned, which is a division of Ser. No. 774,973, Mar. 7, 1977, abandoned. This application Nov. 16, 1979, Ser. No. 95,130
Claims priority, application Netherlands, Oct. 15, 1976, 7611395
Int. Cl.³ B05D 3/06
U.S. Cl. 427—53.1 15 Claims

1. The method of manufacturing a plastic information carrier containing an information track having detail of such fineness as to be suitable for reading by an optical beam or similar reading means, said fineness being as small as in the order of a micron or less, comprising:

(a) directly applying to a metal surface of a rigid, substantially flat die, which surface contains the negative of the desired information track, a thin layer of a thickness of 0.2–300 microns of a light-curable polymerizable liquid having a viscosity of from 1 to 100 cP and comprising low molecular weight acrylic monomers or a mixture of low molecular weight acrylic monomers and acrylic oligomers, which liquid contains 25–70% by weight of saturated hydrocarbon and/or phenyl groups, has an average

functionality in regard to unsaturatedness of between 2.1 and 6, is at least substantially aprotic and consists for at least 95% of monomers having a maximum average molecular weight of about 400;

(b) applying to the exposed surface of said thin layer of polymerizable liquid a thin light-pervious plastic substrate;



(c) exposing said thin layer of polymerizable liquid to light radiation through said substrate for a time sufficient to cause said thin layer of polymerizable liquid to cure to a solid state adhering to said substrate thereby producing a laminate of said substrate and said cured layer containing the desired optically readable information track readily removable from said die without effect on said laminate or said die; and

(d) removing said laminate from said die.

4,275,092

METHOD FOR PRODUCING A PLATE OR SHEET USEFUL IN PLANOGRAPHIC PRINTING

Hiroyuki Nakayama; Akira Kato, and Masuo Tsuchiya, all of Hiratsuka, Japan, assignors to Kansai Paint Co., Ltd., Japan

Continuation of Ser. No. 819,768, Jul. 28, 1977, abandoned. This application May 15, 1979, Ser. No. 39,308

Claims priority, application Japan, Jul. 30, 1976, 51-91464; Jun. 14, 1977, 52-70197; Jun. 14, 1977, 52-70198

Int. Cl.³ B05D *3/06*

U.S. Cl. 427—54.1 **12 Claims**

1. A method for producing a plate or sheet useful in oil base ink planographic printing which comprises providing a substrate of an oleophilic resin having in the molecules thereof carbon-carbon double bonds and/or carbon atoms bonded with a single hydrogen atom in a total amount of not less than 0.05 mol/kg and having a contact angle with pure water above 40 degrees, non-mixingly contacting the substrate with hydrophilic radical polymerizable compound, wherein said hydrophilic radical polymerizable compound is a monomer capable of being dissolved in water or hydrophilic organic solvents or swollen by absorbing the water or the solvents in an amount of above 10% by weight at room temperature when converted to a homopolymer, and exposing the substrate contacted with the compound to actinic ray of 250 nm to 700 nm wavelength to form a hydrophilic thin layer chemically combined with the substrate, said thin layer having a contact angle with pure water of 20 degrees or less.

4,275,093

METHOD OF MANUFACTURING INSULATED GATE SEMICONDUCTOR DEVICES BY HIGH PRESSURE THERMAL OXIDATION WITH WATER VAPOR

Nobuo Sasaki; Yasuo Kobayashi, both of Kawasaki; Ryoiku Tohgei, Machida; Takashi Iwai, Kawasaki, and Motoo Nakano, Yokohama, all of Japan, assignors to Fujitsu Limited, Japan

Filed Jun. 13, 1979, Ser. No. 48,069

Claims priority, application Japan, Jun. 14, 1978, 53-71616

Int. Cl.³ H01L *21/316, 29/78*

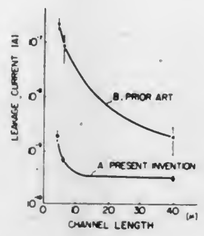
U.S. Cl. 427—89 **10 Claims**

1. A method of manufacturing an insulated gate type semiconductor device in an island of semiconductor material with a channel length of less than 40 microns and a low leakage current of less than 10^{-9} A at an applied source to drain potential of 5 volts and with an unbiased gate, said method comprising the steps of:

forming a single crystal semiconductor film on an insulating single crystal substrate;

selectively forming a film masking against oxidation on the surface of said single crystal semiconductor film, and

thermally oxidizing a part of said single crystal semiconductor film, in a region which is not masked with said film masking against oxidation, down to the surface of said



insulating single crystal substrate, to form said island by arranging said insulating substrate with said single crystal semiconductor film in a water vapor atmosphere having a pressure in the range from 3 to 15 kg/cm² and a temperature in the range from 700° C. to 1000° C., said oxidizing resulting in said device having said low leakage current;

forming source and drain regions of said device in said island to provide each channel length,

forming the gate insulator or said device over said channel region, and

forming gate, source and drain electrodes of said device.

4,275,094

PROCESS FOR HIGH PRESSURE OXIDATION OF SILICON

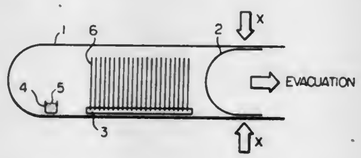
Mikio Takagi; Mamoru Maeda, both of Kawasaki, and Hajime Kamioka, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 30, 1978, Ser. No. 955,755

Claims priority, application Japan, Oct. 31, 1977, 52/130651; Oct. 31, 1977, 52/130652; Oct. 31, 1977, 52/130653

Int. Cl.³ H01L *21/316*

U.S. Cl. 427—93 **14 Claims**



1. A process for high pressure oxidation of silicon with high uniformity of the oxide thickness comprising the steps of:

inserting a quartz vessel containing a predetermined amount of water into a quartz capsule in the form of a tube with one end closed;

spacing silicon wafers apart from each other in said quartz capsule;

evacuating said quartz capsule;

sealing said quartz capsule gas-tightly by fusing; and

heating said quartz capsule to an elevated temperature to generate a high pressure steam therein and to form an oxide film on said silicon wafers with said high uniformity.

4,275,095

COMPOSITE ARTICLE AND METHOD OF MAKING SAME

James W. Warren, Woodland Hills, Calif., assignor to Warren Consultants, Inc., Woodland Hills, Calif.

Filed Jul. 31, 1979, Ser. No. 62,401

Int. Cl.³ C23C *11/08*

U.S. Cl. 427—228 **18 Claims**



1. A method of making a composite article comprising the steps of:

(a) forming a starting substrate from a multiplicity of carbon fibers selected from a group consisting of pyrolyzed wool, rayon, polyacrylonitrile and pitch fibers;

(b) suspending said starting substrate within a first vacuum pressure controlled environment;

(c) forming an intermediate substrate by heating said starting substrate to a temperature of between approximately 1500° F. and approximately 4200° F. while exposing said starting substrate to a hydrocarbon gas to form a uniform layer of pyrolytic carbon about each of the fibers in said starting substrate;

(d) removing said intermediate substrate from said first controlled environment and forming it into a shaped substrate having the approximate shape desired of the end product composite article;

(e) supporting said shaped substrate in a second controlled environment while heating said shaped substrate to a temperature of between approximately 1800° F. and approximately 3200° F.; and

(f) forming a diffusion coated article in which said carbon fibers remain freely movable relative to the applied coatings by reacting said shaped substrate with a siliceous material for a period of time sufficient to permit the silicon to react with the pyrolytic carbon coating deposited on said fibers.

4,275,096

METHOD AND APPARATUS FOR DISPENSING FLUID IN A CONDUIT

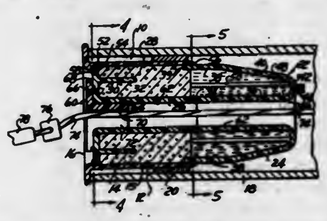
Philip W. Taylor, Burnet, Tex., assignor to Taylor Industries, Inc., Marble Falls, Tex.

Continuation-in-part of Ser. No. 894,565, Apr. 7, 1978, Pat. No. 4,137,623. This application Jan. 15, 1979, Ser. No. 3,508

The portion of the term of this patent subsequent to Feb. 6, 1995, has been disclaimed.

Int. Cl.³ B05C *1/06*; B05D *1/28, 7/22*

U.S. Cl. 427—230 **13 Claims**



1. An apparatus for dispensing a fluid in an extended conduit comprising a cartridge-like structure made of a pair of coaxial assembled separate inner and outer members dispoed one within the other and insertable in an end of said conduit in a fixed position, means attaching the end of a pull strand to said inner member for separating said inner member from said outer member by pulling tension exerted by said pull strand, a resilient absorbent mass of cellular material supported by said inner member and normally compressibly held between said inner and outer members and capable when pulled from said outer member of expanding such as to be peripherally engaged with the wall of said conduit, means integral with said outer member adapted to retain said outer member in the conduit upon said separation, a supply of said fluid associated within said structure and adapted to be applied to said conduit by said expanded cellular material when moved through said conduit by said pull strand, and a nosepiece member integral with said inner member and defining a chamber containing an additional supply of said fluid.

4,275,097

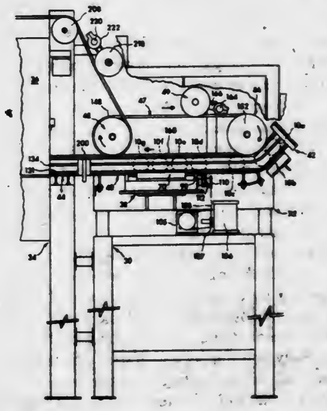
PROTECTIVE COATING FOR CANS AND METHODS FOR APPLICATION OF COATING THERETO

Frank L. Shriver, Lakewood, Colo., assignor to Coors Container Company, Golden, Colo.

Division of Ser. No. 891,309, Mar. 29, 1978. This application Oct. 26, 1979, Ser. No. 88,531

Int. Cl.³ B05D *1/28*

U.S. Cl. 427—286 **8 Claims**



1. The method of applying a thin narrow width annular coating to a portion of the outer peripheral surface of a can body member comprising:

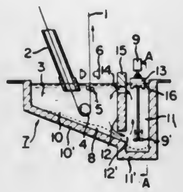
rotatably moving the can body member along a path of movement across an elongated rotating coating applicator roller member having a rotational axis extending parallel to the path of movement and transversely to the rotational axis of the can body member; and

engaging a narrow width portion of the periphery of the lower side wall portion of the can body member with a narrow width elongated portion of the periphery of the coating application roller during substantially only one revolution of the can body member during the movement thereof across the rotating coating application roller.

4,275,098
METHOD AND APPARATUS FOR CONTINUOUSLY HOT-DIP GALVANIZING STEEL STRIP

Naoki Gunji, and Saburo Ito, both of Yokohama, Japan, assignors to Nippon Kokan Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 3, 1980, Ser. No. 126,203
Claims priority, application Japan, Mar. 26, 1979, 54/34228
Int. Cl.³ C23C 1/02
U.S. Cl. 427—345 7 Claims



1. A method for continuously hot-dip galvanizing a steel strip, which comprises the steps of:

continuously introducing a steel strip into a hot-dip galvanizing bath containing aluminum in a hot-dip galvanizing tank to subject said steel strip to a hot-dip galvanizing treatment; and, adjusting the thickness of a galvanized layer formed on the surface of said steel strip to a prescribed value directly above the surface of said hot-dip galvanizing bath to manufacture a hot-dip galvanized steel strip;

said method being characterized by:

providing a hot-dip galvanizing tank which is divided into a plating chamber and a reaction chamber by a vertical partition having a gap at the lowermost end thereof and an opening-adjustable aperture at the upper end portion thereof, the bottom wall of said plating chamber being inclined downwardly toward the bottom wall of said reaction chamber, said plating chamber and said reaction chamber communicating with each other through said gap and said aperture;

circulating said hot-dip galvanizing bath contained in said hot-dip galvanizing tank by convection, under the effect of stirring by a stirring means provided in said reaction chamber, through said gap and said aperture, between said plating chamber and said reaction chamber;

continuously introducing a steel strip into said hot-dip galvanizing bath in said plating chamber while continuing said stirring, to subject said steel strip to a hot-dip galvanizing treatment and also forming bottom dross ($FeZn_7$) in said plating chamber during said hot-dip galvanizing treatment which accumulates on the bottom of said plating chamber and flows down along the slant bottom wall of said plating chamber to the bottom of said reaction chamber;

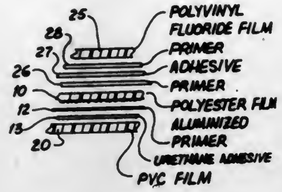
providing aluminum in said hot-dip galvanizing bath in said reaction chamber and actively reacting said bottom dross in said reaction chamber with said aluminum under the effect of said stirring by said stirring means, to convert said bottom dross into a surface dross (Fe_2Al_5) which floats to the surface; and

substantially removing said surface dross floating on the surface of said hot-dip galvanizing bath in said reaction chamber, from said reaction chamber, during said hot-dip galvanizing treatment.

4,275,099
METALIZED POLYESTER RESIN LAMINATE

Mahesh J. Dani, Newtown, Pa., assignor to Dunmore Corporation, Newtown, Pa.

Filed Nov. 5, 1979, Ser. No. 91,367
Int. Cl.³ B60R 13/00, 21/14; C09J 5/04
U.S. Cl. 428—31 36 Claims



1. A process for the manufacture of laminated thin sheets having improved weathering properties which comprises bonding a metalized transparent polyester resin film to a polyvinyl chloride film sheet by an in-situ formed thermosetting polyurethane adhesive layer, wherein the metalized surface of said polyester film is primed with an applied coating comprising an acid modified vinyl chloride vinyl acetate copolymer.

20. The process of forming laminated thin sheets having improved weathering properties which comprises (1) applying to a vinyl copolymer primed metal surface of an aluminized polyester film, an adhesive layer of a thermosetting adhesive formed in-situ by reaction of polyisocyanates in organic solution with a polyester polyol, said polyester polyol being one formed by reaction of at least one glycol from the group consisting of butane diol and neopentyl glycol, with at least one dicarboxylic acid from the group consisting of isophthalic and terephthalic acids; and (2) bonding the adhesive containing film to a polyvinyl chloride backing film at said adhesive layer.

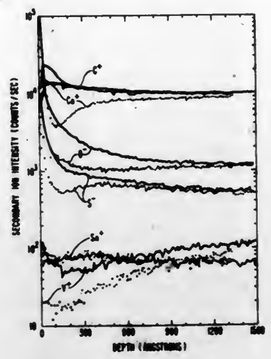
30. A thin flexible laminated structure comprising a film of aluminized transparent polyethylene terephthalate bonded at the metalized surface thereof to a vinyl film sheet by an intervening layer of a cured thermoset polyester-polyisocyanate adhesive composition, the opposite exposed surface of said aluminized film being coated with a weather resistant protective lacquer comprising a polyester resin, containing ultraviolet inhibitor; said polyester-polyisocyanate adhesive composition comprising the reaction product of at least one triisocyanate reacted with a condensation copolymer formed from at least one glycol compound from the group consisting of butanediol and neopentyl glycol and at least one dicarboxylic acid from the group consisting of isophthalic and terephthalic acids.

4,275,100
VIDEO DISC PROCESSING

Pabitra Datta, Cranbury, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Jan. 4, 1980, Ser. No. 109,206
Int. Cl.³ B32B 3/02
U.S. Cl. 369—286 9 Claims

5. In a method of fabricating a high density information disc replica which comprises dry blending a polyvinylchloride resin with additives including stabilizers, lubricants and flow modifiers, compression molding to form a disc replica having water soluble salts on its surface and cleaning the disc replica with a water based solution to remove the water soluble salts from the surface of the disc, the improvement which comprises employing as said solution an aqueous solution comprising an oxidizing agent, a base and a sufficient amount of a fluorosurfactant so that the solution has a surface energy of about 35 dynes/cm² or less.

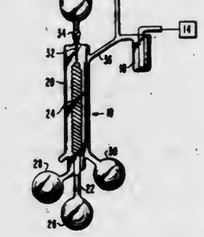


9. A video disc as prepared by the method of claim 5 having a fluorinated surface.

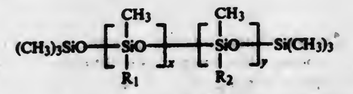
4,275,101
VIDEO DISC LUBRICANTS

Chih C. Wang, Hightstown; Lincoln Ekstrom, Princeton; Thomas C. Lausman, Cranbury, all of N.J., and Henry Wielicki, Wyndmoor, Pa., assignors to RCA Corporation, New York, N.Y.

Continuation of Ser. No. 937,819, Aug. 29, 1978, abandoned. This application Aug. 9, 1979, Ser. No. 65,065
Int. Cl.³ B32B 3/02; G11B 5/74
U.S. Cl. 369—286 11 Claims



1. In a video information record, adapted for use with a playback stylus to effect recovery of signals occupying a bandwidth of at least several megahertz when relative motion at a desired rate is established between said record and said stylus, said record comprising a disc of a conductive material containing an information track constituted by a surface relief pattern in said track to accommodate recovery of signals of said bandwidth upon establishment of relative motion at said rate, said record coated with a methyl alkyl siloxane lubricant coating, the improvement which comprises utilizing as said lubricant, a composition of the formula



wherein R_1 and R_2 are alkyl groups of 4–20 carbon atoms, x is an integer of 2–4, y is an integer of 0–2, and wherein the sum of x plus y is 4 or less wherein said composition has a distillation range of from about 100°–205° C. at 10^{-5} torr and wherein said composition is free of antioxidant.

4,275,102
METHOD FOR MANUFACTURING A PANEL OF ANISOTROPIC CERAMIC GLASS

Felix Trojer, Chene-Bourg, and John Briggs, Onex, both of Switzerland, assignors to Battelle Memorial Institute, Geneva, Switzerland

Continuation-in-part of Ser. No. 707,756, Jul. 22, 1976, abandoned. This application Jan. 20, 1978, Ser. No. 870,882
Claims priority, application Switzerland, Jul. 22, 1975, 9557/75
Int. Cl.³ B32B 7/00, 17/00
U.S. Cl. 428—119 8 Claims



1. A panel of anisotropic material comprising an array of acicular ferro-electric crystals enclosed in a ceramic or vitreous matrix, said acicular crystals being oriented perpendicularly to the panel faces and traversing the panel from one face to the other, wherein said panel is prepared from a starting composition consisting essentially of the following mineral compounds within the limits of the following proportions which are expressed in parts by mole:

BaO	25 to 42
TiO_2	28 to 50
SiO_2	2 to 30
SrO	0 to 10
Al_2O_3	0 to 8
La_2O_3	0 to 7
P_2O_5	0 to 3

whereby said acicular ferroelectric crystals comprise at least one titanate of a metal selected from the group consisting of barium, strontium and lanthanum or a mixed titanate of these metals.

4,275,103
ELECTROGRAPHIC RECORDING MEDIUM WITH CONDUCTIVE LAYER CONTAINING METAL OXIDE SEMICONDUCTOR

Shigeru Tsubouchi; Nobuo Sonoda, and Wataru Shimotsuma, all of Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jul. 5, 1979, Ser. No. 54,901
Claims priority, application Japan, Jul. 12, 1978, 53-85590; Jul. 31, 1978, 53-94058
Int. Cl.³ B32B 3/00, 21/06
U.S. Cl. 428—148 14 Claims

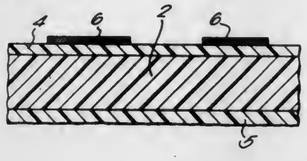
1. An electrographic recording medium comprising:

a paper or plastic support; and

a conductive layer and a dielectric layer formed on said support in this order, said conductive layer comprising a dispersion of fine particles of at least one n-type metal oxide semiconductor selected from the group consisting of SnO_2, In_2O_3 and ZnO and whose resistivity is in the range of below 10^4 Ω-cm when compressed under a pressure of 70 kg/cm², in an organic binder comprising a polymeric electrolyte of high molecular weight, or a

mixture of the polymeric electrolyte with a non-conductive polymer, the surface resistivity of said conductive layer being in the range of from 10^6 Ω to 10^8 Ω under conditions of a relative humidity of about 65% and room temperature.

4,275,104
DRY TRANSFER SYSTEM
Erno N. de Nagybaczon, Montreal, Canada, assignor to International Hoss NV, Bonaire, Netherlands Antilles
Filed May 23, 1979, Ser. No. 41,664
Claims priority, application United Kingdom, May 31, 1978, 24832/78
Int. Cl.³ B41M *3/12;* B44C *1/16;* B32B *3/18*
U.S. Cl. 428—195 26 Claims



1. A dry transfer system for transferring indicia to a receiving surface, comprising (a) a flexible carrier substrate having front and rear surfaces and (b) a film of indicium-forming material defining a preformed image and adhering to at least a portion of the front surface of the carrier substrate, characterised in that:

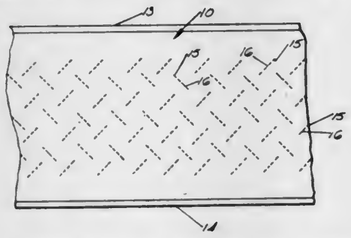
the film of indicium-forming material is cohesive, pliable, capable of plastic deformation, and not more than 10 micrometers in thickness;

the carrier substrate is dimensionally stable, and at least the front surface of the substrate is composed of a material whose surface possesses adhesive properties and is sufficiently smooth, that when no adhesive is present,

(A) the carrier substrate is nevertheless capable of releasing the film of indicium-forming material to a receiving surface in close contact therewith on application of a pressure transmitted to deform the film so that this film intimately conforms to the receiving surface and remains transferred thereto; but

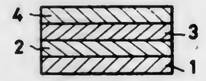
(B) the carrier substrate is still capable of retaining said indicium-forming material adherent to the front surface of the carrier substrate when in said close contact with the receiving surface in the absence of said pressure.

4,275,105
STABILIZED RAYON WEB AND STRUCTURES MADE THEREFROM
William J. Boyd, and Mary K. King, both of Memphis, Tenn., assignors to The Buckeye Cellulose Corporation, Cincinnati, Ohio
Filed Jun. 16, 1978, Ser. No. 916,220
Int. Cl.³ B32B *27/14*
U.S. Cl. 428—198 45 Claims



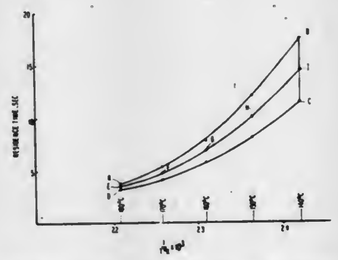
1. An absorbent, nonwoven, stabilized web comprising a binderless nonwoven rayon web having a substantial Z direction fiber orientation with a nonwoven web of thermoplastic material melted into said rayon web from one surface of said rayon web to a penetration depth of from about 10% to about 40%, and preferably from about 10% to about 25% of the thickness of said rayon web, said rayon web having an initial basis weight before stabilization of from about 20 to about 75 grams per square meter and said thermoplastic web having an initial basis weight of from about 5 to about 25 grams per square meter and an open area of at least about 40%, said stabilized web having an exposed surface free of said thermoplastic material whereby the surface aesthetics of said rayon web are undisturbed.

4,275,106
TRANSFER SHEET FOR POLYAMIDE ARTICLES
Tadao Watanabe, Tokyo, Japan, assignor to Toppan Printing Co., Ltd., Japan
Filed Oct. 30, 1978, Ser. No. 955,949
Claims priority, application Japan, Nov. 1, 1977, 52/131363
Int. Cl.³ B41M *3/12*
U.S. Cl. 428—200 16 Claims



1. A heat release decalcomania for polyamide articles comprising a backing material layer, a design layer comprising a film forming component and a coloring pigment, and an adhesive layer on said design layer, said adhesive layer consists essentially of (a) 30 to 90 parts by weight of nitrocellulose having a degree of nitration of from about 10 to about 14%, a degree of polymerization of from about 40 to about 450 and a specific gravity of from about 1.5 to about 1.6, and (b) 70 to 10 parts by weight of a member selected from the group consisting of phthalic ester plasticizers, fatty acid ester plasticizers, phosphoric ester plasticizers, epoxy plasticizers, alkyd resins, maleic acid resins and mixtures thereof.

4,275,107
POLYESTER STABILIZATION PROCESS AND PRODUCT
Edward A. Bartkus, and Robert L. Price, both of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed May 19, 1980, Ser. No. 150,830
Int. Cl.³ B29D *7/22;* B29C *25/00*
U.S. Cl. 428—220 11 Claims

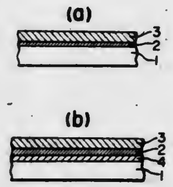


1. A method of heat treating an axially-oriented heatset polyester whereby low temperature shrinkage is negligible which comprises heating said polyester to a temperature of about 140° to about 180° C. for a time between about 15 seconds and about 3 seconds, as defined by the area in FIG. 1 delineated by points A, B, C and D, under tension of less than about 350 psi in its longitudinal dimension and impinging

heated gas on the film so as to heat said film to the above temperature and to buoy the film and keep it out of contact with any solid surface during the heat treatment at about 140° to 180° C.

10. An axially-oriented heat set polyester of negligible low temperature shrinkage obtained by the process of claim 1.

4,275,108
LEADER OR TRAILER TAPE FOR A MAGNETIC TAPE
Nobutana Yamaguchi; Satoru Takayama; Masahiro Utumi, and Masaaki Fujiyama, all of Odawara, Japan, assignors to Fuji Photo Film Co., Ltd., Ashigara, Japan
Continuation of Ser. No. 936,045, Aug. 23, 1978, abandoned, which is a continuation of Ser. No. 829,493, Aug. 31, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 82,905
Claims priority, application Japan, Sep. 6, 1976, 51-105773
Int. Cl.³ B32B *17/08*
U.S. Cl. 428—220 12 Claims

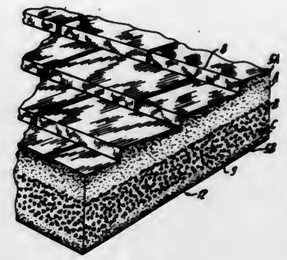


1. A leader or trailer tape for a magnetic tape and which consists of a plastic support member and, on one side thereof, a laminated coating consisting of (1) as a first layer, an electrically conductive layer having a thickness of 0.1 to 5 microns and having a surface electric resistance of at most $10^{10}\Omega$/sq, said electrically conductive layer being an electrically conductive resin selected from the group consisting of polycationic resins, quaternary ammonium resins and mixtures of cationic surfactants and plastic resins, and (2) a protective layer having a thickness of 1 to 10 microns covering said first layer and consisting essentially of a pigment and a binder as a second layer with a pigment to binder ratio of 6 to 1–0.5 to 1, said pigment having a grain size of 0.02 to 10 microns, the percent photo-transmission of said leader or trailer tape being 20 to 90%.

4,275,109
SHEET-LIKE INSULATION
Raymond C. Urban, Ballston Lake, and Robert W. Quinlan, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Aug. 20, 1979, Ser. No. 68,142
Int. Cl.³ B32B *7/00, 27/04, 27/22*
U.S. Cl. 428—273 13 Claims

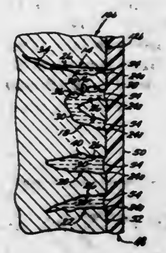
1. A sheet-like insulation adapted for use in cooler-running dry type transformers, said insulation comprising woven glass fabric impregnated with a lightly plasticized alkyd-type resin, wherein the plasticizer is a non-reactive plasticizer.

4,275,110
SELF-SUPPORTING BUILDING ELEMENTS AND METHOD OF MANUFACTURE
Gilbert C. A. Margerie, 65, av. de la Motte Picquet, Paris, France (F-75015)
Division of Ser. No. 740,912, Nov. 11, 1976, abandoned. This application Apr. 2, 1979, Ser. No. 26,327
Claims priority, application Switzerland, Nov. 11, 1975, 14702/75
Int. Cl.³ E04C *2/04;* B32B *5/18, 13/00*
U.S. Cl. 428—305 17 Claims



7. A discrete concrete construction element having layers of different densities, at least one outside layer comprising an hydraulic binding material and light aggregates, wherein a resin and a silane are present in the binding material.

4,275,111
CORROSION PROTECTION STRUCTURE
Roger Lovell, P.O. Box 981, Palacios, Tex. 77465
Continuation-in-part of Ser. No. 783,467, Mar. 31, 1977, abandoned. This application Jan. 2, 1979, Ser. No. 587
Int. Cl.² B32B *3/26*
U.S. Cl. 428—306 21 Claims



1. Corrosion protection structure for a metal body having outer surface means and pore means communicating with said outer surface means, which comprises:

inner protective material that is substantially impervious to atmospheric corrosive agents disposed within said pore means, said outer surface means being substantially free of said inner material, and

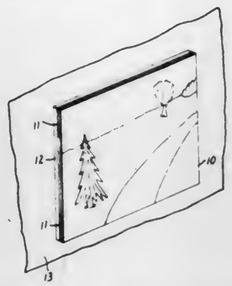
outer protective material which is different from said inner material and is in solid state that is substantially impervious to atmospheric corrosive agents and to said inner material forming a covering over said outer surface means and said pore means, said covering being intimately bonded to said outer surface means and bridging over said pore means.

4,275,112

SUPPORT FOR DECORATIVE AND COMMUNICATIVE MATERIAL

Erle B. Savage, Jr., Wayzata, Minn., assignor to Ionic Controls, Inc., Woodbury, Minn.

Filed Aug. 28, 1978, Ser. No. 937,410
Int. Cl.³ B32B 5/18, 7/06
U.S. Cl. 428—310 4 Claims



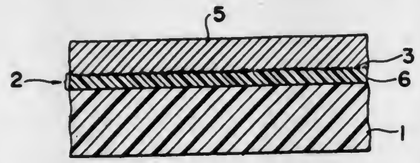
1. A decorative hanging adapted to be attached to a supporting substrate by electrostatic attraction and comprising a decorative sheet material and, as a supporting medium therefor, a thin, insulative, smooth-surfaced, minutely cellular, closed cell, unitary plastic web of crosslinked polyalkylene polymer having latent charge retentivity as induced by irradiation crosslinking, having a bulk density of about two pounds per cubic foot, a thickness of about 1/16 to ¼ inch, and a dissipation factor of about 0.0008 to 0.0001, and said web having been electrostatically charged.

4,275,113

MAGNETIC RECORDING MEDIUM

Osamu Saito; Jozo Shimizu, and Hiroshi Zaitsu, all of Ibaraki, Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Oct. 17, 1979, Ser. No. 85,585
Claims priority, application Japan, Oct. 17, 1978, 53/128148; Oct. 17, 1978, 53/128149; Dec. 19, 1978, 53/157841
Int. Cl.³ H01F 1/00
U.S. Cl. 428—323 6 Claims



1. A magnetic recording medium comprising a carrier sheet consisting of a non magnetic film, at least one adherently bonded intermediate layer formed on the carrier sheet and a magnetic layer formed on the intermediate layer, said intermediate layer being composed of resinous polymeric material including electrically conductive material made of particles of carbon black having a specific surface area of not less than 700 m^2/g and an oil absorption of not lower than 300 ml (DBP)/100 g, said carbon black being contained in the intermediate layer within the range of 5 to 30% by weight, wherein said electrical conductive material is biased in the intermediate layer towards the magnetic layer.

4,275,114

MAGNETIC RECORDING MEDIUM AND METHOD OF STABILIZATION OF CHROMIUM DIOXIDE MAGNETIC PIGMENTS

Eduard Schoenafinger, Jenesien, Italy; Herbert Motz, Ludwigshafen, Fed. Rep. of Germany; Manfred Ohlinger, Frankenthal, Fed. Rep. of Germany; Paul Deigner, Weisenheim, Fed. Rep. of Germany, and Werner Grau, Willstaett, Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 10, 1977, Ser. No. 776,224
Claims priority, application Fed. Rep. of Germany, Apr. 23, 1976, 2617809
Int. Cl.³ B32B 5/16
U.S. Cl. 428—328 6 Claims

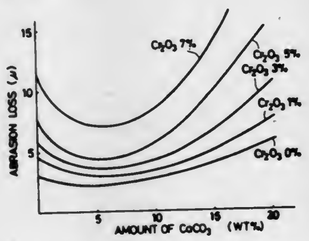
1. A process for stabilizing chromium dioxide magnetic particles against loss of their magnetic properties which comprises: suspending the chromium dioxide particles in a medium chosen from water, aliphatic alcohols of 1 to 4 carbon atoms and mixtures of water with the said alcohols, treating the suspended particles by adding to the suspension from 1 to 40% by weight, based on the chromium dioxide, of a block copolymer consisting of siloxane units and alkyleneoxy units of 2 to 4 carbon atoms, the alkyleneoxy units being bonded to the polysiloxane radical by a Si—O—C or Si—C group, separating the particles from the suspension, drying the particles at a temperature of from 50° to 200° C., whereby the block copolymer is bonded to the surface of the chromium dioxide particles.

4,275,115

MAGNETIC RECORDING COMPOSITION AND ARTICLE COATED THEREWITH

Tunehide Naruse, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Yokohama, Japan

Filed Apr. 27, 1979, Ser. No. 34,284
Claims priority, application Japan, Apr. 29, 1978, 53/50962
Int. Cl.³ C04B 35/04
U.S. Cl. 428—329 7 Claims



1. A magnetic recording composition comprising a non-aqueous dispersion, in a liquid dispersion medium, of a dispersed solid phase of a major proportion of a magnetic powder and a minor proportion of a three-component non-magnetic powder system comprised of two types of non-magnetic powders each having an average particle size below 2μ, one type having a Mohs' hardness greater than or equal to 7 and being contained in an amount of from 1 to 5 wt.% of said magnetic powder; and the other type having a Mohs' hardness less than 7 but greater than about 3 and being contained in an amount of from 7 to 15 wt.% of said magnetic powder; said three-component system being comprised of two kinds of said one type of the non-magnetic powders and one kind of said other type of the non-magnetic powders.

6. A magnetic video recording article comprising a base coated with the composition of claim 1 or 5.

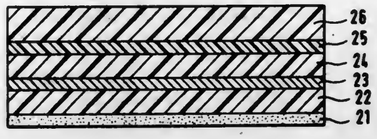
7. A magnetic video recording article according to claim 6 wherein said base is a polyester film.

4,275,116

METALLIZED HOT STAMPING FOIL FOR DECORATING THREE-DIMENSIONAL OBJECTS

Horst D. Kritzchmer, Seukendorf, Fed. Rep. of Germany, assignor to Leonhard Kurz, Furth, Fed. Rep. of Germany

Filed May 4, 1979, Ser. No. 36,009
Claims priority, application Japan, Jun. 6, 1978, 53-68247
Int. Cl.³ C09J 7/02
U.S. Cl. 428—336 4 Claims



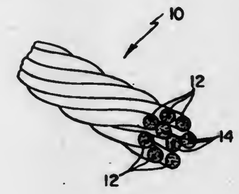
1. A metallized hot stamping foil for decorating three-dimensional objects consisting essentially of a thermoadhesive layer, a first lacquer layer, a metal layer, a second lacquer layer, a release layer and a carrier laminated in said order, the laminate of said first lacquer layer, metal layer and second lacquer layer having a ductility represented by an elongation rate ranging from 1.5 to 4.0.

4,275,117

STRING CONSTRUCTION PRODUCED BY SUBJECTING A FIBROUS STRAND COMPOSED OF FIBROUS MATERIALS HAVING DIFFERING MELTING POINTS TO HEATING CONDITIONS SUFFICIENT TO MELT SOME BUT NOT ALL OF THE FIBROUS MATERIALS

Steven J. Crandall, Quonochontaug, R.I., assignor to Ashaway Line & Twine Mfg. Co., Ashaway, R.I.

Continuation-in-part of Ser. No. 830,349, Sep. 2, 1977, abandoned. This application May 22, 1978, Ser. No. 909,212
Int. Cl.³ B32B 27/02; D02G 3/04, 3/36, 3/40
U.S. Cl. 428—373 28 Claims



1. An integrated string construction resulting from the integration under heating conditions of a combination of elongated strands of first and second thermoplastic material, said first thermoplastic material having a substantially higher melting point than said second thermoplastic material, said string having been integrated by the application of heat sufficient to melt said second material, but not said first material, said string, prior to integration, having compressed a core consisting at least in part of said second material, and a braided sheath over said core comprising strands of both said first and second materials.

6. An integrated string construction resulting from the integration under heating conditions of a combination of elongated strands of first and second thermoplastic material, said first thermoplastic material having a substantially higher melting point than said second thermoplastic material, said string having been integrated by the application of heat sufficient to melt said second material, but not said first material, said string, prior to integration, having comprised a core consisting entirely of said second material, and a sheath consisting entirely of said first material surrounding said core.

7. An integrated string construction resulting from the integration under heating conditions of a combination of elongated strands of first and second thermoplastic material, said first thermoplastic material having a substantially higher melting point than said second thermoplastic material, said string having been integrated by the application of heat sufficient to melt said second material, but not said first material, said string, prior to integration, having comprised a core consisting of a plurality of filamentous strands of said first material twisted together with one or more filamentous strands of said second material, and a sheath comprising at least in part said second thermoplastic material surrounding said core.

24. The method of making an integrated string comprising the following steps:

(a) forming a core of a first thermoplastic material;

(b) applying a sheath comprising at least in part a second thermoplastic material over said core characterized in that said first material has a substantially higher melting point than said second material;

(c) integrating said sheath and core by applying heat to said string sufficient to melt said second material, but not said first material.

4,275,118

PIGMENT-FREE COATINGS WITH IMPROVED RESISTANCE TO WEATHERING

Ronald H. Baney, and Frank K. Chi, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Continuation-in-part of Ser. No. 3,188, Jan. 15, 1979, abandoned. This application May 2, 1979, Ser. No. 35,353
Int. Cl.³ B32B 27/36
U.S. Cl. 428—412 27 Claims

1. A composition of matter comprising a dispersion of colloidal silica and colloidal titania, said colloidal particles having a particle size falling in the range of 5 to 150 millimicrons, in a water-alcohol solution of the partial condensate of a silanol having the formula $RSi(OH)_3$ in which R is selected from the group consisting of alkyl radicals of 1 to 3 inclusive carbon atoms, the gammachloropropyl radical, the vinyl radical, the 3,3,3-trifluoropropyl radical, the gammaglycidoxypropyl radical, the gammamethacryloxypropyl radical, the gammamercaptopropyl radical and the phenyl radical, at least 70 weight percent of the silanol being $CH_3Si(OH)_3$, said composition containing 5 to 50 weight percent solids, said solids consisting essentially of 1 to 10 weight percent of said colloidal titania, 20 to 56 weight percent colloidal silica and 34 to 79 weight percent of said partial condensate, said composition containing sufficient acid to provide a pH in the range of 2.0 to 6.0.

19. An article comprising a solid substrate coated with the composition of claim 1 and then cured.

4,275,119

HEAT SEALABLE PACKAGING FILM COMPRISING PROPYLENE POLYMER SUBSTRATE AND A SURFACE LAYER BLEND OF OLEFIN COPOLYMER OR INTERPOLYMER

Milton L. Weiner, Rochester, N.Y., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Oct. 5, 1979, Ser. No. 82,343
Int. Cl.³ B32B 27/08
U.S. Cl. 428—516 8 Claims

1. A multiple-layer, heat-sealable film comprising:

(a) a substrate layer consisting essentially of a homopolymer of polypropylene, a copolymer of polypropylene, or a blend of said homopolymer or copolymer containing up to 40% by weight of a different compatible polyolefin; and

(b) on at least one of the surfaces of the substrate layer, a surface layer comprising

an interpolymer of 1–90 mole percent of propylene, 1–98 mole percent of an alpha-olefin having four or more carbon atoms, and 1–98 mole percent of a different alpha-olefin having four or more carbon atoms.

4,275,120
HEAT SEALABLE PACKAGING FILM COMPRISING PROPYLENE POLYMER SUBSTRATE AND OLEFIN SURFACE LAYER BLEND OF POLYBUTENE-1 AND AN ETHYLENE OR A PROPYLENE COPOLYMER

Milton L. Weiner, Rochester, N.Y., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Oct. 5, 1979, Ser. No. 82,358
Int. Cl.³ B32B *27/08*
U.S. Cl. 428—516 8 Claims

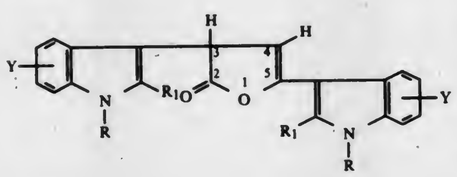
1. A multiple-layer, heat-sealable film comprising
(a) a substrate layer consisting essentially of a homopolymer of polypropylene, a copolymer of polypropylene, or a blend of said homopolymer or copolymer containing up to 40% by weight of a different compatible polyolefin; and
(b) on at least one of the surfaces of the substrate layer, a surface layer comprising
a blend of 5–19 weight percent of poly(1-butene), and 95–81 weight percent of a copolymer of propylene (80–95 mole percent) and 1-butene (20–5 mole percent).

4,275,121
CARBONLESS DUPLICATING AND MARKING SYSTEMS UTILIZING INDOLYL-SUBSTITUTED FURANONE COLOR FORMERS

Nathan N. Crounse, Cincinnati, and Paul J. Schmidt, Sharonville, both of Ohio, assignors to Sterling Drug Inc., New York, N.Y.

Continuation-in-part of Ser. No. 829,002, Aug. 30, 1977, abandoned, which is a division of Ser. No. 651,607, Jan. 22, 1976, Pat. No. 4,075,224. This application Jul. 19, 1979, Ser. No. 58,960
Int. Cl.³ B41M *5/16*
U.S. Cl. 428—537 11 Claims

1. A pressure-sensitive carbonless duplicating system or thermal paper marking system comprising a support sheet coated with a layer containing as a color-forming substance a 3,5-bis-(1-R-2-R_1-5/6-Y-3-indolyl)-2(3H)-furanone having the formula



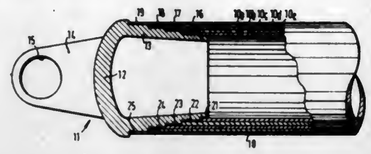
wherein:
R represents hydrogen, non-tertiary alkyl of one to eight carbon atoms, alkenyl of two to four carbon atoms, benzyl or benzyl substituted in the benzene ring by one or two of halo or alkyl of one to three carbon atoms;
R_1 represents hydrogen, alkyl of one to three carbon atoms or phenyl; and
Y represents one or two of hydrogen, alkyl of one to three carbon atoms, alkoxy of one to three carbon atoms, halo or nitro.

4,275,122
SHAFT AND UNIVERSAL JOINT MEMBER ASSEMBLY

Leslie G. Fisher, Birmingham, England, assignor to GKN Transmissions Limited, England

Filed Jul. 13, 1979, Ser. No. 57,486
Claims priority, application United Kingdom, Jul. 17, 1978, 30067/78
Int. Cl.³ F16D *1/06*
U.S. Cl. 428—542 5 Claims

1. An assembly of a universal joint member and a shaft, said shaft including a plurality of radially superimposed layers of fibre reinforced resin material, the joint member and shaft having axially inter-fitting parts and an adhesive bond being established between the joint member and shaft by inclusion of an adhesive substance therebetween, said axially inter-fitting



parts of the joint member and shaft being of stepped configuration whereby said adhesive bond is established with a plurality of said layers of material of the shaft in generally cylindrical areas at different radii.

4,275,123
HOT-CATHODE MATERIAL AND PRODUCTION THEREOF

Charley Buxbaum, Baden; Gernot Gessinger, Birmenstorf, and Sigfrid Strassler, Wettingen, all of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

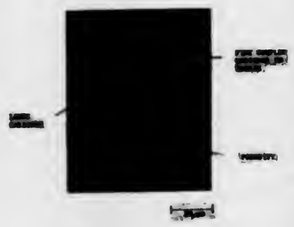
Filed Apr. 3, 1979, Ser. No. 26,547
Claims priority, application Switzerland, May 5, 1978, 4889/78
Int. Cl.³ B22F *5/00*
U.S. Cl. 428—547 12 Claims

1. A hot-cathode in wire or sheet form, comprising a core zone and at least one surface layer, said zone and layer containing a mixture of a high-melting carrier metal, an oxide of a Group IIIb metal as an activator and a carbide of the carrier metal as a reducing agent, wherein the concentration of the activator in the surface layer is less than that in the core zone so that the rate of diffusion of the activator from the core zone is equal or greater than the class of activator from the surface layer.

4,275,124
CARBON BEARING MCRALY COATING

Charles C. McComas, Stuart; James W. Morris, Jupiter, and Larry S. Sokol, West Palm Beach, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Continuation-in-part of Ser. No. 949,926, Oct. 10, 1978, abandoned, which is a continuation-in-part of Ser. No. 842,838, Oct. 17, 1977, abandoned. This application Oct. 15, 1979, Ser. No. 85,131
Int. Cl.³ B05D *1/10*
U.S. Cl. 428—564 5 Claims

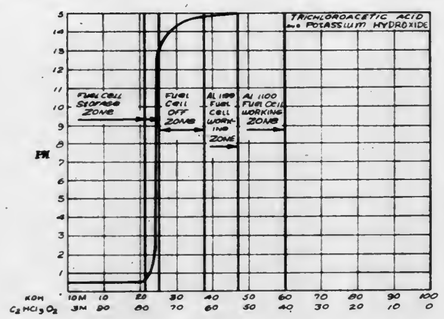


1. A superalloy article having a wear resisting and oxidation corrosion protective coating consisting essentially of a carbon rich MCrAlY matrix having fine transition metal carbides of the order of 1–2 microns size and coarser chromium carbides of the order of 12 microns size, produced by plasma spraying MCrAlY and Cr_3C_2 powders having particle sizes less than 44 microns, the coating having a carbon content of at least 0.6 weight percent wherein M is one or more of nickel, cobalt and iron.

4,275,125
FUEL CELL

Ralph C. Struthers, Saugus, Calif., assignor to Universal Fuel Systems, Inc., Saugus, Calif.

Filed Mar. 3, 1980, Ser. No. 126,686
Int. Cl.³ H01M *12/06*
U.S. Cl. 429—29 11 Claims

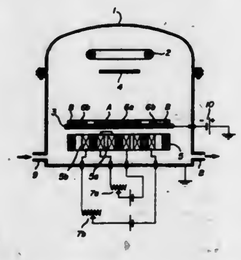


1. A fuel-air cell comprising a container, a metal fuel anode in the container, a cathode of porous conductive material dissimilar from the metal of the anode with a portion in the container in spaced relationship from the anode and a caustic fluid electrolyte in the container between and contacting the anode and cathode; the electrolyte is comprised of a mixture of base material in aqueous solution, selected from base materials having equivalent ionic conductance values of 180 or higher when tested in concentrations of 0.05 M and an acid material in aqueous solution which is selected from those acid materials having equivalent ionic conductance values of 100 or higher when tested in concentrations of 0.05 M and proton transfer reaction (PK_1) values less than 1.0.

4,275,126
FUEL CELL ELECTRODE ON SOLID ELECTROLYTE SUBSTRATE

Erich Bergmann, Bienne, Switzerland, and Gerard Horlaville, LaMotte-Cernex, France, assignors to Battelle Memorial Institute, Geneva, Switzerland

Filed Apr. 11, 1979, Ser. No. 29,158
Claims priority, application Switzerland, Apr. 12, 1978, 3903/78; Feb. 22, 1979, 1770/79
Int. Cl.³ H01M *8/10*
U.S. Cl. 429—30 7 Claims

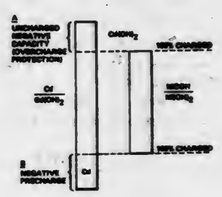


1. An electrode for removable fuel cells comprising:
a solid electrolyte substrate and
deposited on said solid electrolyte substrate, at least one layer of electrically conducting material having a total thickness ranging from 0.01μ to 85μ, said layer composed of a solid mixture of metals, metal oxides, or mixtures thereof in compressed form or in the form of agglomerated, fine particles:
wherein said layer of electrically conducting material is uniform and invariable over the entire surface area of said solid electrolyte substrate;
wherein the thickness of said layer of electrically conducting material may vary while the dimensions and properties of the particles of the components of said layer of electrically conducting material, taken individually, are homogeneous; and
wherein said layer of electrically conducting material is applied to said solid electrolyte substrate by cathode sputtering.

4,275,127
SEALED NICKEL-CADMIUM BATTERY WITH SELF-REGULATING PRECHARGE ADJUSTMENT CAPABILITY

Paul F. Ritterman, Granada Hills, and Richard H. Sparks, Westminster, both of Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Jun. 19, 1979, Ser. No. 50,046
Int. Cl.³ H01M *10/34*
U.S. Cl. 429—50 6 Claims



1. In a sealed nickel-cadmium battery cell having a sealed casing containing positive and negative electrodes spaced by intervening porous separators, the improvements comprising:
a hydrogen getter within said cell selected from the group consisting of:

$CaNi_5$	FeTi	$Ca_{0.7}MM_{0.3}Ni_5$ MM $Ni_{4.5}$ $Al_{0.5}$
$N_{15}MM_{0.1}Ca_{0.9}$	$(Fe_{0.9}Mn_{0.1})$	$Ca_{0.2}MM_{0.8}Ni_5$
$Ni_{4.3}Mn_{0.7}MM$	$(Fe_{0.8}Ni_{8.2})Ti$	$CaNi_{4.7}Al_{0.3}$

containing means comprising a sealed porous capsule containing said getter in the cell in a manner such that the getter is electrically isolated from said electrodes and exposed to the cell interior, whereby said cell may be overdischarged at a relatively high rate to reduce negative precharge and increase uncharged negative capacity in the cell without excessive hydrogen pressure buildup in the cell.

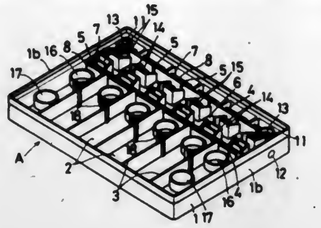
4,275,128
COVER APPARATUS FOR MONOBLOCK STORAGE BATTERY

Ichiro Sano, Yokohama, Japan, assignor to Furukawa Denchi Kabushiki Kaisha, Yokohama, Japan

Filed Jan. 7, 1980, Ser. No. 110,382
Claims priority, application Japan, Jan. 28, 1979, 54/4466
Int. Cl.³ H01M *2/12*
U.S. Cl. 429—88 1 Claim

1. A cover apparatus for a monoblock storage battery comprising a case-shaped cover plate; cell partition walls partitioning the interior of the cover plate into plural cell chambers; mutually facing walls on the reverse surface of the cover plate and extending across said cell partition walls, at least one of the facing walls being provided with ventilation openings corre-

sponding to the respective cell chambers, so that a space between the facing walls is formed into a common exhaust passage which is in communication with the respective cell chambers through the respective ventilation openings; baffle walls



provided outside the respective ventilation openings so as to leave respective gaps therebetween; a covering wall covering the lower surface of the common exhaust passage; and a covering wall covering the lower surfaces of the respective gaps.

4,275,129

GALVANIC HIGH-TEMPERATURE CELL WITH SOLID NEGATIVE ELECTRODE AND MOLTEN ELECTROLYTE

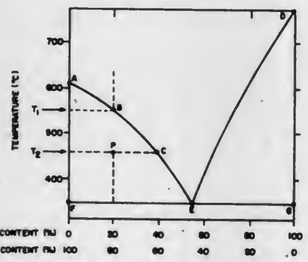
Wolfgang Kappus, Viernheim, and Waldemar Borger, Kelkheim, both of Fed. Rep. of Germany, assignors to Varta Batterie Aktiengesellschaft, Hanover, Fed. Rep. of Germany

Filed Jun. 16, 1980, Ser. No. 159,482

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1979, 2924992

Int. Cl.³ H01M 2/16

U.S. Cl. 429—112 **7 Claims**



1. Galvanic high-temperature cell with solid negative electrode and molten electrolyte comprising a mixture of at least two salts, wherein

the molten electrolyte contains at the operating temperature of the cell a solid phase formed through partial precipitation of least one of the components of the salt mixture.

4,275,130

BIPOLAR BATTERY CONSTRUCTION

Wally E. Rippel, Sierra Madre, and Dean B. Edwards, Pasadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Sep. 27, 1979, Ser. No. 79,476

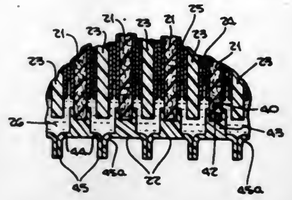
Int. Cl.³ H01M 6/48

U.S. Cl. 429—144 **31 Claims**

19. A biplate for a battery comprising:

a sheet of nonconductive, synthetic organic resin binder material having randomly dispersed therein conductive fibers;

a plurality of spaced, parallel lead stripes applied to opposed faces of the sheet and in electrical contact with said fibers; the facial areas between said stripes on one of said faces being coated with a corrosion resistant resin; and



the facial areas between said stripes on the opposed face being coated with a resin impermeable to electrolyte.

4,275,131

ELECTRIC STORAGE BATTERY CONTAINER

Donald K. Richards, Wyomissing Hills, Pa., assignor to General Battery Corporation, Reading, Pa.

Filed Oct. 2, 1979, Ser. No. 81,225

Int. Cl.³ H01M 2/02

U.S. Cl. 429—163 **13 Claims**



1. An improved container for a lead-acid battery, said container comprising:

a. a tray for receiving at least one lead-acid battery cell therein, said tray having at least three side walls and a bottom, at least two of said side walls each having at least one cover support member extending upwardly therefrom;

b. a cover comprising a planer lid having a downwardly depending flange along at least a portion of the perimeter thereof whereby said flange extends downwardly over said cover support members along at least a portion of each of at least two sides of said tray; and

c. means for spacing said flange from said side walls.

4,275,132

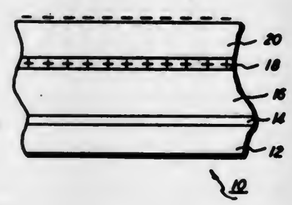
DIELECTRIC OVERCOATED PHOTORESPONSIVE IMAGING MEMBER AND IMAGING METHOD

Joseph Y. C. Chu, Fairport, and Simpei Tutihasi, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 905,250, May 12, 1978. This application May 29, 1979, Ser. No. 43,400

Int. Cl.³ G03G 13/22

U.S. Cl. 430—31 **12 Claims**



1. An electrophotographic imaging method comprising providing a photoreceptor comprising in the stated order a substrate; a layer of charge carrier injecting material dispersed in a polymer, the material being selected from the group consisting of carbon black and graphite; a layer of charge carrier transport material capable of transporting holes and injecting holes into a layer of charge carrier generating material which is capable of injecting photogenerated holes into the charge carrier transport material; and a layer of electrically insulating material;

charging the photoreceptor with negative electrostatic charges;

charging the photoreceptor with positive electrostatic charges in order to substantially neutralize the negative charge residing on the surface of the photoreceptor and exposing the photoreceptor to an imagewise pattern of electromagnetic radiation to which the charge carrier generating material is responsive whereby there is formed an electrostatic latent image within the photoreceptor.

4,275,133

ELECTROPHOTOGRAPHIC IMAGING PROCESSES UTILIZING ADHESIVE GENERATOR OVERCOATED PHOTORECEPTORS

Joseph Y. C. Chu, Fairport; Richard L. Schank, Webster, and Simpei Tutihasi, Pittsford, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

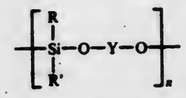
Continuation of Ser. No. 969,041, Dec. 13, 1978, Pat. No. 4,181,772. This application Sep. 24, 1979, Ser. No. 77,973

Int. Cl.³ G03G 5/04, 5/05

U.S. Cl. 430—31 **16 Claims**

1. An electrophotographic imaging process which comprises

(a) providing an overcoated photoreceptor, said photoreceptor comprising an adhesive generating layer comprising a generating pigment dispersed in a copolymer of a siloxane and a dihydroxy compound having the formula:



wherein R and R' are independently selected from the group consisting of alkyl, substituted alkyl, alkenes, substituted alkenes, aryl and substituted aryl; Y is a dihydroxy radical; and n is a number of sufficient value that the average molecular weight of the resulting silicone copolymer is between about 2,000 and about 250,000;

(b) charging the photoreceptor with negative electrostatic charges;

(c) and charging the photoreceptor a second time with electrostatic charges of positive polarity in order to substantially neutralize the negative charge residing on the surface of the photoreceptor; and

(d) exposing the photoreceptor to an imagewise pattern of electromagnetic radiation thereby forming an electrostatic latent image.

16. The process of claim 1 wherein said overcoated photoreceptor comprises an electrically conductive substrate overcoated with a layer capable of injecting holes into a layer on its surface, said layer being comprised of carbon black or graphite dispersed in a polymer, a hole transport layer in operative contact with the layer of hole injecting material, overcoated with a layer of charge generating material containing a generating pigment dispersed in a copolymer of a siloxane and a dihydroxy compound, said layer being in operative contact with the charge transport layer, and a top layer of an insulating organic resin overlying the layer of charge generating material, whereby the charge generating material provided permanent adhesion of the generating layer to the insulating overcoating layer.

4,275,134

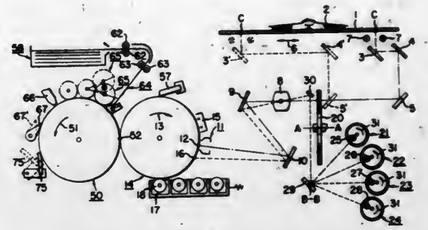
ELECTROPHOTOGRAPHIC METHOD FOR REPRODUCING A MULTICOLOR IMAGE

Wilhelm Knechtel, Biebertal, Fed. Rep. of Germany, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 493,655, Jul. 30, 1974, abandoned. This application Dec. 15, 1976, Ser. No. 750,734

Int. Cl.³ G03G 13/01

U.S. Cl. 430—44 **4 Claims**



1. An electrophotographic method for reproducing a multicolor half-tone image using a photosensitive medium having an insulating surface layer, said method comprising the steps of:

applying a primary charge by uniformly charging the surface of said photosensitive medium; then

applying a second charge to the primary-charged surface of the photosensitive medium, wherein said second charge is applied by an AC corona discharge or by a DC corona discharger having an opposite polarity to that of said primary charge, and simultaneously therewith or therebefore or thereafter, exposing said surface to a color-resolved image of an original; then

projecting a screen image upon said surface of said photosensitive medium thereby forming a resultant electrostatic image on said surface; then

transferring the electrostatic image formed on said photosensitive medium onto an image supporting member either after said image is developed on said photosensitive medium, or directly after which said image is developed on said supporting member; and then

repeating said steps in accordance with a predetermined number of colors to be represented to form a superposed multicolor image on the supporting medium, wherein each screen image projection step is performed by projecting a different screen image pattern to prevent moire in the superposed multicolor image.

4,275,135

ELECTROPHOTOGRAPHIC $CdS.nCdCO_3$ CONTAINING MANGANESE STEARATE

Tetsuo Tomonaga, Nishinomiya, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 913,978, Jun. 7, 1978, abandoned. This application Jul. 11, 1979, Ser. No. 56,576

Claims priority, application Japan, Mar. 8, 1978, 53-26797; Oct. 14, 1978, 53-126430

Int. Cl.³ G03G 5/087, 5/09

U.S. Cl. 430—95 **9 Claims**

1. An electrophotographic sensitive member for use in an image transfer type copying apparatus which comprises a photoconductive insulating layer of a photoconductive powder of cadmium sulfide and cadmium carbonate with manganese stearate in an amount of about 2 to 4 parts by weight per 100 parts by weight of said photoconductive powder of $CdS.nCdCO_3$ and copper as an acceptor impurity included, said layer being formed by heat curing a dispersion of the powder, manganese stearate and a binding resin in a solvent.

4,275,136

LIQUID DEVELOPER FOR COLOR ELECTROPHOTOGRAPHY

Sadao Murasawa, Itami, and Masatsuyo Maruo, Moriyama, both of Japan, assignors to Ishihara Sangyo Kaisha, Ltd., Osaka, Japan

Filed Apr. 23, 1980, Ser. No. 143,124
Claims priority, application Japan, Apr. 27, 1979, 54-52376
Int. Cl.³ G03G 9/18
U.S. Cl. 430—117 10 Claims

1. A color electrophotographic process for color imaging on ZnO, TiO_2 or organic photoreceptors comprising forming multi-electrostatic images and developing said images with a developing composition comprising an electrically insulating liquid, a coloring agent and a binder, the particles of said coloring agent having coated or distributed thereon aluminim or zinc hydroxide.

4,275,137

LIGHT-SENSITIVE DIAZOTYPE MATERIAL

Adrianus J. N. A. Verhoof, Maasbree, Netherlands, assignor to Oce-van der Grinten N.V., Venlo, Netherlands

Filed Sep. 3, 1975, Ser. No. 609,965
Claims priority, application Netherlands, Sep. 13, 1974, 7412151
Int. Cl.³ G03C 1/60, 1/87, 5/34
U.S. Cl. 430—149 21 Claims

1. Diazotype material comprising a paper support and on at least one side thereof, in order, a substantially hydrophobic water sealing layer and on said sealing layer a substantially water-insoluble light-sensitive layer of not more than 8 g/m^2 dry weight consisting essentially of a light-sensitive diazonium compound, an amino-formaldehyde condensate produced by cross-linking of an amino-formaldehyde pre-condensate in the presence of an initially water-soluble, hydrophilic polymer that contains groups reactive to said precondensate, and finely divided filler, said filler consisting predominantly by weight of starch particles in a weight ratio to said hydrophilic polymer of at least 5 to 1, said condensate being present in a quantity rendering said light-sensitive layer firmly adherent to said sealing layer, and said material being substantially non-curling, in either dry or moist condition, said light-sensitive layer after imagewise exposure being developable into a strong image by and capable of absorbing completely 1.5 to 4.5 cm^3/m^2 of an aqueous developing liquid.

17. A process for the production of diazotype copies, wherein a diazotype material as claimed in claim 1 is imagewise exposed and subsequently is developed by spreading 1.5–4.5 cm^3/m^2 of developing liquid over the light-sensitive side of the diazotype material.

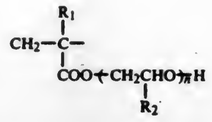
4,275,138

PHOTOSENSITIVE DIAZONIUM COMPOUND CONTAINING COMPOSITION AND ARTICLE WITH β-HYDROXYALKYL ACRYLATE OR METHACRYLATE

Nobuyuki Kita, and Yasuhisa Narutomi, both of Udawara, Japan, assignors to Fuji Photo Film Co., Ltd., Tokyo, Japan and National Patent Development Corp., New York, N.Y.

Continuation of Ser. No. 489,434, Jul. 17, 1974, abandoned. This application Sep. 14, 1976, Ser. No. 723,061
Claims priority, application Japan, Jul. 23, 1973, 48-82850
Int. Cl.³ G03C 1/60, 1/76, 1/94
U.S. Cl. 430—157 14 Claims

1. A photosensitive composition of the negative type consisting essentially of a mixture of a negative acting diazonium compound and a polymer containing 50 to 100% by weight of the recurring unit represented by the following general formula (I) based on the total weight of the polymer:



(I)

wherein R_1 represents hydrogen atom or methyl group, R_2 represents hydrogen atom or methyl, ethyl or chloromethyl group and n is an integer of 1 to 10 with the balance of the units, if any, consisting essentially of units of a monoethylenically unsaturated compound having a single addition polymerizable unsaturated bond and free of groups reactive with a hydroxyalkyl group, said polymer having a molecular weight within the range of from about 10,000 to 100,000, said monoethylenically unsaturated compound being an organic acrylate or methacrylate, acrylamide, methacrylamide, mono or di-N-alkyl, cycloalkyl or aryl acrylamide or methacrylamide, hydroxyalkyl acrylamide or methacrylamide, monoallyl ester or ether monovinyl ethers, vinyl ester, styrene, alkylstyrene, halostyrene, halomethyl styrene, alkoxyalkyl styrene, alkyl crotonate, dialkyl itaconate, dialkyl maleate, dialkyl fumarate, acrylonitrile or methacrylonitrile, said diazonium compound being present in an amount of about 10 to 30% by weight based on the total weight of the polymer and diazonium compound.

10. A presensitized printing plate having a photosensitive layer consisting essentially of the composition of claim 1 on a support.

4,275,139

LIGHT-SENSITIVE MIXTURE AND COPYING MATERIAL PRODUCED THEREFROM

Paul Stahlhofen, Wiesbaden, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 1, 1979, Ser. No. 90,144
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1978, 2847878
Int. Cl.³ G03C 1/60, 1/54
U.S. Cl. 430—192 6 Claims

1. A light-sensitive mixture comprising
(a) an ester or amide of a 1,2-naphthoquinone-diazide-sulfonic or -carboxylic acid as the light-sensitive compound,
(b) a phenolic resin which is soluble in aqueous-alkaline solutions and insoluble in water, and
(c) about 4 to 20 percent by weight, based on the total solids content of the mixture, of a polycondensation product of formaldehyde and a hydroxybenzophenone having at least one free o- or p-position in a phenolic nucleus and wherein at least one OH group is in a position adjacent to the carbon atom which carries the carbonyl group, the benzophenone units of said polycondensation product being linked to one another via methylene bridges.

4,275,140

PROCESS FOR PREPARATION OF HIGH OPACITY PHOTOSENSITIVE IMAGES

Melvin A. Neiss, Annandale, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 93,917, Nov. 13, 1979, abandoned, which is a continuation-in-part of Ser. No. 968,963, Dec. 12, 1978, abandoned. This application Aug. 25, 1980, Ser. No. 180,568
Int. Cl.³ G03C 11/12
U.S. Cl. 430—254 9 Claims

1. A process for preparing high opacity, colored images on the surface of a photosensitive element which comprises the steps of:
(a) bringing into surface-to-surface contact two elements (1) and (2), element (1) being a photosensitive element having imagewise tacky and nontacky image areas, and element (2) being an adhesively supported pigmented layer, the pigmented layer comprising about 75 to 95 parts by weight of pigment and about 25 to 5 parts by weight of an elastomeric binder, the binder, when cast as an unsupported film, having a maximum tensile stress of less than 200 psi and showing an elongation to break of at least 50%, and
(b) separating the pigmented layer of element (2) from the photosensitive element (1) whereby the pigmented layer fails both cohesively and adhesively thereby remaining adhered substantially in its entire thickness solely to the tacky image areas of element (1).

4,275,141

POLYCRYSTALLINE TIN OXIDE-SILVER CHLORIDE-CADMIUM CHLORIDE UV PHOTOSENSITIVE FILM AND METHOD OF USE

Nicholas F. Borrelli, Elmira, and Peter L. Young, Painted Post, both of N.Y., assignors to Corning Glass Works, Corning, N.Y.

Filed Oct. 22, 1979, Ser. No. 86,690
Int. Cl.³ G03C 1/03, 1/06
U.S. Cl. 430—270 5 Claims

1. A method for optically recording information in permanent form which comprises the step of exposing selected portions of a polycrystalline material having a composition which consists essentially of tin oxide, silver chloride, cadmium chloride and, optionally, copper chloride to ultraviolet light of a wavelength below 400 nm for a time sufficient to selectively darken said portions to a level providing an optical contrast ratio of at least about 3 between said portions and the unexposed portions of the material.

4,275,142

PHOTOSENSITIVE COMPOSITIONS AND PRINTING PLATES CONTAINING SAME

Yoshihiro Hosaka, Yokohama; Yoshiyuki Harita, Kawasaki; Mitsuo Kurokawa, Yokohama; Kunihiro Harada, Machida, and Eijiro Tagami, Yokkaichi, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 794,101, May 5, 1977, abandoned. This application Mar. 12, 1979, Ser. No. 19,878
Claims priority, application Japan, May 6, 1976, 51/50959; May 6, 1976, 51/50960; Jul. 19, 1976, 51/85186; Feb. 5, 1977, 52/11241
Int. Cl.³ G03C 1/68
U.S. Cl. 430—271 44 Claims

1. A photosensitive composition, consisting essentially of:
(I) a copolymer having a molecular weight of 5,000 to 100,000 and prepared by a process consisting essentially of solution radical copolymerizing (A) 10 to 95 mol % of a conjugated diolefinic hydrocarbon, (B) 5 to 90 mol % of an α,β-ethylenically unsaturated carboxylic acid or anhydride and (C) 0 to 85 mol % of a monoolefinically unsaturated compound and
(II) a photosensitizer or a photosensitive crosslinking agent or mixture thereof which is photosensitively effective with said copolymer.

4,275,143

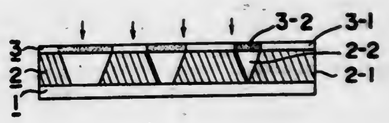
PHOTOPOLYMER INTAGLIO PRINTING PLATE

Kiyomi Sakurai, Osaka, Japan, assignor to Nippon Paint Co., Ltd., Osaka, Japan

Continuation of Ser. No. 1,579, Jan. 8, 1979, abandoned, which is a continuation of Ser. No. 861,008, Dec. 15, 1977, abandoned, which is a continuation-in-part of Ser. No. 721,550, Sep. 8, 1976, abandoned. This application Aug. 6, 1980, Ser. No. 175,859
Claims priority, application Japan, Sep. 8, 1975, 50-109234
Int. Cl.³ G03C 5/00
U.S. Cl. 430—307 5 Claims

1. A process for preparing a photopolymer intaglio printing plate for gravure printing, comprising a metal or plastic support member and a photopolymer layer provided thereon, said layer having concave portions of a constant depth as ink cells and the lowermost part of each of the concave portions reaching to the surface of the support member so that the surface of the support member is exposed to air at least as a point at said lowermost part, which comprises

subjecting a photosensitive plate comprising the support member and a layer, 5 to 50 microns thick, of a photopolymerizable composition containing 100 weight parts of a polymeric material as a binder, 5 to 150 weight parts of an addition polymerizable, ethylenically unsaturated monomer having a boiling point of not lower than 100° C., said monomer being a metal salt of acrylic acid or methacrylic acid wherein the metal component is Ca, Mg, Zn or Al, and 0.1 to 10 weight parts, per 100 weight parts of said



monomer, of an addition polymerization initiator provided on said support member, to exposure through a halftone negative or positive film to such an extent that the photopolymerizable composition at the exposed parts is cured down to the bottom of the photopolymerizable composition layer, but that the photopolymerizable composition in contact with the support member below the center of the non-exposed part of smallest area among all non-exposed parts remains uncured, and

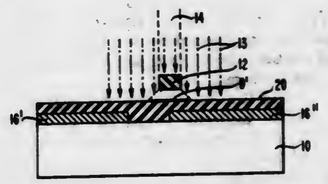
completely washing out the photopolymerizable composition at the non-exposed parts to obtain a plate wherein the bottom of each of said concave portions is in contact with said support member.

4,275,144

METHOD OF FABRICATING ELECTRODES WITH NARROW GAP THEREBETWEEN

Lawrence L. Buhl, New Monmouth, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jan. 24, 1980, Ser. No. 114,833
Int. Cl.³ B05D 3/06
U.S. Cl. 430—312 2 Claims



1. A method of fabricating closely spaced electrodes by lithographic means comprising the steps of:

covering a surface of a substrate (10) upon which said electrodes are to be deposited with a first layer (11) of resist material;

exposing said material to radiant energy (13) through a mask (12) that is spaced away from the surface of said first resist layer (11) a distance that is of the same order of magnitude as the wavelength of said radiant energy and has a gap defining region (14) whose width is of the same order of magnitude as the wavelength of said radiant energy;

developing said exposed resist material to form a pattern of developed resist (15) upon said surface;

depositing a first metal layer on said pattern delineated surface;
removing said developed resist (15) leaving a pair of electrodes (16', 16'') separated by a first gap 25;
covering said metallized substrate surface with a second layer (20) of resist material;
placing said mask (12) a distance above the surface of said second resist layer (20) that is of the same order of magnitude as the wavelength of said radiant energy and positioning said mask (12) such that said gap defining region (14) is aligned parallel to the gap between said electrodes and extends over at least a portion of one of said electrodes (16'');
exposing said second layer of material to said radiant energy through said mask;
developing said exposed resist material to form a second pattern of developed resist material (19);
depositing a second metal layer (17'-17'') over said pattern delineated surface; and
removing said developed resist (19) leaving a pair of electrodes (20'-20'') separated by a second gap 26 that is smaller than said first gap 25.

4,275,145

METHOD FOR DISPERSING OIL-SOLUBLE PHOTOGRAPHIC ADDITIVES

Takeshi Mikami, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 11, 1979, Ser. No. 102,514
Claims priority, application Japan, Dec. 27, 1978, 53-161924
Int. Cl.³ G03C 1/40, 1/84
U.S. Cl. 430—377 15 Claims

1. A method for dispersing an oil-soluble photographic additive into a hydrophilic colloid composition comprising dispersing a solution of an oil-soluble photographic additive in an organic solvent or the melted oil-soluble photographic additive in a hydrophilic colloid in the presence of an anionic surface active agent and lecithin together with a gelatin derivative.

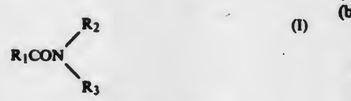
4,275,146

PHOTOGRAPHIC PHOTOSENSITIVE MATERIALS

Masakazu Yoneyama; Shoichi Iso, and Junji Minamizono, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Dec. 10, 1979, Ser. No. 102,284
Claims priority, application Japan, Dec. 13, 1978, 53-155266
Int. Cl.³ G03C 1/76
U.S. Cl. 430—523 13 Claims

1. In a photographic photosensitive material, the improvement which comprises at least one surface layer of the photographic photosensitive material containing an organic carboxylic acid amide of the formula (I):



(I)

wherein R_1 represents a hydrocarbon group having 18 to 23 carbon atoms and at least one double bond and each of R_2 and R_3 represents a hydrogen atom or a lower alkyl group having 1 to 4 carbon atoms.

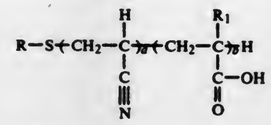
4,275,147

ANTISTATIC PHOTOGRAPHIC ELEMENT

E. Scudder Mackey, and Karl Pechmann, both of Binghamton, N.Y., assignors to GAF Corporation, New York, N.Y.

Continuation of Ser. No. 831,534, Sep. 8, 1977. This application Jul. 11, 1980, Ser. No. 167,591
Int. Cl.³ G03C 1/78
U.S. Cl. 430—527 6 Claims

1. A light-sensitive silver halide emulsion containing photographic element comprising a support susceptible to the accumulation electric charges thereon which is provided on at least one surface thereof with an antistatically effective amount of a polyfunctional anionic oligomeric surfactant of the formula:



wherein R is an alkyl of 6 to 12 carbon atoms, R_1 is H or methyl and a+b is from 4 to 50 and a/a+b is from 0 to 0.6.

4,275,148

LIGHT-SENSITIVE SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Tamotsu Kojima; Mitsuto Fujiwhara; Takaya Endo, and Akio Iijima, all of Hino, Japan, assignors to Konishiroku Photo Industry Co., Ltd., Tokyo, Japan

Filed Nov. 28, 1978, Ser. No. 964,283
Claims priority, application Japan, Dec. 9, 1977, 52-148525
Int. Cl.³ G03C 1/40
U.S. Cl. 430—558 6 Claims

1. A color photographic material comprising a light-sensitive silver halide emulsion layer coated on a support containing a magenta coupler represented by general formula (I) or (II): wherein R_1 represents a hydrogen atom, an alkyl, aryl or 5 or 6-membered heterocyclic group, R_2 represents a hydrogen atom, an alkyl, aryl, 5 or 6-membered heterocyclic, amino, sulfamoyl or carbamoyl group, R_3 represents an alkyl, aryl or 5 or 6-membered heterocyclic group having from 12 to 35 carbon atoms, R_4 represents a primary or secondary alkyl group having from 2 to 8 carbon atoms or a phenyl group, and R_5 represents a primary or secondary alkyl group having from 2 to 8 carbon atoms.

4,275,149

MACROMOLECULAR ENVIRONMENT CONTROL IN SPECIFIC RECEPTOR ASSAYS

David J. Litman, Palo Alto; Zvi Harel, Stanford, and Edwin F. Ullman, Atherton, all of Calif., assignors to Syva Company, Palo Alto, Calif.

Filed Nov. 24, 1978, Ser. No. 964,099
Int. Cl.³ B12Q 1/66; C12N 11/02, 11/10
U.S. Cl. 435—7 46 Claims

1. An assay method for determining the presence in a sample of an analyte which is a member of a specific binding pair consisting of ligand and its homologous receptor;
said method employing:
(a) a continuous aqueous medium;
(b) discrete dispersable solid particles to which is conjugated one of the members of said pair to provide a particle conjugate, said particle conjugate defining an environment about said conjugated member of said pair different from said aqueous medium, wherein when a signal label is bound to said particle conjugate, the signal resulting from such signal label is different from the signal resulting from the signal label in said continuous aqueous medium;
(c) a signal producing system capable of producing a measurable signal, the level of said signal being affected by the extent to which said signal producing system is within the environment of said particles;
(d) at least one member of said signal producing system being conjugated to a pair member to provide a signal label conjugate,
wherein the amount of signal label conjugate bound to said particle conjugate is related to the amount of analyte in said aqueous medium;
said method comprising:
combining in an aqueous assay medium,
(a) said sample;
(b) said particle conjugate substantially uniformly dispersed in said medium;
(c) said signal label conjugate;
(d) the homologous member of said specific binding pair, where the analyte, particle conjugate, and signal label conjugate are the same member of the specific binding pair; and
(e) any remaining members of said signal producing system;
with the proviso that when the analyte is a first receptor, said member of said pair conjugated to said particle can be the homologous ligand or receptor for said first receptor, and said member of said signal label conjugate can be receptor for said first receptor or the homologous ligand respectively; and
determining the level of said signal in said aqueous assay medium as compared to an assay medium having a known amount of analyte.

19. A kit for use in an immunoassay method according to claim 1 comprising in combination in relative amounts to substantially optimize the sensitivity of said immunoassay a particle conjugate having both a member of said specific binding pair conjugated to discrete porous solid particles and a first enzyme, and a second enzyme conjugated to a member of said specific binding pair to provide a signal label conjugate, wherein said enzymes are related by the product of one being the substrate of the other.

46. A composition comprising a discrete porous particle of a size in the range of about 500 nm to 100μ to which is conjugated a first enzyme and at least one molecule of a member of a specific binding pair consisting of ligand and antiligand; and a second enzyme which is a member of a signal producing system covalently bonded to a member of said specific binding pair, wherein said signal producing system member is bound to said particle through the intermediacy of the non-covalent binding of members of said specific binding pair and said first and second enzymes are characterized by the product of one of said enzymes being the substrate of the other of said enzymes.

4,275,150

RADIOENZYMATIC METHOD FOR ASSAYING NORMETANEPHRINE

Nicolas D. Vlachakis, 3515 Landfair Rd., Pasadena, Calif. 91107

Filed Jan. 30, 1979, Ser. No. 7,701
Int. Cl.³ G01N 33/48; G01T 1/00; G01N 33/54
U.S. Cl. 435—7 11 Claims

1. A method for assaying normetanephrine in a sample selected from the group which consists of plasma, urine and tissue, the method comprising converting said normetanephrine in the sample to its N-methylated derivative with a tritiated methyl group and measuring the radioactivity of said derivative.

4,275,151

HYDROLYSIS OF PROTEIN-BOUND CHOLESTEROL ESTERS

Theodore W. Eaders, Webster; Charles T. Goodhue, Rochester, and Christine A. Michrina, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 765,168, Feb. 3, 1977. This application Dec. 18, 1978, Ser. No. 970,498
Int. Cl.³ C12Q 1/60
U.S. Cl. 435—11 17 Claims

1. In a process for assaying blood serum for total serum cholesterol content in which cholesterol esters are first hydrolyzed, and subsequently an assay for total cholesterol is performed, the improvement comprising hydrolyzing the cholesterol esters in an aqueous medium in the absence of protease with a compatible mixture of an enzyme preparation having cholesterol ester hydrolase activity and an alkyl phenoxy polyethoxy ethanol comprising a polyoxyethylene chain of less than about 20 oxyethylene units, said mixture containing an amount of said ethanol whereby said compatible mixture is effective to hydrolyze at least 70% of the cholesterol esters available in said aqueous medium.

9. An analytical element for the detection of cholesterol esters in an aqueous medium, said element free from protease and comprising, in at least one layer, a hydrolysis composition for protein-bound cholesterol esters comprising an enzyme preparation having cholesterol ester hydrolase activity and an alkyl phenoxy polyethoxy ethanol comprising a polyoxyethylene chain of less than about 20 oxyethylene units, said hydrolysis composition containing an amount of said ethanol whereby said hydrolysis composition is effective to hydrolyze at least 70% of the cholesterol esters available in said aqueous medium.

4,275,152

HYDROLYSIS OF PROTEIN-BOUND CHOLESTEROL ESTERS

Theodore W. Eaders, Webster; Charles T. Goodhue, Rochester, and Christine A. Michrina, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 765,168, Feb. 3, 1977, abandoned. This application Jul. 30, 1979, Ser. No. 62,433
Int. Cl.³ C12Q 1/60
U.S. Cl. 435—11 17 Claims

1. A process for hydrolyzing protein-bound cholesterol esters comprising contacting protein-bound cholesterol esters in an aqueous medium in the absence of protease with a compatible mixture of an enzyme preparation having cholesterol ester hydrolase activity and an alkyl phenoxy polyethoxy ethanol comprising a polyoxyethylene chain of less than about 20 oxyethylene units, said mixture containing an amount of said ethanol whereby said compatible mixture is effective to hydrolyze at least 70% of the cholesterol esters available in said aqueous medium.

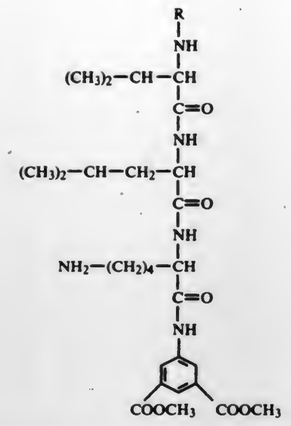
4,275,153

ANALYTICAL FLUOROGENIC SUBSTRATES FOR PROTEOLYTIC ENZYMES

Robert J. Gargiulo; Gary A. Mitchell; Patricia M. Hudson; Sharon P. Pochron; Rolf M. Hussby, all of Miami, Fla., and Robert E. Smith, Livermore, Calif., assignors to American Hospital Supply Corporation, Evanston, Ill.

Filed Aug. 3, 1978, Ser. No. 930,826
Int. Cl.³ C12Q 1/36, 1/38, 1/56; C07G 7/00
U.S. Cl. 435—13 6 Claims

1. A method for determining plasmin or plasmin-like enzymes in a fluid comprising:
A. mixing said fluid with a fluorogenic substrate of the formula



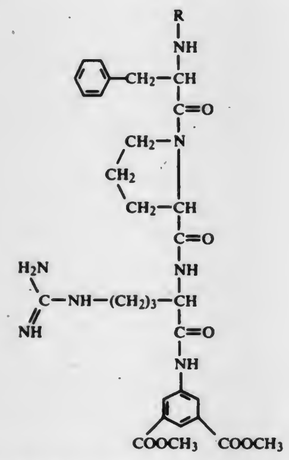
or acid salts thereof, wherein R is hydrogen-L, hydrogen-D, benzoyl, benzene sulfonyl, glutaryl, pyroglutamyl, carbobenzoxy, D-serine or carbobenzoxy-serine, thereby forming a substrate-containing fluid, whereby said substrate is enzymatically hydrolyzable by said plasmin, or plasmin-like enzymes to yield 5-aminoisophthalic acid dimethyl ester;

B. exposing said substrate-containing fluid to light of a wavelength suitable for causing fluorescent emission by said 5-aminoisophthalic acid dimethyl ester; and

C. while exposing said substrate-containing fluid to said light, measuring the fluorescent emission of said fluid.

4. A method for determining thrombin, trypsin or thrombin or trypsin-like enzymes in a fluid comprising:

A. mixing said fluid with a fluorogenic substrate of the formula



or acid salts thereof, wherein R is hydrogen-L, hydrogen-D benzoyl, benzene sulfonyl, glutaryl, pyroglutamyl, carbobenzoxy, D-serine or carbobenzoxy-serine, thereby forming a substrate-containing fluid, whereby said substrate is enzymatically hydrolyzable by said thrombin, trypsin, or thrombin or trypsin-like enzymes to yield 5-aminoisophthalic acid dimethyl ester;

B. exposing said substrate-containing fluid to light of a wavelength suitable for causing fluorescent emission by said 5-aminoisophthalic acid dimethyl ester; and

C. while exposing said substrate-containing fluid to said light, measuring the fluorescent emission of said fluid.

4,275,154

NUTRIENT MEDIUM

Michael J. Hall, Welwyn, England, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Apr. 11, 1980, Ser. No. 139,530

Claims priority, application United Kingdom, Apr. 27, 1979, 14742/79; Feb. 21, 1980, 5883/80

Int. Cl.³ C12Q *1/18*

U.S. Cl. 435—32 **7 Claims**

1. A nutrient medium the ingredients of which are dissolved in water, comprising per liter of water from about:

2.0 to 5.5 g of anhydrous disodium hydrogen phosphate,
0.0005 to 0.005 g of ferrous sulphate heptahydrate,
0.001 to 0.01 g of folic acid,
0.0005 to 0.005 g of zinc sulphate heptahydrate,
0.0005 to 0.005 g of manganese sulphate tetrahydrate,
0.0005 to 0.005 g of cupric sulphate pentahydrate,
0.0001 to 0.0005 g of D-biotin,
0.004 to 0.04 g of uracil,
0.004 to 0.04 g of guanine,
0.004 to 0.04 g of cytosine,
0.004 to 0.04 g of adenine,
0.001 to 0.01 g of calcium D-pantothenate,
0.001 to 0.01 g of nicotinamide,
0.001 to 0.01 g of pyridoxal hydrochloride,
0.0001 to 0.005 g of thiamine hydrochloride,
0.001 to 0.01 g of i-inositol,
0.0005 to 0.005 g of cyanocobalamin,
0.001 to 0.05 g of choline dihydrogen citrate,
0.1 to 0.4 g of glycine,
0.1 to 0.5 g of L-valine,
0.1 to 0.5 g of L-lysine hydrochloride,
0.1 to 0.5 g of L-leucine,
0.1 to 0.5 g of L-isoleucine,
0.1 to 0.5 g of L-threonine,
0.02 to 0.05 g of L-tryptophan,
0.05 to 0.3 g of L-tyrosine,
0.15 to 0.25 g of L-arginine,
0.025 to 0.2 g of L-histidine,
0.1 to 0.5 g of L-cystine,
0.01 to 0.2 g of L-methionine,
0.1 to 0.5 g of L-proline,
0.1 to 0.4 g of L-phenylalanine,
0.05 to 0.5 g of L-asparagine,
0.01 to 0.1 g of L-serine,
0.01 to 0.1 g of L-alanine,
0.1 to 1.0 g of L-glutamic acid,
0.1 to 1.0 g of magnesium glycerophosphate monohydrate,
0.05 to 0.5 g of calcium gluconate,
0.4 to 2.0 g of anhydrous potassium dihydrogen phosphate,
1.0 to 4.0 g of anhydrous D-glucose, and
0.25 to 2.0 g of sodium citrate dihydrate.

4,275,155

MANUFACTURE OF AMINOGLYCOSIDE ANTIBIOTICS

Artur Pereira Da Luz, Avenida Gomes Pereira, 74,, 1500 Lisboa, Portugal

Filed Aug. 16, 1979, Ser. No. 67,528

Claims priority, application Spain, Nov. 24, 1978, 475.393

Int. Cl.³ C12P *19/48*

U.S. Cl. 435—80 **6 Claims**

1. A process for the preparation of the gentamicins which comprises the cultivation of a new species, *Micromonospora scalabitana*, or mutants thereof, under aerobic conditions, in a medium containing adequate sources of assimilable carbon and nitrogen and trace elements.

4,275,156

GLUCOSE ISOMERASE IMMOBILIZED PRODUCT AND PROCESS FOR PREPARING SAME

Toshio Yoshioka; Kazuo Teramoto, and Masaharu Shimamura, all of Ohtsu, Japan, assignors to Toray Industries, Inc., Tokyo, Japan

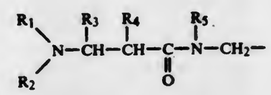
Filed Jan. 22, 1980, Ser. No. 114,270

Claims priority, application Japan, Jan. 23, 1979, 54/6727

Int. Cl.³ C12P *19/24*; C12N *11/06*

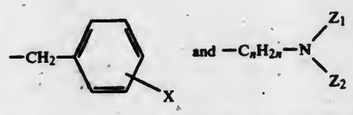
U.S. Cl. 435—94 **28 Claims**

1. An enzymatically active product for use in isomerization of glucose into fructose, which comprises an organic polymeric material comprised of at least 50% by weight, based on the weight of the organic polymeric material, of a monovinyl aromatic compound in polymerized form, said polymerized monovinyl aromatic compound having a β-aminopropionamidomethyl group as a side chain represented by the formula I:

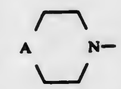


I

wherein R_1 is selected from hydrogen, an alkyl group having 1 to 6 carbon atoms and a hydroxyalkyl group having 2 to 6 carbon atoms, R_2 is selected from an alkyl group having 1 to 6 carbon atoms, a hydroxyalkyl group having 2 to 6 carbonatoms,



(where X, Z_1 and Z_2 are selected from hydrogen and an alkyl group having 1 to 6 carbon atoms, and n is an integer of from 2 to 6), or R_1 and R_2 form together with the nitrogen atom, to which R_1 and R_2 are bonded, a heterocyclic structure represented by the formula:



where A is $—CH_2—$, —O— or $—NR_6—$ (wherein R_6 is H or an alkyl group having 1 to 6 carbon atoms), and R_3, R_4 and R_5 may be the same as or different from each other and are selected from hydrogen and a methyl group, and

said organic polymeric material having glucose isomerase immobilized with said side chain of the organic polymeric material.

4,275,157

METHOD FOR THE PRODUCTION OF L-LYSINE

Osamu Tosaka, Tokyo; Eiji Ono, Kawasaki; Masaru Ishihara, Yokohama; Hajime Morioka, Kawasaki, and Koichi Takinami, Yokohama, all of Japan, assignors to Ajinomoto Company, Incorporated, Tokyo, Japan

Filed Jul. 10, 1979, Ser. No. 56,414

Claims priority, application Japan, Jul. 10, 1978, 53-83807

Int. Cl.³ C12P *13/08*

U.S. Cl. 435—115 **4 Claims**

1. A method for producing L-lysine by fermentation which comprises culturing a mutant of the genus Brevibacterium or Corynebacterium in a culture medium until L-lysine is accumulated in the culture medium and recovering the L-lysine so accumulated, said mutant being sensitive to fluoro-pyruvic acid capable of producing L-lysine and being selected from the class consisting of *Brevibacterium lactofermentum* NRRL B-11471, *Corynebacterium acetoglutamicum* NRRL B-11473, and *Brevibacterium flavum* NRRL B-11475.

4,275,158

MANUFACTURE OF FATTY ACIDS HAVING STRAIGHT AND LONG CARBON CHAINS USING A MICROORGANISM

Akira Taoka, and Seiichi Uchida, both of Urawa, Japan, assignors to Bio Research Center Company, Ltd., Saitama, Japan

Filed Jan. 7, 1980, Ser. No. 110,411

Int. Cl.³ C12P *7/40*

U.S. Cl. 435—136 **4 Claims**

1. In the production of mono- and di-carboxylic acids of the same carbon skeletal length from straight chain C_{10}–C_{18} hydrocarbons by aerobically cultivating the hydrocarbons with a microorganism in a nutrient medium, at 25°–35° C. and pH 3–9 for 24 to 120 hours, the improvement which comprises using as the microorganism *Debaryomyces vanriji* (BR-308), ATCC 20588.

4,275,159

PROCESS FOR THE PRODUCTION OF XYLOSE BY ENZYMATIC HYDROLYSIS OF XYLAN

Jurgen Puls, Pinneberg; Michael Sinner, Dassendorf, and Hans-Hermann Dietrichs, Reinbek, all of Fed. Rep. of Germany, assignors to Projektierung Chemische Verfahrenstechnik GmbH, Ratingen, Fed. Rep. of Germany

Division of Ser. No. 836,713, Sep. 26, 1977, Pat. No. 4,200,692. This application Jul. 30, 1979, Ser. No. 61,860.

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1976, 2643800

Int. Cl.³ C12N *11/18, 11/14, 9/14, 9/32*

U.S. Cl. 435—175 **3 Claims**

1. A process for the immobilization of purified xylanase, β-xylosidase, and uronic acid-splitting enzymes on to carriers comprising,

(a) dissolving an untreated enzyme in a buffer solution having a pH between about 4 and about 6,

(b) freeing said enzyme solution from insoluble constituents,

(c) filtering the solution obtained from step (b) through an ultrafilter having a cut-off between about MW 80,000 and about MW 120,000 and collecting both the supernatant and the filtrate,

(d) filtering the supernatant through an ultrafilter having a cut-off between about MW 250,000 and about MW 350,000 and recovering the filtrate containing substantially β-xylosidase and uronic acid-splitting enzymes, if present,

(e) filtering the filtrate obtained in step (c) through an ultrafilter having a cut-off between about MW 10,000 and about MW 50,000 and recovering the filtrate containing substantially xylanase,

(f) bonding the recovered filtrates from steps (d) and (e) to carriers.

4,275,160

IMIPRAMINE DERIVATIVES AND POLY(AMINO ACID) CONJUGATES

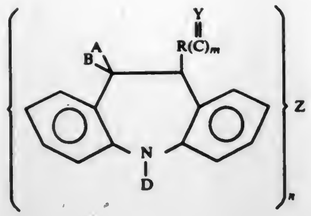
Prithipal Singh, and Marcel R. Piric, both of Sunnyvale, Calif., assignors to Syva Company, Palo Alto, Calif.

Filed Jul. 6, 1979, Ser. No. 55,419

Int. Cl.³ C07G *7/00*; C12N *9/96*

U.S. Cl. 435—188 **15 Claims**

1. Compound of the formula:



wherein:
D is 3-dimethylaminopropylene;
A and B are each H;
R is an aliphatic linking group of from 1 to 8 carbon atoms;
Y is O, S or NH;
Z is a poly(amino acid);
m is 0 or 1; and
n is in the range of one to the molecular weight of Z divided by 500.

4,275,161
PROCESS FOR THE MANUFACTURE OF L-α-GLYCEROPHOSPHATE OXIDASE
Hideo Misaki; Yoshifumi Horiuchi; Kazuo Matsuura, and Saburo Harada, all of Shizuoka, Japan, assignors to Toyo Jozo Kabushiki Kaisha, Shizuoka, Japan
Filed Jul. 20, 1979, Ser. No. 59,583
Claims priority, application Japan, Jul. 20, 1978, 53-88637
Int. Cl.³ C12N 9/04
U.S. Cl. 435—190 **1 Claim**

1. A process for the manufacture of L-α-glycerophosphate oxidase, which comprises culturing L-α-glycerophosphate oxidase-producing microorganism selected from the group consisting of *Aerococcus viridans* IFO-12219 and *Aerococcus viridans* IFO-12317, in a nutrient culture medium, and separating the L-α-glycerophosphate oxidase thus produced from the cultured medium.

4,275,162
PROCESS FOR THE PRODUCTION OF SPHINGOMYELINASE
Teruhiko Beppu, No. 5-21, 1-chome, Horinouchi, Suginami-ku, Tokyo, and Noboru Ando, Fujisawa, both of Japan, assignors to Chiyoda Chemical Engineering & Construction Co., Ltd., Yokohama and Teruhiko Beppu, Tokyo, both of, Japan
Filed Mar. 3, 1980, Ser. No. 126,202
Claims priority, application Japan, Mar. 9, 1979, 54-26794
Int. Cl.³ C12N 9/16
U.S. Cl. 435—196 **9 Claims**

1. A process for producing sphingomyelinase which comprises cultivating a sphingomyelinase-producing microorganism belonging to the genus Pseudomonas in a culture medium to form sphingomyelinase in said culture medium, and recovering said sphingomyelinase from said culture medium.

4,275,163
CELLULASE-PRODUCING MICROORGANISM
Benedict J. Gallo, Natick, Mass., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.
Filed Nov. 20, 1978, Ser. No. 962,522
Int. Cl.³ C12N 9/42, 15/00; C12R 1/885
U.S. Cl. 435—209 **7 Claims**

1. A biologically pure culture of *Trichoderma reesei* strain MCG77, said culture having the capability to synthesize cellulase enzymes, the synthesis of the cellulases being nonrepressed by glycerol, repressed by glucose but not subject to post repression lag, and inducible by lactose, the lactose induction being potentiated by xylose, whereby maximum cellulose synthesis is elicited by the presence of lactose and xylose in combination in the culture medium, the organism being genetically haploid under laboratory culture conditions.

4,275,164
PROCESS AND NUTRIENT MEDIUM FOR GROWING MICROORGANISM
Prakash S. Masurekar, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 5, 1979, Ser. No. 91,216
Int. Cl.³ C12N 9/78, 1/20
U.S. Cl. 435—227 **17 Claims**

9. An improved aqueous nutrient medium for growing under aerobic conditions a creatinine iminohydrolase-producing aerobic soil microorganism, said aqueous nutrient medium having a pH in the range of from about 5.0 to 10.0 and comprising:
(i) a carbon source comprising glucose or an amino acid precursor representing an organic acid free from amino groups, or a mixture thereof,
(ii) a nitrogen source comprising creatinine and an enzyme-stimulating amount of a vegetable protein hydrolysate or a non-peptic milk protein hydrolysate or a mixture of said vegetable protein hydrolysate and a non-peptic milk protein hydrolysate,
(iii) trace nutrients, and
(iv) a buffer.

4,275,165
PROCESS FOR ISOLATING HEPATITIS A-VIRUS
Peter R. Lorenz; Ernst Weinmann, both of Marburg, and Mirko Majer, Fürth, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Jul. 3, 1979, Ser. No. 54,609
Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829741
Int. Cl.³ C12N 7/00
U.S. Cl. 435—235 **7 Claims**

1. A method for obtaining hepatitis A-virus which comprises administering an immune suppressor to a monkey for a few days, then innoculating the monkey with hepatitis A-virus, continuing to administer an immune suppressor to the monkey, and recovering the virus in an aqueous extract of the faeces of the monkey.

4,275,166
PROCESS FOR THE RECOVERY OF INTRACELLULAR ENZYME
George T. McCollough, Penfield; Theodore W. Eaders, Webster, and Shirley Y. Lynn, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 5, 1979, Ser. No. 91,217
Int. Cl.³ C12N 9/78
U.S. Cl. 435—227 **12 Claims**

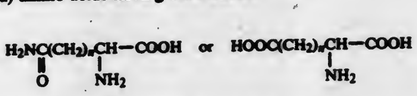
1. A method for the recovery of creatinine iminohydrolase enzyme produced by cells of an aerobic microorganism, comprising the steps of:
(a) forming an aqueous suspension of said cells containing said enzyme;
(b) disrupting said cells in said suspension to release said enzyme into said suspension;
(c) before, during, or after step (b) and prior to removal of disrupted cells and other cellular components, introducing a water-miscible organic solvent into said suspension to form a mixture of said solvent and said suspension, the mixture being effective to retain said enzyme in the liquid phase thereof while undesired cellular components precipitate therefrom;
(d) separating said enzyme-containing liquid phase of step (c) from said precipitate and said disrupted cells; and
(e) introducing additional water-miscible organic solvent into said separated liquid phase of step (d) to precipitate the desired enzyme therefrom wherein said water-miscible solvent is selected from the group consisting of acetone, n-propanol and isopropanol.

4,275,167
PREFERENTIAL DEGRADATION OF LIGNIN IN GRAMINEOUS MATERIALS
Donald T. Wicklow, and Robert W. Detroy, both of Peoria, Ill., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.
Filed Jun. 18, 1980, Ser. No. 160,754
Int. Cl.³ D21C 1/00
U.S. Cl. 435—277 **5 Claims**

1. A method for treating a fresh gramineous plant material in order to enrich said material with respect to the available cellulose content comprising the following steps:
a. inoculating said plant material with the fungal microorganism *Cyathus stercoreus;*
b. fermenting said inoculated plant material under conditions favorable for growth of said microorganism, whereby the lignin in said material is preferentially degraded over the cellulose; and
c. recovering the free cellulose-enriched plant material from the fermentation of step (b).

4,275,168
POLYOLEFIN RESIN FOAM AND PROCESS FOR CONTINUOUSLY MANUFACTURING THE SAME
Seizaburo Watanabe, and Yutaka Matsuki, both of Suzuka, Japan, assignors to Asahi-Dow Limited, Tokyo, Japan
Filed Jul. 30, 1979, Ser. No. 62,454
Int. Cl.³ C08J 9/14
U.S. Cl. 521—82 **10 Claims**

1. Aliphatic olefin polymer foam
(A) containing
(1) a nucleating agent having a melting point higher than that of the olefin polymer and having a particle size of 0.1 mm or less and
(2) from 0.05 to 10 percent by weight of at least one cell size-increasing agent, said amount of said agent being sufficient to measurably increase cell size of the resultant foam product relative to the cell size of the foam produced not containing said agent, said cell size-increasing agent being selected from the group consisting of
(a) amino acids having the formula:



wherein n is an integer of 1 to 8 or
(b) polyhydric alcohols having the formula: $HOCH_2(COH)_nCH_2OH$ wherein n is an integer of 2 to 10;
(B) having a density of 100 kilograms per cubic meter or less and a structure rich in uniform closed cells having an average cell size of from 0.1 mm up to 10 mm; and
(C) wherein said olefin polymer has a melt index of 0.1 to 30 gm/10 min. as measured by ASTM-D-1238-58.

4,275,169
INTUMESCENT FLEXIBLE POLYURETHANE FOAM HAVING INCORPORATED INTO THE REACTION MIXTURE AN ALIPHATIC ALDEHYDE
Bernard Rudner, Ridgewood, N.J., and Herman Stone, Hazleton, Pa., assignors to Tenneco Chemicals, Inc., Saddle Brook, N.J.
Filed Sep. 19, 1979, Ser. No. 76,876
Int. Cl.³ C08G 18/14
U.S. Cl. 521—99 **22 Claims**

1. In a process for the manufacture of flexible, resilient, polyurethane foam by the reaction of at least one polyester polyol, said polyol being the reaction product of at least one polyhydric alcohol with a polycarboxylic acid or anhydride or with a lactone, with at least one organic polyisocyanate in the presence of at least one blowing agent and at least one catalyst, the improvement which comprises the step of incorporating into the mixture to be foamed at least one aliphatic aldehyde or aliphatic aldehyde generator, in amount sufficient to reduce the formation of burning embers and to produce a char when said foam is burned.

4,275,170
METHOD OF MAKING A FIRE RETARDANT POLYMER RESIN
Lawrence E. McAllister, Dayton, and Herbert Dietrich, Kennebunk, both of Me., assignors to Fiber Materials, Inc., Biddeford, Me.
Continuation-in-part of Ser. No. 58,567, Jul. 18, 1979, abandoned. This application Sep. 7, 1979, Ser. No. 73,218
Int. Cl.³ C08V 9/14
U.S. Cl. 521—103 **4 Claims**

1. Method of forming a flame retardant polymer resin, comprising the steps of
reacting moieties of a first aldehyde and first phenol in the presence of a mineral acid in sufficient proportions to provide an acid-condensation reaction product in the form of a relatively low molecular weight, low viscosity liquid linear polymer having excess aldehyde functionality, said first aldehyde being selected from the group consisting of furfural and mixtures of furfural and paraformaldehyde, said first phenol being selected from the group consisting of metacresol, orthocresol, 3,5 dimethyphenol, resorcinol and substituted resorcinols;
mixing moieties of a second aldehyde and second phenol to provide a solution of said second phenol in said second aldehyde, which solution contains said aldehyde in molar excess, said second aldehyde and second phenol being selected from the same groups as said first aldehyde and first phenol;
adding to said reaction product a solid, organic, water soluble acid as a polymerization active catalyst;
adding to said solution an inorganic acid polymerization catalyst containing water of hydration, said inorganic acid being selected from the group consisting of boric acid and boric acid complexes;
reacting said reaction product and solution in the presence of said catalysts to produce condensation polymerization thereof into said resin.

4,275,171
METHOD FOR PRODUCING FLAME RETARDANT FLEXIBLE POLYURETHANE FOAMS WITH BLENDS OF DIBROMONEOPENTYL GLYCOL AND FLAME RETARDANT PLASTICIZER
Gunter H. Wegner, Charlotte, N.C., assignor to Reeves Brothers, Inc., Charlotte, N.C.
Filed Apr. 12, 1979, Ser. No. 29,340
Int. Cl.³ C08G 18/14
U.S. Cl. 521—107 **11 Claims**

1. In a process for producing flexible polyether or polyester polyurethane foams having a porosity in the range from about 0.5 to about 10 cubic feet per minute, in which an isomeric mixture of 2,4- and 2,6- toluene diisocyanate is reacted with a polyol in the presence of a small amount of water and a catalytic amount of polymerization catalyst, the improvement which comprises:
incorporating as a separate reactant into the reaction mixture prior to polymerization from about 1 to about 20 percent by weight of a mixture of dibromoneopentyl glycol and flame retardant plasticizer based on the weight of the polyol used in the polymerization reaction, which manner of incorporating said mixture results in substantially more

flame retardant foams without adversely affecting the physical characteristics of said foams.

4,275,172

FROTHABLE POLYURETHANE COMPOSITION AND A CELLULAR FOAM PRODUCED THEREFROM SUITABLE FOR USE IN JOINTS BETWEEN WALLBOARDS

Bruce P. Barth, Bridgewater; Robert N. Johnson, Basking Ridge, and Walter P. Mayer, Lebanon, all of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,629
Int. Cl.³ C08G 18/14
U.S. Cl. 521—112 38 Claims

1. A frothable thermosetting polyurethane-forming composition in which the density of the cured foam therefrom is essentially the same as the density of the uncured froth composition when cured such that at least one surface of the froth is exposed to the atmosphere, which composition comprises:

(a) a polyol,
(b) a polyisocyanate,
(c) a thixotroping agent,
(d) an inert gas, and
(e) an amount of moisture available for reaction with the polyisocyanate that is less than that amount which would cause the composition to cure to a cellular polyurethane having a density which is not essentially the same density as that of the frothed composition.

4,275,173

STABILIZATION OF POLYETHER POLYOLS AND POLYURETHANE FOAMS PREPARED THEREFROM

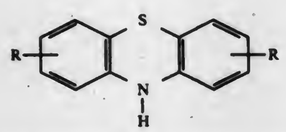
Kenneth J. Hinze, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Apr. 21, 1980, Ser. No. 141,854
Int. Cl.³ C08G 18/14
U.S. Cl. 521—117 9 Claims

1. In a polyurethane foam prepared from a polyether polyol or mixture of polyether polyols containing as a stabilizer against oxidative degradation from about 500 to about 100,000 ppm of an antioxidant composition containing:

(A) from about 15 to about 85 percent by weight of a sterically hindered phenolic antioxidant; and
(B) from 85 to about 15 percent by weight of 4,4'-bis(α,α-dimethylbenzyl)diphenyl amine;

the improvement which comprises replacing a portion of either of the components (A) or (B) or a portion of both of the components (A) and (B) with from about 25 to about 1000 parts per million parts by weight of polyether polyol of a phenothiazine compound represented by the formula



wherein each R is independently hydrogen or an alkyl group having from 1 to about 12 carbon atoms.

4,275,174

NEUTRON SHIELDING POLYMER COMPOSITION AND A PROCESS FOR PRODUCING THE SAME

Shin-ichi Tadokoro, and Hirozo Segawa, both of Nakajo, Japan, assignors to Kyowa Gas Chemical Industry Co., Ltd., Tokyo, Japan

Filed Apr. 26, 1979, Ser. No. 33,819
Int. Cl.³ C08F 12/08, 120/14; C08K 5/05
U.S. Cl. 525—1 20 Claims

1. An optically-transparent, neutron shielding polymer composition comprising a polymerization product of a base monomer ingredient containing as an essential mono-olefinic ingredient at least one monomer selected from the group consisting of (1) an alkyl methacrylate containing 1–4 carbon atoms in the alkyl group and (2) styrene polymerized in admixture with a boric acid ester of a polyol containing 3–16 carbon atoms and in which a molar ratio A of said polyol to boron atoms in said boric acid ester formed from said polyol being in the range of $0.6 < A < 4$, the boron content B (wt%) in the total monomer mixture being in the range of $1 \leq B < 6$.

4,275,175

MOLDING COMPOSITIONS AND PROCESS FOR PREPARING SAME

I. Luis Gomez, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 957,882, Nov. 6, 1978, Pat. No. 4,215,085.
This application May 21, 1979, Ser. No. 41,121
The portion of the term of this patent subsequent to Jul. 29, 1997, has been disclaimed.
Int. Cl.³ C08K 5/10, 5/16
U.S. Cl. 525—5 9 Claims

1. A molding composition comprising a blend of a nitrile polymer containing at least about 10 weight percent based on total polymer weight of polymerized acrylonitrile and about 0.005 to about 2% by weight based on the weight of the polymer of a compound selected from the group consisting of unsaturated fatty acid aldehydes, and esters formed by the reaction of a short chain olefinic alcohol with a fatty acid or cyanuric acid.

4,275,176

GRAFT POLYESTERS AND SIZED TEXTILES

Robert B. Login, Woodhaven, Mich., assignor to BASF Wyandotte Corporation, Wyandotte, Mich.

Continuation of Ser. No. 937,690, Aug. 28, 1978, abandoned.
This application Feb. 15, 1980, Ser. No. 121,762
Int. Cl.³ C08L 67/00
U.S. Cl. 525—48 17 Claims

1. A graft polyester having free carboxyl groups forming an integral part of the graft polyester chain, said polyester consisting of the reaction product of

I. an unsaturated polyester comprising the reaction product of:

(a) at least one polycarboxylic acid reactant comprising (1) a dicarboxylic acid reactant selected from the group consisting of dicarboxylic acids, corresponding dicarboxylic anhydrides, dicarboxylic acid esters, and their corresponding acyl halides or (2) a mixture of said dicarboxylic acid reactant with up to 20 mole percent of a polycarboxylic acid reactant having a functionality greater than two based upon 100 mole percent of said dicarboxylic acid reactant and
(b) at least one polyhydric alcohol reactant comprising (1) a diol or (2) a mixture of a diol and up to 20 mole percent of a polyhydric alcohol having a functionality greater than two based upon 100 mole percent of said polyhydric alcohol,

wherein a minor effective proportion of said dicarboxylic acid reactant or polyhydric alcohol reactant is α,β-ethylenically unsaturated; with

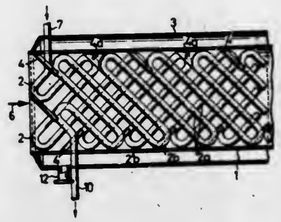
II. at least one monovinyl monomer reactant comprising at least one monovinyl monomer having at least one carboxylic group or a mixture of said monovinyl monomer with any monofunctional vinyl monomer.

4,275,177

PROCESS FOR CONTINUOUS MASS POLYMERIZATION OF ALKENYL-AROMATIC COMPOUNDS

Wilfried Walkenhorst, Königstein; Richard Gauer, Wiesbaden; Gerhard Wild, Frankfurt am Main, and Walter Müller, Kelkheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 10, 1979, Ser. No. 73,654
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839563
Int. Cl.³ C08F 2/02, 12/08
U.S. Cl. 525—53 5 Claims



1. Process for the manufacture of alkenyl-aromatic homo- or copolymers by continous mass polymerization, initiated thermally or by means of free radical initiators, of an alkenyl-aromatic compound or a mixture of alkenyl-aromatic compounds, or said aromatic compounds in the presence of a nitrile or an ester of acrylic or methacrylic acid and/or a natural or synthetic rubber, with a one-, two- or multi-stage continuous prepolymerization and subsequent one-, two- or multi-stage continuous main polymerization and final working up, which comprises subjecting in at least one stage during the main polymerization, the polymerizing mixture to a simultaneous treatment with heat exchange and static mixing, wherein the main polymerization is carried out in one or two or more series-connected horizontal or vertical tube reactors in which internal fitments are located, wherein the fitments consist of tubes which extend in the axial direction of the housing of the reactor extending from a wall of said reactor to an opposite wall of said reactor, said fitments possessing curved tube portions, and connecting tube portions extended in one plane said tubes being arranged substantially parallel to one another, in an array of planes with rectilinear tube portions of the adjacent tubes crossing one another at an angle of about 90 degrees and substantially next to each other, wherein the temperature of these fitments is controlled by a heat exchange medium flowing through said tubes.

4,275,178

POWDERY GRAFT-COPOLYMER COMPOSITION

Haruhiko Yuse; Masanori Oota, and Katsumi Suzuki, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1979, Ser. No. 108,278
Claims priority, application Japan, Dec. 29, 1978, 53/162274
Int. Cl.³ C08L 51/04, 55/02
U.S. Cl. 525—71 8 Claims

1. A powdery graft-copolymer composition comprising a blend of

100 parts of a graft-copolymer (A) comprising 50 to 80% of an elastomeric trunk polymer, and 50 to 20% of a branch polymer of a hard-resin producing monomer grafted on the elastomeric trunk polymer; and
0.1 to 25 parts of a graft-copolymer (B) comprising 5 to 49% of an elastomeric trunk polymer, and 95 to 51% of a branch polymer of a hard-resin producing monomer grafted on the elastomeric trunk polymer,

both the graft-copolymers (A) and (B) having been obtained through emulsion graft-copolymerication, and wherein said graft-copolymer composition has been obtained by blending the graft-copolymers (A) and (B) in slurry form followed by drying all quantities expressed in parts and percentages being by weight.

4,275,179

POLY(p-METHYLSTYRENE) POLYBLEND

Anthony M. Sherman, Edison, N.J., assignor to Mobil Oil Corporation, New York, N.Y.

Filed Sep. 24, 1979, Ser. No. 77,975
Int. Cl.³ C08L 53/02
U.S. Cl. 525—98 3 Claims

1. A blend of poly (p-methylstyrene) and a styrene-conjugated diolefin block copolymer containing between about 60 weight percent and about 80 weight percent styrene; the weight ratio of poly (p-methylstyrene): styrene-conjugated diolefin block copolymer being between about 70:30 and about 40:60.

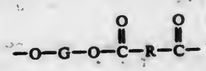
4,275,180

POLYMER COMPOSITIONS

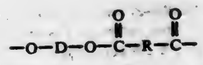
Raymond Clarke, Mountain View, Calif., assignor to Raychem Limited, London, England

Filed Apr. 7, 1978, Ser. No. 894,511
Claims priority, application United Kingdom, Apr. 12, 1977, 15122/77
Int. Cl.² C08L 67/06
U.S. Cl. 525—173 11 Claims

1. A polymer composition which comprises a crosslinked blend of an elastomer and a thermoplastic polymer, the elastomer comprising a polymer of ethylene with an ethylenically unsaturated aliphatic ester, the elastomer and the thermoplastic polymer being substantially free of halogen-containing substituents, the elastomer and the thermoplastic polymer being present in a weight ratio of from 2.5:1 to 1:2.5, wherein the thermoplastic polymer comprises a segmented copolyester polymer consisting essentially of recurring intralinear long chain ester units and short chain ester units randomly joined head-to-tail through ester linkages, said long chain ester units being represented by the formula:



and said short chain ester units being represented by the formula:



where G is divalent radical remaining after the removal of terminal hydroxyl groups from at least one long chain glycol having a molecular weight of from 600 to 6000; R is a divalent radical remaining after removal of carboxyl groups from at least one dicarboxylic acid having a molecular weight of less than 300; and D is a divalent radical remaining after removal of hydroxyl groups from at least one low molecular weight diol having a molecular weight of less than 250.

4,275,181

CURABLE BLENDS OF CHLOROPRENE POLYMER AND ETHYLENE COPOLYMER

George L. K. Hoh, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 937,726, Aug. 29, 1978, abandoned. This application Nov. 30, 1979, Ser. No. 98,973
Int. Cl.³ C08L 11/00, 81/00
U.S. Cl. 525—189 11 Claims

1. An improved curable blend of chloroprene elastomer, with at least one compatible polymer wherein the improvement comprises said compatible polymer being about 5-100 parts of an ethylene copolymer per 100 parts of a chloroprene elastomer, said ethylene polymer being selected from the group consisting of ethylene/carbon monoxide/X and ethylene/sulfur dioxide/X copolymers, wherein comonomer X is (I) a vinyl ester of an alkanoic acid, the acid having 1 to 18 C atoms, (II) an alkyl acrylate or methacrylate, the alkyl group having 1 to 18 C atoms, (III) an alkyl vinyl ether, the alkyl group having 1 to 4 C atoms, (IV) acrylonitrile or methacrylonitrile, or combinations of the above comonomers, the ethylene copolymer containing about 3–25 weight % of carbon monoxide or sulfur dioxide, about 10–65 weight % of comonomer X, and about 30–75 weight % of ethylene, the vulcanizates of said curable blends of chloroprene having increased resistance to ozone without sacrificing resistance to oil.

4,275,182

PROCESS FOR THE PREPARATION OF IMPROVED STYRENE ACRYLIC ACID COPOLYMERS

Duane B. Priddy, Coleman, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 17, 1977, Ser. No. 852,411
Int. Cl.³ C08F 212/08, 220/06
U.S. Cl. 526—109 3 Claims

1. In a process for the preparation of molding grade polymers having polymerized therein from about 1 to 30 parts by weight of acrylic acid and from about 70 to 99 parts by weight of styrene wherein a stream of a monomeric mixture containing styrene and acrylic acid is passed to a recirculating polymerizing zone and at least a portion of the stream polymerized within the recirculating polymerization zone to form styrene-acrylic acid copolymers the stream containing from 1 to 50 parts per million by weight of iron, the improvement which comprises maintaining the polymerization temperature between about 110° C. and 150° C., initiating polymerization with a free radical generating peroxide initiator.

4,275,183

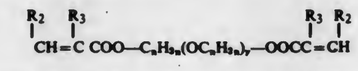
HYDROPHILIC POLYMERS AND CONTACT LENSES THEREFROM

Peter Kuzma, 1708 Westminster Blvd., Parlin, N.J. 08859

Filed Jul. 27, 1979, Ser. No. 61,466
Int. Cl.³ C08F 220/20, 220/54; G03B 21/46
U.S. Cl. 526—303 8 Claims

1. A hydrophilic water swellable, water insoluble copolymer of at least one monomer from each of the following four subclasses:

(1) at least 35% hydroxy (C_2–C_4alkyl)2-alkenoate,
(2) 30 to 60% of a 2-alkenamide or an N,N-di(C_1–C_6alkyl)2-alkenamide,
(3) 5 to 20% R-$(OR_1)_x$Z wherein R is C_1-C_6alkyl, wherein R_1 is C_2–C_4alkylene, wherein x is an integer from 1 to 4 and wherein Z is a 2-alkenoyloxy,
(4) 0.3 to 5% of a polyethylenically unsaturated cross-linking agent having the formula



where R_2 and R_3 are hydrogen or lower alkyl, n is an integer of 2 to 4 and y is an integer of 2 to 9, said copolymer being capable of holding 50 to 80 weight percent of water based on the total of water plus dry polymer.

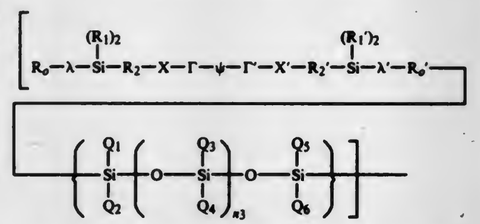
4,275,184

ETHYLENIC SILICON COMPOUNDS AND THERMOPLASTIC ELASTOMERS OBTAINED THEREFROM

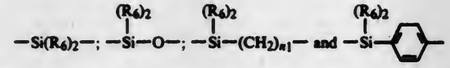
Michel Bargain, Lyons, and Marcel Lefort, Caluire, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Division of Ser. No. 965,529, Dec. 1, 1978, Pat. No. 4,213,914, which is a division of Ser. No. 851,898, Nov. 16, 1977, Pat. No. 4,147,711, which is a division of Ser. No. 617,513, Sep. 29, 1975, Pat. No. 4,088,670. This application Oct. 26, 1979, Ser. No. 88,584
Claims priority, application France, Oct. 1, 1974, 74 33041; Feb. 11, 1975, 75 04191; Feb. 11, 1975, 75 04192
Int. Cl.³ C08G 77/04
U.S. Cl. 528—26 57 Claims

1. A thermoplastic polysiloxane elastomer which possesses a plurality of recurring units of the general formula:

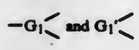


in which each of R_o and R'_o, which may be identical or different, represents a divalent organic radical containing from 2 to 10 carbon atoms, each of λ and λ', which may be identical or different, represents a valency bond or one of the following organosilicon groups:

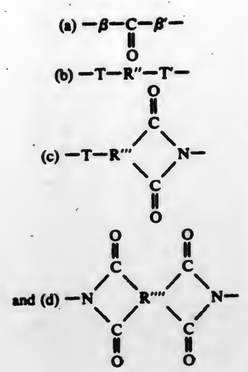


wherein each R_6 radical which may be identical or different, represents a methyl radical or a phenyl radical, and n_1 is 1, 2 or 3; each of Q_1 to Q_6, which may be identical or different, represents a linear or branched alkyl radical optionally substituted by one or more halogen atoms or cyano groups, or an aryl or alkylaryl radical, optionally substituted by one or more halogen atoms; n_3 is a number from 0 to 2,000 and each of R_1 and R_1', which may be identical or different, is a straight or branched alkyl radical optionally substituted by one or more halogen atoms or cyano groups, or an aryl or alklaryl radical, optionally substituted by one or more halogen atoms; each of R_2 and R_2', which may be identical or different, is a straight or branched alkylene or alkylidene radical having from 1 to 4 carbon atoms; each of X and X', which may be identical or different, is a divalent radical consisting of, or containing, at least one hetero-atom selected from O, S and N, the radicals X and X' being linked to the radicals R_2 and R_2' via the hetero-atom; each of Γ and Γ', which may be identical or different, is an organic radical having 1 to 30 carbon atoms, selected from:

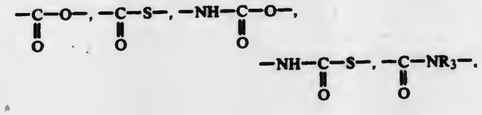
(a) a divalent radical identified by —G— and —G'— and
(b) a trivalent radical identified by

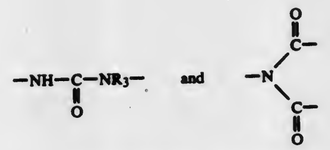


Ψ is an organic radical selected from:



in which
each of β and β' independently represents an oxygen or nitrogen atom;
R'' represents a valency bond or a divalent organic radical;
R''' represents a trivalent organic radical;
R'''' represents a tetravalent organic radical and
each of T and T', which may be identical or different, represents a functional group selected from:





wherein R_3 represents a hydrogen atom or an alkyl radical having from 1 to 6 carbon atoms.

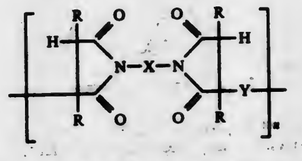
4,275,185

POLYIMIDES OF BISMALEIMIDES AND ACTIVATED METHYLENE COMPOUNDS

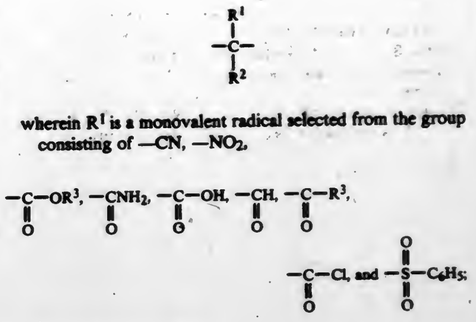
Robert T. Lu, Wilmington, Del., assignor to ICI Americas Inc., Wilmington, Del.

Filed Sep. 24, 1979, Ser. No. 78,448
Int. Cl.³ C08G 69/26, 73/12
U.S. Cl. 528—170 4 Claims

1. A polyimide polymer suitable for forming a film, a molding powder or a laminate characterized by the formula:

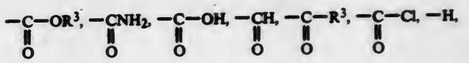


wherein X is a divalent organic radical;
wherein each R is independently selected from the group consisting of —H, —F, —Cl, —Br, —CF_3, and C_{1-4} alkyl;
wherein Y is



wherein R^1 is a monovalent radical selected from the group consisting of —CN, —NO_2,

wherein R^3 is C_{1-4} alkyl;
wherein R^2 is a monovalent radical selected from the group consisting of —CN, —NO_2,



—CH_3, —C_6H_5, —Cl, —F, and —C_6H_4Z;
wherein Z is selected from the group consisting of —H, —CH_3, a lower alkyl, —Cl, —Br, and —F; and
wherein n is an integer.

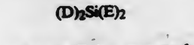
4,275,186

OLIGOMER EXTENDED POLYARYLETHERS

James H. Kawakami, Piscataway, and George T. Kwiatkowski, Green Brook, both of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Filed Jul. 27, 1978, Ser. No. 928,459
Int. Cl.³ C08G 63/66, 63/68
U.S. Cl. 528—174 14 Claims

1. Method of preparing a high molecular weight, polyarylene polyether polysulfone having a reduced viscosity of at least 0.2 dl/g in chloroform at 25° C. which comprises coupling essentially stoichiometric quantity of an hydroxy terminated oligomeric polyarylene polyether polysulfone having a number average molecular weight of up to about 5000 in a post copolymerization reaction with essentially stoichiometric quantity of a comonomer selected from the group consisting of diaryl carbonates, diaryl esters of carboxylic acids or diorgano difunctional silyl coupling agents having the formula:

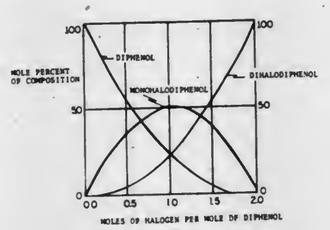


wherein D is a monovalent hydrocarbon radical selected from the group consisting of alkyl having 1 to about 4 carbons, cycloalkyl having 5 to about 7 carbons and aryl having 6 to about 10 carbons and E is a monovalent radical selected from the class consisting of OH, alkoxy having 1 to about 6 carbons, aryloxy having 6 to about 10 carbons, acyloxy having 2 to about 4 carbons, amino and ureido groups at a temperature of about 180° to about 400° C.

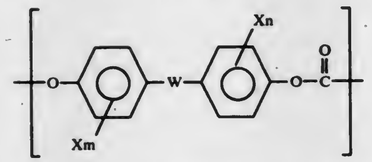
4,275,187
CONTINUOUS PROCESS FOR PRODUCING HALOGENATED POLYCARBONATES AND THE POLYCARBONATES OBTAINED THEREFROM

Clayton B. Quinn, Mt. Vernon, Ind., and Charles A. Wilson, II, Greenville, S.C., assignors to General Electric Company, Mt. Vernon, Ind.

Division of Ser. No. 882,192, Feb. 28, 1978, Pat. No. 4,224,434. This application Dec. 10, 1979, Ser. No. 101,840
Int. Cl.³ C08G 63/62
U.S. Cl. 528—174 7 Claims



1. A highly pure, high molecular weight aromatic polycarbonate consisting essentially of predetermined, statistical mixtures of unreacted diphenol, monohalodiphenol and dihalodiphenol, said polycarbonate having an intrinsic viscosity of about 0.4–1.0 dl/g as measured in methylene chloride at 25° C., said polycarbonate being represented by the general formula:



wherein Xm and Xn can each be a halogen and mixtures thereof; m and n are each 0–2 with the proviso that m+n equal at least 0.1, but no more than about 2.0; and, W is a member selected from the following group:

(a) $-CH_2-_r$ wherein r is 0–10 with the proviso that when both Xm and Xn are chlorine and m and n are each 1, r is 0 or 2–10;

(b)



wherein R is a member of the group consisting of C_1–C_{10} alkyl and C_6–C_{14} aryl;

(c)



wherein R and R' can each independently be the same as R in (b) above.

(d)



wherein p and q can each independently be 0–1; and

(e) —O—.

4,275,188
STRESS-CRACK RESISTANT POLYARYLATES

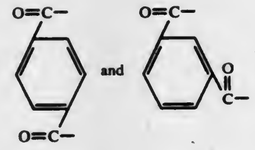
Mitchell H. Berger, Somerville; Markus Matzner, Edison, and Hugh C. Gardner, Somerville, all of N.J., assignors to Union Carbide Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 15,939, Feb. 28, 1979, abandoned. This application Apr. 22, 1980, Ser. No. 142,708
Claims priority, application Canada, Feb. 15, 1980, 345804; European Pat. Off., Feb. 27, 1980, 80400275.6; Japan, Feb. 27, 1980, 55-022889
Int. Cl.³ C08G 63/18
U.S. Cl. 528—193 10 Claims

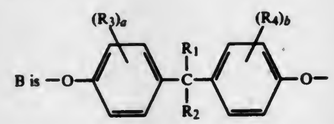
1. A normally solid polyarylate having the following repeating units:

—A—B— —A—D—

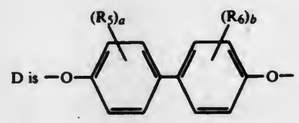
wherein A is a mixture of terephthalic and isophthalic acid residues, viz.,



in a mol ratio containing up to about 100 mol percent of the latter to a 50/50 mol ratio



wherein each of R_1 and R_2 are each H or alkyl groups having 1 to about 7 carbon atoms, R_3 and R_4 are alkyl groups having 1 to about 18 carbon atoms and a and b are integers having values of 0 to 4;



wherein R_5 and R_6 are alkyl groups having 1 to about 18 carbons and a and b are integers having values of 0 to 4, and wherein the mol ratio of B to D is in the range of from about 20 mols of B to 80 mols of D to about 80 mols of B to about 20 mols of D and the mol ratio of A to B and D is approximately stoichiometric.

4,275,189
NEOPENTYL GLYCOL, TEREPHTHALATE, DICARBOXY ACID, TRIMELLITATE THERMOSETTING RESIN

Charles Danick, Plymouth, and K. A. Pai Panandiker, Maple Grove, both of Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Filed Feb. 28, 1980, Ser. No. 125,533
Int. Cl.³ C08G 63/12
U.S. Cl. 528—296 5 Claims

1. A polyester resin for a powder coating resin comprising an oligomer of neopentyl glycol or cyclohexane dimethanol and terephthalic acid, or isophthalic acid or dimethyl terephthalate in a mole ratio of between about 1.15 and about 1.50 reacted with trimellitic anhydride to provide a trimellitate, the mole ratio of the oligomer to the trimellitic anhydride being in the range from about 2.5 to about 5.5, the trimellitate being reacted with a dicarboxylic anhydride or acid in the mole ratio of between about 1.5 and 2.5; the polyester resin having an ICI viscosity at 200° C. between about 20 poises and about 60 poises, an acid value of less than 30, a hydroxyl value between about 20 and about 60, and an equivalent weight between about 935 and about 2800.

4,275,190
LATENT HEAT-CURABLE IODONIUM/COPPER SALT-CATALYZED EPOXY RESIN COMPOSITIONS

Charles D. Dudgeon, Clifton Park, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 8, 1980, Ser. No. 110,372
Int. Cl.³ C08G 59/68
U.S. Cl. 528—361 11 Claims

1. A polymerizable composition comprising:

(i) an epoxy resin;

(ii) an effective amount of a catalyst precursor comprising an aromatic iodonium salt of a complex halogenide;

(iii) a small but effective amount of a copper salt catalyst activator; and

(iv) from a small but effective stabilizing amount up to about 150 parts by weight per 100 parts by weight of (i) of (a) a carboxyl terminated copolymer of butadiene and acrylonitrile, (b) a hydroxy terminated copolymer of butadiene and acrylonitrile, or (c) a mixture of (a) and (b).

4,275,191
POLYMERIZATION OF AROMATIC NITROGEN HETEROCYCLIC COMPOUNDS

Patrick M. Quinlan, Webster Groves, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Apr. 23, 1979, Ser. No. 32,037
Int. Cl.³ C08G 73/06; C07D 213/04, 215/04, 221/06
U.S. Cl. 528—423 12 Claims

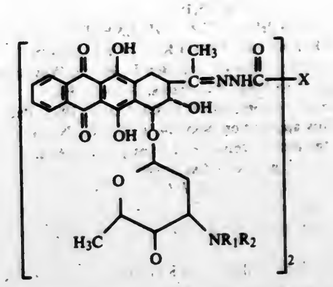
1. A process of polymerizing aromatic nitrogen heterocyclic compounds selected from the group consisting of quinoline, acridine, benzoquinoline, 2-methyl quinoline, pyridine, 2-methyl pyridine, 4-methyl pyridine and 2-butyl pyridine which comprises heating said compounds with alkyl halides at temperatures of from about 250° C. to about 400° C. in a pressure reaction vessel for about 8 to 30 hours.

4,275,192
BIS(4-DEMETHOXYDAUNORUBICIN)DIHYDRAZONE DERIVATIVES AND PHARMACOLOGICALLY ACCEPTABLE SALTS THEREOF

Martin A. Apple, Daly City, Calif., and Raphael Pappo, Skokie, Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Filed May 3, 1979, Ser. No. 35,657
Int. Cl.³ C07H 15/24; A61K 31/71
U.S. Cl. 536—17 A 8 Claims

1. A compound of the formula



and pharmacologically acceptable salts thereof wherein R_1 and R_2 represent hydrogen or alkyl having from 1 to 4 carbon atoms and X represents

(a) Alkylene having from 3 to 20 carbon atoms and optionally substituted by one or more hydroxy or primary amino groups or both, or

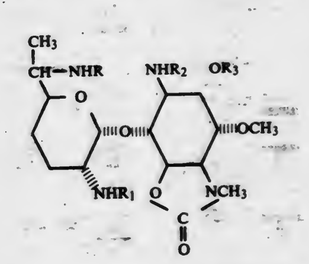
(b) Alkylene optionally interrupted by one or more secondary amino groups, the total number of carbon and nitrogen atoms in the resultant chain being from 3 to 20.

4,275,193
4,5-CARBAMATES OF FORTIMICIN B

John S. Tanazier, and Jerry R. Martin, both of Waukegan, Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Sep. 26, 1979, Ser. No. 79,134
Int. Cl.³ C07D 413/12
U.S. Cl. 536—17 R 7 Claims

1. A fortimicin B-4,5-carbamate represented by the formula:



wherein R is hydrogen or monocyclearyloxy carbonyl; R_1 is hydrogen or an amine-protecting group; R_2 is hydrogen or loweralkyloxycarbonyl; and R_3 is hydrogen and when R,R_1 or R_2 are hydrogen, the salts thereof.

4,275,194
CHITOSAN-IODINE ADDUCT

Masatada Kato, Tokyo; Nobuaki Mieno, Matsuzawamura; Tatsuo Kato, Mobara; Yoshiharu Kawada, Chiba; Hiroomi Hanada, and Teiichi Isomata, both of Mobara, all of Japan, assignors to Nihon Tensaa Gas Kogyo Co., Ltd., Tokyo, Japan

Filed Aug. 23, 1978, Ser. No. 936,047
Claims priority, application Japan, Nov. 26, 1977, 52-141920; Dec. 28, 1977, 52-157544
Int. Cl.³ C08B 37/08
U.S. Cl. 536—20 2 Claims

1. A chitosan-iodine adduct wherein iodine is included in the molecule of chitosan.

4,275,195
PROCESS AND APPARATUS FOR EXPEDITING THE MERCERIZATION OF ALKALI CELLULOSE

Charles J. Geyer, Jr., Berwyn, and Ben E. White, Wayne, both of Pa., assignors to Fiber Associates, Berwyn, Pa.

Continuation-in-part of Ser. No. 576,200, May 9, 1975, Pat. No. 4,163,840. This application May 24, 1979, Ser. No. 41,895
The portion of the term of this patent subsequent to Aug. 7, 1996, has been disclaimed.
Int. Cl.³ C08B 1/08, 1/10
U.S. Cl. 536—101 7 Claims

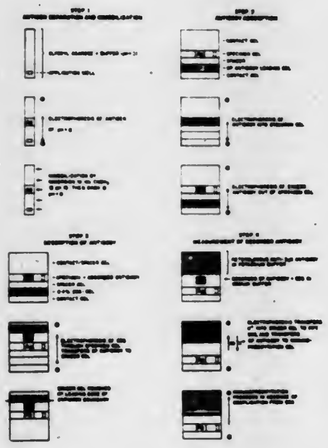
1. A process for mercerizing alkali cellulose comprising the step of:

exposing said alkali cellulose to RF energy for a period of time and at an energy input level sufficient to depolymerize said alkali cellulose to a desired predetermined degree of polymerization.

4,275,196
GLYOXAL AGAROSE

John R. Shainoff, Cleveland Heights, Ohio, assignor to The Cleveland Clinic Foundation, Cleveland, Ohio

Filed Mar. 23, 1979, Ser. No. 23,179
Int. Cl.³ B01D 57/02; B01J 13/00; C07H 15/00
U.S. Cl. 536—115 3 Claims



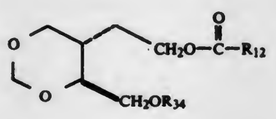
1. Glyoxal agarose.

4,275,197
9,11-DIDEOXY-10-OXA-TXB INTERMEDIATES

Douglas R. Morton, Jr., Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

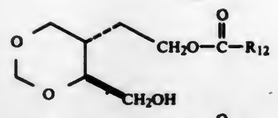
Division of Ser. No. 19,752, Mar. 12, 1979. This application Jan. 28, 1980, Ser. No. 116,324
Int. Cl.³ C07D 319/06, 5/12
U.S. Cl. 542—413 1 Claim

1. A thromboxane intermediate of formula IV, V, VI, or VII

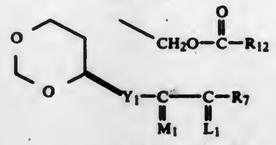


IV

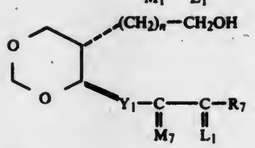
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V



VI



VII

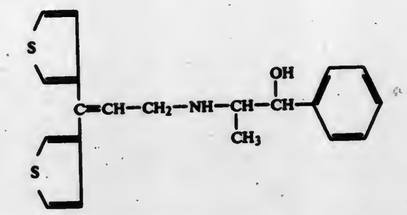
wherein Y_1 is
(1) trans—CH=CH—,
(2) cis—CH=CH—,
(3) $—CH_2CH_2—$, or
(4) —C≡C—,
wherein M_1 is α—R_5:β—OH, α—OH:β—R_5, or α—H:β—H, wherein R_5 is hydrogen or methyl;
wherein L_1 is α—R_3:β—R_4, α—R_4:β—R_3, or a mixture of α—R_3:β—R_4 and β—R_3:α—R_4, wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein g is one, 2, or 3;
wherein R_7 is
(1) $—(CH_2)_m—CH_3$, wherein m is an integer from one to 5 inclusive;
(2) phenoxy;
(3) phenoxy substituted by one, two, or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(4) phenyl;
(5) phenyl substituted by one, two, or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl;
(6) phenylmethyl, phenylethyl, or phenylpropyl; or
(7) phenylmethyl, phenylethyl, or phenylpropyl substituted by one, two, or three chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, or alkoxy of one to 3 carbon atoms, inclusive, with the proviso that not more than two substituents are other than alkyl; with the proviso that R_7 is phenoxy or substituted phenoxy, only when R_3 and R_4 are hydrogen or methyl, being the same or different;
wherein M_7 is α—R_5:β—OR_{10}, α—OR_{10}:β—R_5, or α—H:β—H, wherein R_{10} is a stable, acid hydrolyzable blocking group;
wherein R_{12} is alkyl of one to 12 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive; phenyl; or phenyl substituted with one, 2 or 3 chloro or alkyl of one to 3 carbon atoms, and
wherein R_{34} is a stable, hydrogenolyzable blocking group.

4,275,198
METHOD FOR PREPARING BASIC DITHIENYL COMPOUNDS

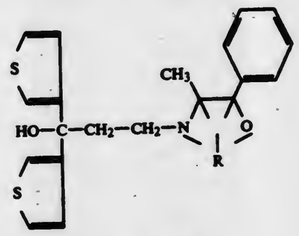
Frank J. Stiefel, Princeton, N.J., assignor to Carter-Wallace Inc., New York, N.Y.

Filed Jul. 18, 1980, Ser. No. 170,828
Int. Cl.³ C07D 409/14, 409/06
U.S. Cl. 542—414 5 Claims

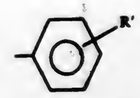
1. A method for preparing a compound of the formula and its salts



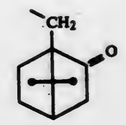
which comprises hydrolyzing a compound of the formula



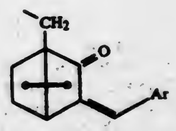
wherein R is hydrogen in lower alkyl.



in which R′ is methyl, chloro or hydroxy,

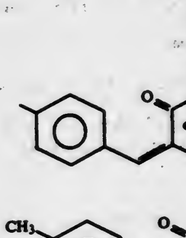


(iii)

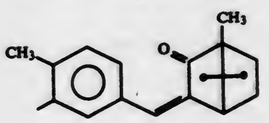


(iv)

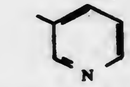
in which Ar is C_6H_5— or p—$CH_3C_6H_4$—,



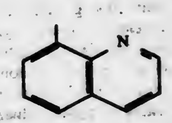
(v)



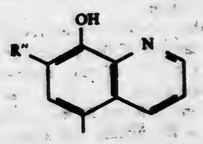
(vi)



(vii)



(viii)



(ix)

in which R″ is hydrogen or iodo;
(x) $—CH_2—CH_2—NH_2$, and
(xi) $—CH_2—CH(COOH)—NH_2$ wherein said process is undertaken in two stages; wherein in a first stage an intermediate compound of the formula

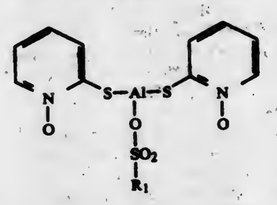
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4,275,199
PROCESS FOR PREPARING MIXED SULFONATES OF BIS-(N-OXYPYRIDYL-2-THIO)ALUMINUM

Claude Bouillon, Esbonne, and Georges Rosenbaum, Asnieres, both of France, assignors to L'Oreal, Paris, France

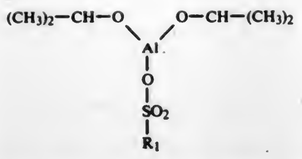
Continuation of Ser. No. 925,882, Jul. 18, 1978, abandoned. This application Jan. 8, 1980, Ser. No. 110,499
Claims priority, application France, Jul. 21, 1977, 77 22391
Int. Cl.³ C07D 213/89
U.S. Cl. 542—430 6 Claims

1. Process for preparing compounds of the formula:



I

in which
R_1 is selected from the group consisting of
(i) alkyl of 1 to 4 carbon atoms,
(ii)



is prepared by reacting an equimolar quantity of aluminum isopropylate with a sulfonic acid of the formula R_1SO_3H wherein R_1 is as defined above and wherein in a second stage, said intermediate compound is reacted with two equivalents of the N-oxide of pyridine-2 thiol.

4,275,200

PROCESS FOR THE PRODUCTION OF OXAZOLINONE-2-COMPOUNDS

Fritz Benker, Pullach; Hans-Heinrich Credner, Hohenschaeftlarn; Wolfgang Lässig, Munich; Ernst Meier, Munich, and Siegfried Schleger, Munich, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

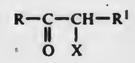
Continuation of Ser. No. 725,323, Sep. 22, 1976, abandoned. This application May 30, 1978, Ser. No. 910,624

Claims priority, application Fed. Rep. of Germany, Sep. 26, 1975, 2543094

Int. Cl.³ C07D *263/20, 295/00, 213/02*

U.S. Cl. 544—137 **11 Claims**

1. The process of preparing a 3-oxazolinone-2-compound or its tautomeric form in which a α-halogen carbonyl compound of the formula



in which

X represents chlorine or bromine

R and R^1 are each selected from the group consisting of hydrogen, alkoxy carbonyl groups, N-arylcarbamoyl, N-alkyl-N-arylcarbamoyl, N,N-dialkylcarbamoyl, morpholinocarbonyl

straight or branched chain alkyl groups having from 1–20 carbon atoms, 5- or 6-membered cycloalkyl groups which may in turn be substituted by alkyl groups, the alkylcycloalkyl entity having from 5–20 carbon atoms,

naphthyl or phenyl groups and heterocyclic groups selected from the group consisting of pyridyl, thiazolyl, morpholine, furanyl and indole,

which alkyl, naphthyl, phenyl and heterocyclic groups are attached to the carbons of the above formula either directly through a carbon of said groups or indirectly through a carbonyl group,

but not more than one of R and R^1 may be hydrogen,

is condensed in a reaction mixture with a carbamic acid ester selected from the group consisting of alkyl, phenyl and benzyl esters of carbamic acid, in the presence of an aprotic solvent and a basic condensing agent selected from the group consisting of an alkali metal, an alkali metal hydride and an alkali metal alcoholate at a temperature of between 20° C. and 200° C.

4,275,201

ARYL SUBSTITUTED DIKETONES

Joseph C. Collins, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y.

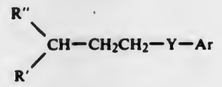
Division of Ser. No. 885,353, Mar. 13, 1978, Pat. No. 4,189,500, which is a division of Ser. No. 740,358, Nov. 10, 1976, Pat. No. 4,093,736, which is a continuation-in-part of Ser. No. 545,486, Jan. 30, 1975, Pat. No. 4,171,378, which is a continuation-in-part of Ser. No. 436,611, Jan. 25, 1974, Pat. No. 3,917,718, which is a continuation-in-part of Ser. No. 265,333, Jun. 22, 1972, Pat. No. 3,829,475. This application Feb. 14, 1979, Ser. No. 12,206

Claims priority, application United Kingdom, Jun. 18, 1973, 28793/73

Int. Cl.³ C07D *265/30*

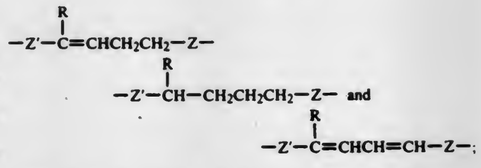
U.S. Cl. 544—171 **26 Claims**

1. A compound of the formula



wherein

Y is selected from the group consisting of



R' and R'' are lower-alkanoyl of 2 to 6 carbon atoms;

R is hydrogen or lower-alkyl of 1 to 4 carbon atoms;

Z is a single bond, vinylene only when the remainder of Y is unsaturated, or ethylene only when Y is saturated;

Z' is a single bond, methylene or ethylene; and

Ar is phenyl substituted by a single substituent selected from the group consisting of carbo-lower-alkoxy of 2 to 4 carbon atoms, alkanoylamino of 1 to 4 carbon atoms, acyloxy of 1 to 10 carbon atoms, dialkylamino where alkyl has from 1 to 4 carbon atoms, and aminosulfonyl.

4,275,202

PRODUCTION OF A PURIFIED CYANURIC ACID DIHYDRATE

Richard E. Hall, Trenton, and Basil A. Guiliano, Plainsboro, both of N.J., assignors to FMC Corporation, Philadelphia, Pa.

Filed Jul. 18, 1980, Ser. No. 170,280

Int. Cl.³ C07D *251/32*

U.S. Cl. 544—192 **16 Claims**

11. A process for the production of a purified cyanuric acid dihydrate from an anhydrous cyanuric acid contaminated with amounts of occluded sulfolane which comprises recrystallizing at about ambient temperature substantially all of the contaminated anhydrous cyanuric acid in an aqueous medium of water and sulfolane under conditions sufficient to form the cyanuric acid dihydrate, separating the cyanuric acid dihydrate from the aqueous medium, and washing the cyanuric acid dihydrate with water.

4,275,203

PROCESS FOR THE PRODUCTION OF CHLORO-AMINO-S-TRIAZINES

Klaus Hentschel, Kalmthout, Belgium, and Friedrich Bittner, Bad Soden, Fed. Rep. of Germany, assignors to Deutsche Gold und Silber Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 16, 1979, Ser. No. 94,876

Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 2850331

The portion of the term of this patent subsequent to Jun. 2, 1998, has been disclaimed.

Int. Cl.³ C07D *251/44, 403/04*

U.S. Cl. 544—194 **17 Claims**

1. A process for the production of chloroamino-s-triazine by reacting cyanuric chloride with an amine or an 2-aminonitrile in the presence of an acid binding agent comprising spraying cyanuric chloride downwardly and outwardly at a temperature in its molten range from the upper portion of a verticle tubular zone closed at the top thereof to contact and mix with the other reactant or reactants which form a liquid layer defining said tubular zone, constricting said layer in breast-shaped manner downwardly below the place of entry of the cyanuric chloride into the tubular zone to form a narrower discharge opening, discharging said other reactant or reactants as a spray tangentially to said layer and directed slightly upwardly in the direction of the closed top and above said constriction and below the point of introduction of the cyanuric chloride and thereby forming said liquid layer along the entire tubular zone to the point of introduction of the cyanuric chloride, whereby the thickness of said layer where it is formed in the breast-shaped constriction is greater than it is in the remainder of the tubular zone.

4,275,204

PREPARATION OF CHLORO-BIS(ALKYLAMINO)-S-TRIAZINES

Vittorio Messori; Renato Francese, and Roberto Esposito, all of Turin, Italy, assignors to Rumianca S.p.A., Turin, Italy

Filed Sep. 7, 1979, Ser. No. 73,360

Int. Cl.³ C07D *251/50*

U.S. Cl. 544—204 **9 Claims**

1. In a process for preparing chloro-bis(alkylamino)-s-triazine by step-wise replacement of two chlorine atoms of cyanuric chloride by means of alkylamino groups in a medium comprising water and a liquid organic compound which is a solvent for cyanuric chloride, by reaction in a first step of a first amine, cyanuric chloride and alkali metal hydroxide in substantially equimolecular amounts and by reaction in a second step of the resulting mono(alkylamino)-s-triazine, a second amine and alkali metal hydroxide in substantially equimolar amounts, the improvement which comprises using an organic compound which is substantially immiscible with water and carrying out said first step by contacting said first amine with a reaction medium containing the cyanuric chloride and the whole of the alkali metal hydroxide used for the step-wise replacement.

4,275,205

7,7-DITOSYLOXYMETHYL-4,5α-EPOXY-MORPHINAN-6-OLS

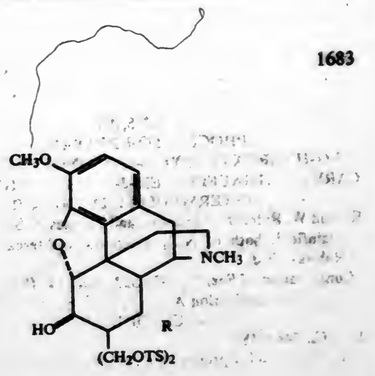
Michael P. Kotick, and David L. Leland, both of Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Filed May 5, 1980, Ser. No. 146,384

Int. Cl.³ C07D *489/02*; A61K *31/485*

U.S. Cl. 546—44 **4 Claims**

1. A 7,7-ditosyloxymethyl-4,5α-epoxy-3-methoxy-17-methyl-morphinan-6β-ol of the formula:



where R is H, CH_3 or CH_2CH_3.

4,275,206

LACTONE COMPOUNDS CONTAINING AN INDOLIZINE RADICAL

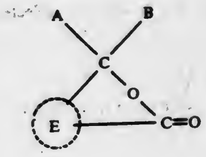
William J. Becker; Sheldon Farber, and Troy E. Hoover, all of Appleton, Wis., assignors to Appleton Papers Inc., Appleton, Wis.

Continuation-in-part of Ser. No. 17,764, Mar. 5, 1979, Pat. No. 4,232,887. This application Jan. 16, 1980, Ser. No. 112,500

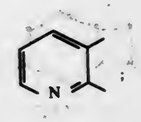
Int. Cl.³ C07D *491/048*

U.S. Cl. 546—115 **7 Claims**

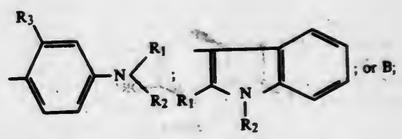
1. A compound represented by the formula:



wherein E is:



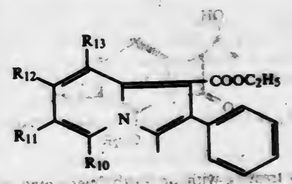
A is:



R_1 and R_2 are: hydrogen or lower alkyl;

R_3 is: hydrogen or to lower alkoxy;

B is:



R_{10}, R_{11}, R_{12} and R_{13} are: hydrogen or lower alkyl.

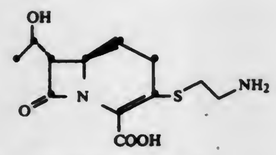
4,275,207

PROCESS FOR PREPARING 7-(1-HYDROXYETHYL)-3-(2-AMINOETHYLTHIO)-1-CARBADETHIACEPH-3-EM-3-CARBOXYLIC ACID AND INTERMEDIATE THEREFOR

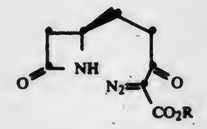
Ronald W. Ratcliffe, Matawan, and Thomas N. Salzmann, North Plainfield, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 933,322, Aug. 14, 1978, abandoned. This application Aug. 17, 1979, Ser. No. 67,599
Int. Cl.³ C07D 471/04
U.S. Cl. 546—183 3 Claims

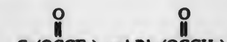
1. A process for preparing a compound having the structure:



which comprises the steps of cyclizing:

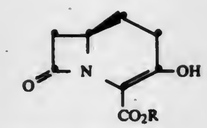


in the presence of a catalyst selected from: bis-(acetylacetonato)Cu,

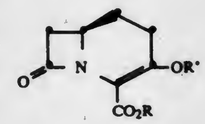


$Cu(OCCF_3)$, and $Rh_2(OCCH_3)_4$;

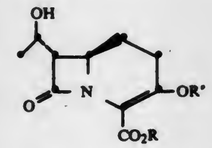
to form:



followed by esterifying to form:

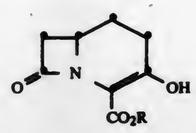


followed by alkylating in the presence of base with acetaldehyde to form:



followed by treating with aminoethylmercaptan and deblocking wherein R is a readily removable carboxyl blocking group selected from the group consisting of t-butyl, p-methoxybenzyl, benzhydryl, p-nitrobenzyl, and p-methoxybenzyl and R* is a leaving group selected from the group consisting of tosyl, mesyl, or nosyl.

2. A compound having the structure:



wherein R is a blocking group selected from the group consisting of t-butyl, p-methoxybenzyl, benzhydryl, p-nitrobenzyl, and p-nitrobenzyl.

4,275,208

PREPARATION OF 1-PIPERIDINE-CARBODITHIOIC ACID PIPERIDINIUM SALT

Leonard A. Rothman, Great Neck, N.Y., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 28, 1980, Ser. No. 144,298
Int. Cl.³ C07D 401/12
U.S. Cl. 546—189 6 Claims

1. A process for preparing 1-piperidine-carbodithioic acid piperidinium salt comprising reacting piperidine in water with carbon bisulfide. and heating to 52°–56° C.

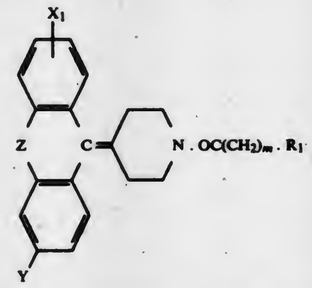
4,275,209

XANTHENE AND THIOXANTHENE DERIVATIVES

Niels Lassen, Gentofte; Klaus P. Bogeso, Lyngby; Peter B. Hansen, Allerod; Jørn L. M. Buus, Bjæverskov, and Allan J. Bigler, Copenhagen, all of Denmark, assignors to Kefalas A/S, Copenhagen-Valby, Denmark

Division of Ser. No. 35,735, May 3, 1979. This application Dec. 21, 1979, Ser. No. 106,353
Claims priority, application United Kingdom, May 12, 1978, 19310/78
Int. Cl.³ C07D 409/04
U.S. Cl. 546—202 3 Claims

1. A compound of the formula:



wherein X_1, Y, Z, m and R_1 are defined as follows:

X_1 is a halogen atom, an alkyl group with one to four carbon atoms inclusive, an alkoxy group with one to four carbon atoms inclusive, a methylmercapto group, or a trifluoromethyl group;

Y is hydrogen, fluorine, or a methyl group;

Z is oxygen or sulphur;

m is zero or an integer from one to two, inclusive; and

R_1 is a cycloalkyl group with four to six carbon atoms inclusive in the ring, which is substituted with one to four substituents selected from the group consisting of: amino; acetamino; mesylamino; and protected hydroxy- or protected hydroxymethyl, any such protected hydroxy or hydroxymethyl group present being protected by esterification into an ester of an aliphatic carboxylic acid having ten to twenty-two carbon atoms inclusive; and, when a previously-named substituent is present, also methyl.

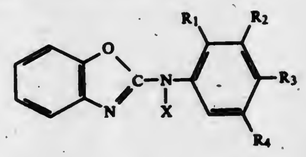
4,275,210

SUBSTITUTED 2-ANILINOBENZOXAZOLES

Charles J. Paget, Jr., Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 419,733, Nov. 28, 1973, Pat. No. 4,088,770, and a continuation-in-part of Ser. No. 255,702, May 22, 1972, abandoned, which is a continuation-in-part of Ser. No. 188,544, Oct. 12, 1971, Pat. No. 3,743,792, which is a continuation-in-part of Ser. No. 140,289, May 4, 1971, abandoned. This application Feb. 15, 1978, Ser. No. 878,037
Int. Cl.³ C07D 263/58; A61K 31/42
U.S. Cl. 546—222 6 Claims

1. A compound of the formula



wherein,

X is hydrogen, C_1–C_4 alkyl, C_1–C_3 alkoxy, C_1–C_3 alkoxy C_1–C_3 alkyl, carboxy, carboxy C_1–C_3 alkyl, amino C_1–C_3 alkyl, mono-C_1–C_3 alkylamino C_1–C_3 alkyl, Di-C_1–C_3 alkylamino C_1–C_3 alkyl, anilino C_1–C_3 alkyl, C_1–C_3 alkylthio, C_1–C_3 alkylsulfonyl, phenyl, phenyl C_1–C_3 alkyl, or carbanilino;

R_1, R_2, R_3, and R_4, when only one is a substituent other than hydrogen, are trifluoromethyl, carboxy, carboxy C_1–C_3 alkyl, C_1–C_3 alkoxy C_1–C_3 alkyl, C_1–C_3 alkylcarbonyl, carb C_1–C_3 alkoxy, C_1–C_3 alkylthio, C_1–C_3 alkylsulfonyl, or phenyl;

R_1, R_2, R_3, and R_4, when any two are substituents other than hydrogen are bromine, chlorine, fluorine, or trifluoromethyl, with the proviso that when X is other than hydrogen, all of R_1, R_2, R_3, and R_4 can be hydrogen.

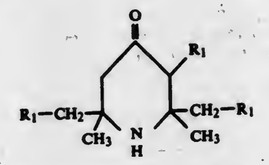
4,275,211

PROCESS FOR PREPARING 2,2,6,6-TETRAALKYL-4-OXOPIPERIDINES

Ivan Orban, and Eduard Troxler, both of Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Nov. 5, 1979, Ser. No. 91,006
Claims priority, application Switzerland, Nov. 17, 1978, 11829/78
Int. Cl.³ C07D 211/74
U.S. Cl. 546—242 8 Claims

1. In the process for producing a piperidine compound of the formula (I)



(I)

in which R_1 is hydrogen or C_1–C_4-alkyl, from a ketone of the formula (II) R_1—CH_2—C(O)—CH_3 (II), wherein R_1 has the meaning given above, and ammonia, at temperatures of 5°–90° C. in the presence of a catalyst, the improvement which comprises using as said catalyst a strongly acid ion exchanger having a medium or large mesh size, or having large macropores.

4,275,212

METHOD OF PREPARING PYRIDINYLOXYPHENOLS AND DERIVATIVES

Jon A. Orvik, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 824,377, Aug. 15, 1977, abandoned. This application Nov. 13, 1979, Ser. No. 93,646
Int. Cl.³ C07D 213/63, 213/68
U.S. Cl. 546—290 24 Claims

1. In the process for preparing ring substituted or unsubstituted pyridinyloxyphenol compounds by reaction of a preselected reactive 2(6)- or 4-substituted pyridine reactant with about an equimolar amount of a preselected hydroquinone reactant in the presence of a base, the improvement which comprises: adding the base over a ½ hour to 1½ hour period and carrying out the said reaction at the requisite temperature and with the requisite molar ratio of base to hydroquinone reactant whereby product is formed in less than about 8 hours that contains less than about 10 mole percent of the corresponding bis(pyridinyloxy)benzene by-product, based on the weight of the desired pyridinyloxyphenol product formed, the reaction temperature being in the range of from about 50° to about 130° C. and the said molar ratio being in the range of from about 1.5:1 to about 2:1, and the reaction being carried out under an inert atmosphere and in an inert reaction medium.

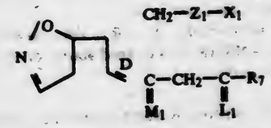
4,275,213

ISOXAZOLYL DERIVATIVES OF 9α,11α-EPOXY IMINO-9,11,15-TRIDEOXY-PGF-TYPE COMPOUNDS

Gordon L. Bundy, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Filed May 12, 1980, Ser. No. 148,631
Int. Cl.³ C07D 261/04, 413/12, 413/06
U.S. Cl. 548—240 45 Claims

1. A compound of the formula I



I

or a pharmacologically acceptable salt thereof,

wherein D represents the E or Z configuration,

wherein M_1 is oxo, α-OH:β-H, β-OH:α-H, α-OOH:β-H, or β-OOH:α-H;

wherein X_1 is

(1) —CO_2R_1, wherein R_1 is hydrogen, alkyl of from one to 12 carbon atoms, cycloalkyl of from 3 to 10 carbon atoms, aralkyl of from 7 to 12 carbon atoms, phenyl, phenyl mono-, di-, or trisubstituted by chloro or alkyl of from one to 3 carbon atoms, or phenyl para-substituted by

(i) —NHCO-R_{25}
(ii) —O—CO—R_{26}
(iii) —CO_2R_1
(iv) —C—CO—(p-Ph)—R_{27}
(v) —CH=N—NH—CO—NH_2

wherein R_{25} is methyl, phenyl, acetamidophenyl, benzamidophenyl, or amino, R_{26} is methyl, phenyl, amino or methoxy; R_{27} is hydrogen or acetamido or a pharmacologically acceptable cation and —(p-Ph) is 1,4-phenylene,

(2) —COW_1, wherein W_1 is

(a) amido of the formula—$NR_{21}R_{22}$, wherein R_{21} and R_{22} are hydrogen;
alkyl of one to 12 carbon atoms, inclusive;
cycloalkyl of 3 to 10 carbon atoms, inclusive;
aralkyl of 7 to 12 carbon atoms, inclusive;

phenyl;
phenyl substituted with one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
carboxyalkyl of one to four carbon atoms, inclusive;
carbamoylalkyl of one to 4 carbon atoms, inclusive;
cyanoalkyl of one to 4 carbon atoms, inclusive;
acetylalkyl of one to 4 carbon atoms, inclusive;
benzoylalkyl of one to 4 carbon atoms, inclusive;
benzoylalkyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, carboxy, alkoxycarbonyl of one to 4 carbon atoms, inclusive, or nitro;
pyridyl;
pyridyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive;
pyridylalkyl of one to 4 carbon atoms, inclusive; or
pyridylalkyl substituted by one, 2, or 3 chloro, alkyl of one to 3 carbon atoms, inclusive, hydroxy, alkoxy of one to 3 carbon atoms, inclusive, hydroxyalkyl of one to 4 carbon atoms, inclusive, dihydroxyalkyl of one to 4 carbon atoms, inclusive, or trihydroxyalkyl of one to 4 carbon atoms inclusive;

with the further proviso that not more than one of R_{21} and R_{22} is other than hydrogen or alkyl;

(b) cycloamido selected from the group consisting of
1-pyrrolidinyl,
1-piperidinyl,
4-morpholinyl,
hexahydro-1H-azepin-1-yl, 3-pyrrolin-1-yl, or
3,6-dihydro-1(2H)-pyridinyl, substituted by R_{21}, or R_{22} or both or
1-piperazinyl substituted on the 4-position by R_{21}, wherein R_{21} and R_{22} are as defined above;

(c) carbonylamido of the formula—$NR_{23}COR_{21}$, wherein R_{23} is hydrogen or alkyl of one to 4 carbon atoms and R_{21} is defined above;

(d) sulfonylamido of the formula—$NR_{23}SO_2R_{21}$, wherein R_{21} and R_{23} are as defined above; or

(e) hydrazino of the formula—$NR_{23}R_{24}$, wherein R_{24} is amido of the formula—$NR_{21}R_{22}$, as defined above, or cycloamido, as defined above; or

(3) CH_2OH

(4) —$CH_2NR_{11}R_{12}$ wherein R_{11} and R_{12} are the same or different and are hydrogen or alkyl of from one to 4 carbon atoms;

wherein Z_1 is
(1) cis—CH=CH—$CH_2(CH_2)_g$—CH_2—,
(2) cis—CH=CH—$CH_2(CH_2)_g$—CF_2,
(3) cis—CH_2—CH=CH—$(CH_2)_g$—CH_2—,
(4) $CH_2)_3$—$(CH_2)_g$—CH_2
(5) —$(CH_2)_3$—$(CH_2)_g$—CF_2—,
(6) —CH_2—O—CH_2—$(CH_2)_g$—CH_2—,
(7) —(m-Ph)—$CH_2(CH_2)_g$—, or
(8) —(m-Ph)—O—$(CH_2)_g$—,

wherein g is an integer from one to 3 and (m-Ph) is 1,3-phenylene;

wherein L_1 is α-R_3:β-R_4, β-R_3:α-R_4 or a mixture of the two, wherein R_3 and R_4 are the same or different and are hydrogen, methyl, of fluoro, with the proviso that if R_3 is fluoro, R_4 is hydrogen or fluoro;

wherein R_7 is
(1) —$(CH_2)_m$—CH_3
(2) —O—(PhI) or
(3) —$(CH_2)_n$—(PhI)

wherein m is an integer from one to 5, n is an integer from 0 to 4, and (PhI) is phenyl substituted by from 0 to 3, chloro, fluoro, trifluoromethyl, alkyl of from one to 3 carbon atoms, or alkoxy of from one to 3 carbon atoms, with the proviso that not more than two substituents are other than alkyl.

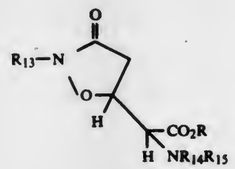
4,275,214

SUBSTITUTED ALKOXY CARBONYL-3-OXO-α-PHTHALIMIDO-5-ISOXOZOLIDINEACETIC ACIDS

Robert C. Kelly, and Wendell Wierenga, both of Kalamazoo, Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

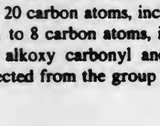
Continuation-in-part of Ser. No. 906,276, May 15, 1978, abandoned. This application Jul. 31, 1979, Ser. No. 62,459
Int. Cl.³ C07D 413/06, 261/04
U.S. Cl. 548—243 **37 Claims**

1. Racemic mixtures and optically active isomers of compounds having the formula

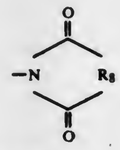


II

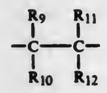
wherein R is selected from the group consisting of hydrogen alkyl of from 1 to 12 carbon atoms, inclusive, halogenated alkyl of from 1 to 5 carbon atoms, inclusive, and 1 to 3 halogen atoms, inclusive, aryl of from 6 to 20 carbon atoms, inclusive, aralkyl of from 7 to 20 carbon atoms, inclusive, and substituted aralkyl of from 7 to 20 carbon atoms, inclusive; R_{13} is hydrogen, alkyl of from 1 to 8 carbon atoms, inclusive, alkoxycarbonyl, halogenated alkoxy carbonyl and aralkoxycarbonyl; R_{14} and R_{15} are selected from the group consisting of hydrogen,



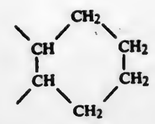
or when taken together with the nitrogen atoms form the group



wherein R_6 is alkyl of from 1 to 8 carbon atoms, inclusive, halogenated alkyl of from 1 to 5 carbon atoms, inclusive, and 1 to 3 halogen atoms, inclusive, aralkyl of from 7 to 20 carbon atoms, inclusive, and substituted aralkyl of from 7 to 20 carbon atoms, inclusive, R_7 is selected from the group consisting of alkyl of from 1 to 12 carbon atoms, inclusive, aryl of from 6 to 20 carbon atoms, inclusive, aryl of from 6 to 20 carbon atoms, inclusive, aralkyl of from 7 to 20 carbon atoms, inclusive, and substituted aralkyl of from 7 to 20 carbon atoms, inclusive, and R_8 is selected from the group consisting of



where R_9, R_{10}, R_{11} and R_{12} are selected from the group consisting of hydrogen and alkyl of from 1 to 5 carbon atoms, inclusive,



orthointerphenylene, and substituted orthointerphenylene, with the proviso that other than when R_{14} and R_{15} form a ring with the nitrogen atom, one of R_{14} and R_{15} must always be hydrogen, and the further proviso that when R_{13}, R_{14} and R_{15} are all hydrogen, or R_{14} or R_{15} is



R cannot be hydrogen or alkyl of from 1 to 12 carbon atoms, and that when R_{13} is aralkoxycarbonyl or halogenated alkoxy carbonyl, neither



can be aralkoxycarbonyl or halogenated alkoxycarbonyl, nor



be aralkoxycarbonyl or halogenated alkylcarbonyl.

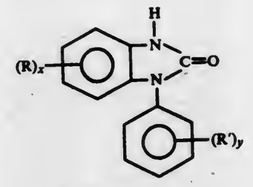
4,275,215

PROCESS FOR PREPARING 1-ARYL-2-BENZIMIDAZOLINONES

Robin R. Ison, Norfolk, England, assignor to Dow Chemical Company Limited, King's Lynn, England

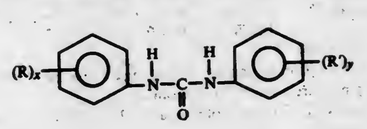
Filed Jun. 17, 1980, Ser. No. 160,269
Claims priority, application United Kingdom, May 3, 1978, 17567/78
Int. Cl.³ C07D 235/26
U.S. Cl. 548—305 **10 Claims**

1. A process for preparing 1-aryl-2-benzimidazolinones of the formula



(I)

wherein
R and R' are independently C_1–C_4 alkyl, C_1–C_4 alkoxy or alkylthio, fluoro, bromo or chloro, and
x and y are individually 0, 1 or 2,
which process comprises reacting by contacting:
(a) a carbanilide of the formula



(II)

wherein R, R', x and y are defined as in (I); with
(b) a hypohalite ion, in which the halogen is chlorine, bromine or iodine,
wherein the carbanilide and hypohalite ion are contacted as a liquid, biphasic mixture, the biphasic mixture consisting of a liquid organic phase comprising the carbanilide dissolved in an inert, organic solvent and an aqueous phase containing the hypohalite ion, the contacting conducted in the presence of a catalytic amount of a quaternary ammonium and/or phosphonium salt catalyst.

4,275,216

PROCESS FOR PREPARING 4(5)-HYDROXYMETHYL 5(4)-LOWER ALKYL IMIDAZOLES

Yves A. Hubert-Brierre, Vienne, France, assignor to Delalande S.A., Courbevoie, France

Filed Jul. 31, 1979, Ser. No. 62,501
Claims priority, application France, Aug. 30, 1978, 78 25051
Int. Cl.³ C07D 233/64
U.S. Cl. 548—342 **24 Claims**

1. In a process for preparing 4(5)-hydroxymethyl-5(4)-lower alkyl imidazoles, in which 5(4)-lower alkyl imidazole is reacted with formaldehyde, the improvement which comprises: the reaction is carried out in the presence of a strong base and the reaction temperature is from above 60° to 95° C.

4,275,217

PROCESS FOR THE PREPARATION OF OPTICALLY ACTIVE α-AMINO ACIDS AND THEIR DERIVATIVES

Lucette Duhamel, Mont-Saint-Aignan, and Jean-Christophe Plaquevent, Maromme, both of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly sur Seine, France

Filed Jul. 9, 1979, Ser. No. 56,106
Claims priority, application France, Jul. 7, 1978, 78 20345
Int. Cl.³ C07D 233/64; C07B 19/00
U.S. Cl. 548—344 **25 Claims**

1. A process for preparing a chiral α-amino acid or a derivative thereof, having a hydrogen substituent in a position alpha to the carboxylic function or a derivative thereof, said process utilizing as an initial reactant a corresponding optical antipode or a mixture thereof with said chiral amino acid or a derivative thereof, said process comprising submitting said initial reactant to the action of a strong base so as to remove the proton in a position alpha to the carboxylic function or derivative thereof, and reacting the resulting product with a sterically hindered chiral protonation agent which is a chiral acid having at least one cyclic substituent or a branched group.

2. The process of claim 1 wherein said amino acid or its derivative is selected from the group consisting of phenylglycine, alanine, phenylalanine, valine, leucine, isoleucine, tyrosine, serine, threonine, methionine, tryptophane, arginine, lysine, histidine and derivatives thereof.

4,275,218

SULFOLENE HYDROGENATION

Edward E. Huxley, and Martin E. Nash, both of Borger, Tex., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 14, 1980, Ser. No. 168,806
Int. Cl.³ C07O 333/48
U.S. Cl. 549—87 **10 Claims**

1. A process for the production of a sulfolane compound which comprises contacting at least one sulfolene compound with hydrogen and a metal hydrogenation catalyst in the presence of an effective amount of ammonia under suitable hydrogenation conditions to convert said sulfolene compound to the corresponding sulfolane compound.

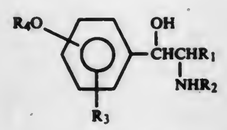
4,275,219

NOVEL PROCESS AND INTERMEDIATES USEFUL IN THE PREPARATION OF SYMPATHOMIMETIC AMINES

Jacob A. Zapata, Lawrence, Kans., assignor to INTERx Research Corporation, Lawrence, Kans.

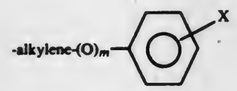
Filed Sep. 24, 1979, Ser. No. 78,197
Int. Cl.³ C07C *125/065, 69/017*
U.S. Cl. 560—29 **44 Claims**

1. A process for the preparation of a compound of the formula



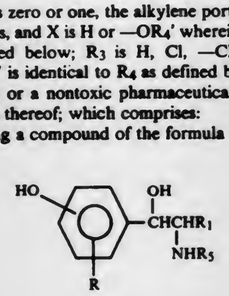
(I)

wherein R_1 is H or alkyl of 1 to 7 carbon atoms; R_2 is H, alkyl of 1 to 7 carbon atoms, or



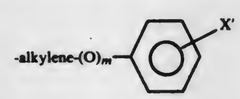
wherein m is zero or one, the alkylene portion contains 1 to 5 carbon atoms, and X is H or $—OR_4'$ wherein R_4' is identical to R_4 as defined below; R_3 is H, Cl, $—CH_2OH$ or $—OR_4''$ wherein R_4'' is identical to R_4 as defined below; and R_4 is an acyl radical; or a nontoxic pharmaceutically acceptable acid addition salt thereof; which comprises:

(a) reacting a compound of the formula



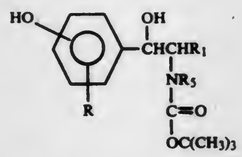
(II)

wherein R_1 is defined as above; R is H, Cl, $—CH_2OH$ or —OH; and R_5 is H, alkyl of 1 to 7 carbon atoms, or



wherein m and alkylene are defined as above and X' is H or —OH; with a reagent capable of forming the N-tert-butoxycarbonyl derivative thereof;

(b) reacting the resultant N-tert-butoxycarbonyl compound of the formula



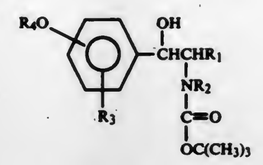
(III)

wherein R, R_1 and R_5 are defined as above, with an acyloxymethyl chloride of the formula

$$R_4OCH_2Cl \quad \text{(IV)}$$

wherein R_4 is an acyl radical, in an organic solvent in the presence of a base, to effect acylation of all phenolic hydroxy groups in said compound of formula (III); and

(c) removing the tert-butoxycarbonyl protecting group from the resultant compound of the formula



(V)

wherein R_1, R_2, R_3 and R_4 are defined as above.

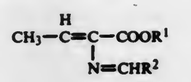
4,275,220

PROCESS FOR PREPARING AMINO ACIDS AND ESTERS

Arthur A. Patchett, Westfield, N.J., and William J. Greenlee, New York, N.Y., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 927,208, Jul. 24, 1978, abandoned. This application Aug. 6, 1979, Ser. No. 64,348
Int. Cl.³ C07C *101/28*
U.S. Cl. 560—35 **3 Claims**

1. Compounds having the formula:



wherein R^1 is lower alkyl and R^2 is the residue of an aldehyde R^2CHO having no α-hydrogen.

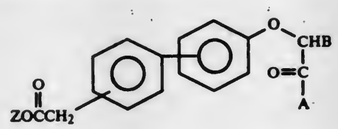
4,275,221

DERIVATIVES OF 2-NITROBENZOFURAN

Walton J. Hammar, and Mark A. Rustad, both of St. Paul, Minn., assignors to Riker Laboratories, Inc., Northridge, Calif.

Division of Ser. No. 13,543, Feb. 21, 1979, Pat. No. 4,208,337, which is a division of Ser. No. 620,140, Dec. 19, 1977, Pat. No. 4,153,721. This application Jan. 21, 1980, Ser. No. 113,532
Int. Cl.³ C07C *69/66, 65/21, 69/77*
U.S. Cl. 560—53 **1 Claim**

1. A compound of the formula



wherein Z is hydrogen or alkyl of one to four carbon atoms, A is methyl or ethyl and B is hydrogen or ethyl carboxylate.

4,275,222

BENZOATE ESTER COMPOSITIONS

Thomas L. Scala, Jr., West Milford, N.J., assignor to Finetex, Inc., Elmwood, N.J.

Continuation-in-part of Ser. No. 949,630, Oct. 10, 1978, abandoned. This application Sep. 14, 1979, Ser. No. 74,071
Int. Cl.³ C07C *69/78*
U.S. Cl. 560—103 **1 Claim**

1. A composition of matter consisting of the benzoic acid esters of a mixture by weight of from about 23 to 31% of C_{12}, 32 to 44% of C_{13}, 17 to 23% of C_{14}, and 12 to 18% of C_{15} linear primary alcohols.

4,275,223

PREPARATION OF TRANS-CYCLOHEXANE-1,4-DIURETHANES

Hans Zengel, Kleinwallstadt, and Manfred Bergfeld, Erlenbach, both of Fed. Rep. of Germany, assignors to Akzona Incorporated, Asheville, N.C.

Division of Ser. No. 883,949, Mar. 6, 1978, Pat. No. 4,203,916. This application Jun. 18, 1979, Ser. No. 49,112
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1977, 2710595
Int. Cl.³ C07C *125/04*
U.S. Cl. 560—115 **6 Claims**

1. A process for the preparation of trans-cyclohexane-1,4-diurethane, which comprises (a) reacting ammonia with cyclohexane-1,4-dicarboxylic acid, or a lower alkyl ester, a glycol ester, an oligomeric ester or a polyester thereof or a mixture of such compounds at an ammonia partial pressure of from 0.1 to 50 bar in a polyhydric alcohol at a temperature of from about 25° C. to about 200° C., (b) separating the resulting solid dicarboxylic acid diamide precipitated under these conditions from the reaction mixture, (c) freeing the solid diamide from water soluble constituents adhering thereto, (d) suspending the resulting solid diamide in an aqueous mineral acid or in water, (e) chlorinating the diamide at a temperature of from 0° C. to 40° C. to form cyclohexane-1,4-dicarboxylic acid-bis-N-chloramide, and (f) reacting the chloramide with a monohydric alcohol, a polyhydric alcohol, or a carbocyclic or heterocyclic phenol which is capable of at least partly dissolving an alkali metal or alkaline earth metal hydroxide in the presence of said alkali metal or alkaline earth metal hydroxide to form trans-cyclohexane-1,4-diurethane.

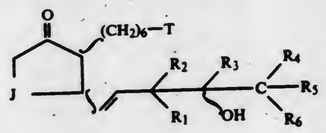
4,275,224

15-DEOXY-16-HYDROXY PROSTAGLANDINS

Harold C. Kluender; Warren D. Woessner, and William G. Biddlecom, all of Madison, Wis., assignors to Miles Laboratories, Inc., Elkhart, Ind.

Division of Ser. No. 880,501, Feb. 23, 1978, Pat. No. 4,132,738. This application Dec. 26, 1978, Ser. No. 973,010
Int. Cl.³ C07C *177/00*
U.S. Cl. 560—116 **15 Claims**

1. A compound having the formula:



wherein:

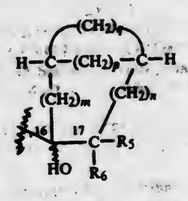
J is selected from the group consisting of R-hydroxymethylene and S-hydroxymethylene;

T is alkyloxycarbonyl having from 1 to 2 carbon atoms inclusive in the alkyl group;

R_1 is hydrogen;

R_2 is hydrogen or together with R_4 is an alkylene chain of 2 to 3 carbon atoms such that a cycloalkyl of 5 to 6 carbon atoms inclusive is formed;

R_3 is hydrogen or together with R_4 is a bicycloalkenyl or bicycloalkyl moiety having the formula:



such that a bicycloalkyl or bicycloalkenyl compound is formed, wherein m and n are integers having a value of from 0 to 3, p is an integer having a value of from 0 to 4 and q is an integer having a value of from 1 to 4 and wherein the double bond of such bicycloalkenyl is in the m, n, p or q bridge;

R_4 together with R_2 forms a cycloalkyl or together with R_3 forms a bicycloalkyl or bicycloalkenyl as defined above or together with R_5 is a methylene chain of 3 to 4 carbon atoms such that a cycloalkyl of 4 to 5 carbon atoms inclusive is formed; and

R_5 is hydrogen or together with R_4 is a cycloalkyl as defined above;

R_6 is hydrogen or a straight-chain alkyl of 1 to 3 carbon atoms.

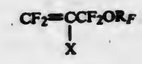
4,275,225

POLYFLUOROALLYLOXY COMPOUNDS, THEIR PREPARATION AND COPOLYMERS THEREFROM

Carl G. Krespan, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 20,354, Mar. 14, 1979, abandoned, which is a continuation-in-part of Ser. No. 850,729, Nov. 11, 1977, abandoned, which is a continuation-in-part of Ser. No. 747,029, Dec. 2, 1976, abandoned. This application May 1, 1980, Ser. No. 145,756
Int. Cl.³ C07C *69/734, 59/58*
U.S. Cl. 560—174 **7 Claims**

1. A polyfluoroallyloxy compound having the formula:



wherein X is —Cl or —F, and R_F is:

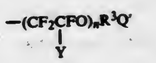


(i)

wherein R^1 is a carbon-carbon bond or a linear or branched perfluoroalkylene group of 1 to 12 carbon atoms; Q is $—CO_2H$ or $—CO_2R^4$ where R^4 is $—CH_3$ or $—C_2H_5$; Y and Y', independently, are —F or $—CF_3$ providing that only one of Y and Y' can be $—CF_3$; or

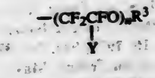
$$—CF(R^2)_2 \quad \text{(ii)}$$

wherein R^2 is $—CF_2CO_2H$, or $—CF_2CO_2R^4$ where R^4 is defined as above; or

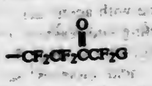


(iii)

wherein R^3 is a linear or branched perfluoroalkylene group of carbon content such that the moiety



does not exceed 15 carbon atoms; Y is —F or $—CF_3$; n is 1 to 4; and Q' is defined as for Q above; or



(iv)

wherein G is $—CO_2H$ or $—CO_2R^4$ where R^4 is $—CH_3$ or $—C_2H_5$.

4,275,226
PROCESS FOR PRODUCING FLUOROVINYL ETHER

Masaaki Yamabe, Machida; Seisaku Kumai, Yokohama, and Seiji Munekata, Tokyo, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,347
Claims priority, application Japan, Aug. 25, 1978, 53/102686; Aug. 25, 1978, 53/102687
Int. Cl.³ C07C *69/734, 143/00, 57/065, 41/24*
U.S. Cl. 560—183 15 Claims

1. A process for producing a fluorovinyl ether having the formula

$$XRfCF_2OCF{=}CF_2 \qquad (I)$$

wherein X represents —H, —Cl, —Br, —F, $—CO_2R$, —CONRR', $—SO_2F$,

$$—\overset{\overset{O}{\|}}{P}(OR)_2,$$

or —COF and R represents a C_1–C_{10} alkyl group; R' represents —H or a C_1–C_{10} alkyl group; Rf represents a C_1–C_{20} bifunctional perfluoro-containing group which can have one or more ether bonds, which comprises reacting an iodine containing ether having the formula:

$$XRfCF_2OCF_2CF_2I \qquad (II)$$

wherein X and Rf are as defined above, in the presence of a particulate, metallic catalytic component selected from the group consisting of Mg, Cu, Zn, Sn, and Sb.

4,275,227
SYNTHESIS OF WATER SOLUBLE CROSS-LINKERS AND THEIR USE IN THE MANUFACTURE OF ANIONIC POLYMERS

Russell J. MacDonald, Woburn, Mass., assignor to Ionics Inc., Watertown, Mass.

Filed Oct. 12, 1979, Ser. No. 84,337
Int. Cl.³ C07C *69/527*
U.S. Cl. 560—222 2 Claims

1. A water soluble, ionic, cross-linking bifunctional monomer of the formula:

$$CH_2{=}C(CH_3)\overset{\overset{O}{\|}}{C}OCH_2\underset{\underset{OH}{|}}{CH}CH_2{-}\underset{\underset{CH_3\oplus}{|}}{N}{-}CH_2CH_2O\overset{\overset{O}{\|}}{C}C(CH_3){=}CH_2 \quad X\ominus$$

where X represents a univalent anion of an acid.

4,275,228
CATALYTIC PREPARATION OF ETHYL ACETATE

Max Gruffaz, La Mulatiere, and Odile Micaelli, Lyons, both of France, assignors to Rhone-Poulenc Industries, Paris, France

Filed May 16, 1979, Ser. No. 39,565
Claims priority, application France, May 17, 1978, 78 15355
Int. Cl.³ C07C *67/05*
U.S. Cl. 560—247 23 Claims

1. In a process for the preparation of ethyl acetate by vapor phase reaction of ethylene with acetic acid, the improvement which comprises conducting said reaction in the presense of a catalytic amount of a solid, ion-exchange fluoropolymer comprising pendant sulfonic acid moieties, said fluoropolymer comprising recurring structural units selected from the group comprising a unit of structural formula (I):

$$+CF_2{-}\underset{\underset{SO_3H}{|}}{CF}+$$

a unit of structural formula (II):

$$+CF_2{-}\underset{\underset{\underset{\underset{\underset{R{-}\underset{\underset{SO_3H}{|}}{CF}}{|}}{CF_2}}{|}}{O}}{[X]_n}}{CF}+$$

and a unit of structural formula (III):

$$+CF_2{-}\underset{\underset{\underset{\underset{R{-}\underset{\underset{R{-}CF_2}{|}}{FC}{-}SO_3H}{|}}{O}}{[X]_n}}{CF}+$$

wherein, n is an integer from 1 to 5, R is a fluorine atom or a monovalent perfluoroalkyl radical comprising from 1 to 10 carbon atoms, and X is radical selected from the group comprising a radical of structural formula (i):

$$—O—(CF_2)_m$$

a radical of structural formula (ii):

$$—O—CF_2—\underset{\underset{Y}{|}}{CF}—$$

and, a radical of structural formula (iii):

$$—O—\underset{\underset{Y}{|}}{CF}—CF_2—$$

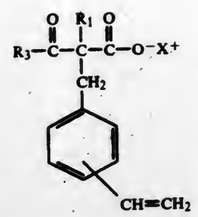
wherein, m is an integer from 2 to 10, and Y is a fluorine atom or a trifluoromethyl group.

4,275,229
POLYMERS HAVING IMPROVED WATER RESISTANCE AND MONOMERS FOR SAME

Stamatios G. Mylonakis, Barrington, and Anthony J. Tortorello, Elmhurst, both of Ill., assignors to DeSoto, Inc., Des Plaines, Ill.

Filed Feb. 12, 1979, Ser. No. 11,701
Int. Cl.³ C07C *59/86, 57/34;* C08F *116/36*
U.S. Cl. 562—459 3 Claims

1. Carboxyl functional monoethylenically unsaturated monomer having the formula:

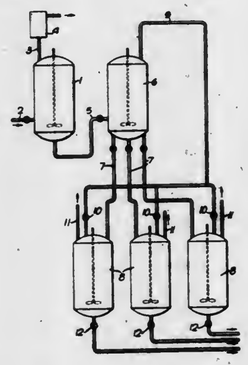


wherein R_1 is selected from the group consisting of hydrogen and C_1–C_8 alkyl;
R_3 is selected from the group consisting of C_1–C_8 alkyl, O-R_4 where R_4 is hydrogen or X^+; and
X^+ is selected from the group consisting of the proton, protonated volatile bases, and mixtures thereof.

4,275,230
PURIFICATION OF DICARBOXYLIC ACIDS

Peter A. Donaldson, Middlesbrough, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 816,667, Jul. 18, 1977, abandoned. This application Dec. 14, 1978, Ser. No. 969,431
Claims priority, application United Kingdom, Aug. 11, 1976, 33383/76
Int. Cl.³ C07C *51/42*
U.S. Cl. 562—486 7 Claims



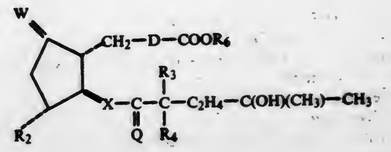
1. A process for the crystallization of terephthalic acid which has been purified from 4-carboxybenzaldehyde by catalytic hydrogenation in aqueous solution at elevated temperature and pressure so as to convert the 4-carboxybenzaldehyde to p-toluic acid which comprises:
(1) releasing continuously the aqueous solution consisting essentially of water, terephthalic acid and p-toluic acid at a temperature above 250° C. and under pressure to a continuous crystallization stage operating continuously to effect evaporative cooling whereby solid terephthalic acid crystallizes to give an aqueous slurry thereof,
(2) releasing the said slurry to a batch crystallization stage comprising one or more batch crystallizers, each batch crystallizer being heated and pressurized to a temperature and pressure approaching that of the aqueous slurry effluent from the continuous crystallization stage prior to receiving that slurry and steam being released from each batch crystallizer after receiving slurry to effect evaporative cooling whereby further terephthalic acid crystallizers and
(3) removing slurry from each batch crystallizer after releasing steam, and separating terephthalic acid from the aqueous mother liquor containing p-toluic acid.

4,275,231
19-HYDROXY-19-METHYL-13,14-DIHYDRO-PG$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,196
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—503 2 Claims

1. A compound of the formula



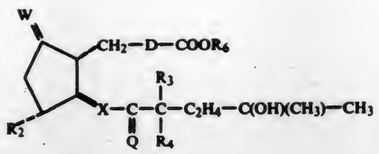
wherein D is
(1) $—(CH_2)_3—(CH_2)_5—CH_2—$, or
(2) $—(CH_2)_3—(CH_2)_5—CF_2—$,
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) $—CH_2—CO—R_{28}$,
wherein (p—Ph) is para-phenyl or inter-para-phenylene, wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only
when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α—OH:β—H, or α—H:β—OH; and
wherein X is $—CH_2CH_2—$.

4,275,232
19-HYDROXY-19-METHYL-INTER-OXA-13,14-DIHYDRO-PG$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,198
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—503 2 Claims

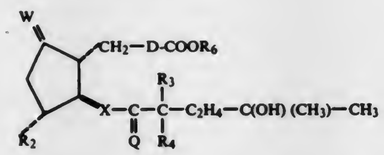
1. A compound of the formula



wherein D is
(1) $-(CH_2)_3-O-CH_2-$,
(2) $-(CH_2)_2-O-(CH_2)_2-$, or
(3) $-CH_2-O-(CH_2)_3-$,
wherein Q is α—OH:β—R_5 or α—R_5:β—OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH_3,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) $-CH_2-CO-R_{28}$,
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and
wherein X is $-CH_2CH_2-$.

4,275,233
19-HYDROXY-19-METHYL-13,14-DIHYDRO-PG$_2$ COMPOUNDS
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 25,878, Apr. 2, 1979, abandoned. This application Mar. 24, 1980, Ser. No. 133,205
Int. Cl.³ C07C *177/00*
U.S. Cl. 562—503 2 Claims

1. A compound of the formula



wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—, or
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_6 is
(a) hydrogen,
(b) alkyl of one to 12 carbon atoms, inclusive,
(c) cycloalkyl of 3 to 10 carbon atoms, inclusive,
(d) aralkyl of 7 to 12 carbon atoms, inclusive,
(e) phenyl,
(f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive,
(g) —(p—Ph)—CO—CH_3,
(h) —(p—Ph)—NH—CO—(p—Ph)—NH—CO—CH,
(i) —(p—Ph)—NH—CO—(p—Ph),
(j) —(p—Ph)—NH—CO—CH_3,
(k) —(p—Ph)—NH—CO—NH_2,
(l) —(p—Ph)—CH=N—NH—CO—NH_2,
(m) β-naphthyl,
(n) $-CH_2-CO-R_{28}$,
wherein (p—Ph) is para-phenyl or inter-para-phenylene,
wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is oxo, methylene, α-OH:β:H, or α-H:β-OH; and
wherein X is $-CH_2CH_2-$.

4,275,234
RECOVERY OF ACIDS FROM AQUEOUS SOLUTIONS
Avraham M. Baniel; Ruth Blumberg, and Klara Hajdu, all of Haifa, Israel, assignors to Imi (Tami) Institute for Research and Development, Haifa, Israel
Filed May 31, 1973, Ser. No. 365,506
Claims priority, application Israel, Jun. 19, 1972, 39710
Int. Cl.³ C07C *59/265*
U.S. Cl. 562—584 19 Claims

19. The process of claim 1, in which the amine is selected from the class consisting of tri-tridecylamine, trilaurylamine, trioctylamine, dilaurylamine, a liquid secondary amine containing 23 to 26 C atoms, a dilaurylbenzylamine, tricaprylylamine, and mixtures thereof.

4,275,235
PREPARATION OF QUATERNARY AMMONIUM HALIDES IN POWDER OR GRANULAR FORM
Wolfgang Giede, Hilden, and Horst Rutzen, Langenfeld, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Düsseldorf-Holthausen, Fed. Rep. of Germany
Filed Nov. 16, 1979, Ser. No. 94,961
Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2853241
Int. Cl.³ C07C *85/04*
U.S. Cl. 564—288 9 Claims

1. A process for the preparation of quaternary ammonium halide in the form of powder or granules, which comprises reacting tertiary amine containing two alkyl or hydroxyalkyl radicals with from 1 to 3 carbon atoms and an alkyl radical or β-hydroxyalkyl radical with from 8 to 18 carbon atoms, with excess alkyl halide, the alkyl halide being selected from the group consisting of methyl chloride, methyl bromide, methyl iodide, ethyl chloride, and ethyl bromide, in the absence of solvent at elevated temperature and elevated pressure and conducting the hot reaction mixture, which is under elevated pressure, into an area which is under a lower pressure, where excess alkyl halide vaporizes under the elevated temperature conditions, separating the quaternary ammonium halide in the form of powder or granules.

4,275,236
TERTIARY DI-(β-HYDROXY ORGANO) AMINE OXIDES AND THEIR PREPARATION
Gary W. Earl, Bexley, and Howard M. Hickman, Worthington, both of Ohio, assignors to Sherex Chemical Company, Inc., Dublin, Ohio
Filed Dec. 26, 1979, Ser. No. 106,746
Int. Cl.³ C07C *135/02*
U.S. Cl. 564—298 38 Claims

1. A tertiary amine oxide comprising an amine oxide nucleus substituted with an organic group and with two hydroxy substituted organic groups which have carbon atoms in at least the α, β and γ positions, a hydroxyl group on the β-carbon atom, and have an effective chain length of at least 4 carbon atoms, said amine oxide being capable of being provided in ostensibly anhydrous form and being capable of being made at a concentration by weight of at least about 80% by oxidizing the corresponding tertiary amine with an oxidizing agent without solvent and without gelling during said oxidization.

4,275,237
HYDROGENATED POLYNITRILE MIXTURE USEFUL AS AN EPOXY HARDENER
Charles A. Drake, and Ralph P. Williams, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Division of Ser. No. 902,191, May 2, 1978, Pat. No. 4,195,155.
This application Aug. 6, 1979, Ser. No. 64,281
Int. Cl.³ C07C *85/12, 87/20, 87/28, 87/34*
U.S. Cl. 564—306 5 Claims

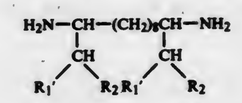
1. A product useful as an epoxy hardener obtained by a process which comprises hydrogenating under hydrogenation conditions the heavy reaction product obtained upon removal by distillation of the light fraction from a reaction mass obtained upon reacting olefinically unsaturated nitrile with monoolefinic hydrocarbon containing an allylic hydrogen atom in the presence of a monoadduct reaction product of a monoolefinic hydrocarbon and an olefinically unsaturated nitrile and recovering a hydrogenate useful as such as said epoxy hardener.

4,275,238
PROCESS FOR THE PREPARATION OF CYCLOPROPYLMETHYL-N-PROPYLAMINE
Harris E. Petree, Kernersville, N.C., and James B. Nabors, Baton Rouge, La., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Jan. 10, 1980, Ser. No. 111,055
Int. Cl.³ C07C *85/08*
U.S. Cl. 564—446 14 Claims

1. A process for the preparation of cyclopropylmethyl-N-n-propylamine which comprises the steps of
(a) cyclizing 1,4-butanediol by a cobalt-containing catalyst to 2,3-dihydrofuran at a temperature in the range of about 210°-235° C.;
(b) thermally isomerizing the 2,3-dihydrofuran to cyclopropanecarboxaldehyde in an open-reactor column; and
(c) reductively alkylating the cyclopropanecarboxaldehyde with n-propylamine and hydrogen in the presence of a platinum catalyst.

4,275,239
1,10-DIALKYL-1,10-DECAMETHYLENEDIAMINES
Josef Pfeifer, Therwil, and Heinz Peter, Rheinfelden, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Division of Ser. No. 954,811, Oct. 16, 1978, Pat. No. 4,225,701.
This application Feb. 4, 1980, Ser. No. 118,133
Claims priority, application Switzerland, Oct. 28, 1977, 13146/77
Int. Cl.³ C07C *87/14*
U.S. Cl. 564—511 1 Claim

1. A diamine of the formula Ia

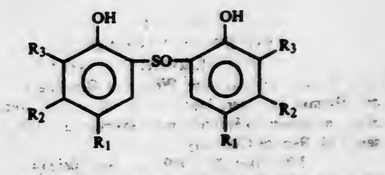


(Ia)

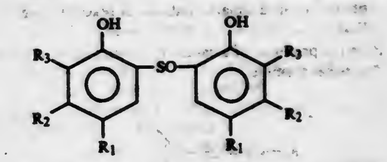
in which R_1' is alkyl having 2-4 C atoms, and R_2 is alkyl having 1-8 C atoms.

4,275,240
PROCESS FOR THE PREPARATION OF 2,2'-BISPHENOL SULFOXIDES
Akihiro Yamaguchi, Yokohama; Keizaburo Yamaguchi, Kawasaki; Hisamichi Murakami, and Tadashi Kobayashi, both of Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan
Filed Mar. 3, 1980, Ser. No. 126,980
Int. Cl.³ G07C *147/14*
U.S. Cl. 568—37 9 Claims

1. A process for the preparation of 2,2'-bisphenol sulfoxides represented by the formula



where R_1, R_2 and R_3 are selected from a hydrogen atom, a halogen atom, an alkyl group having 1 to 9 carbon atoms, a cycloalkyl group, a phenyl group, a hydroxy group, an aralkyl group having 7 to 9 carbon atoms, an alkoxy group, an allyloxy group, a carboxyl group and a carboalkoxy group having 2 to 5 carbon atoms or R_1 and R_2 or R_2 and R_3 may form a benzene ring together with the bonding carbon atoms respectively, consisting essentially of oxidizing 2,2'-bisphenol sulfides represented by the formula



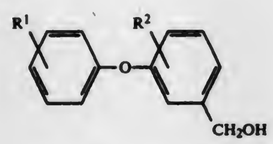
where R_1, R_2, and R_3 have the same meaning as defined above, with hydrogen peroxide in the presence of an organic solvent which does not form an organic peracid with hydrogen peroxide, said organic solvent being selected from aliphatic, alicyclic, and aromatic hydrocarbons, alcohols, ethers, ketones, esters, aprotic polar solvents, carbon disulfide, and mixtures thereof, thereby forming said 2,2'-bisphenol sulfoxides.

4,275,241
PROCESS FOR THE PREPARATION OF 3-PHENOXY-BENZALDEHYDES

Siegfried Böhm, Cologne; Alfons Klein, Duesseldorf, and Karl-fried Wedemeyer, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 29, 1979, Ser. No. 89,010
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850180
Int. Cl.³ C07C 45/00, 45/29
U.S. Cl. 568—426 11 Claims

1. A process for the preparation of a 3-phenoxy-benzaldehyde which comprises contacting the 3-phenoxy-benzyl alcohol of the formula



wherein R^1 and R^2 are identical or different and represent hydrogen or halogen with an aqueous solution of a dichromate in the presence of aqueous sulphuric acid at a temperature in the range of 50° to 125° C.

4,275,242
PROCESS FOR PREPARING 2-METHYLENEALDEHYDES

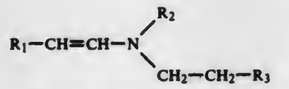
Jürgen Weber, Oberhausen; Wolfgang Bernhagen, Mülheim, and Helmut Springer, Oberhausen, all of Fed. Rep. of Germany, assignors to Ruhrchemie Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany

Filed Dec. 21, 1979, Ser. No. 106,314
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855505
Int. Cl.³ C07C 47/21, 47/228
U.S. Cl. 568—463 3 Claims

1. In a process for preparing 2-methylenealdehydes by reacting aldehydes with formaldehyde in a molar ratio of 1:1 at temperatures of 60° to 120° C., the improvement wherein

A. an aldehyde of the general formula $R_1—CH_2—CHO$ wherein R_1 is hydrogen or an unsubstituted or substituted aliphatic radical with up to 12 carbon atoms, a cycloaliphatic or an aromatic radical, is reacted with formaldehyde

B. in the presence of a catalytic amount of an enamine of the general formula



wherein R_1 has the above meaning and R_2 denotes an alkyl radical with up to 13 carbon atoms or a cycloaliphatic radical with 5 or 6 carbon atoms, and R_3 denotes hydrogen, an alkyl radical with up to 11 carbon atoms or a cycloaliphatic radical with 5 or 6 carbon atoms.

4,275,243
PROCESS FOR PRODUCING HYDROXYBUTYRALDEHYDE

Toshihiro Saito; Shoji Arai, and Yukihiro Tsutsumi, all of Shinnanyo, Japan, assignors to Toyo Soda Manufacturing Co., Ltd., Yamaguchi, Japan

Filed Aug. 27, 1979, Ser. No. 69,850
Claims priority, application Japan, Sep. 29, 1978, 53-119123
Int. Cl.³ C07C 47/19
U.S. Cl. 568—496 6 Claims

1. In a process for producing hydroxybutyraldehyde by reacting allyl alcohol with carbon monoxide and hydrogen in a reaction medium in the presence of a rhodium complex catalyst having an organic tri-substituted phosphine, the improvement wherein the organic tri-substituted phosphine and the reaction medium have a boiling point higher than 200° C., the phosphine is used at a concentration of 5×10^{-4} to 0.3 mol. per 1 liter of the reaction medium in the hydroformylation and then a distillative separation of the reaction mixture is carried out in the absence of oxygen at a temperature of 20° C. to 80° C. under a reduced pressure to separate the reaction product from the solution of the rhodium complex in the reaction medium.

4,275,244
LINEAR POLYALKYLENE ETHER GLYCOLS OF HIGH MOLECULAR WEIGHT

Herbert Helfert, Frankenthal, Fed. Rep. of Germany, and Paul Davis, Gibraltar, Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

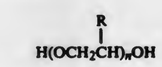
Continuation-in-part of Ser. No. 904,798, May 11, 1978, abandoned, which is a continuation-in-part of Ser. No. 736,940, Oct. 29, 1976, abandoned. This application Jul. 13, 1979, Ser. No. 57,229
Int. Cl.³ C07C 43/11
U.S. Cl. 568—624 2 Claims

1. A composition of matter of the structural formula:

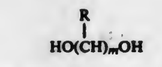
$$X—(Y—X)_n—Y—X$$

wherein X is the residue of a polypropylene ether glycol of linear character and of a molecular weight of up to about 2,000, upon removal of a terminal —OH group therein,

Y is the residue of an aliphatic or alkylaromatic diol upon removal of two —OH groups there from, having the generalized formula:



wherein n is an integer of from 1 to 3, or a poly(methylene glycol) having the generalized formula:



wherein m is an integer of from 2 to 6 and R is hydrogen, methyl, ethyl, phenyl or glycidol ($—CH_2—O—R'$) in which R' is phenyl, butenyl, or mixtures thereof,

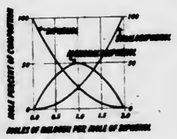
n is such that the molecular weight of the molecule is about 3,500 to about 100,000.

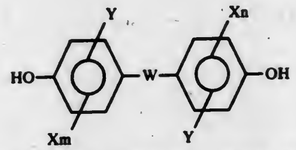
4,275,245
PROCESS FOR OBTAINING HALOGENATED DIPHENOLS

Victor Mark, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Division of Ser. No. 882,242, Feb. 28, 1978. This application Jul. 16, 1979, Ser. No. 58,000
Int. Cl.³ C07C 39/16
U.S. Cl. 568—726 8 Claims

1. A halogenated diphenol mixture having a significantly reduced quanity of trihalosubstituted and tetrahalo substituted diphenol, said mixture containing predetermined, statistical quantities of unreacted diphenol, monohalodiphenol and dihalodiphenol, said halogenated diphenol being represented by the general formula:



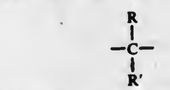


wherein Xm and Xn are chlorine, bromine and mixtures thereof with the proviso that either Xm or Xn is chlorine; Y is independently selected from the group consisting of C_1–C_4 alkyl and hydrogen; m and n are each 0–2 with the proviso the m+n equal at least 0.1, but no more than 2.0; and, W is a member selected from the following group;

(a) $—CH_2—$ wherein r is an integer of 0–10 with the proviso that when both Xm and Xn are chlorine and m and n are each 1, r is 0 or 2–10;

(b)


wherein R is a member of the group consisting of C_1–C_{10} alkyl and C_6–C_{14} aryl; and,

(c)


wherein R and R' can each independently be the same as R in (b) above.

4,275,246
SEPARATION OF PHENOLS

Nicholas P. Greco, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Jul. 2, 1979, Ser. No. 53,968
Int. Cl.³ C07C 37/68, 37/70
U.S. Cl. 568—750 9 Claims

1. A method for separating cresol from o-ethylphenol and/or 2,6-xylenol comprising treating the aforesaid phenols with an aqueous alkali metal carbonate or bicarbonate at elevated temperature in an amount and for a time sufficient to preferentially form the alkali metal salt of at least 50% of the cresol, but not so long as to form any appreciable amount of alkali metal salt of 2,6-xylenol or o-ethylphenol, separating the water soluble alkali metal salt of cresol from the water insoluble phenols, acidifying said alkali metal salt to "spring" the cresol and separating the cresol from the aqueous solution.

4,275,247
PROCESS FOR PREPARING AN ORGANIC COMPOUND

John F. Harris, Royston, England, assignor to Fisons Limited, London, England

Filed Dec. 27, 1979, Ser. No. 107,615
Claims priority, application United Kingdom, Dec. 27, 1978, 49996/78
Int. Cl.³ C07C 37/06
U.S. Cl. 568—767 25 Claims

1. A process for preparing pyrogallol or a salt thereof, which process comprises deoximating at −20° to 200° C. cyclohexane-1,2,3-trione oxime or an oxime ester thereof or a salt of either, and recovering pyrogallol or a salt thereof, and when the deoximation is effected by hydrolysis, the amount of water employed in the hydrolysis is 0.2–1000 parts by weight per part by weight of the oxime, oxime ester thereof or salt of either.

4,275,248
PREPARATION OF 2,4,6-TRIISOPROPYLPHENOL

Bruce E. Firth, Arlington Heights, Ill., assignor to UOP Inc., Des Plaines, Ill.

Continuation-in-part of Ser. No. 51,607, Jun. 25, 1979, abandoned. This application Apr. 9, 1980, Ser. No. 138,818
Int. Cl.³ C07C 37/11, 39/06
U.S. Cl. 568—781 1 Claim

1. A process for the preparation of 2,4,6-triisopropylphenol which comprises reacting phenol with propylene at a temperature of from about 150° C. to about 250° C., at a pressure of from about 1 to about 250 atmospheres, and for a period of time from about 1 to about 20 hours in contact with a catalyst consisting essentially of fluorided alumina possessing from about 0.3 to about 5.0 wt. % fluoride to produce said 2,4,6-triisopropylphenol as the major product of said process, and recovering the resultant product.

4,275,249
PREPARATION OF 2,4-DI-T-ALKYLPHENOL

Bruce E. Firth, Arlington Hts., Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Nov. 30, 1979, Ser. No. 99,221
Int. Cl.³ C07C 37/11
U.S. Cl. 568—789 1 Claim

1. A process for producing 2,4di-t-butylphenol which comprises reacting phenol and isobutylene at a temperature of from about 150° C. to about 250° C., at a pressure of from about 1 to about 250 atmospheres, and for a period of time of from about 1 to about 20 hours in contact with a catalyst consisting essentially of alumina containing from about 0.3% to about 5.0% fluoride or chloride ion to produce said 2,4-di-t-butylphenol the major product of the process, and recovering the resultant product.

4,275,250
FLUOROBENZYL ALCOHOLS

Klaus Naumann, Cologne; Wolfgang Behrenz, Overath; Ingeborg Hammann, Cologne; Erich Klauke, Odenthal, and Albrecht Marhold, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 844,852, Oct. 25, 1977. This application Jun. 6, 1979, Ser. No. 46,149
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1976, 2658074; Mar. 30, 1977, 2714042
Int. Cl.³ C07C 33/46
U.S. Cl. 568—812 2 Claims

1. A fluorobenzyl alcohol selected from the group consisting of

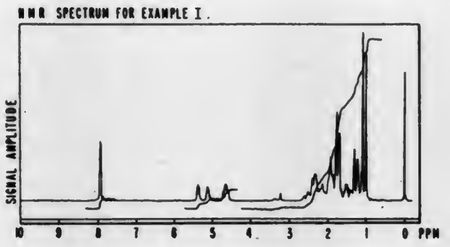
2,3,5,6-tetra-fluorobenzyl alcohol,
tetrafluoro-3-chlorobenzyl alcohol,
trifluoro-3,5-dichlorobenzyl alcohol,
2,6-difluoro-3,5-dichlorobenzyl alcohol, and
2,3,6-trifluoro-5-chlorobenzyl alcohol.

4,275,251

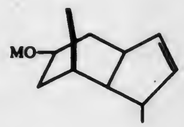
SUBSTITUTED TRICYCLODECANE DERIVATIVES, PROCESSES FOR PRODUCING SAME AND ORGANOLEPTIC USES THEREOF

Mark A. Sprecker, Sea Bright, and John B. Hall, Rumson, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Apr. 29, 1980, Ser. No. 144,898
Int. Cl.³ C07C 35/22
U.S. Cl. 568—817 2 Claims



1. An organometallic compound defined according to the structure:



wherein M is selected from the group consisting of sodium, potassium and lithium.

4,275,252

OXO ALCOHOL SYNTHESIS WITH RHODIUM CATALYST RECYCLE

Tamotsu Imai, Mt. Prospect; Edwin H. Homeier, Maywood, and David E. Mackowiak, Des Plaines, all of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Feb. 28, 1980, Ser. No. 125,729
Int. Cl.³ C07C 27/22
U.S. Cl. 568—909 15 Claims

1. A process for the synthesis of an alcohol which comprises the steps of:

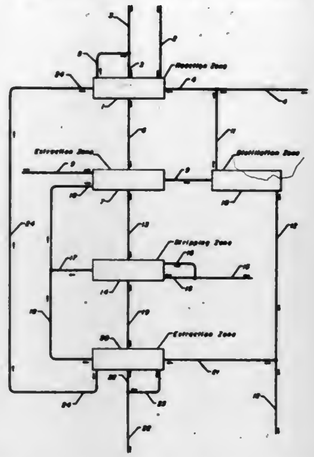
(a) treating an olefinic hydrocarbon having at least 3 carbon atoms with carbon monoxide and hydrogen in a hydroformylation zone at hydroformylation reaction conditions in the presence of a rhodium complex catalyst and amine modifier to form an alcohol;

(b) extracting said rhodium complex catalyst from the resulting alcohol by treatment with an aqueous ammonium hydroxide solution at treating conditions to obtain an organic phase comprising the product alcohol and amine modifier and an aqueous ammonium hydroxide solution phase containing said rhodium complex catalyst and thereafter separating the phases;

(c) stripping ammonia from said aqueous ammonium hydroxide solution containing said rhodium complex catalyst by treatment with a stripping agent at stripping conditions;

(d) recovering a major portion of said alcohol from the organic phase after removing the amine modifier therefrom; and

(e) extracting said rhodium complex catalyst from said aqueous ammonium hydroxide solution at extraction conditions using the remaining portion of said alcohol as the



extractant, and recycling said alcohol containing said rhodium complex catalyst to said hydroformylation zone.

4,275,253

RADIATION RESISTANT OIL AND METHOD OF LUBRICATING FOR ATOMIC POWER FACILITIES

Masaaki Takahashi, and Akira Ito, both of Tokyo, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Nihonbashi, Japan

Continuation-in-part of Ser. No. 760,246, Jan. 17, 1977, abandoned, which is a continuation-in-part of Ser. No. 454,663, Mar. 25, 1974, abandoned. This application Oct. 10, 1978, Ser. No. 949,617
Claims priority, application Japan, Mar. 29, 1973, 48/35028
Int. Cl.³ C07C 2/00, 13/28, 15/24
U.S. Cl. 585—7 3 Claims

1. A radiation resistant working oil suitable for use as a lubricant or medium for parts of atomic power facilities and nuclear reactors which are exposed to strong radiation, consisting essentially of a mixture of alpha-benzyl substituted methylnaphthalene isomers and beta-benzyl substituted methylnaphthalene isomers at a weight ratio of said alpha-benzyl methylnaphthalene isomers to said beta-benzyl methylnaphthalene isomers of from 50:50 to 95:5, said mixture being prepared by condensing alpha- and beta-methylnaphthalenes with benzyl chloride in the presence of Friedel Crafts' catalyst.

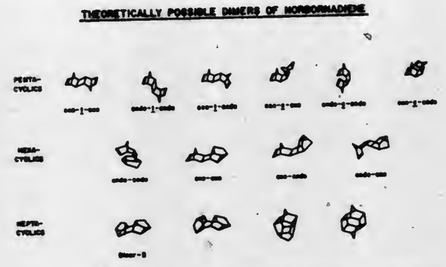
2. A method of lubricating parts of atomic power facilities and nuclear reactors which are exposed to strong radiation comprising applying to said parts a substance consisting essentially of a mixture of alpha-benzyl substituted methylnaphthalene isomers and beta-benzyl substituted methylnaphthalene isomers at a weight ratio of said alpha-benzyl substituted methylnaphthalene isomers to beta-benzyl substituted methylnaphthalene isomers of from 50:50 to 95:5, said mixture being prepared by condensing alpha- and beta-methylnaphthalenes with benzyl chloride in the presence of Friedel Crafts' catalyst.

4,275,254

DIMERIZATION OF NORBORNADIENE TO A MIXTURE OF EXO-ENDO AND ENDO-ENDO HEXACYCLIC DIMERS

Abraham Schneider, Overbrook Hills; Harry K. Myers, Jr., Aston, and George Suld, Springfield, all of Pa., assignors to Suntech, Inc., St. Davids, Pa.

Filed Dec. 11, 1975, Ser. No. 639,742
Int. Cl.³ C10L 1/04
U.S. Cl. 585—14 11 Claims



1. A process for dimerizing norbornadiene comprising:

(a) contacting a feed consisting essentially of norbornadiene in the presence of an effective amount of a two-component catalytic system consisting of rhodium acetylacetonate and one of the following: diethylaluminum chloride, ethylaluminum dichloride and aluminum ethylsesquichloride;

(b) said contacting occurring within a temperature range between from about 0° C. to about 200° C.; and

whereby a major product is an exo-endo form of a hexacyclic dimer or norbornadiene and two coproducts are an endo-endo form of a hexacyclic dimer of norbornadiene and a trimer of norbornadiene.

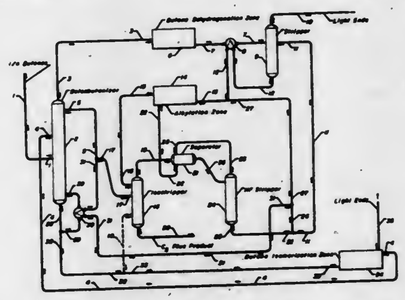
6. A composition consisting essentially of sufficient amounts of saturated exo-endo hexacyclic dimer of NBD and saturated endo-eado hexacyclic dimer of NBD wherein the composition has a melting point of its last crystal low enough to permit use of the composition as a high energy fuel.

4,275,255

CONVERSION OF MIXED BUTANES INTO GASOLINE

Bipin V. Vora, Elk Grove Village, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Jan. 16, 1980, Ser. No. 112,484
Int. Cl.³ C07C 2/58
U.S. Cl. 585—315 8 Claims



1. A hydrocarbon conversion process which comprises the steps of:

(a) passing a feed stream which comprises a mixture of normal butane and isobutane into a deisobutanizer column operated at effective fractionation conditions;

(b) withdrawing a first process stream, which is rich in normal butane, from the deisobutanizer column and passing the first process stream into a butane isomerization zone operated at isomerization conditions and thereby effecting the production of a butane isomerization zone effluent stream which comprises isobutane and normal butane;

(c) passing the butane isomerization zone effluent stream into the deisobutanizer column;

(d) withdrawing a second process stream, which is rich in isobutane, from the deisobutanizer column and passing the second process stream into a butane dehydrogenation zone operated at butane dehydrogenation conditions and thereby effecting the formation of a butane dehydrogenation zone effluent stream which comprises isobutane, isobutylene, normal butane and normal butenes;

(e) heating the butane dehydrogenation zone effluent stream by indirect heat exchange against a stripper bottoms stream, and then passing the butane dehydrogenation zone effluent stream into a stripping column operated at effective fractionation conditions and thereby producing an overhead stream comprising propane and which is removed from the process and said stripper bottoms stream which comprises isobutane, isobutylene, normal butane and normal butenes;

(f) cooling the stripper bottoms stream by indirect heat exchange against the butane dehydrogenation zone effluent stream, and passing the stripper bottoms stream into an alkylation zone operated at alkylation-promoting conditions and in which HF is utilized as a catalyst and thereby producing an alkylation zone effluent stream which comprises normal butane, isobutane and C_8 branched-chain hydrocarbons;

(g) passing the alkylation zone effluent stream into an isostripper column operated at effective fractionation conditions and thereby producing an isostripper overhead stream comprising HF, isobutane and propane, an isostripper sidecut stream rich in isobutane and a net isostripper bottoms stream comprising C_8 branched-chain hydrocarbons, and withdrawing the isostripper bottoms stream from the process as a product stream;

(h) passing a first portion of the isostripper sidecut stream into the deisobutanizer column, utilizing a second portion of the isostripper sidecut stream to reboil the deisobutanizer column and then passing the second portion of the isostripper sidecut stream into the alkylation zone;

(i) condensing the isostripper overhead stream and passing substantially all of the hydrocarbons originally present in the isostripper overhead stream into an HF stripping column operated at conditions effective to separate the material charged to the column into an HF stripping column overhead stream comprising HF and a net HF stripping column bottoms stream comprising propane and isobutane; and,

(j) passing a first portion of the HF stripping column bottoms stream into the stripping column of step (e) and passing a second portion of the HF stripping column bottoms stream into the alkylation zone.

4,275,256

SHAPE SELECTIVE REACTIONS WITH GROUP VIIA METAL MODIFIED ZEOLITE CATALYSTS

Chin-Chiun Chu, North Brunswick, and Warren W. Kaeding, Westfield, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Feb. 25, 1980, Ser. No. 124,408
Int. Cl.³ C07C 3/52, 3/62; B01J 29/36
U.S. Cl. 585—467 20 Claims

1. A process for conversion of aromatic hydrocarbon compounds, said process comprising contacting said aromatic hydrocarbon compounds with a crystalline zeolite catalyst at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of $10^5 N/m^2$ to $10^7 N/m^2$, said zeolite being characterized by a silica to alumina

mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said zeolite having undergone prior modification by treatment with one or more compounds containing elements of Group VII A to deposit thereon at least 0.25 weight percent of such element.

12. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11 wherein said conversion comprises the alkylation of an aromatic compound by contacting said compound with an alkylating agent to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

15. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11 wherein said conversion comprises the transalkylation of aromatic compounds to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

18. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11 wherein said conversion comprises disproportionation of alkylbenzenes to produce benzene and dialkylbenzenes in which the proportion of 1,4-dialkylbenzene isomer is in excess of its normal equilibrium concentration.

4,275,257

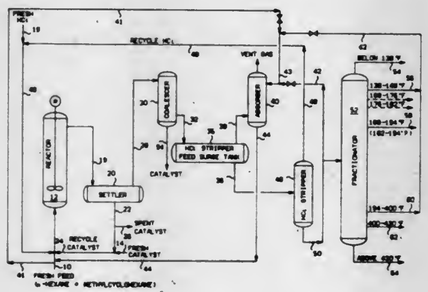
ISOMERIZATION OF HYDROCARBON FEED

Thomas Hutson, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jan. 31, 1980, Ser. No. 117,131
Int. Cl.³ C07C 5/13
U.S. Cl. 585—738 **39 Claims**

1. In an isomerization process for isomerizing a hydrocarbon feed, including; isomerizing said hydrocarbon feed, in an isomerization reaction step, in the presence of a metal halide catalyst and a hydrogen halide; separating the reaction effluent from said isomerization reaction step, in a first separation step, into a first liquid phase and an uncondensed first vapor phase, containing a significant amount of said hydrogen halide and noncondensable hydrocarbon gases; further separating the thus separated first liquid phase, in a second separation step, into a second liquid phase and an uncondensed second vapor phase, containing a major portion of said hydrogen halide; recycling the thus separated second vapor phase, in a first recycling step, to said isomerization reaction step; fractionating at least a portion of said second liquid phase, in at least one fractionation step, to produce a plurality of liquid fractions; and at least intervally removing at least a portion of the thus separated first vapor phase from said isomerization process, in a vapor phase removal step, to reduce the buildup of said noncondensible hydrocarbon gases in said isomerization process, the improvement comprising:

(a) contacting said uncondensed first vapor phase, in an absorption step subsequent to and separate from said first separation step, with an absorption liquid selected from the group consisting of a portion of said hydrocarbon feed, a portion of said second liquid phase, at least one of said plurality of fractions and mixtures thereof, to absorb



at least a portion of the hydrogen halide contained in said uncondensed first vapor phase and produce a third liquid phase containing a major portion of said absorption liquid and the thus absorbed at least a portion of the hydrogen halide contained in said uncondensed first vapor phase and an uncondensed third vapor phase containing a major portion of said noncondensable hydrocarbon gases;

(b) recycling said third liquid phase to said isomerization reaction step, in a second recycling step; and

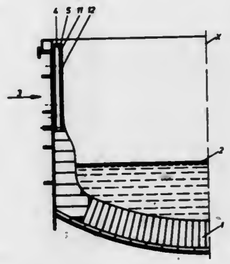
(c) at least intervally removing said uncondensed third vapor phase from said isomerization process, in said vapor phase removal step.

4,275,258

WATER-COOLED BOX DESIGNED AS WALL ELEMENT FOR A MELTING FURNACE

Lothar Harmsen, Lingen; Klaus Bick, Paderborn; Wilhelm Lachemmayer, Detmold; Friedhelm Vennmann, and Jürgen Zieschang, both of Lingen, all of Fed. Rep. of Germany, assignors to Benteler-Werke AG, Paderborn, Fed. Rep. of Germany

Filed May 31, 1979, Ser. No. 44,334
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1978, 2825536
Int. Cl.³ F27D 1/12
U.S. Cl. 13—32 **13 Claims**



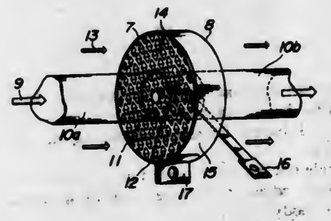
1. A box-shaped shallow, water-cooled wall element of steel plate for the construction of a wall portion of a melting furnace, especially an arc furnace, above the bath of the melt in the furnace, comprising, a front wall adapted to face the interior of the furnace and being curved according to the curvature of the latter, a rear wall spaced from and substantially parallel to said front wall, a pair of short side walls connecting lateral edges of said front and rear wall to each other, a top and a bottom wall respectively connecting the top and bottom edges of said front and rear wall to each other, a cooling water inlet, a cooling water outlet, and at least one guide vane in the interior of the wall element for guiding the cooling water between inlet and outlet, said front wall being provided over the whole outer surface thereof adapted to face the interior of the furnace with recesses to facilitate adhesion of a layer of refractory material to be applied thereto and adhesion of slag splattered thereagainst during operation of said furnace, wherein the area of said recesses at said outer surface is smaller than the area of the remaining steel plate at said surface to thus enhance heat conduction from the interior of the furnace to the cooling water passing through the wall element and to prevent damage of said front wall when the protective layer of refractory material is missing completely or in part.

4,275,259

THERMAL CONVERTER

Noboru Yamamoto, Nagoya, and Akira Ohmura, Kasugai, both of Japan, assignors to NGK Insulators, Ltd., Nagoya, Japan

Filed Oct. 5, 1979, Ser. No. 82,239
Claims priority, application Japan, Oct. 14, 1978, 53/126423
Int. Cl.³ H01L 35/28
U.S. Cl. 136—209 **3 Claims**



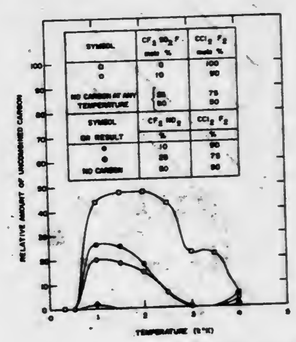
1. A thermal converter in which a thermoelectric element is a honeycomb structural body having a large number of parallel channels extending therethrough and separated by thin walls, a part of the parallel channels forms a region for flowing a high temperature fluid and the other part of the parallel channels forms a region for flowing a low temperature fluid.

4,275,260

DIELECTRIC GAS MIXTURE CONTAINING TRIFLUORONITROMETHANE AND/OR TRIFLUOROMETHANESULFONYL FLUORIDE

Roy E. Wootton, Murrysville, Pa., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 4, 1979, Ser. No. 72,344
Int. Cl.³ H01B 3/56
U.S. Cl. 174—17 GF **18 Claims**



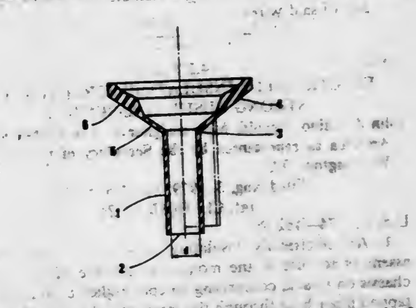
1. A dielectric gas mixture comprising a halogenated hydrocarbon gas subject to carbonization in the presence of an electrical discharge and a carbonizing-suppressant gas selected from the group consisting of CF_3NO_2, CF_3SO_2F, and mixtures thereof.

4,275,261

END PIECE FOR HIGH VOLTAGE CABLES

Jean Fillie, Lagny sur Marne, France, assignor to Trefimetaux, Clichy, France

Filed Jan. 3, 1979, Ser. No. 753
Claims priority, application France, Jan. 11, 1978, 78 01287; Nov. 21, 1978, 78 33367
Int. Cl.³ H02G 15/064
U.S. Cl. 174—73 R **5 Claims**



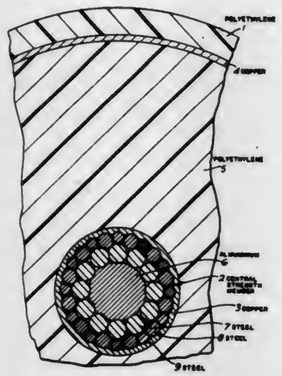
1. A molded elastomer insulator for protecting the end of high voltage electric cables of a diameter of up to twice the diameter of said insulator, said insulator being of elongated cylindrical shape and having an open end, the other end being open and terminating in a flared conical portion, the included angle of the interior of the conical portion being between 100° and 110°, said insulator containing by weight from 100 to 200

parts of hydrated alumina per 100 parts of elastomer, said insulator being stretchable to accommodate and receive said cable.

4,275,262
SUBMARINE CABLE

Albert E. Sellars, Southampton, England, assignor to International Standard Electric Corporation, New York, N.Y.

Filed Mar. 25, 1976, Ser. No. 670,136
Claims priority, application United Kingdom, Dec. 4, 1975, 49824/75
Int. Cl.³ H01B 5/10
U.S. Cl. 174—128 R 5 Claims



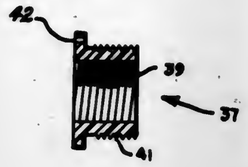
1. A submarine cable comprising:
a water impervious sheath containing a central strength member, a radially inner tubular copper conductor surrounding the strength member, and a radially outer tubular conductor separated from the inner conductor by insulating material;
said central strength member comprising a central aluminum core surrounded by a plurality of strain members;
said strain members comprising first and second layers of steel wires, said first layer being contiguous with said aluminum core and said second layer surrounding and contiguous with said first layer, said wires of said second layer being of smaller diameter than that of the wires of said first layer;
said second layer comprising wires of two different sizes laid adjacent to one another and alternately large and small proceeding circumferentially around the cable axis; and
said aluminum core having a diameter at least twice that of any of said wires.

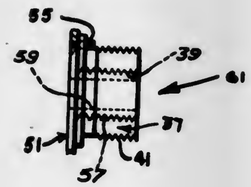
4,275,263
ELECTRICALLY INSULATING STRUCTURALLY STRONG BUSHING ASSEMBLY

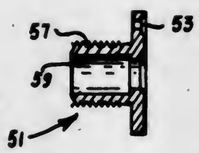
John J. Chino, Arnold, Md., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Aug. 3, 1979, Ser. No. 63,510
Int. Cl.³ H01B 17/26
U.S. Cl. 174—152 R 1 Claim

1. An electrically insulating structurally strong bushing assembly for use at the mounting interface of an electronic chassis on a rack, comprising an epoxy-glass bushing having a tapped inner hole through the longitudinal center thereof and a threaded outer surface, said epoxy-glass bushing being fabricated of plate stock with the grain running perpendicular to the structural load to effectively double the allowable bearing load over conventional epoxy-glass, a steel insert having a head portion and threads on the outer surface thereof for engagement with the threads on the tapped inner hole of said bushing, said steel insert having a longitudinal hole through the center thereof for receiving a rack pin therein, and means for locking said steel insert to said epoxy-glass bushing after the insert has been screwed into the bushing including a flat head screw passing through a clearance hole in the head portion of





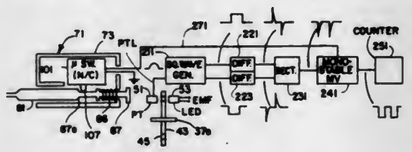


said steel insert and threadably engaging an aligned threaded hole in said epoxy-glass bushing, said flat head screw being fabricated of nylon, thereby allowing the assembled bushing and insert to be threadably attached to an electronic chassis for receiving a rack pin when the chassis is mounted in a rack.

4,275,264
PORTABLE HAND-HELD LENGTH PROBE WITH TRACING-UNIT-ACTUATED LENGTH SIGNAL OUTPUT CONTROL SWITCH

David J. Houck, Monkton, Md., assignor to Electronic Modules Corporation, Timonium, Md.

Filed Aug. 2, 1979, Ser. No. 62,942
Int. Cl.³ G08C 21/00; G08B 5/22; G01B 3/12
U.S. Cl. 178—18 9 Claims

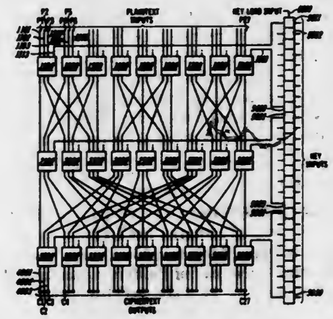


1. A portable hand-held length probe, comprising
a portable hand-held body with a nose wheel rotatably mounted thereon for length measuring movement over a surface,
a movable tracing unit mounted in movable relationship on said body adjacent said nose wheel for movement relative to said body,
spring means resiliently biasing said tracing unit to a first normal quiescent position, and said tracing unit being movable to a second position as a function of pressing said unit against a surface during tracing action therewith on a surface and in conjunction with rotational measuring movement of said wheel,
signal means for effecting a length measurement indicative signal as a function of rotational movement of said wheel,
and switch means carried by said body and responsive to movement of said tracing unit to said second position to enable passage of a said signal from said signal means, and said switch means being responsive to movement of said tracing unit to said first normal position to effect disablement of effective passage of said signal means signal.

4,275,265
COMPLETE SUBSTITUTION PERMUTATION ENCIPHERING AND DECIPHERING CIRCUIT

George I. Davida, Bethesda, Md., and John B. Kam, New York, N.Y., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Oct. 2, 1978, Ser. No. 947,428
Int. Cl.³ H04L 9/00
U.S. Cl. 178—22.09 12 Claims

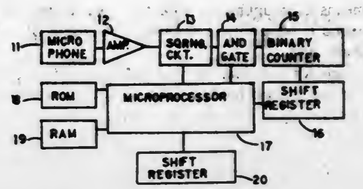


1. A circuit for translating binary plaintext information into binary ciphertext information corresponding thereto comprising:
a certain number of binary data inputs;
a corresponding number of binary data outputs;
a certain number of complete data translation circuits each comprising: a certain number of binary data inputs k to said complete data translation circuit, a certain number of binary data outputs k from said complete data translation circuit, and means for translating each possible input signal present on said binary data inputs to said complete data translation circuit into one and only one output signal present on said binary data outputs from said complete data translation circuit such that for every possible pair of numbers i and j where both i and j are between one and k there exist at least two input signal combinations and two corresponding output signal combinations such that the two input signal combinations differ from each other only in the i th bit and the two corresponding output signal combinations differ from each other in at least the j th bit; and
a plurality of connections between said binary data inputs, said binary data outputs and said complete data translation circuits such that each of said binary data outputs is dependent on all of said binary data inputs.

4,275,266
DEVICE TO CONTROL MACHINES BY VOICE

Theodore Lasar, 40 First Ave., New York, N.Y. 10009

Filed Mar. 26, 1979, Ser. No. 23,638
Int. Cl.³ H04M 1/19
U.S. Cl. 179—1 VC 10 Claims

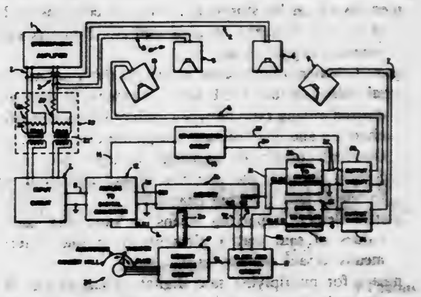


1. A voice control system responsive to a sequence of predetermined different audio frequency signals to generate a digital control output signal comprising:
(a) audio conversion means responsive to a predetermined audio frequency signal for generating a digital number signal proportional to the audio frequency;
(b) storage means for storing predetermined program data and also for temporarily storing data including each of a sequence of digital number signals generated by said audio conversion means;
(c) output signal memory means for storing digital control output signals; and
(d) data processing means coupled to each of said audio conversion means, storage means and output signal memory means for transferring signals and controlling the system in response to said predetermined program data stored in said storage means, said predetermined program data including
(1) a ratio generation routine for generating a sequence of ratio number signals by dividing each of the stored sequence of digital number signals by one of the digital number signals, and
(2) a ratio number conversion routine for converting a sequence of stored ratio number signals into a digital control output signal for storage in said output signal memory means.

4,275,267
AMBIENCE PROCESSOR

Stephen L. Kurtin, Sherman Oaks, and Edward C. Kelm, Pasadena, both of Calif., assignors to Kess Corporation, Milwaukee, Wis.

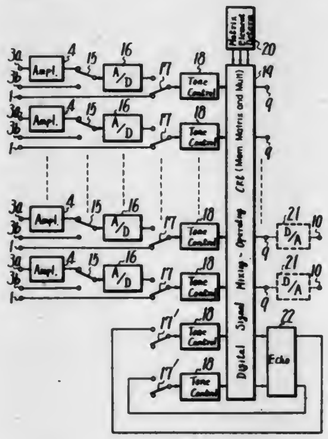
Filed May 30, 1979, Ser. No. 43,716
Int. Cl.³ H04R 3/00
U.S. Cl. 179—1 J 11 Claims



9. A signal processor which comprises:
(a) means for combining the signals of a multi-channel audio system whereby a monaural signal is formed;

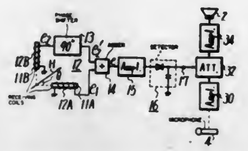
(b) signal delay means providing signals delayed by first and second predetermined amounts;
(c) means for coupling said monaural signal to the input of said delay means;
(d) means for coupling a portion of the signal delayed by said first predetermined amount to the input of said delay means;
(e) means for coupling a portion of the signal delayed by said second predetermined amount to the input of said delay means; and
(f) means for coupling each of said signals delayed by said first and second predetermined amounts to audio reproducers.

4,275,268
MIXING APPARATUS
Hiroshi Takahashi, Chiba; Etsuo Shibazaki, Musashino, and Yoshihito Yamamoto, Yokohama, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jul. 17, 1979, Ser. No. 58,316
Claims priority, application Japan, Jul. 20, 1978, 53-88547
Int. Cl.³ H04M *3/56*
U.S. Cl. 179—1 B 11 Claims



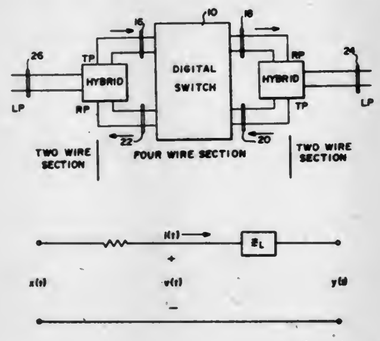
1. Apparatus for mixing digital signals in S input channels to obtain digital mixed signals in T output channels, where S and T are both integers, said apparatus comprising:
memory means for storing a matrix of S columns by T rows of matrix elements, each of said S×T matrix elements having a digital value;
matrix element determining means for determining the digital values of said S×T matrix elements in response to a desired mixing ratio between each of said S separate input channels and each of said T separate output channels, so that each column of said matrix corresponds to one of said S input channels and each row of said matrix corresponds to one of said T output channels;
matrix element supplying means for supplying said digital values of said matrix elements from said determining means to said memory means; and
means for multiplying said digital signals in said S input channels by said matrix elements from said memory means, means for accumulating the multiplied signals, and means for latching the accumulated signals to obtain said T channels of digital output signals.

4,275,269
PUBLIC ADDRESS SYSTEM
Junkichi Sugita, Yokohama, and Yuzo Fuse, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jul. 24, 1979, Ser. No. 60,036
Claims priority, application Japan, Jul. 27, 1978, 53-92008
Int. Cl.³ H04R *3/02*
U.S. Cl. 179—1 FS 3 Claims



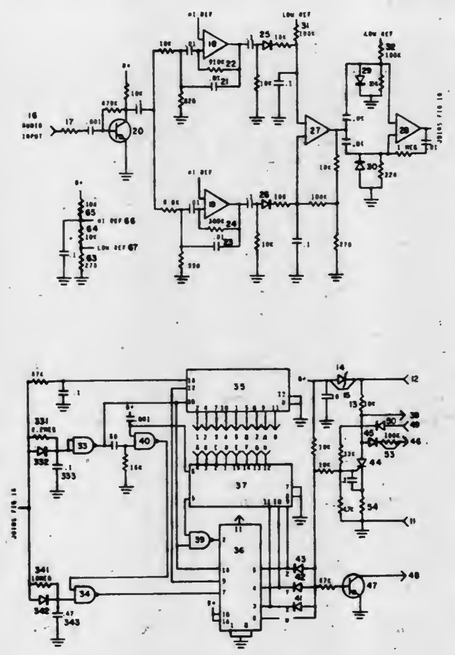
1. In a public address system having a movable microphone, a speaker system spaced from said microphone for converting an input from the microhone into a sound, a separate transmitting coil in the microphone, a receiving device in the speaker system for receiving a signal emitted from the transmitting coil, and an attenuation means post-connected to said receiving device for varying the level of a signal applied to a speaker of the speaker system in direct proportion to the magnitude of the signal from said receiving device, the receiving device comprising
(a) two receiving coils disposed perpendicular to each other;
(b) means for phase-shifting a signal obtained from one of the two receiving coils;
(c) means for adding said phase-shifted signal and a signal from the other of the two receiving coils and
(d) means for detecting the magnitude of the added signal whereby said added signal increases in magnitude as said microphone and transmitting coil are moved closer to said speaker system and said attenuation means correspondingly decreases the volume of said sound for prevention of howling.

4,275,270
SPEECH DETECTOR FOR USE IN AN ADAPTIVE HYBRID CIRCUIT
Alejandro de la Plaza, Mountain View, Calif., assignor to The Regents of the University of California, Berkeley, Calif.
Filed Nov. 29, 1979, Ser. No. 98,623
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SC 8 Claims



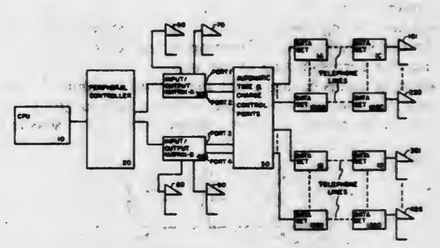
6. In a hybrid circuit having a near end talker and a far end talker, a speech detector comprising means for generating a first control signal representing the instantaneous sign of the power flow in said hybrid circuit, and means responsive to said first control signal for generating a second control signal having a first state representing the presence of said near end talker in said hybrid circuit and having a second state representing the absence of said near end talker in said hybrid circuit.

4,275,271
SUB-MINIATURE RADIO TELEPHONE DECODER
Charles Soulliard, Tucson, Ariz., assignor to Midian Electronics, Inc., Tucson, Ariz.
Filed Jun. 8, 1979, Ser. No. 47,588
Int. Cl.³ H04Q *7/04*
U.S. Cl. 179—2 EB 15 Claims



1. A radio telephone tone decoder, comprising:
a first active filter means responsive to an audio input for passing a tone signal of a first frequency;
a second active filter means responsive to an audio input for passing a tone signal of a second frequency;
a first detector means for rectifying the output of said first active filter;
a second detector means for rectifying the output of said second active filter;
a first operational amplifier means responsive to outputs from said first and second detectors for producing a first and second voltage level output indicative of which of said first and second detectors is providing the input to said first operational amplifier;
a second operational amplifier means driven by the output of said first operational amplifier for producing a voltage pulse each time its input transitions between said first and second voltage levels;
a first counter means incremented by output pulses from said second operational amplifier;
an interdigit timer means responsive to said output pulses of said second operational amplifier for resetting said first counter at single digit determining intervals;
a second counter means incremented by output pulses from said first counter; a decoder responsive to the count in said first and second counters;
a time out timer means responsive to output pulses from said second operational amplifier and said decoder for clearing said second counter when a proper code has not been decoded within a predetermined time; and
a third counter means incremented by pulses from said interdigit timer and decoder for stepping said decoder through a series of digits.

4,275,272
REMOTE TIME AND CHARGE SYSTEM
Michael F. Mennino, Jr., Glendale, Ariz., and Donald J. Coppin, Elmhurst, Ill., assignors to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.
Filed Nov. 5, 1979, Ser. No. 92,409
Int. Cl.³ H04M *15/12*
U.S. Cl. 179—7.1 TP 9 Claims



1. A remote time and charge system for use in conjunction with a telephone traffice service position system, said traffic service position system including a central processing unit and a peripheral controller connected to said central processing unit and operated to transmit data from said central processing unit to peripheral devices, said remote time and charge system comprising:
switching means connected to said peripheral controller via input ports and operated in response to signals transmitted from said peripheral controller to establish a connection from one of said plurality of input ports to one of a plurality of output ports for the transmission of data;
data receiving means connected to a particular one of said output ports of said switching means and operated in response to said connection of a particular one of said input ports through said switching means via a particular one of said output ports to said data receiving means to receive data transmitted from said central processing unit;
a plurality of data transmission means, each connected to a particular output port of said switching means and operated in response to connection of said switching means to transmit data to a particular remote location;
a first plurality of data terminals, each connected to a corresponding one of said plurality of data transmission means whereby data is transmitted from said central processing unit to each of said first plurality of data terminals and simultaneously data is transmitted from said central processing unit to said data receiving means, said transmitted data representing time and charge information relative to particular telephone calls placed at each of said remote locations.

4,275,273
TELEPHONE INDEX FOR REPERTORY DIALER
Si-Ling Ts'Ao, 39-1 Alley 30, Lane 172, Section I, Kaolung Rd., Taipei, Taiwan
Filed Feb. 8, 1979, Ser. No. 10,375
Int. Cl.³ H04M *1/274*
U.S. Cl. 179—90 B 9 Claims

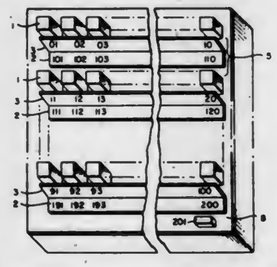
1. Apparatus for indexing the repertory buttons of a telephone repertory dialer comprising:
a plurality of telephone number selection buttons arranged in rows and columns,

means for storing first and second groups of a plurality of telephone numbers, one number of each group of said plurality of telephone numbers corresponding to a particular selection button,

means for displaying first and second groups of names corresponding to each group of stored numbers, each display means having a plurality of names, each name of a group corresponding to one number stored in a corresponding group of stored telephone numbers, said display means comprising a plurality of first and second strips having names written thereon, said first and second strips being oriented at substantially right angles with respect to each other along their lengths, said first and second strips adapted to fit between the rows of said selection buttons, the names of each of said first and second strips being arranged so that each name on a strip is aligned with a column formed by said buttons,

each name being observed also being immediately adjacent to the selection button corresponding to the telephone number corresponding to the name,

switching means having a first and second switching condition for selecting one of said first and second groups of stored telephone numbers corresponding to a selected



strip, said switching means comprising a manually operable switch to selectively connect said number selection buttons to said first group of telephone numbers in response to said first switching condition and to said second group of telephone numbers in response to said second switching condition,

the telephone number provided by said number storing means whose said switching means is in said first switching condition corresponding to the telephone number of the name immediately adjacent thereto on said plurality of first strips, and the telephone number provided by said storing means whose said switching means is in said second switching condition corresponding to the telephone number of the name immediately adjacent thereto on said plurality of second strips,

means for automatically dialing the stored telephone number in each group of stored numbers corresponding to a name of a selected one of said first and second group of names in response to the activation of a number selection button immediately adjacent to and associated with said name,

whereby the actuation of a number selection button will cause the telephone number corresponding to said switch condition and to said immediately adjacent name to be dialed.

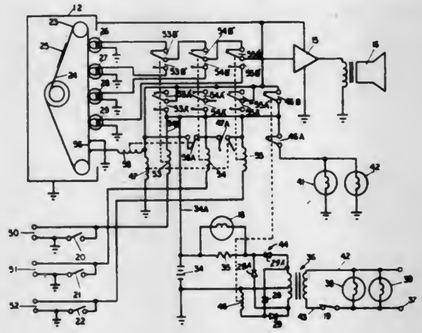
4,275,274

AUDIO VISUAL MONITORING SYSTEM FOR ANNOUNCING A MESSAGE UPON DETECTION OF A MONITORED CONDITION

Tim G. English, 15 Valley Rd., R.D. 1, West Redding, Conn. 06896

Filed May 29, 1979, Ser. No. 43,151
Int. Cl.³ G11B *15/02, 31/00*
U.S. Cl. 369—22 **4 Claims**

1. An audio-visual communicating system for monitoring and announcing a warning upon the detection of a predetermined monitored condition comprising a sign means, an AC lamp and a DC lamp for illuminating said sign, a tape transport means having an endless tape containing a plurality of recorded messages, a plurality of tape heads operatively associated with said endless tape, a playback amplifier and associated speaker, an electrical circuit electrically connecting said tape heads to said playback amplifier and associated speaker and for selectively energizing said AC or DC lamps, said electrical circuit including a primary power source and a secondary power source, said secondary power source comprising a storage battery; a charging circuit included in said electrical circuit for maintaining a charge on said battery, and said AC lamp being in circuit so as to be energized by said primary



power source, and said DC lamp being in circuit so as to be energized by said battery upon failure of said primary power source, switch means disposed in said circuit for energizing said tape transport and said D.C. lamp in the event of a failure of said primary power source, whereby one of said tape heads is rendered operative to transmit an audio message on said tape to said speaker, a detector connected in circuit to each of the other tape heads, means operatively connected to each said detectors and with corresponding tape heads for selectively activating its corresponding tape head upon the sensing of a condition monitored by a respective detector, and means for de-energizing said circuit when the detector de-senses the monitored condition.

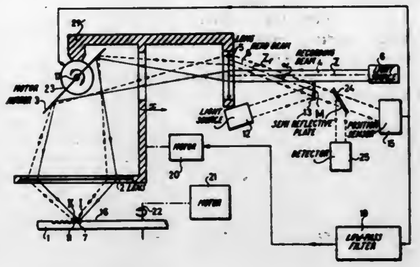
4,275,275

RECORDING DEVICE FOR OPTICALLY RECORDING INFORMATION ON A CARRIER WITH A LIGHT SPOT AND A POSITIONAL CONTROL OF THE SPOT

Claude Bricot, and Jean Claude Lehureau, both of Paris, France, assignors to Thomson-Brandt, Paris, France

Continuation of Ser. No. 837,383, Sep. 27, 1977, abandoned. This application Jan. 4, 1979, Ser. No. 1,006
Claims priority, application France, Oct. 1, 1976, 76 29609
Int. Cl.³ G11B *7/00*
U.S. Cl. 369—44 **13 Claims**

2. A recording device for recording information onto a carrier surface having a rotation axis; said information being optically stored along a continuous spiral track of uniform pitch e, in a form immediately readable after recording; said device comprising: means for rotating said surface, first means for projecting onto said surface a recording spot optically modulated by said information, second means for projecting onto said surface an unmodulated reading spot producing a continuous illumination and separated from said recording spot by a radial spacing equal to n times the pitch e, n being an integer different from zero; said device further comprising: radial displacement means for radially displacing said spots in relation with said surface, and radial feedback control means responsive to the light emerging from the portion of said surface illuminated by said reading spot, said light being modulated by information previously recorded by said recording spot, said radial feedback control means providing a first electrical signal for the tracking by said reading spot of one of said



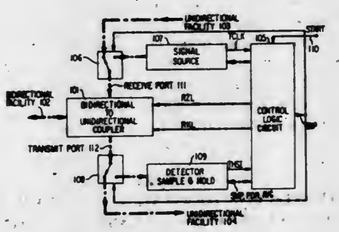
turns while said recording spot is recording said information along another one of said turns, said radial feedback control means further providing a second electric signal controlling said displacement means.

4,275,276

AUTOMATICALLY ADJUSTABLE BIDIRECTIONAL-TO-UNIDIRECTIONAL TRANSMISSION NETWORK

Joseph F. Rizzo, Lodi, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 6, 1979, Ser. No. 64,042
Int. Cl.³ H04B *1/58*
U.S. Cl. 179—170 D **11 Claims**



1. A transmission network (FIG. 1, 101) having receive (111) and transmit (112) ports and at least a third port adapted to couple a bidirectional (2-wire) transmission facility (102) to receive (103) and transmit (104) unidirectional facilities (4-wire) including a controllably adjustable impedance network (FIG. 2, 202) in circuit with said receive (111), transmit (112) and third ports and responsive to control signals having a plurality of adjustable impedance elements (FIG. 4, RKL, RZL) for obtaining an optimum match to the impedance of the bidirectional facility (102), CHARACTERIZED BY,

a controllable source (107) of at least an individual tone signal having a predetermined frequency (for example 325 Hz), and of a test signal having a plurality of predetermined frequency components (for example components at 100 Hz spacing between 700 Hz and 3400 Hz),

means (109) for detecting signal amplitude values at the transmit port (112) of the transmission network, and

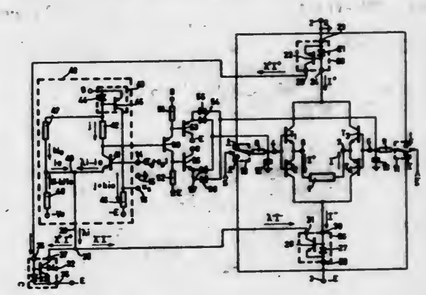
means (105) for generating control signals to control supplying said test signal to the receive port (111) and to adjust a predetermined one of the impedance elements (for example RKL) for obtaining an average value amplitude null (detected via 109) at the transmit port (112), and to control supplying said individual tone signal (for example 325 Hz from 107) to the receiving port (111) and to control adjusting a predetermined one of the impedance elements (for example RZL) for obtaining an amplitude null (detected via 109) at the transmit port (112), so that transhybrid loss between the receive port (111) and transmit port (112) is maximized.

4,275,277

SUBSCRIBER LINE INTERFACE CIRCUIT FOR A TELEPHONE LINE

Gilbert M. M. Ferries, Bievres, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 22, 1979, Ser. No. 51,004
Claims priority, application France, Jun. 26, 1978, 78 18960; Sep. 28, 1978, 78 27762
Int. Cl.³ H04B *1/58*; H04Q *1/28*
U.S. Cl. 179—170 NC **8 Claims**



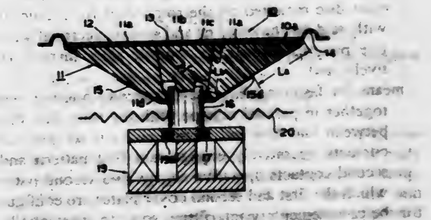
1. A subscriber line interface circuit for connecting a subscriber's telephone line to a telephone exchange, the interface circuit including two identical amplifiers, each having an output coupled to a respective wire of said telephone line and an input, said amplifiers further being coupled to a direct current supply source, characterized in that said interface circuit comprises means coupled to said amplifiers for forming a weighted sum current which is equal to the sum of the weighted current flowing to one of the wires of said telephone line and the weighted current flowing from the other of said wires, said weighting being in the form of substantially equal coefficients, means coupled to said current forming means and to said telephone exchange for transforming said weighted sum current into two voltages of opposite polarity, and means coupled to said transforming means for applying said voltages to the respective inputs of said amplifiers.

4,275,278

DIAPHRAGM FOR A LOUDSPEAKER

Sadaaki Sakurai, Yokohama; Mitsuru Takashima, and Masaaz Ugaji, both of Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 17, 1979, Ser. No. 67,222
Claims priority, application Japan, Aug. 18, 1978, 53-100083
Int. Cl.³ H04R *7/02, 9/02*
U.S. Cl. 179—181 F **16 Claims**



1. A diaphragm for a loudspeaker comprising:

a frustum-shaped core member having a front surface;

an outer radiation layer mounted on said front surface and having a high resonance sharpness; and

an intermediate layer interposed between said front surface and said outer radiation layer, and having a resonance sharpness lower than that of said outer radiation layer.

4,275,279

SWITCH ASSEMBLY HAVING PRINTED CIRCUIT ROTOR AND INTEGRALLY HINGED SPLIT HOUSING

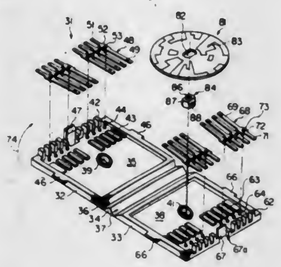
Tadashi Wagatsuma, and Kenji Hiwatashi, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Dec. 16, 1976, Ser. No. 751,361

Claims priority, application Japan, Dec. 19, 1975, 50-171425[U]; Jul. 23, 1976, 51-98181[U]

Int. Cl.³ H01H *9/00, 19/54*

U.S. Cl. 200—11 DA **13 Claims**



1. A switch assembly comprising:

a first electrically insulative housing member having a hole therethrough;

first means for retaining a plurality of contacts in spaced relation on said first housing member, said first retaining means including a plurality of first projections extending outwardly from an edge portion of said first housing member and spaced from one another;

a second electrically insulative housing member adapted to fit in parallel relation with said first housing member;

second means for retaining a plurality of contacts in spaced relation on said second housing member, said second retaining means including a plurality of second projections extending outwardly from an edge portion of said second housing member and spaced from one another, said second projections being offset from said first projections so as to interfit therewith;

a plurality of longitudinally extending first electrical contacts retained by said first retaining means, each of said first contacts lying between respective first projections with one of the second projections interfitting therebetween;

a plurality of longitudinally extending second electrical contacts retained by said second retaining means, each of said contacts lying between respective second projections with one of the first projections interfitting therebetween;

a rotor shaft rotatably extending through said hole;

a rotor disc mounted on the rotor shaft for rotation therewith, said disc having first and second electrically conductive patterns formed on opposite sides thereof, respectively; and

means for fastening the first and second housing members together in parallel relation with the rotor disc disposed between said first and second contacts so that said first contacts operatively engage said first pattern and said second contacts operative engage said second pattern, in which the first and second cover plates are configured to be complementary interfitting so as to substantially sealingly enclose the first and second contacts and the rotor disc.

4,275,280

BRAKE SWITCH ACTUATOR FOR AUTOBICYCLE OR THE LIKE

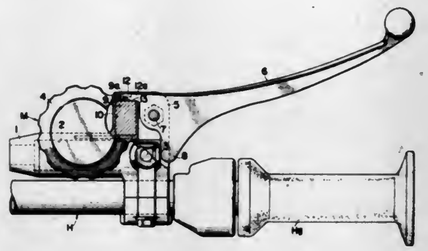
Yuzo Yamazaki, Ueda, Japan, assignor to Nissin Kogyo Kabushiki Kaisha, Ueda, Japan

Filed May 2, 1979, Ser. No. 35,225

Claims priority, application Japan, May 17, 1978, 53-66161[U]; Jul. 25, 1978, 53-102052[U]

Int. Cl.³ H01H *9/06*

U.S. Cl. 200—61.85 **4 Claims**



1. A brake switch and actuator combination for autobicycle or the like comprising: a cylinder body of a brake master cylinder arranged frontwardly of a steering handle; a piston slidably accommodated in a cylinder bore of said cylinder body; a brake lever pivotally supported on one end of said cylinder body through a pivot so that said piston may be operated; a substantially cylindrical brake switch disposed below the cylinder bore with its longitudinal axis transverse to the longitudinal axis of the cylinder bore and also transverse to the longitudinal axis of the pivot; a movable member of the brake switch projected from a front end thereof; and a switch actuating arm formed on said brake lever and which has a downwardly extending portion engageable with said movable switch member, said switch actuating arm also constituting a stop which contacts a stop surface formed on said cylinder body to determine the retracted position of said brake lever.

4,275,281

APPARATUS FOR HEATING AN ELECTRICALLY CONDUCTIVE COOKING UTENSIL BY MAGNETIC INDUCTION

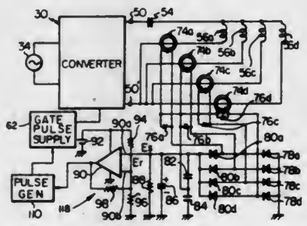
Mitsuyuki Kiuchi, c/o Matsushita Electric Industrial Company, Ltd., No. 1006, Oaza Kadoma, Kadoma City, Osaka, Japan

Continuation of Ser. No. 783,701, Apr. 1, 1977, abandoned, which is a division of Ser. No. 577,156, May 14, 1975, abandoned. This application Nov. 24, 1978, Ser. No. 963,227

Claims priority, application Japan, May 17, 1974, 49-55890; May 17, 1974, 49-55891; May 17, 1974, 49-55893

Int. Cl.³ H05B *6/06, 6/12*

U.S. Cl. 219—10.49 R **4 Claims**



1. An induction heating apparatus comprising:

a heating unit including a plurality of heater coils connected with each other in parallel;

a static power converter connected between said heating unit and a low-frequency a.c. power source for converting the low-frequency power into a high-frequency power and supplying said high-frequency power to said heating unit thereby causing said heater coils to produce time-varying magnetic fields, said converter including a switching circuit connected in parallel with said heating unit and said power source for producing said high-frequency power with a frequency substantially equal to a frequency with which the switching circuit is triggered; and

control means including a reference voltage generator, a current detector for producing a voltage representative of current flowing through said heater coils, said current detector comprising magnetic cores respectively linked with lines connected to said heater coils, a plurality of windings each comprising turns wound on a corresponding one of said magnetic cores, a rectifier connected to said windings, and a timing capacitor connected to said rectifier for storing said voltage across said timing capacitor, a single comparator connected to said reference voltage generator and current detector for producing an ON signal when the voltage from said current detector is lower than the reference voltage of said reference voltage generator and for producing an OFF signal when the voltage from said current detector exceeds the reference voltage, a pulse generator connected to said comparator for producing pulses when receiving said ON signal and ceasing to produce pulses when receiving said OFF signal, and a gate pulse supply circuit connected to said pulse generator and said switching circuit for triggering said switching circuit in response to said pulses from said pulse generator.

4,275,282

CENTERING SUPPORT FOR A ROTATABLE WAFER SUPPORT SUSCEPTOR

Edward A. Miller, Yardley, Pa., assignor to RCA Corporation, New York, N.Y.

Filed Mar. 24, 1980, Ser. No. 132,878

Int. Cl.³ C23C *13/08*; H05B *6/10*

U.S. Cl. 219—10.49 R **7 Claims**



1. In a susceptor of the type adapted to support one or more substrates within a reaction chamber, the susceptor being disposed for rotation in a vertical position wherein the improvement comprises:

a rotatable vertical shaft;

a horizontal flat member affixed perpendicularly to the shaft;

a cylindrical tube positioned about said shaft and supported on its lower edge with frictional engagement on the surface of said flat member;

a base member affixed to the bottom of said susceptor and adapted to support with frictional engagement said susceptor in a vertical orientation, said base member having a central aperture and having a bottom flat surface for support on the upper edge of said tube, the respective upper and lower edges of said tube being in frictional relationship with the surfaces of said base member and said flat member contiguous with said upper and lower tube edges;

an apertured disc disposed within said tube and operatively associated with said shaft and adapted to restrain radial movement of said tube relative to the shaft; and

means extending from said rotatable shaft to pass through said base member aperture for maintaining the position of said base member in fixed axial and symmetrical relation with said rotatable shaft.

4,275,283

APPARATUS FOR HEATING RUBBER PRODUCTS WITH UHF ENERGY

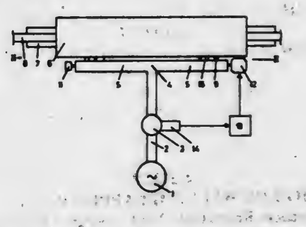
Harry Focht, Hemmingen, Fed. Rep. of Germany, assignor to Paul Troester Maschinenfabrik, Hanover, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 87,715

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846610

Int. Cl.³ H05B *6/78, 6/68*

U.S. Cl. 219—10.55 F **9 Claims**



1. Apparatus for heating strand-form rubber products to vulcanize them, comprising an elongate resonator chamber, means for transporting said products through said resonator chamber in a direction lengthwise of said chamber, a microwave generator for producing UHF-energy, means for conducting said UHF-energy from said generator to said chamber comprising a wave guide having a trunk portion connected with said generator and divided at a junction point into two branches, and means coupling said branch wave guides to said resonator chamber at locations spaced from the ends of said wave guide branches and spaced apart from one another lengthwise of said resonator chamber to transmit UHF-energy to said resonator chamber and thereby produce a microwave field in said chamber to heat and thereby vulcanize said product, and tuning means in at least one of said wave guide branches adjacent the coupling of said wave guide branch to the resonator chamber for varying the microwave field geometry in said resonator chamber and vary the wave resistance of said wave guide to tune said wave guide to said generator.

4,275,284

GAS-SHIELDED ARC WELDING TORCH

James L. Conley, Kent, Wash., assignor to Conley and Kloppen Enterprises, Inc., Auburn, Wash.

Filed Jul. 26, 1979, Ser. No. 61,002

Int. Cl.³ B23K *9/16*

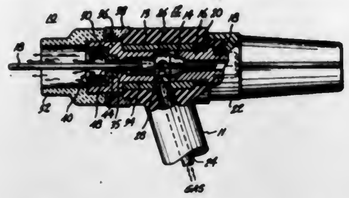
U.S. Cl. 219—74 **5 Claims**

2. In a gas shielded arc welding torch wherein a torch body has a hollow head which rearwardly includes means for clamping an electrode extending forwardly of said head and said clamping means is adapted to receive and pass gas in a forward direction around the electrode, the improvement, consisting essentially of:

a gas distributor located at the front of the hollow head and comprising:

a cup member adapted to receive gas moving forwardly around an electrode;

means forming a ported chamber in said cup member having an external cylindrical surface spaced from and concentric of said cup interior and forming therewith an



annular gas passageway of predetermined dimension, said chamber being ported normal of the axis of said head to discharge gas into said annular passageway;

said chamber having an electrode passage permitting the protrusion forwardly of an electrode passed through said chamber; and

nozzle means surrounding and extending forward of the lip of said cup member.

4,275,285

METHOD OF WELDING CAPPED WHEEL NUT

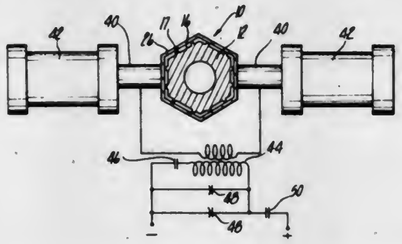
Albert A. Jadach, Royal Oak, Mich., assignor to Towne Robinson Fastener Company, Southfield, Mich.

Continuation of Ser. No. 876,920, Feb. 10, 1978, abandoned. This application Jul. 25, 1979, Ser. No. 60,325

Int. Cl.³ B23K *11/14*; B21D *53/24*; F16B *37/14*

U.S. Cl. 219—93

25 Claims



1. The method of forming a capped nut having a nut body with a central threaded aperture and polygonal sides, and a sheet metal cap adapted to at least partially surround the sides, comprising:

bringing a pair of electrodes into pressured contact with opposed sides of the cap to impose opposed forces between the cap and the nut body,

and passing a high current electrical pulse between the electrodes to cause a primary current flow through the contacting areas between the cap the the nut body adjacent the electrodes and through the nut body to cause welding of the cap to the nut body at the areas adjacent the electrodes.

4,275,286

PROCESS AND MASK FOR ION BEAM ETCHING OF FINE PATTERNS

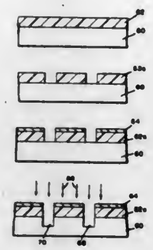
Le Roy H. Hackett, Jr., Malibu, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Dec. 4, 1978, Ser. No. 965,964

Int. Cl.³ B23K *15/00*; C23F *1/02*; C23C *15/00*; H01L *21/302*

U.S. Cl. 219—121 EK

11 Claims





7. In a process for ion beam etching selected areas in a target which comprises providing said target, forming a patterned resist mask on the surface of said target to expose said selected areas in said target, and directing a beam of chosen ions through openings in said resist mask to said target, the improvement comprising evaporating a selected material which ion beam etches more slowly than said target and at a temperature which is lower than the flowing temperature of said resist, onto said resist mask at a predetermined controlled angle of incidence with respect to the surface of said resist mask to form a relatively thin protective layer on said resist mask, said predetermined controlled angle of incidence being an acute angle sufficient to deposit said layer with edges and patterns replicated from edges and patterns in said resist mask and with a negligible amount of said selected material deposited on said target wherein said protective layer prevents or substantially impedes the erosion of said resist mask during said ion beam etching of said target and said selected areas are formed by said ion beam etching to have walls substantially perpendicular to said surface of said target.

10. A process for making a protected ion beam etching mask which includes:

(a) providing a resist mask on the surface of a chosen substrate and having openings therein which expose preselected areas on said substrate to be ion beam etched; and

(b) depositing a selected material onto said resist mask at a predetermined controlled angle of incidence with respect to the surface of said resist mask to thereby form a thin protective layer on said resist mask, said predetermined controlled angle of incidence being an acute angle sufficient to deposit said layer with edges and patterns replicated from edges and patterns in said resist mask, whereby a negligible amount of said selected material reaches said substrate and said thin protective layer prevents or substantially impedes any erosion of said resist mask during the ion beam etching of said substrate.

4,275,287

PLASMA TORCH AND A METHOD OF PRODUCING A PLASMA

Susumu Hiratake, Kasugai, Japan, assignor to Daidoto Kushuko Kabushikiaisha, Japan

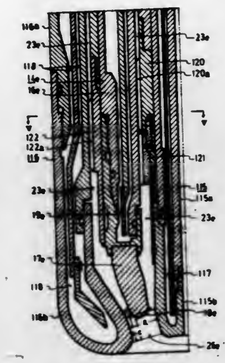
Filed Mar. 21, 1979, Ser. No. 22,651

Claims priority, application Japan, Sep. 28, 1978, 53-119575

Int. Cl.³ B23K *9/00*

U.S. Cl. 219—121 PR

3 Claims



1. A plasma torch comprising:

(i) an annular cathode having an annular inner peripheral portion with an edge face for discharge of a film-like plasma arc towards an axis of the cathode,

(ii) a pair of annular nozzle elements disposed coaxially with respect to said cathode and each situated at a spacing axially at a respective side of the cathode, each nozzle element including an inner peripheral edge portion which extends beyond the inner peripheral edge face of the cathode in the direction towards said axis, a respective annular opening being defined between the inner peripheral edge portion of each nozzle element and the edge face of the cathode for discharge of gas towards the axis at each side of the arc,

(iii) a magnetic field generator for exerting a magnetic field on said arc to cause said arc to rotate along said annular edge face of said cathode.

4,275,288

APPARATUS FOR MACHINING MATERIAL

Günter Makosch, Sindelfingen; Franz Schedewie; Arno Schmackpfeffer, both of Böblingen, and Jörg Ziller, Sindelfingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 30, 1979, Ser. No. 25,414

Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821883

Int. Cl.³ B23K *27/00*

U.S. Cl. 219—121 LR

1 Claim

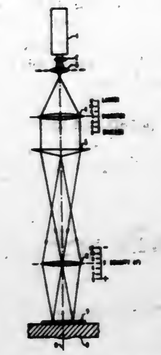
1. Apparatus for machining material as by drilling, punching and welding by means of a radiant energy beam of gaussian profile at the workpiece,

characterized by

an optical converting element arranged in the path of the processing beam, for the axis-symmetrical conversion of the paraxial and of the off-axis cross-sectional areas of the processing beam to a substantially uniform temperature gradient across the workpiece by

a focusing element arranged beyond it in the direction of beam propogation, by

said converting element and said focusing element selectively being arranged to be shifted selectively in the direction of the optical axis relatively to each other for adjusting the respective energy density distribution and the beam diameter, and by



said converting elemeat and said focusing element selectively being associated with calibrated scales giving the relative diameter and the relative energy density distribution of the generated processing beam directly.

4,275,289

UNIFORMLY COOLED PLASMA ETCHING ELECTRODE

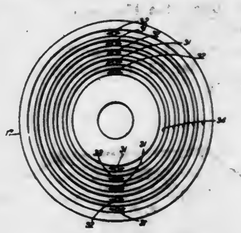
Herbert A. Lord, East Windsor, N.J., assignor to Western Electric Company, Inc., New York, N.Y.

Filed Feb. 4, 1980, Ser. No. 118,002

Int. Cl.³ B23K *9/00*

U.S. Cl. 219—121 PR

5 Claims



1. A method of uniformly cooling a substantially planar electrode to within a predetermined temperature range, the electrode having a plurality of concentric channels therein separated by a plurality of concentric walls, the method comprises the step of:

flowing a coolant fluid along adjacent channels in opposite directions in such a manner that the temperature of the fluid in any one channel is different than the temperature of the fluid in an adjacent channel and the average temperature of each adjacent pair of channels falls within the predetermined temperature range.

4,275,290

THERMALLY ACTIVATED LIQUID INK PRINTING

Paolo Cielo, Dartmouth, and William D. Westwood, Nepean, both of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Continuation-in-part of Ser. No. 903,516, May 8, 1978, abandoned. This application Jan. 14, 1979, Ser. No. 48,670

Int. Cl.³ H05B *1/00*

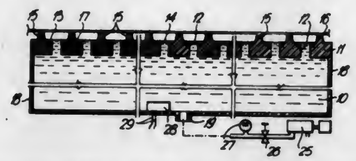
U.S. Cl. 219—216

5 Claims

1. A thermally activated liquid ink printer comprising:

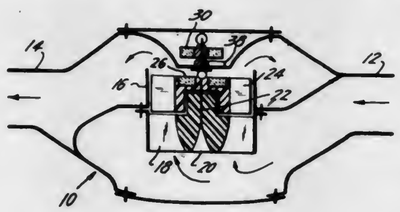
a reservoir for holding liquid ink;

a plurality of orifices extending through a wall of the reservoir;
means for supplying ink to the reservoir at a predetermined pressure to fill each of the orifices to an outer end thereof, the orifice outer ends located at an outer surface of the reservoir wall and each orifice outer end being of a dimension such that surface tension forces on the ink balance said predetermined pressure to retain the liquid ink within the reservoir;
means for positioning paper adjacent to the outer ends of the orifices;
means for moving the paper past the orifice outer ends; and



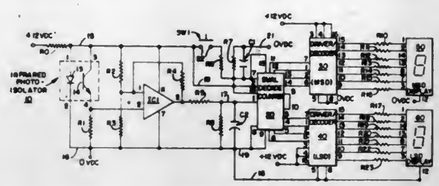
an electrical resistive heater surrounding each orifice at its outer end, the heater operable on receiving an energizing pulse to heat ink at the outer end of its associated orifice to rapidly reduce the surface tension of the ink in the outer end of the orifice and thereby cause the heated ink to issue from the orifice outer end under the influence of said predetermined pressure and be deposited on the paper, said heated ink being replaced in the orifice by unheated ink subject to surface tension forces balancing said predetermined pressure whereby abruptly to terminate issue of ink form the orifice.

4,275,291
ROTATION SENSOR
Murray F. Feller, Dunnellon, Fla., assignor to Wilgood Corporation, Jacksonville, Fla.
Filed Aug. 21, 1978, Ser. No. 935,562
Int. Cl.³ G01F 1/06
U.S. Cl. 235—92 FL **13 Claims**



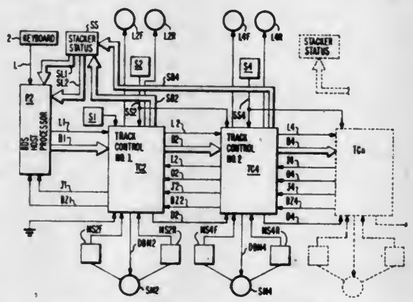
1. Flow measuring apparatus comprising means for defining a fluid-flow passage and including a non-magnetic wall, a flow-activated rotor in said passage bearing first rotary means opposite to said nonmagnetic wall, second rotary means outside said wall coaxial with said first rotary means, said first and second rotary means having first and second localized portions, respectively, of magnetic material opposite each other and a said localized portion of at least one of said rotary means being magnetized for causing the first and second rotary means to rotate in unison, said first and second localized portions staying opposite each other and moving in respective mutually opposite circular paths, a detector that yields changing electrical output in response to changes in imposed magnetic field, said detector being disposed outside said wall between said circular paths for providing a succession of signals proportional to the number of rotations of said flow-activated rotor, and means for indicating a measure of the rotation of rotary device, said last-named means being coupled to said detector and responsive thereto.

4,275,292
METHOD AND APPARATUS FOR POSITIONING A DRAG RACING VEHICLE TO A STARTING-LINE POSITION
Ronald W. Corbi, 368 Edgewood Dr., Columbiana, Ohio 44408
Filed Mar. 19, 1979, Ser. No. 21,725
Int. Cl.³ G06M 3/06
U.S. Cl. 235—92 DN **2 Claims**



1. An apparatus for positioning a drag racing vehicle to a preferred "staged" position at the starting-line of a drag racing track, said apparatus comprising:
(a) means responsive to the movement of the drag racing vehicle for producing a series of pulses, the number of which is indicative of the distance travelled by said drag racing vehicle at the starting-line area of a drag racing track;
(b) counter means connected in circuit to said means responsive to the movement of the drag racing vehicle for counting said series of pulses;
(c) decoder/driver means connected in circuit with said counter means;
(d) digital display readout means connected in circuit to the output of said decoder/driver means; and
(e) external reset means connected in circuit with said counter means for resetting said counter means to erase the stored count of said series of pulses therein.

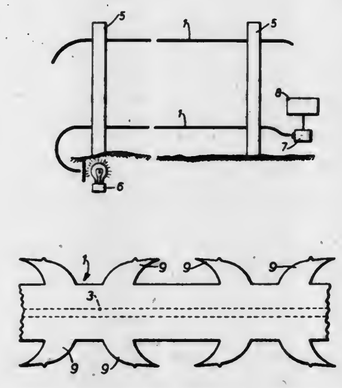
4,275,293
JAM DETECTION AND RECOVERY SYSTEM
John M. Chambors, Canton, Mich., assignor to Burroughs Corporation, Detroit, Mich.
Filed Dec. 31, 1979, Ser. No. 108,797
Int. Cl.³ G01D 21/04
U.S. Cl. 250—223 R **10 Claims**



1. A jam detection and recovery system for a document processor employing a plurality of diverter gates aligned along a document transport track, in association with a plurality of pockets, to receive and route documents into the pockets on a selective basis, comprising:
sensing means positioned along a document transport track to detect the presence of documents at selected points along the track and provide signals when documents are present;
said sensing means including at least one sensing means positioned along the track before a first diverter gate and

sensing means associated with each of a plurality of diverter gates to detect the presence of a document at each gate and provide a signal;
a track controller coupled to each of a plurality of said sensing means to receive said signals;
said track controllers responding to selected pluralities of said signals to determine when a jam has occurred in the track; and
said track controllers providing warning signals, when a jam has occurred, of use to enable the diverter gates to divert documents from the track to suitable pockets to avoid further jamming.

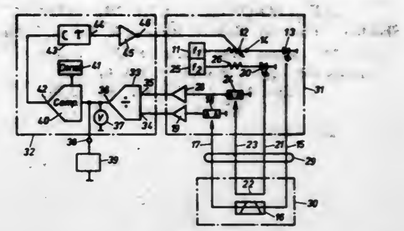
4,275,294
SECURITY SYSTEM AND STRIP OR STRAND INCORPORATING FIBRE-OPTIC WAVE-GUIDE MEANS THEREFOR
Roderick I. Davidson, Farnham, England, assignor to Fibun B.V., Netherlands
Filed Sep. 19, 1978, Ser. No. 943,693
Claims priority, application United Kingdom, Sep. 28, 1977, 40412/77
Int. Cl.³ G02B 5/14
U.S. Cl. 250—227 **13 Claims**



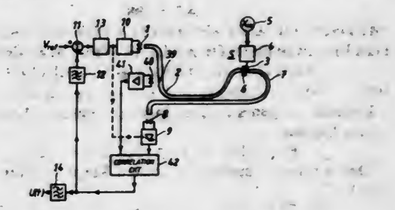
1. A security system comprising a fence, wall or the like disposed to extend along a given boundary, at least one strand running along the boundary and carried by the fence, wall or the like, the strand including a fibre-optic waveguide and being formed with barbs or serrations along its edges, an energy source for directing optical radiation along the waveguide from one end thereof, a detector for detecting radiation leaving the waveguide from the other end, and a warning device which is arranged to be actuated by the detector when there is a predetermined change in the light transmitting properties of the waveguide.

4,275,295
LIMIT AND MEASUREMENT VALUE TRANSMITTER
Roland Messingen, Aarau; Kurt Ehrsam, Brugg; Jürg Oberhänsli, and Kurt Grünig, both of Küttigen, all of Switzerland, assignors to Hectronic AG, Buchs, Switzerland
PCT No. PCT/CH78/00023, § 371 Date May 23, 1979, § 102(e) Date May 23, 1979, PCT Pub. No. WO79/00179, PCT Pub. Date Apr. 19, 1979
This PCT application filed May 23, 1979, Ser. No. 41,915
Claims priority, application Switzerland, Oct. 5, 1977, 12164/77
Int. Cl.³ G01D 5/34
U.S. Cl. 250—227 **9 Claims**

1. A method of obtaining and transmitting signals characterizing at least one physical property of a substance which is to be monitored, by means of feeler transducer, light transmitter and light receiver, wherein there is obtained between a measuring light current and a reference light current extending parallel thereto an electrical information signal and the measuring light current and the reference light current are guided through a single light guide bundle, characterized by the features that the measuring light current is guided in timewise alternation to the reference light current at least along part of its transmission paths by means of a common light guide.



4,275,296
STABILIZED FIBER OPTICAL MEASURING APPARATUS
Morgan Adolfsson, Vesteras, Sweden, assignor to ASEA Aktiebolag, Vesteras, Sweden
Filed May 29, 1979, Ser. No. 42,954
Claims priority, application Sweden, Jun. 2, 1978, 7806486
Int. Cl.³ G02B 5/14
U.S. Cl. 250—227 **12 Claims**



1. Stabilized fiber optical measuring device for measuring dynamic transients in physical magnitudes, comprising:
a transducer acted upon by the physical magnitude to be measured;
means for generating an optical input signal to said transducer and including at least one light source;
at least one optical fiber for transmitting light from said means for generating an optical input signal to said transducer and for transmitting the optical output signal from said transducer to said at least one optical detector;
said transducer including means for modulating at least part of the optical input signal thereto such that the optical output signal therefrom contains at least one measuring component representing the magnitude to be measured and at least one stabilization component which is less dependent on said magnitude than said measuring component said at least one measuring component and said at least one stabilization component being transmitted at least partially in the same optical fiber;
means for processing the optical signal output of said transducer and including at least one optical detector for detecting said optical output signal and further including means for separating said measuring component and said stabilization component from one another, means for generating a measuring signal and a compensating signal, and means responsive to said compensating signal for reducing the dependence of the measuring signal on instabilities in the measuring device; and
said means for modulating generating an attenuation of the transmission for the optical input signal and the optical

output signal from said transducer, said attenuation being dependent on the magnitude of the measuring component.

4,275,297

ELECTRO-OPTICAL STRAND DETECTOR

Sheldon A. Canfield, Newark; Richard H. Pierce, Columbus, and Kenneth L. Rapp, Granville, all of Ohio, assignors to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 2, 1979, Ser. No. 63,295
Int. Cl.³ H01J 5/02
U.S. Cl. 250—239 7 Claims



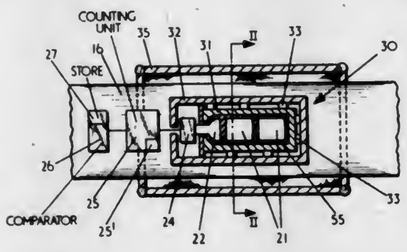
1. In a strand sensing device having an electro-optical sensor the improvement comprising; an optically transparent tubular shield surrounding a path of strand advancement at the sensor, wherein the shield is positioned intermediate the sensor and said path and the confocal region of the sensor is located immediately adjacent the tubular shield within said shield.

4,275,298

METHOD OF AND APPARATUS FOR DETERMINING THE PROPORTION OF AT LEAST ONE MATERIAL IN A MOVING MIXTURE OF MATERIALS

John S. Wykes, Allenton, and Ian Adsley, Branston, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed May 31, 1978, Ser. No. 911,247
Claims priority, application United Kingdom, May 31, 1977, 22941/77
Int. Cl.³ G01V 5/00; G01N 23/00; G01T 1/20
U.S. Cl. 250—255 8 Claims



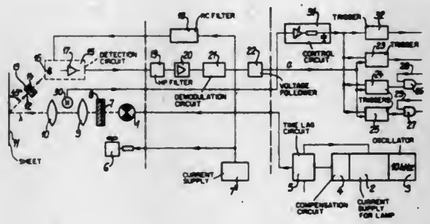
1. Apparatus for determining the constituency proportion of at least one material in a moving mixture of coal and stone or shale materials comprising a sensor means for sensing an intensity of radiation emitted by at least one of the materials in the moving mixture of materials, signal deriving means for deriving an electrical signal indicative of the radiation intensity, the signal deriving means further comprising averaging circuitry connected to the signal deriving means for averaging the radiation intensity signal over a time period for deriving an electrical signal of averaged radiation intensity, comparator means for comparing the derived electrical signal of averaged radiation intensity with at least one preselected reference value of signal corresponding to a known proportion and means for deriving a second electrical signal indicative of said comparison and consequently of the ratio of said at least one material in the mixture of materials.

4,275,299

METHOD AND APPARATUS FOR DETECTING A FLUORESCENT AREA ON A SHEET OF PAPER

Nicolas Favre, Cornaux, Switzerland, assignor to Compagnie Industrielle Radioelectrique, Switzerland

Filed Apr. 17, 1979, Ser. No. 30,819
Claims priority, application Switzerland, Apr. 18, 1978, 4131/78
Int. Cl.³ G06K 7/10; G01N 21/38
U.S. Cl. 250—271 3 Claims



1. Apparatus for detecting on a moving sheet of paper the presence, in predetermined areas, of marks which become fluorescent when exposed to ultraviolet radiation, comprising a source of ultraviolet light, a source of current modulated at a frequency of about 10 KHz for supplying current to said ultraviolet source, first filtering means for filtering ultraviolet light produced by said source and directing said ultraviolet light on said sheet to produce fluorescent radiation from said marks, second filtering means for filtering said fluorescent radiation from said marks, a first photo-electric element sensitive to fluorescent radiation and disposed on the same side of said sheet as said source of ultraviolet radiation to receive filtered fluorescent radiation from said marks to produce a first-signal, first circuit means for detecting, demodulating and amplifying said first signal received from said first photo-electric element, a second photo-electric element disposed between said first filtering means and said sheet to receive directly ultraviolet light from said source filtered by said first filtering means to produce a second signal, second circuit means for detecting, demodulating and amplifying said second signal, means coordinated with movement of said sheet to produce first and second reading windows, first trigger means controlled by said first signal and said first reading window producing means to produce a first output signal measured on a first predetermined area of the sheet, second trigger means controlled by said first signal and said second reading window producing means to produce a second output signal measured on a second predetermined area of the sheet, and means controlled by said second signal for regulating the operating level of both of said trigger means.

4,275,300

FLUORESCENT COMPOSITION, A PROCESS FOR SYNTHESIZING THE FLUORESCENT COMPOSITION, AND METHODS OF USE OF THE FLUORESCENT COMPOSITION

Seth R. Abbott, Concord, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Oct. 23, 1978, Ser. No. 953,380
Int. Cl.³ G01T 1/10, 1/20; G01N 23/00, 23/22, 31/08; C09K 11/02, 11/06, 11/20
U.S. Cl. 250—304 18 Claims

1. A method of detecting the radioactivity of a radioactive species, said method comprising the steps of:

(a) placing the radioactive species in direct contact with a fluorescent composition consisting essentially of inert porous silica or alumina particles having a size of about 5 to 20 microns, and a fluorescent material, said fluorescent material being fixedly attached by covalent chemical bonding to the surface of said particles; and

(b) detecting the degree of fluorescence energized by emitted radioactivity;

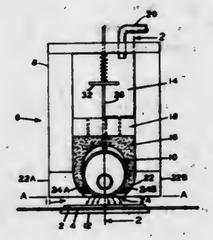
provided that when the radioactivity being detected is that of tritiated hydrogen, said fluorescent composition comprises particles having a size of about 5 to 10 microns.

4,275,301

CORONA DISCHARGE DEVICE

Werner Rueggeberg, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa.

Filed Mar. 10, 1980, Ser. No. 128,539
Int. Cl.³ H01T 19/04
U.S. Cl. 250—326 4 Claims



1. An apparatus for treating a material with a corona discharge characteristic of a selected gas or gas mixture which apparatus comprises:

(a) a housing;

(b) a perforated plate separating the housing into an upper plenum chamber and a lower plenum chamber, the lower plenum chamber having inwardly tapered wall means defining an opening in the housing at the bottom of the lower plenum chamber;

(c) an inlet means opening into the upper plenum chamber for supplying a gas or gas mixture into the upper plenum chamber whereby the gas passes from the upper plenum chamber through the perforated plate and is uniformly distributed into the lower plenum chamber wherein the tapered wall means directs the gas towards the opening at the bottom of the lower plenum chamber;

(d) a ground electrode means positioned parallel to the opening and spaced a distance apart from the housing; and,

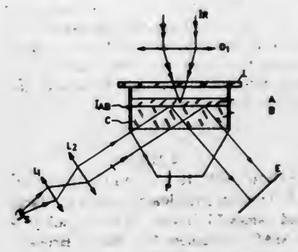
(e) at least one corona discharge electrode means positioned adjacent and parallel the opening in the lower plenum chamber, dividing the opening into gas passageways around the corona discharge electrode means such that the gas flows perpendicular to the lengthwise direction of the electrode means and exits through the opening into the region existing below the corona discharge electrode means and above the ground electrode means where the gas or gas mixture is ionized forming a corona discharge characteristic of the gas introduced through the inlet means wherein a material to be treated is passed.

4,275,302

METHOD AND DEVICE FOR CONVERTING THERMAL IMAGES INTO SECONDARY IMAGES, E. G. VISIBLE IMAGES

Christian Imbert, Bailancourt; Yves Levy, Malakoff, and Jean-Claude Louiergue, Paris, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly sur Seine, France

Filed Sep. 24, 1979, Ser. No. 78,599
Claims priority, application France, Sep. 29, 1978, 78 28041
Int. Cl.³ H01J 31/50; G02F 1/29
U.S. Cl. 250—330 31 Claims



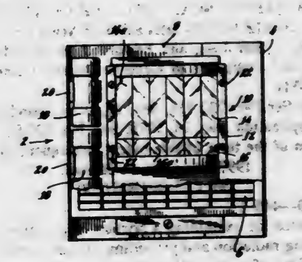
6. A thermal image converter for converting thermal radiation emitted by an object, comprising a plane optical interface, a layer of thermal radiation absorbing liquid disposed to one side of said interface, said interface being reflective or transmissive, an optical system for focusing thermal radiation emitted by the object and forming a thermal image on said layer, the temperature distribution of said thermal image resulting in a variation of physical parameters of said layer, means for illuminating the other side of said interface providing a beam of parallel light rays or a beam of light from a point source, viewing means being arranged to receive the beam reflected or transmitted by said interface which undergoes a corresponding variation to its optical properties, the improvement comprising said interface being a liquid-liquid interface having low surface tension formed by a mixture of two liquids, liquids I and II, which are partially miscible at operating temperature and pressure.

4,275,303

PASSIVE INFRARED INTRUSION DETECTION SYSTEM

Philip H. Mudge, New Fairfield, Conn., assignor to Arrowhead Enterprises, Inc., New Milford, Conn.

Filed Nov. 13, 1979, Ser. No. 93,443
Int. Cl.³ G01J 1/00
U.S. Cl. 250—342 10 Claims



1. In a passive infrared intrusion detector of the type including a heat sensor for detecting a change in temperature caused by a passing intruder, a lens mounted in front of said heat sensor for receiving infrared radiation from the body of said intruder and focusing said radiation on said heat sensor, and

means coupled to said heat sensor for actuating a signal when said heat sensor detects said temperature change,

the improvement comprising:

a lamp for emitting visible light positioned within said intrusion detector proximate to said heat sensor,

said lens including a first lens segment positioned to receive infrared radiation from a first zone to be protected and focus a portion of said radiation on said heat sensor, and a second lens segment positioned to receive radiation from a second zone to be protected and focus a portion of said radiation on said heat sensor,

said second lens segment being positioned relative to said lamp and said heat sensor such that light from said lamp passes through said second lens segment and parallels that portion of radiation from said first zone which is focused on said heat sensor by said first lens segment,

wherein said first zone may be located by adjusting said intrusion detector so that light from said lamp is observed in said first zone.

4,275,304

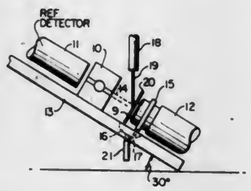
SHORT OPTICAL PATH DETECTOR

Alexander E. Lawson, Mendham; Robert J. Mathieu, Mountain Lakes, and James M. Miller, Madison, all of N.J., assignors to GOW-MAC Instrument Co., Bound Brook, N.J.

Continuation of Ser. No. 893,406, Apr. 4, 1978, abandoned. This application Sep. 5, 1979, Ser. No. 72,685

Int. Cl.³ G01J *1/42*

U.S. Cl. 250—373 **7 Claims**



1. In an optical technique analytic instrument system wherein a liquid test sample is flowed through an optical path crossed by a beam, the improvement which comprises a flat surface disposed across the beam and at an acute angle to horizontal, said surface being transparent to the beam, and sample delivery means flush to said surface for flowing an unconfined falling film of a partially transparent liquid test sample over said surface, the falling film of liquid test sample on said surface constituting the analytic instrument optical path through the liquid test sample.

4,275,305

TOMOGRAPHIC SCANNING APPARATUS WITH IONIZATION DETECTOR MEANS

Janos A. Racz, San Jose, and Edward J. Seppi, Menlo Park, both of Calif., assignors to General Electric Company, Milwaukee, Wis.

Division of Ser. No. 722,931, Sep. 13, 1976, abandoned. This application Aug. 24, 1978, Ser. No. 936,552

The portion of the term of this patent subsequent to Aug. 12, 1997, has been disclaimed.

Int. Cl.³ G01N *21/00*

U.S. Cl. 250—445 T **5 Claims**

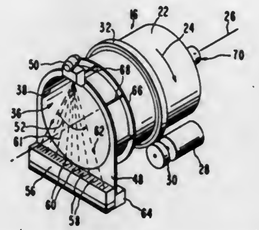
1. Apparatus for examining a portion of a subject by means of penetrating radiation and providing output signals for use in reconstruction of a two-dimensional representation of the structure residing in a thin section taken through said subject; said apparatus comprising:

an assembly rotatable about an axis extending along a central opening defined thereby;

means for positioning the portion of said subject to be examined within said central opening, whereby said axis of assembly rotation is substantially perpendicular to said section;

a source of penetrating radiation being mounted on said assembly toward one side thereof and providing radiation in the form of a fan beam;

detector means for said radiation positioned on said assembly opposite said source for detecting radiation progressing laterally across said section comprising a pressurized ionization chamber including an array of side-by-side mutually insulated strip detector electrodes spaced from a common high voltage electrode, the principal axis of each said strip electrode being oriented along a radius extending toward said radiation source, and connection means



for providing potential to said high voltage electrode and for taking output signals from said detector electrodes;

means for rotating said assembly whereby said fan beam impinges upon said subject at a plurality of incident directions;

signal processing and conditioning means mounted on said assembly and movable therewith, for receiving the output signals from said detector means and amplifying and converting said signals to digital form; and

first interconnection means for receiving the outputs from said signal processing and conditioning means and enabling interfeed of said digitalized output signals to an image reconstruction station.

4,275,306

ALIGNMENT APPARATUS

Yuzo Kato; Yasuo Ogino; Ryozo Hiraga; Hideki Yoshinari, all of Yokohama; Masao Tozuka, Ohmiya, and Ichiro Kano, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1979, Ser. No. 16,165

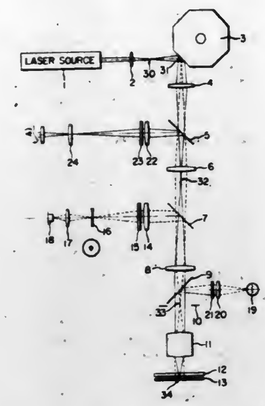
Claims priority, application Japan, Feb. 27, 1978, 53-21765

Int. Cl.³ G01N *21/86*

U.S. Cl. 250—548 **1 Claim**

1. An alignment apparatus comprising a first support member for supporting a first sheet-like member provided with first and second alignment marks representing first and second standard points, respectively, spaced by a predetermined distance along a first standard line, a second support member for supporting a second sheet-like member provided with third and fourth alignment marks, along a second standard line, representing first and second reference points, respectively, corresponding to said standard points, driving means for moving at least one of said first and second support members relative to the other, means for scanning said alignment marks on said first and second sheet-like members substantially along said first standard line to read the alignment marks and produce signals, and circuit means for processing the signals produced by said scanning means and producing a signal to be applied to said driving means to place the first standard point and the second standard point under a predetermined positional relationship with the first reference point and the second reference point, respectively,

said driving circuit including first discriminating means for discriminating whether the deviation between the first standard point and the first reference point is within a tolerable range, second discriminating means for discriminating whether the deviation between the second standard point and the second reference point is within a tolerable range, and means for changing the tolerable range for the



deviation between the first standard point and the first reference point, and the tolerable range for the deviation between the second standard point and the second reference point, when the distance between the first reference point and the second reference point is not a predetermined one.

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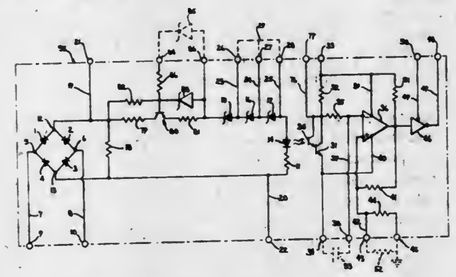
INPUT CIRCUIT FOR DIGITAL CONTROL SYSTEMS

Odo J. Struger, Chagrin Falls, and Joseph R. Branc, Wickliffe, both of Ohio, assignors to Allen-Bradley Company, Milwaukee, Wis.

Continuation-in-part of Ser. No. 897,681, Apr. 19, 1978, abandoned. This application May 14, 1979, Ser. No. 38,506

Int. Cl.³ G02B *27/00*

U.S. Cl. 250—551 **18 Claims**



1. An input circuit for a digital system, the combination comprising:

a rectifier circuit having a pair of a.c. input terminals and a pair of output terminals;

a series circuit connected across the rectifier circuit output terminals and including the following series connected elements:

(a) a current limiting circuit which limits the current flowing in the series circuit to a preselected maximum value,

(b) a plurality of series connected zener diodes having terminals which enable the zener diodes to be selectively shorted out of the series circuit to alter the voltage drop thereacross, and

(c) a light emitting element which forms part of a photo coupler and which generates an electrical signal in a light sensing portion of the photo coupler when current flows in the series circuit;

and

an output drive circuit which connects to said light sensing element and which converts the signal generated thereby to a logic level signal at an output terminal which is suitable for application to the data bus of the digital system.

4,275,308

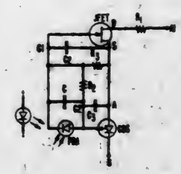
OPTICALLY TOGGLED DEVICE

Mahmood A. El Hamamsy, Watchung, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 30, 1980, Ser. No. 154,857

Int. Cl.³ G02B *27/00*

U.S. Cl. 250—551 **8 Claims**



1. A device comprising:

a gated diode switch having anode, cathode, and gate electrodes; first and second terminals; said cathode being connected to said second terminal; and means for changing the current conduction state of said device

CHARACTERIZED IN THAT

said means comprises a first field effect transistor having drain, gate and source electrodes, said source electrode being connected to said anode electrode, said drain electrode being connected to said first terminal and a photodiode array, said array having a first terminal connected to said gate electrode of said gated diode switch and a first series circuit comprising a second terminal connected to said gate electrode of said field effect transistor.

4,275,309

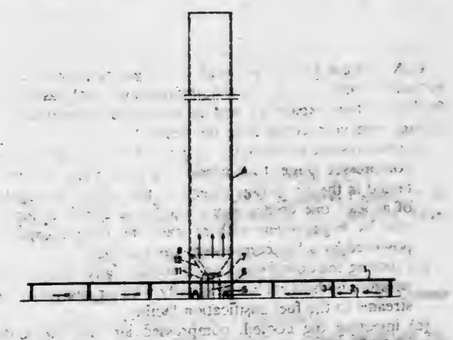
SYSTEM FOR CONVERTING SOLAR HEAT TO ELECTRICAL ENERGY

Robert E. Lucier, 271 Maple Ave., Windsor, Ontario, Canada

Continuation of Ser. No. 817,819, Jul. 21, 1977, abandoned, which is a continuation of Ser. No. 621,947, Oct. 14, 1975, abandoned. This application May 25, 1979, Ser. No. 42,571

Int. Cl.³ F03D *11/04*

U.S. Cl. 290—1 R **1 Claim**



1. Apparatus for converting solar heat into electrical energy for installation in vast, torrid, unoccupied areas, said apparatus comprising an accumulator for collecting large quantities of

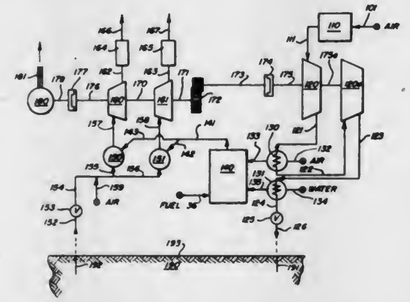
solar heated air and including a roof covering a vast area of ground, said roof being supported and spaced from the ground by a plurality of spaced supports, a huge hollow cylindrical tower centrally located with respect to said roof and passing through said roof and supported on the ground, said tower having spaced air entrances in its base communicating directly with the space between the ground and said roof to receive heated air directly from the space, a solid supporting pedestal centrally located within said tower and supported on the ground, an air deflector including a cylindrical wall spaced around and enclosing said pedestal, said wall having a plurality of angular air inlets communicating with said tower near said tower entrances, the base of said wall also being supported on the ground, said air deflector also having an upwardly-extending, converging, truncated conical portion connected to the upper edge of said cylindrical wall, and said deflector further including an upwardly-extending, diverging, truncated conical portion connected to the upper edge of the converging truncated conical portion, the upper edge of said diverging conical portion being connected to the inner surface of said tower, said diverging conical portion being open and unobstructed and extending only a short distance upwardly relative to the height of said tower, and an electrical generator supported on said pedestal, said generator having a horizontal impeller attached to a shaft of the generator, said impeller being located in the area where said converging and diverging conical portions of said deflector meet, said impeller being rotated by high velocity hot air received from the space between the ground and said roof through said tower entrances and said angular inlets.

4,275,310

PEAK POWER GENERATION

William A. Summers, 1015 Melbrook Dr., Munster, Ind. 46321, and Robert L. Longardner, 5321 Radnor Rd., Indianapolis, Ind. 46226

Filed Feb. 27, 1980, Ser. No. 125,239
Int. Cl.[3] F02C *1/00*; F28D *19/00*
U.S. Cl. 290—1 R 10 Claims



1. A process for the generation of electric power during periods of peak power demand, employing a fuel gasification facility, turbine expanders, and an associated underground air storage reservoir, comprising the steps of:

(a) compressing ambient air, by passage through at least one compressor stage, to a pressure greater than that maintained in the air storage reservoir, the compressor system of at least one compressor stage being driven at least in part by engagement with at least one turbine expander powered by a hot combustion gas mixture;

(b) cooling the compressed air to substantially ambient temperature by heat exchange serially with air and water feed streams to the fuel gasification facility;

(c) injecting the cooled, compressed air into the underground air storage reservoir through a first well system in communication therewith;

(d) withdrawing stored, compressed air from the underground air storage reservoir through a second well system, responsive at least in part to a peak power demand;

(e) commingling the withdrawn compressed air with fuel gas, from the fuel gasification facility, in a combustion zone to effect substantially complete combustion of the fuel gas;

(f) generating electric power by passing the hot combustion gas mixture through at least one turbine expander in engagement with an electric power generation means;

(g) discharging the expanded combustion gas to the atmosphere at substantially ambient temperature and pressure; and

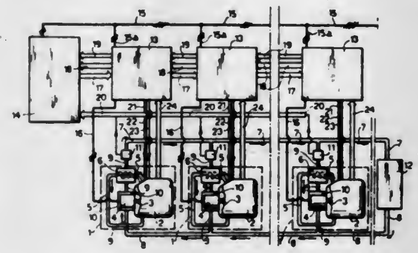
(h) delivering the generated electric power to a power supply system;

4,275,311

CONTROL AND PROTECTION SYSTEM FOR AN INSTALLATION FOR THE COMBINED PRODUCTION OF ELECTRICAL AND THERMAL ENERGY

Umberto Agazzone, Novara, and Francesco P. Ausiello, Turin, both of Italy, assignors to Fiat Auto S.p.A., Turin and Ercole Marelli & C. S.p.A., Milan, both of, Italy

Filed Apr. 25, 1980, Ser. No. 143,685
Claims priority, application Italy, May 23, 1979, 68093 A/79
Int. Cl.[3] F02N *11/06*; H02J *3/04*
U.S. Cl. 290—2 9 Claims



1. An installation for the combined production of electrical energy and heat, including a plurality of modular power plants each comprising:

(a) a liquid cooled internal combustion engine with associated ignition and fuel feed devices;

(b) an asynchronous electric machine drivingly connected to the internal combustion engine and arranged to act as a motor during starting of the internal combustion engine and thereafter as a generator, driven from the engine, for the production of electrical power; and

(c) heat recovery means including a first fluid circuit around which a first fluid constituted by the engine coolant liquid is arranged to flow, and a heat exchanger having a primary side connected into said first fluid circuit and a secondary side through which a second fluid is arranged to flow to recover, from the engine coolant liquid, heat energy imparted thereto by the internal combustion engine;

said installation further including

a second fluid circuit around which said second fluid is arranged to circulate, the secondary sides of the said power-plant heat exchangers being connected into the second fluid circuit in parallel with each other,

a common electrical energy distribution line to which the said electric machines of the power plants are electrically connectable in parallel, and

a control and protection system including a plurality of control modules each arranged to control a respective one of the said power plants and to output an alarm signal upon the occurrence of any one of a number of alarm conditions corresponding to abnormal operation or failure

of the associated power plant, and a central unit connected to each of said control modules to feed control signals thereto and receive alarm signals therefrom; said central unit including;

control means manually operable to preset for running or to stop a selected one or ones of the modular power plants, said control means being arranged to initiate starting of a said power plant preset for running, by the output of a said control signal to the appropriate control module;

timer and interlock means operative to ensure that the said modular power plants which have been previously preset for running are started in a sequential manner;

temperature sensor means arranged to sense for each said power plant the temperature of the second fluid leaving the said heat exchanger thereof;

inhibit means connected both to the temperature sensor means and to receive said alarm signals from the control modules, said inhibit means being operative to prevent the starting, or to stop the operation, of a said modular power plant when either the corresponding control module outputs a said alarm signal or the corresponding temperature sensed by said sensor means exceeds a predetermined value; and

each control module including:

electrical connector means operative in response to a said control signal output from the said control means to interconnect the associated modular power plant and the said common electric energy distribution line whereby to energise the electric machine for operation as a starting motor;

delayed-activation means arranged to activate said ignition and fuel feed devices of the internal combustion engine included in the associated power plant after a predetermined delay relative to the operation of said connector means whereby to permit the electric machine to reach running conditions before the ignition of the internal combustion engine connected thereto;

first measuring means arranged to measure the current supplied by the electric machine when operating as a generator and to output a warning signal when said supplied current is below a first predetermined current value;

second measuring means arranged to measure the inter-winding leakage current of said electric machine, and to output a warning signal when said leakage current exceeds a second predetermined current value;

an output circuit connected to receive said warning signals from said first and second measuring means and operative upon receipt of a said warning signal to output to the inhibit means of the central unit a said alarm signal indicative of the alarm condition giving rise to the warning signal; and

timer means arranged to prevent the first measuring means from causing the output circuit to output a said alarm signal during a predetermined period of time immediately following operation of said connector means to effect starting of the electric machine.

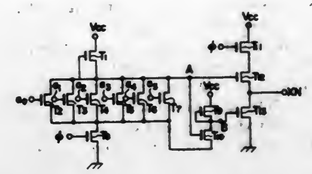
4,275,312

MOS DECODER LOGIC CIRCUIT HAVING REDUCED POWER CONSUMPTION

Tsuyoshi Saitou, Fuchu, and Tsuneo Ito, Kodaira, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 30, 1978, Ser. No. 964,894
Claims priority, application Japan, Dec. 9, 1977, 52-147089
Int. Cl.[3] H03K *19/094, 19/20*; G11C *8/00*
U.S. Cl. 307—463 11 Claims

1. A transistor circuit wherein a MISFET for receiving desired signals through the gate and a first switching MISFET for receiving control signals through the gate are connected in series between a first reference potential terminal and an output terminal, a second MISFET for receiving said desired signals through the gate via an inverter consisting of a MISFET is connected between said output terminal and a second reference potential terminal, and a second switching MISFET



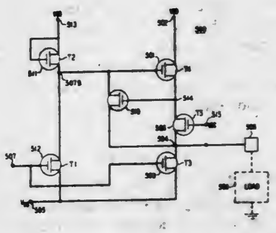
for receiving control signals through the gate is connected between said inverter circuit and said second reference potential terminal.

4,275,313

CURRENT LIMITING OUTPUT CIRCUIT WITH OUTPUT FEEDBACK

Harry J. Boll, Berkeley Heights, and Richard M. Goldstein, Summit, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 9, 1979, Ser. No. 28,115
Int. Cl.[3] H03K *19/003, 19/094, 17/14, 19/20*
U.S. Cl. 307—448 5 Claims



1. A current limiting push-pull driver circuit comprising:

a first IGFET having its channel coupled between a first voltage conductor and an output node, the gate of the first IGFET being coupled to first input signal means, a second IGFET having its channel coupled between a second voltage conductor and a control node, the gate of the second IGFET being coupled to second input signal means complementary to the first, characterized in that there are included current sensing means coupled between the control node and the output node for producing a sensing voltage proportional to the current flowing between the second voltage conductor and the output node, and

regulating means coupled to the gate of the second IGFET responsive to the sensing voltage for altering the conductance of the second IGFET.

4,275,314

JOSEPHSON ATTO-WEBER SWITCH

Theodore A. Fulton, Warren Township, Somerset County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Apr. 30, 1979, Ser. No. 34,569
Int. Cl.[3] H03K *19/195, 19/20*
U.S. Cl. 307—462 17 Claims

1. A Josephson junction circuit comprising

a Josephson junction gate capable of being switched between a low impedance state at $V=0$ and a high impedance state at $V\neq 0$,

bias electrode means (14) for applying primary bias current to said gate,
an output line (12) having an impedance connected to said gate,
control electrode means (10) for applying control current to said gate for switching said gate from V=0 to V≠0 and to divert said primary bias current to said output line, characterized in that said gate comprises
at least three circuit branches interconnected at three nodes (N1, N2, N3), said first node being connected to said control electrode means and said second node being connected to said output line and to said bias electrode means,



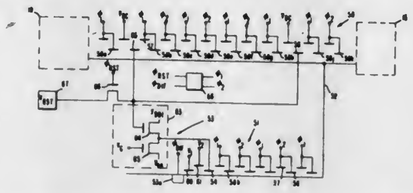
a first Josephson junction (J1) in the branch between said second and third nodes,
a second Josephson junction (J2) in the branch between said first and second nodes, and
a resistor (r) in the branch between said first and third nodes,
the critical currents of said junctions and said primary bias current (I_b) being mutually adapted to initially bias said junctions into their V=0 states and to sequentially switch said junctions to V≠0, when said control current (I_c) is applied, thereby causing said primary bias current to flow into said output line and said control current to flow through said resistor and said third node.

4,275,315

CHARGE SUMMING FILTER APERTURE CORRECTOR

Dale Maeding, San Juan Capistrano, and Michael Y. Pines, Los Angeles, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 10, 1979, Ser. No. 83,424
Int. Cl.³ G11C *19/28*; H01L *29/78, 27/14, 31/00*
U.S. Cl. 307—221 D 15 Claims



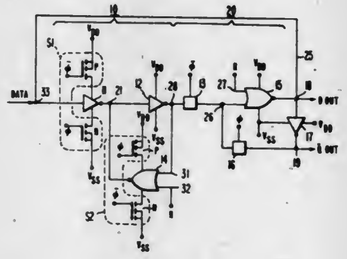
1. In a charge coupled device (CCD) formed on a semiconductive layer transferring charge once every CCD clock period, an optically scanned monolithic focal plane array having a serial output register storing signal charge packets, a multiplexer and an on-chip charge summing aperture corrector, said charge summing aperture corrector comprising:
a main CCD charge flow channel in said semiconductive layer for a serially transferring charge packets from said serial register to said multiplexer in an order parallel to the direction optical scan;
a secondary CCD charge flow channel in said semiconductive layer for serially transferring supplementary charge packets in synchronism with charge flow in said main channel;
a summing node in said main channel intermediate said register and said multiplexer, said secondary channel merging with said main channel at said summing node; and
a charge controller comprising:
first electrode means in said main channel for sensing each of said signal charge packets; and,
charge injection means responsive to each of said signal charge packets sensed by said first electrode sensing means for effecting a reduction in said supplementary charge packets which arrive at said summing node at a first time, said first time displaced by a first interval from the time of arrival of successive ones of said signal charge packets at said summing node.

4,275,316

RESETTABLE BISTABLE CIRCUIT

William K. Knapp, Hillsboro, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Nov. 6, 1978, Ser. No. 958,020
Int. Cl.³ H03K *3/286, 3/353*
U.S. Cl. 307—279 4 Claims



1. A resettable bistable circuit comprising:
first and second terminals for applying energizing potential thereto;
a third terminal for applying reset signal thereto;
a fourth terminal for receiving input signal;
first, second and third logical INVERTER circuits each having an input and an output terminal, and first and second supply terminals for applying respective relatively positive and relatively negative potentials thereto;
first and second NOR circuits each having first and second input terminals, on output terminal, and first and second supply terminals for applying respective relatively positive and relatively negative potentials thereto;
first and second transmission gates each having first and second input-output terminals and a control terminal;
means connecting the respective first supply terminals of the first NOR and first and second INVERTER circuits to said first terminal without substantially intervening impedance; means connecting the respective second supply terminals of the first NOR and first and second INVERTER circuits to said second terminal without substantial intervening impedance;
means connecting the first input-output terminals of the first and second transmission gates to the first input of the first NOR circuit;
means connecting the second input-output terminals of the first and second transmission gates to the output terminal of said first and second INVERTER circuits respectively;
means connecting the output terminals of the first and second NOR circuits to the respective input terminals of the first and second INVERTER circuits;
means connecting the input and output terminals of the third INVERTER circuit respectively to the fourth terminal and the input terminal of the second INVERTER circuit;
means connecting the output terminal of the second INVERTER to the first input of the second NOR circuit;
means connecting the second input terminals of the first and second NOR circuits to the third terminal; and

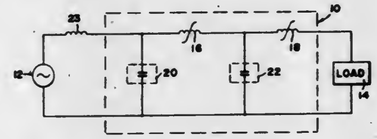
first and second switch means respectively, for selectively connecting the supply terminals of the third INVERTER and second NOR circuits to the first and second terminals for alternately energizing the third INVERTER and second NOR circuits at a frequency rate to be divided;
means for applying complementary signals to the control terminals of the first and second transmission gates so that the first transmission gate conducts when the third INVERTER is energized and the second transmission gate conducts when the second NOR is energized.

4,275,317

PULSE SWITCHING FOR HIGH ENERGY LASERS

Robert A. Froech, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; James B. Laudenslager, Sierra Madre, and Thomas J. Pacala, Los Angeles, both of Calif.

Filed Mar. 23, 1979, Ser. No. 23,485
Int. Cl.³ G11C *13/02*; H01J *3/10*
U.S. Cl. 307—415 19 Claims



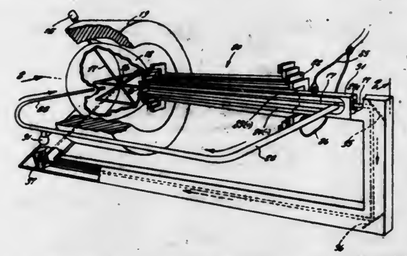
1. A high speed pulse shaping switch for controlling energy from a high voltage, high impedance source to an electric discharge gas laser comprising:
a distributed capacitance energy storage means connected to said voltage source and said laser; and
a saturable inductor switch means positioned in magnetically coupling relationship with respect to said storage means to control current from said storage means to said laser and chosen so that it will saturate when said voltage source output voltage reaches a predetermined level, thereby discharging energy contained in said distributed capacitance energy storage means into said laser.

4,275,318

MAGNETOHYDRODYNAMIC METHOD AND APPARATUS FOR CONVERTING SOLAR RADIATION TO ELECTRICAL ENERGY

Fred A. Duncan, 325 Hawthorne St., Brooklyn, N.Y. 11225

Continuation-in-part of Ser. No. 641,291, Dec. 16, 1975, abandoned. This application May 18, 1978, Ser. No. 907,277
Int. Cl.³ H02N *4/02*
U.S. Cl. 310—11 7 Claims



1. A process for converting radiative energy to electrical energy utilizing a MHD electrode system, comprising the steps of:
(a) forming a magnetic field for directing a concentration of charged particles through a MHD electrode system in a fully enclosed electrical energy generating system;
(b) supplying an ionizable working substance within said magnetic field;
(c) applying radiative energy to said ionizable substance in said magnetic field to produce moving charged particles from said working substance that are directed through said MHD electrode system to generate electrical energy, said radiative energy being focused and directed one or more times through the charged particle concentration;
(d) recycling the working substance passing through the MHD electrode system to step (b); and
(e) recycling radiative energy passing through the MHD electrode system to step (c).

4,275,319

OIL-FILLED SUBMERGIBLE ELECTRIC PUMP MOTOR WITH IMPROVED STATOR WINDING INSULATION

Paul W. Davis, Jr., Dewey, Okla., assignor to TRW Inc., Cleveland, Ohio

Filed Jan. 1, 1979, Ser. No. 44,574
Int. Cl.³ H02K *1/04, 5/10*; F04B *17/00*
U.S. Cl. 310—43 9 Claims



1. In an oil-filled submergible electric pump motor, a stator structure with stator windings covered by a hydrolytically stable insulating layer comprising an addition polymer, the stator structure comprising an insulation system, including said layer, having a 50% probability of failure at 185° C. in water-saturated oil that is at least 50% greater than 432 hours.

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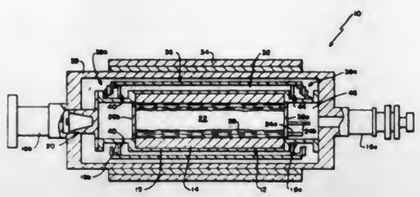
RADIATION SHIELD FOR USE IN A SUPERCONDUCTING GENERATOR OR THE LIKE AND METHOD

Kai J. Baumann, Pittsburgh, and Sui-Chun Ying, Monroeville, both of Pa., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed May 11, 1978, Ser. No. 905,042
Int. Cl.³ H02K *9/00*
U.S. Cl. 310—52 11 Claims

1. A radiation shield for use in a superconducting turbine generator or the like, said shield comprising:
(a) a cylindrical main body having opposite ends, an innermost surface extending from one end to the other and an outermost surface extending from one end to the other, said body including inner and outer concentric layers which engage one another along confronting internal surfaces;
(b) at least one internal groove located in one of said confronting internal surfaces, said groove defining an internal passage located entirely within said body and adapted to pass a fluid refrigerant therethrough;

(c) an entry passage extending through one of said layers and in fluid communication with one end of said groove for introducing said fluid refrigerant therein; and



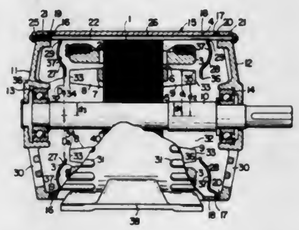
(d) an exit passage extending through one of said layers and in fluid communication with the other end of said groove for passing said refrigerant out of said body.

4,275,321

DRIP-PROOF TYPE ELECTRICAL ROTATING MACHINE

Koji Shimamoto, Chiba; Mitsuo Shimizu, Sakura, and Takao Yamashita, Narashino, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 23, 1978, Ser. No. 936,132
Int. Cl.³ H02K 9/02
U.S. Cl. 310—59 5 Claims



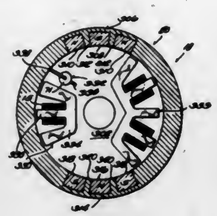
1. A drip-proof type electrical rotary machine comprising:
a housing;
a rotor core disposed in said housing;
a rotating shaft fixed integrally with said rotor core;
cooling fans disposed at both end sides of said rotor core for rotating with said rotating shaft;
a stator core disposed confronting said rotor core with a gap therebetween;
a frame for supporting said stator core so as not to be rotated and for rotatably supporting said rotating shaft, said frame including end brackets adapted to be disposed at respective sides of the stator core;
an air outlet disposed at the lower portion of said frame below said rotating shaft;
air inlets disposed at the lower portion of said end brackets below said rotating shaft and at both sides of said outlet;
air guides disposed in said housing between one of said air inlets and said air outlet and further between one of said cooling fan and said air inlet; and
an air passing hole formed in each of said air guides for surrounding said rotating shaft in such a way that a distance from a longitudinal center axis of said rotating shaft to an upper edge of said air passing hole located above said rotating shaft is less than a distance from the center axis of the rotating shaft to a lower edge of said air passing hole below said rotating shaft so that the upper edge of each air passing hole substantially prevents a drawn in air from backwardly flowing out therethrough and the lower edge permits an effective air suction through the air passing from the air inlets.

4,275,322

ROTARY PULSE GENERATOR

David T. Cavil, Menomonee Falls, and William R. Krueger, Hartford, both of Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Division of Ser. No. 883,914, Mar. 6, 1978. This application Apr. 2, 1979, Ser. No. 26,296
Int. Cl.³ H02K 39/00
U.S. Cl. 310—111 3 Claims



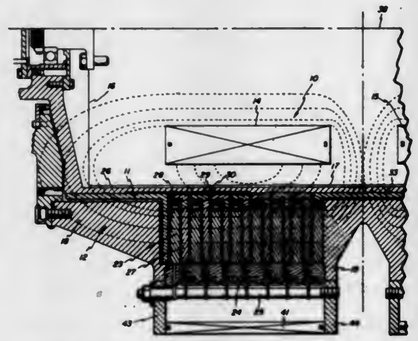
1. A rotary pulse generator including an armature having a two-magnet assembly including spaced pole pieces defining a pair of spaced gaps, an armature plate including a charge core and charge coil mounted thereon, and a trigger core and trigger coil mounted thereon, said trigger core being separate from said charge core but located in proximity to said charge core so that, at a given armature speed, said trigger coil produces a repeating series of trigger pulses including a first major voltage pulse of one polarity and of a major magnitude closely followed by a second minor voltage pulse of opposite polarity and of a minor magnitude substantially less than said major magnitude, said repeating series of trigger pulses being produced in response to said two-magnet assembly sequentially rotating past said trigger core and said charge core.

4,275,323

ACTIVE SHIELD FOR DISK-DRUM ACYCLIC MACHINE

Burton D. Hatch, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Sep. 12, 1979, Ser. No. 74,869
Int. Cl.³ H02K 31/00
U.S. Cl. 310—178 10 Claims



1. A high power density acyclic machine comprising in combination:
a plurality of main magnetic field generating coils, said coils being disposed in spaced, coaxial arrangement within a cryogenic dewar and adjacent ones of said coils being electrically connected to a power source to be in polar opposition;
a rotor comprising:
a hollow rotatable shaft, surrounding said main field generating coils and said dewar;

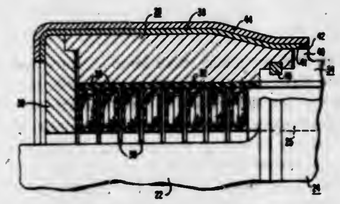
a plurality of radially-extending, electrically-conductive circular rotor disks rotatable with said shaft and mounted on said shaft in a plurality of axially-extending stacks radially outside said main field generating coils, each of said stacks of rotor disks being in axial alignment with one of said main field generating coils, respectively;
an electrically conductive cylindrical drum member disposed axially between an electrically connected to each axially adjacent pair of stacks of rotor disks;
a stator comprising:
a hollow fixed shielding member of low magnetic reluctance material concentric with and surrounding said rotatable shaft at each axial end of said shaft;
a plurality of axially extending stacks of radially-extending, electrically conductive circular stator disks, each said stack of stator disks being interleaved with one of said stacks of rotor disks, respectively;
a hollow sleeve of low magnetic reluctance material disposed between and connected to each axially adjacent pair of stacks of stator disks, concentric with and surrounding each said cylindrical drum member, said stator and said rotor being separated throughout by a gap;
a plurality of electrically conductive liquid metal current collectors interconnecting said interleaved disks and said drum member in a single series electrical connection; and
a plurality of active shielding coils disposed radially outside said stator, said shielding coils being disposed in a spaced, coaxial arrangement; each of said plurality of shielding coils being disposed in axial alignment with one of said plurality of main field generating coils, respectively; said shielding coils being electrically connected to a power source such that adjacent ones of said shielding coils are in polar opposition to each other, and in polar opposition with said respective one of said main field generating coils.

4,275,324

DYNAMOELECTRIC MACHINE HAVING SHIELDED RETAINING RINGS

Carl Flick, Pittsburgh, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 31, 1979, Ser. No. 71,632
Int. Cl.³ H02K 3/46, 3/48
U.S. Cl. 310—270 9 Claims



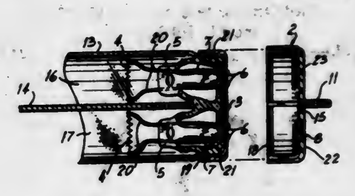
1. A dynamoelectric machine comprising:
a cylindrical rotor body portion having a plurality of longitudinal slots disposed in its outer surface;
an electrical winding cooperatively associated with the rotor body, said winding comprising a plurality of conductors, said conductors including longitudinal portions disposed in said rotor slots and end turn portions connecting said longitudinal portions at both axial ends of the rotor body, said end turn portions extending axially beyond the rotor body;
a retaining ring structure joined to each axial end of said rotor body, each retaining ring structure being disposed about the conductor end turn portions to restrain radially outward movement thereof during rotor rotation;
two highly conductive mantle structures each having an inner surface and an outer surface, said mantle structures being individually disposed about each of the retaining ring structures such that said inner surface is in intimate electrical contact with said retaining ring; and
means for electrically connecting said mantle structure to said rotor surface, said electrical connecting means providing an electrical path separate from said retaining ring structure.

4,275,325

FLUORESCENT LAMP WITH PLURAL SEALED ENCLOSURES AND ELECTRICAL CONNECTOR THEREFOR

Raul Guim, 834 Venetia, Coral Gables, Fla. 33134

Filed Aug. 13, 1979, Ser. No. 66,128
Int. Cl.³ H01J 61/30, 61/36; H01R 29/00, 33/76
U.S. Cl. 313—51 6 Claims



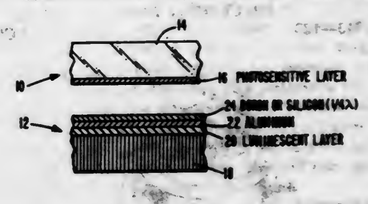
1. In a fluorescent lamp of the type having a longitudinally hermetically sealed glass envelope containing a rarified atmosphere wherein the improvement comprises:
(a) a longitudinal divider inside said glass envelope defining a plurality of hermetically independent enclosures,
(b) a plurality of electrode assemblies each one attached to one end of each one of said enclosures,
(c) a pair of end caps each one attached to each end of said envelope and having a plurality of electrode terminals connected to said electrode assemblies,
(d) a pair of end cap connectors removably attached to said end caps having a standard set of contact pins protruding through the outer wall of said connector capable of plugging in commercially available sockets and the inner wall having a set of contacts in alignment with said electrode terminals and electrically connected to said pins.

4,275,326

IMAGE INTENSIFIER TUBE WITH A LIGHT-ABSORBING ELECTRON-PERMEABLE LAYER

Johannes J. Houtkamp, Delft, Netherlands, assignor to N.V. Optische Industrie "De Oude Delft", Delft, Netherlands

Division of Ser. No. 841,067, Oct. 11, 1977, Pat. No. 4,201,797. This application Feb. 5, 1980, Ser. No. 118,690
Claims priority, application Netherlands, Oct. 20, 1976, 7611593
Int. Cl.³ H01J 29/28, 31/50
U.S. Cl. 313—102 3 Claims



1. An image intensifier tube comprising a photocathode and an anode spaced from the photocathode wherein said anode includes
a light transparent substrate,

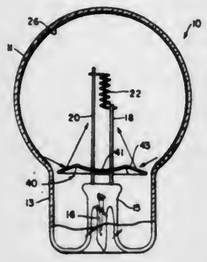
a layer of electron-responsive luminescent material on the light transparent substrate,
an aluminum film on the layer of luminescent material,
a light-absorbing electron-permeable layer of a low atomic weight meterial on the aluminum film,
said light-absorbing electron-permeable layer having a thickness of about one-fourth the average wave length of light impinging on the photocathode of the image intensifier tube, and
said low atomic weight material consisting of boron, silicon, or a compound of boron or silicon.

4,275,327

INCANDESCENT ELECTRIC LAMP WITHHEAT RECOVERY MEANS

Peter Walsh, Stirling, N.J., assignor to Duro-Test Corporation, North Bergen, N.J.

Filed Oct. 30, 1978, Ser. No. 955,974
Int. Cl.³ H01K 1/32
U.S. Cl. 313—111 21 Claims



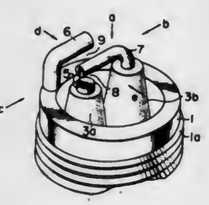
1. An incandescent electric lamp comprising:
an envelope;
a filament within said envelope, said filament producing energy in the visible range and in the infrared range when heated to incandescence,
means connected to and adapted to supply electrical energy to said filament to cause it to incandesce,
means on the wall of said envelope for reflecting infrared energy produced by the filament back thereto, a portion of the infrared energy reflected from the envelope wall forming a mode which circulates throughout the envelope in a path generally parallel to the envelope wall and is not returned to the filament, and
means for intercepting the infrared energy in the circulating mode and directing it to return to the filament.

4,275,328

SPARK PLUG HAVING INTERMEDIATE ELECTRODE AND NON-PARALLEL SERIES GAPS

Toshio Watanabe, Oobu, and Tadashi Hattori, Okazaki, both of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Feb. 26, 1979, Ser. No. 15,437
Claims priority, application Japan, May 16, 1978, 53-58104
Int. Cl.³ H01T 13/46
U.S. Cl. 313—123 2 Claims



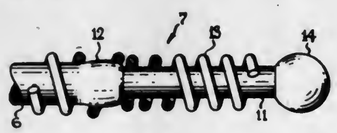
1. A spark plug for an internal combustion engine comprising a center electrode, a ground electrode, an intermediate electrode disposed between said center electrode and said ground electrode, a first air gap defined between said intermediate electrode and said center electrode to extend in a first direction, and a second air gap defined between said intermediate electrode and said ground electrode to extend in a second direction different from said first direction,
whereby when a high voltage is applied across said center electrode and said ground electrode, spark discharge occurs simultaneously in said first and second air gaps;
further comprising a supporting member of electrical insulator having a pair of leg portions partly protruding from a housing of metal material for fixedly supporting said center electrode in one of said leg portions, said ground electrode being bent into a J-like shape and fixed at one end to the end face of said housing, said intermediate electrode being also bent into a J-like shape and fixedly supported and isolated in the other of said leg portions of said supporting member, the end face of said center electrode being disposed opposite to an end-adjacent side portion of said J-shaped intermediate electrode to define said first air gap therebetween, and and end-adjacent side portion of said J-shaped ground electrode being disposed opposite to another end-adjacent side portion of said J-shaped intermediate electrode to define said second air gap therebetween;
said ground electrode and intermediate electrode being rod-shaped.

4,275,329

ELECTRODE WITH OVERWIND FOR MINIATURE METAL VAPOR LAMP

Elmer G. Fridrich, Chardon, and John M. Davenport, Lyndhurst, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 29, 1978, Ser. No. 974,485
Int. Cl.³ H01J 17/06, 61/06
U.S. Cl. 313—217 7 Claims



1. A high pressure metal vapor lamp arc tube comprising a fused silica envelope containing an ionizable fill including vaporizable metal, self-heating electrodes sealed into opposite ends of said envelope, at least one of said electrodes comprising a tungsten shank exceeding the wire size at which melt-back occurs at the current level in said lamp,
said shank being supported by a molybdenum inlead sealed into the envelope and having a weld knot to which said shank is joined
and an open overwind of fine wire fitting loosely on said shank and retained in place by frictional engagement with the enlargement in the inlead at the weld knot.

4,275,330

ELECTRIC DISCHARGE LAMP HAVING A CATHODE WITH CESIUM METAL OXIDE

Chong I. Cho, Mayfield Heights; Edward C. Zakowski, Mentor, and Dimitri M. Speros, Painesville, all of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 8, 1979, Ser. No. 18,570
Int. Cl.³ H01J 1/14, 61/06
U.S. Cl. 313—218 9 Claims

1. A cathode comprising a porous sintered body of refractory metal and a first electron emissive material selected from barium aluminate and barium tungstate, said cathode having Cs_2MO_4 as a second electron emissive material dispersed in the pores of said porous sintered body and wherein M is a refractory metal.

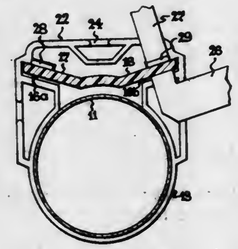


4,275,331

FLUORESCENT LAMP UNIT

Kurt O. Stresing, East Cleveland, Ohio, assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,281
Int. Cl.³ H01J 5/48, 5/50
U.S. Cl. 313—318 3 Claims



1. A lamp unit comprising an elongated lamp bulb, a pair of plastic end caps positioned respectively at the ends of said bulb and each having a groove therein at the inner end thereof whereby said grooves face each other, and a plastic support strip extending alongside said lamp bulb and into said grooves of the end caps, at least one of said end caps being provided with at least one integral tab extending toward the other end cap and alongside one or more surface areas of said support strip, said tabs being ultrasonically welded to said support strip.

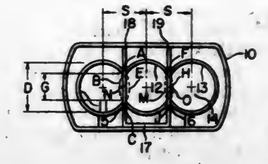
4,275,332

IN-LINE ELECTRON GUN

Shigeya Ashizaki, Takatsuki; Hideo Muranishi, Osaka, and Koichi Sugahara, Sakai, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Jul. 19, 1979, Ser. No. 58,919
Claims priority, application Japan, Jul. 25, 1978, 53-91134; Mar. 20, 1979, 54-32780; Mar. 27, 1979, 54-36082
Int. Cl.³ H01J 29/50
U.S. Cl. 313—414 9 Claims

1. An in-line electron gun characterized in that an elongated aperture is formed through each of the walls in predetermined spaced and opposed relationship of a focusing electrode, which form main lenses, respectively, and a final accelerating electrode; said elongated aperture consists of a center or inner aperture and two outer apertures which are partially overlapped and consequently contiguous with said center or inner aperture through two neck portions, respectively; and said elongated aperture is divided by a partition electrode means at said two neck portions into three apertures through which the three electron beams pass, respectively.



4,275,333

FLUORESCENT COMPOSITIONS AND LOW-VELOCITY ELECTRON EXCITED FLUORESCENT DISPLAY DEVICES UTILIZING THE SAME

Akiyasu Kagami, Kanagawa, and Yoshinori Tanigami, Odawara, both of Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka and Japan Electric Industry Development Association, Tokyo, both of, Japan

Filed Feb. 21, 1979, Ser. No. 13,430
Claims priority, application Japan, Feb. 20, 1978, 53-18337; Mar. 22, 1978, 53-32491; Mar. 22, 1978, 53-32492; Mar. 22, 1978, 53-32493
Int. Cl.³ H01J 29/20; C09K 11/50
U.S. Cl. 313—495 46 Claims

1. A low-velocity electron excited fluorescent display device comprising a sealed evacuated tube, an anodic plate enclosed in said tube having a fluorescent screen on one side thereof, and a cathode encloseed in said tube standing face to face with said fluorescent screen and emitting electrons which impinge upon said fluorescent screen and excite said fluorescent screen, wherein said fluorescent screen is composed of
a fluorescent composition consisting essentially of a mechanical mixture of a conductive material selected from the group consisting of indium oxide (In_2O_3), zinc oxide (ZnO), stannic oxide (SnO_2), titanium dioxide (TiO_2), tungsten oxide (WO_3), niobium pentoxide (Nb_2O_5), cadmium sulfide (CdS), copper sulfide (Cu_2S) and mixtures thereof, said conductive material having a particle diameter distribution wherein the median value is within the range of 2.5 to 14μ and standard deviation ($\log \sigma$) is not more than 0.7, and a phosphor selected from the group consisting of a blue emitting phosphor, a green emitting phosphor, a red emitting phosphor and a yellow emitting phosphor in a mixing weight ratio ranging from 1:99 to 1:4,
said blue emitting phosphor being selected from the group consisting of a silver activated zinc sulfide phosphor (ZnS:Ag), a silver and aluminium activated zinc sulfide phosphor (ZnS:Ag,Al), a silver activated zinc sulfoselenide phosphor [$Zn(S,Se):Ag$], a silver and aluminium activated zinc sulfoselenide phosphor [$Zn(S,Se):Ag,Al$], a cerium activated yttrium silicate phosphor ($Y_2SiO_5:Ce$), a cerium activated strontium gallium sulfide phosphor ($SrGa_2S_4:Ce$), a cerium activated calcium magnesium silicate phosphor ($Ca_2MgSiO_5:Ce$), a titanium activated calcium magnesium phosphor [$(Ca,Mg)_2SiO_4:Ti$], an europium activated barium magnesium aluminate phosphor [$(Ba,Mg)O_2.6Al_2O_3:Eu^{2+}$], an europium activated strontium barium phosphate phosphor, [$(Sr,Ba)_3(PO_4)_2:Eu^{2+}$], an europium activated calcium chloroborate phosphor ($Ca_2B_5O_9Cl:Eu^{2+}$) and mixtures thereof,
said green emitting phosphor being selected from the group consisting of a manganese activated zinc silicate phosphor ($Zn_2SiO_4:Mn$), a manganese and arsenic activated zinc silicate phosphor ($Zn_2SiO_4:Mn,As$), a terbium activated rare earth oxysulfide phosphor ($La_2O_2S:Tb$, wherein La

is at least one element selected from the group consisting of Y, Gd, Lu and La), a cerium activated yttrium aluminium gallium oxide phosphor [$Y_3(Al_{1-a},Ga_a)_5O_{12}$:Ce, wherein a is $0 \leqq a \leqq 0.5$], an europium activated strontium gallium sulfide phosphor ($SrGa_2S_4:Eu^{2+}$), a copper and aluminium activated zinc cadmium sulfide phosphor [$(Zn_{1-b},Cd_b)S$:Cu,Al, wherein b is $0 \leqq b \leqq 0.1$], a copper activated zinc cadmium sulfide phosphor [$(Zn_{1-c},Cd_c)S$:Cu, wherein c is $0 \leqq c \leqq 0.1$], a silver activated zinc cadmium sulfide phosphor [$(Zn_{1-d},Cd_d)S$:Ag, wherein d is $0.3 \leqq d \leqq 0.5$], a silver and aluminium activated zinc cadmium sulfide phosphor [$(Zn_{1-e},Cd_e)S$:Ag,Al, wherein e is $0.2 \leqq e \leqq 0.5$] and mixtures thereof,

said red emitting phosphor being selected from the group consisting of an europium activated rare earth oxysulfide phosphor (Ln_2O_2S:Eu, wherein Ln has the same definition as described above), an europium activated rare earth oxide phosphor (Ln_2O_3:Eu, wherein Ln has the same definition as described above), an europium activated rare earth vanadate phosphor ($LnVO_4$:Eu, wherein Ln has the same definition as described above), an europium activated rare earth borate phosphor ($LnBO_3$:Eu, wherein Ln has the same definition as described above), an europium activated rare earth phosphate phosphor ($LnPO_4$:Eu, wherein Ln has the same definition as described above), a silver activated zinc cadmium sulfide phosphor [$(Zn_{1-f},Cd_f)S$:Ag, wherein f is $0.65 \leqq f \leqq 0.9$], a manganese activated zinc phosphate phosphor [$Zn_3(PO_4)_2$:Mn], a manganese activated cadmium borate phosphor ($Cd_2B_2O_5$:Mn) and mixtures thereof, and

said yellow emitting phosphor being selected from the group consisting of a copper activated zinc sulfoselenide phosphor [$Zn(S_{1-g},Se_g)$:Cu, wherein g is $0.05 \leqq g \leqq 0.6$], a copper and aluminium activated zinc sulfoselenide phosphor [$Zn(S_{1-h},Se_h)$:Cu,Al, wherein h is $0.05 \leqq h \leqq 0.6$], a silver activated zinc cadmium sulfide phosphor [$(Zn_{1-i},Cd_i)S$:Ag, wherein i is $0.5 < i \leqq 0.7$], a silver and aluminium activated zinc cadmium sulfide phosphor [$(Zn_{1-j},Cd_j)S$:Ag,Al, wherein j is $0.5 < j \leqq 0.7$], a gold and aluminium activated zinc cadmium sulfide phosphor [$(Zn_{1-k},Cd_k)S$:Au,Al, wherein k is $0 \leqq k \leqq 0.2$], a copper activated zinc cadmium sulfide phosphor [$(Zn_{1-l},Cd_l)S$:Cu, wherein l is $0.1 < l \leqq 0.2$], a copper and aluminium activated zinc cadmium sulfide phosphor [$(Zn_{1-m},Cd_m)S$:Cu,Al, wherein m is $0.1 < m \leqq 0.2$], lead and manganese activated calcium silicate phosphor ($CaSiO_3$:Pb,Mn) and mixtures thereof.

4,275,334

INTEGRAL SPARK PLUG COIL FOR AIRCRAFT-TYPE PLUG

Bruce R. Beeghly, Youngstown, Ohio, assignor to The Economy Engine Company, Youngstown, Ohio

Filed Oct. 18, 1979, Ser. No. 85,897
Int. Cl.³ H01J 7/44, 17/34, 19/78; H01K 1/62
U.S. Cl. 315—57 5 Claims

1. In an ignition device comprising a step-up coil unit to be associated with an aircraft-type spark plug having a barrel extending up from the shell of the spark plug with threads on the portion of the barrel away from the shell, the improvement comprising said step-up coil unit comprising

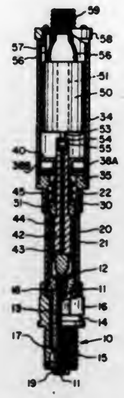
a tubular metal sleeve having threads for engaging the threads on the barrel of the spark plug, said sleeve defining a radial flange,

an insulating bushing having a hub-like configuration arranged substantially coaxial with the sleeve such that a face of the bushing is adjacent the radial flange of the sleeve, and

a coil canister sealed to said sleeve having said bushing and a step-up coil contained therein and there being at least one port in the side of the canister adjacent the bushing,

a rigid lead journaled in the bushing for completing the electrical circuit between the coil secondary and the spark plug,

the space between the radial flange and the bushing defining a narrow annular gap sized to quench a flame attempting to propagate therethrough,



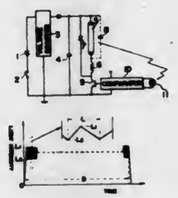
whereby upon leakage of the seals in the spark plug pressure does not build up in the spark plug barrel and coil canister but is released through the gap between the radial flange and the bushing and through the ports in the canister and whereby the condition of the spark plug can be checked by inserting a firing probe in the said at least one port.

4,275,335

CONSTANT LIGHT INTENSITY ELECTRONIC FLASH DEVICE

Tokuji Ishida, Daito, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Mar. 26, 1980, Ser. No. 134,297
Claims priority, application Japan, Mar. 28, 1979, 54-37270
Int. Cl.³ H05B 41/32
U.S. Cl. 315—241 P 12 Claims



1. An electronic flash device comprising:

an electronic flash tube for emitting flash light;

a main capacitor for storing electric energy for energizing said flash tube;

an inductor means;

a switching means, said inductor means and said switching means being connected in series with said flash tube across said main capacitor;

a diode connected across said series connected flash tube and said inductor means, with a polarity opposite to the direction of energy supply from said main capacitor to said flash tube;

means for monitoring the intensity of the light emitted from said flash tube; and

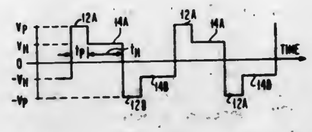
means for controlling said switching means in accordance with the light intensity monitored by said monitor means such that said light intensity is maintained substantially constant.

4,275,336

METHOD OF IMPROVING THE MEMORY EFFECT AND BRIGHTNESS OF AN ALTERNATING CURRENT EXCITED THIN FILM ELECTROLUMINSCENT DEVICE

Vincent Marrello, San Jose; Aare Onton, Saratoga, both of Calif., and Wolfgang Rilbie, Stuttgart, Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 5, 1979, Ser. No. 974,180
Int. Cl.³ H05B 33/08
U.S. Cl. 315—246 7 Claims



1. A method of improving an AC excited thin film electroluminescence device comprising the steps of

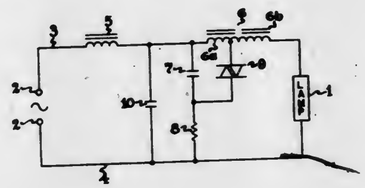
applying a hybrid waveform excitation to said device, said hybrid waveform having a first voltage level portion for carrier generation and a second voltage level portion lower than said first level for charge collection and holding purposes only.

4,275,337

STARTING AND OPERATING CIRCUIT FOR GASEOUS DISCHARGE LAMPS

David W. Knoble, East Flat Rock, and Thomas A. Crane, Asheville, both of N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 8, 1979, Ser. No. 64,865
Int. Cl.³ H05B 37/00, 41/00
U.S. Cl. 315—289 12 Claims



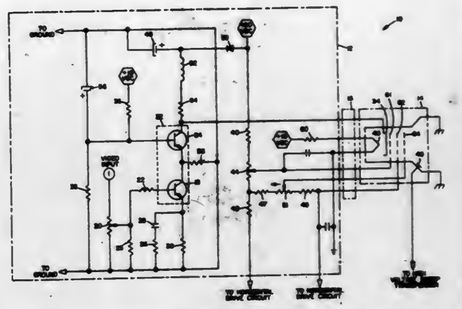
1. A starting and operating circuit for gaseous discharge lamps comprising, in combination, a source of alternating current, ballast induction means connected at its input side to said alternating current source, pulse transformer means connected in series to the output of said ballast induction means, discharge lamp means connected at one side to the output of said pulse transformer means, and at the other side to said alternating current source, storage capacitor means connected to the junction of said ballast induction means and said pulse transformer means across said alternating current source, said pulse transformer means comprising a magnetic core formed with at least one gap therein and induction coil means on said magnetic core, high voltage starting means including a portion of said induction coil means for providing a high voltage starting pulse on said discharge lamp means, the ratio L/C, where L is the inductance of said pulse transformer means and C is the capacitance of said storage capacitor means, being less than about 64,000 ohms².

4,275,338

ANTI-SPOT BURN PROTECTION FOR CRT

Wayne Grocki, Libertyville, and Richard J. Steinmetz, Elk Grove Village, both of Ill., assignors to Zenith Radio Corporation, Glenview, Ill.

Filed Sep. 19, 1979, Ser. No. 76,885
Int. Cl.³ H01J 29/52
U.S. Cl. 315—381 6 Claims



1. In a video display apparatus including a cathode ray tube having a plurality of electron beam control grid electrodes including a cathode and a brightness control grid electrode, video signal amplification means for coupling a video input signal to said cathode, a high voltage power supply for energizing said video signal amplification means and said brightness control grid electrode, a protection system comprising:

a low voltage source coupled to said video signal amplification means for proper biasing of said video signal amplification means, said low voltage source having a higher rate of decay than said high voltage power supply following the removal of power from said video display apparatus;

unidirectional conducting means for coupling said high voltage power supply to said video signal amplification means; and

capacitor means coupling said unidirectional conducting means to ground reference potential, said capacitor means being charged by said high voltage power supply by means of said unidirectional conducting means and coupled to said video signal amplification means for energizing said video signal amplification means upon discharge thereof, thereby maintaining a pre-determined decay voltage differential between said cathode and said brightness control grid electrode to prevent cathode ray tube turn-on following the removal of power from said video display apparatus.

4,275,339

BIFILAR BRUSHLESS DC MOTOR

Michael J. Burke, and David W. Collins, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 21, 1979, Ser. No. 106,201
Int. Cl.³ H02P 6/02
U.S. Cl. 318—138 5 Claims

1. A brushless D.C. motor including a stator element and a rotor element comprising:

a plurality of bifilar winding wire pairs,

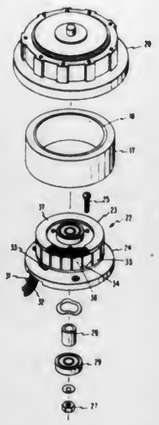
a series of angularly spaced dual windings mounted on said stator with each successive dual winding formed by coiling a different winding wire pair, whereby each winding wire pair forms a plurality of angularly spaced dual windings mounted on said stator in angular spaced positions and separated by dual windings formed by a different winding wire pair,

each said dual winding being formed of two bifilar wound subwindings which overlap one another and have sub-

winding axes separated by an angle approximately half the angular separation between axes of symmetry of adjoining dual windings,

means connecting each windings in parallel to a potential source,

switch means in each winding circuit for energizing the associated winding,



diode means in each winding circuit, each respectively connected in parallel with said switch means to permit a reverse flow of current through the associated winding that bypasses said switch means, and

means for sequentially energizing said windings in such manner that at any stage of the sequence the next previous winding energized and the next subsequent winding energized is formed from a different winding wire pair.

4,275,340

CONTROL CIRCUIT FOR A FINAL CONTROL ELEMENT, IN PARTICULAR AN ELECTRIC MOTOR

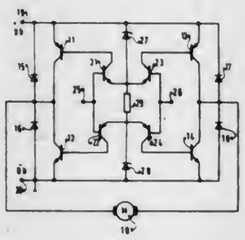
Richard Schleupen, Ingersheim, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 17, 1979, Ser. No. 76,123

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2843622

Int. Cl.³ H02P *1/22*

U.S. Cl. 318—280 **4 Claims**



1. A control circuit for a servomotor (10) including a bridge circuit comprising

positive and negative supply terminals (19, 20);

four semiconductor elements (11, 12, 13, 14), respective pairs (11/12; 13/14) of said semiconductor elements defining serially connected longitudinal bridge branches connected across the supply terminals, said servomotor (10) being connected in a diagonal across said longitudinal bridge branches;

each of said semiconductor elements (11, 12, 13, 14) being controlled by connection to an input transistor (21, 22, 23, 24), pairs of said input transistors (21/22; 23/24) being connected to one of two control input terminals (25, 26) to control, when differing signals of a first type are applied to said input terminals, a first semiconductor element (11) in one of said longitudinal bridge branches to become conducting while a second element (12) becomes non-conducting, and a first semiconductor element (13) of the other longitudinal branch to become non-conducting, while the second (14) becomes conducting and causing current to flow through diagonally positioned branches of the bridge, and through said servomotor in a first direction, and when differing signals of a second type are applied to said input terminals current is caused to flow through oppositely diagonally positioned branches of the bridge and through said servomotor in a second direction;

at least one Zener diode (27, 28) and at least one low-value resistor (29) connected in series with said at least one Zener diode;

wherein the emitters of one pair (21, 22) of said input transistors are connected to diagonally positioned emitters of the second pair (23, 24) of said input transistors through said at least one low-value resistor;

and wherein the emitters of one pair of the input transistors are connected to emitters of the corresponding transistors of the second pair (23, 24), and one junction of two emitters of two corresponding transistors (21, 23) is connected to one supply terminal (19) through the at least one Zener diode (27),

and the other junction of the emitters of two other corresponding input transistors (22, 24) is connected to the other supply terminal (20).

4,275,341

ELECTRONIC POWER SUPPLY CIRCUIT FOR A SERIES CONNECTED DC MOTOR

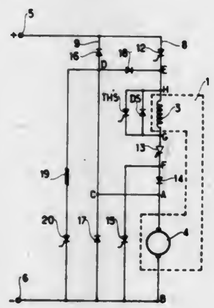
Andre' Huber, Le Vésinet; Alain Muller, Chilly-Mazarin, and Jacques Soffer, Sceaux, all of France, assignors to Alsthom-Atlantique, Paris, France

Filed Dec. 19, 1979, Ser. No. 105,336

Claims priority, application France, Dec. 22, 1978, 78 36138

Int. Cl.³ H02P *3/14*

U.S. Cl. 318—376 **2 Claims**



1. An electronic circuit for supplying current from a source of electricity to a series-excitation DC motor, said DC motor including a field winding and an armature, said circuit comprising between a positive terminal (5) and a negative terminal (6) of said source of electricity:

a first branch circuit (8) which includes, in series, a traction thyristor (12), the field winding (3) of said motor, a main chopper (13), a traction diode (14), the armature (4) of said motor, and wherein said winding has, in parallel with its terminals a first free-wheeling diode (DS) and a shunt thyristor (THS) connected in a head to tail configuration, and wherein a braking thyristor (15) is in parallel with

traction diode (14) and said armature (4) and the anodes of said traction and shunt thyristors (12, THS), of said chopper (13) and of the traction diode (14) face said positive terminal (5); and

a second branch circuit (9) which includes, in series, a regeneration diode (16) and a second free-wheeling diode (17), and wherein the cathodes of said regeneration diode (16) and of said free-wheeling diode (17) face said positive terminal (5), and wherein the anode of the regeneration diode (16) is connected firstly to the cathode of said traction diode (14) and secondly to an anode of a braking diode (18) and wherein the cathode of said braking diode (18) is connected to the cathode of said traction thyristor (12).

4,275,342

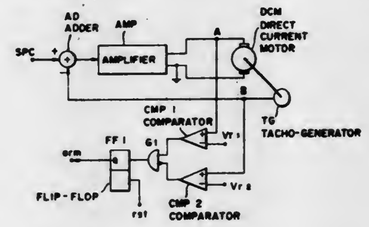
ABNORMALITY DETECTING SYSTEM FOR DC MOTOR CONTROL APPARATUS

Shigeki Kawada, Hino; Katsuo Kobari, Tachikawa, and Hiroshi Ishida, Hamura, all of Japan, assignors to Fujitsu Fanuc Limited, Tokyo, Japan

Filed Nov. 16, 1979, Ser. No. 95,077

Int. Cl.³ H02P *5/16*

U.S. Cl. 318—490 **4 Claims**



1. An abnormality detecting system for a DC motor control apparatus in which a DC motor is driven in accordance with a signal corresponding to the difference between a revolving speed signal from a speed detector coupled with the DC motor and a command speed signal for driving the DC motor at a revolving speed indicated by the command speed signal, said system comprising

determining means for determining the normality of the operation of the DC motor control apparatus to be normal comprising a first comparator for comparing the voltage to the DC motor with a first reference voltage and a second comparator for comparing the revolving speed signal from the speed detector with a second reference voltage,

said determining means for determining said operation of the DC motor control apparatus comprising means for determining said operation to be normal when the logic outputs from the first and second comparators are equal to each other, and means for determining said operation of the DC motor control apparatus to be abnormal when the logic outputs from the first and second comparators are different from each other.

4,275,343

BACK EMF CONTROLLED PERMANENT MAGNET MOTOR

Donald E. Fulton, Stoneham, and William P. Curtiss, Winthrop, both of Mass., assignors to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Filed Dec. 28, 1978, Ser. No. 973,860

Int. Cl.³ H02P *7/36, 5/28*

U.S. Cl. 318—721 **17 Claims**

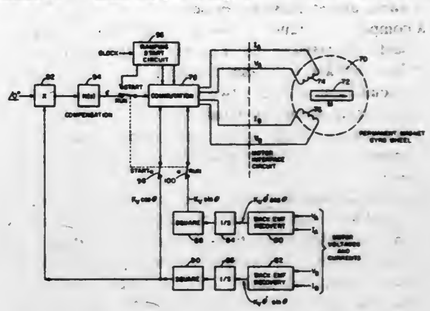
1. A permanent magnet A.C. motor system comprising:

a permanent magnet motor having a stator and rotor, one of which includes a permanent magnet and the other of which includes electrically excitable plural windings for generating a varying magnetic field relative to said windings;

means for applying A.C. excitation to said windings;

means for continuously sensing the A.C. back EMF developed in said windings during the powering thereof as a function of both winding resistance and winding inductance in response to the excitation applied thereto;

means for controlling the phase angle between the applied excitation and sensed back EMF to provide maximum torque.



4,275,344

VOLTAGE CONTROL APPARATUS FOR ELECTRIC GENERATORS FOR VEHICLES

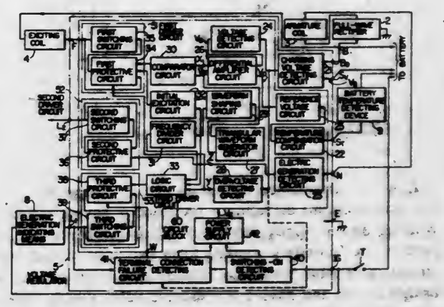
Kazumasa Mori, Aichi; Taro Asahi, Chiryu; Keiichiro Banzai, Toyota; Katsutaro Iwaki, Chiryu; Katsuya Muto, Kariya; Akira Mase, Handa; Takayasu Nimura, Nagoya; Katsumi Itoh, Oobu, and Yoshio Akita, Ichinomiya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Sep. 6, 1979, Ser. No. 73,243

Claims priority, application Japan, Sep. 8, 1978, 53-110874

Int. Cl.³ H02P *9/30*

U.S. Cl. 322—28 **11 Claims**



1. A voltage control apparatus for electric generators for vehicles comprising:

an electric generator having an armature winding, an exciting coil and a rectifier for rectifying an a.c. output from said armature winding;

a battery charged by a d.c. output from said rectifier;

a voltage detecting circuit detecting a generated voltage of said electric generator or a charging voltage of said battery and producing an output detected voltage;

a reference voltage circuit for generating a reference voltage representing a desired value for a battery voltage to be regulated;

a differential amplifier circuit receiving the output detected voltage from said voltage detecting circuit and the refer-

ence voltage from said reference voltage circuit as input signals thereto and producing a difference voltage obtained by difference amplification;

a triangular waveform generator circuit generating a triangular waveform voltage within a predetermined range of swing and at constant periods;

a comparator circuit receiving the difference voltage from said differential amplifier circuit and the triangular waveform voltage from said triangular waveform generator circuit, comparing the two voltages with each other, and producing an output signal;

a first driver circuit for energizing said exciting coil in response to the output signal from said comparator circuit; and

an initial excitation circuit for forcibly causing an oscillation signal for initial excitation to be generated and supplying the oscillation signal to said first driver circuit to make said first driver circuit supply an initial exciting current to said exciting coil during a time interval from the start of said electric generator to the arrival thereof at a predetermined condition of electric generation.

4,275,345

A.C. IMPEDANCE MEASURING CIRCUIT WITH THERMALLY CONTROLLED RESISTIVE ELEMENT

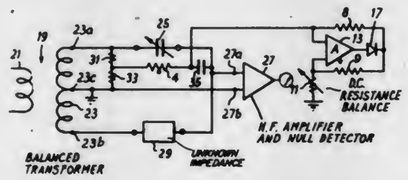
David A. G. Tait, 34 Mount St., Dorking, Surrey, England

Filed Oct. 23, 1978, Ser. No. 953,862

Claims priority, application United Kingdom, Nov. 9, 1977, 46717/77

Int. Cl.³ G05F 5/00; G01R 27/02

U.S. Cl. 323—363 10 Claims



1. An a.c. impedance measuring circuit comprising a first, a.c. bridge circuit including a transformer having a primary winding and a tapped secondary winding wherein the two parts of the secondary winding form two arms of said bridge circuit, a variable resistance element in a third arm of said bridge circuit and having a resistance value which varies in dependence upon its temperature, a fourth arm of the bridge circuit being adapted to be coupled to a device having an impedance to be measured, and a second, d.c. circuit including a source of direct current coupled to said resistance element to provide a direct current to heat said resistance element, means for varying the magnitude of said direct current to control the temperature of said resistance element for setting its resistance value to the value required to balance the in-phase component of impedance of the device to be measured by the a.c. bridge circuit, and means responsive to said variable resistance element for giving an indication of the value to which said resistance element has been set, the direct current and the resistance responsive means having substantially no effect on the operation of the a.c. bridge circuit other than the setting of the resistance value of said element.

4,275,346

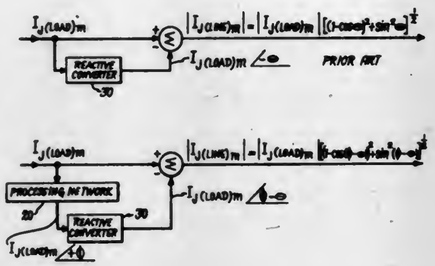
STATIC VAR SYSTEM WITH MEANS FOR CORRECTING FOR NEGATIVE PHASE SHIFT

Fred W. Kelley, Jr., Media, Pa., assignor to General Electric Company, Philadelphia, Pa.

Filed Dec. 3, 1979, Ser. No. 99,697

Int. Cl.³ H02J 3/18

U.S. Cl. 323—210 5 Claims



1. Reactive current supply apparatus for an a-c electric power system including a critical voltage supply bus electrically separated by series impedance from load terminals which are adapted for connection to a load subject to rapid oscillatory variation of reactive current demand comprising: fixed capacitor means connected across said load terminals, fixed inductor means connected across said load terminals in series circuit relation with static switching means, said static switching means including gating means for phase controlling the conduction angle of said switching means thereby to control the magnitude of reactive current traversing said inductor means; means for developing a first electrical signal representative of the magnitude and polarity of the reactive load current coefficient at said load terminals, second means responsive to said first electrical signal for so controlling said gating means for determining the sum of the reactive current traversing said fixed capacitor means and said fixed inductor means, which further comprises:

means for receiving said first electrical signal and developing a first intermediate electrical signal of substantially the same frequency as said first electrical signal but having a predetermined positive phase shift relation thereto, said second means being responsive to said first intermediate electrical signal.

4,275,347

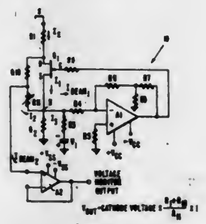
PRECISION CATHODE CURRENT REGULATOR

Felta C. Farmer, Jr., Gas City, and Donald P. Knight, Marion, both of Ind., assignors to RCA Corporation, New York, N.Y.

Filed Aug. 30, 1979, Ser. No. 71,387

Int. Cl.³ G05F 3/08

U.S. Cl. 323—312 7 Claims



1. A precision cathode current regulator for controlling cathode current in a cathode-ray tube comprising

a field effect transistor connected between a cathode-ray tube cathode and a node, the source of said transistor being connected to the node, said node being connected to ground through a resistor,

an operational amplifier having a first input connected through a resistor to said node, the output of said operational amplifier being connected through a resistor to the gate of said field effect transistor, a second input of said operational amplifier being connected to ground through a resistor, the output of said operational amplifier further being connected to the first input through two series resistors and having another resistor connecting a point between the two series resistors to ground,

means for measuring cathode voltage, and

means for offsetting the regulated current to compensate for current entering the means for measuring cathode voltage.

4,275,348

METHOD OF AND SYSTEM FOR MEASURING THE TRANSMISSION CHARACTERISTICS OF FOUR-TERMINAL NETWORKS

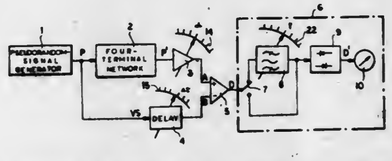
Herbert Bayer, Reutlingen; Günther Hoffmann, and Eberhard Schuon, both of Esingen, all of Fed. Rep. of Germany, assignors to Wandel & Goltermann, Esingen, Fed. Rep. of Germany

Filed Jan. 26, 1979, Ser. No. 6,759

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1978, 2803608

Int. Cl.³ G01R 27/00

U.S. Cl. 324—57 R 20 Claims



1. A method of measuring the transmission characteristics of a four-terminal network, comprising the steps of:

feeding a multifrequency test signal to the input of the four-terminal network and receiving a distorted signal from the output thereof;

supplying said distorted signal and a comparison signal substantially identical with said test signal to respective inputs of a comparator for producing a difference signal;

varying the amplitude ratio and the relative timing of said distorted and comparison signals to minimize the average amplitude and phase distortions of all frequency components thereof until said difference signal has a minimum magnitude; and

registering said minimum magnitude as a measure of non-compensable residual distortions along with the amplitude ratio and relative time lag producing said minimum magnitude.

4,275,349

WATT AND VAR TRANSDUCER

Joseph T. Wintermute, Mountainside, N.J., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 11, 1979, Ser. No. 38,362

Int. Cl.³ G01R 21/00

U.S. Cl. 324—141 8 Claims

1. A watt and var transducer, comprising:

means providing a first voltage signal,

means phase shifting the first voltage signal by 90° to provide a second voltage signal,

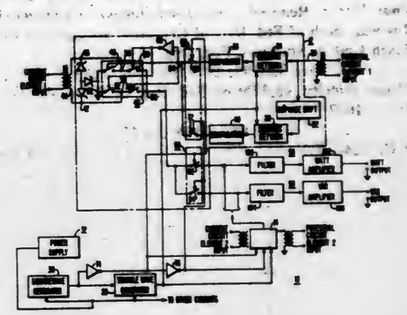
means providing a triangle wave signal,

means providing first and second pulse width modulated signals in response to said first and second voltage signals, respectively, and to said triangle wave signal,

means providing a current signal,

means alternately modulating the current signal in response to said first and second pulse width modulated signals, to provide first and second modulated current signals, respectively,

first and second output circuits each including filter and amplifier means,



and means applying the first and second modulated current signals to the first and second output circuits, respectively, to simultaneously provide both watt and VAR measurements.

4,275,350

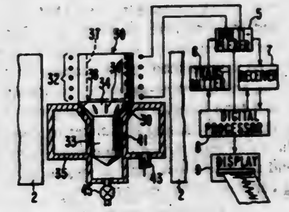
SAMPLE SPINNING MECHANISM FOR NMR PROBES

Howard D. W. Hill, and Ulrich Haeber, both of Cupertino, Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed May 29, 1979, Ser. No. 42,821

Int. Cl.³ G01N 27/00

U.S. Cl. 324—321 4 Claims



1. An NMR spectrometer for analysis of a sample comprising polarizing magnetic field means for impressing precessive motion upon sample quantum systems, RF probe means for excitation of resonance in said precessive motion in combination with an RF source means and said probe means for detection of said resonance in combination with RF detection means and sample spinner means for rotating said sample in said magnetic field, the improvement comprising

an air bearing supported turbine for spinning a sample at high rotational frequencies in a volume region of controlled magnetic field, said turbine comprising a rotor and a stator for housing said rotor, the improvement wherein

said rotor comprises a portion of a frusto-conical shaped member located intermediate a first cylindrical portion of first diameter and a second cylindrical portion of smaller diameter than said first diameter,

a stator for housing said rotor, said stator having a tapered portion for receiving said frusto-conical rotor portion and a cylindrical portion for receiving said second cylindrical portion,

a first set of jets in said tapered portion of said stator for levitating said rotor,

a second set of jets in said cylindrical portion of said stator for maintaining alignment of said rotor axis with the axis of said cylindrical portion of said stator, and

said rotor further comprising means for deriving rotational motion from at least one of said set of jets.

4,275,351

ARRANGEMENT FOR MONITORING BATTERIES

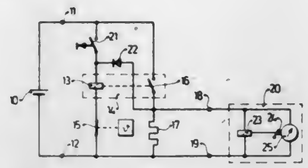
Helmut Härer, Remseck, and Josef Juhasz, Vaihingen/Enz-Rosswag, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 11, 1979, Ser. No. 2,683

Claims priority, application Fed. Rep. of Germany, Jan. 11, 1978, 2801027

Int. Cl.³ G01N *27/42*

U.S. Cl. 324—427 **14 Claims**



1. An arrangement for monitoring batteries, particularly for ascertaining the remaining capacity of batteries for electrical vehicles, comprising, in combination, two battery-connection terminals for connection to a battery; electrical metering means having electrical input means for receipt of an electrical signal to be metered; load resistor means; connecting means for connecting said electrical input means in circuit with said battery-connection terminals, and including timing switch means operative when activated for connecting said load resistor means in circuit with said battery-connection terminals for a time interval to cause a definite discharge current to be drawn by said load resistor means from said battery connection terminals for said time interval, said timing switch means including temperature-responsive switch means responding to the heat generated by said load resistor means for terminating said time interval; and arresting means automatically operative at the end of said time interval for arresting the operation of said metering means and causing said metering means to persistently hold the value most recently metered by said metering means, this held metered value then serving as an indication of the remaining capacity of the battery.

4,275,352

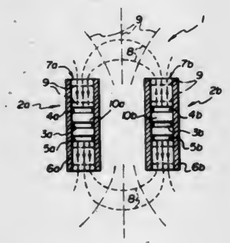
SEA WATER CONDUCTIVITY CELL

Robert B. Sudar; Edward L. Lewis, and Albert W. Koppel, all of Victoria, Canada, assignors to Canadian Patents & Dev. Ltd., Ottawa, Canada

Filed Mar. 5, 1979, Ser. No. 17,731

Int. Cl.³ G01N *27/42*

U.S. Cl. 324—449 **9 Claims**



1. A conductivity cell comprising:

support means having two separate electrode wells, each well being open at both ends and having electrically non-conductive interior walls; and

first, second and third electrodes spaced sequentially within each well, the first and third electrodes in each well being interconnected for connection to a current source whereby current flow between the wells produces a detectable potential between the second electrodes.

4,275,353

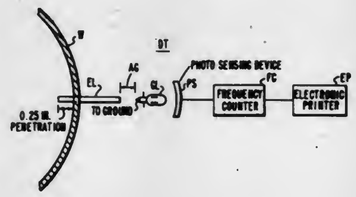
METHOD AND APPARATUS FOR THE DETECTION OF STAGNANT REGIONS IN A FLUIDIZED BED OR IN PNEUMATIC CONVEYING LINES

Wen C. Yang, Penn Township, Allegheny County, Pa.; Charles E. Spangler, Davenport, Fla.; Joe P. Morris, Penn Hills, and Dale L. Keairns, Swissvale, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 23, 1979, Ser. No. 69,431

Int. Cl.³ G01R *5/28*

U.S. Cl. 324—454 **5 Claims**



1. Apparatus for the detection of stagnant particles in a region behind the wall of a container in which solid particles are normally maintained in constant movement by a stream of gas, comprising:

a probe electrode mounted across said wall adjacent said region and isolated from said wall, said probe electrode having a first end exposed to said particles in said region and a second end outside of said container,

a gas-filled discharge lamp having an electrode connected to ground potential and an active electrode disposed a predetermined distance from said second end of said probe electrode to define a voltage air gap,

said lamp normally generating flashes in succession due to voltage breakdown across said air gap when said solid particles are in movement, and said lamp being devoid of flashes when said solid particles are stagnant in the vicinity of said first end of said probe electrode.

4,275,354

PULSE WIDTH MODULATING CIRCUIT

Masayuki Suematsu; Takao Mogi, both of Tokyo, and Akira Taki, Atsugi, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jan. 19, 1979, Ser. No. 5,021

Claims priority, application Japan, Jan. 25, 1978, 53-6832

Int. Cl.³ H03K *7/08*

U.S. Cl. 328—58 **9 Claims**

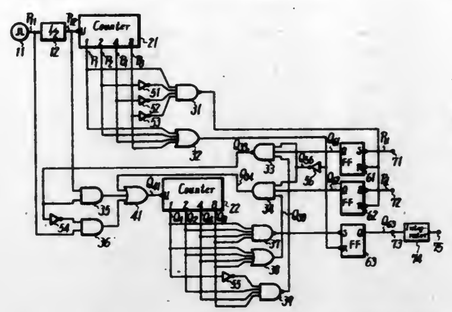
1. A pulse width modulating circuit comprising:

pulse generating means for generating clock pulses having a predetermined period;

first counter means having an output phase for counting said clock pulses from said pulse generating means;

second counter means having an output phase for counting said clock pulses from said pulse generating means;

pulse number control means for controlling the number of said clock pulses supplied to said second counter means including pulse adding means for adding at least one additional pulse to the clock pulses fed from said pulse generating means to said second counter means in response to a first control signal and pulse subtracting means for subtracting at least one pulse from the clock pulses fed from said pulse generating means to said second counter means in response to a second control signal; and



phase detecting means for producing a pulse width modulated signal in response to a phase difference between said output phase of said first counter means and said output phase of said second counter means.

4,275,355

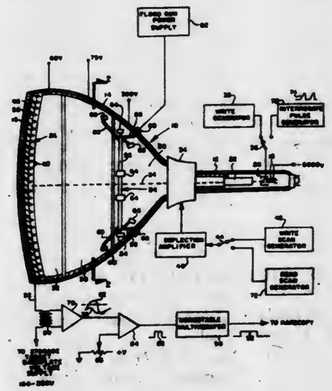
DIRECT VIEW STORAGE TUBE HAVING IMPROVED READOUT PERFORMANCE

Melvin A. Holznagel, Sherwood, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Feb. 23, 1979, Ser. No. 14,518

Int. Cl.³ H01J *29/41*

U.S. Cl. 328—124 **16 Claims**



1. A cathode ray storage tube comprising:

an envelope having a neck section, a funnel section and a faceplate section of generally polygonal configuration;

storage target means provided on an inside surface of said faceplate section;

electron gun means provided within said neck section for generating, focussing and accelerating an electron beam toward and onto said storage target;

write generator means connected to said electron gun means for controlling said electron beam;

deflection means for deflecting said electron beam over said storage target to form charge images thereon; and

a flood gun assembly within said funnel section between said deflection means and said target means, said assembly including mounting means having first flood gun means mounted along said mounting means, extensions provided by said mounting means extending toward corners of said storage target and second flood gun means mounted on said extensions, said flood gun means generating and distributing flood electrons substantially uniformly over said storage target with some of said flood electrons being attracted to said charge images to drive the areas containing said charge images towards one of two stable potentials for the purpose of storing said charge images as stored information.

4,275,356

DIGITAL TIME DEPENDENT RELAY CIRCUITRY

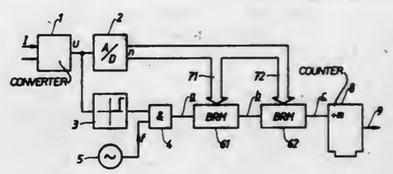
Stig Aviander, and Curt Jacobsson, both of Vesteras, Sweden, assignors to ASEA Aktiebolag, Vesteras, Sweden

Filed Feb. 6, 1979, Ser. No. 9,766

Claims priority, application Sweden, Feb. 9, 1978, 7801510

Int. Cl.³ H03K *17/28*

U.S. Cl. 328—129 **3 Claims**



1. Time dependent relay circuitry comprising means for converting an incoming measurement signal into a binary number corresponding thereto; means for generating an input signal with a predetermined frequency when the measurement signal exceeds a predetermined value; a timing circuit including at least one binarily controlled frequency multiplier, the control signal of which consists of said binary number, and the input frequency of which is determined by said input signal; and a binary counter responsive to the output frequency of said frequency multiplier and adapted to deliver an output signal when the contents of said binary counter reach a predetermined value.

4,275,357

ACTIVE FILTER

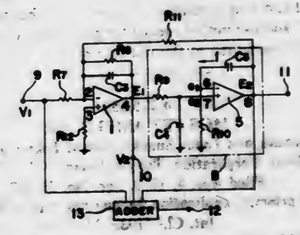
Fumio Nakayama, and Toshikazu Funahara, both of Kyoto, Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Oct. 23, 1979, Ser. No. 87,321

Claims priority, application Japan, Oct. 27, 1978, 53/132762

Int. Cl.³ H03F *1/34*

U.S. Cl. 330—107 **4 Claims**



1. An active filter comprising:

(a) a first differential amplifier having an inverting input, a non-inverting input and an output; a first resistor and a first capacitor being connected in parallel between the inverting input and the output of said first differential amplifier, and the non-inverting input of said first differential amplifier being connected to ground;

(b) a second differential amplifier having an inverting input, a non-inverting input and an output, the non-inverting input of said second differential amplifier being connected

through a second resistor to the output of the first differential amplifier and also through a second capacitor to ground; the inverting input of said second differential amplifier being connected through a third capacitor to its output and also through a third resistor to ground; and the output of said second differential amplifier being connected through a fourth resistor to the inverting input of the first differential amplifier; and

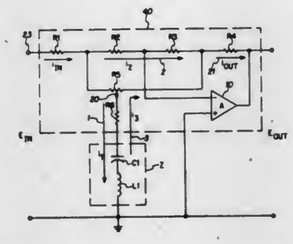
(c) an input terminal connected to the inverting input of the first differential amplifier and adapted to receive input signals.

4,275,358

FREQUENCY SENSITIVE AMPLITUDE EQUALIZATION CIRCUIT

Wayne A. Winget, Richardson, Tex., assignor to Rockwell International Corporation, Dallas, Tex.

Filed Jun. 29, 1979, Ser. No. 53,478
Int. Cl.³ H03F *1/34*
U.S. Cl. 330—109 **13 Claims**



1. A frequency sensitive amplitude equalizing circuit, comprising:

means for providing an output signal that is a gain factor "A" times an input signal where "A" is a negative value;

variable means "X" for providing a shunt to a reference point, the input signal of a predetermined frequency if said variable means "X" is <0.5, and the output signal, if the variable means "X" is 0.5, $\leqq 1$; and

means for providing an input resistance in series with the means for providing an output signal and an output resistance in series with the means for providing an output signal including, in cascade arrangement, four resistors of equal resistance, with the junction of the first two resistors connected to the variable means "X," the junction of the second and third resistors connected to the input of the means for providing an output signal, the junction of the third and fourth resistors connected to the variable means "X," and the output means for providing an output signal being connected to the fourth resistor.

4,275,359

MOS FET AMPLIFIER

Tadao Yoshida, and Tadao Suzuki, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 4, 1979, Ser. No. 26,587
Claims priority, application Japan, Apr. 11, 1978, 53-42420
Int. Cl.³ H03F *3/217*
U.S. Cl. 330—251 **6 Claims**

1. A MOS-type FET amplifier comprising:

(A) a DC voltage source having first and second terminals;

(B) a first MOS-type FET having gate, source and drain electrodes;

(C) a second MOS-type FET having gate, source and drain electrodes;

(D) pulse signal source means for supplying a pair of drive signals to the gate electrodes of said first and second FETs with the same phase relation to each other;

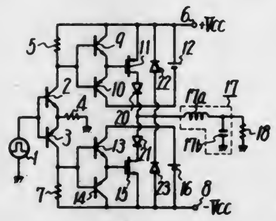
(E) first circuit means for connecting the source and drain electrodes of said first FET between the first terminal of said DC voltage source and an output terminal;

(F) second circuit means for connecting the source and drain electrodes of said second FET between the second terminal of said DC voltage source and said output terminal;

(G) third circuit means consisting of a first diode having anode and cathode electrodes and for connecting the anode and cathode thereof between said output terminal and the first terminal of said DC voltage source;

(H) fourth circuit means consisting of a second diode having anode and cathode electrodes and for connecting the anode and cathode thereof between the second terminal of said DC voltage source and said output terminal;

(I) low pass filter means connected to said output terminal so as to flow a forward current and a reverse current to a



load in response to the drive signal from said pulse signal source means;

(J) fifth circuit means consisting of a third diode having anode and cathode electrodes and connecting the anode and cathode thereof between the first terminal of said DC voltage source and said output terminal in series with the source and drain circuit of said first FET so as to prevent the reverse current from flowing through said first FET; and

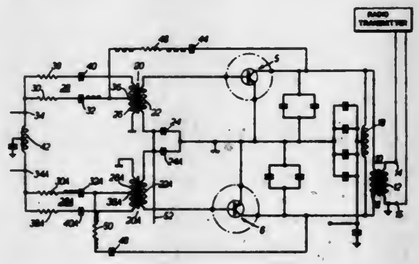
(K) sixth circuit means consisting of a fourth diode having anode and cathode electrodes and connecting the anode and cathode thereof between the second terminal of DC voltage source and said output terminal in series with the drain source circuit of said second FET so as to prevent the reverse current from flowing through said second FET.

4,275,360

ELECTRONIC AMPLIFIER CIRCUIT ARRANGEMENTS

Kenneth E. Gill, Yateley, and Anthony E. Hilling, Guildford, both of England, assignors to Racal Communications Equipment, Berkshire, England

Filed Mar. 29, 1979, Ser. No. 24,972
Claims priority, application United Kingdom, Mar. 29, 1978, 12181/78
Int. Cl.³ H03F *3/26*
U.S. Cl. 330—276 **3 Claims**



1. An amplifier circuit arrangement, comprising

two matched power transistors connected together to provide a push-pull output and biased so as to operate in Class AB, and

a respective and separate transformer-coupled driving circuit connected to drive each transistor such that when an input current is applied to one of the transistors through its respective driving circuit substantially none of the current is applied to the other transistor,

each driving circuit comprising a respective transformer and a respective input circuit connected to energise the primary winding of the transformer with an input current whereby the secondary winding of the transformer applies a corresponding current to the respective transistor,

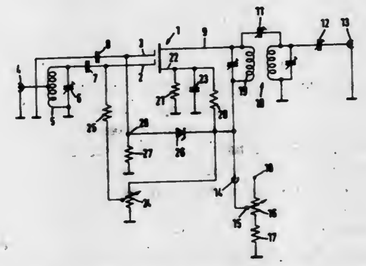
each input circuit comprising two parallel-connected input paths for the input current and each connected to a respective point on the primary winding of the respective transformer, one said input path having an impedance which increases with frequency and being connected to drive the input current through a smaller part of the primary winding than the other input path which has an impedance which decreases with increasing frequency, so as to alter the effective turns ratio of the transformer as the frequency increases and thereby to compensate for the decrease in impedance of the respective transistor as the frequency increases.

4,275,361

H.F. AMPLIFIER

Josef H. Schürmann, Oberhummel, Fed. Rep. of Germany, assignor to Texas Instruments Deutschland GmbH, Freising, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 59,793
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1978, 2833056
Int. Cl.³ H03F *3/16*; H03G *3/30*
U.S. Cl. 330—277 **10 Claims**



1. High frequency amplifier stage comprising a dual-gate field-effect transistor having a first gate electrode for receiving a high frequency input signal to be amplified, a second gate electrode connected to ground with respect to high freqeencies, and an output circuit connected to a supply voltage terminal, voltage divider means comprising zener diode means and resistor means connected to said supply voltage terminal, said voltage divider means having a tap connected to one of the first and second gate electrodes, and means for adjusting a supply voltage connected to said supply voltage terminal for changing the gain of said amplifier stage.

4,275,362

GAIN CONTROLLED AMPLIFIER USING A PIN DIODE

Jack R. Harford, Flemington, N.J., assignor to RCA Corporation, New York, N.Y.

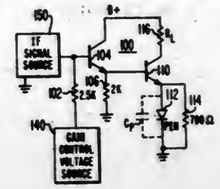
Filed Mar. 16, 1979, Ser. No. 21,324
Int. Cl.³ H03G *3/30, 9/24*
U.S. Cl. 330—283 **15 Claims**

1. A gain controlled amplifier comprising:

a transistor including base, emitter, and collector electrodes, and coupled in a common emitter amplifier configuration;

a source of input signals coupled to said base electrode;

a load impedance coupled to said collector electrode;



a PIN diode direct current coupled between said emitter electrode and a point of reference potential, and biased for forward conduction; and

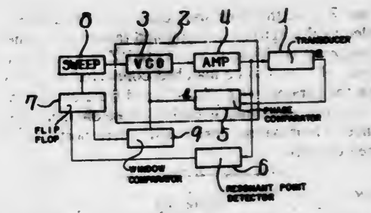
a source of gain control voltage coupled to said transistor for simultaneously varying the bias of said transistor and said PIN diode.

4,275,363

METHOD OF AND APPARATUS FOR DRIVING AN ULTRASONIC TRANSDUCER INCLUDING A PHASE LOCKED LOOP AND A SWEEP CIRCUIT

Shoji Mishiro, and Seiji Hamada, both of Kawasaki, Japan, assignors to Taga Electric Co., Ltd., Tokyo, Japan

Filed Aug. 9, 1979, Ser. No. 65,162
Claims priority, application Japan, Jul. 6, 1979, 54-85033
Int. Cl.³ H01L *41/08*; H03L *7/12*; H03B *5/32*
U.S. Cl. 331—4 **5 Claims**



1. A method of driving an ultrasonic transducer comprising the steps of:

sweeping the frequency of an oscillating signal over a first frequency range;

driving an ultrasonic transducer by applying said oscillating signal to said ultrasonic transducer;

detecting the resonant point of said ultrasonic transducer during said sweeping;

stopping the sweeping upon detection of a resonant point; and

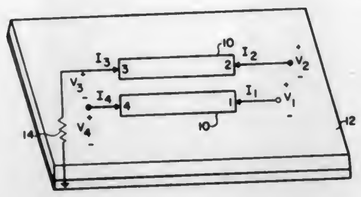
driving said ultrasonic transducer using a phase locked loop, where the loop includes a phase comparator for comparing the oscillating signal with an output signal from the transducer and an oscillator responsive to the phase comparator for producing said oscillating signal.

4,275,364

RESONANT ELEMENT TRANSFORMER

Arthur R. Skatvold, Jr., Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 24, 1979, Ser. No. 78,331
Int. Cl.³ H01P 5/02
U.S. Cl. 333—33 8 Claims



1. An impedance matching device which is a resonant element transformer comprising:
a substrate of dielectric material; and
a pair of coplanar coupled transmission line conductors placed on said substrate and can be described as four-port impedance Z_{ij} defined as

$$\begin{bmatrix} V_1 \\ V_2 \\ V_3 \\ V_4 \end{bmatrix} = \begin{bmatrix} Z_{11} Z_{12} Z_{13} Z_{14} \\ Z_{21} Z_{22} Z_{23} Z_{24} \\ Z_{31} Z_{32} Z_{33} Z_{34} \\ Z_{41} Z_{42} Z_{43} Z_{44} \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \\ I_4 \end{bmatrix}$$

where
V_i=voltage at each port i=1,2,3 or 4,
I_i=current at each port i=1,2,3 or 4,

$$Z_{11} = Z_{22} = Z_{33} = Z_{44} = -j(Z_{oe} + Z_{oo}) \frac{\cot \theta}{2},$$
$$Z_{12} = Z_{21} = Z_{34} = Z_{43} = -j(Z_{oe} - Z_{oo}) \frac{\cot \theta}{2},$$
$$Z_{13} = Z_{31} = Z_{24} = Z_{42} = -j(Z_{oe} - Z_{oo}) \frac{\csc \theta}{2},$$
$$Z_{14} = Z_{41} = Z_{23} = Z_{32} = -j(Z_{oe} + Z_{oo}) \frac{\csc \theta}{2},$$

Z_{oe} and Z_{oo} are the even and odd mode impedances,
θ=electrical length of said coupled transmission lines,
j=imaginary coefficient, $\sqrt{-1}$, and Z_r=a complex impedance of a load to be matched connected at port 1, such that the parameters Z_{ij} Z_{oe}, Z_{oo} and θ are chosen to match Z_r to a predetermined network whose characteristic resistance is terminating port 3 and where ports 2 and 4 are open circuits.

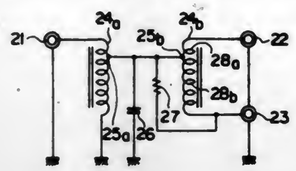
4,275,365

BRANCHING EQUIPMENT FOR CATV SYSTEMS

Tsunekazu Ando, Hiratsuka, Japan, assignor to Hochiki Corporation, Tokyo, Japan

Filed Aug. 13, 1979, Ser. No. 66,477
Claims priority, application Japan, Aug. 18, 1978, 53-112427[U]
Int. Cl.³ H03H 7/48
U.S. Cl. 333—131 1 Claim

1. In branching equipment for CATV systems including an input terminal, a pair of output terminals, a matching transformer consisting of a tapped winding having one end thereof connected to said input terminal and other end thereof grounded, and a distributing transformer consisting of a tapped winding having ends thereof respectively connected to said output terminals, the tap of said matching transformer being connected to the tap of said distributing transformer, the number of turns in a portion between one end of the winding and the tap of said distributing transformer being different from that in another portion between the other end of the winding and the tap of said distributing transformer to provide a predetermined ratio, the improvement consisting of a power absorbing resistor connected across one of said winding portions on the sides of the tap of said distributing transformer having a greater number of turns than the other.

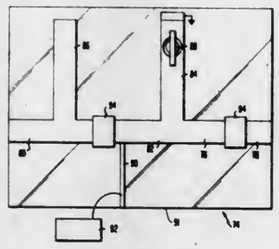


4,275,366

PHASE SHIFTER

Alfred Schwarzmann, Mt. Laurel, N.J., assignor to RCA Corporation, New York, N.Y.

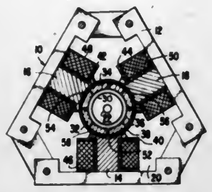
Filed Aug. 22, 1979, Ser. No. 68,503
Int. Cl.³ H01P 1/185, 3/08
U.S. Cl. 333—161 8 Claims


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4,275,371
ELECTROMAGNETIC ROTARY ACTUATOR

John D. Vogel, Brecksville, Ohio, assignor to The Singer Company, Stamford, Conn.

Filed Jul. 26, 1979, Ser. No. 61,164
Int. Cl.³ H01F 7/18
U.S. Cl. 335—272 7 Claims



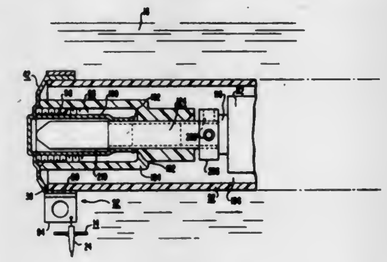
1. An electromagnetic rotary actuator comprising:
a stator assembly including three pole pieces, each of said pole pieces having a coil wound thereabout adapted for selective energization thereof to establish a magnetic field through the respective pole piece;
a rotor assembly mounted for rotation about an axis inside said stator assembly, said rotor assembly having a permanently magnetized peripheral portion defining four regions of alternating magnetic polarity; and
control means for selectively energizing said stator coils to generate a resultant magnetic field which interacts with the magnetic field from said magnetized peripheral portion of said rotor assembly to move said rotor assembly about said axis to a selected angular position;
wherein one of said coils is a reference coil and the control means supplies said reference coil with a fixed energization and supplies a fixed total energization to the remaining two coils in a complementary manner.

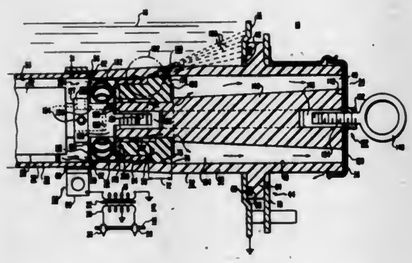
4,275,372
PROTECTED ELECTRICAL INDUCTIVE APPARATUS

Edgar R. Eley, Athens, Ga., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 17, 1979, Ser. No. 104,645
Int. Cl.³ H02H 7/04; H01H 85/16
U.S. Cl. 337—4 6 Claims

1. Protected electric inductive apparatus, comprising:
a metallic casing having primary and secondary electrical bushings and an opening,
liquid dielectric means disposed in said casing,
electrical winding means disposed in said casing and immersed in said liquid dielectric means,
protective fuse apparatus including a tubular receptacle and a removable fuse portion,
said receptacle having first and second ends, a wall portion having an inner surface which defines an opening which extends between its ends, means sealing the opening at its second end, and first and second spaced electrical terminals each having portions which are respectively accessible from the inside and outside of said tubular receptacle,
means sealingly mounting said receptacle through the opening in said casing, with the first end of the receptacle being accessible outside the casing, and the second end extending into said casing such that at least the first and second spaced electrical terminals are immersed in said liquid dielectric means,
means electrically connecting the outer portions of said first and second spaced electrical terminals to a primary bushing and said electrical winding means, respectively,
said removable fuse portion having first and second ends, including handle means at the first end and fuse means adjacent to the second end, said removable fuse portion including first and second electrical contact means which engage the inner portions of said first and said electrical terminals, respectively, when the removable fuse portion is in assembled relation with said receptacle,
said first electrical terminal having first and second axially spaced ends, with the first end being part of the inner portion of the first electrical terminal, said first end being the closest live element of said protective fuse apparatus to said metallic casing when said primary bushing is connected to a source of electrical potential, providing electrical stresses between said first end and said casing,
and a resilient plug member having first and second axially spaced ends, and an axially extending opening extending between its ends, said resilient plug member being mounted on said handle means with its second end immediately adjacent to the first electrical contact means of said removable fuse portion,
said resilient plug member including intimately bonded electrically conductive and electrically insulating portions which define electrically conductive and electrically insulating outer surfaces, with the conductive outer surface starting at the second axial end of said plug member and extending for a predetermined dimension towards the first



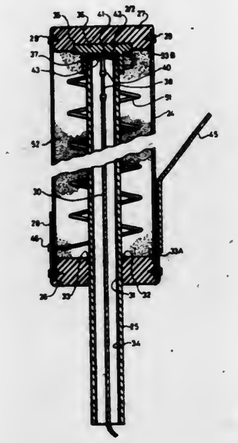


axial end, and with the non-conductive outer surface extending from the termination of the conductive surface to its first axial end,
said resilient plug member being dimensioned and positioned on said handle means such that when the removable fuse portion is in assembled relation with said receptacle, the electrically conductive outer surface of said resilient plug member contacts the first electrical terminal and extends past the first axial end thereof, towards the first end of the receptacle, and its electrical insulating outer surface snugly contacts the adjacent inner surface of the wall portion of said receptacle, to effectively continue the first electrical terminal into the electrically conductive portion of said resilient plug member and provide an air-free interface at the intimate bond between the conductive and insulating portions thereof, and between the electrically insulating outer surface and contacting inner surface of a receptacle,
said resilient plug member defining first and second air spaces within the receptacle adjacent to its first and second axial ends, respectively,
said resilient plug member defining at least one air path between the resilient plug member and said handle means adjacent to its axially extending opening which communicates with said first and second air spaces.

4,275,373
COMBINATION EXPULSION FUSE

John F. Howard, Peterborough, Canada, assignor to Canadian General Electric Co., Ltd., Toronto, Canada

Filed Dec. 26, 1979, Ser. No. 108,185
Claims priority, application Canada, Aug. 24, 1979, 334516
Int. Cl.³ H01H 71/20
U.S. Cl. 337—144 10 Claims



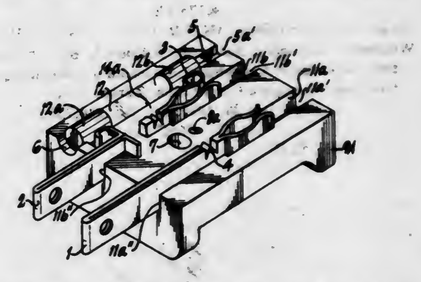
1. A fusible device comprising,
a cylindrical casing primarily of electrical insulating material and having a first end and a second end,
a first end closure closing said first end of said casing,
an expulsion tube primarily of electrical insulating material within said casing extending substantially coaxially therewith mounted at one end adjacent to said first end closure and projecting beyond said second end of said casing and terminating with an open end,
a second end closure at said second end of said casing in sealing relationship with said casing and said expulsion tube,
a fusible link within said expulsion tube having a fusible portion and a flexible cable extending to and projecting from said open end,
a connector terminal at said second end of said casing, and
a fuse element within said casing connected at one end to said connector terminal and at the other end adjacent said first end closure to said fusible link.

4,275,374
FUSE-PLUG ADAPTER FOR ELECTRICAL CORD

Daniel Chaucer, 84-61 Parsonville Ave., Rego Park, N.Y. 11379

Filed Aug. 20, 1979, Ser. No. 67,933
Int. Cl.³ H01H 85/02
U.S. Cl. 337—197 8 Claims

1. An electrical fuse-plug adapter and circuit comprising in combination, a non-conductor housing having formed therein three separate through-channels having first, second and third channel-openings, and first, second and third other-channel-openings, and interconnecting channel spaces thereof, said first and second other-channel-openings being female receptacles positioned to receive paired male prongs of an electrical plug, said first and second channel-openings each being of a size and shape and including first channel-support-structure adapted to mount and support paired male electrical conductor elements with one within each respectively of the first and second through-channels adjacent said channel-openings, and said first and second through-channels each being of a size and shape and including second channel-support-structure adapted for each to mount and support a female electrical conductor element adjacent said first and second other-channel-openings at locations such that electrical contact is made with said paired male prongs when said electrical plug is mounted within the first and second other-channel-openings, said third other-channel-opening being of a size and shape adapted to receive an element therethrough into said third channel such that an electrical fuse mounted within the third through-channel may be pushed out of said third channel-opening, first and second male and female electrical conductors, the first and second female electrical conductors being mounted and supported respectively in said first and second through-channels paired-with and adjacent said first and second other-channel-openings, the first and second male electrical conductors mounted and supported respectively in said first and second through-channels and extending outwardly from respectively said first and second channel-openings, said housing structure being constructed with said second and third channels being in com-



munication with one-another such that an upper electrical-contact end of an electrical fuse contacts said second male electrical conductor and concurrently a lower electrical-contact end of the electrical fuse contacts said second female electrical conductor when the electrical fuse is mounted within said third through-channel, said second female electrical conductor being separate and spaced from said second male electrical conductor, said housing structure including a cord-receiving hole in a face thereof with the hole being in communication with each of said first and second through-channels by cross-channels formed within inner walls of said housing structure adapted for parted-paired lead-wires to operatively make electrical contact with one of the paired wires in contact with said first female electrical conductor and a remaining other one of the paired wires in contact with said second female electrical conductor, and first and second electrical cord leads positioned within said hole and within said cross-channels and having the first electrical cord positioned in electrical communication with at least said first female electrical conductor and having the second electrical cord lead in electrical communication with said second female electrical conductor.

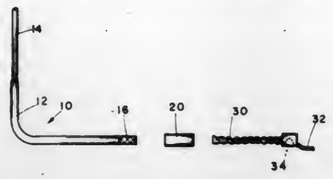
4,275,375
HEATING ELEMENT CONNECTOR AND METHOD

Charles B. Vallance, Berrien Springs, Mich., assignor to Loco Corporation, St. Joseph, Mich.

Filed Jan. 26, 1979, Ser. No. 6,596
Int. Cl.³ H01C 1/148, 1/144
U.S. Cl. 338—329 9 Claims

1. A connector assembly for use with a cermet heating element comprising:
a cermet heating element for a furnace having an end with a diameter of about ¼ inch for receiving an electrical conductor for applying electrical operating power to said heating element; and
a metallic electrically conductive sleeve having one end

positioned over and surrounding said end of said heating element and bonded thereto by a brazing alloy and having



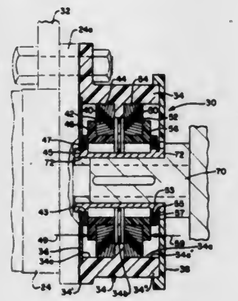
an opposite open end defining a cavity for receiving the end of an electrical conductor.

4,275,376

ELECTRICAL SIGNAL INTERCONNECTION COUPLER

William C. Alexander, Barberton; Richard L. Kirk, North Canton, and Kenneth A. Thomsen, Akron, all of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Apr. 28, 1980, Ser. No. 144,755
Int. Cl.³ B60C 23/00
U.S. Cl. 340—52 R 35 Claims



1. A signal communicator for transmitting an electrical signal from one member rotating relative to another member comprising:

a first substantially cylindrical electrically conductive metal race having a bore that tapers radially inwardly for the approximate width of the race;

a second substantially cylindrical electrically conductive metal race positioned coaxially within the bore of the first metal race and having an outer surface that tapers radially outwardly for the approximate width of the race; and

at least one conically shaped carbon graphite ring positioned coaxially between the first and second metal races and having an outwardly facing surface in intimate contact with the inwardly tapered bore of the first race and having an inner bore surface in intimate contact with the outwardly tapered surface of the second metal race;

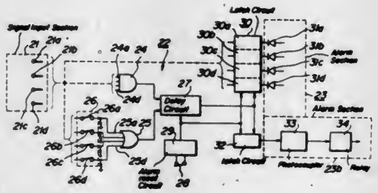
said communicator being positioned coaxially with respect to the rotating member and receiving electrical signals from the rotating member via electrical connection to one of the races and passing said signal therethrough to the other of the races through the graphite ring and to the other of the members via electrical connection to the other of the metal races.

4,275,377

ALARM DEVICE FOR INFORMING REDUCTION OF PNEUMATIC PRESSURE OF VEHICLE TIRES

Akira Matsuda, Higashimurayama; Norio Goshima, Musashino; Shigeo Yasuda, Musashino; Motoaki Iwasaki, Musashino, and Hiroshi Nishino, Musashino, all of Japan, assignors to Bridgestone Tire Co., Ltd., Tokyo and Mitaka Instrument Co., Ltd., Musashino, both of, Japan

Filed Jun. 18, 1979, Ser. No. 49,830
Claims priority, application Japan, Jun. 20, 1978, 53-75033
Int. Cl.³ B60C 23/04; G08B 21/00
U.S. Cl. 340—58 3 Claims



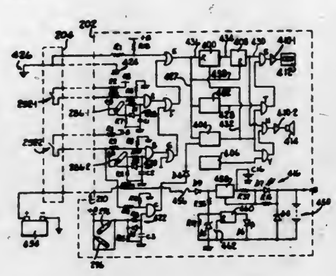
1. In an alarm device for signalling a reduction of the pneumatic pressure of vehicle tires including an oscillator (6) having an oscillation coil secured to a chassis of a vehicle; a resonator (1) secured to a peripheral portion of a wheel having a tire adjacent to the oscillation coil and including a pressure sensing switch (4) responsive to an abnormal change of the pneumatic pressure of said vehicle tire, a resonant coil and a capacitor (5) which are tuned to an electromagnetic wave radiated from the oscillation coil; a signal processing device (3) containing means for sensing a change in an oscillation condition generated in the oscillator due to a resonant condition in the resonator switched on and off in accordance with abnormal internal pressure of the tire and for processing a signal sensed by the sensing means; and an alarm means for generating a warning signal in accordance with the output of the signal processing device; the improvements characterized by: the signal processing device including a signal input section (21) having a desired number of input terminals, a signal processing section having an arithmetic circuit connected to the signal input section and comprising an AND gate (24) and an OR gate (25) connected in parallel with each other and each having the same number of input terminals as the number of output terminals of the signal input section and individually connected thereto, a delay circuit (27) having first and second input terminals connected to outputs of the AND gate and the OR gate, a first latch circuit (30) having a second input terminal connected to an output of the delay circuit and a plurality of latch elements equal in number to the output terminals of the signal input section and having first input terminals individually connected thereto, a second latch circuit (32) having a first input terminal connected to the output of the delay circuit and consisting of a single latch element, and an alarm reset circuit (29) connected to a third input terminal of the first latch circuit, to a second input terminal of the second latch circuit, and to a third input terminal of the delay circuit, respectively, and having a switch (28) for resetting an alarm signal, and an alarm section operated by outputs of the first and second latch circuits, whereby an alarm signal is not generated at normal internal pressure and during stops of the vehicle.

4,275,378

MONITORING THE OPERATION OF A VEHICLE

Henning M. Henderson, Johannesburg, South Africa, assignor to Kiloking (Proprietary) Limited, South Africa

Filed Aug. 17, 1978, Ser. No. 934,557
Claims priority, application South Africa, May 23, 1978, 78/2964; Jul. 26, 1978, 78/4243; Jul. 26, 1978, 78/4245; Jul. 26, 1978, 78/4246
Int. Cl.³ B60Q 5/00; G08B 21/00
U.S. Cl. 340—71 20 Claims



20. A method of monitoring the operation of a motor vehicle, which method comprises the steps of:

sensing the vehicle's throttle opening;

sensing a parameter which corresponds to the magnitude of a variable load force acting on the vehicle in a direction opposite the direction of forward travel of the vehicle; and

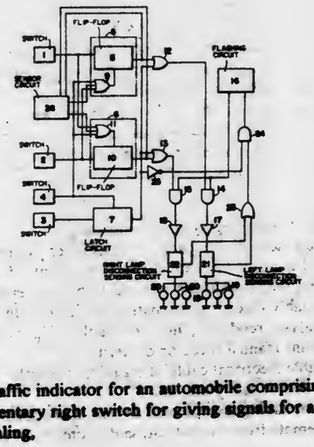
giving an indication when the throttle opening exceeds a predetermined throttle opening value, the predetermined throttle opening value being, over at least part of the range of said parameter, a continuously increasing function of said parameter.

4,275,379

TRAFFIC INDICATOR

Tasuku Nakano, Gifu, and Tadanao Hamamoto, Nagoya, both of Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed May 1, 1979, Ser. No. 34,994
Claims priority, application Japan, May 1, 1978, 53-52450
Int. Cl.³ B60Q 1/42
U.S. Cl. 340—81 R 12 Claims



1. A traffic indicator for an automobile comprising:

a momentary right switch for giving signals for a right turn signaling,

a momentary left switch for giving signals for a left turn signaling,

a right latch circuit for latching signals given by said right switch,

a left latch circuit for latching signals given by said left switch,

a flashing circuit for generating flash signals,

at least one indicator lamp coupled to an output of at least one of said right or left latch circuits for flashing when said right or left latch circuits generates an output, and

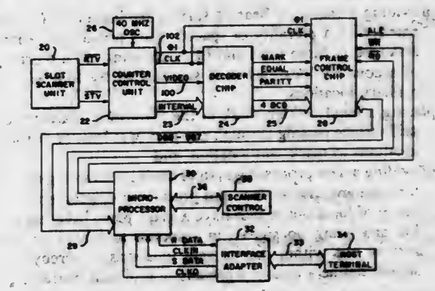
a sensor circuit for sensing the direction of the rotation of the steering wheel, said sensor circuit generating signals to reset said right latch circuit when said steering wheel returns from the right to a point at a certain distance from the neutral position, and signals to reset said left latch circuit when said steering wheel returns from the left to a point at a certain distance from the neutral position, said sensor circuit comprising a photo transistor opposite a light emitting diode and a cylinder having at least one opening therein coupled to said steering wheel and extending between the light emitting diode and said photo transistor, said photo transistor turns on and off in response to light from said light emitting diode as the steering wheel is rotated and a switch circuit which turns on and off in response to at least two outputs of said photo transistor and sends cancel signals to right or left latch circuits.

4,275,380

TOPOGRAPHY FOR INTEGRATED CIRCUIT FRAME CONTROL CHIP

Harry N. Gardner, and Wayne R. Gravelle, both of Colorado Springs, Colo., assignors to NCR Corporation, Dayton, Ohio

Filed May 30, 1979, Ser. No. 43,930
Int. Cl.³ G06K 7/14
U.S. Cl. 340—146.3 Z 6 Claims



1. An integrated circuit for sequentially receiving a plurality of digital character words produced in response to optical scanning of a bar coded label and also receiving a plurality of corresponding binary signals representing, respectively, validity, scanning direction, and timing of the digital character words and outputting formatted character words to a digital processor system coupled to said integrated circuit, said integrated circuit comprising in combination:

a. first means for receiving said digital character words and said binary signals;

b. a plurality of storage means coupled to said first means for storing predetermined ones of said digital character words, wherein said plurality of storage means includes a plurality of groups of shift registers, each of which shift registers is capable of storing one of said digital character words;

c. second means responsive to said first means for routing predetermined ones of said digital character words into predetermined ones of said plurality of storage means, wherein said second means includes a plurality of counter circuits for controlling said routing of said digital charac-

ter words to predetermined ones of said plurality of groups of shift registers; and

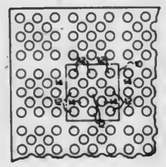
d. third means responsive to said digital processor system for receiving commands from said digital processor system and also effecting outputting of digital character words from said predetermined ones of said storage means to said digital processor system, said integrated circuit having first, second, third, and fourth sequentially located edges, the portion of said first means receiving said digital character words generally being located substantially closer to said first and fourth edges than to said second and third edges to effect conducting said digital character words from bonding pads adjacent to said first and fourth edges, said plurality of groups of shift registers generally being located between said second means and said second edge, said third means being located substantially closer to said second edge than to said fourth edge.

4,275,381

OPERATOR READABLE AND MACHINE READABLE CHARACTER RECOGNITION SYSTEM

Richard G. Siegal, 515 W. Barry St., Chicago, Ill. 60657

Filed Jan. 2, 1980, Ser. No. 109,039
Int. Cl.³ G06K 9/18
U.S. Cl. 340—146.3 Z 6 Claims



1. A method of entering data into a data processing system, comprising the steps of:

providing a character bearing surface having an area designated with a plurality of spaced apart primary locations arranged in three rows and three columns and a plurality of secondary locations each surrounded by four of said primary locations,

placing a hand written mark in the form of a character on said surface passing through any part of at least one of said locations to mark said location, and

providing a data processing system having a scanning device for scanning said surface and producing signals representative of locations which have a mark placed therein and for producing no signals in response to marks on said surface not within one of said locations, whereby said signals define a binary representation of said character.

4,275,382

APPARATUS FOR MONITORING AND CONTROLLING VESSELS CONTAINING LIQUID

Louis J. Jannotta, 2800 E. Bernice Rd., Lansing, Ill. 60438

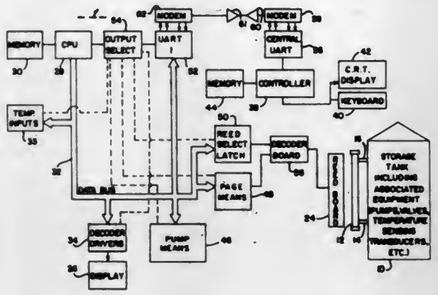
Filed Jul. 18, 1979, Ser. No. 58,508
Int. Cl.³ H04Q 1/00; G06F 15/00; G05B 15/00; G05D 9/00
U.S. Cl. 340—151 17 Claims

1. An apparatus for determining the level of liquid in a vessel containing liquid which comprises:

(1) a plurality of indicator means located at varying points along the height of said vessel, each said indicator means being capable of acting to indicate the presence of liquid at a predetermined level within said vessel;

(2) control means in association with said indicator means to independently periodically send first signals to each of said indicator means to determine whether any given indicator means gives a positive indication of the presence of liquid at a given level within said vessel, said control means further being capable of acting to receive second signals from said indicator means indicating the presence or absence of liquid at a given level within said vessel, said second signals being translatable by said control means into third signals representing the height of said liquid level in said vessel, said control means still further acting to independently send selected second signals which indicate the presence of the liquid level at a given level within said vessel, said third signals or both said selected second and third signals to memory means, hereinafter described;

(3) memory means in association with said control means



acting to receive said selected second signals, said third signals, or both said selected second and third signals from said control means and store said received signals for future use; and

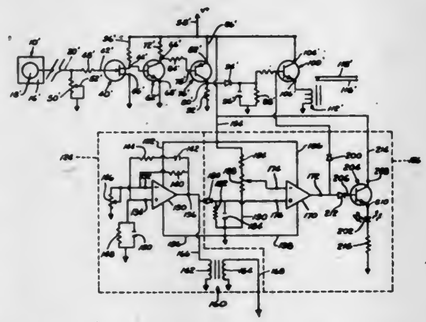
(4) display means in association with said control means and acting in response to said control means to periodically receive said received signals from said memory means and said control means and provide a visual display of the height of said liquid level in said vessel.

4,275,383

PATIENT SIGNALLING SYSTEM

Roland A. White, and Mark D. White, both of 10 Terry St., Middleport, N.Y. 14105

Filed Sep. 28, 1979, Ser. No. 79,783
Int. Cl.³ G08B 1/08
U.S. Cl. 340—286 R 17 Claims



1. A patient signalling system comprising:

(a) a touch sensitive capacitive transducer comprising an exposed conductive plate carried by a body of dielectric material, said transducer adapted to be conveniently and comfortably placed with a patient afflicted with an illness or paralysis rendering him incapable of providing any significant manual force or dexterity;

(b) a flexible electrical cable of significant length connected at one end to said plate; and

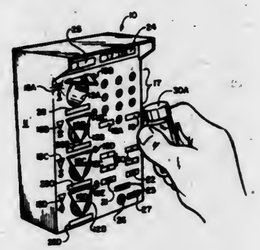
(c) a circuit having an input and an output and located physically remote from the patient, said circuit input connected to the other end of said cable, said circuit converting a change in capacitance of said transducer when touched by the patient into an electrical signal for causing operation of an appliance connected to said circuit output, said circuit comprising a source of supply voltage, a high gain amplification stage operatively connected to said supply and having an input connected to said transducer for converting a minute signal produced by said transducer when touched by said patient into an output signal which switches at the voltage level of said supply, a wave shaping stage having an input connected to the output of said high gain amplification stage for converting impulse signals into square wave output signals, and a d.c. switch connected in controlled relation to the output of said wave shaping stage for causing completion of an electrical power circuit for the appliance.

4,275,384

PORTABLE MEDICINE CABINET WITH TIMER

Thurmond A. Hicks, and Brenda G. Hicks, both of 2433 Middleton Dr., Gastonia, N.C. 28052

Filed Jan. 4, 1979, Ser. No. 45,275
Int. Cl.³ G08B 5/00
U.S. Cl. 340—309.4 4 Claims



1. A portable apparatus for private use by an individual taking several different medicines, said apparatus being adapted for storing a plurality of different medicine bottles and indicating at certain predetermined times that a dose of each medicine should be taken, comprising:

a cabinet defining a plurality of open-ended, freely accessible cylindrical compartments, each of said compartments being adapted for receiving a bottle of medicine and having a hinged door pivotally secured to said cabinet for closing said compartment and securing the bottle of medicine therein;

time computer means contained within said cabinet for determining the time for taking a dosage of each of the respective medicines, said time computer means having entry means for entering a plurality of predetermined time intervals for taking a dose of each of said respective medicines contained within said respective compartments and means for providing output signals at said predetermined time intervals; and

a signal light positioned adjacent each of said compartments so as to be clearly visible when energized by said output signals and being electrically connected to said time computer means for indicating upon receipt of said output signals the respective medicine which should be removed and a prescribed dose thereof taken;

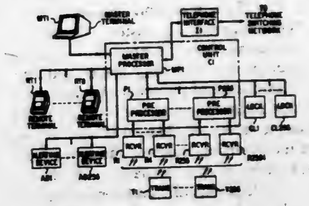
whereby an individual who is taking several different medicines which require that prescribed doses be taken at different times can assure that he does not become confused and forget to take certain doses or take the prescribed doses too often and endanger his health.

4,275,385

INFRARED PERSONNEL LOCATOR SYSTEM

Lester L. White, Indianapolis, Ind., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Aug. 13, 1979, Ser. No. 65,876
Int. Cl.³ G01J 1/00; G01S 9/56
U.S. Cl. 340—312 22 Claims



1. A personnel locator system installable on a premises comprising a plurality of portable communication units, each adapted to be carried by an individual, a plurality of remote stations mounted in appropriate locations about the premises and a common control unit

CHARACTERIZED IN THAT

each portable unit including

means for establishing a coded signal unique to that unit,

means coupled to said establishing means and responsive to said coded signal for generating a modulated pulse coded infrared signal unique to each said portable unit,

battery means for providing power from an included battery source to power said portable unit;

each remote station including

means responsive to received infrared signals from a portable unit for generating a corresponding coded signal identifying each said portable unit, and

means for transmitting said generated corresponding coded portable unit signal to said common control unit; and

said control unit including

means for associating said generated corresponding coded portable unit signal with a remote station, and

means for indicating the location of each portable unit,

4,275,386

BINARY ANALOG-DIGITAL CONVERTER

Jean P. Michel, Yerres, France; Claude J. P. F. Le Cun, Nijmegen, and Marinus C. W. van Buul, Eindhoven, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 21, 1979, Ser. No. 41,062
Claims priority, application France, May 24, 1978, 78 15446
Int. Cl.² H03K 13/02
U.S. Cl. 340—347 AD 14 Claims

1. A binary analog-digital converter in which the analog quantity to be converted into a binary digital signal is represented by a current which lies between the minimum current and the maximum current that can be converted comprising:

an input stage;

a number of conversion stages equal to the number of n digital-signal bits required; and

an output stage;

each of said (n+2) stages of the order 0, 1, 2, . . . , i, . . . n−1, n, n+1 comprising two separate transmission channels, i.e. a comparison channel and a reference channel, all the comparison channels of the (n+2) stages being connected in series, all the reference channels of said (n+2) stages also being connected in series;

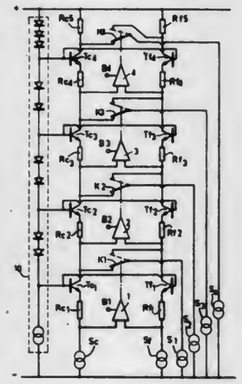
transition circuits being included between the comparison channel of each conversion stage and that of the next stage and between the reference channel of each conversion stage and that of the next stage;

the comparison channel of the input stage being adapted to

transfer an input current to the comparison channel of the next stage and the reference channel being of the input stage adapted to transfer a reference current, which is equal to a fraction of the maximum current, to the reference channel of the next stage, the difference between said input current and the reference current constituting a current which is representative of the analog quantity to be converted into a binary digital signal;

in each of the n conversion stages of the order 1, 2, 3, . . . , i, . . . , n−1, n, the comparison channel of the stage of the order i being adapted to transfer a comparison current, which comprises at least the input current, to the comparison channel of the following stage, and the reference channel of said stage of the order i being adapted to transfer a reference current equal to a fraction of the maximum current to the reference channel of the next stage;

each of the n conversion stages of the order 1, 2, 3, . . . , i, . . . , n−1, n, comprising a comparator which, depending on the two possible results of a comparison between the two currents which are respectively applied to the comparison and refernce channels of the conversion stage of the order i by said channels of the preceding stage, is adapted to determine whether the logic level of the bit associated with said stage of the order i has one, or conversely the other, of the two values which said bit may assume and by means of the two currents compared in the conversion



stage of the order i and an auxiliary current which is equal to a fraction of the maximum current and which is applied to said stage of the order i with the aid of a corresponding auxiliary current source, to switch such a current to the comparison and reference channels of the next stage that, if and only if one bit is left whose logic level has not yet been determined, the comparator of the following stage corresponding to said bit whose level is still undetermined can then compare the input current with the sum, or conversely the difference, of the reference current applied to said conversion stage of the order i by the reference channel of the preceding stage and the auxiliary current applied to said stage of the order i with the aid of the corresponding auxiliary current source, said sum and said difference in all cases lying between the minimum current and the maximum current that can be converted, each comparison between two currents being effected by a comparison between two voltages which are proportional to said currents, and the current switching under control of the comparator being adapted to make the currents in the comparison and reference channels equal, even if there is no longer a bit whose logic level has not yet been determined;

in the output stage the comparison and reference channels are adapted to respectively receive the currents which are transferred by the comparison and reference channels of the last conversion stage of the order n;

each comparison between two voltages being realized by a comparison between potential difference across two equal resistors which are each included in one channel of each conversion stage;

depending on the two possible results of the comparison between the reference current applied to the reference channel of said stage of the order i by that of the preceding stage and the current applied to the comparison stage of the same stage of the order i by that of the preceding stage, the comparator of each conversion stage of the order is adapted to determine whether the logic level of the bit corresponding to said stage of the order i has the one, or conversely the other, of the two values which said level may assume, and to switch the auxiliary current which also corresponds to said stage of the order i to the comparison channel or, conversely, the reference channel of the following stage; and

the comparator of each conversion stage of the order i, in accordance with one or the other of the two possible results of the comparison between the reference current applied to the reference channel of said stages of the order i by that of the preceding stage and the current applied to the comparison channel of said stage of the order i by that of the preceding stage, is adapted to determine whether the logic level of the bit corresponding to said stage of the order i has the one or, converely, the other of the two values which said level may assume, and to switch said reference current to the reference channel of the following stage and the sum of said current, applied to the comparison channel of said stage of the order i by that of the preceding stage, and the auxiliary current, which also corresponds to said stage of the order i, to the comparison channel of the following stage, or, conversely, to switch the current applied to the comparison channel of said stage of the order i by the comparison channel of the preceding stage to the reference channel of the following stage and the sum of said reference current and the auxiliary current to the comparison channel of the following stage.

4,275,387

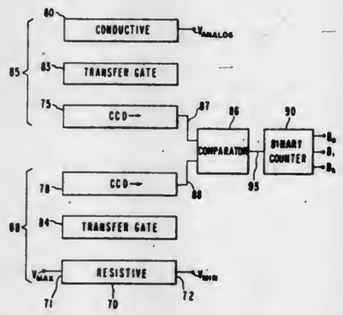
CHARGE-COUPLED DEVICE SERIAL ANALOG-TO-DIGITAL CONVERTER AND ASSOCIATED CONVERSION METHOD

Ramesh C. Varshney, Sunnyvale, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Division of Ser. No. 868,761, Jan. 12, 1978, abandoned. This application Apr. 13, 1979, Ser. No. 29,604

Int. Cl.³ H03K *13/20*

U.S. Cl. 340—347 AD **10 Claims**



1. A method of converting analog signals to digital signals with a charge-coupled device (CCD) comprising the steps of:

accumulating at least one first charge packet representative of an analog signal, including applying the analog signal to a conductive region on a CCD;

accumulating at least two second charge packets representative respectively of a like number of reference voltages, including applying a reference voltage difference across a resistive region on a CCD to generate the reference voltages;

comparing the first charge packet with each second charge packet to ascertain which charge packet is larger in each comparison;

generating a binary signal in response to each comparison to indicate which of the first and second charge packets is greater for each comparison; and

appropriately counting the binary signals to generate at least one digital signal.

4,275,388

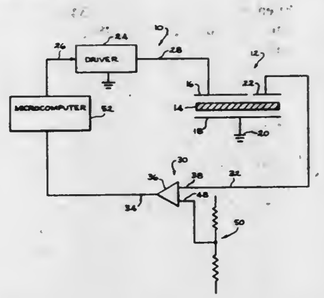
PIEZOELECTRIC AUDIBLE ALARM FREQUENCY SELF-CALIBRATION SYSTEM

Richard E. Hornung, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Filed Jan. 9, 1980, Ser. No. 110,730

Int. Cl.³ G08B *3/00*; H01L *41/04*; H04R *17/00*

U.S. Cl. 340—384 E **10 Claims**



1. A system for driving a piezoelectric transducer at an optimum frequency at which maximum output power level results, the optimum frequency known to be within a specified frequency range, said system comprising:

means for generating a feedback signal representative of transducer output power level;

a threshold detector responsive to the feedback signal and operable to generate one output signal state when the feedback signal level is below a predetermined threshold level and to generate another output signal state when the feedback signal level is above the predetermined threshold level, the predetermined threshold level selected to be lower than the maximum expected feedback signal level when the transducer is driven at the optimum frequency, and higher than the expected feedback signal level when the transducer is driven at frequencies on either end of the specified frequency range; and

a control device for periodically determining transducer optimum frequency and for driving the transducer at the optimum frequency when output is called for, said control device functional to drive the transducer at at least various frequencies within the specified frequency range for determining a pair of threshold frequency points on respective lower and upper sides of the optimum frequency, the threshold frequency points being recognized by a difference in said threshold detector output state when the transducer is driven at frequencies slightly above and slightly below each threshold frequency point, said control device functional to determine said optimum frequency as a function of said threshold frequency points, and said control device thereafter functional to drive the transducer at said optimum frequency when output is called for.

4,275,389

ELECTRICAL ASSEMBLY

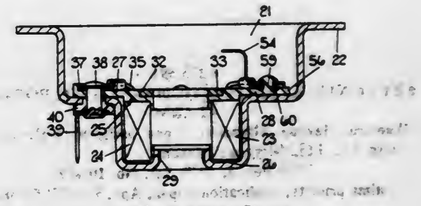
Ernest G. Hibell, Birmingham, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Oct. 18, 1979, Ser. No. 85,872

Claims priority, application United Kingdom, Nov. 1, 1978, 43854/78

Int. Cl.³ G08B *3/00*

U.S. Cl. 340—388 **16 Claims**



1. An electrical horn comprising a body a coil and associated armature mounted in said body, a diaphragm operatively connected with said armature, an electrical make-and-break mechanism mounted in said body, and means electrically connecting said make-and-break mechanism with said coil, wherein said electrical connecting means includes (a) a pair of electrically conducting members mounted in stacked relationship on an electrically insulating support member in said body (b) an electrically insulating post extending from said support member, an electrically conducting sleeve mounted on said post, said post and said sleeve extending through aligned apertures in said electrically conducting members and being deformed on the opposite side of the stack of electrically conducting members to said electrically insulating support member so as to secure said stack to said electrically insulating support member.

4,275,390

BURGLAR ALARM DEVICE

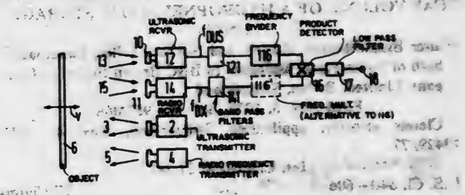
Walter Heywang, Neukeferloh; Max Gustersdorfer, Zorneding, and Peter Kleinschmidt, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 24, 1977, Ser. No. 780,806

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1976, 2613845

Int. Cl.³ G08B *13/16, 13/18, 29/00*

U.S. Cl. 340—554 **12 Claims**



1. Burglar alarm apparatus with transmitters for electromagnetic and for ultrasonic radiation respectively and with receivers for reflected electromagnetic radiation and ultrasonic radiation reflected respectively, which reflected radiations are Doppler shifted by an object moving through the radiation fields, comprising:

a demodulating electromagnetic radiation receiver for re-

ceiving the electromagnetic radiation and providing electrical signals corresponding to the Doppler frequency of the electromagnetic radiation;

a demodulating ultrasonic receiver for receiving the ultrasonic radiation and providing electrical signals corresponding to the Doppler frequency of the ultrasonic radiation; and

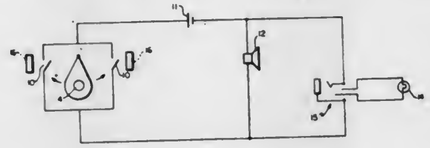
signal comparison means connected to both of said receivers and operable to produce a signal in response to the ratio of the Doppler frequency signals being determined within a predetermined tolerance width to indicate that the two Doppler frequency signals are reflected by the same object.

4,275,391

KEY CONTROLLED, POSITION SENSITIVE, PORTABLE ALARM

Okamura, Hazime, Miyazaki, Japan, assignor to Honda Lock Mfg. Co., Ltd., Miyazaki, Japan

Filed Feb. 8, 1979, Ser. No. 10,489
Claims priority, application Japan, Apr. 3, 1978, 53-38636
Int. Cl.³ G08B *13/14, 13/08*
U.S. Cl. 340—571 **5 Claims**



1. A portable alarm device comprising:

a moveable magnet in a case;

a control member settable to a hold position or a release position for respectively preventing or allowing movement of said magnet in response to movement of said case;

a locking cylinder rotatable in synchronism with said control member and actuatable to set said control member to said hold position or said release position;

an alarm circuit having magnetically sensitive switches closeable by movement of said magnet to actuate an alarm when said control member is set to said release position and said magnet moves; and

a removable key adapted to actuate said locking cylinder.

4,275,392

METHOD AND APPARATUS FOR MONITORING THE GAS VOLUME OF A HYDROPNEUMATIC STORAGE UNIT

Walter Bischofberger, Zurich, and Norbert Zeller, Ennetbaden, both of Switzerland, assignors to BBC Brown Boveri & Company Limited, Baden, Switzerland

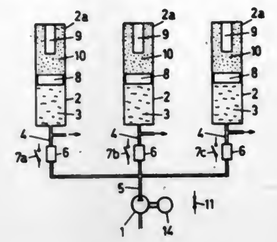
Filed Nov. 3, 1978, Ser. No. 957,068
Claims priority, application Switzerland, Nov. 4, 1977, 13429/77
Int. Cl.³ G08B *21/00*
U.S. Cl. 340—606 **17 Claims**

1. A method for monitoring a compressible fluid volume in at least one storage unit, comprising the steps of:

pumping a relatively incompressible fluid into a first portion of the at least one storage unit with a pump to compress a relatively compressible fluid within a second portion of the at least one storage unit;

sensing that the pump is functioning to generate fluid pressure;

sensing that said relatively incompressible fluid is flowing into the at least one storage unit; and,



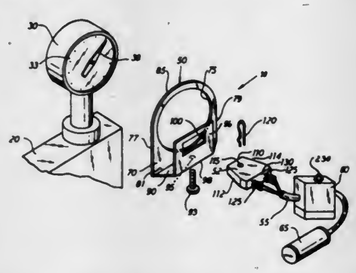
triggering an alarm whenever the flow of said relatively incompressible fluid into the at least one storage unit is interrupted while the pump is functioning.

4,275,393

METHOD AND APPARATUS FOR SENSING PRESSURE

Max M. Johnston, Russellville, Ark., assignor to Polyvend Inc., Conway, Ark.

Filed Jul. 3, 1979, Ser. No. 54,420
Int. Cl.³ G08B *21/00*; G08D *5/34*
U.S. Cl. 340—688 **2 Claims**



1. In a sensing apparatus for sensing the position of an indicator needle in a pressure gauge having an unaltered dial located behind the indicator needle, the sensing apparatus has a supporting clamp removably attachable to the gauge by a setscrew, the clamp supports a means for illumination and a light sensing means, an improvement wherein:

said clamp is formed with a planar first side with a hole therein such that the gauge is receivable within said hole, a planar base is connected at a first edge to an edge of said planar first side and is essentially perpendicular thereto, a planar second side is connected to a second edge of said base essentially parallel to said first side, said second side is positionable immediately in front of a glass cover over the indicator needle and dial of the gauge when the gauge is received within said hole in said first side, an elongated hole in said second side;

said means for illumination and said light sensing means are mounted within a shaped rigid housing and spaced with respect to one another, said housing has first and second surfaces on opposite sides thereof oriented at an angle with respect to one another;

a first region of said housing is extendable through said elongated hole in said second planar member, said first and second surfaces engage opposite edges of said elongated hole to position said housing along with said means for illumination and said light sensing means with respect to said clamp and to limit movement of said first region of said housing toward the gauge;

removable locking means to retain said housing within said elongated hole in said second planar member;

means for supplying energy connected to said means for illumination in said housing by removable connection means;

means for comparison connected to said light sensing means in said housing by said removable connection means to continuously monitor only a single indicia generated by said light sensing means, said single indicia is proportional to an amount of light generated by said means for illumination reflected off of a selected region of the unaltered dial and sensed by said light sensing means, said means for comparison compares said sensed single indicia to a preselected value, when said sensed single indicia drops below said preselected value due to the indicator needle moving between said means for illumination and the selected region of the dial, said means for comparison generates a predetermined signal;

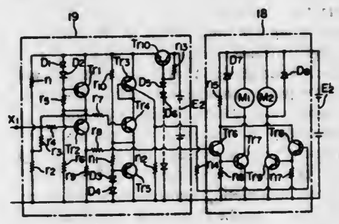
means for latching responsive to said predetermined signal to continuously energize a means for visually signaling a selected pressure condition until said means for visually signaling is manually reset.

4,275,394

RADIO CONTROL DRIVING CIRCUIT DEVICE

Kenichi Mabuchi, Matsudo, and Kozuo Komatsu, Tokyo, both of Japan, assignors to Mabuchi Motor Co. Ltd., Tokyo, Japan

Filed Sep. 11, 1979, Ser. No. 74,342
Claims priority, application Japan, Sep. 26, 1978, 53-131971[U]
Int. Cl.³ H04B *7/00*; B60K *27/00*
U.S. Cl. 340—694 **4 Claims**



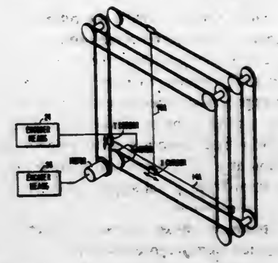
1. A radio control driving circuit for use in a model device having a radio control system including two motors respectively operating two wheels of the model device and a receiver for receiving a single radio control signal for controlling the revolution of each of the two motors, said control driving circuit comprising, power transistors of the same type respectively connected in series with each of the two motors to thereby form two series circuits, a single d-c power supply for supplying energy to said two series circuits connected in parallel with each other, and a phase division circuit for dividing the single radio control signal into two signals with a 180° phase difference with each other, said phase division circuit comprising two input transistors to which the single control signal is supplied, a constant current circuit respectively connected in series with each of said input transistors, said two input transistors respectively coupled to a corresponding power transistor such that the two signals produced by said phase division circuit and applied to said power transistors control them such that one of the power transistors is kept in the OFF state when another of the power transistors is in the ON state whereby the motors operate alternately.

4,275,395

INTERACTIVE PROJECTION DISPLAY SYSTEM

Anthony G. Dewey, and Glenn T. Sincerbox, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 847,332, Oct. 31, 1977, abandoned. This application Sep. 28, 1979, Ser. No. 79,776
Int. Cl.³ G06F *3/14*
U.S. Cl. 340—706 **9 Claims**



1. An interactive projection display system comprising:

a projection screen;

means including a light valve to provide on said screen a visible image of light rays with wavelengths within one band,

cursor means comprising first and second wires that are intersectable and independently translatable to provide on said screen a movable image of light rays with wavelengths within a different band and distinguishable from said visible image;

sensing means comprising a light pen device for detecting radiation in said different band and positionable on said screen at any one of a plurality of points on said screen, and

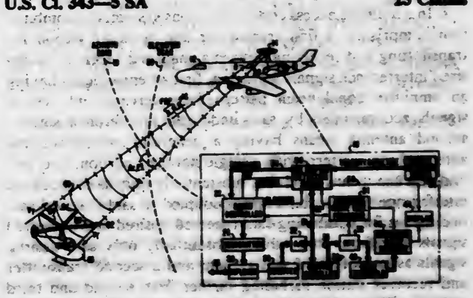
means for effecting a single translation of each wire in different intersecting directions for causing the respective portion of the movable image provided by each wire to move across the screen a single time and be sensed by said sensing means when the image of that respective wire passes through the point at which the light pen device is positioned, thereby providing a feedback signal to said system for determining the coordinate position of the light pen device.

4,275,396

HELICOPTER ROTATING BLADE DETECTION SYSTEM

Omar J. Jacomini, Box 912, Severna Park, Md. 21146

Filed Oct. 12, 1979, Ser. No. 84,220
Int. Cl.³ G01S *13/02*
U.S. Cl. 343—5 SA **23 Claims**



6. A helicopter detection system for the radar detection of helicopters having at least one rotor blade rotating within a predetermined velocity band, said system including: a radar

transmitting unit for transmitting radar energy pulses at at least one predetermined pulse repetition frequency withifi a scanning purview; a radar receiving unit for receiving transmitted radar signals which are reflected from objects within said radar transmission scanning purview, said received reflected radar signals including the doppler shift frequency signals of the corresponding reflective objects; a radar clutter filtering means coupled to said receiving unit, for rejecting substantially doppler shift frequency signals of the received signals which fall within predetermined frequency bands so as to prevent further processing of said rejected signals, the reflected doppler shift frequency signals which are representative of the body velocity of said helicopter being within at least one of said predetermined doppler shift frequency bands;

a first doppler processor operative to detect the doppler shift frequency signals representative of a helicopter blade rotating in a first direction with respect to said radar transmission at a velocity in said predetermined velocity band and to provide a first signal indicative of said detection;

a second doppler processor operative to detect the doppler shift frequency signals representative of a helicopter blade rotating in a second direction with respect to said radar transmitter at a velocity in said predetermined velocity band and to provide a second signal indicative of said detection; and

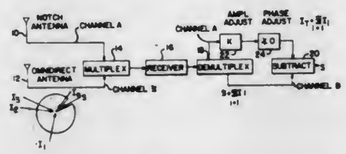
means responsive to said first and second signals to generate a third signal indicative of the presence of at least one helicopter in the scanning purview of said radar transmitter.

4,275,397

INTERFERENCE CANCELING RANDOM ACCESS DISCRETE ADDRESS MULTIPLE ACCESS SYSTEM

Frank S. Gutleber, Little Silver, N.J., assignor to The United Statesof America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 6, 1979, Ser. No. 64,160
Int. Cl.³ H04B 7/00
U.S. Cl. 343—100 CS **5 Claims**



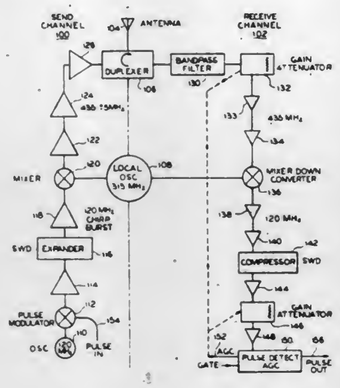
1. In a multiple access communications system, the combination comprising: a first transmitter and receiver station for transmitting and receiving desired signals and receiving undesired interference signals including, first antenna means having an omnidirectional beam pattern for receiving said desired signals accompanied by said undesired interference signals; second antenna means having a generally omnidirectional antenna beam pattern with a single notched portion, said second antenna means receiving substantially only said undesired interference signals; third means coupled to said first and second means for combining said received desired and undesired signals therefrom to produce substantially only said desired signals as an output of said system; and a second transmitter and receiver station including further first, second and third means, said second antenna means of said first and second stations being positioned with the respective notched portions directed at the source of desired signals to permit said third means to cancel said undesired interference signals.

4,275,398

FM RADIO RANGING SYSTEM

William H. Parker, and Harry T. Davidson, both of Hurst, Tex., assignors to Del Norte Technology, Inc., Euless, Tex.

Filed Apr. 6, 1979, Ser. No. 27,904
Int. Cl.³ G01S 3/02
U.S. Cl. 343—112 R **19 Claims**



1. A trilateralization position radar locating system having secondary user capabilities, said system comprising at least a master station and a stationary station, means for transmitting at least one linear and nonlimited radio ranging signal from said master station over a radio channel to said stationary station, said radio ranging signal having a predetermined repetition rate and a preprogrammed frequency change sweeping in one direction, means in said stationary station for identifying signals directed to it jointly responsive to an identification of the repetition rate and of said preprogrammed sweep of frequency, means at said stationary station responsive to the receipt of a signal identified by said repetition rate and by said preprogrammed sweep for transmitting at least one replying radio ranging signal from said stationary station to said master station with a predetermined repetition rate and with a preprogrammed frequency change sweeping in an opposite direction, and surface wave device means for causing said preprogrammed sweep of frequency change in said radio ranging signal responsive to a passage of an interrupted oscillatory signal through said device, said sweep frequency being free of superimposed modulating signals so that said transmitted signal is free of side bands, the frequency of said radio ranging signal sweeping past the frequency bands used by other and primary equipment fast enough to isolate primary and secondary user signals without causing any appreciable interference in said other and primary equipment.

4,275,399

APPARATUS FOR DETERMINING THE DIRECTION OF ARRIVAL OF APPLIED ENERGY

Emanuel Marom, Los Angeles, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 2, 1979, Ser. No. 63,010
Int. Cl.³ G01S 3/28
U.S. Cl. 343—113 R **2 Claims**

1. Apparatus for determining the direction of arrival of energy applied thereto said apparatus comprising:

a first antenna pointed along a first direction for providing electrical signals indicative of energy received thereby;

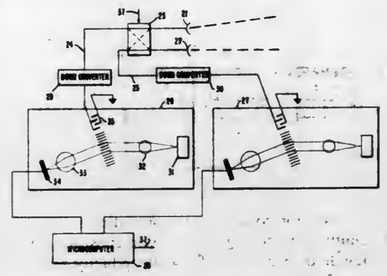
a second antenna pointed along a second direction for providing electrical signals indicative of energy received thereby;

a first integrated optic spectrum analyzer connected to receive the electrical signals provided by one of said antennas and for processing said signals so as to provide output signals which are proportional to the intensity of energy applied to said one antenna;

a second integrated optic spectrum analyzer connected to receive the electrical signals provided by the other of said antennas, and for processing said signals so as to provide output signals which are proportional to the intensity of energy applied to said other antenna;

means for switching the coupling between said antennas and said spectrum analyzers such that different antennas are repetitively, alternately coupled to each of said spectrum analyzers; and

computer means connected to receive the output signals from said first and second integrated optic spectrum analyzers, for processing said spectrum analyzer output signals and providing as a function thereof, a computer output signal indicative of the direction of arrival of energy received by said first and second antennas.

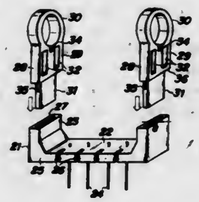


4,275,400

ANTENNA COIL AND ITS SUPPORT STRUCTURE MOUNTING

Masashi Miyakoshi, 1206 Nagata-cho, Minami-ku, Yokohama, Japan

Filed Aug. 7, 1978, Ser. No. 931,677
Claims priority, application Japan, Aug. 8, 1977, 52-106020[U]; Aug. 8, 1977, 52-106021[U]; Apr. 28, 1978, 53-58125[U]
Int. Cl.³ H01Q 1/36
U.S. Cl. 343—788 **9 Claims**



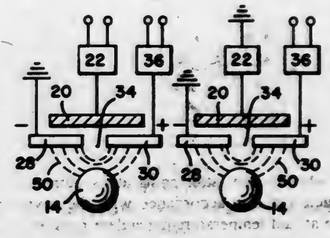
1. An antenna coil support comprising a terminal board made of heat resisting plastic, a plurality of mountings provided on, and made integral with, said terminal board, each mounting having an axial channel opening on a top end of said mounting; and antenna supporting members made separate from said terminal board and said mountings and made of a resilient material, each supporting member having an upper part comprising an antenna supporting portion and a lower part comprising a connector portion, said connector portion of each supporting member being removably engageable with said channel of a respective mounting, said connecting portion including an engagement means and an engagement latch, said engagement means fitting into said channel and preventing removal therefrom of said connecting portion, and said engagement latch passing through said channel and said terminal board and being interconnected with a printed board to secure said printed board and said antenna coil support together.

4,275,401

METHOD AND APPARATUS FOR SORTING AND DEFLECTING DROPS IN AN INK JET DROP RECORDER

James E. Burnett, Xenia, and John A. Robertson, Chillicothe, both of Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Nov. 16, 1979, Ser. No. 95,175
Int. Cl.³ G01D 15/18
U.S. Cl. 346—75 **19 Claims**



1. A particle trajectory control apparatus for use with a liquid particle producing apparatus which produces a continuous series of regularly spaced and uniformly sized particles on an initial trajectory from an orifice, comprising:

charging electrode means disposed adjacent said orifice for selectively placing a charge on some of said particles;

electric field generating electrode means disposed downstream from said charging electrode means and having a pair of oppositely charged surfaces disposed in a plane adjacent and parallel to said initial trajectory and defining a gap in said plane such that said surfaces are normal to and on opposite sides of a plane containing said initial trajectory, said charged surfaces supporting an electrical field across said gap through which said particles pass such that selectively sufficiently charged particles will be diverted from their initial trajectories;

at least one of said electrode means having an electrically conductive surface adjacent said plane containing said initial trajectory such that a self-induced image attractive force will be created between said conductive surface and selectively sufficiently charged particles so as to change the trajectories thereof; and

means for selectively producing charges of predetermined magnitude and sign on both said electrode means.

4,275,402

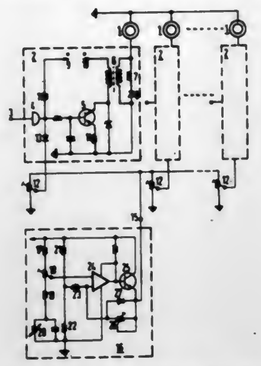
CIRCUIT ARRANGEMENT FOR TEMPERATURE-DEPENDENT VOLTAGE REGULATION OF PIEZO-ELECTRIC RECORDING NOZZLES IN INK MOSAIC RECORDING DEVICES

Hans Kern, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 26, 1979, Ser. No. 106,841
Claims priority, application Fed. Rep. of Germany, Jan. 29, 1979, 2903339
Int. Cl.³ G01D 15/18
U.S. Cl. 346—140 R **7 Claims**

1. A circuit arrangement for piezo-electric recording nozzles in ink mosaic recording devices to effect a temperature regulation of the control voltages therefor, comprising a control circuit for each recording nozzle, each control circuit including a voltage transformer circuit whose secondary inductance, together with the capacitance of the recording nozzle, forms an oscillating circuit, and a voltage divider having an adjustable resistor for setting the control voltage of the associated control circuit, a regulating circuit which is common to all

control circuits and is connected to said adjustable resistor thereof, said regulating circuit including regulating means and a temperature-dependent resistor for controlling said regulat-



ing means whereby the latter emits at its output an output voltage which varies in accordance with the environmental temperature at said temperature-dependent resistor.

4,275,403

ELECTRO-LUMINESCENT SEMICONDUCTOR DEVICE

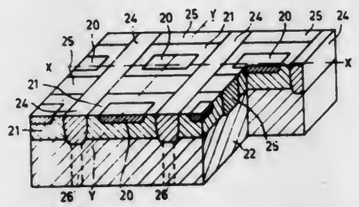
Jacques Lebailly, Caen, France, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 535,104, Dec. 20, 1974, abandoned, which is a continuation of Ser. No. 285,659, Sep. 1, 1972, abandoned, which is a continuation of Ser. No. 112,624, Feb. 14, 1971, abandoned. This application Nov. 25, 1977, Ser. No. 854,778

Claims priority, application France, Feb. 6, 1970, 70.04254; Feb. 6, 1970, 70.04255

Int. Cl.³ H01L *33/00*

U.S. Cl. 357—17 22 Claims



1. A monolithic semiconductor device comprising a semi-insulating substrate having resistivity reduced by absorption of emitted radiation, a layer of monocrystalline semiconductor material on said substrate, at least two electroluminescent elements formed separately at least partially in said layer, said electro-luminescent elements formed of two regions of different conductivity type having a pn junction between said regions, electrode means for establishing emissive radiation from said pn junctions, optical separating zones adjacent said electroluminescent elements and extending across the entire thickness of said layer to prevent emissive radiation from passing laterally in said layer, said optical separating zones having a width at least equal to three times the diffusion length of free charge carriers in said substrate.

4,275,404

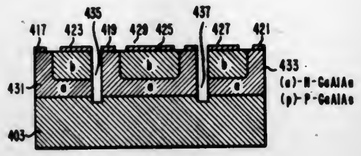
MONOLITHIC OPTO-ISOLATOR

Daniel R. Cassiday, Martinsville; Vassilis G. Keramidas, Warren; Ronald J. Roedel, Martinsville, and Robert H. Saul, Scotch Plains, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Oct. 5, 1979, Ser. No. 82,007

Int. Cl.³ H01L *31/12*

U.S. Cl. 357—19 6 Claims



1. An opto-isolator comprising an insulating substrate;
a light emitting diode disposed on said substrate, said light emitting diode consisting of a semiconductor material and having a first conductivity type region and a second conductivity type region, said regions forming a first p-n junction;
a photodetector disposed on said substrate, said photodetector consisting of a said semiconductor material and having a first conductivity type region and a second conductivity type region, said regions forming a second p-n junction, said photodetector spaced from said light emitting diode by a channel;
electrical contacts to said first and second conductivity type regions of said light emitting diode and electrical contacts to said first and second conductivity type regions of said photodetector;
characterized in that said semiconductor material has a graded bandgap, and said photodetector and said light emitting diode are optically coupled by said channel, said channel extending into said substrate.

4,275,405

SEMICONDUCTOR TIMING DEVICE WITH RADIOACTIVE MATERIAL AT THE FLOATING GATE ELECTRODE OF AN INSULATED-GATE FIELD-EFFECT TRANSISTOR

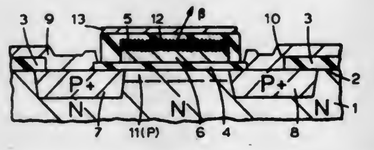
John M. Shannon, Salfords, near Redhill, England, assignor to Mullard Limited, London, England

Continuation of Ser. No. 633,118, Nov. 18, 1975, abandoned, which is a continuation of Ser. No. 433,802, Jan. 16, 1974, abandoned. This application Nov. 16, 1976, Ser. No. 742,211

Claims priority, application United Kingdom, Oct. 11, 1973, 3173/73

Int. Cl.³ H01L *29/78, 29/34;* G01T *1/24;* G04C *3/00*

U.S. Cl. 357—23 11 Claims



1. An insulated-gate field-effect device comprising a semiconductor body portion, a gate region spaced from the semiconductor body portion by insulating material so that, by field effect action across the insulating material, the charge state of the gate region influences a channel in which charge carriers can be made to flow in the semiconductor body portion under the gate region, and radioactive material which decays by emitting charged nuclear particles, the radioactive material being in the gate region so that emitted particles transport charge from the gate region to progressively change with time the charge state of the gate region and the conductance in the channel.

4,275,406

MONOLITHIC SEMICONDUCTOR PRESSURE SENSOR, AND METHOD OF ITS MANUFACTURE

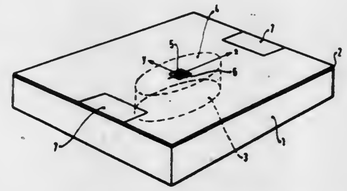
Bernt Müller, and Ulrich Theden, both of Berlin, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Apr. 3, 1979, Ser. No. 26,743

Claims priority, application Fed. Rep. of Germany, Sep. 22, 1978, 2841312

Int. Cl.³ H01L *27/20*

U.S. Cl. 357—26 11 Claims



1. Monolithic semiconductor pressure sensor comprising
a substrate (1) forming a support, formed with a cavity (3) therein;
a membrane (4) of semiconductor material spanning the cavity, and flexing when subjected to pressure, and thereby changing its electrical conductivity due to piezo-resistive effect; and
electrical piezo-resistive sensing means (R_1-R_4; T_1-T_4) sensing strain in the membrane (4),
wherein, in accordance with the invention, the membrane (4) in plan view has an elliptical shape.

4,275,407

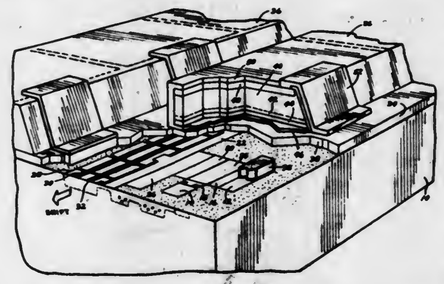
DURABLE INSULATING PROTECTIVE LAYER FOR HYBRID CCD/MOSAIC IR DETECTOR ARRAY

Robert V. Lorenze, Jr., Westford, Mass., assignor to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 829,746, Sep. 1, 1977, Pat. No. 4,196,508. This application Oct. 15, 1979, Ser. No. 84,975

Int. Cl.³ H01L *27/14, 29/78*

U.S. Cl. 357—30 4 Claims



1. A hybrid focal plane comprising:
a semiconductor substrate having solid state signal processing circuitry therein proximate a first surface;
a passivation layer over the first surface;
an insulator over the passivation layer, the insulator layer being of a material different than that of the passivation layer and having an essentially planar surface;
a plurality of contact pads surrounded by the insulator layer and exposed at the essentially planar surface, the contact pads extending from the essentially planar surface through the insulator layer to provide electrical contact to the solid state signal processing circuitry;
a plurality of detectors mounted on the essentially planar surface; and
electrical interconnects intercommecting the detectors with the contact pads.

4,275,408

THYRISTOR

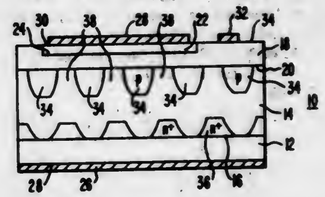
Yoshinori Yukimoto, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 3, 1980, Ser. No. 165,480

Claims priority, application Japan, Jul. 9, 1979, 54-87616

Int. Cl.³ H01L *29/74*

U.S. Cl. 357—38 5 Claims



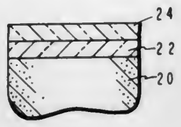
1. A thyristor comprising a body of semiconductor material, said body having major opposed top and bottom surfaces, a first emitter region of a first type conductivity, a first base region of a second type conductivity adjacent to said first emitter region, a p-n junction between said first emitter region and said first base region, a second base region of the first type conductivity adjacent to said first base region, a p-n junction between said first and said second base region, a second emitter region of the second type conductivity adjacent to said second base region, a p-n junction between said second base region and said second emitter region, a first metal electrode in an ohmic electrical contact relationship with said first emitter region, a second metal electrode in an ohmic electrical contact relationship with said second emitter region, a third metal electrode in an ohmic electrical contact relationship with one of said base regions, a plurality of gate regions having said second type of conductivity spaced apart of predetermined intervals on said p-n junction between said second base region and said first base region and protruding into said base region a predetermined distance, said predetermined distance being less than the thickness of said second base region, a plurality of highly doped regions having said second type of conductivity disposed at predetermined intervals along the p-n junction between said second emitter region and the second base region and protruding into said second base region a predetermined distance, said predetermined distance being less than the thickness of said second base region, said highly doped regions being vertically aligned with the intervals between said gate regions.

4,275,409

PHOSPHORUS-NITROGEN-OXYGEN COMPOSITION AND METHOD FOR MAKING SUCH COMPOSITION AND APPLICATIONS OF THE SAME

Pei-Ching Li, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 772,804, Feb. 28, 1977, Pat. No. 4,172,158. This application May 25, 1979, Ser. No. 42,400
Int. Cl.[3] H01L *29/40, 29/34, 23/30*
U.S. Cl. 357—54 11 Claims



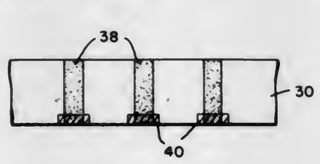
1. A semiconductor electronic structure comprising a silicon body having semiconductor devices therein and a coating composed of phosphorus-nitrogen-oxygen over at least a portion of one surface thereof.

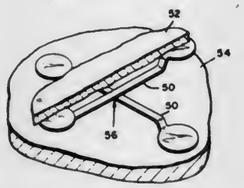
4,275,410

THREE-DIMENSIONALLY STRUCTURED MICROELECTRONIC DEVICE

Jan Grinberg; Alexander D. Jacobson, both of Los Angeles, and Kuen Chow, Thousand Oaks, all of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 29, 1978, Ser. No. 964,547
Int. Cl.[3] H01L *23/48*
U.S. Cl. 357—68 6 Claims





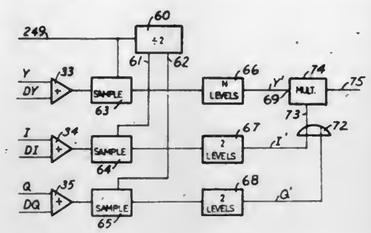
1. A three-dimensional microelectronic device comprising:
a plurality of stacked integrated circuit wafers, each comprising two dimensionally arrayed computing cells and each having top and bottom surfaces;
data bus lines contacting said cells and identically extending among all said wafers through and between each of said wafers for operating simultaneously on the parallelly transmitted data for processing thereof;
means in said wafers for transferring the parallelly transmitted data through said wafers; and
means on the surfaces of adjacent wafers interconnecting their respective cells with a topological one-to-one correspondence into an electronic function.

4,275,411

DITHER-QUANTIZED SIGNALLING FOR COLOR TELEVISION

Bernard Lippel, 39 Fairway Ave., West Long Branch, N.J. 07764

Filed Apr. 19, 1978, Ser. No. 897,860
Int. Cl.[3] H04N *9/32, 9/493*
U.S. Cl. 358—13 21 Claims



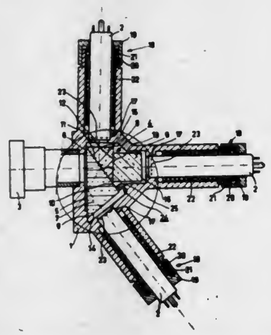
1. A television transmitter including
means for resolving a colored input picture into plural component pictures;
means for representing each component picture by a plurality of video signals, the amplitude of each signal varying substantially in proportion to component intensity in successive picture elements arranged in a predetermined scanning sequence;
means for combining one of said video signals with predetermined dither to obtain a first sum;
means for approximating with plural quantizing levels separate successive samples of the first sum;
means for combining another video signal with predetermined dither to obtain another sum;
means for approximating with two quantizing levels samples of said other sum; and
means for generating and transmitting quantized composite samples wherein the magnitude of a composite sample corresponds to an approximated sample of the first sum and its algebraic sign corresponds to an approximated sample of the other sum.

4,275,412

TELEVISION CAMERA

Cornelis J. Contant, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 9, 1979, Ser. No. 65,025
Claims priority, application Netherlands, Oct. 24, 1978, 7810582
Int. Cl.[3] H04N *5/64*
U.S. Cl. 358—55 7 Claims



7. A televison camera comprising a plurality of pickup elements positioned relative to a pickup lens by means of a holder,

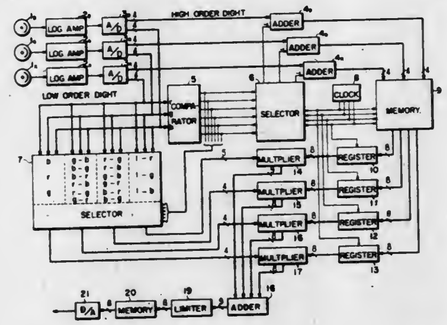
said holder having a reference face, further comprising a color splitting prism system, a front face of which is attached to the reference face of the holder, said prism system comprising at least a first prism CHARACTERIZED IN THAT the first prism is positioned in the holder by means of an abutment element attached to the holder, said abutment element engaging at least one optically flat prism face of the first prism at a number of points along a contact line which is at least substantially parallel to the front face.

4,275,413

LINEAR INTERPOLATOR FOR COLOR CORRECTION

Takashi Sakamoto, 25-1 Akesawa-Cho, Nishino Yamashina-ku, Kyoto-shi, and Akira Itooka, 26 Kamiyanagi-cho, Hirano Kita-ku, Kyoto-shi, both of Japan

Continuation-in-part of Ser. No. 891,536, Mar. 30, 1978. This application Jul. 3, 1979, Ser. No. 54,402
Int. Cl.[3] G03F *3/08*
U.S. Cl. 358—80 11 Claims



1. A color scanning apparatus utilizing a linear interpolating method for color signals in a memory comprising:
means for producing color separated signals (B), (R), and (G) by photoelectrically scanning an original picture;
means for converting said color separated signals to those of logarithmic values;
means for converting said logarithmic value signals to digital signals and for separating each of said digital signals into two sets of four bit address signals, one set of which is an address signal for calling color corrected signals of four bits of the higher order (for R, G and B) and the other set of which is for the lower order bits (for r, g and b);
a comparator for comparing the relative magnitudes of said lower four bit address signals and generating an output signal which is a function of said relative magnitudes;
means for monitoring the comparator output signals and determining, as a function of said relative magnitudes, to which address four bit higher order color corrected signals the quantity one is to be added;
memory means for preliminarily storing said color corrected signals corresponding to all combinations of said four bits in the higher order address signals;
means for calculating four sets of coefficients (1-r, 1-g, 1-b), (r-g, r-b, g-b, g-r, b-r, b-g), (g-b, b-g, b-r, r-b, r-g, g-r) and (b, r, g), from the lower order four bit signals and for selecting four coefficient signals from said four sets of coefficients as a function of said comparator output signals;
a plurality of multipliers multiplying each of said coefficient signals by each of the corresponding color corrected signals stored in said memory; and
an adder for adding higher order bits obtained by the multiplication of said signals in said multipliers.

4,275,414

TUBE PLUG WELD INSPECTION APPARATUS

George W. Norris, Wilkins Twp., Allegheny County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jan. 4, 1979, Ser. No. 932
Int. Cl.[2] H04N *7/18*
U.S. Cl. 358—100 5 Claims



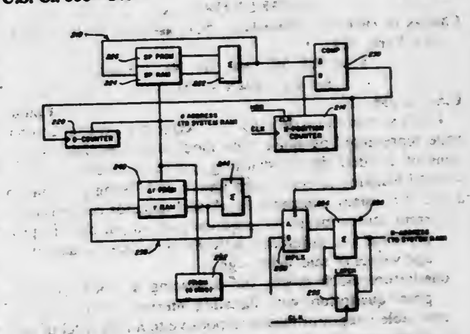
1. Apparatus for inspecting annular weld areas, comprising:
a television camera having a circular camera tube input face and a circular camera input lens means in front of said input face;
an annular image transformation lens having at least one optical surface rounded in transverse cross section for radialwise magnification of annular areas of observation; and
mounting means attaching said image transformation lens in coaxial spaced-apart relationship with said camera input lens means.

4,275,415

SCAN CONVERTER

Gary L. Eagle, Fair Oaks, Calif., assignor to Litton Industrial Products, Inc., Beverly Hills, Calif.

Filed Nov. 13, 1978, Ser. No. 960,212
Int. Cl.[2] H04N *5/02*
U.S. Cl. 358—140 5 Claims



1. In an imaging system of the type wherein a plurality of energy pulses are launched along respective generally radial paths in a region to be examined and reflections from discontinuities in the paths are received, the system being of the type including
video display means including a matrix of video picture

elements and means for scanning successive lines of the matrix, and

a system memory having addressable locations for storing input data in an R-θ format wherein the R co-ordinate is indicative of elapsed time between a pulse launching and reflection sampling and wherein the θ co-ordinate is indicative of the particular radial path sampled,

a scan converter for accessing the system memory locations in a sequence compatible with the scan pattern of the video display means, the scan converter comprising:

θ-co-ordinate address means responsive to respective trigger signals to sequentially address the data sets of the radial lines;

first memory means responsive to the θ-co-ordinate address means for storing switch point values indicative of the respective scan positions of the video scan means along a video line at which the data sets of a respective successive radial line is to be addressed;

means responsive to the scanning of a reference video line for initializing the switch point values in accordance with respective intersection positions of the displayed radial lines and the reference video line;

second memory means responsive to the θ-co-ordinate address means for producing first increment values respectively indicative of the changes in displayed intersection positions of the radial lines with succeeding video lines;

first summing means for updating the switch point values in accordance with the respective increments subsequent to the scanning of the switch point position;

third memory means responsive to the θ-co-ordinate address means for producing values related to respective radial distances along the radial lines;

means responsive to the scanning of a reference video line for initializing the radial distance values in accordance with the distance from the origin of the radial paths to the paths intersections with the reference video line;

fourth memory means responsive to the θ-co-ordinate address means for producing second increment values respectively indicative of radial length changes in the displayed intersection positions of the radial line with succeeding video lines;

second summing means for updating the radial distance values in accordance with respective increment values subsequent to the scanning of a respective switch point; and

comparator means for producing the trigger signal indicative of the crossing of a switch point by the video scan means.

4,275,416

PCM DETECTOR

Charles B. Dieterich, Plainsboro, N.J., assignor to RCA Corp., New York, N.Y.

Filed Feb. 28, 1980, Ser. No. 125,641
Int. Cl.³ H04N 9/493, 7/08
U.S. Cl. 358—147 6 Claims

4. In a synchronous detector for recovering a digital control code represented by pulse code modulated luminance variations of a video signal occurring during selected lines of a vertical blanking interval, each line of code being adjacent to a line of constant luminance level, said detector comprising:

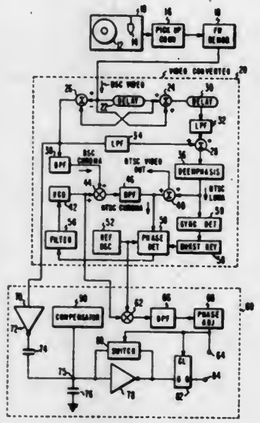
current source means for producing an output current proportional to a difference between instantaneous and average values of said video signal;

quadrature clock means for producing a clock signal in phase quadrature with signaling intervals of said code;

resettable integrator means responsive to a first level of said clock signal for integrating said current and producing an output voltage representative of the integral thereof and responsive to a second level of said clock signal for resetting and changing said output voltage to a reference level;

memory means having an input threshold level substantially equal to said reference level and responsive to the output voltage of said integrator means and to said clock signal for assuming a first logic state upon a transition of said clock signal of a given sense when said output voltage is greater than said threshold level and for assuming a second logic state upon said transition of said given sense when said output voltage is less than said threshold level; and wherein

one luminance level of said code is substantially equal to said average value of said video signal and another luminance level of said code is substantially different from said average value whereby peak-to-peak excursions of the output voltage of said integrator means tend to be asymmetrical



with respect to said threshold level of said memory means resulting in an unequal probability of detection of said luminance levels, the improvement for equalizing said peak-to-peak excursions of said integrator output voltage with respect to the threshold level of said memory means, comprising:

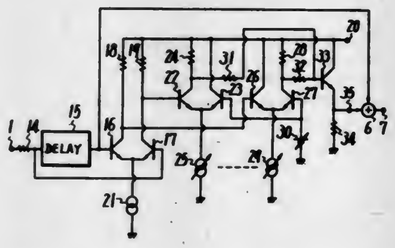
charge source means for supplying a charge to said integrator means when said clock signal is at said first level, said charge being supplied in a sense to augment the output current produced by said current source means for said one luminance level of said code.

4,275,417

APERTURE CORRECTION SIGNAL PROCESSING CIRCUIT

Tadashi Esashika, Atsugi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Feb. 11, 1980, Ser. No. 120,534
Claims priority, application Japan, Feb. 15, 1979, 54/16550
Int. Cl.³ H04N 5/14
U.S. Cl. 358—162 8 Claims



1. An aperture correction signal processing circuit comprising:

first and second differential amplifier stages, each consisting of first and second amplifying devices and each amplifying device having input, output and common electrodes;

means for providing a first aperture correction signal and a second aperture correction signal, said second aperture correction signal being polarity-inverted signal of said first aperture correction signal;

means for supplying said first and second aperture correction signals respectively to the input electrodes of the first amplifying devices of said first and second differential amplifier stages;

means for electrically connecting the input electrodes of the second amplifying devices of said first and second differential amplifier stages;

means for applying a bias voltage to the input electrodes of said second amplifying devices of the first and second differential amplifier stages;

means for changing said bias voltage;

first output means coupled to the output electrode of the first amplifying device of one of said first and second differential amplifier stages;

second output means coupled to the output electrode of the second amplifying device of the other of said first and second differential amplifier stages; and

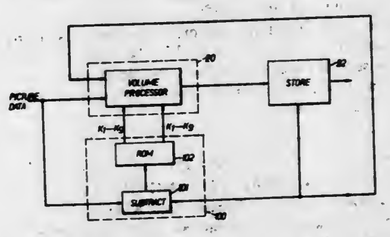
means for adding output signals from said first and second output means.

4,275,418

VIDEO NOISE REDUCTION SYSTEMS

Martin R. Trump; Peter C. Michael, both of Newbury, and Richard J. Taylor, London, all of England, assignors to Micro Consultants Limited, Berkshire, England

Filed Sep. 10, 1979, Ser. No. 73,762
Claims priority, application United Kingdom, Sep. 14, 1978, 36839/78
Int. Cl.³ H04N 5/21
U.S. Cl. 358—167 13 Claims



1. A video noise reduction system for incoming video information derived from a plurality of picture points, said system comprising:

first processing means for synthesising each picture point from incoming picture point information from adjacent picture points to provide noise reduced picture information;

storage means for storing picture point information from at least one frame;

second processing means for synthesising each picture point from incoming and stored picture point information from the corresponding picture point from a current and at least one earlier frame to effect noise reduction; and

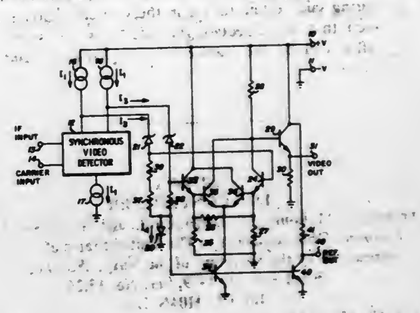
detector means for detecting on each portion of the picture any movement between pictures to allow processing by said first processing means during portions of the picture when the picture information is moving and by said second processing means during portions of the picture when the picture information is stationary.

4,275,419

VIDEO AMPLIFIER WITH NOISE INVERSION

Milton E. Wilcox, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Feb. 28, 1980, Ser. No. 125,605
Int. Cl.³ H04N 5/44
U.S. Cl. 358—167 5 Claims



1. A video amplifier circuit comprising:

synchronous detector means having a pair of video signal outputs, said detector means normally supplying opposite phase video signals and having the characteristic of producing impulse noise outputs of a polarity opposite to that of said video signals;

first differential amplifier means having a pair of inputs coupled to said detector means outputs and a single-ended output which provides an amplified video signal;

level-shifting means connected between said detector means and said first differential amplifier means inputs;

second differential amplifier means having a pair of inputs coupled to said first differential amplifier means and cross-connected outputs coupled to said output of said first differential amplifier; and

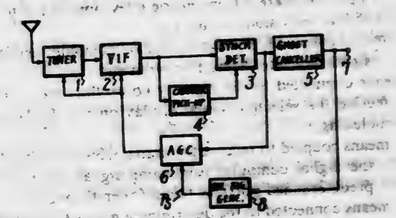
means within said level-shifting means for providing quiescent bias in said first differential amplifier means, whereby said second differential amplifier means is inactive except when said opposite polarity noise outputs are present.

4,275,420

TELEVISION RECEIVER WITH A GHOST DETECTOR

Hisafumi Yamada; Masaharu Tokuhara, and Chosi Kuriki, all of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 20, 1980, Ser. No. 132,143
Claims priority, application Japan, Mar. 29, 1979, 54-40977[U]
Int. Cl.³ H04N 5/21
U.S. Cl. 358—167 6 Claims



1. A television receiver comprising:

(A) television signal receiving means including RF and IF stages;

(B) a video detector connected to said television signal receiving means;

(C) an AGC circuit connected between said video detector and said television signal receiving means for automati-

cally controlling the gain of the latter, said AGC circuit having a predetermined time constant;

(D) a ghost detector connected to said video detector for detecting a ghost signal during a certain period in a vertical blanking period of the video signal from said video detector; and

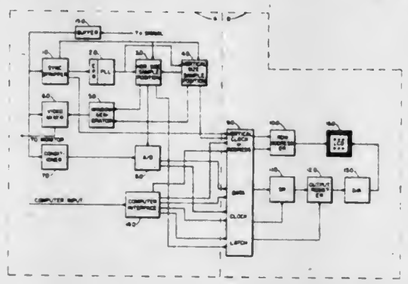
(E) switching means for switching said AGC circuit at least during said certain period in the vertical blanking period such that the detected ghost level is not substantially influenced by the transient level change of said AGC circuit.

4,275,421

LCD CONTROLLER

Anthony C. H. Louie, San Diego, Calif., and Stephen H. Young, Fairborn, Ohio, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 26, 1979, Ser. No. 15,269
Int. Cl.³ H04N 5/22
U.S. Cl. 358—183 **18 Claims**



1. An apparatus for selectively visually displaying analog television and digital computer originating signals on a display panel having rows and columns of display elements comprising:

means for digitally controlling the selective visually displaying including;

means coupled to receive the television originating signals for extracting vertical and horizontal sync pulses,

means coupled to the extracting means for generating horizontal element clock pulses,

means coupled to receive the clock pulses from the generating means for determining what portion of the television signals are to be displayed,

means coupled to the determining means and to receive the television originating signals for converting at least a portion thereof from analog television signals to serial digital television signals, and

means coupled to receive the digital computer originating signals for interfacing therewith and

means connected to the digitally controlling means for effecting the selective visual display on the display panel including;

means coupled to receive the digital television signals and the digital computer originating signals for switching predetermined portions thereof therethrough,

means connected to the determining means for storing the switched signals a predetermined time,

means connected to the storing means for reconverting the switched signals from digital to analog form, and

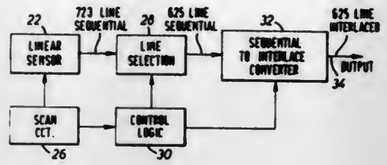
means connected between the determining means and the display panel for selectively enabling certain rows at one time of the display elements to display the analog form of the switched signals.

4,275,422

TELECINE MACHINES

George M. Le Couteur, "Aldebaran", Rocquaine, St. Pierre du Bois, Guernsey, Channel Islands

Filed Nov. 9, 1978, Ser. No. 959,172
Claims priority, application United Kingdom, Nov. 14, 1977, 47225/77
Int. Cl.³ H04H 3/36, 7/18
U.S. Cl. 358—214 **11 Claims**



1. A telecine machine, comprising:

a linear light sensor array;

a light source;

drive means for moving film at a constant rate between said light source and said sensor array in a direction substantially perpendicular to a plane containing said sensor array;

optical means for imaging an illuminated section of film on said sensor array; and

electronic means for deriving a television signal from said sensor array and for converting said signal from sequential to interlace form;

wherein the improvement consists in that:

said electronic means comprises first signal rate providing means for providing a first sequential-type non-standard television signal obtained by driving and scanning the film at a rate related to the film frame rate and film utilization ratio,

second signal rate providing means for electronically converting said first signal to provide a second interlaced-type standard television signal having a lower line rate from said first signal, and

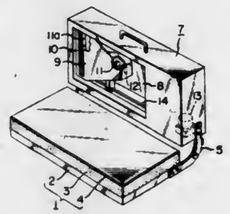
wherein said first signal rate providing means is arranged to scan the film at a line rate which bears to the line rate of the second signal substantially the same ratio as the television picture utilization ratio bears to the film frame height utilization ratio.

4,275,423

ORIGINAL READING DEVICE

Tohru Takahashi, Tokyo; Tadashi Sato, Kokubunji, and Hirotoshi Kishi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 24, 1980, Ser. No. 133,478
Claims priority, application Japan, Mar. 27, 1979, 54-35894
Int. Cl.³ H04M 1/04; H04H 1/10
U.S. Cl. 358—285 **5 Claims**



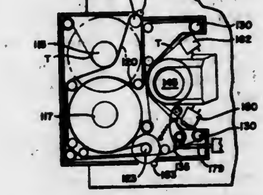
1. An original reading device for reading an original, comprising an original supporting portion on which an original rests with the original surface thereof to be read facing upwardly, a transparent plate provided on the original supporting surface side of said original supporting portion, original illuminating means provided on that side of said transparent plate which is opposite to the original, a photoelectric converting element, optical means for directing to said converting element the original image illuminated by said illuminating means, means for causing said optical means to scan with respect to the original surface, and a machine housing vertically movable relative to said original supporting portion and accommodating therein said transparent plate, said illuminating means, said optical means and said converting element.

4,275,424

SCANNING TYPE MAGNETIC RECORDER AND CASSETTE

Alexander R. Maxey, Palo Alto, Calif., assignor to Arvin Industries, Inc., Columbus, Ind.

Continuation-in-part of Ser. No. 945,421, Sep. 25, 1978, Pat. No. 4,179,717, which is a continuation-in-part of Ser. No. 874,118, Feb. 1, 1978, Pat. No. 4,139,873. This application Jul. 5, 1979, Ser. No. 55,208
Int. Cl.³ G11B 15/66, 23/10
U.S. Cl. 360—85 **11 Claims**



1. A scanning type magnetic tape recorder comprising:

a deck,

a rotatable scanning assembly mounted on said deck and including at least one transducer,

at least one capstan mounted on said deck in spaced relation to one side of said scanning assembly,

means connected to rotate said transducer and said capstan at correlated speeds,

a receiver for a tape cassette; and

a cassette having a supply hub and a take-up hub in spaced relation and containing a quantity of tape therebetween,

said cassette having an opening at one end of a size to fit around said scanning assembly,

a drive belt passing in contact with portions of the tape wound on both said hubs,

guides in said cassette locating a length of the tape between said hubs away from said belt and across said opening in position to form a turn around said scanning assembly in response to placement of said cassette on said deck,

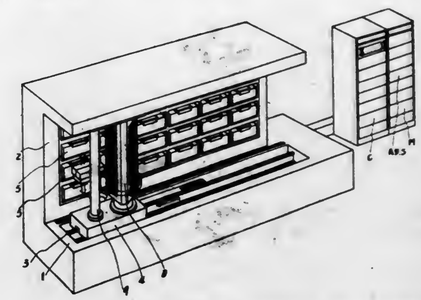
and a first roller guiding a length of said belt where separated from said tape to one side of said opening for driving by said one capstan.

4,275,425

SYSTEM FOR AUTOMATICALLY TRANSFERRING INFORMATION MEDIA

Takeo Watanabe, Suita; Tadashi Kubota, and Akio Yamagami, both of Kstano, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 28, 1979, Ser. No. 98,036
Claims priority, application Japan, Nov. 29, 1978, 53-148369
Int. Cl.³ G11B 15/68
U.S. Cl. 360—92 **3 Claims**



1. In a system for automatically transferring information media, the improvement comprising:

a stocker accomodating a plurality of information media as arranged in a vertical direction for delivering and receiving the media;

a rack accomodating a plurality of reproduction units arranged at least in a horizontal direction and adapted to reproduce the information recorded on the media;

handling means having an information media receiving head turnable and vertically movable and movable toward or away from the stocker and the reproduction units, for transferring the media between the stocker and the reproduction units in the rack; and

carriage means supporting the stocker and the handling means and horizontally movable to bring the receiving head to a position opposed to any one of the reproduction units in the rack.

4,275,426

FLOPPY DISC DRIVE

Paul R. Hoffman, Exton, Pa., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Mar. 12, 1979, Ser. No. 19,901
Int. Cl.³ G11B 5/016, 5/54, 25/04
U.S. Cl. 360—99 **6 Claims**

1. A floppy disc drive assembly, with direct rotational drive, the drive assembly being contained within a housing, characterized by:

a step motor comprising a base plate which is a portion of such housing, such plate having a plurality of pairs of tabs integral therewith;

a plurality of fixed pole pairs, each pole including a coil surrounding one of said tabs such that said tabs form pole pieces;

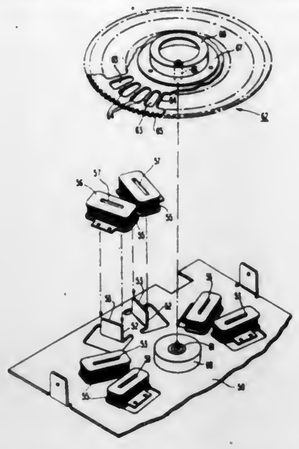
means for controlling the energization of said coils;

receiving means on said base plate centrally located relative to said pole pairs;

a disc armature mounted in and rotatable in said receiving means, said disc having a predetermined number of radial web elements of dimensions corresponding to that of said pole pieces, and at predetermined angular positions;

the relative positions of said pole pairs and said disc armature

webs being such that only a pair of said webs is in registration with only a pair of said pole pieces at a time, whereby



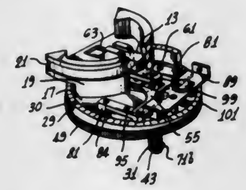
sequential energization of said poles enables operation of said motor.

4,275,427

TRANSDUCER POSITIONING APPARATUS

James Bjordahl, Arcadia, Calif., assignor to BASF Aktiengesellschaft, Rheinland-Pfalz, Fed. Rep. of Germany

Filed Jan. 23, 1978, Ser. No. 871,238
Int. Cl.³ G11B *5/55, 21/10, 21/12*
U.S. Cl. 360—106 **16 Claims**



1. Apparatus for positioning a transducer head relative to a series of parallel tracks on a recording medium, said apparatus comprising:

a frame having means for guiding the recording medium along a predetermined path;

a cam mounted for movement on said frame, said cam having a plurality of planar steps formed therein, each of said steps corresponding to a separate track on the recording medium;

a lever having a pivot end, a mid-portion and a remote end;

means for mounting the pivot end of said lever to said frame for pivotal movement with respect thereto, with the remote end of said lever bearing on the steps of said cam; and

means coupled to the mid-portion of said lever for supporting said transducer head, said supporting means including

a platform to carry said transducer head,

means for urging said platform to engage the mid-portion of said lever, and

alignment means for maintaining a fixed angular orientation of said platform relative to said frame, whereby pivotal movement of said lever relative to said frame effects a corresponding translational movement of said platform;

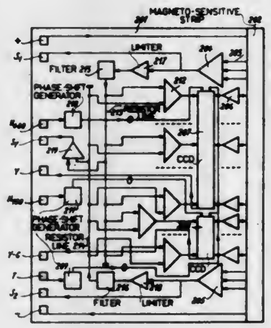
wherein movement of said cam effects a stepping movement of the remote end of said lever and, likewise, a stepping movement, of lesser magnitude, of said transducer head, to move the head along the surface of the recording medium and thereby position the head relative to the tracks on the recording medium with a precision greater than that with which the planar steps of said cam are formed.

4,275,428

MULTITRACK MAGNETIC READING HEAD

Jean-Claude Lehureau, Paris, France, assignor to Thomson-CSF, Paris, France

Filed Dec. 10, 1979, Ser. No. 101,503
Claims priority, application France, Dec. 8, 1978, 78 34648
Int. Cl.³ G11B *5/30, 5/38, 5/28*
U.S. Cl. 360—113 **4 Claims**



1. A multitrack magnetic reading head for simultaneously reading on a magnetic tape of a group of parallel tracks recorded longitudinally on said tape, wherein it comprises:

a substrate for the large scale integration of the elements of the head and having a rectilinear edge for bearing on the tape to be read;

a magneto-sensitive strip deposited along said rectilinear edge for supplying a group of electrical signals under the action of said tracks;

a first circuit for processing at least that electrical signal which corresponds to a first of the said tracks adjacent to one of the edges of the tape and for supplying a first pure sinusoidal signal;

a second circuit for processing at least that electrical signal corresponding to the last of the said tracks adjacent to the other edge of the tape and for supplying a second pure sinusoidal signal, which is phase-displaced relative to the first sinusoidal signal, the phase variation between said two sinusoidal signals measuring the skew of the head relative to the tape;

a system of amplifiers for respectively amplifying those electrical signals which are not processed in the first and second circuits to a level permitting the charging of a charge-coupled device;

at least one charge-coupled device of the parallel-series type provided with a system of input gates for receiving in parallel via the said gates at least one group of electrical signals amplified by said amplifiers and restoring them to series form at the rate of a first timing signal;

a first resistive line energized at one end by the first circuit;

a second resistive line located parallel to the first resistive line and energised by the second circuit at its end opposite to the end of the first line energized by the first circuit; and

a system of comparators connected to the resistive lines in a staggered manner for determining the sign change of the potential difference applied between the resistive lines by

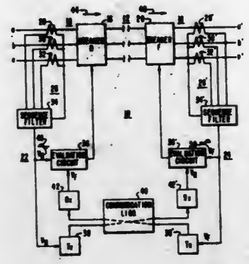
the first and second circuits and for successively opening the said input gates of the said charge-coupled device.

4,275,429

PROTECTIVE RELAY APPARATUS

Larry L. Church, Washington Twsp., Fayette County, and Shan C. Sun, Bell Twsp., Westmoreland County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 12, 1979, Ser. No. 84,218
Int. Cl.³ H02H *3/00, 7/26*
U.S. Cl. 361—64 **6 Claims**



1. A protective relay system for providing pilot protection for an alternating current transmission line section having circuit interrupting means at its near and far ends to be protectively controlled, comprising:

line current deriving means at the near and far ends of the line section, providing near and far composite sequence signals responsive to the magnitudes and phases of the line current at the near and far ends, respectively,

communication means communicating the far signal to the near end,

first means providing a first decision signal in response to said near and far signals which is true when the phasor difference between them exceeds a predetermined magnitude,

second means providing a second decision signal in response to said near and far signals which is true when the phase angle between them is in a predetermined range,

third means providing a third decision signal in response to said near and far signals which is true when the magnitude of the near signal divided by a predetermined constant exceeds the magnitude of the far signal;

and fourth means providing a trip signal for the circuit interrupting means at the near end when the first and second decision signals are simultaneously true, and also when the third decision signal is true.

4,275,430

DV/DT PROTECTION CIRCUIT DEVICE FOR GATE TURN-OFF THYRISTOR

Nagataka Seki, Fuchu, and Yukio Watanabe, Ikou, both of Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki, Japan

Filed Dec. 21, 1977, Ser. No. 863,047
Claims priority, application Japan, Dec. 25, 1976, 51-156945
Int. Cl.³ H02H *7/10*
U.S. Cl. 361—91 **1 Claim**

1. A dv/dt protection circuit device for a gate turn-off (GTO) thyristor which has a gate, an anode and a cathode and which is turned on in response to a gate turn-on signal and turned off in response to a gate turn-off signal from a gate turn-off (GTO) signal source, said circuit device comprising:

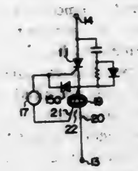
a snubber circuit connected in parallel with said GTO thyristor;

a saturable reactor connected in series with said GTO thyristor and saturated by a load current flowing through said gate turn-off (GTO) thyristor and said saturable reactor; and

means for restoring said saturable reactor to a nonsaturated condition;

wherein said saturable reactor is constituted by a ring core, a first conductor coupled to said anode of said GTO thyristor passing through said ring core, said load current flowing through said first conductor;

wherein said restoring means includes a second conductor



passing through said ring core, said second conductor coupling said gate of said GTO thyristor to said gate turn-off signal source; and

wherein a gate turn-off current from said gate turn-off signal source flowing in said second conductor produces a magnetic flux in said ring core which opposes the magnetic flux produced in said ring core by said load current flowing said first conductor;

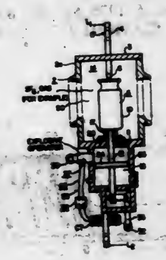
whereby said circuit device controls the dv/dt applied to said GTO thyristor at the time of turn-off.

4,275,431

HIGH-VOLTAGE SINGLE-SHOT CIRCUIT-PROTECTING DEVICE WITH FUSE-LIKE CHARACTERISTICS AND HAVING A CHEMICAL OPERATING MECHANISM

Raymond F. Swoish, Murrysville, and John J. Astleford, Jr., Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 27, 1978, Ser. No. 881,954
Int. Cl.³ H02H *3/00;* **H01H** *33/82, 73/00*
U.S. Cl. 361—93 **8 Claims**



6. A circuit-protector, comprising:

(a) means defining a generally-cylindrical insulating casing;

(b) means defining a generally-cylindrical operating mechanism casing generally constituting an extension of the aforesaid insulating casing and disposed generally on the same axis thereof;

(c) a pair of separable contacts disposed within said cylindrical insulating casing, one of which is a movable contact;

(d) an operating rod extending through one end of the insulating casing and being affixed to the movable contact at one end and a driving piston at the other end thereof, with the driving piston reciprocally operable within said extended cylindrical operating cylinder;

(e) an operating cylinder and a hollow insulating nozzle

through which the established arc is drawn being disposed upon said movable contact;

(f) a stationary piston structure supported by one closure end of said insulating cylindrical casing and having said movable operating cylinder slidable thereover;

(g) said operating rod having an extension protruding through one end of said cylindrical operating cylinder;

(h) a generally bell-crank-type manual reset lever pivotally connected to said extension of the operating rod and capable of hook-stick operation;

(i) an explosive cartridge removably disposed within a side wall of said cylindrical operating mechanism casing and capable of replacement by hook-stick operation;

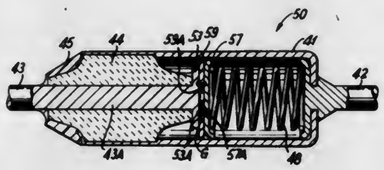
(j) a current-transformer disposed adjacent said manual reset lever and sensitive to the magnitude of the current passing through the controlled circuit;

(k) a static control element energized by the current-transformer and functioning to ignite the explosive material within said explosive cartridge; and

(l) means supporting said self-contained protector unit at an adequate distance and height from ground potential.

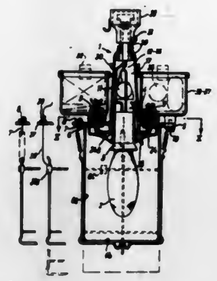
8. The combination according to claim 6, wherein the static control circuit comprises a storage capacitor (C_1) and a resistance network (R_1, R_2) together with a rectifier connected to the current transformer to effect thereby a storage of energy within the storage capacitor (C_1), and a trigger diode in series circuit with a primer and both such elements being in parallel with the storage capacitor (C_1) so that upon triggering by the trigger diode, due to excessive current, the primer will be ignited and thereby explode the explosive material within the explosive cartridge generating gas pressure and effecting an opening operation of the puffer-type interrupter.

4,275,432
THERMAL SWITCH SHORT CIRCUITING DEVICE FOR ARRESTER SYSTEMS
John Napiorkowski, Massapequa Park, N.Y., assignor to TII Corporation, Lindenhurst, N.Y.
Filed Feb. 16, 1978, Ser. No. 878,461
Int. Cl.³ H02H 3/22, 9/04
U.S. Cl. 361—124 63 Claims



1. A unitary thermal switch comprising electrically conductive means; a pair of conductors, one of said conductors being in electrical contact with said conductive means, the other conductor being spaced from said one conductor and insulated from said conductive means; conductive plunger means in electrical contact with said one conductor and biased toward a contacting position with said other conductor; thermally fusible insulator means interposed between said plunger and other conductor, which fuses to permit said plunger means to contact said other conductor when subjected to heating to short the switch; and means defining an air gap between said conductors to protect the switch in the event of voltage overloads.

4,275,433
LIGHTING FITTING
James Caldwell, Altrincham, England, assignor to Dashglow Limited, London, England
Filed May 4, 1979, Ser. No. 36,216
Int. Cl.³ F21V 25/00
U.S. Cl. 362—22 16 Claims



1. An electrical lighting fitting comprising:

(a) a lamp enclosure containing a lamp,

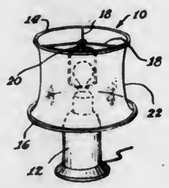
(b) an auxiliary enclosure containing control equipment,

(c) means for maintaining said lamp enclosure at a pressure other than ambient pressure,

(d) means in said lamp enclosure for detecting a change in pressure therein and for discontinuing electrical supply to the fitting in response to a predetermined pressure change, and

(e) means for thermally insulating the auxiliary enclosure from the lamp enclosure so as to immunize temperature increase of the control equipment due to heat from the lamp.

4,275,434
COLLAPSIBLE LAMPSHADE AND RELEASABLE ATTACHMENT MEANS
James L. Borowitz, Chicago, Ill., assignor to Bradley Manufacturing Company, Chicago, Ill.
Continuation-in-part of Ser. No. 935,335, Aug. 21, 1978. This application Jul. 30, 1979, Ser. No. 61,658
Int. Cl.³ F21V 1/06
U.S. Cl. 362—352 13 Claims



1. A collapsible lampshade comprising:

an upper hoop;

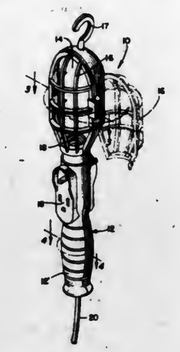
means secured to said upper hoop for supporting said lampshade on said lighting fixture;

a lower hoop;

a generally tubular stretched, elastic, flexible covering extending between said upper and lower hoop whereby the weight of the lower hoop maintains a form for the lampshade as generally equal stresses result therefrom over the surface of the flexible covering; and

readily releasable fastening means for securing said covering to said hoops.

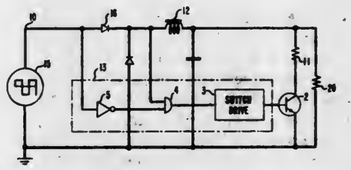
4,275,435
TROUBLE LIGHT
Harry M. Dora, 2055 Arch Creek Dr., N. Miami, Fla. 33161
Filed Aug. 15, 1979, Ser. No. 66,707
Int. Cl.³ B60Q 1/00
U.S. Cl. 362—368 9 Claims



1. A trouble light guard comprising:

a handle portion and a reflector portion integral with said handle portion and molded as a single piece from a synthetic resin polymer.

4,275,436
CONVERTER BLEEDER CIRCUIT RESPONSIVE TO FLUX CONDITION OF FILTER INDUCTOR
William A. Peterson, Hanover Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 1, 1979, Ser. No. 62,706
Int. Cl.³ H02M 1/14
U.S. Cl. 363—47 5 Claims

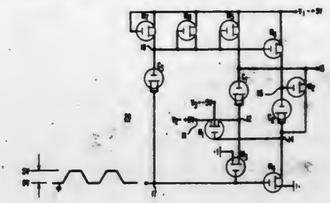


1. A bleeder control arrangement operative to maintain current continuity in a filter inductor energized by a pulsed power source comprising

rectifying means coupling a periodic pulse signal of the pulsed power source to the filter inductor, a bleeder resistor, switching means for coupling the bleeder to the filter inductor

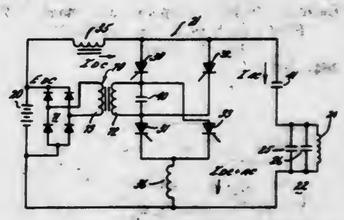
control means responsive to a voltage collapse in the filter inductor and operative to enable the switching means, said control means including inverting means for inverting the periodic pulse signal and coincidence gate means responsive to an output of the inverting means and the rectifying means and coupled to drive the switching means.

4,275,437
SEMICONDUCTOR CIRCUIT FOR VOLTAGE CONVERSION
Harry J. Boll, Berkeley Heights, and Dennis J. Lynes, Madison, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Feb. 16, 1979, Ser. No. 12,832
Int. Cl.³ H02M 3/155, 7/155; H03K 5/02, 3/353
U.S. Cl. 363—60 18 Claims



1. A semiconductor voltage converter circuit including a capacitor (C_1) having a pair of terminals each of which is connected through the source-drain path of a separate MOS transistor switch (M_3, M_5) to a separate first and second voltage source terminal (ground, V_1), for alternately connecting the disconnecting said capacitor (C_1) to said first and second voltage source terminals (ground, V_1), one of said terminals of the capacitor (C_1) being also connected through the source-drain path of a series-connected MOS transistor (M_1) to a third input voltage source terminal (V_2), the other of said terminals of the capacitor (C_1) being connected to an output node (13), the gate electrode of said series-connected transistor (M_1) being connected to another MOS transistor switch (M_4) for alternately turning "on" and "off" said series-connected transistor (M_1), characterized in that said circuit further includes a feedback loop running from the other terminal of said capacitor (C_1) through a load (M_2) back to the gate electrode of said series connected MOS transistor (M_1).

4,275,438
INDUCTION HEATING INVERTER
Robert P. Stiraiman, Roselle, Ill., assignor to Induction Heating International, Inc., Chicago, Ill.
Filed Oct. 12, 1978, Ser. No. 950,834
Int. Cl.³ H02M 7/515
U.S. Cl. 363—136 4 Claims

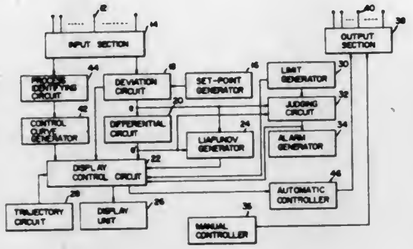


1. A power converter for converting DC power from a source to AC power in a load comprising in combination, a plurality of controlled rectifiers connected in a full-wave bridge, a commutating capacitor connected across the output of said bridge, smoothing inductance means connecting the DC source to the input of said bridge, resonating inductance means connecting the bridge to the load, blocking capacitor means connecting the DC power source and bridge to the load, means gating opposite legs of said bridge sequentially to cause bidirectional current in said load; and clamp means including a transformer having a primary winding connected across the commutating capacitor, a secondary winding and diode means connected to the secondary winding for returning power to the source.

4,275,439
PROCESS CONTROL SYSTEM

Ryuichi Kuwata, Hachioji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Jan. 9, 1979, Ser. No. 3,425
Claims priority, application Japan, Jan. 24, 1978, 53-5765
Int. Cl.³ G05B 11/16; G06F 15/46
U.S. Cl. 364—120 11 Claims

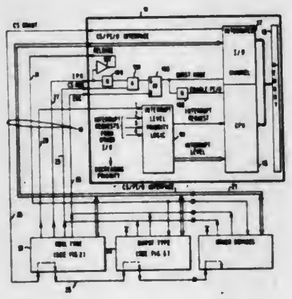


5. A process control system comprising:
set-point setting means for setting a set-point of a process variable representing a state of process to be controlled;
deviation calculation means for calculating a deviation of the process variable from said set-point and producing a deviation signal;
differentiating means for differentiating said deviation signal and producing a differential signal;
display control means for converting said deviation signal in real time and said differential signal into a phase signal representing a position, which also represents the present deviation signal and the differential signal thereof, on a phase plane formed on the basis of said deviation signal and said differential signal;
display means for displaying said phase signal; and
control means for automatically changing a controlling amount between first and second values to change the process variable to stabilize the system according to said phase signal representing a position on the phase plane.

4,275,440
I/O INTERRUPT SEQUENCING FOR REAL TIME AND BURST MODE DEVICES

Robert L. Adams, Jr., Kingston; Carl H. Grant, Woodstock, and Karl W. Stevens, Saugerties, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 2, 1978, Ser. No. 948,070
Int. Cl.³ G06F 3/00
U.S. Cl. 364—200 4 Claims

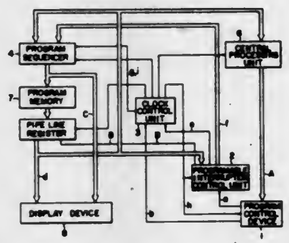


1. In computer input/output apparatus adapted to operate in either device initiated burst mode, or programmed I/O mode, an improved interrupt sequencing apparatus comprising:
means in a first device attached to said input/output apparatus for generating an instruction priority request signal thereby indicating to said computer that immediate programmed I/O service is required and requesting a second device attached to said input/output apparatus to suspend a burst data transfer in progress;
means in said second device for generating an end of chain signal to said computer to indicate suspension of burst data transfer;
means in said computer responsive to said end of chain signal to switch said input/output apparatus to programmed I/O operation;
means in said first device responsive to a programmed I/O instruction for permitting device initiated burst mode data transfers to resume.

4,275,441
MICROPROGRAM CONTROL SYSTEM FOR MICROPROGRAM DEBUGGING

Hiroshi Takeuchi, Hachioji, Japan, assignor to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Mar. 27, 1979, Ser. No. 24,463
Claims priority, application Japan, Mar. 27, 1978, 53/34244
Int. Cl.³ G06F 9/22, 11/32
U.S. Cl. 364—200 2 Claims

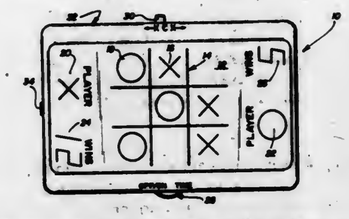


1. A microprogram control system for debugging microprograms comprising:
a central processing unit including memory means storing a debugging microprogram and a microprogram to be debugged, said debugging program enabling execution of a single microstep of said microprogram to be debugged as well as an operators processing request other than said single microstep execution,
a clock control unit for controllably generating clock signals which control operation of said central processing unit, a program control device, a programmable interruption control unit, and a program sequencer,
said program control device being responsive to a stop instruction from said central processing unit for producing an interruption request signal, and for providing a control signal to said clock control unit to cause said clock control unit to stop generating clock signals, said program control device also controlling said clock control unit to start the supply of clock signals to permit execution of said debugging microprogram as part of an interruption routine, said debugging microprogram executing a single microstep operation of said program to be debugged or executing an operator's request other than said single microstep operation, and then returning to a single microstep operation of said program to be debugged,
said programmable interruption control unit being responsive to said interruption request signal and an interruption permission signal for providing an interruption sequence start signal to said clock control unit to condition said clock control unit for operation in an interruption sequence, and
said program sequencer communicating with said central processing unit and including a storage device, said program sequencer saving the next address of said program to be debugged into said storage device upon starting of said clock signals.

4,275,442
ELECTRONIC TIC-TAC-TOE GAME

Johnny P. Underwood, 102 Sandy La., and Carl G. Bowden, P.O. Box 294, both of Waxahachie, Tex. 75165

Filed Jul. 2, 1979, Ser. No. 53,905
Int. Cl.³ G06F 15/44
U.S. Cl. 364—410 16 Claims

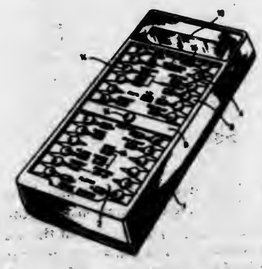


1. An electronic tic-tac-toe game, comprising:
a display board having an array of nine boxes formed by two parallel lines intersecting at right angles with two other parallel lines;
switching means for selecting a circle or cross for one of the nine boxes of the tic-tac-toe array;
display means responsive to said switching means for displaying the selected tic-tac-toe symbol in one of the boxes of said array;
an electronic digital signal processor for controlling said dislay means and for determining the end of game condition;
means for automatically clearing said display means after said electronic digital signal processor has determined the end of game condition;
means on said display board for indicating the game symbol to be used by each player; and
means for preselecting at the start of the game the game symbol to be used by each player.

4,275,443
BOARD GAME COMPUTING DEVICE

Andrei Soria, 7 St. Dennis Dr., Suite 1107, Don Mills, Ontario, Canada (M3C 1E5)

Filed May 7, 1979, Ser. No. 36,374
Int. Cl.³ G06F 15/44
U.S. Cl. 364—410 7 Claims

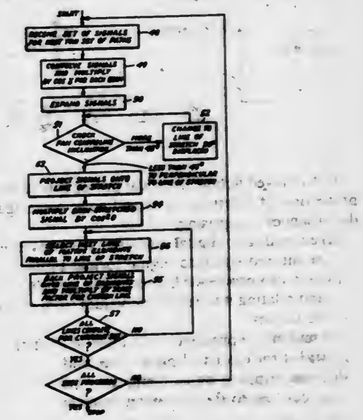


1. A backgammon calculator comprising input means in the form of a keyboard laid out on an external surface of the calculator to resemble a backgammon board with positional data entry keys on the points and bar of the board, and additional function keys at locations other than on the points and bar, output means in the form of a digital display visible from outside the calculator, and data processing means in the form of a microcomputer having random access and read only memories, the read only memory of the microcomputer being programmed with routines selected by a first group of said function keys to accept data from said positional data entry keys so as to enter said data in said random access memory whereby to record therein the number of men of each colour on each point and the bar in a playing position in a game of backgammon, and with routines selected by a second group of function keys, located on said keyboard other than on the points or bar, to perform calculations related to the probable subsequent progress of the game and to display the results of said calculations on said digital display.

4,275,444
ARRANGEMENTS FOR CONSTRUCTING REPRESENTATIONS OF PARTS OF BODIES

John L. Ryan, Chalfont St. Peter, England, assignor to EMI Limited, Hayes, England

Filed May 9, 1979, Ser. No. 37,919
Claims priority, application United Kingdom, May 12, 1978, 19148/78
Int. Cl.³ G06F 15/42
U.S. Cl. 364—414 8 Claims



1. An apparatus for processing signals derived from a computerized tomographic scanner and relating to attenuation suffered by x-radiation on traversing each of many substantially linear paths across a cross sectional slice of a body under examination, said scanner supplying the signals in groups relating to sets of paths, the paths of each set diverging from a focus and the focus for each set being disposed at a different angular location relative to the cross-sectional slice and the signals in each group being supplemented as required by signals, formed by interpolation between the first mentioned signals, to represent attenuation for divergent paths not actually irradiated, the processing apparatus including: a matrix store having a plurality of locations each of which is allocated to one of a plurality of elemental regions of the body, said elemental regions being disposed in a rectangular array in said slice; means for selecting and distributing to the locations of the matrix store contributions from the signals, both measured and interpolated, relating to paths traversing the corresponding elemental regions of the body; means operative prior to the selection and distribution of the said contributions for weighting each contribution from the signals of a group by a factor related to $\cos \theta$ raised to a selected power, where θ is the angle between the path corresponding to the signal from which the contribution was derived and the perpendicular to a plurality of parallel lines of the elemental regions; and scaling means arranged to scale the contributions being distributed to storage locations corresponding to one of said parallel lines by a scaling factor chosen for that line such that the contributions distributed to each

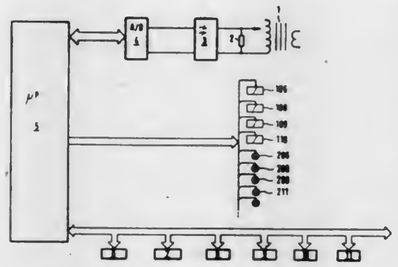
location for the line have, after weighting by said factor related to Cos θ and the scaling factor, been weighted by 1/D raised to the same power as Cos θ, where D is the distance between the elemental region corresponding to the location, and the focus for the respective group.

4,275,445

DELAYED ACTION ELECTRICAL PROTECTION DEVICE, DEPENDING ON AN ADJUSTED MAGNITUDE

Rodolfo Di Pietro Elizaran, Bilbao, Spain, assignor to Arteche, Instrumentacion y Systemas Electronicos, S.A., Spain

Filed Apr. 5, 1979, Ser. No. 27,252
Claims priority, application Spain, Apr. 13, 1978, 468.764
Int. Cl.³ H02H 3/08
U.S. Cl. 364—480 7 Claims



1. A delayed action electrical protection device intended for protection of electrical lines and equipment against electrical disturbances comprising:

(a) an analog-to-digital converter for converting an adjusted monitored signal to digital format signal;

(b) a micro-processor for receiving said digital format signal and relating it to reference values from timing characteristic curves;

(c) said micro-processor providing at least one relay tripping signal for electrical protection; and

(d) said tripping signal being delayed by a varying amount according to the following formula:

$$t_a=(K/i^2-1)$$

wherein

t_a=the delay time for actuating said tripping signal

$i=(I/I_n)$

I=the actual current of the monitored signal

I_n=a preset reference value of current

and

K=a predetermined constant.

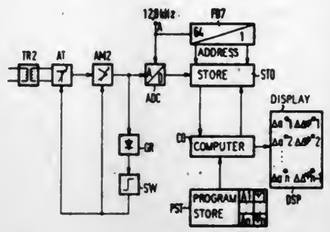
4,275,446

METHOD AND APPARATUS FOR MEASUREMENT OF ATTENUATION AND DISTORTION BY A TEST OBJECT

Gerhard Biaes, Olching, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Oct. 24, 1979, Ser. No. 88,091
Claims priority, application Fed. Rep. of Germany, Nov. 13, 1978, 2849119
Int. Cl.³ H04B 3/46
U.S. Cl. 364—487 17 Claims

14. Apparatus for measuring the transmission characteristics of an object under test, comprising, in combination, first storage means located near the input of said object under test, said first storage means storing a plurality of sampling values corresponding to the magnitude, at consecutive time intervals, of a test pulse formed of a plurality of individual components at a plurality of frequencies, means connected to said first storage means for reading out said sampling values from said first storage means in succession, and for applying them to said input, second storage means located near the output of said object under test, said second storage means storing values corresponding to the initial phase angles of all of the components of said test pulse, means for sampling sequential intervals



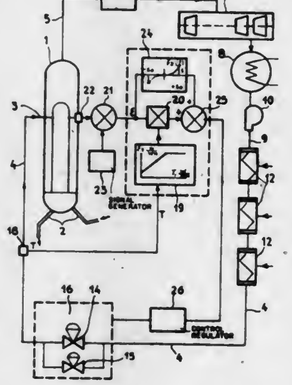
of the test pulse as it arrives at the output of said device under test, means for deriving values corresponding to the phase angles of said components as they are presented at the output of said device under test, and means connected to said second storage means for comparing said derived values with the values stored in said second storage means.

4,275,447

METHOD OF REGULATION OF THE WATER LEVEL IN BOILERS OR STEAM GENERATORS

Pierre Ruiz, Le Blanc Mesnil, France, assignor to Framatome, Courbevoie, France

Filed May 11, 1979, Ser. No. 38,304
Claims priority, application France, May 25, 1978, 78 15505
Int. Cl.³ G06F 15/52, 15/46; G21C 7/00
U.S. Cl. 364—494 4 Claims



1. A method of regulation of the water level in a steam generator during the course of operation and more particularly during the starting-up phase, consisting of the steps of:

measuring the water level in the steam generator,

generating a signal representing the difference ξ between the real measured level of water in the steam generator and a reference level,

generating a first control signal proportional to the signal representing ξ, the proportionality factor or gain being a linear function of the power level of the steam generator with respect to its nominal power,

generating a second control signal representing the value—for values of ξ within a restricted range spanning the value zero —of a non-linear function preserving very low values

for low values of ξ and increasing very rapidly for higher values of ξ within the restricted range,

modifying said first control signal with said second signal so as to increase the total gain for low power levels and high values of ξ within the restricted range, and

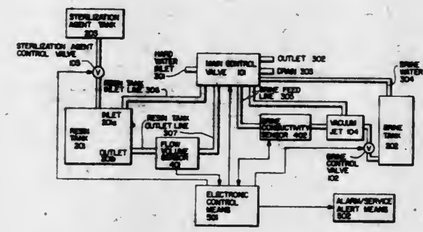
controlling a device for feeding water to the steam generator, with said modified control signal.

4,275,448

ELECTRONIC MEANS FOR CONTROLLING THE REGENERATION OF RESINS IN A RESIN TYPE ION EXCHANGE DEVICE

Guy Le Dall, Rueil-Malmaison, France, assignor to Permo, Rueil-Malmaison, France

Continuation-in-part of Ser. No. 963,261, Nov. 24, 1978. This application Jan. 30, 1980, Ser. No. 116,779
Int. Cl.³ G06F 15/46; C02F 1/42
U.S. Cl. 364—500 25 Claims



1. In a resin-type ion exchange apparatus of the type for removing objectionable ions from a fluid by passing the fluid through a resin in a resin tank, said resin requiring periodic resin regeneration by backwashing the resin with a fluid, brining the resin with a regeneration agent dissolved in a fluid, and rinsing the resin with a fluid, and having at least one electrically actuable valve selectively placable in a backwashing state, a brining state, a rinsing state or a normal operation state, the improvement of an electronically controllable system comprising:

flow volume sensor means for generating a flow volume signal indicative of the volume of fluid passing through said resin;

a memory means for storing therein a predetermied backwashing flow volume, a predetermined brining flow volume, a predetermined rinsing flow volume, at least one further predetermined value, a predetermined value loading program, a regeneration initiation program and a regeneration sequence control program comprising at least the steps of backwashing the resin with said predetermined backwashing flow volume of fluid, brining said resins with said predetermined brining flow volume of a regeneration agent dissolved in a fluid and rinsing said resin with said predetermined rinsing flow volume of fluid;

a microprocessor calculating means connected to said at least one electrically actuable valve, said flow volume sensor means and said memory means, for loading at least some of said predetermined backwashing flow volume, said predetermined brining flow volume, said predetermined rinsing flow volume and said at least one further predetermined value into said memory means according to said predetermined value loading program, for initiating resin regeneration according to said regeneration initiation program and said at least one further predetermined value, and for controlling said resin regeneration by application of valve control signals to said at least one electrically actuable value (1) for placing said at least one electrically actuable valve in said backwashing state until said flow volume signal indicates said predetermined backwasing volume of fluid has passed through said resin tank, (2) for placing said at least one electrically actuable valve in said brining state until said flow volume signal indicates said predetermined brining volume of fluid has passed through said resin tank, (3) for placing said at least one electrically actuable valve in said rinsing state until said flow volume signal indicates said predetermined rinsing volume of fluid has passed through said resin tank, and thereafter (4) for placing said at least one electrically actuable valve in said normal operation state; and

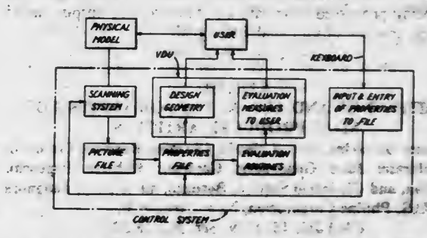
a programming means connected to said microprocessor calculating means for application of at least some of said predetermined backwashing flow volume, said predetermined brining flow volume, said predetermined rinsing flow volume and said at least one further predetermined value to said microprocessor calculating means for storing in said memory means.

4,275,449

MODELLING ARRANGEMENTS

Roslyn R. Aish, Winchester, England, assignor to National Research Development Corporation, London, England

Filed Apr. 30, 1979, Ser. No. 34,667
Claims priority, application United Kingdom, Apr. 28, 1978, 16930/78
Int. Cl.³ G06F 13/00; G09B 25/04
U.S. Cl. 364—512 40 Claims



1. A modelling arrangement of a quantity of changeably interengageable elements, some at least being of forms distinct from others, for selective assembly together, a said element having a distinctive form also including information storage means to store machine readable information identifying the distinctive form, said elements having portions to provide interengagements with other elements and information transfer means effective to transfer stored information from element to element, whereby interengaged elements provide a linked information transfer network for the transfer of machine readable information indicating the arrangement of the interengaged elements.

4,275,450

MAGNIFICATION/DEMAGNIFICATION APPARATUS AND METHOD

Jerry L. Potter, Massillon, Ohio, assignor to Xerox Corporation, Stamford, Conn.

Filed Aug. 1, 1979, Ser. No. 62,607
Int. Cl.³ G06F 15/20; H04N 1/04
U.S. Cl. 364—515 9 Claims

1. Apparatus for selectively controlling the size of the output image formed from a series of image pixels, comprising, in combination:

(a) a first register programmable with a count representing the image size selected;

(b) an accumulator coupled to said first register for receiving the count in said first register;

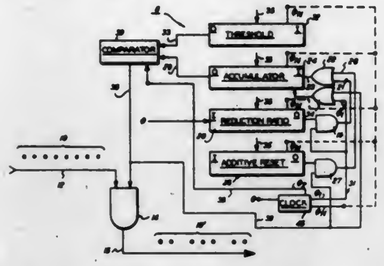
(c) a second register programmable with a count representing image threshold level;

(d) comparator means for comparing the counts in said accumulator and said second register;

(e) pixel control means for regulating passage of said image

pixels from an input line to an output line in response to the signal output of said comparators means; and

(f) timing means for successively introducing the count from said first register into said accumulator and actuating said comparator means to compare the count in said accumulator with the threshold count in said second register for each of said image pixels, said comparator means produc-



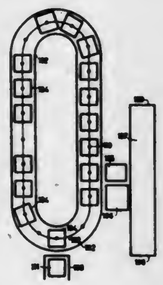
ing an enabling signal when the count in said accumulator is greater than the count in said second register, whereby said pixel control means passes the image pixel being processed from said input line to said output line, said pixel control means preventing passage of the image pixel being processed from said input line to said output line in the absence of said enabling signal.

4,275,451

METHOD OF AND APPARATUS FOR TESTING OF MASS-PRODUCED ARTICLES

Giovanni Balzarini, Sesto-Calende; Giovanni Buccino, Cresna di Gallarate; Jules Gnadeberg, Gavirate; Roberto Papeschi, Milan, and Giancarlo Slavich, Besozzo, all of Italy, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 18, 1979, Ser. No. 58,582
Claims priority, application Italy, Aug. 2, 1978, 26402 A/78
Int. Cl.³ G06F *15/46*
U.S. Cl. 364—580 10 Claims



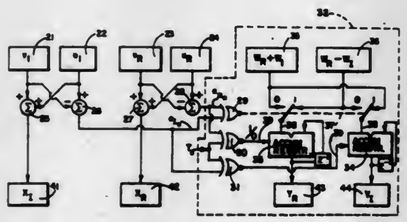
7. Apparatus for testing an article within a series of articles during an automatically controlled driving thereof through a predetermined series of program steps for simulating a cycle of operational use thereof, said apparatus comprising a conveyor means having an input position and an output position and a plurality of positioning means each for accommodating an article, electric power means having a plurality of outlets each corresponding to one of said positioning means for providing electric power to an article, a plurality of sensing means having a corresponding plurality of sensing inputs each corresponding to one of said positioning means for measuring at least one operational condition of an article placed thereat, a plurality of separate electronic storage means each assigned to one of said positioning means for storing an output signal from a sensing means corresponding thereto, and data processing means provided at a predetermined data output position of said apparatus, said data processing means having an input thereto for temporarily connecting an output of a digital electronic storage means as being presented at said predetermined data output position for therefrom receiving stored signals, said data processing means furthermore having an output for outputting a representation of a test date.

4,275,452

SIMPLIFIED FAST FOURIER TRANSFORM BUTTERFLY ARITHMETIC UNIT

Stanley A. White, Santa Ana, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Nov. 8, 1979, Ser. No. 92,387
Int. Cl.³ G06F *15/332, 7/54*
U.S. Cl. 364—726 9 Claims



1. In a digital-data processor for sampling the time history of a time-varying signal as an input time series to determine the fourier coefficients of an equivalent fast fourier transform (FFT) of said time history, high-speed means for performing the fast fourier transform butterfly arithmetic and comprising:

a pair of storage means, each for storing a respective one of the sums (W_R+W_I) and the differences (W_R-W_I) of the complex FFT butterfly weighting coefficients W_R and W_I as sets of phase-shifted cosine values;

a pair of selectively additive and subtractive accumulating registers, each selectively responsive to an alternative one of said sums and differences of said weighting coefficients stored in said pair of storage means; and

exclusive-NOR logic switching means responsive to preselected state conditions of a sampled epoch input to said butterfly arithmetic unit for preselectively controlling said pair of accumulating registers whereby a respective component of the complex weighted butterfly output function occurs at the output of a respective one of said accumulating registers in response to the applied sums and differences of said complex butterfly weighting coefficients.

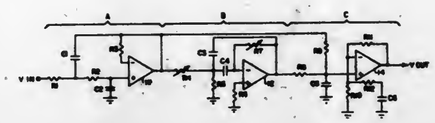
4,275,453

SMOOTHING FILTER FOR DIGITAL TO ANALOG CONVERSION

Charles A. Wagner, North Edwards, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 25, 1980, Ser. No. 115,536
Int. Cl.³ H03H *11/12;* H04B *15/00*
U.S. Cl. 364—825 9 Claims

1. An electronic filter for smoothing the stepped signal from a digital-to-analog converter comprising three active filter sections, each having an input terminal and an output terminal, and said third section having two input terminals for receiving the signals at output terminals of said first and second sections, said first section having a noninverting low-pass filter transfer function, said second section having its input terminal connected to the output terminal of said first section, said second section having an inverting transfer function designed to pass a narrow frequency band centered at the step frequency of said stepped output signal with sharp cutoff on either side of said band, and said third section having one input terminal connected to the output terminal of said second section and one input terminal connected to the output terminal of said first



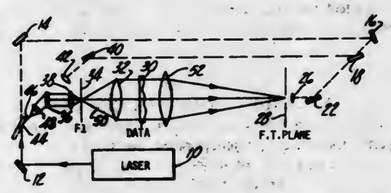
section for summing the signals at output terminals of said first and second sections, said third section having a noninverting lead-lag transfer function designed to reduce the phase angle between the signal at its output terminal and the stepped signal at the input of said first section.

4,275,454

OPTICAL SYSTEM PHASE ERROR COMPENSATOR

Alex Klooster, Jr., Ann Arbor, Mich., assignor to Environmental Research Institute of Michigan, Ann Arbor, Mich.

Filed Dec. 1, 1978, Ser. No. 965,277
Int. Cl.³ G06G *9/00;* G02B *27/22;* G03H *1/16*
U.S. Cl. 364—861 12 Claims



1. A method of compensating for phase errors in an optical data processing system having a plurality of lenses for displaying the Fourier transformation of optical data contained in a data source, said method comprising:

generating a reference and object beam from a coherent light source;

passing the object beam in a given direction through the lenses and data source of the data processing system;

using a low frequency spatial filter to pass only low frequency components of the object beam incident said data source;

directing the filtered object beam and reference beam to an optical memory;

storing the interference pattern between the object beam and the reference beam in the optical memory as a hologram whereby low spatial frequency phase errors of the system are recorded; and

reading the data from the data source by providing a read beam incident said memory along a path in the reverse direction of the reference beam, with the hologram stored in the memory providing a reconstruction beam which passes back through the same lenses and through the data source opposite to said given direction to a plane at which the Fourier transformation of the data is displayed, thereby compensating for the phase errors in the system data source and lenses.

8. A system for compensating for phase errors in an optical data processing system having a data source and lens means for directing a source coherent light through the data source to perform a Fourier transformation thereof, said system comprising:

a source of a beam of coherent light;

beam splitter means for splitting said beam to provide a reference beam and an object beam;

optical memory means for storing patterns of light, with said data source and lens means being disposed between said memory means and said beam splitter means along the path of said object beam whereby said object beam passes through the data source and lens means;

a low frequency spatial filter disposed between the data source and the memory means for passing only low frequency components of the object beam to the memory wherein a hologram is formed therein of the phase errors created by imperfections in the data source and lens means;

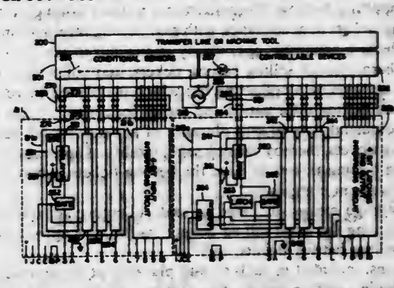
read means interposed upstream from said beam splitter for selectively intercepting the beam from the light source and providing a read beam to said memory means along a path anti-parallel to the reference beam, with said hologram providing a reconstruction beam projecting along a path anti-parallel to the object beam back through the same data source and the lens means for displaying the Fourier transformation of the data while compensating for the phase errors in the system.

4,275,455

OUTPUT INTERFACE CARD SUITABLE FOR USE WITH A PROGRAMMABLE LOGIC CONTROLLER

Peter G. Bartlett, Davenport, Iowa, assignor to Automation Systems, Inc., Eldridge, Iowa

Division of Ser. No. 814,836, Jul. 11, 1977, Pat. No. 4,178,634.
This application Apr. 2, 1979, Ser. No. 26,427
Int. Cl.³ G06F *3/04*
U.S. Cl. 364—900 5 Claims



1. An output interface card suitable for electrically isolating at least four outputs of an electronic device from at least four corresponding loads controlled by the electronic device comprising:

(a) four card data inputs suitable for connection to the four outputs, respectively, of the electronic device;

(b) four card data outputs suitable for connection to the four corresponding loads, respectively;

(c) four output interface circuits each of which includes a corresponding one of said card data inputs and card data outputs, and each of which contains:

(1) an isolator capable of handling a load of at least 2 amperes at 110 volts, said isolator having its output coupled to the corresponding card data output,

(2) a latch producing and retaining at its output the signal appearing at its input when enabled through a latch enable input, said latch having its input connected to the corresponding card data input and having its output connected to the input of said isolator, and

(3) a gate for producing at its output the signal present at its input only when enabled through a gate enable input, said gate having its input connected to the output of said latch and having its output connected to the input of said latch;

(d) means connecting in parallel all of said latch enable inputs of said four output interface circuits; and

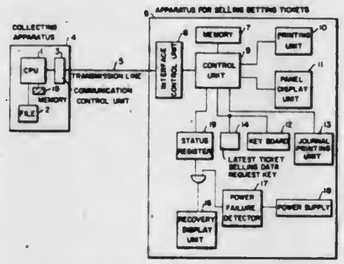
(e) means connecting in parallel all of said gate enable inputs of said four output interface circuits.

4,275,456

BETTING TICKETS SELLING AND COLLECTING SYSTEM

Takehiko Tanaka; Yoji Kubota, both of Kawasaki, and Kiyoshi Kubomura, Yokohama, all of Japan, assignors to Fujitsu Limited, Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,912
Claims priority, application Japan, Aug. 16, 1978, 53-99628
Int. Cl.³ G06F *11/00, 15/02, 15/28*
U.S. Cl. 364—900 **8 Claims**



1. A processing system for use in a betting tickets selling and collecting system when a power failure occurs, said betting tickets selling and collecting system including a plurality of apparatuses for selling betting tickets comprising an input unit for inputting betting information and a ticket issuing unit for issuing tickets in accordance with said betting information and a collecting apparatus operatively connected to said plurality of apparatuses for selling betting tickets, said collecting apparatus comprising a collecting file which is updated by receiving said betting information and means for sending ticket selling command data to said plurality of apparatuses for selling betting tickets, thereby causing said plurality of apparatuses for selling betting tickets to issue the betting tickets, wherein the improvement comprises:

a storage means, included in said collecting apparatus for storing the latest selling ticket data for each apparatus for selling betting tickets; and

means, included in each of said plurality of apparatuses for selling betting tickets, for sending a message to said collecting apparatus after a power failure has occurred at one of said plurality of apparatuses for selling betting tickets and power has been restored, wherein said message is a request for the stored latest selling ticket data for the particular apparatus for selling betting tickets.

4,275,457

APPARATUS AND METHOD FOR RECEIVING DIGITAL DATA AT A FIRST RATE AND OUTPUTTING THE DATA AT A DIFFERENT RATE

Robert O. Leighou, Lakewood, and Leighton A. Meeks, Littleton, both of Colo., assignors to Martin Marietta Corporation, Bethesda, Md.

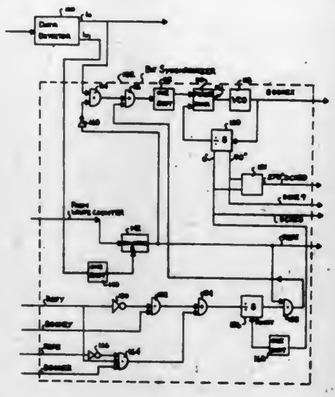
Division of Ser. No. 798,187, May 18, 1977, Pat. No. 4,173,014.
This application Oct. 22, 1979, Ser. No. 87,425
Int. Cl.³ G11B *5/43*
U.S. Cl. 364—900 **3 Claims**

1. Apparatus for providing a periodic clock signal in timed relation to digital data being provided along a first information channel, comprising:

means for deriving a primary timing signal directly from said digital data, said primary timing signal occurring in close timed relation to said digital data except when said information channel is degraded;

means for deriving an alternate timing signal also occurring in timed relation to said digital data, though less closely than said primary timing signal;

means for determining whether the degradation exceeds a predetermined amount in said information channel and for providing a timing control signal in accordance therewith; and,



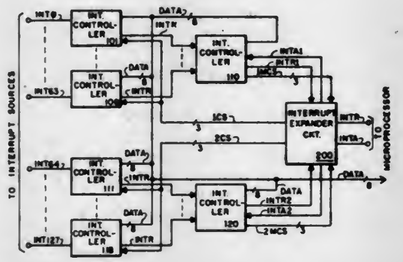
means for providing said periodic clock signal having timing corresponding to either said primary timing signal or said alternate timing signal in dependence upon said timing control signal whereby said periodic clock signal occurs in timed relation to said digital data regardless of the amount of degradation of said information channel.

4,275,458

INTERRUPT EXPANDER CIRCUIT

M. Ibrahim Khera, Glendale, Ariz., assignor to GTE Automatic Electric Laboratories Incorporated, Northlake, Ill.

Filed Dec. 14, 1979, Ser. No. 103,756
Int. Cl.³ G06F *9/46, 3/00*
U.S. Cl. 364—900 **9 Claims**



1. An interrupt expander circuit for use in a microprocessor system, said interrupt expander circuit connected between a microprocessor central processing unit and first and second interrupt controllers, said first interrupt controller connected to a first plurality of interrupt controllers and said second interrupt controller connected to a second plurality of interrupt controllers, each of said interrupt controllers operable to transmit an interrupt request signal, said first and said second pluralities of interrupt controllers connected respectively to first and second pluralities of interrupt sources each of said sources operable to generate an interrupt request signal, said interrupt expander circuit comprising:

a clock circuit operable to generate periodic pulses of a predetermined frequency;

first latching means connected between said first interrupt controller and said microprocessor and connected to said clock circuit, said first latching means operated in response to said interrupt request signal of said first interrupt controller to produce a first output signal for transmission to said microprocessor indicating the detection of an interrupt request and further operated to produce a second output signal;

second latching means connected between said microprocessor and said second interrupt controller and connected to said clock circuit, said second latching means operated in response to said interrupt request signal of said second interrupt controller to produce a first output signal for transmission to said microprocessor indicating the detection of an interrupt request from said second plurality of interrupt sources and further operated to produce a second output signal;

first gating means for inhibiting the operation of said second latching means, said first gating means connected between said first latching means and said second latching means, whereby in response to simultaneous interrupt request from said first and second interrupt controllers a third output signal is generated to inhibit said operation of said second latching means and said third output signal is further produced in response to said second output signal of said first latching means;

second gating means for inhibiting said operation of said first latching means, said second gating means connected between said first and said second latching means and operated in response to said second output signal of said second latching means to provide a fourth output signal for inhibiting said operation of said first latching means;

said interrupt expander circuit further includes means operated in response to an interrupt acknowledge signal from said microprocessor to provide a fifth output signal for transmission to said first interrupt controller and alternatively to provide for transmission of said fifth output signal to said second interrupt controller;

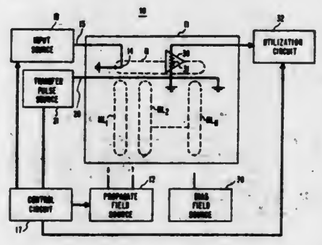
said first interrupt controller operated in response to said fifth output signal to operate one of said plurality of interrupt controllers and alternatively said second interrupt controller operated in response to said fifth output signal to operate one of said second plurality of interrupt controllers, whereby when simultaneous interrupts occur the interrupt source connected to said first interrupt controller is serviced first but before any subsequent interrupts from said first interrupt controller are serviced the interrupt presented by said second interrupt controller will be serviced.

4,275,459

MAGNETIC BUBBLE DETECTOR ARRANGEMENT

Paul C. Michaelis, Watchung, N.J., assignor to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Jun. 23, 1980, Ser. No. 162,373
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—8 **7 Claims**



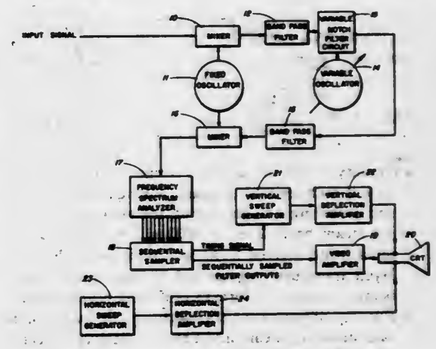
1. A magnetic bubble memory including a layer of material in which magnetic bubbles can be moved along a propagation path to a detector stage, said detector stage comprising a plurality of elements of magnetically soft elements stacked along an axis transverse to said path and interconnected to provide an electrically conducting path for currents applied thereto, alternate ones of said plurality of elements being oriented at a first angle with respect to the axis of said propagation path, the remaining ones of said plurality being oriented at a second angle greater than said first angle.

4,275,460

REAL-TIME AUDIO SPECTRUM ANALYZER

John P. Zirbel, Silver Spring, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 26, 1966, Ser. No. 582,798
Int. Cl.³ G01S *15/32*
U.S. Cl. 367—102 **2 Claims**



1. In a continuous-transmission, frequency-modulated sonar system, a propeller modulation enhancement and display system which processes and displays propeller modulation of a return sonar signal including a hull echo signal in real-time, comprising:

a multichannel frequency spectrum analyzer covering the frequency spectrum of interest,

means for sequentially sampling the individual outputs of said frequency spectrum analyzer,

a long persistance CRT having the intensity of its electron beam modulated by the output of said sequentially sampling means thereby providing a visual indication of the relative strengths of the signal components in said return sonar signal,

means synchronized with said sequentially sampling means for vertically sweeping the electron beam of said CRT and thereby establishing the frequency axis of the resultant CRT display,

means for horizontally sweeping the electron beam at said CRT and thereby establishing the time axis of the resultant CRT display, and

means preceding said multichannel frequency spectrum analyzer for suppressing the hull echo in said return sonar signal.

4,275,461

PARALLEL DIGITAL BEAM-FORMING SYSTEM

Leon Sternick, Plainview, and John D. Lee, Huntington Station, both of N.Y., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

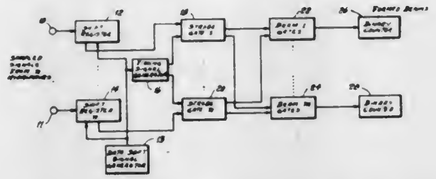
Filed Dec. 5, 1966, Ser. No. 599,995
Int. Cl.³ G01S *3/80*
U.S. Cl. 367—122 **2 Claims**

1. A parallel digital beam-former for use with an array of signal transducers comprising, in combination:

a plurality of time-delay means, the number of said delay means being equal to the number of said transducers, each delay means being connected to receive as an input the output of a different one of said transducers and delaying said output in a series of increasing amounts;

means connected to said delay means for causing said delay means to periodically and simultaneously sample the outputs of said transducers;

means connected to said delay means for obtaining from each of said delay means a plurality of outputs comprising the series of increasingly delayed transducer signals, all outputs from a given delay means being simultaneously obtained, the series of outputs from any delay means being obtained at a different time than that from any other delay means, all delay means being tapped for their outputs before the next sampling of the outputs of the transducers;



a plurality of serializing means connected to said time-delay means, each serializing means, having a plurality of inputs and providing a single output, the inputs to each serializing means being a set of delayed transducer signals, one input being derived from each transducer, the set of delayed transducer signals fed to each serializing means being chosen to conform to a different beam direction; and

a plurality of means for transforming the output signals of said serializing means into signals indicative of beam signal strength, each transforming means being connected to a different one of said serializing means.

4,275,462

ELECTRONIC TIMEPIECE

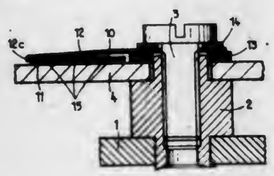
Jean Schaad, Gorgier, Switzerland, assignor to Ebauches S.A., Neuchatel, Switzerland

Filed Mar. 11, 1980, Ser. No. 129,406

Claims priority, application Switzerland, Mar. 16, 1979, 2502/79

Int. Cl.³ G04C 23/02

U.S. Cl. 368—88 **3 Claims**



1. In an electronic timepiece having an insulating substrate carrying a plurality of conductive tracks, an adjustable capacitor comprising:

a first electrode of said capacitor formed by a first conductive area on said substrate;

an arm;

an insulating plate rigidly secured to said arm and having a first and a second substantially flat face;

a second electrode of said capacitor formed by a second conductive area on the first face of said plate; and

means for pivotally mounting said arm for movement between a first end position where said second conductive area is substantially parallel to, and substantially completely overlaps said first conductive area, and a second end position where there is substantially no overlapping between said first and second conductive areas, whereby the capacitance of said capacitor depends on the position of said conductive area between said first and second end positions.

4,275,463

ELECTRONIC TIMEPIECE

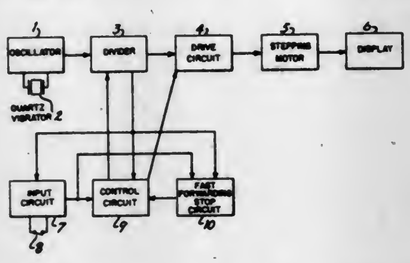
Takashi Ishida, Tokyo, Japan, assignor to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Jul. 17, 1979, Ser. No. 58,170

Claims priority, application Japan, Jul. 19, 1978, 53-88053

Int. Cl.³ G04C 9/00

U.S. Cl. 368—187 **3 Claims**



1. In an electronic timepiece having a stepping motor and controllable means for driving the motor alternatively at a normal frequency and a relatively faster correction frequency, the improvement comprising: manually actuatable switching means; and means connected to said controllable means and responsive to two successive actuations of the switching means within a first predetermined time period for causing said controllable means to effect a change in the motor drive from the normal frequency to the correction frequency and responsive to a third actuation of the switching means after a second predetermined time period from said change for causing said controllable means to effect return of the motor drive to the normal frequency.

4,275,464

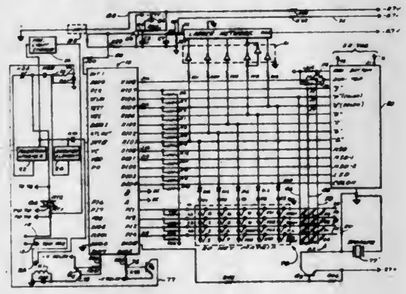
UNIVERSAL SELF-DIAGNOSING APPLIANCE CONTROL

David J. Schmidt, Holland, Mich., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Feb. 16, 1979, Ser. No. 12,744

Int. Cl.³ G06F 11/22, 11/32

U.S. Cl. 371—15 **27 Claims**



1. An electronic controller having a plurality of appliance function controllers, a digital display, a microprocessor controler comprising at least one internal random access memory and a plurality of internal registers, and further including, external to said microprocessor controller, electrical input and output conductors for said plurality of appliance function controllers, a diagnostic test signal conductor connected to said microprocessor controller, a single plug connector to which said input and output conductors and said diagnostic test signal conductor are connected in circuit, said plug connector and having releasable connections for each of said conductors, a corresponding mating connector releasably engageable with said single plug connector and having releasable connections that match the releasable connections of said single plug connector, said mating plug connector including extension conductors from said input and output conductors to the respective appliance function controllers associated with each input and output conductor, a dummy plug connector releasably engageable with said single plug connector in place of said mating plug connector, said dummy plug connector containing leads which cross connect said input and output conductors and which place a signal on said diagnostic test signal conductor to thereby alter the electrical interconnection of said conductors in said single plug connector, and means in said microprocessor controller interconnecting said random access memory, said internal registers, and connected to said digital display, and responsive to signals on said diagnostic test signal conductor to internally check electrical conductivity integrity of said input and output conductors and of said internal microprocessor random access memory and of said internal microprocessor registers and operative to generate a unique digital code in said digital display indicative of an unsatisfactory check of electrical integrity and the location among said input and output conductors and said microprocessor random access memory and registers at which said unsatisfactory check occurred.

4,275,465

CLOCK RATE RECOVERY CIRCUIT

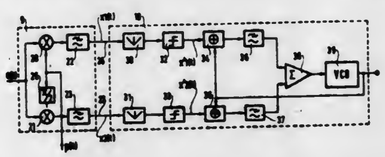
Michel Lemoussu, Saint Michel sur Orge, France, assignor to Compagnie Industrielle des Telecommunicators Cit-Alcatel, Paris, France

Filed Oct. 30, 1979, Ser. No. 89,390

Claims priority, application France, Nov. 7, 1978, 78 31466

Int. Cl.³ H04B 1/10; H03K 9/02

U.S. Cl. 375—97 **3 Claims**



1. A clock rate recovery circuit for a data transmission system using linear modulation and including a receiver with a synchronous demodulator (9) having two carriers in quadrature and having two outputs, namely an in-phase output (26) and a quadrature output (27), the said circuit comprising:

a first rectifier (30) connected to the in-phase output (20) of the demodulator (9);

a second rectifier (31) connected to the quadrature output (27) of the demodulator (9);

a first two-input/one-output multiplier (34) having one of its inputs connected to the output of the first rectifier (30) and its other input connected to the output of a voltage-controlled oscillator (39);

a second two-input/one-output multiplier (35) having one of its inputs connected to the output of the second rectifier (31) and its other input connected to the output of the said voltage-controlled oscillator (39);

a first low pass filter (36) connected to the output of the first multiplier (34);

a second low pass filter (37) connected to the output of the second multiplier (35);

a two-input/one-output summing circuit (38) having one of its inputs connected to the output of the first low pass filter (35) and its other input connected to the output of the second low pass filter (37); and

the said voltage-controlled oscillator (39) having a control input connected to the output of the summing circuit (38) and an output delivering a signal at the frequency of the recovered clock rate and connected to one of the inputs of both the first and the second multipliers (34 and 35).

4,275,466

BLOCK SYNC SIGNAL EXTRACTING APPARATUS

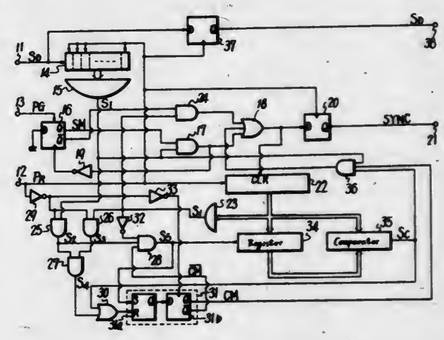
Kaichi Yamamoto, Zama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Nov. 29, 1979, Ser. No. 98,770

Claims priority, application Japan, Dec. 12, 1978, 53-153885

Int. Cl.³ H04L 7/06

U.S. Cl. 375—113 **9 Claims**



1. An apparatus for extracting a sync signal from a digital information signal consisting of a plurality of successive blocks each consisting of N successive bits (where N is an integer) and each having a sync portion consisting of a predetermined sync bit pattern and a data portion, said apparatus comprising:

sync pattern detecting means for detecting the occurrence of said sync bit pattern in said information signal and for generating a detected sync signal upon the detection of such an occurrence;

counting means for providing a count having a successive one of N cyclical count values in response to each successive bit of said information signal and for generating a counted sync signal every time said count has a predetermined one of said N cyclical count values; and

check mode means for memorizing said count of said counting means when said detected sync signal is generated other than in conjunction with the generation of said counted sync signal and for generating a checked sync signal when a subsequent detected sync signal is generated the next time after the memorization of said count that said counting means equals said memorized count, and for changing the count in said counting means when said checked sync signal is generated so that said counted sync signal will be generated after the counting of each N successive bits of said information signal which follow said subsequent detected sync signal.

259,595

SHOE SOLE

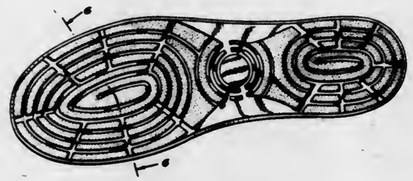
Joseph P. Famolare, Jr., Putney, Vt., assignor to Famolare, Inc., New York, N.Y.

Filed Aug. 6, 1979, Ser. No. 63,919

Term of patent 14 years

Int. Cl. D2—*04*

U.S. Cl. D2—320



259,596

CARRYING CASE FOR A RAZOR

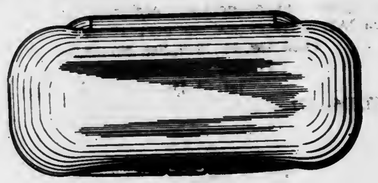
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Aug. 1, 1979, Ser. No. 62,887

Term of patent 14 years

Int. Cl. D3—*02*

U.S. Cl. D3—39





259,597

OTTOMAN

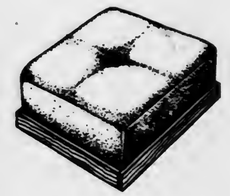
Robert J. Marks, 9350 SW. 106th St., Miami, Fla. 33157

Division of Ser. No. 823,966, Aug. 12, 1977. This application Sep. 21, 1979, Ser. No. 77,634

Term of patent 14 years

Int. Cl. D6—*01*

U.S. Cl. D6—36



259,598

CHAIR OR SIMILAR ARTICLE

Hermann Locher, Pfeffingen, Switzerland, assignor to Giroflex Entwicklungs AG, Koblenz, Switzerland

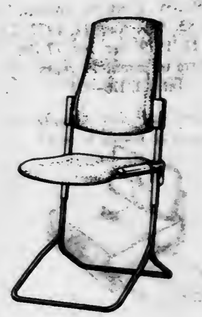
Filed Jan. 26, 1979, Ser. No. 7,149

Claims priority, application Switzerland, Jul. 31, 1978, 67346/78

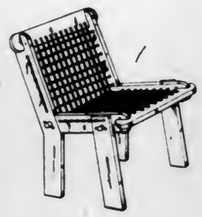
Term of patent 14 years

Int. Cl. D6—*01*

U.S. Cl. D6—75



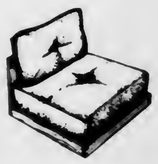
259,599
SEAT OR SIMILAR ARTICLE
Betty T. Credicott, 547 W. Empire St., Freeport, Ill. 61032
Filed Mar. 8, 1978, Ser. No. 884,721
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—76



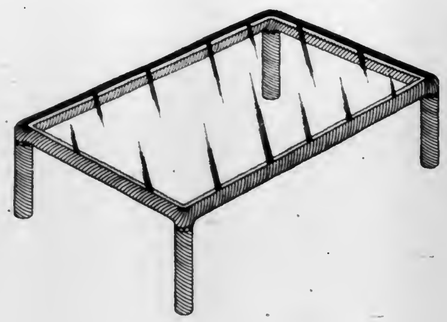
259,600
CORNER SEAT
Robert J. Marks, 9350 SW. 106th St., Miami, Fla. 33157
Division of Ser. No. 823,966, Aug. 12, 1977. This application Sep. 21, 1979, Ser. No. 77,641
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—76



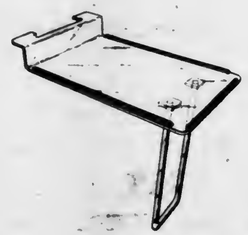
259,601
CHAIR
Robert J. Marks, 9350 SW. 106th St., Miami, Fla. 33157
Division of Ser. No. 823,966, Aug. 12, 1977. This application Sep. 21, 1979, Ser. No. 77,790
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—76



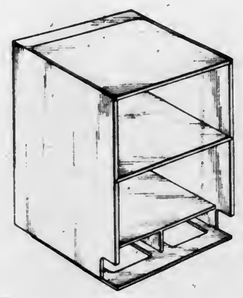
259,602
TABLE
Marcello Mioni, 9833 San Cir., Beverly Hills, Calif. 90210
Filed Aug. 7, 1978, Ser. No. 932,105
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—175



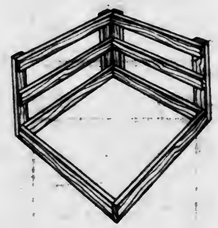
259,603
TABLE FOR USE PRIMARILY ON A BOAT
Yves Gagnon, 848, Marie-Anne, Montreal, Quebec, Canada (H2J 2A9)
Filed Apr. 11, 1979, Ser. No. 28,996
Term of patent 14 years
Int. Cl. D6—*03*
U.S. Cl. D6—177



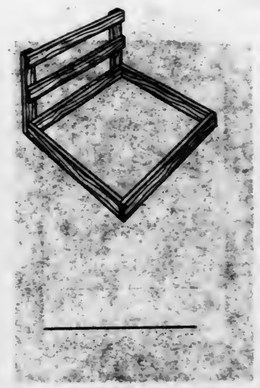
259,604
MODULAR CABINET BOX
Michael Schuler, Edison; Harvey B. Mandel, North Brunswick, and John E. Studer, Flemington, all of N.J., assignors to Ethicon, Inc., Somerville, N.J.
Filed Jul. 19, 1978, Ser. No. 926,065
Term of patent 14 years
Int. Cl. D6—*04*
U.S. Cl. D6—186



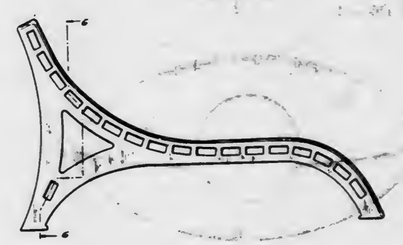
259,605
CORNER SEAT FRAME
Robert J. Marks, 9350 SW. 106th St., Miami, Fla. 33157
Division of Ser. No. 823,965, Aug. 12, 1977. This application Sep. 21, 1979, Ser. No. 77,603
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



259,606
CHAIR FRAME
Robert J. Marks, 9350 SW. 106th St., Miami, Fla. 33157
Division of Ser. No. 823,965, Aug. 12, 1977. This application Sep. 21, 1979, Ser. No. 77,614
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—191



259,607
END STANDARD FOR A LOUNGE SEAT
Otto Stahl, Jr., Cedar Grove Rd., Annandale, N.J. 08801, and William Koelbel, 4 S. Merrell St., Geneva, N.Y. 14456
Filed May 21, 1979, Ser. No. 40,691
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—195



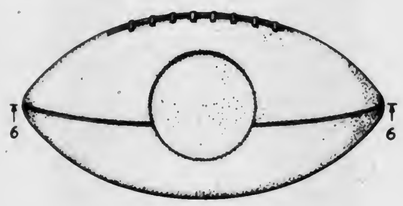
259,608
MAT FOR A BATHING FACILITY OR THE LIKE
Henry M. Stairs, Jr., Neshanic, and Jan Levitan, East Brunswick, both of N.J., assignors to American Standard Inc., New York, N.Y.
Filed May 11, 1979, Ser. No. 37,973
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D6—209



259,609
ORIENTAL RUG
Eduard Katzer, Wuppertal; Werner Brinkmann, Ulm/Donau, and Gerhard Wehner, Gehrden, all of Fed. Rep. of Germany, assignors to Vorwerk & Co. Teppichwerke GmbH & Co. KG., Wuppertal, Fed. Rep. of Germany
Filed Mar. 28, 1979, Ser. No. 24,777
Term of patent 14 years
Int. Cl. D6—*11*
U.S. Cl. D6—210



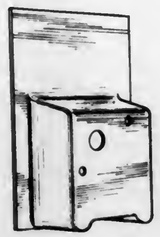
259,610
SIMULATIVE PHOTO FRAME
Nick P. Martin, 438 Crescent, Santa Maria, Calif. 93454
Filed Feb. 4, 1980, Ser. No. 118,469
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—245



259,611
SIMULATIVE PHOTO FRAME
Nick P. Martin, 438 Crescent, Santa Maria, Calif. 93454
Filed Apr. 14, 1980, Ser. No. 140,234
Term of patent 14 years
Int. Cl. D6—*07*
U.S. Cl. D6—245



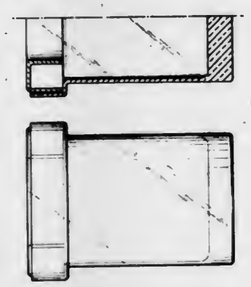
259,612
MUSIC BOX ENCLOSURE FOR A PICTURE FRAME OR THE LIKE
Clyde M. Wagner, 325 E. Stocker, Glendale, Calif. 91207
Filed May 19, 1978, Ser. No. 907,870
Term of patent 7 years
Int. Cl. D6—*07*
U.S. Cl. D6—246



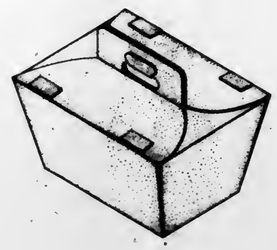
259,613
COFFEE DECANTER
Kin C. Sun, Kowloon, Hong Kong, assignor to Kin Hip Metal & Plastic Fty. Ltd., Kowloon, Hong Kong
Filed Feb. 14, 1979, Ser. No. 12,176
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—64

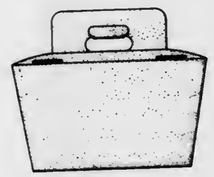


259,614
WINE COOLER
Nicholas P. Angelakos, States Island, N.Y., assignor to Lancaster Colony Corporation, New York, N.Y.
Filed Jun. 18, 1979, Ser. No. 49,521
Term of patent 14 years
Int. Cl. D07—*07, 06*
U.S. Cl. D7—70

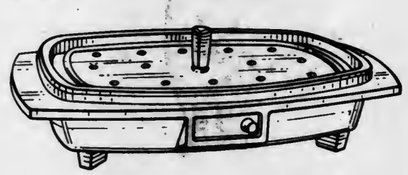


259,615
PORTABLE COOLER
George A. Morris, Jr., 720 Fair Oaks Manor, Atlanta, Ga. 30327
Filed Jan. 25, 1979, Ser. No. 51,529
Term of patent 14 years
Int. Cl. D07—*99*; D09—*03*
U.S. Cl. D7—76

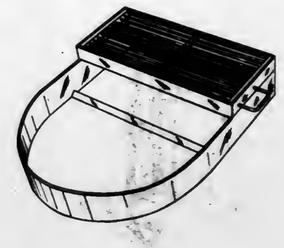




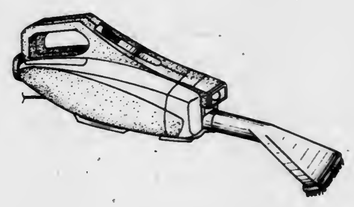
259,616
SAUSAGE COOKER
David L. Painter, Glenview, Ill., and Russell D. Hiatt, West Bend, Wis., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Jun. 1, 1979, Ser. No. 44,450
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—94



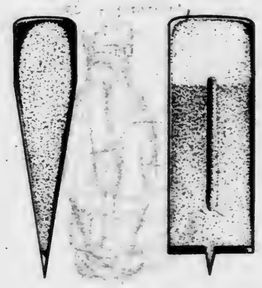
259,617
CAMPFIRE GRILL
Vance P. Braxton, III, Lesterville, Mo. 63654
Filed Nov. 28, 1979, Ser. No. 98,209
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—107



259,618
HAND-HELD VACUUM CLEANER WITH LIGHT
Suen S. Tack, Hong Kong, Hong Kong, assignor to Bon Aire Industries, Inc., Signal Hill, Calif.
Filed Oct. 27, 1978, Ser. No. 955,406
Term of patent 14 years
Int. Cl. D7—*05*
U.S. Cl. D7—164



259,619
WEDGE
William H. Nicholson, Sutton, Mass., assignor to Norman S. Blodgett, Worcester, Mass., a part interest
Filed Sep. 29, 1978, Ser. No. 947,719
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—47



259,620
FASTENING DEVICE FOR TIE DOWN STRAPS ON TARPAULINS AND THE LIKE
Walter Johnsen, Aurelia, Iowa 51005
Filed Aug. 17, 1979, Ser. No. 67,430
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—394



259,621
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,922
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—307



259,622
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,920
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—310



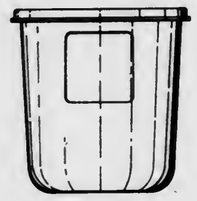
259,623
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,918
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—311



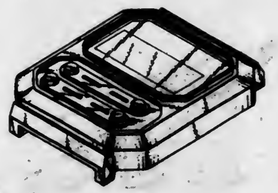
259,624
BOTTLE
Luis Sztuden, 5556 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,917
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—318



259,625
CONTAINER FOR ICE CREAM OR OTHER PRODUCTS IN BULK
Robert S. Hamilton, and John R. Saceden, both of Columbus, Ohio, assignors to Liqui-Box Corporation, Columbus, Ohio
Filed Dec. 26, 1978, Ser. No. 556
Term of patent 14 years
Int. Cl. D9—*03*
U.S. Cl. D9—428



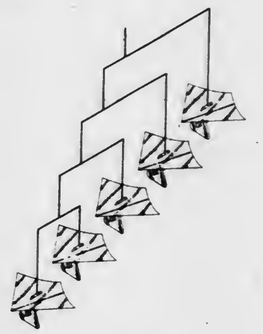
259,626
DIGITAL WRIST WATCH OR THE LIKE
Masao Wada, Mitaka, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Jul. 12, 1978, Ser. No. 924,216
Claims priority, application Japan, Feb. 10, 1978, 53-4374
Term of patent 14 years
Int. Cl. D10—*02*
U.S. Cl. D10—38



259,627
HIGHWAY SAFETY MARKER
Milton G. Morsvek, P.O. Box 412, Grand Island, Nebr. 68801
Filed Feb. 2, 1979, Ser. No. 8,889
Term of patent 14 years
Int. Cl. D10—*06*
U.S. Cl. D10—109



259,628
MOBILE
Andre Jacobs, 24 rue Fernand Neuray, Ixelles, Belgium
Filed Sep. 20, 1978, Ser. No. 943,984
Term of patent 3½ years
Int. Cl. D11—*02*
U.S. Cl. D11—141



259,629
COMBINED PLANTER AND WATERING DEVICE
Rean O. Titus, 4436 Mt. Elliott, Detroit, Mich. 48207
Filed Sep. 7, 1979, Ser. No. 73,548
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—144



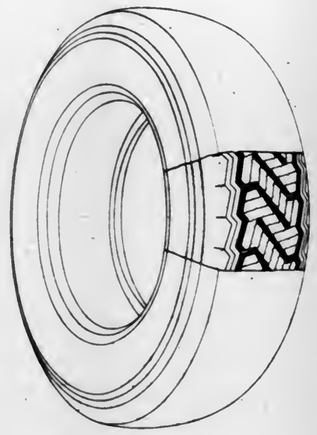
259,630
HORSEMAN FIGURE
Charles A. MacLean, 23073 Beech, Dearborn, Mich. 48124
Filed Apr. 25, 1979, Ser. No. 33,127
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



259,631
ANIMAL CARCASS HANDLING VEHICLE OR SIMILAR ARTICLE
William S. Ramacciotti, 13603 Q St., Omaha, Nebr. 68137
Filed Mar. 9, 1979, Ser. No. 19,092
Term of patent 14 years
Int. Cl. D12—*13*
U.S. Cl. D12—57



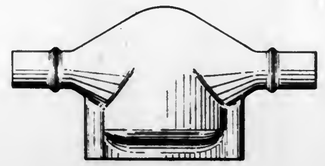
259,632
TIRE
Guy Amarger, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, Clermont-Ferrand, France
Filed Oct. 16, 1978, Ser. No. 951,842
Claims priority, application France, Apr. 25, 1978, 78 558
Term of patent 14 years
Int. Cl. D12—*15*
U.S. Cl. D12—147



259,633
VEHICLE CONSOLE UNIT
James P. Butler, Lewisville, Tex., assignor to Affiliated Hatch and Sunroof, Inc., Dallas, Tex.
Filed Oct. 30, 1978, Ser. No. 956,077
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—155



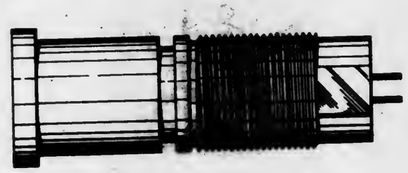
259,634
INSULATOR COVER
Melvin E. Clutter, Centralia, Mo., assignor to A. B. Chance Company, Centralia, Mo.
Filed May 18, 1979, Ser. No. 40,130
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—17



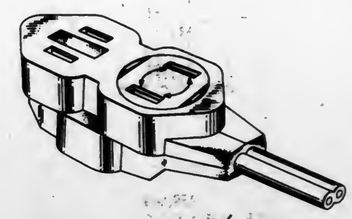
259,635
CONNECTOR ASSEMBLY FOR A WIRE CONDUIT
Merle A. Plummer, North Hollywood, Calif., assignor to Myers Electric Products, Inc., Montebello, Calif.
Filed Jan. 20, 1978, Ser. No. 917,300
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



259,636
STUFFING TUBE FOR PASSING ELECTRICAL CURRENT THROUGH BULKHEADS
Frederik K. Coppell, Barrington, R.I., assignor to FKC Engineering Co., Pawtucket, R.I.
Filed Jan. 22, 1979, Ser. No. 5,455
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—24



259,637
ELECTRIC CORD CONNECTOR
Robert L. Martin, Coventry, and Donald F. Smith, Warwick, both of R.I., assignors to General Electric Company, New York, N.Y.
Filed May 23, 1979, Ser. No. 41,562
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—30



259,638
TELEPHONE SUBSET
Roberto Della Giovanna, Milan, Italy, assignor to International Standard Electric Corporation, New York, N.Y.
Filed May 18, 1978, Ser. No. 907,225
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—53



259,639
TELEPHONE DESK SET
Larry Anthony, Gilroy, and Wayne Kasom, Jr., San Francisco, both of Calif., assignors to Rolm Corporation, Santa Clara, Calif.
Filed Sep. 5, 1978, Ser. No. 939,621
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—58



259,640
INDICATOR FOR CAMERA
Kazuaki Takata, Hachioji, Japan, assignor to Olympus Optical Company Ltd., Tokyo, Japan
Filed Dec. 29, 1978, Ser. No. 974,320
Claims priority, application Japan, Jul. 6, 1978, 5328496
Term of patent 14 years
Int. Cl. D16—*01*
U.S. Cl. D16—10



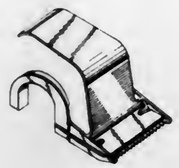
259,641
NOTE COUNTING MACHINE
Isamu Uchida, Tokyo, Japan, assignor to Laurel Bank Machine Co., Ltd., Tokyo, Japan
Filed Feb. 23, 1979, Ser. No. 14,492
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—3



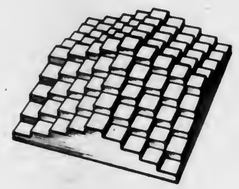
259,642
BALL POINT PEN
Francine Gomez, Paris, France, assignor to Waterman, S.A., Paris, France
Filed Jun. 5, 1979, Ser. No. 45,736
Claims priority, application France, Dec. 6, 1978, 77096
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—51



259,643
TAPE DISPENSER
Walter C. Pearson, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Apr. 17, 1979, Ser. No. 30,825
Term of patent 14 years
Int. Cl. D19—*02*
U.S. Cl. D19—69



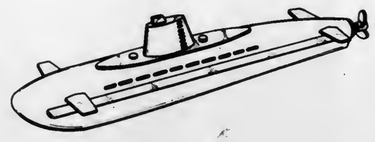
259,644
THREE DIMENSIONAL GAME BOARD
Leonard H. Israel, 817 20th St., Apt. 103-S, Santa Monica, Calif. 90403, and Perry J. Grant, 727 Ocampo Dr., Pacific Palisades, Calif. 90272
Filed Oct. 15, 1979, Ser. No. 84,812
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—23



259,645
TOY BALANCE
Masami Shiraishi, Tokyo, Japan, assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jun. 1, 1978, Ser. No. 911,676
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—102



259,646
TOY SUBMARINE
Herbert P. Grimberg, 20357 Baltar St., Canoga Park, Calif. 91306, and Richard Seifried, Jr., 13022 Berto Dr., Granada Hills, Calif. 91344
Filed Jul. 26, 1979, Ser. No. 61,240
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—130



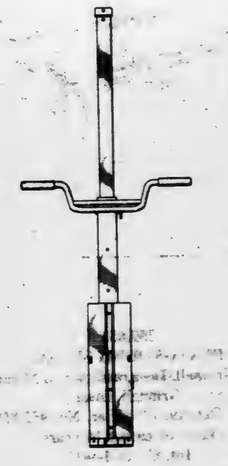
259,647
SKATEBOARDING FIGURINE TOY
Osamu Takahashi, Gardena, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jan. 15, 1979, Ser. No. 3,272
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—150



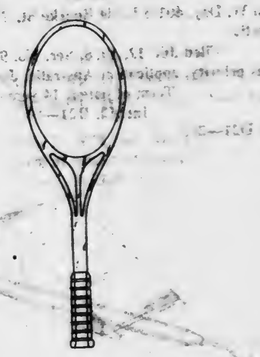
259,648
HOBBY HORSE FIGURINE TOY
Osamu Takahashi, Gardena, Calif., assignor to Tomy Kogyo Co., Inc., Tokyo, Japan
Filed Jan. 15, 1979, Ser. No. 3,270
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—181



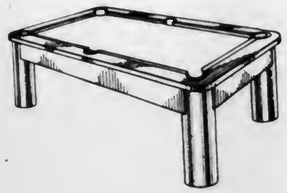
259,649
EXERCISER
Tim M. Uyeda, Los Angeles County, Calif., assignor to Marcy Gymnasium Equipment Company, Alhambra, Calif.
Filed Jan. 23, 1979, Ser. No. 4,694
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—195



259,650
TENNIS RACKET FRAME
Stephen E. Flott, Nashua, N.H., assignor to Adidas Fabrique de Chaussures de Sport, Landersheim, France
Filed Dec. 5, 1978, Ser. No. 966,760
Claims priority, application France, Jun. 8, 1978, 78 441
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—212



259,651
POOL TABLE
Arnold Kaye, Westport, Conn., assignor to Irving Kaye Company, Inc., Stamford, Conn.
Filed Jul. 30, 1979, Ser. No. 62,144
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—232



259,652
PLAYGROUND SWING
Paul W. Ahrens, Grinnell, Iowa, assignor to Miracle Recreation Equipment Company, Grinnell, Iowa
Filed Oct. 19, 1978, Ser. No. 952,859
Term of patent 14 years
Int. Cl. D21—*03*
U.S. Cl. D21—246



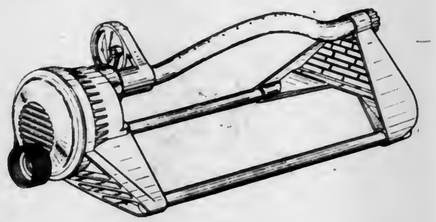
259,653
TENT
Maxwell W. Day, 401-5 Little Bourke St., Melbourne, Victoria, Australia
Filed Jul. 12, 1978, Ser. No. 923,981
Claims priority, application Australia, Jun. 13, 1978, 75042
Term of patent 14 years
Int. Cl. D21—*04*
U.S. Cl. D21—253



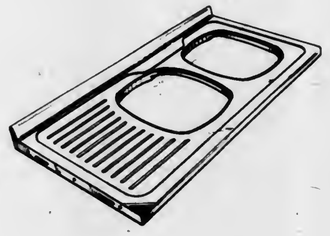
259,654
POLE CAP FOR TENT
Kaichi Babe, No. 6-18, 1-chome, Zoshigaya, Toshima-ku, Tokyo, Japan
Division of Ser. No. 830,487, Sep. 6, 1977, Pat. No. Des. 253,296. This application Feb. 23, 1979, Ser. No. 14,312
Term of patent 14 years
Int. Cl. D21—*04*
U.S. Cl. D21—254



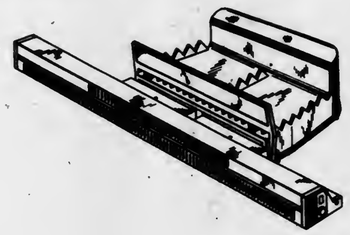
259,655
SPRINKLER
Gianfranco Roman, Pasiano, Italy, assignor to Claber S.p.A., Fiume Veneto, Italy
Filed Dec. 26, 1979, Ser. No. 106,511
Claims priority, application Italy, Jun. 26, 1979, 21949/79[U]
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—8



259,656
COMBINED DRAINBOARD AND SINK SUPPORT OR SIMILAR ARTICLE
Cornelis M. Alfrink, Born, Netherlands, and René L. E. van Gasse, Opglabbeek, Belgium, assignors to Teewen, B.V., Tegelen, Netherlands
Filed Dec. 22, 1977, Ser. No. 863,578
Claims priority, application Netherlands, Jun. 22, 1977, 5197401; Jun. 22, 1977, 5197402; Jun. 22, 1977, 5197403; Jun. 22, 1977, 5197406; Jun. 22, 1977, 5197407
Term of patent 14 years
Int. Cl. D23—*02*
U.S. Cl. D23—69



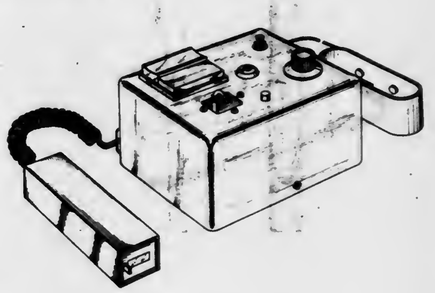
259,657
FORCED AIR FIREPLACE FURNACE
Thomas V. Metz, Portland, and W. James Sirois, Beaverton, both of Oreg., assignors to Pacific Fireplace Furnishings, Inc., Portland, Oreg.
Filed Dec. 7, 1978, Ser. No. 967,425
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—95



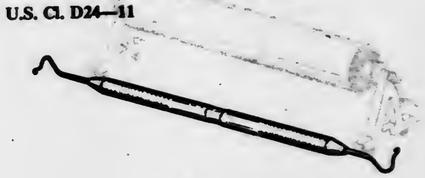
259,658
PIPEFITTING-INSULATION JACKET
Larry L. Bunting, 120 Englewood Dr., Asheboro, N.C. 27203
Filed Oct. 27, 1978, Ser. No. 955,401
Term of patent 14 years
Int. Cl. D23—*03*
U.S. Cl. D23—137



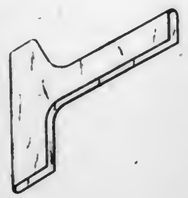
259,659
ELECTRICAL IMPULSE APPARATUS
Hartley M. Sears, Costa Mesa, Calif., assignor to Schick Laboratories, Inc., Los Angeles, Calif.
Filed Jan. 31, 1979, Ser. No. 8,095
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—8



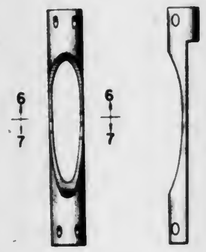
259,660
DENTAL THREADING TOOL
Alan J. Sosnay, 4 Washington Square Village, New York, N.Y. 10012
Filed Feb. 2, 1979, Ser. No. 8,972
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—11



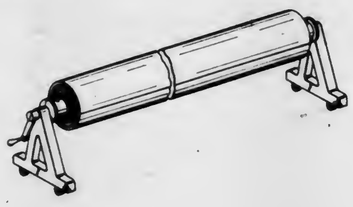
259,661
ELECTRO-DESSICATOR HANDLE COVER
Patricia L. McGinnis, 7275 Columbus Dr., Anaheim Hills, Calif. 92807
Filed Feb. 14, 1979, Ser. No. 12,231
Term of patent 14 years
Int. Cl. D24—*99*
U.S. Cl. D24—17



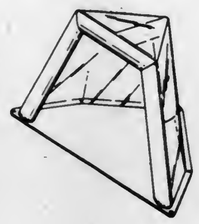
259,662
TOURNIQUET AND VEIN DELINEATOR
John C. C. Gandier, Maitland, Canada, assignor to American Home Products Corp., New York, N.Y.
Filed Aug. 14, 1978, Ser. No. 934,225
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—27



259,663
POOL COVER ROLLER
Graziano Sovernigo, 1418 Chartwell Dr., West Vancouver, British Columbia, Canada
Filed Aug. 10, 1979, Ser. No. 65,594
Term of patent 14 years
Int. Cl. D25—*99*
U.S. Cl. D25—2



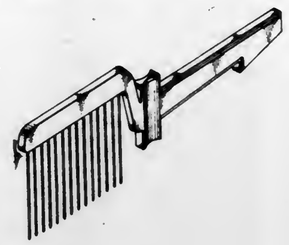
259,664
SHELTER
Sheila M. Curless, Harrogate, England, assignor to Gateley Enterprises, Harrogate, England
Filed Jul. 18, 1979, Ser. No. 58,585
Claims priority, application United Kingdom, Mar. 1, 1979, 988784/79
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—56



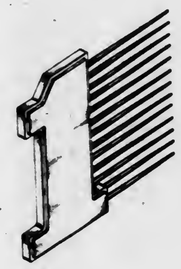
259,665
HAIR DRYER
Morison S. Cousins, New York, N.Y., assignor to The Gillette Company, Boston, Mass.
Filed May 30, 1979, Ser. No. 43,883
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—13



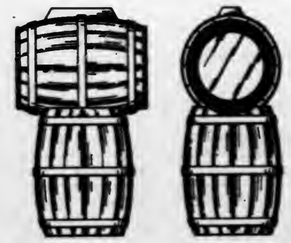
259,666
COMB
Loyal E. Williams, 20817 SW. Alexander, Aloha, Oreg. 97005
Filed Sep. 4, 1979, Ser. No. 71,936
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—22



259,667
COMB
Loyal E. Williams, 20817 SW. Alexander, Aloha, Oreg. 97005
Filed Sep. 4, 1979, Ser. No. 72,338
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—22



259,668
AQUARIUM
Humberto G. Vazquez, 505 S. Fifth St., Rockford, Ill. 61108
Filed Aug. 6, 1979, Ser. No. 63,843
Term of patent 14 years
Int. Cl. D30—*02*
U.S. Cl. D30—10



259,669
PET FOOD DISH
Lloyd A. Peterson, Center City, Minn., assignor to Lloyd Plastics Company, Forest Lake, Minn.
Filed Jun. 2, 1980, Ser. No. 155,299
Term of patent 14 years
Int. Cl. D30—*03*
U.S. Cl. D30—16



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 23RD DAY OF JUNE, 1981

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.C. Sprayers Inc.: *See*—
Jones, Derek, 4,274,589, Cl. 239-167.000.

A.J.P. Scientific, Inc.: *See*—
Di Maggio, Joseph P., Jr.; Eng, Henry; Ball, Donald A.; and Walenciak, Kenneth J., 4,274,359, Cl. 118-56.000.

A-T-O, Inc.: *See*—
Painter, P. Eric; and Fisher, Curtis P., 4,274,187, Cl. 29-225.000.

AB Svenska Flaktfabriken: *See*—
Lindau, Leif A. V., 4,274,842, Cl. 55-72.000.

Abbott Laboratories: *See*—
Moore, Edwin G., 4,274,978, Cl. 252-408.000.
Tananier, John S.; and Martin, Jerry R., 4,275,193, Cl. 536-17.00R.

Abbott, Seth R., to Varian Associates, Inc. Fluorescent composition, a process for synthesizing the fluorescent composition, and methods of use of the fluorescent composition. 4,275,300, Cl. 250-304.000.

Abe, Ichiro, to Kirin Beer Kabushiki Kaisha. Device for automatically guiding and regulating travel of bottles or the like in a conveying system. 4,274,533, Cl. 198-450.000.

Abell, Irwin R., to Hartwig-Hartoglass, Inc. Double-wall greenhouse with flexible film walls. 4,274,234, Cl. 52-63.000.

Aberfoyle Services Pty. Ltd.: *See*—
Denholm, William T.; and Foo, Kevin A., 4,274,868, Cl. 75-21.000.

Abernethy, Lynn W.; and Watts, Elvert S., to AMP Incorporated. Modular jack. 4,274,691, Cl. 339-19.000.

Abo, Toshimi, to Nissan Motor Company, Limited. Air/fuel ratio control system equipped with a temperature sensor fail-safe system for an internal combustion engine. 4,274,381, Cl. 123-479.000.

Abrahamsson, Axel B.: *See*—
Bistrick, Eugene J.; and Abrahamsson, Axel B., 4,274,767, Cl. 407-18.000.

Abrahamsson, Tage, to Metzeler AB. Filter means. 4,274,960, Cl. 210-221.100.

Acker Drill Company, Inc.: *See*—
Multakh, Leonid, 4,274,769, Cl. 408-145.000.
Multakh, Leonid, 4,274,769, Cl. 408-145.000.

Adam, Donald E.: *See*—
Sikdar, Subhas K.; Adam, Donald E.; and Winterbottom, Howard, 4,275,038, Cl. 423-321.00S.

Adam, Kenneth L. Pig restraining device. 4,274,366, Cl. 119-98.000.

Adams, Jerry W., to Vapor Matic Corporation. Fuel vaporizer. 4,274,383, Cl. 123-523.000.

Adams, Milton R.: *See*—
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.

Adams, Robert L., Jr.; Grant, Carl H.; and Stevens, Karl W., to International Business Machines Corporation. I/O Interrupt sequencing for real time and burst mode devices. 4,275,440, Cl. 364-200.000.

Adolfsson, Morgan, to ASEA Aktiebolag. Stabilized fiber optical measuring apparatus. 4,275,296, Cl. 250-227.000.

Adrian, Rudolf: *See*—
Thiele, Kurt; Ahmed, Quazi; Jahn, Ulrich; and Adrian, Rudolf, 4,275,068, Cl. 424-266.000.

Adsley, Ian: *See*—
Wykes, John S.; and Adsley, Ian, 4,275,298, Cl. 250-255.000.

Advanced Coating Technology, Inc.: *See*—
Love, Robert B., 4,274,936, Cl. 204-192.00R.

Agazzone, Umberto; and Ausiello, Francesco P., to Fiat Auto S.p.A.; and Ercole Marelli & C. S.p.A. Control and protection system for an installation for the combined production of electrical and thermal energy. 4,275,311, Cl. 290-2.000.

Agence Nationale de Valorisation de la Recherche (ANVAR): *See*—
Duhamel, Lucette; and Plaquevent, Jean-Christophe, 4,275,217, Cl. 548-344.000.
Imbert, Christian; Levy, Yves; and Loulergue, Jean-Claude, 4,275,302, Cl. 250-330.000.

AGFA-Gevaert, A.G.: *See*—
Benker, Fritz; Credner, Hans-Heinrich; Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, 4,275,200, Cl. 544-137.000.
Thurm, Siegfried; and Bunge, Konrad, 4,274,732, Cl. 355-38.000.

AGFA-GEVAERT N.V.: *See*—
Burtin, Jean; and Geens, Maurits, 4,274,748, Cl. 356-431.000.
Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, 4,274,747, Cl. 356-431.000.

Agrober Mezogazdasagi es Elelmiszeripari Tervezo, Beruhazasivallalat: *See*—
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, 4,274,597, Cl. 239-542.000.

Ahlberg, Lloyd A.: *See*—
Tittmann, Bernhard R.; and Ahlberg, Lloyd A., 4,274,288, Cl. 73-602.000.

Ahmed, Quazi: *See*—
Thiele, Kurt; Ahmed, Quazi; Jaha, Ulrich; and Adrian, Rudolf, 4,275,068, Cl. 424-266.000.

Ahroni, Joseph M. Fused electric plug with snap-fitted body parts. 4,274,698, Cl. 339-147.00P.

Aisan Industry Co., Ltd.: *See*—
Morino, Toshiharu; and Okamura, Masayuki, 4,275,016, Cl. 261-44.00C.

Aish, Roslyn R., to National Research Development Corporation. Modelling arrangements. 4,275,449, Cl. 364-512.000.

Aisin Seiki Kabushiki Kaisha: *See*—
Kodama, Hisashi, 4,274,370, Cl. 123-90.550.
Nakane, Mototaka, 4,274,524, Cl. 192-48.300.

Aisin-Warner K.K.: *See*—
Moroto, Shuzo; and Kobayashi, Kouji, 4,274,519, Cl. 192-3.280.

Ajimine, Akio: *See*—
Nakamura, Kenji; Ishikawa, Masao; and Ajimine, Akio, 4,274,358, Cl. 116-288.000.

Ajinomoto Company, Incorporated: *See*—
Tanaka, Takashi; Ono, Eiji; and Takinami, Koichi, 4,275,011, Cl. 260-410.700.
Tosaka, Osamu; Ono, Eiji; Ishihara, Masaru; Morioka, Hajimu; and Takinami, Koichi, 4,275,157, Cl. 435-115.000.

Akasaka, Naomi: *See*—
Suzuki, Yoshihiro; Kinoshita, Hiroo; and Akasaka, Naomi, 4,274,981, Cl. 252-438.000.

Akasu, Hiroyuki: *See*—
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Akita, Yoshio: *See*—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Akiya, Takeo: *See*—
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Aktiebolaget Electrolux: *See*—
Crener, Bengt O., 4,274,847, Cl. 55-374.000.

Akzo N.V.: *See*—
Burley, Joseph W.; Hope, Peter; and Pritchard, Malcolm G., 4,274,999, Cl. 260-45.75S.

Akzona Incorporated: *See*—
Zengel, Hans; and Bergfeld, Manfred, 4,275,223, Cl. 560-115.000.

Albert, Ernst: *See*—
Blurock, Gunter; and Albert, Ernst, 4,274,297, Cl. 74-424.80R.

Albert, Robert J.: *See*—
Schmitt, Friedrich W., 4,274,452, Cl. 141-1.000.

Alcan Research and Development Limited: *See*—
Gayra, Bohdan, 4,275,043, Cl. 423-130.000.
Lever, Gordon, 4,275,042, Cl. 423-130.000.
McNeely, Wray G.; Jack, Stanton E.; and O'Dette, John H., 4,274,894, Cl. 149-7.000.

Alexander Shand Services Limited: *See*—
Phillips, Raymond J., 4,274,796, Cl. 414-690.000.

Alexander, William C.; Kirk, Richard L.; and Thomsen, Kenneth A., to Goodyear Aerospace Corporation. Electrical signal interconnection coupler. 4,275,376, Cl. 340-52.00R.

Allbert, Barrie J.; French, Tom; Kemp, Ian; and Corner, Michael R., to Dunlop Limited. Pneumatic tire and wheel rim assembly. 4,274,465, Cl. 152-379.500.

Allen-Bradley Company: *See*—
Struger, Odo J.; and Branc, Joseph R., 4,275,307, Cl. 250-551.000.

Allied Chemical Corporation: *See*—
Bedell, John R.; Kavesh, Sheldon; Hemmat, Naim S.; Draizen, Seymour; and Smith, Robert W., 4,274,473, Cl. 164-423.000.
Friedland, David J.; Tewksbury, Floyd L.; and Robinson, Martin A., 4,275,037, Cl. 423-8.000.

Allis-Chalmers Corporation: *See*—
Sloisarek, Michael L.; and Zajicek, William J., 4,274,671, Cl. 296-190.000.

Alps Electric Co., Ltd.: *See*—
Sekiguchi, Mitsuo, 4,275,369, Cl. 333-209.000.
Wagatsuma, Tadashi; and Hiwatashi, Kenji, 4,275,279, Cl. 200-11.0DA.

Alsthom-Atlantique: *See*—
Huber, Andre; Muller, Alain; and Soffer, Jacques, 4,275,341, Cl. 318-376.000.

Alton Box Board Company: *See*—
Arnold, Clayton R., 4,274,580, Cl. 229-52.00B.

Ambrose, John: *See—*
Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., 4,274,930, Cl. 204-112.000.

American Beverage Control: *See—*
Shannon, Joseph W., 4,274,557, Cl. 222-136.000.

American Can Company: *See—*
Boardman, Alfred H., 4,274,351, Cl. 113-1.00F.

American Cyanamid Company: *See—*
Conrow, Ransom B.; and Bernstein, Seymour, 4,275,076, Cl. 424-309.000.
Goodman, Richard M.; and Panzer, Hans P., 4,274,945, Cl. 209-5.000.
Murdock, Keith C., 4,275,009, Cl. 260-380.000.
Murdock, Keith C., 4,275,010, Cl. 260-380.000.

American Home Products Corporation: *See—*
Wei, Peter H. L.; and Gregory, Francis J., 4,275,065, Cl. 424-256.000.

American Hospital Supply Corporation: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,275,153, Cl. 435-13.000.

American Safety Flight Systems, Inc.: *See—*
Molzan, Albert R.; and Cleary, James D., 4,274,404, Cl. 128-204.250.

AMF Incorporated: *See—*
Grosser, Richard W.; and Long, Virgil L., Sr., 4,274,626, Cl. 272-109.000.
Weiss, Arnold A.; Christensen, David C.; and Sikkema, Bruce H., 4,274,289, Cl. 73-618.000.

AMFAC Foods, Inc.: *See—*
Brown, Roger A.; Clyde, William F.; and Galusha, Glenn D., 4,275,086, Cl. 426-518.000.

AMP Incorporated: *See—*
Abernethy, Lynn W.; and Watts, Elvert S., 4,274,691, Cl. 339-19.000.
Cobaugh, Robert F.; and Mendenhall, David W., 4,274,693, Cl. 339-65.000.
Long, William B.; and Zimmerman, John A., Jr., 4,274,696, Cl. 339-103.00R.

AMSTED Industries Incorporated: *See—*
Neumann, Otto W.; and Henkel, James A., 4,274,340, Cl. 105-197.0DB.

Anav, Maurice; Duhayon, Jacques; Goumondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, to Commissariat a l'Energie Atomique. Method of extraction, trapping and storage of radioactive iodine contained in irradiated nuclear fuels. 4,275,045, Cl. 423-249.000.

Andersen Samplers Inc.: *See—*
Smith, Michael L., 4,274,846, Cl. 55-270.000.

Anderson, Olof V., to Auson Incorporated. Jewelry clutch. 4,274,180, Cl. 24-155.0BR.

Anderson, Robert F., to UOP Inc. Alkylation combined settler-soaker apparatus. 4,275,032, Cl. 422-110.000.

Anderson, Weston A.; Clark, Lloyd D.; and Beaver, William L., to Varian Associates, Inc. Sector scanner display and recording system for ultrasonic diagnosis. 4,274,422, Cl. 128-661.000.

Andersson, Morgan. Dispenser preferably driven by compressed-air for continuously dispensing a substance from a container, and in particular a viscous or paste-like material. 4,274,561, Cl. 222-334.000.

Andersson, Per-Erik: *See—*
Kroneld, Erik G.; and Andersson, Per-Erik, 4,274,911, Cl. 162-15.000.

Ando, Noboru: *See—*
Beppu, Teruhiko; and Ando, Noboru, 4,275,162, Cl. 435-196.000.

Ando, Tsunekazu, to Hochiki Corporation. Branching equipment for CATV systems. 4,275,365, Cl. 333-131.000.

Andres, Robert W., to Owens Service Corporation. Chiller control. 4,274,264, Cl. 62-148.000.

Andresen, Harvey E.; and Persohn, Thomas F., to Union Carbide Corporation. Acetylene recovery process and apparatus. 4,274,841, Cl. 55-40.000.

Angle, Rodney L., to RCA Corporation. Method for making a closed gate MOS transistor with self-aligned contacts. 4,274,193, Cl. 29-571.000.

Anson, Bruce S.: *See—*
Bolliger, Frederic E.; Woodhouse, Geoffrey D.; Mattson, George B.; Anson, Bruce S.; and Hatch, Robert A., 4,274,253, Cl. 60-39.030.

Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, to Kureha Kagaku Kogyo Kabushiki Kaisha. N-Benzoyl-N'-halogenoalkylidenehydrazine derivatives, process for preparing same, and agricultural and horticultural fungicide comprising such derivatives. 4,275,078, Cl. 424-324.000.

Apple, Martin A.; and Pappo, Raphael, to G. D. Searle & Co. Bis(4-demethoxydaunorubicin)dihydrazone derivatives and pharmacologically acceptable salts thereof. 4,275,192, Cl. 536-17.00A.

Applegate, Barry G.: *See—*
Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., 4,274,530, Cl. 198-347.000.

Appleton Papers Inc.: *See—*
Becker, William J.; Farber, Sheldon; and Hoover, Troy E., 4,275,206, Cl. 546-115.000.

Arai, Shoji: *See—*
Saito, Toshihiro; Arai, Shoji; and Tsutsumi, Yukihiro, 4,275,243, Cl. 568-496.000.

Arai, Yasue: *See—*
Kikuiri, Makoto; Nakashio, Yoshimi; Arai, Yasue; and Hidaka, Toshio, 4,274,913, Cl. 162-65.000.

Araki, Shigeru: *See—*
Mori, Kazuhiro; Misawa, Yoshihiko; Mayahara, Kiyoshi; and Araki, Shigeru, 4,274,529, Cl. 198-339.000.

Araki, Tamio: *See—*
Ogawa, Masaki; Araki, Tamio; and Yamamoto, Shinji, 4,274,462, Cl. 152-209.00R.

Arbed S.A.: *See—*
Metz, Paul, 4,274,863, Cl. 75-5.000.

Arena, Blaise J., to UOP Inc. Chitin- and chitosan-based immobilized metal catalysts. 4,274,980, Cl. 252-430.000.

Arias, Henry: *See—*
Ferris, Michael J.; and Arias, Henry, 4,274,629, Cl. 273-1.00R.

Armstrong Cork Company: *See—*
Rueggeberg, Werner, 4,275,301, Cl. 250-326.000.

Arnett, Robert D., Jr. Compact starter assembly. 4,274,292, Cl. 74-6.000.

Arnold, Clayton R., to Alton Box Board Company. Container carrier. 4,274,580, Cl. 229-52.00B.

Arrowhead Enterprises, Inc.: *See—*
Mudge, Philip H., 4,275,303, Cl. 250-342.000.

Arteche, Instrumentacion y Systemas Electronicos, S.A.: *See—*
Di Pietro Elizaran, Rodolfo, 4,275,445, Cl. 364-480.000.

Arvin Industries, Inc.: *See—*
Maxey, Alexander R., 4,275,424, Cl. 360-85.000.

Asahi-Dow Limited: *See—*
Shimizu, Hiroshi; Sato, Hiroshi; Miura, Nobuo; and Inada, Shuzo, 4,275,023, Cl. 264-50.000.
Watanabe, Seizaburo; and Matsuki, Yutaka, 4,275,168, Cl. 521-82.000.
Yamashita, Izumi; Fukuda, Kunio; and Tazaki, Kichiya, 4,274,998, Cl. 260-45.75B.

Asahi Glass Company, Ltd.: *See—*
Narisawa, Shigeyuki; Yanase, Hiroshi; and Kanno, Fukuo, 4,274,993, Cl. 260-37.00R.
Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, 4,275,226, Cl. 560-183.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Matsuo, Hirohumi, 4,274,711, Cl. 350-464.000.

Asahi, Taro: *See—*
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Asai, Sigeru, to Daicel Ltd. Optical fiber for transmission. 4,274,709, Cl. 350-96.340.

Asano, Noriyuki: *See—*
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, 4,274,735, Cl. 356-1.000.

Asano, Toshihisa: *See—*
Tachikawa, Kyoji; Tanaka, Yoshiaki; Yoshida, Yuji; and Asano, Toshihisa, 4,274,889, Cl. 148-133.000.

ASEA Aktiebolag: *See—*
Adolfsson, Morgan, 4,275,296, Cl. 250-227.000.
Aviander, Stig; and Jacobsson, Curt, 4,275,356, Cl. 328-129.000.

Ashaway Line & Twine Mfg. Co.: *See—*
Crandall, Steven J., 4,275,117, Cl. 428-373.000.

Ashizaki, Shigeya; Muranishi, Hideo; and Sugahara, Koichi, to Matsushita Electronics Corporation. In-line electron gun. 4,275,332, Cl. 313-414.000.

Astleford, John J., Jr.: *See—*
Swoish, Raymond F.; and Astleford, John J., Jr., 4,275,431, Cl. 361-93.000.

Atlas Copco Aktiebolag: *See—*
Bergstrom, Claes-Gustav, 4,274,494, Cl. 173-2.000.

Audi Nsu Auto Union Aktiengesellschaft: *See—*
Lechler, Rolf; and Leitermann, Wulf, 4,274,815, Cl. 418-91.000.

Aufenvenne, Wilhelm: *See—*
Kaul, Gunther; Grunert, Wilfried; and Aufenvenne, Wilhelm, 4,274,780, Cl. 414-64.000.

Augustyn, Edward J., to NL Industries, Inc. Coupling agents for thermoplastic composites. 4,274,987, Cl. 260-23.00H.

Ausiello, Francesco P.: *See—*
Agazzone, Umberto; and Ausiello, Francesco P., 4,275,311, Cl. 290-2.000.

Auson Incorporated: *See—*
Anderson, Olof V., 4,274,180, Cl. 24-155.0BR.

Austin Hoy and Company Limited: *See—*
Herridge, Frederick, 4,274,678, Cl. 299-92.000.

Austin, Jared A., to Kimberly-Clark Corporation. Tampon containing blended superabsorbent material. 4,274,412, Cl. 128-285.000.

Australian National University, The: *See—*
Ringwood, Alfred E., 4,274,976, Cl. 252-301.10W.

Autoclave Engineers, Inc.: *See—*
Ruyak, Robert F., 4,274,444, Cl. 137-630.140.

Automation Systems, Inc.: *See—*
Bartlett, Peter G., 4,275,455, Cl. 364-900.000.

Aviander, Stig; and Jacobsson, Curt, to ASEA Aktiebolag. Digital time dependent relay circuitry. 4,275,356, Cl. 328-129.000.

Azuma, Shinsuke. Automotive hot water heater. 4,274,390, Cl. 126-19.500.

B. F. Goodrich Company, The: *See—*
Riew, Changkiu K., 4,274,994, Cl. 260-40.00R.
Sims, Gerald S., 4,274,526, Cl. 193-25.00B.

Babcock & Wilcox Company, The: *See—*
Girardi, Vincent J., 4,274,775, Cl. 409-251.000.

Babitzka, Rudolf: *See—*
Wilfert, Thomas; Babitzka, Rudolf; and Schlagmuller, Walter, 4,274,598, Cl. 239-585.000.

Babjak, Juraj: *See—*
Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., 4,274,930, Cl. 204-112.000.

Baby Relax: *See—*
Deloustal, Bernard, 4,274,674, Cl. 297-250.000.

Baker, John H. Apparatus and method for uniformly spreading a flowing stream of dry solids. 4,274,527, Cl. 193-32.000.

Ball, Donald A.: *See—*
Di Maggio, Joseph P., Jr.; Eng, Henry; Ball, Donald A.; and Walenciak, Kenneth J., 4,274,359, Cl. 118-56.000.

Balmer, Beat, to Kern & Co. AG. Method and apparatus for electrooptical distance measurement. 4,274,736, Cl. 356-5.000.

Balzarini, Giovanni; Buccino, Giovanni; Gnadeberg, Jules; Papeschi, Roberto; and Slavich, Giancarlo, to U.S. Philips Corporation. Method of and apparatus for testing of mass-produced articles. 4,275,451, Cl. 364-580.000.

Ban, Thomas E.; and Marlowe, William H., to Dravo Corporation. Method for improving bed firing characteristics and inhibiting coalescence of coal pellets. 4,274,836, Cl. 44-6.000.

Bando, Shigeru: *See—*
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.

Baney, Ronald H.; and Chi, Frank K., to Dow Corning Corporation. Pigment-free coatings with improved resistance to weathering. 4,275,118, Cl. 428-412.000.

Bangs, John R. Solar energy absorber. 4,274,395, Cl. 126-432.000.

Baniel, Avraham M.; Blumberg, Ruth; and Hajdu, Klara, to Imi (Tami) Institute for Research and Development. Recovery of acids from aqueous solutions. 4,275,234, Cl. 562-584.000.

Bannert, Johann; and Nagel, Guenter, to Siemens Aktiengesellschaft. Lockable contact socket for insertion into a plug connector. 4,274,701, Cl. 339-217.00S.

Bannon, Robert P., to Shell Oil Company. Fractionation process. 4,274,944, Cl. 208-352.000.

Banzai, Keiichiro: *See—*
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Barclay, John H., to FMC Corporation. Method for transfer of crane from tower. 4,274,542, Cl. 212-270.000.

Bardenbeuer, Friedrich; Konig, Horst; Junker, Alois; and Rath, Gero, to Mannesmann Aktiengesellschaft. Method for producing low-carbon steel from iron ores containing vanadium and/or titanium. 4,274,867, Cl. 75-13.000.

Barefoot, Carlton K. Method and apparatus for vulcanizing tires. 4,274,897, Cl. 156-96.000.

Bargain, Michel; and Lefort, Marcel, to Rhone-Poulenc Industries. Ethylenic silicon compounds and thermoplastic elastomers obtained therefrom. 4,275,184, Cl. 528-26.000.

Barillo, Joseph: *See—*
Tokosh, Richard; Barillo, Joseph; and Urban, Warren, 4,275,013, Cl. 260-504.00R.

Barker, Walter D. Granular material unloading vehicle with pressure-relief box. 4,274,790, Cl. 414-502.000.

Barley, Geoffrey W., to UOP Inc. Rotary vibration dampers. 4,274,516, Cl. 188-310.000.

Barr, John B., to Union Carbide Corporation. Spin size and thermosetting aid for pitch fibers. 4,275,051, Cl. 423-447.400.

Barth, Bruce P.; Johnson, Robert N.; and Mayer, Walter P., to Union Carbide Corporation. Frothable polyurethane composition and a cellular foam produced therefrom suitable for use in joints between wallboards. 4,275,172, Cl. 521-112.000.

Bartholic, David B.; and Chin, Don S., to Engelhard Minerals & Chemicals Corporation. Control of emissions in FCC regenerator flue gas. 4,274,942, Cl. 208-113.000.

Bartholomew, Victor L. Tracheotomy mask. 4,274,406, Cl. 128-206.210.

Bartkus, Edward A.; and Price, Robert L., to International Business Machines Corporation. Polyester stabilization process and product. 4,275,107, Cl. 428-220.000.

Bartlett, Peter G., to Automation Systems, Inc. Output interface card suitable for use with a programmable logic controller. 4,275,455, Cl. 364-900.000.

Beacou, Edith; and Ferliet, Jean-Pierre, to Filotex. Method of manufacturing a flexible electric cable which has a tinned stranded conductor on which an insulation is applied at a high temperature. 4,274,895, Cl. 156-53.000.

BASF Aktiengesellschaft: *See—*
Bjordahl, James, 4,275,427, Cl. 360-106.000.
Schoenafinger, Eduard; Motz, Herbert; Ohlinger, Manfred; Deigner, Paul; and Grau, Werner, 4,275,114, Cl. 428-328.000.

BASF Wyandotte Corporation: *See—*
Helfert, Herbert; and Davis, Pauls, 4,273,244, Cl. 568-624.000.
Login, Robert B., 4,275,176, Cl. 525-48.000.

Bassler, Wolfgang, to Mahle GmbH; and Institut fur Werkzeugmaschinen und Betriebstechnik Universitat Karlsruhe. Method of electroplating and honing light-alloy workpieces. 4,274,925, Cl. 204-26.000.

Bastian, Thomas W., to General Dynamics, Pomona Division. Jet tab control mechanism for thrust vector control. 4,274,610, Cl. 244-3.220.

Battelle Memorial Institute: *See—*
Bergmann, Erich; and Horlaville, Gerard, 4,275,126, Cl. 429-30.000.
Trojer, Felix; and Briggs, John, 4,275,102, Cl. 428-119.000.

Batterby, Edward. Method of forming a corrugated annulus. 4,274,275, Cl. 72-307.000.

Baughman, Richard C.; and Giometti, Michael A., to Eastman Kodak Company. Evaporator. 4,274,844, Cl. 55-196.000.

Baumann, Kai J.; and Ying, Sui-Chun, to Electric Power Research Institute, Inc. Radiation shield for use in a superconducting generator or the like and method. 4,275,320, Cl. 310-52.000.

Baumgartner Papiers S.A.: *See—*
Vulliens, Philippe, 4,274,317, Cl. 83-74.000.

Baus, Heinz G. Massage shower having a guide rail. 4,274,400, Cl. 128-53.000.

Bayer Aktiengesellschaft: *See—*
Bohm, Siegfried; Klein, Alfons; and Wedemeyer, Karlfried, 4,275,241, Cl. 568-426.000.
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.
Hinz, Jurgen; and Brudermanns, Karola, 4,274,991, Cl. 260-30.80R.
Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, 4,274,439, Cl. 137-601.000.
Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, Erich; and Marhold, Albrecht, 4,275,250, Cl. 568-812.000.
Schulte, Klaus; and Peters, Robert, 4,275,033, Cl. 422-133.000.

Bayer, Herbert; Hoffmann, Gunther; and Schnon, Eberhard, to Wandel & Goltermann. Method of and system for measuring the transmission characteristics of four-terminal networks. 4,275,348, Cl. 324-57.00R.

Bayles, Richard A.; and Shuster, Philip, to Bayles, Richard A. Suspension file assembly. 4,274,687, Cl. 312-205.000.

Bayman, Jack A.: *See—*
Brinson, Thomas F.; and Bayman, Jack A., 4,274,679, Cl. 301-37.0AT.

BBC Brown, Boveri & Company: *See—*
Melton, Keith; and Mercier, Olivier, 4,274,872, Cl. 75-157.500.

BBC Brown Boveri & Company Limited: *See—*
Bernasconi, Felix R., 4,274,755, Cl. 403-337.000.
Bischofberger, Walter; and Zeller, Norbert, 4,275,392, Cl. 340-606.000.
Bukajlo, Jerzy, 4,274,260, Cl. 60-663.000.
Buxbaum, Charley; Gessinger, Gernot; and Strassler, Sigfrid, 4,275,123, Cl. 428-547.000.
Kalt, Jorg; and Kehlhofer, Rolf, 4,274,256, Cl. 60-39.18B.

Beatrice Foods Company: *See—*
Walter, Merrill H.; and Jacobs, Stanley, 4,274,350, Cl. 112-235.000.

Beaver, William L.: *See—*
Anderson, Weston A.; Clark, Lloyd D.; and Beaver, William L., 4,274,422, Cl. 128-661.000.

Becher, Heinz-Manfred; Sehring, Richard; Wirtz, Walter; and Protic-Immel, Ricarda, to Celamerck GmbH & Co. KG. Insecticidal acyl urea derivatives. 4,275,077, Cl. 424-322.000.

Beck, Christian A.; Jurkowski, Walter J.; and Pegg, Charles E., to Pitney Bowes, Inc. Magnetic brush mixing augers. 4,274,362, Cl. 118-657.000.

Becker, Floyd W.; and Regimbal, Richard R., to Drill Systems, Inc. Multiple wall drill pipe. 4,274,663, Cl. 285-24.000.

Becker, Hans, to Linde Aktiengesellschaft. Rectification of natural gas. 4,274,850, Cl. 62-24.000.

Becker, William J.; Farber, Sheldon; and Hoover, Troy E., to Appleton Papers Inc. Lactone compounds containing an indotizine radical. 4,275,206, Cl. 546-115.000.

Beckmann, Franz: *See—*
Weber, Heinrich; Dunga, Horst; Beckmann, Franz; Schmusch, Hugo; and Flasch, Karl-Heinz, 4,274,924, Cl. 202-255.000.

Becton Dickinson and Company: *See—*
Williams, Joel; Dunn, Terry; and Stannett, Vivian, 4,274,932, Cl. 204-159.200.

Bedell, John R.; Kavesh, Sheldon; Hammat, Neim S.; Draisen, Seymour; and Smith, Robert W., to Allied Chemical Corporation. Contour control for planar flow casting of metal ribbon. 4,274,473, Cl. 164-423.000.

Bednarski, Stanislaw, to Przedsiebiorstwo Wdrazania i Upowszechniania Postepu Technicznego i Organizacyjnego "Postcer". A modular heaping-type packing element. 4,275,019, Cl. 261-98.000.

Beecham Group Limited: *See—*
Hunt, Eric, 4,275,067, Cl. 424-263.000.

Beeckmans, Jan M.; and Iacuiet, Jon I. Electrostatic method and apparatus for sorting fluidised particulate material. 4,274,947, Cl. 209-12.000.

Beeghly, Bruce R., to Economy Engine Company, The. Integral spark plug coil for aircraft-type plug. 4,275,334, Cl. 315-57.000.

Beestrice, William R.: *See—*
Frey, William L.; and Beestrice, William R., 4,274,856, Cl. 65-24.000.

Behr, Friedrich: *See—*
Schulten, Rudolf; Behr, Friedrich; and Wenzl, Helmut, 4,274,938, Cl. 204-239.000.

Behrenz, Wolfgang: *See—*
Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, Erich; and Marhold, Albrecht, 4,275,250, Cl. 568-812.000.

Beitzel, Stuart W. Method and apparatus for treating water. 4,274,970, Cl. 210-748.000.

Belden Corporation: *See—*
Priest, James D., 4,274,607, Cl. 242-163.000.

Belfort, Gerard L.A.; and Richer, Daniel P. A., to Produits Chimiques Ugine Kuhlmann. Process for dyeing or printing synthetic fiber materials by means of disperse dyes, and colorant compositions utilizable for this purpose. 4,274,831, Cl. 8-532.000.

Bell Telephone Laboratories, Incorporated: *See—*
Boll, Harry J.; and Goldstein, Richard M., 4,275,313, Cl. 307-448.000.
Boll, Harry J.; and Lynes, Dennis J., 4,275,437, Cl. 363-60.000.
Buhl, Lawrence L., 4,275,144, Cl. 430-312.000.
Cassiday, Daniel R.; Keramidas, Vassilis G.; Roedel, Ronald J.; and Saul, Robert H., 4,275,404, Cl. 357-19.000.
El Hamamsy, Mahmoud A., 4,275,308, Cl. 250-551.000.
Fulton, Theodore A., 4,275,314, Cl. 307-462.000.
Michaelis, Paul C., 4,275,459, Cl. 365-8.000.
Peterson, William A., 4,275,436, Cl. 363-47.000.
Pleibel, William; and Stolen, Rogers H., 4,274,854, Cl. 65-2.000.
Rizzo, Joseph F., 4,275,276, Cl. 179-170.00D.
White, Lester L., 4,275,385, Cl. 340-312.000.

Bender, Hans: *See—*
Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, 4,274,439, Cl. 137-601.000.

Benditalia S.p.A.: *See—*
Cadeddu, Leonardo, 4,274,521, Cl. 192-3.570.

Bendix Corporation, The: *See—*
Buck, Joseph M.; Gallusser, David O.; and Frear, David L., 4,274,702, Cl. 339-217.00R.
de Vulpillieres, Didier J., 4,274,380, Cl. 123-456.000.
DuCharme, Robert T.; and Herzog, Robert E., 4,274,514, Cl. 188-73.300.
Hendrickson, Richard T., 4,274,643, Cl. 280-6.100.
Kasselmann, John T., 4,274,513, Cl. 188-72.700.
Taig, Alistair G., 4,274,268, Cl. 64-7.000.

Benker, Fritz; Credner, Hans-Heinrich; Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, to AGFA-Gevaert, A.G. Process for the production of oxazolinone-2-compounds. 4,275,200, Cl. 544-137.000.

Benscher, Hugo, to Benscher & Sons Pty. Limited. Inflatable bladder and valve. 4,274,633, Cl. 273-65.00C.

Benscher & Sons Pty. Limited: *See—*
Benscher, Hugo, 4,274,633, Cl. 273-65.00C.

Benteler-Werke AG: *See—*
Harmsen, Lothar; Bick, Klaus; Lachenmayer, Wilhelm; Vennmann, Friedhelm; and Zieschang, Jurgen, 4,275,258, Cl. 13-32.000.

Beppu, Teruhiko; and Ando, Noboru, to Chiyoda Chemical Engineering & Construction Co., Ltd.; and Beppu, Teruhiko. Process for the production of sphingomyelinase. 4,275,162, Cl. 435-196.000.

Berger, Mitchell H.; Matzner, Markus; and Gardner, Hugh C., to Union Carbide Corporation. Stress-crack resistant polyarylates. 4,275,188, Cl. 528-193.000.

Bergfeld, Manfred: *See—*
Zengel, Hans; and Bergfeld, Manfred, 4,275,223, Cl. 560-115.000.

Bergkvist, Lars A. Hydraulic control and drive device for rotary heat exchanger. 4,274,474, Cl. 165-7.000.

Bergmann, Erich; and Horlaville, Gerard, to Battelle Memorial Institute. Fuel cell electrode on solid electrolyte substrate. 4,275,126, Cl. 429-30.000.

Bergstrom, Claes-Gustav, to Atlas Copco Aktiebolag. Method and device for setting the direction and/or the inclination of an elongated rock drilling apparatus. 4,274,494, Cl. 173-2.000.

Bergwerksverband GmbH: *See—*
Janssen, Klaus; Peters, Werner; and Schilling, Hans-Dieter, 4,274,941, Cl. 208-8.00R.

Berisch, Volker, to ITT Industries, Inc. Brake force regulator for a motorcycle hydraulic brake system. 4,274,518, Cl. 188-344.000.

Berkley and Company, Inc.: *See—*
Oberg, Gary R.; and McMickle, Robert L., 4,274,201, Cl. 30-276.000.

Berluti, Nando. Tennis rackets. 4,274,634, Cl. 273-73.00L.

Bernasconi, Felix R., to BBC Brown Boveri & Company Limited. Rigid coupling, especially for turbogenerators. 4,274,755, Cl. 403-337.000.

Bernat, Georg; Nolting, Karl-Heinz; and John, Claus, to Friedrich Grohe Armaturenfabrik GmbH & Co. Mixer valve for sanitary engineering. 4,274,442, Cl. 137-625.170.

Bernhagen, Wolfgang: *See—*
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,275,242, Cl. 568-463.000.

Bernhardt, Dieter; Dautzenberg, Norbert; Lummer, Richard; and Huber, Georg, to Mannesmann Aktiengesellschaft. Making iron powder. 4,274,864, Cl. 75-0.50R.

Bernstein, Seymour: *See—*
Conrow, Ransom B.; and Bernstein, Seymour, 4,275,076, Cl. 424-309.000.

Bernwall, Hans; Lundberg, Lars; and Seipel, Carl. Self-tailing winch. 4,274,606, Cl. 242-117.000.

Bethurum, Gary C., to Thomas & Betts Corporation. Method of making an environmental seal. 4,274,197, Cl. 29-861.000.

Bhushan, Bharat: *See—*
Gray, Stanley; and Bhushan, Bharat, 4,274,683, Cl. 308-9.000.

Bick, Klaus: *See—*
Harmsen, Lothar; Bick, Klaus; Lachenmayer, Wilhelm; Vennmann, Friedhelm; and Zieschang, Jurgen, 4,275,258, Cl. 13-32.000.

Biddlecom, William G.: *See—*
Kluender, Harold C.; Woessner, Warren D.; and Biddlecom, William G., 4,275,224, Cl. 560-116.000.

Bigler, Allan J.: *See—*
Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., 4,275,209, Cl. 546-202.000.

Binder, George G., Jr.: *See—*
Maus, L. Donald; and Binder, George G., Jr., 4,274,283, Cl. 73-153.000.

Bio Research Center Company, Ltd.: *See—*
Taoka, Akira; and Uchida, Seiichi, 4,275,158, Cl. 435-136.000.

Bischofberger, Walter; and Zeller, Norbert, to BBC Brown Boveri & Company Limited. Method and apparatus for monitoring the gas volume of a hydropneumatic storage unit. 4,275,392, Cl. 340-606.000.

Bishop, Bernard F., to Illinois Tool Works Inc. Linear motion cable drive. 4,274,574, Cl. 226-170.000.

Bisits nee Zsilinszky, Vilma: *See—*
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, 4,274,597, Cl. 239-542.000.

Bistrick, Eugene J.; and Abrahamsson, Axel B., to Lear Siegler, Inc. Helical toothed broach. 4,274,767, Cl. 407-18.000.

Bittner, Friedrich: *See—*
Hentschel, Klaus; and Bittner, Friedrich, 4,275,203, Cl. 544-194.000.

Bizerba-Werke Wilhelm Kraut KG: *See—*
Kuhnle, Ernst, 4,274,500, Cl. 177-25.000.

Bjaareklint, Ake B., to Svenska Utvecklingsaktiebolaget (SU) Swedish National Development Co. Electrode package and use thereof. 4,274,939, Cl. 204-257.000.

Bjordahl, James, to BASF Aktiengesellschaft. Transducer positioning apparatus. 4,275,427, Cl. 360-106.000.

Black, Donald E.: *See—*
Chae, Charles H.; Black, Donald E.; and Shah, Ramesh M., 4,274,744, Cl. 356-414.000.

Blaess, Gerhard, to Siemens Aktiengesellschaft. Method and apparatus for measurement of attenuation and distortion by a test object. 4,275,446, Cl. 364-487.000.

Blair, James E., to Sybron Corporation. Microbiological process for removing non-ionic surface active agents, detergents and the like from wastewater. 4,274,954, Cl. 210-611.000.

Block, Siegmar, to Thyssen Industrie AG. Excess pressure valve particularly for a fluid pressure operated telescopic supporting element employed in underground mining. 4,274,435, Cl. 137-508.000.

Blomgren, Rolf B. J. R.; and Edlund, Nils H. Noise shield. 4,274,506, Cl. 181-210.000.

Blondes, Leonard S.: *See—*
Clar, Milton, 4,274,906, Cl. 156-540.000.

Bloom, Bernard, to Midway Cap Company. Uniform cap. 4,274,160, Cl. 2-195.000.

Blumberg, Ruth: *See—*
Baniel, Avraham M.; Blumberg, Ruth; and Hajdu, Klara, 4,275,234, Cl. 562-584.000.

Blurock, Gunter; and Albert, Ernst, to Deutsche Star Kugelhalter GmbH. Spindle drive mechanism with circulating balls. 4,274,297, Cl. 74-424.80R.

Boardman, Alfred H., to American Can Company. Can end closure. 4,274,351, Cl. 113-1.00F.

Boden, Ogden W. Hat or cap with adjustable band. 4,274,157, Cl. 2-181.400.

Bodor, Nicholas S.; and Sloan, Kenneth B., to INTERx Research Corporation. Transient pro-drug forms of xanthine derivatives and their use as topical anti-inflammatory agents. 4,275,064, Cl. 424-253.000.

Boehme, Helen J., sole beneficiary: *See—*
Murphy, Clarence R.; Thackabeery, S. Paul; Boehme, Robert E., deceased; and Boehme, Helen J., sole beneficiary, 4,274,917, Cl. 162-146.000.

Boehme, Robert E., deceased: *See—*
Murphy, Clarence R.; Thackabeery, S. Paul; Boehme, Robert E., deceased; and Boehme, Helen J., sole beneficiary, 4,274,917, Cl. 162-146.000.

Boeing Company, The: *See—*
Miller, Glen E., 4,274,705, Cl. 350-96.150.

Bogeso, Klaus P.: *See—*
Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., 4,275,209, Cl. 546-202.000.

Boguth, Kurt, to Tuenkers GmbH. Suspension arrangement for suspending of vibrating elements and the like. 4,274,761, Cl. 405-232.000.

Bohm, Siegfried; Klein, Alfons; and Wedemeyer, Karlfried, to Bayer Aktiengesellschaft. Process for the preparation of 3-phenoxy-benzaldehydes. 4,275,241, Cl. 568-426.000.

Boland, Roy. Monorail police patrol vehicle. 4,274,335, Cl. 104-93.000.

Boll, Harry J.; and Goldstein, Richard M., to Bell Telephone Laboratories, Incorporated. Current limiting output circuit with output feedback. 4,275,313, Cl. 307-448.000.

Boll, Harry J.; and Lynes, Dennis J., to Bell Telephone Laboratories, Incorporated. Semiconductor circuit for voltage conversion. 4,275,437, Cl. 363-60.000.

Bolliger, Frederic E.; Woodhouse, Geoffrey D.; Mattson, George B.; Anson, Bruce S.; and Hatch, Robert A., to Garrett Corporation, The. Control for turbine and recuperator inlet temperatures. 4,274,253, Cl. 60-39.030.

Bonnell, Leonard J.: *See—*
Johnson, Lanny L.; and Bonnell, Leonard J., 4,274,414, Cl. 128-305.000.

Bonumwerke Tigges & Winckel GmbH & Co. KG: *See—*
Petrick, Detlef, 4,274,202, Cl. 30-365.000.

Boomer, Merton E.: *See—*
Kopas, George A.; and Boomer, Merton E., 4,275,089, Cl. 426-601.000.

Borger, Waldemar: *See—*
Kappus, Wolfgang; and Borger, Waldemar, 4,275,129, Cl. 429-112.000.

Born, Raymond W.: *See—*
Miller, Lawrence J.; and Born, Raymond W., 4,274,296, Cl. 74-424.80R.

Borowitz, James L., to Bradley Manufacturing Company. Collapsible lampshade and releasable attachment means. 4,275,434, Cl. 362-352.000.

Borrelli, Nicholas F.; and Young, Peter L., to Corning Glass Works. Polycrystalline tin oxide-silver chloride-cadmium chloride UV photosensitive film and method of use. 4,275,141, Cl. 430-270.000.

Bosse, Frank, to Windmoller & Holscher. Method for making sacks which are open at one end and comprise an outer sack of woven plastics tape fabric. 4,274,896, Cl. 156-88.000.

Botannet, Bernard: *See—*
Ratton, Serge; and Botannet, Bernard, 4,275,003, Cl. 260-205.000.

Bott, John A. Combination of luggage carrier and personal luggage. 4,274,568, Cl. 224-319.000.

Bott, John A. Luggage carrier assembly. 4,274,570, Cl. 224-324.000.

Bouillon, Claude; and Rosenbaum, Georges, to L'Oreal. Process for preparing mixed sulfonates of bis-(N-oxypyridyl-2-thio)aluminum. 4,275,199, Cl. 542-430.000.

Bouley, Jean-Claude A., to Bunker Ramo Corporation. Self-stripping electrical terminal. 4,274,198, Cl. 29-866.000.

Bourcier de Carbon, Christian. Shock absorber. 4,274,515, Cl. 188-269.000.

Boutet, Gilles. Toy building block. 4,274,221, Cl. 46-25.000.

Bowden, Carl G.: *See—*
Underwood, Johnny P.; and Bowden, Carl G., 4,275,442, Cl. 364-410.000.

Boyar-Schultz Corporation: *See—*
Verega, James, 4,274,231, Cl. 51-165.710.

Boyd, Ron V. Wine list display container apparatus. 4,274,216, Cl. 40-306.000.

Boyd, William J.; and King, Mary K., to Buckeye Cellulose Corporation, The. Stabilized rayon web and structures made therefrom. 4,275,105, Cl. 428-198.000.

Boydell, John M.: *See—*
Linton, Derek; and Boydell, John M., 4,274,242, Cl. 52-741.000.

Bradley Manufacturing Company: *See—*
Borowitz, James L., 4,275,434, Cl. 362-352.000.

Bradshaw, Bruce E., to Jamestown Lounge Company, a Division of Arbor Industries, Inc. Entertainment center cabinet. 4,274,685, Cl. 312-7.0TV.

Branc, Joseph R.: *See—*
Struger, Odo J.; and Branc, Joseph R., 4,275,307, Cl. 250-551.000.

Brandmayr, Ronald J.: *See—*
Vig, John R.; and Brandmayr, Ronald J., 4,274,907, Cl. 156-637.000.

Brandstrom, Karl-Peter: *See—*
Widigs, Sven H., 4,274,772, Cl. 408-241.00R.

Brandstrom, Lars-Gosta: *See—*
Widigs, Sven H., 4,274,772, Cl. 408-241.00R.

Branson, Charles D.; and Shopsky, Harvey J., to Robertshaw Controls Company. Condition responsive electrical switch construction and parts and methods therefor. 4,274,546, Cl. 220-4.00B.

Braun, Roland, to Raschig, G.m.b.H. Grid for carrying randomly dumped packing in a mass transfer column. 4,275,018, Cl. 261-94.000.

Braymer, George W., Jr.; and Diaz, Stephen H., to Upjohn Company, The. Vial and closure structure. 4,274,543, Cl. 215-6.000.

Brechin, Robert: *See—*
Pugh, William A. G.; Edmunds, Robert L; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., 4,274,224, Cl. 46-161.000.

Breslow, Jeffrey D.: *See—*
Kulesza, Ralph J.; and Breslow, Jeffrey D., 4,274,630, Cl. 273-1.00R.

Breuer, Hermann; Denzel, Theodore; and Treuner, Uwe D., to E. R. Squibb & Sons, Inc. Aminothiazolyl ureido sulfoxide cephalosporins. 4,275,062, Cl. 424-122.000.

Brico Engineering Limited: *See—*
Cadle, Terence M.; and Lane, Martyn S., 4,274,875, Cl. 75-232.000.

Bricot, Claude; and Lehureau, Jean Claude, to Thomson-Brandt. Recording device for optically recording information on a carrier with a light spot and a positional control of the spot. 4,275,275, Cl. 369-44.000.

Bridgestone Tire Co., Ltd.: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,275,377, Cl. 340-58.000.
Ogawa, Masaki; Araki, Tamio; and Yamamoto, Shinji, 4,274,462, Cl. 152-209.00R.

Briggs, John: *See—*
Trojer, Felix; and Briggs, John, 4,275,102, Cl. 428-119.000.

Brinson, Thomas F.; and Bayman, Jack A., to International Telephone and Telegraph Corporation. Wheel cover locking means. 4,274,679, Cl. 301-37.0AT.

Brother Kogyo Kabushiki Kaisha: *See—*
Kato, Masataka, 4,274,348, Cl. 112-158.00E.

Brown, David L. Non-oral communication device. 4,274,753, Cl. 400-87.000.

Brown, Patrick M.; and Jacob, Susan R., to Foote Mineral Company. Process for purification of lithium chloride. 4,274,834, Cl. 23-302.00R.

Brown, Roger A.; Clyde, William F.; and Galusha, Glenn D., to AMFAC Foods, Inc. Method of preparing potato segments. 4,275,086, Cl. 426-518.000.

Brudermanns, Karola: *See—*
Hinz, Jurgen; and Brudermanns, Karola, 4,274,991, Cl. 260-30.80R.

Brunner, Ronald H. M.: *See—*
Jensen, Billy M.; Brunner, Ronald H. M.; and Wong, Lang S., 4,274,331, Cl. 99-373.000.

Buccino, Giovanni: *See—*
Balzarini, Giovanni; Buccino, Giovanni; Gnadeberg, Jules; Papeschi, Roberto; and Slavich, Giancarlo, 4,275,451, Cl. 364-580.000.

Bucher-Guyer AG Maschinenfabrik: *See—*
Hauser, Hans-Ulrich, 4,274,248, Cl. 56-370.000.
Hauser, Hans-Ulrich, 4,274,249, Cl. 56-370.000.

Buck, Joseph M.; Gallusser, David O.; and Frear, David L., to Bendix Corporation, The. Antirotation means for wire wrap electrical connector assemblies. 4,274,702, Cl. 339-217.00R.

Buckeye Cellulose Corporation, The: *See—*
Boyd, William J.; and King, Mary K., 4,275,105, Cl. 428-198.000.

Budraitis, Tadas; and Seliga, Gerald W., to Productronix, Inc. Sensor for reciprocating press. 4,274,282, Cl. 73-862.640.

Buechler, Peter R.; Parker, Earl E.; and Mollohan, Kenneth L., to PPG Industries, Inc. Low temperature curing polyester resins and coating compositions. 4,274,992, Cl. 260-32.80R.

Buhl, Lawrence L., to Bell Telephone Laboratories, Incorporated. Method of fabricating electrodes with narrow gap therebetween. 4,275,144, Cl. 430-312.000.

Buholtz, William F.: *See—*
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., 4,274,361, Cl. 118-653.000.

Bukajlo, Jerzy, to BBC Brown Boveri & Company Limited. Method and apparatus for regulating a steam turbine. 4,274,260, Cl. 60-663.000.

Bundy, Gordon L., to Upjohn Company, The. Isoxazolyl derivatives of 9α,11α-epoxy imino-9,11,15-trideoxy-PGF-type compounds. 4,275,213, Cl. 548-240.000.

Bunge, Konrad: *See—*
Thurm, Siegfried; and Bunge, Konrad, 4,274,732, Cl. 355-38.000.

Bunker Ramo Corporation: *See—*
Bouley, Jean-Claude A., 4,274,198, Cl. 29-866.000.
Keglewitsch, Josef; and Vladic, Daniel P., 4,274,700, Cl. 339-192.00R.

Burke, Michael J.; and Collins, David W., to International Business Machines Corporation. Bifilar brushless DC motor. 4,275,339, Cl. 318-138.000.

Burkhardt, Friedrich; and Staiger, Hans, to Ex-Cell-O GmbH. Rotary index table. 4,274,773, Cl. 409-221.000.

Burkin, Alfred R.: *See—*
Ozensoy, Erol; and Burkin, Alfred R., 4,275,039, Cl. 423-54.000.

Burley, Joseph W.; Hope, Peter; and Pritchard, Malcolm G., to Akzo N.V. Compositions for stabilizing a vinyl or vinylidene halide polymer or chlorinated polyethylene, polymer compositions comprising such a stabilizer composition and shaped articles prepared therefrom. 4,274,999, Cl. 260-45.75S.

Burnett, James E.; and Robertson, John A., to Mead Corporation, The. Method and apparatus for sorting and deflecting drops in an ink jet drop recorder. 4,275,401, Cl. 346-75.000.

Burns, Michael E.: *See—*
Corkill, John M.; Madison, Bryan L.; and Burns, Michael E., 4,274,975, Cl. 252-140.000.

Burri, Peter: *See—*
Petitpierre, Jean C.; and Burri, Peter, 4,275,005, Cl. 260-315.000.

Burroughs Corporation: *See—*
Chambers, John M., 4,275,293, Cl. 250-223.00R.
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., 4,274,361, Cl. 118-653.000.

Burtin, Jean; and Geens, Maurits, to AGFA-GEVAERT N.V. Method and device for inspecting a moving sheet material for streaklike defects. 4,274,748, Cl. 356-431.000.

Burtin, Jean: *See—*
Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, 4,274,747, Cl. 356-431.000.

Busch, Helmut: *See—*
Kupper, Heinz; and Busch, Helmut, 4,274,375, Cl. 123-263.000.

Bush, George E. Dispensing of fluent materials. 4,274,409, Cl. 128-215.000.

Buus, Jorn L. M.: *See—*
Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., 4,275,209, Cl. 546-202.000.

Buxbaum, Charley; Gessinger, Gernot; and Strunkr, Sigfrid, to BBC Brown Boveri & Company Limited. Hot-cathode material and production thereof. 4,275,123, Cl. 428-547.000.

C. G. R. Ultra Sonic: *See—*
Dory, Jacques, 4,274,421, Cl. 128-660.000.

Cadeddu, Leonardo, to Benditalia S.p.A. Synchronized hydropneumatic control of clutch and gearbox. 4,274,521, Cl. 192-3.570.

Cadle, Terence M.; and Lane, Martyn S., to Brico Engineering Limited. Powder metallurgy process and product. 4,274,875, Cl. 75-232.000.

Caldwell, James, to Dunglow Limited. Lighting fitting. 4,275,433, Cl. 362-22.000.

Cale, Roland E., to Schaefer Equipment Inc. Method of making railway car brake-rod jaw. 4,274,277, Cl. 72-356.000.
California Institute of Technology: *See—*
Rippel, Wally E.; and Edwards, Dean B., 4,275,130, Cl. 429-144.000.
Campagnie Francaise d'Etudes et de Construction Technip: *See—*
Garier, Christian; and Paradowski, Henri, 4,274,849, Cl. 62-9.000.
Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence: *See—*
Pogorski, Louis A.; and Kuehn, Lorne A., 4,274,158, Cl. 2-2.10R.
Canadian General Electric Co., Ltd.: *See—*
Howard, John F., 4,275,373, Cl. 337-144.000.
Canadian Patents & Dev. Ltd.: *See—*
Sudar, Robert B.; Lewis, Edward L.; and Koppel, Albert W., 4,275,352, Cl. 324-449.000.
Canfield, Sheldon A.; Pierce, Richard H.; and Rapp, Kenneth L., to Owens-Corning Fiberglas Corporation. Electro-optical strand detector. 4,275,297, Cl. 250-239.000.
Canon Kabushiki Kaisha: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, 4,275,306, Cl. 250-548.000.
Knechtel, Wilhelm, 4,275,134, Cl. 430-44.000.
Kohtani, Yutaka; and Komine, Yoshio, 4,274,718, Cl. 352-14.000.
Sato, Tadashi; Yoshimura, Shigeru; and Ichikawa, Kiyomichi, 4,274,624, Cl. 271-292.000.
Sugiura, Muneharu; and Minami, Setsuo, 4,274,733, Cl. 355-60.000.
Takahashi, Tohru; Sato, Tadashi; and Kishi, Hirotoshi, 4,275,423, Cl. 358-285.000.
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, 4,274,735, Cl. 356-1.000.
Canron Corporation: *See—*
Lund, Raymond R., 4,274,334, Cl. 104-2.000.
Cardell, Max L.; and Holt, John R., to Fiber Industries, Inc. Method and apparatus for optically measuring crimp frequency. 4,274,746, Cl. 356-429.000.
Carden, Joseph A., Jr.; and McKinney, Ray, Jr., to Monsanto Company. Lactam terpolymer membranes. 4,274,965, Cl. 210-500.200.
Cargill, Incorporated: *See—*
Danick, Charles; and Panandiker, K. A. Pai, 4,275,189, Cl. 528-296.000.
Carl Still GmbH & Co. KG, Firma: *See—*
Weber, Heinrich; Dungs, Horst; Beckmann, Franz; Schmauch, Hugo; and Flasch, Karl-Heinz, 4,274,924, Cl. 202-255.000.
Carles, Jacques E.; and Durand, Michel, to Groupement Europeen de la Cellulose. Process for bleaching preoxidized paper pulp. 4,274,912, Cl. 162-41.000.
Carnaby, Garth A., to Wool Research Organization. Cut pile looper. 4,274,346, Cl. 112-79.00R.
Carroll, Frank E., to Carroll Research, Inc. Building structure. 4,274,239, Cl. 52-443.000.
Carroll Research, Inc.: *See—*
Carroll, Frank E., 4,274,239, Cl. 52-443.000.
Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., to Molins Limited. Packet handling apparatus. 4,274,530, Cl. 198-347.000.
Carter Equipment Co., Inc.: *See—*
Carter, William D.; and Mueller, Martin S., 4,274,731, Cl. 355-30.000.
Carter-Wallace Inc.: *See—*
Stiefel, Frank J., 4,275,198, Cl. 542-414.000.
Carter, William D.; and Mueller, Martin S., to Carter Equipment Co., Inc. Total immersion continuous loop apparatus and method. 4,274,731, Cl. 355-30.000.
Cartwright, Jeffery, to Sterling Winthrop Group Limited. Method of removing wallpaper. 4,274,884, Cl. 134-4.000.
Cascade Corporation: *See—*
Olson, John E., 4,274,794, Cl. 414-663.000.
Cassiday, Daniel R.; Keramidas, Vassilis G.; Roedel, Ronald J.; and Saul, Robert H., to Bell Telephone Laboratories, Incorporated. Monolithic opto-isolator. 4,275,404, Cl. 357-19.000.
Castleberry, Larry Wayne: *See—*
Doerge, Gail W., 4,274,450, Cl. 140-82.000.
Cater, Miro S., to Emson Research Incorporated. Atomizing pump dispenser. 4,274,560, Cl. 222-321.000.
Caterpillar Tractor Co.: *See—*
Freese, Gary P., 4,274,493, Cl. 172-816.000.
Hulting, Thomas S., Jr., 4,274,898, Cl. 156-98.000.
Livesay, Richard E., 4,274,682, Cl. 305-11.000.
Sieving, Alfred W.; and Stanley, James M., 4,274,680, Cl. 303-6.00A.
Cather, Douglas A., Jr., to Garlock Inc. Shaft seal and method. 4,274,641, Cl. 277-153.000.
Catsburg, Wilhelmus M., to Schottel Nederland B.V. Propulsion system for a marine vessel. 4,274,827, Cl. 440-54.000.
Cavender, John L. Swivel locking device. 4,274,252, Cl. 59-86.000.
Cavil, David T.; and Krueger, William R., to Outboard Marine Corporation. Ignition system with active pulse discriminating means. 4,275,322, Cl. 310-111.000.
Cazaux, Joel, to Fives-Cail Babcock. Continuous casting installation. 4,274,472, Cl. 164-416.000.
CBS Inc.: *See—*
Finch, Robert A., 4,274,320, Cl. 84-1.010.
Celamerck GmbH & Co. KG: *See—*
Becher, Heinz-Manfred; Sehring, Richard; Wirtz, Walter; and Prokic-Immel, Ricarda, 4,275,077, Cl. 424-322.000.
Celanese Corporation: *See—*
Ikenaga, Yukio; and Matsuno, Osamu, 4,274,986, Cl. 260-22.0CQ.
Keith, Charles H.; and Tucker, Richard O., 4,274,914, Cl. 162-109.000.
Chae, Charles H.; Black, Donald E.; and Shah, Ramesh M., to Medico Electronic, Inc. Direct reading digital colorimeter. 4,274,744, Cl. 356-414.000.
Chamberlain Manufacturing Corporation: *See—*
Toenjes, Robert B., 4,274,227, Cl. 49-28.000.
Chambers, Gary R. Socket or cast brim. 4,274,166, Cl. 3-17.00R.
Chamblee, L. E.: *See—*
Henderson, Alan; and Chamblee, L. E., 4,274,861, Cl. 71-117.000.
Chambors, John M., to Burroughs Corporation. Jam detection and recovery system. 4,275,293, Cl. 250-223.00R.
Chan, Kingsley; and Russo, Neil, to Lightolier Incorporated. Attachment clamp for lighting fixture. 4,274,615, Cl. 248-343.000.
Chapel, Nimrod T. Apparatus for removing material. 4,274,676, Cl. 299-64.000.
Chapman, Kimberly L.: *See—*
Lake, Robert J.; and Chapman, Kimberly L., 4,274,749, Cl. 366-132.000.
Chappell, Christopher L., to Stablex A.G. Treatment of hazardous waste. 4,274,880, Cl. 106-90.000.
Charles, James A., to Metallurgical Processes Limited; and I.S.C. Smelting. Sulphide pellet materials. 4,274,878, Cl. 75-256.000.
Charles Stark Draper Laboratory, Inc., The: *See—*
Fulton, Donald E.; and Curtiss, William P., 4,275,343, Cl. 318-721.000.
Chaucer, Daniel. Fuse-plug adapter for electrical cord. 4,275,374, Cl. 337-197.000.
Chemetron Process Equipment, Inc.: *See—*
Trabue, Gordon C., 4,274,269, Cl. 64-11.00R.
Chevron Research Company: *See—*
Erdman, Timothy R., 4,275,006, Cl. 260-326.5SF.
Lilburn, Jennifer E., 4,274,837, Cl. 44-63.000.
Chi, Frank K.: *See—*
Baney, Ronald H.; and Chi, Frank K., 4,275,118, Cl. 428-412.000.
Chin, Don S.: *See—*
Bartholic, David B.; and Chin, Don S., 4,274,942, Cl. 208-113.000.
Chino, John J., to United States of America, Air Force. Electrically insulating structurally strong bushing assembly. 4,275,263, Cl. 174-152.00R.
Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt.: *See—*
Szejtli, Jozsef; Fenyvesi, Eva; Zoltan, Sandor; Zsadon, Bela; and Tudos, Ferenc, 4,274,985, Cl. 260-17.4ST.
Chiyoda Chemical Engineering & Construction Co., Ltd.: *See—*
Beppu, Teruhiko; and Ando, Noboru, 4,275,162, Cl. 435-196.000.
Cho, Chong I.; Zukowski, Edward C.; and Speros, Dimitri M., to General Electric Company. Electric discharge lamp having a cathode with cesium metal oxide. 4,275,330, Cl. 313-218.000.
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Christensen, David C.: *See—*
Weiss, Arnold A.; Christensen, David C.; and Sikkema, Bruce H., 4,274,289, Cl. 73-618.000.
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Stein, Werner; and Christophliemk, Peter, 4,275,048, Cl. 423-329.000.
Chu, Chin-Chiun, to Mobil Oil Corporation. Method for maintaining para-selectivity of modified zeolite catalyst. 4,274,982, Cl. 252-455.00Z.
Chu, Chin-Chiun; and Kaeding, Warren W., to Mobil Oil Corporation. Shape selective reactions with group VIIA metal modified zeolite catalysts. 4,275,256, Cl. 585-467.000.
Chu, Joseph Y. C.; and Tutihasi, Simpei, to Xerox Corporation. Dielectric overcoated photoresponsive imaging member and imaging method. 4,275,132, Cl. 430-31.000.
Chu, Joseph Y. C.; Schank, Richard L.; and Tutihasi, Simpei, to Xerox Corporation. Electrophotographic imaging processes utilizing adhesive generator overcoated photoreceptors. 4,275,133, Cl. 430-31.000.
Church, Larry L.; and Sun, Shan C., to Westinghouse Electric Corp. Protective relay apparatus. 4,275,429, Cl. 361-64.000.
Chvapil, Milos, to Medi-Coll, Inc. Intravaginal contraceptive and drug release device and method for making and using same. 4,274,410, Cl. 128-270.000.
Ciba-Geigy AG: *See—*
Moss, Brian F., 4,274,734, Cl. 355-74.000.
Ciba-Geigy Corporation: *See—*
Orban, Ivan; and Troxler, Eduard, 4,275,211, Cl. 546-242.000.
Petitpierre, Jean C.; and Burri, Peter, 4,275,005, Cl. 260-315.000.
Petree, Harris E.; and Nabors, James B., 4,275,238, Cl. 564-446.000.
Pfeifer, Josef; and Peter, Heinz, 4,275,239, Cl. 564-511.000.
Winter, Roland A. E.; and Dexter, Martin, 4,275,004, Cl. 260-206.000.
Zeyer, Josef; Hutter, Ralf; and Mayer, Peter, 4,274,955, Cl. 210-612.000.
Zurbuchen, Jacques, 4,274,829, Cl. 8-475.000.
Cielo, Paolo; and Westwood, William D., to Northern Telecom Limited. Thermally activated liquid ink printing. 4,275,290, Cl. 219-216.000.
Cioffi, Paul L.; Downs, William; Kish, William C.; and Newkirt, William E., to Electric Power Research Institute, Inc. Water cooled burner nozzle for solvent refined coal. 4,274,587, Cl. 239-132.300.
Claassen, George R.; and Micketic, Raymond J., to PPG Industries, Inc. Molds for press bending glass sheets. 4,274,858, Cl. 65-273.000.

Clairaire Limited: *See—*
Simpson, Keith, 4,274,979, Cl. 252-422.000.
Clar, Milton, to Blondes, Leonard S., a part interest. Apparatus for automatically applying reinforcing tabs to loose-leaf sheets. 4,274,906, Cl. 156-540.000.
Clark, Lloyd D.: *See—*
Anderson, Weston A.; Clark, Lloyd D.; and Beaver, William L., 4,274,422, Cl. 128-661.000.
Clarke, John T.: *See—*
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,275,027, Cl. 264-118.000.
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Clausen, Anthony R. Dispensing of fluent materials. 4,274,558, Cl. 222-214.000.
Cleary, James D.: *See—*
Molzan, Albert R.; and Cleary, James D., 4,274,404, Cl. 128-204.250.
Cleveland Clinic Foundation, The: *See—*
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Coal Industry (Patents) Limited: *See—*
Wykes, John S.; and Adsley, Ian, 4,275,298, Cl. 250-255.000.
Cobaugh, Robert F.; and Mendenhall, David W., to AMP Incorporated. Snap on card straightener. 4,274,693, Cl. 339-65.000.
Cocito, Giuseppe; and Michetti, Leonardo, to Cselt-Centro Studie Laboratori Telecommunication S.p.A. Devices for splicing optical fibres and cables. 4,274,708, Cl. 350-96.210.
Coder, James E., to W. R. Case Sons Cutlery Company. Lock open folding knife with side release. 4,274,200, Cl. 30-161.000.
Cohen, Howard. Power driven brush assembly. 4,274,173, Cl. 15-28.000.
Cohen, Melvin, to Holiday Industries, Inc. Plastic ornament and method of making same. 4,275,028, Cl. 264-126.000.
Cohen, Murray, to Grumman Aerospace Corporation. Double locking device. 4,274,754, Cl. 403-14.000.
Coin Acceptors, Inc.: *See—*
Walters, Robert N.; and Dietz, Kristen H., 4,274,528, Cl. 194-102.000.
Coleman, Michael H.; and Macrae, Alasdair R., to Lever Brothers Company. Fat process and composition. 4,275,081, Cl. 426-33.000.
Coles, Eric R.; and Walden, Rex K. Containers and support combinations. 4,274,540, Cl. 206-597.000.
Colin Robert Alty: *See—*
Harvey, Brian F., 4,274,218, Cl. 40-505.000.
Collier, Owen N.; and Hackett, Stephen J., to Johnson, Matthey & Co., Limited. Metal powders. 4,274,877, Cl. 75-252.000.
Collins, David W.: *See—*
Burke, Michael J.; and Collins, David W., 4,275,339, Cl. 318-138.000.
Collins, Joseph C., to Sterling Drug Inc. Aryl substituted diketones. 4,275,201, Cl. 544-171.000.
Colorcon, Inc.: *See—*
Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, 4,274,830, Cl. 8-495.000.
Colt Industries Operating Corp.: *See—*
Tsiang, Chong L.; and Koch, Robert O., 4,274,376, Cl. 123-360.000.
Colten, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., to General Foods Corporation. Gasified candy enrobed with oleaginous material. 4,275,083, Cl. 426-96.000.
Combustion Engineering, Inc.: *See—*
Kokkinos, Angelos, 4,274,343, Cl. 110-263.000.
Musto, Richard L., 4,274,601, Cl. 241-186.200.
Comeau, Paul E., to Kenney Manufacturing Company. Drapery and support combination. 4,274,467, Cl. 160-84.00R.
Cominco Ltd.: *See—*
White, Arnold G.; Tarbet, James K.; Vanness, Dennis A.; Woods, Gordon J.; and Micklethwaite, William F. H., 4,274,389, Cl. 125-21.000.
Commissariat a l'Energie Atomique: *See—*
Anav, Maurice; Duhayon, Jacques; Goumondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, 4,275,045, Cl. 423-249.000.
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Compagnie Francaise des Petroles: *See—*
Thominet, Georges M., 4,274,664, Cl. 285-24.000.
Compagnie Generale des Etablissements Michelin: *See—*
Pommier, Jean, 4,274,464, Cl. 152-352.00R.
Compagnie Industrielle des Lasers: *See—*
Cornillault, Jean, 4,274,741, Cl. 356-336.000.
Compagnie Industrielle des Telecommunicators Cit-Alcatel: *See—*
Lemoussu, Michel, 4,275,465, Cl. 375-97.000.
Compagnie Industrielle Radioelectrique: *See—*
Favre, Nicolas, 4,275,299, Cl. 250-271.000.
Compton, Leslie E., to Occidental Research Corporation. Process for removing nitrogen from shale oil using pyrrole polymerization. 4,274,934, Cl. 204-162.00R.
Cona Company, Inc., The: *See—*
Sunshine, Richard B.; and Severen, Randall D., 4,274,591, Cl. 239-188.000.
Consir Corporation: *See—*
Nachtigal, Julius H.; and Zajac, David C., 4,275,055, Cl. 424-70.000.
Conchemco, Incorporated: *See—*
Golobay, Gary L., 4,274,300, Cl. 74-501.50R.
Congoleum Corporation: *See—*
Grose, Reginald E., 4,274,916, Cl. 162-145.000.
Conley, James L., to Conley and Kleppen Enterprises, Inc. Gas-shielded arc welding torch. 4,275,284, Cl. 219-74.000.
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Conley, James L., 4,275,284, Cl. 219-74.000.
Conoco, Inc.: *See—*
McClaflin, Gifford G., 4,274,943, Cl. 208-181.000.
Conover, Louis M. Pilot bearing puller. 4,274,189, Cl. 29-256.000.
Conrow, Ransom B.; and Bernstein, Seymour, to American Cyanamid Company. Substituted naphthoic acids. 4,275,076, Cl. 424-309.000.
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Faix, James E., 4,274,443, Cl. 137-625.640.
Constructions de Clichy: *See—*
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Contant, Cornelis J., to U.S. Philips Corporation. Television camera. 4,275,412, Cl. 358-55.000.
Continental Group, Inc., The: *See—*
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Convery, F. Richard: *See—*
Malcom, Lawrence L.; and Convery, F. Richard, 4,274,163, Cl. 3-1.910.
Cook, Barrie J. A., to Sibex (Constructions) Limited. Sealing devices. 4,274,640, Cl. 277-9.000.
Cook, John P., to Electric Power Research Institute, Inc. Method and apparatus for sealing containers. 4,274,454, Cl. 141-1.000.
Coon, David B. Backhoe excavating apparatus. 4,274,797, Cl. 414-694.000.
Cooper Industries, Inc.: *See—*
Curtiss, George R., 4,274,304, Cl. 74-792.000.
Cooper, Jerry D., to Cosmetex, Inc. Integrated circuit storage catalog. 4,274,537, Cl. 206-329.000.
Cooper, Roydon B., to Pall Corporation. Pressure balanced three-way transfer valve. 4,274,445, Cl. 137-636.100.
Coors Container Company: *See—*
Huffman, Stanley S., 4,274,456, Cl. 141-157.000.
Shriver, Frank L., 4,275,097, Cl. 427-286.000.
Cope, Geoffrey W., to Dresser Industries, Inc. Radially steering railway truck assembly. 4,274,339, Cl. 105-168.000.
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Mennino, Michael F., Jr.; and Coppin, Donald J., 4,275,272, Cl. 179-7.1TP.
Corbi, Ronald W. Method and apparatus for positioning a drag racing vehicle to a starting-line position. 4,275,292, Cl. 235-92.0DN.
Corbin, Raymond L.; and Reinhart, Robert F., to Johns-Manville Corporation. Asphalt shingle for simulating a tiled roof. 4,274,243, Cl. 52-748.000.
Cordes, Charles P. Double hi-hat support brackets. 4,274,322, Cl. 84-422.00R.
Corkill, John M.; Madison, Bryan L.; and Burns, Michael E., to Procter & Gamble Company, The. Detergent composition. 4,274,975, Cl. 252-140.000.
Corner, Michael R.: *See—*
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Cornillault, Jean, to Compagnie Industrielle des Lasers. Device for determining the granulometric composition of a mixture of particles by diffraction of light. 4,274,741, Cl. 356-336.000.
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Borrelli, Nicholas F.; and Young, Peter L., 4,275,141, Cl. 430-270.000.
Cosmetex, Inc.: *See—*
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Cottone, Andrew J.; and Saperstein, Zalman P., to Modine Manufacturing Company. Reaction bonding of ferrous metals. 4,274,483, Cl. 165-153.000.
Coulter Electronics, Inc.: *See—*
Proni, Oscar, 4,274,552, Cl. 222-61.000.
Cowgill, Charles F.: *See—*
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CPG Products Corp.: *See—*
Pugh, William A. G.; Edmunds, Robert L; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., 4,274,224, Cl. 46-161.000.
Craig, Adrian W.: *See—*
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Crandall, Steven J., to Ashaway Line & Twine Mfg. Co. String construction produced by subjecting a fibrous strand composed of fibrous materials having differing melting points to heating conditions sufficient to melt some but not all of the fibrous materials. 4,275,117, Cl. 428-373.000.
Crane, Thomas A.: *See—*
Knoble, David W.; and Crane, Thomas A., 4,275,337, Cl. 315-289.000.
Credner, Hans-Heinrich: *See—*
Benker, Fritz; Credner, Hans-Heinrich; Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, 4,275,200, Cl. 544-137.000.
Creighton, Andrew M., to National Research Development Corporation. Pharmaceutical compositions. 4,275,063, Cl. 424-250.000.

Crener, Bengt O., to Aktiebolaget Electrolux. Vacuum cleaner dust bag. 4,274,847, Cl. 55-374.000.
Crounse, Nathan N.; and Schmidt, Paul J., to Sterling Drug Inc. Carbonless duplicating and marking systems utilizing indolyl-substituted furanone color formers. 4,275,121, Cl. 428-537.000.
Cselt-Centro Studie Laboratori Telecommunication S.p.A.: *See—*
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Cunningham, Hugh, to PPG Industries, Inc. Process for electrolyzing brine in a permionic membrane electrolytic cell. 4,274,928, Cl. 204-98.000.
Currier, Glorys A. Building layout for restaurant and artist work/exhibit area. 4,274,233, Cl. 52-33.000.
Curry, Paul F. Mine roof supporting system. 4,274,764, Cl. 405-291.000.
Curtiss, George R., to Cooper Industries, Inc. In-line reversing mechanism. 4,274,304, Cl. 74-792.000.
Curtiss, William P.: *See—*
Fulton, Donald E.; and Curtiss, William P., 4,275,343, Cl. 318-721.000.
Customized Components Co.: *See—*
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Cut Rate Plastic Hangers, Inc.: *See—*
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Daicel Ltd.: *See—*
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Dale, Eugene M.; and Malstrom, Jerry A., to Energy Harvest, Inc. Anaerobic digester for organic waste. 4,274,838, Cl. 48-111.000.
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D'Amato, Michael J.: *See—*
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D'Ambrosio, Joseph J. Adjustable book cover. 4,274,659, Cl. 281-34.000.
Danchuk, William: *See—*
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Dani, Mahesh J., to Dunmore Corporation. Metalized polyester resin laminate. 4,275,099, Cl. 428-31.000.
Danick, Charles; and Panandiker, K. A. Pai, to Cargill, Incorporated. Neopentyl glycol, terephthalate, dicarboxy acid, trimellitate thermosetting resin. 4,275,189, Cl. 528-296.000.
Dappen, Glen M.: *See—*
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Dashglow Limited: *See—*
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Datta, Pabitra, to RCA Corporation. Video disc processing. 4,275,100, Cl. 369-286.000.
Dautzenberg, Norbert: *See—*
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Davenport, John M.: *See—*
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Davenport, Lawrence J., to Younger Manufacturing Company. Ophthalmic progressive power lens and method of making same. 4,274,717, Cl. 351-169.000.
Davida, George I.; and Kam, John B., to Wisconsin Alumni Research Foundation. Complete substitution permutation enciphering and deciphering circuit. 4,275,265, Cl. 178-22.090.
Davidson, Harry T.: *See—*
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Davidson, Roderick I., to Fibun B.V. Security system and strip or strand incorporating fibre-optic wave-guide means therefor. 4,275,294, Cl. 250-227.000.
Davis, Brian R., to NL Industries, Inc. Process for extracting titanium values from titaniferous bearing material. 4,275,040, Cl. 423-82.000.
Davis, Paul W., Jr., to TRW Inc. Oil-filled submergible electric pump motor with improved stator winding insulation. 4,275,319, Cl. 310-43.000.
Davis, Pauls: *See—*
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Dawson, Daniel J.: *See—*
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Dawson, Edward S., to Surf-Jet Corporation. Power operated surfboard. 4,274,357, Cl. 114-270.000.
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Dayco Corporation: *See—*
Patterson, Gene L., 4,274,278, Cl. 73-7.000.
de la Plaza, Alejandro, to University of California, The Regents of the. Speech detector for use in an adaptive hybrid circuit. 4,275,270, Cl. 179-1.0SC.
De, Sun-Tong: *See—*
Wang, David T.; and De, Sun-Tong, 4,274,272, Cl. 70-214.000.
Decker, Dennis Gary: *See—*
Doerge, Gail W., 4,274,450, Cl. 140-82.000.
Defibrator Aktiebolag: *See—*
Johansson, Johan G. I., 4,274,602, Cl. 241-298.000.
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, to Dynamit Nobel AG; and Geberit AG. Pyrotechnical welding sleeve connector for the joining of molded components, especially pipes, of a thermoplastic synthetic resin. 4,274,662, Cl. 285-21.000.
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Simon, Franz; Zilske, Wolfgang; and Schmidt, Manfred, 4,274,927, Cl. 204-39.000.
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Del Norte Technology, Inc.: *See—*
Parker, William H.; and Davidson, Harry T., 4,275,398, Cl. 343-112.00R.
Delalande S.A.: *See—*
Hubert-Brierre, Yves A., 4,275,216, Cl. 548-342.000.
Delgado, Patricio E.; and Holmes, Barry A., to P.I. Specialist Engineers Limited. Vertical axis wind turbines. 4,274,809, Cl. 416-117.000.
Deloustal, Bernard, to Baby Relax. Safety seat for transporting a child in a motor vehicle. 4,274,674, Cl. 297-250.000.
Delpy, David T., to National Research Development Corporation. Instruments for use in the measurement of gases in body fluids. 4,274,417, Cl. 128-632.000.
Delta Materials Research Limited: *See—*
Sims, Raymond B., 4,275,370, Cl. 335-37.000.
Delwing, Dieter: *See—*
Uher, Edmond, 4,274,620, Cl. 254-351.000.
Demange, Michel; and Septier, Louis, to Societe Francaise d'Electrometallurgie-Sofrem. Method of obtaining manganese alloys with a medium carbon content. 4,274,871, Cl. 75-134.00M.
de Nagybaczon, Erno N., to International Hona NV. Dry transfer system. 4,275,104, Cl. 428-195.000.
Denholm, William T.; and Foo, Kevin A., to Commonwealth Scientific and Industrial Research Organization; and Aberfoyle Services Pty. Ltd. Recovery of tin from ores or other materials. 4,274,868, Cl. 75-21.000.
Denison, Don E., to Lingl Corporation. Method for manufacturing concrete brick in block like articles and forming shipping packs therefrom. 4,275,029, Cl. 264-152.000.
Denver Splint Company, The: *See—*
Shippert, Ronald D., 4,274,402, Cl. 128-89.00R.
Denzel, Theodore: *See—*
Breuer, Hermann; Denzel, Theodore; and Treuner, Uwe D., 4,275,062, Cl. 424-122.000.
Depowski, Norma M. Patient transfer apparatus. 4,274,168, Cl. 5-81.00B.
de Rancourt de Mimerand, Yvan; and Goullet, Jean, to Hotchkiss-Brandt Sogeme H.B.S. Clip for carrying articles engaging, disengaging and overlapping system for such a clip. 4,274,782, Cl. 414-104.000.
de Ruffi de Ponteves, Dominique C. N. E. M.: *See—*
Ferrier, Noel H. L.; and de Ruffi de Ponteves, Dominique C. N. E. M., 4,274,609, Cl. 244-3.140.
DeSoto, Inc.: *See—*
Mylonakis, Stamatios G.; and Tortorello, Anthony J., 4,275,229, Cl. 562-459.000.
Detroy, Robert W.: *See—*
Wicklow, Donald T.; and Detroy, Robert W., 4,275,167, Cl. 435-277.000.
Deutsche Gold und Silber Scheideanstalt vormals Roessler: *See—*
Hentschel, Klaus; and Bittner, Friedrich, 4,275,203, Cl. 544-194.000.
Lumbeck, Gerd; and Ferch, Horst, 4,274,883, Cl. 106-308.00Q.
Stein, Werner; and Christophliemk, Peter, 4,275,048, Cl. 423-329.000.
Deutsche Star Kugelhalter GmbH: *See—*
Blurock, Gunter; and Albert, Ernst, 4,274,297, Cl. 74-424.80R.
de Vulpillieres, Didier J., to Bendix Corporation, The. Check valve central metering injection system. 4,274,380, Cl. 123-456.000.
Devuyst, Eric A. P.: *See—*
Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., 4,274,930, Cl. 204-112.000.
Dewey, Anthony G.; and Sincerbox, Glenn T., to International Business Machines Corporation. Interactive projection display system. 4,275,395, Cl. 340-706.000.
Dexter, Martin: *See—*
Winter, Roland A. E.; and Dexter, Martin, 4,275,004, Cl. 260-206.000.
Diamond Shamrock Corporation: *See—*
Novak, Donald S., 4,274,929, Cl. 704-98.000.
Diaz, Stephen H.: *See—*
Braymer, George W., Jr.; and Diaz, Stephen H., 4,274,543, Cl. 215-6.000.
Di Bella, Frank J.: *See—*
Putnam, Paul S.; Cowgill, Charles F.; and Di Bella, Frank J., 4,274,778, Cl. 414-22.000.

Dickover, William: *See—*
Passafiume, Anthony; Lamber, Clarence F.; and Dickover, William, 4,274,318, Cl. 83-177.000.
Dictus, Alfons J.: *See—*
Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, 4,274,747, Cl. 356-431.000.
Diesel Equipment Limited: *See—*
Martin, John C.; and McKee, William C., 4,274,789, Cl. 414-501.000.
Diesel Kiki Company, Ltd.: *See—*
Kobayashi, Shigeru; Kanda, Takemi; and Shibuya, Tsunenori, 4,274,816, Cl. 418-93.000.
Dieterich, Charles B., to RCA Corporation. PCM Detector. 4,275,416, Cl. 358-147.000.
Dietmar, Peter, to Dr. Ing. h.c.F. Porsche Aktiengesellschaft. Bumper for motor vehicles. 4,274,667, Cl. 293-102.000.
Dietrich, Herbert: *See—*
McAllister, Lawrence E.; and Dietrich, Herbert, 4,275,170, Cl. 521-103.000.
Dietrichs, Hans-Hermann: *See—*
Puls, Jurgen; Sinner, Michael; and Dietrichs, Hans-Hermann, 4,275,159, Cl. 435-175.000.
Dietz, Ernest: *See—*
Dodge, Donald M.; and Dietz, Ernest, 4,274,697, Cl. 339-103.00R.
Dietz, Kristen H.: *See—*
Walters, Robert N.; and Dietz, Kristen H., 4,274,528, Cl. 194-102.000.
DiGregorio, David; McCarthy, Daniel; Mounteer, Keith J.; and Thompson, Charles D., to Envirotech Corporation. Gas-liquid dissolving tank. 4,275,020, Cl. 261-111.000.
Dijkstra, Rinse: *See—*
Lippits, Gerardus J. M.; Van Den Broek, Arnoldus J. M.; Op Het Veld, Adriaan J. G.; Dijkstra, Rinse; and De Jonge, Jelis, 4,275,091, Cl. 427-53.100.
Di Maggio, Joseph P., Jr.; Eng, Henry; Ball, Donald A.; and Walenciak, Kenneth J., to A.J.P. Scientific, Inc. Biological slide staining apparatus. 4,274,359, Cl. 118-56.000.
Di Pietro Elizaran, Rodolfo, to Arteche, Instrumentacion y Systemas Electronicos, S.A. Delayed action electrical protection device, depending on an adjusted magnitude. 4,275,445, Cl. 364-480.000.
Disko, Harry: *See—*
Morrison, Howard J.; and Disko, Harry, 4,274,223, Cl. 46-95.000.
Diversey Corporation, The: *See—*
Stanton, James H.; and Garvin, Donald F., 4,274,973, Cl. 252-34.700.
Diving Unlimited International, Inc.: *See—*
Long, Richard W.; and Stinton, Robert T., 4,274,759, Cl. 405-186.000.
Dobbie, Graham J.: *See—*
Langham, Maurice E., 4,275,074, Cl. 424-280.000.
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, to Agrober Mezogazdasagi es Elelmiszeripari Tervezo, Beruhazasivallalat. Watering head. 4,274,597, Cl. 239-542.000.
Dr. Eduard Fresenius Chemisch-pharmazeutische Industrie KG, Apparatebau KG: *See—*
Krick, Gerd; Konang, Peter; Sigdell, Jan-Erik; and Heilmann, Klaus, 4,274,964, Cl. 210-321.300.
Dr. Ing. h.c.F. Porsche Aktiengesellschaft: *See—*
Dietmar, Peter, 4,274,667, Cl. 293-102.000.
Pitzmann, Gregor, 4,274,670, Cl. 296-1.00S.
Dodge, Donald M.; and Dietz, Ernest, to Pacific Electricord Company. Ground pin blade and electrical connector plug. 4,274,697, Cl. 339-103.00R.
Doerge, Gail W., to Sproles, Michael Andrew; Decker, Dennis Gary; Houston, Rex; and Castleberry, Larry Wayne, part interest to each. Universal clip and structure for making same. 4,274,450, Cl. 140-82.000.
Dombroski, Robert M.: *See—*
Thomson, Ronald E.; and Dombroski, Robert M., 4,274,509, Cl. 184-15.00B.
Donaldson, Peter A., to Imperial Chemical Industries Limited. Purification of dicarboxylic acids. 4,275,230, Cl. 562-486.000.
Dorn, Franz, to Hoffmann-La Roche Inc. Fungicidal N-alkynylanilides. 4,275,079, Cl. 424-324.000.
Dorn, Harry M. Trouble light. 4,275,435, Cl. 362-368.000.
Dorr-Oliver Incorporated: *See—*
Fitch, Elliot B., 4,274,958, Cl. 210-208.000.
Dory, Jacques, to C. G. R. Ultra Sonic. Echo sound apparatus including an oscillating mirror for use in medical diagnosis. 4,274,421, Cl. 128-660.000.
Dotson, Robert S., Jr. Fluid operated ophthalmic irrigation and aspiration device. 4,274,411, Cl. 128-276.000.
Double Diamond Company: *See—*
Webber, Jack C., 4,274,484, Cl. 166-188.000.
Dougan, Ernest V., to Standard Brands Incorporated. Frozen puff pastry and edible insert combination and process. 4,275,082, Cl. 426-92.000.
Dow Chemical Company, The: *See—*
Harris, Monty E., 4,274,489, Cl. 166-315.000.
Hinze, Kenneth J., 4,275,173, Cl. 521-117.000.
Manfroy, Willy; and Klimpel, Richard R., 4,274,599, Cl. 241-16.000.
Orvik, Jon A., 4,275,212, Cl. 546-290.000.
Priddy, Duane B., 4,275,182, Cl. 526-109.000.
Dow Chemical Company Limited: *See—*
Ison, Robin R., 4,275,215, Cl. 548-305.000.
Dow Corning Corporation: *See—*
Baney, Ronald H.; and Chi, Frank K., 4,275,118, Cl. 428-412.000.
Downs, William: *See—*
Cioffi, Paul L.; Downs, William; Kish, William C.; and Newkirk, William E., 4,274,587, Cl. 239-132.300.
Doyel, John S. Toy electric sewing machine. 4,274,349, Cl. 112-169.000.
Draizen, Seymour: *See—*
Bedell, John R.; Kavesh, Sheldon; Hemmat, Nasin S.; Draizen, Seymour; and Smith, Robert W., 4,274,473, Cl. 164-433.000.
Drake, Charles A.; and Williams, Ralph P., to Philips Petroleum Company. Hydrogenated polynitrile mixture useful as an epoxy hardener. 4,275,237, Cl. 564-306.000.
Drake, Louis V., Jr. Manually steerable skateboard. 4,274,647, Cl. 280-87.04A.
Dravo Corporation: *See—*
Ban, Thomas E.; and Marlowe, William H., 4,274,836, Cl. 44-6.000.
Dresser Industries, Inc.: *See—*
Cope, Geoffrey W., 4,274,339, Cl. 105-168.000.
Penny, Samuel L., 4,274,498, Cl. 175-228.000.
Drill Systems, Inc.: *See—*
Becker, Floyd W.; and Regimbal, Richard R., 4,274,663, Cl. 285-24.000.
Driscoll, John S.: *See—*
Marquez, Victor E.; Liu, Paul S.; and Driscoll, John S., 4,275,057, Cl. 424-180.000.
DuCharme, Robert T.; and Herzog, Robert E., to Bendix Corporation, The. Pin slider disc brake. 4,274,514, Cl. 188-73.300.
Dudgeon, Charles D., to General Electric Company. Latent heat-curable iodonium/copper salt-catalyzed epoxy resin compositions. 4,275,190, Cl. 528-361.000.
Dueweke, Gilbert R.; and Krobock, John J. Log splitters. 4,274,458, Cl. 144-193.00D.
Duhamel, Lucette; and Plaquevent, Jean-Christophe, to Agence Nationale de Valorisation de la Recherche (ANVAR). Process for the preparation of optically active α-amino acids and their derivatives. 4,275,217, Cl. 548-344.000.
Duhayon, Jacques: *See—*
Anav, Maurice; Duhayon, Jacques; Gourmondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, 4,275,045, Cl. 423-249.000.
Dumont, Hubert H. Wheelchair. 4,274,651, Cl. 280-242.0WC.
Duncan, Fred A. Magnetohydrodynamic method and apparatus for converting solar radiation to electrical energy. 4,275,318, Cl. 310-11.000.
Dungs, Horst: *See—*
Weber, Heinrich; Dungs, Horst; Beckmann, Franz; Schmasch, Hugo; and Flasch, Karl-Heinz, 4,274,924, Cl. 202-255.000.
Dunlop Limited: *See—*
Allbert, Barrie J.; French, Tom; Kemp, Ian; and Corner, Michael R., 4,274,465, Cl. 152-379.500.
French, Tom; Mitchell, William E.; Kenney, Michael J.; and Holmes, Thomas, 4,274,466, Cl. 152-381.300.
Dunmore Corporation: *See—*
Dani, Mahesh J., 4,275,099, Cl. 428-31.000.
Dunn, Terry: *See—*
Williams, Joel; Dunn, Terry; and Stannett, Vivian, 4,274,932, Cl. 204-159.200.
Dunn, William M.; and Hodge, Malcolm H., to TRW Inc. Apparatus for severing an optical fiber. 4,274,572, Cl. 225-96.500.
Du Pont de Nemours, E. I., and Company: *See—*
Hoh, George L., 4,275,181, Cl. 525-189.000.
Keim, Kenneth J., 4,274,699, Cl. 339-176.0MP.
Krespan, Carl G., 4,275,225, Cl. 560-174.000.
Moberg, William K., 4,275,073, Cl. 424-273.00P.
Neiss, Melvin A., 4,275,140, Cl. 430-254.000.
Rector, James L.; and Weber, Paul R., 4,274,751, Cl. 366-310.000.
Rothaasa, Leonard A., 4,275,208, Cl. 546-189.000.
Durand, Michel: *See—*
Carles, Jacques E.; and Durand, Michel, 4,274,912, Cl. 162-41.000.
Duro-Test Corporation: *See—*
Walsh, Peter, 4,275,327, Cl. 313-111.000.
Duttlinger, Jean-Christian, to Wolber, Method of manufacturing a tubular tire for cycles. 4,274,899, Cl. 156-123.00R.
Dyckerhoff & Widmann Aktiengesellschaft: *See—*
Finsterwalder, Klemens, 4,274,356, Cl. 114-265.000.
Dynamit Nobel AG: *See—*
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, 4,274,662, Cl. 285-21.000.
Dynapol: *See—*
Gless, Richard D., Jr.; Dawson, Daniel J.; and Wingard, Robert E., 4,275,002, Cl. 260-144.000.
Dyonics, Inc.: *See—*
Johnson, Lanny L.; and Bonnell, Leonard J., 4,274,414, Cl. 128-305.000.
E. R. Squibb & Sons, Inc.: *See—*
Breuer, Hermann; Denzel, Theodore; and Treuner, Uwe D., 4,275,062, Cl. 424-122.000.
Earl, Gary W.; and Hickman, Howard M., to Sherex Chemical Company, Inc. Tertiary di-(β-hydroxy organo) amine oxides and their preparation. 4,275,236, Cl. 564-298.000.
Eastman, George Y., to Thermacore, Inc. Sintered grooved wicks. 4,274,479, Cl. 165-104.260.
Eastman Kodak Company: *See—*
Baughman, Richard C.; and Giometti, Michael A., 4,274,848, Cl. 55-196.000.

Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., 4,275,151, Cl. 435-11.000.
Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., 4,275,152, Cl. 435-11.000.
Masurekar, Prakash S., 4,275,164, Cl. 435-227.000.
McCollough, George T.; Esders, Theodore W.; and Lynn, Shirley Y., 4,275,166, Cl. 435-227.000.
Wu, Tai-Wing; and Dappen, Glen M., 4,274,832, Cl. 23-230.00R.

Eaton Corporation: *See—*
Koch, William E., Jr.; and Klimowicz, Michael A., 4,274,257, Cl. 60-431.000.

Ebauches S.A.: *See—*
Schaad, Jean, 4,275,462, Cl. 368-88.000.

Ebert, Emil. Ratchet wrench handle. 4,274,311, Cl. 81-63.000.

Economy Engine Company, The: *See—*
Beeghly, Bruce R., 4,275,334, Cl. 315-57.000.

Eddy, William R., to Phillips Petroleum Company. Clamping apparatus for use with a multi-station packaging machine or the like. 4,274,534, Cl. 198-479.000.

Edlund, Nils H.: *See—*
Blomgren, Rolf B. J. R.; and Edlund, Nils H., 4,274,506, Cl. 181-210.000.

Edmunds, Robert I.: *See—*
Pugh, William A. G.; Edmunds, Robert I.; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., 4,274,224, Cl. 46-161.000.

Edwards, Dean B.: *See—*
Rippel, Wally E.; and Edwards, Dean B., 4,275,130, Cl. 429-144.000.

Eggert, Joseph J.: *See—*
McVicker, Gary B.; and Eggert, Joseph J., 4,275,046, Cl. 423-258.000.

Egner, Ronald J., to Textron, Inc. Panel fastener joint. 4,274,460, Cl. 411-83.000.

Ehrsam, Kurt: *See—*
Menningen, Roland; Ehrsam, Kurt; Oberhansli, Jurg; and Grunig, Kurt, 4,275,295, Cl. 250-227.000.

Eibl, Volker: *See—*
Lutz, Dieter; Krause, Peter; Terveen, Axel; and Eibl, Volker, 4,274,425, Cl. 128-719.000.

Eidenschink, Herrn H.; and Eidenschink, Marianne. Optical process and apparatus for determining particle size of colloidal solution. 4,274,740, Cl. 356-336.000.

Eidenschink, Marianne: *See—*
Eidenschink, Herrn H.; and Eidenschink, Marianne, 4,274,740, Cl. 356-336.000.

Eineichner, Donald E.; and Tullis, Barclay J., to FMC Corporation. Chain measuring and conveyor control system. 4,274,783, Cl. 414-134.000.

Eisai Co., Ltd.: *See—*
Takahashi, Toshio; and Tagaya, Ryosaku, 4,274,745, Cl. 356-427.000.

Eistert, Theodor: *See—*
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Ekstrom, Lincoln: *See—*
Wang, Chih C.; Ekstrom, Lincoln; Lausman, Thomas C.; and Wielicki, Henry, 4,275,101, Cl. 369-286.000.

Elber, Wolf, to United States of America, National Aeronautics and Space Administration. Method of making a partial interlaminar separation composite system. 4,274,901, Cl. 156-242.000.

Electric Power Research Institute, Inc.: *See—*
Baumann, Kai J.; and Ying, Sui-Chun, 4,275,320, Cl. 310-52.000.
Cioffi, Paul L.; Downs, William; Kish, William C.; and Newkirk, William E., 4,274,587, Cl. 239-132.300.
Cook, John P., 4,274,454, Cl. 141-1.000.
Wootton, Roy E., 4,275,260, Cl. 174-17.0GF.

Electronic Modules Corporation: *See—*
Houck, David J., 4,275,264, Cl. 178-18.000.

Eley, Edgar R., to Westinghouse Electric Corp. Protected electrical inductive apparatus. 4,275,372, Cl. 337-4.000.

El Hamamsy, Mahmoud A., to Bell Telephone Laboratories, Incorporated. Optically toggled device. 4,275,308, Cl. 250-551.000.

Eli Lilly and Company: *See—*
Paget, Charles J., Jr., 4,275,210, Cl. 546-222.000.

Elvidge, John H. K.; and Watkinson, Charles J. Jet pump. 4,274,812, Cl. 417-179.000.

EMI Limited: *See—*
Ryan, John L., 4,275,444, Cl. 364-414.000.

Emson Research Incorporated: *See—*
Cater, Miro S., 4,274,560, Cl. 222-321.000.

Endo, Takaya: *See—*
Kojima, Tamotsu; Fujiwhara, Mitsuto; Endo, Takaya; and Iijima, Akio, 4,275,148, Cl. 430-558.000.

Energy Harvest, Inc.: *See—*
Dale, Eugene M.; and Malstrom, Jerry A., 4,274,838, Cl. 48-111.000.

Energy and Minerals Research, Co.: *See—*
Tarpley, William B., Jr., 4,274,491, Cl. 169-46.000.

Enfield, Derek B.: *See—*
Illakowicz, Jan; and Enfield, Derek B., 4,274,621, Cl. 266-61.000.

Eng, Henry: *See—*
Di Maggio, Joseph P., Jr.; Eng, Henry; Ball, Donald A.; and Walenciak, Kenneth J., 4,274,359, Cl. 118-56.000.

Engelhard Minerals & Chemicals Corporation: *See—*
Bartholic, David B.; and Chin, Don S., 4,274,942, Cl. 208-113.000.

Engle, Gary L., to Litton Industrial Products, Inc. Scan converter. 4,275,415, Cl. 358-140.000.

English Card Clothing Company Limited, The: *See—*
Grimshaw, Keith; and Taylor, Roy, 4,274,177, Cl. 19-99.000.

English, Tim G. Audio visual monitoring system for announcing a message upon detection of a monitored condition. 4,275,274, Cl. 369-22.000.

Environmental Research Institute of Michigan: *See—*
Klooster, Alex, Jr., 4,275,454, Cl. 364-861.000.

Envirotech Corporation: *See—*
DiGregorio, David; McCarthy, Daniel; Mounteer, Keith J.; and Thompson, Charles D., 4,275,020, Cl. 261-111.000.

Enzian, Clayton T., Jr. Lifeboat. 4,274,171, Cl. 9-4.00R.

Ercole Marelli & C. S.p.A.: *See—*
Agazzone, Umberto; and Ausiello, Francesco P., 4,275,311, Cl. 290-2.000.

Erdman, Timothy R., to Chevron Research Company. Process of preparing dispersant lubricating oil additives. 4,275,006, Cl. 260-326.5SF.

Eriksson, Hans E. K.: *See—*
Svensson, Claes G. S.; Eriksson, Hans E. K.; and Lundgren, Rolf B., 4,274,786, Cl. 414-218.000.

Ertel, Ulrike, to G.R.P. Gesellschaft fur Rationelle Psychologie oHG. Toothbrush. 4,274,174, Cl. 15-143.00R.

Ervin, James K.; and Salamon, Nicholas L., to Textron, Inc. Method and apparatus for gapping woven slide fastener stringer having elements mounted on longitudinal member in edge of tape. 4,274,191, Cl. 29-408.000.

Esashika, Tadashi, to Sony Corporation. Aperture correction signal processing circuit. 4,275,417, Cl. 358-162.000.

Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., to Eastman Kodak Company. Hydrolysis of protein-bound cholesterol esters. 4,275,151, Cl. 435-11.000.

Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., to Eastman Kodak Company. Hydrolysis of protein-bound cholesterol esters. 4,275,152, Cl. 435-11.000.

Esders, Theodore W.: *See—*
McCollough, George T.; Esders, Theodore W.; and Lynn, Shirley Y., 4,275,166, Cl. 435-227.000.

Eshghy, Siavash, to Rockwell International Corporation. Tension control of fasteners. 4,274,188, Cl. 29-240.000.

Esposito, Roberto: *See—*
Messori, Vittorio; Francese, Renato; and Esposito, Roberto, 4,275,204, Cl. 544-204.000.

Etablissement Supervis: *See—*
Mettler, Karl, 4,274,276, Cl. 72-354.000.

Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., to International Nickel Company, Inc., The. Process for recovering cobalt electrolytically. 4,274,930, Cl. 204-112.000.

Evans, Edward N., to Park Mobile, Inc. Detection of object in path of moving gate. 4,274,226, Cl. 49-25.000.

Evers, Heinz; and Goedecke, Hartmut, to Frank'sche Eisenwerke AG. Safety spraying device. 4,274,553, Cl. 222-76.000.

Evers, Robert S.: *See—*
Kuyper, Herman S.; Evers, Robert S.; and Regal, John, 4,274,469, Cl. 160-107.000.

Ex-Cell-O GmbH: *See—*
Burkhardt, Friedrich; and Staiger, Hans, 4,274,773, Cl. 409-221.000.

Exxon Production Research Company: *See—*
Maus, L. Donald; and Binder, George G., Jr., 4,274,283, Cl. 73-153.000.

Exxon Research & Engineering Co.: *See—*
Hoffman, Paul R., 4,275,426, Cl. 360-99.000.
McVicker, Gary B.; and Eggert, Joseph J., 4,275,046, Cl. 423-258.000.

Fairchild Camera & Instrument Corp.: *See—*
Varshney, Ramesh C., 4,275,387, Cl. 340-347.0AD.

Faix, James E., to Consolidation Coal Company. Directional control valve. 4,274,443, Cl. 137-625.640.

Fapiano, Donald J.; and Smith, Michael A., to General Electric Company. Temperature control in hot strip mill. 4,274,273, Cl. 72-13.000.

Farber, Sheldon: *See—*
Becker, William J.; Farber, Sheldon; and Hoover, Troy E., 4,275,206, Cl. 546-115.000.

Farmer, Felta C., Jr.; and Knight, Donald P., to RCA Corporation. Precision cathode current regulator. 4,275,347, Cl. 323-312.000.

Farmos Group, Ltd.: *See—*
Karjalainen, Arto; and Kurkela, Kauko, 4,275,072, Cl. 424-273.00R.

Favre, Nicolas, to Compagnie Industrielle Radioelectrique. Method and apparatus for detecting a fluorescent area on a sheet of paper. 4,275,299, Cl. 250-271.000.

Favrot, Paul, to Constructions de Clichy. Frames of grinding machines. 4,274,229, Cl. 51-95.0WH.

Fedder, Richard C.: *See—*
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., 4,274,361, Cl. 118-653.000.

Federal Paper Board Company, Inc.: *See—*
Kulig, Francis V., 4,274,579, Cl. 229-28.00R.

Fee, Graham M., to True Temper Corporation. Separate insulator pad between a clip and a railroad rail. 4,274,582, Cl. 238-349.000.

Fehlisch, Silvan: *See—*
Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, 4,274,439, Cl. 137-601.000.

Feldstein, George, to Shimelman, Myer B. Medicament dispensing device. 4,274,550, Cl. 221-71.000.

Feller, Murray F., to Wilgood Corporation. Rotation sensor. 4,275,291, Cl. 235-92.0FL.

Fenner, Robert M.; and Franz, Edward P. Exercise apparatus. 4,274,627, Cl. 272-117.000.

Fenyvesi, Eva: *See—*
Szejtli, Jozsef; Fenyvesi, Eva; Zoltan, Sandor; Zsadon, Bela; and Tudos, Ferenc, 4,274,985, Cl. 260-17.4ST.

Ferag AG: *See—*
Reist, Walter; and Honegger, Werner, 4,274,623, Cl. 271-217.000.

Ferch, Horst: *See—*
Lumbeck, Gerd; and Ferch, Horst, 4,274,883, Cl. 106-308.00Q.

Ferguson, Arthur; and Spector, George. Porto auto oil easy drain. 4,274,645, Cl. 280-47.260.

Ferlier, Jean-Pierre: *See—*
Bascou, Edith; and Ferlier, Jean-Pierre, 4,274,895, Cl. 156-53.000.

Ferranti Limited: *See—*
Leather, Russell A., 4,274,694, Cl. 339-74.00R.

Ferrier, Noel H. L.; and de Ruffi de Ponteves, Dominique C. N. E. M., to Societe d'Etudes et de Realisations Electroniques; and Societe de Fabrication d'Instruments de Mesure (SFIM). Target and missile angle tracking method and system for guiding missiles on to targets. 4,274,609, Cl. 244-3.140.

Ferrieu, Gilbert M. M., to U.S. Philips Corporation. Subscriber line interface circuit for a telephone line. 4,275,277, Cl. 179-170.0NC.

Ferris, Michael J.; and Arias, Henry, to Marvin Glass & Associates. Combative game apparatus. 4,274,629, Cl. 273-1.00R.

Festag, Werner; Muller, Hans-Ueli; and Stanek, Oldrich, to Swiss Aluminium Ltd. Closure system for containers, in particular for non-returnable containers of semi-rigid material, made out of at least two dish-shaped parts which are joined together. 4,274,541, Cl. 206-613.000.

Fiat Auto S.p.A.: *See—*
Agazzone, Umberto; and Ausiello, Francesco P., 4,275,311, Cl. 290-2.000.

Fiber Associates: *See—*
Geyer, Charles J., Jr.; and White, Ben E., 4,275,195, Cl. 536-101.000.

Fiber Industries, Inc.: *See—*
Cardell, Max L.; and Holt, John R., 4,274,746, Cl. 356-429.000.

Fiber Materials, Inc.: *See—*
McAllister, Lawrence E.; and Dietrich, Herbert, 4,275,170, Cl. 521-103.000.

Fibun B.V.: *See—*
Davidson, Roderick I., 4,275,294, Cl. 250-227.000.

Fichtel & Sachs AG: *See—*
Raab, Harald; and Weissenberger, Helmuth, 4,274,525, Cl. 192-106.200.

Fike, Louis T. Lock system for tire curing apparatus. 4,274,820, Cl. 425-29.000.

Fillie, Jean, to Trefimetaux. End piece for high voltage cables. 4,275,261, Cl. 174-73.00R.

Filotex: *See—*
Bascou, Edith; and Ferlier, Jean-Pierre, 4,274,895, Cl. 156-53.000.

Finch, Robert A., to CBS Inc. One key chording system for electronic keyboard instrument. 4,274,320, Cl. 84-1.010.

Findl, Eugene; and Kurtz, Robert J., to Howmedica Inc. Apparatus for sensing electrical potentials. 4,274,937, Cl. 204-195.00R.

Finetex, Inc.: *See—*
Scala, Thomas L., Jr., 4,275,222, Cl. 560-103.000.

Fink, Hans-Ferdi: *See—*
Koerner, Gotz; and Fink, Hans-Ferdi, 4,274,977, Cl. 252-358.000.

Finkelstein, Oscar P. Dispenser for web-like material. 4,274,573, Cl. 225-106.000.

Finn, Kenneth F. Toggle wrench. 4,274,312, Cl. 81-356.000.

Finsterwalder, Klemens, to Dyckerhoff & Widmann Aktiengesellschaft. Semi-submersible floating structure. 4,274,356, Cl. 114-265.000.

Firth, Bruce E., to UOP Inc. Preparation of 2,4,6-triisopropylphenol. 4,275,248, Cl. 568-781.000.

Firth, Bruce E., to UOP Inc. Preparation of 2,4-Di-t-alkylphenol. 4,275,249, Cl. 568-789.000.

Firth, William C., Jr., to Union Camp Corporation. Method for stimulating growth in foliage plants. 4,274,860, Cl. 71-24.000.

Fischer, Jochen: *See—*
Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, 4,274,345, Cl. 112-51.000.

Fischer, Wolf E., to Semperit AG. Connection coupling connectable under pressure. 4,274,441, Cl. 137-614.050.

Fischer, Wolfgang; and Wissel, Brigitte, to Merck Patent Gesellschaft mit beschraankter Haftung. Agent and process for carrying out colorimetric or photometric determinations. 4,275,031, Cl. 422-57.000.

Fisher, Curtis P.: *See—*
Painter, P. Eric; and Fisher, Curtis P., 4,274,187, Cl. 29-225.000.

Fisher, David R.: *See—*
Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., 4,274,225, Cl. 46-227.000.

Fisher, Leslie G., to GKN Transmissions Limited. Shaft and universal joint member assembly. 4,275,122, Cl. 428-542.000.

Fishter, Robert E.; and Manty, Brian A., to United Technologies Corporation. Cyanide free solution and process for removing gold-nickel braze. 4,274,908, Cl. 156-637.000.

Fisli, Tibor, to Xerox Corporation. High-efficiency symmetrical scanning optics. 4,274,703, Cl. 350-6.800.

Fisons Limited: *See—*
Geering, Quinton A., 4,275,060, Cl. 424-218.000.
Harris, John P., 4,275,247, Cl. 568-767.000.

Fitch, Elliot B., to Dorr-Oliver Incorporated. Flocculant distributor means for feedwell. 4,274,958, Cl. 210-208.000.

Fitzpatrick, Donald C.: *See—*
Frye, Kenneth G.; and Fitzpatrick, Donald C., 4,274,319, Cl. 83-430.000.

Fives-Cail Babcock: *See—*
Cazaux, Joel, 4,274,472, Cl. 164-416.000.

Flair, Henry J., to Illinois Tool Works Inc. Differential checking head. 4,274,207, Cl. 33-179.50R.

Flanders, Ralph W. Exercise and game apparatus. 4,274,639, Cl. 273-402.000.

Flasch, Karl-Heinz: *See—*
Weber, Heinrich; Dungs, Horst; Beckmann, Franz; Schmauch, Hugo; and Flasch, Karl-Heinz, 4,274,924, Cl. 202-255.000.

Flick, Carl, to Westinghouse Electric Corp. Dynamoelectric machine having shielded retaining rings. 4,275,324, Cl. 310-270.000.

Flora, Lawrence; and Francis, Marion D., to Procter & Gamble Company, The. Salicylate anti-inflammatory composition. 4,275,059, Cl. 424-204.000.

Flower, Ralph F. J. Method of manufacturing brush seals. 4,274,575, Cl. 228-160.000.

FMC Corporation: *See—*
Barclay, John H., 4,274,542, Cl. 212-270.000.
Eineichner, Donald E.; and Tullis, Barclay J., 4,274,783, Cl. 414-134.000.
Hall, Richard E.; and Guiliano, Basil A., 4,275,202, Cl. 544-192.000.

Focht, Harry, to Paul Troester Maschinenfabrik. Apparatus for heating rubber products with UHF energy. 4,275,283, Cl. 219-10.55F.

Foo, Kevin A.: *See—*
Denholm, William T.; and Foo, Kevin A., 4,274,868, Cl. 75-21.000.

Foote Mineral Company: *See—*
Brown, Patrick M.; and Jacob, Susan R., 4,274,834, Cl. 23-302.00R.

Ford, George A.: *See—*
Willis, Clyde A.; and Ford, George A., 4,274,497, Cl. 175-100.000.

Ford Motor Company: *See—*
Jones, Bryan, 4,274,299, Cl. 74-492.000.
Rao, V. Durga Nageswar, 4,274,811, Cl. 417-64.000.
Roushdy, Hesham A., 4,274,305, Cl. 74-865.000.

Forseth, Dean A., to Hensway, Inc. Incubation method. 4,274,364, Cl. 119-35.000.

Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, to Bayer Aktiengesellschaft. Evaporator for concentrating mineral acid, particularly sulphuric acid. 4,274,910, Cl. 159-1.00C.

Foseco International Limited: *See—*
Kristiansen, Jan O.; and Lynham, C. Richard, 4,274,869, Cl. 75-53.000.

Foss, Rene N.; and Levine, Sidney, to United States of America, Navy. Acoustic imaging system for wire guided torpedo. 4,274,353, Cl. 114-21.00A.

Framatome: *See—*
Ruiz, Pierre, 4,275,447, Cl. 364-494.000.

Francese, Renato: *See—*
Messori, Vittorio; Francese, Renato; and Esposito, Roberto, 4,275,204, Cl. 544-204.000.

Francis, Marion D.: *See—*
Flora, Lawrence; and Francis, Marion D., 4,275,059, Cl. 424-204.000.

Francisco-Arnold, Richard D. Immersion/suspension method for the submarine deployment of high voltage transmission cable. 4,274,757, Cl. 405-161.000.

Franklin, Leslie C., to Ratcliff Tail Lifts Limited. Ramps. 4,274,172, Cl. 14-69.500.

Frank'sche Eisenwerke AG: *See—*
Evers, Heinz; and Goedecke, Hartmut, 4,274,553, Cl. 222-76.000.

Franz, Edward P.: *See—*
Fenner, Robert M.; and Franz, Edward P., 4,274,627, Cl. 272-117.000.

Frear, David L.: *See—*
Buck, Joseph M.; Gallusser, David O.; and Frear, David L., 4,274,702, Cl. 339-217.00R.

Fredd, John V., to Otis Engineering Corporation. Method and system for well testing. 4,274,485, Cl. 166-250.000.

Fredd, John V., to Otis Engineering Corporation. Apparatus for and method of operating a well. 4,274,486, Cl. 166-250.000.

Freeman, Marshall. Tire traction enhancing apparatus. 4,274,463, Cl. 152-213.00R.

Freese, Gary P., to Caterpillar Tractor Co. Cushioned bulldozer blade. 4,274,493, Cl. 172-816.000.

Freisler, Erhard; Lutz, Friedrich; and Zollinger, Hans, to Ruti Machinery Works Ltd. Band guide for shuttleless looms. 4,274,449, Cl. 139-449.000.

French, Douglas A.: *See—*
French, Frederic A.; and French, Douglas A., 4,275,890, Cl. 423-445.000.

French, Frederic A.; and French, Douglas A., to TDC-Technology Development Corporation. Production of ultra-hard particles. 4,275,050, Cl. 423-445.000.

French, Tom; Mitchell, William E.; Kenney, Michael J.; and Roberts, Thomas, to Dunlop Limited. Tire and wheel rim assemblies. 4,274,466, Cl. 152-381.300.

French, Tom: *See—*
Allbert, Barrie J.; French, Tom; Kemp, Ian; and Corner, Michael R., 4,274,465, Cl. 152-379.500.
Frey-Wigger, Paul. Working platform. 4,274,793, Cl. 414-607.000.
Frey, William I.; and Beestrice, William R., to PPG Industries, Inc. Method for developing a release surface on a glass mold. 4,274,856, Cl. 65-24.000.
Fridrich, Elmer G.; and Davenport, John M., to General Electric Company. Electrode with overwind for miniature metal vapor lamp. 4,275,329, Cl. 313-217.000.
Fried. Krupp Gesellschaft mit beschrankter Haftung: *See—*
Schnurbus, Heinrich; Nelle, Horst; and Wolf, Wilhelm, 4,274,888, Cl. 148-108.000.
Friedland, David J.; Tewksbury, Floyd L.; and Robinson, Martin A., to Allied Chemical Corporation. Stripping metals from organic solvent with aqueous solution of polymeric phosphates. 4,275,037, Cl. 423-8.000.
Friedman, Joseph; Oberg, Carl L.; and Russell, Larry H., to Rockwell International Corporation. Hydrogenation apparatus. 4,275,034, Cl. 422-194.000.
Friedrich Grohe Armaturenfabrik GmbH & Co.: *See—*
Bernat, Georg; Nolting, Karl-Heinz; and John, Claus, 4,274,442, Cl. 137-625.170.
Frye, Kenneth G.; and Fitzpatrick, Donald C., to Lenox Machine Company, Inc. Slitter for high bulk traveling paper web material. 4,274,319, Cl. 83-430.000.
Fuji Electric Co., Ltd.: *See—*
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.
Fuji Photo Film Co., Ltd.: *See—*
Kita, Nobuyuki; and Narutomi, Yasuhisa, 4,275,138, Cl. 430-157.000.
Mikami, Takeshi, 4,275,145, Cl. 430-377.000.
Yamaguchi, Nobutana; Takayama, Satoru; Utumi, Masahiro; and Fujiyama, Masaaki, 4,275,108, Cl. 428-220.000.
Yoneyama, Masakazu; Ino, Shoichi; and Minamizono, Junji, 4,275,146, Cl. 430-523.000.
Fuji Photo Optical Co., Ltd.: *See—*
Numata, Saburo, 4,274,722, Cl. 354-33.000.
Fujiseiko K.K.: *See—*
Haga, Minoru; and Kondo, Kunio, 4,274,774, Cl. 409-232.000.
Fujitsu Fanuc Limited: *See—*
Inaba, Hajimu; and Inagaki, Shigemi, 4,274,802, Cl. 414-783.000.
Kawada, Shigeki; Kobari, Katsuo; and Ishida, Hiroshi, 4,275,342, Cl. 318-490.000.
Fujitsu Limited: *See—*
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, 4,275,093, Cl. 427-89.000.
Takagi, Mikio; Maeda, Mamoru; and Kamioka, Hajime, 4,275,094, Cl. 427-93.000.
Tanaka, Takehiko; Kubota, Yoji; and Kubomura, Kiyoshi, 4,275,456, Cl. 364-900.000.
Fujiwhara, Mitsuto: *See—*
Kojima, Tamotsu; Fujiwhara, Mitsuto; Endo, Takaya; and Iijima, Akio, 4,275,148, Cl. 430-558.000.
Fujiyama, Masaaki: *See—*
Yamaguchi, Nobutana; Takayama, Satoru; Utumi, Masahiro; and Fujiyama, Masaaki, 4,275,108, Cl. 428-220.000.
Fukuda, Kunio: *See—*
Yamashita, Izumi; Fukuda, Kunio; and Tazaki, Kichiya, 4,274,998, Cl. 260-45.75B.
Fukuhara, Toru; and Saegusa, Takashi, to Nippon Kogaku K.K. Metering device of a camera. 4,274,721, Cl. 354-31.000.
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, to Hitachi, Ltd.; and Nissan Motor Company, Limited. Device for electrically connecting spark plug to high-voltage cable. 4,274,695, Cl. 339-97.00S.
Fukumori, Yukitsugu: *See—*
Sone, Masazumi; Suzuki, Kazuhiko; and Fukumori, Yukitsugu, 4,274,843, Cl. 55-139.000.
Fulton, Donald E.; and Curtiss, William P., to Charles Stark Draper Laboratory, Inc., The. Back EMF controlled permanent magnet motor. 4,275,343, Cl. 318-721.000.
Fulton, George G. Convertible bulwark and ramp system for marine vessels. 4,274,355, Cl. 114-255.000.
Fulton, Theodore A., to Bell Telephone Laboratories, Incorporated. Josephson Atto-Weber switch. 4,275,314, Cl. 307-462.000.
Funahara, Toshikazu: *See—*
Nakayama, Fumio; and Funahara, Toshikazu, 4,275,357, Cl. 330-107.000.
Funck, Herbert. Shoe soles with non-slip profile. 4,274,211, Cl. 36-30.00R.
Furukawa Denchi Kabushiki Kaisha: *See—*
Sano, Ichiro, 4,275,128, Cl. 429-88.000.
Fuse, Yuzo: *See—*
Sugita, Junkichi; and Fuse, Yuzo, 4,275,269, Cl. 179-1.0FS.
G. D. Searle & Co.: *See—*
Apple, Martin A.; and Pappo, Raphael, 4,275,192, Cl. 536-17.00A.
G. N. Tool Inc.: *See—*
Nishimura, Takayuki, 4,274,771, Cl. 408-230.000.
G.R.P. Gesellschaft fur Rationelle Psychologie oHG: *See—*
Ertel, Ulrike, 4,274,174, Cl. 15-143.00R.
Gaetano, Salvatore. Exercising apparatus. 4,274,625, Cl. 272-69.000.

GAF Corporation: *See—*
Mackey, E. Scudder; and Pechmann, Karl, 4,275,147, Cl. 430-527.000.
Gaglione, Stanley; and Hanley, Gerard L., to Sperry Corporation. Digital diode phase shifter elements. 4,275,367, Cl. 333-164.000.
Galajda, John E. Template holder and templates. 4,274,459, Cl. 144-144.50R.
Gallaher, David E.: *See—*
Rabeneck, Kenneth H.; Kantlehner, Jerry R.; and Gallaher, David E., 4,274,539, Cl. 206-554.000.
Gallanis, George P.; Spohr, Albert R.; and Lube, Robert R., to Sunbeam Corporation. Electric shaver. 4,274,199, Cl. 30-34.100.
Gallardo, Vicente C., Jr., to General Electric Company. Staircase blade tip. 4,274,806, Cl. 415-172.00A.
Galliani, Giulio: *See—*
Guzzi, Umberto; Omodei-Sale', Amedeo; and Galliani, Giulio, 4,275,066, Cl. 424-258.000.
Gallo, Benedict J., to United States of America, Army. Cellulase-producing microorganism. 4,275,163, Cl. 435-209.000.
Gallo, Mario; and Wirth, Johannes, to Wirth, Gallo & Co. Mass and force meter. 4,274,501, Cl. 177-210.0FP.
Gallusser, David O.: *See—*
Buck, Joseph M.; Gallusser, David O.; and Frear, David L., 4,274,702, Cl. 339-217.00R.
Galusha, Glenn D.: *See—*
Brown, Roger A.; Clyde, William F.; and Galusha, Glenn D., 4,275,086, Cl. 426-518.000.
Gammon, James A. Ocular fixation device. 4,274,716, Cl. 351-36.000.
Gardner, Harry N.; and Gravelle, Wayne R., to NCR Corporation. Topography for integrated circuits pattern recognition array. 4,275,380, Cl. 340-146.30Z.
Gardner, Hugh C.: *See—*
Berger, Mitchell H.; Matzner, Markus; and Gardner, Hugh C., 4,275,188, Cl. 528-193.000.
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., to American Hospital Supply Corporation. Analytical fluorogenic substrates for proteolytic enzymes. 4,275,153, Cl. 435-13.000.
Garier, Christian; and Paradowski, Henri, to Campagnie Francaise d'Etudes et de Construction Technip. Method and plant for liquefying a gas with low boiling temperature. 4,274,849, Cl. 62-9.000.
Garlock Inc.: *See—*
Cather, Douglas A., Jr., 4,274,641, Cl. 277-153.000.
Garner, Jimmy G.; and Guinn, Kenneth F., to Textron, Inc. Swashplate drive redundancy system. 4,274,808, Cl. 416-114.000.
Garrett Corporation, The: *See—*
Bolliger, Frederic E.; Woodhouse, Geoffrey D.; Mattson, George B.; Anson, Bruce S.; and Hatch, Robert A., 4,274,253, Cl. 60-39.030.
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.
Garrett, Robert W., to Western Electric Company, Inc. Method and apparatus for removing heat from a workpiece during processing in a vacuum chamber. 4,274,476, Cl. 165-80.00E.
Garvin, Donald F.: *See—*
Stanton, James H.; and Garvin, Donald F., 4,274,973, Cl. 252-34.700.
Gauer, Richard: *See—*
Walkenhorst, Wilfried; Gauer, Richard; Wild, Gerhard; and Muller, Walter, 4,275,177, Cl. 525-53.000.
Geberit AG: *See—*
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, 4,274,662, Cl. 285-21.000.
Geens, Maurits: *See—*
Burtin, Jean; and Geens, Maurits, 4,274,748, Cl. 356-431.000.
Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, 4,274,747, Cl. 356-431.000.
Geering, Quinton A., to Fisons Limited. Method and composition for combatting pest. 4,275,060, Cl. 424-218.000.
Geiger, Rolf: *See—*
Konig, Wolfgang; Teetz, Volker; Jager, Georg; and Geiger, Rolf, 4,275,001, Cl. 260-112.5LH.
General Atomic Company: *See—*
Jensen, Torkil H.; Ohyabu, Nobuyoshi; and Hsieh, Chung-Lih, 4,274,919, Cl. 176-3.000.
General Battery Corporation: *See—*
Richards, Donald K., 4,275,131, Cl. 429-163.000.
General Dynamics, Pomona Division: *See—*
Bastian, Thomas W., 4,274,610, Cl. 244-3.220.
General Electric Company: *See—*
Cho, Chong I.; Zukowski, Edward C.; and Speros, Dimitri M., 4,275,330, Cl. 313-218.000.
Dudgeon, Charles D., 4,275,190, Cl. 528-361.000.
Fapiano, Donald J.; and Smith, Michael A., 4,274,273, Cl. 72-13.000.
Fridrich, Elmer G.; and Davenport, John M., 4,275,329, Cl. 313-217.000.
Gallardo, Vicente C., Jr., 4,274,806, Cl. 415-172.00A.
Gilbert, Peter T., 4,274,244, Cl. 53-451.000.
Hatch, Burton D., 4,275,323, Cl. 310-178.000.
Hornung, Richard E., 4,275,388, Cl. 340-384.00E.
Kelley, Fred W., Jr., 4,275,346, Cl. 323-210.000.
Knoble, David W.; and Crane, Thomas A., 4,275,337, Cl. 315-289.000.
Mark, Victor, 4,275,245, Cl. 568-726.000. →

Quinn, Clayton B.; and Wilson, Charles A., II, 4,275,187, Cl. 528-174.000.
Racz, Janos A.; and Seppi, Edward J., 4,275,305, Cl. 250-445.00T.
Snyder, Ronald R.; and Sibley, Lincoln L., Jr., 4,274,325, Cl. 89-12.000.
Starr, James A.; and Punches, James R., 4,274,205, Cl. 33-174.00L.
Stresing, Kurt O., 4,275,331, Cl. 313-318.000.
Urban, Raymond C.; and Quinlan, Robert W., 4,275,109, Cl. 428-273.000.
General Foods Corporation: *See—*
Colten, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., 4,275,083, Cl. 426-96.000.
General Mills, Inc.: *See—*
Hart, Patricia E.; and Nichols, Tisha, 4,275,088, Cl. 426-554.000.
General Motors Corporation: *See—*
Lederman, Frederick E., 4,274,655, Cl. 280-688.000.
Peeples, Denny L., 4,274,326, Cl. 91-49.000.
Georg Fischer Aktiengesellschaft: *See—*
Hofmann, Franz; and Satmer, Franz, 4,274,360, Cl. 118-303.000.
Gerasin, Michael N.: *See—*
Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,274,766, Cl. 407-15.000.
Gerber, Alfred; and Sparro, Francesco, to Gerber, Alfred. Reciprocating piston beam engine. 4,274,367, Cl. 123-52.00A.
Germain, Lee A., to Goodyear Tire & Rubber Company, The. Apparatus for fuel vapor recovery. 4,274,549, Cl. 220-86.00R.
Gessinger, Gernot: *See—*
Buxbaum, Charley; Gessinger, Gernot; and Strassler, Sigfrid, 4,275,123, Cl. 428-547.000.
Geyer, Charles J., Jr.; and White, Ben E., to Fiber Associates. Process and apparatus for expediting the mercerization of alkali cellulose. 4,275,195, Cl. 536-101.000.
Giannuzzi, Louis N. Hollow wall screw anchor. 4,274,324, Cl. 411-38.000.
Gibbs & Hill, Inc.: *See—*
Renko, George, 4,274,920, Cl. 176-30.000.
Giede, Wolfgang; and Rutzen, Horst, to Henkel Kommanditgesellschaft auf Aktien. Preparation of quaternary ammonium halides in powder or granular form. 4,275,235, Cl. 564-288.000.
Gilbert, Peter T., to General Electric Company. Method and apparatus for sealing polyester film in mine bolt capsule. 4,274,244, Cl. 53-451.000.
Gill, Donald I.: *See—*
Harrison, Thomas F.; and Gill, Donald I., 4,274,904, Cl. 156-461.000.
Gill, Kenneth E.; and Hilling, Anthony E., to Racal Communications Equipment. Electronic amplifier circuit arrangements. 4,275,360, Cl. 330-276.000.
Gilles, Hans. Hand drive assembly for a wheelchair. 4,274,650, Cl. 280-242.0WC.
Gillette Company, The: *See—*
Varner, Donald E., 4,274,315, Cl. 82-47.000.
Gilovich, Paul A.; and Hickox, Thomas A., to Microcomputer Systems Corp. Tape transport. 4,274,608, Cl. 242-192.000.
Gioia, Alberto, to Gruppo Lepetit S.p.A. Powder flowability test equipment. 4,274,286, Cl. 73-432.00R.
Giometti, Michael A.: *See—*
Baughman, Richard C.; and Giometti, Michael A., 4,274,844, Cl. 55-196.000.
Girardi, Vincent J., to Babcock & Wilcox Company, The. Broaching machine compound shuttle. 4,274,775, Cl. 409-251.000.
GKN Transmissions Limited: *See—*
Fisher, Leslie G., 4,275,122, Cl. 428-542.000.
Glaum, Gerald V.: *See—*
Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., 4,274,930, Cl. 204-112.000.
Gless, Richard D., Jr.; Dawson, Daniel J.; and Wingard, Robert E., to Dynapol. Process for preparing polymeric colorants having a poly(-vinylamine) backbone. 4,275,002, Cl. 260-144.000.
Glinsmann, Gilbert R.: *See—*
Hedges, James H.; and Glinsmann, Gilbert R., 4,274,488, Cl. 166-273.000.
Gnadeberg, Jules: *See—*
Balzarini, Giovanni; Buccino, Giovanni; Gnadeberg, Jules; Papeschi, Roberto; and Slavich, Giancarlo, 4,275,451, Cl. 364-580.000.
Gnyra, Bohdan, to Alcan Research and Development Limited. Removal of oxalate from bayer process liquor. 4,275,043, Cl. 423-130.000.
Goedecke, Hartmut: *See—*
Evers, Heinz; and Goedecke, Hartmut, 4,274,553, Cl. 222-76.000.
Goelz, David W., to Poly-Glas Systems. Roving brake. 4,274,512, Cl. 188-65.100.
Goff, James R.: *See—*
Spence, Adam M.; and Goff, James R., 4,274,765, Cl. 405-303.000.
Goldstein, Richard M.: *See—*
Boll, Harry J.; and Goldstein, Richard M., 4,275,313, Cl. 307-448.000.
Golobay, Gary L., to Conchemco, Incorporated. Apparatus for automatically maintaining the tautness of a mechanical coupling between an actuatable device and an associated actuating mechanism. 4,274,300, Cl. 74-501.50R.
Gomez, I. Luis, to Monsanto Company. Molding compositions and process for preparing same. 4,275,175, Cl. 525-5.000.
Goodhue, Charles T.: *See—*
Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., 4,275,151, Cl. 435-11.000.

Esders, Theodore W.; Goodhue, Charles T.; and Michrina, Christine A., 4,275,152, Cl. 435-11.000.
Goodman, Richard M.; and Panzer, Hans P., to American Cyanamid Company. Iron ore beneficiation by selective flocculation. 4,274,945, Cl. 209-5.000.
Goodyear Aerospace Corporation: *See—*
Alexander, William C.; Kirk, Richard L.; and Thomsen, Kenneth A., 4,275,376, Cl. 340-52.00R.
Goodyear Tire & Rubber Company, The: *See—*
Germain, Lee A., 4,274,549, Cl. 220-86.00R.
McGraner, James E., 4,274,538, Cl. 206-394.000.
Goold, Lionel A., to Trochem (PTY) Limited. Ore dressing process. 4,274,951, Cl. 209-167.000.
Goshima, Norio: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,275,377, Cl. 340-58.000.
Goto, Kenji: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Smiti; Goto, Kenji; and Sawada, Daisaku, 4,274,379, Cl. 123-425.000.
Goullet, Jean: *See—*
de Rancourt de Mimerand, Yvan; and Goullet, Jean, 4,274,782, Cl. 414-104.000.
Goumondy, Jean-Pierre: *See—*
Anav, Maurice; Duhayon, Jacques; Goumondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, 4,275,045, Cl. 423-249.000.
Goushaw, David W. Continuously refrigerated, automatically ejected block ice machine. 4,274,263, Cl. 62-71.000.
GOW-MAC Instrument Co.: *See—*
Lawson, Alexander E.; Mathieu, Robert J.; and Miller, James M., 4,275,304, Cl. 250-373.000.
Gram, Martin M., to MTS Systems Corporation. Rapid opening, high flow control valve for hydraulic actuator. 4,274,290, Cl. 73-437.000.
Granda, Edward J.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.
Grant, Carl H.: *See—*
Adams, Robert L., Jr.; Grant, Carl H.; and Stevens, Karl W., 4,275,440, Cl. 364-200.000.
Grau, Werner: *See—*
Schoenafinger, Eduard; Motz, Herbert; Ohlinger, Manfred; Deigner, Paul; and Grau, Werner, 4,275,114, Cl. 428-328.000.
Gravelle, Wayne R.: *See—*
Gardner, Harry N.; and Gravelle, Wayne R., 4,275,380, Cl. 340-146.30Z.
Gray, Stanley; and Bhushan, Bharat, to Mechanical Technology Incorporated. Support element for compliant hydrodynamic journal bearings. 4,274,683, Cl. 308-9.000.
Graybill, Clinton: *See—*
Rollins, Ralph T., 4,275,017, Cl. 261-53.000.
Greco, Nicholas P., to Koppers Company, Inc. Separation of phenols. 4,275,246, Cl. 568-750.000.
Green Cross Corporation, The: *See—*
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.
Green, Howard W.: *See—*
Witten, Alvin E.; and Green, Howard W., 4,274,330, Cl. 98-37.000.
Green, Robert J.: *See—*
Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., 4,274,530, Cl. 198-347.000.
Greenlee, William J.: *See—*
Patchett, Arthur A.; and Greenlee, William J., 4,275,220, Cl. 560-35.000.
Greenway, John M., to Milliken Research Corporation. Apparatus for producing a simulated stria fabric. 4,274,182, Cl. 26-2.00R.
Greer Hydraulics, Incorporated: *See—*
Zahid, Abduz, 4,274,446, Cl. 138-30.000.
Gregg, Richard, to Procter & Gamble Company, The. Method of making drip-type coffee. 4,275,085, Cl. 426-433.000.
Gregory, Francis J.: *See—*
Wei, Peter H. L.; and Gregory, Francis J., 4,275,065, Cl. 424-256.000.
Grimaud, Edouard: *See—*
Lecoq, Jean-Claude; and Grimaud, Edouard, 4,274,969, Cl. 210-721.000.
Grimminger, Hermann; and Reimer, Hans-Joachim, to Hoechst Aktiengesellschaft. Process and device for controlling the content of closed packages as to completeness. 4,274,499, Cl. 177-1.000.
Grimshaw, Keith; and Taylor, Roy, to English Card Clothing Company Limited, The. Carding. 4,274,177, Cl. 19-99.000.
Grinberg, Jan; Jacobson, Alexander D.; and Chow, Kuen, to Hughes Aircraft Company. Three-dimensionally structured microelectronic device. 4,275,410, Cl. 357-68.000.
Grocki, Wayne; and Steinmetz, Richard J., to Zenith Radio Corporation. Anti-spot burn protection for CRT. 4,275,338, Cl. 315-381.000.
Groening, Jurgen: *See—*
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.
Grose, Reginald E., to Congoleum Corporation. Dimensionally stable backing materials for surface coverings and methods of making the same. 4,274,916, Cl. 162-145.000.
Gross, Walter O. Depth of field objective. 4,274,725, Cl. 354-196.000.

Grosser, Richard W.; and Long, Virgil L., Sr., to AMF Incorporated. Exercise floor. 4,274,626, Cl. 272-109.000.

Grossman, James M.: *See*—
Grubbs, Dean O.; and Grossman, James M., 4,274,739, Cl. 356-155.000.

Groupement Europeen de la Cellulose: *See*—
Carles, Jacques E.; and Durand, Michel, 4,274,912, Cl. 162-41.000.

Grubbs, Dean O.; and Grossman, James M., to Hunter Engineering Company. Apparatus for monitoring operational status and diagnosis of electronic vehicle wheel alignment equipment. 4,274,739, Cl. 356-155.000.

Grubbs, Dean O.: *See*—
Hollandsworth, William J.; and Grubbs, Dean O., 4,274,738, Cl. 356-155.000.

Grube, William L. Variable ratio belt drive. 4,274,295, Cl. 474-23.000.

Gruber, George P., Jr. Reel technology. 4,274,605, Cl. 242-55.000.

Gruffaz, Max; and Micaelli, Odile, to Rhone-Poulenc Industries. Catalytic preparation of ethyl acetate. 4,275,228, Cl. 560-247.000.

Grumman Aerospace Corporation: *See*—
Cohen, Murray, 4,274,754, Cl. 403-14.000.

Grunert, Wilfried: *See*—
Kaul, Gunther; Grunert, Wilfried; and Aufenvenne, Wilhelm, 4,274,780, Cl. 414-64.000.

Grunig, Kurt: *See*—
Menningen, Roland; Ehrsam, Kurt; Oberhansli, Jurg; and Grunig, Kurt, 4,275,295, Cl. 250-227.000.

Gruppo Lepetit S.p.A.: *See*—
Gioia, Alberto, 4,274,286, Cl. 73-432.00R.
Guzzi, Umberto; Omodei-Sale', Amedeo; and Galliani, Giulio, 4,275,066, Cl. 424-258.000.

Grutsch, James F.; Mallatt, Russell C.; and Walk, Joe D., to Standard Oil Company (Indiana). Process for the purification of water. 4,274,968, Cl. 210-666.000.

GTE Automatic Electric Laboratories Incorporated: *See*—
Khera, M. Ibrahim, 4,275,458, Cl. 364-900.000.
Mennino, Michael F., Jr.; and Coppin, Donald J., 4,275,272, Cl. 179-7.1TP.

Guerrieri, Salvatore A. Bubble cap tray. 4,275,022, Cl. 261-114.0TC.

Guest, William H. Loader fork. 4,274,798, Cl. 414-724.000.

Guiliano, Basil A.: *See*—
Hall, Richard E.; and Guiliano, Basil A., 4,275,202, Cl. 544-192.000.

Guim, Raul. Fluorescent lamp with plural sealed enclosures and electrical connector therefor. 4,275,325, Cl. 313-51.000.

Guinn, Kenneth F.: *See*—
Garner, Jimmy G.; and Guinn, Kenneth F., 4,274,808, Cl. 416-114.000.

Gulf Oil Corporation: *See*—
Murphy, Clarence R.; Thackabeery, S. Paul; Boehme, Robert E., deceased; and Boehme, Helen J., sole beneficiary, 4,274,917, Cl. 162-146.000.

Gunji, Naoki; and Ito, Saburo, to Nippon Kokan Kabushiki Kaisha. Method and apparatus for continuously hot-dip galvanizing steel strip. 4,275,098, Cl. 427-345.000.

Guntersdorfer, Max: *See*—
Heywang, Walter; Guntersdorfer, Max; and Kleinschmidt, Peter, 4,275,390, Cl. 340-554.000.

Gutierrez, Eddie N.; and Lamberti, Vincent, to Lever Brothers Company. β-Lactone esters. 4,275,007, Cl. 260-343.900.

Gutleber, Frank S., to United States of America, Army. Interference canceling random access discrete address multiple access system. 4,275,397, Cl. 343-100.0CS.

Guzzi, Umberto; Omodei-Sale', Amedeo; and Galliani, Giulio, to Gruppo Lepetit S.p.A. Antireproductive tricyclic ortho-fused nitrogen containing compounds. 4,275,066, Cl. 424-258.000.

H. J. Langen & Sons Ltd.: *See*—
Langen, Marinus J. M.; and Strauss, Edgar H., 4,274,245, Cl. 53-558.000.

Haas, Franz, Jr.: *See*—
Haas, Franz, Sr.; Haas, Franz, Jr.; and Haas, Johann, 4,274,535, Cl. 198-493.000.

Haas, Franz, Sr.; Haas, Franz, Jr.; and Haas, Johann. Wafer sheet cooler. 4,274,535, Cl. 198-493.000.

Haas, Johann: *See*—
Haas, Franz, Sr.; Haas, Franz, Jr.; and Haas, Johann, 4,274,535, Cl. 198-493.000.

Hachtmann, James E.: *See*—
Sherif, Sherif A.; and Hachtmann, James E., 4,274,972, Cl. 252-8.600.

Hackett, Le Roy H., Jr., to Hughes Aircraft Company. Process and mask for ion beam etching of fine patterns. 4,275,286, Cl. 219-121.0EK.

Hackett, Stephen J.: *See*—
Collier, Owen N.; and Hackett, Stephen J., 4,274,877, Cl. 75-252.000.

Hafele, Carl-Heinz. Automatic low-friction check valve. 4,274,434, Cl. 137-498.000.

Haga, Minoru; and Kondo, Kunio, to Toyota Jidosha Kogyo Kabushiki Kaisha; and Fujiseiko K.K. Tool-fitting device. 4,274,774, Cl. 409-232.000.

Hagiwara, Kotaro: *See*—
Mifune, Teruo; Noto, Keiji; Otsu, Yasuo; and Hagiwara, Kotaro, 4,274,185, Cl. 29-123.000.

Hagstrom, Arthur A., to Teletype Corporation. Holder for a decorative trim strip. 4,274,237, Cl. 52-312.000.

Hahn, Neva N.: *See*—
Hahn, Robert H.; Hahn, Neva N.; and Salzman, Noah, 4,274,413, Cl. 128-303.130.

Hahn, Robert H.; Hahn, Neva N.; and Salzman, Noah. Depilatory tweezer. 4,274,413, Cl. 128-303.130.

Haikkala, Pekka O., to OY. Tampella AB. Method of and a grinder for grinding wood under pressure. 4,274,600, Cl. 241-18.000.

Haines, Paul G.: *See*—
Popoff, Ivan C.; Mailey, Everett A.; and Haines, Paul G., 4,275,014, Cl. 260-780.000.

Hajdu, Klara: *See*—
Baniel, Avraham M.; Blumberg, Ruth; and Hajdu, Klara, 4,275,234, Cl. 562-584.000.

Halik, Joseph J.: *See*—
Colten, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., 4,275,083, Cl. 426-96.000.

Halko, Pekka: *See*—
Naulapaa, Erkki U.; and Halko, Pekka, 4,274,743, Cl. 356-387.000.

Hall, John B.: *See*—
Sprecker, Mark A.; and Hall, John B., 4,275,251, Cl. 568-817.000.

Hall, Michael J., to Hoffmann-La Roche Inc. Nutrient medium. 4,275,154, Cl. 435-32.000.

Hall, Richard E.; and Guiliano, Basil A., to FMC Corporation. Production of a purified cyanuric acid dihydrate. 4,275,202, Cl. 544-192.000.

Hamada, Seiji: *See*—
Mishiro, Shoji; and Hamada, Seiji, 4,275,363, Cl. 331-4.000.

Hamamoto, Tadanao: *See*—
Nakano, Tasuku; and Hamamoto, Tadanao, 4,275,379, Cl. 340-81.00R.

Hamel, Emilien. Portable crimping tool for attachment of sheet metal plates to a frame. 4,274,352, Cl. 113-57.000.

Hammann, Ingeborg: *See*—
Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, Erich; and Marhold, Albrecht, 4,275,250, Cl. 568-812.000.

Hammar, Walton J.; and Rustad, Mark A., to Riker Laboratories, Inc. Derivatives of 2-nitrobenzofuran. 4,275,221, Cl. 560-53.000.

Hammelmann, Paul. Apparatus for treating upright surfaces. 4,274,590, Cl. 239-185.000.

Hanada, Hironori: *See*—
Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, 4,275,194, Cl. 536-20.000.

Hanamiya, Ikuo: *See*—
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.

Hance, Richard J., to Leeds & Northrup Company. Expandable phase change detector device. 4,274,284, Cl. 73-354.000.

Hanel, Volker: *See*—
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Hanke, Reinhard; and Jahn, Kornel, to Voest-Alpine Aktiengesellschaft. Apparatus for separating solids from a suspension. 4,274,952, Cl. 209-273.000.

Hanley, Gerard L.: *See*—
Gaglione, Stanley; and Hanley, Gerard L., 4,275,367, Cl. 333-164.000.

Hanna Furnace Corporation, The: *See*—
Mahar, Kevin D., 4,274,923, Cl. 201-39.000.

Hanna, Terry J., to Owens-Corning Fiberglas Corporation. Method and apparatus for the production of glass fibers. 4,274,853, Cl. 65-2.000.

Hansen, Peter B.: *See*—
Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., 4,275,209, Cl. 546-202.000.

Happich, Karl-Christoph: *See*—
Roth, Mario; Pagel, Werner; Rissmann, Heinz-Bernd; and Happich, Karl-Christoph, 4,274,792, Cl. 414-564.000.

Harada, Koji: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.

Harada, Kunihiro: *See*—
Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, 4,275,142, Cl. 430-271.000.

Harada, Saburo: *See*—
Misaki, Hideo; Horiuchi, Yoshifumi; Matsuura, Kazuo; and Harada, Saburo, 4,275,161, Cl. 435-190.000.

Harel, Zvi: *See*—
Litman, David J.; Harel, Zvi; and Ullman, Edwin F., 4,275,149, Cl. 435-7.000.

Harer, Helmut; and Juhasz, Josef, to Robert Bosch GmbH. Arrangement for monitoring batteries. 4,275,351, Cl. 324-427.000.

Harford, Jack R., to RCA Corporation. Gain controlled amplifier using a pin diode. 4,275,362, Cl. 330-283.000.

Hargett, Jerry D.; and Nash, Alfred C., to N & H Manufacturing, Inc. Jumper cable arrangement for a vehicle. 4,274,690, Cl. 339-10.000.

Harita, Yoshiyuki: *See*—
Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, 4,275,142, Cl. 430-271.000.

Harmsen, Lothar; Bick, Klaus; Lachenmayer, Wilhelm; Vennmann, Friedhelm; and Zieschang, Jurgen, to Benteler-Werke AG. Water-cooled box designed as wall element for a melting furnace. 4,275,258, Cl. 13-32.000.

Harris, John F., to Fisons Limited. Process for preparing an organic compound. 4,275,247, Cl. 568-767.000.

Harris, Monty E., to Dow Chemical Company, The. Retrievable bridge plug and method of setting. 4,274,489, Cl. 166-315.000.

Harrison, Thomas F.; and Gill, Donald I. Tape dispenser and applicator assembly. 4,274,904, Cl. 156-461.000.

Harrod, Michael K.: *See*—
Mueller, Edward E.; and Harrod, Michael K., 4,274,787, Cl. 414-412.000.

Hart, Patricia E.; and Nichols, Tisha, to General Mills, Inc. Dry mix for layer cake containing citrus juice vesicle solids. 4,275,088, Cl. 426-554.000.

Hartinger, Edmund; Julke, Elias; and Sandmann, Harald, to Maschinenfabrik Meyer AG. Filtration process using polyolefin fibrids as filter aids. 4,274,971, Cl. 210-778.000.

Hartwig-Hartoglass, Inc.: *See*—
Abell, Irwin R., 4,274,234, Cl. 52-63.000.

Harvey, Brian F., to Colin Robert Alty. Display devices. 4,274,218, Cl. 40-505.000.

Harvey Hubbell Incorporated: *See*—
Hoffman, Ernest G.; and D'Amato, Michael J., 4,274,692, Cl. 339-60.00M.

Hasco-Normalien Hasenclever & Co.: *See*—
Schriever, Karl-Hermann, 4,274,617, Cl. 249-63.000.

Hashimoto, Shunichi: *See*—
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,274,862, Cl. 71-118.000.

Hatch, Burton D., to General Electric Company. Active shield for disk-drum acyclic machine. 4,275,323, Cl. 310-178.000.

Hatch, Robert A.: *See*—
Bolliger, Frederic E.; Woodhouse, Geoffrey D.; Mattson, George B.; Anson, Bruce S.; and Hatch, Robert A., 4,274,253, Cl. 60-39.030.

Hatcher, Ian: *See*—
Reed, Michael A.; Hatcher, Ian; Reed, Kingstone L. H.; and Danchuk, William, 4,274,262, Cl. 62-3.000.

Hattori, Tadashi: *See*—
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Watanabe, Toshio; and Hattori, Tadashi, 4,275,328, Cl. 313-123.000.

Hauser, Georg, to J. Strobel & Sohne GmbH & Co. Ironing table. 4,274,214, Cl. 38-1.00C.

Hauser, Hans-Ulrich, to Bucher-Guyer AG Maschinenfabrik. Hay harvesting machine. 4,274,248, Cl. 56-370.000.

Hauser, Hans-Ulrich, to Bucher-Guyer AG Maschinenfabrik. Hay harvesting machine. 4,274,249, Cl. 56-370.000.

Hawley, Gil R., to Phillips Petroleum Company. Thermally stabilizing polymers of ethylene. 4,274,996, Cl. 260-45.90R.

Hayazaki, Tadao. Baseball practice bat. 4,274,631, Cl. 273-26.00B.

Hays, Herbert G.; and Sweitzer, Ralph W., to Raytheon Company. Package heat exchanger system for heating and cooling. 4,274,581, Cl. 237-7.000.

Hazel, John G.; and Steiger, Roger A., to PPG Industries, Inc. Method for preparing titanium diboride shapes. 4,275,026, Cl. 264-67.000.

Hectronic AG: *See*—
Menningen, Roland; Ehrsam, Kurt; Oberhansli, Jurg; and Grunig, Kurt, 4,275,295, Cl. 250-227.000.

Hedges, James H.; and Glinsmann, Gilbert R., to Phillips Petroleum Company. Cosurfactant in preflush for surfactant flood system. 4,274,488, Cl. 166-273.000.

Hegadorn, Joseph L.: *See*—
Colten, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., 4,275,083, Cl. 426-96.000.

Heilmann, Klaus: *See*—
Krick, Gerd; Konang, Peter; Sigdell, Jan-Erik; and Heilmann, Klaus, 4,274,964, Cl. 210-321.300.

Heitmann, Heinrich: *See*—
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,274,935, Cl. 204-192.00M.

Helfert, Herbert; and Davis, Pauls, to BASF Wyandotte Corporation. Linear polyalkylene ether glycols of high molecular weight. 4,275,244, Cl. 568-624.000.

Hemmat, Naim S.: *See*—
Bedell, John R.; Kavesh, Sheldon; Hemmat, Naim S.; Draizen, Seymour; and Smith, Robert W., 4,274,473, Cl. 164-423.000.

Henderson, Alan; and Chamblee, L. E., to Inter Chem, Ltd. Plant growth stimulant. 4,274,861, Cl. 71-117.000.

Henderson, Henning M., to Kiloking (Proprietary) Limited. Monitoring the operation of a vehicle. 4,275,378, Cl. 340-71.000.

Hendrickson, Richard T., to Bendix Corporation, The. Vehicle leveling device. 4,274,643, Cl. 280-6.100.

Henkel, James A.: *See*—
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Henkel Kommanditgesellschaft auf Aktien: *See*—
Giede, Wolfgang; and Rutzen, Horst, 4,275,235, Cl. 564-288.000.
Stein, Werner; and Christophliemk, Peter, 4,275,048, Cl. 423-329.000.

Hensway, Inc.: *See*—
Forseth, Dean A., 4,274,364, Cl. 119-35.000.

Hentschel, Klaus; and Bittner, Friedrich, to Deutsche Gold und Silber Scheideanstalt vormals Roessler. Process for the production of chloro-amino-s-triazines. 4,275,203, Cl. 544-194.000.

Herb, Eugen; and Leibinger, Berthold, to Trumpf Maschinen AG. Machine tool with an adjustable mechanism for fixing and displacing a workpiece relative to a tool. 4,274,801, Cl. 414-751.000.

Herbert Schwind GmbH & Co. KG: *See*—
Reiner, Josef, 4,274,715, Cl. 351-30.000.

Hercules Incorporated: *See*—
Kim, Charles W.; Liu, Chia-Seng; and MacDuff, Richard, 4,274,251, Cl. 57-206.000.

Herridge, Frederick, to Austin Hoy and Company Limited. Socketed boss having means for retaining a tool shank. 4,274,678, Cl. 299-92.000.

Herscovici, Saul, to Power Engineering and Manufacturing, Ltd. Gear reduction apparatus. 4,274,302, Cl. 74-661.000.

Herzog, Robert E.: *See*—
DuCharme, Robert T.; and Herzog, Robert E., 4,274,514, Cl. 188-73.300.

Hesche, Peter: *See*—
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Heywang, Walter; Guntersdorfer, Max; and Kleinschmidt, Peter, to Siemens Aktiengesellschaft. Burglar alarm device. 4,275,390, Cl. 340-554.000.

Hibell, Ernest G., to Lucas Industries Limited. Electrical assembly. 4,275,389, Cl. 340-388.000.

Hickman, Howard M.: *See*—
Earl, Gary W.; and Hickman, Howard M., 4,275,236, Cl. 564-298.000.

Hickox, Thomas A.: *See*—
Gilovich, Paul A.; and Hickox, Thomas A., 4,274,608, Cl. 242-192.000.

Hicks, Brenda G.: *See*—
Hicks, Thurmond A.; and Hicks, Brenda G., 4,275,384, Cl. 340-309.400.

Hicks, Kevin J. Dispensing apparatus having continuously driven conveyor. 4,274,551, Cl. 221-78.000.

Hicks, Thurmond A.; and Hicks, Brenda G. Portable medicine cabinet with timer. 4,275,384, Cl. 340-309.400.

Hidaka, Toshio: *See*—
Kikuiri, Makoto; Nakashio, Yoshimi; Arai, Yasue; and Hidaka, Toshio, 4,274,913, Cl. 162-65.000.

Higashizono, Ryoichi: *See*—
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.

Hill, Clifford W. Solar heater. 4,274,397, Cl. 126-451.000.

Hill, Francis K. Fluid spreading apparatus. 4,274,586, Cl. 239-125.000.

Hill, Howard D. W.; and Huber, Ulrich, to Varian Associates, Inc. Sample spinning mechanism for NMR probes. 4,275,350, Cl. 324-321.000.

Hilling, Anthony E.: *See*—
Gill, Kenneth E.; and Hilling, Anthony E., 4,275,360, Cl. 330-276.000.

Himmetsberger, Alois; and Wittmann, Heinz, to TMC Corporation. Safety ski binding. 4,274,653, Cl. 280-618.000.

Hinz, Jurgen; and Brudermanns, Karola, to Bayer Aktiengesellschaft. Alkyl sulphonic acid phenyl esters substituted by carboxylic acid esters. 4,274,991, Cl. 260-30.80R.

Hinze, Kenneth J., to Dow Chemical Company, The. Stabilization of polyether polyols and polyurethane foams prepared therefrom. 4,275,173, Cl. 521-117.000.

Hiraga, Ryozo: *See*—
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, 4,275,306, Cl. 250-548.000.

Hiratake, Susumu, to Daidoto Kushuko Kabushikaisha. Plasma torch and a method of producing a plasma. 4,275,287, Cl. 219-121.0PR.

Hirs, Gene. Pressure filter. 4,274,961, Cl. 210-225.000.

Hitachi, Ltd.: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.
Kishi, Atsuo; and Sudo, Toshio, 4,274,813, Cl. 417-269.000.
Saitou, Tsuyoshi; and Ito, Tsuneo, 4,275,312, Cl. 307-463.000.
Shimamoto, Koji; Shimizu, Mitsuo; and Yamashita, Takao, 4,275,321, Cl. 310-59.000.

Hitachi Maxell, Ltd.: *See*—
Saito, Osamu; Shimizu, Jozo; and Zaitsu, Hiroshi, 4,275,113, Cl. 428-323.000.

Hiwatashi, Kenji: *See*—
Wagatsuma, Tadashi; and Hiwatashi, Kenji, 4,275,279, Cl. 200-11.0DA.

Hoagland, Jesse. Weight lifting bar apparatus. 4,274,628, Cl. 272-123.000.

Hochiki Corporation: *See*—
Ando, Tsunekazu, 4,275,365, Cl. 333-131.000.

Hodge, Malcolm H.: *See*—
Dunn, William M.; and Hodge, Malcolm H., 4,274,572, Cl. 225-96.500.

Hoechst Aktiengesellschaft: *See*—
Grimminger, Hermann; and Reimer, Hans-Joachim, 4,274,499, Cl. 177-1.000.
Konig, Wolfgang; Teetz, Volker; Jager, Georg; and Geiger, Rolf, 4,275,001, Cl. 260-112.5LH.
Lorenz, Peter R.; Weinmann, Ernst; and Majer, Mirko, 4,275,165, Cl. 435-235.000.
Stahlhofen, Paul, 4,275,139, Cl. 430-192.000.
Walkenhorst, Wilfried; Gener, Richard; Wild, Gerhard; and Muller, Walter, 4,275,177, Cl. 525-53.000.

Hoffman, Ernest G.; and D'Amato, Michael J., to Harvey Hubbell Incorporated. Torsionally flexible connector cover. 4,274,692, Cl. 339-60.00M.

Hoffman, Michael R.: *See—*
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,275,027, Cl. 264-118.000.

Hoffman, Paul R., to Exxon Research & Engineering Co. Floppy disc drive. 4,275,426, Cl. 360-99.000.

Hoffmann, Gunther: *See—*
Bayer, Herbert; Hoffmann, Gunther; and Schuon, Eberhard, 4,275,348, Cl. 324-57.00R.

Hoffmann-La Roche Inc.: *See—*
Dorn, Franz, 4,275,079, Cl. 424-324.000.
Hall, Michael J., 4,275,154, Cl. 435-32.000.

Hofmann, Franz; and Satmer, Franz, to Georg Fischer Aktiengesellschaft. Apparatus for regenerating used foundry sand. 4,274,360, Cl. 118-303.000.

Hoh, George L., to Du Pont de Nemours, E. I., and Company. Curable blends of chloroprene polymer and ethylene copolymer. 4,275,181, Cl. 525-189.000.

Holiday Industries, Inc.: *See—*
Cohen, Melvin, 4,275,028, Cl. 264-126.000.

Hollandsworth, William J.; and Grubbs, Dean O., to Hunter Engineering Company. Rotary body run-out remote sensing method and apparatus especially applicable to vehicle wheel aligners. 4,274,738, Cl. 356-155.000.

Hollingsworth, Frank H.; Jenkins, George R.; Kirkpatrick, John W.; and Mower, Lawrence N., to Standard Oil Company (Indiana). Indirect thermal stimulation of production wells. 4,274,487, Cl. 166-261.000.

Hollister Incorporated: *See—*
La Gro, Phillip A., 4,274,848, Cl. 55-387.000.

Holmes, Barry A.: *See—*
Delgado, Patricio E.; and Holmes, Barry A., 4,274,809, Cl. 416-117.000.

Holmes, Thomas: *See—*
French, Tom; Mitchell, William E.; Kenney, Michael J.; and Holmes, Thomas, 4,274,466, Cl. 152-381.300.

Holmes, Trent H., to United Technologies Corporation. Floating vane support. 4,274,805, Cl. 415-138.000.

Holt, John R.: *See—*
Cardell, Max L.; and Holt, John R., 4,274,746, Cl. 356-429.000.

Holznagel, Melvin A., to Tektronix, Inc. Direct view storage tube having improved readout performance. 4,275,355, Cl. 328-124.000.

Homeier, Edwin H.: *See—*
Imai, Tamotsu; Homeier, Edwin H.; and Mackowiak, David E., 4,275,252, Cl. 568-909.000.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
Kuroda, Hiroshi, 4,274,672, Cl. 296-216.000.
Osawa, Keiichi; Ishii, Kiyoshi; and Nishimura, Hiroyuki, 4,274,384, Cl. 123-568.000.

Honda Lock Mfg. Co., Ltd.: *See—*
Okamura, 4,275,391, Cl. 340-571.000.

Honegger, Werner: *See—*
Reist, Walter; and Honegger, Werner, 4,274,623, Cl. 271-217.000.

Honeywell Inc.: *See—*
Lorenze, Robert V., Jr., 4,275,407, Cl. 357-30.000.

Hoodwin, Louis S. Hydraulic testing system. 4,274,281, Cl. 73-118.000.

Hoover, Troy E.: *See—*
Becker, William J.; Farber, Sheldon; and Hoover, Troy E., 4,275,206, Cl. 546-115.000.

Hope, Peter: *See—*
Burley, Joseph W.; Hope, Peter; and Pritchard, Malcolm G., 4,274,999, Cl. 260-45.75S.

Horgan, John J., to United Technologies Corporation. Closed cycle contrarotating gas turbine power plant utilizing helium as the working medium. 4,274,261, Cl. 60-682.000.

Horikawa, Yuji: *See—*
Nei, Hiromichi; Ohtani, Ryoichi; Ohshima, Iwao; and Horikawa, Yuji, 4,274,280, Cl. 73-61.0LM.

Horiuchi, Yoshifumi: *See—*
Misaki, Hideo; Horiuchi, Yoshifumi; Matsuura, Kazuo; and Harada, Saburo, 4,275,161, Cl. 435-190.000.

Horlaville, Gerard: *See—*
Bergmann, Erich; and Horlaville, Gerard, 4,275,126, Cl. 429-30.000.

Hornbaker, David R.: *See—*
Rall, Dieter; Hornbaker, David R.; and Sawyer, William W., 4,274,475, Cl. 165-12.000.

Hornung, Richard E., to General Electric Company. Piezoelectric audible alarm frequency self-calibration system. 4,275,388, Cl. 340-384.00E.

Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, to Japan Synthetic Rubber Co., Ltd. Photosensitive compositions and printing plates containing same. 4,275,142, Cl. 430-271.000.

Hotchkiss-Brandt Sogeme H.B.S.: *See—*
de Rancourt de Mimerand, Yvan; and Goullet, Jean, 4,274,782, Cl. 414-104.000.

Hotta, Kyoichi, to Kabushiki Kaisha Kyowa Kikai Seisakusho. Device for stripping a fibrous web from a doffer in a carding machine. 4,274,178, Cl. 19-106.00R.

Houck, David J., to Electronic Modules Corporation. Portable hand-held length probe with tracing-unit-actuated length signal output control switch. 4,275,264, Cl. 178-18.000.

Housman, Robert J., to Smith International, Inc. Wear resistant composite insert, boring tool using such insert, and method for making the insert. 4,274,840, Cl. 51-307.000.

Houston, Rex: *See—*
Doerge, Gail W., 4,274,450, Cl. 140-82.000.

Houtkamp, Johannes J., to N.V. Optische Industrie "De Oude Delft". Image intensifier tube with a light-absorbing electron-permeable layer. 4,275,326, Cl. 313-102.000.

Howard, Arthur G. Air-cleaning, heat-exchange apparatus. 4,274,845, Cl. 55-222.000.

Howard, John F., to Canadian General Electric Co., Ltd. Combination expulsion fuse. 4,275,373, Cl. 337-144.000.

Howes, Peter. Fuel injection nozzles. 4,274,596, Cl. 239-533.900.

Howland, Bradford, to Massachusetts Institute of Technology. Test patterns for lens evaluation. 4,274,737, Cl. 356-124.500.

Howmedica Inc.: *See—*
Findl, Eugene; and Kurtz, Robert J., 4,274,937, Cl. 204-195.00R.

Hsieh, Chung-Lih: *See—*
Jensen, Torkil H.; Ohyabu, Nobuyoshi; and Hsieh, Chung-Lih, 4,274,919, Cl. 176-3.000.

Huber, Andre; Muller, Alain; and Soffer, Jacques, to Alsthom-Atlantique. Electronic power supply circuit for a series connected DC motor. 4,275,341, Cl. 318-376.000.

Huber, Daniel L.; Paulson, Thomas M.; and Williams, James M., to International Business Machines Corporation. Keyboard multiple switch assembly. 4,274,752, Cl. 400-477.000.

Huber, Georg: *See—*
Bernhardt, Dieter; Dautzenberg, Norbert; Lummer, Richard; and Huber, Georg, 4,274,864, Cl. 75-0.50R.

Huber, Klaus K. G.: *See—*
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.

Huber, Ulrich: *See—*
Hill, Howard D. W.; and Huber, Ulrich, 4,275,350, Cl. 324-321.000.

Hubert-Brierre, Yves A., to Delalande S.A. Process for preparing 4(5)-hydroxymethyl 5(4)-lower alkyl imidazoles. 4,275,216, Cl. 548-342.000.

Huckaby, Leonard. Internal fluid control valve for use in oil well remedial operations. 4,274,490, Cl. 166-325.000.

Hudson, Patricia M.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,275,153, Cl. 435-13.000.

Huey, Elbert P.; and Craig, Adrian W. Denture adjustment tool. 4,274,826, Cl. 433-144.000.

Huffman, Stanley S., to Coors Container Company. Apparatus for dispensing fluid sealant. 4,274,456, Cl. 141-157.000.

Hughes Aircraft Company: *See—*
Grinberg, Jan; Jacobson, Alexander D.; and Chow, Kuen, 4,275,410, Cl. 357-68.000.
Hackett, Le Roy H., Jr., 4,275,286, Cl. 219-121.0EK.
Maeding, Dale; and Pines, Michael Y., 4,275,315, Cl. 307-221.00D.
Marom, Emanuel, 4,275,399, Cl. 343-113.00R.
Tangonan, Gregory L., 4,274,706, Cl. 350-96.190.

Hughes, Tommy L.; and Spector, George. Outlook ladder seat. 4,274,508, Cl. 182-116.000.

Hulting, Thomas S., Jr., to Caterpillar Tractor Co. Tire buffing tool and method. 4,274,898, Cl. 156-98.000.

Hunt, Eric, to Beecham Group Limited. Decarboxyclavulanic acid thio ethers, their preparation and use. 4,275,067, Cl. 424-263.000.

Hunter, Edwin J., to Toro Company, The. Moisture and pressure responsive irrigation system. 4,274,583, Cl. 239-1.000.

Hunter Engineering Company: *See—*
Grubbs, Dean O.; and Grossman, James M., 4,274,739, Cl. 356-155.000.
Hollandsworth, William J.; and Grubbs, Dean O., 4,274,738, Cl. 356-155.000.

Huret, Roger. Derailleur gear-change assembly for a bicycle. 4,274,828, Cl. 474-82.000.

Huseby, Rolf M.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,275,153, Cl. 435-13.000.

Hutson, Thomas, Jr., to Phillips Petroleum Company. Isomerization of hydrocarbon feed. 4,275,257, Cl. 585-738.000.

Hutter, Ralf: *See—*
Zeyer, Josef; Hutter, Ralf; and Mayer, Peter, 4,274,955, Cl. 210-612.000.

Huxley, Edward E.; and Nash, Martin E., to Phillips Petroleum Company. Sulfolene hydrogenation. 4,275,218, Cl. 549-87.000.

Hvezda, Jaroslav M.: *See—*
Pacey, Grant K.; and Hvezda, Jaroslav M., 4,274,707, Cl. 350-96.200.

Hymes, Alan C., to LecTec Corporation. Monitoring and stimulation electrode. 4,274,420, Cl. 128-641.000.

Hynson, Richard B.: *See—*
Colten, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., 4,275,083, Cl. 426-96.000.

I.S.C. Smelting: *See—*
Charles, James A., 4,274,878, Cl. 75-256.000.

Ichikawa, Kiyomichi: *See—*
Sato, Tadashi; Yoshimura, Shigeru; and Ichikawa, Kiyomichi, 4,274,624, Cl. 271-292.000.

Ichikin, Ltd., The: *See—*
Kawaguchi, Bunshire, 4,274,209, Cl. 34-1.000.

ICI Americas Inc.: *See—*
Lu, Robert T., 4,275,185, Cl. 528-170.000.

Igarashi, Isemi: *See—*
Mizuno, Masakazu; Igarashi, Isemi; and Inagaki, Hazime, 4,274,423, Cl. 128-675.000.

Igarashi, Sigemi, to Sato Koki Company, Ltd. Auto electronic flash unit. 4,274,723, Cl. 354-33.000.

Iijima, Akio: *See—*
Kojima, Tamotsu; Fujiwhara, Mitsuto; Endo, Takaya; and Iijima, Akio, 4,275,148, Cl. 430-558.000.

Iio, Hiromitsu: *See—*
Ogawa, Kunio; and Iio, Hiromitsu, 4,274,785, Cl. 414-173.000.

Iizuka, Haruhiko: *See—*
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,274,373, Cl. 123-440.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,274,382, Cl. 123-481.000.

Iizuka, Sadao: *See—*
Suzuki, Shintaro; Iizuka, Sadao; Moriya, Yoshimi; and Omote, Yuichi, 4,274,865, Cl. 75-0.5AA.

Ikenaga, Yukio; and Matsuno, Osamu, to Celanese Corporation. Polyacetal molding composition. 4,274,986, Cl. 260-22.0CQ.

Illakowicz, Jan; and Enfield, Derek B. Tubes and structures formed thereby. 4,274,621, Cl. 266-61.000.

Illinois Tool Works Inc.: *See—*
Bishop, Bernard F., 4,274,574, Cl. 226-170.000.
Flair, Henry J., 4,274,207, Cl. 33-179.50R.

Imai, Tamotsu; Homeier, Edwin H.; and Mackowiak, David E., to UOP Inc. Oxo alcohol synthesis with rhodium catalyst recycle. 4,275,252, Cl. 568-909.000.

Imbert, Christian; Levy, Yves; and Loulergue, Jean-Claude, to Agence Nationale de Valorisation de la Recherche (ANVAR). Method and device for converting thermal images into secondary images, e. g. visible images. 4,275,302, Cl. 250-330.000.

Imi (Tami) Institute for Research and Development: *See—*
Baniel, Avraham M.; Blumberg, Ruth; and Hajdu, Klara, 4,275,234, Cl. 562-584.000.

Immel, Joseph D. Oscillating bed. 4,274,167, Cl. 5-62.000.

Imperial Chemical Industries Limited: *See—*
Donaldson, Peter A., 4,275,230, Cl. 562-486.000.
Tucker, Howard, 4,275,058, Cl. 424-199.000.
Whittam, Thomas V., 4,275,047, Cl. 423-329.000.

Inaba, Hajimu; and Inagaki, Shigemi, to Fujitsu Fanuc Limited. Automated device. 4,274,802, Cl. 414-783.000.

Inada, Shuzo: *See—*
Shimizu, Hiroshi; Sato, Hiroshi; Miura, Nobuo; and Inada, Shuzo, 4,275,023, Cl. 264-50.000.

Inagaki, Hazime: *See—*
Mizuno, Masakazu; Igarashi, Isemi; and Inagaki, Hazime, 4,274,423, Cl. 128-675.000.

Inagaki, Shigemi: *See—*
Inaba, Hajimu; and Inagaki, Shigemi, 4,274,802, Cl. 414-783.000.

Inculet, Ion I.: *See—*
Beeckmans, Jan M.; and Inculet, Ion I., 4,274,947, Cl. 209-12.000.

Induction Heating International, Inc.: *See—*
Stirniman, Robert P., 4,275,438, Cl. 363-136.000.

Ino, Shoichi: *See—*
Yoneyama, Masakazu; Ino, Shoichi; and Minamizono, Junji, 4,275,146, Cl. 430-523.000.

Inomata, Teiichi: *See—*
Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, 4,275,194, Cl. 536-20.000.

Institut fur Werkzeugmaschinen und Betriebstechnik Universitat Karlsruhe: *See—*
Bassler, Wolfgang, 4,274,925, Cl. 204-26.000.

Inter Chem, Ltd.: *See—*
Henderson, Alan; and Chamblee, L. E., 4,274,861, Cl. 71-117.000.

International Business Machines Corporation: *See—*
Adams, Robert L., Jr.; Grant, Carl H.; and Stevens, Karl W., 4,275,440, Cl. 364-200.000.
Bartkus, Edward A.; and Price, Robert L., 4,275,107, Cl. 428-220.000.
Burke, Michael J.; and Collins, David W., 4,275,339, Cl. 318-138.000.
Dewey, Anthony G.; and Sincerbox, Glenn T., 4,275,395, Cl. 340-706.000.
Huber, Daniel L.; Paulson, Thomas M.; and Williams, James M., 4,274,752, Cl. 400-477.000.
Li, Pei-Ching, 4,275,409, Cl. 357-54.000.
Makosch, Gunter; Schedewie, Franz; Schmackpfeffer, Arno; and Ziller, Jorg, 4,275,288, Cl. 219-121.0LR.
Marrello, Vincent; Onton, Aare; and Ruhle, Wolfgang, 4,275,336, Cl. 315-246.000.
Shariff, Rafique S., 4,274,576, Cl. 228-264.000.
Silvestri, Victor J.; Tang, Denny D.; and Wiedmann, Siegfried K., 4,274,891, Cl. 148-175.000.
Venkataraman, Krishnamur; and Yun, Bob H., 4,274,909, Cl. 156-648.000.

International Flavors & Fragrances Inc.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.
Sprecker, Mark A.; and Hall, John B., 4,275,251, Cl. 568-817.000.
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.

International Hona NV: *See—*
de Nagybaczon, Erno N., 4,275,104, Cl. 428-195.000.

International Nickel Company, Inc., The: *See—*
Ettel, Victor A.; Devuyst, Eric A. P.; Babjak, Juraj; Ambrose, John; and Glaum, Gerald V., 4,274,930, Cl. 204-112.000.

International Standard Electric Corporation: *See—*
Sellars, Albert E., 4,275,262, Cl. 174-128.00R.

International Telephone and Telegraph Corporation: *See—*
Brinson, Thomas F.; and Bayman, Jack A., 4,274,679, Cl. 301-37.0AT.
Ruger, Dean L., 4,274,293, Cl. 74-89.150.

Interox Chemicals Limited: *See—*
Ozensoy, Erol; and Burkin, Alfred R., 4,275,039, Cl. 423-54.000.

INTERx Research Corporation: *See—*
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,275,064, Cl. 424-253.000.
Zupan, Jacob A., 4,275,219, Cl. 560-29.000.

Ionic Controls, Inc.: *See—*
Savage, Erle B., Jr., 4,275,112, Cl. 428-310.000.

Ionics Inc.: *See—*
MacDonald, Russell J., 4,275,227, Cl. 560-222.000.

Ireland, Robert G.; and Tramontini, Vernon N., to Stewart-Warner Corporation. Dry cooling tower with water augmentation. 4,274,481, Cl. 165-122.000.

Irvine, George D., to Tate & Lyle Limited. Synthetic bone ash. 4,274,879, Cl. 106-39.500.

Ishida, Akio: *See—*
Kanamoto, Sakumi; and Ishida, Akio, 4,274,415, Cl. 128-321.000.

Ishida, Hiroshi: *See—*
Kawada, Shigeki; Kobari, Katsuo; and Ishida, Hiroshi, 4,275,342, Cl. 318-490.000.

Ishida, Takashi, to Kabushiki Kaisha Daini Seikosha. Electronic timepiece. 4,275,463, Cl. 368-187.000.

Ishida, Tokuji, to Minolta Camera Kabushiki Kaisha. Constant light intensity electronic flash device. 4,275,335, Cl. 315-241.00P.

Ishihara, Masaru: *See—*
Tosaka, Osamu; Ono, Eiji; Ishihara, Masaru; Morioka, Hajimu; and Takinami, Koichi, 4,275,157, Cl. 435-115.000.

Ishihara Sangyo Kaisha, Ltd.: *See—*
Murasawa, Sadao; and Maruo, Masatsuyo, 4,275,136, Cl. 430-117.000.

Ishii, Kiyoshi: *See—*
Osawa, Keiichi; Ishii, Kiyoshi; and Nishimura, Hiroyuki, 4,274,384, Cl. 123-568.000.

Ishii, Shizuo: *See—*
Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, 4,274,726, Cl. 354-173.000.

Ishikawa, Masao: *See—*
Nakamura, Kenji; Ishikawa, Masao; and Ajimine, Akio, 4,274,358, Cl. 116-288.000.

Ison, Robin R., to Dow Chemical Company Limited. Process for preparing 1-aryl-2-benzimidazolinones. 4,275,215, Cl. 548-305.000.

Ito, Akira: *See—*
Takahashi, Masaaki; and Ito, Akira, 4,275,253, Cl. 585-7.000.

Ito, Hiroshi: *See—*
Shindo, Yoshio; and Ito, Hiroshi, 4,274,303, Cl. 74-740.000.

Ito, Kazuo, to Toyo Seikan Kaisha Ltd. Foam generating and dispensing device. 4,274,594, Cl. 239-327.000.

Ito, Saburo: *See—*
Gunji, Naoki; and Ito, Saburo, 4,275,098, Cl. 427-345.000.

Ito, Tsuneo: *See—*
Saitou, Tsuyoshi; and Ito, Tsuneo, 4,275,312, Cl. 307-463.000.

Itoh, Katsumi: *See—*
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Itoh, Shuji; and Yoshida, Yoji, to Kyokuto Fatty-Acid Corporation. Apparatus for making reinforced, double faced corrugated board. 4,274,905, Cl. 156-462.000.

Itooka, Akira: *See—*
Sakamoto, Takashi; and Itooka, Akira, 4,275,413, Cl. 358-80.000.

ITT Industries, Inc.: *See—*
Berisch, Volker, 4,274,518, Cl. 188-344.000.

Ivel, Leonard L., to Warner & Swasey Company, The. Method and apparatus for dressing grinding wheels. 4,274,388, Cl. 125-11.0TP.

Ivko, Joseph J.; and Ivko, Renette. Self-aligning cable guide assembly. 4,274,165, Cl. 3-12.000.

Ivko, Renette: *See—*
Ivko, Joseph J.; and Ivko, Renette, 4,274,165, Cl. 3-12.000.

Iwai, Takashi: *See—*
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, 4,275,093, Cl. 427-89.000.

Iwaki, Katsutaro: *See—*
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Shock control arrangement in hydraulic control system of automatic power transmission. 4,274,307, Cl. 74-869.000.

Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, to Nissan Motor Company, Limited. Shock control arrangement in hydraulic control system. 4,274,308, Cl. 74-869.000.

Iwasaki, Motoaki: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,275,377, Cl. 340-58.000.

Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, to Nippon Soken, Inc.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Method and system for controlling ignition timing of internal combustion engines. 4,274,379, Cl. 123-425.000.

J & H Equipment, Inc.: *See—*
Jackson, Allen S., 4,274,953, Cl. 209-326.000.

J. I. Case Company: *See—*
Pedersen, Carl O., 4,274,328, Cl. 91-445.000.

J. Strobel & Sohne GmbH & Co.: *See—*
Hauser, Georg, 4,274,214, Cl. 38-1.00C.

Jack, Douglas S.: *See—*
Lafreniere, Earl W.; and Jack, Douglas S., 4,274,571, Cl. 294-147.000.

Jack, Stanton E.: *See—*
McNeely, Wray G.; Jack, Stanton E.; and O'Dette, John H., 4,274,894, Cl. 149-7.000.

Jackson, Allen S., to J & H Equipment, Inc. Vibrating screen separator. 4,274,953, Cl. 209-326.000.

Jacob, Susan R.: *See—*
Brown, Patrick M.; and Jacob, Susan R., 4,274,834, Cl. 23-302.00R.

Jacobs, Brian J. Supporting means for nets and the like for sporting activities. 4,274,632, Cl. 273-29.0BC.

Jacobs, Stanley: *See—*
Walter, Merrill H.; and Jacobs, Stanley, 4,274,350, Cl. 112-235.000.

Jacobson, Alexander D.: *See—*
Grinberg, Jan; Jacobson, Alexander D.; and Chow, Kuen, 4,275,410, Cl. 357-68.000.

Jacobsson, Curt: *See—*
Aviander, Stig; and Jacobsson, Curt, 4,275,356, Cl. 328-129.000.

Jacomini, Omar J. Helicopter rotating blade detection system. 4,275,396, Cl. 343-5.0SA.

Jadach, Albert A., to Towne Robinson Fastener Company. Method of welding capped wheel nut. 4,275,285, Cl. 219-93.000.

Jager, Georg: *See—*
Konig, Wolfgang; Teetz, Volker; Jager, Georg; and Geiger, Rolf, 4,275,001, Cl. 260-112.5LH.

Jahn, Kornel: *See—*
Hanke, Reinhard; and Jahn, Kornel, 4,274,952, Cl. 209-273.000.

Jahn, Ulrich: *See—*
Thiele, Kurt; Ahmed, Quazi; Jahn, Ulrich; and Adrian, Rudolf, 4,275,068, Cl. 424-266.000.

James, David H.; and Junco, Manuel F., to Tannetics, Inc. Horizontal merchandising cooler. 4,274,267, Cl. 62-252.000.

Jamestown Lounge Company, a Division of Arbor Industries, Inc.: *See—*
Bradshaw, Bruce E., 4,274,685, Cl. 312-7.0TV.

Jannotta, Louis J. Apparatus for monitoring and controlling vessels containing liquid. 4,275,382, Cl. 340-151.000.

Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased (by Salisbury, Judith M., administratrix), to Garrett Corporation, The. Turbine engine fuel schedule valve and method. 4,274,254, Cl. 60-39.030.

Janssen, Klaus; Peters, Werner; and Schilling, Hans-Dieter, to Bergwerksverband GmbH. Process for generating combustible gases, liquid coal byproducts and superheated steam from coal. 4,274,941, Cl. 208-8.00R.

Japan Electric Industry Development Association: *See—*
Kagami, Akiyasu; and Tanigami, Yoshinori, 4,275,333, Cl. 313-495.000.

Japan Synthetic Rubber Co., Ltd.: *See—*
Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, 4,275,142, Cl. 430-271.000.

Jenkins, George R.: *See—*
Hollingsworth, Frank H.; Jenkins, George R.; Kirkpatrick, John W.; and Mower, Lawrence N., 4,274,487, Cl. 166-261.000.

Jenkins, William A., to Monarch Marking Systems, Inc. Composite web of pressure sensitive labels. 4,274,661, Cl. 283-21.000.

Jenkins, William A., to Monarch Marking Systems, Inc. Method of dispensing labels. 4,274,902, Cl. 156-344.000.

Jensen, Billy M.; Brunner, Ronald H. M.; and Wong, Lang S., to Wong, Lang S. Wafer baking machine. 4,274,331, Cl. 99-373.000.

Jensen, Torkil H.; Ohyabu, Nobuyoshi; and Hsieh, Chung-Lih, to General Atomic Company. Systems for merging of toroidal plasmas. 4,274,919, Cl. 176-3.000.

Jeppesen, Borge: *See—*
Vesterager, Peter K. R.; and Jeppesen, Borge, 4,274,418, Cl. 128-635.000.

Jeumont-Schneider: *See—*
Salmon, Jean, 4,274,611, Cl. 246-34.00R.

Jobst Institute, Inc.: *See—*
Mummert, Thomas A., 4,274,399, Cl. 128-26.000.

Johansson, Johan G. I., to Defibrator Aktiebolag. Rotary grinding disc for defibrating apparatus. 4,274,602, Cl. 241-298.000.

John, Claus: *See—*
Bernat, Georg; Nolting, Karl-Heinz; and John, Claus, 4,274,442, Cl. 137-625.170.

John, Frederick W.: *See—*
Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., 4,274,225, Cl. 46-227.000.

John, Philippe: *See—*
Seifert, Eberhard; and John, Philippe, 4,274,447, Cl. 139-97.000.

Johns-Manville Corporation: *See—*
Corbin, Raymond L.; and Reinhart, Robert F., 4,274,243, Cl. 52-748.000.

Johnson, Fred I. Can handling system. 4,274,532, Cl. 198-429.000.

Johnson, Frederick: *See—*
Johnson, Stanley F., 4,274,762, Cl. 405-259.000.

Johnson & Johnson: *See—*
Passafiume, Anthony; Lamber, Clarence F.; and Dickover, William, 4,274,318, Cl. 83-177.000.

Johnson, Kenneth D.: *See—*
Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., 4,274,225, Cl. 46-227.000.

Johnson, Lanny L.; and Bonnell, Leonard J., to Dyonics, Inc. Surgical instrument. 4,274,414, Cl. 128-305.000.

Johnson, Matthey & Co., Limited: *See—*
Collier, Owen N.; and Hackett, Stephen J., 4,274,877, Cl. 75-252.000.

Johnson, Richard F.; and Wiers, John W., to Rockwell International Corporation. Vehicle passive occupant restraining system. 4,274,657, Cl. 280-803.000.

Johnson, Robert N.: *See—*
Barth, Bruce P.; Johnson, Robert N.; and Mayer, Walter P., 4,275,172, Cl. 521-112.000.

Johnson, Stanley F., to Johnson, Frederick. Prestressed rock truss. 4,274,762, Cl. 405-259.000.

Johnson, Thomas H. Apparatus for stretching an animal hide. 4,274,270, Cl. 69-19.300.

Johnston, Max M., to Polyvend Inc. Method and apparatus for sensing pressure. 4,275,393, Cl. 340-688.000.

Jones, Bryan, to Ford Motor Company. Collapsible steering column. 4,274,299, Cl. 74-492.000.

Jones, Derek, to A.C. Sprayers Inc. Spraying apparatus employing a skirt structure. 4,274,589, Cl. 239-167.000.

Jones, Louis F., to United States of America, Navy. Pressure mine sweeping. 4,274,354, Cl. 114-244.000.

Jony nee Acs, Julia: *See—*
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, 4,274,597, Cl. 239-542.000.

Jordan, Frederick L., to Oryx, Inc. Method and composition for modifying burning of sulfur in coals and hydrocarbon fuels. 4,274,835, Cl. 44-1.0SR.

Joubert, Raymond J. M., to Societe Nationale de'Etude et de Constr. de Moteurs d'Aviation. Movable blast pipes for jet engines. 4,274,593, Cl. 239-265.350.

Joy, Michael; Moon, Richard E.; Quashem, Abul; Lo, Alex; and Dayal, Vijay S. Artificial replacement for a larynx. 4,274,162, Cl. 3-1.300.

Juhasz, Josef: *See—*
Harer, Helmut; and Juhasz, Josef, 4,275,351, Cl. 324-427.000.

Julke, Elias: *See—*
Hartinger, Edmund; Julke, Elias; and Sandmann, Harald, 4,274,971, Cl. 210-778.000.

Jullien, Graham A., to Oqilvy, James J. Game switch matrix. 4,274,638, Cl. 273-238.000.

Junco, Manuel F.: *See—*
James, David H.; and Junco, Manuel F., 4,274,267, Cl. 62-252.000.

Jung, Wilfried; and Rau, Peter, to Kraftwerk Union Aktiengesellschaft. Fuel assembly for fast nuclear reactors. 4,274,921, Cl. 176-78.000.

Junker, Alois: *See—*
Bardenheuer, Friedrich; Konig, Horst; Junker, Alois; and Rath, Gero, 4,274,867, Cl. 75-13.000.

Jurkowski, Walter J.: *See—*
Beck, Christian A.; Jurkowski, Walter J.; and Pegg, Charles E., 4,274,362, Cl. 118-657.000.

Kabushiki Kaisha Daini Seikosha: *See—*
Ishida, Takashi, 4,275,463, Cl. 368-187.000.

Kabushiki Kaisha Kyowa Kikai Seisakusho: *See—*
Hotta, Kyoichi, 4,274,178, Cl. 19-106.00R.

Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See—*
Nakano, Tasuku; and Hamamoto, Tadanao, 4,275,379, Cl. 340-81.00R.

Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*
Mizuno, Masakazu; Igarashi, Isemi; and Inagaki, Hazime, 4,274,423, Cl. 128-675.000.

Kabushiki Kaishi Yamazaki Tekkosho: *See—*
Norimatsu, Michio, 4,274,192, Cl. 29-568.000.

Kaeding, Warren W.: *See—*
Chu, Chin-Chiun; and Kaeding, Warren W., 4,275,256, Cl. 585-467.000.

Kagami, Akiyasu; and Tanigami, Yoshinori, to Dai Nippon Toryo Co., Ltd.; and Japan Electric Industry Development Association. Fluorescent compositions and low-velocity electron excited fluorescent display devices utilizing the same. 4,275,333, Cl. 313-495.000.

Kajino, Masayori; Yoshii, Takashi; and Tama, Tomeaki, to Kubota, Ltd. Structure for attaching an implement to an offset-type tractor. 4,274,652, Cl. 280-460.00A.

Kajitani, Yukimasa: *See—*
Teshima, Kiyomi; Tsuboi, Toshio; and Kajitani, Yukimasa, 4,274,804, Cl. 415-121.00A.

Kalt, Jorg; and Kehlhofer, Rolf, to BBC Brown Boveri & Company Limited. Turbine power plant with back pressure turbine. 4,274,256, Cl. 60-39.18B.

Kam, John B.: *See—*
Davida, George I.; and Kam, John B., 4,275,265, Cl. 178-22.090.

Kamada, Kazumasa; Sasaki, Isao; and Kushi, Kenji, to Mitsubishi Rayon Co., Ltd. Coating composition. 4,274,933, Cl. 204-159.240.

Kamio, Masao: *See—*
Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, 4,274,726, Cl. 354-173.000.

Kamioka, Hajime: *See—*
Takagi, Mikio; Maeda, Mamoru; and Kamioka, Hajime, 4,275,094, Cl. 427-93.000.

Kamody, John F., to Koppers Company, Inc. Sulfur dioxide disposal system. 4,275,044, Cl. 423-242.000.

Kanamoto, Sakumi; and Ishida, Akio, to Maruho Co., Ltd. Surgical clip and its assembly. 4,274,415, Cl. 128-321.000.

Kanda, Takemi: *See—*
Kobayashi, Shigeru; Kanda, Takemi; and Shibuya, Tsunenori, 4,274,816, Cl. 418-93.000.

Kaneda, Reiken, to Kohgiken Corporation. Method for measuring unbalanced wheels of an automotive vehicle. 4,274,287, Cl. 73-457.000.

Kanno, Fukuo: *See—*
Narisawa, Shigeyuki; Yanase, Hiroshi; and Kanno, Fukuo, 4,274,993, Cl. 260-37.00R.

Kano, Ichiro: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, 4,275,306, Cl. 250-548.000.

Kansai Paint Co., Ltd.: *See—*
Nakayama, Hiroyuki; Kato, Akira; and Tsuchiya, Masuo, 4,275,092, Cl. 427-54.100.
Tominaga, Akira; and Nishida, Reijiro, 4,274,989, Cl. 260-29.2TN.

Kantlehner, Jerry R.: *See—*
Rabeneck, Kenneth H.; Kantlehner, Jerry R.; and Gallaher, David E., 4,274,539, Cl. 206-554.000.

Kanto Denka Kogyo Co., Ltd.: *See—*
Suzuki, Shintaro; Iizuka, Sadao; Moriya, Yoshimi; and Omote, Yuichi, 4,274,865, Cl. 75-0.5AA.

Kao Soap Co., Ltd.: *See—*
Kokubo, Isao; and Kawahara, Yoshiharu, 4,275,012, Cl. 260-421.000.

Kappus, Wolfgang; and Borger, Waldemar, to Varta Batterie Aktiengesellschaft. Galvanic high-temperature cell with solid negative electrode and molten electrolyte. 4,275,129, Cl. 429-112.000.

Karapetian, Vahe. Steam table. 4,274,391, Cl. 126-33.000.

Karjalainen, Arto; and Kurkela, Kauko, to Farmos Group, Ltd. 2,6-Dichlorophenyl-substituted amino-imidazole derivatives and use as hypertensive agents. 4,275,072, Cl. 424-273.00R.

Karl Schmidt GmbH: *See—*
Kelm, Walter; and Landau, Ulrich, 4,274,372, Cl. 123-193.00P.

Kasper, Kenneth R.: *See—*
Stanciu, Virgil V.; Cutler, Robert A.; and Kasper, Kenneth R., 4,274,823, Cl. 425-145.000.

Kasselmann, John T., to Bendix Corporation, The. Disc brake and actuating lever therefor. 4,274,513, Cl. 188-72.700.

Katayama, Hitoshi, to Shimano Industrial Company Limited. Handle stem fixing device for a bicycle and the like. 4,274,301, Cl. 74-551.100.

Kato, Akira: *See—*
Nakayama, Hiroyuki; Kato, Akira; and Tsuchiya, Masuo, 4,275,092, Cl. 427-54.100.

Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, to Nihon Tennen Gas Kogyo Co., Ltd. Chitosan-iodine adduct. 4,275,194, Cl. 536-20.000.

Kato, Masataka, to Brother Kogyo Kabushiki Kaisha. Multiple pattern sewing machine. 4,274,348, Cl. 112-158.00E.

Kato, Taizo. Tapping spindle. 4,274,768, Cl. 408-142.000.

Kato, Tatsuo: *See—*
Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, 4,275,194, Cl. 536-20.000.

Kato, Tetuo; and Miura, Ieaki, to Tokico, Ltd. Hydraulic shock absorber. 4,274,517, Cl. 188-315.000.

Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, to Canon Kabushiki Kaisha. Alignment apparatus. 4,275,306, Cl. 250-548.000.

Kaul, Gunther; Grunert, Wilfried; and Aufenvenne, Wilhelm, to Mollers Maschinenfabrik GmbH. Apparatus for stacking layers of objects. 4,274,780, Cl. 414-64.000.

Kavesh, Sheldon: *See—*
Bedell, John R.; Kavesh, Sheldon; Hemmat, Naim S.; Draizen, Seymour; and Smith, Robert W., 4,274,473, Cl. 164-423.000.

Kawabata, Minoru; Suzuki, Mikio; and Takahashi, Kenji, to Toyoda Koki Kabushiki K.; and Toyota Jidosha Kogyo Kabushiki Kaisha. Power steering device. 4,274,504, Cl. 180-143.000.

Kawada, Shigeki; Kobari, Katsuo; and Ishida, Hiroshi, to Fujitsu Fanuc Limited. Abnormality detecting system for DC motor control apparatus. 4,275,342, Cl. 318-490.000.

Kawada, Yoshiharu: *See—*
Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, 4,275,194, Cl. 536-20.000.

Kawaguchi, Bunshire, to Ichikin, Ltd., The. Apparatus for improved aftertreatment of textile material by application of microwaves. 4,274,209, Cl. 34-1.000.

Kawahara, Yoshiharu: *See—*
Kokubo, Isao; and Kawahara, Yoshiharu, 4,275,012, Cl. 260-421.000.

Kawakami, James H.; and Kwiatkowski, George T., to Union Carbide Corporation. Oligomer extended polyarylethers. 4,275,186, Cl. 528-174.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See—*
Nishikawa, Yoshiyasu, 4,274,810, Cl. 416-186.00R.
Uozumi, Yukio, 4,274,338, Cl. 105-144.000.

Kawasaki Steel Corporation: *See—*
Ohmori, Hisashi, 4,274,622, Cl. 266-227.000.

Kearns, Dale L.: *See—*
Yang, Wen C.; Spangler, Charles E.; Morris, Joe P.; and Kearns, Dale L., 4,275,353, Cl. 324-454.000.

Kefalas A/S: *See—*
Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., 4,275,209, Cl. 546-202.000.

Keglewitsch, Josef; and Vladic, Daniel P., to Bunker Ramo Corporation. Low cost electrical connector. 4,274,700, Cl. 339-192.00R.

Kehlhofer, Rolf: *See—*
Kalt, Jorg; and Kehlhofer, Rolf, 4,274,256, Cl. 60-39.18B.

Keim, Kenneth J., to Du Pont de Nemours, E. I., and Company. Press fit terminal with spring arm contact for edgecard connector. 4,274,699, Cl. 339-176.0MP.

Keith, Charles H.; and Tucker, Richard O., to Celanese Corporation. Filter material. 4,274,914, Cl. 162-109.000.

Keller, Douglas V., Jr.: *See—*
Smith, Clay D.; and Keller, Douglas V., Jr., 4,274,946, Cl. 209-5.000.

Keller, Russell D. Fuel vent with gravity valve. 4,274,431, Cl. 137-43.000.

Kelley, Fred W., Jr., to General Electric Company. Static var system with means for correcting for negative phase shift. 4,275,346, Cl. 323-210.000.

Kelly, Robert C.; and Wierenga, Wendell, to Upjohn Company, The. Substituted alkoxy carbonyl-3-oxo-α-phthalimido-5-isoxozolidineacetic acids. 4,275,214, Cl. 548-243.000.

Kelm, Edward C.: *See—*
Kurtin, Stephen L.; and Kelm, Edward C., 4,275,267, Cl. 179-1.00J.

Kelm, Walter; and Landau, Ulrich, to Karl Schmidt GmbH. Lightweight piston for internal combustion engines. 4,274,372, Cl. 123-193.00P.

Kemp, Ian: *See—*
Allbert, Barrie J.; French, Tom; Kemp, Ian; and Corner, Michael R., 4,274,465, Cl. 152-379.500.

Kennecott Copper Corporation: *See—*
Lai, Ralph W. M.; and Owen, Edwin L., 4,274,866, Cl. 75-5.000.

Kenney, Clarence E. Speed control system for a windmill. 4,274,807, Cl. 416-48.000.

Kenney Manufacturing Company: *See—*
Comeau, Paul E., 4,274,467, Cl. 160-84.00R.

Kenney, Michael J.: *See—*
French, Tom; Mitchell, William E.; Kenney, Michael J.; and Holmes, Thomas, 4,274,466, Cl. 152-381.300.

Kent, Eric G., to Polysar Limited. Polymeric casts. 4,274,983, Cl. 260-4.00R.

Keramidas, Vassilis G.: *See—*
Cassiday, Daniel R.; Keramidas, Vassilis G.; Roedel, Ronald J.; and Saul, Robert H., 4,275,404, Cl. 357-19.000.

Kerkhoven, Frederik J., to Lever Brothers Company. Production of detergent compositions. 4,274,974, Cl. 252-90.000.

Kern & Co. AG: *See—*
Balmer, Beat, 4,274,736, Cl. 356-5.000.

Kern, Hans, to Siemens Aktiengesellschaft. Circuit arrangement for temperature-dependent voltage regulation of piezo-electric recording nozzles in ink mosaic recording devices. 4,275,402, Cl. 346-140.00R.

Kernforschungsanlage Julich GmbH: *See—*
Schulten, Rudolf; Behr, Friedrich; and Wenzl, Helmut, 4,274,938, Cl. 204-239.000.

Kessler, Gerald. High stiffness cellular plastic siding. 4,274,236, Cl. 52-309.800.

Khera, M. Ibrahim, to GTE Automatic Electric Laboratories Incorporated. Interrupt expander circuit. 4,275,458, Cl. 364-900.000.

Kiemer, Ralph F., to Steelastic Company, The. Die for extruding reinforced fabric. 4,274,821, Cl. 425-114.000.

Kiersztyn, Stanley E.: *See—*
MacKenzie, Burton T., Jr.; Prober, Maurice; and Kiersztyn, Stanley E., 4,274,990, Cl. 260-29.15B.

Kifferstein, Harry P. Disposable adjustable headrest and pillow. 4,274,673, Cl. 297-220.000.

Kikuiri, Makoto; Nakashio, Yoshimi; Arai, Yasue; and Hidaka, Toshio, to Toyo Pulp Co., Ltd. Process for producing alkali pulp. 4,274,913, Cl. 162-65.000.

Kiloking (Proprietary) Limited: *See—*
Henderson, Henning M., 4,275,378, Cl. 340-71.000.

Kim, Charles W.; Liu, Chia-Seng; and MacDuff, Richard, to Hercules Incorporated. Yarn structure having main filaments and tie filaments. 4,274,251, Cl. 57-206.000.

Kim, Kwang Y.: *See—*
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tatushige; and Miyagaka, Akiko, 4,275,084, Cl. 426-104.000.

Kimberly-Clark Corporation: *See—*
Austin, Jared A., 4,274,412, Cl. 128-285.000.

Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ote, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hamamiya, Ikuo, to Fuji Electric Co., Ltd. Device for automatically winding a blood pressure measuring cuff. 4,274,424, Cl. 128-686.000.

King, Mary K.: *See—*
Boyd, William J.; and King, Mary K., 4,275,105, Cl. 428-198.000.

King-Seeley Thermos Co.: *See*—
Medeiros, David E.; and Tarozzi, Richard A., 4,274,562, Cl. 222-401.000.

Kinoshita, Hiroo: *See*—
Suzuki, Yoshihiro; Kinoshita, Hiroo; and Akasaka, Naomi, 4,274,981, Cl. 252-438.000.

Kinoshita, Yukuo: *See*—
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.

Kinski, Ernst. Umbrella. 4,274,429, Cl. 135-20.00A.

Kirin Beer Kabushiki Kaisha: *See*—
Abe, Ichiro, 4,274,533, Cl. 198-450.000.

Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, to Sumitomo Chemical Company, Limited. N-Dimethylbenzylacetamide derivatives, and their production and use. 4,274,862, Cl. 71-118.000.

Kirk, Richard L.: *See*—
Alexander, William C.; Kirk, Richard L.; and Thomsen, Kenneth A., 4,275,376, Cl. 340-52.00R.

Kirkpatrick, John W.: *See*—
Hollingsworth, Frank H.; Jenkins, George R.; Kirkpatrick, John W.; and Mower, Lawrence N., 4,274,487, Cl. 166-261.000.

Kirkpatrick, Robert D.; and Weiler, David W., to Union Carbide Corporation. Gas-liquid contacting tray with improved inlet bubbling means. 4,275,021, Cl. 261-114.0JP.

Kish, William C.: *See*—
Cioffi, Paul L.; Downs, William; Kish, William C.; and Newkirk, William E., 4,274,587, Cl. 239-132.300.

Kishi, Atsuo; and Sudo, Toshio, to Hitachi, Ltd. Swash plate type compressor. 4,274,813, Cl. 417-269.000.

Kishi, Hirotoshi: *See*—
Takahashi, Tohru; Sato, Tadashi; and Kishi, Hirotoshi, 4,275,423, Cl. 358-285.000.

Kiss, Gyula: *See*—
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, 4,274,597, Cl. 239-542.000.

Kita, Nobuyuki; and Narutomi, Yasuhisa, to Fuji Photo Film Co., Ltd.; and National Patent Development Corp. Photosensitive diazonium compound containing composition and article with β-hydroxyalkyl acrylate or methacrylate. 4,275,138, Cl. 430-157.000.

Kiuchi, Mitsuyuki. Apparatus for heating an electrically conductive cooking utensil by magnetic induction. 4,275,281, Cl. 219-10.49R.

Kiwala, Jacob: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.

Klauke, Erich: *See*—
Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, Erich; and Marhold, Albrecht, 4,275,250, Cl. 568-812.000.

Klein, Alfons: *See*—
Bohm, Siegfried; Klein, Alfons; and Wedemeyer, Karlfried, 4,275,241, Cl. 568-426.000.

Klein, Edgar: *See*—
Waldman, Joseph L.; Klein, Edgar; Kulling, Achim; and Rahm, Joseph A., 4,275,041, Cl. 423-82.000.

Kleinschmidt, Peter: *See*—
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Kleinschmit, Peter: *See*—
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Klimowicz, Michael A.: *See*—
Koch, William E., Jr.; and Klimowicz, Michael A., 4,274,257, Cl. 60-431.000.

Klimpel, Richard R.: *See*—
Manfroy, Willy; and Klimpel, Richard R., 4,274,599, Cl. 241-16.000.

Klocktner-Humboldt-Deutz Aktiengesellschaft: *See*—
Kupper, Heinz; and Busch, Helmut, 4,274,375, Cl. 123-263.000.

Klooster, Alex, Jr., to Environmental Research Institute of Michigan. Optical system phase error compensator. 4,275,454, Cl. 364-861.000.

Kloth, Hans-Jochen: *See*—
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Kluender, Harold C.; Woessner, Warren D.; and Biddlecom, William G., to Miles Laboratories, Inc. 15-Deoxy-16-hydroxy prostaglandins. 4,275,224, Cl. 560-116.000.

Kluss, Hans; and Lampic, Janez, to Volkswagenwerk AG; and Peguform-Werke GmbH. Protective band, in particular a bumper cover for automobiles. 4,274,668, Cl. 293-142.000.

Knapp, William K., to RCA Corporation. Resettable bistable circuit. 4,275,316, Cl. 307-279.000.

Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., to Revell, Incorporated. Model with two-pole motor actuated siren and flashing lights. 4,274,225, Cl. 46-227.000.

Knechtel, Wilhelm, to Canon Kabushiki Kaisha. Electrophotographic method for reproducing a multicolor image. 4,275,134, Cl. 430-44.000.

Knight, Donald P.: *See*—
Farmer, Felta C., Jr.; and Knight, Donald P., 4,275,347, Cl. 323-312.000.

Knoble, David W.; and Crane, Thomas A., to General Electric Company. Starting and operating circuit for gaseous discharge lamps. 4,275,337, Cl. 315-289.000.

Kobari, Katsuo: *See*—
Kawada, Shigeki; Kobari, Katsuo; and Ishida, Hiroshi, 4,275,342, Cl. 318-490.000.

Kobayashi, Kouji: *See*—
Moroto, Shuzo; and Kobayashi, Kouji, 4,274,519, Cl. 192-3.280.

Kobayashi, Shigeru; Kanda, Takemi; and Shibuya, Tsunenori, to Diesel Kiki Company, Ltd. Rotary vane compressor with chamfered vane slots. 4,274,816, Cl. 418-93.000.

Kobayashi, Tadashi: *See*—
Yamaguchi, Akihiro; Yamaguchi, Keizaburo; Murakami, Hisamichi; and Kobayashi, Tadashi, 4,275,240, Cl. 568-37.000.

Kobayashi, Yasuo: *See*—
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, 4,275,093, Cl. 427-89.000.

Koch, Robert O.: *See*—
Tsiang, Chong L.; and Koch, Robert O., 4,274,376, Cl. 123-360.000.

Koch, William E., Jr.; and Klimowicz, Michael A., to Eaton Corporation. Anti-stall controller. 4,274,257, Cl. 60-431.000.

Kochs Adler AG: *See*—
Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, 4,274,345, Cl. 112-51.000.

Kochwa, Shaul: *See*—
Rosenfield, Richard E.; and Kochwa, Shaul, 4,275,053, Cl. 424-12.000.

Kocks Technik GmbH & Co.: *See*—
Zacharias, Theodor; and Terdenge, Bernhard, 4,274,274, Cl. 72-239.000.

Kodama, Hisashi, to Aisin Seiki Kabushiki Kaisha. Self-contained type lash adjuster. 4,274,370, Cl. 123-90.550.

Kodama, Yujiro; Kuroishi, Nobuhito; Sabao, Masato; and Kureha, Yasumasa, to Sumitomo Electric Industries, Ltd. Sintered hard metals having high wear resistance. 4,274,876, Cl. 75-243.000.

Koerner, Gotz; and Fink, Hans-Ferdi, to Th. Goldschmidt AG. Defoamer preparation and processes for its production. 4,274,977, Cl. 252-358.000.

Kohgiken Corporation: *See*—
Kaneda, Reiken, 4,274,287, Cl. 73-457.000.

Kohno, Tohru: *See*—
Obara, Kunio; Kohno, Tohru; and Sawaguchi, Hiroshi, 4,274,874, Cl. 75-231.000.

Kohtani, Yutaka; and Komine, Yoshio, to Canon Kabushiki Kaisha. Sound motion picture camera. 4,274,718, Cl. 352-14.000.

Kojima, Tamotsu; Fujiwhara, Mitsuto; Endo, Takaya; and Iijima, Akio, to Konishiroku Photo Industry Co., Ltd. Light-sensitive silver halide color photographic materials. 4,275,148, Cl. 430-558.000.

Kokkinos, Angelos, to Combustion Engineering, Inc. Low load coal nozzle. 4,274,343, Cl. 110-263.000.

Kokubo, Isao; and Kawahara, Yoshiharu, to Kao Soap Co., Ltd. Process for continuous refining of oils and fats. 4,275,012, Cl. 260-421.000.

Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, to Bayer Aktiengesellschaft. Control valve having a disc shaped throttle. 4,274,439, Cl. 137-601.000.

Koller, Joseph A. Skimmer having a wide drive roller, a guide means, and a tension means. 4,274,957, Cl. 210-172.000.

Komatsu, Koziro: *See*—
Mabuchi, Kenichi; and Komatsu, Koziro, 4,275,394, Cl. 340-694.000.

Komine, Yoshio: *See*—
Kohtani, Yutaka; and Komine, Yoshio, 4,274,718, Cl. 352-14.000.

Konang, Peter: *See*—
Krick, Gerd; Konang, Peter; Sigdell, Jan-Erik; and Heilmann, Klaus, 4,274,964, Cl. 210-321.300.

Kondo, Kunio: *See*—
Haga, Minoru; and Kondo, Kunio, 4,274,774, Cl. 409-232.000.

Kondracki, Witold, to Manhattan Protection, Inc. Window gate construction. 4,274,228, Cl. 49-56.000.

Konig, Horst: *See*—
Bardenheuer, Friedrich; Konig, Horst; Junker, Alois; and Rath, Gero, 4,274,867, Cl. 75-13.000.

Konig, Wolfgang; Teetz, Volker; Jager, Georg; and Geiger, Rolf, to Hoechst Aktiengesellschaft. Process for the manufacture of LH-RH and LH-RH analogs using Glu-His(DnP)-OH. 4,275,001, Cl. 260-112.5LH.

Konishiroku Photo Industry Co., Ltd.: *See*—
Kojima, Tamotsu; Fujiwhara, Mitsuto; Endo, Takaya; and Iijima, Akio, 4,275,148, Cl. 430-558.000.
Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, 4,274,726, Cl. 354-173.000.

Koolatron Industries, Limited: *See*—
Reed, Michael A.; Hatcher, Ian; Reed, Kingstone L. H.; and Danchuk, William, 4,274,262, Cl. 62-3.000.

Kooriyama, Tsutomu: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.

Kopas, George A.; and Boomer, Merton E. Purification of vegetable oil. 4,275,089, Cl. 426-601.000.

Koppel, Albert W.: *See*—
Sudar, Robert B.; Lewis, Edward L.; and Koppel, Albert W., 4,275,352, Cl. 324-449.000.

Koppers Company, Inc.: *See*—
Greco, Nicholas P., 4,275,246, Cl. 568-750.000.

Kamody, John F., 4,275,044, Cl. 423-242.000.

Koss Corporation: *See*—
Kurtin, Stephen L.; and Kelm, Edward C., 4,275,267, Cl. 179-1.00J.

Kotick, Michael P.; and Leland, David L., to Miles Laboratories, Inc. 7,7-Ditosyloxymethyl-4,5α-epoxy-morphinan-6-ols. 4,275,205, Cl. 546-44.000.

Kraftwerk Union Aktiengesellschaft: *See*—
Jung, Wilfried; and Rau, Peter, 4,274,921, Cl. 176-78.000.
Queiser, Horst; and Meichsner, Othmar, 4,274,962, Cl. 210-257.100.

Kratschmer, Horst D., to Kurz, Leonhard. Metallized hot stamping foil for decorating three-dimensional objects. 4,275,116, Cl. 428-336.000.

Krause, Peter: *See*—
Lutz, Dieter; Krause, Peter; Terveen, Axel; and Eibl, Volker, 4,274,425, Cl. 128-719.000.

Kraw, Stanley P., Jr. Vacuum responsive carburetor linkage. 4,274,377, Cl. 123-396.000.

Kreidler, Manfred: *See*—
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Polyfluoroallyloxy compounds, their preparation and copolymers therefrom. 4,275,225, Cl. 560-174.000.

Kretschmar, Bernd: *See*—
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Krick, Gerd; Konang, Peter; Sigdell, Jan-Erik; and Heilmann, Klaus, to Dr. Eduard Fresenius Chemisch-pharmazeutische Industrie KG, Apparatebau KG. Dialysator. 4,274,964, Cl. 210-321.300.

Krings, Josef. Excavating sheeting unit. 4,274,763, Cl. 405-282.000.

Kristiansen, Jan O.; and Lynham, C. Richard, to Foseco International Limited. Desulphurization of metals. 4,274,869, Cl. 75-53.000.

Krobock, John J.: *See*—
Dueweke, Gilbert R.; and Krobock, John J., 4,274,458, Cl. 144-193.00D.

Kroneld, Erik G.; and Andersson, Per-Erik, to Obbola Linerboard Aktiebolag. Method of cooking cellulose material and preserving the heat and terpentine content of the cooking liquor. 4,274,911, Cl. 162-15.000.

Kronman, Albert F.: *See*—
Peters, Melville F.; and Peters, Walter T., 4,274,396, Cl. 126-438.000.

Krueger, Hans, to Siemens Aktiengesellschaft. Device with a scatter-free light valve. 4,274,713, Cl. 350-347.00R.

Krueger, William R.: *See*—
Cavil, David T.; and Krueger, William R., 4,275,322, Cl. 310-111.000.

Krumme, Jens-Peter: *See*—
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,274,935, Cl. 204-192.00M.

Kubo, Yoshiro: *See*—
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.

Kubomura, Kiyoshi: *See*—
Tanaka, Takehiko; Kubota, Yoji; and Kubomura, Kiyoshi, 4,275,456, Cl. 364-900.000.

Kubota, Ltd.: *See*—
Kajino, Masayori; Yoshii, Takashi; and Tama, Tomeaki, 4,274,652, Cl. 280-460.00A.

Kubota, Tadashi: *See*—
Watanabe, Takeo; Kubota, Tadashi; and Yamagami, Akio, 4,275,425, Cl. 360-92.000.

Kubota, Yoji: *See*—
Tanaka, Takehiko; Kubota, Yoji; and Kubomura, Kiyoshi, 4,275,456, Cl. 364-900.000.

Kuboyama, Morio: *See*—
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.

Kuehn, Lorne A.: *See*—
Pogorski, Louis A.; and Kuehn, Lorne A., 4,274,158, Cl. 2-2.10R.

Kuhnle, Ernst, to Bizerba-Werke Wilhelm Kraut KG. Electrically price-calculating balance. 4,274,500, Cl. 177-25.000.

Kuhnlein, Hans L.: *See*—
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.

Kulesza, Ralph J.; and Breslow, Jeffrey D., to Marvin Glass & Associates. Game apparatus using visual/motor skills. 4,274,630, Cl. 273-1.00R.

Kulig, Francis V., to Federal Paper Board Company, Inc. Cellular tray-type carton. 4,274,579, Cl. 229-28.00R.

Kulling, Achim: *See*—
Waldman, Joseph L.; Klein, Edgar; Kulling, Achim; and Rahm, Joseph A., 4,275,041, Cl. 423-82.000.

Kumai, Seisaku: *See*—
Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, 4,275,226, Cl. 560-183.000.

Kumazawa, Satoru: *See*—
Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, 4,275,078, Cl. 424-324.000.

Kung, Hans R.: *See*—
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.

Kupper, Heinz; and Busch, Helmut, to Klockner-Humboldt-Deutz Aktiengesellschaft. Piston, especially for internal combustion engines. 4,274,375, Cl. 123-263.000.

Kuraray Co., Ltd.: *See*—
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Aksu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, 4,275,078, Cl. 424-324.000.
Takahashi, Masaaki; and Ito, Akira, 4,275,253, Cl. 585-7.000.
Yusa, Haruhiko; Oota, Masanori; and Suzuki, Katsumi, 4,275,178, Cl. 525-71.000.

Kureha, Yasumasa: *See*—
Kodama, Yujiro; Kuroishi, Nobuhito; Sabao, Masato; and Kureha, Yasumasa, 4,274,876, Cl. 75-243.000.

Kuriki, Choei: *See*—
Yamada, Hisafumi; Tokuhara, Massharu; and Kuriki, Choei, 4,275,420, Cl. 358-167.000.

Kurkela, Kauko: *See*—
Karjalainen, Arto; and Kurkela, Kauko, 4,275,072, Cl. 424-273.00R.

Kurkela, Matti; Lahtinen, Leo; and Ylivakeri, Raimo, to Valmet. Flow apparatus for work vehicles. 4,274,212, Cl. 37-29.000.

Kuroda, Hiroshi, to Honda Giken Kogyo Kabushiki Kaisha. Sunshade system in sliding roof system of vehicle. 4,274,672, Cl. 296-216.000.

Kuroishi, Nobuhito: *See*—
Kodama, Yujiro; Kuroishi, Nobuhito; Sabao, Masato; and Kureha, Yasumasa, 4,274,876, Cl. 75-243.000.

Kurokawa, Mitsuo: *See*—
Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, 4,275,142, Cl. 430-271.000.

Kurono, Masayasu; Nakai, Hisao; and Sakuyama, Shigeru, to ONO Pharmaceutical Co. Ltd. 15-cyclobutyl-trans-Δ^2-prostaglandin analogues. 4,275,075, Cl. 424-305.000.

Kurosaki, Syozi: *See*—
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Aksu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Kurtin, Stephen L.; and Kelm, Edward C., to Koss Corporation. Ambience processor. 4,275,267, Cl. 179-1.00J.

Kurtz, Robert J.: *See*—
Findl, Eugene; and Kurtz, Robert J., 4,274,937, Cl. 204-195.00R.

Kurz, Leonhard: *See*—
Kratschmer, Horst D., 4,275,116, Cl. 428-336.000.

Kushi, Kenji: *See*—
Kamada, Kazumasa; Sasaki, Isao; and Kushi, Kenji, 4,274,933, Cl. 204-159.240.

Kutelis, Carl R.: *See*—
Roy, Donald A.; O'Keefe, George F.; and Kutelis, Carl R., 4,274,316, Cl. 83-23.000.

Kuwata, Ryuichi, to Tokyo Shibaura Denki Kabushiki Kaisha. Process control system. 4,275,439, Cl. 364-120.000.

Kuyper, Herman S.; Evers, Robert S.; and Regal, John, to Roiscreen Company. Operator for a slat shade assembly. 4,274,469, Cl. 160-107.000.

Kuzma, Peter. Hydrophilic polymers and contact lenses therefrom. 4,275,183, Cl. 526-303.000.

Kwiatkowski, George T.: *See*—
Kawakami, James H.; and Kwiatkowski, George T., 4,275,186, Cl. 528-174.000.

Kyokuto Fatty-Acid Corporation: *See*—
Itoh, Shuji; and Yoshida, Yoji, 4,274,905, Cl. 156-462.000.

Kyowa Gas Chemical Industry Co., Ltd.: *See*—
Tadokoro, Shin-ichi; and Segawa, Hirozo, 4,275,174, Cl. 525-1.000.

Lachenmayer, Wilhelm: *See*—
Harmsen, Lothar; Bick, Klaus; Lachenmayer, Wilhelm; Vesmann, Friedhelm; and Zieschang, Jurgen, 4,275,258, Cl. 13-32.000.

La Coste, Bernard L., to Westinghouse Electric Corp. Method of diagnostic valve testing. 4,274,438, Cl. 137-551.000.

LaFrance Corporation: *See*—
Perosi, Peter A., 4,274,545, Cl. 220-4.00R.

Lafreniere, Earl W.; and Jack, Douglas S. Carrier for skis and ski poles. 4,274,571, Cl. 294-147.000.

La Gro, Phillip A., to Hollister Incorporated. Gas-venting filter for collection appliance. 4,274,848, Cl. 55-387.000.

Lahtinen, Leo: *See*—
Kurkela, Matti; Lahtinen, Leo; and Ylivakeri, Raimo, 4,274,212, Cl. 37-29.000.

Lai, Ralph W. M.; and Owen, Edwin L., to Kennecott Copper Corporation. Flotation and sintering of synthetic manganese carbonate. 4,274,866, Cl. 75-5.000.

Lake, Robert J.; and Chapman, Kimberly L., to Clow Corporation. Polymer dispersion device. 4,274,749, Cl. 366-132.000.

Lamber, Clarence F.: *See*—
Passafiume, Anthony; Lamber, Clarence F.; and Dickover, William, 4,274,318, Cl. 83-177.000.

Lamberti, Vincent: *See*—
Gutierrez, Eddie N.; and Lamberti, Vincent, 4,275,007, Cl. 260-343.900.

Lampic, Janez: *See*—
Kluss, Hans; and Lampic, Janez, 4,274,668, Cl. 293-142.000.

Lampton, Glen T., to United States of America, Navy. Deepwater target-seeking mines. 4,274,333, Cl. 102-418.000.

Lancer Boss Limited: *See—*
Taylor, Robert A., 4,274,795, Cl. 414-673.000.

Landau, Ulrich: *See—*
Kelm, Walter; and Landau, Ulrich, 4,274,372, Cl. 123-193.00P.

Lane, Martyn S.: *See—*
Cadle, Terence M.; and Lane, Martyn S., 4,274,875, Cl. 75-232.000.

Lange, Gerd, to Schlaap-Mobel GmbH & Co., KG. Fixed joint, especially for joining structural parts of wooden furniture. 4,274,756, Cl. 403-382.000.

Langen, Marinus J. M.; and Strauss, Edgar H., to H. J. Langen & Sons Ltd. Checkout counter. 4,274,245, Cl. 53-558.000.

Langenhorst, Gunter, to top-element Bauelemente fur Irnenausbau & Raumgestaltung GmbH & Co. KG. Window-frame assembly. 4,274,235, Cl. 52-213.000.

Langham, Maurice E., to Dobbie, Graham J., a part interest. Catecholamine treatment of ocular hypertension. 4,275,074, Cl. 424-280.000.

Langton, Christine A.; and Roy, Della M. High temperature cement. 4,274,881, Cl. 106-98.000.

Langton, Hubert A.: *See—*
Pugh, William A. G.; Edmunds, Robert I.; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., 4,274,224, Cl. 46-161.000.

Lante-Montefeltro, Ludovico. Flying target pigeons. 4,274,636, Cl. 273-365.000.

Larribau, Etienne; and Tozzolino, Pierre, to Societe Nationale Elf Aquitaine (Production). Process for the flotation of sulfide ores. 4,274,950, Cl. 209-166.000.

Lasar, Theodore. Device to control machines by voice. 4,275,266, Cl. 179-1.0VC.

Lassen, Niels; Bogeso, Klaus P.; Hansen, Peter B.; Buus, Jorn L. M.; and Bigler, Allan J., to Kefalas A/S. Xanthene and thioxanthene derivatives. 4,275,209, Cl. 546-202.000.

Lassig, Wolfgang: *See—*
Benker, Fritz; Credner, Hans-Heinrich; Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, 4,275,200, Cl. 544-137.000.

Laudenslager, James B.: *See—*
United States of America, National Aeronautics and Space Administration; Laudenslager, James B.; and Pacala, Thomas J., 4,275,317, Cl. 307-415.000.

Lausman, Thomas C.: *See—*
Wang, Chih C.; Ekstrom, Lincoln; Lausman, Thomas C.; and Wielicki, Henry, 4,275,101, Cl. 369-286.000.

Lawson, Alexander E.; Mathieu, Robert J.; and Miller, James M., to GOW-MAC Instrument Co. Short optical path detector. 4,275,304, Cl. 250-373.000.

Lea, John D.: *See—*
Sternick, Leon; and Lea, John D., 4,275,461, Cl. 367-122.000.

Lear Siegler, Inc.: *See—*
Bistrick, Eugene J.; and Abrahamsson, Axel B., 4,274,767, Cl. 407-18.000.

Leas, Arnold M. Process for gasification of coal and organic solid wastes. 4,274,839, Cl. 48-202.000.

Leather, Russell A., to Ferranti Limited. Electrical connector having a plurality of in-line contacts. 4,274,694, Cl. 339-74.00R.

Lebailly, Jacques, to U.S. Philips Corporation. Electro-luminescent semiconductor device. 4,275,403, Cl. 357-17.000.

Le Can, Claude J. P. F.: *See—*
Michel, Jean P.; Le Can, Claude J. P. F.; and van Buul, Marinus C. W., 4,275,386, Cl. 340-347.0AD.

Lechler, Rolf; and Leitermann, Wulf, to Audi Nsu Auto Union Aktiengesellschaft. Rotary combustion engine of trochoid design with oil return groove. 4,274,815, Cl. 418-91.000.

Leco Corporation: *See—*
Vallance, Charles B., 4,275,375, Cl. 338-329.000.

Lecoq, Jean-Claude; and Grimaud, Edouard, to Produits Chimiques Ugine Kuhlmann. Process for treating waste water from propylene oxidation plants. 4,274,969, Cl. 210-721.000.

Le Couteur, George M. Telecine machines. 4,275,422, Cl. 358-214.000.

LecTec Corporation: *See—*
Hymes, Alan C., 4,274,420, Cl. 128-641.000.

Le Dall, Guy, to Permo. Electronic means for controlling the regeneration of resins in a resin type ion exchange device. 4,275,448, Cl. 364-500.000.

Lederman, Frederick E., to General Motors Corporation. Resilient mount for MacPherson strut. 4,274,655, Cl. 280-688.000.

Lee, Choong G. Air-cooled rotary internal combustion engine. 4,274,374, Cl. 123-241.000.

Lee, Peter F., to Southland Instruments, Inc. Aseptic fluid transfer. 4,274,453, Cl. 141-1.000.

Leeds & Northrup Company: *See—*
Hance, Richard J., 4,274,284, Cl. 73-354.000.

Lefort, Marcel: *See—*
Bargain, Michel; and Lefort, Marcel, 4,275,184, Cl. 528-26.000.

Lehureau, Jean-Claude, to Thomson-CSF. Multitrack magnetic reading head. 4,275,428, Cl. 360-113.000.

Lehureau, Jean Claude: *See—*
Bricot, Claude; and Lehureau, Jean Claude, 4,275,275, Cl. 369-44.000.

Leibinger, Berthold: *See—*
Herb, Eugen; and Leibinger, Berthold, 4,274,801, Cl. 414-751.000.

Leigh, George C.: *See—*
Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., 4,274,530, Cl. 198-347.000.

Leighou, Robert O.; and Meeks, Leighton A., to Martin Marietta Corporation. Apparatus and method for receiving digital data at a first rate and outputting the data at a different rate. 4,275,457, Cl. 364-900.000.

Leitermann, Wulf: *See—*
Lechler, Rolf; and Leitermann, Wulf, 4,274,815, Cl. 418-91.000.

Leland, David L.: *See—*
Kotick, Michael P.; and Leland, David L., 4,275,205, Cl. 546-44.000.

Lemmer, Alfred. Assembly table for conductor boards. 4,274,196, Cl. 29-741.000.

Lemoussu, Michel, to Compagnie Industrielle des Telecommunicators Cit-Alcatel. Clock rate recovery circuit. 4,275,465, Cl. 375-97.000.

Lenders, Wilhelmus L. L.; and van Hirtum, Martinus J., to U.S. Philips Corporation. Machine for winding wire coils. 4,274,603, Cl. 242-7.140.

Lendvay, Andrew T., to Philip Morris Incorporated. Method of increasing filling power of tobacco products. 4,274,427, Cl. 131-293.000.

Lenker, Paul E. Method of manufacture of certain hand wrenches and the like. 4,274,309, Cl. 76-114.000.

Lenox Machine Company, Inc.: *See—*
Frye, Kenneth G.; and Fitzpatrick, Donald C., 4,274,319, Cl. 83-430.000.

Leonhardt, Maria R. Apparatus for electrical feed of a heater in a crystal-growing vessel. 4,275,035, Cl. 422-250.000.

Leseur, Andre: *See—*
Anav, Maurice; Duhayon, Jacques; Goumondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, 4,275,045, Cl. 423-249.000.

Leslie Metal Arts Company: *See—*
Vander Ley, Robert J.; and Sherman, Frederick G., 4,274,689, Cl. 312-333.000.

Lestradet, Maurice C. J. Control apparatus for agricultural sprayers having a mixing chamber. 4,274,585, Cl. 239-124.000.

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Coleman, Michael H.; and Macrae, Alasdair R., 4,275,081, Cl. 426-33.000.
Gutierrez, Eddie N.; and Lamberti, Vincent, 4,275,007, Cl. 260-343.900.
Kerkhoven, Frederik J., 4,274,974, Cl. 252-90.000.
Tokosh, Richard; Barillo, Joseph; and Urban, Warren, 4,275,013, Cl. 260-504.00R.

Lever, Gordon, to Alcan Research and Development Limited. Removal of oxalate from Bayer process liquor. 4,275,042, Cl. 423-130.000.

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Foss, Rene N.; and Levine, Sidney, 4,274,353, Cl. 114-21.00A.

Levy, Yves: *See—*
Imbert, Christian; Levy, Yves; and Loulergue, Jean-Claude, 4,275,302, Cl. 250-330.000.

Lewis, Edward L.: *See—*
Sudar, Robert B.; Lewis, Edward L.; and Koppel, Albert W., 4,275,352, Cl. 324-449.000.

Li, Pei-Ching, to International Business Machines Corporation. Phosphorus-nitrogen-oxygen composition and method for making such composition and applications of the same. 4,275,409, Cl. 357-54.000.

Light, Bette M.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.

Lightolier Incorporated: *See—*
Chan, Kingsley; and Russo, Neil, 4,274,615, Cl. 248-343.000.

Lilburn, Jennifer E., to Chevron Research Company. Deposit control additives and fuel compositions containing them. 4,274,837, Cl. 44-63.000.

Liljekvist, Bernt S.; and Persson, Anders E., to Sandvik Aktiebolag. Method and device in earth cutting. 4,274,496, Cl. 175-57.000.

Lindal, S. Walter. Metal reinforced wood truss and tie means. 4,274,241, Cl. 52-642.000.

Lindau, Leif A. V., to AB Svenska Flaktfabriken. Method of purifying gas containing gaseous mercury. 4,274,842, Cl. 55-72.000.

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Becker, Hans, 4,274,850, Cl. 62-24.000.

Lingl Corporation: *See—*
Denison, Don E., 4,275,029, Cl. 264-152.000.

Linton, Derek; and Boydell, John M., to Pauling and Company Limited. Building systems. 4,274,242, Cl. 52-741.000.

Lippel, Bernard. Dither-quantized signalling for color television. 4,275,411, Cl. 358-13.000.

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Lippmann, Peter. Process and arrangement for the covering of a spinning carrier with fiber material. 4,274,250, Cl. 57-5.000.

Litman, David J.; Harel, Zvi; and Ullman, Edwin F., to Syva Company. Macromolecular environment control in specific receptor assays. 4,275,149, Cl. 435-7.000.

Littler, Brian J. Crash helmet collar. 4,274,161, Cl. 2-413.000.

Litton Industrial Products, Inc.: *See—*
Engle, Gary L., 4,275,415, Cl. 358-140.000.

Liu, Chia-Seng: *See—*
Kim, Charles W.; Liu, Chia-Seng; and MacDuff, Richard, 4,274,251, Cl. 57-206.000.

Liu, Paul S.: *See—*
Marquez, Victor E.; Liu, Paul S.; and Driscoll, John S., 4,275,057, Cl. 424-180.000.

Livesay, Richard E., to Caterpillar Tractor Co. Self-lapping seal for track chain. 4,274,682, Cl. 305-11.000.

Lo, Alex: *See—*
Joy, Michael; Moon, Richard E.; Quashem, Abul; Lo, Alex; and Dayal, Vijay S., 4,274,162, Cl. 3-1.300.

Login, Robert B., to BASF Wyandotte Corporation. Graft polyesters and sized textiles. 4,275,176, Cl. 525-48.000.

Long, Richard W.; and Stinton, Robert T., to Diving Unlimited International, Inc. Non-return hot water diving suit. 4,274,759, Cl. 405-186.000.

Long, Virgil L., Sr.: *See—*
Grosser, Richard W.; and Long, Virgil L., Sr., 4,274,626, Cl. 272-109.000.

Long, William B.; and Zimmerman, John A., Jr., to AMP Incorporated. Electrical connecting device for wiring systems. 4,274,696, Cl. 339-103.00R.

Longardner, Robert L.: *See—*
Summers, William A.; and Longardner, Robert L., 4,275,310, Cl. 290-1.00R.

Longinotti, Enrico. Handling plant for cement tiles or the like with the aid of trays upon which the tiles are placed for seasoning. 4,274,779, Cl. 414-32.000.

Lord, Herbert A., to Western Electric Company, Inc. Uniformly cooled plasma etching electrode. 4,275,289, Cl. 219-121.0PR.

L'Oreal: *See—*
Bouillon, Claude; and Rosenbaum, Georges, 4,275,199, Cl. 542-430.000.
Sebag, Henri; Zysman, Alexandre; and Vanlerberghe, Guy, 4,275,054, Cl. 424-65.000.

Lorenz, Peter R.; Weinmann, Ernst; and Majer, Mirko, to Hoechst Aktiengesellschaft. Process for isolating hepatitis A-virus. 4,275,165, Cl. 435-235.000.

Lorenze, Robert V., Jr., to Honeywell Inc. Durable insulating protective layer for hybrid CCD/mosaic IR detector array. 4,275,407, Cl. 357-30.000.

Louie, Anthony C. H.; and Young, Stephen H., to United States of America, Navy. LCD controller. 4,275,421, Cl. 358-183.000.

Loulergue, Jean-Claude: *See—*
Imbert, Christian; Levy, Yves; and Loulergue, Jean-Claude, 4,275,302, Cl. 250-330.000.

Love, Robert B., to Advanced Coating Technology, Inc. Vacuum deposition system and method. 4,274,936, Cl. 204-192.00R.

Lovell, Roger. Corrosion protection structure. 4,275,111, Cl. 428-306.000.

Lu, Robert T., to ICI Americas Inc. Polyimides of bismaleimides and activated methylene compounds. 4,275,185, Cl. 528-170.000.

Luaces, Roman Y., to TEC Foam S.A. Process and apparatus for elimination of densified areas in blocks of pliable polyurethane foam. 4,275,024, Cl. 264-51.000.

Lube, Robert R.: *See—*
Gallanis, George P.; Spohr, Albert R.; and Lube, Robert R., 4,274,199, Cl. 30-34.100.

Lucas Industries Limited: *See—*
Hibell, Ernest G., 4,275,389, Cl. 340-388.000.

Lucier, Robert E. System for converting solar heat to electrical energy. 4,275,309, Cl. 290-1.00R.

Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., to Masonite Corporation. Post-press molding of man-made boards to produce contoured furniture parts. 4,275,027, Cl. 264-118.000.

Ludwig, Rolf: *See—*
Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, 4,274,345, Cl. 112-51.000.

Lumbeck, Gerd; and Ferch, Horst, to Deutsche Gold- und Silber Scheideanstalt vormals Roessler. Aqueous dispersion of a hydrophobic silica. 4,274,883, Cl. 106-308.00Q.

Lummer, Richard: *See—*
Bernhardt, Dieter; Dautzenberg, Norbert; Lummer, Richard; and Huber, Georg, 4,274,864, Cl. 75-0.50R.

Lund, Raymond R., to Canron Corporation. Machine for changing rails. 4,274,334, Cl. 104-2.000.

Lundberg, Lars: *See—*
Bernwall, Hans; Lundberg, Lars; and Seipel, Carl, 4,274,606, Cl. 242-117.000.

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Svensson, Claes G. S.; Eriksson, Hans E. K.; and Lundgren, Rolf B., 4,274,786, Cl. 414-218.000.

Lustig, Claude D., to Sperry Corporation. Passive ring laser rate of turn devices. 4,274,742, Cl. 356-350.000.

Lutz, Dieter; Krause, Peter; Terveen, Axel; and Eibl, Volker, to Sachs-Systemtechnik GMbH. Mouthpiece for a redox gas measuring device. 4,274,425, Cl. 128-719.000.

Lutz, Friedrich: *See—*
Freisler, Erhard; Lutz, Friedrich; and Zollinger, Hans, 4,274,449, Cl. 139-449.000.

Lynes, Dennis J.: *See—*
Boll, Harry J.; and Lynes, Dennis J., 4,275,437, Cl. 363-60.000.

Lynham, C. Richard: *See—*
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Lynn, Shirley Y.: *See—*
McCollough, George T.; Esders, Theodore W.; and Lynn, Shirley Y., 4,275,166, Cl. 435-227.000.

Maag Gear-Wheel & Machine Co. Ltd.: *See—*
Sigg, Hans, 4,274,523, Cl. 192-21.000.

Maas, Joachim: *See—*
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.

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Mabuchi, Kenichi; and Komatsu, Koziro, 4,275,394, Cl. 340-694.000.

MacDonald, Russell J., to Ionics Inc. Synthesis of water soluble crosslinkers and their use in the manufacture of anionic polymers. 4,275,227, Cl. 560-222.000.

MacDuff, Richard: *See—*
Kim, Charles W.; Liu, Chia-Seng; and MacDuff, Richard, 4,274,251, Cl. 57-206.000.

MacKenzie, Burton T., Jr.; Prober, Maurice; and Kierszbtyn, Stanley E. Dielectric insulating polyolefin compositions containing nitrile polysiloxane fluid, and conductor products insulated therewith. 4,274,990, Cl. 260-29.15B.

Mackey, E. Scudder; and Pechmann, Karl, to GAF Corporation. Antistatic photographic element. 4,275,147, Cl. 430-527.000.

Mackintosh, Charles. Power operated wheelchair. 4,274,503, Cl. 180-23.000.

Mackowiak, David E.: *See—*
Imai, Tamotsu; Homeier, Edwin H.; and Mackowiak, David E., 4,275,252, Cl. 568-909.000.

Macrae, Alasdair R.: *See—*
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Madison, Bryan L.: *See—*
Corkill, John M.; Madison, Bryan L.; and Burns, Michael E., 4,274,975, Cl. 252-140.000.

Madison-Kipp Corporation: *See—*
Thomson, Ronald E.; and Dombroski, Robert M., 4,274,509, Cl. 184-15.00B.

Maeda, Mamoru: *See—*
Takagi, Mikio; Maeda, Mamoru; and Kamioka, Hajime, 4,275,094, Cl. 427-93.000.

Maeda, Toshiyuki: *See—*
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, 4,274,817, Cl. 418-133.000.

Maeding, Dale; and Pines, Michael Y., to Hughes Aircraft Company. Charge summing filter aperture corrector. 4,275,315, Cl. 307-221.00D.

Magistretti, Maria J.: *See—*
Nardi, Dante; Tajano, Alberto; and Magistretti, Maria J., 4,275,071, Cl. 424-273.00R.

Magnesium Elektron Inc.: *See—*
Sherif, Sherif A.; and Hachtmann, James E., 4,274,972, Cl. 252-8.600.

Mahar, Kevin D., to Republic Steel Corporation; and Hanna Furnace Corporation, The. Air pollution control method and apparatus for the extrusion and quenching of coke. 4,274,923, Cl. 201-39.000.

Mahle GmbH: *See—*
Bassler, Wolfgang, 4,274,925, Cl. 204-26.000.

Mailey, Everett A.: *See—*
Popoff, Ivan C.; Mailey, Everett A.; and Haines, Paul G., 4,275,014, Cl. 260-780.000.

Majer, Mirko: *See—*
Lorenz, Peter R.; Weinmann, Ernst; and Majer, Mirko, 4,275,165, Cl. 435-235.000.

Makosch, Gunter; Schedewie, Franz; Schmackpfeffer, Arno; and Ziller, Jorg, to International Business Machines Corporation. Apparatus for machining material. 4,275,288, Cl. 219-121.0LR.

Malcom, Lawrence L.; and Convery, F. Richard, to University of California, The Regents of the. Prosthetic fixation technique. 4,274,163, Cl. 3-1.910.

Mallatt, Russell C.: *See—*
Grutsch, James F.; Mallatt, Russell C.; and Walk, Joe D., 4,274,968, Cl. 210-666.000.

Malpas, Charles H. Packaging of liquids. 4,274,554, Cl. 222-107.000.

Malstrom, Jerry A.: *See—*
Dale, Eugene M.; and Malstrom, Jerry A., 4,274,838, Cl. 48-111.000.

Manfroy, Willy; and Klimpel, Richard R., to Dow Chemical Company, The. Ore grinding process including a grinding aid of an anionic polyelectrolyte. 4,274,599, Cl. 241-16.000.

Manhattan Protection, Inc.: *See—*
Kondracki, Witold, 4,274,228, Cl. 49-56.000.

Mannesmann Aktiengesellschaft: *See—*
Bardenheuer, Friedrich; Konig, Horst; Junker, Alois; and Rath, Gero, 4,274,867, Cl. 75-13.000.
Bernhardt, Dieter; Dautzenberg, Norbert; Lummer, Richard; and Huber, Georg, 4,274,864, Cl. 75-0.50R.

Mansell, Peter B.: *See—*
Pugh, William A. G.; Edmunds, Robert I.; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., 4,274,224, Cl. 46-161.000.

Manty, Brian A.: *See—*
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Maras, Anthony G.: *See—*
Perry, Richard R.; Maras, Anthony G.; and Schols, Anton G., 4,275,036, Cl. 422-286.000.

Mares, Pedro. Injection molding articles of more than one resin component. 4,275,030, Cl. 264-250.000.
Margerie, Gilbert C. A. Self-supporting building elements and method of manufacture. 4,275,110, Cl. 428-305.000.
Marhold, Albrecht: *See—*
Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, . Erich; and Marhold, Albrecht, 4,275,250, Cl. 568-812.000.
Mark, Victor, to General Electric Company. Process for obtaining halogenated diphenols. 4,275,245, Cl. 568-726.000.
Marlowe, William H.: *See—*
Ban, Thomas E.; and Marlowe, William H., 4,274,836, Cl. 44-6.000.
Marom, Emanuel, to Hughes Aircraft Company. Apparatus for determining the direction of arrival of applied energy. 4,275,399, Cl. 343-113.00R.
Marquez, Victor E.; Liu, Paul S.; and Driscoll, John S., to United States of America, Health, Education and Welfare. Seven-membered ring compounds as inhibitors of cytidine deaminase. 4,275,057, Cl. 424-180.000.
Marrello, Vincent; Onton, Aare; and Ruhle, Wolfgang, to International Business Machines Corporation. Method of improving the memory effect and brightness of an alternating current excited thin film electroluminscent device. 4,275,336, Cl. 315-246.000.
Mars, James E.; Poole, Donald R.; Schmidt, Eckart W.; and Wang, Charles, to Rocket Research Company. High temperature two component explosive. 4,274,893, Cl. 149-2.000.
Marsh, Richard O., Jr. Wedge-tight pipe coupling. 4,274,665, Cl. 285-177.000.
Marshall, Keith: *See—*
Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, 4,274,830, Cl. 8-495.000.
Martech International, Inc.: *See—*
Tisdale, Benjamin C., III; and Nicholson, William B., 4,274,799, Cl. 414-747.000.
Martin, Jerry R.: *See—*
Tananier, John S.; and Martin, Jerry R., 4,275,193, Cl. 536-17.00R.
Martin, John C.; and McKee, William C., to Diesel Equipment Limited. Mechanism for loading and unloading pallets from vans. 4,274,789, Cl. 414-501.000.
Martin Marietta Corporation: *See—*
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Maruho Co., Ltd.: *See—*
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Maruo, Masatsuyo: *See—*
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Marvin Glass & Associates: *See—*
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Kulesza, Ralph J.; and Breslow, Jeffrey D., 4,274,630, Cl. 273-1.00R.
Morrison, Howard J.; and Disko, Harry, 4,274,223, Cl. 46-95.000.
Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See—*
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Maschinenfabrik Meyer AG: *See—*
Hartinger, Edmund; Julke, Elias; and Sandmann, Harald, 4,274,971, Cl. 210-778.000.
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Mase, Akira: *See—*
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Masonite Corporation: *See—*
Luck, Allan J.; Clarke, John T.; and Hoffman, Michael R., 4,275,027, Cl. 264-118.000.
Massachusetts Institute of Technology: *See—*
Howland, Bradford, 4,274,737, Cl. 356-124.500.
Massey, Dalton L., to United States of America, Air Force. Multiple diameter wire bundle support. 4,274,612, Cl. 248-74.0PB.
Masurekar, Prakash S., to Eastman Kodak Company. Process and nutrient medium for growing microorganism. 4,275,164, Cl. 435-227.000.
Mathieu, Robert J.: *See—*
Lawson, Alexander E.; Mathieu, Robert J.; and Miller, James M., 4,275,304, Cl. 250-373.000.
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, to Bridgestone Tire Co., Ltd.; and Mitaka Instrument Co., Ltd. Alarm device for informing reduction of pneumatic pressure of vehicle tires. 4,275,377, Cl. 340-58.000.
Matsuki, Yutaka: *See—*
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Matsumoto, Hiroshi: *See—*
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Matsumoto, Junichiro: *See—*
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Matsuno, Osamu: *See—*
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Matsuo, Hirohumi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Bright photographic lens system with rear stop diaphragm. 4,274,711, Cl. 350-464.000.
Matsushita Electric Industrial Co., Ltd.: *See—*
Mori, Kazuhiro; Misawa, Yoshihiko; Mayahara, Kiyoshi; and Araki, Shigeru, 4,274,529, Cl. 198-339.000.
Tsubusaki, Shigeru; Sonoda, Nobuo; and Shimotsuma, Wataru, 4,275,103, Cl. 428-148.000.
Tsuruha, Masayuki, 4,274,800, Cl. 414-750.000.
Watanabe, Takeo; Kubota, Tadashi; and Yamagami, Akio, 4,275,425, Cl. 360-92.000.
Matsushita Electronics Corporation: *See—*
Ashizaki, Shigeya; Muranishi, Hideo; and Sugahara, Koichi, 4,275,332, Cl. 313-414.000.
Matsuura, Kazuo: *See—*
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Matsuyama, Norihide: *See—*
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Mattson, George B.: *See—*
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Matzner, Markus: *See—*
Berger, Mitchell H.; Matzner, Markus; and Gardner, Hugh C., 4,275,188, Cl. 528-193.000.
Maus, L. Donald; and Binder, George G., Jr., to Exxon Production Research Company. Apparatus and method for measuring fluid gel strength. 4,274,283, Cl. 73-153.000.
Maust, Gale E. Hydrostatic-drive tractor. 4,274,505, Cl. 180-215.000.
Maxey, Alexander R., to Arvin Industries, Inc. Scanning type magnetic recorder and cassette. 4,275,424, Cl. 360-85.000.
May, Russell R., Jr., to PPG Industries, Inc. Refractory metal diboride articles by cold pressing and sintering. 4,275,025, Cl. 264-63.000.
Mayahara, Kiyoshi: *See—*
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Mayer, Peter: *See—*
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Mayer, Walter P.: *See—*
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McAllister, Lawrence E.; and Dietrich, Herbert, to Fiber Materials, Inc. Method of making a fire retardant polymer resin. 4,275,170, Cl. 521-103.000.
McAllister, LeRoy H., Jr. Formulation containing trinidad asphalt for more ductile asphaltic concrete pavements. 4,274,882, Cl. 106-280.000.
McBride, George H. Slingshot. 4,274,387, Cl. 124-20.00A.
McCarthy, Daniel: *See—*
DiGregorio, David; McCarthy, Daniel; Mounteer, Keith J.; and Thompson, Charles D., 4,275,020, Cl. 261-111.000.
McCarthy, James R. Froth separation apparatus. 4,274,949, Cl. 209-17.000.
McClaflin, Gifford G., to Conoco, Inc. Removal of metal alkaryl sulfonates from hydrocarbons. 4,274,943, Cl. 208-181.000.
McCollough, George T.; Esders, Theodore W.; and Lynn, Shirley Y., to Eastman Kodak Company. Process for the recovery of intracellular enzyme. 4,275,166, Cl. 435-227.000.
McComas, Charles C.; Morris, James W.; and Sokol, Larry S., to United Technologies Corporation. Process for carbon bearing MCrAlY coating. 4,275,090, Cl. 427-34.000.
McComas, Charles C.; Morris, James W.; and Sokol, Larry S., to United Technologies Corporation. Carbon bearing MCrAlY coating. 4,275,124, Cl. 428-564.000.
McGarry, Dennis L., to Owens-Corning Fiberglas Corporation. Manufacturing glass with a bushing having a directionally aligned dispersion strengthened tip plate. 4,274,852, Cl. 65-2.000.
McGee, Joseph R. Gas chromatograph sample conditioner. 4,274,480, Cl. 165-111.000.
McGraner, James E., to Goodyear Tire & Rubber Company, The. Package and method of packaging for flat elongated material. 4,274,538, Cl. 206-394.000.
McKee, William C.: *See—*
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McKinney, Ray, Jr.: *See—*
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McMickle, Robert L.: *See—*
Oberg, Gary R.; and McMickle, Robert L., 4,274,201, Cl. 30-276.000.
McNeely, Wray G.; Jack, Stanton E.; and O'Dette, John H., to Alcan Research and Development Limited. Aluminum powder blasting slurry sensitizer. 4,274,894, Cl. 149-7.000.
McPhail, Shelvey C. Triple-sash double-hung storm window. 4,274,468, Cl. 160-90.000.
McVicker, Gary B.; and Eggert, Joseph J., to Exxon Research & Engineering Co. Preparation of high surface area metal fluorides and metal oxyfluorides, especially aluminum fluoride extrudates. 4,275,046, Cl. 423-258.000.

Mead Corporation, The: *See—*
Burnett, James E.; and Robertson, John A., 4,275,401, Cl. 346-75.000.
Mechanical Technology Incorporated: *See—*
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Med Pump, Inc.: *See—*
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Medi-Coll, Inc.: *See—*
Chvapil, Milos, 4,274,410, Cl. 128-270.000.
Medico Electronic, Inc.: *See—*
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Meeks, Leighton A.: *See—*
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Remy, David C., 4,275,070, Cl. 424-267.000.
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Charles, James A., 4,274,878, Cl. 75-256.000.
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Bloom, Bernard, 4,274,160, Cl. 2-195.000.
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Kluender, Harold C.; Woessner, Warren D.; and Biddlecom, William G., 4,275,224, Cl. 560-116.000.
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French, Tom; Mitchell, William E.; Kenney, Michael J.; and Holmes, Thomas, 4,274,466, Cl. 152-381.300.
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Yukimoto, Yoshinori, 4,275,408, Cl. 357-38.000.
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Obara, Kunio; Kohno, Tohru; and Sawaguchi, Hiroshi, 4,274,874, Cl. 75-231.000.
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Kamada, Kazumasa; Sasaki, Isao; and Kushi, Kenji, 4,274,933, Cl. 204-159.240.
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Yamamoto, Satoshi, 4,274,461, Cl. 152-167.000.
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Yamaguchi, Akihiro; Yamaguchi, Keizaburo; Murakami, Hisamichi; and Kobayashi, Tadashi, 4,275,240, Cl. 568-37.000.
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Kato, Tetuo; and Miura, Ieaki, 4,274,517, Cl. 188-315.000.
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Svensson, Claes G. S.; Eriksson, Hans E. K.; and Lundgren, Rolf B., 4,274,786, Cl. 414-218.000.

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Sherman, Anthony M., 4,275,179, Cl. 525-98.000.
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Olligschlager, Rainer C.; and Turner, Nelson R., 4,274,646, Cl. 280-779.000.

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Tam, Hak W.; and Modes, Vernon E., 4,274,419, Cl. 128-639.000.

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Cottone, Andrew J.; and Saperstein, Zalman P., 4,274,483, Cl. 165-153.000.

Mogi, Takao: *See*—
Suematsu, Masayuki; Mogi, Takao; and Taki, Akira, 4,275,354, Cl. 328-58.000.

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Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., 4,274,530, Cl. 198-347.000.

Molitor, Robert P., to Questor Corporation. Golf ball having cellular cover. 4,274,637, Cl. 273-235.00R.

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Kaul, Gunther; Grunert, Wilfried; and Aufenvenne, Wilhelm, 4,274,780, Cl. 414-64.000.

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Carden, Joseph A., Jr.; and McKinney, Ray, Jr., 4,274,965, Cl. 210-500.200.
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Tokas, Edward F., 4,274,984, Cl. 260-4.0AR.

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Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.

Moolenaar, Jules, to Phos Incorporated. Go/no go pipe deflection gauge. 4,274,206, Cl. 33-178.00B.

Moon, Gary D. Towing and hoisting apparatus. 4,274,791, Cl. 414-563.000.

Moon, Richard E.: *See*—
Joy, Michael; Moon, Richard E.; Quashem, Abul; Lo, Alex; and Dayal, Vijay S., 4,274,162, Cl. 3-1.300.

Moore, Edwin G., to Abbott Laboratories. Standards for determining glycosylated hemoglobin. 4,274,978, Cl. 252-408.000.

Moore, Loren D.: *See*—
Siryj, Bohdan W.; and Moore, Loren D., 4,274,294, Cl. 74-89.150.

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Carter, David C. M.; Leigh, George C.; Applegate, Barry G.; Green, Robert J.; and Morgan, Martin D., 4,274,530, Cl. 198-347.000.

Mori, Kazuhiro; Misawa, Yoshihiko; Mayahara, Kiyoshi; and Araki, Shigeru, to Matsushita Electric Industrial Co., Ltd. Feed-retrieve device for sheet boards. 4,274,529, Cl. 198-339.000.

Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, to Nippondenso Co., Ltd. Voltage control apparatus for electric generators for vehicles. 4,275,344, Cl. 322-28.000.

Morinaga Milk Industry Co., Ltd.: *See*—
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.

Morino, Toshiharu; and Okamura, Masayuki, to Aisan Industry Co., Ltd. Variable venturi type carburetor. 4,275,016, Cl. 261-44.00C.

Morioka, Hajimu: *See*—
Tosaka, Osamu; Ono, Eiji; Ishihara, Masaru; Morioka, Hajimu; and Takinami, Koichi, 4,275,157, Cl. 435-115.000.

Moriya, Michio, to Sumitomo Electric Industries, Ltd. Arrangement for mounting a wear detector for brake pad. 4,274,511, Cl. 188-1.00A.

Moriya, Yoshimi: *See*—
Suzuki, Shintaro; Iizuka, Sadao; Moriya, Yoshimi; and Omote, Yuichi, 4,274,865, Cl. 75-0.5AA.

Moroto, Shuzo; and Kobayashi, Kouji, to Aisin-Warner K.K. Lock-up clutch for a hydraulic unit. 4,274,519, Cl. 192-3.280.

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McComas, Charles C.; Morris, James W.; and Sokol, Larry S., 4,275,124, Cl. 428-564.000.

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Yang, Wen C.; Spangler, Charles E.; Morris, Joe P.; and Keairns, Dale L., 4,275,353, Cl. 324-454.000.

Morrison, Howard J.; and Disko, Harry, to Marvin Glass & Associates. Water toy. 4,274,223, Cl. 46-95.000.

Morton, Douglas R., Jr., to Upjohn Company, The. 9,11-Dideoxy-10-oxa-TXB intermediates. 4,275,197, Cl. 542-413.000.

Moss, Brian F., to Ciba-Geigy AG. Masking frame. 4,274,734, Cl. 355-74.000.

Motz, Herbert: *See*—
Schoenafinger, Eduard; Motz, Herbert; Ohlinger, Manfred; Deigner, Paul; and Grau, Werner, 4,275,114, Cl. 428-328.000.

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DiGregorio, David; McCarthy, Daniel; Mounteer, Keith J.; and Thompson, Charles D., 4,275,020, Cl. 261-111.000.

Mower, Lawrence N.: *See*—
Hollingsworth, Frank H.; Jenkins, George R.; Kirkpatrick, John W.; and Mower, Lawrence N., 4,274,487, Cl. 166-261.000.

Mt. Sinai School of Medicine of the City University of New York: *See*—
Rosenfield, Richard E.; and Kochwa, Shaul, 4,275,053, Cl. 424-12.000.

MTS Systems Corporation: *See*—
Gram, Martin M., 4,274,290, Cl. 73-837.000.

Mudge, Philip H., to Arrowhead Enterprises, Inc. Passive infrared intrusion detection system. 4,275,303, Cl. 250-342.000.

Mueller, Edward E.; and Harrod, Michael K., to Whirl-Air-Flow Corporation. Bag opening and emptying apparatus. 4,274,787, Cl. 414-412.000.

Mueller, Martin S.: *See*—
Carter, William D.; and Mueller, Martin S., 4,274,731, Cl. 355-30.000.

Mueller, Walter B.; Schirmer, Henry G.; Schoenberg, Julian H.; and Weinberg, Alan S., to W. R. Grace & Co. Multi-layer polyester/-polyolefin shrink film. 4,274,900, Cl. 156-229.000.

Mukainakano, Siniti: *See*—
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,274,379, Cl. 123-425.000.

Mullard Limited: *See*—
Shannon, John M., 4,275,405, Cl. 357-23.000.

Muller, Alain: *See*—
Huber, Andre; Muller, Alain; and Soffer, Jacques, 4,275,341, Cl. 318-376.000.

Muller, Bernt; and Theden, Ulrich, to Robert Bosch GmbH. Monolithic semiconductor pressure sensor, and method of its manufacture. 4,275,406, Cl. 357-26.000.

Muller, Hans-Ueli: *See*—
Festag, Werner; Muller, Hans-Ueli; and Stanek, Oldrich, 4,274,541, Cl. 206-613.000.

Muller, Paul A.; and Muster, Hans. Material web for the manufacture of filter rods for tobacco products and apparatus and process for producing such web. 4,274,428, Cl. 131-331.000.

Muller, Walter: *See*—
Walkenhorst, Wilfried; Gauer, Richard; Wild, Gerhard; and Muller, Walter, 4,275,177, Cl. 525-53.000.

Mullins, Wayne L. Mold box apparatus. 4,274,824, Cl. 425-253.000.

Multakh, Leonid, to Acker Drill Company, Inc.; and Acker Drill Company, Inc. Impregnated diamond drill bit construction. 4,274,769, Cl. 408-145.000.

Mumford, Eustace H., to Owens-Illinois, Inc. Plunger operating mechanism for a glass forming machine. 4,274,859, Cl. 65-314.000.

Mummert, Thomas A., to Jobst Institute, Inc. Therapeutic appliance for flexing joints. 4,274,399, Cl. 128-26.000.

Munari, Giovanni. Process for manufacturing heat-sealed proofed paper or card on a Fourdrinier machine. 4,274,915, Cl. 162-129.000.

Munekata, Seiji: *See*—
Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, 4,275,226, Cl. 560-183.000.

Murakami, Hisamichi: *See*—
Yamaguchi, Akihiro; Yamaguchi, Keizaburo; Murakami, Hisamichi; and Kobayashi, Tadashi, 4,275,240, Cl. 568-37.000.

Muranishi, Hideo: *See*—
Ashizaki, Shigeya; Muranishi, Hideo; and Sugahara, Koichi, 4,275,332, Cl. 313-414.000.

Murasawa, Sadao; and Maruo, Masatsuyo, to Ishihara Sangyo Kaisha, Ltd. Liquid developer for color electrophotography. 4,275,136, Cl. 430-117.000.

Murata Manufacturing Co., Ltd.: *See*—
Nakayama, Fumio; and Funahara, Toshikazu, 4,275,357, Cl. 330-107.000.

Murdock, Keith C., to American Cyanamid Company. 1-(Aminoalkylamino)-5,8-dihydroxy-4-substituted-anthraquinones. 4,275,009, Cl. 260-380.000.

Murdock, Keith C., to American Cyanamid Company. 5,8-Dihydroxy-1,4-bis(guanidinylamino)anthraquinones. 4,275,010, Cl. 260-380.000.

Murphy, Clarence R.; Thackabeery, S. Paul; Boehme, Robert E., deceased; and by Boehme, Helen J., sole beneficiary, to Gulf Oil Corporation. Paper products. 4,274,917, Cl. 162-146.000.

Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., to International Flavors & Fragrances Inc. Flavoring with 8-p-cymenyl-ethyl ether. 4,275,080, Cl. 426-3.000.

Muster, Hans: *See*—
Muller, Paul A.; and Muster, Hans, 4,274,428, Cl. 131-331.000.

Musto, Richard L., to Combustion Engineering, Inc. Imp mill having adjustment means. 4,274,601, Cl. 241-186.200.

Muto, Katsuya: *See*—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Myers, Delbert L. Controlled air intake apparatus for furnaces and the like. 4,274,392, Cl. 126-112.000.

Myers, Harry K., Jr.: *See*—
Schneider, Abraham; Myers, Harry K., Jr.; and Suld, George, 4,275,254, Cl. 585-14.000.

Mylonakis, Stamatios G.; and Tortorello, Anthony J., to DeSoto, Inc. Polymers having improved water resistance and monomers for same. 4,275,229, Cl. 562-459.000.

N & H Manufacturing, Inc.: *See*—
Hargett, Jerry D.; and Nash, Alfred C., 4,274,690, Cl. 339-10.000.

Nabors, James B.: *See*—
Petree, Harris E.; and Nabors, James B., 4,275,238, Cl. 564-446.000.

Nachtigal, Julius H.; and Zajac, David C., to Conair Corporation. Hair conditioner having a stabilized, pearlescent effect. 4,275,055, Cl. 424-70.000.

Nadkarni, Anil V., to SCM Corporation. Dispersion strengthened metals. 4,274,873, Cl. 75-211.000.

Nagae, Hiromitsu: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.

Nagao, Tsukasa. Optical wave circulators. 4,274,710, Cl. 350-375.000.

Nagasawa, Sigeo: *See*—
Shirai, Akira; and Nagasawa, Sigeo, 4,274,258, Cl. 60-547.00R.

Nagel, Guenter: *See*—
Bannert, Johann; and Nagel, Guenter, 4,274,701, Cl. 339-217.00S.

Nakagawa, Yasutsugu: *See*—
Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, 4,274,726, Cl. 354-173.000.

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Kurono, Masayasu; Nakai, Hisao; and Sakuyama, Shigeru, 4,275,075, Cl. 424-305.000.

Nakaji, Tarushige: *See*—
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Nakajima, Yukio, to Olympus Optical Company Ltd. Indicator circuit for auto-strobo unit. 4,274,724, Cl. 354-33.000.

Nakamura, Iwao. Die changing apparatus for press. 4,274,332, Cl. 100-299.000.

Nakamura, Kenji; Ishikawa, Masao; and Ajimine, Akio, to Nissan Motor Company, Limited. Illuminated indicator gauge. 4,274,358, Cl. 116-288.000.

Nakane, Mototaka, to Aisin Seiki Kabushiki Kaisha; and Toyota Jidosha Kogyo Kabushiki Kaisha. Rotational torque transmission mechanism. 4,274,524, Cl. 192-48.300.

Nakano, Motoo: *See*—
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, 4,275,093, Cl. 427-89.000.

Nakano, Tasuku; and Hamamoto, Tadanao, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Traffic indicator. 4,275,379, Cl. 340-81.00R.

Nakashio, Yoshimi: *See*—
Kikuiri, Makoto; Nakashio, Yoshimi; Arai, Yasue; and Hidaka, Toshio, 4,274,913, Cl. 162-65.000.

Nakayama, Fumio; and Funahara, Toshikazu, to Murata Manufacturing Co., Ltd. Active filter. 4,275,357, Cl. 330-107.000.

Nakayama, Hiroyuki; Kato, Akira; and Tsuchiya, Masao, to Kansai Paint Co., Ltd. Method for producing a plate or sheet useful in planographic printing. 4,275,092, Cl. 427-54.100.

Napiorkowski, John, to TII Corporation. Thermal switch short circuiting device for arrester systems. 4,275,432, Cl. 361-124.000.

Nardi, Deane; Tajana, Alberto; and Magistretti, Maria J., to Recordati S.A. Imidazole derivatives. 4,275,071, Cl. 424-273.00R.

Narisawa, Shigeyuki; Yanase, Hiroshi; and Kanno, Fukuo, to Asahi Glass Company, Ltd. Moldable polyphenylenesulfide. 4,274,993, Cl. 260-37.00R.

Naruse, Tunehide, to Victor Company of Japan, Limited. Magnetic recording composition and article coated therewith. 4,275,115, Cl. 428-329.000.

Narutomi, Yasuhisa: *See*—
Kita, Nobuyuki; and Narutomi, Yasuhisa, 4,275,138, Cl. 430-157.000.

Nash, Alfred C.: *See*—
Hargett, Jerry D.; and Nash, Alfred C., 4,274,690, Cl. 339-10.000.

Nash, Martin E.: *See*—
Huxley, Edward E.; and Nash, Martin E., 4,275,218, Cl. 549-87.000.

National Institute for Metallurgy: *See*—
Verbaan, Bernard, 4,274,931, Cl. 204-119.000.

National Patent Development Corp.: *See*—
Kita, Nobuyuki; and Narutomi, Yasuhisa, 4,275,138, Cl. 430-157.000.

National Research Development Corporation: *See*—
Aish, Roslyn R., 4,275,449, Cl. 364-512.000.
Creighton, Andrew M., 4,275,063, Cl. 424-250.000.
Delpy, David T., 4,274,417, Cl. 128-632.000.
Ross, Walter C. J., 4,275,000, Cl. 260-112.00R.

National Research Institute for Metals: *See*—
Tachikawa, Kyoji; Tanaka, Yoshiaki; Yoshida, Yuji; and Asano, Toshihisa, 4,274,889, Cl. 148-133.000.

National Semiconductor Corporation: *See*—
Wilcox, Milton E., 4,275,419, Cl. 358-167.000.

Naulapaa, Erkki U.; and Halko, Pekka. Method and apparatus for optical measurement of the dimension of an object. 4,274,743, Cl. 356-387.000.

Naumann, Klaus; Behrenz, Wolfgang; Hammann, Ingeborg; Klauke, Erich; and Marhold, Albrecht, to Bayer Aktiengesellschaft. Fluorobenzyl alcohols. 4,275,250, Cl. 568-812.000.

Nautamix B. V.: *See*—
Snel, Martinus A., 4,274,988, Cl. 260-23.0XA.

NCR Corporation: *See*—
Gardner, Harry N.; and Gravelle, Wayne R., 4,275,380, Cl. 340-146.30Z.

Nei, Hiromichi; Ohtani, Ryoichi; Ohshima, Iwao; and Horikawa, Yuji, to Tokyo Shibaura Denki Kabushiki Kaisha. Plugging indicator. 4,274,280, Cl. 73-61.0LM.

Neiss, Melvin A., to Du Pont de Nemours, E. I., and Company. Process for preparation of high opacity photosensitive images. 4,275,140, Cl. 430-254.000.

Neitz, Alfred; and D'Alfonso, Nunzio, to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Apparatus for preheating the intake air for air-compressing internal combustion engines. 4,274,371, Cl. 123-179.00H.

Nelle, Horst: *See*—
Schnurbus, Heinrich; Nelle, Horst; and Wolf, Wilhelm, 4,274,888, Cl. 148-108.000.

Nemoto, Ichiro; and Onda, Eiichi, to Seiko Koki Kabushiki Kaisha. Fail-safe system for the electronic shutter of a camera. 4,274,727, Cl. 354-234.000.

Neumann, Otto W.; and Henkel, James A., to AMSTED Industries Incorporated. Railway car truck frictional snubbing arrangement. 4,274,340, Cl. 105-197.0DB.

Newkirk, William E.: *See*—
Cioffi, Paul L.; Downs, William; Kish, William C.; and Newkirk, William E., 4,274,587, Cl. 239-132.300.

Newmont Exploration Limited: *See*—
Yannopoulos, John C., 4,274,870, Cl. 75-73.000.

NGK Insulators, Ltd.: *See*—
Minoura, Michinori; and Tsuno, Nobuo, 4,274,471, Cl. 164-87.000.
Yamamoto, Noboru; and Ohmura, Akira, 4,275,259, Cl. 136-209.000.

Nichols, Tisha: *See*—
Hart, Patricia E.; and Nichols, Tisha, 4,275,088, Cl. 426-554.000.

Nicholson, William B.: *See*—
Tisdale, Benjamin C., III; and Nicholson, William B., 4,274,799, Cl. 414-747.000.

Nider, William K. Apparatus for carbonizing an agricultural product. 4,274,342, Cl. 110-246.000.

Nider, William K. Process for carbonizing an agricultural product. 4,274,344, Cl. 110-346.000.

Nihon Radiator Co., Ltd.: *See*—
Sonoda, Noriaki, 4,274,482, Cl. 165-153.000.

Nihon Tensen Gas Kogyo Co., Ltd.: *See*—
Kato, Masatada; Mineshima, Nobuaki; Kato, Tatsuo; Kawada, Yoshiharu; Hanada, Hironori; and Inomata, Teiichi, 4,275,194, Cl. 536-20.000.

Nikolic, Zivomir. Radiator for low-pressure steam heating systems. 4,274,477, Cl. 165-101.000.

Nilsen, Christopher. Tree shear blade structure. 4,274,457, Cl. 144-34.00E.

Nimrod, Beatrice. Method for guide-wire placement and novel syringe therefor. 4,274,408, Cl. 128-214.400.

Nimura, Takayasu: *See*—
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.

Nippon Kogaku K.K.: *See*—
Fukuhara, Toru; and Sangyou, Takashi, 4,274,721, Cl. 354-31.000.

Nippon Kokan Kabushiki Kaisha: *See*—
Guaji, Naoki; and Ito, Saburo, 4,275,098, Cl. 427-345.000.

Nippon Paint Co., Ltd.: *See—*
Sakurai, Kiyomi, 4,275,143, Cl. 430-307.000.
Nippon Soken, Inc.: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Siniti; Goto, Kenji; and Sawada, Daisaku, 4,274,379, Cl. 123-425.000.
Watanabe, Toshio; and Hattori, Tadashi, 4,275,328, Cl. 313-123.000.
Nippondenso Co., Ltd.: *See—*
Mori, Kazumasa; Asahi, Taro; Banzai, Keiichiro; Iwaki, Katsutaro; Muto, Katsuya; Mase, Akira; Nimura, Takayasu; Itoh, Katsumi; and Akita, Yoshio, 4,275,344, Cl. 322-28.000.
Okumura, Shunji, 4,274,265, Cl. 62-158.000.
Nishida, Masayuki: *See—*
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.
Nishida, Reijiro: *See—*
Tominaga, Akira; and Nishida, Reijiro, 4,274,989, Cl. 260-29.2TN.
Nishikawa, Tadashi. Wiping device. 4,274,175, Cl. 15-250.240.
Nishikawa, Yoshiyasu, to Kawasaki Jukogyo Kabushiki Kaisha. Diagonal-flow fan wheel with blades of developable surface shape. 4,274,810, Cl. 416-186.00R.
Nishimura, Hiroyuki: *See—*
Osawa, Keiichi; Ishii, Kiyoshi; and Nishimura, Hiroyuki, 4,274,384, Cl. 123-568.000.
Nishimura, Takayuki, to G. N. Tool Inc. Boring reamer with end mill cutters. 4,274,771, Cl. 408-230.000.
Nishino, Hiroshi: *See—*
Matsuda, Akira; Goshima, Norio; Yasuda, Shigeo; Iwasaki, Motoaki; and Nishino, Hiroshi, 4,275,377, Cl. 340-58.000.
Nissan Motor Company, Limited: *See—*
Abo, Toshimi, 4,274,381, Cl. 123-479.000.
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,307, Cl. 74-869.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,308, Cl. 74-869.000.
Nakamura, Kenji; Ishikawa, Masao; and Ajimine, Akio, 4,274,358, Cl. 116-288.000.
Sone, Masazumi; Suzuki, Kazuhiko; and Fukumori, Yukitsugu, 4,274,843, Cl. 55-139.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,274,373, Cl. 123-440.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, 4,274,382, Cl. 123-481.000.
Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, 4,274,681, Cl. 303-6.00C.
Yuzawa, Haruo; and Yano, Tsuneomi, 4,274,385, Cl. 123-571.000.
Nissin Kogyo Kabushiki Kaisha: *See—*
Yamazaki, Yuzo, 4,275,280, Cl. 200-61.850.
Niwa, Yukichi: *See—*
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, 4,274,735, Cl. 356-1.000.
NL Industries, Inc.: *See—*
Augustyn, Edward J., 4,274,987, Cl. 260-23.00H.
Davis, Brian R., 4,275,040, Cl. 423-82.000.
Waldman, Joseph L.; Klein, Edgar; Kulling, Achim; and Rahm, Joseph A., 4,275,041, Cl. 423-82.000.
Noack, Christian: *See—*
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.
Noble, Allen T. Land irrigation system and method. 4,274,584, Cl. 239-1.000.
Nolting, Karl-Heinz: *See—*
Bernat, Georg; Nolting, Karl-Heinz; and John, Claus, 4,274,442, Cl. 137-625.170.
Nordtvedt, Svein. Mesh distribution wheels. 4,274,184, Cl. 29-121.100.
Noren, Tore H. Motor driven endless tray accumulator for dishwashing. 4,274,886, Cl. 134-25.200.
Norimatsu, Michio, to Kabushiki Kaishi Yamazaki Tekkosho. Tool shifter. 4,274,192, Cl. 29-568.000.
Noritake, Tsuguo: *See—*
Takagi, Masatomo; Noritake, Tsuguo; and Ogaki, Mitsuo, 4,274,547, Cl. 220-4.00R.
Norman, Robert M. Self-propelled underwater trenching apparatus and method. 4,274,760, Cl. 405-163.000.
Norris, George W., to Westinghouse Electric Corp. Tube plug weld inspection apparatus. 4,275,414, Cl. 358-100.000.
North, John W. Process and apparatus for producing cellulated vitreous refractory material in prescribed shapes and products therefrom. 4,274,825, Cl. 432-13.000.
Northern Telecom Limited: *See—*
Cielo, Paolo; and Westwood, William D., 4,275,290, Cl. 219-216.000.
Pacey, Grant K.; and Hvezda, Jaroslav M., 4,274,707, Cl. 350-96.200.
Noto, Keiji: *See—*
Mifune, Teruo; Noto, Keiji; Otsu, Yasuo; and Hagiwara, Kotaro, 4,274,185, Cl. 29-123.000.
Novak, Donald S., to Diamond Shamrock Corporation. Chemical removal of silicon from waste brine stream for chlor-alkali cell. 4,274,929, Cl. 704-98.000.
Numata, Saburo, to Fuji Photo Optical Co., Ltd. Automatic flash light control device for camera. 4,274,722, Cl. 354-33.000.
N.V. Optische Industrie "De Oude Delft": *See—*
Houtkamp, Johannes J., 4,275,326, Cl. 313-102.000.
Obara, Kunio; Kohno, Tohru; and Sawaguchi, Hiroshi, to Mitsubishi Kinzoku Kabushiki Kaisha. Copper-tin type sintered alloy for oil-impregnated bearing excellent in bearing performance as bearing used in low-load and high-velocity region. 4,274,874, Cl. 75-231.000.
Obbola Linerboard Aktiebolag: *See—*
Kronekl, Erik G.; and Andersson, Per-Erik, 4,274,911, Cl. 162-15.000.
Oberg, Carl L.: *See—*
Friedman, Joseph; Oberg, Carl L.; and Russell, Larry H., 4,275,034, Cl. 422-194.000.
Oberg, Gary R.; and McMickle, Robert L., to Berkley and Company, Inc. Rotary cutting assembly with filament feed. 4,274,201, Cl. 30-276.000.
Oberhansli, Jurg: *See—*
Menningen, Roland; Ehrsam, Kurt; Oberhansli, Jurg; and Grunig, Kurt, 4,275,295, Cl. 250-227.000.
Occidental Research Corporation: *See—*
Compton, Leslie E., 4,274,934, Cl. 204-162.00R.
Sikdar, Subhas K.; Adam, Donald E.; and Winterbottom, Howard, 4,275,038, Cl. 423-321.00S.
Stewart, Robert D., 4,274,956, Cl. 210-638.000.
Oce-van der Grinten N.V.: *See—*
Verhoof, Adrianus J. N. A., 4,275,137, Cl. 430-149.000.
O'Dette, John H.: *See—*
McNeely, Wray G.; Jack, Stanton E.; and O'Dette, John H., 4,274,894, Cl. 149-7.000.
Ogaki, Mitsuo: *See—*
Takagi, Masatomo; Noritake, Tsuguo; and Ogaki, Mitsuo, 4,274,547, Cl. 220-4.00R.
Ogasa, Katsuhiro: *See—*
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.
Ogawa, Kunio; and Iio, Hiromitsu, to Sumitomo Metal Mining Co. Ltd. Method and apparatus for charging anode scraps to a converter furnace. 4,274,785, Cl. 414-173.000.
Ogawa, Masahiko: *See—*
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, 4,274,735, Cl. 356-1.000.
Ogawa, Masaki; Araki, Tamio; and Yamamoto, Shinji, to Bridgestone Tire Co., Ltd.; and Ube Industries, Ltd. Pneumatic tire having an improved resistance against heat build-up employing syndiotactic-1,2-polybutadiene fibers in tread base rubber. 4,274,462, Cl. 152-209.00R.
Ogino, Yasuo: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, 4,275,306, Cl. 250-548.000.
Ohlinger, Manfred: *See—*
Schoenafinger, Eduard; Motz, Herbert; Ohlinger, Manfred; Deigner, Paul; and Grau, Werner, 4,275,114, Cl. 428-328.000.
Ohmori, Hisashi, to Kawasaki Steel Corporation. Device for separating slag from molten bath. 4,274,622, Cl. 266-227.000.
Ohmura, Akira: *See—*
Yamamoto, Noboru; and Ohmura, Akira, 4,275,259, Cl. 136-209.000.
Ohshima, Iwao: *See—*
Nei, Hiromichi; Ohtani, Ryoichi; Ohshima, Iwao; and Horikawa, Yuji, 4,274,280, Cl. 73-61.0LM.
Ohshima, Masauki, to Sanyo Electric Co., Ltd.; and Tottori Sanyo Electric Co., Ltd. Display device. 4,274,217, Cl. 40-451.000.
Ohtani, Ryoichi: *See—*
Nei, Hiromichi; Ohtani, Ryoichi; Ohshima, Iwao; and Horikawa, Yuji, 4,274,280, Cl. 73-61.0LM.
Ohtsuka, Kunio: *See—*
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,307, Cl. 74-869.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,308, Cl. 74-869.000.
Ohtsuru, Masashi: *See—*
Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, 4,275,078, Cl. 424-324.000.
Ohyabu, Nobuyoshi: *See—*
Jensen, Torkil H.; Ohyabu, Nobuyoshi; and Hsieh, Chung-Lih, 4,274,919, Cl. 176-3.000.
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, to Kuraray Co., Ltd.; and Minaminihon Rakuno Kyodo Kabushiki Kaisha. Formed food product of microfibrillar protein and process for the production thereof. 4,275,084, Cl. 426-104.000.
Okamura, to Honda Lock Mfg. Co., Ltd. Key controlled, position sensitive, portable alarm. 4,275,391, Cl. 340-571.000.
Okamura, Makoto. Rear viewer for automobile. 4,274,714, Cl. 350-452.000.
Okamura, Masayuki: *See—*
Morino, Toshiharu; and Okamura, Masayuki, 4,275,016, Cl. 261-44.00C.
O'Keefe, George F.: *See—*
Roy, Donald A.; O'Keefe, George F.; and Kutelis, Carl R., 4,274,316, Cl. 83-23.000.

Okumura, Shunji, to Nippondenso Co., Ltd. Method and apparatus for automatically operating car-mounted air-conditioner. 4,274,265, Cl. 62-158.000.
Olin Corporation: *See—*
Yarwood, John C.; and Tyler, Derek E., 4,274,470, Cl. 164-49.000.
Oliva, Klaus: *See—*
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.
Olligschlager, Rainer C.; and Turner, Nelson R., to Model A and Model T Motor Car Reproduction Corporation, The. Steering column and cowl support frame. 4,274,646, Cl. 280-779.000.
Olsgaard, Orin J. Expansible chamber device. 4,274,327, Cl. 91-196.000.
Olson, John E., to Cascade Corporation. Lift truck having rotatable platen for handling unpalletized loads and method for using same. 4,274,794, Cl. 414-663.000.
Olympus Optical Company Ltd.: *See—*
Nakajima, Yukio, 4,274,724, Cl. 354-33.000.
Omodei-Sale', Amedeo: *See—*
Guzzi, Umberto; Omodei-Sale', Amedeo; and Galliani, Giulio, 4,275,066, Cl. 424-258.000.
Omote, Yuichi: *See—*
Suzuki, Shintaro; Iizuka, Sadao; Moriya, Yoshimi; and Omote, Yuichi, 4,274,865, Cl. 75-0.5AA.
Onda, Eiichi: *See—*
Nemoto, Ichiro; and Onda, Eiichi, 4,274,727, Cl. 354-234.000.
Ono, Eiji: *See—*
Tanaka, Takashi; Ono, Eiji; and Takinami, Koichi, 4,275,011, Cl. 260-410.700.
Tosaka, Osamu; Ono, Eiji; Ishihara, Masaru; Morioka, Hajimu; and Takinami, Koichi, 4,275,157, Cl. 435-115.000.
ONO Pharmaceutical Co. Ltd.: *See—*
Kurono, Masayasu; Naksi, Hisao; and Sakuyama, Shigeru, 4,275,075, Cl. 424-305.000.
Onton, Aare: *See—*
Marrello, Vincent; Onton, Aare; and Ruhle, Wolfgang, 4,275,336, Cl. 315-246.000.
Oota, Masanori: *See—*
Yusa, Haruhiko; Oota, Masanori; and Suzuki, Katsumi, 4,275,178, Cl. 525-71.000.
Op Het Veld, Adriaan J. G.: *See—*
Lippits, Gerardus J. M.; Van Den Broek, Arnoldus J. M.; Op Het Veld, Adriaan J. G.; Dijkstra, Rinse; and De Jonge, Jelis, 4,275,091, Cl. 427-53.100.
Oqilvy, James J.: *See—*
Jullien, Graham A., 4,274,638, Cl. 273-238.000.
Orban, Ivan; and Troxler, Eduard, to Ciba-Geigy Corporation. Process for preparing 2,2,6,6-tetraalkyl-4-oxopiperidines. 4,275,211, Cl. 546-242.000.
O'Riordain, Diarmuid, to Southern Chemicals Limited. Roof structure. 4,274,238, Cl. 52-408.000.
Orr, James A. Strand lifting system. 4,274,618, Cl. 254-29.00A.
Ortega, Edwin: *See—*
Mouille, Rene L.; and Ortega, Edwin, 4,274,510, Cl. 188-1.00B.
Orthoplant Orthopadische Implantate GmbH & Co. KG: *See—*
Rehder, Gunther; and Rusdea, Johann, 4,274,164, Cl. 3-1.913.
Orvik, Jon A., to Dow Chemical Company, The. Method of preparing pyridinyloxyphenols and derivatives. 4,275,212, Cl. 546-290.000.
Oryx, Inc.: *See—*
Jordan, Frederick L., 4,274,835, Cl. 44-1.0SR.
Osaka Nagayanagi Cork Ind., Co., Ltd.: *See—*
Tamai, Shuichi; and Matsuyama, Norihide, 4,274,822, Cl. 425-127.000.
Osawa, Keiichi; Ishii, Kiyoshi; and Nishimura, Hiroyuki, to Honda Giken Kogyo Kabushiki Kaisha. Engine exhaust gas recirculation system. 4,274,384, Cl. 123-568.000.
Ose, Akio: *See—*
Kimura, Shigenobu; Kubo, Yoshiro; Bando, Shigeru; Ose, Akio; Kinoshita, Yukuo; Higashizono, Ryoichi; and Hanamiya, Ikuo, 4,274,424, Cl. 128-686.000.
Oshio, Hiromichi: *See—*
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,274,862, Cl. 71-118.000.
Ostrander, Robert J. Drive unit seal assembly. 4,274,298, Cl. 74-467.000.
Otis Engineering Corporation: *See—*
Fredd, John V., 4,274,485, Cl. 166-250.000.
Fredd, John V., 4,274,486, Cl. 166-250.000.
Tunstall, Karl N.; and Warren, M. L., 4,274,432, Cl. 137-315.000.
Otisca Industries, Ltd.: *See—*
Smith, Clay D.; and Keller, Douglas V., Jr., 4,274,946, Cl. 209-5.000.
Otsu, Yasuo: *See—*
Mifune, Teruo; Noto, Keiji; Otsu, Yasuo; and Hagiwara, Kotaro, 4,274,185, Cl. 29-123.000.
Otterson, Lewis L., to Weatherchem Corporation. Plastic end closure for hermetically sealed container. 4,274,563, Cl. 222-480.000.
Otto, Gunter. Tool balancing apparatus. 4,274,495, Cl. 173-162.00R.
Outboard Marine Corporation: *See—*
Cavil, David T.; and Krueger, William R., 4,275,322, Cl. 310-111.000.
Owada, Mitsutoshi: *See—*
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, 4,274,735, Cl. 356-1.000.
Owen, Edwin L.: *See—*
Lai, Ralph W. M.; and Owen, Edwin L., 4,274,866, Cl. 75-5.000.
Owens-Corning Fiberglas Corporation: *See—*
Canfield, Sheldon A.; Pierce, Richard H.; and Rapp, Kenneth L., 4,275,297, Cl. 250-239.000.
Hanna, Terry J., 4,274,853, Cl. 65-2.000.
McGarry, Dennis L., 4,274,852, Cl. 65-2.000.
Russell, Robert G., 4,274,855, Cl. 65-2.000.
Owens-Illinois, Inc.: *See—*
Mumford, Eustace H., 4,274,859, Cl. 65-314.000.
Owens Service Corporation: *See—*
Andres, Robert W., 4,274,264, Cl. 62-148.000.
OY. Tampella AB: *See—*
Haikkala, Pekka O., 4,274,600, Cl. 241-18.000.
Ozaltay, Huseyin C. Coal gasifying burner with rotating grill. 4,274,341, Cl. 110-229.000.
Ozensoy, Erol; and Burkin, Alfred R., to Interox Chemicals Limited. Separation of tungsten and molybdenum by solvent extraction. 4,275,039, Cl. 423-54.000.
P.I. Specialist Engineers Limited: *See—*
Delgado, Patricio E.; and Holmes, Barry A., 4,274,809, Cl. 416-117.000.
Pacala, Thomas J.: *See—*
United States of America, National Aeronautics and Space Administration; Laudenslager, James B.; and Pacala, Thomas J., 4,275,317, Cl. 307-415.000.
Pacey, Grant K.; and Hvezda, Jaroslav M., to Northern Telecom Limited. Apparatus for fusion splicing of optical fibers. 4,274,707, Cl. 350-96.200.
Pacific Electricord Company: *See—*
Dodge, Donald M.; and Dietz, Ernest, 4,274,697, Cl. 339-103.00R.
Pagel, Werner: *See—*
Roth, Mario; Pagel, Werner; Rissmann, Heinz-Bernd; and Happich, Karl-Christoph, 4,274,792, Cl. 414-564.000.
Paget, Charles J., Jr., to Eli Lilly and Company. Substituted 2-anilinobenzoxazoles. 4,275,210, Cl. 546-222.000.
Painter, P. Eric; and Fisher, Curtis P., to A-T-O, Inc. Spring installation tool for article loading machine. 4,274,187, Cl. 29-225.000.
Pakogian, Sarkis B. Combination soccer/hockey game board. 4,274,635, Cl. 273-85.00R.
Pall Corporation: *See—*
Cooper, Roydon B., 4,274,445, Cl. 137-636.100.
Palmer, Willy F. Method and device for purifying sewage. 4,274,966, Cl. 210-618.000.
Panandiker, K. A. Pai: *See—*
Danick, Charles; and Panandiker, K. A. Pai, 4,275,189, Cl. 528-296.000.
Panzer, Hans P.: *See—*
Goodman, Richard M.; and Panzer, Hans P., 4,274,945, Cl. 209-5.000.
Papeschi, Roberto: *See—*
Balzarini, Giovanni; Buccino, Giovanni; Gnadeberg, Jules; Papeschi, Roberto; and Slavich, Giancarlo, 4,275,451, Cl. 364-580.000.
Pappo, Raphael: *See—*
Apple, Martin A.; and Pappo, Raphael, 4,275,192, Cl. 536-17.00A.
Paradowski, Henri: *See—*
Garier, Christian; and Paradowski, Henri, 4,274,849, Cl. 62-9.000.
Park Mobile, Inc.: *See—*
Evans, Edward N., 4,274,226, Cl. 49-25.000.
Parker, Earl E.: *See—*
Buechler, Peter R.; Parker, Earl E.; and Mollohan, Kenneth L., 4,274,992, Cl. 260-32.80R.
Parker, William H.; and Davidson, Harry T., to Del Norte Technology, Inc. FM Radio ranging system. 4,275,398, Cl. 343-112.00R.
Pars Engineering Company Limited: *See—*
Proctor, Sidney E., 4,274,677, Cl. 299-92.000.
Passafiume, Anthony; Lamber, Clarence F.; and Dickover, William, to Johnson & Johnson. Apparatus for shaping batts of loosely compacted fibrous materials. 4,274,318, Cl. 83-177.000.
Patchett, Arthur A.; and Greenlee, William J., to Merck & Co., Inc. Process for preparing amino acids and esters. 4,275,220, Cl. 560-35.000.
Pater, Hendrik; and Torgersen, G. Earl, to Pater, Hendrik. Monorail guideway assembly. 4,274,336, Cl. 104-124.000.
Paton, H. Neil; and Skilling, John B. Depressed center spine piggyback-/container railcar. 4,274,776, Cl. 410-57.000.
Patterson, Gene L., to Dayco Corporation. Transmission testing machine and method. 4,274,278, Cl. 73-7.000.
Paul Troester Maschinenfabrik: *See—*
Focht, Harry, 4,275,283, Cl. 219-10.55F.
Pauling and Company Limited: *See—*
Linton, Derek; and Boydell, John M., 4,274,242, Cl. 52-741.000.
Paulson, Thomas M.: *See—*
Huber, Daniel L.; Paulson, Thomas M.; and Williams, James M., 4,274,752, Cl. 400-477.000.
Paurat, Friedrich W.; and Paurat, Roland. Shaft-sinking apparatus with milling head and central worm conveyor. 4,274,675, Cl. 299-31.000.
Paurat, Roland: *See—*
Paurat, Friedrich W.; and Paurat, Roland, 4,274,675, Cl. 299-31.000.
Pechmann, Karl: *See—*
Mackey, E. Scudder; and Pechmann, Karl, 4,275,147, Cl. 430-527.000.
Peck, Alvin E. Lock for sliding windows and doors. 4,274,666, Cl. 292-257.000.
Pedersen, Carl O., to J. I. Case Company. Automatic hydraulic shut-off system. 4,274,328, Cl. 91-445.000.

Peeples, Denny L., to General Motors Corporation. Hydraulic booster with back pressure control. 4,274,326, Cl. 91-49.000.

Pegg, Charles E.: *See—*
Beck, Christian A.; Jurkowski, Walter J.; and Pegg, Charles E., 4,274,362, Cl. 118-657.000.

Peguform-Werke GmbH: *See—*
Kluss, Hans; and Lampic, Janez, 4,274,668, Cl. 293-142.000.

Penner, Horst: *See—*
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, 4,274,662, Cl. 285-21.000.

Pennwalt Corporation: *See—*
Popoff, Ivan C.; Mailey, Everett A.; and Haines, Paul G., 4,275,014, Cl. 260-780.000.

Penny, Samuel L., to Dresser Industries, Inc. Rock bit lubrication system utilizing expellable plug for obtaining expansion space. 4,274,498, Cl. 175-228.000.

Pereira Da Luz, Artur. Manufacture of aminoglycoside antibiotics. 4,275,155, Cl. 435-80.000.

Permo: *See—*
Le Dall, Guy, 4,275,448, Cl. 364-500.000.

Peroni, Peter A., to LaFrance Corporation. Instrument housing. 4,274,545, Cl. 220-4.00R.

Perry Oceanographics, Inc.: *See—*
Schmidt, Thomas C.; and Yemington, Charles R., 4,274,405, Cl. 128-205.260.

Perry, Richard R.; Maran, Anthony G.; and Schols, Anton G. Rendering systems. 4,275,036, Cl. 422-286.000.

Persohn, Thomas F.: *See—*
Andresen, Harvey E.; and Persohn, Thomas F., 4,274,841, Cl. 55-40.000.

Persson, Anders E.: *See—*
Liljekvist, Bernt S.; and Persson, Anders E., 4,274,496, Cl. 175-57.000.

Pertl, Don L., to Western Automation Corporation. Method of smoothing flat goods. 4,274,215, Cl. 38-144.000.

Peter, Heinz: *See—*
Pfeifer, Josef; and Peter, Heinz, 4,275,239, Cl. 564-511.000.

Peters, Margot Elizabeth: *See—*
Peters, Melville F.; and Peters, Walter T., 4,274,396, Cl. 126-438.000.

Peters, Melville F.; and Peters, Walter T., to Peters, Walter Todd; Peters, Margot Elizabeth; and Kronman, Albert F. Structural solar energy collector. 4,274,396, Cl. 126-438.000.

Peters, Robert: *See—*
Schulte, Klaus; and Peters, Robert, 4,275,033, Cl. 422-133.000.

Peters, Walter T.: *See—*
Peters, Melville F.; and Peters, Walter T., 4,274,396, Cl. 126-438.000.

Peters, Walter Todd: *See—*
Peters, Melville F.; and Peters, Walter T., 4,274,396, Cl. 126-438.000.

Peters, Werner: *See—*
Janssen, Klaus; Peters, Werner; and Schilling, Hans-Dieter, 4,274,941, Cl. 208-8.00R.

Peters, William H. Automatic watering device. 4,274,365, Cl. 119-78.000.

Peterson, Harold B. Foldable device for transporting farm implements. 4,274,492, Cl. 172-285.000.

Peterson, William A., to Bell Telephone Laboratories, Incorporated. Converter bleeder circuit responsive to flux condition of filter inductor. 4,275,436, Cl. 363-47.000.

Petitpierre, Jean C.; and Burri, Peter, to Ciba-Geigy Corporation. Carbazolylmethane compounds. 4,275,005, Cl. 260-315.000.

Petree, Harris E.; and Nabors, James B., to Ciba-Geigy Corporation. Process for the preparation of cyclopropylmethyl-n-propylamine. 4,275,238, Cl. 564-446.000.

Petrick, Detlef, to Bonumwerke Tigges & Winckel GmbH & Co. KG. Perforating device. 4,274,202, Cl. 30-365.000.

Petrolite Corporation: *See—*
Quinlan, Patrick M., 4,275,191, Cl. 528-423.000.

Pfeifer, Josef; and Peter, Heinz, to Ciba-Geigy Corporation. 1,10-Dialkyl-1,10-decamethylenediamines. 4,275,239, Cl. 564-511.000.

Philip Morris Incorporated: *See—*
Lendvay, Andrew T., 4,274,427, Cl. 131-293.000.

Philips Petroleum Company: *See—*
Drake, Charles A.; and Williams, Ralph P., 4,275,237, Cl. 564-306.000.

Phillips Petroleum Company: *See—*
Eddy, William R., 4,274,534, Cl. 198-479.000.
Hawley, Gil R., 4,274,996, Cl. 260-45.90R.
Hedges, James H.; and Glinsmann, Gilbert R., 4,274,488, Cl. 166-273.000.
Hutson, Thomas, Jr., 4,275,257, Cl. 585-738.000.
Huxley, Edward E.; and Nash, Martin E., 4,275,218, Cl. 549-87.000.
Meister, John J., 4,274,279, Cl. 73-55.000.

Phillips, Raymond J., to Alexander Shand Services Limited. Machine comprising a rotatable boom assembly. 4,274,796, Cl. 414-690.000.

Phos Incorporated: *See—*
Moolenaar, Jules, 4,274,206, Cl. 33-178.00B.

Pickering, Michael V. Ninhydrin reagent for use in amine and amino acid analyses. 4,274,833, Cl. 23-230.00B.

Pierce, Richard H.: *See—*
Canfield, Sheldon A.; Pierce, Richard H.; and Rapp, Kenneth L., 4,275,297, Cl. 250-239.000.

Pierrel S.p.A.: *See—*
Riva, Mario; and Toscano, Luciano, 4,275,061, Cl. 424-243.000.

Pietsch, Wolfgang: *See—*
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, 4,274,247, Cl. 56-14.400.

Pines, Michael Y.: *See—*
Maeding, Dale; and Pines, Michael Y., 4,275,315, Cl. 307-221.00D.

Pirio, Marcel R.: *See—*
Singh, Prithipal; and Pirio, Marcel R., 4,275,160, Cl. 435-188.000.

Pitney Bowes, Inc.: *See—*
Beck, Christian A.; Jurkowski, Walter J.; and Pegg, Charles E., 4,274,362, Cl. 118-657.000.

Pitzmann, Gregor, to Dr. Ing. h.c.F. Porsche Aktiengesellschaft. Pivotable hatchback for a streamlined rear of an automobile. 4,274,670, Cl. 296-1.00S.

Plancqueel, Guy; and Toth, Irme, to Societe Metallurgique le Nickel -S.L.N. Process for making ferro-nickel shot for electroplating and shot made thereby. 4,274,940, Cl. 204-294.000.

Plaquevent, Jean-Christophe: *See—*
Duhamel, Lucette; and Plaquevent, Jean-Christophe, 4,275,217, Cl. 548-344.000.

Pleibel, William; and Stolen, Rogers H., to Bell Telephone Laboratories, Incorporated. Polarization-preserving optical fiber. 4,274,854, Cl. 65-2.000.

Pochron, Sharon P.: *See—*
Gargiulo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,275,153, Cl. 435-13.000.

Pogoda, Dieter, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung. Lacquer coated metal surface. 4,274,887, Cl. 148-31.500.

Pogorski, Louis A.; and Kuehn, Lorne A., to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence. Evacuated diving suit insulation. 4,274,158, Cl. 2-2.10R.

Pollak, Robert R., to United Technologies Corporation. Control for start-up of a gas turbine engine. 4,274,255, Cl. 60-39.14R.

Poly-Glas Systems: *See—*
Goelz, David W., 4,274,512, Cl. 188-65.100.

Polysar Limited: *See—*
Kent, Eric G., 4,274,983, Cl. 260-4.00R.

Polyvend Inc.: *See—*
Johnston, Max M., 4,275,393, Cl. 340-688.000.

Pommier, Jean, to Compagnie Generale des Etablissements Michelin. Radial carcass tire, particularly for earth-moving equipment employing carcass expansion limiting block. 4,274,464, Cl. 152-352.00R.

Poole, Donald R.: *See—*
Mars, James E.; Poole, Donald R.; Schmidt, Eckart W.; and Wang, Charles, 4,274,893, Cl. 149-2.000.

Popoff, Ivan C.; Mailey, Everett A.; and Haines, Paul G., to Pennwalt Corporation. N-(Oxazolidinothio) imides that provide scorch retardant nonblooming elastomeric compositions. 4,275,014, Cl. 260-780.000.

Potter, Jerry L., to Xerox Corporation. Magnification/demagnification apparatus and method. 4,275,450, Cl. 364-515.000.

Power Engineering and Manufacturing, Ltd.: *See—*
Herscovici, Saul, 4,274,302, Cl. 74-661.000.

Poythress, Richard L.: *See—*
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., 4,274,361, Cl. 118-653.000.

PPG Industries, Inc.: *See—*
Buechler, Peter R.; Parker, Earl E.; and Mollohan, Kenneth L., 4,274,992, Cl. 260-32.80R.
Claassen, George R.; and Mickelic, Raymond J., 4,274,858, Cl. 65-273.000.
Cunningham, Hugh, 4,274,928, Cl. 204-98.000.
Frey, William I.; and Beestrice, William R., 4,274,856, Cl. 65-24.000.
Hazel, John G.; and Steiger, Roger A., 4,275,026, Cl. 264-67.000.
May, Russell R., Jr., 4,275,025, Cl. 264-63.000.
Wolfe, Terry L., 4,274,857, Cl. 65-26.000.

Price, Robert L.: *See—*
Bartkus, Edward A.; and Price, Robert L., 4,275,107, Cl. 428-220.000.

Priddy, Duane B., to Dow Chemical Company, The. Process for the preparation of improved styrene acrylic acid copolymers. 4,275,182, Cl. 526-109.000.

Priest, James D., to Belden Corporation. Guide device for use in elongate filament dispensing package and the like. 4,274,607, Cl. 242-163.000.

Pringle, William L., to United States Steel Corporation. Heat exchanger. 4,274,186, Cl. 29-157.30D.

Pritchard, Malcolm G.: *See—*
Burley, Joseph W.; Hope, Peter; and Pritchard, Malcolm G., 4,274,999, Cl. 260-45.75S.

Prober, Maurice: *See—*
MacKenzie, Burton T., Jr.; Prober, Maurice; and Kiersztyn, Stanley E., 4,274,990, Cl. 260-29.15B.

Procter & Gamble Company, The: *See—*
Corkill, John M.; Madison, Bryan L.; and Burns, Michael E., 4,274,975, Cl. 252-140.000.
Flora, Lawrence; and Francis, Marion D., 4,275,059, Cl. 424-204.000.
Gregg, Richard, 4,275,085, Cl. 426-433.000.

Proctor, Sidney E., to Pars Engineering Company Limited. Mineral cutter pick arrangement. 4,274,677, Cl. 299-92.000.

Productronix, Inc.: *See—*
Budraitis, Tadas; and Seliga, Gerald W., 4,274,282, Cl. 73-862.640.

Produits Chimiques Ugine Kuhlmann: *See—*
Belfort, Gerard L.A.; and Richer, Daniel P. A., 4,274,831, Cl. 8-532.000.
Lecoq, Jean-Claude; and Grimaud, Edouard, 4,274,969, Cl. 210-721.000.

Progressive Equipment, Inc.: *See—*
Swanson, Kenneth P., 4,274,179, Cl. 19-245.000.

Projektierung Chemische Verfahrenstechnik GmbH: *See—*
Puls, Jurgen; Sinner, Michael; and Dietrichs, Hans-Hermann, 4,275,159, Cl. 435-175.000.

Prokic-Immel, Ricarda: *See—*
Becher, Heinz-Manfred; Sehring, Richard; Wirtz, Walter; and Prokic-Immel, Ricarda, 4,275,077, Cl. 424-322.000.

Proni, Oscar, to Coulter Electronics, Inc. Liquid dispenser. 4,274,552, Cl. 222-61.000.

Przedsiebiorstwo Wdrazania i Upowszechniania Postepu Technicznego i Organizacyjnego "Posteor": *See—*
Bednarski, Stanislaw, 4,275,019, Cl. 261-98.000.

Pugh, William A. G.; Edmunds, Robert I.; Mansell, Peter B.; Brechin, Robert; and Langton, Hubert A., to CPG Products Corp. Toy figure having movable limb members. 4,274,224, Cl. 46-161.000.

Puls, Jurgen; Sinner, Michael; and Dietrichs, Hans-Hermann, to Projektierung Chemische Verfahrenstechnik GmbH. Process for the production of xylose by enzymatic hydrolysis of xylan. 4,275,159, Cl. 435-175.000.

Punches, James R.: *See—*
Starr, James A.; and Punches, James R., 4,274,205, Cl. 33-174.00L.

Purgold, Gerald C., to United States of America, National Aeronautics and Space Administration. Automated syringe sampler. 4,274,285, Cl. 73-683.310.

Purvis, Robert D. Solids and liquid separating apparatus. 4,274,963, Cl. 210-320.000.

Putnam, Paul S.; Cowgill, Charles F.; and Di Bella, Frank J. Mechanized stand handling apparatus for drilling rigs. 4,274,778, Cl. 414-22.000.

Quashem, Abul: *See—*
Joy, Michael; Moon, Richard E.; Quashem, Abul; Lo, Alex; and Dayal, Vijay S., 4,274,162, Cl. 3-1.300.

Queiser, Horst; and Meichsner, Othmar, to Kraftwerk Union Aktiengesellschaft. Apparatus for treating radioactive concentrates. 4,274,962, Cl. 210-257.100.

Questor Corporation: *See—*
Molitor, Robert P., 4,274,637, Cl. 273-235.00R.

Quinlan, Patrick M., to Petrolite Corporation. Polymerization of aromatic nitrogen heterocyclic compounds. 4,275,191, Cl. 528-423.000.

Quinlan, Robert W.: *See—*
Urban, Raymond C.; and Quinlan, Robert W., 4,275,109, Cl. 428-273.000.

Quinn, Clayton B.; and Wilson, Charles A., II, to General Electric Company. Continuous process for producing halogenated polycarbonates and the polycarbonates obtained therefrom. 4,275,187, Cl. 528-174.000.

Quinton Instrument Co.: *See—*
Tam, Hak W.; and Modes, Vernon E., 4,274,419, Cl. 128-639.000.

R. Scaran, Inc.: *See—*
Scaran, Robert T., 4,274,393, Cl. 126-123.000.

Raab, Harald; and Weistenberger, Helmuth, to Fichtel & Sachs AG. Clutch disc. 4,274,525, Cl. 192-106.200.

Rabeneck, Kenneth H.; Kantlehner, Jerry R.; and Gallaher, David E. Packaged sealed-end tubular thermoplastic net bagging. 4,274,539, Cl. 206-554.000.

Racal Communications Equipment: *See—*
Gill, Kenneth E.; and Hilling, Anthony E., 4,275,360, Cl. 330-276.000.

Racz, Janos A.; and Seppi, Edward J., to General Electric Company. Tomographic scanning apparatus with ionization detector means. 4,275,305, Cl. 250-445.00T.

Radiometer A/S: *See—*
Vesterager, Peter K. R.; and Jeppesen, Borge, 4,274,418, Cl. 128-635.000.

Radtke, Alfred G. Book stand. 4,274,616, Cl. 248-459.000.

Rahm, Joseph A.: *See—*
Waldman, Joseph L.; Klein, Edgar; Kulling, Achim; and Rahm, Joseph A., 4,275,041, Cl. 423-82.000.

Rall, Dieter; Horabaker, David R.; and Sawyer, William W. Control apparatus for regulating building perimeter temperature change system. 4,274,475, Cl. 165-12.000.

Rao, V. Durga Nageswar, to Ford Motor Company. Wave compressor turbocharger. 4,274,811, Cl. 417-64.000.

Rapp, Kenneth L.: *See—*
Canfield, Sheldon A.; Pierce, Richard H.; and Rapp, Kenneth L., 4,275,297, Cl. 250-239.000.

Raschig, G.m.b.H.: *See—*
Braun, Roland, 4,275,018, Cl. 261-94.000.

Ratcliff Tail Lifts Limited: *See—*
Franklin, Leslie C., 4,274,172, Cl. 14-69.500.

Ratcliffe, Ronald W.; and Salzmann, Thomas N., to Merck & Co., Inc. Process for preparing 7-(1-hydroxyethyl)-3-(2-aminoethylthio)-1-carbadethiaceph-3-em-3-carboxylic acid and intermediate therefor. 4,275,207, Cl. 546-183.000.

Rath, Gero: *See—*
Bardenheuer, Friedrich; Konig, Horst; Junker, Alois; and Rath, Gero, 4,274,867, Cl. 75-13.000.

Ratton, Serge; and Botannet, Bernard, to Rhone-Poulenc Industries. Preparation of aromatic azoamines by diazotization/coupling/rearrangement of aromatic amines. 4,275,003, Cl. 260-205.000.

Rau, Peter: *See—*
Jung, Wilfried; and Rau, Peter, 4,274,921, Cl. 176-78.000.

Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, to Valeron Corporation, The. Cutter assembly for broaching. 4,274,766, Cl. 407-15.000.

Ravallo, Robert J.: *See—*
Coltes, Frank P.; Halik, Joseph J.; Ravallo, Robert J.; Hegadorn, Joseph L.; and Hynson, Richard B., 4,275,083, Cl. 426-96.000.

Raychem Limited: *See—*
Clarke, Raymond, 4,275,180, Cl. 525-173.000.

Raytheon Company: *See—*
Hays, Herbert G.; and Sweitzer, Ralph W., 4,274,581, Cl. 237-7.000.

RCA Corporation: *See—*
Angle, Rodney L., 4,274,193, Cl. 29-571.000.
Datta, Pabitra, 4,275,100, Cl. 369-286.000.
Dieterich, Charles B., 4,275,416, Cl. 358-147.000.
Farmer, Felta C., Jr.; and Knight, Donald P., 4,275,347, Cl. 323-312.000.
Harford, Jack R., 4,275,362, Cl. 330-283.000.
Knapp, William K., 4,275,316, Cl. 307-279.000.
Miller, Edward A., 4,275,282, Cl. 219-10.49R.
Schwarzmann, Alfred, 4,275,366, Cl. 333-161.000.
Siryj, Bohdan W.; and Moore, Loren D., 4,274,294, Cl. 74-89.150.
Wang, Chih C.; Ekstrom, Lincoln; Lausman, Thomas C.; and Wielicki, Henry, 4,275,101, Cl. 369-286.000.

Recordati S.A.: *See—*
Nardi, Dante; Tajana, Alberto; and Magistretti, Maria J., 4,275,071, Cl. 424-273.00R.

Rector, James L.; and Weber, Paul R., to Du Pont de Nemours, E. I., and Company. Scraped wall agitator. 4,274,751, Cl. 366-310.000.

Redmond, William C. Weed extraction apparatus. 4,274,619, Cl. 254-132.000.

Reed, Kingstone L. H.: *See—*
Reed, Michael A.; Hatcher, Ian; Reed, Kingstone L. H.; and Danchuk, William, 4,274,262, Cl. 62-3.000.

Reed, Michael A.; Hatcher, Ian; Reed, Kingstone L. H.; and Danchuk, William, to Koolatron Industries, Limited. Thermoelectric jug cooler and control circuit. 4,274,262, Cl. 62-3.000.

Rees, Thomas C.: *See—*
Schneider, Charles A.; and Rees, Thomas C., 4,274,997, Cl. 260-45.75W.

Reeves Brothers, Inc.: *See—*
Wegner, Gunter H., 4,275,171, Cl. 521-107.000.

Regal, John: *See—*
Kuyper, Herman S.; Evers, Robert S.; and Regal, John, 4,274,469, Cl. 160-107.000.

Regimbal, Richard R.: *See—*
Becker, Floyd W.; and Regimbal, Richard R., 4,274,663, Cl. 285-24.000.

Rehder, Gunther; and Rusdea, Johann, to Orthoplant Orthopadische Implastate GmbH & Co. KG. Endoprosthesis for a hip joint, especially for the hip joint of a human being. 4,274,164, Cl. 3-1.913.

Reimer, Hans-Joachim: *See—*
Grimminger, Hermann; and Reimer, Hans-Joachim, 4,274,499, Cl. 177-1.000.

Reiner, Josef, to Herbert Schwind GmbH & Co. KG. Method and apparatus for the projection of optical test objects. 4,274,715, Cl. 351-30.000.

Reinhart, Robert F.: *See—*
Corbin, Raymond L.; and Reinhart, Robert F., 4,274,243, Cl. 52-748.000.

Reist, Walter; and Honegger, Werner, to Ferag AG. Method and apparatus for stacking printed products continuously arriving in a substantially fish scale overlapping arrangement. 4,274,623, Cl. 271-217.000.

Remy, David C., to Merck & Co., Inc. Antipsychotic pharmaceutical compositions of the levorotatory enantiomers of 3-methoxycyproheptadine and an analog thereof. 4,275,070, Cl. 424-267.000.

Renko, George, to Gibbs & Hill, Inc. Water-cooled nuclear reactor with passive emergency shutdown and core cooling capability and on-line refueling. 4,274,920, Cl. 176-30.000.

Repinski, Bernard. Clamping device. 4,274,314, Cl. 82-36.00R.

Republic Steel Corporation: *See—*
Mahar, Kevin D., 4,274,923, Cl. 201-39.000.

Resnicow, Herbert. Shaft-mounted assembly. 4,274,323, Cl. 411-433.000.

Revell, Incorporated: *See—*
Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., 4,274,225, Cl. 46-227.000.

Reyes, Jose. Turbo plate vaporizer. 4,274,386, Cl. 123-591.000.

Rhoads, Jack L. Stratified cross combustion engine. 4,274,369, Cl. 123-53.00A.

Rhone-Poulenc Industries: *See—*
Bargain, Michel; and Lefort, Marcel, 4,275,184, Cl. 528-26.000.
Gruffaz, Max; and Micaelli, Odile, 4,275,228, Cl. 560-247.000.
Ratton, Serge; and Botannet, Bernard, 4,275,003, Cl. 260-205.000.

Richard, Samuel J., Jr. Precision gas pressure regulation. 4,274,440, Cl. 137-613.000.

Richard Wolf GmbH: *See—*
Zobel, Jurgen, 4,274,704, Cl. 350-10.000.

Richards, Donald K., to General Battery Corporation. Electric storage battery container. 4,275,131, Cl. 429-163.000.

Richer, Daniel P. A.: *See—*
Belfort, Gerard L.A.; and Richer, Daniel P. A., 4,274,831, Cl. 8-532.000.
Richfield, Steven E. Permanently lubricated bearing. 4,274,684, Cl. 308-36.100.
Riegler, Ernst; and Schmidt, Manfred, to Voest-Alpine Aktiengesellschaft. Shielded roller chain. 4,274,536, Cl. 198-851.000.
Rieter Machine Works, Ltd.: *See—*
Vetterli, Walter, 4,274,604, Cl. 242-43.00R.
Riew, Changkiu K., to B. F. Goodrich Company, The. Reactive terminally unsaturated liquid polymers in unsaturated polyesters. 4,274,994, Cl. 260-40.00R.
Riker Laboratories, Inc.: *See—*
Hammar, Walton J.; and Rustad, Mark A., 4,275,221, Cl. 560-53.000.
Ringwood, Alfred E., to Australian National University, The. Treatment of high level nuclear reactor wastes. 4,274,976, Cl. 252-301.10W.
Rippel, Wally E.; and Edwards, Dean B., to California Institute of Technology. Bipolar battery construction. 4,275,130, Cl. 429-144.000.
Rissmann, Heinz-Bernd: *See—*
Roth, Mario; Pagel, Werner; Rissmann, Heinz-Bernd; and Happich, Karl-Christoph, 4,274,792, Cl. 414-564.000.
Ritterman, Paul F.; and Sparks, Richard H., to TRW Inc. Sealed nickel-cadmium battery with self-regulating precharge adjustment capability. 4,275,127, Cl. 429-50.000.
Riva, Mario; and Toscano, Luciano, to Pierrel S.p.A. Steroids and process for preparing the same. 4,275,061, Cl. 424-243.000.
Rizzo, Joseph F., to Bell Telephone Laboratories, Incorporated. Automatically adjustable bidirectional-to-unidirectional transmission network. 4,275,276, Cl. 179-170.00D.
Rizzo, Olympio C. Machine for assembling elastic bulbs to fragile tubular elements. 4,274,194, Cl. 29-717.000.
Robert Bosch GmbH: *See—*
Harer, Helmut; and Juhasz, Josef, 4,275,351, Cl. 324-427.000.
Muller, Bernt; and Theden, Ulrich, 4,275,406, Cl. 357-26.000.
Schleupen, Richard, 4,275,340, Cl. 318-280.000.
Wilfert, Thomas; Babitzka, Rudolf; and Schlagmuller, Walter, 4,274,598, Cl. 239-585.000.
Wunsch, Steffen, 4,274,642, Cl. 279-62.000.
Robertshaw Controls Company: *See—*
Branson, Charles D.; and Shopsky, Harvey J., 4,274,546, Cl. 220-4.00B.
Schmidt, David J., 4,275,464, Cl. 371-15.000.
Robertson, John A.: *See—*
Burnett, James E.; and Robertson, John A., 4,275,401, Cl. 346-75.000.
Robins, Robert R. Vehicle bumper step. 4,274,648, Cl. 280-166.000.
Robinson, Lee F., to RTL Contactor Holding S.A. Separation of minerals. 4,274,948, Cl. 209-9.000.
Robinson, Martin A.: *See—*
Friedland, David J.; Tewksbury, Floyd L.; and Robinson, Martin A., 4,275,037, Cl. 423-8.000.
Rochat, Charles-Louis. Slide projector. 4,274,719, Cl. 353-103.000.
Rocket Research Company: *See—*
Mars, James E.; Poole, Donald R.; Schmidt, Eckart W.; and Wang, Charles, 4,274,893, Cl. 149-2.000.
Rockwell International Corporation: *See—*
Eshghy, Siavash, 4,274,188, Cl. 29-240.000.
Friedman, Joseph; Oberg, Carl L.; and Russell, Larry H., 4,275,034, Cl. 422-194.000.
Johnson, Richard F.; and Wiers, John W., 4,274,657, Cl. 280-803.000.
Tittmann, Bernhard R.; and Ahlberg, Lloyd A., 4,274,288, Cl. 73-602.000.
White, Stanley A., 4,275,452, Cl. 364-726.000.
Winget, Wayne A., 4,275,358, Cl. 330-109.000.
Roedel, Ronald J.: *See—*
Cassiday, Daniel R.; Keramidas, Vassilis G.; Roedel, Ronald J.; and Saul, Robert H., 4,275,404, Cl. 357-19.000.
Roediger, Hanns E., to Techtransfer GmbH. Apparatus for dissolving air in water and subsequent reduction of the water surface tension in flotation systems. 4,274,959, Cl. 210-221.200.
Rogers, Thurmond J., Jr. Fishing lure. 4,274,220, Cl. 43-35.000.
Rohrer, Robert L., to Textron, Inc. Apparatus for sewing slide fastener chain to article panels. 4,274,347, Cl. 112-104.000.
Rollins, Ralph T., to Graybill, Clinton. Ring controlled variable venturi downdraft carburetor. 4,275,017, Cl. 261-53.000.
Rolscreen Company: *See—*
Kuyper, Herman S.; Evers, Robert S.; and Regal, John, 4,274,469, Cl. 160-107.000.
Root, Barbara A. Whelper structure. 4,274,363, Cl. 119-1.000.
Rosania, Lawrence J.: *See—*
Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, 4,274,830, Cl. 8-495.000.
Rosenbaum, Georges: *See—*
Bouillon, Claude; and Rosenbaum, Georges, 4,275,199, Cl. 542-430.000.
Rosenfield, Richard E.; and Kochwa, Shaul, to Mt. Sinai School of Medicine of the City University of New York. Blood cell typing and compatibility test procedure. 4,275,053, Cl. 424-12.000.
Ross, Walter C. J., to National Research Development Corporation. Peptide macromolecular complexes. 4,275,000, Cl. 260-112.00R.
Roth, Mario; Pagel, Werner; Rissmann, Heinz-Bernd; and Happich, Karl-Christoph, to Saint Gobain Industries. Apparatus for the automatic unfastening of glass sheets suspended from pincer-like gripping machines. 4,274,792, Cl. 414-564.000.
Rothman, Leonard A., to Du Pont de Nemours, E. I., and Company. Preparation of 1-piperidine-carbodithioic acid piperidinium salt. 4,275,208, Cl. 546-189.000.
Rouse, Carl A.; and Simnad, Massoud T., to United States of America, Energy. Nuclear reactor shield including magnesium oxide. 4,274,922, Cl. 176-87.000.
Roushdy, Hesham A., to Ford Motor Company. Transmission throttle valve actuator for an automatic transmission. 4,274,305, Cl. 74-865.000.
Rowe, V. Lopez. Vehicle drinking apparatus. 4,274,566, Cl. 224-35.000.
Roy, Della M.: *See—*
Langton, Christine A.; and Roy, Della M., 4,274,881, Cl. 106-98.000.
Roy, Donald A.; O'Keefe, George F.; and Kutelis, Carl R., to Textron, Inc. Crank press blank holder and stripper mechanism. 4,274,316, Cl. 83-23.000.
RTL Contactor Holding S.A.: *See—*
Robinson, Lee F., 4,274,948, Cl. 209-9.000.
Rudner, Bernard; and Stone, Herman, to Tenneco Chemicals, Inc. Intumescent flexible polyurethane foam having incorporated into the reaction mixture an aliphatic aldehyde. 4,275,169, Cl. 521-99.000.
Rueggeberg, Werner, to Armstrong Cork Company. Corona discharge device. 4,275,301, Cl. 250-326.000.
Ruger, Dean L., to International Telephone and Telegraph Corporation. Drive block structure for an adjustable vehicle seat track. 4,274,293, Cl. 74-89.150.
Ruhle, Wolfgang: *See—*
Marrello, Vincent; Onton, Aare; and Ruhle, Wolfgang, 4,275,336, Cl. 315-246.000.
Ruhrchemie Aktiengesellschaft: *See—*
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,275,242, Cl. 568-463.000.
Ruiz, Pierre, to Framatome. Method of regulation of the water level in boilers or steam generators. 4,275,447, Cl. 364-494.000.
Rumianca S.p.A.: *See—*
Messori, Vittorio; Francese, Renato; and Esposito, Roberto, 4,275,204, Cl. 544-204.000.
Rusdea, Johann: *See—*
Rehder, Gunther; and Rusdea, Johann, 4,274,164, Cl. 3-1.913.
Russell, Buel O. Method of threading a lacing needle. 4,274,565, Cl. 223-102.000.
Russell, Larry H.: *See—*
Friedman, Joseph; Oberg, Carl L.; and Russell, Larry H., 4,275,034, Cl. 422-194.000.
Russell, Robert G., to Owens-Corning Fiberglas Corporation. Method and apparatus for forming and treating kinky fibers from glass. 4,274,855, Cl. 65-2.000.
Russo, Neil: *See—*
Chan, Kingsley; and Russo, Neil, 4,274,615, Cl. 248-343.000.
Rustad, Mark A.: *See—*
Hammar, Walton J.; and Rustad, Mark A., 4,275,221, Cl. 560-53.000.
Ruti Machinery Works Ltd.: *See—*
Freisler, Erhard; Lutz, Friedrich; and Zollinger, Hans, 4,274,449, Cl. 139-449.000.
Rutzen, Horst: *See—*
Giede, Wolfgang; and Rutzen, Horst, 4,275,235, Cl. 564-288.000.
Ruyak, Robert F., to Autoclave Engineers, Inc. Magnetically actuated rising stem valve. 4,274,444, Cl. 137-630.140.
Ryan, John L., to EMI Limited. Arrangements for constructing representations of parts of bodies. 4,275,444, Cl. 364-414.000.
Rylewski, Eugeniusz M. Rotative machine for fluids. 4,274,814, Cl. 418-15.000.
Rysti, Alpo. Method and apparatus for packing timber. 4,274,781, Cl. 414-83.000.
Ryu, Ji-Yong, to UOP Inc. Process for preparing high surface area aluminas. 4,275,052, Cl. 423-628.000.
Sabao, Masato: *See—*
Kodama, Yujiro; Kuroishi, Nobuhito; Sabao, Masato; and Kureha, Yasumasa, 4,274,876, Cl. 75-243.000.
Sachs-Systemtechnik GMbH: *See—*
Lutz, Dieter; Krause, Peter; Terveen, Axel; and Eibl, Volker, 4,274,425, Cl. 128-719.000.
Saegusa, Takashi: *See—*
Fukuhara, Toru; and Saegusa, Takashi, 4,274,721, Cl. 354-31.000.
Saint Gobain Industries: *See—*
Roth, Mario; Pagel, Werner; Rissmann, Heinz-Bernd; and Happich, Karl-Christoph, 4,274,792, Cl. 414-564.000.
Saito, Minoru: *See—*
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.
Saito, Osamu; Shimizu, Jozo; and Zaitsu, Hiroshi, to Hitachi Maxell, Ltd. Magnetic recording medium. 4,275,113, Cl. 428-323.000.
Saito, Toshihiro; Arai, Shoji; and Tsutsumi, Yukihiro, to Toyo Soda Manufacturing Co., Ltd. Process for producing hydroxybutyraldehyde. 4,275,243, Cl. 568-496.000.
Saitou, Tadashi: *See—*
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, 4,274,817, Cl. 418-133.000.
Saitou, Tsuyoshi; and Ito, Tsuneo, to Hitachi, Ltd. MOS decoder logic circuit having reduced power consumption. 4,275,312, Cl. 307-463.000.

Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Notary vane pump with inlet and discharge ports in end sealing plates. 4,274,817, Cl. 418-133.000.
Sakamoto, Takashi; and Itooka, Akira. Linear interpolator for color correction. 4,275,413, Cl. 358-80.000.
Sakurai, Kiyomi, to Nippon Paint Co., Ltd. Photopolymer intaglio printing plate. 4,275,143, Cl. 430-307.000.
Sakurai, Sadaaki; Takashima, Mitsuru; and Ugaji, Masana, to Sony Corporation. Diaphragm for a loudspeaker. 4,275,278, Cl. 179-181.00F.
Sakuyama, Shigeru: *See—*
Kurono, Masayasu; Nakai, Hisao; and Sakuyama, Shigeru, 4,275,075, Cl. 424-305.000.
Salamon, Nicholas L.: *See—*
Ervin, James K.; and Salamon, Nicholas L., 4,274,191, Cl. 29-408.000.
Salisbury, John A., deceased: *See—*
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.
Salisbury, Judith M., administratrix: *See—*
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.
Salmon, Jean, to Jeumont-Schneider. Device for the detection of the position of a railway vehicle. 4,274,611, Cl. 246-34.00R.
Salzman, Noah: *See—*
Hahn, Robert H.; Hahn, Neva N.; and Salzman, Noah, 4,274,413, Cl. 128-303.130.
Salzmann, Thomas N.: *See—*
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Samsonite Corporation: *See—*
Winter, Roger D.; and Sarbell, John P., 4,274,569, Cl. 224-319.000.
Sanders, James M.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., to Burroughs Corporation. Electrostatic and magnetic transfer enhancing apparatus for conducting and magnetically attracting toner. 4,274,361, Cl. 118-653.000.
Sandmann, Harald: *See—*
Hartinger, Edmund; Julke, Elias; and Sandmann, Harald, 4,274,971, Cl. 210-778.000.
Sandvik Aktiebolag: *See—*
Liljekvist, Bernt S.; and Persson, Anders E., 4,274,496, Cl. 175-57.000.
Sano, Ichiro, to Furukawa Denchi Kabushiki Kaisha. Cover apparatus for monoblock storage battery. 4,275,128, Cl. 429-88.000.
Sanyo Electric Co., Ltd.: *See—*
Ohshima, Masauki, 4,274,217, Cl. 40-451.000.
Saperstein, Zalman P.: *See—*
Cottone, Andrew J.; and Saperstein, Zalman P., 4,274,483, Cl. 165-153.000.
Sarbell, John P.: *See—*
Winter, Roger D.; and Sarbell, John P., 4,274,569, Cl. 224-319.000.
Sasaki, Isao: *See—*
Kamada, Kazumasa; Sasaki, Isao; and Kushi, Kenji, 4,274,933, Cl. 204-159.240.
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, to Fujitsu Limited. Method of manufacturing insulated gate semiconductor devices by high pressure thermal oxidation with water vapor. 4,275,093, Cl. 427-89.000.
Sasdi, Laszlo: *See—*
Dobos, Alajos; Kiss, Gyula; Jony nee Acs, Julia; Sasdi, Laszlo; and Bisits nee Zsilinszky, Vilma, 4,274,597, Cl. 239-542.000.
Satmer, Franz: *See—*
Hofmann, Franz; and Satmer, Franz, 4,274,360, Cl. 118-303.000.
Sato, Hiroshi: *See—*
Shimizu, Hiroshi; Sato, Hiroshi; Miura, Nobuo; and Inada, Shuzo, 4,275,023, Cl. 264-50.000.
Sato Koki Company, Ltd.: *See—*
Igarashi, Sigemi, 4,274,723, Cl. 354-33.000.
Sato, Tadashi; Yoshimura, Shigeru; and Ichikawa, Kiyomichi, to Canon Kabushiki Kaisha. Dual-mode sheet sorting apparatus. 4,274,624, Cl. 271-292.000.
Sato, Tadashi: *See—*
Takahashi, Tohru; Sato, Tadashi; and Kishi, Hirotoshi, 4,275,423, Cl. 358-285.000.
Saul, Robert H.: *See—*
Cassiday, Daniel R.; Keramidas, Vassilis G.; Roedel, Ronald J.; and Saul, Robert H., 4,275,404, Cl. 357-19.000.
Savage, Erle B., Jr., to Ionic Controls, Inc. Support for decorative and communicative material. 4,275,112, Cl. 428-310.000.
Sawada, Daisaku: *See—*
Iwata, Toshiharu; Hattori, Tadashi; Mukainakano, Sinji; Goto, Kenji; and Sawada, Daisaku, 4,274,379, Cl. 123-425.000.
Sawaguchi, Hiroshi: *See—*
Obara, Kunio; Kohno, Tohru; and Sawaguchi, Hiroshi, 4,274,874, Cl. 75-231.000.
Sawyer, Patricia F. Shopping cart organizer. 4,274,567, Cl. 224-42.430.
Sawyer, William W.: *See—*
Rall, Dieter; Hornbaker, David R.; and Sawyer, William W., 4,274,475, Cl. 165-12.000.
Scagg, Orville C. Subterranean well pipe guiding apparatus. 4,274,777, Cl. 414-22.000.
Scala, Thomas L., Jr., to Finetex, Inc. Benzoate ester compositions. 4,275,222, Cl. 560-103.000.
Scapa Dryers, Inc.: *See—*
Westhead, William T., 4,274,448, Cl. 139-383.00A.
Scaran, Robert T., to R. Scaran, Inc. Fireplace assembly. 4,274,393, Cl. 126-123.000.
Scarlett, John A., to Med Pump, Inc. Fluid injection system. 4,274,407, Cl. 128-213.00R.
Schaad, Jean, to Ebauches S.A. Electronic timepiece. 4,275,462, Cl. 368-88.000.
Schaaf, Cecil F.; and Schaaf, Craig R. Walking cane apparatus. 4,274,430, Cl. 135-65.000.
Schaaf, Craig R.: *See—*
Schaaf, Cecil F.; and Schaaf, Craig R., 4,274,430, Cl. 135-65.000.
Schaefer Equipment Inc.: *See—*
Cale, Roland E., 4,274,277, Cl. 72-356.000.
Schaller, Helmut F. K. Pivotal and releasable strap coupling. 4,274,181, Cl. 24-201.00A.
Schank, Richard L.: *See—*
Chu, Joseph Y. C.; Schank, Richard L.; and Tutihasi, Simpei, 4,275,133, Cl. 430-31.000.
Schedewie, Franz: *See—*
Makosch, Gunter; Schedewie, Franz; Schmackpfeffer, Arno; and Ziller, Jorg, 4,275,288, Cl. 219-121.0LR.
Schilling, Hans-Dieter: *See—*
Janssen, Klaus; Peters, Werner; and Schilling, Hans-Dieter, 4,274,941, Cl. 208-8.00R.
Schirmer, Henry G.: *See—*
Mueller, Walter B.; Schirmer, Henry G.; Schoenberg, Julian H.; and Weinberg, Alan S., 4,274,900, Cl. 156-229.000.
Schlaap-Mobel GmbH & Co., KG: *See—*
Lange, Gerd, 4,274,756, Cl. 403-382.000.
Schlagmuller, Walter: *See—*
Wilfert, Thomas; Babitzka, Rudolf; and Schlagmuller, Walter, 4,274,598, Cl. 239-585.000.
Schleger, Siegfried: *See—*
Benker, Fritz; Credner, Hans-Heinrich; Lassig, Wolfgang; Meier, Ernst; and Schleger, Siegfried, 4,275,200, Cl. 544-137.000.
Schleupen, Richard, to Robert Bosch GmbH. Control circuit for a final control element, in particular an electric motor. 4,275,340, Cl. 318-280.000.
Schmackpfeffer, Arno: *See—*
Makosch, Gunter; Schedewie, Franz; Schmackpfeffer, Arno; and Ziller, Jorg, 4,275,288, Cl. 219-121.0LR.
Schmauch, Hugo: *See—*
Weber, Heinrich; Dungs, Horst; Beckmann, Franz; Schmauch, Hugo; and Flasch, Karl-Heinz, 4,274,924, Cl. 202-235.000.
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, to U.S. Philips Corporation. Magnetic memory layer. 4,274,935, Cl. 204-192.00M.
Schmidt, David J., to Robertshaw Controls Company. Universal self-diagnosing appliance control. 4,275,464, Cl. 371-15.000.
Schmidt, Eckart W.: *See—*
Mars, James E.; Poole, Donald R.; Schmidt, Eckart W.; and Wang, Charles, 4,274,893, Cl. 149-2.000.
Schmidt, Erich, to Maschinenfabrik Zuckermann Komm. Ges. Apparatus for copy-machining of a workpiece. 4,274,183, Cl. 29-28.000.
Schmidt, Gerhard; Noack, Christian; Ulrich, Klaus; Hanel, Volker; Kretschmar, Bernd; Kloth, Hans-Jochen; Pietsch, Wolfgang; Hesche, Peter; Eistert, Theodor; Oliva, Klaus; and Kreidler, Manfred, to Veb Kombinat Fortschritt, Landmaschinen. Windrow-forming harvester. 4,274,247, Cl. 56-14.400.
Schmidt, Manfred: *See—*
Riegler, Ernst; and Schmidt, Manfred, 4,274,536, Cl. 198-851.000.
Simon, Franz; and Schmidt, Manfred, 4,274,926, Cl. 204-39.000.
Simon, Franz; Zilske, Wolfgang; and Schmidt, Manfred, 4,274,927, Cl. 204-39.000.
Schmidt, Paul J.; and Mo-Wei Hung, William, to Sterling Drug Inc. Carbonless duplicating and marking systems. 4,274,660, Cl. 282-27.500.
Schmidt, Paul J.: *See—*
Crounse, Nathan N.; and Schmidt, Paul J., 4,275,121, Cl. 428-537.000.
Schmidt, Robert. Waterproof zipper. 4,274,159, Cl. 2-2.000.
Schmidt, Thomas C.; and Yennington, Charles R., to Perry Oceanographics, Inc. Method for varying the ambient pressure in a vessel. 4,274,405, Cl. 128-205.260.
Schmied, Irene: *See—*
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, 4,274,662, Cl. 285-21.000.
Schmitt, Frederick L.: *See—*
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.
Schmitt, Friedrich W., to Albert, Robert J. Diaphragm valves and valve systems. 4,274,452, Cl. 141-1.000.
Schmitt, Manfred: *See—*
Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, 4,274,439, Cl. 137-601.000.
Schnall, Ira H., to White Consolidated Industries, Inc. Packed plug for a fluid valve. 4,274,433, Cl. 137-454.600.

Schneider, Abraham; Myers, Harry K., Jr.; and Suld, George, to Suntech, Inc. Dimerization of norbornadiene to a mixture of exo-endo and endo-endo hexacyclic dimers. 4,275,254, Cl. 585-14.000.

Schneider, Charles A.; and Rees, Thomas C., to Sherwin-Williams Company, The. Halogenated polymers stabilized with triazoles. 4,274,997, Cl. 260-45.75W.

Schneider, Gerhard; Ludwig, Rolf; and Fischer, Jochen, to Kochs Adler AG. Machine for sewing together workpiece parts having edges of equal or unequal length by means of a bead seam. 4,274,345, Cl. 112-51.000.

Schneider, Helmhold. Plastic tank, particularly for the storage of fuel oil and the like. 4,274,548, Cl. 220-72.000.

Schnurbus, Heinrich; Nelle, Horst; and Wolf, Wilhelm, to Fried. Krupp Gesellschaft mit beschrankter Haftung. Magnetic cores. 4,274,888, Cl. 148-108.000.

Schoenafinger, Eduard; Motz, Herbert; Ohlinger, Manfred; Deigner, Paul; and Grau, Werner, to BASF Aktiengesellschaft. Magnetic recording medium and method of stabilization of chromium dioxide magnetic pigments. 4,275,114, Cl. 428-328.000.

Schoenberg, Julian H.: *See*—
Mueller, Walter B.; Schirmer, Henry G.; Schoenberg, Julian H.; and Weinberg, Alan S., 4,274,900, Cl. 156-229.000.

Schols, Anton G.: *See*—
Perry, Richard R.; Maran, Anthony G.; and Schols, Anton G., 4,275,036, Cl. 422-286.000.

Schosek, William O. Device to secure an underground pipe installer in a trench. 4,274,758, Cl. 405-184.000.

Schottel Nederland B.V.: *See*—
Catsburg, Wilhelmus M., 4,274,827, Cl. 440-54.000.

Schreiber, William L.: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.

Schriever, Karl-Hermann, to Hasco-Normalien Hasenclever & Co. Actuator for core or stripper of a multipart mold. 4,274,617, Cl. 249-63.000.

Schroeder, George F., to Singer Company, The. Gyro wheel speed compensation. 4,274,291, Cl. 74-5.370.

Schulte, Klaus; and Peters, Robert, to Bayer Aktiengesellschaft. Apparatus for producing a reaction mixture containing fillers from at least two components which are capable of flowing. 4,275,033, Cl. 422-133.000.

Schulten, Rudolf; Behr, Friedrich; and Wenzl, Helmut, to Kernforschungsanlage Julich GmbH. Apparatus for the production of hydrogen and oxygen. 4,274,938, Cl. 204-239.000.

Schultz, Karl-Heinz: *See*—
Forter, Hansruedi; Groening, Jurgen; Kuhnlein, Hans L.; Kung, Hans R.; Maas, Joachim; and Schultz, Karl-Heinz, 4,274,910, Cl. 159-1.00C.

Schuon, Eberhard: *See*—
Bayer, Herbert; Hoffmann, Gunther; and Schuon, Eberhard, 4,275,348, Cl. 324-57.00R.

Schurmann, Josef H., to Texas Instruments Deutschland GmbH. H.F. amplifier. 4,275,361, Cl. 330-277.000.

Schwarzmann, Alfred, to RCA Corporation. Phase shifter. 4,275,366, Cl. 333-161.000.

Schwob, Pierre, to SEB S.A. Steam dispenser, for domestic use, for skin care. 4,274,588, Cl. 239-138.000.

SCM Corporation: *See*—
Nadkarni, Anil V., 4,274,873, Cl. 75-211.000.

Scott, Frank B., Jr. Surgical retractor utilizing elastic tubes frictionally held in spaced notches. 4,274,398, Cl. 128-20.000.

SEB S.A.: *See*—
Schwob, Pierre, 4,274,588, Cl. 239-138.000.

Sebag, Henri; Zysman, Alexandre; and Vanlerberghe, Guy, to L'Oreal. Deodorants or deodorisers and compositions containing them. 4,275,054, Cl. 424-65.000.

Segawa, Hirozo: *See*—
Tadokoro, Shin-ichi; and Segawa, Hirozo, 4,275,174, Cl. 525-1.000.

Sehring, Richard: *See*—
Becher, Heinz-Manfred; Sehring, Richard; Wirtz, Walter; and Prokic-Immel, Ricarda, 4,275,077, Cl. 424-322.000.

Seifert, Eberhard; and John, Philippe, to Sulzer Brothers Limited. Bearing mount for a warp beam. 4,274,447, Cl. 139-97.000.

Seiko Koki Kabushiki Kaisha: *See*—
Nemoto, Ichiro; and Onda, Eiichi, 4,274,727, Cl. 354-234.000.

Seipel, Carl: *See*—
Bernwall, Hans; Lundberg, Lars; and Seipel, Carl, 4,274,606, Cl. 242-117.000.

Seki, Nagataka; and Watanabe, Yukio, to Tokyo Shibaura Electric Co., Ltd. DV/DT Protection circuit device for gate turn-off thyristor. 4,275,430, Cl. 361-91.000.

Sekiguchi, Mitsuo, to Alps Electric Co., Ltd. Filter for microwaves. 4,275,369, Cl. 333-209.000.

Self, Freddy R. Aircraft traffic pattern computer. 4,274,204, Cl. 33-1.0SD.

Seliga, Gerald W.: *See*—
Budraitis, Tadas; and Seliga, Gerald W., 4,274,282, Cl. 73-862.640.

Sellars, Albert E., to International Standard Electric Corporation. Submarine cable. 4,275,262, Cl. 174-128.00R.

Semperit AG: *See*—
Fischer, Wolf E., 4,274,441, Cl. 137-614.050.

Sener, Ingenieria y Sistemas, S.A.: *See*—
Sintes, Julio F., 4,274,712, Cl. 350-299.000.

Seppi, Edward J.: *See*—
Racz, Janos A.; and Seppi, Edward J., 4,275,305, Cl. 250-445.00T.

Septier, Louis: *See*—
Demange, Michel; and Septier, Louis, 4,274,871, Cl. 75-134.00M.

Severen, Randall D.: *See*—
Sunshine, Richard B.; and Severen, Randall D., 4,274,591, Cl. 239-188.000.

Shaffer, Donald J. Tuneable intake manifold. 4,274,368, Cl. 123-52.00M.

Shah, Ramesh M.: *See*—
Chae, Charles H.; Black, Donald E.; and Shah, Ramesh M., 4,274,744, Cl. 356-414.000.

Shainoff, John R., to Cleveland Clinic Foundation, The. Glyoxal agarose. 4,275,196, Cl. 536-115.000.

Shannon, John M., to Mullard Limited. Semiconductor timing device with radioactive material at the floating gate electrode of an insulated-gate field-effect transistor. 4,275,405, Cl. 357-23.000.

Shannon, Joseph W., to American Beverage Control. Beverage dispenser pumping system. 4,274,557, Cl. 222-136.000.

Shariff, Rafique S., to International Business Machines Corporation. Cryogenic chip removal technique. 4,274,576, Cl. 228-264.000.

Shaw, Christopher W., to Micro Metalsmiths Limited. Model locomotives. 4,274,337, Cl. 105-99.000.

Shell Oil Company: *See*—
Bannon, Robert P., 4,274,944, Cl. 208-352.000.

Sherex Chemical Company, Inc.: *See*—
Earl, Gary W.; and Hickman, Howard M., 4,275,236, Cl. 564-298.000.

Sherif, Sherif A.; and Hachtmann, James E.; to Magnesium Elektron Inc. Process for preparing dilute aqueous copper zirconium ammonium carbonate solutions containing less than about 0.5% Cu and 1.5% ZrO_2. 4,274,972, Cl. 252-8.600.

Sherman, Anthony M., to Mobil Oil Corporation. Poly(p-methylstyrene) polyblend. 4,275,179, Cl. 525-98.000.

Sherman, Frederick G.: *See*—
Vander Ley, Robert J.; and Sherman, Frederick G., 4,274,689, Cl. 312-333.000.

Sherwin-Williams Company, The: *See*—
Schneider, Charles A.; and Rees, Thomas C., 4,274,997, Cl. 260-45.75W.

Shibazaki, Etsuo: *See*—
Takahashi, Hiroshi; Shibazaki, Etsuo; and Yamamoto, Yoshihito, 4,275,268, Cl. 179-1.00B.

Shibuya, Tsunenori: *See*—
Kobayashi, Shigeru; Kanda, Takemi; and Shibuya, Tsunenori, 4,274,816, Cl. 418-93.000.

Shida, Masami: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.

Shida, Takafumi: *See*—
Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, 4,275,078, Cl. 424-324.000.

Shimamoto, Koji; Shimizu, Mitsuo; and Yamashita, Takao, to Hitachi, Ltd. Drip-proof type electrical rotating machine. 4,275,321, Cl. 310-59.000.

Shimamura, Masaharu: *See*—
Yoshioka, Toshio; Teramoto, Kazuo; and Shimamura, Masaharu, 4,275,156, Cl. 435-94.000.

Shimano Industrial Company Limited: *See*—
Katayama, Hitoshi, 4,274,301, Cl. 74-551.100.

Shimelman, Myer B.: *See*—
Feldstein, George, 4,274,550, Cl. 221-71.000.

Shimizu, Hiroshi; Sato, Hiroshi; Miura, Nobuo; and Inada, Shuzo, to Asahi-Dow Limited. Expanded particulate material of polyolefin resin. 4,275,023, Cl. 264-50.000.

Shimizu, Jozo: *See*—
Saito, Osamu; Shimizu, Jozo; and Zaitsu, Hiroshi, 4,275,113, Cl. 428-323.000.

Shimizu, Mitsuo: *See*—
Shimamoto, Koji; Shimizu, Mitsuo; and Yamashita, Takao, 4,275,321, Cl. 310-59.000.

Shimotsuma, Wataru: *See*—
Tsubussaki, Shigeru; Sonoda, Nobuo; and Shimotsuma, Wataru, 4,275,103, Cl. 428-148.000.

Shindo, Yoshio; and Ito, Hiroshi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Automatic transmission with overdrive. 4,274,303, Cl. 74-740.000.

Shippert, Ronald D., to Denver Splint Company, The. Nose splint. 4,274,402, Cl. 128-89.00R.

Shirai, Akira; and Nagasawa, Sigeo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Dust-boot for a vacuum booster. 4,274,258, Cl. 60-547.00R.

Shires, Donald. Water cooling system for air cooled air conditioners. 4,274,266, Cl. 62-171.000.

Shopsky, Harvey J.: *See*—
Branson, Charles D.; and Shopsky, Harvey J., 4,274,546, Cl. 220-4.00B.

Shriver, Frank L., to Coors Container Company. Protective coating for cans and methods for application of coating thereto. 4,275,097, Cl. 427-286.000.

Shultz, Richard E.: *See*—
Sanders, John R.; Poythress, Richard L.; Shultz, Richard E.; Buholtz, William F.; and Fedder, Richard C., 4,274,361, Cl. 118-653.000.

Shuster, Edward J.: *See*—
Mussinan, Cynthia J.; Mookherjee, Braja D.; Vock, Manfred H.; Schmitt, Frederick L.; Shuster, Edward J.; Sanders, James M.; Light, Bette M.; and Granda, Edward J., 4,275,080, Cl. 426-3.000.

Shuster, Philip: *See*—
Bayles, Richard A.; and Shuster, Philip, 4,274,687, Cl. 312-205.000.

Sibex (Constructions) Limited: *See*—
Cook, Barrie J. A., 4,274,640, Cl. 277-9.000.

Sibley, Lincoln L., Jr.: *See*—
Snyder, Ronald R.; and Sibley, Lincoln L., Jr., 4,274,325, Cl. 89-12.000.

Sidco, SA: *See*—
Thalheim, Gerhard, 4,274,230, Cl. 51-165.00R.

Siegal, Richard G. Operator readable and machine readable character recognition system. 4,275,381, Cl. 340-146.30Z.

Siegfried AG: *See*—
Thiele, Kurt; Ahmed, Quazi; Jahn, Ulrich; and Adrian, Rudolf, 4,275,068, Cl. 424-266.000.

Siemens Aktiengesellschaft: *See*—
Bannert, Johann; and Nagel, Guenter, 4,274,701, Cl. 339-217.00S.
Blaess, Gerhard, 4,275,446, Cl. 364-487.000.
Heywang, Walter; Gunterndorfer, Max; and Kleinschmidt, Peter, 4,275,390, Cl. 340-554.000.
Kern, Hans, 4,275,402, Cl. 346-140.00R.
Krueger, Hans, 4,274,713, Cl. 350-347.00R.
Wimmer, Josef, 4,275,368, Cl. 333-167.000.

Sieving, Alfred W.; and Stanley, James M., to Caterpillar Tractor Co. Selective anti-spin brake system. 4,274,680, Cl. 303-6.00A.

Sigdell, Jan-Erik: *See*—
Krick, Gerd; Konang, Peter; Sigdell, Jan-Erik; and Heilmann, Klaus, 4,274,964, Cl. 210-321.300.

Sigg, Hans, to Maag Gear-Wheel & Machine Co. Ltd. Automatically engageable jaw clutch. 4,274,523, Cl. 192-21.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-7a-homo-PGI_2 compounds. 4,275,008, Cl. 260-345.200.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-13,14-dihydro-PG_1 compounds. 4,275,231, Cl. 562-503.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-inter-oxa-13,14-dihydro-PG_1 compounds. 4,275,232, Cl. 562-503.000.

Sih, John C., to Upjohn Company, The. 19-Hydroxy-19-methyl-13,14-dihydro-PG_2 compounds. 4,275,233, Cl. 562-503.000.

Sikdar, Subhas K.; Adam, Donald E.; and Winterbottom, Howard, to Occidental Research Corporation. Process for treating loaded extractant from purification of phosphoric acid by extraction and recovering nutrients. 4,275,038, Cl. 423-321.00S.

Sikkema, Bruce H.: *See*—
Weiss, Arnold A.; Christensen, David C.; and Sikkema, Bruce H., 4,274,289, Cl. 73-618.000.

Silberberg, Joseph, to Stauffer Chemical Company. Filled polyolefin compositions having improved thermal stability. 4,274,995, Cl. 260-42.140.

Silvestri, George J., Jr., to Westinghouse Electric Corp. Superheated steam power plant with steam to steam reheater. 4,274,259, Cl. 60-663.000.

Silvestri, Victor J.; Tang, Denny D.; and Wiedmann, Siegfried K., to International Business Machines Corporation. Method of fabricating buried injector memory cell formed from vertical complementary bipolar transistor circuits utilizing mono-poly deposition. 4,274,891, Cl. 148-175.000.

Simnad, Massoud T.: *See*—
Rouse, Carl A.; and Simnad, Massoud T., 4,274,922, Cl. 176-87.000.

Simon, Franz; and Schmidt, Maafred, to Degussa Aktiengesellschaft. Process for the electrolytic deposition of silver and silver alloy coatings and compositions therefore. 4,274,926, Cl. 204-39.000.

Simon, Franz; Zilske, Wolfgang; and Schmidt, Manfred, to Degussa Aktiengesellschaft. Process for the electrolytic deposition of gold and gold alloy coatings and compositions therefore. 4,274,927, Cl. 204-39.000.

Simons, Peter B., to TBS, Inc. Toner loading device. 4,274,455, Cl. 141-1.000.

Simons, Roger J.: *See*—
Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, 4,274,747, Cl. 356-431.000.

Simpson, Douglass E. Collapsible kayak. 4,274,170, Cl. 9-1.400.

Simpson, Keith, to Clairaire Limited. Manufacture of activated carbon. 4,274,979, Cl. 252-422.000.

Sims, Gerald S., to B. F. Goodrich Company, The. Inflatable structures of rubberized fabric. 4,274,526, Cl. 193-25.00B.

Sims, Raymond B., to Delta Materials Research Limited. Electrical overload circuit breaker. 4,275,370, Cl. 335-37.000.

Sincerbox, Glenn T.: *See*—
Dewey, Anthony G.; and Sincerbox, Glenn T., 4,275,395, Cl. 340-706.000.

Singer Company, The: *See*—
Schroeder, George F., 4,274,291, Cl. 74-5.370.
Vogel, John D., 4,275,371, Cl. 335-272.000.

Singer, Karl, to Singer, Karl; and Wagner & Aubel, Ltd. Hand-held burr remover for conduit and pipe. 4,274,770, Cl. 408-211.000.

Singh, Prithipal; and Plrio, Marcel R., to Syva Company. Imipramine derivatives and poly(amino acid) conjugates. 4,275,160, Cl. 435-188.000.

Sinner, Michael: *See*—
Puls, Jurgen; Sinner, Michael; and Dietrichs, Hans-Hermann, 4,275,159, Cl. 435-175.000.

Sintes, Julio F., to Sener, Ingenieria y Sistemas, S.A. Solar radiation reflectors adapted to track the incident rays of the sun. 4,274,712, Cl. 350-299.000.

Siryj, Bohdan W.; and Moore, Loren D., to RCA Corporation. Apparatus for converting rotary motion to linear motion. 4,274,294, Cl. 74-89.150.

Skatvold, Arthur R., Jr., to United States of America, Navy. Resonant element transformer. 4,275,364, Cl. 333-33.000.

Skilling, John B.: *See*—
Paton, H. Neil; and Skilling, John B., 4,274,776, Cl. 410-57.000.

Slattery, Michael J., to Monahan, Charles J. Transit bus modernization method. 4,274,190, Cl. 29-401.100.

Slavich, Giancarlo: *See*—
Balzarini, Giovanni; Buccino, Giovanni; Gnadeberg, Jules; Papeschi, Roberto; and Slavich, Giancarlo, 4,275,451, Cl. 364-580.000.

Sloan, Kenneth B.: *See*—
Bodor, Nicholas S.; and Sloan, Kenneth B., 4,275,064, Cl. 424-253.000.

Slosiarek, Michael L.; and Zajichek, William J., to Allis-Chalmers Corporation. Device for replacing resilient isolators. 4,274,671, Cl. 296-190.000.

Slovak, Anci B.: *See*—
Zaha, David C.; and Slovak, Anci B., 4,274,222, Cl. 46-29.000.

Smit, Edward H., to Sukup Manufacturing Co. Grain stirrer drive assembly. 4,274,750, Cl. 366-261.000.

Smith, Clay D.; and Keller, Douglas V., Jr., to Otisca Industries, Ltd. Agglomeration type coal recovery processes. 4,274,946, Cl. 209-5.000.

Smith International, Inc: *See*—
Housman, Robert J., 4,274,840, Cl. 51-307.000.

Smith, Michael A.: *See*—
Fapiano, Donald J.; and Smith, Michael A., 4,274,273, Cl. 72-13.000.

Smith, Michael L., to Andersen Samplers Inc. Particle sizing sampler. 4,274,846, Cl. 55-270.000.

Smith, Robert E.: *See*—
Garguilo, Robert J.; Mitchell, Gary A.; Hudson, Patricia M.; Pochron, Sharon P.; Huseby, Rolf M.; and Smith, Robert E., 4,275,153, Cl. 435-13.000.

Smith, Robert W.: *See*—
Bedell, John R.; Kavesh, Sheldon; Hemmat, Naim S.; Draizen, Seymour; and Smith, Robert W., 4,274,473, Cl. 164-423.000.

Smith, Russell G., to Xomox Corporation. Wafer-type swing check valve construction. 4,274,436, Cl. 137-515.700.

Smith, Stuart B.: *See*—
Montgomery, Robert L.; and Smith, Stuart B., 4,274,818, Cl. 425-4.00R.

Sneider, Vincent R. Flexible syringe with nozzle closure. 4,274,555, Cl. 222-107.000.

Snel, Martinus A., to Nautamix B. V. Method of preparing dry mixtures in powder form from polyvinylchloride, lubricating agents and stabilizers, and the manufacture of objects therefrom. 4,274,998, Cl. 260-23.0XA.

Snyder, Lloyd R., to Technicon Instruments Corporation. Chromatographic apparatus and method. 4,274,967, Cl. 210-659.000.

Snyder, Ronald R.; and Sibley, Lincoln L., Jr., to General Electric Company. Safing mechanism for high rate of fire revolving battery gun. 4,274,325, Cl. 89-12.000.

Societe de Fabrication d'Instruments de Mesure (SFIM): *See*—
Ferrier, Noel H. L.; and de Ruffi de Pontevès, Dominique C. N. E. M., 4,274,609, Cl. 244-3.140.

Societe d'Etudes et de Realisations Electroniques: *See*—
Ferrier, Noel H. L.; and de Ruffi de Pontevès, Dominique C. N. E. M., 4,274,609, Cl. 244-3.140.

Societe Francaise d'Electrometallurgie-Sofrem: *See*—
Demange, Michel; and Septier, Louis, 4,274,871, Cl. 75-134.00M.

Societe Metallurgique le Nickel -S.L.N.: *See*—
Plancquael, Guy; and Toth, Irene, 4,274,940, Cl. 204-294.000.

Societe Nationale de'Etude et de Constr. de Moteurs d'Aviation: *See*—
Joubert, Raymond J. M., 4,274,593, Cl. 239-265.350.

Societe Nationale Elf Aquitaine (Production): *See*—
Larribau, Etienne; and Tozzolino, Pierre, 4,274,930, Cl. 209-166.000.

Societe Nationale Industrielle Aerospatiale: *See*—
Mouille, Rene L.; and Ortega, Edwin, 4,274,510, Cl. 188-1.00B.

Sodeyama, Kaoru: *See*—
Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tamada, Naomasa, 4,274,681, Cl. 303-6.00C.

Soffer, Jacques: *See*—
Huber, Andre; Muller, Alain; and Soffer, Jacques, 4,275,341, Cl. 318-376.000.

Sokol, Larry S.: *See*—
McComas, Charles C.; Morris, James W.; and Sokol, Larry S., 4,275,090, Cl. 427-34.000.
McComas, Charles C.; Morris, James W.; and Sokol, Larry S., 4,275,124, Cl. 428-564.000.

Somerton-Rayner, Michael. All-terrain amphibious vehicle. 4,274,502, Cl. 180-6.200.

Sone, Masazumi; Suzuki, Katsuhiko; and Fukumori, Yukitsugu, to Nissan Motor Company, Limited. Electrostatic type car air purifier. 4,274,843, Cl. 55-139.000.

Sone, Masazumi: *See*—
Fukumori, Yukitsugu; Sone, Masazumi; Nagae, Hiromitsu; Shida, Masami; Kooriyama, Tsutomu; and Harada, Koji, 4,274,695, Cl. 339-97.00S.

Sonoda, Nobuo: *See*—
Tsubussaki, Shigeru; Sonoda, Nobuo; and Shimotsuma, Wataru, 4,275,103, Cl. 428-148.000.

Sonoda, Noriaki, to Nihon Radiator Co., Ltd. Laminated evaporator. 4,274,482, Cl. 165-153.000.

Sony Corporation: *See*—
Esashika, Tadashi, 4,275,417, Cl. 358-162.000.

Sakurai, Sadaaki; Takashima, Mitsuru; and Ugaji, Masana, 4,275,278, Cl. 179-181.00F.
Suematsu, Masayuki; Mogi, Takao; and Taki, Akira, 4,275,354, Cl. 328-58.000.
Sugita, Junkichi; and Fuse, Yuzo, 4,275,269, Cl. 179-1.0FS.
Takahashi, Hiroshi; Shibazaki, Etsuo; and Yamamoto, Yoshihito, 4,275,268, Cl. 179-1.00B.
Yamada, Hisafumi; Tokuhara, Masaharu; and Kuriki, Choei, 4,275,420, Cl. 358-167.000.
Yamamoto, Kaichi, 4,275,466, Cl. 375-113.000.
Yoshida, Tadao; and Suzuki, Tadao, 4,275,359, Cl. 330-251.000.
Sorensen, David J. Method of using a guide for replacement of earrings in pierced ears. 4,274,416, Cl. 128-330.000.
Sorin, Andrei. Board game computing device. 4,275,443, Cl. 364-410.000.
Soulliard, Charles, to Midian Electronics, Inc. Sub-miniature radio telephone decoder. 4,275,271, Cl. 179-2.0EB.
Soum, Rene. Concrete floor slab constructed from basic prefabricated slabs. 4,274,240, Cl. 52-583.000.
Southeastern Foam Products, Inc.: *See*—
Montgomery, Robert L.; and Smith, Stuart B., 4,274,818, Cl. 425-4.00R.
Southern Chemicals Limited: *See*—
O'Riordain, Diarmuid, 4,274,238, Cl. 52-408.000.
Southland Instruments, Inc.: *See*—
Lee, Peter F., 4,274,453, Cl. 141-1.000.
Spangler, Charles E.: *See*—
Yang, Wen C.; Spangler, Charles E.; Morris, Joe P.; and Keairns, Dale L., 4,275,353, Cl. 324-454.000.
Sparks, Richard H.: *See*—
Ritterman, Paul F.; and Sparks, Richard H., 4,275,127, Cl. 429-50.000.
Sparro, Francesco: *See*—
Gerber, Alfred; and Sparro, Francesco, 4,274,367, Cl. 123-52.00A.
Spector, George: *See*—
Ferguson, Arthur; and Spector, George, 4,274,6[illegible], Cl. 280-47.260.
Hughes, Tommy L.; and Spector, George, 4,274,508, Cl. 182-116.000.
Spence, Adam M.; and Goff, James R., to Winster Engineering Limited. Mining equipment. 4,274,765, Cl. 405-303.000.
Spengler, Hans; and Stoof, Klaus, to VEB Kombinat Pumpen und Verdichter. High-pressure centrifugal pump unit. 4,274,803, Cl. 415-70.000.
Speros, Dimitri M.: *See*—
Cho, Chong I.; Zukowski, Edward C.; and Speros, Dimitri M., 4,275,330, Cl. 313-218.000.
Sperry Corporation: *See*—
Gaglione, Stanley; and Hanley, Gerard L., 4,275,367, Cl. 333-164.000.
Lustig, Claude D., 4,274,742, Cl. 356-350.000.
Spohr, Albert R.: *See*—
Gallanis, George P.; Spohr, Albert R.; and Lube, Robert R., 4,274,199, Cl. 30-34.100.
Spohr, Reimar: *See*—
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,274,935, Cl. 204-192.00M.
Sporer, Bernhard. Assembly apparatus, particularly for the assembly of components upon carrier plates. 4,274,195, Cl. 29-741.000.
Sprecker, Mark A.; and Hall, John B., to International Flavors & Fragrances Inc. Substituted tricyclodecane derivatives, processes for producing same and organoleptic uses thereof. 4,275,251, Cl. 568-817.000.
Springer, Helmut: *See*—
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, 4,275,242, Cl. 568-463.000.
Sproles, Michael Andrew: *See*—
Doerge, Gail W., 4,274,450, Cl. 140-82.000.
Stablex A.G.: *See*—
Chappell, Christopher L., 4,274,880, Cl. 106-90.000.
Stahlhofen, Paul, to Hoechst Aktiengesellschaft. Light-sensitive mixture and copying material produced therefrom. 4,275,139, Cl. 430-192.000.
Staiger, Hans: *See*—
Burkhardt, Friedrich; and Staiger, Hans, 4,274,773, Cl. 409-221.000.
STAL-LAVAL Apparat AB: *See*—
Stendahl, Gunnar, 4,274,478, Cl. 165-104.160.
Stanciu, Virgil V.; Cutler, Robert A.; and Kasper, Kenneth R., to Tempcraft Tool & Mold Inc. Wax injection molding apparatus and control system. 4,274,823, Cl. 425-145.000.
Standard Brands Incorporated: *See*—
Dougan, Ernest V., 4,275,082, Cl. 426-92.000.
Standard Oil Company (Indiana): *See*—
Grutsch, James F.; Mallatt, Russell C.; and Walk, Joe D., 4,274,968, Cl. 210-666.000.
Hollingsworth, Frank H.; Jenkins, George R.; Kirkpatrick, John W.; and Mower, Lawrence N., 4,274,487, Cl. 166-261.000.
Standiford, Natalie C. Bed covering having tuckable portion. 4,274,169, Cl. 5-502.000.
Stanek, Oldrich: *See*—
Festag, Werner; Muller, Hans-Ueli; and Stanek, Oldrich, 4,274,541, Cl. 206-613.000.
Stanley, James M.: *See*—
Sieving, Alfred W.; and Stanley, James M., 4,274,680, Cl. 303-6.00A.
Stannett, Vivian: *See*—
Williams, Joel; Dunn, Terry; and Stannett, Vivian, 4,274,932, Cl. 204-159.200.
Stanton, James H.; and Garvin, Donald F., to Diversey Corporation, The. Aqueous water-soluble soap lubricant concentrates and aqueous lubricants containing same. 4,274,973, Cl. 252-34.700.
Starr, James A.; and Punches, James R., to General Electric Company. Measuring fixture. 4,274,205, Cl. 33-174.00L.
Stauffer Chemical Company: *See*—
Silberberg, Joseph, 4,274,995, Cl. 260-42.140.
Steelastic Company, The: *See*—
Kiemer, Ralph F., 4,274,821, Cl. 425-114.000.
Steiger, Roger A.: *See*—
Hazel, John G.; and Steiger, Roger A., 4,275,026, Cl. 264-67.000.
Stein, Werner; and Christophliemk, Peter, to Henkel Kommanditgesellschaft auf Aktien; and Deutsche Gold- und Silber Scheideanstalt vormals Roessler. Process for the preparation of fine droplet-reacted aluminosilicates of the smallest particle size. 4,275,048, Cl. 423-329.000.
Steinmetz, Richard J.: *See*—
Grocki, Wayne; and Steinmetz, Richard J., 4,275,338, Cl. 315-381.000.
Stendahl, Gunnar, to STAL-LAVAL Apparat AB. Apparatus for cooling dust-containing gas. 4,274,478, Cl. 165-104.160.
Stengard, Charles, to Valmet Oy. Gas nozzle for use in treating material webs. 4,274,210, Cl. 34-156.000.
Sterling Drug Inc.: *See*—
Collins, Joseph C., 4,275,201, Cl. 544-171.000.
Crounse, Nathan N.; and Schmidt, Paul J., 4,275,121, Cl. 428-537.000.
Schmidt, Paul J.; and Mo-Wei Hung, William, 4,274,660, Cl. 282-27.500.
Sterling Winthrop Group Limited: *See*—
Cartwright, Jeffery, 4,274,884, Cl. 134-4.000.
Sternick, Leon; and Lea, John D., to United States of America, Navy. Parallel digital beam-forming system. 4,275,461, Cl. 367-122.000.
Stevens, Karl W.: *See*—
Adams, Robert L., Jr.; Grant, Carl H.; and Stevens, Karl W., 4,275,440, Cl. 364-200.000.
Stewart, Robert D., to Occidental Research Corporation. Extraction process using solid stabilized emulsions. 4,274,956, Cl. 210-638.000.
Stewart-Warner Corporation: *See*—
Ireland, Robert G.; and Tramontini, Vernon N., 4,274,481, Cl. 165-122.000.
Stewart, William M. Universal bit apparatus. 4,274,246, Cl. 54-6.00R.
Stiefel, Frank J., to Carter-Wallace Inc. Method for preparing basic dithienyl compounds. 4,275,198, Cl. 542-414.000.
Stinton, Robert T.: *See*—
Long, Richard W.; and Stinton, Robert T., 4,274,759, Cl. 405-186.000.
Stirniman, Robert P., to Induction Heating International, Inc. Induction heating inverter. 4,275,438, Cl. 363-136.000.
Stokes, Anthony D., to University of Sydney, The. Gas recovery of sulphur hexafluoride. 4,274,851, Cl. 62-40.000.
Stolen, Rogers H.: *See*—
Pleibel, William; and Stolen, Rogers H., 4,274,854, Cl. 65-2.000.
Stone, Herman: *See*—
Rudner, Bernard; and Stone, Herman, 4,275,169, Cl. 521-99.000.
Stoof, Klaus: *See*—
Spengler, Hans; and Stoof, Klaus, 4,274,803, Cl. 415-70.000.
Stork, Gilbert: *See*—
Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., 4,275,087, Cl. 426-538.000.
Strassler, Sigfrid: *See*—
Buxbaum, Charley; Gessinger, Gernot; and Strassler, Sigfrid, 4,275,123, Cl. 428-547.000.
Strauss, Edgar H.: *See*—
Langen, Marinus J. M.; and Strauss, Edgar H., 4,274,245, Cl. 53-558.000.
Stresing, Kurt O., to General Electric Company. Fluorescent lamp unit. 4,275,331, Cl. 313-318.000.
Stromberg, Robert P., to United States of America, Energy. Electromechanical solar tracking apparatus. 4,274,394, Cl. 126-425.000.
Struger, Odo J.; and Branc, Joseph R., to Allen-Bradley Company. Input circuit for digital control systems. 4,275,307, Cl. 250-551.000.
Struthers, Ralph C., to Universal Fuel Systems, Inc. Fuel cell. 4,275,125, Cl. 429-29.000.
Struve, Roger L. Inhaler. 4,274,403, Cl. 128-203.150.
Sudar, Robert B.; Lewis, Edward L.; and Koppel, Albert W., to Canadian Patents & Dev. Ltd. Sea water conductivity cell. 4,275,352, Cl. 324-449.000.
Sudo, Toshio: *See*—
Kishi, Atsuo; and Sudo, Toshio, 4,274,813, Cl. 417-269.000.
Suematsu, Masayuki; Mogi, Takao; and Taki, Akira, to Sony Corporation. Pulse width modulating circuit. 4,275,354, Cl. 328-58.000.
Sugahara, Koichi: *See*—
Ashizaki, Shigeya; Muranishi, Hideo; and Sugahara, Koichi, 4,275,332, Cl. 313-414.000.
Sugano, Kazuhiko: *See*—
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,307, Cl. 74-869.000.
Iwanaga, Kazuyoshi; Sugano, Kazuhiko; and Ohtsuka, Kunio, 4,274,308, Cl. 74-869.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, to Nissan Motor Company, Limited. Combined split engine and closed loop mixture control operation with enriched fuel during partial cylinder mode. 4,274,373, Cl. 123-440.000.
Sugasawa, Fukashi; Iizuka, Haruhiko; and Matsumoto, Junichiro, to Nissan Motor Company, Limited. Apparatus for performing stepwise reactivation of cylinders of an internal combustion engine upon deceleration. 4,274,382, Cl. 123-481.000.
Sugita, Junkichi; and Fuse, Yuzo, to Sony Corporation. Public address system. 4,275,269, Cl. 179-1.0FS.
Sugiura, Muneharu; and Minami, Setsuo, to Canon Kabushiki Kaisha. Copying apparatus with stationary original support table and novel imaging lens system. 4,274,733, Cl. 355-60.000.
Sukup Manufacturing Co.: *See*—
Smit, Edward H., 4,274,750, Cl. 366-261.000.
Suld, George: *See*—
Schneider, Abraham; Myers, Harry K., Jr.; and Suld, George, 4,275,254, Cl. 585-14.000.
Sulzer Brothers Limited: *See*—
Seifert, Eberhard; and John, Philippe, 4,274,447, Cl. 139-97.000.
Sumegi, Robert B.: *See*—
Jansen, Harvey B.; Adams, Milton R.; Sumegi, Robert B.; Huber, Klaus K. G.; and Salisbury, John A., deceased, 4,274,254, Cl. 60-39.030.
Sumitomo Chemical Company, Limited: *See*—
Kirino, Osamu; Hashimoto, Shunichi; Matsumoto, Hiroshi; and Oshio, Hiromichi, 4,274,862, Cl. 71-118.000.
Sumitomo Electric Industries, Ltd.: *See*—
Kodama, Yujiro; Kuroishi, Nobuhito; Sabao, Masato; and Kureha, Yasumasa, 4,274,876, Cl. 75-243.000.
Mifune, Teruo; Noto, Keiji; Otsu, Yasuo; and Hagiwara, Kotaro, 4,274,185, Cl. 29-123.000.
Moriya, Michio, 4,274,511, Cl. 188-1.00A.
Sumitomo Metal Mining Co. Ltd.: *See*—
Ogawa, Kunio; and Iio, Hiromitsu, 4,274,785, Cl. 414-173.000.
Summers, William A.; and Longardner, Robert L. Peak power generation. 4,275,310, Cl. 290-1.00R.
Sun, Shan C.: *See*—
Church, Larry L.; and Sun, Shan C., 4,275,429, Cl. 361-64.000.
Sunbeam Corporation: *See*—
Gallanis, George P.; Spohr, Albert R.; and Lube, Robert R., 4,274,199, Cl. 30-34.100.
Sunshine, Richard B.; and Severen, Randall D., to Cona Company, Inc., The. Water propelled hover device. 4,274,591, Cl. 239-188.000.
Suntech, Inc.: *See*—
Schneider, Abraham; Myers, Harry K., Jr.; and Suld, George, 4,275,254, Cl. 585-14.000.
Surf-Jet Corporation: *See*—
Dawson, Edward S., 4,274,357, Cl. 114-270.000.
Sutton, Luther M. Vehicle mounted carriage and elevating apparatus. 4,274,788, Cl. 414-462.000.
Suzuki, Katsumi: *See*—
Yusa, Haruhiko; Oota, Masanori; and Suzuki, Katsumi, 4,275,178, Cl. 525-71.000.
Suzuki, Kazuhiko: *See*—
Sone, Masazumi; Suzuki, Kazuhiko; and Fukumori, Yukitsugu, 4,274,843, Cl. 55-139.000.
Suzuki, Mikio: *See*—
Kawabata, Minoru; Suzuki, Mikio; and Takahashi, Kenji, 4,274,504, Cl. 180-143.000.
Suzuki, Shintaro; Iizaka, Sadao; Moriya, Yoshimi; and Omote, Yuichi, to Kanto Denka Kogyo Co., Ltd. Production of magnetic powder. 4,274,865, Cl. 75-0.5AA.
Suzuki, Tadao: *See*—
Yoshida, Tadao; and Suzuki, Tadao, 4,275,359, Cl. 330-251.000.
Suzuki, Yoshihiro; Kinoshita, Hiroo; and Akasaka, Naomi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Catalyst for purifying exhaust gas and the process for manufacturing thereof. 4,274,981, Cl. 252-438.000.
Svenska Utvecklingsaktiebolaget (SU) Swedish National Development Co.: *See*—
Bjaarklint, Ake B., 4,274,939, Cl. 204-257.000.
Svensson, Claes G. S.; Eriksson, Hans E. K.; and Lundgren, Rolf B., to Mo och Domsjo Aktiebolag. Process and apparatus for continuously conveying particulate compressible fibrous material from a zone at a first gas pressure to a zone at a second gas pressure. 4,274,786, Cl. 414-218.000.
Swanson, Kenneth P., to Progressive Equipment, Inc. Spinning frame apron clearer attachment. 4,274,179, Cl. 19-245.000.
Swartout, Bobbye J. Method for washing centrifugal analyzer test disks. 4,274,885, Cl. 134-21.000.
Swartz, Jerome. Harmony authorization detector synthesizer. 4,274,321, Cl. 84-1.030.
Sweitzer, Ralph W.: *See*—
Hays, Herbert G.; and Sweitzer, Ralph W., 4,274,581, Cl. 237-7.000.
Swiss Aluminium Ltd.: *See*—
Festag, Werner; Muller, Hans-Ueli; and Stanek, Oldrich, 4,274,541, Cl. 206-613.000.
Swoish, Raymond F.; and Astleford, John J., Jr., to Westinghouse Electric Corp. High-voltage single-shot circuit-protecting device with fuse-like characteristics and having a chemical operating mechanism. 4,275,431, Cl. 361-93.000.
Sybron Corporation: *See*—
Blair, James E., 4,274,954, Cl. 210-611.000.
Syva Company: *See*—
Litman, David J.; Harel, Zvi; and Ullman, Edwin F., 4,275,149, Cl. 435-7.000.
Singh, Prithipal; and Pirio, Marcel R., 4,275,160, Cl. 435-188.000.
Szejtli, Jozsef; Fenyvesi, Eva; Zoltan, Sandor; Zsadon, Bela; and Tudos, Ferenc, to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara Rt. Cyclodextrin-polyvinyl alcohol polymers and a process for the preparation thereof in a pearl, foil, fiber or block form. 4,274,985, Cl. 260-17.4ST.
Tachikawa, Kyoji; Tanaka, Yoshiaki; Yoshida, Yuji; and Asano, Toshihisa, to National Research Institute for Metals. Method for producing superconductors. 4,274,889, Cl. 148-133.000.
Tadokoro, Shin-ichi; and Segawa, Hirozo, to Kyowa Gas Chemical Industry Co., Ltd. Neutron shielding polymer composition and a process for producing the same. 4,275,174, Cl. 525-1.000.
Taga Electric Co., Ltd.: *See*—
Mishiro, Shoji; and Hamada, Seiji, 4,275,363, Cl. 331-4.000.
Tagami, Eijiro: *See*—
Hosaka, Yoshihiro; Harita, Yoshiyuki; Kurokawa, Mitsuo; Harada, Kunihiro; and Tagami, Eijiro, 4,275,142, Cl. 430-271.000.
Tagaya, Ryosaku: *See*—
Takahashi, Toshio; and Tagaya, Ryosaku, 4,274,745, Cl. 356-427.000.
Taig, Alistair G., to Bendix Corporation, The. Universal joint. 4,274,268, Cl. 64-7.000.
Tait, David A. G. A.C. Impedance measuring circuit with thermally controlled resistive element. 4,275,345, Cl. 323-363.000.
Tajano, Alberto: *See*—
Nardi, Dante; Tajano, Alberto; and Magistretti, Maria J., 4,275,071, Cl. 424-273.00R.
Takagi, Masatomo; Noritake, Tsuguo; and Ogaki, Mitsuo, to Tokyo Shibaura Denki Kabushiki Kaisha. Enclosed switchboard. 4,274,547, Cl. 220-4.00R.
Takagi, Mikio; Maeda, Mamoru; and Kamioka, Hajime, to Fujitsu Limited. Process for high pressure oxidation of silicon. 4,275,094, Cl. 427-93.000.
Takahashi, Hiroshi; Shibazaki, Etsuo; and Yamamoto, Yoshihito, to Sony Corporation. Mixing apparatus. 4,275,268, Cl. 179-1.00B.
Takahashi, Kenji: *See*—
Kawabata, Minoru; Suzuki, Mikio; and Takahashi, Kenji, 4,274,504, Cl. 180-143.000.
Takahashi, Masaaki; and Ito, Akira, to Kureha Kagaku Kogyo Kabushiki Kaisha. Radiation resistant oil and method of lubricating for atomic power facilities. 4,275,253, Cl. 585-7.000.
Takahashi, Tohru; Sato, Tadashi; and Kishi, Hirotoshi, to Canon Kabushiki Kaisha. Original reading device. 4,275,423, Cl. 358-285.000.
Takahashi, Toshio; and Tagaya, Ryosaku, to Eisai Co., Ltd. Method and apparatus for detecting foreign matters in liquids. 4,274,745, Cl. 356-427.000.
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yasai, Nobuya; and Nishida, Masayuki, to Morinaga Milk Industry Co., Ltd.; and Green Cross Corporation, The. HGI-Glycoprotein capable of stimulating proliferation and differentiation of human granulocyte, process for preparing same and leukopenia curative containing same. 4,275,056, Cl. 424-99.000.
Takashima, Mitsuru: *See*—
Sakurai, Sadaaki; Takashima, Mitsuru; and Ugaji, Masana, 4,275,278, Cl. 179-181.00F.
Takata, Juichiro. Vehicle occupant restraint system. 4,274,658, Cl. 280-804.000.
Takayama, Satoru: *See*—
Yamaguchi, Nobutana; Takayama, Satoru; Utsumi, Masahiro; and Fujiyama, Masaaki, 4,275,108, Cl. 428-220.000.
Takeuchi, Hiroshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Microprogram control system for microprogram debugging. 4,275,441, Cl. 364-200.000.
Taki, Akira: *See*—
Suematsu, Masayuki; Mogi, Takao; and Taki, Akira, 4,275,354, Cl. 328-58.000.
Takinami, Koichi: *See*—
Tanaka, Takashi; Ono, Eiji; and Takinami, Koichi, 4,275,011, Cl. 260-410.700.
Tosaka, Osamu; Ono, Eiji; Ishihara, Masaru; Morioka, Hajimu; and Takinami, Koichi, 4,275,157, Cl. 435-115.000.
Talbot, Wilfred A. R. Apparatus for making shot. 4,274,819, Cl. 425-6.000.
Tam, Hak W.; and Modes, Vernon E., to Quinton Instrument Co. Skin preparation device and method used in the application of medical electrodes. 4,274,419, Cl. 128-639.000.
Tama, Tomeaki: *See*—
Kajino, Masayori; Yoshii, Takashi; and Tama, Tomeaki, 4,274,652, Cl. 280-460.00A.
Tamai, Shuichi; and Matsuyama, Noriside, to Osaka Nagayasagi Cork Ind., Co., Ltd. Apparatus for forming seal liners of thermoplastic material within closure cap shells. 4,274,822, Cl. 425-127.000.
Tamura, Shuichi; Niwa, Yukichi; Ogawa, Masahiko; Owada, Mitsutoshi; and Asano, Noriyuki, to Canon Kabushiki Kaisha. Distance measuring device. 4,274,735, Cl. 356-1.000.
Tanaka, Takashi; Ono, Eiji; and Takinami, Koichi, to Ajinomoto Company, Incorporated. Method of producing improved glyceride by lipase. 4,275,011, Cl. 260-410.700.
Tanaka, Takehiko; Kubota, Yoji; and Kubonoya, Kiyoshi, to Fujitsu Limited. Betting tickets selling and collecting system. 4,275,456, Cl. 364-900.000.
Tanaka, Yoshiaki: *See*—
Tachikawa, Kyoji; Tanaka, Yoshiaki; Yoshida, Yuji; and Asano, Toshihisa, 4,274,889, Cl. 148-133.000.
Tananier, John S.; and Martin, Jerry R., to Abbott Laboratories. 4,5-Carbamates of fortimicin B. 4,275,193, Cl. 536-17.00R.
Tang, Denny D.: *See*—
Silvestri, Victor J.; Tang, Denny D.; and Wiedmann, Siegfried K., 4,274,891, Cl. 148-175.000.

Tangonan, Gregory L., to Hughes Aircraft Company. Wavelength multiplexer/demultiplexer for optical circuits. 4,274,706, Cl. 350-96.190.
Tanigami, Yoshinori: *See*—
Kagami, Akiyasu; and Tanigami, Yoshinori, 4,275,333, Cl. 313-495.000.
Taniguchi, Nobuyuki, to Minolta Camera Kabushiki Kaisha. System for inputting information into digital control circuit means of a camera. 4,274,730, Cl. 354-289.000.
Tannetics, Inc.: *See*—
James, David H.; and Junco, Manuel F., 4,274,267, Cl. 62-252.000.
Taoka, Akira; and Uchida, Seiichi, to Bio Research Center Company, Ltd. Manufacture of fatty acids having straight and long carbon chains using a microorganism. 4,275,158, Cl. 435-136.000.
Tarbet, James K.: *See*—
White, Arnold G.; Tarbet, James K.; Vanness, Dennis A.; Woods, Gordon J.; and Micklethwaite, William F. H., 4,274,389, Cl. 125-21.000.
Tarozzi, Richard A.: *See*—
Medeiros, David E.; and Tarozzi, Richard A., 4,274,562, Cl. 222-401.000.
Tarpley, William B., Jr., to Energy and Minerals Research, Co. Process and apparatus for continuous discharge of material at localized damage point. 4,274,491, Cl. 169-46.000.
Tate & Lyle Limited: *See*—
Irvine, George D., 4,274,879, Cl. 106-39.500.
Tate, Takao, to Toyota Jidosha Kogyo Kabushiki Kaisha. Ignition control system for an internal combustion engine. 4,274,378, Cl. 123-421.000.
Taub, Ronald H. Display stand with three-sided base having partial rear wall. 4,274,613, Cl. 248-150.000.
Taylor, Frank E. Four wheeled hand truck. 4,274,644, Cl. 280-39.000.
Taylor Industries, Inc.: *See*—
Taylor, Philip W., 4,275,096, Cl. 427-230.000.
Taylor, Philip W., to Taylor Industries, Inc. Method and apparatus for dispensing fluid in a conduit. 4,275,096, Cl. 427-230.000.
Taylor, Richard J.: *See*—
Trump, Martin R.; Michael, Peter C.; and Taylor, Richard J., 4,275,418, Cl. 358-167.000.
Taylor, Robert A., to Lancer Boss Limited. Load carrying vehicles. 4,274,795, Cl. 414-673.000.
Taylor, Roy: *See*—
Grimshaw, Keith; and Taylor, Roy, 4,274,177, Cl. 19-99.000.
Tazaki, Kichiya: *See*—
Yamashita, Izumi; Fukuda, Kunio; and Tazaki, Kichiya, 4,274,998, Cl. 260-45.75B.
TBS, Inc.: *See*—
Simons, Peter B., 4,274,455, Cl. 141-1.000.
TDC-Technology Development Corporation: *See*—
French, Frederic A.; and French, Douglas A., 4,275,050, Cl. 423-445.000.
TEC Foam S.A.: *See*—
Luaces, Roman Y., 4,275,024, Cl. 264-51.000.
Technicon Instruments Corporation: *See*—
Snyder, Lloyd R., 4,274,967, Cl. 210-659.000.
Techtransfer GmbH: *See*—
Roediger, Hanns E., 4,274,959, Cl. 210-221.200.
Teetz, Volker: *See*—
Konig, Wolfgang; Teetz, Volker; Jager, Georg; and Geiger, Rolf, 4,275,001, Cl. 260-112.5LH.
Tektronix, Inc.: *See*—
Holznagel, Melvin A., 4,275,355, Cl. 328-124.000.
Teletype Corporation: *See*—
Hagstrom, Arthur A., 4,274,237, Cl. 52-312.000.
Tempcraft Tool & Mold Inc.: *See*—
Stanciu, Virgil V.; Cutler, Robert A.; and Kasper, Kenneth R., 4,274,823, Cl. 425-145.000.
Templin, Alan S., to TRW Inc. Dopant diffusion method of making semiconductor products. 4,274,892, Cl. 148-188.000.
Tenneco Chemicals, Inc.: *See*—
Rudner, Bernard; and Stone, Herman, 4,275,169, Cl. 521-99.000.
Teramoto, Kazuo: *See*—
Yoshioka, Toshio; Teramoto, Kazuo; and Shimamura, Masaharu, 4,275,156, Cl. 435-94.000.
Terdenge, Bernhard: *See*—
Zacharias, Theodor; and Terdenge, Bernhard, 4,274,274, Cl. 72-239.000.
Terveen, Axel: *See*—
Lutz, Dieter; Krause, Peter; Terveen, Axel; and Eibl, Volker, 4,274,425, Cl. 128-719.000.
Teshima, Kiyomi; Tsuboi, Toshio; and Kajitani, Yukimasa, to Mitsui Engineering and Shipbuilding Co., Ltd. Axial-flow turbine. 4,274,804, Cl. 415-121.00A.
Tewksbury, Floyd L.: *See*—
Friedland, David J.; Tewksbury, Floyd L.; and Robinson, Martin A., 4,275,037, Cl. 423-8.000.
Texas Instruments Deutschland GmbH: *See*—
Schurmann, Josef H., 4,275,361, Cl. 330-277.000.
Textron, Inc.: *See*—
Egner, Ronald J., 4,274,460, Cl. 411-83.000.
Ervin, James K.; and Salamon, Nicholas L., 4,274,191, Cl. 29-408.000.
Garner, Jimmy G.; and Guinn, Kenneth F., 4,274,808, Cl. 416-114.000.
Rohrer, Robert L., 4,274,347, Cl. 112-104.000.
Roy, Donald A.; O'Keefe, George F.; and Kutelis, Carl R., 4,274,316, Cl. 83-23.000.
Th. Goldschmidt AG: *See*—
Koerner, Gotz; and Fink, Hans-Ferdi, 4,274,977, Cl. 252-358.000.
Thackabeery, S. Paul: *See*—
Murphy, Clarence R.; Thackabeery, S. Paul; Boehme, Robert E., deceased; and Boehme, Helen J., sole beneficiary, 4,274,917, Cl. 162-146.000.
Thalheim, Gerhard, to Sidco, SA. Apparatus for controlling a machine tool during the machining of a first workpiece to be matched with a second workpiece already machined. 4,274,230, Cl. 51-165.00R.
Theden, Ulrich: *See*—
Muller, Bernt; and Theden, Ulrich, 4,275,406, Cl. 357-26.000.
Thermacore, Inc.: *See*—
Eastman, George Y., 4,274,479, Cl. 165-104.260.
Thiele, Kurt; Ahmed, Quazi; Jahn, Ulrich; and Adrian, Rudolf, to Siegfried AG. Lipid lowering alkylene glycols and ester derivatives thereof. 4,275,068, Cl. 424-266.000.
Thiessen, Eldon D. Dual dispensing container. 4,274,556, Cl. 222-135.000.
Thomas & Betts Corporation: *See*—
Bethurum, Gary C., 4,274,197, Cl. 29-861.000.
Thominet, Georges M., to Compagnie Francaise des Petroles. Pipe joining device for underseas petroleum pipeline. 4,274,664, Cl. 285-24.000.
Thompson, Charles D.: *See*—
DiGregorio, David; McCarthy, Daniel; Mounteer, Keith J.; and Thompson, Charles D., 4,275,020, Cl. 261-111.000.
Thompson, M. Leonard: *See*—
Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,274,766, Cl. 407-15.000.
Thomsen, Kenneth A.: *See*—
Alexander, William C.; Kirk, Richard L.; and Thomsen, Kenneth A., 4,275,376, Cl. 340-52.00R.
Thomson-Brandt: *See*—
Bricot, Claude; and Lehureau, Jean Claude, 4,275,275, Cl. 369-44.000.
Thomson-CSF: *See*—
Lehureau, Jean-Claude, 4,275,428, Cl. 360-113.000.
Thomson, Ronald E.; and Dombroski, Robert M., to Madison-Kipp Corporation. Electrical lubricating apparatus. 4,274,509, Cl. 184-15.00B.
Thurm, Siegfried; and Bunge, Konrad, to AGFA-Gevaert, A.G. Method and apparatus for making reproductions of color film frames. 4,274,732, Cl. 355-38.000.
Thyssen Industrie AG: *See*—
Block, Siegmar, 4,274,435, Cl. 137-508.000.
TII Corporation: *See*—
Napiorkowski, John, 4,275,432, Cl. 361-124.000.
Tisdale, Benjamin C., III; and Nicholson, William B., to Martech International, Inc. Method and apparatus for reeling pipeline. 4,274,799, Cl. 414-747.000.
Tittmann, Bernhard R.; and Ahlberg, Lloyd A., to Rockwell International Corporation. Method for measuring the depth of surface flaws. 4,274,288, Cl. 73-602.000.
TMC Corporation: *See*—
Himmetsberger, Alois; and Wittmann, Heinz, 4,274,653, Cl. 280-618.000.
Todd, John; and West, Gregory M. K. Helmet locking device. 4,274,271, Cl. 70-59.000.
Toenjes, Robert B., to Chamberlain Manufacturing Corporation. Obstruction sensor for electro-mechanically operated garage doors. 4,274,227, Cl. 49-28.000.
Tohgei, Ryoiku: *See*—
Sasaki, Nobuo; Kobayashi, Yasuo; Tohgei, Ryoiku; Iwai, Takashi; and Nakano, Motoo, 4,275,093, Cl. 427-89.000.
Tokas, Edward F., to Monsanto Company. Chemically reducing residual styrene monomer in styrene polymers and shaped products formed therefrom. 4,274,984, Cl. 260-4.0AR.
Tokico, Ltd.: *See*—
Kato, Tetuo; and Miura, Ieaki, 4,274,517, Cl. 188-315.000.
Tokosh, Richard; Barillo, Joseph; and Urban, Warren, to Lever Brothers Company. Novel process for the preparation of salts of alkanesulfonic acids. 4,275,013, Cl. 260-504.00R.
Tokuhara, Masaharu: *See*—
Yamada, Hisafumi; Tokuhara, Masaharu; and Kuriki, Choei, 4,275,420, Cl. 358-167.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Kuwata, Ryuichi, 4,275,439, Cl. 364-120.000.
Nei, Hiromichi; Ohtani, Ryoichi; Ohshima, Iwao; and Horikawa, Yuji, 4,274,280, Cl. 73-61.0LM.
Takeuchi, Hiroshi, 4,275,441, Cl. 364-200.000.
Tokyo Shibaura Electric Co., Ltd.: *See*—
Seki, Nagataka; and Watanabe, Yukio, 4,275,430, Cl. 361-91.000.
Tokyo Shibaura Henki Kabushiki Kaisha: *See*—
Takagi, Masatomo; Noritake, Tsuguo; and Ogaki, Mitsuo, 4,274,547, Cl. 220-4.00R.
Tominaga, Akira; and Nishida, Reijiro, to Kansai Paint Co., Ltd. Cationic electrodepositable resin composition. 4,274,989, Cl. 260-29.2TN.
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Watanabe, Tadao, 4,275,106, Cl. 428-200.000.
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Towne Robinson Fastener Company: *See*—
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Kikuiri, Makoto; Nakashio, Yoshimi; Arai, Yasue; and Hidaka, Toshio, 4,274,913, Cl. 162-65.000.
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Haga, Minoru; and Kondo, Kunio, 4,274,774, Cl. 409-232.000.
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Nakane, Mototaka, 4,274,524, Cl. 192-48.300.
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, 4,274,817, Cl. 418-133.000.
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Trumpf Maschinen AG: *See*—
Herb, Eugen; and Leibinger, Berthold, 4,274,801, Cl. 414-751.000.
TRW Inc.: *See*—
Davis, Paul W., Jr., 4,275,319, Cl. 310-43.000.
Dunn, William M.; and Hodge, Malcolm H., 4,274,572, Cl. 225-96.500.
Ritterman, Paul F.; and Sparks, Richard H., 4,275,127, Cl. 429-50.000.
Templin, Alan S., 4,274,892, Cl. 148-188.000.
Ts'Ao, Si-Ling. Telephone index for repertory dialer. 4,275,273, Cl. 179-90.00B.
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Teshima, Kiyomi; Tsuboi, Toshio; and Kajitani, Yukimasa, 4,274,804, Cl. 415-121.00A.
Tsubusaki, Shigeru; Sonoda, Nobuo; and Shimotsuma, Wataru, to Matsushita Electric Industrial Co., Ltd. Electrographic recording medium with conductive layer containing metal oxide semiconductor. 4,275,103, Cl. 428-148.000.
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Tsuda, Yoshitaka; Sodeyama, Kaoru; and Tsunada, Naomasa, to Nissan Motor Company, Limited. Pressure control valve assembly for a fluid brake system. 4,274,681, Cl. 303-6.00C.
Tsujimoto, Kayoshi, to Minolta Camera Kabushiki Kaisha. Automatic focus control device for objective lens exchangeable cameras. 4,274,720, Cl. 354-25.000.
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Tucker, Howard, to Imperial Chemical Industries Limited. βAdrenergic blocking alkanolamine derivatives. 4,275,058, Cl. 424-199.000.
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Chu, Joseph Y. C.; Schank, Richard L.; and Tutihasi, Simpei, 4,275,133, Cl. 430-31.000.
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Underwood, Johnny P.; and Bowden, Carl G. Electronic tic-tac-toe game. 4,275,442, Cl. 364-410.000.
Undin, Hans; and Wiener, Hans, to Toolema AB. Vacuum operated desoldering tool. 4,274,176, Cl. 15-341.000.
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Firth, William C., Jr., 4,274,860, Cl. 71-24.000.
Union Carbide Corporation: *See*—
Andresen, Harvey E.; and Persoha, Thomas F., 4,274,841, Cl. 55-40.000.
Barr, John B., 4,275,051, Cl. 423-447.400.
Barth, Bruce P.; Johnson, Robert N.; and Mayer, Walter P., 4,275,172, Cl. 521-112.000.
Berger, Mitchell H.; Matzner, Markus; and Gardner, Hugh C., 4,275,188, Cl. 528-193.000.
Kawakami, James H.; and Kwiatkowski, George T., 4,275,186, Cl. 528-174.000.
Kirkpatrick, Robert D.; and Weiler, David W., 4,275,021, Cl. 261-114.0JP.
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Gutleber, Frank S., 4,275,397, Cl. 343-100.0CS.
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Jones, Louis F., 4,274,354, Cl. 114-244.000.
Lampton, Glen T., 4,274,333, Cl. 102-418.000.
Louie, Anthony C. H.; and Young, Stephen H., 4,275,421, Cl. 358-183.000.
Skatvold, Arthur R., Jr., 4,275,364, Cl. 333-33.000.
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Contant, Cornelis J., 4,275,412, Cl. 358-55.000.
Ferrieu, Gilbert M. M., 4,275,277, Cl. 179-170.0NC.
Lebailly, Jacques, 4,275,403, Cl. 357-17.000.
Lenders, Wilhelmus L. L.; and van Hirtum, Martinus J., 4,274,603, Cl. 242-7.140.
Lippits, Gerardus J. M.; Van Den Broek, Arnoldus J. M.; Op Het Veld, Adriaan J. G.; Dijkstra, Rinse; and De Jonge, Jelis, 4,275,091, Cl. 427-53.100.
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Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,274,935, Cl. 204-192.00M.
Varon, Jacques J., 4,274,890, Cl. 148-171.000.
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Holmes, Trent H., 4,274,805, Cl. 415-138.000.
Horgan, John J., 4,274,261, Cl. 60-682.000.
McComas, Charles C.; Morris, James W.; and Sokol, Larry S., 4,275,090, Cl. 427-34.000.
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Pollak, Robert R., 4,274,255, Cl. 60-39.14R.
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Struthers, Ralph C., 4,275,125, Cl. 429-29.000.
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Arena, Blaise J., 4,274,980, Cl. 252-430.000.
Barley, Geoffrey W., 4,274,516, Cl. 188-310.000.
Firth, Bruce E., 4,275,248, Cl. 568-781.000.
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Imai, Tamotsu; Homeier, Edwin H.; and Mackowiak, David E., 4,275,252, Cl. 568-909.000.
Ryu, Ji-Yong, 4,275,052, Cl. 423-628.000.
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Bundy, Gordon L., 4,275,213, Cl. 548-240.000.
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Morton, Douglas R., Jr., 4,275,197, Cl. 542-413.000.
Sih, John C., 4,275,008, Cl. 260-345.200.
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Youngdale, Gilbert A., 4,275,069, Cl. 424-266.000.
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Vacca, Philip J., to Whiting Corporation. Cupola charging. 4,274,784, Cl. 414-168.000.
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Raupp, Arthur J., Jr.; Gerasin, Michael N.; and Thompson, M. Leonard, 4,274,766, Cl. 407-15.000.
Vallance, Charles B., to Leco Corporation. Heating element connector and method. 4,275,375, Cl. 338-329.000.
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Van Beeck, Walter P.; Dictus, Alfons J.; Geens, Maurits; Simons, Roger J.; and Burtin, Jean, to AGFA-GEVAERT N.V. Method and device for inspecting a moving sheet material for streaklike defects. 4,274,747, Cl. 356-431.000.
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Vanderhorst, Ed W.; and Vanderhorst, Henry L. Bicycle trailer and hitch. 4,274,649, Cl. 280-204.000.
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Hill, Howard D. W.; and Huber, Ulrich, 4,275,350, Cl. 324-321.000.
Varner, Donald E., to Gillette Company, The. Electronic control system for strip peeling apparatus. 4,274,315, Cl. 82-47.000.
Varon, Jacques J., to U.S. Philips Corporation. Method for the epitaxial manufacture of a semiconductor device having a multi-layer structure. 4,274,890, Cl. 148-171.000.
Varshney, Ramesh C., to Fairchild Camera & Instrument Corp. Charge-coupled device serial analog-to-digital converter and associated conversion method. 4,275,387, Cl. 340-347.0AD.
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Verbaan, Bernard, to National Institute for Metallurgy. Leaching process for zinc sulphide containing materials. 4,274,931, Cl. 204-119.000.
Verega, James, to Boyar-Schultz Corporation. Method and apparatus for dressing a grinding wheel. 4,274,231, Cl. 51-165.710.
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Vesterager, Peter K. R.; and Jeppesen, Borge, to Radiometer A/S. Electrochemical measuring device. 4,274,418, Cl. 128-635.000.

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von Delden, Edmund K. Carburetor with manual selectable fuel metering jets. 4,275,015, Cl. 261-23.00A.
Vora, Bipin V., to UOP Inc. Conversion of mixed butanes into gasoline. 4,275,255, Cl. 585-315.000.
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Vulliens, Philippe, to Baumgartner Papiers S.A. Method of monitoring a continuously advancing string material. 4,274,317, Cl. 83-74.000.
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Zilka, Ladislav, 4,274,918, Cl. 162-237.000.
W. R. Case Sons Cutlery Company: *See*—
Coder, James E., 4,274,200, Cl. 30-161.000.
W. R. Grace & Co.: *See*—
Mueller, Walter B.; Schirmer, Henry G.; Schoenberg, Julian H.; and Weinberg, Alan S., 4,274,900, Cl. 156-229.000.
Waaske, Heinz. Film cassette. 4,274,728, Cl. 354-275.000.
Waaske, Heinz. Photographic still camera. 4,274,729, Cl. 354-275.000.
Wagatsuma, Tadashi; and Hiwatashi, Kenji, to Alps Electric Co., Ltd. Switch assembly having printed circuit rotor and integrally hinged split housing. 4,275,279, Cl. 200-11.0DA.
Wagner & Aubel, Ltd.: *See*—
Singer, Karl, 4,274,770, Cl. 408-211.000.
Wagner, Charles A., to United States of America, National Aeronautics and Space Administration. Smoothing filter for digital to analog conversion. 4,275,453, Cl. 364-825.000.
Walden, Rex K.: *See*—
Coles, Eric R.; and Walden, Rex K., 4,274,540, Cl. 206-597.000.
Waldman, Joseph L.; Klein, Edgar; Kulling, Achim; and Rahm, Joseph A., to NL Industries, Inc. Process for manufacturing a stable titanyl sulfate solution. 4,275,041, Cl. 423-82.000.
Walenciak, Kenneth J.: *See*—
Di Maggio, Joseph P., Jr.; Eng, Henry; Ball, Donald A.; and Walenciak, Kenneth J., 4,274,359, Cl. 118-56.000.
Walk, Joe D.: *See*—
Grutsch, James F.; Mallatt, Russell C.; and Walk, Joe D., 4,274,968, Cl. 210-666.000.
Walkenhorst, Wilfried; Gauer, Richard; Wild, Gerhard; and Muller, Walter, to Hoechst Aktiengesellschaft. Process for continuous mass polymerization of alkenyl-aromatic compounds. 4,275,177, Cl. 525-53.000.
Walker-Neer Manufacturing Co., Inc.: *See*—
Willis, Clyde A.; and Ford, George A., 4,274,497, Cl. 175-100.000.
Walsh, Charles B., Jr. Expansion filing container. 4,274,577, Cl. 229-1.50R.
Walsh, Peter, to Duro-Test Corporation. Incandescent electric lamp withheat recovery means. 4,275,327, Cl. 313-111.000.
Walter, Merrill H.; and Jacobs, Stanley, to Beatrice Foods Company. Sewing machine attachment. 4,274,350, Cl. 112-235.000.
Walters, Robert N.; and Dietz, Kristen H., to Coin Acceptors, Inc. Coin separator assembly. 4,274,528, Cl. 194-102.000.
Wandel & Goltermann: *See*—
Bayer, Herbert; Hoffmann, Gunther; and Schuon, Eberhard, 4,275,348, Cl. 324-57.00R.
Wang, Charles: *See*—
Mars, James E.; Poole, Donald R.; Schmidt, Eckart W.; and Wang, Charles, 4,274,893, Cl. 149-2.000.
Wang, Chih C.; Ekstrom, Lincoln; Lausman, Thomas C.; and Wielicki, Henry, to RCA Corporation. Video disc lubricants. 4,275,101, Cl. 369-286.000.
Wang, David T.; and De, Sun-Tong. Mechanical digital lock. 4,274,272, Cl. 70-214.000.
Warmath, John, to Cut Rate Plastic Hangers, Inc. Unitary garment retaining hanger. 4,274,564, Cl. 223-93.000.
Warner & Swasey Company, The: *See*—
Ivel, Leonard L., 4,274,388, Cl. 125-11.01P.
Warren Consultants, Inc.: *See*—
Warren, James W., 4,275,095, Cl. 427-228.000.
Warren, Earney R., to Customized Components Co. Apparatus for preventing vehicles from slipping sideways and going out of control under snow and ice conditions. 4,274,656, Cl. 280-757.000.
Warren, James W., to Warren Consultants, Inc. Composite article and method of making same. 4,275,095, Cl. 427-228.000.
Warren, M. L.: *See*—
Tunstall, Karl N.; and Warren, M. L., 4,274,432, Cl. 137-315.000.
Watanabe, Seizaburo; and Matsuki, Yutaka, to Asahi-Dow Limited. Polyolefin resin foam and process for continuously manufacturing the same. 4,275,168, Cl. 521-82.000.
Watanabe, Tadao, to Toppan Printing Co., Ltd. Transfer sheet for polyamide articles. 4,275,106, Cl. 428-200.000.
Watanabe, Takeo; Kubota, Tadashi; and Yamagami, Akio, to Matsushita Electric Industrial Co., Ltd. System for automatically transferring information media. 4,275,425, Cl. 360-92.000.
Watanabe, Toshio; and Hattori, Tadashi, to Nippon Soken, Inc. Spark plug having intermediate electrode and non-parallel series gaps. 4,275,328, Cl. 313-123.000.
Watanabe, Yukio: *See*—
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Watkinson, Charles J.: *See*—
Elvidge, John H. K.; and Watkinson, Charles J., 4,274,812, Cl. 417-179.000.
Watts, Elvert S.: *See*—
Abernethy, Lynn W.; and Watts, Elvert S., 4,274,691, Cl. 339-19.000.
Watts, Len S. Heart valve. 4,274,437, Cl. 137-527.000.
Way, Merton B. Automatic power fishing reel. 4,274,219, Cl. 43-27.200.
Weatherchem Corporation: *See*—
Otterson, Lewis L., 4,274,563, Cl. 222-480.000.
Webber, Jack C., to Double Diamond Company. Dump valve. 4,274,484, Cl. 166-188.000.
Weber, Heinrich; Dungs, Horst; Beckmann, Franz; Schmauch, Hugo; and Flasch, Karl-Heinz, to Carl Still GmbH & Co. KG, Firma. Apparatus for cooling and dedusting degasification gases escaping from coal degasification chambers. 4,274,924, Cl. 202-255.000.
Weber, Jurgen; Bernhagen, Wolfgang; and Springer, Helmut, to Ruhrchemie Aktiengesellschaft. Process for preparing 2-methylenealdehydes. 4,275,242, Cl. 568-463.000.
Weber, Paul R.: *See*—
Rector, James L.; and Weber, Paul R., 4,274,751, Cl. 366-310.000.
Weber, Peter: *See*—
de Groot, Willem J.; Penner, Horst; Schmied, Irene; and Weber, Peter, 4,274,662, Cl. 285-21.000.
Wedemeyer, Karlfried: *See*—
Bohm, Siegfried; Klein, Alfons; and Wedemeyer, Karlfried, 4,275,241, Cl. 568-426.000.
Wegner, Gunter H., to Reeves Brothers, Inc. Method for producing flame retardant flexible polyurethane foams with blends of dibromoneopentyl glycol and flame retardant plasticizer. 4,275,171, Cl. 521-107.000.
Wei, Peter H. L.; and Gregory, Francis J., to American Home Products Corporation. Modulating the immune response with 2-substituted-3-hydroxythiazolo[2,3-b]benzo(and azabenzo)thiazolium salts and zwitterionic didehydro derivatives thereof. 4,275,065, Cl. 424-256.000.
Weiler, David W.: *See*—
Kirkpatrick, Robert D.; and Weiler, David W., 4,275,021, Cl. 261-114.0JP.
Weinberg, Alan S.: *See*—
Mueller, Walter B.; Schirmer, Henry G.; Schoenberg, Julian H.; and Weinberg, Alan S., 4,274,900, Cl. 156-229.000.
Weiner, Milton L., to Mobil Oil Corporation. Heat sealable packaging film comprising propylene polymer substrate and a surface layer blend of olefin copolymer or interpolymer. 4,275,119, Cl. 428-516.000.
Weiner, Milton L., to Mobil Oil Corporation. Heat sealable packaging film comprising propylene polymer substrate and olefin surface layer blend of polybutene-1 and an ethylene or a propylene copolymer. 4,275,120, Cl. 428-516.000.
Weinmann, Ernst: *See*—
Lorenz, Peter R.; Weinmann, Ernst; and Majer, Mirko, 4,275,165, Cl. 435-235.000.
Weiss, Arnold A.; Christensen, David C.; and Sikkema, Bruce H., to AMF Incorporated. Transducer positioning system for ultrasonic tire testing apparatus. 4,274,289, Cl. 73-618.000.
Weissenberger, Helmuth: *See*—
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Schulten, Radolf; Behr, Friedrich; and Wenzl, Helmut, 4,274,938, Cl. 204-239.000.
Wesendorf, Roberta H.: *See*—
Michaud, Robert P., 4,274,310, Cl. 81-57.360.
West, Gregory M. K.: *See*—
Todd, John; and West, Gregory M. K., 4,274,271, Cl. 70-59.000.
Western Automation Corporation: *See*—
Pertl, Don L., 4,274,215, Cl. 38-144.000.
Western Electric Company, Inc.: *See*—
Garrett, Robert W., 4,274,476, Cl. 165-80.00E.
Lord, Herbert A., 4,275,289, Cl. 219-121.0PR.

Westfall, James E., to Continental Group, Inc., The. Single-piece plastic closure having integral seal forming means. 4,274,544, Cl. 215-344.000.

Westhead, William T., to Scapa Dryers, Inc. Dryer felt with encapsulated, bulky center yarns. 4,274,448, Cl. 139-383.00A.

Westhusin, Daryl L. Adjustable riser member. 4,274,592, Cl. 239-200.000.

Westinghouse Electric Corp.: *See—*
Church, Larry L.; and Sun, Shan C., 4,275,429, Cl. 361-64.000.
Eley, Edgar R., 4,275,372, Cl. 337-4.000.
Flick, Carl, 4,275,324, Cl. 310-270.000.
La Coste, Bernard L., 4,274,438, Cl. 137-551.000.
Norris, George W., 4,275,414, Cl. 358-100.000.
Silvestri, George J., Jr., 4,274,259, Cl. 60-663.000.
Swoish, Raymond F.; and Astleford, John J., Jr., 4,275,431, Cl. 361-93.000.
Wintermute, Joseph T., 4,275,349, Cl. 324-141.000.
Yang, Wen C.; Spangler, Charles E.; Morris, Joe P.; and Kearns, Dale L., 4,275,353, Cl. 324-454.000.

Westwood, William D.: *See—*
Cielo, Paolo; and Westwood, William D., 4,275,290, Cl. 219-216.000.

Weyer, Paul P. Rotary actuator apparatus. 4,274,329, Cl. 92-33.000.

Whirl-Air-Flow Corporation: *See—*
Mueller, Edward E.; and Harrod, Michael K., 4,274,787, Cl. 414-412.000.

White, Arnold G.; Tarbet, James K.; Vanness, Dennis A.; Woods, Gordon J.; and Micklethwaite, William F. H., to Cominco Ltd. Cutting apparatus for semi-conductor materials. 4,274,389, Cl. 125-21.000.

White, Ben E.: *See—*
Geyer, Charles J., Jr.; and White, Ben E., 4,275,195, Cl. 536-101.000.

White Consolidated Industries, Inc.: *See—*
Schnall, Ira H., 4,274,433, Cl. 137-454.600.

White, Lester L., to Bell Telephone Laboratories, Incorporated. Infrared personnel locator system. 4,275,385, Cl. 340-312.000.

White, Mark D.: *See—*
White, Roland A.; and White, Mark D., 4,275,383, Cl. 340-286.00R.

White, Ralph B. Free arm sewing machine cabinet mounting mechanism. 4,274,686, Cl. 312-27.000.

White, Roland A.; and White, Mark D. Patient signalling system. 4,275,383, Cl. 340-286.00R.

White, Stanley A., to Rockwell International Corporation. Simplified fast fourier transform butterfly arithmetic unit. 4,275,452, Cl. 364-726.000.

Whiting Corporation: *See—*
Vacca, Philip J., 4,274,784, Cl. 414-168.000.

Whitmore, Henry B. Apparatus for orienting oblong articles. 4,274,531, Cl. 198-397.000.

Whittam, Thomas V., to Imperial Chemical Industries Limited. Zeolite synthesis. 4,275,047, Cl. 423-329.000.

Wicklow, Donald T.; and Detroy, Robert W., to United States of America, Agriculture. Preferential degradation of lignin in gramineous materials. 4,275,167, Cl. 435-277.000.

Widigs, Sven H., to Brandstrom, Lars-Gosta; and Brandstrom, Karl-Peter. Holder for chuck key. 4,274,772, Cl. 408-241.00R.

Wiedmann, Siegfried K.: *See—*
Silvestri, Victor J.; Tang, Denny D.; and Wiedmann, Siegfried K., 4,274,891, Cl. 148-175.000.

Wielicki, Henry: *See—*
Wang, Chih C.; Ekstrom, Lincoln; Lausman, Thomas C.; and Wielicki, Henry, 4,275,101, Cl. 369-286.000.

Wiener, Hans: *See—*
Undin, Hans; and Wiener, Hans, 4,274,176, Cl. 15-341.000.

Wierenga, Wendell: *See—*
Kelly, Robert C.; and Wierenga, Wendell, 4,275,214, Cl. 548-243.000.

Wiers, John W.: *See—*
Johnson, Richard F.; and Wiers, John W., 4,274,657, Cl. 280-803.000.

Wilcox, Milton E., to National Semiconductor Corporation. Video amplifier with noise inversion. 4,275,419, Cl. 358-167.000.

Wild, Gerhard: *See—*
Walkenhorst, Wilfried; Gauer, Richard; Wild, Gerhard; and Muller, Walter, 4,275,177, Cl. 525-53.000.

Wilfert, Thomas; Babitzka, Rudolf; and Schlagmuller, Walter, to Robert Bosch GmbH. Electromagnetic fuel injection valve for internal combustion engines. 4,274,598, Cl. 239-585.000.

Wilgood Corporation: *See—*
Feller, Murray F., 4,275,291, Cl. 235-92.0FL.

Williams, Albert. Portable support for a scaffold. 4,274,507, Cl. 182-12.000.

Williams, Curtis. Pick-up tool for objects. 4,274,669, Cl. 294-16.000.

Williams, Dennis W. Threshing apparatus. 4,274,426, Cl. 130-27.00T.

Williams, James M.: *See—*
Huber, Daniel L.; Paulson, Thomas M.; and Williams, James M., 4,274,752, Cl. 400-477.000.

Williams, Joel; Dunn, Terry; and Stannett, Vivian, to Becton Dickinson and Company. Semi-crystalline polymers stabilized for irradiation sterilization. 4,274,932, Cl. 204-159.200.

Williams, Ralph P.: *See—*
Drake, Charles A.; and Williams, Ralph P., 4,275,237, Cl. 564-306.000.

Willis, Clyde A.; and Ford, George A., to Walker-Neer Manufacturing Co., Inc. Skirted hammer sub for dual tube drilling. 4,274,497, Cl. 175-100.000.

Wilson, Charles A., II: *See—*
Quinn, Clayton B.; and Wilson, Charles A., II, 4,275,187, Cl. 528-174.000.

Wilson, Richard A.; Schreiber, William L.; Mookherjee, Braja D.; Kiwala, Jacob; Vinals, Joaquin F.; Vock, Manfred H.; Stork, Gilbert; and Schmitt, Frederick L., to International Flavors & Fragrances Inc. Flavoring with 2,6,6-trimethyl-α-propenyl-1,3-cyclohexadiene-1-methanol substances. 4,275,087, Cl. 426-538.000.

Wimmer, Josef, to Siemens Aktiengesellschaft. EMC-/EMI-filter module. 4,275,368, Cl. 333-167.000.

Windmoller & Holscher: *See—*
Bosse, Frank, 4,274,896, Cl. 156-88.000.

Wingard, Robert E.: *See—*
Gless, Richard D., Jr.; Dawson, Daniel J.; and Wingard, Robert E., 4,275,002, Cl. 260-144.000.

Winget, Wayne A., to Rockwell International Corporation. Frequency sensitive amplitude equalization circuit. 4,275,358, Cl. 330-109.000.

Winster Engineering Limited: *See—*
Spence, Adam M.; and Goff, James R., 4,274,765, Cl. 405-303.000.

Winter, Roger D.; and Sarbell, John P., to Samsonite Corporation. Luggage case and vehicle rack therefor. 4,274,569, Cl. 224-319.000.

Winter, Roland A. E.; and Dexter, Martin, to Ciba-Geigy Corporation. High caustic coupling process for preparing substituted 2-nitro-2'-hydroxyazobenzenes. 4,275,004, Cl. 260-206.000.

Winterbottom, Howard: *See—*
Sikdar, Subhas K.; Adam, Donald E.; and Winterbottom, Howard, 4,275,038, Cl. 423-321.00S.

Wintermute, Joseph T., to Westinghouse Electric Corp. Watt and var transducer. 4,275,349, Cl. 324-141.000.

Wirth, Gallo & Co.: *See—*
Gallo, Mario; and Wirth, Johannes, 4,274,501, Cl. 177-210.0FP.

Wirth, Johannes: *See—*
Gallo, Mario; and Wirth, Johannes, 4,274,501, Cl. 177-210.0FP.

Wirtz, Walter: *See—*
Becher, Heinz-Manfred; Sehring, Richard; Wirtz, Walter; and Prokic-Immel, Ricarda, 4,275,077, Cl. 424-322.000.

Wisconsin Alumni Research Foundation: *See—*
Davida, George I.; and Kam, John B., 4,275,265, Cl. 178-22.090.

Wissel, Brigitte: *See—*
Fischer, Wolfgang; and Wissel, Brigitte, 4,275,031, Cl. 422-57.000.

Witten, Alvin E.; and Green, Howard W., to Witten Automatic Vent Company, Inc. Ventilator and mounting frame assembly. 4,274,330, Cl. 98-37.000.

Witten Automatic Vent Company, Inc.: *See—*
Witten, Alvin E.; and Green, Howard W., 4,274,330, Cl. 98-37.000.

Witter, Klaus: *See—*
Schmelzer, Christoph; Spohr, Reimar; Krumme, Jens-Peter; Witter, Klaus; and Heitmann, Heinrich, 4,274,935, Cl. 204-192.00M.

Wittmann, Heinz: *See—*
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Woessner, Warren D.: *See—*
Kluender, Harold C.; Woessner, Warren D.; and Biddlecom, William G., 4,275,224, Cl. 560-116.000.

Wolber: *See—*
Duttlinger, Jean-Christian, 4,274,899, Cl. 156-123.00R.

Wolf, Wilhelm: *See—*
Schnurbus, Heinrich; Nelle, Horst; and Wolf, Wilhelm, 4,274,888, Cl. 148-108.000.

Wolfe, Terry L., to PPG Industries, Inc. Treating covers for press bending molds, and method of press bending glass sheets. 4,274,857, Cl. 65-26.000.

Wong, Lang S.: *See—*
Jensen, Billy M.; Brunner, Ronald H. M.; and Wong, Lang S., 4,274,331, Cl. 99-373.000.

Woodhouse, Geoffrey D.: *See—*
Bolliger, Frederic E.; Woodhouse, Geoffrey D.; Mattson, George B.; Anson, Bruce S.; and Hatch, Robert A., 4,274,253, Cl. 60-39.030.

Woods, Gordon J.: *See—*
White, Arnold G.; Tarbet, James K.; Vanness, Dennis A.; Woods, Gordon J.; and Micklethwaite, William F. H., 4,274,389, Cl. 125-21.000.

Wool Research Organization: *See—*
Carnaby, Garth A., 4,274,346, Cl. 112-79.00R.

Wootton, Roy E., to Electric Power Research Institute, Inc. Dielectric gas mixture containing trifluoronitromethane and/or trifluoromethanesulfonyl fluoride. 4,275,260, Cl. 174-17.0GF.

Worrallo, Anthony C. Locking device and the like. 4,274,614, Cl. 248-243.000.

Woznicki, Edward J.; Rosania, Lawrence J.; and Marshall, Keith, to Colorcon, Inc. Colored medicinal tablet, natural color pigment and method for using the pigment in coloring food, drug and cosmetic products. 4,274,830, Cl. 8-495.000.

Wu, Tai-Wing; and Dappen, Glen M., to Eastman Kodak Company. Analytical element and method for analysis of multiple analytes. 4,274,832, Cl. 23-230.00R.

Wunsch, Steffen, to Robert Bosch GmbH. Tool chuck. 4,274,642, Cl. 279-62.000.

Wykes, John S.; and Adsley, Ian, to Coal Industry (Patents) Limited. Method of and apparatus for determining the proportion of at least one material in a moving mixture of materials. 4,275,298, Cl. 250-255.000.

Wylde, Stephen J., to Minnesota Mining and Manufacturing Company. Friction grip pad. 4,274,232, Cl. 51-358.000.

Xerox Corporation: *See—*
Chu, Joseph Y. C.; and Tutihasi, Simpei, 4,275,132, Cl. 430-31.000.
Chu, Joseph Y. C.; Schank, Richard L.; and Tutihasi, Simpei, 4,275,133, Cl. 430-31.000.
Fisli, Tibor, 4,274,703, Cl. 350-6.800.
Potter, Jerry L., 4,275,450, Cl. 364-515.000.

Xomox Corporation: *See—*
Smith, Russell G., 4,274,436, Cl. 137-515.700.

Yadlowsky, Gene. Scraper blade mounting assembly. 4,274,213, Cl. 37-117.500.

Yagi, Naoki: *See—*
Ohyabu, Shuzo; Kurosaki, Syozi; Matsumura, Keiji; Akasu, Hiroyuki; Akiya, Takeo; Yagi, Naoki; Kim, Kwang Y.; Nakaji, Tarushige; and Miyanaka, Akiko, 4,275,084, Cl. 426-104.000.

Yakkel, James E. Precision bending level. 4,274,208, Cl. 33-371.000.

Yamabe, Masaaki; Kumai, Seisaku; and Munekata, Seiji, to Asahi Glass Company, Ltd. Process for producing fluorovinyl ether. 4,275,226, Cl. 560-183.000.

Yamada, Hisafumi; Tokuhara, Masaharu; and Kuriki, Choei, to Sony Corporation. Television receiver with a ghost detector. 4,275,420, Cl. 358-167.000.

Yamada, Minoru: *See—*
Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, 4,274,726, Cl. 354-173.000.

Yamagami, Akio: *See—*
Watanabe, Takeo; Kubota, Tadashi; and Yamagami, Akio, 4,275,425, Cl. 360-92.000.

Yamaguchi, Akihiro; Yamaguchi, Keizaburo; Murakami, Hisamichi; and Kobayashi, Tadashi, to Mitsui Toatsu Chemicals, Inc. Process for the preparation of 2,2'-bisphenol sulfoxides. 4,275,240, Cl. 568-37.000.

Yamaguchi, Keizaburo: *See—*
Yamaguchi, Akihiro; Yamaguchi, Keizaburo; Murakami, Hisamichi; and Kobayashi, Tadashi, 4,275,240, Cl. 568-37.000.

Yamaguchi, Nobutana; Takayama, Satoru; Utumi, Masahiro; and Fujiyama, Masaaki, to Fuji Photo Film Co., Ltd. Leader or trailer tape for a magnetic tape. 4,275,106, Cl. 428-220.000.

Yamamoto, Kaichi, to Sony Corporation. Block sync signal extracting apparatus. 4,275,466, Cl. 375-113.000.

Yamamoto, Noboru; and Ohmura, Akira, to NGK Insulators, Ltd. Thermal converter. 4,275,259, Cl. 136-209.000.

Yamamoto, Satoshi, to Mitsubishi Seiko Kabushikikaisha. Assembly-type tire protector. 4,274,461, Cl. 152-167.800.

Yamamoto, Shinji: *See—*
Ogawa, Masaki; Araki, Tamio; and Yamamoto, Shinji, 4,274,462, Cl. 152-209.00R.

Yamamoto, Yoshihito: *See—*
Takahashi, Hiroshi; Shibazaki, Etsuo; and Yamamoto, Yoshihito, 4,275,268, Cl. 179-1.00B.

Yamashita, Izumi; Fukuda, Kunio; and Tazaki, Kichiya, to Asahi-Dow Limited. Diester of 3,5,3',5'-tetrabromo-bisphenol A with halogenated aromatic carboxylic acid. 4,274,998, Cl. 260-45.75B.

Yamashita, Takao: *See—*
Shimamoto, Koji; Shimizu, Mitsuo; and Yamashita, Takao, 4,275,321, Cl. 310-59.000.

Yamazaki, Shiro: *See—*
Aoki, Katsumichi; Shida, Takafumi; Kumazawa, Satoru; Ohtsuru, Masashi; and Yamazaki, Shiro, 4,275,078, Cl. 424-324.000.

Yamazaki, Yuzo, to Nissin Kogyo Kabushiki Kaisha. Brake switch actuator for autobicycle or the like. 4,275,280, Cl. 200-61.850.

Yamin, Amilcar F. Shower head. 4,274,595, Cl. 239-383.000.

Yanagihara, Noritaka: *See—*
Yokoi, Takeshi; and Yanagihara, Noritaka, 4,274,306, Cl. 74-866.000.

Yanai, Nobuya: *See—*
Takaku, Fumimaro; Ogasa, Katsuhiro; Kuboyama, Morio; Saito, Minoru; Yanai, Nobuya; and Nishida, Masayuki, 4,275,056, Cl. 424-99.000.

Yanase, Hiroshi: *See—*
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Yang, Wen C.; Spangler, Charles E.; Morris, Joe P.; and Kearns, Dale L., to Westinghouse Electric Corp. Method and apparatus for the detection of stagnant regions in a fluidized bed or in pneumatic conveying lines. 4,275,353, Cl. 324-454.000.

Yannopoulos, John C., to Newmont Exploration Limited. Smelting of copper concentrates by oxygen injection in conventional reverberatory furnaces. 4,274,870, Cl. 75-73.000.

Yano, Tsuneomi: *See—*
Yuzawa, Haruo; and Yano, Tsuneomi, 4,274,385, Cl. 123-571.000.

Yarwood, John C.; and Tyler, Derek E., to Olin Corporation. Bottom blocks for electromagnetic casting. 4,274,470, Cl. 164-49.000.

Yasuda, Shigeo: *See—*
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Yemington, Charles R.: *See—*
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Ying, Sui-Chun: *See—*
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Ylivakeri, Raimo: *See—*
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Yokoi, Takeshi; and Yanagihara, Noritaka, to Toyota Jidosha Kogyo Kabushiki Kaisha. Vehicle transmission shift control apparatus. 4,274,306, Cl. 74-866.000.

Yoneyama, Masakazu; Ino, Shoichi; and Minamizono, Junji, to Fuji Photo Film Co., Ltd. Photographic photosensitive materials. 4,275,146, Cl. 430-523.000.

Yoneyama, Saburo; Yamada, Minoru; Nakagawa, Yasutsugu; Ishii, Shizuo; and Kamio, Masao, to Konishiroku Photo Industry Co., Ltd. Automatic film winder for camera. 4,274,726, Cl. 354-173.000.

Yoshida, Tadao; and Suzuki, Tadao, to Sony Corporation. MOS FET Amplifier. 4,275,359, Cl. 330-251.000.

Yoshida, Yoji: *See—*
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Yoshida, Yuji: *See—*
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Yoshii, Takashi: *See—*
Kajino, Masayori; Yoshii, Takashi; and Tama, Tomeaki, 4,274,652, Cl. 280-460.00A.

Yoshimura, Shigeru: *See—*
Sato, Tadashi; Yoshimura, Shigeru; and Ichikawa, Kiyomichi, 4,274,624, Cl. 271-292.000.

Yoshinari, Hideki: *See—*
Kato, Yuzo; Ogino, Yasuo; Hiraga, Ryozo; Yoshinari, Hideki; Tozuka, Masao; and Kano, Ichiro, 4,275,306, Cl. 250-548.000.

Yoshioka, Toshio; Teramoto, Kazuo; and Shimamura, Masaharu, to Toray Industries, Inc. Glucose isomerase immobilized product and process for preparing same. 4,275,156, Cl. 435-94.000.

Young, Peter L.: *See—*
Borrelli, Nicholas F.; and Young, Peter L., 4,275,141, Cl. 430-270.000.

Young, Stephen H.: *See—*
Louie, Anthony C. H.; and Young, Stephen H., 4,275,421, Cl. 358-183.000.

Youngdale, Gilbert A., to Upjohn Company, The. Anti-disbetic 1,2-dihydro-2-oxo-6-alkyl-nicotinic acids. 4,275,069, Cl. 424-266.000.

Younger Manufacturing Company: *See—*
Davenport, Lawrence J., 4,274,717, Cl. 351-169.000.

Yukimoto, Yoshinori, to Mitsubishi Denki Kabushiki Kaisha. Thyristor. 4,275,408, Cl. 357-38.000.

Yun, Bob H.: *See—*
Venkataraman, Krishnamur; and Yun, Bob H., 4,274,909, Cl. 156-648.000.

Yusa, Haruhiko; Oota, Masanori; and Suzuki, Katsumi, to Kureha Kagaku Kogyo Kabushiki Kaisha. Powdery graft-copolymer composition. 4,275,178, Cl. 525-71.000.

Yuzawa, Haruo; and Yano, Tsuneomi, to Nissan Motor Company, Limited. Exhaust gas recirculation system for internal combustion engine. 4,274,385, Cl. 123-571.000.

Zacharias, Theodor; and Terdenge, Bernhard, to Kocks Technik GmbH & Co. Rolling mills. 4,274,274, Cl. 72-239.000.

Zacky, Ralf G. Sliding door structure. 4,274,688, Cl. 312-304.000.

Zahid, Abduz, to Greer Hydraulics, Incorporated. Low cost repairable accumulator. 4,274,446, Cl. 138-30.000.

Zahn, David C.; and Slovak, Anci B. Construction element and throwing toy made therefrom. 4,274,222, Cl. 46-29.000.

Zaitsu, Hiroshi: *See—*
Saito, Osamu; Shimizu, Jozo; and Zaitsu, Hiroshi, 4,275,113, Cl. 428-323.000.

Zajac, David C.: *See—*
Nachtigal, Julius H.; and Zajac, David C., 4,275,055, Cl. 424-70.000.

Zajichek, William J.: *See—*
Slosiarek, Michael L.; and Zajichek, William J., 4,274,671, Cl. 296-190.000.

Zeller, Norbert: *See—*
Bischofberger, Walter; and Zeller, Norbert, 4,275,392, Cl. 340-606.000.

Zellner, Edmond: *See—*
Anav, Maurice; Duhayon, Jacques; Goumondy, Jean-Pierre; Leseur, Andre; and Zellner, Edmond, 4,275,045, Cl. 423-249.000.

Zengel, Hans; and Bergfeld, Manfred, to Akzona Incorporated. Preparation of trans-cyclohexane-1,4-diurethanes. 4,275,223, Cl. 560-115.000.

Zenith Radio Corporation: *See—*
Grocki, Wayne; and Steinmetz, Richard J., 4,275,338, Cl. 315-381.000.

Zeyer, Josef; Hutter, Ralf; and Mayer, Peter, to Ciba-Geigy Corporation. Process for the degradation of cyanuric acid. 4,274,955, Cl. 210-612.000.

Ziegert, Otto: *See—*
Kolb, Fritz; Fehlisch, Silvan; Ziegert, Otto; Bender, Hans; and Schmitt, Manfred, 4,274,439, Cl. 137-601.000.

Zieschang, Jurgen: *See—*
Harmsen, Lothar; Bick, Klaus; Lachenmayer, Wilhelm; Venmann, Friedhelm; and Zieschang, Jurgen, 4,275,258, Cl. 13-32.000.

Zilka, Ladislav, to Vyskumny ustav papieru a celulozy. Blade conveyer for a continuously operating digester of the Bauer M and D type. 4,274,918, Cl. 162-237.000.

Ziller, Jorg: *See—*
Maknoch, Gunter; Schedewie, Franz; Schmockpfeffer, Arno; and Ziller, Jorg, 4,275,288, Cl. 219-121.0LR.

Zilske, Wolfgang: *See—*
Simon, Franz; Zilske, Wolfgang; and Schmidt, Manfred, 4,274,927, Cl. 204-39.000.

Zimmerman, John A., Jr.: *See*—
Long, William B.; and Zimmerman, John A., Jr., 4,274,696, Cl. 339-103.00R.
Zipp, Darrell B.: *See*—
Knauff, Robert J.; Fisher, David R.; Johnson, Kenneth D.; Zipp, Darrell B.; and John, Frederick W., 4,274,225, Cl. 46-227.000.
Zirbel, John P., to United States of America, Navy. Real-time audio spectrum analyzer. 4,275,460, Cl. 367-102.000.
Zobel, Jurgen, to Richard Wolf GmbH. Endoscopes incorporating a beam splitter. 4,274,704, Cl. 350-10.000.
Zollinger, Hans: *See*—
Freisler, Erhard; Lutz, Friedrich; and Zollinger, Hans, 4,274,449, Cl. 139-449.000.
Zoltan, Sandor: *See*—
Szejtli, Jozsef; Fenyvesi, Eva; Zoltan, Sandor; Zsadon, Bela; and Tudos, Ferenc, 4,274,985, Cl. 260-17.4ST.
Zsadon, Bela: *See*—
Szejtli, Jozsef; Fenyvesi, Eva; Zoltan, Sandor; Zsadon, Bela; and Tudos, Ferenc, 4,274,985, Cl. 260-17.4ST.
Zukowski, Edward C.: *See*—
Cho, Chong I.; Zukowski, Edward C.; and Speros, Dimitri M., 4,275,330, Cl. 313-218.000.
Zupan, Jacob A., to INTERx Research Corporation. Novel process and intermediates useful in the preparation of sympathomimetic amines. 4,275,219, Cl. 560-29.000.
Zurbuchen, Jacques, to Ciba-Geigy Corporation. Continuous dyeing process in organic solvent vapors. 4,274,829, Cl. 8-475.000.
Zysman, Alexandre: *See*—
Sebag, Henri; Zysman, Alexandre; and Vanlerberghe, Guy, 4,275,054, Cl. 424-65.000.

LIST OF REISSUE PATENTEES

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Bendix Corporation, The: *See*—
Schuster, Robert W., Re. 30,653, Cl. 60-39.28R.
Chandavoine, Marie-Madeleine: *See*—
Pigerol, Charles; Chandavoine, Marie-Madeleine; Chignac, Michel; and de Cointet de Fillain, Paul, Re. 30,655, Cl. 549-79.000.
Chignac, Michel: *See*—
Pigerol, Charles; Chandavoine, Marie-Madeleine; Chignac, Michel; and de Cointet de Fillain, Paul, Re. 30,655, Cl. 549-79.000.
de Cointet de Fillain, Paul: *See*—
Pigerol, Charles; Chandavoine, Marie-Madeleine; Chignac, Michel; and de Cointet de Fillain, Paul, Re. 30,655, Cl. 549-79.000.
Dittmann, Larry E.; Millhimes, Wayne L.; and Steinhauer, Glenn A., to AMP Incorporated. Stripper ring for a capsule-making machine. Re. 30,654, Cl. 425-438.000.
Labaz: *See*—
Pigerol, Charles; Chandavoine, Marie-Madeleine; Chignac, Michel; and de Cointet de Fillain, Paul, Re. 30,655, Cl. 549-79.000.
Millhimes, Wayne L.: *See*—
Dittmann, Larry E.; Millhimes, Wayne L.; and Steinhauer, Glenn A., Re. 30,654, Cl. 425-438.000.
Pigerol, Charles; Chandavoine, Marie-Madeleine; Chignac, Michel; and de Cointet de Fillain, Paul, to Labaz. Process for preparing 3-thienylacetate derivatives. Re. 30,655, Cl. 549-79.000.
Schuster, Robert W., to Bendix Corporation, The. Fuel control for gas turbine engine. Re. 30,653, Cl. 60-39.28R.
Steinhauer, Glenn A.: *See*—
Dittmann, Larry E.; Millhimes, Wayne L.; and Steinhauer, Glenn A., Re. 30,654, Cl. 425-438.000.

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A. B. Chance Company: *See*—
Clutter, Melvin E., 259,634, Cl. D13-17.000.
Adidas Fabrique de Chaussures de Sport: *See*—
Fiott, Stephen E., 259,650, Cl. D21-212.000.
Affiliated Hatch and Sunroof, Inc.: *See*—
Butler, James P., 259,633, Cl. D12-155.000.
Ahrens, Paul W., to Miracle Recreation Equipment Company. Playground swing. 259,652, 6-23-81, Cl. D21-246.000.
Alfrink, Cornelis M.; and van Gasse, Rene L., to Teewen, B.V. Combined drainboard and sink support or similar article. 259,656, 6-23-81, Cl. D23-69.000.
Amarger, Guy, to Compagnie Generale des Etablissements Michelin. Tire. 259,632, 6-23-81, Cl. D12-147.000.
American Home Products Corp.: *See*—
Gandier, John C. C., 259,662, Cl. D24-27.000.
American Standard Inc.: *See*—
Stairs, Henry M., Jr.; and Leviton, Jan, 259,608, Cl. D6-209.000.
Angelakos, Nicholas P., to Lancaster Colony Corporation. Wine cooler. 259,614, 6-23-81, Cl. D7-70.000.
Anthony, Larry; and Kasom, Wayne, Jr., to Rolm Corporation. Telephone desk set. 259,639, 6-23-81, Cl. D14-58.000.
Baba, Kaichi. Pole cap for tent. 259,654, 6-23-81, Cl. D21-254.000.
Blodgett, Norman S.: *See*—
Nicholson, William H., 259,619, Cl. D8-47.000.
Bon Aire Industries, Inc.: *See*—
Tack, Suen S., 259,618, Cl. D7-164.000.
Braxton, Vance P., III. Campfire grill. 259,617, 6-23-81, Cl. D7-107.000.
Brinkmann, Werner: *See*—
Katzer, Eduard; Brinkmann, Werner; and Wehner, Gerhard, 259,609, Cl. D6-210.000.
Bunting, Larry L. Pipefitting-insulation jacket. 259,658, 6-23-81, Cl. D23-137.000.
Butler, James P., to Affiliated Hatch and Sunroof, Inc. Vehicle console unit. 259,633, 6-23-81, Cl. D12-155.000.
Casio Computer Co., Ltd.: *See*—
Wada, Masao, 259,626, Cl. D10-38.000.
Claber S.p.A.: *See*—
Roman, Gianfranco, 259,655, Cl. D23-8.000.
Clutter, Melvin E., to A. B. Chance Company. Insulator cover. 259,634, 6-23-81, Cl. D13-17.000.
Compagnie Generale des Etablissements Michelin: *See*—
Amarger, Guy, 259,632, Cl. D12-147.000.
Coppell, Frederik K., to FKC Engineering Co. Stuffing tube for passing electrical current through bulkheads. 259,636, 6-23-81, Cl. D13-24.000.
Cousins, Morison S., to Gillette Company, The. Hair dryer. 259,665, 6-23-81, Cl. D28-13.000.
Credicott, Betty T. Seat or similar article. 259,599, 6-23-81, Cl. D6-76.000.
Curless, Sheila M., to Gately Enterprises. Shelter. 259,664, 6-23-81, Cl. D25-56.000.
Dart Industries Inc.: *See*—
Painter, David L.; and Hiatt, Russell D., 259,616, Cl. D7-94.000.
Day, Maxwell W. Tent. 259,653, 6-23-81, Cl. D21-253.000.
Della Giovanna, Roberto, to International Standard Electric Corporation. Telephone subset. 259,638, 6-23-81, Cl. D14-53.000.
Ethicon, Inc.: *See*—
Schuler, Michael; Mandel, Harvey B.; and Studer, John E., 259,604, Cl. D6-186.000.
Famolare, Inc.: *See*—
Famolare, Joseph P., Jr., 259,595, Cl. D2-320.000.
Famolare, Joseph P., Jr., to Famolare, Inc. Shoe sole. 259,595, 6-23-81, Cl. D2-320.000.
Fiott, Stephen E., to Adidas Fabrique de Chaussures de Sport. Design for a tennis racket frame. 259,650, 6-23-81, Cl. D21-212.000.
FKC Engineering Co.: *See*—
Coppell, Frederik K., 259,636, Cl. D13-24.000.
Gagnon, Yves. Table for use primarily on a boat. 259,603, 6-23-81, Cl. D6-177.000.
Gandier, John C. C., to American Home Products Corp. Tourniquet and vein delineator. 259,662, 6-23-81, Cl. D24-27.000.
Gately Enterprises: *See*—
Curless, Sheila M., 259,664, Cl. D25-56.000.
General Electric Company: *See*—
Martin, Robert L.; and Smith, Donald F., 259,637, Cl. D13-30.000.
Gillette Company, The: *See*—
Cousins, Morison S., 259,665, Cl. D28-13.000.
Gray, Michael J., 259,596, Cl. D3-39.000.
Giroflex Entwicklungs AG: *See*—
Locher, Hermann, 259,598, Cl. D6-75.000.
Gomez, Francine, to Waterman, S.A. Ball point pen. 259,642, 6-23-81, Cl. D19-51.000.
Grant, Perry J.: *See*—
Israel, Leonard H.; and Grant, Perry J., 259,644, Cl. D21-23.000.
Gray, Michael J., to Gillette Company, The. Carrying case for a razor. 259,596, 6-23-81, Cl. D3-39.000.
Grimberg, Herbert P.; and Seifried, Richard, Jr. Toy submarine. 259,646, 6-23-81, Cl. D21-130.000.
Hamilton, Robert S.; and Sneeden, John R., to Liqui-Box Corporation. Container for ice cream or other products in bulk. 259,625, 6-23-81, Cl. D9-428.000.
Hiatt, Russell D.: *See*—
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Irving Kaye Company, Inc.: *See*—
Kaye, Arnold, 259,651, Cl. D21-232.000.
Israel, Leonard H.; and Grant, Perry J. Three dimensional game board. 259,644, 6-23-81, Cl. D21-23.000.
Jacobs, Andre. Mobile. 259,628, 6-23-81, Cl. D11-141.000.
Johnsen, Walter. Fastening device for tie down straps on tarpaulins and the like. 259,620, 6-23-81, Cl. D8-394.000.
Kasom, Wayne, Jr.: *See*—
Anthony, Larry; and Kasom, Wayne, Jr., 259,639, Cl. D14-58.000.
Katzer, Eduard; Brinkmann, Werner; and Wehner, Gerhard, to Verwerk & Co. Teppichwerke GmbH & Co. KG. Oriental rug. 259,609, 6-23-81, Cl. D6-210.000.
Kaye, Arnold, to Irving Kaye Company, Inc. Pool table. 259,651, 6-23-81, Cl. D21-232.000.

Kin Hip Metal & Plastic Fty. Ltd.: *See—*
Sun, Kin C., 259,613, Cl. D7-64.000.
Koelbel, William: *See—*
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Lancaster Colony Corporation: *See—*
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Laurel Bank Machine Co., Ltd.: *See—*
Uchida, Isamu, 259,641, Cl. D18-3.000.
Leviton, Jan: *See—*
Stairs, Henry M., Jr.; and Leviton, Jan, 259,608, Cl. D6-209.000.
Liqui-Box Corporation: *See—*
Hamilton, Robert S.; and Sneeden, John R., 259,625, Cl. D9-428.000.
Lloyd Plastics Company: *See—*
Peterson, Lloyd A., 259,669, Cl. D30-16.000.
Locher, Hermann, to Giroflex Entwicklungs AG. Chair or similar article. 259,598, 6-23-81, Cl. D6-75.000.
MacLean, Charles A. Horseman figure. 259,630, 6-23-81, Cl. D11-159.000.
Mandel, Harvey B.: *See—*
Schuler, Michael; Mandel, Harvey B.; and Studer, John E., 259,604, Cl. D6-186.000.
Marcy Gymnasium Equipment Company: *See—*
Uyeda, Tim M., 259,649, Cl. D21-195.000.
Marks, Robert J. Ottoman. 259,597, 6-23-81, Cl. D6-36.000.
Marks, Robert J. Corner seat. 259,600, 6-23-81, Cl. D6-76.000.
Marks, Robert J. Chair. 259,601, 6-23-81, Cl. D6-76.000.
Marks, Robert J. Corner seat frame. 259,605, 6-23-81, Cl. D6-191.000.
Marks, Robert J. Chair frame. 259,606, 6-23-81, Cl. D6-191.000.
Martin, Nick P. Simulative photo frame. 259,610, 6-23-81, Cl. D6-245.000.
Martin, Nick P. Simulative photo frame. 259,611, 6-23-81, Cl. D6-245.000.
Martin, Robert L.; and Smith, Donald F., to General Electric Company. Electric cord connector. 259,637, 6-23-81, Cl. D13-30.000.
McGinnis, Patricia L. Electro-dessicator handle cover. 259,661, 6-23-81, Cl. D24-17.000.
Metz, Thomas V.; and Sirois, W. James, to Pacific Fireplace Furnishings, Inc. Forced air fireplace furnace. 259,657, 6-23-81, Cl. D23-95.000.
Minnesota Mining and Manufacturing Company: *See—*
Pearson, Walter C., 259,643, Cl. D19-69.000.
Mioni, Marcello. Table. 259,602, 6-23-81, Cl. D6-175.000.
Miracle Recreation Equipment Company: *See—*
Ahrens, Paul W., 259,652, Cl. D21-246.000.
Moravek, Milton G. Highway safety marker. 259,627, 6-23-81, Cl. D10-109.000.
Morris, George A., Jr. Portable cooler. 259,615, 6-23-81, Cl. D7-76.000.
Myers Electric Products, Inc.: *See—*
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Nicholson, William H., to Blodgett, Norman S., a part interest. Wedge. 259,619, 6-23-81, Cl. D8-47.000.
Olympus Optical Company Ltd.: *See—*
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Painter, David L.; and Hiatt, Russell D., to Dart Industries Inc. Sausage cooker. 259,616, 6-23-81, Cl. D7-94.000.
Pearson, Walter C., to Minnesota Mining and Manufacturing Company. Tape dispenser. 259,643, 6-23-81, Cl. D19-69.000.
Peterson, Lloyd A., to Lloyd Plastics Company. Pet food dish. 259,669, 6-23-81, Cl. D30-16.000.
Plummer, Merle A., to Myers Electric Products, Inc. Connector assembly for a wire conduit. 259,635, 6-23-81, Cl. D13-24.000.
Ramacciotti, William S. Animal carcass handling vehicle or similar article. 259,631, 6-23-81, Cl. D12-57.000.
Rolm Corporation: *See—*
Anthony, Larry; and Kasom, Wayne, Jr., 259,639, Cl. D14-58.000.
Roman, Gianfranco, to Claber S.p.A. Sprinkler. 259,655, 6-23-81, Cl. D23-8.000.
Schick Laboratories, Inc.: *See—*
Sears, Hartley M., 259,659, Cl. D24-8.000.
Schuler, Michael; Mandel, Harvey B.; and Studer, John E., to Ethicon, Inc. Modular cabinet box. 259,604, 6-23-81, Cl. D6-186.000.
Sears, Hartley M., to Schick Laboratories, Inc. Electrical impulse apparatus. 259,659, 6-23-81, Cl. D24-8.000.
Seifried, Richard, Jr.: *See—*
Grimberg, Herbert P.; and Seifried, Richard, Jr., 259,646, Cl. D21-130.000.
Shiraishi, Masami, to Tomy Kogyo Co., Inc. Toy balance. 259,645, 6-23-81, Cl. D21-102.000.
Sirois, W. James: *See—*
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Smith, Donald F.: *See—*
Martin, Robert L.; and Smith, Donald F., 259,637, Cl. D13-30.000.
Sneeden, John R.: *See—*
Hamilton, Robert S.; and Sneeden, John R., 259,625, Cl. D9-428.000.
Sosnay, Alan J. Dental threading tool. 259,660, 6-23-81, Cl. D24-11.000.
Sovernigo, Graziano. Pool cover roller. 259,663, 6-23-81, Cl. D25-2.000.
Stahl, Otto, Jr.; and Koelbel, William. End standard for a lounge seat. 259,607, 6-23-81, Cl. D6-195.000.
Stairs, Henry M., Jr.; and Leviton, Jan, to American Standard Inc. Mat for a bathing facility or the like. 259,608, 6-23-81, Cl. D6-209.000.
Studer, John E.: *See—*
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Sun, Kin C., to Kin Hip Metal & Plastic Fty. Ltd. Coffee decanter. 259,613, 6-23-81, Cl. D7-64.000.
Sztuden, Luis. Bottle. 259,621, 6-23-81, Cl. D9-307.000.
Sztuden, Luis. Bottle. 259,622, 6-23-81, Cl. D9-310.000.
Sztuden, Luis. Bottle. 259,623, 6-23-81, Cl. D9-311.000.
Sztuden, Luis. Bottle. 259,624, 6-23-81, Cl. D9-318.000.
Tack, Suen S., to Bon Aire Industries, Inc. Hand-held vacuum cleaner with light. 259,618, 6-23-81, Cl. D7-164.000.
Takahashi, Osamu, to Tomy Kogyo Co., Inc. Skateboarding figurine toy. 259,647, 6-23-81, Cl. D21-150.000.
Takahashi, Osamu, to Tomy Kogyo Co., Inc. Hobby horse figurine toy. 259,648, 6-23-81, Cl. D21-181.000.
Takata, Kazuaki, to Olympus Optical Company Ltd. Indicator for camera. 259,640, 6-23-81, Cl. D16-10.000.
Teewen, B.V.: *See—*
Alfrink, Cornelis M.; and van Gasse, Rene L., 259,656, Cl. D23-69.000.
Titus, Rean O. Combined planter and watering device. 259,629, 6-23-81, Cl. D11-144.000.
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Uchida, Isamu, to Laurel Bank Machine Co., Ltd. Note counting machine. 259,641, 6-23-81, Cl. D18-3.000.
Uyeda, Tim M., to Marcy Gymnasium Equipment Company. Exerciser. 259,649, 6-23-81, Cl. D21-195.000.
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Wada, Masao, to Casio Computer Co., Ltd. Digital wrist watch or the like. 259,626, 6-23-81, Cl. D10-38.000.
Wagner, Clyde M. Music box enclosure for a picture frame or the like. 259,612, 6-23-81, Cl. D6-246.000.
Waterman, S.A.: *See—*
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Williams, Loyal E. Comb. 259,666, 6-23-81, Cl. D28-22.000.
Williams, Loyal E. Comb. 259,667, 6-23-81, Cl. D28-22.000.

LIST OF PLANT PATENTEES

Ryan, John J. Impatiens plant. 4,746, 6-23-81, Cl. 68.000.

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240	4,274,188
256	4,274,189
401.1	4,274,190
408	4,274,191
568	4,274,192
571	4,274,193
717	4,274,194
741	4,274,195
	4,274,196
861	4,274,197
866	4,274,198

CLASS 30

34.1	4,274,199
161	4,274,200
276	4,274,201
365	4,274,202

CLASS 33

1 LE	4,274,203
1 SD	4,274,204
174 L	4,274,205
178 B	4,274,206
179.5 R	4,274,207
371	4,274,208

CLASS 34

1	4,274,209
156	4,274,210

CLASS 36

30 R	4,274,211

CLASS 37

29	4,274,212
117.5	4,274,213

CLASS 38

1 C	4,274,214
144	4,274,215

CLASS 40

306	4,274,216
451	4,274,217
505	4,274,218

CLASS 43

27.2	4,274,219
35	4,274,220

CLASS 44

1 SR	4,274,835
6	4,274,836
63	4,274,837

CLASS 46

25	4,274,221
29	4,274,222
95	4,274,223
161	4,274,224
227	4,274,225

CLASS 48

111	4,274,838
202	4,274,839

CLASS 49

25	4,274,226
28	4,274,227
56	4,274,228

CLASS 51

95 WH	4,274,229
165 R	4,274,230
165.71	4,274,231
307	4,274,840
358	4,274,232

CLASS 52

33	4,274,233
63	4,274,234
213	4,274,235
309.8	4,274,236
312	4,274,237
408	4,274,238
443	4,274,239
583	4,274,240
642	4,274,241
741	4,274,242
748	4,274,243

CLASS 53

451	4,274,244
558	4,274,245

CLASS 54

6 R	4,274,246

CLASS 55

40	4,274,841
72	4,274,842
139	4,274,843
196	4,274,844
222	4,274,845
270	4,274,846
374	4,274,847
387	4,274,848

CLASS 56

14.4	4,274,247
370	4,274,248
	4,274,249

CLASS 57

5	4,274,250
206	4,274,251

CLASS 59

86	4,274,252

CLASS 60

39.03	4,274,253
	4,274,254
39.14 R	4,274,255
39.18 B	4,274,256
39.28 R	Re.30,653
431	4,274,257
547 R	4,274,258
663	4,274,259
	4,274,260
682	4,274,261

CLASS 62

3	4,274,262
9	4,274,849
24	4,274,850
40	4,274,851
71	4,274,263
148	4,274,264
158	4,274,265
171	4,274,266
252	4,274,267

CLASS 64

7	4,274,268
11 R	4,274,269

CLASS 65

2	4,274,852
	4,274,853
	4,274,854
	4,274,855
24	4,274,856
26	4,274,857
273	4,274,858
314	4,274,859

CLASS 69

19.3	4,274,270

CLASS 70

59	4,274,271
214	4,274,272

CLASS 71

24	4,274,860
117	4,274,861
118	4,274,862

CLASS 72

13	4,274,273
239	4,274,274
307	4,274,275
354	4,274,276
356	4,274,277

CLASS 73

7	4,274,278
55	4,274,279
61 LM	4,274,280
118	4,274,281
153	4,274,283
354	4,274,284
432 R	4,274,286
457	4,274,287
602	4,274,288
618	4,274,289
683.31	4,274,285
837	4,274,290
862.64	4,274,282

CLASS 74

5.37	4,274,291
6	4,274,292
89.15	4,274,293
	4,274,294
424.8 R	4,274,296
	4,274,297
467	4,274,298
492	4,274,299
501.5 R	4,274,300
551.1	4,274,301
661	4,274,302
740	4,274,303
792	4,274,304
865	4,274,305
866	4,274,306
869	4,274,307
	4,274,308

CLASS 75

0.5 AA	4,274,865
0.5 R	4,274,864
5	4,274,863
	4,274,866
13	4,274,867
21	4,274,868
53	4,274,869
73	4,274,870
134 M	4,274,871
157.5	4,274,872
211	4,274,873
231	4,274,874
232	4,274,875
245	4,274,876
252	4,274,877
256	4,274,878

CLASS 76

114	4,274,309

CLASS 81

57.36	4,274,310
63	4,274,311
356	4,274,312

CLASS 82

12	4,274,313
36 R	4,274,314
47	4,274,315

CLASS 83

23	4,274,316
74	4,274,317
177	4,274,318
430	4,274,319

CLASS 84

1.01	4,274,320
1.03	4,274,321
422 R	4,274,322

CLASS 89

12	4,274,325

CLASS 91

49	4,274,326
196	4,274,327
445	4,274,328

CLASS 92

33	4,274,329

CLASS 98

37	4,274,330

CLASS 99

373	4,274,331

CLASS 100

299	4,274,332

CLASS 102

418	4,274,333

CLASS 104

2	4,274,334
93	4,274,335
124	4,274,336

CLASS 105

99	4,274,337
144	4,274,338
168	4,274,339
197 DB	4,274,340

CLASS 106

39.5	4,274,879
90	4,274,880
98	4,274,881
280	4,274,882
308 Q	4,274,883

CLASS 110

229	4,274,341
246	4,274,342
263	4,274,343
346	4,274,344

CLASS 112

51	4,274,345
79 R	4,274,346
104	4,274,347
158 E	4,274,348
169	4,274,349
235	4,274,350

CLASS 113

1 F	4,274,351
57	4,274,352

CLASS 114

21 A	4,274,353
246	4,274,354
255	4,274,355
265	4,274,356
270	4,274,357

CLASS 116

288	4,274,358

CLASS 118

56	4,274,359
303	4,274,360
653	4,274,361
657	4,274,362

CLASS 119

1	4,274,363
35	4,274,364
78	4,274,365
98	4,274,366

CLASS 123

52 A	4,274,367
52 M	4,274,368
53 A	4,274,369
90.55	4,274,370
179 H	4,274,371
193.P	4,274,372
241	4,274,374
263	4,274,375
360	4,274,376
396	4,274,377
421	4,274,378
425	4,274,379
440	4,274,373
456	4,274,380
479	4,274,381
481	4,274,382
523	4,274,383
568	4,274,384
571	4,274,385
591	4,274,386

CLASS 124

20 A	4,274,387

CLASS 125

11 TP	4,274,388
21	4,274,389

CLASS 126

19.5	4,274,390
33	4,274,391
112	4,274,392
123	4,274,393
425	4,274,394
432	4,274,395
438	4,274,396
451	4,274,397

CLASS 128

20	4,274,398
26	4,274,399
53	4,274,400
69	4,274,401
89 R	4,274,402
203.15	4,274,403
204.25	4,274,404
205.26	4,274,405
206.21	4,274,406
213 R	4,274,407
214.4	4,274,408
215	4,274,409
270	4,274,410
276	4,274,411
285	4,274,412
303.13	4,274,413
305	4,274,414
321	4,274,415
330	4,274,416
632	4,274,417
635	4,274,418
639	4,274,419
641	4,274,420
660	4,274,421
661	4,274,422
675	4,274,423
686	4,274,424
719	4,274,425

CLASS 130

27 T	4,274,426

CLASS 131

293	4,274,427
331	4,274,428

CLASS 134

4	4,274,884
21	4,274,885
25.2	4,274,886

CLASS 135

20 A	4,274,429
65	4,274,430

CLASS 136

209	4,275,259

CLASS 137

43	4,274,431
315	4,274,432
454.6	4,274,433
498	4,274,434
508	4,274,435
515.7	4,274,436
527	4,274,437
551	4,274,438
601	4,274,439
613	4,274,440
614.05	4,274,441
625.17	4,274,442
625.64	4,274,443
630.14	4,274,444
636.1	4,274,445

CLASS 138

30	4,274,446

CLASS 139

97	4,274,447
383 A	4,274,448
449	4,274,449

CLASS 140

82	4,274,450
106	4,274,451

CLASS 141

1	4,274,452
	4,274,453
	4,274,454
	4,274,455
157	4,274,456

CLASS 144

34 E	4,274,457
144.5 R	4,274,459
193 D	4,274,458

CLASS 148

31.5	4,274,887
108	4,274,888
133	4,274,889
171	4,274,890
175	4,274,891
188	4,274,892

CLASS 149

2	4,274,893
7	4,274,894

CLASS 152

167	4,274,461
209 R	4,274,462
213 R	4,274,463
352 R	4,274,464
379.5	4,274,465
381.3	4,274,466

CLASS 156

53	4,274,895
88	4,274,896
96	4,274,897
98	4,274,898
123 R	4,274,899
229	4,274,900
242	4,274,901
344	4,274,902
355	4,274,903
461	4,274,904
462	4,274,905
540	4,274,906
637	4,274,907
	4,274,908
648	4,274,909

CLASS 159

1 C	4,274,910

CLASS 160
84 R 4,274,467
90 4,274,468
107 4,274,469

CLASS 162
15 4,274,911
41 4,274,912
65 4,274,913
109 4,274,914
129 4,274,915
145 4,274,916
146 4,274,917
237 4,274,918

CLASS 164
49 4,274,470
87 4,274,471
416 4,274,472
423 4,274,473

CLASS 165
7 4,274,474
12 4,274,475
80 E 4,274,476
101 4,274,477
104.16 4,274,478
104.26 4,274,479
111 4,274,480
122 4,274,481
153 4,274,482
4,274,483

CLASS 166
188 4,274,484
250 4,274,485
4,274,486
261 4,274,487
273 4,274,488
315 4,274,489
325 4,274,490

CLASS 169
46 4,274,491

CLASS 172
285 4,274,492
816 4,274,493

CLASS 173
2 4,274,494
162 R 4,274,495

CLASS 174
17 GF 4,275,260
73 R 4,275,261
128 R 4,275,262
152 R 4,275,263

CLASS 175
57 4,274,496
100 4,274,497
228 4,274,498

CLASS 176
3 4,274,919
30 4,274,920
78 4,274,921
87 4,274,922

CLASS 177
1 4,274,499
25 4,274,500
210 FP 4,274,501

CLASS 178
18 4,275,264
22.09 4,275,265

CLASS 179
1 B 4,275,268
1 FS 4,275,269
1 J 4,275,267
1 SC 4,275,270
1 VC 4,275,266
2 EB 4,275,271
7.1 TP 4,275,272
90 B 4,275,273
170 D 4,275,276
170 NC 4,275,277
181 F 4,275,278

CLASS 180
6.2 4,274,502
23 4,274,503
143 4,274,504
215 4,274,505

CLASS 181
210 4,274,506

CLASS 182
12 4,274,507
116 4,274,508

CLASS 184
15 B 4,274,509

CLASS 188
1 A 4,274,511
1 B 4,274,510
65.1 4,274,512
72.7 4,274,513
73.3 4,274,514
269 4,274,515
310 4,274,516
315 4,274,517
344 4,274,518

CLASS 192
3.28 4,274,519
3.32 4,274,520
3.57 4,274,521
9 4,274,522
21 4,274,523
48.3 4,274,524
106.2 4,274,525

CLASS 193
25 B 4,274,526
32 4,274,527

CLASS 194
102 4,274,528

CLASS 198
339 4,274,529
347 4,274,530
397 4,274,531
429 4,274,532
450 4,274,533
479 4,274,534
493 4,274,535
851 4,274,536

CLASS 200
11 DA 4,275,279
61.85 4,275,280

CLASS 201
39 4,274,923

CLASS 202
255 4,274,924

CLASS 204
26 4,274,925
39 4,274,926
4,274,927
98 4,274,928
112 4,274,930
119 4,274,931
159.2 4,274,932
159.24 4,274,933
162 R 4,274,934
192 M 4,274,935
192 R 4,274,936
195 R 4,274,937
239 4,274,938
257 4,274,939
294 4,274,940

CLASS 206
329 4,274,537
394 4,274,538
554 4,274,539
597 4,274,540
613 4,274,541

CLASS 208
8 R 4,274,941
113 4,274,942
181 4,274,943
352 4,274,944

CLASS 209
5 4,274,945
4,274,946
9 4,274,948
12 4,274,947
17 4,274,949
166 4,274,950
167 4,274,951
273 4,274,952
326 4,274,953

CLASS 210
172 4,274,957
208 4,274,958
221.1 4,274,960
221.2 4,274,959
225 4,274,961
257.1 4,274,962
320 4,274,963
321.3 4,274,964
500.2 4,274,965
611 4,274,954
612 4,274,955
618 4,274,966
638 4,274,956
659 4,274,967
666 4,274,968
721 4,274,969
748 4,274,970
778 4,274,971

CLASS 212
270 4,274,542

CLASS 215
6 4,274,543
344 4,274,544

CLASS 219
10.49 R 4,275,281
4,275,282
10.55 F 4,275,283
74 4,275,284
93 4,275,285
121 EK 4,275,286
121 LR 4,275,288
121 PR 4,275,287
4,275,289
216 4,275,290

CLASS 220
4 B 4,274,546
4 R 4,274,545
4,274,547
72 4,274,548
86 R 4,274,549

CLASS 221
71 4,274,550
78 4,274,551

CLASS 222
61 4,274,552
76 4,274,553
107 4,274,554
4,274,555
135 4,274,556
136 4,274,557
214 4,274,558
217 4,274,559
321 4,274,560
334 4,274,561
401 4,274,562
480 4,274,563

CLASS 223
93 4,274,564
102 4,274,565

CLASS 224
35 4,274,566
42.43 4,274,567
319 4,274,568
4,274,569
324 4,274,570

CLASS 225
96.5 4,274,572
106 4,274,573

CLASS 226
170 4,274,574

CLASS 228
160 4,274,575
264 4,274,576

CLASS 229
1.5 R 4,274,577
27 4,274,578
28 R 4,274,579
52 B 4,274,580

CLASS 235
92 DN 4,275,292
92 FL 4,275,291

CLASS 237
7 4,274,581

CLASS 238
349 4,274,582

CLASS 239
1 4,274,583
4,274,584
124 4,274,585
125 4,274,586
132.3 4,274,587
138 4,274,588
167 4,274,589
185 4,274,590
188 4,274,591
200 4,274,592
265.35 4,274,593
327 4,274,594
383 4,274,595
533.9 4,274,596
542 4,274,597
585 4,274,598

CLASS 241
16 4,274,599
18 4,274,600
186.2 4,274,601
298 4,274,602

CLASS 242
7.14 4,274,603
43 R 4,274,604
55 4,274,605
117 4,274,606
163 4,274,607
192 4,274,608

CLASS 244
3.14 4,274,609
3.22 4,274,610

CLASS 246
34 R 4,274,611

CLASS 248
74 PB 4,274,612
150 4,274,613
243 4,274,614
343 4,274,615
459 4,274,616

CLASS 249
63 4,274,617

CLASS 250
223 R 4,275,293
227 4,275,294
4,275,295
4,275,296
239 4,275,297
255 4,275,298
271 4,275,299
304 4,275,300
326 4,275,301
330 4,275,302
342 4,275,303
373 4,275,304
445 T 4,275,305
548 4,275,306
551 4,275,307
4,275,308

CLASS 252
8.6 4,274,972
34.7 4,274,973
90 4,274,974
140 4,274,975
301.1 W 4,274,976
358 4,274,977
408 4,274,978
422 4,274,979
430 4,274,980
438 4,274,981
455 Z 4,274,982

CLASS 254
29 A 4,274,618
132 4,274,619
351 4,274,620

CLASS 260
4 AR 4,274,984
4 R 4,274,983
17.4 ST 4,274,985
22 CQ 4,274,986
23 H 4,274,987
23 XA 4,274,988
29.15 B 4,274,990
29.2 TN 4,274,989
30.8 R 4,274,991
32.8 R 4,274,992
37 R 4,274,993
40 R 4,274,994
42.14 4,274,995
45.75 B 4,274,998
45.75 S 4,274,999
45.75 W 4,274,997
45.9 R 4,274,996
112 R 4,275,000
112.5 LH 4,275,001
144 4,275,002
205 4,275,003
206 4,275,004
315 4,275,005
326.5 SF 4,275,006
343.9 4,275,007
345.2 4,275,008
380 4,275,009
4,275,010
410.7 4,275,011
421 4,275,012
504 R 4,275,013
780 4,275,014

CLASS 261
23 A 4,275,015
44 C 4,275,016
53 4,275,017
94 4,275,018
98 4,275,019
111 4,275,020
114 JP 4,275,021
114 TC 4,275,022

CLASS 264
50 4,275,023
51 4,275,024
63 4,275,025
67 4,275,026
118 4,275,027
126 4,275,028
152 4,275,029
250 4,275,030

CLASS 266
61 4,274,621
227 4,274,622

CLASS 271
217 4,274,623
292 4,274,624

CLASS 272
69 4,274,625
109 4,274,626
117 4,274,627
123 4,274,628

CLASS 273
1 R 4,274,629
4,274,630
26 B 4,274,631
29 BC 4,274,632
65 C 4,274,633
73 L 4,274,634
85 R 4,274,635
235 R 4,274,637
238 4,274,638
365 4,274,636
402 4,274,639

CLASS 277
9 4,274,640
153 4,274,641

CLASS 279
62 4,274,642

CLASS 280
6.1 4,274,643
39 4,274,644
47.26 4,274,645
87.04 A 4,274,647
166 4,274,648
204 4,274,649
242 WC 4,274,650
4,274,651
460 A 4,274,652
618 4,274,653
668 4,274,654
688 4,274,655
757 4,274,656
779 4,274,646
803 4,274,657
804 4,274,658

CLASS 281
34 4,274,659

CLASS 282
27.5 4,274,660

CLASS 283
21 4,274,661

CLASS 285
4,274,662
24 4,274,663
4,274,664
177 4,274,665

CLASS 290
1 R 4,275,309
4,275,310
2 4,275,311

CLASS 292
257 4,274,666

CLASS 293
102 4,274,667
142 4,274,668

CLASS 294
16 4,274,669
147 4,274,571

CLASS 296
1 S 4,274,670
190 4,274,671
216 4,274,672

CLASS 297
220 4,274,673
250 4,274,674

CLASS 299
31 4,274,675
64 4,274,676
92 4,274,677
4,274,678

CLASS 301
37 AT 4,274,679

CLASS 303
6 A 4,274,680
6 C 4,274,681

CLASS 305
11 4,274,682

CLASS 307
221 D 4,275,315
279 4,275,316
415 4,275,317
448 4,275,313
462 4,275,314
463 4,275,312

CLASS 308
9 4,274,683
36.1 4,274,684

CLASS 310
11 4,275,318
43 4,275,319
52 4,275,320
59 4,275,321
111 4,275,322
178 4,275,323
270 4,275,324

CLASS 312
7 TV 4,274,685
27 4,274,686
205 4,274,687
304 4,274,688
333 4,274,689

CLASS 313
51 4,275,325
102 4,275,326
111 4,275,327
123 4,275,328
217 4,275,329
218 4,275,330
318 4,275,331
414 4,275,332
495 4,275,333

CLASS 315
57 4,275,334
241 P 4,275,335
246 4,275,336
289 4,275,337
381 4,275,338

CLASS 318
138 4,275,339
280 4,275,340
376 4,275,341
490 4,275,342
721 4,275,343

CLASS 322
28 4,275,344

CLASS 323
210 4,275,346
312 4,275,347
363 4,275,345

CLASS 324
57 R 4,275,348
141 4,275,349
321 4,275,350
427 4,275,351
449 4,275,352
454 4,275,353

CLASS 328
58 4,275,354
124 4,275,355
129 4,275,356

CLASS 330
107 4,275,357
109 4,275,358
251 4,275,359
276 4,275,360
277 4,275,361
283 4,275,362

CLASS 331
4 4,275,363

CLASS 333
33 4,275,364
131 4,275,365
161 4,275,366
164 4,275,367
167 4,275,368
209 4,275,369

CLASS 335
37 4,275,370
272 4,275,371

CLASS 337
4 4,275,372
144 4,275,373
197 4,275,374

CLASS 338
329 4,275,375

CLASS 339
10 4,274,690
19 4,274,691
60 M 4,274,692
65 4,274,693
74 R 4,274,694
97 S 4,274,695
103 R 4,274,696
4,274,697
147 P 4,274,698
176 MP 4,274,699
192 R 4,274,700
217 R 4,274,702
217 S 4,274,701

CLASS 340
52 R 4,275,376
58 4,275,377
71 4,275,378
81 R 4,275,379
146.3 Z 4,275,380
4,275,381
151 4,275,382
286 R 4,275,383
309.4 4,275,384
312 4,275,385
347 AD 4,275,386
4,275,387
384 E 4,275,388
388 4,275,389
554 4,275,390
571 4,275,391
606 4,275,392
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10 4,274,704
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33 4,274,722
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CLASS 358
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55 4,275,412
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167 4,275,418
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414 4,275,444
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515 4,275,450
580 4,275,451
726 4,275,452
825 4,275,453
861 4,275,454
900 4,275,455
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4,275,457
4,275,458

CLASS 365
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CLASS 366
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261 4,274,750
310 4,274,751

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122 4,275,461

CLASS 368
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113 4,275,466

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241 R 4,274,772

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232 4,274,774
251 4,274,775

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173 4,274,785
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564 4,274,792
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186 R 4,274,810

CLASS 417
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179 4,274,812
269 4,274,813

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133 4,274,817

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110 4,275,032
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250 4,275,063
253 4,275,064
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258 4,275,066
263 4,275,067
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267 4,275,070
273 P 4,275,073
273 R 4,275,071
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305 4,275,075
309 4,275,076
322 4,275,077
324 4,275,078
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33 4,275,081
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554 4,275,088
601 4,275,089

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204 4,275,204

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463 4,275,242
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624 4,275,244
726 4,275,245
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781 4,275,248
789 4,275,249
812 4,275,250
817 4,275,251
909 4,275,252

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7 4,275,253
14 4,275,254
315 4,275,255
467 4,275,256
738 4,275,257

CLASS 706
98 4,274,929

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D2—	320	259,595		209	259,608	D9—	307	259,621	D13—	17	259,634		130	259,646		137	259,658
D3—	39	259,596		210	259,609		310	259,622		24	259,635		150	259,647	D24—	8	259,659
D6—	36	259,597		245	259,610		311	259,623			259,636		181	259,648		11	259,660
	75	259,598			259,611		318	259,624		30	259,637		195	259,649		17	259,661
	76	259,599		246	259,612		428	259,625	D14—	53	259,638		212	259,650		27	259,662
		259,600	D7—	64	259,613	D10—	38	259,626		58	259,639		232	259,651	D25—	2	259,663
		259,601		70	259,614		109	259,627	D16—	10	259,640		246	259,652		56	259,664
	175	259,602		76	259,615	D11—	141	259,628	D18—	3	259,641		253	259,653	D28—	13	259,665
	177	259,603		94	259,616		144	259,629	D19—	51	259,642		254	259,654		22	259,666
	186	259,604		107	259,617		159	259,630		69	259,643	D23—	8	259,655			259,667
	191	259,605		164	259,618	D12—	57	259,631	D21—	23	259,644		69	259,656	D30—	10	259,668
		259,606	D8—	47	259,619		147	259,632		102	259,645		95	259,657		16	259,669
	195	259,607		394	259,620		155	259,633									

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PATENTS

6 :	4,274,886		4,274,619		4,275,395		4,274,405		4,274,848		4,274,581
	4,275,006		4,274,647		4,275,399		4,274,508		4,274,898		4,274,626
01 :	4,274,387		4,274,649		4,275,410		4,274,552		4,274,903		4,274,750
	4,274,838		4,274,659		4,275,415		4,274,651		4,274,957		4,275,455
	4,274,958		4,274,688		4,275,419		4,274,758		4,274,978	20 :	4,274,300
04 :	4,274,253		4,274,690		4,275,421		4,274,908		4,274,980		4,274,592
	4,274,254		4,274,697		4,275,424		4,275,090		4,275,027		4,274,644
	4,274,262		4,274,703		4,275,427		4,275,124		4,275,032		4,274,648
	4,274,263		4,274,706		4,275,452		4,275,153		4,275,167		4,274,990
	4,274,369		4,274,717		4,275,453		4,275,291		4,275,193		4,275,064
	4,274,410		4,274,731	08 :	4,274,243		4,275,325		4,275,229		4,275,219
	4,274,567		4,274,759		4,274,402		4,275,435		4,275,248	21 :	4,274,269
	4,274,586		4,274,778		4,274,456	13 :	4,274,448		4,275,249		4,274,539
	4,274,824		4,274,783		4,274,569		4,274,555		4,275,252		4,274,752
	4,274,826		4,274,797		4,274,627		4,274,679		4,275,255		4,274,997
	4,275,107		4,274,820		4,275,097		4,274,818		4,275,338		4,275,388
	4,275,271		4,274,833		4,275,380		4,274,825		4,275,381	22 :	4,274,216
	4,275,272		4,274,835		4,275,457		4,274,846		4,275,382		4,274,760
	4,275,458		4,274,837	09 :	4,274,261		4,274,953		4,275,434		4,274,788
05 :	4,275,393		4,274,840		4,274,316		4,275,372		4,275,438		4,274,799
06 :	4,274,157		4,274,892		4,274,324	15 :	4,274,374	18 :	Re.30,653	23 :	4,275,170
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	4,274,190		4,274,922		4,274,362	17 :	4,274,160		4,274,298		4,274,716
	4,274,197		4,274,934		4,274,408		4,274,168		4,274,392		4,274,904
	4,274,204		4,274,956		4,274,470		4,274,199		4,274,481		4,274,906
	4,274,205		4,274,970		4,274,560		4,274,207		4,274,513		4,274,916
	4,274,206		4,275,002		4,274,562		4,274,223		4,274,514		4,275,057
	4,274,225		4,275,015		4,274,692		4,274,231		4,274,599		4,275,074
	4,274,226		4,275,034		4,274,805		4,274,237		4,274,639		4,275,263
	4,274,288		4,275,038		4,274,870		4,274,239		4,274,643		4,275,264
	4,274,296		4,275,050		4,274,945		4,274,282		4,274,686		4,275,265
	4,274,333		4,275,089		4,275,082		4,274,295		4,274,744		4,275,396
	4,274,342		4,275,095		4,275,274		4,274,311		4,274,790		4,275,460
	4,274,344		4,275,125		4,275,303		4,274,312		4,274,839	25 :	4,274,171
	4,274,390		4,275,127	10 :	4,274,251		4,274,318		4,274,845		4,274,315
	4,274,391		4,275,130		4,274,335		4,274,320		4,274,882		4,274,319
	4,274,404		4,275,149		4,274,393		4,274,340		4,274,897		4,274,350
	4,274,406		4,275,150		4,274,438		4,274,401		4,274,968		4,274,388
	4,274,422		4,275,160		4,275,022		4,274,493		4,275,187		4,274,571
	4,274,437		4,275,180		4,275,073		4,274,532		4,275,205		4,274,637
	4,274,446		4,275,192		4,275,083		4,274,544		4,275,210		4,274,737
	4,274,455		4,275,212		4,275,181		4,274,574		4,275,245		4,274,742
	4,274,463		4,275,267		4,275,185		4,274,579		4,275,310		4,274,866
	4,274,475		4,275,270		4,275,225		4,274,580		4,275,347		4,274,984
	4,274,503		4,275,286	12 :	4,274,165		4,274,601		4,275,385		4,275,163
	4,274,512		4,275,300		4,274,179		4,274,613	19 :	4,274,201		4,275,175
	4,274,566		4,275,308		4,274,233		4,274,629		4,274,227		4,275,227
	4,274,583		4,275,315		4,274,246		4,274,630		4,274,302		4,275,343
	4,274,606		4,275,317		4,274,255		4,274,680		4,274,309		4,275,407
	4,274,608		4,275,336		4,274,266		4,274,682		4,274,328	26 :	4,274,186
	4,274,610		4,275,350		4,274,279		4,274,700		4,274,366		4,274,219
	4,274,616		4,275,364		4,274,354		4,274,770		4,274,469		4,274,257
	4,274,618		4,275,387		4,274,361		4,274,784		4,274,492		4,274,281

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PLANT PATENTS

06 : 4,746

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June 30, 1981 Volume 1007 Number 5

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PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty Information

For information concerning the PCT, consult Chapter 1800 of the Manual of Patent Examining Procedure and notices 90-95 in the consolidated listing of notices appearing in the Official Gazette of Jan. 6, 1981.

The PCT fees in effect after May 19, 1981 are as follows:

Transmittal fee	$ 35.00
Search fee	300.00
International Basic Fee (for the first 30 sheets of an international application)	215.00
Basic Supplemental Fee (for each sheet over 30)	4.00
International Designation Fee (for each State for which a national patent is sought, or group of States for which the same regional patent is sought)	50.00

RENE D. TEGTMEYER,
Assistant Commissioner for Patents.

Board of Appeals Decisions Rendered in the Month of May 1981

Affirmed	207
Affirmed in Part	18
Reversed	65
Total	290

REISSUE APPLICATIONS FILED

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21(b)).

3,291,947, Re. S.N. 256,435, Filed Apr. 22, 1981, Cl. 200/148R, INTERRUPTING STRUCTURES FOR COMPRESSED-GAS CIRCUIT INTERRUPTERS HAVING DOUBLE-BREAK HOLLOW ROTATIVE MOVING CONTACT-ARM ASSEMBLY, Roswell C. Van Sickle, Owner of Record: *Westinghouse Electric Corp., Pittsburgh, Pa.*, Attorney or Agent: C. L. McHale, et al., Ex. Gp.: 217

4,146,306, Re. S.N. 247,882, Filed Mar. 26, 1981, Cl. 350/211, OPTICAL LENS, David L. Wallach, Owner of Record: *Inventor,* Attorney or Agent: J. T. Hoffmann, et al., Ex. Gp.: 257

4,150,896, Re. S.N. 251,574, Filed Apr. 6, 1981, Cl. 355/75, COPYING APPARATUS COVER, William G. Wakeman, Owner of Record: *Pitney Bowes, Inc., Stamford, Conn.*, Attorney or Agent: Lawrence E. Sklar, et al., Ex. Gp.: 211

4,187,118, Re. S.N. 222,264, Filed Jan. 2, 1981, Cl. 106/189, CONCRETE COMPOSITION FOR MAKING CONCRETE MOLDINGS AND METHOD FOR MAKING SUCH CONCRETE MOLDINGS, Koji Nakagawa, et al., Owner of Record: *Denki Kagaku Kogyo, Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: Paul J. Sutton, Ex. Gp.: 113

4,222,249, Re. S.N. 253,042, Filed Apr. 10, 1981, Cl. 66/120, WARP KNITTING MACHINE WITH COMPOUND NEEDLES, Karl Winter, Owner of Record: *Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Germany,* Attorney or Agent: Omri M. Behr, et al., Ex. Gp.: 353

PATENT NOTICES

Certificates of Correction for the Week of June 30, 1981

4,019,551	4,242,682	4,254,218	4,259,613
4,054,737	4,242,749	4,254,410	4,259,728
4,114,318	4,244,578	4,254,703	4,259,827
4,129,662	4,245,601	4,254,819	4,260,029
4,131,848	4,246,102	4,255,032	4,260,065
4,136,216	4,247,008	4,255,322	4,260,140
4,186,319	4,247,486	4,255,408	4,260,385
4,191,338	4,248,163	4,255,438	4,260,396
4,206,169	4,248,710	4,255,683	4,260,454
4,206,762	4,249,003	4,256,003	4,260,502
4,213,449	4,249,063	4,256,068	4,260,506
4,217,989	4,249,950	4,256,230	4,260,531
4,218,284	4,250,105	4,256,415	4,260,549
4,220,887	4,250,264	4,256,738	4,260,712
4,222,607	4,250,301	4,256,756	4,260,738
4,223,133	4,250,383	4,256,905	4,260,744
4,223,715	4,250,702	4,256,959	4,261,154
4,224,614	4,251,276	4,257,231	4,261,478
4,225,645	4,251,584	4,257,486	4,261,863
4,226,675	4,251,904	4,257,593	4,262,027
4,227,002	4,252,009	4,257,761	4,262,355
4,229,924	4,252,050	4,257,921	4,262,438
4,231,395	4,252,083	4,257,979	4,262,455
4,231,627	4,252,133	4,258,218	4,262,566
4,231,652	4,252,152	4,258,238	4,262,650
4,233,225	4,252,367	4,258,241	4,262,682
4,233,617	4,252,613	4,258,520	4,262,788
4,233,839	4,252,846	4,258,646	4,262,796
4,234,266	4,252,905	4,258,746	4,262,953
4,234,492	4,252,945	4,258,880	4,263,053
4,235,485	4,252,986	4,258,957	4,263,365
4,237,819	4,252,993	4,259,095	4,263,638
4,238,505	4,253,006	4,259,413	4,263,659
4,238,666	4,253,397	4,259,414	4,263,866
4,240,618	4,253,543	4,259,495	4,264,385
4,241,150	4,253,793	4,259,547	4,264,515
4,242,596	4,253,950	4,259,551	4,264,946

National Technical Information Service

U.S. GOVERNMENT-OWNED INVENTIONS

Notice of Availability for Licensing

The inventions listed below are owned by the U.S. Government and are available for domestic and, possibly, foreign licensing.

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DOUGLAS J. CAMPION,
Program Coordinator,
Office of Government Inventions and Patents
National Technical Information Service
U.S. Department of Commerce.

U.S. DEPARTMENT OF AGRICULTURE

Program Agreements and Patent Branch
Administrative Service Division Federal Building
Science & Education Administration
Hyattsville, Md. 20782

Patent application 6-212,655. Controlled Release of Bioactive Materials Using Alginate Gel Beads. Filed Dec. 3, 1980.

Patent application 6-223,509. Method of Purifying Fatty Acid Ester Products. Filed Jan. 8, 1981.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health
Chief, Patent Branch
Westwood Building
Bethesda, Md. 20205

Patent application 6-181,954. Monoclonal Antibodies Against Herpes Simplex Virus Types 1 and 2 Nucleocapsids and Kit. Filed Aug. 27, 1980.

U.S. DEPARTMENT OF THE INTERIOR

Branch of Patents
18th and C Streets, N.W.
Washington, D.C. 20240

Patent application 6-211,556. Chromatography Developing Chamber. Filed Dec. 1, 1980.

U.S. DEPARTMENT OF THE NAVY

Director, Navy Patent Program/
Patent Counsel for the Navy
Office of Naval Research
Code 302
Arlington, Va. 22217

Patent application 6-089,659. Automatic Elevator Control System. Filed Oct. 30, 1979.

Patent application 6-153,474. Precision Laser Pulse Radiometer. Filed May 27, 1980.

Patent application 6-187,888. Replaceable Fuel Nozzle Nut Lockwasher. Filed Sep. 17, 1980.

Patent application 6-211,600. A Subseafloor Environmental Simulator. Filed Dec. 1, 1980.

Patent application 6-219,291. A System for Remotely Determining Velocity of Sound in Water. Filed Dec. 22, 1980.

Patent application 721,630. Laser Contour Mapping System. Filed Aug. 25, 1976.

Patent 4,208,979. Pontoon Spudwell System. Filed June 16, 1978. Patented June 24, 1980. Not available NTIS.

Patent 4,229,402. Fiber Optic Connection Method. Filed July 18, 1978. Patented Oct. 21, 1980. Not available NTIS.

Patent 4,231,107. Serriform Strip Crosstie Memory. Filed Feb. 14, 1978. Patented Oct. 28, 1980. Not available NTIS.

Patent 4,231,311. Towable Pod Assembly for Protectively Disabling Incoming Torpedoes. Filed Sep. 1, 1978. Patented Nov. 4, 1980. Not available NTIS.

Patent 4,232,417. Marine Mammal Retrieval Apparatus. Filed Jan. 24, 1979. Patented Nov. 11, 1980. Not available NTIS.

Patent 4,233,477. Flexible, Shapeable, Composite Acoustic Transducer. Filed Jan. 31, 1979. Patented Nov. 11, 1980. Not available NTIS.

Patent 4,235,693. Submersible Energy Storage Apparatus. Filed Nov. 9, 1979. Patented Nov. 25, 1980. Not available NTIS.

Patent 4,236,043. Frequency Compression and Expansion Using an Electrooptical Processor. Filed Apr. 13, 1979. Patented Nov. 25, 1980. Not available NTIS.

Patent 4,240,272. Arctic Canteen. Filed June 18, 1979. Patented Dec. 23, 1980. Not available NTIS

Errata

"All reference to Design Patent No. 259,196 to John Pardo of New York for HAND-HELD TELEPHONE appearing in the Official Gazette of May 12, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,233,735 to William Sadayuki Tsuchiya of Ill. for FLEXIBLE LINE CUTTING APPARATUS appearing in the Official Gazette of Nov. 18, 1980 should be deleted since no patent was granted."

"All reference to Patent No. 4,263,882 to Etsuhiro Tezuka, Koichiro Kaji and Toru Ichinose all of Japan for INTERNAL COMBUSTION ENGINE appearing in the Offical Gazette of Apr. 28, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,265,207 to Takanori Hayashida of Japan for INDUCTION SYSTEM OF FOUR STROKE INTERNAL COMBUSTION ENGINE appearing in the Official Gazette of May 5, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,266,303 to Joon B. Park of South Carolina for METHOD OF ORTHOPEDIC IMPLANTATION AND IMPLANT PRODUCT appearing in the Official Gazette of May 12, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,266,959 to Kimo M. Welch of California for CYROGENIC PUMP WITH RADIATION SHIELD appearing in the Official Gazette of May 12, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,269,910 to Teresita O. Graham and John T. Goodman both of New York for ELECTROCHEMICAL CELLS HAVING A GELLED ANODE-ELECTROLYTE MIXTURE appearing in the Official Gazette of May 26, 1981 should be deleted since no patent was granted."

"All reference to Patent No. 4,270,699 to David A. Siekmeier, Glen L. Andersen, Columbus; Arthur L. Zimmerer, Deceased, Late of Lindsay, Nebr., By First National Bank and Trust Co., Columbus, Bernadette Zimmerer, Lindsay, Nebr. and William P. Zimmerer, San Luis Obispo, Calif. for LATERALLY MOBILE IRRIGATION SYSTEM appearing in the Official Gazette of June 2, 1981 should be deleted since no patent was granted."

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	Milwaukee Public Library	(414) 278-3043

*Collection organized by subject matter.

PATENT EXAMINING CORPS

RENE D. TEGTMEYER, Assistant Commissioner

WILLIAM FELDMAN, Deputy Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF May 16, 1981

PATENT EXAMINING GROUPS	Actual Filing Date of Oldest New Case Awaiting Action
CHEMICAL EXAMINING GROUPS	
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—D. E. TALBERT, Director Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metallurgical Apparatus; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	2-07-80
GENERAL ORGANIC CHEMISTRY, GROUP 120—C. E. VAN HORN, Director Heterocyclic Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	02-05-79
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—J. O. THOMAS, JR., Director Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g., Coating; Molding; Ink; Prosthdontics; Adhesive and Abrading Compositions; Molding, Shaping, Treating Process, and Apparatus Therefor; Irradiation (Part); Bleaching; Dyeing; Leather, Fur and Textile Treating Compositions.	1-07-80
COATING, LAMINATING AND PHOTOGRAPHY, GROUP 160—S. N. ZAHARNA, Director Coating: Processes, Apparatus and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; and Photography.	3-03-80
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—R. F. WHITE, Director Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid, Gas, and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	01-28-80
ELECTRICAL EXAMINING GROUPS	
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210—S. W. ENGLE, Director Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Photography; Motion Pictures; Horology; Acoustics; Recorders; Weighing Scales.	11-13-79
SPECIAL LAWS ADMINISTRATION, GROUP 220—KENNETH L. CAGE, Director Ordnance, Firearms and Ammunition; Lubrication; Illumination; Nuclear Reactors; Acoustics, Communications, Optics; Radar; Directional Radio; Torpedoes; Seismic Exploring; Cathode Ray Tube Circuitry; Cryptography; Laser Devices; Radioactive Materials; Powder Metallurgy, Rocket Fuels; Special, Fuel, Explosive and Thermic Compositions; Thermal and Photoelectric Batteries.	9-17-79
INFORMATION TRANSMISSION, STORAGE, AND RETRIEVAL, GROUP 230—VACANT Communications; Multiplexing Techniques; Television; Facsimile; Data Processing, Computation and Conversion; Storage Devices and Related Arts.	11-14-79
RECEPTACLES, SANITATION AND CLEANING, WINDING, AND MEASURING, GROUP 240—A. L. SMITH, Director Receptacles; Bearings; Joint Packing; Conduits; Switches; Presses; Plumbing Fixtures; Textile Spinning; Cleaning; Food Treating; Agitating; Centrifugal Separating; Geometrical Instruments; Sound Recording; Image Projectors; Web Feeding; Winding and Reeling; Cable Hoists; Measuring and Testing; Indicating; Fluent Material Handling.	12-07-79
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—S. S. MATTHEWS, Director Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	03-28-79
DESIGN, GROUP 290—KENNETH L. CAGE, Director Industrial Arts; Household, Personal and Fine Arts.	3-26-79
MECHANICAL EXAMINING GROUPS	
HANDLING AND TRANSPORTING MEDIA, GROUP 310—B. R. GRAY, Director Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Brakes; Railways and Railway Equipment.	01-09-80
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—M. M. NEWMAN, Director Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion-Bonding, Metal Founding; Machine Tools for Shaping or Dividing; Work and Tool Holders, Woodworking; Tools; Cutlery; Jacks; Fishing, Etc.; Butchering; and Books and Printed Matter.	11-06-78
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—R. E. AEGERTER, Director Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Plants; Harvesting; Earth Working and Excavating; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Information Dissemination.	9-13-79
HEAT, POWER, AND FLUID ENGINEERING, GROUP 340—D. J. STOCKING, Director Power Plants; Combustion Engines; Fluid Motors; Reaction Motors; Pumps; Rotary Engines and Pumps; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Temperature and Humidity Regulation; Couplings; Gearing; Fluid Handling and Control; Lubrication.	10-22-79
GENERAL CONSTRUCTIONS, TEXTILES, MINING AND GEARING, GROUP 350—G. M. FORLENZA, Director Building Structures; Racks; Cabinets; Closures; Supports; Furniture; Fasteners; Locks; Pipe Couplings; Joints; Miscellaneous Hardware; Textiles; Sewing Machines; Apparel; Footwear; Earth Engineering; Earth Drilling; Mining; Wells; Roads; Bridges; Tool Driving; Gearing; Machine Elements; Clutches.	06-22-79

Expiration of patents: The patents within the range of numbers indicated below expire during May 1981, except those which may have expired earlier due to shortened terms under the provisions of Public Law 690, 79th Congress, approved August 8, 1946 (60 Stat. 940) and Public Law 619, 83rd Congress, approved August 23, 1954 (68 Stat. 764), or which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151.

Patents . . . . . Numbers 3,131,397 to 3,134,980, inclusive

Plant Patents . . . . . Numbers 2,399 to 2,406, inclusive

REISSUES

JUNE 30, 1981

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 30,656

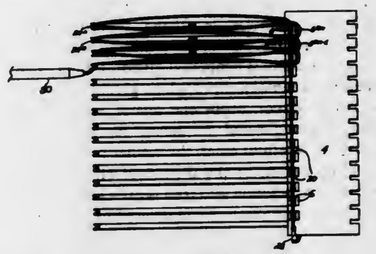
WEAVING SYSTEM, METHOD OF WEAVING AND APPARATUS

Edward Davitian, 420 E. 55th St., New York, N.Y. 10022

Original No. 4,109,355, dated Aug. 29, 1978, Ser. No. 765,796, Feb. 4, 1977. Application for reissue Dec. 8, 1978, Ser. No. 967,718

Int. Cl.³ D03D *29/00*

U.S. Cl. 28—151 **11 Claims**



11. Weaving apparatus for individually manipulable single fiber fabrication of woven fabrics comprising:

a weaving holding frame having

a plate like base portion having first and second spaced marginal edges,

means extending above the surface of said base portion for receiving a fiber,

a plurality of elongate rod members having one end thereof terminally mounted in said first marginal edge of said base portion and extending outwardly therefrom, each of said rod members having a fiber containing notch at the unmounted terminal end thereof, and

an elongate weaving wand having a lateral cross-section less than the space between adjacent rod members adapted to feed a fiber from one end and to selectively dispose a weft fiber around, over or under an elongate rod member when positioned such that the longitudinal axis of the weaving wand is substantially parallel to the longitudinal axis of the elongate rod member.

Re. 30,657

BALANCED BOTANICAL GROWTH CONTAINER

Stanley I. Mason, Jr., and James E. Richardson, both of Weston, Conn., assignors to Simco, Incorporated, Weston, Conn.

Original No. 3,961,446, dated Jun. 8, 1976, Ser. No. 578,425, May 19, 1975. Application for reissue May 31, 1977, Ser. No. 801,811

Int. Cl.³ A01G *9/00*

U.S. Cl. 47—79 **27 Claims**

19. A plant growth container eliminating plant over-watering and reducing root rot comprising:

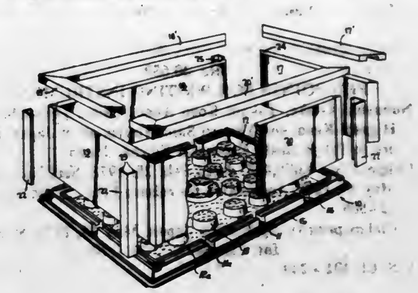
a water impermeable base having:

an inner channel substantially defining the periphery of the growth container, capable of receiving and supporting a soil containment means,

a series of root control means located on the base surface within the inner channel, said root control means extending upwardly from said base to a predetermined height defining an upper plane, and

an outer water/gas transmission channel substantially defining the periphery of the base having a plurality of channels in communication with the root control means,

the bottom of the inner channel and the upper plane of said root control means being generally higher than the top of the water/gas transmission channel, and



separate soil containment means fitting into the inner channel.

Re. 30,658

APPARATUS FOR TREATING WORK PIECES

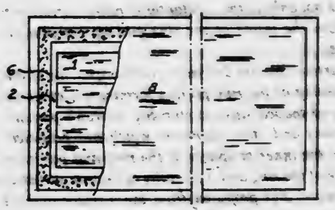
Karl E. Arvidsson, Dannemoragatan 10, 113 44 Stockholm, Sweden

Original No. 4,007,706, dated Feb. 15, 1977, Ser. No. 574,962, May 6, 1975. Application for reissue Nov. 1, 1978, Ser. No. 956,656

Claims priority, application Sweden, May 6, 1974, 7406806

Int. Cl.³ B27K *3/10*

U.S. Cl. 118—50 **11 Claims**



1. Apparatus for treating workpieces in an enclosed space, said apparatus comprising:

[a.] workpiece-supporting means having a workpiece-supporting surface;

[b. a rigid framework in proximity to and coextensive with edge portions of said workpiece-supporting surface, said framework having a side facing said workpiece-supporting surface;]

[c.] a collapsible material [secured to said framework] defining an enclosed space over the workpiece-supporting surface;

[d. a plurality of spaced posts secured to said framework; and].

[e. wall members secured to and supported by said spaced posts extending continuously about said framework, said wall members together with said collapsible material defining between them a liquid-tight chamber.]

flexible sealing means between the edge portions of the workpiece-supporting surface and the side of the collapsible material facing said edge portions; and

a container disposed beneath said workpiece-supporting surface, said container extending beyond the sides of said workpiece-

supporting surface, and a skirt member extending from the collapsible material into said container.

Re. 30,659

PEN POINTS FOR WRITING INSTRUMENTS

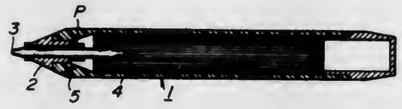
Nobuyuki Otake, Tokyo; Koso Ando, Chiba; Hironobu Hori, Higashi-Kasa, and Ykisori Sato, Tokyo, all of Japan, assignors to Tokyo Boshi Kabushiki Kaisha, Japan

Original No. 4,076,428, dated Feb. 28, 1978, Ser. No. 684,677, May 10, 1976. Application for reissue Feb. 22, 1980, Ser. No. 123,508

Claims priority, application Japan, May 15, 1975, 50-56693

Int. Cl.³ B43K 7/00, 1/06

U.S. Cl. 401—209 **31 Claims**



17. [The pen point as claimed in claim 1,] *In pen point for writing instruments which is a rod-shaped wick formed by uniting molten synthetic resin monofilaments, wherein radially curved narrow slots extend toward the center of the wick from an outer periphery portion (ring portion) in the cross-section and the radial narrow slots are defined by a plurality of segments projected from the ring portion, an improvement comprises that the rod-shaped wick is provided in the cross-section with curved narrow slots extending not only in the substantially radial direction toward the center from the inside of the ring portion but also in the other directions,*

said narrow slots are defined by the components of the pen point consisting of the ring portion forming the outer periphery of the rod-shaped wick, a plurality of trunk portions or trunk portions and stem segments which are projected inwardly from the inner periphery of the ring and partition the inner space of the ring and a plurality of branch portions, which are branched and projected from every trunk and additionally partition the remainder of the above described space,

said components of the trunks, the trunks and stems and branches are adjacently arranged so that the end portions and the sides of these components are not connected with one another and that these components constitute 2–6 fold axis symmetry wherein the center axis of the ring is the rotary axis,

every component of the ring, the trunks, the stems and the branches has at least one size and shape,

every trunk provided with branches form at least one of standing tree-formed projections in the inside of the ring,

the trunks or the stems of the number corresponding to the fold number of the above described fold axis symmetry are opposed at the center portion,

every side of the narrow slots is formed by connection of circular arcs of a large number of monofilaments, which constitute the elementary components

the narrow slots extend from one end to the other end of the pen point, and

wherein the trunks or stems of the number corresponding to the fold number of the fold axis symmetry are united at the top portions thereof through the circumstance of a monofilament arranged at the center axis of the ring.

Re. 30,660

WATER SOLUBLE INSULATING VARNISH

Deno Lagonis, 2331 Algonquin Rd., Schenectady, N.Y. 12309

Original No. 4,179,420, dated Dec. 18, 1979, Ser. No. 709,107, Jul. 27, 1976. Continuation-in-part of Ser. No. 624,569, Oct. 21, 1975, abandoned. Application for reissue Feb. 11, 1980, Ser. No. 120,373

Int. Cl.³ C09D 3/52, 3/64, 3/66, 5/02

U.S. Cl. 260—21 **26 Claims**

1. A process for forming a water-dispersible polyester capable of being solubilized to become water-soluble comprising reacting (1) with (2a) to form (I), wherein

(1) is isophthalic acid, terephthalic acid, benzophenone dicarboxylic acid or mixtures thereof and wherein

(2a) includes a polyol having at least three hydroxyl groups and a diol, wherein said polyol is trimethylol-propane, tris(hydroxymethyl)aminoethane, trimethylolethane, glycerine, pentaerythritol or tris(hydroxyethyl)isocyanurate and said diol is neopentyl glycol, 1,4-butylene glycol, dimethyl hydantoin, dipropylene glycol, ethylene glycol, diethylene glycol, propylene glycol, cyclohexane dimethanol, hydrogenated bisphenol A, hydroquinone di-(beta-hydroxyethyl) ether, the diether of propylene glycol and bisphenol A, or the diether of ethylene glycol and bisphenol A; wherein said triol is present in amounts up to 35 mole percent of all reactants used to form said polyester;

wherein said polyol and said diol are heated together and then said component (1) is added thereto;

and adding (II) which is (a) trimellitic anhydride; (b) an aliphatic dibasic acid which is adipic acid, succinic acid, azelaic acid, sebacic acid, dimerized fatty acids, maleic acid, fumaric acid or an anhydride of said acids or (c) a cycloaliphatic acid which is tetrahydrophthalic acid, hexahydrophthalic acid, 3,6-endomethylene, delta⁴-tetrahydrophthalic acid or an anhydride of said acid, which component (II) is 15 to 65 mole percent based on the total moles of (1) and (II), and wherein (1) comprises 35 to 85 mole percent of the total amount of (1) and (II);

wherein the mixture of (1) and (2a) is heated until a portion of the mixture containing 100 percent solids is characterized by an acid number of [at least] about 10 *up to 20.*

Re. 30,661

ELECTRIC CURRENT PRODUCING GALVANIC CELL

Morris Eisenberg, Mountain View, Calif., assignor to Electrochimica Corporation, Mountain View, Calif.

Original No. 3,891,458, dated Jun. 24, 1975, Ser. No. 416,073, Nov. 15, 1973. Application for reissue Mar. 23, 1977, Ser. No. 780,649

Int. Cl.³ H01M 6/14

U.S. Cl. 429—194 **2 Claims**

14. A galvanic cell comprising:

A. a porous solid cathode;

B. an anode that includes lithium; and

C. an electrolyte for electrolytic conduction between said anode and cathode consisting essentially of thionyl chloride in which is dissolved

a. a first solute consisting essentially of lithium chloroaluminate in a concentration of between 0.5 and 3.0 moles per liter, and

b. a second solute consisting of a mixture of sulfolane and sulfur dioxide in a concentration of between 0.5 and 6.0 moles per liter.

Re. 30,662

COMMUNICATIONS HEADSET WITH REVERSIBLE MOUNTING MEANS

James P. Foley, Astoria, N.Y., assignor to Rexnewell Corporation, New York, N.Y.

Original No. 3,971,901, dated Jul. 27, 1976, Ser. No. 555,529, Mar. 5, 1975. Application for reissue Jul. 21, 1978, Ser. No. 926,716

Int. Cl.² H04M 1/05

U.S. Cl. 179—156 A **22 Claims**



16. A reversible headset comprising:

a. headband means for supporting the headset on a wearer's head, said headband means having an aperture extending horizontally therethrough, parallel to a head engaging surface thereof;

b. beam means having one end slidable into either end of said aperture, so that the beam means may be mounted with its other end extending forwardly from said headband means on either side of the head;

c. means including a projection on the outside of the beam means for releasably retaining the beam means in the aperture;

[c.] *d.* housing means [supported on] *rotatably connected to* the other end of the beam means *and depending from the outer side thereof, so that when the beam means is moved from one side of the head to the other, the housing may be rotated thereon to retain its depending configuration and to maintain the projection on said outer side of the beam means;*

[d.] *e.* a reversible microphone having sound receiving openings on two opposite faces;

[e.] *f.* articulated joint means [supported] on said housing means *and spaced from the beam means;*

[f.] *g.* a conduit having one end [connected to] *supporting* the microphone and the other end connected to the joint *means*, said conduit being curved so that the microphone is disposed laterally of the housing means;

[g.] *h.* conductor means connected at one end to the microphone and extending through the conduit and the joint *means* into the housing means; and

[h.] *i.* means, including the conduit and the joint *means*, supporting the microphone for adjustment of its operating position with respect to the wearer's mouth on either the left or right-hand side of the head[.], *the openings in one face of the microphone being closest to the wearer's mouth when the microphone is on the left side of the head, and the openings in the other face of the microphone being closest to the wearer's mouth when the microphone is on the right side of the head.*

Re. 30,663

ELECTRICALLY CONDUCTIVE PNEUMATIC SPRING WITH DOOR ACTUATED SWITCH MEANS

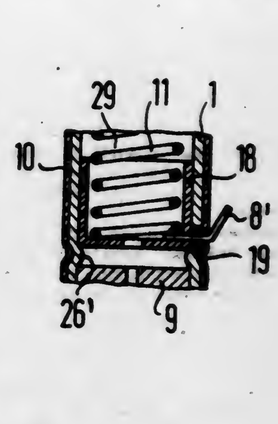
Klaus Schnitzius, Rheinbrohl, Fed. Rep. of Germany, assignor to Stabilus GmbH, Koblenz-Neuendorf, Fed. Rep. of Germany

Original No. 3,919,989, dated Nov. 11, 1975, Ser. No. 482,645, Jun. 24, 1974. Application for reissue Nov. 3, 1977, Ser. No. 848,346

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1973, 2332791

Int. Cl.³ H01H 3/16; B60L 1/02; F16F 9/18; H01R 41/00

U.S. Cl. 200—52 R **41 Claims**



1. A pneumatic spring comprising:

(a) a cylinder member having an axis and formed with a cavity;

(b) a piston assembly axially movable relative to said cylinder member between two end [postions] *positions*, said assembly including

(1) a piston axially separating two compartments in said cavity, and

(2) a piston rod member fixedly fastened to said piston and axially projecting from said cavity in sealing engagement with said cylinder member;

(c) a body of gas in said cavity and impeding axial movement of said piston assembly;

(d) fastening means on respective, oppositely spaced, axially terminal portions of said cylinder member and of said piston rod member outside said cavity for fastening said members to respective objects and including insulating means for electrically insulating said members from the respective fastened objects;

(e) respective electrically conductive terminals mounted on said cylinder member and on said piston rod member outside said cavity; and

(f) electrically conductive means in said cavity conductively connecting said terminals in one of said end positions of said piston assembly.

25. A pneumatic spring comprising:

(a) a cylinder member having an axis and formed with a cavity;

(b) a piston assembly axially movable relative to said cylinder member between two positions, said assembly including a rod member axially projecting from said cavity in engagement with said cylinder member;

(c) a body of gas at a pressure higher than atmospheric in said cavity for impeding axial movement of said piston assembly;

(d) fastening means on said cylinder member and on said rod member for fastening said members to respective objects;

(e) two electrically conductive terminals respectively secured to said cylinder member and to said rod member outside said cavity;

(f) electrically conductive means located at least in part in said cavity for conductively connecting said terminals; and

(g) insulating means for insulating said terminals and said conductive means from said objects.

27. A spring as set forth in claim 25, wherein said conductive means include a resilient contact element in said cavity conductively connected to the terminal secured to said cylinder member, electrically insulating mounting means securing said contact element and the connected terminal to said cylinder member, and an electrically conductive face on said piston assembly engaging said contact element in said one position of the piston assembly while being spaced from said contact element in said other position of said piston assembly.

28. A spring as set forth in claim 25, wherein said cylinder member and said piston assembly have respective electrically conductive portions conductively connected to said terminals, said electrically conductive means in said cavity include a contact member secured to one of said electrically conductive portions and engaging the other electrically conductive portion during at least a part of the movement of said piston assembly between said two positions.

PLANT PATENTS

GRANTED JUNE 30, 1981

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

4,747

ROSE PLANT

Charles P. Elliot, 2208 Monterey Ave., Santa Clara, Calif. 95051

Filed Apr. 30, 1980, Ser. No. 145,330

Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—18 **1 Claim**

1. A new and distinct cultivar of rose, substantially as described and pictured herein, characterized by its large regular pink blooms, vigorous growth, continuous blooming and persistence.

4,748

DWARF PEACH W-110

Fedor Wassiliew, deceased, late of Orange, Calif.; by Nicolaus Wassiliew, heir, Costa Mesa, Calif.; by Alexander Wassiliew, heir; by Marsha W. Hartman, heir, both of Orange, Calif., and by Valentina Wassiliew, heir, Costa Mesa, Calif., assignors to Jackson & Perkins Co., Medford, Oreg.

Filed May 1, 1980, Ser. No. 145,675

Int. Cl.³ A01H *5/03*

U.S. Cl. Plt.—42 **1 Claim**

1. A new and distinct variety of peach tree of the genetically dwarf type, substantially as herein shown and described, characterized particulary as to novelty by its unique combination of a vigorous dwarf plant, single or partially double, light pink flowers, late July ripening date, nearly spherical red flushed, pale yellow skin, and sweet, white, red-streaked flesh.

4,749

AZALEA PLANT

Howard Kerrigan, 24249 Second St., Hayward, Calif. 94541

Filed Feb. 11, 1980, Ser. No. 120,721

Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—57 **1 Claim**

1. A new and distinct variety of Azalea plant as described and illustrated, known by the cultivar name "Super Red", and particularly characterized by the extra double, very large, clear red bloom on a vigorous, fast-growing plant with excellent foliage.

4,750

GAZANIA PLANT

Paul C. Enright, 11615 Riverside Dr., Lakeside, Calif. 92040

Filed May 16, 1980, Ser. No. 150,603

Int. Cl.³ A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct variety of Gazania plant substantially as herein described, characterized particularly as to novelty by its unique flower and varying leaf form.

PATENTS

GRANTED JUN. 30, 1981

ERRATA

For CLASS	See PATENT NO.
738–062.32	4,275,588
411–078	4,275,637
493–316	4,275,644
369–074	4,275,888
428–480	4,276,183

4,275,467

SLIDING CLASP FASTENERS AND GARMENTS, ARTICLES AND SHEETING HAVING SUCH FASTENERS

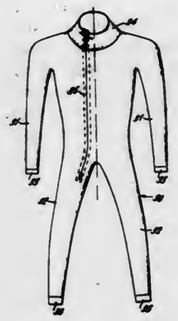
Gandolph Doelter, London, England, assignor to The New Zipper Company Limited, Slough, England

Filed Feb. 26, 1979, Ser. No. 14,846

Claims priority, application United Kingdom, Mar. 1, 1978, 8166/78; Jul. 4, 1978, 28786/78

Int. Cl.³ A41D *13/00*; A44B *19/32*

U.S. Cl. 2—82 16 Claims



1. A fluid tight open ended or separable continuous fastener comprised of two rows of fastener elements secured to first and second strips of impervious flexible material, respectively, each having inside and outside faces, a slider which is movable along the rows from one end of the fastener towards the other end, said slider being operative on movement in the closing direction to bring the elements of the two rows into interlocking fluid tight engagement against fluid pressure acting transversely of the fastener and to close at least said one end of the fastener and on movement in the opening direction to separate the elements of the two rows, and an additional sealing means provided on the inside face of each of said strips adjacent the end to be closed, each said additional sealing means having an edge running longitudinally of said fastener so that when said one end of the fastener is closed said additional sealing means lie in edge to edge contact and said edges are held under sufficient compression by said slider across the entire contact area such that a fluid tight seal is obtained therebetween which resists fluid pressure acting longitudinally of the fastener at said one end thereof.

12. A garment incorporating at least one fastener as claimed in claim 1.

13. A garment as claimed in claim 12, wherein the garment is a one-piece protective suit having the fastener extending from the collar of the suit towards and then part way down one leg of the suit along a line which for the most part is parallel to but to one side of the centerline of the suit, the end of the fastener at the collar of the suit being an open end.

4,275,468

WINTER JERSEY WITH HAND WARMER

Homer G. Outlaw, 835 N. Carrollton, Apt. 8, Baton Rouge, La. 70806

Filed May 14, 1979, Ser. No. 38,727

Int. Cl.³ A41D *10/00, 27/20*

U.S. Cl. 2—115 10 Claims

1. A cold weather jersey to be worn by participants in activities requiring the use of ungloved hands comprising:

an upper body encasing portion made of warm material and suitable for wearing by a human while taking part in such activities;

said body encasing portion being provided with sleeve portions attached thereto for encasing the arms of a wearer; and



means associated with the armpit area of the jersey for providing warmth and protection for the hands whenever desired by the wearer, wherein said means includes a pocket portion attached to at least one of the sleeves near the inner armpit portion thereof.

4,275,469

PROSTHETIC HEART VALVE

Shlomo Gabbay, Bronx, N.Y., assignor to Shelhigh Inc., New York, N.Y.

Filed Dec. 13, 1979, Ser. No. 103,214

Int. Cl.³ A61F *1/22*

U.S. Cl. 3—1.5 18 Claims

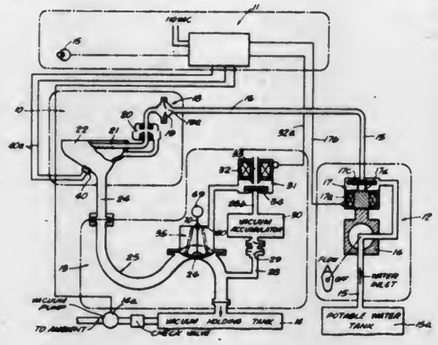


1. A prosthetic heart valve comprising a tubular membrane having an inlet end and an outlet end, the inlet end being adapted to be attached about the annulus of the heart, and a substantially semicircular supporting structure attached to a semicircular section of the outlet end of said tubular membrane and adapted to be attached to the wall of the heart, whereby the remaining section of the tubular membrane at the outlet end remains free and is movable toward and away from the supported portion thereof to close or open the outlet end of the tubular membrane.

4,275,470
VACUUM-FLUSH TOILET ARRANGEMENT FOR AIRCRAFT

Everett H. Badger, and Michael J. Rogerson, both of La Habra, Calif., assignors to Rogerson Aircraft Controls, Los Angeles, Calif.

Continuation of Ser. No. 58,586, Jul. 18, 1979. This application Aug. 20, 1979, Ser. No. 68,131
Int. Cl.³ B64D 11/02
U.S. Cl. 4—316 12 Claims



1. A non-circulating vacuum-operated flush waste disposal system for aircraft having a toilet comprising:
a. a bowl for receiving waste matter,
b. means for supplying rinse water to bowl,
c. a drain for said bowl connected to a waste holding tank having a vacuum therein,
d. a flush valve in said drain having a flexible valve element movable between closed and open positions, whereby said flush valve in open position applies vacuum to said toilet bowl,
e. vacuum actuated means for opening said flush valve, said vacuum actuated means applying vacuum to the outer surface of said flexible valve element, and
f. power means connected to said vacuum actuated means whereby vacuum may be applied thereto in order to open said flush valve, said flush valve automatically returning to closed position when power to said power means is discontinued.

4,275,471
HYDRAULICALLY OPERATED FLUSH VALVE FOR TOILET FLUSH TANKS AND SIMILAR DEVICES

Howard W. Becker, 804 Imperial Way SW., Calgary, Alberta, Canada (T2S 1N7)

Filed Jul. 17, 1978, Ser. No. 925,643
Int. Cl.³ E03D 1/34, 1/14, 3/12
U.S. Cl. 4—387 3 Claims

1. A flush valve for flush tanks for toilets and like devices comprising a stationary cylinder fitted with a moveable piston and positioned below the filled water level of the flush tank by attachment to the usual flush tank overflow tube by means of a clamping arrangement, with the longitudinal axis of the cylinder and piston directly above and vertically aligned with the vertical axis of a flush tube located in the bottom of the flush tank; the lower end of the stationary cylinder being open and accommodating the moveable piston, while the upper end is closed and provided with a tube which is suitably smaller in diameter than the diameter of the cylinder and which opens into the cylinder and extends above the normal filled level of the water in the flush tank and communicates with the air space above the water; the piston being moveable vertically within the cylinder and having its upper end open while its lower end is closed except for a centrally located circular opening which is suitably smaller than the diameter of the interior opening of the flush tube; the bottom of the otherwise closed end of the piston being fitted with an annular resilient sealing element around and concentric with the circular opening and so sized as to fit onto the circular upper edge of the flush tube, thus becoming the sealing portion of the moveable element of the said flush valve, while the upper portion of the flush tube acts as the stationary seat of the flush valve; the upper side of the lower annular portion of the piston being fitted with an annular inner valve seat so that a moveable element comprising an inner valve can seat thereon and thus close the bottom end of the piston; the inner moveable valve element being connected to a rod (or tube) which passes through the smaller diameter tube in the upper end of the stationary cylinder and thus into the air space above the filled level of the flush tank and which can be raised by an operating lever of the flush tank; an operating lever inner arm being adapted so as to provide means of raising the inner valve rod, and being incapable of exerting a downward force thereon; the whole mechanism being such that, upon depressing an exterior handle of the operating lever, the inner arm thereof is raised causing the inner valve element to open and allowing the liquid within the interior of the cylinder and piston to discharge through the flush tube; this in turn eliminating the hydraulic

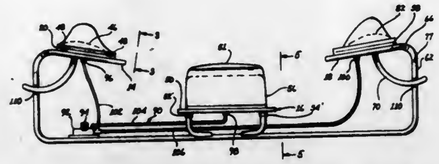


force within the piston and thus allowing the hydraulic force on the annular area of the outside of the bottom of the piston not covered by the flush tube to raise the piston and the sealing element and thus open the flush valve; whereby when the piston rises, the moveable element of the inner valve rests upon its annular seat in the upper side of the piston end; whereby when the water level in the flush tank has dropped to a level near the bottom of the raised piston, there is no longer sufficient upward force to maintain the piston in the raised position, and it moves downward so that the sealing element on the bottom fits onto the flush tube valve seat, and the flush valve is closed; the flush tank thus being allowed to fill with the water from a float-actuated water fill valve, and allowing the water to flow through a small port in the side of the piston which is opened when the piston is in the down position and closed when the piston is in the up position; this in turn developing a hydraulic force on the inside bottom of the piston (with the closed inner valve) which is greater than the hydraulic force on the annular area of the outside bottom of the piston which is not covered by the flush tube, maintaining the piston in the down (valve closed) position until the next actuation of the operating lever occurs.

4,275,472
RECLINER

Edwin E. Erck, P.O. Box 1065, Camp Verde, Ariz. 86322

Filed Oct. 26, 1979, Ser. No. 88,606
Int. Cl.³ A61G 7/10
U.S. Cl. 5—60 8 Claims



1. A recliner for supporting only discrete body sections of a user, said recliner comprising in combination:
(a) a framework;
(b) a head section mounted upon said framework for supporting the neck of the user, said head section including a cushion;
(c) a mid-section mounted upon said framework for supporting the hips of the user, said mid-section being located distinct and laterally apart from said head section to preclude support for a user's back intermediate his supported neck and hips, said mid-section including a cushion;
(d) a foot section mounted upon said framework for supporting the lower legs of the user, said foot section being located distinct and laterally apart from said mid-section to preclude support for a user's legs intermediate his supported hips and lower legs, said foot section including a cushion;
(e) first means for varying the angular orientation of said head section with respect to said framework; and
(f) second means for varying the angular orientation of said foot section with respect to said framework.

4,275,473
MATTRESS

Jean B. Poirier, P.O. Box 781, Sallisaw, Okla. 74955

Filed Jul. 25, 1979, Ser. No. 60,504
Int. Cl.³ A47C 27/08; A47B 83/04
U.S. Cl. 9—13 3 Claims

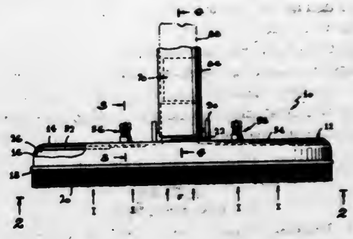


1. A mattress having linear flexibility and comparative lateral rigidity, said mattress comprising a plurality of lightweight, relatively rigid, buoyant blocks of substantially equal dimensions formed of a cellular plastic material, said blocks having bevelled longitudinal edges and said blocks being held in side-by-side spaced relation by an outer skin of a plastic film having a thickness of approximately 0.006 to 0.015 inches, and wherein said outer skin is formed by stitching or sealing together between said blocks a sheet of said film positioned above said blocks and a sheet of said film positioned below said blocks and wherein said blocks are spaced approximately 0.25 to approximately 1.25 inches apart whereby the mattress may be rolled with the bevelled edges internally located and wherein said mattress has a handle attached to one or both of the ends thereof.

4,275,474
VACUUM HEAD FOR SWIMMING POOL CLEANING SYSTEM

Randle C. Woodard, 20751 Prairie St., Chatsworth, Calif. 91311

Filed Apr. 30, 1979, Ser. No. 34,298
Int. Cl.³ E04H 3/20
U.S. Cl. 15—1.7 10 Claims



1. A vacuum head for a swimming pool cleaning system, said vacuum head having a head intake area, said vacuum head comprising:
a housing located about said head intake area, said housing having an upper wall;
outlet means formed in said upper wall;
first and second vacuum hose connector means associated with said outlet means for attachment of differently-sized vacuum hoses to said vacuum head, said second hose connector means including a hose adapter snap-fitted into said first hose connector means and having a hose connecting diameter smaller than the last-mentioned connector means;
vacuum control means formed in said upper wall for preventing an excessively high water suction force in said head intake area resulting from too great a vacuum build-up, said vacuum control means being in the form of at least one water by-pass valve for regulating the suction within said head intake area, said valve including a closure member associated with a water vent in said upper wall, and an axially adjustably positionable stem member for maintaining said closure member in a closed position relative to said vent, thereby selectively controlling the extent of water flow into said vacuum head; and
means for attachment of handle means to said vacuum head.

4,275,475
PIPELINE PIG

Robert E. Schwartz, 4227 E. 52 Pl., Tulsa, Okla. 74145; Lawrence M. Neff, 10831 E. 52nd St., Tulsa, Okla. 74145, and Gary N. Utter, 5603 S. 77 E. Ave., Tulsa, Okla. 74145

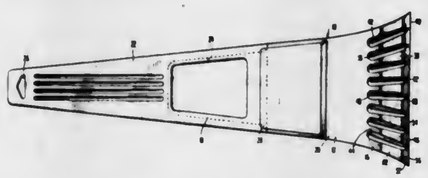
Filed Nov. 2, 1979, Ser. No. 90,628
Int. Cl.³ B08B 9/04
U.S. Cl. 15—104.06 R 7 Claims



1. A pipeline pig comprising:
a shaft of flexible plastic having a forward end and a rearward end and having an enlarged head portion at the forward end;
a plurality of disk members of flexible plastic each having an axial opening therethrough, each disk member having a

radial inner portion having a forward and rearward face and an integral rearwardly extending outer portion;
a plurality of flexible plastic spacers, each having an axial opening therethrough, each spacer having an integral cup portion at one end of an outside diameter less than the diameter of said radial inner portion of sid dish members, two spacers being received on said shaft in back-to-back relationship between adjacent dish members, the cup portion of the forward spacer of each pair contacting the rearward face of an adjacent dish member and the cup portion of the rearward spacer of each pair contacting the forward face of an adjacent rearward dish member;
and a retainer member received on said shaft adjacent said rearward end, said dish members and spacers being held in contiguous relationship.

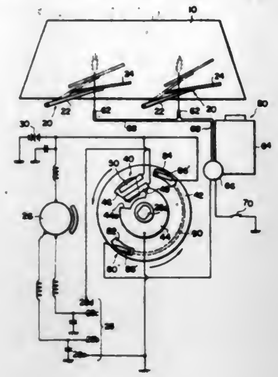
4,275,476
ICE SCRAPER
Evan L. Hopkins, Emporia, and Robert R. Thomas, Hartford, both of Kans., assignors to Hopkins Manufacturing Corporation, Emporia, Kans.
Filed Sep. 19, 1979, Ser. No. 76,822
Int. Cl.³ B60S 1/04; A47L 1/06
U.S. Cl. 15—236 R **10 Claims**



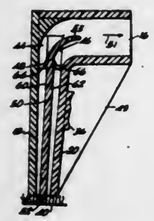
1. A hand-held scraper for removing ice from a smooth surface, said scraper comprising a one piece body defining:
a handle section extending from said handle section, and a blade region comprising:
a plurality of resilient, independently flexible, scraping fingers, each said finger extending from said intermediate section and terminating in a front scraping edge, and
a plurality of thin web members, each said web member being thin enough not to interfere with the individual flexibility of said scraping fingers, and extending from a finger to an adjacent finger, and having a thin front edge aligned with said scraping edges of said web members, and the scraping edges of said fingers thereby forming a continuous scraper blade edge.

4,275,477
VEHICLE WINDOW GLASS WASHING SYSTEM
Yoshiaki Kato, Fujisawa, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Dec. 4, 1979, Ser. No. 100,127
Claims priority, application Japan, Dec. 14, 1978, 53-172506
Int. Cl.³ B60S 1/48
U.S. Cl. 15—250.02 **3 Claims**

1. A system for washing a vehicle window glass, comprising: at least one swingable wiper means provided in sliding contact with said window glass, at least one injector means for injecting liquid detergent onto a position of said window glass when actuated, a rotary disc rotatable in synchronism with swinging movement of said wiper means, a pair of contact plates disposed on said rotary disc symmetrically with respect to the center of said rotary disc, a pair of contacts fixed to face said rotary disc, said contact plates electrically connected to each other, and said fixed contacts disposed symmetrically with respect to the center of said rotary disc, whereby said rotary disc can bring one of said contact plates into contact with one of said fixed contacts while at the same time the other contact plate into contact with the other fixed contact to allow actuation of said injector means except when said wiper means is around said position.

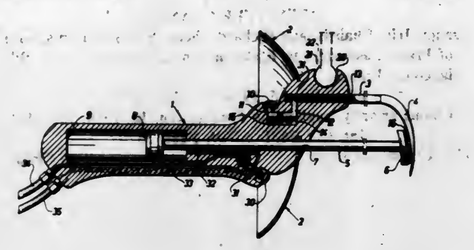


4,275,478
EXTRACTOR HEAD FOR CLEANING SOFT SURFACES SUCH AS CARPET OR UPHOLSTRY
Raymond W. Kohlenberger, 211 N. 61 Ave., Apt. #4, Hollywood, Fla. 33024
Filed Oct. 1, 1979, Ser. No. 80,301
Int. Cl.³ A47L 7/00, 11/34
U.S. Cl. 15—401 **8 Claims**



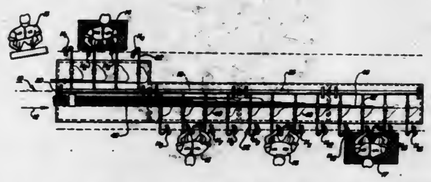
1. An extractor head for removing dirt and cleaning soft surfaces, such as carpet or upholstery, said head comprising a housing including a top having an interior throat diverging laterally downwardly from a suction mouth, said suction mouth being adapted for connection to a suction hose to apply suction through the throat, said housing being composed of front and rear walls spaced from one another and said front and rear walls converging downwardly toward one another defining a slit-type throat opening to sweep over a soft surface, said housing also including side walls closing the sides of the throat between the front and the rear walls, and a rigid pivotal flap-type squeegee in the throat, said squeegee including an upper end adjacent the top of the housing and a portion extending toward the suction mouth and a lower surface extending beyond the throat and beyond the front and rear walls completely across the throat between the side walls, said squeegee being of a thickness less than the distance between said front and rear walls and pivot means pivotally mounting the squeegee for swinging action, alternatively, against the rear wall or front wall, depending upon the direction of movement of the extractor head across a soft surface and wherein the squeegee plate includes holes adjacent the lower end thereof to release suction forces upon changing of the direction of the movement; said squeegee including an upper deflector zone arcuately curved and extending toward said suction mouth for directing removed fluid and debris from a soft surface and directing it toward the suction hose.

4,275,479
DEVICE FOR HANDLING OF MEAT AND CUTTING-UP THEREOF
Kaarlo J. Korhonen, Säterivägen 18, S 161 70 Bromma, Sweden
Filed Jun. 22, 1979, Ser. No. 51,236
Claims priority, application Sweden, Jun. 22, 1978, 7807190
Int. Cl.³ A22B 5/00
U.S. Cl. 17—1 R **10 Claims**



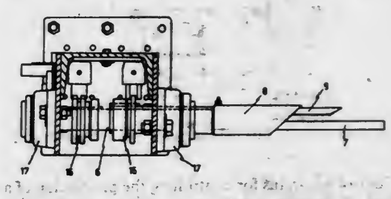
1. A device for handling of meat at cutting-up thereof, especially cutting loose meat from a carcass part, comprising:
a handle;
said handle having means for selectively gripping a piece of meat, said means comprising:
a claw member, said claw member having:
a shaft, said shaft being mounted on said handle;
a die, said die being included on an end of said shaft; and
a die surface, said die surface being included on said die;
a punch member, said punch member being accommodated by said handle such that said punch member is selectively linearly movable toward and away from said die;
means for selectively driving said punch member toward and away from said die; and
a punch surface included on said punch member, said punch surface cooperating with said die surface when said punch member is moved toward said die such that said piece of meat is gripped between said punch surface and said die surface;
wherein said die surface and said punch surface are each arranged substantially in planes normal to the direction of movement of said punch member.

4,275,480
ELECTRONIC INJECTION METERING AND MONITORING SYSTEM
William W. Norton, Lincolnshire; Jack L. Stansbeary, Elk Grove Village; Johann Clemens, Palatine, and Roscoe T. Earl, Lincolnshire, all of Ill., assignors to Baxter Travenol Laboratories, Inc., Deerfield, Ill.
Filed Feb. 21, 1979, Ser. No. 13,513
Int. Cl.³ A22C 9/00
U.S. Cl. 17—25 **5 Claims**



1. A system for injecting slaughtered carcasses with tenderizing solution, in which the carcasses to be injected are weighed and are conveyed to a plurality of sequential injection stations, the improvement comprising, in combination:
at least one injection header located at each injection station;
means for providing injection solution to each header;
storage means for storing weight data for each injection station;
means for providing weight data to said storage means, in sequence corresponding to the injection station sequence, whereby different carcasses may be at each of the plurality of stations at the same time and each carcass will be tracked as it is conveyed to each successive station and the weight data in a storage location for the respective station will correspond to the carcass at the respective station;
means for providing energization time periods that are directly proportional to the carcass weight; and
means for energizing the injection headers for calculated energization time periods whereby each carcass is injected by each injection header with solution that flows automatically for said calculated time period that is directly proportional to the carcass weight.

4,275,481
CARCASS SCALPING
Colin A. Roberts, 15 Dunvegan Pl., Hamilton; John S. Nelson, Railway Rd., Whakatu, Hawkes Bay; David E. Annan, 5a Cuffs Rd., Christchurch 6, and Angus A. J. Robertson, No. 1 R.D., Rangiora, all of New Zealand
Filed Oct. 5, 1979, Ser. No. 82,322
Claims priority, application New Zealand, Oct. 11, 1978, 188635
Int. Cl.³ A22B 5/16
U.S. Cl. 17—50 **10 Claims**



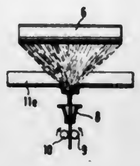
1. Apparatus for scalping the carcass of an animal such as a sheep, comprising
composite means providing a composite roller capable of being machine rotated in at least one rotational direction, said composite roller having a first portion and a second portion movable with respect to said first portion between one position where an appropriate region of head pelt of an animal to be scalped can be positioned relative to one of said portions, and another position whereby the two portions can coact to clamp said appropriate region of head pelt when so positioned relative to one of said portions,
means providing a rotational support for said composite roller,
means actuable to cause movement of said portions between said positions, and
means actuable to rotate said composite roller in at least one rotational direction when in the clamping position.

4,275,482

ARRANGEMENT FOR FORMING A SLIVER FROM A CARD WEB

Ferdinand Leifeld, Kempen, Fed. Rep. of Germany, assignor to Trutzschler GmbH & Co. KG, Monchen-Gladbach, Fed. Rep. of Germany

Filed Sep. 7, 1979, Ser. No. 73,525
Claims priority, application Fed. Rep. of Germany, Sep. 11, 1978, 2839414
Int. Cl.³ D01G *15/46*
U.S. Cl. 19—150 7 Claims



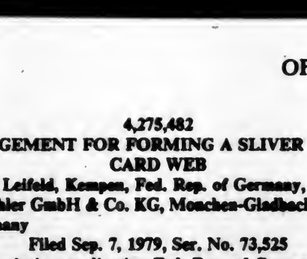
1. In a carding arrangement, a combination comprising means for carding fibers to produce a fibrous sliver; a pair of nip rollers positioned to receive the fibrous sliver so that the same passes through the nip between said rollers; means, including a sliver-compacting funnel, arranged beneath said nip rollers for withdrawing the fibrous sliver from the nip thereof and converting it with a coherent ribbon; and a sliver guide baffle surrounding the path of movement of said sliver intermediate said nip rollers and said withdrawing means.

4,275,483

CONTROL APPARATUS FOR A CARDING MACHINE

James H. Roberson, Rte. 6, 203 Ashwood Ave., Greenville, S.C. 29607

Filed Dec. 5, 1979, Ser. No. 100,640
Int. Cl.³ D01H *5/32, 5/38*
U.S. Cl. 19—240 22 Claims



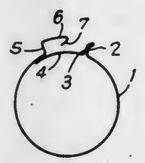
1. Control apparatus for controlling the production of a web or sliver of uniform weight on a carding machine having a main driving motion, said apparatus comprising:
output roll means driven by said main driving motion;
a first nipping surface fixed against movement with respect to a frame of said carding engine;
a driven input roll providing a second nipping surface movably mounted for displacement along a line of displacement relative to said first nipping surface in response to the amount of fibrous material nipped therebetween;
means for biasing said input roll toward said first nipping surface;
transducer means including a sensing member for sensing movement generally along said line of displacement to produce a control signal which is indicative of the amount of displacement of said input roll;
speed variator means having an input driven in basic speed synchronization with said output roll and an output for driving said input roll;
a program controller responsive to said control signal from said transducer means for producing a speed control signal;
speed control means responsive to said speed control signal to alter the output speed of said speed variator means; and
drive means connecting said output of said speed variator means and said driven input roll;
whereby variations in the amount of fibrous material nipped between said nipping surfaces is sensed and corrected in the same mechanical plane.

4,275,484

OPEN TYPE CLAMP

Francis Irio, Chabris, and Richard Chene, Selles St Denis, both of France, assignors to Etablissement Caillau, Boulogne-Billancourt, France

Filed Jan. 15, 1979, Ser. No. 3,754
Claims priority, application France, Jan. 18, 1978, 78 01401
Int. Cl.³ B65D *63/06;* F16L *33/02*
U.S. Cl. 24—20 R 6 Claims



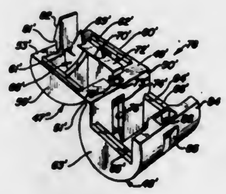
1. An "open" type clamp, comprising a wound metal strip having two ends and provided, close to the two ends of the strip, with a set of first and second radial ears, respectively, said first ear being bent over with respect to the strip such that said strip extends therefrom with a first extension directed along the periphery of the clamp and extending at least over the distance separating the two ears, from said first ear towards the second ear, and said second ear being provided with an extension which is substantially always parallel to the periphery of the clamp and situated at a distance therefrom nearly equal to the height of said first ear and including at its end a portion bent inwardly of the clamp, said last-mentioned portion being spaced from the periphery of the clamp a distance less than the height of said first ear so that said last-mentioned portion is adapted to ride over and engage said first ear by means of a spring-like action to tightly fix said clamp about an object, without any permanent deformation of said first and second ears.

4,275,485

SEALING DEVICES

Charles L. Hutchison, 7855 S. Normandy, Burbank, Ill. 60459

Filed Dec. 10, 1979, Ser. No. 101,859
Int. Cl.³ B65D *77/10*
U.S. Cl. 24—30.5 R 18 Claims



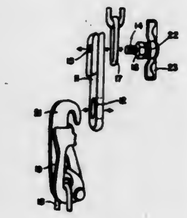
1. A sealing device for engaging gathered together material at an end of a bag or casing enclosure, comprising: first and second closure members each having first and second opposite side portions and first and second end portions, hinge means connecting said first side portions of said first and said closure members for relative pivotal movement about a hinge axis between an open condition in which gathered-together material is received therebetween and a closed condition in which the gathered-together material is clamped therebetween, and interengageable locking means for holding said members in said closed condition, said first member having a central projecting portion between said first and second end portions thereof and said second member having an opening between said first and second end portions thereof for receiving said central projecting portion and the gathered-together material engaged by said central projecting portion, said hinge means being operable to guide said locking means into registering engagement and being also operative to guide said central projecting portion of said first member into registering relationship with respect to said opening in said second member.

4,275,486

SNOW CHAIN RELEASE

Chester L. Bridges, 1530 Arbor Ave., Los Altos, Calif. 94022

Filed Jul. 12, 1979, Ser. No. 56,917
Int. Cl.³ B60C *11/00;* F16L *33/12*
U.S. Cl. 24—299 3 Claims



1. The combination with one of the circular chains of a snow chain for tires of motor vehicles,
a flat connecting plate having an aperture at one end and a threaded hole at the other end,
a hook on the link at one end of the circular chain fitting into said aperture,
and a bolt fitting into said threaded hole,
a bearing portion on said bolt spaced from said plate so as to bear upon a link on the other end of said circular chain and on said plate thereby to clamp the link between said bearing portion and said plate when the bolt is threaded in said threaded hole.

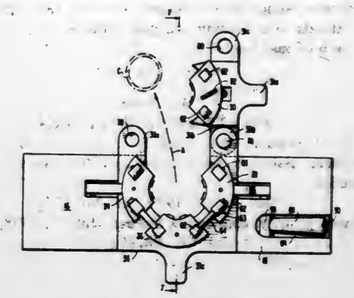
4,275,487

WELL CASING SPIDER

Charles E. Gray, deceased, late of Jena, La., and Emma D. W. Gray, executrix, c/o B. G. Tool Co. Inc., P.O. Box 966, Jena, La. 71342

Filed Jan. 4, 1979, Ser. No. 952
Int. Cl.³ A44B *21/00;* E21B *19/07*
U.S. Cl. 24—263 DC 5 Claims

1. A well casing spider comprising:
a unitary elongated base member;
a bowl for said base member;
said bowl segmented in two sections, one section fixedly secured within said base member, the other section pivotedly attached to said one section and forming a door for said bowl and base member;
arcuate segments vertically movable within said one section;
an arcuate segment carried on and moveable relative to said pivotable door;
means attached to diametrically opposed arcuate segments within said one section for effecting vertical movement thereof; and
means linking said diametrically opposed arcuate segments to an adjacent arcuate segment within said one section and to the arcuate segment on said door whereby upon operation of said vertically moving means all of said arcuate segments move vertically in unison.

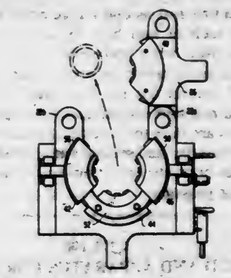


4,275,488

COMBINED WELL CASING SPIDER AND ELEVATOR

Charles E. Gray, deceased, late of Jena, La., and by Emma D. W. Gray, executrix, Jena, La. 71342

Continuation-in-part of Ser. No. 952, Jan. 4, 1979. This application Apr. 25, 1979, Ser. No. 33,081
Int. Cl.³ E21B *19/07;* A44B *21/00*
U.S. Cl. 24—263 DC 13 Claims



1. A combined well casing spider and elevator comprising:
a main body including a base wall, a top wall, a pair of lateral walls, a first end wall, and a second end wall, the second end wall having two sections comprising recessed flanges spaced from one another, said main body further including a bowl inner wall tapered to reduced diameter from the top wall to the bottom wall;
a gate member pivotally secured to one of the sections of the second end wall and releasably secured to the other of said sections to connect said sections when in a secured position, and pivoting laterally when released to permit the lateral entry of a well casing within the area defined by said bowl inner wall, the gate member having a gate inner wall co-operating with the bowl inner wall to comprise a bowl section, said gate inner wall carrying a vertically movable and removable slip member;
a circumferential array of casing gripping slips arranged in opposing pairs for vertical and radial mounting in surface contact with said bowl inner wall, said gripping slips forming a circular hole within the center thereof to receive a well casing and vertically movable along the bowl inner wall to effect radial enlargement and contraction of the circular hole formed thereby by upward and down-

ward movement respectively to release and grip the casing; and

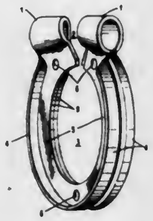
means connected to at least one pair of said casing gripping slips for effecting vertical movement of the entire array of casing gripping slips relative to said bowl inner wall, said means carried by a rotatable cross rod each end of which extends into bearing journals attached to the insides of each of said lateral walls.

4,275,489

PIPE CLAMP STRUCTURES

Jan O. Johansson, and Gösta Karlsson, both of Anderstorp, Sweden, assignors to Anderstorps Werkstads Aktiebolag, Sweden

Filed Jul. 16, 1979, Ser. No. 57,820
Claims priority, application Sweden, Jul. 17, 1978, 7807874
Int. Cl.³ B62D *1/18*
U.S. Cl. 24—279 **1 Claim**



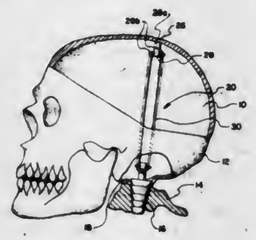
1. A tube clamp comprising: a plate having a first and second flat portions, each having a hole, said holes being equal in diameter, wherein said holes are connected by a slot in said plate having a first and second flange portion surrounding and remote from each of said hole in said first and second flat portions, said plate being transversely bent between said first and second flat portion to create a connector passage, wherein said first and second flat portions are in contact with each other and said holes are substantially coaxial and said first and second flanges are directed away from each other; a means to connect said bent first and second flat portion selected from the group of welds or rivets; and a connector means going through said connector passage.

4,275,490

METHOD AND APPARATUS FOR SECURING CALVARIUM SKULL SECTION TO BASAL SKULL SECTION

Charles F. Bivins, Rte. 1, Box 278, Burlington, N.C. 27215

Continuation-in-part of Ser. No. 963,815, Nov. 27, 1978, abandoned. This application Mar. 28, 1979, Ser. No. 25,290
Int. Cl.³ A01N *1/00*
U.S. Cl. 27—21 **13 Claims**



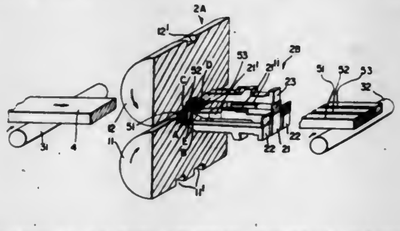
1. A calvarium assembly for securing a calvarium skull section to the basal skull section after the calvarium skull section has been cut and removed from the skull as a part of an autopsy, said calvarium connecting assembly comprising: first anchoring means for forming a first anchor point about an area that generally lies about the lower area of said basal skull section; second anchoring means for forming a second anchor point within said calvarium skull section in general alignment with said first anchoring means; coupler attaching means associated with both said first and second anchoring means for allowing said first and second anchoring means to be interconnected; and flexible coupling means operatively interconnected between said coupler attaching means associated with said first and second anchoring means for securing said calvarium skull section to said basal skull section with a biasing type holding action as said flexible coupling means tends to exert a pulling action between said first and second anchoring means so as to firmly and securely hold said calvarium skull section securely in place about said basal skull section.

4,275,491

MULTI-COMPLEX SHEAR DEVICE FOR SPLITTING HOT METALLIC BARS INTO SEVERAL SMALLER BARS

Roberto Marinucci, Via Lucia Silla, 59 Napoli, Italy

Continuation-in-part of Ser. No. 873,385, Feb. 8, 1977, abandoned. This application Nov. 30, 1979, Ser. No. 98,827
Int. Cl.³ B21B *15/00, 1/00*; B26D *11/00*
U.S. Cl. 29—33 R **8 Claims**



1. A shear for two stage continuous shearing of a hot metallic first bar into smaller cross-sectional sized second bars, having a predetermined thickness, width and height, as the first bar comes out of a continuous casting mill in a steel plant or out of a blooming or rolling mill, said shear comprising in combination:

a first mechanical complex operable to cut the first bar about ¼ through the thickness thereof and to deform the uncut thickness of the hot metallic first bar continuously into a predetermined sized and number of displaced sections; and

a second mechanical complex operable to sever the displaced sections into separated smaller bars;

said first mechanical complex comprising:

first and second shearing rolls, means for separating said first and said second rolls for disposing them apart about one-third the thickness of said first bar and means for rotatably driving said first and said second rolls in counter directions to roll therebetween hot metallic bars, said first and said second rolls each having grooves formed therein, and non-grooved portions, the grooves on said first roll being displaced with respect to the grooves on said second roll so that non-grooved portions of each said roll are aligned with grooved portions of the other said rolls, the total number of grooves being equal to the total number of second bars to be formed;

each said groove having a width equal to the predetermined width of the second bars and a depth of about one-third the thickness of the second bars, said rolls coacting to deform the hot first bar being rolled between said rolls, said rolls permanently deforming the rolled hot bar into displaced sections corresponding in size to the second bars;

said second mechanical complex comprising lower tools and upper tools anchored with respect to each other and to said first mechanical complex, said upper and said lower tools having forward portions aligned with respect to displaced surfaces of the deformed sections of said first bar as it passes through said first mechanical complex, to guide the displaced surfaces over said upper and lower tools;

said upper and said lower tools operating conjointly to support and to guide the displaced sections apart from each other; and,

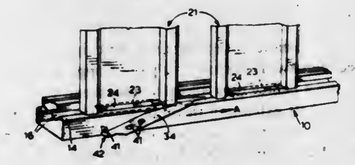
means on said upper and said lower tools for severing the deformed first bar into separate, smaller sectioned bars.

4,275,492

METHOD OF DISASSEMBLY OF JOINTED STRUCTURE

Roy H. Mills, Toronto, Canada, assignor to Westeel-Rosco Limited-Westeel-Rosco Limitee, Toronto, Canada

Division of Ser. No. 863,963, Dec. 23, 1977, Pat. No. 4,202,532. This application Dec. 13, 1979, Ser. No. 103,122
Claims priority, application Canada, Nov. 22, 1977, 291516
Int. Cl.³ B23P *19/04*; B25B *27/00*
U.S. Cl. 29—426.5 **2 Claims**



1. A method of disassembling a jointed structure comprising a first member provided with a recess, and a second member presenting a resiliently deformable lip which is disposed, with the lip resiliently deformed, within the recess in the first member with a space provided between the lip and a bottom wall of the recess, and with a free edge of the lip in biting engagement with a side wall of the recess, the recess in the first member extending beyond the lip of the second member, wherein the method comprises the steps of disposing an inclined projection at one end of a shank portion of a joint disassembly tool within the recess in the first member adjacent to the lip of the second member, sliding the projection in the longitudinal direction of the recess along the recess to introduce a tip of the projection which is adjacent the bottom wall of the recess into the space between the lip and the bottom wall of the recess, continuing said sliding of the projection solely in the longitudinal direction of the recess to pry the lip by a camming action of the inclined projection of the tool thereby resiliently to deform the lip, and removing the lip from the recess in the first member.

4,275,493

METHOD FOR MAKING A FABRIC REACTOR TUBE

Edwin Matovich, and James B. Copelan, both c/o Mr. George F. Thagard, Jr., 60 Linda Isle, Newport Beach, Calif. 92660

Division of Ser. No. 606,246, Aug. 20, 1975, Pat. No. 4,208,373, which is a continuation-in-part of Ser. No. 271,508, Jul. 13, 1972, Pat. No. 3,933,434. This application Oct. 30, 1978, Ser. No. 955,832
Int. Cl.³ B23P *19/04*
U.S. Cl. 29—454 **14 Claims**

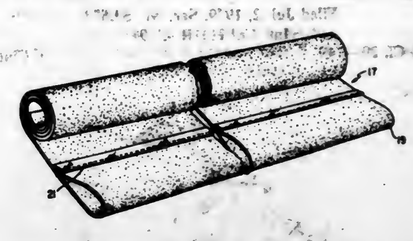
1. A method of making a porous reactor tube for a high temperature fluid-wall reactor in which substantially all of the heat is supplied by radiation coupling, which method comprises:

(A) folding over one edge of a sheet of a fabric of a fibrous refractory material upon itself to form a space on the inside of the fold, the space being defined by a first surface of the sheet;

(B) binding the edge in the folded position;

(C) placing a smooth-surfaced, contractible mandrel in a contracted state adjacent the first surface and extending along the length of the edge;

(D) expanding the mandrel, a first portion of the sheet being disposed around and in contact with the contractible mandrel and the remaining portion of the sheet being attached to and extending from the first portion;



(E) winding a length of the remaining portion of the sheet around the mandrel to form a multi-layer tube; and

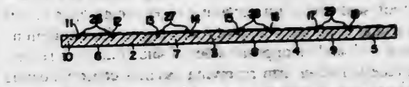
(F) binding together the layers of the tube.

4,275,494

METHOD FOR MANUFACTURING LIQUID CRYSTAL DISPLAY ELEMENTS

Masaharu Kobyama, and Tadashi Ishibashi, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 6, 1979, Ser. No. 46,026
Claims priority, application Japan, Jan. 30, 1978, 53-78671; Nov. 1, 1978, 53-133710
Int. Cl.³ G02F *1/13*
U.S. Cl. 29—592 R **8 Claims**



1. A method for manufacturing liquid crystal display elements, comprising the steps of:

defining, with at least one boundary line, plural regions on each of two glass substrates;

forming a transparent electrode having a desired pattern on each of said plural regions;

forming a closed loop of layer of bonding agent in each of selected ones of said regions on at least one of said glass substrates, said layers having a predetermined width and thickness and extending along said boundary line and the edge of said glass substrate;

combining said two glass substrates together in such a manner that said regions of one substrate are opposite to the corresponding regions of the other substrate and that said two substrates are kept at a predetermined distance apart from each other;

forming a glass substrate assembly by bonding said two substrates together through a heat treatment of said bonding agent;

forming linear scratches in that surface of each of said substrates on which said transparent electrodes are not formed, said linear scratches corresponding in position to said boundary lines;

splitting said glass substrates along said linear scratches; and

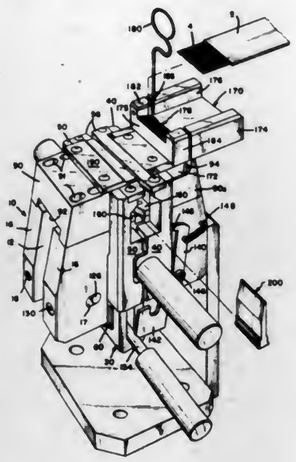
filling the spaces enclosed by said glass substrates and said bonding agent layers, with liquid crystal;

wherein said method further comprising, after the step of forming the electrodes, the step of forming grooves in that surface of each of said glass substrates on which said transparent electrodes are formed, along said boundary lines, each of said grooves having a predetermined width and depth and having a substantially U-shaped cross section and the bottom of the U-shape of said groove being rounded with a predetermined radius of curvature.

4,275,495
CONNECTOR TERMINATING TOOL

Andrew G. Boutcher, Jr., and Walter C. Shatto, Jr., both of Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jul. 2, 1979, Ser. No. 53,673
Int. Cl.³ H01R 43/04
U.S. Cl. 29—749 6 Claims



1. An apparatus for inserting conductors in a two sided connector comprising:

a housing having a connector receiving recess at one end thereof, said connector receiving recess being open on the top and at least one side, tool receiving cavities communicating with and on opposite sides of said connector receiving recess, rocker arm receiving cavities communicating with said tool receiving cavities, rocker shaft bores through said housing perpendicular to and communicating with said rocker arm cavities, first and second elongate passages aligned with and below said connector receiving recess and a hollow aligned with said rocker arm receiving cavities and intersecting said second elongate passage,

conductor wiping means disposed on either side of said connector receiving recess and movably mounted on a first shaft extending through said first elongate passage for movement of said wiping means in a generally parallel relationship to said connector receiving cavity,

conductor insertion tools slidably received in said tool receiving cavities, said tools having a conductor insertion means at one end thereof and a connecting means at the other end thereof,

rocker arms located in said rocker arm cavities and pivotably mounted on rocker shafts located in said rocker shaft bores, said rocker arms having a union means at one end thereof and dimensioned at the other end thereof to cooperate with said conductor insertion tool connecting means,

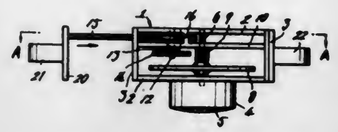
bar links dimensioned at one end to be received in said hollow and pivotably mounted on a common second shaft located in said second elongate passage, each of said bar links dimensioned at the other end thereof for pivotal union with said union means of a respective rocker arm,

whereby said connector is located in said connector receiving cavity, conductors are presented to said connector, said first shaft is moved from a first position to a second position within said first elongate cavity to wipe said conductors along said connector, said second shaft is then moved from a first position to a second position within said second elongate cavity to slide said connector insertion tools into said connector receiving cavity and insert said conductors in said connector.

4,275,496
SEMIAUTOMATIC ROTARY RAZOR

Bonpei Gotoh, 1-25-3, Hon Komagome, Bunkyo-ku, Tokyo, Japan

Filed Jun. 14, 1979, Ser. No. 48,364
Claims priority, application Japan, Jun. 27, 1978, 53-77773
Int. Cl.³ B26B 19/32
U.S. Cl. 30—43.6 7 Claims



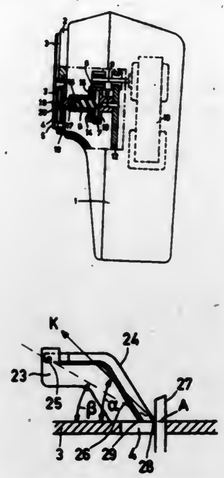
1. A semiautomatic rotary razor comprising a rectangular box-shaped framework including a pair of opposite and spaced side walls and a pair of opposite and spaced end walls, a transverse rotary shaft extending through said side walls with one end protruding out of the outer surface of one of said (the) side walls, an annular cap detachably secured at one end to said outer surface of said one of said walls and having a convexed reticulate outer blade secured to and extending across the other end of said cap, an inner blade assembly detachably secured to said rotary shaft closely adjacent to the concaved inner surface of said reticulate outer blade, a fly wheel and a first driven gear mounted on said rotary shaft inwardly of said inner blade assembly, a longitudinal partition wall extending between said end walls in parallel to said side walls, a stub shaft loosely mounted in said partition wall and the other of said side walls in a position offset from said rotary shaft, a transmission gear mounted on said stub shaft for engagement with said first driven gear, a second driven gear mounted on said stub shaft inwardly of said transmission gear, a spring-loaded slidable guide bar received in one of said end walls, a spring-loaded slidable rack bar received in said one end wall and having rack teeth thereon in engagement with said second driven gear on the stub shaft, an operation plate attached to the outer ends of said guide and rack bars, and a pair of finger pieces attached to the outer surface of said operation plate and the outer surface of the other end wall, respectively.

4,275,497
SHAVING APPARATUS

Manfred Engelhardt; Jan Reinink; Jochem J. De Vries; Ferdinand M. Trees; Eduard W. Tietjens, and Gerrit J. Groothuis, all of Drachten, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 4, 1979, Ser. No. 72,256
Claims priority, application Netherlands, Sep. 21, 1978, 7809603
Int. Cl.³ B26B 19/14
U.S. Cl. 30—43.6 5 Claims

1. A shaving apparatus having a shear plate provided with hair entry apertures and a cutting unit associated with and drivable relative to the shear plate; said cutting unit comprising a cutting member, cutters extending from said cutting member toward the shear plate, lead cutters respectively associated with and movable relative to the cutters in directions respectively away from and toward the shear plate, and means to always maintain each lead cutter spaced from its associated



cutter throughout their respective lengths regardless of their relative position.

4,275,498
SAFETY RAZOR BLADE CARTRIDGE

John T. Claffone, Bridgeport, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed Dec. 31, 1979, Ser. No. 108,744
Int. Cl.³ B26B 21/06, 21/22, 21/52
U.S. Cl. 30—47 7 Claims



1. A razor blade cartridge comprising:

a one-piece elongate member including

a front elongate shaving surface,

a back surface, and

a portion defining a longitudinally extending slot in said member comprising an opening in said front surface communicating with an opening in said back surface,

said portion including a longitudinal wall defining a side of said slot, that is inclined relative to said front surface, and

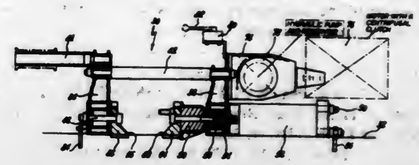
a blade secured to said wall having a longitudinal cutting edge extending past said member front surface,

said blade having a thickness less than the width of said slot.

4,275,499
APPARATUS FOR REMOVING THE SURPLUS WELDING MATERIAL

Patrick Bonnaert, Rueil Malmaison, France, assignor to C. Delachaux, France

Filed Aug. 8, 1979, Ser. No. 64,544
Claims priority, application France, Aug. 9, 1978, 78 23448
Int. Cl.³ B23D 1/08; B26D 3/08
U.S. Cl. 30—180 7 Claims

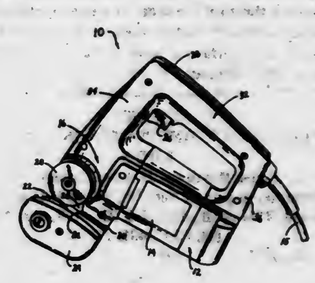


1. Apparatus for removing of the weld surplus formed after the aluminothermic welding of two rail butt ends, the apparatus comprising a frame having two horizontal and parallel guide bars, a first cutting tool secured to the frame and a second cutting tool movable relative to the guide bars towards the first cutting tool to remove the weld surplus, each tool having a cutting edge with a profile shaped to cut exclusively the weld surplus left on the rail head, and the second tool being movable in a direction selected from a direction horizontal and parallel to the longitudinal axis of the rail and a direction perpendicular to the longitudinal axis of the rail by a hydraulic jack attached to the frame and with its ram fixed to the second tool above its cutting edge, and a hydraulic unit integral with said apparatus, said jack being operated by said hydraulic unit.

4,275,500
ROTARY SHEAR

Howard D. Speer, Jr., Fayetteville, N.C., and Mark A. Prostt, Missouri City, Tex., assignors to The Black & Decker Manufacturing Company, Towson, Md.

Filed May 29, 1979, Ser. No. 43,306
Int. Cl.³ B26B 15/00
U.S. Cl. 30—40 13 Claims



1. An improved heavy-duty hand-held portable rotary shear adapted for cutting a wide variety of materials found in the home and on building construction sites, comprising a housing including a motor compartment, a gear box forwardly of the motor compartment and separated therefrom by a transverse wall, a motor in the motor compartment having a shaft journalled in a bearing in the transverse wall, a driving cutter wheel rotatably journalled in the gear box and having a lower portion protruding below the gear box, right-angle gearing means in the gear box connecting the motor shaft to the driving cutter wheel and providing an in-line cutting action, an overload release clutch in the gearing means, the housing further including a depending portion below the gear box, a driven cutter wheel rotatably journalled in the depending portion of the housing and cooperating with the driving cutter

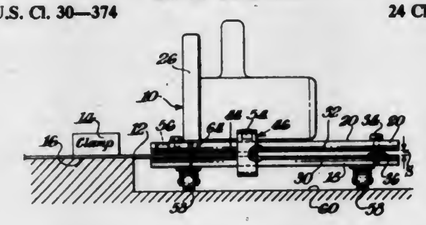
wheel for severing material fed therebetween, the severed material passing below the motor housing, and a handle spaced above and supporting said housing at the rearward end adjacent said motor compartment and at the forward end adjacent said gear box, said handle defining a recess forming a hand grip for the tool and including switch means for controlling said motor, whereby the portable shear has good balance for readily cutting a variety of materials, with the overload release clutch protecting the shear against unusually heavy materials that may be rapidly fed into the shear, and whereby the shearing action of the cooperating cutter wheels is readily viewed by the operator to facilitate close control.

4,275,501

LAMINATE CUTTING ASSEMBLY

Darrell W. Haire, Eagle River, Ak., assignor to Michael Herr, N.J. and Keith Johnson, Ak.

Filed Dec. 17, 1979, Ser. No. 104,015
Int. Cl.³ B27B 9/04
U.S. Cl. 30—374 **24 Claims**



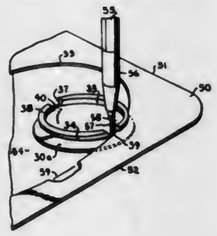
1. Laminate cutting assembly for cutting laminate sheets and the like comprising an upper plate, a lower plate disposed below said upper plate and spaced therefrom whereby the sheet to be cut may be inserted therebetween, an elongated slot in said upper plate and an aligned elongated slot in said lower plate, a cutter extending through said slots for cutting the sheet upon relative movement of the sheet with respect to said cutter, a guide bar assembly having a guide surface located in the space between said upper plate and said lower plate and disposed parallel to said elongated slots whereby the sheet may be disposed in said space and against said guide surface so that the cutter may cut through the sheet at a fixed distance from said guide surface, and said guide bar assembly including means for moving said guide surface toward and away from said slots to control said fixed distance.

4,275,502

DRAFTING DEVICE FOR PRODUCING CONCENTRIC LINES

Raymond L. Jones, Raytown, Jackson County, Mo. 64133

Continuation-in-part of Ser. No. 971,934, Dec. 21, 1978, abandoned. This application Jul. 23, 1979, Ser. No. 59,789
Int. Cl.³ B43L 11/06
U.S. Cl. 33—27 L **13 Claims**



1. A drafting device for use with a template for drawing concentric lines with respect to the template pattern, comprising:

a flat circular disc having upper and lower sides thereto,

a base fixed to the lower side of said disc substantially central thereof and operative to elevate the disc above a flat supporting surface when resting thereon,

a circular wall of lesser outer diameter than the disc outer diameter fixed to the upper side of said disc circumferentially inboard of the peripheral edge thereof and concentric thereto, and

at least one opening formed through the disc inboard of the wall for receiving a marking means therethrough,

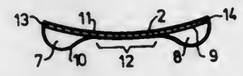
said circular wall being relieved at one portion thereof and a slot provided through said disc in said wall relieved portion for receiving a marking means therethrough.

4,275,503

UNCOILING AND COILING TAPE MEASURE

Lars A. Bergkvist, Gottne, 890 42, Mellansel, Sweden

Filed Jan. 23, 1979, Ser. No. 5,815
Claims priority, application Sweden, Jan. 30, 1978, 7801120
Int. Cl.³ G01B 3/02; E04H 12/18; B65H 75/16
U.S. Cl. 33—137 R **8 Claims**



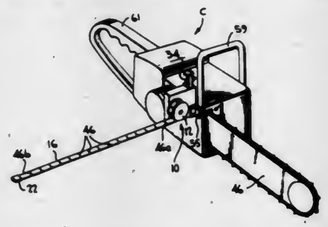
6. An uncoiling and coiling tape measure and a housing within which said coiled tape is stored, said tape measure at least in uncoiled state, having a slightly curved cross-sectional section with a convex lower surface, and a concave upper surface comprising: said tape on its convex lower surface and opposite to said concave upper surface being provided with at least one channel; a device carried by said housing and including means connected to said channel for supplying a fluid pressure medium to said channel to effect a substantial increase in the self-supporting capacity of the uncoiled tape measure; said at least one channel being a tubular member made from a ductile material, said member surrounding said tape and attached to the upper concave surface of said tape along substantially the entire length of said tape.

4,275,504

CUTTING SAW MEASURING ATTACHMENT

Stephen G. Chontos, West Dover, Vt. 05356

Filed Apr. 28, 1980, Ser. No. 144,037
Int. Cl.³ G01B 3/10, 3/08
U.S. Cl. 33—138 **14 Claims**



1. A measuring attachment for cutting saws, comprising a housing having an outlet, a flexible tape coiled onto a drum in said housing and extendible through said outlet for making length measurements, said drum being mounted on a central axle for rotation therewith, means for unwinding said tape upon rotation of said drum in a first direction, said means comprising an assembly of rack and pinion gears wherein said pinion gears are gear coupled with said axle for rotating said drum in said first direction, said rack gear being disposed for manual movement in one direction for rotating said pinion

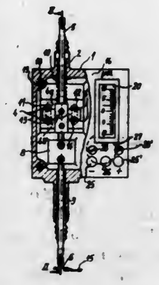
gears, whereby said tape may be unwound a predetermined extent through said outlet upon movement of said rack gear.

4,275,505

APPARATUS FOR CHECKING DIMENSIONAL TOLERANCES

Jean R. Delmas, Vanves, France, assignor to Microlec S.A., Fribourg, Switzerland

Continuation of Ser. No. 937,688, Aug. 28, 1978, abandoned, which is a continuation of Ser. No. 810,674, Jun. 27, 1977, abandoned. This application Jan. 21, 1980, Ser. No. 113,906
Int. Cl.³ G01B 7/02
U.S. Cl. 33—172 E **1 Claim**



1. Apparatus for detecting whether a measured dimension deviates from a nominal value by a predetermined increment comprising

a feeler assembly formed of a box having two coaxial tubular portions, one above and one below said box, and a control rod slideably mounted in the tubular portions of said box;

said control rod having a contact at one of its ends;

four photoelectric receivers mounted on one side of the box

a fixed diaphragm comprising two rectangular windows, the first of said windows being placed in front of a first pair of said receivers and the second of said windows being placed in front of a second pair of said receivers;

a movable mask fixed to said rod, said mask having a rectangular shape, moving in front of said windows so as to leave a gap between the edges of said mask;

spring means biasing the contact at the end of said control rod in contact with the component under inspection;

illuminating means for said photoelectric receivers for illumination through the gaps between the edges of the windows and the edges of the mask;

the movement of said rod through said feeler assembly varying the masked areas of the windows whereby the two diagonally oriented pairs of photoelectric receivers on opposite corners of the photoelectric receiver array each receive a differential illumination through said windows depending upon the position of said control rod and mask along the dimension of the component being tested for feeding the differential output of said illumination of two trigger circuits; and

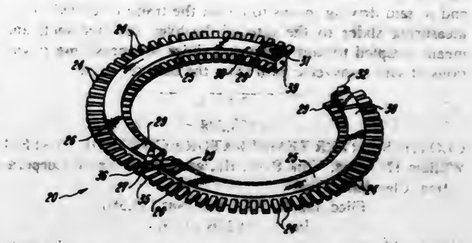
an electronic circuit having two trigger circuits, one being a first trigger circuit receiving the differential output signal of one pair of diagonally oriented photoelectric receivers and delivering a first detection signal when the input signal exceeds a predetermined positive value and the other being a second trigger circuit receiving a differential output signal of the other pair of diagonally oriented photoelectric receivers and delivering a second detection signal when the input signal, due to the differential illumination, exceeds a predetermined negative value; and a gate connected to said first and second trigger circuits and delivering a third detection signal when said two trigger circuits are simultaneously inoperative.

4,275,506

APPARATUS AND METHOD FOR PATTERNING GEOMETRIC OBJECTS

Francis Knoll, 2070 Rosemary, Denver, Colo. 80207

Filed Nov. 29, 1979, Ser. No. 98,671
Int. Cl.³ G01B 5/20
U.S. Cl. 33—175 **3 Claims**



1. A pattern making device adapted to contour an object having a geometric cross section in a single plane, comprising in combination:

a pair of opposed arms adapted to move between an open position and a closed position, said arms encompassing an area greater than the area of said geometric object when the arms are in the closed position;

a hinge pivotally connecting one end of said arms together, said hinge pivoting about a pivot point exteriorly displaced from said arms;

a plurality of pins of predetermined length reciprocably connected to both of said arms at incremental locations along the length of both of said arms;

a mounting block, connected to the end of said arms, to support the hinge at a raised position above said arms; and

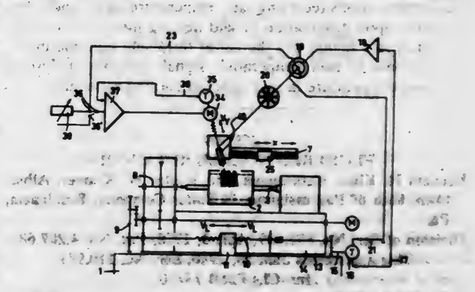
latching means located at a second end of said arms, said latching means to thereby releasably connect said arms in the closed position.

4,275,507

DEVICE FOR AUTOMATIC MEASUREMENT FOR ENGAGEMENT PITCH OF THE THREAD ON SCREW-LIKE WORK PIECES

Rainer von Haas, Geesthacht, Fed. Rep. of Germany, assignor to Firma Wilhelm Fette GmbH, Schwarzenbek, Fed. Rep. of Germany

Filed Jul. 10, 1980, Ser. No. 167,321
Claims priority, application Fed. Rep. of Germany, Jul. 25, 1979, 2930078
Int. Cl.³ G01B 7/28
U.S. Cl. 33—199 B **10 Claims**



1. A device for measuring engagement pitch of a thread of a screw-like work piece, comprising means for rotating the work piece about its center axis; a measuring slider movable in a straight path directed transversely at an adjustable angle to said center axis, said measuring slider including a feeler for slidably engaging a flank of the thread of the work piece;

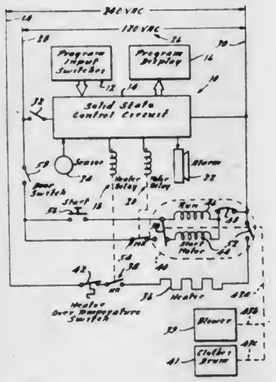
electrical driving means for imparting movement to said measuring slider in said transverse path; means for imparting a relative axial displacement between said measuring slider and the rotating work piece; a sensor coupled to said axial displacement means to generate a signal proportional to the rate of the relative axial displacement; a sinusoidal potentiometer mechanically coupled to said angularly adjustable measuring carriage and being electrically connected to the output of said sensor and to said driving means to adjust the transverse feed of the measuring slider to the rate of the axial displacement; and means coupled to said measuring slider for measuring deviations of said transverse path from the base set angle.

4,275,508

CLOTHES DRYER TEMPERATURE CONTROL SYSTEM

William H. Jones, Villa Park, Ill., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 9, 1980, Ser. No. 110,580
Int. Cl.³ F26B *21/06*
U.S. Cl. 34—43 **9 Claims**



1. A control system for a clothes dryer comprising:
a. heating means operable upon selective actuation to heat air in a region for drying clothes;
b. selector means operative upon operator actuation to select one from a plurality of predetermined cooling temperature schedules;
c. a single sensor receiving said selected cooling schedule and operative to provide a temperature signal having a predetermined ratio to the schedule selected and which varies in continuous relationship to the air temperature in said region; and
d. control means receiving said temperature signal and operative upon deactuation of said heating means to cool the air in said region and thereafter terminate said cooling in response to said temperature signal matching a desired final temperature in said selected cooling schedule.

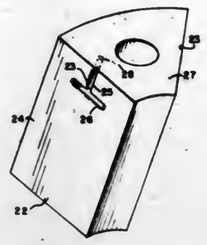
4,275,509

FLUID BED NOZZLE RETAINER

Kenneth H. Kline, Catasauqua, and Walter W. Kramer, Allentown, both of Pa., assignors to Fuller Company, Bethlehem, Pa.

Division of Ser. No. 892,639, Apr. 3, 1978, Pat. No. 4,207,682. This application Jan. 10, 1980, Ser. No. 110,971
Int. Cl.³ F26B *17/10*
U.S. Cl. 34—57 R **1 Claim**

1. A refractory block adapted to be joined to similar refractory blocks including a T-shaped groove in opposite sides thereof; the T-shaped grooves of adjacent blocks adapted to surround and hold a T-shaped bolt between the adjacent blocks; said T-shaped grooves being positioned in the sides of said block and said T-shaped bolt having a leg of a length sufficient to extend beyond a surface of said block which is at an angle to the side of the block in which the T-shaped groove is located, and a wear resistant plate adapted to lie atop said



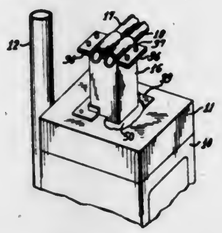
surface of said block and having openings therethrough for receiving the leg of said T-shaped bolt and fastener means operatively associated with said T-shaped bolt for securing said wear resistant plate to said surface of the block.

4,275,510

HEAT RECOVERY IN A LAUNDRY SYSTEM

Odean F. George, P.O. Box 6734, Jacksonville, Fla. 32205

Filed Jun. 1, 1979, Ser. No. 44,509
Int. Cl.³ F26B *11/04*
U.S. Cl. 34—90 **5 Claims**



1. In a laundry system comprising a washer employing hot water, a dryer having a fire box, a water heater, and water pipe circulating system conducting cool water to said water heater and distributing hot water to said washer, the improvement which comprises a heat pipe having the bottom thereof in heat conductive contact with the outside surface of said fire box of said dryer and the top of said heat pipe in heat conductive contact with said water pipe circulation system spaced above said dryer in the portion thereof conducting cool water to said water heater.

4,275,511

EVAPORATOR/SUBLIMATOR FLASK APPARATUS

Martin Parkinson, Nyack, N.Y., and Michael V. Dimitroff, Demarest, N.J., assignors to Bio-Vac Incorporated, Nyack, N.Y.

Filed Dec. 26, 1979, Ser. No. 107,268
Int. Cl.³ F26B *13/30*
U.S. Cl. 34—92 **10 Claims**

1. An evaporator/sublimator flask apparatus for connection to a vacuum connector tube comprising:
a substantially cylindrical body having a base at one end and being open at the other end, and,
a cap of an elastomeric material mounted over the body comprising an upper neck portion having an aperture therethrough for insertion of a vacuum connector tube, an intermediate outwardly sloping shoulder portion and downwardly extending outer walls having an inwardly extending flange at the bottom surface thereof, whereby said cap engages said bottom surface, and a first vacuum path within the cap leading from the cylindrical body to the neck portion whereby the neck collapses about said vacuum connector tube when a vacuum is applied



through the tube and a second vacuum path within the cap from the cylindrical body to the interior of the outer wall so that the outer walls collapse about the body forming tight seals when a vacuum is applied to the apparatus through the tube.

4,275,512

SANDAL STRUCTURE

Robert Zeligman, and John R. Zengerle, both of Tucson, Ariz., assignors to Frontier Footwear Corporation, Tucson, Ariz.

Filed Oct. 22, 1979, Ser. No. 87,418
Int. Cl.³ A43D *9/00*; A43B *3/12*
U.S. Cl. 36—11.5 **5 Claims**



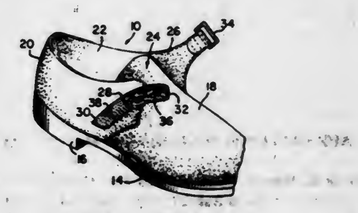
1. A sandal comprising in combination:
a. a foot-shaped sole, said foot-shaped sole being composed of composition rubber material;
b. a foot-shaped lower insole, said foot-shaped lower insole being substantially thinner than said foot-shaped sole;
c. an upper insole section, said upper insole section having a foot-shaped section and a plurality of straps integral with said foot-shaped section, said straps extending from edges of said foot-shaped section, said upper insole section including four of said straps, first and second ones of said straps each extending from an instep edge of said upper insole section and having first and second buckles attached thereto, said first and second straps being spaced apart, substantially parallel, and inclined substantially forward toward a toe end of said upper insole section when said upper insole section is flat, third and fourth ones of said straps each extending from an edge of said upper insole section opposite to said instep edge and having a plurality of tongue-receiving holes therein for receiving the tongue of a respective one of said buckles, said first buckle being fastened to said fourth strap and said second buckle being fastened to said third strap, said third and fourth straps being spaced apart, substantially parallel, and inclined substantially forward toward the toe end of said upper insole section when said upper insole section is flat;
d. means for attaching the lower surface of said upper insole section to the upper surface of said lower foot-shaped insole, said attaching means including a plurality of stitches extending through said upper insole section and said foot-shaped lower insole, said plurality of stitches being disposed along the entire periphery of said lower foot-shaped insole;
e. means for adhesively bonding the lower surface of said lower foot-shaped insole to the upper surface of said foot-shaped sole; and
f. a leather heel strap having opposed ends attached by means of stitches to said second and third straps.

4,275,513

ADJUSTABLE AND FLEXIBLE CLOSURE ASSEMBLY FOR MONK STYLE SHOES

Anthony J. Antonious, 205 E. Joppa Rd., Towson, Md. 21204

Filed Dec. 20, 1978, Ser. No. 971,183
Int. Cl.³ A43B *11/00*
U.S. Cl. 36—50 **16 Claims**



1. A monk style shoe having a sole and uppers, said uppers including an undivided vamp and quarters with a variable opening formed between said quarters and the upper portion of said undivided vamp, the improvement including an adjustable and flexible closure assembly comprising a flexible, multi-adjustable, separable fastener means having first and second fastening members including arrays of complementary, coacting flexible gripping elements for securing said closure assembly; a fastener strap included on one side of said shoe having a fixed portion and a free end, said free end including said first fastening member, said second fastening positioned adjacent said fixed portion of said fastener strap; and one of said quarters opposite said fastener strap having an integral, elongated extension with an opening for receiving said fastener strap through which the free end of said fastener strap passes permitting the uppers of said shoe to be pulled inwardly simultaneously permitting adjustment to the precise desired tautness of said closure assembly to fasten said shoe.

4,275,514

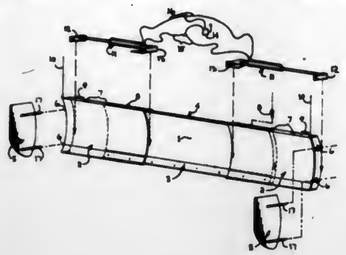
SNOWPLOW EXTENSIONS

Nicholas J. Maura, R.D. #1 Birchwood Dr., Box 192, Dunnsburg, N.Y. 12056

Filed Jan. 28, 1980, Ser. No. 115,714
Int. Cl.³ E01H *5/00*
U.S. Cl. 37—42 R **3 Claims**

1. A snowplow and snowplow extensions combination comprising:
spring-loaded curved moldboard having a bottom edge and a top edge and a replacement cutter located along said bottom edge with a molded in track extending along the length of said replacement cutter, a guiding track attached to said top edge and having spaced adjustment holes; a pair of extension wings having a top guide slidable engaging said guiding track, a bottom guide slidable engaging said molded in track, said extension wings being curved in contour with said curved moldboard; said top guide having a handle attached for ease in sliding said upright plow guides mounted to the outside corners of said top guide, said top guide having spaced adjustment holes therein, a

manual operable position adjustment holding pin for extending through said adjustment holes of said guiding



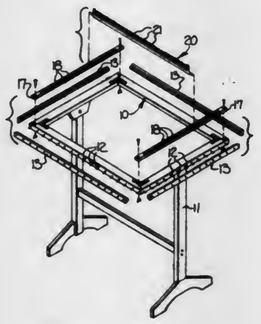
track and top guide when aligned to thereby manually fasten and hold said extension wings in position.

4,275,515

APPARATUS FOR MAKING A HANDCRAFTED PILE RUG

Betty R. Hinson, 5319 Milford Rd., Charlotte, N.C. 28210

Filed Jul. 27, 1979, Ser. No. 61,281
Int. Cl.³ D05C *1/02;* D06C *3/08*
U.S. Cl. 38—102.91 10 Claims



1. An apparatus for use in making handcrafted pile rugs comprising

a frame adapted for holding a backing fabric in an outstretched condition, and

an elongate pile forming guide extending transversely across said frame so as to overlie the backing fabric and being adapted to facilitate forming a row of pile loops on the backing fabric,

said pile forming guide having means provided at spaced locations therealong around which a yarn may be successively looped and then sewn into the backing fabric for forming a row of spaced pile loops across the backing fabric, and

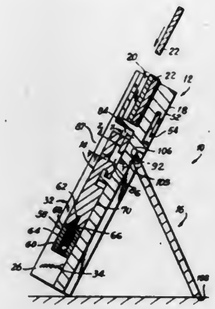
said frame including a pair of elongate mounting strips removably secured to said frame along opposite side edges thereof, each mounting strip having a series of evenly spaced slots therein adapted for receiving an end portion of said pile forming guide to permit securing the pile forming guide to the frame at a series of evenly spaced locations thereacross for forming successive evenly spaced rows of pile loops on the backing fabric.

4,275,516

PERMANENT CALENDAR CONSTRUCTION

Ronald S. Lane, 406 Deer Creek Dr., Plainsboro, N.J. 08536

Continuation-in-part of Ser. No. 966,165, Dec. 4, 1978, which is a continuation-in-part of Ser. No. 798,273, May 19, 1977, which is a continuation-in-part of Ser. No. 722,925, Sep. 13, 1976, abandoned. This application Feb. 8, 1979, Ser. No. 10,336
The portion of the term of this patent subsequent to Mar. 6, 1996, has been disclaimed.
Int. Cl.³ G09F *3/00*
U.S. Cl. 40—107 5 Claims



1. An improved parmanent calendar assembly to precisely display any month of the year except February and reflect the number of days in the desired month, said assembly having a date column area, a plurality of date columns, and means to detachably mate said columns to said date column area, the improvement comprising:

a reversible mounting structure to the lower end of one of said date columns;

said structure having opposed surfaces, one surface being unnumbered, the other surface having the numeral 31 placed thereon;

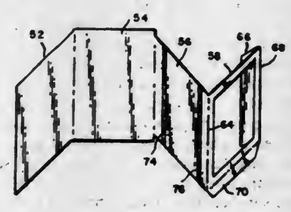
whereby the structure is easily adjusted to reflect the correct length of a 30 or 31 day month with either the unnumbered surface or the surface with the numeral 31 in visual display allowing precise display of only eleven of the twelve months for economic consideration, the supporting structure being retained in securement to the date column while said column hangs from the date column area, said mounting structure being uneffected by gravitational slip in the absence of underlying support.

4,275,517

PHOTOGRAPH MOUNT

Roland H. Blanchard, New Bedford, Mass., assignor to Winthrop-Atkins Co., Inc., Middleboro, Mass.

Continuation of Ser. No. 779,198, May 23, 1977, abandoned.
This application Feb. 1, 1979, Ser. No. 8,389
Int. Cl.³ A47G *1/06;* G09F *1/10*
U.S. Cl. 40—158 R 1 Claim



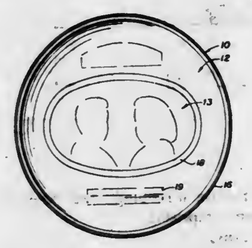
1. A photograph mount comprised of four rectangular panels of relatively stiff cardboard, a first panel comprising an imperforate back board, a second panel comprising an imperforate intermediate board, said intermediate board being positioned with its front side in contact with the front side of the back board, hinge means connecting one edge of the intermediate board to one edge of the back board, adhesive affixing the intermediate board in contact with the back board, a third panel comprising a face board, said face board being positioned with its back side in contact with the back side of the intermediate board, hinge means connecting an edge of the face board to the distal edge of the intermediate board, adhesive affixing the back side of the face board in contact with the back side of the intermediate board, said face board containing a window opening, said face board having along its distal edge and along its lower edge hinged flaps disposed, respectively, between the face board and the intermediate board and against the front side of the intermediate board between it and the back board, adhesive affixing the flaps, respectively, to the opposite sides of the intermediate board and to the back board, said intermediate board constituting the back of a pocket comprised of the intermediate board, face board and flaps secured to the front side of the back board, said pocket being closed at the bottom along the opposite sides and open at the top, said pocket being of a front to back depth perpendicular to the face board substantially equal to the thickness of the material of which the structure is comprised for slidingly receiving a photograph for display through the window opening, a fourth panel comprising a cover board and hinge means connecting an edge of the cover board to the opposite edge of the back board so that it can be folded over the intermediate board and face board to cover the same, said pocket defined by the intermediate and face boards being narrower in width and shorter in length than the back board and cover board so as to be completely concealed by folding of the cover board over the back board.

4,275,518

DECORATIVE PLATE AND METHOD OF MAKING SAME

Lindley Martin, Gold Coast, Australia, assignor to Roderick R. Mayze, Paradise Point, Australia

Filed Jan. 2, 1979, Ser. No. 345
Claims priority, application New Zealand, Mar. 29, 1978, 186798
Int. Cl.³ A45C *11/00*
U.S. Cl. 40—324 3 Claims



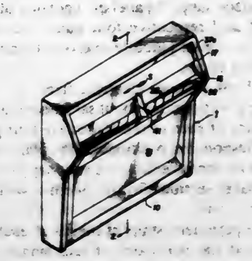
1. A decorative plate comprising an outer part of a rigid material having a flat outer base and a curved outer wall, a transparent part of a flexible plastic material having a flat inner base and curved inner wall and an upper peripheral edge, said inner base and inner wall being complementary to the shape of the interior of said outer part, an integral inturned peripheral lip on said outer wall of said outer part, whereby the said parts may be secured together with a "snap-fit" action by said edge snapping under said lip and may be conveniently detached as desired by prying said edge from under said lip, and a photographic print positioned between said parts visible through said inner part, said photographic print being adhered to the back of said inner part.

4,275,519

WALL MOUNTED TELEPHONE INDEX

Jerome A. Granstad, West St. Paul, Minn., assignor to Ketchum & McDougall, Inc., Rayeland, N.J.

Filed Sep. 17, 1979, Ser. No. 75,940
Int. Cl.³ B42F *17/34*
U.S. Cl. 40—378 10 Claims



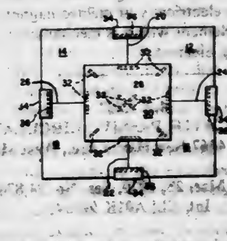
1. A wall mounted telephone index comprising, in combination, a housing having a rear wall, a top wall, a pair of side walls defining an interior, and a front opening, means on said housing rear wall for mounting said housing in a vertically extending position on the surface of an associated wall structure, index card mounting means on said housing for positioning an associated stack of index cards, each of said index cards having an upper edge provided with an index tab and a lower edge provided with spaced slots for mounting said stack of index cards in said housing interior in an upstanding position for pivotal movement downwardly by gravity from a stored position in said housing interior to a dropped position supported by said door, a flange integral with said top wall extending downwardly between said pair of side walls to the front of said rear wall, a slidable index card selector mounted on said flange integral with said housing top wall for sliding movement relative to said flange into a a selected position for retaining engagement with a tab on a selected one of said index cards to be displayed, a door for enclosing said housing front opening, means for pivotally mounting said door on said housing for pivotal movement between a closed position in closing relationship with said front opening to retain said stack of index cards in said upstanding position and a dropped position to open said front opening of said housing thereby permitting the index cards in said stack overlying said selected one of said index cards to fall by gravity into said dropped position.

4,275,520

MODULAR PLANE SURFACE DISPLAY STRUCTURE

Harold L. Appleton, Needham, and Douglas R. Kingston, Norwood, both of Mass., assignors to Appleton-Kingston, Inc., Needham, Mass.

Filed May 18, 1979, Ser. No. 40,111
Int. Cl.³ G09F *7/02, 7/20*
U.S. Cl. 40—605 8 Claims



1. In a modular single plane display surface structure the combination of

a. at least four panel sections with each panel section having

only single plane surface side edges and with each panel section having only a single plane front and only a single plane back face and the single plane surface edges abutting the single plane surface edges of adjacent panel sections in manner such that the front of said panel sections form said single plane display surface about a common juncture of respective four panel sections,

b. a plane surface support panel on a portion of the back face of each of said respective four panel sections about the associated common juncture and overlapping portions of said abutting edges,

c. loop and hook fastener elements fixed to said panel sections at support positions about said associated juncture on the back face of each of the respective four panel sections and to corresponding positions on the plane surface of said support panel for fastening said support panel and respective four panel sections firmly together with capacity for dissassembly, and

d. removable periphery support means at each of the abutting edges at the periphery of said single plane display surface, comprising a periphery support member overlapping each of said abutting edges on both the front and back faces of said panel sections whereby the support members and panel sections are firmly held together with capacity for disassembly.

4,275,521
ELECTRO-MECHANICAL TRIGGERING MECHANISM FOR FIRE ARMS

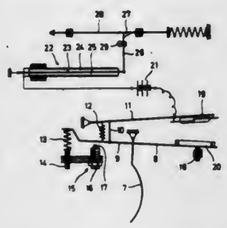
Friedrich Gersteaberger, Dürnau; Wolfgang Loos, Munderkingen, and Dieter Straub, Ulm, all of Fed. Rep. of Germany, assignors to J. G. Anschutz, GmbH, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,822

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1978, 2818834

Int. Cl.³ F41C *19/12*

U.S. Cl. 42—84 21 Claims



1. Electro-mechanical triggering mechanism for fire arms, comprising a signal receiver used as an input unit which converts a shot-triggering signal generated by the user into an electrical signal, and an electro-mechanical converter forming an output unit which receives the electrical signal from said input unit and acts on a shot-triggering element to trigger the shot, the improvement consisting in that the electro-mechanical converter is an electrically or electromagnetically deformable piezo-active element which is mechanically connected to said shot-triggering element.

4,275,522
BAIT BOX WITH PASSIVE CIRCULATION

William T. Glover, 4467 New Haven Ave., West Melbourne, Fla. 32901

Filed Mar. 28, 1979, Ser. No. 24,874

Int. Cl.³ A01K *97/04*

U.S. Cl. 43—56 12 Claims

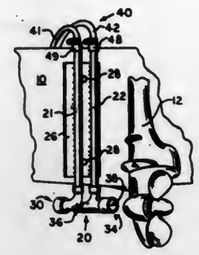
1. A passive circulation storage box of the type used on boats for storing fish, bait and the like, comprising in combination:

a container for receiving and storing water therein;

first and second tubes extending below the bottom of the boat;

said first tube having a first end thereof oriented for collecting water under pressure as the boat moves through the body of water;

said second tube having a first end thereof orieted so as to siphon water therefrom;



first valve means coupled to a second end of said first tube for regulating the flow of water into said container, said first valve means including means for sensing the level of water in said container and for regulating the flow of water therethrough so as to retain a predetermined level of water within said container; and wherein

a second end of said second tube movably couples through said container so as to be adjustable in vertical level for siphoning water therefrom.

4,275,523
DEVICE FOR KEEPING UNDER CONTROL A POPULATION OF SELECTED SPECIES OF INSECTS

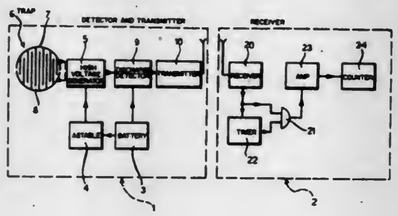
Mario Balma, Turin, and Gian P. Tavoni, Cambiano, both of Italy, assignors to Centro Ricerche Fiat S.p.A., Orbassano Turin, Italy

Filed Mar. 14, 1979, Ser. No. 20,582

Claims priority, application Italy, Mar. 24, 1978, 67666 A/78

Int. Cl.³ A01M *1/22*

U.S. Cl. 43—112 7 Claims



1. A device for use in keeping insect infestations under control; said device comprising:

at least one trap,

electrical conductor means on said at least one trap,

a high voltage generator,

said electrical conductor means being connected across the output of said voltage generator and being so formed as to produce an electrical discharge when an insect above a given size comes into contact with said electrical conductor means,

radio transmitter means,

discharge detector means operable to detect electrical discharges across said electrical conductor means and to enable, in response thereto, and for a limited time period, operation of said radio transmitter means,

radio receiver means for receiving signals transmitted by said radio transmitter means,

an impulse counter means connected to the output of said radio receiver means, said impulse counter means operating to count each time said transmitter means is operated, whereby to provide an indication, at a location remote from said trap of the number of insects trapped thereby, and

an astable circuit interposed between said high voltage generator and an electrical voltage source therefor, said astable circuit operating to feed said high voltage generator from said voltage source at spaced intervals,

wherein said high voltage generator includes:

an oscillator,

a first step-up transformer having a primary winding and a secondary winding, the output of said oscillator being connected to said primary winding of said step-up transformer,

a first capacitor,

the secondary winding of said first step-up transformer being connected to said first capacitor,

a trigger unit and a circuit interruptor,

a second step-up transformer having a primary winding and a secondary winding, said trigger circuit controlling the connection of said first capacitor to said primary winding of said second step-up transformer through said circuit interruptor,

a second capacitor connected across said secondary winding of said second step-up transformer and said electrical conductor means of said at least one trap, and

a diode connected between said secondary winding of said second step-up transformer and one terminal of said second capacitor.

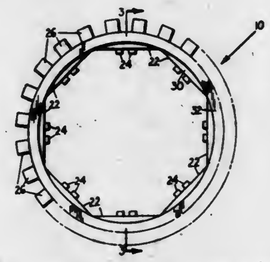
4,275,524
REMOVABLE TIRE FOR CONSTRUCTION SET JOINT ELEMENT

Richard J. Gabriel, Portland, Oreg., assignor to Matrix Toys, Inc., Portland, Oreg.

Filed Mar. 19, 1979, Ser. No. 21,924

Int. Cl.³ A63H *33/04*

U.S. Cl. 46—23 1 Claim



1. A tire for a generally spheriodal construction set joint element of the type having multiple planar facets with joint openings located therein, with a portion of said facets circumscribing said joint element in a particular defined pattern, said tire comprising:

(a) a yieldable annular rim having a width substantially equal to the width of said facets;

(b) lugs located at spaced intervals around said rim on the outer surface thereof;

(c) a plurality of planar engaging surfaces located on said rim on the inner side thereof, said engaging surfaces being arranged in the shape of said particularly defined pattern, and being substantially the same size as said portion of said facets so that each one of said surfaces is located adjacent to an associated one of said portion of said facets when said tire is positioned around said joint element;

(d) wherein said rim has a width which is slightly greater than the width of said portion of said facets, and includes opposed side walls each comprising:

(1) a thin annular ring having a radially outer margin which is coincident with the radially inward extremity of said lugs, and a radially inner margin which intersects lines formed between the common edges of adjacent ones of said engaging surfaces; and

(2) a plurality of pads, having the cross-sectional shape of a circular segment which extend between said ring and said engaging surfaces and which are offset inwardly from said ring.

4,275,525
HOUSING WITH MOTOR AND SOLAR CELL

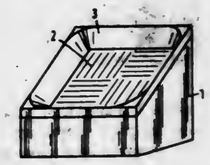
Diether Geisler, Grosshansdorf, and Joachim Eckert, Priedorf, both of Fed. Rep. of Germany, assignors to Beiersdorf AG, Hamburg, Fed. Rep. of Germany

Filed Apr. 23, 1979, Ser. No. 32,333

Claims priority, application Fed. Rep. of Germany, Apr. 28, 1978, 7813145[U]; Jun. 10, 1978, 2825610

Int. Cl.³ A63H *33/30*

U.S. Cl. 46—39 13 Claims



1. A unitary drive module for a model toy comprising:

a housing means suitable for mounting in association with said toy, said housing means comprising a pair of contiguous housings;

a motor contained within said housing means, said motor having an output shaft extending from said housing means and couplable to moving parts of the model toy for driving same;

at least one solar cell mounted on the exterior of each of said housing and electrically connected to said motor for energizing the motor, said solar cells being orientable toward a light source, said solar cells being connected in an anti-parallel circuit; and

an adjustment drive for changing the position of the solar cells connected in said anti-parallel circuit.

4,275,526
THERMAL-BREAK WINDOW

Harold B. Abramson, 30 Stearns Rd., Brookline, Mass. 02146

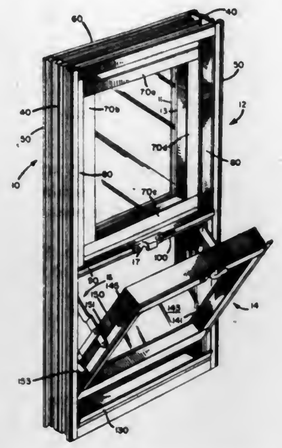
Filed Aug. 24, 1979, Ser. No. 69,531

Int. Cl.³ E06B *3/00*

U.S. Cl. 49—501 13 Claims

1. A window of the type in which the frame encasing the glass panel is provided with a thermal-break and comprising a pair of side jambs and adaptors, a head and top and bottom sill members, and a plurality of glazing beads interconnected to form a substantially rectangular frame for encasing a glass panel secured within a plurality of rails in which each said jambs, adaptors, head and sill members are extrusion formed of metal with a channel along their respective axial lengths, said channel containing an elastomeric material of low thermal coefficient and with a strip of the extruded metal material along said channel being removed, effectively separating each of said extruded parts into two sections along their entire lengths, representing exterior and interior sections, that remain joined only by said material of low thermal coefficient, thermally insulating thereby said exterior from said interior sections, said adaptors designed to snap-fit to said side jambs, a

pair of said plurality of glazing beads designed to snap-fit to said adaptors, a second pair of said plurality of glazing beads designed to snap-fit to said top and bottom sill members, each of said plurality of glazing beads provided with a mortise removably to accommodate therein a deformable bulb of tubu-



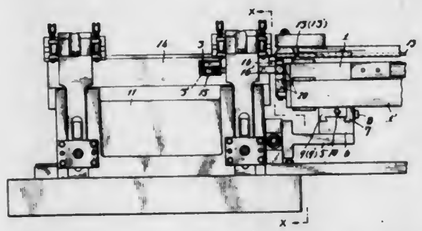
lar construction having a T-shaped leg fitting into said mortise, said deformable bulbs designed to bear against the surfaces of said plurality of rails securing said glass panel therein, said deformable bulbs resiliently holding said glass panel and also providing an additional thermally insulating barrier between said exterior and said interior sections.

4,275,527

CENTERLESS GRINDING MACHINE

Michimasa Daito, Hama-matsu, and Tohru Sugino, Shizuoka, both of Japan, assignors to Nissin Machine Works, Ltd., Japan

Filed Jul. 18, 1979, Ser. No. 58,512
Int. Cl.³ B24D *5/18*
U.S. Cl. 51—103 TF **4 Claims**



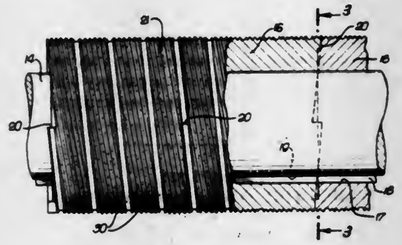
1. In a centerless grinding machine comprising a rotatably mounted grinding wheel, a rotatably mounted regulating wheel opposing said grinding wheel in spaced relationship to the grinding wheel to define a clearance between the wheels corresponding to a desired finished size of a workpiece to be ground by said grinding machine, a blade positioned in said clearance to support said workpiece and a gaging device for detecting variations in the positions of the surfaces of the grinding and regulating wheels, the improvement comprising a gaging device having a first detector adapted to detect variations in the position of the surface of said grinding wheel and having a first measuring head, a first finger member connected at one end of said first measuring head and a contact connected to the other end of said first finger engaging the grinding surface of said grinding wheels, a second detector adapted to detect variations in the position of the surface of said regulating wheel and having a second measuring head, a second finger connected at one end to said second measuring head and a second contact connected to the other end of said second finger engaging the surface of said regulating wheel, said blade being provided with an opening having dimensions larger than the combined length and height of said first and second contacts to freely receive said contacts, and further comprising a common slide block fixedly secured to a mounting base, said first and second measuring heads being adjustably mounted on said slide block for finely adjusting the positions of said first and second heads, and discharge conveyors disposed on said discharge side of the grinding and regulating wheels for receiving and discharging ground workpieces from said grinding machine.

4,275,528

ELECTROPLATED DIAMOND MILLING CUTTER

Eugene E. Higginbotham, Salt Lake City, Utah, assignor to Christensen, Inc., Salt Lake City, Utah

Filed Sep. 10, 1979, Ser. No. 73,920
Int. Cl.³ B24B *7/00*
U.S. Cl. 51—206 P **22 Claims**



1. A milling cutter comprising a generally cylindrical body adapted to be rotated about an axis and having a helical thread extending around its periphery through a plurality of revolutions, said thread including a crest portion, a root portion and tapered flank portions extending between said crest and root portions, and a single layer of a multiplicity of diamond particles bonded to and extending from the external surfaces of said crest, flank and root portions, said diamond particles of said single layer being contiguous each other and overlapping each other progressively along said crest portion, flank portion and root portion in a direction normal to said axis, the width of said crest portion being no greater than the width of each diamond particle bonded to said crest portion.

4,275,529

HIGH FLAP DENSITY ABRASIVE FLAP WHEEL

Michael L. Teetzel, Columbus Twp., Anoka County, and Ralph E. James, White Bear Lake, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Aug. 28, 1979, Ser. No. 70,691
Int. Cl.³ B24B *9/02*; B24D *11/00*
U.S. Cl. 51—334 **4 Claims**

1. A rotative abrasive flap wheel comprising an annulus of approximately equal-sized, substantially rectangular, substantially like-oriented, coated abrasive flaps, each of said coated abrasive flaps being characterized by having an abrasive face, an inner end and an opposite outer flap end, said coated abrasive flaps having said abrasive faces in the same direction and being interleaved with compressible, lofty, non-woven flaps characterized by having inner ends, opposite outer flap ends, a compressed thickness adjacent said inner end and an uncompressed thickness adjacent said outer flap end, said coated abrasive flaps and said non-woven flaps being fastened adhesively together at said inner ends by adhesive which extends along that portion of said flaps adjacent said inner ends part way into the annulus to define a zone comprised of solidified adhesive and with said outer flap ends being free, said inner ends of at least said coated abrasive flaps defining a tubular surface providing an opening capable of receiving an arbor, said inner ends of said non-woven flaps extending a distance at



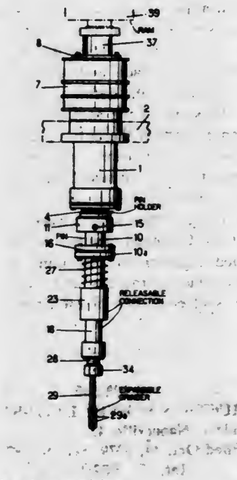
least partially into said zone so that said non-woven flap inner ends are sufficiently anchored to resist removal in use, said coated abrasive flaps and said non-woven flaps being present in said wheel to provide a number ratio of coated abrasive flaps to non-woven flaps in a range of about 15:1 to about 1:5, said compressed thickness being less than about 35% of said uncompressed thickness for non-woven flap inner ends extended to said tubular surface.

4,275,530

GRINDING HEADS FOR GRINDING MACHINES

Pierre A. Largeteau, Bezons, France, assignor to Societe Anonyme Automobiles Citroen and Automobiles Peugeot, both of Paris, France

Filed Mar. 2, 1979, Ser. No. 17,079
Claims priority, application France, Mar. 6, 1978, 78 07211
Int. Cl.³ B24B *5/00*
U.S. Cl. 51—355 **13 Claims**



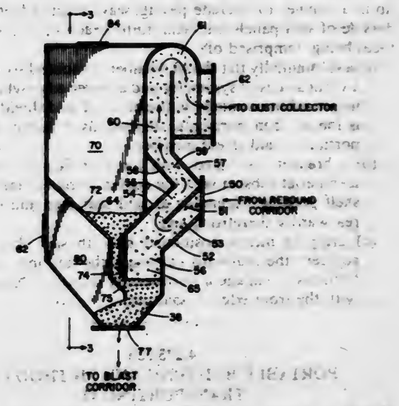
1. A grinding head comprising:
an expandable grinder;
a tubular grinder holder supporting said grinder;
an expansion cone received in said grinder and axially displaceable therein to expand said grinder;
an expansion rod connected to said expansion cone and extending through said tubular grinder holder;
a ram remote from said expansion cone and operable to control expansion of said grinder;
a rotatable tubular drive pin surrounding said rod and operatively connected to said grinder for rotating same;
a coupling member operatively connected to said ram and rotatably and axially received in said pin holder;
first helical coupling means connecting said coupling member to said expansion rod for joint rotation of said expansion rod and said coupling member but for relative rotation of said expansion rod and said coupling member upon axial displacement of said coupling member by said ram; and
second helical coupling means connecting said pin and said expansion rod for fixing said expansion rod and said cone for joint rotation with said expansion rod and for axially displacing said cone upon relative rotation of said expansion rod and said pin holder.

4,275,531

ABRASIVE PARTICLE BLAST APPARATUS FOR SURFACE TREATMENT

Harvey G. Van Fossen, Mishawaka, Ind., assignor to Wheelabrator-Frye, Inc., Hampton, N.H.

Continuation-in-part of Ser. No. 925,116, Jul. 17, 1978, Pat. No. 4,202,142. This application Nov. 19, 1979, Ser. No. 95,771
Int. Cl.³ B24C *3/06*, *9/00*
U.S. Cl. 51—425 **8 Claims**

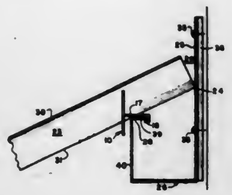


1. An apparatus for treatment of surfaces by projecting dry particulate material at high velocity onto the surface, including a projecting means for projecting the particulate material, a feed hopper, means for feeding particulate material from the feed hopper to the projecting means, and means for returning particulate material, dust and dirt from the surface to a level above the feed hopper, the improvement comprising separating means for separation of particulate material from dust and dirt for recycle of the separated particulate material to the feed hopper including a separating chamber, the lower end portion of which communicates with the feed hopper, an inlet opening in a lower portion of the separating chamber but above the feed hopper and through which the returning particulate material, dust and dirt are introduced into the separating chamber and an outlet in communication with an upper portion of the separating chamber, means for causing an air stream to flow continuously from the inlet to the outlet of the separating chamber, for causing the air stream to flow in sequence downwardly and forwardly for a short distance from the inlet into the separating chamber and then in a reverse direction for flow upwardly and rearwardly in the opposite direction through the separating chamber, with a further change in direction to flow upwardly and inwardly into the passage communicating with the outlet from the separating chamber whereby particulate

material becomes separated for return to the feed hopper while dust and dirt remains suspended in the air stream for flow with the air stream through the outlet opening.

4,275,532
SHIELD DEVICE AND ROOF STRUCTURE CONTAINING SAME

Roy W. Watson, 3218 Woodrow Ave., Richmond, Va. 23222
Filed Jun. 11, 1979, Ser. No. 47,440
Int. Cl.³ A01K 3/00; E04B 1/72; E04H 9/16
U.S. Cl. 52—15 2 Claims



2. An inclined roof structure comprised of corrugated panels, a gutter having an outer edge and inwardly disposed lip associated therewith, said panels being supported by resting abutment with said outer edge, and a multitude of shield devices positioned by enclasping frictional engagement with said lip in a manner to occlude passageways leading from the underside of said panels into said gutter, each of said shield devices being comprised of:

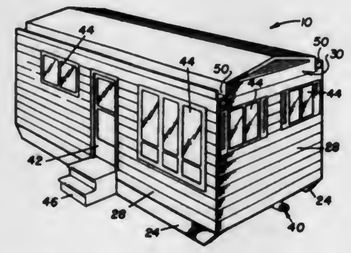
(a) a substantially flat shield member contoured so as to have a vertical axis of symmetry and a lower edge which, when measured horizontally in the plane of said shield member, is longer than horizontal dimensions adjacent the upper portion of said shield member,

(b) a bracket associated with the rear face of said shield member at substantially the center thereof comprised of a shelf portion originating at said rear face and extending rearwardly therefrom, and

(c) gripping means positioned beneath said shelf portion adjacent the rearward extremity thereof and adapted to frictionally engage a horizontally disposed lip associated with the front edge of said gutter.

4,275,533
PORTABLE BUILDING AND METHOD OF TRANSPORTING IT

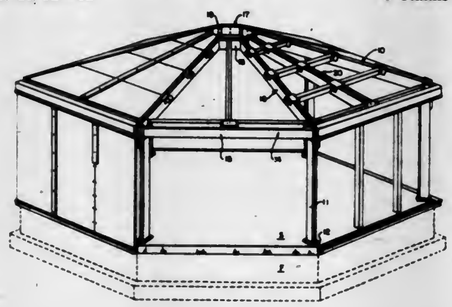
Darold L. Wright, 1151 Calhoun St., Hayward, Calif. 94544
Filed Aug. 22, 1979, Ser. No. 68,705
Int. Cl.³ E04H 1/00, 1/12
U.S. Cl. 52—79.1 11 Claims



1. In a portable building of the type having a floor, side walls and a roof fixedly interconnected with each other, the combination comprising skid means mounted on the floor of the building and arranged generally adjacent the lateral edges thereof for engaging the ground and supporting the building in a freestanding condition, reinforced slide means formed beneath the floor of the building inwardly of said skid means for engaging supporting structural chassis members of a transport vehicle and withstanding stress of sliding the building onto and off of the vehicle during loading and unloading, and means structurally interconnected with the building for sliding it onto and off of the vehicle.

4,275,534
HEXAGONAL BUILDING STRUCTURES

William H. Porter, West Olive, Mich., assignor to W. H. Porter, Inc., Holland, Mich.
Continuation-in-part of Ser. No. 805,781, Jun. 13, 1977, abandoned. This application Jan. 5, 1979, Ser. No. 1,311
Int. Cl.³ E04B 7/00
U.S. Cl. 52—82 8 Claims



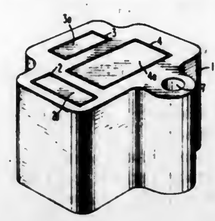
1. A metal frame for a building structure of six or eight sides and adapted to have no interior roof-supporting columns comprising a plurality of upright tubular metal support columns; means for securing the bottom of each column to a base; a tubular metal truss extending upwardly from each column toward the center of said structure; a rigid, integral compression ring connecting the inner ends of all of said trusses; a tension ring connecting the outer ends of all of said trusses and including a plurality of individual tension ring members extending between adjacent columns; each of said tension ring members comprising a tubular beam formed from C-shaped channel members in facing relation welded together and including an end plate at each end, and a transition channel secured to the top thereof and defining a portion inclined at the same angle as the slope of the roof of said structure and cut away at the center portion thereof; a plurality of roof rafters extending between said tension ring members adjacent the cut-away portion thereof and said compression ring; first fastener means for connecting each column to the end plates of adjacent tension ring members, each truss comprising a tubular beam formed from C-shaped channel members in facing relation and welded together and including an end connecting member rigidly attached thereto; and second fastener means for connecting said end plate of each truss to an associated column.

4,275,535
CONSTRUCTION SURVEY LATH-STAKE BASE

Kenneth R. Stalzer, Naperville, Ill.
Filed Oct. 24, 1979, Ser. No. 87,785
Int. Cl.³ E02D 27/42
U.S. Cl. 52—100 7 Claims

1. A construction survey lath-stake base comprising a block having a top surface and a bottom surface, a plurality of vertically extending apertures formed through said block, a construction survey lath adapted to be inserted into one of said apertures, a construction survey stake adapted to be inserted into another of said apertures, the bottom surface of the block

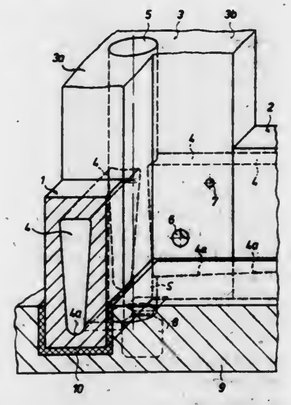
being supported on the surface of the ground to be surveyed, the top surface of the block being of an extent to provide a



writing surface upon which line and distance readings may be recorded, and means securing said block to the ground.

4,275,536
WALL ELEMENT FOR A CONSTRUCTION WALL

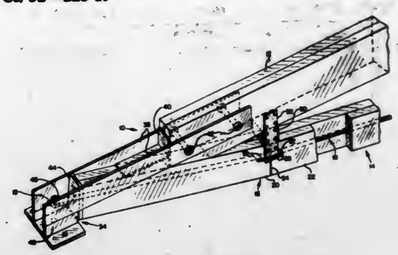
Karl H. Vahlbrauk, Kriegerweg 1, 3353 Bad Gandersheim, Fed. Rep. of Germany
Filed Dec. 11, 1979, Ser. No. 102,853
Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2856851
Int. Cl.³ E04B 5/48
U.S. Cl. 52—220 13 Claims



1. A wall element for a construction wall to be associated with sanitary objects, comprising a body portion completely constituted of a self-supporting shrinkage-free ceramic foam material; and means for forming at least one conduit for draining water, said conduit forming means including a channel-shaped gas-tight and water-tight inner hollow which is substantially horizontal and having an inclined sole, said substantially horizontal inner hollow extending over a region of said body portion, which normally serves for the connection of a plurality of sanitary objects to be differently arranged relative to the construction wall, and having a height corresponding to the region of the requisite draining lines of said differently arranged sanitary objects, so that said different sanitary objects can be connected with the same inner hollow and thereby it is not necessary to provide a plurality of separate individual inner hollows for individual connection.

4,275,537
TENSION MEMBERS

Neal I. Pinson, Beaverton, Oreg., assignor to Tensiss Structures, Inc., El Cajon, Calif.
Continuation of Ser. No. 809,622, May 26, 1977, abandoned. This application Nov. 16, 1978, Ser. No. 961,268
Int. Cl.³ E04C 3/10
U.S. Cl. 52—223 R 9 Claims



1. In an improved composite tension member,

a plurality of end-to-end segments having a longitudinal center of gravity, each segment including a pair of wood beams fastened together in face-to-face engagement, said segments comprising an elongated compression portion, said segments meeting at included angles to each other of less than 180°, said segments providing a longitudinal passageway extending therethrough;

elongated tension means disposed in said passageway, said tension means paralleling and being symmetrical relative to said longitudinal center of gravity and engaging the ends of said compression portion,

said tension means being normally under a preloading predetermined tension in sufficient magnitude to press against the ends of said compression portion to place and maintain said compression portion under compressive stress throughout the application of all contemplated external tension loading conditions on said tension member, thereby causing both said tension means and said compression portion to cooperate in resisting lengthening of the assembly rather than said tension means alone, thus lessening such elongation,

said tension means including a pair of abutment members engaging the extreme outer ends of said compression portion, said tension means also including anchoring devices abutting said abutment members;

and at least one connecting means engaging the tension means and the end portions of the compression segments to prevent crushing of the compression portion by the tension means.

4,275,538
BUILDING FOUNDATION METHOD AND SYSTEM, WITH ENERGY CONSERVATION AND SOLAR ENERGY UTILIZATION FEATURES

Edward G. Bounds, 1209 Frederick Ave., Salisbury, Md. 21801
Filed Jan. 22, 1980, Ser. No. 114,355
Int. Cl.³ E02D 24/42
U.S. Cl. 52—299 43 Claims

1. A method for constructing a foundation upon which a building can be erected, said method including the steps of:

excavating a plurality of spaced footing pits in the earth on the site where the building is to be erected, said pits each including a bottom and side walls;

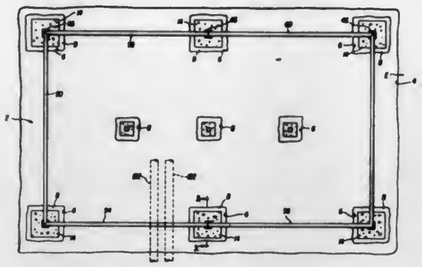
placing a preformed footing into each of said footing pits so that the footing rests on the earthen bottom wall of its associated pit, each of said footings having a grout inlet opening extending generally vertically therethrough;

connecting a source of grout under pressure to the grout inlet opening of each of said footings, and injecting grout under pressure into the region beneath each footing until the grout fills essentially all of the space between the

footing and the earthen bottom of the associated footing pit and elevation of the footing begins, so that the footing is firmly seated;

disconnecting the source of pressurized grout from each footing after it is firmly seated and before significant elevation of the footing occurs, and allowing the grout to set;

mounting a base plate means on each footing, and adjusting



the top surfaces of all the base plate means after their respective footings are firmly seated, to place said surfaces in a predetermined vertical relationship to each other; and

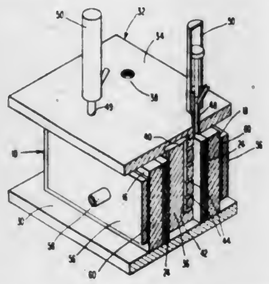
mounting horizontally extending preformed beams on the top surfaces of said base plate means, said beams extending horizontally between said base plate means and being adapted to receive and support the building to be erected on the site.

4,275,539

METHOD AND APPARATUS FOR INSULATING BUILDING BLOCKS AND THE BLOCKS PRODUCED THEREBY

Richard V. Abbott, III, 1200 E. Main St., Millville, N.J. 08332

Filed Dec. 10, 1979, Ser. No. 101,633
Int. Cl.³ B29D *27/00*
U.S. Cl. 52—309.11 11 Claims



1. A method of forming a molded insulating layer from expandable thermoplastic polymer particles on interior surfaces of an internal cavity of a concrete masonry block; said method including the steps of:

positioning a male plug member within the internal cavity of the masonry block with at least one peripheral wall of the plug member spaced from at least one interior surface of the cavity to form a peripheral compartment;

directing the polymer particles into the peripheral compartment;

injecting steam under pressure into the peripheral compartment to cause the particles to expand and fuse together into substantially self-sustaining insulating layers in close conformity with each interior surface of the peripheral compartment, and while injecting steam under pressure into the peripheral compartment;

applying a counteracting inwardly directed external force, of a sufficient magnitude to prevent the block from cracking, to exterior surfaces of at least two opposed walls of the block, an insulating layer being expanded into close conformity with the interior surface at least one of said opposed walls;

terminating the steam injecting step;

removing the male plug member from within the internal cavity of the block; and

removing the external force applied to the opposed exterior surfaces of the block.

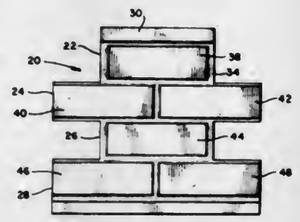
8. A concrete masonry block including a fused insulating layer of polymer particles molded to interior surfaces of an internal cavity thereof in accordance with the method of claim 1.

4,275,540

PLASTIC FREE STANDING BRICK WALL SECTION

William A. Keller, St. Louis, Mo., assignor to Keller Manufacturing Co., Inc., St. Louis, Mo.

Filed Feb. 21, 1979, Ser. No. 13,317
Int. Cl.³ E04C *1/10*; E04D *19/00*
U.S. Cl. 52—314 4 Claims



1. A free standing modular simulated plastic brick section for mounting upon the ground or other base, said section comprising a rigid front wall having a plurality of vertically spaced tiers of brick facing members separated by mortar borders, said tiers being staggered vertically from adjacent tiers one-half brick, said section being integral and having top and bottom walls extending to the rear a distance at least about one-half brick, said bottom wall acting as a ground support, said section having end walls at opposite ends of the section extending to the rear to provide a rigid box-like structure open to the rear and means for joining adjacent sections in interlocking relation, vertically aligned openings being provided in said end walls at the opposite ends of each section which align vertically with an adjacent section and said joining means comprising pin means extending through said opening to join said adjacent sections and adapted to be driven into the ground, each section being comprised of an even number of tiers and adjacent sections being joined together in interlocking and abutting relations by said pin means, the individual sections being inverted with respect to one another.

4,275,541

FIRE RESISTANT FLOOR AND CEILING ASSEMBLY

David L. Orals, Arlington Heights, Ill., and Peter S. Bushey, Sharon, Wis., assignors to United States Gypsum Company, Chicago, Ill.

Filed Jan. 4, 1980, Ser. No. 109,709
Int. Cl.³ E04B *5/52*
U.S. Cl. 52—483 17 Claims

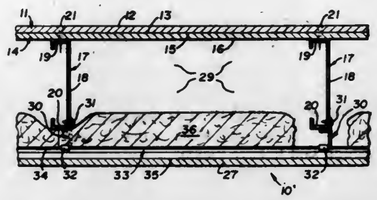
1. A fire resistant floor and ceiling assembly comprising in combination:

a plywood layer;

a gypsum floor underlayment extending adjacent below said plywood layer;

a series of steel joists located below said underlayment and supporting the plywood and underlayment;

a spaced-apart multiplicity of self-drilling self-tapping screws extending downwardly through the plywood and underlayment and engaging said steel joists thereby attaching the plywood and underlayment to the steel joists, said screws having upper threads and lower threads with an interrupting non-threaded mid-portion therebetween, the non-threaded mid-portion extending a distance sub-



stantially the same as the thickness of said plywood layer; and

at least one layer of third generation fire resistant gypsum board connected to, and supported below, said steel joists by connecting means;

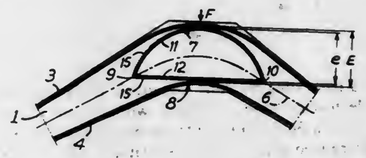
whereby said assembly contains no combustibles in the plenum between said underlayment and fire resistant gypsum board; and, whereby said assembly attains at least one hour fire rating when exposed to a fire below said assembly.

4,275,542

WELDED STRUCTURE OF A POWER ARM

Christian D. Moro, Saint Pathus, and Daniel G. Rasini, Varreddes, both of France, assignors to Poclain, France

Filed Dec. 10, 1979, Ser. No. 101,538
Claims priority, application France, Dec. 29, 1978, 78 36908
Int. Cl.³ E04C *3/32*
U.S. Cl. 52—731 4 Claims



1. In a welded structure of a power arm, such as the boom of a hydraulically operated shovel, constituted by:

two lateral plates each being substantially flat, oblong, whilst its longitudinal axis, neutral in flexion in its plane, presents an elbow between its ends, and the two lateral plates have substantially identical shapes and are disposed opposite each other, substantially in parallel,

an upper plate and a lower plate which extend in the zone of the upper and lower edges respectively of the said two lateral plates on either side of said neutral axis of each of these lateral plates, and which are welded to said lateral plates, and

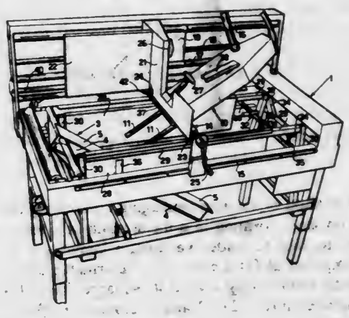
a box which comprises an upper cap and a lower base, forming a cross piece, is disposed between the lateral plates in the zone of said elbow of their neutral axes, said cap and base being located at least partly above and below the neutral axes, respectively, and said box is welded to said lateral plates, the cap and base join, forming two angles, along two lines which pass substantially through said neutral axis of each lateral plate.

4,275,543

AUTOMATIC MACHINE FOR CLOSING THE LOWER FLAPS OF A PARALLELEPIPED BOX WITH FOLDABLE FLAPS, AND FOR RETAINING THE BOX IN A FILLING POSITION

Augusto Marchetti, Piazza Sicilia 7, Milan, Italy

Filed Dec. 5, 1979, Ser. No. 100,753
Claims priority, application Italy, May 23, 1979, 22922 A/79
Int. Cl.³ B31B *5/26*, *1/52*
U.S. Cl. 53—374 6 Claims

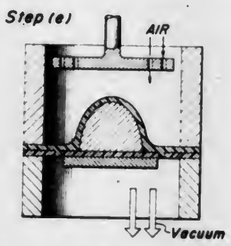


1. An automatic machine for closing the lower flaps of a parallelepiped box with foldable flaps, and for then retaining the box in a suitable filling position, comprising a T section with a vertical lower branch, which can be rotated from a rest position in which said upper branch is inclined downwards, to a working position in which said upper branch extends horizontally, a pair of parallel bars disposed in front of said section at a distance apart such as not to hinder the rotation of the section and which themselves can be axially displaced from a rest position in which said bars extend obliquely from a support structure converging towards said section, to a working position in which said bars are withdrawn towards said apport structure, a pair of lateral plates rotatable from a rest position in which said plates are disposed vertically to the sides of said section and said bars, to a working position in which said plates converge horizontally towards said section so that when the section is in its working position said plates are disposed below the upper branch and to the sides of the lower branch of said section, first sensitive means which, when a box with its lower flaps open is arranged above said section and said bars such that the major sides of the box are in planes parallel to the axes of said section and said bars, responds so as to cause said section to rotate from said rest position to said working position in order to close the end flaps of the box, second sensitive means which, when the section rotates into said working position, respond so as to cause said bars to move from said rest position to said working position, and third sensitive means which, when said bars move into said working position, respond so as to cause said lateral plates to rotate from said rest position to said working position in order to close the side flaps of the box under said end flaps.

4,275,544
VACUUM PACKAGING METHOD

Nobuyuki Hisazumi; Masataka Yamamoto, and Tsutomu Uehara, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 936,696, Aug. 25, 1978. This application Sep. 12, 1979, Ser. No. 74,828
Claims priority, application Japan, Sep. 5, 1977, 52-105787; Netherlands, Aug. 30, 1978, 7808910; Canada, Sep. 1, 1978, 310483; Fed. Rep. of Germany, Sep. 1, 1978, 2838226; Belgium, Sep. 5, 1978, 190251; France, Sep. 5, 1978, 78 25556; Italy, Sep. 5, 1978, 27316 A/78; United Kingdom, Sep. 5, 1978, 35664/78
Int. Cl.³ B65B *31/02, 11/52*
U.S. Cl. 53—433 14 Claims



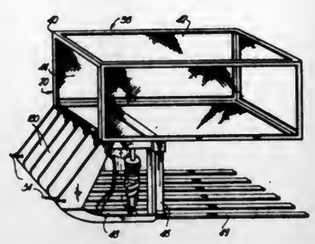
1. A method of vacuum packaging comprising the steps of:
(a) cup-shape-forming in a metal mold at a temperature of 50° to 180° C. under vacuum, a laminate film which is composed of (1) a plastically deformable layer of a synthetic resin having a yield stress larger than 50 kg/cm² at a temperature of 23° C. and an elongation of less than 30% at the elastic limit at the shaping temperature and (2) an elastic layer of a synthetic resin having an elongation of more than 40% at the elastic limit at said shaping temperature;
(b) placing a base film provided with a plurality of small holes for passage of air adjacent to the metal mold;
(c) placing articles or materials to be packed at positions on said base film corresponding to the cup-shaped hollows in said laminate film;
(d) bringing the flat edge part of said cup-shape formed laminate film into contact with the edge part of said base film;
(e) evacuating the interior of the spaces formed by the cup-shape hollows of said laminate film and said base film through said holes provided in said base film; and
(f) releasing the vacuum which had been established in step (a) between said metal mold and said cup-shape formed laminate film thereby producing a tight package of said articles or materials having closely adhered laminate film, with tightly closed holes in said base film with said laminate film.

4,275,545
KELP BLADE HARVESTER

Dan R. Pace, P.O. Box 5083, Halifax, Nova Scotia, Canada (B3L 4M6)

Filed Mar. 3, 1980, Ser. No. 126,692
Claims priority, application Canada, Mar. 14, 1979, 323374
Int. Cl.³ A01D *44/00*
U.S. Cl. 56—8 41 Claims

1. A harvester mechanism comprising:
(a) a frame;
(b) a pair of helical spindles, each mounted on a shaft adjacent each other in said frame;
(c) gear means connected to said shafts for ensuring opposite rotation of one spindle relative to the other spindle;
(d) one of said shafts being mounted in said frame so that one end of said one shaft is laterally movable relative to the other shaft;
(e) cutter means mounted in said frame; and
(f) linkage means interconnecting the cutter means and said

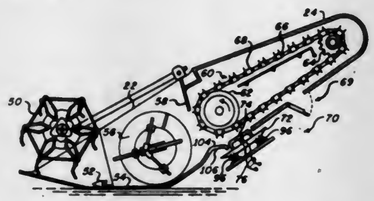


one end of the one shaft whereby lateral movement of said one end of the one shaft actuates said cutter means through said linkage means.

4,275,546
STONE DISCRIMINATOR

Carl E. Bohman, New Holland, Pa., and Peter G. Mitchell, Concord, Mass., assignors to Sperry Corporation, New York, N.Y.

Filed Jan. 4, 1980, Ser. No. 109,932
Int. Cl.³ A01D *75/18;* A01F *12/16*
U.S. Cl. 56—10.2 13 Claims

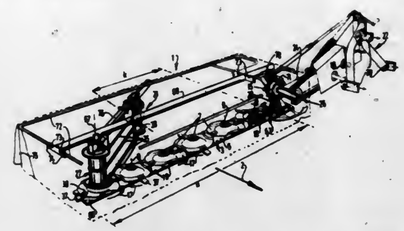


1. In a harvesting machine susceptible to damage by a non-frangible foreign object included within crop material harvested from a field and fed into the harvesting machine along a predetermined path via a crop elevator, protective apparatus for providing a signal indicative of the presence of the non-frangible foreign object at a predetermined location along the predetermined path, comprising:
at least one sensing surface for traversing the flow of crop material in said crop elevator and for receiving impactions of crop material and foreign objects;
means for mounting at least one sensing surface in operative relationship to said crop elevator and including means for vibrationally isolating said sensing surface from said combine harvester;
piezoelectric transducer means attached to at least one sensing surface for providing output signals representative of the impactions of the foreign objects and the crop material;
means coupled to said piezoelectric transducer means for selecting said foreign object impact signal from other signals coupled thereto; and
means coupled to said selection means responsive to said foreign object impact signal for generating a utilization signal useful for indicating the presence of said foreign object.

4,275,547
MOWING DEVICE

Pieter A. Oosterling, and Hendricus C. van Staveren, both of Nieuw-Vennep, Netherlands, assignors to Multinorm, B.V., Nieuw-Vennep, Netherlands

Filed Jun. 18, 1979, Ser. No. 49,598
Claims priority, application Netherlands, Jun. 20, 1978, 7806654
Int. Cl.³ A01D *55/18*
U.S. Cl. 56—13.6 36 Claims

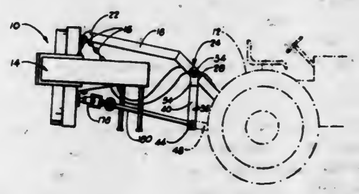


1. A mowing device comprising a girder extending transversely of the direction of movement of the mower, a plurality of cutting members rotatably journalled on said girder and arranged above the same, a cutting driving gear for the cutting members arranged on or in the girder, a carrier extending transversely of the direction of movement and at least one swath former comprising at least one driven rotor rotatable about an upwardly extending axis and journalled on the carrier, one end of the girder being connected with a suspension framework to be hitched to a vehicle, whilst each cutting member has at least one cutter fastened to its periphery and the swath former is arranged at the end of the mowing device remote from the suspension framework, characterized in that the swath former essentially comprises the said rotor arranged at one end of the mower, a reversing roller extending rearwardly away from the end of the mower and rotatably journalled on the carrier and at least one endless, flexible swath-forming member arranged between the former and in that the end of the girder remote from the suspension framework is carried by said carrier through a rotational bearing and a suspension element centrally arranged in the rotor of the swath former and engaging a cutting disc.

4,275,548
TREE SHAKER

Basil W. Savage, Sr., Madill, Okla., assignor to Savage Equipment, Inc.

Filed Jul. 16, 1979, Ser. No. 57,981
Int. Cl.³ A01G *19/00*
U.S. Cl. 56—328 TS 1 Claim

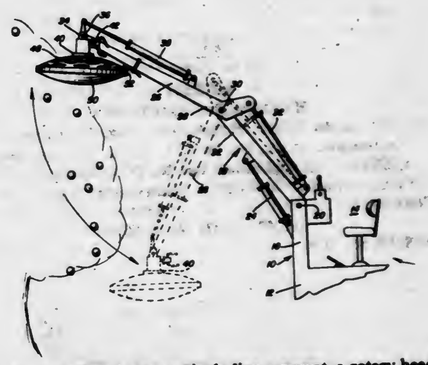


1. In a plant shaking apparatus of the type including clamp means for gripping a plant and vibrator means for vibrating said clamp means to shake said plant, the improvement wherein said vibrator means comprises:
first and second eccentric weight means mounted to rotate in opposite directions in substantially the same first substantially vertical plane about axes of rotation substantially normal to said first plane, said axes of rotation of said first and second weight means being spaced and parallel to each other and lying in a second substantially vertical plane, said second plane being substantially perpendicular to said first plane; and
a drive means for rotating first and second weight means, said drive means and first and second weight means being so co-ordinated that when said first weight means is at its lowest position said second weight means is at its highest position, and when said first weight means is at its highest position said second weight means is at its lowest position, so that a varying substantially vertical force generated by said first weight means is continuously substantially equal and opposite to a varying substantially vertical force generated by said second weight means;
wherein said first weight means includes a first plurality of weights detachably mounted upon a first shaft so that centers of gravity of said weights of said first plurality of weights are spaced parallel to said axis of rotation of said first weight means; and
wherein said second weight means includes a second plurality of weights detachably mounted upon a second shaft, said weights of said first and second pluralities of weights being arranged so that selected weights may be removed from each of said first and second pluralities of weights to reduce the vibrating force produced by said first and second weight means while maintaining the same first substantially vertical plane of rotation of the centers of gravity of said first and second weight means.

4,275,549
FRUIT HARVESTER

Carl P. Deal, Jr., 1906 Chieftan, Dade City, Fla. 33525

Filed Mar. 24, 1980, Ser. No. 133,299
Int. Cl.³ A01D *46/24*
U.S. Cl. 56—328 R 8 Claims



1. A rotary fruit harvester including a mount, a rotary head journaled from said mount, said head including a hollow body having peripheral wall surfaces extending along circular paths concentric with the axis of rotation of said head, said surfaces including spaced fruit receiving openings therein, said peripheral wall surfaces comprising outer surface areas of generally partial spherical wall portion of said head substantially concentric with the axis of rotation of said head.

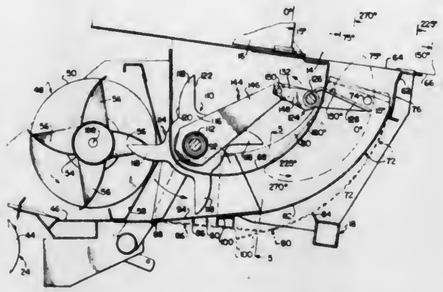
4,275,550
CROP BALER

Edward L. Swanson, and Howard L. Ratzlaff, both of Hesston, Kans., assignors to Hesston Corporation, Hesston, Kans.

Filed Oct. 15, 1979, Ser. No. 84,983
Int. Cl.³ B30B *9/30;* A01D *39/00*
U.S. Cl. 56—341 9 Claims

1. A crop baler including:

an elongated bale forming chamber having a laterally disposed opening therein;
compacting mechanism including a plunger continuously reciprocable within said chamber longitudinally thereof across said opening to open and close the latter;
an elongated, tubular duct projecting laterally outwardly from said chamber in registration with said opening;
means positioned at a mouth at the outer end of said duct for continuously feeding crop material into the duct to accumulate a charge thereof;
a loader associated with said duct for stuffing successively



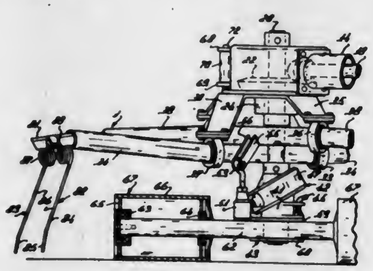
accumulating charges from the duct into said chamber in timed relationship to reciprocation of said plunger, and at regular intervals,
said duct being transversely expandable from a minimum volume position toward a maximum volume position; and
control means for preventing said expansion of the duct unless the density of a charge of material accumulating in said duct reaches a certain predetermined level,
said duct having a wall thereof extending along the path of travel of material from the feeding means into the duct and yieldably shiftable transversly of said path of travel for permitting said expansion of the duct.

4,275,551

HAYMAKING MACHINES

Cornelis van der Lely, 7, Brüschenrain, Zug, Switzerland

Continuation of Ser. No. 786,029, Apr. 8, 1977, Pat. No. 4,157,644. This application Apr. 26, 1979, Ser. No. 33,752
Claims priority, application Netherlands, Apr. 8, 1976, 7603683
Int. Cl.³ A01D *78/10, 80/00*
U.S. Cl. 56—370 **1 Claim**



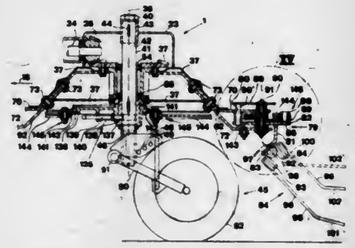
1. A hayraking machine including a frame and at least one rotatable rake member supported on said frame, said rake member being rotatable about an axis defined by an upwardly extending shaft mounted on said frame, at least one freely rotatable supporting member connected to the lower portion of said shaft, said supporting member having a ground engaging surface which substantially defines a cylinder having a length greater than its diameter, said cylinder being disposed laterally relative to a vertical plane extending in the intended direction of travel of the machine through said axis, a laterally extending shaft member being mounted on said lower portion, said supporting member being rotatably mounted on said shaft member, bearings being provided in said supporting member, said supporting member being releaseably retained in rotary connection with said shaft member by a locking means provided on said shaft member, said locking means being removably mounted on said shaft member whereby said supporting member is removable from said shaft member, said locking means comprising a bolt and shield received at the outer end of said shaft member which bears against the outer end of said supporting member releaseably retaining said supporting member on said shaft member.

4,275,552

HAYMAKING MACHINE

Frans J. G. C. DeCoene, Zedelgem, Belgium, assignor to Sperry Corporation, New Holland, Pa.

Filed Dec. 31, 1979, Ser. No. 108,322
Claims priority, application United Kingdom, Jan. 9, 1979, 00747/79; Jun. 5, 1979, 19517/79
Int. Cl.³ A01D *78/12, 57/12*
U.S. Cl. 56—370 **29 Claims**



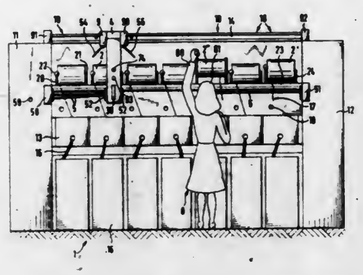
1. A haymaking machine comprising:
a frame adapted for movement across a field;
at least one rotor assembly rotatably supported by said frame about a first axis of rotation;
a plurality of tine assemblies pivotally attached to said at least one rotor assembly;
a linkage means mounted at one end coaxially with the pivotal mounting of each said tine assembly and pivotable relative to said tine assembly and said at least one rotor assembly, each said linkage means being selectively connectable in at least one operating condition to said corresponding tine assembly so as to be movable in unison therewith;
an actuation means mounted on said at least one rotor assembly;
a connecting means interconnecting said actuation means and each said linkage means, such that, in said at least one operating condition, said actuation means is operable to alternatively move said corresponding tine assembly between an extended crop engaging position and a retracted crop releasing position; and
drive means for rotating said at least one rotor assembly.

4,275,553

PROCESS AND APPARATUS FOR SERVICING A NUMBER OF MUTUALLY ADJACENT SPINNING POSITIONS OF AN OPEN-END SPINNING MACHINE

Reinhard Biehm, Buchholz; Rupert Karl, Ingolstadt, and Hans Sarcander, Kosching, all of Fed. Rep. of Germany, assignors to Schubert & Salzer, Ingolstadt, Fed. Rep. of Germany

Filed May 17, 1979, Ser. No. 15,899
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1978, 2809001
Int. Cl.³ D01H *15/00, 15/02*
U.S. Cl. 57—263 **20 Claims**



1. A method for servicing a number of mutually adjacent spinning positions of an open-end spinning machine by means of a servicing apparatus which is movable along said spinning positions, each of said spinning stations having a bobbin carried thereon upon which yarn is being wound, said method comprising the following steps:
an operator while preparing to service a spinning position that is to be serviced triggering a circuit for initiating the movement of said service apparatus from its existing location to adjacent said spinning position to be serviced;
maintaining said service apparatus adjacent said spinning position until said operator concludes the preparatory work;
bringing said service apparatus from said position adjacent said spinning position into the exact working position for the initiation and carrying out of the servicing; and
setting said service apparatus into operation.

3. An apparatus for servicing a number of mutually adjacent spinning positions of an open-end spinning machine by means of a servicing apparatus which can move along said spinning positions, said apparatus comprising:
a travel drive means (40) for said servicing apparatus (3) for driving said servicing apparatus along said spinning machine when activated;
switch means (5, 56, 560) connected to said travel drive means (40) for activating said travel drive means responsive to being actuated by an operator at a spinning station requiring serive, and switch means connected to said travel drive means (40) for de-activating said travel drive means for halting the movement of said servicing apparatus in the neighborhood of said operator at said spinning station requiring service.

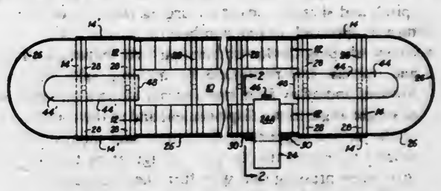
4,275,554

CLEARANCE-PRODUCING MEANS FOR OPEN-END SPINNING MACHINE SERVICING APPARATUS

Philip B. Tarbox, Pendleton, and Charles R. Martin, Seneca, both of S.C., assignors to Platt Saco Lowell Limited, Helmshore, England

Filed Dec. 3, 1979, Ser. No. 100,608
Int. Cl.³ D01H *15/02, 1/12*
U.S. Cl. 57—263 **6 Claims**

1. In combination, an elongate open-end spinning machine having a plurality of spinning stations spaced along its length and having a cabinet structure at one thereof; an upstanding mobile servicing apparatus, having upper and lower portions respectively disposed above and below the top elevation of said spinning machine, adapted to move about said spinning machine along a path of travel having a first section adjacent said spinning stations of said spinning machine and having a second section adjacent said cabinet structure of said spinning machine; mounting means, extending in vertically spaced overlying relationship to the periphery of said spinning machine, mounting said apparatus for said movement thereof along its said path of travel, and for pivotal movement of said apparatus transversely of its said path of travel; said apparatus normally occupying a pivotal position wherein said apparatus is movable freely along said first section of its said path of travel and wherein movement thereof along said second section of its



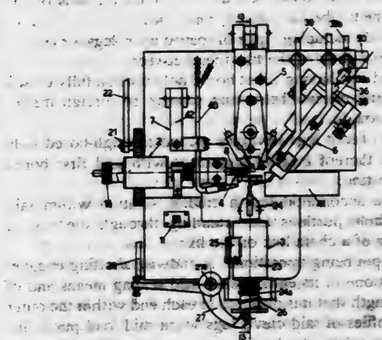
path of travel is obstructed by lateral interferance between said lower portion of said apparatus and said cabinet structure of said machine; cam means, disposed at an elevation above said spinning machine and operatively association with said upper portion of said apparatus for, during movement of said apparatus from said first and to said second section of its said path of travel, pivoting said apparatus in a direction displacing said lower portion thereof laterally outwardly from said cabinet structure of said machine sufficiently for said lower portion of said apparatus to clear said cabinet structure and for said apparatus to move freely along said second section of its said path of travel.

4,275,555

MACHINE AND A METHOD FOR CONSTRUCTING A CHAIN HAVING AUTOMATICALLY SHAPED AND WELDED CHAIN LINKS

Pasquale Bichi, Arezzo, Italy, assignor to Gori & Zacchi S.p.A., Italy

Continuation-in-part of Ser. No. 822,800, Aug. 8, 1977, abandoned. This application May 22, 1979, Ser. No. 41,530
Claims priority, application Italy, Aug. 20, 1976, 50977 A/76
Int. Cl.³ B21L *3/02*
U.S. Cl. 59—3 **8 Claims**



1. A machine for constructing a chain of metallic shaped links comprising:
a device for feeding a wire to be used to form each chain link;
a first shaping device to wind said wire so as to form a

cylindrical wire spiral of predetermined radius and pitch or of other suitable similar form;

a pliers carrying device having gripping members and supported in such a way to perform rectilinear strokes to and from the zone in which the free end of the wire spiral extends, and associated with said first shaping device, with means for axially rotating said pliers carrying device, and with means for opening and closing the gripping members of the pliers so as to grip the first free spiral turn;

a cutting device supported by means for moving said cutting device to and from the zone in which the free end of the wire spiral extends, said cutting device including cutting means for separating the first spiral turn from the said wire spiral, and shaping means for urging the ends of said cut turn to approach to one another;

a second shaping device comprising two shaping members and means for reciprocately moving said members towards and away from one another along a direction set at a right angle to the displacement and to the rotation axis of the device supporting the pliers, said members being shaped to impart the desired configuration to said wire turn when pressing said wire turn therebetween;

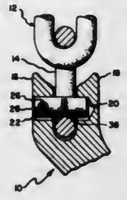
a welding unit to weld the ends of the chain link; and control means for moving the above described devices and means composing the machine into and retracting from said operative positions in a predetermined time sequence and at desired times.

4,275,556

CLEVIS TYPE CONNECTION DEVICE

Franz T. Stone, East Aurora, and Kenneth D. Schreyer, Clarence, both of N.Y., assignors to Columbus McKinnon Corporation, Tonawanda, N.Y.

Filed May 25, 1979, Ser. No. 42,508
Int. Cl.³ F16G 15/00
U.S. Cl. 59—93 **13 Claims**



1. A clevis type connection device for load chains of the loop link type or the like, which comprises:

a clevis body including a pair of spaced apart legs for receiving a chain link or the like therebetween;

one of said legs having a first bored hole portion fully closed by sealing means obstructing passage of foreign matter therethrough;

the other of said legs having a second through-bored hole portion thereof in axial alignment with said first bored hole portion;

a load pin accommodated in cradled relation within said bored hole portions for extending through the central opening of a chain link or the like,

said load pin being operational in endwise abutting engagement at one of its ends against said sealing means and of such length that it is disposed at each end within the outer end profiles of said clevis legs when said load pin is disposed to proximate abutting engagement with said sealing means; and

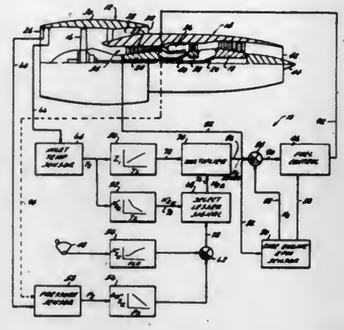
retaining means intercepting the bore of the other of said legs and adapted to engage said load pin, whereby to constrain said load pin against unintended displacements thereof away from engagement with the central opening of said chain link or the like.

4,275,557

METHOD AND APPARATUS FOR CONTROLLING THRUST IN A GAS TURBINE ENGINE

Ira E. Marvin, Fairfield, and Joseph R. Cowgill, Cincinnati, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Jan. 25, 1978, Ser. No. 872,125
Int. Cl.³ F02C 9/08
U.S. Cl. 60—39.03 **12 Claims**



1. Apparatus for controlling thrust of a gas turbine engine of the type having a compressor, a combustor and a turbine with means for producing signals proportional to engine inlet temperature, engine inlet pressure and comproessor physical rotational speed, a fuel controller, and a power lever adapted to be set to different angles to select a different desired engine thrust at each power lever angle, wherein the improvement comprises means for providing a demand compressor physical speed signal adjusted by engine inlet pressure and temperature wherein said means for providing a demand compressor physical speed signal comprises means for producing a first demand compressor corrected speed signal as a function of the selected power lever angle, said last recited signal being further proportional to compressor physical speed divided by θ^n, wherein n is that exponent which provides flat-rated thrust independent of engine inlet temperature for those inlet temperatures which are below a preselected flat-rating inlet temperature, means for comparing said compressor physical speed signal and said demand compressor physical speed signal to develop an error signal, said error signal being coupled to said fuel controller in order to maintain said desired thrust at each selected power lever angle.

4,275,558

GAS TURBINE ENGINE FUEL GOVERNOR

Robert A. Hatch, Boca Raton, Fla.; Harvey B. Jansen, Tempe, Ariz.; Frederic E. Bolliger, and Robert B. Sumegi, both of Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif.

Filed Dec. 22, 1977, Ser. No. 863,495
Int. Cl.³ F02C 9/04
U.S. Cl. 60—39.16 R **45 Claims**

1. A gas turbine engine fuel control system comprising:

a housing having an inlet for receiving pressurized fuel flow and an outlet for delivering fuel flow to the engine;

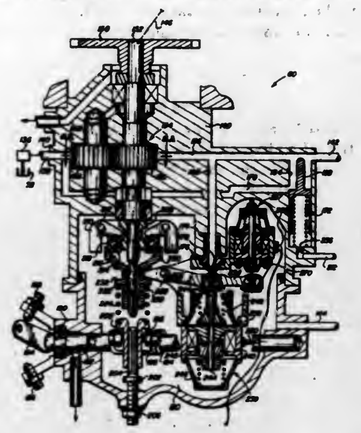
means defining a variable orifice in said housing for variably metering fuel flow to said outlet, including an adjustable element for varying the size of said orifice;

means for continuously sensing a preselected parameter of engine operation and exerting a first force on said element in relation to the value of said sensed parameter;

throttle means for continuously exerting a variable second force on said element opposing said first force, said second force being indicative of a desired valve for said preselected parameter;

an electronic control developing a first electrical signal upon occurrence of a preselected condition of engine operation;

a first electromechanical transducer operable when energized by said first electrical signal for selectively exerting a third force on said element opposing said second force



upon occurrence of said preselected condition of engine operation; and

means for selectively exerting a fourth force on said element upon occurrence of another preselected condition of engine operation, said element operable to mechanically sum said first through fourth forces.

4,275,559

RETRACTABLE IGNITER DEVICE FOR GAS TURBINES

Lynn J. Blair, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 31, 1979, Ser. No. 71,780
Int. Cl.³ F02C 7/266; H01T 13/14
U.S. Cl. 60—39.82 S **1 Claim**



1. An improved retractable igniter capable of igniting a combustible mixture in a combustor of a gas turbine comprising:

a piston assembly including a unitary conductive tubular shell with a cylindrical spark electrode section having an integral cylindrical body section, said electrode section being of reduced diameter and having a thinner wall section than said body section and said body section having an open breech end;

said body section including a core assembly comprising a tubular insulator coaxial with the internal walls of said body section and surrounding a central electrode extending from said spark electrode section to said breech end of said body section;

said piston assembly further including an outer conductive tubular sleeve coaxial with said body section, said sleeve having one end abutting a shoulder located at a predetermined position on the outer surface of said body section, the other end of said sleeve extending toward said breech end and forming a circumferential slot between said sleeve and said body section;

a helical spring coaxial with said body section and having one end abutting a shoulder within said circumferential slot and the other end resting against a shoulder in a base flange adjacent said breech end; and

means for retractably supporting said piston assembly, said means including a protective cylinder held in fixed position between a mounting flange through which said piston assembly retractably extends and said base flange and a cylindrical ring attached to the other end of said outer conductive tubular sleeve;

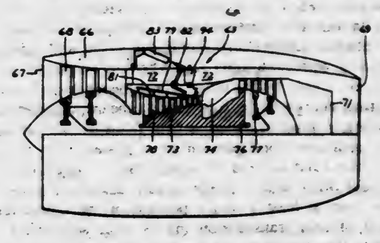
said spark electrode section and a portion of said outer conductive tubular sleeve extending through said mounting flange when said piston assembly is fully extended and retracted into said protective cylinder when said spring is compressed, the compressed height of said spring being insufficient to limit the stroke of said piston assembly.

4,275,560

BLOCKER DOOR ACTUATION SYSTEM

Jack D. Wright, Mason, and Barton H. Snow, Wyoming, both of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 27, 1978, Ser. No. 973,765
Int. Cl.³ F02K 3/02; F01B 25/02
U.S. Cl. 60—226 B **6 Claims**



1. An improved turbofan engine of the type having a core with variable stators, a fan, a duct for bypassing a portion of the fan flow around the core, and a plurality of blocker doors in the duct for selectively blocking the flow of air in the duct, wherein the improvement comprises:

(a) stator actuator means for selectively varying the angle of the variable stator vanes in response to a predetermined engine parameter, said stator actuator means including at least one linear actuator located radially outside of said duct and at least one rotatable shaft passing through said duct and linked to said linear actuator for transmitting movement therefrom;

(b) blocker door actuator means for selectively varying the angle of the blocking doors as a function of the variable stator vane angle, said blocker door actuator means including an actuator ring and a plurality of lever arms attached at their one end to said actuator ring and at their other ends to the blocker doors;

(c) linkage means interconnecting said stator actuation means and said blocker door actuator means such that when the angle of the variable stator vanes is varied within a first predetermined range, the angle of the blocker doors is varied within a second predetermined range, said linkage means including a cam element which is rotated by said stator actuator means and a cam follower with an attached bellcrank which is rotated during rotation of said cam through a predetermined angle range, said linkage means including a drag link connecting said bellcrank to said actuator ring for transmitting rotation movement by said cam element with said drag link being connected to said bellcrank and to said actuator ring through

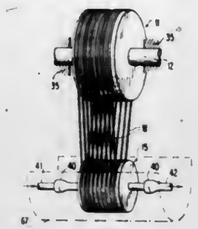
a pair of uniball connections for accommodating axial movement.

4,275,561

ENERGY CONVERSION SYSTEM

Frederick E. Wang, 11816 Caplinger Rd., Silver Spring, Md. 20904

Filed Aug. 3, 1978, Ser. No. 930,701
Int. Cl.³ F03G 7/06
U.S. Cl. 60—527 38 Claims



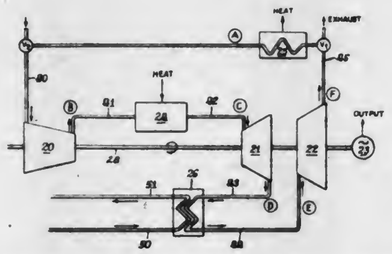
1. A device for converting thermal energy into mechanical energy, comprising at least two rotatably supported wheel means, and endless transmission means of a material having a memory effect capable in the bending mode of converting thermal energy into mechanical energy when heated from a temperature below its transition temperature to a temperature above its transition temperature, said transmission means having a normal substantially rectilinear shape and operatively connecting with each other said wheel means to drive one of said wheel means by the other wheel means upon application of thermal energy to the transmission means, characterized in that the transmission means is bent from its normal substantially rectilinear configuration as it passes over said other wheel means and at the same time thermal energy is transferred from said other wheel means to said deformed transmission means over at least a major portion of the circumferential contact of said transmission means with said other wheel means to thereby cause said transmission means to revert to its normal substantially rectilinear shape.

4,275,562

COMPOSITE ENERGY PRODUCING GAS TURBINE

Andrew A. Fejer, Oak Park, Ill., assignor to Institute of Gas Technology, Chicago, Ill.

Filed Aug. 6, 1979, Ser. No. 64,113
Int. Cl.³ F01K 25/00; F02C 1/10, 6/04
U.S. Cl. 60—648 13 Claims



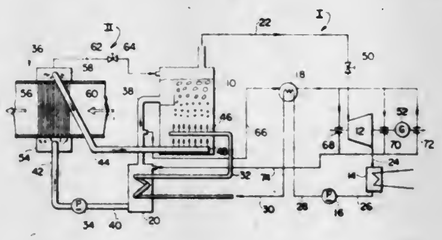
1. A process for providing shaft power and process heat by use of a composite energy producing gas turbine system the steps comprising in sequence; compressing a turbine working fluid, further heating said working fluid to temperature for introduction to a high temperature turbine, partially expanding said working fluid through a high temperature turbine providing shaft power output from said system, passing said working fluid in heat exchange relation with a lower temperature process fluid providing heat output from said system, further expanding said working fluid through a low temperature turbine providing additional shaft power output from said system, adjusting the temperature of said working fluid to about ambient temperature, and recycling said working fluid to said compressing step.

4,275,563

POWER-GENERATING PLANT HAVING INCREASED CIRCULATING FORCE OF WORKING FLUID

Michio Kuroda, Hitachi; Shozo Nakamura, Hitachiouta; Satoshi Tsukahara, Hitachi; Yasuaki Akatu, Hitachi; Shigehisa Sugita, Hitachi; Kojiro Kaneko, Hitachi; Seiichiro Sakaguchi, Hitachi, and Ryoichiro Oshima, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 18, 1979, Ser. No. 4,577
Claims priority, application Japan, Feb. 3, 1978, 53-10502
Int. Cl.³ F01K 25/06
U.S. Cl. 60—673 16 Claims



1. A power generating plant comprising a first circulation means for circulating a low boiling point medium in a closed cycle, a second circulation means for circulating a heat source medium in a closed cycle, heat exchanger means operatively connected with the first and second circulation means for bringing the low-boiling point medium and the heat source medium into direct contact so as to generate a working fluid, the first circulation means includes first nozzle means arranged in a lower portion of the heat exchanger means for injecting the low-boiling point medium into the heat exchanger means, the second circulation means includes further nozzle means arranged in the heat exchanger means at a position lower than the first nozzle means for injecting the heat source medium into the heat exchanger means whereby said first nozzle means and said further nozzle means increase a force for circulating the working fluid.

4,275,564

COMBUSTION CHAMBER FOR GAS TURBINE ENGINES

Guenter Kappler, Freising, and Adolf Fehler, Pfaffing, both of Fed. Rep. of Germany, assignors to Motoren- und Turbinen Union Munchen GmbH, Munich, Fed. Rep. of Germany

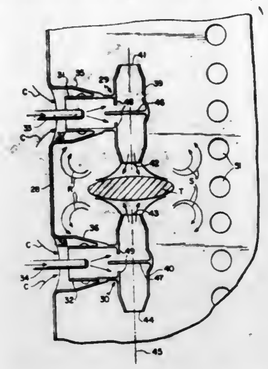
Filed Apr. 10, 1979, Ser. No. 28,748
Claims priority, application Fed. Rep. of Germany, Apr. 13, 1978, 2815916
Int. Cl.³ F02C 7/22
U.S. Cl. 60—738 11 Claims

1. A gas turbine engine, comprising:

a combustion chamber including a flame tube having a back wall;

a plurality of vaporizers projecting through said back wall and into said flame tube, each said vaporizer having at least one pipe section extending within said flame tube, fuel supply and air supply ports in communication with said pipe section, and at least one outlet port for supplying a vaporous fuel-air mixture from said pipe section to said flame tube,

wherein first and second said outlet ports of respective, adjacent first and second said vaporizers are arranged



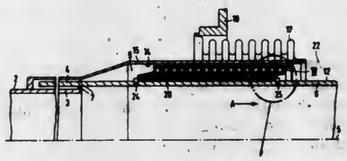
spaced-apart from and directly facing one another, said first and second outlet ports having respective center axes which are coaligned, whereby a zone of maximum turbulence is formed between said first and second outlet ports.

4,275,565

TRANSFER DEVICE FOR A CRYOGENIC MEDIUM

Rudolf K. Beck, deceased, late of Erlangen, Fed. Rep. of Germany (by Christa Beck, Thoms Beck, and Matthias Beck, heirs), assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jun. 18, 1979, Ser. No. 49,324
Claims priority, application Fed. Rep. of Germany, Jul. 5, 1978, 2829555
Int. Cl.³ F17C 7/02
U.S. Cl. 62—55 9 Claims



1. In a sealing device for establishing a seal at the point of transfer of a cryogenic medium between a stationary conducting tube and a rotating conducting tube, a section of the stationary tube surrounding a secton of the rotating tube and forming therewith an annular space, in which at least one sealing element which is made of an elastic material is disposed, the improvement comprising:

said sealing element being fastened to the outside of said section of the rotating tube so that it extends essentially radially relative to the axis of rotation, and

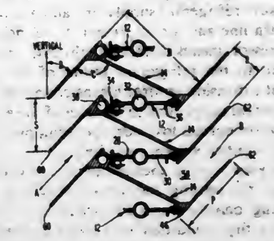
said sealing element made of a material which is sufficiently elastic to permit its radial dimension to increase by a predetermined amount when the section of tube to which it is connected rotates.

4,275,566

CRYOPUMP APPARATUS

John W. Boan, Norwich Township, Franklin County, Ohio, assignor to Pennwalt Corporation, Philadelphia, Pa.

Filed Apr. 1, 1980, Ser. No. 136,194
Int. Cl.³ B01D 8/00
U.S. Cl. 62—55.5 12 Claims



1. In cryopump apparatus including:

(a) means for supplying cryogenic fluid;

(b) means for supplying refrigerant fluid;

(c) a panel including:

(i) heat exchange surfaces on respective opposite sides thereof; and

(ii) first conduit means for conducting said cryogenic fluid therethrough in heat transfer relationship with said heat exchange surfaces;

(d) means delivering said cryogenic fluid to said panel conduit for flow through said conduit in heat exchange relationship with said panel heat exchange surfaces;

the improvement comprising:

(e) a passageway, of zigzag configuration, containing said panel, and including a conduit for conducting said refrigerant fluid therethrough in heat transfer relationship with wall structure of said conduit;

wherein mutually facing surfaces of said passageway and said panel are in spaced relationship;

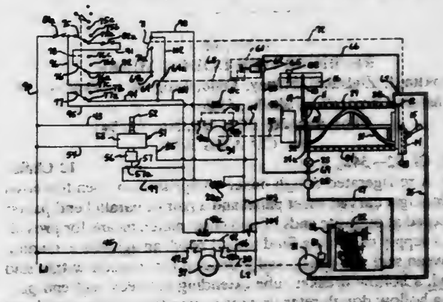
wherein said passageway has openings at opposite ends thereof for flow of gas therethrough to respective heat exchange surfaces of said panel; wherein said wall structure is positioned between said panel and said openings for shielding said panel.

4,275,567

METHOD AND APPARATUS FOR CONTROLLING OPERATION OF A SOFT-SERVE MACHINE

Stephen W. Schwitters, Rockford, Ill., assignor to Beatrice Foods Co., Chicago, Ill.

Filed Mar. 31, 1980, Ser. No. 135,492
Int. Cl.³ A23G 9/00
U.S. Cl. 62—63 18 Claims



12. A control system for controlling operation of a semi-frozen commestible dispensing machine of the type which

includes a freezing chamber having a product ingredient inlet and a product outlet, dispensing valve means selectively operable to intermittently dispense product through the product outlet, a rotary dasher in the freezing chamber and a dasher drive motor connected to the dasher, an evaporator in heat conducting relation with the freezing chamber having a refrigerant inlet and a refrigerant outlet, refrigeration producer means including a compressor and a condensor and having a high pressure refrigerant supply line and a low pressure refrigerant return line and a compressor drive motor connected to the compressor, means connecting the low pressure refrigerant return line to the refrigerant outlet of the evaporator and refrigerant expansion control means connecting the high pressure refrigerant supply line to the inlet of the evaporator operative to control normal low side operating pressure in the evaporator, the control system including:

(a) viscosity sensing means operative when the dasher is driven for sensing the viscosity of the product in the freezing chamber and for actuating a viscosity switch from a first condition to a second condition when the viscosity of the product increases to the desired product consistency;

(b) refrigerant pressure sensing means operative when the pressure applied thereto rises to a preselected pressure above normal low side operating pressure for moving a pressure switch means from a first condition to a second condition and for moving the pressure switch means from the second condition back to its first condition only when the pressure applied thereto drops to a pressure below normal low side operating pressure;

(c) dispensing valve sensing means for sensing when the dispensing valve is opened and for operating a dispensing switch from a first condition to a second condition when the dispensing valve is open;

(d) a refrigerant control valve in the high pressure refrigerant supply line ahead of the refrigerant expansion control means;

(e) means operatively connecting the pressure sensing means to the evaporator to sense the refrigerant pressure in the evaporator when the supply of refrigerant to the evaporator is shut off;

(f) means controlled by the pressure switch means for energizing the compressor drive motor when the pressure switch is in its first condition;

(g) means controlled by the viscosity switch means for actuating the refrigerant control valve to its open condition when the viscosity switch means is in its first condition and for actuating the refrigerant control valve to its closed position when the viscosity switch means is in its second condition;

(h) means controlled by said dispensing switch means for actuating the refrigerant control valve to its open condition and for energizing the compressor drive motor when the dispensing switch is in its second condition;

(i) and means for energizing the dasher drive motor when the compressor drive motor is energized.

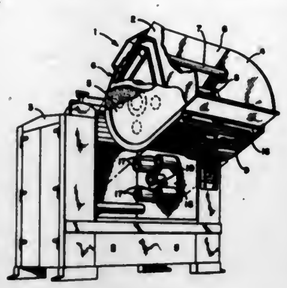
4,275,568

REFRIGERATED DOUGH MIXER

Franklin J. Zieisdorf, Sidney, Ohio, assignor to Peerless Machinery Corporation, Shelby, Ohio

Filed Aug. 30, 1979, Ser. No. 70,754
Int. Cl.³ A23G 9/00
U.S. Cl. 62—342 **12 Claims**

8. A refrigerated dough mixer comprising an open top bowl including a curved sheet panel and a pair of parallel end panels disposed at opposite ends of said sheet panel, means for providing a supply of cooling fluid to said bowl, an agitator extending between said end panels and journaled for rotation within said bowl, a hollow breaker tube extending between said end panels, a hollow dough retarding tube extending between said end panels, means within said sheet panel defining a series of side-by-side flow channels which extend between said end panels and which are interconnected for circulating said cooling fluid and cooperatively cooling substantially the entire interior surface of said sheet panel, means defining fluid flow channels within said end panels for circulating said cooling fluid and cooperatively cooling substantially the entire interior surface



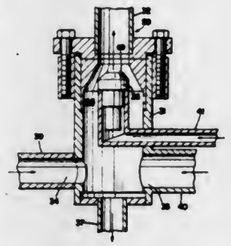
of said end panels, means causing said cooling fluid to be circulated through said breaker tube and said dough retarding tube, temperature sensing means for sensing the temperature within said bowl, and control means responsive to said temperature sensing means for controlling the flow of said cooling fluid.

4,275,569

INTERNAL COOLING OF HEAT EXCHANGER TUBES

Richard R. Mayers, Delta; Steven R. Huebner, and Dennis A. Chojnacki, both of Toledo, all of Ohio, assignors to Midland-Ross Corporation, Cleveland, Ohio

Division of Ser. No. 969,116, Dec. 13, 1978, Pat. No. 4,211,088.
This application Dec. 21, 1979, Ser. No. 106,172
Int. Cl.³ F25D 17/02
U.S. Cl. 62—373 **6 Claims**



1. An apparatus for cooling a heat exchanger tube at controlled conditions comprising:

a housing sealingly connected to the heat exchanger tube;

a gas inlet to the housing;

a liquid inlet to the housing;

a means to generate mist located within the housing and directed to spray a stream of mist into the heat exchanger tube.

4,275,570

OIL COOLING MEANS FOR REFRIGERATION SCREW COMPRESSOR

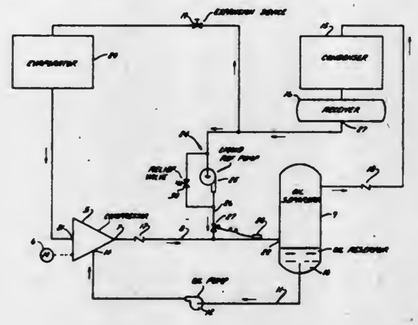
Paul G. Szymaszek, and Robert A. Hall, both of Milwaukee, Wis., assignors to Vilter Manufacturing Corporation, Milwaukee, Wis.

Filed Jun. 16, 1980, Ser. No. 159,502
Int. Cl.³ F25B 43/02
U.S. Cl. 62—468 **5 Claims**

1. In a refrigeration system of the type comprising a screw compressor of controllably variable capacity which is cooled and lubricated by the circulation of oil therethrough and which has a discharge outlet from which a mixture of compressed refrigerant and oil issues, an oil separator communicated with said discharge outlet through a discharge duct, means for circulating oil back to the screw compressor from the oil separator and a receiver to which refrigerant flows from the oil separator through a condenser and in which liquid refrigerant is held for circulation through an evaporator and thence back to the screw compressor, oil cooling means for cooling the oil discharged from the compressor before it is circulated back thereto, said oil cooling means being characterized by:

A. a liquid refrigerant pump;

B. delivery means connecting said pump in an oil cooling



bypass having an inlet at said receiver and an outlet at said discharge duct, whereby the pump can deliver to said mixture, as it flows to the oil separator, a flow of liquid refrigerant that cools said mixture;

C. sensor means for detecting a function of the percentage of its full capacity at which the screw compressor is operating and for producing an output which substantially corresponds to said detected function; and

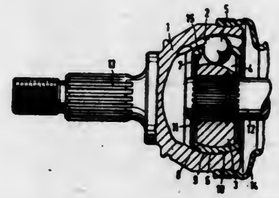
D. said delivery means having flow metering means connected with said sensor means to receive said output therefrom and whereby the rate of flow of liquid refrigerant to said discharge duct is controlled in substantial correspondence with the rate of discharge of said mixture from the screw compressor.

4,275,571

HOMOKINETIC UNIVERSAL JOINT

Hans-Heinrich Welschof, Rodenbach, Fed. Rep. of Germany, assignor to Lohr & Bromkamp, Offenbach am Main, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,078
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1978, 2816155
Int. Cl.³ F16D 3/30
U.S. Cl. 64—21 **3 Claims**



1. A homokinetic universal joint assembly comprising: an outer joint member including a generally spherical inner surface shaped to define a hollow space open on one side thereof with grooves formed therein uniformly distributed over the circumference thereof; an inner joint member arranged in said

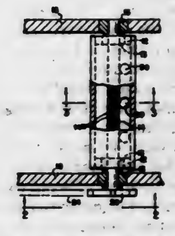
outer joint member, said inner joint member including a generally spherical outer surface with grooves formed therein which correspond in number to the grooves in the inner surface of said outer joint member; a plurality of roller members interposed in torque-transmitting relationship between said inner joint member and said outer joint member, said grooves being arranged such that each of said roller members will be engaged between a groove of said inner joint member and a groove of said outer joint member; a cage including apertures within which said roller members are operatively supported, said cage being arranged within said hollow space radially between said inner and said outer joint members and having concentric inner and outer spherical surfaces; each pair of cooperating grooves of said inner and said outer joint member being widened in the direction of the opening of said outer joint member for controlling said roller members in the angle-bisecting plane; said cage being guided with its spherical outer surface on the spherical inner surface of said outer joint member and with its spherical inner surface on the spherical outer surface of said inner joint member; said universal joint assembly being formed as a fixed joint with said cage operatively interposed between said inner and outer joint members to prevent axial mobility therebetween; said cage having formed on its spherical outer surface on the side thereof opposite said open side of said hollow space a reduced diameter portion extending axially over part of said cage and having a maximum diametral dimension which is not greater than the minimum diametral dimension of said hollow space, said reduced diameter portion operating to facilitate assembly of said cage and said inner joint member to within said hollow space.

4,275,572

TORQUE LIMITING DRIVE SYSTEM

Phillip R. Holmes, 1125 S. LeRoy, Fenton, Mich. 48430; James A. Kohler, 11241 Fenske, Byron, Mich. 48418, and Ronald A. Bogusky, 12364 Erica, Hartland, Mich. 48029

Continuation-in-part of Ser. No. 833,723, Sep. 16, 1977, abandoned. This application Jan. 10, 1979, Ser. No. 2,401
Int. Cl.³ F16D 7/02; B65G 13/06
U.S. Cl. 64—30 D **2 Claims**



1. A torque limiting drive system for driving a tubular driven member by a drive shaft, said system comprising means for supporting the drive shaft in a rotative condition;

means for imparting a rotative drive to the drive shaft;

said drive shaft having a portion of circular cross-sectional configuration contained within said tubular driven member;

said tubular driven member having a relatively smooth inner surface;

a spherical drive element mounted intermediate the inner surface of the tubular driven member and said portion of said drive shaft;

said spherical drive element having a diametrical dimension greater than the distance between one of the opposed surfaces of the circular portion of the drive shaft and the opposed inner surface of the tubular member; and

means comprising a plurality of grooves extending about the periphery of said shaft and orthogonal to its axis for retain-

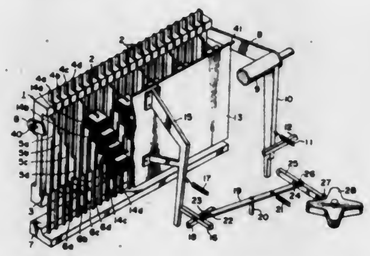
ing said drive element in a relatively stable orbiting path, said grooves of a magnitude many times smaller than the diameter of said drive element; said grooves extending along substantially the entire length of said shaft.

4,275,573

AUTOMATIC NEEDLE SELECTION MECHANISM FOR A KNITTING MACHINE

Takeji Hashimoto, Nagaokakyo; Kiyofumi Okumoto, and Masayasu Andoh, both of Kyoto, all of Japan, assignors to Dainippon Screen Seizo Kabushiki Kaisha, Kyoto, Japan

Filed Dec. 17, 1979, Ser. No. 104,269
Claims priority, application Japan, Mar. 14, 1979, 54-23638
Int. Cl.³ D04B 7/00, 15/66
U.S. Cl. 66—75.2 3 Claims



1. For a knitting machine in which a plurality of knitting needles are actuated by a plurality of knitting needle selectors which are arranged side by side in parallel as slidably engaged in a selector bed which is movable to and fro in the longitudinal direction of said needle selectors to actuate said needles, each of said selectors being movable in its lateral direction between a first position in which it is engaged to said movement of said selector bed, and a second position in which it is disengaged from said movement of said selector bed:

an automatic needle selection mechanism, comprising one electromagnet for each of said selectors, and a movable mounting plate, on which said electromagnets are mounted, arranged facing said selector bed and movable towards and away from said selector bed so that each of said electromagnets may be brought adjacent to its corresponding selector when said selector is in its first position; whereby, when all said selectors are in their first positions where they are engaged to said movement of said selector bed, and said mounting plate is first approached to said selector bed, and then said electromagnets are selectively energized, and then said mounting plate is moved away from said selector bed, only those of said selectors which correspond to those of said electromagnets which are energized are moved from their said first positions to their said second positions where they are disengaged from said selector bed, subsequent movement of said selector bed in said longitudinal direction of said needle selectors thereby actuating only selected ones of said needles, in order to form a desired knitting pattern.

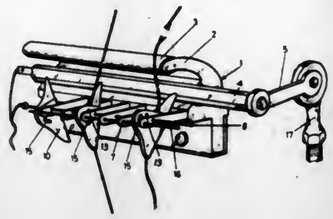
4,275,574

STOP MECHANISM FOR RACHEL OR KETTEN TYPE KNITTING MACHINE

Joaquin M. Muns, Burgos, 3, Rubi, (Barcelona), Spain

Filed Jan. 19, 1979, Ser. No. 5,035
Claims priority, application Spain, Jan. 19, 1978, 236.964
Int. Cl.³ D04B 35/14
U.S. Cl. 66—163 5 Claims

1. A stop mechanism for knitting machines of the Rachel type comprising: a reed with an upper flange fitted with a strengthening section projecting from and along a whole edge for guiding a thread; contact means fixed for thread not forming a nap and being movable and cylindrical for thread producing a nap; said reed having small plates; blade components between said small plates; said blade components being bent to form a groove for guiding the thread; said blade components having each two circular holes and one elongated hole, and



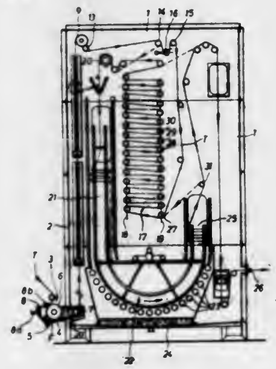
having a tendency for toppling over onto said contact means; said blade components and said small plates being connected by two spindles, said stop mechanism being mounted above lower reeds of said knitting machine.

4,275,575

DEVICE FOR WET PRE-TREATMENT OF WEB-SHAPED TEXTILE MATERIAL IN A DAMPER

Günter Schiffer, Krefeld, Fed. Rep. of Germany, assignor to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

Division of Ser. No. 859,687, Dec. 12, 1977, abandoned. This application Apr. 11, 1979, Ser. No. 29,079
Claims priority, application Fed. Rep. of Germany, Dec. 10, 1976, 2655955
Int. Cl.³ D06B 3/10, 23/18
U.S. Cl. 68—5 E 10 Claims



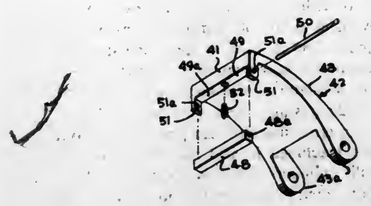
1. A device for subjecting web-shaped textile material to a wet pre-treatment, which includes in combination: a damper having means forming a wall section therewith, a container including means forming a wall therewith and having a textile treating liquor therein, a vacuum device from which the textile material passes directly into said container, said container having a portion extending into said damper in the manner of a waterlock, at least one vertical roller column including two parallel rows of rollers in said damper, means for plaiting the textile material within said damper, means for selectively feeding textile material to either said means for plaiting or the vertical roller column within the damper, and textile material withdrawing means located inside said damper for withdrawing pre-treated textile material from said container and passing said withdrawn textile material fully saturated with treating liquor into said damper.

4,275,576

COMBINATION LOCK FOR SAFE DOORS AND THE LIKE

Harry C. Miller, Nicholasville, Ky., assignor to Sargent & Greenleaf, Inc., Nicholasville, Ky.

Filed Dec. 5, 1979, Ser. No. 100,656
Int. Cl.³ E05B 15/12, 37/08
U.S. Cl. 70—303 A 10 Claims



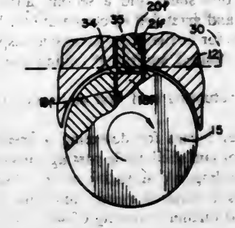
1. In a combination lock for bank vaults, safes and the like, a lock case having a tumbler post therein, a pack of tumbler wheels formed of a plurality of selectively adjustable, peripheraily gated tumbler wheels loosely journaled for rotation on said tumbler post about a common axis, a peripherally gated rotatable driving cam fixed on a spindle rotatable about said axis, a manually operable dial and knob member on said spindle for rotating the driving cam to angularly adjust the tumbler wheels to an opening combination for the lock, a bolt slidably supported in said case for movement between projected and retracted positions, means providing a lost motion driving connection between the driving cam and tumbler wheels for adjusting the angular positions of the tumbler wheels, and a fence lever having a pivot connection at one end to the bolt for arcuate movement about the axis of said pivot connection and having an opposite end portion forming a fence end adjacent the peripheries of the driving cam and tumblers, the fence lever being movable arcuately between a raised position locating the fence end outwardly of the peripheries of the driving cam and tumblers and a lower position disposing the fence end in the driving cam gate and tumbler gates when aligned therewith for operatively coupling the driving cam with the fence lever to retract the bolt upon rotation of the driving cam in a predetermined direction; the improvement comprising said fence lever having an upwardly arcuately arching body portion extending from the axis of said pivot connection to a position overlying the pack of tumbler wheels and driving cam and a fence formation extending integrally from said arcuate portion downwardly as a foot formation projecting from the arcuate portion a distance substantially corresponding to the radial depth of the tumbler wheel gates and driving cam gate, and said foot formation having a downwardly facing recess spanning most of the lower end portion thereof and having an elongated unitary contact bar member seated therein extending parallel to said common axis and spanning across the periphery of tumbler wheels and the driving cam to normally bear against the non-gated portion of the driving cam periphery and support the fence lever in said raised position, said contact bar member having a bore extending therethrough parallel to said common axis receiving a supporting pin of slightly smaller diameter than the diameter of said bore and supported in opposite side portions of the fence formation flanking said downwardly opening recess occupied by the contact bar, said contact bar member having a pair of lateral sides and a third side facing the tumbler wheels and driving cam and having a fourth side facing upwardly and spaced slightly from a confronting surface of said recess in said fence formation.

4,275,577

LOCK DEVICE

Jerry L. Castaldo, 413 S. Fairfield, Lombard, Ill. 60148

Filed Mar. 24, 1980, Ser. No. 132,850
Int. Cl.³ E05B 35/08, 9/04
U.S. Cl. 70—337 4 Claims



1. A locking device selectively operable with either a master key or a subordinate key including:

a core plug adapted to be rotatably disposed within a housing including an axially extending barrel section having a generally circular cross section;

a raised annular flange section disposed at one end of said barrel section;

a plurality of radially outwardly extending coplanar chambers defined in said barrel section;

a centrally disposed axially extending keyway defined in said core plug, said chambers intersecting said keyway;

a plurality of pins, each slidably disposed within a chamber, each of said pins adapted to contact a bitting defined in a key to be inserted in said keyway;

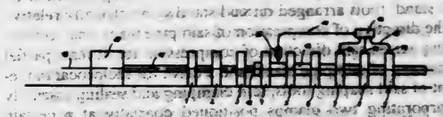
an axially extending step groove defined in an outer periphery of said barrel section parallel to said keyway and intersecting said chambers whereby when a master key is inserted in said keyway, said pins will be urged to the outer periphery of said barrel member so as to allow rotation of said plug with respect to said cylinder in either clockwise or counterclockwise directions, but when said subordinate key is inserted in said keyway, at least one of said pins will be urged only to the outer periphery of said step groove so as to permit rotation of said plug only in one direction.

4,275,578

APPARATUS FOR MANUFACTURING TUBES BY CONTINUOUS HOT ROLLING

Heinrich Steinbrecher, Meerbusch; Johannes Koch, Krefeld, and Manfred Peglau, Duisburg, all of Fed. Rep. of Germany, assignors to Woen United, Inc., Pittsburgh, Pa.

Filed May 7, 1979, Ser. No. 36,920
Claims priority, application Fed. Rep. of Germany, May 10, 1978, 2820865
Int. Cl.³ B21B 37/00, 17/04
U.S. Cl. 72—14 11 Claims



1. A continuous hot tube rolling mill having several stands arranged in tandem and wherein a mandrel is insertable in a shell having a leading end a trailing end and wherein said mandrel and said shell are pushed between a plurality of rolls in said stands, said rolls of each stand forming a rolling gap in which said shell is rolled, the mill further comprising:

a housing for each stand,

a chock assembly for rotatably supporting each said roll in said housing,

means for adjusting the setting of each roll for at least one stand, including displaceable means constructed and arranged to be in contact with each said chock assembly, and having a first adjusting means for displacing said displaceable means to obtain a desired initial rolling area for said one stand and a second adjusting means constructed and arranged to cooperate with said first adjusting means for further displacing said displaceable means to obtain a desired additional rolling area for at least one stand,

means for actuating said first and second adjusting means, and

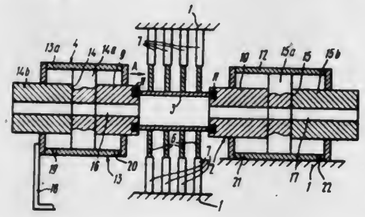
a transmitter means for detecting a predetermined rolling position of said shell while passing through said stands and for controlling said actuating means of said second adjusting means to adjust in unison said rolls of said one stand to effect said further adjusting of said roll setting.

4,275,579

APPARATUS FOR MANUFACTURE OF CORRUGATED PIPES

Vladimir A. Anoshko, ulitsa Shosseinaya, 58, korpus 1, kv. 84; Eduard M. Godin, ulitsa Begovaya, 22, korpus 3, kv. 212; Anatoly N. Gavrilov, Kutuzovsky prospekt, 43, kv. 118, all of Moscow; Garik E. Zverkov, ulitsa Oktyabrskoi revoljutsii, 24, kv. 40, Smolensk; Vladimir I. Matskevich, Moskovsky prospekt, 66, kv. 45, Tolyatti; Valentin M. Chepurin, ulitsa Starodemidovskaya, 8-b, kv. 28; Valentin P. Semenov, prospekt Stroitelei, 8, kv. 180, both of Smolensk; Vladimir V. Grachev, ulitsa Bobruiskaya, 22, kv. 82, Moscow, and Mikhail Y. Butylin, 2 Krasninsky pereulok, 8, kv. 39, Smolensk, all of U.S.S.R.

Filed Nov. 19, 1979, Ser. No. 95,672
Int. Cl.³ B21D *15/06*
U.S. Cl. 72—59 11 Claims



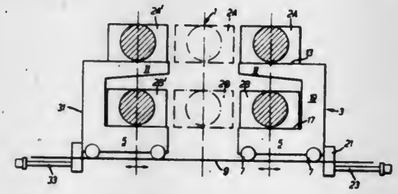
1. An apparatus for manufacture of corrugated pipes, comprising: a stand; a pipe blank clamping and sealing assembly mounted upon said stand; a hydraulic drive of said clamping and sealing assembly, mounted upon said stand; a pipe blank axial compression device mounted upon said stand; a shaping fluid source; an electric power source; a device for feeding compressed shaping fluid from said shaping fluid source to the internal space of a pipe blank, said device being mounted on said stand, tools arranged on said stand symmetrically relative to the direction of compression of said pipe blank and reciprocating across said direction of compression for at least partial embracing of said pipe blank; and a drive for reciprocal movement of said shaping tools; said clamping and sealing assembly incorporating two clamps positioned coaxially at a certain distance from each other for locating said pipe blank between them; said hydraulic drive of said clamping and sealing assembly comprising: a source of compressed gas, hydraulic cylinders wherein a movable link of each said hydraulic cylinder is provided with a through passage, said movable link in each said hydraulic cylinder being mechanically coupled with respective one of two clamps for clamping and sealing said pipe blank, and the other movable link in one said hydraulic cylinder serving for axial compression of said pipe blank; a double-acting pneumohydraulic booster the hydraulic chambers whereof communicate with the respective chambers of said hydraulic cylinders through a hydraulic distribution gear and the pneumatic chambers whereof communicate through a pneumatic gear with said compressed gas source; said axial compression device being made in the form of at least one pneumohydraulic booster and at least one two-position pneumoelectric distribution valve connected to said electric power source, said at least one two-position pneumoelectric distribution valve having its outlet in communicating with a pneumatic chamber of at least one pneumohydraulic booster controlling the movement of said other movable link of one of said hydraulic cylinders and its inlet in communication with said compressed gas source; said shaping fluid feeding device including: a pressure regulator communicating through a hydraulic distribution and adjustment gear with said shaping fluid source and with the internal space of said pipe blank through an open-end passage machined in said movable link of the other of said hydraulic cylinders, and a two-position hydraulic distribution valve connected to said electric power source and having its inlet in communication with hydraulic chambers of said pneumohydraulic double-acting booster through the hydraulic distribution gear, and its outlet in communication with said pressure regulator.

4,275,580

SUPPORT VEHICLE FOR ROLL ASSEMBLIES

Allan Hayes, Dronfield, England, assignor to Davy-Loewy Limited, Yorkshire, England

Filed Apr. 30, 1979, Ser. No. 34,319
Claims priority, application United Kingdom, May 2, 1978, 17259/78
Int. Cl.³ B21B *31/08*
U.S. Cl. 72—239 2 Claims



1. A support vehicle for a pair of roll assemblies for a rolling mill, said mill having a roll changing side wherein said pair of roll assemblies are cantileverly positionable in front of said mill on said roll changing side thereof,

said vehicle comprising a trolley having spaced apart upper and lower support members each providing a support surface for a different one of said pair of roll assemblies,

said roll assemblies removed from or inserted into the mill in a cantilever manner one above the other in a spaced apart relation and with the longitudinal axes of the rolls parallel and substantially horizontal when arranged in a roll changing plane that passes through the axes of said roll assemblies,

the respective spaced apart relation and position of said roll assemblies and said support members being such that said upper and lower support members are positioned or positionable beneath the upper and the lower roll assembly, respectively, when said roll assemblies are in said cantilever manner in said roll changing plane in front of said mill in readiness to be removed from or supported by said support members,

means for moving the trolley relative to said rolling mill in a direction normal to the longitudinal axes of the rolls between a position at one side and remote from said roll changing plane and a position adjacent thereto,

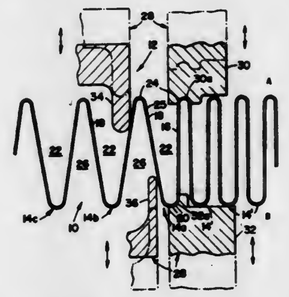
the construction and arrangement of said upper and lower support members being such as to form an opening on a side of said trolley in said direction normal to the longitudinal axes of said rolls to permit unrestricted access to said surfaces when said support members are positioned or are to be positioned beneath said different one of said pair of roll assemblies so that said upper and lower roll assemblies can be removed from or introduced onto said upper and lower support surfaces.

4,275,581

METHOD FOR INCREASING THE FIN DENSITY OF A HEAT EXCHANGER

Kenneth J. Miller, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Jan. 23, 1978, Ser. No. 918,630
Int. Cl.³ B21D *13/02*
U.S. Cl. 72—385 5 Claims



1. A method of increasing the fin density of a serpentine sheet (10) having a plurality of fins (14*a*, 14*b*, 14*c*), each fin having first (16) and second (18) diverging sides connected to each other at one rounded end (20) thereof with a first space (22) therebetween, the other end (24) of the first side (16) of a fin being connected to the other end (25) of the second side (18) of the preceding fin to form another rounded end (24, 25) and the other end (25) of the second side (18) of a fin being connected to the other end (24) of the first side (16) of the succeeding fin, and two adjacent fins having a second space (26) therebetween, the method comprising:

(a) vertically moving a first clamping member (30) onto the other rounded end (24, 25)

(b) vertically moving a second clamping member (32) onto the one rounded end (20) of one fin;

(c) vertically moving a first blade (34) into the first space (22) of an adjacent fin succeeding the one fin and into contact with an intermediate area of the first side (16) thereof;

(d) vertically moving a second blade (36) into the second space (26) between the one fin and the adjacent fin and into contact with an intermediate area of the second side (18) of the one fin;

(e) moving the first blade (34) and the second blade (36) laterally towards the first clamping member (30) and the second clamping member (32) to reduce the divergence of the first (16) and second (18) sides of a fin; and

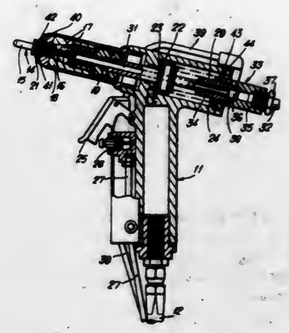
(f) vertically moving the first clamping member (30), the second clamping member (32), the first blade (34) and the second blade (36) away from the one fin after moving the first blade (34) and the second blade (36) laterally.

4,275,582

BREAKSTEM RIVETING TOOL WITH STEM DISPOSAL DEVICE

David J. Sheffield, 66 Varney Rd., Hemel Hempstead, Hertfordshire, and Martyn R. Fulton, 127 Codicote High St., Codicote, Hitchin, Hertfordshire, both of England

Filed Oct. 12, 1979, Ser. No. 84,158
Claims priority, application United Kingdom, Oct. 20, 1978, 41415/78
Int. Cl.³ B21J *15/34*
U.S. Cl. 72—391 5 Claims



1. A breakstem riveting tool comprising:

a riveting head including gripping means for gripping the stem of a rivet and for acting on it thereby to place the rivet and subsequently to break off a portion of the stem projecting from the placed rivet;

a passage leading from the gripping means through the riveting head, through which a broken-off stem portion can pass;

a disposal conduit connected to the other end of the passage remote from the gripping means for disposing of a broken-off stem portion which has passed through the passage;

and means for inducing a first stream of air along the disposal conduit in a direction away from its junction with the passage to assist in disposal of a broken-off stem portion thereby, and for inducing a second stream of air along the passage in a direction from the said other end thereof towards the gripping means.

4,275,583

BREAKSTEM RIVETING TOOL WITH STEM DISPOSAL DEVICE

Terence Gilbert, 17 River View, Welwyn Garden City, Hertfordshire, and David J. Sheffield, 66 Varney Rd., Hemel Hempstead, Hertfordshire, both of England

Filed Oct. 12, 1979, Ser. No. 84,169
Claims priority, application United Kingdom, Apr. 20, 1979, 13881/79
Int. Cl.³ B21J *15/34*
U.S. Cl. 72—391 8 Claims

1. A breakstem riveting tool comprising:

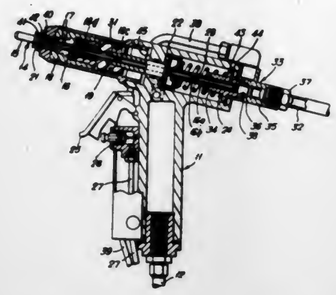
a riveting head including gripping means for gripping the stem of a rivet and for acting on it thereby to place the rivet and subsequently to break off a portion of the stem projecting from the placed rivet;

a passage leading from the gripping means through the riveting head, through which a broken-off stem portion can pass;

a disposal conduit connected to the other end of the passage remote from the gripping means for disposal of a broken-off stem portion which has passed through the passage;

means for inducing a first stream of air along the disposal conduit in a direction away from its junction with the passage to assist in disposal of a broken-off stem portion thereby, and for inducing a second stream of air along the

passage in a direction from the said other end thereof towards the gripping means;
and air control means for preventing both air streams from acting on a broken-off stem portion moving from the



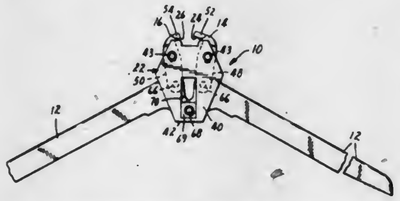
passage to the disposal conduit and subsequently for allowing the first air stream to act on the broken-off stem portion to urge it along the disposal conduit in a direction away from the junction without allowing the second air stream to act on it.

4,275,584

CRIMPING TOOL

William A. Kruschel, Oakdale, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 29, 1979, Ser. No. 70,684
Int. Cl.³ B21D 7/06
U.S. Cl. 72—410 6 Claims



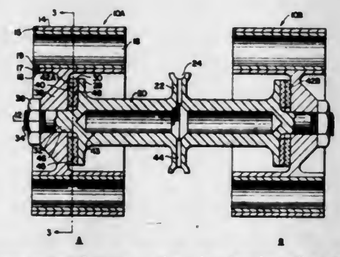
1. A tool for crimping sheet metal clasps around overlapped lengths of nonmetallic strapping material, said tool comprising:
a frame;
a platen affixed to said frame including a plurality of parallel ridges, said ridges having spaces therebetween and distal surfaces defining a generally planar support surface adapted to support a base portion of a said sheet metal clasp;
first and second jaws, each of said jaws having an elongate body portion and a projecting ledge portion at one end projecting generally perpendicular to said body portion, said second jaw having a substantially shorter projecting ledge portion than said first jaw, said ledge portions each including a plurality of parallel ridges extending generally parallel to said ledge portion, said ridges having spaces therebetween and distal surfaces defining a generally planar inner crimping surface for the ledge portions, the body portions of said jaws being pivotably mounted on said frame on opposite sides of said support surface with said projecting ledges in opposed relationship for movement between an open position with said jaws spaced from each other and said support surface to afford positioning a base portion of a sheet metal clasp on said support surface with a top portion of the clasp adjacent said first jaw and a locking lip of the clasp adjacent said second jaw, and a closed position with said ledge portions proximate to each other and more closely adjacent said support surface, such that the crimping surface of said first jaw will engage and bend the top portion of the clasp over the overlapped lengths of strapping extending through the clasp, and the crimping surface of said second jaw will engage and bend the locking lip of the clasp over the distal edge of the top portion of the clasp, said ridges on said ledge portions being aligned with said spaces on said platen and said ridges on said platen being aligned with said spaces on said ledge portions to transversely deform the clasp upon movement of said jaws to their closed position;
a pair of elongate handles,
means mounting said handles for pivotal movement relative to each other and for pivotally coupling said handles to said jaws to afford moving said jaws from their open to their closed position.

4,275,585

VIBRATOR TYPE DENSITOMETER

Colby E. Buzzell, Wilmington, Mass., assignor to General Electric Company, Wilmington, Mass.

Filed Nov. 21, 1979, Ser. No. 97,038
Int. Cl.³ G01N 9/00
U.S. Cl. 73—32 A 16 Claims



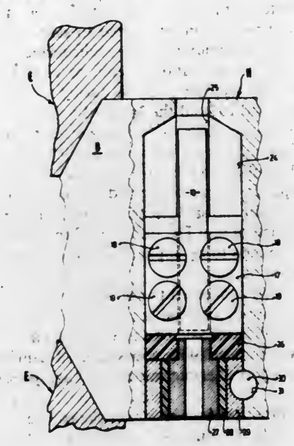
1. An instrument for measuring the density of an ambient substance having substantially isotropic properties;
said instrument comprising:
spring means positioned to permit torsional deformation thereof around an axis;
a mass assemblage having its center of gravity positioned substantially on said axis, said mass assemblage including structurally defined spaces radially spaced from said axis and open to said ambient substance; and
mechanically stiff coupling means connecting said mass assemblage to said spring means to form a torsional spring mass system including the mass of said ambient substance contained within said spaces, said system being capable of oscillatory motion around said axis at a natural resonant system torsion frequency dependent on the density of the ambient substance contained in said spaces;
the respective natural resonant torsion frequencies of said coupling means and of said mass assemblage being selected to be high with respect to said natural resonant system torsion frequency;
said coupling means including transducer means adapted to convert between electrical energy and potential energy stored as deformation around said axis, the natural resonant torsion frequency of said transducer means being selected to be high with respect to the natural resonant torsion frequency of said spring means, said transducer means being located at the torsion shear interface between said spring means and said mass assemblage substantially normal to said axis, said transducer means being positioned to take substantially the full shear load between said spring means and said mass assemblage while remaining substantially stiff relative to the spring effect of said system;
whereby said instrument is substantially immune to temperature variations affecting said transducer means.

4,275,586

OSCILLATION SENSOR, PARTICULARLY COMBUSTION ENGINE KNOCK SENSOR

Theodor Gast, Berlin, and Kurt Blasberg, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 16, 1979, Ser. No. 3,811
Claims priority, application Fed. Rep. of Germany, Jan. 18, 1978, 2801969
Int. Cl.³ G01L 23/22
U.S. Cl. 73—35 17 Claims



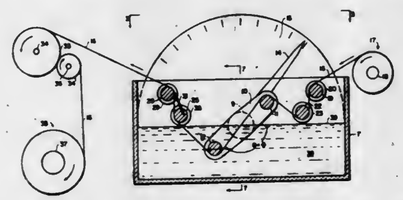
13. For combination and assembly with an internal combustion engine (E),
a sensor to generate an electrical signal upon occurrence of engine knock comprising
an adjustable clamping device (11, 16, 17, 18, 19, 21, 22, 23) shaped and arranged for rigid attachment to said engine and
a piezoelectric element (10) held by said clamping device in cantilevered configuration to permit substantially only bending oscillation thereof,
wherein said engine (E) is formed with a cylindrical receiver bore (24), said clamping device being shaped and arranged to fit into said bore and securing said sensor within the bore (24) in said engine.

4,275,587

METHOD AND APPARATUS FOR DYNAMIC WETTING ANGLE MEASUREMENT

Edgar B. Gutoff, Brookline, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Oct. 1, 1979, Ser. No. 81,089
Int. Cl.³ G01N 13/02
U.S. Cl. 73—64.4 8 Claims



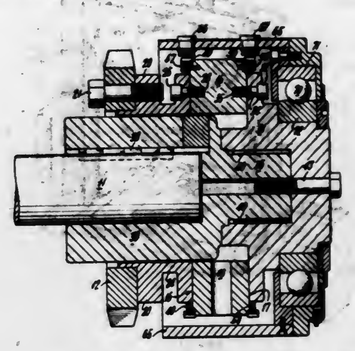
1. The method of measuring the dynamic contact angle between a liquid and a solid surface moving into the liquid, comprising the steps of moving said surface into the liquid at a constant speed, adjusting the angle at which said surface enters the liquid by rotation of said surface about a fixed axis until the dynamic contact angle is equal to the angle between said surface and the quiescent surface of the liquid remote from the meniscus, and detecting said adjusted angle.

4,275,588

HEAVY DUTY DYNAMIC HIGH-TORQUE-MEASUREMENT COUPLING UNIT

Herbert A. Rundell, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Dec. 31, 1979, Ser. No. 108,869
Int. Cl.³ G01L 3/14
U.S. Cl. 73—862.32 7 Claims



1. Heavy-duty dynamic high-torque-measurement coupling unit for interconnecting a torque-load-transmitting shaft with a lateral drive, comprising in combination
an annular torque transmitting element having a pair of opposed faces spaced axially apart,
gear means rigidly attached to one of said faces for coupling said lateral drive,
means for rigidly attaching said shaft to the other of said faces, and
means for dynamically measuring the amount of relative angular displacement between said faces,
said element having radial openings between said faces to permit said relative angular displacement under torque load.

4,275,589

METHOD AND APPARATUS FOR NON-DESTRUCTIVE INSPECTION OF TIRES

Doyle L. Dugger, Muscatine, Iowa, and Morris D. Ho, Walnut Creek, Calif., assignors to Bandag Incorporated, Muscatine, Iowa

Filed Apr. 19, 1979, Ser. No. 31,963
Int. Cl.³ G01N 29/04
U.S. Cl. 73—146 46 Claims

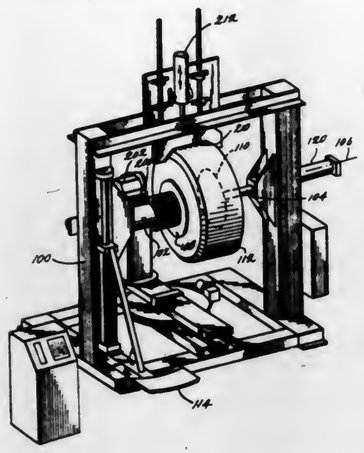
1. A nondestructive tire testing apparatus for ultrasonically inspecting the wall or casing of a rubber tire, said apparatus comprising:
tire mounting means for rotatably mounting said tire,
an ultrasonic acoustic transmitter for transmitting ultrasonic acoustic signals,
an ultrasonic acoustic receiver for receiving said ultrasonic acoustic signals and for transducing them into corresponding ultrasonic electrical signals,
moveable transducer mounting means mounting at least one of said transmitter and receiver for relative movement away from each other and from the tire wall during tire mounting operations and for opposite movements thereafter so as to operatively space the receiver from said transmitter on opposite sides of a single tire wall to receive ultrasonic acoustic signals from said transmitter after

passage through predetermined areas or tire testing sites of said tire wall,

electrical pulsing circuits connected to repetitively electrically activate said ultrasonic acoustic transmitter and to cause the generation of corresponding repetitive bursts or pulses of said ultrasonic acoustic signals,

gated receiver circuits connected to provide electrical measurement signals representing the relative strength of ultrasonic acoustic signals received by said receiver during repetitive gated time intervals which intervals are synchronized to include only the initial portions of each received burst of said ultrasonic acoustic signals, and

display means connected to receive said electrical measurement signals and to provide humanly sensible output indications representing the condition of said tire wall.

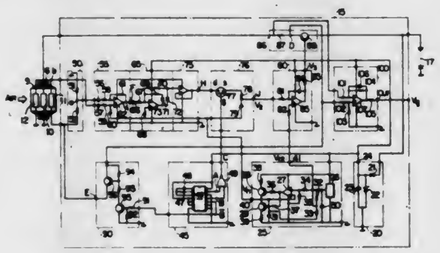


4,275,590

GAS FLOW MEASURING APPARATUS

Hisasi Kawai, Toyahashi; Tsuneyuki Egami, Aichi; Tokio Kohama, Nishio, and Hideki Obayashi, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Nishio, Japan

Filed Nov. 27, 1979, Ser. No. 97,665
Claims priority, application Japan, Dec. 27, 1978, 53/162705
Int. Cl.³ G01F 1/68
U.S. Cl. 73—204 5 Claims



1. A gas flow measuring apparatus comprising:

an electric heater provided in a flow measuring tube disposed in a duct through which a gas to be measured flows;

a first temperature dependent resistor provided in said tube to be situated on the downstream side of said electric heater;

a second temperature dependent resistor provided in said tube and connected in series with said first temperature dependent resistor, said second temperature dependent resistor being situated at a position where substantially no thermal influence of said electric heater is exerted;

first and second reference resistors connected in series with each other and combined with said first and second temperature dependent resistors to form a bridge circuit;

an oscillation circuit for oscillating pulse signals;

an AC differential amplifier connected between a junction of said first and second temperature dependent resistors and a junction of said first and second reference resistors, for AC-amplifying the voltage between said junctions;

a rectifying circuit connected to said AC differential amplifier circuit to rectify an output voltage thereof;

a sample-and-hold circuit connected to said rectifying circuit and said oscillation circuit, synchronized with a pulse signal from said oscillation circuit, to sample an output voltage of said rectifying circuit during a part of a duration thereof and to hold the sampled voltage;

a DC differential amplifier circuit connected to said sample-and-hold circuit, for differentially amplifying the output voltage thereof and a constant reference voltage;

a power amplifier circuit connected to said DC differential amplifier circuit and said electric heater, for amplifying an output voltage of said DC differential amplifier circuit to control a voltage to be applied to said electric heater by the amplified output;

a chopper circuit connected to said power amplifier circuit, said bridge circuit and said oscillation circuit, for making the output voltage of said power amplifier circuit intermittent in synchronism with the signal of said oscillation circuit to supply the intermittent voltage to said bridge circuit; and

a detecting circuit connected to said electric heater and said power amplifier circuit, for producing an output signal representative of the amount of flow of the gas to be measured.

4,275,591

PROTECTIVE SHIELD FOR CAPILLARY PIPETTE

Bruce Wand, Randolph Township, Morris County, N.J., assignor to Becton, Dickinson and Company, Paramus, N.J.

Filed Jul. 25, 1977, Ser. No. 818,617
The portion of the term of this patent subsequent to Jun. 30, 1998, has been disclaimed.
Int. Cl.³ B01L 3/02; G01N 1/14
U.S. Cl. 73—425.4 P 5 Claims



1. A protective shield for a capillary pipette extending from a pipette assembly comprising:

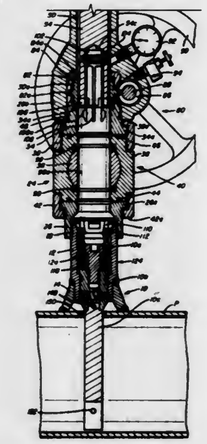
a hollow tubular, substantially rigid body closed at one end and open at the other end, said body being sufficiently long to envelop a capillary pipette extending from a pipette assembly when said open end is connected to said assembly, said body having a conical portion and a substantially cylindrical portion having a larger diameter than the widest diameter of said conical portion, said closed end being the apex of said conical portion and said open end being at the opposite end of said body and opening into said cylindrical portion, said body including a laterally extending flange surrounding said open end and a shoulder integrally connecting the conical and substantially cylindrical portions, the widest part of said shoulder on the outside surface of said body having a diameter greater than the diameter of said open end, said shoulder providing stop means for preventing over extension of the closed end when used as a puncturing device, said conical and substantially cylindrical portions of said body tapering outwardly from the closed end toward the open end in varying predetermined degrees along their lengths, said shoulder being positioned at a predetermined distance from the closed end, said tapered body and said shoulder facilitating the nesting of this shield within a lower shield of the same type whereby locking is prevented so that separation of the nested shields occurs under the force of gravity when the inner nested shield is removed from the lower shield by holder means.

4,275,592

EXTRACTOR TOOL AND HOLDER

John E. Atwood; John L. Baugh; William M. Koehler, and David K. Waterman, all of Houston, Tex., assignors to McMurry-Hughes, Inc., Huntsville, Tex.

Filed Jan. 5, 1979, Ser. No. 1,224
Int. Cl.³ G01N 17/00
U.S. Cl. 73—432 R 59 Claims



1. Apparatus for use with containers of fluid under pressure comprising:

(a) landing means generally circumscribing a passage to the interior of such a container;

(b) holder means for selective mounting on said landing means;

(c) seal means for sealing said holder means to said landing means;

(d) anchor means for anchoring said holder means to said landing means;

(e) said holder means including a drive screw, and said anchor means including threads on said drive screw and threads on said landing means whereby said drive screw may be threadedly engaged with said landing means;

(f) orientation means for automatically retaining at least a portion of said holder means in a preselected rotational orientation relative to said landing means when said holder means is sealed and anchored to said landing means;

(g) manipulating tool means for selectively maneuvering said holder means, including:

(i) placement means for selectively engaging said holder means;

(ii) first means for selectively imparting translational motion to said placement means; and

(iii) second means for selectively imparting rotational motion to said placement means.

23. A method of removing equipment from a fitting on a container of fluid, whereby said equipment communicates with the interior of said container, comprising the following steps:

(a) mounting a manipulating tool on said fitting wherein said tool includes a valve, a housing connected to said valve opposite the fitting, and a placement device extendable through said valve;

(b) connecting said placement means to said equipment;

(c) disengaging said equipment from said fitting by imparting torque to said placement means to rotate said equipment relative to said fitting;

(d) retracting said placement means, with said equipment attached, through said valve at least partially into said housing;

(e) closing said valve; and

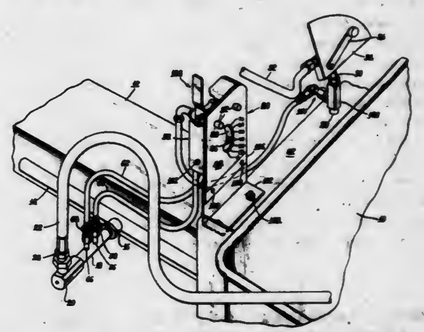
(f) disengaging said housing from said valve to expose said equipment.

4,275,593

SPECIFIC GRAVITY METER FOR AIRCRAFT DE-ICING EQUIPMENT

Walter E. Thornton-Trump, 108 Bellvue Dr., Beaver Lake, Plattsmouth, Nebr. 68048

Filed Apr. 6, 1979, Ser. No. 27,924
Int. Cl.³ G01N 9/16
U.S. Cl. 73—454 13 Claims



1. Apparatus for use in aircraft de-icing equipment of the type which has means for pumping an aqueous de-icing solution through a nozzle onto an aircraft or the like to remove ice and snow therefrom and to prevent the accumulation thereof on the aircraft, said apparatus providing a measurement of the proportion of ethylene glycol in the aqueous solution that is flowing through the nozzle, and comprising:

means connected upstream of the nozzle for communicating the solution to and from a reservoir means;

means defining a reservoir for receiving the solution, the reservoir means having a transparent face portion through which indicator means can be viewed;

pointer means pivotally mounted within said reservoir means and being adapted to reach a vertical position that varies in direct proportion to the amount of ethylene glycol that is present in the solution; and,

indicating means adjacent said pointer means for providing accurate graduated increments of the proportion of ethyl-

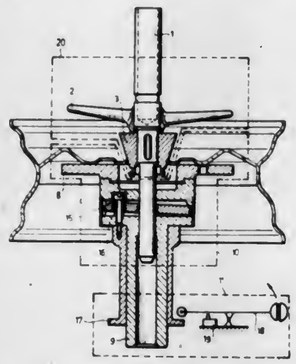
ene glycol in the solution and thereby enable an observer to view the pointer means and indicating means and obtain an accurate measurement of the proportion of ethylene glycol in the solution.

4,275,594

WORKPIECE CLAMPING DEVICE

Gábor Varga; Ferenc Szabó; Ferenc Sztanyik; László Vágvölgyi, and Jozsef Nemeth, all of Budapest, Hungary, assignors to Csepel Müvek Hiradastechnikai Gepgyara, Budapest, Hungary

Filed Apr. 24, 1979, Ser. No. 33,120
Claims priority, application Hungary, Apr. 24, 1978, OE 1162
Int. Cl.³ G01M *1/02*
U.S. Cl. 73—487 **12 Claims**



1. In a wheel balancing apparatus, a wheel clamping device for the fast, central clamping of wheels provided with holes of various numbers and pitch diameter and/or with a central hole, said device comprising a disc supporting the wheel, a support including a fixing mechanism, a releasing mechanism, and a connectable clamping unit including the wheel, the clamping unit including a threaded central mandrel, a pressure element moveable in an axial direction on the central mandrel and secured against turning with a respect thereto, at least one locating element connected with the pressure element and fitting into a hole in the wheel, and a threaded clamping element screwed on the mandrel, the fixing mechanism having a sleeve receiving the central mandrel of the clamping unit, the fixing mechanism being connected with the releasing mechanism as well as the disc supporting the wheel.

4,275,595

PROCESS AND INSTALLATION FOR PRODUCING AND RECORDING ULTRASONIC SECTIONAL IMAGES

Dieter Hassler, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jan. 23, 1979, Ser. No. 5,864
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1978, 2806176
Int. Cl.³ G01N *29/00*; H04N *3/00*
U.S. Cl. 73—606 **22 Claims**

1. A method for producing and recording ultrasonic sectional images, said method comprising:

(a) scanning an examination subject line-by-line with ultrasonic transmission signals and producing from the resulting echo signals (E_n through E_{n+4}) representing successive lines of an ultrasonic image of the examination subject, a time series of echo lines (Z_n through Z_{n+4}) occurring at a selected echo line rate,

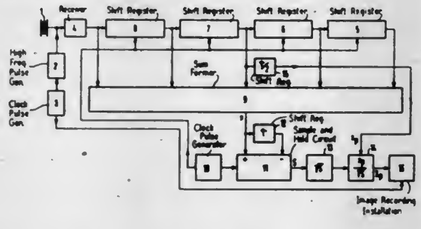
(b) writing a selected number of echo lines (Z_n through Z_{n+3}) into a corresponding number of intermediate memories (5, 6, 7, 8) of a first memory unit such that echo signal information is available for obtaining a mean value (S) of echo intensity of a pertinent field (U) in the vicinity of a given point (P) of the ultrasonic image,

(c) reading out from the intermediate memories (5, 6, 7, 8) samples ($X_{i,n}$) from the respective stored echo lines (Z_n through Z_{n+3}),

(d) forming from echo signal information comprising the intensities of the samples ($x_{i,n}$) as read out over a given time interval (τ), representing a desired depth for the pertinent field (U) in the vicinity of the given point (P) of the ultrasonic image, a mean value signal (S) representing the mean value of the pertinent field (U) in the vicinity of the given point (P) of the ultrasonic image,

(e) supplying a point-representative echo signal (xp) in accordance with the echo intensity for the given point (P) of the ultrasonic image, and

(f) forming a relationship signal (e.g. $x_p/\sqrt{S}$) in accordance with a predetermined relationship of the point-representative echo signal (xp) to the mean value signal (S) for the given point, and recording a signal in accordance with such relationship signal to represent the given point (P) of the ultrasonic image,



(g) the forming of the mean value signal (S) for the pertinent field (U) in the vicinity of the point (P) according to step (d) being effected by:

(g1) supplying from the echo signal information successive samples ($x_{i,n}$) to a summing means (9) so as to form successive sum signals representing the sums of the intensities of points of the successive echo lines (Z_n through Z_{n+4}) defining the pertinent field (U) in the vicinity of the given point (P), and

(g2) supplying the successive sum signals from the summing means (9) to a second memory unit (11), and to a third memory unit (12) having a time delay corresponding to said given time interval (τ) to provide as its output successive delayed sum signals, and in the second memory unit (11) summing the successive sum signals supplied thereto, and supplying as the mean value signal (S) for the given point (P) a signal which is a function of the difference between the summation of the sum signals supplied to the second memory unit (11) during said given time interval (τ) and the output from the third memory unit (12).

4,275,596

OPTICAL BICHROMATIC POSITION FINDER

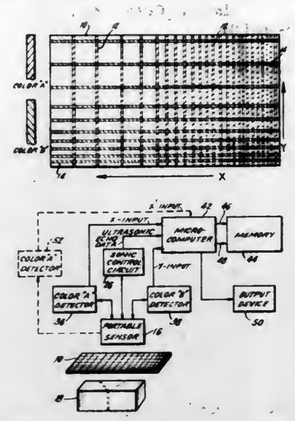
Michael Horn, Sound Beach, N.Y., assignor to Optsonic Research Associates, Inc., New York, N.Y.

Filed Dec. 10, 1979, Ser. No. 102,241
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—607 **10 Claims**

1. A position determining device, comprising:

screen means having a surface, said surface being colored with a first color, the intensity of said first color on said surface varying according to a first selected mathematical relation along a first direction on said surface, and said surface being further colored with a second color, the intensity of said second color on said surface varying according to a second selected mathematical relation along a second direction on said surface oblique to said first direction;

a portable sensor which may be moved across said screen means; and



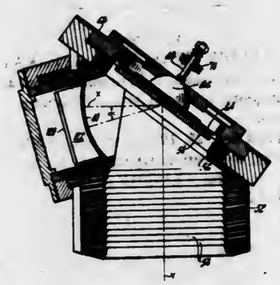
detector means attached to said portable sensor for measuring the respective intensities of said first and second colors at a location on said surface corresponding to the instantaneous position of said sensor with respect to said screen means.

4,275,597

ULTRASONIC BEAM SCANNING TECHNIQUE AND APPARATUS

Phillipp J. Quodens, Berlin; Ronald A. Haveri, Andover, and Milton Stoller, West Hartford, all of Conn., assignors to SmithKline Instruments, Inc., South Windsor, Conn.

Filed Jul. 11, 1977, Ser. No. 814,476
Int. Cl.³ G01N *29/00*
U.S. Cl. 73—618 **25 Claims**



1. Apparatus for generating a scanning energy beam for non-destructive and non-invasive testing comprising:

transducer means, said transducer means being responsive to electrical drive signals for generating ultrasonic energy, the thus generated ultrasonic energy being radiated in the form of a beam having an axis;

reflector means positioned in the path of the beam of ultrasonic energy radiated from said transducer means whereby said energy will impinge upon a first surface of said reflector means thereby changing the direction of travel of the ultrasonic energy, an axis through the center of said reflector means intersecting the axis of said beam of ultrasonic energy;

drive shaft means engaging a second side of said reflector means disposed oppositely to said first surface thereof;

arm means, said arm means being coupled at a first end to said drive shaft means and being variable in length;

means pivotally supporting said arm means adjacent the second end thereof, said supporting means permitting longitudinal movement of at least a portion of said arm means to vary the effective length thereof;

first motor means;

first cam means connected to said arm means and driven by said first motor means, said first cam means imparting a pivoting motion to said arm means;

second motor means; and

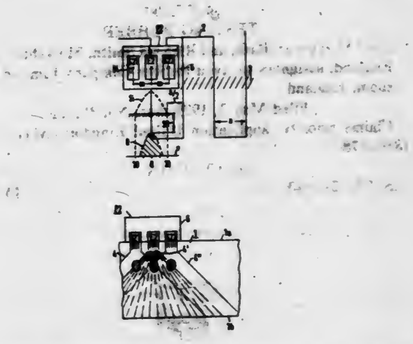
second cam means driven by said second motor means, said second cam means cooperating with said arm means to vary the longitudinal position of the first end thereof whereby said drive shaft means will move in a first direction in response to motion of said first cam means and will move in a second direction generally transverse to said first direction in response to movements of said second cam means.

4,275,598

ULTRASONIC TESTING DEVICE

Günter Engl, Erlangen-Büchenbach, Fed. Rep. of Germany, assignor to Kraftwerk Union Aktiengesellschaft, Mülheim, Fed. Rep. of Germany

Continuation of Ser. No. 923,382, Jul. 10, 1978, abandoned. This application Feb. 4, 1980, Ser. No. 117,862
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1977, 2732090
Int. Cl.³ G01N *29/04*
U.S. Cl. 73—622 **7 Claims**

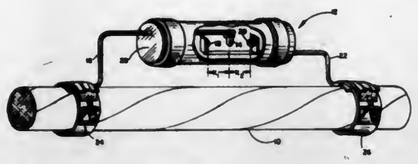


1. Device for volumetric testing of pressure-vessel walls and pipes with a combined transmit-receive test head for scanning a sinuous test track having a given test-track spacing, comprising an oscillator unit including an oscillating crystal and a receive oscillating crystal having respective centers spaced apart a distance smaller than that of the test-track spacing so that the test head has a full width within which at least one additional oscillating crystal is accommodated, said additional oscillating crystal being paired with one of said transmit and receive oscillating crystals so as to form therewith another oscillating unit including a transmit oscillating crystal and a receive oscillating crystal having centers spaced apart a distance smaller than that of the test-track spacing, the distance between the crystals of both of said oscillator units being substantially equal, said additional oscillating crystal being a transmit crystal when said one crystal with which it is paired is a receive oscillating crystal, and being a receive oscillating crystal when said crystal paired therewith is a transmit oscillating crystal.

4,275,599
SENSOR FOR MEASURING DYNAMIC VARIATIONS IN STRAIN

Charles W. Kohlenberger, Fullerton; Craig G. Kirkpatrick, Santa Ana; John A. Estrada, South San Gabriel, and George Q. Chang, La Habra, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 20, 1979, Ser. No. 105,690
Int. Cl.³ G01B 11/16
U.S. Cl. 73—774 5 Claims

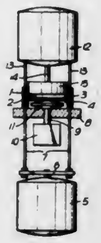


1. A strain sensor, comprising:
a first bracket having a pair of photodetectors mounted thereon, wherein said photodetectors are spaced apart from each other;
a second bracket having a light source mounted thereon;
means for fastening said first and second brackets to a deformable structure in a manner which disposes said light source intermediate said pair of photodetectors so that strain occurring in said elastic structure causes the distances between one of said photodetectors and said light source to decrease while the distance between the other of said photodetectors and said light source increases; and
a sealing container enclosing said light source and said pair of photodetectors.

4,275,600
TESTING RUBBER

Donald M. Turner, Bath, and Richard Smith, Melksham, both of England, assignors to Avon Rubber Company Limited, Melksham, England

Filed May 3, 1979, Ser. No. 35,511
Claims priority, application United Kingdom, May 9, 1978, 18546/78
Int. Cl.³ G01N 3/24
U.S. Cl. 73—843 13 Claims

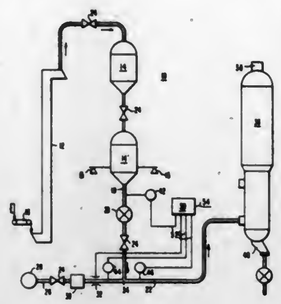


1. In apparatus for testing a material selected from the group consisting of unvulcanized natural rubber, unvulcanized synthetic rubber and elastomers having the same properties as unvulcanized rubber, said apparatus having a test chamber and a rotor in the test chamber, the improvement comprising wall means defining an ascertained fixed volume for the test chamber, at least one transfer port through a wall of the test chamber for rendering the transfer chamber in communication with the test chamber, means for exerting pressure on material in the transfer chamber, whereby a controlled pressure can be applied to and maintained on material in the test chamber through the at least one transfer port, and sensor means for recording back-rotation of the rotor.

4,275,601
SOLIDS MASS FLOW DETERMINATION

Joseph E. Macko, Hempfield Township, Westmoreland County, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 11, 1979, Ser. No. 102,500
Int. Cl.³ G01F 1/68, 1/74
U.S. Cl. 73—861.04 4 Claims

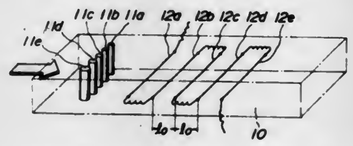


4. In a system wherein carbonaceous particulate matter is mixed with a flowing fluid to produce a flowing solids-fluid mixture, said particulate matter having a heat capacity and said fluid having a differing heat capacity, apparatus for identifying the mass flow rate of said particulate matter, comprising:
a. means for establishing a temperature differential between said particulate matter and said fluid;
b. means for determining the mass flow rate of said flowing fluid;
c. means for determining the temperature of said fluid prior to mixing with said particulate matter;
d. means for determining the temperature of said particulate matter prior to mixing with said fluid;
e. means for determining the equilibrium temperature of said flowing mixture; and
f. means for correlating the determined temperatures, fluid flow rate and known heat capacities in a heat balance to determine the mass flow rate of said particulate matter.

4,275,602
FLUID FLOW MEASURING APPARATUS

Takeshi Fujishiro, Yokosuka, and Hiroshige Ozawa, Zushi, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Sep. 25, 1979, Ser. No. 78,691
Claims priority, application Japan, Sep. 25, 1978, 53-117592
Int. Cl.³ G01F 1/32
U.S. Cl. 73—861.22 8 Claims

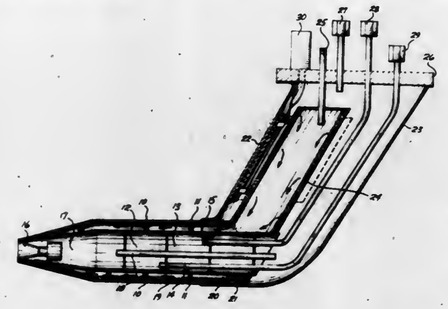


1. An apparatus for measuring flow rate of a fluid by detecting Karman vortices and comprising a conduit through which the fluid is permitted to flow, vortex shedding means disposed within the conduit and extending across the flow direction of the fluid, and at least two vortex detecting means disposed downstream of the vortex shedding means and spaced from each other by an amount corresponding to the distance between the vortices, the vortex shedding means comprising a plurality of vortex shedding members each having a different effective size, said effective size of any one vortex shedding member being the size required to produce a given distance between vortices generated by that one vortex shedding member, each distance between the vortex detecting means being selected to be within the range between the maximum and the minimum distance between the vortices shed by said members.

4,275,603
INDIRECTLY HEATED AIRCRAFT PROBES AND MASTS

Joseph Kalocsay, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Nov. 23, 1979, Ser. No. 96,857
Int. Cl.³ G01F 1/46
U.S. Cl. 73—861.68 3 Claims

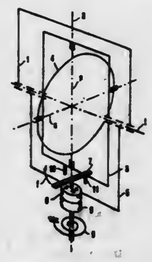


1. In a probe structure havng a pitot or combined pitot-static pressure tube and including an inner pressure chamber disposed within an outer shell for providing a heating chamber, means for providing indirect heating of said heating chamber comprising heating means outside said heating chamber and further including heat pipe means coupled between said heating chamber and said heating means.

4,275,604
DEVICE FOR THE LEVELING OF THE GYROSCOPIC AXIS OF A COMPASS WITH A MECHANICAL SUSPENSION AND AN ANTIPENDULAR-TORQUE PRECESSION SYSTEM

Piero M. Derossi, Corso Giovanni Lanza 55, Torino, Italy

Filed Dec. 28, 1978, Ser. No. 973,812
Claims priority, application Italy, Dec. 30, 1977, 69956 A/77
Int. Cl.³ G01C 19/26, 19/30, 19/38
U.S. Cl. 74—5.12 7 Claims

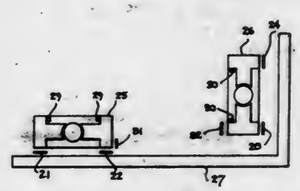


1. In a gyrocompass comprising a mechanical suspension including a support rotatable about an at least approximately vertical compass axis and a tilt ring pivoted on said support for rotation about an at least approximately horizontal tilt axis, a gyrosphere pivoted on said tilt ring for rotation about an orientation axis perpendicular to said tilt axis, a motor-driven gyroscopic mass mounted within said gyrosphere for rotation about a spin axis perpendicular to said orientation axis, an antipendular-torque precession system mounted on said suspension for oscillation about said spin axis, a pendular system mounted on said suspension for oscillation about said tilt axis, and releasable coupling means for interlocking said pendular system and said tilt ring to override the effect of said precession system during periods of standstill of the gyroscope,
the improvement wherein said coupling means comprises a rocking lever carried on said pendular system, actuating means for swinging said rocking lever in a substantially horizontal plane between an idle position and a working position, and coacting means on said tilt ring engageable by said rocking lever in said working position for immobilizing said tilt ring relatively to said pendular system.

4,275,605
ACCELERATION SENSITIVE GYROSCOPE STABILIZED PLATFORM

John M. Kennel, Santa Ana, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 13, 1978, Ser. No. 968,998
Int. Cl.³ G01C 19/54
U.S. Cl. 74—5.34 5 Claims



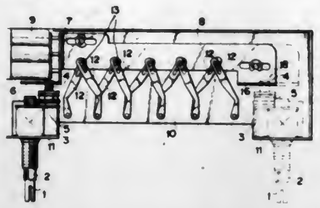
1. A method for reducing operating errors in a gyroscope comprising:
(a) introducing a preselected mass unbalance along the axis of the gyroscope so as to cause precession of the gyroscope about the direction of any apparent acceleration,
(b) measuring the precession rate of the gyroscope due to any apparent acceleration,
(c) sensing the apparent acceleration of the gyroscope by means of accelerometers mounted on a platform containing the gyroscope, and
(d) compensating for a precession of said gyroscope about any apparent acceleration by sensing the apparent acceleration and calculating and computationally compensating for the precession due to any such apparent acceleration.

4. A system for reducing operating errors in a gyroscope comprising:
(a) a platform,
(b) a gyroscope mounted on the platform with at least one degree of orientational freedom,
(c) a plurality of accelerometers mounted on the platform for sensing the apparent acceleration of the platform,
(d) means for measuring the rate of precession of the gyroscope,
(e) means for accurately measuring a rate of precession of the gyroscope due to acceleration, and
(f) means for compensating for the precession of the gyroscope about the direction of any acceleration by computing the precession of the gyroscope due to any apparent acceleration and computationally compensating for the precession.

4,275,606
PUSHBUTTON TUNER

Yasuhisa Nishikawa, and Ryoichi Hasumi, both of Toda, Japan, assignors to Clarion Co., Ltd., Tokyo, Japan

Filed Jul. 18, 1979, Ser. No. 58,665
Int. Cl.³ H03J 1/06, 5/12
U.S. Cl. 74—10.39 2 Claims

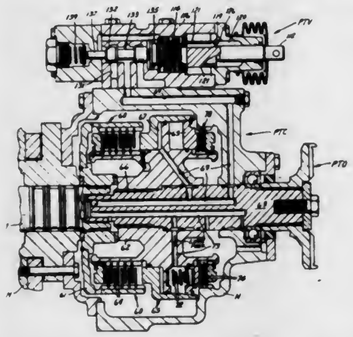


1. A pushbutton tuner comprising a plurality of tuning coils; cores adapted to be put into or drawn out from said tuning coils, respectively; a core slide for causing said cores to move relative to said coils; and fine tuning operating means; said core slide has at opposite ends thereof portions for engaging with said fine tuning operating means.

4,275,607
POWER TRANSMISSION HAVING POWER TAKE-OFF SHAFT AND FLUID CONTROL MEANS THEREFOR

Joseph B. Snoy, Rockford, Ill., assignor to Twin Disc, Incorporated, Racine, Wis.

Filed Jan. 28, 1979, Ser. No. 52,801
Int. Cl.³ F16H 37/00; F16D 67/04, 13/74
U.S. Cl. 74—15.63 6 Claims

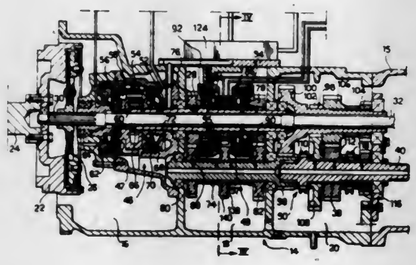


1. In a tractor power transmission having a change speed gear mechanism mounted in a non-rotatable housing and for propelling the tractor over the ground at different speeds, a power input shaft for said mechanism, said mechanism including a duplex clutch assembly mounted on said input shaft, said assembly including a pair of selectively engagable clutches each having a gear for transmitting power through said mechanism; a power take-off shaft journalled adjacent said input shaft and in coaxial alignment therewith, said power take-off shaft having means for connection to an implement or the like to be driven by said power take-off shaft; a duplex clutch for (1) selectively detachably connecting said shafts together or (2) disconnecting said shafts and locking said power take-off shaft to the transmission housing, a hub splined to said power take-off shaft for rotation therewith, said duplex clutch including a hydraulically actuated friction plate clutch connected to and between said power shaft and said hub for forming a driving connection between said shafts, said duplex clutch also having a brake between said housing and said hub, a piston axially slideable on said hub and defining an expansible fluid chamber therewith for actuating said friction plate clutch, said piston and hub also defining a second chamber, spring means in said second chamber, and a fluid passage in said hub and communicating with said second chamber for conducting lubricating fluid to said second chamber, whereby said spring means and said lubricating fluid act together to bias said brake to an engaged position for locking said hub and said power take-off shaft to said housing when said clutch is disconnected.

4,275,608
GEARBOX FOR AN AGRICULTURAL TRACTOR

Emiliano Brancolini, Sorbara, Italy, assignor to Fiat Trattori S.p.A., Modena, Italy

Filed Aug. 13, 1979, Ser. No. 66,141
Claims priority, application Italy, Nov. 28, 1978, 69717 A/78
Int. Cl.³ F16H 37/00
U.S. Cl. 74—15.63 3 Claims



1. A speed change gearbox for agricultural tractors and similar vehicles, the gearbox comprising

a casing of elongate form;

an input shaft rotatably mounted in the casing and extending longitudinally therethrough to project from opposite ends of the casing, the projecting end portions of the input shaft respectively receiving drive from an engine of the vehicle and constituting a power take-off;

an output shaft rotatably mounted in the casing parallel to the input shaft and projecting from the casing at the end corresponding to the power take-off;

reduction means housed in said casing and selectively operable to provide one of a plurality of reduction ratios between said input shaft and an output drive shaft of the reduction means, said reduction means comprising first and second mechanical reduction stage interconnected in series with each other by a hollow transmission shaft which surrounds said input shaft, the first stage being constituted by an epicyclic gear mechanism which coaxially surrounds the input shaft and the transmission shaft and includes a sun wheel

a crown wheel fast for rotation with the input shaft

a planet carrier fast for rotation with the transmission shaft,

a hydraulically controlled friction clutch for selectively connecting said planet carrier with the input shaft, and

a hydraulically controlled friction brake for selectively locking said sun wheel with respect to the casing, the second stage comprising

driven gear wheels keyed on said drive shaft,

driving gear wheels coaxially surrounding the transmission shaft and in continuous mesh with corresponding ones of said driven gear wheels, and

hydraulically controlled friction clutches for selectively connecting each said driving gear wheel to the transmission shaft, each such clutch being disposed around said transmission shaft; and

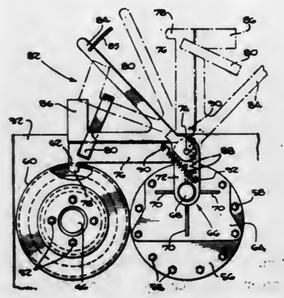
a final mechanical gear stage serving to establish a connection between the output drive shaft of the reduction means and the said output shaft of the gearbox, the final stage being selectively operable to set one of a plurality of

forward gearing ratio ranges or at least one reverse gearing range with the actual reduction ratio through the gearbox in the selected range being dependent on the selected ratio of said reduction means.

4,275,609
POSITIVE SAFETY BRAKE FOR OIL WELL PUMPING APPARATUS

Gene DeLaney, P.O. Box 283, San Ardo, Calif. 93450

Continuation-in-part of Ser. No. 61,859, Jul. 30, 1979, abandoned. This application Oct. 15, 1979, Ser. No. 84,838
Int. Cl.³ F16H 21/32, 57/10
U.S. Cl. 74—41 5 Claims



1. In oil well pumping apparatus wherein a motor drives a gear box having a rotating shaft and a crank, the shaft including a cylindrical brake drum rotating therewith having a brake shoe disposed for slidable engagement therewith to impede rotation of the shaft, the gear box also having counter-balance weights moving combination therewith and wherein the crank is connected through a Pitman arm to a walking beam, the improvement for locking the crank during inadvertent rotation as a safety measure during servicing and positioning of the apparatus comprising:

(a) first locking means carried by the shaft for rotation therewith, said first locking means comprising a rotating member carried by the brake drum concentrically disposed with the axis of the cylindrical brake drum and having at least one hole therein radially disposed from said axis;

(b) second locking means carried by the gear box and movable between a first position non-slidably engaged with said first locking means to prevent rotation of the shaft and a second position disengaged from said first locking means so that the shaft is free to rotate, said second locking means including an engaging member adapted to pass through said hole to cause said non-sliding engagement; and

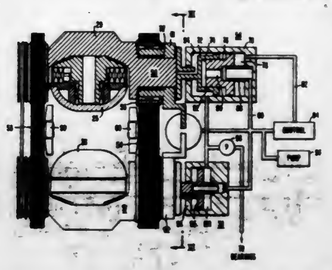
(c) a disengaging member disposed for engagement with said second locking means, said disengaging member including a handle for manually moving said disengaging member and a weighted member adapted to be moved by said handle to strike said second locking member to impart a force thereto tending to remove said engaging member from said hole.

4,275,610
INFINITELY VARIABLE TRACTION ROLLER TRANSMISSION

Charles E. Kraus, Austin, Tex., assignor to Excelermatic Inc., Austin, Tex.

Continuation of Ser. No. 10,367, Feb. 8, 1979, abandoned. This application Jan. 28, 1980, Ser. No. 116,044
Int. Cl.³ F16H 15/08, 15/26, 13/10
U.S. Cl. 74—200 10 Claims

1. In combination with an infinitely variable traction roller transmission comprising: coaxial input and output shafts; oppositely disposed toric elements, one being supported by each of said shafts for rotation therewith and arranged to face each other; at least two motion transmitting traction rollers disposed between said toric elements in radial symmetry and for engagement therewith so as to transmit motion from one to the other of the toric elements; a pivotal support structure for each of said traction rollers with pivot bearings at opposite sides of the respective traction rollers such that said pivotal support structures together with said traction rollers are pivotal about an

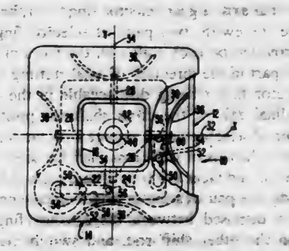


axis normal to a plane which includes the axis of the input and output shafts; the improvement wherein at least one of said pivot bearings of each pivotal support structure is independently movably supported in such a manner as to permit relative movement thereof toward and away from the axis of the input and output shafts and means are provided for forcing said pivot bearings toward the axis of said input and output shafts for firm frictional engagement of said traction rollers with said toric elements.

4,275,611
JOYSTICK CONTROLLER

James C. Asher, San Jose, Calif., assignor to Atari, Inc., Sunnyvale, Calif.

Filed Mar. 29, 1979, Ser. No. 25,122
Int. Cl.³ G05G 9/04; H01C 10/16
U.S. Cl. 74—471 XY 12 Claims



1. An X-Y controller comprising: a support; a pair of electrical components carried by the support, each component having a rotatable shaft; a plate mounted on the support for movement relative thereto in any one of a number of directions, said plate having a number of side margins; means engaging the side margins of the plate for biasing the plate into an equilibrium position relative to said support; a lever having a ball joint coupled with the plate and extending therethrough, one end of the lever being pivotally coupled to the support to permit movement of the plate relative to the support in a plane as the lever is pivoted about an axis through said one end of the lever; and crank means coupling each shaft, respectively, to the plate to permit rotation of the shaft as a function of the movement of the plate relative to said support.

4,275,612

SHIFT CONTROL FOR CHANGE SPEED GEAR TRANSMISSION FOR VEHICLE

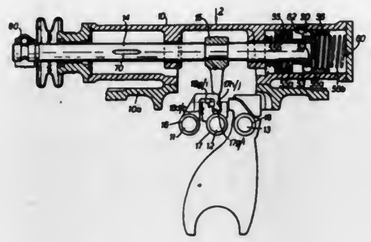
Robert C. Silvester, Fleet, England, assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 15, 1978, Ser. No. 970,052

Claims priority, application United Kingdom, Mar. 30, 1978, 12419/78

Int. Cl.³ G05G 9/12, 5/00

U.S. Cl. 74—473 R 16 Claims



1. A shift control for compound change speed gear transmissions of the range type having a main transmission section and an auxiliary transmission section connected in series, said control comprising: a casing, a first and a second generally parallel shift rods each shiftable axially in the casing to select at least one gear ratio of the main transmission, a cross shaft mounted in said casing generally transversely of said shift rods for axial sliding movement to-and-fro in the direction of its longitudinal axis and for rotational movement in both directions about its longitudinal axis, a gear selector finger on the cross shaft and movable therewith, two pairs of selector finger engagement faces provided on each shift rod, the faces of each pair being spaced apart in the direction of axial shifting of the shift rods, the selector finger being displaceable in the direction of the longitudinal axis of the cross shaft for positioning between each pair of selector finger engagement faces and being pivotable about the axis of said cross shaft for selective engagement with one of said faces at a time of said pairs of faces to shift said shift rods, one pair of selector finger engagement faces on each shift rod disposed between the selector finger engagement faces on the other shift rod, and switch means operable in response to axial sliding of the cross shaft between one of its axial positions to engage said gear selector finger with one of said pairs of selector finger engagement faces on one shift rod and another axial position to engage said selector finger with one of said pairs of selector finger engagement faces on another shift rod, for shifting the auxiliary transmission, said pairs of selector finger engagement faces formed on first and second selector blocks mounted on the first and second parallel shift rods respectively, said pairs of faces defining a slot when all the shift rods are in their neutral positions in which slot the distal end of the selector finger is accomodated, the first and second selector blocks each formed with two slots intersecting at right angles, the slots extending parallel with the longitudinal axis of the cross shaft and the longitudinal axes of the shift rods respectively.

4,275,613

DETENT MECHANISM FOR THE DIFFERENT POSITIONS OF A CHANGE-SPEED TRANSMISSION, ESPECIALLY FOR MOTOR VEHICLES

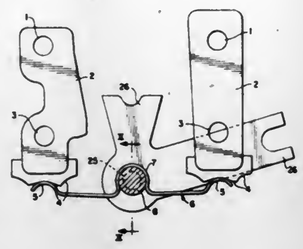
Günter Wörner, Kernen, and Peter Schrape, Stuttgart, both of Fed. Rep. of Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Apr. 17, 1979, Ser. No. 30,958

Claims priority, application Fed. Rep. of Germany, Apr. 20, 1978, 2817168

Int. Cl.³ G05G 5/06

U.S. Cl. 74—475 7 Claims



1. A detent mechanism for holding shifting means of a mechanical transmission gear system in respective different shifting positions, the shifting means including a pair of spaced shifting rocker arm means pivotable about a bearing means for shifting gear means of the transmission, and detent contour means provided on each of the rocker arm means adapted to be engaged by a resiliently flexible member, characterized in that a fixed bearing means is arranged between the pair of shifting rocker arm means, and in that the resiliently flexible member includes a flat spring means having a portion thereof resting on the fixed bearing means and having free ends thereof counterbearing on the detent contour means of the respective shifting rocker arm means.

4,275,614

APPARATUS FOR PREVENTING WRONG SHIFT OPERATION IN SPEED CHANGE GEAR FOR VEHICLE

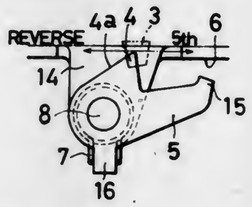
Kiyokazu Okubo, Wako, and Hiroshi Nakayama, Kamifukuoka, both of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 6, 1979, Ser. No. 100,875

Claims priority, application Japan, Dec. 12, 1978, 53/169833[U]; Dec. 12, 1978, 53/169834[U]; Dec. 12, 1978, 53/169835[U]

Int. Cl.³ G05G 5/04, 9/18

U.S. Cl. 74—476 10 Claims



1. In a shifting apparatus for a transmission of a vehicle having a shift lever operable left and right for travel to selection positions and front and rear for shifting gears, the shift lever being shiftable in one of the selection positions between a forward gear position and reverse position, projection means movable with said shift lever, a pivotal lock member positioned in the path of travel of the projection means in moving to said one selection position such that the lock member is pivoted from a neutral position to an inoperative position in which the shift lever is movable to said forward gear and reverse positions, spring means engaging said pivotal lock member for urging said lock member to said neutral position and opposing pivotal movement therefrom, said lock member including a claw which is positioned to engage said projection means when the shift lever has traveled to said forward gear position and is then moved towards said reverse gear position whereby said lock member then pivotably moves with the travel of said projection means, and stop means for limiting the pivotal movement of the lock member and preventing travel of the projection means and thereby of said shift lever to said reverse position, the improvement comprising pivot means supporting said lock member for pivotal movement about an axis extending parallel to the direction of travel of the projection means when the shift lever is moved in the selection direction, said projection means and lock member having opposed cam surfaces cooperatively engageable when the projection means contacts the lock member when the shift lever moves to said one selection position to pivot said lock member from said neutral position to said inoperative position.

4,275,615

DEVICE FOR MOUNTING LEVER ASSEMBLY ON HANDLE BAR

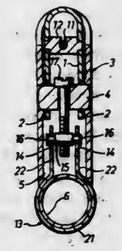
Toshiharu Yoshigai, Higashi-Osaka, Japan, assignor to Yoshigai Kikai Kinzoku Kabushiki Kaisha, Osaka, Japan

Filed Aug. 8, 1978, Ser. No. 931,886

Claims priority, application Japan, Oct. 6, 1977, 52/135367[U]

Int. Cl.³ B62K 23/06; B62L 3/02; G05G 7/00

U.S. Cl. 74—489 1 Claim



1. A device for mounting a lever assembly on a handlebar for use in bicycles or motor cycles comprising a housing pivotably supporting an operating lever, a fastening band fittable around the handlebar to mount the housing on the handlebar, and a nut having an ear provided at each of its opposite ends and engaged in an aperture formed in each of the opposite ends of the fastening band, the nut being drawable into the housing by a bolt provided within the housing and in screw-thread engagement with the nut to fasten the band to the handlebar, the ear including a cylindrical shank projecting from each end of the nut and a flange formed at the outer end of the shank, the shank being formed in its length longer than the thickness of the band, the flange being elongated to a substantially rectangular form in a direction at right angles to the internally threaded portion of the nut, the length of the short sides of the substantially rectangular flange being equal to the diameter of the shank, and the aperture of the band substantially conforms to the shape of the flange and elongated to a substantially rectangular form longitudinal of the band, thereby when the shank of the nut is turned within the aperture to bring the internally threaded portion of the nut into alignment with the bolt, the band is engageable with the inside surface of the flange.

4,275,616

HYDRAULIC WHEEL DRIVE

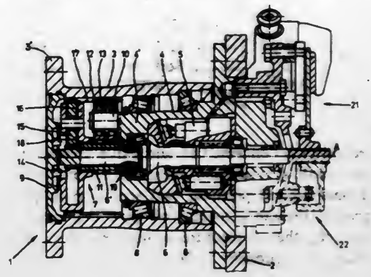
Friedrich Ehrlinger; Egon Maus; Manfred Fischer, all of Friedrichshafen, and Rudolf Jochum, Langenargen, all of Fed. Rep. of Germany, assignors to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

Filed Oct. 3, 1978, Ser. No. 948,233

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1977, 2744936

Int. Cl.³ F16H 47/00; B60K 1/00; F16H 1/28

U.S. Cl. 74—730 12 Claims



1. A wheel drive comprising:

a generally nonrotatable wheel support having a hollow projection;

a hydraulic motor mounted on said support at least partially in said projection and having an outwardly directed output shaft having an outer end;

a wheel hub supported solely and rotatable on said projection about a wheel axis, having an open outer side turned away from said motor, and formed internally with axially elongated teeth forming a ring gear centered on said axis;

an end plate extending generally perpendicular to said axis and releasably secured to said hub over said open outer side thereof, said plate forming at said axis a journal for said outer end of said output shaft;

at least one mounting pin integral with said projection and extending therefrom parallel to but offset from said axis, said pin having an inner end fixed at said projection and a free outer end;

a planet gear rotatable on said free end of said pin and meshing with said ring gear;

a sun gear rotatable about and centered on said axis and meshing with said planet gear; and

means operatively connecting said sun gear to said output shaft for driving said hub by said motor through said gears.

4,275,617

HYDRAULIC SYSTEM FOR A RATIO CHANGE TRANSMISSION

Ilmars Kalns, Northville, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Jan. 25, 1979, Ser. No. 51,575

Int. Cl.³ F16H 3/44, 47/00

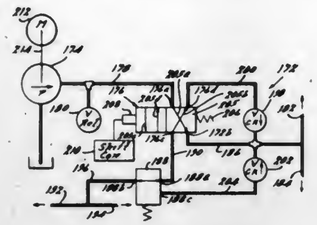
U.S. Cl. 74—730 R 11 Claims

1. In a ratio change transmission including shift means operative in response to the absence of a pressurized oil to shift the transmission to one ratio and operative in response to the presence of a pressurized oil to shift the transmission to another ratio, and improved hydraulic system for effecting said absence and presence and for lubricating and cooling said transmission, the improvement comprising:

a pump for delivering an oil flow; valve means receiving said oil flow, said valve operative in a first position to effect said absence and operative in a second position to effect said presence;

a first path connected to said valve means for directing said

oil flow to said transmission for lubricating and cooling when said valve is in said first position, said path presenting a low resistance to said oil flow, whereby said pump delivers said oil flow at a relatively low pressure; and



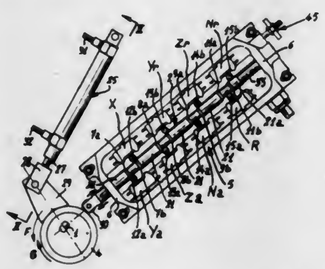
a second path connected to said valve means for directing said oil flow to said shift means when said valve means is in said second position, said second path presenting a greater resistance to said oil flow than said first path, whereby the oil pressure in said second path is greater than the oil pressure in first path.

4,275,618

CONTROL DEVICE FOR MOTOR ROAD VEHICLE AUTOMATIC CHANGE-SPEED TRANSMISSION MECHANISM

Alain Bale, Le Mans, France, assignor to C.B.M. Car et Bus Le Mans, Le Mans, France

Filed Dec. 18, 1979, Ser. No. 104,902
Claims priority, application France, Jan. 4, 1979, 79 00141
Int. Cl.³ B60K *41/06, 20/08*
U.S. Cl. 74—878 9 Claims



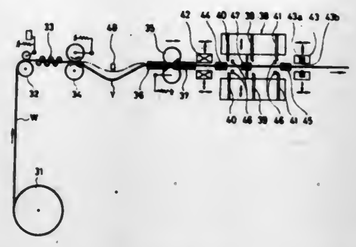
1. A motor road vehicle automatic change-speed transmission mechanism control device comprising means for pivoting a gear selector shaft in order to bring said gear selector shaft to various positions corresponding to a selected range of gear ratios, wherein said means comprise a shaft for detecting the positions assigned to said selector shaft, electro-pneumatic means for controllably moving said detector shaft to the desired position, a control keyboard adapted to be mounted on the instrument panel of the vehicle, a rotary cam rigid with said selector shaft and adapted to engage with its profile one end of said detector shaft, a radial arm rigid with said cam and operatively connected to said electro-pneumatic means, whereby when a key of said control keyboard is depressed said electro-pneumatic means are actuated so as to move said detector shaft in translation, said cam and said selector shaft for pivotal movement to a position determining the operation of the mechanism through the selected range of gear ratios.

4,275,619

ROLLER FEED TYPE INSULATED WIRE CUTTING AND INSULATION STRIPPING MACHINE

Akira Shimizu, Amagasaki, Japan, assignor to Shin Meiwa Industry Co., Ltd., Nishinomiya, Japan

Continuation-in-part of Ser. No. 886,950, Mar. 15, 1978, abandoned. This application May 17, 1979, Ser. No. 39,856
Claims priority, application Japan, Mar. 25, 1977, 52-7733632; Mar. 25, 1977, 52-7733633
Int. Cl.³ H02G *1/12*
U.S. Cl. 81—9.51 4 Claims



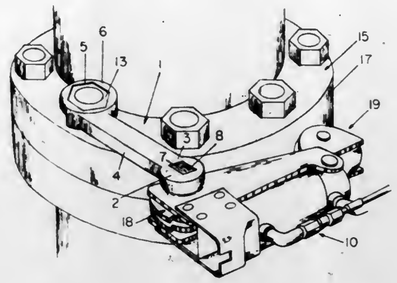
1. A roller feed type insulated wire cutting and insulation stripping apparatus, comprising a feed mechanism and a cutting and stripping mechanism, said feed mechanism serving to intermittently feed an insulated wire drawn from a wire supply source toward said cutting and stripping mechanism according to desired length-measuring conditions, said cutting and stripping mechanism serving to cut the thus fed wire and strip the insulation from the cut wire end, wherein said feed mechanism comprises the following elements: a pair of first feed rollers disposed downstream of said wire supply source and continuously driven and variable in speed, a pair of second feed rollers disposed downstream of and spaced at a predetermined distance from said pair of first feed rollers, said second feed rollers comprising length measuring means and being intermittently driven according to desired length measuring conditions, with a section being defined between said first and second feed rollers where said insulated wire is forced to slack, and slack detecting means installed for cooperation with said wire slack section for detecting a predetermined minimum or maximum amount of slack in said wire slack section to produce a signal for accelerating or decelerating said pair of first feed rollers for a fixed period of time, said cutting and stripping mechanism comprising a group of cutting blades disposed downstream of and spaced a predetermined distance from said pair of first feed rollers, said group of cutting blades comprising a pair of opposed wire cutting blades, and pairs of first and second insulation cutting and stripping blades disposed upstream and downstream of said wire cutting blades, respectively, and juxtaposed with and opposed to said wire cutting blades, the arrangement being such that the opening and closing action of said cutting blades effects the cutting of the insulated wire and of the insulation on both sides of the position at which said insulated wire has thus been cut, and first and second movable clamps separately movable in the direction of the wire, said movable clamps serving to strip the insulation on both sides of said cut position of the wire when they are moved away from each other and from said cutting blades while clamping the wire during the closing of said cutting blades group, said apparatus further comprising a wire guiding device which can be opened and closed, said wire guiding device being disposed between said pair of wire cutting blades and said first insulation cutting and stripping blades, said wire guiding device being arranged so that it changes from its closed to its opened state from the time just prior to said group of cutting blades starting its closing operation until the time it completes its closing operation and it also changes from its opened to its closed state from the time when said movable clamps start to return upon completion of said insulation stripping until the time just prior to the completing of said return movement of said movable clamps.

4,275,620

TORQUE ARM FOR USE WITH A TORQUE WRENCH

Bobby W. V. Collins, P.O. Box 15034, Baton Rouge, La. 70895

Filed May 21, 1979, Ser. No. 40,545
Int. Cl.³ B25B *13/46*
U.S. Cl. 81—57.39 3 Claims



1. A torque arm attachable to a drive axle of a torque wrench and fittable about a nut or bolt head to rotate same which comprises:

(a) an arm member having a straight center line and provided with a flat underside,

(b) a sprocket head attached at one end of the arm member and having a cavity extending throughout perpendicular to the arm member under side, and shaped to matingly receive the torque wrench drive axle, the center of the cavity being aligned with the arm member center line and the bottom of the sprocket head being in the same plane formed by the arm member underside,

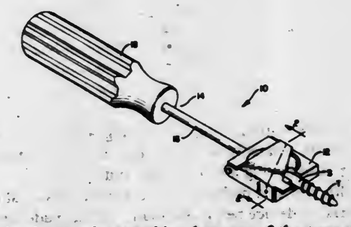
(c) a head member attached at the opposite end of the arm member and having an opening extending throughout perpendicular to the arm member under side and shaped to matingly receive the nut or bolt head, the center of the opening being offset from the arm member center line, and a portion of the bottom of the head member extending below the plane formed by the arm member under side.

4,275,621

IMPLEMENT FOR ATTACHING HANGERS

Louis J. Mallott, Sr., P.O. Box 64, Linden, Pa. 17744

Filed Oct. 5, 1979, Ser. No. 82,306
Int. Cl.³ B25B *13/28*
U.S. Cl. 81—111 11 Claims



1. An implement for attaching hangers of the type such as screw eyes, screw hooks and the like to surfaces comprising:

a body for holding the hanger having a screw end for penetration into the surface,

handle means attached to said body for rotation of said body and penetration of said screw end into said surface,

a cover pivotally secured at one end to said body to releasably secure said hanger within said body,

securing means releasably acting between said cover and said body to retain said cover in position to secure said hanger within said body,

a contact activator positioned on said implement operably connected to said securing means to release and pivot said cover away from said securing means upon said contact activator contacting said surface whereby said hanger is disengaged from said implement.

4,275,622

DUAL WHEEL VALVE STEM TOOL

Willie Ford, 3531 S. Ewing, Dallas, Tex. 75216

Filed Apr. 24, 1979, Ser. No. 32,765
Int. Cl.³ B25B *13/00*
U.S. Cl. 81—125.1 7 Claims



1. A manual tool adapted to engage a valve stem retainer nut on the inside wheel of a dual wheelset without removal of the outside wheel, which comprises:

a rigid shaft having two ends;

said shaft including an arcuate portion and a substantially straight portion lying in a common plane and joined at a predetermined angle; and

a nut-engaging member rigidly secured to each end of said shaft for engaging the valve stem retainer nut, each member having a longitudinal axis lying in said common plane and extending at a predetermined angle transverse to its corresponding shaft portion;

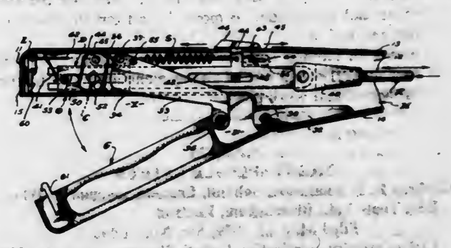
the nut-engaging member on the end of the straight portion of said shaft having a transverse plane extending therethrough which subtends the straight shaft portion with the longitudinal axis of said member being oriented substantially perpendicular to the straight shaft portion.

4,275,623

HAND TOOL

James Walter, 3110 Park Newport, Apt. 209, Newport Beach, Calif. 92660

Filed Nov. 13, 1979, Ser. No. 93,698
Int. Cl.³ B25B *13/12*
U.S. Cl. 81—126 12 Claims



1. A hand tool comprising an elongate housing having a front end portion, a central portion and a rear handle portion, a work-engaging head secured to and projecting from the front end portion of the housing and including stationary and movable work engaging parts, an elongate tension rod extending through the central portion and between the front end and rear handle portions of the housing, means drivingly coupling a movable part of the head with the front end of the rod, mean-

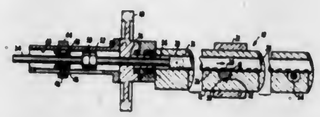
ally operable operating means to selectively move the rod longitudinally from an unactuated forward position to an actuated rear position and to cause the head to work on a piece of work engaged with and between parts thereof, said operating means includes an elongate manually engageable finger grip with front and rear ends, a first pivot pin pivotally mounting the front end of the grip with the housing at the front end of the handle portion, an elongate lever arm with a rear end and a front end, a second pivot pin pivotally connecting the front end of the lever arm with the grip on an axis spaced rearward from the axis of the first pivot pin, a third pivot pin carried by the rear end of the lever arm on an axis spaced rearward from the axis of the second pivot pin, and drive means between the rear end of the rod and the third pivot pin, said grip is manually pivotally movable about the axis of the first pivot pin from an actuated position where it is substantially parallel with and adjacent said handle portion and where said first, second and third pivot pins are in substantial alignment with each other and said third pivot pin is in a rear actuated position to an unactuated position where its rear end is spaced from the housing and the second pivot pin is moved from alignment between the first and third pivot pins and the third pivot pin is moved forward to an unactuated position.

4,275,624

INTERNAL ADJUSTABLE GROOVING BAR

John T. Murray, San Jose, Calif., assignor to United Centrifugal Pumps, San Jose, Calif.

Filed Oct. 12, 1979, Ser. No. 84,089
Int. Cl.³ B23B *41/00, 51/00*
U.S. Cl. 82—1.2 7 Claims



1. A grooving bar for machining an internal groove on a work piece comprising in combination:

a. an elongated bar adapted to be held within a cavity of a work piece and revolved therein;

b. a tool holder and tool adapted to turn with said bar, said tool holder being slideably mounted in a radial passage within said bar;

c. a draw bar movable within an eccentric passage in said elongated bar axially of said grooving bar and at right angles to said tool holder;

d. mating teeth on said draw bar and said tool holder whereby movement back and forth on said draw bar will cause said tool holder to move in and out in a positive manner, and

e. means for moving said draw bar in and out to bring said tool holder in and out of engagement with the interior surface of said work piece.

4,275,625

MULTI-SPINDLE LATHES

Geoffrey E. S. Tomlinson, Solihull, England, assignor to White-BSA Tools Ltd., Birmingham, England

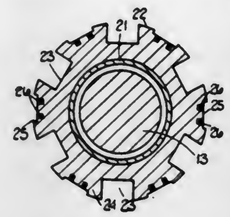
Filed May 22, 1979, Ser. No. 41,482
Claims priority, application United Kingdom, May 24, 1978, 22138/78
Int. Cl.³ B23B *21/00, 3/34, 29/00*
U.S. Cl. 82—25 11 Claims

7. A tool slide assembly comprising:

(a) a body having a circular cylindrical external surface divided into a plurality of convex part-circular cylindrical portions by grooves of substantially rectangular cross-section which open onto said external surface at spaced intervals therearound, adjacent side walls of each pair of adjacent grooves being mutually inclined;

(b) a plurality of dovetail-section rails provided on said body, each said rail being formed by a respective one of said convex part-circular cylindrical portions and said mutually inclined adjacent side walls of the respective pair of adjacent grooves; and

(c) at least one tool holder for mounting on a respective rail, said at least one tool holder including a body, a concave part-circular cylindrical locating surface on said body for



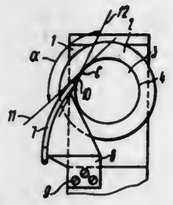
engagement with said convex part-circular cylindrical portion of said respective rail, a first side member fixed to said body and extending beyond said locating surface at one end thereof, and a second side member adjustably mounted on said body and extending beyond an opposite end of said locating surface, said first and second side members being engageable respectively with said adjacent side walls of said respective rail, adjustment of said second side member relative to said body serving to clamp said at least one tool holder to said respective rail.

4,275,626

ROTARY CUTTING TOOL

Lev A. Gik, ulitsa Elblongskaya, 13, kv. 16, Kaliningrad, U.S.S.R.

Filed Dec. 13, 1979, Ser. No. 103,367
Int. Cl.³ B23B *29/00*; B26D *1/00*
U.S. Cl. 82—36 R 2 Claims



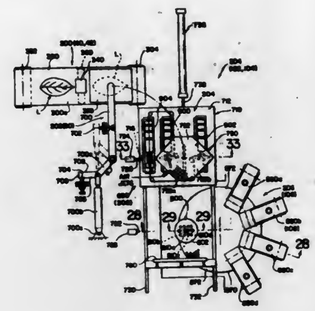
1. A rotary cutting tool, comprising a holder, a working head mounted rotatably on said holder, at least one edge of said working head having a face surface and a relief surface, and a cutting lip which is defined by intersection of said surfaces, a chip-breaking device being essentially a plate made fast on said holder in such a manner that one of its edges crosses the cutting lip of said tool edge and is located as close as possible to the face surface thereof with the provision for said working head to freely rotate, while the plate itself is inclined towards the surface of said edge at an angle which provides for chip disposal from the cutting zone.

4,275,627

APPARATUS FOR CUTTING CIGAR WRAPPERS FROM NATURAL TOBACCO LEAVES

Verner Anderson, Berwick, Pa.; David J. Logan, Glastonbury, and Kenneth O. Wood, Ellington, both of Conn., assignors to Gulf & Western Corporation, New York, N.Y.

Division of Ser. No. 902,262, May 2, 1978, Pat. No. 4,222,396.
This application Aug. 29, 1979, Ser. No. 70,867
Int. Cl.³ A24C *1/04*
U.S. Cl. 83—152 4 Claims



1. An apparatus for cutting a selected one of a plurality of cigar wrappers from a natural tobacco leaf comprising: means for supporting said leaf in a spread condition on a generally flat cutting surface; a cutting member having a plurality of cutters each with a cutting profile corresponding to one of said plurality of cigar wrappers; means for capturing a cut wrapper onto a cutter as it cuts said wrapper from said leaf; means for moving said support means in at least two orthogonal directions until a selected portion of said leaf is aligned with a particular one of said cutters; means for forcing said cutting member perpendicularly toward said flat cutting surface; and, means for shifting said particular cutter with respect to said cutting member to an extended cutting position.

4,275,628

SYRINGE AND NEEDLE DESTROYER

Hyman D. Greenhouse, Cranbury Post Office, Main St., Cranbury, N.J. 08512

Filed Oct. 31, 1979, Ser. No. 89,914
Int. Cl.³ B26D *5/10*; B23D *15/00*
U.S. Cl. 83—167 3 Claims

1. A syringe and needle destroyer comprising:

a receptacle into which a distal end portion of said syringe and said needle drop after being severed;

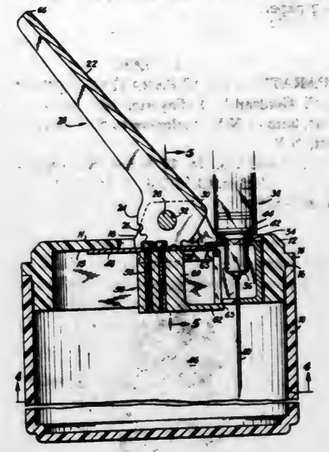
a base including a cover fitted onto said receptacle;

means positioned on said base for orienting said distal end portion of said syringe and said needle in a plain perpendicular to a plane of said base, said means for orienting including said cover and said cover having an operating opening and a shoulder portion, a middle portion of said syringe resting on said shoulder portion, and said distal end portion of said syringe and said needle passing through said operating opening and being suspended within said receptacle;

severing means movably mounted on said base on an underside of said cover and movable in a horizontal plane parallel to said plane of said base for severing both said distal end of said syringe and said needle;

a handle movably mounted on said cover of said base for rotation about an inner end of said handle; and

means for mechanically linking said handle and said severing means, such that movement of said handle in a plane perpendicular to said plane of said base causes movement of said severing means, said means for mechanically linking including at least one projection positioned on said inner end of said handle and at a right angle to an axis of said handle, extending through an opening in said cover,



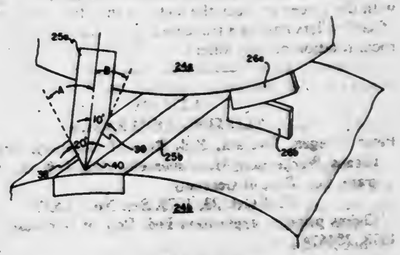
and cooperating with a respective opening in said severing means.

4,275,629

SEPARATOR-CUTTER

Jerry T. McDowell, Greenville, Tenn., assignor to Ball Corporation, Muncie, Ind.

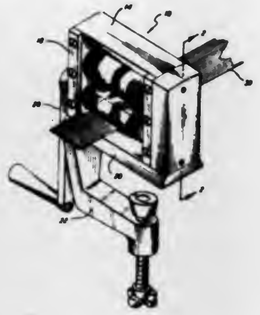
Filed Jul. 25, 1979, Ser. No. 60,531
Int. Cl.³ B23D *25/12*; B26D *1/56*
U.S. Cl. 83—302 1 Claim



1. An apparatus for cutting individual battery grids from a continuous sheet of pasted grid stock having an overlayer and underlayer of webbing material including paper comprising a first rotatably mounted cylinder having a cutting pattern including first cutter means lying transverse to the longitudinal axis of said first cylinder and cutting knives spaced from each other and from said first cutter means and lying parallel to the longitudinal axis of said first cylinder, each cutting knife having two adjacent cutting faces terminating into the cutting edge thereof, the angular slope of said cutting faces is about 20° for the leading edge and about 10° for the trailing edge thereof, and a second rotatably mounted cylinder spaced from said first cylinder and having second cutter means cooperating with said first cutter means to cut lengthwise of said sheet, said second cylinder having anvil members secured along the periphery thereof and disposed to come into substantial alignment during rotation adjacent said cutting knives and spaced therefrom to make direct contact therewith, the surface hardness of said cutting knives and said anvil members being different, said cutting knife being between about 55 to 65 Rockwell hardness on the C scale and said anvil members having between about

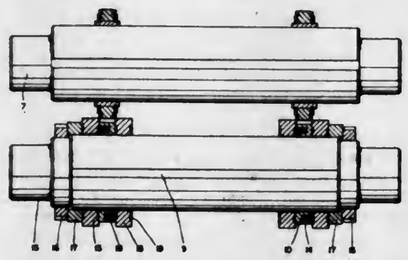
50 to 65 Rockwell hardness on the C scale, said cutting knives and anvil members cooperating together to sever the sheet including the overlayer and underlayer of webbing material including paper.

4,275,630
APPARATUS FOR SEPARATING RIBBON CABLE
Arthur C. Goldsmith, LaFayette, and James P. Kirkgasser, DeWitt, both of N.Y., assignors to K-G Devices Corporation, Dewitt, N.Y.
Filed Dec. 26, 1979, Ser. No. 106,846
Int. Cl.³ B26D *1/24, 3/12*
U.S. Cl. 83—500 4 Claims



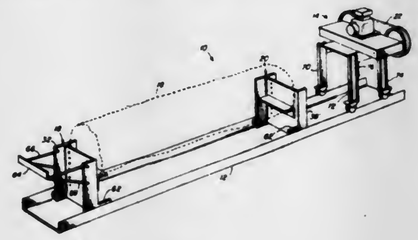
1. An apparatus for separating individual conductors of a multi-conductor ribbon type electrical cable comprising in combination first and second roller members in fixed parallel relation to each other, each having a plurality of parallel annular teeth having concave outer ends and at least one undercut sidewall, spacing between adjacent teeth being at least as great as the width of the teeth, the teeth on one roller being aligned with the spaces between the teeth on the other and at least one of said rollers having a truncated portion and means for reciprocal rotation of said rollers.

4,275,631
SLITTING APPARATUS
Peter Wingen, Overath, Fed. Rep. of Germany, assignor to Dienes Werke fuer Maschinenteile GmbH & Co. KG, Overath, Fed. Rep. of Germany
Filed Oct. 23, 1979, Ser. No. 87,697
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1978, 2846747
Int. Cl.³ B26D *1/24*
U.S. Cl. 83—501 12 Claims



1. Slitting apparatus comprising: a pair of spaced parallel shafts having cooperating knife means thereon, said knife means on one said shaft comprising a hub mounted on said one shaft for rotation therewith and for axial movement relative thereto, a pair of flat circular knife rings mounted on said hub in axially-spaced relationship to one another and being elastically yieldable axially of said shafts, said knife means on the other of said shafts including a pair of axially-spaced circular knife members mounted on said other shaft and having opposed substantially flat facing surfaces spaced-apart for close reception of said knife rings therebetween, releasable clamping means for mounting said knife members to said other shaft against axial movement relative thereto and being releasable for providing axial movement of said knife members relative to said other shaft and to one another for increasing the axial spacing between said facing surfaces of said knife members to place said knife rings therebetween, a spacer ring on said other shaft between said knife members, and springs interposed between said spacer ring and said knife members for moving said knife members axially away from one another upon release of said clamping means.

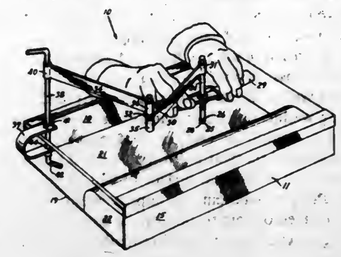
4,275,632
PORTABLE SAWMILL
Warren K. Ross, Main St., W. Hampstead, N.H. 03841
Filed Sep. 19, 1979, Ser. No. 76,905
Int. Cl.³ B27B *5/00*
U.S. Cl. 83—794 7 Claims



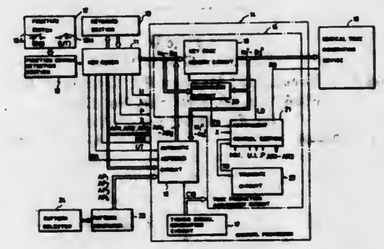
1. A portable sawmill, comprising
(a) an elongated straight rigid bed adapted to be placed on a generally level supporting surface with one end thereof elevated slightly above the opposite end thereof,
(b) a pair of height adjustable supports mountable to said bed for supporting opposite ends of a log placed thereon lengthwise of said bed,
(c) at least one of said log supports being movable lengthwise of said bed to accommodate logs of different lengths, and
(d) a carriage mountable to said bed for straight line movement along the length thereof, said carriage being mounted on rollers engaging said bed whereby when said carriage is located at the elevated end of said bed it will roll by gravity to the opposite end thereof,
(e) a power driven band saw having a horizontal cutting reach mounted to said carriage and adapted to make a longitudinal cut through a log placed on said log supports during a lengthwise pass of said carriage.

4,275,633
APPARATUS FOR PRODUCING LEADED GLASS ARTICLES
John J. Littlehorn, Jr., 4530 S. Broadway, Englewood, Colo. 80110
Filed Dec. 13, 1978, Ser. No. 969,081
Int. Cl.³ B26D *3/08*
U.S. Cl. 83—886 4 Claims

1. Apparatus for cutting sheet glass to desired shapes for producing leaded glass articles, said apparatus comprising: a horizontally traversing arm assembly comprised of two substantially identical bar components operatively connected to each other; a clamp cooperatively connected to one bar component of the arm assembly; a stylus cooperatively connected to the other bar component of the arm assembly; a replaceable cutter on the lower end of said stylus; and a wing-like handle mounted on said stylus, said wing-like handle extending laterally away from said stylus and parallel to sheet glass being cut by said cutter, whereby a user can balance the stylus with the wing-like handle so that forces on the cutter can be maximized along the axis of the stylus.



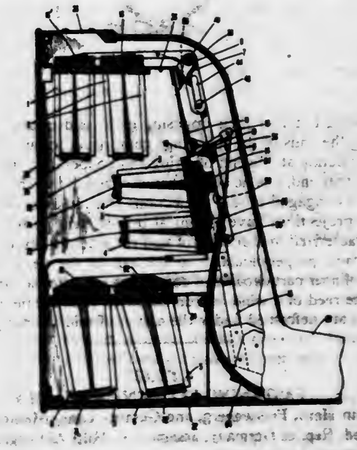
4,275,634
ELECTRONIC MUSICAL INSTRUMENT WITH AUTOMATIC ARPEGGIO FACULTY
Akio Imamura; Eiichi Yamaga, and Akira Nakada, all of Hamamatsu, Japan, assignors to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan
Filed Nov. 7, 1979, Ser. No. 92,082
Claims priority, application Japan, Nov. 10, 1978, 53-138594
Int. Cl.³ G10H *1/28, 5/00*
U.S. Cl. 84—1.03 12 Claims



1. In a polyphonic keyboard electronic musical instrument of the type in which musical tones are produced in a tone generator having a number of tone production channels considerably fewer than the number of keyboard keys, each channel producing a tone established by a key code supplied thereto, the improvement for arpeggio tone production wherein:
more than one of said tone production channels are dedicated only to the production of arpeggio tones, together with: automatic arpeggio circuit means for selectively supplying arpeggio tone designating key codes sequentially or simultaneously to respective different ones of said dedicated tone production channels at consecutive arpeggio tone production times.

4,275,635
ACCORDION WITH A NEW ORDER OF SOUNDS AND MECHANICAL REED OPENING SYSTEM
Petar Maric, 3, Djure Jaksica, Pancevo, Yugoslavia (26000)
Filed Aug. 14, 1979, Ser. No. 67,619
Int. Cl.³ G10D *11/02*
U.S. Cl. 84—376 R 3 Claims

1. A sound chamber for an accordion comprising:
a sound chamber frame,
a plurality of classical reeds attached to said frame,
a plurality of classical pallets positioned over said plurality of classical reeds to selectively open and close said plurality of classical reeds, said plurality of classical pallets being biased to a closed position,
at least one new sound order reed attached to said frame,
a new sound order pallet, positioned over said new sound order reed to selectively open and close said new sound order reed, said new sound order pallet being biased to a closed position,
a classical key lever connected to said plurality of said classical pallets to selectively move said pallets to an open position when said classical key lever is placed in the play position,
an L-shaped new order key lever pivotably connected to said frame to selectively move said new order pallet to an open position when said new order key lever is placed in



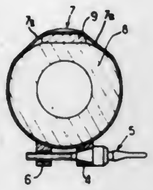
the play position, said L-shaped lever being connected to said new order sound pallet at one end and having a slot at the other end,
a pivot support connected to said frame and capable of being placed in an up or down position,
a flat transmission lever pivotably connected to said pivot support and having a first pin protruding through said slot of said L-shaped lever and having a second pin overlapping said classical key lever to contact and move with said classical key lever when said pivot support is placed in the down position and said classical key lever is moved to the play position, and
means for selectively placing said pivot support in an up or down position, whereby when said pivot support is in the down position, the movement of the classical key lever to the play position causes the pivoting of the flat transmission lever and the corresponding pivoting of said L-shaped lever to the play position.

4,275,636
TIES FOR THE MOUTHPIECE OF A WIND INSTRUMENT
Bernard M. Van Doren, Saint Germain En Laye, France, assignor to Ets Van Doren, France
Filed May 29, 1979, Ser. No. 43,510
Claims priority, application France, Oct. 3, 1978, 78 28239
Int. Cl.³ G10D *9/02*
U.S. Cl. 84—383 R 7 Claims

1. A flexible tie made from a deformable material, for the mouthpiece of a wind instrument, comprising two split ring-shaped parts, disposed respectively in a plane perpendicular to the axis of the tie and fitted with assembly means capable of

drawing together their opposing ends, said tie being characterized in that each of said rings comprises, on its internal face, perpendicularly to the axis of the tie, a projecting curvilinear, arcuate stamped part which contacts along all of its length the external convex part of the reed of a wind instrument fitted with the tie, when said rings are deformed under the action of said assembly means.

4. A flexible tie made from a deformable material, for the mouthpiece of a wind instrument, comprising two split ring-shaped parts, disposed respectively in a plane perpendicular to the axis of the tie and fitted with assembling means capable of



drawing together their opposing ends, said means for assembling the ends of the split rings comprising screws engaged in a projection at one end of a ring and cooperating with a nut at the other end, this tie being characterized in that the part of the screws engaged in said projections and the associated part of said projections have a conical profile, said tie further being characterized in that each of said rings comprises, on its internal face, perpendicularly to the axis of the tie, a projecting curvilinear part capable of contacting the external convex part of the reed of a wind instrument fitted with the tie, when said rings are deformed under the action of said assembly means.

4,275,637

FASTENING ELEMENT ASSEMBLY

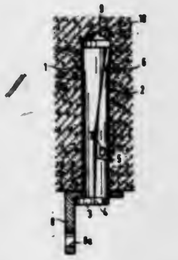
Armin Herb, Feldkirch, and Gusztav Lang, Munich, both of Fed. Rep. of Germany, assignors to Hilti Aktiengesellschaft, Schaan, Liechtenstein

Filed Jul. 2, 1979, Ser. No. 53,953

Claims priority, application Fed. Rep. of Germany, Jul. 3, 1978, 2829158

Int. Cl.³ F16B *13/04*

U.S. Cl. 411—78 11 Claims



1. An axially elongated fastening element assembly for insertion into a prepared borehole having a transverse shape generally conforming to the transverse shape of said fastening element assembly, comprising a tie bolt and an expanding wedge each elongated in the axial direction of the fastening element, said tie bolt and expanding wedge each having a first end which is inserted first into the borehole and a trailing second end, each of said tie bolt and expanding wedge having a first axially extending surface forming a part of the exterior circumferential surface of the fastening element and a second axially extending surface located interiorly of the circumferential surface of the fastening element assembly and forming the contacting surfaces of said tie bolt and expanding wedge, said tie bolt and expanding wedge each having an axially extending wedging part extending from the first end thereof toward the second end and a second part extending from the trailing end of said wedging part to the second end thereof, the transverse cross-sectional area of said wedging part of said tie bolt increases in area toward the first end of said tie bolt and the transverse cross-sectional area of said wedging part of said expanding wedge decreases in area toward the first end of said expanding wedge, said tie bolt and expanding wedge having an upspread condition where the first end of said expanding wedge is located rearwardly of the first end of the tie bolt and in contact with the second surface of said tie bolt on the wedging part thereof, wherein the improvement comprises that a flange is formed on said tie bolt on the second end thereof with said flange extending circumferentially around and radially outwardly from the first surface of said tie bolt, said flange being approximately C-shaped in a plane extending transversely of the axial direction of the fastening element assembly, said C-shaped flange having a pair of ends each extending outwardly from said tie bolt in the circumferential direction of the first surface thereof at the second end of said tie bolt, in the unspread condition the second end of said expanding wedge is spaced axially outwardly from the second end of said tie bolt, the parts of said flange extending circumferentially outwardly from said tie bolt being in surface contact with the exterior circumferential surface of said wedging part and form guides for said expanding wedge as said expanding wedge is displaced axially inwardly into the borehole relative to said tie bolt, and in the unspread condition the first surfaces of said tie bolt and expanding wedge form a continuation of one another so that the first surfaces of the parts of said tie bolt and expanding wedge disposed in contact with one another in the unspread condition are symmetrical about the axis of the fastening element assembly.

4,275,638

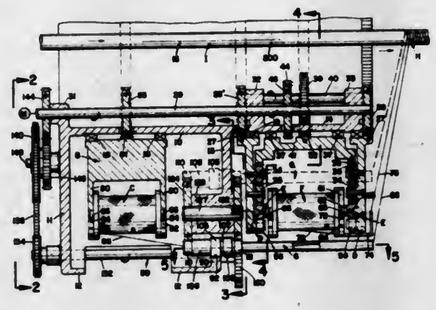
BRAIDING MACHINE

Simon A. DeYoung, 5132 Mayview Rd., Lyndhurst, Ohio 44124

Filed Mar. 10, 1980, Ser. No. 128,869

Int. Cl.³ D04C *3/42, 3/06*

U.S. Cl. 87—48 14 Claims



1. A braiding machine comprising in combination:

a. a generally cylindrical inner frame member having an axis;

b. a generally cylindrical outer frame member coaxial with at least one end of said inner frame member;

c. an end frame member supporting said outer frame member relative to said inner frame member;

d. an intermediate frame member spaced from said end frame member and extending radially outwardly from said inner frame member toward said outer frame member;

e. an outer carrier member in the space defined by said frame members and rotatable in a first direction on said axis, said outer carrier member having means for holding at least a bobbin having strands to be braided;

f. said intermediate frame member having a plurality of equally and circumferentially spaced, generally semi-cylindrical, radially outwardly facing bearing surfaces;

g. said outer frame member having an equal number of equally and circumferentially spaced, semi-cylindrical, radially inwardly facing bearing surfaces at least adjacent to the radial plane of said outwardly facing bearing surfaces and circumferentially offset therefrom by one-half the spacing therebetween;

h. the radius of curvature of said surfaces being the same with the centers of curvature being equally spaced from said axis and being dimensioned such that the ends of said semi-cylindrical surfaces overlap in a radial direction a predetermined amount;

i. an equal number of inner gears rotatably supported on said intermediate frame member, one midway between each pair of the outwardly facing bearing surfaces and on the center of curvature of each inwardly facing bearing surface;

j. an equal number of outer gears rotatably supported on said outer frame member, one midway between each pair of inwardly facing bearing surfaces and on the center of curvature of an outwardly facing bearing surface, all of said gears having a diameter such as to mesh with an adjacent gear;

k. each gear having a notch in its outer surface with the notches so circumferentially oriented that the notches of adjacent gears will mate as the gears rotate;

l. an inner carrier member rotatable on said axis in said first direction and having an equal number of circumferentially spaced, radially extending slots through its outer surface forming an equal number of toothed portions with the base of each slot being at least radially inwardly of the radially innermost portion of said outwardly facing bearing surfaces and the outer ends of said toothed portions being at least radially inwardly of the radially outermost portions of said inwardly facing bearing surfaces;

m. each toothed portion having, between its radial inner and outer ends, an arcuate bearing surface having a center of curvature on said axis;

n. a plurality of circumferentially spaced slide members rotatable in a second circumferential direction on said arcuate bearing surfaces and alternately bridging and opening said slots as the members rotate, each of said slide members having means for supporting a bobbin containing strands to be braided;

o. means for rotating said outside carrier and said inside carrier members in said first direction at the same rotational speed;

p. means for rotating said slide members in said second direction at an equal rotational speed;

q. means for rotating said gears at a third rotational speed such that the notches of the inner gears when radially inside of said circle are in generally axial alignment with respective ones of said slots;

r. an equal number of circumferentially spaced eyelet members extending from at least the side of said intermediate frame member adjacent said outer carrier member axially beyond the far end of bobbins on said inner support member, each of said eyelet members having portions adapted to fit snugly in the notches of said gears and having bearing surfaces alternately engage said inwardly facing and then said outwardly facing bearing surfaces;

s. strands from each bobbin on said outside carrier adapted to be guided through said eyelet member past said inside carrier and then radially inwardly generally to said axis;

t. means carrying strands from each of said inside bobbins axially past the end of said inside carrier such that said strands may move radially inwardly generally to said axis; and,

u. said eyelet member moving from a point radially outwardly of one inside carrier bobbin to a point radially inwardly of an adjacent inside carrier bobbin and then radially outwardly of a still further adjacent inside carrier bobbin.

8. A braiding machine comprising in combination:

a. a generally cylindrical inner frame member;

b. a generally cylindrical outer frame member coaxial with at least one end of said inner frame member;

c. an end frame member supporting said outer frame member relative to said inner frame member;

d. an intermediate frame member spaced from said end frame member and extending radially outwardly from said inner frame member towards said outer frame member;

e. an inner carrier member supported for rotation on an axis in a first circumferential direction on said inner frame member on the side of said intermediate frame member remote from end frame member, said inner carrier member having a plurality of circumferentially spaced, radially extending slots through its outer surface forming an equal number of toothed portions therebetween, each toothed portion having between its radially inner and outer ends an arcuate bearing surface having a center of curvature on said axis;

f. a plurality of circumferentially spaced slide members movable on said bearing surfaces in a second circumferential direction and alternately bridging and clearing said slots; each of said slide members having means for supporting an inner bobbin containing a strand to be braided;

g. an outer carrier member between said end and intermediate frame members and rotatable in said first direction on said axis, said outer carrier member having means for holding at least an outer bobbin having a strand to be braided;

h. a plurality of tubular members each of an axial length greater than the axial length of said inner carrier member and the bobbins thereon, each extending axially past said inner carrier member and the bobbins supported thereon, each tubular member being axially aligned with a slot; and,

i. means moving each tubular member radially inwardly and outwardly through its respective slot when a slide member clears the slot, and circumferentially under and then over adjacent bobbins and their slide members as said slide members bridge their respective slots.

4,275,639

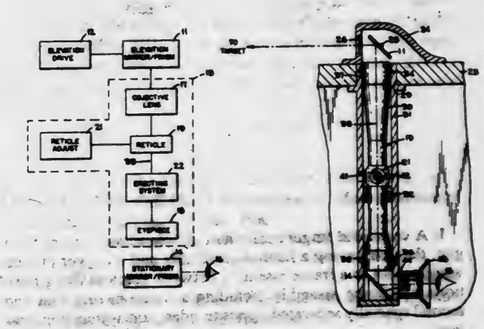
PERISCOPIC SIGHT WITH A UNITARY LENS SYSTEM

Arnold L. Gerber, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif.

Filed Oct. 23, 1978, Ser. No. 953,995

Int. Cl.³ F41G *1/40*

U.S. Cl. 89—41 E 7 Claims



1. A periscopic sight, comprising

a unitary sealed lens system having a generally vertical lens axis extending therethrough,

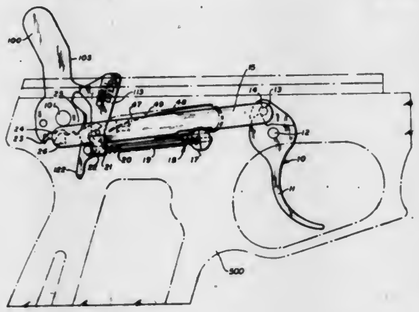
optically positive objective, erector and eyepiece lens groups aligned on said lens axis,
said lens system having a magnification power greater than one and providing maximum eye relief dimension attainable from said lens groups,
a top reflector optically exposed to objects to be sighted and aligned to intercept an upper end of said lens axis,
a top enclosure surrounding said top reflector,
a bottom reflector optically exposed to an observer position and aligned to intercept a lower end of said lens axis,
a bottom enclosure surrounding said bottom reflector,
said bottom reflector being spaced from the lower end of said sealed lens system and being positioned within said eye relief dimension,
an upper moisture impervious seal disposed between adjacent surfaces of said top enclosure and said sealed lens system,
and a lower moisture impervious seal disposed between adjacent surfaces of said bottom enclosure and said sealed lens system, whereby moisture from the surrounding environment is prevented from collecting on the external surfaces of said objective and eyepiece lens groups and said top and bottom reflectors.

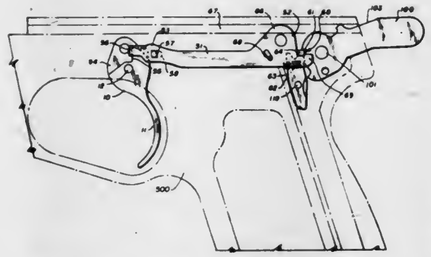
4,275,640

SEMIAUTOMATIC HAND GUN

Gary Wilhelm, Hamden, Conn., assignor to Llama Gabilondo y. Cia. S.A., Spain

Filed Oct. 20, 1978, Ser. No. 951,967
Int. Cl.³ F41C *19/14*
U.S. Cl. 89—147 **10 Claims**





1. A combined single action and double action system for a gun, the gun having a hammer assembly and a trigger pivotal with respect to a frame assembly between rest and firing positions, the frame assembly including a frame having first and second spacially separated opposite sides, said system comprising:

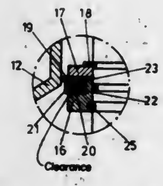
double action bar means, said double action bar means including an elongated member having first and second ends, the first end of said double action bar means elongated member being connected to the trigger to provide for movement of said double action bar means when the trigger is pivoted from the rest position toward the firing position, said double action bar means elongated member being positioned adjacent a first side of the frame;
the hammer including a first recess on the side thereof adjacent said double action bar means, said hammer first recess defining a camming surface;
the second end of said double action bar means elongated member including a camming protrusion which engages the first recess defined camming surface on the hammer, movement of the trigger being coupled to the hammer by said double action bar means to provide for pivoting of the hammer from the rest position to the firing position, said camming protrusion moving out of engagement with the camming surface after a preselected amount of movement of the trigger to allow for release of the hammer;
single action bar means, said single action bar means including an elongated member having first and second ends, a first end of said single action bar means elongated member being coupled to the trigger, the second end of said single action bar means elongated member extending to a point adjacent the hammer, said single action bar means elongated member being positioned adjacent the second side of the frame; and
sear means pivotal about an axis parallel to the axis about which the hammer pivots, and sear means being biased toward the hammer, said sear means including a hammer stop abutment;
the hammer further including a second recess for engaging the stop abutment of said sear means;
the second end of said single action bar means elongated member engaging said sear means hammer stop abutment, said single action bar means moving forward in response to the pivoting of the trigger to withdraw said abutment from the second recess in the hammer to release the hammer.

4,275,641

HYDRAULIC SERVO CYLINDER AND PISTON

Hanspeter Kopp, Spraitbach, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

Filed Dec. 11, 1978, Ser. No. 968,411
Int. Cl.³ F15B *15/22*; F16J *1/00, 9/02*
U.S. Cl. 91—400 **6 Claims**



1. In a double-acting hydraulic servo cylinder of the kind having continuously cylindrical high pressure chambers for travel of a piston under pressure force and wherein said chambers extend to an intermediate continuously cylindrical low pressure chamber of said cylinder; including a piston in each chamber disposed for travel therein and connected to a common output with each piston carrying a sealing gasket assembly movable sufficiently past the transition between respective high pressure chambers and the low pressure chamber to effect a pressure relief flow from said high pressure chambers to said low pressure chamber toward the end of a pressure stroke of said piston;

the improvement wherein:

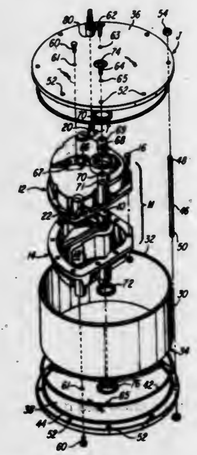
each sealing gasket assembly comprises a seal of flexible and resilient material having a collar mounted in a groove on said piston and having an integral radial flange extending therefrom to resiliently and sealingly engage said cylinder in said high pressure chambers and wherein said flange is of a diameter to preclude sealing in said low pressure chamber when moving thereinto so as to permit relief flow from said high pressure to said low pressure chamber for preventing excess pressure force being exerted on said piston; said sealing gasket assembly including support ring means on said piston encompassing said collar with predetermined radial clearance, extending beyond the piston exterior in supporting engagement with said flange and a wall of said groove, spaced from said cylinder with radial clearance, and radially displaceable to compensate for piston and cylinder misalignment.

4,275,642

AIR ACTUATED FAIL-SAFE ACTUATOR ENCAPSULATED WITHIN ACCUMULATOR TANK

Russell G. Smith, Cincinnati, Ohio, assignor to Xomox Corporation, Cincinnati, Ohio

Filed Sep. 22, 1978, Ser. No. 944,771
Int. Cl.³ F15B *15/17*; F01C *9/00*
U.S. Cl. 91—415 **8 Claims**



1. A fail-safe actuator, comprising:

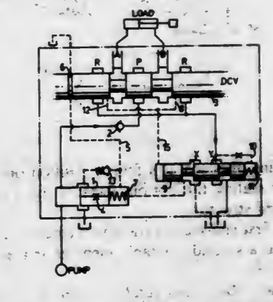
(a) encapsulating means for isolating internal actuator components from hostile environments, said encapsulating means defining an air-tight chamber with its internal surfaces;
(b) a vane housing disposed entirely within the air-tight chamber of the encapsulating means;
(c) a shaft which extends from the interior of the vane housing to a location exterior of the encapsulating means and is rotatably journaled in the vane housing, said shaft cooperatively interacting with said encapsulating means so as to prevent portions of the shaft disposed interiorly of the encapsulating means from being exposed to the environment;
(d) a vane located within the vane housing secured to and carried by the shaft for movement therewith, the shaft and the vane being rotatably movable between first and second positions;
(e) first and second ports in the vane housing, the first port communicating with a portion of the vane housing beyond the first position of the vane and the second port being in open communication between the air-tight chamber and a portion of the housing beyond the second position of the vane;
(f) first bidirectional flow means communicating with the first port in the vane housing for supplying and exhausting a pressure media to the interior of the vane housing from and to a location which is external with respect to the encapsulating means; and
(g) restricted flow means communicating between the external location and the air-tight chamber for permitting fluid flow therebetween at a rate which is substantially less than the rate of fluid flow through the first bidirectional flow means to and from the first port.

4,275,643

HYDRAULIC CONTROL SYSTEMS

James G. Knowles, Lincolnshire, England, assignor to Clayton Dewandre & Co. Ltd., Lincoln, England

Filed Aug. 24, 1979, Ser. No. 69,536
Claims priority, application United Kingdom, Aug. 25, 1978, 34700/78
Int. Cl.³ F15B *13/02*
U.S. Cl. 91—444 **5 Claims**



1. A control system for operating a double-acting hydraulic ram or motor, comprising a proportional meter-out type directional control valve having a spool and a meter-out orifice, a combined flow and pressure control valve having a spring-loaded spool and being in association with the directional control valve, a supply line, a load, a return line from the load, an unloader spool valve, a pilot line and a supply pressure line; the directional control valve constituting means to meter fluid flow from the load; the unloader spool valve being connected by the pilot line to the combined flow and pressure control valve, being connected in the supply line and being responsive to a pressure drop across a restricted orifice, thus providing means to maintain unloader pilot flow substantially constant and independent of supply flow changes; the spring loaded spool providing means to control a restriction in the unloader pilot flow and thus regulate pressure in the supply pressure line; the combined flow and pressure control valve being in the return line and responsive to a pressure drop across the meter-out orifice so that return-line flow is restricted at high pressure drops and supply pressure to the load is increased at low pressure drops, whereby a substantially constant pressure drop is effected across said meter-out orifice independent of load size or direction.

4,275,644

DUAL FLAP CARTON ERECTING MACHINE

Edward L. Moss, Orlando, Fla., assignor to Moss Machinery Manufacturers, Inc., Orlando, Fla.

Filed Apr. 25, 1979, Ser. No. 33,269
Int. Cl.³ B31B *1/62, 1/76*
U.S. Cl. 493—316 **12 Claims**

1. An apparatus for erecting folded cartons having top and bottom flaps, comprising in combination:

a carton track having a first and a second end;
carton magazine means disposed on said first end of said track;
first track movement means for moving a folded carton on

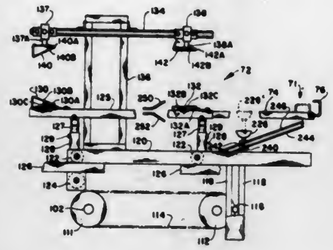
said track from said carton magazine means to a first position;

top flap folding means interposed in said first track for folding the top flaps of the carton;

second track movement means disposed adjacent said first track for moving the carton from said first position to said second end of said track;

carton erecting means disposed at a second position on said second track for erecting the folded carton;

bottom flap folding means disposed at a third position on said second track for folding the bottom flaps of the carton;



sealing means disposed at a fourth position on said second track for sealing the bottom flaps of the erected carton into a rigid structure;

one of said first and second track movement means includes a first and a second rotatable member spaced relative to one another;

flexible means about said rotatable members and having a driving portion on said flexible means for generating a reciprocal movement of said driving portion relative to said track; and

means cooperates with said driving portion for sequentially moving cartons along said track upon rotation of said rotatable members.

4,275,645

CLOSURE FOR SERVICE OPENING

Alonzo W. Ruff, York, Pa., assignor to Expertise Assistance Inc., York, Pa.

Continuation-in-part of Ser. No. 923,316, Jul. 10, 1978, abandoned. This application Nov. 21, 1979, Ser. No. 96,622
Int. Cl.³ F24F 9/00
U.S. Cl. 98—36 6 Claims

1. A power operated closure for a service opening in a wall between a warm area and, for example a frozen product storage area comprising:

at least a pair of flexible curtain members;

an equal number of separate parallel spaced spring-loaded rollers mounted below and substantially vertically aligned with the service opening;

means connecting one end of each curtain to one of said rollers respectively;

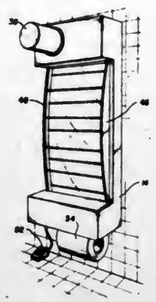
an air plenum chamber surrounding said rollers;

an elongated knife like nozzle joining the opposite end of said curtain members;

power driven means connected to said opposite end and operative when energized to unroll said curtains from said spring-loaded rollers and position them in closing relation to the service opening;

control means operable from the warm side of the opening to release said curtains from said power driven means to permit them to rewind on said rollers to open the service opening; and

means for pressurizing said plenum chamber to circulate warm-side air between said curtains, through said nozzle and over the warm side of the outermost curtain to prevent condensation, maintain spacing therebetween and establish an air curtain across the opening when the curtains are in open position and during opening and closing cycles.



4,275,646

KITCHEN UTENSIL FOR MAKING FLAVORED BEVERAGES

Stephen L. Barna, 1129 N. State Rd., Ionia, Mich. 48846

Filed Sep. 17, 1979, Ser. No. 76,487
Int. Cl.³ A47G 19/16
U.S. Cl. 99—323 13 Claims





1. A pair of hand held tongs comprising:

a U-shaped body having a pair of arms adapted for grasping, with free ends shaped to clench an object therebetween, and an arcuate, flexible base; said body having a substantially U-shaped cross section which forms an inwardly oriented channel;

a flexible leaf spring having a resilient body with first and second ends; said leaf spring being positioned in said channel at said base, whereby said channel retains said leaf spring in place and conceals the same from view; and

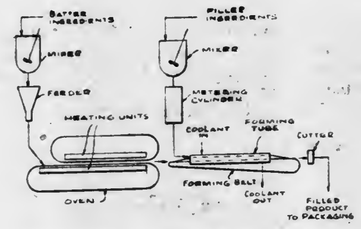
means for connecting said first and second leaf spring ends with a different one of said arm first ends.

4,275,647

APPARATUS FOR PRODUCING A CENTERFILLED FOOD PRODUCT

Lee Chambers, Groveland, and Melvin E. Ellertson, Northridge, both of Calif., assignors to Carnation Company, Los Angeles, Calif.

Continuation-in-part of Ser. No. 787,697, Apr. 14, 1977, abandoned. This application Sep. 14, 1979, Ser. No. 75,614
Int. Cl.³ A47J 37/00; A21C 3/04
U.S. Cl. 99—339 15 Claims



1. An apparatus for the continuous, straight-through production of a tubular centerfilled food product having an edible baked thermoplastic shell and a core of an edible filling material which comprises

a pair of opposed endless belts having their facing runs vertically spaced apart a distance equal to the desired thickness of the baked shell portion of said product,

means for depositing a layer of a semi-liquid batter onto one of said endless belts,

means for moving the facing runs of said belts in the same direction at the same linear speed whereby said batter layer is carried between the facing runs of the opposed belts to gauge the thickness of said batter layer,

heating means associated with said endless belts adapted to heat the endless belts whereby the batter layer carried between the facing runs of said endless belts is heated and its moisture content is reduced to provide a continuous pliable thermoplastic sheet having a set, controlled thickness,

tube forming means including a cylindrical tube adapted to receive the continuous thermoplastic sheet while in a pliable state and roll the sheet around its longitudinal axis until the edges of the sheet are butted together to form a continuous, closed cylindrical tube having a longitudinal, non-overlapping seam,

filling means extending into said cylindrical tube to a point beyond which the edges of the sheet are butted together for introducing an edible filling material into the core of said closed cylindrical tube,

cooling means adapted to cool the closed cylindrical tube and

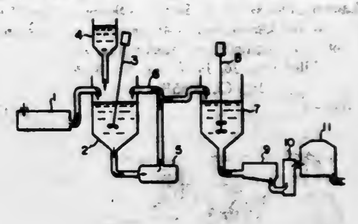
cutting means adjacent the cylindrical tube means for cutting the continuous filled tube into pieces of desired length.

4,275,648

METHOD AND APPARATUS FOR PRODUCING FRUIT JUICES

Takenori Mouri, Toyonaka; Kenji Morimoto, Kitamine; Itaru Yoshimoto, Tokyo; Hiroyki Kayama, Kobayashi; Yukio Okazawa, Yokohama, and Tsuru Sunakuni, Isumi, all of Japan, assignors to Toyo Seikan Kaisha Limited, Tokyo, Japan

Division of Ser. No. 9,736, Feb. 5, 1979. This application Jan. 22, 1980, Ser. No. 114,399
Claims priority, application Japan, Feb. 8, 1978, 53-12324; Feb. 23, 1978, 53-19102
Int. Cl.³ A23L 2/02
U.S. Cl. 99—483 1 Claim



1. An apparatus for producing a fruit juice continuously from a whole fruit including the rind, a fruit rind, a squeeze residue or a frozen product thereof as a raw material, said apparatus comprising

(a) a crusher for crushing the raw material to a size that can be passed through a mesh of 10 mm,

(b) a metering tank for preparing a starting material mixture by mixing the raw material crushed by the crusher with water or both water and a pH-adjusting organic acid,

(c) a heater for heating the starting material mixture to a temperature of 20° to 50° C.,

(d) a comminution tank for treating the heated starting mixture by a homomixer with or without the addition of an enzyme thereby to finely divide the mixture to a size that can be passed through a mesh of 3 mm,

(e) a plurality of enzyme treatment tanks equipped with a stirrer and arranged parallel to each other for performing enzymatic reaction by adding an enzyme to the finely divided starting mixture (when an enzyme is added to the aforesaid comminution tank, the addition of enzyme to said treatment tanks may be omitted) and keeping the temperature of the mixture at 30° to 50° C. with stirring,

(f) a first-stage solid-liquid separator equipped with a filter having a mesh size of 0.1 to 1.0 mm for filtering the reaction mixture that has left the enzyme treatment tanks after the enzymatic reaction thereby to remove large fragments of solids,

(g) a second-stage solid-liquid separator for treating the product from the first-stage solid-liquid separator to further remove suspended materials,

(h) a first-stage cushion tank provided between the first-stage solid-liquid separator and the second-stage solid-liquid separator for temporarily storing the liquid from the first-stage solid-liquid separator thereby to prevent no-load operation of the second-stage solid-liquid separator,

(i) a heater-cooler for heating the liquid from the second-stage solid-liquid separator at 60° to 100° C. for 20 to 40 seconds and then cooling it to a temperature of 10° to 50° C.,

(j) a second-stage cushion tank provided between the second-stage solid-liquid separator and the heater-cooler for temporarily storing the liquid from the second-stage solid-liquid separator to prevent no-load operation of the heater-cooler,

(k) a third-stage solid-liquid separator equipped with a filter having a mesh size of 0.1 to 1.0 mm for filtering the liquid from the heater-cooler to remove foreign matter,

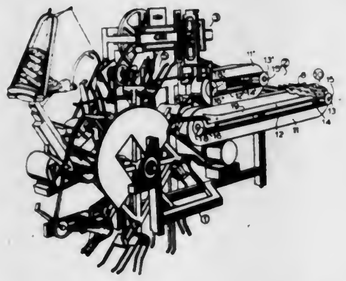
(l) a concentrator for concentrating the liquid from the third-stage solid-liquid separator by evaporation, and
(m) a third-stage cushion tank provided between the heater-cooler and the third-stage solid-liquid separator for temporarily storing the liquid from the heater-cooler to prevent no-load operation of the concentrator; provided that the second-stage solid-liquid separator (g), the first-stage cushion tank (h), and the third-stage solid-liquid separator (k) may be omitted.

4,275,649

MECHANICAL BUNCHER FOR LEAFY VEGETABLES

Donald L. Peterson, Martinsburg, W. Va.; Ajit K. Srivastava, East Lansing, and Galen K. Brown, Okemos, both of Mich., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Oct. 26, 1979, Ser. No. 88,673
Int. Cl.³ B65B *13/02*
U.S. Cl. 100—4 10 Claims



1. An apparatus for use in combination with a mechanical harvester for bunching leafy green vegetables comprising:
a. means for conveying said leafy greem vegetables to a packing station;
b. cycling packing means for separating incremental portions of said vegetables from said conveying means and for feeding said portions into one of a plurality of accumulator pockets which are mounted on a rotatable wheel, wherein said one pocket is in a position to receive said vegetables at said packing station;
c. means for sensing a predetermined quantity of vegetables in said one pocket;
d. means responsive to said sensing means for rotating said rotatable wheel to position another of said plurality of accumulator pockets to receive said vegetables at said packing station; and
e. means for binding together said predetermined quantity of vegetables.

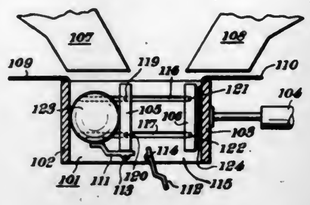
4,275,650

COMPACTING APPARATUS

Edward F. Telling, Worthing, England, assignor to Trewhella Brothers (UK) Ltd., Great Britain

Division of Ser. No. 927,531, Jul. 24, 1978, Pat. No. 4,213,384.
This application Jan. 7, 1980, Ser. No. 109,991
Claims priority, application United Kingdom, Jul. 26, 1977, 31402/77; Oct. 14, 1977, 42925/77; Feb. 3, 1978, 04530/78; Feb. 14, 1978, 05764/78; Apr. 6, 1978, 13997/78; Apr. 18, 1978, 15102/78
Int. Cl.³ B30B *15/30*
U.S. Cl. 100—45 13 Claims

1. A double-acting compacting apparatus comprising a first compacting plate; a second compacting plate attached to and spaced from said first compacting plate; a third, stationary compacting plate arranged between said first and said second compacting plates; means for mounting said first compacting plate and said second compacting plate for movement relative to said third compacting plate; drive means for providing movement of said first and said second plates relative to said third plate; means for providing a free-fall aperture such that compacted matter can automatically fall freely from the apparatus upon completion of a compaction stroke; feed means for feeding matter to be compacted alternately to respective



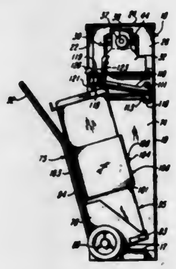
spaces formed between respective ones of said first and said second compacting plate and said third compacting plate during said movement; and means for covering each of said spaces while compaction is occurring therein and for uncovering each of said spaces for receiving said matter while compaction is occurring in the other space.

4,275,651

COMPACTOR REFUSE AND OTHER MATERIALS

Hugh F. Groth; Guilbert M. Hunt, both of Brecksville, and Ronald E. Shaner, Rossburg, all of Ohio, assignors to Lambert Corporation, Dayton, Ohio

Filed May 15, 1980, Ser. No. 151,196
Int. Cl.³ B30B *15/00*
U.S. Cl. 100—229 A 18 Claims



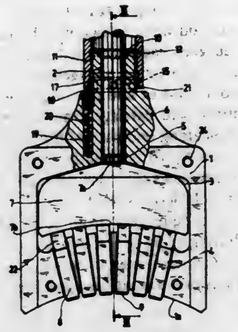
1. In a vertical compactor adapted for compressing batches of refuse or other waste material and including a frame, a generally horizontal ram member, actuator means mounted on said frame and supporting said ram member for generally vertical movement, an open top container positioned at a compacting station within said frame below said ram member and adapted to receive the material, power operated means for moving said actuator means to move said ram member between a retracted upper position and an extended lower position within said container for compressing the material within said container, and a wheel supported cart including a base member supporting the bottom wall of said container and providing for moving said container into and out of said compacting station, the improvement wherein said container comprises an open top container of molded plastics material and having an intermediate wall portion between said open top and said bottom wall, said cart including restraining means above said base member and extending in a confining position around said intermediate wall portion of said container for maintaining substantially the shape of said molded plastic container during compacting, and said restraining means being movable between said confining position and a released position to provide for conveniently removing said container laterally from said cart.

4,275,652

MARKING HEAD FOR COLD STAMPING SYMBOLS ON A METALLIC SURFACE

Ermanno Bo, Ternay, France, assignor to Societe Anonyme Dite BBM, Feyzin, France

Continuation of Ser. No. 902,096, May 1, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 112,408
Claims priority, application France, May 3, 1977, 77 14018
Int. Cl.³ B44B *5/00*
U.S. Cl. 101—4 10 Claims



1. In combination with a cartridge operated striking tool having a barrel and a piston guided in said barrel, a marking head comprising a housing having opposite ends and being formed with a cavity and a plurality of channels extending from said cavity to one of said opposite ends of said housing, said housing including a central shank projecting from the other end thereof and being provided with a central bore therethrough communicating with said cavity, the piston of said striking tool extending with a an end portion thereof through said bore; a plurality of stamps respectively located in said channels to be guided therein movable in longitudinal direction and projecting with ends thereof beyond said one end of said housing; means at the other end of said housing for connecting said other end of said barrel of said tool turnably about the axis of said barrel, said connecting means comprising an outer screw thread on said shank and screwed into a corresponding inner screw thread in said barrel; a force transmitting member located in said cavity between said piston and said stamps for transmitting a blow imparted by explosion of a cartridge to the piston onto the plurality of stamps; means for releasably holding said housing in a selected one of a plurality of fixed positions turned about the axis of said barrel; and means for braking said piston and comprising a pair of opposite transverse bores in said shank intersecting said axial bore, a pair of balls respectively located in said transverse bores, and spring clips pressing said balls against the peripheral surface of said piston.

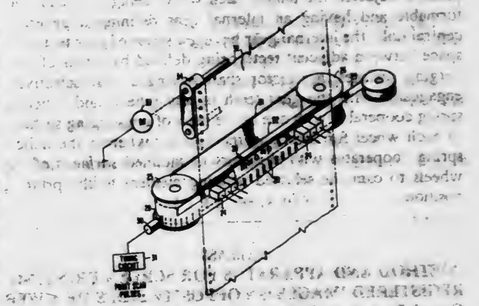
4,275,653

LINE PRINTER SYSTEM AND METHOD OF OPERATION WITH MICROPROCESSOR CONTROL

Richard D. Bolcavage, Kirkwood, N.Y.; Arthur E. Flesh, Cary, N.C., and Mitchell P. Marcus, Boca Raton, Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 28, 1980, Ser. No. 115,855
Int. Cl.³ B41J *1/20*
U.S. Cl. 101—93.14 20 Claims

1. A printer system comprising in combination
a printer mechanism including
a continuous moving type element having plural uniformly spaced characters arranged in a row,
said characters occurring at various locations and frequencies on said type element,
a plurality of uniformly spaced print units arranged in a row parallel with said row of characters and co-acting therewith to define a print line,
said print units and said characters having different pitches whereby the relative motion between type element and said print units causes sequential scan and subscan alignments of said characters and said print units;
indexing means for advancing a print medium in controllable increments relative to said print line; and
control means for selectively operating said print units for printing selected characters during motion of said type element at selected print positions of a print line including
means for supplying print data signals representative of the selected characters and print positions for a line of data to be printed at an indexable position of said print medium,
means for supplying a start scan data signal specifying the start print scan occurring at completion of print medium advance to a selected line index position,
storage means containing character occurrence data representative of the number of occurrences and specifying the type element positions of said characters on said type element,



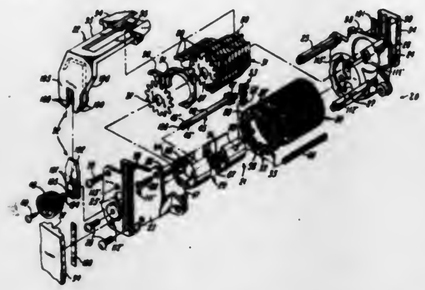
said type element positions of said characters being in terms of the number of print scans said characters are displaced relative to a reference position on said type element,
processor means operable during print medium advance to a selected line index position for
1. examining said print data signals for each print position of said line of data for each selected character to be printed thereat,
2. determining from said character occurrence data in said storage means and said start scan data signal the earliest type element position after start scan for each selected character in said line of data, and then,
3. determining the earliest print scan following start scan during
which the earliest type element position for each selected character and the desired print position will align,
means controllable by said processor means for selectively operating said print units in accordance with the order of the print scans as determined by said processor means commencing with said start print scan and including from storage means containing in a scan order arrangement said print scan data determined for said selected characters by said processor means.

4,275,654

SELECTIVE PRINTING APPARATUS

Paul H. Hamisch, Jr., Franklin, and Robert M. Pabodie, Dayton, both of Ohio, assignors to Monarch Marking Systems, Inc., Dayton, Ohio

Filed Nov. 19, 1979, Ser. No. 95,848
Int. Cl.³ B41K 1/12; B41J 1/32
U.S. Cl. 101—110 23 Claims



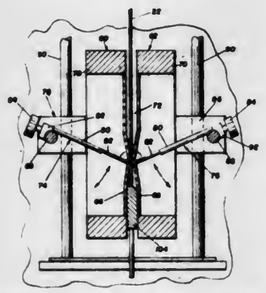
1. For a printer: a platen, a series of wheels, a plurality of different printing elements for each wheel, the wheels being settable to bring one of the printing elements to a printing position adjacent the platen, each wheel being elastically deformable and having an internal gear defining a generally central hole, the internal gear having a series of gear teeth, the space between adjacent teeth being defined by a pair of converging surfaces, a selector shaft having a gear selectively engageable with the gear teeth of any wheel, and a helical spring cooperable with one of the pairs of converging surfaces of each wheel for detenting the wheels, wherein the helical spring cooperates with the pairs of inclined surfaces of the wheels to cam the selected printing element to the printing position.

4,275,685

METHOD AND APPARATUS FOR SCREEN PRINTING REGISTERED IMAGES ON OPPOSITE SIDES OF A WEB

Gerard P. Artaud; Clarence O. Schrader, both of Santa Ana, Calif., and George W. Reinke, Reno, Nev., assignors to The Arnold Engineering Company, Marengo, Ill.

Filed Jan. 23, 1979, Ser. No. 5,881
Int. Cl.³ B41F 15/36, 15/08
U.S. Cl. 101—123 24 Claims



1. Apparatus for screen printing mirror inversion images in registration on opposite sides of a web of material, said apparatus including:

a matched pair of ink-receiving screen stencils each presenting a flat printing membrane having an open image area permitting ink transfer therethrough, said image areas being mirror inversions of one another;

said pair of stencils being provided with register means for holding said images in mutual registration;

a stationary framework fixedly supporting said stencils with said membranes juxtapositioned in parallel, laterally spaced relation to define a printing zone therebetween;

means for supplying ink to said stencils;

a web support adapted to position said web such that it extends through said printing zone in parallel relation to said flat membranes generally equidistant therefrom; a squeegee assembly including a unitary one-piece carriage mounted on said framework adjacent said stencils for shifting movement along a path of travel extending generally parallel to said web and said membranes, and a pair of opposed squeegees each mounted on said carriage and each normally in printing engagement with one of said membranes outboard of said printing zone;

means for shifting said carriage from a first position to a second position along said path of travel while said web is stationary whereby to conjointly sweep said squeegees across said membranes such that opposite sides of the web are printed synchronously; and

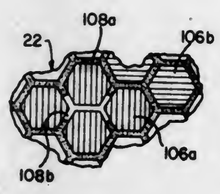
means to lift said squeegees from said membranes, said means for shifting being operable when said squeegees are lifted from said membranes to move said carriage from said second position to said first position.

4,275,656

BUBBLE PRINTING METHOD

John R. Choma, Cambridge, Mass., assignor to Charles J. Choma and Lena G. Choma, both of Plainville, Mass.

Filed Feb. 14, 1979, Ser. No. 11,784
Int. Cl.³ B41M 1/20, 1/42; B05D 1/34, 5/06
U.S. Cl. 101—211 11 Claims



1. A method of printing on a surface, said method comprising the steps of:

forming a plurality of first bubbles in selected sizes, selected ones of said bubbles comprising a fluid film containing a specified first colorant; said selected sizes being chosen such that said first bubbles are formed in abutting relationship with one another thereby forming first interstices of capillary dimensions between one another;

applying said first bubbles to said surface in a substantially ordered first array;

selectively depositing said first colorant on said surface from said selected bubbles in a pattern according to the distribution of said selected bubbles in said first array; and

applying discrete portions of a second set of specific colorants in a substantially ordered second array above selected ones of said first interstices, thereby printing on said surface by capillary action a pattern of said second set of specific colorants arranged in accordance with the distribution of said selected first interstices.

4,275,657

SPIRALLY WOUND PYROTECHNIC CHARGE USEFUL FOR THE PROPULSION OF AN ENGINE AND THE LIKE

Francis A. Dallet, Tresses, France, assignor to Societe Nationale des Poudres et Explosifs, Paris, France

Filed Dec. 12, 1977, Ser. No. 859,825
Claims priority, application France, Dec. 30, 1976, 76 39522; Apr. 20, 1977, 77 11939
Int. Cl.² F42B 1/00
U.S. Cl. 102—531 22 Claims



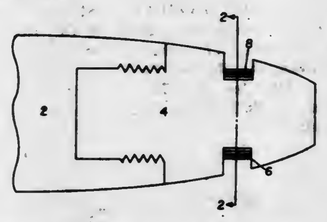
1. A pyrotechnic charge located in a chamber for use in the propulsion of an engine, comprising at least one band of flexible material wound in several spiral turns about a central axis, elongate strands of propellant fixed to said flexible band, said strands having a length and said band having a width less than said length of the strands of propellant, each said strand of propellant extending in a plane containing said central axis, and being positioned radially of said axis directly between two adjacent said turns of said flexible material, wherein each of the strands of propellant is fixed to said flexible band by adhesive and said strands of propellant have at least one concave surface, said flexible band in intermediate between the two ends of the propellant, said band being provided with supporting means, said band being the sole support for the strands in said chamber.

4,275,658

SAFING AND ARMING SIGNATURE FOR FUZES

Richard N. Gottron, Rockville, and Lyndon S. Cox, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 12, 1979, Ser. No. 84,047
Int. Cl.³ F42C 11/02
U.S. Cl. 102—210 10 Claims



1. Means for enabling an object to generate signals when said object is subjected to gaseous fluid flow, said means comprising at least one recess on the exterior of said object, and piezoelectric tape means in said recess for generating said signals in response to pressure variations in said recess.

4,275,659

APPARATUS FOR OPERATING TRANSPORT VEHICLES MOVABLE ON A TRACK CARRIED BY A TRAIN OF RAILROAD CARS

Josef Theurer, Vienna, and Manfred Breitenfeger, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed May 8, 1979, Ser. No. 37,099
Claims priority, application Austria, Sep. 14, 1978, 6667/78
Int. Cl.³ E01B 27/11, 29/05
U.S. Cl. 104—2 6 Claims

1. A track renewal train comprising a succession of storage cars and a work car, a through track carried by the cars, a fit transport vehicle movable on the through track towards and away from the work car for moving new ties towards the work car and old ties away from the work car, a drive for moving the first transport vehicle, a second transport vehicle adjacent the first vehicle and movable on the through track between the first vehicle and the work car for transferring the new ties from the first vehicle and the old ties to the first vehicle and for transporting the ties between the work car and the first vehicle, respective abutment elements on the vehicles arranged to contact each other when the vehicles move into abutting relationship, a control circuit connecting the drive to the abutment elements and being closed by their contact with each other for operation of the drive, and a signalling arrangement including emitter and receiver means of perceptible stop- and go-signals positioned to emit and receive the signals within the range of perception of at least one of the transport vehicles for controlling the operation thereof.

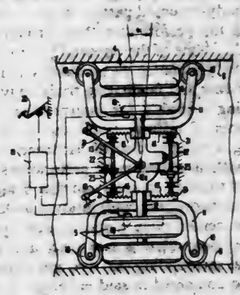


4,275,660

AUTOMATICALLY CROSS-GUIDED VEHICLE, ESPECIALLY FOR THE PUBLIC LOCAL PASSENGER TRAFFIC

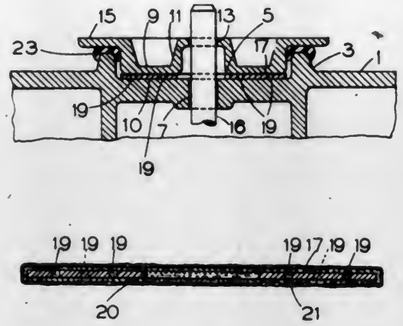
Hans-Joachim Förster, Stuttgart, Fed. Rep. of Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart, Fed. Rep. of Germany

Filed Sep. 25, 1978, Ser. No. 945,335
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1977, 2743077
Int. Cl.³ B61F 9/00
U.S. Cl. 104—247 14 Claims



1. A steerable vehicle adapted for track tied and non-track-tied operation, the vehicle comprising a steerable axle means having deflectable wheels and at least one axle means having non-steerable wheels relative to the axle means, said last-mentioned axle means being pivotally secured at the vehicle, and cross-guide roller means mounted on the vehicle on both sides thereof within an area of the vehicle axle means and carried at least indirectly by the respective axle bodies of the axle means, characterized in that the pivotal axle means is elastically centered in a straight driving position, the pivotal axle means being pivotal out of straight driving position by steering forces produced by the cross-guide roller means against the force of centering spring means, the centering spring means and the prestress thereof being selected so as to be so strong that brake force differences of one vehicle side with respect to the other do not produce an automatic axle pivoting, and in that means are provided for more strongly prestressing the centering spring means during braking than normally.

4,275,661
RAILWAY CAR LUBRICATED CENTER BEARING
Kenneth L. Mowles, Roanoke, Va., assignor to Hennessy Products, Inc., Chambersburg, Pa.
Filed Jul. 11, 1979, Ser. No. 56,781
Int. Cl.³ B61F 5/16, 5/50; F16C 17/04, 33/74
U.S. Cl. 105—199 C 13 Claims

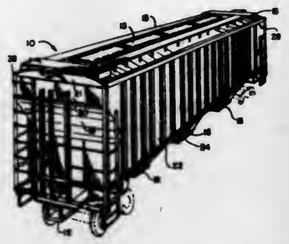


1. In combination with a railway car center plate assembly comprising a truck-mounted part forming an upwardly open cylindrical recess having a flat upwardly-facing bottom surface and a body-mounted part having a depending cylindrical boss rotatably receivable in the truck recess and having a flat downwardly-facing bottom surface, a hard metal disc disposed between the opposed horizontal surfaces of said boss and said recess, said disc having smooth top and bottom surfaces and being formed with a plurality of perforations, said disc being of sufficient hardness to retain its original configuration under load during operation of the railway car, and a quantity of lubricant material substantially surrounding said disc and filling said perforations, whereby upon relative rotation between said truck- and body-mounted parts, lubricant material on said plate and within the perforations therethrough is uniformly distributed to at least one of the opposed horizontal surfaces of said truck- and body-mounted parts, thereby reducing friction and consequent wear and facilitating truck swivel.

9. A lubricating assembly for insertion between opposed horizontal surfaces of railway truck and body center plate parts comprising a circular disc of hardened steel, said disc being formed with a plurality of perforations substantially uniformly spaced through its area, said disc being of sufficient hardness to retain its original configuration under load during operation of the center plate parts, a sealed disintegratable plastic envelope encapsulating said disc, and a quantity of lubricant material surrounding said disc and filling the perforations therein also contained in said envelope to lubricate said center plate parts after the plastic envelope disintegrates.

4,275,662
RAILWAY HOPPER CAR ROOF SUPPORT STRUCTURE
Franklin P. Adler, Michigan City, Ind., and Marvin Starks, Houston, Tex., assignors to Richmond Tank Car Company, Houston, Tex.
Filed Jul. 10, 1979, Ser. No. 56,213
Int. Cl.³ B61D 17/16, 39/00, 49/00
U.S. Cl. 105—377 6 Claims

1. A covered hopper car having spaced side wall units having wall posts, end hoppers and intermediate hopper means, a roof structure comprising:
curved roof sheet means extending on the top of the hopper car and having side margins;
hatch opening means with cover means and said opening means being adapted to receive lading for entry into said end hoppers and into said intermediate hopper means;
side beam means extending the length of the vehicle and being mounted to the side wall unit and providing a connection with the roof sheet means;
said side beam means comprising first and second angle members forming a longitudinally extending beam member;
said first angle member having a lip extending inwardly and upwardly from the side wall unit to said roof sheet means;
partition means with an arcuate top conforming to the contour of the curved roof sheet means and being connected with the side wall units and roof sheet means to provide a



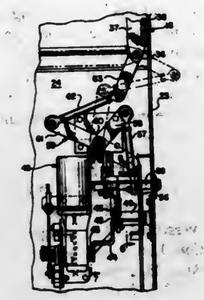
rigid structural interconnection between the attached car members;
connection means mounted on the arcuate top of said partition means and providing a structural transition member for improved force distribution between the partition means and the roof sheet means;
weld means connecting the stiffener means with said side plate means and thereby forming reinforcing structure surrounding the side margins of the curved roof sheet means.

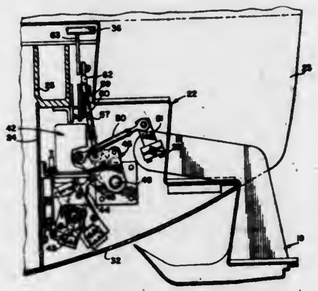
4,275,663
CORRUGATED VEHICLE UNDERFRAME
Eugene W. Sivachenko, 6471 Riverside Dr., Redding, Calif. 96001, and Firoze H. Broacha, Lakewood, Colo., assignors to E. W. Sivachenko, Redding, Calif.
Filed Jun. 14, 1978, Ser. No. 915,435
Int. Cl.³ B61D 17/00; B61F 1/00; B62D 21/00
U.S. Cl. 105—413 10 Claims

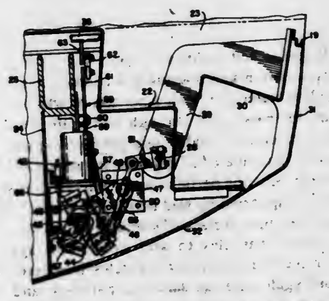


1. A vehicle for carrying a load on a substantially flat and generally horizontal loading surface having a given width and length, the vehicle comprising: an underframe extending over substantially the full width and length of the surface and having a substantially uniform cross-section over substantially its full width, the underframe comprising a corrugated plate including a plurality of longitudinally extending, side-by-side corrugations having an overall width substantially equal to the overall width of the surface; means proximate longitudinal ends of the underframe for movably supporting the underframe on a carrying surface for the vehicle; attaching means carried by the underframe for operatively interconnecting the underframe with the movably supporting means; means carried by the underframe for defining the loading surface, the corrugated plate defining substantially the only structural vertical and longitudinal load transmitting and supporting element between the movably supporting means.

4,275,664
STEP-PLATFORM OPERATION
Rodreddy S. Reddy, Skokie, Ill., assignor to Vapor Corporation, Chicago, Ill.
Filed Sep. 26, 1979, Ser. No. 79,031
Int. Cl.³ B61D 23/02
U.S. Cl. 105—430 8 Claims

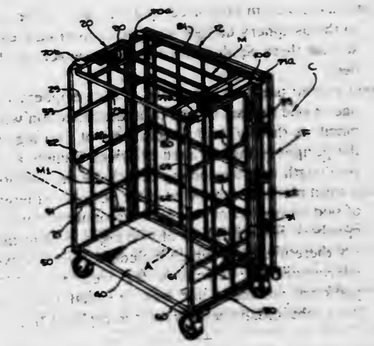






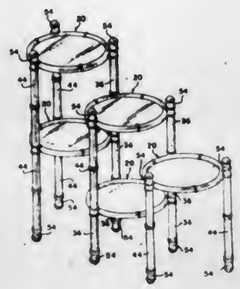
1. In a transit vehicle having an opening for high and low level loading and unloading of passengers, a step and platform assembly at the bottom of the opening having a step rotatable along one axis between an open or down position and a closed or raised position and a platform rotatable along an axis mutually perpendicular to said one axis and between an open or raised position and a closed or down position, whereby said step is usable for low level loading and unloading of passengers when the step is in the open or down position and the platform is in open or raised position while said platform is usable for high level loading and unloading of passengers when the platform is in the closed or down position and the step is in closed or raised position; the improvement in a step-platform operator for simultaneously moving said step between closed and open positions and said platform between closed and open positions, said operator including a reversible drive motor having a rotatable output shaft, and drive means interconnecting the drive motor and the step and interconnecting the drive motor and the platform to utilize the weights of the step and platform to counterbalance each other during movement thereof between said positions, said drive means having a lever and connecting rod assembly which transmits the rotatable force of the output shaft to the step and platform, and said lever and connecting rod assembly including a main idler lever assembly having a step idler lever and a platform idler lever rotatably mounted on an idler shaft, a drive motor output lever on the output shaft connected to the step idler lever and the platform idler lever, a step lever connected to the step and in turn connected to the step idler lever, said idler shaft being parallel to said drive motor output shaft, a crank lever having a pair of arms and being rotatably mounted on a shaft mutually perpendicular to the idler shaft, one of said arms being connected to the platform idler lever, and a platform lever connected to the platform and said other of said arms.

4,275,665
VARIABLE CONFIGURATION CONTAINER WITH MODULAR, EASILY REMOVABLE WALL OR SHELF STRUCTURE
Richard V. Silverman, Los Angeles, Calif., assignor to Bonne-Bilt, Inc., Glendale, Calif.
Filed Apr. 2, 1979, Ser. No. 26,018
Int. Cl.³ A47B 85/00
U.S. Cl. 108—14 9 Claims



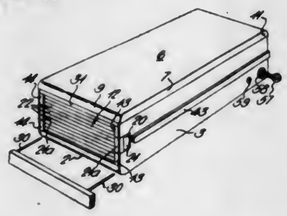
1. A container having a variable configuration, comprising:
a vertical rear wall;
vertical side walls disposed parallel to each other and perpendicular to said rear wall;
said side walls having vertically extending, parallel front edges, and having a plurality of vertically spaced pairs of transverse openings near said front edges, each pair of openings defining a single horizontal axis;
said side walls also having a plurality of pairs of horizontally extending stringers on the inner surface thereof, each of said stringers also having at least one transverse opening therein, said openings being in matched pairs each of which defines a horizontal axis extending through said container; and
a modular shelf or wall structure having a rectangular frame with two ends, a separate latch extending longitudinally from each of said ends, said latches having a single axis, handle means for retracting said latches, and tab means projecting from each of said ends for engaging either said front edges of said side walls or the upper surfaces of a pair of said stringers;
whereby said modular structure may either be placed between said front edges to form a wall section, or upon a pair of said stringers to form a shelf, and is then secured in place by said tab means as well as by the engagement of said latches with the corresponding pair of openings.

4,275,666
MODULAR TABORET KIT
Theodore W. Schriever, Syracuse, N.Y., assignor to Dart Industries Inc., Los Angeles, Calif.
Continuation of Ser. No. 821,846, Aug. 4, 1977, abandoned. This application Aug. 30, 1978, Ser. No. 938,287
Int. Cl.³ A47B 57/00
U.S. Cl. 108—101 8 Claims



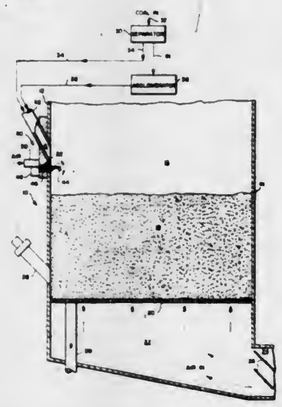
1. A taboret comprising:
first, second and third horizontal platforms vertically displaced from each other and horizontally offset from each other;
said first platform supported by a first set of three legs joined to the periphery thereof wherein each of said legs include at least three equilength connecting detachable leg members;
said second platform supported at the periphery thereof by one of said first set of legs by interconnection with the leg members thereof, and a second set of two legs joined to the periphery thereof each of which include at least two equilength interconnecting detachable leg members; and
said third platform supported at the periphery thereof by one of said second set of legs by interconnection with said leg members, and a third set of two legs joined to the periphery thereof each of which include at least two equilength interconnecting detachable leg members wherein said platforms are round and include raised annular rim portions substantially semicircular in cross-section.

4,275,667
SHEET COUNTING APPARATUS
Graham H. Hilton, Lovedean, England, assignor to De La Rue Systems Limited, London, England
Filed Dec. 5, 1979, Ser. No. 100,479
Claims priority, application United Kingdom, Dec. 8, 1978, 47673/78
Int. Cl.³ E05G 3/00
U.S. Cl. 109—44 16 Claims



1. A security cassette comprising:
(a) a casing constructed so as to encompass a stack of sheets;
(b) support means to support the stack of sheets within said casing;
(c) a wall at one end of the casing with a sheet access aperture within said wall of said casing to permit transmission of said sheets into and out of the cassette;
(d) movable shutter means arranged when in a first position to obstruct said aperture and when in a second position to permit transmission of said sheets;
(e) mechanism to move said shutter means from said first position to said second position when actuated by external actuation means, said mechanism being arranged to return the shutter means from the second position to the first position when said external actuating means is removed;
(f) latching means to prevent further movement of said shutter means after its return to said first position; and
(g) manually operable means to release said latching means.

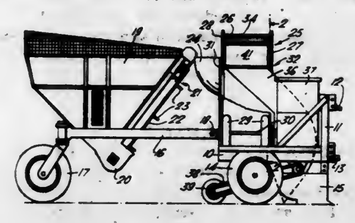
4,275,668
COAL FEED SYSTEM FOR A FLUIDIZED BED COMBUSTOR
Ernest L. Daman, Westfield, N.J., assignor to Foster Wheeler Energy Corporation, Livingston, N.J.
Filed Aug. 28, 1980, Ser. No. 182,207
Int. Cl.³ F23G 5/00, 7/00; F22B 1/00
U.S. Cl. 110—245 7 Claims



1. A fluidized bed combustor comprising a housing, grate means supported in said housing and adapted to support a bed of particulate material at least a portion of which is combustible, means for passing air through said grate means and said particulate material to fluidize said particulate material, means for receiving particulate fuel material and separating said material into relatively fine particles and relatively coarse particles, a distributor supported by said housing at an elevated position relative to the upper surface of said bed, means for passing said relative coarse particles to said distributor, agglomeration means for receiving said fine particles from said separating means and agglomerating said fine particles, and means for passing said agglomerated particles to said distributor, said distributor including means for distributing said particles onto selected areas extending across the upper surface of said bed.

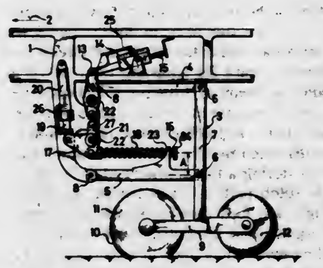
4,275,669
CANE DIPPER-PLANTER WITH LIQUID TREATING
Kenneth R. Atkinson, Mail Service 368, Gin Gin, Queensland, Australia (4671)
Filed Apr. 27, 1979, Ser. No. 34,078
Int. Cl.³ A01C 5/06, 1/06
U.S. Cl. 111—3 5 Claims

1. A cane dipper-planter of the type having a tractor-drawn main frame, a drill plough on the main frame for opening a furrow, a container for treating liquid, feed means for feeding cane setts to the treating liquid, and delivery means for delivering said treated cane setts, wherein the improvements comprise:
a drum having opposed spaced end walls and a peripheral side wall extending between said end walls, said drum being mounted on the main frame for rotation about a substantially horizontal axis substantially parallel to the direction of travel of said dipper-planter, the lower part of said drum forming the container for the treating liquid,
means for mounting said main frame on ground wheels,
means for rotating the drum, and supporting wheels for supporting said drum during rotation,



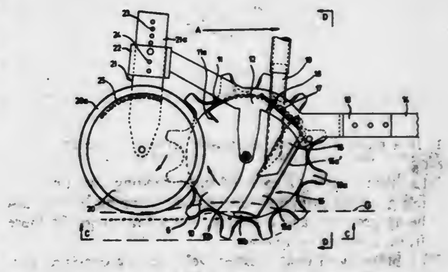
an inlet opening in an end wall of the drum for feeding cane setts to said drum, and wherein
said delivery means includes a delivery chute leading from within the drum through an outlet opening in the other end wall of the drum, and a series of lifting members secured to the peripheral side wall of the drum, said lifting members being of a shape and size to receive and lift cane setts, when the drum is rotated, from the lower part of the drum and discharge them gravitationally from the upper part of the drum to said delivery chute.

4,275,670
SEED DRILL MOUNTING ARRANGEMENT
Heinz Dreyer, Hasbergen-Gaste, Fed. Rep. of Germany, assignor to Amazonen-Werke, Hasbergen-Gaste, Fed. Rep. of Germany
Filed Jul. 10, 1979, Ser. No. 56,365
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1978, 2830195
Int. Cl.³ A01C 5/06
U.S. Cl. 111—85 15 Claims



1. A seed drill comprising a frame and furrow openers each having a press wheel joined thereto, the furrow openers and the adjoined press wheels being disposed in two transverse rows, one row behind the other row, and the furrow openers and the adjoined press wheels of one row being offset from the furrow openers and adjoined press wheels of the other row, as seen in the direction of travel, the furrow openers comprising at least one disk set at an angle to the direction of travel, each furrow opener and its press wheel being mounted on the frame for movement in an upright plane by a mounting means comprising two cross members situated one over the other and extending at least approximately parallel to one another, and which are each joined by pivots at one end to the frame and at the other end to the furrow opener and its press wheel, a resilient element interposed between the frame and one of the mounting means biasing the furrow openers toward the ground, the resilient element being disposed at least approximately parallel to the cross members when the furrow openers are in the working position, and adjusting means for adjusting the level of one of the furrow openers in relation to its press wheel by movement of some of the pivot joints between the cross members and the furrow openers, and ganging means interconnecting said one of the furrow openers and at least another of the furrow openers so that the adjusting of said one furrow opener is effective to to adjust a gang of the furrow openers.

4,275,671
SEED SOWING IMPLEMENTS
Christopher J. Baker, Bunnythorpe, R.D., Feilding, New Zealand
Continuation of Ser. No. 927,997, Jul. 26, 1978, abandoned. This application Apr. 14, 1980, Ser. No. 140,016
Claims priority, application New Zealand, Jul. 26, 1977, 184742
Int. Cl.³ A01C 5/00
U.S. Cl. 111—85 9 Claims



1. A seed sowing implement comprising a circular cutting blade mounted for rotation about a horizontal axis in a substantially vertically plane extending in the direction of intended travel of the blade and having a vertically disposed and substantially flat peripheral cutting edge part arranged in use to penetrate and form a vertical slit in the ground as the implement is moved forwardly along, a coulter support mounted in juxtaposition with an upper part of said blade and a pair of coulter members mounted on said support, one on each side of said blade, said coulter members being each formed from strip metal into a substantially L shape when viewed from the front or rear with a long leg extending upwardly adjacent the blade for detachable connection to its respective support and with a short leg extending laterally away from the blade to define a coulter tip part, the long leg of each coulter member being mounted in splayed relationship relative to the respective side face of the blade with at least the lower leading edge portion of each long leg connecting with the foremost portion of the tip part being arranged for sliding contact with said respective side face and said connections between the coulter members and the coulter support comprising fastening means, said fastening means permitting a limited amount of lateral movement of the coulter members relative to the cutting blade whereby forces exerted by the ground on the splayed long legs of the coulter members as the implement is moved along will constantly maintain said lower leading edge portions of such members in sliding contact with the respective blade side faces, said coulter tip parts each having a sharp leading edge and broad trailing formation projecting laterally of the line of cut of the blade and being disposed for location and operation solely below ground level at a point substantially directly below the axis of rotation of the cutting blade and above the lowest point of the cutting edge thereof so that both tip parts form a com-

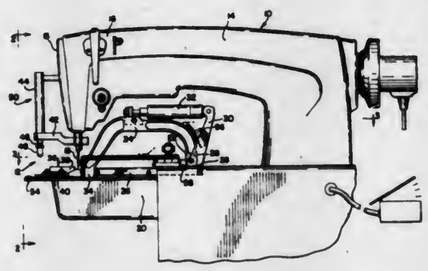
mon passage extending from both sides of the ground slit and below the ground level as the implement is moved forwardly, means for determining the depth of cut of the blade and location of the coulter tip parts below ground level, and a seed duct member provided in juxtaposition with the coulter support and arranged to feed seeds from a supply source into the passage at a point close to the coulter tip parts behind the leading edge portions thereof.

4,275,672
DIBBER
L. Susan Clad, 419 Starmount Ln., Bakersfield, Calif. 93309
Filed Jun. 13, 1979, Ser. No. 48,094
Int. Cl.³ A01C 5/00
U.S. Cl. 111—99 1 Claim



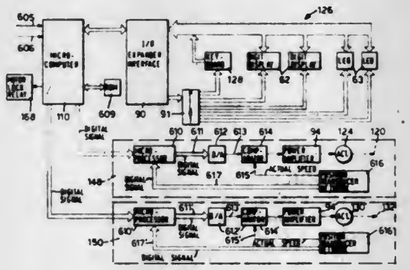
1. In a manually depth adjustable dibber implement, comprising:
(a) a dibber, having a rounded top extending into a narrowing grooved gripping section, said gripping section also being grooved, and a section, extending integrally therefrom, tapering to a point;
(b) a plurality of disks, respectively, having centered apertures of varied diameters, slidably detachable at varied height levels on the dibber, the disks having, respectively, a collar, surrounding and extending from the respective apertures of the disks, stabilizing their positions when slidably attached on the dibber.

4,275,673
APPARATUS EMPLOYED IN THE ATTACHMENT OF HOOK AND EYE TAPE PORTIONS TO A BRASSIERE
Ronald J. Boser, Dix Hills; Henry J. Watts, E. Northport, both of N.Y., and Walter P. Siegel, deceased, late of Lebanon, N.J. (by Dorothy Siegel, executrix), assignors to Union Special Corporation, Chicago, Ill.
Filed Sep. 10, 1979, Ser. No. 73,970
Int. Cl.³ D05B 3/18
U.S. Cl. 112—105 9 Claims



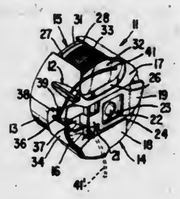
1. An apparatus used in combination with a computer controlled sewing machine for aligning and securing independent fabric elements prior to and during a sewing cycle comprising:
a fabric positioning holder mean having its movement controlled by said computer means, including jaw means for securing fabric means;
horizontally movable positioning lever means having fabric centering means;
means operative for driving said horizontally movable positioning lever means between a series of predetermined positions along with said jaw means;
a stationary fabric aligning means located in a predetermined position with respect to said jaw means; and
a preliminary clamp means securing said fabric means within said jaw means and between said horizontally movable positioning lever means prior to the initiation of the work cycle.

4,275,674
MICROPROCESSOR CONTROLLED ELECTRONIC SEWING MACHINE
Gianfranco Carbonato, Turin, and Camillo Bussolati, Milan, both of Italy, assignors to Necchi S.p.A., Pavia, Italy
Filed May 22, 1979, Ser. No. 41,293
Claims priority, application Italy, Feb. 21, 1979, 42904 A/79
Int. Cl.³ D05B 3/02
U.S. Cl. 112—158 E 34 Claims



1. In an electronic type sewing machine having a bed, a standard rising from said bed, a horizontal arm overhanging said bed, said arm ending with a head, a needle bar means disposed in said head for enabling transverse oscillation thereof relative to the direction of fabric feed in said sewing machine, feed means for adjusting the length and direction of said fabric feed, actuator means for adjusting the transverse position of said needle bar means and the positional displacement of said feed means in response to control signals provided thereto for providing stitches at predetermined stitch position coordinates in a selected stitch pattern and first static memory means for retrievably storing a first plurality of different predetermined selectable stitch patterns each having associated retrievably stored bight and feed data corresponding to sets of predetermined desired stitch positional coordinates of said needle bar and feed means for defining said associated desired stitch position coordinates for the stitches comprising said selectable stitch patterns; the improvement comprising microcomputer integrated circuit means operatively connected to said static memory means and to said actuator means, and means operatively connected between said actuator means and said microcomputer means for providing a digital input signal to said microcomputer means representative of the actual position of said actuator means, said microcomputer means, said actuator means and said actual position signal providing means comprising means for selectively processing said stored stitch pattern data from said static memory means for a selected stitch pattern for providing a desired stitch position actuator control signal corresponding to a predetermined set of stitch position coordinates in said selected stitch pattern and for digitally comparing said actual position digital input signal with said selectively processed desired stitch position actuator control signal for said position servo control loop for providing a servo control output signal to said actuator means based on said digital comparison for controllably adjusting said actuator means for providing a stitch at a different set of desired stitch position coordinates in said selected stitch pattern from a previous stitch in said pattern as said sewing machine progresses through said pattern.

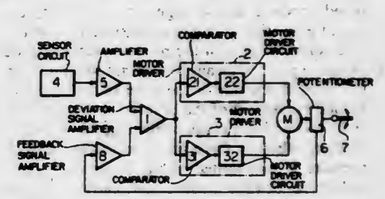
4,275,675
BOBBIN CASE WITH THREAD GUIDE FOR CYCLIC SEWING MACHINE
Karl H. Killinger, Dover, N.J., assignor to The Singer Company, Stamford, Conn.
Filed Oct. 3, 1979, Ser. No. 81,405
Int. Cl.³ D05B 57/26
U.S. Cl. 112—229 5 Claims



1. A bobbin case comprising:
a front wall;
a generally cylindrical skirt extending rearwardly from the front wall;
a leaf spring shaped to conform to a limited part of the cylindrical skirt;
a slot extending along the cylindrical skirt from the rear edge thereof towards the front wall and terminating at a location covered by the leaf spring, the slot being wide enough to allow thread to be guided along the slot and under the leaf spring, with a free end of the thread extending from under an edge of the leaf spring;
a needle opening through the cylindrical skirt at a location angularly displaced from the edge of the leaf spring where the thread emerges;
guide means comprising a length of wire shorter than the axial length of the cylindrical skirt and soldered to the exterior surface of the skirt and extending generally parallel to the axis of the cylindrical skirt in a region between the end of the leaf spring and the location of the needle opening; and
a passageway partly formed in the cylindrical skirt under the wire and partly formed in the wire on the side thereof facing the cylindrical skirt to allow the thread emanating from under the leaf spring to be guided through the passageway under the wire to be supported by the wire so as to prevent the end of the thread from drooping to a location in the path of rotation of a rotary hook in which the bobbin case is supported.

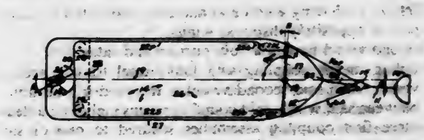
4,275,676
AUTO-STEERING SYSTEM
Michiru Baba, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Japan
Filed Mar. 23, 1978, Ser. No. 889,232
Claims priority, application Japan, Mar. 11, 1977, 52-38711[U]; Apr. 5, 1977, 52-41665[U]
Int. Cl.³ B63H 25/00
U.S. Cl. 114—144 E 4 Claims

1. An improved auto-steering system, comprising:
(A) a sensor circuit means for detecting changes in environmental conditions and generating electrical signals representative thereof;
(B) a deviation signal amplifier having an output terminal and first and second input terminals, said first input terminal being coupled to said sensor circuit means, for amplifying said signals;
(C) starboard and port motor drivers coupled in parallel with each other and coupled to said output terminal of said deviation signal amplifier, each of said motor drivers comprising a comparator and a motor driver circuit coupled in series and having an output terminal;
(D) a drive motor for a rudder, coupled to said output terminals of said motor drivers;
(E) a potentiometer interposed between said drive motor and said rudder and having an output terminal coupled to said second input terminal of said deviation signal amplifier;
(F) means for adjusting the reference voltages to be applied to said comparators; and



(G) each of said motor drivers being a low-pass filter circuit comprising:
(1) resistor means;
(2) capacitor means, the time constant of said low-pass filter circuit being defined by the resistance of said resistor means and the capacitance of said capacitor means;
(3) an input terminal;
(4) a NOT-gate having an input coupled to said input terminal;
(5) a transistor whose base terminal is coupled to said input terminal, said capacitor means being interposed between the collector and emitter terminals of said transistor;
(6) an element generative of control signals having one input terminal directly coupled to said NOT-gate and having another input terminal coupled, via said resistor means, to said NOT-gate; and
(7) said collector terminal of said transistor being coupled to said other input terminal of said element.

4,275,677
TOW OF BARGES BY TUGS
Arthur J. Nelson, 949 W. Orange, South San Francisco, Calif. 94080
Filed Jan. 2, 1979, Ser. No. 637
Int. Cl.³ B63B 21/56
U.S. Cl. 114—246 7 Claims



1. In a combination comprising:
(a) a tug to impart propulsive force by a towline to a barge having a rudder to maintain barge directional stability with the tug heading; and
(b) a segmented linkage mechanism connecting said towline

and rudder to turn the rudder to an angular deflection from a neutral position when the towline and barge longitudinal alignment deviates;

an improved arrangement affording a simple means to mount the linkage mechanism while providing accomodations to alter member relationship for a rudder response to accommodate conditions encountered, comprising:

(1) a propulsive force transmitting forward segment having a flounder plate connected to the trailing end of said towline to form a vertex connection between the towline and bridle legs connected to the ends of a beam which is pivotally mounted to a structure fixed above the barge deck to impart propulsive force along the barge longitudinal centerline;

(2) a bearing supported rudder stock pivotally mounting the rudder, said stock extending upwardly from the rudder to a rudder quadrant contained in a compartment disposed below said deck;

(3) a pair of aft wires extending from forward end connections with the pivotal beam around horizontally disposed grooved sheave segments within the compartment for an athwartship reach past each other to adjustable connections with the pivotal rudder quadrant;

(4) stops to provide means to transmit towing forces from the beam to one side or the other of the barge and limit pivotal movement of the beam to restrict rudder angularity (A) within a range containing the center of water pressure whereby force imparted to the rudder by said pressure is transmitted along the pivotal axis of the rudder to obviate hydrodynamically developed torsional loading to said mechanism; and,

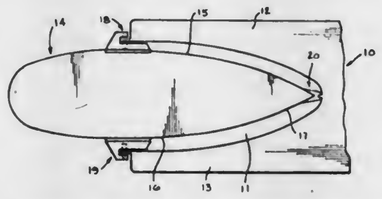
(5) a pair of vertically spaced grooved sheave segments, each of said aft wires extending around one of said pairs whereby said wires are directed from the above deck location of the beam to a below deck disposition.

4,275,678

COUPLING APPARATUS FOR ARTICULATED BODIES

Robert A. Blodworth, P.O. Box 12424, Houston, Tex. 77017

Continuation of Ser. No. 465,147, Apr. 29, 1974, Pat. No. 4,148,270. This application Apr. 9, 1979, Ser. No. 28,183
The portion of the term of this patent subsequent to Apr. 10, 1996, has been disclaimed.
Int. Cl.³ B63B *21/62*
U.S. Cl. 114—248 43 Claims



1. A marine push-towing transportation combination comprising:

a first vessel having a notch at one end, said notch having a pair of oppositely disposed wings,

a second vessel having a bow portion and sides,

coupling means coupling said first vessel to said second vessel when said second vessel is received in said notch between said wings, said coupling means including at least three first coupling assemblies secured to one of said vessels, each of said first coupling assemblies including at least one bearing member having opposed, substantially vertical bearing surfaces, one of said first coupling assemblies being disposed for engagement generally forward of said notch, the other two of said first coupling assemblies being disposed for engagement generally rearward and on opposite sides of said notch, and at least three second coupling assemblies secured to the other of said vessels, each of said second coupling assemblies being disposed so as to be engagable with said first coupling assemblies when said second vessel is received in said notch, each of said second coupling assemblies including gripping means for frictionally engaging said bearing surfaces, each of said gripping means comprising first and second gripping members, said first gripping member having a surface engagable with one of said bearing surfaces, said second gripping member having a surface with the other of said bearing surfaces, said first gripping member being mounted for movemeat in a direction generally transverse to said bearing surfaces, and means for effecting engagement of said gripping means with said bearing surfaces.

4,275,679

FLOATING PLATFORM WITH MONOLITHICALLY FORMED FLOAT MEMBERS AND PLATFORM

Ulrich Finsterwalder, München-Obermenzing, Fed. Rep. of Germany, assignor to Dyckerhoff & Widmann AG, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 819,054, Jul. 26, 1977, abandoned. This application Oct. 31, 1978, Ser. No. 956,286
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1976, 2634622
Int. Cl.³ B63B *35/44*
U.S. Cl. 114—264 21 Claims



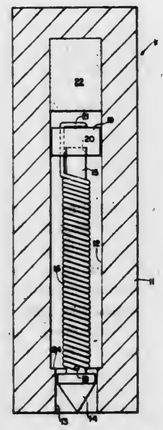
1. A floating platform especially for use at offshore locations where the platform may be exposed to significant wind and wave forces and with the platform having a variable water level depending on the loaded condition of the platform, comprising a platform member, said platform member comprising a concrete slab extending transversely of the vertical direction and extending in two directions transversely of one another with said concrete slab being prestressed, said concrete slab having an upper surface and a lower surface and a plurality of float members arranged in a two-directional pattern subjacent to and supporting said concrete slab, wherein the improvement comprises that said concrete slab is prestressed in each of its two transversely extending directions, the variable water level of the platform being located below said concrete slab, said concrete slab including upwardly extending intersecting concrete partitions reinforcing said slab, said slab including said partitions comprising a unitary construction free of joints, said float members formed monolithically with and rigidly attached directly to the lower surface of said concrete slab and being completely closed, said float members are hollow so that each forms a chamber therein and is formed of one of reinforced concrete and prestressed concrete and is shaped at least in part of a closed body of revolution with a curved generatrix and with the water level of the platform located in the range of said float members spaced downwardly from said concrete slab and the lower surface of said concrete slab forming a closure for the upper end of the chamber within each of said hollow float members, means in said concrete slab affording access through the closure of said float members into the chambers therein said float members in the two-directional pattern located directly below and extending across in both directions of the lower surface of said concrete slab and being arranged in adjacent side-by-side rows with said float members being uniformly distributed so that each said float member is located directly below and supports a corresponding uniform part of said concrete slab and in the range of the variable water level said float members being spaced apart in the horizontal direction in the two directions of the two-directional pattern with the horizontal area of each said float members at the water level being significantly less than the horizontal base area of said concrete slab below which said float member is directly located.

4,275,680

ANCHORING SYSTEM

John W. Pennington, III, Spotsylvania, and Kenneth G. Thorsted, Fredericksburg, both of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 31, 1979, Ser. No. 71,468
Int. Cl.³ B63B *21/28*
U.S. Cl. 114—295 3 Claims



1. An anchoring system for embedding an anchoring wire in a surface which may be remotely controlled and which may be employed in any environment comprising:

a charge housing having a central bore therein, one end of which communicates with the exterior of said housing;

a pointed anchor body disposed within said bore, said anchor body being hollow and having inner and outer ends;

a pusher plate abutting the inner end of said anchor body;

a coiled wire disposed within said anchor body, said wire directly attaching said anchor body to said pusher plate;

an explosive charge disposed within said bore behind said pusher plate for driving said pusher plate down the bore to eject said anchor body when said explosive charge is initiated; and

means formed at the open end of said bore for stopping movement of said pusher plate while said anchor body continues on to embed itself under its own momentum whereby said coiled wire will unwind and said charge housing will be firmly anchored.

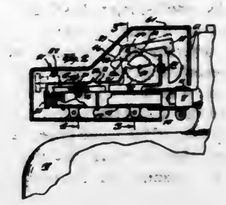
4,275,681

SYSTEM GAS ALARM

Soman Ragavan, c/o George Specter, 3615 Woolworth Bldg., 233 Broadway, and George Specter, 3615 Woolworth Bldg., 233 Broadway, both of New York, N.Y. 10007

Filed Dec. 10, 1979, Ser. No. 102,022
Int. Cl.³ F17C *13/02*; G01L *19/12*
U.S. Cl. 116—70 2 Claims

1. A gas alarm, comprising in combination, a tube affixed by a socket on the outlet of a safely valve of a gas cylinder, a plug sealingly mounted in the outlet end of said tube, including a trigger arm connected to the outer end of said plug, a rotatable spring motor drive unit retained by said trigger arm when said plug is in said tube in combination with means for releasing said unit from said arm responsive to movemeat of said plug from said tube wherein said means comprise a platform clamped to said tube including bearings in which said trigger arm is rotatably supported a spur on said trigger arm slidably fitting in a retaining groove in said platform, and a tension spring urging said trigger arm to rotate, said groove retaining said arm against rotation wherein said drive unit includes a ratchet



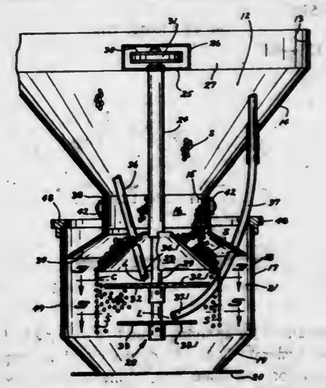
wheel retained by said trigger arm in further combination with a lever having escapement teeth engaging said toothed wheel, and a hammerhead on said lever adapted to strike a bell when said when said wheel rotates, said trigger arm having an end portion eccentric to the trigger arm axis in contact with said wheel, whereby trigger arm rotation releases said wheel for rotation.

4,275,682

PEANUT SEED TREATING MACHINE

Joseph A. Weber, Arlington, Tex., assignor to Gustafson, Inc., Dallas, Tex.

Filed Mar. 10, 1980, Ser. No. 129,831
Int. Cl.³ B05C *5/00*
U.S. Cl. 118—303 6 Claims



1. A treating machine for applying liquid chemical treatment to peanut seeds and the like, comprising

seed supply means having a restricted outlet throat through which seeds are allowed to flow by gravity,

a housing beneath the throat defining a seed treating chamber having a top inlet and a bottom outlet for the seeds, the throat directing the seeds into the treating chamber,

seed directing means in the treating chamber and beneath the throat in confronting relation thereto, the seed directing means establishing an annular curtain of falling and revolving seed in the treating chamber,

a pair of supply ducts extending into the treating chamber and directing streams of the liquid chemical treatment therein,

a high speed rotor in the treating chamber and revolving on a vertical axis, the rotor being located beneath the seed

directing means and thereby embraced by the annular curtain of free falling seeds, and the rotor having a pair of vertically spaced upper and lower spinning discs each beneath the delivery end of a respective supply duct to receive the stream and sling the liquid chemical treatment outwardly onto the falling seeds,

the upper disc having a diameter larger than the diameter of the lower disc and having radial flutes which are substantially deeper in an axial direction than the flutes in the lower disc, whereby the upper disc breaks up the liquid chemical treatment into finer mist particles and produces a more intense whirling and turbulent motion of the treatment mist and air than does the lower disc, for applying a first light coating of the liquid chemical treatment on the seed adjacent the upper disc and then a second heavier coating of the treatment on the seed adjacent the lower disc.

4,275,683

APPARATUS FOR APPLYING FOAM TO A MOVING WEB

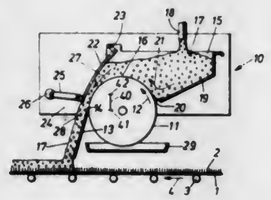
Johannes Kutz, St. Tönis; Walter Keller, Willich; Max Krüger, Krefeld, and Eduard Küsters, Gustav-Flinders-Web 18, 4150 Krefeld, all of Fed. Rep. of Germany, assignors to Eduard Küsters, Krefeld, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 76,988

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1979, 2915289

Int. Cl.³ B05L *5/02*

U.S. Cl. 118—407 **16 Claims**



1. In apparatus for applying foam to a moving web comprising a foam generator and a foam box which is coupled to the foam generator, the foam box arranged transversely to the web, extending over its width, and having on its underside an opening which extends over the width of the web and under which rotatable cylinder means is arranged which extends over the width of the web, the cylinder means being sealed against the foam box except for an exit for the foam, said cylinder means in its rotation, carrying foam from the foam box along at its surface and depositing it on the web passing underneath the cylinder means, the improvement comprising:

(a) a wall element disposed on the side of the cylinder means which is descending during revolution, said wall element, together with the cylinder means, forming a canal which is tapered in the circumferential direction of the cylinder means said canal ending in the region between the height of the axis of the cylinder means and one half the height of the cylinder means above; and

(b) a wiper inclined downwardly toward the web resting against the cylinder means below the end of said canal.

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ANIMAL LITTER

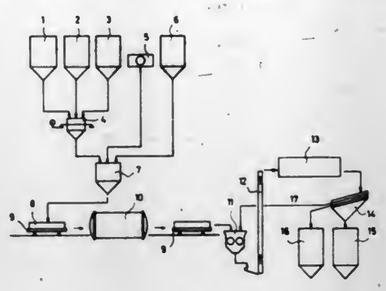
Walter Krämer, Soltau-Friedrichseck, and Rainer Follmann, Minden, both of Fed. Rep. of Germany, assignors to Effem GmbH, Verden, Fed. Rep. of Germany

Filed Jan. 16, 1980, Ser. No. 112,524

Claims priority, application Fed. Rep. of Germany, Jan. 19, 1979, 2902079

Int. Cl.³ A01K *1/015*

U.S. Cl. 119—1 **4 Claims**



1. An animal litter consisting of or containing a porous calcium silicate granulate or powder having pore radii of less than 500μ, said calcium silicate granulate or powder being prepared by reacting crystalline and, if required, amorphous silicon dioxide, or materials containing the same, with calcium oxide or materials containing the same, in a CaO to SiO_2 molar ratio of 0.8:1 to 1.1:1, with homogenization thereof in water followed by molding, autoclave setting, comminuting, drying and grading with the further proviso that homogenization during the reaction has been carried out by dispersing the solid starting materials in water with the addition of an anion-active surfactant previously converted in water to a microporous stable foam.

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APPARATUS FOR THE HANDLING OF SHEEP

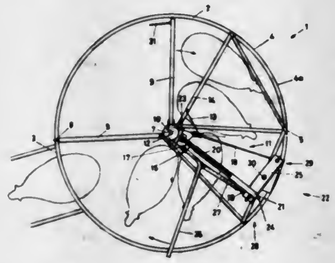
Donald L. Hopkins, Heywood, Australia, assignor to Alf Hannaford & Co. Pty. Ltd., Beverley, Australia

Filed Mar. 6, 1980, Ser. No. 127,757

Claims priority, application Australia, Mar. 7, 1979, PD7940

Int. Cl.³ A01K *29/00*

U.S. Cl. 119—20 **6 Claims**



1. An arrangement for handling sheep characterised by including a pen providing a circular restraining outer barricade, an inlet and an outlet spaced apart from the inlet in each case being for sheep to pass through the said outer barricade, a first movable barricade supported and adapted so that in a first selected position, the said movable barricade will extend between and act as a barricade for sheep between a centre of the pen and one side of the outlet, and, in a second position, the said movable barricade will extend between and act as a barricade for sheep between a centre of the pen and the other side of the outlet, a second movable barricade with one end supported at a centre of the pen and the barricade otherwise being supported so that the barricade is adapted to move while in a radial alignment relative to the circular shape of the outer barricade, behind sheep retained within the outer barricade being urged to pass through the outlet, and drive means adapted to urge the said second movable barricade in a direction while aligned radially to rotate about its axial support located at the centre of the pen and otherwise supported and select so as to urge sheep through the open outlet.

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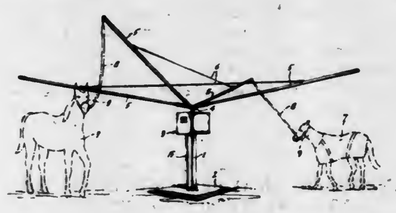
HORSE EXERCISER DRIVE MECHANISM

John A. MacGillivray, 14205 - 119th Northeast, Kirkland, Wash. 98033

Filed Apr. 25, 1979, Ser. No. 33,212

Int. Cl.³ A01K *15/02*

U.S. Cl. 119—29 **3 Claims**



2. In an exerciser including a rotatable member for inducing movement of an animal at a speed corresponding to the speed of rotation of such rotatable member and a motor having a rotary drive shaft for driving the rotatable member, the improvement comprising variable speed ratio speed-reducing mechanism connected between the motor drive shaft and the rotatable member, speed-reducing control means manipulatable while the motor is driving the rotatable member for adjusting the speed ratio of said speed-reducing mechanism, a constant speed ratio gearbox connected to said variable speed ratio speed-reducing mechanism, variable friction drive means connected between said constant speed ratio gearbox and the exerciser rotatable member, and drive torque adjusting means for adjusting said variable friction drive means for altering the maximum torque transferrable to the exerciser rotatable member from the motor drive shaft.

4,275,687

PREHEATING UNIT FOR DOMESTIC HOT WATER SUPPLY

Jack S. Sasaki, 3231 Wellington Ave., Vancouver, British Columbia, Canada

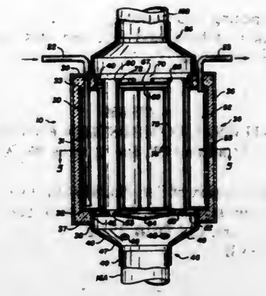
Filed Oct. 29, 1979, Ser. No. 88,924

Claims priority, application Canada, Oct. 31, 1978, 315250

Int. Cl.³ F22B *33/00*

U.S. Cl. 122—20 B **6 Claims**

1. A preheating unit comprising a water tank having a bottom, side and top walls; a cold water supply pipe and a warm water delivery pipe connected to the tank, a casing enclosing the tank and having a side wall spaced from the side wall of the tank to provide a substantially annular space therebetween, a plurality of inner tubes extending longitudinally through the tank, an outer tube secured to the bottom and top wall to enclose each inner tube, said inner and outer tubes being spaced apart to provide annular spaces between said tubes, a lower adaptor on the casing for connecting a first pipe section to the pipe in communication with the inner tubes, and an upper adaptor on the casing for connecting a second pipe



section to the tank in communication with both the inner tubes and the annular spaces.

4,275,688

COOLING SYSTEM FOR INTERNAL COMBUSTION ENGINE

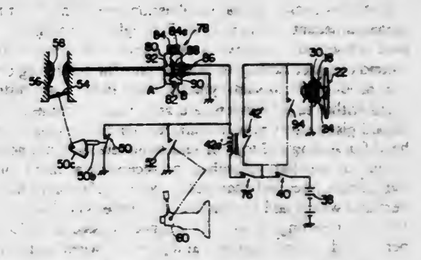
Fumiyuki Abe, and Yoshimasa Hayashi, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Division of Ser. No. 882,642, Mar. 2, 1978, Pat. No. 4,222,353. This application Oct. 3, 1979, Ser. No. 81,317

Claims priority, application Japan, May 6, 1977, 52-1265; Aug. 24, 1977, 52-100576

Int. Cl.³ F25B *27/00*; B60H *3/04*

U.S. Cl. 123—41.12 **20 Claims**



1. A cooling system for an internal combustion engine having a crank shaft, an electric source and a throttle valve and adapted for propelling a vehicle having a gear box with a plurality of gear ranges, the system comprising:

a cooling fan for cooling the engine when rotatably driven;

means for selectively rotatably driving said cooling fan from the engine crank shaft, said driving means including a normally engaged and selectively disengageable clutch, and

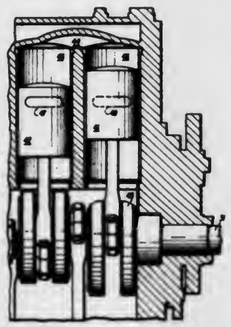
means, including a normally closed switch, for maintaining said clutch in its normally engaged condition; and

means for disengaging said clutch during engine acceleration under an urban area cruising condition of the vehicle propelled by the engine, said disengaging means comprising:

means for detecting a first engine operating condition which is a high load and low vehicle speed engine operating condition, said detecting means including a throttle position switch arranged to open when the engine throttle valve opens over a predetermined amount representing the high load engine operating condition, and a gear position switch electrically connected in parallel with said throttle position switch and arranged to open when the gear range in the gear box is selected in a predetermined

position representing the low vehicle speed operating condition;
means for detecting a second engine operating condition; and
means for opening said normally closed switch in response to detection of both said first and said second engine operating conditions.

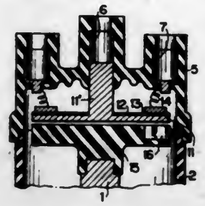
4,275,689
INTERNAL COMBUSTION ENGINE
Earl L. Ray, 113 Chestnut Pl., Rte. 2 - Box 393.A, Arden, N.C. 28704
Continuation-in-part of Ser. No. 814,662, Oct. 27, 1977, abandoned. This application Feb. 12, 1979, Ser. No. 11,425
Int. Cl.³ F02B 25/12, 17/00
U.S. Cl. 123—53 B 6 Claims



1. A two cycle internal combustion engine having first and second adjacent cylinders, said first cylinder having an intake port connected to receive a lean mixture of fuel and air, said second cylinder having an exhaust port for delivering combustion products from said cylinder, first and second pistons located within said cylinders, a crank shaft for connecting each of said pistons to a power shaft, further comprising a cylinder head for sealing the tops of said cylinders, said cylinder head having an auxiliary chamber for receiving a timed pulsating fuel stream, a second chamber for joining the top of said cylinders into which said first piston compresses said lean mixture of fuel, a connecting channel for connecting said auxiliary chamber to said second chamber at a point between said cylinders, and means for sequentially igniting the fuel in said auxiliary chamber whereby a flame is produced for igniting a lean mixture of fuel and air in said second chamber, said first and second pistons having a relative timing whereby compressed gases in said second chamber are motivated during ignition thereof between the tops of said pistons communicating with the flame from said connecting channel spreading the flame from said auxiliary chamber through said second chamber.

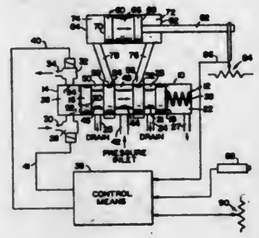
4,275,690
IGNITION DISTRIBUTOR
Yukitsugu Fukumori, and Masazumi Sone, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan
Filed Jun. 22, 1979, Ser. No. 50,808
Claims priority, application Japan, Jul. 10, 1978, 53-82934
Int. Cl.³ F02P 1/00; H04R 17/00
U.S. Cl. 123—146.5 A 12 Claims

1. An ignition distributor for use in an internal combustion engine, comprising:
(a) an input terminal for connection to a high voltage source;
(b) a plurality of output terminals for connection to ignition plugs, respectively;
(c) first electrode means electrically connected to said input terminal or said output terminals;
(d) piezo-conductive plate means placed on said first electrode means;
(e) second magnetic electrode means placed on said piezo-conductive plate means;
(f) means for electrically connecting said second magnetic electrode means to said output terminals or said input terminal; and
(g) a rotor disposed to face said first electrode means and



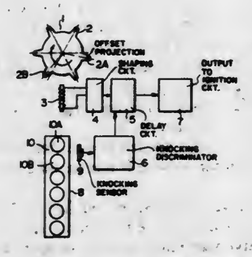
provided at its one end with a magnet, said rotor adapted to rotate with rotation of said engine to bring said magnet below said second electrode means so that when said magnet comes below said second electrode means, it attracts said second electrode means to exert a pressure on a portion of said piezo-conductive plate means to render the same conductive, thereby making an electrical connection between said second electrode means and said first electrode means.

4,275,691
ELECTROMECHANICAL PRECISION GOVERNOR FOR INTERNAL COMBUSTION ENGINES
George D. Wolff, and Michael S. Ziemacki, both of P.O. Drawer 9407, Winter Haven, Fla. 33880
Filed Feb. 5, 1979, Ser. No. 9,260
Int. Cl.³ F02B 3/00, 33/00
U.S. Cl. 123—352 29 Claims



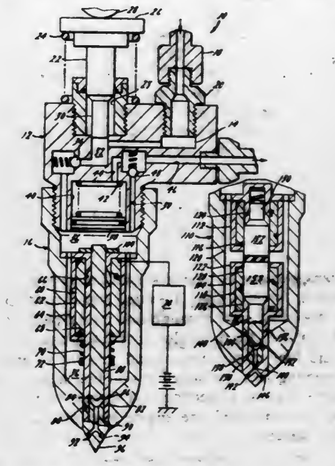
1. An electronically controlled, hydraulically actuated precision governor for controlling the operating RPM of a diesel engine by repositioning the rack of the engine fuel injection pump in response to changes in engine RPM, said governor comprising:
(a) a main chamber having first and second end surfaces;
(b) a piston slideably positionable about a neutral location within said main chamber and having first and second faces;
(c) biasing means positioned between the first end surface of said chamber and the first face of said piston for biasing said piston toward the second end surface of said main chamber;
(d) an unpressurized chamber positioned within said main chamber between the first end surface thereof and the first face of said piston;
(e) a variable pressure control chamber positioned within said main chamber between the second end surface thereof and the second face of said piston;
(f) an equilibrium pressure within said control chamber which defines said neutral location of said piston;
(g) first electrically controllable valve means coupled to said control chamber and to a source of pressurized fluid for metering fuel into or out of said control chamber to regulate the pressure in said control chamber above or below said equilibrium pressure in response to a control signal to controllably displace said piston toward either the first or second end surfaces of said main chamber;
(h) an inlet port positioned in said main chamber between the first and second faces of said piston and coupled to the source of pressurized fluid;
(i) actuator means hydraulically coupled to said main chamber between the first and second faces of said piston for displacing the rack of the fuel injection pump in response to fluid pressure from said main chamber;
(j) second valve means coupling said main chamber to said actuator means when said piston is not in said neutral location and conducting pressurized fluid from said inlet port to said actuator means to displace said actuator means in a first direction when said piston is displaced toward the first end surface of said main chamber and for displacing said actuator means in a second direction when said piston is displaced toward the second end surface of said main chamber; and
(k) control means coupled to the rack of the fuel injection pump and to said first valve means, including
(i) RPM sensor means for measuring the operating RPM of the engine and
(ii) RPM command means for designating a selected engine operating RPM
for generating the control signals which actuate said first valve means to displace said piston to reposition the rack of the fuel injection pump to maintain the selected engine operating RPM.

4,275,692
SYSTEM FOR CONTROLLING IGNITION TIMINGS IN ENGINE
Yuji Takeda; Takashi Shigematsu, and Daisaku Sawada, all of Shizuoka, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan
Filed Aug. 10, 1979, Ser. No. 65,756
Claims priority, application Japan, Aug. 15, 1978, 53-99669
Int. Cl.³ F02P 5/14
U.S. Cl. 123—419 13 Claims



1. An ignition timing control system for an engine having a plurality of cylinders comprising:
first means for generating first ignition signals in synchronism with the rotation of the engine;
second means for generating second ignition signals advanced by a predetermined value with respect to at least some of said first ignition signals;
means, responsive to said first and second ignition signals, for applying said first signals and for selectively applying said second signals, instead of said first signals;
means for detecting knocking; and
means for altering the timing of said first ignition signals, and therefore said second ignition signals, in response to said detecting means.

4,275,693
FUEL INJECTION TIMING AND CONTROL APPARATUS
William H. Leckie, 3 Hickory Hollow, Birmingham, Mich. 48010
Continuation of Ser. No. 862,739, Dec. 21, 1977, abandoned. This application Nov. 13, 1979, Ser. No. 93,172
Int. Cl.³ F02M 51/06
U.S. Cl. 123—447 3 Claims



1. An electrically controlled liquid fuel injector for converting a conventional pressure excited fuel injector system of a diesel internal combustion engine to a non-pressure excited injection system, said injector comprising an injector housing adapted to be mounted in the space and position of said conventional pressure excited fuel injector in direct communicating relationship with the combustion chamber of said diesel internal combustion engine, a variable volume fuel accumulator in said housing, said accumulator including means for maintaining the pressure of liquid fuel therein relatively constant incident to changes in the volume of fuel in said accumulator, a fuel pump in said housing comprising a piston adapted to be mechanically driven directly by said engine in direct relation to the speed of rotation thereof for pressurizing fuel in said accumulator, a fuel injection nozzle communicating with said accumulator and the combustion chamber of said diesel internal combustion engine, a fluid flow control valve mechanically and functionally independent from said fuel pump and having fluid flow control ports communicating directly with said accumulator and said injection nozzle for controlling the flow of fuel from said accumulator to said injection nozzle, said valve being movable between an open and closed position independently of the pressure of the fuel in said accumulator, an electric solenoid for controlling movement of said valve independently of the pressure of the fuel in said accumulator, and means for energizing said solenoid independently of said fuel pump and pressure in said accumulator in response to selected engine and environmental parameters.

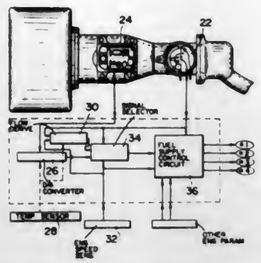
4,275,694
ELECTRONIC CONTROLLED FUEL INJECTION SYSTEM
Hatano Nagaishi, Yokosuka, Japan, assignor to Nissan Motor Company, Limited, Yokohama, Japan
Filed Sep. 4, 1979, Ser. No. 72,436
Claims priority, application Japan, Sep. 27, 1978, 53-118048
Int. Cl.³ F02M 41/00
U.S. Cl. 123—463 5 Claims

1. A fuel supply system for use in an internal combustion

engine having an intake passage and a throttle valve therein, said system comprising:

(a) means for supplying a controlled amount of fuel to said engine in accordance with intake air flow rate;

(b) a Karman's vortex flow meter located in said intake passage upstream of said throttle valve for providing a first signal corresponding to the rate of air flow through said intake passage;



(c) means, responsive to engine rotational speed and throttle position, for providing a second signal corresponding to the rate of air flow through said intake passage; and

(d) a signal selector means for connecting one of said signals to said fuel supply means, said selector means normally connecting said first signal to said fuel supply means, said selector means connecting said second signal to said fuel supply means when the engine load exceeds a predetermined value.

4,275,695

DEVICE FOR DETERMINING A FUEL METERING SIGNAL FOR AN INTERNAL COMBUSTION ENGINE

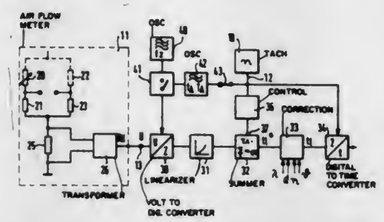
Hartmut Bauer, Gerlingen; Peter Schmidt, Schwieberdingen, both of Fed. Rep. of Germany; Herbert Stocker, San Jose, Calif., and Bernd Przybyla, Schwieberdingen, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Sep. 11, 1979, Ser. No. 74,450

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1978, 2840793

Int. Cl.³ F02B 3/00

U.S. Cl. 123—486 **19 Claims**



1. A device for determining a fuel metering signal in an internal combustion engine according to engine parameters having an intake manifold and a crankshaft, wherein the device includes: a tachometer connected to measure engine rpm; an air flowmeter mounted in the air intake manifold which generates voltages such that the voltage amplitude is proportional to air flow in the intake manifold, a storage means connected to the air flowmeter to store the voltages, a time counting circuit connected to the storage means such that the voltages are stored according to a first predetermined time interval, further including:

a summing element connected to the storage means for summing the stored voltages, further connected to detect crankshaft rotation and connected to the time counting circuit which generates a second predetermined time interval wherein the summing element multiplies the stored voltages with the second predetermined time interval during a predetermined crankshaft angle and wherein the summing element generates an output indicative of fuel metering time.

19. A method of determining a fuel metering signal for an internal combustion engine having an intake manifold, comprising the steps of:

generating first signals proportional to the speed of the engine;

generating second signals proportional to instantaneous air flow in the intake manifold;

converting the second signals to digital signals;

making the digital signals linear;

integrating said linearized signals over a time period equal to at least one crank shaft revolution; and

converting said integrated signals to a time signal dependent upon said first signals to provide the desired fuel metering signal.

4,275,696

CARBURETOR OUTER VENT CONTROL DEVICE

Toshiro Yoshida, and Teruo Kumai, both of Toyota, Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

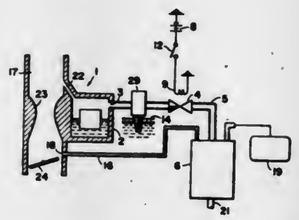
Division of Ser. No. 836,393, Sep. 26, 1977, Pat. No. 4,208,997.

This application Feb. 8, 1980, Ser. No. 119,762

Claims priority, application Japan, May 9, 1977, 52/53519

Int. Cl.³ F02M 33/02

U.S. Cl. 123—519 **1 Claim**



1. A carburetor outer vent control device for use in a fuel system of a motor vehicle of the type including an engine, an outer vent provided in a float chamber of a carburetor, a charcoal canister and a fuel vapor line coupling said outer vent to said charcoal canister, said carburetor outer vent control device comprising a means for opening and closing said fuel vapor line such that said line is only open when an excessive amount of fuel vapor is present in said float chamber and said engine of said motor vehicle is not running, said means comprising:

a solenoid valve provided in said fuel vapor line which is closed when said engine is running; and

a heat sensitive valve means which is open when a temperature of said engine is higher than some predetermined temperature.

4,275,697

CLOSED LOOP AIR-FUEL RATIO CONTROL SYSTEM

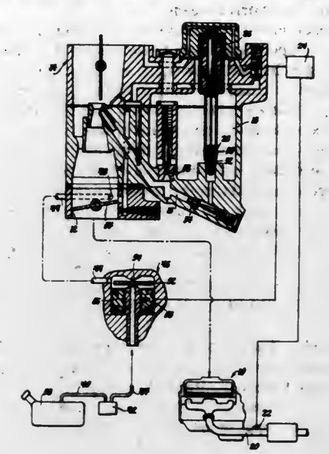
Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 7, 1980, Ser. No. 165,971

Int. Cl.³ F02M 7/20

U.S. Cl. 123—520 **1 Claim**

1. A closed loop air-fuel ratio control system for an engine having an air induction passage for receiving a flow of air, a main fuel passage for receiving a flow of liquid fuel, and a purge passage for receiving fuel vapor and air from a fuel vapor storage region, said engine being effective to combine the fluids received through said passages into an air-fuel mixture, said air-fuel ratio control system comprising the combination of means responsive to the air-fuel ratio of said mixture for producing a signal indicative of the fuel flow required to provide a desired air-fuel ratio, a metering valve in said main fuel passage, said metering valve being responsive to said signal for varying fuel flow through said fuel passage generally linearly with said signal, and a purge valve in said purge passage, said



purge valve being responsive to said signal for minimizing flow through said purge passage when said signal approaches its maximum and its minimum values and for maximizing flow through said purge passage when said signal is intermediate its maximum and minimum values, whereby fuel vapor purged from said region is used to provide the desired air-fuel ratio only when fuel vapor purged from said region cannot unduly enrich said mixture and air purged from said region cannot unduly lean said mixture.

4,275,698

INTERNAL COMBUSTION ENGINE OF THE TYPE HAVING TWO INLET VALVES PER CYLINDER

Andre Desnetiere, Saint Saulve, France, assignor to Duvant, S.A., Paris, France

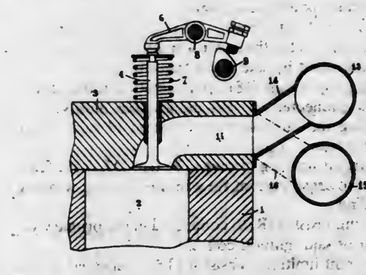
Continuation of Ser. No. 635,913, Nov. 28, 1975, abandoned.

This application May 3, 1978, Ser. No. 902,356

Claims priority, application France, Dec. 3, 1974, 74 39487

Int. Cl.³ F02M 21/02

U.S. Cl. 123—527 **8 Claims**



1. An internal combustion engine comprising (a) a cylinder block; (b) at least one cylinder in said cylinder block; (c) a cylinder head having first and second inlet ports opening into said at least one cylinder, at least one induction passage, and first and second induction ducts formed in said at least one induction passage, each induction duct being connected with one of said inlet ports; (d) first and second inlet valves, each inlet valve being adapted to close one of said inlet ports, said second inlet valve being a cylindrical shutter-type valve; (e) a single rocker for actuating simultaneously said first and second inlet valves; and (f) first and second induction manifolds, each induction manifold being connected to one of said induction ducts, said first induction manifold being connected to a source of air, and said second induction manifold being detachably connected to a source of gaseous fuel.

4,275,699

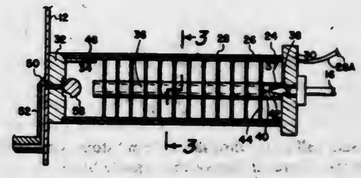
GASOLINE VAPOR COMPLETE BURNING CARBURETOR

Jerry D. Trogiin, Rte. 1, Box 107, Locust Grove, Okla. 74352

Filed Jul. 23, 1979, Ser. No. 59,531

Int. Cl.³ F02M 31/00

U.S. Cl. 123—557 **7 Claims**



1. A fuel vaporizing device for use in combination with a carburetor and comprising heater means interposed between the carburetor and a supply of fuel for receiving raw fuel therein and selectively increasing the temperature of the fuel, the heater means comprising inner and outer concentrically arranged housings having electrical heating coil means interposed therebetween for transmitting heat to the inner housing for heating of the interior thereof, a plurality of annular fins disposed within the inner housing and each fin having the outer periphery thereof in engagement with the inner periphery of the housing for receiving heat therefrom rod means centrally disposed within the housing and extending longitudinally therein through each of the fins for supporting thereof, an internal chamber provided in one end of the rod means and in open communication with the supply of fuel for receiving the fuel therein, said chamber being provided with a plurality of spaced apertures for injecting the fuel into the interior of the inner housing in a jet action, each of said fins being provided with a plurality of spaced apertures disposed in misalignment with the apertures of the adjacent fins to provide a tortuous path of travel of the fuel for facilitating braking down of the fuel into small particles and for increasing the heating thereof to assure vaporization of the fuel within the interior of the inner housing, and orifice means providing communication between the heater means and the interior of the carburetor for discharging the vaporized fuel into the air stream moving through the carburetor.

4,275,700

THROTTLE BODY HAVING A DEFLECTOR FOR THE THROTTLE BLADE AND IMPROVED ATOMIZATION

Kenneth A. Graham, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich.

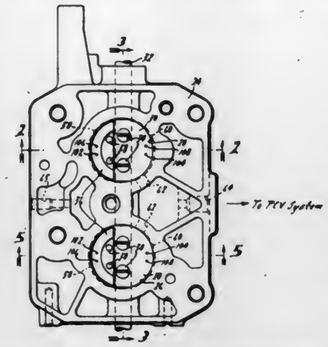
Filed Feb. 21, 1979, Ser. No. 13,337

Int. Cl.³ F02M 29/00

U.S. Cl. 123—590 **4 Claims**

1. In a throttle body assembly having a throttle body, a circular induction port extending through said throttle body, and a generally circular flat throttle blade disposed in said port and mounted on a rotatable throttle shaft which extends centrally transversely across the port for selectively throttling same and selectively positionable between a closed position

and a fully open position, the improvement which comprises a deflector element disposed on that half of the upstream face of the throttle blade which swings upstream as the throttle blade is increasingly opened from the closed position, said deflector element comprising a flat base disposed against the upstream face of the throttle blade, a thin web forming a portion of said base, and an arcuately extending deflector segment raised relative to said web and comprising a deflection surface which extends arcuately along a segment of the circumferential mar-



gin of said half of the throttle blade but stops short of the other half of the upstream face of the throttle blade and in a radial section with the blade in the closed position inclines radially inwardly in the upstream direction, aperture means in said web and throttle blade, and fastening means disposed in said aperture means securing said deflection element to the throttle blade said assembly also including means for directing a jet of fuel to impinge upon the deflection surface when the throttle blade is within a certain range of open positions adjacent the closed position.

4,275,701

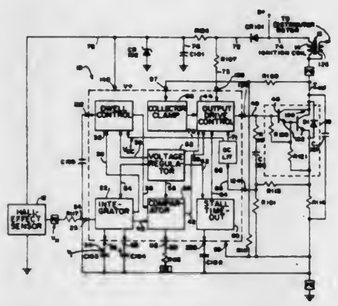
IGNITION CONTROL SYSTEM

Leonard E. Arguello, San Jose, and Lawrence M. Blaser, Mountain View, both of Calif., assignors to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Apr. 26, 1979, Ser. No. 33,667

Int. Cl.³ F02P 9/00

U.S. Cl. 123—609 **12 Claims**



1. An ignition control system for connection between (1) sensing means for repetitively producing a timing signal in response to rotation of distributor means and (2) output drive means responsive to a repetitively generated activation signal for repetitively supplying an ignition signal to activate ignition means at the repetition period of the ignition signal, the ignition control system comprising:

integrating means responsive to the timing signal for producing a waveform;

dwell-control means for producing a dwell-control reference signal;

comparing means responsive to the waveform and to the dwell-control reference signal for producing an output drive-control signal when the voltage of the waveform equals or is less than the voltage of the dwell-control reference signal;

output drive-control means responsive to the output drive-control signal for generating the activation signal to activate the output drive means;

first feedback means responsive to an output signal indicative of the operational state of the output drive means for supplying a first feedback signal to the output drive-control means to cause the output drive means to stabilize temporarily at a selected activated operational state; and

second feedback means responsive to the output signal for supplying a second feedback signal to the dwell-control means to control the voltage level of the dwell-control reference signal and thereby to control the length of dwell time during which the output drive means is activated prior to generation of the ignition signal.

4,275,702

IGNITION SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

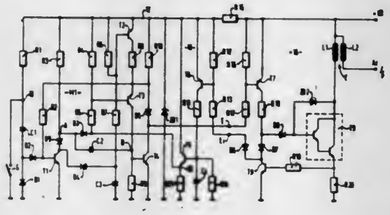
Werner Jundt, Ludwigsburg, and Herman Roozenbeek, Schwieberdingen, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 56,962

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1978, 2833435

Int. Cl.³ F02P 3/04

U.S. Cl. 123—610 **5 Claims**



1. An ignition system for an internal combustion engine including

an ignition coil (Z) having primary (L1) and secondary (L2) windings;

an ignition control transistor (19) serially connected to the primary winding;

an input transducer (G) coupled to the engine and generating engine speed-related signals;

a monostable multivibrator (M1) for generating ignition control signals for the control transistor (19) connected to and controlled by said input transducer;

an integrating circuit (18) for generating integrator output signals connected to said monostable multivibrator for changing the unstable time constant of said monostable multivibrator;

and a current limiting circuit (T8, D6, D7, R19, R20) connected to sense current flow in the primary winding (L1) including

a measuring resistor (R20) connected in the primary winding circuit of said ignition coil (Z),

and a current limiting transistor (T8) connected to and controlled by current flow through said measuring resistor and having a control output (Ei) connected to affect control current applied to the ignition control transistor (T9) to reduce current flow therethrough when the current through said measuring resistor (R20) reaches a predetermined value;

and wherein the control output (Ei) of said current limiting transistor is further connected to and controls said integrating circuit (18) to thereby control the integrator output signal in accordance with current flow through the primary winding of the ignition coil.

4,275,703

FLUX CONTROL SYSTEM FOR A HALL GENERATOR IN AN IGNITION SYSTEM OF AN INTERNAL COMBUSTION ENGINE

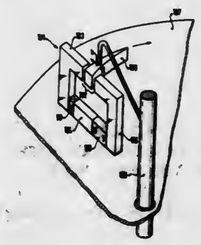
Bernd Bodig, Leinfelden; Herman Roozenbeek, Schwieberdingen, and Werner Jundt, Ludwigsburg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 24, 1979, Ser. No. 69,622

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1978, 2842386

Int. Cl.³ F02P 3/04

U.S. Cl. 123—617 **4 Claims**



1. In an ignition system of an internal combustion engine having a shaft, said ignition system having spark creating means (6, 11) requiring a predetermined value of ignition current flowing therethrough for creating a spark, electronic interrupter switch means (9) connected to said spark creating means for, respectively, allowing and blocking ignition current flow therethrough in response to a first and second switch control signal applied thereto, threshold circuit means (47) having a cut-in threshold and a cut-out threshold for furnishing a first and second threshold output signal when a threshold input signal applied thereto becomes, respectively, greater than said cut-in threshold and less than said cut-out threshold and means (33, 29, 24, 18) for applying said first and second switch control signal to said electronic switch means in response to said first and second threshold output signal, respectively:

improved means for generating said threshold input signal comprising

Hall generator means (59) for furnishing a Hall generator output signal varying as a function of magnetic flux applied thereto;

magnetic circuit means (103-106) coupled to said Hall generator means for applying said magnetic flux thereto;

means (108, 109) for slowly changing the flux through said magnetic circuit means and thereby through said Hall generator means while said shaft of said engine rotates through a predetermined angle of rotation, thereby creating a time-varying Hall generator output signal; and

a linear amplifier (58) interconnected between said Hall generator means and said threshold circuit means for furnishing a threshold input signal corresponding to said Hall generator output signal to said threshold circuit means.

4,275,704

APPARATUS FOR CENTRAL HEATING

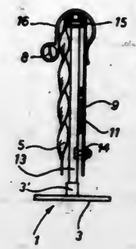
Constant Vuissoz, 3941 Grone, Suisse, Switzerland

Filed Nov. 24, 1978, Ser. No. 963,347

Claims priority, application Switzerland, Dec. 16, 1977, 15490/77

Int. Cl.³ F24C 3/04; F24H 1/20

U.S. Cl. 126—92 R **6 Claims**



1. In combination with a furnace comprising a fire-box constituting a combustion chamber having floor, and heat exchange surfaces having one face exposed to combustion gases and an opposite face exposed to a fluid to be heated, and a fuel oil burner the flame of which is directed horizontally into said fire-box, means for improving combustion comprising support means in said fire-box and a plurality of juxtaposed elements which are supported by said support means inside said fire-box spaced from said heat exchange surfaces and in the path of said flame, said support means comprising spaced uprights having bases resting on the floor of said fire-box and cross-pieces extending between and connecting said uprights, and said elements comprising strips of stainless steel at least some of which are twisted, said strips being individually supported by said support means in position to be completely surrounded by combustion gases and to be heated to incandescence by said flame.

4,275,705

TWO-STAGE HEAT EXCHANGER

Orland O. Schoss, Agincourt, and John C. K. Overall, Toronto, both of Canada, assignors to Canadian Gas Research Institute, Don Mills, Canada

Filed Jan. 28, 1980, Ser. No. 115,645

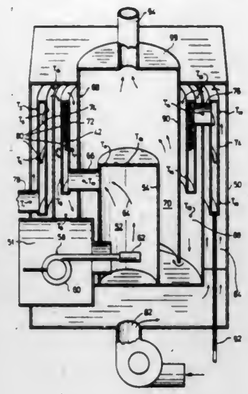
Claims priority, application Canada, Mar. 15, 1979, 323485

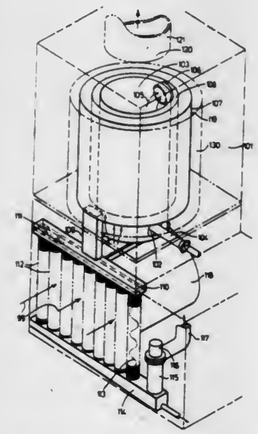
Int. Cl.³ F24H 3/02; F16F 1/34; F24B 7/00

U.S. Cl. 126—110 R **31 Claims**

1. A furnace comprising an exterior housing having air distribution means for discharging air heated by said furnace; a primary heat exchanger comprising a central combustion chamber having a top and a bottom and at least one sidewall for burning a fluid fuel yielding hot gaseous products of combustion positioned within said housing; a secondary heat exchanger in communication with said combustion chamber and adapted to receive air in turbulent flow therethrough, for receiving hot gaseous products of combustion from the combustion chamber; means substantially enclosing the sidewall of said combustion chamber intermediate the said combustion sidewall and at least a portion of the secondary heat exchanger and spaced therefrom defining a restricted flow path for turbulent passage of air about said combustion chamber and secondary heat exchanger and shielding the said portion of the secondary heat exchanger from radiation from the combustion chamber whereby said gaseous products of combustion are cooled in said secondary heat exchanger to about 120° F. for condensation of at least a portion of condensible gases for atmospheric

recovery of latent heat of condensation of said condensible products of combustion and transfer of said heat to the dis-





charging air; and means for draining condensate from the secondary heat exchanger.

4,275,706

AIR-COOLED GRATE BAR

Baldwin L. Pauli, Gauting, Fed. Rep. of Germany, assignor to Wärmetechnik Dr. Pauli GmbH & Co. Betriebs KG, Gauting, Fed. Rep. of Germany

Filed Jun. 20, 1979, Ser. No. 50,488

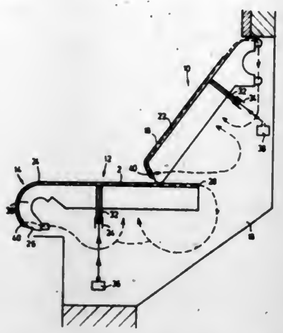
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1978, 2833255

Int. Cl.³ F23H *1/02*

U.S. Cl. 126—163 R **12 Claims**

1. An air-cooled grate bar, in particular for mechanically conveying mechanical grates such as pivot step grates, comprising

a cap which is provided over the respective grate bar so as to protect the same from wear due to excessive heat, and air passages formed by said cap with the respective grate bar, said passages extending longitudinally of the respective grate bar,



said cap having a U-shaped section with downwardly pointing legs in cross-section and a continuously interrupted transverse web supported upon the respective grate bar.

4,275,707

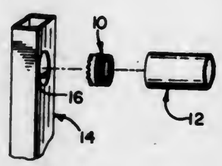
VENTILATING SYSTEM COLLAR WITH LOCK MEANS

Ronald A. Anderson, Villa Park, Ill., assignor to The Lockformer Company, Lisle, Ill.

Filed Jul. 26, 1979, Ser. No. 60,970

Int. Cl.³ F23J *13/04*

U.S. Cl. 126—318 **3 Claims**



1. In a ventilating system comprising a duct for the passage of heated or cooled air, a distribution pipe attached to the duct, and a collar providing the means for securing the pipe to the duct, the improvement wherein said collar comprises locking means for securing the opposite ends of the collar together, said locking means comprising a projection extending outwardly from one end of the collar, said projection defining an outer edge extending substantially parallel with said one end, and said projection defining side edges extending angularly inwardly from said outer edge toward said one end, the other end of said collar defining a notch for receiving said projection, an inner edge defined by said notch extending substantially parallel with said other end, and side edges defined by said notch extending angularly inwardly from said inner edge toward said other end, and including collar portions extending outwardly from the respective side edges of said notch, said projection being received in said notch and extending beyond said inner edge of said notch, said collar portions extending beyond said one end on the same side of the collar as said projection, and including an intermediate tab portion defined by said inner edge, said tab portion extending beyond said one end on the side of the collar opposite said collar portions when the projection is received in the notch.

4,275,708

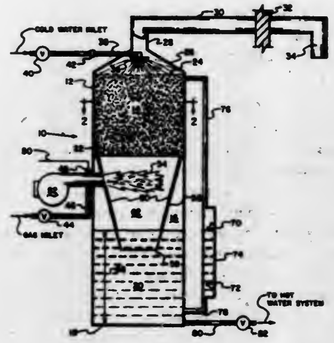
COMBINED HOT WATER HEATING AND STRIPPING COLUMN FURNACE AND METHOD

Harry E. Wood, 6465 Oakland Dr., New Orleans, La. 70118

Continuation-in-part of Ser. No. 938,441, Aug. 31, 1978, abandoned. This application Oct. 29, 1979, Ser. No. 88,934

Int. Cl.³ F24H *1/10*

U.S. Cl. 126—355 **32 Claims**



1. A hot water heater comprising:

a combination hot water heat exchanger and stripper furnace means for use in providing a non-corrosive drinking-water quality heated water, comprising:

a. an external shell structure having integrally formed therein at least two, in-line, upper and lower compartments, said lower compartment forming an open, exposed flame, heating area and said upper compartment forming a combined heat exchange and oxygen stripping area;

b. support means associated with said upper compartment;

c. a plurality of heat absorbing and transfer bodies positioned within said upper compartment and on top of said support means to a depth substantially greater than that needed for sufficient heat exchange and to a depth sufficient for substantially complete oxygen stripping from incoming water allowing for exposure flame combustion gases flowing upwardly through said upper compartment to strip substantially all the free oxygen from the water to substantially eliminate corrosive effects of CO_2 presence;

d. water supply means associated with said upper compartment for supplying water over the plurality of heat absorbing bodies, said water thereby being heated and stripped of substantially all its free oxygen, and then falling down into said lower compartment;

e. an exhaust stack positioned above said heat absorbing bodies for removing exhaust gas from said furnace means;

f. exposed flame heating means, associated with said lower compartment, operating at a relatively low temperature free of intense hot spots to avoid NO_x formations and its corrosive effects for heating said lower compartment and said upper compartment and for producing gases flowing upwardly through said upper compartment to strip the free oxygen from the water being heated; and

g. directing means, associated with one of said compartments, for directing the flow of water to a predetermined area in the lower compartment in order to prevent hot spots resulting in burn outs on the shell in the area of the lower compartment.

4,275,709

SYSTEM OF SOLAR HEATING BY MEANS OF FAN RADIATORS WITH FLUID CIRCUIT AND WITHOUT STORAGE

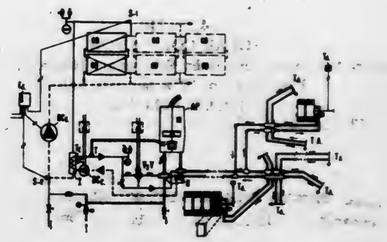
Bartolome Barcelo Rubi, Fray Luis Jaume Vallespir,1, Palma De Mallorca, Spain

Filed Mar. 15, 1979, Ser. No. 20,947

Claims priority, application Spain, Mar. 16, 1978, 467.925

Int. Cl.³ F24J *3/02*

U.S. Cl. 126—422 **4 Claims**



1. A solar heating system comprising first and second closed loop fluid circuit thermally connected by means of a heat exchanger;

said first fluid circuit comprising:

at least one solar collector for heating the fluid in said first circuit with the energy absorbed from solar radiation,

a first fluid pump for circulating the fluid in said first circuit,

a first temperature sensor for measuring the temperature of the first circuit fluid at the at least one solar collector and a second temperature sensor for measuring the first circuit fluid temperature at the heat exchanger,

a first control means operatively connected to said first and second temperature sensors and said first fluid pump for activating said first fluid pump when the difference between the temperature measured by said first temperature sensor and the temperature measured by said second temperature sensor exceeds a predetermined value;

said second fluid circuit comprising:

at least one radiator for transferring the heat energy contained in the fluid in said second circuit to the air adjacent said at least one radiator,

a second fluid pump for circulating the fluid in said second circuit,

a third temperature sensor operatively connected to a second control means and said second fluid pump, said third temperature sensor thermally connected to said heat exchanger, said second control means activating said second fluid pump when the temperature measured by said third temperature sensor exceeds a predetermined value,

an auxiliary fluid heater for heating said second circuit fluid,

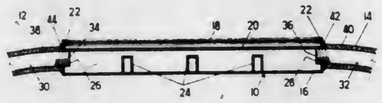
a fourth temperature sensor for sensing the second circuit fluid temperature at said heat exchanger,

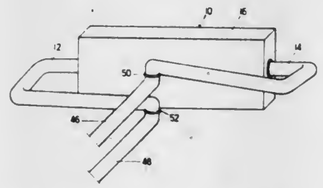
a valve means for selectively controlling the flow of the second circuit fluid path,

a third control means operatively connected to said fourth temperature sensor, valve means, and auxiliary fluid heater, wherein said third control means actuates said valve means such that the path of said second circuit fluid is diverted by said valve means so as to by-pass said auxiliary fluid heater when the temperature mea-

sured by said fourth temperature sensor exceeds a predetermined value and wherein said valve means is actuated by said third control means to enable said second circuit fluid to flow through said auxiliary heater and said auxiliary heater is controlled by said third control means to increase said second circuit fluid temperature when the temperature measured by said fourth temperature sensor is below a predetermined value.

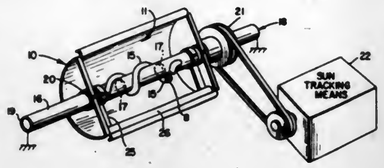
4,275,710
SOLAR COLLECTOR
Sanford Stevenson, 3506 Bohn Rd., Mount Horeb, Wis. 53572
Filed Nov. 16, 1979, Ser. No. 94,886
Int. Cl.³ F24J 3/02
U.S. Cl. 126—424 3 Claims





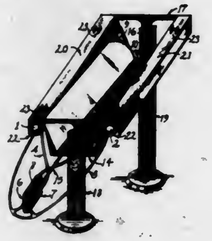
1. A solar energy collector (10) comprising:
a collector frame (16) having four sides and a back, two opposite lateral sides of the collector frame having air passage ports (26, 28) formed therein, each of the air passage ports formed as a threaded hole in the collector frame (16) with the direction of the threads of the two air passage ports (26, 28) being opposite;
at least one sheet of glazing (18) extending between the four sides of the collector frame (16) to cover the front thereof and to define a collector air passage between the glazing (18) and the back of the collector frame; and
first and second fixed, well-insulated air transfer passages (12, 14) extending into the air passage ports (26, 28) in the sides of the collector frame (16) to open into the collector air passage, the air transfer passages (12, 14) being axially aligned along a horizontal axis, each of the air transfer passages (12, 14) including a hot air pipe (30, 32) having a threaded end (34, 36) thereon threaded into the threads in the air passage ports (26, 28) to pivotally connect the air transfer passages (12, 14) to the air passage ports (26, 28) such that the collector frame (16) may be pivoted about the horizontal axis of the air transfer passages (12, 14) to vary the tilt of the solar collector (10) without impeding air flow between the collector air passage and the air transfer passages (12, 14), the opposite threading of the air passage ports (26, 28) and the corresponding threaded ends (34, 36) of the hot air pipes (30, 32) causing the connection of the air transfer passages (12, 14) to the collector frame (16) to tighten as the collector is pivoted in the direction of tilt of winter solar collection so as to minimize heat loss and thus maximize efficiency during the winter months.

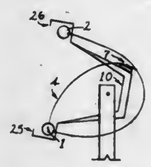
4,275,711
SOLAR ENERGY COLLECTOR SYSTEM
Robert F. Dunbeck, FM 3000, Box 548, Elgin, Tex. 78621
Filed May 16, 1979, Ser. No. 39,551
Int. Cl.³ F24J 3/02
U.S. Cl. 126—425 18 Claims



1. Solar energy collection means comprising in combination, a fixed position conduit pipe in the form of a helix longitudinally disposed along an axis and adapted for conveying liquids to be heated by solar energy in a single direction along said longitudinal axis, and a reflector arranged axially along a helical array to receive and direct upon the helix over an axial distance therealong solar energy and means adapted to move the reflector relative to the helix to concentrate solar energy on the pipe throughout the day as the sun position changes, the reflector comprises a semi-cylindrical reflection surface relatively rotatable about its axis with a fixed position circumferentially disposed cleaning member engaging the reflector surface to wipe the reflection surface when it rotates.

4,275,712
SUN TRACKING DEVICE EMPLOYING DISPLACED HEATING SURFACES FOR AUTOMATIC MORNING REORIENTATION
Stephen C. Baer, P.O. Box 712, Albuquerque, N. Mex. 87103
Filed Oct. 25, 1979, Ser. No. 88,016
Int. Cl.³ F24J 3/02; G03B 21/00
U.S. Cl. 126—425 11 Claims

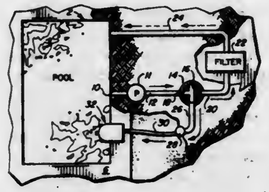




1. In a solar tracking mechanism in which a solar collector is pivotably mounted to move about a generally north-south axis and includes a pair of interconnected east and west spaced canisters containing a volatile liquid which is transferred between the canisters based upon heat influx to keep the collector

pointed toward the sun as it moves through the sky from east to west during the day, the improvement comprising a solar heat receiving means oriented at least partially toward the east horizon at all times during movement of the collector, and means for providing heat transfer from the heat receiving means to the west canister so that heat from the early morning sun raises the temperature in the west canister resulting in a mass transfer of the volatile fluid from the west canister to the east canister to pivot the collector toward the morning sun.

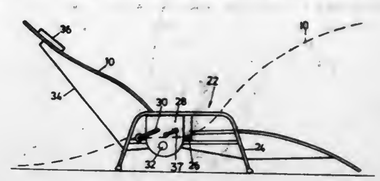
4,275,713
HYDROMASSAGE AIR INJECTOR APPARATUS
Lisa Tellander, Box 1250, Black Canyon Stage, Phoenix, Ariz. 85029, and Billy J. Lord, P.O. Box 9995, Phoenix, Ariz. 85068
Filed Feb. 25, 1980, Ser. No. 124,127
Int. Cl.³ A61H 9/00
U.S. Cl. 128—66 14 Claims



1. Portable hydromassage therapy apparatus adapted for use with a pool containing a quantity of water and having a side and a deck adjacent the side and having a water circulation system, including a pump for drawing water out of the pool and returning the water to the pool, comprising, in combination:
a flexible conduit coupled to the water circulation system for receiving a flow of water from the pump;
head means connected to the flexible conduit and movable for positioning on the deck at the side of the pool, and including a portion disposed in the quantity of water in the pool, including
a first conduit connected to the flexible conduit for receiving a flow of water therefrom,
a second conduit movably connected to the first conduit and extending from the first conduit to an end disposed in the quantity of water and receiving the flow of water from the first conduit,
air pipe means adjacent the first and second conduits for providing a flow of air,
an air conduit connected to the air pipe means and extending within the second conduit and terminating at an end within the second conduit a predetermined distance from the end of the second conduit for receiving the flow of air from the air pipe means, and
collar means disposed on the air conduit for disturbing and accelerating the flow of water within the second conduit and about the air conduit, the flow of water within the second conduit and about the air conduit and the collar providing a flow of water and air from the end of the second conduit.

4,275,714
SPINAL POSITIONING COUCH
Sidney E. Lewis, 89 Cherry Dr., Northcliff View, Johannesburg, Transvaal, South Africa
Filed Jan. 18, 1979, Ser. No. 49,652
Claims priority, application South Africa, Jan. 23, 1978, 78/0606
Int. Cl.³ A61F 5/00; A47C 1/12
U.S. Cl. 128—74 5 Claims

1. In a spinal positioning couch including a body support portion having head, back, seat and leg support zones and a support frame on which the body support portion of the couch is mounted for movement about a horizontal pivot connection between the body support portion and the frame, the improvement in which
(a) the leg support zone from approximately the center of the seat support zone is inclined at a fixed mean angle of between 130° and 170° relatively to the back and head support zones;
(b) the back support zone includes an outwardly convex



substantially non-deformable hump adapted to move the thoracic vertebrae T11, T12 and L1 of an adult user forwardly relatively to the remainder of his spinal column when the user lies on the couch in a supine position,
(c) a head rest on the head support zone, and
(d) means for moving the body support portion of the couch about its pivot connection with the frame between a substantially horizontal position and a position in which the head support zone is vertically lower than the seat support zone.

4,275,715
EAR RACK FOR SUPPORTING DOG EARS ERECT
Randall R. Wolfe, Rte. 5, Box 99 W, Jasper, Ala. 35501
Filed Dec. 26, 1979, Ser. No. 106,516
Int. Cl.³ A61F 5/08
U.S. Cl. 128—76 R 7 Claims

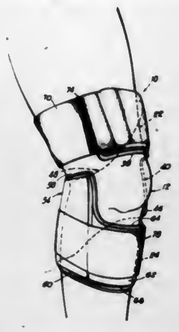


1. An ear rack for supporting the ears of a dog erect comprising,
(a) a generally round base member as viewed in plan of a width to span substantially the distance between the ears of a dog and having an upstanding flange extending around the periphery thereof,
(b) an upstanding support member formed integrally with said upstanding flange at each side of said base member in position for the outer surface thereof to lie alongside the inner surface of a dog ear adjacent thereto, and
(c) means to secure each said upstanding support member to the dog ear adjacent thereto so that each dog ear is thereby supported in an erect position.

4,275,716
KNEE BRACE
Lizzy Scott, Jr., 2085 Campbellton Rd., Atlanta, Ga. 30311
Filed Sep. 24, 1979, Ser. No. 78,106
Int. Cl.³ A61F 3/00
U.S. Cl. 128—80 C 26 Claims

1. An orthopedic appliance for the joint on a limb comprising: a first band which is adapted to traverse the anterior

portion of said limb above said joint and which has opposed ends, a first rigid means that is joined at one of said ends of said first band and which extends downwardly so as to span a first side of said joint when said first band is on said anterior portion of said limb, a second band which is adapted to traverse the anterior portion of said limb below said joint and which has opposed ends, a second rigid means which is joined to one of said ends of said second band and which projects upwardly so



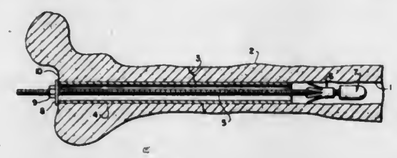
as to span a second side of said joint when said second band is on said anterior portion of said limb, said first and second sides of said joint being in opposed relationship and a section being of sufficient length to cross the posterior portion of said joint and to interconnect said first and said second rigid means, said appliance capable of embracing said limb in a spiral-shaped configuration and having a longitudinal axis, said first and second rigid means being oriented on said appliance such that they are in spaced, staggered relationship along said axis.

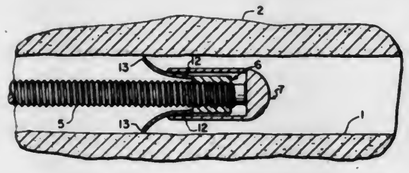
4,275,717

INTRAMEDULLARY FIXATION DEVICE FOR FRACTURED TUBULAR BONES

Richard C. Bolesky, Warsaw, Ind., assignor to Zimmer USA, Inc., Warsaw, Ind.

Filed Jul. 27, 1979, Ser. No. 61,343
Int. Cl.³ A61F 5/04
U.S. Cl. 128—92 BC 6 Claims





1. In an internal fixation device for fractured tubular bones, the combination of:

(a) a rod having a leading end portion and a trailing end portion,

the length of the rod being such that the rod can be inserted through a bored entrance, leading-end-first, into the medullary canal of the fractured bone so as to position the leading end portion beyond the fracture when the trailing end portion is adjacent the entrance of the canal,

at least the leading end portion of the rod being threaded;

(b) a hollow, generally cup-shaped nose member secured to the leading end portion of the rod and comprising a wall surrounding the leading end portion of the rod to define a cavity opening toward the trailing end of the rod;

(c) a gripper unit comprising

an internally threaded hub having its threads operatively engaged with the threads of the leading end portion of the rod, and

a plurality of outwardly concave, springy, resilient gripper fingers evenly spaced about and extending both outward from the periphery of said hub and generally toward the trailing end of the rod, said fingers having pointed free ends adapted for penetrating engagement with the osseous tissue surrounding the medullary canal; and

(d) adjustable means operatively connected to the trailing end portion of the rod adapted for coacting with the bone to apply to the rod a force tending to move the leading end portion of the rod toward the entrance of the canal;

whereby, this movement of the rod, and therefor the hub, toward the entrance of the canal being effective to increase the penetrating engagement of the fingers with the wall of the canal, and to cause the fingers to be increasingly bowed, thus maintaining the fracture in compression; and

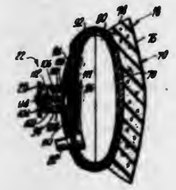
whereby, upon healing of the fracture, the device may be withdrawn when the adjustable means is adjusted to release said force, subsequent rotation of the rod in one direction while the gripper fingers are engaged with the osseous tissue of the canal and holding the hub against rotation which causes longitudinal movement of the nose member, which member acts as a gripper unit collapsing member, toward the gripper unit until the nose member engages the gripper unit and collapses the fingers to the extent at which said pointed ends are no longer engaged with and exerting pressure on, the osseous tissue of the canal, thereby allowing withdrawal of the fixation device from the canal.

4,275,718

PELVIC DEVICE

Martin Juugmann, deceased, late of Rangeley, Me. (by Gertrude Juugmann, heir), assignor to Institute for Gravitational Strain Pathology, Inc., New York, N.Y.

Filed Aug. 2, 1979, Ser. No. 63,048
Int. Cl.³ A61F 5/24
U.S. Cl. 128—95 11 Claims



1. In a pelvic device having a pair of pad members respectively adapted to be located in opposed relationship to a pubic bone and a lower sacrum of a wearer's body, a pair of curved spring members for encircling the body, a pair of connecting bars respectively interconnecting lateral ends of said curved members, latch means for detachably connecting one end of one of said connecting bars to an associated one of said lateral ends of one of said curved members on one side of said device, and coupling means rotatably connecting each of said pad members to an associated one of said connecting bars respectively, an improvement comprising:

each pad member including inflating means for individual inflation thereof to regulate its respective outer contour;

each of said pad members including an inflatable bladder;

a resilient pad being mounted onto one side of each of said bladders, and an associated supporting member being coupled to an opposite side of each of said bladders;

each of said coupling means being connected to its said associated supporting member;

each of said coupling means extending through a central opening provided in its said associated supporting member; and

each of said inflating means including a filling valve extending from said bladder through an offset opening provided in its said associated supporting member for access thereto.

4,275,719

APPARATUS AND METHOD FOR PROVIDING AN ASEPTIC SURGICAL ENVIRONMENT

Nathan Mayer, 27 Meuler St., East Brunswick, N.J. 08816

Filed Mar. 30, 1979, Ser. No. 25,333
Int. Cl.³ A61F 13/00; A61B 19/00
U.S. Cl. 128—132 D 10 Claims



1. A method of providing an aseptic environment over an incision site on a patient's body comprising the steps of completely enveloping at least the portion of the patient's body which includes said incision site with a flexible plastic film layer, adhesively attaching and thereby sealing said film layer to said patient's body remote from said incision site and adhesively attaching and thereby sealing said film layer to said patient's body proximally surrounding said incision site so as to form a region between the remote and proximal seals, the film layer, and the patient's body remote from said incision site, providing a circulating first sterile atmosphere within said region, enveloping said region and said incision site with a flexible plastic layer which isolates said region and said incision site so as to form a volume therebetween, and conditioning and providing a second circulating sterile atmosphere within said volume.

4,275,720

SURGICAL DRAPE WITH BARRIER MEMBER

Cynthia A. Wichman, St. Charles, Ill., assignor to The Kendall Company, Boston, Mass.

Filed Aug. 8, 1979, Ser. No. 64,975
Int. Cl.³ A61F 13/00
U.S. Cl. 128—132 D 20 Claims



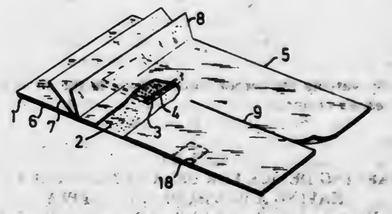
1. A surgical drape, comprising: a sheet of flexible material for covering a portion of a patient's body, a fenestration, first and second flaps on opposed sides of the fenestration and defining openings facing toward the fenestration, and a third flap spaced from the fenestration and integrally connecting the first and second flaps such that it acts as one piece, said third flap defining an opening facing toward the fenestration.

4,275,721

VEIN CATHETER BANDAGE

Karin S. B. Olson, Lund, Sweden, assignor to Landstingens Inkopscentral Lic, Ekonomisk Forening, Solna, Sweden

Filed Nov. 21, 1979, Ser. No. 96,553
Claims priority, application Sweden, Nov. 28, 1978, 7812240
Int. Cl.³ A61M 5/00, 25/02
U.S. Cl. 128—133 4 Claims



1. Vein catheter bandage, characterized by an oblong, preferably air-permeable and liquid-tight protective sheet which has a sticky layer on one side and on top of that a liquid-absorbing layer which is substantially smaller than half of the protective sheet and is located in its entirety within one half of the protective sheet when said sheet is divided transversely, and at a distance from the edges of the protective sheet, preferably a non-absorbent, liquid-permeable sheet which covers the absorbent layer, the absorbent layer or in certain cases the non-absorbent sheet being intended, when the bandage is used, to lie against the incision of the vein catheter, and on top of said layers or on top of said layers and said sheet two covering pull sheets which together cover the entire surface of the protective sheet and extend from each end of the protective sheet, meeting above the absorbing layer of the non-absorbent sheet where their end portions form two gripping tabs, one folded back on itself and the other lying on top of the first, a slit being arranged through the protective sheet, the sticky layer and the pull sheet from the end of the bandage which is farthest from the absorbent layer and extending to a short distance from the absorbent layer.

4,275,722

RESPIRATORY EXERCISER AND REBREATHING DEVICE

Harry D. Sorensen, 740 Conrad Rd., Niles, Mich. 49120

Filed May 4, 1979, Ser. No. 36,003
Int. Cl.³ A61M 16/00
U.S. Cl. 128—200.24 16 Claims

1. A respiration exerciser and rebreathing device comprising walls forming first and second chambers, connection means therebetween for the passage of air, a mouthpiece for breathing into and out of said device, valve means including first and second passages connected to said first and second chambers, respectively, for regulating air flow between said mouthpiece and said first and second chambers so as to permit the passage of exhaled air from said mouthpiece into said first chamber and to supply inhaled air from said second chamber to said mouthpiece, and air flow means for connecting said first chamber to

ambient air and for mixing outside air with exhaled air flowing through said first chamber and through said connection means



thereby varying the carbon dioxide level in the air entering said second chamber.

4,275,723

WARNING DEVICE FOR BREATHING APPARATUS HAVING A PRESSURE GAS SUPPLY

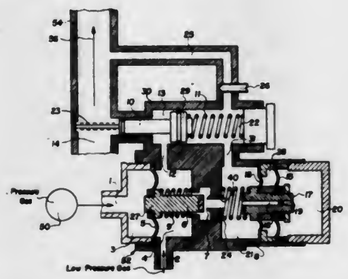
Ernst Warncke, Lübeck, and Adalbert Pasternack, Bad Schwartau, both of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 68,668

Claims priority, application Fed. Rep. of Germany, Sep. 2, 1978, 2838366

Int. Cl.³ A61M 16/00

U.S. Cl. 128—202.22 4 Claims



1. A warning device for a protective breathing gas apparatus of the type having a high pressure gas supply and a pressure reducer connected to the high pressure gas supply for providing a low pressure gas supply comprising a conduit defining a respiratory gas flowpath,

a housing having a first chamber, first diaphragm valve means mounted in said first chamber and dividing said first chamber into a high pressure space connected to the high pressure gas supply and a low pressure space connected to the low pressure gas supply, said first diaphragm valve means being movable responsive to the differential pressure between said pressure spaces, a second chamber, second diphragm valve means movably mounted in said second chamber dividing said second chamber into a vestibule space and a rear space and including a bore connecting said vestibule space and said rear space, wall means defining an orifice for connecting said low pressure space and said vestibule space and including a first valve seat adjacent said low pressure space for sealingly receiving said first diaphragm valve means and a second valve seat adjacent said vestibule space for sealingly receiving said second diaphragm valve means, a third chamber having a piston compartment in fluid communication with the gas flowpath, a piston slidably mounted in said piston compartment and dividing said piston compartment into a first piston space communicating with said flowpath and a second space, said piston having a signal portion movable with said piston between a first portion into the flowpath and a second position out of the flowpath, said signal portion being responsive to fluid flow in said flowpath for actuating a warning signal, a first passage connecting said low pressure space and said first piston space, a second passage connecting said vestibule space and said second piston space, a third passage connecting said second piston space and said flowpath, means for throttling said third passage, said first diaphragm valve means being operative to sealingly engage said first valve seat when the differential pressure is above a predetermined level and to sealingly disengage from said first valve seat when the differential pressure is below the predetermined level,

said second valve means being operative to sealingly engage said second valve seat when the pressure in said vestibule space and said rear space is equal,

and said piston being operative to move the signal portion into the flowpath when said first diaphragm valve means and said second diaphragm valve means are respectively disengaged from said first valve seat and said second valve seat.

4,275,724

ENDOTRACHEAL INTUBATION DEVICE

Barry Behrstock, 275 Victoria St., Costa Mesa, Calif. 92627

Filed Apr. 2, 1979, Ser. No. 25,905

Int. Cl.³ A61M 25/00

U.S. Cl. 128—207.14 5 Claims



1. An endotracheal intubation device which enables the user to simultaneously apply suction during the intubation process to remove meconium and other accumulated body fluids, comprising:

a first inner elongated, flexible conduit of a greater length than a second elongated conduit and extending throughout having a smooth, tapered insertion end configured for insertion into the upper airways of a newborn baby and a proximal end configured for joining to a source of suction; and

a second outer elongated conduit circumferentially disposed about said first conduit along the length thereof and in sliding relationship therewith, said insertion end of the first conduit extending beyond the distal end of the second conduit, said distal end of second conduit being smooth and configured for nontraumatic insertion into the mouth area, and outwardly extending grip means disposed adjacent the other end of said second conduit, said second conduit further having means for selectively shaping and retaining said second conduit substantially along its entire length into any one of an infinite different configurations, but generally of an arcuate configuration whereby shaping said second outer conduit into a selected configuration causes said first, inner conduit to be shaped and retained in a substantially congruent configuration.

4,275,725

BREATHING APPARATUS

Byron G. Nelson, P.O. Box 6457, Lake Charles, La. 70606

Filed Dec. 3, 1979, Ser. No. 99,855

Int. Cl.³ A61M 15/00

U.S. Cl. 128—207.14 10 Claims



1. In a breathing apparatus of the kind which is fittable in the mouth of a human between the cheek and teeth, which apparatus includes tube means having an opening proximate to the lips and an opening distal to the lips, said distal opening adapted to be located proximate the molars, said openings being sized in combination to permit a flow of respirated air through said tube means approximate the flow of air said human could achieve through normal nasal breathing; said tube means being adapted and having sufficient length to extend from the front of said mouth back down the side of said mouth to a point adjacent the molars, and sealing means adapted to extend from said front open end around the front of said mouth to an extent to seal off passage of air through said front of said mouth except into said front opening, said sealing means being adapted for fitment between the frontal teeth and lips; an improvement comprising flange stabilizer means coupled to an extension of said tube means at a point forward of said sealing means, said flange stabilizer means being adapted for fitment along the exterior of said lips when said apparatus is in the mouth, said flange stabilizer means being in a plane approximately parallel to the plane of said sealing means, the space between said flange stabilizer means and said sealing means being approximate the width of said human's lips.

4,275,726

APPARATUS FOR FLUID BALANCING UNDER STERILE CONDITIONS

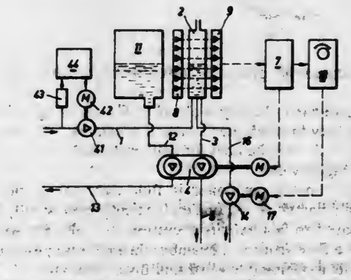
Wilfried Schoel, Bad Homburg, Fed. Rep. of Germany, assignor to Dr. Eduard Fresenius, Chemisch-pharmazeutische Industrie KG Apparatebau KG, Bad Homburg, Fed. Rep. of Germany

Filed Dec. 4, 1978, Ser. No. 966,497

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1977, 2754894

Int. Cl.² A61J 7/00

U.S. Cl. 128—213 A 10 Claims



1. An apparatus for balancing the fluids withdrawn from a patient and the fluids simultaneously returned into the patient, comprising first pump means having a pump inlet and a pump outlet, measuring chamber means (2) for measuring a quantity of fluid withdrawn from the patient by said pump means, first conduit means (1) operatively connecting an inlet of said measuring chamber means (2) to a patient for withdrawing fluid from the patient into the measuring chamber means, second conduit means (3) operatively connecting an outlet of said measuring chamber means to said pump inlet for withdrawing fluid from the measuring chamber means, third conduit means (5) connected to said pump outlet to discharge fluid, supply container means (11), second pump means also having respective pump inlet means and respective pump outlet means, fourth conduit means (12) operatively connecting said supply container means (11) to said pump inlet means of said second pump means and fifth conduit means (13) operatively connecting said pump outlet means of said second pump means to a patient for returning fluid into a patient, first motor means (6) operatively connected to said first and second pump means for driving said first and second pump means in unison, said conduit means comprising respective conduit sections operatively arranged for pumping fluid therethrough in unison by said first and second pump means, and control means (7, 8, 9) operatively responsive to the rise and fall of the filling level in said measuring chamber means (2) and operatively connected to said first motor means (6) for controlling the speed of operation of said first and second pump means in response to the filling level in said measuring chamber means, whereby the fluid withdrawal and fluid return take place simultaneously while the withdrawal rate and the return rate are continuously balanced relative to each other during treatment so that withdrawing excessive liquid quantities from the patient is prevented.

4,275,727

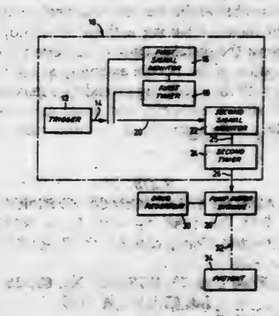
DEVICE FOR MONITORING AND CONTROLLING SELF-ADMINISTERED INTRAVENOUS DRUG DOSAGE

Michael Keori-Gunsto, 10 Beechwood Place, Apt. 612, London, Ont. N6C 1H7, Canada

Filed Jan. 7, 1980, Ser. No. 109,928

Int. Cl.³ A61M 5/00

U.S. Cl. 128—214 E 2 Claims



1. A device for monitoring and controlling the operation of a motorized syringe to dispense a predetermined drug dosage comprising:

(a) trigger means operable by a patient to initiate a demand signal indicative of a demand for an individual drug dose,

(b) first signal monitor means adapted to record the total number of occasions on which said demand signal is initiated by operation of said trigger means,

(c) first timer means for receiving said demand signal and selectively rejecting said demand signal or emitting said demand signal as an inject signal,

(d) second signal monitor means adapted to record the total number of occasions on which said first timer means emits a demand signal,

(e) second timer means for receiving said inject signal, said second timer means being operable on receipt of said inject signal to activate said motorized syringe for a preselected timer period to dispense a predetermined individual dose of drug.

4,275,728

ANESTHESIA DEVICE

Jack D. Merry, Summerville, S.C., assignor to The Kendall Company, Boston, Mass.

Filed Feb. 25, 1980, Ser. No. 124,188
Int. Cl.³ A61M 5/00
U.S. Cl. 128—215 8 Claims



1. A device for performing an anesthesia procedure on a patient, comprising:

a needle assembly having an elongated hollow needle with a distal tip, and a connecting member attached to a proximal end of the needle, with said connecting member having a elongated distally directed control member generally aligned with and spaced from the needle; and

a sleeve assembly having an elongated hollow sleeve to slidably receive the needle, and an abutment member attached to a proximal end of the sleeve, said abutment member having a first proximal stop member to abut against a distal portion of the control member in a configuration of the needle assembly at a first rotational position with the needle tip retracted within the sleeve assembly, and guide means to releasably retain the needle assembly at the first rotational position, said abutment member having a second intermediate stop member to abut against the distal portion of the control member in a configuration of the needle assembly at a second rotational position with the needle tip extending an intermediate distance from the sleeve assembly, and guide means to releasably retain the needle assembly at the second rotational position, and said abutment member having a third distal stop member to abut against the distal portion of the control member in a configuration of the needle assembly at a third rotational position with the needle tip extending a maximum distance from the sleeve assembly, and guide means to releasably retain the needle assembly at the third rotational position.

4,275,729

ADJUSTABLE DOSAGE SYRINGE

Jules Silver, P.O. Box 1188, Norwich, Conn. 06360, and James F. Ennis, Preston, Conn., assignors to Jules Silver, Norwich, Conn.

Filed Oct. 29, 1979, Ser. No. 88,936
Int. Cl.³ A61M 5/00
U.S. Cl. 128—218 C 10 Claims

1. In an adjustable dosage syringe having a syringe barrel with an internal length and diameter which forms a volume sufficient to contain multiple dosages of a liquid, a discharge end at one end of the barrel length, a plunger receiving end at the opposite end of the barrel length, and a plunger slidably disposed within the barrel and having a length greater than the length of the barrel, the improvement comprising a plunger having at least first and second sets of multiple closely spaced indentations disposed along the length thereof, a dosage selection ring disposed around the plunger and rotatable about the longitudinal axis thereof, at least one pair of protuberances each of which is of a configuration suitable for being in register with and received in one indentation of the respective first and second sets of indentations and said protuberances being disposed on the inside circumference of said ring so that when one of the protuberances is received in the first set of indentations, the other protuberance is received in the second set of indentations, at least two channels disposed along the length of the plunger for simultaneously slidably receiving, respectively, the said protuberances so that the said ring is longitudinally slidable along the length of the plunger,



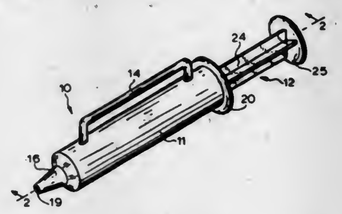
whereby any desired dosage may be set by rotating the ring so that the protuberances are received in said channels, sliding the ring along the length of the plunger to that part thereof corresponding to the desired dosage, rotating the ring so that the protuberances are received by the indentations and sliding the plunger into the barrel until the ring is engaged by the said plunger receiving end of the barrel and the desired dosage of liquid is expelled out of the discharge end of the barrel.

4,275,730

SYRINGE WITH PRESSURE-LIMITED DELIVERY

Hany M. Hussein, Clifton, N.J., assignor to Becton, Dickinson and Company, Paramus, N.J.

Filed Nov. 5, 1979, Ser. No. 91,323
Int. Cl.³ A61M 1/00
U.S. Cl. 128—234 6 Claims



1. A syringe with pressure-limited delivery capacity comprising:

an elongate barrel having a chamber for retaining fluid;

a passageway through the distal end of said barrel communicating with said chamber for delivering said fluid to a fluid receiving device;

a plunger slidably positioned in fluid-tight engagement inside said barrel having one end extending outwardly from said barrel to facilitate its operation, said plunger adapted to force fluid from said chamber through said passageway upon its movement toward said distal end; and

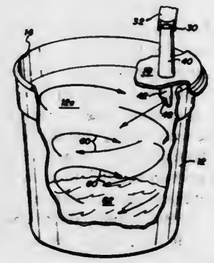
a length of hollow by-pass tubing connected to said barrel near its distal end, the hollow lumen of said tubing communicating with said chamber in a permanently open valveless condition, the opposite end of said tubing adapted to vent to atmospheric pressure level conditions, the diameter and the length of said tubing selected so as to pre-determine the pressure level inside said chamber required for fluid to flow out of the opposite end of said tubing upon distal movement of said plunger, said pressure level thereby being the maximum pressure level which said syringe is capable of delivering to said fluid receiving device.

4,275,731

SUCTION CANISTER WITH VORTEX FLOW DEFLECTOR

Robert L. Nichols, 800 Fort Worth St., Jacksonville, Tex. 75766

Filed Jul. 10, 1978, Ser. No. 923,391
Int. Cl.³ A61M 1/00
U.S. Cl. 128—276 1 Claim



1. A suction system for receiving and retaining fluids drained from a source comprising:

a canister with a vertical central axis having a closed bottom, substantially cylindrical sidewalls and an open top;

a detachable circular cover adapted to selectively close said open top having an interior surface and an exterior surface and means for forming a vacuum-tight seal between said canister and said cover;

said cover including a vacuum port for connection to a vacuum source to apply vacuum to the interior of said canister;

said cover further including a deflector having an inlet port for admitting fluid into the interior of said canister and having an upper and lower end, said deflector being a tubular body having a vertical axis disposed in a parallel spaced-apart relationship with the canister central axis such that said deflector is positioned near the perimeter of said cover;

said cover, vacuum port and deflector being one contiguous piece of material;

said upper end of said deflector disposed above said exterior surface of said cover and slightly tapered from said exterior surface of said cover to receive an inlet tube;

said lower end of said deflector disposed below the interior surface of said cover and being partially closed by a bottom wall extending across said lower end and ending at a bottom wall edge, said lower end having two sidewalls and a top wall forming with said bottom wall edge a rectangular aperture, said top wall being a horizontal surface, said bottom wall having an interior surface inclined slightly downward, said sidewalls being inclined with respect to said axis of said deflector such that the midpoint of said topwall is at a greater radial distance from said axis than the midpoint of said bottom wall edge; and

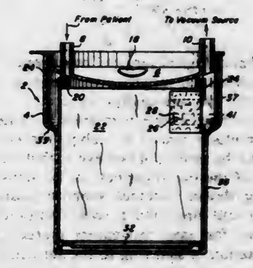
said rectangular aperture positioned in said deflector such that a stream of fluid exiting said aperture impinges on said sidewalls of said canister at an incident angle sufficiently small to reduce the velocity impact of the stream of fluid and create a unidirectional circumferential helical flow of said stream of fluid around the sidewalls of said canister, wherein the velocity of the fluid exiting said deflector is sufficiently retarded to effectively prevent the formation of aerosal droplet formation and entry of admitted fluid into said vacuum port.

4,275,732

SUCTION CANISTER WITH MEMBRANE SHUT-OFF VALVE

Gordon A. Gereg, P.O. Box 387, Center Valley,, Pa. 18034

Continuation-in-part of Ser. No. 826,273, Aug. 19, 1977. This application Mar. 24, 1980, Ser. No. 133,242
Int. Cl.³ A61M 1/00
U.S. Cl. 128—276 1 Claim



1. A canister for use in aspirating body liquids, comprising

a circular cylindrical vessel substantially closed to the atmosphere with top and bottom closures,

a flexible plastic bag of fluid-impermeable material having upper and lower side wall portions which are normally circularly cylindrical when the bag is fully distended

means for suspending said bag from the top closure within said vessel with the axis of the bag vertically disposed,

a generally rectangular aperture through the upper side wall portion of the bag adjacent to top thereof, said aperture being substantially longer in the circumferential direction of the bag side wall than in the axial direction thereof and being bounded at its top and bottom by edges which extend in the circumferential direction of the bag,

a first fluid coupling means for connecting the interior of said bag to a liquid withdrawal conduit extending exteriorly of the cannister,

a second fluid coupling means for connecting space between the exterior of said bag and the interior of said vessel to a source of vacuum,

a liquid impermeable, gas permeable membrane across said aperture,

said vessel having lower and upper cylindrical side wall portions of relatively lesser and greater diameters respectively connected by a transitional portion which extends outwardly and upwardly from the top of the lower side wall portion of the vessel to the bottom of the upper side wall portion of the vessel, the upper side wall portion of the vessel being disposed laterally outward from the upper side wall portion of the bag,

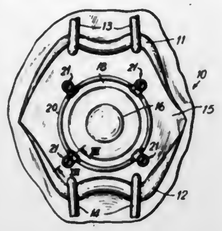
the relative sizes of the side wall portions of the vessel and bag being such that when the bag is fully distended the lower side wall portion of the vessel closely and supports the lower side wall portion of the bag, and the upper side wall portion of the vessel is spaced outwardly from the upper side wall portion of the bag, whereby the vessel provides support of the lower side wall portion of the bag against outward distortion and the upper portion of the vessel provides clearance outwardly of the membrane so as to avoid masking thereof as the bag fills.

4,275,733

OPHTHALMOLOGICAL SURGICAL INSTRUMENT

Gerald P. Mariaoff, 8 Rockford Dr., West Nyack, N.Y. 10999

Filed Oct. 22, 1979, Ser. No. 86,816
Int. Cl.³ A61B 17/00
U.S. Cl. 128—303 R 7 Claims



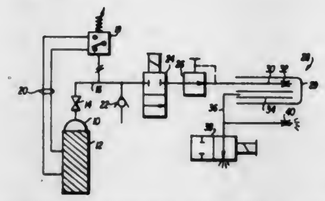
1. An ophthalmological surgical instrument for stabilizing an eye during ophthalmic surgery comprising, a ring adapted to be placed on the eye surrounding the cornea of the eye, and a plurality of securing devices permanently carried by said ring and circumferentially spaced thereabout for temporarily securing said ring to the surface of said eye so that said ring supports the integrity of the eye regardless of incisions made therein, each securing device includes support means permanently connected to said ring, and a twist fixator carried by said support means for axial movement therethrough to effect temporary fixation of said ring to the surface of the eye, said support means comprising an internally threaded cylinder pivotally connected to said ring, said twist fixator having external threads and thus carried by said threaded cylinder for axial movement therethrough upon rotational movement of said fixator, said external threads of said fixator being non-slip threads to prevent undesired rotational movement of said fixator in said cylinder.

4,275,734

CRYOSURGICAL APPARATUS AND METHOD

Robert K. Mitchiner, Longmont, Colo., assignor to Valleylab, Inc., Boulder, Colo.

Filed Aug. 12, 1977, Ser. No. 824,174
Int. Cl.³ A61B 17/36
U.S. Cl. 128—303.1 56 Claims



1. Cryosurgical apparatus comprising a coolant supply where a coolant selected from the groups consisting of nitrous oxide, carbon dioxide, Freon 13 or Freon 23 is disposed within a container as a liquid due to the pressure of its own vapor where the critical temperature of said coolant is greater than room temperature;

pressure maintaining means for maintaining said pressure of the vapor at approximately at least what it is at room temperature;

a cryosurgical instrument having a coolant expansion means disposed at the distal end of a feed passageway; and

means for supplying said coolant to the feed passageway of said cryosurgical instrument so that the temperature of the coolant discharged through said expansion means is lowered;

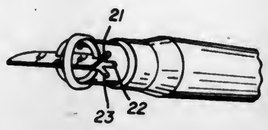
whereby said pressure maintaining means maintains said vapor pressure at approximately at least what it is at room temperature during said supplying of the coolant to the feed passageway of the cryosurgical instrument.

4,275,735

SURGICAL BLADE HOLDER

Reinald J. Clutter, 1260 Southfield Pl., Virginia Beach, Va. 23452

Filed May 21, 1979, Ser. No. 40,912
Int. Cl.³ A61B 17/32
U.S. Cl. 128—305 1 Claim



1. A surgical blade holder comprising

(a) a handle with a hollow head portion at an obtuse angle relative to the longitudinal axis of said handle;

(b) said hollow head portion having a first slot which is long relative to three short slots through the forward most section of the wall thereof; one slot of said three short slots having substantially longitudinal orientation with respect to the head portion and the other two slots on either side of said longitudinal slot at essentially 45 degrees relative thereto to form an arrowhead slot configuration;

(c) a shank fixed in said handle passing through said hollow head portion;

(d) a blade-retaining ring attached to the anterior portion of said shank;

(e) said blade-retaining ring having a slot in the anterior portion thereof for engaging a surgical blade in combination with said three short slots in said head; and

(f) means associated with said shank to cause relative motion between said hollow head portion and said shank to move said blade-retaining ring into said first slot in said hollow portion to thereby engage and hold a replaceable surgical blade placed in one of said three short slots for surgery in areas of limited surgical access.

4,275,736

RETENTION SUTURE BRIDGE

Ingram S. Chodorow, Upper Saddle River, N.J., and J. David Dainow, New York, N.Y., assignors to Technalytics, Inc., Upper Saddle River, N.J.

Filed Jan. 2, 1979, Ser. No. 263
Int. Cl.³ A61B 17/04
U.S. Cl. 128—335 18 Claims



1. A bridge device for use with a retention suture looped about the juxtaposed layers of a wound or incision to be closed, the suture thus being partially below the surface of the juxtaposed layers with two exposed end parts of the suture extending out of and above a pair of exit points in the outer layer of skin, these exit points being located on both sides of the incision and defining between them a line generally perpendicular to the incision, the bridge device comprising:

(a) an arch having a central part and opposite end parts, the central part having top and bottom surfaces and length defined between said end parts,

(b) a plurality of suture-engaging means spaced apart along said central part in the lengthwise direction,

(c) first and second foot parts, and

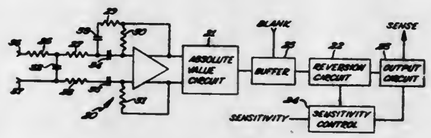
(d) pivot means pivotally coupling each of said first and second foot parts to one of said end parts, each pivot means permitting pivotal movement of one foot independent of the other foot about an axis extending in the lengthwise direction relative to said central part.

4,275,737

DEMAND CARDIAC PACEMAKER HAVING REDUCED POLARITY DISPARITY

David L. Thompson, Fridley, Minn., and Marc T. Stein, Tempe, Ariz., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 6, 1978, Ser. No. 957,813
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PG 3 Claims



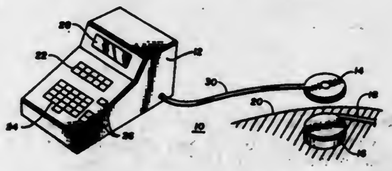
1. In a cardiac pacemaker of the type having means for sensing heart activity, means responsive to the sensing means for detecting the occurrence of natural heart activity and means responsive to the detecting means for affecting the operation of said pacemaker, the improvement wherein said detecting means comprises amplifier means having an essentially polarity independent degree of response to said sensing means and including differential input means and dual output means, each of said output means being connected within said detecting means with the signals appearing at the said output means being of opposite polarity to each other and having an absolute value representative of signals appearing at said input means.

4,275,738

DIGITAL CARDIAC PACEMAKER CLOCKING MEANS

Ray S. McDonald, St. Paul, and Martin A. Reuning, Anoka, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Nov. 6, 1978, Ser. No. 958,322
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PG 14 Claims



1. A digitally controlled cardiac pacemaker pulse generator powered by an electrical power source for providing cardiac stimulating pulses at a defined rate and at a defined pulse width, said pulse generator comprising:

clock means for providing a series of clock pulses;

a resettable first counter for counting clock pulses applied thereto;

means for coupling said series of clock pulses to said first counter;

a second counter for counting pulses applied thereto;

counter interface means responsive to said first counter for providing a counting pulse to said second counter each time said first counter reaches a first count and for resetting said first counter;

rate decoding means responsive to the count of said second counter reaching a defined value for providing a signal manifesting that a cardiac stimulating pulse is to be provided;

pulse width decoding means responsive to said rate decoding means signal and the count of said first counter reaching a defined value for providing a signal manifesting the desired pulse width of said cardiac stimulating pulse; and

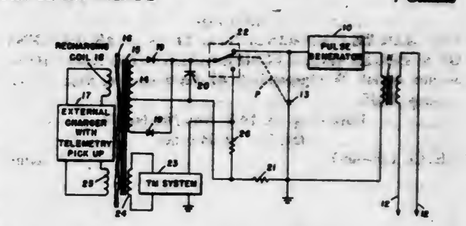
output means responsive to said rate decoding means signal and said pulse width decoding means signal for providing said cardiac stimulating pulse.

4,275,739

CHARGE CONTROL SWITCH RESPONSIVE TO CELL CASING DEFLECTION

Robert E. Fischell, Silver Spring, Md., assignor to The Johns Hopkins University, Baltimore, Md.

Filed Jan. 26, 1979, Ser. No. 6,723
Int. Cl.³ A61N 1/36
U.S. Cl. 128—419 PS 7 Claims



1. In combination with a rechargeable battery of the type employed for supplying operating energy to implantable biomedical electronic apparatus, said rechargeable battery being enclosed in a hermetically sealed casing fabricated of electrically conductive material and being operably connected to receive while implanted recharging current from recharging circuitry, said rechargeable battery further being of the type which produces an increased gaseous pressure within said casing when said battery in its fully charged condition,

a switch structure for sensing state of charge of said rechargeable battery, said switch structure comprising:

an integral wall portion of said electrically conductive battery casing which deflects outwardly in response to said increased gaseous pressure,

an insulative support means secured to said electrically conductive battery casing adjacent said deflecting integral wall portion thereof, and

an electrically conductive contact means carried on said support member insulated electrically and spaced by a predetermined distance from said electrically conductive battery casing adjacent said deflecting wall portion,

said predetermined distance being selected so that said electrically conductive casing comes into electrical contact with said contact means upon outward deflection of the wall portion when said battery is returned to a fully charged state during recharging operation.

4,275,740

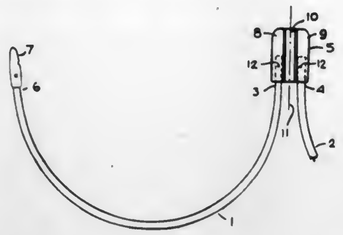
BRASSIERE FRAME

Jerome L. Weston, New York, N.Y., assignor to S & S Industries, Inc., New York, N.Y.

Filed May 22, 1979, Ser. No. 41,370
Int. Cl.³ A41C 3/06
U.S. Cl. 128—469 2 Claims

1. A brassiere frame to which fabric breast cups are secured comprising two arcuate wire members attached to a central integral hinged plastic member, said plastic member comprising outer holding portions which completely surround said

rigidly affix one of the ends of each arcuate wire member, and, interconnecting said holding portions and integral therewith, a hinge portion having a single central pivot axis substantially



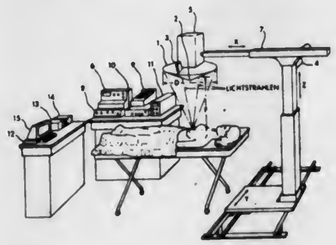
intermediate said wire ends affixed in said holding portions, whereby hinging movement of said entire brassiere frame occurs permitting said wire members to be substantially superimposed one upon the other.

4,275,741

PROCEDURE FOR NONCONTACTING MEASUREMENT OF SUBCUTANEOUS TEMPERATURE DISTRIBUTIONS

Jochen Edrich, Waldpromenade 83, Gauting, Fed. Rep. of Germany (8035)

Filed Aug. 13, 1979, Ser. No. 66,076
Int. Cl.³ A61B 6/00
U.S. Cl. 128—653 3 Claims



1. An improved method for noncontacting measurement of subcutaneous body temperature distributions, said method detecting the emitted thermal electromagnetic radiation in the microwave region from subcutaneous points having a diameter of substantially one-third wavelength focussed along predetermined scan lines, said improved method comprising the steps of:

detecting said radiation in the frequency range of 8 to 36 GHz,

focussing said detected radiation with an elliptical receiving reflector having an aperture diameter of between 50 to 100 cm and having a focal length of 0.6 to 1.2 times the aperture diameter.

4,275,742

PROCESS AND DEVICE FOR PROCESSING AND DISPLAYING A READ-OUT SIGNAL FROM AN ELECTROCARDIOGRAM RECORDING READ AT A SPEED GREATER THAN THE SPEED OF RECORDING

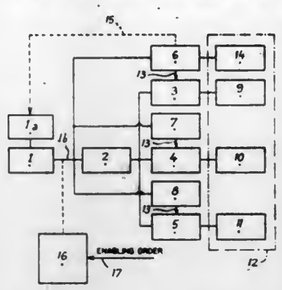
Yves Faisandier, Paris, France, assignor to C.M. Industries, Paris, France

Filed May 8, 1979, Ser. No. 36,906
Claims priority, application France, May 12, 1978, 78 14293
Int. Cl.³ A61B 5/04
U.S. Cl. 128—703 10 Claims

1. A method of processing and displaying an electrocardiogram signal that has been recorded at a first speed, comprising the steps of:

reading said recorded signal at a speed greater than the first speed of recording;

selectively and simultaneously detecting the occurrence of a



plurality of types of pathological complexes from the read signal; and

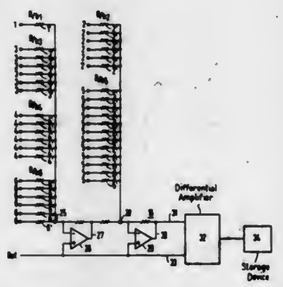
simultaneously displaying a signal sequence of said read signal for each detected pathological complex at respective different ones of a plurality of distinct display locations.

4,275,743

MEASURING DEVICE FOR MEASURING THE BIOELECTRICAL ACTIVITY OF THE CENTRAL NERVOUS SYSTEM

Bo Hjort, Sollentuna, Sweden, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 57,127
Claims priority, application Fed. Rep. of Germany, Jul. 17, 1978, 2831412
Int. Cl.³ A61B 5/04
U.S. Cl. 128—731 4 Claims



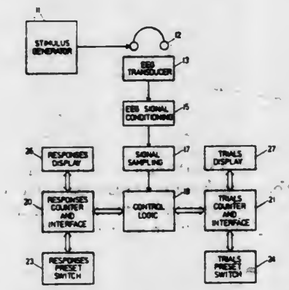
1. Measuring apparatus for measuring bioelectrical activity of the central nervous system, said apparatus comprising a multiplicity of electrodes (0, 1 through 6) arranged in an area array for providing an extensive covering pattern for an exterior application surface of a patient, said area array having a midpoint at one of the electrodes (1) for alignment with respect to an interior point beneath the patient exterior application surface whose potential is to be measured, the electrodes (0, 2 through 6) being arranged at a multiplicity of different distances from the midpoint of the area array such that the electrodes of the area array exhibit a multiplicity of different distances from such interior point during a measurement operation, and means (1'-6', 16) coupled with the respective electrodes (0, 1 through 6) and responsive to the potentials of the respective electrodes during a measurement operation to transmit weighted potentials in accordance with the potentials of the respective electrodes but with a relative weighting thereof in accordance with a multiplicity of respective different weighting factors corresponding to the spreading out of a hypothetical potential emanating from such interior point via respective paths penetrating the tissue layers between such interior point and the respective electrodes at the patient exterior application surface, and sum the weighted potentials for the respective electrodes such that a sum signal is produced essentially exclusively representing the magnitude of the potential at the interior point.

4,275,744

AUDITORY RESPONSE DETECTION METHOD AND APPARATUS

Aaron R. Thornton, Boston, Mass., and Jerry Obenour, Sherman, Tex., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Nov. 19, 1979, Ser. No. 95,552
Int. Cl.³ A61B 5/00
U.S. Cl. 128—731 22 Claims



1. Apparatus for generating data from which the likelihood of hearing impairment can be determined in a human subject who receives a selected auditory signal and whose response thereto is detected by an electroencephalographic transducer, comprising:

(a) sampling means for sampling the polarity of the electroencephalographic signal at predetermined times after the time of application of the selected auditory signal which correspond to the positive and negative peaks of the waveform of the expected response component of the electroencephalographic signal, said sampling means providing a response output pulse when the polarity of the sampled signal matches the polarity of the expected response waveform at the predetermined time and also providing a trial output pulse at the time of each sample;

(b) synchronizing means responsive to the auditory signal for triggering the sampling means at the appropriate predetermined times;

(c) a response counter receiving the response output pulses from said sampling means and counting the pulses received by it and providing an output signal which is indicative of the total number of pulses counted; and

(d) a trial counter receiving the trial output pulses from said sampling means and counting the number of pulses received by it and providing an output signal indicative of the total number of pulses counted, whereby an operator can determine the ratio of the number of response pulses to the number of trial pulses over a selected period of time to provide a measure of the likelihood that a response is being evoked in a subject by the auditory signals.

4,275,745

CIGARETTE HOLDER

Giorgio Carusone, 730 Arnow Ave., Bronx, New York, N.Y. 10467

Filed Mar. 25, 1980, Ser. No. 134,148
Int. Cl.³ A24F 13/04
U.S. Cl. 131—270 11 Claims



1. A cigarette holder comprising:

an outer tube having a cylindrical inner wall of a diameter equal generally to that of a cigarette, a front end, and a rear end;

a mouthpiece at said rear end, whereby a cigarette can be inserted into said front end and smoke therefrom drawn through said mouth-piece;

an inner element in said interior extending forwardly from said rear end and having a front face forming a backward stop for a cigarette inserted into said front end, whereby a cigarette can only be inserted backwardly into said front end until engagement with said front face;

means including a succession of longitudinally spaced formations along said element for longitudinally shortening said element by breaking at said formations and thereby moving said front face backwardly, whereby when said element is shortened, more of a cigarette can be inserted into said outer tube and;

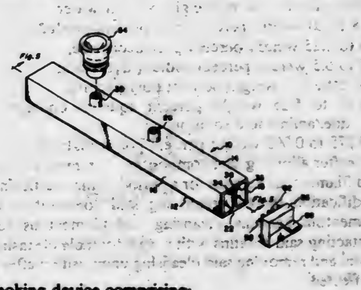
means at said front end for extinguishing a cigarette which is received in said outer tube and has burned down to said front end.

4,275,746

COMBINED INCENSE BURNER AND PIPE

Morton A. Gruber, 188 Haypath Rd., Old Bethpage, N.Y. 11804

Filed Mar. 1, 1979, Ser. No. 16,449
Int. Cl.³ A24F 3/00, 13/12
U.S. Cl. 131—180 13 Claims



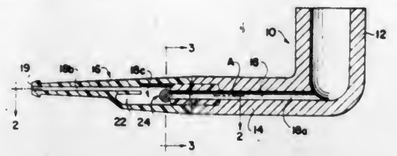
1. A smoking device comprising:

a substantially rectangularly shaped elongated box having a top wall, a pair of side walls, an end wall, a bottom wall and having the other end thereof open;

a removable end cap for substantially closing said open end;

said top wall including at least one stud on the exterior thereof extending upwardly, said stud having an aperture there through communicating with at least a portion of the interior of said box, means to support a smoking substance on said stem, an elongated divider wall means within said box, said divider wall means running substantially the entire length of said box and dividing the interior laterally into two substantially equal elongated compartments.

4,275,747
SMOKING PIPE
William L. Miller, 70 West Dr., Congress Lake, Hartville, Ohio 44632
Filed Aug. 30, 1979, Ser. No. 70,974
Int. Cl.³ A24F 5/04
U.S. Cl. 131—195 4 Claims



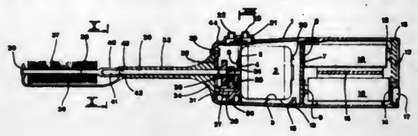
1. A smoking pipe comprising a pipe bowl and an elongated stem extending from the bowl, said stem having an outlet opening and a longitudinal smoke-conducting passage communicating between the bowl and the outlet opening, and a metal air injection pin in the stem, said pin having an outer portion embedded in the stem, an outer surface essentially flush with the outer surface of the stem, an inner portion extending into the smoke-conducting passage beyond an inner wall of the stem forming the smoke-conducting passage and terminating within the passage adjacent the longitudinal center thereof, and a central air passageway in the pin extending perpendicular to the longitudinal extent of the stem, the central passageway having a diameter small relative to that of the longitudinal smoke-conducting passage and the embedded outer portion of the pin having a significantly larger cross sectional area than the extending inner portion to conduct heat at a greater rate than the inner portion.

4,275,748
METHOD AND COMPOSITION FOR MODIFYING FILAMENTOUS KERATINS
Helen V. Graziano, 332 W. Kathleen Dr., Park Ridge, Ill. 60068
Filed Jan. 28, 1980, Ser. No. 116,054
Int. Cl.³ A45D 7/00
U.S. Cl. 132—7 10 Claims

1. A method of modifying filamentous keratins which comprises contacting said keratins with an effective amount of a modifying composition consisting essentially of:
from about 58 to 60 weight percent water;
18 to 20 weight percent milk protein product;
6 to 6.25 weight percent polysaccharide;
5 to 6.5 weight percent sodium hydroxide;
4.75 to 5.25 weight percent polyglycerol;
4.75 to 5.25 weight percent aqueous collagen polypeptide/amino acid solution; and
0.075 to 0.095 weight percent polysorbate-80;
thereafter allowing said composition to remain in contact with said filamentous keratins for a period of time sufficient to effect modification thereof, removing said composition from said filamentous keratins, cleansing said filamentous keratins by contacting said keratins with a water-soluble cleansing composition, and removing said cleansing composition after cleansing is effected.

4,275,749
ELECTRICALLY DRIVEN CONTINUOUS TOOTH BRUSH
Celso Caroli, Via Sardegna, 16, Savignano sul Panaro (Modena), Italy
Filed May 14, 1979, Ser. No. 38,842
Claims priority, application Italy, Jun. 5, 1978, 40086 A/78
Int. Cl.³ A45D 24/00
U.S. Cl. 132—11 A 8 Claims

1. An electric, continuously driven tooth brush comprising a handle to be grasped by a user; a hollow stem extending from said handle; a reversible electric motor housed in said handle; a rotatable shaft connected to said electric motor to be rotated thereby extending axially through said stem, said shaft having an end extending beyond said stem; an interchangeable cylindrical brush body; means for removably fixing said brush body



to said end of said shaft; a protective cap for the mucous membrane and tissues of the mouth, said cap extending over said cylindrical brush body along it length and over substantially a 180° arc; and means for supporting the tooth brush when not in use with said cap and said brush body in a antiseptical solution.

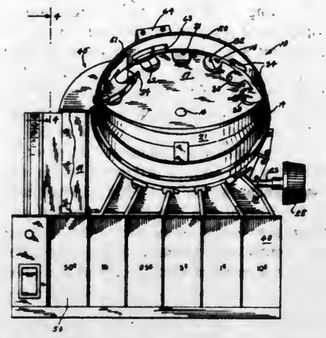
4,275,750
SELF-CONTAINED TOOTHBRUSH
Ben L. Clark, 1306 Brookside Dr., Danville, Calif. 94526
Filed Sep. 24, 1979, Ser. No. 78,540
Int. Cl.³ A45D 48/18
U.S. Cl. 132—84 B 5 Claims



1. A self-contained toothbrush comprising: a brush element including a hollow handle and a brush head integral to one end of the handle, the interior and exterior of the hollow handle being generally trapezoidal in section and the peripheral dimensions of the brush head not exceeding those of the handle when viewed axially;
a hollow cap which is generally trapezoidal in interior and exterior section, said hollow cap being frictionally engageable with the handle so that the cap encloses the brush head, the trapezoidal interior dimensions of the cap matching the exterior dimensions of the brush head;
a base which is generally trapezoidal and is frictionally engageable with the end of the handle opposite from the brush head; and
a dentifrice container attached to the base at one end and having an opposite end with an opening for the dispensing of dentifrice, said container projecting from the base so that the container is located within the hollow handle when the base is attached to the handle, the exterior peripheral dimensions of the container being generally trapezoidal in section and conformed to match the internal dimensions of the hollow handle to maximize the size of the container and seal the opening of the container when it is enclosed by the handle.

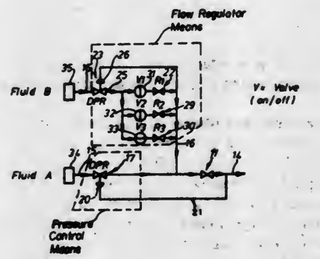
4,275,751
COIN SORTER WITH EXPANDED CAPABILITY
Charles T. Bergman, Watertown, Wis., assignor to Brandt, Inc., Watertown, Wis.
Filed May 10, 1979, Ser. No. 37,494
Int. Cl.³ G07D 3/16
U.S. Cl. 133—3 C 11 Claims

1. In a coin sorter including a hopper, an inclined rotating plate disposed in said hopper and having means at its periphery to carry coins one at a time to a coin opening adjacent the apex of the rotating plate, a rotating drum which receives coins at the coin opening and which sorts the coins into respective denominations by size, the improvement therein comprising:
an exit chute having an outlet disposed outside said hopper and having an entrance spaced above the surface of the rotating plate at a point beyond the apex of said plate and in the path of travel of coins carried thereon; and



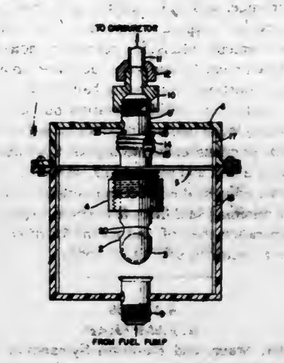
deflection means disposed in front of said entrance and adapted to lift coins of a size greater than the coin opening from said rotating plate and to direct the same to the entrance of the exit chute.

4,275,752
FLUID FLOW APPARATUS AND METHOD
Nigel A. Collier, 13 Frome Close, Cove, Farnborough, Hampshire, England, and John H. Clements, 9 Krooner Rd., Camberley, Surrey, GV15 2AP, England
Filed Sep. 24, 1979, Ser. No. 78,461
Claims priority, application United Kingdom, Sep. 22, 1978, 37832/78
Int. Cl.³ G05D 11/00
U.S. Cl. 137—7 8 Claims



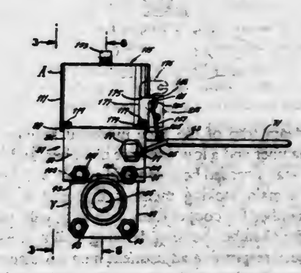
1. A method of combining fluid flows comprising the steps of:
passing a flow of a first fluid through a controlled variable flow restriction;
combining the output of said first fluid from the controlled flow restriction with a flow of a second fluid;
passing the combined flow of the first and second fluids through a main flow restriction;
sensing the pressure of said combined flow downstream of said main flow restriction;
varying the rate of flow of the second fluid relative to the rate of flow of the first fluid so as to vary the proportions of the fluids combined together; and
varying said controlled variable flow restriction, and thereby the flow of said first fluid, in dependence upon said sensed pressure at the output of said main flow restriction in such a manner as to maintain substantially constant the pressure across the main restriction and to maintain substantially constant the rate of flow of the output of combined fluids from the main restriction despite changes in the rate of flow of the second fluid which is being combined with the first fluid.

4,275,753
FUEL LINE CUT-OFF SWITCH
Robert J. Williams, 716, 12th St., Baraboo, Wis. 53913
Filed Oct. 24, 1979, Ser. No. 87,766
Int. Cl.³ F16K 17/36
U.S. Cl. 137—46 14 Claims



1. A fuel cut-off switch comprising collapsible fuel line means for conveying fuel when said switch is in a first position and means for collapsing said collapsible fuel line means along at least a portion thereof to cut off fuel flow therethrough when said switch is tilted a predetermined amount from said first position, said means for collapsing being supported independently of said collapsible fuel line means.

4,275,754
AUTOMATIC VALVE ACTUATOR
Jerry L. Lyons, and Danny W. Martz, both of St. Louis County, Mo., assignors to Essex Cryogenics of Missouri, Inc., St. Louis, Mo.
Filed Aug. 1, 1978, Ser. No. 930,851
Int. Cl.³ F16K 17/40
U.S. Cl. 137—75 16 Claims



1. A valve actuator for preselected automatic actuation of a rotary-actuated valve in response to an occurrence of specific exigent type, said valve having a body, a valve element rotatably movable in said body, an actuating shaft extending from said body and rotatable for rotating said valve element between first and second positions, said actuator comprising: shaft coupling means for coupling rotational force to said shaft for rotation thereof only when said coupling means is rotated, a coiled torsion spring for applying a spring force to said coupling means for biasing said coupling means for rotation, camming means for operatively preventing rotation of said coupling means responsive to said spring force when actuated and for operatively permitting rotation thereof responsive to

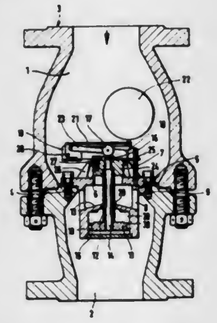
said spring force when released, an enclosure for surroundingly and protectively enclosing said coiled torsion spring and said camming means for protection from the elements, said spring having a plurality of coils wholly within said enclosure, a releasable link for securing said camming means against movement, said link being positioned exteriorly of said enclosure in a visible, replaceable position for permitting observation and replacement of said link without removal of said enclosure, said link releasing said camming means upon said exigent occurrence, said link comprising at least two portions normally joined and adapted to separate for releasing action of said link, securement means for retaining each of said link portions in attachment to said valve actuator upon separation to prevent said portions from being ballistically thrown from said valve actuator upon said separation but said securement means permitting facile manual installation and removal of said link, said link portions each having an apertured end, said actuator having a first and second link securement member for respectively securing said link by applying force via said apertures and for retaining said link members in a secured relationship upon separation thereof, and means for direct securement of said valve actuator to said valve body.

4,275,755

STEAM TRAP

Werner Foller, Stuhr, and Hermann Symanczyk, Langwedel, both of Fed. Rep. of Germany, assignors to Gestra-KSB Vertriebsgesellschaft mbH & Co. KG, Bremen, Fed. Rep. of Germany

Filed Oct. 19, 1979, Ser. No. 86,965
Int. Cl.³ F16T 1/20
U.S. Cl. 137—195 7 Claims



1. In a steam trap of the type mounted between a supply pressure chamber and a low pressure chamber, and including a main valve seat disposed between said supply and low pressure chambers, a main locking member disposed in said supply pressure chamber for cooperation with said main valve seat, a pilot pressure chamber housing defining a pilot pressure chamber, a pressure-responsive adjustment member disposed in said pilot pressure chamber, said adjustment member being coupled to the main locking member by means of a shaft, said shaft having a control conduit longitudinally-extending therethrough which has an inlet opening in said main locking member and which establishes communication between said supply pressure chamber and said pilot pressure chamber, a pilot valve seat provided on said main locking member at the inlet opening of said control conduit, a pilot locking member disposed for cooperation with said pilot valve seat and an actuating device being controlled by, and responsive to, the condensate to be discharged by said steam trap, the improvement comprising:

said main valve seat being provided in a seat element which supports the pilot pressure chamber housing on a neck member having outflow openings for the condensate and said pilot pressure chamber housing being freely suspended in said low pressure chamber;

said pilot locking member comprising a slide member;

said trap having a pivot lever extending laterally across said main locking member in the locking position thereof and having a fixed pivot axis at one end thereof while the other end thereof is engaged by said actuating device; and

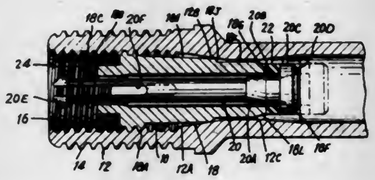
said trap having a drag lever which extends substantially laterally with respect to the stroke direction of said main locking member, said drag lever having a first end on which said slide member is mounted and a second end which is pivotably mounted on said pivot lever at a distance from said pivot axis thereof, so that upon actuation by said actuating device, said pivot lever is pivoted about said fixed pivot axis thereof, in turn, effectively causing substantially lateral movement of said drag lever and, consequently, substantially lateral sliding movement of said slide member across and off of said pivot valve seat.

4,275,756

PLASTIC VALVE CORE

Rodney J. Cairns, Altavista, and Stefan P. Whitelaw, Lynchburg, both of Va., assignors to National Distillers and Chemical Corporation, New York, N.Y.

Continuation of Ser. No. 20,102, Mar. 12, 1979, abandoned. This application Jul. 2, 1980, Ser. No. 165,306
Int. Cl.³ F16K 15/20
U.S. Cl. 137—234.5 6 Claims



1. A valve core adapted for incorporation within a valve stem or body having interior threads, said valve core comprising

a unitary molded plastic cylindrical barrel having an axial bore extending therethrough, and an external threaded portion thereon, at a first or outer part of said barrel, adapted for threaded engagement with the interior threads of said valve body, said threaded portion including an oblong bridge adapted for ready engagement by a tool, the first end of said barrel at said bridge having an opening from said bore;

means for providing that the second or inner part of said barrel is adapted by itself to effect the required static seal with respect to said valve body, said means including an inwardly tapered internal portion of said valve body;

a broad planar annular surface area of contact defined between the inner and outer peripheries at the second or inner end of said barrel;

a unitary elongated cylindrical valve pin with enlarged inner and outer ends, the inner end being cylindrical, said pin being disposed within said barrel in an axial relationship therewith, and said pin being slidably received within said bore;

said valve pin having adjacent its second or inner end a conical portion whose greatest diameter is substantially equal to the bore diameter, and having a cylindrical portion immediately below the conical portion, the cylindrical portion having a diameter substantially equal to said greatest diameter;

a cylindrical sealing washer surrounding said lower cylindrical portion of said valve pin and having a corresponding broad planar upper surface for contacting said broad planar annular surface area of contact defined at the inner

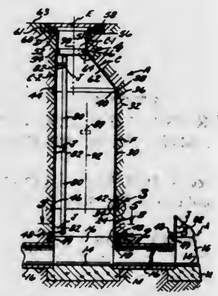
end of said barrel, the outer diameter of said sealing washer being substantially equal to the diameter at the outer periphery of the inner end of said barrel, the lower surface of said sealing washer being adapted to engage the integral, cylindrical, enlarged inner end of said pin, said end having a fixed diameter substantially equal to the outer diameter of said washer, whereby said washer is compressible against said broad planar annular contact area in sealing relationship therewith by movement of said pin axially outwardly.

4,275,757

MANHOLE STRUCTURE AND METHOD OF MAKING SAME

Frederic J. Singer, 715 S. Nakoma Dr., Santa Ana, Calif. 92704

Filed Aug. 6, 1979, Ser. No. 63,996
Int. Cl.³ E02D 29/12
U.S. Cl. 137—363 17 Claims



1. In combination with a plurality of longitudinally spaced manhole foundations located at the bottom of a plurality of excavations, said manhole foundations each having a flat upper horizontal surface from which a plurality of circumferentially spaced stud bolts extends upwardly, said manhole foundations having passages formed therein that communicate with sloping sections of pipe that extend between said manhole foundations, a plurality of multi-piece prefabricated manhole components formed from a cured mixture of a polyester resin and fiberglass that are at least partially assembled in said excavations to define dimensionally stable manhole structures that rest on said foundations and extend upwardly therefrom to a traffic cover located at street grade, each of said manhole structures including:

a. a base component that includes a ring-shaped first flange that has an inner periphery and a plurality of circumferentially spaced openings therein through which said stud bolts extend when said first flange rests on said flat horizontal surface of one of said foundations, a cylindrical first wall that extends upwardly from said inner periphery to develop into a circular outwardly extending first body shoulder, and a second cylindrical wall that extends upwardly from a circular outer extremity of said body shoulder, said second cylindrical wall of substantially less height than said first cylindrical wall;

b. a top assembly component that removably supports said traffic cover and extends downwardly therefrom, said top assembly including a cylindrical wall member on the lower extremity thereof;

c. a riser component that includes a cylindrical shell that has an upper portion and a lower portion, said upper portion including an outwardly extending second body shoulder that has a cylindrical wall piece extending upwardly from the outer periphery thereof, said cylindrical wall member of said top resting on said second body shoulder and cooperating with said cylindrical wall piece to define a first annulus space therebetween and said lower portion of said riser resting on said first body shoulder and cooperating with said second cylindrical wall to define a second annulus space therebetween;

d. first resilient means in said first annulus space for removably effecting a seal between said cylindrical wall member of said top assembly and said cylindrical wall piece on said upper portion of said riser;

e. second means in said second annulus space for bonding and sealing said lower portion of said riser to said base;

f. third means for sealing said flange of said base to said horizontal surface of said foundation; and

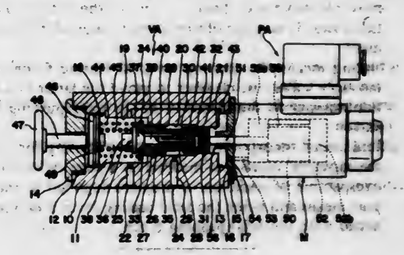
g. a plurality of nuts that engage said stud bolts to secure said flange of said base to said foundation.

4,275,758

PRESSURE CONTROL VALVE ASSEMBLY

Kenji Maeda, Takatsuki, Japan, assignor to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Dec. 27, 1979, Ser. No. 107,620
Claims priority, application Japan, Dec. 28, 1978, 53/162962; Nov. 14, 1979, 54/148028
Int. Cl.³ F16K 17/06
U.S. Cl. 137—489 21 Claims



1. A pressure control valve assembly which comprises, in combination:

a valve housing having a substantially elongated compartment defined therein, said compartment being divided into a large diameter bore and a reduced diameter bore with a first radially extending annular face defined therebetween, said large and reduced diameter bores being coaxial with each other;

a substantially elongated movable valve seat member having its opposite ends formed into a large diameter portion and a reduced diameter portion with a second radially extending annular face defined therebetween, said movable valve seat member being axially movably housed within the compartment with said large and reduced diameter portions movably, but fluid-tightly inserted respectively in the large and reduced diameter bores, said compartment with the movable valve seat member so housed therein having a valve chamber defined within the large diameter bore and positioned between one of the opposite ends of the compartment and a free end of the large diameter portion opposite to the reduced diameter portion, a first annular working chamber defined within the large diameter bore around the reduced diameter portion and between the first and second annular faces, and a back pressure chamber defined within the reduced diameter bore and positioned between the other of the opposed ends of the compartment and a free end of the reduced diameter portion opposite to the large diameter portion, said large diameter portion having an axially extending blind hole defined therein and having its opening facing towards the valve chamber;

a fluid inlet port means and a fluid outlet port means both defined in the valve housing, said fluid inlet port means being communicated to the valve chamber and leading to the outside of the valve housing;

a first passage means defined in the movable valve seat member, said blind hole being communicated through the

first passage means to the fluid inlet port means irrespective of the axial movement of the movable valve seat member;

a second passage means extending between the valve chamber and the back pressure chamber for balancing the pressure within the valve chamber and the pressure within the back pressure chamber with each other;

a valving means operatively housed within the valve chamber for displacement in a direction axially of the blind hole for selectively opening and closing the opening of the blind hole;

a primary biasing spring interposed between said one of the opposite ends of the compartment and the valving means for biasing the valving means in one direction to close the opening of the blind hole, said valving means being displaced in the opposite direction to open the opening of the blind hole against the primary biasing spring to communicate the fluid inlet port means to the fluid outlet port means through the blind hole and then through the valve chamber when the pressure inside the blind hole attains a predetermined value sufficient to overcome the biasing force of the primary biasing spring;

means for exerting an axial pushing force to be applied to the movable valve seat chamber to move the latter in a direction towards said one of the opposite ends of the compartment;

a biasing means for exerting an axial biasing force on the movable valve seat member to move the latter in a direction counter to the direction of the axial pushing force; and

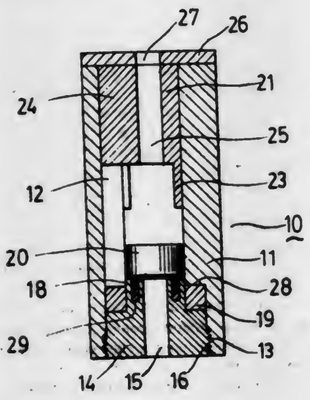
a fluid circuit incorporated in the valve housing for holding the movable valve seat member in a state of equilibrium irrespective of variation in pressure supplied to the inlet port means and when the axial biasing force is counterbalanced with the axial pushing force.

4,275,759

CLOSURE MEMBER

Shih C. Huang, No. 1, Chung-Shou S. Rd., Taipei, Taiwan

Filed May 29, 1979, Ser. No. 43,150
Int. Cl.³ F16K 15/02
U.S. Cl. 137—528 5 Claims



1. A closure member comprising:

a cylindrical casing having a plurality of stripe recesses formed on the inner surface thereof and a section of female threads formed on the lower portion of the inner surface thereof;

a valve seat having a central passage, a male threads being formed on part of the outer surface thereof for engaging with said female threads on the casing and a flange portion projecting from the upper surface of the valve seat;

a ring magnet sleeved on the flange portion of said valve seat;

a piston movably positioned in the casing and biased toward said valve seat by the magnetic force of said ring magnet;

an inner tube having a plurality of supports extending from the bottom surface thereof for positioning the piston and a plurality of stripe protrusions coincident with the stripe recesses in the casing; and

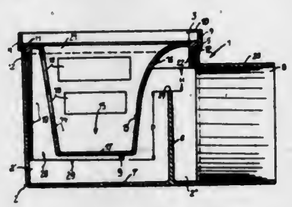
a base cover for assembling the inner tube having a central openiing formed thereon.

4,275,760

TRAP-TYPE DRAIN WITH BUILT-IN STRAINER

Bernhard Kessel, Ingolstädter Str. 20, 8073 Kösching, Fed. Rep. of Germany

Filed Dec. 8, 1978, Ser. No. 967,853
Claims priority, application Fed. Rep. of Germany, Dec. 10, 1977, 2755174
Int. Cl.³ E03B 3/18
U.S. Cl. 137—546 1 Claim



1. A drain trap comprising:

an upwardly open four-sided outer vessel with a closed bottom, one side of said outer vessel being provided with a lateral outlet extending from said bottom to a high point close to an upper rim thereof;

a partition parallel to said one side in said outer vessel rising from the bottom thereof and having an overflow edge at a level below said high point, said partition dividing the interior of said outer vessel into a first compartment remote from and a second compartment proximal to said outlet; and

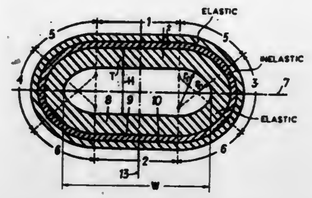
an open-topped insert suspended by a closely fitting collar from said rim in sealed relationship with said outer vessel while terminating above the bottom thereof, said insert extending below said level into said first compartment and forming a downwardly converging, generally frustopyramidal closed-bottom inner vessel with a solid wall spacedly confronting said partition and with three other walls having peripheral apertures in the vicinity of said level, said insert further forming a skirt depending from said collar while spacedly surrounding said three other walls and defining therewith a laterally closed but downwardly open chamber while leaving said solid wall exposed, said partition enabling liquid issuing from said apertures to escape into said outlet across said overflow edge while accompanying solids are retained in an imperforate lower part of said inner vessel.

4,275,761

DUCT ASSEMBLY FOR ROTOR-POWERED MOBILE SPRINKLER

Kurt Waldhauser, Voitsberg, Austria, assignor to Ing. Waldhauser Maschinenfabrik Ges.m.b.H. & Co. KG, Maria Lankowitz, Austria

Filed Apr. 27, 1979, Ser. No. 34,205
Claims priority, application Austria, Jan. 8, 1979, 141/79
Int. Cl.³ F16L 55/14
U.S. Cl. 137—595 3 Claims



1. In a squeeze-duct assembly with two juxtaposed, substantially identical resiliently deformable conduits traversing a rigid housing with two sidewalls having oppositely curved bulges centered on an axis of rotation of a valve body in said housing, said valve body being disposed between said conduits and carrying three angularly equispaced pressure rollers for alternately compressing said conduits against said sidewalls to block the passage of a fluid therethrough,

the improvement wherein each of said conduits has an elongated substantially oval cross-section in its uncompressed state, said cross-section having two generally planar legs paralleling said axis and C-shaped end zones interconnecting said legs, each conduit consisting of an inner tube of elastomeric material, an intermediate tube of substantially inelastic synthetic-resin fabric and an outer tube of elastomeric material all bonded to one another, said inner tube having a wall thickness at least equal to the combined wall thickness of said intermediate and outer tubes, the spacing of said rollers from said sidewalls at their points of closest approach equaling the thickness of either conduit in a flattened state in which said legs are in full internal surface contact with each other, each of said end zones having a central region with a relatively small radius of curvature and a pair of flanking regions with a relatively large radius of curvature connecting the respective central region with said legs.

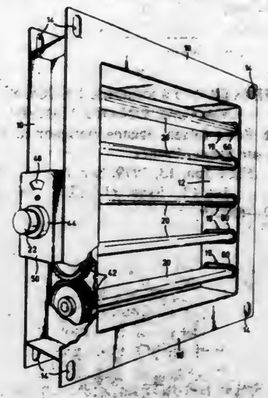
4,275,762

CONTROL DAMPER

Sydney J. Field, Ashford, England, assignor to Actionair Equipment Limited, Whitstable, England

Continuation of Ser. No. 862,920, Dec. 21, 1977, abandoned.
This application Aug. 20, 1979, Ser. No. 67,820
Claims priority, application United Kingdom, Dec. 22, 1976, 53581/76
Int. Cl.³ F24F 13/14
U.S. Cl. 137—601 4 Claims

1. A control damper for controlling the flow of gaseous fluid through a duct, said control damper comprising: a hollow metal frame defining an opening for the passage of fluid therethrough, a line of hollow, sheet-steel, aerofoil-section, open-ended blades arranged in said opening of said frame, a plurality of blade bearing components, one at each end of each blade, to support the blades on said frame for rotation about parallel axes extending longitudinally of the blades, said blades being swingable about said axes to open and close the said opening in the frame and to be movable at will to intermediate positions between fully-open and fully-closed positions, a shaft on each blade bearing component and a respective aperture in said frame to rotatably receive said shaft, an intermediate flange on each blade bearing component, a surface on said flange opposing the adjacent open end of the respective blade, a spigot projecting from said flange surface and shaped in cross-section to enter the said adjacent open end of the blade and to support that end of the blade for rotation about the longitudinal axis of the blade, a pair of spaced-apart flange-like ridges projecting from said flange surface of said blade bearing component to receive the extreme end-portion of the blade between them,



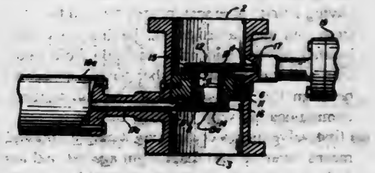
the ridges being in snug contact with said extreme end-portion, to give additional support to the blade end, and a plurality of rotary elements, one for each blade, keyed onto the blade bearing components at one side of said frame for the purpose of effecting swinging movement of the blades about their parallel axes, the said rotary elements being rotatable in unison to cause corresponding swinging movement of the blades between their fully-open and fully-closed positions.

4,275,763

DOUBLE-SLIDE VALVE

Robert J. Fahrig, Lansing, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed May 25, 1979, Ser. No. 42,543
Int. Cl.³ F16K 3/00; 47/08
U.S. Cl. 137—613 8 Claims



1. A double-slide valve for use in a system for controlling the flow rate of a fluidized stream of particulate material, which comprises:

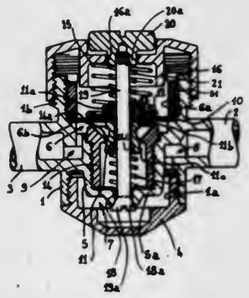
(a) a valve body forming a closed chamber having an inlet opening, an outlet opening and a pair of oppositely arranged valve stem openings positioned between said inlet and outlet openings;

(b) a flow port mounted within said valve body, the ends of said port constituting axially aligned entrance and exit openings through which said particulate material must pass and said flow port being in alignment with said inlet and outlet openings of said valve body;

(c) two traversably slidable valve plates, each connected to a valve stem which passes through said valve stem openings, each of said valve plates being greater in cross-sectional area than the cross-sectional area of said flow port;

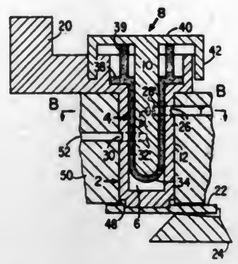
(d) guide means mounted adjacent to said flow port upon which said valve plates are slidably guided;
(e) control means attached to each of said valve stems for traversably sliding said valve plates across the entrance and exit openings of said flow port; and
(f) each of said traversably slidable valve plates adaptable to valve one of said entrance and exits openings of said flow port, respectively, in response to said respective control means.

4,275,764
COMBINATION PRESSURE REGULATOR AND MANUAL ON-OFF VALVE
Denis Baret, Saint Lager, France, assignor to Berthoud, S.A., Belleville sur Saone, France
Filed Jun. 13, 1979, Ser. No. 48,128
Int. Cl.³ F16K 31/145, 31/44
U.S. Cl. 137—614.19 6 Claims



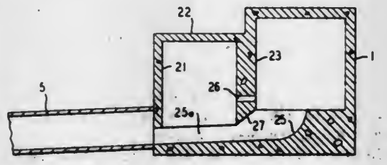
1. A combination valve unit comprising:
(a) a body having an inlet and an outlet, the body having a bore having a first portion communicating with said inlet and having a partition extending thereacross, and the bore having a second intermediate portion joined to the first bore portion at a shoulder, and the bore having a third portion opening into the atmosphere;
(b) a tubular member mounted in the intermediate bore portion against the shoulder and having an annular edge facing toward the third bore portion, the tubular member having a first valve seat located toward the body partition from said annular edge and having a second valve seat located toward said body partition from said first valve seat, and the tubular member having an opening located between the first valve seat and the annular edge and communicating with the body outlet;
(c) first valve means comprising a diaphragm and including means securing said diaphragm against said annular edge and separating the second and third bore portions, a first valve member supported by said diaphragm adjacent to said first valve seat and operative to restrict fluid flow through said seat when the diaphragm flexes toward said third bore portion under fluid pressure in said tubular member, a cap mounted in threaded relation to said third bore portion and axially adjustable therein, and spring means compressed between said cap and said diaphragm;
(d) second valve means comprising a stem extending through said partition and having a second valve member shaped to close said second seat, and spring means operative between said partition and said second valve member for normally closing said second seat; and
(e) actuating means supported outside the body and coupled with said stem and operative when actuated to displace the stem and second valve member away from the second valve seat.

4,275,765
DIRECTION CONTROL FLUSH VALVE
Roger A. Dugas, Chester, N.H., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Dec. 31, 1979, Ser. No. 108,629
Int. Cl.³ F16K 7/02
U.S. Cl. 137—625.48 10 Claims



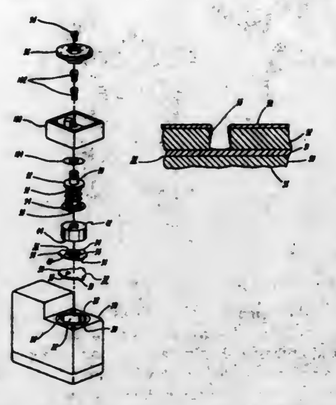
10. A mechanism for use in a valve assembly, comprising
a hollow stem closed at one end and open at the other,
means defining a pair of openings extending through the wall of said hollow stem,
means defining a groove in a wall of said hollow stem that communicates with said openings,
an elastomeric projection mounted within said hollow stem so as to block said openings when it is in a given condition of longitudinal stress,
means defining a port extending through the wall of said hollow stem, and
means for elongating said elastomeric projection so as to cause it to unblock said openings.

4,275,766
FLUID CONTROL SYSTEM
Harvey G. Aronson, 11 River Rd., Oceanside, N.Y. 11572
Continuation-in-part of Ser. No. 875,206, Feb. 6, 1978, abandoned. This application Jun. 29, 1979, Ser. No. 53,294
Int. Cl.³ F15D 1/02
U.S. Cl. 138—37 8 Claims



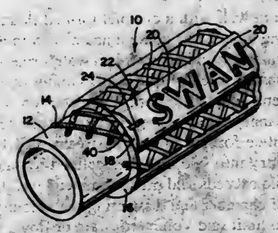
1. An energy reduction chamber for controlling the volumetric rate of fluid flowing in a conduit, said chamber including
(a) a bottom wall with a channel formed therein, said channel being adapted to communicate with said conduit,
(b) a downstream and an upstream wall formed transverse to said channel, each of said walls having an opening in its lower end adapted to permit undisturbed flow of fluid in said channel below a predetermined fluid level, and
(c) an orifice formed in said upstream wall for permitting fluid entry into said chamber defined by said walls when said fluid exceeds said predetermined level, thereby flooding said chamber and dissipating the velocity of said fluid so as to limit said volumetric rate of flow,
wherein the width of said chamber is at least three times the width of said channel.

4,275,767
FLUID RESISTOR
Norman R. Westhill, Rochester, N.Y., assignor to Sybron Corporation, Rochester, N.Y.
Continuation of Ser. No. 421,136, Dec. 3, 1973, abandoned. This application Oct. 27, 1976, Ser. No. 736,049
Int. Cl.³ F15C 1/06
U.S. Cl. 138—40 11 Claims



1. In the method of making a fluid resistor of the type wherein a capillary groove provides fluid resistance, and wherein said fluid resistor comprises first means having a first flat surface, second means having a second flat surface, and layer means having third and fourth equi-spaced opposing flat surfaces, and wherein said first means is relatively rigid and has said third flat surface fixed to its said first flat surface, said second means has its said second flat surface sealingly fitted to said fourth flat surface, and said first, second, third, and fourth flat surfaces being substantially parallel to one another and coextensive; the improvement comprising: providing said layer means in the form of a layer of material of uniform thickness by fixing such material everywhere to said first flat surface, and thereafter removing a portion of said layer of material from said first flat surface, whereby to provide said capillary groove; such removal creating an edge of said material remaining fixed to said first flat surface, said edge defining the shape of said capillary groove, and the thickness of said layer of material defining the thickness of said capillary groove.

4,275,768
HOSE HAVING ENGRAVED INDICIA STRIP
E. Gray Riggs, 709 Winmar Pl., E., Westerville, Ohio 43081; Joseph K. Simmonds, 4889 Kingshill Dr., Apt 103, Columbus, Ohio 43229, and Vernon D. Browning, 1692 Colonial Dr., Bucyrus, Ohio 44820
Filed Jun. 16, 1978, Ser. No. 915,918
Int. Cl.³ F16L 9/04, 9/12, 55/00
U.S. Cl. 138—104 2 Claims



1. A hose comprising a first element in the form of a tube having an axis and a convex outer surface of a first surface appearance and of predetermined curvature with respect to said axis and a second element in the form of an opaque strip extending longitudinally of said tube and having a concave inner surface conforming and fused to less than the full circumference of the convex outer surface of said tube and a convex outer surface of a second, opaque surface appearance visually contrasting to said first surface appearance and having longitudinal edges coincident with the longitudinal edges of the concave inner surface of said strip and of predetermined curvature with respect to said axis which is sharper than that of the convex outer surface of said tube, so that said strip is of maximum radial thickness midway between its longitudinal edges, and indicia engraved in the outer convex surface of said strip but not extending through said strip.

4,275,769
FIREGUARD FOR HOSE ASSEMBLY
Horise M. Cooke, Weatherford, Tex., assignor to Stratoflex, Inc., Fort Worth, Tex.
Continuation-in-part of Ser. No. 80,567, Oct. 1, 1979, abandoned. This application Nov. 9, 1979, Ser. No. 93,140
Int. Cl.³ F16L 35/00
U.S. Cl. 138—109 5 Claims



1. A fireguard for a hose and fitting assembly, the assembly including at least one fitting attached to an end of the hose, the fitting including an inner nipple and an outer socket, said fireguard comprising a tubular layer of a silicone compound having an internal diameter adapted to fit around a hose and fitting assembly to be protected, a tubular metal shroud substantially covering said tubular layer, a collar positioned around said shroud and said layer adjacent said fitting, and an additional outer layer of a silicone compound between said collar and the outside of said shroud and said tubular layer, said collar being adapted to secure said fireguard to said fitting.

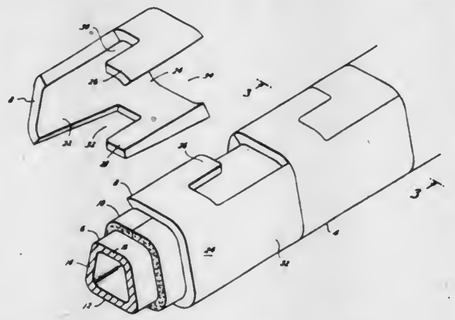
4,275,770
WEAR RESISTANT RUBBER HOSE
Magumi Yamamoto, Yokohama, Japan, assignor to Bridgestone Tire Co., Ltd., Kyobashi, Japan
Division of Ser. No. 851,916, Nov. 16, 1977, Pat. No. 4,212,328. This application May 14, 1979, Ser. No. 38,909
Claims priority, application Japan, Feb. 18, 1977, 52-17973[U]; Oct. 17, 1977, 52-136052[U]
Int. Cl.³ F16L 11/08
U.S. Cl. 138—133 3 Claims



1. In a wear resistant rubber hose having a central longitudinal axis and comprising an inner layer of surface rubber, an

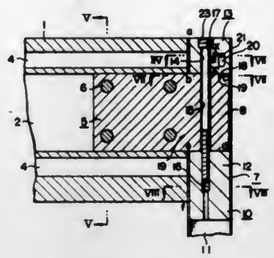
intermediate reinforcing layer surrounding said inner layer of surface rubber and an outer cover rubber layer surrounding said reinforcing layer, the improvements comprising: a continuous chain string having a ridigity considerably higher than that of said inner layer of surface rubber completely embedded inside the inner layer of surface rubber, said chain string being helically wound around the central longitudinal axis of the hose and comprising a plurality of individual planar links serially connected to one another and positionally disposed within the inner layer of surface rubber such that the planes of every other link are substantially parallel to the central longitudinal hose axis while the planes of the alternate, remaining links are substantially perpendicular to the central longitudinal hose axis, and wherein laterally adjacent links in the helically wound chain string are spaced from one another in the direction of the central longitudinal hose axis.

4,275,771
INTERLOCKING TRUNCATED TRIANGULAR INSULATOR
Frank Campbell, Jr., 2274 Broadlawn Dr., Houston, Tex. 77058
Filed Nov. 15, 1979, Ser. No. 94,611
Int. Cl.³ F27D *9/00, 3/02*
U.S. Cl. 138—149 9 Claims



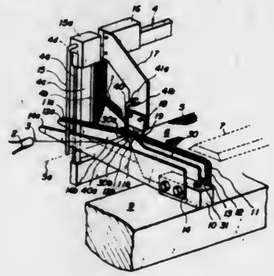
1. An interlocking, two-segment insulator for covering a pipe, the pipe having a base member, a pair of converging side members terminating in an apex member and whose perimeter defines a truncated triangular shape, the insulator comprising a base unit having first and second ends, a pair of side walls convergingly extending from the first and second ends of the base unit, the side walls terminating in and joining with an apex unit which connects the spaced apart side walls and each segment of the insulator includes a primary member forming a portion of one side wall and the apex and base units and circumferentially opened by a void corresponding to the remaining side wall of the insulator, a body extending longitudinally from the primary member, a pair of arms extending longitudinally from the primary member less than the body, the arms located circumferentially on either side of the body and spaced apart from the body by a pair of corresponding recesses, said arms themselves spaced apart by the void when properly aligned around the pipe are axially urged together, the void of each segment receives the body of the other segment and each pair of recesses receives the corresponding arms of the other segment thereby forming a truncated triangular, two-piece insulator which is maintained in place around the pipe without any other support means.

4,275,772
HEDDLE FRAME
Yoichi Shimizu, Izumiohi, Japan, assignor to Kabushiki Kaisha Maruyama Seisakusho, Sakai, Japan
Filed Feb. 1, 1980, Ser. No. 117,872
Claims priority, application Japan, Sep. 3, 1979, 54-120466[U]
Int. Cl.³ D03C *9/06*
U.S. Cl. 139—91 7 Claims



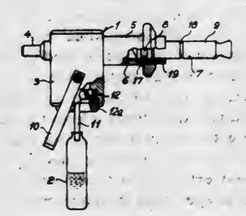
1. In a heddle frame including at least one aluminum bar and at least one hollow side-stay, a joint between said at least one bar and said at least one side stay, said joint comprising:
a joint block inserted in a hollow portion of said at least one bar and partially extending from said bar in the direction of the length of said bar;
an opening in said at least one side-stay, said opening adapted to have a portion of said joint block inserted therein;
a pressure receiving piece fixed in said at least one side-stay and adjacent one side of said opening wherein one face of said joint block may contact said pressure receiving piece;
a pressing piece in said at least one stay and adjacent another side of said opening wherein another face of said joint block may contact said pressing piece;
bolt holes in said pressing piece and said joint block and a threaded hole in said pressure receiving piece, said holes being positioned so as to be axially aligned when said joint block is fully inserted in said opening of said side stay; and
a clamping bolt insertable through said bolt holes and screwable in said threaded hole to secure said pressing piece, joint block and pressure receiving piece together.

4,275,773
WEFT CUTTING DEVICE IN SHUTTLELESS LOOM
Kazuo Shibata, Sagamihara, Japan, assignor to Nissan Motor Company, Limited, Tokohama, Japan
Filed Oct. 10, 1979, Ser. No. 83,548
Claims priority, application Japan, Oct. 12, 1978, 53/124658; Mar. 12, 1979, 54/27626
Int. Cl.³ D03D *47/34*
U.S. Cl. 139—429 9 Claims



1. A device for cuttings wefts in a shuttleless loom comprising a plurality of juxtaposed weft guide members disposed on a side of a woven cloth, the weft guide members engaging the weft during and after beating so as to guide the weft toward the cloth fell, and a plate-like cutting member adapted to move synchronously with the loom between a pair of the guide members, the cutting member after the beating being caused to move across the weft engaged by the guide members and a further weft guide member is provided on the outer side of the pair of the weft guide members between which the cutting member moves.

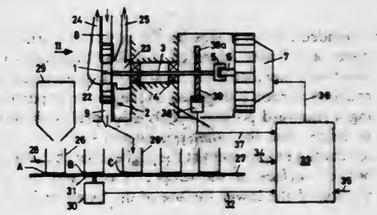
4,275,774
METHOD AND AN APPARATUS FOR TRANSFERRING A REFERENCE LIQUID FROM AN AMPOULE TO AN ELECTROCHEMICAL MEASURING INSTRUMENT
Jørgen Andersen, Dyrespringvej 3, DK-2730 Herlev, and Ib Reimer-Nielsen, Solkær 23, DK-2610 Rødovre, both of Denmark
Filed Feb. 13, 1979, Ser. No. 11,947
Claims priority, application Denmark, Sep. 7, 1978, 3966/78
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—1 11 Claims



1. A method for transferring a reference liquid from a reference liquid-containing ampoule to an electrochemical measuring instrument comprising
(a) opening said ampoule,
(b) providing a discharge conduit having an inlet and an outlet and extending through the opening of the ampoule into the inner space thereof so as to position said inlet below the surface of the liquid in said ampoule,
(c) providing, at the surface of the liquid in said ampoule, a gas pressure exceeding the gas pressure at the outlet of the conduit so as to discharge liquid from the ampoule through said outlet and communicating the outlet with said measuring instrument so as to introduce reference liquid into said instrument,
(d) terminating the liquid introduction into the measuring instrument while the inlet of the conduit is still located below the surface of the reference liquid in the ampoule thereby substantially preventing the introduction of gas into said measuring instrument.

4,275,775
SYSTEM FOR THE ACCURATE DOSING OF BULK MATERIAL
Alwin Egli, Beringen, Switzerland, assignor to SIG Schweizerische Industrie-Gesellschaft, Neuhausen am Rheinfall, Switzerland
Filed Apr. 30, 1979, Ser. No. 34,533
Claims priority, application Switzerland, May 12, 1978, 5240/78
Int. Cl.³ B65B *1/32*
U.S. Cl. 141—83 10 Claims

1. In a dosing system for filling a receptacle with a predetermined desired weight of flowable bulk material, including a conveyor on which receptacles are forwarded consecutively in a direction of advance, a main dosing apparatus for charging each receptacle, in a main dosing station along the conveyor, with the bulk material to an extent less than the predetermined weight; the improvement comprising an additional dosing apparatus for complementing the receptacle, in an additional dosing station along the conveyor, with the bulk material to an extent equal to the deviation between said desired weight and the actual weight resulting from the charging by said main dosing apparatus; said main dosing station being situated upstream of said additional dosing station as viewed in said direction of advance; said additional dosing apparatus comprising
(a) a cellular dispensing wheel having a plurality of cells of predetermined volume;
(b) means defining a material inlet chamber and a material outlet chamber spaced from one another and bounding first and second circumferential portions of said wheel;
(c) a movably supported shroud member having a shroud face extending along a third circumferential portion of said wheel and separating said inlet and outlet chambers from one another;

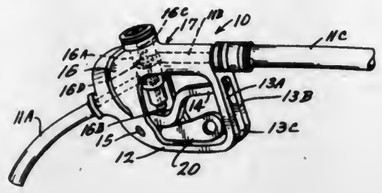


(d) adjusting means for setting the position of said shroud member for determining a minimum clearance between said shroud face and the periphery of said wheel;
(e) spring means urging said shroud member towards said wheel for allowing a resilient yielding movement of said shroud member away from said wheel;
(f) a stepping motor coupled to said wheel for rotating the same to discharge the bulk material through said outlet chamber;
(g) weighing means for determining said actual weight of the receptacle in a weighing station along said conveyor upstream of said additional dosing station as viewed in said direction of advance; and
(h) motor actuating means operatively coupled to said weighing means and said stepping motor for rotating said wheel through as many cell divisions as necessary to fill the receptacle by said additional dosing device in said additional dosing station with a quantity of the bulk material corresponding in weight to said deviation.

4,275,776
AUTOMATIC HOLDING DEVICE FOR GASOLINE PUMP HANDLES
John W. Rohlfing, 1080 Leith, Maumee, Ohio 43537
Filed Aug. 17, 1979, Ser. No. 67,216
Int. Cl.³ B65B *3/04*
U.S. Cl. 141—392 1 Claim

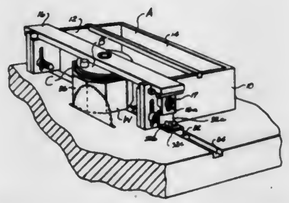
1. A gasoline pump handle holding device with a frontal portion and a posterior portion for longitudinal insertion in a gasoline pump handle support frame to hold the gasoline pump handle upwardly in an open position within said support frame, wherein the support frame has a flat surfaced bottom and is adapted for holding therein the gasoline pump handle, the lower surface of which gasoline pump handle is curved such that portions of the lower surface of such gasoline pump handle lie at a variable distance from the flat surface bottom of the support frame forming a lowest and a highest part, said handle holding device comprising:
(a) a longitudinally extending functional member, said longitudinally extending functional member having upper and

lower edges, said upper edge and lower edge being sloped downwardly towards the frontal portion thereof, thereby creating a forward portion which is shorter in height than the remaining portions of such holding device, and which forward portion is longitudinally insertible under the lowest part of the lower surface of the gasoline pump handle and above the flat surface bottom of the support frame;



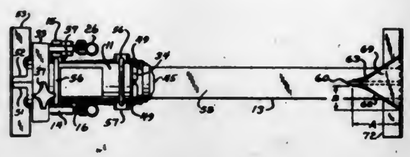
(b) rounded handle means on the posterior portion of such upper and lower edges of said longitudinally extending functional member for manual handling purposes and said rounded portion is disposed on the posterior portion creating a rearward portion which is integral with and higher in height than the other portions of such holding device for mating engagement at the highest part between the flat bottom surface of the support frame and the posterier portion of the lower surface of the pump handle.

4,275,777
TABLE SAW CARRIAGE ATTACHMENT
Louis H. Briggs, Rte. 3, Box 198, Elberton, Ga. 30635
Filed Oct. 15, 1979, Ser. No. 85,050
Int. Cl.³ B27C 5/06
U.S. Cl. 144—138 **8 Claims**



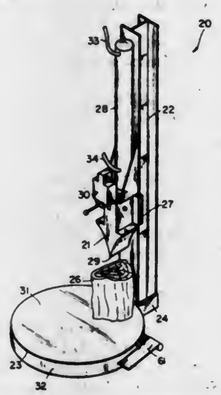
1. Accessory attachment apparatus for a table saw and the like for holding a workpiece for sawing and turning, said apparatus comprising:
- a carriage means by which said workpiece is carried relative to said saw table and blade;
- said carriage means including spaced apart sides;
- bridge plate means extending between said sides;
- index attachment means carried by said bridge plate means;
- an attachment plate rotatably carried by said index attachment means to provide an axis of rotation about which said workpiece is turned for sawing;
- connecting means for affixing said workpiece to said attachment plate;
- index stop means for locking said attachment plate and index attachment means unitarily together in one of a plurality of predetermined rotational positions;
- means for guiding said saw blade and carriage means relative to one another as said workpiece is presented in one of said plurality of rotated positions for sawing a planar surface thereon; and
- said attachment plate including attachment means for attaching said attachment plate to a turning lathe so that said attachment plate and affixed sawed workpiece may be unitarily removed and attached to a turning lathe whereby said workpiece may be turned about said same axis of rotation to produce a highly symmetrical turned product.

4,275,778
LOG SPLITTER
John A. Kotas, Chicago Heights, Ill., assignor to Dass Industries, Inc., Park Forest, Ill.
Filed Aug. 13, 1979, Ser. No. 66,083
Int. Cl.³ B27L 7/00
U.S. Cl. 144—193 A **9 Claims**



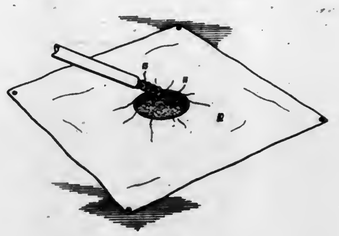
1. A log splitting apparatus comprising a horizontally extending elongated beam having first and second ends, a hydraulic power pack mounted on the first end of the beam, a wedge assembly mounted on the second end of the beam, the wedge assembly including a vertically extending center plate extending parallel to the longitudinal axis of the beam and aligned with the power pack and secured to the second end of the beam, a pair of wedge plates, each of the wedge plates having a curved portion secured to the center plate and a substantially flat portion extending from the curved portion at an acute angle with respect to the center plate, and a triangularly shaped horizontally extending gusset plate on top of the center plate and extending between and engaging the flat portions of the wedge plates for reinforcing the wedge plates.

4,275,779
LOG-SPLITTING APPARATUS
William D. Rowe, 1825 Vermont Ave., Connersville, Ind. 47331
Filed Apr. 16, 1980, Ser. No. 140,729
Int. Cl.³ B27L 7/00
U.S. Cl. 144—193 A **13 Claims**



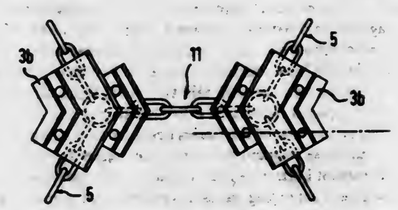
1. An adjustable log-splitting apparatus of the type wherein a wedge-shaped cutter is slidably recieved on a vertical column, a log to be split is placed beneath the wedge-shaped cutter and drive means move the cutter into contact with the log, wherein the improvement comprises:
- a base platform disposed beneath the wedge-shaped cutter and including a top plate member and a supporting frame member;
- means for connecting said top plate member to said supporting frame member, said connecting means being arranged to permit elevation of said top plate member relative to said supporting frame member and thereafter to permit manual rotation of said top plate member relative to said supporting frame member; and
- elevating means for raising said top plate member relative to said supporting frame member.

4,275,780
GRAIN AUGER HOPPER
Bert B. Tisdale, 4643 - 197th St., Langley, B.C., Canada
Filed Mar. 10, 1980, Ser. No. 128,888
Int. Cl.³ B65D 79/00; B65G 65/34
U.S. Cl. 150—52 R **8 Claims**



1. An auger grain hopper comprising:
- a tarpaulin having a top surface upon which grain is piled and a bottom surface for covering the ground;
- a receptacle positioned on the bottom surface of the tarpaulin;
- means for securing the receptacle to the tarpaulin;
- a lid for closing the receptacle with the tarpaulin disposed therein when the tarpaulin is not in use; and
- stabilizing means on the lid for receiving the bottom of another receptacle therein whereby a plurality of receptacles may be stacked with tarpaulins contained therein.

4,275,781
CLEATED SNOW CHAIN
Tilo Riedel, Salzburg, Fed. Rep. of Germany, assignor to Semmat Anstalt, Schaan, Liechtenstein
Filed Oct. 18, 1978, Ser. No. 952,652
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1977, 2747025
Int. Cl.³ B60C 27/00
U.S. Cl. 152—234 **4 Claims**



1. A cleated chain wrapping for use on automotive tires which have a circumferentially extending tread surface and which are mounted on wheels which have a first side and a second side, comprising: an even plurality of like chain lengths extending transversely across the tread surface from the first side of the wheel to the second side of the wheel, the chain lengths being arranged in a plurality of chain pairs, in a manner that the pairs are spaced around the circumference of the tire in adjacent side-to-side relationship; a plurality of like cleats equal in number to the number of chain pairs, each cleat being located on the tread surface and connected between one of the chain lengths in a chain pair and one of the chain lengths in an adjacent chain pair, said ones being those chain lengths in said chain pairs which are located adjacent each other; and means securing the chain lengths between the first and second sides of the wheel, each cleat being formed of a first part associated with one of said ones and a second part associated with another of said ones, the parts being separate and mirror images of each other, and the parts being secured together by a connecting chain connecting said ones together.

4,275,782
PNEUMATIC TIRE INSERTS
Richard B. McFarlane, 305 Hollywood Blvd., Oxnard, Calif. 93030
Continuation of Ser. No. 776,848, Mar. 24, 1977, abandoned. This application Jan. 16, 1979, Ser. No. 3,991
Int. Cl.³ B60C 7/00
U.S. Cl. 152—314 **2 Claims**

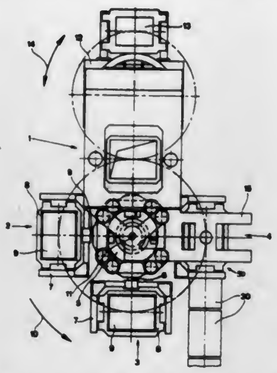


1. A tire insert designed to be carried within a pneumatic tire casing mounted on a wheel rim, said tire insert comprising:
- (a) a resilient annular member;
- (b) having an internal annular bore means dimensioned such that said bore means defines an empty volume from 0.1444 to 0.3136 of the total volume of said member;
- (c) said insert having a durometer hardness of between 30 and 65, as measured by a Type A Shore Durometer Testor, wherein
- (d) if L is the total length of the mean circumference of said annular member and C is the total length of the mean circumference of said pneumatic tire casing on said rim, L is larger than C prior to insertion of said insert in said pneumatic tire casing, by an amount between 0.005 C and 0.013 C and wherein
- (e) if D is the mean diameter of a cross-section of the resilient annular member, W the width of the casing at normally inflated conditions and T the wall thickness of the tire casing, under normally inflated conditions, then $D = W - 2T$, whereby said insert is frictionally retained within said pneumatic tire casing against circumferential sliding movement relative to said tire casing when in use.

4,275,783
MOLDING MACHINE FOR FABRICATING BOXLESS MOLDS
Werner Geiger, Maggau, Switzerland, assignor to Inventio AG, Hergiswil, Switzerland
Filed Sep. 4, 1979, Ser. No. 71,945
Claims priority, application Switzerland, Sep. 5, 1978, 9318/78
Int. Cl.³ B22C 11/04, 17/08
U.S. Cl. 164—146 **6 Claims**

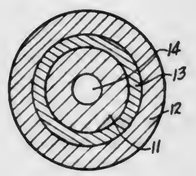
1. A molding machine for fabricating boxless molds, comprising:
- a number of mold stations defining a sand filling and compaction station coacting with an exchangeable match plate support, at least one core insert station and a mold closing station where two mold halves, forming a casting mold, are brought into superimposed alignment with one another;

a pivot device cyclically rotatable about a vertical axis for movement past said number of mold stations;
said pivot device being provided with at least three pivot arms each having a respective mold box for receiving a mold half, each mold box being rotatable about a substantially horizontal axis and vertically displaceable;
a conveyor device for transporting the molds; and
said conveyor device comprising a transport device structured as part of said closing station;
said closing station comprising:
a vertically centrally symmetrical arrangement, viewed



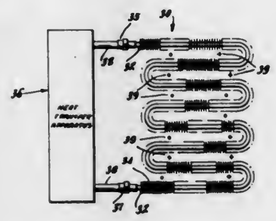
from the top towards the bottom, of an elevationally displaceable mold half-ejection punch;
a support arrangement including stationary support column means for a mold box lowered thereon by the pivot arm during a mold closing cycle at the closing station;
said support arrangement including fluid operated elements coacting with said support column means for supporting said mold box lowered onto said support column means;
said transport device comprising a support plate for receiving two mold halves forming a fabricated mold; and
an elevationally displaceable table for raising and lowering the support plate.

4,275,784
FAIL SAFE HEAT EXCHANGER
James M. Popplewell, Guilford, Conn., and Sheldon H. Butt, Godfrey, Ill., assignors to Olin Corporation, New Haven, Conn.
Division of Ser. No. 23,631, Mar. 26, 1979. This application Mar. 31, 1980, Ser. No. 135,543
Int. Cl.³ F28F 19/00, 21/08
U.S. Cl. 165—134 R **7 Claims**



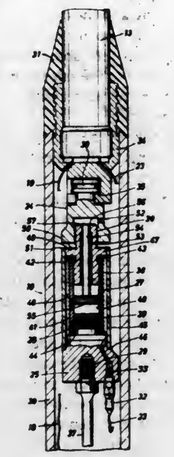
1. A composite fail safe metal heat exchanger comprising:
an inner metal tube comprising copper cr a copper alloy forming a fluid passageway;
an outer metal tube comprising copper or a copper alloy;
said inner and outer tubes being concentric;
a substantially continuous corrosion barrier;
said corrosion barrier comprising nickel or a nickel alloy which is noble to the metal of said inner and outer tubes;
said corrosion barrier being located between and in intimate contact with said inner and outer tubes; whereby said corrosion barrier is adapted to prevent intermixing between a fluid within said passageway with fluid surrounding said outer tube.

4,275,785
HEAT EXCHANGE TUBING BLADE ASSEMBLY
Leo J. Kerivan, Wellesley, Mass., assignor to Industrial Blast Coil Corporation, South Easton, Mass.
Continuation of Ser. No. 781,925, Mar. 28, 1977, abandoned. This application Sep. 20, 1979, Ser. No. 77,185
Int. Cl.³ F28F 1/14
U.S. Cl. 165—183 **26 Claims**



1. A heat exchange tubing and multiple heat exchange blade assembly comprising:
an elongated tube having a passage extending along the axis of the tube for accommodating fluid flow longitudinally within the tube;
said passage within said tube being defined by the inner surface of the wall of the tube,
said tube wall having a continuous rounded convex exterior surface as seen in cross section;
said inner surface of said tube wall describing a continuous rounded convex curve as seen in cross section;
said tube having a plurality of pairs of spaced parallel buttresses formed integral with the tube wall and extending longitudinally along the outside of the tube wall parallel with the tube axis and projecting outwardly above the exterior surface of the tube wall;
a plurality of blade strips extending longitudinally of the tube parallel to the tube axis, said strips being circumferentially spaced one from the other;
each of said blade strips having a base segment resting against said exterior surface of the tube and being captivated between a respective pair of said parallel buttresses;
each of said base segments having two rows of blades integrally formed thereon, said two rows being circumferentially spaced from each other relative to the tube with a respective row of the blades being located along each side of the base segment adjacent to the respective captivating abutment buttresses and with said two rows on each base segment extending parallel with each other and longitudinally along the tube;
said blades in the two rows on each base segment projecting outwardly away from the tube;
said blades being twisted near their base segment positioning the surface of each blade generally transverse to the tube for accommodating the passage of exterior fluid flowing generally transversely to the tube;
each base segment of each blade strip being pressed firmly into thermally conductive abutting contact with the exterior surface of the tube wall between its pair of parallel captivating buttresses by at least one of said abutments being crimped laterally toward the base segment and inwardly toward the exterior surface of the tube.

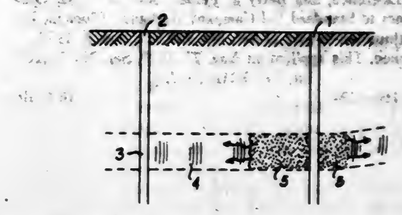
4,275,786
APPARATUS FOR SELECTIVELY COUPLING CABLES TO WELL TOOLS
Arley G. Lee, Pasadena, Tex., assignor to Schlumberger Technology Corporation
Filed Dec. 15, 1978, Ser. No. 969,916
Int. Cl.³ E21B 47/00
U.S. Cl. 166—65 R **38 Claims**



1. Well bore apparatus for releasably coupling a suspension cable to a well tool and comprising:
upper and lower support members adapted for intercoupling a suspension cable to a well tool;
selectively-releasable coupling means including at least one movable member normally positioned between said support members for cooperatively maintaining said upper and lower support members coupled in a tool-supporting relationship and adapted for movement away from that normal position whereby said support members will no longer be in a tool-supporting relationship, and electrically-operable securing means releasably retaining said movable member in its said normal position, said electrically-operable securing means including an electrically-disintegratable member formed of an unalloyed bimetallic composite of at least two exothermic metals and adapted to be parted upon passage of electrical current therethrough for releasing said movable member for movement away from its normal position;
means normally defining a fluid-tight chamber around said electrically-operable securing means; and
means operable in response to release of said movable member for movement from its said normal position for admitting well fluids into said chamber.

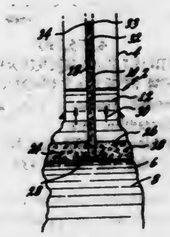
4,275,787
METHOD FOR MONITORING SUBSURFACE COMBUSTION AND GASIFICATION PROCESSES IN COAL SEAMS
Klaus Helbig, Zeist, Netherlands, assignor to Prakla - Seismos GmbH, Hanover, Fed. Rep. of Germany
Filed Jul. 25, 1979, Ser. No. 60,349
Claims priority, application Fed. Rep. of Germany, Jul. 31, 1978, 2833896
Int. Cl.³ E21B 43/243, 47/00
U.S. Cl. 166—251 **5 Claims**

1. A method for monitoring subsurface combustion and gasification processes in coal seams for the determination of the location of the combustion front and the amount of change of the electrical properties of coal during combustion and gasification comprising the steps of emitting radar signals from an elongated antenna in a borehole within the same coal seam, and recording the radar signals for a determination of their



travel time and amplitude by at least one receiver antenna in a further borehole or by the transmitter antenna.

4,275,788
METHOD OF PLUGGING A WELL
Ronald E. Sweetman, Fountain Valley, Calif., assignor to BJ-Hughes Inc., Long Beach, Calif.
Filed Jan. 28, 1980, Ser. No. 115,870
Int. Cl.³ E21B 33/38
U.S. Cl. 166—292 **20 Claims**



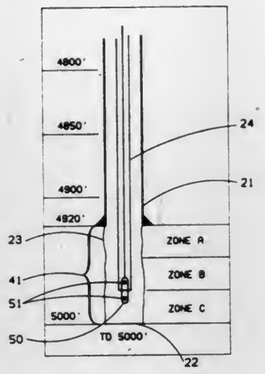
1. A method for forming a plug within a well bore, said method comprising the steps of:
establishing a two-phase system within the well bore in which a less dense phase bears against the upper surface of a more dense phase to provide an interface between the two phases that is positioned at a desired location for formation of a plug within the well bore;
injecting a hardenable plug material at about the interface between the two phases with the plug material having a density which is intermediate the densities of the less dense and more dense phases;
permitting the plug material to harden to form a plug within the well bore, whereby the plug material floats on the more dense phase during hardening as the plug material is squeezed between the less dense and more dense phases such that the plug material is compressed and is forced into contact with the surface of the well bore to bond securely to the well bore surface; and
wherein the more dense phase is a more dense liquid and the less dense phase is a less dense liquid which floats on the more dense liquid at the interface between the two liquids before injection of the plug material.

4,275,789

SILICATE ACTIVATED LIGNOSULFONATE GEL TREATMENTS OF CONDUCTIVE ZONES

Dan D. Lawrence, and Betty J. Felber, both of Tulsa, Okla., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Continuation-in-part of Ser. No. 939,579, Sep. 5, 1978, abandoned. This application Aug. 27, 1979, Ser. No. 70,285
Int. Cl.³ E21B 33/138
U.S. Cl. 166—294 16 Claims



1. A method of reducing the fluid conductivity of a conductive subterranean zone, which comprises:

introducing an aqueous fluid containing gel-forming amounts of water-soluble lignosulfonate and water-soluble silicate into said conductive zone and maintaining said aqueous fluid in said zone until said aqueous fluid is converted to a gel.

4,275,790

SURFACE CONTROLLED LIQUID REMOVAL METHOD AND SYSTEM FOR GAS PRODUCING WELLS

Bolling A. Abercrombie, Houston, Tex., assignor to McMurry-Hughes, Inc., Huntsville, Tex.

Filed Nov. 5, 1979, Ser. No. 91,035
Int. Cl.³ E21B 43/12
U.S. Cl. 166—314 5 Claims



1. A method of removing accumulated liquid from a well that is producing liquid and gas, the well being of the type having a casing with perforations at a producing formation, the casing being connected at its top to a sales line for producing gas and having a string of tubing located therewithin, the method comprising:

connecting the top of the tubing to the sales line, the lower end of the tubing being in communication with the accumulated liquid;

opening the casing to the sales line, allowing the accumulated liquid to collect in the casing and the tubing as the gas is produced; then

closing both the tubing and the casing at the sales line, allowing pressure to build up in the casing, and forcing the accumulated liquid in the tubing upward; then

opening the tubing only to the sales line, allowing pressure in the casing to force the accumulated liquid in the tubing into the sales line; then

opening the casing also to the sales line to cause gas to again flow from the casing to the sales line.

3. In a well of the type having casing with perforations in a producing formation, the casing being connected at its top to a sales line for producing gas, an improved system for removing accumulated liquid from the well, comprising:

an open-ended standpipe of length substantially less than the depth of the well, mounted within the casing by a packer located above the perforations, defining a collection chamber between the standpipe and the casing above the packer for the accumulated liquid;

a string of tubing mounted in the casing, the tubing having a lower end located inside the standpipe that is closed to fluid flowing from the perforations up the standpipe, defining a flow path between the tubing and the standpipe for the fluid flowing from the perforations, the lower end of the tubing being in communication with the collection chamber by a passage, the top of the tubing being connected to the sales line;

a plunger located inside the tubing and reciprocal between a lower position adjacent the standpipe and an upper position at the top of the tubing; and

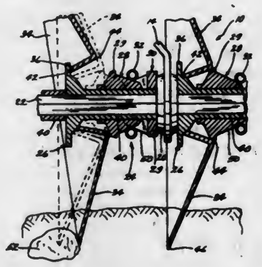
valve means for selectively opening and closing the casing and the tubing to the sales line.

4,275,791

YIELDABLE DISC BLADE ASSEMBLY

Robert B. Rottinghaus, 4121 S. Canfield Rd., Jesup, Iowa 50648

Filed Jul. 27, 1979, Ser. No. 61,192
Int. Cl.³ A01B 61/00, 71/04
U.S. Cl. 172—570 6 Claims



1. A yieldable disc blade assembly adapted for use on a rotatably mounted shaft attached to an implement frame, said disc blade assembly comprising:

a fixed hub attached to said shaft, said hub being axially and radially fixed with respect to said shaft;

a disc blade having a central opening larger than said shaft, such that the disc blade is movable radially with respect to said shaft, said disc blade having one surface in contact with said fixed hub;

means for radially positioning said disc blade with respect to said fixed hub;

a yieldable block disposed on said shaft, said yieldable block being in contact with an opposite surface of said disc blade; and

means for biasing said yieldable block axially in the direction of said disc blade said biasing means requiring a first greater force to move the yieldable block in a direction away from said disc blade and a second lesser force to continue movement away from said disc blade after movement progresses to a predetermined point.

4,275,792

SHOVEL WITH SOIL DIRECTING STRUCTURE

Thomas C. Jensen, and Terry L. Love, both of Ankeny, Iowa, assignors to Deere & Company, Moline, Ill.

Filed May 29, 1979, Ser. No. 43,115
Int. Cl.³ A01B 15/02
U.S. Cl. 172—703 27 Claims



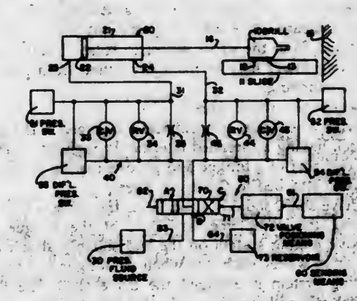
8. A shovel adapted for mounting on a standard and for moving forwardly through the soil for lifting and turning the same, the shovel comprising: an elongated member having upper and lower ends, a longitudinal axis, opposed longitudinal blunt edges, and a concave surface substantially along its entire length connecting the edges, said member curved forwardly about its axis so the ends and the concave surface extend generally in the forward direction thereby forming a concave soil-directing path extending substantially from the lower to the upper end, and wherein the lower end includes a cutting edge relatively more sharp than the blunt edges extending generally transversely to the forward direction between the edges.

4,275,793

AUTOMATIC CONTROL SYSTEM FOR ROCK DRILLS

George P. Schivley, Jr., Bridgeport, W. Va., and Peter L. Madonna, Dover, N.J., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Feb. 14, 1977, Ser. No. 768,696
Int. Cl.³ B23Q 5/033; E21C 5/10; F15B 11/15, 13/042
U.S. Cl. 173—9 10 Claims



1. A control means for use in a drill feed system of the type having a driving means connected to receive pressurized fluid to move a drill, a pressurized fluid source, and a connecting means for delivering pressurized fluid from the fluid source to the driving means; said control means comprising:

a pressure means for measuring the pressure of the fluid delivered to the driving means to produce a signal indicating fluid pressure level;

a pressure differential means for measuring the flow of the fluid delivered to the driving means to produce a signal indicating fluid flow rate;

a sensing means responsive to the signals of the pressure means and pressure differential means for producing a signal indicating a preselected fluid pressure level and a preselected flow rate; and

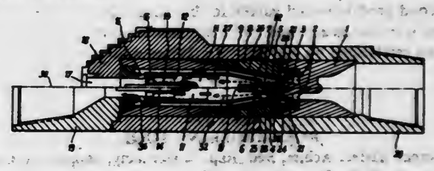
a flow means for controlling the direction of fluid flow to the driving means in response to the signal of the sensing means.

4,275,794

TOOL EQUIPPED WITH A PERCUSSIVE DEVICE

Mario Carbonaro, Brussels, Belgium, assignor to Compagnie Francaise des Petroles, Paris, France

Filed Jul. 31, 1978, Ser. No. 929,581
Claims priority, application France, Aug. 5, 1977, 77 24268
Int. Cl.³ E21B 4/14
U.S. Cl. 173—135 13 Claims



1. A fluid operated percussive tool, comprising:

a first fluid flow path,

a second fluid flow path,

a fluid drive element operable to switch the flow path of the fluid,

a reciprocating hammer operable to be driven in one direction in response to fluid flow along said first flow path, and in a second direction in response to fluid flow along said second flow path, and,

a stop member for receiving a blow from said hammer moving in said one direction, and for transmitting said blow to a tool element,

wherein said fluid drive element comprises at least a generally conical internal surface of a first external piece and a generally conical external surface of an internal piece, said fluid element being operable to stabilize fluid flow along at least one of said surfaces, and wherein a flow separator is positioned between said surfaces and includes an inner wall which comprises a chamber for said hammer.

4,275,795

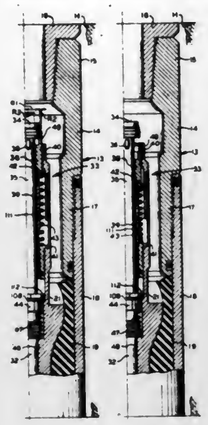
FLUID PRESSURE ACTUATED BY-PASS AND RELIEF VALVE

Herbert W. Beimgraben, and Paul A. Reichardt, both of Houston, Tex., assignors to Baker International Corporation, Orange, Calif.

Filed Mar. 23, 1979, Ser. No. 23,282
Int. Cl.³ E21B 3/12
U.S. Cl. 175—26 17 Claims

1. A valve apparatus having an inlet means exposed to a source of fluid under pressure and an outlet means connected to a fluid flow path, comprising: first pressure sensitive means responsive to the fluid under pressure at a first predetermined value for blocking fluid flow between said inlet means and said outlet means; second pressure sensitive means responsive to the fluid under pressure at a second predetermined value, greater than said first predetermined value, for establishing fluid flow between said inlet means and said outlet means; and third

pressure sensitive means responsive to the fluid under pressure at a third predetermined value, intermediate said first and



second predetermined values, for blocking fluid flow between said inlet means and said outlet means after said fluid flow has been established by said second pressure sensitive means.

4,275,796

ROCK DRILLING TOOL

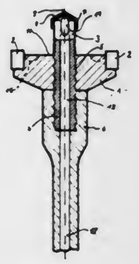
Werner Kleine, Achim, Fed. Rep. of Germany, assignor to Gebruder Heller Verwaltungsgesellschaft mit beschraukter Haftung, Achim-Uphusen, Fed. Rep. of Germany

Filed Feb. 15, 1979, Ser. No. 12,576

Claims priority, application Fed. Rep. of Germany, Feb. 20, 1978, 2807156

Int. Cl.³ E21C *13/08*

U.S. Cl. 175—385 **8 Claims**



1. A rock drilling tool comprising:

(a) a bracket means having a circular front face and an uninterrupted cylindrical circumferential surface, said circumferential surface forming a radially outermost surface of said bracket means;

(b) a central pilot shaft axially disposed in said bracket means and protruding forward therefrom;

(c) a tool shaft supporting said bracket means and said central pilot shaft;

(d) a first cutting member at the forward end of said central pilot shaft;

(e) a plurality of second cutting members disposed on said bracket means radially spaced outward from said first cutting member whereby an annular portion of said circular front face is disposed radially outside of said first and radially inside of said second cutting members for crushing the rock not engaged by said first and second cutting members;

(f) said second cutting members extending axially forward a predetermined distance beyond said circular front face and extending radially outward a second predetermined distance beyond said cylindrical circumferential surface;

(g) exhaust channel means for withdrawing fine drilled material from forward of said front face through said tool shaft; and

(h) said front face being substantially plane.

4,275,797

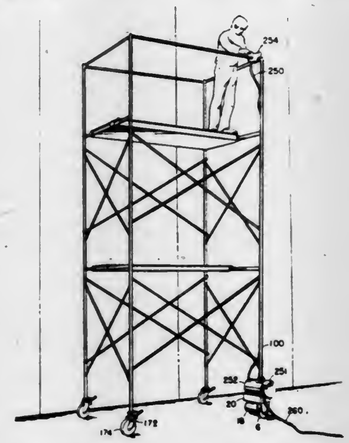
SCAFFOLDING POWER ATTACHMENT

Raymond R. Johnson, P.O. Box 964, Wenatchee, Wash. 98801

Filed Apr. 27, 1979, Ser. No. 33,908

Int. Cl.³ B60K *7/00*; E04G *1/20*

U.S. Cl. 180—2 R **7 Claims**



1. A scaffolding power unit for attachment to scaffolding tower assemblages of the type commonly used for overhead finishing work in the installation of wiring, lighting fixtures, duct work and ceilings, which have detachable caster wheels so they may be rolled from place to place, the scaffolding unit comprising:

(a) a main frame;

(b) a pivotal attachment means connected to the main frame which pivotally attaches the scaffolding power unit to a single leg of the scaffolding tower assemblage;

(c) a drive wheel, rotatably attached to the main frame;

(d) a propelling means connected to the drive wheel which provides for linear motion of the scaffolding power unit and the attached scaffolding tower assemblage; and

(e) a clutch means, such that the propelling means may be disengaged from the drive wheel to rotate freely so the scaffolding tower may be manually rolled from place to place, comprising:

(1) also the said drive wheel;

(2) a drive wheel axle, concentrically attached to the drive wheel, having a threaded interior throughout and having one part of a tongue and groove mating system on the end attached to the drive wheel;

(3) a drive shaft, slidably attached to the drive wheel and having the complementary part of the tongue and groove mating system on the end slidably attached to the drive wheel, such that when the tongue and groove mating system is engaged the drive shaft, the drive wheel axle and the drive wheel rotate together;

(4) a turnscrew, threaded through the interior of the drive wheel axle, such that one end contacts the end of the drive shaft;

(5) a biasing spring; and

(6) a turnscrew handle, attached to the turnscrew, such that turning the turnscrew handle in one direction causes the end of the turnscrew to push against the end of the drive shaft, thereby separating the drive shaft and the drive wheel axle, such that the tongue and groove mating system is disengaged, permitting the drive wheel to rotate freely with respect to the drive shaft, while turning the turnscrew handle in the other direction releases the pressure of the turnscrew against the end of the drive shaft, thereby permitting the biasing spring to push the drive shaft and drive wheel axle back together, thereby reengaging the tongue and groove mating system.

4,275,798

POWER STEERING APPARATUS

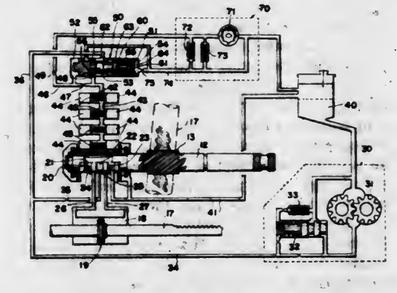
Masao Nishikawa, Tokyo; Toshihiko Aoyama, Saitama, and Yoichi Sato, Fujisi, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 26, 1979, Ser. No. 60,877

Claims priority, application Japan, Jul. 31, 1978, 53-93377

Int. Cl.³ B62D *5/08*

U.S. Cl. 180—143 **10 Claims**



1. In a power steering apparatus for a vehicle, comprising:

a hydraulic source (30) for supplying hydraulic fluid to a supply line (34, 36, 136);

a hydraulic cylinder (18) having two chambers therein defined by a piston (19) arranged to provide hydraulic assistance for a steering linkage (12, 17);

a directional control valve (20) slidable so as to selectively connect one chamber in said hydraulic cylinder to said supply line and the other chamber in said hydraulic cylinder to a reservoir (40) in response to turning movement of a steering wheel (14) operatively connected to said steering linkage, and to provide communication between said supply line and said reservoir in the neutral position of said valve (20);

a plurality of hydraulic reaction chambers (42, 142) having respective plungers (44, 144) and first biasing means (45) normally urging said directional control valve toward said neutral position, said chambers (42, 142) communicating through a common passage (43, 143);

a reaction control valve (50, 150) connected between said supply line and said common passage, and movable toward the closed position thereof by hydraulic fluid pressure in a first chamber (52, 152) and normally urged toward the open position thereof by a second biasing means (51, 151) in a second chamber (54, 154), said first chamber being connected to an exhaust line (46, 146) communicating through a first orifice (47, 147) with said common passage; and

a vehicle speed sensor (70) connected to the downstream side of said exhaust line for discharging hydraulic fluid in proportion to vehicle speed;

the improvement comprising:

a hydraulic passage including a valve means (60, 160) provided between said supply line (34, 36, 136) and said second chamber (54, 154), said reaction control valve (50, 150) being further urged toward the open position thereof by hydraulic fluid pressure thus introduced into said second chamber (54, 154); and

said valve means (60, 160) being movable toward the open position thereof by hydraulic fluid pressure in a third chamber connected to said common passage (43, 143) and normally urged toward the closed position thereof by a third biasing means (61, 161) in a fourth chamber (64, 164).

4,275,799

WHEEL HUB AND HOMOKINETIC JOINT ASSEMBLY

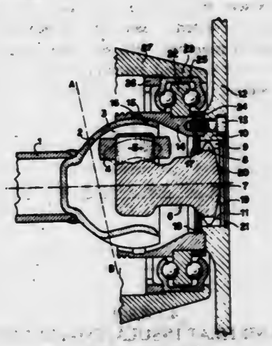
Pierre L. Guimbretiere, Neuville-le-Chateau, France, assignor to Spicer Glaenzer, Poissy, France

Filed Apr. 26, 1979, Ser. No. 33,678

Claims priority, application France, Apr. 28, 1978, 78 12766; Apr. 3, 1979, 79 08301

Int. Cl.³ B60K *17/30*

U.S. Cl. 180—255 **17 Claims**



1. A structure for a wheel of a vehicle and comprising a hub for the wheel, a first homokinetic joint, a transmission shaft, a rolling bearing comprising first ring means and second ring means which are relatively rotatable, said second ring means providing means for fixing it to a hub supporting element of the vehicle which does not rotate with the transmission shaft, said first homokinetic joint comprising a tripod first element defining three trunnions, three part-spherical rollers respectively rotatively mounted on the trunnions, and a second element connected to rotate with the transmission shaft and defining three raceways in which raceways the rollers are respectively received, the first element being distinct from the hub, an auxiliary homokinetic coupling which interconnects the hub and the first element, a case which is rigid with the hub and defines a concave part-spherical bearing surface, means rigid with the second element and defining a convex part-spherical bearing surface which is complementary to and cooperates with the concave part-spherical bearing surface, and means axially fixing said first ring means of said rolling bearing between the hub and the case.

4,275,800

VEHICLE WITH VARIABLE HEIGHT CONTROL STATION

Stephen E. Betzel, 130 Vassar St., Reno, Nev. 89502

Filed Sep. 28, 1979, Ser. No. 79,982

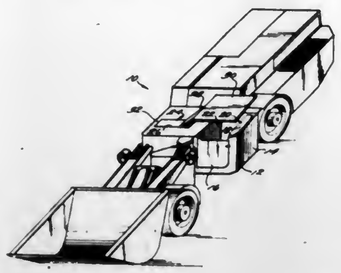
Int. Cl.³ B60K *26/02*; B62D *33/06*

U.S. Cl. 180—317 **17 Claims**

1. For a vehicle which includes an on-board operator's work station, at which there is a cab having side walls and an open top, the improvement comprising:

a generally horizontal cantilever arm having one end pivotally secured to the vehicle distally of the work station and having another end disposed adjacent the work station;

extensible/retractable support means for extending between the arm, intermediate said ends, and the vehicle for supporting said arm at an adjustable and fixable elevation relative to said vehicle about said one end;



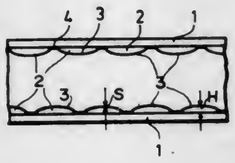
an operator's seat and a set of operator's controls for the work station mounted to said arm for adjustable and fixable elevation together with said arm; and a cab roof secured to said arm and extending over said operator's seat and said set of operator's controls.

4,275,801

NOISE AND HEAT INSULATING STRUCTURAL COMPONENT

Oskar Bschorr, Munich, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraenkter Haftung, Munich, Fed. Rep. of Germany

Filed Aug. 17, 1979, Ser. No. 67,219
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1978, 2838193
Int. Cl.³ E04B 1/88, 2/02; E04C 2/54
U.S. Cl. 181—290 10 Claims



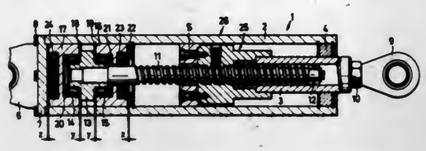
1. A noise and heat insulating structural component, comprising two outer wall means spaced to form a hollow space therebetween, a plurality of auxiliary load buckling surface members which are domed when substantially free of a load and which buckle when subject to a load, said domed auxiliary load buckling surface members being located between said outer wall means, said auxiliary load buckling surface members enclosing a plurality of evacuated pockets each having a respective volume, said load buckling auxiliary surface members having a given wall thickness and a dome height corresponding substantially to 0.5 to 3.0 times said given wall thickness, whereby the so formed pockets form so-called Belleville type springs having a small spring constant relative to the load caused by the pressure difference between the pressure surrounding said pockets and the reduced pressure in said pockets.

4,275,802

MECHANICAL SHOCK ABSORBER

Fredrik W. de Groot, and Jörg D. Bernert, both of Zeven, Fed. Rep. of Germany, assignors to Lloyd Kraftwerkstechnik GmbH & Co. KG, Fed. Rep. of Germany

Filed Apr. 12, 1979, Ser. No. 29,574
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1978, 2825499
Int. Cl.³ B60T 7/12
U.S. Cl. 188—134 11 Claims



1. A shock absorber for attenuating a shock effect between a fixed point and a movable element comprising:

a casing;

a threaded element having a longitudinal axis and being mounted for limited axial movement within said casing;

a first engagement means being mounted for limited radial movement relative to said longitudinal axis of said threaded element; and

a second engagement means being mounted for axial movement within said casing relative to said threaded element in response to a shock effect;

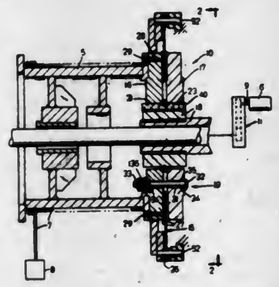
said first engagement means being in normal contact engagement with the threads of said threaded element for converting the axial movement of said first engagement means into a rotary movement of the threaded element and said second engagement means being normally out of engagement with the threads of said threaded element, whereby upon the application of said shocking effect above a predetermined amount, the first engagement means moves radially away from the threads of the threaded member permitting axial movement of the second engagement means which abuts against the threads of said threaded element to block further rotational movement of the threaded element by becoming lockingly engaged with the threads of said threaded element while said shocking force is applied thereto.

4,275,803

LOAD BRAKE

Gordon A. Putney, New Berlin, Wis., assignor to Harnischfeger Corporation, West Milwaukee, Wis.

Filed Oct. 1, 1979, Ser. No. 80,414
Int. Cl.³ B60T 7/12
U.S. Cl. 188—134 14 Claims



7. A load brake of the type comprising a driver rotatable in opposite directions about an axis, a rotatable braking member which can rotate about said axis in said directions but tends to be biased in one of said directions by a load connected therewith and which has a substantially axially facing surface, a cooperating braking element which is confined against rotation in said one direction and which has a substantially axially facing surface that is engageable by said surface on the rotatable braking member to frictionally oppose rotation of the rotatable braking member in said one direction, and a control member rotatable in said directions coaxially with said rotatable braking member and which is constrained to rotate in said one direction with the driver, and wherein said rotatable braking member, said control member and said cooperating braking element are arranged for axial movement relative to one another to provide for variation of the axial force under which said surfaces are engaged, said load brake being characterized by:

A. said braking element

(1) being also confined against rotation in the opposite direction and

(2) having another substantially axially facing surface which is opposite its first memtioned surface and which is engageable by the control member;

B. said braking member and said control member being at axially opposite sides of said braking element; and

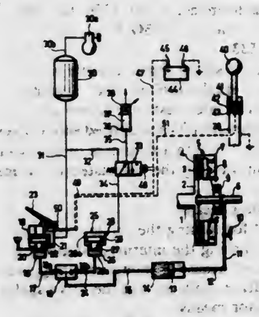
C. a plurality of elongated link elements, each having at one of its ends a swiveling connection to said rotatable braking member and at its other end a swiveling connection to said control member, each link element having its connection with the rotatable braking member circumferentially offset from its connection with the control member so that the link element extends at an inclination to said axis, the direction of said offset being such that rotation of the rotatable braking member in said one direction relative to the control member to changes said inclination as to effect relative axial shifting between said members in the direction to engage them clampwise with said braking element.

4,275,804

CONTROLLING AND OPERATING DEVICE FOR FRICTION CLUTCHES FOR MOTOR VEHICLES

István Szarka, and János Urbantsek, both of Budapest, Hungary, assignors to Autóipari Kutató Intézet, Budapest, Hungary

Filed Dec. 28, 1978, Ser. No. 974,804
Claims priority, application Hungary, Dec. 30, 1978, AU 390
Int. Cl.³ B60K 41/22
U.S. Cl. 192—3.58 7 Claims



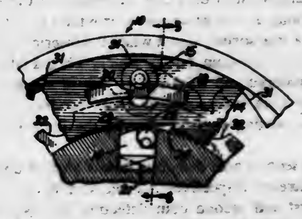
1. A controlling and operating device for motor-vehicle friction clutches arranged between the engine and a multi-stage, manually operated change-speed gear, including a gear-shift lever (39), the vehicle including a clutch (3) with an operating clutch pedal (23) and a hydraulic working cylinder (14), the device comprising, in combination: a manually operated electric switch (43) actuated together with said gear-shift lever; a limit switch (50) in series connection with said electric switch for selectively rendering the device inoperative; a release mechanism (18) operated by said clutch pedal; a hydro-pneumatic release unit (25) including a first hydraulic working cylinder (26) coupled to a second pneumatic working cylinder (28), wherein a pressure space (26a) comprised in said first cylinder is connected via hydraulic duct elements (18, 24) to said cylinder of the clutch, and a pressure space (28a) of said second cylinder is connected via an electro-pneumatic valve (33) to a source (30) of a pneumatic pressure medium through pipeline sections (32, 34); in its rest position said valve preventing communication in said pipeline sections between said source and said space of the second cylinder and providing communication in other pipeline sections (34, 35) that connect said space of the second cylinder with a retarding blow-off unit (36, 36a, 36b) that communicates with the free atmosphere throttle (38,60,69), while when said valve is in its operative position it opens said first-named pipeline-section communication and prevents said other pipeline-section communication; and an electrical circuit (47, 49, 51) that serially connects said electric switch and said limit switch between an electric power source (44 to 46) and an operating electromagnet (48) of said valve.

4,275,805

OVERRUNNING CLUTCH

John H. Crankshaw, 439 Shawnee Dr., Erie, Pa. 16505

Filed Jun. 5, 1978, Ser. No. 912,746
Int. Cl.³ F16D 11/00, 41/08
U.S. Cl. 192—46 11 Claims



1. A clutch (10) having a drive member (11) and a driven member (12),

cam surfaces (31) defining pockets in the said driven member (12),

detent means (15),

said detent means (15) being adapted to be received in said pockets,

resilient means (18,115) supported by said detent means (15) and urging said detent means (15) into said pockets when said drive member (11) rotates relative to said driven member (12) in a first direction,

ring means (16),

said ring means (16) having an inwardly directed notch (20) thereon,

pawl means (19) supported on said drive member (11) and radially movable relative thereto adapted to engage a side of said notch (20) on said ring means (16) when said drive member (11) rotates relative to said driven member (12) in the first direction,

radially extending slots (30) in said ring means receive the ends of said detent means,

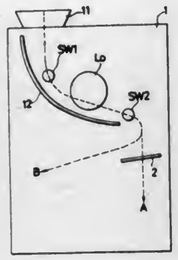
said pawl means (19) engaging said notch once the drive member rotates in a second direction relative to said driven member (12) whereby said ring means moves said detent means along cam surfaces (31) moving said detent means (15) into engagement with said drive member (11), whereby said drive member (11) and/or driven member (12) are positively connected together.

4,275,806

COIN SORTING MACHINE

Akio Tanaka; Yoshihisa Nakajima, and Shinji Yokomori, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jan. 6, 1978, Ser. No. 913,161
Claims priority, application Japan, Jan. 7, 1977, 52-66971
Int. Cl.³ G07D 5/08
U.S. Cl. 194—100 A 1 Claim



1. A coin sorting machine in which a sorting coil for detecting the characteristics of a coin inserted into the machine is provided along a coin passageway provided therein, said coil producing a true sorting signal when the inserted coin is a true coin and not a false coin, but, in which, when a false coin is of the same material and thickness as, but of a diameter larger than, a true coin is detected, said coil produces two closely spaced true sorting signals, wherein the improvement comprises:

first and second coin detecting means located upstream and downstream, respectively, of said sorting coil for producing first and second coin detecting signals when an inserted coin is detected by said first and second coin detecting means, respectively;

said first and second coin detecting signals defining a sorting period during which a true coin sorting signal must occur in order to recognize a coin as a true coin;

first circuit means responsive to the occurrence of only one of said sorting signals during said sorting period for generating a true coin output signal;

second circuit means responsive to the occurrence of both of said sorting signals during said sorting period for inhibiting said first circuit means and thereby preventing the generation of said true coin output signal, whereby said false coin of said larger diameter is not recognized as a true coin;

a first flip-flop which receives a first sorting signal as a set input signal to produce a first output signal;

a second flip-flop which, when said first flip-flop is in set state, is set by a second sorting signal to produce a second output signal;

a third flip-flop which receives as a set input signal said first detection signal and receives as a reset input signal said second detection signal and applies a reset input signal to said first and second flip-flops when said third flip-flop is in a reset state; and

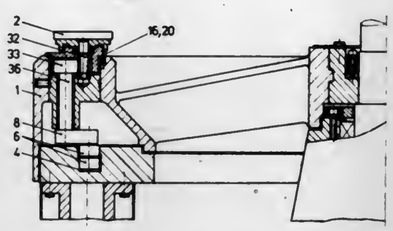
means for receiving the first and second output signals of said first and second flip-flops, respectively, and providing a true coin output signal indicating that said inserted coin is a true coin only when only said first and third flip-flops have been set during said coin sorting period.

4,275,807

SUPPORT FOR ROTATABLE PLATFORMS FOR BOTTLES

Hans-Werner Mohn, Kaarst; Rainer Buchholz, Duesseldorf; Egon Höveler, Haan, and Rudolf Zodrow, Duesseldorf, all of Fed. Rep. of Germany, assignors to Jagenberg-Werke AG, Duesseldorf, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 59,862
Claims priority, application Fed. Rep. of Germany, Jul. 26, 1978, 2832778
Int. Cl.³ B65C 9/04
U.S. Cl. 198—344 5 Claims



1. In a support having a plurality of circularly arranged rotatable platforms for bottles and a drive mechanism having a plane stationary cam plate and sensing elements for each platform in contact with the cam plate, the improvement wherein the drive mechanism further comprises for each platform: a lever arm coupled to the sensing elements and pivoted thereby, a platform drive shaft having the platform mounted thereon and having a pinion thereon, a gear in engagement with the pinion and driven by the lever arm and means mounting the platform, lever arm, drive shaft and gear to permit 180° angular displacement of the lever arm and gear with respect to the pinion so that clockwise and counter-clockwise rotation of the platforms is possible.

4,275,808

INTERCHANGEABLE VOLUMETRIC SCREW FEEDER

Kenneth W. Bullivant, Millville, N.J., and Hermann Schreier, Lenzburg, Switzerland, assignors to K-Tron International Inc., Scottsdale, Ariz.

Continuation of Ser. No. 811,105, Jun. 29, 1977, abandoned.
This application Feb. 27, 1979, Ser. No. 15,698
Int. Cl.³ B65G 33/18, 47/18
U.S. Cl. 198—533 6 Claims

1. A volumetric screw feeder useable with a multiplicity of interchangeable single screws, and a multiplicity of interchangeable sets of intermeshed multiple screws, which screw feeder can be converted to the desired single screw or multiple screw configuration with a minimum of disassembly and reassembly without varying the associated drive mechanism, including:

only one motor means;

a drive shaft for turning the single screw and a set of drive shafts for turning the intermeshed multiple screws;

only one drive means for interconnecting said motor means and said drive shafts so that the drive shafts are powered by the motor means;

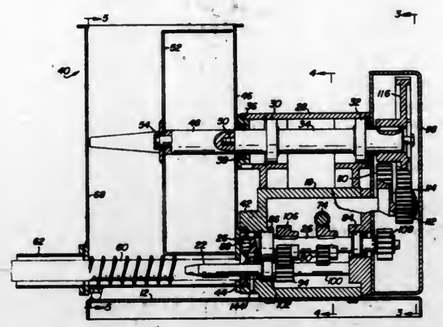
said single screw drive shaft and said multiple screw drive shafts being positionable closely adjacent and one above the other so that whichever screw or set of screws is attached to the drive shafts such screw or set of screws is located in the same position on the screw feeder;

the uppermost of said drive shafts being detachable when said lowermost drive shafts are being used;

said screws being adapted to be attachable to and detachable from said drive shafts;

a plurality of interchangeable feeder-hopper means for use with either a single screw or a set of multiple screws;

each feeder-hopper means having a trough adapted for receiving its associated screw or screws;



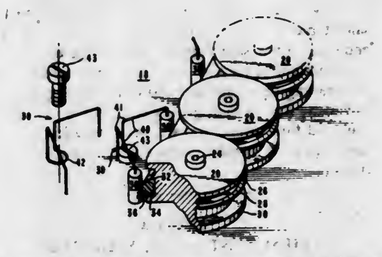
whereby said screw feeder can be used with either a single screw or a set of intermeshed multiple screws by attaching only the selected screw or screws and feeder-hopper means to the screw feeder.

4,275,809

CARD CONVEYOR WITH ROPE BELT DRIVE

Francis J. Garvey, Newfield, and William F. Buckminster, Vineland, both of N.J., assignors to Garvey Corporation, Blue Anchor, N.J.

Filed Jul. 30, 1979, Ser. No. 61,867
Int. Cl.³ B65G 29/00, 13/06
U.S. Cl. 198—624 2 Claims



1. In a conveyor system for cards and the like, the combination comprising

a planar frame surface;

a plurality of conveyor rollers rotatably attached to said surface, the conveyor rollers aligned in two parallel spaced rows;

each conveyor roller having an axis of rotation perpendicular to the frame surface;

two endless belts, each extending tangent to each conveyor roller in a respective row;

means for driving said belts in the same direction;

each of the conveyor rollers having an upper circumferential groove to receive an edge of a card being conveyed and a lower circumferential groove for receiving the respective endless belt;

a plurality of pressure rollers suspended above the frame surface, each roller being rotatable around an axis perpendicular to the surface;

there being one pressure roller adjacent each conveyor roller;

each of the pressure rollers having a smooth cylindrical surface;

means for biasing each pressure roller toward its respective conveyor roller with sufficient force to preclude belt slippage;

said biasing means including an independent support for each respective pressure roller, each support being attached to said frame surface;

at least a portion of said support being resilient;

each pair of adjacent supports being fastened to said frame surface at a single point;

each pair of adjacent supports being formed from a single piece of spring wire defining

an arcuate horseshoe-shaped portion attached to the frame surface,

a pair of uprights extending from either end of the arcuate portion, and

a horizontal arm extending from the upper end of each upright;

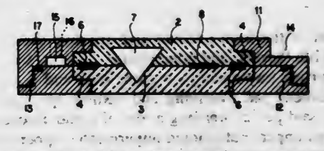
a pressure roller being rotatably supported at the opposite end of each arm.

4,275,810

PACKAGE FOR DIAMONDS AND OTHER PRECIOUS STONES

Othmar E. Waldmeier, Heuberg 12, 4001 Basel, Switzerland

Filed Aug. 2, 1979, Ser. No. 63,167
Claims priority, application Switzerland, Jun. 1, 1979, 5153/79
Int. Cl.³ B65D 25/54, 61/00; A45C 11/16
U.S. Cl. 206—45.34 13 Claims



1. A secure package for storing a precious stone, comprising:

a two-part transparent core formed from a pair of disks defining between them a chamber for receiving a precious stone and a space for receiving a data carrier identifying said stone;

an annular body of a material difficult to destroy surrounding said core and holding the parts thereof together, said body being formed from a pair of hard-metal rings secured inseparably together along a contact surface and holding said disks against one another, one of said rings having an annular groove at said contact surface; and

sound-recording material received in said groove and provided with coded information relating to the stone in said chamber.

4,275,811

RECEPTACLE FOR CONTAINING AND DISPLAYING FOOD PRODUCTS

Alan H. Miller, Hickory, N.C., assignor to Cello Products Company, Patterson, N.C.

Continuation-in-part of Ser. No. 69,876, Aug. 23, 1979, abandoned, which is a continuation of Ser. No. 886,622, Mar. 13, 1978, abandoned. This application Nov. 23, 1979, Ser. No. 96,797
Int. Cl.³ B65D 81/26, 81/22
U.S. Cl. 206—204 17 Claims

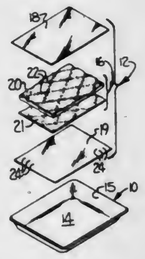
1. A receptacle for containing and displaying food products which tend to exude liquids, such as meat and poultry, and characterized by the ability to separate and maintain the exuded liquids from the food product to thereby minimize contamination of the food product and improve the appearance and shelf-life thereof, and comprising

a food product supporting member having a well, and

an absorbent pad overlying and resting upon said well, said

pad comprising a mat of liquid absorbent material, an imperforate, liquid impermeable upper sheet overlying and covering said mat, and a bottom sheet of substantially liquid impermeable material underlying said mat so as to be disposed between said mat and said supporting member wall, the peripheral edges of said upper and bottom sheets being sealed together to enclose said mat of absorbent material therebetween, and said bottom sheet including a plurality of openings which are sized to permit passage of a liquid from said supporting member wall into said mat while substantially precluding reverse flow of the liquid and any associated bacteria back to the food product, and such that the liquid passes around the edges of the pad and into said mat and is confined by said pad out of contact with the food product.

8. A receptacle for containing and displaying food products which tend to exude liquids, such as meat and poultry, and characterized by the ability to separate and maintain the exuded liquids from the food product to thereby minimize con-



tamination of the food product and improve the appearance and shelf-life thereof, and comprising

a supporting tray having a bottom wall, and

an absorbent pad overlying and resting upon said bottom wall, said pad comprising a mat of liquid absorbent material, an imperforate, liquid impermeable upper sheet overlying and covering said mat, and a bottom sheet of substantially liquid impermeable material underlying said mat so as to be disposed between said mat and said tray bottom wall, the peripheral edges of said upper and bottom sheets being sealed together to enclose said mat of absorbent material therebetween, and said bottom sheet including a plurality of openings which are sized to permit passage of a liquid from said tray bottom wall into said mat while substantially precluding reverse flow of the liquid and any associated bacteria back to the food product, and such that the liquid passes around the edges of the pad and into said mat and is confined by said pad out of contact with the food product.

4,275,812

SURGICAL GLOVE PACKAGE AND DONNING METHOD

Mark P. Poncy; George W. Poncy, and Richard P. Poncy, all of 3660 E. Indus. Way, Riviera Beach, Fla. 33404

Continuation of Ser. No. 618,336, Oct. 1, 1975, abandoned, and a continuation-in-part of Ser. No. 600,893, Aug. 1, 1975, Pat. No. 4,002,276. This application May 16, 1977, Ser. No. 797,304

Int. Cl.[3] B65D 85/18

U.S. Cl. 206—278 11 Claims

1. A surgical glove package comprising a ring and a glove made of elastomeric material having a sterile outer surface and having the cuff portion thereof stretched around the edge of said ring to the outside surface of said ring, said ring having an axial dimension shorter than the length of said glove from the cuff thereof to the fingertips thereof, said glove being extendable to an unfolded condition, said ring being unattached to any inflexible apparatus surrounding the outside surface of said glove when said glove is extended to said unfolded condition, said package including means enabling the cuff of said glove to be released from said ring onto the wrist of an inserted hand by



manual manipulation of the cuff solely by the fingers of the opposite hand of the person donning the glove.

4,275,813

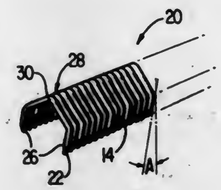
COHERENT SURGICAL STAPLE ARRAY

Douglas G. Nolles, New Canaan, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.

Filed Jan. 4, 1979, Ser. No. 45,289

Int. Cl.[3] B21D 53/46

U.S. Cl. 206—339 23 Claims



1. A coherent surgical-staple stack comprising:

a plurality of individual, deformable surgical staples, each of said staples including a pair of legs joined together at one end by a crown, said staples arranged one next to the other in a contiguous parallel array with any two adjacent staples having their legs and crowns touching; and

a film made from a biologically compatible non-toxic material, said film being disposed between adjacent staples in said array for bonding said adjacent staples one to the other.

4,275,814

FILM CONTAINING MAGAZINE

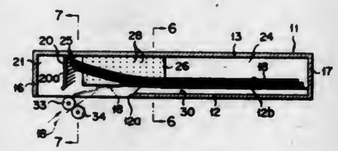
Hiroshi Kageyama, Utsunomiya, and Tsuyoshi Saito, Otawara, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Japan

Filed Aug. 20, 1979, Ser. No. 68,007

Claims priority, application Japan, Aug. 25, 1978, 53-103700

Int. Cl.[3] G03B 41/16; A61B 6/00; B65H 3/00; B65D 85/30

U.S. Cl. 206—455 12 Claims



1. An elongated flat film containing magazine for containing a stack of sheet films used for an X-ray photographing machine which includes a frame on which said magazine is supported and tiltable to orient said magazine in various positions including upright horizontal, titled, and reversed or upside-down horizontal positions, said magazine comprising:

(a) top, bottom and side walls extending along a longitudinal axis of the magazine, and front and back walls disposed crosswise of the longitudinal axis of the magazine, said walls defining a space for containing a number of films;

(b) an opening formed in said top wall close to said front wall through which sheet films pass;

(c) a plurality of flexible film engaging elements in said magazine directed toward said bottom wall and inclined with respect to said front wall facing one of the edges of the sheet films contained in said magazine so as to allow said engaging elements to engage said film edge; and

(d) a wide depression formed along the longitudinal axis of said magazine on the inner surface of said top wall to said opening and facing the sheet films contained in said magazine, said depression minimizing engagement between the sheet films and said top wall when said magazine is in said upside-down horizontal position.

4,275,815

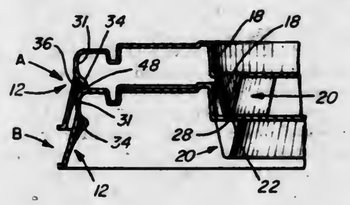
LID

Paul Davis, Swampscott, Mass., assignor to Sweetheart Plastics, Inc., Wilmington, Mass.

Continuation of Ser. No. 608,987, May 24, 1976, abandoned, which is a continuation of Ser. No. 372,980, Jun. 25, 1973, abandoned. This application Jul. 2, 1979, Ser. No. 53,993

Int. Cl.[3] B65D 21/02, 43/00

U.S. Cl. 206—508 6 Claims



1. A stack of disposable plastic circular container lids having a first disposable, plastic circular lid comprising:

a generally flat circular closure wall and an integral peripheral skirt extending away from the closure wall at a rim portion of said lid,

and a stacking facility in the closure wall within an outer annular portion of said closure wall,

said annular portion being divided into inner and outer sections by a generally U-shaped encircling recess defined by said portion,

said inner section having radially extending stiffening flutes and said outer section defining a container rim seat,

said recess comprising means to prevent adjacent lids from sticking together when one rim portion may be forced toward another rim portion,

said stacking facility including a circular recess in the closure wall coaxial therewith, said recess having a bottom wall and surrounding circular side wall, said side wall extending away from the closure wall with said bottom wall being spaced from the plane of the closure wall,

a plurality of feet extending from the bottom wall adjacent the side wall and extending away from the bottom wall, said feet being arranged in a substantially circular array, each of said feet having an outer, outwardly facing side wall of arcuate configuration conforming to a section of said circular side wall and defining a lower arcuate stacking edge,

said lower arcuate stacking edges of said feet occupying approximately one-half of the circle defined by said feet,

said feet tapering in a direction away from the bottom wall and being engageable with the bottom wall of an adjacent lid in a stack of substantially identical lids, said feet lying within and closely adjacent the recess side wall of said adjacent lid and said feet comprising means to prevent the lids from jamming under axially applied load and from slipping sideways with respect to each other so that a stack of such lids has great lateral stability,

and a second lid corresponding to and overlying said first lid but having a second plurality of feet comprising a different number than said first lid.

4,275,816

COMPACT WALL MOUNTED CUE RACK

John B. Denton, Carlisle House, Knutsford Rd, Lindow End, Mobberley, Knutsford, Cheshire; John G. Dale, Rocklands, Bollin Hill, Wilmslow, Cheshire, and Norman L. Rimmer, Old Golf House, Whaley Bridge, Stockport, Cheshire, all of England

Filed Oct. 16, 1978, Ser. No. 951,740

Claims priority, application United Kingdom, Oct. 25, 1977, 44275/77

Int. Cl.[3] A47F 7/00

U.S. Cl. 211—68 8 Claims

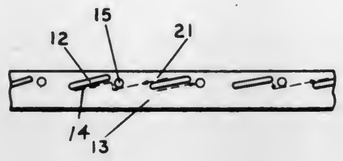


1. A rack for an elongated implement such as a cue, said rack having a front side thereto and comprising a base member and a pair of side supports above said base member, said base member and said side supports being arranged for supporting said implement in generally upright disposition with the bottom end of the implement abutting the base member and the implement in engagement with said side supports, said side supports comprising front and back support members adapted respectively to engage and support front and back sides only of the implement and said back support member being above said front support member, and said base member having a surface thereon which is freely movable towards and away from said front side of the rack with the bottom end of the implement in engagement therewith, thereby to facilitate movement of said implement into and out of the supported position thereof on movement of said implement respectively rearwardly and forwardly into and out of engagement with said upper back support member.

4,275,817
SAFETY CLOSURE AND CONTAINER COMBINATION

John S. Patton, Richmond, Va., assignor to Ethyl Corporation, Baton Rouge, La.

Filed Oct. 11, 1979, Ser. No. 83,978
Int. Cl.³ B65D 55/02
U.S. Cl. 215—217 8 Claims

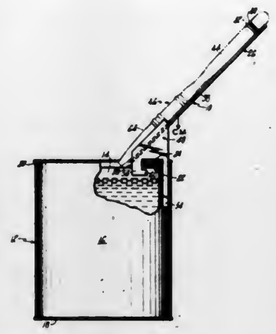


1. In combination, a safety closure and a container,
said container having a neck comprising a first rim terminating in a first open end,
spaced relatively rigid first lugs fixed to said first rim,
said first lugs each having a first end and a second end and a generally straight relatively flat first ramp surface on the side of said first lugs remote from said first open end and a second ramp surface on the side thereof opposite said first surface,
said first lugs being inclined from said first end toward said second end and toward said first open end,
said closure having a second rim having a closed end and a second open end adapted to receive said first rim of said container,
a resilient liner in said closure engaging said closed end, spaced relatively rigid second lugs fixed to said second rim,
said second lugs each having a first end and a second end and a generally straight relatively flat third ramp surface inclined from said first end toward said second end and toward said second open end of said rim on the sides of each said second lug remote from said second open end
and a fourth ramp surface on the side of each of said second lugs opposite said third ramp surface on the side thereof remote from said second open end,
stops fixed relative to said first lugs and adjacent said first end thereof and on the side of a line passing through said first ramp surface from said first end to said second end of said first lugs, remote from said first open end, and above a line passing through the third ramp surface,
whereby, said closure and said container may be telescoped with one another bringing said fourth ramp surfaces into engagement with said second ramp surfaces and upon a relative rotation of said closure and said container in a first direction moving said second lugs past said stop thereby compressing said liner and bringing said third ramp surfaces into engagement with said first ramp surfaces,
and bringing said second ends of said second lugs into engagement with said stops holding said closure and said container against relative rotation in a second direction,
and upon movement of said closure toward said container compressing said liner moving said second end of said second lugs back past said stops allowing said closure and container to be rotated relative to one another in said second direction removing said closure from said container.

4,275,818
PAINT BRUSH HOLDER AND WIPER

Robert F. Church, Windsor Locks, Conn., assignor to The Paint Brush Holder Company, Farmington, Conn.

Continuation-in-part of Ser. No. 28,998, Apr. 11, 1979, abandoned. This application Jan. 10, 1980, Ser. No. 110,837
Int. Cl.³ A46B 17/02
U.S. Cl. 220—90 15 Claims



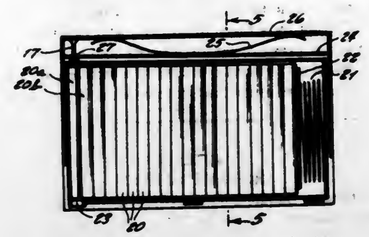
1. A paint brush holder comprising:
a base having a front surface, a back surface, a bottom edge, a top edge, a first side and a second side;
a holder pin disposed within the base proximate the top edge and projecting from the front surface, said holder pin adapted for engagement with a hole in a handle of a paint brush for restraining movement of said paint brush;
a first side plate fixedly attached to a lower portion of the first side of the base wherein a top portion of said first side plate extends above the front surface and a bottom portion extends below the back side of the base wherein the bottom portion includes an extended leg projecting downwardly along a back edge of the first side plate for engagement with an outside wall of a paint can, a finger projecting downwardly along a front edge of the first side plate in a substantially parallel spaced apart relationship with the extended leg, a substantially horizontal section disposed between the finger and the extended leg and a protrusion extending from the finger toward the extended leg wherein the protrusion, the horizontal surface, the finger and a portion of the extended leg form a cavity adapted for engaging the rim of a paint can for securing the holder to the paint can; and
a second side plate substantially identical to the first side plate fixedly attached to a lower portion of the second side of the base wherein a top portion of said side plate extends above the front surface of the base and cooperates with the top portion of the first side plate and the front surface of the base to define a channel therebetween adapted for inhibiting lateral motion of a paint brush attached to the holder.

4,275,819
TWENTY CIGARETTE DISPENSER

Sergio J. Perez, 311 W. 97th St., (Apt. 3E), New York, N.Y. 10025

Filed Jul. 19, 1979, Ser. No. 59,044
Int. Cl.³ A24F 15/04
U.S. Cl. 221—186 3 Claims

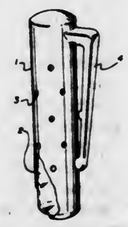
1. A straight line twenty cigarette dispenser, comprising in combination; a frame for placement upon a top of an automobile dashboard, and a cigarette case slid into said frame; said case comprising a flat box having a pivoted door on top; said case holding therein a single row of twenty cigarettes, and said frame comprising a flat rectangular plate and a channel on the top side of said plate, the channel extends along three edges of said top side; a pressure plate inside an intermediate leg of said channel, a compression spring between said pressure plate and a rear wall of said channel intermediate leg urging said pressure plate against said case when slid in said channel; a forwardly extending push rod on said channel rear wall passing through a hole in said pressure plate and through a hole in a rear wall of said case.



4,275,820
PERSONAL REPELLENT DEVICE

J. Paul LeBlond, Burnaby, Canada, assignor to J. W. Small, Austin, Tex.

Continuation of Ser. No. 875,190, Feb. 3, 1978, abandoned. This application Dec. 19, 1979, Ser. No. 105,742
Claims priority, application Canada, Dec. 16, 1977, 293259
Int. Cl.³ B65D 47/10
U.S. Cl. 222—3 10 Claims

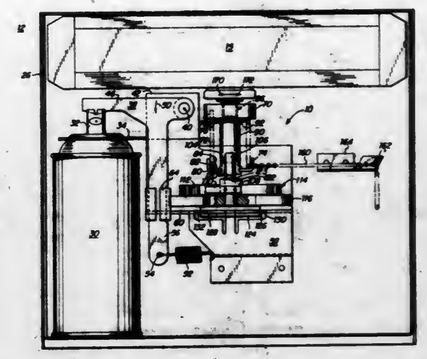


1. A personal assault deterrent device comprising:
a capsule formed of a single thickness of plastic material, said capsule having a free and uncovered outer surface and an inner surface;
a rupturable sealed glass ampoule positioned within said capsule, said ampoule containing therein a volatile composition of a nature adapted to deter and repel a potential assailant, said ampoule having an outer surface in contact with said inner surface of said capsule;
said capsule having perforations extending entirely through said single thickness of plastic material, from said free and uncovered outer surface thereof to said inner surface thereof; and
said capsule being sufficiently rigid to resist substantial deformation during normal handling, but said capsule being sufficiently deformable such that forceful manual pressure applied to said capsule will cause deformation thereof and will cause said ampoule to rupture, whereby said volatile composition will be dispersed through said perforations.

4,275,821
DRIVE SYSTEM AND FLUID DISPENSER UNIT UTILIZING SAME

Joseph P. Lanno, 60 Woodcliff Dr., Waltham, Mass. 02154, and Fred M. Flaxmore, 76 Park St., North Reading, Mass. 01864

Filed Sep. 17, 1979, Ser. No. 75,951
Int. Cl.³ B67D 5/08
U.S. Cl. 222—61 13 Claims



1. A mechanical drive system for providing a maximum limit on the magnitude of unidirectional output motion in response to reciprocating input motion comprising:
an output member moveable in a first direction;
a unidirectional drive for driving said output member in said first direction;
limiter means for limiting the motion of said unidirectional drive in said first direction to define a limit position; and
an override drive mechanism responsive to said reciprocating input motion occurring in one direction to drive said unidirectional drive to a rest position and to said reciprocating input motion ocurring in the opposite direction to drive said unidirectional drive in said first direction from said rest postion no farther than said limit position and absorbing input motion beyond said limit position.

4,275,822
APPARATUS FOR METERING AT LEAST TWO REACTION COMPONENTS INTO A MIXING CHAMBER

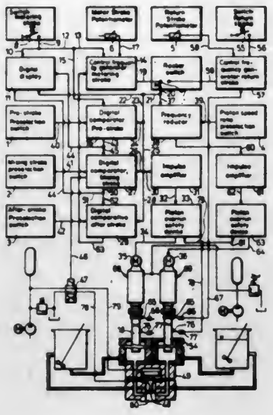
Richard Juffa, Cologne, and Heinrich Bedau, Leverkusen, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jan. 11, 1979, Ser. No. 2,774
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1978, 2805946
Int. Cl.³ B67D 5/08; G05F 15/46
U.S. Cl. 222—63 3 Claims

1. An apparatus for metering at least two flowable reaction components in a preselected ratio into a mixing chamber comprising:
(A) a metering unit for each component, each metering unit comprising:
(i) a metering piston and a cylinder,
(ii) a feed pipe leading from a storage container into said cylinder,
(iii) a delivery pipe leading from said cylinder to said mixing chamber, and
(iv) a drive unit in the form of an electro-hydraulic linear amplifier comprising a stepping motor for a control mechanism which is coupled to a hydraulic piston and cylinder, wherein said drive unit is capable of driving said metering piston, and
(B) control electronics for controlling said metering units, said control electronics comprising:
(i) at least one adjustable control frequency generator for

generating signals to be fed to said electrohydraulic linear amplifiers to control the movement of said metering pistons,

(ii) a first means of conducting said signals to at least one of said electro-hydraulic linear amplifier, and



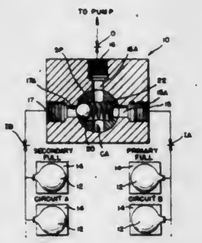
(iii) a second means for conducting said signals to all other electrohydraulic linear amplifiers via an adjustable frequency reducer.

4,275,823

AUTOMATIC CHANGE-OVER SYSTEM FOR LIQUID DISPENSING SYSTEM

William S. Credle, Jr., Stone Mountain, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jul. 27, 1979, Ser. No. 61,254
Int. Cl.³ B67D 5/34
U.S. Cl. 222—94 8 Claims



1. In an automatic change-over device for a liquid dispensing system including, first and second sets of at least one collapsible bag for containing a liquid to be dispensed, each of said collapsible bags having a first volume when full and deflating to a second volume when empty, and pump means for drawing said liquid out of said first or second sets of collapsible bags when in circuit with said first or second sets, respectively, the improvement comprising:

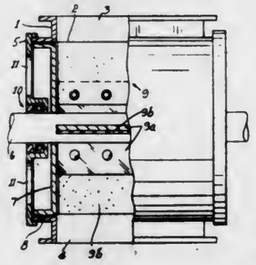
a change-over valve means in circuit between said first and second sets of bags and said pump means for providing selective communication therebetween, said change-over valve means including a single pressure sensitive check-valve which is normally closed for selectively providing an obstruction between said second set of bags and said pump means in an initial position and for selectively providing an obstruction between said first set of bags and said pump means in a second position, said single pressure sensitive check-valve means being opened in said initial position in response to a pressure change created by said second volume of said first set of bags, said single pressure sensitive check-valve means being opened in said second position in response to a pressure change created by said second volume in said second set of bags, and means for transferring by a force other than said pressure changes, said single pressure sensitive check-valve means between said initial and second positions to selectively provide said obstruction in either the initial or second positions.

4,275,824

ROTARY VALVES

John W. Bourne, Sandton, South Africa, assignor to Joyce Anne Bourne, Morningside, South Africa

Filed Feb. 17, 1978, Ser. No. 879,947
Claims priority, application South Africa, Feb. 17, 1977, 77/0956
Int. Cl.³ G01F 11/24
U.S. Cl. 222—148 2 Claims



1. A rotary type valve of the type having a housing with a bore, passages communicating with the bore and adapted to be coupled to respective zones of differing fluid pressure, a rotor which is a snug fit within the bore, the rotor defining an axial drive shaft, a pair of spaced end plates on the shaft and a series of radial vanes disposed between the end plates, wherein: in the provision of material deflecting formations associated with peripheral surfaces of the end plates, the formations being adapted to urge material in the zone of such peripheral surfaces inwardly towards the zone intermediate the end plates upon rotation of the rotor in a predetermined direction, the deflecting formations are a generally helically wound thread or groove disposed in the peripheral surface of each end plate, the pitch of the threads being such that material in the threads is directed inwardly upon rotation of the rotor in a predetermined direction.

4,275,825

CLAMP-ON TUBE HOLDER AND METHOD

Patrick D. King, Rantoul, and Gary R. Folk, Urbana, both of Ill., assignors to Flo-Con Systems, Inc., Champaign, Ill.

Filed Oct. 29, 1979, Ser. No. 89,615
Int. Cl.³ B22D 41/08
U.S. Cl. 222—590 7 Claims

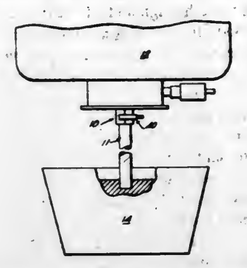
4. A clamp-on tube holder for holding a tube to a gate nozzle of a molten metal pouring ladle comprising, in combination,

a slotted tube holder band,

a toggle assembly biasing said band, whereby actuation of the toggle will press fit the band against and onto the lower portion of the nozzle,

socket means on the end of the toggle for removably receiving a handle, and

yoke engaging means in substantially diametrically opposed locations at the lower portion of said band whereby a yoke may engage the yoke engaging means to swing the clamp-on tube holder into position beneath a ladle and resist



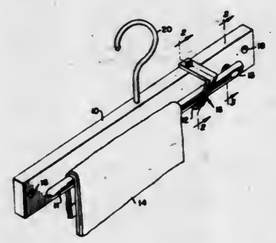
rotation when a handle is positioned in the socket means and actuates the toggle.

4,275,826

PANTS RACK

Roy W. Leonard, 2Greenbriar Cir., Hagerstown, Md. 21740

Filed Feb. 13, 1979, Ser. No. 11,958
Int. Cl.³ A47F 7/16; A47J 51/14
U.S. Cl. 223—96 2 Claims



1. A longitudinal member for holding a flexible material attached at one end to a base support member by a hinge pin and supported thereon to rotate in a plane substantially parallel to said base support wherein said base support member includes a wedge type bracket at a location near said hinge pin to cause said longitudinal member upon being rotated downwardly by the weight of said flexible material hanging thereon to simultaneously move inwards towards the base support and thereby wedge said material between itself and said base support.

4,275,827

ROLLED MATERIAL GUIDE AND CUTTER

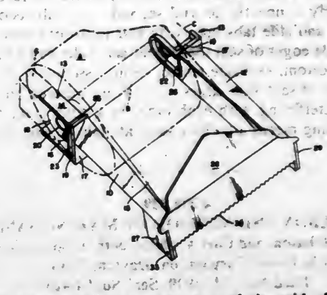
Branham F. Cole, 2945 Griffith Park Blvd., Apt. 3, Los Angeles, Calif. 90039

Filed Aug. 22, 1979, Ser. No. 68,815
Int. Cl.³ B26F 3/02
U.S. Cl. 225—77 10 Claims

1. A rolled material guide and cutter attachable to a pre-existing rolled material holder, comprising:

a U-shaped frame including attachment means for attaching said guide and cutter to said pre-existing rolled material holder;

cover means pivotally attached to said frame, said cover means in conjunction with said frame forming a channel through which a rolled material is guided; and



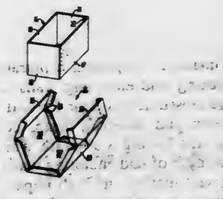
means for providing a tortuous path in said channel for preventing lateral slippage and entanglement of said rolled material.

4,275,828

DISPENSING BOX CONSTRUCTION

Samuel M. De Franco, El Cerrito, Calif., assignor to Willamette Industries, Inc., San Leandro, Calif.

Filed Aug. 13, 1979, Ser. No. 66,178
Int. Cl.³ B65D 5/32, 5/48
U.S. Cl. 229—23 R 3 Claims



1. A box comprising:

a unitary, integral tube which includes a first rectangular side wall panel having first and second end edges, a first end wall panel having first and second end edges with said first end edge of said first side wall panel being foldably and integrally connected to said first end edge of said first end wall panel, a second side wall panel having first and second end edges with a first end edge of said second side wall panel being foldably and integrally connected to said second end edge of said first end wall panel, a second end wall panel having first and second end edges with said first end edge of said second end wall panel being foldably and integrally connected to said second end edge of said second side wall panel, and a tab foldably and integrally connected to said second end edge of said second end wall panel and being attached to said first end edge of said second side wall panel to form a rectangular tube having both ends thereof open, and

a container containment portion which includes a first rectangular top panel having first and second end edges and first and second side edges, a first rectangular side wall having first and second end edges and first and second side edges with said side wall first end edge being integrally and foldably connected to said first top panel first end edge, a rectangular bottom panel having first and second end edges and first and second side edges with said bottom panel first end edge being integrally and foldably connected to said side wall second end edge, a second rectangular side wall having first and second end edges and first and second side edges with said side wall first end edge being foldably and integrally connected to said bottom

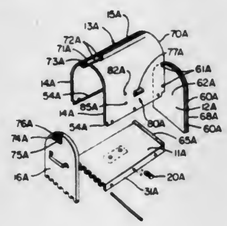
second end edge, a second rectangular top panel having first and second end edges and first and second side edges with said second panel first end edge being integrally and foldably connected to said second side wall second end edge, and side tabs integrally and foldably connected to the side edges of said top panels, said side wall panels and said bottom, said side tabs covering essentially the entire length of said side edges and having mitered end edges and interfitting with each other in a miter joint fit with attaching means attaching said side tabs to said tube panels.

4,275,829

MAILBOX AND METHOD OF MAKING SAME

Joseph S. Johnson, and Carl A. Stiles, both of Springfield, Mo., assignors to Dayco Corporation, Dayton, Ohio

Filed Nov. 15, 1979, Ser. No. 94,420
Int. Cl.³ A47G 29/12
U.S. Cl. 232—17 9 Claims



1. In a mailbox comprising a plurality of enclosing walls, means fastening said enclosing walls together, and a readily opened and closed access door for said mailbox; the improvement wherein said fastening means comprises a plurality of shear pins each having a strength which is substantially less than the strength of said enclosing walls and door so that upon subjecting said mailbox to high impact loads said shear pins shear resulting in disassembly of said mailbox while keeping said enclosing walls and door substantially intact; an additional shear pin hingedly fastening said access door to at least one of said enclosing walls so that upon subjecting said access door to high impact loads the shear pin hingedly fastening same also shears, resulting in the door falling away from said one wall while remaining substantially intact; said enclosing walls, door, and shear pins being made of a synthetic plastic polymeric material; said enclosing walls comprising a bottom wall, a rear wall, and a U-shaped wall fastened over said bottom wall and around said rear wall and door; said bottom wall having a pair of downwardly depending flanges extending from its opposite said edges, each of said flanges having an inclined surface which is inclined upwardly toward the center of said bottom wall, said U-shaped wall being provided with an integral flange at each of its lower edges, each of said flanges having an inside surface which engages said upwardly inclined surface to provide improved weatherproofing for the mailbox.

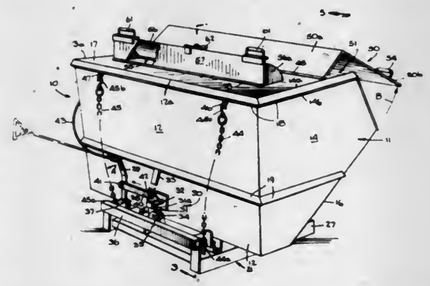
4,275,830

SECURITY SCRAP STORAGE CONTAINER OR BIN

Richard J. McDonald, 17A Jayne Ave., Melville, N.Y. 11747

Filed Nov. 9, 1979, Ser. No. 93,148
Int. Cl.³ B65F 1/00
U.S. Cl. 232—43.1 5 Claims

1. In a tiltable storage bin adapted to receive and store scrap lengths of copper cable or like materials and having a bin body including a front wall, a back wall, and respective side walls whose upper edges together define a top area of the bin body, and a bottom wall, and a base frame on which said bin body is mounted for tilting movement for unloading the bin body, the improvement comprising a top plate extending between and attached to said side wall upper edges and to said front wall upper edge leaving an open unloading portion of said bin body top area adjacent to said back wall and extending between said side walls, said top plate having means defining an elongated deposit opening therethrough and extending substantially parallel to said bin body front wall for depositing materials in said bin body, said deposit opening having respective parallel front and rear edges and end edges extending therebetween, each of said front and end edges of said deposit opening being spaced inwardly a distance away from its associated bin body wall, an upstanding security deposit cover hood attached to said top plate adjacent to said rear edge of the deposit opening and including vertical end plate portions attached to said top plate respectively adjacent to said end edges of the deposit opening, said hood projecting upwardly from said top plate and forwardly in the direction of said front edge of the deposit opening to present a bin deposit area facing substantially towards said front wall of the bin body, a pivotable security deposit cover having hinge means connecting the cover to and along the length of said front edge of said deposit opening for movement between an open position and a closed position of the cover, said cover comprising a first plate portion extending from said cover hinge substantially the width of said deposit opening to said hood for closing said deposit opening when said cover is in its open position, and a second plate portion extending from said cover hinge in direction towards said front wall of the bin body and lying substantially adjacent to said top plate for receiving said materials when said cover is in its said



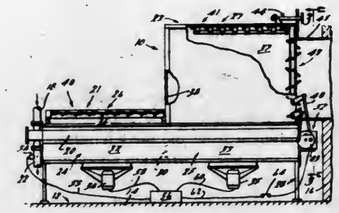
open position and having size to close said bin deposit area provided by said hood when said cover is in its closed position, said cover plate portions being disposed with respect to each other whereby, when said cover is pivoted on said hinge to its said closed position, said cover plate portions are disposed to drop said materials thereon into said bin body, said cover plate portions further being disposed with respect to each other and with respect to said hood to obstruct access by the hand to the interior of said bin body via said deposit opening when said security deposit cover is in both of its said open and closed positions and in all intermediate positions of said cover, and an openable unloading cover covering said open top area portion of said bin body and having lock means for locking said unloading cover in a closed position thereof covering said open top area portion, said upper edges of said bin body side walls having respective horizontal edge portions extending outwardly from said front wall upper edge, and respective diagonal edge portions extending downwardly and rearwardly from the respective of said horizontal edge portions to said rear wall of the bin body, said top plate extending rearwardly of said hood, and said unloading cover having a forward edge having hinge means hingedly attaching the cover on and along the length of said top plate rearward edge, said unloading cover extending downwardly and rearwardly to said rear wall of the bin body and between said respective diagonal edge portions of said bin body side walls when the cover is in its closed position.

4,275,831

MAKE UP AIR SYSTEM

Jeffrey O. Smith, Birmingham, Mich., assignor to SBS Corporation, Rochester, Mich.

Filed Dec. 26, 1978, Ser. No. 972,775
Int. Cl.³ G05D 23/00
U.S. Cl. 237—2 R 6 Claims



1. In an industrial system associated with a building and utilizing a process in which the temperature of a cooling fluid is increased in the process and the fluid is recirculated and is cooled to be reused in the process and in which make up air is to be brought into the building at a selected temperature, apparatus for cooling the fluid and for providing heated make up air to the building comprising: tube means including cooling tubes located outside the building and circulating the fluid to be cooled, first and second input chambers located on one side of said cooling tubes and adapted to direct air towards said cooling tubes, a fan located in each of said input chambers and being selectively operable for forcing air from the atmosphere over said cooling tubes whereby the fluid is cooled and the temperature of the cooling air is raised, first and second output chambers located on the opposite side of said cooling tubes with said first and second output chambers being associated with said first and second input chambers, respectively, whereby said output chambers receive the heated air after it is forced over said cooling tubes, said first output chamber having a first opening connected with the building and being operable for directing heated make up air from said first output chamber into the building, said second output chamber having a second opening operable for directing the heated air to the atmosphere, control means operatively connected with each of said fan for separately actuating the same in response to the fluid temperature of the fluid being cooled whereby the fluid will be cooled to a desired temperature, said control means operatively connected with said first output chamber and with said fan associated with said first input chamber and being responsive to the temperature of the fluid being cooled for controllably varying the amount of heated make up air directed into the building as a function of the temperature of the fluid being cooled.

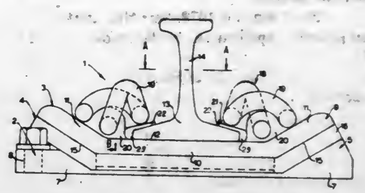
4,278,832

RESILIENT SUPPORT MEANS

Dennis Kenyon, Leicester, England, assignor to Dunlop Limited, London, England

Filed Nov. 13, 1978, Ser. No. 959,606
Claims priority, application United Kingdom, Nov. 18, 1977, 48658/77
Int. Cl.³ E01B 9/62
U.S. Cl. 238—310 11 Claims

1. A rail assembly comprising a rail having a rail head for directly supporting a vehicle wheel and resilient support means securing said rail to a rail bed, said resilient support means comprising a rigid rail location member to which said rail is fastened and a base member, a layer of elastomeric material between confronting surfaces of said rail location member and base member, said elastomeric material being disposed on either side of said rail and providing the sole significant load bearing connection between said base member and said rail location member for both vertical and lateral stresses under



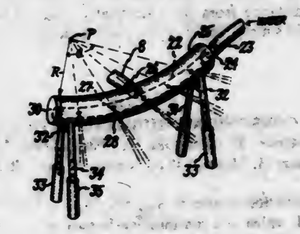
normal conditions, at least one of said confronting surfaces on each side of said rail being inclined relative to the vertical and horizontal so that lateral steering forces applied to said rail head are resisted by a combination of shear and compression forces in said elastomeric material, the base member being free of any substantial structure extending above said rail location member.

4,275,833

SNOW-MAKING APPARATUS

Brian H. Fairbank, P.O. Box 143, Hancock, Mass. 01237

Filed Jan. 21, 1980, Ser. No. 113,677
Int. Cl.³ A01G 15/00
U.S. Cl. 239—2 S 9 Claims



1. An improved snow-making nozzle of the type consisting of an inner water-carrying pipe having a plurality of apertures within an outer air-carrying jacket having a plurality of apertures wherein the improvement comprises:

both said inner pipe and said outer jacket having a curvilinear configuration for causing said water and air to exit in a plurality of streams which do not contact and interfere with each other until snow formation occurs, for distributing snow for long operating periods of time without freeze-up, said curvilinear inner pipe and said curvilinear outer jacket having a radius of curvature determined by the ratio of the linear separation distance h between a center portion of said outer jacket in a line l defining the shortest linear distance between the ends of said outer jacket, said inner pipe and said outer jacket have a calculated radius of curvature between 10/feet and 2 feet.

4,275,834
PROCESS AND APPARATUS FOR THE ELECTROSTATIC SPRAYING OF ELECTRICALLY CONDUCTIVE PAINT

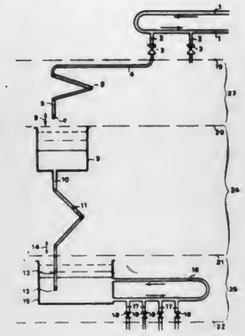
Albertus C. Spanjersberg, Leiderdorp, Netherlands; Hans G. Mink, Stuttgart, Fed. Rep. of Germany, and Johannes H. M. Barwegen, Apeldoorn, Netherlands, assignors to Akzo N.V., Arnhem, Netherlands

Filed Jan. 11, 1979, Ser. No. 2,804

Claims priority, application Netherlands, Jan. 11, 1978, 7800307

Int. Cl.³ B05B 5/02

U.S. Cl. 239—3 31 Claims



1. In a process for the electrostatic spraying of an electrically conductive liquid coating material wherein the liquid to be sprayed is intermittently fed while free of electric charge from a main supply system to a buffer supply vessel and intermittently fed from the buffer supply vessel to a second vessel which contains a supply of liquid to be sprayed and is continuously electrically charged during operation, the latter vessel being connected to at least one spray unit for spraying the liquid, the main supply system being electrically insulated from the spray liquid supply vessel, the improvement which comprises charging the liquid material in the buffer supply vessel before the liquid in the buffer supply vessel or the parts conductively connected thereto are at a spark-over or charge-bridging distance from the electrically charged liquid in the spray liquid supply vessel or the parts conductively connected thereto.

4,275,835
CORROSION INHIBITING ARTICLES

Boris A. Miksic, 21 Black Oak Rd., North Oaks, Minn. 55110, and Robert H. Miller, 535 S. Lexington Ave., St. Paul, Minn. 55116

Continuation-in-part of Ser. No. 36,317, May 7, 1979, abandoned, which is a continuation-in-part of Ser. No. 924,977, Jul. 17, 1978, abandoned. This application Mar. 17, 1980, Ser. No. 130,848

Int. Cl.³ C23F 11/02; B32B 3/26, 5/18

U.S. Cl. 239—60 2 Claims



1. An adhesive backed carrier and corrosion inhibitor in strip form for placing into an atmosphere wherein an article is located which requires corrosion protection from the atmosphere surrounding the article wherein the carrier and corrosion inhibitor are operable for quickly inhibiting atmospheric corrosion of the article from the atmosphere through volatilization and air diffusion of volatile vapor phase corrosion inhibitors located in the carrier; said carrier comprising an isocyanate-derived polymer carrier having an interconnecting skeleton network defining a plurality of passages therein, said carrier having a minimum of 90% open area, said carrier having dispersed in the passages of said carrier vapor phase corrosion inhibitors in crystal form, said vapor phase corrosion inhibitors dispersed in said carrier comprising vapor phase corrosion inhibitors capable of vaporizing under ambient conditions of the atmosphere surrounding the article to be protected, said vapor phase corrosion inhibitors comprised of at least a first vapor phase corrosion inhibitor and a second vapor phase corrosion inhibitor, said first vapor phase corrosion inhibitor comprising a vapor phase corrosion inhibitor of a predetermined vapor pressure and said second vapor phase corrosion inhibitor comprising a vapor phase corrosion inhibitor of a vapor pressure different from the predetermined vapor pressure of said first vapor phase corrosion inhibitor so that when said first vapor phase corrosion inhibitor and said second vapor phase corrosion inhibitor are dispersed in said carrier said carrier contains vapor phase corrosion inhibitors of unequal vapor pressure dispersed throughout said carrier to thereby provide multiple sites for volatilization of said first vapor phase corrosion inhibitor and said second vapor phase corrosion inhibitor from said carrier into the atmosphere surrounding said carrier, said first vapor phase corrosion inhibitor and said second vapor phase corrosion inhibitor selected from a group of vapor phase corrosion inhibitors consisting of a first group of vapor phase corrosion inhibitors having a vapor pressure of less than 10^{-4} mm Hg at ambient conditions, said first group consisting of the following corrosion inhibitors: Cyclohexylamine Chromate, Cyclohexylamine M-Mononitro Benzoate, Dicyclohexylamine Chromate and Dicyclohexylamine Nitrite; a second group of vapor phase corrosion inhibitors having a vapor pressure ranging from 10^{-3} mm Hg to 10^{-4} mm Hg, at ambient conditions, said second group consisting of the following corrosion inhibitors: Cyclohexylamine Benzoate, Diethanolamine Benzoate, and Benzotriazole, and a third group of vapor phase corrosion inhibitors having vapor pressure above 10^{-3} mm Hg at ambient conditions, said third group consisting of the following corrosion inhibitors: Monoethanolamine Benzoate and Tolyltriazole, wherein the total vapor phase corrosion inhibitors located in said carrier includes a minimum of 5% by weight of vapor phase corrosion inhibitors selected from at least two of said first group, said second group or said third group, said vapor phase corrosion inhibitor in said carrier comprises a minimum density of vapor phase corrosion inhibitor of 0.05 grams per cubic centimeter, wherein if one vapor phase corrosion inhibitor is selected from said first group and one vapor phase corrosion inhibitor is selected from said third group, the major amount of vapor phase corrosion inhibitor being selected from said first group and the minor amount of vapor phase corrosion inhibitor being selected from said third group, said first vapor phase corrosion inhibitor, said second vapor phase corrosion inhibitor and said interconnecting network located in said carrier coacting with said passages in said carrier to quickly permit said first vapor phase corrosion inhibitor and said second vapor phase corrosion inhibitor to reach a saturation level in the atmosphere surrounding said carrier through volatilization and diffusion of said first vapor phase corrosion inhibitors and said second vapor phase corrosion inhibitor from sites in said carrier and through said passages in said carrier, said first vapor phase corrosion inhibitor and said second vapor phase corrosion inhibitor synergetically coacting with said carrier to produce an extended saturated level of corrosion inhibitor in an atmosphere surrounding said carrier, said carrier being enclosed in an enclosing means to prevent premature dispersion of said vapor phase corrosion inhibitor.

4,275,836
METHOD AND APPARATUS FOR SPRAYING CONCRETE

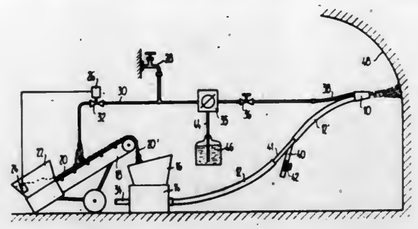
Hansruedi Egger, Zumikon, Switzerland, assignor to Intradyn Maschinen AG, Winterthur, Switzerland

Filed Sep. 17, 1979, Ser. No. 75,988

Claims priority, application Switzerland, Sep. 22, 1978, 9927/78

Int. Cl.³ B05B 9/00

U.S. Cl. 239—124 9 Claims



8. An apparatus for spraying concrete by means of compressed air, comprising:

means for conveying a concrete mass in a continuous stream along a predetermined path of travel;

means cooperating with said conveying means for spraying the conveyed concrete mass;

moisture feeler means for measuring the water content of the concrete mass;

said moisture feeler means being arranged along the conveying path of the concrete mass;

a dosing device for infeeding water to the concrete mass operatively connected with said moisture feeler means;

said concrete conveying means comprising a spraying machine including means for infeeding compressed air for conveying the concrete mass;

said spraying means including a spray nozzle operatively connected by means of a conveying hose with the spraying machine;

compressed air-exhaust means defining a branch-off location arranged along the conveying path of the concrete mass and serving to exhaust compressed air into the surroundings continuously and concurrently with the spraying of the concrete mass;

said branch-off location being spaced from said spray nozzle and arranged at the conveying hose;

said conveying hose including a portion extending between said branch-off location and said spray nozzle which defines a braking path for the concrete mass in order to decelerate the same for controlling application of the sprayed concrete mass onto a surface; and

said branch-off location having an adjustable opening.

4,275,837
MOBILE APPARATUS ADAPTED TO FORM A DUCT FOR LIQUID FLOWS, PARTICULARLY FOR IRRIGATION PURPOSES

Dante Baroni, Via Grossi, 6, Mantova, and Adelelmo Baroni, Via Giovanni XXIII, S. Nicolo' PO, Mantova, both of Italy

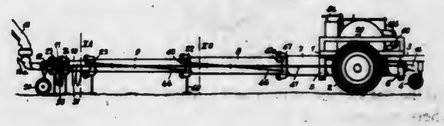
Filed Sep. 18, 1979, Ser. No. 76,632

Claims priority, application Italy, Sep. 26, 1978, 18125 A/78

Int. Cl.³ A01G 25/00

U.S. Cl. 239—197 7 Claims

1. A mobile apparatus adapted to form a duct for liquid flows, particularly for irrigation purposes, comprising a series of telescopically coupled pipes, the largest diameter pipe in said pipe series being attached to a wheel-mounted frame for position changing and provided at one end with a fitting for connection to a pressurized liquid supply line, and the smallest diameter pipe in said pipe series carrying at one end means for ejecting liquid in a desired condition, e.g. an irrigator, each pipe in said pipe series being provided with means enabling said pipes to be run out one by one to an appropriate extent, starting from said largest diameter pipe in said pipe series, under the influence of the pressure applied by said liquid when pumped into said pipe series, and with suitable sliding connection and sealing means; means for causing said pipe series to rest onto the ground; and means for telescopically collapsing said pipes in said pipe series from a fully extended position thereof to a telescopically packaged position wherein each of said pipes has a liquid inlet end and a liquid outlet end and a head at said liquid outlet end, said head having a ridge thereon, and wherein each of said pipes in said pipe series excepting said largest diameter pipe and said smallest diameter pipe has on said head at least two hooks symmetrically arranged around the pipe, each of said hooks being hingedly connected to the corresponding pipe such as to rotate in a substantially radial plane between a position engaging said ridge on said head of the contiguous pipe having a smaller diameter, and a position



disengaged from said ridge, said hooks being each connected to a respective spring accommodated on a corresponding of said heads such as to cause the corresponding of said hooks to rotate towards said engaging position thereof, and to one end of a respective cord having an other end attached to said head of the contiguous pipe having a larger diameter, the length of said cord being such as to cause said cord to come under tension and lock the respective of said pipes from sliding further out and the respective of said hooks from rotating, against the bias of said spring, towards said disengaged position thereof upon said respective pipe reaching its fully extended position, thereby the contiguous smaller diameter pipe is released and allowed to move out under the influence of the pressure of said liquid, each of said hooks having a back portion shaped such that the pressure exerted thereon during the collapsing phase of said pipe series by said ridge provided on the head of the smaller diameter contiguous pipe causes the raising thereof and re-hooking of said head.

4,275,838
ROTATING ATOMIZING DEVICE

Dennis L. Fangmeyer, Indianapolis, Ind., assignor to Ransburg Corporation, Indianapolis, Ind.

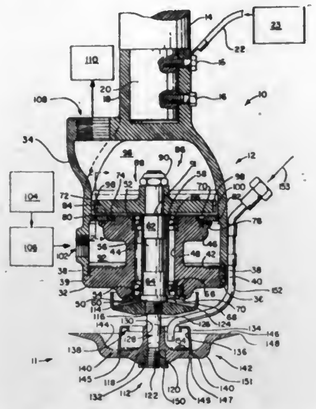
Continuation-in-part of Ser. No. 832,587, Sep. 12, 1977, abandoned. This application Feb. 21, 1979, Ser. No. 13,125

Int. Cl.³ B05B 3/10

U.S. Cl. 239—223 7 Claims

4. An atomizer for attachment to a drive motor output shaft to be spun thereby, the atomizer including a central portion having an outwardly flaring radially inner surface and an outer portion having a flat generally disk-shaped surface joining the central portion inner surface, the atomizer further including a coating material cup having an outwardly flaring inner surface, the maximum diameter portion of the cup defining the base thereof, the outwardly flaring surfaces of the cup and central portion flaring in opposite directions, the cup including a right circular cylindrical lower wall portion and the atomizer central portion including a groove for receiving the lower wall portion for attaching the cup to the atomizer central portion, and the cup being provided with a plurality of apertures adjacent its base to provide communication between the cup inner surface and the central portion inner surface, and means for dispensing fluid coating material on the cup inner surface, fluid coating material dispensed on the cup inner surface as the

atomizer is spun moving radially outwardly toward its base, through the apertures, along the central portion inner surface



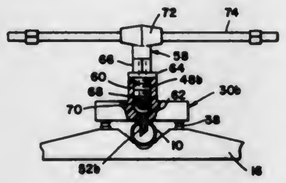
and the flat surface of the outer portion to the peripheral edge where it is atomized.

4,275,839

COMBINATION STABILIZER AND SPRINKLER SUPPORT FOR SURFACE HOSE

Donald O. Olson, 8765-I Olive La., Santee, Calif. 92071

Filed Oct. 1, 1979, Ser. No. 80,288
Int. Cl.³ A62C 31/22
U.S. Cl. 239—272 8 Claims



1. A stabilizing device for holding a hose in a preselected position on the ground and preventing it from twisting or turning due to residual stresses, comprising:

a base member adapted to extend transversely to the hose being stabilized, having a central portion provided with a recess for receiving the hose and integral arms extending from opposite sides thereof; and

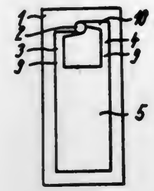
clamp means extending across said recess connectable with said central portion of said base member and adapted to bear against, and hold firmly, a hose extending through said recess so as to prevent the hose from twisting, wherein said central portion includes a pair of top surfaces on said central portion on opposite sides of said recess and having respective smoothwalled openings; said clamp means including an elongated body portion parallel with said base member and provided adjacent its ends with integral, downwardly projecting pin portions having barbs, adapted to interlock with the walls of the openings upon direct axial force on said pin portions.

4,275,840

PACKAGE FOR STORING AND SPRAYING SMALL AMOUNTS OF LIQUIDS

Marcel J. H. Staar, Brussels, Belgium, assignor to Paspack A.G., Vaduz, Liechtenstein

Filed Jul. 9, 1979, Ser. No. 55,515
Claims priority, application Belgium, Dec. 15, 1978, 872803; Fed. Rep. of Germany, Jun. 5, 1979, 2922740
Int. Cl.³ B65D 1/32
U.S. Cl. 239—327 18 Claims



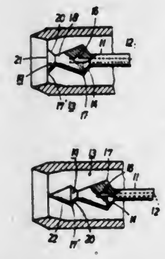
1. A package for storing and spraying small amounts of liquid, said package comprising two sheet sections which are joined, and together provide a compressible container for storing, a conterminous system of passageways for conveying and a nozzle for spraying said liquid, said passageway system receiving liquid from the container and accelerating said liquid when pressure is applied to said container, said passageway system terminating substantially tangentially in at least one substantially circular turbulence space for imparting a whirling motion to liquid conveyed to said space, said turbulence space having at least one central nozzle aperture for discharging the liquid from the turbulence space in the form of a spray.

4,275,841

BURNER FOR COMBUSTION APPARATUS

Toshiro Takeyama, and Shigemori Ohtani, both of Sendai, Japan, assignors to Kabushikikaisha Ohkawara Seisakusho, Yoshida, Japan

Filed Dec. 14, 1978, Ser. No. 969,544
Claims priority, application Japan, Dec. 28, 1977, 52/157456
Int. Cl.³ B05B 7/04
U.S. Cl. 239—431 2 Claims



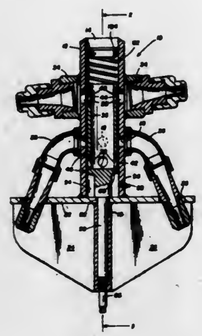
1. A burner for combustion apparatus comprising an atomizer and a nozzle within said atomizer to define an air passageway therebetween, said nozzle defining an axial fuel passageway disposed interiorly of said nozzle, a tip portion, a first frustoconical portion diverging in the downstream direction a first conical portion converging in the downstream direction extending from the widest portion of the first frustoconical portion, said first frustoconical portion and said first conical portion blocking said tip portion, said first frustoconical portion diverging from said tip portion toward the extreme end of said nozzle and defining a plurality of fuel outflow passageways connected to said axial fuel passageway, said fuel outflow passageways being positioned to flow fuel backwardly from the fuels forwardmost position in the axial fuel passageway until met by air passing over the diverging first frustonical portion, and a second frustoconical portion diverging in the downstream direction extending from the narrowest portion of said first conical portion converging in the downstream direction.

4,275,842

DECOKING NOZZLE ASSEMBLY

Robert M. Purton, and Lloyd D. Hanson, both of Cerritos, Calif., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Nov. 21, 1979, Ser. No. 96,704
Int. Cl.³ A62C 31/00
U.S. Cl. 239—446 6 Claims



1. An improved decoking nozzle comprising:

a hollow body member having a side wall, a closed lower end, and an open upper end arranged to be connected with a decoking system, said body member having flow ports extending through said side wall, said flow ports including a pair of upper ports diametrically opposed and four lower ports located about ninety degrees apart around the circumference of said body;

upper nozzle means connected to said side wall for fluid communication with said upper ports;

lower nozzle means connected to said side wall for fluid communication with said lower ports;

valve means slidingly disposed in the interior of said hollow body member, said valve means including seal means sealingly engaging said side wall;

valve control means for moving said valve means between a first position permitting flow through said lower nozzle means while preventing flow through said upper nozzle means and a second position preventing flow through said lower nozzle means while permitting flow through said upper nozzle means; and,

said valve means also including a hollow valve member having a pair of upper apertures, which in the second position of said valve means are in communication with said upper ports, and four lower apertures, which in the first position of said valve means are in communication with said lower ports.

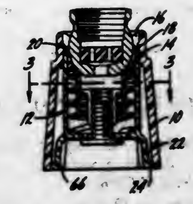
4,275,843

AUTOMATICALLY ADJUSTABLE SHOWER HEAD

Alfred M. Moen, Grafton, Ohio, assignor to Stanadyne, Inc., Windsor, Conn.

Filed Nov. 14, 1979, Ser. No. 94,293
Int. Cl.³ B05B 1/26
U.S. Cl. 239—499 2 Claims

1. An automatic pressure-responsive shower head including an outer housing, a body member within the housing, said body member including a generally cylindrical portion and an outwardly-flared skirt at one end, said body member being in contact with said housing at one end of said cylindrical portion and at the outer periphery of said skirt, a partition across said body member at the junction of said skirt and cylindrical portion, a swivel member and means for attaching it to said body member including a flexible body member flange positioned against said swivel member on one side of a diameter and a seal ring positioned between said body member and swivel on the other side of the same diameter, a cup-shaped retainer having an outwardly-flared end positioned within said body member, a spring seated on said partition and urging said flared end



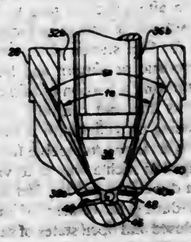
against said seal member, a water passage in said body member partition in communication with said swivel member through an aligned opening in said retainer, a control member extending through the aligned openings in said partition and retainer and having an enlarged head outside of said body member partition to perform a water control function therewith, said control member having outwardly-extending flange means with spaces therebetween, a spring seated on said retainer and acting against said flange means to urge said control member head toward said partition, the spaces between said control member flange means providing water communication between said swivel and said body member partition water passage, water flowing from said swivel toward said control member urging said enlarged head away from said body member partition water passage.

4,275,844

FUEL INJECTION NOZZLE

William A. Gegerich; Albert B. Niles, and Kenneth W. Updyke, all of Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill.

PCT No. PCT/US 79/01091, § 371 Date Nov. 30, 1979, § 102(e) Date Nov. 30, 1979
This PCT application filed Nov. 30, 1979, Ser. No. 143,983
Int. Cl.³ F02M 61/18
U.S. Cl. 239—533.3 12 Claims



1. A fuel injection nozzle (22) comprising:

a housing (20), said housing (20) having a valve guide (34) of a first diameter (dg) separating a closed upper fluid cavity

(32*a*) from a lower fluid cavity (32*b*), and having a conical seat (40) of a first constant conical angle (sa), said seat (40) including a lower portion (40*a*);

means for engaging only said lower portion (40*a*) of said seat (40), said means being a valve (36) reciprocable in said housing (28), said valve (36) having a conical tip (38) of a second constant conical angle (ta) less than said first angle (sa), said tip (38) including a lower portion (38*a*) having an interference fit with said lower seat portion (40*a*), said valve (36) having an enlarged diameter portion (36*c*) reciprocable in said guide (34), said enlarged diameter portion (36*c*) being of a second diameter (dv) less than said first guide diameter (dg), said diameters (dv,dg) defining a clearance sufficient for metering an amount of fluid between said upper (32*a*) and lower (32*b*) cavities for maintaining relative fluid pressures in said cavities (32*a*,32*b*) to avoid a hydraulic lock of said valve (36) in said housing (28).

4,275,845

FUEL INJECTOR FOR INTERNAL COMBUSTION ENGINES

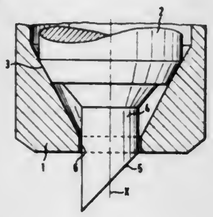
Eckart Müller, Schwabach, Fed. Rep. of Germany, assignor to Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft, Nurenberg, Fed. Rep. of Germany

Filed Apr. 11, 1979, Ser. No. 29,080

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1978, 2814999

Int. Cl.³ B05B *1/30*

U.S. Cl. 239—533.12 7 Claims



1. A fuel injector for internal combustion engines, comprising in combination:

a nozzle body having a bore centrally arranged therein and operatively communicating with said internal combustion engine; and

a nozzle needle having a valve seat for providing supporting contact with a correspondingly shaped portion of said nozzle body, said nozzle needle being axially displaceable in said body in the longitudinal direction thereof for movement between a closed state of said injector, wherein said valve seat is in contact with said nozzle body, and varying degrees of an opened state of said injector, wherein said valve seat is lifted off said nozzle body by fuel pressure to allow fuel to pass to said centrally arranged bore, said nozzle needle including a throttling pin determinative for fuel stream directions as well as fuel stream characteristic or pattern and having an end face which, at least during a portion of said open states of said injector, projects into said centrally arranged bore, said throttling pin being provided with at least one smooth flat surface which is arranged to receive fuel thereagainst and which is arranged in such a way as to vary at least one of the fuel stream directions and the fuel stream characteristic or pattern during movement of said nozzle needle between said closed and open states of said injector, said at least one flat surface being a flat portion having a plane extending substantially parallel to the longitudinal axis of said nozzle body and being a control edge on said end face of said throttling pin, at least a portion of said end face of said throttling pin always projecting into said bore.

4,275,846

CONTAINER FOR ELECTROSTATIC SPRAYING OF LIQUIDS

Ronald A. Coffee, Haslemere, England, assignor to Imperial Chemical Industries Limited, London, England

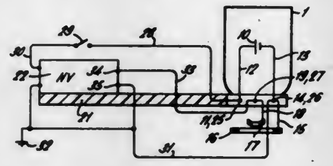
Filed Sep. 24, 1979, Ser. No. 78,434

Claims priority, application United Kingdom, Sep. 26, 1978, 38180/78

The portion of the term of this patent subsequent to Jun. 24, 1997, has been disclaimed.

Int. Cl.³ B05B *5/02*

U.S. Cl. 239—690 12 Claims



1. A liquid container adapted to form part of apparatus for electrostatic spraying, the apparatus including a power supply, high voltage generator having input and output terminals, a spray nozzle at least part of the surface of which is electrically conductive, an electrode disposed adjacent the nozzle and insulated therefrom, with electrical connections for connecting the power supply to the input terminals of the generator and the electrode to one output terminal of the generator and the nozzle to the other output terminal of the generator; said container comprising:

a body having an orifice for delivering liquid; means for detachably mounting the container on the rest of the apparatus in a position in which the orifice can deliver liquid to the spray nozzle, the mounting means including a conductor or conductors forming part of the electrical connections for the apparatus; and a closure or seal for closing the orifice prior to location of the container on the rest of the apparatus.

4,275,847

PROCESS FOR THE TREATMENT OF ALUMINUM-SALT SLAGS

Albert Bahr, Daniel-Flach-Str. 3, 3392 Clausthal-Zellerfeld, Fed. Rep. of Germany, and Joachim Knos, Göttingen, Fed. Rep. of Germany, assignors to Albert Bahr, Clausthal-Zellerfeld, Fed. Rep. of Germany

Filed Jul. 2, 1979, Ser. No. 55,189

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1978, 2830574

Int. Cl.³ B02C *23/14*

U.S. Cl. 241—20 10 Claims

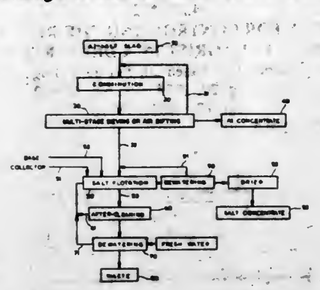
1. A process for the treatment of an aluminum-salt slag containing NaCl and KCl, oxides and hydroxides produced in the remelting of aluminum by the addition of salt to the aluminum scrap, said process comprising the stages of:

(a) comminuting the aluminum-salt slag with pressure and impact and rolling the comminuted product to a thickness of about 0.2 mm to about 1 mm;

(b) milling the rolled product of step (a) to an $\bar{x}_{50}$ value of about 130 to 150 microns to produce a milled product;

(c) classifying the milled product of step (b) in a plurality of stages to recover therefrom a large-particle fraction consisting at least predominantly of aluminum particles, and a fine-particle fraction containing NaCl and KCl;

(d) subjecting said fine-particle fraction to a high-salt-concentration flotation in at least one flotation stage to which a base is added in an amount of 0.04 to 0.4 g. of the base per ton of the material subjected to flotation to bring the pH of said one flotation stage to a pH value between 10 and 11, whereupon a cation active collector is added which is selected from the group which consists of compounds of the formula $RO-(CH_2)_n-NH-(CH_2)_n-NH_2$ and of the formula $RO-(CH_2)_n-NH_2$ wherein R is a straight or branched chain saturated or unsaturated



alkyl having 8 to 22 carbon atoms or mixture thereof, and n is 1 to 5, or an organic or inorganic salt thereof, to recover an impurity-containing froth of low chloride level with oxides and hydroxides and a concentrate containing most of the chlorides of the salts including the KCl and NaCl, of said slag;

(e) recycling flotation liquor from the products obtained in step (d) to the flotation stage thereof; and

(f) dewatering said concentrate of step (d).

4,275,848

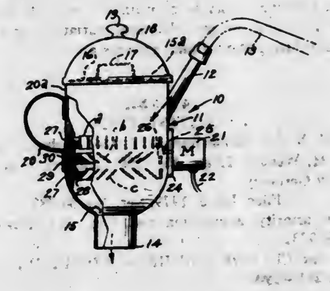
PORTABLE GARBAGE DISPOSAL UNIT

Alexander Webb, Sr., 14914 Seeley, Harvey, Ill. 60426

Filed Oct. 4, 1979, Ser. No. 81,813

Int. Cl.³ B02C *18/18*

U.S. Cl. 241—46 B 1 Claim



1. A portable garbage disposal unit, comprising, in combination, an upright, cylindrical container, for placement of garbage therein, so as to be ground up and mixed with water, for then being flushed outward therefrom, a carrying handle on a side of said container, an external electric motor mounted on a side of said container, a plurality of three axially aligned, spiral cutters inside said container along a central vertical axis of said container, a transmission between said motor and said cutters, for rotation of said cutters; a water intake neck, at an upper portion of said container, for delivering water down upon said cutters, a downward neck at the bottom of said container, for discharge of said water and said garbage, after being ground up on said cutters; a top opening on said container, for placement of said garbage therein, a removable cover closing said opening; and said spiral cutter comprising a spiral-shaped, flat blade, said blade of the uppermost said cutter being parallel to said container vertical axis, said blade of a lowermost said cutter being downwardly, outwardly inclined, while said blade of an intermediate said cutter is upwardly, outwardly inclined, and upper edges of said blades are toothed, a circular ring gear secured around each said cutter, and said transmission comprises gears between edges of said ring gears powered from said motor, so as to rotate said ring gears and their cutters.

4,275,849

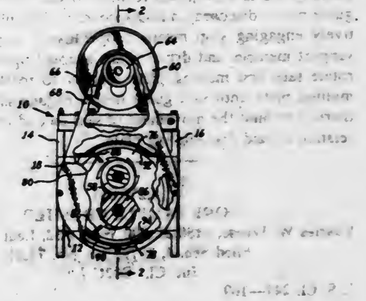
MACERATOR

William M. Chambers, 14404 Gramercy Pl., Gardena, Calif. 90249

Filed May 25, 1973, Ser. No. 363,875

Int. Cl.³ B02C *23/36*

U.S. Cl. 241—46.06 8 Claims



1. Apparatus for shredding solid debris passed along a sewage conduit, comprising:

a shredder assembly including cooperating substantially parallel first and second shredding stacks respectively having a plurality of first concentric knives mounted on a first shaft in interspaced relationship with a plurality of second knives mounted concentrically on a second shaft, said first and second stacks being compressed between first and second distally opposed bearing plates having received therein for rotation said first and second shafts, said bearing plates being secured in compression against said stacks by compression nuts threadably engaging the distal ends of said shafts;

a housing conformed to receive in telescoping cooperation said shredder assembly including transversely opposing tubular sections adapted to be secured to said sewage conduit;

securing means adapted to be attached to said shredder assembly for securing thereof in said housing;

directing means disposed longitudinally along the interior of said housing in converging receiving alignment with one said tubular section for directing the debris received therein into said shredder assembly;

gearing means disposed on adjacent one ends of said first and second shafts for coupling the rotations thereof in common; and

drive means adapted to connect to the other end of said first shaft for driving said shaft in rotation;

4,275,850

PLATE-TYPE PAINT GRINDING MACHINE AND ITS USE IN PIGMENT TESTING

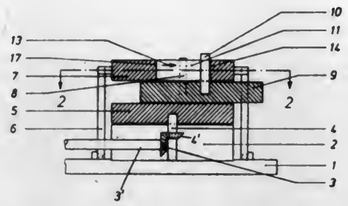
Bruno Knapstein, Cologne, and Friedrich Vial, Leichlingen, both of Fed. Rep. of Germany, assignors to Kronos Titan G.m.b.H., Leverkusen, Fed. Rep. of Germany

Filed Jun. 1, 1979, Ser. No. 44,564

Claims priority, application Fed. Rep. of Germany, Apr. 24, 1979, 2824163

Int. Cl.³ B02C 19/00

U.S. Cl. 241—57 10 Claims



1. Apparatus adapted for grinding which comprises a base member; a first mulling plate disposed horizontally on said base member; a support member connected to said base member for engaging and supporting a second mulling plate disposed horizontally and in superposed relation to said first mulling plate; guide means disposed on said second mulling plate and operatively engaging stop means cooperatively disposed on said support member and drive means adapted upon actuation to rotate said first mulling plate thereby to rotate said second mulling plate until said guide means engage said stop means thereby to limit the movement of said second mulling plate in relation to said first mulling plate.

4,275,851

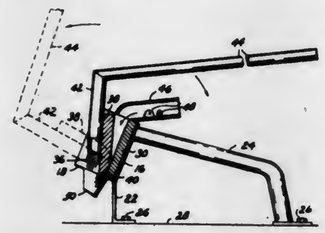
ORE SAMPLE CRUSHER

Charles W. Weese, 1150 N. 200 West #32, Lehi, Utah

Filed Sep. 4, 1979, Ser. No. 72,516

Int. Cl.³ B02C 1/04

U.S. Cl. 241—169 2 Claims



1. An ore sample crusher, comprising:

a generally U-shaped upright frame characterized by a flat bight portion having parallel legs vertically disposed edgewise;

a pair of standards secured to and supporting the bight portion of said frame on an incline;

a planar anvil overlying and secured to said frame bight portion;

jaw means supported by said frame for movement toward and away from said anvil,

said jaw means comprising, a shaft extending between and journaled by said frame legs,

a jaw extending transversely between said frame legs and secured at one end portion to said shaft in spaced relation with respect to said anvil, and,

handle means secured to said shaft and said movable jaw opposite the anvil;

an ore sample receiving hopper secured to the upper limit of said frame for communication with the spacing between said anvil and said jaw; and,

a crushed ore receiving chute connected in depending relation with the lower limit of said frame.

4,275,852

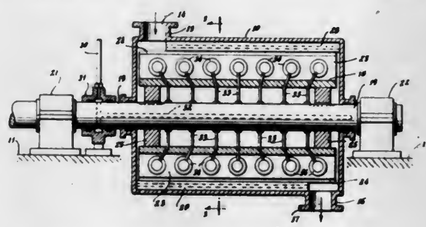
APPARATUS FOR CONTROLLING THE REFINING OF FIBROUS PULP GRIST IN A DRUM REFINER

Arne J. A. Asplund, Tykovagen 20, 181 61 Lidingo 3, Sweden

Filed Aug. 20, 1979, Ser. No. 67,929

Int. Cl.³ B02C 18/18

U.S. Cl. 241—259.2 5 Claims



1. In a drum refiner for refining pulp stock, in which the pulp grist is conveyed into a stationary cylindrical drum and propelled in a linear direction therein by a co-axial rotor comprising a plurality of wings having a leading face and a trailing face which attack the grist at an angle in a wedging action as its is pushed ahead by the leading face of the wing in a pulsating fashion to induce in the grist internal frictional shear forces while being squeezed through a gap clearance defined between the free end of the wings and shear means arranged axially along the interior cylindrical wall surface of the stationary drum, the improvement comprising:

blade means mounted adjustably along a surface of said wings so as to be deflected at an angle thereto and effective simultaneously to coordinate the angle of attack on the grist and the gap clearance variations in energy demand during the refining process.

4,275,853

CUTTING TOOL

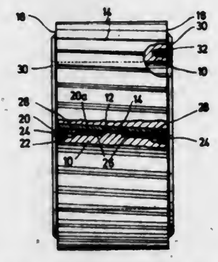
Ulrich H. Kreuz, Hölderlinweg 18, 7141 Erdmannhausen, and Kurz H. Wendel, Talstr. 45, 7250 Leonberg 5, both of Fed. Rep. of Germany

Filed Jul. 5, 1979, Ser. No. 54,789

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1978, 2829732

Int. Cl.³ B02C 1/10; B27G 13/00; B26D 1/12

U.S. Cl. 241—294 11 Claims



1. A cutting tool comprising a supporting body and at least one striplike cuttng element, the supporting body comprising a

recess for receiving the cutting element such that the cutting element abuts a bearing wall being provided by said recess, and disposed opposite said bearing wall, a clamping body comprising a deformable material, said clamping body being located in a cavity adjacent the cutting element for clamping the cutting element between said bearing wall and the clamping body, guide means for a rigid thrust piece closing said cavity and being disposed adjacent a recess in said cutting element, tightening means for pressing the thrust piece against said clamping body which fills said cavity such that when the tightening means is actuated said thrust piece engages said recess of the cutting element and the deformable material of said clamping body transmits the pressure exerted by the thrust piece to the cutting element thereby clamping the cutting element between the clamping body and said bearing wall.

4,275,854

ROLLED NAIL STRIPS PACKED WITHOUT SPOOLS

J. Calvin Jarrett, Coral Gables; Andrew G. Seipos, Miami, and William J. Langevin, North Miami Beach, all of Fla., assignors to Automated Building Components, Inc., Miami, Fla.

Division of Ser. No. 920,128, Jun. 28, 1978, Pat. No. 4,225,095, which is a division of Ser. No. 833,099, Sep. 14, 1977, Pat. No. 4,129,433. This application Jan. 30, 1980, Ser. No. 116,786

Int. Cl.³ B65H 75/02; B65D 85/24

U.S. Cl. 242—55 4 Claims



1. A method for forming a coiled composite of connector plate stock from which may be cut sheet metal connector plates having integrally struck teeth projecting therefrom, the coiled composite having first and second coiled lengths of connector plate stock arranged in juxtaposition with the teeth of each of the lengths of connector stock being substantially intermeshed with the teeth of the other length of connector stock, said method comprising the steps of:

winding the first and second lengths of connector stock onto a spool;

initiating said winding operation so as to establish a relationship between the first and second lengths for preventing jamming between the intermeshing teeth of the first and second lengths during said winding operation; and,

maintaining the relationship of the first and second lengths during said winding operation.

4,275,855

FILM TAKE-UP SPOOL

Hiroshi Wakabayashi, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed May 9, 1980, Ser. No. 148,270

Claims priority, application Japan, May 24, 1979, 54-68805[U]; Jul. 27, 1979, 54-104019[U]

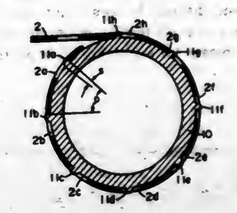
Int. Cl.³ G03B 1/04; B65H 75/28

U.S. Cl. 242—71.2 6 Claims

1. In a film take-up spool of a camera disposed within the camera body and rotatable to wind thereon a film having perforations, the improvement comprising:

a plurality of pawls projectedly provided on the outer periphery of said spool so as to be engageable with said perforations, each of said pawls being provided at a location corresponding to a respective perforation when the film has been wound on said spool, said pawls being provided so as to satisfy the following relations:

$P > Po$ and $S + N(P/n - Po) \leq a$ (n is an integer) where S is the width of said pawl in the circumferential direction of said spool, P is the pitch between the pawls, a is the width of each said perforation in the lengthwise direction of the film, Po is the pitch between said perforations, and N is



the number of perforations present in the length of the film corresponding to the outer periphery of said spool.

4,275,856

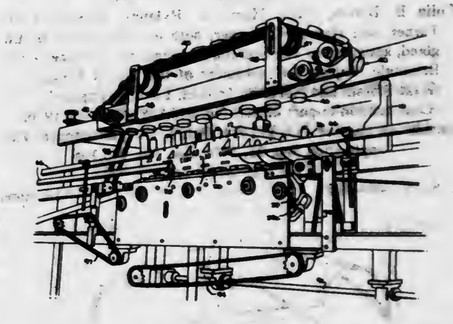
HEAT TRANSFER LABELING MACHINE

Albert J. Harvey, Fairfield, Ohio, assignor to Diamond International Corporation, New York, N.Y.

Division of Ser. No. 955,372, Oct. 27, 1978, Pat. No. 4,239,569. This application Feb. 8, 1980, Ser. No. 119,833

Int. Cl.³ B65H 75/22; B65C 9/04

U.S. Cl. 242—75.44 7 Claims



1. A system for feeding a label carrying web to a decorating station for application onto an article to be decorated which comprises:

a web supply reel;

a web take up reel;

braking means engaging said web supply reel

a movable roller disposed in the path of said label carrying web between said supply reel and decorating station;

switching means operatively connected to said braking means so as to regulate the tension of the label carrying web being dispensed from said supply reel;

means coupled to said movable roller disposed so as to activate said switching means when said roller moves to a predetermined position and modify the braking force applied to said web supply reel; and

biasing means urging said movable roller to apply tension to said label carrying web being fed from said web supply wheel.

4,275,857

COOLING SYSTEM FOR RAMJET ENGINE

M. Brian Burgeton, Centerville, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

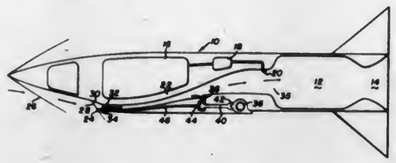
Filed Nov. 5, 1979, Ser. No. 91,220

Int. Cl.³ B64D 33/02

U.S. Cl. 244—53 B 2 Claims

1. A supersonic ramjet powered vehicle comprising: a mis-

sile body member; a ramjet combustor having an exit nozzle positioned at the aft end of said missile body member; a cowl lip member secured to the missile body and forming a ramjet inlet; a subsonic diffuser between said ramjet inlet and said combustor; an accessory turbine positioned adjacent said subsonic diffuser; means for supplying bleed air from said diffuser



to said turbine; a vortex tube connected between the subsonic diffuser and said accessory turbine; said vortex tube including a pressure inlet connected to said subsonic diffuser, a hot gas outlet connected to said turbine and a cold air outlet; said ramjet vehicle including a cooling load; means for connecting said cooling load to the cold air outlet of said vortex tube.

4,275,858

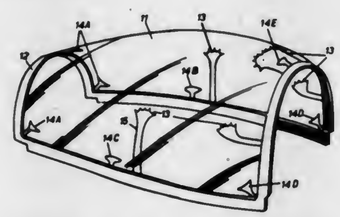
PANEL BREAKING SYSTEMS

Colin B. Bolton, Fleet; Harry D. Rylands, Woking; Clara Turner, and Henry W. Turner, both of Ashtead, all of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Continuation-in-part of Ser. No. 670,531, Mar. 25, 1976, abandoned, and Ser. No. 838,451, Oct. 3, 1977, abandoned. This application Sep. 25, 1978, Ser. No. 945,106

Int. Cl.³ B64C 1/32

U.S. Cl. 244—121 **4 Claims**



1. A method of forming a breaking apparatus into a cockpit canopy and comprising the steps of providing a canopy inner shell and a canopy outer shell, forming a layer of resin on the designated inner surface of one of the shells, embedding into the resin a plurality of conductors each having at least one region of reduced energy of fusion, attaching the other shell to the resin, and curing the resin.

3. Apparatus comprising a fusible electrical conductor incorporating at least one region of reduced energy of fusion compared with the mean in the conductor, said conductor being embedded in and in intimate contact with said panel, and said conductor being connectable to a source of a high energy pulse of electric power and operable to explode and thereby generate a crack in said panel and comprising also the high energy electrical pulse source and wherein said high energy electrical pulse source consists essentially of power supply means and at least one inductance arranged with an initiator switch and said at least one conductor in a circuit operable upon initiation to charge said inductance with energy, said inductance then providing a pulse operable to fuse said at least one conductor and having a bypass switch in a subcircuit operable to bypass said inductance until said inductance is charged.

4,275,859

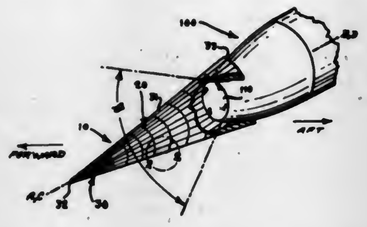
OPTICAL DOME PROTECTION DEVICE

Michael P. Bleday, Concord, Mass., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Dec. 18, 1979, Ser. No. 104,923

Int. Cl.³ B64C 1/10

U.S. Cl. 244—121 **10 Claims**



1. An optical dome protection device for use with an airborne vehicle having a forwardly positioned, rain-erodible, thermal shock-susceptible optical dome through which an area is viewable, wherein said vehicle is travelling at speeds from sub-sonic to supersonic through an air environment in which raindrops are falling, composing:

a. means for fragmenting said falling raindrops before said raindrops reach said optical dome, wherein this raindrop fragmenting means is disposed forward of said optical dome and includes a plurality of openings smaller than said raindrops, whereby said optical dome is protected from erosion damage and destruction by said falling raindrops;

b. and, means for protecting said optical dome from thermal shock, wherein the thermal shock protecting means includes a thermal resistant cone member integrated with said raindrop fragmenting means, with said cone member disposed forward of, and attached to, said vehicle, such that said cone member together with said raindrop fragmenting means obscure less than twenty percent of said area viewable through said optical dome.

4,275,860

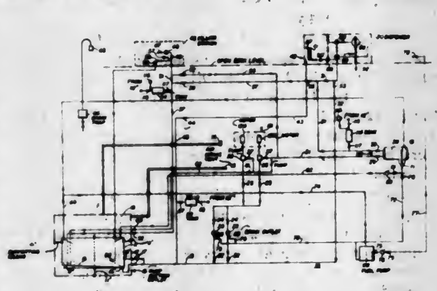
FULL SPAN SHIPBOARD FUELING SYSTEM FOR AIRCRAFT

Jack A. Brabazon, 925 Meeney Ave., Ottawa, Ontario, Canada (K2A 3A2)

Continuation of Ser. No. 812,607, Jul. 5, 1977, abandoned. This application Oct. 2, 1978, Ser. No. 947,722

Int. Cl.³ B64D 37/14, 37/18; B64F 1/28

U.S. Cl. 244—135 R **11 Claims**



1. A full span shipboard fueling system for aircraft comprising:

fuel storage means including a tank for selectively storing low and high flash point fuels;

cofferdam means enclosing said fuel storage means in a substantially dry, closed chamber;

means for supporting the tank in spaced relation with the walls of the chamber to provide a continuous airspace between all exterior sides of the tank and said walls;

an air intake vent communicating the airspace with the atmosphere;

an exhaust vent communicating the airspace with the atmosphere;

a blower disposed within the exhaust vent for continuously drawing in fresh air through the air intake vent to the airspace and withdrawing residual fuel vapours and air therefrom to maintain a concentration of any fuel vapours in the chamber below a predetermined lean limit;

a plurality of conduits for conducting the fuel to designated locations;

pump means communicating with selected ones of the conduits for controllably propelling the fuel therethrough to said locations;

filter means in serial communication with predetermined ones of said conduits for removing predetermined contaminants in the fuel when said fuel is conducted therethrough;

a unitary combined fueling and defueling dispenser at a designated location communicating with predetermined ones of said conduits for selectively fueling and defueling an aircraft;

means communicating with at least one of, the tank and said dispenser for selectively recirculating and conditioning the fuel to minimize fuel degradation from contaminants entrained therein;

means for venting said tank to the atmosphere;

a first valve disposed in a fuel delivery conduit below the dispenser and operable to shut-off fuel flow to said dispenser; and

means coupled to the fuel delivery conduit below said first valve for purging the conduit of fuel with a metered quantity of inert gas after the fuel flow is shut off.

4,275,861

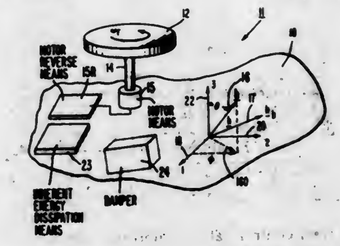
ORIENTATION OF MOMENTUM STABILIZED VEHICLES

Carl H. Hubert, East Windsor, N.J., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 4, 1978, Ser. No. 931,172

Int. Cl.³ B64G 1/28, 1/38

U.S. Cl. 244—165 **12 Claims**



1. A method of orienting a vehicle in inertial space from an initial orientation to a final desired orientation, said vehicle having three principal axes that are mutually orthogonal, wherein one of said principal axes defines the maximum moment of inertia axis of said vehicle, said vehicle further having a total angular momentum the vector of which being essentially constant in inertial space, said maximum moment of inertia axis not being initially in alignment with said vector of the total angular momentum of said vehicle and said vehicle having a platform and a rotor adapted for rotation about a preselected axis on said platform, which preselected axis is fixed relative to said platform, said preselected axis having an initial axial orientation relative to inertial space which is different by a certain angle from a desired final axial orientation, said final desired orientation being parallel to the total angular momentum vector, comprising the steps of:

rotating said rotor to a constant rate of rotation such that the platform rotates in a given direction and rate of rotation, said constant rate of rotation of said rotor selected to produce a unique minimum of kinetic energy due to platform rotation at said desired orientation;

said unique minimum of kinetic energy defining an energy state wherein no other minimum of kinetic energy due to platform rotation exists for said constant rate of rotation; and

dissipating rotational kinetic energy on the platform of said vehicle at a rate greater than the rate of energy dissipation of said rotor;

whereby as the energy of said platform is dissipated at a greater rate than the energy dissipated by said rotor, said rotor axis converges to said final desired orientation in which the axis of rotation of said rotor coincides with the total angular momentum vector and said vehicle is momentum stabilized.

4,275,862

WALL HANGING HOLDER FOR ELECTRIC SHAVER

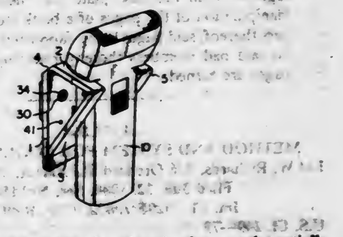
Takashi Takagi, Kadoma, and Takashi Abe, Ashiya, both of Japan, assignors to Matsushita Electric Works, Ltd., Osaka, Japan

Filed Jul. 5, 1979, Ser. No. 55,072

Claims priority, application Japan, Jul. 4, 1978, 53-81776

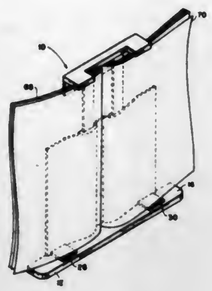
Int. Cl.³ F16M 13/00

U.S. Cl. 248—205 A **8 Claims**



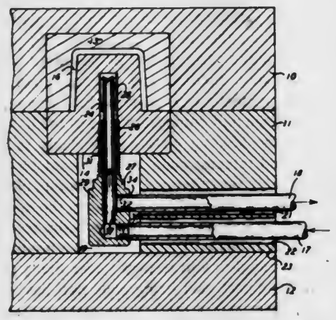
1. A wall hanging holder for electric shaver substantially comprising a fixing plate part for fixing on its one surface said holder to a wall surface or the like, a holding plate part having a hole for holding the shaver, and a bracing plate part for bracing said holding plate part in its position for holding the shaver, said fixing, holding and bracing plate parts being formed with a synthetic resin material into an integral plate in which a first hinge part connects an end of the fixing plate part to an end of the holding plate part foldably in longitudinal direction of said integral plate and a second hinge part connects also foldably the other end of the holding plate part to an end of the bracing plate part so that when the integral plate is bent at said first and second hinge parts the respective plate parts form a right-angled triangle with the holding plate part braced at right angles with respect to the fixing plate part by the bracing plate part, said fixing plate part having means for securing the other end of the bracing plate part at its position of said right-angled triangle, and said bracing plate part having an aperture for enclosing therein a body part of the shaver extending from a shaving head part of the shaver placed above the holding plate part as held in said holding hole thereof.

4,275,863
BOCK HOLDER
Don A. Hartman, 4715 SE. Adam-Apt. 936A, Bartlesville, Okla. 74003
Filed Jan. 2, 1979, Ser. No. 428
Int. Cl.³ A47B 97/04
U.S. Cl. 248—448 4 Claims



1. A book holder comprising:
a horizontally disposed elongated base plate having front and rear edges;
a horizontally disposed elongated top plate having front and rear edges spaced above the base plate;
a frame secured between the rear edges of the base plate and the top plate said frame including means to vertically adjust the top plate with respect to the base plate; and
a first pair of spaced apart upwardly facing friction pad members secured to the upper surface of the base plate and extending slightly above the base plate upper surface, and a second pair of spaced apart downwardly facing friction pad members secured to the lower surface of the top plate and extending slightly below the top plate lower surface, the top plate pad members being spaced closer together than the base plate pad members to facilitate manipulation of the pages of a book from the upper corners thereof, said pages being supported substantially only on said pad members thereby reducing drag when said pages are turned.

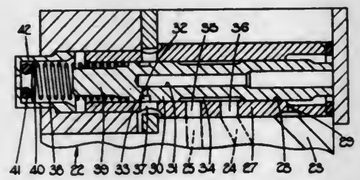
4,275,864
METHOD AND SYSTEM FOR COOLING A MOLD
Les W. Richards, 826 Orchard St., Racine, Wis. 53405
Filed Jun. 12, 1980, Ser. No. 158,726
Int. Cl.³ B29F 1/022, 1/08; B99C 1/06
U.S. Cl. 249—79 5 Claims



1. In a mold cooling system of the type having a mold with an interior threaded opening and a contiguous chamber, and having liquid flow connectors disposed in said chamber and threaded into said opening for the flow of cooling liquid to and from said mold opening, and said mold having two elongate passageways extending transverse to the axis of said mold threaded opening and into said mold chamber, and having a liquid flow tube extending in each of said mold passageways and threaded into one of said connectors for the flow of liquid to and from said mold opening, the improvement comprising said flow connectors including a one-piece junction disposed in said mold chamber and having a threaded stem extending integral on said junction for fluid tightly threading into said mold opening and directing cooling liquid into said mold opening, said one-piece junction including two threaded openings with the axes thereof transverse the axis of said threaded stem for threaded connection with said tubes, said mold opening and said stem having mating tapered threading and said stem also having threads of a maximum pitch diameter the same as the maximum size of those of said opening, said threaded stem having a threaded length extending into said mold opening to be liquid tight therein while said junction two threaded openings are axially aligned with said mold passageways.

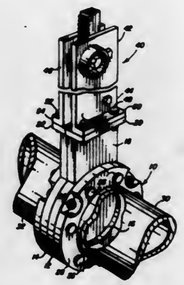
4. In a method of cooling a mold through the steps of introducing a coolant into an opening in a mold by means of liquid flow connectors disposed in said opening and threaded therein and disposed in a chamber contiguous to said opening, and by means of positioning two flow tubes in two passageways extending in the mold to said chamber and then connecting the two flow tubes with the flow connectors, the improvement comprising providing a one-piece junction to serve as some of said flow connectors and having an integral threaded stem thereon and having two threaded openings with the axes thereof transverse to the elongate axis of said threaded stem, removing the extending end of said stem and forming tapered threads on the remaining end of said stem and to a thread size to be fluid tight in said opening, the remaining length of said stem being sufficient to have said stem fluid tightly threaded into said opening while the remainder of said junction is in said chamber and said two threaded openings are axially aligned with said two passageways, and connecting said two tubes to said two threaded openings.

4,275,865
FLUID CONTROL VALVES
Ronald F. Turner, London, England, assignor to Lucas Industries Limited, Birmingham, England
Filed Oct. 19, 1977, Ser. No. 843,453
Claims priority, application United Kingdom, Aug. 24, 1977, 35600/77
Int. Cl.³ F16K 31/122; F02N 17/00
U.S. Cl. 251—63 1 Claim



1. A fluid control valve comprising a body, a bore in the body, a valve member slidable in the bore, a coiled compression spring acting upon one end of the valve member, an opening into said bore whereby in use, fluid pressure can be applied to the valve member to move same in the bore against the action of the coiled spring from an inoperative position to an operative position when a predetermined fluid pressure is attained, a resilient member formed from elastomeric material located in an end of the bore, an abutment member located against said resilient member, the other end of said coiled compression spring engaging with said abutment member, said valve member including a portion extending concentrically into said compression spring and engaging said abutment member when said valve member attains said operative position, the engagement of said portion with said abutment member acting to limit the compression of said coiled compression spring, said resilient member being stressed to allow said valve member to move an additional amount when the fluid pressure increases further, said resilient member acting when the fluid pressure falls, to impart initial movement of the valve member towards the inoperative position.

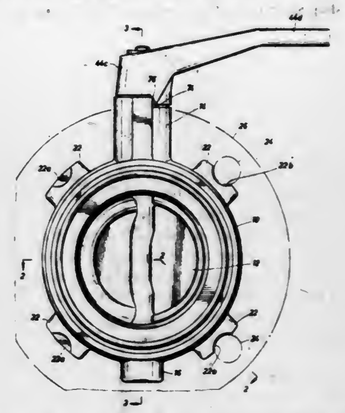
4,275,866
OPERATOR FOR A GATE VALVE
Dwight W. Jamar, Hibbing, Minn., assignor to Newcon Company, Tempe, Ariz.
Filed Mar. 27, 1980, Ser. No. 134,509
Int. Cl.³ F16K 31/54
U.S. Cl. 251—250 4 Claims



1. An unenclosed operator for a gate translatable within the chest of a gate valve to open and close the gate valve by imparting translatory motion to the gate, said operator comprising in combination:
(a) a non-enclosed pedestal mounted upon and extending from the chest of the gate valve and in general alignment with the rectilinear translatory motion of the gate, said pedestal comprising a pair of spaced apart legs located to straddle the gate;
(b) translatable rack means for imparting rectilinear motion to the gate in either of two opposed directions;
(c) rotatable means rotatably supported by said pedestal for engaging and translating said rack means, said rotatable means comprising a pinion gear, a shaft supporting said pinion gear and journals disposed in said pair of legs for journaling said shaft;
(d) bearing means disposed intermediate said pair of legs for maintaining said rack means in engagement with said pinion gear and for maintaining said pair of legs positionally spaced with respect to one another;
(e) said shaft including an end extending lateral to one leg of said pair of legs;
(f) means for disengageably engaging said shaft end with a special tool to impart rotary motion to said shaft; and
(g) shroud means for limiting access of other than the special tool to said shaft end.

4,275,867
VALVE ASSEMBLY AND METHOD
Petrus J. R. Schils, Breda, Netherlands, assignor to Keystone International, Inc., Houston, Tex.
Filed Mar. 17, 1978, Ser. No. 887,513
Claims priority, application Netherlands, Mar. 17, 1977, 7702861
Int. Cl.³ F16K 31/00
U.S. Cl. 251—297 15 Claims

1. A disc-type valve assembly comprising:
a tubular valve body having a flowway therethrough and a radial passageway communicating with said flowway;
a disc-like valve element disposed within said flowway;
a shaft member having one end directly rigidly connected to said valve element by a pre-stressed self-connection, member being rotatably mounted in said valve body
a handle connected to said shaft member whereby said handle and said shaft member form a rotating body, at least a portion of said handle being disposed outwardly of said valve body, and said rotating body being rotatably mounted in said radial passageway;
an integral positioning sleeve formed of resilient material interposed in tight, pre-stressed relation between said valve body and said rotating body in said radial passageway, said positioning sleeve and one of said bodies having interengaged retainer formations preventing relative rotation therebetween, and said positioning sleeve and the other of said bodies having interengageable radially projecting and receiving detent formations for preventing relative rotation between said positioning sleeve and said other body under torque loads below a pre-determined magnitude, the degree of resiliency of said positioning sleeve being substantially greater than those of said bodies whereby said positioning sleeve is deformable under torque loads greater than or equal to said magnitude to permit such rotation.

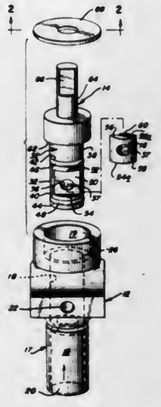


4,275,868
VALVE WITH BODY AND STEM OF PLASTIC MATERIAL
Jerry L. Crone, Paris, Ill., assignor to Unarco Industries, Inc., Chicago, Ill.
Continuation of Ser. No. 794,727, May 9, 1977, abandoned. This application Nov. 29, 1978, Ser. No. 964,618
Int. Cl.³ F16K 5/00
U.S. Cl. 251—310 7 Claims

1. In a two-element valve member for liquid under pressure that includes: a body member as one element with an elongated flow chamber therein; a rotatable controller member as the second element with an elongated cylindrical flow plug of a size adapted for positioning within said flow chamber; there being inlet and outlet flow openings including a lateral flow opening in said body member, and inlet and outlet flow openings including a lateral flow opening in said flow plug, such that the lateral flow openings of said plug and body member may be selectively positioned in a flow relationship or a no-flow relationship to each other, upon effecting rotational movement of the second element relative to said first element; the improvement comprising, in combination: at least one of said members being formed of plastic; a pair of longitudinally spaced, cylindrical, circumferential lands defined on one of said members, a pair of longitudinally spaced circumferential seals being provided on the other member

and adapted for engagement with said lands, to provide spaced rotational seals, between said members in the flow chamber, located on opposite sides of said lateral flow openings and operative to prevent leakage therepast of liquid under pressure;

a recess defined in the exterior of said rotatable cylindrical flow plug, said recess being of channel-shaped cross-section and extending chordally of the cylindrical flow plug with the web of the channel-shaped recess being flat and intersecting and completely surrounding a terminus of said lateral flow opening therein, a wiper seal positioned in said recess and being of a size and shape to provide a planar interior surface to engage said web of the channel-shaped recess in the flow plug to surround and bound said



terminus of said lateral opening in the flow plug and being of a dimension to sealingly engage both the portions of the recess that surround and define the terminus of the lateral flow opening in the flow plug and the annular wall portions of the cylindrical flow chamber that surround the lateral flow opening in said body member when the two said lateral flow passageways are aligned in a flow relationship, and to sealingly engage against an annular wall portion of the cylindrical flow chamber that is adjacent but circumferentially offset from the lateral flow opening in said body member when the two said lateral flow passageways are in a no-flow relationship, so that no flow will pass through the lateral flow openings in the flow plug and the body member.

4,275,869

AIR CUSHION LIFTING DEVICE

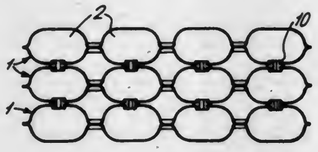
Harold J. Clements, Canterbury, England, assignor to Frank B. Dehn & Co., London, England

Filed Jan. 2, 1979, Ser. No. 518

Claims priority, application United Kingdom, Jan. 5, 1978, 377/78

Int. Cl.³ B66F 3/24

U.S. Cl. 254—89 H 5 Claims



1. An air cushion lifting device comprising a plurality of layers of inflatable cushions, each layer comprising a plurality of inflatable compartments, and air supply means for supplying air to said compartments for enabling all of said compartments to be inflated substantially in concert, the compartments being interconnected in the vertical direction by restricted passages and so arranged that, in use, a load supported only on the device remains substantially stable as the device is inflated to elevate the load.

4,275,870

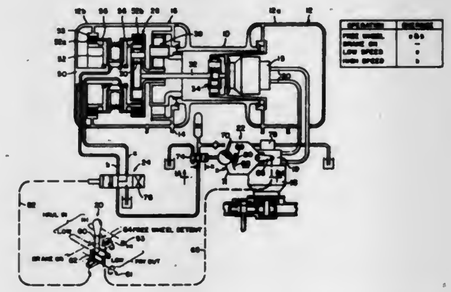
APPARATUS FOR CONTROLLING SPEED AND DIRECTION OF A VEHICULAR TOWING WINCH

Richard C. Henneman; Kenneth A. Burden, both of Bellevue, and Joseph R. Bruce, Seattle, all of Wash., assignors to PACCAR Inc., Bellevue, Wash.

Division of Ser. No. 733,150, Oct. 18, 1976, Pat. No. 4,185,520. This application Sep. 24, 1979, Ser. No. 78,580

Int. Cl.³ B66D 1/08, 1/44

U.S. Cl. 254—361 4 Claims



1. A mechanical-fluid control mechanism for operating a hydraulically powered and operated winch in which the winch is powered by an hydraulic motor driven by an hydraulic pump and includes input and output power fluid lines to said motor, and the winch further has a fluid control circuit with two control fluid lines which when selectively energized will cause the winch to provide a variety of operating functions, the improvement comprising:

a manually positionable lever movable into low speed haul-in, low speed pay-out, high speed haul-in, high speed pay-out, brake-on and freewheel positions;

first valve means having a first valve core movable for energizing said two control fluid lines of said hydraulic operating circuit, first link means coupling said first valve core with said lever;

brake valve means in series with said first valve means in said hydraulic operating circuit and having a second valve core movable between a brake-on position blocking control fluid to said first valve core and a brake-off position directing control fluid to said first valve core, second link means coupled to said lever, and cam means operatively coupled to said second link means and to said second valve core for actuating said second valve core in response to movements of said second link;

winch power control means operatively controlling the power fluid within said motor input and outlet lines; and

lost-motion linkage means coupled between said cam means and said winch power control means for actuating said winch power control means only after said cam means moves said second valve core to allow control fluid to pass to said first valve core, whereby the brake is unlocked prior to delivering power fluid to initiate one of said winch operating functions and is prevented from locking until the winch power control means returns the power fluid to a neutral non-flowing condition.

4,275,871

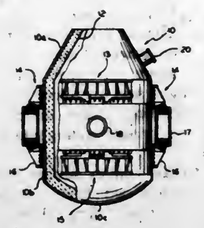
METALLURGICAL VESSEL AND SUPPORTING MEANS

Rashed N. Nagati, Mars, Pa., assignor to Pennsylvania Engineering Corporation, Pittsburgh, Pa.

Filed Jul. 18, 1980, Ser. No. 169,965

Int. Cl.³ C21C 5/46

U.S. Cl. 266—243 10 Claims



1. A metallurgical vessel having a longitudinal axis,

a trunnion support at least partially surrounding said vessel and having upper and lower surfaces,

upper and lower bracket means mounted on said vessel and being supported on the upper and lower surfaces of said trunnion support respectively,

said trunnion support being adopted to be tilted for tilting said vessel about a generally horizontal axis to permit molten metal to be discharged from said vessel, said bracket means supporting said vessel in its upright position and when tilted,

said vessel being subject to longitudinal and radial expansion and contraction relative to said trunnion support when molten metal is processed therein whereby the surface of said vessel adjacent the upper and lower surfaces of said trunnion support moves outwardly and away from said trunnion support surfaces at an inclined angle,

said lower bracket means engaging said trunnion support along a surface whose angle relative to a line normal to the longitudinal axis of said vessel is substantially equal to:

$$\tan^{-1}\left(\frac{\Delta H}{\Delta R_b}\right)$$

where:

$$\Delta H = H\left[B\left(\frac{Tst + Tsb}{2} - Ta\right) + \frac{2750 + N\left[180 + .82\left(\frac{Tst + Tsb}{2} - 455\right)\right]}{E}\right]$$

$$\Delta R_b = R_c\left[B(Tsb - Ta) + \frac{2416 + .697N[180 + .82\,(Tst - 455)]}{E}\right]$$

and where:

R_c = Initial outside radius of shell at room temp.	in.
ts = actual thickness of shell	in.
$N = \frac{R_c}{ts}$	
Tst = Temp. of shell at top brkt. during operation	°F.
Tsb = Temp. of shell at bottom brkt. during operation	°F.
E = Young's modulus of elasticity	Lbs/in.²
B = Coeff. of linear therm. expansion of steel	in./(in. °F.)
H = Effective dist. between top and bottom sup. brkts.	in.
ΔRb = Radial displacement at bottom support bracket	in.
ΔH = Longit. displacement of shell between top and bottom brackets	in.
Ta = Ambient shop temp.	°F.

4,275,872

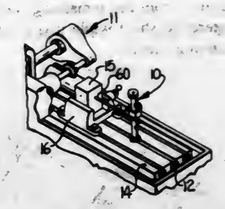
CLAMPING APPARATUS

Charles Mullis, Rte. 6, Box 683, Monroe, N.C. 28110

Filed Sep. 24, 1979, Ser. No. 78,226

Int. Cl.³ B23Q 3/00

U.S. Cl. 269—72 8 Claims



1. An apparatus for selectively securing two members in a predetermined positional relationship, and characterized by the ability to permit the ready release and resecurement of the two members in a new positional relationship, and comprising

a generally U-shaped clamping block having a first opening extending therethrough at the bight of the U, a pair of parallel clamping arms formed by the free ends of the U, and a second opening extending transversely through said two arms in a direction generally perpendicular to the axis of said first opening,

a clamping member disposed through said second opening and having a head at one end, an externally threaded portion at the other end, a third opening extending transversely through said head, and an axially directed slot extending through said head and disposed to include the axis of said third opening,

a post received in said first opening,

means for releasably securing said post in an upright position to a slot in a supporting surface,

a rod received in said third opening,

a nut threadedly received on said threaded end of said clamping member, and

cooperating surface means on said clamping block and said clamping member for closing said slot and thereby clamping said rod in said third opening when the clamping member is drawn into the second opening by the tightening of said nut, and whereby the tightening of the nut serves to concurrently clamp the post in said first opening and said rod in said third opening.

4,275,873

PROCESS AND EQUIPMENT FOR THE OPENING OF FOLDED PROOF SHEETS

Horst Rathert, Minden, Fed. Rep. of Germany, assignor to Rahdener Maschinenfabrik August Kolbus, Westphalia, Fed. Rep. of Germany

Filed Jan. 27, 1979, Ser. No. 52,804

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1978, 2829867

Int. Cl.³ B65H 39/02

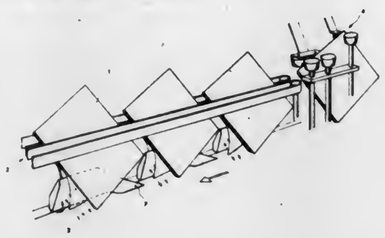
U.S. Cl. 270—54 15 Claims

1. A method for serially separating the pages of signatures composed of folded rectangular sheets which have been stacked one within the other to form a substantially planar stack or sheets comprising the steps of:

preparing the stack for transport along a predetermined pathway by placing the stack of folded sheets in a generally vertical orientation substantially parallel to the direction of transport;

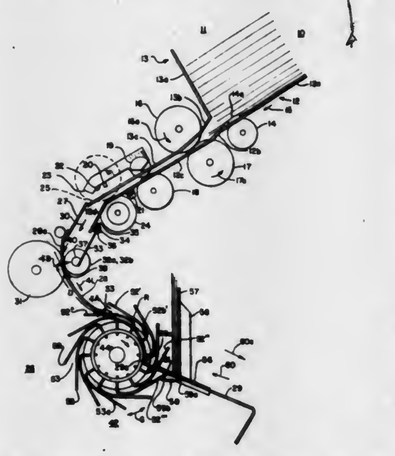
said preparing step further including the step of positioning one of the corners of the stack lower than the remaining corners;

transporting the rotated vertical stack of folded sheets along said predetermined pathway;
establishing pressurized gas streams at a plurality of spacially separated locations along the predetermined pathway, the gas streams being aimed so as to at least pass partly adjacent to said one corner of the stack of folded sheets;
conveying the vertical stack of folded sheets past a first gas stream whereby the flow of the first stream will produce a lifting force and the outermost sheet will be at least partially separated from the remaining sheets;
catching the outermost sheet while it is partially separated from the remaining sheets;



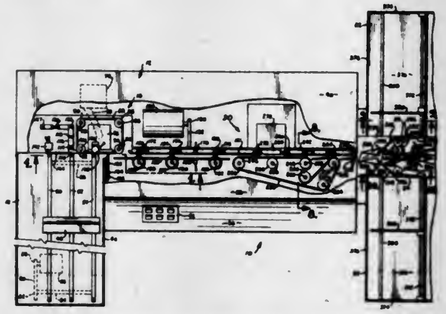
guiding the caught sheet away from the remaining sheets;
passing a second gas stream between the caught sheet and the remaining sheets whereby the flow of the second stream will produce a lifting force which will act upon the next outermost sheet in the stack;
repeating the steps performed on the first sheet on the second and subsequent sheets to serially separate sheets from the moving stack; and
removing the stack of sheets from the pathway once the desired number of sheets have been separated from the stack.

4,275,874
EXTENDED STACKER
John A. DiBlasio, Medford, N.J., assignor to Brandt-Pra, Inc., Cornwells Heights, Pa.
Filed Feb. 21, 1979, Ser. No. 13,558
Int. Cl.³ B65H 29/40, 31/14
U.S. Cl. 271—4 **23 Claims**



18. Apparatus for turning and stacking sheets, comprising:
first accelerating means for receiving and accelerating sheets and for moving said sheets in a first direction to sheet-turning means;
said sheet-turning means including a first guide plate adapted to be engaged by said sheets for changing the direction of movement of said sheets to a second direction;
said sheet-turning means further including a curved guide plate having a concave surface portion and a convex surface portion and second accelerating means partially extending through said concave surface portion and cooperating with said curved guide plate for further changing the direction of movement of said sheets to a third direction so that said sheets are turned at least 90° relative to the sheets moving in said first direction;
said second accelerating means cooperating with said curved guide plate for accelerating said sheets in said third direction; and
means adjacent to said convex surface portion for loosely receiving and holding said sheets in a curved configuration and transferring said turned sheets to a stacker tray which supports said sheets in an upright fashion.

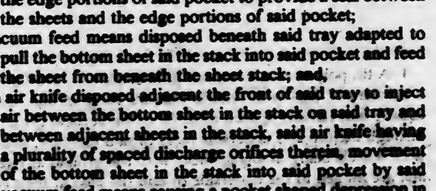
4,275,875
MAIL SORTING MACHINE
Roy Akers, Lafayette County, Mo., assignor to Bell & Howell Company, Chicago, Ill.
Filed Dec. 28, 1978, Ser. No. 973,926
Int. Cl.³ B65H 3/12, 31/06, 31/24
U.S. Cl. 271—5 **4 Claims**



4. In a mail sorting apparatus of the type operable to sort a plurality of envelopes in accordance with an indicator thereon, the improvement therein of a storage bin comprising
a floor surface;
a side retaining wall located adjacent to said floor surface and extending upwardly therefrom;
a movable means mounted relative to said floor for assisting in maintaining the envelopes stored in said bin in a preselected plane; and
a raised rib protruding upwardly from said floor surface in said storage bin and operable to orient said envelopes in said bin in an offset position so that simultaneous full edge contact with both the bin floor and the retaining wall is precluded.

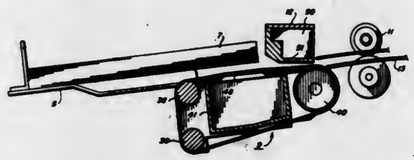
4,275,876
ELECTROPHOTOGRAPHIC COPYING APPARATUS
Masaru Imaizumi, Shinshiro, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Apr. 16, 1979, Ser. No. 30,648
Claims priority, application Japan, Apr. 15, 1978, 53-50115[U]
Int. Cl.³ B65H 31/22, 31/00
U.S. Cl. 271—8 R **18 Claims**

18. An electrophotographic copying apparatus which comprises:
a body proper and a copy paper transporting unit which cooperate with each other to provide a path for a copy paper through said apparatus, said body proper including a copy paper storing means provided with a feeding means for feeding said copy paper into said apparatus, said path extending from immediately in front of said feeding means to a discharge end in said transporting unit, said transporting unit being mounted in said body proper for partial withdrawal from said body proper in the direction of feeding of said copy paper;
a first locking means on said body proper;



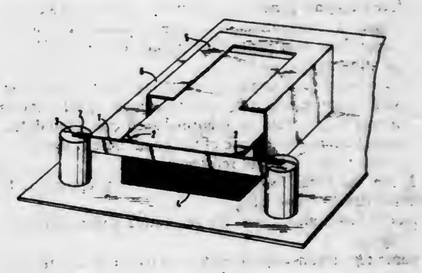
a second locking means on said transporting unit and being releasably engagable with said first locking means;
a rotatable means provided on said body proper at a position vicinal to said discharge end; and
a flexible transmitting means cooperating with said rotatable means and connected to said second locking means to release said second locking means from engagement with said first locking means and withdraw said transporting unit from said body proper as said rotatable means is rotated in a single continuous action.

4,275,877
INTERRUPTED JET AIR KNIFE FOR SHEET SEPARATOR
Morton Silverberg, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.
Filed Oct. 3, 1979, Ser. No. 81,592
Int. Cl.³ B65H 3/12, 3/48
U.S. Cl. 271—166 **2 Claims**



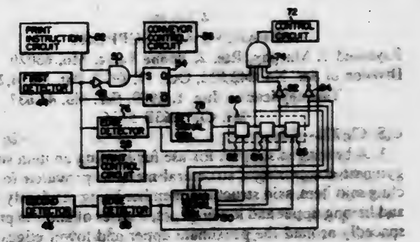
1. A bottom sheet separator-feeder for separating and forwarding sheets seriatim comprising:
a stack tray adapted for supporting a stack of sheets to be fed, said tray having a depressed pocket formed therein so that the major portion of the stack weight is supported by the edge portions of said pocket to provide a seal between the sheets and the edge portions of said pocket;
vacuum feed means disposed beneath said tray adapted to pull the bottom sheet in the stack into said pocket and feed the sheet from beneath the sheet stack; and,
an air knife disposed adjacent the front of said tray to inject air between the bottom sheet in the stack on said tray and between adjacent sheets in the stack, said air knife having a plurality of spaced discharge orifices therein, movement of the bottom sheet in the stack into said pocket by said vacuum feed means causing a pocket shaped depression in the bottom sheet, thereby providing a space between the bottom sheet and the remainder of the stack for injecting air therein from said air knife, the plurality of discharge orifices in said air knife providing a plurality of diverging and expanding air streams to induce velocity and pressure gradients in the space between the bottom sheet and the remainder of the stack above said pocket to provide optimized air flow over the top of the bottom sheet for supporting the remainder of the stack spaced from the bottom sheet.

4,275,878
DEVICE FOR SEPARATING SHEETS
Klaus-Jürg Ruschepaul, Hattersheim, Fed. Rep. of Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Oct. 15, 1979, Ser. No. 84,567
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1978, 2845962
Int. Cl.³ B65H 3/56
U.S. Cl. 271—170 **10 Claims**



1. A device for separating sheets from a stack of sheets, comprising:
a base for supporting the stack of sheets;
a bar extending transversely along one edge of the stack of sheets;
two members attached to said bar at a distance from one another corresponding to the width of the sheets for holding down the corners of the sheets;
two guide elements mounted on said base on opposing sides of the stack of sheets for vertically displaceably receiving said bar and guiding said bar along a vertical path; and
wherein each of said corner hold-down members comprises two angle sides forming an angular separating corner and a diagonal brace extending transversely to the angle sides.

4,275,879
ABNORMAL FEED CONDITION-DETECTING APPARATUS FOR A PRINTING DEVICE
Mitsuo Yamashita, Tokyo, and Osamu Kondo, Kawasaki, both of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan
Filed Oct. 3, 1979, Ser. No. 81,586
Int. Cl.³ B65H 43/08, 43/02
U.S. Cl. 271—259 **4 Claims**



1. An abnormal feed condition-detecting apparatus for a printing device comprising:
record instruction means for generating a record instruction signal;

paper feed means connected to said record instruction means to send out papers one by one according to said record instruction signal;

conveying means provided adjacent to said paper feed means and extending so as to convey the paper from said feed means to the outside of the printing device;

detecting means provided on one end of said conveying means which is near to said paper feed means to generate a detection signal according to the passage of the paper;

image forming means disposed adjacent to said conveying means to form an image on the paper being conveyed according to the detection signal of said detecting means;

count means connected to said record instruction means and detecting means to count a time from the generation of the record instruction signal to the generation of the detection signal;

reference signal generating means for generating a reference signal corresponding to a time required to deliver the paper from said paper feed means to the outside of the printing device; and

an abnormal feed condition-detecting means connected to said count means and said reference signal generating means to generate an abnormal feed condition-detecting signal upon coincidence of the count output signal of said count means and said reference signal.

3. An abnormal feed condition-detecting apparatus for a printing device comprising:

record instruction means for generating a record instruction signal;

paper feed means connected to said record instruction means to send out papers one by one according to the record instruction signal;

conveying means provided adjacent to said paper feed means and extending so as to convey the paper from said feed means to the outside of the printing device;

first detecting means provided on one end of said conveying means which is near to said paper feed means to generate a first detection signal according to the passage of the paper;

image forming means disposed adjacent to said conveying means to form an image on a conveying paper according to the detection signal of said detecting means;

second detecting means provided on the other end of said conveying means which is near to the outside of the printing device to generate a second detection signal according to the passage of the paper;

means, connected to said first and second detecting means, for monitoring the number of papers on said conveying means according to the first and second detection signals and for generating a third detection signal when the number of conveying papers is decreased by one; and

abnormal feed condition-detecting means connected to said record instruction means and monitoring means to generate an abnormal feed condition-detecting signal upon coincidence of said record instruction signal, said second detection signal and said third detection signal.

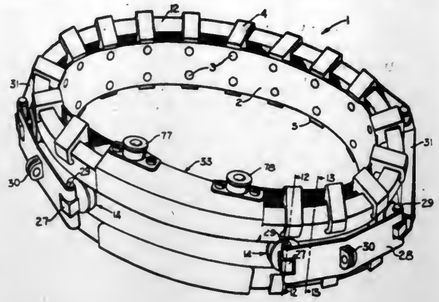
4,275,880

BEARING AND SUPPORT

Raymond J. Murphy, Rte. 2, Bonne Terre, Mo. 63020

Division of Ser. No. 842,532, Oct. 17, 1977, Pat. No. 4,204,719.
This application Jan. 1, 1979, Ser. No. 44,637
Int. Cl.[3] A63B 5/16
U.S. Cl. 272—93 26 Claims

1. A bearinged support for use for holding an item such as a gymnast comprising a structural member provided for encircling said item, said structural member being resiliently flexible and having upper and lower edges, a series of keepers provided spacedly around the proximate upper and lower edges of said structural member, a pair of races, one of each race being held by the keepers associated with the respective upper and lower member edges, at least a pair of bearings operatively associated with the races of said support, each bearing comprising a pair of rotatable members forming a peripheral configuration engageable with the upper and lower races, each pair of members being rotatable about a common axis and capable of simultaneously turning in opposite directions, a shaft having the mem-



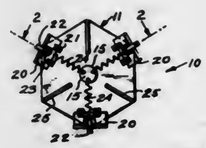
bers rotatably mounted thereon providing a common axis about which the said members turn, and bearing means arranged intermediate the rotatable members and their shaft to facilitate the turning of said members therearound.

4,275,881

TILT POLE

W. Ted Armstrong, P.O. Box 40962, San Francisco, Calif. 94140

Filed Sep. 4, 1979, Ser. No. 71,832
Int. Cl.[3] A63B 25/04; A63G 31/08
U.S. Cl. 272—114 3 Claims



1. A tilt pole device, comprising, in combination, a flat base, a plurality of legs with wheels that are three in number, are equally and radially spaced apart from the vertical center axis through the top and underside faces of said flat base, said legs with wheels being in engagement with the ground at one end and are hinged to the underside of said flat base at their opposite ends by a hinge, and are urged inwards toward said vertical axis in said flat base by spring means, said spring means providing the shifting of said flat base from its horizontal plane, when the user mounted upon said flat base imparts a rocking motion to said flat base omnidirectionally by shifting their weight similarly, while gripping a pole fixedly secured at its lower portion to said flat base.

4,275,882

HOME EXERCISE GYM

Richard W. Grenzer, Boone, and Virgil L. Long, Sr., Jefferson, both of Iowa, assignors to AMF Incorporated, White Plains, N.Y.

Filed Mar. 27, 1980, Ser. No. 134,720
Int. Cl.[3] A63B 21/08, 23/02
U.S. Cl. 272—117 4 Claims



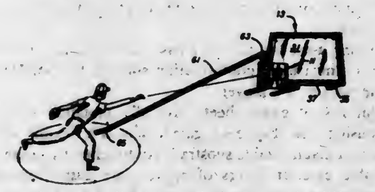
1. An exercise device comprising a vertical frame, a manually operable exercise lever pivoted at its inner end to said frame, a piston-cylinder hydraulic type shock absorber having a pivot connection at one of its ends to said frame and at its other end to said lever, means for adjusting said other end pivot connection along the length of said lever to vary the resistive force of said shock absorber to movement of said lever, and said one end pivot connection being disengagable from said frame and a cradle on the said lever for retaining said shock absorber solely on said lever whereby said shock absorber operates as a dead weight resistive force to movement of said lever.

4,275,883

PITCHING TARGET WITH BALL RETURN

Anthony J. Grimaldi, 25 Mountain View Ave., Kingston, N.Y. 12401, and Anthony Fabiano, Kingston, N.Y., assignors to Anthony Grimaldi, Kingston, N.Y.

Filed Oct. 9, 1979, Ser. No. 82,694
Int. Cl.[3] A63B 61/00
U.S. Cl. 273—26 A 2 Claims



1. A pitching target with ball return for practice by a pitcher in pitching baseballs comprising:

a vertically-oriented pitching indicator including a frame and three horizontal cords all located within the same plane and mounted on the frame, said frame being adjustable in height to relocate separately the height of each horizontal cord;

three flaps hung on each of the three horizontal cords, each group of three flaps including a left flap, a right flap and a center flap, each center flap being located between the right and left flaps, all of the right flaps being vertically aligned with one another, all of the center flaps being vertically aligned with one another, all of the left flaps being vertically aligned with one another, all of the left and right flaps having substantially the same area, all of the center flaps having substantially the same area and being larger in area than the left and right flaps, all of the center and left and right flaps having the same vertical dimension;

a backstop including a frame with a canvas mounted therein, said backstop being substantially parallel to and spaced from said pitching indicator, said backstop having a lower edge and two side edges;

a collecting trough including a concave elongated member located adjacent the lower edge of said backstop toward said indicator screen and adapted to receive baseballs hitting said backstop, said collecting trough being inclined toward one side edge of said backstop;

a conveyor means having an upper end and a lower end, said lower end of said conveyor means being located adjacent the lower end of said collecting trough, said conveyor means including a conveyor belt mounted on an upper pulley and a lower pulley, said upper pulley being located substantially above said lower pulley, said conveyor belt having a plurality of cups mounted thereon and adapted to receive baseballs from the collecting trough, said conveyor means being inclined at an angle from the vertical;

a motor means for driving said conveyor means; and

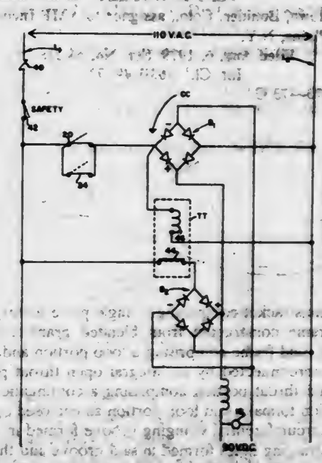
a return trough having an upper end and a lower end, said upper end being located adjacent to the upper end of said conveyor means and adapted to receive baseballs from the cups on the conveyor belt, said return trough being extended to the pitcher, said upper end of said return trough being substantially above said lower end of said return trough.

4,275,884

METHOD AND APPARATUS FOR PERIODIC PARTIAL DEACTIVATION OF AN AUTOMATIC PINSETTER

Ronald L. Smith, Boulder, Colo., assignor to Century International Corp., Denver, Colo.

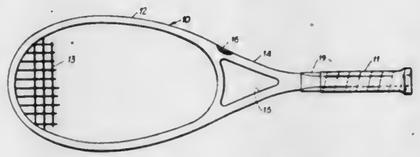
Filed Jan. 16, 1978, Ser. No. 869,800
Int. Cl.[3] A63D 5/00
U.S. Cl. 273—43 A 10 Claims



10. An improved method for use in periodically activating and selectively or temporarily deactivating the pin retrieval function of an automatic pinsetter device of the type having: a pin-raking function cyclically responsive to each ball thrown, a pin-storage function cyclically operable to load and place a full set of pins on the alley after each occurrence of a strike or completion of a bowled frame, drive means, and a normally disengaged magnetic clutch engagable to form an operative drive connection between said drive means and a pin retrieval subassembly which operates to accomplish the pin retrieval function; said improved method comprising:

(1) providing a main current path and an alternate current path connected in parallel therewith, each connected to a source of electrical energy and each operatively connected in series with said magnetic clutch;
(2) providing a branch circuit path connected in series with said main current path and further connected between said main current path and said alternate current path;
(3) actuating said magnetic clutch into an energized and engaged position via the application of current through either of said main and said alternate current paths to thereby effect the instantaneous activation of the pin retrieval function;
(4) utilizing the pin-raking cycle and the pin-storage cycle operations to control the operation of said main current path;
(5) initiating the operation of the pin retrieval function simultaneously with the commencement of the pin-raking cycle by actuating said magnetic clutch into an energized and engaged position via said main current path;
(6) simultaneously energizing said branch circuit path and thereafter utilizing the said branch circuit path to establish and control the operation of said alternate current path;
(7) utilizing said alternate current path as a holding circuit for maintaining operative said pin retrieval function for a time interval following the opening of said main current path and the completion of both the pin-raking and pin-storage cycles of operation of said automatic pinsetter device; and,
(8) commencing said time interval at a time at which said main current path opens and continuing said time interval until the time at which said alternate current path opens whereupon the said alternate current path constituting said holding circuit becomes inoperative, to cease actuating said magnetic clutch to said energized and engaged position, and ceases to maintain operative said pin retrieval function.

4,275,885
TENNIS RACKET
John G. Howe, Boulder, Colo., assignor to AMF Incorporated, White Plains, N.Y.
Filed Aug. 6, 1979, Ser. No. 64,318
Int. Cl.³ A63B 49/02
U.S. Cl. 273—73 C **1 Claim**



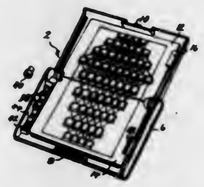
1. A tennis racket comprising a single piece unitary hollow tubular frame constructed from blended graphite-fiberglass composite, said frame comprising a loop portion and a handle portion interconnected by an integral open throat portion, a part of said throat portion comprising a continuation of said loop portion to make said loop portion an enclosed open loop, an outer circumferential stringing groove formed in said loop portion, stringing holes formed in said groove and throat portion part, tennis racket strings extending through said holes lengthwise and crosswise said enclosed open loop, all of said loop, handle and throat portions and said tennis strings being coplanar, said enclosed open loop having an oblong oval shape, said lengthwise strings being about 14" long and said crosswise strings being about 8" long whereby the ratio of the length to the width of the inner strung area of said oblong oval shape is about 1.75 to 1, and said strung area of said oblong oval shape comprising about half of the total length of said racket and said handle and throat portion together comprising the remaining other half of said racket.

4,275,886
GAME TARGET
Robert W. Bannon, 192 Afton Ave., Youngstown, Ohio 44512
Filed Sep. 7, 1979, Ser. No. 73,262
Int. Cl.³ A63B 69/36
U.S. Cl. 273—178 R **3 Claims**



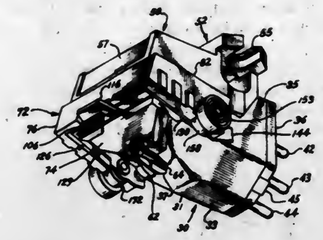
1. A game target device comprising a soft flexible foam base with an elevated flat target surface, an access ramp and a thin soft smooth covering on both the target surface and the access ramp, means securing the covering to the target surface and the access ramp, a cut in an opening in said target surface and base, the soft flexible foam of the base arranged to resiliently mount the cup in said opening, a U-shaped soft flexible foam retaining wall of a height greater than the height of said base secured to the peripheral edges of the base from each end of said access ramp so as to extend above said target surface, said access ramp formed of soft flexible foam.

4,275,887
PORTABLE MULTIPLE GAME ASSEMBLY
Masanobu Tateyama, Matsudo, Japan, assignor to Takara Co., Ltd., Tokyo, Japan
Filed Oct. 5, 1979, Ser. No. 82,060
Int. Cl.³ A63F 3/00; B42F 17/20
U.S. Cl. 273—239 **10 Claims**



1. An approximately pocket size multiple toy game assembly comprising:
a housing assembly having a base member and a pivotal lid of a dimensional configuration suitable for portability in the pocket of a player;
a plurality of game sheets pivotally mounted within the housing assembly, each game sheet is a flexible laminate with a magnetizable substrate sandwiched by nonmagnetizable exterior layers of appropriate game indicia, the respective game sheets are stored in a stack mode when the housing assembly is closed and at least one surface of each game sheet forms a portion of a game board;
means for selecting a particular game sheet including an exterior lever capable of being moved to a predetermined position adjacent appropriate indicia on the housing assembly;
means responsive to the position of the lever for securing at least one game sheet to the lid whereby the opening of the housing assembly automatically provides a game board formed from a pair of game sheets;
a plurality of game pieces containing magnets for adhesion to the magnetizable substrate; and
a storage box assembly mounted on the base member adjacent one side of the stacked game sheets for holding the game pieces.

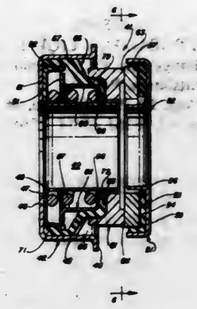
4,275,888
STABILIZING AND STATIC REMOVING ATTACHMENT FOR PHONOGRAPH PICKUP CARTRIDGE
Carl R. Anderson, Wilmette; James J. Wellwood, Elmhurst, and Lawrence R. Happ, Mundelein, all of Ill., assignors to Shure Brothers, Inc., Evanston, Ill.
Continuation of Ser. No. 874,055, Feb. 1, 1978, abandoned. This application Oct. 30, 1979, Ser. No. 89,377
Int. Cl.³ G11B 3/58
U.S. Cl. 369—74 **18 Claims**



1. An attachment for damping the low frequency tracking resonance of a stylus carried by a stylus support means capable of biasing the stylus into engagement with the grooves located on the planar surface of a rotating phonograph disc recording by the application of a predetermined tracking force to the stylus, said attachment comprising:
brush means having sufficient stiffness to engage the recording disc grooves as said disc is rotated and being fabricated at least in part from bristles having free ends capable of extending into the disc grooves for following the disc grooves as said disc is rotated;
biasing means suitable for causing the brush means to be biased toward the disc with a bias force less than the predetermined tracking force and greater than the minimum force needed to cause the brush means to follow warps of the disc surface; and
stabilizing means for coupling the stylus support means to the brush means through a predetermined mechanical resistance capable of damping vibrations occuring perpendicular to the planar surface of the disc whereby low frequency tracking resonance of the stylus caused by vibrations of the stylus support means perpendicular to the planar surface of the disc can be damped, said stabilizing means comprising bearing means for coupling the brush means to the stylus support means, said bearing means defining an axis of rotation and comprising cylindrical consting bearing surfaces which move relative to each other in a direction parallel to the axis of rotation whereby the vibrations parallel to the surface of the disc recording are damped, and a viscous fluid for damping the movement of the bearing means, said viscous fluid extending between the bearing surfaces, whereby the mechanical resistance of the bearing means is maintained constant throughout any degree of rotation of the bearing means.

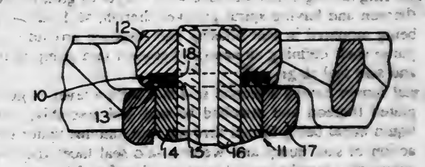
9. An attachment for removing static electricity from a disc recording as the grooves of the disc are being engaged by a phonograph cartridge containing an electrical transducing coil connected to signal ground through a conductor, said attachment comprising:
a brush fabricated at least in part from carbon bristles having free ends capable of engaging the inside of the disc grooves;
biasing means suitable for causing the brush to be biased toward the disc with a predetermined force; and
means for electrically connecting the brush to the conductor, said means for electrically connecting including bearing means operatively connected to the cartridge, said bearing means containing a conductive silicon fluid, whereby the movement of the cartridge relative to the disc is damped and whereby the static electricity is removed from the grooves.

4,275,889
SEAL CONSTRUCTION
Gordon K. Butler, Columbus, and Robert T. Jefferson, Crothersville, both of Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.
Continuation of Ser. No. 894,121, Apr. 6, 1978, abandoned. This application Oct. 11, 1979, Ser. No. 83,684
Int. Cl.³ F16J 15/36
U.S. Cl. 277—42 **29 Claims**



1. In a seal including a stationary first part and a second part subjected to rotational torques, the improvement of a bellows comprising a fixed end secured to said first part and a movable end secured to said second part, a central section connecting said fixed and movable ends, said ends and said central section being generally annular, and a plurality of ribs formed on said central section and extending generally tangentially between said fixed and movable ends.

4,275,890
SEAL WITH STIFFENED FORCE-TRANSMITTING PORTION
Harold L. Reiserne, Dunlap, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.
PCT No. PCT/US 79/00905, § 371 Date Jul. 16, 1979, § 102(e) Date Jul. 16, 1979, PCT Pub No. WO81/00293, PCT Pub Date Feb. 5, 1981
This PCT application filed Jul. 16, 1979, Ser. No. 98,147
Int. Cl.³ F16J 15/32, 15/34
U.S. Cl. 277—94 **29 Claims**



1. In a joint (11) having a first member (12) defining a cylindrical axially outwardly opening recess (13) having an end wall (8) and an axially extending circumferential wall (9), a second member (14) adjacent said first member and defining a sealing surface (15) confronting said recess, said members being associated to have relative rotational movement about the axis of the recess and relative axial movement toward and from each other, an improved sealing structure (16,119) in said recess for movably sealing said members, comprising:
an annular seal (19,119) having a radially outer base portion (20,120) received coaxially in said recess (13), an annular sealing portion (21,121) defining a lip (22,122) sealingly engaging said confronting sealing surface (15), and a flexible connecting portion (23,123) extending between said

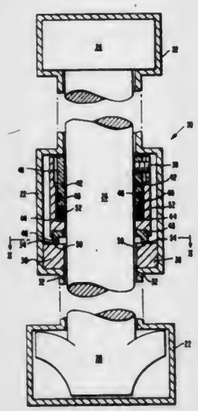
base portion (20,120) and sealing portion (21,121) for movably supporting said sealing portion;
an annular rigid stiffener (31,131) coaxially in said seal sealing portion (21,121) and having a projecting portion (30,130) extending inwardly away from said confronting sealing surface (15); and
spring means (24,124) coaxially in said recess and acting between said first member and said stiffener projecting portion to urge said lip into maintained movable sealed engagement with said confronting surface while sumultaneously permitting relative axial movement between said members.

4,275,891

FACE TYPE SHAFT SEAL FOR LIQUID METAL PUMPS

David J. Boes, Monroeville, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 14, 1979, Ser. No. 66,370
Int. Cl.³ F16J 15/34, 15/40
U.S. Cl. 277—96.1 7 Claims



1. A liquid metal pump comprising:
a housing;
a motor enclosed within said housing;
a pump shaft connected at one end to said motor;
an impeller connected to the other end of said pump shaft for circulating a liquid metal under the action of said motor;
a seal assembly mounted on said pump shaft;
a seal ring having a first seal face with a layer of gold plated thereon and having spiral grooves therein, said seal ring being mounted in said housing and disposed around said pump shaft defining an annulus between said pump shaft and said seal rings; and
a seal runner having a second seal face with a layer of gold plated thereon and attached to said seal assembly, said liquid metal being forced through said annulus under the action of said pump and wetting said seal faces thereby preventing metal-to-metal contact of said seal faces.

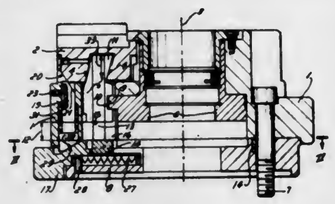
4,275,892

FORCE-BALANCED LATHE CHUCK WITH SAFETY RING

Günter H. Rohm, Heinrich-Röhm-Strasse 50, 7927 Sontheim, Fed. Rep. of Germany

Filed May 18, 1979, Ser. No. 40,271
Claims priority, application Fed. Rep. of Germany, May 19, 1978, 2821849
Int. Cl.³ B23B 31/14
U.S. Cl. 279—1 C 10 Claims

1. A lathe chuck comprising:
a chuck body rotatable about a chuck axis;
a plurality of angularly spaced and radially displaceable jaws on said body each formed with an axially backwardly open jaw recess having at least one side inclined to said axis;
means including respective jaw actuators axially displaceable in said chuck body and having inclined end portions engageable in said recesses for inward radial displacement of said jaws on displacement of said actuators axially forwardly toward axially advanced positions and for outward radial displacement of said jaws on displacement of said actuators axially backwardly toward partially axially retracted positions, each actuator further being displaceable axially backwardly into an axially fully retracted position out of engagement with the respective jaw, said actuators engaging the respective jaws in and between said advanced and partially retracted positions;
respective weights radially displaceable on said chuck between inner and outer positions and through intermediate positions;



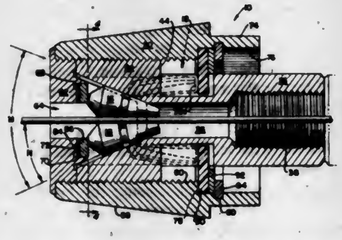
means including respective force-transmitting members engaged between said weights and the respective jaws for conversion of radially outwardly effective centrifugal forces of said weights into radially inwardly effective forces on the respective jaws, each force-transmitting member being displaceable between axially advanced and partially retracted positions engageable with the respective jaw and into a fully retracted position unengageable with the respective jaw; and
means including an element operatively engaging said members and actuators and displaceable on said chuck between a jaw-removal position in which said actuators and members can assume the respective fully retracted positions, and a use position for preventing said actuators and members from moving axially backwardly beyond the respective partially retracted positions into the respective fully retracted positions.

4,275,893

SELF-TIGHTENING KEYLESS CHUCK

Silvio G. Bilanceri, Owings Mills, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Aug. 31, 1979, Ser. No. 71,663
Int. Cl.³ B23B 31/19
U.S. Cl. 279—64 25 Claims



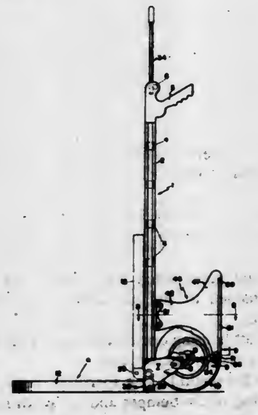
1. A chuck for releasably gripping a tool bit or the like, said chuck comprising:
a chuck body axially extending along a chuck axis having an internal opening formed therein, said opening being defined by a surface that includes a cam surface means thereon;
a plurality of gripping elements for gripping a tool bit located within said opening and movable relative to said cam surface means throughout a range of adjustment;
resilient urging means for resiliently urging said gripping elements against said cam surface means, said urging means including elongated urging members for each of said gripping elements, said urging members coupled at a forwardly facing first end to their respective gripping elements and extending in a rearwardly direction to a rearwardly facing second end; and
a control sleeve means adjustably mounted on said chuck for moving said gripping elements throughout said range of adjustment, said control sleeve means including a thrust receiving bearing surface for contacting said gripping elements and a retainer flange means spaced from said thrust receiving bearing surface for contacting said second ends of said urging members, said retainer flange means formed from at least two separable flange elements;
wherein adjustment of said control sleeve relative to said chuck body causes said gripping elements and said resilient urging means to move relative to said chuck body with said gripping elements moving relative to said cam surface means.

4,275,894

HAND TRUCK CONSTRUCTION ASSEMBLY

Carl N. Mortenson, Midland, Mich., assignor to Magline, Inc., Pinconning, Mich.

Filed Oct. 24, 1978, Ser. No. 954,307
Int. Cl.³ B62B 5/02, 1/00
U.S. Cl. 280—5.24 7 Claims



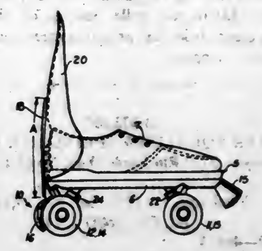
5. A hand truck construction comprising an upright frame member having upper, lower, forward and rearward ends; a load supporting nose member carried by said frame member adjacent its lower end; ground engaging wheels mounted on said frame member adjacent its lower end; a pair of body members each having a rearward surface and parallel grooves adjacent its rearward surface; means mounting each of said body members on said frame member adjacent opposite sides thereof with said body members extending rearwardly of said frame member; and a smooth surface wear strip fitted to each of said body members, each of said wear strips being C-shaped and having flanges which may be slid into the grooves of the associated body member, said grooves terminating at one end in an abutment.

4,275,895

ROLLER SKATE BRAKE

Jesse O. Edwards, 2927 W. Camille, Santa Ana, Calif. 92704

Filed Jan. 24, 1980, Ser. No. 115,183
Int. Cl.³ A63C 17/14
U.S. Cl. 280—11.2 6 Claims



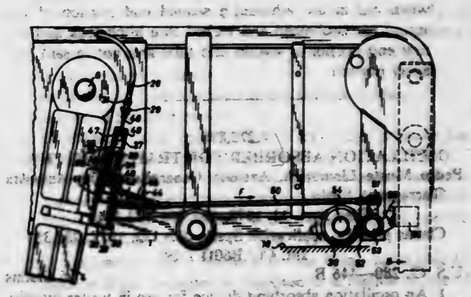
1. A roller skate brake apparatus adapted for attachment to the rear wheel truck of a roller skate for selectively applying frictional force to the surface of the rear wheels when a roller skater rotates his calf rearwardly to increase the angle between his leg and foot; the apparatus comprising:
a brake applicator adapted for location in close proximity to a roller skater's calf,
an elongated lever arm connected at its upper end to said brake applicator,
a fulcrum bracket partially rotatable about an axis of rotation that is parallel to the axle of said rear wheels and connected to the lower end of said lever arm,
a brake shoe in close proximity to said rear wheels and attached to said fulcrum bracket for rotation relative to said rear wheels about said axis, and
means for connecting said fulcrum bracket to said rear wheel truck for rotation of said bracket relative to said truck about said axis.

4,275,896

SAFETY MECHANISM FOR A CARRIAGE INSERTABLE INTO THE LOAD SPACE OF A VEHICLE

Josef Eicher, Eichholz 1108, 9436 Balgach, Switzerland

Continuation-in-part of Ser. No. 838,446, Oct. 3, 1977, Pat. No. 4,170,379. This application May 31, 1979, Ser. No. 44,083
Claims priority, application Switzerland, Jul. 18, 1976, 12738/76
Int. Cl.³ B62D 21/00
U.S. Cl. 280—43.1 6 Claims



1. A safety mechanism for a carriage which is insertable into the load space of a vehicle, said carriage having arms (4) and wheels secured to said arms which are tiltable between operating and withdrawn positions, comprising arresting means (30, 32) operatively arranged for locking said arms in their operating position, and a safety device operatively arranged for

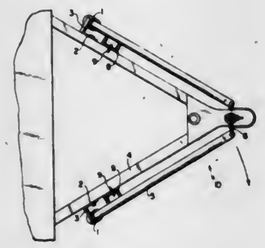
cooperation with said arresting means to prevent the unlocking of said arms when the arms are in their operating position, said safety device comprising roller means (20) movably secured to said carriage and located ahead of said arms, as viewed in the inserting direction, said safety device further comprising safety catch means (42) normally engaging said arresting means (30, 32), and means (50, 51, 52) operatively connecting said safety catch means (42) to said roller means for disengaging said safety catch means from said arresting means only if said roller means rest on a support.

4,275,897

TRAILER EQUALIZER SPRING BAR HOLDER

James E. Moyer, 5727 Rio Verde Way, North Highlands, Calif. 95660

Filed Apr. 11, 1979, Ser. No. 29,123
Int. Cl.³ B60D 1/14
U.S. Cl. 280—406 A 3 Claims



1. A storage device for spring bars used on trailers comprising in combination:

a tube connected to a trailer tongue oriented to receive a first end portion of the spring bar

and a cutaway portion on an outer face of said tube away from the tongue so that the first end portion of the spring bar can be rotated and disposed within said cutaway portion

whereby two positions for the spring bar are provided:

a first temporary position when the spring bar is within said cutaway portion to allow the trailer to traverse steep grades,

and a second stowed and locked position for the spring bar when not in use wherein a second end portion of the spring bar is chained and locked to a hitch lock and the first end portion is within said tube and not in said cutaway portion.

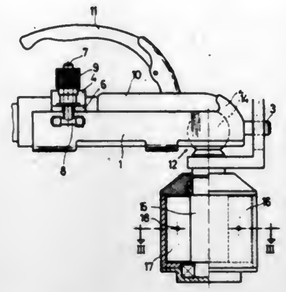
4,275,898

OSCILLATION ABSORBER FOR TRAILER HITCHES

Pedro Muste Llambrich, Avenida Generalisimo 73, Amposta (Tarragona), Spain

Filed Nov. 22, 1978, Ser. No. 963,154
Claims priority, application Spain, Nov. 22, 1977, 232.357
Int. Cl.³ B60D 1/06
U.S. Cl. 280—446 B 6 Claims

1. An oscillation absorbing device for use in trailer hitches, comprising a ball connected to a rear support joined to a tractor; coupling means mounted on the trailer and arranged to turn around said ball, said coupling means including a receptor chamber for receiving said ball; a cover plate encompassing said receptor chamber, having a horizontal pivot connected thereto and pivotally arranged within a forked-shaped mounting member to permit free angular displacement of said cover plate around said horizontal pivot; damping means including



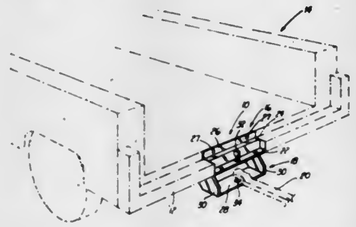
an axle connected to said ball; and said mounting member being secured to said axle.

4,275,899

HINGED BI-LEVEL HITCH FOR A VEHICLE

Verle L. Humphrey, Elkhart, Kans. 67950

Filed Aug. 17, 1979, Ser. No. 67,323
Int. Cl.³ B60D 1/06
U.S. Cl. 280—491 B 3 Claims



1. A hinged bi-level hitch for a vehicle, the hitch adapted for receipt on a tubular bumper of the vehicle, the hitch comprising:

an upper hitch assembly integrally formed in the tubular bumper of the vehicle, the upper hitch assembly including:

a horizontal upper hitch plate having apertures therein and attached to and centered on the bottom of the bumper;

a pivot shaft housing centered on and integrally formed in the rear of the bumper; and

a vertical flat shield having apertures therein and attached to the top of the bumper and the pivot shaft housing;

a lower hitch assembly including:

a lower hitch plate; and

side plates attached to the ends of the lower hitch plate;

a pivot collar attached to the side plates;

a pivot shaft extending through the pivot collar, the ends of the pivot shaft attached to the bottom of the bumper, a portion of the pivot collar and pivot shaft received in the pivot shaft housing;

a first mounting bracket having apertures therein, the ends of the first mounting bracket attached to the front of the side plates, the first mounting bracket tangent with the bottom of the upper hitch plate when the lower hitch assembly is in a lowered position underneath the upper hitch plate, the apertures of the first mounting bracket indexed with the apertures in the upper hitch plate for receiving bolts therethrough and securing the lower hitch assembly below the upper hitch plate; and

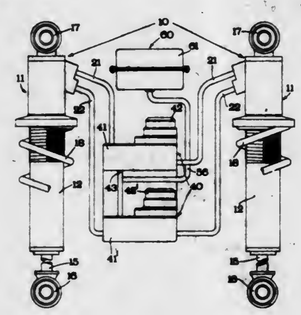
a second mounting bracket having apertures therein and attached to the rear of the side plates, the second mounting bracket tangent with the vertical flat shield when the lower hitch assembly is in a raised position underneath the vehicle, the apertures of the second mounting bracket indexed with the apertures in the vertical flat shield for receiving bolts therethrough and securing the lower hitch assembly in a raised position underneath the vehicle.

4,275,900

FLUID SUSPENSION UNIT FOR MOTORCYCLES

Angelo Andreoli, Via Omegna 20, Rivoli (To); Adolfo Boano, Corso Vercelli 122, 10155 Torino, and Mario Vesco, Corso Rosselli 111, 10129 Torino, all of Italy

Filed Aug. 30, 1978, Ser. No. 937,985
Claims priority, application Italy, Sep. 16, 1977, 69052 A/77
Int. Cl.³ B60G 15/06
U.S. Cl. 280—710 5 Claims



1. A fluid compensation unit for motorcycles, particularly off-road motorcycles for cross-country sporting competitions and the like, usable both for the rear wheel and the front wheel of the motorcycle, comprising a pair of hydraulic shock absorbers for each wheel, each hydraulic shock absorber including an outer cylinder and an inner cylinder, defining an annular fluid chamber therebetween, a piston slidably mounted within and longitudinally of said inner cylinder, dividing said inner cylinder into a compression fluid chamber on one side of said piston and an expansion fluid chamber on the other side of said piston, duct means within said piston for for communication between said compression and expansion fluid chambers, means for communicating between said expansion fluid chamber and said annular fluid chamber, said piston having a piston rod connectable to a wheel supporting portion of the motorcycle, said outer cylinder being connectable with its end opposed to said piston rod to a fixed frame portion of the motorcycle; a pair of adjustable control valves connected in series by flexible pipes to said compression fluid chamber and through said annular fluid chamber to said expansion fluid chamber in said inner cylinder and a fluid pressure compensation tank connected by a flexible pipe to said pair of adjustable control valves.

4,275,901

INFLATABLE SAFETY BAG SYSTEM FOR VEHICLES

Motohiro Okada, Asaka, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,278
Claims priority, application Japan, Jul. 21, 1978, 53/89187; Jul. 24, 1978, 53/90291; Aug. 2, 1978, 53/94328
Int. Cl.³ B60R 21/02
U.S. Cl. 280—741 12 Claims

1. An inflatable safety bag system for vehicles, comprising:

an electrical sensor for detecting a vehicle collision;

electrical actuator means;

a mechanical sensor for detecting a vehicle collision;

mechanical actuator means;

a mechanical valve opening device for a high-pressure gas container for filling gas in a safety bag;

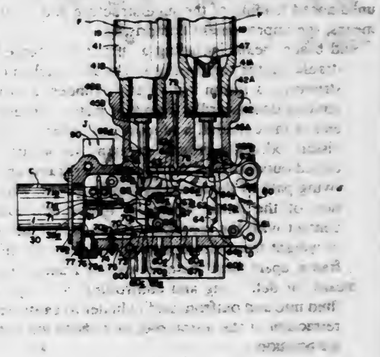
said electrical actuator means and said mechanical actuator means being operatively connected to said mechanical valve opening device, and being constructed to operate independently;

said mechanical valve opening device being actuatable to open said gas container in response to actuation of one of said electrical actuator means and said mechanical actuator means;

said electrical actuator means comprising a solenoid energizable by a collision detecting signal from said electrical sensor;

said solenoid comprising a movable member movable by a core which is energizable by a collision detecting signal from said electrical sensor, for actuating said valve opening device; and

said movable member comprising a disc-shaped body, a rod projecting centrally from the rear of said body for restricting said valve opening device, and a conical recessed portion at the rear of said body and at the base of said rod.



9. An inflatable safety bag system for vehicles, comprising:

an electrical sensor for detecting a vehicle collision;

electrical actuator means;

a mechanical sensor for detecting a vehicle collision;

mechanical actuator means;

a mechanical valve opening device for a high-pressure gas container for filling gas in a safety bag;

said electrical actuator means and said mechanical actuator means being operatively connected to said mechanical valve opening device, and being constructed to operate independently;

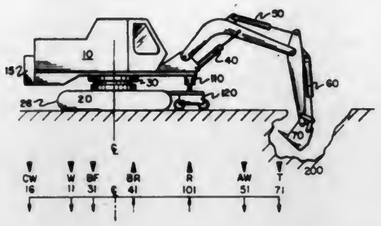
said mechanical valve opening device being actuatable to open said gas container in response to actuation of one of said electrical actuator means and said mechanical actuator means; and

resilient supporting means including a bimetal and supporting through a piece of a link mechanism a load applied on the sealing plate closing the opening of said high-pressure gas container, so that displacement of said resilient supporting means is sensed to detect a reduction in the gas pressure in said gas container.

4,275,902
CRANE OR EXCAVATOR WITH AUXILIARY MECHANISM FOR TRANSFERRING SUPERSTRUCTURE LOADS TO THE GROUND

Mohindar S. Teja, 2367 E. Larpenteur Ave., Apt. 110, St. Paul, Minn. 55109

Filed Aug. 24, 1979, Ser. No. 69,436
Int. Cl.³ B66C 23/78
U.S. Cl. 280—766 10 Claims



1. In a vehicle comprising a ground engaging carrier frame, a superstructure, turntable means supporting said superstructure on said carrier frame for rotation about a vertical axis, and brace means offset from said turntable means to help support the superstructure and preclude tipping of said superstructure with respect to the ground, to in that manner prevent excessive unbalanced loading of the superstructure and/or the turntable means, the improvement comprising:

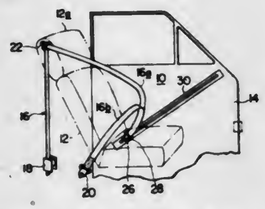
said brace means including a vertically oriented linear hydraulic motor comprising a cylinder attached to the superstructure, a piston within the cylinder, a piston rod extending downwardly from said piston through the lower end of the cylinder, a support pad at the lower end of the piston rod and a ground engaging secondary frame positioned outwardly of the main carrier frame and within the swing path of the linear hydraulic motor, whereby extension of the linear hydraulic motor into load applying contact with the secondary frame will result in a transfer of weight from the superstructure through the secondary frame, apart from the main carrier frame; and

means for delivering and controlling delivery of hydraulic fluid into and outfrom said cylinder to cause extension and retraction of the piston rod, or to hold the piston rod in a set position.

4,275,903
PASSIVE SEAT BELT ARRANGEMENT WITH WHEELED BELT CARRIER

Hideoki Matsuoka, Yokohama, and Yoshinobu Kondo, Kosai, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama and Fuji Kiko Company, Limited, Tokyo, both of, Japan

Filed Jul. 11, 1979, Ser. No. 56,600
Claims priority, application Japan, Jul. 19, 1978, 53-88017
Int. Cl.³ B60R 21/10
U.S. Cl. 280—803 4 Claims

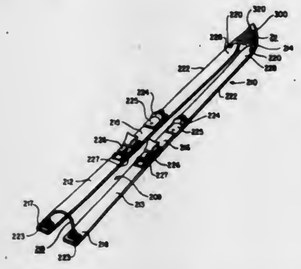


1. A passive seat belt arrangement in a motor vehicle having a door, comprising a seat belt, a track member mounted on an interior part of said vehicle and having a generally C-shaped cross section with a longitudinally extending slot thereof facing inboard of said vehicle and a belt carrying device longitudinally movably received in said tract member for carrying a portion of said seat belt so that movements of said belt carrying device in said track member in one and the other directions cause the seat belt to take easy-enter and occupant restraining positions, respectively, wherein said belt carrying device is provided with at least one cylindrical roller which runs in said track member by contacting only the peripheries of both of the circular edges thereof with the inside surface of said track member in a point contact manner upon longitudinal movement of said carrying device in and along said track member.

4,275,904
MONONOSE CONVERSION FOR TWINSKIS

Alec Pedersen, Vancouver, Canada, assignor to Pedersen Industries Ltd., Vancouver, Canada

Filed Jul. 21, 1978, Ser. No. 926,819
Int. Cl.³ A63C 5/00, 11/00
U.S. Cl. 280—818 15 Claims



1. A tip structure for converting a pair of conventional skis into a twinski, said tip structure comprising: a mononose section including a trailing portion of essentially the total width selected for the width of the twinski and a leading portion converging forwardly in a generally curved nose; a right-hand pocket and a left-hand pocket separated by a central bridge section, the right-hand pocket having at least a lateral outside surface defined by a forward web section adapted to conform and butt against the outside edge of the tip of a conventional ski placed in said right-hand pocket, and having an inside edge of said central bridge section adapted to conform and butt against the inside edge of the tip of a conventional ski placed in said right-hand pocket; said left-hand pocket having at least a lateral outside surface defined by a forward web section adapted to conform and butt against the outside edge of the tip of a conventional ski placed in said left-hand pocket, and having an inside edge of said central bridge section adapted to conform and butt against the inside edge of the tip of a conventional ski placed in said left-hand pocket; and means, cooperating with and associated with said mononose and with said pair of conventional skis for clamping the tips of said conventional skis rigidly to said mononose.

4,275,905
PRESSURE-SENSITIVE RECORD MATERIAL

Robert E. Miller, Appleton, Wis., assignor to Appleton Papers Inc., Appleton, Wis.

Continuation-in-part of Ser. No. 375, Dec. 29, 1978, abandoned. This application Jun. 5, 1979, Ser. No. 45,769
Int. Cl.³ B41M 5/16, 5/22; C09D 11/00
U.S. Cl. 282—27.5 14 Claims

8. A pressure-sensitive record material which comprises a substrate coated with an encapsulated color-forming composition comprising:

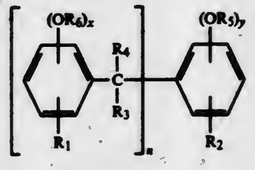
(a) a colorless chromogenic color former other than Pyridyl Blue;
(b) an organic solvent for said chromogenic color former; and
(c) an additive for controlling CB decline selected from the group consisting of Pyridyl Blue in an amount of about 0.6 to about 1.7 parts by weight and a phenol having a free reactive position in an amount of about 2 to about 5 parts by weight, said parts by weight being based upon 100 parts by weight of total composition.

4,275,906
PRESSURE-SENSITIVE RECORDING SHEETS

Grannis S. Johnson, Plainfield, and Ira M. Rose, Millburn, both of N.J., assignors to Diamond Shamrock Corporation, Dallas, Tex.

Filed Jul. 18, 1979, Ser. No. 58,563
Int. Cl.³ B41M 5/16, 5/22
U.S. Cl. 282—27.5 20 Claims

12. In a pressure sensitive recording sheet assembly characterized by a more tolerable odor comprising a support having coated thereon a layer of color former dissolved in a solvent and a developer for said color former capable of developing color upon reacting with said color former, the improvement wherein said solvent comprises at least one alkoxy diphenyl alkane having the following structure:

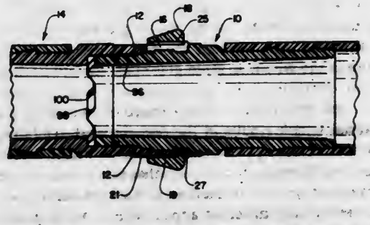


where R_1, R_2, R_3 and R_4 are H or a straight or branched chain alkyl group of 1 to 8 carbon atoms and can be the same or different; R_5 is a straight or branched chain alkyl group of 1 to 9 carbon atoms; R_6 is a straight or branched chain alkyl group of 1 to 8 carbon atoms; x is 0, 1 or 2; y is 1 or 2 and n is 1 or 2, with the proviso that the sum of the carbon atoms in R_1, R_2, R_3, R_4, R_5 and R_6 does not exceed 9 and with the further proviso that where said alkoxy diphenyl alkane is a solid to viscous liquid, at least one diluent or at least one other generally liquid solvent or mixture thereof is present.

4,275,907
QUICK CONNECTABLE COUPLING

Alexander C. Hunt, Santa Monica, Calif., assignor to Hustal Manufacturing Company Incorporated, Los Angeles, Calif.

Continuation-in-part of Ser. No. 729,689, Oct. 5, 1976, abandoned. This application May 16, 1978, Ser. No. 906,154
Int. Cl.³ F16L 37/28, 35/00
U.S. Cl. 285—18 10 Claims



1. A coupling device for fluid conduits comprising a tubular male member and a female sleeve member adapted for connection to conduits, said male member having tapered means on its outer surface radially expanding along a generally longitudinal axis thereof, and shoulder means adjacent the rearward portion of said outer surface and extending radially inwardly therefrom, said members having means for positioning the same with the bores thereof in communication, resilient latching means on said female sleeve member adapted to be flexed radially outwardly by said tapered means and comprising radially inwardly directed lip means which snap behind said shoulder means when said members are positioned, at least one of said shoulder means and lip means making an obtuse angle with the longitudinal axis of its associated member such that axially directed pulling force will flex said resilient means of said female sleeve member outwardly to disengage said lip and shoulder means, locking ring means positioned around the outer surface of said female sleeve member and movable axially thereof by manual force into and out of a position maintaining said latching means in locking relationship to said shoulder means, and cooperating cam means on said male member and said female sleeve member whereby opposite rotation of said members relative to each other causes said cam means to axially displace said members and comprising cooperating slanted ramps formed on the inner end of said male member and on a contiguous portion of the inner surface of the bore of said female member.

4,275,908
FLUID COUPLING ASSEMBLY

Christopher W. Elkins, and David W. Smith, both of Ft. Collins, Colo., assignors to Teledyne Industries, Inc., Ft. Collins, Colo.

Continuation-in-part of Ser. No. 66,936, Aug. 16, 1979, abandoned. This application May 5, 1980, Ser. No. 146,456
Int. Cl.³ F16L 9/14
U.S. Cl. 285—55 38 Claims



1. In a fluid coupler that includes:
a base including means for attachment to a supply pipe;
and an element coupled to said base and which constitutes the spherical portion of a ball joint;
the improvement comprising:
said element being composed of first and second mechanically-joined and contiguously mating approximately hemispherical segments;
means for securing said first segment to said base;
means, disposed entirely within the interior of said segments, for coupling said second segment to said base in establishment of said spherical portion unencumbered on its exterior;
and means defining a fluid flow channel through said base and said first and second segments.

4,275,909
FLEXIBLE PLASTIC PIPE JOINT

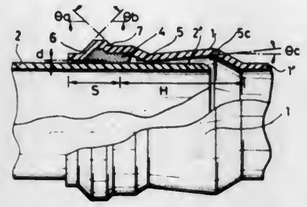
Tadao Yoshizawa, and Masayuki Sakaguchi, both of Sakai, Japan, assignors to Kubota Ltd., Osaka, Japan

Filed Nov. 17, 1978, Ser. No. 961,398
Claims priority, application Japan, Nov. 22, 1977, 52-157237[U]
Int. Cl.³ F16L 17/00
U.S. Cl. 285—110 10 Claims

1. A soft deformable synthetic resin pipe joint for telescopically connecting a synthetic resinous pipe to a pipe receiving socket comprising:

said socket including an end portion and a packing holding groove formed on an inner circumferential wall of said socket;

a packing member held in said groove of said pipe receiving socket and disposed so as to sealingly engage the pipe and the socket and to provide a gap between the inner circumferential portion of said end portion of said socket and the periphery of said pipe inserted therein wherein the outer periphery portion of the end of said pipe forms a chamfered portion, said packing member including a convex outer portion and an a radially inwardly extending compressible portion of smaller diameter than the outside diameter of said pipe;



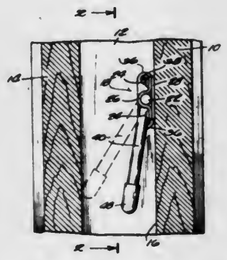
a front radially outwardly flared and first and second radially inwardly flared rear inclined walls formed on the inner and outer periphery of said socket to define said groove, said front wall interconnecting with said first rear inclined wall;

said socket further comprising a supporting portion interconnecting said first and second rear inclined walls, said joint comprising a material of such softness and elasticity that upon external compression of each of said inclined walls, deformation expanding of the gap between said front and first rear walls occurs and inclined faces corresponding to said front and first rear inclined walls are formed on the backing member such that the axis of said pipe is substantially aligned with the axis of said joint upon flattening deformation of said joint.

4,275,910
DOOR LATCH

Joseph D. Budish, 1635 Madison Ave., South Milwaukee, Wis. 53172

Continuation of Ser. No. 891,623, Mar. 30, 1978, abandoned. This application Apr. 12, 1979, Ser. No. 29,301
Int. Cl.³ E05C 5/02
U.S. Cl. 292—57 8 Claims



1. A latch for a door installation including first and second doors mounted in spaced, facing relationship and for movement relative to each other between open and closed positions, said latch comprising

a support bracket including a base adapted to be mounted on the face of the first door between the first and second doors;

an elongated bolt having an outer end portion and carried by said support bracket for relative rotational movement and for relative slidable movement between a latching position wherein, when the first door is closed, said outer end portion is received in a keeper located adjacent the first door to prevent opening of the first door and an unlatched position wherein said outer end portion is retracted from the keeper to permit opening of the first door;

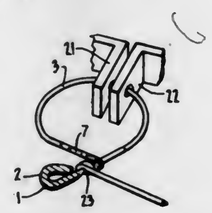
an elongated handle affixed on said bolt and extending transversely therefrom for rotating said bolt and for moving said bolt between the latching and unlatched positions, said handle having a length greater than the spacing between the first and second doors, and;

guide means on said support bracket for permitting reciprocal longitudinal movement of said bolt between the latching and unlatched positions when said handle is rotated to an operating position extending transversely of the plane of said base and generally perpendicular to the second door, said guide means including detent means for engageably receiving said handle and preventing longitudinal movement of said bolt from the latching position when said handle has been rotated to a non-operating position angularly displaced from the operating position whereby, during attempted rotational movement of said handle from a non-operating position to the operating position in a direction toward the second door with the second door closed, said handle engages the face of the second door to prevent movement of said handle to the operating position, thereby preventing movement of said bolt from the latching position.

4,275,911
SECURITY SEALS

Henry L. Buckingham, 95 McDonald St., Mordialloc, 3195, Victoria, Australia

Filed Aug. 9, 1979, Ser. No. 65,061
Claims priority, application Australia, Aug. 16, 1978, PD5511[U]; Sep. 20, 1978, PD6034[U]
Int. Cl.³ B65D 33/34
U.S. Cl. 292—315 7 Claims

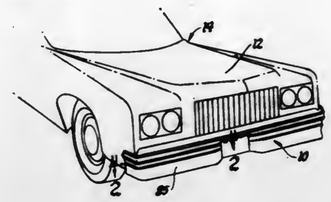


1. A security seal comprising a length of wire which is constructed to form a seal by twisting at least one end around the other end and wherein the seal is designed to result in fracture of the wire if an attempt is made to untwist said at least one end, characterized in the application to the region of said at least one end which is to be twisted of an orderly pattern of a material which results in the security seal exhibiting a perceivably different appearance if heat is applied to said region to render it sufficiently ductile such that said at least one end may be untwisted without fracturing, and said material also exhibiting a perceivably different appearance if mechanical work is performed on the seal to restore its appearance to that prior to the application of heat, whereby the orderly pattern of material is affected to result in the security seal exhibiting a perceivably different appearance when an attempt is made to tamper with the seal.

4,275,912
MULTISECTIONED CELLULAR ENERGY-ABSORBING UNIT AND MOUNTING THEREFOR

Dean M. Beyer, Anderson, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 3, 1979, Ser. No. 99,852
Int. Cl.³ B60R 19/08
U.S. Cl. 293—120 2 Claims

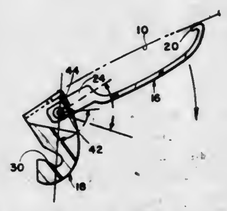


1. A vehicle bumper comprising a resilient energy absorbing unit, a support having a surface for backing and supporting said unit, said unit comprising a plurality of sections disposed adjacent to each other, each of said sections having a latticework of intersecting walls of plastic material providing plurality of elongated cells extending between inner and outer ends thereof, said support and a first of said sections having first and second separate attachment means cooperatively interfitting to secure said first of said sections to said support, said support and a second of said sections having third and fourth separate attachment means for securing said second of said sections to said support, live hinge means operatively interconnecting said first and second sections of said unit to permit said sections to be laterally moved with respect to one another to permit the alignment of said third and fourth attachment means for cooperatively interfitting with one another to thereby facilitate the attachment of said second section to said support and the securing of said energy absorbing unit to said support.

4,275,913
VEHICLE STORAGE RECEPTACLE

Konrad H. Marcus, Holland, Mich., assignor to Prince Corporation, Holland, Mich.

Filed Apr. 19, 1979, Ser. No. 31,550
Int. Cl.³ B60R 7/08
U.S. Cl. 296—37.1 10 Claims



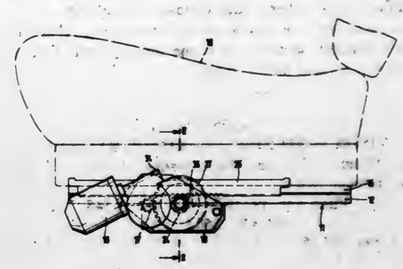
1. A storage receptacle for a vehicle including a pair of sun visors comprising:

a mounting member adapted to be attached to the vehicle interior above the windshield and centrally between the vehicle's sun visors, a concave receptacle for containing articles pivotally coupled to said mounting member for pivotal movement about an axis between a closed position with the concave side facing the headliner of the vehicle interior whereupon the headliner serves as a closure wall for the receptacle and an open position pivoted downwardly from the headliner for providing access to the contents of said receptacle.

4,275,914
SAFETY SUPPORT FOR ADJUSTABLE VEHICLE SEATS

Reiner Heiwig, Wermelskirchen, and Bernd Kilting, Radevormwald, both of Fed. Rep. of Germany, assignors to Keiper Automobilsitzbau GmbH & Co. KG, Remscheid, Fed. Rep. of Germany

Filed Mar. 2, 1979, Ser. No. 17,160
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1978, 2808984
Int. Cl.³ B60N 1/08
U.S. Cl. 296—65 R 5 Claims

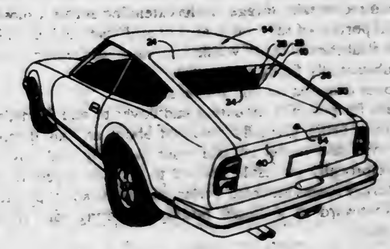


1. In a longitudinally adjustable seat, particularly a motor vehicle seat having a guide rail assembly including a stationary rail secured to the floor of the vehicle, a travel rail secured to the seat and being movably coupled to the stationary rail, a position adjuster fixedly mounted relative to said stationary rail and including a motor assembly having a driving pinion, a rotary shaft and a drive gear supported for joint rotation on the shaft, a combination comprising an intermediate drive gear supported for free rotation on said shaft and being in mesh with said pinion; an arresting ring arranged around said shaft and being fixedly mounted relative to said stationary rail; a coupling disk supported for joint rotation and for axial movement on said shaft; and means for axially biasing the coupling disk into a driving position in which it is coupled to said intermediate gear and, alternatively, into an arresting position in which it is coupled to said arresting ring.

4,275,915
VEHICLE CLOSURE

Michael Koritnik, 3380 Dunn, Cheyenne, Wyo. 82001

Filed Dec. 11, 1978, Ser. No. 968,621
Int. Cl.³ B62D 25/10
U.S. Cl. 296—76 11 Claims



1. A closure kit to be retrofitted to a motor vehicle for releasably isolating the passenger compartment and the storage compartment of said motor vehicle from the elements, said motor vehicle having an engine compartment, a passenger compartment and a storage compartment, the closure kit comprising:

a frame member having an aperture therethrough;

a body member adapted to be fixedly secured to said frame member, said body member integrally formed by a roof

portion, a window portion depending from said roof portion at an acute angle greater than 60° and having a window therein, a rear deck portion extending substantially perpendicularly from said window portion

a predetermined distance and having an aperture therethrough which is aligned with the aperture through said frame member, and side portions extending from said roof portion a predetermined distance, said side portions being arced along substantially the entire length thereof from the edge thereof to the rear deck portion and terminating into said rear deck portion, each of said side portions defining a peripheral edge of said closure; and

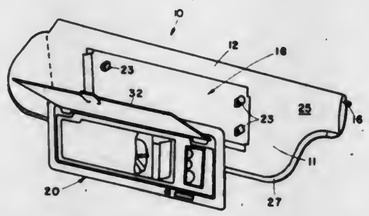
a latch adapted to be positioned within said aligned apertures to releasably secure said frame member and said body member to said motor vehicle.

4,275,916

VISOR WITH STORAGE COMPARTMENT

Brian I. Skogler, Holland, Mich., assignor to Prince Corporation, Holland, Mich.

Filed Apr. 19, 1979, Ser. No. 31,548
Int. Cl.³ B60J 3/00
U.S. Cl. 296—97 H **9 Claims**



1. A visor assembly including a covered storage compartment comprising:

a visor body having a recess formed therein, said recess extending across a substantial portion of the frontal area of said visor and extending to a substantial depth within said visor;

mounting means disposed within said recess; and

a storage subassembly received in said recess and secured therein with said mounting means comprising:

a frame extending into said recess said frame being shaped to fit around the peripheral edge of said recess and said frame including sidewalls extending into said recess;

a storage means disposed on said frame for mounting within said recess said storage means extending across a substantial portion of the frontal area of said visor and extending to a substantial depth within said visor, said storage means substantially filling said recess;

a cover disposed on said frame; and

means for pivotally mounting said cover to said frame, said cover being pivotally mounted about an axis disposed above said recess on said visor whereby said cover is reciprocally pivotable upward to provide access to said storage means mounted within said recess and is pivotable downward to a closed position covering said storage means.

4,275,917

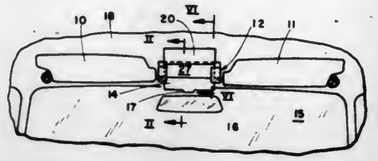
AUXILIARY VISOR

Konrad H. Marcus, Holland, Mich., assignor to Prince Corporation, Holland, Mich.

Filed Apr. 19, 1979, Ser. No. 31,549
Int. Cl.³ E60B 9/24
U.S. Cl. 296—97 R **6 Claims**

1. An auxiliary visor for a vehicle having a pair of sun visors supported at opposite sides and above the vehicle windshield and a rearview mirror mounted between the sun visors, said visor comprising:

a mounting member adapted to be mounted to said vehicle above the windshield and centrally between the vehicle's visors wherein said mounting member includes a pair of opposed support means for releasably receiving and supporting the end posts of the pair of vehicle sun visors; and



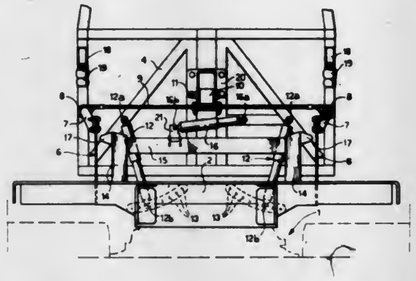
a unitary shield supported by said member for movement with respect to said mounting member from a stored position above the windshield to an operating position extended from said mounting member in which said unitary shield covers the area of the windshield near the top thereof and between the visors, said shield being shaped to extend substantially to the edge of the existing visors to substantially fill in the gap between the visors.

4,275,918

RESILIENT SUSPENSION FOR THE CAB OF AN AGRICULTURAL TRACTOR

Bartolo Franco, Casalgrasso, Italy, assignor to Centro Ricerche Fiat S.p.A., Orbassano, Italy

Filed Jul. 5, 1979, Ser. No. 54,764
Claims priority, application Italy, Aug. 11, 1978, 68895 A/78
Int. Cl.³ B62D 33/06
U.S. Cl. 296—190 **1 Claim**



1. In a vehicle such as an agricultural tractor having a body and a cab a resilient suspension which supports said cab from said body and which includes:

(a) respective front and rear transverse suspension structures, each comprising:

two struts formed by respective leaf springs upstanding from said vehicle body and disposed substantially in longitudinal planes when relaxed, and

a cross-member interconnecting said struts and formed by a leaf spring lying, when relaxed, in a plane which is perpendicular to said planes of said struts and parallel to the longitudinal axis of said vehicle, and

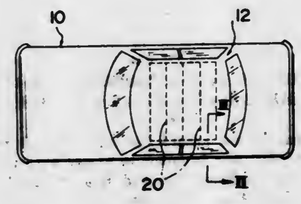
(b) shock absorber means to damp rolling and pitching oscillations of said cab relative to said vehicle body due to flexural resilience of said leaf springs of said suspension structures, wherein said shock absorber means include two pairs of first telescopic hydraulic shock absorbers, each pair being adjacent a respective said suspension structure, said shock absorbers of each pair being so inclined that their longitudinal axes converge downwardly towards said longitudinal plane of symmetry of the vehicle, each shock absorber being articulated at its upper end to said cab frame and at its lower end to said vehicle body and wherein said first shock absorbers are provided with respective means adjacent their said lower ends to enable said inclination of their respective longitudinal axes to be varied relative to each other.

4,275,919

SUSPENSION-TYPE HEAD LINING ARRANGEMENT FOR AUTOMOTIVE VEHICLE AND CLIP ELEMENT FOR USE THEREIN

Shoji Okamoto, and Norio Kazama, both of Yokohama, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 31, 1980, Ser. No. 117,192
Claims priority, application Japan, Feb. 6, 1979, 54-13396
Int. Cl.³ B62D 25/06
U.S. Cl. 296—214 **22 Claims**



1. A suspension-type head lining arrangement for the roof structure of an automotive vehicle having a vehicle body including a pair of side frames each having lower edge portions which are secured together and which extend along each side end of the roof structure, comprising:

a clip element including

a laterally elongated base portion;

at least one strip portion bent from the base portion along one elongate end of the base portion;

a limb bent from the base portion along said elongate end of the base portion and having a cusped leading end portion which is turned back outwardly; and

a flank bent from said base portion along the opposite elongate end of the base portion and having at least one lug portion which is outwardly bent from an adjacent portion of the flank.

4,275,920

SLIDING ROOF PANEL

Lothar Pohl, Sterling Heights, Mich., assignor to Wisco Corporation, Ferndale, Mich.

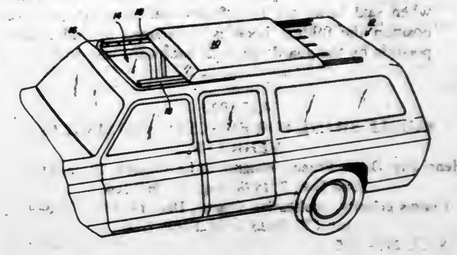
Filed Apr. 16, 1979, Ser. No. 30,558
Int. Cl.³ B60J 7/04
U.S. Cl. 296—222 **8 Claims**

1. A sliding roof panel for selectively covering or uncovering an opening in a vehicle roof comprising:

a pair of spaced apart tracks attached to the roof projecting above the roof along sides of the opening;

the panel including downward extending co-operating front, rear and side walls extending to the roof and enclosing the tracks and vehicle opening when in a closed position;

the panel movable from a first position with the downward extending walls abutting the roof closing and sealing the opening, to a second position spaced above the tracks for



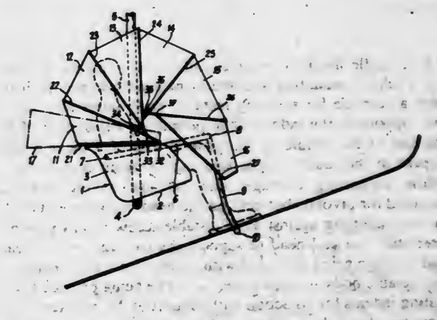
movement therealong, and to a third position displaced along the tracks uncovering the opening.

4,275,921

FOLDING HOOD FOR CHAIR-LIFTS

Paul Genin, 90 rue d'Auteuil, 75006 Paris, France

Filed Apr. 5, 1979, Ser. No. 27,333
Claims priority, application France, Apr. 10, 1978, 78 10512
Int. Cl.³ A49B 19/00
U.S. Cl. 297—184 **3 Claims**



1. A chair for chair-lifts adapted to transport passengers shod with ski-boots and skis, comprising:

a carrier body,

a seat for passengers, rigid with said body and presenting an open front portion,

a guard rail pivoted to said body and adapted to pivot between a backward rest position and a forward safety position in which said guard rail comes in front of the opened portion of the seat,

a ski rest rigid with said guard rail,

a plurality of bows comprising a first bow fixed to the seat, intermediary bows each pivoted at its respective ends only to the preceding bow at a point offset in relation to the respective ends of said preceding bow, and a last bow pivoted at its ends at respective points of the preceding bow off-set from the ends of the preceding bow, said last bow, in an operative position of the bows, extending down to mid-legs of the passengers and presenting a free edge abutting against the ski rest when the guard rail is in its safety position, and

flexible wall elements disposed between said plurality of bows so as to constitute a folding hood, one of said flexible wall elements comprising a transparent element and being adapted, when the bows are in an extended operative position, to come in front of the passengers at the level of the field of vision thereof, so that when said bows are in their operative position, the folding hood constitutes with the chair body a nearly completely enclosed compartment

providing at the front and bottom portion thereof only an aperture for a free passage of the passenger's legs shod with ski-boots and skis, while maintaining by the free edge of the last bow the guard rail in its safety position, and when said bows are in a folded backward inoperative position the folding hood is maintained in said folded position by the guard rail in its backward rest position.

4,275,922

SADDLE SHANK FOR BICYCLES AND SIMILAR VEHICLES

Henri Juy, Dijon, France, assignor to Le Simplex, Dijon, France

Filed Dec. 7, 1978, Ser. No. 967,304
Claims priority, application France, Dec. 19, 1977, 77 38929
Int. Cl.³ B62J 1/00; F16B 7/08
U.S. Cl. 297—195 12 Claims



1. A saddle shank for bicycles and similar vehicles, comprising: a tube; a mounting and abutment head fastened with the tube; a carriage for securing metallic body wires of a saddle and supporting the saddle while permitting adjustment of the position of the saddle in the general axis of a bicycle with respect to the saddle shank, said saddle shank comprising: a saddle supporting carriage, said carriage having one end mounted for pivotal abutment on the head, an other end of the carriage abutting against an adjustable screw means which is insertable into said head to support the carriage on the head, said carriage being provided with indents for stable bearing of the metallic body wires; a yoke; said yoke being provided with mating indents for co-action with indents of the carriage, being mounted above the carriage; and an assembly and interlocking means, such as a screw, extending with necessary clearance through the head and the carriage, between the pivotal abutment and the adjustable stop for threadable engagement within the yoke, the screw head being retained in abutment against the head.

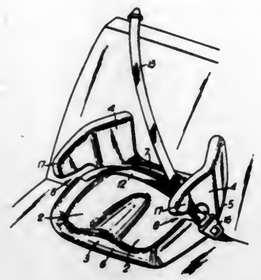
4,275,923

VEHICLE CUSHION

Thomas G. Molnar, Melbourne, Australia, assignor to Repco Limited, Melbourne, Australia

Filed Nov. 20, 1978, Ser. No. 961,922
Int. Cl.³ A47D 1/10
U.S. Cl. 297—250 7 Claims

1. A cushion used in combination with a vehicle seat provided with a combination lap and sash safety belt, said cushion comprising a base having an upper seating surface, two wall portions on respective opposite sides of said base and projecting above said seating surface so as to form arm rests, and means in each said wall portion for holding the lap portion of said safety belt forward of and above its normal position on the vehicle seat and cooperating with said lap portion to hold the cushion on the vehicle seat, the said means of one said wall portion also being operative to hold a lower part of the sash portion of said safety belt down and forward relative to the back of the vehicle seat to accommodate therebetween an occupant of the cushion, said means comprising a slot in the respective said wall portion which has its open mouth facing towards the front of said cushion and which extends rearwardly from that open mouth to terminate at a closed end, said



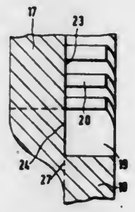
lap portion being receivable in both said slots and said sash portion being receivable in one said slot only.

4,275,924

HINGE MOUNT HAVING A WOBBLE GEAR ADJUSTER FOR A TILTABLE SEAT BACK OF A MOTOR VEHICLE SEAT

Gerhard Lehmann, and Erhard Hummel, both of Remscheid, Fed. Rep. of Germany, assignors to Keiper Automobiltechnik GmbH & Co. KG, Remscheid, Fed. Rep. of Germany

Filed Aug. 6, 1979, Ser. No. 64,393
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1978, 2834492
Int. Cl.³ A47C 1/025; B21D 53/28
U.S. Cl. 297—362 4 Claims



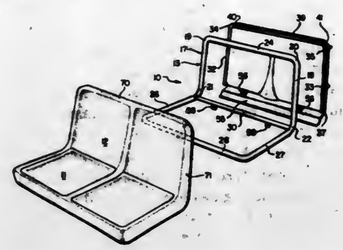
1. In an adjustable hinge mount for use in connection with a seat having a reclinable seat back, particularly a motor vehicle seat, including a first hinge member fixed to the seat and a second hinge member fixed to the seat back, a combination comprising a wobble gear assembly including an internal gear formed in the wall of one of said hinge members; a spur gear formed in the wall of the other hinge member, the diameter of said internal gear being larger than the diameter of said spur gear to mesh with the latter at one point only; a rotary axle interconnecting said hinge members and having a concentric portion supported for rotation at the center of said one gear and an eccentric portion supported for rotation at the center of said other gear to adjust the angular position of said hinge members when said axle is rotated, each of said gears being impressed in the wall of the associated hinge member to such a depth that the inner surface of the impressed portion is flush with a major surface of said hinge member; and wall bridges connecting each impressed portion to said major surface of its associated hinge member and formed respectively in the interstices between the teeth of said gear.

4,275,925

BACK SHROUD FOR SEAT

Arthur J. Harder, Jr., Franklin Park, Ill., assignor to Coach and Car Equipment Corporation, Elk Grove Village, Ill.

Filed Jul. 10, 1979, Ser. No. 56,327
Int. Cl.³ A47C 7/42
U.S. Cl. 297—444 14 Claims



1. In combination, (a) a seat frame back portion including a pair of vertically disposed side bars each having upper and lower end parts and a horizontally disposed upper bar extending between said upper end parts of said side bars and (b) a back shroud slidably mounted on said seat frame back portion, said back shroud comprising:

a pair of hook-shaped side marginal portions each having a bight integral with and extending from said back shroud and each having an upper end;

an integral top marginal portion extending between the upper ends of said side marginal portions;

said hook-shaped side marginal portions comprising means for engaging said side bars on the exterior thereof and mounting said marginal portions and said back shroud for vertical sliding movement on said side bars of the seat frame back portion;

said top marginal portion joining with the upper end of each of said side marginal portions to define two junctions;

said top marginal portion being a continuation of said side marginal portions to permit the upper ends of said side marginal portions to be slidably received, with said back shroud, upon the lower end of said side bars from below;

fastening means for engaging said back shroud to said seat frame back portion to hold said back shroud against downward sliding movement on said side bars;

and a horizontally disposed lower bar extending between, and indented frontwardly in relation to, the lower end parts of said side bars;

said fastening means comprising a first fastening element;

said back shroud comprising recessed means, in substantial alignment with said lower bar, for receiving said first fastening element and for at least partially obscuring it from view;

said fastening means comprising a second fastening element associated with said lower bar for engagement with said first fastening element.

4,275,926

DOWN HOLE PUMP WITH BOTTOM RECEPTOR

Everett L. Hodges, 49 Royal St. George, Newport Beach, Calif. 92660

Filed Jun. 28, 1979, Ser. No. 53,829
Int. Cl.³ E21B 10/44, 43/28
U.S. Cl. 299—17 7 Claims

1. An improved hydraulic mining apparatus for the economical recovery of mineral bearing materials from subterranian deposits comprising:

a drill string adapted to rotate within a bore hole extending from ground surface into said subterranian deposit;

a mining tool mounted on one end of said drill string to be disposed within said subterranian deposit;

a hydraulic cutting jet positioned on said mining tool for dislodging said mineral bearing material from said deposit and forming an aqueous mineral bearing slurry;

a hydraulic venturi pump located within the interior of said mining tool for transporting said aqueous mineral bearing slurry through said drill string to ground surface;

a first and second slurry inlet formed on said mining tool for permitting said aqueous mineral bearing slurry to enter



into said hydraulic venturi pump, said first inlet positioned to direct said aqueous mineral bearing slurry radially into said venturi pump and said second inlet positioned to direct said aqueous mineral bearing slurry axially into said venturi pump; and

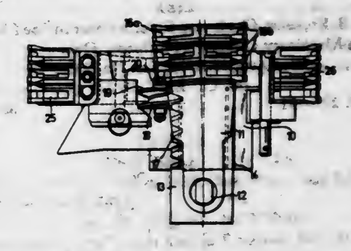
means connected to said mining tool for continuously feeding said aqueous mineral bearing slurry upward through said second inlet.

4,275,927

MINERAL MINING PLOUGH WITH WORM ADJUSTABLE ROOF CUTTER

Gerhard Merten, Lunen; Oswald Brosse, Dortmund-Huckarde, and Bernd Steinbuhl, Lunen, all of Fed. Rep. of Germany, assignors to Gewerkschaft Eisenhutte Westfalia, Lunen, Fed. Rep. of Germany

Filed Aug. 10, 1979, Ser. No. 65,488
Claims priority, application Fed. Rep. of Germany, Aug. 18, 1978, 2836133
Int. Cl.³ E21C 27/44
U.S. Cl. 299—34 6 Claims



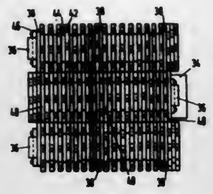
1. A plough for winning material from a mineral face, the plough having a plough body, a carrier for roof-level cutters, and means for adjusting the vertical position of the carrier with respect to the plough body, wherein the adjusting means is constituted by a worm mounted on the plough body and a toothed rack associated with the carrier, the worm meshing with the toothed rack, and wherein the toothed rack is formed on a slider which is attached to the carrier, the slider being vertically slidable within a guide formed in the plough body.

4,275,928

PLANING APPARATUS WITH BRIDGING CUTTERS

Philip Jackson, Chesterfield, England, assignor to Errut Products Limited, London, England

Filed Aug. 23, 1979, Ser. No. 68,760
Claims priority, application United Kingdom, Aug. 25, 1978, 34604/78; Feb. 7, 1979, 4259/79
Int. Cl.³ E01C 23/09
U.S. Cl. 299—39 22 Claims



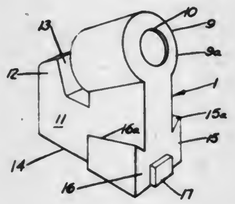
1. Planing apparatus having a rotatable drum which comprises:
- a central rotatable support;
- a plurality of secondary supports spaced around the central support;
- a plurality of support members extending radially from the central support and supporting the secondary supports in parallel relationship to the central support;
- a plurality of cutting members mounted on each secondary support;
- means axially spacing apart at least some of the cutting members on each secondary support;
- the spaces between the cutting members on one of the secondary supports being bridged or almost bridged when viewed in a direction normal to the axis of the drum by the cutting members on one or more of the other secondary supports; and
- each radially extending support member being bridged or almost bridged when viewed in a direction normal to the axis of the drum by at least one cutting member on one or more of the other secondary supports so that the depth to which the apparatus can plane is not limited to the distance between the radially outermost part of a cutting member and the radially outermost edge of any of the radially extending support members.

4,275,929

MEANS FOR REMOVABLY AFFIXING A CUTTER BIT MOUNTING LUG TO A BASE MEMBER ON THE DRIVEN ELEMENT OF A MINING MACHINE OR THE LIKE

Claude B. Krekeler, Cincinnati, Ohio, assignor to The Cincinnati Mine Machinery Company, Cincinnati, Ohio

Filed Aug. 25, 1978, Ser. No. 936,840
Int. Cl.³ E21C 25/12
U.S. Cl. 299—91 33 Claims



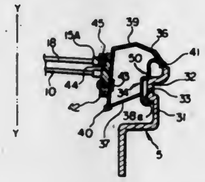
1. In a mining machine or the like of the type having at least one driven element adapted to advance a lug-base member assembly in a cutting direction, a base member mounted on said driven element, a bit carrying lug removably mounted in said base member, and a separate cutter bit removably mounted in said lug with a cutting end of said cutter bit exposed to act upon the material being cut, the improvement which comprises: said lug and said base member being configured so as to have a wedging engagement therebetween, which wedging engagement is enhanced when the said lug-base member assembly is moved in said cutting direction and said cutter bit acts upon the material being cut; said wedging engagement being achieved by at least one set of interrupted cooperating wedging surfaces on said lug and base member for retaining said lug within said base member while providing lateral support for said lug; and a separate retaining means for maintaining said lug in said base member, said retaining means being located so as to prevent said lug from being removed from said base member accidentally, and said retaining means being so configured and positioned as to enable said retaining means to be installed after said lug has been mounted in said base member.

4,275,930

WHEEL COVER COMPRISING TWO OR MORE COVER PLATES EACH HAVING SPOKE-LIKE PORTIONS INSEPARABLE FROM OTHER PORTIONS

Kiyoshi Kamihama, Yokohama, Japan, assignor to Nissan Motor Company, Limited and Hashimoto Forming Kogyo Company Limited, both of Yokohama, Japan

Filed Jan. 22, 1979, Ser. No. 5,527
Claims priority, application Japan, Jan. 27, 1978, 53/7399; Jan. 27, 1978, 53/7868[U]
Int. Cl.³ B60B 7/04
U.S. Cl. 301—37 SS 13 Claims



1. A wheel cover for a road wheel of a vehicle, comprising an assembly of at least two generally circular cover members assembled together in a concentrically piled arrangement and fixed to each other, each of said cover members being a one-piece member having a central portion, a generally annular peripheral portion and a multiplicity of elongate spoke-like portions each extending from the radially outer periphery of said central portion to said peripheral portion, said peripheral portion of one of said at least two cover members having a cylindrically shaped radially outer surface which provides a radially outermost peripheral surface of said assembly, said peripheral portion of the adjacent, remaining cover member being fixed to the radially inside of said peripheral portion of said one cover member, a retainer ring placed on an axially outer side of said peripheral portion of said remaining cover member and fixed to the radially inside of said peripheral portion of said one cover member, a generally annular frame formed of sheet metal and fixed closely to said radially outermost peripheral surface of said assembly and a plurality of resilient retaining means for securing the wheel cover to the rim of the road wheel fixed to the radially outside of said frame in a circumferentially spaced arrangement.

4,275,931

OFFSET WIRE WHEEL

Merlyn R. Reppert, Rancho Palos Verdes, Calif., assignor to W. R. Grace & Co., Columbia, Md.

Filed Jan. 30, 1979, Ser. No. 7,813
Int. Cl.³ B60B 1/04
U.S. Cl. 301—37 R 17 Claims



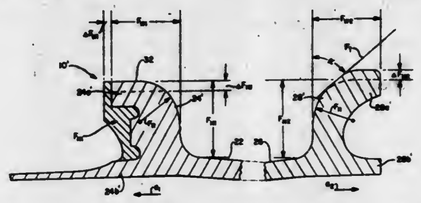
1. A weight bearing wire wheel center for use with and adapted to be affixed to the drop center portion of a tubless tire rim, said wheel center comprising a hub concentrically located within a felly and connected thereto by spokes, said felly comprising a closed circular member in planes perpendicular to the wheel center axis, the improvement comprising a plurality of portions of said felly arranged generally axially and axially seriatim, the axial innermost of said portions being adapted to be affixed to said rim, and a middle and outermost of said portions receiving the outer ends of said spokes.

4,275,932

NON-FRANGIBLE WHEEL

Roy W. Baird, Uniontown; Robert E. Berger, and Richard L. Kirk, both of North Canton, all of Ohio, assignors to Goodyear Aerospace Corporation, Akron, Ohio

Filed Jun. 8, 1979, Ser. No. 46,891
Int. Cl.³ B60B 21/00; B64C 25/32
U.S. Cl. 301—39 T 14 Claims



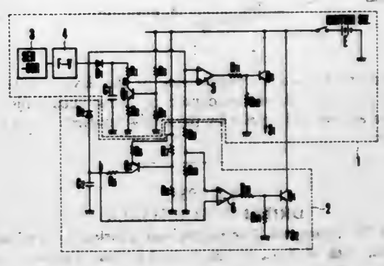
1. An improved aircraft wheel for mounting on a landing gear assembly associated with a landing gear strut, the wheel comprising inboard and outboard flanges forming bead seats for a mounted tire, the inboard and outboard directions of the wheel being with respect to the landing gear strut, the improvement comprising:
- a differential flange height established between the inboard and outboard flanges such that the outboard flange height is greater than the inboard flange height by a predetermined amount, the differential flange height providing a substantially even distribution of the loading on the wheel flanges upon deflation of the mounted tire.

4,275,933

ANTISKID DEVICE

Katsuya Miyake, Agao, Japan, assignor to Akebono Brake Industry Co. Ltd., Tokyo, Japan

Continuation of Ser. No. 828,172, Aug. 26, 1977, abandoned.
This application Apr. 9, 1979, Ser. No. 28,443
Claims priority, application Japan, Sep. 6, 1976, 51-106450
Int. Cl.³ B60T 8/02, 13/68
U.S. Cl. 303—106 5 Claims



1. An anti-skid device for a vehicle comprising:
- a wheel velocity signal producing circuit for detecting a wheel velocity and producing a signal corresponding to the wheel velocity;
- a wheel skidding detection circuit for producing a braking pressure decrease signal when skidding of a wheel takes place and then cutting off the production of the braking pressure decrease signal upon restoration of the wheel velocity;
- an increasing signal producing circuit for producing a reference acceleration signal which increases linearly from an initial voltage corresponding to the minimum wheel velocity during time after the restoration of wheel velocity, and which is isolated from the signal corresponding to the wheel velocity;
- a comparator circuit for comparing the signal corresponding to wheel velocity with the reference acceleration signal and for producing a signal for modifying the brake pressure increase when the wheel velocity signal exceeds a predetermined relation to the reference acceleration signal and for cutting off the brake pressure modifying signal when the wheel velocity signal has less than the predetermined relationship to the reference acceleration signal; and
- a pressure reducing device for decreasing the braking pressure in response to the braking pressure decrease signal, increasing the brake pressure of a first rate upon the restoration of wheel velocity, and increasing the brake pressure with a second set brake pressure increase rate higher than a first brake pressure increase rate in response to the output of the brake pressure modifying signal from the comparator circuit.

4,275,934

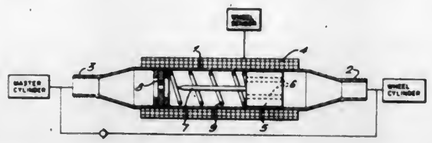
ANTI-LOCK BRAKE DEVICES

Douglas J. L. Macdonald, Lot 1157, Clear Water Bay Rd., New Territories, Hong Kong

Filed Dec. 19, 1978, Ser. No. 970,930
Claims priority, application United Kingdom, Dec. 21, 1977, 53216/77
Int. Cl.³ B60T 13/68
U.S. Cl. 303—119 7 Claims

1. An anti-lock brake device for use in a braking system of a vehicle, comprising a cylinder adapted to be installed in a pipeline connecting a master cylinder with one or more wheel cylinders, a solenoid-actuated operating member slidable in said cylinder and positionable to act as a valve member to prevent fluid flow through the device, means biasing said operating member to a position in which such fluid flow is

permitted, energization of the solenoid causing movement of the operating member against the biasing means so as to prevent said fluid flow and, as a result of volume displacement of at least a part of the operating member, to cause the fluid



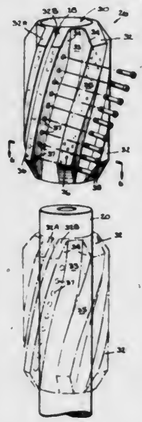
pressure on the wheel cylinder side of the device to be reduced, and a check valve adapted to allow equalization of pressure across said device by fluid flow towards the master cylinder.

4,275,935

DRILLING STABILIZER

Charles M. Thompson, Carrollton, and Charles T. Thompson, Dallas, both of Tex., assignors to American Coldset Corp., Addison, Tex.

Filed Jul. 17, 1979, Ser. No. 56,975
Int. Cl.³ F16C 29/02
U.S. Cl. 308—4 A 22 Claims



1. A stabilizer for an elongated tubular assembly for rotatably driving a well drill bit within a bore hole comprising:

(a) a hollow cylindrical body of hard material having a wall portion with an opening extending centrally throughout the length thereof substantially corresponding to the external transverse dimensions of the elongated tubular assembly and adapted to receive a length of the elongated tubular assembly therein, the wall portion being of a thickness so as to be deflectable;

(b) means formed of rigid material disposed upon the outer portion of the hollow cylindrical body and extending substantially along the length thereof for bearing upon the interior surface of a bore hole to stabilize the elongated tubular assembly within the bore hole when rotatably driving the well drill bit, said bearing means formed of rigid material having a slot extending throughout the length of the hollow cylindrical body within the length of the bearing means and intersecting the opening of the hollow cylindrical body; and

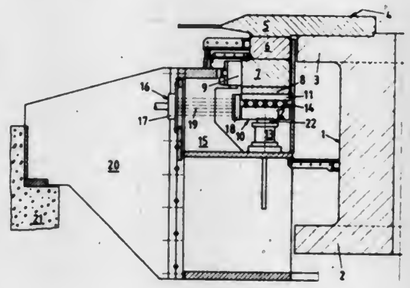
(c) means adapted to engage the bearing means adjacent one side of the slot and to extend across the slot to engage the bearing means adjacent the other side of the slot for varying the size of the opening to tighten the deflectable hollow cylindrical body into clamping engagement with the external surface of the elongated tubular assembly, the clamping engagement enabling the stabilizer to be fixedly positioned along the length of the elongated tubular assembly and to withstand torque and linear forces applied to the stabilizer in response to the engagement of the bearing means with the interior surface of a bore hole.

4,275,936

SEGMENT BEARING IN LARGE ROTARY MACHINES

Mihailo Starcevic, Mellingen, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Mar. 27, 1979, Ser. No. 24,270
Claims priority, application Switzerland, Mar. 29, 1978, 3329/78
Int. Cl.³ F16C 17/03, 17/06
U.S. Cl. 308—73 11 Claims



1. A segment bearing of the type suitable for use in connection with a large rotatable shaft, the bearing including a segment comprising:

an inclinable support member having a support area;

a friction bearing member having bearing surface; and

means including a plurality of support elements between the support member and the friction bearing member, the support elements being distributed on the support area, each support element being constructed to have a compressive strength selected such that deflections of the bearing surface are essentially uniform whereby deflection of the bearing surface occurs in such a manner that the deflected condition is parallel to the unstressed condition.

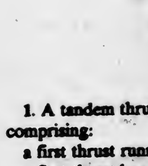
4,275,937

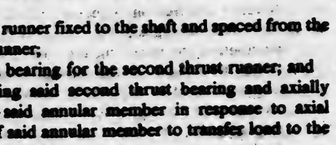
HOSE WITH BRAIDED REINFORCEMENT

Harold Belofsky, Ravenna, Ohio, assignor to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Sep. 19, 1979, Ser. No. 76,900
Int. Cl.³ F16L 11/08
U.S. Cl. 308—127 16 Claims

1. A tubular braided hose reinforcement comprising means including a plurality of braided strands, each strand comprising a group of filaments of different diameters, said strands being spirally wound about a predetermined diameter, one of said strands being wound in a right-hand direction and another being wound in a left-hand direction and alternately crossing





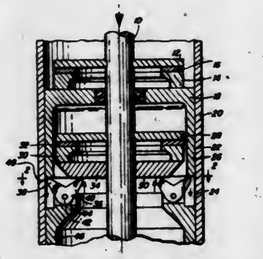
above and below each other, said means providing improved burst strength.

4,275,938

TANDEM THRUST BEARING

Leo L. Roberts, Claremore, Okla., assignor to Centrilift-Hughes, Inc., Tulsa, Okla.

Filed Nov. 21, 1979, Ser. No. 96,344
Int. Cl.³ F16C 17/04
U.S. Cl. 308—162 3 Claims



1. A tandem thrust bearing arrangement for a rotating shaft comprising:

a first thrust runner fixed to the shaft;

a first thrust bearing for the first thrust runner,

an annular member surrounding the shaft supporting said first thrust bearing and axially movable with respect to said shaft;

a second thrust runner fixed to the shaft and spaced from the first thrust runner;

a second thrust bearing for the second thrust runner; and

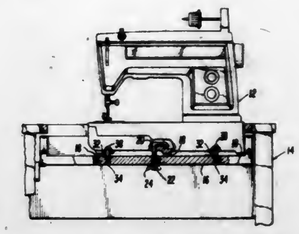
means supporting said second thrust bearing and axially movable by said annular member in response to axial movement of said annular member to transfer load to the second thrust bearing.

4,275,939

SEWING MACHINE POSITIONING PIN

Charles R. Odermann, Montville, N.J., assignor to The Singer Company, Stamford, Conn.

Filed Aug. 21, 1978, Ser. No. 935,228
Int. Cl.³ A47B 21/00
U.S. Cl. 312—208 2 Claims



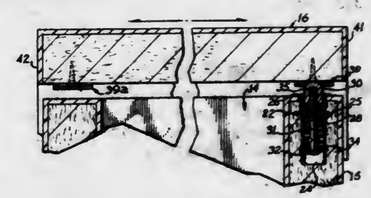
1. The combination of a sewing machine having stitch forming instrumentalities, a cabinet having a sewing machine support surface, and a positioning pin for locating any one of a variety of said sewing machines with respect to said support surface, said sewing machines having bases of varying heights wherein each base has at least one bore for receiving said positioning pin, said base having feet which rest on said support surface; said support surface also having at least one bore for receiving said positioning pin; said positioning pin comprising a first extremity and a second extremity; a flange intermediate said first and said second extremities; said first extremity being shorter than said second extremity so that said pin may be in either of two positions for accomodating any one of said variety of sewing machines having bases of varying heights.

4,275,940

UTILITY CABINET FOR DENTISTS

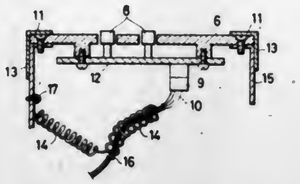
Leonard C. Draper, 3019 Kings Dr., Douglasville, Ga. 30135

Filed Jul. 12, 1979, Ser. No. 56,898
Int. Cl.³ A61C 19/02; A47B 81/00; A61B 19/02
U.S. Cl. 312—209 4 Claims



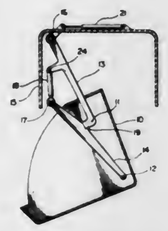
1. A utility cabinet, for dentists and the like, comprising four walls and a top, a pair of runners carried by two of said walls and carrying said top such that said top is movable with respect to said cabinet, said top having a closed position with respect to said cabinet and a functional position with respect to said cabinet, and latch means for latching said top in at least one of said positions, characterized in that said latch means includes a bolt mounted in one of said walls, said bolt having a surface with varying slope, spring means for urging said bolt towards the lower surface of said top, stop means for preventing said bolt from touching said lower surface of said top, and an escutcheon plate carried by said lower surface of said top, said escutcheon plate being spaced from said lower surface and located for engagement by said bolt.

4,275,941
SECURITY DEVICE FOR OPERATION PANEL
Tsutomu Ogasawara, and Kazuo Enomoto, both of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Filed Jan. 16, 1979, Ser. No. 3,821
Claims priority, application Japan, Jan. 27, 1978, 53/9453[U]
Int. Cl.³ H05K 5/02; A47B 96/00
U.S. Cl. 312—223 6 Claims



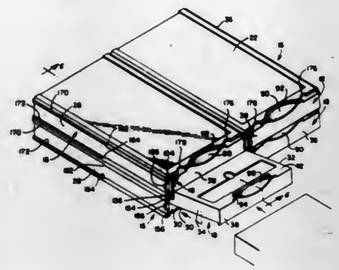
1. A device for securing an operation panel on a machine comprising: means engaging the operation panel and the machine frame to secure the panel to the frame, said engaging means arranged symmetrically relative to a rotating axis of the operation panel, and electrical wiring extending from the interior of the machine to the operation panel said wiring being provided with a length sufficient to allow the operation panel to be rotated with respect to, and secured to the machine frame in either of two positions disposed from one another through an angle of 180°, without disconnecting said wiring from said panel, and wherein said means for engagement between said operation panel and said machine frame comprises at least a pair of fastening means located about the periphery of said plate and said panel and extending between said plate and said panel, said fastening means being operable to releasably secure said panel to said frame.

4,275,942
STOWAGE BIN MECHANISM
Robert H. Steidl, Everett, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Dec. 26, 1978, Ser. No. 973,424
Int. Cl.³ A47B 49/00; B65D 43/24
U.S. Cl. 312—266 21 Claims



1. A stowage bin assembly comprising a supporting structure, a bin movable with respect to the supporting structure, and mechanism carrying said bin for said structure comprising a first pair of arms pivoted on said structure and on said bin, a second pair of arms vertically spaced from said first pair, pivoted on said structure and said bin, each of said second pair of arms being provided intermediate its length with an abutment, and each of said first pair of arms having a fork adjacent its movable end adapted to engage said abutment in one relative position of said arms.

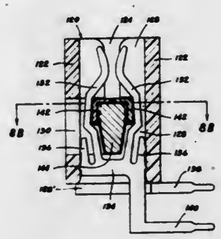
4,275,943
CONTAINER FOR A CASSETTE
Anthony Gelardi, Kennebunkport; Paul Gelardi, Cape Porpoise; Stephen Swinburne, Scarborough; Michael Janiszewski, Biddeford; Robert MacLeod, Jr., Kennebunkport; James Philippe, and David Philippe, both of Sanford, all of Me., assignors to Shape Inc., Biddeford, Me.
Filed Mar. 31, 1980, Ser. No. 135,886
Int. Cl.³ A47B 88/00; B65D 85/672
U.S. Cl. 312—319 37 Claims



1. A container for holding a cassette comprising:
(a) a rectangular casing having top, bottom and side walls, a rear wall and an open front;
(b) a frame-like bottomless slide reciprocally received in the casing for urging a casette along the inner surface of the casing bottom wall, said slide being slidable between a cassette-storing position within the casing and a cassette-exposing position partially-extended upwardly and outwardly from the casing and comprising side, rear and front walls, and a partial cutaway supporting and mounting top wall, wherein said top wall has a first section formed adjoining the rear and side slide walls and a second section formed adjoining the front and side slide walls, and wherein said side walls have upper edges tapered inwardly from the rear to a middle portion for allowing an upwardly tilting inclination of the slide against the casing top wall in the cassette-exposing position and lower edges tapered inwardly from the middle portion to the front for increased access to a stored cassette in the cassette-exposing position and for providing a pivoting point for the front portion of the slide in the cassette-storing position;
(c) spring means positioned between the rear walls of said casing and slide for biasing the slide toward the upwardly and outwardly extending cassette-exposing position,
(d) selectively releasable locking means comprising
(i) contact means for allowing finger pressure to be exerted downwardly on the slide to release the slide from a locked cassette-storing position and to selectively move the slide between the cassette exposing and storing positions, said contact means comprising a concave indentation formed in the outer surface of the front and top slide walls and a concave indentation formed in the forward edge of top casing wall for providing access to the slide concave indentation when the slide is in the locked position, and
(ii) locking means for retaining the slide in the cassette-storing position, said locking means comprising projections formed on the outer surface of the slide top wall second section adjacent and at opposite ends of the slide concave indentation, a recess formed in the inner surface of the casing top wall adjacent the casing concave indentation for receiving the slide locking projections when the slide is in the cassette-storing position and fingers formed at opposite forward ends of the recess adjacent the casing concave indentation for lockingly engaging the slide locking projections when the slide is in the cassette-storing position; and,

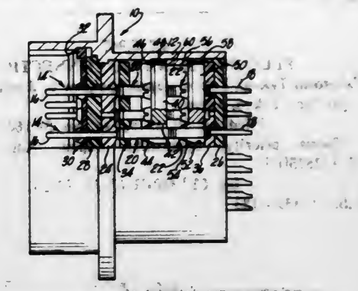
(e) stop and pivoting means for limiting movement of the slide to the partially-extended upwardly and outwardly cassette-exposing position, said stop and pivoting means comprising a pair of projections formed on the upper edge of the rear slide wall and a pair of grooves formed parallel to the side casing walls in the inner surface of the top casing wall and in which the slide stop projections slidably move, said slide stop projections engaging the forward ends of the grooves for limiting further outward movement of the slide from the casing and for establishing a pivoting point for the upwardly tilting movement of the slide against the top casing wall in the cassette-exposing position.

4,275,944
MINIATURE CONNECTOR RECEPTACLES EMPLOYING CONTACTS WITH BOWED TINES AND PARALLEL MOUNTING ARMS
Jerzy R. Sochor, 164 Rockview, Irvine, Calif. 92715
Filed Jul. 9, 1979, Ser. No. 55,731
Int. Cl.³ H01R 13/62
U.S. Cl. 339—74 R 23 Claims



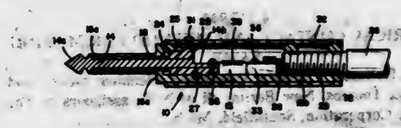
1. A contact of the type comprising a metal member having at least one elongated tine for making a primary contact, characterized in that said tine is cantilevered from a body portion of said contact, extends generally in a given direction from said body portion, has a convex mating surface facing in a direction perpendicular to said given direction, is springy and is able to flex in a plane aligned in said direction perpendicular to said given direction, and has a center portion thereof which is bowed away from a line aligned in said given direction,
said contact including a mounting arm also extending from said body portion in said given direction for at least the initial portion thereof, said mounting arm being separated from said tine by a bifurcating slot, said mounting arm also being springy and having a retaining edge facing in said direction perpendicular to said given direction, said retaining edge having at least one corner thereon for engaging the wall of an insulator housing,
at least a portion of said mounting arm being positioned (a) under at least a portion of said tine, when viewed in a direction opposite to said given direction, and (b) in the same height area, measured in said given direction, as the portion of said tine adjacent said body portion of said contact and between said center portion of said tine and said body portion of said contact, whereby the dimensions of said contact in said given direction and in said direction perpendicular to said given direction will be minimized and the beam length of said tine will be optimized.

4,275,945
FILTER CONNECTOR WITH COMPOUND FILTER ELEMENTS
Leonard A. Krantz, and Edward P. Hogan, both of Sidney, N.Y., assignors to The Bendix Corporation, Southfield, Mich.
Filed Aug. 31, 1979, Ser. No. 71,445
Int. Cl.³ H01R 13/66
U.S. Cl. 339—147 R 5 Claims



1. In combination with a filter connector of the type having a metal shell and a plurality of filter contacts mounted in said shell, each of said filter contacts having a center conductor and a first and second filter element mounted on each of said center conductors; each of said filter elements including a dielectric sleeve disposed coaxially of said conductor and having at least one active capacitor electrode and a common ground electrode thereon, said ground electrode being disposed on the external surface of said sleeve; said first and second filter elements being connected in cascade with the active electrodes conductively connected with said central conductor; the improvement comprising:
a ferri-ceramic sleeve interposed coaxially of the dielectric sleeve and the conductor;
a first ground plate connecting the ground electrode of each of said first filter elements to said shell;
a second ground plate connecting the ground electrode of each of said second filter elements to said shell;
said active electrode is separated from the ground electrode; and
a coating of dielectric material covering the separation between the active electrode and the ground electrode whereby flash over between the ground and the active electrodes is minimized.

4,275,946
ELECTRICAL CONNECTING PLUG
Mitch Manina, 11090 McBroom St., Sunland, Calif. 91040, and William Lemmick, 16258 Stare St., Sepulveda, Calif. 91343
Filed May 16, 1979, Ser. No. 39,670
Int. Cl.³ H01R 17/18
U.S. Cl. 339—183 8 Claims



1. A phone plug having special utility in the electrical musical instrument field, comprising:
a body;
a tubular electrode configured for insertion into an associated jack and extending outwardly from the body;
a second electrode having a rod shaped portion slidably disposed in the tubular electrode and a contact tip connected to the distal end of the rod shaped portion and

extending from the distal end of the tubular electrode, said rod shaped portion being electrically isolated from the tubular electrode along the length thereof;

bias means for normally biasing the contact tip against the distal end of the tubular electrode, thereby shorting the phone plug; and

activation means for disengaging the contact tip from the tubular electrode when the plug is inserted into an associated jack to thereby remove said short.

4,275,947

PLUG FOR ELECTRIC CONNECTIONS

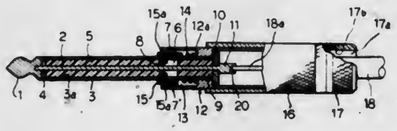
Taketoshi Takagi, Tokyo, Japan, assignor to Japan Music Supply Inc., Tokyo, Japan

Filed Jul. 20, 1979, Ser. No. 59,166

Claims priority, application Japan, Aug. 18, 1978, 53/112575[U]

Int. Cl.³ H01R 17/18, 33/54

U.S. Cl. 339—183 **5 Claims**



1. In a connector plug for insertion into a jack, including a tip contact member having an elongated center lead rod extending therefrom, a cylindrical side contact member coaxially located around said center lead rod, insulation means for electrically isolating said tip contact from said side contact, and a plug body to which said tip and side contact members are mounted,

the improvement comprising:

a contactor electrically connected to said center lead rod;

a hollow cylindrical relief member circumferentially surrounding and electrically coupled to said cylindrical side contact member and movable relative to said side contact member between a first position in which said relief member directly electrically contacts said contactor and a position in which said relief member is out of electrical contact with said contactor, at least a portion of said relief member extending outside said plug body when in said first position; and

bias means for biasing said hollow cylindrical relief member toward said first position of said relief member to electrically connect together said center lead rod and said side contact member;

said hollow cylindrical relief member having a cylindrical forward end which is adapted to be forcedly pushed by an outer edge of a jack to cause said relief member to move to a position out of electrical contact with said contactor when said plug is inserted into said jack to thereby electrically disconnect said center lead rod from said side contact member.

4,275,948

ELECTRICAL CONTACT AND METHOD FOR MAKING SAME

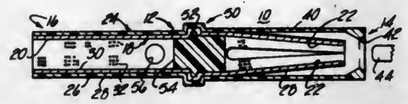
David O. Gallusser, Oneonta; Valentine J. Hemmer, Sidney, and Gary C. Toombs, New Berlin, all of N.Y., assignors to The Bendix Corporation, Southfield, Mich.

Filed Aug. 31, 1979, Ser. No. 71,466

Int. Cl.³ H01R 13/12

U.S. Cl. 339—218 R **12 Claims**

1. For use in an electrical connector of the type including at least one pair of pin and socket contacts, a socket contact comprising a tubular body having a foraminous metal wall defining inner and outer electrically conductive contact surfaces with the interstices thereof impregnated with plastic and the wall outer contact surface being coated by said plastic, said tubular body having a wire receiving end and a mating end having plural contact fingers, said mating end including an electrically conductive contact surface adapted to engage a conductive surface of a mating contact, the conductive surface being free of said plastic except for islands of plastic in said



interstices and a plastic sleeve disposed coaxially of said contact fingers and being spaced radially therefrom, said sleeve terminating at its front and forwardly of said fingers and defining an opening coaxial therewith to provide a closed entry for guiding a pin contact into said contact fingers.

4,275,949

METHOD OF AND MEANS FOR SCANNING IMAGES

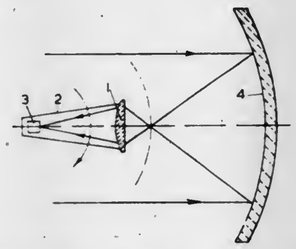
Neal K. Jones, 88 Gladstone Rd., North Brighton, South Australia, Australia

Continuation-in-part of Ser. No. 894,932, Apr. 10, 1978, abandoned. This application Mar. 27, 1980, Ser. No. 134,575

Claims priority, application Australia, Apr. 13, 1977, PC9731

Int. Cl.³ G02B 27/17

U.S. Cl. 350—6.3 **14 Claims**



1. A method of scanning the image of a detector along a scan line in the field of view from which to detect objects in the field of view, which comprises:

(a) positioning a primary collecting spherical mirror of wide angular field to collect radiation from the field of view, said primary spherical mirror forming a spherical primary image surface containing uncorrected aberrations due to said primary mirror being spherical said aberrations being distributed uniformly over the said primary image surface,

(b) locating an auxiliary optical system between the primary optical system and the center of curvature of the primary image surface and arranged to scan the image field of the said primary spherical mirror by moving about an axis passing through the center of curvature of the said primary image surface,

(c) correcting the aberrations of the primary spherical mirror by adjusting the spacings and shapes of the surfaces of the said auxiliary optical system to provide aberrations of opposite sign and equal magnitude to the aberrations produced by the primary spherical mirror,

(d) directing the corrected radiation from said auxiliary optical system on to a further detector optical system which focuses said corrected radiation on to a detector, whereby to produce an improved definition scanning system with wide field of view and at large relative aperture.

4,275,950

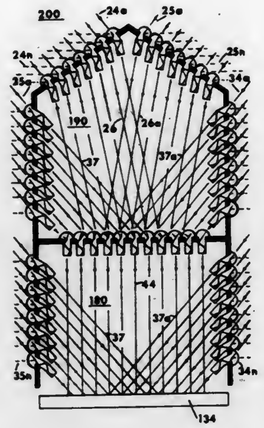
LIGHT-GUIDE LENS

Stanley A. Meyer, U.S. Post Office Tri-Village Station, Columbus, Ohio 43212

Filed Feb. 4, 1980, Ser. No. 104,081

Int. Cl.³ G02B 5/16; F24J 3/02

U.S. Cl. 350—96.10 **10 Claims**



1. A solar energy light-guide collector-concentrator silo lens comprising an array of light-steering lenses inserted into a silo lens-plate in combination:

an enclosure,

a contoured capping light-guide lens positioned in the upper most region of said enclosure, said contoured capping light-guide lens comprising an array of light-steering lenses inserted into said contoured capping lens-plate, said light-steering lenses periodically displaced from each other in said array and wherein said light-steering lenses are directive to focus said solar energy to a plurality of spaced transference light-guide lenses in stacked relationship.

A focusing light-guide lens section positioned in the lower most region of said enclosure, said focusing light-guide lens comprising an array of light-steering lenses inserted into said focusing lens-plate, said light-steering lenses periodically displaced from each other in said array and wherein said light-steering lenses are directive to focus said collected solar energy to a central region.

A contoured light-guide wall lens positioned within said enclosure intermediate of said contoured capping light-guide lens and said focusing light-guide lens and perimeter position around said transference light-guide lenses, said wall lens comprising an array of light-steering lenses inserted into said contoured wall lens-plate, said light-steering lenses periodically displaced in said array and wherein said light-steering lenses are operative to uniformly distribute said solar energy to said transference light-guide lenses.

Said enclosure further compriaes a plurality of spaced transference light-guide lenses in stacked relationship within said wall lens, said transference light-guide lens comprising an array of light-steering lenses inserted into said flat-surface lens-plate, said light-steering lenses periodically displaced from each other in said array and wherein said light-steering lenses are directive to transfer said collected solar energy to said focusing lens.

4,275,951

OPTICAL FIBRES AND GLASSES

Keith J. Beales; William J. Duncan, both of Ipswich; Anthony G. Dunn, Woodbridge, and George R. Newns, Hintlesham, all of England, assignors to The Post Office, London, England

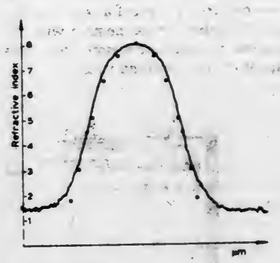
Continuation of Ser. No. 919,238, Jun. 26, 1978, abandoned.

This application Dec. 20, 1979, Ser. No. 105,652

Claims priority, application United Kingdom, Jun. 28, 1977, 26924/77

Int. Cl.³ C03C 3/06, 13/00; G02B 5/14

U.S. Cl. 350—96.31 **6 Claims**



1. An optical fiber having

(a) a total insertion loss of less than 20 dB/km,

(b) a graded refractive index in which gradation of the refractive index is produced by thermal diffusion of alkaline earth metal ions,

(c) a cladding formed from a first glass composition consisting essentially of sodium oxide, boric oxide, silica and optionally alkaline earth metal oxide, said first glass composition being within the range defined by region A of FIG. 1 of the drawings or derived from a composition within that range by partial replacement of sodium oxide or sodium oxide and silica by alkaline earth metal oxide in a proportion not exceeding 20 mole percent, said first glass composition being non-devitrifying and non-phase-separating under optical fiber production conditions, and

(d) a core formed from a second glass composition consisting essentially of sodium oxide, boric oxide, silica and alkaline earth metal oxide, said second glass composition being derived from a composition within the range defined by region A of FIG. 1 of the drawings by partial replacement of sodium oxide or sodium oxide and silica by alkaline earth metal oxide in a proportion not exceeding 20 mole percent and sufficient to raise the refractive index to a value at least 1 percent higher than that of said first glass composition, said second glass composition being non-devitrifying and non-phase-separating under optical fiber production conditions.

4,275,952

COMPACT ZOOM LENS BARREL WITH HIGH ZOOMING RATIO

Kyozo Uesugi, Sakai, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 7, 1979, Ser. No. 91,942

Claims priority, application Japan, Nov. 17, 1978, 53-159295[U]

Int. Cl.³ G02B 7/10

U.S. Cl. 350—429 **12 Claims**

1. A zoom lens barrel having incorporated therein an optical system comprising at least two lens groups, the first of the lens groups being usable for both focusing and zooming, the lens barrel comprising,

a stationary cylinder attachable or fixed to the main body of a camera,

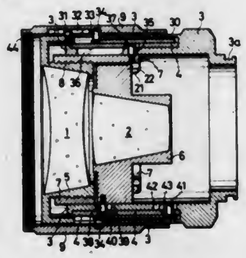
a single operating ring rotatably and axially movably supported on the outermost portion of the stationary cylin-

der, the operating ring being rotatable for focusing and axially movable for zooming,

a first lens moving frame axially movably supported by the stationary cylinder,

a first lens holding frame for holding the first lens group, the first lens holding frame being supported by the first lens moving frame with support means provided between the frames for moving the first lens group for focusing, the first lens holding frame being provided with means for engaging the holding frame with the operating ring to cause the holding frame to follow the movement of the operating ring only in the direction of rotation of the ring,

an intermediate member supported by the stationary cylinder movably axially thereof and provided with means for engaging the intermediate member with the operating ring to cause the intermediate member to follow only the axial movement of the operating ring,



a second lens holding frame supported by the stationary cylinder at least axially movably and holding a second lens group,

a cam member supported by the stationary cylinder and turnable about the axis of the cylinder,

means for converting an axial operating force on the operating ring to a torque of the cam member by way of the intermediate member and the stationary cylinder,

means for converting the rotation of the cam member to an axial movement of the first lens holding frame by way of the stationary cylinder and the first lens moving frame, and

means for converting the rotation of the cam member to an axial movement of the second lens holding frame by way of the stationary cylinder.

4,275,953

EXPOSURE PARAMETER INFORMATION GENERATING CIRCUIT IN A SINGLE LENS REFLEX CAMERA

Sakuji Watanabe, Warabi; Yoshiaki Ohtsubo, and Kenji Toyoda, both of Kawasaki, all of Japan, assignors to Nippon Kogaku K.K., Tokyo, Japan

Filed Sep. 7, 1979, Ser. No. 73,449

Claims priority, application Japan, Sep. 14, 1978, 53/113017

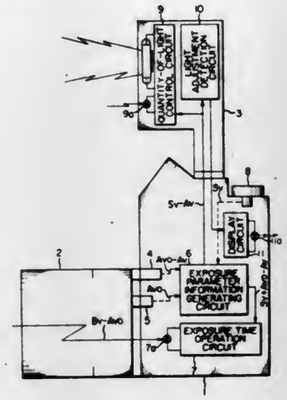
Int. Cl.³ G03B 7/08, 7/20

U.S. Cl. 354—33 **7 Claims**

1. In a single lens reflex camera whose photographing lens is interchangeable, said photographing lens having a first signal member for mechanically putting out the information of an exposure parameter $A_{vo}-A_v$ (A_{vo} is an APEX symbol representing an aperture value when the diaphragm of said photographing lens forms a maximum aperture and A_v is an APEX symbol representing a present aperture value) and a second signal member for mechanically putting out the information of an exposure parameter A_{vo}, said camera being usable in combination with an electronic flash unit and having a third signal member for mechanically putting out the information of a preset exposure parameter S_v (this is an APEX symbol representing the ASA speed value), an exposure time operation circuit for metering the object light passed through the maximum aperture of the diaphragm of said photographing lens and operating a proper exposure time, and a circuit for generating exposure parameter information, said exposure parameter information generating circuit comprising:

(a) first converter means for converting the mechanical outputs of said first and third signal members into electrical output information $S_v+A_{vo}-A_v$;

(b) second converter means for converting the mechanical output of said second signal member into electrical output information A_{vo};



(c) an adder circuit for adding the electrical outputs of said first and second converter means and electrically putting out S_v-A_v information;

(d) a first output terminal for applying the output of said first converter means to said exposure time operation circuit; and

(e) a second output terminal for applying the output of said adder circuit to said electronic flash unit.

4,275,954

AUTOMATIC FOCUSING APPARATUS FOR CAMERA

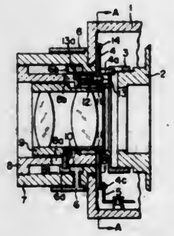
Toshio Dobashi, Kawasaki, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Aug. 8, 1979, Ser. No. 64,717

Claims priority, application Japan, Aug. 17, 1978, 53-111965[U]

Int. Cl.³ G03B 3/00, 7/08

U.S. Cl. 354—198 **9 Claims**



1. An automatic focusing apparatus for use in a camera for focusing a photographic lens by axial displacement thereof along the optical axis of the lens, the camera having winding means for winding film and for charging a shutter, and shutter release means for releasing the shutter to effect an exposure, comprising:

a manual focusing member movable within a predetermined range from a predetermined position;

means for coupling the manual focusing member to the lens and for displacing the lens along the optical axis for focusing in accordance with the movement of the manual focusing member within said predetermined range;

automatic focusing means including an automatic focusing member coupled to the lens, the automatic focusing member having a charge position and being displaceable from the charge position in response to the operation of the shutter release means for displacing the lens along the optical axis for focusing in accordance with the displacement of the automatic focusing member;

blocking means for blocking movement of the automatic focusing member from the charge position except when the manual focusing member is in said predetermined position; and

means responsive to the operation of the winding means for moving the automatic focusing member from a displaced position to the charge position, said winding means being ineffective to vary the position of the manual focusing member.

4,275,955

SHUTTER RELEASE INTERRUPTING SYSTEM

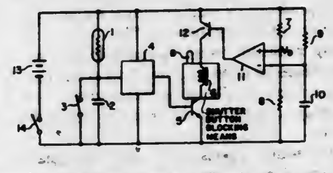
Kiyoshi Kitai; Yuzuru Takazawa, and Shinji Nagaoka, all of Shikawatashi, Japan, assignors to Seiko Koki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 15, 1979, Ser. No. 12,508

Claims priority, application Japan, Feb. 20, 1978, 53-20521[U]

Int. Cl.³ G03B 17/38

U.S. Cl. 354—268 **2 Claims**



1. A shutter release interrupting system comprising a shutter release button, a power source, a power source switch which is closed by an initial increment of movement of said shutter release button, and means for stopping the depression of said shutter release button when said shutter release button is pushed down more rapidly than a predetermined speed, said shutter release button stopping means comprising electromagnet means for stopping depression of said shutter release button, said stopping means being normally in condition to block further depression of said shutter release button and being operable to produce an unblocking condition, and a delay time control circuit for said electromagnet means, including an RC integrated circuit and a voltage comparator, said control circuit being actuated upon closing of said power switch and providing an output signal a predetermined delay time after closing of said power switch, said electromagnet means being connected with the output of said delay time control circuit, whereby activation of said electromagnet means to produce said unblocking condition is delayed by said delay time control circuit for a predetermined period of time after said power switch is closed.

4,275,956

DEVELOPING APPARATUS

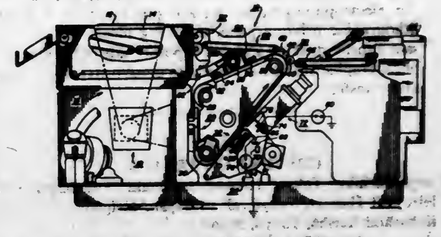
George E. Bell, Ontario; Clement B. Wilson; Daniel H. Thibado, both of Webster, and Kenneth S. Palumbo, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 882,749, Jan. 2, 1977, abandoned. This application Jan. 26, 1979, Ser. No. 6,783

Int. Cl.³ G03G 15/08

U.S. Cl. 355—3 DD **4 Claims**

1. An improved developing apparatus for developing an electrostatic latent image on a photoreceptor, the developing apparatus including a developer housing defining a sump for containing developer comprising carrier beads and toner particles, a sensor for controlling the dispensing of additional toner into the sump, means for transporting toner from the sump to the photoreceptor to develop the latent image, and means for directing developer from the transporting means to the sensor before being returned to the sump, the directing means including a screen for separating contaminates from the developer before the developer arrives at the sensor and a guide plate for directing the developer from the transporting means to the screen, and the controlling means including means connected to ground for discharging the guide plate only after the guide plate has been charged to a predetermined value.



4,275,957

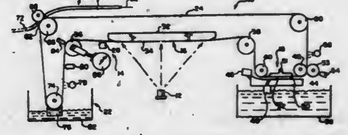
OFFSET PLATE IMAGE TRANSFER ATTACHMENT FOR GRAPHIC ART CAMERAS

Manfred R. Kuehnle, Lexington, and George J. Perry, Sudbury, both of Mass., assignors to Coulter Systems Corporation, Bedford, Mass.

Continuation-in-part of Ser. No. 882,573, Jan. 1, 1977, abandoned. This application Nov. 28, 1978, Ser. No. 964,204

Int. Cl.³ G03G 15/26

U.S. Cl. 355—10 **77 Claims**



1. An attachment for a graphic arts camera for use in making a lithographic printing plate electrophotographically comprising:

rotatable endless web means including at least an electrophotographic surface portion, said web and electrophotographic surface portion including a front or exposure side and a back side;

drive means for rotating said web sequentially through a set of stations;

said set of stations including;

a charging station located adjacent said exposure side including corona means for charging said electrophotographic surface portion while it is in said charging station;

an exposure station following said charging station including planar platen means having a surface uniformly exactly in the image plane of the camera for accommodating the exposure side of the electrophotographic surface thereon to position and to hold said portion exactly in the image plane of the camera for exposure, sensing means for locating and stopping said electrophotographic surface portion against said platen means surface exactly in said image plane, and positive pressure fluid means at said exposure station operable to release said electrophotographic surface portion from the image plane upon completion of exposure whereby to facilitate passage of the web past said platen means;

a toning station immediately following said exposure station including means for applying a substantially constant amount of toner in a smooth and nonturbulent flow across the width of only said exposure side of the electrophotographic surface portion as it is moved through said toning station; and

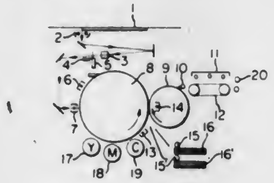
a transfer station following said toning station including means for transferring an image from said exposure side of the electrophotographic surface portion onto a blank lithographic printing plate, including means for moving said transfer medium and said exposure side of the electrophotographic surface portion into close proximity during said transfer.

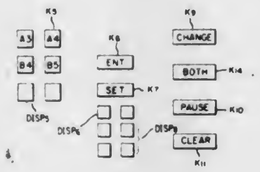
4,275,958

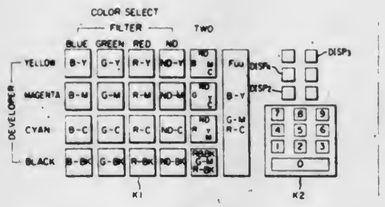
COPYING APPARATUS

Tetsuji Tachika, Tokyo; Hisashi Sakamaki, Yokohama, and Hiroyuki Hattori, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1977, Ser. No. 797,846
Claims priority, application Japan, May 21, 1976, 51-56705
Int. Cl.³ G03G *15/00*
U.S. Cl. 355—14 R 20 Claims







1. A copying system having a copying apparatus comprising:

storage means for storing different copy mode data for each of a plurality of copying operations, wherein each copying operation comprises the formation of a plurality of complete copies; and

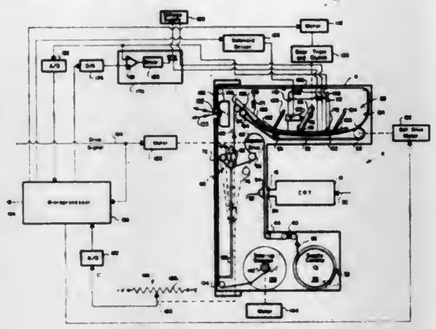
control means for causing said copying apparatus to carry out a first copying operation to obtain a first plurality of copies in accordance with first copy mode data stored in said storage means, and, after terminating the first copying operation, to carry out a second copying operation to obtain a second plurality of copies in accordance with second copy mode data stored in said storage means, wherein the second copy mode data is different from the first copy mode data and is stored in said storage means during the first copying operation.

4,275,959

FILM PROCESSOR APPARATUS

Howard P. Jones, Salt Lake City, Utah, assignor to Edo Western Corporation, Salt Lake City, Utah

Filed May 10, 1979, Ser. No. 37,660
Int. Cl.³ G03B *27/72*
U.S. Cl. 355—20 12 Claims



1. A dry film processor for use in a system which supplies processor speed signals, said processor including

supply means for supplying dry film,

receiving means for receiving and holding film,

storage means for receiving film from said supply means and for supplying the film to said receiving means at a speed which may vary from the speed at which the film is received,

first drive means responsive to said speed signals for causing the film to move from said supply means to said storage means at a first variable speed determined by said speed signals,

means for exposing the film to light images to be stored on the film,

heater means for heating the film to enable development thereof, said heater means including a heater element movable toward and away from the film,

second drive means responsive to control signals for causing film to move from said storage means past the heater element at a second variable speed to said receiving means, which second variable speed may be different from said first variable speed, said second variable speed having a range of between zero and a maximum speed, and

control means for supplying control signals to said second drive means.

4,275,960

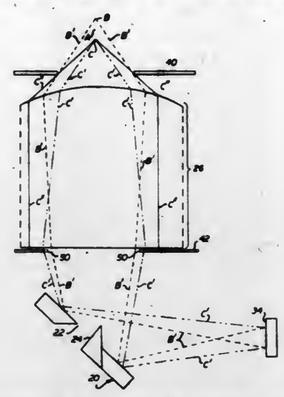
SYSTEM FOR ENHANCED LIGHT UNIFORMITY IN A DOCUMENT SCANNING SYSTEM

Millard A. Habegger, and Ross B. Hooker, III, both of Boulder, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 13, 1979, Ser. No. 66,052
Int. Cl.³ G03B *27/52, 27/80*
U.S. Cl. 355—68 5 Claims

1. In a system in which a light beam from a light source is scanned over the surface of a document or the like located at a nominal document position within the system, retro-scattered by the document, collected by a lens system and focused upon a detector and in which the intensity of the light impinging upon the detector is indicative of information contained upon the portion of the surface of the document being scanned, the improvement comprising:

means disposed between the nominal document position and the lens system for limiting the solid angle of collection of retro-scattered light from a first position beyond the nominal document position from the lens system to a first



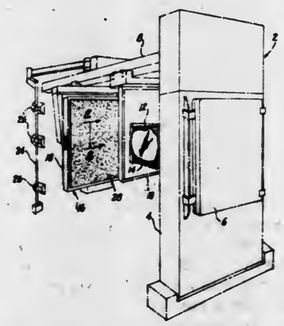
predetermined angular value and means disposed between the lens system and the detector for limiting the solid angle of collection of retro-scattered light from a second position between the nominal document position and the lens system to a second predetermined angular value.

4,275,961

HALFTONE PHOTOGRAPHIC METHOD AND APPARATUS

Emanuel J. Fontana, 10810 Tyrone Dr., Upper Marlboro, Md. 20870

Filed Aug. 14, 1979, Ser. No. 66,409
Int. Cl.³ G03B *27/72, 27/32*
U.S. Cl. 355—71 10 Claims



1. In the method for making a halftone from a continuous tone original copy utilizing a process camera means in which are mounted a suitable screen and a negative, said process camera means including a copyboard upon which the original copy is mounted, the method steps of:

making a main exposure of said negative by illuminating the original copy and opening the lens of said process camera for a first selected period of time;

placing a reflector board over said original copy, said reflector board having a gray scale value greater than the gray scale value of the highlight and at least the lower middletone areas of the original copy;

making a supplemental exposure of said negative, by illuminating the reflector board and opening the lens of said process camera for a second selected period of time; and

developing said exposed negative.

7. In apparatus for making a halftone from a continuous tone original copy, said apparatus including a process camera means for mounting a suitable screen and a negative, and a copyboard means adapted for mounting said original copy thereon:

a reflector card for use in making a supplemental flash exposure of said original copy;

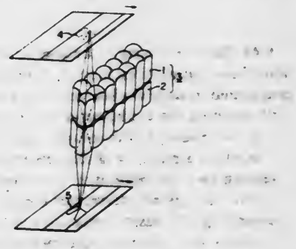
said reflector card being adapted for mounting on said copyboard means, and having a gray scale value which lies in a range of between about 45% to about 80% of the shadow density of the original copy.

4,275,962

PROJECTION DEVICE

Koyo Midorikawa, Tokyo; Atuso Tsunoda, Fuchu; Hidetoshi Murase; Noritaka Mochizuki, both of Yokohama; Setuso Minami, Kawasaki; Yoshiya Matsui, Yokohama; Masazumi Moriwaki, Tokyo, and Mikio Suzuta, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 20, 1979, Ser. No. 105,789
Claims priority, application Japan, Dec. 28, 1978, 53-165885; Dec. 28, 1978, 53-165886; Dec. 28, 1978, 53-165887; Dec. 28, 1978, 53-165888; Dec. 28, 1978, 53-165889; Dec. 28, 1978, 53-165891; Dec. 28, 1978, 53-165893; Dec. 28, 1978, 53-165894; Dec. 28, 1978, 53-166049; Dec. 28, 1978, 53-166054; Dec. 28, 1978, 53-166055
Int. Cl.³ G03B *27/00*
U.S. Cl. 355—1 13 Claims



1. A projection device having:

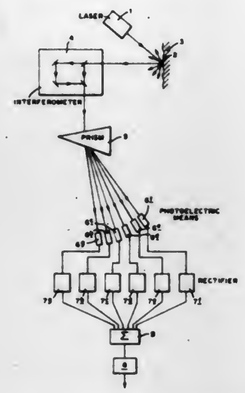
two bar lenses each having a great length in the direction of the optic axis thereof as compared with the effective diameter thereof and controlling the distribution of intensity of light in a predetermined part area on an image plane corresponding to a part area of an object, by a lens aperture eclipse, said distribution of intensity of light being such that the intensity of light is weaker in the marginal area than at least in the central area;

a light absorbing portion provided on the outer peripheral portion of said bar lenses for attenuating and eliminating unnecessary light rays which reach the other portion of said bar lenses than the effective diameter area thereof;

one lens holding member for controlling the position of a plurality of element lens systems in the direction of the optic axis arranged substantially equidistantly in a predetermined direction in a plane perpendicular to the optic axis, by groove portions in the direction of the optic axis, such that distributions of intensity of light are superposed upon one another at least in said marginal area, each of said element lens systems comprising said light absorbing portion and said bar lenses; and

the other lens holding member provided with substantially equidistant groove portions offset by a half pitch with respect to and opposed to said groove portions of said one lens holding member, said other lens holding member being for controlling the position of said element lens systems in the direction of the optic axis in said groove portions.

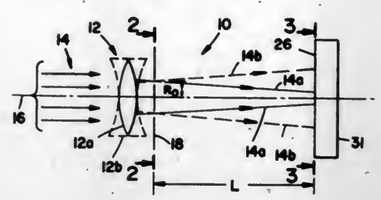
4,275,963
METHOD AND APPARATUS FOR SENSING ULTRASONIC ENERGY
Erik Primbsch, Cologne, Fed. Rep. of Germany, assignor to Krautkramer-Branson, Inc., Stratford, Conn.
Filed Feb. 21, 1980, Ser. No. 123,377
Claims priority, application Fed. Rep. of Germany, May 8, 1979, 2918384
Int. Cl.³ G01B 11/16, 9/02
U.S. Cl. 356—35.5 5 Claims



1. Method for sensing by optical means the surface deformation of a workpiece resulting from ultrasonic energy which is propagated in such workpiece comprising:
illuminating the workpiece surface where such deformation is to be sensed with a laser beam whose light spectrum contains a plurality of discrete wavelengths;
passing the laser beam light reflected at the workpiece surface through interferometer means;
separating the laser beam light from the interferometer means into separate light beams corresponding to said plurality of discrete wavelengths;
providing a plurality of electrical signals corresponding to said light wavelengths;
rectifying separately each of said electrical signals whereby to provide a plurality of direct current electrical signals, each signal responsive to the intensity of light of a respective wavelength, and
summing said direct current electrical signals.

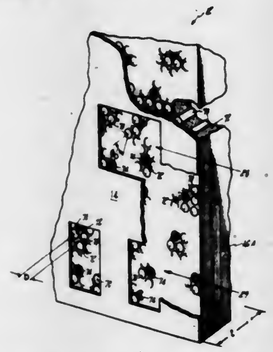
4,275,964
APPARATUS AND METHOD FOR DETERMINING THE REFRACTIVE CHARACTERISTICS OF A TEST LENS
Arthur Vassiliadis, Mountain View, Calif., assignor to Rodenstock Instruments Corporation, Sunnyvale, Calif.
Filed May 18, 1979, Ser. No. 40,139
Int. Cl.³ G01B 9/00
U.S. Cl. 356—125 28 Claims

24. A method for determining the refractive characteristics of a test lens, comprising:
(a) generating a nonrotatable collimated beam of light surrounding a central axis;
(b) propagating the beam of light through the test lens to refract the light beam;



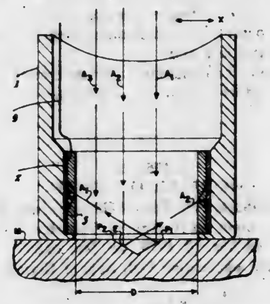
(c) forming a stationary loop of light from the refracted beam at a plane, and
(d) detecting a plurality of points of the loop at the plane.

4,275,965
LONG STROKE, HIGH RESOLUTION OPTICAL POSITION SENSOR
Elias Saltzer, West Hartford; Donald E. Anschutz, Somers, and Edward V. Fox, Jr, East Granby, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.
Filed Aug. 21, 1979, Ser. No. 68,374
Int. Cl.³ G01B 11/14
U.S. Cl. 356—375 4 Claims



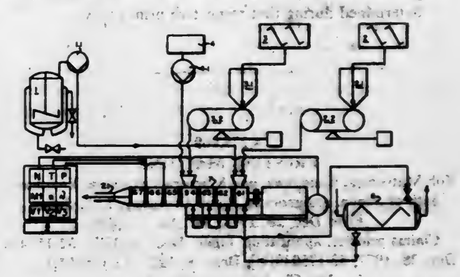
1. An improved optical position sensor of the type which includes a code plate adapted for movement, in unison with the displacement of a reciprocating device whose position is to be measured, through a light transmission path established between the matching surfaces of a light transmitter and a light receiver spaced therefrom at a first dimension, the code plate including a substrate with an optical mask disposed thereon, the mask encoded with a plurality of transparent and opaque regions arrayed along each of a plurality of bit channels, the transmitter and receiver each including an optical waveguide associated with each bit channel to provide, in combination with a light emitting source and a light detecting source connected thereto, an encoded optical signal for each bit channel in dependence on the position of a transparent region or an opaque region therebetween, the improvement comprising:
a code plate having a substrate comprising a fiber optic faceplate, said faceplate having two major surfaces relatively spaced at a dimension selected in dependence on the first dimension, each parallel to an associated one of the surfaces of the transmitter and receiver, said faceplate including a plurality of adjacent transmissive fiber optic cores disposed in parallel between said major surfaces, each of said cores being encased along the circumferential length thereof with an optical cladding material having a lower index of refraction than said cores to provide a plurality of parallel optical waveguides through said substrate, each waveguide providing a light transmission path therethrough from one end thereof at said major surface adjacent the transmitter to the other end thereof at said major surface adjacent the receiver, said code plate further including an optical mask encoded with a plurality of transparent and opaque regions in each of a plurality of bit channels, said mask being adapted for disposal on one of said two major surfaces of said faceplate to provide registration of each of said transparent regions with a portion of said plurality of optical waveguides therein.

4,275,966
METHOD AND APPARATUS FOR THE MEASUREMENT OF HARDNESS TESTING INDENTATIONS
Claus Kleesattel, Apartado 4969, San Jose, Costa Rica
Filed Jan. 18, 1979, Ser. No. 4,325
Int. Cl.³ G01B 11/22; G02B 27/17; G01N 3/40
U.S. Cl. 356—378 5 Claims



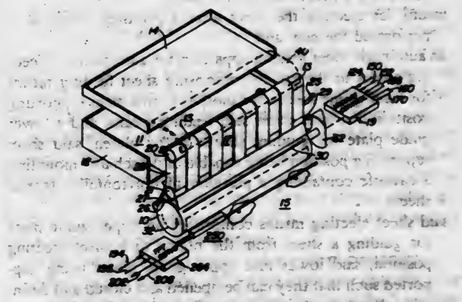
1. The method of measuring the magnitude of hardness testing indentations in solid surfaces utilizing a beam from a light source which at the point of incidence is small with respect to the size of the indentation being measured and which is directed at substantially normal incidence to the indented surface comprising the steps of:
(a) applying a loading force through a transparent indenter in the same direction as the incident light beam,
(b) scanning an indentation made in the solid surface under test through said indenter in at least one direction by moving said light beam across the working surface of the indenter at substantially normal incidence to the plane of said solid surface,
(c) encircling the light exit surface of the transparent indenter with a light-sensitive surface in accordance with the geometries of said indentation and indenter which does not interfere with the scanning of said indentation, said light sensitive surface receiving light specularly reflected from said indentation;
(d) measuring the intensity of the specularly reflected light from said indenter and indentation within a predetermined angular range covered by said light-sensitive surface, and
(e) determining the magnitude of said indentation utilizing the intensity variation of the specularly reflected light from said indenter and indentation occurring when the light beam arrives at or exits the indentation.

4,275,967
METHOD FOR THE CONTINUOUS PRODUCTION OF EXPLOSIVE MIXTURES
Emil-Richard Erbach, Volpinghofer Str. 46a, 506 Bergisch Gladbach 2; Max Klimsch, Brachbenner Str. 87, 909 Leverkusen; Gerhard Lindner, Schillerstr. 4a, 5064 Rosrath, and Paul Lingens, Kurtekotter Str. 22, 5068 Odenthal, all of Fed. Rep. of Germany
Filed Jun. 6, 1979, Ser. No. 46,000
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1978, 2825567
Int. Cl.³ B01F 7/08; C06B 21/00
U.S. Cl. 366—149 5 Claims



1. In a method for the continuous manufacture of explosive mixtures by mixing their components in screw mixers with at least one charging aperture, the improvement comprising: bringing proportioned amounts of the components of the mixture into entry zones provided with screw elements and situated beneath the charging aperture and advancing the mixture components through kneading zones which are interupted by transport zones having screw elements, to the output end, the transport and kneading zones being selectively adjusted in sequence and configuration and being furthermore adjusted such that in these zones a shear gradient between 20/sec and 1500/sec is present and the maximum pressure in the stream of the mass is not more than 100 bars.

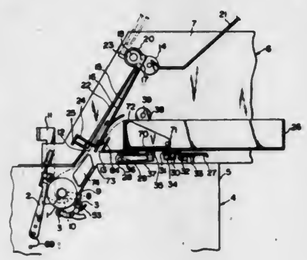
4,275,968
SYSTEM FOR CONTROLLING AND SEQUENCING A PRINTER
John W. Irwin, Loveland, Colo., assignor to IBM Corporation, Armonk, N.Y.
Filed Apr. 30, 1979, Ser. No. 34,841
Int. Cl.³ B41J 13/00
U.S. Cl. 400—582 32 Claims



1. A system for printing having a plurality of operating parameters at least a predetermined one of which is critical in a cycle of printing a copy comprising
means for determining the actual value of said critical oper-

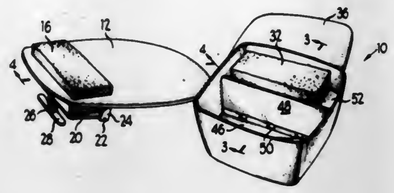
ating parameter during a nonprinting cycle for providing a profiled critical parameter,
means for storing said critical parameter value,
means for using said stored critical parameter value as the used value of said critical parameter during printing cycles subsequent to the profiling cycle,
said determining means for also determining the actual value of said critical operating parameter during said subsequent printing cycles, and
means for updating during each printing cycle the stored critical parameter value in said storing means as a function of the difference between (1) the value of the used critical parameter and (2) the value of said critical parameter determined during that respective printing cycle.

4,275,969
PRINTING MACHINE
Koh Matsuhisa, Kanagawa, and Mamoru Takezawa, Yokohama, both of Japan, assignors to Ricoh Company, Ltd., Japan
Filed Dec. 28, 1978, Ser. No. 974,099
Claims priority, application Japan, Dec. 28, 1977, 52-157476; Dec. 28, 1977, 52-175949[U]; Dec. 28, 1977, 52-175951[U]
Int. Cl.³ B41J *13/036, 13/10*
U.S. Cl. 400—625 8 Claims



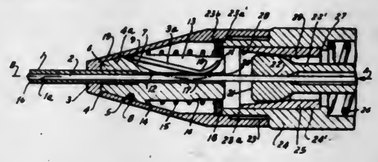
6. A printing machine comprising:
a platen for moving a sheet supplied thereto from the rear and above and wound thereon;
printing means for printing characters and symbols on the sheet wound on the platen;
a paper ball for pressing the sheet against the platen in a position slightly displaced from a printing position in a direction in which the sheet is delivered after a printing operation is performed on the sheet;
means for ejecting the sheet after a printing operation is performed thereon; and
an automatic sheet feeding apparatus for automatically feeding sheets to the platen comprising sheet feeding means for feeding one sheet after another from a sheet supporting position disposed under said feeding means, and a lower guide plate for guiding sheets to the platen, said sheet supporting position being capable of detachably mounting a cassette containing a plurality of horizontally stacked sheets;
said sheet ejecting means comprising an upper guide plate for guiding a sheet from the platen to a sheet ejecting position, said lower and upper guide plates being supported such that they can be opened and closed and defining, when brought to an open position, a cassette mounting opening through which the cassette can be inserted in a rearward direction from the front of the printing machine to be mounted substantially horizontally on the sheet supporting position.

4,275,970
PLANT CARE KIT
Howard J. Morrison, Deerfield, and Douglas P. Montague, Chicago, both of Ill., assignors to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 15, 1979, Ser. No. 66,519
Int. Cl.³ A47L *13/42*; A01G *1/00*; A47L *13/12, 13/51*
U.S. Cl. 401—6 14 Claims



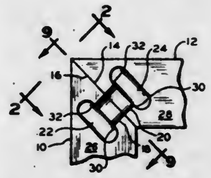
1. A plant care kit, comprising:
a generally planar support means for gently supporting a leaf of a plant or the like;
a first cleaning element mounted on the top surface of said support means for engaging the underside of the leaf;
a handle mounted on the bottom surface of said support means for limited oscillation about an axis generally parallel to the bottom surface;
said handle including means for captured interdigitated engagement of the fingers of a user;
a manually operable second cleaning element for engaging the top of said leaf; and
reservoir means for containing a predetermined amount of cleaning fluid to be applied to the leaves by said cleaning elements.

4,275,971
MECHANICAL PENCIL
Otto Katz, Schwabach, Fed. Rep. of Germany, assignor to A.W. Faber-Castell, Stein bei Nuernberg, Fed. Rep. of Germany
Filed Apr. 10, 1979, Ser. No. 28,807
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1978, 2815695
Int. Cl.³ B43K *21/00*
U.S. Cl. 401—80 10 Claims



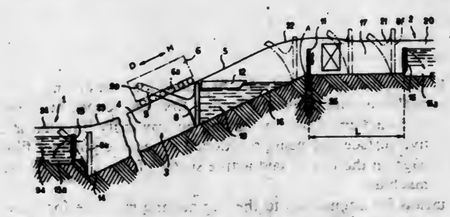
1. A mechanical pencil, comprising an elongated tubular casing formed with a lead-guiding passage having a leading end open outwardly away from said casing; means for advancing a lead through said lead-guiding passage, said means being movable between a first position in which the lead is clamped and a second position in which the lead is released, the lead tending to undesirably slide along said lead-guiding passage when the advancing means are in said second position and the lead is released; means for normally pressing the lead, when the latter is in said passage, against an inner surface of the passage for thereby preventing the undesirable sliding of the lead along the passage when said advancing means release the lead, including an elongated element engageable with the lead, when the latter is in said passage, and biasing means for pressing said element in direction towards and into said passage, said biasing means including a spring ring connected to said element and so located in said casing as to normally press the element towards and into said passage; means for mounting said lead-pressing means in said housing, said mounting means including a recess for so receiving said lead-pressing means therein as to permit the latter to press the lead against the inner surface of the passage when the lead is in said passage, and including a member mounted in said casing for movement relative thereto, said lead pressing means being so mounted on said member as to move together therewith, said recess being provided on said member; and wherein said member is further provided with a circumferential groove for rigidly receiving therein said spring ring, and a conical portion converging towards said leading end of said passage, said conical portion having a largest diameter exceeding and a smallest diameter smaller than the inner diameter of said spring ring.

4,275,972
MITRE JOINT AND FASTENER THEREFOR
Michael W. Bowen, and Andrew C. Bowen, both of 1847 Parr Hwy., Adrian, Mich. 49221
Filed Feb. 8, 1979, Ser. No. 10,493
Int. Cl.³ F16B *7/04*; A47G *1/10*; F16B *12/10*
U.S. Cl. 403—401 12 Claims



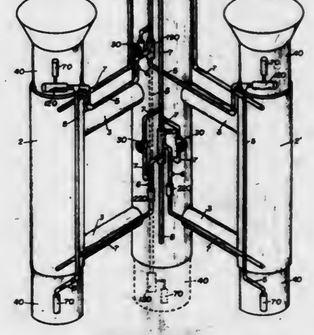
1. A mitre joint for picture frames and the like comprising: two members to be joined having juxtaposed surfaces to be held together; a pocket hollowed out in each member inwardly from their juxtaposed surfaces; a channel in each member communicating its pocket with said juxtaposed surfaces, said channel having a width that is less than that of said pockets to leave pocket gripping surfaces on opposite sides of said channels; a foreshortenable fastener extending across said channels with opposite end flanges in said pockets, said flanges being constructed and arranged to abut said pocket gripping surfaces, said foreshortenable fastener having top and bottom sides extending between said opposite end flanges, and means for bowing at least one of said top and bottom sides toward the other.

4,275,973
INSTALLATION FOR ACCELERATING NAVIGATION OF A WATER RAMP AND METHOD RELATING THERETO
Jean Aubert, 8 rue la Boétie, 75008 Paris, France
Filed Aug. 23, 1979, Ser. No. 69,183
Claims priority, application France, Sep. 7, 1978, 78 25727
Int. Cl.³ E02C *3/00*
U.S. Cl. 405—86 16 Claims



1. Installation enabling the passage of boats through a change of level on an inland waterway by means of a water ramp connecting, through an inclined channel, two reaches respectively situated upstream and downstream and comprising boat storage basins for accommodating boats awaiting their turn before proceeding into the inclined channel, the upstream reach being provided with a tilting gate for retaining the water, whilst a pusher, provided with a transverse mask retaining a water-wedge on which a boat to be moved floats, is movable along the channel to ensure the transfer of said boat from the downstream reach to the upstream reach and vice versa, the retaining gate of the upstream reach being installed at a certain distance beyond the upstream end of the inclined channel and a second retractable gate being arranged substantially at the end of the inclined channel, these two gates defining between them an intermediate horizontal reach, separating the upstream end of the inclined channel and the upstream basin, said installation comprising runways for the pusher driving the mask, said runways being extended beyond the lock-walls of the inclined channel along the banks of the intermediate reach, and means to enable the passage of said pusher from the inclined channel to the intermediate reach and vice versa, as well as the travel of said pusher along the intermediate reach.

4,275,974
INFLATION AND GROUT SYSTEM
Lloyd C. Knox, and Bob L. Sullaway, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Filed Feb. 15, 1979, Ser. No. 12,674
Int. Cl.³ E02B *17/00*
U.S. Cl. 405—225 71 Claims



1. An inflation control valve system and a grouting control valve system for controlling the pressure and flow of inflation fluid during the inflation of upper inflatable packers and lower inflatable packers installed on a plurality of pile sleeves of an offshore platform and for controlling the pressure and flow of grouting material during the grouting of the annuli formed between a jacket leg and a pile driven therethrough and said plurality of pile sleeves and piles driven therethrough of said offshore platform, said inflation control valve system utilizing a single inflation line from the surface of said offshore platform to supply said inflation fluid to said upper inflatable packers and said lower inflatable packers installed on said plurality of pile sleeves and said grouting control valve system utilizing a single line from the surface of said offshore platform to supply said grouting material to said annuli,
wherein said inflation control valve system comprises:
upper packer inflation control valve means controlling the pressure at which said inflation fluid initially flows into said upper inflatable packers;
upper packer inflation check valve means connected to said upper packer inflation control valve means pre-

venting said flow of inflation fluid from said upper inflatable packers after the inflation thereof;

lower packer inflation check valve means preventing said flow of inflation fluid from said lower inflatable packers after the inflation thereof; and

inflation valve means connected to said single inflation line to selectively control said flow of inflation fluid to said upper inflatable packer and said lower inflatable packer installed on a first pile sleeve of said plurality of pile sleeves and another upper inflatable packer and lower inflatable packer installed on a second pile sleeve of said plurality of pile sleeves; and

wherein said grouting control valve system comprises:

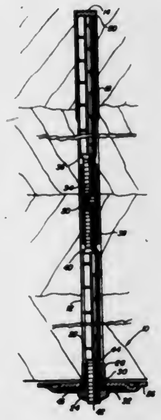
grouting valve means connected to said single grouting line to selectively control said flow of grouting material to said annuli.

4,275,975

MINE ROOF ANCHOR SYSTEM

Bennie E. Morgan, 411 E. Main St., Morganfield, Ky. 42437

Filed Sep. 21, 1979, Ser. No. 77,534
Int. Cl.³ E21D 21/00
U.S. Cl. 405—261 5 Claims



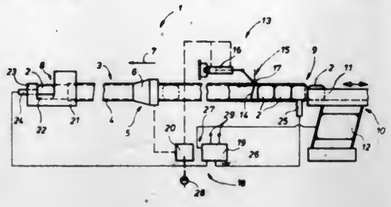
1. A mine roof anchor system including an elongated upstanding shaft assembly having first upper and second lower end portions, said first upper end portion including means for rupturing and mixing, upon rotation of said first end portion thereagainst, a resin capsule seated in a bore into which said first end portion is inserted, the second lower end portion of said shaft assembly including a diametrically reduced externally threaded terminal end and a conical shoulder merging said threaded terminal end with the large diameter section of said second end portion, radially expandable sleeve means slidingly disposed on said diametrically reduced terminal end, a roof plate having a central aperture formed therethrough slidable on said diametrically reduced end below said sleeve means, thrust structure threaded on said diametrically reduced end below said plate and including an upper portion projecting and slidable through said aperture and engageable with said sleeve means for applying axial thrust thereto, said thrust structure including a lower portion thereof abuttingly engageable with the side of said plate remote from said sleeve means.

4,275,976

PNEUMATIC CONVEYOR SYSTEM

Walter Sticht, Wasserhamerstr. 8, A-4800 Attnang-Puchheim, Austria

Filed Oct. 4, 1979, Ser. No. 81,869
Claims priority, application Austria, Jun. 25, 1979, 4420/79
Int. Cl.³ B65G 53/40
U.S. Cl. 406—28 17 Claims



1. A pneumatic conveyor system adapted for the conveyance of assembly parts, comprising

(a) a tubular conveyor conduit having an inlet and defining a conveyance path,

(b) a pneumatically operable drive means in the conveyance path,

(c) a control for operating the drive means, and

(d) an inlet metering device associated with the conveyor conduit upstream of the drive means, the metering device including

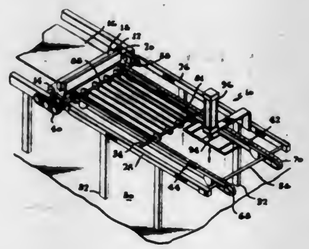
(1) a blocking mechanism responsive to the control for cyclically blocking and unblocking the conveyance path, and comprising a blocking pin movable transversely into and out of the conveyance path for blocking and unblocking conveyance through the conduit, the blocking pin being capable of retaining the assembly parts when moved transversely into the conveyance path, and an adjustment drive for moving the blocking pin.

4,275,977

APPARATUS AND METHOD FOR INDIVIDUAL BAG WORKING AND STACKING

Richard L. Joice, 20021 Merridy St., Chatsworth, Calif. 91311

Filed Jun. 11, 1979, Ser. No. 47,275
Int. Cl.³ B65G 57/04; B65H 29/32
U.S. Cl. 414—51 12 Claims



1. An apparatus for polymer bag handling comprising:

a single vacuum conveyor having first and second stations, said vacuum conveyor having an upwardly directed active surface and being positioned to receive polymer film bags on the top of said active surface from a bag-making machine;

means for connection to the bag-making machine for intermittently advancing said vacuum conveyor to receive bags as intermittently received from the bag-making machine so that bags carried thereon are intermittently advanced onto said first station from the bag-making machine and intermittently advanced on said single vacuum conveyor from said first station to said second station; and

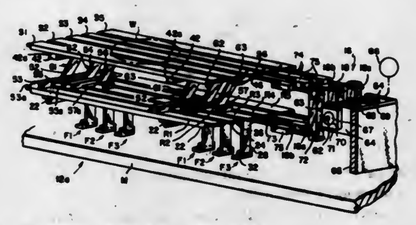
means for maintaining vacuum on said vacuum conveyor at said first station and for terminating the application of vacuum to said second station when said vacuum conveyor is stationary.

4,275,978

TRANSPORT APPARATUS

Norman B. Brooks, 391 East St., Carlisle, Mass. 01741, and Frank P. Brooks, 5 Inverness Rd., Winchester, Mass. 01890

Filed Feb. 15, 1979, Ser. No. 12,354
Int. Cl.³ B65G 25/02, 27/08
U.S. Cl. 414—156 25 Claims



1. Transport apparatus comprising

A. mounting means,

B. first rail means,

C. means connected to said mounting means for flexurally supporting the rail means relative to the mounting means,

D. first slat means,

E. second means connected to the first rail means for flexurally supporting the first slat means relative to the first rail means,

F. motive means operative to reciprocate said first rail and slat means about their supporting means out of phase with each other so that said first rail means moves along an arcuate path relative to the mounting means and said first slat means moves along an arcuate path relative to the first rail means whereby said first slat means orbits about an elliptical path relative to said mounting means, and

G. support means positioned adjacent to the first slat means in a plane which intercepts the elliptical path of the first slat means so that when an object is placed on the support means and said motive means is operative, the object is lifted from said support means and advanced relative to the mounting means incrementally along successive paths corresponding to a segment of said elliptical path.

4,275,979

CONVEYOR PAN IMMOBILIZING ASSEMBLY

Robert D. Lichti, Lakewood, and Frederick D. Heck, Los Alamitos, both of Calif., assignors to Park Mobile, Inc., New York, N.Y., a part interest

Filed Jan. 30, 1978, Ser. No. 873,520
Int. Cl.³ B04H 6/08, 6/42
U.S. Cl. 414—251 13 Claims

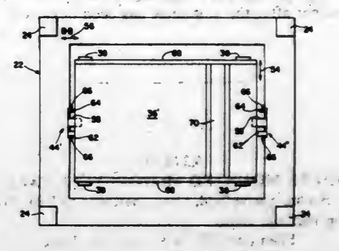
1. A conveyor pan immobilizing assembly for immobilizing a conveyor pan in a direction substantially perpendicular to the conveyed direction of the conveyor pan yet permitting movement of the conveyor pan in the conveyed direction, said conveyor pan having first sides that are substantially parallel to the conveyed direction, said assembly comprising

first and second subassemblies mounted for respective engagement with the first sides of the conveyor pan, each subassembly comprising:

a roller for engaging the first pan side;

means for rotatably mounting said roller; and

means for resiliently mounting said roller for movement in a substantially vertical direction, said roller being mounted such that the surface thereof when in engagement with the respective pan side forms an acute included angle with a vertical axis, said resilient means comprising an elongate bracket, said roller being rotatably mounted at one end of



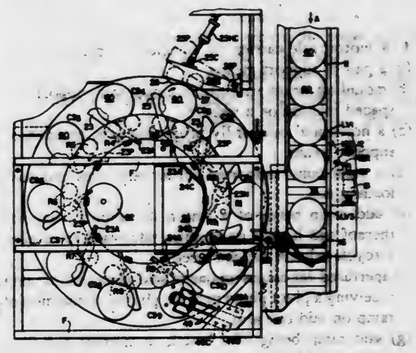
said bracket and the other end of said bracket being pivotally mounted, and spring means for resiliently urging said one end of said bracket in an upward direction.

4,275,980

APPARATUS FOR AUTOMATICALLY DEGASSING FIGAL CONTAINERS

James C. Coots, Marietta, and Muir G. Howser, Dunwoody, both of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Jul. 9, 1979, Ser. No. 55,804
Int. Cl.³ B65G 65/34
U.S. Cl. 414—411 12 Claims



1. An apparatus for automatically degassing containers through a valve disposed in the top thereof as said containers pass along a first conveyor means into a predetermined area, said containers having index openings of a predetermined characteristic shape and openable lid in the top thereof, comprising:

second conveyor means disposed in said predetermined area;

sensing means for detecting the entrance of a container into a region adjacent said second conveyor means;

transfer means for transferring said container from said region onto said second conveyor means;

indexing means responsive to said sensing means for driving said second conveyor means;

positioning means adjacent said second conveyor means for clamping said container on said second conveyor means and for rotating said container about its vertical axis;

latch means for stopping the rotation of said container by said positioning means at a position wherein said valve on top of said container has a predetermined orientation;

degassing means for operatively engaging said valve to permit the flow of gas within said container therethrough to thereby degas said container;

means for moving said degassing means into engagement with said valve when said latch means stops the rotation of said container; and

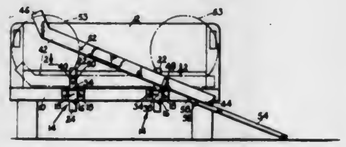
means for automatically opening a lid on the top of said container after the container has been degassed.

4,275,981

VEHICLE MOUNTED MOTORCYCLE CARRIER

Larry C. Brahn, Springfield, Oreg., assignor to LBF Properties, Inc., Springfield, Oreg.

Filed Jan. 29, 1979, Ser. No. 7,432
Int. Cl.[3] B60R 9/10
U.S. Cl. 414—462 4 Claims



1. A motorcycle carrier for vehicles comprising

(a) a pair of support means,

(b) mounting means arranged to mount said support means in spaced relation on a vehicle,

(c) a horizontal outwardly projecting arm on each of said support means,

(d) a main ramp supported across said arms and having a loading end,

(e) said ramp being of a length to support a motorcycle thereof and having upstanding side walls to receive motorcycle wheels therebetween,

(f) apertured ear means on one of said arms and on said ramp receiving a pivot pin to provide pivotal connection of said ramp on said one arm,

(g) said ramp being of a length to support a motorcycle thereon and having an extension beyond its pivot connection with said one arm in a direction opposite from said other arm, whereby upon tilting said ramp on its pivot means with said extension downward, a motorcycle is arranged to be wheeled up the loading end of said ramp to a point such that the combined centers of gravity of the motorcycle and ramp will cause the ramp to pivot down into support on said other arm,

(h) a cradle on said other arm for confining the ramp therebetween,

(i) releasable lock means engageable between said cradle and said ramp arranged to secure said ramp down on said other arm in a loaded position of the motorcycle,

(j) socket means on the bottom of said ramp,

(k) said socket means extending laterally across said ramp and having an opening facing said loading end,

(l) and an auxiliary ramp arranged for removable telescoping fit in said socket means for forming an extension of said main ramp,

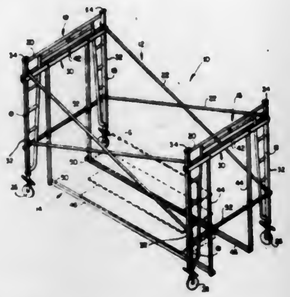
(m) said socket and auxiliary ramp having a lateral width less than the distance between said side walls of said main ramp whereby said auxiliary ramp is arranged to be stored in said main ramp when not in use.

4,275,982

APPARATUS FOR MOVING MERCHANDISE GONDOLAS

Marshall Fisco, 1154 Coleman Rd., Cheshire, Conn. 06410

Filed Jan. 4, 1979, Ser. No. 45,180
Int. Cl.[3] B60P 3/00
U.S. Cl. 414—459 19 Claims



15. Apparatus for moving merchandise gondolas and the like and comprising a collapsible, walk-through, rolling scaffold frame assembly and a gondola carrying attachment releasably secured to said scaffold frame assembly, said scaffold frame assembly including a pair of walk-through end frames having an inverted generally U-shape, each of said end frames having a pair of transversely spaced apart axially elongated vertically extending legs, longitudinally disposed side members, means releasably connecting said side members to said end frames, said side members maintaining said end frames in transversely disposed and longitudinally spaced apart relation, and casters mounted on said end frames and supporting said scaffold frame assembly for travel along a supporting surface, said gondola carrying attachment including a plurality of horizontally disposed transversely extending cross beams, attaching means for releasably retaining at least one of said beams on each of said end frames to extend transversely thereacross and including a plurality of attaching members and means releasably securing each of said attaching members to an associated one of said legs in direct axially downwardly bearing relation thereto, gondola engaging means, and securing means for connecting said gondola engaging means to said cross beams including two pair of rigid vertically extending securing members and means for releasably retaining the securing members of each pair on said cross beams, said apparatus having elevating means for raising and lowering said gondola engaging means relative to the supporting surface and for maintaining said gondola engaging means in its raised position.

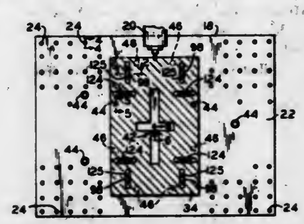
4,275,983

AIR FLOAT FIXTURE CLAMPING SYSTEM

Raymond A. Bergman, 107 E. Second St., Minster, Ohio 45865

Continuation-in-part of Ser. No. 924,958, Jul. 17, 1978, Pat. No. 4,179,106, which is a continuation of Ser. No. 815,676, Jul. 14, 1977, abandoned, which is a division of Ser. No. 684,725, May 10, 1976, Pat. No. 4,058,885. This application May 17, 1979, Ser. No. 40,072
Int. Cl.[3] B23Q 7/00
U.S. Cl. 414—676 33 Claims

1. In a fluid fixture support system including a table having an upwardly facing upper surface adapted to support a workpiece fixture, a workpiece fixture having a lower surface in facing relationship with the table upper surface when the fixture is supported on the table upper surface, and means for supplying a cushion of fixture supporting pressurized fluid to the surface of the table whereby the fixture may be floatingly supported thereon, a fixture clamping system comprising: a clamp element movably mounted in said table and including a portion thereof overhanging said table, retraction means in said table connected to said clamp element for selectively drawing at least said overhanging portion toward said table, said fixture including an elongated slot in the lower surface thereof accommodating the clamp element overhanging portion therein, said clamp element adapted to be received in said slot, said slot including shoulder means disposed beneath the overhanging portion of said clamp element when said clamp element is received in said slot such that said shoulder means will be



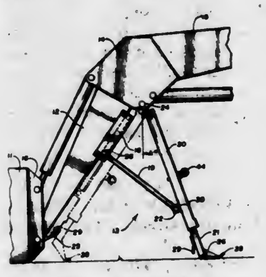
clamped by said overhanging portion when the overhanging portion is drawn toward said table, at least one opening in the lower surface of said fixture contiguous with said slot and being sufficiently large to permit said clamp element to project upwardly through said opening into said slot, whereby said clamp element and slot function to locate the fixture as it is moved over the surface of the table and enable the fixture to be immediately clamped in place by retracting the clamp element when the desired position of the fixture on the table has been reached.

4,275,984

PARKING STAND

John B. Lenertz, Chaska, Minn., assignor to Farmhand, Inc., Minneapolis, Minn.

Filed Mar. 19, 1979, Ser. No. 21,350
Int. Cl.[3] E02F 3/70
U.S. Cl. 414—686 15 Claims



1. A parking stand for an implement comprising:

an elongated support leg pivotally secured near its upper end to a portion of said implement, said elongated support leg being extendable to a plurality of positions along its longitudinal axis and being pivotable between an operative position and a non-operative position;

means for fixing said elongated support leg in a plurality of extended positions;

interlocking connection means for retaining said elongated support leg in its non-operative position; and

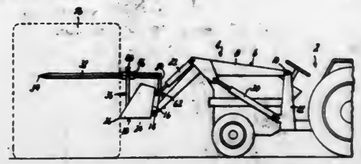
means for limiting the pivotal movement of said elongated support leg including an elongated member of fixed length having one end connected to a portion of said support leg and the other end connected with a portion of said implement.

4,275,985

HAY BALE HANDLING DEVICE

Stanley M. Schrammer, P.O. Box 143, Utica, Kans. 67584

Filed Apr. 12, 1979, Ser. No. 29,287
Int. Cl.[3] B02F 3/00
U.S. Cl. 414—722 4 Claims



1. In combination with a tractor front end loader having a generally forwardly opening, open-mouthed scoop and means operable to vary both the elevation of said scoop above the ground and the angle of inclination of the open mouth thereof above and below horizontal, a hay bale handling device comprising:

a. a straight elongated spear pointed at its forward end, said spear being adapted to extend forwardly and rearwardly over the top of said scoop, with the forward end thereof projecting forwardly from said scoop in a direction generally parallel to the direction in which the mouth of said scoop opens,

b. front and rear legs extending generally vertically between said spear and said scoop respectively over the forward portion of said scoop and behind said scoop, and

c. attaching means operable to secure the upper and lower ends of said legs respectively to said spear and to said scoop, whereby said spear is held rigidly in the described position, said attaching means being adjustable to vary the vertical angle of said spear relative to the direction in which said scoop opens.

4,275,986

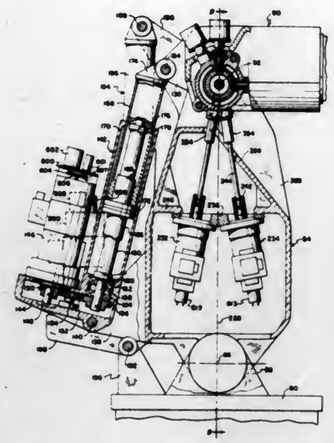
PROGRAMMABLE AUTOMATIC ASSEMBLY SYSTEM

Joseph F. Engelberger, Newtown; Torsten H. Lindbom, Brookfield; Maurice J. Dunne, Newtown; William Pursley, Weston; Wilbur N. Roberts, Newtown, and Horace L. Gardner, Ridgefield, all of Conn., assignors to Unimation, Inc., Danbury, Conn.

Division of Ser. No. 625,932, Oct. 28, 1975, Pat. No. 4,163,183. This application Apr. 19, 1979, Ser. No. 31,463
Int. Cl.[3] B25J 9/00
U.S. Cl. 414—730 18 Claims

1. In a programmable manipulator, the combination of, a base member mounted for rotation about a vertical axis, a first arm portion pivotally mounted on said base member for rotation about a first horizontal axis, a second arm portion mounted on the upper end of said first arm portion for movement about a second horizontal axis, a manipulator hand mounted on the outer end of said second arm portion and movable about a wrist bend axis which is perpendicular to the longitudinal axis of said second arm portion, said hand having a swivel portion on the outer end thereof which is rotatable about a wrist swivel

axis which is perpendicular to said wrist bend axis, means for rotating said first and second arm portions about their respec-



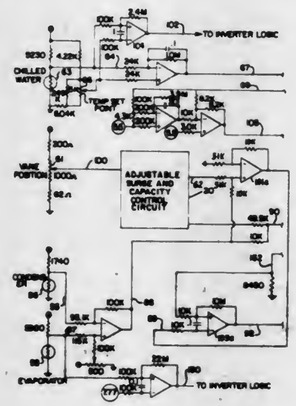
tive axes, and drive means for said hand and swivel portions mounted on said first arm portion and movable therewith.

4,275,987

ADJUSTABLE SURGE AND CAPACITY CONTROL SYSTEM

Kenneth J. Kountz, Hoffman Estates, Ill., and Dean K. Norbeck, York, Pa., assignors to Borg-Warner Corporation, Chicago, Ill.

Filed Sep. 12, 1979, Ser. No. 75,042
Int. Cl.³ F01D 17/00; F25B 1/00
U.S. Cl. 415—17 14 Claims



1. An adjustable surge and capacity control system for controlling the operation of a inverter driven centrifugal compressor refrigeration system comprising

means for detecting the position of the adjustable inlet vanes of a centrifugal compressor of a refrigeration system,

circuit means coupled to said detection means to provide a first output indicating vane position and a second output indicating speed deviation of the compressor from minimum Mach number based on said vane position, and

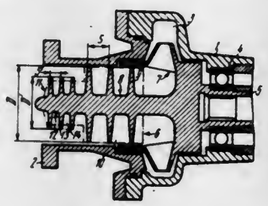
said circuit means having adjustable means to adjust said first and second output to control the operation of a centrifugal compressor without surging at all expected operating points.

4,275,988

AXIAL OR WORM-TYPE CENTRIFUGAL IMPELLER PUMP

Leonid F. Kalashnikov, ulitsa 50 let VLKSM, 2, kv. 165, Kaliningrad Moskovskaya oblast; Vladimir N. Kudiarov, Leningradskoe shosse, 2, kv. 40, Khimki Moskovskaya oblast; Georgy M. Kushnir, Kronshtadsky bulvar, 34, korpus 2, kv. 78; Anatoly S. Shapiro, Raketny bulvar, 12, kv. 7, both of Moscow; Rjury I. Konstantinov, ulitsa 50 let VLKSM, 5/16, kv. 110, Kaliningrad Moskovskaya oblast; Vadim V. Nikolaev, ulitsa Mendeleevskaya, 5, Klyazma Moskovskaya oblast, and Vladimir K. Kuneta, prospekt Mira, 180, kv. 12, Moscow, all of U.S.S.R.

Filed Dec. 13, 1978, Ser. No. 968,727
Int. Cl.³ F04D 3/02, 29/38
U.S. Cl. 415—74 13 Claims



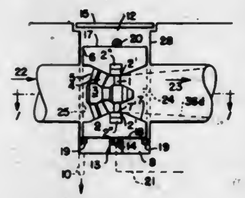
1. An axial or worm type centrifugal impeller pump, comprising: a housing; a drive shaft running through said housing; bearings in which said drive shaft is rotatably journalled; an axial impeller mounted on said drive shaft; a hub of said axial impeller; helical blades of said axial impeller fixed on said hub, said blades defining a plurality of blade channels for the liquid being handled to pass; an additional intake axial impeller mounted on said drive shaft forwardly of said axial impeller as viewed along the flow of liquid; a hub of said additional intake axial impeller; helical impeller blades fixed on said hub of said additional intake axial impeller; the outer diameter and the lead of the helix of said helical impeller blades of said additional intake axial impeller being synchronously and correspondingly smaller than the outside diameter and the lead of helix of said helical impeller blades of said axial impeller at the entry thereof; the ratio between the outside diameters of said additional intake axial impeller and said axial impeller as well as the ratio between the leads of helix of said impeller blades of said additional intake axial impeller and said axial impeller across the outside diameters of said respective impellers being selected so as to provide for high pump suction capacity.

4,275,989

REVERSIBLE PUMP-TURBINE

Francisco J. Gutierrez Atencio, 3105 Diamante, Entre Rios, Argentina

Filed Feb. 8, 1979, Ser. No. 10,406
Int. Cl.³ F01D 5/02; F03D 11/00
U.S. Cl. 415—129 26 Claims



23. In a main fixed fluidic flow directing conduit spliced in two substantially coaxially spatially disposed subconduit

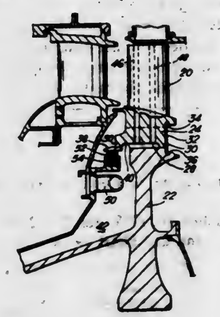
branches, each performing in a given specific energetic functional performance and being both connected to a main structural embodying arrangement with respective open ends defined in the peripheral walls of said embodying arrangement; the improvement comprising at least one hydromotive assembly positioned within said embodying arrangement, said hydromotive assembly being controllably-alternatively disposed in a given specific energetic functional performance in combination with one branch of said set of two spliced subconduit branches; said hydromotive assembly including a conduit having a peripheral wall defining a fluid flow circulation path alternatively-controllably disposed for said functional performance in combination with each of said two spliced subconduit branches, an energy transformation unit disposed in combination with said fluid flow assembly circulation path, said transformation unit adapted to activate fluid within said flow path when specifically performing in an energy accumulation mode or to be actuated thereby when specifically performing in an energy generation mode, said assembly conduit having a first open end and a second open end for discharging fluid entering said first open end, both said first and second open ends being configured to be alternatively-controllably positioned against each said two subconduit branch open ends defined in said embodying arrangement peripheral wall, and means on said hydromotive assembly mounting same in combination with an inner configuration of said embodying arrangement to allow rotatable displacement of said assembly between said extreme alternate positions.

4,275,990

DISC CHANNEL FOR COOLING ROTOR BLADE ROOTS

Kenneth R. Langley, Wotton-under-Edge, and John R. D. Fuller, Bristol, both of England, assignors to Rolls-Royce Limited, London, England

Filed Nov. 30, 1978, Ser. No. 965,857
Claims priority, application United Kingdom, Dec. 17, 1977, 52997/77
Int. Cl.³ F01D 5/18, 5/30
U.S. Cl. 416—95 7 Claims



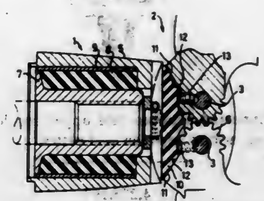
1. A turbine disc for a bladed rotor assembly comprising a rim, a plurality of generally axially extending slots in the rim adapted to receive the roots of rotor blades, the radially innermost surfaces of all of said slots lying at a first radius, a continuous circumferential flange integral with and projecting axially from the rim of the disc on at least one side face thereof, said flange defining a continuous circumferentially extending surface at a radius less than said first radius and being integrally connected to the disc at a radius greater than said first radius, and a continuous circumferentially extending cooling air channel open towards the radially inner side of the flange, and extending radially outwardly between the flange and the side face of the disc and intersecting and opening into and through the radially innermost surface and a portion of at least one of the flanks of each of the [illegible] receiving slots whereby air entering said cooling air channel issues into said blade receiving slots below a corresponding blade root.

4,275,991

BOAT PROPELLER

Carl U. Söderbaum, Askim, Sweden, assignor to AB Volvo Penta, Gothenburg, Sweden

Filed Jan. 14, 1979, Ser. No. 48,374
Claims priority, application Sweden, Jan. 27, 1978, 7807264
Int. Cl.³ B63H 1/24
U.S. Cl. 416—142 2 Claims



1. In a propeller device for boats, comprising a hub which is designed to be fixed on a propeller shaft, and a pair of propeller blades carried by the hub and swingably journaled on the hub so that they are movable between a spread-out operating position and a folded position in which the blades extend backward in the shaft direction, said blades having intermeshing cogs thereon whereby they swing conjointly in opposite directions, said blades being disposed, under the effect of the centrifugal force when the propeller shaft rotates, to swing out from the folded position to the operating position; the improvement in which the hub has a slot immediately in front of the blades, and a single resilient damping member disposed in said slot, said damping member having separate spaced stop surfaces one of which is struck by a stop surface on one of the blades in the vicinity of the journaling of the one blade on the hub and the other of which is struck by a stop surface on the other blade in the vicinity of the journaling of the other blade on the hub in order to brake the swinging movement of the blades in the vicinity of said operating position, when the blades are swung out from their folded position, the material of said single damping member being a resilient material that extends continuously along a straight line that extends from one said stop surface on said damping member to the other said stop surface on said damping member, said stop surfaces on the damping member being inclined toward each other.

4,275,992

MODE CONTROLLED ATTACHMENT OF ROTOR MOUNTED COMPONENTS

James R. Andrews, Rodney W. Bates, and Victor L. Barry, all of Arlington, Tex., assignors to Textron, Inc., Providence, R.I.

Filed Apr. 9, 1979, Ser. No. 28,243
Int. Cl.³ B64C 7/00
U.S. Cl. 416—146 R 14 Claims

1. A mount for supporting a device above the lifting rotor of a helicopter having a rotor shaft, comprising:

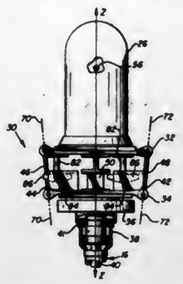
an upper plate, the device being mounted on said upper plate,

a lower plate,

means extending through the rotor shaft for supporting said lower plate and constraining said lower plate against rotation with the rotor,

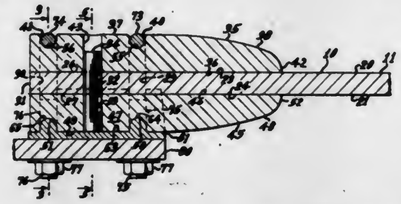
two sets of links pivotally coupled between said upper and lower plates, said links defining at least two focal planes intersecting in at least one focal axis extending through a

predetermined rotational null point to control the dynamic response mode of the mounted device; and



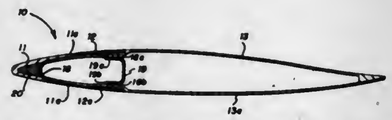
means connected between said upper and lower plates for damping motion between said plates.

4,275,993
COMPOSITE FAN BLADE ASSEMBLY
Kurt Sprengling, Jacksonville, Fla., assignor to Stanley Industrial Corporation, Jacksonville, Fla.
Filed Jul. 14, 1978, Ser. No. 924,617
Int. Cl.³ F04D 29/36
U.S. Cl. 416—207 **17 Claims**



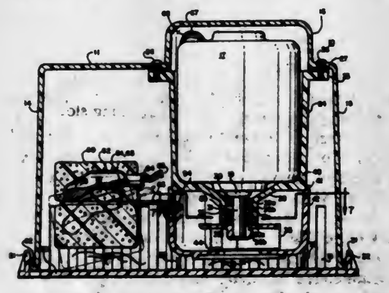
1. A fan apparatus comprising a rotor assembly including a rotor having an axis of rotation and a flat surface, a plurality of fan blade assemblies adjustably coupled to said rotor in selectable pitch positions, each of said fan blade assemblies including an elongated blade provided with top and bottom surfaces and inner and outer end portions and a longitudinal axis; an elongated shank having a lateral dimension less than the lateral dimension of said blade and integrally formed with said blade inner end portion and having top and bottom surfaces forming respective continuations of said blade top and bottom surfaces and having a longitudinal axis substantially parallel with said longitudinal axis of said blade; a first mounting member having an abutting surface generally conforming to and generally coextensive with said shank top surface and an adjoining region of said top surface of said blade inner end portion; a second mounting member having an abutting surface generally coextensive with said shank bottom surface and an adjoining region of said bottom surface of said blade inner end portion; said first and second mounting members and said shank defining a stem portion of said blade assembly, said stem portion including a circumferential groove; said rotor assembly including coupling means attached to said rotor for adjustably clamping in selectable pitch positions said stem portions between said abutting surfaces of said first and second mounting members, said coupling means including rib means adapted to be received in said circumferential groove to securely fix the relative position of said first and second mounting members and said shank, and coupling means further including a plurality of mounting saddles each having a flat side located generally beneath said shank and mounted on said rotor flat surface and an opposite side provided with a curved rib constituting a portion of said rib means, said curved rib being received in a portion of said circumferential groove, said coupling means further including a plurality of U-shaped clamps each having an intermediate curved portion constituting another portion of said rib means and disposed in substantially the remaining portion of said circumferential groove, and free end portions of each said clamp being connected to said rotor; said first and second mounting members and blade being free from any discontinuities and connections passing through said blade adjoining regions to inhibit fatigue failure of said blade.

4,275,994
ROLL FORMED BLADE STRUCTURE
William K. Underhill, Jr., Bedford, Tex., assignor to Textron, Inc., Providence, R.I.
Filed Apr. 3, 1978, Ser. No. 893,050
Int. Cl.³ B64C 11/26
U.S. Cl. 416—226 **17 Claims**



1. A main rotor blade extending along its longitudinal dimension between an outboard tip and an inboard root end from which is a connection may be made to a hub grip of a rotating mast, and including roll formed members, which comprises:
(a) a C-shaped nose spar open rearward between trailing edges thereof wherein said nose spar is flared aft in the portion of the blade adjacent the root whereby the trailing edge of said nose spar diverges from the leading edge of the blade as said nose spar extends toward said root;
(b) a channel closure secured to the inner surfaces of said trailing edges;
(c) a protective strip bonded to upper and lower outer surfaces of a forward section of said nose spar;
(d) a nose block captured by said protective strip against said nose spar;
(e) blade skins having skin portions overlying trailing upper and lower outer surfaces of said nose spar; and
(f) body doubles bonded to trailing surfaces of said nose spar rearward of said protective strip to trap said skin portions between said nose spar and said doublers.

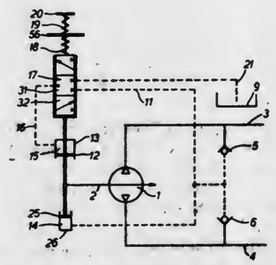
4,275,995
BILGE PUMP
Thomas K. Tayler, Eleven S. Coolidge Ave., Margate, N.J. 08402
Filed Jan. 10, 1979, Ser. No. 2,467
Int. Cl.³ F04B 49/04
U.S. Cl. 417—40 **8 Claims**



1. An electric motor driven bilge pump comprising
an outer housing having top, side and end walls with fluid inlet openings at the lower part of the side walls,

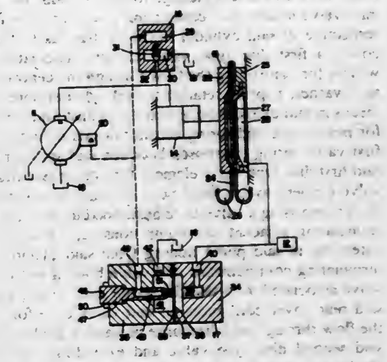
a bottom closure wall readily detachably secured to the bottom of said outer housing,
a fixedly mounted motor housing extending downwardly within said outer housing and detachably carried by said top wall and in sealed relation to said top wall,
an electric motor in said motor housing and having a downwardly extending motor shaft,
seal means in said motor housing for said shaft for preventing access of liquid to said motor housing,
an additional seal means in said motor housing spaced from said first mentioned seal means,
said motor housing having an opening between said seal means for permitting access of liquid between said seal means for cooling,
an impeller housing detachably carried on the lower end of said motor housing in spaced relation to said bottom closure wall and having a liquid inlet opening in the bottom thereof and a liquid delivery pipe extending exteriorly of said outer housing,
an impeller on said motor shaft in said impeller housing, and
a float controlled switch in said outer housing for said electric motor and responsive to the height of the liquid in said outer housing.

4,275,996
CONTROL DEVICE FOR ADJUSTABLE FLUID PUMPS OR MOTORS
Jan Zangenberg, and Peter J. M. Clausen, both of Nordborg, Denmark, assignors to Danfoss A/S, Nordborg, Denmark
Filed Jun. 13, 1979, Ser. No. 48,243
Claims priority, application Fed. Rep. of Germany, Jun. 13, 1978, 2825827
Int. Cl.³ F04B 1/06
U.S. Cl. 417—221 **2 Claims**



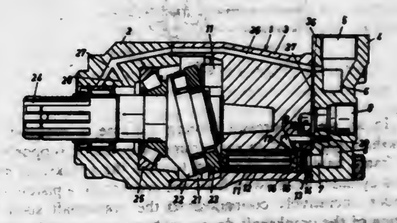
1. A control unit for an adjustable fluid pump or motor controlled by a servomember, comprising, a housing having fluid pressure supply and exhaust connections, slide valve means having a neutral blocking position with supply and exhaust positions on opposite sides thereof respectively connectable to said supply and exhaust connections, actuator means for said slide valve means having a neutral position servopiston means including an expansible chamber selectively connectable by said actuator means and said slide valve means to said supply and exhaust connections to operate said servopiston, resetting means for biasing said servopiston in a resetting direction, second valve means connected to said actuator means to provide fluid communication between said supply and exhaust connections when said actuator means is in its neutral position, said second valve means including a sleeve member in surrounding relation thereto and having a fixed position relative to said housing, said actuator means having a slide member portion sealingly cooperable with said sleeve member and having axially extending recess fluid passage means of greater axial length than said sleeve member and extending on opposite sides thereof when said actuator means is in its neutral position.

4,275,997
HYDRAULIC PUMP WITH PROPORTIONAL PRESSURE CONTROLLER
Richard H. Wooding; Charles H. Whitmore, both of Plainwell; Paul K. Houtman, Kalamazoo, and Thomas A. Kowalski, Paw Paw, all of Mich., assignors to Parker-Hannifin Corporation, Cleveland, Ohio
Filed Aug. 9, 1979, Ser. No. 65,298
Int. Cl.³ F04B 49/00
U.S. Cl. 417—218 **7 Claims**



1. A pump comprising a variable displacement flow generating means, control means for changing the displacement rate of said flow generating means, said control means including a control chamber, a proportional valve hydraulically connected to said control chamber for changing the pressure in said control chamber, said proportional valve including a housing, separator means disposed in said housing and defining first and second chambers, a first fluid in said first chamber and a second fluid in said second chamber, said first fluid being different from said second fluid, means hydraulically connecting said control chamber with said second chamber through a variable orifice, and means to change the size of said orifice in response to the pressure in said first chamber.

4,275,998
PISTON PUMP
Ralf C. E. Petersson, Hudiksvall, Sweden, assignor to Sandins Fabriker AB, Hudiksvall, Sweden
Filed Aug. 23, 1979, Ser. No. 69,115
Int. Cl.³ F04B 1/18
U.S. Cl. 417—269 **1 Claim**



1. An improved piston pump of the type comprising a pump housing having a plurality of axially extending cylinder bores therein, a rear cover affixed to one end of said pump housing and providing a closure for one end of said cylinder bores, a bearing housing affixed to the other end of said pump housing, a plurality of pistons each supported for reciprocation in a respective of said pump housing cylinder bores, a swash plate cooperable with said pistons for effecting reciprocation of said pistons upon rotation of said swash plate, a shaft journaled in said bearing housing and operative to drive said swash plate for

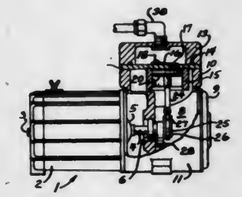
reciprocation of said pistons upon rotation of said shaft, spring means positioned in said cylinder bores and urging said pistons into engagement with said swash plate, a fluid distribution channel formed in said rear cover, a plurality of inlet passages extending between said distribution channel and respective of said cylinder bores for communication of fluid to said cylinder bores, the improvement comprising a plurality of inlet valves means each interposed between a respective of said distribution passages and said cylinder bores, and a plurality of exhaust valve means each communicating a respective of said cylinder bores with an exhaust passage formed in said rear cover, said inlet valve means each comprising a washer press fitted into a respective of said cylinder bores contiguous to the said rear cover, a first disc type valve element associated with said washer for controlling the flow through the central opening of said washer, a spring retainer in said cylinder bore, said spring means in said cylinder bore bearing against said spring retainer for positioning said spring retainer in said cylinder bore and a first valve spring interposed between said spring retainer and said first disc type valve element for urging said first disc type valve element to its closed position, said exhaust valve means each comprising a valve bore positioned in said rear cover and terminating adjacent said pump housing, a discharge passage extending in said pump housng from said cylinder bore and terminating contiguous to said valve bore, a second disc type valve associated with said discharge passage and supported in said rear cover contiguous to said valve bore for controlling the flow through said discharge passage, a guide pin affixed to said second disc type valve and extending away from said discharge passage and into said valve bore, coil spring means positioned within said valve bore and encircling said guide pin and urging said second disc type valve into its closed position with said discharge passage, the surface of said rear cover engaging said pump housing being conical with its apex being disposed contiguous to the center of said pump housing for exerting a seal pressure against said pump housing when said rear cover is affixed thereto which is greatest at the center of said pump housing.

4,275,999

AIR COMPRESSOR WITH RAMPED INTAKE VALVE

Thomas R. Hetzel, and Charles LaBelle, both of Sheboygan, Wis., assignors to Thomas Industries, Inc., Sheboygan, Wis.

Filed Aug. 27, 1979, Ser. No. 70,013
Int. Cl.³ F04B 49/00
U.S. Cl. 417—299 8 Claims



1. In an air compressor having a frame, a motor-driven crankshaft journalled in said frame, a cylinder supported in said frame having an open end toward the crankshaft and a closed cylinder head away from the crankshaft, a piston in the cylinder operatively connected to the crankshaft such that rotation of the crankshaft drives said piston to and fro in said cylinder, the head of said piston containing a through port and an air intake check valve which opens on the downstroke of the piston for admitting a charge of air into the cylinder through said port and closes on the upstroke of the piston to compress said charge against the cylinder head, and said cylinder head containing a through port and a discharge check valve which opens to receive said compressed charge of air on the upstroke of the piston, the improvement wherein the intake check valve includes:

a thin, flexible spring metal closure strip stationarily fastened to the piston head and having a planar portion overlying the intake port, and

the intake port having a planar valve seat thereabout against which the planar portion of the intake check valve closes on the upstroke of the piston,

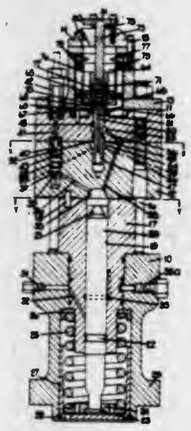
said planar portion of the closure strip being inclined to the valve seat in its "at rest" position so that the cylinder vents through the piston to atmosphere when the compressor is halted.

4,276,000

LIQUID FUEL PUMPING APPARATUS

Peter G. Warwicker, Longleavens, England, assignor to Lucas Industries Limited, Birmingham, England

Filed Dec. 28, 1978, Ser. No. 974,041
Claims priority, application United Kingdom, Jan. 31, 1978, 3772/78
Int. Cl.³ F04B 49/06; F02M 39/00; F02D 5/02
U.S. Cl. 417—302 6 Claims



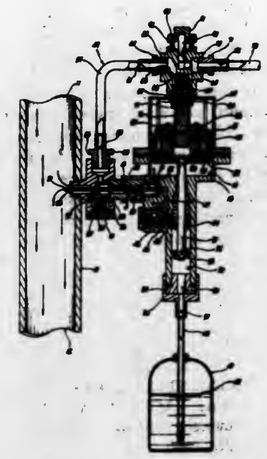
1. A liquid fuel pumping apparatus for supplying fuel to an internal combustion engine comprising a pump barrel defining a bore, a pumping plunger movable within the bore, resilient means biasing the plunger in an outward direction, tappet means engaged with the outer end of the plunger and engageable in use with a cam which imparts inward movement to the plunger, an outlet in communication with the bore for connection in use to an injection nozzle of the associated engine, a housing part which is held in sealing engagement with the end of the barrel remote from the tappet means, a first passage formed in said housing part, said first passage constituting the outlet from the bore, a second passage formed in the housing part, valve means operable to control fuel flow through said second passage, a fuel inlet in said housing portion, and a third passage connected to said inlet and communicating with said second passage on the side of said valve means remote from the bore, whereby said valve means controls the flow of fuel to the bore from said inlet, and a non-return valve in said third passage, said valve means comprising a valve member slidable within a second bore, resilient means biasing the valve member to an open position, and electromagnetic means operable to move said valve member to a closed position, said valve member being of cylindrical form having a head portion defined intermediate its ends, a seating defined in said second bore and a pair of chambers defined between the valve member and the second bore on opposite sides of the seating respectively, one of said chambers communicating with the bore containing the plunger and the other chamber communicating with the second and third passages, communication between said chambers being controlled by the valve member.

4,276,001

FLUID PUMP ASSEMBLY

Lambert Holmes, St. Louis, Mo., assignor to Dana Engineering Co., St. Louis, Mo.

Filed Jan. 15, 1979, Ser. No. 3,413
Int. Cl.³ F04B 17/00
U.S. Cl. 417—401 7 Claims



1. In a fluid pump assembly:

(a) a conduit having a pressurized flow of fluid,

(b) a body provided with a fluid chamber, and provided with a passage having an orifice connected to the conduit and the fluid chamber,

(c) pump means including an outlet and a piston rod,

(d) a fluid additive supply connected to the pump means,

(e) control means including:

1. a dump passage communicating with the fluid chamber, the dump passage having an effective cross section larger than the orifice,

2. a dump valve means for controlling flow through the dump passage to regulate the fluid pressure in the fluid chamber, and

3. motor means in the fluid chamber operatively connected to the pump means by the piston rod and to the dump valve means, and responsive to the fluid pressure in the fluid chamber, for operating the dump valve means and actuating the pump means to pump fluid additive through the outlet,

(f) the outlet of the pump means communicating with the conduit for feeding the fluid additive to the conduit,

(g) the motor means including:

1. magnetic means operatively connected to the dump valve means for opening the dump valve means as the motor means is subjected to a first predetermined fluid pressure in the fluid chamber, and for closing the dump valve means as the motor means is subjected to a second predetermined fluid pressure in the fluid chamber,

(h) the magnetic means including:

1. a permanent magnet carried by the motor means, and

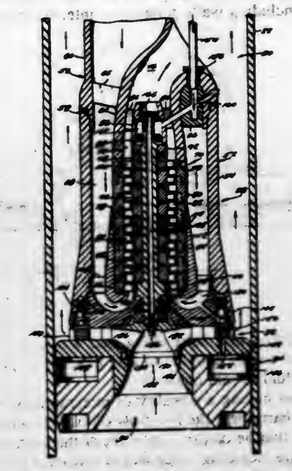
2. a ferrous plunger attached to the dump valve means and actuated by the permanent magnet for operating the dump valve means.

4,276,002

TURBOPUMP UNIT FOR DEEP WELLS AND SYSTEM

James H. Anderson, 2422 S. Queen St., York, Pa. 17402

Filed Mar. 9, 1979, Ser. No. 18,882
Int. Cl.³ F04B 17/00
U.S. Cl. 417—405 34 Claims



33. A system for pumping hot geothermal liquid from a deep well to the surface of the earth comprising:

a turbopump unit submerged in hot geothermal liquid in an enclosed and encased deep well, said unit having turbine means driving centrifugal pump means provided with a downwardly facing inlet and an outlet thereabove;

means for sealing said unit to the well casing between said pump inlet and outlet including radially expansible and contractible ring means operable by liquid under pressure to effect sealing engagement with the well casing and also frictional engagement therewith against relative vertical movement therebetween;

means mounting said sealing means to said unit for relative vertical movement therebetween;

rigid conduit means suspending said unit in said well and for supplying turbine motive liquid under high pressure from the surface for driving said pump means to pump geothermal liquid from below said unit upwardly through said casing to the casing head at a pressure above boiling;

means operable by liquid under pressure supplied from the surface after the unit has been submerged to its operational depth to urge said unit upwardly relative to said sealing means to impart a lifting force for relieving tensile stresses in said conduit means, said conduit means extending through said casing head;

means sealing said conduit means to said casing head while permitting relative vertical movement therebetween; and

means outside said casing head for exerting an adjustable upward force on the top end of said conduit means for suspending the latter and said unit in said well.

4,276,003

RECIPROCATING PISTON PUMP SYSTEM WITH SCREW DRIVE

Gerald S. Perkins, and Nicholas R. Meara, both of Altadena, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 774,229, Mar. 4, 1977, Pat. No. 4,146,165. This application Nov. 16, 1978, Ser. No. 961,398
Int. Cl.³ F04B 17/00 6 Claims
U.S. Cl. 417—415

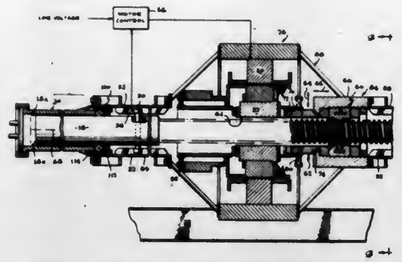
1. A pump comprising:

a cylinder having inlet and outlet means for receiving and allowing the exit of fluid;

a piston having an end portion in said cylinder and a threaded portion;

a motor having a stator and a rotor;

nut means coupled to said rotor to rotate with it, and threadably engaged with said piston threaded portion, said nut means including walls defining an internal thread, a channel extending in a helix along said walls, and pressured fluid feed means coupled to said channel to provide hydraulic fluid to said channel;



said channel having a plurality of interruptions therealong forming barriers to the free flow of fluid between channel portions that lie on opposite sides of the barrier, and said feed means including a plurality of restricted feed conduits leading to different of said channel portions to supply fluid thereto.

4,276,004

INFUSION PUMP

Andreas Hahn, Hofolding, Fed. Rep. of Germany, assignor to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschrankter Haftung, Munich, Fed. Rep. of Germany

Filed May 31, 1979, Ser. No. 44,330

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1978, 2826033

Int. Cl.³ F04B *43/14;* A61M *5/00*

U.S. Cl. 417—479 5 Claims



1. An infusion pump, comprising pump housing means, inlet port means (23) and outlet port means (18) operatively connected to said pump housing means (2), pump membrane means (3) operatively supported in said pump housing means, inlet valve means (13) including inlet valve membrane means (4) operatively supported in said pump housing means substantially opposite said pump membrane means (3), whereby the pump membrane means cooperates in its one position with the inlet valve membrane means for closing the inlet valve means, drive means arranged for operatively applying, in one position of said drive means, a force to said pump membrane means (3) and simultaneously to said inlet valve membrane means (4) for holding the inlet valve means closed and for opening said inlet valve means while substantially simultaneously imparting a suction stroke to said pump membrane means when said drive means move into the opposite position, outlet valve means (14) including outlet valve membrane means operatively supported in said valve housing means, chamber means (17) positioned in said valve housing means, said outlet valve membrane means (14) comprising at least one membrane portion (15, 16) which is operatively arranged for closing said chamber means (17), access means (20, 21) in said pump housing means providing access to said at least one portion (15, 16) of said outlet valve membrane means (14) for ascertaining the pressure in said chamber means (17) by contacting said outlet valve membrane means (14), riser pipe means (7) operatively connected to said chamber means (17) and to said outlet port means (18), said infusion pump further comprising insert means (5) fitting into said pump housing means, and cover means forming part of said pump housing means for holding said insert means in said pump housing means, said insert means comprising a bore defining the pump volume, said insert means further comprising recess means forming part of said outlet valve means and said chamber means (17) which cooperate with said portion (15, 16) of said outlet valve membrane means, said insert means further forming connecting channel means between said inlet and outlet valve means and said chamber means.

4,276,005

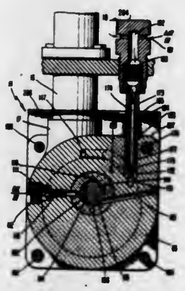
OIL FLOW METERING STRUCTURE FOR OIL SEALED MECHANICAL VACUUM VANE PUMP

Benjamin Bassan, Framingham, Mass., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Apr. 26, 1979, Ser. No. 33,629

Int. Cl.³ F04C *25/02, 27/02, 29/02;* F16N *25/04*

U.S. Cl. 418—13 6 Claims



1. An oil flow path for an oil sealed, mechanical rotary vane vacuum pump having a rotor and vane cyclically driven about an axis that is eccentric to a cylinder of a stator, the stator including an inlet and outlet for the pumped gas, an oil seal between the inlet and outlet in a narrow gap between the rotor and stator, a shaft for driving said rotor, the oil path comprising a first passage leading radially to the shaft from a source of oil, said first passage having an orifice into a bore through which the shaft extends, the shaft including a recess, longitudinally aligned with the first orifice and extending only part way around the shaft so that oil is metered by the recess as the shaft is rotated, a second passage longitudinally aligned with the recess and leading tangentially from the peripheries of the shaft and the bore, means for connecting the second passage in fluid flow relation with the cylinder so oil metered to the recess bursts into the second passage and flows to the cylinder to form the oil seal and lubricate surfaces between the rotor and stator.

4,276,006

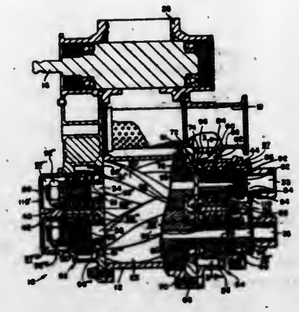
SYSTEM FOR COOLING MOTOR BEARINGS

Russell C. Perkey; David C. Thomas, both of Mishawaka, and James M. Eastman, South Bend, all of Ind., assignors to The Bendix Corporation, Southfield, Mich.

Filed Nov. 7, 1978, Ser. No. 958,590

Int. Cl.³ F01C *21/06*

U.S. Cl. 418—94 9 Claims



1. In a pneumatic motor having rotor means supported by bearing means in a housing, said rotor means being moved by a supply of hot fluid under pressure to develop an output force, said rotor means and housing conducting heat from the hot fluid into said bearing means, the improvement comprising:

means for cooling said bearing means to a temperature below said hot fluid to prevent damage to said bearing means by the heat conducted through the rotor means and housing, said means for cooling including:

seal means for attenuating the effect of hot fluid leakage from the housing along the shafts of said rotor means, said seal means including a sleeve on each end of said shafts between said bearings and housing, each of said sleeves having a projection that engages one of said bearings and a flange that engages said housing, each of said sleeve and flange being positioned on said rotors to define an annular space between the bearings and the housing, said annular space being connected to the surrounding environment, said leakage of hot fluid along said shafts flowing from the annular space into the surrounding environment to prevent said hot fluid from reaching said bearing means; and

means for producing a vacuum, said vacuum being connected to said bearings for drawing air from the surrounding environment across the bearings to maintain the temperature of the bearings below that of the hot fluid.

4,276,007

ROTARY PUMP WITH CARBON VANES AND AN ALUMINUM CYLINDRICAL SLEEVE IN THE HOUSING

Hiroshi Sakamaki, Utsunomiya; Toshiyuki Maeda, Agoe; Fumihiro Ushijima, and Tadashi Saitou, both of Toyota, all of Japan, assignors to Toyota Jidosha Kogyo Kabushiki Kaisha, Toyota, Japan

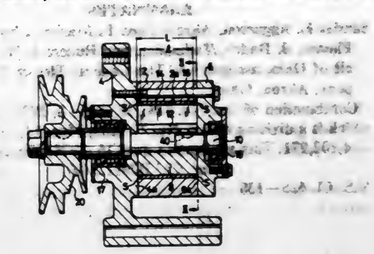
Filed Mar. 23, 1979, Ser. No. 23,440

Claims priority, application Japan, May 24, 1978, 53/71013[U]

Int. Cl.³ F04C *18/00, 29/00*

U.S. Cl. 418—152 10 Claims

1. In a rotary fluid pump including a rotor housing, a pair of side housings, said rotor housing and pair of side housings forming a rotor chamber, a rotor rotatably supported in said rotor chamber, a plurality of vanes slidably positioned in an equal number of grooves formed in said rotor, said vanes being made of carbon, the improvement comprising a cylindrical sleeve made of aluminum or aluminum alloy subject to anodic oxidation to obtain an oxide film on the inner peripheral surface of said sleeve, the rotor chamber having clearance spaces



at its axial end portions and the ends of said sleeve adjacent said clearance spaces.

4,276,008

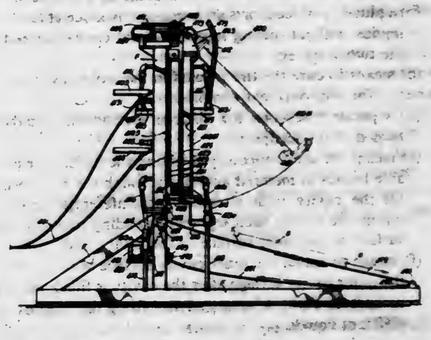
APPARATUS FOR MOLDING EXPANDABLE THERMOPLASTIC POLYMER PARTICLES

Robert L. Montgomery, and Stuart B. Smith, both of Conyers, Ga., assignors to Southeastern Foam Products, Inc., Conyers, Ga.

Division of Ser. No. 827,873, Aug. 26, 1977, abandoned. This application Aug. 31, 1979, Ser. No. 71,473

Int. Cl.³ B29D *27/00*

U.S. Cl. 425—4 R 8 Claims



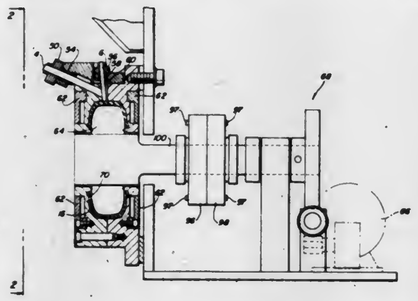
1. An apparatus for molding expandable thermoplastic polymer particles comprising a stationary frame, a stationary mold platen on said frame, a companion opposing mold platen movably mounted on said frame for movement toward and away from the stationary platen, edge rail members associated with said stationary and movable platens and defining therewith a single mold cavity, said members comprising a pair of parallel edge rail members fixedly secured to one end of said platens and a second pair of edge rail members mounted for movement toward and away from each other between said parallel members, power actuated camming means connected with said second pair of edge rail members to shift them toward and away from each other, means to move the movable platen relative to the stationary platen, means to deliver steam to one platen only of said mold, said steam passing through the mold cavity in one direction only and expanding and fusing said particles in the mold cavity, and means to cool the mold following fusion of said particles into an integral molded mass in said mold cavity.

4,276,009

APPARATUS FOR MAKING CAST ANNULAR LAMINATES

Sundar L. Aggarwal, Akron; Leon F. Marker, Cuyahoga Falls; Thomas J. Dudek, Tallmadge, and Robert J. Herold, Akron, all of Ohio, assignors to The General Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 884,778, Mar. 8, 1978, abandoned, which is a division of Ser. No. 777,200, Mar. 14, 1977, Pat. No. 4,102,971. This application Jan. 15, 1979, Ser. No. 48,943
Int. Cl.³ B29H 5/00
U.S. Cl. 425—130 1 Claim



1. In an apparatus for molding a tire in a toroidal configuration said apparatus having in combination:
(a) a closed mold cavity, the cavity having a toroidal inner surface and a toroidal outer surface which define the shape of the tire to be molded, the inner cavity surface having a common axis with the outer cavity surface;
(b) a plurality of feedports arranged to introduce at least two liquids without mixing into a toroidal cavity formed by the two surfaces;
(c) means to cure the tire formed in the mold cavity;
wherein the improvement comprises:
(d) separate reservoirs for different extendable liquids attached to the feedports;
(e) means for simultaneously injecting the different extendable liquids in metered amounts through the feedports to fill the cavity with alternate circumferential segments within the cavity, each segment extending from the inner surface to the outer surface of the cavity; and
(f) means to rotate the inner cavity surface with respect to the outer cavity surface after the cavity is filled and prior to cure to form a laminated tire from the at least two different liquids.

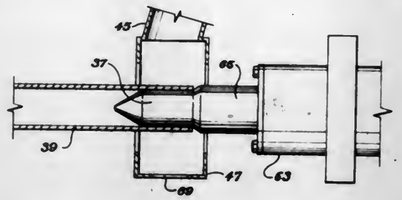
4,276,010

PIPE BELLER WITH FORCE DETERMINED TEMPERATURE

Kenneth B. Shartzer, Hurst, Tex., assignor to Plastic Machinery Corporation, Fort Worth, Tex.

Filed Mar. 23, 1979, Ser. No. 23,154
Int. Cl.³ B29D 23/00
U.S. Cl. 425—143 8 Claims

1. An apparatus for belling a plastic pipe comprising:
a. a mandrel;
b. means for heating the mandrel;
c. means for urging the mandrel into the pipe with a predetermined force simultaneously with heating such that the mandrel will move into the pipe and form a bell only after the pipe is heated to a predetermined temperature between its memory temperature and its damage temperature,
d. means for heating the pipe simultaneously as it is applied to the mandrel;
e. means for stopping the heating of the pipe responsive to movement of the mandrel;
said mandrel being of a predetermined size and shape for the plastic pipe and being shaped to resist movement of the mandrel into the pipe to effect a bell end until the pipe is heated to a predetermined belling temperature between its memory



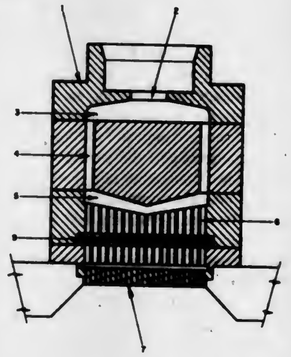
temperature and its damage temperature such that said pipe must be heated to said predetermined belling temperature before the predetermined force will move the pipe onto the mandrel and the bell is always formed at the correct predetermined belling temperature;
f. means for cooling the pipe; and
g. means for removing the pipe from the mandrel.

4,276,011

SPINNERETTE ASSEMBLY

Edwin J. Siegman, Pensacola, and Roy L. Yelverton, Gulf Breeze, both of Fla., assignors to American Cyanamid Company, Stamford, Conn.

Filed Feb. 21, 1979, Ser. No. 13,345
Int. Cl.³ A01J 17/00
U.S. Cl. 425—198 5 Claims



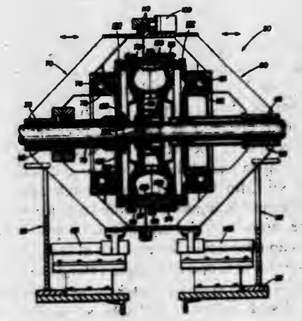
1. A circular spinnerette assembly for extruding hardenable fluid material at substantially equal back-pressure which comprises in combination
a. a circular body member containing at the top in the central area thereof a conduit, at the bottom a spinnerette plate containing a plurality of orifices with counterbores, said orifices being arranged in concentric circular rows about the center of said circular body with the number of orifices in each row decreasing as the rows approach the center, and located within said circular body from top to bottom in the order named
b. a first tapered passageway at the exit of said conduit decreasing in volume from the center to the outer periphery of said body,
c. collector means at the exit of said first passageway and at the outer periphery of said body.
d. a second tapered passageway at the exit of said collector means which tapers towards the center of said body and communicates with
e. a plurality of distribution chambers having lengths which decrease as their position within said body approaches the center of said body and which chambers communicate with the plurality of counterbores and orifices of said spinnerette plate.

4,276,012

MOLD ISOLATOR MECHANISM FOR CENTRIFUGAL CASTING MACHINE

James H. C. Yang, Cleveland, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio

Filed Mar. 7, 1980, Ser. No. 128,002
Int. Cl.³ B29C 5/04
U.S. Cl. 425—435 12 Claims



1. A centrifugal casting machine of the type having a first rotatable shaft, a second rotatable shaft, a rotatable core member having an opening, at least one of said first and second shafts being adapted for moving toward and away from the other so as to extend in the opening in said core member and adjacent the other of said first and second shafts to rotatably support said core member, a first and a second mold half located on opposite sides of said core member and each adapted to move inwardly and outwardly between open and closed positions, said mold halves being rotatably supported on bearing means and in closed position being adapted to rotate with said core member and, also, defining a cavity in combination therewith, wherein the improvement comprises the addition of pluralities of mold isolator and elastic coupling means between said bearing means and said mold halves, serving concurrently as torque couplings, clamping force transmitters, rotational misalignment adjusters, and vibration dampers.

4,276,013

TOGGLE ACTION CLOSING AND LOCKING DEVICES FOR PRESSES

Cesare Bonoo, Brescia, Italy, assignor to I.M.I. Industria Macchine Idrauliche S.p.A., Brescia, Italy

Filed May 24, 1979, Ser. No. 42,185
Claims priority, application Italy, Dec. 11, 1978, 69821 A/78
Int. Cl.³ B29F 1/00; B29C 3/00; B30B 1/16
U.S. Cl. 425—451.5 3 Claims

1. A press comprising:
(a) a stationary plate,
(b) a reaction plate spaced a fixed distance from the stationary plate,
(c) a moveable plate between the stationary and reaction plates and moveable toward and away from the stationary plate,
(d) a toggle mechanism pivotally mounted between the reaction plate and moveable plate,
(e) a first piston-cylinder device for moving the moveable plate between a position relatively far from the stationary plate to a position relatively close to the stationary plate, and
(f) a second piston-cylinder device, operable independently of the first piston-cylinder device, for activating the toggle mechanism to lock the moveable and stationary plates together,
(g) both of the piston-cylinder devices and the toggle mechanism being located in their entireties between the reaction

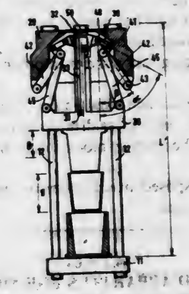


plate and the moveable plate when the moveable plate is in its closest location to the stationary plate,
(h) the toggle mechanism including a first link pivoted to the reaction plate, a second link pivoted to the moveable plate, the two links being pivoted to each other at their free ends, a crosshead moveable by the piston-cylinder devices, and a third link pivoted between the crosshead and at least one of the first and second links, and
(i) when the moveable plate is at its farthest location from the stationary plate, the angle between the direction of movement of the moveable plate and the third link is greater than the angle between the direction of movement of the moveable plate and a line drawn between the pivot point of the third link to the crosshead and the pivot point of the first link to the reaction plate.

4,276,014

NOZZLE DEVICE FOR MOLDING PLASTICS

Katashi Aoki, 6037 Ohara-Minamije, Sakaki-machi, Hanishina-gun, Nagano-ken, Japan

Filed Apr. 4, 1979, Ser. No. 27,821
Claims priority, application Japan, Apr. 8, 1978, 53-46344[U]
Int. Cl.³ B29F 1/03, 1/08
U.S. Cl. 425—547 3 Claims



1. A nozzle device for a plastic molding apparatus comprising:
a base plate;

a plurality of generally parallel support plates secured to said base plate and extending upwardly therefrom;

a hot runner block having a cylindrical shape and a fixed axial length, said hot runner block being integrally coupled to each of said support plates in spaced relation with said base plate, the axis of said hot runner block being disposed generally parallel to said base plate and perpendicular to said support plates;

a plurality of nozzles projecting radially from one side of said hot runner block, said nozzles being detachable from said hot runner block;

a sprue projecting radially from said hot runner block along a side thereof other than said one side;

a runner disposed internally of said hot runner block and providing communication between said sprue and each of said plurality of nozzles to permit molten plastic to pass from said sprue to each of said nozzles, said runner extending axially of said hot runner block and being generally centrally disposed therein;

means for bringing said nozzles into contact with gates of a mold cavity;

a plug disposed at each axial end of said runner of said hot runner block, each of said plugs being removable externally of said hot runner block for cleaning of said runner; and

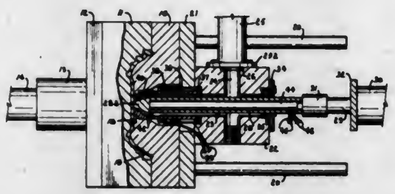
heater bands disposed around exterior radial surfaces of said hot runner block.

4,276,015

METHOD AND APPARATUS FOR MOLDING CLAY PIGEONS AND THE LIKE

Richard R. Rogers, 73 Lakeshore West, Lake Quivira, Kans. 66106

Filed Jul. 19, 1978, Ser. No. 926,032
Int. Cl.³ B29F 1/03
U.S. Cl. 425—548 2 Claims



1. In an injection molding machine having male and female mold members supported for opening and closing movement and cooperating when closed to present a mold cavity, the improvement comprising:

a passage in one of said mold members for directing molding material to said mold cavity, said passage having an inlet adapted to receive molding material and an outlet opening disposed adjacent the mold cavity; a pin member supported in said passage for movement between a first position blocking said outlet opening and a second position wherein said opening is unblocked, said pin member being smaller than said passage to permit flow therethrough when said opening is unblocked;

power means for effecting movement of said pin member between the first and second position;

means for heating said pin member;

said pin member having a tip portion adapted to seat in said opening to block same when the pin member is in its first position; and

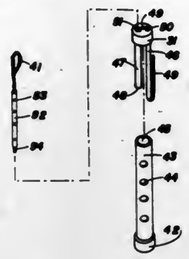
said heating means including an additional heating means located in proximity to said tip portion of said pin member for maintaining the temperature of said tip portion to a temperature greater than that of the molding material.

4,276,016

WICK DEVICE

Francis R. Lockwood, 5509 Goldenrod Rd., Louisville, Ky. 40272, and Kenneth P. Meuse, 9211 Calvacade Ave., Louisville, Ky.

Filed Mar. 28, 1979, Ser. No. 24,578
Int. Cl.³ F23D 3/18
U.S. Cl. 431—323 1 Claim



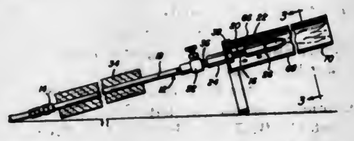
1. A wick assembly to supply a flammable fluid from a reservoir at a selected rate including; (a) reservoir means to hold a supply of flammable fluid and having an outlet aperture in the top thereof; (b) a generally cylindrical elongate dip tube having an open end and at least one perforation in the side thereof and adapted to be received in said reservoir; (c) means to secure said open end of the dip tube to and within said outlet aperture so said dip tube extends through said reservoir to permit the flammable liquid to be admitted through said perforation to the interior of said dip tube; (d) a wick feed assembly including a cap adapted to be received in said open end of said dip tube where a first open end tube extends through said cap and is adapted to receive first wick means to extend through the length of said first open end tube so said first wick is received in said dip tube with the other end of said first wick extending out of said open end first tube, (e) second elongate tube means having one closed end and adapted to be received within said dip tube with an open end received within said cap; (f) a third, cylindrical elongate tube having at least one aperture in the side thereof, and adapted to receive second wick means, and further adapted to be received within said second tube, where said first wick means extends from the end of the first tube and into the second tube whereby said flammable liquid is conducted, by wicking, from the reservoir by said first wick means through said first tube and said second tube means where said flammable liquid is thereby conducted to said third tube through said at least one aperture of said third tube to said second wick means.

4,276,017

GAS TORCH

Earl W. Julien, 700 Holland La., NE., Minneapolis, Minn. 55432

Filed Sep. 11, 1979, Ser. No. 74,498
Int. Cl.³ F23D 13/04
U.S. Cl. 431—344 3 Claims



1. A gas torch for using a gaseous fuel, said torch including elongated wand defining pipe means including inlet and outlet ends, said inlet end being adapted for connection with a source of flammable gas under pressure, said outlet end including discharge means for discharging a jet of said gas, a generally

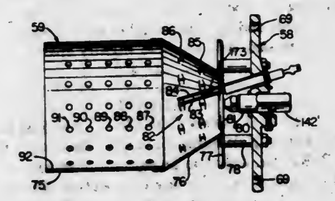
cylindrical shroud loosely telescoped over said outlet end and discharge means, a shroud support structure carried by said pipe means intermediate said inlet and outlet ends, said support structure defining a generally cylindrical recess opening outwardly at one end thereof along said pipe means toward said discharge means, one end of said shroud being removably and supportively telescoped in said recess, the other end of said shroud projecting endwise outwardly beyond said discharge means, said support structure including a generally circular base plate portion provided with a radial slot opening radially outwardly of one peripheral portion of said base plate portion, a partial cylindrical peripheral wall extending about and supported from said base plate portion and including spaced ends defining a throat therebetween aligned with the outer open end of said slot, said peripheral wall projecting outwardly of one side of said base plate portion and defining, in conjunction with said base plate portion, said recess in which said one end of said shroud is supportively telescoped, said shroud including a peripheral portion thereof at said one end at least substantially fully closing said throat, said pipe means including axially spaced abutment portions defining a narrow circumferential radially outwardly opening groove therebetween, the portions of said base plate portion defining the inner end of said slot being receivable in said groove, at least one of said pipe means abutment portions being threadedly adjustable on said pipe means for adjustably varying the width of said groove and clamping said base plate portions defining the inner end of said slot in said groove, said one end of said shroud including combustion air admitting radial openings formed therein, said radial slot, outward of said pipe means and inward of said shroud also defining combustion air inlet means.

4,276,018

MOBILE HEATER

Melvin E. Robbins, Cincinnati, Ohio, assignor to Davey Compressor Co., Cincinnati, Ohio

Filed May 30, 1979, Ser. No. 43,791
Int. Cl.³ F23D 15/02; F02C 1/00
U.S. Cl. 431—352 9 Claims



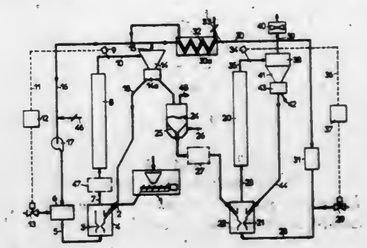
1. A burner arrangement for use with a fuel supply nozzle including a body with a longitudinal axis having a hollow truncated conical portion and a hollow cylindrical portion connected to said truncated conical portion, said truncated conical portion having an opening at each axial end with the opening at its smaller end being adapted to receive fuel from a nozzle, said truncated conical portion having the opening at its larger end communicating with said hollow cylindrical portion, said truncated conical portion having lanced ports in its wall which are disposed at a nonorthogonal angle to the bodies longitudinal axis for admitting directionalized air into the interior of said truncated conical portion and producing a rotation of the air admitted through the wall to aid in burning the fuel from the nozzle along with air supplied through said opening at the smaller end of said truncated conical portion, and said hollow cylindrical portion having air port means in its wall at spaced intervals along the length of said hollow cylindrical portion to admit air into the interior of said hollow cylindrical portion to insure complete burning of the fuel supplied through said opening at the smaller end of said truncated conical portion.

4,276,019

PROCESS FOR REGENERATING OF AN ADSORBING MATERIAL IN THE FORM OF PARTICLES CHARGED WITH AT LEAST TWO VOLATILE COMPOUNDS HAVING DIFFERENT THERMAL STABILITIES

Jean Rouilleux, Versailles; Albert Reboux, Chatou; Philippe Dumortier, Sartrouville, and Paul H. L. Marechal, Garches, all of France, assignors to Air Industrie, France

Filed Oct. 30, 1979, Ser. No. 89,370
Claims priority, application France, Oct. 31, 1978, 78 30940; Feb. 5, 1979, 79 02941
Int. Cl.³ F27B 15/00
U.S. Cl. 432—1 17 Claims



1. A process using two contacting columns for regenerating an adsorbent material charged with at least two volatile compounds having different thermal stabilities which comprises the steps of

(a) calcinating at least one of the volatile compounds in the adsorbent material by raising the temperature in the first column to a sufficiently high temperature and by driving the adsorbent material through the column with a stream of oxidizing gas and thereby putting the material into suspension

(b) at the outlet of the first column separating the partially purified adsorbent material from the oxidizing gases and the gaseous products desorbed from the material in the first column

(c) introducing the partially purified material from step (b) into the second contacting column and cooling it by putting it into suspension while being driven along through the column by at least a part of the gases separated in step (b) so as to readsorb on the partially purified material the gases which were desorbed from the material in step (a).

4,276,020

METHOD FOR HEATING POWDER MATERIAL AND APPARATUS FOR CARRYING OUT SAID METHOD

Kyoichi Shibuya, and Tomomi Ihara, both of Narashino, Japan, assignors to Sumitomo Cement Co., Ltd., Kanda, Japan

Filed Jul. 16, 1979, Ser. No. 57,570
Claims priority, application Japan, Aug. 4, 1978, 53-95262
Int. Cl.³ F27B 15/00
U.S. Cl. 432—14 8 Claims

1. An apparatus for heating powder material, comprising:

a plurality of vertically disposed hot gas ducts for flowing hot gas streams upwardly therethrough, said hot gas ducts being separate from one another;

separate hot gas sources respectively connected to lower ends of the respective hot gas ducts for supplying hot gas to said hot gas ducts;

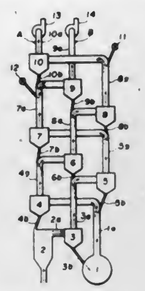
separate blowers connected to respective uppermost portions of said respective gas ducts for exhausting hot gas from said respective hot gas sources;

dust collectors respectively positioned along and in fluid communication with each of the respective hot gas ducts;

said dust collectors positioned, respectively between said respective hot gas sources and said respective blowers, each of said hot gas ducts having an uppermost dust collector in fluid communication with its respective blower

by means of the respective uppermost portion of said hot gas duct connected thereto and a second dust collector in fluid communication with and positioned upstream from said respective uppermost dust collector by means of a second portion of said respective hot gas duct, whereby hot gas can flow from each of the respective hot gas sources to the respective second dust collectors, second portions of said hot gas ducts, uppermost dust collectors, and blowers, respectively;

a plurality of separate raw material feeders, each respectively connected to the respective second portions of said hot gas ducts;



raw material ducts connecting the bottoms of said respective dust collectors of one of the hot gas ducts to respective portions of another one of said hot gas ducts positioned below said respective dust collectors of said one hot gas duct; and

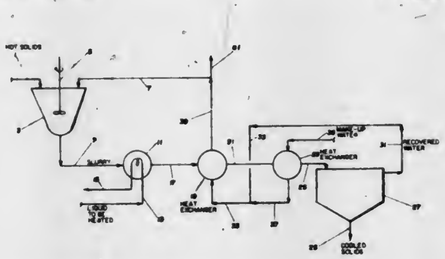
a lowermost dust collector positioned along and in fluid communication with one of the respective hot gas ducts, said lowermost dust collector having a raw material duct for discharging raw material downwardly therefrom.

4,276,021

METHOD OF RECOVERING HEAT FROM HOT GRANULAR SOLIDS

George B. Karnofsky, Pittsburgh, and Robert E. Brink, Sewickley, both of Pa., assignors to Dravo Corporation, Pittsburgh, Pa.

Filed Aug. 8, 1979, Ser. No. 64,800
Int. Cl.³ F27D 15/02
U.S. Cl. 432—85 5 Claims



1. In a continuous process for the recovery of heat from a hot granular material, capable of being formed into a pumpable slurry, so as to heat a fluid, the improvement comprising:

mixing the hot granular material with preheated water to form an aqueous, heated, pumpable slurry;

passing said slurry through a first indirect heat exchanger in heat exchange relation with the fluid to be heated so as to heat the latter and partially cool said slurry;

passing said partially cooled slurry from said first indirect heat exchanger to a second indirect heat exchanger in heat exchange relation with water to preheat said water for use in said mixing and further cool said slurry;

transferring said further cooled slurry from said second indirect heat exchanger to a thickener wherein water is recovered from said slurry;

adding makeup water to said recovered water; and

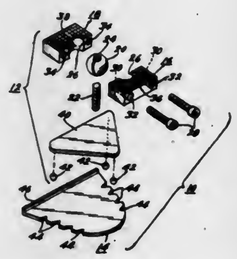
recycling said recovered water from the thickener and said makeup water for use as water to be preheated in the second indirect heat exchanger.

4,276,022

INTRA ORAL TRACING APPARATUS

John B. Della Croce, 450 Washington St., Freeland, Pa. 18224

Filed Aug. 10, 1979, Ser. No. 65,495
Int. Cl.³ A61C 9/00
U.S. Cl. 433—71 6 Claims



1. An intra oral tracing apparatus comprising a tracing table and a scribing member having stylii for forming impressions in molding material disposed on said tracing table, each of the tracing table and scribing member having means for removably mounting the member in one of a patient's upper and lower jaws, and one of the mounting means having universal adjustment means, the adjustment means being provided with a locking means accessible though the patient's mouth, whereby the angle and distance between said tracing table and said scribing member may be adjusted and rigidly locked to bring said table and scribing member into substantially parallel contact when said jaws are held slightly apart.

4,276,023

FLUID FLOW CONTROL CONSOLE

Earl G. Phillips, Kalamazoo Township, Kalamazoo County, and Dee B. Ranger, Oshtemo Township, Kalamazoo County, both of Mich., assignors to Stryker Corporation, Kalamazoo, Mich.

Filed Sep. 28, 1979, Ser. No. 79,869
Int. Cl.³ A61C 1/10, 1/12, 1/02; A61M 1/00
U.S. Cl. 433—85 13 Claims

1. In a surgical and dental fluid control system for supplying liquid to a handheld pressurized gas operated tool at a surgical or dental operating site, the combination comprising:

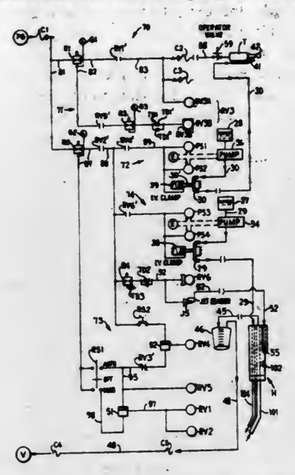
a console remote from said operating site;

a gas pressure source and a liquid source at said console;

liquid tube means interposed between said liquid source and said tool at said operating site for carrying said liquid to said operating site;

elongated gas tube means for supplying gas at a desired pressure from said console to said tool at said operating site, said tool having means manually actuable at the operating site for changing the gas flow rate in said tube means;

means at said console responsive to a change in flow rate or gas pressure in said gas tube means due to such manual actuation, for initiating a flow of said liquid to said tool at said operating site, said change responsive means including means normally blocking liquid flow from said liquid source through said liquid tube means to said operating site and a gas circuit means for comparing the gas pressure in said gas tube means with a reference value and unblocking said liquid tube blocking means when said gas pressure flow is below said reference value due to tool operation, said gas circuit means comprising a dual pilot valve unit including a sensing pilot connected to said gas tube means and responsive to a drop in gas pressure therein caused by operation of said tool, said dual pilot valve unit having a reference pilot and pressure reducing regulator means interposed between said reference pilot and said gas pressure source for maintaining said reference pilot at a reference pressure at a fixed level below the gas pressure in said gas tube means with said tool turned off, said dual pilot valve unit further including a valve and means responsive to actuation of said valve for unblocking said liquid tube blocking means, said sensing and reference pilots being connected in opposition to said lastmentioned valve for actuation thereof by said reference pilot upon dropping of the pressure applied to said sensing pilot due to turning on of said tool.

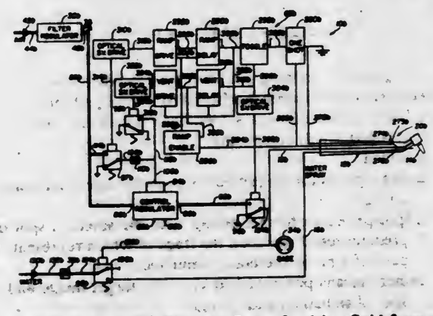


4,276,024

CONTROL SYSTEMS FOR DENTAL HANDPIECES

George E. Warria, North Merrick, N.Y., assignor to Cavitron Corporation, New York, N.Y.

Division of Ser. No. 780,638, Mar. 28, 1977. This application Apr. 23, 1979, Ser. No. 32,792
Int. Cl.³ A61C 1/10
U.S. Cl. 433—99 11 Claims



1. A system for controlling the flow of a drive fluid from a source along a path comprising:

A. fluid motor means operatively connected to said drive fluid path for providing variable output speed to a tool in response to the flow and pressure of said drive fluid along said path,

B. control valve means disposed in said drive fluid flow path between said source of drive fluid and said fluid motor means for controlling the flow and pressure of said drive fluid,

C. switching means coupled to said control valve means for controlling said control valve means, and

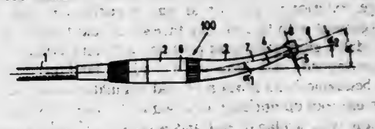
D. activating means coupled to said switching means for controlling said control valve means proportionally to the length of time of activating said activating means and maintaining the resulting tool output speed after deactivating said activating means.

4,276,025

DENTAL HANDPIECE

Reinhard Strahammer, Eisbuesen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Dec. 4, 1979, Ser. No. 100,145
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1978, 2855796
Int. Cl.³ A61C 1/12, 1/08
U.S. Cl. 433—105 4 Claims

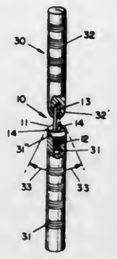


1. In a dental handpiece having a drive motor, a grip section coupled to the drive motor and terminating in a head part having a socket for supporting a tool for rotation, said grip section having drive train means for transmitting rotational motion of the drive motor to the socket, said drive train means including at least two drive shaft sections interconnected by meshing gears, said grip section having an angle portion so that the one drive shaft section adjacent the socket extends at an angle of inclination to the other drive shaft section on the axis of the drive motor, the improvements comprising the angle of inclination being formed in at least two stages with an additional drive shaft section interposed between the one drive shaft section adjacent the socket and the other drive shaft section on the axis of the drive motor, said additional drive shaft section forming an individual angle with each of the two drive shaft sections with each individual angle being less than the angle of inclination, said grip section having a basic body portion with bores for receiving said additional drive shaft section and the other drive shaft section, and the basic body section including means for mounting the additional drive shaft section for axial displacement in one of the bores between a first and second position, said additional drive shaft section having a pair of gears disposed at each end with the gears of each pair being axially spaced apart, the other drive shaft section having a first and second gear axially spaced apart to form a pair of gears with the first gear engaging one gear of the pair of gears of the additional shaft section while the additional section is in a first position and the second gear engaging the other of said pair of gears when the additional section is in the second position, the gears of at least one of the pair of gears having different number of teeth so that a different drive ratio between the other drive shaft section and the additional drive shaft section is obtained depending on which gears are in engagement.

4,276,026
ANGULATION HEAD FOR DENTAL IMPLANT AND BENDING TOOL FOR SAME

Alfred E. Edelman, Haddon View South 802, 1 MacArthur Blvd., Westmont, N.J. 08108

Division of Ser. No. 937,585, Aug. 28, 1978, Pat. No. 4,217,100, which is a continuation-in-part of Ser. No. 819,119, Jul. 26, 1977, abandoned, which is a continuation of Ser. No. 559,226, Mar. 17, 1975, abandoned. This application May 13, 1980, Ser. No. 149,457
Int. Cl.³ A61C 8/00
U.S. Cl. 433—176 7 Claims

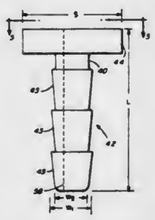


1. The combination comprising an angulation head for removable attachment to a dental implant which has a hollow neck with internal threads in at least a portion of the hollow neck, said angulation head having an intermediate circular flange, a cylindrical stem depending axially from said circular flange, exterior threads on at least a portion of said stem for engagement with the internal threads in said hollow neck, and a bendable elongated head portion extending axially from said flange opposite said stem, and a bending hand tool for bending said bendable head portion of said angulation head, said bending hand tool comprising an elongated holder having a handle portion with a planar end and a socket extending axially inwardly from said flat planar end for holding the stem of said angulation head with said flange abutting said planar end, said socket having an internally threaded portion for threadedly engaging the threaded stem portion of said angulation head, and a hand manipulatable elongated bending shaft having a pair of opposite ends, one end of said bending shaft having an elongated socket extending axially inwardly therefrom which is of a size and shape for snugly receiving the bendable head portion of said angulation head.

4,276,027
PARAPULPAL DENTAL RESTORATIVE PINS WITH SELF-ANCHORING ANTI-ROTATIONAL RETENTION HEADS

Leopold P. Lustig, 304 Greenwood St., Newton Centre, Mass. 02159

Filed Dec. 6, 1979, Ser. No. 100,942
Int. Cl.³ A61C 5/04
U.S. Cl. 433—225 11 Claims

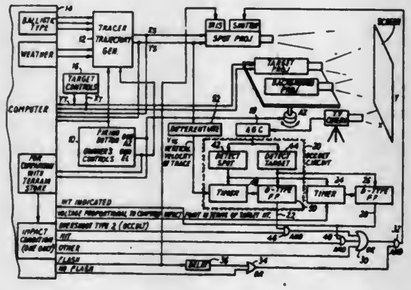


1. A dental restorative pin comprising a metallic principal body that is elongated on an axis forming a pin intended for insertion at one end into a hole through a surface and when so inserted to extend at the other end a distance from said surface, and at said other end a head that is flattened to embrace a plane transverse to said axis, in which said head will be disposed adjacent to but spaced from said surface when said pin is so inserted, for engaging said head in a dental restorative material when the latter is present on said surface, said head being joined to said other end of said principal body by a constricted neck located immediately between said other end and said head, said neck being thinner than the width dimension of said principal body and extending axially a small fraction of the length of said principal body, for permitting said head to be oriented around said other end relative to said axis into a plane that is not perpendicular to said axis, for adjusting said head relative to said surface when said pin is so inserted in said hole, a notch in said head extending from the periphery of said head to said principal body, and means providing a passage extending axially along one side of said principal body into substantial register with the bottom of said notch, whereby when said pin is inserted into said hole, said hole will be readily vented without displacing dental restorative material from under said head, the width of said principal body being tapered from the major transverse dimension down to a minor transverse dimension in each of a plurality of axially-limited regions extending end-to-end from said one end to said other end of said principal body, the narrow end of each said region abutting the wide end of the next succeeding region, the wide ends of said regions being oriented toward said head, for retaining said pin in a bonding material when said pin is inserted in said hole with said bonding material.

4,276,028
GUNNERY TRAINING SYSTEM

Eric C. Gwynn, Hove, England, assignor to The Singer Company, Binghamton, N.Y.

Claims priority, application United Kingdom, Sep. 27, 1978, 38 378/78
Filed Aug. 1, 1979, Ser. No. 63,024
Int. Cl.³ F41G 3/26
U.S. Cl. 434—20 10 Claims



1. A gunnery training simulator system wherein a spot of a predetermined radiation is adapted to trace a path of a projectile being simulated on a screen onto which the image of a target is projected, comprising:

a screen,

a target projector for projecting onto the screen an image of a target,

a spot projector for projecting onto the screen a spot of a predetermined radiation the trace of which represents the path of a projectile being simulated,

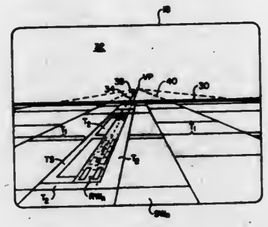
camera means positioned to view the target image and the spot of radiation, and

electronic means connected to the output of the camera means for producing signal portions representative of the projectile trace and of the target image and for producing an output signal when the projectile trace signal portion approaches to within a predetermined distance of the target image signal portion.

4,276,029
VISUAL CUE SIMULATOR

Richard D. Gilson; Marlin O. Thurston, both of Columbus; Karl W. Olson, Worthington, and Ronald W. Ventola, Columbus, all of Ohio, assignors to The Ohio State University, Columbus, Ohio

Filed May 17, 1979, Ser. No. 40,059
Int. Cl.³ G09B 9/08; H04N 7/18
U.S. Cl. 434—43 43 Claims



1. The method of simulating visual cues at a display surface positioned a distance, D, from an eye position, said cues representing portions of a simulative region having predetermined visual features defined by boundaries extending generally longitudinally outwardly from said eye position and by visual information having boundaries transversely oriented with respect to said longitudinal boundaries, said longitudinal and transverse boundaries being locatable by coordinates and said eye position having a simulated instantaneous height, H, and positions identified with respect to said coordinates, comprising the steps of:

generating a video raster and displaying said raster at said display surface;

generating signals representing the predetermined vertical location of a vanishing point within the periphery of said raster, those horizontal traces of said raster being located vertical distances designated, y, below said vanishing point;

generating slope signals, each representing the slope at said raster of said longitudinal boundary extensible from said vanishing point, said slope of a given longitudinal boundary representing a quotient substantially derived as the value of the transverse displacement of said given boundary from the corresponding position of said instantaneous eye position divided by a value representing said instantaneous height, H;

providing an addressible image information memory, each address thereof retaining an information signal representing said visual information;

addressing said memory to provide said information signals for a given said visual feature in correspondence with said eye position instantaneous height, H, its coordinate position and a said horizontal trace position, y;

generating boundary signals representing said longitudinal boundaries extending from said vanishing point at the slopes defined by said slope signals;

treating said combination of said boundary signals and said addressed information signals to provide video information signals;

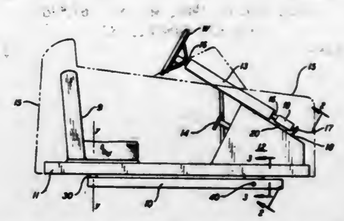
processing said video information signals to generate video outputs; and

treating said video outputs to provide an image at said raster.

4,276,030
PIVOTABLE VEHICLE SIMULATOR

John G. Radice, Binghamton, N.Y., assignor to Doron Precision Systems, Inc., Binghamton, N.Y.

Filed Oct. 31, 1979, Ser. No. 89,948
Int. Cl.³ G09B 9/04
U.S. Cl. 434—62 5 Claims



5. Simulated vehicle apparatus, comprising, in combination: a base frame; a second frame having mounted thereon an occupant station and a simulated steering control; first means interconnecting said simulated steering control and said second frame so that movement of said steering control away from a first predetermined position rotates said second frame relative to said base frame about a substantially vertical axis; and bearing means supporting said second frame on said base frame, said bearing means being operable to slightly raise a portion of said second frame by an amount proportional to said rotation of said second frame as said second frame rotates in either direction from a second predetermined position, whereby gravitational acceleration acting on said second frame tends to restore said second frame to said second predetermined position and said steering control to said first predetermined position.

4,276,031
METHOD OF TEACHING

Phyllis E. Lasek, 2949 Roosevelt, Dearborn, Mich. 48124

Filed Mar. 24, 1980, Ser. No. 133,267
Int. Cl.³ G09B 19/00
U.S. Cl. 434—260 6 Claims



1. The method of teaching, which comprises successively presenting to a child a series of bags of individually different sizes, shapes, colors, materials, textures and fasteners for visual inspection and feeling;

the fasteners being selected from the group consisting of grippers, snaps, mitten clips, buckles, hooks and eyes, twist buckles, zippers, shoestring lace with eyes, buttons and loops, drawstring, button with button hole and Velcro;

successively feeling, inspecting and practice manipulating of the respective fasteners as related to the group of said fasteners which are encountered by a child in his clothing and facilitating the learning of self-dressing;

the bags being respectively round, oval, rectangular, square and triangular;

and successive visual examining by the child of each of the bags and comparing and recognizing the respective shapes, facilitating by practice the learning of different

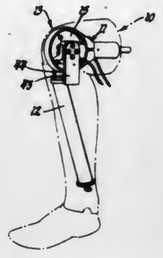
shapes as related to his clothing, and related to pre-reading.

4,276,032

KNEE JOINT FOR ANTHROPOMORPHIC DUMMY

Paul F. Woley, Ann Arbor, and Michael J. Wolanin, Milford, both of Mich.

Filed Jun. 20, 1980, Ser. No. 161,576
Int. Cl.³ G09B 23/32
U.S. Cl. 434—274 2 Claims



1. A knee joint for the leg of an anthropomorphic dummy of the type used in vehicle crash testing, the knee joint comprising, in combination:

a femur member comprising at least part of the upper leg of the dummy;

a tibia member comprising at least part of the lower leg of the dummy;

a first joint member pivotably attached to the femur member and including a slide track thereon;

means defining a pair of contacting friction surfaces on the femur and first joint member perpendicular to the pivoting axis of the first joint member and effective to create frictional resistance to rotation between the first joint member and femur member;

means effective to vary the normal force between the friction surfaces and thereby vary the frictional force therebetween;

a second joint member fixed to the tibia member and slidably attached to the slide track of the first joint member for sliding movement in a direction substantially perpendicular to the tibia member;

stop means on said first and second joint members limiting forward movement of the second with respect to the first and thereby defining a normal position thereof; and

a resilient member disposed between the first and second joint members and further having a pair of opposing surfaces fixed to the first and second joint members, respectively, whereby sliding movement of the first and second joint members away from the normal position generates a restoring force opposing said movement.

4,276,033

SAILING SYSTEM

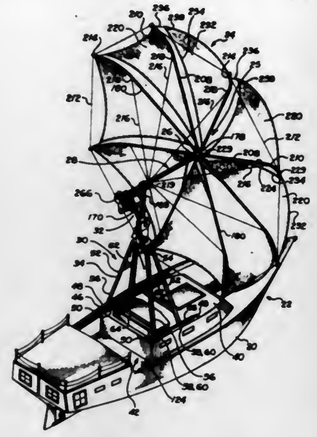
Peter G. Krovina, 12860-24th Ave. South, Seattle, Wash. 98168

Filed Jun. 18, 1979, Ser. No. 49,790
Int. Cl.³ B63H 13/00
U.S. Cl. 440—8 4 Claims

1. In a wind driven dual propulsion system for a boat having a mounting frame extending upwardly from the hull of the boat and adapted to rotate about a first axis of rotation extending generally vertically from the boat, and a singular sail including a plurality of flexible sail segments disposed about a center, the improvement comprising:

an overhung, elongate axle journaled at one end to said mounting frame for rotation about a second axis of rotation extending longitudinally along the length of said axle; and

a sail support frame including a central hub member mounted on the free end of said axle and a plurality of arcuate sail supporting ribs disposed about the circumference of said hub, each of said ribs having a straight inner end portion extending radially, normally outwardly from said hub and an outer end portion curving transversely to said inner end portion and lying substantially in a plane which also includes the longitudinal axis of said axle, to



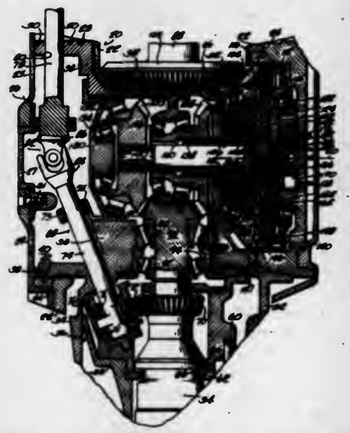
thereby collectively define a circular-convex shape for cooperatively supporting said sail segments in an overall circular-convex sail shape thereby enabling said sail to function in the manner of a conventional sail to propel the boat and also enabling the sails to rotate about the longitudinal axis of said axle to serve as an auxiliary propulsion source.

4,276,034

STERN DRIVE GEAR BOX AND CLUTCHING ARRANGEMENT

Gerald E. Kashmerick, Lindenhurst, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Filed Apr. 27, 1979, Ser. No. 34,191
Int. Cl.³ B63H 1/14, 5/06
U.S. Cl. 440—75 16 Claims



13. A stern drive unit comprising a stationary housing adapted to be fixed relative to a boat hull, a movable housing,

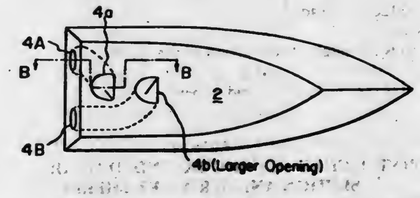
means for mounting said movable housing on said stationary housing for pivotal movement about a tilt axis which is substantially horizontal when said stationary housing is fixed to the boat hull, a propulsion leg including a rotatably mounted propeller, an input shaft in said stationary housing and transverse to said tilt axis, and output shaft journaled in said movable housing and having an axis transverse to said tilt axis, and connected to said propeller, a transfer gear supported for rotation coaxially with said tilt axis and independently of said transfer shaft, spaced first and second bevel gears mounted for rotation coaxially with said transfer gear, said first bevel gear being rotatable independently of said transfer shaft and said transfer gear, and said second bevel gear being fixed for common rotation with said transfer shaft, means for alternatively and selectively connecting said transfer gear to said bevel gears, said connecting means including a first clutch pack for selectively connecting and disconnecting said transfer gear to said first bevel gear and a second clutch pack for selectively connecting and disconnecting said transfer gear to said transfer shaft, a first gear mounted on one of said input shaft and said output shaft and in mesh with said transfer gear, and a second gear mounted on the other of said input shaft and said output shaft and in mesh with both of said spaced bevel gears.

4,276,035

DUCT SYSTEMS FOR WATER JET PROPULSION BOATS

Yoshiaki Kobayashi, Hamamatsu, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 812,379, Jul. 1, 1977, abandoned. This application Jan. 19, 1979, Ser. No. 4,814
Claims priority, application Japan, Jul. 5, 1976, 51-80838
Int. Cl.³ B63H 11/04
U.S. Cl. 440—47 13 Claims



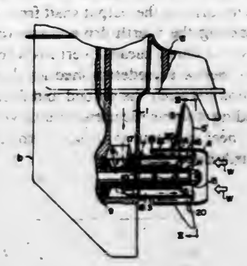
1. In combination: a boat hull capable of tilting sharply during turns, said hull having a centerline, an axis of forward motion relative to said centerline, a first longer and a second shorter water duct, a first and second exit port discharging rearwardly of the hull, said exit ports being laterally spaced from the centerline and on opposite sides of the centerline from each other, a first more forwardly and a second more rearwardly located inlet port means located on said centerline at the bottom of the hull, one located in front of the other, whereby to remain under water when said boat hull tilts sharply, said first and second water ducts respectively interconnecting said respective first and second inlet ports means and said first and second exit ports; and a first and a second water jet propulsion means disposed respectively in said first and second water ducts to move water from the respective first and second inlet port means and out the respective first and second exit ports, the cross section area defining flow resistance upstream from said first exit port being larger than the cross-section defining flow resistance upstream from said second exit port.

4,276,036

EXHAUST MEANS FOR MARINE PROPULSION UNIT

Yasuhiro Nishida, Iwata, and Yasuo Kondo, Shizuoka, both of Japan, assignors to Yamaha Matsudoki Kabushiki Kaisha, Japan

Filed Oct. 2, 1978, Ser. No. 947,634
Claims priority, application Japan, Oct. 4, 1977, 52-133981[U]
Int. Cl.³ B63H 1/14, 5/06
U.S. Cl. 440—89 5 Claims



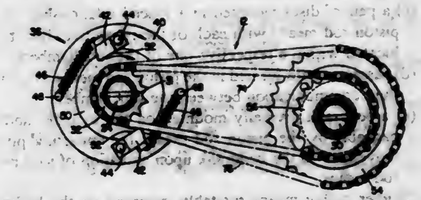
1. Marine propulsion unit comprising housing means which is formed with engine exhaust gas passage means and has a lower portion supporting propeller shaft means, propeller means mounted on said propeller shaft means and including hub means and blade means, said hub means being formed with exhaust passage means which is extending axially along the hub means and connected at one end with said exhaust gas passage means in the housing means, the other end of the exhaust passage means being opened rearwardly of the hub means, outer pipe means having a portion radially spaced apart from said hub means and extending substantially parallel with said hub portion to surround at least the rear portion of said hub means, said outer pipe means extending rearwardly beyond said other end of the exhaust passage means in the hub means, said outer pipe means having a front end which is located forwardly of trailing edge of said blade means.

4,276,037

LOAD RESPONSIVE DRIVE MECHANISM

Edward C. Ryan, Ankeny, and Jimmy J. Parker, Des Moines, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Apr. 23, 1979, Ser. No. 32,488
Int. Cl.³ F16H 5/54, 11/00; F16D 47/04
U.S. Cl. 474—70 1 Claim



1. A drive mechanism comprising: input and output shafts journaled for rotation about parallel axes, a first drive wheel fixed for rotation with the input shaft, a second drive wheel rotatably mounted on the second shaft and aligned with the first drive wheel, a third drive wheel mounted on the input shaft adjacent the first drive wheel, overrunning clutch means supported between the first and third drive wheels for constraining the third drive wheel and input shaft to rotate in unison in one direction, a fourth drive wheel supported on the output shaft for rotation in unison therewith adjacent the second drive wheel, a friction surface located between the second

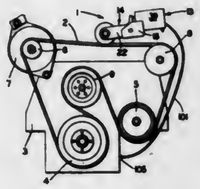
and fourth drive wheels and fixed for rotation with the fourth drive wheel, said friction surface lying in a plane perpendicular to the output shaft, said plane intersecting the overrunning clutch means, a plate member fixed for rotation with the second drive wheel and supported adjacent and parallel to the friction surface between the second and fourth wheels, means for drivingly connecting the first and second drive wheels, means for drivingly connecting the third and fourth drive wheels, means biasing the friction surface against the plate member and frictionally connecting the second and fourth drive wheels for driving the output shaft from the second drive wheel and causing the fourth drive wheel to drive the third drive wheel so the clutch means overruns when loading on the output shaft is below a predetermined level, an for providing relative rotation between the second and fourth drive wheels when the loading is above the preselected level and causing the third drive wheel to rotate in unison with the input shaft to drive the fourth drive wheel.

4,276,038

HYDRAULIC BELT TENSIONER CONSTRUCTION

Derald H. Kraft, Canton, Ohio, assignor to Dynacer Corporation, Canton, Ohio

Filed Jul. 26, 1979, Ser. No. 60,903
Int. Cl.³ F16H 7/12
U.S. Cl. 474—110 **14 Claims**



1. A hydraulic belt tensioner construction for use with the hydraulic system of a vehicle for automatically tensioning an endless belt of the drive system for the vehicle accessories, said construction including:

(a) a hydraulic cylinder having a chamber formed therein and piston rod means slidably mounted in said chamber;

(b) a partition wall mounted in the cylinder chamber forming a pair of subchambers;

(c) a pair of discs mounted in a spaced relationship on the piston rod means with each of the respective discs being located within a respective one of the subchambers;

(d) passage means formed in the piston rod means to provide fluid communication between the subchambers;

(e) a bellcrank pivotally mounted on the cylinder and engageable by the piston rod means for imparting pivotal movement to the bellcrank upon actuation of said piston rod means;

(f) idler pulley means rotatably mounted on the bellcrank and engageable with the endless belt to apply a tensioning force on the belt upon pivotal movement of the bellcrank;

(g) conduit means connecting the cylinder to the low-pressure hydraulic lubricating system of the vehicle for supplying hydraulic fluid to the cylinder chamber for slidably moving the piston rod means into engagement with the bellcrank; and

(h) check valve means controlling the flow of hydraulic fluid into and out of the cylinder chamber to maintain a constant predetermined amount of fluid pressure on the piston rod means, and accordingly, on the belt.

4,276,039

ADJUSTLESS V-BELT AND METHOD OF MANUFACTURING

Hiroshi Takano, Miki, Japan, assignor to Mitsuboshi Belting Ltd., Kobe, Japan

Filed May 3, 1979, Ser. No. 35,675
Int. Cl.³ F16G 5/08
U.S. Cl. 474—205 **15 Claims**



1. An adjustable V-belt, comprising: a compressive rubber layer; and adhesion rubber layer laminated on the upper surface of said compressive rubber layer; a group of first cogs protruding from said adhesion rubber, said first cogs having a predetermined depth and arranged at a predetermined pitch; a cover canvas covering said first cogs and roots between said first cogs; said cover canvas covering comprising an elastic canvas obtained by weaving curled nylon warps subjected to woolly treatment and ordinary wefts; whereby said cover canvas covering is elastic in one direction; rope tensile members embedded between said adhesion rubber layer and said group of first cogs with a regular pitch line in such a manner that said tensile members form substantially a cylinder and parts of said tensile members are in contact with said cover canvas, said rope tensile members having a thermal contraction stress of at least 3.5 g/denier which is the difference between a thermal contraction stress at 100° C. and that at room temperature; short fibers embedded laterally in said compressive rubber layer; a group of second cogs formed on the lower surface of said compressive rubber layer; and wherein the pitch and depth of said group of first cogs are defined by:

$1.5t < p < 3.5t$

$0.12d < t < 0.4d$,

where:

p is the pitch of said group of first cogs,

t is the depth of said group of first cogs, and

d is the thickness of said V-belt.

4,276,040

PINTLE CHAIN HAVING EXTENDED WEAR BARREL SECTION AND SPROCKET THEREFOR

Victor D. Petershack, Elm Grove, Wis., assignor to Rexnord Inc., Milwaukee, Wis.

Filed Dec. 14, 1979, Ser. No. 103,786
Int. Cl.³ F16H 7/06; F16G 13/08
U.S. Cl. 474—229 **6 Claims**



1. A pintle chain and drive sprocket in combination, each chain link having a pin turnable in the barrel of the next preceding link, the sprocket having substantially flat radially outward faces between teeth and flat forward tooth-faces, each barrel having a flat lower face and a flat rear face for engagement respectively with an outward face and a forward face of a sprocket tooth, the angularity of the rear barrel face relative to the center plane of the link being the complement of (P&L)

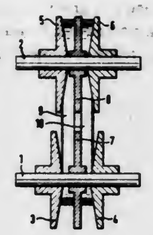
where P is a selected minimum pressure angle and L is the angle of articulation of adjacent links whereby the wear life of the described combination is greater than the wear life of a similar combination having conventionally rounded barrels and tooth pockets.

4,276,041

CHAIN FOR FRICTION PULLEY TRANSMISSION

Herbert K. Stoner, Bad Homburg, Fed. Rep. of Germany, assignor to P.I.V. Antrieb Werner Reimers Kommanditgesellschaft, Bad Homburg, Fed. Rep. of Germany

Filed Nov. 7, 1979, Ser. No. 92,068
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1978, 2848166
Int. Cl.³ F16G 5/20
U.S. Cl. 474—243 **2 Claims**



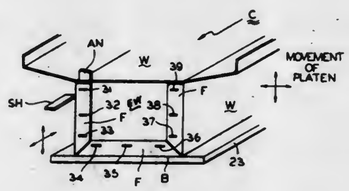
1. In a thrust piece forming a component of a chain for use in a friction pulley transmission in which the chain extends around, and circulates between, pairs of pulleys mounted on associated shafts, with one pulley of each pair being a cone pulley having a conical friction face and the other pulley of each pair being a friction pulley having a friction face which is flatter than that of the associated cone pulley, the thrust piece extending substantially transversely of the length of the chain and presenting opposed end faces via which the thrust piece bears against the friction faces of a pulley pair to effect friction force transmission between the pulley pair and the chain, the improvement wherein one said end face of said thrust piece, which contacts the friction pulley of a pulley pair, is formed to present an area of contact with the friction pulley which is reduced in relation to the area of contact between the other said end face of said thrust piece and the cone pulley of the pulley pair.

4,276,042

STITCHING MACHINE FOR PREFORMED CONTAINERS

John T. Bell, St. Charles, and Max E. Bonder, Glen Ellyn, both of Ill., assignors to Container Corporation of America, Chicago, Ill.

Filed Oct. 11, 1979, Ser. No. 83,561
Int. Cl.³ B31B 1/68
U.S. Cl. 493—118 **7 Claims**



1. Apparatus for forming a multiple piece container having hingedly connected first, second and third walls with corresponding flanges secured in lapping relationship to a separate end wall by securement in position of fastening means spaced along said flanges and holding said flanges to said end wall, comprising:

(a) a platen for supporting a container body having said end wall in position against said flanges;

(b) means operable upon said fastening means to cause said flanges and said end walls to be secured together;

(c) means for moving said platen in a closed path whereby the flanges of said first, second and third walls are secured to said end wall in the order named;

(d) a frame having vertical movement with said platen being mounted thereon;

(e) means for moving said platen horizontally with respect to said frame;

(f) first cam and follower means for moving said frame in vertical directions;

(g) second cam and follower means for moving said platen horizontally; and

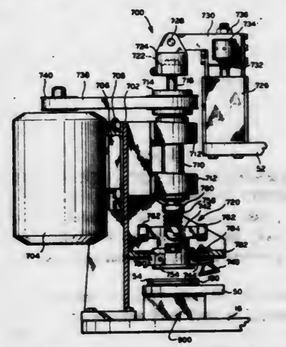
(h) one of said cam and follower means including means for controlling said fastening means.

4,276,043

RING GROOVING APPARATUS FOR USE WITH A PACKAGING MACHINE OR THE LIKE

William R. Eddy, and Raymond C. Taylor, both of Kansas City, Mo., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,233
Int. Cl.³ B31F 1/10
U.S. Cl. 493—160 **8 Claims**



1. Apparatus for forming a groove in the generally cylindrical outer surface of a generally cylindrically shaped ring, comprising:

ring supporting means for firmly supporting one of said generally cylindrically shaped rings;

a grooving mechanism support frame positioned adjacent said ring supporting means;

grooving mechanism shaft means mounted on said grooving mechanism support frame and adapted for rotation about an axis of rotation and for reciprocation along said axis of rotation and in coaxial alignment with said ring supporting means;

grooving mechanism drive means operatively related to said grooving mechanism shaft means for rotating said grooving mechanism shaft means about the axis of rotation thereof;

reciprocating drive means operatively related to said grooving mechanism shaft means for moving said grooving mechanism shaft means longitudinally along the axis of rotation thereof from a first position distal from said ring supporting means to a second position proximate to said ring supporting means and back to said first position;

grooving head means mounted on said grooving mechanism

shaft means, said grooving head means being adapted to rotate with said grooving mechanism shaft means and to move a predetermined distance along a line parallel to said axis of rotation of and relative to said grooving mechanism shaft means;

said grooving head means further including stop means operatively engageable with said grooving mechanism support frame for limiting the longitudinal movement of said grooving head means with said grooving mechanism shaft means at a predetermined position as said grooving mechanism shaft means moves along the axis of rotation thereof from said first position to said second position;

grooving wheel means journaled on said grooving head means and adapted for generally radial reciprocating movement along a line extending generally radially from said axis of rotation of said grooving mechanism shaft means;

grooving actuator means operatively related to said grooving mechanism shaft means and said grooving mechanism head means for imparting said generally radial reciprocating movement to said grooving wheel means, said grooving actuator means being adapted to move said grooving wheel means generally radially inwardly toward said axis of rotation in response to engagement between said stop means and said grooving mechainsm support frame and further movement of said grooving mechanism shaft means toward said second position thereof into grooving engagement with said generally cylindrical outer surface of one of said generally cylindrically shaped rings on said ring supporting means, and, alternately, to move said grooving wheel means generally radially outwardly away from said axis of rotation in response to longitudinal movement of said grooving mechanism shaft means from said second position thereof to said first position thereof until said stop means disengages from said grooving mechanism support frame; and

biasing means operatively related to said grooving mechanism shaft means and said grooving head means for yieldably urging said grooving head means toward said ring supporting means relative to said grooving mechanism shaft means.

4,276,044

WATER-SOLUBLE, ULTRA-FILTRABLE POLYURETHANE ANIONOMERS AND THE USE THEREOF AS SIZES IN THE TEXTILE INDUSTRY

Dieter Dieterich, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 30, 1979, Ser. No. 89,682

Claims priority, application Fed. Rep. of Germany, Nov. 8, 1978, 2848431

Int. Cl.³ D06L 1/12; C08G 18/50, 18/82; C08J 3/06

U.S. Cl. 8—115.5 8 Claims

2. A process for sizing a textile fabric or fiber comprising treating it with an aqueous solution of a polyurethane anionomer which is the reaction product of

(a) organic diisocyanates having molecular weights of from about 160 to 300; with

(b) tri- and/or tetra-ethylene glycol;

(c)

(i) optionally other aliphatic glycols having molecular weights from about 62 to 200;

(ii) optionally other alochols with a functionality other than 2; and

(d) a glycol containing carboxyl, carboxylate, sulphonic acid or sulphonate groups and having a molecular weight below about 500;

in an NCO/OH equivalent ratio of less than about 1:1, any carboxyl or sulphonic acid groups present having been at least partly converted into carboxylate or sulphonate groups after the reaction, characterised by a content of:

(e) urethane groups, —NH—CO-O—, of from about 25 to 40% by weight;

(f) hydroxyl groups of from about 0.03 to 1.5% by weight;

(g) carboxylate groups, —COO—, and/or sulphonate groups, $-SO_3-$, of from about 10 to 80 milliequivalents per 100 g;

(h) tri- and/or tetra-ethylene glycol units, $-(O-CH_2C-H_2-)_{3-4}$, chemically incorporated into said polyurethane anionomer, of from about 10 to 40% by weight; and

(i) up to about 5 mole % of component (c) (ii) based on the total quantity of components (b), (c), (i) and (d).

4,276,045

DYEING AND PRINTING OF CELLULOSIC TEXTILE MATERIAL

Werner Juenemann, Bad Durkheim; Gunther Lamm, Hassloch, and Hermann Loeffler, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

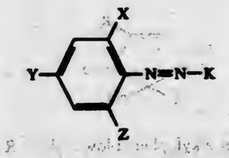
Filed Jun. 30, 1980, Ser. No. 164,006

Claims priority, application Fed. Rep. of Germany, Jul. 30, 1979, 2930919

Int. Cl.³ C09B 29/00

U.S. Cl. 8—471 3 Claims

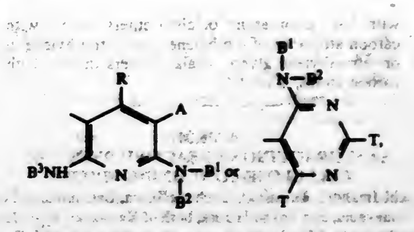
1. A process for dyeing and printing cellulosic textile material, comprising contacting said cellulosic textile material with a swelling agent and a dye wherein the dye used is a compound of the general formula I



I

where

K is a radical of the formula



one of the radicals X and Y is a C_2-C_{19}-carboxylic acid ester group, a C_3-C_{19}-carboxamide group, a C_4-C_{18}-sulfonamide group, a C_4-C_9-alkylsulfone group, a C_6-C_9-arylsulfone group or a sulfonic acid aryl ester group and

the remaining substituents X, Y and Z are hydrogen, bromine or methyl and

Y may also be nitro,

A is cyano or carbamyl,

B^1, B^2 and B^3 independently of one another are aliphatic, cycloaliphatic, araliphatic or aromatic radicals,



is a saturated heterocyclic radical,

R is hydrogen or C_1-C_3-alkyl,

one of the radicals T is a radical of the formula



and the other radical T is hydrogen, C_1-C_4-alkyl or phenyl.

4,276,046

PROCESS FOR DYEING POLYESTER FIBRES OF FIBRE MIXTURES CONTAINING THEM

Udo-Winfried Hendricks, Odenthal-Velbrueck, and Karlhans Jakobs, Bergisch-Gladbach, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 15, 1979, Ser. No. 39,126

Claims priority, application Fed. Rep. of Germany, May 17, 1978, 2821494

Int. Cl.³ D06P 1/613, 1/667, 3/36

U.S. Cl. 8—532 3 Claims

1. Process for dyeing woven goods and knitted goods of polyester fibres or fibre mixtures containing polyester fibres with disperse dyestuffs in an aqueous liquor at temperatures of 95°–140° C., wherein an aqueous formulation which contains

(a) 10–50% of lecithin,

(b) 5–40% of an oxyethylated carboxylic acid of the general formula

$$R-CO-O-(CH_2-CH_2-O-)_nH$$

in which

R represents a saturated or unsaturated alkyl radical with 11–21 carbon atoms and

n represents a number between 4 and 12,

(c) 5–40% of an oxyethylated alcohol of the general formula

$$R'-O-(CH_2-CH_2-O-)_mH$$

in which

R' represents a saturated or unsaturated alkyl radical with 12–20 carbon atoms and m represents a number between 10 and 30, and

(d) 0–20% of an alkanol with 1–3 carbon atoms, of a glycol

with 2–4 carbon atoms or alkyl ethers thereof with 1–4 carbon atoms, or of diethylene glycol, triethylene glycol or tetraethylene glycol or alkyl ethers thereof with 1–4 carbon atoms, is used.

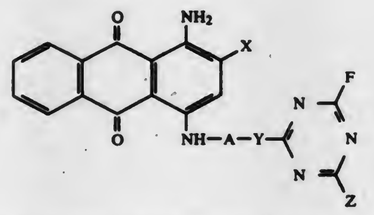
4,276,047

ANTHRAQUINONE REACTIVE DYES FOR CELLULOSE-CONTAINING FIBERS

Seiichi Imahori, Kawasaki; Toshio Hihara, Sagamihara; Tomio Yoneyama, and Takao Hirota, both of Kawasaki, all of Japan, assignors to Mitsubishi Chemical Industries Limited, Tokyo, Japan

Filed Apr. 18, 1980, Ser. No. 141,375
Claims priority, application Japan, May 14, 1979, 54-58970
Int. Cl.³ D06P 3/82
U.S. Cl. 8—532 2 Claims

1. A dye of the formula



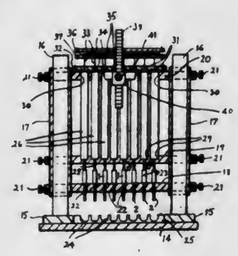
wherein A represents a phenylene group, Y represents a group —NH— or —C_2H_4O—, X represents a carbamoyl group which may be substituted with a lower alkyl group or a lower alkoxy-lower alkyl group, a sulfamoyl group which may be substituted with a lower alkyl group or a lower alkoxy-lower alkyl group; a halogen atom or a cyano group, and z represents an amino group, a mono- or di-alkylamino group having 1–6 carbon atoms in total, an anilino group, a lower alkoxy group or a group —$O(R^1O)_n$—R^2 in which R^1 represents an ethylene group or a propylene group, R^2 represents a methyl group or an ethyl group and n is an integer of 1–5.

4,276,048

MINIATURE REACTION CONTAINER AND A METHOD AND APPARATUS FOR INTRODUCING MICRO VOLUMES OF LIQUID TO SUCH A CONTAINER

David H. Leaback, Radlett, England, assignor to Dynatech AG, Zug, Switzerland

Filed Jun. 14, 1979, Ser. No. 48,375
Int. Cl.³ B01L 3/02; G01N 33/48, 33/50
U.S. Cl. 23—230 R 6 Claims



3. A method of simultaneously conducting a multiplicity of chemical reactions with micro volumes of liquids, comprising the steps of:

(a) disposing a multiplicity of reaction containers in substantially upright positions in a predetermined array, each said container including a tubular reaction chamber having an inlet tube at one end of said chamber substantially coaxial therewith, said inlet tube being of smaller diameter than said chamber, being in the nature of a capillary tube and being made from non-wettable material,

(b) simultaneously dipping said inlet tubes of said containers successively into a plurality of liquids,

(c) at each dipping step, simultaneously applying suction to the ends of the said reaction chambers opposite their inlet tubes to suck precise micro volumes of each said liquid into said inlet tubes and form successive coherent threads of said liquids in said inlet tubes,

(d) simultaneously removing said inlet tubes from the last one of said liquids sucked into said inlet tubes, and

(e) simultaneously applying further suction to said reaction chambers in at least one stage to control successive introduction of said threads into said reaction chambers and consequent mixing of said liquids within said reaction chambers.

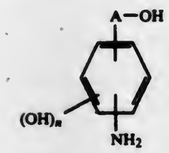
4,276,049

METHOD FOR THE DETERMINATION OF AN AMINO OR AMINOSULPHONIC ACID

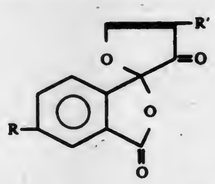
Dieter Gillessen, Prattein, and William Lergier, Kaiseraugst, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Nov. 8, 1979, Ser. No. 92,315
Claims priority, application Switzerland, Nov. 10, 1978, 11589/78
Int. Cl.³ G01N 33/68
U.S. Cl. 23—230 B 8 Claims

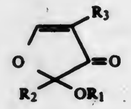
1. A method for the determination of an amino or aminosulphonic acid of the general formula



wherein A is CO or SO_2 and n equals 0, 1 or 2 in urine, plasma or serum, which method comprises reacting a urine sample or an albumin-free plasma or serum sample under strong acidic conditions with a reagent selected from the group consisting essentially of a compound of the formula



wherein R is hydrogen, halogen, lower alkyl or lower alkoxy and R' is lower alkyl or aryl; and a compound of the formula



wherein R_1 is lower alkyl, phenyl lower alkyl; R_2 is phenyl or substituted phenyl; and R_3 is substituted or unsubstituted phenyl, naphthyl or indolyl, and o-phthaldialdehyde; and subsequently carrying out a photometric measurement.

4,276,050

METHOD FOR SYSTEMIC ENDOTOXIN DETECTION

Joseph R. Firca, Vernon Hills, Ill., and Jon A. Rudbach, Missoula, Mont., assignors to Abbott Laboratories, North Chicago, Ill.

Filed Jan. 10, 1980, Ser. No. 110,872
Int. Cl.³ G01N 31/08, 33/92
U.S. Cl. 23—230 B 4 Claims

1. A method for detecting endotoxins in body fluids comprising:

(a) unmasking endotoxins in the body fluid;

(b) separating the unmasked endotoxins from the body fluid by affinity chromatography; and

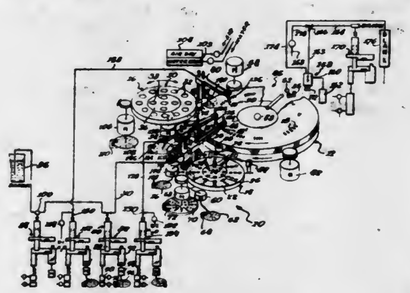
(c) detecting the endotoxins.

4,276,051

SYSTEM AND PROGRAM FOR CHEMICAL REACTION OBSERVATION WITH A MOVING PHOTOMETER

Guenter Ginsberg, Miami, Fla., and Thomas Horne, Harpenden, England, assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Jan. 28, 1980, Ser. No. 115,734
Int. Cl.³ G01N 1/14, 35/06
U.S. Cl. 23—230 R 57 Claims



1. A method of testing samples comprising:

A. arranging a first plurality of samples into a sequence of sample positions for sequential testing;

B. moving a predetermined one of said sequenced sample positions to a first sample pick up location;

C. picking up at least a first sample aliquot in the first sample pick up location and dispensing the aliquot into a reaction vessel;

D. moving at least one predetermined reagent position from one of a plurality of first reagent positions containing a reagent to a first reagent pick up location;

E. picking up a predetermined aliquot of said reagent in the first reagent pick up location and dispensing said reagent aliquot into said reaction vessel;

F. testing at least the resulting combination of sample and reagent aliquots in said reaction vessel; and

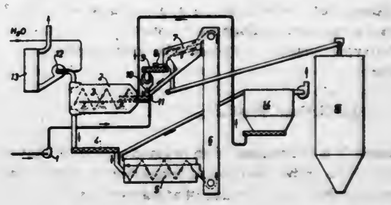
G. interrupting said sequential testing by picking up an aliquot of an auxiliary sample from a second pick up location separated from said sequenced sample positions and dispensing said auxiliary aliquot into a reaction vessel.

4,276,052

METHOD OF CRYSTALLIZING ALUMINIUM SULPHATE SOLUTIONS TO FORM DUST-FREE GRANULES HAVING UNIFORM GRAIN SIZE

Egon Bolsen Schmidt, Ekeby; Josef K. S. Zechner, and Gösta M. Frang, both of Helsingborg, all of Sweden, assignors to Boliden Aktiebolag, Stockholm, Sweden

Continuation of Ser. No. 803,455, Jun. 6, 1977, abandoned. This application Mar. 16, 1979, Ser. No. 21,205
Claims priority, application Sweden, Jun. 10, 1976, 7606601
Int. Cl.³ B01D 9/02
U.S. Cl. 23—301 12 Claims



1. A method of crystallizing a solution of aluminium sulphate, consisting essentially of:

a. maintaining a bed of aluminium sulphate in a rotating drum, the length of which drum is considerably larger than its diameter,

b. maintaining a temperature of 70°–95° C. in the said bed,

c. applying to the said bed a solution of aluminium sulphate having a temperature of 105°–115° C, and a concentration of 14.5–16.8% by weight of Al_2O_3, to thereby crystallize aluminium sulphate from said solution onto said bed of crystalline aluminium sulphate,

d. discharging crystalline aluminium sulphate product from said drum,

e. grinding the coarser part of said discharged crystalline aluminium sulphate product,

f. recycling crystalline aluminium sulphate product to the drum, in an amount of 40–200% by weight of the solution added to said drum, to maintain said bed,

g. passing air having a temperature of less than about 50° C. through the said drum to remove moisture and heat evolved by crystallization of said solution on said bed in said drum,

h. increasing the weight percentage of Al_2O_3 in the obtained product by 0.4 to 1.5% above that of the starting solution and

i. air cooling to produce an aluminium sulphate product which has more than 75% of its weight present in the crystalline state and which contains about 15.0–18.0% by weight of Al_2O_3 in the form of granules of crystal agglomerates having an essentially uniform grain size, a characteristic appearance, and good storage properties, and

j. recovering the said aluminium sulphate crystalline agglomerates from said cooling step.

4,276,053

FUEL COMPOSITION AND METHOD FOR ITS PREPARATION

Christopher J. Veal, London, and Derek R. Wall, Farnham, both of England, assignors to The British Petroleum Company Limited, London, England

Filed Dec. 4, 1979, Ser. No. 100,215
Claims priority, application United Kingdom, Dec. 13, 1978, 48364/78
Int. Cl.³ C10L 1/32
U.S. Cl. 44—51 9 Claims

1. A uniformly dispersed, stable fuel dispersion containing 15 to 55% by weight of SRC particles, the size of the majority of the particles being in the range 1 to 10 micron, in a medium consisting essentially of a gas oil and/or a heavier petroleum

fraction, the percentage being expressed as a percentage by weight of the total weight of the dispersion.

4,276,054

COAL-OIL SLURRIES CONTAINING A SURFACTANT

Irving R. Schmolka, Grosse Ile, and Joseph H. Y. Niu, Trenton, both of Mich., assignors to BASF Wyandotte Corporation, Wyandotte, Mich.

Filed Dec. 19, 1979, Ser. No. 105,422
Int. Cl.³ C10L 1/18, 1/32
U.S. Cl. 44—51 10 Claims

1. A combustible fuel slurry comprising solid particulate carbonaceous material, liquid hydrocarbon fuel, and a minor slurry suspension stabilizing amount of a polyoxyethylene-polyoxypropylene copolymer which corresponds to the formula:

$$Y[(C_2H_4O)_m(C_3H_6O)_nH]_x$$

wherein Y is the residue of an organic compound having from about 1 to 6 carbon atoms and containing x reactive hydrogen atoms in which x has a value of at least one, m has a value such that the oxyethylene content of the molecule is from about 10 to 40 weight percent and n has a value such that the total molecular weight of the polyoxyalkylene groups is from about 2000 to 6000.

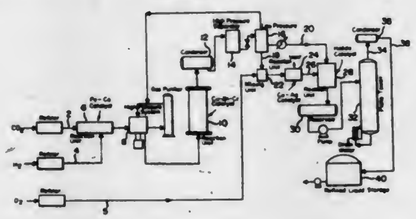
4,276,055

NOVEL FUEL COMPOSITION AND THE PROCESS OF PREPARING SAME

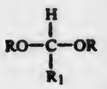
James P. H. Huang, 3-4, Alley 16, La. 64, Sec. 2, Chung Shen Rd., Chung Ho City, Taiwan

Continuation-in-part of Ser. No. 72,682, Sep. 5, 1979, abandoned. This application Sep. 24, 1979, Ser. No. 78,059
Int. Cl.³ C10L 1/02
U.S. Cl. 44—53 16 Claims

FLOW SHEET



1. A fuel composition comprising:
(a) from about 40 to 95% by volume of a primary alcohol having 1 to 4 carbon atoms;
(b) from about 5 to 60% by volume of a compound having the general formula



wherein R is $-CH_3$, $-C_2H_5$, $-C_3H_7$ or $-C_4H_9$, and R_1 is hydrogen or $-CH_3$; and
(c) from about 0.001 to 1% by volume of an aldehyde having the general formula



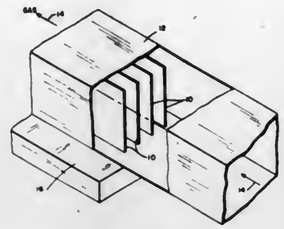
wherein R_2 is hydrogen, $-CH_3$, or $-C_2H_5$.

4,276,056

METHOD OF REMOVING PARTICULATE MATTER FROM PRECIPITATOR PLATE

Hajradin Pasic, Sarajevo, Yugoslavia, and George Herrmann, Los Altos, Calif., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Aug. 27, 1979, Ser. No. 69,903
Int. Cl.³ B03C 3/76
U.S. Cl. 55—13 2 Claims



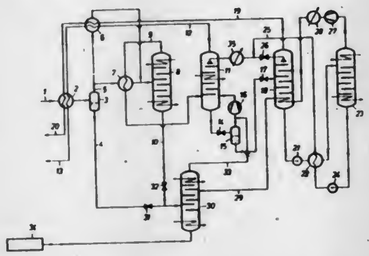
1. A method of removing particles from a plate such as a collecting plate of an electrostatic precipitator comprising the step of applying tensile loads to said plate so as to introduce high frequency stresses in said plate whereby particulate layers are broken into patches and dislodged from the surface of said plate with minimal reintroduction of the particles back into a fluid stream flowing past said plate.

4,276,057

PROCESS FOR TREATING PRESSURIZED GASES TO REMOVE UNWANTED COMPONENTS

Hans Becker, Munich; Peter Grimm, Pullach; Gerhard Ranke, Pöcking, and Dieter Roth, Unterhaching, all of Fed. Rep. of Germany, assignors to Linde Aktiengesellschaft, Hollriegelskreuth, Fed. Rep. of Germany

Filed Jun. 25, 1979, Ser. No. 51,359
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1978, 2828498
Int. Cl.³ B01D 19/00
U.S. Cl. 55—40 13 Claims



1. A process for treating an incoming gaseous mixture under pressure which includes methane, ethane, hydrogen, nitrogen and unwanted components of C_3, C_4 and C_5 higher hydrocarbons, hydrogen sulphide and carbon dioxide, said process comprising fractionating at a pressure between the critical pressures of the individual hydrocarbon constituents and the lowest critical pressure of the liquid mixtures formed during fractionation such gaseous mixture to remove at least minor portions of higher hydrocarbons, hydrogen sulphide and carbon dioxide m a bottom product, scrubbing overhead product from said fractionation step to remove in a suitable solvent a substantial remainder of C_3, C_4 and C_5 higher hydrocarbons, hydrogen sulphide and carbon dioxide from said overhead

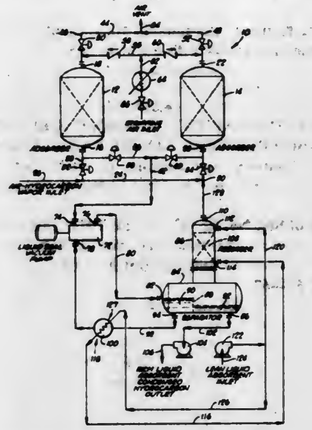
product to give a gaseous mixture essentially free of said unwanted components.

4,276,058

PROCESS AND APPARATUS FOR RECOVERING HYDROCARBONS FROM AIR-HYDROCARBON VAPOR MIXTURES

Harold L. Diamore, Tulsa, Okla., assignor to John Zink Company, Tulsa, Okla.

Filed Aug. 26, 1980, Ser. No. 181,429
Int. Cl.³ B01D 53/04, 53/14
U.S. Cl. 55—48 29 Claims



1. An improved process for recovering hydrocarbons from an inlet air-hydrocarbon vapor mixture comprising the steps of:
(a) flowing said inlet mixture through a first bed of solid adsorbent having an affinity for hydrocarbons so that hydrocarbons are adsorbed on said bed and a residue gas stream comprised of substantially hydrocarbon-free air is produced;
(b) venting said substantially hydrocarbon-free air to the atmosphere;
(c) evacuating a second bed of solid adsorbent having hydrocarbons adsorbed thereon by subjecting said bed to pumping with a vacuum pump so that a major portion of said hydrocarbons are desorbed from said bed and a hydrocarbon-rich air-hydrocarbon mixture is produced;
(d) dividing a flow of a liquid absorbent having an affinity for hydrocarbons into a first portion and a second portion;
(e) passing the first portion of said liquid adsorbent in heat exchange relationship with a seal liquid used by said vacuum pump so that said seal liquid is cooled and said first portion of said liquid absorbent is heated;
(f) contacting the air-hydrocarbon mixture produced in step (c) in an absorber with the heated first portion of said liquid absorbent produced in step (e) so that a portion of the hydrocarbons are removed therefrom and a residue gas stream comprised of air and a portion of the hydrocarbons is produced;
(g) combining said residue gas stream produced in step (f) with said inlet air-hydrocarbon mixture of step (a) so that hydrocarbons contained therein are adsorbed on said first bed of solid adsorbent; and
(h) periodically changing the flow pattern of said inlet air-hydrocarbon mixture and changing the bed of solid adsorbent being evacuated so that when the bed through which the inlet air-hydrocarbon mixture is flowing becomes loaded with adsorbed hydrocarbons, the inlet air-hydrocarbon mixture is caused to flow through the bed which has just been evacuated.

22. Apparatus for recovering hydrocarbons from an air-hydrocarbon vapor mixture comprising:
(a) a pair of adsorbers containing beds of solid adsorbent having an affinity for hydrocarbons and having first and second connections on opposite sides of said beds;
(b) first conduit means connected to the first connections of said adsorbers for conducting said air-hydrocarbon vapor mixture to said adsorbers and for evacuating said adsorbers;
(c) valve means disposed in said first conduit means for selectively causing said air-hydrocarbon vapor mixture to flow through one or the other of said adsorbers;
(d) second conduit means connected to the second connections of said adsorbers for conducting residue gas exiting said adsorbers to the atmosphere;
(e) second valve means disposed in said second conduit means for selectively causing the second connections of one or the other of said adsorbers to be open to the atmosphere;
(f) a vacuum pump having a suction connection, a discharge connection and a seal liquid inlet connection;
(g) third conduit means connected between the suction connection of said vacuum pump and the first conduit means connected to said adsorbers;
(h) third valve means disposed in said third conduit means for selectively communicating one or the other of said adsorbers with the suction connection of said vacuum pump;
(i) an absorber for contacting an air-hydrocarbon vapor mixture with a liquid absorbent, said absorber having an air-hydrocarbon vapor mixture inlet connection, a residue gas outlet connection, a lean liquid absorbent inlet connection, a heated liquid absorbent inlet connection, and a rich liquid absorbent outlet connection;
(j) fourth conduit means connected between the air-hydrocarbon vapor mixture inlet connection of said absorber and the discharge connection of said vacuum pump;
(k) fifth conduit means connected between the residue gas outlet connection of said absorber and said first conduit means;
(l) a heat exchanger for cooling a seal liquid used in said vacuum pump, said heat exchanger having a seal liquid inlet connection, a cooled seal liquid outlet connection, a liquid absorbent inlet connection and a heated liquid absorbent outlet connection;
(m) a source of liquid absorbent having an affinity for hydrocarbons;
(n) sixth conduit means connected between said source of liquid absorbent and the liquid absorbent inlet connection of said heat exchanger;
(o) seventh conduit means connected between the heated liquid absorbent outlet connection of said heat exchanger and the heated liquid absorbent inlet connection of said absorber;
(p) eighth conduit means connected between said fourth conduit means and the seal liquid inlet connection of said heat exchanger;
(q) ninth conduit means connected between the cooled liquid outlet connection of said heat exchanger and the seal liquid input connection of said vacuum pump.

4,276,089

DEAERATOR FOR PULP STOCK

Jacek J. Maclarewicz, Calgary, Canada, assignor to Ekat-O-Cer Products & Engineering Limited, Canada

Filed Aug. 9, 1979, Ser. No. 65,201
Claims priority, application Canada, May 23, 1979, 328118
Int. Cl.³ B01D 19/00
U.S. Cl. 55—52 10 Claims

1. A deaerator for removing gases from complex liquids such as pulp slurries comprising an elongated tubular body adapted to be disposed in a generally horizontal position and having an inlet end and an exit end for the flow of liquid therethrough, a

chamber adjacent the exit end for accumulating gases therein and a gas removal vent associated with said chamber, a set of longitudinally extending laterally spaced apart baffles in a lower portion of said tubular body disposed generally vertically and between which a main portion of the liquid flows, a set of lateral baffles extending across the interior of the tubular body and projecting above the longitudinal baffles and spaced apart along said tubular body such that the spaces between the longitudinal baffles communicate directly with the spaces between the lateral baffles, the lateral baffles being spaced from a top wall of the tubular body to define therebetween a flow channel along which bubble-containing liquid is guided toward the chamber, the longitudinal baffles creating low velocity regions in the liquid adjacent the upper portions of the longitudinal baffles which promote the rise of gas bubbles upwardly, the lateral baffles being adapted to catch and skim off the rising bubbles and to direct same therebetween into said flow channel.

15. A method of removing gases from liquids such as pulp slurries including: flowing the liquid through an elongated tubular body disposed in a generally horizontal position from



an inlet end to and through an exit end thereof, accumulating gases escaping from the liquid in a chamber adjacent the exit end and venting the gases which accumulate therein, the improvement comprising passing a main portion of the liquid flow along and between a set of spaced apart longitudinally extending vertically arranged baffles in a lower portion of said tubular body, the longitudinal baffles creating low velocity regions in the liquid adjacent the upper portions of the longitudinal baffles which promotes the rise of gas bubbles upwardly, there being a set of lateral baffles extending across the interior of the tubular body and projecting above the longitudinal baffles and spaced apart along said tubular body with the spaces between the longitudinal baffles being in direct fluid communication with the spaces between the lateral baffles, the lateral baffles being spaced from a top wall of the tubular body to define therebetween a flow channel, and catching and skimming off the bubble containing flow rising upwardly in the spaces between the longitudinal baffles by way of the lateral baffles and passing same directly by way of the spaces between the lateral baffles into said flow channel for movement therealong toward the gas accumulating chamber.

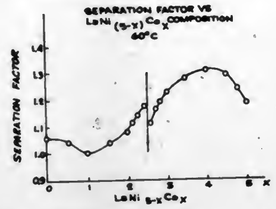
4,276,060

CHROMATOGRAPHIC HYDROGEN ISOTOPE SEPARATION

Frederick T. Aldridge, Livermore, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 22, 1979, Ser. No. 41,364
Int. Cl.³ B01D *15/08*
U.S. Cl. 55—67 25 Claims

1. A method of chromatographically separating hydrogen isotopes in a separation column comprising passing isotopically mixed hydrogen gas through a separation medium comprising



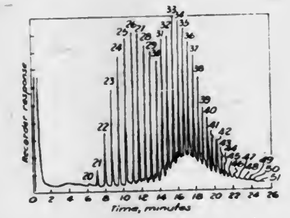
a hydride forming intermetallic alloy selected from the group of intermetallic alloys with a $CaCu_5$ type of crystal structure.

4,276,061

CHROMATOGRAPHIC COLUMN PACKING HAVING A BONDED ORGANOSILOXANE COATING

Terry J. Nestrick, and Rudolph H. Stehl, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 62,380, Jul. 31, 1979. This application May 14, 1980, Ser. No. 149,868
Int. Cl.³ B01D *15/08*
U.S. Cl. 55—67 20 Claims



1. A process for making a chromatographic separation of components contained in a sample which comprises:

(a) mixing the vaporized sample with an inert carrier gas, and

(b) contacting the sample-carrier gas mixture with a chromatographic column packing permeable by said mixture and consisting essentially of a silica support having a chemically bonded surface coating, said packing being the product of the process comprising the combination of steps:

(1) reacting by contacting an acid-activated siliceous surface with $SiCl_4$, thereby causing substantial chlorosilylation of said surface,

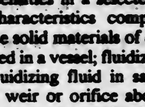
(2) reacting by contacting the chlorosilylated surface with water vapor until essentially all of the chlorosilyl groups have been hydrolyzed to hydroxysilyl groups,

(3) reacting by contacting the hydrolyzed surface with excess dichlorosilane of the formula $RR'SiCl_2$ wherein R and R' each represent a methyl, ethyl, or vinyl radical for a time sufficient to react at least the major proportion of the hydroxysilyl groups to form corresponding disubstituted chlorosilyl groups,

(4) reacting by contacting the reacted product of (3) with water vapor until essentially all of the disubstituted chlorosilyl groups have been hydrolyzed to corresponding disubstituted hydroxysilyl groups,

(5) reacting by contacting the hydrolyzed product of (4) with $SiCl_4$ for a time sufficient to react substantially all of said disubstituted hydroxysilyl groups to form silyloxy chlorosilyl groups,

(6) reacting by contacting the chlorosilylated product of (5) with a molar excess over said silyloxy chlorosilyl groups of a siloxane polymer polyol in the liquid state, said polyol having a molecular weight of at least about 230 and having a molecular structure consisting essentially of repeating units of the formula



thereby reacting essentially all of said silyloxy chlorosilyl groups with said polyol to form pendant polyol residues having at least one terminal hydroxyl group per residue,

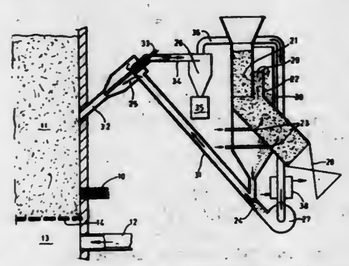
(7) repeating the sequence of steps (1) through (6) from one to about four times, and (8) reacting the product of the final step (6) by contacting with a trimethylsilyl capping reagent, thereby etherifying essentially all of the terminal hydroxyl groups on the pendant polyol residues with trimethylsilyl groups.

4,276,062

FLUIDIZED BED SYSTEMS

David Lyon, and Gerald Mess, both of Oxford, England, assignors to The United States of America as represented by the Administrator of the U.S. Environmental Protection Agency, Washington, D.C.

Filed May 19, 1977, Ser. No. 798,544
Claims priority, application United Kingdom, May 21, 1976, 21162/76
Int. Cl.³ B01D *53/12*
U.S. Cl. 55—77 13 Claims



1. A method of supplying a process zone with particles of sizes, weights and densities in a selected range according to their fluidization characteristics comprising introducing a mixture of particulate solid materials of different particle sizes and densities into a bed in a vessel; fluidizing said mixture by an upwardly passing fluidizing fluid in said vessel, said vessel having an overflow weir or orifice above its bottom which weir or orifice limits the maximum level of the top of the bed, under such fluidizing conditions of superficial velocity of the fluidizing fluid that particles having a fluidization velocity in said fluid greater than a selected superficial velocity sink downwardly in the vessel and particles having a lower fluidization velocity are caused to pass out of the vessel by flow over said weir or through said orifice, recovering the particles which have passed out of the vessel; entraining the recovered particles in a conveying fluid and circulating the conveying fluid and entrained particles to separating means wherein particles having a size not substantially less than a selected size are separated from the conveying fluid; and entraining said thus separated particles in an injecting fluid which injects entrained particles into said process zone.

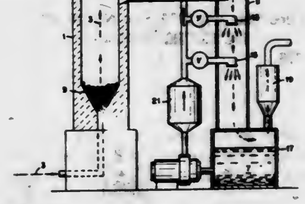
7. Apparatus for supplying process zone equipment with particles of sizes, weights and densities in a selected range, as determined by their fluidization characteristics, said apparatus comprising a vessel for containing a bed comprising a mixture of particulate solid materials of different particle sizes and densities, said vessel having an outlet above the level of its bottom, said outlet serving to limit the maximum level of the top of said bed, means for passing a fluidizing gas into the vessel for fluidizing particles in the vessel at a selected fluidization velocity, a chamber for receiving particles which pass out of the outlet, the chamber communicating with a dilute phase conveying conduit, means operative for passing a conveying fluid into one end of the conveying conduit for entraining particles from the chamber, separating means at the other end of the conveying conduit adapted for separating from conveying fluid, entrained particles having a combination of size and density not substantially less than a selected size and density combination, an injection conduit having the separating means at one end and means operative for passing an injecting fluid into said injection conduit for entraining particles separated in said separating means and transporting the entrained particles to the end of the injection conduit at the location of part of the process zone equipment.

4,276,063

GAS SCRUBBING LIQUIDS

Walter J. Lackey; Robert S. Lowrie, both of Oak Ridge, and John D. Sease, Knoxville, all of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 577,819, May 15, 1975, abandoned. This application Jan. 21, 1977, Ser. No. 761,037
Int. Cl.³ B01D *47/06*
U.S. Cl. 55—94 8 Claims



1. In a method of removing contaminants from a gas stream emanating from a fluidized bed particle coating furnace in which nuclear fuel particles are coated with carbon or silicon carbide by the thermal decomposition of a hydrocarbon or a chlorinated silane, said furnace containing fissionable material capable of nuclear criticality in the presence of hydrogenous moderating material, the improvement comprising scrubbing said gas stream with a liquid scrubber consisting essentially of a member selected from the group consisting of perchloroalkenes.

4,276,064

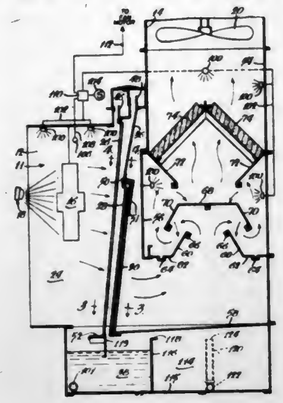
FIRE CONTROL SYSTEM FOR SPRAY BOOTH

Donald F. Gordon, Park Ridge, Ill., assignor to Binks Manufacturing Company, Franklin Park, Ill.

Continuation of Ser. No. 591,162, Jun. 27, 1975, abandoned. This application Nov. 3, 1976, Ser. No. 748,120
Int. Cl.³ B01D *47/00*
U.S. Cl. 55—217 4 Claims

4. In an arrangement for removing water flowing into a reservoir containing oil and displacing the oil upwardly, the reservoir being located beneath a paint spray booth and containing oil to a level below the level of the top of said reservoir; a standpipe in said reservoir, said standpipe having an inlet in communication with a lower portion of said reservoir and having an outlet to the exterior of said reservoir, the outlet of said standpipe being located at a level about the initial level of

the oil in said reservoir and below the level of the top of said reservoir so that water only will be discharged from said reservoir after the oil therein has been sufficiently displaced by the water flowing into said reservoir such that the level of water is above said inlet, said oil being retained in said reservoir.

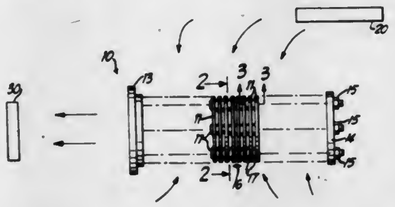


4,276,065

REUSABLE DISC FILTER WITH SPACING BOSSES FOR HIGH TEMPERATURE GASSES

Richard J. Miko, Paramus, N.J., and Daniel H. Shapiro, Roslyn Heights, N.Y., assignors to Edo Corporation, College Point, N.Y.

Filed Mar. 14, 1979, Ser. No. 20,487
Int. Cl.³ B01D 46/40
U.S. Cl. 55—278 6 Claims



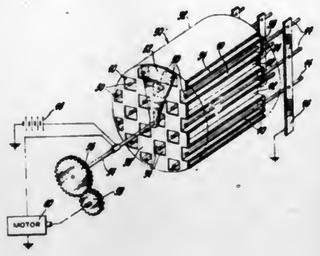
1. A hot gas filter to remove contaminants from a gas stream generated by a burning propellant and having a gas temperature in excess of 4500° F., the filter to be capable of surviving numerous exposures to the hot gas without damage and to be used in a system between the burning propellant and a movable member downstream of the filter to reliably prevent fouling of the downstream member after numerous exposures to the hot gas, said filter comprising: a plurality of axially aligned, generally flat discs; a cap at one end of the aligned discs; a flange with an opening at the other end of the aligned discs; a plurality of studs attached to the cap and flange to hold the filter together, the studs passing through holes in each disc to maintain the position of the discs in the filter; the stud holes in each generally flat disc having raised bosses surrounding the stud holes on one side of the disc, said bosses being raised from the generally flat disc surface to establish a spacing between adjacent discs to define filter gaps between the edges of the discs; each disc having a plurality of flow openings in communication with the said filter gaps and aligned and in communication with the respective flow openings in the other discs; the flange opening overlapping at least a portion of each of the aligned flow openings in the discs; and the discs being comprised of a metal capable of withstanding the high temperature gas without melting.

4,276,066

MONOLITH DIESEL EXHAUST FILTER WITH SELF-REGENERATION

Kenneth B. Bly, Pontiac; Mark J. Gutwald, and Otto A. Ludecke, both of Rochester, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 25, 1980, Ser. No. 124,141
Int. Cl.³ B01D 39/20; F01N 3/02
U.S. Cl. 55—287 5 Claims



1. A self-regenerating monolithic exhaust particulate filter for diesel engines, said filter including

a monolithic filter element having a plurality of interconnecting internal porous walls defining a plurality of small inlet passages extending adjacent a plurality of small outlet passages, said inlet and outlet passages being in communication through said porous walls for passing exhaust gases through said walls to filter particulates from the gases and deposit said particulates on the wall surfaces within the inlet passages, and the improvement comprising

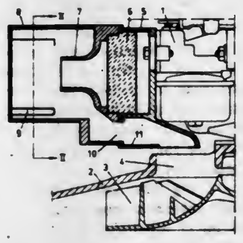
electric heating means in at least some of said passages to heat said passages and the surrounding portions of said element when energized and thereby raise the collected particulates in said portions of the element to their incineration temperature, thereby burning off the particulates from said portions and regenerating said portions of the element for continued use.

4,276,067

INDUCTION AIR CLEANER FOR A LAWN MOWER ENGINE

Karl A. Lindman, Oxie, Sweden, assignor to Flymo Societe Anonyme, Zug, Switzerland

Continuation of Ser. No. 628,601, Nov. 4, 1975, abandoned. This application Apr. 5, 1977, Ser. No. 784,815
Claims priority, application United Kingdom, Nov. 9, 1974, 48575/74
Int. Cl.³ B01D 50/00
U.S. Cl. 55—337 2 Claims



1. The combination comprising, a lawn mower housing including thereunder a rotatable air impeller for producing an air cushion supporting the lawn mower housing during operation,

a combustion engine mounted to rotate said impeller,

a carburettor disposed on said engine having an opening for receiving air,

an air inlet port in said housing through which said impeller sucks air downwardly for said air cushion,

a filter housing connected to said carburettor to pass air into said opening,

a porous filter element in said filter housing through which air flows to said carburettor through said opening,

a further housing comprising a closed end cylindrical chamber having elongated tangential air inlet openings therein adjacent the closed end and an induction tube extending coaxially therein, structure on said further housing engaging the filter housing to direct air thereto through said induction tube,

means disposed to receive air flow outside the coaxial position of said induction tube defining an air flow path from said tangential openings in said further housing to said inlet port thereby causing said impeller to suck air into said tangential air inlet openings causing air flowing through said further housing to define a cyclone action with a central vortex about the cylindrical chamber axis,

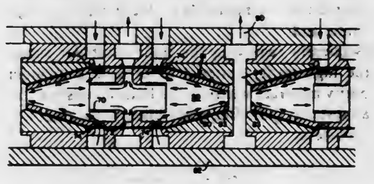
and said induction tube defining a single air inlet path to said carburettor opening positioned coaxially within said further housing thereby receiving a smaller amount of the air introduced into said tangential openings only from the cleaner air at the central portions of said vortex, whereby air is received from the elongated tangential air inlet openings for passage of a smaller portion of the air having dirt removed therefrom by cyclone action to said induction tube with the remainder and at least a substantial portion of the dirt therewith passing to said air inlet port in the lawn mower housing.

4,276,068

SWIRL CHAMBER APPARATUS

Friedrich Lausermair, Krailling, and Eberhard Willaitner, Utting a. Ammersee, both of Fed. Rep. of Germany, assignors to M.A.N. Maschinenfabrik Augsburg-Nürnberg Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 27, 1978, Ser. No. 946,191
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1977, 2743391
Int. Cl.³ B01D 45/12
U.S. Cl. 55—348 20 Claims



1. Swirl tube or chamber apparatus for separating isotope or gas mixture of a process gas having heavy and light gas fractions, comprising:

a swirl chamber,

first extraction element means for extracting a heavy gas fraction from the swirl chamber,

and second extraction element means for extracting a light gas from the swirl chamber,

wherein said swirl chamber is a rotatably supported hollow container, having the hollow portion defined by a wall, which is symmetrically configured with respect to a plane extending transverse to its rotational axis, said container being fitted with slot means adapted to be rotatably driven by the process gas, and

further including means for rotatably supporting said container comprising a member spaced from and surrounding at least part of said container, and passage means for passing process gas to the space between the member and the container, whereby a gas bearing is formed in the space between the member and the container,

said member having guiding means for directing process gas to impinge against said slot means, whereby the process gas rotatably drives the container, and

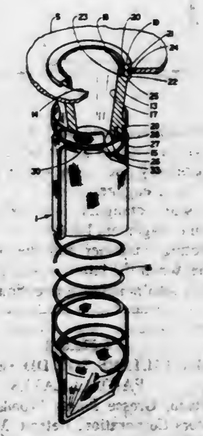
at least one feed port issuing tangentially into the swirl chamber for feeding process gas thereto, with gas feed means for feeding process gas to said at least one feed port.

4,276,069

FILTER ARRANGEMENT

David L. Miller, Louisville, Ky., assignor to American Air Filter Company, Inc., Louisville, Ky.

Filed Sep. 12, 1979, Ser. No. 75,172
Int. Cl.³ B01D 46/02
U.S. Cl. 55—379 10 Claims



1. A filter arrangement adapted to be secured to an apertured header plate disposed across a dirty gas stream between the dirty gas inlet and the clean gas outlet of a filter bag housing, comprising:

a tubular filter;

a filter bag support member integrally formed of a relatively rigid resilient material including a venturi-like tube section forming a venturi extending through the member;

said member having a flexible collar portion at one end of the tube section for releasably securing the member to the apertured plate and an annular shoulder portion formed at the other end of the tube section extending into one end of the filter; and

clamping means surrounding said one end of the filter and securing it to said shoulder portion in supporting sealing relation proximate the throat of the venturi extending through the member to provide a relatively unobstructed opening at said one end of the filter, thereby essentially minimizing pressure losses in the gas stream flowing through the filter.

4,276,070

REMOVABLE DUST COLLECTING CONTAINER FOR PROFESSIONAL AND HOUSEHOLD VACUUM CLEANERS

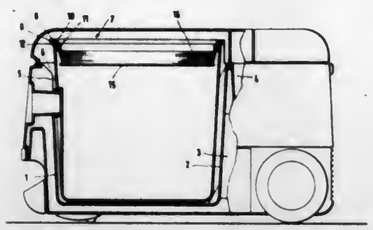
Niklaus Haag, Romanshorn, Switzerland, assignor to Rosenmund P. Wärwag & Co., Romanshorn, Switzerland

Filed Dec. 26, 1979, Ser. No. 106,481
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1978, 2856103
Int. Cl.³ B01D 46/04
U.S. Cl. 55—429 9 Claims

1. A removable dust collecting container for professional,

industrial, and household vacuum cleaner, said container having an open top portion when set upright, and an inlet for dusty gas, said container comprising in combination:

a frame-like dust filter serving as a cover for closing off said open portion of said dust collecting container by being arranged in said container in a positive connection; said top portion of said dust collecting container being conically widened to receive said filter, said filter including a frame being provided with a narrow peripheral edge that



extends horizontally, and said dust collecting container being provided with an upper boundary surface that extends horizontally and upon which said narrow edge of said filter frame engages; and

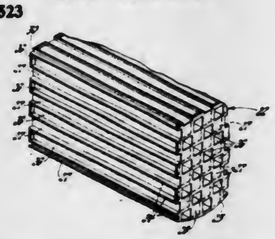
a soft-elastic seal rectangular in cross section and sealingly arranged in engagement between the inner surface of said dust collecting container and the outer surface of said filter frame, when the latter is arranged in said container, for effecting said positive connection.

4,276,071

CERAMIC FILTERS FOR DIESEL EXHAUST PARTICULATES

Robert J. Outland, Grosse Pointe Woods, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Dec. 3, 1979, Ser. No. 99,935
Int. Cl.³ B01D 39/20
U.S. Cl. 55—523 **4 Claims**



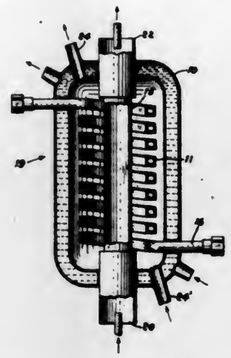
1. A compact through flow exhaust particulate filter element for diesel engines, said element comprising a ceramic monolith having a plurality of interlaced thin gas filtering porous internal walls defining a plurality of parallel passages extending to opposite ends of the element, said passages including a first group comprising inlet passages open at one end of the element and closed at the other and a second group comprising outlet passages closed at said one end of the element and open at the other, wherein the said inlet and outlet passages are arranged such that each non-engaged portion of every interior wall in the element lies between an inlet passage and an outlet passage and forms a filtration surface for gas flow between them, the porosity of the walls being sized to filter out a substantial portion of particulates present in diesel exhaust gases passed through the element from the inlet to the outlet passages and the improvement wherein the inlet passages have individual and collective cross-sectional areas substantially greater than the respective individual and collective cross-sectional areas of the outlet passages to provide a significant volume for collection of particulates in the filter element inlet passages without reduction of their effective flow area below that of the outlet passages.

4,276,072

OPTICAL FIBER FABRICATION

Brian O'Brien, Jr., Fabyan, Conn., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Jun. 7, 1977, Ser. No. 804,208
Int. Cl.³ C03B 37/01
U.S. Cl. 65—3 A **32 Claims**



1. A method for forming a high purity glass preform, comprising the steps of:

providing a removable hollow tubular deposition substrate of a radio frequency energy susceptible material;

enclosing said substrate as a susceptor inside a primary high-frequency induction coil having a plurality of turns;

varying the distance between said plurality of turns;

subjecting the substrate to radio frequency energy to heat said substrate;

passing high purity glass-forming materials in vapor form through the hollow substrate wherein the heat from the substrate causes a reaction resulting in the depositing of the high purity materials on the inner surface of the substrate; and

subsequently removing the hollow tubular substrate from the high purity material to provide a cylinder of high purity material, whereby the hollow substrate functions as a substrate, radio frequency energy susceptor and reaction enclosure.

4,276,073

METHOD OF FORMING GLASS BOTTLES

John D. Northup, Toledo, Ohio, assignor to Ruth B. Northup; John D. Northup, Jr.; Nancy Northup Lehrkind and Mary E. Northup, part interest to each

Filed Jan. 17, 1980, Ser. No. 112,846
Int. Cl.³ C03B 9/20
U.S. Cl. 65—77 **12 Claims**

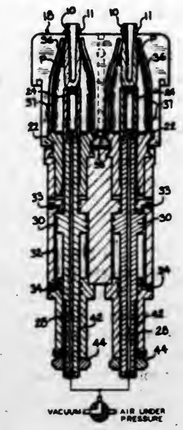
1. A method of forming a glass bottle which includes:

introducing into a blow mold a parison having a central bubble therein, which parison has a height less than 75% of the height of the blow mold cavity;

engaging a bottom of the parison with a gripping mechanism;

mechanically stretching the parison to a position close to, but not at, the lower surface of the mold cavity by moving the gripping mechanism;

releasing the gripping mechanism from contact with the parison to allow the parison bottom to reheat;



expanding the parison to the configuration of the blow mold; and

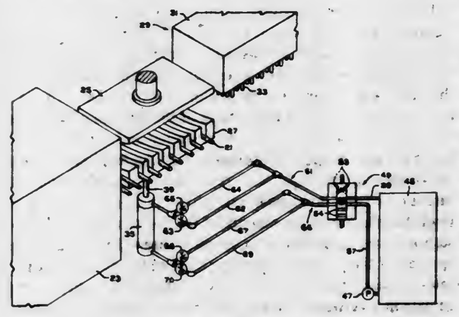
removing the blown bottle from the blow mold.

4,276,074

FLUID REPLACEMENT SYSTEM FOR HYDRAULIC ACTUATORS FOR GLASS SHEET SHAPING MOLDS AND METHOD OF PRESS BENDING GLASS SHEETS

James S. Shuster, Leechburg, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 13, 1979, Ser. No. 75,386
Int. Cl.³ C03B 23/03
U.S. Cl. 65—106 **7 Claims**



1. In a method of shaping a glass sheet wherein the method includes the steps of heating the sheet to its shaping temperature; positioning the heated sheet between a first pressing mold and a second pressing mold, the first pressing mold having a shaping surface of a predetermined configuration and the second pressing mold having a shaping surface complementary to the shaping surface of the first pressing mold; actuating a piston assembly to move the first pressing mold from a sheet engaging position toward and against the second pressing mold into a sheet pressing position with the sheet therebetween to shape the sheet, the piston assembly having a piston movably mounted within a piston cylinder to divide the cylinder into first and second chambers; and actuating the piston assembly to move the first pressing mold from the sheet pressing position into the sheet engaging position; and the first actuating step is accomplished by moving a hydraulic fluid under pressure into the first chamber to move the piston out of the chamber and moving the hydraulic fluid out of the second chamber while maintaining the fluid in the first chamber under pressure to shape the sheet wherein maintaining the hydraulic fluid under pressure causes heating of the hydraulic fluid which tends to carbonize the fluid which restricts the flow of the fluid and/or causes the fluid to foam which prevents maintaining the hydraulic fluid under constant pressure during pressing of the sheet, and the second actuating step is accomplished by moving hydraulic fluid into the second chamber and out of the first chamber, the improvement comprising the steps of:

moving hydraulic fluid into the second chamber of the piston assembly from lower portion of a reservoir while moving heated hydraulic fluid from the first chamber into top portion of the reservoir during the practice of the second actuating step;

cooling the hydraulic fluid received in the reservoir, said cooling step accomplished by providing a larger volume of fluid in the reservoir than that expected to be exhausted from the piston assembly and conducting heat from the reservoir; and

moving the hydraulic fluid from the second chamber into the top portion of the reservoir while moving cooler hydraulic fluid from the bottom portion of the reservoir into the first chamber during the practice of the first actuating step to prevent carbonizing and/or foaming of the fluid to maintain a constant pressure on the first pressing mold during shaping of the sheet.

5. In an apparatus for shaping a sheet wherein the apparatus is of the type having a first pressing mold having a shaping surface of a predetermined configuration; a second pressing mold having a shaping surface complementary to the shaping surface of the first pressing mold and means for moving the first pressing mold between a sheet engaging position and a sheet pressing position wherein the first pressing mold in the sheet pressing position continuously urges the sheet to be shaped between the first and second pressing molds, the moving means includes a piston assembly having a piston mounted in a cylinder to divide the cylinder into first and second chambers; first means for passing hydraulic fluid under pressure into the first chamber and for passing hydraulic fluid out of the second chamber to move the first pressing mold from the sheet engaging position toward and into the sheet pressing position and to maintain the hydraulic fluid under pressure during the pressing of the sheet wherein maintaining the hydraulic fluid under pressure causes heating of the hydraulic fluid which tends to carbonize and/or foam the hydraulic fluid; and second means for passing the hydraulic fluid into the second chamber and for passing the hydraulic fluid out of the first chamber to move the first pressing mold from the sheet pressing position to the sheet engaging position, the improvement comprising:

a reservoir container hydraulic fluid;

means for cooling the hydraulic fluid in said reservoir to maintain the hydraulic fluid in said reservoir below the temperature of incoming hydraulic fluid from the first chamber, said cooling means including a larger volume of fluid in said reservoir than that expected to be exhausted and means for conducting heat from said reservoir;

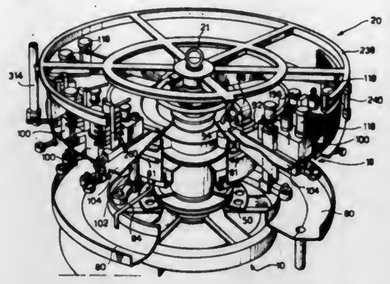
said first passing means including means for connecting the second chamber of the cylinder to upper portion of said reservoir and for connecting the first chamber of the cylinder to lower portion of said reservoir to move cooler hydraulic fluid into the first chamber to prevent carbonizing and/or foaming of the fluid to maintain a constant pressure on the first pressing mold when the first pressing mold is in the sheet pressing position; and

said second passing means includes means for connecting the first chamber of the cylinder to the upper portion of said reservoir to cool the incoming heated hydraulic fluid and the second chamber of cylinder to the lower portion of said reservoir.

4,276,075
MACHINE FOR THE MANUFACTURE OF GLASS ARTICLES BY BLOW MOULDING GLASS

Vanfrido Olivotto, Turin, Italy, assignor to Olivotto Vetromeccanica S.a.s., Turin, Italy

Filed Nov. 7, 1979, Ser. No. 92,003
Claims priority, application Italy, Nov. 30, 1978, 69747 A/78
Int. Cl.³ C03B 11/02
U.S. Cl. 65—160 21 Claims



12. A machine for the manufacture of glass articles by blow moulding, comprising:

a carousel mounted for rotation about a vertical axis,

drive means for continuously rotating said carousel,

a plurality of article-forming assemblies mounted on the carousel in a circumferentially-extending series and each comprising receiving means for receiving a gob of molten glass fed to the assembly, rough-blanking means including a plunger for moulding said molten-glass gob into a rough-blank, and blow-moulding means for blow-moulding the rough-blank into a required glass article, the said receiving, rough-blanking, and blow-moulding means for each assembly including a number of independently controllable operating means for moving and forming the molten glass, said blow-moulding means of each article-forming assembly including a said operating means arranged to form said molten glass by blowing air into said rough-blank during blow-moulding, and a blowing-air supply for supplying air to the blowing operating means,

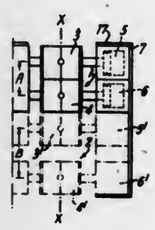
a feed station fixed adjacent the carousel and arranged to deliver a said gob of molten glass to the receiving means of each article-forming assembly in turn as it is moved therepast by rotation of the carousel, and

control means for controlling the said operating means of each said assembly to function in accordance with a predetermined work cycle in the forming of a said glass article, said control means comprising a set of primary control members arranged in an adjustable manner in predetermined fixed positions around said carousel adjacent thereto, and a respective set of secondary control members associated with each article-forming assembly for movement therewith during rotation of the carousel, the secondary control members of each set being arranged to control respective ones of said operating means of the associated assembly and being mounted on or adjacent that assembly in such positions that as the carousel rotates, the secondary control members are moved past and are influenced by respective said primary control members to control said operating means to operate in a sequence and with a timing dependent on the arrangement of said primary control members, the secondary control members which control corresponding operating means of different said assemblies being arranged in corresponding positions relative to their respective assemblies whereby the assemblies consecutively execute identical work cycles, and each said set of secondary control members including a proportional air-flow control valve connected into said blowing-air supply and arranged to control the flow of air to said blowing operating means, said proportional valve being provided with a control element coupled to a follower which is movable radially relative to the axis of the carousel, and the primary control member arranged to influence the said secondary control members formed by the proportional valves comprising a plurality of strips arranged to engage said follower of each proportional valve and support means supporting said strips at their ends such that they lie in a circumferentially-extending series and in a manner enabling said ends to be finely adjusted in position towards and away from the axis of the carousel, said plurality of strips extending in an arc of predetermined angular extent around said carousel.

4,276,076
TRANSFER MEANS OF GLASSWARE FORMING MACHINES

Frank A. Fenton, Doncaster, England, assignor to Emhart Industries, Inc., Farmington, Conn.

Filed May 11, 1979, Ser. No. 38,372
Claims priority, application United Kingdom, May 24, 1978, 21916/78
Int. Cl.³ C03B 9/44
U.S. Cl. 65—241 6 Claims



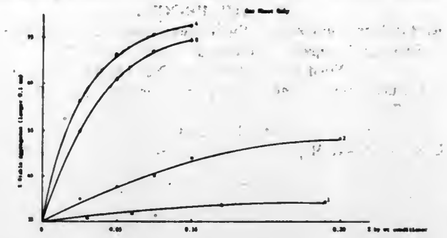
1. A multi-gob glassware forming machine having a blank station at which parisons are formed from gobs of molten glass in a plurality of blank molds, an intermediate station at which the parisons are supported after having been transferred from the blank station, and a blow station at which the parisons are blown in blow molds to the shape of the articles of glassware, the blank station, the intermediate station and the blow station being aligned along a horizontal axis of the machine, the spacing of the supported parisons at the intermediate station in the direction of the horizontal axis of the machine being smaller than the spacing of the centers of the blow molds at the blow station in the same direction, transfer means for increasing the spacing of the parisons during transfer of the parisons from the intermediate station to the blow station while the parisons remain in a vertical position, said transfer means being reciprocal in a straight line between the intermediate station and the blow molds.

4,276,077
LIGNOSULFONATE-BASED GRAFT POLYMERS THEIR PREPARATION AND USES

Dan Zaslavsky, and Lev V. Rosenberg, both of Haifa, Israel, assignors to Technion Research and Development Foundation Ltd., Technion City, Israel

Continuation-in-part of Ser. No. 866,936, Jan. 4, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,823
Claims priority, application Israel, Dec. 18, 1975, 49686; Nov. 2, 1977, 53288
Int. Cl.³ C08G 3/04, 3/02
U.S. Cl. 71—64 SC 21 Claims

1. A soil conditioner produced by the exothermic reaction of graft polymerization of crude lignosulfonate with a monomer selected from the group consisting of vinyl cyanide, vinyl acetate, hydrolized vinyl acetate and acrylamide or combinations thereof at a pH range of between 2 and 6 in the presence of an initiator.

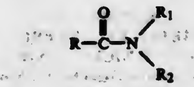


4,276,078
HERBICIDE COMPOSITIONS

Ferenc M. Pallos, Walnut Creek; Mervin E. Brokke, Moraga, and Duane R. Arnoldov, Sunnyvale, all of Calif., assignors to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 930,967, Aug. 4, 1978, which is a division of Ser. No. 208,041, Dec. 9, 1971, Pat. No. 4,137,070, which is a continuation-in-part of Ser. No. 134,868, Apr. 6, 1971, abandoned. This application Jan. 18, 1979, Ser. No. 49,767
The portion of the term of this patent subsequent to May 3, 1994, has been disclaimed.
Int. Cl.³ A01N 43/46, 37/02, 37/18
U.S. Cl. 71—88 16 Claims

1. A herbicide composition comprising an active thiocarbamate herbicide compound and an antidotally effective amount of an antidote compound having the formula



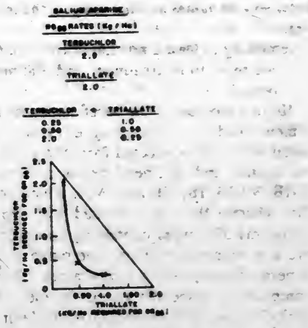
wherein R is selected from the group consisting of $-CH(CH_3)Br$, $-C(CH_3)_2Br$, $-CCl_2-CH_3$, $-CF_2C_2F_5$, $-CH_2Cl$, $-CCl_3$, $-CBr_3$, $-(CH_2)_4-CH_2Br$, $-CH_2-CH_2Cl$ and $-CH_2I$; and R_1 and R_2 are alkenyl containing from 2 to about 12 carbon atoms, inclusive; said antidote compound being antidotally active with said thiolcarbamate herbicide and wherein said antidote compound is present in an amount varying between about 0.0001 to 30 parts by weight for each part by weight of active herbicidal compound.

4,276,079
SYNERGISTIC HERBICIDAL COMPOSITION COMPRISING N-(BUTOXYMETHYL)-6'-TERT-BUTYL-2-CHLORO-O-ACETOTOLUIDIDE AND TRIALLATE

Bernard Convent, Leernes, Belgium, assignor to Monsanto Company, St. Louis, Mo.

Filed Aug. 18, 1978, Ser. No. 605,568
Int. Cl.² A01N 9/12, 9/20
U.S. Cl. 71—100 1 Claim

1. A herbicidal composition consisting essentially of a herbicidally effective amount of a mixture of (a) N-(butoxymethyl)-6'-tert-butyl-2-chloro-o-acetotoluidide and (b) S-(2,3,3-trichloroallyl) N,N-diisopropylthiocarbamate wherein the ratio of (a) to (b) is within the range of from about 1:4 to 4:1.

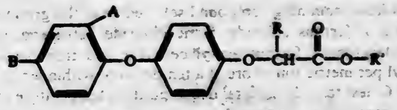


4,276,080
PHENOXY-PHENOXYALKANE CARBOXYLIC ACIDS AND DERIVATIVES AS SUGAR ENHANCERS FOR PLANTS

John F. Kearney, Perkasie, Pa., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 25, 1980, Ser. No. 133,847
Int. Cl.³ A01N 37/38
U.S. Cl. 71—108 36 Claims

1. A method for increasing the sugar content of plants which comprises applying to such plants from 1 to 7 weeks prior to harvesting an effective amount of a compound of the formula



wherein:

A is a hydrogen atom or a halogen atom,

B is a hydrogen atom or a halogen atom,

R is a hydrogen atom or a methyl group, and

R' is a hydrogen atom, an alkyl group having from 1 to 4 carbon atoms, or a cation;

provided, however, that either A or B must be a halogen atom.

4,276,081
PROCESS FOR BENEFICIATING ORES

James K. Klasig, Arvada, and Ronald L. Turner, Golden, both of Colo., assignors to Hazen Research, Inc., Golden, Colo.

Continuation-in-part of Ser. No. 950,177, Oct. 10, 1978, abandoned. This application Dec. 10, 1979, Ser. No. 101,303
The portion of the term of this patent subsequent to Jun. 3, 1997, has been disclaimed.
Int. Cl.³ C22B 1/02
U.S. Cl. 75—7 76 Claims

1. In a process for beneficiating sulfide ores and metal oxide ores from gangue, excluding coal, wherein the metal oxide ore is selected from the group consisting of bauxite, apatite, and the metal oxides of Groups IIB, IVB, VB, VIB, VIIB, VIIIB, IB, IIB and IVA, which contain elemental sulfur, wherein the ore is treated with a metal containing compound under conditions which cause the metal containing compound to react substantially at the surface of the metal sulfide or oxide particles to the substantial exclusion of the gangue particles so as to alter the surface characteristics of the metal values thereby

causing a selective enhancement of the magnetic susceptibility of one or more metal sulfide or oxide values of the ore to the exclusion of the gangue in order to permit a physical separation between the values and the gangue, the improvement comprising:

removing at least a portion of the elemental sulfur from the ore prior to its treatment with the metal containing compound.

10. In a process for the beneficiation of a metal sulfide ore or a metal oxide ore from gangue, excluding coal, wherein the metal oxide ore is selected from the group consisting of bauxite, apatite, and the metal oxides of Groups IVB, VB, VIB, VIIB, VIIIB, IB, IIB and IVA, which contain elemental sulfur, wherein the ore is treated with from 0.1 to about 100 kilograms of a metal containing compound per metric ton of ore at a temperature within the range of 125° C. less than the general decomposition temperature of the metal containing compound in a specific system for the ore being treated for a period of time of from about 0.05 to about 4 hours to cause the metal containing compound to react substantially at the surface of the metal sulfide or oxide particles to the substantial exclusion of the gangue particles so as to alter the surface characteristics of the metal values thereby causing a selective enhancement of the magnetic susceptibility of one or more metal sulfide or oxide values contained in the ore to the exclusion of the gangue so as to permit a separation between the values and the gangue, the improvement comprising:

removing at least a portion of the elemental sulfur from the ore prior to its treatment with the metal containing compound.

28. In a process for the beneficiation of a metal sulfide ore selected from the group consisting of galena, molybdenite, sphalerite, bornite, cinnabar, arsenopyrite, smaltite, chalcocite, chalcopyrite, orpiment, pentlandite, stibnite and tetrahedrite or a metal oxide ore selected from the group consisting of bauxite, apatite and the metal oxides of Groups IIIB, IVB, VB, VIB, VIIB, VIIIB, IB, IIB and IVA, which contain elemental sulfur, by treating the ore with from about 1 to about 50 kilograms of an iron containing compound selected from the group consisting of ferrous chloride, ferric chloride, ferrocene, ferric acetylacetonate, ferrous acetylacetonate, and iron pentacarbonyl per metric ton of ore at a temperature within a range of 125° C. less than the general decomposition temperature of the iron containing compound in a specific system for the ore being treated for a period of time from about 0.15 to about 2 hours to cause the iron containing compound to react substantially at the surface of the metal sulfide or oxide particles to the substantial exclusion of the gangue particles so as to alter the surface characteristics of the metal values thereby causing a selective enhancement of the magnetic susceptibility of one or more metal sulfide or oxide values of the ore to the exclusion of the gangue in order to permit a magnetic separation between the values in gangue, the improvement comprising:

removing at least a portion of the elemental sulfur from the ore prior to its treatment with the iron containing compound.

50. In a process for the beneficiation of sulfide ores and metal oxide ores from gangue, excluding coal, wherein the metal oxide ore is selected from the group consisting of bauxite, apatite, and the metal oxides of Groups IIIB, IVB, VB, VIB, VIIB, VIIIB, IB, IIB, and IVA, which contain elemental sulfur, wherein the ore is treated with an iron carbonyl under conditions which cause the iron carbonyl to react substantially at the surface of the metal sulfide or oxide particles to the substantial exclusion of the gangue particles so as to alter the surface characteristics of the metal values thereby causing a selective enhancement of the magnetic susceptibility of one or more metal sulfide or oxide values of the ore to the exclusion of the gangue in order to permit a physical separation between the values and the gangue, the improvement comprising:

removing at least a portion of the elemental sulfur from the ore prior to its treatment with the iron carbonyl.

4,276,082

PROCESS FOR THE HEATING AND/OR MELTING OF METALS AND AN INDUCTION FURNACE TO CARRY OUT THE PROCESS

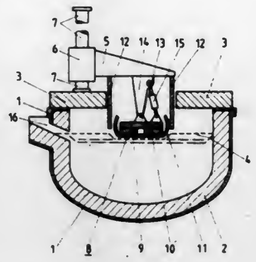
Karl Bühler, Nussbaumen, Switzerland, assignor to BBC Brown, Boveri & Company, Limited, Baden, Switzerland

Filed Feb. 6, 1980, Ser. No. 119,047

Claims priority, application Switzerland, Feb. 9, 1979, 1280/79

Int. Cl.³ C22D 7/00

U.S. Cl. 75—10 R 14 Claims



1. A process for the heating and/or melting in an induction furnace which contains a melting charge having a surface and which contains a boiler in which there is at least one inductor having only electrically nonconductive material positioned between said conductor and said melting charge, comprising the steps of:

directly heating the melting charge from above by the inductor through which an alternating current flows, said heating resulting from the direct interaction of said alternating current and said melting charge; and lowering the inductor below said surface but only to a depth in which the rejecting power of the electro-magnetic field of the inductor caused by electric current flowing through it holds the melting charge away from the inductor.

4,276,083

RECOVERY OF METAL VALUES FROM A METAL BEARING SOURCE OF NICKEL AND VANADIUM

William K. Tolley, Arlington Heights; William C. Langlois, Hoffman Estates, and William Rostoker, Chicago, all of Ill., assignors to UOP Inc., Des Plaines, Ill.

Filed Nov. 1, 1979, Ser. No. 90,217

Int. Cl.³ C22B 23/02; B22F 9/00

U.S. Cl. 75—82 13 Claims

1. A process for the recovery of metal values from a metal bearing source containing nickel and vanadium, the nickel being in the form of a sulfide, which comprises treating said source with a mild oxidant selected from the group consisting of carbon dioxide, water, sulfur dioxide, and mixtures thereof at conditions to convert the nickel sulfide to metal and the vanadium to an oxide, and separating the resultant metallic nickel from the vanadium oxide.

4,276,084

HYDROMETALLURGICAL PROCESS FOR THE RECOVERY OF LEAD

James E. Reynolds, Golden, and Alan R. Williams, Denver, both of Colo., assignors to Hazen Research, Inc., Golden, Colo.

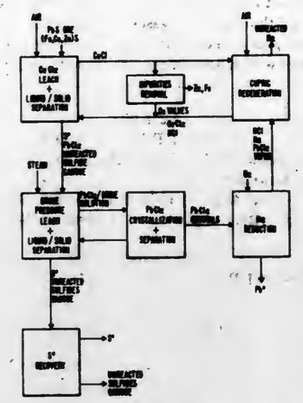
Filed Oct. 1, 1979, Ser. No. 80,444

Int. Cl.³ C22B 13/04

U.S. Cl. 75—101 R 21 Claims

1. A process for obtaining lead chloride from sulfide ores containing lead sulfide comprising:

(a) leaching the ore with an aqueous solution containing cupric chloride under reaction conditions of temperature, time, pH, an oxidizing emf, total copper concentration and total chloride ion concentration selected so as to convert a substantial portion of the lead sulfide to lead chloride while leaving the remainder of the ore substantially unreacted and wherein the cupric chloride leach solution does



not solubilize all of the lead chloride so that a portion of the lead chloride precipitates from the leach solution; and

(b) separating solids comprising lead chloride, unreacted ore, sulfur and gangue from the leach solution.

4,276,085

HIGH SPEED STEEL

Henry L. Wisell, Söderfors, Sweden, assignor to Uddeholms Aktiebolag, Hagfors, Sweden

Continuation of Ser. No. 951,399, Oct. 16, 1978, which is a continuation of Ser. No. 851,765, Nov. 15, 1977, abandoned. This application Jan. 14, 1980, Ser. No. 111,963

Claims priority, application Sweden, Nov. 22, 1976, 7610346

Int. Cl.³ C22C 39/14

U.S. Cl. 75—126 C 5 Claims

1. Tool steel having a very high wear resistance for cutting purposes characterized in that it consists essentially of:

C 0.8–1.2 wt%
Cr 3.0–6.0 wt%
W up to 40 wt%
Mo up to 20 wt% where W+2Mo=20.0–40 wt%
Co up to 15 wt%
V not more than about 0.1 wt%
Balance Fe and normal impurities.

4,276,086

GOLD ALLOY WITH COPPER, SILVER AND ZINC

Masami Murao, Tokyo, Japan, assignor to Kabushiki Kaisha Murao Shoten, Tokyo, Japan

Filed Jan. 7, 1980, Ser. No. 109,875

Claims priority, application Japan, Jan. 18, 1979, 54-4567; Mar. 19, 1979, 54-31055

Int. Cl.³ C22C 30/00

U.S. Cl. 75—134 C 6 Claims

1. A gold alloy consisting of:

30.0 to 50.0% by weight of gold and
70.0 to 50.0% by weight of an alloying composition consisting of:
75.2 to 77.1% by weight of copper,
13.6 to 16.2% by weight of silver and
6.7 to 11.2% by weight of zinc.

4,276,087

POWDER-METALLURGY VANADIUM-CONTAINING TUNGSTEN-TYPE HIGH-SPEED STEEL

Walter T. Haswell, Jamesville, N.Y.; William Stasko, Munhall, and F. Robert Dax, Pittsburgh, both of Pa., assignors to Crucible Inc., Pittsburgh, Pa.

Filed May 3, 1979, Ser. No. 35,652

Int. Cl.³ C22C 1/04

U.S. Cl. 75—243 6 Claims

1. A powder-metallurgy produced, cobalt-free vanadium-containing, tungsten-type high-speed steel consisting essentially of, in weight percent, carbon minimum 0.60%+0.20×percent vanadium+0.13×percent columbium and maximum 1.2%+0.20×percent vanadium+0.13×percent columbium, manganese 1.25 max., silicon 1.25 max., chromium 3 to 5, vanadium+columbium 0.8 to 6 with columbium not exceeding 4%, and balance iron, said steel being further characterized by a tungsten equivalent of 22 to 29% and an attainable hardness of at least 67 R_c when austenitized and triple tempered at 1025° F.

4,276,088

COMPOSITION FOR DIFFUSION COATING OF FERROUS METALS

Inna I. Zaets, ulitsa Verobieva, 11, kv. 8; Nikolai M. Davydenko, ulitsa Komsomolskaia Uberevicha, 14, kv. 48, both of Kharkov; Olga K. Yakubina, ulitsa 16 Parkovaya, 58, korpus 2, kv. 130; Nina F. Pershina, Kutuzovsky prospekt, 2/1, kv. 111, both of Moscow; Valentina D. Demyanenko, ulitsa Tankopia, 19/3, kv. 85, Kharkov, and Jury M. Pavlov, ulitsa Pervomaiskaya, 73, kv. 94, Moscow, all of U.S.S.R.

Filed Jan. 24, 1980, Ser. No. 162,651

Int. Cl.³ C09D 5/10; C23C 9/02

U.S. Cl. 106—1.12 2 Claims

1. A composition for a diffusion coating of ferrous metals containing a particulate mixture of titanium in an amount of 70.0 to 82.0% wt aluminum in an amount of 14.5 to 20.0% wt ammonium halide in an amount of 2.0 to 5.0% wt and graphite in an amount of 1.0 to 2.0% wt.

4,276,089

ANTICORROSION COMPOSITION

Francis Moran, Paris, France, assignor to Union Chimique et Industrielle de l'Ouest S.A., Paris, France

Filed Oct. 10, 1979, Ser. No. 83,553

Claims priority, application France, Oct. 13, 1978, 78 29312; Jun. 28, 1979, 79 16763

Int. Cl.³ C02F 5/12

U.S. Cl. 106—14.12 8 Claims

1. An anti-corrosion composition for a metallic surface in contact with water comprising at least a polyamine and at least an alkylene-phosphonic acid derivative, which composition is water-insoluble and contains:

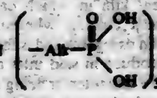
(A) at least a polyamine with a molecular weight at least 320 and having the general formula

$$R—[NM—(CH_2)_3]_{n1}—NH_2 \quad (I)$$

wherein R is a saturated or unsaturated aliphatic C_{12}–C_{22} hydrocarbon radical; and n_1 is an integer varying between 1 and 7 inclusive, R and n_1 being such that the molecular weight of the said polyamine is at least 320; and

(B) at least one alkylenephosphonic acid derivative selected from the group consisting of

(a) (i) the acids of formula



(II)

wherein alk is an alkylene group containing C_1–C_6 and a straight or branched hydrocarbon chain, and (ii) their C_1–C_4 alkyl esters;

(b) (i) the acids of formula

$$(H_2O_3P—CH_2)_2N—(CH_2)_{n2}—N(CH_2—PO_3H_2)_2 \quad (III)$$

wherein n_2 is an integer varying between 1 and 6 inclusive; and (ii) their C_1–C_4 alkyl esters;

(c) (i) -di(hydroxyethyl)aminomethylphosphonic acid of formula

$$(HO—CH_2CH_2)_2N—CH_2—PO_3H_2 \quad (IV)$$

(ii) its C_1–C_4 alkyl esters; and

(d) (i) acids of formula

$$Z^1—O—(Z^2—O)_{n3}—Z^3—N[(CH_2)_{n4}—PO_3H_2]_2 \quad (V)$$

wherein Z^1 is H or an C_1–C_4 alkyl group; Z^2 is a C_2–C_5 alkylene group; Z^3 is a C_2–C_5 alkylene group; n_3 is an integer varying between 1 and 20 inclusive, and n_4 *is an integer varying between* 1 and 4, and (ii) their C_1–C_4 alkyl esters.

4,276,090

METHOD FOR PROTECTING INDUSTRIAL SUBSTRATES FROM FUNGAL OR BACTERIAL ATTACK

Frank C. Becker, Gurnee, and Jorge P. Li, Libertyville, both of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Division of Ser. No. 843,610, Oct. 19, 1977, Pat. No. 4,141,905. This application Nov. 13, 1978, Ser. No. 959,549

Int. Cl.³ C09D 5/14

U.S. Cl. 106—18.32 **2 Claims**

1. The method of protecting a cellulosic, plastic or film-forming polymeric composition, knitted, woven, molded or extruded into a continuous form, against bacterial or fungal attack upon exposure to an environment containing common bacteria and fungi, comprising incorporating into said continuous form or coating said composition with a biocidally effective amount of N-(2-methyl-1-naphthyl)maleimide.

4,276,091

REFRACTORY GUN MIX

Nicholas Cassens, Jr., Pleasanton, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

Filed Mar. 27, 1980, Ser. No. 134,359

Int. Cl.³ C04B 35/04

U.S. Cl. 106—58 **6 Claims**

1. A refractory composition suitable for gunning consisting essentially of from 0.5 to 5% bentonite, from 1.5 to 10% of a bonding system, and up to 10% pitch, the balance being sized refractory aggregate, characterized in that the bonding system is from 1 to 5% alkali metal phosphate and from 0.5 to 5% aluminum sulfate, all percentages being by weight and based on the total weight of the composition.

4,276,092

MANUFACTURE OF CEMENT

Charles F. St. John, Beaconsfield, and Gil A. Mercier, Pointe Claire, both of Canada, assignors to Lafarge Consultants Ltd., Montreal, Canada

Filed Dec. 3, 1979, Ser. No. 99,310

Int. Cl.³ C04B 7/09; C27B 7/00

U.S. Cl. 106—100 **23 Claims**

1. A method of removing volatile compounds containing at least one of alkali, chlorine and sulphur from the interior of an elongated rotary cement kiln in which cement raw feed is burnt to produce cement clinker; wherein the raw feed is initially preheated by kiln exit gases and is fed into the inlet end of the rotary kiln to produce in said inlet end a zone of suspended raw kiln feed, the kiln interior being filled with hot kiln gases and suspended volatiles-rich dust, which in operation move along the kiln toward the inlet end, the improvement comprising providing an elongated hollow probe in the kiln inlet end; the probe having an inlet head disposed at an axial position along the kiln such as to be beyond the most concentrated part of the zone of suspended raw kiln feed and within the moving hot kiln gases and volatiles-rich dust; withdrawing a portion of the hot kiln gases and the volatiles-rich dust through said probe; and separating the volatiles-rich dust from the kiln gases which have been withdrawn through said probe.

4,276,093

ASPHALT PRODUCTION

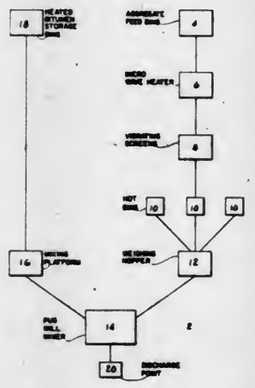
Otto Pickermann, 723 Ferntree Gully Rd., Glen Waverley, Victoria, Australia

Filed Aug. 31, 1978, Ser. No. 938,482

Claims priority, application Australia, Sep. 2, 1977, PD1482/77

Int. Cl.³ C08L 95/00

U.S. Cl. 106—281 R **9 Claims**



1. A process for forming asphalt comprising mixing aggregate and bitumen, the aggregate and bitumen being heated separately prior to the mixing and/or being heated during mixing; at least the aggregate being heated by use of a microwave heater.

4,276,094

CLEANING OIL-CONTAMINATED VESSELS WITH α-EMULSANS

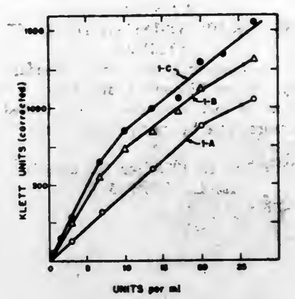
David L. Gutnick, Ramat Aviv, and Eugene Rosenberg, Raanana, both of Israel, assignors to Biotechnologie Aktiengesellschaft fur Emulsan, Basel, Switzerland

Continuation of Ser. No. 12,973, Feb. 22, 1979, abandoned. This application Dec. 21, 1979, Ser. No. 106,805

Int. Cl.³ B08B 9/00

U.S. Cl. 134—10 **14 Claims**

1. A process for cleaning hydrocarbonaceous residues, including residual petroleum, from oil-contaminated tankers, barges, storage tanks, tank cars and trucks, pipelines and other containers used to transport or store crude oil or various petroleum fractions, which comprises (A) washing oil-contaminated surfaces of such containers with an emulsifying agent comprising an aqueous solution in sea water or fresh water containing (1) from about 10 mcg/ml to about 20 mg/ml of extracellular microbial protein-associated lipopolysaccharides (herein collectively called "α-emulsans") produced by Acinetobacter Sp. ATCC 31012 and its mutants, in which the lipopolysaccharide components (herein collectively called "apo-α-emulsans") are N- and O-lipoacylated heteropolysaccharides made up of major amounts of D-galactosamine and an aminouronic acid, such apo-α-emulsans containing at least 5 percent by weight of O-substituted fatty acid esters in which (i) the fatty acids contain from about 10 to about 18 carbon atoms; and (ii) more than 50 percent by weight of such fatty acids are composed of 2-hydroxydodecanoic acid and 3-hydroxydodecanoic acid;



and (2) from about 5 mM or higher of at least one divalent cation thereby forming an oil-in-water emulsion of such hydrocarbonaceous residues; and (B) removing such oil-in-water emulsion from the washed container.

4,276,095

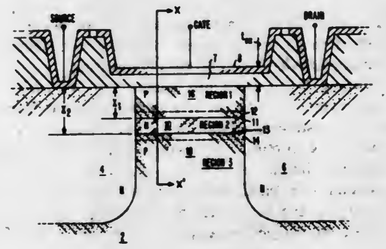
METHOD OF MAKING A MOSFET DEVICE WITH REDUCED SENSITIVITY OF THRESHOLD VOLTAGE TO SOURCE TO SUBSTRATE VOLTAGE VARIATIONS

Kenneth E. Bellstein, Jr., and Harish N. Kotecha, both of Manassas, Va., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 829,393, Aug. 31, 1977, abandoned. This application Mar. 12, 1979, Ser. No. 19,797

Int. Cl.³ H01L 29/78, 21/26

U.S. Cl. 148—1.5 **1 Claim**



1. A method for reducing the sensitivity of the threshold voltage to the substrate voltage in a field effect transistor having source and drain regions of N conductivity type with a channel therebetween, in a silicon substrate of P conductivity type, with a gate lying above the channel, wherein the improvement comprises the steps of:

forming said substrate with a background doping concentration of N_a conductivity enhancing dopant atoms per cubic centimeter, wherein N_a is approximately 7.5×10^{15} conductivity enhancing dopant atoms per cm^3;

selecting a sensitivity dV_T/dV_{ss} of the threshold voltage to the substrate voltage;

selecting a substrate-to-source voltage bias V_{ss};

determining the location and dopant concentration D of a phosphorous ion-implanted layer of said N conductivity type in said channel region having an upper PN junction at a distance X_1 beneath the surface of said substrate and a lower PN junction at a distance X_2 beneath said surface, so that the respective depletion regions of said two PN junctions merge at said selected value of V_{ss} to impart said selected sensitivity to the resultant transistor, wherein the relationship of X_1, X_2, D, N_a and dV_T/dV_{ss} is expressed by

$$\frac{dV_T}{dV_{ss}} = \frac{q\varepsilon_s}{C_{ox}\sqrt{\frac{2q\varepsilon_s}{qN_a}(V_{ss}+2\phi)+(X_1+X_2)\frac{D}{N_a}}};$$

ion-implanting said phosphorous ion-implanted layer at an ion implant energy of between 200 keV and 1000 keV at a dosage of between 6×10^{11} atoms per cm^2 and 7×10^{11} atoms per cm^2 to reduce said sensitivity of the threshold voltage to the substrate voltage by increasing the distance between mirrored charges in the substrate and in the gate through said merger of the depletion regions of said two PN junctions.

4,276,096

METHOD FOR PRODUCING HARD METAL BODIES OF INCREASED WEAR RESISTANCE

Johannes Kolaska, Bottrop, and Hans Grewe, Grefrath, both of Fed. Rep. of Germany, assignors to Fried. Krupp Gesellschaft mit beschränkter Haftung, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 887,812, Mar. 17, 1978, abandoned. This application Jan. 22, 1980, Ser. No. 114,313

Claims priority, application Fed. Rep. of Germany, Apr. 22, 1977, 2717842

Int. Cl.³ C21D 1/48

U.S. Cl. 148—16.6 **5 Claims**

1. Method for producing a hard metal body having increased wear resistance, the hard metal body containing at least one of the binder metals iron, cobalt and nickel and at least one of the carbides of the elements titanium, zirconium, hafnium, vanadium, niobium, tantalum, chromium, molybdenum and tungsten, and being produced by way of sintering and having a nitrogen containing surface, comprising: directly after a final sintering at a temperature between 1400° C. and 1500° C. of a hard metal body containing the binder metal and carbide, subjecting the body to a cooling cycle to cool the body to a temperature of 800° C. to 1450° C., and at any time after the body has been cooled by at least 50° C. from its final sintering temperature of 1400° C. to 1500° C. and during said cooling cycle, subjecting the body to a pressure between 50 bar and 5000 bar in a sintering autoclave at a temperature between 800° and 1450° C. and in an atmosphere comprising nitrogen, to enrich the hard metal body with nitrogen and to nitride the surface.

4,276,097

METHOD OF TREATING SM_2CO_{17}-BASED PERMANENT MAGNET ALLOYS

Robert L. Berger, San Jose, Calif.; Frederick Rothwarf, Toms River, and Arthur Tauber, Elberon, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed May 2, 1980, Ser. No. 145,934

Int. Cl.³ H01F 1/02

U.S. Cl. 148—101 **7 Claims**

1. Method of lowering the reversible temperature coefficient of magnetization of a permanent magnet alloy, said method consisting of heat treating the alloy in an atmosphere selected from the group consisting of noble gas and vacuum by the steps of

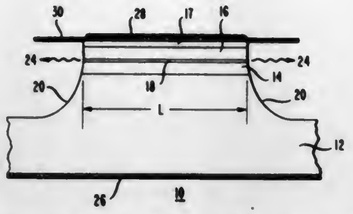
(a) heating the alloy at about 1150 degrees C. for 1.5 hours, (b) quenching the alloy in ice water, (c) heating the alloy at about 940 degrees C. for 2 hours, (d) lowering the temperature to about 700 degrees C. and heating for one hour, (e) lowering the temperature to about 600 degrees C. and heating for one hour, (f) lowering the temperature to about 500 degrees C. and heating for 2 hours, and (g) lowering the temperature to about 400 degrees C. and heating for 10 hours.

4,276,098

BATCH PROCESSING OF SEMICONDUCTOR DEVICES

Ronald J. Nelson, Berkeley Heights, and Phillip D. Wright, New Providence, both of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Mar. 31, 1980, Ser. No. 135,643
Int. Cl.³ H01L 21/208
U.S. Cl. 148—171 13 Claims



1. A method of fabricating mesa geometry devices from a semiconductor body comprising the steps of

forming a plurality of metal layers on separate localized portions of a major surface of said body,

forming an etch-resistant mask over each of said metal layers so that each of said metal layers is recessed within the periphery of its corresponding mask and other portions of said surface are exposed,

subjecting said body to an etchant effective to attack said other portions of said surface thereby forming said mesas under said masks, and

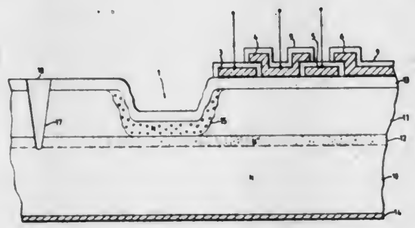
controlling the etching time so that said mesas do not undercut said metal layers.

4,276,099

FABRICATION OF INFRA-RED CHARGE COUPLED DEVICES

John M. Keen, Hanley Swan, and Arthur F. W. Willoughby, Eastleigh, both of England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Oct. 10, 1979, Ser. No. 83,487
Claims priority, application United Kingdom, Oct. 11, 1978, 40117/78
Int. Cl.³ H01L 27/14, 31/00, 29/78
U.S. Cl. 148—187 13 Claims



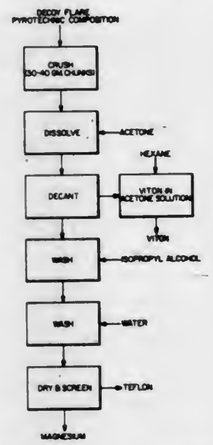
1. In a method of fabricating a semiconductor device, which device when fabricated includes a first region of a body of semiconductor material doped with a second species of a dopant which desirably should not penetrate during fabrication beyond said first region into a selected further region of the body, the improvement comprising introducing a first species of a dopant into said first region as a high-concentration layer so that the diffusion in said first region of ions of said first species generates an electric field which forms a barrier between said regions effective to repel ions of said second species from entering said selected further region, said first species being a relatively slower diffusing species than said second species.

4,276,100

PROCESS FOR DISPOSING OF DECOY FLARE MATERIAL

Robert E. Colvin, Longcotec; Bernard E. Douds; Francis E. Montgomery, both of Bloomfield, and James E. Short, Jr., Switz City, all of Ind., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 13, 1976, Ser. No. 658,650
Int. Cl.³ C06B 45/10
U.S. Cl. 149—109.6 6 Claims



1. A process for reclaiming materials from decoy flares comprised of magnesium powder, fluorocarbon rubber and polytetrafluoroethylene, said process comprising,

first crushing decoy flares into chunks,

then dissolving said chunks in a solvent selected from the group consisting of acetone and ethyl acetate,

then decanting to remove the solvent and the fluorocarbon rubber in solution,

then washing the remaining ingredients, and

finally drying and screening the remaining ingredients to separate the magnesium and polytetrafluororethylene.

4,276,101

BREATHABLE LEATHER-LIKE MATERIALS AND PROCESS FOR MAKING SAME

Harold D. Lyons, Spartanburg, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 686,622, May 14, 1976, abandoned, which is a division of Ser. No. 389,023, Aug. 16, 1973, abandoned. This application Nov. 30, 1979, Ser. No. 99,045
Int. Cl.³ B32B 31/06; B05D 5/02
U.S. Cl. 156—61 11 Claims

1. A process for producing a leather-like material having a high degree of air permeability, good abrasion resistance and resistance to cracking at low temperatures, which comprises the steps of:

(a) applying an aqueous polymer dispersion to a release medium, said dispersion having a gas entrapped therein to reduce the density of the dispersion to from about 0.4 to about 0.9 grams per cubic centimeter;

(b) bringing said polymer dispersion on said release medium into engagement with a porous, fibrous substrate having a plurality of fibers extending outwardly therefrom to receive and hold said polymer dispersion to form a release medium-polymer-substrate combination;

(c) subjecting said release medium-polymer-substrate combination to pressure to transfer said polymer dispersion to the fibers of said substrate whereby at least about 80 percent of said polymer is positioned along said outwardly extending fibers forming a polymer network wherein the tips of at least some of the fibers protrude from said polymer network with substantially no polymer being embedded in the base of said substrate, and wherein the polymer forms a discontinuous polymer phase which covers from about 30 percent to about 70 percent of the surface of said substrate with the remainder being a continuous pore phase; and

(d) drying said polymer-treated substrate to form a leather-like material having a surface luster of from about −0.7 to about +5.7.

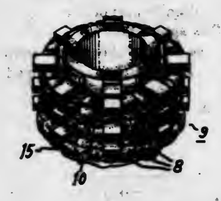


4,276,102

METHOD FOR COMPACTING TRANSPOSED CABLE STRANDS

Friedrich K. Schaeffer, Cheshire, Mass., and Thomas F. Brennan, Ft. Wayne, Ind., assignors to General Electric Company, N.Y.

Continuation-in-part of Ser. No. 72,377, Sep. 4, 1979, abandoned. This application Apr. 30, 1980, Ser. No. 145,278
Int. Cl.³ B29C 27/00
U.S. Cl. 156—85 7 Claims



1. A method for compacting strands in transposed cables for use within transformers comprising the steps of:

providing a plurality of adhesive coated insulated wire strands in close proximity with each other in a transposed cable configuration;

wrapping a layer of heat shrinkable polymeric material around said cable in a gapped configuration to contain said strands in close proximity with each other and to allow for the egress of gaseous material and the impregnation of insulating oil through said gaps;

arranging said wrapped transposed cable around a winding cylinder to form a transformer winding;

evacuating said transformer winding;

heating said transformer winding to a first temperature to cause said adhesive to melt; and

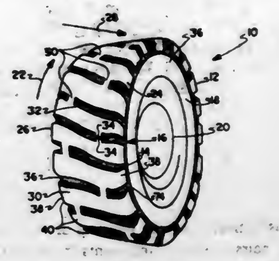
heating said transformer winding to a second temperature to cause said polymeric material to shrink and to compact said strands.

4,276,103

ADJUSTABLE TIRE TREAD AND METHOD OF APPLICATION OF A TREAD

Merritt W. Wolfe, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 9, 1980, Ser. No. 157,994
Int. Cl.³ B29H 17/36
U.S. Cl. 156—96 11 Claims



1. An elongated tread adjustable in the longitudinal direction for application to a tire, the tread comprising an upper surface, a lower surface, a first and a second side extending longitudinally of the tread between said upper and lower surfaces, at least one tread element extending in a transverse direction of the tread, a pair of tread portions spaced from said tread element in generally the longitudinal direction of the tread, and an interconnecting means extending between and interconnecting said tread element with each of said tread portions to define a pair of spaces which overlap in a direction parallel to the upper surface and perpendicular to the longitudinal direction of the tread, one of said spaces extending through the tread between said tread element and one of said tread portions and severing said first side and said upper and lower surfaces along the entire distance from said first side to the corresponding interconnecting means and the other of said spaces extending through the tread between said tread element and the other of said tread portions and severing said second side and said upper and lower surfaces along the entire distance from said second side to the corresponding interconnecting means to permit canting of each of said tread portions relative to said tread element.

4,276,104

TRANSFER DRUM APPLICATION OF NARROW STRIP COMPONENTS TO A TIRE BEING BUILT ON A TIRE BUILDING DRUM

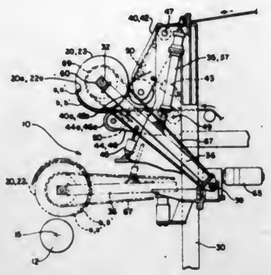
Robert S. Riggs, Stow, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 11, 1980, Ser. No. 111,155
Int. Cl.³ B29H 17/20
U.S. Cl. 156—123 R 7 Claims

1. A method of building a tire on a cylindrical building drum, comprising:

wrapping an inner liner about the drum, wrapping a cord or wire-reinforced ply about the inner liner, applying a first pair of parallel axially spaced strip components to the cylindrical surface of transfermeans positioned parallel to and in axial register with the building drum but spaced radially therefrom, applying a second pair of parallel axially spaced strip components to said transfer means so as to locate a leading end of each of the second pair at an angular location spaced from the leading end of the respectively associated components of the first pair and so as to adhere the remaining lengths of the second pair to the radially outward surfaces of the first pair, the first-mentioned applying step being initiated before the termination of the later mentioned wrapping step, then rotating the transfermeans angularly to position the trailing ends of said second pair of components in a nip to be formed by

moving the transfermeans radially toward the building drum, and moving said transfermeans radially toward the building drum to form said nip, and rotating together the



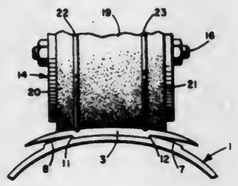
transfermeans and the building drum so as to transfer the two pairs of strip components from the transfer means to the building drum.

4,276,105

PROCESS AND APPARATUS FOR STITCHING THE TREAD OF PNEUMATIC TIRES

Rinaldo Gessaga, Milan, Italy, assignor to Industrie Pirelli S.p.A., Milan, Italy

Filed Oct. 19, 1979, Ser. No. 86,305
Claims priority, application Italy, Oct. 31, 1978, 29262 A/78
Int. Cl.³ B29H *17/08*
U.S. Cl. 156—128 N 17 Claims



1. A process for manufacturing pneumatic tires comprising a carcass, a tread and a reinforcing structure placed between the carcass and the tread, said reinforcing structure comprising at the ends of its layers of reinforcing material at least two discontinuities in thickness, each discontinuity in thickness being noticeable in two planes parallel to the equatorial plane of the tire, respectively up line and down line of the discontinuity, said thickness being greater in the axially outermost plane, said process being characterized by the fact of comprising, after the toroidal configuration of the carcass and of the reinforcing structure and the application of the tread, the following further steps of:

(a) stitching by means of brushes provided with filaments the central portion of the tread;

(b) stitching subsequently to the beginning of step (a) and during step (a), by means of brushes provided with filaments at least a length of the lateral portions of the tread overlying the reinforcing layers with greater thickness and by means of metallic discs the tread portions comprised between the central one and the lateral ones;

(c) stitching after step (b) by means of metallic discs the lateral portions of the tread overlying the reinforcing layers with greater thickness,

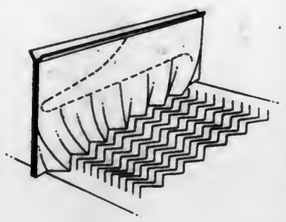
(d) stitching after step (c) by means of metallic discs the tread end.

4,276,106

LAYING ORIENTED FIBROUS WEBS

Kenneth Porter, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Nov. 21, 1979, Ser. No. 96,298
Claims priority, application United Kingdom, Aug. 15, 1979, 28435/79
Int. Cl.³ D04H *3/04, 3/10, 3/12*
U.S. Cl. 156—181 9 Claims



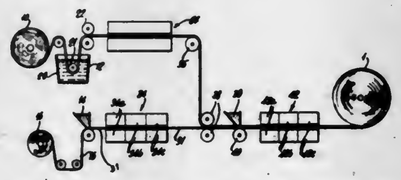
1. A process for the production of an ordered web from at least one fibrous strand, comprising forwarding a strand towards a moving collecting surface and imparting an oscillatory motion to the strand at a position above the collecting surface, the improvement being that the oscillating strand is passed between two closely spaced shaped plates which extend substantially from the place of oscillation down to the collecting surface whereon the strand is laid on the collecting surface in non-linear parallel courses, the strand being substantially equally spaced along its length from a preceding length of strand, said plates being substantially parallel to one another and to the plane of oscillation of the strands except for surface irregularities producing the non-linear shape of the parallel courses.

4,276,107

ADHESIVE-COATED IMPREGNATED POLYURETHANE FOAM

Joseph Pufahl, 10 Baer La., Locust Valley, N.Y. 11560

Division of Ser. No. 860,156, Dec. 14, 1977, Pat. No. 4,169,184, which is a continuation-in-part of Ser. No. 357,626, May 7, 1973, abandoned. This application Apr. 2, 1979, Ser. No. 25,835
The portion of the term of this patent subsequent to Sep. 25, 1996, has been disclaimed.
Int. Cl.³ B05D *5/10*
U.S. Cl. 156—238 9 Claims



1. A process for producing a resilient, non-porous, significantly non-absorbent pressure-sensitive adhesive tape that consists essentially of impregnating a substrate of open-celled, high density, flexible, resilient polyurethane foam with a polychloroprene latex, compressing said latex-impregnated substrate to cause said latex to penetrate through said polyurethane foam and permitting said substrate to return to its precompressed state; depositing a layer of a pressure-sensitive adhesive upon said impregnated substrate, and curing each of said polychloroprene and pressure-sensitive adhesive simultaneously or in separate steps.

2. A method as claimed in claim 1, wherein said pressure-sensitive adhesive is an acrylic resin and is deposited upon a

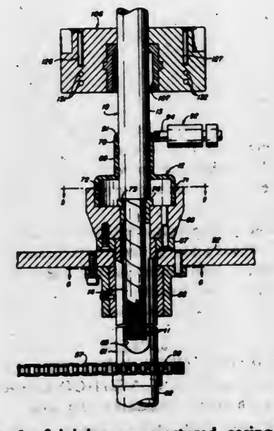
release tape and brought into contact with said impregnated substrate whereupon said adhesive is cured thereon.

4,276,108

METHOD FOR BONDING A PLASTIC CASE TO A STUB CABLE

John S. Gellatly, LaGrange, and Fred T. Richter, LaGrange Park, both of Ill., assignors to Western Electric Company, Inc., New York, N.Y.

Division of Ser. No. 72,393, Sep. 4, 1979, Pat. No. 4,229,155. This application Jun. 12, 1980, Ser. No. 158,769
Int. Cl.³ B29C *27/00*
U.S. Cl. 156—244.24 3 Claims



3. A method of joining an apertured casing part and a straight section of a plastic sheathed, stub cable having an offset coiled section, which comprises:

placing the straight section of cable in the aperture of the casing part;

orbiting the coiled section of cable about the longitudinal axis of the straight section to rotate the straight section about its longitudinal axis;

rotating the casing part in unison with the rotating straight section of cable;

extruding a bead of bonding material along the juncture of the apertured casing part and plastic sheathed cable; and

applying forces to the extruded bead to force portions of the bead into the juncture while shaping the remaining portion of the bead.

4,276,109

PROCESS FOR HIGH FREQUENCY HEAT SEALING OF TEXTILE SHEET MEMBERS

Ingo Siewert, Schmidstr. 11, 102 Berlin; Manfred Klaus, Frankenstr. 11, 1114 Berlin, and Peter Thietz, Rennschstr. 69, 1035 Berlin, all of German Democratic Rep.

Continuation of Ser. No. 878,920, Feb. 17, 1978, abandoned. This application Jan. 7, 1980, Ser. No. 110,306
Claims priority, application German Democratic Rep., Feb. 21, 1977, 197508
Int. Cl.³ B29C *27/04*
U.S. Cl. 156—273 8 Claims

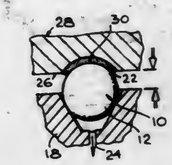
1. A process of forming seams in textile structures which are substantially free of components that are individually high frequency heat sealable comprising subjecting to a high frequency current a textile structure containing a first component in the form of fibers which are subject to being heated upon exposure to a high frequency filed but which do not become thermoplastic upon such exposure, and a second component in the form of fibers which are subject to becoming thermoplastic upon exposure of the textile structure to a high frequency field and which becomes thermoplastic from heat generated in said first component, thereby producing one or more seams in said textile structure.

4,276,110

METHOD OF FORMING A SEPARATOR INTEGRAL WITH AN ELECTRODE

John M. Bilhorn, Mystic, Conn., assignor to Yardney Electric Corporation, Pawcatuck, Conn.

Continuation of Ser. No. 965,489, Nov. 30, 1978, abandoned, which is a division of Ser. No. 873,801, Jan. 31, 1978, Pat. No. 4,158,085. This application Mar. 24, 1980, Ser. No. 133,185
Int. Cl.³ B05D *1/12;* B32B *5/16*
U.S. Cl. 156—298 9 Claims



1. An improved method of forming a separator integral with an electrode, the method comprising:

a. coating the surface of each of a plurality of substantially spherical particles with a first coating;

b. placing said coating particles into and holding said particles in spaced relationship in a die so as to expose only a portion of said first coating of each of said particles;

c. contacting said exposed portion of said first coating with a second coating while said particles are in said die; and,

d. pressing said particles while in said die against an electrode surface for a time and at a pressure sufficient to effect embedment of said particles up to about 35% of the average diameter of said particles and to adhesively bond said particles to said surface by said second coating without crushing said particles, thereby forming an integral separator on the surface of said electrode, said first coating being either a primer for said second coating when said second coating is an adhesive or forming an adhesive with said second coating.

4,276,111

BLENDS OF ETHYLENE-ALKYL ACRYLATE COPOLYMERS WITH ROSIN ESTERS

Khalid A. Karim, and James H. Rea, both of Houston, Tex., assignors to Gulf Oil Corporation, Pittsburgh, Pa.

Filed Jul. 31, 1978, Ser. No. 173,923
Int. Cl.³ C08J *7/00;* C08L *93/04*
U.S. Cl. 156—308.2 12 Claims

1. A polymer composition consisting essentially of:

(a) 100 parts by weight of an ethylene copolymer, and

(b) About 1 to 15 parts by weight of a rosin ester; said ethylene copolymer having polymerized therein about 70–98 weight % of ethylene and the balance an alkyl ester of acrylic or methacrylic acid; said rosin ester being an ester formed from a rosin acid and ethylene glycol, propylene glycol or glycerine.

10. In a method for heat sealing two films of an ethylene copolymer having polymerized therein about 70 to 98 weight % of ethylene and the balance an alkyl ester of acrylic or methacrylic acid by heating an assembly of the two films under pressure; the improvement which comprises employing films consisting essentially of said ethylene copolymer having uniformly dispersed therein about 1 to 15 parts by weight of a rosin ester in 100 parts by weight of said ethylene copolymer, whereby the heat sealing temperature of said film is lowered;

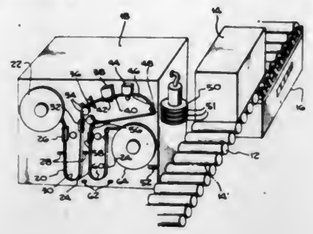
said rosin ester being an ester formed from a rosin acid and ethylene glycol, propylene glycol, or glycerine.

4,276,112

INDIVIDUALIZED LABEL APPLICATION SYSTEM

John B. French, Fountain Valley, and Oscar E. Muttoni, Huntington Beach, both of Calif., assignors to Nomax Corporation, Santa Ana, Calif.

Filed Dec. 7, 1978, Ser. No. 967,263
Int. Cl.³ G01G 23/38
U.S. Cl. 156—360 5 Claims



1. An individualized label application system comprising:
an electrostatic printing assembly;
means for guiding a tape carrying pressure-sensitive labels in the forward direction through said electrostatic printing assembly;
means for dispensing printed labels from said tape and applying them to products;
means for including individualized information relating to the labeled product on each label;
means for reversing the movement of said tape and labels by a distance at least equal to the length of one label following the dispensing of a label;
means for stopping the reverse movement of said tape at a point where another label is ready for electrostatic printing with individualized information for the corresponding product;
said electrostatic printing means including corona means for printing bar code indicia on said label and wire matrix means for printing alphanumeric information on said label, and means for applying and fixing toner to electrostatic images formed both by said corona and by said matrix electrostatic image-applying means;
means for weighing each product to be labeled;
means for including information representing the weight of the product on said printed label;
means for disabling said electrostatic printing assembly on each forward movement of said tape following printing of the first label, whereby the subsequent adjacent labels which enter the electrostatic printing assembly are not printed until after reverse movement of the tape; and
said dispensing means including: a grooved cylinder; means for holding said labels onto said cylinder by air pressure; and spring finger means engaging the grooves in said cylinder for stripping said labels from said cylinder as it is rotated and for applying said labels to products.

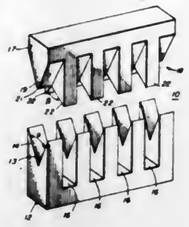
4,276,113

WINGED V-GROOVE FIBER OPTIC CLAMP AND SPLICER

W. John Carlsen, Natick; Mark L. Dakss, Sudbury, and Gary M. Lambert, Berlin, all of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Oct. 4, 1979, Ser. No. 81,730
Int. Cl.³ G02B 5/16
U.S. Cl. 156—502 12 Claims

1. Apparatus for aligning and holding optical fibers along a predetermined axis comprising:
(a) a base member having a fiber engaging face, and
(i) a longitudinal recessed V-shaped groove along said face of said base member;
(ii) a plurality of rectangular transverse slots spaced along said groove, said slots extending to a depth exceeding said groove; and
(b) a cover having a face for engaging said base member, and



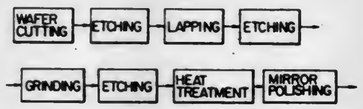
(i) a longitudinal extended V-shaped protuberance along said engaging face of said cover, said extended V-shaped protuberance corresponding in size and shape to said recessed V-shaped groove but being blunt at its apex; and
(ii) a plurality of rectangular transverse inverted V-shaped fingers spaced along said protuberance, and blunt at their apices, said fingers having a length not exceeding said depth of said slots.

4,276,114

SEMICONDUCTOR SUBSTRATE AND A MANUFACTURING METHOD THEREOF

Yukio Takano, Kodaira; Masahiko Ogirima, Tokyo; Shigeru Aoki; Michiyoshi Maki, both of Hachioji, and Shigeo Kato, Mitaka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 6, 1979, Ser. No. 9,967
Claims priority, application Japan, Feb. 20, 1978, 53-18260
Int. Cl.³ H01L 21/304
U.S. Cl. 156—645 11 Claims



1. A method of manufacturing a semiconductor substrate comprising the step of cutting a semiconductor crystal rod into the shape of a wafer, to obtain a semiconductor wafer, the step of grinding a rear surface of said semiconductor wafer with plane wheel means, to form a damaged layer whose maximum depth lies in a range of 2 μm to 20 μm in the rear surface, the step of etching the ground surface to decrease the curvature of said semiconductor wafer, and the step of mirror-polishing a front surface of the semiconductor wafer.

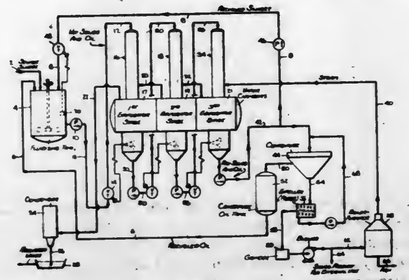
4,276,115

PROCESS AND APPARATUS FOR DEHYDRATING WASTE SOLIDS CONCENTRATES

Charles Greenfield, Murray Hill, and Anthony J. Bonanno, Parsippany, both of N.J., assignors to Hanover Research Corporation, East Hanover, N.J.

Filed Nov. 21, 1979, Ser. No. 96,391
Int. Cl.³ B01D 1/26
U.S. Cl. 159—1 RW 14 Claims

1. In a process for dehydrating initially water-containing waste solids concentrates chosen from the group consisting of secondary sewage sludge, digested sewage sludge, mixtures of primary and secondary sewage sludges, those having relatively high quantities of iron-fatty acid soaps, those derived from packing industry wastes, and those containing animal manure, said concentrates having a non-fat solids concentration in the range 10% to 35% by weight on an oil-free basis, that process comprising the steps of (1) admixing such a waste solids concentrate with a relatively non-volatile oil to obtain a mixture which will remain fluid and pumpable after the removal of its water content by heat evaporation; (2) dehydrating the resultant oil-containing mixture by heat evaporation in a multi-stage



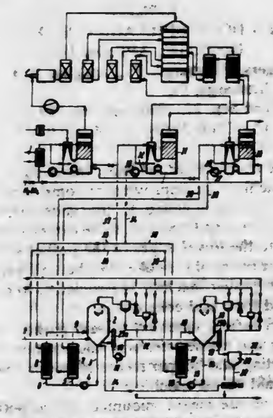
evaporator in a sequence of steps so ordered that the vapors evolved from each such step except the first are used as a heating medium in the preceding step, and (3) withdrawing a substantially anhydrous waste solids and oil slurry from a late stage of said evaporator, the improvement which comprises recycling at least a portion of the slurry so withdrawn and admixing it with the waste solids concentrate and oil in step (1) to form a mixture constituting a steady state feed material to said multi-stage evaporator having a non-fat solids content of from 25% to 60% on an oil-free basis.

4,276,116

PROCESS OF STRENGTHENING DILUTE PHOSPHORIC ACID

Walter Blumrich, Frankfurt am Main; Karl H. Dörr, Mainz; Hans J. Klaig, Frankfurt am Main, and Ulrich Sander, Friedrichsdorf, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed May 22, 1979, Ser. No. 41,468
Claims priority, application Fed. Rep. of Germany, Jan. 1, 1978, 2824010
Int. Cl.³ B01D 1/28
U.S. Cl. 159—47 R 4 Claims



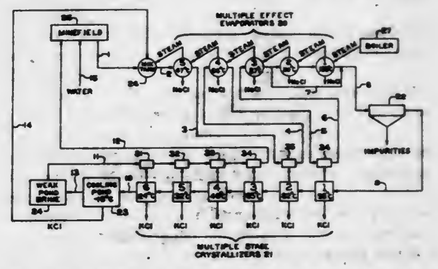
1. In a process for concentrating dilute phosphoric acid in a phosphoric acid process characterized by a plurality of separate phosphoric acids cycles, wherein the phosphoric acid is concentrated in each cycle by a vacuum evaporator the improvement wherein the phosphoric acid in the phosphoric acid cycle is heated by indirect heat exchanger by heat released in the sulfuric acid of the absorption system of a sulfuric acid contact process, said sulfuric acid having a temperature of 80 to 200°C., said phosphoric acid in a phosphoric acid cycle associated with a first vacuum evaporator being indirectly heated in two heat exchangers which are connected in parallel, one of which is supplied with sulfuric acid from an end SO_3 absorber of said sulfuric acid contact process, the other of which is supplied with part of the sulfuric acid from the interstage absorber of said sulfuric acid contact process and the phosphoric acid in the phosphoric acid cycle associated with the second evaporator stage is heated by the remaining sulfuric acid from the interstage absorber.

4,276,117

PROCESS OF TREATING POTASSIUM CHLORIDE BRINE BY EVAPORATION AND CRYSTALLIZATION

Donald H. Geesen, Wilcox, Canada, assignor to PPG Industries Canada Ltd., Regina, Canada

Continuation of Ser. No. 11,273, Feb. 12, 1979, abandoned. This application May 22, 1980, Ser. No. 152,219
Int. Cl.³ B01D 1/26
U.S. Cl. 159—47 R 8 Claims



1. In a method of producing potassium chloride from a brine thereof by concentrating the brine with respect to potassium chloride by multiple effect evaporators operated at progressively higher temperatures, wherein the multiple effect evaporators are backward fed, and then cooling the concentrated brine in multiple stage evaporative crystallizers operated at progressively lower temperatures, thereby precipitated potassium chloride crystals, the improvement which compriaes cooling the brine in the hotter crystallizers of said multiple stage evaporative crystallizers utilizing feed streams to or feed streams between the cooler evaporators of said multiple effect evaporators, thereby heating the feed streams between the cooler evaporators.

4,276,118

DEINKING WASTE ELECTROPHOTOGRAPHY COPY PAPER

Thomas H. Quick, Sumner, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash.

Filed Oct. 9, 1979, Ser. No. 83,139
Int. Cl.³ D21L 5/02
U.S. Cl. 162—5 10 Claims

1. The method of removing toner from electrophotographic copy paper containing said toner comprising
pulping said paper containing said toner to form an aqueous pulp and toner slurry which is mixable,
adding to said pulp slurry from 0.25 to 3% of the weight of the pulp fiber of a solid material selected from the group consisting of polystyrene, polyvinyl chloride, polyurethane, polypropylene, and polyacrylates,

adding to said pulp slurry at least 0.75% of the weight of the pulp fiber a chemical which is substantially insoluble in water, has a melting point which is in the range of the approximate melting point of said solid material and 75°, and is selected from a group consisting of a saturated aliphatic primary alcohol, a mixture of said primary alcohols, an unsaturated aliphatic primary alcohol, a mixture of said unsaturated alcohols, a saturated aliphatic secondary alcohol, a saturated aliphatic primary hydrocarbon, a mixture of said hydrocarbons, and a mixture of said hydrocarbons and said alcohols,

maintaining the temperature of said slurry at at least the melting point of said chemical for a period of at least one minute, and

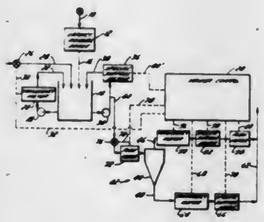
after said period, removing said solid material and toner from said slurry.

4,276,119

METHOD AND APPARATUS FOR ON-LINE MONITORING OF SPECIFIC SURFACE OF MECHANICAL PULPS

Alkibiadis Karnis, Dollard des Ormeaux, and Paul M. Shallhorn, Vaudreuil, both of Canada, assignors to Domtar Inc., Montreal, Canada

Filed May 14, 1979, Ser. No. 38,631
Int. Cl.³ D21F 7/06; G01N 21/00
U.S. Cl. 162—49 7 Claims



1. A method for on line determining the fibre specific surface distribution by weight of a pulp comprising, continuously separating a feed sample of said pulp in a hydrocyclone means into an overflow fraction and an underflow fraction measuring the parameters of at least two of said feed and each of said fractions required to determine their fibre mass flow rates and average specific surfaces, determining the said fibre mass flow rate and average specific surfaces, determining the specific surface distribution by weight of said feed sample based on said mass flow rates and the specific surfaces of said at least two of said feed and said fractions and a substantially cumulative normal distribution relationship for said pulp of cumulative specific surface fraction as a % by weight of feed to specific surface.

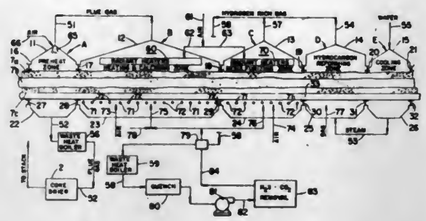
2. An apparatus for determining the fibre specific surface distribution by weight of a pulp comprising, hydrocyclone means having an overflow outlet and an underflow outlet, means for feeding said pulp to said hydrocyclone means thereby to fractionate said pulp into an underflow fraction and an overflow fraction, means for measuring the parameters of at least two of said feed, said overflow and said underflow fractions required to determine their fibre mass rates and average specific surfaces, means for determining said fibre mass flow rates and average specific surfaces, computing means for determining the fibre specific surface distribution of said pulp based on said fibre mass flow rates and specific surfaces and a cumulative normal distribution relationship for said pulp of cumulative specific surface fraction as a percent by weight of feed to specific surfaces.

4,276,120

PURIFICATION OF COKE

Irvin H. Lutz, Segamore Hills, Ohio, assignor to Davy Inc., Cleveland, Ohio

Division of Ser. No. 945,586, Sep. 25, 1978, Pat. No. 4,208,307.
This application Jul. 10, 1979, Ser. No. 56,228
Int. Cl.³ C10B 7/06, 49/04
U.S. Cl. 202—100 14 Claims



1. Apparatus for continuous production of electrode-grade carbon from green coke having a substantial sulfur content comprising a rigid generally circular frame having an outer generally circular frame member and an inner generally circular frame member; a circular grate having a portion mounted in fixed relation on said frame between said outer and inner generally circular frame members, said grate having a gas permeable hearth for carrying a bed of said coke with a depth of 1 to 2 meters, means for conveying green coke to said bed to provide a bed of said depth, means for supporting said circular frame for rotational movement about a vertical axis; stationary gas enclosing means above said grate and below said grate having wall means for providing in succession a series of separate treating zones including a preheat zone, a heating and calcining zone, a desulfurizing zone, and a cooling zone; means for passing heated gases through the bed of green coke on said grate to preheat the bed in said preheat zone; combustion heating means for heating the preheated coke in said heating and calcining zone to a calcining temperature of about at least 600° C. and for reducing the content of volatile matter at least 90 percent; means for passing the hot flue gas from said heating and calcining zone through the coke bed to capture entrained fine particles in the flue gas; means for passing a reducing gas through the coke bed on the grate in said desulfurizing zone and for maintaining the coke at a temperature of at least 550° C. to effect desulfurization of the coke under reducing conditions; and means for passing a cooling fluid through the bed of desulfurized coke in said cooling zone to recover heat before the coke is removed from the grate.

4,276,121

COKE OVEN DOOR SPILLAGE COLLECTION AND DISPOSAL APPARATUS

Robert C. Rogers, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Sep. 22, 1980, Ser. No. 189,372
Int. Cl.³ C10B 39/04, 43/04, 33/10, 25/12
U.S. Cl. 202—227 8 Claims

1. In a coke oven pusher machine, including a pusher ram and a door machine, the improvement comprising:

(a) hopper means, mounted to the undercarriage of said pusher machine and operable to be extended to a position adjacent to the lower edges of the pusher side doorways of the coke ovens of the coke oven battery with which the coke oven pusher machine is associated, to collect material spilled from said coke ovens;

(b) powered means, mounted to said pusher machine, for extending said hopper means to said position adjacent and for retracting said hopper means to within said undercarriage of said pusher machine;

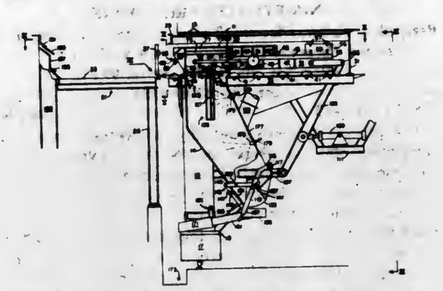
(c) gravity release means, mounted to the bottom of said hopper means, operable to release said material from within said hopper means, when said hopper means has been retracted to within said undercarriage of said pusher machine;

(d) bin means, mounted to said undercarriage of said pusher machine, positioned beneath the retracted position of said hopper means, operable to collect said material released from said hopper means by said gravity release means;

(e) gate means, mounted to the bottom of said bin means, operable to dump said material which becomes accumulated within said bin means, said gate means which permits the flow of water therethrough from within said bin means;

(f) quench water spray means, mounted to said bin means, operable to spray water onto said material within said bin means; and

(g) conduit means, mounted to said bin means, operable to conduct away gases and airborne particulates which emanate from said material within said bin means.

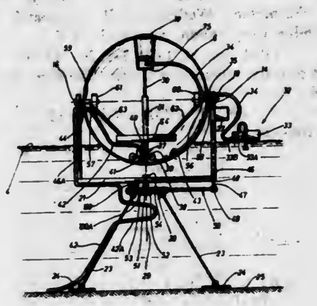


4,276,122

SOLAR DISTILLATION APPARATUS

Wesley L. Snyder, 1103 Forest Home Dr., Houston, Tex. 77094

Filed Mar. 16, 1978, Ser. No. 880,882
Int. Cl.³ C02F 1/14
U.S. Cl. 202—234 11 Claims



1. A solar distillation apparatus to remove impurities from salt water or contaminated fresh water comprising:

an enclosed shell;

at least one heating element mounted within said shell;

at least one light focussing system supported by said shell for focussing solar radiation onto said heating element;

a control system for detecting the solar radiation and orienting the light focussing system with the path of the sun;

means for introducing salt water or contaminated fresh water into a heat transfer relationship with the heating element to vaporize said water within said shell;

a condensition surface comprising an inner surface of said shell for liquifying said vapor into potable fresh water condensate; and,

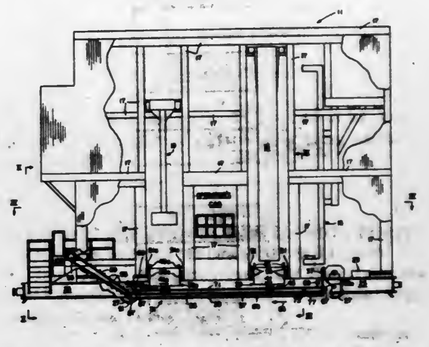
means for cleaning and reshaping said heating element.

4,276,123

COKE OVEN BATTERY BENCH CLEANING APPARATUS

William G. Emery, Pittsburgh, Pa., assignor to Koppers Company, Inc., Pittsburgh, Pa.

Filed Sep. 22, 1980, Ser. No. 189,374
Int. Cl.³ C10B 43/04, 33/14, 25/12
U.S. Cl. 202—241 10 Claims



1. In a coke oven battery door machine, including door removal apparatus, door seal and plug cleaning apparatus and door jamb cleaning apparatus, coke side bench cleaning apparatus comprising:

(a) means for collecting the coke spillage that is associated with the removal of coke side doors mounted onto said door machine;

(b) means for collecting the seal and plug scrapings that result from the operation of said door seal and plug cleaning apparatus mounted onto said door machine;

(c) means for collecting the jamb scrapings that result from the operation of said door jamb cleaning apparatus, mounted onto said door machine;

(d) means for moving said coke spillage, said seal and plug scrapings and said jamb scrapings to a discharge area within said door machine, said means for moving which is mounted onto said door machine;

(e) means for accumulating said coke spillage, said seal and plug scrapings and said jamb scrapings which have been moved to said discharge area, said means for accumulating which are mounted onto said door machine;

(f) means for conveying said coke spillage, said seal and plug scrapings and said jamb scrapings from said discharge area to said means for accumulating, said means for conveying which are mounted onto said door machine; and

(g) means for emptying, away from said coke side bench, said means for accumulating.

4,276,124

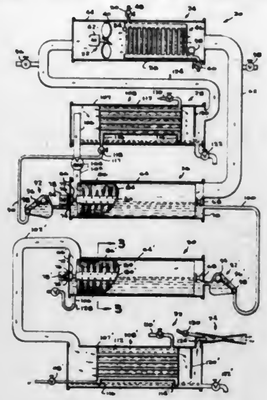
DISTILLATION SYSTEM FOR SEA WATER

Arthur E. Meek, East Wenatchee, Wash., assignor to Hoakon Haakonsen, White Plains, N.Y., a part interest

Filed Jul. 17, 1975, Ser. No. 596,820
Int. Cl.³ B01D 1/14
U.S. Cl. 202—236 11 Claims

1. A noncaling distillation system particularly adapted for distilling sea water, said system comprising a pump means for circulating air through the system, a heating means communicating with the outlet of the pump means for raising the temperature of the air, a first evaporator having evaporator surfaces, communicating with the heating means, and directing the heated air from the heating means against the evaporator surfaces, means for frequently flushing all of the evaporator surfaces with sea water to prevent a build-up of scale on the evaporator surfaces, a first condenser, a passageway between the first evaporator and the first condenser for directing the

heated and pressurized air from the first evaporator to the first condenser, a pressure regulating valve in the passageway for maintaining the pressure in the condenser at a significantly lower pressure than the pressure in the first evaporator, and a return passageway for communicating the first condenser with the pump means thereby providing a distillation system in



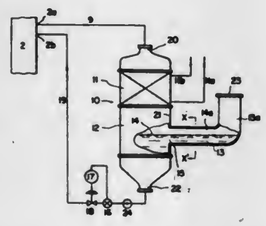
which pressurized air from the pump means may be heated in the heating means, flowed through the evaporator where it evaporates a portion of the sea water on the evaporator surfaces, flowed through the pressure regulating means at decreased pressures as it enters the first condenser where the water vapors are condensed, and returned to the inlet of the pump means as dry air.

4,276,125

PROCESS FOR PURIFICATION OF CRUDE OLEFINICALLY UNSATURATED NITRILE AND CONDENSER USEFUL FOR SAME PROCESS

Katsuta Isoei, Kurashiki, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jan. 25, 1980, Ser. No. 115,594
Claims priority, application Japan, Feb. 2, 1979, 54-11110; Feb. 2, 1979, 54-11112
Int. Cl.³ B01D 3/00
U.S. Cl. 203—4 11 Claims



1. A process for purifying a crude olefinically unsaturated nitrile containing hydrogen cyanide and water by feeding the crude olefinically unsaturated nitrile at a point above the middle of a rectifying column for stripping hydrogen cyanide, withdrawing and condensing a vapor of hydrogen cyanide from the top of the column while withdrawing the olefinically unsaturated nitrile and water from the bottom of the column, which process comprises withdrawing a vapor in the column at a point between the top of the column and the point of introduction of the crude olefinically unsaturated nitrile at a substantially constant rate and wherein the temperature is about 40° C. to about 75° C. cooling and condensing the vapor withdrawn in a condenser having an outlet for non-condensing gas while continuously withdrawing non-condensing gas in the vapor from the condenser, and returning the condensate liquid to the column at an intermediate point between the point of introduction of the crude olefinically unsaturated nitrile and the top of the column.

4,276,126

SEPARATION OF ETHYLENE GLYCOL FROM N-METHYLPYRROLIDONE

Bernard A. Saffer, Cincinnati, Ohio, assignor to National Distillers and Chemical Corporation, New York, N.Y.

Filed Nov. 30, 1979, Ser. No. 99,342
Int. Cl.³ B10D 3/36
U.S. Cl. 203—69 8 Claims

1. A process for recovering ethylene glycol from a mixture comprising ethylene glycol and N-methyl-pyrrolidone, said ethylene glycol being obtained by reacting H_2, CO and H_2CO in the presence of rhodium catalyst and in N-methypyrrolidone as solvent, which comprises:

(a) subjecting said mixture, together with an azeotroping agent of C_7–C_{10} hydrocarbon having a boiling point between 110° and 190° C., to azeotropic distillation in a distillation zone whereby an overhead product and a bottoms product are produced, said overhead product comprising an azeotrope of said azeotroping agent and said glycol but containing no detectable amount of said methylpyrrolidone and said bottoms product comprising said N-methylpryrrolidone,

(b) separating said overhead product into a first phase comprising said azeotroping agent and a second phase comprising said glycol,

(c) returning at least a portion of said first phase to said distillation zone as reflux and,

(d) recovering said glycol from said second phase.

4,276,127

CHANNEL PLATE ELECTRON MULTIPLIERS

Henry D. Stone, Ashtead; Alan G. Knapp, Crawley; John R. Mansell, East Grinstead; Colin D. Overall, Reigate, and Derek Washington, Wallington, all of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 11, 1979, Ser. No. 47,392
Claims priority, application United Kingdom, Jun. 14, 1978, 26878/78
Int. Cl.³ C25D 7/06, 11/10
U.S. Cl. 204—24 2 Claims



1. A method of making an anodized aluminum separator for use in a channel plate electron multiplier of the type comprising a stack of alternately arranged perforate laminar dynodes and perforate laminar separators, the perforations of said dynodes and separators being aligned to form electron multiplier channels, wherein each separator comprises a perforate, planar aluminum plate having an anodized layer on the plate surface, comprising the steps of:

placing a perforated aluminum plate between, and substantially equidistant from, a pair of planar cathodes in an oxalic acid anodizing bath;

applying a potential difference between the plate and cathodes and maintaining a constant current density of approximately 1 amp per square decimeter of separator area at the plate surface; while

maintaining the plate at a substantially equal temperature over its entire area; and

oscillating the plate, in its own plane, at a frequency in the range from 10 Hz to 30 Hz to remove any adhering gas bubbles therefrom; and subsequently

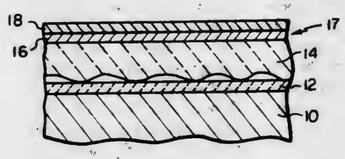
baking the plate to remove oxalic acid from said perforations.

4,276,128

HUMIDITY SENSING ELEMENT OF ELECTRIC CAPACITANCE CHANGE TYPE AND METHOD OF PRODUCING SAME

Atsushi Nishino; Akihiko Yoshida, and Nobukuni Ogino, all of Kadoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 21, 1979, Ser. No. 14,382
Claims priority, application Japan, Feb. 20, 1978, 53-18950; Mar. 15, 1978, 53-30422; Mar. 15, 1978, 53-30423; Mar. 15, 1978, 53-30424; Mar. 15, 1978, 53-30425
Int. Cl.³ H01G 9/05
U.S. Cl. 204—38 A 14 Claims



1. A method of producing a humidity sensing element of a capacitance change type, the method comprising the steps of:

(a) anodizing a valve metal body to form a dielectric oxide layer film on a surface of said metal body;

(b) forming a semiconductive metal oxide layer which is gas-permeable on said dielectric film by thermal decomposition of an aqueous solution comprising a thermally decomposable metal salt applied to said dielectric oxide film;

(c) forming a gas-permeable layer of carbon on at least a portion of the outer surface of said semiconductive metal oxide layer;

(d) forming a gas-permeable and electronically conductive layer on said layer of carbon by applying a paint comprising a metal powder and a synthetic resin as a binder to the outer surface of said layer of carbon; and

(e) subjecting the product of step (d) to a vapor phase treatment for a period not shorter than 30 hours at a relative humidity of not lower than 90% at a temperature not lower than 80° C.

4,276,129

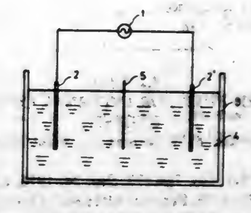
METHOD FOR PRODUCING FOIL ELECTRODES FOR ELECTROLYTIC CAPACITOR

Nobuyoshi Kaazaki, Jyoyo; Kenji Toyama, Uji; Katsutoshi Nakano, Jyoyo; Ryoichi Shimatani, Hirakata, and Fumio Kudo, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 25, 1980, Ser. No. 162,736
Int. Cl.³ C25D 11/08, 11/10
U.S. Cl. 204—38 3 Claims

1. In the method for producing electrodes for use in aluminum electrolytic capacitor whose effective surface area is enlarged by electrochemically etching aluminum foil in an aqueous solution including hydrogen chloride and at least one additive capable of anodizing said aluminum foil with electric power supplied in alternating current, an improvement characterized in that;

the concentration of the hydrogen chloride in said solution is set at a range between 0.5 N and 3.5 N, the concentration of said additive is set at arrange between 0.001 mole/liter and 0.4 mole/liter, the frequency of said alternating current power supply is ranging from 5 Hz to 120 Hz and its



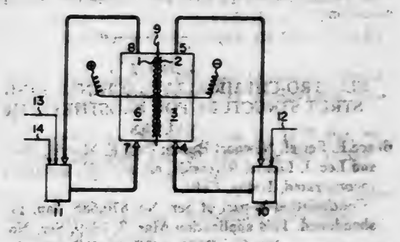
current density is ranging from 0.1 A/cm² to 0.6 A/cm², while the temperature of said solution is being maintained at 25° C.–60° C.

4,276,130

PROCESS FOR THE PRODUCTION OF HIGH PURITY AQUEOUS ALKALI HYDROXIDE SOLUTION

Masmi Seko, Tokyo; Shinsaku Ogawa, and Reiji Takemura, both of Nobeoka, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 856,684, Dec. 1, 1977, abandoned, which is a continuation of Ser. No. 703,234, Jul. 7, 1976, abandoned. This application May 25, 1979, Ser. No. 42,304
Claims priority, application Japan, Jul. 11, 1975, 50-85777
Int. Cl.³ C25B 1/16, 1/26
U.S. Cl. 204—98 6 Claims



1. A process for the electrolysis of an aqueous solution of sodium chloride in an electrolytic cell comprising an anode compartment and a cathode compartment separated by a cation exchange membrane to obtain an aqueous sodium hydroxide solution with a selected sodium chloride content of up to 400 ppm based on pure sodium hydroxide in the cathode compartment at high current efficiency by carrying out the electrolysis under conditions so that a preselected value of the expression:

$$(F(C-C_O)/KVt_m)$$

is not higher than 2.74×10^{-4}, by controlling the difference of concentration of sodium chloride in the anode compartment in eq. cm^{-3} and the limiting concentration of sodium chloride in the anode compartment in eq. cm^{-3} at a value from 0 to 0.001 eq. cm^{-3}; the symbols in the said expression being defined as follows:

F is the Faraday constant expressed as 96,500 sec. eq.$^{-1}$,

C is the concentration of sodium chloride in the anode compartment in eq. cm^{-3},

C_O is the limiting concentration of sodium chloride in the anode compartment in eq. cm^{-3},

K is a proportionality constant in sec. cm^{-3} ohm^{-1},

V is the voltage drop in the membrane in volts, and

t_m is the transport number of the sodium ions in the membrane;

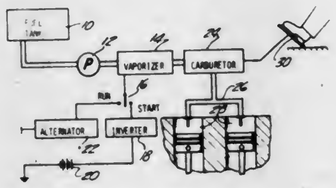
and

F is 96,500,
$C-C_O$ is from 0 to 0.001,
K is from 0.8×10^5 to 1.67×10^5,
V is from 0.3 to 2, and
t_m is from 0.7 to 0.98.

4,276,131
VAPORIZED FUEL FOR INTERNAL COMBUSTION ENGINE

Arnold I. Feserman, 5179 Corners Dr., West Bloomfield, Mich. 48033

Division of Ser. No. 726,177, Sep. 24, 1976, and Ser. No. 555,566, Feb. 27, 1975, Pat. No. 4,011,843. This application Apr. 7, 1980, Ser. No. 137,937
Int. Cl.³ C25B 1/02, 3/00
U.S. Cl. 204—129 7 Claims

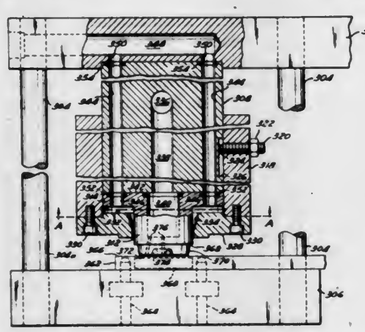


1. A fuel for an internal combustion engine comprising a vapor produced by passing an electric current through an electrolytically conductive emulsion of water and hydrocarbon, the current having a sufficient magnitude to vaporize the emulsion.

4,276,132
ELECTRO-CHEMICALLY MACHINED RING AND STRUT STRUCTURE FOR PROSTHETIC HEART VALVES

Bruce E. Fettel, Newport Beach; Paul E. Morris, Mission Viejo, and Leo J. Lichte, Riverside, all of Calif., assignors to Shiley Incorporated, Irvine, Calif.

Continuation-in-part of Ser. No. 870,685, Jan. 19, 1978, abandoned. This application Mar. 8, 1979, Ser. No. 18,566
Int. Cl.³ B23P 1/00; A61F 1/22
U.S. Cl. 204—129.1 11 Claims

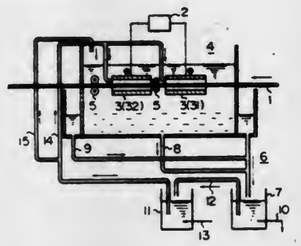


1. A method for making an integral ring and strut structure for a prosthetic heart valve having an occluder movably mounted in a ring by a strut, said method comprising the steps of:
(1) placing a first side of a disc-shaped blank of hard, corrosion-resistant metal into close proximity with a first electrode having a first die face, said first die face being circular to form a ring of inside diameter approximately equal to the diameter of said first die face, and having a concavity for a strut which is integral with said ring;
(2) flowing electrolytic fluid between said first die face and said blank while simultaneously applying an electric potential between said electrode and said blank to cause an electric current to flow therebetween, said current causing metallic ions to be carried from said blank into said fluid thereby eroding said blank in conformity with the configuration of said first die face;
(3) continuing the flow of said fluid and the application of said electric potential until said blank is eroded to a shape corresponding to the configuration of a first side of said integral ring and strut structure;
(4) placing a second side of said blank into close proximity with a second electrode having a second die face, said second die face being circular to form a ring of approximately equal diameter to that ring formed by said first die face, and having a concavity for a strut which is integral with said ring and is matched to the concavity in said first die face;
(5) flowing electrolytic fluid between said second die face and said blank while simultaneously applying an electric potential between said electrode and said blank to cause an electric current to flow therebetween, said current causing metallic ions to be carried from said blank into said fluid, thereby eroding said blank in conformity with the configuration of said second die face; and
(6) continuing the flow of said fluid and the application of said electric potential until said blank is eroded to a shape corresponding to the final configuration of said integral ring and strut structure.

4,276,133
METHOD FOR CONTINUOUS ELECTROLYTIC DESCALING OF STEEL WIRE BY NON-CONTACT CURRENT FLOW

Hiroo Nagano, Kobe; Terumi Oda, Muko, and Takashi Fukuda, Kobe, all of Japan, assignors to Sumitomo Industries, Ltd., Osaka, Japan

Filed Sep. 24, 1979, Ser. No. 78,512
Claims priority, application Japan, Sep. 21, 1978, 53-116877
Int. Cl.³ C25F 1/06
U.S. Cl. 204—145 R 8 Claims

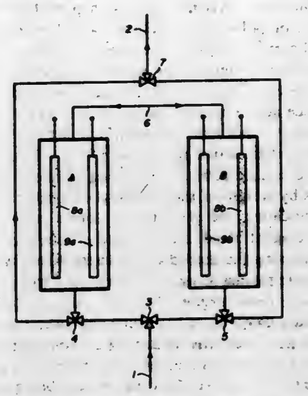


1. In a method of electrolytic descaling of a steel wire by non-contact current flow method, in which a direct current is supplied to a pair of electrodes and then to the steel wire through an electrolyte without using direct contact, the steel wire is transported past the pair of the electrodes immersed in the electrolyte throughout the operation, the electrodes are made of graphite and the electrolyte is comprised of 1–30% aqueous solution of an alkali metal chloride selected from the group consisting of sodium chloride, potassium chloride and lithium chloride, the improvement that the descaling is carried out in the presence of ferrous ions in the electrolyte, the ferrous ions being derived from ferrous chloride added to the electrolyte in an amount of more than 0.2% by weight of the electrolyte.

4,276,134
METHOD FOR REMOVING CHLORATE FROM CAUSTIC SOLUTIONS WITH ELECTROLYTIC IRON

Auguste Perin, Geneva, and Jacques Mosetti, Grand Lancy, both of Switzerland, assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 28, 1980, Ser. No. 172,923
Int. Cl.³ C25C 1/06
U.S. Cl. 204—153 8 Claims



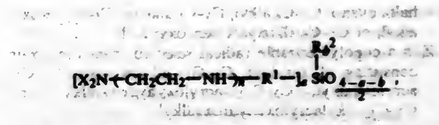
4. A process for removing unwanted chlorate from a caustic solution by dissolution therein of metallic iron and simultaneous reduction of said chlorate by said iron and consecutively electrolytically removing said iron from the chlorate free solution which comprises
(A) contacting said solution of caustic to be purified with the iron metal in a form appropriate for its easy dissolving in the solution and consequent reducing of the ClO_3^- to chloride, then
(B) contacting the resulting solution containing dissolved iron with at least one conductive substrate, the latter being suitably adapted and polarized for electrolytically precipitating the iron in a form suitable for subsequently reducing chlorate as under (A) above, thus causing said iron to deposit thereon in pulverulent metallic form, thus providing a solution substantially free from iron and ClO_3^- ions,
(C) separating said purified portion of the solution and
(D) periodically using said substrates when sufficiently coated with said metallic iron to treat a yet untreated portion of the caustic solution as under (A) above and periodically, after consumption of said available deposited iron, re-using said substrates for recovering said dissolved iron as under (B) above.

4,276,135
PHOTOCURABLE ORGANOPOLYSILOXANE COMPOSITIONS

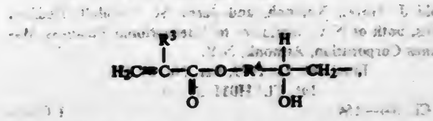
Yasuhiko Sato; Jun Koizumi, and Yuji Tokushige, all of Annaka, Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

Filed Oct. 23, 1979, Ser. No. 87,344
Claims priority, application Japan, Nov. 6, 1978, 53-136908
Int. Cl.³ B32B 15/08, 27/16; C08F 2/50, 30/08
U.S. Cl. 204—159.13 11 Claims

1. A photocurable organopolysiloxane composition which comprises
(a) 100 parts by weight of an acryloyloxy-containing organopolysiloxane represented by the average unit formula



where R^1 is a divalent hydrocarbon group, R^2 is a monovalent hydrocarbon group, at least one of the groups denoted by X is an acryloyloxy-substituted 2-hydroxyalkyl group represented by the general formula



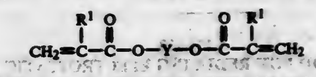
in which R^3 is a hydrogen atom or an alkyl group having from 1 to 4 carbon atoms and R^4 is a divalent hydrocarbon group, the remainder of the groups denoted by X each being a hydrogen atom, n is zero or a positive integer not exceeding 4, a is a positive number not exceeding 3 and b is zero or a positive number smaller than 3 with the proviso that a+b is a positive number not exceeding 3,
(b) from 0.1 to 20 parts by weight of an epoxy-containing compound having at least one epoxy group in a molecule, and
(c) a photosensitizer.

4,276,136
RADIATION CURABLE COATING COMPOSITION COMPRISING AN ETHYLENICALLY UNSATURATED OLIGOMER AND AN ETHYLENICALLY UNSATURATED COPOLYMERIZABLE ULTRA-VIOLET ABSORBER

Bruce A. Gruber, Worthington, Ohio, and Donald H. Lorenz, Basking Ridge, N.J., assignors to GAF Corporation, New York, N.Y.

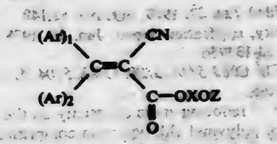
Continuation-in-part of Ser. No. 6,787, Jan. 26, 1979, Pat. No. 4,178,303. This application Aug. 30, 1979, Ser. No. 71,356
Int. Cl.³ C08F 2/46
U.S. Cl. 204—159.22 19 Claims

1. A radiation curable coating composition comprising:
A. An oligomer of Formula I:



(I)

wherein:
R^1 is hydrogen or methyl; and
Y is a divalent urethane containing radical produced from a polyol and a diisocyanate; and
B. a copolymerizable ultra-violet light absorber compounds of Formula IV:



(IV)

where:
$(Ar)_1$ and $(Ar)_2$ are aromatic carbocyclic nuclei of the benzene and naphthalene series and are independently selected from the group consisting of phenyl or phenyl substituted with alkyl, halo, alkoxy, carboxy, carbalkoxy, cyano, acetyl, benzoyl, phenyl, alkyl phenyl, phenoxy phenyl, alkyl substituted phenoxy, or alkoxy phenyl substituted phenyl and naphthyl;
X is C_2–C_{17} alkylene, unsubstituted or substituted with

halo, cyano, C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkoxyalkyl, or C_1–C_6 alkoxyalkyleneoxy; and

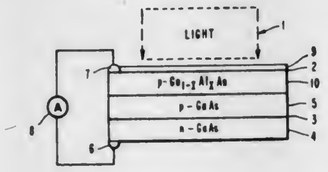
Z is a copolymerizable radical selected from the group consisting of acryloyl, C_3–C_{12} alkylacryoyl, C_3–C_{12} acryloxyalkyl, C_3–C_{12} acryloxyhydroxyalkyl, and C_3–C_{12} alkylacryloxyhydroxyalkyl.

4,276,137

CONTROL OF SURFACE RECOMBINATION LOSS IN SOLAR CELLS

Harold J. Hovel, Katonah, and Jerry M. Woodall, Bedford Hills, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 23, 1979, Ser. No. 59,855
Int. Cl.³ H01L 31/18
U.S. Cl. 204—164 **1 Claim**



1. The process of fabricating a solar cell comprising in combination:

providing a monocrystalline GaAs semiconductor solar cell device body with a light receiving surface and having a p-n junction essentially parallel to said light receiving surface;

providing a layer of GaAlAs on said light receiving surface;

depositing a layer of aluminum over said GaAlAs layer of the order of 100 A thick;

oxidizing said device body as the anode in an RF field of the order of 30 to 100 volts positive in an evacuated environment containing oxygen at a pressure of the order of 10^{-3} to 1^{-2} Torr for a time sufficient to form an oxide layer from said GaAlAs layer of the order of 700 to 1000 A thick covered by an aluminum oxide layer; and

annealing said device body in the presence of hydrogen at a temperature of the order of 400° to 500° C. for a period of the order of 15 minutes to 1 hour.

4,276,138

METHOD FOR REDUCING ELECTROSTATIC CHARGING ON SHAPED ARTICLES OF POLYVINYL CHLORIDE RESINS

Michihiko Asai, Fujisawa; Yoshio Suda, Hachioji; Kiyoshi Imada, Omiya; Susumu Ueno, and Hirokazu Nomura, both of Ibaragi, all of Japan, assignors to Agency of Industrial Science & Technology and Shin-Etsu Chemical Co., Ltd., both of, Japan

Filed Jun. 22, 1979, Ser. No. 51,148
Claims priority, application Japan, Jun. 27, 1978, 53-77807; Oct. 31, 1978, 53-133956
Int. Cl.³ C08J 5/18, 5/00; C08K 5/04, 5/42
U.S. Cl. 204—165 **3 Claims**

1. A method of reducing static electricity on the surface of articles made of polyvinyl chloride resin comprising:

(A) blending a polyvinyl chloride resin with a surface active agent chosen from the group consisting of, primary amine salts, secondary amine salts, tertiary amine salts, quaternary amine salts, pyridinium salts, which are cationic surface active agents, sulfonated oils, metal soaps, sulfonated ester oils, sulfonated amide oils, sulfuric oil esters of olefins, sulfuric acid esters of aliphatic alcohols, ester salts of alkylsulfuric acids, aliphatic acid, ethylsulfonates, alkylsulfonates, alkylnaphthalene sulfonates, alkylbenzene sulfonates, reaction products of naphthalenesulfonic acid and formalin, sulfonates of succinic acid esters and salts of phosphoric acid esters, which are anionic surface active agents, and aliphatic carboxylic acid esters of polyvalent alcohols, addition products of ethylene oxides with aliphatic alcohols, addition products of ethylene oxide with aliphatic carboxylic acids, addition products of ethylene oxide with aliphatic amines and aliphatic amides, addition products of ethylene oxide with alkyl phenols, addition products of ethylene oxide with alkyl naphthols, addition products of ethylene oxide with partial carboxylic acid esters of polyvalent alcohols, polyethylene glycols and amphoteric surface active agents of the carboxylic acid type, betaine derivatives, sulfuric acid ester salts, sulfuric acid esters of hydroxyethylimidazoline, sulfonic acid type surface active agents, taurine condensation type succinic acid esters and imidazolinesulfonic acids which are nonionic surface active agents; with 0.03 to 1 parts by weight of the surface active agent being blended with each 100 parts by weight of the polyvinyl chloride;

(B) fabricating the polyvinyl chloride resin and surface active agent blend into a shaped article; and

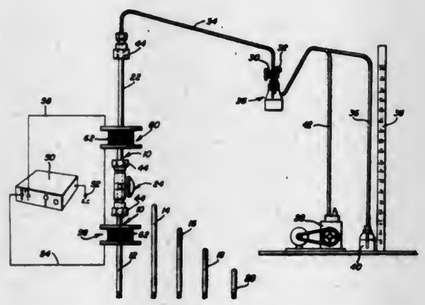
(C) subjecting the shaped article to treatment with low-temperature plasma of a gas chosen from a group consisting of helium, neon, argon, nitrogen, nitrous oxide, nitrogen dioxide, oxygen, air, carbon monoxide, carbon dioxide, hydrogen, halogens, and halogen compounds, the pressure of the gas forming the low-temperature plasma being from 0.01 to 1.0 Torr and the plasma being generated by applying electrical power to the gas.

4,276,139

PROCESS FOR MAGNETIC SEPARATION AND COLLECTION OF VIABLE FEMALE AND MALE SPERMATOZOA

Rommen L. Lawson, 7905 Bangor Ave., Lubbock, Tex. 79424

Continuation-in-part of Ser. No. 933,988, Aug. 16, 1978, Pat. No. 4,225,405, which is a continuation-in-part of Ser. No. 805,869, Jun. 13, 1977, abandoned. This application Oct. 9, 1979, Ser. No. 83,173
Int. Cl.³ G01N 27/26
U.S. Cl. 204—180 R **12 Claims**



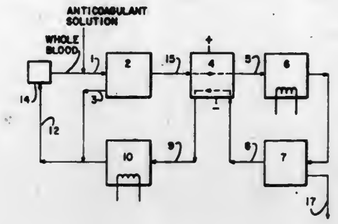
1. A process for separating and collecting viable female spermatozoa (X-chromosome) and male spermatozoa (Y-chromosome) in a semen sample, which process comprises subjecting the semen sample to a magnetic field to cause the female (X-chromosome) and male (Y-chromosome) spermatozoa to migrate in opposite directions along the direction of said magnetic field.

4,276,140

ELECTRODIALYSIS APPARATUS AND PROCESS FOR FRACTIONATING PROTEIN MIXTURES

Surendar M. Jain, Watertown, Mass., assignor to Ionics Inc., Watertown, Mass.

Filed Jan. 10, 1980, Ser. No. 111,144
Int. Cl.³ B01D 57/02
U.S. Cl. 204—180 P **8 Claims**



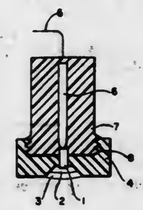
1. A process for fractionating liquid protein mixtures containing dissolved salts, by employing an electrodialysis apparatus having one or more pairs of concentrating and diluting chambers, the chambers being defined by alternating anion and cation exchange membranes located between terminally positioned anode and cathode electrodes, said process comprising passing the said protein mixture into the diluting chambers, impressing a direct current across said electrodes to reduce the salt content of said protein mixture by causing the passage of salt from the diluting chambers into the concentrating chambers, collecting the desalted protein mixture from said diluting chambers, separating and removing one or more protein components from the said desalted protein mixture and thereafter passing the resulting salt depleted mixture into said concentrating chambers whereby said salts entering said concentrating chambers from the adjacent diluting chambers will substantially restore the original salt content of said desalted protein mixture.

4,276,141

SOLID STATE ION SELECTIVE ELECTRODES

John J. Hawkins, Santa Ana, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Continuation-in-part of Ser. No. 880,908, Feb. 24, 1978, abandoned. This application Jun. 27, 1979, Ser. No. 52,639
Int. Cl.³ G01N 27/46
U.S. Cl. 204—195 M **60 Claims**



1. A solid state electrode for use in determination of ion concentration in an aqueous solution comprising:

(a) an electrically conductive element;

(b) a first lipophilic-hydrophobic layer in intimate contact with said element, said first layer comprising:

(i) an adheaive, lipophilic-hydrophobic polymer having an intrinsic viscosity of from about 0.4 to about 0.9 ml/g; and

(ii) a lipophilic-hydrophobic plasticizer; and

(c) a second lipophilic-hydrophobic layer in intimate contact with said first layer, said second layer comprising:

(i) a lipophilic-hydrophobic polymer having an intrinsic viscosity of from about 1 to about 1.5 ml/g;

(ii) a lipophilic-hydrophobic plasticizer; and

(iii) a lipophilic-hydrophobic ion-selective ligand.

4,276,142

ELECTROCHEMICAL SENSOR, PARTICULARLY FOR INTERNAL COMBUSTION ENGINE EXHAUST GAS COMPOSITION DETERMINATION, AND METHOD OF ITS MANUFACTURE

Bernhard Topp, Gerlingen; Karl-Hermann Friese, Leonberg, and Wolf-Dieter Haecker, Asperg, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 12, 1979, Ser. No. 57,253
Claims priority, application Fed. Rep. of Germany, Jul. 18, 1978, 2831478
Int. Cl.³ G01N 27/58; C23C 15/00; B05D 5/12
U.S. Cl. 204—195 S **21 Claims**

1. Method to manufacture a sensor element to sense the composition of gases with respect to a reference gas, comprising

providing a solid electrolyte body (10) having a first surface adapted for exposure to the reference gas;

a first sensing electrode (13) applied to said first surface;

a second surface adapted for exposure to the reference gas, and a second electrode (12) applied to said second surface, and in which the first electrode has dispersed therein a material impeding or inhibiting recrystallization of the material of the first electrode at elevated temperatures,

wherein, in accordance with the invention,

the method of forming and applying the first electrode and the recrystallization-impeding or inhibiting material comprises a plurality of rapidly sequential steps of alternately rapidly vaporizing platinum, or a platinum metal alloy, and a metal which, when oxidized, will form said recrystallization-impeding or inhibiting material, within an atmosphere containing residual oxygen;

and controlling the composition of the electrode layer by controlling the relationship of the vaporization time of the platinum, or platinum metal, with respect to the other metal forming said oxide.

17. Electrochemical sensor to determine the composition of a test gas comprising

a solid electrolyte body (10) having one surface exposed to the test gas;

a first porous electrode (13) comprising a porous layer of platinum or a platinum metal alloy which catalyzes the test gas to establish a thermodynamic stable state, located on the surface of said body;

a porous protective coating (14) covering said electrode (13);

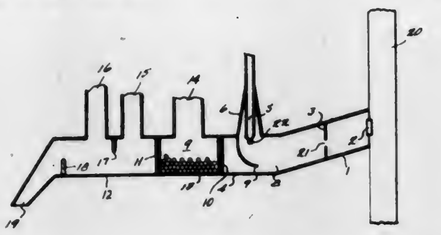
a second electrode (12) located at another surface of said body, said other surface being exposed to a reference gas;

and a carbide of a metal, which carbide is stable at the operating temperature of the sensor in the presence of the platinum or platinum metal alloy of said first electrode, dispersed within the platinum or platinum metal alloy of said first electrode to impede or inhibit recrystallization of the platinum or platinum metal alloy of the first electrode.

4,276,143
APPARATUS FOR CONTINUOUSLY MEASURING ION CONCENTRATIONS

Franz-Ludwig Dahm, Alzenau; Herbert Diehl, Frankfurt; Kurt Elermann, Pfungstadt; Reinhold Lamberty, Bernheim-Walberberg, and Wolfgang Nischk, Wesseling, all of Fed. Rep. of Germany, assignors to Deutsche Gold und Silber Scheideanstalt vormals Roessler, Frankfurt, Fed. Rep. of Germany

Filed Nov. 15, 1979, Ser. No. 94,800
Claims priority, application Fed. Rep. of Germany, Nov. 18, 1978, 2850137
Int. Cl.³ G01N 27/46
U.S. Cl. 204—195 M 9 Claims



1. Apparatus for the continuous measurement of ion concentrations in solution by ion sensitive electrodes, particularly for the measurement of cyanide ion concentrations in strong hydrochloride solutions in the presence of cyanogen chloride, comprising in series:

means for supplying solution to be measured to said apparatus;

a dosage device connected to said supplying means for dosing the solution with a dosing liquid, said device including a mixing chamber, an inlet to said chamber for dosing liquid including restriction means for forming at least one jet of the dosing liquid directed into said chamber, deflector means in the path of the jet, and an inlet to said chamber for the solution including restriction means for forming at least one jet of the solution directed into said chamber toward and at an angle to the liquid dosing jet;

a degassing section connected to said dosage device and having an outlet for gas; and

a measuring cell containing ion-sensitive electrodes connected to said degassing section.

4,276,144
OXYGEN ELECTRODE AND METHOD FOR PREPARATION THEREOF

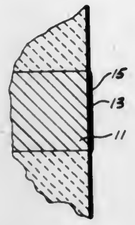
Allen W. Hahn; Michael F. Nichols, both of Columbia; Ashok K. Sharma, Rolla, and Eckhard W. Hellmuth, Kansas City, all of Mo., assignors to The Curators of the University of Missouri, Columbia, Mo.

Filed Feb. 20, 1980, Ser. No. 123,091
Int. Cl.³ G01N 27/30, 27/40; B05D 3/14
U.S. Cl. 204—195 P 37 Claims

1. An oxygen electrode, adapted for use in polarography, galvanometry or amperometry, that is resistant to poisoning and effective for accurate, reproducible current and voltage measurements, comprising a conductor constituted of a metal which catalyzes the cathodic reduction of oxygen, an electrical lead electrically connected to said conductor, an insulating jacket covering all of said conductor except a working surface thereof that is adapted to communicate with an oxygen-containing environment for the cathodic reduction of oxygen, said conductor having a layer of an oxide of said metal at said surface, and a thin polymeric coating over said oxide layer and securely adhered to said surface, said coating comprising a polymer produced by glow discharge polymerization of an aliphatic hydrocarbon and having such properties as to permit reduction of oxygen at said electrode by electrons supplied at said surface through said lead and conductor.

21. A method for producing an oxygen electrode, adapted for use in polarography, galvanometry or amperometry, that is resistant to poisoning and effective for accurate, reproducible current and voltage measurement, the method comprising the steps of:

generating a plasma from a gas in a low pressure chamber containing the working surface of an oxygen electrode, said electrode comprising a conductor constituted of a metal which catalyzes the cathodic reduction of oxygen,



and an insulating jacket that covers all of said conductor except said working surface that is adapted to communicate with an oxygen-containing environment for the cathodic reduction of oxygen, said conductor having a layer of an oxide of said metal at said surface;

introducing an aliphatic hydrocarbon gas into said low pressure chamber;

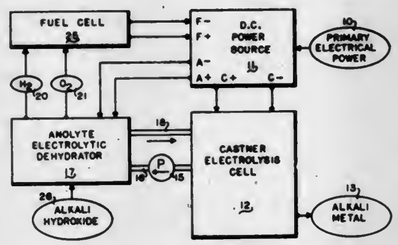
polymerizing said hydrocarbon by action of said plasma thereon; and

depositing a thin adherent coating of said polymer over said oxide layer on said working surface.

4,276,145
ELECTROLYTIC ANOLYTE DEHYDRATION OF CASTNER CELLS

Stephen F. Skala, 3839 S. Wenonah Ave., Berwyn, Ill. 60402

Filed Jan. 31, 1980, Ser. No. 117,240
Int. Cl.³ C25B 1/04, 9/00
U.S. Cl. 204—247 3 Claims



1. A system for dehydrating molten alkali hydroxide anolyte comprising

a Castner cell having an anolyte portion wherein water is formed,

an anolyte electrolytic dehydrator for electrolytically decomposing water in the anolyte to hydrogen and oxygen and having a chamber to collect the hydrogen and a chamber to collect the oxygen,

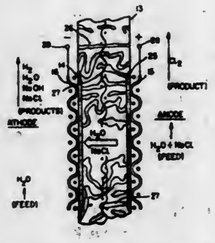
conduits and pumping means to transport the anolyte in a path with includes the Castner cell and the anolyte electrolytic dehydrator, and

a power source having one output to provide a higher voltage for the Castner cell to produce alkali metal and having another output to provide a lower voltage for the anolyte electrolytic dehydrator to decompose the water but not sufficient to decompose the alkali hydroxide.

4,276,146
CELL HAVING CATALYTIC ELECTRODES BONDED TO A MEMBRANE SEPARATOR

Thomas G. Coker, Waltham, and Anthony B. LaConti, Lynnfield, both of Mass., assignors to General Electric Company, Wilmington, Mass.

Division of Ser. No. 931,413, Aug. 7, 1978, Pat. No. 4,209,368. This application Dec. 7, 1979, Ser. No. 101,117
Int. Cl.³ C25B 11/03, 11/06, 13/08, 9/00
U.S. Cl. 204—266 12 Claims



1. An electrolysis cell for producing halogens and an alkali metal hydroxide comprising:

(a) a porous, hydraulically permeable membrane dividing said cell into anolyte and catholyte chambers, said membrane consisting solely of polymeric material,

(b) anode and cathode electrodes positioned on opposite sides of said membrane,

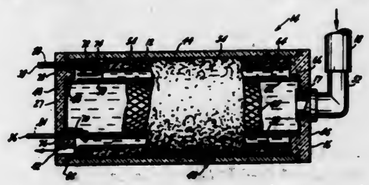
(c) one of said electrodes comprising a gas permeable, porous catalytic electrode bonded to one side of said polymeric membrane,

(d) means to introduce a aqueous alkali metal halide into said anolyte chamber to produce halogen gas at said anode, said halide being presurized to produce hydraulic transport of anolyte and alkali metal cations through said pores to said catholyte chamber to produce alkali metal hydroxides at said cathode, said presurized anolyte preventing back migration of hydroxide or hydroxyl anions to said anolyte chamber.

4,276,147
APPARATUS FOR RECOVERY OF METALS FROM SOLUTION

Randolph L. Esner, 118 E. 92 St., New York, N.Y. 10028, and Ahmad Sam, 671 Forest Ave., Paramus, N.J. 07652

Filed Aug. 17, 1979, Ser. No. 67,303
Int. Cl.³ C25B 7/00
U.S. Cl. 204—272 14 Claims

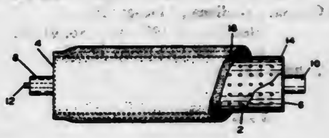


1. Apparatus for electrolytic recovery of metal from a solution contained in a tank adapted to be placed directly in said tank comprising a housing including an inlet and outlet to permit circulation of the solution containing the metal to be recovered therethrough, an anode positioned within said housing, a cathode positioned within said housing in spaced apart relationship with said anode to permit the solution to flow between said anode and cathode, said cathode including a base layer of cellular nonconductive material having a conductive layer thereon of sufficient thickness to render said cathode operative, said anode and cathode being adapted to be coupled to a source of DC current, whereby solution may be circulated through said housing and metal from said solution deposited in said cathode from which it may be recovered.

4,276,148
EXPANDABLE MANDREL

Jacob A. Otthofer, Jr., Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Aug. 18, 1980, Ser. No. 178,977
Int. Cl.³ C25D 1/02, 1/10
U.S. Cl. 204—281 1 Claim



1. The mandrel for forming seamless hollow cylinders comprising in combination:

(a) a pair of axially aligned, spaced apart end plates, a journal positioned centrally of each end plate and extending outwardly from the end plate, said journals extend from opposite sides of the two end plates and not into the area between the two end plates,

(b) a cylindrical perforated metal tube connected to said end plates and interconnecting together said two end plates,

(c) means for supplying air to the region between the perforated metal tube and the two end plates,

(d) a paper positioned over the periphery of the perforated metal tube to cover the perforations therein, said paper not covering the surface of the perforated metal tube in the region adjacent the edges of the tubes,

(e) a rubber jacket being positioned over the perforated metal tube and being bonded to the area of the perforated metal tube not covered by the paper, and

(f) said means which provide air to the interior of the perforated metal tube providing air to the interior of the tube whereby the air will pass through the perforated metal tube and will push past the release paper to apply pressure on the rubber jacket to expand said rubber jacket, release of said air pressure will permit contraction of said rubber jacket so that a matrix element may be positioned on the outside of the rubber jacket and due to the expansion and contraction of the rubber jacket, be held on the mandrel or released from the mandrel.

4,276,149
STEAM PASSIVATION OF METAL CONTAMINANTS ON CRACKING CATALYSTS

Arthur W. Chester, Cherry Hill, and William A. Shaver, Woodbury, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Jan. 25, 1979, Ser. No. 51,297
Int. Cl.³ C10G 11/05, 11/18
U.S. Cl. 208—120 24 Claims

6. A process for catalytic cracking of hydrocarbons wherein

a. a metal-containing hydrocarbon feed is introduced into a cracking region,

b. said feed is contacted with a zeolite cracking catalyst under cracking conditions whereby the feed is cracked;

c. the cracked feed is removed from said cracking region for further processing,

d. said catalyst which is now deposited with coke formed during cracking is contacted with oxygen in a regenera-

tion zone in order to burn off a desired amount of coke; and

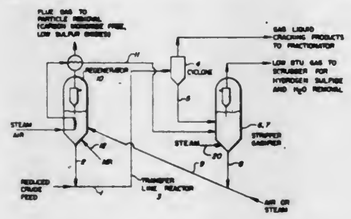
e. metals deposited on said cracking catalyst from said feed and tending to deactivate said cracking catalyst are passivated by removing a slip stream of said cracking catalyst from the regeneration zone and contacting said slip stream with steam at a temperature between about 1000° F. and about 1400° F., for a period of time between about ½ hour and about 16 hours and then returning said catalyst back to the regeneration zone.

4,276,150

FLUID CATALYTIC CRACKING OF HEAVY PETROLEUM FRACTIONS

Keith W. McHenry, Jr., Glen Ellyn, Ill., assignor to Standard Oil Company (Indiana), Chicago, Ill.

Filed Nov. 5, 1979, Ser. No. 91,469
Int. Cl.³ C10G 11/18
U.S. Cl. 208—120 **12 Claims**



1. A process for the fluid catalytic cracking of hydrocarbon feedstocks containing organic sulfur compounds wherein the sulfur content of said feedstock is in the range of from about 0.1 weight percent to about 12 weight percent whereby (i) the said feedstocks are cracked to produce useful products, (ii) sulfur oxide emissions from sulfur-containing coke deposits on the used cracking catalyst are reduced to hydrogen sulfide and emitted in a product gas comprising low B.T.U. gas and hydrogen sulfide, (iii) coke deposits on the used cracking catalyst are reduced in amount sufficiently by regeneration whereby the said catalyst is suitable for re-use, (iv) sulfur oxide emissions in the flue gas from the regenerator are reduced in amount, which process comprises:

(a) cracking said feedsock at a temperature from about 850° F. to about 1500° F. in a reaction zone in contact with fluidized solid particles, the said particles comprising a cracking catalyst;

(b) withdrawing said particles from said reaction zone;

(c) subjecting said particles to a stripping zone wherein steam is present in sufficient amount and sufficient temperature to strip volatile deposits from said particles;

(d) withdrawing said particles from said stripping zone;

(e) contacting said particles with steam and oxygen-containing gas in at least one gasification zone wherein temperature and amount of said steam and oxygen-containing gas are effective to partially remove sulfur-containing coke deposits from said particles through formation of a product gas comprising carbon monoxide, carbon dioxide, hydrogen and hydrogen sulfide;

(f) withdrawing said particles having a reduced coke content from said gasifying zone;

(g) subjecting said particles to an oxidizing zone at a sufficient temperature containing sufficient oxygen to cause flue gas emitted from said oxidizing zone to be essentially free of carbon monoxide; wherein temperature in said oxidizing zone is lower than temperature in said gasifying zone; and

(h) withdrawing the said particles from said oxidizing zone whereby the said particles are in a condition suitable for re-use in the reaction zone.

4,276,151

NOVEL REFORMING CATALYSTS

Charles J. Plank, Woodbury; Edward J. Rosinski, Pedricktown, both of N.J., and Edwin N. Givens, Bethlehem, Pa., assignors to Mobil Oil Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 86,565, Oct. 19, 1979, abandoned, which is a continuation of Ser. No. 723,847, Sep. 16, 1976, abandoned, which is a continuation of Ser. No. 503,542, Sep. 4, 1974, abandoned, which is a continuation-in-part of Ser. No. 262,410, Jun. 13, 1972, abandoned. This application Mar. 28, 1980, Ser. No. 134,818
Int. Cl.³ C10G 35/06
U.S. Cl. 208—138 **8 Claims**

1. A process for reforming which comprises contacting a naphtha charge stock under reforming conditions with a composite which comprises about 0.25% to about 25% by weight of ZSM-5 type zeolite and a platinum group metal reforming catalyst whereby there is produced a gaseous effluent containing a substantially increased yield of C_3 plus C_4 products and a substantially decreased yield of C_1 plus C_2 products as compared with reforming said naphtha charge under reforming conditions giving the same octane number liquid product in the presence of said platinum group metal reforming catalyst.

4,276,152

REFORMING OF SULFUR-CONTAINING CHARGE STOCK

William D. McHale, Manteo, and Hans-Juergen Schoennagel, Lawrenceville, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Sep. 24, 1979, Ser. No. 78,355
Int. Cl.³ C10G 35/08
U.S. Cl. 208—139 **16 Claims**

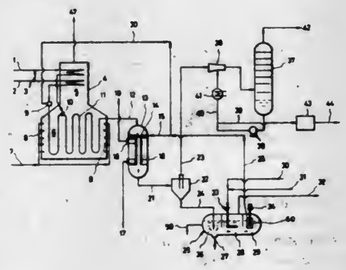
1. In a process for reforming a hydrocarbon charge under reforming conditions in the presence of a reforming catalyst contained in a reforming zone wherein said charge conducted to said reforming zone is initially substantially sulfur-free and wherein excessive hydrocracking of said charge, with concomittant loss in the activity of said catalyst is reduced by the introduction of sulfur into said charge, the improvement which comprises utilizing as said catalyst a composition consisting essentially of a minor proportion of platinum on a support and a minor proportion of iridium on a separate support.

4,276,153

PROCESS FOR THERMAL CRACKING OF HYDROCARBONS AND APPARATUS THEREFOR

Masami Yoshitake, Sakai, and Fumiaki Yamaguchi, Iwakuni, both of Japan, assignors to Mitsui Engineering and Shipbuilding Co., Ltd. and Mitsui Petrochemical Industries, Ltd., both of Tokyo, Japan

Filed Dec. 31, 1979, Ser. No. 108,583
Claims priority, application Japan, Jan. 6, 1979, 54-875
Int. Cl.³ C10G 9/16, 9/34
U.S. Cl. 208—48 Q **11 Claims**



1. In a process for thermal cracking raw hydrocarbons in the presence of steam and a fused salt to produce an olefin-containing fluid mixture, said process comprising: feeding a fused salt, steam and raw hydrocarbons into a reaction tube of a thermal cracking furnace of external heating type to thermally crack the raw hydrocarbons; passing the resulting fluid mixture comprising cracked products, fused salt and steam through a vertically disposed quenching zone having an inner wall with an inner wall surface and an outer wall, to quench the fluid mixture; separating the resulting quenched fluid mixture into a fused salt component and a gaseous component; purifying the separated fused salt component by removing sludge therefrom; recirculating the resulting purified fused salt to the reaction tube; and separating and recovering olefin-containing gas from the gaseous component, the improvement comprising:

(a) admixing steam and the purified fused salt and injecting the resulting steam-fused salt mixture into the reaction tube through a first inlet;

(b) admixing steam and raw hydrocarbons and injecting the resulting steam-raw hydrocarbon mixture into the reaction tube through a second inlet positioned downstream of the first inlet;

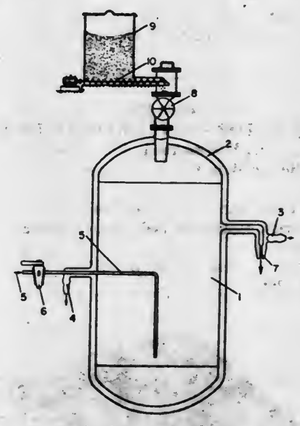
(c) passing the fluid mixture downward along the inner wall surface of the quenching zone while simultaneously passing purified molten salt downward along said surface to prevent the accumulation of a coke deposit in the quenching zone.

4,276,154

PROCESS FOR THE ELECTROSTATIC SEPARATION OF CRUDE POTASH SALTS

Arno Siegewald, Kassel-Wilh.; Günter Fricke, Heringen; Ulrich Neitzel, Heringen, and Iring Geisler, Heringen, all of Fed. Rep. of Germany, assignors to Kali und Salz Aktiengesellschaft, Kassel, Fed. Rep. of Germany

Continuation of Ser. No. 792,334, Apr. 29, 1977, abandoned. This application Mar. 16, 1979, Ser. No. 21,278
Claims priority, application Fed. Rep. of Germany, Apr. 30, 1976, 2619026
Int. Cl.³ B03B 1/04, 1/02
U.S. Cl. 209—3 **13 Claims**



1. A process for the electrostatic separation of a crude potash salt into the components thereof, which comprises:

grinding the crude salt to an average particle size of about 0.25 to 2 mm.;

contacting the ground crude salt with a normally liquid or solid conditioning agent which has been converted into the gaseous state, such that said gaseous conditioning agent draws up onto the surfaces of the crude salt particles by absorption, said gaseous conditioning agent being essential to the electrostatic separation;

electrically charging the salt at a relative humidity of 2–30%;

passing the conditioned charge crude salt particles through an electrostatic field to separate the crude salt into at least two fractions and to separate said conditioning agent therefrom; and

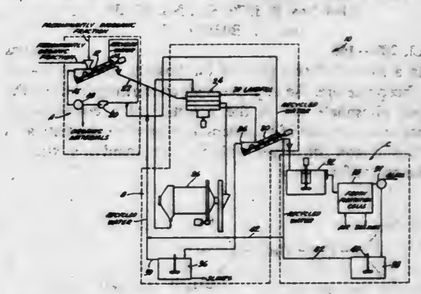
recovering a potash-enriched product fraction whereby substantially less conditioning agent is required than would otherwise be the case if a non-vaporized conditioning agent were employed.

4,276,155

METHOD FOR RECYCLING THE WATER USED IN A PROCESS FOR RECOVERING GLASS FROM MUNICIPAL WASTE

John G. Roeschlaub, Upland, and Ivan J. Hopkins, Pomona, both of Calif., assignors to Occidental Petroleum Corporation, Los Angeles, Calif.

Filed Nov. 7, 1977, Ser. No. 849,063
Int. Cl.³ B03B 7/00
U.S. Cl. 209—10 **23 Claims**



1. A process for the recovery of glass from the municipal trash which has been segregated into a glass-containing organic fraction and a glass-containing inorganic fraction comprising the steps of:

(a) introducing the glass-containing organic fraction and the glass-containing inorganic fraction to a first water-based classifier, introducing water to the first classifier to entrain and separate the organic materials from the inorganic materials and leave a glass-containing inorganic mixture, discharging the water with the entrained organic materials to a first recycling means which includes first separation means to separate the entrained organic materials from the water, and thereafter recycling at least a portion of the water back to the first classifier;

(b) discharging the glass-containing inorganic mixture from the first classifier, entraining the glass-containing inorganic mixture in a stream of water, transferring the glass-containing inorganic mixture and entraining water to a second classifier to remove particles greater than a first predetermined mesh size, passing the entraining water and particles less than the predetermined mesh size to a third classifier to remove particles less than a second predetermined mesh size and recovering a size classified glass-containing inorganic mixture, discharging the entraining water and particles less than the second predetermined mesh size to a second recycling means which includes second separation to separate the water from the particles, and thereafter recycling at least a portion of the water from the second recycling means to entrain the glass-containing inorganic mixture discharged from the first classifier and transfer it to the second classifier; and,

(c) subjecting the size classified glass-containing inorganic mixture recovered from the third classifier to froth flotation in water in the presence of a beneficiating amount of a collector reagent for glass to form a water float containing predominantly glass and an essentially glass-free tailing, discharging the glass and entraining water to a third

recycling means which includes third separation means to separate the major portion of the glass from the entraining water, said entraining water from said third separation means having suspended entrained particles, and fourth separation means to separate suspended, entrained particles from the water discharged from said third separation means and thereafter recycling a portion of the water from the third recycling means for use in the froth flotation and recycling a portion of the water to any one, two or all of the first, second and third classifiers, such process being further characterized in that none of the water recycled from any individual recycling means is returned to the process at a point downstream from such recycling means.

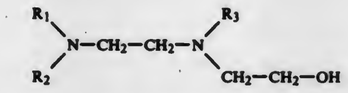
4,276,156

FROTH FLOTATION PROCESS USING CONDENSATES OF HYDROXYETHYLETHYLENEDIAMINES AS COLLECTORS FOR SILICEOUS MATERIAL

Robert E. Hefner, Jr., Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Filed Nov. 8, 1979, Ser. No. 92,239
Int. Cl.³ B03D 1/02
U.S. Cl. 209—166 5 Claims

1. In a froth flotation process for floating siliceous matter from phosphate ore, the improvement comprising frothing the siliceous phosphate ore in the presence of a condensation product or an acid salt of a condensation product of a fatty acid or fatty acid ester condensed with (i) a compound or mixture of compounds of formula I



I

wherein R_1–R_3 are each independently hydrogen or hydroxyethyl, with the proviso that a predominant amount of the compounds of formula I bear two or three hydroxyethyl moieties, and (ii) an ethanolamine selected from the group consisting of monoethanolamine, diethanolamine and triethanolamine, said components of the condensation product having been condensed in a ratio of from about 0.3 to about 0.7 equivalent of (i) for each equivalent of fatty acid or ester and the sum of the equivalents of components (i) and (ii) in the condensation product being from about 0.9 to about 1.1 times the equivalents of fatty acid or ester, said condensation product or a salt thereof being present in the flotation medium at a loading which is not substantially greater than the loading which effects the maximum assay of phosphate in the underflow.

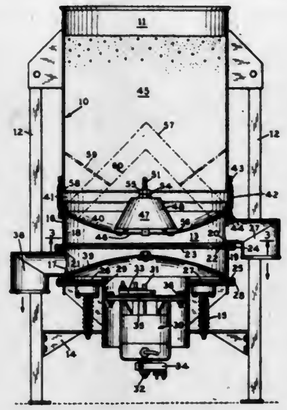
4,276,157

COMBINATION FEEDER AND SIFTER

Ehrick K. Haight, P.O. Box 326, Rowayton, Conn. 06853

Filed Jan. 28, 1980, Ser. No. 116,156
Int. Cl.³ B07B 1/28
U.S. Cl. 209—246 13 Claims

1. A combined vibratory feeder and sifter, which comprises
(a) a vertically elongated supply hopper for retaining a variable, bulk supply of particulate material to be screened,
(b) said hopper having a generally open bottom structure,
(c) support means for supporting said supply hopper in generally fixed relation,
(d) a vibratory bottom structure positioned directly below and associated with said supply hopper,
(e) resilient support means for said bottom structure accommodating vibratory motion thereof relative to said supply hopper,
(f) a generally horizontal bottom-forming panel in said bottom structure effectively forming a bottom wall of said supply hopper and operative to directly support the particulate material stored in said hopper,
(g) connecting means joining the open lower end of said generally fixed supply hopper with said bottom-forming panel while accommodating vibratory motion of said bottom-forming panel relative to said supply hopper,
(h) said bottom-forming panel having a discharge opening therein,
(i) an adjustable feed rate limiting means associated with said discharge opening and operative to control the rate of flow of particulate material therethrough in response to vibratory movement of said bottom structure,



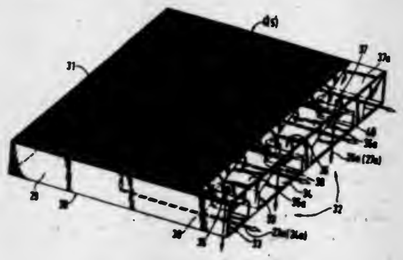
(j) said vibratory bottom structure further including a sifting screen mounted in said bottom structure directly beneath said bottom-forming panel and in position to receive particulate material passing through said discharge opening,
(k) discharge outlets for said particulate material located above and below said sifting screen, and
(l) a common vibratory drive means for said bottom structure for imparting controlled vibratory motion simultaneously to said bottom-forming panel and said sifting screen.

4,276,158

SCREEN FOR A SCREENING MACHINE

Frank Otto Görlitz, Braunschweig, Fed. Rep. of Germany, assignor to Bühler-Miag GmbH, Braunschweig, Fed. Rep. of Germany

Filed Mar. 5, 1980, Ser. No. 127,405
Claims priority, application Fed. Rep. of Germany, May 15, 1979, 2919500
Int. Cl.³ B07D 1/04
U.S. Cl. 209—255 8 Claims



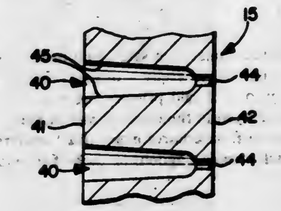
1. An exchangeable planar screen unit for use in a screening machine having an outlet for fine particles and an outlet for larger particles, said screen unit comprising a screen frame having an open lateral wall and a floor for collecting screened fine particles; a mesh fabric secured on said frame above said floor to act as a screening surface; duct means adjoining said fabric and said floor at said open lateral wall, said duct means including at least two separate channels crossing each other, one of said channels communicating with said floor for guiding the screened fine particles from said floor toward said outlet for larger particles, and the other channel communicating with said screening surface for separately guiding the larger particles remaining on said screening surface toward said outlet for fine particles.

4,276,159

APPARATUS FOR SCREENING PAPER FIBER STOCK

Donald F. Lehman, Middletown, Ohio, assignor to The Black Clawson Company, Middletown, Ohio

Filed Jan. 19, 1978, Ser. No. 161,100
Int. Cl.³ B07B 1/20
U.S. Cl. 209—273 6 Claims



1. Screening apparatus for paper making stock comprising, a pressure housing, a cylindrical screening member dividing the interior of said housing into an inlet chamber and an accepts chamber and having multiple screening perforations therethrough, and a rotor mounted for rotation in said housing and including vane means for preventing plugging of said perforations, and further characterized by the fact that said perforations are of greater flow area on the surface of said screening member facing said inlet chamber than on the accepts side of said screening member.

4,276,160

METHOD FOR WASTE WATER PURIFICATION WITH THE AID OF A SORPTION AGENT

Diethfried Dennert, Karlsruhe; Siegfried Eberle, Eggenstein-Leopoldshafen, and Gerhard Endres, Rastatt, all of Fed. Rep. of Germany, assignors to Kernforschungszentrum Karlsruhe GmbH, Karlsruhe, Fed. Rep. of Germany

Filed Jan. 7, 1978, Ser. No. 914,985
Claims priority, application Fed. Rep. of Germany, May 5, 1978, 2726192
Int. Cl.³ B01D 15/00
U.S. Cl. 210—660 17 Claims

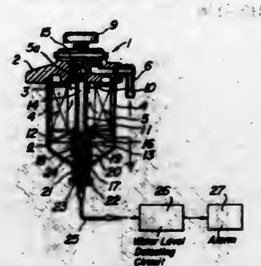
1. A method of purifying waste water by contacting the waste water with a sorption agent, comprising contacting said waste water with a sorption agent which consists essentially of Al_2O_3 which has been treated with ions which when incorporated in the crystal lattice of said Al_2O_3 are capable of delaying crystallization of the gamma phase of said Al_2O_3 or with the salts of said ions.

4,276,161

FUEL FILTER PROVIDED WITH A WATER LEVEL DETECTING MEANS

Katsuhiko Matsui, Yokohama; Yukio Kashiwabe, Oniya, and Yoshiaki Kishimoto, Tokyo, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Jan. 7, 1980, Ser. No. 110,360
Claims priority, application Japan, Jan. 10, 1979, 54-1747[U]
Int. Cl.³ B01D 27/10
U.S. Cl. 210—86 7 Claims



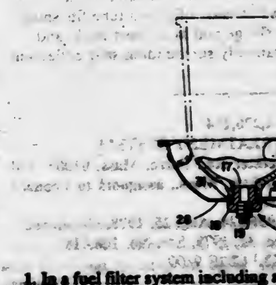
1. A fuel filter and water level detecting means comprising, in combination, a bracket having a fuel inlet and a fuel outlet, a filter casing mounted below said bracket, and a filter element arranged in said casing for filtering fuel introduced in the filter through said fuel inlet, wherein the improvement comprises a connector plug at a bottom portion of said filter casing, said plug including an electrode formed integrally therewith for water level detection, said electrode protruding to a predetermined level in the casing and being manually removable from the casing for water draining, a water level detecting circuit responsive to said electrode for detecting the level of water accumulated in the lower portion of the casing, said electrode developing an electric signal as a function of variation of conductance between the electrode and the casing, the detecting circuit having a delay response function to the input electric signal, and an alarm means responsive to an output signal of said water level detecting circuit for providing an alarm condition.

4,276,162

FLAME RESISTANT SUMP ASSEMBLY

Michael Wilson, Modesto, Calif., assignor to Racor Industries, Inc., Modesto, Calif.

Filed Jul. 14, 1980, Ser. No. 168,494
Int. Cl.³ B01D 21/00
U.S. Cl. 210—94 10 Claims



1. In a fuel filter system including a chemical resistant plastic sediment bowl transparent to visible light at the lower end thereof, said sediment bowl having an aperture in the bottom thereof with a drain means mounted in said aperture, the improvement comprising a flame deflector mounted with said drain means at the bottom of said bowl and surrounding a lower portion of said bowl in spaced relation therefor, said flame deflector being made of stainless steel and having a wall

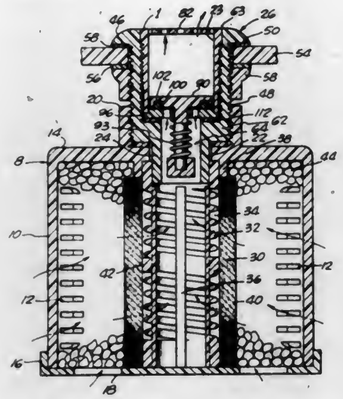
thickness between ten thousandths and fifteen thousandths of an inch with a stiffening flange about the upper edge thereof.

4,276,163

HYDROSTATIC RELIEF VALVE

Leonard Gordon, 18344 Oxnard St. Unit 108, Tarzana, Calif. 91356

Filed Nov. 13, 1979, Ser. No. 94,176
Int. Cl.³ B01D 35/02
U.S. Cl. 210—136 8 Claims



1. A hydrostatic relief valve assembly for use with hot tubs, spas and the like disposed in the ground, comprising;
a. a filter cage defining a hollow interior;
b. a circular aperture in one end of said cage;
c. an inwardly extending circular flange attached to said cage and located concentrically around said circular aperture;
d. a circular neck attached to and extending above said cage, said neck located concentrically around said circular aperture;
e. a cylindrical insert, attachable to said neck and to the tub or spa floor, having a circular insert neck with an exterior diameter less than that of said circular aperture such that said insert neck may enter said circular aperture, to provide fluid communication between said filter cage and said insert, and further having a spring loaded check valve unit in fluid communication with said insert neck;
f. a substantially porous cylindrical collection tube having an exterior diameter approximately equal to the interior diameter of said circular flange and an interior diameter approximately equal to the exterior diameter of said insert neck, such that the end of said collection tube fits snugly between said circular flange and said insert neck; and
g. filtration means substantially surrounding said collection tube.

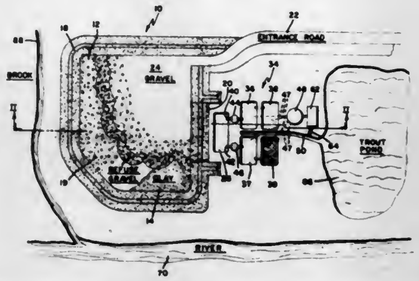
4,276,164

EFFLUENT TREATMENT SYSTEM

Leonard P. Martone, Worcester Rd., Barre, Mass. 01005, and Ronald L. Lavigne, Petersham, Mass., assignors to Leonard P. Martone, Barre, Mass.

Continuation of Ser. No. 936,824, Aug. 25, 1978, abandoned. This application Dec. 31, 1979, Ser. No. 108,418
Int. Cl.³ C02F 9/00
U.S. Cl. 210—170 12 Claims

1. System for treating leachate effluent from refuse, comprising:
(a) a refuse basin for the reception of refuse material,
(b) a liner of substantially water-impervious material covering the inside contours of the basin,
(c) a water-impervious catch basin adjacent the refuse basin and located at a lower level than the refuse basin,
(d) means forming part of said refuse basin for allowing leachate to drain from the refuse basin to the catch basin, the means for allowing leachate to drain from the refuse basin to the catch basin comprising a water-permeable dike along one side of the refuse basin in direct contact with the refuse in the basin and an extension of water-impervious materials sloping downwardly from the bottom of the dike to the catch basin,
(e) water impervious first and secondary primary lagoons for effecting a primary treatment of refuse leachate,
(g) primary flow control means for selectively conveying



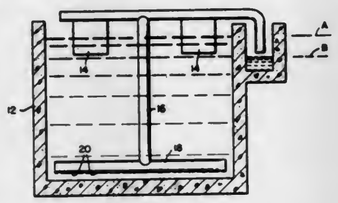
leachate accumulated in said catch basin to said first and second lagoons, whereby a quantity of leachate may be treated in one of said primary lagoons while leachate is being conveyed to the other of said primary lagoons, and
(h) secondary flow control means for transferring leachate from each primary lagoons to each of secondary lagoons.

4,276,165

SLUDGE SIPHON COLLECTOR WITH DE-GASING HEADER

Alan D. Chamberlain, Beaver, Pa., assignor to Sybron Corporation, Rochester, N.Y.

Filed Apr. 7, 1980, Ser. No. 138,097
Int. Cl.³ B01D 21/24
U.S. Cl. 210—242.1 7 Claims



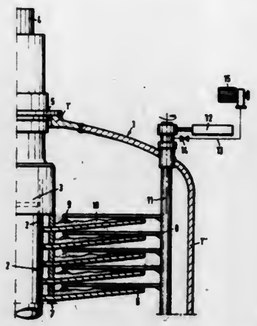
1. In a siphon system for use in removing sludge from the bottom of sewage settling tank or the like including a siphon having a vertical inlet leg extending down towards the bottom of the settling tank, the lower end of the inlet leg communicating with a generally horizontal collection header having openings at spaced intervals along the lower portion thereof for drawing sludge and the like into the horizontal header and up through the inlet leg when the siphon is operating, the improvement comprising:
(a) means associated with the upper portion of said horizontal collection header for collecting and venting gas therefrom prior to the entry of the gas into said siphon vertical inlet leg, whereby dissolved gases released from the sludge upon entry into said header is prevented from accumulating in the siphon inlet leg and destroying the prime of the siphon.

4,276,166

FILTER APPARATUS AND A METHOD OF CLEANING FILTER ELEMENTS THEREOF

Hans Müller, Erlenbach, and Bruno Gautschi, Rapperswil, both of Switzerland, assignors to Chemap A.G., Männedorf, Switzerland

Division of Ser. No. 011,950, Feb. 13, 1979, which is a continuation of Ser. No. 899,176, Apr. 24, 1978. This application Sep. 19, 1979, Ser. No. 77,088
Claims priority, application Switzerland, May 9, 1977, 5738/77
Int. Cl.³ B01D 33/22
U.S. Cl. 210—327 7 Claims



1. A filter apparatus, comprising an elongated shaft; a plurality of filter elements mounted on said shaft and spaced from one another in direction of elongation of said shaft, said filter elements being provided with a filtering material upon a surface of which a cake is deposited during a filtering process; means for cleaning said filter elements, including a source of a cleaning medium, which has a manifold and a plurality of conduits mounted on and communicating with said manifold and each having an end portion, a plurality of nozzle elements facing towards said surfaces of said filtering material of said filter elements, and each carried by the end portion of a respective one of said conduits, and adjustable means for elevating the pressure of said cleaning medium when the same is supplied to said nozzle elements so as to supply the medium to said nozzle elements under a desired adjustably elevated pressure, said manifold together with said conduits and said nozzle elements being turnable relative to said surfaces of said filtering material of said filter elements; means for turning said manifold together with said conduits and said nozzle elements relative to said surface of said filtering material of said filter elements; and means for rotating said filter elements about the elongated axis of said shaft during ejecting the cleaning medium towards said surfaces under a desired elevated pressure to thereby remove the cake from said surfaces and thereupon also clean the filtering material of the filter elements.

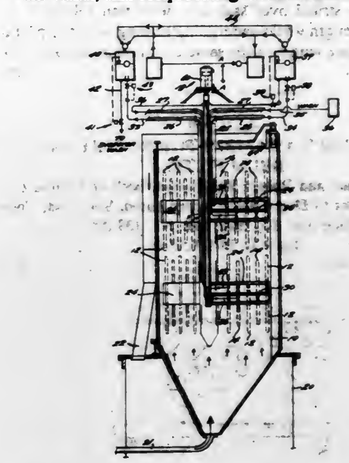
4,276,167

DIFFUSER ARRANGEMENTS

Johan C. F. C. Richter, St. Jean Cap Ferrat, France, and Ole J. Richter, Karlstad, Sweden, assignors to Kamyr Aktiebolag, Karlstad, Sweden

Filed Apr. 25, 1979, Ser. No. 34,928
Int. Cl.³ B01D 33/00
U.S. Cl. 210—331 22 Claims

1. In an elongated upright hollow vessel, which includes side and bottom walls, the combination comprising:
(a) a plurality of withdrawal screens extending substantially parallel to the vessel direction of elongation, and spaced from each other in directions perpendicular to the vessel direction of elongation;
(b) conduit means for supporting said withdrawal screens and for providing for passage of fluid from said withdrawal screens to an area remote from said withdrawal screens and exterior of said vessel;
(c) means for reciprocating said conduit means with attached withdrawal screens up and down in a direction substantially coincident with the direction of elongation of the vessel, said reciprocating means consisting essentially



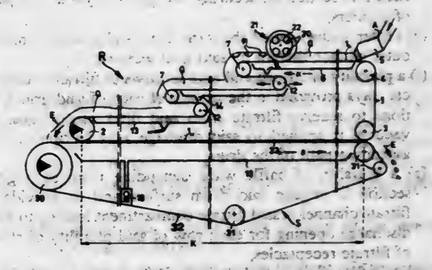
of a linear actuator located within the cross-sectional area of the vessel, so that said conduit means and withdrawal screens do not penetrate the vessel side and bottom walls; and
(d) means for introducing fluent material to be treated into said vessel and withdrawing treated fluent material therefrom.

4,276,168

DEVICE FOR DEWATERING SLUDGE

Wendel Bastgen, Betzdorf, Fed. Rep. of Germany, assignor to Alb. Klein GmbH & Co. KG, Niederfischbach, Fed. Rep. of Germany

Filed Dec. 11, 1979, Ser. No. 102,423
Claims priority, application Fed. Rep. of Germany, Feb. 15, 1978, 2854168
Int. Cl.³ B01D 33/04
U.S. Cl. 210—396 6 Claims



1. Apparatus for continuously dewatering a suspension comprising a driven filter band, deflection roll means supporting said band and forming an upper strand therefor, means for depositing suspension on said upper strand which serves as a filter so that a dewatered cake is formed on said upper strand, said deflection roll means including a first deflection roll on which said upper strand passes and is reversed in direction at a downstream end of said upper strand and a second deflection roll located below and downstream of said first deflection roll, said band traveling from said first roll to said second roll in

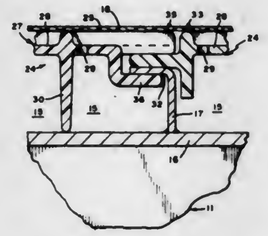
opposite direction to the direction of travel of said upper strand and then passing around said second roll to travel along an intermediate length in the same direction as said upper strand, said first deflection roll being located above said intermediate length and forming with said second deflection roll a Z-shaped step for said band such that said cake is transported by said upper strand over said first deflection roll onto said intermediate length while undergoing turning and transport on said intermediate length in the same direction as on said upper strand.

4,276,169

DRAINAGE DECK ASSEMBLY FOR ROTARY VACUUM DRUM FILTER

Paul A. Browne, and Robert W. Morton, both of Orillia, Canada, assignors to Dorr-Oliver Incorporated, Stamford, Conn.

Filed Apr. 10, 1980, Ser. No. 139,009
Int. Cl.³ B01D *33/06*
U.S. Cl. 210—404 8 Claims



1. A drainage deck assembly for a rotary vacuum drum filter having a drum mounted for rotation in an ascending and descending path into and out of a slurry tank, said drainage deck assembly comprising:

(a) a plurality of divider members extending longitudinally of the central axis of said drum and mounted in spaced and parallel relationship about the outer surface of said drum,

(b) at least one rectangular shaped drainage grid section mounted between each pair of divider members to provide filtrate compartments therebetween about the circumference of said drum,

(c) openings provided in the outer surface of said drum in each of said filtrate compartments for receiving filtrate for discharge from said filter,

(d) interlocking means on the trailing and leading ends of each grid section for securing said grid section to said pair of dividers,

(e) a filter media located about the drum and spaced from the outer surface thereof by said grid sections,

(f) a plurality of spaced and parallel rows of filtrate receptacle trays provided in the surface of each of said grid sections to receive filtrate from said filter media when a vacuum is applied to said drainage grid section in the ascending path of the drum,

(g) a plurality of baffle walls depending from each grid section to engage said drum surface and to provide a filtrate channel in said filtrate compartment leading to said discharge opening for each row of said plurality of rows of filtrate receptacles,

(h) said filtrate receptacle trays each having a bottom wall surface spaced from said filter media by the sidewalls of the tray, and

(i) a filtrate discharge slot formed in the bottom wall of each of said filtrate trays at a predetermined location at the end of said tray closest to the trailing end of the grid section to permit flow of filtrate into its associated filtrate channel in said filtrate compartment during the ascending path of said drum and to prevent flowback of filtrate through said slot when said vacuum is interrupted in the descending path of the drum.

4,276,170

VENTED FLEXIBLE FILTRATION DEVICE FOR USE IN ADMINISTERING PARENTERAL LIQUIDS

Vincent L. Vaillancourt, Livingston, N.J., assignor to Critikon, Inc., Tampa, Fla.

Continuation-in-part of Ser. No. 934,107, Aug. 16, 1978, abandoned, which is a continuation of Ser. No. 814,372, Jul. 8, 1977, abandoned, which is a continuation-in-part of Ser. No. 736,670, Oct. 28, 1976, Pat. No. 4,066,556. This application Mar. 26, 1979, Ser. No. 23,873
The portion of the term of this patent subsequent to Jan. 3, 1995, has been disclaimed.
Int. Cl.³ B01D *19/00*
U.S. Cl. 210—436 10 Claims



1. A vented filtration device for use in the filtration of parenteral liquids comprising: a closed, flexible and compressible housing having a liquid inlet and a liquid outlet, said housing including an internal passage connecting said inlet and outlet; a filter assembly disposed within said passage between said inlet and said outlet thereby defining an upstream pressure section between said inlet and said assembly and a downstream pressure section between said assembly and said outlet, said filter assembly including a flexible porous, bacteria retentive filter membrane having a pore size not greater than 0.22 microns, a flexible, porous support material having pores generally greater in size than those of said filter membrane overlying one surface of said filter membrane, and a flexible frame overlying the surface of said filter membrane opposite said supported surface, said frame having at least one central opening exposing a substantial surface area of said filter membrane, said filter assembly adapted to filter all liquid passing from said inlet to said outlet during use; said filter assembly including at least one fold to form said filter membrane into a pouch having an open end facing toward said downstream pressure section and having a closed end facing said upstream pressure section; and gas vent means through said housing communicating with said upstream pressure section of said passage adapted to allow gas but not liquid to pass from said upstream section out of said housing whereby gas entering said upstream section will not clog said filter membrane, said filter assembly providing a sufficiently low pressure drop thereacross, so as to eliminate the requirement of a pump to force said fluid through said assembly and said assembly capable of being deformed and still maintain fluid flow without the requirement of a pump to force said fluid through said assembly.

4,276,171

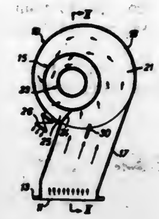
WATER FILTER HAVING SPIRAL CASING

Philip Jackson, Paris, France, assignor to E. Beaudrey & Cie, Paris, France

Filed Jun. 15, 1977, Ser. No. 806,929
Claims priority, application France, Jun. 22, 1976, 76 18083
Int. Cl.³ B01D *29/04*
U.S. Cl. 210—437 5 Claims

1. A self-cleaning filter for filtering solids entrained in water for industrial use, comprising a housing having inlet means and outlet means and a strainer or filter member disposed operatively therebetween said housing being of spiral configuratin so

as to define a water flow pattern sweeping along the periphery of said strainer or filter member and wall means remote from said inlet means relative to the direction of flow of water defined by said spiral housing and fitted between said spiral housing and said strainer or filter member for preventing solids



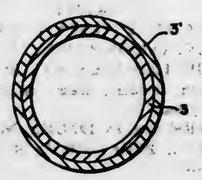
from circulating entirely around the periphery of said strainer or filter member back to said inlet means, a solids collecting area upstream of said wall means between said strainer or filter member and said spiral housing, and discharge means for discharging solids collected in said solids collecting area.

4,276,172

CELLULOSIC MEMBRANE FOR BLOOD DIALYSIS

Werner Heusse, and Gustav Dilnweg, both of Wuppertal, Fed. Rep. of Germany, assignors to Akzo N.V., Arnhem, Netherlands

Filed Feb. 7, 1978, Ser. No. 875,926
Claims priority, application Fed. Rep. of Germany, Feb. 11, 1977, 2705733; Feb. 11, 1977, 2705735
Int. Cl.³ B01D *31/00, 13/00*
U.S. Cl. 210—490 17 Claims



1. A dialyzing membrane for blood dialysis consisting essentially of a cuprammonium regenerated cellulose having a total membrane thickness of about 5 to 100 μm with at least two layers which have been separately extruded and then immediately joined together in side by side relationship for coagulation in a precipitation bath and for permanent adherence of the layers to each other, each layer thereby being formed as a seal against the penetration of blood through the leakage points of an adjacent adhered layer.

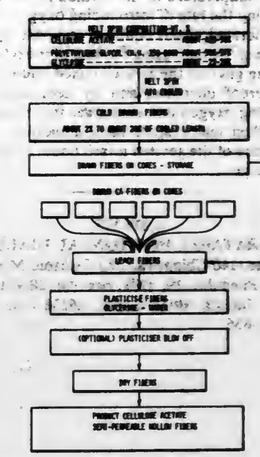
4,276,173

CELLULOSE ACETATE HOLLOW FIBER AND METHOD FOR MAKING SAME

Michael J. Kell, Concord, and Robert D. Mahoney, Dublin, both of Calif., assignors to Cordis Dow Corp., Miami, Fla.

Continuation-in-part of Ser. No. 812,929, Jul. 5, 1977, abandoned. This application Dec. 21, 1978, Ser. No. 972,890
Int. Cl.³ B01D *39/16, 13/00*
U.S. Cl. 210—500.2 8 Claims

1. A cellulose acetate hollow fiber having an internal diameter in the range of about 100 to about 350 microns and a wall thickness in the range of about 20 to about 60 microns, said wall having a selective permeability when used in hemodialysis for water and solutes to be removed from blood represented by an ultrafiltration coefficient K_{UFR} in the range of about 2 to about 6 milliliters per hour per square meter per millimeter of mercury and a urea coefficient K_{UREA} in the range of about 15×10^{-3} to about 45×10^{-3} centimeters per minute, said fiber characterized by the concurrent capability of separating urea



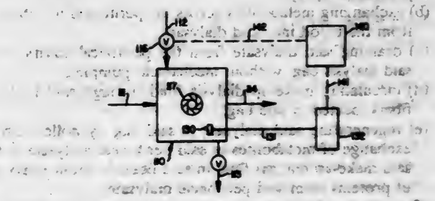
from blood and water from blood at rates represented by a minimum ratio of the coefficients K_{UREA}/K_{UFR} of 3 to 1×10^{-3}.

4,276,174

CONTROL OF SLUDGE TEMPERATURE IN AUTOTHERMAL SLUDGE DIGESTION

Edmund J. Breider, Gatzville, and Raymond F. Dunwick, Clarence Center, both of N.Y., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 26, 1980, Ser. No. 129,292
Int. Cl.³ C02F *11/04*
U.S. Cl. 210—613 9 Claims



1. In a process for controlling the autothermal aerobic digestion of sludge, wherein the sludge is mixed with an oxygen-containing gas in the presence of aerobic micro-organisms in a covered digestion zone to thereby form an aerated mixed liquor which is retained in said digestion zone for sufficient time to partially stabilize the sludge, the improvement comprising:

(a) maintaining total volatile solids content of the sludge above at least 20,000 mg/l;

(b) maintaining total volatile solids content of the aerated mixed liquor above at least (100−X)% of the total volatile solids content of the sludge, wherein X = 60 times the ratio of the biodegradable volatile solids content of the sludge to the total volatile solids content of the sludge;

(c) introducing said oxygen-containing gas into said covered digestion zone for said mixing therein at an oxygen concentration of at least 20% oxygen (by volume) with said mixing and the rate and quantity of the introduction of oxygen-containing gas being maintained at sufficient levels to dissolve at least 0.03 pounds of oxygen per pound of

total volatile solids content in the sludge introduced into said covered digestion zone;

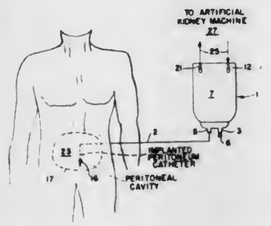
(d) sensing temperature of the aerated mixed liquor; and

(e) controlling the rate of introducing oxygen-containing gas into the aerated mixed liquor in response to the temperature sensing, by increasing the rate of introducing oxygen-containing gas into the aerated mixed liquor when temperature thereof decreases and by decreasing the rate of introducing oxygen-containing gas into the aerated mixed liquor when temperature thereof increases, to maintain temperature of the aerated mixed liquor within a predetermined range.

4,276,175
REGENERATABLE PERITONEAL DIALYSIS BAG

John D. Bower, 140 Chippewa Cir., Jackson, Miss. 39211

Filed Jul. 19, 1979, Ser. No. 58,931
Int. Cl.³ B01D 13/00; A61M 1/03
U.S. Cl. 210—636 7 Claims



5. A method for continuous removal of toxic metabolites from the blood by peritoneal dialysis, in which a single connection is made from a patient's peritoneal catheter to a dialysis bag for a series of successive dialysis exchanges, comprising the steps of:

(a) infusing of peritoneal dialysate from a regeneratable ambulatory dialysis bag having flexible sidewalls into the peritoneal cavity,

(b) exchanging metabolities across the peritoneal membrane from the blood into said dialysate,

(c) draining said dialysate from the peritoneal cavity into said dialysis bag, without mechanical pumping,

(d) circulating make-up dialysis fluid through said hollow fibers located in said bag,

(e) regenerating said dialysate in said bag by hollow fiber exchange of metabolites in said peritoneal dialysate with said make-up dialysis fluid in said fibers without removal of proteins from said peritoneal dialysate,

(f) reinfusing the cleansed peritoneal dialysate from said bag into the peritoneal cavity for continued peritoneal dialysis, and

(g) rolling up the emptied dialysis bag for carrying by the peritoneal dialysis patient until the next regeneration, while said bag remains attached to the peritoneal catheter of said patient.

4,276,176
WATER PURIFICATION SYSTEM

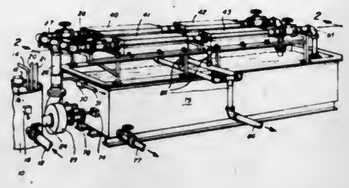
Jacob Sherr, Lexington, Mass., assignor to Systems Engineering & Manufacturing Corp., Stoughton, Mass.

Continuation of Ser. No. 703,626, Jul. 8, 1976, abandoned, which is a continuation-in-part of Ser. No. 610,688, Sep. 5, 1975, Pat. No. 4,014,787, which is a continuation-in-part of Ser. No. 429,510, Feb. 2, 1974, abandoned. This application Jun. 19, 1979, Ser. No. 49,926
Int. Cl.³ B01D 13/00, 31/00
U.S. Cl. 210—637 11 Claims

3. A method of purifying water comprising,

combining at least 1700 ppm of a combining agent with wastewater at a pH of from 7.1 to 14 with the molar ratio of said combining agent to the impurities in said wastewater being 1:1 or greater so that a particle-water blend is formed wherein said impurities are bound with said combining agent in particles of size at least 10 angstroms; said combining agent comprising an inorganic metal hydroxide with the metal being selected from the group consisting essentially of iron, aluminum, tin, copper, zinc, cadmium, nickel, cobalt, silicon, lead, barium, calcium, manganese, and chrome,

and subsequently filtering said particle-water blend by passing said particle water blend to a plurality of parallel



conduits each containing a plurality of series arranged ultrafiltration units whereby a portion of said water from said water particle blend is withdrawn through said ultrafiltration units with a slurry being passed to a recirculation tank for recirculation through said ultrafiltration units,

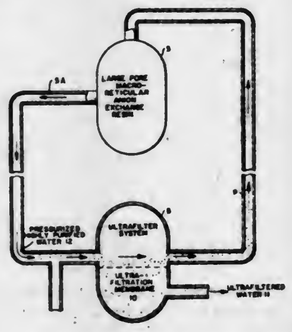
each of said ultrafiltration units comprising a plurality of filter tubes each having an inner surface covered by an ultrafiltration membrane,

and means for selectively directing flow through the membranes of one or more of said ultrafiltration units directly to said recirculation tank while permitting withdrawal of purified water from other of said ultrafiltration units.

4,276,177
HIGH EFFICIENCY FILTRATION WITH IMPURITY CONCENTRATION AND ULTRAFILTRATION REJECTION FLOW RECIRCULATION

Verity C. Smith, Dedham, Mass., assignor to Vaponics Inc., Plymouth, Mass.

Filed Aug. 13, 1979, Ser. No. 66,049
Int. Cl.³ B01D 13/00, 15/04; B01J 4/04
U.S. Cl. 210—638 6 Claims



1. A process for the purification of water comprising:

(a) providing a flow of raw water to be purified;

(b) pretreating said raw water flow for partial purification;

(c) introducing the flow of raw water exiting the pretreatment in (b) into an ultrafilter to produce a flow of purified water and a rejection flow exiting the ultrafilter;

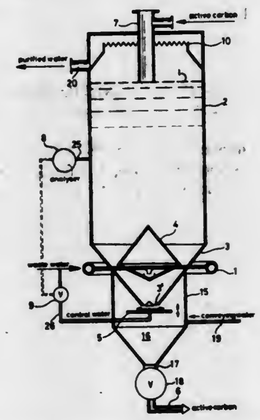
(d) passing only said rejection flow through a large-pore macroreticular anion exchange resin to remove contaminants from said reject flow;

(e) combining the rejection flow from step (d) with the raw water introduced into the ultrafilter in step (c) to form a circulating loop.

4,276,178
APPARATUS FOR PURIFICATION OF WASTE WATER BY MEANS OF ACTIVE CARBON

Günther Gappa, Gelsenkirchen-Buer; Harald Jüstgen, and Jürgen Klein, both of Essen, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 602,000, Aug. 5, 1975, Pat. No. 4,202,770. This application Jun. 7, 1979, Ser. No. 46,500
Claims priority, application Fed. Rep. of Germany, Aug. 6, 1974, 2437745
The portion of the term of this patent subsequent to May 13, 1997, has been disclaimed.
Int. Cl.³ B01D 15/02
U.S. Cl. 210—662 6 Claims



1. A method of purifying contaminated fluids in an upright vessel, comprising the steps of continuously admitting a flow of particulate purifying material into an upper end portion of the vessel, for downward movement therein; continuously admitting a flow of contaminated fluid into a confined space located in a lower end portion of the vessel and bounded in part by an upwardly tapering conical upper wall a generatrix of which includes with a horizontal line an angle of 45°–55°; continuously discharging the contaminated fluid from the confined space through a plurality of closely adjacent substantially uniformly arranged apertures in the upper wall, in form of individual upwardly flowing streams which are distributed over the entire cross-sectional area of the lower vessel end portion so that a purification front develops at which the downwardly moving particulate material is laden over the entire vessel cross-section with inpurities removed from the upwardly moving contaminated fluid; and maintaining the location of the purification front substantially steady relative to the downwardly moving particulate material and to the vessel at a preselected level of the vessel.

4,276,179
REMOVING HALOGENATED HYDROCARBONS FROM AQUEOUS MEDIA BY UTILIZING A POLYOLEFINIC MICROPOROUS ADSORBENT

John W. Soehngen, Berkeley Heights, N.J., assignor to Celanese Corporation, New York, N.Y.

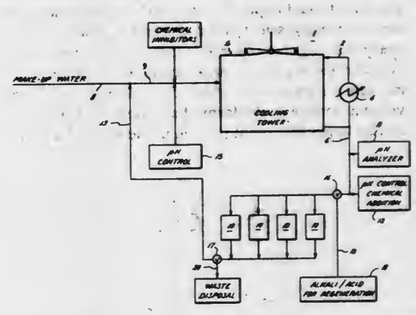
Filed Jun. 1, 1979, Ser. No. 44,803
Int. Cl.³ B01D 15/00
U.S. Cl. 210—679 17 Claims

1. A process for removing non-polymeric halogenated hydrocarbons and molecular and elemental halogens selected from at least one member of the group consisting of chlorine, fluorine, bromine, and iodine, from an aqueous medium which comprises contacting said aqueous medium with a polyolefinic microporous adsorbent having a surface area of from about 10 to about 40 square meters per gram of adsorbent selected from at least one member of the group of films, fibers, yarn, sheets, fabrics and laminates, said polyolefinic adsorbent comprising an olefinic polymer selected from the group consisting of ethylene homopolymers, propylene homopolymers, poly-3-methylbutene-1, poly-4-methylpentene-1, copolymers thereof, and copolymers thereof with a minor amount of a straight chain n-alkene.

4,276,180
INDUSTRIAL WASTE-WATER REUSE BY SELECTIVE SILICA REMOVAL OVER ACTIVATED ALUMINA

Jack V. Matson, 10919 Brass Forest, Houston, Tex. 77071

Filed Nov. 30, 1979, Ser. No. 98,911
Int. Cl.³ C02F 1/60, 5/08
U.S. Cl. 210—683 10 Claims



1. A method for maintaining silica content in a recirculating cooling water system containing water conditioning chemicals selected from the group consisting of sulfates, phosphonates and chromates below a level at which silica scale formation occurs without discharging blowdown from the system with consequential elimination from the system of said water conditioning chemicals or resulting pollution of the environment, comprising the steps of:

(a) continuously diverting a portion of the chemically conditioned cooling water from said cooling water system as a side stream;

(b) contacting said side stream with activated alumina while said side stream has a pH value of from about 7.0 to about 9.0 to selectively remove silica from said water while leaving the chemical conditioning of the water undisturbed; and

(c) then returning said chemically conditioned side stream of reduced silica content to the cooling water system.

4,276,181
PROCESS AND APPARATUS FOR SEPARATION BY COALESCENCE OF EMULSIONS

Michel Cordier, La-Celle-Saint-Cloud; Herve Labesque, Le Pecq, and Gilbert Saint-Dizier, Nanterre, all of France, assignors to Degremont, Hauts de Seine, France

Continuation of Ser. No. 890,664, Mar. 27, 1978, abandoned. This application Oct. 30, 1979, Ser. No. 89,750
Claims priority, application France, Mar. 28, 1977, 77 09140
Int. Cl.³ B01D 17/04
U.S. Cl. 210—741 20 Claims

1. A process for treating organic emulsions including separating by coalescence the disperse phase from the dispersion phase of the emulsion, said process comprising:

providing within a single enclosed chamber a lower destabilizing area, a central filtering and coalescence area con-

taining therein coalescence material, and an upper flotation and separation area;

conducting a coalescence treatment operation comprising:

introducing an emulsion to be treated into said lower destabilizing area and therein imparting turbulence to said emulsion and destabilizing all of said emulsion to form a destabilized emulsion while imparting a laminar and uniform upward flow to said destabilized emulsion;

passing all of said destabilized emulsion upwardly into said filtering and coalescence area and therein causing the disperse phase of said emulsion to be attracted to said coalescence material in the form of droplets, and continuing to pass all of said emulsion upwardly through said filtering and coalescence area such that said droplets of disperse phase grow in size by coalescene during such upward passage, said coalescene material filtering out matter in suspension from said emulsion during such upward passage, to thereby form a filtered and coalesced emulsion including a filtered dispersion phase and coalesced droplets of said disperse phase;

passing all of said filtered and coalesced emulsion upwardly into said upper flotation and separation area and therein causing said filtered dispersion phase and said coalesced disperse phase to separate by flotation, said flotation and separation area including a separation area including a separation device comprising a lower convergent portion in the form of a hollow truncated cone and an upper divergent portion in the form of a hollow truncated cone, said filtered and coalesced emulsion passing upwardly through said separation device, and said coalesced disperse phase separating from and floating on top of said filtered dispersion phase within said upper divergent portion; and

separately withdrawing from said chamber the thus separated filtered dispersion phase and coalesced disperse phase;

determining the pressure difference between the lower and upper sides of said coalescence material as an indication of the degree of retention of said matter in suspension within said coalescence material; and

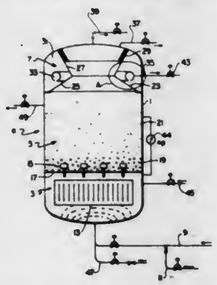
terminating said coalescence treatment operation and commencing a coalescence material washing operation upon the determination of a predetermined pressure difference representative of clogging of said coalescence material, said washing operation comprising:

injecting a washing liquid and a gas into said destabilizing area and then upwardly through said coalescence material in said filtering and coalescence area;

thereafter injecting a washing liquid only, as a rinsing liquid, into said destabilizing area and then upwardly through said coalescence material;

thereby removing matter insuspension from said coalescence material; and

withdrawing said washing liquid, with said removed matter in suspension, from said chamber at a position above the upper level of said coalescence material but below the level of entrance into said upper flotation and separation area.



4,276,182

HIGH TEMPERATURE CEMENT MUD SPACER

Robert M. Beirute, Fort Worth, Tex., assignor to The Western Company of North America, Fort Worth, Tex.

Division of Ser. No. 907,568, May 19, 1978, Pat. No. 4,190,110. This application May 29, 1979, Ser. No. 42,898

Int. Cl.³ E21B 33/16

U.S. Cl. 252—8.55 R 15 Claims

1. A spacer composition compatible with oil base drilling fluids, water base drilling fluids, well cement compositions and mixtures thereof, comprising an aqueous suspension of an effective amount of attapulgite clay and a zinc containing stabilizing compound present in an amount sufficient to stabilize said suspension at temperatures of at least about 500° F., said zinc containing stabilizing compound selected from the group consisting of zinc oxide and zinc carbonate, said suspension having a pH of at least about 7.

4,276,183

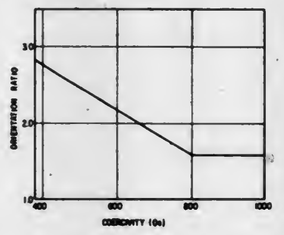
COBALT MODIFIED MAGNETIC IRON OXIDE

David M. Wilson, Easton, Pa., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 954,498, Oct. 25, 1978, abandoned. This application Jul. 2, 1979, Ser. No. 54,393

Int. Cl.³ C01G 49/02

U.S. Cl. 428—480 4 Claims



1. Magnetic particles comprising magnetic iron oxide having an FeO content of from about 1 to 4 weight % and modified with at least about 0.5 weight % cobalt, both percentages being based on the weight of total product;

said particles, in a magnetic recording member at a loading of 75 weight %, providing an orientation ratio and coercivity equal to or above coordinate values on the two line segments in the FIGURE herein which meet at a coercivity of 800 and an orientation ratio of 1.6;

said recording member being formed by incorporating said particles into the formulation of Table 1 herein, coating said formulation onto polyethylene terephthalate, magnetically orienting said particles therein and thereafter drying said formulation;

said orientation ratio being determined by placing a quarter-inch disc cut from said member in a vibrating sample magnetometer with the applied magnetic field parallel to the alignment of said particles, magnetically saturating said disc at 9 kOe, and reducing said field to zero to obtain parallel saturation remanent flux density (Br ||) rotating said disc so that said applied field is perpendicular to said particles and repeating said magnetic saturation and field reduction steps, to obtain perpendicular saturation remanent flux density (Br ⊥); and dividing Br || by Br ⊥;

and said coercivity being determined by magnetically saturating said disc at 9 kOe with said applied magnetic field parallel to the alignment of said particles and measuring the value of said field at which the remanence is zero.

4,276,184

DIELECTRIC FLUIDS COMPRISING NON-HALOGENATED MIXTURES OF ORGANIC ESTERS AND AROMATIC COMPOUNDS

Lyon Mandelcorn, Pittsburgh; Thomas W. Dakin, and Robert L. Miller, both of Murrysville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 582,127, Aug. 30, 1974, abandoned, which is a continuation of Ser. No. 272,995, Jul. 18, 1972, abandoned. This application Mar. 30, 1976, Ser. No. 671,854

Int. Cl.³ H01B 3/22, 3/20

U.S. Cl. 252—579 7 Claims

1. A dielectric fluid comprising about 20 to about 95% diisononyl phthalate and about 5 to about 80% of a non-halogenated aromatic compound selected from the group consisting of hydrocarbons, ethers, and mixtures thereof, which is soluble in diisononyl phthalate, has 2 rings, has a boiling point over 140° C., and has a dissipation factor of less than about 10% at 100° C.

4,276,185

METHODS AND COMPOSITIONS FOR REMOVING DEPOSITS CONTAINING IRON SULFIDE FROM SURFACES COMPRISING BASIC AQUEOUS SOLUTIONS OF PARTICULAR CHELATING AGENTS

Larry D. Martin, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Feb. 4, 1980, Ser. No. 118,346

Int. Cl.³ C23G 1/14, 1/18; C11D 7/32, 7/26

U.S. Cl. 252—87 47 Claims

1. A method for dissolving iron sulfide deposits with minimal hydrogen sulfide evolution comprising contacting said iron sulfide with a basic aqueous solution of a chelating agent selected from the group consisting of citric acid, oxalic acid, nitrilotriacetic acid, alkylenepolyamine polyacetic acids and mixtures of said chelating agents, said solution having a pH in the range of from about 8 to about 10.

15. An emulsified composition for dissolving deposits containing organic materials and iron sulfide with minimal hydrogen sulfide evolution comprising:

a basic aqueous solution of a chelating agent selected from the group consisting of citric acid, oxalic acid, nitrilotriacetic acid, alkylenepolyamine polyacetic acids and mixtures of said chelating agents, said solution having a pH in the range of from about 8 to about 10;

a liquid hydrocarbon solvent for said organic materials; and

an emulsifier selected from the group consisting of oxyalkylated phenols and the carboxylate salts thereof, and castor oil ethoxylated with forty moles of ethylene oxide.

4,276,186

CLEANING COMPOSITION AND USE THEREOF

Peter Bakos, Endicott; Gerald A. Bendz, Vestal; Russell E. Darrow, Newark Valley, and Dennis L. Rivenburgh, Endicott, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 26, 1979, Ser. No. 52,160

Int. Cl.³ C11D 7/32

U.S. Cl. 252—158 21 Claims

1. A cleaning composition capable of removing at least a flux or flux residue from a ceramic substrate selected from the group consisting of aluminum oxides, silicon oxides, and aluminum silicate which consists essentially of at least about 50% by weight of N-methyl-2-pyrrolidone and at least about 5% by weight of a water miscible alkanolamine, and 0 to about 35% by weight of a solvent selected from the group consisting of hydrocarbon solvents, chlorinated hydrocarbons, fluorinated hydrocarbons, and mixtures thereof, and wherein the alkanolamine is miscible with said N-methyl-2-pyrrolidone and is a monoamine, wherein the alkanol group contains 1–4 carbon atoms.

4,276,187

OXIDATION-REDUCTION REAGENTS FOR A WET DESULFURIZATION PROCESS AND A PROCESS FOR PREPARING SAME

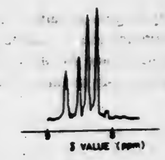
Katsuya Sakai, Yokohama; Ryuichi Mita; Toshio Kato, both of Kawasaki; Chojiro Higuchi, Kamakura, and Hisamichi Murakami, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan

Filed Apr. 4, 1979, Ser. No. 26,934

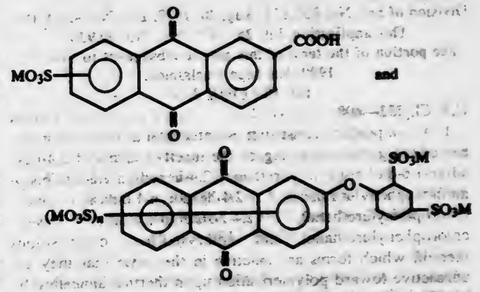
Claims priority, application Japan, May 19, 1978, 53-58878

Int. Cl.³ C01B 17/02; C07C 143/42; A01N 1/00

U.S. Cl. 252—186 4 Claims



1. A composition containing an oxidation-reduction reagent for a wet desulfurization process, which comprises: (a) an alkaline aqueous solution of at least about 0.1% of one or more compounds selected from the group consisting of salts of substituted anthraquinonesulfonic acids of the general formulae



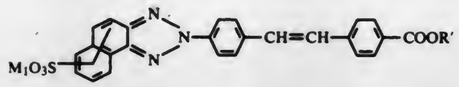
wherein M stands for a sodium atom, a potassium atom or an ammonium group and n is an integer of 1 or 2, (b) sodium metavanadate of 1/1000–1/20 mol per liter of said aqueous solution; and (c) a sufficient amount of sodium carbonate to make the pH value of said aqueous solution range from 8.5 to 9.5.

4,276,188
PROCESS FOR MANUFACTURING 2-STILBENYL-1,2,3-TRIAZOLES AND NEW 2-STILBENYL-1,2,3-TRIAZOLES

Hans R. Meyer, Binningen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 860,819, Dec. 15, 1977, abandoned, which is a continuation of Ser. No. 749,193, Dec. 9, 1976, abandoned, which is a continuation of Ser. No. 585,542, Jun. 10, 1975, abandoned. This application Aug. 1, 1979, Ser. No. 62,822
Claims priority, application Switzerland, Jun. 12, 1974, 8031/74; Jun. 12, 1974, 8032/74
Int. Cl.³ C07D 249/24
U.S. Cl. 252—301.22 4 Claims

1. A 2-stilbenyl-1,2,3-triazole of the formula



wherein R' denotes hydrogen, an alkali metal ion, alkaline earth metal ion, ammonium ion or amine salt ion or alkyl having 1 to 4 carbon atoms, and M_1 denotes a hydrogen ion, alkali metal ion, alkaline earth metal ion, ammonium ion or amine salt ion.

4,276,189
STABILIZATION OF DIBROMOSTYRENE

Philip F. Jackisch, Royal Oak, Mich., assignor to Ethyl Corporation, Richmond, Va.

Filed Mar. 13, 1980, Ser. No. 130,187
Int. Cl.³ C09K 15/08, 15/32
U.S. Cl. 252—404 14 Claims

11. A dibromostyrene stabilized by admixture therewith of a polymerization inhibiting amount of an oxide selected from magnesium oxide, calcium oxide, and zinc oxide.

12. A dibromostyrene stabilizing composition comprising magnesium oxide and 4-tert-butyl catechol or 2,5-dihydroxy-p-benzoquinone.

4,276,190
PROCESS FOR MONITORING TIME-TEMPERATURE HISTORIES OF PERISHABLES UTILIZING INACTIVE FORM OF DIACETYLENE

Gordhanbhai N. Patel, Morris Plains, N.J., assignor to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Division of Ser. No. 938,174, Aug. 30, 1978, Pat. No. 4,208,186.
This application Jul. 26, 1979, Ser. No. 60,936
The portion of the term of this patent subsequent to Feb. 19, 1999, has been disclaimed.
Int. Cl.³ C09K 3/00
U.S. Cl. 252—408 2 Claims

1. A composition consisting essentially of at least one member of the group consisting of the inactive forms of 2,4-hexadiyn-1,6-diol bis(m-tolyurethane), 2,4-hexadiyn-1,6-diol bis(o-methoxyphenylurethane), 2,4-hexadiyn-1,6-diol bis(o-chlorophenylurethane), 2,4-hexadiyn-1,6-diol bis-(p-chlorophenylurethane) and co-crystallized compositions thereof, which forms are inactive in the sense that they are unreactive toward polymerization upon thermal annealing by heating below the respective melting points for several hours, and remain colorless after such heating, but which can be transformed into an active form, capable of undergoing solid state polymerization upon thermal annealing, by contacting with vapor consisting essentially of at least one member of the group consisting of p-dioxane, dimethylformamide, and pyridine.

4,276,191
CATALYST AND PROCESS FOR POLYMERIZATION OF ALPHA-OLEFINS

Nicholas M. Karayannis; Harold Grams, both of Naperville, and John S. Skryantz, Lisle, all of Ill., assignors to Standard Oil Company (Indiana), Chicago, Ill.

Filed Jun. 4, 1979, Ser. No. 45,110
Int. Cl.³ C08F 4/64
U.S. Cl. 252—429 C 6 Claims

1. An alpha-olefin polymerization catalyst comprising
(a) at least one organoaluminum component of the formula AlR_gX_{3-g} wherein R is an alkyl radical of 1 to about 20 carbon atoms, X is halogen, and g ranges from 1 to 3, and
(b) at least one component which is the solid reaction product of components consisting essentially of (1) at least one titanium(IV) halide or alkoxyhalide, and (2) at least one hydrocarbon-soluble organomagnesium-organoaluminum complex of the formula $(MgR^1_2)_m.(AlR^2_3)_n$ wherein each R^1 and R^2 is independently an alkyl radical of 1 to about 20 carbon atoms, m and n are numbers greater than 0, and m/n is at least about 1, said components (1) and (2) being reacted at a temperature ranging from about −50° to about 150° C. and in amounts such that the atomic ratio of magnesium plus aluminum in (2) to titanium in (1) ranges from about 0.5:1 to about 4:1 to form a solid reaction product followed by separation of unreacted starting materials from said solid reaction product.

4,276,192
POLYMERIZATION CATALYSTS

Charles M. Selman, and Lawrence M. Fodor, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 6, 1979, Ser. No. 55,426
Int. Cl.³ C08F 4/64
U.S. Cl. 252—429 B 19 Claims

1. A process comprising contacting
(a) magnesium metal,
(b) an organic halide of the formula R'X or $R''X_2$ where X represents a halogen, R' is selected from alkynyl, alkenyl, alkyl, aryl, cycloalkenyl or cycloalkyl radicals and combinations thereof containing from 1 to 12 carbon atoms per molecule and R'' is a saturated divalent aliphatic hydrocarbyl radical and
(c) a titanium tetrahalide and subjecting same to intensive milling in the presence of
(d) a triaryl phosphite
(e) an anhydrous aluminum trihalide and
(f) magnesium oxide but in the absence of a complexing or extraneous diluent;
thereafter activating the thus produced titanium catalyst component by contacting same with
(g) an activator comprising a trialkylaluminum compound, a dialkylaluminum chloride, and a polar organic adjuvant which is an electron donor, said adjuvant further being characterized as a 1 to 4 carbon atom alkyl ester of a substituted or unsubstituted benzoic acid.

4,276,193
CATALYST ON A SOLID CARRIER FOR THE POLYMERIZATION OF α-OLEFINS

Klaus-Peter Arlt; Ulrich Grigo, and Rudolf Binsack, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Sep. 4, 1979, Ser. No. 72,085
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1978, 2839136
Int. Cl.³ C08F 4/64
U.S. Cl. 252—429 B 7 Claims

1. A process for preparing a stereospecific α-olefin polymerization catalyst, said process consisting of the steps of
(a) forming a solid carrier of anhydrous magnesium dihalide;
(b) mixing said carrier with an electron donor compound;
(c) contacting the mixture of (b) with a solution of $TiCl_4$ in $SiCl_4$, the molar ratio of $TiCl_4$ to electron donor being from 1:10 to 1:30 and
(d) reducing the $TiCl_4$ with a reducing agent of the formula

$$AlR_nX_{3-n}$$

wherein R is alkyl having 1 to 18 carbon atoms, X is halogen and n is an integer such that $0<n\leqq 3$.

4,276,194
CATALYTIC COMPOSITE, METHOD OF MANUFACTURE, AND PROCESS FOR USE

David H. J. Carlson, Park Ridge, Ill., assignor to UOP Inc., Des Plaines, Ill.

Filed Oct. 1, 1979, Ser. No. 80,638
Int. Cl.³ B01J 31/22
U.S. Cl. 252—430 10 Claims

1. A method of manufacture of a catalytic composite which comprises the following sequence of preparative steps: (1) contacting a solid adsorptive support with a substituted ammonium compound represented by the structural formula



wherein r is a hydrocarbon radical containing up to about 20 carbon atoms and selected from the group consisting of alkyl, cycloalkyl, aryl, alkaryl and aralkyl; R' is a substantially straight-chain alkyl radical containing from about 5 to about 20 carbon atoms, and X is an anion selected from the group consisting of halide, nitrate, sulfate, phosphate, acetate, citrate and tartrate (2) drying the resulting composite prior to step (3), and thereafter, (3) contacting the resulting composite with a metal phthalocyanine and an alkali metal hydroxide, said alkali metal hydroxide being present in a weight ratio with said adsorptive support of from about 0.1:1 to about 1:1, and (4) thereafter again drying said resulting catalytic composite.

4,276,195
CONVERTING HOMOGENEOUS TO HETEROGENEOUS CATALYSTS

John G. Verkade, Ames, Iowa, assignor to Iowa State University Research Foundation, Inc., Ames, Iowa

Filed Dec. 20, 1979, Ser. No. 105,942
Int. Cl.³ B01J 31/12, 31/02
U.S. Cl. 252—431 P 14 Claims

1. A method of converting transition metal complex catalysts, which are homogeneous with respect to the reactants for the reaction to be catalyzed, to heterogeneous phase polymerized catalysts of substantially equal catalytic activity as said homogeneous catalysts, said method comprising:
reacting said transition metal complex with a metal bridging ligand which substantially mimics the ligand moiety of said metal complex and which has more than one ligating center;
to provide a polymerized heterogeneous transition metal complex catalyst.

4,276,196
ATTRITION RESISTANT CATALYSTS

Charles A. Dalton, and William E. Slinkard, both of Corpus Christi, Tex., assignors to Celanese Corporation, New York, N.Y.

Filed Aug. 9, 1979, Ser. No. 65,256
Int. Cl.³ B01J 27/14, 29/00
U.S. Cl. 252—435 8 Claims

1. A catalyst for the oxidative conversion of olefinically unsaturated hydrocarbons to the corresponding unsaturated aldehydes having improved attrition resistance prepared by the steps comprising:
(1) wetting an essentially inert porous support capable of holding finely divided catalytically active oxide material on its outer surface with a sufficient amount of aqueous silica sol containing from about 20 to about 40 weight percent silica, based on the weight of the aqueous silica sol to provide a wetted support which contains up to the maximum amount of aqueous silica sol which the support can sorb without having the appearance of liquid on the outer surface of said wetted support;
(2) coating the outer surface of said wetted support with a uniformly appearing coating of a dried precursor of a finely divided catalytically active oxide material for the oxidation of olefinically unsaturated hydrocarbons to the corresponding unsaturated aldehydes, said precursor having been previously heated at a temperature of from about 200° C. to about 350° C. in the presence of molecular oxygen to remove the majority of the volatiles therefrom;
(3) calcining said coated wetted support at a temperature of from about 400° C. to about 570° C. for a period of time sufficient to provide a catalyst having the desired catalytic activity and an extended catalyst life.

4,276,197
PREPARATION OF A TITANIUM PROMOTED $VO(PO_3)_2$ OXIDATION CATALYST

James C. Vartuli, West Chester, Pa., and Lee R. Zahner, Dublin, Ohio, assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Dec. 19, 1979, Ser. No. 105,365
Int. Cl.³ B01J 27/14, 31/02
U.S. Cl. 252—435 13 Claims

1. A method for the preparation of a titanium promoted single phase crystalline vanadium(IV)bis(metaphosphate) hydrocarbon oxidation catalyst which comprises the steps of:
forming a slurry of vanadyl sulfate, titanium dioxide, acetic anhydride and phosphorus pentoxide with the liberation of exothermic heat;
introducing said slurry into a heating zone and maintaining said zone at a temperature of at least about 325° C. for a period sufficient for the liberation of gases and forming a titanium-vanadium-phosphorus reaction product;
cooling the reaction product and washing with water to essentially remove any soluble residue;
drying the water washed product and calcining in air to obtain a titanium containing single phase crystalline vanadium(IV)bis(metaphosphate) catalyst.

4,276,198
DESTRUCTION METHOD FOR THE WET COMBUSTION OF ORGANICS

Richard A. Miller, Knoxville, Tenn., assignor to IT Enviroscience, Inc., Knoxville, Tenn.

Division of Ser. No. 16,645, Mar. 1, 1979, Pat. No. 4,212,735.
This application Oct. 25, 1979, Ser. No. 88,272
Int. Cl.³ B01J 27/24, 27/06
U.S. Cl. 252—438 6 Claims

1. A cocatalyst system useful for the oxidation of organic compounds in an aqueous system of pH not more than about 4 to reduce the total organic content of the system, the composition comprising a catalytic combination of:
(1) nitrate ions,
(2) at least one of either bromide ions or iodide ions, and
(3) transition metal ions of at least one transition metal selected from the group consisting of vanadium, cobalt, molybdenum, manganese and ruthenium.

4,276,199
SUPPORTED MOLYBDENUM/TUNGSTEN COMPOSITIONS

Ronald J. Hoxmeier, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jul. 21, 1980, Ser. No. 170,352
Int. Cl.³ B01J *21/00, 23/24, 27/00*
U.S. Cl. 252—438 8 Claims

1. A composition prepared by impregnating a porous, inert support with an aqueous solution of $H_4Mo(CN)_8$, $H_4W(CN)_8$ or mixtures thereof, drying the impregnated support and calcining the impregnated support in a non-oxidizing environment at a temperature ranging from about 400° to about 600° C.

2. The composition of claim 1 wherein the support is alumina, silica or mixtures thereof.

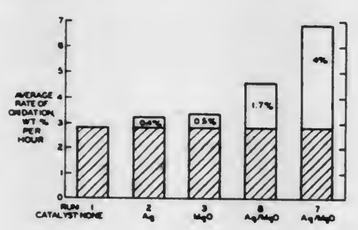
4. A process for preparing a molybdenum-and/or tungsten-containing composition which process comprises impregnating a porous, inert support with an aqueous solution of $H_4Mo(CN)_8$, $H_4W(CN)_8$ or mixtures thereof, drying the impregnated support and calcining the impregnated support in a non-oxidizing environment.

6. The process of claim 4 wherein the $H_4Mo(CN)_8$ or $H_4W(CN)_8$ is prepared from the corresponding alkali metal cyanide, $M_4Mo(CN)_8$ (where M = Li, Na, K, Rb or Cs) by ion exchanging said cyanide with the hydrogen form of a strong acid ion exchange resin.

4,276,200
CATALYST AND PROCESS FOR PRODUCING HYDROPEROXIDES

Yulin Wu; Marvin M. Johnson, and Gerhard P. Nowack, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 930,077, Aug. 1, 1978, Pat. No. 4,201,875.
This application Nov. 14, 1979, Ser. No. 94,253
Int. Cl.³ B01J *27/20, 23/50, 23/06, 21/10*
U.S. Cl. 252—443 3 Claims



1. A composition consisting essentially of metallic silver supported on an inorganic support selected from the group consisting of zinc oxide and a zinc oxide-calcium carbonate mixture, wherein the amount of silver in said composition is in the range of from about 0.05 to about 10 weight percent based upon the total weight of the composition.

4,276,201
CATALYST AND HYDROCONVERSION PROCESS UTILIZING THE SAME

Willard H. Sawyer, Baton Rouge, La., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Continuation-in-part of Ser. No. 66,572, Aug. 15, 1979, abandoned. This application Jun. 2, 1980, Ser. No. 155,206
Int. Cl.³ B01J *21/12, 23/76*
U.S. Cl. 252—455 R 9 Claims

1. A catalyst comprising:

(a) a support having initially a surface area ranging from about 350 to about 500 m^2/g, a total pore volume of about 1.0 to about 2.5 cc/g, not more than about 0.2 cc/g of said pore volume being in pores having a diameter of more than about 400 Angstroms, said support comprising agglomerates of alumina and silica, said silica comprising less than about 10 weight percent of said support, said agglomerates having been prepared in an agglomeration zone, under agglomeration conditions, including maintaining the heat introduced into said agglomeration zone in the range of about 10,000 to about 25,000 British thermal units per hour per pound of said alumina, and

(b) a hydrogenation component selected from the group consisting of elemental metal, metal oxide, metal sulfide of a Group VIB metal and an elemental metal, metal oxide and metal sulfide of a Group VII metal and mixtures thereof of the Periodic Table of Elements.

4,276,202
PROCESS FOR THE MANUFACTURE OF ELECTRODES HAVING PEROVSKITE STRUCTURE FOR ELECTROCHEMICAL HIGH TEMPERATURE CELLS

Rainer Schmidberger, Bermatingen, and Wolfgang Dönitz, Immenstaad, both of Fed. Rep. of Germany, assignors to Dornier System GmbH, Fed. Rep. of Germany

Filed Aug. 13, 1979, Ser. No. 66,227
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 2837118
Int. Cl.³ B01J *21/10, 23/06, 23/10, 23/26*
U.S. Cl. 252—462 7 Claims

1. A process for the manufacture of electrode material having a perovskite structure for electrochemical high temperature cells and measuring sondes having oxygen ion-conducting solid electrolytes based on zirconium dioxide or cerium dioxide, comprising an admixture of mixed oxides based on $LaMnO_3$ or $LaNiO_3$ or $LaCoO_3$, and small amounts of chromium and monovalent or bivalent cations selected from the group of the alkali elements or the alkaline earth elements or of Zn, Cd, Mg, Sn, or Pb, which comprises spraying into a hot reaction zone a solution of metal compounds in a stoichiometric ratio and at a temperature of about 1000° to 1500° K., in the presence of sufficient oxygen for reaction,

evaporating the solvent from the non-volatile constituents,

whereby during further passage of the constituents through the hot reaction zone, mixed oxides are formed having the desired composition with homogeneous element distribution, particularly chromium distribution, in the atomic range,

and separating said oxides from solvent vapors.

4,276,203
CATALYTIC SYSTEM AND PROCESS FOR PRODUCING IT

William C. Pfefferle, Middletown, N.J., assignor to Acurex Corporation, Mountain View, Calif.

Filed Apr. 26, 1979, Ser. No. 33,705
Int. Cl.³ B01J *21/04, 23/10, 23/58, 23/64*
U.S. Cl. 252—462 16 Claims

1. In a process for forming a catalytic bed with a porous support structure of a low surface area ceramic, the steps of applying onto the surface of the support structure a mixture consisting essentially of a solution of a solvent and a salt which decomposes to form a refractory oxide, drying the solution to remove the solvent therefrom, decomposing the salt into the oxide leaving a refractory oxide adhering within the surface pores of the support structure, impregnating the surface with a solution of an active catalytic material, and drying the last-mentioned solution to remove the solvent therefrom.

4,276,204
COMPOSITION OF A CONDUCTIVE CERAMIC GLAZE AND IMPROVED METHOD OF FORMING SAME

Victor Chester, Allentown, N.J., assignor to General Porcelain Mfg. Co., Trenton, N.J.

Filed Jan. 8, 1979, Ser. No. 1,986
Int. Cl.³ H01B *1/06*
U.S. Cl. 252—519 20 Claims

1. An improved electrically conductive composition for glazing a ceramic mold form including a first combination comprising:

(a) feldspar: 30.0–35.0 percent by weight;
(b) flint: 18.0–22.0 percent by weight;
(c) calcium carbonate: 7.0–11.0 percent by weight:
(d) ball clay: 1.0–2.0 percent by weight
(e) kaolin: 2.0–4.2 percent by weight;
(f) zinc oxide: 5.0–10.0 by weight
(g) black iron oxide: 25.0–30.0 by weight

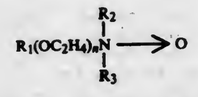
4,276,205
DETERGENT COMPOSITIONS CONTAINING AMINE OXIDE AND NONIONIC SURFACTANTS AND POLYETHYLENE GLYCOL

Merle W. Ferry, Fairfield, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Feb. 4, 1980, Ser. No. 117,904
Int. Cl.³ C11D *3/37*
U.S. Cl. 252—528 37 Claims

1. A detergent composition especially useful for cold-water fabric laundering, comprising:

(a) from about 1% to about 20% by weight of an amine oxide surfactant of the formula



wherein R_1 is a C_{10}–C_{18} hydrocarbyl or substituted hydrocarbyl lipophilic group, R_2 and R_3 are each C_1–C_3 hydrocarbyl or substituted hydrocarbyl groups, and n is from 0 to about 10;

(b) from about 1% to about 25% by weight of an ethoxylated alcohol or ethoxylated alkyl phenol nonionic surfactant of the formula

$R(OC_2H_4)_nOH$

wherein R is selected from the group consisting of aliphatic hydrocarbyl groups containing from about 8 to about 18 carbon atoms, alkyl phenyl groups wherein the alkyl group contains from about 8 to about 15 carbon atoms, and mixtures thereof, and n is from about 3 to about 9; and

(c) from about 0.1% to about 9% by weight of a polyethylene glycol having an average molecular weight of from about 2,000 to about 40,000.

4,276,206
IMMUNOCHEMICAL CONJUGATES: METHOD AND COMPOSITION

David H. Katz, La Jolla, Calif., assignor to Scripps Clinic & Research Foundation, La Jolla, Calif.

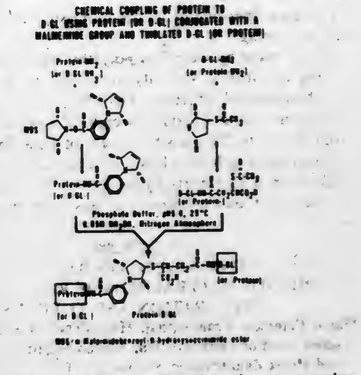
Division of Ser. No. 4,333, Jan. 18, 1979, Pat. No. 4,220,565, which is a continuation-in-part of Ser. No. 764,586, Feb. 2, 1977, Pat. No. 4,191,668. This application Feb. 11, 1980, Ser. No. 120,067
Int. Cl.³ C08L *77/04, 89/00;* A61K *37/02, 37/26*
U.S. Cl. 260—6 3 Claims

1. The method of preparing therapeutic immunosuppressive conjugates of D-glutamic acid-D-lysine copolymer with antigen comprising the steps of:

(a) introducing biotin into the D-glutamic acid-D-lysine copolymer molecule to form D-GL(biotin);

(b) reacting D-GL(biotin) with either m-maleimidobenzoyl-N-hydroxysuccinimide ester to form MB-D-GL(biotin) or with S-acetylmercaptosuccinic anhydride to form SH-D-GL(biotin);

(c) reacting antigen with either m-maleimidobenzoyl-N-hydroxysuccinimide ester to form MB-Antigen or with S-acetylmercaptosuccinic anhydride to form SH-Antigen;



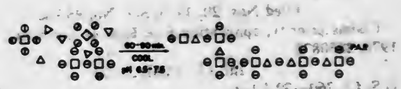
(d) reacting MB-D-GL(biotin) with SH-Antigen or reacting SH-D-GL(biotin) with MB-Antigen to form conjugates of D-glutamic acid-D-lysine(biotin) with antigen; and

(e) separating said D-glutamic acid-D-lysine(biotin)-antigen conjugate from non-conjugated antigen by affinity chromatography on an avidin-Sepharose chromatographic column.

4,276,207
PIGMENT AGGLOMERATE COLORING SYSTEM

David Lester, Arlington, and Robert Alexander, Waltham, both of Mass., assignors to Polymerics, Inc., Waltham, Mass.

Filed Aug. 14, 1979, Ser. No. 66,618
Int. Cl.³ C08L *1/28, 3/02*
U.S. Cl. 260—17 R 42 Claims



1. A pigment micro-agglomerate coloring system comprising:

a solution of acetylated starch in water,

an organic acid sufficient to raise the solution to a pH of from 4 to 5,

a polyhydric alcohol,

hydrophobic pigment particles, and

a base sufficient to readjust the pH of the resultant suspension to from 6.5 to 7.5.

4,276,208

GLASS FIBER-REINFORCED THERMOPLASTIC POLYESTER COMPOSITION

Yoshinari Ogawa; Teruhisa Fukumoto, and Kohichi Sakai, all of Sagamihara, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Oct. 9, 1979, Ser. No. 82,970

Claims priority, application Japan, Oct. 9, 1978, 53/123569; Oct. 11, 1978, 53/124099; Oct. 11, 1978, 53/124100; Oct. 30, 1978, 53/132503

Int. Cl.³ C08L 91/00

U.S. Cl. 260—28 R **11 Claims**

1. A glass fiber-reinforced thermoplastic polyester composition comprising

(A) 100 parts by weight of polyethylene terephthalate having an intrinsic viscosity, measured at 35° C. in orthochlorophenol, of from 0.4 to 0.9,

(B) from 0.05 to 3 parts by weight of a salt of montan wax,

(C) from 5 to 200 parts by weight of glass fibers having an average length of at least 0.2 mm, and

(D) from 0 to 5 parts by weight of an epoxy compound having at least two epoxy groups in the molecule.

4,276,209

CO-CONDENSATES BASED ON PHENOL-BUTYRALDEHYDE RESINS, THEIR PREPARATION AND THEIR USE

Harro Petersen, Frankenthal; Hans-Joachim Krause; Kurt Fischer, both of Ludwigshafen; Adolph Segnitz, Bad Durkheim, and Horst Zaunbrecher, Worms, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Oct. 23, 1979, Ser. No. 87,577

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1978, 2847030

Int. Cl.³ C08L 91/06, 61/08

U.S. Cl. 260—28 P **10 Claims**

1. A process for the preparation of a co-condensation product based on a phenol and butyraldehyde, comprising:

condensing a butyraldehyde with a phenolic compound in a mole ratio of 0.8 to 2.0 moles aldehyde per mole of phenolic compound and adding to said reactants before, during or after condensation from 5 to 50% by weight, based on the mixture of phenol and butyraldehyde, of a thermoplastic which can react with said phenol-butyraldehyde co-condensation product containing functional groups selected from the group consisting of ester, amide, hydroxyl, amine, carboxyl, anhydride, SH, carbamate, isocyanate, urea, N-methylol, NH groups and halogen atoms, the co-condensation reactions with said thermoplastic being conducted at a temperature of 80° to 220° C.

4,276,210

WATER-DILUTABLE LACQUER BINDERS FOR CHEMICALLY RESISTANT COATINGS

Peter Höhlein, and Jochen Schoeps, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 20, 1979, Ser. No. 95,963

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1978, 2850872

Int. Cl.³ C08L 33/02

U.S. Cl. 260—29.4 UA **3 Claims**

1. A water-dilutable lacquer binder comprising a mixture of

A. 20–94% by weight of a copolymer consisting of copolymerised units of

(a) 30–65% by weight of an aromatic vinyl or isopropenyl compound having 8–14 C-atoms or of a methacrylic acid alkyl ester having 1–4 C-atoms in the alcohol component, or any mixture thereof;

(b) 10–30% by weight of at least one acrylic acid alkyl ester having 1 to 8 C-atoms in the alcohol component;

(c) 1–20% by weight of maleic acid, fumaric acid, itaconic acid or their semi-esters having 1–8 C-atoms in the alcohol component, (meth)acrylic acid or any mixture of the aforesaid monomers;

(d) 5–20% by weight of at least one hydroxyalkyl ester of (meth)acrylic acid having 2–4 C-atoms in the alkyl group or glycidyl (meth)acrylate or any mixture of the aforesaid monomers; and

(e) 10–30% by weight of N-methylol (meth)acrylic acid amide or N-methoxymethyl (meth)acrylic acid amide or any mixture thereof;

B. 1–40% by weight of a saturated lactam, and

C. 5–40% by weight of an aminoplast resin;

wherein 30–100% of the number of carboxyl groups of component A.c. incorporated in the copolymer have been neutralised by ammonia or monoamines or polyamines.

4,276,211

STABILIZATION COMPOSITION FOR COATING COMPOSITION

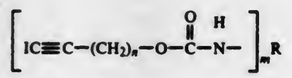
William Singer, Teaneck; Milton Nowak, South Orange, and Norma Ingles, Edison, all of N.J., assignors to Troy Chemical Corporation, Newark, N.J.

Filed Mar. 10, 1980, Ser. No. 129,058

Int. Cl.³ C08L 23/00; C09D 5/14

U.S. Cl. 260—29.6 MN **22 Claims**

1. A composition adapted for use in coating applications which contains at least one iodo compound having the formula:



in which R is an alkyl, aryl, alkaryl, alkene, cyclohexyl or similar group having one to not more than 20 carbon atoms and having from one to three linkages corresponding to m and n and m are whole number integers between 1 and 3 and may be the same or different, and at least one organic epoxy compound.

4,276,212

HIGH SOLIDS COATING COMPOSITION OF A LOW MOLECULAR WEIGHT ACRYLIC POLYMER AND AN ALKYLATED MELAMINE CROSS-LINKING AGENT

Ram-Tirth Khanna, Wilmington, Del., and Robert L. Turner, Troy, Mich., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 968,364, Dec. 11, 1978, abandoned, which is a continuation of Ser. No. 807,735, Jun. 17, 1977, abandoned, which is a continuation-in-part of Ser. No. 600,367, Jul. 30, 1975, abandoned. This application Mar. 7, 1980, Ser. No. 128,113

Int. Cl.³ C08L 31/00, 33/14, 61/28

U.S. Cl. 260—39 R **25 Claims**

1. A high solids coating composition comprising at least 50% by weight of a binder of film-forming constituents and up to 50% by weight of a liquid carrier; in which the film-forming constituents consist essentially of

(A) about 50–95% by weight of an acrylic polymer having a number average molecular weight determined by gel permeation chromotography of about 500–4,500, a hydroxyl content of about 2–10% by weight, a glass transition temperature of about −20° C. to +20° C. and containing about 2–10% by weight of a chain transfer agent and consisting essentially of

methyl methacrylate, an alkyl methacrylate or an alkyl acrylate each having 2–12 carbon atoms in the alkyl groups and a hydroxyl alkyl acrylate or a hydroxy alkyl methacrylate each having 2–4 carbon atoms in the alkyl group and

(B) about 5–50% by weight of an alkylated melamine formaldehyde cross-linking agent having 1–4 carbon atoms in

the alkyl group and in addition to the film-forming constituents 0.1–2% by weight of an acid catalyst.

4,276,213

PROCESS FOR THE COLORATION OF ORGANIC MATERIAL OF HIGH MOLECULAR WEIGHT IN THE MELT WITHIN ANTHRAQUINONE DYES

Max Jost, Oberwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

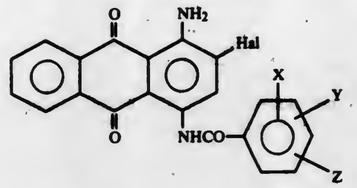
Filed Jun. 18, 1979, Ser. No. 49,820

Claims priority, application Switzerland, Jun. 29, 1978, 7100/78

Int. Cl.³ C07C 103/75; C08K 5/08

U.S. Cl. 260—40 R **12 Claims**

1. A process for colouring organic material of high molecular weight in the melt, which comprises homogeneously mixing said organic material with a colourant of the formula



wherein Hal represents a chlorine or bromine atom, X represents a hydrogen or halogen atom, an alkyl or alkoxy group of 1 to 6 carbon atoms, an alkoxycarbonyl group of 2 to 7 carbon atoms, a phenyl group or a phenoxy group which is unsubstituted or substituted by chlorine atoms or methyl groups, and Y and Z represent hydrogen or halogen atoms or methyl groups.

4,276,214

FLUORINE-CONTAINING RESIN COMPOSITION HAVING IMPROVED THERMAL STABILITY

Tatsushiro Yoshimura, Takatsuki, and Shigetake Tominaga, Ibaraki, both of Japan, assignors to Daikin Kogyo Co., Ltd., Osaka, Japan

Filed Jun. 6, 1979, Ser. No. 46,047

Claims priority, application Japan, Jun. 9, 1978, 53/70202; Jun. 9, 1978, 53/70203

Int. Cl.³ C08K 5/58, 5/57, 3/10, 5/43, 5/18

U.S. Cl. 260—45.75 K **9 Claims**

1. A melt-processable fluorine-containing resin composition having an improved thermal stability which comprises a melt-processable fluorine-containing resin selected from the group consisting of:

(a) tetrafluoroethylene-hexafluoropropylene copolymers containing tetrafluoroethylene and hexafluoropropylene residues in a weight ratio of 95:5 to 75:25;

(b) tetrafluoroethylene-perfluorovinyl ether copolymers containing tetrafluoroethylene and perfluorovinyl ether residues in a weight ratio of 98:2 to 90:10;

(c) tetrafluoroethylene-ethylene copolymers containing tetrafluoroethylene and ethylene residues in a weight ratio of 70:30 to 90:10;

(d) tetrafluoroethylene-ethylene-propylene copolymers containing tetrafluoroethylene, ethylene and propylene residues in a weight ratio of 40 to 65:25 to 50:2 to 20;

(e) a chlorotrifluoroethylene homopolymer;

(f) chlorotrifluoroethylene-ethylene copolymers containing chlorotrifluoroethylene and ethylene residues in a weight ratio of 75:25 to 85:15;

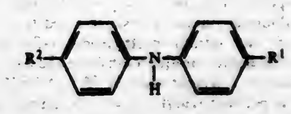
(g) a vinylidene fluoride homopolymer;

(h) vinylidene fluoride-tetrafluoroethylene copolymers containing vinylidene fluoride and tetrafluoroethylene residues in a weight ratio of 70:30 to 90:10; and

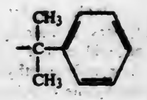
(i) vinylidene fluoride-hexafluoroisobutylene copolymers containing vinylidene fluoride and hexafloroisobutylene residues in a weight ratio of 40:60 to 70:30,

and a stabilizing amount of at least one thermal stabilizer selected from the group consisting of:

(A) an amine antioxidant selected from the group consisting of dinaphthylamine, phenyl-α-naphthylamine, phenyl-β-naphthylamine, diphenyl-p-phenylenediamine, di-β-naphthyl-p-phenylenediamine, phenylcyclohexyl-p-phenylene diamine, aldol-α-naphthyl-diphenylamine, a reaction product of diphenylamine and diisobutylene, and a diphenylamine derivative having the formula:

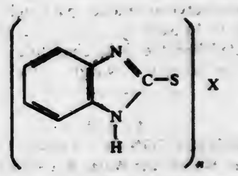


wherein R^1 and R^2 are

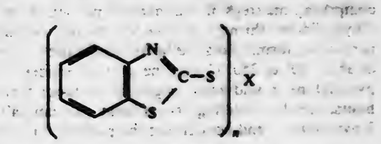


or octyl group; and

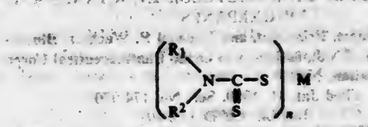
(B) an organosulfurous compound selected from the group consisting of benzoimidazole type mercaptans having the formula:



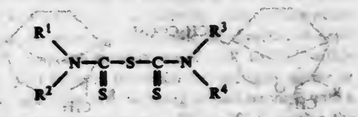
wherein X is H, Zn, Sn or Cd, and n is an integer of 1 to 4; benzothiazole type mercaptan compounds and their salts having the formula:



wherein X is H, Zn, Sn or Cd, and n is an integer of 1 to 4; dithiocarbamic acids and their salts having the formula:

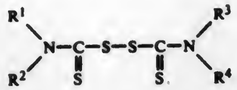


wherein R^1 and R^2 are an alkyl or aryl group having 2 to 16 carbon atoms, M is H, Zn, Sn, Cd or Cu and n is an integer of 1 to 4; a thiuram compound having the formula:



wherein R^1, R^2, R^3 and R^4 are an alkyl or aryl group having 2

to 16 carbon atoms; and a thiuram compound having the formula:



wherein R^1, R^2, R^3 and R^4 are an alkyl or aryl group having 2 to 16 carbon atoms.

7. A melt-processable fluorine-containing resin composition having an improved thermal stability which comprises a melt-processable fluorine-containing resin selected from the group consisting of: (a) tetrafluoroethylene-hexafluoropropylene copolymers containing tetrafluoroethylene and hexafluoropropylene residues in a weight ratio of 95:5 to 75:25, (b) tetrafluoroethylene-perfluorovinyl ethers containing tetrafluoroethylene and perfluorovinyl ether residues in a weight ratio of 98:2 to 90:10, (c) tetrafluoroethylene-ethylene copolymers containing tetrafluoroethylene and ethylene residues in a weight ratio of 70:30 to 90:10, (d) tetrafluoroethylene-ethylene-propylene copolymers containing tetrafluoroethylene, ethylene and propylene residues in a weight ratio of 40 to 60: 25 to 50:2 to 20, (e) a chlorotrifluoroethylene homopolymer, (f) chlorotrifluoroethyleneethylene copolymers containing chlorotrifluoroethylene and ethylene residues in a weight ratio of 75:25 and 85:15, (g) a vinylidene fluoride homopolymer, (h) vinylidene fluoride-tetrafluoroethylene copolymers containing vinylidene fluoride and tetrafluoroethylene residues in a weight ratio of 70:30 to 90:10, and (i) vinylidene fluoride-hexafluoroisobutylene copolymers containing vinylidene fluoride and hexafluoroisobutylene residues in a weight ratio of 40:60 to 70:30 and 0.05 to 10 parts by weight of at least one thermal stabilizer selected from the group consisting of tin powder and zinc powder per 100 parts by weight of the resin.

4,276,215

PURIFICATION OF PYRROLIDONE

Eugene V. Hort, Wayne, and Waldo R. De Thomas, Parsippany, both of N.J., assignors to GAF Corporation, New York, N.Y.

Filed Jul. 25, 1977, Ser. No. 818,564
Int. Cl.³ C07D *201/16*
U.S. Cl. 260—326.5 FN 8 Claims

1. A process for removing impurities from 2-pyrrolidone comprising the steps of continuously passing the impure liquid 2-pyrrolidone through a zone containing calcium oxide in particulate form, said zone being maintained at a temperature of about 80° to 250° C. and the average residence time of the pyrrolidone in said zone ranging from about 5 minutes to 10 hours, rapidly distilling the effluent calcium salt-containing 2-pyrrolidone, and condensing the purified 2-pyrrolidone.

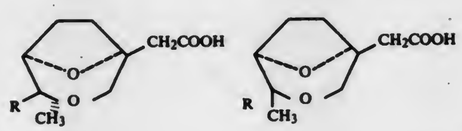
4,276,216

SYNTHESIS OF DIOXABICYCLO{3.2.1}OCTANES AND OXEPANES

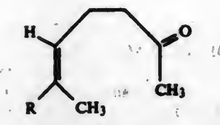
Zoltan G. Hajos, Princeton, and Michael P. Wachter, Bloomsbury, both of N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Filed Jul. 31, 1980, Ser. No. 174,070
Int. Cl.³ C07D *319/10*
U.S. Cl. 260—340.6 13 Claims

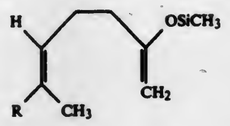
1. The process for the preparation of compounds of the formula:



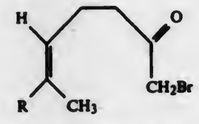
which comprises reacting a compound of the formula:



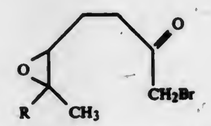
with lithium diisopropylamide followed by reaction of the intermediate with trimethylsilyl chloride to form a silyl enol ether of the formula:



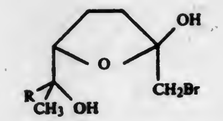
reacting the enol ether with N-bromosuccinimide to form a bromide of the formula:



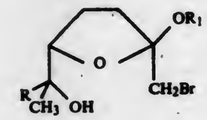
reacting the bromide with a peracid to form an epoxide of the formula:



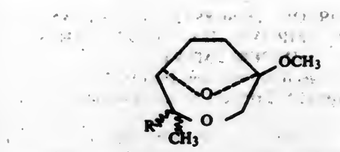
reacting the epoxide with an acid to form a hemi-ketal of the formula:



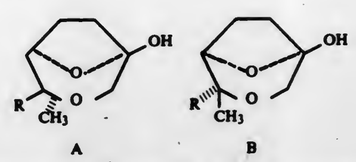
reacting the hemi-ketal with a trialkylorthoformate to form a ketal of the formula:



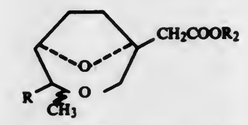
reacting the ketal with a cyclizing agent to form an oxido oxepane of the formula:



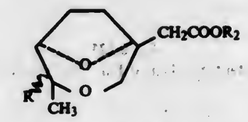
reacting the oxido oxepane with dilute acid to give a mixture of epimeric hemi-ketals of the formula:



separating the epimers by physical means and i. reacting Compound A with a carbalkoxymethylenetriphenylphosphorane to form an ester of the formula:

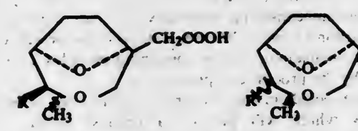


and hydrolyzing the ester with a base; and ii. reacting Compound B with a carbalkoxymethylenetriphenylphosphorane to form an ester of the formula:

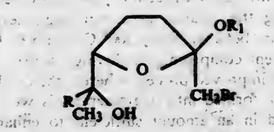


and hydrolyzing the ester with a base, wherein R is a straight or branched chain alkyl group having 1–12 carbon atoms and R_1 and R_2 are lower alkyl having 1–5 carbon atoms.

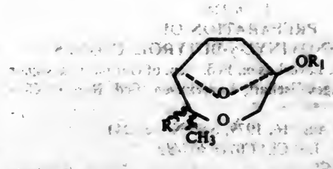
9. The process for the preparation of compounds of the formula



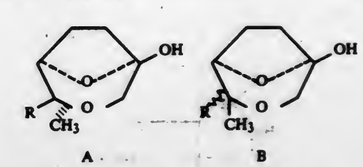
which comprises reacting a ketal of the formula:



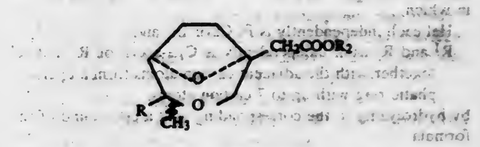
with a cyclizing agent to form an oxido-oxepane of the formula:



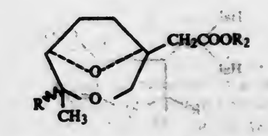
reacting the oxido-oxepane with dilute acid to give a mixture of epimeric hemi-ketals of the formula:



separating the epimers by physical means and i. reacting Compound A with a carbalkoxymethylenetriphenylphosphorane to form an ester of the formula:



and hydrolyzing the ester with a base; and ii. reacting Compound B with a carbalkoxymethylene triphenylphosphorane to form an ester of the formula:



and hydrolyzing the ester with a base, wherein R is a straight or branched chain alkyl group having 1–12 carbon atoms and R_1 and R_2 are lower alkyl having 1–5 carbon atoms.

4,276,217

METHOD FOR PRODUCING 1,5-DIMETHYL-6,8-DIOXABICYCLO{3.2.1}OCTANE

Teruaki Mukaiyama, Tokyo, and Yoji Sakito, Ibaraki, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jul. 21, 1980, Ser. No. 170,955
Claims priority, application Japan, Jul. 31, 1979, 54/98361; Jul. 31, 1979, 54/98362
Int. Cl.³ C07D *317/44*
U.S. Cl. 260—340.5 R 7 Claims

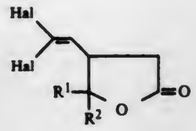
1. A process for producing an optically active or a racemic 1,5-dimethyl-6,8-dioxabicyclo[3.2.1]octane, which comprises reacting an optically active or a racemic 2,6-dimethyl-6-hepten-1,2-diol with ozone at a temperature of −80° to 0° C. within 10 hours in an inert solvent, to obtain the optically active or racemic ozonide and reductive working up said ozonide with a reducing agent at a temperature of −80° to 30° C. within the range of 10 minutes to 2 hours in an inert solvent.

4,276,218
PREPARATION OF DIHALOGENOVINYL-γ-BUTYROLACTONES

Reinhard Lantzsch, Leverkusen, Fed. Rep. of Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 16, 1979, Ser. No. 67,241
Int. Cl.³ C07D 307/32
U.S. Cl. 260—343.6 4 Claims

1. In the preparation of a dihalogenovinyl-γ-butyrolactone of the formula

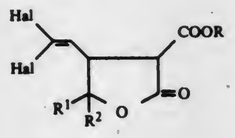


in which

Hal each independently is F, Cl or Br, and

R^1 and R^2 each independently is C_{1-4}-alkyl, or R^1 and R^2 together with the adjacent carbon atoms form a cycloaliphatic ring with up to 7 carbon atoms,

by hydrolyzing to the corresponding acid a compound of the formula



in which R is C_{1-4}-alkyl, and then decarboxylating, the improvement which comprises effecting hydrolysis in acidic aqueous solution and heating the hydrolysis mass, without isolation of the intermediate hydrolysis product, at a temperature of about 110° to 120° C.

4,276,219
5-KETO-L-ASCORBIC ACID-5,5-DIMETHYL KETAL, DERIVATIVES THEREOF AND ITS USE AS AN ANTIOXIDANT AND INTERMEDIATE

Glenn C. Andrews, Waterford, Conn., assignor to Pfizer Inc., New York, N.Y.

Filed Jul. 20, 1979, Ser. No. 59,417
Int. Cl.³ C07D 307/62
U.S. Cl. 260—343.7 1 Claim

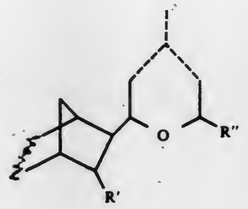
1. A process for making L-ascorbic acid which comprises reacting 5-keto-L-ascorbic acid-5,5-dimethyl ketal with sodium borohydride in a trifluoroacetic acid medium.

4,276,220
NOVEL NORBORNYL-SUBSTITUTED PYRANS, METHOD FOR THEIR SYNTHESIS AND USE THEREOF IN PERFUMERY

Brian J. Willis, Bergenfield, N.J., and John W. Dittrick, Flushing, N.Y., assignors to Fritzsche Dodge & Olcott, Inc., New York, N.Y.

Division of Ser. No. 60,589, Jul. 25, 1979, Pat. No. 4,221,679.
This application Feb. 22, 1980, Ser. No. 123,654
Int. Cl.³ C07D 309/18
U.S. Cl. 260—345.1 5 Claims

1. A norbornyl-substituted pyran of the formula:



wherein the wavy line represents either a carbon-carbon single bond or a carbon-carbon double bond; and wherein the dashed lines represent either a carbon-carbon single bond or a carbon-carbon double bond such that two of the three dashed lines represent carbon-carbon single bonds; and wherein each R' and R", individually, is either hydrogen or a methyl group.

4,276,221
Patent Not Issued For This Number

4,276,222
METHOD OF PRODUCING MALEIC ANHYDRIDE

Ramon A. Mount, and Warn D. Robinson, both of St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Dec. 26, 1979, Ser. No. 106,567
Int. Cl.³ C07D 307/60
U.S. Cl. 260—346.75 16 Claims

1. In a method for the preparation of maleic anhydride by oxidizing a reactant consisting essentially of a saturated aliphatic hydrocarbon having 4–10 carbon atoms in the presence of a phosphorus-vanadium-oxygen-containing complex catalyst prepared by the process comprising:

(a) contacting vanadium and phosphorus compounds under conditions which will provide a catalyst precursor wherein greater than 50 atom % of the vanadium is in the tetravalent state;

(b) recovering the catalyst precursor;

(c) forming the catalyst precursor into agglomerates; and

(d) calcining the catalyst precursor agglomerations at a temperature between about 300° C. and 600° C.

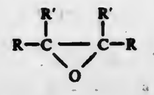
the improvement comprising employing, as the catalyst, the product of the improved process wherein the catalyst precursor after being formed into agglomerates is wetted with an aqueous liquid in an amount sufficient to enhance surface adhesion and then dried prior to calcining whereby attrition of the catalyst during the oxidizing of the reactant is substantially reduced.

4,276,223
PREPARATION OF VICINAL EPOXIDES

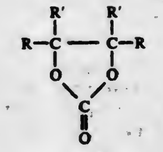
Yulin Wu, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 73,819, Sep. 10, 1979, which is a division of Ser. No. 934,667, Aug. 17, 1978, Pat. No. 4,192,810, which is a division of Ser. No. 845,183, Oct. 25, 1977, Pat. No. 4,111,965, which is a division of Ser. No. 459,628, Apr. 10, 1974, Pat. No. 4,069,234. This application Jul. 14, 1980, Ser. No. 168,922
Int. Cl.³ C07D 301/02
U.S. Cl. 260—348.16 5 Claims

1. A process for the preparation of a vicinal epoxide having 2 to 30 carbon atoms per molecule of the general formula



wherein each R and each R' are individually selected from the group consisting of hydrogen and hydrocarbyl radical groups having 1 to 10 carbon atoms and wherein both R' radicals in said epoxide can represent a divalent aliphatic hydrocarbon radical which together with the oxirane group in said epoxide can form a cycloaliphatic nucleus, which comprises heating the corresponding carbonate ester having the general formula



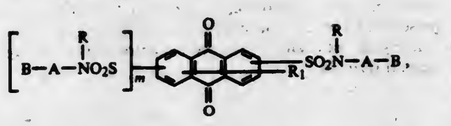
wherein R and R' are as defined above, in the presence of a catalytic amount of metal salt catalyst selected from the group consisting of the halides, sulfates and carboxylates having 1 to 20 carbon atoms of manganese.

4,276,224
ANTHRAQUINONE SULPHONAMIDE COMPOUNDS AND PREPARATION

Donald R. Randell, Stockport, and Emyr Phillips, Sale, both of England, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 12, 1979, Ser. No. 57,157
Claims priority, application United Kingdom, Jun. 7, 1978, 26466/78
Int. Cl.³ C07C 143/665
U.S. Cl. 260—371 12 Claims

1. A compound identified as,



wherein A is a C_1–C_4 straight or branched chain alkylene radical,

B is a $—SO_3M$, $—CO_2M$, $—PO_3HM$ or $—PO_3M_2$ grouping,

M is hydrogen or a cation giving a water-soluble derivative,

R is hydrogen, a cation giving a water-soluble derivative or a C_1–C_4 straight or branched chain alkyl,

R_1 is hydrogen, methyl or —COOH, and m is 1,

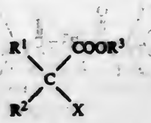
with the proviso that when B is $—SO_3M$, A cannot be ethylene and R cannot be methyl.

4,276,225
DECARBALKOXYLATION OF CARBOXYLIC ACID ESTERS

Reinhard Lantzsch, Cologne, and Helmut Hoffmann, Wuppertal, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 8, 1977, Ser. No. 822,967
Claims priority, application Fed. Rep. of Germany, Aug. 26, 1976, 2638453
Int. Cl.³ C07C 67/32, 45/65, 120/00
U.S. Cl. 260—408 8 Claims

1. A process for the decarbalkoxylation of a carboxylic acid ester of the formula



in which

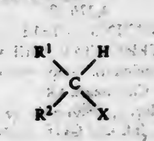
X is $COOR^4$, COR^5 or CN,

R^1 and R^2 each independently is hydrogen, alkyl, alkenyl, alkynyl, aryl or aralkyl or, R^1 and R^2, together with the adjacent carbon atom, form a cycloaliphatic ring which is optionally substituted by CN, alkyl, alkenyl, aryl, aralkyl, thioalkyl or thioaryl, the substituents of the cycloaliphatic ring optionally being substituted by halogen,

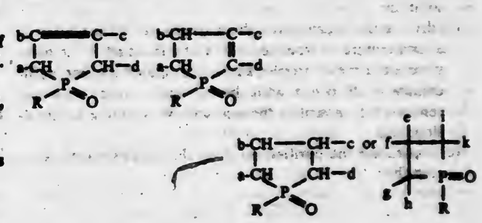
R^3 and R^4 each independently is alkyl, and

R^5 is alkyl, alkenyl, aryl or aralkyl, or R^4 or R^5 forms a ring with R^2 and the intermediate atoms,

to give a product of the formula



which comprises heating the carboxylic acid ester at about 100°–250° C. in the presence of a solvent containing phosphorus and in the presence of about 0.1 to 1.5 times the molar amount of a salt, the solvent containing phosphorus being selected from the group consisting of at least one phospholine oxide or phosphetane oxide of the formula



wherein

a, b, c and d each independently is H, alkyl, alkenyl, aryl, aralkyl, alkoxy, Cl or Br, or are a tetramethylene radical which, together with two adjacent carbon atoms of the heterocyclic ring, form a 6-carbon atom cycloaliphatic ring, provided that if a, b, c and d are aliphatic, they contain a total of not more than 6 carbon atoms and that the solvent contains not more than 3 aromatic rings,

e, f, g, h, i and k each independently is H or C_1–C_4-alkyl, and

R is C_1–C_{18}-alkyl, C_2–C_{18}-alkenyl, C_6–C_{14}-aryl or C_7–C_{20}-aralkyl, any of which is optionally substituted by alkoxy or halogen,

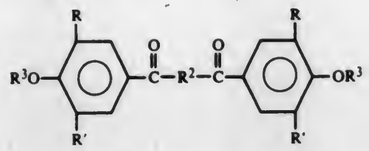
and the salt comprising a halide, cyanide, thiocyanate or azide, and then separating the ester formed.

4,276,226
METHYL- AND CHLORO- SUBSTITUTED AROMATIC DIKETODIOLS

Robert A. Clement, and Burton C. Anderson, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 23, 1979, Ser. No. 59,890
Int. Cl.³ C09F 5/08; C07C 49/784, 49/792, 69/017
U.S. Cl. 260—410.5 13 Claims

1. Diketodiol or diester of the formula



wherein R is independently methyl or chloro; R′ is independently hydrogen or R; R^2 is 1,4-phenylene, 1,3-phenylene, 2,6-naphthylene, 4,4′-biphenylene or 4,4′-biphenylene ether and R^3 is hydrogen or



where R^4 is a hydrocarbon group of 1–10 carbon atoms.

4,276,227
METHOD OF TREATING EDIBLE OIL WITH ALKALI USING INTERFACIAL SURFACE MIXER

Charles E. Kirby, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 7, 1980, Ser. No. 128,053
Int. Cl.³ C11B 3/06
U.S. Cl. 260—425 25 Claims

1. A method for refining, dewaxing or combined refining and dewaxing an impurity-containing edible oil, said method comprising the steps of:

(a) forming a stream of from about 70 to about 99.9 wt. % of an impurity-containing edible oil and from about 0.1 to about 30 wt. % of a 0.01 to 6.5 Normal aqueous alkali solution;

(b) driving the stream through an interfacial surface mixer at a temperature of from about 3° C. to about 60° C. so as to generate a mean droplet size in the alkali solution sufficiently small to mix with the oil, and to react with and remove the impurities therein, without forming an emulsion; and

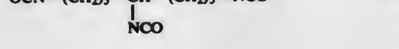
(c) separating the purified oil from the alkali solution after step (b).

4,276,228
1,6,11-UNDECANE TRIISOCYANATE

Masaki Nishino, Kawasaki, and Yutaka Yasuhara, Nagoya, both of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Jun. 12, 1979, Ser. No. 47,737
Claims priority, application Japan, Jun. 19, 1978, 53-73196
Int. Cl.³ C07C 119/042
U.S. Cl. 260—453 AL 1 Claim

1. 1,6,11-undecane triisocyanate represented by following formula,



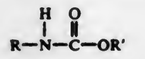
(I)

4,276,229
PROCESS FOR PREPARING CARBAMATE COMPOUNDS

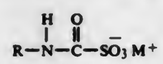
Young-Jin Lee, South Charleston, W. Va., assignor to Union Carbide Corporation, New York, N.Y.

Filed Mar. 25, 1980, Ser. No. 133,789
Int. Cl.³ C07C 119/06, 131/00
U.S. Cl. 260—453 RW 8 Claims

1. A process for preparing a compound of the formula:



which comprises reacting a compound of the formula:



with an active hydrogen containing compound containing an organic radical, in the presence of a base, wherein:

M is an alkali metal or ammonium ion;

R is a C_1–C_8 alkyl or phenyl group; and,

R′ is an organic radical from the active hydrogen containing compound, and wherein said active hydrogen containing compound is selected from the group consisting of an aliphatic alcohol, an aromatic aliphatic alcohol, a phenolic compound, a thiol compound, a secondary or primary amine, or an oxime.

4,276,230
CYANO-3-PHENOXYBENZYL N-1-(1-NAPHTHYL) ETHYLCARBAMATE

Richard J. Anderson, Palo Alto, Calif., assignor to Zoecon Corporation, Palo Alto, Calif.

Filed Apr. 21, 1980, Ser. No. 142,518
Int. Cl.³ C07C 121/75, 121/78
U.S. Cl. 260—465 D 4 Claims

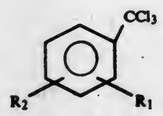
1. The compound, α-cyano-3-phenoxybenzyl N-1-(1-naphthyl)ethylcarbamate.

4,276,231
PROCESS FOR THE PREPARATION OF OPTIONALLY SUBSTITUTED BENZOYL CHLORIDE

Walter Böckmann; Karl-August Lipper, and Friedrich Brühne, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

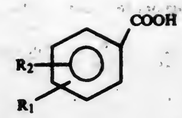
Filed Sep. 4, 1979, Ser. No. 71,805
Claims priority, application Fed. Rep. of Germany, Sep. 23, 1978, 2841541
Int. Cl.³ C07C 51/60, 51/58
U.S. Cl. 260—544 D 22 Claims

1. In a process for the preparation of optionally substituted benzoyl chloride from optionally substituted benzotrichloride which process is performed at elevated temperature in the presence of a catalyst the improvement consisting essentially of reacting an optionally substituted benzotrichloride having the general formula



wherein R_1 and R_2 are identical or different and represent hydrogen, halogen, nitro or alkyl,

or a mixture of said optionally substituted benzotrichloride and optionally substituted benzoyl chloride with a 1 to 20 mol percent excess, based on said optionally substituted benzotrichloride employed, of optionally substituted benzoic acid of the general formula



wherein R_1 and R_2 can be identical or different and represent hydrogen, halogen, nitro or alkyl,

and/or liquid water, the hydrogen chloride containing offgases formed during the reaction being washed with the optionally substituted benzotrichloride employed or the mixture of optionally substituted benzotrichloride and optionally substituted benzoyl chloride employed and/or with an inert, optionally substituted aliphatic, cycloaliphatic, and/or aromatic hydrocarbon having up to 15 carbon atoms, the reaction mixture being subjected to distillation and the bottom product which remains after distillation of optionally substituted benzoyl chloride being reacted with a 3 to 150% molar excess of optionally substituted benzotrichloride, based on the amount of optionally substituted benzoic acid present in the bottom product, and the mixture of optionally substituted benzotrichloride and optionally substituted benzoyl chloride which is obtained therefrom after distillation being recycled as feed product into the main reaction.

4,276,232
PHOSPHORUS STABILIZERS

Michael Rasberger, Riehen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 922,392, Jul. 6, 1978, abandoned. This application Oct. 9, 1979, Ser. No. 82,499
Claims priority, application Switzerland, Jul. 7, 1977, 8431/77
Int. Cl.³ C07F 9/48
U.S. Cl. 260—936 1 Claim

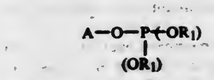
1. 6-(2,4-di-tert.-octyl-phenoxy)-dibenz[c,e]-[1,2]oxaphosphorine.

4,276,233
HINDERED PHENOL PHOSPHITES

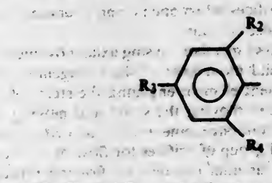
Ronald L. Markezich; Walter K. Olander, both of Mt. Vernon, Ind., and Robert J. Axelrod, Glenmont, N.Y., assignors to General Electric Company, Mt. Vernon, Ind.

Division of Ser. No. 957,430, Nov. 2, 1978. This application Jul. 16, 1979, Ser. No. 57,999
Int. Cl.³ C07F 9/141; C08K 5/52
U.S. Cl. 260—937 14 Claims

1. A phosphite compound represented by the general structure:

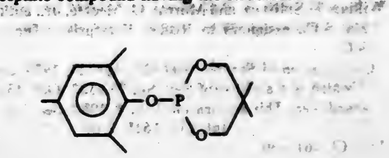


wherein R_1 can independently be an alkyl of about C_1–C_{30}; and alkyls of C_2–C_{20} which can form cyclic structures; and, A is a hindered phenol represented by the general structure:



wherein R_2, R_3 and R_4 can be the same or different and each can independently be hydrogen, halogen or C_1–C_4 alkyl provided that neither R_2 and/or R_4 are both hydrogen.

12. A phosphite compound having the structure:



4,276,234
PROCESS FOR PREPARING PENTAERITHRITOL METHYLPHOSPHONATES HAVING AT LEAST ONE HYDROXYL GROUP OF PENTAERITHRITOL UNESTERIFIED

Milton L. Honig, Bronx, and Edward D. Weil, Hastings-on-Hudson, both of N.Y., assignors to Stauffer Chemical Company, Westport, Conn.

Division of Ser. No. 973,282, Dec. 26, 1978, Pat. No. 4,207,271, which is a division of Ser. No. 615,321, Sep. 25, 1975, Pat. No. 4,152,373. This application Sep. 6, 1979, Ser. No. 72,966
Int. Cl.³ C07F 9/40
U.S. Cl. 260—982 1 Claim

1. A method of preparing a composition comprising a methyl phosphonate derivative of pentaerythritol having at least one hydroxyl group of pentaerythritol unesterified comprising transesterifying pentaerythritol with a diaryl methyl phosphonate at a temperature ranging from about 170° C. to about 250° C. and in the presence of a catalyst selected from the group consisting of methyl iodide, magnesium chloride and aluminum trichloride.

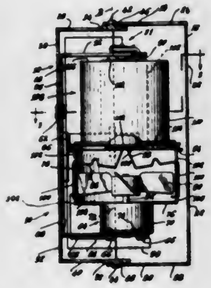
4,276,235
METHOD FOR PURIFYING BIDENTATE ORGANOPHOSPHOROUS COMPOUNDS

Lyle D. McIsaac, Blackfoot; Joseph F. Krupa, Idaho Falls, and Norman C. Schroeder, Pocatello, all of Id., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 24, 1980, Ser. No. 143,301
Int. Cl.³ C07F 9/40; C01G 56/00
U.S. Cl. 260—990 5 Claims

1. A method for removing impurities present in bidentate organophosphorous compounds comprising: dissolving the bidentate compound in a water-immiscible organic solvent to form a solvent solution containing up to 30 volume percent of the bidentate compound, the organic solvent being one in which the mercuric bidentate compound to be formed is insoluble and which is selected from the group consisting of aliphatic hydrocarbons of five or more carbon atoms and cyclic aliphatic hydrocarbons, contacting the solvent solution at a temperature of up to 40° C. with an aqueous nitric acid solution of mercuric nitrate containing sufficient mercuric ion and for a period of time sufficient from the mercuric ion to react with the bidentate compound to form an insoluble mercuric bidentate compound, which precipitates while the impurities remain in solution, separating the precipitate from the aqueous and the organic solutions, contacting the precipitate with a bidentate recovery solution, the recovery solution being a mixture of an aqueous solution of a strong mercuric ion complexing agent selected from the group consisting of potassium cyanide and cysteine and a water-immiscible organic solvent selected from the group consisting of aliphatic hydrocarbons of five or more carbon atoms and cyclic aliphatic hydrocarbons, whereby the mercuric ion is complexed from the insoluble mercuric bidentate compound reforming the soluble bidentate compound which dissolves in the organic solvent, separating the organic solvent from the aqueous solution, and recovering the purified bidentate solution.

4,276,236
APPARATUS FOR INDUCING AIR FLOW PAST A PRODUCT CAPABLE OF BEING VAPORIZED
William E. Sullivan, and Murray O. Meetze, Jr., both of Columbia, S.C., assignors to Riadon Enterprises, Inc., Columbia, S.C.
Continuation of Ser. No. 900,820, Apr. 27, 1978, abandoned, which is a division of Ser. No. 732,137, Oct. 13, 1976, abandoned. This application Feb. 4, 1980, Ser. No. 117,827
Int. Cl.³ A61L 9/04
U.S. Cl. 261—30 23 Claims

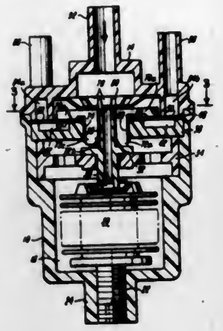


1. Improved means for mounting a cartridge, which carries a product capable of being vaporized and a battery and is used in conjunction with apparatus including battery-powered means operative to induce air flow past said product when said cartridge is mounted on said mounting means; said improved cartridge mounting means supporting said cartridge, connecting one terminal of said battery to said battery-powered means, and comprising:

A. support means including
1. a tubular member
2. flange means projecting radially from one margin of said tubular member for receiving and supporting said cartridge, and
3. a partially cylindrical wall extending axially from said flange means for positioning said cartridge when received and supported on said flange means, and

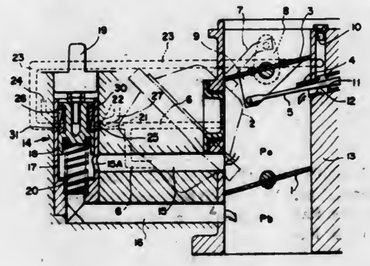
B. a contact member formed of resilient yet torsion resistant conductive wire having
1. a first section spanning said tubular member at said one margin;
2. a projection from said first section for contacting said one terminal of said battery when said cartridge is received and supported on said flange means; and
2. at least one anchor length extending along the side wall of said tubular member and being secured thereto at at least two spaced locations whereby bending of said projection is resisted by said anchor length and whereby said contact presents minimal obstruction to flow through said tubular member and said cartridge.

4,276,237
CARBURETOR AIR CONTROL DEVICE
Glenn B. Barker, Lincoln, and William K. Coburn, III, Sudbury, both of Mass., assignors to Standard-Thomson Corporation, Waltham, Mass.
Filed Aug. 1, 1979, Ser. No. 62,807
Int. Cl.³ F02M 7/24
U.S. Cl. 261—39 A 7 Claims



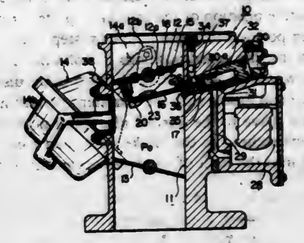
1. Carburetor air control mechanism for control of air flow to a plurality of ports of a carburetor comprising:
a housing provided with a first portion and a second portion,
an enclosed bellows member within the first portion of the housing, the bellows member having a pressure therewithin which is less than sea level atmospheric pressure, the bellows member being expansible in length when subjected to an atmosphere having density less than a given density,
the second portion of the housing having an air inlet conduit and a plurality of air outlet conduits, each air outlet conduit being adapted to communicate with a port of a carburetor,
an actuator rod axially movable by the bellows member upon expansion and contraction of the bellows member,
an engagement element carried by the actuator rod for movement therewith,
an orifice plate provided with a first group of orifices therethrough and a second group of orifices therethrough,
a channel plate in juxtaposition with the orifice plate, the channel plate having a plurality of channels, each channel being in communication with an orifice of the first group of orifices and also in communication with an orifice of the second group of orifices, each of the orifices of the first group of orifices being in communication with one of the air outlet conduits, some of the orifices of the first group being in communication with one of the air outlet conduits and some of the orifices of the first group of orifices being in communication with another of the air outlet conduits,
a plurality of closure members, each of the closure members normally covering and closing an orifice of the second group of orifices of the orifice plate, each closure member having a stem extending therefrom and engageable by the engagement element with movement of the actuator rod for movement of the closure member from the orifice plate to open the respective orifice, each orifice of the second group of orifices when open being in communication with the air inlet conduit,
expansion of the bellows member causing axial movement of the actuator rod and movement of the engagement element, the engagement element engaging the stems of the closure members and moving the stems and moving the closure members from engagement with the orifice plate to open the second group of orifices for flow of air therethrough from the air inlet conduit, air flowing through each of the second group of orifices also flowing through a channel of the channel plate and through an orifice of the first group of orifices and to one of the air outlet conduits.

4,276,238
CARBURETOR WITH AUTOMATIC CHOKING AND ACCELERATION DEVICE
Katsushi Yoshikawa, Yokohama; Masaaki Saito, Yokosuka; Tadaki Ota, and Mitsumasa Inoue, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Oct. 12, 1979, Ser. No. 84,156
Claims priority, application Japan, Oct. 19, 1978, 53-128853; Oct. 23, 1978, 53-145569[U]
Int. Cl.³ F02M 1/10
U.S. Cl. 261—39 D 7 Claims



1. A carburetor comprising:
a mixture passage;
a throttle valve positioned in the mixture passage;
a variable venturi valve postioned in the mixture passage upstream of the throttle valve;
a vacuum-driven actuator which is controlled by the vacuum in the mixture passage between the throttle valve and the variable venturi valve, and which controls the opening of the variable venturi valve so as to keep said vacuum approximately constant;
a variable fuel supplier responsive to the amount of opening of said variable venturi valve, for supplying fuel into said mixture passage and for increasing fuel flow rate approximately in direct proportion to the said amount of opening;
a bypass passage which bypasses the throttle valve in the mixture passage, leading from upstream of the throttle valve to downstream of the throttle valve;
a piston, which is biased in a first direction by a spring, and which is urged in the direction opposite to said first direction by the vacuum downstream of the throttle valve, and whose motion in the said opposite direction progressively intercepts the bypass passage, so that by said piston reaching an equilibrium position determined by the balance of said biasing and said urging, said piston comprises means for adjusting the flow resistance of the bypass passage;
a heat-sensitive element which responds to a temperature which is representative of the temperature of the engine, and which when the engine is in the cold state does not affect the positioning of the piston, but which, as the engine warms up, gradually advances the extreme possible position of the piston in said first direction in said opposite direction, and which, when the engine is fully warmed up, advances the extreme possible position of the piston in said first direction so far in said opposite direction that said piston substantially closes the bypass passage; and
means, associated with said piston, for regulating the flow of air to be fed into the fuel supplier to mix with the fuel supplied thereby in an amount which varies from a minimum when said vacuum downstream of the throttle valve is minimum, to a maximum when said vacuum is maximum, and reversely regulating the flow of air fed into the vacuum-driven actuator.

4,276,239
VARIABLE AIR VALVE CARBURETOR
Katsushi Yoshikawa, Yokohama; Masaaki Saito, Yokosuka; Tadaki Ota, and Mitsumasa Inoue, both of Yokohama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan
Filed Oct. 19, 1979, Ser. No. 86,312
Claims priority, application Japan, Oct. 19, 1978, 53-128857
Int. Cl.³ F02M 7/22
U.S. Cl. 261—44 E 13 Claims

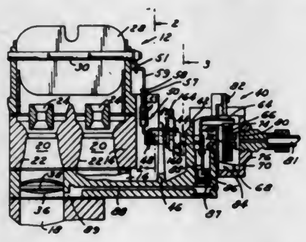


1. A carburetor for an internal combustion engine, comprising:
a body;
an intake passage formed in the body, circular in cross-section, leading to the engine;
a circular throttle valve mounted rotatably in the intake passage about one of its diameters;
a circular air valve mounted upstream of the throttle valve rotatably in the intake passage about one of its diameters,
means for controlling said air valve in response to vacuum between said air valve and the throttle valve, so as to maintain that vacuum substantially constant;
a fuel nozzle opening into the intake passage between the throttle valve and the air valve; and
a tapered needle having two ends, one end of which is inserted into the fuel nozzle so that it co-operates with the nozzle to provide a fuel opening which is varied in effective cross-section, as it moves in and out of the nozzle; and means fixed to the back of the air valve for pivotally supporting the other end of the needle, said supporting means including:
a bracket having a space therein, the bracket being fixed at a first portion away from said throttle valve to the side of the air valve closest to said throttle valve and having a slot formed in a second portion of the bracket closest to said throttle valve;
a joint pin having two ends passing laterally through the second portion of the bracket and connected pivotally at its center to said other end of the needle, each end of the joint pin being set in the slot of the bracket; and
a spring biasing the joint pin toward a rearmost position of the slot.

4,276,240
CARBURETOR
Gerald B. Bishop, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Dec. 21, 1979, Ser. No. 105,114
Int. Cl.³ F02M 1/10
U.S. Cl. 261—52 3 Claims

1. A carburetor having an air/fuel induction passage open at one end to air at essentially atmospheric pressure and connected at its opposite end to an engine intake manifold to be subject to the changing vacuum levels therein, the one end having a choke valve rotatably mounted for movement across the passage between a closed air choking position and open inoperative position, and a throttle valve rotatably mounted posterior of the choke valve for movement across the passage between a normal essentially closed engine idle speed position

and beyond towards a wide open throttle position to control the quantity of air/fuel mixture flow through the passage, an abutment means rotatable with the throttle valve, a rotatable fast idle cam having a high cam step projecting radially from the cam axes for engagement at times by the abutment means during movement of the throttle valve in a closing direction to stop the throttle valve in a more open position than the idle speed position to increase mixture flow to the manifold, the cam also having a second cam step of lesser radial projection engagable with the abutment means at other times as a function of the rotative position of the cam to stop the throttle valve in a less open position than the high cam step position but more open than the idle speed position, the cam being rotatable by gravity towards an inoperative position upon disengagement of the abutment means with the cam steps permitting closure of the throttle valve to the normal idle speed position, rotatable lever means secured to the choke valve and having a portion extending into the path of rotative movement of the fast idle



cam towards the inoperative position to stop the cam rotation, a shaft, means rotatably mounting the fast idle cam on the shaft, means pivotally connecting the lever means to the choke valve, and means securing the shaft to the lever means and to a thermostatically responsive spring means urging the shaft and lever means in a choke closing direction upon decreases in temperature below the normal engine operating temperature level to abut the lever means portion with the fast idle cam and permit repositioning of the fast idle cam to a more open throttle valve position, the means connecting the lever means to the choke valve including lost motion means providing concurrent movement of the lever means and choke valve in a choke valve closing direction until the choke valve reaches its closed position and the fast idle cam second step is positioned to engage the abutment means, the lost motion means permitting subsequent relative movement between the lever means and choke valve to permit a rotation of the fast idle cam to engage the abutment means with the high cam step without necessitating a corresponding rotation of the choke valve.

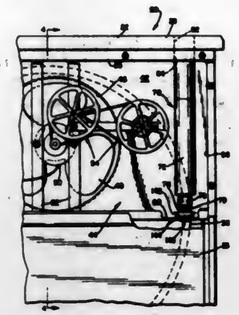
4,276,241

DISPENSER-LIQUID WATER TREATMENT FOR ROOM HUMIDIFIER

Richard F. Stewart, North Brunswick, and Robert W. Keanedy, Bridgewater, both of N.J., assignors to White-Westinghouse Corporation, Pittsburgh, Pa.

Filed Jun. 29, 1978, Ser. No. 920,460
Int. Cl.³ B01F 3/04
U.S. Cl. 261—92 **16 Claims**

1. In combination in a humidifier having a water supply reservoir: a refillable, removable auxiliary liquid treatment container with a removable closure means at its outlet end removably mounted in the humidifier in inverted position with its outlet end disposed for controlled flow communication into the water reservoir, a normally closed valve means located in the closure means of said container including an operable means enabling controlled manipulation of said valve means



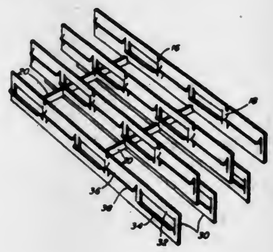
for opening said valve means and dispensing a desired amount of liquid treatment material.

4,276,242

VAPOR-LIQUID CONTACT GRID APPARATUS

Gilbert K. Chen; Paul M. Nyberg, and Matthew Buchholz, all of Wichita, Kans., assignors to Koch Engineering Company, Inc., Wichita, Kans.

Filed Nov. 19, 1979, Ser. No. 95,296
Int. Cl.³ B01D 3/22; B32B 3/10
U.S. Cl. 261—111 **9 Claims**



1. A vapor-liquid contact apparatus which comprises a plurality of transverse layers positioned generally one above the other, with each of the layers comprising grid members and connectors:

(a) the grid members positioned in a generally vertical, upright and generally parallel, spaced-apart relationship defining a vapor passageway between the upright grid members,

(i) the grid members composed of a thin, upright grid element, and

(ii) generally transverse vanes derived from the grid member and extending transversely outwardly into the vapor passageway from the upright grid members,

(iii) vanes being paired into sections so that the vanes are positioned one above the other along the longitudinal length of the grid member, at least one vane extending outwardly from one side and at least one vane extending outwardly from the other side, and the vanes of each section separated by a rib element formed of the grid element, the vanes generally of a significantly greater longitudinal portion of the grid member than the rib elements therebetween, and

(iv) the grid elements further characterized by a plurality of open slots extending inwardly a short distance from each outer edge thereof;

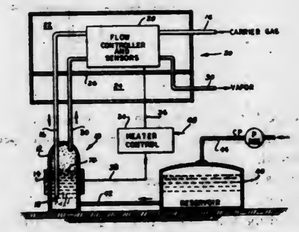
(b) connectors composed of thin, upright strip elements, the connectors positioned in a generally vertical, spaced-apart, and parallel relationship in each layer, and adapted to have the edges positioned in the open slots of the grid elements, thus forming a grid layer of the vapor-liquid contact apparatus and thereby providing improved vapor-liquid contact.

4,276,243

VAPOR DELIVERY CONTROL SYSTEM AND METHOD

Fred P. Partus, Cobbs County, Ga., assignor to Western Electric Company, Inc., New York, N.Y.

Continuation of Ser. No. 967,806, Dec. 8, 1978, abandoned. This application Apr. 4, 1980, Ser. No. 137,148
Int. Cl.³ B01F 3/04
U.S. Cl. 261—128 **9 Claims**



1. A method of linearly controlling mass flow rates of delivery of vapor from a bubbler containing a supply of liquid through which a carrier gas is bubbled at preselected, mutually-diverse flow rates in which vapor pressure is not in steady state and from which bubbler vapor is delivered in a vapor stream entrained with the carrier gas, and with the method comprising the steps of sensing the ratio of vapor to carrier gas in the vapor stream and applying heat to the liquid within the bubbler at rates in direct relationship to the sensed ratios of vapor to carrier gas being delivered from the bubbler in the vapor stream to hold said ratio constant.

5. A vapor delivery control system comprising a vaporizer; a heater thermally coupled with said vaporizer; means for maintaining a supply of liquid in said vaporizer; means for introducing a carrier gas into said vaporizer; means for conducting the carrier gas and vapors of the liquid entrained with the carrier gas from said vaporizer; means for sensing the ratio of vapor to carrier gas being conducted from said vaporizer; and means for controlling said heater directly responsive to ratios of vapor to carrier gas sensed by said sensing means, said controlling means including means for applying heat to the liquid in the vaporizer at rates in direct relationship to said sensed ratios to hold said ratio constant.

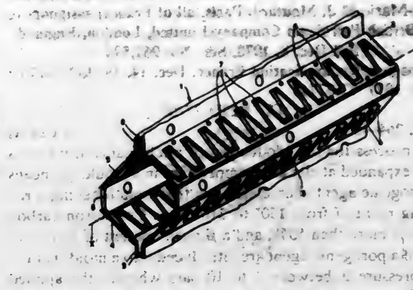
4,276,244

PACKING OF EQUIPMENT FOR THE PURPOSE OF CONTACTING MAINLY GASEOUS AND LIQUID MEDIUMS

Fabry György, and Istvan Takacs, both of Budapest, Hungary, assignors to Richter Gedeon Vegyeszeti Gyar Rt., Budapest, Hungary

Division of Ser. No. 892,258, Mar. 31, 1978, Pat. No. 4,215,083. This application Sep. 12, 1979, Ser. No. 74,779
Claims priority, application Hungary, Apr. 27, 1977, RI 628
Int. Cl.³ B01F 3/04
U.S. Cl. 261—155 **9 Claims**

1. A column or tower packing adapted to be traversed by at least one fluid which comprises a stack of superposed layers of mutually parallel channels with the channels of one layer extending transversely to the channels comprising a pair of walls inclined to one another and joined by an imperforate third wall to form a small base and diverging legs of a trapezoidal profile of the channel, the walls of each pair being dentate and formed with a multiplicity of spaced-apart vibratile elements interdigitating with but spaced from corresponding vibratile elements reaching in opposite direction to the first mentioned vibratile elements on the respective wall, said elements being dimensioned to be set into vibration by the passage of said fluid through the packing, each of said layers having a corrugated profile corresponding to a respective series of trapezoidal profiles of the respective channels.

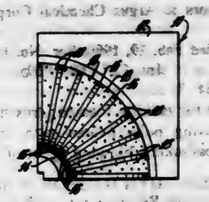


4,276,245

METHOD OF MAKING AND USING MOLDS FOR LONGITUDINALLY CURVED SECTIONS OF PIPE INSULATION

Russell L. Ault, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, Toledo, Ohio

Filed Aug. 22, 1979, Ser. No. 68,888
Int. Cl.³ B29D 27/04
U.S. Cl. 264—46.5 **1 Claim**



1. A method of making a longitudinally curved section of foamed resin pipe insulation having a glass fiber reinforced resin outer jacket, the method comprising making a first mold by mounting a plurality of flat, semicircular ribs of a relatively large radius in an arcuate pattern and in arcuately aligned, spaced relationship on a first board with each rib having a diametral portion of its periphery facing the board and extending generally radially of the arcuate pattern, and foaming a foamable, hardenable liquid resin in place between each pair of adjacent ribs to provide foam segments between the ribs, making a second mold by mounting a plurality of flat, semicircular ribs of a relatively small radius in an arcuate pattern and in arcuately aligned, spaced relationship on a second board with each rib having a diametral portion of its periphery facing the board and extending generally radially of the arcuate pattern, and foaming a foamable, hardenable liquid resin in place between each pair of adjacent ribs to provide foam segments between the ribs, forming a glass fiber reinforced resin outer jacket on the first mold, removing the outer jacket from the first mold, placing the outer jacket in juxtaposition with the second mold, foaming a foamable, hardenable liquid resin in place between the outer jacket and the second mold to produce a longitudinally curved section of foamed resin pipe insulation having the glass fiber reinforced resin outer jacket adhered thereto, and removing the pipe insulation with the outer jacket from the second mold.

4,276,246

PROCESS FOR PREPARING PITCH FOAMS AND PRODUCTS SO PRODUCED

Albert Bonzom, Sanset-les-Pins; Alain P. Crepaux, Lavera, and Anne-Marie E. J. Moutard, Paris, all of France, assignors to The British Petroleum Company Limited, London, England

Filed Dec. 8, 1978, Ser. No. 967,594

Claims priority, application France, Dec. 14, 1977, 77 37747; Dec. 14, 1977, 77 37748

Int. Cl.³ B29D 27/00

U.S. Cl. 264—53 5 Claims

1. A process for the production of pitch foams in which a pitch is expanded at elevated temperature in a mould by means of a porogenic agent characterised in that a pitch having a KS softening point of from 150° to 210° C., a Conradson carbon content of more than 50%, and a β resin content of from 5 to 40% and a porogenic agent are introduced into a mold that the initial pressure is between 1 to 10 bars wherein the applied external pressure is higher than the internal pressure which would normally exist within the pitch at the temperature of operation, and that after the decomposition of the porogenic agent, the external pressure is lowered to a decompression pressure to expand the pitch in the mold to a density of from 0.05 to 0.6 and an open porosity of greater than 75% during a decompression stage, the decompression pressure being between 0 and 2 bars, the pitch having a viscosity of from 1,000 to 10,000 Pa.s during the decompression stage, and that thereafter the expanded pitch foam is released from the mold.

4,276,247

CYCLIC PEROXYKETAL CROSS-LINKING/BLOWING AGENTS FOR POLYETHYLENE

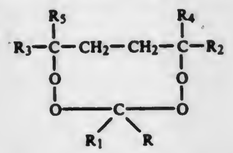
John R. Muenchow, Richmond; Ronald L. Pastorino, Larkspur; Reidar Halle, Novato, and Roger N. Lewis, Martinez, all of Calif., assignors to Argus Chemical Corporation, Brooklyn, N.Y.

Filed Feb. 19, 1980, Ser. No. 122,229

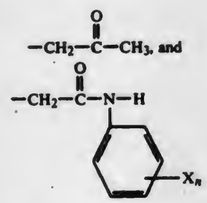
Int. Cl.³ C08J 9/06

U.S. Cl. 264—54 9 Claims

1. A method for making foamed, crosslinked polyethylene comprising: mixing polyethylene with about 0.10–10% by weight of a crosslinking/blowing agent of the formula:



wherein each of R_2, R_3, R_4 and R_5 is selected from alkyl having from 1–4 carbon atoms; each of R and R_1 is selected from alkyl, hydroxy alkyl and alkyl carboxylate ester groups having up to about 10 carbon atoms,



where n=0 to 3 and X is lower alkyl or alkoxy of up to about 5 carbon atoms; and heating said mixture to a temperature sufficient to crosslink and foam said polyethylene under conditions which permit expansion of the polyethylene.

4,276,248

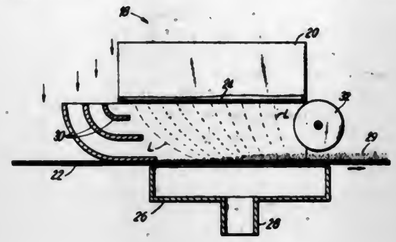
METHODS FOR FORMING FIBROUS WEBS

Sheila E. Widnall, Lexington, Mass., assignor to American Can Company, Greenwich, Conn.

Filed Oct. 31, 1979, Ser. No. 89,925

Int. Cl.³ D04H 1/00

U.S. Cl. 264—121 9 Claims



1. A method for forming upon a foraminous forming surface a nonwoven fibrous web having fibers therein less than about ½ inch in length, comprising the steps of:

(a) moving a forming surface at a velocity V_0 exceeding 500 ft./minute;

(b) distributing said fibers into a gaseous stream to form a suspension therein;

(c) conveying the gaseous suspension of fibers in a stream at an angle to said moving surface, said gaseous stream of fibers having a first velocity component V_1 parallel to the direction of motion of said moving surface, and a second velocity component V_2 normal to the direction of motion of said moving surface;

(d) establishing conditions wherein the ratio of the absolute value of V_0–V_1, relative to V_2, is less than about three, and;

(e) depositing said fibers in said gaseous stream upon said foraminous moving surface to form said nonwoven fibrous web.

4,276,249

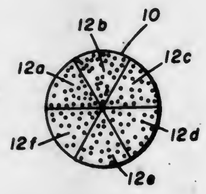
PROCESSES FOR SEALING HOLLOW FIBER MEMBRANES ARRANGED IN THE FORM OF A BUNDLE

Harry P. Holladay, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo.

Filed Sep. 26, 1979, Ser. No. 78,873

Int. Cl.³ B32B 21/00

U.S. Cl. 264—139 22 Claims



1. In a process for sealing the bores of a plurality of hollow fiber membranes comprised of thermoplastic material, which hollow fiber membranes are arranged in the form of a bundle, comprising subjecting an end of the bundle, which end is transverse to the orientation of the hollow fiber membranes, to sufficient heat to melt the ends of the hollow fiber membranes in order to cause hollow fiber membranes to adhere at the end of the bundle to adjacent hollow fiber membranes, the improvement comprising placing a substantially non-sealing insert member within and at the end of the bundle prior to and during subjecting the end of the bundle to the heat whereby said substantially non-sealing insert member provides a boundary to the adhering of hollow fiber membranes and results in passageways being provided through the end of the bundle.

4,276,250

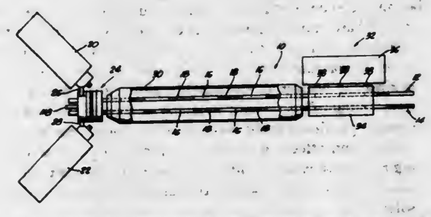
APPARATUS AND METHOD FOR PRODUCING TUBULAR EXTRUSIONS HAVING AXIAL SECTIONS OF MATERIALS HAVING DIFFERENT CHARACTERISTICS

Fred E. Satchell, Chesterfield, and Joel A. Joslin, Sunset Hills, both of Mo., assignors to Sherwood Medical Industries, Inc., St. Louis, Mo.

Filed Oct. 29, 1979, Ser. No. 89,567

Int. Cl.³ B29D 23/04

U.S. Cl. 264—167 15 Claims



7. Apparatus for substantially simultaneously extruding first and second plastic tubes, each plastic tube having alternate axial sections of plastic material having different characteristics; said apparatus comprising:

first and second die means;

first and second extruders for feeding plastic material to said first and second die means;

first valve means operatively associated with said first extruder for delivering plastic material from said first extruder to either said first die means or said second die means, and second valve means operatively associated with said second extruder for delivering plastic material from said second extruder to either said second die means or said first die means; and

said first and second valve means being operable so that when said first valve means is directing plastic material from said first extruder to said first die means said second valve means is directing plastic material from said second extruder to said second die means, and when said first valve means is directing plastic material from said first extruder to said second die means said second valve means is directing plastic material from said second extruder to said first die means.

12. A method for substantially simultaneously extruding first and second plastic tubes, each plastic tube having alternate axial sections of plastic material having different characteristics; said method comprising the steps of:

(1) feeding plastic material from a first material producing means to a first die means while substantially simultaneously feeding plastic material from a second material producing means to a second die means;

(2) thereafter feeding plastic material from the first material producing means to the second die means while substantially simultaneously feeding plastic material from the second material producing means to the first die means; and

(3) repeating steps (1) and (2) to produce two plastic tubes, each having alternate axial sections of plastic material fed from the first and second material producing means.

4,276,251

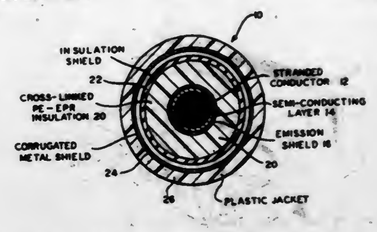
POWER AND CONTROL CABLES HAVING FLEXIBLE POLYOLEFIN INSULATION

Louis A. Bopp, Long Branch, N.J., assignor to General Cable Corporation, Greenwich, Conn.

Continuation-in-part of Ser. No. 760,017, Jan. 17, 1977, abandoned. This application Sep. 22, 1978, Ser. No. 944,983

Int. Cl.³ B29F 3/10; B29H 9/10; B29C 27/24

U.S. Cl. 264—174 8 Claims



1. The method of making a layer of insulation for an electric power cable which comprises mixing together pellets of polyethylene and ethylene propylene copolymer, antioxidant and cross-linking agent in which the ingredients are mixed non-homogeneously, in a ribbon blender in the absence of any mineral reinforcing filler in the ribbon blender, then introducing the blended polymer ingredients and the anti-oxidant and cross-linking agents into an extruder housing having a feed screw in the extruder housing as the ingredients are advanced through said extruder housing by the feed screw, simultaneously homogenizing and extruding the ingredients to coat an electrical conductor with the mixture of polyethylene, and the copolymer of ethylene and propylene, said copolymer being approximately 15% crystalline, and containing no filler that increases the physical properties of the insulation, adding to said copolymer polyethylene to supply additional crystallinity to the insulation, the polyethylene forming with said ethylene-propylene copolymer, a polymer system having electrical characteristics substantially equal to those of polyethylene and having improved physical characteristics of greater toughness than the copolymer, and greater flexibility than polyethylene.

4,276,252

ADDITION OF SI-BONDED HYDROGEN TO AN ALIPHATIC MULTIPLE BOND

Gerhard Kreis, Munich, and Karl-Heinrich Wegehaupt, Burghausen, both of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 17, 1979, Ser. No. 85,572

Claims priority, application Fed. Rep. of Germany, Oct. 26, 1978, 2846621

Int. Cl.³ B29C 1/02

U.S. Cl. 264—222 10 Claims

10. An improved method for making dental impressions which comprises applying a composition containing an organopolysiloxane having alkenyl groups, an organopolysiloxane containing Si-bonded hydrogen and a platinum catalyst to a tooth and thereafter removing the crosslinked organopolysiloxane impression, the improvement which comprises adding a platinum catalyst selected from the group consisting of complexes of the formula

$(R^1)PtX_2$ and $(R_2SO)(Z)PtY_2$

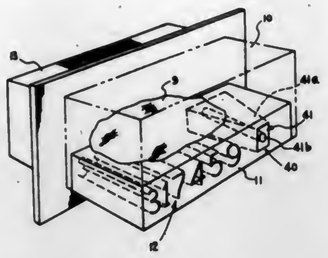
where R is selected from the group consisting of hydrocarbon radicals and substituted hydrocarbon radicals, R^1 is selected from the group consisting of cyclic hydrocarbon radicals and substituted cyclic hydrocarbon radicals having two aliphatic carbon-carbon double bonds, X is selected from the group consisting of halogen atoms and alkyl radicals, Z is a hydrocarbon radical having a carbon-carbon double bond and Y is a halogen atom.

4,276,253

METHOD FOR HISTOLOGY SPECIMEN LABELLING

Stanford L. Adler, Sr., New Milford, Conn.; Abraham Gordon, Teaneck, N.J., and Leonard Ornstein, White Plains, N.Y., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Apr. 20, 1979, Ser. No. 31,714
Int. Cl.³ B29C 6/02, 9/00
U.S. Cl. 264—247 7 Claims



1. A method of labelling a histological specimen, comprising the steps of:

(a) forming a plurality of elongated labelling elements, said labelling elements being preformed and at least the length of said specimen, said labelling elements being formed of a first material which is compatible with the subsequent fixing, dehydrating and embedding media used in the subsequent processing of said specimen and easily sectioned by a microtome,

(b) orienting said specimen and said labelling elements within a mold in respect to a chosen sectioning plane of said specimen, said labelling elements being oriented to be at least co-extensive with portions of said specimen to be sectioned in a direction vertical to said sectioning plane,

(c) filling said mold with an embedding medium,

(d) allowing said embedding medium to set, and

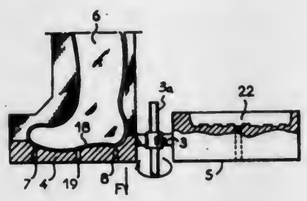
(e) removing said set embedding medium from said mold for subsequent positioning on a microtome for sectioning of said specimen and labelling elements.

4,276,254

PROCESS AND MOLD FOR PRODUCING SAFETY FOOTWEAR

Roger Combronde, Chabreloche, France, assignor to Plastic Auvergne, Chabreloche, France

Filed Dec. 13, 1979, Ser. No. 103,139
Claims priority, application France, Dec. 22, 1978, 78 36261
Int. Cl.³ B29D 3/02; B32B 15/08
U.S. Cl. 264—251 9 Claims



1. In a process for the injection moulding of safety footwear with the inclusion of a sheet metal sole embedded in an injected sole portion of the footwear, by means of an inner last, two openable lateral mould parts, a first mould base, a second mould base and means for bringing alternately the first mould base and the second mould base into a moulding position relative to the last and the two lateral mould parts for injection moulding the footwear said two lateral mould parts and first mould base and second mould base having mould cavities which define with the last a space for receiving a moulding material, said process comprising inserting said sheet metal sole between an inner sole and an outer sole of the footwear; the improvement comprising the steps of:

forming abutment means in the mould cavity of the first mould base adjacent two ends of the mould cavity of the first mould corresponding to toe and heel ends of the footwear, the abutment means having sheet metal sole engaging surfaces which have given shapes and are spaced a given distance apart;

taking a sheet metal sole having resilience and defining two abutment means engaging surfaces of given shapes at opposite ends of the sheet metal sole which surfaces are spaced apart a distance sufficiently greater than said given distance whereby a slight resilient bending of the sheet metal sole is necessary in order to engage the sheet metal sole between the abutment means, said given shapes of the abutment means and the abutment means engaging surfaces being respectively such as to interlock transversely of the sheet metal sole;

placing the sheet metal sole in the mould cavity of the first mould base and wedging the sheet metal sole between the abutment means by suitably bending the sheet metal sole so as to maintain the sheet metal sole in correct position against the bottom of the mould cavity of the first mould base by the effect of said wedging and said interlocking;

bringing the first mould base into the moulding position thereof and effecting a first injection moulding by injecting moulding material into said space and between the last and the sheet metal sole and thereby moulding an inner sole;

allowing the moulding material to substantially set;

removing the first mould base from the sheet metal sole, which sheet metal sole remains adhered to the moulding material injected into said space and has a bare surface exposed;

bringing the second mould base into the moulding positions thereof and effecting a second injection moulding by injecting moulding material into the mould cavity of the second mould base between the second mould base and said bare surface of the sheet metal sole and thereby moulding an outer sole; and

removing the second mould base after the moulding material has substantially set.

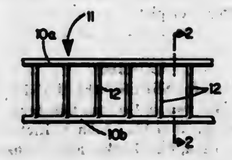
5. An injection mould for producing by at least two successive injections a safety footwear with inclusion of a resilient sheet metal sole embedded in an injected sole portion of the footwear, said mould comprising an inner last, two openable lateral mould parts, a first mould base, a second mould base and means for bringing alternately the first mould base and the second mould base into a moulding position relative to the last and the two lateral mould parts for injection moulding the footwear, said lateral mould parts, said first mould base and second mould base having mould cavities which define with the last a space for receiving a moulding material, two finger members respectively slidably mounted in the mould cavity of the first mould base adjacent two opposed ends of the mould cavity of the first mould base corresponding to toe and heel ends of the footwear for engaging notches in opposed ends of the sheet metal sole and thereby locating the sheet metal sole longitudinally and transversely of the mould cavity of the first mould base, said finger members being spaced apart a distance less than the distance between said notches in the sheet metal sole so as to require light bending of the sheet metal sole in order to engage the sheet metal sole between the finger members whereby the sheet metal sole is frictionally retained by the finger members owing to the resilience of the sheet metal sole, and elastically yieldable means biasing the finger members outwardly of the first mould base, the finger members having such length as to be biased out of the mould cavity of the first mould base an extent exceeding the moulding material receiving space between the mould cavity of the first mould base and the last whereby when the first mould base is brought to the moulding position thereof the last urges the finger members inwardly of the first mould base and the finger members frictionally bias adjacent end portions of the sheet metal sole against the first mould base.

4,276,255

METHOD FOR THE STRETCHING OF FASTENERS

David B. Russell, Southborough, Mass., assignor to Dennison Manufacturing Company, Framingham, Mass.

Division of Ser. No. 721,774, Sep. 9, 1976, abandoned. This application Sep. 11, 1978, Ser. No. 941,083
Int. Cl.³ B29C 17/02
U.S. Cl. 264—288.8 3 Claims



1. A method for continuously stretching fastener stock of the type having two longitudinally-extending side members integrally joined together at predetermined intervals by connectors transversely extending between them, the connectors being stretched without substantial permanent deformation of said side members, said method comprising:

(a) providing a pair of rotatable members each having a series of fixed peripheral projections defining therebetween a series of fixed notches spaced apart at said intervals and adapted to receive said connectors;

(b) rotating said members at substantially the same peripheral speed but in different planes to form an angled gap therebetween, the gap converging to a first portion no greater than the unstretched length of the connectors and diverging to a second portion substantially equal to the desired stretched length of the connectors;

(c) continuously feeding successive increments of said stock onto said rotating members at said first portion of the gap between them;

(d) engaging connectors of said stock in said notches at said first portion to advance the stock, and engaging a major portion of the length of the side members between said connectors on the outside of said projections during stretching;

(e) advancing said stock increments from the first to the second portion of the gap between the rotating members to stretch the connectors while the side members therebetween are supported against substantial deformation by said projections; and

(f) removing the stock from the rotating members.

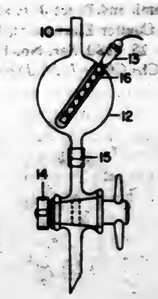
4,276,256

METHOD FOR PREVENTING BACTERIAL PASSAGE INTO STERILE FLUID SYSTEMS

Narbik A. Kerumian, 7609 Exeter Rd., Bethesda, Md. 20014

Continuation-in-part of Ser. No. 737,740, Nov. 1, 1976, abandoned. This application Jul. 21, 1978, Ser. No. 926,664
Int. Cl.³ A61L 2/10
U.S. Cl. 422—24 2 Claims

1. A method of preventing microorganism contamination of a supply of sterile fluid stored in a reservoir, said reservoir comprising a vessel and outlet means for withdrawing fluid from said vessel, said outlet means comprising a quartz apparatus, by attaching an ultraviolet light source having a wavelength range of 2300 A° to 2900 A° at said quartz apparatus and intermittently exposing said quartz apparatus to an effective amount of ultraviolet light emitted from said light source, the exposure intervals being of such duration that said stored fluid is maintained at substantially room temperature.

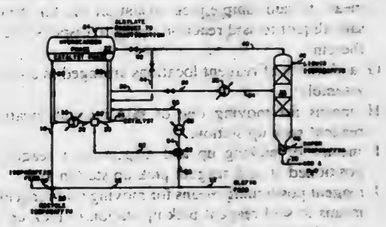


4,276,257

CATALYTIC ALKYLATION OF HYDROCARBONS

Rolland E. Dixon, and Charles C. Chapman, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 27,424, Apr. 5, 1979. This application May 1, 1980, Ser. No. 145,404
Int. Cl.³ C07C 3/54; B01J 8/00
U.S. Cl. 422—62 6 Claims



1. Apparatus for reacting an alkylatable hydrocarbon with an alkylating agent in the presence of a catalyst comprising:

alkylation reactor means;

separator-surge vessel means adapted to receive reactor effluent from said alkylation reactor and separate said reactor effluent into an alkylate product phase and a recycle catalyst phase;

conduit means for recycling said recycle catalyst phase to said alkylation rector;

cooling means mounted in said first conduit means;

detector means for determining the amount of acid-soluble oil in said separated catalyst phase;

heater means for heating at least an alkylating agent to a temperature above the alkylation reactor temperature;

conduit means for passing effluent from said heater means to said first conduit means upstream of said cooler means; and

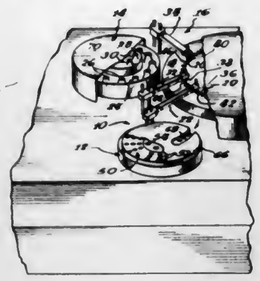
controller means for adjusting the amount of effluent from said heater means passed to said first conduit in response to said detected amount of catalyst-soluble oil in said catalyst phase.

4,276,258

SAMPLE AND STAT FEEDING SYSTEM AND SAMPLE TRAY

Guenter Ginsberg, Miami, and Bruce J. Hodgins, Hialeah, both of Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Jan. 28, 1980, Ser. No. 115,924
Int. Cl.³ G01N 1/14, 35/06
U.S. Cl. 422—64 20 Claims



1. A feeding system for multiple discrete fluid samples comprising:

A. at least one reaction vessel;

B. a first tray assembly including a plurality of sequenced sample locations arranged in a first array, for containing liquid samples;

C. at least one auxiliary sample location for containing auxiliary sample liquid, said auxiliary location positioned separate from said first array of sample locations;

D. means for moving at least one of said sequenced and said auxiliary sample locations to a sample pick up station;

E. means for picking up and dispensing an aliquot of liquid positioned at said sample pick up station;

F. positioning means for moving said pick up and dispensing means to said sample pick up station and for then moving said aliquot to said reaction vessel to dispense said aliquot therein;

G. a plurality of reagent locations arranged in a second tray assembly;

H. means for moving one of said reagent locations to a reagent pick up station;

I. means for picking up and dispensing a reagent aliquot positioned at said reagent pick up station and

J. reagent positioning means for moving said reagent pick up means to said reagent pick up station to pick up said reagent aliquot and then moving said reagent pick up means to said reaction vessel to dispense said aliquot therein.

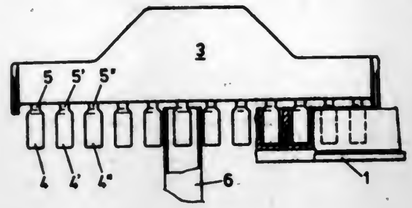
4,276,259

APPARATUS FOR PERFORMING A RADIOIMMUNOLOGICAL METHOD OF DETERMINING ANTIGENS OR ANTIBODIES

Johann Eibl, Vienna, and Helmut Aicher, Obersiebenbrunn, both of Austria, assignors to Immuno Aktiengesellschaft für chemisch-medizinische Produkte, Vienna, Austria

Division of Ser. No. 824,507, Aug. 15, 1977, abandoned. This application Aug. 24, 1978, Ser. No. 936,500
Claims priority, application Austria, Aug. 20, 1976, 6185/76
Int. Cl.³ G01N 33/56
U.S. Cl. 422—71 3 Claims

1. In an arrangement for carrying out a radioimmunological method of determining antigens or antibodies of the type including a micro-titer-plate having recesses for accommodation of the samples to be examined and solid carriers loadable with a complex former, the improvement which is characterized in that the solid carriers are elongated plate-like elements and that a holding band is provided to which said elongated plate-like elements are secured, a neck piece of smaller cross section than the elongated elements is provided between the holding band and each elongated element to form pre-determined breaking



points, the elongated plate-like elements are insertable in the recesses of the micro-titer-plate.

4,276,260

FLUID TRANSFER MECHANISM

Vladimir J. Drbal, Hollywood; Guenter Ginsberg, Miami; Bruce J. Hodgins, Hialeah, all of Fla.; John A. Richardson, Shirley, Mass.; Ted W. Britton, Opa Locka, Fla.; Richard M. Grimm, Zolfo Springs, Fla.; Ernesto Bello, Miami Springs, Fla.; Rodolfo R. Rodriguez, Miami, Fla., and Ivan K. Saltz, Cooper City, Fla., assignors to Coulter Electronics, Inc., Hialeah, Fla.

Filed Jan. 28, 1980, Ser. No. 115,691
Int. Cl.³ G01N 1/14
U.S. Cl. 422—100 19 Claims



1. An improved pre-programmed multiple position fluid transfer mechanism comprising:

A. an arm;

B. shaft means movably coupled to a first end of said arm and having an axis;

C. first drive means for moving said arm in translation relative to said shaft means and along said shaft means axis;

D. second drive means for rotating said arm in an arcuate path around said shaft means axis; and

E. probe means mounted on a second distal end of said arm including a fluid probe extending from said probe means and arm for picking up and dispensing fluids.

4,276,261

POLYMERIZATION APPARATUS AND PROCESS

Frederick C. Kerscher, Tallmadge, and John J. Nowacki, Akron, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jul. 16, 1979, Ser. No. 57,781
Int. Cl.³ C08F 2/36; B01J 8/08
U.S. Cl. 422—131 2 Claims

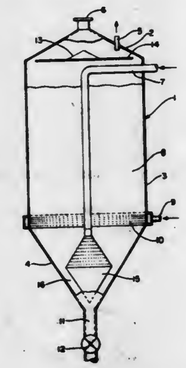
1. In a substantially vertically disposed tubular gravity flow reaction apparatus for the continuous solid state polymerization of particulated low molecular weight polyester resin to high molecular weight polyester resin, said apparatus containing a continually downwardly flowing column of polymerizing polyester resin maintained at an essentially constant level by the continuous addition of low molecular weight resin to the apparatus at a rate essentially equivalent to the rate of continuous withdrawal of high molecular weight resin from the apparatus, and wherein said apparatus comprises a casing consisting of

a. a top member having a gas outlet means and a low molecular weight resin inlet means to allow continuous addition of said resin to said apparatus;

b. an elongated tubular member comprising a continuous cylindrical sidewall of uniform circumference and having a first gas inlet means located in the upper portion of said tubular member extending perpendicularly from the cylindrical sidewall defining said tubular member to the longitudinal axis of the apparatus and then downwardly on said axis and through the column of polymerizing resin and ending in a terminus in the lower portion of said tubular wherein fixedly attached to said terminus of said first gas inlet means is a conical distribution means and a second gas inlet means attached to a peripheral gas distribution means located in lower portion of said tubular member; and

c. a conically shaped bottom member having a high molecular weight resin outlet means to allow for continuous withdrawal of the resin from said apparatus;

the improvement which comprises means for preventing or



minimizing back-mixing of particulate resin in said column of polymerizing resin and thereby maintaining said continually moving column of resin contained in said apparatus in a substantially uniform and plug flow condition from the upper portion of said apparatus to the lower portion thereof to prevent or minimize back-mixing of particulate resin in said column of polymerizing resin said means consisting of in combination

d. a resin distribution means located in said top member and fixedly mounted perpendicular to and centered on the longitudinal axis of said apparatus below said resin inlet means and above said first gas inlet means and the surface of said column of resin on support means located in and attached to the uppermost portion of said elongated tubular member to distribute the low molecular weight resin added through said inlet means evenly across the top of the column of resin in said apparatus; said resin distribution means comprising at least two angle iron shaped bars, said bars being spaced apart from one another and affixed to the support means such that the apexes of said bars are directed upwardly toward the resin inlet means, said bars further being positioned at a ninety degree angle to the horizontal portion of said first gas inlet means; and

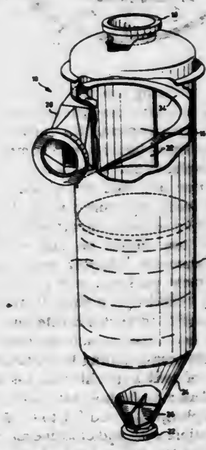
e. a flow regulating means located in the conical bottom member of said apparatus and above the high molecular weight resin outlet means therein, said regulating means comprising a singular baffle arrangement of two cones, an upper cone and a lower cone, said cones being fixedly attached to the terminus of the first gas inlet means through the apex of the upper cone and to each other at their bases, said upper cone having a series of spatially arranged perforations to allow gas entering through the first gas inlet means to pass through said cone and upwardly and countercurreatly to the downwardly flow of the column of polymerizing resin and said lower cone having solid sides which form a uniform annular channel between the lower cone of said regulating means and the conical bottom member of the reaction apparatus wherein the distance between the sides of the lower cone of said flow regulating means and the conical bottom member of the reaction apparatus forming said uniform annular channel ranges from about one-fourth to one-sixth the diameter of the tubular member of said apparatus.

4,276,262

CHLORINE DIOXIDE GENERATOR

Gerald Cowley, Mississauga, Canada, assignor to ERCO Industries Limited, Islington, Canada

Division of Ser. No. 964,681, Nov. 29, 1978, Pat. No. 4,203,961.
This application Oct. 2, 1979, Ser. No. 81,269
Int. Cl.³ B01J 8/00; B01D 45/16; B01J 19/02; C01B 11/02
U.S. Cl. 422—187 12 Claims



1. A chlorine dioxide generator comprising

a generally cylindrical body having upper and lower end closures, gaseous outlet means located in or adjacent to said upper end closure and slurry outlet means located in or adjacent to said lower end closure,

inlet means arranged tangentially to said cylindrical body terminating at its downstream end in communication with the interior of said body above the intended liquid level therein and below said gaseous outlet means for projection of reaction mixture into said body generally tangentially thereto, and

baffle means projecting substantially horizontally inwardly from the internal wall of said cylindrical body and extending in generally helical manner through 360° of turn from the upper extremity of the termination of said inlet means to the lower extremity thereof and arranged to be located above and follow substantially the flow path of said reaction mixture entering said generator.

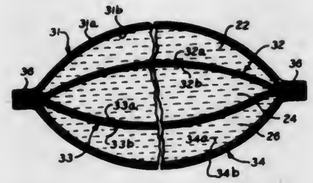
4,276,263

STERILIZATION SYSTEM

Harold W. Andersen; Shirley R. Andersen, Both of Oyster Bay; Clifford Zaner, Holbrook, and Charles H. Harrison, Oyster Bay, all of N.Y., assignors to Angrosol Incorporated, Oyster Bay, N.Y.

Division of Ser. No. 924,018, Jul. 12, 1978, abandoned. This application Mar. 23, 1979, Ser. No. 23,493
Int. Cl.³ A61L 2/18
U.S. Cl. 422—292 9 Claims





1. A system for sterilizing medical articles including metal articles comprising a multi-compartment package having a plurality of sealed compartments for separately storing the components of a sterilizing liquid which components comprise a hypochlorite, phosphates and a surfactant which is compatible with said chlorine and said phosphates, said separately stored components being maintained in an inactivated condition in their respective sealed compartment to prolong shelf-life until ready for use, means on said multi-compartment package for simultaneously releasing said components from said multi-compartment package, and a vessel for receiving said simultaneously released components and in which said components are mixed to thereby activate said sterilizing solution and provide in said vessel an activated sterilizing solution which is substantially non-irritating to tissue and which comprises 0.02 to 1% of said hypochlorite, 1.4 to 20% of said phosphates as di(alkali metal) phosphate and 0.08% to 21% as mono(alkali metal) phosphate, and 0.1 to 0.5% of said surfactant which is compatible with said chlorine and said phosphate, with the proviso that the lower limit of said di(alkali metal) phosphate is 4% when the amount of said hypochlorite is from 0.5 to 1%, said percentages being based on weight (in grams) per 100 ml. of solution, said articles to be sterilized being placed in said vessel to contact said sterilizing solution to thereby effect sterilization of said articles free of deleterious effects on said metal medical articles.

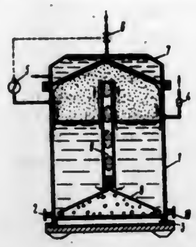
4,276,264

DEVICE FOR STERILIZING LIQUID MEDIA BY STEAM

Jury V. Redikultsev, mikrorajon "G", dom 19, kv. 113; Alexandr N. Shkidchenko, mikrorajon "G", dom 30, 51; Oleg P. Gorbunov, mikrorajon "V", dom 28, kv. 18, and Leonid A. Litvinenko, mikrorajon "AB", dom 8, kv. 74, all of Puschino Moskovskoi oblasti, U.S.S.R.

Filed Mar. 25, 1980, Ser. No. 133,842
Int. Cl.³ A61L 2/06
U.S. Cl. 422—307 1 Claim

1. A device for sterilizing water-containing liquid media by steam comprising a sterilizing vessel; an inlet connection for said liquid media communicating with said sterilizing vessel; an outlet connection for said liquid media communicating with said sterilizing vessel; a heater disposed in the lower portion of said sterilizing vessel; a condenser arranged in the upper portion of said sterilizing vessel; a diffuser located in said vessel over said heater; and a gas-lift tube coaxially mounted within said sterilizing vessel and communicating with said diffuser on one end thereof.

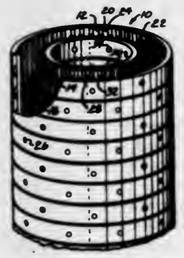


4,276,265

SCREEN FOR COLLECTION AND DISTRIBUTION OF PROCESS STREAMS

George A. Gillespie, Coon Rapids, Minn., assignor to UOP Inc., Des Plaines, Ill.

Filed Dec. 26, 1979, Ser. No. 107,490
Int. Cl.³ B01J 8/00, 8/12, 8/44
U.S. Cl. 422—311 8 Claims



1. A multiple screen assembly for collecting and distributing a process flow stream uniformly comprising a plurality of spaced apart profiled wire members fixedly mounted relative to each other so as to define a plurality of slots through which the process stream can pass; a plurality of channel members positioned generally normal to said wire members, each of said channel members having a pair of integral leg portions welded to each of said wire members; apertures formed in said channel members, the outer edge of each leg portion of each of said channel members being positioned so close to the outer edge of a leg portion of the adjacent channel member that substantially all the process stream will flow through said apertures; the total open area of said apertures being less than the total open area of said plurality of slots to thereby induce a pressure drop in the process stream which will cause it to be distributed substantially uniformly through the slots which overlie the channel members on the downstream side of the process stream.

4,276,266

PROCESS FOR RECOVERING METAL ELEMENTS FROM CARBONACEOUS PRODUCTS

Didier Brun, Le Chesnay; Gerard Chrysostome, Fresnes; Alain Fougier, Orgeval, and Bernard Sale, Louveciennes, all of France, assignors to Institut Francais du Petrole and Societe Heurtey Effiultherm, both of Rueil-Malmaison, France

Filed Jul. 27, 1979, Ser. No. 61,549
Claims priority, application France, Jul. 27, 1978, 78 22544
Int. Cl.³ C01G 1/00, 31/00, 53/00
U.S. Cl. 423—1 8 Claims

5. A process for recovering at least one metal element, other than alkali-metal, from alkali-metal-containing carbonaceous products, comprising oxidizing the carbonaceous products at a temperature of at least 800° C. in a fluidized bed of limestone sand comprising 25% to 75% by weight of calcium carbonate, and 75% to 25% by weight of silica, removing at least a fraction of the fluidized bed to extract therefrom said at least one metal element trapped by said limestone sand by a subsequent treatment of said fraction of the fluidized bed.

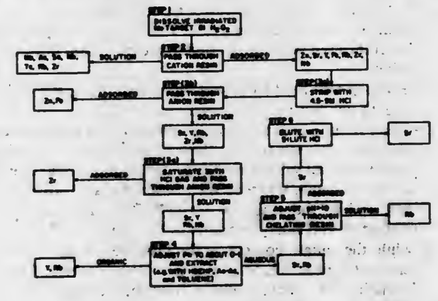
8. A process according to claim 5, wherein the step of extracting said at least one metal element comprises washing with water said withdrawn fraction of the fluidized bed.

4,276,267

HOT CELL PURIFICATION OF STRONTIUM-82, 85 AND OTHER ISOTOPES FROM PROTON IRRADIATED MOLYBDENUM

Glenn E. Bentley, and John W. Barnes, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Oct. 17, 1979, Ser. No. 86,021
Int. Cl.³ C01F 1/00; C01G 1/00; B01D 11/04, 15/04
U.S. Cl. 423—2 11 Claims



1. A process for producing and purifying strontium-82, said process comprising:

a. dissolving in an H_2O_2 solution a molybdenum target which had been irradiated by energetic protons having energies greater than about 200 MeV, so as to form a first solution;

b. passing said first solution over a cation exchange resin, so as to form a first adsorbed fraction and a second solution;

c. forming chlorocomplexes of anions found in said first adsorbed fraction and removing said chlorocomplexes from solution by anion exchange, thus forming at least one second adsorbed fraction and a third solution;

d. adjusting the pH of said third solution so that it lies within the range from about 0 to about 1 and extracting said third solution with (1) at least one alkyl organophosphorus compound, (2) at least one second compound selected from the group consisting of 2,4-pentanedione and fluorinated derivatives thereof, and (3) at least one aromatic solvent, thus forming an aqueous fraction and an organic fraction;

e. adjusting the pH of said aqueous fraction so that it is greater than 10 and then passing said aqueous fraction through a chelating resin, thus forming a third adsorbed fraction and a fourth solution; and

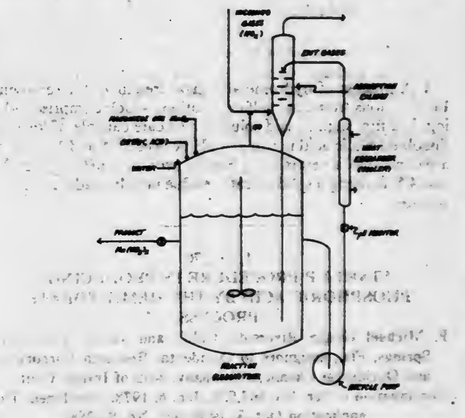
f. eluting said chelating resin with a first hydrochloric acid solution having a molarity within the range from about 0.5 to about 2.0 M, so as to form a fifth solution comprising strontium-82.

4,276,268

PROCESS FOR PREPARING MANGANESE NITRATE SOLUTION

Jay Y. Welsh, Catonsville, Md.; Alain Mallier, Tertre, and Pierre C. Picquet, Mons, both of Belgium, assignors to Chemetals Corporation, Baltimore, Md.

Filed Oct. 9, 1979, Ser. No. 82,981
Int. Cl.³ C01G 45/08
U.S. Cl. 423—49 10 Claims



1. A non-cyclic process of preparing manganese nitrate solution from a manganese ore containing manganese dioxide, comprising the steps of:

contacting a nitrogen dioxide containing gas with an aqueous medium and dissolving said nitrogen dioxide gas to form an aqueous nitrous acid-containing medium,

introducing said aqueous nitrous acid-containing medium and also introducing a manganese ore containing manganese dioxide into a closed reaction tank, and contacting said manganese ore with said aqueous nitrous acid-containing medium in said closed reaction tank,

leaching said manganese ore containing manganese dioxide with said aqueous nitrous acid-containing medium at a pH below about 4 and a temperature below about 80° C., to form a manganese nitrate solution,

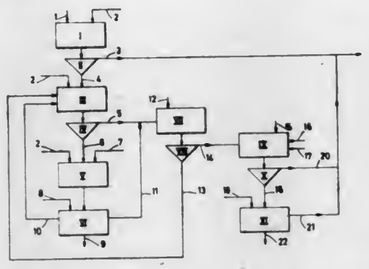
adjusting a relative rate of addition of nitrogen dioxide containing gas and manganese ore containing manganese dioxide into said aqueous nitrous acid-containing medium to continuously control the concentration of nitrous acid and consequently to continuously decompose a controlled amount of nitrous acid to form nitric oxide, and

monitoring and maintaining the pH of said aqueous nitrous acid-containing medium by adjusting the relative rate of addition of nitrogen dioxide containing gas and manganese ore containing manganese dioxide to maintain a continuous, controlled decomposition of nitrous acid to form nitric oxide.

4,276,269
PROCESS OF HYDROMETALLURGICAL TREATMENT FOR ELIMINATING IMPURITIES FROM A SOLUTION CONTAINING DISSOLVED METALS

Serge R. de Lockerente, Alsemberg, and Jacques De Laever, Auderghem, both of Belgium, assignors to Hollux S.A., Belgium

Continuation-in-part of Ser. No. 903,612, May 8, 1978, abandoned. This application Oct. 24, 1979, Ser. No. 87,761
Claims priority, application Belgium, Apr. 28, 1978, 187262; Luxembourg, May 9, 1977, 77307
Int. Cl.³ C22B 19/26
U.S. Cl. 423—101 12 Claims

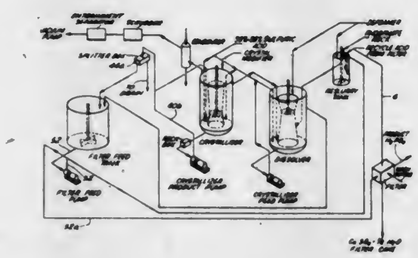


1. A process of hydrometallurgical treatment for removing Fe^{+++} ions from zinc sulfate solution, which comprises adding, in a first step, to said solution a silicate capable of forming dissolved silicic acid in situ at a pH between 0.5 and 1.5 and, in a second step, a neutralizing base to provide a pH between 3.5 and 4.5, forming a solid silicate residue mainly made up of iron silicate.

4,276,270
START-UP PROCEDURE IN PRODUCING PHOSPHORIC ACID BY THE HEMIHYDRATE PROCESS

F. Michael Gragg, Riverside, Calif., and James Self, White Springs, Fla., assignors to Occidental Research Corporation and Occidental Chemical Company, both of Irvine, Calif.

Continuation of Ser. No. 867,556, Jan. 6, 1978, abandoned. This application Oct. 5, 1979, Ser. No. 82,258
Int. Cl.³ C01B 25/22; C01F 11/46
U.S. Cl. 423—167 10 Claims



1. An improved startup process in a phosphoric acid production system comprising in combination a dissolver vessel for containing a first slurry comprising crystalline calcium sulfate hemihydrate, monocalcium phosphate and phosphoric acid, a crystallizer vessel for containing a second slurry comprising crystalline calcium sulfate hemihydrate, sulfuric acid and phosphoric acid, means in each of said vessels for maintaining a continuous circulation of the slurry therein, a first conduit means interconnecting said dissolver and crystallizer vessels for conducting said first slurry from said dissolver vessel to said crystallizer vessel, a second conduit means interconnecting said vessels for conducting said second slurry from said crystallizer vessel to said dissolver vessel, means for applying a vacuum to said crystallizer vessel to effect temperature control in said crystallizer vessel and means to form a vacuum seal between said dissolver and crystallizer vessels, means for introducing sulfuric acid to said crystallizer vessel, a reslurry vessel for slurrying phosphate rock and phosphoric acid, means for introducing phosphate rock and phosphoric acid to said reslurry vessel, a third conduit means interconnecting said reslurry vessel with said dissolver vessel, a filter feed vessel, and a fourth conduit means interconnecting said filter feed vessel with said crystallizer vessel, for conducting said second slurry to said filter feed vessel, and an agitator means in said filter feed vessel for maintaining the slurry therein in suspension, a fifth conduit means for conducting the slurry from said filter feed vessel to a separation means, for separating crystalline calcium sulfate hemihydrate from phosphoric acid of said last mentioned slurry, a sixth conduit means connecting said separation means with said reslurry vessel for conducting separated phosphoric acid to said reslurry vessel, and a seventh conduit means connecting said filter feed vessel and said reslurry vessel, said improved start-up process comprising the following steps:

a. substantially filling at least said dissolver and crystallizer vessels with phosphoric acid at a temperature in the range of 165°–215° F. and having a P_2O_5 analysis in the range of about 28 to 38%,
b. conducting a portion of said acid from said dissolver vessel through said first conduit means to said crystallizer vessel,
c. introducing phosphate rock and phosphoric acid to said reslurry vessel, feeding the resulting slurry through said third conduit means to said dissolver vessel and transferring a portion of the slurry from the dissolver vessel through said first conduit means to the crystallizer vessel,
d. as the volume of fluid in the vessels increases, cycling said fluid from the dissolver vessel through said first conduit means to the crystallizer vessel and from the crystallizer vessel through said fourth conduit means to said filter feed vessel,
e. recycling said fluid from said filter feed vessel, through a seventh conduit means, to said reslurry vessel,
f. adding sulfuric acid to said crystallizer vessel to produce a positive sulfate ion content therein, and causing precipitation of calcium sulfate hemihydrate and the production of phosphoric acid, whereby the phosphoric acid strength is increased to the range of 36–42% P_2O_5 and the solids content in said slurry becomes in the range of 25–35%,
g. while the sulfate content in the dissolver vessel is maintained at a, negative, level less than stoichiometric for the formation of calcium sulfate from the soluble calcium present in said dissolver, and
h. transporting said slurry from step (f) containing in the range of 25–35% solids through the filter feed vessel to said separation means,
i. separating the phosphoric acid from the calcium sulfate hemihydrate, and
j. recycling a portion of said separated phosphoric acid to said reslurry vessel.

4,276,271
PROCESS FOR THE REMOVAL OF HYDROGEN SULFIDE FROM GAS MIXTURES

William P. Manning; Stephen J. Rehm, and Jeffrey L. Schmuhl, all of Tulsa, Okla., assignors to Combustion Engineering, Inc., Windsor, Conn.

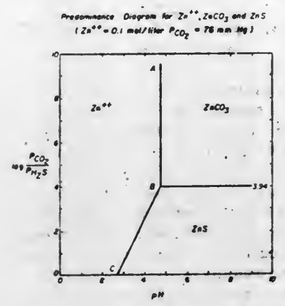
Continuation-in-part of Ser. No. 8,989, Feb. 5, 1979, abandoned. This application Dec. 3, 1979, Ser. No. 99,942
Int. Cl.³ B01D 53/34
U.S. Cl. 423—226 3 Claims

1. A method for removing hydrogen sulfide from a gas mixture by the steps of,

forming an aqueous solution from a zinc salt,

adding an insoluble basic zinc compound in particulate form to the solution,

adding a soluble dispersant selected from the group including sodium, trisodium, and tetrapotassium polyphosphates; polyphosphonates; polysilicates; polyvinyl pyrolidones and co-polymers; polyacrylates and co-polymers; and co-polymers of maleic anhydride with styrene, vinyl alcohol, or butadiene, which will keep the particles of the



basic compound in suspension by reducing the surface tension of the solution and the degree of hydration of the particulate matter thereby obtaining stoichiometric usage of the basic compound,

and passing a mixture of gas and hydrogen sulfide through the solution for reaction of the hydrogen sulfide with the zinc salt to form zinc sulfide precipitate and free acid while the basic compound addition controls the pH and reforms the salt with the free acid.

4,276,272
CEMENT WASTE PRODUCT AS SCRUBBING MEDIUM FOR SULFUR OXIDES

Richard J. Schlager, Tracy, and James F. Murphy, Danville, both of Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif.

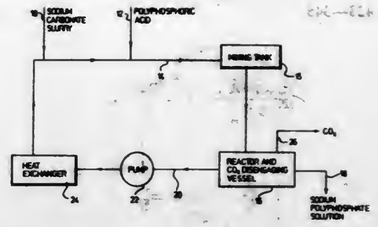
Filed Mar. 17, 1980, Ser. No. 130,665
Int. Cl.³ B01J 8/00; C01B 17/00; C09K 3/00
U.S. Cl. 423—244 6 Claims

4. A process for removing sulfur oxides from industrial offgases which comprises scrubbing the offgases with a cement waste product which product is recovered as a byproduct from cement manufacturing plants and which is characterized by a particle size wherein a majority of the particles have a size below about 0.147 mm; the waste product being further characterized by being essentially anhydrous and containing rehydratable calcium compounds selected from the group of calcium oxide, calcium silicate, calcium aluminate, calcium sulfite, calcium sulfate and mixtures thereof; the cement waste product being preconditioned for scrubbing prior to its use as a scrubbing medium for sulfur oxides by intimately admixing the essentially anhydrous cement waste product with sufficient liquid water to at least rehydrate essentially all of the rehydratable components of the waste product, drying the preconditioned waste product at a temperature below at which any of the rehydrated components would be reconverted to the anhydrous form and utilizing the preconditioned and dried cement waste product as a scrubbing medium for the removal of sulfur oxides from industrial offgases.

4,276,273
PRODUCTION OF SODIUM POLYPHOSPHATES

James D. McGilvery, Etobicoke, Canada, assignor to ERCO Industries Limited, Islington, Canada

Filed Aug. 11, 1980, Ser. No. 176,687
Int. Cl.³ C01B 25/40
U.S. Cl. 423—305 16 Claims



1. An aqueous solution of sodium polyphosphates which is stable to separation of a solid phase sodium polyphosphate and characterized by:

(a) a P_2O_5 content of about 32 to about 37% w/w,
(b) a mole ratio of Na:P of about 1.2:1 to about 1.5:1, and
(c) a pH of about 5 to about 6.5.

7. A process for the production of an aqueous solution of a sodium polyphosphate, which comprises reacting polyphosphoric acid and sodium carbonate in such proportions as to provide an Na:P ratio in the range of about 1.2:1 to about 1.5:1, such reaction being effected at a pH of about 5 to about 6.5 in the presence of water in quantities such as to provide a product solution containing about 32 to about 37% w/w of P_2O_5.

4,276,274
PROCESS FOR THE PRODUCTION OF FINELY DIVIDED OXIDES OF METALS OR SILICON

Emil Heckel, Kalmthout, Belgium, assignor to Degussa AG, Frankfurt am Main, Fed. Rep. of Germany

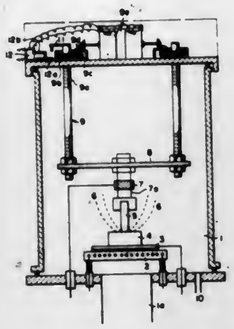
Filed Jul. 26, 1976, Ser. No. 708,776
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1975, 2533925
Int. Cl.³ C01B 33/18; C01G 23/04; C01F 7/02
U.S. Cl. 423—336 5 Claims

1. In an improved process for the production of a finely divided oxide of Ti, Al, Si or mixtures thereof by the hydrolytic conversion of a corresponding volatile chloride of Ti, Al, Si or mixtures thereof in a flame; wherein said volatile chloride or said mixture of volatile chlorides in admixture with a combustible hydrogen-containing gas and air or oxygen are fed to a flame emitting from a burner into a reaction chamber to thereby form an oxide aerosol in waste gases from said burner; cooling said oxide and said waste gases; and separating said oxide from said waste gases; wherein the improvement comprises maintaining said waste gases substantially free of chlorine by reducing chlorine that forms during said conversion in said flame with hydrogen by single or multiple introduction of said hydrogen into the waste gas which is at a temperature of about 500° C. to 700° C. and while cooling said waste gas below the temperature at which hydrogen and oxygen react in said waste gas.

4,276,275
PROCESS FOR PREPARING ULTRAFINE CARBIDE POWDER

Yoshinori Ando, 1-17-1 Yamatodori, Showa-Ku, Nagoya-Shi, Aichi-ken, Japan; Sakae Inoue, and Kiyotaka Takahashi, both of Kasugai, Japan, assignors to Yoshinori Ando, Japan

Filed Nov. 14, 1979, Ser. No. 94,000
Claims priority, application Japan, May 23, 1979, 54-63521
Int. Cl.³ C01B 31/36, 31/30
U.S. Cl. 423—345 6 Claims



1. A process for preparing ultrafine carbide powder, which comprises the steps of passing electric current to a carbon member held in contact with a metal selected from the group consisting of silicon and titanium in a vacuum vessel into which an insert gas at a desired pressure is introduced, and collecting powder of a carbide of said metal that fumes into said inert gas as a result of a high-temperature reaction between said metal and carbon member in contact therewith.

4,276,276
PROCESS FOR NITRITE PRODUCTION

James P. Van Hook, Basking Ridge; Clair E. Hildebrand, Whippany, and Cheng H. Chen, Princeton Junction, all of N.J., assignors to Allied Chemical Corporation, Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 50,725, Jun. 21, 1979, abandoned. This application Mar. 28, 1980, Ser. No. 135,025
Int. Cl.³ C01B 21/20
U.S. Cl. 423—385 6 Claims

1. In a process for producing nitrite of the type characterized by

passing a feed gas comprising nitric oxide, nitrogen dioxide, and oxygen through an oxidizer in which aqueous nitric acid is recirculated to produce an oxidized gas and

passing said oxidized gas into an aqueous absorbtion solution containing a basically reacting compound of the formula MX, wherein M is selected from the group consisting of ammonium and the alkali metals and X is selected from the group consisting of carbonate, bicarbonate, hydroxide and mixtures thereof to produce a nitrite and unabsorbed exit gas; the improvement which comprises

monitoring the mole ratio of nitric oxide to nitrogen dioxide in the unabsorbed exit gas and

maintaining the nitric oxide:nitrogen dioxide mole ratio at about 0.8 to 1.2 in the unabsorbed exit gas by increasing nitric oxide oxidation when the ratio approaches 1.2 and decreasing nitric oxide oxidation when the ratio approaches 0.8.

4,276,277
MANUFACTURE OF CONCENTRATED NITRIC ACID

Gerard Aguinet, Meudon; Andre Le Bras, St-Andre-Les-Lilles; Jean Mansuy, Ville D'Avray, and Edouard Martin, St-Cloud, all of France, assignors to Produits Chimiques Ugine Kuhlmann, Paris, France

Continuation of Ser. No. 823,694, Aug. 11, 1977, abandoned, which is a continuation of Ser. No. 389,866, Aug. 20, 1973, abandoned, which is a continuation-in-part of Ser. No. 152,103, Jun. 11, 1971, abandoned. This application Feb. 5, 1979, Ser. No. 9,293
Claims priority, application France, Jun. 12, 1970, 70.21795
Int. Cl.³ C01B 21/40
U.S. Cl. 423—393 2 Claims

1. A continuous process for the manufacture of very concentrated nitric acid having a titer of at least 70 percent from a gaseous mixture under superatmospheric pressure containing nitrogen oxides, oxygen, inert gases, and steam, which consists essentially of:

(1) continuously passing a gaseous mixture under superatmospheric pressure of between about 5 to 6 absolute atmospheres through a cooled area, said gaseous mixture containing nitrogen oxides, oxygen, inert gases and steam, whereby the majority of said nitrogen oxides are oxidized to nitrogen dioxide and said steam is condensed to a weak nitric acid solution;

(2) continuously dissolving said oxidized nitrogen oxides in the very concentrated nitric acid solution under a superatmospheric pressure between about 5 to 6 absolute atmospheres and at a temperature below 0° C.;

(3) continuously mixing said very concentrated nitric acid solution containing dissolved oxidized nitrogen oxides, said weak nitric acid solution and air containing nitrogen oxides under superatmospheric pressure between about 5 to 6 absolute atmospheres and for a time and temperature sufficient to substantially effect the reaction

$$2NO_2 \text{ (or } N_2O_4) + \tfrac{1}{2}O_2 + H_2O \rightarrow 2\ HNO_3;$$

(4) continuously removing very concentrated nitric acid having a titer of at least 70 percent and containing some dissolved unconverted oxidized nitrogen oxides therein and an air stream containing nitrogen oxides and some nitric acid vapor from said mixing step;

(5) continuously treating said very concentrated nitric acid having a titer of at least 70 percent and containing some dissolved unconverted oxidized nitrogen oxides therein with air under superatmospheric pressure between about 5 to 6 absolute atmospheres whereby said dissolved oxidized nitrogen oxides are removed into said air;

(6) continuously passing said air containing oxidized nitrogen oxides to said mixing step 3;

(7) continuously passing said air stream containing nitrogen oxides and some nitric acid vapor from step 3 to said step 1; and

(8) continuously recovering very concentrated nitric acid having a titer of at least 70 percent and recycling a portion thereof to said step 2.

4,276,278
SPIN SIZE AND THERMOSETTING AID FOR PITCH FIBERS

John B. Barr, Strongsville, and Nicholas F. White, III, North Olmsted, both of Ohio, assignors to Union Carbide Corporation, New York, N.Y.

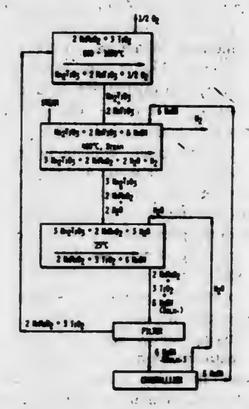
Filed Jan. 29, 1979, Ser. No. 7,322
Int. Cl.³ D01F 9/12
U.S. Cl. 423—447.4 9 Claims

1. In a process for producing carbon fibers comprising extruding a molten pitch into the form of continuous pitch filaments, combining the pitch filaments into a single multifilament bundle of pitch fibers, thermally stabilizing the pitch fibers by heating the fibers in the present of an oxidizing gas and then carbonizing the stabilized pitch fibers at elevated temperatures, the improvement whereby substantially all of the pitch fibers in the multifilament bundle are uniformly coated with a mixture containing graphite or carbon black particles and an oxidizing agent, the graphite or carbon black particles serving to separate the pitch fibers in the bundle and thereby to improve penetration of the oxidizing gas said improvement comprising applying to the pitch fibers in the multifilament bundle prior to thermal stabilization an aqueous finishing composition comprising a dispersion of finely-divided graphite or carbon black particles in water in which is dissolved a water-soluble surfactant which is also capable of functioning as an oxidizing agent.

4,276,279
THERMOCHEMICAL GENERATION OF HYDROGEN AND OXYGEN FROM WATER

Paul R. Robinson, Knoxville, and Carlos E. Bamberger, Oak Ridge, both of Tenn., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Feb. 8, 1980, Ser. No. 119,738
Int. Cl.³ C01B 1/02
U.S. Cl. 423—648 R 2 Claims



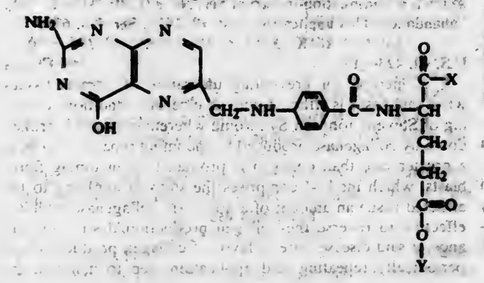
1. A method for producing hydrogen comprising reacting manganese (II) titanate with sodium hydroxide, in the presence of steam, to yield sodium titanate, sodium manganate (III), water and hydrogen.

4,276,280
RADIOLABELED DERIVATIVES OF FOLIC ACID

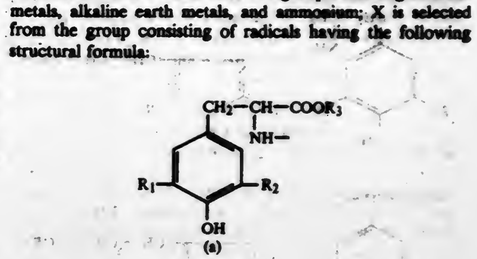
Anandrao S. Akerkar, Pomona, N.Y., and Herman Rutner, Hackensack, N.J., assignors to Becton, Dickinson and Company, Paramus, N.J.

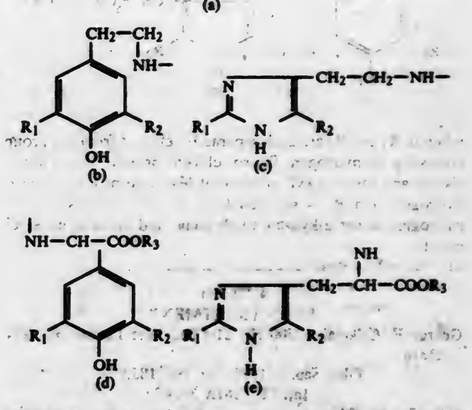
Filed Sep. 29, 1976, Ser. No. 727,408
Int. Cl.³ A61K 43/00; C07D 475/04; G01T 1/16
U.S. Cl. 424—1 32 Claims

1. A compound having the following structural formula:



wherein Y is selected from the group consisting of —H, lower alkyl, or a cation selected from the group consisting of alkali metals, alkaline earth metals, and ammonium; X is selected from the group consisting of radicals having the following structural formula:



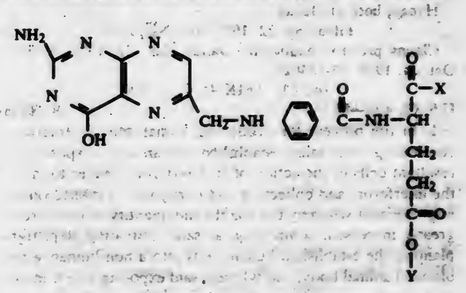


wherein R_1 and R_2 are each separately selected from the group consisting of hydrogen, fluoro, chloro, bromo-, nitro, lower alkoxy, lower alkyl and radioactive isotopes of iodine, wherein at least one of R_1 and R_2 is a radioactive isotope of iodine, and R_3 is selected from the group consisting of hydrogen, lower alkyl, an alkali metal and an alkaline earth metal.

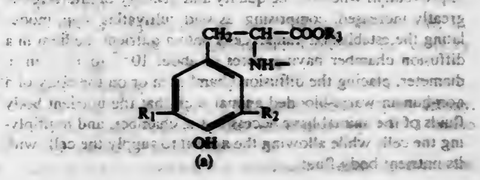
17. In the radioassay of folates, the improvement comprising:

employing a compound as defined in claim 1 as the tracer.

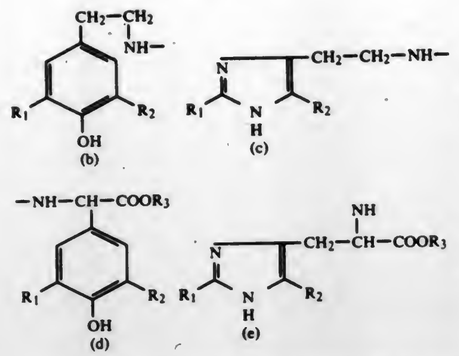
22. A compound having the following structural formula:



wherein y is selected from the group consisting of —H, lower alkyl, or a cation selected from the group consisting of alkali metals, alkaline earth metals and ammonium; X is selected from the group consisting of radicals having the following structural formula:



-continued



wherein R_1 and R_2 are each separately selected from the group consisting of hydrogen, fluoro, chloro, bromo-, nitro, lower alkoxy and lower alkyl, wherein at least one of R_1 and R_2 is hydrogen, and R_3 is selected from the group consisting of hydrogen, lower alkyl, an alkali metal and an alkaline earth metal.

4,276,281

BURN TREATMENT

George F. Crikelair, 2500 SE 21st St., Fort Lauderdale, Fla. 33316

Filed Sep. 4, 1980, Ser. No. 183,979
Int. Cl.³ A61K 37/48
U.S. Cl. 424—84 2 Claims

1. A method of treating burned mammalian tissue which comprises contacting the burned tissue with elastase in a concentration effective to substantially digest the burn eschar.

4,276,282

INTERFERON AND PREPARATIONS CONTAINING INTERFERON

Kaname Sugimoto, and Shokichi Yuen, both of Okayama, Japan, assignors to Ken Hayashibara, Okayama and Shin Ashida, Hyogo, both of, Japan

Filed Jan. 22, 1979, Ser. No. 5,585
Claims priority, application Japan, Jan. 22, 1978, 53-5368; Oct. 31, 1978, 53-134026
Int. Cl.³ A61K 45/02, 39/00
U.S. Cl. 424—85 8 Claims

1. In the process for producing human-specific interferon comprising cultivating established human cells, exposing the resultant cells to the action of an interferon inducer to induce the interferon, and collecting and purifying the interferon, the improvement whereby the quality and quantity of interferon is greatly increased, comprising, as said cultivating step, transplanting the established human cells into a non-human warm-blooded animal body, and wherein said exposing step is in vivo or in vitro.

2. In the process for producing human-specific interferon comprising cultivating established human cells, exposing the resultant cells to the action of an interferon inducer to induce the interferon, and collecting and purifying the interferon, the improvement whereby the quality and quantity of interferon is greatly increased, comprising, as said cultivating step, inoculating the established human cells onto a nutrient medium in a diffusion chamber having pores of about 10^{-7} to 10^{-5} m in diameter, placing the diffusion chamber in or on the body of a non-human warm-blooded animal such that the nutrient body fluids of the animal have access to the chamber, and multiplying the cells while allowing the animal to supply the cells with its nutrient body fluid.

4,276,283

METHOD OF PREPARING AN INTRAVENOUSLY ADMINISTRABLE IMMUNE GLOBULIN PREPARATION CONTAINING ANTIBODIES AND PREPARATIONS PRODUCED ACCORDING TO THIS METHOD

Martha Eibl; Otto Schwarz, and Yendra Lianou, all of Vienna, Austria, assignors to Immuno Aktiengesellschaft für chemisch-medizinische Produkte, Austria

Filed Sep. 10, 1979, Ser. No. 74,257
Claims priority, application Austria, Sep. 19, 1978, 6753/78
Int. Cl.³ A61K 39/395, 39/00
U.S. Cl. 424—85 11 Claims

1. A method of preparing an immune globulin preparation suitable for intravenous administration from an immune-globulin-containing fraction of blood plasma, which comprises

(a) purifying the immune-globulin-containing fraction, by treating it with an aqueous solution of a polyvalent salt selected from the group consisting of ammonium sulfate and an alkali phosphate, thereby obtaining a precipitate, which is separated from the aqueous solution and discarded and an immune-globulin-containing supernatant, and

(b) treating the supernatant from step (a) with an aqueous solution of a polyvalent salt selected from the group consisting of ammonium sulfate and an alkali phosphate, the salt solution having a higher concentration than the solution employed in step (a) thereby obtaining an immune-globulin-containing precipitate which is retained and a supernatent, which is discarded, and

(c) dissolving the precipitate containing immune globulin and the polyvalent salt in water and removing the polyvalent salt from the solution, and

(d) further purifying the solution from step (c) with polyethylene glycol in the presence of a saccharide selected from the group consisting of monosaccharide and disaccharide at an ionic strength of at least 0.15, thereby obtaining a supernatant containing immune globulin and a precipitate, which is separated and discarded, and

(e) further purifying the supernatant from step (d) by an additional treatment with polyethylene glycol, having a higher concentration than in step (d) thereby obtaining an immune-globulin-containing solution free from noxious impurities and a precipitate, which is separated and discarded, and

(f) treating the solution from step (e) with a water-soluble polymer selected from the group consisting of copolymers of ethylene oxide and polyoxypropylene (Pluronic), dextran, polyvinyl alcohol, polyvinyl pyrrolidone and polyethylene glycol, thereby obtaining an immune globulin precipitate, which can be formulated into a pharmaceutical preparation which can be administered intravenously.

4,276,284

PREVENTION OF COLLAGENASE INDUCED DISEASE BY TREATMENT WITH COLLAGENASE INHIBITORS

Stuart I. Brown, 85 East End Ave., New York, N.Y. 10028

Continuation of Ser. No. 166,278, Jul. 26, 1971, abandoned, which is a continuation-in-part of Ser. No. 821,505, May 2, 1969, abandoned. This application Dec. 10, 1975, Ser. No. 639,477
Int. Cl.³ A61K 35/14, 37/00, 31/725, 31/195
U.S. Cl. 424—101 6 Claims

1. A method for preventing ulceration of corneal tissues when said tissue is afflicted with an ulcerous condition consisting of Stevens-Johnson Syndrome wherein collagen is broken down by collagenase produced by incoming reparative cells at a greater rate than collagen is produced by incoming fibroblasts, which method comprises the steps of applying to the afflicted tissue an amount of a non-toxic collagenase inhibitor effective to reverse the collagen production/destructon balance of said disease state in favor of collagen production and periodically repeating said application step to maintain the collagen production/destruction balance in favor of collagen production until said ulcerous condition is eliminated.

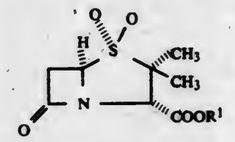
4,276,285

COMBINATIONS OF PENICILLANIC ACID 1,1-DIOXIDE WITH 7-(D-2-[4-ETHYLPIPERAZIN-2,3-DIONE-1-CARBOXAMIDO]-2-[4-HYDROXYPHENYL]ACETAMIDO)-3-([1-METHYL-5-TETRAZOLYL]THIOMETHYL)-3-DESACETOXYMETHYLCEPHALOSPORANIC ACID

Wayne E. Barth, East Lyme, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation-in-part of Ser. No. 963,763, Nov. 27, 1978, abandoned, which is a continuation-in-part of Ser. No. 890,451, Mar. 29, 1978, abandoned, which is a continuation-in-part of Ser. No. 879,381, Feb. 21, 1978, abandoned, which is a continuation-in-part of Ser. No. 804,320, Jun. 7, 1977, abandoned. This application Mar. 5, 1979, Ser. No. 17,807
The portion of the term of this patent subsequent to Nov. 18, 1987, has been disclaimed.
Int. Cl.³ H61K 35/00
U.S. Cl. 424—114 9 Claims

1. A method of treating a bacterial infection in a mammal subject which comprises administering to said subject (A) 7-(D-2-[4-ethylpiperazin-2,3-dione-1-carboxamido]-2-[4-hydroxyphenyl]acetamide)-3-([1-methyl-5-tetrazolyl]thiomethyl)-3-desacetoxymethylcephalosporanic acid or a pharmaceutically-acceptable salt thereof and (B) a compound of the formula



or a pharmaceutically-acceptable salt thereof, the weight ratio of (A) to (B) administered being in the range of from 1:6 to 6:1, the combined amounts of (A) and (B) administered constituting an antibacterially effective dosage and R_1 being selected from the group consisting of hydrogen, alkanoyloxymethyl having from 3 to 8 carbon atoms, 1-(alkanoyloxy)ethyl having from 4 to 9 carbon atoms, 1-methyl-1-(alkanoyloxy)ethyl having from 5 to 10 carbon atoms, alkoxycarbonyloxymethyl having from 3 to 6 carbon atoms, 1-(alkoxycarbonyloxy)ethyl having from 4 to 7 carbon atoms, 1-methyl-1-(alkoxycarbonyloxy)ethyl having from 5 to 8 carbon atoms, N-(alkoxycarbonyl)aminomethyl having from 3 to 9 carbon atoms, 1-(N[alkoxycarbonyl]aminoethyl having from 4 to 10 carbon atoms, 3-phthalidyl, 4-crotonolactonyl and gamma-butyrolactonyl-4-yl.

4,276,286

PROCESS FOR DECREASING AMMONIA CONCENTRATION IN DOMESTIC ANIMALS OR FOWLS

Eisuke Ishihara, Shizuoka; Hiroshi Yonehara, Tokyo; Katsuyuki Akasaki, Shimizu; Masao Minowa, and Katsumi Kobayashi, both of Shizuoka, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 32,253, Apr. 23, 1979, which is a continuation of Ser. No. 830,773, Sep. 6, 1977, abandoned, which is a continuation of Ser. No. 736,523, Oct. 28, 1976, abandoned, which is a continuation-in-part of Ser. No. 681,198, Apr. 28, 1976, abandoned. This application Jan. 15, 1980, Ser. No. 112,218
Claims priority, application Japan, Oct. 28, 1975, 50/128910
The portion of the term of this patent subsequent to Jan. 6, 1988, has been disclaimed.
Int. Cl.³ A61K 35/00
U.S. Cl. 424—117 4 Claims

1. A process for decreasing the ammonia concentration in the interior of the body of an animal or fowl and in the excrement of said animal or fowl which comprises administering an ammonia reducing effective amount of multhiomycin to said animal or fowl by giving to said animal or fowl a feed and/or drinking water containing multhiomycin.

4,276,287

PERIODONTAL POWDER

Alberto Cabardo, Jr., 709 Timberland Dr., Berrien Springs, Mich. 49103

Continuation of Ser. No. 681,618, Apr. 29, 1976, abandoned, which is a continuation-in-part of Ser. No. 256,388, May 24, 1972, abandoned. This application Nov. 7, 1977, Ser. No. 848,882
Int. Cl.³ A61K 33/06, 7/16, 33/00, 7/24
U.S. Cl. 424—154 16 Claims

1. A method of periodontal therapy for bleeding and swollen gums and gingivitis comprising the step of applying a therapeutically effective amount topically to the gums of a mixture of evenly exsiccated potassium alum and sodium bicarbonate in a ratio, by weight, of approximately 2:1 of said potassium alum to said sodium bicarbonate.

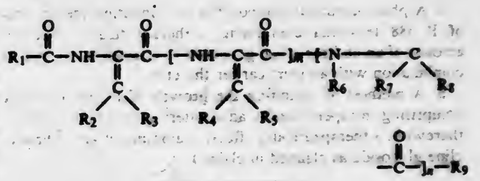
4,276,288

DEHYDROOLIGOPEPTIDES, THEIR PRODUCTION AND THEIR MEDICINAL USE

Eugen Etschenberg; Wolfgang Opitz, and Siegfried Raddatz, all of Cologne, Fed. Rep. of Germany, assignors to Troponwerke GmbH & Co., KG, Cologne, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 863,208, Dec. 22, 1977. This application Oct. 9, 1979, Ser. No. 82,451
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1976, 2659114; Oct. 11, 1977, 2745584
Int. Cl.³ A61K 37/00; C07C 103/52
U.S. Cl. 424—177 21 Claims

1. A dehydrooligopeptide of the following formula or its salts



in which

R_1 is straight-chain or branched C_1–C_4-alkyl which is unsubstituted or substituted by 1 to 3 halogenatoms or C_1–C_3-alkoxy; phenyl, styryl or thienyl

R_2 is hydrogen or C_1–C_4-alkyl,

R_3 is phenyl, naphthyl, C_4–C_6-cycloalkyl, C_1–C_4-alkyl, an unsaturated heterocyclic radical which is unsubstituted or substituted by nitro

R_2 and R_3 together with the carbon atom to which they are attached represent cyclopentylidene, cyclohexylidene, cyclopentenylidene or cyclohexenylidene

R_4 is hydrogen, methyl or ethyl

R_5 is phenyl substituted by 1 to 3 halogen atoms or a heterocyclic group which is unsubstituted and contains 5 to 7 ring members and 1 to 2 nitrogen, oxygen or sulphur atoms

R_6 is hydrogen

R_7 is benzyl substituted by 1 or 2 halogen atoms or by hydroxyl or nitro; 2-methylmercaptoethyl or carboxymethyl;

R_8 is hydrogen

R_9 is hydroxyl or amino, C_1–C_{10}-alkylamino, C_1–C_5-alkoxy, C_1–C_{10}-alkylamino further substituted by 1 to 3 amino groups or by dialkylamino

and m and n are the same or different and each represents the

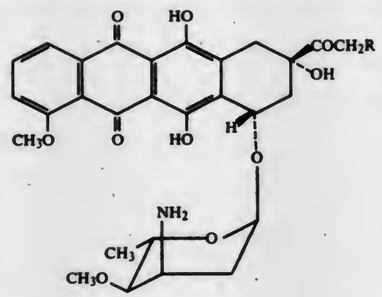
number 0 or the number 1, provided that m and n are not simultaneously the number 0; and provided that when R_1 is methyl, R_2 is hydrogen, R_3 is phenyl, m represents 0, R_6 is hydrogen, R_9 is hydroxyl, R_8 is hydrogen and n is 1, R_7 does not represent the 4-hydroxybenzyl radical.

4,276,289
ANTITUMOR GLYCOSIDES, THEIR PREPARATION AND USE

Giuseppe Cassinelli, Voghera; Daniela Ruggieri, Milan; Federico Arcamone, Nerviano, and Aurelio di Marco, Milan, all of Italy, assignors to Farmitalia Carlo Erba, S.p.A., Italy

Filed Mar. 17, 1980, Ser. No. 131,035
Claims priority, application United Kingdom, Mar. 17, 1979, 9462/79
Int. Cl.³ A61K *31/70*; C07H *15/24*
U.S. Cl. 424—180 5 Claims

1. An anthracycline glycoside of the formula I:



I

wherein R is hydrogen or hydroxyl and the hydrochlorides thereof.

4. A pharmaceutical composition for inhibiting the growth of P 388 leukemia comprising a therapeutically effective amount of an anthracycline glycoside as claimed in claim 1 in combination with an inert carrier therefor.

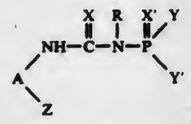
5. A method of inhibiting the growth of P 388 leukemia comprising intraperitoneally administering to a host afflicted therewith, a therapeutically effective amoung of an anthracycline glycoside as claimed in claim 1.

4,276,290
PHOSPHONOUREIDE AND PHOSPHONOTHIOUREIDE ANTHELMINTICS

W. David Weir, Levittown, and Edward E. Kilbourn, Chalfont, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 842,645, Oct. 10, 1977, Pat. No. 4,183,921, which is a division of Ser. No. 625,988, Oct. 28, 1975, Pat. No. 4,076,809, which is a continuation-in-part of Ser. No. 354,629, Apr. 25, 1973, abandoned, which is a continuation-in-part of Ser. No. 263,378, Jun. 5, 1972, abandoned. This application Sep. 6, 1979, Ser. No. 73,249
Int. Cl.³ A61K *31/67, 31/665, 31/675*
U.S. Cl. 424—200 6 Claims

1. A compound of the formula (I):



(I)

wherein A is a divalent arylene group selected from phenylene, naphthalene, anthrylene or phenanthrylene or a divalent heterocyclic group selected from diazepinylene, pyridinylene, pyrimidylene, triethylene or furylene, substituted with

(a) vicinal alkylenedioxy of from 1 to 4 carbon atoms;

or

(b) a group of the formula: $R^1(A')_a$ wherein R^1 is

(1) a substituted or unsubstituted 5 or 6 membered heterocyclic group, having as hetero atom, oxygen, sulfur or nitrogen, or any combination of these wherein the total number of hetero atoms does not exceed three; or

(2) an unsubstituted or substituted heterocyclic-alkyl group, wherein the heterocyclic group is as defined in (1) above and the alkyl group contains from 1 to 4 carbon atoms;

A' is oxygen, sulfur, sulfinyl, sulfonyl or carbonyl; and a is an integer of 0 to 1;

R is

(a) hydrogen;
(b) (C_1–C_{10}) alkyl;
(c) (C_1–C_{10}) haloalkyl;
(d) (C_3–C_6) cycloalkyl;
(e) (C_2–C_{11}) alkoxyalkyl;
(f) (C_1–C_{10}) cyanoalkyl;
(g) (C_{13}–C_6) alkenyl;
(h) (C_3–C_4) haloalkenyl;
(i) (C_{13}–C_6) alkynyl;
(j) (C_{13}–C_6) haloalkynyl;
(k) benzyl; or
(l) phenyl;

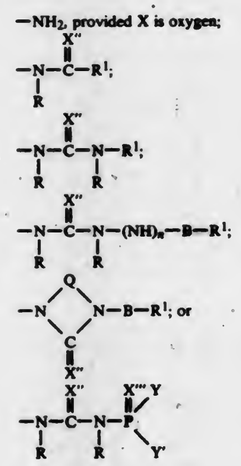
Y is R', OR', $N(R')_2$ or SR' and

Y' is OR', $N(R')_2$ or SR' wherein R' is an aliphatic group of from 1 to 18 carbon atoms, or a substituted or unsubstituted (C_6–C_{10}) aromatic group;

X is oxygen or sulfur;

X' is oxygen or sulfur; and

Z is a group of the formula:



(a) $-NH_2$, provided X is oxygen;
(b) $-N(R)-C(=X'')-R^1$;
(c) $-N(R)-C(=X'')-N(R)-R^1$;
(d) $-N(R)-C(=X'')-N(R)-(NH)_n-B-R^1$;
(e) a heterocyclic group containing $-N-B-R^1$ and $=X''$; or
(f) $-N(R)-C(=X'')-N(R)-P(=X''')(Y)-Y'$

wherein

R and R^1 are as defined above;

n is an integer of 0 to 1;

B is carbonyl, sulfinyl, or sulfonyl;

Q is alkylene of from 2 to 4 carbon atoms;

X'' is oxygen or sulfur, provided that when X'' is sulfur, X is oxygen; and

X''' is oxygen or sulfur, and Y and Y' are as above defined.

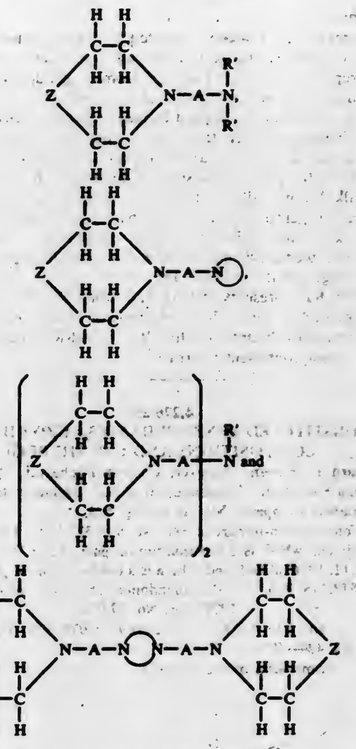
3. An anthelmintic composition for oral administration comprising an anthelmintically effective amount of the compound of claim 1 and a pharmaceutically acceptable carrier.

4,276,291
TERTIARY AMINO-SUBSTITUTED THIAZINES

Patrick M. Quinlan, Webster Groves, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Division of Ser. No. 713,706, Aug. 12, 1976. This application Jan. 23, 1980, Ser. No. 161,984
Int. Cl.³ A01N *43/84; 43/86, 43/88*
U.S. Cl. 424—246 10 Claims

1. A method of inhibiting microbiological growth which comprises treating a system with a microbiocidally effective amount of a tertiary amino-substituted thiazine having the formula selected from the group consisting of



(1)

(2)

(3)

(4)

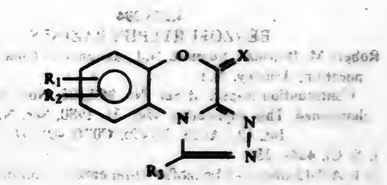
where Z is SO or SO_2, A is alkylene having 2 to 10 carbon atoms, R' is alkyl or hydroxyalkyl, N◯ represents a cyclic amine group and N◯N represents a cyclic diamine group.

4,276,292
TRIAZOLOBENZOXAZIN-4-ONES

Vasil St. Georgiev, New Rochelle; Bernard Loev, Scarsdale; Robert Mack, Valley Stream; and John Musser, Hawthorne, all of N.Y., assignors to USV Pharmaceutical Corporation, Tuckahoe, N.Y.

Filed May 12, 1980, Ser. No. 149,000
Int. Cl.³ A61K *31/535*; C07D *498/04*
U.S. Cl. 424—248.4 11 Claims

1. An anti-allergic compound of the formula:



wherein,

X is S or O;

each of R_1 and R_2 is hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, aryl, aralkyl, sulfonamido, halogen, alkoxy, alkenyloxy, alkynyloxy, cyano, hydroxy, acyloxy, nitro, amino, alkylamino, alkanoylamino, carbalkoxyamino, methanesulfonyl, carboxy, carbalkoxy or trihalomethyl, or taken together, methylenedioxy;

R_3 is hydrogen, hydroxy, alkyl, alkenyl, alkynyl, aryl, acyl, aralkyl, cycloalkyl, or carbalkoxy; and

acid addition salts thereof.

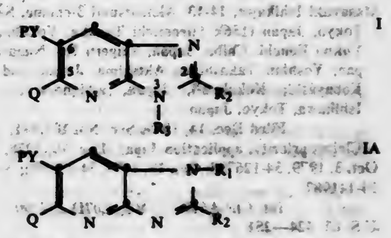
8. A therapeutic composition comprising a compound according to claim 1.

4,276,293
COMPOSITIONS AND THEIR PREPARATION

George Y. Lesher; Chester J. Opalka, Jr., both of Schodack, and Donald F. Page, East Greenbush, all of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Mar. 28, 1980, Ser. No. 135,211
Int. Cl.³ C07D *471/04*; A61K *31/415*
U.S. Cl. 424—248.4 10 Claims

1. A 2-R_2-3-R_3-6-PY-5-Q-3H-imidazo[4,5-b]pyridine having formula I or 1-R_1-2-R_2-6-PY-5-Q-1H-imidazo[4,5-b]pyridine having formula IA



I

IA

where Q and R_2 are each hydrogen or lower-alkyl, R_1 and R_3 each are hydrogen, lower-alkyl, lower-hydroxyalkyl, 2,3-dihydroxypropyl, lower-alkoxyalkyl or Y-NB where Y is lower-alkylene having at least two carbon atoms between its connecting linkages and NB is di-(lower-alkyl)amino or 4-morpholinyl, and PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents, or pharmaceutically-acceptable acid-addition salt thereof.

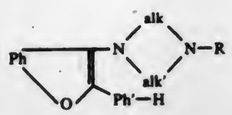
10. The method for increasing cardiac contractility in a patient requiring such treatment which comprises administering orally or parenterally in a solid or liquid dosage form to such patient an effective amount of a cardiotonic 2-R_2-3-R_3-6-PY-5-Q-3H-imidazo[4,5-b]pyridine or 1-R_1-2-R_2-6-PY-5-Q-1H-imidazo[4,5-b]pyridine or pharmaceutically-acceptable acid-addition salt thereof, where Q and R_2 are each hydrogen or lower-alkyl, lower-hydroxyalkyl, 2,3-dihydroxypropyl, lower-alkoxyalkyl or Y-NB where Y is lower-alkylene having at least two carbon atoms between its connecting linkages and NB is di-(lower-alkyl)amino or 4-morpholinyl, and PY is 4- or 3-pyridinyl or 4- or 3-pyridinyl having one or two lower-alkyl substituents.

4,276,294
BENZOFURYLPIPERAZINES

Robert M. Bowman, Summit, N.J., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 960,405, Nov. 30, 1978, abandoned. This application Mar. 31, 1980, Ser. No. 135,799
Int. Cl.³ A61K 31/495; C07D 405/04
U.S. Cl. 424—250 8 Claims

1. A 1-(2-phenyl-3-benzofuryl)-piperazine compound of the formula



wherein each of Ph and Ph' is 1,2-phenylene, unsubstituted or substituted by up to 3 members selected from the group consisting of lower alkyl, hydroxy, lower alkoxy, benzyloxy, lower alkylenedioxy, lower alkylthio, halogeno, trifluoromethyl, nitro, amino, lower alkylamino and di-lower alkylamino; each of the radicals alk and alk' is lower alkylene separating both nitrogens by 2 or 3 carbon atoms and forming with them a 6 or 7 membered ring; and R is hydrogen, lower or higher alkyl or alkanoyl, lower alkoxycarbonyl, lower alkenyl, lower alkynyl or lower hydroxyalkyl, wherein the multiple bond or hydroxy group is separated from the nitrogen atom by at least 2 carbon atoms; lower alkylquaternaries or pharmaceutically acceptable acid addition salts thereof.

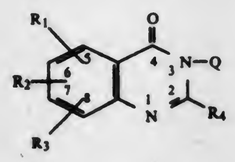
7. An anticonvulsant pharmaceutical composition comprising a spasmolytically effective amount of a compound claimed in claim 1, together with a pharmaceutical excipient.

4,276,295
3-AROMATIC MOIETY SUBSTITUTED-4(3H)-QUINAZOLINONES, PROCESS FOR PRODUCTION THEREOF, AND USE THEREOF

Masayuki Ishikawa, 14-13, Akazutsumi 3-chome, Setagaya-ku, Tokyo, Japan (156); Hiromichi Tanaka, Yokohama, Japan; Yukuo Eguchi, Chiba, Japan; Shigeru Ito, Nagareyama, Japan; Yoshimi Takashima, Akishima, Japan, and Masahiko Kobayashi, Kokubunji, Japan, assignors to Masayuki Ishikawa, Tokyo, Japan

Filed Dec. 14, 1979, Ser. No. 103,841
Claims priority, application Japan, Dec. 19, 1978, 53-155764; Oct. 3, 1979, 54-126738; Oct. 18, 1979, 54-133582; Nov. 5, 1979, 54-141987
Int. Cl.³ A61K 31/505; C07D 239/90
U.S. Cl. 424—251 14 Claims

14. A vasodilating, hypotensive and antiatherosclerotic pharmaceutical composition comprising a pharmaceutically effective amount of a compound selected from 3-aromatic moiety substituted-4-quinazolinones and their pharmaceutically acceptable acid addition salts and a pharmaceutically acceptable diluent or carrier, said quinazolinone compounds being of the formula



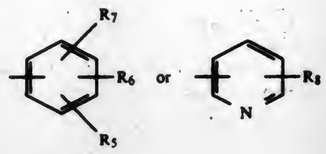
(I)

wherein

R_1 and R_3 represent lower alkyl and R_2 represents linear or branched lower alkoxycarbonyl in which R_1, R_2 and R_3 are located at the 5-, 6- and 7-positions or at the 6-, 7- and 8-positions in this order;

R_4 represents a member selected from the group consisting of hydrogen, linear or branched alkyl, monohalogenomethyl, trihalogenomethyl, acetoxymethyl and hydroxymethyl;

Q represents a group of the formula



in which

R_5 represents a member selected from the group consisting of hydrogen, halogen, lower alkyl and lower alkoxy, R_6 represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, trifluoromethyl and nitro, R_5 and R_6 may together represent methylenedioxy when they are located on adjacent carbon atoms on the nucleus, R_7 represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, trifluoromethyl, nitro, cyano, lower alkoxycarbonyl, hydroxymethyl, carboxymethyl, lower alkoxycarbonylmethyl, amino, di-lower alkylamino, and (di-lower alkylamino) lower alkyl, and R_8 represents hydrogen or lower alkyl; and

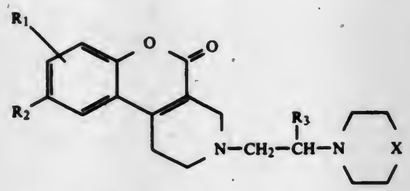
when R_4 represents methyl, and when R_1, R_2 and R_3 are located at the 6-, 7- and 8-positions in this order and R_4 represents hydroxymethyl, R_5, R_6 and R_7 do not simultaneously represent hydrogen.

4,276,296
SUBSTITUTED BENZOPYRANO[3,4-C]PYRIDINES, COMPOSITIONS AND USE THEREOF

Richard E. Brown, Hanover; Chester Pachalski, Dover, and John Shavel, Jr., Mendham, all of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 916,397, Jun. 16, 1978, abandoned, which is a continuation-in-part of Ser. No. 743,839, Nov. 11, 1976, abandoned, which is a continuation-in-part of Ser. No. 548,298, Feb. 10, 1975, abandoned. This application Nov. 23, 1979, Ser. No. 97,014
Int. Cl.³ A61K 31/44, 31/445; C07D 491/052
U.S. Cl. 424—256 8 Claims

1. A compound of the formula:



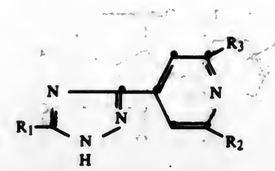
wherein R_1 and R_2 are lower alkoxy of 1–6 carbon atoms; R_3 is lower alkyl of 1–6 carbon atoms and X is CH_2 or a bond connecting the adjacent carbon atoms and the pharmaceutically acceptable acid addition salts thereof.

4,276,297
PYRIDYLAMINOTRIAZOLE THERAPEUTIC AGENTS

Christopher A. Lipinski, Waterford, Conn., assignor to Pfizer Inc., New York, N.Y.

Filed Jun. 18, 1979, Ser. No. 49,737
Int. Cl.³ A61K 31/44; C07D 401/04
U.S. Cl. 424—263 25 Claims

1. A compound selected from the group consisting of 3-amino-5-(4-pyridyl)-1,2,4-triazole bases of the formula:



and the pharmaceutically acceptable acid addition salts thereof, wherein

R_1 is a member selected from the group consisting of amino, lower N-monoalkylamino and lower N,N-dialkylamino;

R_2 is a member selected from the group consisting of amino, N-monoalkylamino having from one to twelve carbon atoms, N,N-dialkylamino wherein at least one of said alkyl moieties is either methyl or ethyl and the other is alkyl having from one to twelve carbon atoms, N-monoallylamino, N-monomethallylamino, N-methyl-N-allylamino, N-ethyl-N-allylamino, N-mono(β-hydroxyethyl)amino, N-mono(γ-hydroxypropyl)amino, N-mono[β-(lower alkoxy)ethyl]amino, N-mono[γ-(lower alkoxy)propyl]amino, N-mono(2,2,2-trifluoroethyl)amino, N-monobenzylamino, N-methyl-N-benzylamino, N-ethyl-N-benzylamino, N-mono(β-phenylethyl)amino, N-mono(β-phenyl-β-hydroxyethyl)amino, and ring-substituted N-monobenzylamino, ring-substituted N-methyl-N-benzylamino, ring-substituted N-ethyl-N-benzylamino and ring-substituted N-mono(β-phenylethyl)amino with each ring having up to two substituents on the phenyl moiety wherein each of said ring-substituents is identically chosen from the group consisting of fluorine, chlorine, bromine, trifluoromethyl, lower alkyl, lower alkoxy, hydroxy, carbamoyl, sulfamoyl, lower alkylsulfonyl and methanesulfonamido, or is separately chosen from the group consisting of chlorine, methyl, methoxy, hydroxy and trifluoromethyl; and

R_3 is a member selected from the group consisting of hydrogen, lower alkyl, amino and lower-N-monoalkylamino.

24. A method for combatting peptic ulcers in the treatment of a subject afflicted with said condition, which comprises administering to said subject a anti-ulcer effective amount of a compound as claimed in claim 1.

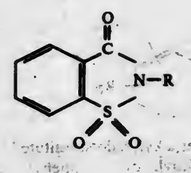
25. A pharmaceutical composition suitable for oral administration comprising a pharmaceutically acceptable carrier and a anti-ulcer effective amount of an anti-ulcer agent wherein said agent is a compound as claimed in claim 1.

4,276,298
2-ARYL-1,2-BENZISOTHIAZOLINONE-1,1-DIOXIDES AND THEIR USE AS SELECTIVE PROTEASE INHIBITORS

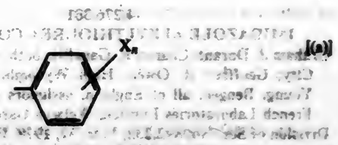
Howard Jones, Holmdel, N.J.; Robert L. Clark, Sequim, Wash., and Morris Zimmerman, Watchung, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 889,762, Mar. 24, 1978, abandoned. This application Sep. 6, 1979, Ser. No. 71,145
Int. Cl.³ C07D 275/04
U.S. Cl. 424—270 10 Claims

1. A compound of the formula:



wherein R is



where n is 1 or 2, except where X is fluoro, n may also be up to and including 5; and X is independently selected from (1) fluoro; (2) nitro, except that where X is only nitro, n must be 2 and X must be 2,4- or 3,5-dinitro; (3) trifluoromethyl; (4) cyano; (5) C_{1-3} alkoxycarbonyl; (6) C_{1-3} alkylcarbonyl (7) carboxyl; (8) carbamoyl; (9) C_{1-3} alkylacylamino; (10) C_{1-3} alkylsulfonyl; (11) N,N-di(C_{1-3} alkyl) sulfamyl; (12) trifluoromethoxy; (13) trifluoromethylthio; (14) trifluoromethylsulfonyl; and (15) trifluoromethylsulfinyl.

4,276,299
1-(3-BROMO-ISOXAZOL-5-YL)-2-TERT.BUTYLAMINOETHANOL

Davide Della Bella, and Dario Chiarino, both of Milan, Italy, assignors to Zambon S.p.A., Milan, Italy

Filed Dec. 18, 1979, Ser. No. 104,740
Claims priority, application Italy, Dec. 22, 1978, 31198 A/78
Int. Cl.³ A61K 31/42; C07D 261/06
U.S. Cl. 424—272 4 Claims

1. A pharmaceutical composition for use as a bronchodilator comprising a therapeutically effective amount of a pharmaceutically acceptable salt of 1-(3-bromo-isoxazol-5-yl)-2-ter.-butylaminoethanol and a pharmaceutically acceptable carrier.

2. 1-(3-bromo-isoxazol-5-yl)-2-ter.butylaminoethanol.

4,276,300
AMINO-SUBSTITUTED-4,5,6,7-TETRAHYDRO-1H (OR 2H)-INDAZOLES

Nicholas J. Bach, and Edmund C. Kornfeld, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 6,064, Jan. 22, 1979, abandoned. This application Mar. 15, 1979, Ser. No. 20,559
Int. Cl.³ A61K 31/41; C07D 231/56
U.S. Cl. 424—273 P 10 Claims

1. A tautomer of the formulas



I II

wherein one of R and R^1 is H and the other is $N(R^2)_2$ wherein each R^2 is individually H, allyl, methyl, ethyl or n-propyl and pharmaceutically acceptable acid addition salts thereof formed with non-toxic acid.

9. A method of inhibiting the secretion of prolactin in mammals which consists of administering to a mammal having a condition in which there is excess of prolactin being secreted and in need of treatment a dose of a compound according to claim 1 effective to reduce prolactin secretion.

4,276,301

IMIDAZOLE ALKYLTHIOUREA COMPOUNDS

Graham J. Durant; Charon R. Ganellin, both of Welwyn Garden City; Geoffrey R. Owen, High Wycombe, and Rodney C. Young, Bengeo, all of England, assignors to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

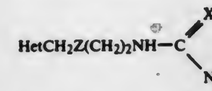
Division of Ser. No. 892,232, Mar. 31, 1978, Pat. No. 4,192,879, which is a division of Ser. No. 686,185, May 13, 1976, Pat. No. 4,098,898. This application Aug. 27, 1979, Ser. No. 70,184

Claims priority, application United Kingdom, May 21, 1975, 21817/75; Nov. 20, 1975, 47782/75

Int. Cl.³ C07D *233/64, 233/68;* A61K *31/415*

U.S. Cl. 424—273 R 8 Claims

1. A compound of the formula:



wherein X is sulphur; Y is amino, lower alkylamino, di(lower alkyl)amino, lower alkoxy, allyl, 2,2,2-trifluoroethyl, or $(CH_2)_nR$; Z is sulphur or methylene; Het is an imidazole ring which is attached at a ring carbon and which ring is optionally substituted by lower alkyl or halogen; n is an integer from 1 to 12; and R is hydroxy or lower alkoxy; or a pharmaceutically acceptable acid addition salt thereof.

8. A method of blocking histamine H_2-receptors which comprises administering to an animal in need thereof in an effective amount to block said receptors a compound of claim 1.

4,276,302

MITICIDAL 2-(PHENOXY-ALPHA-ALKYL)-IMIDAZOLINES

Hans U. Brechbühler, Basel; Günter Mattern, Liestal, and Walter Traber, Reinach, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

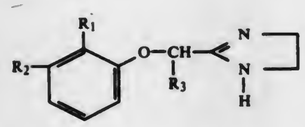
Filed Oct. 4, 1979, Ser. No. 81,964

Claims priority, application Switzerland, Oct. 9, 1978, 10469/78

Int. Cl.³ A01N *43/50;* C07D *233/22*

U.S. Cl. 424—273 R 17 Claims

10. A method of controlling plant damaging mites and mites which are parasites of animals, which comprises applying to the locus of said mites a miticidally effective amount of a compound of the formula



wherein R_1 and R_2, each independently of the other, are methyl or chlorine, and R_3 is ethyl or n-propyl, or an acid addition salt thereof.

4,276,303

MICROBICIDAL COMPOSITIONS

Walter Kunz, Oberwil; Wolfgang Eckhardt, Lörrach, and Adolf Hübele, Magden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

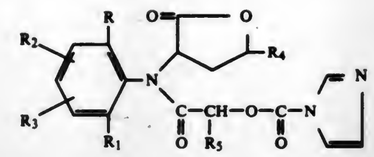
Division of Ser. No. 6,398, Jan. 25, 1979, Pat. No. 4,233,308. This application Aug. 1, 1980, Ser. No. 174,412

Claims priority, application Switzerland, Jan. 28, 1978, 931/78-7

Int. Cl.³ A01N *43/50;* C07D *403/12*

U.S. Cl. 424—273 R 6 Claims

1. A compound of the formula I



in which

R is C_1–C_4-alkyl, C_1–C_4-alkoxy or halogen,

R_1 is hydrogen, C_1–C_3-alkyl, C_1–C_4-alkoxy or halogen,

R_2 is hydrogen, C_1–C_3-alkyl or halogen,

R_3 is hydrogen or methyl, with the total number of C atoms of the substituents R, R_1, R_2 and R_3 in the phenyl ring not exceeding 8,

R_4 and R_5 independently of one another are hydrogen or methyl.

5. A phytomicrobicidal composition which comprises as active ingredient an effective phytomicrobicidal amount of a compound of the formula I according to claim 1, together with a suitable carrier therefor.

4,276,304

NOVEL BENZYLALCOHOL DERIVATIVE AND PROCESS FOR PREPARING THE SAME

Muneyoshi Ikezaki, Ageo; Katsuyuki Noguchi, Kitamoto; Hajime Iwai, Hasuda, and Masanori Inamasu, Misato, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

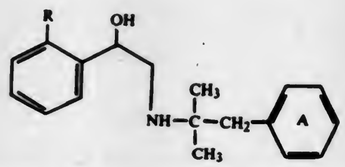
Filed Jan. 18, 1980, Ser. No. 113,218

Claims priority, application Japan, Jan. 31, 1979, 54-10562

Int. Cl.³ C07C *91/34;* A61K *31/135*

U.S. Cl. 424—282 36 Claims

1. A benzylalcohol derivative of the formula:



(I)

wherein R is hydroxy, benzyloxy, alkoxy of one to 4 carbon atoms or halogen, and Ring A is monomethoxyphenyl, dimethoxyphenyl, trimethoxyphenyl or 3,4-methylenedioxyphenyl, or a pharmaceutically acceptable acid addition salt thereof.

4,276,305

CYCLOPROPANE CARBOXYLIC ACID ESTERS AND CYCLOPROPANE(THIO)-CARBOXYLIC ACID ESTERS

Milos Suchy, Pfaffhausen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

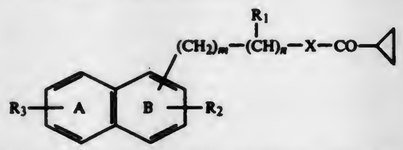
Filed Jan. 25, 1980, Ser. No. 115,313

Claims priority, application Switzerland, Feb. 9, 1979, 1290/79; May 18, 1979, 4674/79; Jan. 11, 1980, 214/80

Int. Cl.³ C07C *153/09;* A01N *9/24;* C07C *69/74;* A01N *53/00*

U.S. Cl. 424—301 9 Claims

1. A compound of the formula

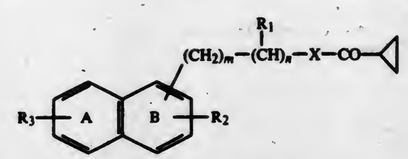


I

wherein R_1 is lower alkyl, halo-substituted lower alkyl, lower alkenyl, lower alknyl, cyano, phenyl, substituted phenyl wherein the substituents are selected from the group consisting

of halogen, methyl, ethyl, methoxy, ethoxy and nitro; R_2 is hydrogen, halogen, alkyl of from 1 to 3 carbons, alkoxy of from 1 to 3 carbons, alkenyloxy of 3 or 4 carbons, alkynyloxy of 3 or 4 carbon or nitro; R_3 is hydrogen, alkyl of from 1 to 3 carbons or alkoxy of from 1 to 3 carbons; X is sulphur; m is zero or an integer of from 1 to 3 and n is zero or 1; wherein one or both of rings A and B can be saturated and wherein m and n cannot simultaneously be zero.

6. A pesticidal composition which comprises inert carrier material and, as the active ingredient, an amount which is effective as a pesticide of at least one compound of the formula



I

wherein R_1 is lower alkyl, halo-substituted lower alkyl, lower alkenyl, lower alkynyl, cyano, phenyl, substituted phenyl wherein the substituents are selected from the group consisting of halogen, methyl, ethyl, methoxy, ethoxy and nitro; R_2 is hydrogen, halogen, alkyl of from 1 to 3 carbons, alkoxy of from 1 to 3 carbons, alkenyloxy of 3 or 4 carbons, alkynyloxy of 3 or 4 carbons or nitro; R_3 is hydrogen, alkyl of from 1 to 3 carbons or an alkoxy of from 1 to 3 carbons; X is sulphur; m is zero or an integer of from 1 to 3 and n is zero or 1; wherein one or both rings A and B can be saturated and wherein m and n cannot simultaneously be zero.

4,276,306

COMBATING ARTHROPODS WITH 3-PHENOXYBENZYL 2,2-DIMETHYL-3-VINYL-CYCLOPROPANE CARBOXYLATES

Rainer Fuchs, Wuppertal; Ingeborg Hammann, Cologne, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

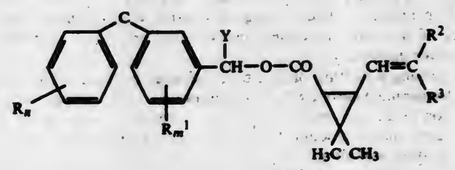
Filed Jun. 16, 1978, Ser. No. 916,163

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1977, 2730515

Int. Cl.³ A01N *53/00;* C07C *69/75, 121/75*

U.S. Cl. 424—304 9 Claims

1. A 3-phenoxybenzyl 2,2-dimethyl-3-vinylcyclopropane carboxylate of the formula



in which

one of R and R^1 is fluorine and the other is hydrogen or fluorine,

R^2 is halogen,

R^3 is phenyl, or phenyl carrying at least one alkyl group or halogen atom,

Y is hydrogen or cyano,

n is 1, 2, 3, 4 or 5, and

m is 1, 2, 3 or 4.

7. A method of combating arthropods which comprises applying to the arthropods, or to a habitat thereof, an arthopodicidally effective amount of a carboxylate according to claim 1.

4,276,307

N-PHENETHYLAMINOPROPIOPHENONES AS LIPOGENESIS INHIBITORS

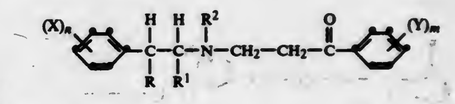
George R. Haynes, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 25, 1980, Ser. No. 115,467

Int. Cl.³ A61K *31/275, 31/22, 31/165, 31/12*

U.S. Cl. 424—304 1 Claim

1. A method of inhibiting lipogenesis in a mammal, which comprises administering, to a mammal in need of said treatment, orally or parenterally a lipogenesis inhibiting amount of a compound of the formula:



wherein

R is hydrogen or hydroxyl;

R^1 is hydrogen or methyl;

R^2 is hydrogen or methyl;

n is zero, one or two;

X is hydroxyl, with the proviso that when n is one, the hydroxyl moiety is bonded to the carbon atom at the 4-position in the phenyl ring, and when n is two, the hydroxyl moieties are bonded to the carbon atoms in the 3- and 4-positions of the phenyl ring;

m is one;

Y is cyano

or their pharmacologically acceptable acid addition salts.

4,276,308

METHOD FOR CONTROLLING WOOD-DAMAGING INSECTS

Takaaki Ito, Kobe, and Takio Watanabe, Hirakata, both of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

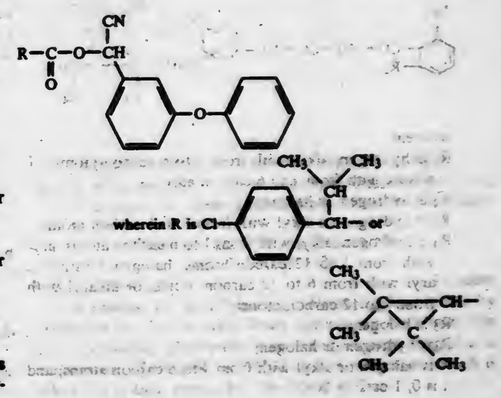
Filed Dec. 18, 1979, Ser. No. 104,995

Claims priority, application Japan, Dec. 25, 1978, 53-163615

Int. Cl.³ A01N *37/34*

U.S. Cl. 424—304 4 Claims

1. A method for controlling insects harmful to wood including termites and powder-post beetles which comprises contacting the insects with a compound represented by the formula:

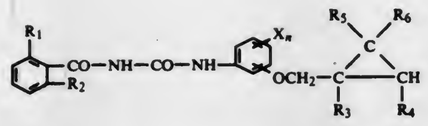


4,276,309
ACYLUREA INSECTICIDES

Heinrich Franke, and Hartmut Joppien, both of Berlin, Fed. Rep. of Germany, assignors to Schering AG, Berlin, Fed. Rep. of Germany

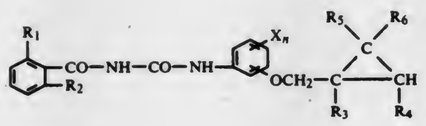
Filed Jul. 10, 1980, Ser. No. 167,317
Claims priority, application Fed. Rep. of Germany, Jul. 11, 1979, 2928410
Int. Cl.³ C07C 127/22; A01N 9/20
U.S. Cl. 424—322 52 Claims

1. Acylureas of a composition having the general formula



wherein
R_1 is halogen, alkyl with from 1 to 6 carbon atoms, or alkoxy with from 1 to 6 carbon atoms;
R_2 is hydrogen or halogen;
R_3 is hydrogen or alkyl with from 1 to 6 carbon atoms;
R_4 is hydrogen, alkyl with from 1 to 6 carbon atoms, aryl with from 6 to 12 carbon atoms, halogen substituted aryl with from 6 to 12 carbon atoms, or alkaryl with from 7 to 12 carbon atoms;
R_5 is halogen;
R_6 is hydrogen or halogen;
X is halogen or alkyl with from 1 to 6 carbon atoms; and
n is 0, 1 or 2.

51. A method for killing and/or eliminating insects comprising
placing in the possible pathway of the insects a composition having an effective insecticidal amount of the compound of the general formula



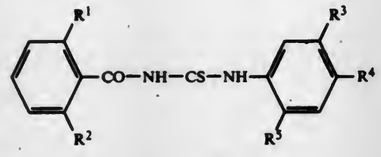
wherein
R_1 is hydrogen, alkyl with from 1 to 6 carbon atoms, or alkoxy with from 1 to 6 carbon atoms;
R_2 is hydrogen or halogen;
R_3 is hydrogen or alkyl with from 1 to 6 carbon atoms;
R_4 is hydrogen, alkyl with from 1 to 6 carbon atoms, aryl with from 6 to 12 carbon atoms, halogen substituted aryl with from 6 to 12 carbon atoms, or alkaryl with from 7 to 12 carbon atoms;
R_5 is halogen;
R_6 is hydrogen or halogen;
X is halogen or alkyl with from 1 to 6 carbon atoms; and
n is 0, 1 or 2.

4,276,310
COMBATING PESTS WITH N-(4-SUBSTITUTED-PHENYL)-N'-(2-SUBSTITUTED-BENZOYL)-THIOUREAS

Wilhelm Sirrenberg, Sprockhoevel; Erich Klauke, Odenthal; Ingeborg Hammann, Cologne; Ingomar Krehan, Cologne; Peter Kraus, Cologne, and Wilhelm Stendel, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 16, 1979, Ser. No. 67,246
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1978, 2837086
Int. Cl.³ C07C 157/12; A01N 47/30
U.S. Cl. 424—322 11 Claims

1. An N-(4-substituted-phenyl)-N'-(2-substituted-benzoyl)-thiourea of the formula



in which
R^1 represents halogen,
R^2 represents hydrogen or halogen,
R^3 represents hydrogen, halogen or halogenoalkyl,
R^4 represents halogen, halogenoalkyl, halogenoalkoxy, halogenoalkylthio or halogenoalkylsulphonyl, with the proviso that R^3 represents halogenoalkyl if R^4 represents halogen, and
R^5 represents hydrogen or halogen.

9. A method of combating arthropods or phytopathogenic fungi or bacteria, which comprises applying to the arthropods, fungi or bacteria, or a habitat thereof, an arthropodicidally, fungicidally or bactericidally effective amount of a compound according to claim 1.

4,276,311
FOOD PRODUCT AND PROCESS

Ian E. Burrows, Gaddesby, and Peter A. Cheney, Leicester, both of England, assignors to Mars Limited, London, England

Continuation-in-part of Ser. No. 696,896, Jun. 17, 1976, abandoned. This application Jul. 24, 1979, Ser. No. 60,172
Int. Cl.³ A23B 4/12
U.S. Cl. 426—56 8 Claims

1. A method of making a meat-in-jelly food product having a moisture content in the range of 65–95% and composed of pieces of edible proteinaceous tissue in a gelled aqueous phase, which product is microbiologically stable without the necessity of hermetic packaging and sterilization; which method consists essentially of
a. forming a mixture of said proteinaceous tissue, a source of fermentable carbohydrate, an antimycotic, an aqueous solution of an acid-sensitive, thermo-reversible or ionic gelling agent and an inoculum of acid-producing micro-organisms, by steps including:
i. dissolving said gelling agent to form said aqueous solution at elevated temperature, and
ii. admixing said inoculum of acid-producing micro-organisms at a temperature at which the viability of said micro-organisms is not impaired,
b. distributing said inoculum through said mixture prior to gelation of said gelling agent, and thereafter:
c. cooling said inoculated mixture to effect gelation of said gelling agent and
d. incubating the micro-organisms to produce acid sufficient to reduce the pH value of the gelled mixture to below 4.5, whereby the meat-in-jelly food product is microbiologically stabilized.

4,276,312
ENCAPSULATION OF MATERIALS

Carleton G. Merritt, R.D. #1, Slayton Rd., Cato, N.Y. 13033

Continuation of Ser. No. 909,398, May 25, 1978, abandoned, which is a continuation-in-part of Ser. No. 804,819, Jun. 6, 1977, abandoned, which is a continuation-in-part of Ser. No. 693,563, Jun. 7, 1976, abandoned. This application Jan. 18, 1980, Ser. No. 113,319
Int. Cl.³ A23L 1/22, 1/226
U.S. Cl. 426—96 14 Claims

1. Method for preparing encapsulated product comprising preparing a dispersion of encapsulating material, active material and water wherein weight of the encapsulating material to the total weight of the encapsulating material and water is at least about 55% and Brookfield viscosity of the dispersion containing the encapsulating material, the active material and water is at least about 300 cps measured at 70° C. wherein the encapsulating material is selected from the group consisting of modified starch, hydrolyzed gums, hydrolyzed gelatin and mixtures thereof and the active material is selected from the group consisting of essential oils, oleo resins, imitation flavors and fragrances and mixtures thereof; and spray drying said dispersion through a vortex creating device sufficiently small and an orifice sufficiently large to permit spray drying of said dispersion at a feed pressure of at least 1500 psi to produce a product having at least a substantial portion of its particles in elongated, non-spherical, rod-shaped form.

4,276,313
PROCESS FOR PREPARING MEAT PRODUCTS HAVING REDUCED SHRINKAGE

Peter W. Rose, R.R. 3 Covered Bridge Rd., S. Barrington, Ill. 60010

Continuation-in-part of Ser. No. 139,795, Apr. 14, 1980, which is a continuation-in-part of Ser. No. 129,727, Mar. 12, 1980. This application Jul. 7, 1980, Ser. No. 165,850
The portion of the term of this patent subsequent to Apr. 28, 1998, has been disclaimed.
Int. Cl.³ A23B 4/02; A23L 3/32
U.S. Cl. 426—247 48 Claims

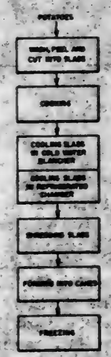
1. A process for preparing meat products with reduced shrinkage comprising the steps of:
providing meat;
providing an aqueous solution containing an edible chloride salt present at a concentration of at least about 0.2 molal;
passing a direct electric current through said aqueous solution to form an electrolyzed solution, said current passing through said solution at about 2 to about 20 amperes until at least about 25 coulombs have passed therethrough per liter of said solution;
combining said meat and said electrolyzed solution to contact said meat with said solution to form an admixture thereof within about 40 minutes after passage of said direct current through said electrolyzed solution has ceased;
maintaining said contact for a time period sufficient for the electrolyzed solution to penetrate said meat and enhance the moisture content thereof to form moisturized meat; and
recovering said moisturized meat.

15. A process for preparing ground meat comprising the steps of:
providing meat chunks;
providing an aqueous solution containing an edible chloride salt present at a concentration of at least about 0.2 molal;
passing a direct electric current of about 5 to about 15 amperes through said aqueous solution for a time sufficient to raise the pH value of the aqueous solution to at least about 8 while forming an electrolyzed solution;
combining said meat chunks and said electrolyzed solution to form an admixture while the pH value of said electrolyzed solution is at least about 8;
agitating said admixture until at least a portion of said electrolyzed solution is taken-up by said meat chunks to enhance the moisture content thereof and form moisturized meat chunks;
grinding said moisturized meat chunks to form a ground product; and
recovering said ground product.

4,276,314
METHOD OF PREPARING HASH BROWN POTATO PRODUCT

Lowell J. Anderson, Grand Forks, N. Dak., assignor to International Co-op, Grand Forks, N. Dak.

Continuation of Ser. No. 845,806, Oct. 27, 1977, abandoned. This application Jul. 5, 1979, Ser. No. 55,066
Int. Cl.³ A23L 1/216
U.S. Cl. 426—272 8 Claims



1. A process for preparing a frozen hash brown potato product consisting essentially of the following method steps:
washing and peeling raw potatoes;
cooking said raw potatoes by exposure to hot water or steam;
cooling said potatoes to a temperature of about 50° to 55° Farenheit by exposing the potatoes to cold water and then further cooling said potatoes to a temperature of about 40° to 45° Farenheit by exposing the potatoes to a refrigerated chamber;
shredding the cooled potatoes at a temperature of about 40° to 45° Farenheit immediately after cooling to said temperature;
immediately forming the shredded potato material into cakes of a desired shape and size without the addition of binding agents; and
freezing the cakes.

4,276,315
METHOD FOR DECAFFEINATING COFFEE

Saul N. Katz, Massey, N.Y., and Martin Gottesman, Paramus, N.J., assignors to General Foods Corporation, White Plains, N.Y.

Filed Feb. 12, 1979, Ser. No. 11,269
Int. Cl.³ A23F 5/20
U.S. Cl. 426—428 7 Claims

1. A process for decaffeinating moistened green coffee by extracting the coffee with liquid solvent selected from the group consisting of propane, butane and mixtures thereof at a temperature of from 30° to 95° C. and at a pressure which is below the critical pressure of the liquid solvent.

4,276,316

PROCESS FOR TREATING NUTS

Shri C. Sharma, Millington, N.J., assignor to CPC International Inc., Englewood Cliffs, N.J.

Continuation-in-part of Ser. No. 806,658, Jun. 15, 1977, abandoned. This application Mar. 29, 1978, Ser. No. 879,826
Int. Cl.³ A23L 1/20, 1/36, 1/38
U.S. Cl. 426—466 11 Claims

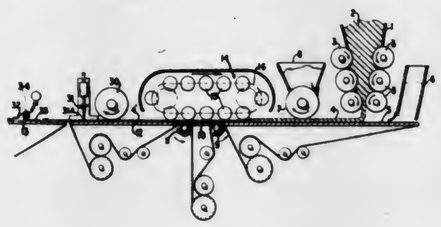
1. A method for treating raw edible nuts having intact skins comprising:
(a) contacting said nuts for from 30 to 180 seconds with heated gas having a temperature of between 125° and 175° C.,
(b) immediately chilling said heated nuts to below 35° C. within 5 minutes; and
(c) blanching said chilled nuts to separate and remove their skins.

4,276,317

METHOD FOR PROCESSING BREAD DOUGH

Torahiko Hayashi, 3-4, Nozawa-machi, Utsunomiya-shi, Tochigi-ken, Japan

Continuation of Ser. No. 846,993, Oct. 31, 1977, abandoned, which is a division of Ser. No. 552,760, Feb. 25, 1975, Pat. No. 4,056,346. This application Apr. 16, 1979, Ser. No. 30,015
Claims priority, application Japan, Feb. 25, 1974, 49-22041
The portion of the term of this patent subsequent to Aug. 10, 1993, has been disclaimed.
Int. Cl.³ A21D 6/00, 8/00
U.S. Cl. 426—501 3 Claims



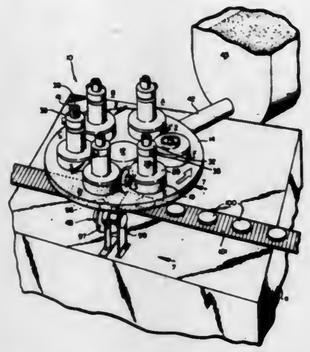
1. A method of producing bread dough comprising:
(a) forming the dough into a strip;
(b) placing said strip on a moving conveyor belt constituting the first in a series of conveyor belts;
(c) applying pulling forces to said strip by moving each of said belts in said series at a speed faster than the adjacent upstream conveyor belt while simultaneously applying repeated compressive forces to said strip and avoiding flattening of the dough by vertical downward pressure while said dough is being pulled by said series of conveyor belts to aid in reducing said strip to a thickness of from about 1 mm to about 4 mm without damaging the gluten tissue of the dough said compressive forces being applied by a plurality of rollers rotatably moving in an endless roller path extending over each of said conveyor belts so as to roll along said strip in the same direction of travel as said conveyor belts;
(d) subsequently cutting said strip into lengths; and
(e) forming layered masses of said dough from said lengths.

4,276,318

APPARATUS AND METHOD FOR MOLDING MEAT PATTIES

Gerald J. Orlowski, Scottsdale, Ariz.; Rodney D. Wicklund, Denver, Colo.; Richard D. Sandlas, Littleton, Colo., and Walter W. Welbler, Arvada, Colo., assignors to Armour and Company, Phoenix, Ariz.

Continuation of Ser. No. 959,384, Nov. 9, 1978, Pat. No. 4,193,167. This application Feb. 4, 1980, Ser. No. 118,212
Int. Cl.³ B29C 1/00, 3/02, 3/04; A22C 17/00
U.S. Cl. 426—513 8 Claims



1. In the method of forming patties from a mass of agglomerable edible material such as meat wherein said edible material is fed upwardly under pressure from a feed means having a feed opening into each of a plurality of upwardly extending cavities which are moved successively into and out of communication with said feed opening, each cavity having a piston reciprocably mounted therein and each piston having a bottom surface cooperating with the cavity to define a patty-forming mold with a bottom opening, each piston being movable upwardly in its cavity for filling the mold with said edible material when the bottom opening of the mold is in communication with said feed opening and the piston thereafter being movable downwardly for discharging a formed patty from the cavity when the botton opening of the mold is out of communication with said feed opening;
the improvement which comprises the steps of restraining upward mold filling movement of each piston in its cavity until the bottom opening of the cavity is substantially completely aligned with and substantially fully exposed to said feed opening, and then freeing the piston for upward mold filling movement under the pressure of the edible material from the feed means.

4,276,319

PROCESS FOR THE PRODUCTION OF A GRANULATED PROTEIN GEL SUITABLE AS A MEAT EXTENDER

Thanh V. Nguyen, St. Louis, and Thomas J. Wagner, Hillsboro, both of Mo., assignors to Ralston Purina Company, St. Louis, Mo.

Filed Jan. 17, 1979, Ser. No. 4,108
Int. Cl.³ A23J 3/00
U.S. Cl. 426—574 14 Claims

1. A process of forming dried granulated protein gel capable of rehydration with water under ambient conditions and in a rehydrated state being suitable as a meat extender comprising:
(a) hydrating a vegetable protein isolate having gel forming properties, with water to form a mixture having about 60–75% by weight of added water, and isolate having a protein content of at least about 90% by weight, said gel forming properties being defined as the ability of the isolate to form an aqueous protein gel upon heating of a slurry of the isolate having a viscosity at about 25° C. of between about 0.9–1.1×10⁶ cps, at about 100° C. for about 30 minutes, with the gel formed in this manner having sufficient strength to require at least about 50 g of force to penetrate the surface of the gel;
(b) extruding the hydrated isolate at a temperature of between about 75°–125° C. to form a protein gel, and
(c) granulating and drying said gel to achieve a shelf stable moisture content under non-puffing conditions.

4,276,320

COMPOSITIONS AND METHOD FOR PREPARING DESSERT GELS

Arthur L. Moirano, Mountainside, N.J., assignor to FMC Corporation, Philadelphia, Pa.

Filed Jan. 25, 1980, Ser. No. 115,582
Int. Cl.³ A23L 1/04
U.S. Cl. 426—575 11 Claims

1. A composition, useful for the preparation of edible carrageenan water gels having controlled melting temperatures, consisting essentially of kappa carrageenan, a non-toxic sodium salt of a sequestering agent, and non-toxic potassium in an ionizable form, said sequestering agent and said potassium being present in said composition in amounts sufficient, respectively, to sequester substantially all of the polyvalent cations present when the composition is dissolved in an aqueous medium, and to provide the sol (such aqueous medium) with a potassium ion content of from about 200 to about 800 ppm.

4,276,321

METHOD OF PREPARING SHAPED RICE FOOD

Yoshio Nagatani, Tokyo, Japan, assignor to Nagatanien Honpo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 826,997, Aug. 23, 1977, abandoned. This application Nov. 22, 1978, Ser. No. 963,302
Claims priority, application Japan, Apr. 8, 1977, 52/40056
Int. Cl.³ A23L 1/00
U.S. Cl. 426—618 1 Claim

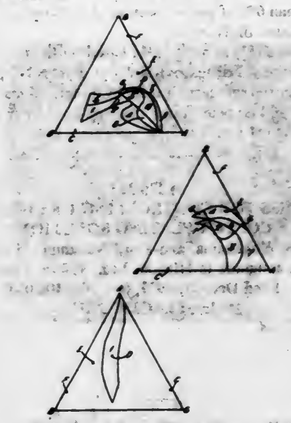
1. A method of preparing a predetermined shaped rice food which shape is maintained when the shaped rice food is handled, said method comprising the following steps in the order named:
(a) treating a predetermined amount of boiled rice grains with a predetermined amount of at least one ingredient to form a food mixture wherein the boiled rice grains change from a normally mutual viscous condition to a second nonviscous condition such that the bonding strength among said boiled rice grains in said treated food mixture is weakened to prevent the formation of a predetermined rice food shape when compressed;
(b) disposing said treated food mixture in a container of predetermined shape;
(c) freezing said treated food mixture disposed in said container of predetermined shape;
(d) removing said frozen treated food mixture from said container of predetermined shape;
(e) wrapping said treated food mixture in a predetermined shape heat-shrinkable film; and
(f) heating said predetermined shape heat-shrinkable film wrapped frozen treated food mixture to soften and swell said boiled rice grains and shrink said predetermined shape heat-shrinkable film wrapped treated food mixture to compress said treated food mixture whereby said condition of said rice grains changes from said second nonviscous condition to said normally mutual viscous condition to form a predetermined shape heat-shrinkable film wrapped treated food mixture which maintains said predetermined shape when said film is removed and said shaped rice food is handled.

4,276,322

CHOCOLATE HAVING DEFINED HARD FAT

Frederick B. Padley, Welwyn Garden City, England; Cornelis N. Paulussen, Uitgest; Cornelis Seeters, Rotterdam, both of Netherlands, and David Trusler, London, England, assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 711,048, Aug. 2, 1976, abandoned, which is a continuation of Ser. No. 344,792, Mar. 26, 1973, abandoned. This application May 11, 1977, Ser. No. 796,330
Int. Cl.³ A23D 5/00; A23G 1/00
U.S. Cl. 426—660 1 Claim



1. Chocolate in which the hard fat present has a 1,3-dipalmitoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol/1,3-distearoyl-2-oleoyl glycerol (POP/POS/SOS)-composition within an area defined in FIG. 18, 19 or 20 and consists of a hard fat or blend of hard fats consisting of at least 60% 1,3-dipalmitoyl-2-oleoyl-3-stearoyl glycerol (POP), 1-palmitoyl-2-oleoyl-3-stearoyl glyceride (POS) and 1,3-distearoyl-2-oleoyl glycerol (SOS) but with a 1,3-dipalmitoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol/1,3-distearoyl-2-oleoyl glycerol (POP/POS/SOS)-composition outside the area and a 1,3-distearoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol (SOS/POS)-fat consisting essentially of
(A) from 80% to 98% of 1,3-distearoyl-2-oleoyl glycerol (SOS) and 1-palmitoyl-2-oleoyl-3-stearoyl glycerol (POS),
(B) other oleoyl, palmitoyl and stearoyl (O,P and S) triglycerides consisting, by weight of the 1,3-distearoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol (SOS/POS)-fat, of
(a) less than 5% of trisaturated glycerides (GGG),
(b) less than 5% of tripalmitoyl glycerol (PPP),
(c) less than 3% of each trisaturated glyceride (GGG) other than tripalmitoyl glycerol (PPP),
(d) less than 10% 1,2-disaturated-3-oleoyl glycerol (GGO) consisting, by weight of the 1,3-distearoylglycerol (SOS/POS)-fat, of
(1) less than 3% of each of 1-palmitoyl-2-stearoyl-3-oleoyl glycerol (PSO) and 1-stearoyl-2-palmitoyl-3-oleoyl glycerol (SPO),
(2) less than 3% 1,2-dipalmitoyl-3-oleoyl glycerol (PPO), and
(3) less than 8% 1,2-distearoyl-3-oleoyl glycerol (SSO),
(e) less than 10% 1,2-dioleoyl-3-saturated glycerol (OOG),
(f) 1,3-dipalmitoyl-3-oleoyl glycerol (POP), and
(C)
(a) less than 10% of each of 1,3-distearoyl-2-elaidoyl (and double bond isomers of elaidoyl) glycerol (SES) and 1,3-distearoyl-2-linoleoyl glycerol (SLnS),
(b) less than 5% of each of 1-palmitoyl-3-stearoyl-2-elaidoyl (and double bond isomers of elaidoyl) glycerol (PES),

1-palmitoyl-2-linoleoyl-3-stearoyl glycerol (PLnS), 1,3-dipalmitoyl-2-elaidoyl (and double bond isomers of elaidoyl) glycerol (PEP) and 1,3-dipalmitoyl-2-linoleoyl glycerol (PLnP), and

(D) partial oleoyl, palmitoyl and stearoyl (O, P and S), glycerides consisting, by weight of the 1,3-distearoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol (SOS/POS)-fat, of

(a) less than 10% of each of total mono-glycerides, of total diglycerides, of glycerides containing at least one oleoyl group (O), and of unsaturated monoglycerides, and

(b) less than 6% of each of saturated mono-glycerides and of disaturated diglycerides,

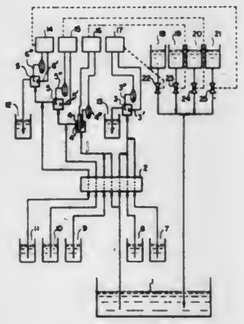
in (B), (C) and (D) at most 15%, based on the total fatty acids residues in the 1,3-distearoyl-2-oleoyl glycerol/1-palmitoyl-2-oleoyl-3-stearoyl glycerol (SOS/POS)-fat, of palmitoyl and stearoyl (P and S) being randomly replaced by myristoyl and arachidonoyl (M and A).

4,276,323

PROCESS FOR CONTROLLING OF CHEMICAL COPPER PLATING SOLUTION

Hitoshi Oka, Yokohama, and Kenji Nakamura, Fujisawa, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 21, 1979, Ser. No. 106,083
Int. Cl.³ C23C 3/02
U.S. Cl. 427—8 **1 Claim**



1. A process for controlling a composition of a chemical copper plating solution, which comprises:

(a) continuously adding an acid solution to a definite volume of an alkaline chemical copper plating solution continuously sampled from a chemical plating tank, thereby making pH 4–9, measuring a potential of the resulting solution by a glass electrode-reference electrode, emitting a difference in potential as a signal, when the measured potential is lower than a set potential of a pH control unit, thereby supplying an alkali solution to the plating tank from an alkali supplementing solution tank, or when the measured potential is higher than the set potential, thereby discontinuing the supplying of the alkali solution thereto, and thereby keeping the pH of the plating solution in the plating tank continuously constant,

(b) continuously adding to the solution leaving the pH measurement a definite volume of metal ions capable of forming a complex compound with a complexing agent in a little excess of the amount of free complexing agent in the solution, measuring a potential of the resulting solution by an insoluble electrode and a reference electrode, supplying a copper ion supplementing solution to the plating tank when the measured potential is lower than a set potential of a copper ion control unit, or discontinuing the supplying of the copper ion supplementing solution thereto when the measured potential is higher than the set potential, and thereby keeping a concentration of copper ions in the plating solution in the plating tank continuously constant,

(c) continuously adding to the solution leaving the measurement of copper ion concentration a definite volume of metal ions capable of forming a complex compound with a complexing agent in a little excess of all the amount of complexing agent in the solution, measuring a potential of the solution by an insoluble electrode and a reference electrode, supplying a complexing agent supplementing solution to the plating tank when the measured potential is higher than a set potential of a complexing agent control unit, or discontinuing the supplying of the supplementing solution when the measured potential is lower than the set potential, and thereby keeping a concentrtion of the complexing agent in the plating tank continuously constant, and

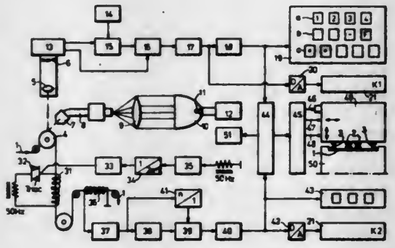
(d) continuously adding a definite volume of sulfite ions and iodine to a definite volume of a chemical copper plating solution continuously sampled from the chemical plating tank, measuring a potential of the resulting solution by an insoluble electrode and a reference electrode, supplying a reducing agent supplementing solution to the plating tank when the measured potential is lower than a set potential of a reducing agent control unit, or discontinuing the supplying of the supplementing solution thereto, when the measured potential is higher than the set potential, and thereby keeping a concentration of reducing agent in the plating solution in the plating tank continuously constant.

4,276,324

METHOD FOR THE CONTACT-FREE CONTINUOUS MEASUREMENT AND MONITORING OF MAGNETIC TRACKS ON MOVING FILM STRIPS

Friedmar Pöhler, Bergisch-Gladbach; Hans Falk, Leverkusen; Josef Müller, Marialinden; Hans J. Klein, Wuppertal, and Franz Hoffacker, Langenfeld, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Filed Mar. 19, 1979, Ser. No. 21,964
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1978, 2812633
Int. Cl.³ G01B 7/04, 11/04
U.S. Cl. 427—10 **9 Claims**



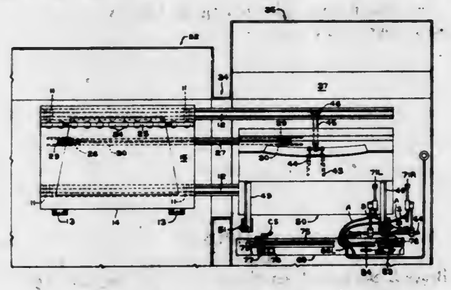
1. A method of substantially continuously measuring and monitoring the width, thickness and position of magnetic tracks on a moving film strip, which method is free of contact with the film strip and which is approximately independent of the speed of movement of the film strip, characterized in that the magnetic track width and magnetic track position are measured optically and the thickness of the magnetic track is measured electromagnetically, the method being further characterized in that the optical measurement is performed by illuminating the film strip and the magnetic tracks, projecting the illuminated magnetic tracks onto an electronic camera which generates a scanning electrical signal corresponding to the width and position of the illuminated magnetic tracks, generating a limit value signal predetermining minimum and maximum edge positions for the magnetic tracks, electrically continuously comparing the scanning electrical signal with the limit value signals whereby the width and position of the magnetic tracks is determined, displaying the difference between the limit value signals and the scanning electrical signals to monitor whether the tracks are of the proper width and correctly positioned on the film strip, the electromagnetic measurement being further characterized by the steps of magnetizing a portion of the moving film strip to saturation by transmitting pulse of periodically changing polarity through it, measuring a signal generated in response to the pulses of the magnetic tracks on the film strip, and reading out the measured signals to determine whether they comply with a predetermined standard which corresponds to the thickness of the tracks.

4,276,325

METHOD FOR SUPPORTING FLEXIBLE SHEET WHILE APPLYING GRADED SHADE BAND THEREON

Dennis S. Postupack, Natrona Heights, and David A. Allerton, Glenshaw, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Apr. 21, 1978, Ser. No. 898,589
Int. Cl.³ B05D 1/04, 5/06
U.S. Cl. 427—14.1 **14 Claims**



1. A method of handling a sheet of flexible interlayer material during the application of a shade band to an elongated area on one surface thereof by electrostatic spraying comprising

loading said flexible sheet with its opposite surface against an apertured vacuum platen in unwrinkled condition while said platen is supported in a substantially horizontal plane at a loading and unloading chamber,

applying vacuum to said apertuted vacuum platen sufficient to hold said flexible sheet in unwrinkled condition thereagainst but insufficient to cause said flexible sheet to distort in the vicinity of the apertures of said vacuum platen,

transferring said sheet to a coating chamber while supported in a substantially horizontal plane against said apertured vacuum platen by said vacuum,

tilting said flexible sheet and said vacuum platen to an oblique orientation in alignment with an obliquely supported platen mask in said coating chamber while continuing to support said flexible sheet against said vacuum platen by vacuum, and

electrostatically spraying a coating onto said elongated area of said flexible sheet through an opening in said platen mask while said flexible sheet is tilted and supported by vacuum against said vacuum platen and aligned with said platen mask in said coating chamber.

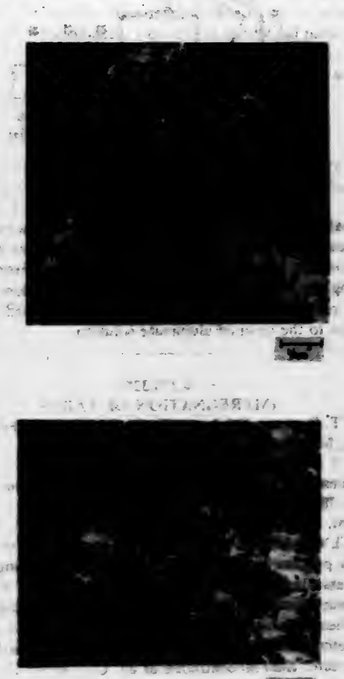
4,276,326

FREE FLOWING BUILDER BEADS AND DETERGENTS

David Joshi, Piscataway, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 661,471, Feb. 26, 1976, abandoned. This application Dec. 28, 1978, Ser. No. 973,962
Int. Cl.³ C11D 3/075, 3/08, 11/02, 17/06
U.S. Cl. 427—220 **40 Claims**

1. A method for producing a free flowing base builder bead comprising hydrating a first quantity of anhydrous phosphate builder salt in the presence of an alkali metal silicate to form an aqueous slurry; adding a second quantity of anhydrous phosphate builder salt to said slurry to form a crutcher mix, said addition being made under conditions which maintain said second quantity of phosphate builder in an anhydrous state; spray drying said crutcher mix to form a particulate material, the weight ratio of said first quantity of builder salt to said alkali metal silicate being from about 1.5 to about 5 and the weight ratio of said first quantity of builder salt to said second quantity of builder salt being from about 0.3 to about 0.7.



8. A method of producing a free flowing particulate detergent containing from about 10 to about 40 percent by weight of a liquid or semi-solid nonionic detergent material comprising the steps of supplying base builder beads made in accordance with the process of claim 1 having a porous outer surface and a skeletal internal structure, applying said nonionic detergent onto said beads such that said nonionic detergent impregnates said beads.

4,276,327

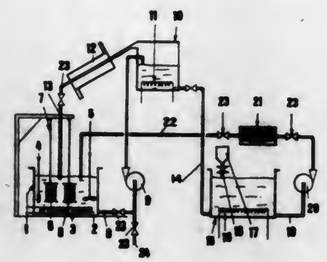
PROCESS FOR DEPOSITING ALUMINA ONTO A SUBSTRATE AND ALUMINA REGENERATION

Bernard P. H. Hie, and Henri A. Mercier, both of Gardanne, France, assignors to Pechiney Ugine Kuhlmann, Paris, France

Filed Nov. 24, 1976, Ser. No. 744,820
Claims priority, application France, Dec. 15, 1975, 75 39468
Int. Cl.³ B05D 1/40
U.S. Cl. 427—345 **6 Claims**

1. A process of concurrently depositing and regenerating alumina for physical deposition on a metal substrate consisting essentially of immersing the substrate in a circulating aqueous bath solution of alkali metal aluminate containing about 62 g of Na_2O per liter and approximately 96 g of Al_2O_3 per liter; agitating and heating the bath to a temperature of 80° to 100° C., the agitation insuring homogeneity of the bath; maintaining the bath rejuvenated by evaporating the aluminate solution to

concentrate the same as to bring the Na_2O content to 280–290 g per liter, condensing the evaporated water and returning the water condensate to the aluminate bath, heating the concentrated aluminate solution close to to its boiling point and adding alumina to regenerate the same, filtering the regenerated aluminate solution to remove any deposits of impurities and to



eliminate any decomposition seeds from the regenerated aluminate solution, adding water in a quantity substantially equivalent to that which has been evaporated and necessary for keeping the concentration of the aluminate solution at 62 g of Na_2O per liter, and returning the thus regenerated aluminate solution to the original aluminate solution.

4,276,328

IMPREGNATION OF YARNS

David T, Bartram, Stockport, England, assignor to Ferodo Limited, Manchester, England

Filed Oct. 29, 1979, Ser. No. 89,636
Claims priority, application United Kingdom, Nov. 4, 1978, 43249/78
Int. Cl.³ B05D *3/02*; D02G *3/00*; B32B *25/00, 27/00*
U.S. Cl. 427—381 3 Claims

1. A process for the treatment of yarn comprising continuous glass filaments, comprising the steps of:

(1) impregnating the yarn with a low-viscosity solution of a phenol-formaldehyde resin in a lower aliphatic alcohol or ketone solvent, the viscosity of said solution being not greater than 50 centipoise at 25° C.;

(2) evaporating solvent from the impregnated yarn;

(3) further impregnating the yarn with a high viscosity solution of a thermosetting binder in an organic solvent, the viscosity of said solution being at least about 500 centipoise at 25° C.; and again

(4) evaporating solvent from the thus-impregnated yarn.

4,276,329

WOOD TREATMENT PROCESS AND PRODUCT THEREOF

Ramesh C. Vasishth, Danville, Calif., and Dodwell P. deSilva, Vancouver, Canada, assignors to Envirosol Systems International, Ltd., Orinda, Calif.

Continuation-in-part of Ser. No. 23,051, Mar. 22, 1979, abandoned. This application Nov. 5, 1979, Ser. No. 91,030
Claims priority, application Canada, May 16, 1979, 327689
Int. Cl.³ B05D *1/18, 3/02*
U.S. Cl. 427—393 23 Claims

1. A method for treating wood to enhance its properties comprising: contacting the wood to be treated with sufficient water dilutable resin in a water miscible solvent to deposit an effective amount of said resin in the cell walls of said wood, said resin containing molecules having a molecular weight of less than about 1000 and of a size which can enter the free space in said cell walls in the presence of said solvent in an amount sufficient to stabilize the wood, and converting the resin in said cell walls to a water insoluble form at ambient conditions.

4,276,330

TRILAMINATE FILM FOR FORMING SIDEWELD BAGS

Hugh E. Stanley, Lafayette, and George M. Tokos, San Leandro, both of Calif., assignors to Crown Zellerbach Corporation, San Francisco, Calif.

Continuation of Ser. No. 734,853, Oct. 22, 1976, abandoned. This application Oct. 26, 1977, Ser. No. 845,526
Int. Cl.³ B32B *27/08*; B65D *64/40*
U.S. Cl. 428—35 7 Claims

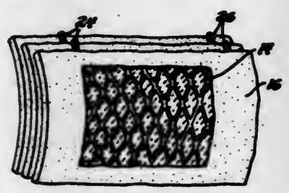
1. A trilaminate film made by coextrusion comprising a core layer sandwiched between skin layers, the core layer having a thickness of from about 30 to 90 percent of the thickness of the film and consisting essentially of an ethylene-propylene block copolymer and up to 40 percent of the weight of the film of recycled trilaminate trim consisting of said core layer and said skin layers, the block copolymer being the homogeneous product resulting from the sequential polymerization of (1) propylene and (2) a mixture of propylene and ethylene in the presence of a stereospecific polymerization catalyst, with the ethylene content of the block copolymer being from about five to ten mole percent, each skin layer having a thickness of from about 5 to about 35 percent of the thickness of the film and consisting essentially of polypropylene or an ethylene-propylene random copolymer having an ethylene content up to about four mole percent.

4,276,331

METAL-CERAMIC COMPOSITE AND METHOD FOR MAKING SAME

Bruce E. Bothwell, West Bloomfield, Mich., assignor to Repwell Associates, Inc., Bloomfield Hills, Mich.

Division of Ser. No. 652,008, Jan. 26, 1976, Pat. No. 4,059,712. This application Nov. 16, 1977, Ser. No. 852,128
The portion of the term of this patent subsequent to Nov. 22, 1994, has been disclaimed.
Int. Cl.³ B32B *17/00*; D03D *13/00*; B05D *3/02*; C04B *33/34*
U.S. Cl. 428—36 12 Claims



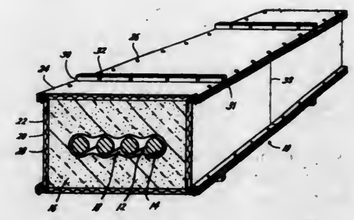
1. An internal combustion engine component having low thermal conductivity so as to provide insulation in a high temperature engine environment, said component comprising: a rigid wall of the engine component which is subjected to thermal cycling and thermal differentials as well as mechanical shock and vibration during operation of an associated engine, a liner adjacent the wall for providing thermal and acoustical insulation thereto, said insulating liner including a monolithic layer of ceramic material formed from a slurry and having imbedded therein a metal grid including openings which are closed by said ceramic material, and said metal grid having a melting temperature higher than the temperature at which the slurry forms into said monolithic ceramic layer and said metal grid having a higher coefficient of thermal expansion than the ceramic material.

4,276,332

FIRE PROOF CABLE TRAY ENCLOSURE

George K. Castle, 1047 E. Lakeview Dr., Baton Rouge, La. 70808

Filed Nov. 6, 1979, Ser. No. 91,839
Int. Cl.³ B32B *3/20, 3/24*
U.S. Cl. 428—36 11 Claims



8. A fire protective insulating product having an assemblable unit comprising:

an essentially rectangular galvanized metal frame, at least two opposite sides thereof being angularly shaped,

a wire mesh covering at least one side of, and attached to, said metal frame,

said wire mesh being encapsulated by at least three-sixteenth's inch intumescent material,

an insulative layer of an inorganic, non-combustible fiber mat being attached to at least one side of said metal frame, and

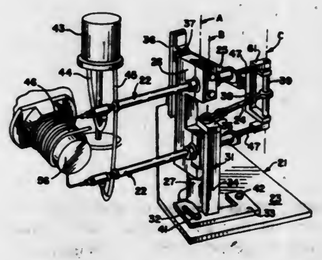
a metal foil layer secured to said assemblable unit as the last layer thereof.

4,276,333

APPARATUS AND METHOD FOR SOLVENT ADHESION OF COILED TUBING, AND PRODUCT PRODUCED THEREBY

Richard W. Cobean, Libertyville, Ill., assignor to Baxter Travenol Laboratories, Inc., Deerfield, Ill.

Filed Oct. 22, 1979, Ser. No. 87,075
Int. Cl.³ D02G *3/00*
U.S. Cl. 428—36 21 Claims



1. An apparatus for manufacturing coiled tubing having adjacent turns thereof detachably adhered together, comprising:

means for supplying a length of tubing would about an axis into a generally cylindrical coil of tubing having individual turns positioned generally adjacent to each other, said individual turns being detached from each other along their adjacent sides;

means for automatic silmultaneous tracking and dispensing of a solvent stream onto said generally cylindrical coil of tubing, the tracking means of said tracking and dispensing means having a narrow orifice that traverses said coil of tubing generally along a path connecting adjacent turns of said coil of tubing, the dispensing means of said tracking and dispensing means being pivotally mounted, the dispensing means providing a substantially uninterrupted narrow stream of said solvent through said narrow orifice while said tracking means is in operation, said dispensing means including a supply of said solvent and mechanical means for applying mechanical pressure to said supply of solvent to pass said solvent through said narrow orifice;

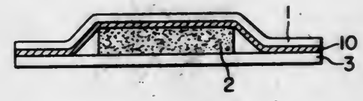
said tracking and dispensing means including mechanical means for applying said mechanical pressure to said dispensing means while automatically synchronizing said tracking of said narrow orifice along said coil of tubing, whereby a narrow stream of solvent dissolves at least a portion of the adjacent sides of the individual turns of the coil and detachably adheres together said portions of the adjacent sides, said solvent being applied in an amount that is uniform per turn of tubing.

4,276,334

PRESSURE SENSITIVE RECORDING SHEET

Tetsuo Sugihara, Nara, Japan, assignor to General Company Limited, Tokyo, Japan

Continuation of Ser. No. 736,536, Oct. 28, 1976, abandoned, which is a continuation of Ser. No. 589,877, Jun. 24, 1975, abandoned. This application Nov. 27, 1978, Ser. No. 963,747
Claims priority, application Japan, Oct. 31, 1974, 49/124589; Jan. 31, 1975, 50/12421; Jan. 31, 1975, 50/12422
Int. Cl.³ G11B *5/62*
U.S. Cl. 428—40 9 Claims



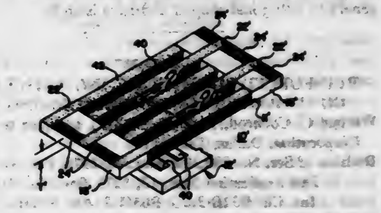
1. A pressure sensitive recording sheet consisting of a single opaque pressure clarifiable layer composed only of non-porous unbaked polytetrafluoroethylene, a support sheet under said pressure clarifiable layer, and a layer of adhesive disposed between said pressure clarifiable layer and said support sheet, either one of said layer of adhesive or said support sheet having a color contrasting with the color of said pressure clarifiable layer.

4,276,335

ELECTRON BEAM MATRIX DEFLECTOR AND METHOD OF FABRICATION

Charles Q. Lemmond, Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 885,982, Mar. 13, 1978, Pat. No. 4,182,010. This application Jul. 27, 1979, Ser. No. 61,452
Int. Cl.³ B32B *3/10*; H01J *9/18*
U.S. Cl. 428—131 3 Claims



1. A matrix assembly for deflecting an electron beam, comprising:

first and second members of insulating material, each of said first and second members having a pair of spaced-apart

and opposed end portions and a plurality of substantially parallel slots formed therethrough to define a plurality of bars extending between said spaced, opposed end portions; each slot having a cross section through said member substantially continuously diverging in a direction of passage of the electron beam therethrough; and

an electrical conductive coating fabricated upon at least the diverging walls of each adjacent pair of bars defining one of said slots;

said first and second members being positioned in overlapping parallel planar relationship to one another with the slots thereof mutually orthogonal each to the other and to the direction of passage of said electron-beam therethrough, to define a matrix of apertures.

4,276,336

MULTI-APERTURED WEB WITH INCREMENTAL ORIENTATION IN ONE OR MORE DIRECTIONS

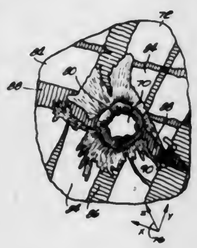
Reinhardt N. Sabee, Appleton, Wis., assignor to Sabee Products, Inc., Appleton, Wis.

Filed Apr. 23, 1979, Ser. No. 32,067

The portion of the term of this patent subsequent to May 8, 1996, has been disclaimed.

Int. Cl.³ B28B *1/48*; B32B *3/10*

U.S. Cl. 428—132 4 Claims



1. A perforated web formed by the process of differentially drawing a web with a quilted pattern of cold drawn areas surrounding undrawn islands comprising the steps of providing a web having at least in part cold drawable polymeric material, perforating the web to provide a pattern of spaced apertures and drawing the web in a first direction and providing a pair of meshing gears having a tooth form to provide rolling contact of the teeth at the pitch circles to provide incremental squeezing and cold stretching of the web while below a heat softened state between meshing teeth along a line of action for more than one tooth wherein the relative tooth height of the teeth on the gears is between 2 and 29 and wherein the relative tooth height is equal to the tooth height in inches divided by the original undrawn web thickness in inches and the teeth being at a transverse angle relative to the direction of draw in the first direction and moving a web through the gears to provide stretched and unstretched zones including generally polygonal shaped undrawn islands.

4,276,337

REINFORCED PLASTIC GRATING ARTICLES AND CONTINUOUS PROCESS FOR FORMING SAME

William C. Coonrod, Richardson, Tex., assignor to Fibergrate Corporation, Dallas, Tex.

Division of Ser. No. 889,392, Mar. 23, 1978, Pat. No. 4,164,439. This application Mar. 13, 1979, Ser. No. 20,164

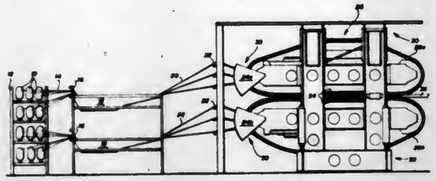
Int. Cl.³ B32B *3/10*; B65H *81/00*; B29D *7/14*

U.S. Cl. 428—134 7 Claims

1. A process for producing fiber reinforced plastic grate structures having longitudinal span bars and transverse tie bars comprising:

(a) feeding continuous strands of resin coated reinforcing fiber into the inlet opening between two continuous molding tracks having molding teeth comprising curved leading edges mounted thereon which mesh to form a molding cavity having longitudinal columns and transverse rows;

(b) alternately rotating said continuous molding tracks to carry said strands longitudinally along the columns be-



tween said molding teeth and indexing said strands transversely along the rows between said molding teeth for a distance less than the transverse width of said grate structure to form a plastic reinforced grate structure comprising continuous strands of said fibers laced in a predetermined weaving pattern.

4,276,338

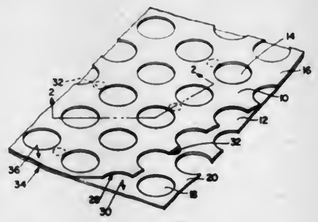
ABSORBENT ARTICLE

Raymond J. Ludwa, Fairfield; Mark E. Ferry, Mason, and Marilyn M. Haugen, Fairfield, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed May 1, 1979, Ser. No. 35,141

Int. Cl.³ B32B *5/12*, *5/14*

U.S. Cl. 428—137 20 Claims



1. An absorbent article with improved wicking performance comprising adjacent first and second layers maintained together intimately in a generally parallel arrangement to form a unitary structure:

(A) Said first layer comprising a sheet of fibrous material having opposed major surfaces and having multiple discrete regions of low density which penetrate said first layer, and which are separated by regions of high density;

(B) Said second layer comprising a sheet of fibrous material having multiple discrete regions of low density which are separated by regions of high density;

wherein 0% of about 58% of the regions of low density of said first layer overlap a region of low density of said second layer; and wherein said multiple discrete regions of low density are structures selected from cavities, apertures, holes, slits, areas of widely spaced fibers, and areas of few fibers, separated by said regions of high density.

4,276,339

LAMINATED FOAM-CREPED PAPER PRODUCT AND METHOD OF PRODUCTION THEREOF

F. Raymond Stoveken, 28 Meadow La., East Windsor, N.J. 08520

Filed Dec. 3, 1979, Ser. No. 99,513

Int. Cl.³ B32B *3/28*, *5/20*

U.S. Cl. 428—153 19 Claims

1. A method for the production of a laminated foam-creped paper product which exhibits improved wet strength and bulk, and is highly absorbent comprising:

forming an unset and ungelled foamed film of an aqueous dispersion or solution of a film-forming material on at least one surface of creped paper; and

causing said foamed film to set or gel such that the amount of moisture absorbed by the paper from the film prior to the setting or gelling of the film is insufficient to cause the crepe in the paper to be released whereupon a laminate is formed having a set or gelled foamed film having a thickness of from about 1 to about 125 mils which is bonded to said creped paper.

15. A laminated paper product produced according to the method of claim 1.

4,276,340

CELLULOSE PACKAGING FILMS FOR PACKAGING SOFT CHEESES

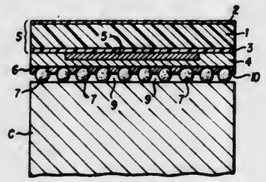
Jean-Pierre de Leiris, Creteil, France, assignor to La Cellophane, Paris, France

Filed Jun. 27, 1979, Ser. No. 52,812

Claims priority, application France, Jul. 7, 1978, 78 20248

Int. Cl.³ B32B *3/00*, *27/14*; B65D *5/00*; B65B *55/00*

U.S. Cl. 428—166 10 Claims



1. A water vapor permeable cellulose packaging film especially adapted for packaging soft cheeses which comprises

a cellulose film support; and

a nitrocellulose varnish layer coated on said support, said varnish layer containing particles of casein or starch dispersed throughout said layer, said particles having a diameter greater than the thickness of said varnish layer.

4,276,341

WET SUIT MATERIAL AND WET SUIT MADE THEREOF

Kazuyoshi Tanaka, Kobe, Japan, assignor to Kabushiki Kaisha Asahi Gomu, Kobe, Japan

Filed Oct. 22, 1979, Ser. No. 87,268

Claims priority, application Japan, May 2, 1979, 54-58304[U]; Jun. 1, 9179, 54-68571

Int. Cl.³ B32B *7/02*, *7/12*, *5/18*

U.S. Cl. 428—246 8 Claims

7. A wet suit formed of a closed pore, continuous, synthetic rubber sponge sheet, said sponge sheet being of white chloroprene rubber, a nylon stretch fabric adhesively bonded with a chloroprene-type adhesive to the interior surface of said synthetic rubber sponge sheet, a polyurethane film fixed by adhesive bonding with a urethane-type or chloroprene-type adhesive exteriorly of the synthetic rubber sponge sheet and forming the exterior surface of the wet suit, said polyurethane film having a thickness in the range of 0.01 mm to 0.05 mm and being a colored polyurethane film, the brightness of which is enhanced by the white sponge sheet backing same, said stretch fabric and sponge sheet and polyurethane film being substantially coextensive in area and forming a continuous laminate wherein said sponge sheet provides a substantially unbroken exterior support surface for said polyurethane film.



8. A wet suit as claimed in claim 7 and further comprising a second stretch fabric adhesively bonded between said synthetic rubber sponge sheet and said polyurethane film, with said second stretch fabric being a thin stretch cloth having a better stretchability than said first-mentioned stretch fabric.

4,276,342

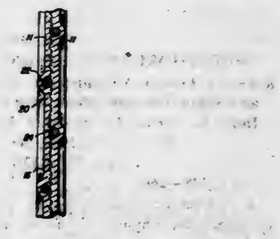
MOISTURE PROOF MATTING

Elwood O. Johnson, Box 773, Casa Grande, Ariz. 85222

Filed Jun. 7, 1979, Ser. No. 46,215

Int. Cl.³ B32B *7/00*

U.S. Cl. 428—247 2 Claims



1. A reinforced moisture proof impervious flexible sheet material comprising in combination:

(a) a first bendable mesh for providing primarily structural support for said sheet material, said first mesh including a first plurality of unbroken continuous crossed elements of a first cross-section and extending intermediate the respective edges of said sheet material, said cross elements defining first sized voids in said first mesh;

(b) a second bendable mesh juxtaposed with said first mesh for dividing each of the first sized voids into a plurality of second sized voids, said second mesh including a second plurality of unbroken continuous crossed elements of a second cross-section and extending intermediate the respective edges of said sheet material;

(c) at least one coating of a flowable curable tar compound for encapsulating and only incidentally penetrating said first and second plurality of elements of said first and second meshes, respectively, and for preventing relative movement of said first and second plurality of elements relative to one another at their respective intersections;

(d) said sheet material including an undulating surface formed by said tar compound on opposed sides of said sheet material and extending across said second sized voids intermediate said second plurality of elements of said second mesh which surface conforms with the outline of said tar compound encapsulated first plurality of elements, said second plurality of elements, said first sized voids, said second sized voids and their relative thicknesses and interstices;

whereby, said non-smooth surfaced sheet is impervious and bendingly conformable to various curvatures through bending of said first and second plurality of elements without relative movement therebetween at their respective interstices.

4,276,343

ACTIVE PHOSPHORUS NITRIDES CONTAINING HYDROXYL AND HALOGEN, AND PROCESS FOR MAKING THEM

Joseph Cremer, Hurth, and Heink Harnisch, Cologne, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Fed. Rep. of Germany

Filed Mar. 10, 1980, Ser. No. 128,385
Claims priority, application Fed. Rep. of Germany, Mar. 12, 1979, 2909600
Int. Cl.³ B32B 7/00; D04B 1/00; C01B 21/06, 25/00
U.S. Cl. 428—254 8 Claims

1. Active polymeric phosphorus nitrides containing hydroxyl and halogen, the halogen atoms and hydroxyl groups being linked to phosphorus, the nitrides containing about 37 to 48 weight% of phosphorus, about 39 to 44 weight% of nitrogen, about 4 to 12 weight% of oxygen and about 2 to 10 weight% of chlorine.

8. Light knitted goods of fibers of regenerated cellulose containing, as a flame-retardant agent, an active polymeric phosphorus nitride containing hydroxyl and halogen as claimed in claim 1.

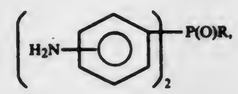
4,276,344

PHOSPHORUS-CONTAINING BISIMIDE RESINS

Robert A. Frosch, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Indra K. Varma, George M. Fohlen, John A. Parker

Filed Aug. 5, 1980, Ser. No. 175,452
Int. Cl.³ B32B 7/00
U.S. Cl. 428—260 6 Claims

1. A bisimide obtained by the condensation reaction of a polymerizable ethylenically unsaturated cyclic anhydride with a phosphorus-containing diamine of the formula



in which R stands for a methyl, ethyl, or phenyl group.

4,276,345

METHOD FOR PREVENTING A SURFACE EXIT OF FIBERS FROM AN UNWOVEN FABRIC, THROUGH A VERY THIN LAYER OF EMULSIFIED LATEX, AND PRODUCT THEREBY OBTAINED

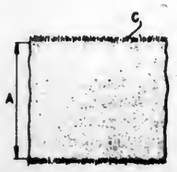
Marco Maranghi, Prato, Italy, assignor to Prato Commerz, S.p.A., Prato, Italy

Filed Jul. 9, 1979, Ser. No. 56,067
Int. Cl.³ B05D 3/00; B32B 27/34
U.S. Cl. 428—284 6 Claims

1. In a process for preventing surface-hairiness and surface exit of fibers from a non-woven fabric which comprises the step of applying to the surface of the fabric an emulsion latex of an acrylic or butadieneacrylonitrile resin the improvement which comprises the steps of

(a) impregnating the non-woven fabric with a solution of an emulsion-destabilizing electrolyte salt,

(b) spreading onto the surface of the impregnated fabric a layer of an emulsion latex of the resin, which layer is of



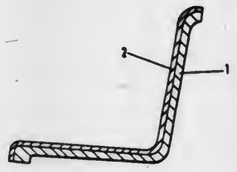
sufficiently low thickness not to cause hardening or stiffening of the fabric.

4,276,346

THERMOPLASTICS ARTICLES HAVING A SURFACE FUSED TO CLOTH

Michael J. Bramwell, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England

Continuation of Ser. No. 963,051, Nov. 22, 1978, Pat. No. 4,186,235, which is a continuation of Ser. No. 762,161, Jan. 24, 1977, abandoned, which is a continuation of Ser. No. 679,493, Apr. 22, 1976, abandoned. This application Aug. 14, 1979, Ser. No. 66,325
Claims priority, application United Kingdom, Apr. 24, 1975, 17059/75
Int. Cl.³ B32B 27/00
U.S. Cl. 428—286 4 Claims



1. A molded thermoplastics shaped article having a surface region keyed into a piece of cloth which is non-woven cloth having a thickness of at least 0.6 mm and weight of 50 to 250 g/m² wherein the cloth comprises contiguous fibres at least some of which are fused together at at least some of the points where they touch one another.

4,276,347

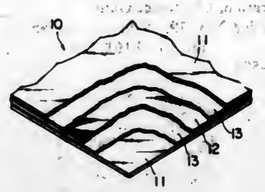
REINFORCED RESINOUS LAMINATE

Koji Shimada, Fujisawa, and Seiji Koike, Yokosuka, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd. and Kabushiki Kaisha Takeda Sangyo, both of Tokyo, Japan

Continuation-in-part of Ser. No. 860,384, Dec. 14, 1977, abandoned. This application Aug. 20, 1979, Ser. No. 68,054
Claims priority, application Japan, Dec. 25, 1976, 51/178841
Int. Cl.³ B32B 7/00, 27/06, 27/32
U.S. Cl. 428—332 2 Claims

1. A reinforced laminate comprising two strips of polyethylene film, a strip of annealed aluminum foil of between about 7 to 15 microns in thickness interlaid between the strips, an adherent coating on both surfaces of the annealed aluminum foil to bond the annealed aluminum foil and the polyethylene

strips together, the polyethylene strips each being oriented at an angle of 45 degrees to the longitudinal direction of the



laminate and forming a ninety degree angle relative to one another.

4,276,348

HIGH TENACITY POLYETHYLENE FIBERS AND PROCESS FOR PRODUCING SAME

Wen-li Wu, and William B. Black, both of Pensacola, Fla., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 848,168, Nov. 3, 1977, Pat. No. 4,228,118.
This application Jan. 7, 1980, Ser. No. 109,954
Int. Cl.³ D02G 3/00
U.S. Cl. 428—373 6 Claims

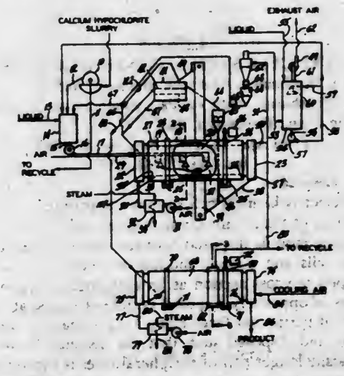
1. Fibers consisting of a polyethylene having a $\overline{M}_n$ of at least 20,000, a $\overline{M}_w$ of less than 125,000, a density of between 0.92 and 1.00 grams per cubic centimeter, said fibers having a tenacity of at least 12 grams per denier and a modulus of at least 272 grams per denier when measured at 72% relative humidity and 25° C. on a bundle of at least 8 filaments using a gauge length of at least 25 centimeters.

4,276,349

ROUND MULTI-LAYERED CALCIUM HYPOCHLORITE GRANULES

Walter C. Saeman, Cleveland, Tenn., assignor to Olin Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 521,417, Nov. 6, 1974, abandoned, which is a continuation-in-part of Ser. No. 276,615, Jul. 31, 1972, abandoned. This application Mar. 12, 1979, Ser. No. 19,950
The portion of the term of this patent subsequent to Jul. 13, 1993, has been disclaimed.
Int. Cl.² C01B 11/06
U.S. Cl. 428—403 6 Claims



1. Granular dust resistant calcium hypochlorite particles

(a) each of said particles having a smooth, rounded surface, said particles being comprised of

(1) a solid core of calcium hypochlorite which ranges in diameter from about 200 to about 2,000 microns,

(2) encapsulated with a plurality of individual layers of calcium hypochlorite,

(a) wherein the outside diameter of said layers ranges from about 400 to about 5,000 microns,

(b) each of said layers being substantially free of sharp fragile edges,

(b) the calcium hypochlorite content of said particles ranges from about 50 to about 85 percent by weight,

(c) said layers of calcium hypochlorite being derived from an aqueous slurry of calcium hypochlorite dihydrate crystals in an aqueous solution of dissolved salts, and

(d) on a dry basis, from about 27 to about 55 percent by weight of said calcium hypochlorite particles is derived from said dissolved salts originally present in said aqueous slurry.

4,276,350

FLUOROCARBON TREATMENT FOR REDUCING THE REACTIVITY OF A GLASS SURFACE AND PRODUCT

Helmut Franz, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Aug. 13, 1979, Ser. No. 65,797
Int. Cl.³ B32B 17/00
U.S. Cl. 428—410 10 Claims

1. A method for treating a glass surface comprising the steps of:

a. contacting the glass surface with a solution comprising multivalent metal cations capable of adsorption onto the glass surface at a temperature below the boiling point of the solution; and

b. contacting the glass surface, subsequent to the adsorption of the multivalent metal cations, with a fluorocarbon capable of chemisorption by the metal cation treated glass surface.

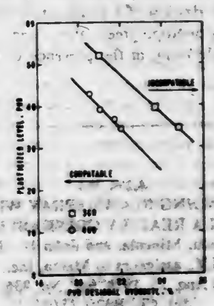
10. A glass article produced according to the method of claim 1.

4,276,351

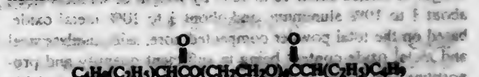
POLYVINYL BUTYRAL PLASTICIZED WITH TETRAETHYLENEGLYCOL DI-2-ETHYLHEXANOATE

Thomas R. Phillips, Belpre, Ohio, assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

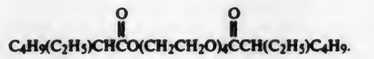
Filed Jun. 30, 1980, Ser. No. 164,140
Int. Cl.³ C08F 45/38; B32B 17/10, 27/42
U.S. Cl. 428—437 7 Claims



1. A plastic composition comprising polyvinyl butyral and, in compatible admixture therewith, a plasticizer comprising at least about 10 weight percent tetraethyleneglycol di-2-ethylhexanoate of the formula:



6. A laminar structure comprising at least one layer of glass and a layer of a plastic composition comprising polyvinyl butyral and, in compatible admixture therewith, a plasticizer comprising at least about 10 weight percent tetraethyleneglycol di-2-ethylhexanoate of the formula:



$$C_4H_9(C_2H_5)CHCO(CH_2CH_2O)_4CCH(C_2H_5)C_4H_9.$$

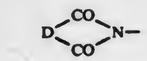
4,276,352

REINFORCED COMPOSITES CONTAINING UNSATURATED POLYIMIDE RESINS

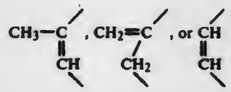
George E. Green, Stapleford, England, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 910,403, May 30, 1978, abandoned. This application Oct. 22, 1979, Ser. No. 87,138
Claims priority, application United Kingdom, Jun. 1, 1977, 23174/77
Int. Cl.³ B32B 27/06; C08F 8/00; C08G 23/10
U.S. Cl. 428—473.5 28 Claims

1. A thermosettable composite comprising:
(a) a fibrous reinforcing material,
(b) a heat-curable polyimide resin containing, per average molecule, at least two groups of formula



directly attached to carbon atoms, where D denotes



(c) an effective amount of a heat-activated curing agent for said polyimide resin, and
(d) a photopolymerised compound, prepared from the photo-polymerization of a composition comprising 0.1 to 10 moles of a photopolymerizable compound per mole of said polyimide resin, in the presence of components (b) and (c).

4,276,353

SELF-BONDING FLAME SPRAY WIRE FOR PRODUCING A READILY GRINDABLE COATING

Edward R. Nevinski, Mineola, and John H. Harrington, Warwick, both of N.Y., assignors to Metco, Inc., Westbury, N.Y.

Filed Aug. 23, 1978, Ser. No. 936,169
Int. Cl.³ B32B 15/02
U.S. Cl. 428—558 8 Claims

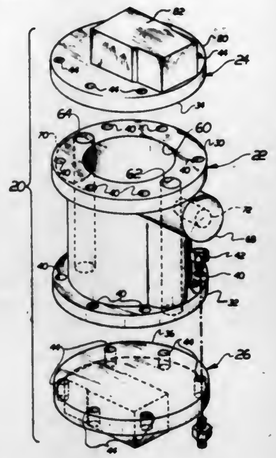
1. A self-bonding flame spray wire capable of forming a readily grindable coating, comprising a sheath of aluminum and a compacted powder core containing about 10 to 90% by weight of nickel, about 10 to 90% by weight of stainless steel, about 1 to 10% aluminum, and about ¼ to 10% metal oxide, based on the total powder compacted core, said stainless steel and metal oxide content being in sufficient quantity and proportions that when sprayed will produce a readily grindable coating.

4,276,354

STEAM TRAPS OR THE LIKE

Michael E. Winiasz, Lorain, Ohio, assignor to The Clark-Reliance Corporation, Cleveland, Ohio

Filed Nov. 19, 1979, Ser. No. 95,152
Int. Cl.³ F16T 1/00
U.S. Cl. 428—582 12 Claims



1. A housing adapted to receive any chosen one of a plurality of different valve assemblies for controlling fluid flow from an inlet conduit through said housing to an outlet conduit, said housing comprising top and bottom members and a main body with walls defining a central passage extending between said top and bottom members, said top and bottom members being fastened to said main body and sealing the ends of said central passage, said main body including walls defining at least one additional internal passage extending between said top and bottom members, said top and bottom members being identical and having portions selectively removable in accordance with the one of the plurality of different valve assemblies chosen to be received in said housing to establish fluid communication between said additional passage and said central passage in said main body, said main body and said top and bottom members each having wall portions selectively removable to provide means for connecting the inlet and outlet conduits to said housing.

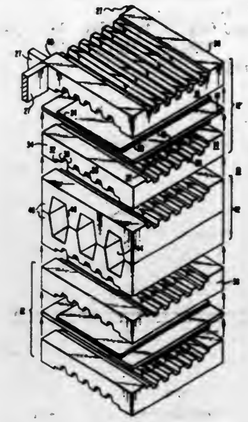
4,276,355

FUEL CELL SYSTEM CONFIGURATIONS

Richard E. Kothmann, Churchill Borough, and Joseph A. Cyphers, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Apr. 28, 1980, Ser. No. 144,089
Int. Cl.³ H01M 8/06
U.S. Cl. 429—26 15 Claims

1. An electrochemical cell system comprising:
a plurality of electrically connected fuel cells and at least one cooling module disposed between selected fuel cells, said fuel cells and cooling module arranged in a stack and shaped in cross section as an elongated polygon having pairs of oppositely disposed peripheral faces, at least one pair of peripheral faces being longer than the remaining pairs and disposed such that the distance between said opposite longer pair of peripheral faces is shorter than the distance between the opposite peripheral faces of the remaining pairs;
each said fuel cell having an electrolyte positioned between a pair of bipolar plates, said bipolar plates defining oxidant channels for transporting an oxidant in reacting communication with said electrolyte, and fuel channels for transporting a fuel in reacting communication with said electrolyte, said fuel and oxidant channels each having an inlet on one shorter peripheral face of said polygon and an outlet on an opposite shorter peripheral face;



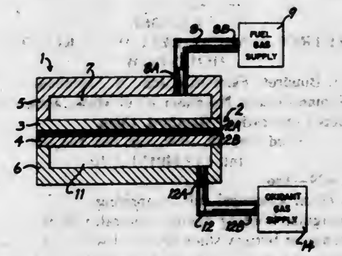
said cooling module having cooling passages, said passages having an entry on one peripheral face of said polygon and an exit on an opposite peripheral face, said entry and exit being disposed on said longer peripheral faces of said polygon.

4,276,356

MATRIX MEMBER FOR CONTAINING FUEL CELL ACID ELECTROLYTE

Bernard S. Baker, Brookfield Center, Conn., assignor to Energy Research Corporation, Danbury, Conn.

Filed Mar. 27, 1979, Ser. No. 24,416
Int. Cl.³ H01M 8/02
U.S. Cl. 429—41 17 Claims



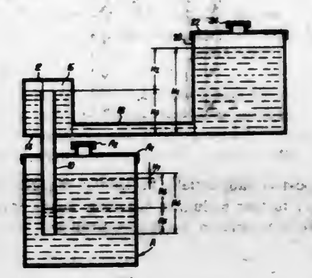
1. A fuel cell comprising:
an anode electrode;
a cathode electrode;
each of said electrodes including a waterproofing binder;
an electrolyte;
and a matrix member carrying said electrolyte and disposed between said anode and cathode electrodes, said matrix member having a layer having a mean pore size which is substantially equal to or less than the mean pore size of said cathode electrode.

4,276,357

DEVICE FOR SELF-LEVELING OF ELECTROLYTE IN ELECTRIC ACCUMULATORS

Franco Ferrarini, Milan, Italy, assignor to Fabbrica Italiana Magneti Marelli S.p.A., Italy

Filed Jan. 18, 1980, Ser. No. 113,377
Claims priority, application Italy, Jan. 26, 1979, 19616 A/79
Int. Cl.³ H01M 2/00
U.S. Cl. 429—63 23 Claims



1. A device for self-levelling and topping up electrolyte in an accumulator battery, comprising:
an accumulator container for containing electrolyte;
a pneumatic chamber and means for providing topping up liquid to the pneumatic chamber at a predetermined pressure;
a conduit communicating from the pneumatic chamber to the accumulator container, a top of the conduit extending a distance up into the pneumatic chamber such that when the liquid in the pneumatic chamber rises above the top of the conduit, liquid enters the conduit from the pneumatic chamber; the conduit being oriented such that when liquid enters the conduit at the top thereof, it moves into the accumulator container and increases the level of filling of the accumulator container;
a bottom of the conduit extending a distance into the accumulator container such that as the liquid level in the accumulator container increases above the height of the bottom of the conduit, this generates a back pressure in the conduit which, in turn, generates a back pressure in the pneumatic chamber above the liquid in the pneumatic chamber;
whereby when the level of liquid in the accumulator container declines, this reduces the back pressure in the pneumatic chamber, and the liquid level in the pneumatic chamber increases due to the providing means providing liquid to the pneumatic chamber until the level of liquid in the pneumatic chamber rises enough for liquid to enter the top of the conduit and to move through the conduit into the accumulator container; and as the level of liquid in the accumulator container increases above the bottom of the conduit and the back pressure in the conduit thereby increases, the liquid level in the pneumatic chamber is decreased below the top of the conduit, stopping entrance of liquid into the conduit.

4,276,358

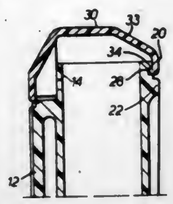
ELECTRIC BATTERIES

Kenneth Hooson, Bury, and Christopher Terrell, London, both of England, assignors to Chloride Group Limited, London, England

Filed Feb. 25, 1980, Ser. No. 124,816
Claims priority, application United Kingdom, Mar. 7, 1979, 08034/79
Int. Cl.³ H01M 2/04
U.S. Cl. 429—97 15 Claims

1. An electric battery having at least one cell, a single container, an inner lid and an outer lid, said container containing said at least one cell and being sealed by said inner lid and also

having said outer lid secured thereto, said container and said outer lid each affording on one side of said battery one of a horizontal groove and a projecting rib, said rib being accommodated in said groove, and on the opposite side of said bat-

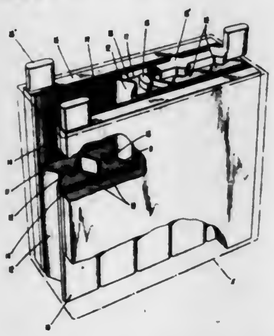


tery a respective substantially horizontal engagement surface, said battery further including fastening means engaging said two engagement surfaces thereby securing said outer lid to said container.

4,276,359
LEAD-ACID BATTERY WITH TUBULAR PLATE ELECTRODE

Erik Sundberg, Newtown Crossing, Pa., assignor to Koehler Manufacturing Company, Marlborough, Mass.

Filed May 25, 1979, Ser. No. 42,632
Claims priority, application Sweden, Sep. 1, 1978, 7809214
Int. Cl.³ H01M 2/18
U.S. Cl. 429—140 2 Claims

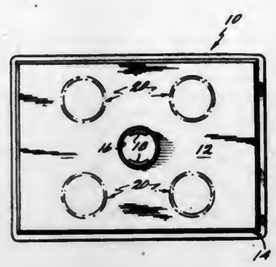


1. An electrical accumulator of the sealed type comprising positive and negative electrode plates and a separator therebetween, said plates and separator being kept pressed together under pressure to force oxygen through the separator during charging for reaction with the negative plate, said positive plate comprising a row of immediately adjacent tubes formed of porous fibrous material having a shape such that the ratio of volume to surface area of active material is no greater than 0.20 times the thickness of the tube taken in a direction between the ends of the tube which face the negative electrodes, said separator having a thickness in said direction no greater than substantially 1 mm., the sides of said tubes being of concave configuration to define electrolyte-containing channels, wherein the total amount of electrolyte contained within said channels is at least 10% of the total electrolyte within the accumulator, with substantially all of the electrolyte which reacts with said positive electrode having to pass through said concave sides, said tubes including substantially straight end walls which are joined by said concave sides and which are pressed against said separators.

4,276,360
BATTERY JAR COVER AND WELDING METHOD THEREFOR

James S. Hardigg, and Joseph C. Strzegowski, Jr., both of Conway, Mass., assignors to Hardigg Industries, Inc., South Deerfield, Mass.

Filed Oct. 22, 1979, Ser. No. 87,149
Int. Cl.³ H01M 2/08
U.S. Cl. 429—175 25 Claims



1. A cover for a thermoplastic battery jar comprised of a thermoplastic plate member having a predetermined thickness, top and bottom surfaces and four edges, a plurality of means defining openings extending through said plate member, and guide means for engaging and aligning the interior of a battery jar therewith and for defining weldable surfaces on said cover, said guide means positioned at least at predetermined spaced apart locations around said plate member and extending downwardly away from said bottom surface a first predetermined distance and spaced inwardly a second predetermined distance from said edges, said guide means having an outer surface in contact with (at least a portion of which contacts) the interior of said jar serving to define a plurality of gaps at predetermined positions around said jar and interiorly thereof when said cover is placed on the jar.

24. A cover capable of being welded onto a battery jar comprised of a plate member having top and bottom surfaces and four edges, means defining a plurality of openings extending through said plate member, and guide means for aligning the cover with the battery jar and for defining a plurality of spaced apart open areas interiorly of the area where the cover and jar are welded together exposing the interior surface of the battery jar adjacent the weld area when the cover is positioned on the battery jar.

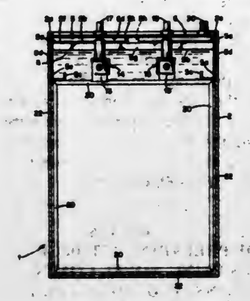
4,276,361
ELECTROCHEMICAL CELL WITH ELECTRODE HOLD-DOWN

Robert J. Boudrot, Falmouth; John S. Shambough, Holliston, and Hyman Zeltzer, Needham, all of Mass., assignors to GTE Products Corporation, Stamford, Conn.

Filed Jun. 26, 1980, Ser. No. 163,242
Int. Cl.³ H01M 2/10
U.S. Cl. 429—186 12 Claims

1. An electrochemical cell comprising:
a rectangular housing having a plurality of walls;
a rectangular battery stack disposed within the housing and comprising a plurality of rectangular cell components lying within corresponding planes;
a top cover assembly secured to the housing above the battery stack and having an inner surface;
an electrolytic solution within the housing in contact with the battery stack; and
a generally-rectangular hold-down unit intermediate to the battery stack and the top cover assembly and in abutment with the battery stack and the top cover assembly, said hold-down unit comprising:
first and second opposed end sections disposed on the battery stack across the planes of the cell components thereof; and

first and second opposed connecting sections spaced from the battery stack and interconnecting the first and second end sections, said first and second end sections and said first and second connecting sections defining a top opening adjacent to the inner surface of the top cover assembly and side openings adjacent to walls of the housing, and said first and second end sections further

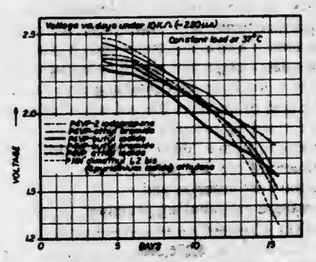


having openings therein for minimizing, together with the aforesaid top and side openings, the displacement of electrolytic solution in the region of the housing above the battery stack;
one of said pairs of sections further including contact portions in abutment with the inner surface of the top cover assembly.

4,276,362
DEPOLARIZERS FOR LITHIUM HALIDE BATTERIES

Marilyn J. Harney, Murrysville, Pa., assignor to Catalyst Research Corporation, Baltimore, Md.

Filed Sep. 7, 1979, Ser. No. 73,188
Int. Cl.³ H01M 4/60
U.S. Cl. 429—213 13 Claims



1. A depolarizer for use in a lithium halide battery comprising a charge transfer complex consisting of an organic component and a halogen, the halogen being present in excess of stoichiometric, the organic component being selected from the group consisting of phenyl methane dyes and said halogen being present in an amount of from 3:1 to 50:1 parts (by weight) for each part of organic component.

4,276,363
PROCESS FOR FORMING PHOSPHOR SCREENS WITH TREATED PHOSPHORS

Toshikatsu Masabe, Ome; Sakuro Nonogaki; Hajime Morishita, both of Tokyo; Shoichi Uchino, Hachioji; Yoshifumi Tanaka, Mobara; Masahiro Nishizawa, Mobara; Hiroshi Yokomizo, Mobara, and Susumu Ohmatsi, Fujisawa, all of Japan, assignors to Hitachi, Ltd. and Kasei Optonix, Ltd., both of Tokyo, Japan

Filed Oct. 19, 1979, Ser. No. 86,445
Claims priority, application Japan, Oct. 25, 1978, 53-130523
Int. Cl.³ G03C 5/00; B05D 5/06
U.S. Cl. 430—28 22 Claims

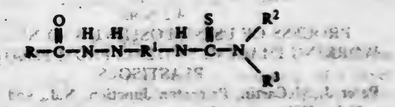
1. In a process for forming a phosphor screen of a color picture tube by a dry phosphor deposition method comprising coating a photosensitive composition, which contains an aromatic diazonium salt or a mixture of an aromatic diazonium salt as a photosensitive component and produces tackiness by exposure to actinic light, on the inner surface of the face plate of a color picture tube to form a thin layer, exposing the thin layer imagewisely to actinic light for producing tackiness on the portions exposed, contacting the exposed thin layer with phosphor particles, and making the thin layer receive the phosphor particles depending on receptive ability of the thin layer to form each phosphor layer for emitting color, the improvement which comprises using as the phosphor particles those coated with at least one surface coating material selected from the group consisting of $Zn(OH)_2$, $Zn_3(PO_4)_2$ and $AlPO_4$, whereby the amount of time necessary for the phosphor to contact the thin layer to provide said each phosphor layer thereon is shortened.

4,276,364
ACYLHYDRAZINOPHENYLTHIOUREA NUCLEATING AGENTS AND PHOTOGRAPHIC EMULSIONS AND ELEMENTS CONTAINING SUCH AGENTS

Ronald E. Leone, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 122,151, Feb. 19, 1980, abandoned, which is a continuation-in-part of Ser. No. 56,508, Jul. 11, 1979, abandoned. This application Jun. 23, 1980, Ser. No. 161,700
Int. Cl.³ G03C 1/06, 5/34, 1/40, 1/48
U.S. Cl. 430—212 23 Claims

1. A silver halide emulsion comprised of silver halide grains capable of forming an internal latent image and, adsorbed to the surface of said silver halide grains, a nucleating amount of a 3,3-disubstituted acylhydrazinophenylthioures of the formula

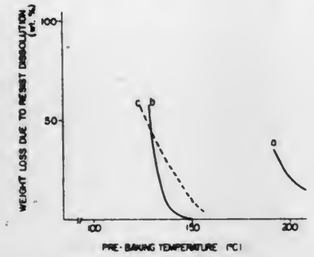


wherein
R is hydrogen or an alkyl, cycloalkyl, haloalkyl, alkoxyalkyl or phenylalkyl substituent,
R^1 is a phenylene or alkyl, halo-, or alkoxysubstituted phenylene group, and
R^2 and R^3 are independently selected from among alkyl, haloalkyl, alkoxyalkyl, or phenylalkyl substituents having from 1 to 18 carbon atoms, a cycloalkyl substituent; a phenyl nucleus having a Hammett sigma value-derived electron-withdrawing characteristic less positive than +0.50, and aspidinyl, or R^2 and R^3 together form a heterocyclic nucleus forming a 5- or 6-membered ring, wherein the ring atoms are chosen from the class consisting of nitrogen, carbon, oxygen, sulfur and selenium atoms, the alkyl moieties, except as otherwise noted, in each instance include from 1 to 6 carbon atoms and the cycloalkyl moieties have from 3 to 10 carbon atoms.

4,276,365
POSITIVE RESIST TERPOLYMER COMPOSITION AND METHOD OF FORMING RESIST PATTERN

Yasuhiro Yoneda; Toshisuke Kitakohji, both of Yokohama, and Kenro Kitamura; Fujisawa, all of Japan, assignors to Fujitsu Limited, Japan

PCT No. PCT/JP 78/00022, § 371 Date Jul. 7, 1979, § 102(e) Date Jul. 2, 1979, PCT Pub No. WO79/00284, PCT Pub Date May 31, 1979
This PCT application filed Nov. 6, 1978, Ser. No. 61,291
Int. Cl.³ G03C 1/68
U.S. Cl. 430—270 8 Claims



1. A cross-linkable positive working resist polymer composition comprising, a terpolymer comprised of

(a) units derived from a methacrylic acid ester of the formula:

$CH_2=C(CH_3)-COOR$

where R is selected from the group consisting of alkyls having from 1 to 6 carbon atoms, haloalkyls having from 1 to 6 carbon atoms, benzyl and cyclohexyl,

(b) units derived from a monoolefinically unsaturated carboxylic acid having from 3 to 12 carbon atoms and from 1 to 3 carboxyl groups, and

(c) units derived from methacrylic acid chloride; the amount of the units (b) being such that the number of moles of the units (b), multiplied by the number of the carboxyl groups in each of the units (b) range from about 1 to about 20% based on the total number of moles of the units (a), (b) and (c); the amount of the units (c) ranging from about 0.05 to about 3.0% by mole based on the total number of moles of the units (a), (b) and (c); and the molar ratio of the units (b), multiplied by the number of the carboxyl groups in each of the units, to the units (c) being greater than 2/1 but less than 250/1.

4,276,366
PROCESS OF USING POSITIVE AND NEGATIVE WORKING IMAGING SYSTEMS FROM PHOTOACTIVE PLASTISOLS

Peter J. McCartin, Princeton Junction, N.J., and William J. Nebe, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 950,307, Oct. 11, 1978. This application Jul. 14, 1980, Ser. No. 168,153
Int. Cl.³ G03C 5/00
U.S. Cl. 430—291 11 Claims

1. A positive image forming process which comprises

(a) exposing imagewise a photoactive element comprising a substrate bearing a layer of a photoactive, thermally coalescible polyvinyl chloride resin plastisol dispersion consisting essentially of (a) particles having a mean diameter in the range of 0.1 to 20 μm of a solid polyvinyl chloride polymer having attached to the backbone thereof photopolymerizable or photocrosslinkable groups taken from the group consisting of anhydrides, carbonyl, carboxyl, isocyanate, methylol and ethylenically unsaturated substituents in amounts of 0.1 to 16% by weight based on the total weight of polymer, the polymer having an inherent viscosity in the range of 0.1 to 1.2 and being dispersed in (b) a liquid medium compatible with the particles that comprises a plasticizer for the polymer and is nonvolatile at room temperature and has no substantial solvent activity for the polymer at room temperature and (c) a photoinitiator or photoinitiator system present either as a separate component or as a photoactive substituent on the polymer backbone, the photoinitiator or photoinitiator system being capable, upon exposure to actinic radiation, of causing polymerization or crosslinking of the photopolymerizable or photocrosslinkable polymer, respectively, the weight ratio of solid polymer (a) to weight ratio of plasticizer (b) being 70/30 to 30/70

(b) heating the exposed element to coalesce the plastisol layer solely in the unexposed image areas, and

(c) removing the plastisol layer in the exposed image areas by washing the areas with a solvent for the plasticizer component of the plastisol.

4,276,367
METHOD OF PREPARING LITHOGRAPHIC PRINTING PLATES USING NOVEL COMPOUNDS AND COMPOSITIONS, AND IMPROVED LITHOGRAPHIC PRINTING PLATES

Richard E. Merrill, Wakefield, and Arthur A. Massucco, Natick, both of Mass., assignors to Arthur D. Little, Inc., Cambridge, Mass.

Division of Ser. No. 33,194, Apr. 25, 1979, Pat. No. 4,224,399, which is a continuation-in-part of Ser. No. 770,272, Feb. 22, 1977, abandoned, and Ser. No. 958,712, Nov. 8, 1978, which is a division of Ser. No. 770,272, , and Ser. No. 970,196, Dec. 18, 1978, Pat. No. 4,209,582, which is a continuation-in-part of Ser. No. 770,272,. This application Dec. 26, 1979, Ser. No. 107,395
Int. Cl.³ G03C 5/00
U.S. Cl. 430—302 23 Claims



1. A presensitized photolithographic plate, comprising in combination

(a) a backing plate having a hydrophilic/oleophobic surface; and

(b) a photosensitive cross-linkable polymeric film adhered to said hydrophilic surface, said film being no greater than 6μ thick and comprising

(1) a block copolymer formed of blocks of copolyacrylate and polyurethane, said copolyacrylate comprising a copolymer of a hydroxy-containing acrylate and a second acrylate component which comprises one or more esters of a non hydroxy-containing arylic acid or methacrylic acid or mixtures thereof, and said polyurethane being formed by reacting a diisocyanate with polyoxybutylene to form a "diisocyanate-capped" prepolymer constituent of the said polyurethane;

(2) an ultraviolet initiator, and

(3) at least one cross-linking promoter.

4,276,368
PHOTOINDUCED MIGRATION OF SILVER INTO CHALCOGENIDE LAYER

Adam Heller, Bridgewater; King L. Tai, Berkeley Heights, and Richard G. Vadimsky, Somerville, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed May 4, 1979, Ser. No. 35,803
Int. Cl.³ G03C 5/00
U.S. Cl. 430—323 26 Claims

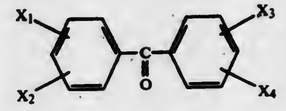
1. Process for fabrication of an article comprising an operation during which the article undergoing fabrication comprises an article surface and an overlying actinic processing layer, said processing layer consisting essentially of a chalcogenide glass and silver-containing material, the silver-containing material being largely concentrated to essentially uniform depth in the vicinity of a surface of the said layer, including the steps of (1) selectively exposing portions of the said processing layer to actinic radiation so as to induce migration of silver in a direction from the said surface into the body of said layer within such exposed portions thereby defining a pattern of material of reduced solubility in a developing agent; (2) stripping so as to remove silver-containing material unaffected by radiation; (3) treating the said processing layer with said developing agent to selectively remove material within unexposed portions to produce a now patterned processing layer, characterized in that silver-containing material consists essentially of at least one chemical compound consisting of the reaction product of combined silver and at least one component of the glassy material, and in that stripping comprises reaction resulting in a water-soluble silver compound which reaction may be regarded as comprising conversion of silver halide to said water-soluble silver compound.

4,276,369
PHOTO—IMAGING A POLYMETHYL ISOPROPENYL KETONE (PMIPK) COMPOSITION

Minoru Tsuda, Isehara, and Yoichi Nakamura, Samukawa, both of Japan, assignors to Tokyo Ohka Kogyo Kabushiki Kaisha, Kawasaki, Japan

Filed Nov. 6, 1978, Ser. No. 957,836
Claims priority, application Japan, Nov. 4, 1977, 52-132234
Int. Cl.³ G03C 5/00
U.S. Cl. 430—326 3 Claims

1. A process for forming an ultrafine pattern which comprises exposing a film of a mixture of polymethyl isopropenyl ketone having a molecular weight of from 10,000 to 1,000,000 and dispersity index of below 3 and a benzophenone compound of the general formula:



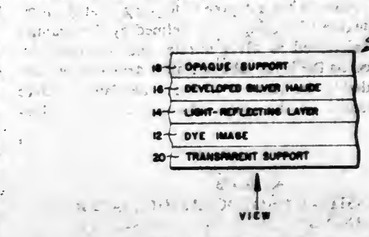
wherein X_1, X_2, X_3 and X_4 independently represent hydrogen atom, a halogen atom, a lower alkyl group, a lower alkoxy group or hydroxyl group, to irradiation with ultraviolet rays having a wave length in the range of from 1,000 to 3,500 Å through a mask pattern and subjecting the resulting film to a solvent removal process whereby said film is subjected to a suitable solvent which dissolves said film which has been exposed to said ultraviolet rays.

4,276,370
PHOTOGRAPHIC PROCESSING COMPOSITION CONTAINING POLYMERICS OXIME

Lloyd D. Taylor, Lexington, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Division of Ser. No. 894,545, Apr. 7, 1978, Pat. No. 4,202,694, which is a continuation-in-part of Ser. No. 789,422, Apr. 21, 1977, abandoned. This application Nov. 5, 1979, Ser. No. 91,866
Int. Cl.³ G03C 5/30; C08F 20/34, 20/68, 22/32
U.S. Cl. 430—466 26 Claims

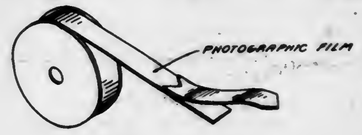
14. A viscous photographic processing composition comprising an aqueous medium; an alkaline material; a viscosity-increasing amount of a polymeric oxime containing pendant oxime groups and having a pKa of at least 12; and a titanium dioxide pigment; said photographic processing composition having a pH of at least 12.



4,276,371
ROLL FASTENER FOR PHOTOGRAPHIC FILM

Peter R. Scott, 156 Grant Ave., Newton, Mass. 02159

Filed Apr. 26, 1976, Ser. No. 680,123
Int. Cl.³ G03C 3/02
U.S. Cl. 430—501 2 Claims



1. In a roll of photographic film which comprises a photographic emulsion coated onto a plastic film backing having means for securing the free end of the roll against unwinding; the improvement wherein said securing means comprises a strip of flexible plastic which clings to said photographic film and which is applied both to said free end and to the body of said roll adjacent said free end, said strip being free of adhesive coating.

4,276,372
PHOTOGRAPHIC MATERIAL WITH INTERIMAGE EFFECT

Ubbo Wernicke, Odenthal; Reinhart Matejec, and Franz Moll, both of Leverkusen, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 898,626, Apr. 21, 1978, abandoned. This application Feb. 11, 1980, Ser. No. 120,332
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1977, 2718437
Int. Cl.³ G03C 1/76
U.S. Cl. 430—505 14 Claims

1. Photographic recording material consisting of a layer substrate and at least two silver halide emulsion layers which are sensitive to different regions of the visible spectrum, at least one of which layers contains a silver halide emulsion, hereinafter referred to as type I silver halide emulsion, which releases a development inhibitor on development of the photographic material, and at least one of which layers contains a silver halide emulsion, hereinafter referred to as type II silver halide emulsion, which is capable of being inhibited by the aforesaid inhibitor,

wherein the emulsion grains of the type II silver halide emulsion are more easily soluble than the emulsion grains of the type I emulsion and

the type II emulsion is not ripened to full sensitivity whereby after its application to a layer substrate and 6 minutes' development at 30° C. in an aqueous developer containing, per liter, 2 g of ethylene diaminotetracetic acid, 0.3 g of 1-phenyl-3-pyrazolidone, 50 g of sodium sulphite, 6 g of

hydroquinone, 35 g of sodium carbonate, 215 g of potassium thiocyanate, 2 g of potassium bromide and 0.015 g of potassium iodide, it has a degree of fogging of at the most 25%, the degree of fogging being defined by the quantity of silver, calculated as silver nitrate, and multiplied by 100, situated on the layer substrate after development and fixing divided by the quantity of silver, calculated as silver nitrate, situated on the layer substrate before development.

4,276,373

PHOTOSENSITIVE PHOTOGRAPHIC MATERIAL CONTAINING A LIGHT-ABSORBING DYE

Hans Öhlschläger, Bergisch-Gladbach; Lothar Rosenhahn, Cologne, and Wolfgang Sauerteig, Leverkusen, all of Fed. Rep. of Germany, assignors to AGFA-Gevaert, A.G., Leverkusen, Fed. Rep. of Germany

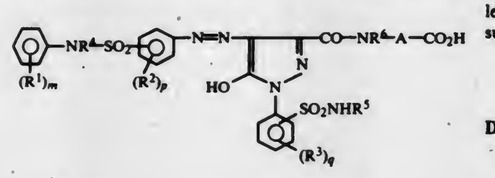
Filed Mar. 19, 1980, Ser. No. 131,808

Claims priority, application Fed. Rep. of Germany, Mar. 24, 1979, 2911695

Int. Cl.³ G03C 1/84

U.S. Cl. 430—507 8 Claims

1. A photosensitive photographic recording material comprising at least one silver halide emulsion layer and an azo dye, wherein the azo dye corresponds to the following formula:



in which

R^1, R^2, R^3 which may be the same or different represent hydrogen; alkyl which may be substituted; aryl which may be substituted; alkoxy; halogen; carbamoyl or sulphamoyl which may be substituted; cyano or an amino group which may be substituted;

R^4, R^5, R^6 which may be the same or different, represent hydrogen or alkyl which may be substituted,

A represents a difunctional hydrocarbonchain,

m is an integer of from 1 to 5,

p and q are the same or different and represent an integer of from 1 to 4.

4,276,374

SILVER HALIDE PHOTOGRAPHIC EMULSION WITH THIOETHER SENSITIZER

Hiroyuki Mifune; Nobuaki Miyasaka, and Yoshiharu Fuseya, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

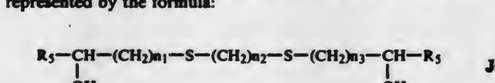
Filed May 30, 1979, Ser. No. 43,962

Claims priority, application Japan, May 30, 1978, 53-64577

Int. Cl.³ G03C 1/34

U.S. Cl. 430—611 11 Claims

1. A silver halide photographic emulsion containing about 0.001 to 1 gram per mol of silver halide of the compound represented by the formula:



wherein R_5 represents an alkyl group containing 1 to 3 carbon atoms substituted by —OH, —COOH, —COOM, or —COOR, the number of substituents being 1 or 2, n_1 and n_3 each represents 1 or 2, and n_2 represents 1, 2, 3, or 4, M represents an alkali metal atom, and R represents a hydrogen atom or an alkyl group containing 1 to 5 carbon atoms.

4,276,375

DETERMINATION OF SERINE PROTEASES

Karl G. Claeson; Leif E. Aurell, both of Saro, and Leif R. Simonsson, Hisings-Backa, all of Sweden, assignors to AB Kabi, Stockholm, Sweden

Division of Ser. No. 852,006, Nov. 16, 1977, Pat. No. 4,207,232. This application Oct. 22, 1979, Ser. No. 86,970

Claims priority, application Sweden, Dec. 12, 1976, 7613463

Int. Cl.³ C12Q 1/56, 1/38

U.S. Cl. 435—13 15 Claims

1. A method for diagnostic determination of serine proteases which comprises contacting a substance in which said determination of serine poteases is desired with a chromogenic or fluorogenic enzyme substrate containing the sequence -Ile-A-Gly-Arg-R_2 where A is Asp or Glu, substituted in the carboxylic group by esterification or amidation, wherein the esters contain a short chain alkyl or hydroxyalkyl or alkyl-substituted aminoalkyl or cycloalkyl group containing a total of 2–6 carbon atoms, and the amides contain mono or di-substituted short chain alkyl or hydroxyalkyl or alkyl-substituted aminoalkyl group containing a total of 1–6 carbon atoms or a heterocyclic group in which the amido nitrogen forms part of a piperidine, a morpholine or a piperazine ring, and R_2 is a group which gives a chromophore or fluorescent compound upon enzymatic hydrolysis, and then spectrophotometrically measuring the quantity of chromophore or fluorescent compound released from said substrate by enzymatic hydrolysis of the substrate by serine proteases in said substance.

4,276,376

CREATINE KINASE CONTROL SERUM

Dieter Hundt, Percha; Marianne Sedelmeyer, Wellheim; Peter Röschlau, Seeshaupt; Fritz Stiihler, Tutzing, and Wolfgang Gruber, Tutzing-Unteraeismering, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed Jul. 16, 1979, Ser. No. 58,056

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1978, 2831390

Int. Cl.³ C12Q 1/50

U.S. Cl. 435—17 9 Claims

1. Control serum comprising a base serum selected from the group consisting of human serum, animal serum or serum albumin and also containing a defined activity of creatine kinase, exogeneous to said base serum, in the form of swine serum.

4,276,377

CREATININE IMINOHYDROLASE FREE FROM UREASE ACTIVITY

Charles T. Goodhue, Rochester; Theodore W. Eaders, and Prakash S. Masurekar, both of Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 5, 1979, Ser. No. 91,218

Int. Cl.³ C12Q 1/34; C12N 9/78

U.S. Cl. 435—18 38 Claims

1. A urease-free creatinine iminohydrolase enzyme preparation derived from an aerobic soil microorganism.

4,276,378

HIGH SENSITIVITY ASSAYS FOR ANGIOTENSIN CONVERTING ENZYME

James W. Ryan, 3420 Poinciana Ave., Miami, Fla. 33133, and Alfred Chung, 8781 SW. 87th St., Miami, Fla. 33173

Filed Nov. 25, 1977, Ser. No. 854,538

Int. Cl.³ C12Q 1/38, 1/36

U.S. Cl. 435—23 17 Claims

1. A method for measuring the activity of angiotensin converting enzyme in a sample of clinical material, comprising:

diluting said sample in a buffer comprising a stimulatory amount of sulfate ion, where said sulfate ion is in the concentration range of 0.1 M–1.1 M and stimulates the angiotensin converting enzyme hydrolysis of HipHisLeu;

adding sufficient HipHisLeu to the buffer-diluted sample to provide a reaction mixture having a concentration of HipHisLeu prior to incubation in the range of 1×10^{-10} M–2×10^{-3} M;

incubating the reaction mixture for a time sufficient to permit a measurable reaction to occur; and,

measuring the amount of HisLeu produced by angiotensin converting enzyme catalyzed hydrolysis of HipHisLeu.

4,276,379

PREPARATION OF HIGH FRUCTOSE SYRUPS FROM SUCROSE

Robert E. Heady, Argo, Ill., assignor to CPC International Inc., Englewood Cliffs, N.J.

Continuation-in-part of Ser. No. 807,289, Jun. 16, 1977, abandoned. This application Jan. 9, 1978, Ser. No. 913,278

Int. Cl.³ C12P 19/24, 19/18, 19/04; C12N 9/10

U.S. Cl. 435—94 7 Claims

1. A process for the production of a product containing greater than 55% fructose consisting essentially of subjecting sucrose to the action of a cell-free fructosyl transferase enzyme derived from *Pullularia pullulans* capable of converting the sucrose to a mixture comprising glucose, fructose, and polysaccharides containing at least 66% by weight of fructosyl moieties wherein the fructosyl moieties are linked by (2-1)-beta linkages, subjecting the mixture to the action of a glucose isomerase enzyme, and hydrolyzing the polysaccharides in the mixture in the absence of active isomerase enzyme.

7. A process for producing a novel substrate, suitable for production of a syrup containing greater than 55% fructose, which comprises subjecting an aqueous solution of sucrose at a concentration of at least about 10 grams sucrose per 100 ml of water to the action of an enzyme preparation consisting essentially of fructosyl transferase enzyme derived from *Pullularia pullulans* ATCC 9348 at a temperature of from about 25° C. to about 65° C. and at a pH of from about 4.5 to about 6.5 for a sufficient time to give a product wherein at least 60% by mole ratio of the polysaccharides are oligomers having from 3 to 6 monosaccharide moieties, and then inactivating the enzyme.

4,276,380

PRODUCTION OF L-AMINO ACIDS

Hideaki Yukawa; Kazuoki Ozumi; Terukazu Nara, and Yoshihiro Takayama, all of Asi, Japan, assignors to Mitsubishi Petrochemical Co., Ltd., Tokyo, Japan

Filed Feb. 13, 1980, Ser. No. 120,963

Claims priority, application Japan, Feb. 13, 1979, 54-15341; May 18, 1979, 54-61109

Int. Cl.³ C12P 13/08

U.S. Cl. 435—115 3 Claims

1. A process for producing L-valine which comprises aerobically culturing a becterium of the strain *Acinetobacter calcoaceticum* YK-1011, which utilizes ethanol and has an ability to produce and accumulate L-valine, in a culture medium in which ethanol is the main carbon source to produce and accumulate L-valine and collecting the L-valine.

4,276,381

PREPARATION OF IMMOBILIZED ENZYMES OF MICROORGANISMS

Akihiro Sakimae, Otake, and Hisao Onishi, Hiroshima, both of Japan, assignors to Mitsubishi Rayon Company, Ltd., Tokyo, Japan

Filed Jul. 26, 1979, Ser. No. 60,907

Claims priority, application Japan, Apr. 9, 1979, 54/42725

Int. Cl.³ C12N 11/12, 11/04

U.S. Cl. 435—179 8 Claims

1. A process for preparing immobilized enzymes or microorganisms, which comprises dispersing lumps of ice containing an enzyme or a microorganism in an organic solvent having a water-insoluble high-molecular weight substance dissolved therein, at a temperature not higher than 0° C. wherein the organic solvent dissolves at least 0.1% by weight of the water-insoluble high-molecular weight substance at a temperature of 0° C. or lower, and the removing the organic solvent thereby entrapping the ice lumps in the water-insoluble high-molecular weight substance.

4,276,382

ANTIBIOTIC SUBSTANCES

Francesco Parenti; Carolina Coronelli; Giorgio Tamoni, all of Milan, and Giancarlo Lancini, Pavia, all of Italy, assignors to Gruppo Lepetit S.p.A., Milan, Italy

Division of Ser. No. 596,702, Jul. 17, 1975, Pat. No. 4,022,884. This application Aug. 30, 1976, Ser. No. 718,727

Int. Cl.³ C12N 1/20; C12P 21/00; C12R 1/045

U.S. Cl. 435—253 2 Claims

1. A biologically pure culture of the microorganism strain *Actinoplanes garbadinensis* ATCC 31049, said culture being capable of producing Gardimycin antibiotic in a recoverable quantity upon aerobic fermentation in an aqueous nutrient medium containing assimilable sources of carbon, nitrogen and inorganic salts.

4,276,383

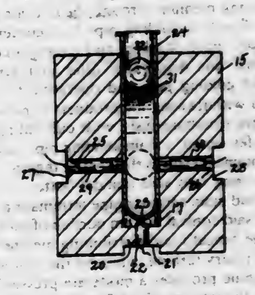
CLOT LYSING TIMER

Stephen B. Leighton, Maplewood, N.J.; Genesio Murano, Bethesda, Md.; Allen Markowitz, and Burt Chikadzi, both of Gaithersburg, Md., assignors to The United States of America as represented by the Department of Health, Education & Welfare, Washington, D.C.

Filed Aug. 2, 1979, Ser. No. 63,261

Int. Cl.³ C12M 1/34

U.S. Cl. 435—291 14 Claims



1. A clot lysing timing apparatus comprising a heating block assembly formed with a heat transfer well having a closed bottom and adapted to receive and support in a stationary upright position at least one test tube containing a clot and a lysing agent, an opaque weight member adapted to be placed on the clot and to descend therethrough to the lower part of the test tube when the clot dissolves, an electric timer, a start control switch operatively connected to said timer, means mounting said switch in a position in said well to be actuated by a test tube inserted in said well and start said timer, photosensitive enabling means coupled to said timer and located in said heating block assembly at one side of said well, and a light source in said heating block assembly at the opposite side of said well and providing a beam traversing said well and normally illuminating said photo-sensitive means so as to enable said timer, operation of said timer commencing in response to actuation of said switch by a test tube and terminating when said opaque weight member descends in the test tube sufficiently to interrupt said beam.

4,276,384

FERMENTER

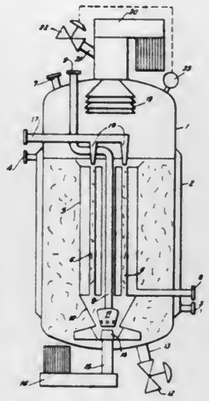
Felix Mueller, Staefa, Switzerland, assignor to Chemap A.G., Männedorf, Switzerland

Filed Jul. 17, 1979, Ser. No. 58,325

Claims priority, application Switzerland, Jul. 19, 1978, 7774/78

Int. Cl.³ C12M 1/12

U.S. Cl. 435—311 12 Claims



1. An improved fermenter for cultivating of microorganisms in a substrate of the type in which a container bounds an inner chamber in which microorganisms are accommodated and cultivated, said improvement comprising substrate inlet means, discharge means and product collecting means for the container, a double circumferential wall for the container having inlet and outlet conduits for supplying and withdrawing of heating or cooling medium through the interior of said double circumferential wall; a guiding pipe located centrally of said container in said inner chamber and having a conical bottom portion; at least one diaphragm filter unit arranged in the interior of said guiding pipe and operative for continuously separating and withdrawing the products of metabolism of the microorganisms, simultaneously with cultivating of the latter directly in the fermenter; a main aerating pipe running from the top of said container through the central region of said guiding pipe and extending into said conical bottom portion of said guiding pipe, said main aerating pipe terminating in a distributing member in said conical bottom portion of said guiding pipe; a rotary turbine beneath said distributing member; and driving means for said rotary turbine, whereby the aspirating action of said rotary turbine provides a moderate pressure overcoming the pressure in the interior of the fermenter and whereby air is entrained by the substrate solution in the process of downward movement and whereby air bubbles of said entrained air are comminuted by said rotary turbine, thereby ensuring sufficient air supply for the microorganisms.

4,276,385

PROCESS FOR PREPARING COLD-CURED MOLDED POLYURETHANE FLEXIBLE FROM A HIGH MOLECULAR WEIGHT SILOXANE AND A SOLVENT

Rudolf J. Tesnagen, Lonigrod, Switzerland, assignor to BP Chemicals Limited, London, England

Filed Apr. 18, 1980, Ser. No. 141,559

Claims priority, application United Kingdom, Apr. 28, 1979, 14847/79

Int. Cl.³ C08G 18/14

U.S. Cl. 521—112 16 Claims

1. A process for the production of a cold-cured molded polyurethane flexible foam by reaction of a polyol with a polyisocyanate and foaming in the presence of a blowing agent followed by crushing of the molded foam to open the foam cells characterized in that foaming takes place in the presence of a mixture of (1) a predominantly linear siloxane polyoxyalkylene block copolymer having an average molecular weight in the range of about 20,000 to 250,000 and of formula $(AB)_n$, wherein n is an integer, A is a siloxane block and B is a polyoxyalkylene block and (2) a solvent which is compatible with the high molecular weight predominantly linear siloxane polyoxyalkylene block copolymer which has a viscosity of 3 to 1,000 cps, and a surface tension between 15 and 60 dynes/cm.

4,276,386

DIISOCYANATES HAVING UREA GROUPS, A PROCESS FOR THEIR PREPARATION AND THEIR USE IN THE PRODUCTION OF POLYURETHANES

Jürgen Schwindt, and Gerhard Grögler, both of Leverkusen, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 22, 1980, Ser. No. 152,285

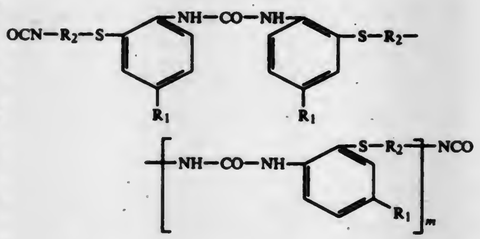
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1979, 2922966

Int. Cl.³ C08G 18/77, 18/14

U.S. Cl. 521—160 17 Claims

4. A mixture which is liquid at room temperature or can be liquefied by heating to a temperature of not more than 80° C. comprising:

(A) 5 to 50% by weight based on the mixture of a diisocyanate containing urea groups, which is liquid at room temperature or can be liquefied by heating to a temperature of not more than 80° C., corresponding to the formula:



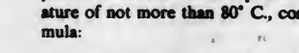
wherein

m represents a number of from 0 to 3 which may be whole or fractional (on statistical average),

R_1 represents hydrogen, an alkyl group having from 1 to 4 carbon atoms or an alkylthio group having from 1 to 4 carbon atoms, and

R_2 represents a phenylene group, optionally substituted by alkyl groups having from 1 to 4 carbon atoms or by an alkylthio group having from 1 to 4 carbon atoms, or represents a linear or branched chain aliphatic hydrocarbon group having from 2 to 12 carbon atoms, with at least 2 carbon atoms being situated between the nitrogen atoms and the sulfur atom; and

(B) an isocyanate prepolymer, which is liquid at room temperature or which can be liquefied by heating to a temperature of not more than 80° C., corresponding to the formula:



wherein

n has the value of a whole or fractional number, on statistical average, of from 2 to 4,

A represents a residue as is obtained by the removal of the isocyanate groups from an organic diisocyanate, and

D represents a residue of the type obtained by the removal of the hydroxyl groups from an n-functional polyhydroxyl compound within the molecular weight range of from 500 to 8,000 or by removal of the hydroxyl groups from a mixture of such polyhydroxyl compounds.

17. A process for the preparation of polyurethanes comprising reacting a compound containing isocyanate-reactive hydrogen atoms with a mixture as claimed in claim 4.

4,276,387

UREAS CONTAINING THE 2,2,2-TRICHLOROETHYL GROUP AS FLAME RETARDANTS FOR POLYURETHANE FOAMS

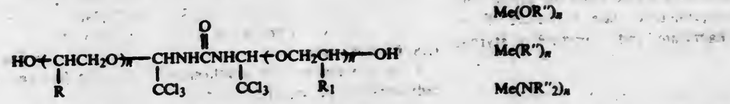
Jeffrey D. Miano, Havertown, and Stanley R. Sandler, Springfield, both of Pa., assignors to Pennwalt Corporation, Philadelphia, Pa.

Filed Apr. 28, 1980, Ser. No. 144,751

Int. Cl.³ C08G 18/14, 18/32, 18/50; C07C 127/15

U.S. Cl. 521—167 9 Claims

1. A compound having the formula:



wherein R and R_1 are independently selected from the group consisting of hydrogen, $—CCl_3$, $—CH_3$ and $—CH_2CCl_3$ and n is an integer of 1 to 100.

6. Polyurethane foam prepared from a reaction mixture which comprises a flame retardant amount of the compound of claim 1.

4,276,388

MOLDING RESIN COMPOSITION

Etsuji Iwami, and Takayuki Saito, both of Hitachi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Filed Jun. 21, 1979, Ser. No. 50,520

Claims priority, application Japan, Jun. 23, 1978, 53/76012

Int. Cl.³ C08L 67/06

U.S. Cl. 525—48 10 Claims

1. A molding resin composition comprising:

(a) 40 to 70 parts by weight of an unsaturated polyester of at least one α,β-ethylenically unsaturated dicarboxylic acid or a mixture of said dicarboxylic acid with at least one saturated dicarboxylic acid, with a polyhydric alcohol,

(b) 60 to 20 parts by weight of a dialkyl ester of alkenyl succinic acid, and

(c) 0 to 30 parts by weight of a ethylenically unsaturated monomer.

4,276,389

GRAFT POLYMERS CONTAINING SILICON

Wolfgang Wieder, Leverkusen; Josef Witte; Hans-Heinrich Moretto, both of Cologne, and Helmut Steinberger, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Fed. Rep. of Germany

Filed Dec. 19, 1979, Ser. No. 105,224

Claims priority, application Fed. Rep. of Germany, Dec. 30, 1978, 2856836

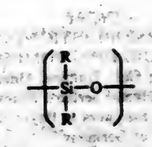
Int. Cl.³ C08G 77/42

U.S. Cl. 525—61 10 Claims

1. A graft polymer having a silicon content of from 0.1 to 20% by weight which consists of

(a) a graft basis of a homopolymer or copolymers incorporating vinyl ester and/or vinyl alcohol units; and

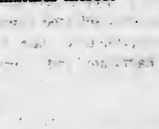
(b) grafted units having the formula (I)



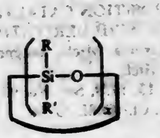
wherein R and R' are the same or different and each is a substituted or unsubstituted aliphatic, cycloaliphatic or aromatic group having from 1 to 20 carbon atoms.

8. A process for the preparation of a graft polymer as claimed in claim 1 which comprises:

(i) reacting an optionally partially or completely saponified homopolymer or copolymer of a vinyl ester of an aliphatic C_1–C_{18} monocarboxylic acid in solvent-free condition or in an organic solvent at a temperature of from 20° to 200° C. with 0.01 to 5% by weight, based on the polymer, of an inorganic or organic base corresponding to formulae II, III, IV, or mixtures thereof



wherein Me is an element of the first or second main group of the periodic system, n is 1 or 2 and R'' is a hydrogen atom or an aliphatic, cycloaliphatic or aromatic group having from 1 to 20 carbon atoms; and (ii) reacting the product of step (i) with one or more cyclic siloxanes of formula (V),



wherein R and R' are as defined in claim 1 and x is an integer of from 3 to 10.

4,276,390

FLAME-SPRAYING COATING

Masamitsu Nakabayashi; Fumihiro Doura, both of Osaka, and Teruo Hori, Ibaraki, all of Japan, assignors to Takeda Chemical Industries, Ltd., Dōshomachi, Japan

Filed Feb. 8, 1980, Ser. No. 119,779

Claims priority, application Japan, Feb. 9, 1979, 54/14969

Int. Cl.³ C08G 18/62, 18/80; B05D 1/08

U.S. Cl. 525—61 7 Claims

1. A powdered composition for flame-spraying coating, which comprises (1) an organic polyisocyanate blocked with ethyleneimine and (2) a partially hydrolyzed product of an ethylene-vinyl ester copolymer and/or a carboxyl modified product of said hydrolyzed product the proportions of said components being 0.01 to 1 mole of the isocyanate group of component (1) to each 1.0 mole of the hydroxyl group contained in component (2).

4,276,391

HIGH-IMPACT THERMOPLASTIC VINYL CHLORIDE POLYMER MOULDING COMPOSITION

Dietrich Hardt, Cologne; Gert Humme, Odenthal; Karl-Heinz Ott, Leverkusen, and Hans-Eberhard Braese, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 887,735, Mar. 17, 1978, abandoned, which is a continuation of Ser. No. 707,548, Jul. 22, 1976, abandoned. This application Dec. 17, 1979, Ser. No. 104,183
Claims priority, application Fed. Rep. of Germany, Jul. 30, 1975, 2534013
Int. Cl.³ C08L 51/04, 57/08
U.S. Cl. 525—71 5 Claims

1. A thermoplastic moulding composition comprising

(a) 75 to 99 parts by weight of a graft polymer of 90 to 99% of vinyl chloride onto 1 to 10% by weight of an ethylene vinyl ester copolymer, and

(c) 1 to 25 parts by weight of a graft polymer consisting essentially of ethylene propylene terpolymer rubber onto which is grafted a member selected from the group consisting of styrene, methylmethacrylate, a mixture of styrene and methlymethacrylate, and a mixture of styrene and acrylonitrile.

4,276,392

COATING COMPOSITION CATALYZED WITH PHOSPHONIC ACID DERIVATIVE - #3

Mohinder S. Chattha, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Nov. 13, 1979, Ser. No. 93,715
Int. Cl.³ C08L 63/00
U.S. Cl. 525—118 12 Claims

1. A thermosetting coating composition adapted for low temperature bake applications which, exclusive of pigments, solvents and other nonreactive components, consists essentially of:

(A) a polyepoxide resin having a number average molecular weight ($\bar{M}_n$) of between about 140 and about 3,000;

(B) a reactive catalyst comprising at least one phosphonic acid derivative having the formula:

$$R[P(OH)_2]_n$$

wherein n = 1 to 2 and R is selected from the group consisting of alkyl, cycloalkyl and aryl radicals;

(C) an amino resin crosslinking agent; and

(D) up to about 45 weight percent based on the total weight of (A), (B), (C) and (D) of a hydroxy functional additive having a number average molecular weight (M_n) of between about 150 and about 6000, said phosphonic acid derivative being included in said composition in an amount sufficient to provide between about 0.8 and about 1.4 equivalents of acid functionality for each equivalent of epoxy functionality on said polyepoxide resin, and said amino resin crosslinking agent being included in said composition in an amount sufficient to provide at least about 0.4 equivalents of nitrogen crosslinking functionality for each equivalent of hydroxy functionality included in said composition as a group on an initial component thereof or generated in situ as a result of esterification of said pendent epoxy functionality of said copolymer during cure of said coating composition.

4,276,393

CHAR-FORMING ADDITIVES FOR OLEFIN POLYMERS

John C. Falk, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill.

Filed Dec. 10, 1979, Ser. No. 101,607
Int. Cl.³ C08L 9/02, 47/00
U.S. Cl. 525—233 4 Claims

2. A composition comprising 100 parts by weight of an olefin polymer selected from the group consisting of styrene polymers and polypropylene, and from 5 to about 30 parts by weight of a polymer of butadiene having greater than 80% of the ethylenic unsaturation converted to cyclopropane units.

4,276,394

NOVEL TELECHELIC POLYMERS, BLOCK COPOLYMERS AND PROCESSES FOR THE PREPARATION THEREOF

Joseph P. Kennedy; Robert A. Smith, and Louis R. Ross, Jr., all of Akron, Ohio, assignors to The University of Akron, Akron, Ohio

Filed Sep. 10, 1979, Ser. No. 73,790
Int. Cl.³ C08F 4/14, 4/16, 10/10, 293/00
U.S. Cl. 525—245 25 Claims

1. A process for the synthesis of telechelic halogenated polymers comprising the steps of:

charging a cationically polymerizable olefin monomer having from about 4 to about 12 carbon atoms per molecule and an inifer to a suitable reaction vessel, said inifer charged in a concentration from about 10^{-4} to about 10^{-1} moles per mole of said polymerizable olefin monomer;

adding a solution of a fully chlorinated metal chloride Friedel-Crafts acid coinitiator in a solvent; and,

polymerizing said olefin monomer to form said telechelic halogenated polymer;

said inifer selected from the group consisting of AYn, BZ, and oligomers of α-chlorostyrene having from 2 to 6 units;

where A is selected from the group consisting of condensed and noncondensed aromatic compounds having from 1 to 4 rings, and linear and branched aliphatic compounds having from 3 to 20 carbon atoms;

where Y is represented by the formula:



where R and R' are selected from the group consisting of hydrogen, methyl, and phenyl, and R and R' can be the same when A is an aromatic compound, or where R is phenyl when A is an aliphatic compound;

where X is a halogen selected from the group consisting of fluorine, chlorine, and bromine, and where n is an integer from 2 to 6; and where B is selected from hydrocarbons having from 8 to 20 carbon atoms, and where Z is a tertiary halogen selected from the group consisting of tertiary fluorine, tertiary chlorine, or tertiary bromine.

2. A process for the synthesis of a thermoplastic block copolymer comprising the steps of:

charging a cationically polymerizable olefin monomer having from about 4 to about 12 carbon atoms per molecule and an inifer to a suitable reaction vessel said inifer charged in a concentration from about 10^{-4} to about 10^{-1} moles per mole of said polymerizable olefin monomer;

adding a solution of a Freidel-Crafts acid coinitiator in a solvent;

polymerizing said olefin monomer to form a telechelic halogentated polymer;

thereafter dissolving said telechelic polymer in said solvent;

adding a vinyl aromatic monomer having from 8 to about 20 carbon atoms with mixing and addition of said solvent to form a homogeneous medium;

adding a Friedel-Crafts acid coinitiator in said solvent to induce block polymerization of said vinyl aromatic monomer from said telechelic halogenated polymer to form said block copolymer;

said inifer selected from the group consisting of AY_n, BZ, and oligomers of α-chlorostyrene having from 2 to 6 units;

where A is selected from the group consisting of condensed and noncondensed aromatic compounds having from 1 to 4 rings, linear and branched aliphatic compounds having from 3 to 20 carbon atoms;

where Y is represented by the formula:



where R and R' are selected from the group consisting of hydrogen, methyl, and phenyl, and R and R' can be the same when A is an aromatic compound, or where R is phenyl when A is an aliphatic compound;

where X is a halogen selected from the group consisting of fluorine, chlorine, and bromine, and where n is an integer from 2 to 6;

where B is selected from hydrocarbons having from 8 to 20 carbon atoms, and where Z is a tertiary halogen selected from the group consisting of tertiary fluorine, tertiary chlorine, or tertiary bromine.

17. A novel telechelic polymer formed from an inifer and a cationically polymerizable olefin monomer having from about 4 to about 12 carbon atoms, said polymer having a residue of said inifer in the beckbone thereof and carrying at least two tertiary halogen termini;

said inifer selected from the group consisting of AY_n, and oligomers of α-chlorostyrene having from 2 to 6 units;

where A is selected from the group consisting of condensed and noncondensed aromatic compounds having from 1 to 4 rings, linear and branched aliphatic compounds having from 3 to 20 carbon atoms;

where Y is represented by the following formula:



where R and R' are selected from the group consisting of hydrogen, methyl and phenyl, and R and R' can be the same when A is an aromatic compound, or where R or R' is phenyl when A is an aliphatic compound;

where x is a halogen selected from the group consisting of fluorine, chlorine, and bromine, where n is an integer from 2 to 6.

22. A novel thermoplastic elastomer block copolymer comprising:

a central elastomer moiety formed from a cationically polymerizable olefin monomer having from about 4 to about 12 carbon atoms, said elastomer moiety having at least two ends, each said end carrying;

a glassy block polymer moiety formed from a vinyl aromatic monomer having from 8 to about 20 carbon atoms.

4,276,395

NOVEL FISCHER-TROPSCH CATALYSTS

Kurt P. C. Vollhardt, Kensington, and Patrick Perkins, Berkeley, both of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Division of Ser. No. 39,986, May 17, 1979, Pat. No. 4,238,633.
This application Apr. 29, 1980, Ser. No. 145,188
Int. Cl.³ C08F 210/00, 212/00
U.S. Cl. 525—332 9 Claims

1. A composition of the formula:

(PS)-R $Me(CO)_nH_m$

where:

(PS) represents a macroporous divinylbenzene crosslinked polystyrene in which the divinylbenzene crosslinking is greater than 1% and less than about 18%; and in which the pore size is in the range of about of about 100 through 900A°

R represents a cycloalkadienyl radical of 4 through 6 carbon atoms;

Me represents a Group VIII metal;

CO represents a carbonyl radical;

H represents hydrogen;

n represents an integer varying from 0 through 3.

m represents an integer varying from 0 through 2 inclusively with the further provision that 2n+m must total 18 when added to the electrons in R and Me, or n+m must total 0.

4,276,396

HYDROCARBON RESIN AND PROCESS FOR ITS PREPARATION

Donald E. Gwyn, Overton, Tex., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 24, 1980, Ser. No. 143,343
Int. Cl.³ C08F 8/04
U.S. Cl. 525—338 6 Claims

1. A high softening point hydrocarbon resin prepared by a process which comprises heat treating the C_5 and higher hydrocarbon fraction mixture obtained in the steam cracking of propane and ethane, fractionating said heat treated hydrocarbon fraction to remove the olefins and aromatics up through toluene, polymerizing said fractionated heat treated fraction with a Friedel-Crafts catalyst, diluting said polymerized hydrocarbon fraction, washing said diluted polymerized hydrocarbon fraction with aqueous caustic, drying said washed fraction, and hydrogenating said dried fraction to provide a low color hydrocarbon resin having a softening point of about 115° to about 130° C. and a Gardner color of not more than 5.

4,276,397

BLEND OF POLYARYLENE SULFIDE AND WHOLLY AROMATIC POLYESTER

Michael F. Freix, Belmont, Calif., assignor to Celanese Corporation, New York, N.Y.

Filed Jul. 7, 1980, Ser. No. 166,631
Int. Cl.³ C08L 67/00
U.S. Cl. 525—440 99 Claims

1. A polymer blend which is capable of exhibiting an anisotropic melt phase, improved processability characteristics, and the ability to form molded articles having satisfactory mechanical properties comprising:

(a) approximately 5 to approximately 95 percent by weight, based upon the total weight of components (a) and (b), of a polyarylene sulfide, and

(b) approximately 5 to approximately 95 percent by weight, based upon the total weight of components (a) and (b), of a melt processable wholly aromatic polyester which is capable of forming an anisotropic melt phase apart from said blend.

4,276,398

METHOD OF RECOVERING ENERGY IN THE MANUFACTURE OF POLYMERS FROM MONOMERIC GAS AND APPARATUS FOR CARRYING OUT THE METHOD

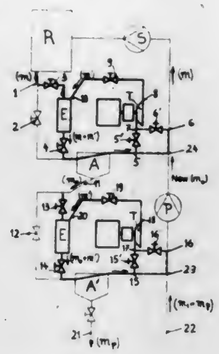
Jacques G. Kempf, Schafmattweg 55, CH-4102 Binningen, Switzerland

Filed Sep. 18, 1979, Ser. No. 76,651

Claims priority, application Switzerland, Sep. 20, 1978, 9825/78

Int. Cl.³ C08F 2/34

U.S. Cl. 526—68 **9 Claims**



1. A method of recovering energy in the manufacture of polymers from monomeric gas, said method comprising:

(a) compressing and partially converting the monomeric gas into a polymer in a reactor by polymerization,

(b) accelerating and decompressing the polymer-gas mixture being discharged from the reactor in a nozzle system of an energy exchange unit,

(c) mixing the stream of said polymer-gas mixture in the energy exchange unit with an almost polymer-free working stream of the same gas under simultaneous compression,

(d) separating the almost polymer-free gas of the working stream from the mixture in a separator and passing it in a separate circuit after passing through the separator,

(e) conveying the working stream in the separate circuit to a decompression means and decompressing it therein by energy release,

(f) conveying the working stream after being discharged from the decompression unit into the energy exchange unit to the region of the nozzle system of the energy exchange unit, and

(g) in the region of the nozzle system conveying together the polymer-gas mixture from the reactor and the working stream from the decompression means, wherein the working gas stream is continuously re-compressed in the energy exchange unit to the pressure in the separator.

4,276,399

SUPPORTED CATALYST FROM CHROMIUM FOR OLEFIN POLYMERIZATION

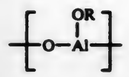
Louis J. Rekers, Wyoming, and Anthony N. Speca, Cincinnati, both of Ohio, assignors to National Petro Chemicals Corp., New York, NY

Division of Ser. No. 961,574, Nov. 17, 1978, Pat. No. 4,189,402, which is a continuation of Ser. No. 800,585, May 25, 1977, abandoned. This application Mar. 30, 1979, Ser. No. 25,418

Int. Cl.³ C08F 4/24

U.S. Cl. 526—106 **6 Claims**

1. A process for the polymerization of olefins comprising reacting at least one olefin at from about 40° C. to about 200° C. and from 200 to 1000 psig in the presence of a catalytically effective amount of a heat activated catalyst comprising an inorganic support having surface hydroxyl groups, there being deposited upon the support (a) a chromium compound capable of reacting with the surface hydroxyl groups of the support and (b) a polymeric hydrocarbon aluminate essentially resistant to hydrolysis under preparative conditions for the catalyst and having at least one



unit, wherein R is a hydrocarbyl radical having up to about 10 carbon atoms.

4,276,400

OLEFIN POLYMERIZATION PROCESS USING PRETREATED CATALYST

Reeder E. Bissell, Longview, Tex., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 837,113, Sep. 28, 1977, abandoned. This application Jan. 13, 1979, Ser. No. 48,209

Int. Cl.³ C08F 4/66, 10/06

U.S. Cl. 526—152 **9 Claims**

1. In a solution process for polymerizing alpha-olefins containing at least three carbon atoms and mixtures of alpha-olefins containing at least three carbon atoms with ethylene to solid, high molecular weight polymer having a crystallinity of at least 70 percent which comprises contacting said alpha-olefin, at a temperature in the range of about 140° to about 300° C. and a pressure in the range of about atmospheric to about 2,000 atmospheres, with a catalyst mixture comprising (1) an organopolylithiumaluminum compound prepared by reacting lithium alkyl with at least one aluminum compound selected from the group consisting of aluminum trialkyl and dialkyl aluminum hydride, (2) an alkyl compound selected from the group consisting of lithium alkyl, aluminum trialkyl and dialkyl aluminum hydride and (3) the alpha form of titanium trichloride wherein the ratio of lithium to aluminum in the catalyst mixture is 0.1:1 to 4:1, the ratio of aluminum to titanium in the catalyst mixture is 0.1:1 to 1:1, and the ratio of lithium to titanium is 0.1:1 to 1:1; the improvement which comprises preactivating said catalyst mixture by initially polymerizing a small amount of propylene at a temperature of 0° C. to 80° C. with said catalyst mixture under slurry polymerizing conditions prior to using said catalyst in said solution process and thereafter adding said preactivated catalyst to a solution process being operated at a temperature of at least 140° C.

4,276,401

N-HETEROCYCLIC SUBSTITUTED ACRYLOYL POLYMERIC COMPOUNDS

Friedrich Karrer, Zofingen, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

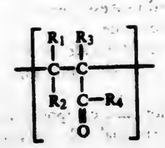
Filed Oct. 5, 1979, Ser. No. 82,392

Claims priority, application Switzerland, Oct. 13, 1978, 10647/78

Int. Cl.³ C08F 220/34, 220/54, 220/60

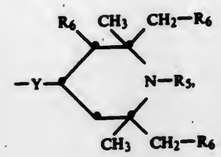
U.S. Cl. 526—263 **11 Claims**

1. A copolymeric compound useful as a light stabilizer and UV absorber in organic materials which carries side N-heterocyclic rings and contains the recurring structural unit of the formula (I)

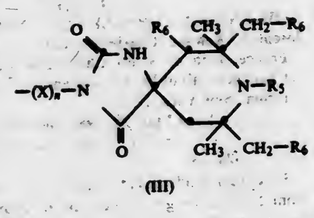


(I)

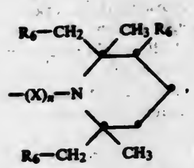
in which R_1 and R_2 are hydrogen and R_3 is hydrogen or C_1–C_4 alkyl and R_4 is a N-heterocyclic substituent of the formulae (II), (III), (IV) or (V)



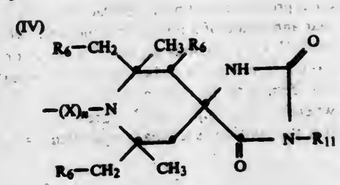
(II)



(III)



(IV)

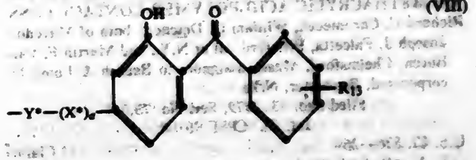


(V)

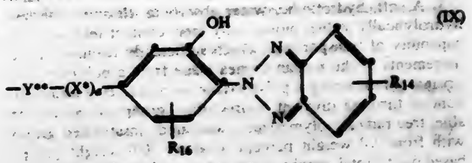
in which R_5 is hydrogen, oxyl, C_1–C_{18} alkyl, C_3–C_8 alkenyl, C_3–C_6 alkynyl, C_7–C_{12} aralkyl, C_2–C_{21} alkoxyalkyl, cyanomethyl, an aliphatic acyl group having 1 to 4 carbon atoms or a group $-CH_2COOR_7$, in which R_7 is C_1–C_{12} alkyl, C_3–C_8 alkenyl, phenyl, C_7–C_8 aralkyl or cyclohexyl, and R_6 is hydrogen or methyl and Y is —O— or



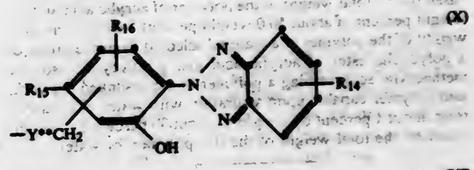
in which R_9 is hydrogen, C_1–C_{12} alkyl, C_5–C_8 cycloalkyl or C_7–C_{12} aralkyl, and X is a group of the formula —O—$CH(R_{10})$—CH_2— (VI), in which R_{10} is hydrogen, methyl, ethyl, phenoxymethyl or phenyl, and n is 0 or 1, and R_{11} is C_1–C_{18} allyl, cyclohexyl, phenyl, benzyl or a group of the formula —CH_2—$COOR_{12}$ (VII), in which R_{12} is C_1–C_8 alkyl, and, furthermore, R_4 is one of the groups of the formulae (VIII), (IX), (X) or (XI)



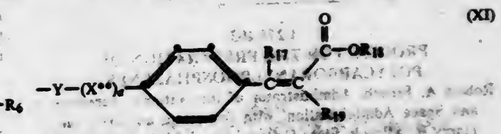
(VIII)



(IX)



(X)

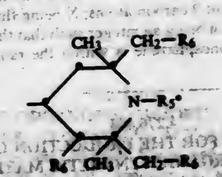


(XI)

in which Y and Y^{**} have the meaning defined above for Y, and Y^{*} is —O— or



in which R_9* is hydrogen or C_1–C_8 alkyl, and X is a group of the formula —$CH(R_{10})$—$(CH_2)_b$—O— (XII), in which b is 1 or 2 and R_{10} is as defined above, and a is 0 or 1, and R_{13} is hydrogen, methyl or chlorine and R_{14} is hydrogen, methyl, methoxy or chlorine and R_{15} is hydrogen or hydroxyl and R_{16} is H, C_1–C_{12} alkyl, C_5–C_8 cycloalkyl, phenyl, C_7–C_{12} aralkyl or chlorine and X^{*} is a group of the formula (XII), in which R_{10} is as defined above and b is 1, and R_{17} is hydrogen or C_1–C_4 alkyl and R_{18} is C_1–C_{12} alkyl, C_5–C_8 cycloalkyl or a group of the formula (XIII)



(XIII)

in which R_6* is hydrogen, C_1–C_8 alkyl, C_3–C_6 alkenyl, C_7–C_{12} aralkyl or an aliphatic acyl group having 1 to 4 carbon atoms and R_6 is as defined above, and R_{19} is —CN or a group of the formula —$COOR_{14}$ (XV), in which R_{14} is as defined above, with the proviso that, in the copolymeric molecule containing the recurring structural unit I, at least one (A) of the substituents R_4 is one of the groups of the formula (II), (III), (IV) or (V) and at least one (B) of the substituents R_4 is one of the groups of the formulae (VIII), (IX), (X) or (XI), (A):(B) being in a ratio of 50:1 to 1:50.

4,276,402

POLYSILOXANE/ACRYLIC ACID/POLCYCLIC ESTERS OF METHACRYLIC ACID POLYMER CONTACT LENS

Richard C. Chromecek; William G. Deichert, both of Macedon; Joseph J. Falcetta, Pittsford, all of N.Y., and Martin F. VanBuren, Chelmsford, Mass., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Sep. 13, 1979, Ser. No. 75,365
Int. Cl.³ C08F 30/08
U.S. Cl. 526—264 31 Claims

1. A soft, hydrophilic, water absorbing, flexible, fillerless, hydrolytically stable, biologically inert contact lens with the capability of transporting oxygen sufficiently to meet the requirements of the human cornea made from a polymer comprising polymerizing a polysiloxane monomer α,ω terminally bonded through divalent hydrocarbon groups to polymerizable, free radical polymerizably activated, unsaturated groups with from 1.0 weight percent to about 30.0 weight percent based on the total weight of the polymer of acrylic acid and 5.0 weight percent of about 50.0 weight percent based on the total weight of the polymer of a material selected from the group of a polycyclic ester of acrylic acid and a polycyclic ester of methacrylic acid forming a polymer in a crosslinked network, said polymer capable upon saturation with water of retaining from about 1 percent by weight to about 99 percent by weight, based on the total weight of the dry polymer, of water.

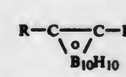
4,276,403

PROCESS FOR THE PREPARATION OF POLYCARBORANYLPHOSPHAZENES

Robert A. Froech, Administrator of the National Aeronautics and Space Administration, with respect to an invention of; Harry R. Allcock, State College, Pa.; John P. O'Brien, Wilmington, Del.; Angelo G. Scopelianos, University Park, Pa., and Larry L. Fewell, San Jose, Calif.

Filed Mar. 12, 1980, Ser. No. 129,798
Int. Cl.³ C08G 73/00
U.S. Cl. 528—4 3 Claims

1. A process for the preparation of carboranyl-substituted polyphosphazenes, which comprises allowing a solution of a lithiocarborane having the formula



to react at about ambient temperature with a solution of a polyphosphazene of the formula $[N=PX_2]_n$ for a period of at least 25 minutes, said reactants being present in an original concentration ranging from about equimolar to a 50% excess of either reactant, and said formulas being further defined by R being a substituent selected from the class consisting of hydrogen, alkyl radicals of up to about 6 carbon atoms, and aryl radicals of up to about 9 carbon atoms; X being fluorine, chlorine or bromine; and n being an integer such that the molecular weight of the polyphosphazene is within the range of about 10^4 to 1×10^6.

4,276,404

PROCESS FOR THE PRODUCTION OF INORGANIC-ORGANIC SYNTHETIC MATERIALS

Hans-Joachim Scholl, Cologne; Dieter Dieterich, Leverkusen, both of Fed. Rep. of Germany, and Peter Markusch, New Martinsville, W. Va., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 1, 1978, Ser. No. 930,128
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1977, 2734691
Int. Cl.³ C08G 18/22, 18/14, 18/77
U.S. Cl. 528—57 7 Claims

1. A process for the production of inorganic-organic synthetic foam materials having high strength elasticity, dimensional stability under heat, and flame resistance, consisting of a polymer-polysilicic acid gel composite material in the form of a solid/solid xerosol, said process comprising mixing

(a) an organic polyisocyanate

(b) an aqueous alkali metal silicate solution and/or an aqueous silica sol having an inorganic solid content of from 20–80% by weight,

(c) a flowable solid inorganic compound and optionally

(d) catalysts and conventional polyurethane foam additives and allowing the resulting mixture to react, characterized in that mixing is carried out by first combining components (a) and (b), optionally with the addition of all or part or none of component (d), to form a stable primary dispersion and thereafter adding component (c), optionally with the addition of all or part or none of component (d), to form a final dispersion.

4,276,405

LOW-ENERGY-CURABLE COATINGS COMPOSITIONS

Joseph V. Koleske, Charleston; Oliver W. Smith; Haywood G. France, both of South Charleston, and Robert A. Taller, Charleston, all of W. Va., assignors to Union Carbide Corporation, New York, N.Y.

Filed Mar. 28, 1980, Ser. No. 134,988
Int. Cl.³ C08G 59/42, 63/08
U.S. Cl. 528—58 24 Claims

1. A high solids liquid coating composition comprising (I) from 5 to 60 weight percent of an epoxide, (II) an organic polyisocyanate, (III) from 4 to 60 weight percent of a liquid polycarboxylic acid and (IV) from 0.1 to 10 weight percent of a stannous salt catalyst; said percentages based on the combined weight of (I), (II), (III) and (IV); wherein said component (III) comprises the reaction product mixture produced by the reaction of (i) a polycaprolactone polyol and (ii) from 0.5 to 1 carboxylic acid anhydride equivalent for each hydroxyl equivalent present in said polycaprolactone polyol of an intramolecular anhydride of a polycarboxylic acid; wherein said component (IV) is a stannous acylate of a mono- or dicarboxylic acid having from 1 to 54 carbon atoms or a stannous alkoxide having from 1 to 18 carbon atoms in the alkoxide group; and wherein said component II is present in a concentration such that the epoxide/isocyanato equivalent ratio is 0.2 to 1.5.

4,276,406

CATALYST FOR REACTING PHENOLIC HYDROXYL GROUPS WITH EPOXY GROUPS

Georgia A. Mounerat; George E. Ham; Thomas J. Hairston, all of Lake Jackson, Tex., and Melvin J. Hatch, Socorro, N. Mex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 10, 1980, Ser. No. 139,071
Int. Cl.³ C08G 59/06, 59/68
U.S. Cl. 528—92 12 Claims

1. A process for reacting a vicinal epoxide with an aromatic hydroxyl-containing material in the presence of a catalyst resulting from the treatment of (A) a solid substrate containing a plurality of ion-exchangeable cations treated with (B) a polymer containing a plurality of quaternary onium cations associated with a reactive anion; wherein components (A) and (B) are employed in quantities such that the resultant catalyst contains quaternary onium cation-anion sites.

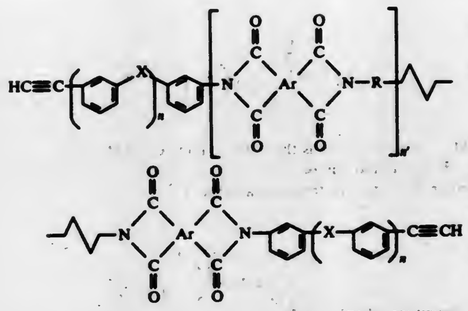
4,276,407

ACETYLENE TERMINATED IMIDE OLIGOMERS WHICH MELT AT LOW TEMPERATURES

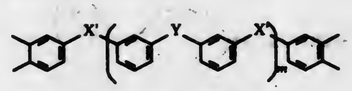
Norman Bilow, Encino, and Abraham L. Landis, Northridge, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Aug. 16, 1979, Ser. No. 66,985
Int. Cl.³ C08G 73/10, 73/12
U.S. Cl. 528—172 12 Claims

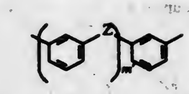
1. A phenylacetylene terminated imide oligomer having the structure



where X is O, S, CH_2, SO_2, CO, or $C(CF_3)_2$, Ar is a tetravalent organic moiety having the structure



R is a divalent organic moiety having the structure



wherein X' is O, S, $>C(CF_3)_2$, CO, or CH_2, Y is O, S, $>C(CF_3)_2$, CO, or CH_2, m is at least 1, Z is S, O, CH_2, $>C(CF_3)_2$, $>C(CH_3)_2$, CO, SO_2, C_6H_4, $—C_6H_4—Y'—C_6H_4—$, or $—Y'—C_6H_4—Y'—C_6H_4—Y'$ wherein Y' is S, O, CH_2, $>C(CF_3)_2$, $>C(CH_3)_2$, SO_2 or mixtures thereof and where n ranges from 0 to 4, n' ranges from 0 to 4, m' ranges from 0 to 2.

4,276,408

METHOD OF PRODUCING A RESIN FOR PRODUCING HEAT STABLE PRODUCTS, THE RESIN AND THE PRODUCTS

Joseph G. Robinson, Winchcombe, and Sally A. Brain, Tewkesbury, both of England, assignors to Coal Industry (Patents) Limited, London, England

Filed Feb. 11, 1980, Ser. No. 120,395
Claims priority, application United Kingdom, Mar. 2, 1979, 07384/79
Int. Cl.³ C08G 10/02, 16/02
U.S. Cl. 528—247 8 Claims

1. A method of producing a phenolated resin which is curable to give a heat stable product, comprising the steps of;(1) reacting an alkylated mononuclear aromatic hydrocarbon with formaldehyde to give a condensation resin having an oxygen content from 2 to 18%; (2) subjecting the condensation resin to a distillation process at a temperature up to 200° C. for at least five hours under reduced pressure to produce an intermediate resin containing less than 1% low molecular weight material; and (3) reacting one part of the intermediate resin with from 0.7 to 2.0 parts of phenol to produce the phenolted resin.

4,276,409

LAYERED CYANO END TERMINATED ORGANOPHOSPHORUS INORGANIC POLYMERS

Peter M. DiGiacomo, Mioden Vinje, and Martin B. Dines, Santa Ana, both of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 2, 1979, Ser. No. 54,107
Int. Cl.³ C08G 67/00, 73/00, 79/04
U.S. Cl. 528—362 14 Claims

1. Inorganic phosphorus containing polymers providing pendant cyano groups, and which include units of the formula

$M(O_3PRCN)_2$

wherein R is an organo group and the oxygen atoms are bonded to phosphorus and structurally linked to M, which is one or more tetravalent metals selected from the group consisting of zirconium, cerium, thorium, uranium, hafnium, lead and titanium, and wherein the molar ratio of phosphorus to tetravalent metal in the inorganic phosphorus containing polymer is about 2 to 1.

4,276,410

LAYERED ORGANOPHOSPHORUS INORGANIC POLYMERS CONTAINING MERCAPTO OR THIO GROUPS

Peter M. DiGiacomo, Miodon Vinje, and Martin B. Dines, Santa Ana, both of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 2, 1979, Ser. No. 54,097
Int. Cl.³ C08G 67/00, 75/00, 79/04
U.S. Cl. 528—373 12 Claims

1. Inorganic phosphorus containing polymers providing pendant mercapto or thio groups, and which contain units of the formula

$M(O_3PRSH)_2$, or $M(O_3PRSR')_2$

wherein R and R' are organo groups and the oxygen atoms are bonded to phosphorus and structurally linked to M which is one or more tetravalent metals selected from the group consisting of zirconium, cerium, thorium, uranium, hafnium, lead and titanium, and wherein the molar ratio of phosphorus to tetravalent metal in the inorganic phosphorus containing polymer is about 2 to 1.

4,276,411

LAYERED ORGANOPHOSPHORUS INORGANIC POLYMERS CONTAINING ACYCLIC GROUPS

Peter M. DiGiacomo, Miodon Vinje, and Martin B. Dines, Santa Ana, both of Calif., assignors to Occidental Research Corporation, Irvine, Calif.

Filed Jul. 24, 1979, Ser. No. 60,079
Int. Cl.³ C08G 79/04, 79/00
U.S. Cl. 528—395 25 Claims

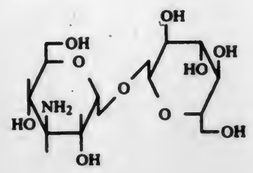
1. Solid inorganic polymers derived from acyclic organo group-containing phosphorus or phosphoric acids, wherein three oxygens bonded to phosphorus are structurally linked to one or more tetravalent metals selected from the group consisting of titanium, zirconium, cerium, hafnium, lead, thorium and uranium, and wherein the molar ratio of phosphorus to tetravalent metal is about 2 to 1.

4,276,412
3-TREHALOSAMINE COMPOUNDS

Lester A. Dolak, Plainwell; Alice L. Laborde, Kalamazoo, and Thomas M. Castle, Portage, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.

Filed Sep. 17, 1979, Ser. No. 76,489
Int. Cl.³ A61K 31/71; C07H 5/06
U.S. Cl. 536—17 R 14 Claims

1. Antibiotic 3-trehalosamine which can be shown by the following structural formula:

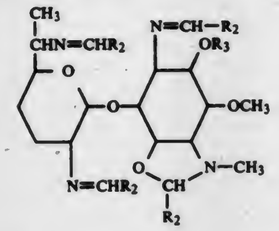


4,276,413
FORTIMICIN INTERMEDIATES FOR PRODUCING 2-DEOXYFORTIMICINS

Jerry R. Martin; John S. Tadanier, both of Waukegan, and Paulette Collum, Zion, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

Division of Ser. No. 863,006, Dec. 21, 1977, Pat. No. 4,192,867. This application Nov. 6, 1979, Ser. No. 91,864
Int. Cl.³ C07H 15/20
U.S. Cl. 536—17 R 2 Claims

1. A compound of the formula



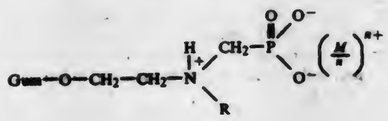
wherein R_2 are the same or different members of the group consisting of hydrogen, phenyl, hydroxy, methyl or methoxy-substituted phenyl; and R_3 is hydrogen or a C_1 to C_8 hydrocarbon sulfonic acid.

4,276,414
NOVEL ZWITTERION POLYGALACTOMANNAN ETHER DERIVATIVES AND A METHOD FOR THE PREPARATION THEREOF

Martin M. Tessler, Edison, N.J., assignor to National Starch and Chemical Corporation, Bridgewater, N.J.

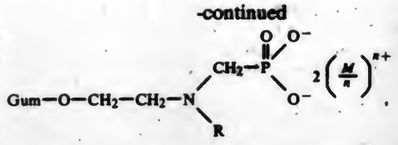
Continuation-in-part of Ser. No. 107,347, Dec. 26, 1979, abandoned. This application Sep. 22, 1980, Ser. No. 189,397
Int. Cl.³ C08B 37/00; C07G 17/00
U.S. Cl. 536—114 12 Claims

1. As a composition of matter, a zwitterion polygalactomannan ether derivative of the general structure



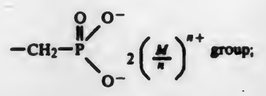
(i)

-continued



(ii)

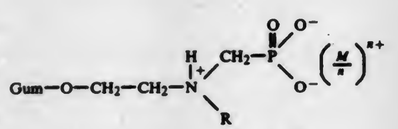
or a combination of (i) and (ii), wherein Gum-O represents a polygalactomannan gum molecule; R is a C_1–C_6 alkyl group, a C_3–C_6 cycloalkyl group or a



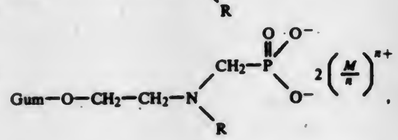
group;

M is a cation; and n is the valence number of M.

7. A method for preparing a zwitterion polygalactomman ether derivative of the general structure

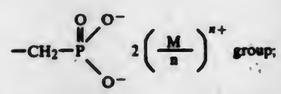


(i)



(ii)

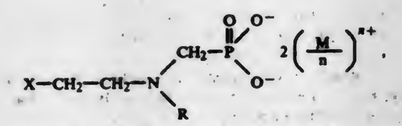
or a combination of (i) and (ii), wherein Gum-O represents a polygalactomanan gum molecule; R is a C_1–C_6 alkyl group, a C_3–C_6 cycloalkyl group or a



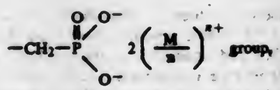
group;

M is a cation; and n is the valence number of M, which comprises the steps of:

a. reacting a polygalactomannan gum base with about 0.1 to 100% by weight, based on the dry gum, of a zwitterion reagent having the general formula



wherein X is chlorine or bromine, R is a C_1–C_6 alkyl group, a C_3–C_6 cycloalkyl group, or a



group,

M is a cation, and n is the valence number of M; and

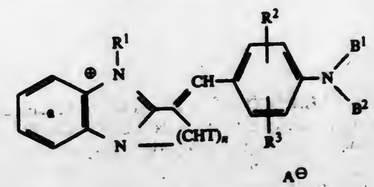
b. isolating the resulting zwitterion polygalactomannan ether derivative.

4,276,415
BASIC DYES

Hans-Jürgen Degen, 6 Schillerstrasse, 6143 Lorsch, and Klaus Grychtol, 96A Seebacher Strasse, 6702 Bad Duerkheim 1, both of Fed. Rep. of Germany

Filed Jan. 2, 1980, Ser. No. 109,045
Claims priority, application Fed. Rep. of Germany, Jan. 25, 1979, 2902763
Int. Cl.³ C09B 23/02; C07D 471/14, 487/04
U.S. Cl. 542—435 2 Claims

1. A basic dye of the formula I:

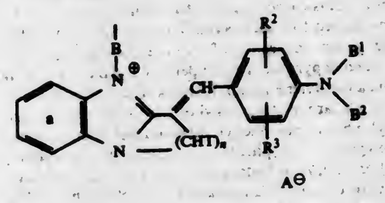


(I)

where

$A^{\ominus}$ is an anion,

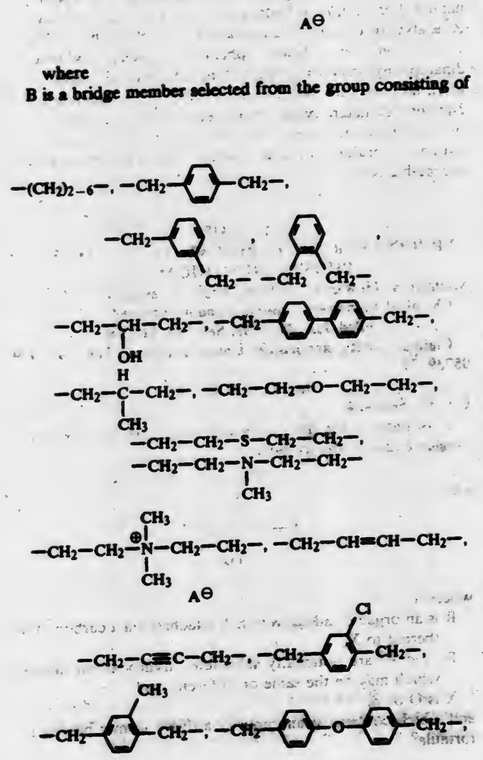
R^1 is unsubstituted or substituted alkyl or a radical of the formula II:



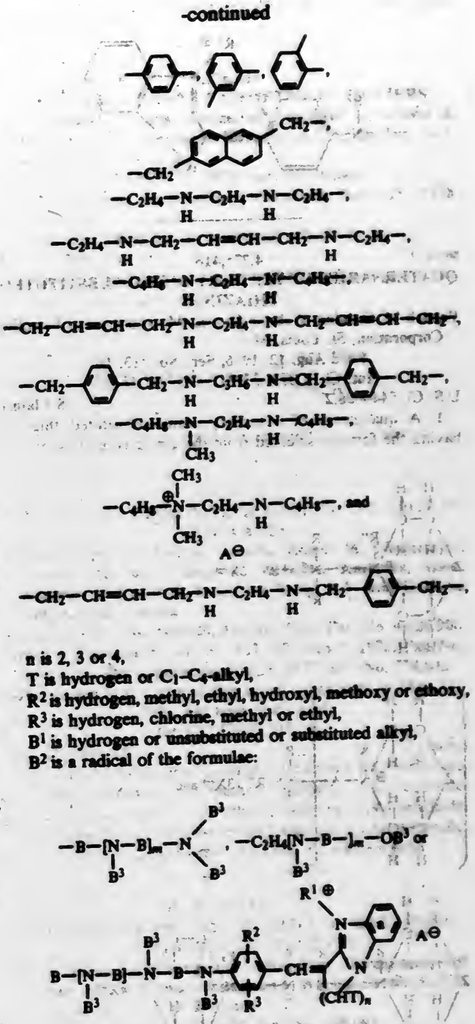
(II)

where

B is a bridge member selected from the group consisting of



-continued



n is 2, 3 or 4,

T is hydrogen or C_1–C_4-alkyl,

R^2 is hydrogen, methyl, ethyl, hydroxyl, methoxy or ethoxy,

R^3 is hydrogen, chlorine, methyl or ethyl,

B^1 is hydrogen or unsubstituted or substituted alkyl,

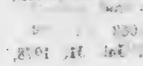
B^2 is a radical of the formulae:

m is 0, 1, 2 or 3,

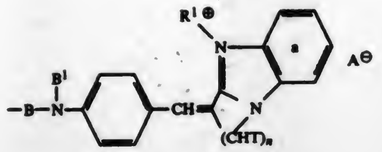
the radicals B^3 independently of one another are hydrogen, C_1–C_4-alkyl, or C_2–C_3-alkyl which is substituted by $-N-B^3$, hydroxyl or C_1–C_4-alkoxy, or both radicals B^3 taken together are selected from the group consisting of a pyrrolidino, piperidino, morpholino, piperazino, N-methylpiperazino, N-β-hydroxyethyl-piperazino and hexamethyleneimino ring,

the ring a is unsubstituted or mono or polysubstituted by hydrogen, methyl, ethyl, chlorine, nitro or dimethylamino,

provided that when R^1 is selected from the group consisting of a radical of the formula (II) and a radical containing a group of the formula



B^2 can additionally be selected from the group consisting of B^1 and



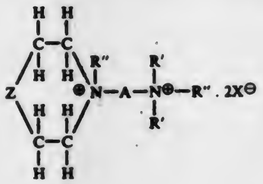
I

4,276,416
QUATERNARIES OF TERTIARY AMINO-SUBSTITUTED THIAZINES

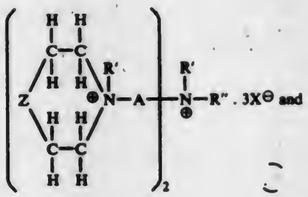
Patrick M. Quinlan, Webster Groves, Mo., assignor to Petrolite Corporation, St. Louis, Mo.

Filed Aug. 12, 1976, Ser. No. 713,704
Int. Cl.³ C07D 279/12, 295/12, 417/12
U.S. Cl. 544—58.2 8 Claims

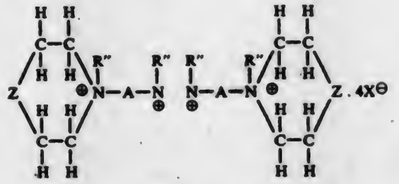
1. A quaternary of a tertiary amino-substituted thiazine having the formula selected from the group consisting of



(1)



(2)



(3)

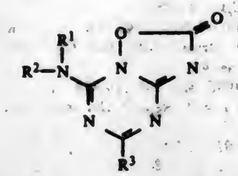
where Z is SO or SO_2, A is alkylene having 2 to 10 carbon atoms, R' is alkyl or hydroxyalkyl, R'' is alkyl, alkenyl or alkynyl, N⌒N represents a cyclic diamine group and X is an anion selected from the group consisting of chloride, iodide, bromide, sulfate, sulfonate and carboxylate.

4,276,417
OXADIAZOLOTRIAZINE DERIVATIVES

Jean-Claude Muller, Rixheim, France, and Henri Ramuz, Birsfelden, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Jul. 26, 1979, Ser. No. 61,068
Claims priority, application Switzerland, Jul. 31, 1978, 8184/78; May 15, 1979, 4585/79
Int. Cl.³ C07D 498/04
U.S. Cl. 544—198 15 Claims

1. A compound of the formula



I

wherein R^1 is hydrogen, and R^2 is a group of the formula



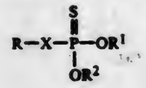
—$COOR^5$ or —$CH(R^6)COOR^7$, or R^1 and R^2 are the same and are hydrogen or a group of the formula —$CH(R^6)COOR^7$, R^3 is diallylamino or 1,2,5,6-tetrahydropyridin-1-yl, wherein R^4 is alkyl of 1–8 carbon atoms, haloalkyl of 1–8 carbon atoms, alkoxy of 1–8 carbon atoms-alkyl of 1–8 carbon atoms, benzyloxy-alkyl of 1–8 carbon atoms, phenethyloxy-alkyl of 1–8 carbon atoms, phenyloxy-alkyl of 1–8 carbon atoms, alkoxy of 1–8 carbon atoms-carbonylalkyl of 1–8 carbon atoms, benzyl, phenethyl, phenyl, halophenyl, dihalophenyl, methoxyphenyl, dimethoxyphenyl, nitrophenyl, tolyl, methoxycarbonylphenyl, naphthyl, a group of the formula —$C(R^8)$=$CH(R^9)$, alkoxy of 1–8 carbon atoms-carbonylalkyl of 1–8 carbon atoms-carbonyl or a 4-membered to 7-membered heterocyclic group selected from the group consisting of furyl, nicotinyl, isonicotinyl, pyridyl, thienyl, pyrrolinyl and piperidinyl, which is optionally bound via a methylene group, R^5 is alkyl of 1–8 carbon atoms, alkoxy of 1–8 carbon atoms-alkyl of 1–8 carbon atoms, benzyl, phenethyl, phenyl, halophenyl, dihalophenyl, methoxyphenyl, dimethoxyphenyl, nitrophenyl, tolyl, methoxycarbonylphenyl, naphthyl or allyl, R^6 is hydrogen or alkyl of 1–8 carbon atoms, R^7 is alkyl of 1–8 carbon atoms and R^8 and R^9 each are alkyl of 1–8 carbon atoms, benzyl, phenethyl, phenyl, halophenyl, dihalophenyl, methoxyphenyl, dimethoxyphenyl, nitrophenyl, tolyl, methoxycarbonylphenyl, naphthyl, or a 4-membered to 7-membered heterocyclic group, selected from the group consisting of furyl, nicotinyl, isonicotinyl, pyridyl, thienyl, pyrrolinyl and piperidinyl, or a salt thereof with a pharmaceutically acceptable base.

4,276,418
PROCESS FOR THE PURIFICATION OF ESTERS OF PHOSPHORUS THIOACIDS

Michael S. Howarth, Oldham, England, assignor to Imperial Chemical Industries Limited, London, England

Filed Jan. 28, 1980, Ser. No. 116,596
Claims priority, application United Kingdom, Feb. 19, 1979, 05739/79
Int. Cl.³ C07F 9/65
U.S. Cl. 544—243 5 Claims

1. A process for the purification of esters of phosphorus thioacids having the formula:



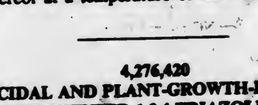
wherein

R is an organic radical which is attached via a carbon atom thereof to X;

R^1 and R^2 are optionally substituted hydrocarbon radicals which may be the same or different, and

X is O or S,

and which contains as an impurity a thiolo isomer having the formula:



in which R, R^1, R^2 and X have the previously defined meanings, which comprises washing the ester with 1 to 5% by weight aqueous sulfuric acid whereby the content of thiolo impurity in the ester is reduced to a level at which the subsequently stabilized ester does not develop objectionable odors on storage.

4,276,419
PROCESS FOR THE PREPARATION OF C-SUBSTITUTED PYRIDINES AND/OR HYDROGENATED C-SUBSTITUTED PYRIDINES, C-SUBSTITUTED QUINOLINES AND/OR HYDROGENATED QUINOLINES

Egidius J. M. Verheijen, Born, and Charles H. Geersheevels, Geleen, both of Netherlands, assignors to Stamicarbon, B.V., Geleen, Netherlands

Filed Sep. 19, 1979, Ser. No. 78,587
Claims priority, application Netherlands, Sep. 20, 1978, 7809552
Int. Cl.³ C07D 211/04, 211/06, 215/06, 295/02
U.S. Cl. 546—164 5 Claims

1. In a process for the preparation of pyridines and/or hydrogenated pyridines that have been substituted with a hydrocarbon group at one or more carbon atoms, by the steps of:

passing a γ-cyanoketone, in a gaseous phase in the presence of hydrogen, over a first catalyst in a reaction zone containing a catalytically active component selected from the group consisting of copper, silver, gold, iron, nickel, cobalt, ruthenium, rhodium, palladium, osmium, iridium, platinum and compounds thereof, thereby forming a reaction mixture containing said substituted pyridines and/or hydrogenated pyridines and hydrogen;

separating a hydrogen-containing gas from said reaction mixture; and

recycling at least a portion of said hydrogen-containing gas to said reaction zone,

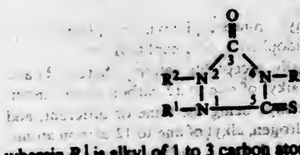
the improvement wherein said hydrogen-containing gas, prior to being recycled to said reaction zone, is passed over a second catalyst containing a catalytically active component selected from the group consisting of iron, nickel, cobalt and compounds thereof at a temperature of between about 300° and 800° C.

4,276,420
HERBICIDAL AND PLANT-GROWTH-REGULATING 1,2,4-TRISUBSTITUTED-1,2,4-TRIAZOLIDIN-3-ONE-5-THIONE

Stephen D. Zinnes, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif.

Continuation-in-part of Ser. No. 909,160, May 24, 1978, abandoned. This application Feb. 9, 1979, Ser. No. 10,669
Int. Cl.³ C07D 249/12
U.S. Cl. 548—264 7 Claims

1. A compound of the formula



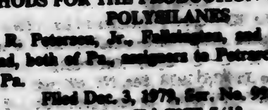
wherein R^1 is alkyl of 1 to 3 carbon atoms and R^2 is alkyl of 1 to 3 carbon atoms, alkenyl of 2 to 6 carbon atoms, alkoxyalkyl of 2 to 6 carbon atoms and alkylthioalkyl of 2 to 6 carbon atoms, and R^4 is p-halophenyl wherein halo is fluoro, chloro, bromo or iodo.

4,276,421
CYANO-GUANIDINE GEOMETRICAL ISOMERS

Pierre Baudat, Geneva, Switzerland, assignor to Société de Recherches et de Synthèses Organiques S.A., Geneva, Switzerland

Filed Nov. 15, 1979, Ser. No. 94,669
Claims priority, application Switzerland, Nov. 18, 1978, 11810/78
Int. Cl.³ C07D 233/64; C07C 129/08; C07D 203/06
U.S. Cl. 548—342 3 Claims

1. The substantially pure Syn(—$NHCH_3$) geometrical isomer having the structure



on a therapeutically acceptable acid addition salt thereof.

4,276,422
SUBSTITUTED DITHIIN TETROXIDE PLANT GROWTH REGULANTS

Arthur D. Brewer, Guelph, Canada; Robert W. Neddermyer, Carmel, Ind., and William S. McIntire, Scottsdale, Miss., assignors to Uniroyal, Inc., New York, N.Y. and Uniroyal Ltd., Guelph, Canada

Division of Ser. No. 540,020, Jan. 10, 1975, Pat. No. 4,026,906, which is a division of Ser. No. 357,757, May 7, 1973, Pat. No. 3,920,438. This application Mar. 7, 1977, Ser. No. 774,842
The portion of the term of this patent subsequent to May 31, 1994, has been disclaimed.
Int. Cl.³ C07D 339/08
U.S. Cl. 549—15 7 Claims

1. 2-Ethyl-5,6-dihydro-5-methyl-1,4-dithiin 1,1,4,4-tetroxide.
2. 2-Ethyl-5,6-dihydro-6-methyl-1,4-dithiin 1,1,4,4-tetroxide.
3. 2-Ethyl-2,3-dihydro-5-methyl-1,4-dithiin 1,1,4,4-tetroxide.
4. 2-Ethyl-2,3-dihydro-6-methyl-1,4-dithiin 1,1,4,4-tetroxide.
5. 2,5-Diethyl-2,3-dihydro-1,4-dithiin 1,1,4,4-tetroxide.

4,276,423
PROCESS FOR PREPARING SILICON-CONTAINING ACETAMIDE DERIVATIVES

Horst Müller, Emmerting, and Volker Frey, Burghausen, both of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 10, 1980, Ser. No. 158,091
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1979, 2923604
Int. Cl.³ C07F 7/10
U.S. Cl. 556—411 6 Claims

1. A process for the preparation of silicon-containing acetamide derivatives, which comprises reacting acetamide or substituted derivatives thereof with N-trimethylsilyl imidazole while continuously removing the silicon-containing acetamide derivatives as they are formed by distillation.

4,276,424
METHODS FOR THE PRODUCTION OF ORGANIC POLYSILANES

William R. Peterson, Jr., Pottstown, and Barry C. Arkles, Oreland, both of Pa., assignors to Petrarch Systems, Levittown, Pa.

Filed Dec. 3, 1979, Ser. No. 99,266
Int. Cl.³ C07F 7/12
U.S. Cl. 556—430 10 Claims

1. A method for producing organopolysilanes by reacting an organohalosilicon hydride with lithium metal or lithium-alkali

metal alloy, whereby the silicon-silicon bonds of the organopolysilanes are formed by the removal of halogen and hydrogen from the hydride.

4,276,425
PROCESS FOR PREPARING CYCLIC DIMETHYLPOLYSILOXANES

Jürgen Burkhardt, Winböring, and Eckhart Louis, Burghausen, both of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Jul. 11, 1979, Ser. No. 56,485
Claims priority, application Fed. Rep. of Germany, Dec. 9, 1978, 2839652
Int. Cl.³ C07F 7/08
U.S. Cl. 556—460 3 Claims

1. A process for preparing cyclic dimethylpolysiloxanes which comprises heating a mixture containing linear or branched organopolysiloxanes having at least 50 mol percent of dimethylsiloxane units and an aqueous sulfuric acid in which the aqueous sulfuric acid contains from 50 to 85 percent by weight of sulfuric acid in the absence of an organic solvent while simultaneously distilling off the cyclic dimethylpolysiloxanes thus formed.

4,276,426
PROCESS FOR THE PREPARATION OF ORGANOSILICON COMPOUNDS

Tassilo Lindner, Mehring-Öd; Norbert Zeller, Burghausen; Volker Frey, Burghausen; Rudolf Riedle, Burghausen; Peter John, Burghausen, all of Fed. Rep. of Germany, and Georg Engelsberger, Ach, Austria, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Nov. 28, 1979, Ser. No. 98,005
Claims priority, application Fed. Rep. of Germany, Nov. 28, 1978, 2851456
Int. Cl.³ C07F 7/09, 7/08
U.S. Cl. 556—479 7 Claims

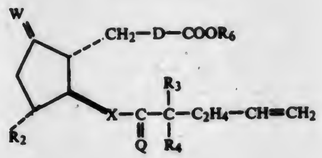
1. An improved process for preparing organosilicon compounds by the continuous introduction into a pipe-shaped reactor a compound having Si-bonded hydrogen, a compound containing an aliphatic multiple bond and a catalyst which promotes the addition of Si-bonded hydrogen to an aliphatic multiple bond, in which the reaction mixture is maintained in a liquid phase by the application of pressure, while the reaction mixture is being continuously removed from said reactor, the improvement which comprises continuously circulating the reaction mixture in the reactor at a rate of at least 1,000 cm per minute.

4,276,427
19,20-DIDEHYDRO-PG$_1$ COMPOUNDS

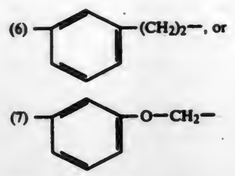
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979, Pat. No. 4,228,104. This application Oct. 17, 1979, Ser. No. 85,622
Int. Cl.³ C07C 177/00
U.S. Cl. 560—53 1 Claim

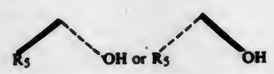
1. A compound of the formula



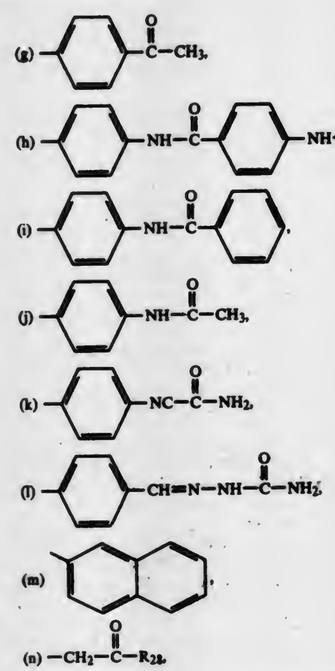
wherein D is
(1) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,
(2) —$(CH_2)_3$—CH_2—CF_2—,
(3) —$(CH_2)_3$—O—CH_2—,
(4) —$(CH_2)_2$—O—$(CH_2)_2$—,
(5) —CH_2—O—$(CH_2)_3$—,



wherein g is zero, one, two, or three;
wherein Q is

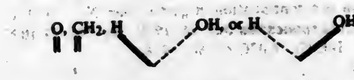


wherein R_5 is hydrogen or methyl,
wherein R_6 is (a) hydrogen, (b) alkyl of one to 12 carbon atoms, inclusive, (c) cycloalkyl of 3 to 10 carbon atoms, inclusive, (d) aralkyl of 7 to 12 carbon atoms, inclusive, (e) phenyl, (f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;



wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different; and wherein R_{29} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl

substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is



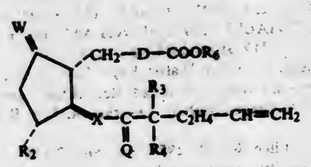
and wherein X is cis- or trans—CH=CH— or —C≡C—.

4,276,428
19,20-DIDEHYDRO-13,14-DIHYDRO-PG$_1$ COMPOUNDS

John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

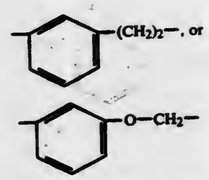
Division of Ser. No. 26,066, Apr. 2, 1979. This application Oct. 17, 1979, Ser. No. 85,623
Int. Cl.³ C07C 177/00
U.S. Cl. 560—53 1 Claim

1. A compound of the formula



wherein D is
(1) —$(CH_2)_3$—$(CH_2)_g$—CH_2—,
(2) —$(CH_2)_3$—CH_2—CF_2—,
(3) —$(CH_2)_3$—O—CH_2—,
(4) —$(CH_2)_2$—O—$(CH_2)_2$—,
(5) —CH_2—O—$(CH_2)_3$—,

(6)

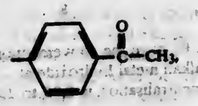


wherein g is zero, one, two, or three;
wherein Q is



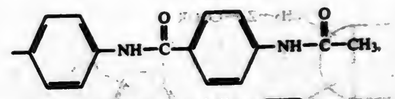
wherein R_5 is hydrogen or methyl,
wherein R_6 is (a) hydrogen, (b) alkyl of one to 12 carbon atoms, inclusive, (c) cycloalkyl of 3 to 10 carbon atoms, inclusive, (d) aralkyl of 7 to 12 carbon atoms, inclusive, (e) phenyl, (f) phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive;

(g)

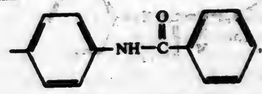


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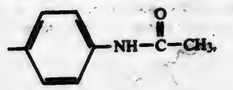
(h)



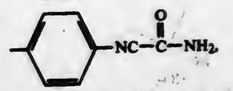
(i)



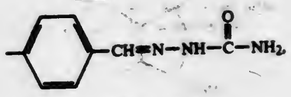
(j)



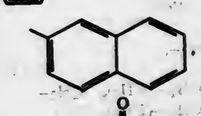
(k)



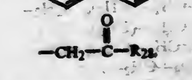
(l)



(m)

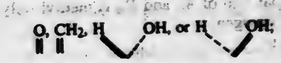


(n)



wherein R_{28} is phenyl, p-bromophenyl, p-biphenylyl, p-nitrophenyl, p-benzamidophenyl, or 2-naphthyl, or
(o) a pharmacologically acceptable cation; wherein R_7 and R_8 are hydrogen, alkyl of one to 12 carbon atoms, inclusive, benzyl, or phenyl, being the same or different; and wherein R_{29} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is

(7)



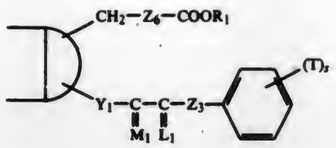
and wherein X is —CH_2CH_2—.

4,276,429
ω-ARYL-13,14-DIDEHYDRO-PGF COMPOUNDS

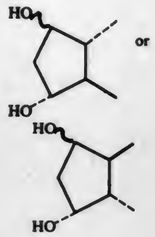
Herman W. Smith, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 776,952, Mar. 7, 1977, which is a division of Ser. No. 657,739, Feb. 18, 1976, Pat. No. 4,039,681. This application Apr. 28, 1978, Ser. No. 902,210
Int. Cl.³ C07C 177/00
U.S. Cl. 560—55 38 Claims

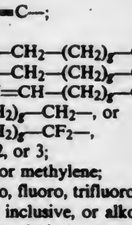
1. A prostaglandin analog of the formula:



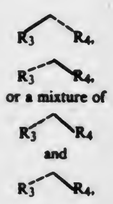
wherein D is



wherein Y_1 is —C≡C—;
wherein Z_6 is
(1) cis—CH=CH—CH_2—$(CH_2)_g$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_g$—CF_2—,
(3) cis—CH_2—CH=CH—$(CH_2)_g$—CH_2—,
(4) —$(CH_2)_3$—$(CH_2)_g$—CH_2—, or
(5) —$(CH_2)_3$—$(CH_2)_g$—CF_2—,
wherein g is one, 2, or 3;
wherein Z_3 is oxa or methylene;
wherein T is chloro, fluoro, trifluoromethyl, alkyl of one to 3 carbon atoms, inclusive, or alkoxy of one to 3 carbon atoms, inclusive, and s is zero, one, 2, or 3, the various T's being the same or different, with the proviso that not more than two T's are other than alkyl;
wherein M_1 is



wherein R_5 and R_6 are hydrogen or methyl, with the proviso that one of R_5 and R_6 is methyl only when the other is hydrogen;
wherein L_1 is



wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro and Z_3 is methylene; and
wherein R_1 is hydrogen, alkyl of one to 12 carbon atoms, inclusive, cycloalkyl of 3 to 10 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, two, or three chloro or alkyl of one to 3 carbon atoms, inclusive, or a pharmacologically acceptable cation.

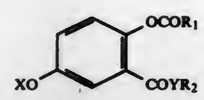
4,276,430

ANALGESIC AND ANTI-INFLAMMATORY COMPOUNDS AND COMPOSITIONS CONTAINING SAME

Herbert H. Reiler, and Herbert C. Kretschmar, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 855,042, Nov. 25, 1977, abandoned, which is a continuation-in-part of Ser. No. 750,981, Dec. 15, 1976. This application Jul. 26, 1979, Ser. No. 61,107
Int. Cl.³ C07C 69/86, 69/88
U.S. Cl. 560—66 39 Claims

1. A compound of the formula



wherein R_1 is an alkyl group having from 1 to 4 carbon atoms, Y is O, R_2 is an alkyl group having from 6 to 8 carbon atoms or benzyl and X is COR_3 where R_3 is an alkyl group having from 1 to 4 carbon atoms.

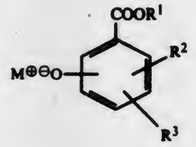
4,276,431

PROCESS FOR THE PREPARATION OF ALKALI METAL SALTS OF HYDROXYBENZOATES, WHICH ARE SUBSTANTIALLY ANHYDROUS AND FREE FROM HYDROXYBENZOIC ACID

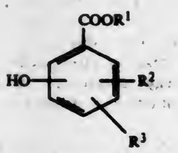
Peter Schnegg, Odenthal; Walter Rapp, Leverkusen, and Bernhard Vosteen, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Sep. 20, 1979, Ser. No. 77,445
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1978, 2842807; Apr. 27, 1979, 2917273
Int. Cl.³ C07C 69/88
U.S. Cl. 560—67 5 Claims

1. Process for the preparation of alkali metal salts of hydroxybenzoates, which are substantially anhydrous and free from hydroxybenzoic acid and have the formula



in which
R^1 denotes alkyl, alkenyl, cycloalkyl or aralkyl,
R^2 and R^3 are identical or different and represent hydrogen, halogen, hydroxyl, amino, alkylamino, alkyl, alkoxy, aralkyl or aryl and
M denotes an alkali metal,
characterised in that a solution or suspension of a hydroxybenzoate of the formula



in which R^1, R^2 and R^3 have the abovementioned meaning, is neutralised with an alkali metal hydroxide at −10° to +50° C. until the degree of neutralisation is 0.95 to 1.05, a degree of neutralisation of 1.00 denoting the end point of the neutralisation of the phenolic OH group by the alkali metal hydroxide, and the resulting solution or suspension of the alkali metal salt of the hydroxbenzoate is passed to a mild drying operation which does not damage the product and is in itself known, after a time such that the content of hydroxybenzoic acid or the alkali metal salt thereof in this solution or suspension does not reach the value of 1% by weight, relative to the amount of alkali metal salt of hydroxybenzoate contained in this solution or suspension.

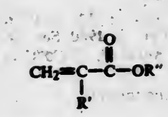
4,276,432

LOW MOLECULAR WEIGHT ACRYLATES OR METHACRYLATES AND METHODS FOR THEIR PREPARATION

David Rhum, Westfield, N.J., and Patrick F. Aluotto, Cincinnati, Ohio, assignors to Celanese Corporation, New York, N.Y.

Continuation of Ser. No. 666,527, Mar. 12, 1976, Pat. No. 4,075,242, which is a continuation-in-part of Ser. No. 380,314, Jul. 18, 1973, abandoned, and Ser. No. 521,723, Nov. 7, 1974, abandoned. This application May 9, 1977, Ser. No. 794,866
Int. Cl.³ C07C 69/54; C08F 2/06, 20/12, 20/14
U.S. Cl. 560—190 6 Claims

1. A process for preparing low molecular weight, room temperature liquid acrylate or methacrylate resins from monomers about 20 to 100 weight percent of which are selected from acrylate and methacrylate esters having the general formula:



wherein R' is hydrogen or methyl and R'' is C_1–C_8 alkyl or mixtures thereof and about 0 to about 80 weight percent of which are selected from ethylenically unsaturated monomers copolymerizable therewith, which comprises:
A. heating to above about 150° C. at least 75 percent, by weight based on the total reaction solvent, of a hydrocarbon reaction solvent having a boiling point of above about 150° C. in a batch reactor;
B. adding at a temperature of above about 150° C. said monomers and the remaining solvent to the reactor over at least about 30 minutes so that the final polymerization solids of the reaction medium is above at least 30 weight percent;
C. maintaining the reaction above about 150° C. for a time sufficient to polymerize said monomers to a monomer to polymer conversion percentage of at least about 85 percent, by weight; and
D. stripping off substantially all of the reaction solvent.

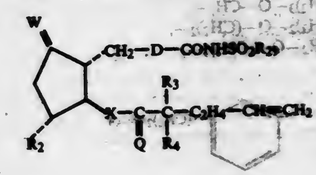
4,276,433

CONTINUOUS PREPARATION OF ANTHRANILIC ACID

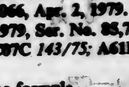
Gerhard Klipper, Battenberg, and Johannes Grimmer, Ludwigshafen, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Fed. Rep. of Germany

Filed Jan. 10, 1979, Ser. No. 2,333
Int. Cl.³ C07C 101/54
U.S. Cl. 562—458 14 Claims

1. A process for the continuous preparation of anthranilic acid by reaction of an alkali metal phthalamate and/or alkali metal phthalimidate with a hypohalite in an aqueous medium, wherein the reaction is carried out in the presence of a catalytic amount of bromine, iodine and/or amide of the formula



wherein R^1 is a sulfoaic acid group, a sulfonate radical or a sulfonamide group, R^2 is a hydrogen atom, an aliphatic radical, chlorine or bromine, X is chlorine, bromine or hydrogen, and R^1 and R^2 may also, together with the adjacent nitrogen, be members of a heterocyclic radical which contains at least one sulfone group or phosphonyl group of formula



where R_3 is hydrogen or an alkali metal, adjacent to the nitrogen and R^1 and R^2 may also together be

where R^4 is alkylene,



R^5 is hydrogen, chlorine or bromine and R^6 is an aliphatic radical, wherein
(a) phthalimide and/or phthalamic acid is dissolved in an aqueous alkali metal hydroxide solution in a ratio of from 3 to 3.5 moles of alkali metal hydroxide per mole of phthalimide and/or of from 2 to 2.5 moles of alkali metal hydroxide per mole of phthalamic acid,
(b) the resulting aqueous solution of alkali metal phthalamate and/or phthalimidate is mixed with an aqueous solution of an alkali metal hypochlorite in a mixing apparatus,
(c) the resulting mixture is reacted in the first part of a reaction tube at a high flow rate, at from 10° to 54° C., under substantially adiabatic conditions, thereafter
(d) the reaction mixture which leaves the first part of the reaction tube at a high flow rate is allowed to complete the reaction in the second part of the said tube at from 55° to 90° C. and
(e) anthranilic acid is isolated in the conventional manner from the alkaline reaction mixture which leaves the tube.

4,276,434

19,20-DIDEHYDRO-13,14-DIHYDRO-PG_1, SULFONYL AMIDES

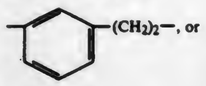
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.

Division of Ser. No. 26,066, Apr. 2, 1979. This application Oct. 17, 1979, Ser. No. 85,771
Int. Cl.³ C07C 143/75; A61K 31/18
U.S. Cl. 564—98 1 Claim

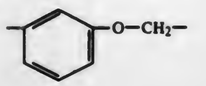
1. A compound of the formula

wherein D is

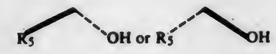
(1) $-(CH_2)_3-(CH_2)_8-CH_2-$,
(2) $-(CH_2)_3-CH_2-CF_2-$,
(3) $-(CH_2)_3-O-CH_2-$,
(4) $-(CH_2)_2-O-(CH_2)_2-$,
(5) $-CH_2-O-(CH_2)_3-$,
(6)



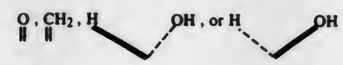
(7)



wherein g is zero, one, two, or three;
wherein Q is



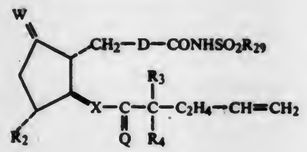
wherein R_5 is hydrogen or methyl,
wherein R_{29} is alkyl of one to 4 carbon atoms, inclusive,
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl;
wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is



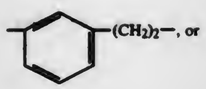
and wherein X is $-CH_2CH_2-$.

4,276,435
19,20-DIDEHYDRO-PG$_1$, SULFONYL AMIDES
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 26,066, Apr. 2, 1979. This application Oct. 17, 1979, Ser. No. 85,772
Int. Cl.^{3} C07C *143/75*; A61K *31/18*
U.S. Cl. 564—98 **1 Claim**

1. A compound of the formula

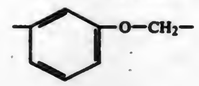


wherein D is
(1) $-(CH_2)_3-(CH_2)_8-CH_2-$,
(2) $-(CH_2)_3-CH_2-CF_2-$,
(3) $-(CH_2)_3-O-CH_2-$,
(4) $-(CH_2)_2-O-(CH_2)_2-$,
(5) $-(CH_2-O-(CH_2)_3-$,
(6)

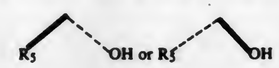


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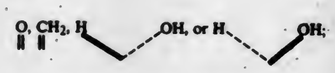
(7)



wherein g is zero, one, two, or three; wherein Q is



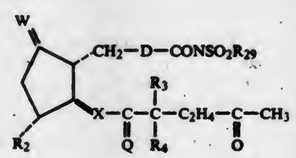
wherein R_5 is hydrogen or methyl, wherein R_{29} is alkyl of one to 4 carbon atoms, inclusive, wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl; wherein R_3 and R_4 are hydrogen, methyl, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro;
wherein W is



and wherein X is cis— or trans—CH=CH— or —C≡C—.

4,276,436
19-KETO-PG SULFONYLAMIDES
John C. Sih, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich.
Division of Ser. No. 025,879, Apr. 2, 1979, abandoned. This application Mar. 20, 1980, Ser. No. 132,226
Int. Cl.^{3} A61K *31/18*; C07C *143/75*
U.S. Cl. 564—98 **5 Claims**

1. A compound of the formula



wherein D is
(1) cis—CH=CH—CH_2—$(CH_2)_8$—CH_2—,
(2) cis—CH=CH—CH_2—$(CH_2)_8$—CH_2—,
(3) cis—CH_2—CH=CH—CH_2—CH_2—,
(4) trans—$(CH_2)_3$—CH=CH—,
(5) —$(CH_2)_3$—$(CH_2)_8$—CH_2—,
(6) —$(CH_2)_3$—CH_2—CF_2—,
(7) —$(CH_2)_3$—O—CH_2—,
(8) —(CH_2)—O—$(CH_2)_2$—,
(9) —CH_2—O—$(CH_2)_3$—,
(10) —(m—Ph)—$(CH_2)_2$—, or
(11) —(m—Ph)—O—CH_2—,
wherein —(m—Ph)— is inter-meta-phenylene and
wherein g is zero, one, two, or three;
wherein Q is α-OH:β-R_5 or α-R_5:β-OH, wherein R_5 is hydrogen or methyl;
wherein R_{29} is hydrogen, alkyl of one to 12 carbon atoms, inclusive, aralkyl of 7 to 12 carbon atoms, inclusive, phenyl, phenyl substituted with one, 2, or 3 chloro or alkyl groups of one to 3 carbon atoms, inclusive, or phenyl substituted with hydroxycarbonyl or alkoxycarbonyl of one to 4 carbon atoms, inclusive;
wherein R_2 is hydrogen, hydroxyl, or hydroxymethyl,
wherein R_3 and R_4 are hydrogen, or fluoro, being the same or different, with the proviso that one of R_3 and R_4 is fluoro only when the other is hydrogen or fluoro; and
wherein W is oxo, methylene, α-OH:β-H, or α-H:β-OH; and

wherein X is cis— or trans—CH=CH—, —C≡C— or $-CH_2CH_2-$.

4,276,437
SHAPE SELECTIVE REACTIONS INVOLVING ZEOLITE CATALYST MODIFIED WITH GROUP IIIB METAL
Chia-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Filed May 23, 1980, Ser. No. 152,939
Int. Cl.^{3} C07C *2/68*, *5/22*, *5/52*
U.S. Cl. 585—467 **25 Claims**

1. A process for conversion of organic compounds, said process comprising contacting said organic compounds with a crystalline zeolite catalyst at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of 10^5 N/m^2 to 10^7 N/m^2, said zeolite being characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said zeolite having undergone prior modification by treatment with one or more compounds containing metal elements of Group IIIB to deposit thereon at least 0.25 weight percent of such element.

14. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises the alkylation of an aromatic compound by contacting said compound with an alkylating agent to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

18. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises the transalkylation of aromatic compounds to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

22. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises disproportionation of alkylbenzenes to produce benzene and dialkylbenzenes in which the proportion of 1,4-dialkylbenzene isomer is in excess of its normal equilibrium concentration.

4,276,438
SHAPE SELECTIVE REACTIONS WITH GROUP IB MODIFIED ZEOLITE CATALYSTS
Chia-Chiun Chu, North Brunswick, N.J., assignor to Mobil Oil Corporation, New York, N.Y.
Filed May 27, 1980, Ser. No. 153,364
Int. Cl.^{3} C07C *2/68*, *5/22*, *5/52*
U.S. Cl. 585—467 **25 Claims**

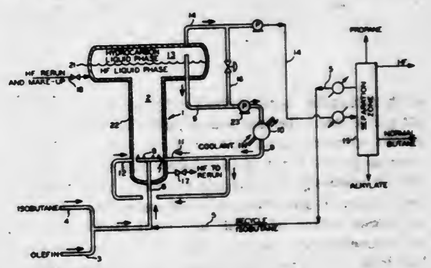
1. A process for conversion of organic compounds, said process comprising contacting said organic compounds with a crystalline zeolite catalyst at a temperature of between about 250° C. and about 750° C. and a pressure within the approximate range of 10^5N/m^2 to 10^7N/m^2, said zeolite being characterized by a silica to alumina mole ratio of at least 12 and a constraint index within the approximate range of 1 to 12, said zeolite having undergone prior modification by treatment with one or more compounds containing elements of Group IB to deposit thereon at least 0.25 weight percent of such element.

14. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises the alkylation of an aromatic compound by contacting said compound with an alkylating agent to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

18. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises the transalkylation of aromatic compounds to produce dialkylbenzene compounds wherein the 1,4-dialkylbenzene isomer is present in excess of its normal equilibrium concentration.

22. The process of claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 or 13 wherein said conversion comprises disproportionation of alkylbenzenes to produce benzene and dialkylbenzenes in which the proportion of 1,4-dialkylbenzene isomer is in excess of its normal equilibrium concentration.

4,276,439
CATALYTIC ALKYLATION METHOD AND APPARATUS WITH HYDROCARBON RECYCLE
Thomas Hutson, Jr.; Donald J. Makovec, and Alden E. Bockworth, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.
Filed Oct. 2, 1979, Ser. No. 81,290
Int. Cl.^{3} C07C *3/54*
U.S. Cl. 585—720 **13 Claims**



1. An alkylation process comprising the steps of:
(a) injecting a feed hydrocarbon stream comprising an isoparaffin and at least one olefin into an alkylation catalyst bed in an alkylation zone under conditions suitable for producing an alkylate, and producing an alkylation effluent comprising the alkylate and the alkylation catalyst;
(b) passing the alkylation effluent to a phase separation zone and therein forming an upper liquid hydrocarbon phase comprising the alkylate and unreacted isoparaffin and a lower alkylation catalyst phase;
(c) withdrawing, as a recycle hydrocarbon stream, a first portion of the liquid hydrocarbon phase from the phase separation zone, cooling the recycle hydrocarbon stream, passing the cooled recycle hydrocarbon stream to the alkylation zone, and injecting the cooled recycle hydrocarbon stream directly into the alkylation catalyst bed without prior contact with the feed hydrocarbon stream;
(d) withdrawing, as a product stream, a second portion of the liquid hydrocarbon phase from the phase separation zone.

4,276,440

THERMOELECTRIC GENERATOR OPERATING WITH A COOLING DEVICE FOR CONVERTING SOLAR ENERGY INTO ELECTRIC ENERGY, AND SYSTEM FOR THE USE THEREOF

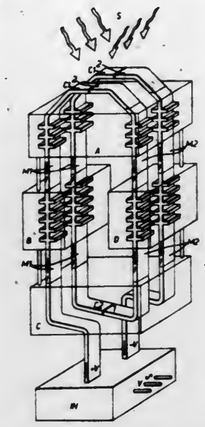
Pierino Cassetti, Via Pentonelleto, 52, Rome, Italy

Filed Apr. 6, 1979, Ser. No. 27,900

Claims priority, application Italy, Apr. 7, 1978, 48789 A/78; Jan. 11, 1979, 47589 A/79; Feb. 1, 1979, 47851 A/79

Int. Cl.³ H01L 35/00

U.S. Cl. 136—206 12 Claims



1. A generator of electric energy for the conversion from solar, thermal energy, or from any other appropriate heat source, consisting in one or more thermocouples combined with an absorption cooling device acting on one of the weldings of the thermocouple(s), wherein the thermocouple(s) are out of materials (M1, M2) provided with the most appropriate electric anc mechanic features, and wherein the absorption cooling device (A, B, C, D) is fed by the same heat supplied along the thermocouple(s) used, and said cooling system acting on that welding of the thermocouple(s) on which, by the Peltier effect, heat is developed, with the purpose of reducing of a maximum the temperature and therefore to maintain at a high level the thermal gradient between hot weldings (C1-2) and cold weldings (C2-1) of the thermocouple(s), thus obtaining a high e.m.f. value and consequently, a high power value.

4,276,441

THERMOELECTRIC GENERATOR AND METHOD OF FORMING SAME

Kenneth T. Wilson, Ocala, Fla., assignor to Wilson International Incorporated, Ocala, Fla.

Filed Feb. 15, 1980, Ser. No. 117,342

Int. Cl.³ H01L 35/00, 35/28

U.S. Cl. 136—206 16 Claims



1. A thermoelectric generator device comprising a suitable substrate strip of a predetermined length and width and having a plurality of spaced apart first and second thermocouple element legs disposed generally along its length in an adjacent relationship, said legs being printed respectively in first and second inks composed of powdered metals, of different electrical conductivity, mixed in a suitable binder; said legs further including oppositely extending overlying printed couple portions at their ends to connect the legs of different conductivity in a manner whereby said legs are electrically coupled to define a first plurality of thermocouples in series; said powdered metals being melted on said substrate to form a solid mass of said legs and couples, with an intermingling of said first and second metals of said couples.

4,276,442

PROTECTIVE CIRCUIT

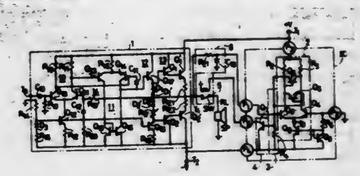
Masanori Iemaka; Masahiro Yamamura, both of Kodaira; Kazuo Watanabe, and Yasuo Kominami, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 29, 1979, Ser. No. 25,839

Claims priority, application Japan, Apr. 21, 1978, 53-46536; Mar. 22, 1979, 54-32291

Int. Cl.³ H02H 3/14, 7/20

U.S. Cl. 179—1 A 4 Claims

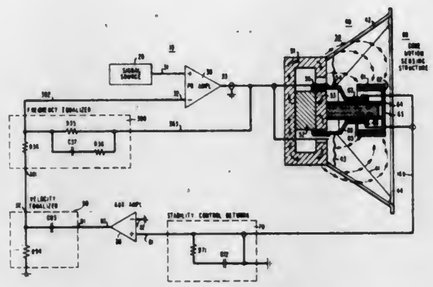


1. A protective circuit for an electric circuit adapted to drive a load comprising: switching means normally connecting the output of said electric circuit to said load, detection circuit means connected to said electric circuit for detecting an electrical characteristic indicating the state of operation of said electric circuit, and means including a driving transistor controlled by the output from said detection circuit means for controlling said switching means to open the connection to said load from said electric circuit when the operation of said electric circuit results in deviation of said electrical characteristic from a predetermined range,

said detection circuit means including a detecting transistor constructed in a semiconductor integrated circuit, said detecting transistor having a first input electrode connected to receive a signal representative of said electrical characteristic of said electric circuit through an input terminal for external connection to said semiconductor integrated circuit, means for biasing said detecting transistor so as to allow a predetermined electric current to flow therethrough when the electrical characteristic of said electric circuit falls within said predetermined range, a reference transistor connected in a differential manner to said detecting transistor, said reference transistor having a first input electrode connected to receive a reference level corresponding to the level of said signal applied to said detecting transistor when the electrical characteristic of said electric circuit falls within said predetermined range, and first and second switching transistors having respective first input electrodes connected to the output electrodes of said detecting transistor and said reference transistor, in such a manner that either one of said first and second switching transistors is turned on when said output electrodes of said detecting and reference transistors take a low level and a high level, respectively, or, alternatively, when said output electrodes of said detecting and reference transistors take a high level and a low level, respectively, the output signals derived from said output electrodes of said first and second switching transistors being applied to a first input terminal of said driving transistor so that the output of said detecting transistor is applied to drive said driving transistor, by a change in said predetermined electric current caused by a change in said signal received by said first input electrode or a breakdown of said detecting transistor itself, so as to cause said driving

transistor to control said switching means to open the connection to said load from said electric circuit.

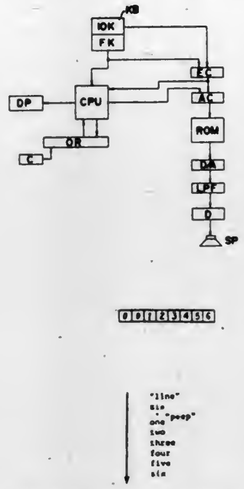
4,276,443
SOUND REPRODUCING SYSTEM UTILIZING MOTIONAL FEEDBACK AND VELOCITY-FREQUENCY EQUALIZATION
Stanley T. Meyers, 122 N. Riverside St., Red Bank, N.J. 07701
Filed Aug. 17, 1979, Ser. No. 67,515
Int. Cl.³ H04R *3/04*
U.S. Cl. 179—1 F **14 Claims**



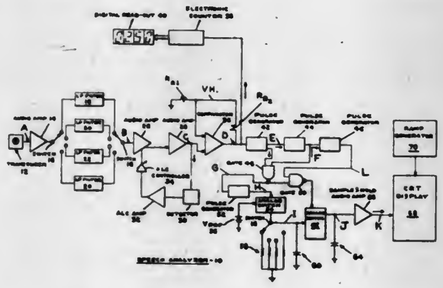
1. A sound reproducing system comprising:
first amplifying means being jointly responsive to an input source signal and to a second equalizer output signal;
sound energy producing means being responsive to said first amplifying means;
means for sensing the sound energy output of said sound energy producing means thereby providing a motional feedback signal;
second amplifying means being responsive to said motional feedback signal for producing a second amplifying means output signal;
first equalizer means being responsive to said second amplifying means output signal for producing a first equalizer means output signal, said first equalizer means loss characteristic exhibiting a positive slope in the range between relatively low frequencies and relatively high frequencies;
second equalizer means being associated with said first amplifying means and being responsive to said first equalizer means output signal for producing said second equalizer output signal, said second equalizer means loss characteristic exhibiting a constant value at said relatively low frequencies, a positive slope in the range between said relatively low frequencies and said relatively high frequencies, and a zero value at said relatively high frequencies;
whereby said sound energy producing means radiates a substantially uniform sound energy output in the range between said relatively low frequencies and said relatively high frequencies.

4,276,444
SYNTHETIC-SPEECH CALCULATORS
Akira Tanimoto, Kashihara; Sigeaki Masuzawa, Nara; Shinya Shibata, Nara, and Shinzo Nishizaki, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Division of Ser. No. 877,883, Feb. 15, 1978, Pat. No. 4,211,892.
This application Aug. 22, 1979, Ser. No. 68,702
Claims priority, application Japan, Feb. 15, 1977, 52/17798[U]; Feb. 21, 1977, 52/19660; Feb. 25, 1977, 52/20493
Int. Cl.³ G10L *1/00*; G06F *3/16*
U.S. Cl. 179—1 SM **7 Claims**

1. A synthetic speech calculator comprising:
means for entering data into said calculator; and
audible sound generating means responsive to actuation of said means for entering for generating audible sounds in response thereto, wherein said audible sounds comprise,
a first audible sound generated in response to actuation of said means for entering, said first audible sound indicative of a particular characteristic associated with said data,
a second audible sound generated in response to the completion of generation of said first audible sound, said second audible sound being a monotone signal for separating selected groups of audible sounds, and
a third audible sound generated in response to the completion of generation of said second audible sound, said third audible sound being indicative of said data entered via said means for entering.

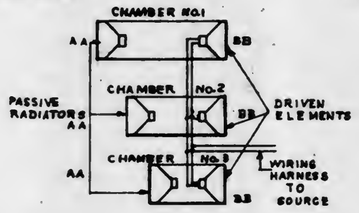


4,276,445
SPEECH ANALYSIS APPARATUS
William D. Harbeson, Boonton, N.J., assignor to Kay Elemetrics Corp., Pine Brook, N.J.
Filed Sep. 7, 1979, Ser. No. 73,201
Int. Cl.³ G10L *1/00*
U.S. Cl. 179—1 SC **6 Claims**



1. Speech analysis apparatus comprising: transducer means for converting speech sounds into electrical signals; low pass filter means connected to said transducer means for extracting the pitch frequency from the electrical signals representing the speech sounds; frequency-to-voltage generator means responsive to said low pass filter means for a generating voltage whose amplitude is a function of the pitch frequency extracted from said electrical signals; means for displaying the output of said frequency-to-voltage generating means; said frequency-to-voltage generating means further comprising pulse generating means for generating at least one pulse for each cycle of pitch frequency and converting means for converting the time between adjacent pulses to a voltage level,
wherein said pulse generating means includes means for generating two sequential pulses for each cycle of pitch frequency and wherein said converting means comprises a source of a reference voltage, a resistance-capacitance network, first switching means operative during the presence of one of the two sequential pulses for connecting said source of reference voltage to said resistance-capacitance network to establish a time decaying voltage across said network, a voltage holding means and a second switching means operative during the presence of the other of the two sequential pulses for connecting said resistance-capacitance network to said voltage holding means.

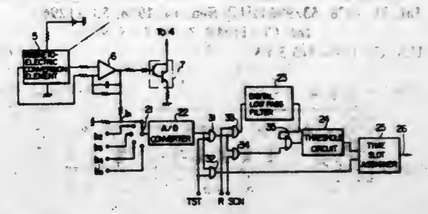
4,276,446
ACOUSTIC TRANSDUCER SYSTEM
Anthony R. Taddeo, 800 Corwin Rd., Rochester, N.Y. 14610
Filed Oct. 5, 1979, Ser. No. 82,034
Int. Cl.³ H04R *1/20*
U.S. Cl. 179—1 E **3 Claims**



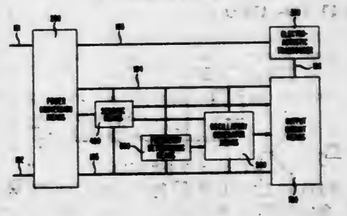
1. An acoustical speaker system, comprising
a plurality of speaker housings each having therein a chamber,
an active speaker element mounted in each of said chambers adjacent one end thereof and disposed to be connected to an electrical audio signal source to be driven thereby, and
a passive speaker element mounted in each of said chambers adjacent the opposite end thereof and acoustically coupled to the associated driven speaker in said chamber, thereby to be driven by the acoustical signals developed in said chamber by said associated speaker, and
each of said chambers having a fundamental resonant frequency which is different from that of each of the other chambers.

4,276,447
SIGNAL PROCESSING APPARATUS FOR SUBSCRIBER CIRCUITS
Hirotoshi Shirasu, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 3, 1979, Ser. No. 63,470
Claims priority, application Japan, Aug. 11, 1978, 53-109471[U]; Mar. 2, 1979, 54-24138
Int. Cl.³ H04Q *3/28*
U.S. Cl. 179—18 FG **7 Claims**

1. A signal processing apparatus for subscriber circuits comprising:
an analog signal extracting circuit provided in each of said subscriber circuits for outputting analog signals changing in accordance with a D.C. signal and a ringing signal flowing into said each subscriber circuit;
an analog multiplexing circuit connected to the output terminal of each of said plurality of extracting circuits;
an analog-to-digital converter connected to the output terminal of said analog multiplexing circuit; and
a signal processing circuit connected to the output terminal of said analog-to-digital converter and receiving successively and periodically a digital signal corresponding to the output signal of each of said extracting circuits for processing said digital signal to detect the state of each of said subscriber circuits, said reception of said digital signal being made by sending a selective signal to said analog multiplexing circuit to extract said signal flowing through the circuit of a subscriber who has just been called, receiving periodically a digital signal corresponding to said extracted signal, filtering said digital signal by a low pass filter, and comparing said filtered digital signal with a threshold level to detect whether said subscriber has made a response or not.



4,276,448
ELECTRONIC TONE RINGER
Milton L. Embree; David C. Goldthorp, both of Reading, Pa., and David R. Vogelpohl, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Aug. 20, 1979, Ser. No. 67,718
Int. Cl.³ H04M *1/00*
U.S. Cl. 179—84 T **18 Claims**



18. A tone ringer operatively responsive to the reception of ringing signals over input lines, the ringer comprising:
an electroacoustic transducer (300) for producing an audible output,
oscillatory generator means (500) for activating the electroacoustic transducer, characterized in that
the tone ringer includes constant current generators (223, 224, 225, 226) for operation of the oscillatory generator means, and
power conversion means (200) responsive to ringing signals across the input lines for supplying energy to the constant current generators and to the electroacoustic transducer, and for providing voltage reference levels to the oscillatory generator means, the constant current generators further comprising a plurality of current mirrors connected to one or the other of a pair of output lines from the power conversion means.

4,276,449
SPEAKER OR MICROPHONE HAVING CORRUGATED DIAPHRAGM WITH CONDUCTORS THEREON

Tadashi Sawafuji, No. 9-15 Nishi-Sugamo 1-chome, Toshima-ku, Tokyo, Japan

Filed May 30, 1979, Ser. No. 43,636
Claims priority, application Japan, Jun. 1, 1978, 53/66198; Jul. 21, 1978, 53/99611[U]; Sep. 14, 1978, 53/112962
Int. Cl.³ H04R 7/14, 7/18, 9/04
U.S. Cl. 179—115.5 PV 14 Claims

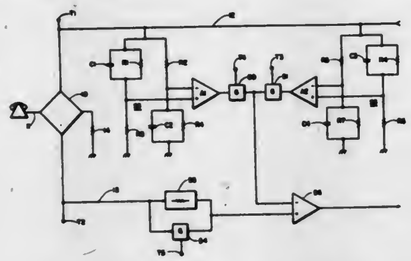


1. An acoustic transducer which includes a rectangular, thin film member which is corrugated to form a number of elongate, arcuate corrugations wherein conductors are applied in series relation on at least one surface of each trough portion and each peak portion between adjacent arcuate corrugations such that sound currents flow through the conductors on each trough portion in the same direction while the sound currents flow through the conductors on each peak portion in the opposite direction to those flowing through each trough portion, and in which rod-like permanent magnets extending parallel to the conductors on each trough portion and generating magnetic fluxes in the same direction are retained over the substantially entire length between adjacent trough portions and both surfaces of each side edge of the diaphragm are supported by support members which are expandable and contractable only in the direction extending perpendicularly to the diaphragm.

4,276,450
METHOD AND APPARATUS FOR IMPROVING TELEPHONE HYBRID NETWORK

Adam Chowaniec, Ottawa, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Sep. 5, 1979, Ser. No. 72,365
Int. Cl.³ H04B 3/20
U.S. Cl. 179—170 D 2 Claims



1. A circuit for improving the singing return loss between the opposed four-wire input and output of a hybrid network for the two-wire to four-wire interface of a telephone line, comprising:

a signal generator for connecting a transmit test signal to said input;

characterized by:

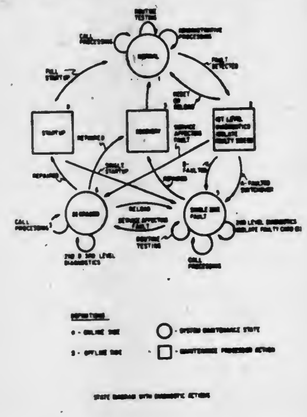
means for determining whether the phase of the return test signal at said output relative to the transmit test signal at said input is within a preselected range for inductively loaded lines;

a control circuit responsive to the phase determining means for connecting a first impedance network between the four-wire input and output of the hybrid network when the return test signal is within said range, and for connecting a second impedance network between the four-wire input and output when the return test signal is outside said range.

4,276,451
CONTROL SYSTEM FOR TELEPHONE SWITCHING SYSTEM

Otto W. Beebe, Maitland; Ernest O. Lee, Longwood; Richard I. Sabrin, Alta Monte Springs; Barrie Brightman, Fern Park, all of Fla., and George C. Hanson, San Antonio, Tex., assignors to Stromberg-Carlson Corporation, Tampa, Fla.

Filed Feb. 9, 1979, Ser. No. 10,910
Int. Cl.³ H04M 3/22; H04Q 3/54
U.S. Cl. 179—175.2 C 24 Claims



1. A telephony system for routing communications over a plurality of telephone lines, said system comprising:

A. port connection means connected to the telephone lines for receiving signals therefrom and for transmitting signals thereto,

B. first and second, parallel, independently operable call processing means for interconnecting, on a selective basis, certain of the telephone lines, each said call processing means operating concurrently in response to the same signals from said port connection means by generating output signals,

C. synchronizing means connected to both said call processing means for synchronizing the operation of said first and second call processing means,

D. controllable switching means interposed between said port connection means and both said call processing means for coupling the output signals from a selected one of said call processing means to said port communications means to complete communications between said port connection means and the selected one of said call processing means,

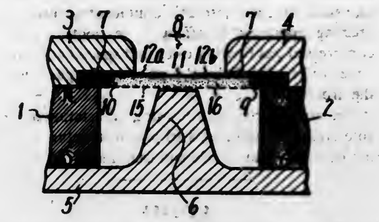
E. fault monitoring means connected to each of said call processing means for generating fault signals in response to fault conditions in said call processing means, and

F. switchover means connected to said fault monitoring means and said controllable switching means and operable independently of both said call processing means for testing each said call processing means in response to certain of said fault signals thereby to identify one of said call processing means as the source of the fault condition and to cause said controllable switching means to couple output signals from the other of said call processing means to said port connection means.

4,276,452
MEMBRANE TYPE ELECTRO-ACOUSTIC TRANSDUCER

Hideo Suyama, Yokohama, and Masuzo Ugaji, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 2, 1979, Ser. No. 63,032
Claims priority, application Japan, Aug. 15, 1978, 53-99293
Int. Cl.³ H04R 7/26
U.S. Cl. 179—180 7 Claims



1. An electro-acoustic transducer comprising:

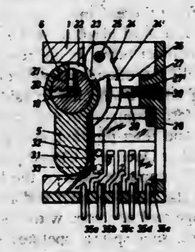
(a) a magnetic circuit structure having at least one air gap; and

(b) a vibrative structure disposed in said air gap; said vibrative structure comprising a frame member having at least one opening, a membrane fixed on said frame member so as to cover said opening, an acoustic-transparent member fixed on said frame member so as to form a space between said membrane and acoustic-transparent member, and an acoustic damping material disposed in said space in such a manner that said acoustic damping material smoothly contacts said membrane.

4,276,453
ELECTRIC SWITCHING DEVICE ON A ROTARY CYLINDER LOCK

Heinz Wolter, Kirten, Fed. Rep. of Germany, assignor to BOM-Sicherheitstechnik GmbH & Co. KG, Brühl, Fed. Rep. of Germany

Filed Dec. 14, 1979, Ser. No. 103,794
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1978, 2854424
Int. Cl.³ H01H 27/00, 27/06
U.S. Cl. 200—44 16 Claims



1. In an electric switching device on a rotary cylinder lock having a rotatable core and with core pins which are controlled by a key, the stroke of the core pins bringing contact lugs in contact position relative to a counter-contact surface, the improvement comprising

a plurality of counter-contact surfaces being adjacent to each other and formed into a row,

at least one transmission lever having a free end forming a contact lug,

at least one core pin constituting means for being controlled by the form of the key and for operatively acting on said transmission lever for moving the latter dependent on the extent of control of the core pin by the form of the key, said transmission lever being mounted relative to said row of counter-contact surfaces such that via said core pin which is controlled by the form of the key, said contact lug is slidable over at least a portion of said row of counter-contact surfaces.

4,276,454
WATER LEVEL SENSOR

William J. Zathen, 1883-2 Pepper Valley La., El Cajon, Calif. 92021

Filed Mar. 19, 1979, Ser. No. 21,691
Int. Cl.³ H01H 29/00
U.S. Cl. 200—61.05 1 Claim



1. A sensing device for determining the level of a fluid comprising:

(a) an electrical connector connected to a lead cable with a three-wire breakout and defining three parallel downwardly directed sockets connected respectively to said three wires;

(b) two pre-formed conductor elements plugged into two of said three sockets and defining respectively two depending probes each having an insulation sheath completely covering same except for the tip thereof;

(c) a third pre-formed conductor element plugged into the third of said sockets and defining a horizontally extended probe having an insulation sheath completely covering same except for the tip thereof; and

(d) a solid block of an insulating, impermeable mass completely encapsulating said connector and said conductor elements except for the ends of said probes so that the exterior surface of said block intersects the insulation sheaths of said probes and said cable beyond the three-wire breakout, whereby all elements extending from said block are imbedded in said block up to and beyond their areas of greatest insulation.

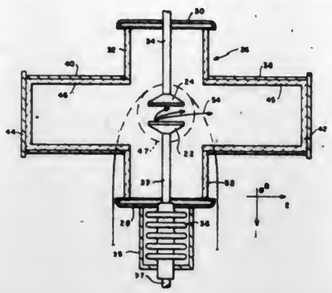
4,276,455
VACUUM ENVELOPE FOR CURRENT LIMITER

Clive W. Kimblin, and Paul G. Slade, both of Pittsburgh, Pa., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Aug. 5, 1977, Ser. No. 822,198
Int. Cl.³ H01H 33/66
U.S. Cl. 200—144 B 17 Claims

1. A current interrupter for rapidly interrupting currents associated with power line faults comprising: an evacuated envelope having spaced end portions and an intermediate insulating portion sealed to said end portions; a pair of electrode members within said envelope each supported by one of said end portions of said envelope, said electrode members being relatively movable within said envelope into mutual contact to complete an electrical path and also being separable to induce current interruption wherein an arc arises between said electrode members after separation carrying current generally along a current path; said insulating portion of said envelope being spaced from and surrounding said electrode members, and means for producing a magnetic field between said electrode members having lines of magnetic flux oriented

along a direction B which is perpendicular to said current path j to deflect an arc current flowing along current path j in the j X B direction, said insulating portion including a pair of pro-



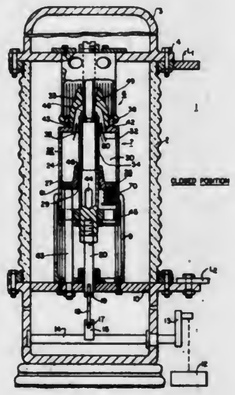
truding portions which extend outwardly from said electrode member along direction j X B to provide a pair of interior concavities in said envelope positioned to correspond substantially with direction j X B for the various polarities of j and B.

4,276,456

DOUBLE-FLOW PUFFER-TYPE COMPRESSED-GAS CIRCUIT-INTERRUPTER

Charles F. Cromer, Penn Township, Allegheny County, and Kue H. Yoon, Pittsburgh, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 23, 1978, Ser. No. 953,503
Int. Cl.[3] H01H 33/88
U.S. Cl. 200—148 A 4 Claims



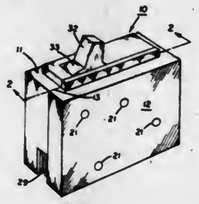
1. A puffer-type gas-insulated circuit interrupter comprising:
a stationary contact structure including stationary main and arcing contacts;
a cooperable movable contact structure including a movable main contact, a movable arcing finger contact assembly including a cluster of circumferentially-disposed arcing contact fingers having longitudinal slots between the finger portions thereof, and a tubular sleeve shield disposed in encompassing relationship with said movable cluster of arcing contact fingers to prevent premature leakage of compressed gas through said longitudinal slots during the opening operation;
means defining a relatively-stationary piston structure having a plurality of metallic cooling vanes spaced apart and protruding in the general direction of said stationary contact structure;
a movable operating cylinder movable over said piston structure and carrying said movable contact structure;
a movable hollow insulating nozzle movable with said movable operating cylinder, said hollow nozzle encompassing said stationary arcing contacts and said movable arcing contact fingers when in the closed position,
a gas compressed between said operating cylinder and said piston structure during an opening operation and flowing through said hollow nozzle into the arc drawn between said stationary and movable contact structures during the opening operation to effect the extinction thereof, said compressed gas flowing over said spaced cooling metallic vanes to be cooled thereby prior to the gas injection into the arc; and
an outer casing structure enclosing said stationary and movable contact structures, said piston structure, said operating cylinder, said nozzle and said gas.

4,276,457

CIRCUIT BREAKER HAVING PLANAR CRADLE WITH EDGE PORTIONS PROVIDING RELATCHING AND CONTACT KICKER FUNCTIONS

Felix E. Myers, Cherry Hill, N.J., assignor to Gould Inc., Rolling Meadows, Ill.

Filed Jul. 30, 1979, Ser. No. 62,442
Int. Cl.[3] H01H 73/50
U.S. Cl. 200—153 G 9 Claims



1. A circuit breaker including a stationary contact, a movable contact, a movable contact arm, an operating member, a contact operating spring, a releaseable cradle, releasable latch means for holding said cradle in a reset position, and a narrow housing to which said member and said cradle are movably mounted on respective first and second pivots extending widthwise of said housing; said operating member including a manually engageable forward portion disposed externally of said housing at the front thereof and a rear portion within said housing connected at a third pivot to said arm at its forward end; said movable contact being at the rear of said arm and being engageable with and disengageable from said stationary contact; said spring being connected to said cradle and said arm, and exerting a force component urging said arm forward; with said cradle in said reset position, as said member moves between circuit breaker Open and Closed positions, said third pivot being moved to opposite sides of the line of action for said spring whereby the latter operates said arm to respectively disengage and engage said contacts; with said cradle released by said latch means, said spring operates said cradle to a tripped position and said member to a trip indicating position intermediate said Open and Closed positions; said cradle being a relatively thin planar member; said rear portion of said operating member including a reset formation engageable with a resetting edge formation integrally formed with said cradle whereby with said cradle tripped, operation of said member from said trip indicating position to said Off position causes said reset formation to engage said resetting edge and thereby move said cradle to said reset position; said cradle further including a latching tip engageable by said latch means; said tip and said first pivot being at opposite ends of said cradle; said spring being connected to said cradle at a connecting point intermediate the ends of said cradle; and said resetting edge

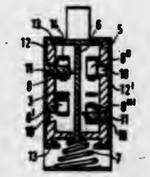
formation being disposed between said tip and said connecting point.

4,276,458

SWITCH ARRANGEMENT WITH SWITCH CONTACTS WHICH CAN BE CHANGED AS DESIRED TO NORMALLY OPEN OR NORMALLY CLOSED OPERATION

Siegfried Alter, Solingen-Grifrath, Fed. Rep. of Germany, assignor to Metzenmacher & Jung GmbH, Wuppertal, Fed. Rep. of Germany

Filed Oct. 31, 1979, Ser. No. 89,812
Claims priority, application Fed. Rep. of Germany, Nov. 6, 1978, 2848105
Int. Cl.[3] H01H 3/14
U.S. Cl. 200—153 J 12 Claims



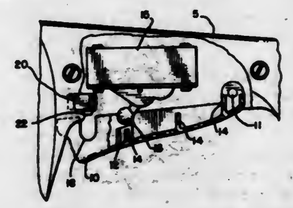
1. In a switch arrangement with switches fully equipped both for normally closed and for normally open switch operation, in which, by an insulating part which can be selectively placed operatively with respect to the contact pieces cooperating as breaker or the contact pieces cooperating as maker, the contact pieces defining cooperative contact places, one type of switch operation respectively in each case is blocked, the improvement comprising
a housing, the contact pieces are operatively disposed inside of said housing,
an insulating part is formed with abutment stops, said insulating part is mountable on said housing in two selective installed positions, in both of the installed positions said abutment stops are disposed outside of the contact places and operatively abut and block one of the cooperating contact pieces from making contact, with an air space between said cooperating contact pieces.

4,276,459

PADDLE SWITCH SAFETY BUTTON

Daniel E. Willett, West Springfield; John A. Boothroyd, Amherst, and William P. Langlois, Greenfield, all of Mass., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jun. 16, 1980, Ser. No. 159,912
Int. Cl.[3] H01H 3/20, 21/04
U.S. Cl. 200—157 3 Claims



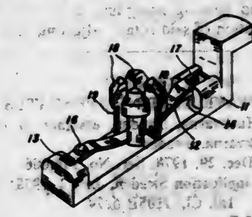
1. A safety switch assembly comprising:
a substantially linear elongate paddle switch lever attached to a tool at its one end by pivot means;
said paddle switch lever having a hollow U-shaped cross-section with a recess formed in each of the opposite wall sections of the "U";
said recess being formed in the other end of said paddle switch lever;
a safety button means mounted for translation along an axis perpendicular to the longitudinal axis of said elongate paddle switch lever;
a first portion of said safety button means having a cross section which fits into said recess;
a second portion of said safety button means having a cross section which interferes with said paddle switch lever to prevent its rotation about said pivot means, whereby the paddle switch is prevented in its operation;
said safety button means being located towards the other end of said paddle switch lever;
said safety button means being comprised of a multi cross section plunger element which coacts with said recess when said safety button means is translated along its axis from its normal position to its depressed position; and
said safety button means being biased towards its normal position by a spring.

4,276,460

PRINTED CIRCUIT BOARD SWITCH

Barry F. Healy, Richardson, and Hall E. Jarman, Princeton, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed May 29, 1979, Ser. No. 42,867
Int. Cl.[3] H01H 9/00
U.S. Cl. 200—292 5 Claims



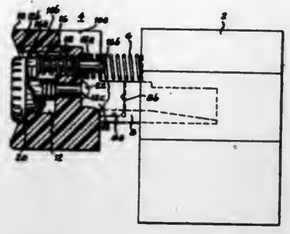
1. A switch subassembly adapted for combination with a circuit board comprising:
(a) a non-conducting elongated housing shaped to include a circular post sized for insertion into opening on said circuit board and having a beveled outer edge, the outermost length of the post shaft having a larger diameter than the innermost part, creating a shoulder at the junction of the two sizes of the post; said post having a first slot cut therein, the centerline of said slot in said post coincidental with the centerline of the housing base long dimension, also said post having a second slot cut therein, perpendicular to said first slot; said housing also including a raised section on either end, each said section having a notch cut into the raised section, said notch having the same width and a centerline coincident with said centerline of said first notch; said housing also to include a handle at one end of housing; and
(b) a conductive spring, formed as a flat ribbon, having two contact surfaces, with a concave shape between the two contact surfaces, and each end bent downward to provide support for said contact surfaces, located in said housing in said first slot in said shaft, the ends of said spring fitted in said notches cut into raised sections of said housing.

4,276,461

ADJUSTABLE TRIGGER STOP

Earl T. Piber, Oconomowoc, Wis., assignor to Eaton Corporation, Cleveland, Ohio

Filed Nov. 1, 1979, Ser. No. 90,116
Int. Cl.³ H01H 9/06
U.S. Cl. 200—329 8 Claims



1. In an electric switch having a housing enclosing electric power control means including an actuatable switch operating lever extending from said housing, an integral adjustable stop for selecting any one of a multiplicity of operating positions to which said switch operating lever may be actuated comprising:

a spring-biased stop member mounted within said operating lever for movement toward said housing thereby to vary the amount that said switch operating lever may be actuated before said stop member abuts said housing;

a rotary adjusting member mounted in said switch operating lever and comprising a sloping track engaging said spring-biased stop member;

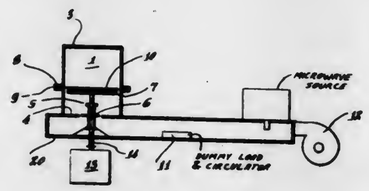
and said spring-biased stop member and said sloping track of said rotary adjusting member having inter-engaging means for adjusting and retaining said spring-biased stop member in any one of a multiplicity of abutment positions relative to said housing according to the direction and amount of rotation of said rotary adjusting member.

4,276,462

MICROWAVE HEATING APPARATUS

Per O. Risman, Huskvarna, Sweden, assignor to Husqvarna Aktiebolag, Huskvarna, Sweden

Filed Dec. 29, 1978, Ser. No. 974,606
Claims priority, application Sweden, Jan. 2, 1978, 7800016
Int. Cl.³ H05B 6/74
U.S. Cl. 219—10.55 F 11 Claims



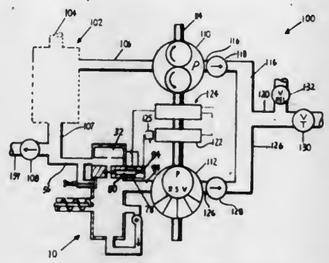
1. In a microwave heating apparatus including a cylindrical chamber having a circular wall at one end, a microwave source and means directing microwaves from said source to said chamber, the improvement wherein said directing means comprises a coaxial transmission line extending through the center of said circular wall of said chamber, and a sonde antenna terminating said line in said chamber, for supplying electric energy to said chamber, microwave transparent load positioning means shaped to position a disc-shaped load in a plane normal to the axis of said chamber at a distance approximately half the height of the chamber from said sonde antenna, said chamber having a height z_o between $0.8r_o$ and $4r_o$, wherein r_o is the chamber radius, and wherein the diameter of said chamber is between 0.77 times the wavelength of said microwaves and the diameter of the chamber for empty resonance for TM_{011} mode microwaves, whereby said chamber will be resonant for water containing disc-shaped loads on said supporting means in the TM_{011} mode and will support microwaves in the TM_{010} mode in the absence of water in said load.

4,276,463

LASER POWERED SOLID FUEL DISINTEGRATOR

Wellesley R. Kime, 8745 Appian Way, Los Angeles, Calif. 90046

Filed Jun. 14, 1979, Ser. No. 48,469
Int. Cl.³ B23K 26/14; B02C 19/18, 23/24
U.S. Cl. 219—121 LB 14 Claims



1. A laser powered solid fuel disintegrator having a housing closed to the atmosphere, means for the intake of solid fuel particles into the housing, means for replacing oxygen from the interior of the housing by replacing the oxygen with a gaseous substance comprising essentially nitrogen, means for applying laser beams to the solid fuel particles for disintegration of the fuel particles and production of disintegration fuel, means for discharging a mixture of disintegration fuel and nitrogen from the housing, further comprising:

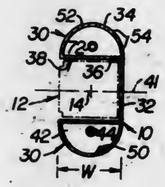
a control unit for controlling the rate of disintegration of the solid fuel particles by the laser beams, the control unit having means for passing the fuel mixture through the control unit and controlling the rate of disintegration of solid fuel particles by the laser beams with respect to the volume flow of the fuel mixture passed through the control unit.

4,276,464

FUME EXTRACTING DEVICE FOR A WELDING APPARATUS

Melvin L. Forsey, Metamora, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill.

Filed Oct. 23, 1978, Ser. No. 953,574
Int. Cl.³ B23K 9/16
U.S. Cl. 219—136 5 Claims



1. A welding device (10, 12, 64) comprising in combination:

a welding gun (12) having a central plane (41) transverse to a normal direction of longitudinal movement of the gun (12); and

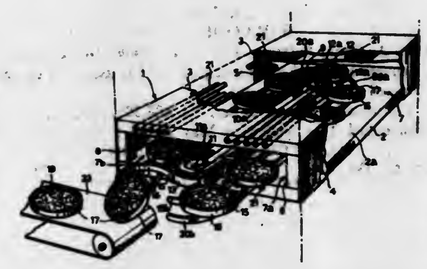
a fume extracting and gas shielding device (10,64) including first and second body portions (30) individually having an exterior surface (52), an internal fume collecting chamber (50) and a plurality of fume inlet passages (54) connecting said chamber (50) and said exterior surface (52); bridging means (32) for maintaining said first and second body portions (30) in a preselected aligned relationship to each other substantially symmetrically on the opposite sides of said central plane (41) and said welding gun (12), said bridging means (32) and said first and second body portions (30) defining elongate cavity (38) of a construction sufficient for receiving a portion of said welding gun (12), and said bridging means (32) being of a construction sufficient for being releasably connected to said welding gun (12); and first and second gas shielding devices (64), said first shielding device (64) being connected to said first body portion (30) and said second shielding device (64) being connected to said second body portion (30).

4,276,465

ELECTRIC OVEN FOR THE CONTINUOUS BAKING OF PIZZAS

Rinaldi Flavio, Massa, Italy, assignor to Superforni Rinaldi S.p.A., Italy

Filed Jun. 1, 1978, Ser. No. 911,492
Int. Cl.³ A21C 1/42
U.S. Cl. 219—388 13 Claims



1. An electric oven for the continuous baking of a food product in baking tins, comprising:

a structure defining a baking chamber;

heater means in said baking chamber;

a continuously driven conveyor means for conveying in succession through said baking chamber a number of food products placed in individual baking tins, and access means affording access to the conveyor means from outside the baking chamber for the loading of food products to be baked and the unloading of baked food products wherein the improvement comprises:

said access means defining an opening defined in the front of the baking chamber through which said chamber is accessible from the outside;

said conveyor means comprising a horizontal endless conveyor provided with a plurality of pallet members and having support and drive wheels with vertical axes of rotation;

said conveyor extending longitudinally within the baking chamber and defining within said chamber two contiguous areas both of which are accessible from outside the oven through the said front opening;

a horizontal support track comprising at least two spaced rails extending longitudinally within said two areas of the baking chamber below the pallet members of said conveyor, said baking tins having a bottom surface which is directly exposed to heat generated by said heating means in said baking chamber and being slidable along said support track, and

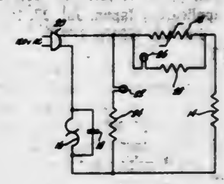
said support track projecting outside the baking chamber through said front opening for readily loading baking tins into the oven and readily unloading baking tins therefrom including a first end portion defining a horizontal loading portion on which said baking tins are positioned for subsequent engagement by said conveyor means for transportation through said baking chamber and a second end portion being sloped downwardly from said horizontal support track defining a discharge portion for disengaging said baking tins from said conveyor means.

4,276,466

HEATER WITH DISTRIBUTED HEATING ELEMENT

Lee M. Middleman, Portola Valley, Calif., and Roger S. Goodrich, Smyrna, Ga., assignors to Raychem Corporation, Menlo Park, Calif.

Filed May 11, 1979, Ser. No. 38,218
Int. Cl.³ H05B 3/80
U.S. Cl. 219—523 47 Claims



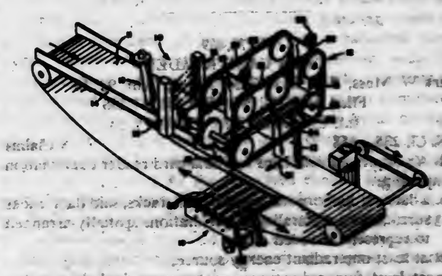
1. An article for heating a liquid comprising: (a) a water-impermeable housing fabricated from a meltable material having a notched Izod impact strength of at least about 0.5 ft-lbs/in. and (b) a flexible heating element within the housing and in intimate engagement with the housing, the flexible heating element being capable of providing from about 1 to about 10 watts per square inch of surface area of the heating element.

4,276,467

APPARATUS FOR RECEIVING EMPTY BEVERAGE CONTAINERS

Gregory T. Dabberly, Atlanta, Ga., and Robert J. McGowan, Xenia, Ohio, assignors to The Mead Corporation, Dayton, Ohio

Filed Jul. 17, 1978, Ser. No. 924,955
Int. Cl.³ G06M 7/00
U.S. Cl. 235—92 PK 19 Claims



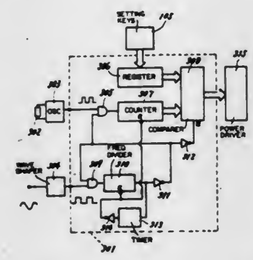
1. In an apparatus for receiving empty containers comprising conveyor means for accepting said containers and carrying them to a storage area, alignment means for aligning said containers in single file along said conveyor means, discrimination

means for directing illumination across the path of movement of said containers, photosensing means for generating sensing signals indicating the presence of a container within said illumination, and identification means responsive to said photosensing means for identifying containers being sensed thereby; the improvement wherein said identification means comprises clock means for generating clock pulses corresponding to the movement of said conveyor means, counting means for counting said clock pulses, count initiating means responsive to said sensing signals for activating said counting means to count to a predetermined minimum count when a sensing signal indicates a light-to-dark transition, and signal generating means for generating a registration signal when said sensing signal undergoes a dark-to-light transition while said counting means is counting within a predetermined counting range following said minimum count.

4,276,468
ELECTRIC HOME APPLIANCES

Shun'ichi Nagamoto, Nara, and Kazuho Sakamoto, Kyoto, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 20, 1978, Ser. No. 926,505
Claims priority, application Japan, Jul. 27, 1977, 52/90719
Int. Cl.³ G06M 3/02
U.S. Cl. 235—92 CT 9 Claims



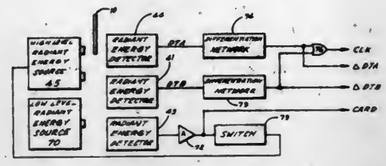
1. An electric home appliance incorporating a control system comprising sensor means having an impedance value variable with variations in temperature, humidity or other state; a control circuit connected to the sensor means and including oscillator means, counter means for counting the number of oscillating output pulses from the oscillator means, and means for determining gating time for the counter means; characterized in that the oscillator means has an oscillation frequency directly defined by the impedance value of the sensor means, the oscillator means having an oscillation time constant determined by a plurality of impedance elements independent of the electric impedance of the sensor means, and change-over switch means for selectively connecting said independent impedance elements to the oscillator means.

4,276,469
DATA CARD READER

Mark W. Moss, P.O. Box 17024, Irvine, Calif. 92713

Filed Aug. 17, 1979, Ser. No. 67,285
Int. Cl.³ G06K 7/10, 21/00, 19/06
U.S. Cl. 235—458 8 Claims

1. An improved data card and data card reader combination comprising:
a. a data card incorporating two data tracks, said data tracks surrounding a plurality of perforations spatially arranged to represent encoded data;
b. at least one radiant energy source;
c. at least two radiant energy detectors, including a first radiant energy detector and a second radiant energy detector;
d. guide means for guiding the movement of said data card with respect to said first and said second radiant energy detectors whereby said detectors may produce a first and a second data pulse train corresponding to the perforations of said respective data tracks;
e. first and second differentiation networks for receiving respectively said first and said second data pulse trains whereby said differentiation networks may produce a first and a second differentiated data pulse train;

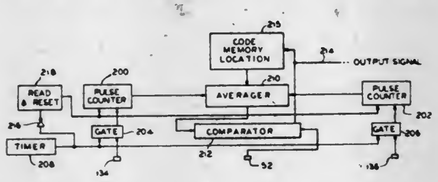


f. clock generating means for combining said first and said second differentiated data pulse trains whereby a clock pulse train may be produced; and
g. a serial to parallel converter receiving said clock pulse train and at least one of said differentiated data pulse trains whereby the coincidence of said clock pulse train and said differentiated data pulse trains may be stored as binary code values.

4,276,470
BAR CODE READER

Bruce A. Rady, Palatine; Thomas R. Wells, Des Plaines, and Kenneth Hendrickson, Chicago, all of Ill., assignors to Bell & Howell Company, Chicago, Ill.

Continuation-in-part of Ser. No. 808,205, Jun. 20, 1977, abandoned. This application May 21, 1979, Ser. No. 40,778
Int. Cl.³ G06K 7/10, 19/06; G08C 9/06
U.S. Cl. 235—463 31 Claims

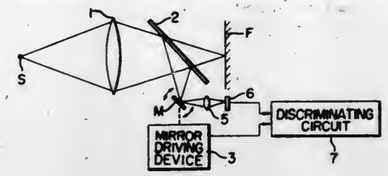


1. A system for reading bar codes on a travelling web by means of a single sensor, each of said bar codes comprising a series of wide and narrow marks separated by spaces, each of said narrow marks and each of said spaces having the same predetermined width, each of said wide marks being twice as wide as each of said narrow marks, whereby the width of a combination of a mark and an adjacent space may be equal to either two or three times said predetermined width, said system comprising:
a. a single stationary sensor means positioned adjacent said travelling web to read and give non-overlapping output signals responsive to each of said marks and spaces as they appear before said sensor responsive to the travelling of said web;
b. means for two-state comparing of the non-overlapping output signals of said sensor responsive to each mark with the non-overlapping output signals of said sensor responsive to at least one space immediately adjacent the sensed mark;
c. means responsive to said comparing of the mark and adjacent space for indicating whether the width of said non-overlapping sensed mark is equal to or wider than said non-overlapping sensed space; and
d. means for signalling the intelligence of the bar code having the sensed marks and spaces responsive to said indicating means.

4,276,471
FOCUS DETECTING DEVICE

Ken Utagawa, Yokohama, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan

Filed Sep. 18, 1979, Ser. No. 76,550
Claims priority, application Japan, Sep. 20, 1978, 53-114572
Int. Cl.³ G01V 1/20
U.S. Cl. 250—201 2 Claims

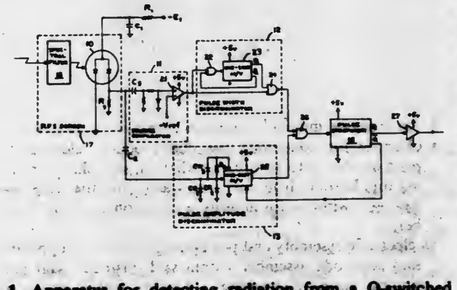


1. A focus detecting device comprising:
an image forming optical system;
a light beam scanning device disposed on the fixed focal plane of said image forming optical system or on a plane conjugate therewith for scanning the light beam from said image forming optical system in a predetermined direction to move the image by said image forming optical system in a direction substantially perpendicular to the optic axis thereof and for generating an electrical output corresponding to the scanning direction of the light beam;
an image re-forming optical system for re-forming the image formed by said image forming optical system;
an image position detecting device disposed on the image forming plane of said image re-forming optical system for photoelectrically detecting the direction of movement of the image formed by said image re-forming lens; and
a discriminating circuit for discriminating between the proper focus, the forward focus and the backward focus from the direction of movement of the image by said image re-forming optical system with respect to the direction of scanning of the light beam by said scanning optical system on the basis of the outputs of said light beam scanning device and said image position detecting device.

4,276,472
DETECTOR FOR Q-SWITCHED LASER RADIATION

Joseph A. Costantino, Morrisville; Jeffrey R. Heberley, East Stroudsburg; Jerry Neimark, Philadelphia, and Thomas E. Weiner, Bensalem, all of Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 15, 1979, Ser. No. 84,704
Int. Cl.³ H01J 40/14
U.S. Cl. 250—214 B 6 Claims

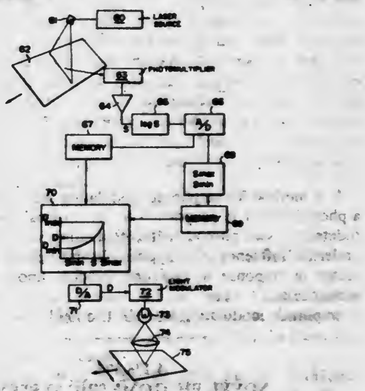


1. Apparatus for detecting radiation from a Q-switched laser, which comprises:
at least one photo-detector for developing a first output signal in response to incident optical radiation;
means, connected to said photo-detector, for comparing said first output signal with a known reference potential thereby to generate a second output signal if said first output signal exceeds reference potential;
a pulse width discriminator, connected to the output of said comparing means, for generating a third output signal if said second output signal has a duration which is less than a predetermined time interval;
a pulse-amplitude discriminator, connected to said comparing means, for generating a fourth output signal if said second output signal exceeds a predetermined amplitude; and
means, responsive to either said third or said fourth output signal, for generating a fifth output signal indicative of optical radiation from a Q-switched laser, said fifth output pulse generating means generating a pulse having a duration substantially greater than the duration of the pulse generated by said comparing means.

4,276,473
GRADATION PROCESSING METHOD AND APPARATUS FOR RADIATION IMAGE RECORDING SYSTEM

Hisatoyo Kato; Masamitsu Ishida, and Seiji Matsumoto, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 26, 1980, Ser. No. 124,770
Claims priority, application Japan, Feb. 28, 1979, 54/23092
Int. Cl.³ G03C 5/16; G01T 1/11
U.S. Cl. 250—327.1 18 Claims



11. An apparatus for processing the gradation of a radiation image in a radiation image recording system which comprises radiation image read-out means including scanning means for scanning a stimulable phosphor carrying a radiation image stored therein with a stimulating ray, a reading means for reading out the radiation image stored therein by detecting the light emitted from the stimulable phosphor upon stimulation thereof and converting the light to an electric signal having a level corresponding to the amount of the emitted light, a signal processing means for processing the electric signal, a modulating means controlled by the processed electric signal, and a recording means controlled by the modulating means for reproducing on a recording material an image corresponding to the radiation image recorded in the stimulable phosphor,
said signal processing means comprising a signal converting means which converts the electric signal of the minimum level corresponding to the minimum amount of the light emitted from the stimulable phosphor to the level which results in the optical density in the image reproduced on the recording material within the range from the fog

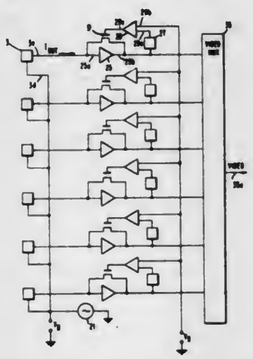
density of the recording material to the fog density plus 0.3 in terms of optical density, converts the electric signal of the maximum level corresponding to the maximum amount of the light emitted from the stimulable phosphor to the level which results in the optical density in the image reproduced on the recording material within the range from 1.5 to 2.8 in terms of optical density, and converts the electric signal of the level between the minimum level and the maximum level to a level which results in the optical density in the image reproduced on the recording material that monotonously increases as the level of the electric signal rises.

4,276,474

INFRARED FOCAL PLANE WITH AUTOMATIC RESPONSIVITY CONTROL USING PHOTODETECTOR BIAS MODULATION

Fred I. Crawford, Manhattan Beach, Calif., assignor to Hughes Aircraft Company, Culver City, Calif.

Filed Oct. 22, 1979, Ser. No. 87,287
Int. Cl.³ G01J 1/00, 1/42
U.S. Cl. 250—349 14 Claims



1. A method for amplitude modulating the output current of a photodetector in proportion to the responsivity of said photodetector, said photodetector generating said output current under the influence of an applied electric field in said photodetector in response to radiation incident upon the detector, comprising:

amplitude modulating said electric field.

4,276,475

NOVEL PHOTOMETRIC SYSTEM

Kenneth E. Nelson, North Attleboro, Mass., assignor to Waters Associates, Inc., Milford, Mass.

Continuation of Ser. No. 734,082, Oct. 20, 1976, abandoned, which is a division of Ser. No. 625,590, Oct. 24, 1975, Pat. No. 4,011,451, which is a continuation-in-part of Ser. No. 592,941, Jul. 3, 1975, abandoned, which is a continuation of Ser. No. 470,076, May 15, 1974, abandoned. This application Apr. 16, 1979, Ser. No. 30,312
Int. Cl.³ G01J 1/42
U.S. Cl. 250—373 11 Claims

1. Apparatus for measuring the amount of light absorbed by a portion of a flowing liquid, comprising:

a sample cell for transporting said flowing liquid along the longitudinal dimension of said cell, said cell including

a wall extending generally longitudinally,

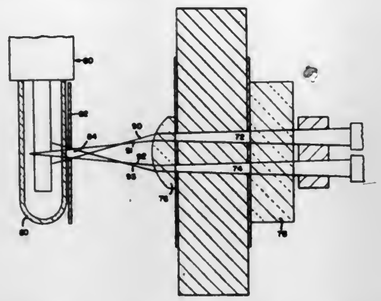
a light entrance window at one longitudinal end of said cell, and

a light exit window at the other longitudinal end of said cell;

a light source for generating a light beam;

masking means including a mask with an aperture positioned between said light source and said entrance window of said cell for optically shaping said beam so that the portion of said beam that enters said cell through said window is transmitted through said cell without contacting said cell wall for a predetermined maximum liquid-lensing condition, thereby assuring that wall contact does not occur under any expected condition,

said maximum condition corresponding to when the liquid in said cell has a distribution of refractive index that causes the greatest expected divergent spreading of said beam by refraction,



detection means positioned beyond said exit window for measuring substantially all of the light emerging from said window, said detection means including a photoelectric element onto which said emerging light beam is incident,

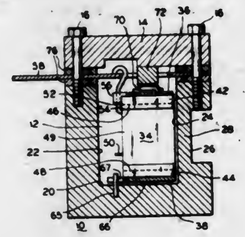
whereby the amount of light detected by said apparatus is independent of the amount by which said beam is bent by refraction within said cell because all of said beam entering said cell and not absorbed by said liquid also emerges from said cell and is detected, thereby making said apparatus independent of variations in the refractive index of said liquid.

4,276,476

RADIATION DETECTOR HAVING A UNITARY FREE FLOATING ELECTRODE ASSEMBLY

Dennis J. Cotic, Milwaukee, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Dec. 20, 1978, Ser. No. 971,200
Int. Cl.³ H01J 39/28
U.S. Cl. 250—385 9 Claims



1. An elongate multicell radiation detector comprising:

a chamber for containing gas that produces electron-ion pairs incidental to absorbing radiation, said chamber having top, bottom, front and rear walls, with the front wall having a window for admitting radiation into said chamber;

an electrode assembly and positioning means for supporting said electrode assembly within said chamber, said positioning means comprising a bottom spacer interposed between said electrode assembly and the bottom of said chamber, a front spacer interposed between said electrode assembly and the window of said chamber, an upper compressed elastic member interposed between said electrode assembly and the top wall of said chamber, and a rear compressed elastic member interposed between said electrode assembly and the rear wall of said chamber, whereby said electrode assembly is elastically positioned against said front spacer and said bottom spacer in precise relationship to the window of said chamber; and

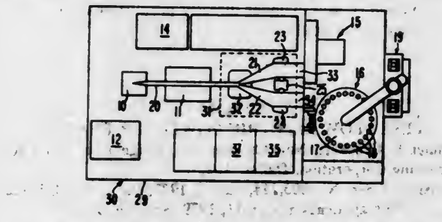
means for establishing electric circuits from said electrode assembly to the exterior of said chamber.

4,276,477

FOCUSING APPARATUS FOR UNIFORM APPLICATION OF CHARGED PARTICLE BEAM

Harald A. Enge, Winchester, Mass., assignor to Varian Associates, Inc., Palo Alto, Calif.

Filed Sep. 17, 1979, Ser. No. 76,011
Int. Cl.³ G01K 1/08; H21J 3/14
U.S. Cl. 250—396 11 Claims



1. A focusing apparatus for uniform application of a charged particle beam over the exposed surfaces of a plurality of targets comprising:

first deflection means for introducing a variable angle into a charged particle beam;

control means for driving said first deflection means to produce a time modulated fan beam having selected angular limits;

a sector magnet having a time independent magnetic field and arranged in opposition to said first deflection means to produce a gap normal to the plane of said time modulated fan beam for receiving said fan beam and positioned with the edge formed by the intersection of the entrance and exit ends lying adjacent the plane of the original trajectory of said charged particle beam so as to transform said fan beam into a time modulated ribbon beam; and

means for producing relative transverse motion between said targets and said time modulated ribbon beam.

4,276,478

UNIVERSAL FLAT-FILM-CHANGING DEVICE

Sandor Mezaros; Gabriella Kirchner; Janos Balazs, and Karoly Wild, all of Budapest, Hungary, assignors to Medicor Muvek, Budapest, Hungary

Filed Apr. 5, 1979, Ser. No. 27,463
Claims priority, application Hungary, Apr. 11, 1978, ME 2159
Int. Cl.³ G03B 41/16
U.S. Cl. 250—468 8 Claims

1. A film changer for an apparatus provided with an illumination stage for the exposure of a photosensitive film, comprising:

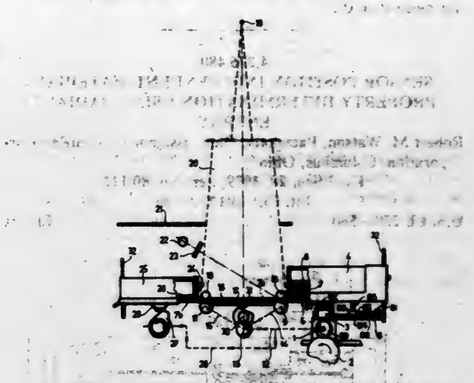
a stofage cassette for unexposed film and a receiving cassette for exposed film removably disposed on opposite sides of said illumination stage, said cassettes having sidewalls respectively provided with coplanar open-ended first and second guide grooves, said storage cassette being provided with a withdrawable closure plate at its bottom;

grooved track means between said cassettes aligned with said guide grooves for defining therewith a planar transport path for a film extracted from said storage cassette and transferred to said receiving cassette after passing through said illumination stage;

feed means adjoining said track means for intermittently advancing a film along said transport path;

separating means underneath said storage cassette synchronized with said feed means and engageable upon withdrawal of said closure plate with a lowermost film of a stack of unexposed films, held by first supporting means in said storage cassette above said first guide grooves, for drawing said lowermost film into said first guide grooves through said bottom and thereupon displacing said lowermost film into engagement with said feed means preparatorily to an exposure thereof in said illumination stage; and

lifting means in said receiving cassette operable by said feed means for elevating said lowermost film, after exposure thereof in said illumination stage and insertion into said second guide grooves, from said second guide grooves into engagement with second supporting means in said receiving cassette, thereby clearing the way for another unexposed film from said storage cassette to be moved along said transport path and transferred after exposure to said receiving cassette.



4,276,479

APPARATUS FOR CURING PHOTO-CURABLE COMPOSITION

Hiroaki Miwa, Kyoto; Tadashi Ishihara, Osaka; Chiaki Tanaka, and Shingo Esaki, both of Kyoto, all of Japan, assignors to Japan Storage Battery Co., Ltd., Kyoto and Nippon Paint Co., Ltd., Osaka, both of, Japan

Division of Ser. No. 943,275, Sep. 18, 1978, Pat. No. 4,182,665, which is a continuation of Ser. No. 771,483, Mar. 14, 1977, abandoned, which is a continuation of Ser. No. 563,991, Apr. 1, 1975, abandoned. This application Aug. 8, 1979, Ser. No. 64,979
Claims priority, application Japan, Apr. 1, 1974, 49-37184; Sep. 25, 1974, 49-110760
Int. Cl.³ B01J 19/00
U.S. Cl. 250—492 R 13 Claims



1. An apparatus for curing a photo-curable composition comprising a tunnel type irradiation chamber, a group of light source provided in the forward stage of the chamber for irradiating said composition at an irradiation intensity by the rays

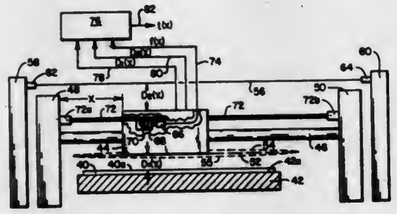
out of which wavelengths shorter than 300 nm are substantially eliminated and which have an abundance of radiation energy in a range of from about 300 to about 460 nm, and a group of light source provided in the afterward stage of the chamber thereby to irradiate the composition by rays having an abundance of radiation energy in wavelengths range of from about 230 to about 460 nm, and wherein a ratio of a maximum irradiation intensity E_c for the wavelengths less than 300 nm from both groups of the light source to a maximum irradiation intensity E_d from the first group of the light source on the surface of the substrate coated with said composition at the A light source region, that is E_c/E_d, is selected to a value not more than 0.1.

4,276,480

SENSOR POSITION INDEPENDENT MATERIAL PROPERTY DETERMINATION USING RADIANT ENERGY

Robert M. Watson, Pataskala, Ohio, assignor to AccuRay Corporation, Columbus, Ohio

Filed Sep. 28, 1979, Ser. No. 80,112
Int. Cl.³ G01N *21/86*
U.S. Cl. 250—560 49 Claims



1. A radiant energy method for determining a property of a material that is normally inspected while located generally in a predetermined spatial relation to a first reference position, comprising the steps of

defining a second reference position,

utilizing a sensor means to respond to a condition of the material and to produce a sensor response that can be related to the material property, the relation of the sensor response to the property being susceptible to change with changes in the distance relationship of the sensor means and one of the reference positions or the material,

producing a distance response to changes in the distance from the sensor means to at least one of the reference positions,

producing an initial sensor and distance response-related value or values that can be derived by utilizing the first and second reference positions, and

responding to the distance response, the initial value or values, and the sensor response so as to produce a material property response with substantially decreased susceptibility to change with the changes in the distance relationship of the sensor means and the reference position or the material.

4,276,481

FLUID VELOCITY ACTUATED STRUCTURE FOR A WIND MILL/WATER WHEEL

Denson Parker, 4570 Westport Rd., Apartment 8, Columbus, Ohio 43228

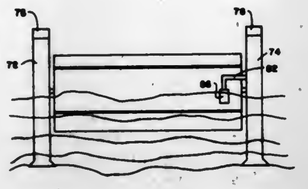
Filed Mar. 12, 1979, Ser. No. 3,614
Int. Cl.³ F03B *7/00*
U.S. Cl. 290—43 10 Claims

1. A fluid actuated structure for a wind mill/water wheel comprising:

an elongated cylinder positioned on a rotational shaft a plurality of blades hingedly supported on said cylinder and wherein said blades are curved to follow the contour of said cylinder to assume a position of maximum and minimum resistance to the fluid flow,

said hinge support having a swivel structure to permit resiliency of the cylinder to the fluid flow,

means for altering said cylinder relative to the direction of flow of said fluid,



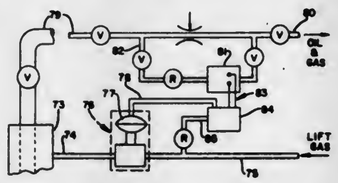
means for converting the rotation of said cylinder, in response to said fluid flow, to useful energy, and means for providing a feedback control to said cylinder to adjust the rotation of said cylinder directly proportional to the velocity of the fluid flow.

4,276,482

LINE FLOW ELECTRIC POWER GENERATOR

Emmet E. Crockett, New Orleans, La., assignor to Otis Engineering Corporation, Dallas, Tex.

Division of Ser. No. 803,214, Jun. 3, 1977, Pat. No. 4,155,022.
This application May 11, 1979, Ser. No. 38,194
Int. Cl.³ H02K *7/18*
U.S. Cl. 290—52 4 Claims



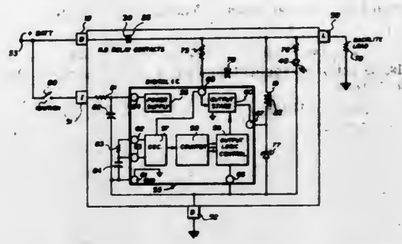
1. Electrical power generating means comprising a tubular member through which a stream of liquid and/or gas may be caused to flow; a helically-vaned rotor member rotably mounted within said tubular member about an axis coincident with the longitudinal axis of said tubular member; means for generating an electromagnetic flux field at least partially within the confines of said tubular member; winding means fixed mounted with respect to said tubular member and at least partially surrounding said flux field; means including said rotor member for providing a cyclically variable reluctance path for said flux field as a function of the rotational position of said rotor with respect to said tubular member; output terminal means connected to said winding means, whereby a cyclically variable voltage potential is developed at said output terminals, upon rotation of said rotor, with voltage magnitude a function of the rotation rate of said rotor member; and in combination with a gas and/or oil well recovery system; said recovery system comprising a well output production flow tube and control valve means through which a source of lift gas is applied to said well to induce output flow from said flow tube; means interconnecting said tubular member with said flow tube to produce a flow rate therethrough as a function of the flow tube output rate; and means connecting the output from said power generating means with said control valve means to control lift gas application to said well as a function of the magnitude of the output from said power generating means.

4,276,483

TIMED ELECTRIC SWITCH

Rodney Hayden, Stoney Creek, Canada, assignor to TRW Inc., Cleveland, Ohio

Filed Dec. 11, 1978, Ser. No. 967,923
Claims priority, application Canada, Apr. 21, 1978, 301690
Int. Cl.³ H01H *43/24*
U.S. Cl. 307—10 R 21 Claims



1. A timed switch for a window heater in an automotive vehicle which comprises,

a housing mountable in said vehicle,

a pair of contacts in said housing for series connection with said window heater, said window heater being actuated upon closing of said contacts and deactivated upon opening of said contacts,

a timer circuit, means connecting said timer circuit for actuation upon closing of said contacts,

a magnetic solenoid mounted within said housing associated with said contacts, said solenoid being actuated upon closing of said contacts to hold said contacts in a closed condition,

means connecting said timer circuit for controlling current through said solenoid and for altering current flow through said solenoid after a chosen time period of operation of said timer circuit, said alteration of current through said solenoid effecting release of said contacts and interruption of current flow through said window heater,

said timed switch being characterized in that said timer circuit comprises a digital timer circuit mounted within said housing and including an oscillator, counter means sensitive to said oscillator for counting the output of said oscillator and logic means for reading said counter means and for producing a timed output on reading a predetermined count in said counter means, said logic means including means effective upon production of a first output for switching said logic means to a condition to produce a subsequent timed output upon reading of a second count from said counter means which is different from said predetermined count, said timed outputs from said logic means effecting said current alteration in said solenoid.

4,276,484

METHOD AND APPARATUS FOR CONTROLLING CURRENT IN INDUCTIVE LOADS SUCH AS LARGE DIAMETER COILS

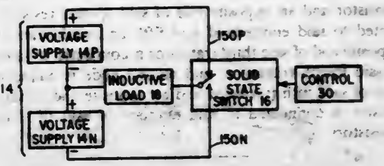
Carlos A. Rivera, 3832 Harrison Ave., Brookfield, Ill. 60513

Filed Sep. 10, 1979, Ser. No. 74,386
Int. Cl.³ G01V *3/10*
U.S. Cl. 307—104 1 Claim

1. An electric circuit for controlling current in an inductive load, comprising

a power supply which can supply essential power at a first and a second direct current constant voltage level with low internal impedance,

solid state switching means connected to said power supply and comprising a first solid state switching means and a second solid state switching means, each of which solid state switching means having a switching time that is very much less than the intrinsic time constant of the inductive load, said first solid state switching means being connected in series with said first voltage level of said supply and with said inductive load so as to connect and not connect said first voltage across said load, and said second solid state switching means being connected in series with said second voltage level of said supply and with said load so as to connect and not connect said second voltage supply across said inductive load;



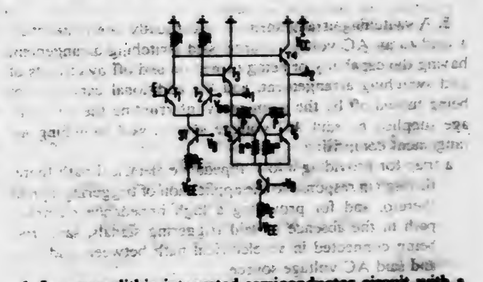
control means for controlling said first and second switching means for sequentially switching them during normal operation such that they are never both switched on at the same time but such that they are sequentially switched in a period of time very much less than the intrinsic time constant of the inductive load, so that the load is effectively presented with a low impedance shunt through said power supply at all times and inductive kick and its resulting problems are avoided.

4,276,485

MONOLITHIC DIGITAL SEMICONDUCTOR CIRCUIT COMPRISING A PLURALITY OF BIPOLAR TRANSISTORS

Peter Rydval, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Nov. 3, 1978, Ser. No. 957,408
Claims priority, application Fed. Rep. of Germany, Nov. 21, 1977, 2751881
Int. Cl.³ H03K *19/013, 19/20*
U.S. Cl. 307—463 2 Claims



1. In a monolithic integrated semiconductor circuit with a differential amplifier, said differential amplifier being formed by first and second bipolar transistors having their respective emitters connected together, a current supply bipolar transistor having its emitter connectable through a resistor to a first potential and having its collector connected to said emitters of said two bipolar transistors of said differential amplifier, the base of said current supply transistor being connectable to a second potential source, the collectors of said differential amplifier transistors being connectable through resistors to a reference potential, the base of a first one of said differential amplifier transistors being connected to an input terminal of said amplifier, a logic linking stage including third and fourth transistors whose collectors respectively are each connectable to said reference potential and whose bases are respectively connected to said collectors of said first and second transistors, a bistable flip-flop including fifth and sixth bipolar transistors

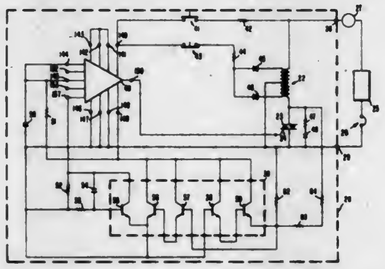
each with an emitter connected to a collector terminal of a current supply means, a collector of said fifth transistor is connected to an emitter of said third transistor and a collector of said sixth transistor is connected to an emitter of said fourth transistor, an improvement comprising first and second resistors connected together at a first node and third and fourth resistors connected together at a second node, an opposite end of said first resistor is connected to said emitter of said third transistor, said first node is connected to a base of said sixth transistor and an opposite end of said second resistor is connected to said emitters of said fifth and sixth transistors, an opposite end of said third transistor is connected to said emitter of said fourth transistor, said second node is connected to a base of said fifth transistor and an opposite end of said fourth resistor is connected to said emitters of said fifth and sixth transistors.

4,276,486

TWO TERMINAL POWER CONTROL SWITCH WITH TRIAC CURRENT POWERED CONTROL MEANS

Arjan D. Ahuja, Torrance, and James E. Brewer, Anaheim, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Feb. 16, 1979, Ser. No. 12,682
Int. Cl.³ H03K 17/60
U.S. Cl. 307—252 B 6 Claims



5. A switching arrangement for electrically interconnecting a load to an AC voltage source, said switching arrangement having the capability of being turned on and off by circuits of said switching arrangement, and the additional capability of being turned off by the momentary interrupting the AC voltage supplied by said AC voltage source, said switching arrangement comprising:

a triac for providing a low impedance electrical path therethrough in response to the application of triggering signals thereto, and for providing a high impedance electrical path in the absence of said triggering signals, said triac being connected in an electrical path between said load and said AC voltage source;

control circuit means for applying triggering signals to said triac when enabling power is applied thereto;

first switch means including a normally open switch for supplying enabling power derived from AC voltage source to said control circuit means when said normally open switch is closed, and whereupon momentary closure of said normally open switch turns on said switching arrangement; and

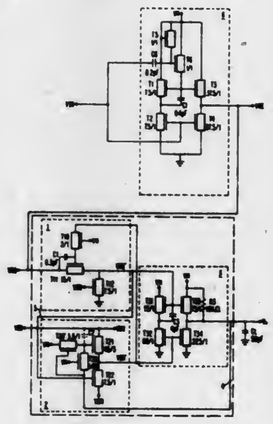
second switch means, including a normally closed switch and transformer having a primary winding thereof connected in series with said load and said AC voltage source, and having a secondary winding thereof coupled to said normally closed switch, for supplying enabling power derived from current which flows through said triac to said control circuit means when said normally closed switch is closed, and whereupon momentary opening of said normally closed switch or upon the momentary interruption of the AC voltage supplied to said switching arrangement turns off said switching arrangement.

4,276,487

FET DRIVER CIRCUIT WITH SHORT SWITCHING TIMES

Luis M. Arzubi; Rainer Clemen, both of Boeblingen, and Jörg Gschwendtner, Esslingen, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 4, 1979, Ser. No. 27,128
Claims priority, application Fed. Rep. of Germany, Apr. 19, 1978, 2816980
Int. Cl.³ H03K 17/04, 17/284, 17/687, 19/017
U.S. Cl. 307—270 13 Claims



1. A driver circuit including a plurality of field effect transistors, each having a gate and first and second current conducting electrodes, said driver circuit including a transmission stage and a delay stage responsive to two out-of-phase input signals and having their outputs coupled to the inputs of a bootstrap push-pull output stage to provide an output signal on a driver circuit output node, the delay stage including a load transistor and a driver transistor having a first one of their current conducting electrodes connected to provide a delay stage output node, the improvement comprising:

means for coupling one of said out-of-phase input signals to the second current conducting electrode of said load transistor;

feedback means connecting said circuit output node to the gate of said load transistor; and

means for connecting the output of said transmission stage to the gate of said driver transistor.

4,276,488

MULTI-MASTER SINGLE-SLAVE ECL FLIP-FLOP

Douglas M. Benedict, Santa Monica, and James R. Gaskill, Jr., Pacific Palisades, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Nov. 13, 1978, Ser. No. 960,262
Int. Cl.³ H03K 3/289, 19/086
U.S. Cl. 307—272 A 14 Claims

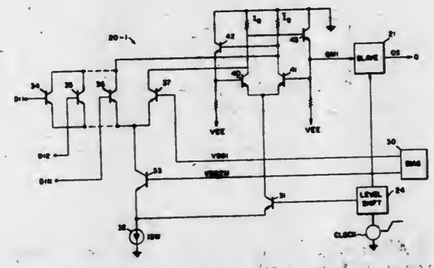
1. A multi-master single-slave flip-flop comprising:

a plurality of master flip-flops, each of said master flip-flops having a plurality of data inputs, a clock input and two outputs, each of said master flip-flops comprising a two-level cascode circuit of the emitter coupled logic type including a lower current switch coupled to two upper current switches and a latch circuit;

a slave flip-flop having a plurality of data inputs, a clock input and two outputs, said slave flip-flop comprising an internal input gating circuit and a two-level cascode circuit of the emitter coupled logic type including a lower current switch coupled to two upper current switches and a latch circuit;

one output of each of said master flip-flops being connected to a data input of said slave flip-flop, the outputs of each of said master flip-flops being discretionarily connected to the inputs of said master flip-flops, said slave flip-flop outputs being discretionarily connected to the data inputs of said master flip-flops and said slave flip-flop;

said one output of each of said master flip-flops being selected such that with given data signals the combination of said master flip-flops and said input gating circuit of said



slave flip-flop applies a logic-one level signal to the cascode circuit of said slave flip-flop at any given time; and

a clock coupled to the clock inputs of said master flip-flops and said slave flip-flop for providing clock signals thereto;

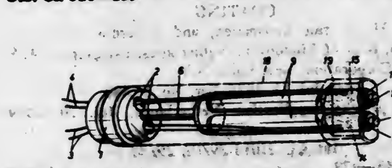
said master flip-flops and said slave flip-flop being substantially identical circuits differing in that the bias voltage applied to the lower current switches of said master flip-flops is approximately 100 millivolts lower than the bais voltage applied to the lower current switch of said slave flip-flop, and in that said clock signals are applied to opposite sides of the lower current switches of said slave flip-flop and said master flip-flops to provide master flip-flop, then slave flip-flop release timing at positive clock signal edges, and then slave flip-flop lock-up, then master flip-flop release at negative clock signal edges.

4,276,489

MULTIPLE COIL ELECTROMAGNETIC PICKUP

Sylvain M. Dreo, Bac, and Gerard M. G. Evrard, Livry Gargan, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation, Paris, France

Continuation of Ser. No. 843,542, Oct. 19, 1977, abandoned.
This application Jul. 18, 1979, Ser. No. 58,489
Claims priority, application France, Oct. 26, 1976, 76 32673
Int. Cl.³ H02K 21/38
U.S. Cl. 310—155 1 Claim



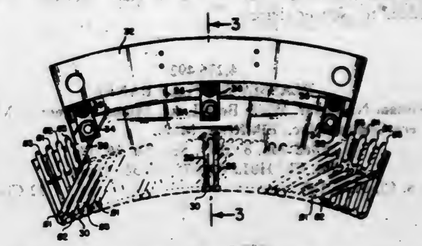
1. An electromagnetic sensor comprising at least a pair of coils, each coil being part of an assembly comprising an axial arrangement of a coil and a straight magnet arranged end to end, said assemblies being parallel to each other, the magnet poles of the same polarity extending in the same direction, only the coil of each assembly being housed in a solid piece of a magnetic material, each magnet being in an essentially tubular non-magnetic housing.

4,276,490

BRUSHLESS DC MOTOR WITH RARE-EARTH MAGNET ROTOR AND SEGMENTED STATOR

Neil N. Salzinger, Woodland Hills, Calif., assignor to Veeder-Root Corporation, Long Island City, N.Y.

Continuation-in-part of Ser. No. 861,117, Dec. 16, 1977, abandoned. This application Aug. 27, 1979, Ser. No. 69,714
Int. Cl.³ H02K 19/26, 1/18
U.S. Cl. 310—184 4 Claims



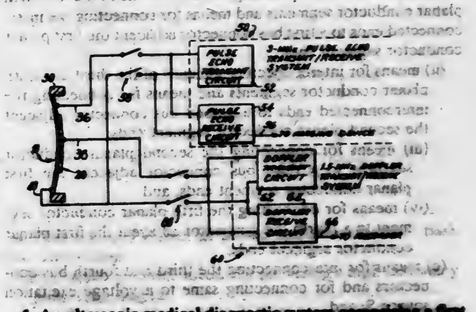
1. A segmented multiphase stator in a motor having a permanent magnet rotor, each segment being comprised of a comb-like arcuate core having inwardly extending teeth over its entire arcuate length, and a support structure across the back of said core over less than its entire arcuate length to leave a portion of said core at each end thereof with teeth extending therefrom to provide a plurality of slots through which phase windings may be wound over the unsupported back of said core, said multiphase stator having each of successive phase windings started in successive slots between teeth in a symmetrical repetitive sequential order over the full length of said core, with each phase winding crossing over a plurality of teeth equal to the number of teeth at each end extending from said unsupported back of said core, and turns of successive phase windings wound in slots at each end of said core with one winding in each slot being completed over the unsupported back thereof, whereby teeth at each unsupported back of said core is provided with flux from successive phase windings equal to flux through teeth in the central supported portion of said comb-like core, thereby to complete the symmetry to the ends for a stator having the same number of phase windings for all teeth of said comb-like core for a more uniform field strength at the pole faces of the teeth at the ends thereof.

4,276,491

FOCUSING PIEZOELECTRIC ULTRASONIC MEDICAL DIAGNOSTIC SYSTEM

Keith P. Daniel, Gordon, Australia, assignor to Ausonics Pty. Limited, Lane Cov., Australia

Filed Oct. 2, 1979, Ser. No. 81,272
Int. Cl.³ H01L 41/08
U.S. Cl. 310—317 5 Claims



1. An ultrasonic medical diagnostic system comprising a first transducer element; a second transducer element, electrodes

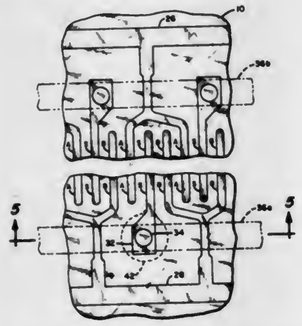
coating the front and back surfaces of both of said transducer elements, with the back electrode of said first transducer element and the front electrode of said second transducer element being bonded together; means for controlling pulse echo operation at one frequency, with relatively low penetration and high resolution, by applying an energizing signal across the front and back electrodes of one of said transducer elements; and means for controlling Doppler operation at another lower frequency, with relatively high penetration and low resolution, by applying an energizing signal across the front electrode of said first transducer element and the back electrode of said second transducer element.

4,276,492

PLASMA DISPLAY PANEL

William N. Mayer, White Bear Lake, Minn., assignor to Modern Controls, Inc., Elk River, Minn.

Filed Jun. 8, 1979, Ser. No. 46,706
Int. Cl.³ H01J 61/073, 61/30, 61/36
U.S. Cl. 313—188 12 Claims



1. In an AC plasma shift display panel of the type having parallel planar conductor segments transversely oriented to a plurality of gas channels wherein dielectric separation exists between the planar conductor segments and gas channels, and wherein every third planar conductor segment is electrically driven by a common voltage excitation source A, B or S, the improvement in connecting said planar conductor segments to said voltage sources comprising:

(a) a plurality of parallel and spaced bus connectors extending orthogonal to said planar conductor segments, one bus connector at the same planar level and one bus connector at a different planar level than said planar conductor segments at spaced intervals adjacent respective first and second ends of said planar conductor segments;

(b) means for connecting said planar conductor segments to said bus connectors in repeatable patterns of six, comprising

(i) means for interconnecting the ends of the first and fourth planar conductor segments and means for connecting the interconnected ends to a first bus connector adjacent the first planar conductor segment ends;

(ii) means for interconnecting the ends of the third and sixth planar conductor segments and means for connecting the interconnected ends to a second bus connector adjacent the second planar conductor segment ends;

(iii) means for connecting the second planar conductor segment to a third bus connector adjacent the first planar conductor segment ends; and

(iv) means for connecting the fifth planar conductor segment to a fourth bus connector adjacent the first planar conductor segment ends;

(c) means for interconnecting the third and fourth bus connectors and for connecting same to a voltage excitation source S; and

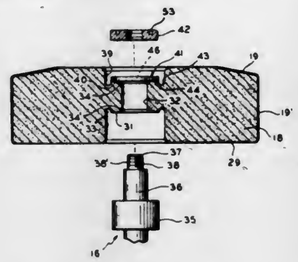
(d) means for connecting the first bus connector to a voltage excitation source A and for connecting the second bus connector to a voltage excitation source B.

4,276,493

ATTACHMENT MEANS FOR A GRAPHITE X-RAY TUBE TARGET

Saroja R. Srinivasa, Milwaukee; Peter S. Shelley, Brookfield, and Robert E. Huesches, Hales Corners, all of Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 10, 1979, Ser. No. 73,757
Int. Cl.³ H01J 35/08
U.S. Cl. 313—330 15 Claims



1. A composite x-ray target composed primarily of graphite adapted for being attached to the rotor stem of a rotating anode x-ray tube,

said target comprising a disk-shaped graphite body having a central axial bore and axially spaced apart radially extending first and second shoulders formed in said body around respectively opposite ends of said bore,

metal washer means having opposed faces, one of which faces is brazed to said first shoulder, said washer means having slot means,

said stem being insertable in said body and comprising a cylindrical portion for extending through said bore of said body and a first shoulder on said portion to abut against said one face of the washer and having a threaded end portion for extending through said slot means said threaded end portion having a cross sectional shape other than a full circle and being shaped complementarily to said slot means for effecting a positive driving relationship therewith, said stem also having a second radially extending shoulder axially spaced from said first shoulder for abutting against said second shoulder of said body, and

a nut member for turning onto said threaded end of the stem and against said washer means for clamping said target compressively to said stem.

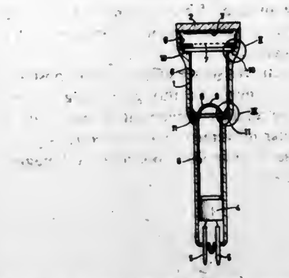
4,276,494

CATHODE RAY TUBE WITH TRANSVERSELY SUPPORTED ELECTRODE AND CONDUCTIVE WALL COATING

Johannes H. T. van Roosmalen, and Gerardus A. H. M. Vrijssen, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 11, 1979, Ser. No. 56,480
Claims priority, application Netherlands, Jul. 20, 1979, 7807758
Int. Cl.³ H01J 29/02, 29/88
U.S. Cl. 313—479 5 Claims

1. A cathode-ray tube comprising a tubular envelope portion of insulating material having an internally provided electrically conductive wall coating and at least one electrode extending transversely to the wall coating, said electrode being supported in the envelope by a supporting surface extending transversely to the longitudinal axis of the envelope portion, said supporting surface being formed by a substantially stepwise reduction of the inside transverse dimensions of the envelope portion, characterized in that the conductive wall coating is interrupted in the proximity of the electrode extending transversely to the wall coating, and the stepwise reduction is in the form of at least a first and a second step, in which, measured in



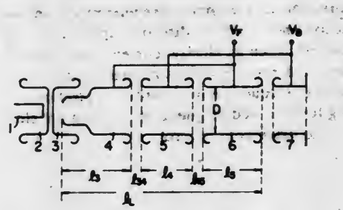
the direction of decreasing transverse dimension, the first step forms the supporting surface for the electrode and the interruption in the conductive wall coating is provided on a wall portion of the second step.

4,276,495

ELECTRON GUN FOR CATHODE-RAY TUBE

Masakazu Fukushima, Kokubunji; Kunio Ando, Yokohama, and Kenichi Fukuzawa, Mobara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 2, 1978, Ser. No. 911,804
Claims priority, application Japan, Jun. 15, 1977, 52/69841
Int. Cl.³ H01J 29/46, 29/56
U.S. Cl. 315—16 4 Claims



1. An electron gun for cathode-ray tube comprising a lens system for focusing electron beams emitted from a cathode, wherein said lens system includes first, second, third and fourth cylindrical electrodes having substantially the same inner diameter and arranged in this order from the side of said cathode, the length of said third electrode is selected to be larger than a half of the inner diameter of said third electrode, and said first and third electrodes are applied with the same voltage while said second and fourth electrodes are applied with a voltage supplied to a phosphor screen electrode so that a bipotential lens is formed by said first and second electrodes and a unipotential lens is formed by said second, third and fourth electrodes.

4,276,496

GAS DISCHARGE LAMP EMPLOYING A PULSE GENERATOR WITH A DOUBLE STAGE AMPLIFICATION CIRCUIT

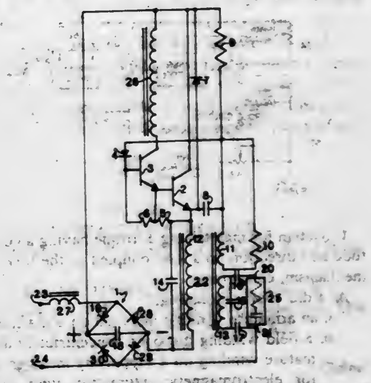
Guido Arana-Ochoa, Calzada de la Ilusion #69, Fraccionamiento Balcones, Estado de Mexico, Mexico

Continuation-in-part of Ser. No. 914,996, Jun. 13, 1978, abandoned. This application Jul. 18, 1979, Ser. No. 58,672
Int. Cl.³ H05B 37/00, 39/00, 41/14
U.S. Cl. 315—206 6 Claims

1. A negative feedback DC-AC inverter for powering a gaseous discharge lamp which has open-circuit portection by frequency and comprises:

a non-saturating core transformer having a primary winding, a first secondary winding and a second secondary winding;

a first and a second transistor connected as a Darlington pair, the collector of said first transistor being connected to a terminal of a DC power source through a high inductance choke coil, the collector of said second transistor being directly connected to said terminal of the DC power source, the emitter of said second transistor being connected to an opposite terminal of said DC power source through said primary winding of said transformer;



a negative feedback circuit which comprises said second secondary winding, a resistor, a diode, a base-emitter junction of said first and second transistor Darlington pair and a capacitor;

a bias resistor connected between said DC power terminal and a junction point of said second secondary winding of said transformer and said capacitor in said feedback circuit to provide biasing potential to said base of said first transistor for conductivity;

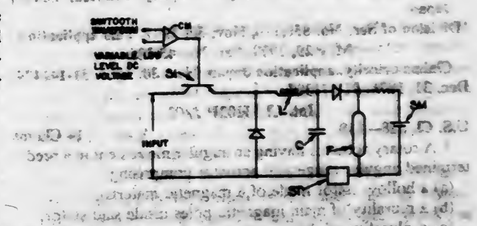
said first secondary winding of said transformer in open circuit is shunted by a very small capacitor whereby the inverter frequency is increased considerably.

4,276,497

LASER FLASHTUBE POWER SUPPLY

Ronald N. Barbock, and Michael R. Keighley, both of Rugby, England, assignors to J. K. Lasers Limited, Rugby, England

Filed Apr. 26, 1979, Ser. No. 33,399
Claims priority, application United Kingdom, Apr. 28, 1978, 16879/78
Int. Cl.³ H05B 41/34
U.S. Cl. 315—209 R 8 Claims



1. Power supply means for pulsed operation of a laser flash tube, comprising:

high frequency switch means for providing a high frequency pulse train output;

means for controlling said high frequency switch means to modulate the duty cycle of said pulse train output; and

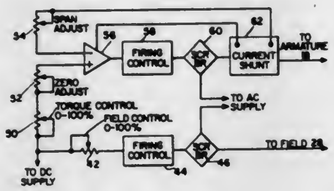
a filter for substantially removing the high frequency components from said pulse train output.

4,276,498

ADJUSTABLE TORQUE CONTROL WINCH SYSTEM

Robert F. Stager, and Graham J. Blight, both of Houston, Tex., assignors to Brown & Root, Inc., Houston, Tex.

Filed Dec. 9, 1977, Ser. No. 858,962
Int. Cl.³ B65H 77/00; H02P 7/06
U.S. Cl. 318—6 6 Claims



1. System for maintaining a torque having a constant amplitude and direction on a load coupled to the reel of a winding mechanism, comprising:

A. a d.c. motor including:

i. an armature winding disposed on a shaft, and

ii. a field winding disposed concentrically about said armature winding on a supporting member, and adapted for electromagnetic interaction with said armature winding,

B. means for rotatably journaling said supporting member with respect to said shaft,

C. means for coupling said supporting member and said reel so that the angular velocity of said reel about its rotational axis is proportional to the angular velocity of said supporting member about said shaft axis,

D. means for rotating said shaft about its axis at a predetermined angular velocity, and

E. torque control means for driving a first selected constant current through said field winding and a second selected constant current through said armature winding for maintaining said constant amplitude and direction torque on said load independent of the rotational speed magnitude and direction of said supporting member,

whereby said reel is driven by said supporting member to rotate about said reel axis at an angular velocity required to maintain said constant torque on said load.

4,276,499

ROTARY ACTUATOR

Noboru Masuda, and Masakazu Sugimoto, both of Tokyo, Japan, assignors to Deaki Onkyo Company, Limited, Tokyo, Japan

Division of Ser. No. 856,176, Nov. 30, 1977. This application May 29, 1979, Ser. No. 43,226
Claims priority, application Japan, Nov. 30, 1976, 51-144474; Dec. 21, 1976, 51-171307
Int. Cl.³ H02P 1/02
U.S. Cl. 318—119 14 Claims

1. A rotary actuator having an angular movement in a predetermined angular range said actuator comprising:

(a) a hollow stator made of a magnetic material,

(b) a plurality of main magnetic poles inside said stator,

(c) a plurality of drive coils wound on each of said main magnetic poles and adapted to magnetize said main magnetic poles,

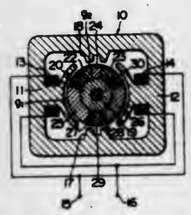
(d) a magnetic rotor positioned in the space surrounded by said main magnetic poles having magnetized zones with alternatingly different polarities and non-magnetized zones arranged therebetween in the circumferential direction, wherein the rotor has an angular movement in accordance with the electric current flowing in said drive coils,

(e) a rotation shaft, of a non-magnetic material, for supporting said rotor,

(f) a magnetic flux generating means provided on one end of said shaft, having an area of high magnetic flux density, said flux generating means moving in accordance with the rotation of said shaft,

(g) at least one magnetic resistance effect element positioned with respect to said magnetic flux generating means in order to detect the angular movement of said shaft and convert said angular movement into an electric signal,

(h) means fixed to said stator for supporting said magnetic resistance effect element,



(i) means for supplying electric power to said magnetic resistance effect element,

(j) detecting means for detecting out an output voltage as a function of the rotation of said magnetic resistance effect element when said shaft rotates together with said magnetic rotor, and

(k) means for energising said drive coils such that said magnetic rotor rotates in a predetermined circumferential direction and within a predetermined angular range in accordance with the direction and magnitude of electric current when an electric current flows in said drive coils and said rotor is held stationary with a predetermined control torque at a predetermined position by the attracting force of said magnetic poles when the electric current in said drive coils is zero.

4,276,500

BRAKING SYSTEM

Elmer H. Sumka, Edison, and Henry J. Shea, Dover, both of N.J., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 28, 1979, Ser. No. 24,767
Int. Cl.³ H02K 17/32
U.S. Cl. 318—369 6 Claims

1. A braking system for transportation apparatus, comprising:

an inclined conveyor for transporting passengers between first and second landings,

a source of electrical energy,

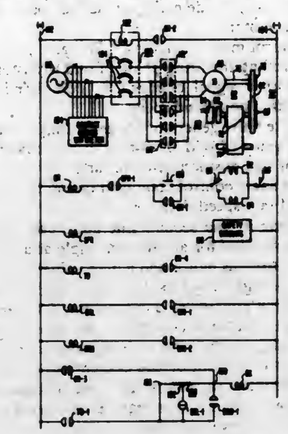
electrical drive means for said conveyor,

contactor means connecting said electrical drive means to said source of electrical energy,

electrical measuring means providing a control signal responsive to a predetermined electrical parameter of said electrical drive means, with said parameter being related to the electrical energy being used by said electrical drive means to transport passengers between the landings,

braking means for stopping said conveyor,

and adjustment means for adjusting the braking effort of said braking means in response to said control signal, such that the braking effort is inversely proportional to the effort



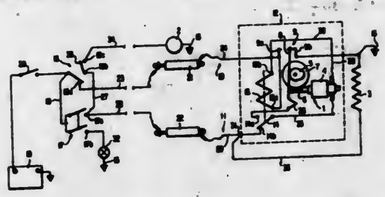
being expended by said drive means at the time said braking means is operated to stop the conveyor.

4,276,501

DEVICE FOR CLEANING AND DEFOGGING, ESPECIALLY FOR THE REAR WINDOW OF AN AUTOMOBILE

Helmut Fuss, Asnieres, France, assignor to Regie Nationale des Usines Renault, Boulogne-Billancourt, France

Filed Nov. 21, 1977, Ser. No. 853,741
Claims priority, application France, Nov. 19, 1976, 76 35036
Int. Cl.³ H02P 3/00
U.S. Cl. 318—470 10 Claims



1. A window-clearing arrangement particularly for the rear window mounted on a vehicle liftgate attached to a body of a vehicle, which comprises:

a wiper motor-reducer assembly, said assembly including a motor, said assembly being located on said vehicle liftgate;

an electric heater window-defogger system, said defogger system being located on said vehicle liftgate;

means for supplying electrical power to said wiper motor-reducer and to said defogger system, said means being located on the body of said vehicle;

first and second conductor means and a vehicle ground coupling said means for supplying electrical power with said wiper motor-reducer assembly, said defogger system being coupled to said second conductor means;

electric circuit means coupling said wiper motor-reducer assembly to said first and said second conductor means, said circuit means including a relay having a movable relay arm, said motor being coupled between said relay arm and said vehicle ground, said circuit means further including a reversing switch having a movable reversing switch contact coupled to a fixed contact of said relay; and

means for prolonging the operation of said motor until said motor is stopped in its rest position, said prolonging means including a mechanical means coupling the mechanical output of said motor to said movable reversing switch contact for controlling the position of said reversing switch contact;

wherein said motor is selectively coupled to one of said first and said second conductor means by said relay and said reversing switch during the operation of said motor;

wherein said motor is short-circuited by said relay and said reversing switch when said motor is stopped in its rest position; and

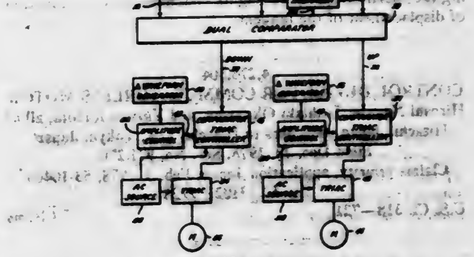
wherein the complete electrical powering and control for completely and independently controlling wiping by said wiper motor-reducer assembly and defogging by said defogger system are realized solely through the electrical interconnection of said means for supplying electric power with said wiper motor-reducer assembly and said defogger system by said first and second conductor means and by said vehicle ground, said first and second conductor means and said vehicle ground passing through a junction between said vehicle liftgate and the body of said vehicle.

4,276,502

SOLID STATE CONTROLLER

Harry S. Elliott, Houston, Tex., assignor to Varco, Inc., Houston, Tex.

Division of Ser. No. 727,801, Sep. 27, 1976, which is a continuation of Ser. No. 498,142, Aug. 6, 1974, abandoned. This application Apr. 28, 1978, Ser. No. 900,926
Int. Cl.³ G05B 23/02
U.S. Cl. 318—565 5 Claims



1. A control system for controlling a process variable to a set point by manipulating a valve by an actuator and having the set point, process variable, and valve position as inputs, comprising:

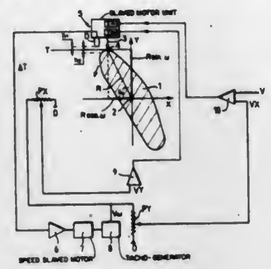
a controller having at least one adjustable mode of control, and including means for adjusting said mode of control, and having the set point and the process variable as inputs and having an output responsive to the difference between the set point and the process variable by said mode of control, each value of said output corresponding to a position of the valve;

solid state relay means for positioning the valve to the position required by said output of said controller by control of the power to the actuator, and having said output and the valve position as inputs, said relay means including time proportioning means for regulating the rate of travel of the valve during fixed time periods by determining the duration of power applied to the actuator during said fixed time periods as the valve position approaches the position required by said output.

4,276,503
METHOD AND APPARATUS FOR SERVO-CONTROLLING A ROTATING WORKPIECE

Jean Peiffert, 42 Allee de Persepolis, Orsay, Essonne, and Roger S. Barbedienne, 11, rue de Neuville, Eragny sur Oise, Val d'Oise, both of France

Filed Sep. 20, 1978, Ser. No. 944,221
Claims priority, application France, Sep. 20, 1977, 77 28333
Int. Cl.³ G05B 19/36
U.S. Cl. 318—576 3 Claims

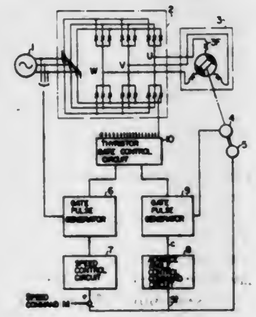


1. A method of servo-controlling a rotating workpiece in relation to a member such as a tool, capable of translational motion along a system of two mutually perpendicular axes, as a function of a desired rate of transit of the periphery of said workpiece past said tool, including the steps of disposing the rotation axis of the workpiece at the centre of the system of axes to which the tool is associated; determining the direction of a tangent to the edge of the workpiece; slaving control over the rotation to displacement of the tangent parallel with itself; detecting such displacement and generating a signal representative thereof; determining the angular position of the workpiece; nulling said signal by rotating the workpiece; and varying the speed of the tool along its system of axes as a function of displacement of the tangent.

4,276,504
CONTROL DEVICE FOR COMMUTATORLESS MOTOR

Hiroshi Nagase; Toshiaki Okuyama, and Yuzuru Kubota, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 20, 1978, Ser. No. 971,270
Claims priority, application Japan, Feb. 3, 1978, 53-10466
Int. Cl.³ H02P 7/28
U.S. Cl. 318—721 7 Claims



1. An advance angle control apparatus for a commutatorless motor, comprising

frequency converter means including a plurality of thyristors for converting a frequency in order to supply an AC power to armature windings of a synchronous motor,

a position detector for detecting the position of the rotor of said synchronous motor,

a speed detector for detecting an actual speed of said synchronous motor,

a speed control means including a first gate pulse generator for controlling the firing phase of said thyristors in accordance with a signal obtained by comparing the actual speed with a command speed,

a second gate pulse generator for generating signals controlling the gates of said thyristors in accordance with the output of said position detector, and

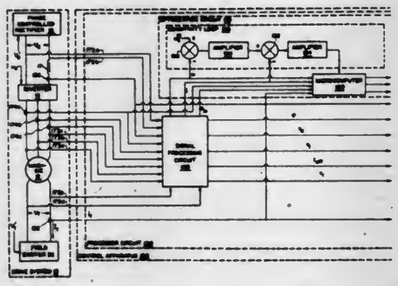
an advance angle control command circuit applied with the output of said speed detector,

for outputting to said second gate pulse generator a signal with a low value for an advance angle at a low speed of said synchronous motor and a high value for the advance angle at a high speed, said advance angle control command circuit comprising a comparator for comparing the actual speed value with a reference value provided by a speed setting circuit, and a change regulating circuit applied with the output of said comparator for regulating a change between advance angle control command signals at the low speed and the high speed during a predetermined time interval, and the output of which is applied to said second gate pulse generator as the advance angle control command signals, said comparator switching its output signal from a constant value to another constant value when the actual speed value reaches a predetermined speed value.

4,276,505
MICROCOMPUTER-BASED CONTROL APPARATUS FOR A LOAD-COMMUTATED INVERTER SYNCHRONOUS MACHINE DRIVE SYSTEM

Bimal K. Bose, Latham, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Mar. 31, 1980, Ser. No. 135,215
Int. Cl.³ H02P 5/28, 5/34, 7/36
U.S. Cl. 318—723 20 Claims



1. For use with a load commutated inverter-synchronous machine drive system comprised of a synchronous-machine, a first source of variable amplitude direct current voltage coupled to said synchronous machine for supplying said synchronous machine with field voltage, a second source of variable amplitude direct current voltage, and an inverter coupled between said second source of variable amplitude direct current voltage and said synchronous machine for supplying said synchronous machine with variable amplitude, variable frequency, alternating current, an improved control apparatus for regulating inverter frequency to minimize synchronous machine reactive power and for regulating the voltage supplied by said first and said second sources of variable amplitude direct current voltage to maximize synchronous machine efficiency, said control apparatus comprising:

first means coupled to said synchronous machine and to said first source of variable amplitude direct current voltage, said first means determining optimum synchronous machine air gap flux from actual machine drive system voltages and currents and adjusting the voltage supplied by said first source of variable amplitude direct current voltage responsive to the difference in magnitude between said optimum synchronous machine air gap flux and actual synchronous machine air gap flux;

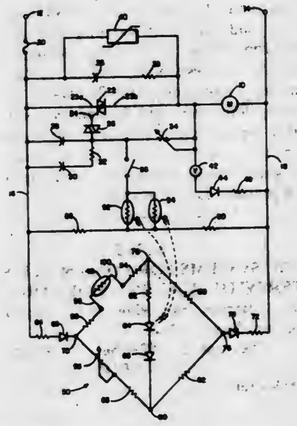
second means coupled to said synchronous machine and to said second source of variable amplitude direct current voltage, said second means determining optimum inverter link current from machine drive system voltages and currents and adjusting the voltage supplied by said second source of variable amplitude direct current voltage responsive to the difference in magnitude between said optimum inverter link current and actual inverter link current; and

third means coupled to said synchronous machine and said inverter, said third means determining the optimum inverter turn-off time from machine drive system voltages and adjusting inverter frequency responsive to the difference in magnitude between optimum inverter turn-off time and actual inverter turn-off time thereby minimizing synchronous machine reactive power.

4,276,506
MOTOR CONTROL CIRCUIT

Hercel A. Little, Hampton, Minn., assignor to Chore-Time Equipment, Inc., Milford, Ind.

Filed Jun. 29, 1979, Ser. No. 53,330
Int. Cl.³ H02P 5/40
U.S. Cl. 318—806 17 Claims



1. A motor control circuit for controlling speed of an AC electric motor as a function of a sensed parameter, the motor control circuit comprising:

first and second conductor means adapted to be connected to a source of AC voltage;

integrating circuit means connected between the first and second conductor means and having an output;

first gated bilateral switch means having first and second main current carrying electrodes and a gate electrode for receiving a signal derived from the output of integrating circuit means, the first and second main current carrying electrodes being connected in series with the AC electric motor between the first and second conductor means;

condition responsive sensing circuit means for providing a signal which is a function of the sensed parameter;

light emitting means for emitting light as a function of the signal from the condition responsive means; and

light responsive charging circuit means for providing charging current to the integrating circuit means as a function of light received from the light emitting means, the light responsive charging circuit comprising:

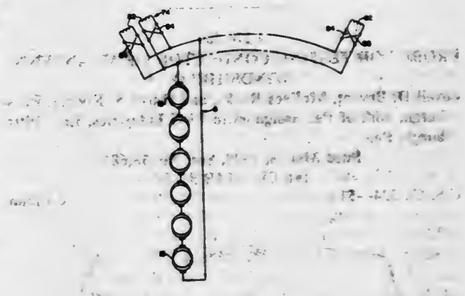
voltage divider means connected between the first and second conductor means; and

photosensor means connected between the voltage divider means and the integrating circuit means.

4,276,507
HOMOPOLAR MACHINE FOR REVERSIBLE ENERGY STORAGE AND TRANSFER SYSTEMS

Roy E. Stillwagon, Ruffsdale, Pa., assignor to U.S. Department of Energy, Washington, D.C.

Division of Ser. No. 585,642, Jun. 10, 1975, Pat. No. 4,110,648.
This application Feb. 3, 1978, Ser. No. 874,978
Int. Cl.² H02K 7/02
U.S. Cl. 322—48 5 Claims



1. The method of reversibly storing and transferring energy between a homopolar machine and a connected inductive load comprising the steps of:

storing energy in a rotor of a homopolar machine by rotating the rotor at 100% speed and providing 100% voltage at the rotor terminals;

closing a series switch to transfer a current pulse from the rotor to said connected inductive load;

permitting the current to rise in said load to its peak value in time T_c and simultaneously allowing the machine voltage and speed to decrease to zero;

closing a shunt switch across the inductive load to maintain the current therein at said peak value and thereby store the energy magnetically in said inductive load for a time T_h;

at the end of time T_h, opening said shunt switch and transferring current from said inductive load to the machine during a time T_d to simultaneously permit the transferring current to fall to zero and cause said machine rotor to accelerate substantially to 100% speed and 100% voltage;

opening said series switch; and

maintaining said rotor speed and voltage for a time T_f until the series switch is again closed to repeat the cycle.

4,276,508
ELECTRONIC ATTENUATOR APPARATUS

Kikuo Usugi, Toda, Japan, assignor to Clarion Co., Ltd., Tokyo, Japan

Filed Apr. 19, 1979, Ser. No. 31,491
Claims priority, application Japan, Apr. 24, 1978, 53-54439[U]
Int. Cl.³ H01P 1/22
U.S. Cl. 323—354 15 Claims

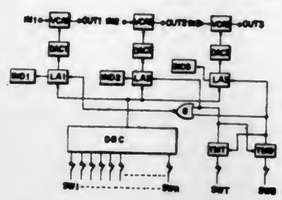
1. An electronic attenuator apparatus comprising:

a plurality of voltage controlled attenuator circuits each varying an attenuation factor between an input and an output in response to the level of a voltage supplied thereto;

a plurality of hold circuits each connected to a corresponding said attenuator circuit for holding said voltage and for

supplying it to said attenuator circuit to control said attenuation factor;

a level setting circuit for manually setting a level signal indicating said level of the voltage; and



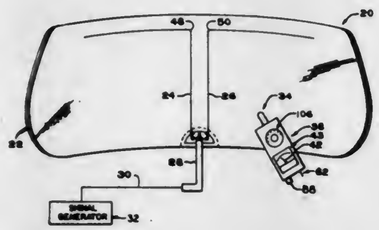
control means for selectively supplying said level signal from said level setting circuit to one of said hold circuits.

4,276,509

PROBE FOR TESTING CONDUCTOR OF AN ANTENNA WINDSHIELD

Lovell D. Bryant, McKees Rocks, and Harry S. Koontz, Pittsburgh, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 8, 1979, Ser. No. 18,685
Int. Cl.³ G01R 31/02
U.S. Cl. 324—51 6 Claims



1. Method of determining the presence or absence of a fault in the antenna wire of an antenna windshield wherein the antenna system is of the type having at least one wire between a pair of laminated glass sheets and having a segment of the wire connected to means for providing external electrical access to the at least one wire, comprising the step of:

connecting the means for providing electrical access to a radio frequency generator; and

moving a frequency pick up probe relative to the at least one wire wherein reception of a radio frequency signal by the probe indicates electrical continuity from the generating means to the probe location and no reception of a radio frequency signal by the probe indicates no electrical continuity from the generating means to the probe location.

4,276,510

APPARATUS FOR SENSING CURRENT TRANSFORMER PRIMARY CURRENT AS A FUNCTION OF DIFFERENTIAL CORE INDUCTANCE

Russell E. Tompkins, Scotia; John P. Walden, Schenectady, both of N.Y., and Loren H. Walker, Salem, Va., assignors to General Electric Company, New York, N.Y.

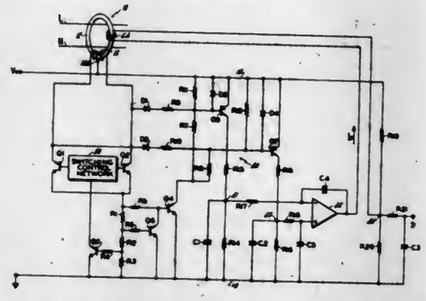
Filed May 16, 1979, Ser. No. 39,628
Int. Cl.³ G01R 1/02
U.S. Cl. 324—127 13 Claims

10. Apparatus for sensing low frequency primary current excitation of a current transformer having a closed magnetic core of soft magnetic material, said apparatus including, in combination:

A. an AC voltage source connected to drive high frequency exciting current through a secondary winding on the core and thereby exercise the core over an operating loop of the core's B-H curve, said exciting current having alternating positive and negative peaks of uniformly equal amplitudes insufficient to saturate the core,

(1) said operating loop being symmetrical with respect to the positive and negative saturation levels of the core's B-H curve in the absence of primary current excitation, and

(2) in the presence of primary current excitation, said operating loop being shifted on the core's B-H curve such that it is no longer symmetrical with respect to the positive and negative saturation levels;



B. means responsive to said secondary exciting current for developing a first signal proportional to the average slope of said operating loop over a first region thereof during the positive half cycle of the flux wave generated in the core by said secondary exciting current and a second signal proportional to the average slope of said operating loop over a corresponding second region thereof during the negative half cycle of the flux wave, the slopes of said operating loop over said first and second regions being equal in the absence of primary current excitation; and

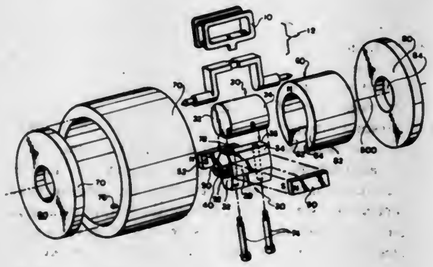
C. means responsive to the differential of said first and second signals for developing an output signal proportional to the primary current excitation.

4,276,511

MAGNETIC SYSTEMS FOR LONG SCALE ELECTRICAL METER WITH MULTIPLE SIDE COIL SENSING

Willem J. L. Boreas, Sayreville, N.J., assignor to Sangamo Weston, Inc., Newark, N.J.

Filed Jul. 31, 1978, Ser. No. 929,885
Int. Cl.³ G01R 5/08
U.S. Cl. 324—150 7 Claims



1. A magnetic system for a rotor having a coil, said coil including at least two radially oriented sides and at least two axially oriented sides, for four side coil sensing, said magnetic system comprising:

at least one magnet having poles;

a core pole piece;

an outer annular pole piece having two axial ends, said outer annular pole piece surrounding said core pole piece and spaced therefrom, both of said pole pieces magnetically coupled to the same pole of said at least one magnet;

an inner annular pole piece, magnetically coupled to the other pole of said at least one magnet, said inner annular pole piece having an inside radius and disposed substantially between said core pole piece and said outer annular pole piece and defining an inner annular air gap between said core pole piece and said inner annular pole piece and defining an outer annular air gap between said inner annular pole piece and said outer annular pole piece; and

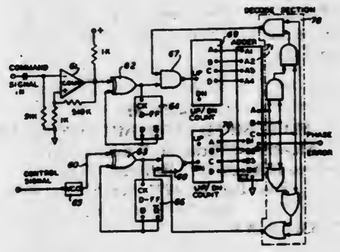
two radial pole pieces, each magnetically coupled to said same pole and positioned proximate each axial end of said outer annular pole piece and extending radially inwardly at least as far as the inside radius of said inner annular pole piece and spaced therefrom to form radial air gaps, whereby the axially oriented sides of said coil move in said inner and outer annular air gaps through parallel but opposing radial magnetic fields, and the radially oriented sides of said coil move in said radial air gaps through axial but opposing magnetic fields.

4,276,512

PHASE DETECTOR FOR PHASE LOCKED LOOPS

Ernest C. Wittke, West Caldwell, N.J., assignor to The Singer Company, Little Falls, N.J.

Filed May 21, 1979, Ser. No. 41,045
Int. Cl.³ H03D 13/00
U.S. Cl. 328—133 11 Claims



1. A phase processing system comprising:

logic level pulse means for converting a sinusoidal signal input to logic level signal,

a counting means,

an adder means,

driving means responsive to said logic level pulse means for driving said counting means,

said counting means driving said adder means whereby the outputs of said counting means are added in said adder means with the carry signal ignored, the most significant bit from said adder means being 0 when said adding means is less than half its range and being 1 when the output of said adder means is above-mid-range, and

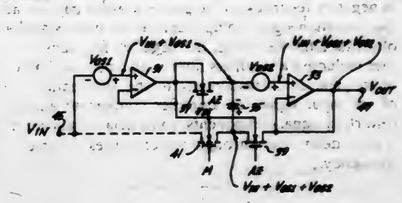
decoding means for decoding the output of said adder means to block upcount when the adder output exceeds a first predetermined limit and to block downcount when the adder output falls below a second predetermined limit.

4,276,513

AUTO-ZERO AMPLIFIER CIRCUIT WITH WIDE DYNAMIC RANGE

Craig E. Johnston, Woodinville, and Ramesh C. Goyal, Mountlake Terrace, both of Wash., assignors to John Fluke Mfg. Co., Inc., Mountlake Terrace, Wash.

Filed Sep. 14, 1979, Ser. No. 75,708
Int. Cl.³ H03F 1/02, 1/09
U.S. Cl. 330—9 29 Claims



1. In an auto-zero amplifier circuit wherein an operational amplifier is switched between an auto-zero mode of operation during which the value of the input offset voltage of the operational amplifier is determined and stored on a capacitor and an accurate amplification mode of operation during which the stored value of the input offset voltage is summed with an input signal to compensate for the input offset voltage of the operational amplifier, the improvement comprising:

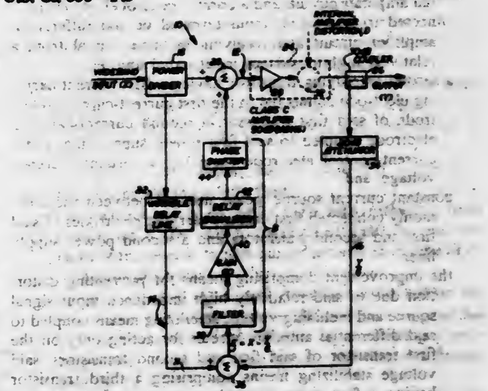
first circuit means for applying the input signal to a common junction between the input of the operational amplifier and one side of the capacitor during the auto-zero mode of operation and second circuit means for applying the output of the operational amplifier to the other side of the capacitor during the auto-zero mode of operation, said first and second circuit means further connecting said capacitor in shunt with the input of the operational amplifier during the auto-zero mode of operation and in series with the input signal during the accurate amplification mode of operation.

4,276,514

WIDEBAND, PHASE COMPENSATED AMPLIFIER WITH NEGATIVE FEEDBACK OF DISTORTION COMPONENTS IN THE OUTPUT SIGNAL

Marshall Y. Huang, Rancho Palos Verdes, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Jul. 9, 1979, Ser. No. 55,672
Int. Cl.³ H03D 1/00
U.S. Cl. 330—149 10 Claims



1. An amplifier system comprising:

an amplifier having at least one stage of signal amplification

coupled along a primary signal path to receive a system input signal and provide an amplified system output signal in response thereto;

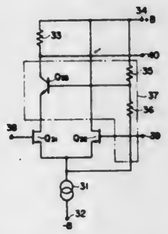
a negative feedback loop having fixed time delays therealong and including a summing junction coupled to provide distortion signal components as the difference between the system input signal and a portion of the amplified system output signal, the negative feedback loop being coupled to provide the distortion signal components as negative feedback to the primary signal path by adding the distortion signal components to the input signal ahead of a first amplifier stage, the negative feedback loop further including a bandpass filter with a passband at a range of frequencies corresponding to the information content of the input signal, an amplifier coupled to amplify the distortion signal components, and a delay equalizer having a time delay therethrough which varies inversely with frequency.

4,276,515

DIFFERENTIAL AMPLIFIER CIRCUIT ARRANGEMENT WITH STABILIZED INPUT IMPEDANCE

Yutaka Nishimoto, Hamamatsu, Japan, assignor to Nippon Gakki Seizo Kabushiki Kaisha, Hamamatsu, Japan

Filed Feb. 16, 1979, Ser. No. 12,701
Claims priority, application Japan, Mar. 1, 1978, 53-25989[U]
Int. Cl.³ H03F 3/45
U.S. Cl. 330—253 6 Claims



1. In a differential amplifier circuit for use as an input stage of an audio circuit, and having a stabilized input impedance and a signal input terminal and an output terminal, comprising:

load means;

a first amplifying transistor having a first current-carrying electrode, a second current-carrying electrode coupled to a first power supply line through said load means for said first transistor and to said output terminal of said differential amplifier circuit, and a current-control electrode connected to said signal input terminal of said differential amplifier circuit and receiving an input signal from a relatively high impedance input signal source;

a second amplifying transistor having a first current-carrying electrode connected to the first current-carrying electrode of said first transistor, a second current-carrying electrode coupled to said first power supply line, and a current-control electrode receiving a certain reference voltage; and

constant current source means inserted between the commonly connected first current-carrying electrodes of said first and second transistors and a second power supply line,

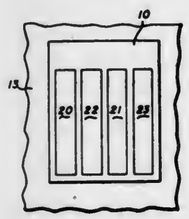
the improvement comprising means for preventing distortion due to said relatively high impedance input signal source and including voltage stabilizing means coupled to said differential amplifier circuit for acting only on the first transistor of said first and second transistors, said voltage stabilizing means comprising a third transistor having a first main electrode connected to the second current-carrying electrode of said first transistor, a second main electrode connected to said load means and to said output terminal, and a control electrode held at a substantially constant potential relative to the first current-carrying electrode of said first transistor by circuit means which is associated with the first current-carrying electrode of said first transistor, the coupling between said second current-carrying electrode of said second transistor and said first power supply line being a direct connection, thereby maintaining substantially constant a potential across the first and second current-carrying electrodes of said first transistor.

4,276,516

THERMAL STRESS REDUCTION IN IC POWER TRANSISTORS

James S. Congdon, Santa Clara, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jul. 26, 1979, Ser. No. 61,158
Int. Cl.³ H03F 3/26
U.S. Cl. 330—272 10 Claims



1. In an integrated circuit designed for high power operation and including at least first and second output transistors, said output transistors operating to account for most of the power dissipation in said circuit and biased so that said first and second output transistors do not dissipate their peak power simultaneously but on an alternating basis, the improvement comprising:

fabricating said first and second output transistors each in the form of a plurality of isolated electrically interconnected sections; and

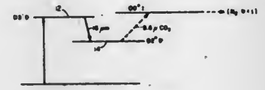
interdigitating said sections so that adjacent sections represent respectively elements of said first and second output transistors.

4,276,517

CO PUMPED CO_2 16 MICRON LASER

Gary L. McAllister, Richland, Wash., assignor to Jersey Nuclear-Avco Isotopes, Inc., Bellevue, Wash.

Filed Dec. 19, 1977, Ser. No. 861,985
Int. Cl.³ H01S 3/091
U.S. Cl. 331—94.5 P 20 Claims



1. A CO_2 laser emitting 16 micron radiation comprising:

a CO_2 lasable medium having a transition of approximately 16 micron energy between a first excited state at 02°0 and a second relatively higher excited state 03'0;

means for exciting said medium to said second excited state;

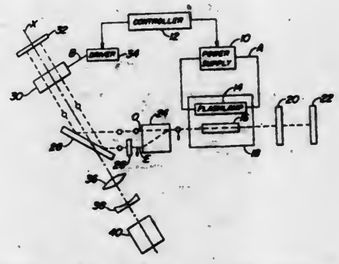
means for inducing a transition between said second and first excited states thereby to produce 16 micron radiation.

4,276,518

OPTICAL OSCILLATOR

Gerald D. Ferguson, Yardley, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 1, 1978, Ser. No. 901,955
Int. Cl.³ H01S 3/02
U.S. Cl. 331—94.5 C 11 Claims



1. A light conduction and transmission system, comprising:

first and second mirrors spatially positioned to form a resonant chamber therebetween;

a light source disposed in the chamber on a first optical axis common with said first mirror for emittng a light beam of first and second polarizations;

switching means disposed in the chamber for selectively rotating the polarization direction of light passing therethrough;

polarizing means disposed in the chamber between said switching means and said first mirror for deflecting light of the first polarization between the first axis and a second optical axis intersecting the first axis near said polarizing means, and for passing light of the second polarization;

beam splitting means disposed in the chamber along said first axis and between said light source and said polarizing means, for dividing said beam of the first and second polarizations into respective first and second substantially parallel paths, and for combining, onto said first axis, light arriving at said beam splitting means on said first and second paths and having the first and second polarizations respectively; and

first polarization changing means disposed in the chamber on one of said paths between said beam splitting means and said polarizing means for changing the first and second polarizations of light passing therethrough one to the other, whereby light of a single polarization is provided to said polarizing means along said first axis.

4,276,519

HIGH YIELD DIFFRACTION LIMITED LASER OSCILLATOR

Jean M. Marteau, Bures-Sur-Yvette, France, assignor to Quantel S.A., France

Filed Oct. 3, 1978, Ser. No. 948,259
Claims priority, application France, Oct. 4, 1977, 77 29757
Int. Cl.³ H01S 3/08
U.S. Cl. 331—94.5 C 21 Claims

1. A diffraction limited laser oscillator comprising first and second mirrors defining a cavity, an optical amplifying medium and a diaphragm interposed between the mirrors, the diaphragm being placed between the amplifying medium and said first mirror which has a high coefficient of reflection, the oscillator further comprising a polarizer placed between the diaphragm and the amplifying medium and a device for rotating the polarization of the beam of light leaving said cavity through said second mirror, for transforming and returning said beam by reflection to the amplifying medium and the polarizer, said device for rotating the polarization of said beam being located outside said cavity on the path of said beam, whereby, when the beam again reaches the amplifying medium, it has a section substantially equal to the section of the amplifying medium.

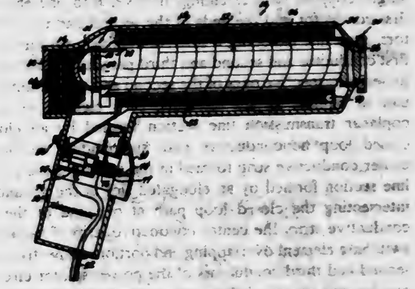


4,276,520

PORTABLE LASER DEVICE

Larry Rosenberg, 3448 Caroline Ave., Culver City, Calif. 90230

Continuation-in-part of Ser. No. 647,553, Jan. 8, 1976, and a continuation-in-part of Ser. No. 798,159, May 9, 1977, abandoned. This application Mar. 12, 1979, Ser. No. 19,782
Int. Cl.³ H01S 3/091
U.S. Cl. 331—94.5 P 11 Claims



1. A laser beam generating device, comprising

(a) a crystalline laser active media of a generally cylindrically shaped crystal of light amplifying material which is capable of producing a coherent light beam,

(b) a pump source for said crystal in the form of a spiral shaped flash tube disposed about the crystal which can be pumped to produce light which is readily absorbable by the crystal,

(c) electrical power supply means connected to the flash tube for producing a light flash,

(d) a resonant cavity including a partially reflecting front mirror and a rear mirror disposed adjacent the end surfaces of the crystal to provide reflectivity along the crystal longitudinal axis,

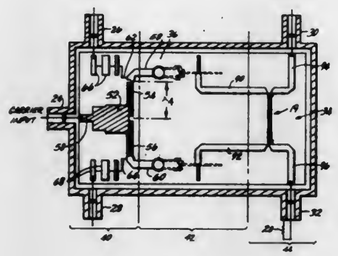
(e) a light emitting arc source means disposed behind the rear mirror and in alignment with the crystal longitudinal axis for producing a high intensity light including a wave length that can pass through the rear mirror and is absorbable by the crystal, and

(f) a parabolic light reflecting mirror disposed immediately behind the light emitting arc source means and in alignment with the crystal axis with its focal point disposed at the position of the light emitting arc source.

4,276,521
QUADRIPHASE INTEGRATED HIGH-SPEED MICROWAVE MODULATOR

Roger A. Davidheiser, Manhattan Beach, Calif., assignor to TRW Inc., Redondo Beach, Calif.

Filed Dec. 18, 1978, Ser. No. 970,606
Int. Cl.³ H03C 3/00; H01P 3/08
U.S. Cl. 332—23 R 4 Claims



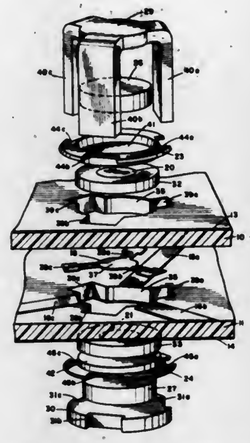
1. A quadriphase modulator comprising: a dielectric substrate having a conductive layer on one surface forming a ground plane; an inphase power splitter circuit including a first conductor on the opposite surface from the ground plane, second and third parallel conductors, a pair of quarter wavelength coupled lines extending transverse to one end of said first conductor and the ends of the second and third conductors, each line including a first conductive strip joined to the first conductor and second and third parallel conductive strips joined to respective ones of the second and third conductors; a pair of biphase switch elements, each element including a coplanar transmission line section formed by an elongated closed loop nonconductive path surrounding an elongated center conductive strip formed in the ground plane and a slot line section formed by an elongated slot in the ground plane intersecting the closed loop path at one end of the center conductive strip, the center conductive strip of each biphase switching element overlapping end portions respectively of the second and third conductors of the power splitter circuit, the overlapping portions being connected electrically through the dielectric substrate, and a pair of diodes connected respectively between the center conductive strip and the ground plane on either side of the slot at the intersection between the slot and the closed loop nonconductive path; a microstrip 90 degree hybrid junction formed on the opposite side of the substrate from the ground plane; transition means coupling the slot line of each of the biphase switch elements to the hybrid circuit; means connecting a modulating reversible polarity bias voltage between the ground plane and said second and third conductors respectively for switching the bias across said diodes; and means for applying a carrier signal from said opposite surface to said pair of biphase switch elements.

3. An inphase power splitter circuit comprising: a dielectric substrate having a conductive layer on one surface forming a ground plane, a first conductor on the opposite surface from the ground plane, second and third parallel conductors, a pair of quarter wavelength coupled lines extending transverse to one end of said first conductor and the ends of the second and third conductors, each line including a first conductive strip joined to the first conductor and second and third parallel conductive strips joined to respective ones of the second and third conductors, the parallel strips providing DC isolation between the first conductor and the second and third conductors, respectively.

4,276,522
CIRCULATOR IN A STRIPLINE MICROWAVE TRANSMISSION LINE CIRCUIT

Leo E. Coerver, Dallas, Tex., assignor to General Dynamics, Pomona, Calif.

Filed Dec. 17, 1979, Ser. No. 104,523
Int. Cl.³ H01P 1/387
U.S. Cl. 333—1.1 9 Claims



1. In a stripline microwave transmission line circuit disposed in a pattern of printed circuit conductors between a pair of facing dielectric material circuit boards having conductive ground planes on their exposed broad faces, a circulator comprising

at least three printed circuit center conductors disposed between the two boards in a symmetrical array extending radially from a circular hole aligned through the two boards, wherein the center conductors and the ground planes define transmission lines terminating in ports at the circular hole;

a conductive foil having a central portion concentrically disposed within the perimeter of the hole and radially projecting arms arranged in contact with the radially extending center conductors for electrically connecting the center conductors together to form signal paths between adjacent ports;

a pair of pucks of ferrite material of a predetermined size selected to provide circulation of microwave signals of a predetermined wavelength concentrically disposed in the hole on opposite sides of the conductive foil;

a pair of conductive covers in contact with the ground plane conductors to provide an rf ground for the ferrite pucks, and extending to completely enclose the ferrite pucks within the hole;

a magnet disposed in axial alignment with the ferrite pucks for providing a magnetic field through and normal to the central portion of the conductive foil to thereby enable a microwave signal to be circulated from a port defined by one of the center conductors to a port defined by an adjacent one of the center conductors in a direction determined by the direction of said magnetic field; and magnetically permeable material contacting the magnet and concentrically disposed for providing a closed magnetic loop for shielding the circulator; and

a pair of high dielectric material rings disposed in the hole for radially enclosing the pucks and making contact with both the pucks and the surfaces of the boards defining the hole, wherein the radial thickness of each ring is one-quarter said predetermined wavelength for impedance matching the circulator to each of the transmission lines defined by the center conductors and the ground planes,

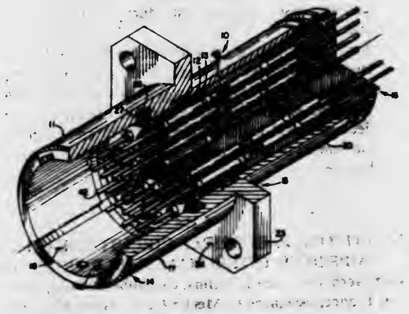
wherein the improvement comprises

the conductive covers being dished to have respective central portions that are recessed below the ground planes to broadly contact the ferrite pucks and maintain the ferrite pucks in contact with the conductive foil.

4,276,523
HIGH DENSITY FILTER CONNECTOR

Kamal S. Boutros, Downsview, and Michael J. Coleman, Oshawa, both of Canada, assignors to Bunker Ramo Corporation, Oak Brook, Ill.

Filed Aug. 17, 1979, Ser. No. 67,251
Int. Cl.³ H03H 7/01; H01R 13/648, 13/66
U.S. Cl. 333—182 26 Claims



1. A filter connector comprising:

a conductive housing;

an inner body within said housing including at least one longitudinally extending opening and a transversely extending cavity communicating with said opening and said housing;

a filter network means within said opening and at least a portion of said cavity, said network means including an outer ground electrode within at least a portion of said cavity and a pin electrode;

a contact means within said network means, said contact means being electrically coupled to said pin electrode;

conductive filler material within said cavity surrounding and being in electrical connection with said ground electrode; and

a ring means being formed of rigid, electrically conductive material surrounding said filler material along the longitudinal length thereof and being bonded in electrical connection therewith, and said ring means also being electrically coupled to said housing so that said filler material and said ring means form a ground plate for said filter network.

4,276,524
ACOUSTIC SURFACE WAVE DEVICE

Michio Kadota, Kyoto, Japan, assignor to Murata Manufacturing Co., Ltd., Nagaokakyo, Japan

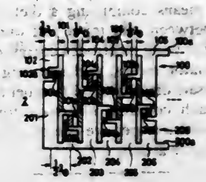
Filed Aug. 3, 1978, Ser. No. 930,674
Claims priority, application Japan, Aug. 10, 1977, 52-96469
Int. Cl.³ H03H 9/145, 9/64
U.S. Cl. 333—194 17 Claims

1. An acoustic surface wave device, comprising:

a piezoelectric material adapted for propagating an acoustic surface wave,

at least one electromechanical transducer coupled to a surface of said piezoelectric material at a transducer region thereof, said transducer comprising an interdigital electrode including a pair of comb shaped electrodes, disposed in an interdigital manner, each comb shaped electrode including a common electrode and a plurality of electrode fingers commonly connected to said common electrode, whereby an electrical signal is converted into an acoustic surface wave and an acoustic surface wave is converted into an electrical signal,

at least one of said plurality of electrode fingers including a first portion having a given length connected to said common electrode at one end thereof, a second portion



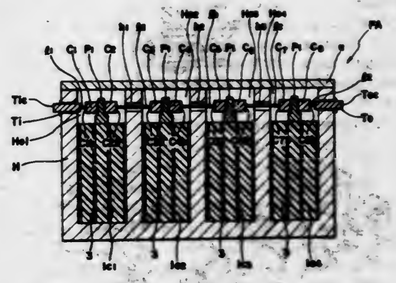
extending longitudinally from the other end of said first portion having a width narrower then that of said first portion, and

a protruding portion extending longitudinally from said second portion, said protruding portion having a width narrower then that of said second portion.

4,276,525
COAXIAL RESONATOR WITH PROJECTING TERMINAL PORTION AND ELECTRICAL FILTER EMPLOYING A COAXIAL RESONATOR OF THAT TYPE

Toshio Nishikawa, Nagaokakyo; Sadahiro Tamura, and Yoshei Ishikawa, both of Kyoto, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Nov. 27, 1978, Ser. No. 963,756
Claims priority, application Japan, Dec. 14, 1977, 52-150849; Dec. 14, 1977, 52-160921[U]; Jan. 22, 1978, 53-7637
Int. Cl.³ H01P 1/205, 7/08
U.S. Cl. 333—206 4 Claims



1. An electrical filter, comprising:

an electrically conductive housing means;

at least two resonator means accommodated in and electrically connected and mechanically secured to said housing means, each of said resonator means comprising a dielectric member having a bore therein, an outer conductor member disposed on the outer periphery of said dielectric member and electrically connected to said housing means, an inner conductor member disposed on the periphery of said bore of said dielectric member, and a terminal electrode member secured to and in direct electrical contact with said inner conductor member, one portion of said terminal electrode means projecting from one end of said resonator means;

an input means for applying electrical signals to said electrical filter;

an output means for removing electrical signals from said electrical filter; and

coupling means for electrically coupling said resonator

means to each other at their respective ones of said terminal portions and also to said input and output connector means, said resonator means being so accommodated in said housing means that said terminal electrode members are disposed collinearly with each other and with said input and output connector means; and

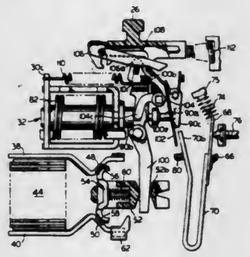
said coupling means comprising a dielectric rod member connected between said input and output means and a plurality of coupling electrodes corresponding in number to said resonator means, said coupling electrodes being provided on said dielectric rod member at spaced intervals such that each coupling electrode forms an electrical connection with a respective one of said terminal portions of said resonator means.

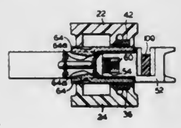
4,276,526

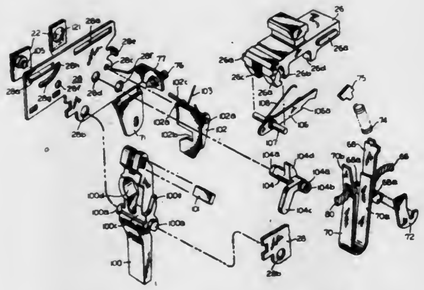
MINIATURE CURRENT LIMITING CIRCUIT BREAKER

Ronald D. Ciarcia, Plantsville, and Robert L. Owens, Plainville, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed Jan. 23, 1980, Ser. No. 115,636
Int. Cl.³ H01H 75/12
U.S. Cl. 335—35 **27 Claims**







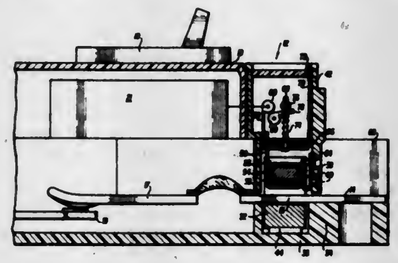
1. A circuit breaker comprising, in combination:
A. a molded insulative case consisting of a base and a cover;
B. a manual operating handle mounted within said case for movement between ON and OFF positions;
C. a mechanism frame positionally mounted in said base;
D. at least one stationary contact positionally mounted in said base;
E. at least one movable contact;
F. an elongated movable contact operating arm movably mounted by said frame, one end of said arm operatively coupled with said movable contact such that movement of said arm in a closing direction propels said movable contact into engaging relation with said stationary contact and movement of said arm in an opposite, opening direction propels said movable contact away from engaging relation with said stationary contact;
G. a spring continuously biasing said arm for movement in said opening direction;
H. a latch element carried by the other end of said arm;
I. an elongated, pivotal latch lever coupled with said handle and having a latching shoulder latchingly engaging said latch element to translate the movement of said handle between its ON and OFF positions into movement of said arm in said closing and opening directions to effect manual breaker operation, said handle cooperating with said frame to vary the pivotal mounting location of said latch lever pursuant to maintaining its angular relationship with said arm essentially constant during manual breaker operation; and
J. trip means acting on said latch lever to disengage said latching shoulder from said latch element in response to current of overcurrent proportions flowing through the engaged stationary and movable contacts, whereby to decouple said handle from said arm and permit opening movement of said arm by said spring independently of said handle.

4,276,527

MULTIPOLE ELECTRICAL CIRCUIT BREAKER WITH IMPROVED INTERCHANGEABLE TRIP UNITS

Alain Gerbert-Gaillard, Tullins, and Robert Morel, Eybens, both of France, assignors to Merlin Gerin, Grenoble, France

Filed Jun. 11, 1979, Ser. No. 47,227
Claims priority, application France, Jun. 23, 1978, 78 19422
Int. Cl.³ H01H 73/48
U.S. Cl. 335—39 **6 Claims**



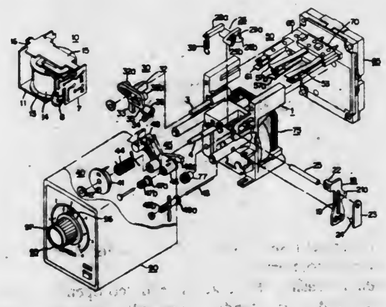
1. A molded case multi-pole circuit breaker comprising:
a current breaking assembly including adjacent poles each having a pair of separable contacts,
an interchangeable trip unit comprising a trip structure for opening said contacts, said trip unit comprising associated to each pole a magnetic circuit to generally encompass an opening and formed by two separable portions, a first portion having a U-shaped core member with opposite legs and a second portion including a separate rod member having end faces inserted between opposite legs of said U-shaped core member upon assembly of said trip unit,
a main conductor connected in electrical series with said pair of separable contacts and passing through said opening, one of said portions being secured to the breaking assembly and the other being removable and integral with said interchangeable trip unit,
a bimetal support member associated to said other portion and adapted to be heated by hysteresis and eddy current losses therein when said conductor is energized,
a bimetal element supported on said bimetal support member in a heat conducting relationship with said bimetal support member, said bimetal element operating said trip structure in response to being heated a predetermined amount to effect opening of said contacts to thereby provide a thermal tripping operation,
magnetic air gap means defined between said legs and said end faces wherein the sum of said air gap means is independent of the relative position of said separable portions whereby said hysteresis and eddy current losses in said other portion remain independent of said relative position permitting replacement of the interchangeable trip unit without disconnection of said main conductor and accurate positioning of said separable portions.

4,276,528

ELECTRIC MOTOR-DRIVEN TIMER

Isamu Obara; Tsutomu Muranaka, and Hideo Eizumi, all of Nagaokakyo, Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Feb. 28, 1979, Ser. No. 16,343
Claims priority, application Japan, Mar. 8, 1978, 53-26806; Mar. 10, 1978, 53-28094
Int. Cl.³ H01H 43/02
U.S. Cl. 335—75 **7 Claims**



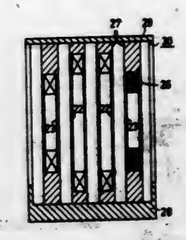
1. An electric motor-driven timer comprising:
an electromagnet having an armature, a synchronous motor having an output shaft for rotating a driven gear, a driven gear rotatable about a first shaft and having a cam surface including a portion defining the end of a timing duration, a clutch means for selectively coupling said output shaft with said driven gear, a contact assembly having a plurality of movable blades each provided with a movable contact, an actuator rotatable about a second shaft for engaging with and moving said movable blades, said actuator having an arm provided with two actuating portions for driving said movable blades and being rotatably supported on said second shaft at an intermediate position between said actuating portions, said actuator including a cam follower selectively engageable with said cam surface to control rotative movement of said actuator, said cam follower imparting rotative movement to said actuator when encountering said cam surface portion;
time setting means for rotating said driven gear and associated cam surface to a desired starting position corresponding to a selected time duration; and
means responsive to a predetermined movement of said armature for operating said clutch means to couple said output shaft to said driven gear to rotate said driven gear and for causing said cam follower of said actuator to engage with said cam surface, said output shaft said first shaft, said second shaft, and said blades of said contact assembly being in parallel and at approximately right angles to the moving direction of said armature.

4,276,529

MAGNET COIL ARRANGEMENT FOR GENERATING A HOMOGENEOUS MAGNETIC FIELD FOR MAGNETIC RESONANCE ARRANGEMENTS

Jürgen Heinzerling, Hamburg, and Reiner Rieckhoer, Quickborn, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 14, 1979, Ser. No. 93,969
Claims priority, application Fed. Rep. of Germany, Nov. 14, 1978, 2849355
Int. Cl.³ H01F 5/00
U.S. Cl. 335—300 **2 Claims**



1. A magnet coil arrangement for generating a magnetic field which is homogeneous at least in its centre, preferably for magnetic resonance spectroscopy, consisting of four flat, pairwise identical ring coils, coil planes of the ring coils extending perpendicularly to an axis of examination which extends through the coil centres and the coils being symmetrically arranged with respect to a central point on the axis of examination, the ring coils which belong to different pairs having different mean winding diameters as well as rectangular winding cross-sections, the sides of which extend perpendicularly and parallel, respectively, to the axis of examination, the coil pair having the large mean winding diameter being situated between the coils of the pair having the smaller mean winding diameter, current flowing in the same direction through all ring coils, characterized in that the mean winding diameter of the smaller ring coils (23) amounts to approximately 0.635 times the mean winding diameter (Y1) of the larger ring coils (22) and the axial winding width (b) of all ring coils amounts to approximately 0.084 times this diameter, the radial winding height (41) of the larger ring coils amounting to approximately 0.162 times the mean winding diameter of the larger ring coils, the radial winding height (42) of the smaller ring coils (23) amounting to approximately 0.100 times this diameter, the distance (Z1) between the central plane of the larger ring coils and the central point (P) amounting to approximately 0.144 times this diameter, and the distance (Z2) between the central plane of the smaller ring coils and the central point amounting to approximately 0.376 times this diameter, the number of ampere-turns of the larger ring coils being at least approximately 1.65 times the number of ampere-turns of the smaller ring coils.

4,276,530

VAPOR-COOLED ELECTRICAL APPARATUS

Frank W. Benke, and Curtis L. Moore, both of Hermitage, Pa., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

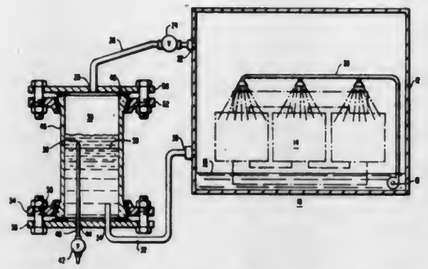
Filed Sep. 17, 1979, Ser. No. 75,768
Int. Cl.³ H01F 27/18
U.S. Cl. 336—58 **6 Claims**

1. Vapor-cooled electrical inductive apparatus, comprising:
a hermetically sealed flowpath, said flowpath including a tank, and water collecting means external to said tank,
a magnetic core-winding assembly in said tank adapted for energization by a source of electrical potential,
a liquid dielectric containing trace amounts of water disposed in said tank to a predetermined level, said liquid

dielectric and water being immiscible and of different densities,

said magnetic core-winding assembly, when energized, heating said liquid dielectric and water sufficiently to vaporize said liquid dielectric and water into the space above the liquid level in said tank,

said hermetically sealed flowpath being constructed to initiate a predetermined self circulating flow of vapor from said tank to said water collecting means, and liquid from said water collecting means to said tank, and further constructed to deliberately restrict the flow of vapor in said



flowpath to provide a self circulation rate which results in the water collecting means functioning as a water collector, rather than as a heat exchanger, with the temperature of the water collecting means being maintained below the condensation temperature of

said vaporized liquid dielectric and water,

means for segregating the water vapor which condenses in said water collecting means and for preventing it from re-entering the self circulating flowpath,

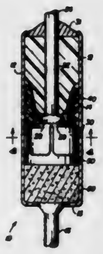
and means for withdrawing said segregated condensed water vapor from said water collecting means.

4,276,531

NONRESETTABLE THERMALLY ACTUATED SWITCH

Merwyn C. Davis, 316 W. Battaglia Rd., Arizona City, Ariz. 85223

Filed Apr. 20, 1979, Ser. No. 32,006
Int. Cl.³ H01H 37/76
U.S. Cl. 337—407 8 Claims



1. A thermal limiter comprising:

(a) an electrically conductive casing having a wall defining a generally cylindrical interior;

(b) a first electrical conductor secured to said casing and being electrically conductive therewith;

(c) a second conductor extending into said casing interior having contact head therein, said second conductor being electrically insulated from said casing;

(d) contact means engaging said conductive head in a closed position, said contact means having flange means radially deflectable into engagement with said casing interior;

(e) a fusable pellet in said casing adapted to become fluid at a pre-determined temperature;

(f) elastomeric means interposed between said pellet and said contact means deformable to urge said contact flange means radially into contact with said casing interior when an axial force is applied to said elastomeric means and adapted to return to a non-deformed condition when said axial force is removed thereby removing said radial force from said contact flange means; and

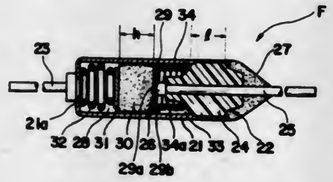
(g) spring means extending between said contact means and said casing whereby reaching fault temperature, said pellet becomes fluid permitting said elastomeric means to return to said non-deformed position thereby allowing said spring means to urge said contact away from the conductor head breading said electrical conductivity between said first and second leads.

4,276,532

THERMAL FUSE

Shigeru Aoki, Takatsuki, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Filed Jan. 27, 1979, Ser. No. 52,816
Claims priority, application Japan, Jul. 8, 1978, 53-94485[U]; Sep. 27, 1978, 53-133298[U]
Int. Cl.³ H01H 37/76
U.S. Cl. 337—408 14 Claims



1. A thermal fuse for use in electrical and electronic equipment which comprises:

a metallic casing closed at one end and open at one end;

a first conductor extending outwardly from said closed end and being in electrical contact with said casing;

a second conductor having one end axially extending through said open end into the interior of said casing and electrically insulated therefrom, said second conductor having an electrical contact portion at said one end of said second conductor;

an end plug member of an electrically insulative material supporting said second conductor in and insulating said second conductor from said metallic housing;

a contact plate member accommodated in said casing;

a first spring;

a fusible member which is of a material that will melt at a temperature exceeding a predetermined temperature, said first spring and said fusible member being accommodated between said electrical contact portion of said second conductor and said closed end of said metallic casing; and

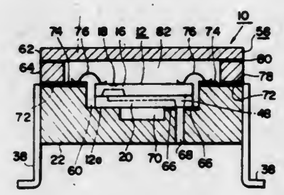
a second spring disposed in said open end of said casing, and being electrically insulated from said second conductor, and further having one end free for engaging said contact plate member, said first and second springs having respective first, compressed positions when said fusible member is solid, wherein said springs are both compressed and said second spring exerts a force to urge said contact plate member away from said electrical contact portion of said second conductor and said first spring exerts a larger force to urge said contact plate member against said electrical contact portion, whereby said plate member and said contact portion are in mechanical and electrical contact when said springs are in said first position; and said springs further having respective second, relaxed positions when said fusible member is melted, such that in said second positions, said second spring holds said contact plate member out of electrical contact with said electrical contact member; said second spring further being so constructed that the force it exerts on said contact plate member has a component directed toward the interior wall of said casing so that in said first portion said plate member is in electrical contact with said interior wall of said casing.

4,276,533

PRESSURE SENSOR

Tamotsu Tsuchiya; Teruyoshi Mihara, both of Yokohama; Takeshi Ogaro, Yokosuka, and Masami Takeuchi, Kokubunji, all of Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Jan. 30, 1980, Ser. No. 116,795
Claims priority, application Japan, Feb. 2, 1979, 54/10329
Int. Cl.³ G01L 1/22
U.S. Cl. 338—4 10 Claims



1. A pressure sensor comprising:

(a) a diaphragm assembly including a silicon diaphragm block which has a diaphragm, a diffused resistor formed as a pressure-sensitive element on a front surface of the diaphragm, and a silicon support plate bonded to the diaphragm block so as to cover a back surface of the diaphragm, and a first passage communicating from the back of the diaphragm to an opening in the surface of the diaphragm assembly;

(b) a hollow package sealingly accommodating the diaphragm assembly therein such that the assembly is bonded to the inside of the package at a portion of the assembly remote from the diaphragm in the direction of extension of the bonded surfaces of the block and the support plate, and said portion including the opening to the first passage, and that the front surface of the diaphragm and the diffused resistor thereon are spaced from the inside of the package, and having a second passage formed in the package and communicating from the opening to the first passage to the outside of the package; and

(c) a plurality of terminals extending outside the package and electrically connecting to the diffused resistor.

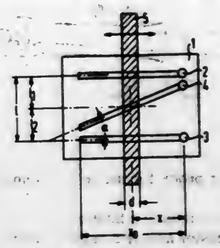
4,276,534

A CONTACTLESS RESISTANCE POTENTIOMETER

Juergen Meyer, Taunusstein; Norbert Schaaf, Wiesbaden, and Claus Kunze, Taunusstein, all of Fed. Rep. of Germany, assignors to Helmuth GmbH, Fed. Rep. of Germany

Filed May 10, 1979, Ser. No. 37,824
Claims priority, application Fed. Rep. of Germany, May 23, 1978, 2822477
Int. Cl.³ H01L 31/08
U.S. Cl. 338—15 4 Claims

1. A contactless resistance potentiometer having two exterior electrodes and a tap for dividing the resistance, characterized in that a photoconductor layer is used as resistance element, the usable surface of the photoconductor layer being delimited by two exterior electrodes and being subdivided by a tapping electrode having a definite geometric course between said exterior electrodes, and a partial surface between the exterior electrodes remaining constant as to its size being electrically active by means of exposure, whereby the distance ratio from said tapping electrode relative to said two exterior electrodes is varied by means of displacing the exposure and thus displacing the active partial surface alongside of tapping electrode, in which a first one of said exterior electrodes essentially lies punctiformly in the center of a circular surface of said photo-conductor layer and that the second one of said exterior electrodes circularly surrounds said circular surface, the tapping electrode describing a path between said two exterior



electrodes whose radius is a function of the circular angle and in which the exposed surface is a rotary radial circular segment, and in which a linear interrelationship between the rotation of the exposed circular sector and the resistance divider ratio exists, and that the tapping electrode with its radius r takes a course dependent upon rotary angle (ϕ), upon the smallest radius r_0 and upon the largest radius r_1 according to the formula

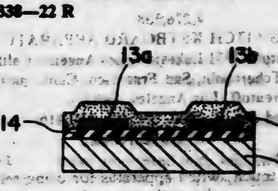
$$r = r_0 \exp\left(\frac{\phi}{2\pi} \ln \frac{r_1}{r_0}\right)$$

4,276,535

THERMISTOR

Tsuneo Mitsuyu, Hirakata; Kiyotaka Wasa, Nara, and Shigeru Hayakawa, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Continuation-in-part of Ser. No. 933,742, Aug. 15, 1978, abandoned. This application Feb. 27, 1980, Ser. No. 125,231
Int. Cl.³ H01C 7/04
U.S. Cl. 338—22 R 14 Claims

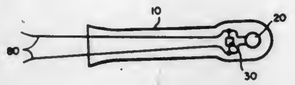


1. A thermistor comprising a base support, a temperature sensitive resistance layer of silicon carbide applied by sputtering deposition on one surface of said base support, and electrode means electrically connected to said temperature sensitive resistance layer of silicon carbide.

4,276,536
SELF-HEATING THERMISTOR PROBE FOR LOW TEMPERATURE APPLICATIONS

Jeffry A. Wiesia, Burlington, Mass., assignor to Scully Electronic Systems, Inc., Wilmington, Mass.

Filed Sep. 4, 1979, Ser. No. 72,452
Int. Cl.³ H01C 7/13, 7/02, 7/04
U.S. Cl. 338—23 9 Claims

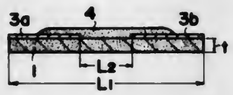


1. A thermistor probe for use in low temperature applications comprising:
(a) a thermally conductive housing;
(b) a first thermistor having a negative temperature coefficient located in said housing, said first thermistor having two output terminals and two electrically conductive leads each attached to a corresponding output terminal, said leads extending out of said housing; and
(c) a second thermistor having a positive temperature coefficient located in said housing and connected in parallel with said first thermistor, said first thermistor thermally and electrically responsive to said second thermistor, the electrical effect of said second thermistor being negligible when said first thermistor is at an operating temperature.

4,276,537
MOISTURE-RESPONSIVE RESISTOR ELEMENT

Hiroshi Shimizu, Mooka, Japan, assignor to Sanyo Silicon Electronics Co., Ltd., Tochigi, Japan

Filed Dec. 18, 1979, Ser. No. 104,711
Claims priority, application Japan, Dec. 20, 1978, 53-159423; Dec. 21, 1978, 53-159424
Int. Cl.³ H01L 7/00
U.S. Cl. 338—35 5 Claims



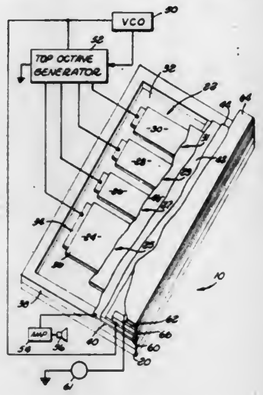
1. A moisture-responsive resistor element of the direct current driving type for measurement of the relative humidity, which comprises metastannic acid as a moisture-responsive resistance material.

4,276,538
TOUCH SWITCH KEYBOARD APPARATUS

Franklin N. Eventoff, 2351 Lakeview, Los Angeles, Calif. 90039, and Serge A. Tcherepnin, San Francisco, Calif., assignors to Franklin N. Eventoff, Los Angeles, Calif.

Filed Jan. 7, 1980, Ser. No. 110,416
Int. Cl.³ H01C 10/00
U.S. Cl. 338—69 19 Claims

1. A multiple touch switch apparatus for being selectively actuated in response to the application of at least one transverse force comprising:
a first support ply having a top surface;
at least one multiple segment conductor ply positioned on the top surface of the first support ply, comprising:
a plurality of first electrically isolated conductor segments immediately adjacent but laterally displaced from one another and having a surface area whereby at least a selected one of the first electrically isolated conductor segments is simultaneously contacted in response to the application of a single transverse touch force;
a second support ply having a top surface and a bottom surface;
a unitary conduction ply positioned on the bottom surface facing and transversely spaced from the at least one multiple segment conduction ply, the second support ply and unitary conduction ply being resiliently deformable for deforming the unitary conduction ply into electrical contacting relationship with at least one selected multiple segment conductor ply in response to the application of

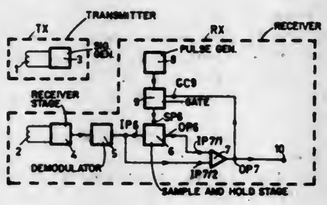


the transverse force, the unitary conductor ply comprising:
a first conductive layer positioned on the bottom surface of the second support ply, and
a first semiconductor composition layer
positioned on the first conductive layer for facing the at least one multiple segment conductor ply; and
a transverse spacer positioned laterally between each multiple segment conductor ply and transversely between the first and second support plies for spacing the unitary conduction ply from the at least one multiple segment conductor ply.

4,276,539
VEHICLE DETECTION SYSTEMS

Kamran Eshraghian, Hectorville, and Robert E. Bogner, College Park, both of Australia, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 22, 1978, Ser. No. 903,185
Int. Cl.³ G08G 1/01
U.S. Cl. 340—38 L 4 Claims

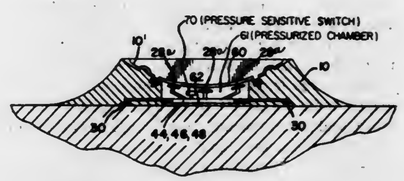


1. A vehicle detection system comprising a transmitter for supplying a continuous wave signal, a receiver and sensing means for coupling said continuous wave signal to said receiver so that the passage of a vehicle produces a disturbance in the envelope of the signal received by said receiver, said receiver including means for deriving, from the received signal, sample voltages corresponding to the level of the envelope of the received signal at periodically reoccurring sampling instants, storage means for storing each sample voltage until the next succeeding sampling instant, means for comparing each storage sample voltage with the envelope level of the received signal and generating a first signal indicative of the presence of a vehicle when the difference between the envelope level and the stored sample voltage exceeds a predetermined quantity and for terminating said first signal when said difference drops below said predetermined quantity thereby identifying disturbances of the envelope of the received signal having a rapidly changing leading edge produced by an approaching vehicle, and feedback means for preventing the storage means from storing further samples in response to said first signal.

4,276,540
REMOTE CYCLE ALARM SYSTEM

Fred G. Habib, Jr., 6231 W. Newport, Chicago, Ill. 60634

Continuation-in-part of Ser. No. 839,985, Oct. 6, 1977, Pat. No. 4,188,614. This application Sep. 24, 1979, Ser. No. 77,894
Int. Cl.³ B60R 25/10
U.S. Cl. 340—63 4 Claims



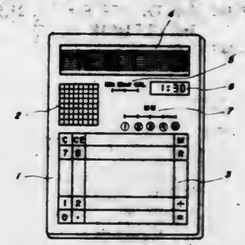
1. A remote alarm system for preventing theft of vehicles comprising:
housing means being positioned on a support surface for co-operative engagement with a wheel of a vehicle,
actuating means being disposed on said housing means for generating contact closures upon disengagement of said housing means with the wheel,
transmitter means disposed in said housing means and being responsive to said actuating means upon a contact closure,
said housing means having a chamber adapted to be pressurized and said chamber containing at least said transmitter means,
said chamber including pressure sensitive means coupled to said transmitter means for generating an additional contact closure upon depressurization of said chamber due to tampering with said housing, and
said transmitter means adapted to transmit a signal to a remote receiving means upon the occurrence of a contact closure or additional contact closure.

4,276,541
DISPLAY CONTROL OF HAND-WRITTEN, MEMORIZED PATTERN AT A PRESELECTED TIME

Tomohiro Inoue, Yoshino; Akira Tanimoto, Kashihara, and Izumu Washizaka, Soraku, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 23, 1979, Ser. No. 14,725
Claims priority, application Japan, Feb. 24, 1978, 53-21090
Int. Cl.³ G04C 23/00; G06K 9/00
U.S. Cl. 340—146.3 SY 17 Claims

1. An electronic display system comprising:
a display panel;
input means for introducing a desired pattern to be displayed on said display panel;
a first storage means including a plurality of storage blocks for storing the introduced pattern therein;
time information input means for introducing a desired time at which said pattern is desired to be displayed on said display panel;
a second storage means including a plurality of storage blocks for storing the introduced time information therein;
means for directly accessing one of said blocks of said first storage means and one of said blocks of said second storage means for storing said introduced pattern and said introduced time information therein;
a current time information keeping circuit for providing current time information therein;

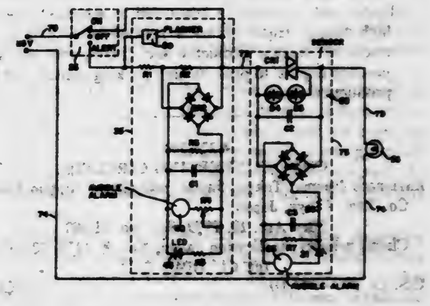


a detection circuit means for developing a detection output when said time information stored in one of said blocks of said second storage means is identical with the current time information provided by said current time information keeping circuit; and
display driver means for displaying said pattern stored in said one of said blocks of said first storage means on said display panel in response to said detection output derived from said detection circuit means.

4,276,542
ALARM SYSTEM FOR DWELLINGS

Raymond Russ, 44 Joyce Dr., Fairborn, Ohio 45324

Filed Dec. 22, 1978, Ser. No. 972,665
Int. Cl.³ G08B 7/00
U.S. Cl. 340—326 10 Claims



1. An emergency signaling system using an existing two-wire circuit between a switch located within a dwelling and an externally mounted lamp,
said switch having an "off" position, a normally "on" position, and an "alert" position,
first circuit means associated with said switch and connectable in series with said two-wire circuit, said first circuit means being responsive to said "alert" position of said switch for interrupting the current to said externally mounted lamp at a periodic rate, and
said lamp being connected to said two-wire circuit and having associated therewith an audible alarm, and second circuit means, responsive to the interruption of the current in said two-wire circuit, for activating said alarm;
whereby said lamp will flash and said alarm will be sounded

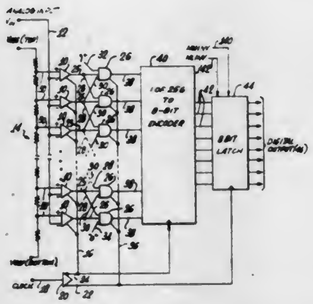
at said periodic rate when said switch is placed in the "alert" position, and whereby said lamp will light continuously and said alarm will be silent when said switch is placed in the "normally on" position.

4,276,543

MONOLITHIC TRIPLE DIFFUSION ANALOG TO DIGITAL CONVERTER

Ralph W. Miller, and James G. Peterson, both of Manhattan Beach, Calif., assignors to TRW Inc., Redondo Beach, Calif.

Filed Mar. 19, 1979, Ser. No. 21,577
Int. Cl.[2] H03K *13/175*
U.S. Cl. 340—347 AD **9 Claims**



1. A monolithic parallel analog-to-digital converter having an n-bit binary output, where n is at least 5, said converter comprising:

2^n-1 comparators;

voltage divider means to provide 2^n-1 uniformly graduated reference voltage levels for application to one terminal of each of said comparators;

means for coupling an analog input voltage to the other terminal of each of said comparators; and

encoding logic means for converting output signals from said comparators to an equivalent n-bit binary signal; and

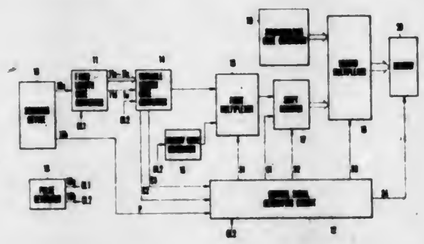
wherein said converter is fabricated in accordance with a high-density triple diffusion process providing a high resolution feature geometry and correspondingly small junction depths, to provide high packing density and high production yield.

4,276,544

CODE CONVERTING CIRCUITS

Kazumoto Iinuma, Tokyo, Japan, assignor to Nippon Electric Co., Ltd., Tokyo, Japan

Filed Apr. 20, 1979, Ser. No. 31,987
Claims priority, application Japan, Nov. 8, 1978, 53-137494
Int. Cl.[3] H04N *7/12*
U.S. Cl. 340—347 DD **7 Claims**



1. A code converting circuit wherein an input signal is converted into a word code train, each word thereof comprising N bits, said code converting circuit comprising:

means for generating parallel variable length codes corresponding to said input signal;

means for generating a code length code regarding the length of said variable length codes;

a first shifter controlled by the code length signal for switching the connection between input and output terminals to produce a surplus of one word;

a register connected to temporarily store the output of said shifter, means for feeding back the output of said register to the input of said first shifter;

a dummy code generating means for generating parallel dummy codes;

a first multiplexer for selecting either one of said parallel variable length codes and said parallel dummy codes;

a second shifter connected to receive the output of said first multiplexer and the output of said register to form a code of word unit length;

means for parallelly generating a specific code having a length of at least one word and utilized as a synchronizing code;

a second multiplexer for selecting either one of said synchronizing code and the output of said second shifter; and

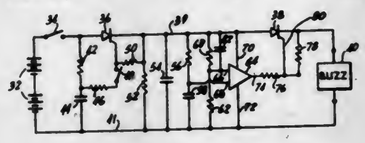
a control means for causing said second multiplexer to produce said synchronizing code before producing said variable length codes of word unit length and for controlling said second shifter to produce said variable length codes in word unit length in accordance with a control signal regarding the length of said surplus, when said variable length codes terminate at an intermediate point of one word, said control means controlling said first multiplexer to send said dummy signal to said second shifter.

4,276,545

DOOR ACTIVATED BURGLAR ALARM UTILIZING TIME DELAY

Clifford W. Jarvis, Clearwater, and John E. Pearson, St. Petersburg, both of Fla., assignors to Crime Fighter, Inc., Clearwater, Fla.

Filed Sep. 24, 1979, Ser. No. 77,904
Int. Cl.[3] G08B *13/08*
U.S. Cl. 340—545 **4 Claims**



1. In a burglar alarm system comprising a door switch electrically interconnected for activating a noise-emitting device and an operating circuit arranged to connect in series a power supply means having a positive terminal and a negative terminal, an on-off switch and the noise-emitting device, the improvement comprising:

the door switch having terminals arranged to be in open and closed positions in response to the door being closed and opened, respectively;

a controlled rectifier being interposed into the operating circuit so as to have an anode connected to the on-off switch for receiving a positive potential from the power supply means and a cathode interconnected to the noise-emitting device;

charging circuit for a capacitor comprising said capacitor being electrically coupled to the negative terminal of the power supply means and, through a first resistor, to a circuit point on the operating circuit between the on-off switch and the controlled rectifier;

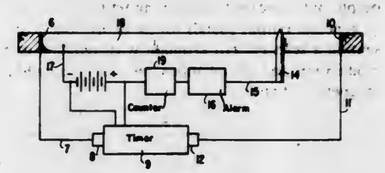
a discharge circuit and exit time delay network comprising a second resistor being connected from a circuit point on the charging circuit between the first resistor and the capacitor, through the door switch, to the gate of the controlled rectifier, and further comprising a third resistor connected from the cathode of the controlled rectifier to the negative terminal of the power supply means, and further comprising a fourth resistor connected between the gate and the cathode of the controlled rectifier, whereby the capacitor will not be sufficiently charged to provide an operative triggering current pulse to the controlled rectifier until the on-off switch is closed and the door switch is opened by closing the door, and whereby the charging of the capacitor creates a predetermined exit time delay in arming the noise-emitting device after the door is closed.

4,276,546

MOTOR SKILLS TESTER

Alvin Kraus, 205 Holland Rd., Holmdel, N.J. 07733

Filed Jun. 6, 1980, Ser. No. 156,935
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—576 **7 Claims**



5. A device for testing the motor skills of a person with impaired brain function which comprises, in combination

(a) a planar solid having plurality of slots cut out thereof;

(b) said slots being shaped in a variety of widths and geometric shapes of differing complexity varying from straight lines to curves, angles and circles;

(c) said slots having electric contacts at either end connected to the start and stop mechanism of a timing means;

(d) said slots having all the edges lined with an electrically conducting material connected to at least one means for effecting an alarm and with an electrically activated counting means; and

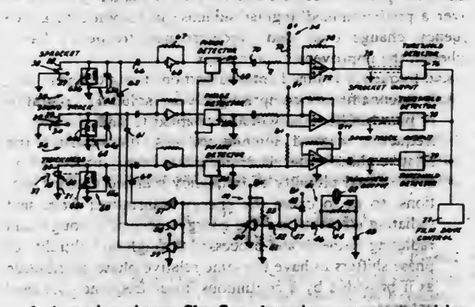
(e) a hand held electrically conducting stylus connected electrically to said alarm means such that each contact with said electrically conducting slot lining activates said alarm and said counting means.

4,276,547

FILM THICKNESS DETECTION SYSTEM

Howard Bowen, Wilmette, and John S. Little, Evanston, both of Ill., assignors to Research Technology, Inc., Lincolnwood, Ill.

Filed Dec. 22, 1977, Ser. No. 863,513
Int. Cl.[3] G08B *21/00*
U.S. Cl. 340—675 **8 Claims**



1. A motion picture film flaw detection system comprising:

(a) film guide means determining a path of travel of film;

(b) variable capacitance means adjacent said path of travel of the film for having its capacitance thereof varied in correspondence with film irregularities of a predetermined nature; and

(c) detecting means for sensing said capacitance changes and means for activating a control when said capacitance variations exceed a predetermined threshold of change,

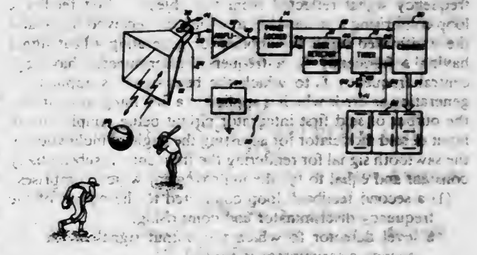
(d) said detecting means comprising a phase detector means for detecting phase changes in a signal caused by said capacitance changes and with the frequency of said signal remaining substantially constant.

4,276,548

MICROWAVE SPEED METER

Erno B. Lutz, Sunnyvale, Calif., assignor to Solfan Systems, Inc., Mountain View, Calif.

Filed Jun. 4, 1979, Ser. No. 45,237
Int. Cl.[3] G01S *13/58*
U.S. Cl. 343—7 PL **10 Claims**



1. A meter for measuring the relative velocity of balls and the like employed in sporting activities comprising, in combination:

diplexer means for generating a beam of object illuminating microwave energy, for receiving doppler shifted microwave energy reflected from the object and for detecting said reflected doppler shifted microwave energy to develop a difference signal having a coherent component the frequency of which is proportional to the relative velocity of the object;

phase-locked loop means including clock signal generating means, said phase-locked loop means for synchronizing the frequency of said clock signal generating means to that of the coherent component of said difference signal and for developing a lock signal indicative of when such synchronization has been achieved;

lock detector and timer and means responsive to said lock signal for developing a stabilization signal after the frequency of said clock signal generating means has been synchronized for a predetermined stabilization period;

counter timing means responsive to said stabilization signal for developing a reset signal upon receipt of said stabilization signal and for developing a latch signal a predetermined count period thereafter;

counter means reset by said reset signal for counting the cycles of said clock signal occurring between the occurrence of said reset and latch signals to develop a sum signal; and

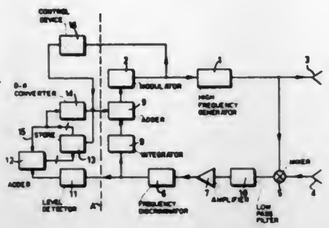
means responsive to said sum signal for displaying the relative velocity of the object.

4,276,549

FM-CW RADAR DISTANCE MEASURING APPARATUS

Jean-Pierre Tomasi, Velizy, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 15, 1979, Ser. No. 94,610
Claims priority, application France, Dec. 26, 1978, 78 36312
Int. Cl.³ G01S 13/32
U.S. Cl. 343—7.5 1 Claim



1. An improved FM-CW radar distance measuring apparatus, of the type comprising means for generating a high-frequency signal whose frequency is linearly modulated by a modulator generating a sawtooth signal having a variable period T, the period T being in a linear relationship with the distance to be measured, means for transmitting the high-frequency signal to an object and means for receiving the high-frequency signal reflected from the object, a first feedback loop comprising a mixer stage to which the received signal and the transmitted signal are applied for generating a beat signal having a frequency f_b, a frequency discriminator having a central frequency f_o to which the beat signal is applied for generating an error which is applied to a first integrator circuit, the output of said first integrator circuit being coupled to an input of said modulator for adjusting the angle of inclination of the sawtooth signal for rendering the frequency f_b substantially constant and equal to f_0, the improvement which comprises:

(1) a second feedback loop connected to the output of the frequency discriminator and comprising:

a level detector to which the output signal of the frequency discriminator is applied;

a second integration circuit, connected to the output of the level detector said second integration circuit being a sampling-type digital integrator;

(2) combining circuit means connected to the output of the first integration circuit and the input of the modulator for combining the output signals produced by the two integration circuits;

(3) means connected to the output of the modulator for controlling the sampling rate of the second integration circuit by generating within each period of the sawtooth voltage an equal number of consecutively occurring control signals where the frequency of the control signals increases with increasing slope of the sawtooth signal.

4,276,550

SCAN PATTERN ESTIMATOR FOR AN ELECTROMAGNETIC SENSOR

Thomas L. Leposer, Greenville, Tex., assignor to E-Systems, Inc., Dallas, Tex.

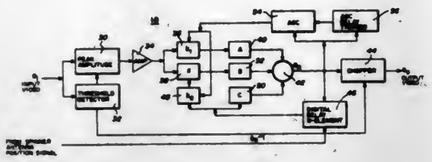
Filed Dec. 27, 1978, Ser. No. 973,565
Int. Cl.³ G01S 1/02
U.S. Cl. 343—100 CL 23 Claims

1. A scan pattern estimator for use in a scanning electromagnetic sensor system in which electromagnetic radiation is repetitively scanned and sensed for a plurality of scan cycles to produce data signals corresponding to the sensed electromagnetic radiation, said scan pattern estimator comprising:

combining means responsive to the data signals for producing output signals;

delay means for receiving the output data signals from the combining means and producing delayed signals corresponding to the output signals delayed for a period of one scan cycle; and

said combining means including means for receiving the data signals and the delayed signals and generating an output varying as the product of the data signals of each scan cycle multiplied by the output signals of the immediately



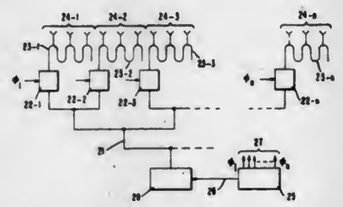
previous scan cycle, and means for summing the product output of the means for receiving with the delayed signals to generate output signals for an entire scan cycle representing a scan pattern estimate with reduced extraneous modulation and pertubations relative to sensed electromagnetic radiation.

4,276,551

ELECTRONICALLY SCANNED ANTENNA

Frederick C. Williams, Topanga, and Wolfgang H. Kummer, Santa Monica, both of Calif., assignors to Hughes Aircraft Company, Culver City, Calif.

Filed Jun. 1, 1979, Ser. No. 44,618
Int. Cl.³ H04B 7/00
U.S. Cl. 343—100 SA 6 Claims



1. An electronically scanned antenna comprising a plurality of frequency scanned antenna sections, each of said sections having a plurality of radiating elements, said sections being responsive to electromagnetic energy in a predetermined frequency band, each of said sections being adapted to provide at least one spatially steerable beam which is angularly steerable over a predetermined angular subtense in response to a frequency change over said predetermined frequency band, wherein the improvement comprises:

said frequency scanned antenna sections being colinear; and

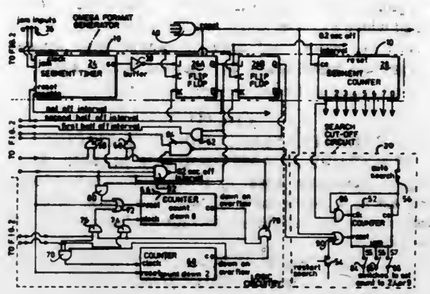
said antenna further comprising means, including a plurality of phase shifters individually coupled to said plurality of frequency scanned antenna sections, for adjusting the relative phase of the electromagnetic energy processed by each of said plurality of frequency scanned antenna sections, so as to cause the energy transmitted from said radiating elements and the energy received through said radiating elements and processed through said plurality of phase shifters to have the same relative phase distribution as if provided by a continuous linear frequency scanned antenna.

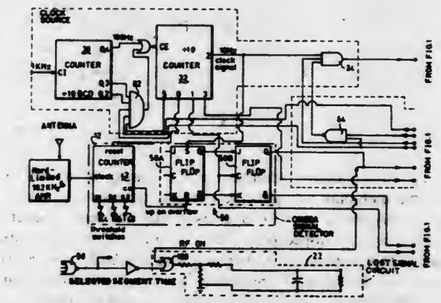
4,276,552

AUTOMATIC SYNCHRONIZATION FOR RECEIVERS OF A NAVIGATIONAL SYSTEM

William J. Germany, Livingston, N.J., assignor to International Telephone and Telegraph Corporation, New York, N.Y.

Filed Dec. 26, 1978, Ser. No. 973,320
Int. Cl.³ G01S 1/30
U.S. Cl. 343—105 R 12 Claims





1. A synchronization arrangement for a receiver of an essentially worldwide navigational network comprising:

first means to receive navigational signals from said network having a predetermined format;

second means to generate timing signals having said predetermined format;

counting means coupled to said first and second means to provide a count of signals at an output of said first means in a prescribed short time interval and to provide a high logical output when a predetermined count threshold has been exceeded, said high logical output indicating the absence of said navigational signal; and

logic circuitry coupled to said second means and said counting means responsive to said high logical output and certain other conditions to shift the timing of said second means to synchronize said timing signals to said received navigational signals.

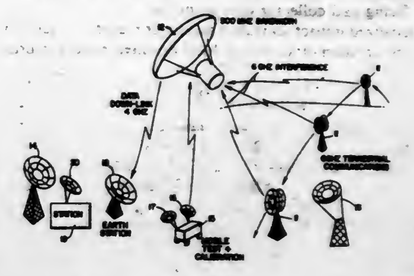
4,276,553

APPARATUS AND METHOD FOR DETERMINING THE POSITION OF A RADIANT ENERGY SOURCE

Gustave J. Schaefer, El Segundo, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 24, 1977, Ser. No. 780,873
Int. Cl.³ G01S 3/02
U.S. Cl. 343—112 R 7 Claims

1. A method of determining the position of a point source of radiant energy with respect to its spatial position on a celestial body from a location remote from the source comprising the steps of scanning in first and second orthogonal directions the beam of a narrow beam width transducer for the energy over a region of the celestial body including the source, detecting a peak level of energy transduced by the transducer in each of the scanning directions, correlating the scanning position of the beam in each of said directions with the occurrence time of each peak and combining the positions of the beam corresponding with each peak by scanning the indicator of an X-Y



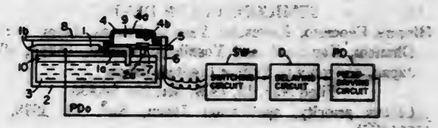
recorder in the X and Y directions in synchronism with the beam being respectively scanned in the first and second directions, whereby X and Y traces are formed by the recorder to indicate the detected position in said first and second directions on the X and Y traces, and determining an intersection of lines drawn parallel to the X and Y directions and including the detected peak positions, thereby determining the source position with respect to its spatial position on the celestial body.

4,276,554

INK JET MECHANISM FOR PURGING AND ACTIVATING

Koji Terasawa, Fuchu, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 3, 1980, Ser. No. 109,277
Claims priority, application Japan, Jan. 24, 1979, 54/7568
Int. Cl.³ G01D 15/18
U.S. Cl. 346—140 R 4 Claims



1. An ink jet mechanism comprising:

an ink jet head;

a diaphragm for recovering said ink jet head from nozzle blockage and meniscus retrogradation when pressure is applied; and

means for generating an electric signal in response to a pressing operation of said diaphragm.

4,276,555

CONTROLLED AVALANCHE VOLTAGE TRANSISTOR AND MAGNETIC SENSOR

Albert W. Vinal, Cary, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

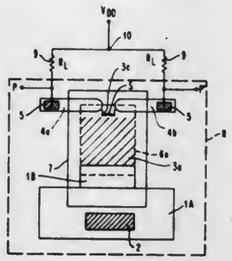
Filed Jul. 13, 1978, Ser. No. 924,689
Int. Cl.³ H01L 29/82
U.S. Cl. 357—18 70 Claims

1. An avalanche transistor having a base region of first conductivity type and spaced emitter and collector regions of second conductivity type forming respective PN junctions with said base region, said emitter and collector regions being connected to a source of electrical potential of proper polarity

and magnitude to forward bias the emitter-base junction and to reverse bias the collector-base junction into avalanche generation of excess minority and majority carriers in said base region, said collector collecting said minority carriers;

a region of second conductivity type having a higher resistivity than said emitter region and extending from said emitter toward said collector region, said region of second conductivity type separating said emitter from said base region only at the portion of said emitter-base junction facing said collector-base junction,

a localized impact ionization promoter means for facilitating the creation of an area of local covalent bond ruptures in



the portion of the total area of said collector base junction lying closest to said emitter, said promoter means affecting a portion of said area which is smaller than the total portion thereof which lies closest to said emitter, said promoter means extending from said collector-base junction area towards said emitter and serving to increase the local energy density in said smaller area to produce, upon supply of said area with said minority carriers from said emitter, an abruptly conducting avalanche current generation of excess minority and majority carriers in an M-factored multiplication process occurring at a characteristic voltage applied between said emitter and collector contacts.

4,276,556

SEMICONDUCTOR DEVICE

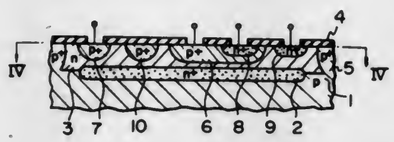
Hiromu Enomoto, Kawasaki; Yasushi Yasuda, Inagi; Hitoshi Ohnishi, Kawasaki, and Yoshiharu Mitono, Tokyo, all of Japan, assignors to Fujitsu Limited, Japan

Filed Nov. 15, 1979, Ser. No. 94,436

Claims priority, application Japan, Nov. 15, 1978, 53-157063[U]

Int. Cl.³ H01L 29/34

U.S. Cl. 357—52 8 Claims



1. A semiconductor device including a diode and a bipolar transistor which are connected to each other and formed in an isolated area of a semiconductor layer of a first conductivity type formed on a semiconductor substrate of the opposite conductivity type, said isolated area comprising a portion of said layer that is surrounded by an isolation region comprising a heavily doped region of said opposite conductivity type extending from the surface of said semiconductor layer at least to said substrate, said isolated area serving as the collector of said transistor and having a base region of said transistor formed therein of said opposite conductivity type, said semiconductor device comprising

a buried region heavily doped with impurities of said first conductivity type located between said layer and said substrate, said buried layer separated from said isolation region, and

a diffusion region of said opposite conductivity type formed between the base region of said bipolar transistor and a region of said isolated area where said diode is formed, and which traverses said isolated area to connect with said isolation region, said diffusion region being separated from said buried region by a portion of said layer.

4,276,557

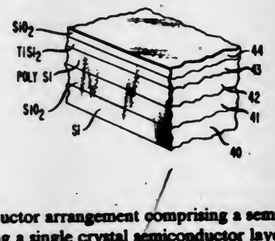
INTEGRATED SEMICONDUCTOR CIRCUIT STRUCTURE AND METHOD FOR MAKING IT

Hyman J. Levinstein, Berkeley Heights; Shyam P. Murarka, and Ashok K. Sinha, both of New Providence, all of N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.

Filed Dec. 29, 1978, Ser. No. 974,378

Int. Cl.³ H01L 23/48

U.S. Cl. 357—67 7 Claims



1. A semiconductor arrangement comprising a semiconductor chip including a single crystal semiconductor layer, a first electrically-insulating SiO_2 layer overlying said semiconductor layer, a layer of doped polysilicon having a thickness greater than 2000 Angstrom units overlying said first SiO_2 layer, a first layer of electrically-conducting material overlying said polysilicon layer, said electrically-conducting material being taken from a class consisting of $TiSi_2$ and $TaSi_2$ and an unpatterned second layer of SiO_2 overlying said first electrically-conducting layer.

4,276,558

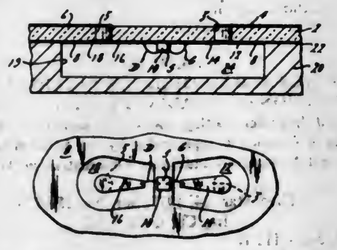
HERMETICALLY SEALED ACTIVE MICROWAVE INTEGRATED CIRCUIT

Pang T. Ho, Mountain View, and Michael D. Rubin, Saratoga, both of Calif., assignors to Ford Aerospace & Communications Corp., Detroit, Mich.

Filed Jun. 15, 1979, Ser. No. 48,872

Int. Cl.³ H01L 23/02, 23/12, 39/02

U.S. Cl. 357—74 9 Claims



1. A radio frequency transistor package including:

a substrate having first and second opposing surfaces;

a signal input microstrip mounted on said first surface of said substrate;

a signal output microstrip mounted coplanar with said signal input microstrip on said first surface of said substrate;

a conductor mounted on said second surface of said substrate defining a ground plane for said input and output microstrips;

a radio frequency transistor mounted on said ground plane conductor;

a first coplanar waveguide element mounted on said second surface adjacent said radio frequency transistor coplanar with said ground plane conductor;

a second coplanar waveguide element mounted on said second surface adjacent said radio frequency transistor coplanar with said ground plane conductor;

said first and second coplanar waveguides each being surrounded by said ground plane conductor and separated therefrom by a field channel;

said transistor being electrically connected to said first and second coplanar waveguide elements.

4,276,559

SYSTEM FOR GENERATING AN ERROR SIGNAL INDICATIVE OF DIFFERENCES BETWEEN RECORDING AND PLAYBACK SPEEDS

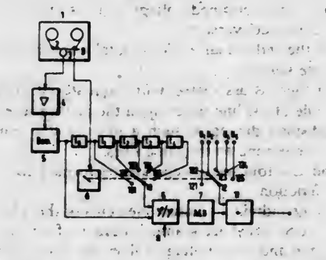
Hubert Feerster, Darmstadt; Winfried Horstmann, Griesheim, and Josef Secker, Darmstadt, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Mar. 15, 1979, Ser. No. 20,729

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1978, 2813206

Int. Cl.³ H04N 5/76, 5/78

U.S. Cl. 358—8 5 Claims



1. In a color television signal recording system having record carrier means (2) having a color television signal including periodically recurring color bursts recorded thereon at a recording speed, means (3) for scanning said record carrier means and furnishing playback signals corresponding to said recorded color bursts, transport means (9) for moving said record carrier means relative to said scanning means at an actual playback speed approximately equal to a selected one of a plurality of selectable playback speeds and phase comparator means (6) having a first and second input for comparing the phase of signals applied to said inputs and furnishing a first error signal indicative of the phase difference therebetween,

apparatus for furnishing a final error signal indicative of the difference between said recording speed and the then present actual playback speed, comprising

delay means comprising a plurality of selectable delay segments selectively providing at least a first delay time $(t_0+t_1+t_2)$ corresponding to the time interval between two sequential ones of said bursts at said recording speed and at least another selected delay time which corresponds to the difference between said selected playback speed and said recording speed, thereby creating delay signals;

means for applying said delayed signals and said playback signals to said first and second input of said phase comparator means, respectively whereby said phase comparator means furnishes a first error signal indicative of the difference between said actual playback speed and said selected playback speed;

means for furnishing a DC voltage corresponding to said selected one of said plurality of playback speeds; and

means (11) connected to said DC voltage furnishing means and said phase comparator means for combining said first error signal and said DC voltage so as to furnish said final error signal corresponding to said difference between said recording speed and said actual playback speed.

4,276,560

COLOR SIGNAL REPRODUCING SYSTEM AND CIRCUIT FOR THE SAME

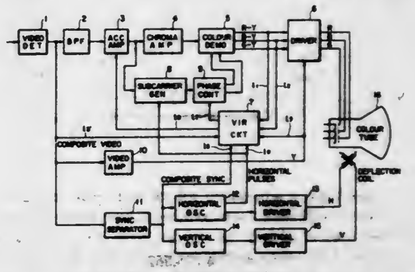
Yasuki Watanabe, Kasukabe; Yukio Okabe, Noda; Shinichi Kojima, Higashimurayama, and Mitsuya Sato, Kokubunji, all of Japan, assignors to Hitachi, Ltd. and Victor Company of Japan, Limited, both of Tokyo, Japan

Filed Nov. 28, 1978, Ser. No. 964,337

Claims priority, application Japan, Nov. 28, 1977, 52-141642

Int. Cl.³ H04N 9/535

U.S. Cl. 358—28 28 Claims



1. A color signal reproducing system comprising:

a color demodulator circuit which receives a chroma signal and a color subcarrier signal and which delivers a red color difference signal and a blue color difference signal,

a driver circuit which receives a luminance signal and the color difference signals and which drives a picture tube,

a composer circuit which receives the red color difference signal and the blue color difference signal and which delivers the red color difference signal corrected by the blue color difference signal,

a circuit which delivers a reference potential corresponding to a reference level of the received chroma signal,

a detector circuit which generates a detection signal corresponding to a level difference between the reference potential and the corrected red color difference signal at a time when a VIR signal has been received, and

a hue control circuit which controls a phase of the subcarrier signal to be supplied to said color demodulator circuit, by the output signal of said detector circuit.

4,276,561

EARTH PHOTO GLOBE

Jon Friedman, 312 Prince St., Freeport, N.Y. 11520

Filed Apr. 5, 1979, Ser. No. 27,937

Int. Cl.³ H04N 1/04; G09B 27/08

U.S. Cl. 358—78 10 Claims

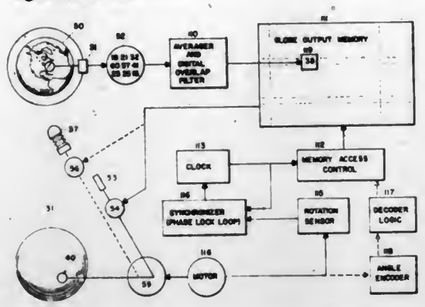
1. A method of making a globe in which geographical indicia comprise quantized image dots disposed on the surface of a sphere, comprising:

storing in a memory data representing said quantized image dots,

providing a photosensitively coated sphere,

scanning a light beam across said photosensitively coated sphere,

obtaining from said memory data representative of the quantized image dot desired at each location scanned by said light beam, and



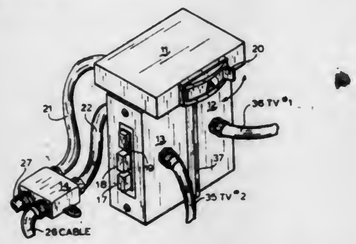
modulating said light beam in accordance with said obtained data so as to control the exposure of said photosensitive coating to produce quantized image dots corresponding to said memory data.

4,276,562

TV SWITCHING SYSTEM

Mark Stewart, and Lyan Stewart, both of 30 Park Ave., New York, N.Y. 10016

Filed Mar. 31, 1980, Ser. No. 135,752
Int. Cl.³ H04N 5/782, 7/16
U.S. Cl. 358—86 5 Claims



1. A switching system for interconnecting various TV sources, such as a subscription television source, a house antenna and a video recorder, to a plurality of TV sets, comprising:

first switch means having a plurality of inputs, a plurality of pushbuttons, a plurality of outputs coupled to respective ones of said TV sets, and having each of its outputs coupled to one of said video recorder, subscription television source and house antenna via respective ones of said inputs in response to activation of a respective one of said pushbuttons; and

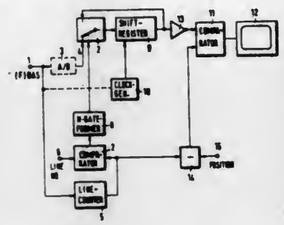
second switch means having an output thereof coupled to an input of the video recorder and a pair of inputs coupled, respectively, to the subscription television source and the house antenna.

4,276,563

REPRESENTING A VIDEO SIGNAL UPON THE PICTURE SCREEN OF A VIDEO DISPLAY DEVICE

Jürgen Heitmann, Seeheim; Gerhard Illetschko, and Hans-Peter Maly, both of Darmstadt, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 2, 1977, Ser. No. 857,024
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1976, 2655133
Int. Cl.³ H04N 7/02
U.S. Cl. 358—139 1 Claim



1. A method of displaying a selected portion of a video signal upon the picture screen of a video display device employing a horizontal line raster, at least the selected portion of the video signal being in digital form, wherein for the purpose of representing a selected line of the video signal as a function of x and y, the following steps are performed for deriving the y function:

(a) the individual picture elements of the selected line of the video signal are scanned for a complete frame in the line direction and their voltage values are determined,

(b) each determined voltage value is subjected to an analog-digital conversion,

(c) the individual analog-digital converted voltage values are stored,

(d) there is associated with each stored voltage value one line of the line raster upon the picture screen of the video display device in such a manner that equal amplitudes correspond to the same lines,

and the following steps are performed for deriving the x function:

(a) the individual picture elements of the selected line of the video signal are scanned frame by frame in the line direction and their voltage values are determined,

(b) each determined voltage value is subjected to analog-digital conversion,

(c) the individual analog-digital converted values are stored,

(d) with each stored voltage value there is associated one column of a line raster subdivided into a series of columns, in such manner that equal amplitudes correspond to the same columns, and one of the picture elements in the associated line and column is contrasted in respect of its brightness with respect to other picture elements of the line raster, whereby each picture element of the video signal thus represented on the screen has a respective vertical and horizontal displacement determined by its digital value.

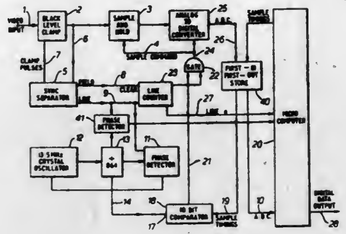
4,276,564

TELEVISION SYSTEMS

John B. Watson, and Philip J. Dodds, both of Romsey, England, assignors to Independent Broadcasting Authority, London, England

Filed Nov. 9, 1978, Ser. No. 959,000
Claims priority, application United Kingdom, Dec. 11, 1977, 47169/77
Int. Cl.³ H04N 7/62, 9/62
U.S. Cl. 358—139 4 Claims

1. In an apparatus for deriving a television quality parameter from an insertion test signal which is repeated at regular intervals during field blanking periods of a television signal, including sampling means operable, when actuated, to provide a digital amplitude signal representing the instantaneous amplitude at a sampling position of the test signal, controllable actuating means for actuating the sampling means, and computer means for calculating the quality parameter from a plurality of digital amplitude signals corresponding with instantaneous amplitudes at different sampling positions on the test line and provided by the sampling means, said computer means being responsive to timing origins carried by the television



signal for controlling the actuating means at times so related to the timing origins that the signals of said plurality of signals are provided in turn, at an average rate which is low compared with the rate at which the signals occur during a single test signal;

the improvement which comprises

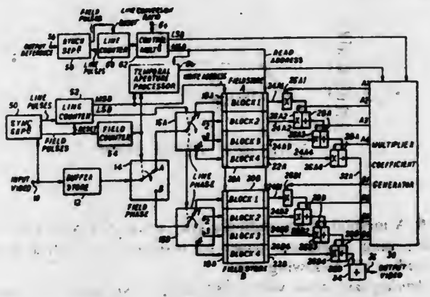
digital store means connected between the sampling means and the computer for storing a plurality of the digital amplitude signals and for storing request signals for said amplitude signals, the arrangement being such that the sampling means is enabled for operation during a line period at a greater rate than the computer.

4,276,565

METHOD AND APPARATUS FOR STANDARDS CONVERSION OF TELEVISION SIGNALS

Christopher J. Dalton, High Wycombe, and Graham D. Roe, Great Missenden, both of England, assignors to British Broadcasting Corporation, London, England

Filed Jan. 15, 1979, Ser. No. 3,451
Claims priority, application United Kingdom, Jan. 18, 1978, 2068/78
Int. Cl.³ H04N 5/02
U.S. Cl. 358—140 24 Claims



1. A method of simultaneously enabling different parts of an input video signal to be made available, using signal storage, comprising the steps of:

cyclically writing successive portions of the input video signal relating to successive portions of the video picture into a plurality of successive random access store sections, each of which is capable of storing several video lines but less than one field, using in each cycle write addresses for the different sections which are unambiguously related;

incrementing the write addresses for successive cycles; and

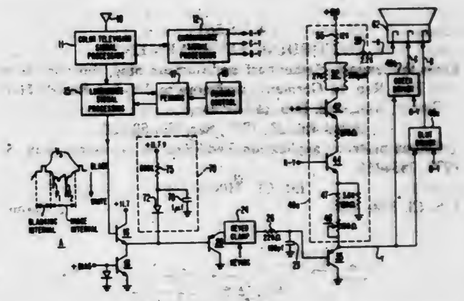
reading from the sections using for each section read addresses which are related to each other and to the write addresses so as to access a desired set of stored signal portions.

4,276,566

CIRCUIT FOR INHIBITING RADIO FREQUENCY INTERFERENCE IN A TELEVISION RECEIVER

Robert P. Parker, Indianapolis, Ind., assignor to RCA Corporation, New York, N.Y.

Filed Aug. 10, 1979, Ser. No. 65,453
Int. Cl.³ H04N 5/14, 5/21
U.S. Cl. 358—170 1 Claim



1. In a television receiver for processing a wideband video signal occupying a prescribed frequency band and containing a blanking reference level occurring during image blanking intervals of said video signal and being undesirably subject to variations, said receiver including a video signal processing channel including an intermediate low level video signal processing path; an image reproducing kinescope having an intensity control electrode; and means for coupling signals from said intermediate video path to said kinescope intensity control electrode, said coupling means including a video output stage for supplying high level image representative video output signals to said kinescope intensity control electrode; apparatus comprising:

means disposed in said intermediate video signal path for clipping transient peak amplitude excursions of said video signal during image intervals of said video signal, said clipping means including

a charge storage capacitance;

normally nonconductive unidirectional current conducting threshold conduction means coupled between intermediate signal path and said capacitance;

direct current conducting means including an impedance coupled to a direct current potential and said capacitance, said impedance and capacitance defining a time constant which is long relative to the time of a horizontal image interval of said video signal for determining a time varying direct current charge on said capacitance when said threshold means is nonconductive, wherein said threshold means is rendered conductive to clip transient peak amplitude excursions of low level video signals during said image intervals when the threshold conduction level of said threshold means is exceeded in response to the level of said wideband video signal and the level of charge then appearing on said charge storage means, to substantially preclude rapid changes between saturated and nonsaturated conductive states in said video output stage in response to said transient peak amplitude excursions of said video signal, whereby undesired high frequency interference signals signifi-

cantly above said prescribed frequency band otherwise produced by said rapid changes are minimized; and

low pass filter means coupled between an output of said clipping means and an input of said video output stage, for attenuating signal frequencies above said prescribed frequency band; wherein

said intermediate signal path includes video signal processing means including a signal output network with an associated output current path for conducting a substantially constant current; and

said threshold conduction means is coupled to said output current path for enabling current conducted by said threshold means to flow through said current path, thereby limiting the magnitude of current conducted by said threshold means.

4,276,567

RECORDING LINE ELEMENTS

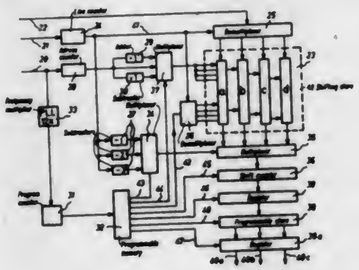
Klaus Wellendorf, Heikendorf, and Gerhard Sing, Raisdorf, both of Fed. Rep. of Germany, assignors to Dr.-Ing Rudolf Hell GmbH, Kiel, Fed. Rep. of Germany

Filed Jul. 23, 1979, Ser. No. 59,560

Claims priority, application Fed. Rep. of Germany, Aug. 5, 1978, 2834456

Int. Cl.³ H04N 1/40

U.S. Cl. 358—280 2 Claims



1. A process for recording line data and screened half-tone pictures comprising the steps of:

(a) scanning a continuous-tone picture by image lines;

(b) simultaneously scanning line data by image lines with the same line resolution as the scanning of the continuous-tone picture;

(c) color correcting and digitising the signal obtained by scanning the continuous-tone picture;

(d) generating a first signal representing different screen dot sizes and forms from said digitised signal obtained from the scanning of the continuous-tone picture;

(e) generating a second signal for recording the line data at a higher resolution by storing several adjacent image lines obtained from the scanning of the line data;

(f) generating a second signal for recording the line data at a higher resolution than the scanning resolution by comparing the density value of each scanned picture dot of the stored line data with the density values of surrounding picture dots and selecting a dot pattern matched in an optimum manner to the second signal from a plurality of dot patterns stored in said higher resolution; and

(g) recording the scanned half-tone picture and line data on a recording medium by separately energising a plurality of recording beams by said first signal to reproduce the half-tone picture and by said second signal to record said line data with improved resolution, said second signal having preference over said first signal.

4,276,568

BOOSTING VIDEO SIGNALS

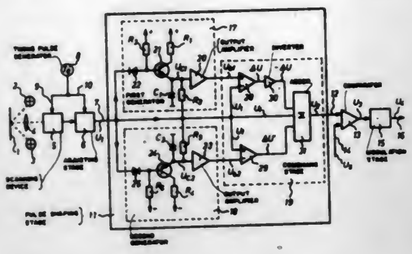
Hermann Wiesher, Kiel, Fed. Rep. of Germany, assignor to Dr.-Ing Rudolf Hell GmbH, Kiel, Fed. Rep. of Germany

Filed Aug. 10, 1979, Ser. No. 65,442

Claims priority, application Fed. Rep. of Germany, Aug. 25, 1978, 2837139

Int. Cl.³ H04N 1/40

U.S. Cl. 358—282 10 Claims



1. A method of boosting a video signal, which method consists in deriving from said video signal an upper accompanying signal extending above it and a lower accompanying signal extending below it, said accompanying signals following said video signal dynamically, forming first differential values continuously between said upper accompanying signal and said video signal, forming second differential values continously between said video signal and said lower accompanying signal, subtracting multiples of said first differential values continuously from said video signal and adding multiples of said second differential values continuously to said video signal.

4,276,569

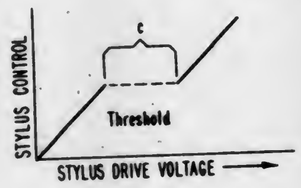
METHOD AND APPARATUS FOR PRODUCING A FACSIMILE GRAY SCALE

John H. Kirk, Jr., Orlando, Fla., assignor to Exxon Research & Engineering Co., Florham Park, N.J.

Filed Apr. 20, 1979, Ser. No. 31,951

Int. Cl.³ H04N 1/22, 1/30, 1/40

U.S. Cl. 358—298 9 Claims



6. A method of generating a gray scale on a copy medium comprising aluminized paper by juxtaposition with a stylus including the following steps:

driving said stylus with a first range of voltages to produce white to increasingly gray marks on said copy medium;

driving said stylus with a second range of voltages to produce increasingly gray to black marks on said copy medium; and

the voltage in said first range producing the darkest gray differing substantially in magnitude from the voltage in said second range producing the lightest gray of said second range.

4,276,570

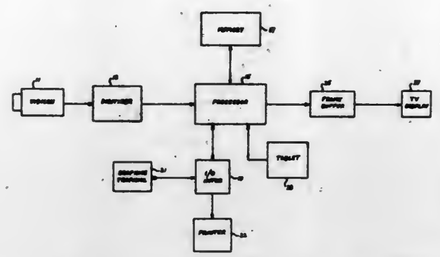
METHOD AND APPARATUS FOR PRODUCING AN IMAGE OF A PERSON'S FACE AT A DIFFERENT AGE

Nancy Burson, 568 Broadway - 4th Floor, New York, N.Y. 10012, and Thomas D. Schneider, Boulder, Colo., assignors to Nancy Burson, New York, N.Y.

Filed May 8, 1979, Ser. No. 36,847

Int. Cl.³ H04N 7/18

U.S. Cl. 358—903 14 Claims



1. A method of simulating the appearance of a face at a different age comprising:

(a) recording a picture of an old face;

(b) recording a picture of a young face;

(c) finding and recording the difference between the old and young face;

(d) recording a picture of a face to be transformed to simulate said face at a different age;

(e) modifying said face to be transformed with said differences; and

(f) displaying said face to be transformed modified with the differences.

4,276,571

SLOW OR STILL MODE VIDEO SIGNAL REPRODUCING APPARATUS WITH INCREMENTED TAPE MOVEMENT

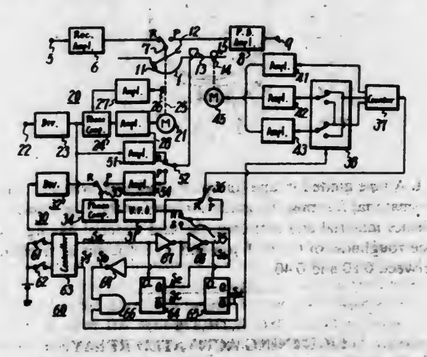
Hitoshi Sakamoto, Zama, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 813,237, Jul. 6, 1977, abandoned. This application Feb. 28, 1979, Ser. No. 16,022

Claims priority, application Japan, Jul. 13, 1976, 51-83119

Int. Cl.³ H04N 5/78; G11B 15/20

U.S. Cl. 360—10 8 Claims



1. In an apparatus for reproducing a video signal recorded in parallel slant tracks at a predetermined pitch on a recording medium, and which apparatus includes record medium transport means for advancing the record medium in a direction to cause reproducing of signals recorded in successive ones of said slant tracks, and pulse responsive means for controlling the operation of said transport means: a transport control mechanism comprising control circuit means for selectively providing pulses at the option of a user to said pulse responsive means for advancing said record medium a distance equal to a predetermined fraction of said pitch of said parallel slant tracks in response to each said pulse.

4,276,572

AUTOMATIC MESSAGE ANNOUNCEMENT SYSTEM

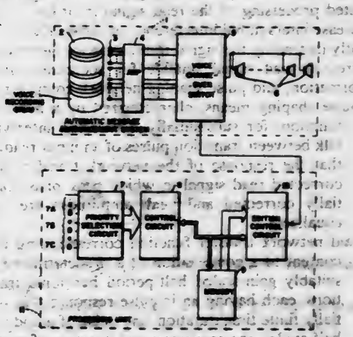
Yoshiro Hayashi; Akira Sugihara; Takaki Shimura, all of Tokyo; Kozo Ishikawa, Yokohama; Kiyoshi Wada; Eiji Yamanaka, both of Toyko, and Shunsuke Seaba, Yokohama, all of Japan, assignors to Japanese National Railways; Fujitsu Limited and Fujitsu Kiden Ltd., all of, Japan

Continuation-in-part of Ser. No. 883,170, Mar. 3, 1978. This application Oct. 26, 1979, Ser. No. 88,630

Claims priority, application Japan, Sep. 11, 1976, 51-109563

Int. Cl.³ G11B 5/00

U.S. Cl. 360—12 14 Claims



1. An automatic message announcement system for announcing the departure, arrival and approach of vehicles, comprising:

announcement command input signal generation means for generating announcement command input signals upon the departure, the arrival and the approach of vehicles;

priority selection circuit means for giving priority order to each said announcement command input signal and generating an interruption signal when a second announcement command input signal is generated while automatic announcement is being performed on the basis of a first announcement command input signal, the interruption level of said interruption signal depending on the priority order of the announcement command input signals;

a memory which stores codes corresponding to partial message announcement segments;

a processing means for reading out the memory content and composing a message pattern to be announced on the basis of the announcement command input signal and re-editing a new message pattern to be announced on the basis of the interruption level when said interruption signal is generated;

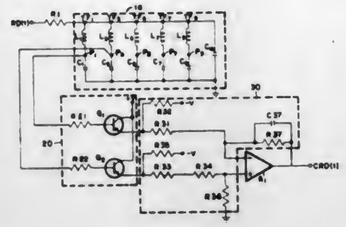
a voice recording medium for storing a plurality of voice elements; and

voice edition control circuit means for controlling announcement of message patterns given from the processing means.

4,276,573
PULSE SHAPING NETWORK FOR DISC READ CIRCUITRY

Peter H. Halpern, Longwood, Fla., and Charles E. Lawrence, Boerne, Tex., assignors to Datapoint Corporation, San Antonio, Tex.

Filed Jan. 29, 1979, Ser. No. 53,546
Int. Cl.³ G11B 5/09
U.S. Cl. 360—45 22 Claims



1. In apparatus for reading encoded digital data recorded at high density as bivalent states of a moving magnetic medium and providing a read signal formed by a sequence of bivalent transition pulses, a pulse shaping network for the band width-limited processing of the read signal in order to substantially decrease intersymbol interference or cross talk without significantly degrading the signal-to-noise ratio, thereby obtaining a corrected read signal suitable for accurately decoding the information, said pulse shaping network comprising:

pulse shaping means, characterized by a network transfer function, for substantially decreasing intersymbol cross talk between transition pulses of an input read signal such that the response of the network transfer function is a corrected read signal in which peak phases are substantially corrected and peak amplitudes are substantially equalized;

said network transfer function corresponding in harmonic content to a combination of a predetermined number of suitably gain-scaled half-period harmonic transfer functions, each having an impulse response that is a substantially finite time duration sine pulse of an odd multiple of half cycles, the predetermined duration of each sine pulse being less than or substantially equal to the bit cell interval of the encoded digital data;

the harmonic content of said network transfer function being sufficiently band width-limited that the corrected read signal response of said network transfer function is substantially band width-limited, and the signal-to-noise ratio is not significantly degraded.

4,276,574
READ/WRITE AND TUNNEL ERASE MAGNETIC HEAD ASSEMBLY

Holger J. Bassch, Rochester, and Francis S. Luecke, Byron, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 6, 1979, Ser. No. 101,027
Int. Cl.³ G11B 5/27
U.S. Cl. 360—121 8 Claims

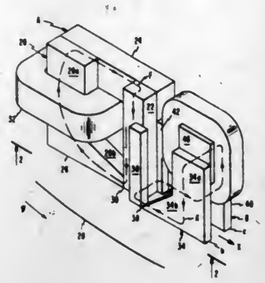
1. A magnetic head assembly having an elongate active face and including:

a pair of magnetically permeable data transfer core portions having faces forming parts of said active face and providing a data transfer gap between them extending transversely across said active face,

a data transfer coil on one of said core portions,

a pair of magnetically permeable erase core portions having faces that form parts of said active face and extending along and in contact with the opposite sides of one of said data transfer core portions,

a second pair of magnetically permeable erase core portion having faces that form parts of said active face, each of said second pair of erase core portions extending in the direction of said elongate active face from and in alignment with one of said first named pair of erase core portions and providing an erase gap which is between it and the respective one of said first named erase core portions



and which extends essentially transversely across said active face,

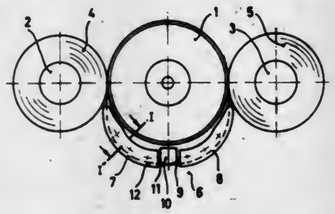
a bridging core portion of magnetically permeable material disposed between and magnetically connecting said second pair of erase core portions, and

an erase coil disposed on said bridging core portion.

4,276,575
TAPE GUIDE FOR HIGH-SPEED TAPE TRANSPORT APPARATUS

Klaus Schoettle, Heidelberg; Werner Hoffmann, Ludwigshafen; Eduard Kaemmer, Mutterstadt; Klaus Boehlke, Hemsheim, and Helmut Lewin, Bobenheim-Roxheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 906,443, May 17, 1978. This application Oct. 18, 1979, Ser. No. 86,136
Claims priority, application Fed. Rep. of Germany, May 18, 1977, 2722509
Int. Cl.³ G11B 15/60
U.S. Cl. 360—130.21 16 Claims



1. A tape guide for tape transport apparatus, wherein at least the material forming the guide surface for the tape consists of plastics material and lubricant, the said material having a surface roughness of 0.1 to 1 μm and a coefficient of friction of between 0.20 and 0.40.

4,276,576
LIGHTNING ACTIVATED RELAY

Martin A. Uman, and Ronald B. Standler, both of Gainesville, Fla., assignors to Lightning Location and Protection, Inc., Tucson, Ariz.

Filed Dec. 27, 1978, Ser. No. 973,764
Int. Cl.³ H02H 1/04
U.S. Cl. 361—1 33 Claims

1. A lightning protection system usable for protecting equipment operated from an electrical power source upon the occurrence of atmospheric conditions likely to produce lightning comprising:

means for detecting the field produced by electrical storms;

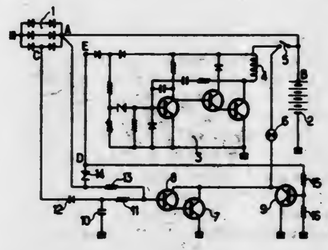
switching means having a first condition of operation wherein said equipment is in an operational condition and a second condition of operation wherein said equipment is in a protected condition, said switching means being responsive to said detecting means for placing said electrical equipment in said protected condition upon the detection of said field; and

means operatively coupled to said electrical power source and to said switching means for rendering said switching means operative to place said electrical equipment into said protected condition upon the occurrence of an interruption in the power provided by said electrical power source.

4,276,577
MOTOR VEHICLE BATTERY CHARGING INSTALLATION

Michel Grason, Creteil, France, assignor to Ducellier & Cie, France

Filed Jan. 24, 1979, Ser. No. 6,167
Claims priority, application France, Feb. 2, 1978, 78 02850
Int. Cl.³ H02H 7/20; G05F 1/58
U.S. Cl. 361—91 3 Claims

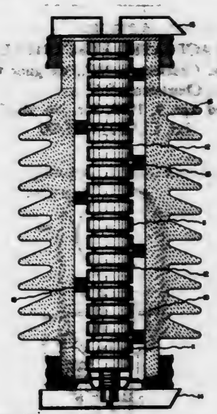


1. A motor vehicle battery charging installation comprising the combination of an alternator having an output, a rectifier connecting the alternator to the battery to be charged, a voltage regulator connected to control the output of the alternator in accordance with the battery voltage, a warning lamp and a control transistor means therefor connected across the battery, means connected directly between the control transistor means and the rectifier for biasing said control transistor means to conduct and thereby energize and illuminate said warning lamp when said alternator fails to produce its output, means connected directly between the control transistor means and the rectifier for turning the said control transistor means off when the alternator is producing an output, a zener diode connected directly between the rectifier output and an auxiliary input of the voltage regulator to provide regulation at an increased voltage level should the connection between the alternator and the battery be interrupted, and means controlled by current flow through said zener diode for overridingly illuminating said warning lamp when the said zener diode conducts, said control transistor means being operative to control the energization of the said warning lamp to indicate the failure of the alternator to produce an output and to further indicate the occurrence of an interruption of the connection between said alternator and said battery.

4,276,578
ARRESTER WITH GRADED CAPACITANCE VARISTORS

Lionel M. Levinson, Schenectady; Howard F. Ellis, Stephentown, both of N.Y., and Herbert Fishman, Pittsfield, Mass., assignors to General Electric Company, Schenectady, N.Y.

Filed May 10, 1979, Ser. No. 37,874
Int. Cl.³ H02H 3/22
U.S. Cl. 361—127 13 Claims



1. An arrester for surge protection of power transmission lines comprising:

an elongated insulating housing having a ground terminal and a line terminal disposed at opposite ends thereof;

a plurality of metal oxide varistors disposed within said housing and configured in a stack, said varistors being electrically connected in series, the varistor at a first end of said stack being connected to said line terminal and the varistor at the second end of said stack being connected to said ground terminal, said varistors exhibiting increased intrinsic capacitance with increased proximity to said line terminal.

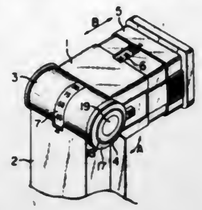
4,276,579
PHOTOGRAPHIC FLASH DEVICE

Hikoya Yako, Osaka, Japan, assignor to West Electric Co., Ltd., Osaka, Japan

Filed Mar. 29, 1978, Ser. No. 24,909
Claims priority, application Japan, Jul. 4, 1978, 53/46282[U]
Int. Cl.³ G03B 15/02
U.S. Cl. 362—[illegible] 2 Claims

1. A photographic flash device having a flash section comprising a flash tube which flashes by means of the energy charged on a main discharge capacitor and a reflector, a flash light emission angle variable mechanism which has a single transparent panel and which can vary the flash light emission angle by changing the distance of said panel from said flash tube, a flash light emission angle display coupled to and controlled by said flash light emission angle variable mechanism, an exposure information section upon which are displayed aperture, film speed, and distance to a subject, and a connecting mechanism which interconnects said flash light emission angle variable mechanism and said exposure data section so

that the displays of said exposure data section may be varied when the flash light emission angle is varied by means of said flash light emission angle variable mechanism, whereby the



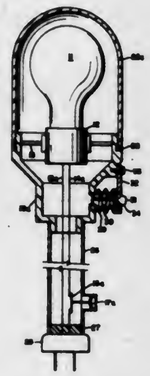
operation of said flash light emission angle variable mechanism correspondingly varies the display of the flash light emission angle and the exposure information.

4,276,580

PRESSURE ACTUATED ELECTRICAL SYSTEM

Charles J. Rogers, Charleston, S.C., assignor to C. J. Rogers Enterprises Inc., Charleston, S.C.

Filed Apr. 9, 1979, Ser. No. 28,172
Int. Cl.³ F21V *25/00*
U.S. Cl. 362—22 **9 Claims**



1. An electrical system comprising
(a) a hermetically sealed chamber,
(b) an electrical circuit member within said chamber adapted to be connected to a power source,
(c) means for changing the volume of said chamber after the hermetic seal has been established, thereby to create a pressure differential between the space within said chamber and the ambient atmosphere, and
(d) means responsive to the loss of said pressure differential to provide a signal to said circuit member.

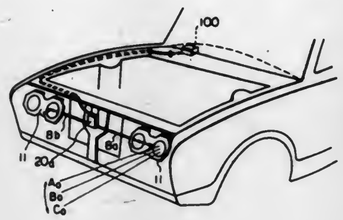
4,276,581

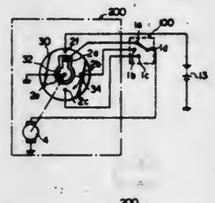
HEADLIGHT TILTING SYSTEM FOR VEHICLES

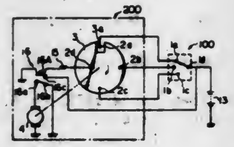
Shinichi Orii, Fujisawa, and Masao Ishikawa, Yokohama, both of Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

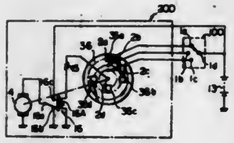
Filed Mar. 20, 1979, Ser. No. 22,030
Claims priority, application Japan, Mar. 22, 1978, 53-36494[U]
Int. Cl.³ B60Q *1/06*
U.S. Cl. 362—40 **9 Claims**

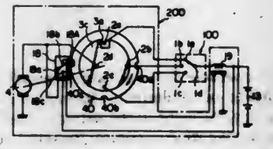
1. In a headlight tilting system for a vehicle, said system having at least one headlight mounting frame pivotally mounted to the body of said vehicle,
a source of electromotive force (E.M.F.)
an electric motor said motor having first and second terminals;
a rotary shaft in drive connection with said motor;
linkage means operatively interconnecting said rotary shaft and said frame for causing said frame to oscillate in response to the rotation of said motor; and
circuit means for selectively connecting said motor to said source so that said frame is caused to oscillate and for disconnecting said motor from said source and simultaneously short circuiting said motor, including
a member mounted to said rotary shaft for synchronous rotation therewith, said member having a first electrically











conductive portion and at least one second portion electrically isolated from said first portion;
a plurality of sliding contacts which slide on said member, a first group of said sliding contacts being arranged to slide only on said first portion and a second group which each cyclically slide on said first and second portions in a manner that only one of said second group slides on said second portion at one time;
a manually operatable switch having a plurality of stationary contacts each connected to one of said second group and

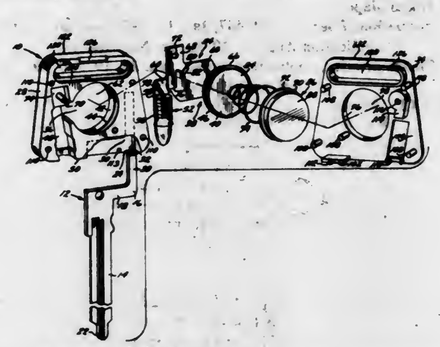
a movable contact which can be set to contact a stationary contact which corresponds to one of said second group in contact with said first portion so that electric current flows between said one of said second group and said first group and that said motor rotates said member until said second portion comes into contact with said one of said second group whereupon said source is disconnected from said motor; and
switching means for short circuiting said motor upon said member rotating to the position in which said second portion comes into contact with said one of said second group.

4,276,582

KEY WITH LIGHT

John Burnett, Irvine, Calif., assignor to Lock Light Corporation, Laguna Beach, Calif.

Filed Dec. 26, 1978, Ser. No. 972,983
Int. Cl.³ F21V *33/00*
U.S. Cl. 362—116 **18 Claims**



1. A key apparatus comprising:
a first handle member having at least one peripheral side edge and a cavity with an opening into the peripheral side edge;
a key body including a substantially elongated first portion and a second portion contiguous to the first portion, the second portion extending from the first portion in a direction having a directional component other than the general longitudinal axis of the first portion, the second portion dimensioned to be slideably fitted into the cavity;
a second handle member having a surface dimenioned to be juxtaposed to and interface with a surface of the first handle member, the second handle member also having a peripheral side edge and at least one protrusion on the peripheral side edge said protrusion being adapted to at least partially cover the opening of the cavity whereby the key body member is securely locked in the cavity, the protrusion preventing the key body member from sliding out of the cavity, and
means for physically attaching the interfacing first and second handle members.

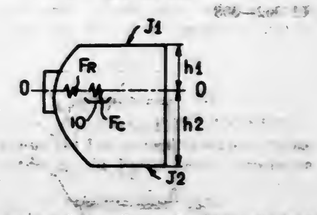
4,276,583

NOVEL RECTANGULAR HEADLIGHT FOR AUTOMOBILE

Hector Fratty, Boulogne S. Seine, France, assignor to Cibie Projecteurs, Bobigny, France

Filed May 11, 1978, Ser. No. 904,960
Claims priority, application France, May 23, 1977, 77 15898
Int. Cl.³ F21M *3/14*
U.S. Cl. 362—214 **1 Claim**

1. A headlight for automobiles, with a substantially rectangular front opening, of the type comprising a parabolic reflector having an optical horizontal axis along which are disposed a light filament for dipped-beam illumination cooperating with cut-off means, and a light filament for far-beam illumination positioned rearwardly of said light filament for dipped-beam illumination, a horizontal upper side and a horizontal lower side intersecting the reflector to delimit the substantially rectangular opening of the headlight, wherein the upper side is substantially closer to said axis than the lower side, with the result that, for a total, unchanged height of the headlight, the zone of the reflector furnishing the dipped-beam illumination is



reduced, and the zone of the reflector furnishing the far-beam illumination is increased, and wherein said upper side is distant from said optical axis by the distance h_1 and said lower side by a distance h_2, characterized by the inequation:

$$\frac{1}{2}h_2 < h_1 < \frac{1}{4}h_2;$$

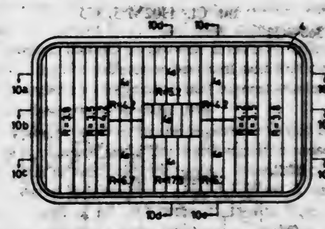
this allowing an optimum compromise for far-beam and dipped-beam illumination.

4,276,584

AUTOMOTIVE HEADLIGHT

Matsuo Ichikawa, Gunma, Japan, assignor to Ichikawa Press Industries Co., Ltd., Takasaki, Japan

Filed Aug. 4, 1978, Ser. No. 931,198
Claims priority, application Japan, Mar. 29, 1978, 53/40561[U]
Int. Cl.³ F21V *5/02*
U.S. Cl. 362—308 **5 Claims**



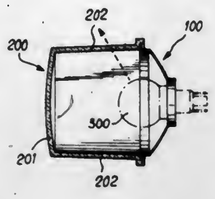
1. An automotive headlight, comprising: a concave reflector having a reflecting surface in the shape of a paraboloid of revolution; a light source having a horizontal filament located substantially at the focus of said reflecting surface so that light from said filament is reflected forwardly as parallel horizontal rays from said reflecting surface; a diffuser lens covering the open forward end of said reflector, said diffuser lens having means for effecting horizontal diffusion of light reflected from said reflecting surface, said diffuser lens also having an upwardly refracting prism part so that the upper edges of the light distribution patterns from each part of said reflecting surface substantially coincide with each other at a location spaced a selected distance horizontally forwardly from said lens, said upwardly refracting prism part increasing in thickness in the upward direction.

4,276,585

RECTANGULAR-OPENING SEALED BEAM UNITS FOR AUTOMOBILE LIGHTING

Alain Deverrewaere, La Varenne, France, assignor to Cibie Projecteurs, Bobigny, France

Filed Mar. 5, 1979, Ser. No. 17,305
Claims priority, application France, Mar. 7, 1978, 78 06437
Int. Cl.³ F21V 13/04
U.S. Cl. 362—308 4 Claims



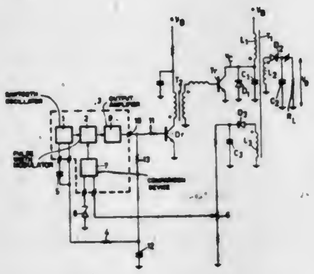
1. A sealed beam headlight for a motor vehicle, comprising:
(a) a metal reflector having a parabolic contour, the reflector, when viewed from the front, having a substantially rectangular shape wherein its width is greater than its height, the outer edge of the reflector including two side edge portions and upper and lower edge portions, each of the upper and lower edge portions extending rearwardly from the side edge portions along a generally arcuate path, and
(b) a translucent lens covering the front of the reflector, the lens, when viewed from the front, having a substantially rectangular shape wherein its width is greater than its height, and the outer edge of the lens having a shape complementary to that of the outer edge of the reflector so that when the reflector and lens are assembled their outer edges meet.

4,276,586

TUNED SWITCHED-MODE POWER SUPPLY

Antonius Boekhorst, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 23, 1979, Ser. No. 23,110
Claims priority, application Netherlands, Apr. 6, 1978, 7803661
Int. Cl.³ H02M 3/335
U.S. Cl. 363—21 14 Claims



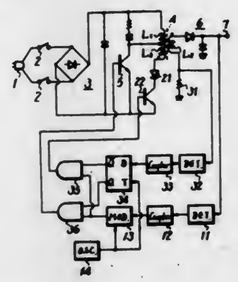
1. A switched-mode power supply for converting a d.c. input voltage into a d.c. output voltage which is substantially independent of variations in the input voltage and/or of variations of a load connected to output terminals of the power supply, said power supply comprising the series arrangement of an inductance and a controllable switch connected to input terminals for receiving the input voltage, a tuning capacitor connected in parallel with said inductance to form a resonant circuit, a control circuit having an output for providing drive switching pulses for alternately driving the switch into the conducting and the cut-off states with the duration of the conducting state of the switch being controllable in dependence upon the output voltage, and a rectifier coupled to the resonant circuit and to the output terminals for supplying the output voltage by rectification of oscillations produced during periods when the switch is cut off, the control circuit including means providing a pulse duration modulation control of the drive switching pulses followed by a control of the frequency thereof with the frequency control effected via a delay network by means of a control signal obtained from the pulse duration modulation control, the duration of the switch-off pulses having substantially a pre-determined duration which is longer than half a cycle of the resonant frequency of the resonant circuit.

4,276,587

DC TO DC CONVERTER

Akio Koizumi, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 760,457, Jan. 18, 1977, abandoned. This application Aug. 16, 1978, Ser. No. 934,261
Claims priority, application Japan, Jan. 23, 1976, 6769/76
Int. Cl.² H02M 3/32
U.S. Cl. 363—26 7 Claims



1. A power supply circuit comprising, a DC voltage source, a pair of input terminals connected to said DC voltage source, an output terminal, first and second inductors, a first switching means connected in series with said first and second inductors between said output terminal and one of said pair of input terminals, a second switching means connected in parallel with said second inductor, a resistor connected between the second one of said pair of input terminals and a reference potential, a first detector connected to said output terminal, an oscillator, a modulator receiving inputs from said first detector and said oscillator and supplying a switching signal to said first switching means, a second detector connected to said resistor, and a flip-flop circuit receiving inputs from said oscillator and said second detector and supplying a switching signal to said second switching means.

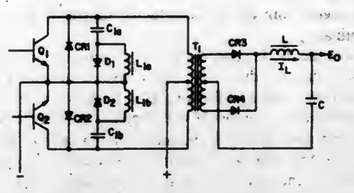
4,276,588

PUSH-PULL CONVERTER WITH ENERGY SAVING CIRCUIT FOR PROTECTING SWITCHING TRANSISTORS FROM PEAK POWER STRESS

W. T. McLyman, Lakewood, Calif., and Robert A. Froech, Administrator of the National Aeronautics and Space Administration, with respect to an invention of W. T. McLyman

Filed Jun. 22, 1979, Ser. No. 51,276
Int. Cl.³ H02H 7/12
U.S. Cl. 363—56 3 Claims

1. In a circuit having a switching power transistor driving an inductive load, said transistor being switched on and off, an improved means for protecting said transistor from peak power stresses comprising a capacitor and an inductor connected in a series circuit that is connected between the collector and the emitter of said transistor, said inductor being a primary winding of a transformer, and a diode in parallel with said primary winding, said diode being connected to conduct forward current to charge said capacitor while said transistor is turned off, whereby energy stored in said capacitor is automatically transferred to said primary winding when said transistor is turned on, and once said capacitor is discharged, energy stored in said primary winding is discharged through said diode, whereby energy discharged from said capacitor may be transferred to an external circuit, load or power supply for the circuit through said transformer.

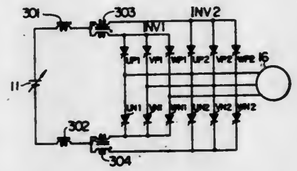


4,276,589

TWELVE-STEP CURRENT SOURCE INVERTER

Tadashi Okawa; Mitsuyuki Houbo; Yasuo Matsuda; Takanori Shibata, and Toshio Kawaguchi, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 4, 1979, Ser. No. 27,098
Claims priority, application Japan, Apr. 5, 1978, 53-39219
Int. Cl.³ H02M 1/12
U.S. Cl. 363—71 6 Claims



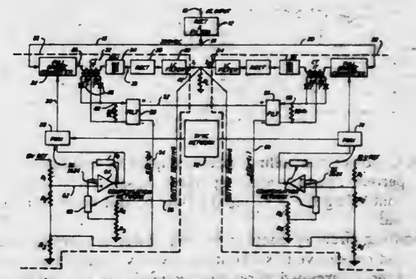
1. In a twelve-step current source inverter comprising:
(1) a first current balancing inductor for smoothing a direct current flowing thereto from a DC source;
(2) a second current balancing inductor for smoothing a direct current flowing thereto from said DC source, said second current balancing inductor having an inductance equal to that of said first current balancing inductor;
(3) a first inverter including first 1st-phase, 2nd-phase and 3rd-phase main valves which are on a positive terminal side and second 1st-phase, 2nd-phase and 3rd-phase main valves which are on a negative terminal side to form a first three-phase bridge, said first and second main valves being connected to said first current balancing inductor;
(4) a second inverter including first 1st-phase, 2nd-phase and 3rd-phase main valves which are on said positive terminal side and second 1st-phase, 2nd-phase and 3rd-phase main valves which are on said negative terminal side to form a second three-phase bridge, said main valves of said second inverter being connected to said second current balancing inductor, said second inverter having an apparent power equal to that of said first inverter;
(5) combining means for combining said first and second inverters of currents to derive a three-phase system of resultant output currents; and
(6) a control unit for applying to control gates of said positive-side and negative-side first and second main valves of said first and second inverters pulses which select the firing order thereof in the order of said 1st-phase, 2nd-phase and 3rd-phase and determine the firing intervals thereof, whereby said combining means generate stepped-waveform resultant output currents,
the improvement wherein said pulses sequentially applied to said control gates from said control unit are in the form of a pulse train made up of groups of pulses involving three kinds of intervals which are different in value from one another, and wherein said pulse train is made periodic, whereby each of said main valves is repeatedly fired by selected ones of said pulses having the same intervals.

4,276,590

CURRENT SHARING MODULAR POWER SYSTEM

Allen B. Hansel, Wayside, and Thiagarajan Natarajan, Orange, both of N.J., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed Apr. 30, 1979, Ser. No. 35,370
Int. Cl.³ H02M 7/23
U.S. Cl. 363—71 10 Claims



1. A current sharing power system having a plurality of modules connected together wherein each module comprises, in combination:
a power inverter adapted to produce an alternating current output, said power inverter being responsive to an externally produced pulse width signal to vary the width of each alternating current pulse;
current sensing circuit responsive to said alternating current pulse to produce a first current level signal to indicate the current output of the module including said current sensing circuit, said current sensing circuit including means to respond to the current level signal from each other power module coupled thereto to provide a current difference signal indicating the difference between said first current level signal and the average of all said current level signals from each other system module; and
pulse width signal producing means responsive to said difference signal to produce said pulse width signal to cause said power inverter to produce wider pulses when said current difference signal indicates said sensed current is smaller than the average of all said sensed currents from each other system module and to produce a narrower pulse when said sensed current is greater than the average of all said sensed currents from each other system module.

4,276,591

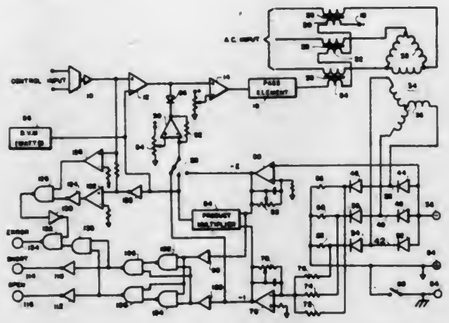
PROGRAMMABLE POWER REGULATING POWER SUPPLY

Donald L. Quick, Mountain View, Calif., assignor to The Perkin-Elmer Corporation, Norwalk, Conn.

Filed May 29, 1979, Ser. No. 43,518
Int. Cl.³ H02P 13/26
U.S. Cl. 363—92 11 Claims

1. A power supply for generating a constant regulated power output at a level proportional to the level of an applied input control signal, said power supply comprising:

power circuitry including A.C. power input circuitry, rectification circuitry, and D.C. power output circuitry;
power measuring means coupled to said power circuitry for generating an output voltage signal proportional to the D.C. output power of the power supply;
control input circuitry responsive to external control and providing a control signal level proportional to the desired power output of said power supply;
signal comparison circuitry coupled to said power measuring means and to said control input circuitry for measuring an error signal proportional to the difference between said output power voltage signal and said control level signal;



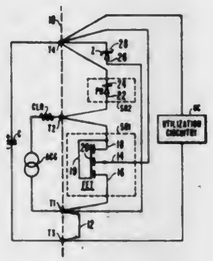
A.C. power controlling means coupled to said signal comparison circuitry and responsive to said error signal for controlling the A.C. input power to said power circuitry and
limiting circuitry coupled to said power measuring means and responsive to said output power voltage signal and to a predetermined threshold voltage for overriding the error signal of said comparison circuitry and for controlling said A.C. power controlling means whenever said output power voltage signal exceeds said threshold voltage.

4,276,592

A-C RECTIFIER CIRCUIT FOR POWERING MONOLITHIC INTEGRATED CIRCUITS

Michael B. Goldman, and George I. Morton, both of Belle Mead, N.J., assignors to RCA Corporation, New York, N.Y.

Filed Jan. 19, 1979, Ser. No. 4,845
Claims priority, application United Kingdom, Jul. 6, 1978, 29091/78
Int. Cl.³ H02M 1/00
U.S. Cl. 363—147 **7 Claims**



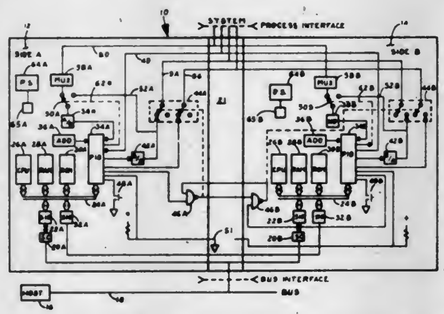
1. A rectifier circuit comprising
first and second terminals for receiving an alternating current therebetween;
a third terminal at which a rectified potential is available;
a field effect transistor having drain and source semiconductor regions of a first conductivity type disposed in a semiconductor substrate of an opposite conductivity type, said drain source regions forming pn junctions with the substrate; and further having a gate electrode;
means connecting the drain and source regions of said field effect transistor respectively to said second and first terminals, and means connecting the gate electrode to said second terminal;
means connecting the semiconductor substrate to said third terminal;
an avalanche diode comprising a first semiconductor region of said first conductivity type disposed in said semiconductor substrate and forming a pn junction with a second semiconductor region of the opposite conductivity type, wherein said second semiconductor region is disposed in and is of the same conductivity type as said semiconductor substrate, thereby providing a connection between said second semiconductor region and said semiconductor substrate; and
means connecting said first semiconductor junction to said first terminal.

4,276,593

TRANSFER SYSTEM FOR MULTI-VARIABLE CONTROL UNITS

Paul L. Hansen, Brea, Calif., assignor to Beckman Instruments, Inc., Fullerton, Calif.

Filed Mar. 30, 1979, Ser. No. 25,515
Int. Cl.³ G06F 15/46, 15/16, 11/16
U.S. Cl. 364—119 **11 Claims**



11. A redundant multi-variable control apparatus comprising:
a first, normally selected controller and a second, normally non-selected controller, each including means for receiving data indicative of the condition of a process to be controlled, means for performing calculations based upon such data and issuing output signals to control process variables;
output interconnect means having a first state in which said first controller controls said process variables and a second state in which said second controller controls said process variables;
self-diagnostic means contained within each of said controllers for diagnosing the proper operation of such controller and providing an output to the other controller indicating that such controller is operating properly;
means in each of said controllers generating a status signal indicating that the other controller is operating properly;
transfer means including:
(a) a first input connected to said first controller to receive a status signal indicative of the proper operation of said second controller,
(b) a second input connected to said second controller to receive a status signal indicative of the proper operation of said first controller,

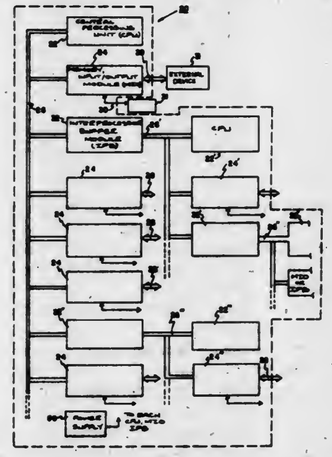
(c) at least one output connected to said output interconnect means,
said transfer means serving as means for maintaining the first state of said output interconnect means when the status signals from said first and second controllers indicate that said second and first controllers, respectively, are operating properly, and for establishing the second state of said output interconnect means when the status signal from said second controller indicates that said first controller is not operating properly.

4,276,594

DIGITAL COMPUTER WITH MULTI-PROCESSOR CAPABILITY UTILIZING INTELLIGENT COMPOSITE MEMORY AND INPUT/OUTPUT MODULES AND METHOD FOR PERFORMING THE SAME

Richard E. Morley, Greenville, N.H., assignor to Gould Inc. Modicon Division, Rolling Meadows, Ill.

Continuation-in-part of Ser. No. 873,018, Jan. 27, 1978, abandoned. This application Jan. 16, 1978, Ser. No. 916,274
Int. Cl.³ G06F 15/16, 13/00
U.S. Cl. 364—200 **36 Claims**



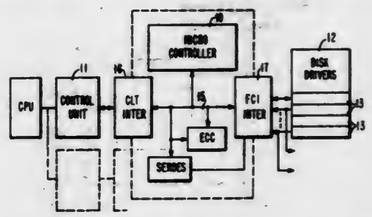
1. A computer comprising:
(A) a central processing unit (CPU) for the processing of data, the CPU having a processor;
(B) means, connected to the CPU for providing a communication path to and from the CPU;
(C) a clock, connected to the communication path means, for generating a repetitive multi-phase clock cycle; and
(D) a composite, intelligent memory and input/output module (MIO), connected to the communication path means, so as to store and transfer data to and from the CPU and to and from external devices, the data including all application code for execution by the CPU as well as all data used in the execution of the application code, the MIO comprising:
(1) a public memory for the storage of data accessible to both the CPU and the external devices during different phases of the multiphase clock cycle,
(2) a microprocessor responsive to the phases of the multiphase clock cycle so as to control public memory access by the CPU and the external devices,
(3) a microprocessor bus connecting the public memory to the microprocessor,
(4) means, responsive to the microprocessor and connected to the microprocessor bus, for interfacing data to and from the external devices with the public memory, and
(5) means, responsive to the microprocessor and connected between the public memory and the communication path means, for interfacing data to and from the public memory and the CPU;
whereby data transfer to and from the public memory of the MIO to the communication path means occurs during a distinct phase of the clock cycle and the transfer of data to and from the public memory of the MIO with the external devices occurs during another distinct phase of the clock cycle.

4,276,595

MICROINSTRUCTION STORAGE UNITS EMPLOYING PARTIAL ADDRESS GENERATORS

David A. Brereton, and Buddy F. Stansbury, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 30, 1978, Ser. No. 921,147
Int. Cl.² G06F 13/00
U.S. Cl. 364—200 **14 Claims**

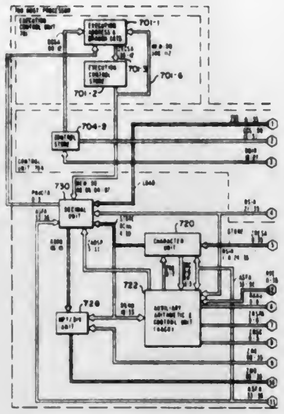


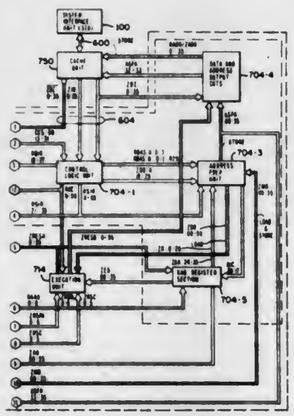
1. A microcontroller for executing branch, conditional branch and non-branch type of instructions in a fixed time machine cycle while simultaneously fetching the next instruction, comprising:
A. means for storing a plurality of instructions at individually addressable storage locations and for reading an instruction therefrom;
B. an instruction decoder having its input connected to said means for storing and a load instruction decoder control terminal;
C. means for addressing said means for storing including:
1. an address register;
2. a plurality of partial address generators, one of said partial address generators comprising:
a. a first register;
b. a plurality of instruction addressable data sources; and
c. means for selectively connecting one of said data sources to the input of said first register;
3. gating means for selectively connecting each said generator to said address register to permit a partial address from at least one selected said generator to be transferred to said address register prior to a first predetermined time in said machine cycle; and
D. control means having an input connected to said decoder and its output connected to said means for addressing, said means for storing, and said control terminal and operable in response to the contents of said decoder during each machine cycle to selectively transfer the contents of one selected said data source into said first register immediately after the start of each machine cycle, to selectively transfer prior to said first predetermined time partial address signals from one or more of said partial address generators to said address register, to initiate at said predetermined time the reading of said next instruction from said means for storing to said decoder input, and to supply a load signal to said decoder at the end of said cycle whereby the next instruction to be executed is transferring to said decoder while the current instruction is being executed and is loaded into said decoder immediately prior to the termination of said current machine cycle.

4,276,596
SHORT OPERAND ALIGNMENT AND MERGE OPERATION

Richard T. Flynn, Peoria, and Jerry L. Kindell, Glendale, both of Ariz., assignors to Honeywell Information Systems Inc., Waltham, Mass.

Filed Jan. 2, 1979, Ser. No. 401
Int. Cl.³ G06F 7/38
U.S. Cl. 364—200 12 Claims





11. The system of claim 10 wherein said selection means is operative for selecting signals indicative of said word comprising numeric zero digits in response to said shift count signals and said send count signals being coded to specify a number whose value is greater than or equal to a first predetermined value;

wherein said selection means is further operative for selecting signals indicative of said second word in response to said send count signals being coded to specify a number whose value is equal to a second predetermined number;

wherein said selection means is further operative for selecting signals indicative of said first and said second words in response to said shift count signals and being coded to specify a number whose value is equal to a third predetermined number;

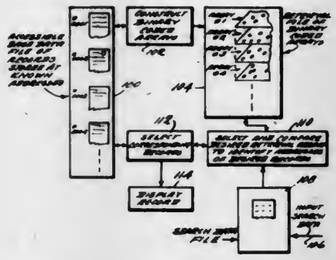
wherein said selection means is further operative for selecting signals indicative of said first word in response to said shift count signals and said send count signals being coded to specify a number whose value is equal to a fourth predetermined number;

wherein said selection means is further operative for selecting signals indicative of said word comprising numeric zero digits in response to said shift count signals and said send count signals being coded to specify a number whose value is less than said fourth predetermined number.

4,276,597
METHOD AND APPARATUS FOR INFORMATION STORAGE AND RETRIEVAL

Donald D. Dinsly, and Ronald J. Blanchard, both of Louisville, Ky., assignors to Volt Delta Resources, Inc., New York, N.Y.

Filed Jan. 17, 1974, Ser. No. 434,207
Int. Cl.³ G06F 3/00, 7/10
U.S. Cl. 364—300 80 Claims



1. An information storage and retrieval system comprising:

a set of stored information bearing records having information stored in a language format which, at least in part, has intelligent meaning because of particular groupings of characters or symbols therein,

each of said records being disposed at a predetermined address or location,

a stored retrieval file for facilitating the retrieval of particular desired records from said set of information bearing records, said retrieval file comprising a plurality of arrays of binary coded elements,

each of said arrays including predetermined elements individually and respectively corresponding to the addresses of each of said information bearing records,

each of said arrays being formed to indicate the presence or absence of a predetermined identifiable characteristic of the language structure associated with the information content of each of said information bearing records, wherein said plurality of arrays constituting a comprehensive set of arrays correspond to a comprehensive set of said predetermined identifiable characteristics of language structure comprising substantially all such predetermined identifiable characteristics which are to be later utilized in searching for desired information bearing records, and

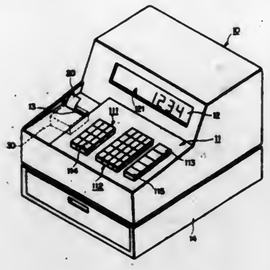
each element in a given array being binary coded in a first manner to represent the presence in the respectively corresponding record of the predetermined identifiable characteristic of language structure corresponding to the given array and being binary coded in a second distinguishable manner to represent the absence in the respectively corresponding record of the predetermined identifiable characteristic of language structure corresponding to the given array

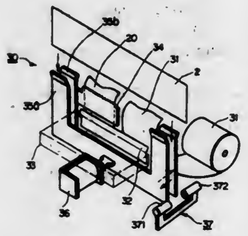
whereby particular desired records bearing certain desired information may be located and thus retrieved by first determining the subset of said predetermined identifiable characteristics present in said desired information and then examining the respectively corresponding subset of said arrays to determine the storage address or location of each stored record containing all of said subset of predetermined identifiable characteristics.

4,276,598
ELECTRONIC CASH REGISTER INCLUDING MEANS FOR PRODUCING PRINTED VALIDATION DATA

Harukiko Inoue, Nagaokakyo, and Syuji Nakano, Osaka, both of Japan, assignors to Omron Tateisi Electronics Co., Kyoto, Japan

Filed Sep. 19, 1979, Ser. No. 77,145
Claims priority, application Japan, Dec. 1, 1978, 53-149410
Int. Cl.³ G06F 3/12
U.S. Cl. 364—405 8 Claims





1. An electronic cash register including a printing member for printing data on paper comprising:

a setting means for presetting a validation printing operation request when said electronic cash register is required to produce a validation print of predetermined processed data;

a receiving means for receiving a validation paper to be printed by said printing member with said predetermined processed data;

a detecting means coupled to said receiving means for generating a validation paper presence signal when said validation paper is present in said receiving means;

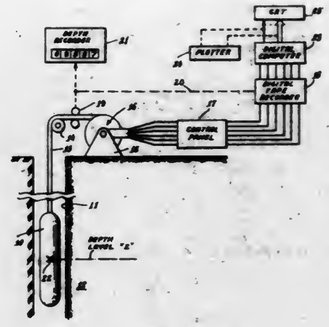
an instructing means for generating an instruction signal instructing the printing of said predetermined processed data on said validation paper by said printing member; and,

a control means responsive to said setting means, said instructing means, and said detecting means for operating said printing member to print said predetermined processed data on said validation paper, said control means generating an enable signal placing said control means in a mode for printing said processed data when said setting means has been preset with a validation printing operation request and a predetermined cash register function corresponding to said processed data has been completed in said electronic cash register, said control means causing printing of said processed data by said printing member upon generation of said enable signal and in response to said presence signal from said detecting means and said instruction signal from said instructing means.

4,276,599
METHOD OF PROCESSING WELL LOGGING DATA

James J. Maricelli, Houston, Tex., assignor to Schlumberger Technology Corporation, New York, N.Y.

Continuation of Ser. No. 276,348, Jul. 31, 1972, abandoned. This application Jan. 22, 1979, Ser. No. 51,818
Int. Cl.³ G01V 3/32, 3/38
U.S. Cl. 364—422 17 Claims



1. A well logging method of producing a single record containing two or more adjacent and mutually registered traces showing the respective degrees of mutual fit, at two or more respective adjacent depth levels in an earth formation, of a plurality of well logs separately taken in one or more boreholes in the formation, each respective trace showing the degree of mutual fit of the logs at the respective depth level when respective portions of the logs are depth displaced relative to each other over a respective depth interval at selected displacement steps, comprising the following machine implemented steps:

deriving a first and a second well log separately taken in one or more boreholes in the earth formation;

finding the degree of mutual fit between the first and the second well log at a first selected depth level in the formation when respective portions of the logs are depth displaced relative to each other over a respective first depth interval at selected displacement steps;

finding the degree of mutual fit between the first and the second log at a second selected depth level, adjacent to the first selected depth level, when respective portions of the logs are depth displaced relative to each other over a respective second depth interval at selected displacement steps;

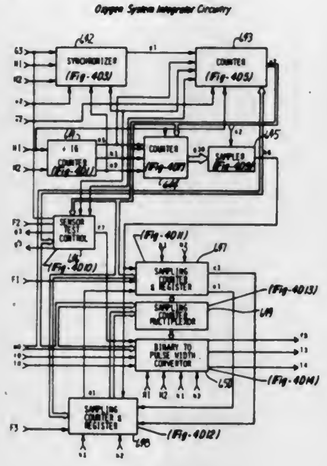
producing a first trace showing the degree of fit found at the first depth level and a second trace showing the degree of fit found at the second depth level, and forming the first and the second trace on a single record adjacent to each other and in mutual registration with each other, said single record of the first and the second trace indicating and emphasizing the correct relative depth displacement between the first and the second log for best mutual fit between the logs and de-emphasizing any spurious indications of best fit at other relative depth displacements between the logs.

4,276,600

OXYGEN SENSOR FEEDBACK LOOP DIGITAL ELECTRONIC SIGNAL INTEGRATOR FOR INTERNAL COMBUSTION ENGINE CONTROL

Thomas W. Hartford, Livonia, and James A. Kessler, Troy, both of Mich., assignors to The Bendix Corporation, Southfield, Mich.

Filed Feb. 27, 1978, Ser. No. 881,981
Int. Cl.³ F02M 51/00; F02D 28/00; F02B 75/10
U.S. Cl. 364—431 11 Claims



1. In an internal combustion engine having an intake system, an exhaust system, an engine block, a plurality of cylinders disposed in the engine block, a piston mounted for reciprocal movement within each of the plurality of cylinders, means responsive to output control signals for controlling the quantity of fuel supplied to a selected one or more of the plurality of cylinders and the ignition of the fuel within the cylinders, the improvement comprising:

a microprocessor means including a memory means for storing a plurality of look-up tables of control values and one or more programmed control laws, said microprocessor means being responsive to data indicative of the actual measured value of various engine-operating parameters for implementing said control laws to compute one or more commands for generating the control signals;

oxygen sensing means disposed in said exhaust system for monitoring the air-fuel ratio existing in the cylinders and generating a sensor output signal indicative thereof, said sensor output signal having a first value if said air-fuel ratio is "rich" and a second value if said air-fuel ratio is not rich;

means for sampling said sensor output signal a predetermined number of times per engine period and temporarily storing an indication of the sampled values of said sensor output signal and;

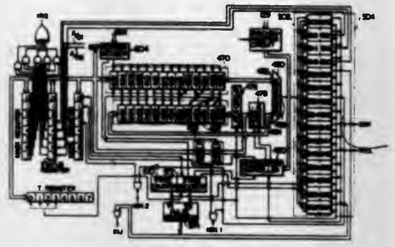
means for counting the temporarily stored oxygen sensor sampled values by digital means and storing a digital count value indicative thereof until said digital count value is requested by said microprocessor means for use in implementing one or more of said pre-programmed control laws to compute one or more of said commands.

4,276,601

ELECTRONIC ENGINE CONTROL APPARATUS

Hirotsu Tokuda, Katsuto; Shigeki Morinaga, Hitachi, and Hideo Nakamura, Hinodemachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 20, 1978, Ser. No. 943,930
Claims priority, application Japan, Sep. 21, 1977, 52-114048; Oct. 17, 1977, 52-124261; Oct. 19, 1977, 52-125972; Oct. 19, 1977, 52-125982
Int. Cl.³ F02D 5/00; F02P 5/04; G05B 15/02
U.S. Cl. 364—431 53 Claims



1. For use in a processor-controlled apparatus for controlling the operation of an internal combustion engine for which a plurality of sensors produce signals representative of operating conditions of said engine and being coupled to actuator means for controlling respective energy conversion functions of said engine in response to control signals applied thereto;

an improved control apparatus comprising, in combination:

first means for generating an engine control timing signal pattern through which operational events of said engine are controlled;

second means for storing engine control codes coupled thereto;

third means, coupled to said first means, for generating respective engine timing codes the values of which are selectively modified by said engine control timing pattern;

fourth means, coupled to said second and third means, for comparing respective ones of said engine control codes with respective ones of said engine timing codes and producing respective output signals when said respective engine control codes define a prescribed relationship with respect to said engine timing codes; and

fifth means, coupled to said fourth means, for producing control signals to be coupled to said actuator means in response to the output signals produced by said fourth means.

38. For use in a processor-controlled apparatus for controlling the operation of an internal combustion engine having an output shaft driven by mechanical energy converted from heat energy released by the combustion of fuel, said engine including igniting means for igniting the fuel to generate heat energy in accordance with conditions of said engine, said igniting means initiating the charging of ignition energy at energy charging timing and igniting the fuel at ignition timing, and for which a plurality of sensors produce signals representative of operating conditions of the engine and having digital converting means for converting the outputs of the sensors into corresponding digital signals;

a control apparatus for generating output pulses to drive said igniting means in accordance with the digital outputs of said processor,

said control apparatus comprising, in combination:

stage signal generating means for repetitively generating at least first and second stage signals corresponding to prescribed engine timing operations,

a first plurality of registers including at least first and second registers coupled to said stage signal generating means, said first register storing outputs of said processor defining said charging timing and selected in response to said first stage signals for providing stored data, said second register storing the output of said processor defining said ignition timing and selected in response to said second stage signal for providing stored data;

counter means including at least first and second counters for storing respective codes representative of the instantaneous condition of said igniting means and coupled to said stage signal generating means, said first counter being selected in response to said first stage signal, said second counter being selected in response to said second stage signal,

a comparator for comparing the contents of a selected one of said first plurality of registers with the contents of a selected one of said second plurality of registers, and

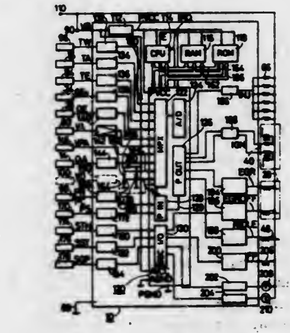
output means including a plurality of storage means for storing the outputs of said comparator and delivering the output to the igniting means, said output means being coupled to the stage signal generating means and to one of said storage means being selected in response to a stage signal for receiving an output of said comparator.

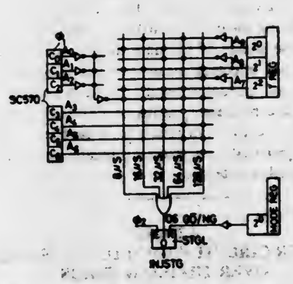
4,276,602

ELECTRONIC ENGINE CONTROL APPARATUS HAVING ARRANGEMENT FOR VARYING FUEL INJECTION DURATION

Sanshiro Obara; Hirotsu Tokuda; Akihiko Kondo, all of Ibaraki, and Hideo Nakamura, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 19, 1979, Ser. No. 59,029
Claims priority, application Japan, Aug. 7, 1978, 53-95483
Int. Cl.³ F02D 5/00; F02P 5/04; G05B 15/02
U.S. Cl. 364—431 45 Claims





1. In a control apparatus for an internal combustion engine having:

sensor means for producing signals representative of operating conditions of said engine;

actuator means for controlling respective energy conversion functions of said engine in response to control signals applied thereto;

an input/output unit coupled to receive signals produced by said sensor means and to deliver control signals to said actuator means; and

a data processing unit, coupled to said input/output unit, for carrying out engine control data processing operations in accordance with signals produced by said sensor means and thereby generating engine control codes that are coupled to said input/output unit;

said input/output unit comprising:

first means for generating an engine control timing signal pattern through which respective operational events of said engine are controlled;

second means, coupled to said first means, for generating respective engine timing codes the values of which are selectively modified by said engine control timing signal pattern;

third means, coupled to said second means, for producing respective output signals when said respective engine timing codes define a prescribed relationship with respect to said engine control codes;

fourth means, coupled to said third means, for producing control signals to be coupled to said actuator means in response to the output signals produced by said third means; and

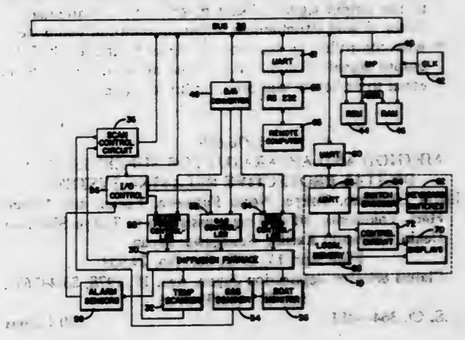
fifth means, coupled to said first means, for varying a characteristic of said engine control timing signal pattern in response to instruction data supplied by said data processing unit.

4,276,683

DIFFUSION FURNACE MICROCONTROLLER

Martin A. Beck, South Londonderry, Vt.; John H. Fabricius, Tyngsboro, Mass., and Donald G. Landis, Milford, N.H., assignors to BTU Engineering Corporation, North Billerica, Mass.

Filed Oct. 30, 1979, Ser. No. 89,631
Int. Cl.³ G06F 15/46; G05B 23/30
U.S. Cl. 364—477 21 Claims



19. A diffusion furnace control system comprising:

one or more temperature sensors in the diffusion tube of the diffusion furnace and operative to monitor the temperature of respective process zones along the tube;

one or more temperature sensors disposed at the heaters of the furnace and operative to monitor the temperature of the heaters for each furnace zone;

first control means coupled to the tube temperature sensors and operative to measure the deviation of temperature in each zone of the tube from the set point temperature for each zone;

means for determining whether the set points should be adjusted; and

second control means operative in response to a determina-

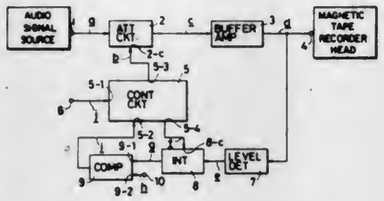
tion that set point should be adjusted to control power to the heaters to provide an intended set point for each process zone.

4,276,604

AUTOMATIC ATTENUATION CIRCUIT

Masatsugu Kitamura; Hideo Onoye, and Masami Yamazaki, all of Yokohama, Japan, assignors to Victor Company of Japan, Limited, Yokohama, Japan

Filed May 23, 1979, Ser. No. 41,820
Claims priority, application Japan, May 28, 1978, 53-63610
Int. Cl.³ H03G 3/20
U.S. Cl. 364—480 **9 Claims**



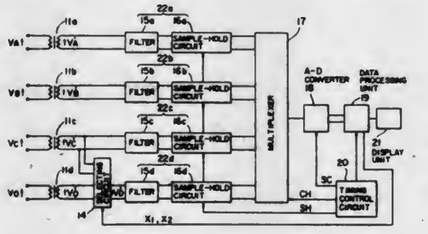
1. An automatic attenuation circuit comprising:
(a) a variable loss attenuation circuit for attenuating the level of an input signal;
(b) first means for detecting the level of the output signal of said variable loss attenuation circuit, said first means producing a signal when the magnitude of the variable loss attenuation circuit output signal is above a predetermined value, said first means having a level detector responsive to the output signal of said variable loss attenuation circuit for producing an analog signal indicative of the magnitude of said output signal, an integrator responsive to said analog signal from said level detector, means for resetting said integrator periodically to a predetermined level, and a comparator responsive to the output voltage of said integrator for detecting the level of said voltage relative to said predetermined voltage; and
(c) second means for producing a control signal in response to the output signal of said first means, the attenuation factor of said variable loss attenuation circuit being stepwise controlled by said control signal so the level of the output signal of said variable loss attenuation circuit is equal to or below said predetermined value.

4,276,605

METHOD AND APPARATUS FOR SUPERVISING A DIGITAL PROTECTIVE RELAYING SYSTEM

Eiichi Okamoto, Tokyo; Norio Fujisawa, Fuchu, and Masao Hori, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kanagawa, Japan

Filed Apr. 13, 1979, Ser. No. 29,939
Claims priority, application Japan, Apr. 18, 1978, 53-44767
Int. Cl.³ H02H 3/36
U.S. Cl. 364—483 **10 Claims**



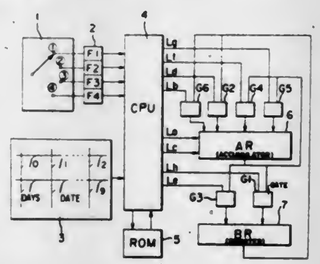
1. In a method for supervising a digital protective relaying system for protecting an electric power system wherein a first type of electrical quantities in the electric power system, each having a certain magnitude, are detected by detecting means and digitized by respective first input circuits and a second type of electrical quantity in the electric power system which is normally substantially zero is detected by detecting means and digitized by a second input circuit, and the outputs of said first input circuits are arithmetically operated on in a data processing unit to check whether there is a fault in the first input circuits, the improvement which comprises: inputting, into the second input circuit, one of said first type of electrical quantities in place of said second type of electrical quantity, and performing an arithmetical operation in the data processing unit on the output of said second input circuit and the outputs of said first input circuits except for that one of said first input circuits which normally receives said one of said first type of electrical quantities to check whether there is a fault in said second input circuit.

4,276,606

DATE DATA COMPUTER

Isao Harigaya, Yokohama, and Akihiro Yamataka, Funabashi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 7 77,828, Mar. 15, 1977, Pat. No. 4,149,261.
This application Jan. 26, 1979, Ser. No. 6,751
Claims priority, application Japan, Mar. 19, 1976, 51-30488; Mar. 23, 1976, 51-31862; Apr. 26, 1976, 51-47511
Int. Cl.³ G06F 7/38
U.S. Cl. 364—709 **7 Claims**



1. A computer comprising:
numerical data input means for entering numerical data into the computer;
processor means coupled to said input means for receiving and processing said numerical data;
first selecting means for instructing said processor means that the data entered is date data; and
second selecting means for instructing said processor means as to the sequence of the date data at the time of entry, wherein said selecting means permits selection of one of plurality of predetermined different sequences, and wherein said processor means processes the entered data in response to the instruction from said second selecting means when said first selecting means instructs that the data entered is date data.

4,276,607

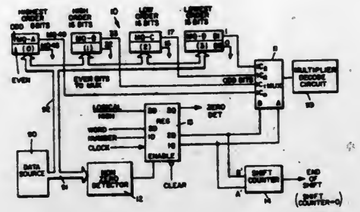
MULTIPLIER CIRCUIT WHICH DETECTS AND SKIPS OVER TRAILING ZEROS

Wilson T. Wong, Anaheim, Calif., assignor to Sperry Rand Corporation, New York, N.Y.

Filed Apr. 9, 1979, Ser. No. 28,214
Int. Cl.³ G06F 7/52
U.S. Cl. 364—760 **16 Claims**

1. A multiplier circuit comprising,

register means for storing the bits of a number to be multiplied,
decoder means connected to receive bits from said register means to produce an output signal representative of said number to be multiplied,
detector means for operating on said number to be multiplied to detect the presence of a non-zero bit in said number,



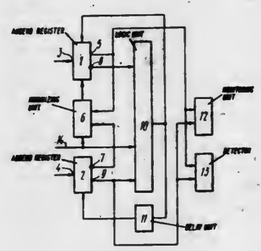
control register means connected to said decoder means for indicating the presence of a non-zero bit in said number to be multiplied when said control register means is enabled by a signal from said detector means as the result of detecting a non-zero bit, and
shift counter-means connected to said control register means for controlling the number of shifts to be performed during the multiplication process as a function of a signal from said control register means.

4,276,608

FIBONACCI P-CODE PARALLEL ADDER

Alexei P. Stakhov, prospekt Kosmonavtov 54, kv. 130; Nikolai A. Solyanichenko, ulitsa Vasilia Porika 30, kv. 108; Vladimir A. Luzhetsky, ulitsa Vasilia Porika, 30, kv. 106; Alexander V. Ovodenko, ulitsa 600-letia, 44/75, kv. 16, and Andrei A. Kozak, prospekt Leninskogo Komsomola 53, kv. 40, all of Vinnitsa, U.S.S.R.

Filed May 14, 1979, Ser. No. 38,930
Claims priority, application U.S.S.R., May 15, 1978, 2617011
Int. Cl.³ G06F 7/49
U.S. Cl. 364—768 **1 Claim**



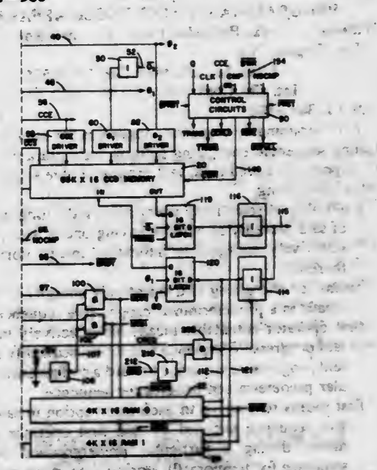
1. A Fibonacci p-code parallel adder comprising:
an n-digit augend register and an n-digit addend register each having an original code write input to receive respectively an augend and an addend represented in Fibonacci p-codes, an ith bit position of said n bit positions of each of said registers comprising at least a flip-flop having a reset input, a complement output, a set input and a true output, said set inputs of said bit positions of said registers being used as said original code write inputs;
a logic unit comprising n rewrite AND gates, an ith gate of said rewrite AND gates having three inputs and an output, first and second inputs of said ith rewrite AND gate being coupled respectively to said complement output of said ith bit position of said augend register and to said true output of said ith bit position of said addend register to provide for analyzing the condition of said flip-flops of said ith bit positions of said augend and addend registers;
a delay unit comprising n delays, said output of said ith rewrite AND gate being coupled to said set input of said ith bit position of said augend register and to said reset input of said ith bit position of said addend register via a respective delay to transfer a 1 from said ith bit bit position of said addend register to said ith bit position, containing a 0, of said augend register;
a Fibonacci p-code minimizing unit having two data inputs, a control input, and a normalize signal output, first and second data inputs of said Fibonacci p-code minimizing unit coupled respectively to said true outputs of said bit positions of said augend register and to said complement outputs of said bit positions of said addend register to provide for analyzing the codewords contained in said registers, said output of said Fibonacci p-code minimizing unit being coupled to a normalize signal input of said augend register to provide for the reduction, to the minimal form, of the codeword stored in said augend register and representing a sum code of the augend and addend;
an end-of-addition detector having inputs coupled to said set outputs of said bit positions of said augend and addend registers, and having an output which produces an end-of-addition signal when the addend register contains a zero code and the augend register contains a sum code represented in the minimal form of a Fibonacci p-code; and
a monitoring unit having inputs coupled to said true outputs of said bit positions of said augend and addend registers, and having an output which produces an error indicating signal when the form of the codeword contained in said augend register differs from the minimal form; wherein
control inputs of said Fibonacci p-code minimizing unit and said logic unit are coupled to a control bus of the adder, and n is the length of the Fibonacci p-code and i=0,1,2 . . . , n−1.

4,276,609

CCD MEMORY RETRIEVAL SYSTEM

Narendra M. Patel, San Antonio, Tex., assignor to NCR Corporation, Dayton, Ohio

Filed Jan. 4, 1979, Ser. No. 1,034
Int. Cl.³ G06F 13/00; G11C 9/06
U.S. Cl. 364—900 **7 Claims**

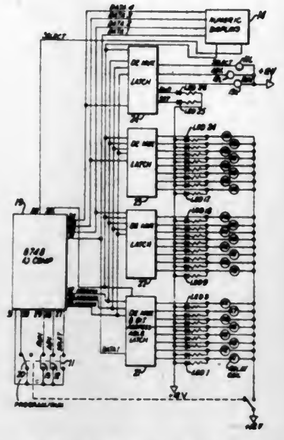


1. A memory system for use in a data processing system in which a central processor generates a sequence of requested read and write instructions including the address of the data to be accessed over a common bus, said system comprising:
a first operating main memory unit coupled to said common

bus for storing data to be accessed by the central processor over said common bus;
a plurality of buffer memory units each having a higher operational speed than said first main memory unit and coupled to said main memory unit and the common bus for storing a portion of the data stored in said main memory unit;
an address register for each of said buffer memory units coupled to the common bus for storing the addresses of the data stored in an associated buffer memory unit;
comparison means for each of said buffer memory units coupled to the common bus and the address registers of an associated buffer memory unit for comparing the address of the requested data appearing on the common bus with the addresses stored in its coupled address register for outputting a first control signal upon finding a coincidence in one of said buffer memory units and a second control signal upon finding no coincidence in any of the buffer memory units;
a first bi-stable means coupled to the output of each of said comparision means, said common bus and said address registers for outputting a first memory enabling signal in response to the generation of said first control signal enabling the buffer memory unit in which the coincidence was found to be accessed by the address of the requested data appearing on the common bus, and enabling said address registers to store the address of the data written into said buffer memory units, said first bi-stable means being further operated in response to said second control signal and to the generation of the next sequential read and write instruction to output said first memory enabling signal to the buffer unit not previously accessed thereby enabling said buffer unit to receive the requested data from the main memory unit for storage therein;
and a second bi-stable means coupled to the output of each of said comparison means for outputting a third control signal in response to the generation of said second control signal, said system further including a third bi-stable means coupled to the output of said second bi-stable means for outputting a fourth control signal initiating the transfer of the requested data from the main memory unit to one of said buffer memory units in response to receiving said third control signal.

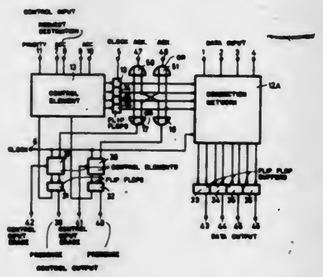
4,276,610
PROGRAMMABLE SEQUENCER APPARATUS
William C. Fleck, Palisades Park, N.J., assignor to Intraspec Inc., Bogota, N.J.
Filed Jan. 26, 1979, Ser. No. 6,576
Int. Cl.³ G06F *3/03, 3/153;* G05B *19/10*
U.S. Cl. 364—900 7 Claims

1. Programmable sequencer apparatus for selectively establishing sequential energizing patterns for a plurality of outputs in response to stored data, said programmable sequencer apparatus comprising:
a plurality of selectively energizable indicating means, each of said plurality of outputs having one of said plurality of selectively energizable indicating means corresponding thereto;
means for energizing said selectively energizable indicating means in a predetermined progressive sequence;
first operator actuatable means for selectively interrupting said progressive sequence and for subsequently continuing said progressive sequence toward a completion of a particular predetermined progressive sequence;
first means responsive to each interruption in said progressive sequence initiated by said first operator actuatable means during a particular predetermined progressive sequence for temporarily storing data corresponding to a one of said plurality of selectively energizable indicating means energized during the occurrence of said interruption;
second operator actuatable means for indicating that temporarily stored data for a particular predetermined progressive sequence is representative of a selected energizing pattern in a sequence of energizing patterns; and



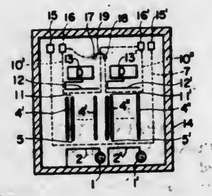
second means responsive to said second operator actuatable means for storing said temporarily stored data as an ordered step within a series of steps being established to represent said sequence of energizing patterns.

4,276,611
DEVICE FOR THE CONTROL OF DATA FLOWS
Pierre G. Jansen, and Josef L. W. Kessels, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Continuation of Ser. No. 815,256, Jul. 13, 1977, abandoned. This application Apr. 16, 1979, Ser. No. 30,248
Claims priority, application Netherlands, Jul. 23, 1976, 7608165
Int. Cl.³ G06F *3/00*
U.S. Cl. 364—900 17 Claims



1. A device for the control of data flows having at least a first and a second data input path and at least a first and a second data output path comprising:
a connection network having input connections to said data input paths and output connections to said data output paths;
each of said paths having at least two data lines in parallel;
a control unit having a control output connected to said connection network capable of establishing therein under control of respective signals a blocking of all connections in said connection network between any of said data input lines and any of said data output lines under a first set of prescribed conditions, a connection between a predetermined one of said data input lines and a predetermined one of said data output lines under a second set of prescribed conditions, and at least two difference connections between predetermined data input lines and predetermined data output lines under a third set of prescribed conditions;
a logic network connected to said control output for the selective generation, in association with a controlled connection direction from a data input line, of a copy acknowledge signal for the relevant data input line;
said control unit further including means for receiving destination signals for each data input for the control of connection directions in said connection network; and
said distination signals comprising a request signal for data to be transferred (copy request) and a destination identifier for one of said output lines
a separate data output buffer for each data output path connected between said connection network and said data output path.

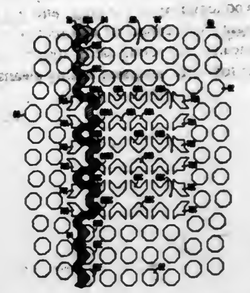
4,276,612
MAGNETIC BUBBLE MEMORY DEVICE WITH DIVIDED ELECTRICAL CONDUCTORS
Ryo Suzuki, Kokubunji, Japan, assignor to Hitachi, Ltd., Tokyo, Japan
Filed Jun. 22, 1979, Ser. No. 51,145
Claims priority, application Japan, Jul. 5, 1978, 53-80903
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—12 7 Claims



7. A magnetic bubble memory device comprising a layer of a material in which magnetic bubbles representative of information can be moved in response to a rotating magnetic field, a plurality of minor loops which serve to circulate the magnetic bubbles in said layer, a major line which is located in proximity to, and spaced from, one end of said each minor loop in order to read out the information from said minor loops, gates which are disposed between the respective minor loops and said major line and which have at least a replicating function,
current pulse generator means for generating a current pulse on a pair of output terminals, and
plural conductors connected to said output terminals in parallel to apply simultaneously the current pulse generated by said current pulse generator to drive said gates.

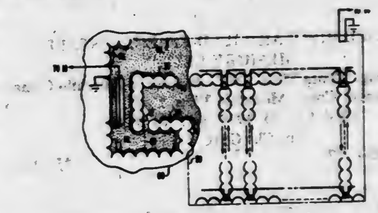
4,276,613
CLOSE-PACKED BUBBLE PROPAGATION DEVICE
Byron R. Brown, San Jose, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 23, 1978, Ser. No. 954,132
Int. Cl.³ G11C *13/08*
U.S. Cl. 365—14 11 Claims

1. A close-packed magnetic bubble device comprising
a plurality of first, second and third propagation elements, said first, second and third elements being spaced to provide a period of less than three bubble diameters;
at least two first storage loops containing said first, second and third elements;
a second storage loop consisting of a part of said first loop and containing said second and third elements;
a first access path in said first loops containing said first and second elements;
means for applying an in-plane rotating field to said elements; and
switch means associated with said first and second elements wherein the activation of said switch means and the application of an in-plane rotating field to said elements causes bubbles associated with both first and second elements to



propagate along said access path and bubbles associated with second and third elements to propagate around said second storage loops and wherein non-activation of said switch means and the application of an in-plane rotating field to said elements causes bubbles to propagate around said first storage loops.

4,276,614
ION-IMPLANTED MAGNETIC BUBBLE MEMORY WITH MERGE PORT
Terence J. Nelson, and Raymond Wolfe, both of New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, Murray Hill, N.J.
Filed Dec. 3, 1979, Ser. No. 99,556
Int. Cl.³ G11C *19/08*
U.S. Cl. 365—36 4 Claims



1. A magnetic bubble memory comprising a host layer of magnetic material having a three fold axes of symmetry in which magnetic bubbles can be moved along first, second, and third paths in response to a magnetic field reorienting in the plane of said layer, a pattern of nonimplanted regions in said host layer for defining said paths in implanted regions thereabout, said nonimplanted regions defining first and second contiguous sets of periodic elements and an implanted gap separating said sets, said gap having an axis aligned with one of said axis of symmetry for moving bubbles from said first and second to said third paths.

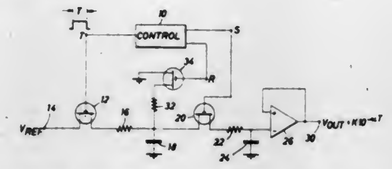
4,276,615
ANALOG READ-ONLY MEMORY SYSTEM FOR ANTILOG CONVERSION
Donald S. Kalogi, Houston, Tex., assignor to Graphic Arts Manufacturing Company, Houston, Tex.
Filed Sep. 28, 1979, Ser. No. 79,888
Int. Cl.³ G11C *13/00*
U.S. Cl. 365—45 11 Claims

1. An analog read-only memory system for obtaining an

antilog relationship between an input signal and an output signal, comprising:

analog means for providing an exponential-type memory signal varying as a function of time from a preselected initial voltage toward a preselected reference voltage, said analog means including a capacitor, a first resistor for charging said capacitor with a first time constant providing said exponential-type memory, and a second resistor for discharging said capacitor at a second time constant;

first switch means connecting said capacitor with said second resistor for initializing said analog means at said initial voltage;



second switch means for connecting said capacitor to said reference voltage through said first resistor at a first time and for disconnecting said capacitor from said reference voltage at a second time, the voltage on said capacitor forming said memory signal; and

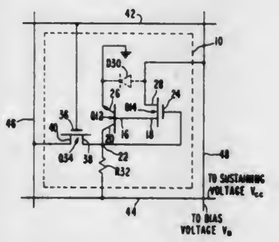
control means for generating a plurality of control signals, including signals for activating said second switch means at said first and second times, respectively, the difference between said first and second times being linearly related to said input signal.

4,276,616

MERGED BIPOLAR/FIELD-EFFECT BISTABLE MEMORY CELL

Falke Hennig, Monta Vista, Calif., assignor to Fairchild Camera & Instrument Corp., Mountain View, Calif.

Filed Apr. 23, 1979, Ser. No. 32,045
Int. Cl.³ G11C *11/40*
U.S. Cl. 365—177 15 Claims



15. A memory cell comprising:

a bipolar transistor having a first emitter/collector, a base, and a second emitter/collector, said cell being bistable, a first stable state existing in said cell when said bipolar transistor is conducting and a second stable state existing in said cell when said bipolar transistor is substantially not conducting; and

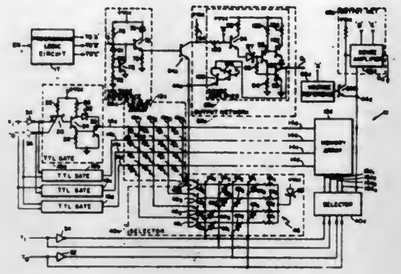
a field-effect transistor having a source, a gate electrode, and a drain, said base integral with said drain and said second emitter/collector coupled to said gate electrode.

4,276,617

TRANSISTOR SWITCHING CIRCUITRY

Hiep T. Le, Sunnyvale, Calif., assignor to Raytheon Company, Lexington, Mass.

Filed Jun. 28, 1979, Ser. No. 53,125
Int. Cl.³ G11C *7/00*
U.S. Cl. 365—189 14 Claims



1. An electronic circuit, comprising:

(a) selector means for electrically coupling one of a plurality of conductors to a common terminal selectively in accordance with a control signal, including means for producing a voltage at such common terminal related to current flow through the selectively coupled one of the electrical conductors;

(b) an output network; and

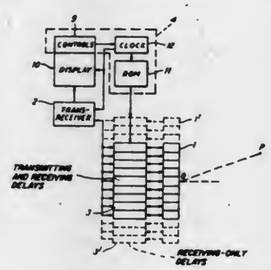
(c) a transistor having a pair of electrodes serially connected between the common terminal and the output network.

4,276,618

MAPPING SYSTEMS

Ian M. Green, Buckie, Scotland, assignor to E M I Limited, Hayes, England

Filed May 11, 1979, Ser. No. 38,053
Claims priority, application United Kingdom, May 25, 1978, 22289/78
Int. Cl.³ G01S *15/89*
U.S. Cl. 367—11 11 Claims



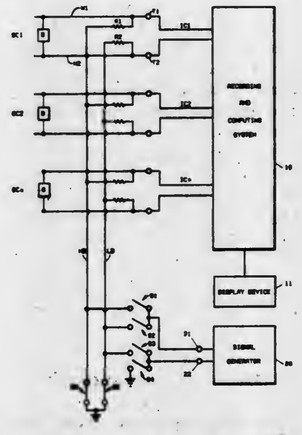
1. A method of operating an apparatus, for surveying a region, the apparatus including transmitter means capable of transmitting energy along a plurality of paths lying radially in a sector of a circle and receiver means capable of being focussed on positions in said region to receive energy reflected therein, the method being suitable to provide echo data, for individual ones of a plurality of positions in said region, suitable for display on a raster of scanned lines in a display apparatus, and including the steps of defining a plurality of said positions disposed on a cartesian matrix notionally defined in said region such that lines of said positions correspond to said scanned lines of said display arrangement; directing the transmitted energy into the region along a plurality of said radial paths such that each path is of sufficient width to intercept a plurality of said positions; focussing the receiver means in sequence on each of the plurality of positions intercepted by one of said paths to receive energy reflected therein; and repeating the preceding step for the other said paths.

4,276,619

IMPEDANCE AND COMMON MODE REJECTION TESTING OF A MULTI-CHANNEL SEISMIC DATA GATHERING APPARATUS

James E. Rickenbacker, Houston, Tex., assignor to Exxon Production Research Company, Houston, Tex.

Filed Mar. 7, 1979, Ser. No. 17,999
Int. Cl.³ G01V *1/16*; G01C *27/00*
U.S. Cl. 367—13 3 Claims



1. A seismic data gathering apparatus including:

a signal recording and computing system, said system having a plurality of input channels;

a plurality of geophone channels, each geophone channel having one or more geophones and a pair of wires, one high and one low, each wire being connected to the geophones and to an input channel of the recording and computing system, so that the voltage across each pair of wires is transmitted to said system;

a high bus;

an impedance for each high wire, said impedance being coupled to the high bus and to its high wire between the geophones and the recording and computing system;

a low bus;

an impedance for each low wire, said impedance being coupled to the low bus and to its low wire between the geophones and the recording and computing system;

a signal generator for producing a test signal, said generator having a high output terminal and a low output terminal;

switching means for selectively controlling the connections between the buses, the generator and ground, the switching means having a first setting connecting both buses to ground and disconnecting both buses from the generator, the switching means having a second setting disconnecting the buses from ground and connecting them to different output terminals of the generator so that the test signal is applied to the geophone channels substantially simultaneously, and the switching means having a third setting disconnecting both buses from ground and connecting them to one of the output terminals of the generator and connecting the other output terminal of the generator to ground,

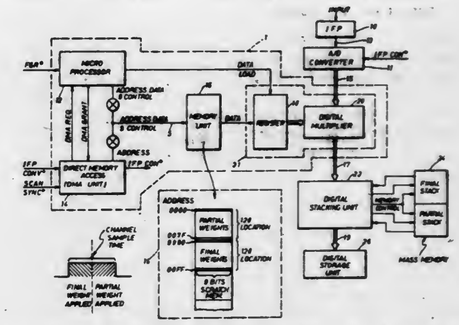
whereby the first setting will transmit the seismic signals developed by the geophones to the recording and computing system and the second setting will transmit signals indicative of the impedances of the geophone channels to the system and the third setting will transmit signals indicative of the common mode rejection of the geophone channels to the system.

4,276,620

METHOD AND APPARATUS FOR OBTAINING A COMPOSITE FIELD RESPONSE TO A VARIABLE SOURCE ARRAY USING WEIGHTING COEFFICIENTS

Twaoui A. Kaba, Cypress; John W. Kiowski, Houston, and Douglas G. Lang, Bellaire, all of Tex., assignors to Geosource Inc., Houston, Tex.

Filed Oct. 27, 1978, Ser. No. 955,261
Int. Cl.³ G01V *1/28*
U.S. Cl. 367—60 24 Claims



1. A multi-channeled digital seismic field stacking system for processing seismic signals to form a stack of summed together receiver array response to a preselected number of energy impulses applied to the ground at selected impact points, thereby to obtain a composite seismic response to a variable source array, said seismic system comprising:

(A) at least one amplifier, for amplifying said seismic signals from selected points on the ground to obtain a sampled analog output signal, each seismic channel of said multi-channeled system having a multi-plexer sample time interval;

(B) an analog-to-digital converter, for converting said smapled analog output signal to a digital sample;

(C) means for applying pre-selected weighting coefficients to said digital sample in real time to obtain weighted samples;

(D) a digital stacking unit, for summing said weighted samples with the summed-together weighted samples of the seismic signals from the preceding ones of the preselected number of impulses which have occurred for a stack, said summed-together weighted samples in each of said channels obtained from seismic signals measured at the same point on the ground; and

(E) a digital storage unit, for storing said stacked seismic signals as a record when a portion of said preselected number of impulses have occurred, said records representing composite seismic responses to variable source arrays, each source array varied in accordance with said preselected weighting coefficients.

4,276,621

OBJECT CONFIRMING APPARATUS

Hideo Hiruma, and Yukio Marubashi, both of Hamamatsu, Japan, assignors to Kee Denshi Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Feb. 5, 1979, Ser. No. 9,495
Claims priority, application Japan, Dec. 22, 1978, 54-83
Int. Cl.³ G01S *15/02*
U.S. Cl. 367—97 5 Claims

1. An object confirming apparatus comprising:

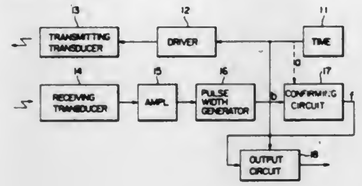
an ultrasonic wave transmitter for transmitting ultrasonic waves at a predetermined time interval;

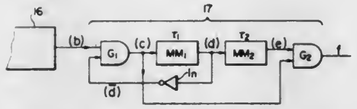
a receiver for receiving waves reflected by an object after the ultrasonic waves transmitted by said ultrasonic wave transmitter have impinged thereon;

a shaping circuit for shaping the output of the receiver into pulses of a predetermined width;

a first expected period setting circuit which receives an input from the shaping circuit and which sets an input expected period for a next pulse when it receives a first input pulse, and sets another expected period when it receives the next pulse within the input expected period or deems a further pulse as the first input pulse when it does not receive any input within the input expected period;

a first gate circuit whose signal input terminal is connected with the shaping circuit and whose gate control input terminal is connected with the output of the first expected period setting circuit;





a second expected period setting circuit which receives an output from the first gate circuit and which sets its input expected period when it receives its first input pulse and sets its next expected period when it receives its next input pulse within the input expected period of the second expected period setting circuit, or sets its next input pulse as the first input pulse thereof when it does not receive the next pulse within the input expected period;

a second gate circuit whose signal input terminal is connected with the shaping circuit and whose gate control input terminal is connected with the output of the second expected period setting circuit; and

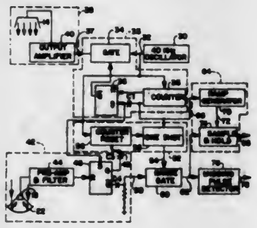
an output circuit which outputs an object confirming signal when more than one pulse is outputted from the second gate circuit.

4,276,622

ULTRASONIC DISTANCE MEASURING CIRCUIT

Ned E. Dammeyer, New Bremen, Ohio, assignor to Crown Controls Corporation, New Bremen, Ohio

Filed Jul. 16, 1979, Ser. No. 57,921
Int. Cl.³ G01S 11/00
U.S. Cl. 367—118 6 Claims



1. Ultrasonic distance measuring apparatus for providing an output distance signal related to the distance between an ultrasonic transmitting transducer and an ultrasonic receiving transducer, comprising:

a reference oscillator means for providing a reference oscillator signal,

burst generator means, responsive to said reference oscillator means, for periodically generating ultrasonic burst signals,

an ultrasonic transmitting transducer means, responsive to said burst generator means, for providing an ultrasonic acoustic energy burst in response to each of said ultrasonic burst signals,

ultrasonic receiving transducer means for receiving said ultrasonic acoustic energy bursts and providing detection signals in response thereto,

range window means, responsive to said receiving transducer means and said oscillator means, for providing a range window signal at a time lagging each detection signal by a predetermined time period,

range gate means, responsive to said range window signal and to said detection signals, for providing output gate signals upon occurrence of said detection signal coincident with said range window signal, and

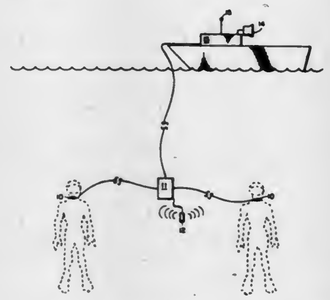
converter means, responsive to said ultrasonic burst signals and to said output gate signals, for providing an output distance signal related in potential to the distance between said transmitting and receiving transducer means.

4,276,623

UNDERWATER AUDIO INTERCOMMUNICATION SYSTEM

Frank R. Abbott, 3953 Wildwood, San Diego, Calif. 92107

Filed Oct. 17, 1979, Ser. No. 86,188
Int. Cl.³ H04B 11/00
U.S. Cl. 367—132 6 Claims



1. A system for audio communication among divers and a surface support vessel comprising:

means carried by each diver for converting vocal signals into representative electrical signals;

means disposed remotely from the divers and coupled to receive the representative electrical signals for providing amplified signals;

means connected to the amplified signal providing means for projecting amplified vocal signals to impinge on the divers to asure their hearing the vocal signals;

means interconnecting the amplified signal providing means and the surface support vessel for electrically linking therewith; and

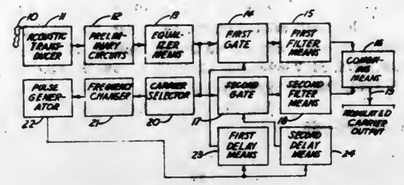
means mounted on the surface support vessel and connected to the electrically linking means for enabling vocal transmissions.

4,276,624

ACOUSTIC TRANSMISSION SYSTEM

Charles B. Fisher, 2850 Hill Park Rd., Montreal, Quebec, Canada (H3H 1T1), and Sidney T. Fisher, 53 Morrison Ave., Town of Mt. Royal, Montreal, Quebec, Canada (H3R 1K3)

Filed Aug. 13, 1979, Ser. No. 66,182
Int. Cl.³ H04B 11/00
U.S. Cl. 367—134 6 Claims



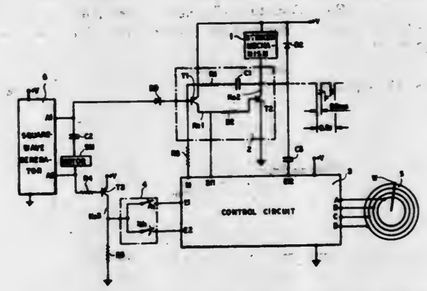
1. A system for the acoustic transmission of a signal over a gaseous or liquid transmission medium which comprises transmitting apparatus which emits a carrier of substantially constant frequency and amplitude, double-sideband amplitude modulated by said signal, as an acoustic wave over said transmission medium between said transmitting apparatus and receiving apparatus which receives said acoustic modulated carrier, with superimposed noise present in the transmission medium from other sources, and which rejects said superimposed noise by sampling, reconstruction and subtraction means, and derives said signal-modulated carrier substantially free from said superimposed noise.

4,276,625

BELL-STRIKING CLOCK

Rudolf Broghammer, Eschbronn-Marienzell, and Franz Kleer, Schwarzwald, both of Fed. Rep. of Germany, assignors to Kundo - Kienzinger + Obergfell, Schwarzwald, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 29,758, Apr. 12, 1979, abandoned. This application Mar. 10, 1980, Ser. No. 128,518
Claims priority, application Fed. Rep. of Germany, Apr. 22, 1978, 2817762
Int. Cl.³ G04C 21/06
U.S. Cl. 368—75 10 Claims



1. An electronic clock emitting time signals corresponding to the strokes of ships' bells, comprising:

a clockwork including a generator of a square wave with two interleaved first and second half-cycles of different voltage levels;

normally blocked pulse-producing means with a recurrence period equal to less than a half-cycle but not less than a quarter-cycle of said square wave;

a striker mechanism connected to an output of said pulse-producing means for sounding a stroke in response to each pulse emitted thereby;

normally open switch means briefly closed by said clockwork every thirty minutes for activating a switching circuit into emission of an unblocking signal to said pulse-producing means, said generator having an enabling circuit connected to said pulse-producing means for making said unblocking signal effective only during said first half-cycles whereby not more than two consecutive pulses can be emitted to said striker mechanism during any cycle of said square wave; and

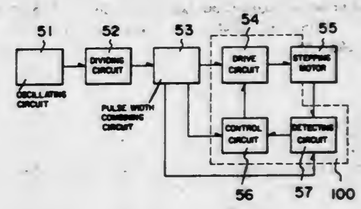
control means coupled with said clockwork and connected to said pulse-producing means for deactivating said switching circuit after the emission of a number of pulses rising from one through eight in successive half-hour intervals of a four-hour operating period.

4,276,626

ELECTRONIC WATCH

Katsuhiko Setoh; Kazuhiro Asano; Masaaki Mandai; Makoto Ueda; Akira Toriuwa, and Masaharu Shida, all of Tokyo, Japan, assignors to Kabushiki Kaisha Daini Seikosha, Tokyo, Japan

Filed Apr. 20, 1978, Ser. No. 898,404
Claims priority, application Japan, Apr. 23, 1977, 52-47090
Int. Cl.³ G04B 19/04; G04C 3/00
U.S. Cl. 368—80 5 Claims



1. An electronic timepiece comprising: a stepping motor; an oscillating circuit for producing a time standard signal; a dividing circuit for frequency-dividing the time standard signal; a pulse combining circuit for combining the frequency-divided signals to produce normal drive pulses and correction drive pulses; a drive circuit for applying drive pulses to the stepping motor to effect driving of the stepping motor with the drive pulses; a detection circuit for detecting a rotation or non-rotation condition of the motor in response to the normal drive pulse after the application of the normal drive pulse; and means for controlling said drive circuit to apply a predetermined plurality of correction drive pulses to the motor instead of the normal drive pulses after the detection of a non-rotation condition.

4,276,627

MODULE STRUCTURE FOR ELECTRONIC DIGITAL TIMEPIECE

Katsuhiko Kamiyama, Tokyo, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan

Filed Feb. 15, 1979, Ser. No. 12,564
Claims priority, application Japan, Feb. 20, 1978, 53-18310; Feb. 20, 1978, 53-18312
Int. Cl.³ G04C 19/00; G04G 9/06
U.S. Cl. 368—84 15 Claims

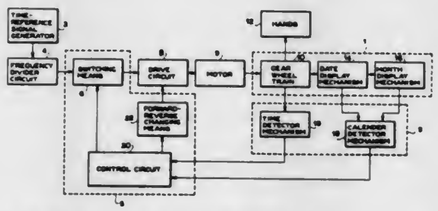


1. An electronic watch module, comprising:

a housing made of electrically insulating material having one

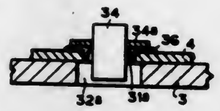
side formed with a first recess and having another side formed with a second recess;
a circuit substrate, having first and second substrate sides, disposed in the second recess of said housing and having an integrated circuit chip mounted on said first substrate side;
a protector frame disposed in the second recess of said housing and having a first side attached to said first substrate side and a second side formed with an aperture, said protector frame having a recess;
a battery cell accommodated in the aperture of said protector frame;
a quartz crystal vibrator disposed in the recess of said protector frame and mounted on said circuit substrate at the same side as said integrated circuit chip and said battery cell; and
a liquid crystal display cell disposed in the first recess of said housing and facing to the second substrate side in close proximity thereto.

4,276,628
ELECTRONIC TIMEPIECE
Yasushi Nomura, Tokorozawa, Japan, assignor to Citizen Watch Company Limited, Tokyo, Japan
Filed Jul. 25, 1978, Ser. No. 927,774
Claims priority, application Japan, Jul. 26, 1977, 52-89669
Int. Cl.³ G04C *19/00*; G04B *19/24*
U.S. Cl. 368—85 9 Claims



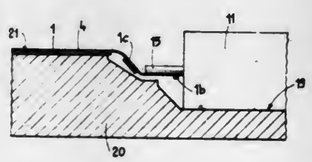
1. An electronic timepiece comprising:
(a) a time reference source generating a time reference signal;
(b) a frequency divider synthesizing a timing signal and a fast feed signal in accordance with said time reference signal;
(c) a driving circuit synthesizing a driving signal in response to said timing signal;
(d) a reversible motor driven by said driving signal;
(e) a mechanical time keeping mechanism for keeping time in response to forward drive of said reversible motor;
(f) time display means comprising hands for displaying in analog mode the time kept by said mechanical time keeping mechanism;
(g) date display means driven by reverse drive of said reversible motor;
(h) a time detection mechanism detecting a specified time of day in the time kept by said mechanical time keeping mechanism to generate a detection signal;
(i) control means receiving said detection signal, comprising:
(1) means for transmitting said timing signal to said reversible motor for driving said mechanical time keeping mechanism to keep time;
(2) means for transmitting said fast feed signal to said reversible motor and for controlling said driving circuit to drive said motor in a reverse direction, for a first period of time, for advancing said date display means in response to said detection signal; and
(3) means for transmitting said fast feed signal to said reversible motor and for controlling said driving circuit to drive said motor in a forward direction, for a second period of time, subsequent to advancing of said date display means;
(j) said reversible motor rotating said hands in a clockwise direction during forward drive thereof, and in a counterclockwise direction during reverse drive thereof.

4,276,629
SOLAR BATTERY TIMEPIECE
Osamu Matsumura, Chofu; Yutaka Kato, Kodaira; Tsunetoshi Sekiguchi, Sayama, and Ryo Namiki, Itabashi, all of Japan, assignors to Citizen Watch Company Limited, Tokyo, Japan
Division of Ser. No. 803,775, Jun. 6, 1977, Pat. No. 4,165,604.
This application Apr. 27, 1979, Ser. No. 34,192
Claims priority, application Japan, Jun. 8, 1976, 51/74938; Jun. 9, 1976, 51/73694; Jul. 23, 1976, 51/98458; Aug. 26, 1976, 51/113446; Dec. 6, 1976, 51/163327
Int. Cl.³ G04C *19/00*
U.S. Cl. 368—86 4 Claims



1. A circuit apparatus for use in an electronic or solar timepiece comprising:
(a) a base metal plate having an aperture (*32a, 32b*) therein;
(b) an insulated flexible sheet (4) secured to and overlying said base metal plate, and having conductive patterns thereon and an aperture (*31a, 31b*) therein;
(c) said aperture in said insulated flexible sheet having a size less than that of said aperture in said base metal plate; and formed so that said apertures are in overlapping registry when viewed from above;
(d) an electric circuit element (34, 35) having a terminal (*34a, 35a*), and secured at the periphery of said aperture in said insulated flexible sheet by a means for securing; and
(e) said terminal having a size greater than that of said aperture in said insulated flexible sheet.

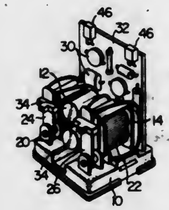
4,276,630
ELECTRONIC WATCH MOVEMENT
Daniel Paratte, Neuchatel, Switzerland, assignor to Fabrique d'Horlogerie de Fontainemelon S.A., Neuchatel, Switzerland
Filed Dec. 13, 1978, Ser. No. 969,187
Claims priority, application Switzerland, Dec. 14, 1977, 15379/77
Int. Cl.³ G04C *23/02*
U.S. Cl. 368—88 2 Claims



1. An electronic watch movement for a watch having a base which is rigid and which is shaped to receive a plurality of components, the movement comprising:
a film which is electrically insulating and flexible and which is provided with a plurality of both component openings and bending openings therethrough;
a foil affixed on the film and presenting a pattern of connection leads, there being sections of said leads extending above and across said bending openings, said film including portions which are separated from the remainder of the film and which are affixed to the lead sections so that the lead sections bend at predetermined locations; and

the plurality of components being located in said component openings and interconnected with said leads;
so that said film with said components interconnected thereto may be mounted on said base with said components being received by said relief and said lead sections extending above and across said bending openings being bent so that the film may bend to conform to the relief of the base.

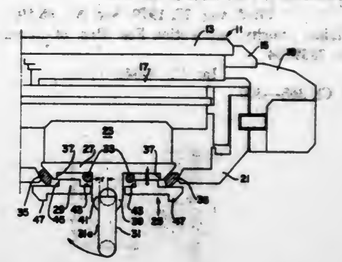
4,276,631
ELECTRONIC TIMER
Teizo Fujita, Iboraki; Toshiro Ohashi, Ikeda, and Kouji Takimoto, Kobe, all of Japan, assignors to Izumi Denki Corporation, Osaka, Japan
Filed Apr. 3, 1978, Ser. No. 892,709
Int. Cl.³ G04F *3/00*
U.S. Cl. 368—89 7 Claims



1. An electronic timer apparatus, comprising:
an electrically insulating base having upper and lower surfaces;
first and second electromagnetic relays secured on said upper surface of said base, each relay comprising an exciting coil and contact means at one of the opposite ends of said exciting coil, said relays being spaced from each other and in the same orientation on said upper surface;
a delay circuit comprising a plurality of electrical parts, at least one of which electrical parts is comparatively large;
means extending from said first surface for supporting said delay circuit adjacent to the other of said opposite ends of said exciting coils with said at least one comparatively large electrical part extending into the space defined between said first and second electromagnetic relays;
first and second output terminal means connected to the respective contact means of said first and second relays and extended from said lower surface of said base;
external power supply connection terminal means also extended from said lower surface and adapted to be connected to an external power supply for energizing a timer circuit comprising said exciting coils and said delay circuit; and
a casing disposed in engaged relation with said base to cover said first and second relays and said delay circuit.

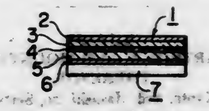
4,276,632
HATCH LOCKING MECHANISM FOR THE BATTERY COMPARTMENT OF A WRISTWATCH
Mamoru Hiraishi, Hino, Japan, assignor to Hoiwado Bookl Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 28, 1979, Ser. No. 77,186
Claims priority, application Japan, Sep. 22, 1978, 53-130635[U]; Mar. 23, 1979, 54-36986[U]
Int. Cl.³ G04C *10/00*; G04B *37/00*
U.S. Cl. 368—283 17 Claims

1. A hatch locking mechanism for a battery compartment formed at the rear side of a wristwatch, characterized in that the hatch comprises an inner cover having a tapered outer periphery portion and a central support shaft, an outer cover slidably mounted around said support shaft and having grooves for receiving respective seals, an operating lever pivotally supported by said support shaft and having a planar surface extending along a linear portion thereof, and seals received by said grooves respectively; in that a mouth of the battery compartment peripherally has a tapered portion in opposition to said tapered outer periphery portion of the inner cover, with a taper angle slightly different from that of the



latter so as to define a gap therebetween which is gradually reduced inwardly; and in that as said lever is brought down, the outer cover is so urged by a distance corresponding to a radius r of said lever in the axial section thereof that the seal is urged wedgewise into the gap defined between the tapered portions.

4,276,633
SELF-LUMINESCENT LIGHT SOURCE FOR LIQUID CRYSTAL DISPLAY WATCH
Katsumi Takami, Tokyo, and Takashi Matsumura, Musashino, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Apr. 11, 1979, Ser. No. 29,012
Claims priority, application Japan, Apr. 12, 1978, 53/42100
Int. Cl.³ G04G *9/12*; G04B *19/30*; G04C *17/00*; G02F *1/13*
U.S. Cl. 368—227 9 Claims



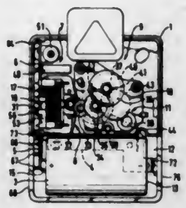
1. A self-luminescent light source for a liquid crystal display watch comprising a fluorescent substance layer which has a light reflectivity and which contains a radioactive substance in at least a part thereof, a reflective layer comprising barium sulfate which is disposed on one surface of said fluorescent substance layer and which serves to reflect and scatter fluorescence from said fluorescent substance layer, a case which is disposed on the side of said reflective layer remote from said fluorescent substance layer and which serves to perform shielding from radiation given out from said radioactive substance, and a cover which is disposed on the side of said fluorescent substance layer remote from said reflective layer and which serves to absorb the radiation given out from said radioactive substance and to transmit the light from said fluorescent substance layer.

4,276,634

BATTERY OPERATED CLOCK

Friedrich Assmus; Hans Fisig, both of Schramberg; Robert Welber, and Roland Maurer, both of Lauterbach, all of Fed. Rep. of Germany, assignors to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Aug. 22, 1979, Ser. No. 68,595
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1978, 2839554
Int. Cl.³ G04B 37/00
U.S. Cl. 368—300 9 Claims



1. An electrically operated movement in a clock, said movement comprising:
- a multi-section housing including first and second relatively separable housing sections;
  - said first housing section carrying a plurality of bearing elements, positioning pins, guides, and support posts;
- a dividing plate disposed between the housing sections and mounted on said support posts;
- a plurality of hand-driving gears are disposed between said dividing plate and said first housing section and have shafts mounted in said bearing elements and in said dividing plate;
- a circuit board mounted in said guides and being insertable in a direction parallel to said gear shafts and parallel to a direction of insertion of said dividing plate;
- a stepping motor mounted to said circuit board, said motor comprising a coil, a stator, and a rotor,
  - said stator including holes receiving said positioning pins;
  - said rotor mounted on a shaft which is positioned in one of said bearing elements,
  - said coil being electrically connected to electric circuitry on said circuit board to be energized thereby;
- intermediate gear means disposed between said dividing plate and said second housing section and operatively connecting said rotor with said hand-driving gears;
- said dividing plate and hand-driving gears being completely offset relative to said circuit board, coil and stator in a direction perpendicular to said gear shafts.

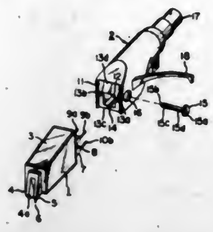
4,276,635

PICKUP CARTRIDGE AND MOUNTING DEVICE THEREFOR

Shuichi Obata, Kyoto, and Masashi Ito, Settsu, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 21, 1980, Ser. No. 123,494
Claims priority, application Japan, Aug. 23, 1979, 54-35298[U]; Feb. 1, 1980, 55-12398[U]
Int. Cl.³ H04R 23/02; G11B 3/02
U.S. Cl. 369—256 8 Claims

1. A pickup cartridge mounting device comprising:
- a pickup cartridge having at its rear end a plug protrusion having a trapezoidal cross-sectional area, and having a recess through it in a direction perpendicular to the axial direction of the cartridge,
- a pickup cartridge mounting member having a recess with a matching trapezoidal cross-sectional area for receiving said plug protrusion, formed at the front end of said pickup cartridge mounting member, said recess having at least three walls,
- a mounting screw extending through two of said walls and through said recess in said pickup cartridge plug protrusion for clamping said plug protrusion between said two



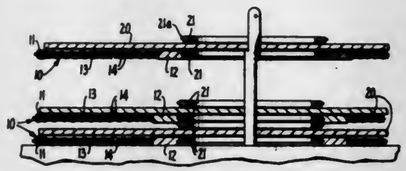
walls by drawing said two walls toward each other, said two walls being elastically deformable.

4,276,636

CUSHION DISC FOR PHONOGRAPH RECORDS

Stanley A. Morgan, and Edgar A. Dixon, both of 104 Montford Ave., Mill Valley, Calif. 94941

Filed Sep. 16, 1977, Ser. No. 833,888
Int. Cl.³ G11B 3/00
U.S. Cl. 369—291 2 Claims



1. A protective disc for phonograph records and attachment means for disconnectably attaching said protective disc to phonograph records having approximately the same size and shape as the phonograph record with which it is to be used; said protective disc comprising:
- a circular hoop, an inner circular ring, a plurality of spoke-like attachments supporting said inner circular ring from and within said hoop;
- said attachment means comprising a second circular ring having a pressure sensitive adhesive applied to one side for affixation to the center ungrooved portion of a phonograph record, a groove formed on the peripheral edge of one of said rings and a snap engageable lip formed on the peripheral edge of the outer ring, said inner circular ring being formed with a pivoted lever having an edge portion engageable with the second circular ring, pivotal actuation of said lever causing a disengagement of said rings.

4,276,637

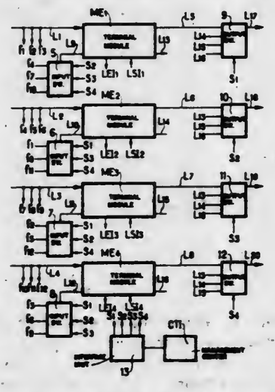
TIME-DIVISION SWITCHING NETWORK AND MEANS OF MITIGATING THE EFFECT OF FAULT CONDITIONS

Bernard Le Dieu, Perros-Guirec, France, assignor to Compagnie Industrielle des Telecommunications Cit-Alcatel, Paris, France

Filed Jun. 6, 1979, Ser. No. 45,886
Claims priority, application France, Jun. 19, 1978, 78 18221
Int. Cl.³ H04J 3/14
U.S. Cl. 370—16 5 Claims

1. Multistage time-division switching network and means for mitigating fault conditions therein, comprising a time-division or space-division signal line incoming stage and outgoing stage, the incoming stage being linked to main incoming lines and the outgoing stage being linked to main outgoing lines, said main incoming lines and main outgoing lines each comprising

the same number of signal lines, the incoming stage and outgoing stage each comprising the same number of switching units, a switching unit of the incoming stage and a switching unit of the outgoing stage forming a terminal module linked to a main incoming line and a main outgoing line, each terminal module being capable of handling a number n of signal lines at least equal to that in a main incoming line, characterised in that: (i) the main incoming and main outgoing lines each comprise a number m of signal lines less than the number n of signal lines which a terminal module can handle, (ii) in that the terminal modules are formed into groups, each group comprising a number of terminal modules equal to the ratio of the number n of signal lines which a terminal module can handle and the difference n−m between the number of signal lines which a terminal module can handle and the number of signal lines in a main incoming line if this ratio is an integer, and equal to the next higher integer if this ratio is not itself an integer, (iii) in that each main incoming line is divided into as many groups of signal lines as there are terminal modules minus one, (iv) in that the groups of signal lines of a main incoming line of a terminal



module are distributed amongst all the other terminal modules of the group, each group of signal lines containing a number of signal lines at most equal to the difference between the number of signal lines which a module can handle and the number of signal lines of a main incoming line, (v) in that each terminal module is associated with an input switch to which it is linked via an auxiliary incoming line and also with an output switch to which it is linked via a main outgoing line, in that each input switch is linked to one group of signal lines of each of the main incoming lines of the group except the main incoming line of the terminal module with which it is associated, (vi) in that each terminal module is linked via an auxiliary outgoing line to all the output switches of the group, except that with which it is associated, (vii) in that each output switch is linked to an outgoing line containing the same number of signal lines as a main incoming line, and (viii) in that said auxiliary incoming lines and auxiliary outgoing lines consist of the same number of signal lines which is at most equal to the difference between the number n of signal lines which a terminal module can handle and the number m of signal lines of a main incoming line.

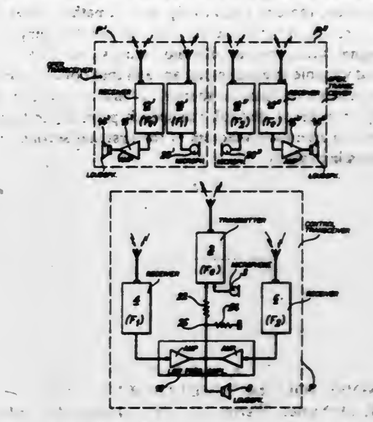
4,276,638

FREQUENCY MULTIPLEXED RADIO LINK APPARATUS

Pierre Andreucci, and Jacques Moron, both of Massy, France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Jun. 15, 1979, Ser. No. 49,484
Claims priority, application France, Jun. 27, 1978, 78 19189
Int. Cl.³ H04L 5/14; H04B 1/50
U.S. Cl. 370—30 4 Claims

1. An apparatus for frequency multiplexed radio links between a control transceiver and at least two operator transceivers, said apparatus being of the type in which the control transceiver comprises a transmitter receiving a low frequency signal from a microphone and transmitting a high frequency wave Fe and receivers equal in number to the operator transceivers, each receiver being adjusted to a particular high frequency Fi which differs from Fe, each receiver supplying a low frequency signal which is directed to a loudspeaker and in



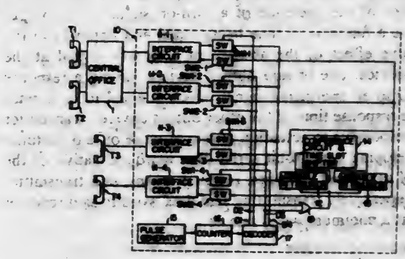
which each operator transceiver comprises a receiver adjusted to said frequency Fe and supplying a loudspeaker and a transmitter connected to a microphone and operating on one of the said frequencies Fi, and means located in the control transceiver for reinjecting part of the low frequency signals supplied by each of the receivers of the control transceiver into the transmitter of said transceiver.

4,276,639

TELEPHONE EXCHANGE WITH TIME SHARED SPEECH PATHS AND SELECTIVELY ATTENUATED SPEECH SIGNALS

Takeo Fukuda, Yokohama; Tadashi Murayama, Kawasaki, and Kiyoshi Urai, Yokohama, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

Filed Mar. 30, 1979, Ser. No. 25,585
Claims priority, application Japan, Apr. 14, 1978, 53/43999
Int. Cl.³ H04M 3/56
U.S. Cl. 370—62 5 Claims



1. A telephone exchange comprising a plurality of interface circuits each having a transmission path and a reception path; first switching means with one end coupled to the transmission paths of the interface circuits; second switching means coupled to the reception paths of the interface circuits; first and second

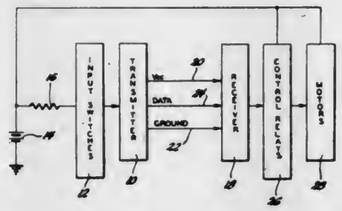
variable attenuating means coupled at one end to the first and second switching means, respectively; a conference circuit coupled between the other ends of the first and second variable attenuating means; and control means coupled to the first and second switching means and to the first and second variable attenuating means for supplying timing signals to the first and second switching means and thus controlling the same in time-sharing fashion, thereby establishing speech paths among the interface circuits in time-sharing fashion and for supplying control signals synchronous with said timing signals to the first and second variable attenuating means and thus controlling the same in time-sharing fashion, thereby attenuating speech signals being transferred through the speech paths according to the controlled attenuation factors of the first and second variable attenuating means.

4,276,640

NOISE TOLERANT MULTIPLEX SYSTEM

James W. McNamee, Warren; Gerald E. Homstad, Cortland; Alfonso Vazquez-Cuervo, Warren, all of Ohio, and Kenneth J. Henry, Southfield, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 2, 1979, Ser. No. 54,021
Int. Cl.³ H04J 3/00
U.S. Cl. 370—77 6 Claims



1. A noise tolerant time division multiplex system for operation in the presence of noise having a maximum frequency FN and maximum pulse width TN, said system including a source of direct current potential for energizing said system, a plurality of input switches, a plurality of output devices, the cumulative effect of the presence of a turn-on signal at an output device as a function of time being equal and opposite to the cumulative effect of the absence of a turn-on signal at the output device, one of said output devices having a response time TO to an energizing signal which is equal to or greater than the response time of the other output devices, transmitter means responsive to actuation of one or more of said switches for developing a multi-bit serial data word indicative of the status of said input switches, receiver means, said transmitter means repetitively transmitting said data word to said receiver means at a minimum word rate of

$$\frac{4\,TR\,FN}{TR(1-2\,FNTN)-TO}$$

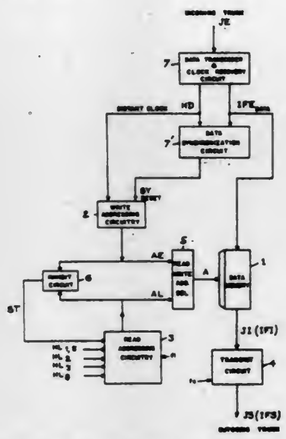
where TR is the desired maximum time interval between actuation of an input switch and operation of an output device, said receiver means responsive to receipt of a data word for producing output signals indicative of the status of said input switches, means responsive to the outputs of said receiver means for selectively energizing said output devices.

4,276,641

METHOD AND APPARATUS FOR CONVERTING TIME-DIVISION DATA SIGNALS RECEIVED ON AN INCOMING TRUNK TO TIME-DIVISION DATA SIGNALS OF DIFFERENT FORMAT FOR TRANSMISSION OVER AN OUTGOING TRUNK

Hieu K. Nguyen, Paris; Marc P. G. Dieudonne, Igny, and Jean-Paul Leger, Bougival, all of France, assignors to Le Material Telephonique, Boulogne-Billancourt, France

Filed May 25, 1979, Ser. No. 42,410
Claims priority, application France, May 31, 1978, 78 16211
Int. Cl.³ H04J 3/00
U.S. Cl. 370—99 10 Claims



3. Apparatus for converting a time-division data signal received over an incoming trunk into a time-division data signal of a different format for transmission over an outgoing trunk, each data signal including synchronization, speech and signalling information, the incoming data signal being divided into frames received at a frequency F, each frame containing v_e incoming channels assigned to speech, (i.e. n_e incoming bits received at a frequency f_e) said outgoing data signal being divided into frames transmitted at the same frequency F, each frame containing v_s outgoing channels, of which V_s channels are assigned to speech, (i.e. n_s outgoing bits transmitted at a frequency f_s) where $n_s > n_e$, $f_s > f_e$ and f_s is not a multiple of f_e characterized by: means for storing the data bits contained in each incoming frame; means for reading, at an intermediate frequency f_i and during read-enable periods, the stored data bits corresponding to v_e busy outgoing channels and for evenly distributing $v_s - v_e$ free outgoing channels amongst the v_e busy outgoing channels during read inhibit periods; and, means for transmitting, at a frequency f_s, the data read-out at the intermediate frequency f_i.

4,276,642

PROCESS FOR THE FRAME SYNCHRONIZATION OF A TIME DIVISION MULTIPLEX SYSTEM

Joachim Siglow, Wolfratshausen, Fed. Rep. of Germany; Sigmar Grützmann, Zug, Switzerland, and Erwin Schenk, Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Mar. 6, 1979, Ser. No. 17,921
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1978, 2811851
Int. Cl.³ H04J 3/06
U.S. Cl. 370—100 2 Claims

1. A method for the frame synchronization of a time division multiplex system with a multiplexer, which per time division multiplex frame has m time slots and which releases a time division multiplex signal which for each time division multiplex frame has m−1 data bits and one synchronizing bit, at least p≧6 synchronizing bits which directly follow one another from corresponding consecutive time frames to form a synchronizing word, wherein for attainment of a synchronous state a synchronization alarm signal is released, and wherein a synchronizing signal is provided for said frame synchronization, comprising the steps of:

(a) when in a non-synchronous state, and as so indicated by the synchronization alarm signal, beginning a test period after two consecutive synchronizing words are recognized and when the synchronizing signal is in phase with the two synchronizing words;

(b) ending the test period and having the alarm signal indicate and synchronous state if the synchronizing signal is in phase with a number of subsequent groups of P time division multiplex frames synchronizing words continuously received;

(c) ending the test period and having the alarm signal indicate the non-synchronous state if the synchronizing signal is in phase with the synchronizing words but a synchronizing word is not recognized; and

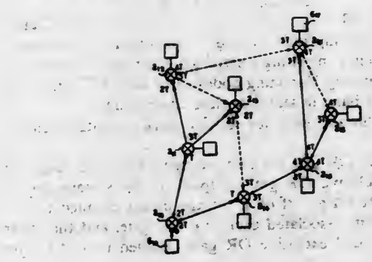
(d) ending the test period and having the alarm signal indicate the non-synchronous state if the synchronizing signal is not phased in with the synchronizing words even though two synchronizing words are recognized but whose respective synchronizing bits lie in different time slots of the respective time division multiplex frames.

4,276,643

METHOD OF AND MEANS FOR ROUTING BINARY MESSAGES THROUGH A MULTINODE DATA-TRANSMISSION SYSTEM

Jean-Claude Laprie; David R. Powell, both of Ramonville Saint Agne; Gerard Alcouffe, Valence, and Paul Romand, Bourg de Peage, all of France, assignors to Agence Nationale de Valorisation de la Recherche (ANVAR), Neuilly sur Seine and Societe Crouzet, Paris, both of, France

Filed Mar. 14, 1979, Ser. No. 20,675
Claims priority, application France, Mar. 17, 1978, 78 07906
Int. Cl.³ G06F 11/00
U.S. Cl. 371—8 15 Claims



1. A method of routing binary messages through a digital-data-transmission system including a network formed from a multiplicity of nodes each having at least three input/output ports respectively linked by one two-way connection to an associated subscriber station and by a plurality of other two-way connections to as many other nodes of said network, said nodes forming a plurality of different pathways between any two subscriber stations for allowing a message originating at any one of said subscriber stations to reach all other of said subscriber stations,

comprising the steps of:

(a) detecting at each node the arrival, at the several ports thereof, of an incoming message traveling over different pathways from an originating subscriber station;

(b) selecting, at each node, one of the ports thereof for exclusive reception of said incoming message; and

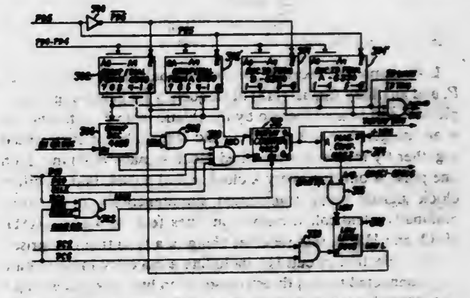
(c) retransmitting at each node the received incoming message via all the ports of the node including the port selected in step (b).

4,276,644

TESTER AND METHOD FOR CHECKING METER ENCODERS IN AUTOMATIC METER READING SYSTEMS

Gordon J. DeWitte, Los Alamos, N. Mex., assignor to General Electric Company, Somersworth, N.H.

Filed Mar. 28, 1978, Ser. No. 890,924
Int. Cl.³ G06F 11/00
U.S. Cl. 371—25 10 Claims



1. In an automatic meter reading system of the type having a meter including gear train driven dials and including a readable encoder, for generating a serialized message consisting of dial readings, driven by said gear train whereby each gear in the gear train has a definite mechanical relationship to the other gears in the train, a method of determining the meter dial readings and checking for encoder generated errors by inter-dial checking the mechanical angular position between the respective dial drive gears of the gear train comprising the steps of:

(a) storing in a first addressable memory information representative of encoder dial readings;

(b) storing in a second memory information representative of ranges of angular positions of gears driving said dials;

(c) reading said encoder message;

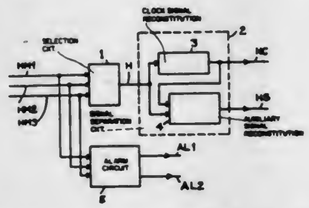
(d) utilizing, as an address for said first and second memories, a first dial reading in said message to effect the retrieval from said first and second memories, respectively, a numerical value proportional to said first dial reading and information representative of the angular position of the gear driving said first dial;

(e) storing the angular position information retrieved from said second memory;

(f) utilizing, as an address for said first and second memories, a second dial reading in said message to effect the retrieval from said first and second memories respectively of a second numerical value proportional to said second dial reading and information representative of the angular position of the gear driving said second dial;

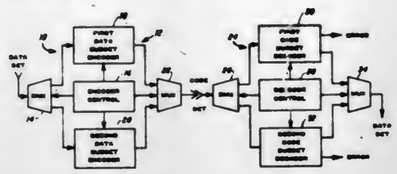
(g) storing the last angular position information retrieved from said memory;
(h) comparing the angular position information first retrieved from said second memory with the second numerical value retrieved from said first memory; and
(i) deriving an indication of an encoder interdial check failure when there is a non comparison.

4,276,645
RECEIVER FOR SIMULTANEOUSLY TRANSMITTED CLOCK AND AUXILIARY SIGNALS
Jean-Paul Leger, Bougival, and Daniel A. Vantherin, Paris, both of France, assignors to Le Material Telephonique, Boulogne-Billancourt, France
Filed May 25, 1979, Ser. No. 42,565
Claims priority, application France, May 31, 1978, 78 16210
Int. Cl.³ G06F 11/18
U.S. Cl. 371—36 5 Claims



1. An improved receiver for clock signals (HC) of frequency F, and auxiliary signals (HS) of frequency f, f being a submultiple of F and related thereto by the relationship F=kf, where k is an integer, k=2, 3, 4, . . . , said signals being transmitted together by means of a modified clock signals (HM) in which one pulse is omitted every k clock signal pulses, said modified clock signals being transmitted simultaneously over three, nominally identical, transmission lines (e.g. as signals HM1, HM2, and HM3), said receiver being of a type that comprises:
(a) a selection circuit (1), including a majority logic circuit, connected to said three transmission lines for generating a normal, modified clock signal (H) even if one of the received, modified clock signals (HM1, HM2, or HM3) is abnormal; and
(b) a signal separation circuit (2), connected to the output of said selection circuit, for reconstituting said clock signals (HC) and said auxiliary signals (HS),
(c) an alarm circuit having three inputs, each connected to a corresponding one of said three transmission lines, at the input to said selection circuit, for generating an encoded digital alarm signal upon failure of any one of said three transmission lines, said alarm circuit including means for detecting signal non-conformities which comprises:
(1) three detector circuits (14,15,16), each connected to a corresponding one of said three transmission lines, for detecting the absence of incoming signal pulses;
(2) first (18) and second (19) comparison circuits, respectively connected to the first (HM1) and second (HM2) ones of said three transmission lines, for comparing the signals transmitted over said first and second transmission lines with the signal transmitted over said third transmission line (HM3), delayed by a quarter period in a delay line (17), said delayed signal acting as a reference signal for each of the two other transmitted signals; and
(3) a logic circuit (20,21) having inputs connected to the outputs of said first and second comparison circuits (18,19) to the output of the detector circuit (16) associated with said delay circuit (17), for generating said encoded alarm signals.

4,276,646
METHOD AND APPARATUS FOR DETECTING ERRORS IN A DATA SET
Roger L. Haggard, Garland; Jerold A. Seltchik, and T. R. N. Rao, both of Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Filed Nov. 5, 1979, Ser. No. 91,681
Int. Cl.³ G06F 11/12
U.S. Cl. 371—37 12 Claims

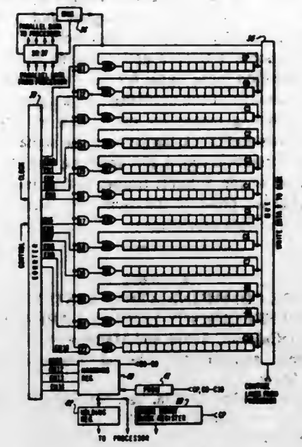


1. A method for detecting errors in a data set of sequential binary digits, comprising the steps of:
encoding the data set to form a code set by:
separating alternating ones of the sequential digits of the data set into first and second data subsets;
for each of the first and second data subsets:
generating a binary cyclic redundancy code of a selected form for the digits of said data subset; and
appending the digits of the data subset cyclic redundancy code to the end of said data subset to form a corresponding code subset;
merging the first and second code subsets to form the code set, with each of the sequential digits of the first code subset being sequentially interposed between sequential digits of the second code subset;
operating upon the code set in a manner having a significant probability of altering at least one of the digits of the code set;
decoding the code set to detect errors therein by:
separating alternating ones of the sequential digits of the code set into the first and second code subsets; and
for each of the first and second code subsets:
generating a binary cyclic redundancy code of said selected form for the digits of said code subset;
providing an error signal in response to said code subset cyclic redundancy code having a value indicative of a error in said code subset.

4,276,647
HIGH SPEED HAMMING CODE CIRCUIT AND METHOD FOR THE CORRECTION OF ERROR BURSTS
Charles P. Thacker, Palo Alto; Fielding M. Norman, Torrance, and Ronald E. Rider, Palos Verdes Estates, all of Calif., assignors to Xerox Corporation, Stamford, Conn.
Filed Aug. 2, 1979, Ser. No. 63,022
Int. Cl.³ G06F 11/10
U.S. Cl. 371—40 10 Claims

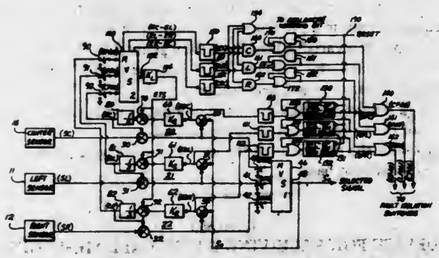
1. A circuit, comprising an input and an output, for transmitting a data field comprising a serial bit stream and for simultaneously generating Hamming codes to be used for correcting an n bit error burst in said data field comprising:
m storage means, each for serially storing n bits of binary data,
an exclusive OR gate for each storage means, the output of each exclusive OR gate coupled to the storage means input, the output of each storage means coupled to one input of its associated exclusive OR gate, and the other input of said exclusive OR gate coupled to said circuit input,
an m bit counter for enabling said exclusive OR gates in binary count order, said counter incrementing every n^{th} data bit time, to generate and store in said storage means

n Hamming codes, each m bits long, during the data field transmission time, and



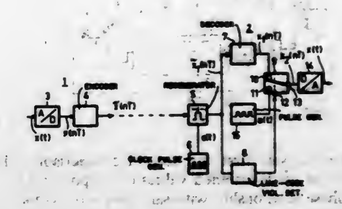
a multiplexer for coupling said data field from said circuit input to said circuit output, and thereafter, for coupling said Hamming codes from said storage means output to said circuit output.

4,276,648
MIDVALUE SIGNAL SELECTION AND FAULT DETECTION APPARATUS AND METHOD
Lloyd R. Tomlinson, Renton, Wash., assignor to The Boeing Company, Seattle, Wash.
Filed Sep. 4, 1979, Ser. No. 71,902
Int. Cl.³ G06F 11/18; G06B 9/03
U.S. Cl. 371—68 10 Claims



1. Signal selector apparatus for selecting one of several input information signals comprising:
midvalue selector means, having a plurality of inputs and an output, for passing that input signal having a value between the other input signals to its output; and
equalizer means including means for predeterminedly processing each information input signal and eliminating null offsets contained therein, said equalizer means further comprising means for intercoupling said midvalue selector means and said equalizer means such that the signal produced at said midvalue selector output is the midvalue one of the equalizer means processed information input signals bounded by those equalizer means processed information input signals having values above and below said midvalue.

4,276,649
RECEIVER FOR DIGITAL SIGNALS IN LINE CODE
Gradus C. Groenendaal, and Elmer A. Aagaard, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jun. 21, 1979, Ser. No. 50,712
Claims priority, application Netherlands, Jun. 30, 1978, 7807171
Int. Cl.³ G06F 11/00
U.S. Cl. 371—55 2 Claims

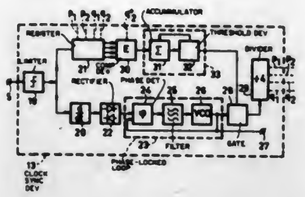


1. A receiver for receiving a line signal constituted by a first digital signal, said first digital signal being encoded in a line code and representing a digital version of an analog information signal, the receiver comprising:
an input for receiving the line signal;
a decoder coupled to said input and arranged for converting the line signal into said first digital signal;
a digital-to-analog converter comprising an input;
means for coupling the input of the digital-to-analog converter to said decoder;
characterized in that:
the receiver further comprises:
the line-code violation detector also coupled to the input of the receiver and arranged to detect whether the line signal deviates from the line code; and
a generator for generating a second digital signal;
wherein said coupling means comprises
a first input coupled to said decoder, a second input coupled to said generator, an output coupled to said digital-to-analog converter, and a control input coupled to said line-code violation detector for selectively coupling said first or second input to said output, whereby when said line-code violation detector indicates a deviation from said line-code, said generator is then coupled to the input of said digital-to-analog converter.

4,276,650
METHOD OF SYNCHRONIZING A QUADPHASE RECEIVER AND CLOCK SYNCHRONIZATION DEVICE FOR CARRYING OUT THE METHOD
Frank de Jager; Rudolf A. van Doorn; Johannes V. Verboom, and Marino G. Carasso, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Jul. 11, 1979, Ser. No. 56,682
Claims priority, application Netherlands, Mar. 26, 1979, 7902340
Int. Cl.³ H04L 7/02, 25/48
U.S. Cl. 375—110 5 Claims

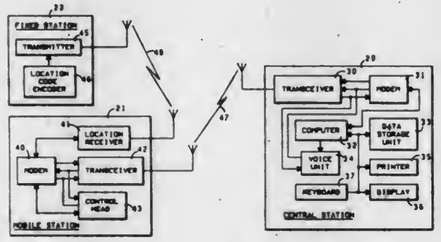
1. A method for the clock synchronization of a receiver for demodulating a quadphase coded data signal, said data signal comprising data words consisting of first, second, third and fourth equally long, consecutive half-bit intervals, characterized in that the steps of said method comprise:
(a) determining the frequency of the half-bit intervals of said data words;
(b) sampling the data words at the frequency determined in step (a);

(c) storing the sampling values for at least four half-bit intervals;
(d) determining a first comparison value from the difference between the sampling values of the third and first, respectively, of said four half-bit intervals;
(e) determining a second comparison value from the difference between the sampling values of the fourth and second, respectively, of said four half-bit intervals;



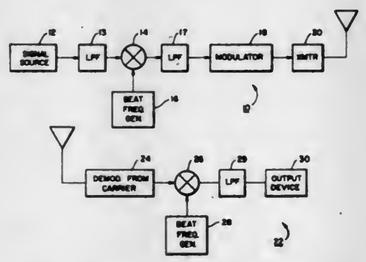
(f) comparing said first and second comparison values to respective predetermined values corresponding to a correct phase relationship with said data words; and
(g) forming a correction signal to adjust the phase of said frequency with respect to the data words when either of said first or second comparison values differ from the respective predetermined values.

4,276,651
CLOCK CIRCUITRY FOR A DATA COMMUNICATION SYSTEM
Stephen M. Bench, Lake Zurich; William R. Dirkes, Mundelein; Manohar A. Juglekar, Elk Grove; James C. Secora, Hoffman Estates, and Michael A. Stephen, Schaumburg, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Division of Ser. No. 830,531, Sep. 6, 1977, Pat. No. 4,156,867. This application Jan. 29, 1979, Ser. No. 7,087
Int. Cl.³ H03L 7/06
U.S. Cl. 375—120 **3 Claims**



1. A clock circuitry continuously synchronizable to a digital data signal serially transmitted by a data clock signal having a predetermined frequency, comprising:
delay means coupled to the digital data signal for providing a delayed digital data signal delayed with respect to the digital data signal by a predetermined time interval;
first combining means for combining the digital data signal and the delayed digital data signal to provide a bit-transition pulse signal for each bit transition of the digital data signal;
oscillator means for providing an oscillator clock signal having a free-running frequency substantially the same as the frequency of the data clock signal, said oscillator means further including Schmitt trigger gating means for providing the oscillator clock signal and buffer gating means capacitively coupled to the oscillator clock signal from the Schmitt trigger gating means for providing a clock-transition pulse signal for each predetermined logical state change of the oscillator clock signal; and
second combining means for combining the bit-transition pulse signals and clock-transition pulse signals to provide a phase correction signal and applying the phase correction signal to the Schmitt trigger gating means for synchronizing the phase of the oscillator clock signal to the phase of the data clock signal.

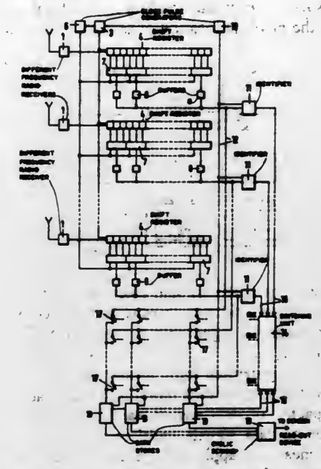
4,276,652
SECURE COMMUNICATION SYSTEM WITH IMPROVED FREQUENCY-HOPPING ARRANGEMENT
Arnold M. McCalmont, Acton, and Matthew W. Slate, Sudbury, both of Mass., assignors to Technical Communications Corp., Concord, Mass.
Filed Oct. 2, 1978, Ser. No. 947,475
Int. Cl.³ H04K 1/04
U.S. Cl. 455—29 **13 Claims**



1. In a secure communications system of the type in which information bearing signals are scrambled by repeatedly shifting their frequency spectrum in excursions up or down within a range extending from a lower frequency limit to an upper frequency limit in a predetermined manner in accordance with the output of a variable beat frequency generator, the improvement in which the variable frequency generator comprises means for varying said beat frequency
(a) in increments that are small compared with substantially all of the frequency excursions, and
(b) with the durations of the increments varying on a pseudo-random basis.

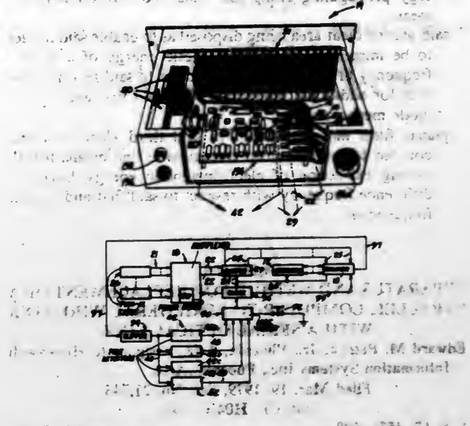
4,276,653
DEVICE FOR RECEIVING RADIO CALL MESSAGES
Jan A. Aarsen, Gouda, and Herman da Silva, Voorburg, both of Netherlands, assignors to Staat der Nederlanden (Staatsbedrijf der Posterijen, Telegrafie en Telefonie), The Hague, Netherlands
Filed Apr. 12, 1979, Ser. No. 29,492
Claims priority, application Netherlands, Apr. 14, 1978, 7804012
Int. Cl.³ H04B 1/06, 7/04
U.S. Cl. 455—56 **8 Claims**

1. Device for receiving radio call messages on a ship from different transmitters at different stations, which device comprises a number of receivers (1) for different frequencies from said different transmitters and means for storing and processing the messages received, said device comprising:
(A) a shift register means (4) connected to the output of each receiver,
(B) an identifier (11) means connected to the output signal, having the value 1 or 0, from said shift register to provide an output control signal with respect to the pertinence of the messages to said ship,
(C) a plurality of storing means (13),
(D) a switching unit (14) connected to the outputs of said identifier means,
(E) said switching unit (14) in response to said output control signal connects the appropriate shift register means to an available storing means (13),



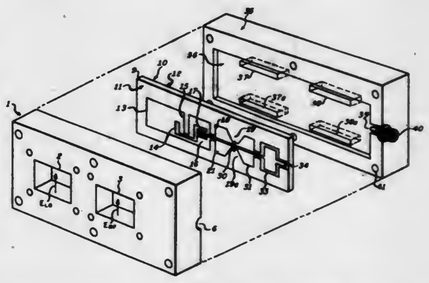
(F) a commonly controlled clock generator means for controlling said shift register means, said identifier means, and said storing means, which said clock generator means integrates asynchronously received signals into synchronous signals, and
(G) a cyclic scanner (18) for reading out said storing means to one or more terminal stations for further storing and processing the pertinent stored message.

detector means having means connected therewith to determine when receiver audio output signals are adequate for tone reception, and
(e) gating logic means operatively connected to both the



tone detectors and the multiplexer clock for either enabling the multiplexer to step the multiplexer to the next frequency if there is no output from any tone detector, or to lock the multiplexer in its present frequency when output signals from the receiver remain adequate.

4,276,655
INTEGRATED CIRCUIT PLANAR HIGH FREQUENCY MIXER
Erich H. Kraemer, Clearwater, and John C. Rolfs, Palm Harbor, both of Fla., assignors to Sperry Corporation, New York, N.Y.
Filed Oct. 29, 1979, Ser. No. 89,069
Int. Cl.³ H04B 1/26; H03C 1/58
U.S. Cl. 455—327 **10 Claims**



1. High frequency signal mixer means including:
substrate means,
conductive layer means disposed on said substrate means and having a substantially closed pattern of at least first, second, and third clear areas,
said first clear area having probe means for coupling electromagnetic energy of a first frequency propagating perpendicular to said first clear area for propagation, in turn, along balanced transmission line means into said second clear area,
said second clear area being divided symmetrically by said balanced transmission line means, and
said second clear area further including opposed conductive truncated taper means disposed symmetrically about said balanced transmission line means,
first and second diode means respectively coupled from the

4,276,654
SCAN-LOCK CONTROL OF SOLID STATE DIGITALLY SYNTHESIZED RECEIVERS
William N. Nations, Alameda, Calif., and Kenneth H. Kerwin, II, Londonderry, N.H., assignors to Pacific Marine Electronics, Inc., Oakland, Calif.
Continuation-in-part of Ser. No. 741,294, Nov. 12, 1976, abandoned. This application Apr. 16, 1979, Ser. No. 30,568
Int. Cl.³ H04B 1/16; H03J 7/18
U.S. Cl. 455—160 **17 Claims**

1. A scan-lock control device for use with a high frequency receiver, which receiver is provided with a local/remote switch and a specially designed interface so that the receiver functions normally in its local mode and is controlled in its remote mode to add frequency scanning and lockup functions without affecting any of the receiver's other locally controlled funtions, wherein said scan-lock control device comprises:
(a) multiplexer means for sequentially selecting frequency data, said multiplexer having a power source and output bus lines operatively connected thereto,
(b) a plurality of frequency-determining, plug-in card means operatively connected to the multiplexer means for supplying predetermined frequency data embodied in each card to the multiplexer when any one of said cards is activated by the multiplexer,
(c) multiplexer clock means operatively connected to both the receiver and the multiplexer and activated any time the receiver is switched to its remote mode, said multiplexer clock thereby providing a driving means for said multiplexer,
(d) a plurality of tone detectors means operatively connected to both the receiver and the multiplexer clock, said tone

apex of one of said opposed conductive truncated taper means to said balanced transmission line means and from the latter to the apex of a second of said opposed conductive truncated taper means for interaction with said energy propagating along said balanced transmission line means,

said second clear area being disposed as to enable said diodes to be immersed in electromagnetic energy of a second frequency propagating perpendicular to said second clear area for additional interaction with said first and second diode means, and

planar filter means disposed in said third clear area and coupled to said balanced transmission line means for allowing extraction of electromagnetic energy having a difference frequency with respect to said first and second frequencies.

4,276,656

APPARATUS AND METHOD FOR REPLACEMENT OF A PARALLEL, COMPUTER-TO-PERIPHERAL WIRE LINK WITH A SERIAL OPTICAL LINK

Edward M. Petryk, Jr., Phoenix, Ariz., assignor to Honeywell Information Systems Inc., Phoenix, Ariz.

Filed Mar. 19, 1979, Ser. No. 21,743
Int. Cl.³ H04B 9/00
U.S. Cl. 455—608 **11 Claims**

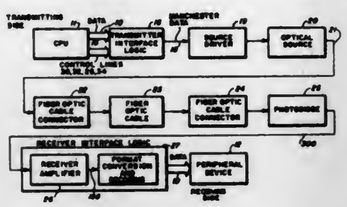
1. An optical link apparatus for transmitting data between units of a system, said system including a transmitting means for supplying data on a data line to be transmitted over an optical link, said system further including receiving means for receiving data from said optical link apparatus for performing some function therewith, said optical link apparatus comprising:

(a) a control line for causing the transfer of said data upon a change in a control signal on said control line;

(b) a transmitter interface logic means for receiving said data on said data line and responsive to said control signal for converting said data into a packet of data signals preceded by a header signal for transmission over said optical link;

(c) a source means for converting said header and data packet signals into an electromagnetic signal;

(d) a path means to receive said electromagnetic signal from said source means and conduct it to a distal end removed from the physical location of said source means;



(e) a means for receiving said electromagnetic signal at the distal end of said path means and for converting said electromagnetic signal into a received Manchester data signal; and

(f) a receiver interface logic means for converting said received Manchester data signal into said header signal and said packet of data signals, said header signal and said packet of data signals enabling said receiver interface logic means to apply said packet of data signals to an output interface line.

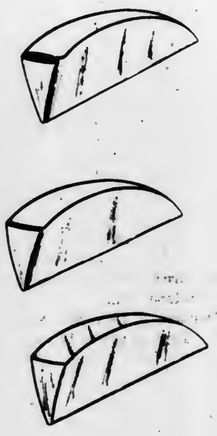
DESIGNS

JUNE 30, 1981

259,670
TACO SHELL

Bernice L. de Leon, 1543 S. Saltair, West Los Angeles, Calif. 90025

Filed Nov. 1, 1978, Ser. No. 956,482
Term of patent 14 years
Int. Cl. D01—01
U.S. Cl. D1—2



259,671
BATHING SUIT

Michel Joseph, Saverne, France, assignor to Adidas Fabrique de Chaussures de Sport, Landersheim, France

Filed Aug. 1, 1979, Ser. No. 62,885
Claims priority, application France, Feb. 6, 1979, 353
Term of patent 14 years
Int. Cl. D02—02
U.S. Cl. D2—40



259,672
BATHING SUIT

Michel Joseph, Saverne, France, assignor to Adidas Fabrique de Chaussures de Sport, Landersheim, France

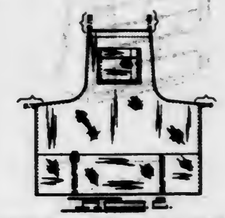
Filed Aug. 1, 1979, Ser. No. 62,886
Claims priority, application France, Feb. 6, 1979, 353
Term of patent 14 years
Int. Cl. D02—02
U.S. Cl. D2—40



259,673
WALLPAPERING APRON

Sue M. Ruszczynski, 27193 Wyatt, Trenton, Mich. 48183

Filed Aug. 16, 1979, Ser. No. 67,096
Term of patent 14 years
Int. Cl. D2—02
U.S. Cl. D2—229



259,674
SHOE

Monte Levin, New York, N.Y., assignor to Manow International Corp., New York, N.Y.

Filed Mar. 5, 1979, Ser. No. 17,672
Term of patent 14 years
Int. Cl. D3—04
U.S. Cl. D2—309



259,675
FOOT STABILIZER INNERSOLE
Andrew W. Gordon, Swampscott, and Carlman Fisher, Marblehead, both of Mass., assignors to Northern Shoe Bindings Co., Inc., Beverly, Mass.
Filed Jun. 25, 1979, Ser. No. 51,953
Term of patent 14 years
Int. Cl. D2—*04*
U.S. Cl. D2—318

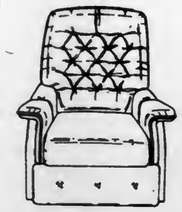


259,676
CONTAINER FOR TAPE CASSETTES
Peter Ackeret, Küsnacht, Switzerland, assignor to IDN Inventions and Development of Novelties AG, Chur, Switzerland
Filed Apr. 26, 1979, Ser. No. 33,675
Claims priority, application Fed. Rep. of Germany, Nov. 20, 1978, 1156
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—35

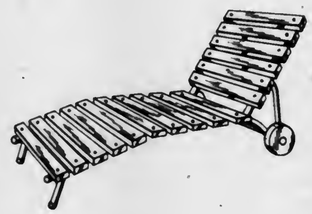
259,677
CARRYING BAG FOR GOLF SHOES
Monroe H. Rosenow, 14265 Hyland Dr., Brookfield, Wis. 53005
Filed Apr. 11, 1979, Ser. No. 29,549
Term of patent 14 years
Int. Cl. D3—*02*
U.S. Cl. D3—37



259,678
SEAT
Stapleton Long, Morristown, Tenn., assignor to The Berkline Corporation, Morristown, Tenn.
Filed Nov. 28, 1977, Ser. No. 855,263
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—37



259,679
CHAISE LOUNGE
Joseph W. Sroub, Parma, Ohio, assignor to Cardinal American Corporation, Cleveland, Ohio
Filed Jan. 5, 1979, Ser. No. 1,375
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—38



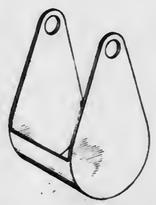
259,680
SIDE CUSHION CHAIR
Jobie G. Redmond, High Point, N.C., assignor to Jack Daniel Distillery, Lem Motlow, Prop., Inc., Lynchburg, Tenn.
Filed Nov. 8, 1978, Ser. No. 959,047
Term of patent 14 years
Int. Cl. D6—*01*
U.S. Cl. D6—70



259,681
DISPLAY RACK
Cornelis G. Bouwman, Raephan, Netherlands, assignor to Benjamin Products B.V., Etten-Leur, Netherlands
Filed Nov. 7, 1978, Ser. No. 958,432
Claims priority, application Fed. Rep. of Germany, May 13, 1978, MR 14081
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—85



259,682
CONTAINER FOR SPARE TOILET TISSUE ROLL
Guy L. Standing, 519 N. Maryland, Glendale, Calif. 91206
Filed May 29, 1979, Ser. No. 42,936
Term of patent 14 years
Int. Cl. D23—*02*; D6—*04*
U.S. Cl. D6—97



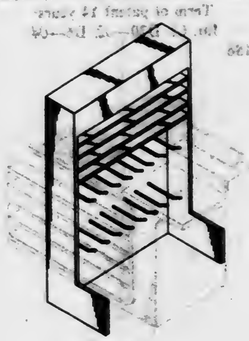
259,683
PAINT ROLLER DISPLAY RACK
Garry Furst, West Newton, Mass., assignor to American Brush Company, Inc., Brockton, Mass.
Filed Dec. 22, 1978, Ser. No. 972,379
Term of patent 14 years
Int. Cl. D20—*02*; D6—*04*
U.S. Cl. D6—130



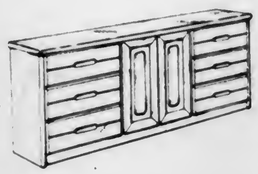
259,684
DISPLAY RACK
Charles L. Davis, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Jun. 25, 1979, Ser. No. 51,392
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—148

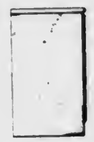


259,685
DISPLAY UNIT
John J. Scalice, New York, N.Y., assignor to Revlon, Inc., New York, N.Y.
Filed Dec. 11, 1978, Ser. No. 968,000
Term of patent 14 years
Int. Cl. D20—*02*
U.S. Cl. D6—157



259,686
DRESSER OR THE LIKE
Haywood L. West, High Point, N.C., assignor to Burlington Furniture Div. of Burlington Industries, Inc., Greensboro, N.C.
Filed Feb. 21, 1979, Ser. No. 13,015
Term of patent 14 years
Int. Cl. D06—*04*
U.S. Cl. D6—164



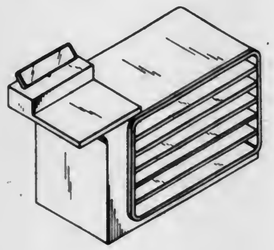


259,688
CHAIR SHELL
Emilio Ambasz, New York, N.Y., assignor to Center for Design Research and Development N.V., Netherlands Antilles
Filed Dec. 4, 1978, Ser. No. 966,466
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—197

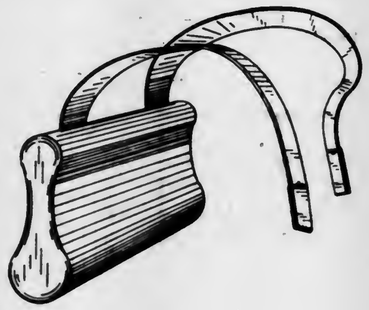




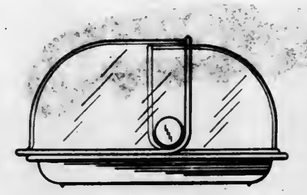
259,687
COMBINED COSMETIC DISPLAY AND STORAGE UNIT
John J. Scalice, New York, N.Y., assignor to Revlon, Inc., New York, N.Y.
Filed Dec. 11, 1978, Ser. No. 968,002
Term of patent 14 years
Int. Cl. D28—*02;* D6—*04*
U.S. Cl. D6—186

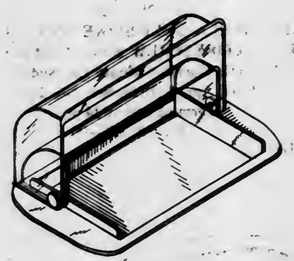


259,689
COUNTERBALANCED UPHOLSTERED HEADREST
David M. Handel, South Orange, N.J., assignor to The Bennington Company, Union, N.J.
Filed Oct. 31, 1978, Ser. No. 956,153
Term of patent 14 years
Int. Cl. D6—*06*
U.S. Cl. D6—200



259,690
DISH WITH HINGED COVER
Renate Buchsteiner nee Fetzer, Gingen, Fed. Rep. of Germany, assignor to Johannes Buchsteiner GmbH & Co. KG, Gingen, Fed. Rep. of Germany
Filed Jun. 19, 1978, Ser. No. 917,022
Claims priority, application Fed. Rep. of Germany, Dec. 22, 1977, 1605
Term of patent 14 years
Int. Cl. D07—*01*
U.S. Cl. D7—16





259,691
DECAL FOR CULINARY WARE OR THE LIKE
Richard Hora, Congers, N.Y., assignor to Corning Glass Works, Corning, N.Y.
Filed Jul. 16, 1979, Ser. No. 58,122
Term of patent 14 years
Int. Cl. D7—*01;* D19—*08*
U.S. Cl. D7—39



259,692
KETTLE
Leonard L. Quinn, Barrie, Canada, assignor to Dart Industries Inc., Los Angeles, Calif.
Filed Aug. 30, 1979, Ser. No. 70,769
Term of patent 14 years
Int. Cl. D07—*02*
U.S. Cl. D7—65

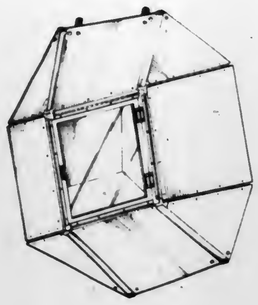




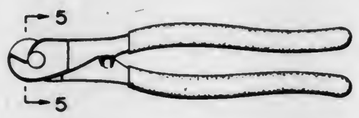
259,693
POLE CHARCOAL GRILL
Albert D. Ottmar, Beresford, S. Dak. 57004
Filed Apr. 9, 1979, Ser. No. 28,161
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—109



259,694
SOLAR OVEN
Daniel S. Halacy, Jr., 5804 W. Vista Ave., Glendale, Ariz. 85301
Filed Feb. 12, 1979, Ser. No. 11,137
Term of patent 14 years
Int. Cl. D7—*02*
U.S. Cl. D7—110



259,695
CABLE CUTTER
Bjarne I. Byberg, Walnut Creek, and Robert B. Kientz, Orinda, both of Calif., assignors to Benner-Nawman, Inc., Pleasant Hill, Calif.
Filed Sep. 11, 1978, Ser. No. 929,259
Term of patent 14 years
Int. Cl. D8—*03*
U.S. Cl. D8—58



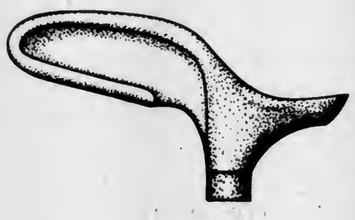
259,696
TELESCOPIC MAGNETIC SCREW STARTER
Janet D. Shea, Fort Morgan, Colo., assignor to Parker-Hannifin Corp., Cleveland, Ohio
Filed Apr. 26, 1979, Ser. No. 33,543
Term of patent 14 years
Int. Cl. D8—*04*
U.S. Cl. D8—86



259,697
UTILITY KNIFE HANDLE
Louis E. Brizzolara, Jr., Norwalk, Conn., assignor to CBS Inc., New York, N.Y.
Filed Mar. 6, 1979, Ser. No. 18,081
Term of patent 14 years
Int. Cl. D08—*03*
U.S. Cl. D8—107



259,698
HANDLE FOR A GOLF SPIKE WRENCH, SCREW DRIVER, CORKSCREW AND OTHER DEVICES
Arden B. MacNeill, Garrison House La., Sudbury, Mass. 01776
Filed Apr. 2, 1979, Ser. No. 26,033
Term of patent 14 years
Int. Cl. D8—*06*
U.S. Cl. D8—107



259,699
TIE-DOWN DEVICE
John D. Hughes, 55 Half Moon Rd., Novato, Calif. 94947
Filed Aug. 18, 1978, Ser. No. 926,011
Term of patent 14 years
Int. Cl. D8—*08*
U.S. Cl. D8—367



259,700
HOOK
Lee R. Chason, Port Chester, N.Y., assignor to Coats & Clark Inc., Stamford, Conn.
Filed Oct. 18, 1978, Ser. No. 952,594
Term of patent 14 years
Int. Cl. D8—*09*
U.S. Cl. D8—367



259,701
BOTTLE
Luis Sztuden, 5856 Bloch St., San Diego, Calif. 92122
Division of Ser. No. 899,838, Apr. 25, 1978. This application Jul. 17, 1980, Ser. No. 169,883
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—310



259,702
BOTTLE OR SIMILAR ARTICLE
Edwin Richmond, P.O. Box 2656, San Rafael, Calif. 94901
Filed Nov. 13, 1978, Ser. No. 959,656
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—314



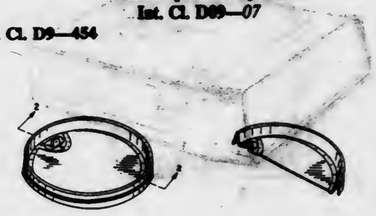
259,703
BOTTLE
Jacques Lloreate, 112, Avenue du General de Gaulle, La Garenne Colombes, France
Filed Apr. 5, 1979, Ser. No. 26,578
Claims priority, application France, Oct. 6, 1978, 78 41797
Term of patent 14 years
Int. Cl. D9—*01*
U.S. Cl. D9—384



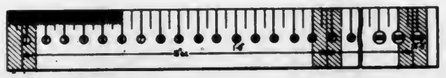
259,704
CAP FOR A DISINFECTANT DISPENSER
Robert Castronovo, Belmont, Calif., assignor to Trident Products, Inc., San Francisco, Calif.
Filed Nov. 2, 1977, Ser. No. 848,017
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—447



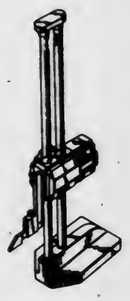
259,705
TOP FOR A DRINK CUP
Connice W. Bagwell, Rte. 2, Box 346, Somerville, Ala. 35670
Filed Sep. 28, 1979, Ser. No. 79,720
Term of patent 14 years
Int. Cl. D09—*07*
U.S. Cl. D9—454



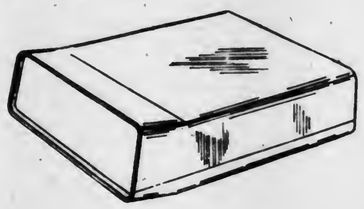
299,706
CARPENTERS' LAY-OFF TAPE
Floyd A. Smith, P.O. Box 192, Clayton, Ind. 46118
Filed Jul. 26, 1977, Ser. No. 819,206
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—71



299,707
HEIGHT GAUGE
Shingo Nishina, Kanagawa, Japan, assignor to Mitutoyo Manufacturing Company, Ltd., Tokyo, Japan
Filed Aug. 10, 1979, Ser. No. 65,601
Claims priority, application Japan, Feb. 13, 1979, 54-4675
Term of patent 14 years
Int. Cl. D10—*04*
U.S. Cl. D10—73



299,708
ELECTRONIC INSTRUMENT HOUSING OR SIMILAR ARTICLE
Nicholas D. Swinstead, Church Crookham, England, assignor to Solartron Electronic Group Limited, Farnborough, England
Filed Jun. 1, 1978, Ser. No. 913,261
Claims priority, application United Kingdom, Dec. 13, 1977, 982682/77
Term of patent 14 years
Int. Cl. D10—*07*
U.S. Cl. D10—80



299,709
GOLFER'S PIN
Jennifer A. Brown, Taunton, Mass., assignor to Claudette A. LaBonte, Swansea, Mass.
Filed Jan. 15, 1979, Ser. No. 3,215
Term of patent 14 years
Int. Cl. D11—*01*
U.S. Cl. D11—61



299,710
COMBINED FLOWER POT AND SAUCER
Ben Stein, Montreal, Canada, assignor to Benst Holdings Ltd., Montreal, Canada
Filed Oct. 15, 1979, Ser. No. 85,809
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—152



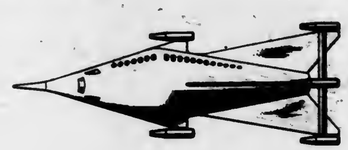
299,711
HORSEMAN FIGURE
Charles A. MacLean, 23073 Beech, Dearborn, Mich. 48124
Filed Apr. 25, 1979, Ser. No. 33,128
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—159



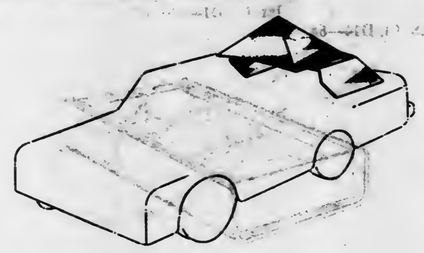
299,712
DRIP RECEPTACLE FOR A HANGING PLANT CONTAINER
William T. Heydenreich, 906 Florida, Huntington Beach, Calif. 92646
Filed Mar. 19, 1979, Ser. No. 21,689
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D11—164



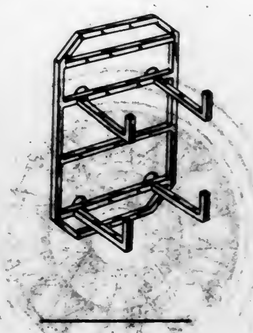
299,713
AIRPLANE
Perry B. Johnson, 169 N. Main St., Paterson, N.J. 07522
Filed Jul. 31, 1978, Ser. No. 929,854
Term of patent 14 years
Int. Cl. D12—*07*
U.S. Cl. D12—326



299,714
VEHICLE AUXILIARY COMPARTMENT
Frederick P. Fooley, 3709 Cypress St., Las Vegas, Nev. 89030
Filed Jun. 12, 1978, Ser. No. 914,375
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—156



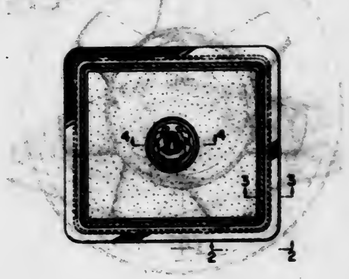
299,715
VAN DOOR LUGGAGE RACK
Dennis A. Mattei, 68-408 Indigo, Cathedral City, Calif. 92234
Filed Oct. 10, 1978, Ser. No. 949,691
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—157



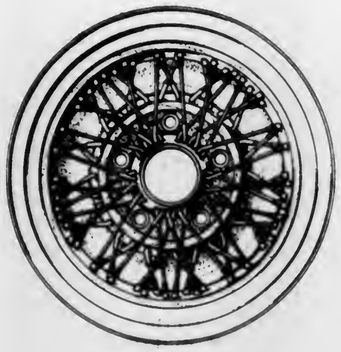
299,716
BACK-UP REAR VIEW MIRROR FOR TRUCKS AND LIKE VEHICLES
Toshio Watanabe, 24007 South Broad St., Carson, Calif. 90745
Filed Jun. 7, 1979, Ser. No. 46,383
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—187



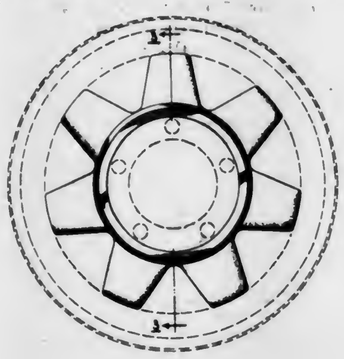
299,717
REAR AUTO MAT
Dwight N. Westers, La Grange, Ga., assignor to Rubbermaid Specialty Products Inc., LaGrange, Ga.
Filed Mar. 7, 1979, Ser. No. 18,348
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—283



259,718
WHEEL
Curtis Norris, 502 W. Aurora St., Santa Ana, Calif. 92707
Filed Aug. 28, 1978, Ser. No. 937,256
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—205



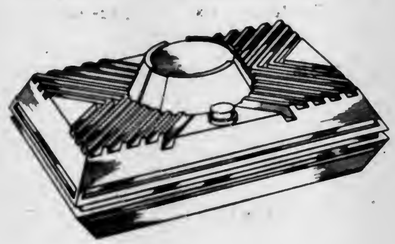
259,719
WHEEL CENTER
Merlyn R. Reppert, 28045 Palos Verdes Dr. East, Rancho Palos Verdes, Calif. 90274
Filed Oct. 16, 1979, Ser. No. 85,401
Term of patent 14 years
Int. Cl. D12—*16*
U.S. Cl. D12—209



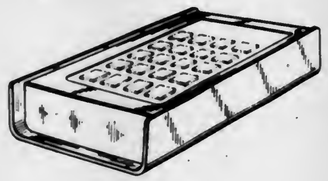
259,720
CLIPLEAD ELECTRODE FOR USE IN ATTACHING ELECTRONIC APPARATUS TO AN ANIMAL'S SKIN
Gregory H. Piesinger, 6702 E. Cactus Rd., Scottsdale, Ariz. 85254
Filed Jun. 4, 1979, Ser. No. 44,960
Term of patent 14 years
Int. Cl. D13—*03*; D24—*99*
U.S. Cl. D13—24



259,721
CONTROL MODULE
Kenneth Pusl, Valencia, Calif., assignor to Electrofilm, Inc., North Hollywood, Calif.
Filed May 15, 1978, Ser. No. 905,804
Term of patent 14 years
Int. Cl. D13—*03*
U.S. Cl. D13—32



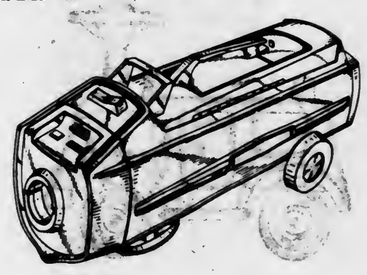
259,722
BROADCASTING SYSTEM PORTABLE RECEIVING TERMINAL HOUSING
Stanley E. Fuller, Toledo, and Erich F. Roeck, Perrysburg, both of Ohio, assignors to Digital Data, Inc., Toledo, Ohio
Filed May 15, 1978, Ser. No. 906,161
Term of patent 14 years
Int. Cl. D14—*03, 02*
U.S. Cl. D14—68



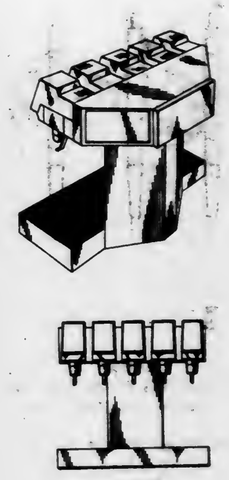
259,723
CLOCK RADIO RECEIVER
Peter H. J. van de Ven, Valkenswaard, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 30, 1979, Ser. No. 71,202
Term of patent 14 years
Int. Cl. D14—*03*
U.S. Cl. D14—73



259,724
VACUUM CLEANER
John T. Ferraris, Stamford, Conn., assignor to Electrolux Corporation, Old Greenwich, Conn.
Filed Jan. 15, 1979, Ser. No. 4,139
Term of patent 14 years
Int. Cl. D15—*05*
U.S. Cl. D15—55



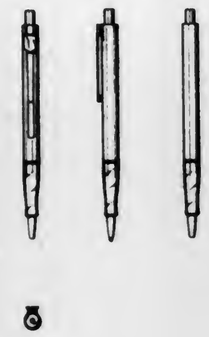
259,725
BEVERAGE DISPENSING TOWER
Henry Weinstrum, Chicago, and Edward Hintz, Wilmette, both of Ill., assignors to Alco Foodservice Equipment Company, Miami, Fla.
Filed Jul. 10, 1979, Ser. No. 56,457
Term of patent 14 years
Int. Cl. D15—*08*
U.S. Cl. D15—116



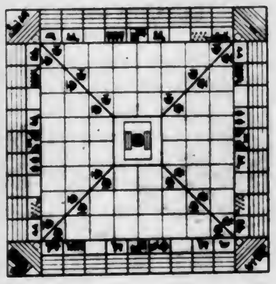
259,726
PORTABLE TYPEWRITING MACHINE
Mario Bellini, Milan, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Italy
Filed Aug. 16, 1979, Ser. No. 67,208
Claims priority, application Italy, Feb. 22, 1979, 52979/79[U]
Term of patent 14 years
Int. Cl. D18—*01*
U.S. Cl. D18—1



259,727
WRITING INSTRUMENT
Clarence Zierlust, Richardson, Tex., assignor to The Gillette Company, Boston, Mass.
Filed Feb. 23, 1979, Ser. No. 14,623
Term of patent 14 years
Int. Cl. D19—*06*
U.S. Cl. D19—51



259,728
GAME BOARD
Ibrahim D. Lawe, c/o William Johnson, 32, Ormond Gate, London, SW3, England
Filed Jul. 21, 1978, Ser. No. 926,927
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—25



259,729
KINETIC SCULPTURE
Hidetoshi Matsui, 6-27-311, Imamnaka 3-chome, Tsurumi-ku, Osaka, Japan
Filed Oct. 24, 1979, Ser. No. 88,287
Claims priority, application Japan, Aug. 30, 1979, 54-36426
Term of patent 14 years
Int. Cl. D11—*02*
U.S. Cl. D21—62



259,730
TOY BUS
Avi Arad, Westport, and Edward B. Bretscher, Cos Cob, both of Conn., assignors to Empire of Carolina, Inc., New York, N.Y.
Filed Feb. 9, 1979, Ser. No. 11,007
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—78



259,731
JIG SAW PUZZLE OR THE LIKE
John O. Van Koert, 190 E. 72nd St., New York, N.Y. 10021
Filed Sep. 23, 1977, Ser. No. 836,198
Term of patent 14 years
Int. Cl. D21—*01*
U.S. Cl. D21—104



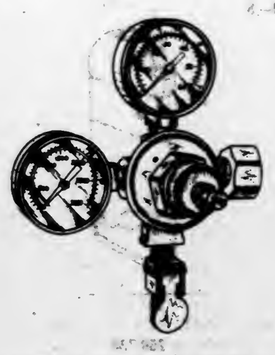
259,732
OFFSET HOSEL FOR A GOLF CLUB
Tony J. Vella, 3904 Wesleyan Ave., Rockford, Ill. 61108
Filed May 7, 1979, Ser. No. 36,746
Term of patent 14 years
Int. Cl. D21—*02*
U.S. Cl. D21—221



259,733
HOSE NOZZLE
Craig R. Tinsert, Alta Loma; Enric C. Méndez, Walnut, both of Calif.; Marnie C. Averit, and Humbert Olivari, both of Houston, Tex., assignors to Rain Bird Sprinkler Consumer Mfg. Corp., Glendora, Calif.
Filed Mar. 25, 1980, Ser. No. 133,956
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—18



259,734
GAS PRESSURE REGULATOR
Vincent Cerrato, Pomona, N.Y., assignor to Vending Components, Inc., Hackensack, N.J.
Filed Dec. 22, 1977, Ser. No. 863,887
Term of patent 14 years
Int. Cl. D23—*01*; D10—*04*
U.S. Cl. D23—21



259,735
HYDRO-THERAPY FITTING DESIGN
Gerald W. Moreland, 11651 Pickett La., Garden Grove, Calif. 92640
Filed Nov. 5, 1979, Ser. No. 91,861
Term of patent 14 years
Int. Cl. D23—*01*
U.S. Cl. D23—34



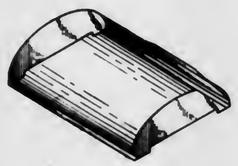
259,736
VENTILATOR SECTION
Elwin E. Peirce, 3890 Monroe Ave. Northeast, and Arthur L. Waltz, 4415 - 75th Ave. Southeast, both of Salem, Oreg. 97301
Filed Dec. 4, 1978, Ser. No. 966,149
Term of patent 14 years
Int. Cl. D23—*04*
U.S. Cl. D23—163



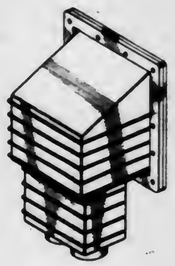
259,737
LOW FREQUENCY POWER SUPPLY FOR MEDICAL TREATMENT APPARATUS
Isao Kitai, and Tsutomu Yamazaki, both of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Aug. 3, 1978, Ser. No. 930,737
Claims priority, application Japan, Feb. 9, 1978, 53-4703
Term of patent 14 years
Int. Cl. D24—*02*
U.S. Cl. D24—8



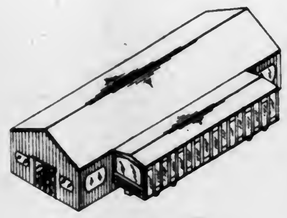
259,738
ULTRAVIOLET LAMP HOUSING
Armando Boschetti, Bryan, Ohio, assignor to Paul B. Elder Company, Bryan, Ohio
Filed Nov. 16, 1978, Ser. No. 961,215
Term of patent 14 years
Int. Cl. D24—*04*; D26—*05*
U.S. Cl. D24—68



259,739
POOL SKIMMER
Lawrence E. Johnson, Dana Point, Calif., assignor to South Pacific Industries, Santa Ana, Calif.
Filed Jun. 20, 1979, Ser. No. 50,449
Term of patent 14 years
Int. Cl. D25—*02*
U.S. Cl. D25—2



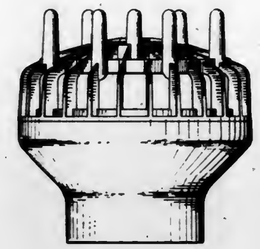
259,740
RAILROAD RESTAURANT
Gary M. Levin, 940 E. 19 St., Brooklyn, N.Y. 11230
Division of Ser. No. 928,387, Jul. 27, 1978. This application Apr. 30, 1980, Ser. No. 145,048
Term of patent 14 years
Int. Cl. D25—*03*
U.S. Cl. D25—11

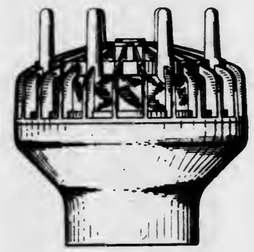


259,741
LIGHTER
Franz A. Stoetzer, Muehlheim, Fed. Rep. of Germany, assignor to Roweata-Werke, GmbH, Offenbach, Fed. Rep. of Germany
Filed Nov. 3, 1977, Ser. No. 848,366
Claims priority, application Fed. Rep. of Germany, May 7, 1977, 510022
Term of patent 14 years
Int. Cl. D27—*05*
U.S. Cl. D27—36



259,742
AIR DIFFUSER FOR A HAIR DRYER
Pasquale Iammatteo, Holmdel, N.J., assignor to Conair Corporation, Edison, N.J.
Filed Jan. 1, 1979, Ser. No. 44,452
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—18

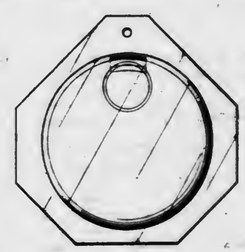




259,743
RAZOR
Eleanor Hollinger, R.D. 2, Box 283, Camden, Del. 19934
Filed Jul. 2, 1979, Ser. No. 53,834
Term of patent 14 years
Int. Cl. D28—*03*
U.S. Cl. D28—46



259,744
WALL MOUNTABLE COIN BANK
Tony Robert, 5701 Southwest Freeway, Houston, Tex. 77057
Filed Jan. 2, 1979, Ser. No. 284
Term of patent 14 years
Int. Cl. D31—*00*
U.S. Cl. D99—35



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TO WHOM

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Katz, Otto, 4,275,971, Cl. 401-80.000.

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Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, 4,276,413, Cl. 536-17.00R.

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AccuRay Corporation: *See*—
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Field, Sydney J., 4,275,762, Cl. 137-601.000.

Acurex Corporation: *See*—
Pfefferle, William C., 4,276,203, Cl. 252-462.000.

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Laprie, Jean-Claude; Powell, David R.; Alcouffe, Gerard; and Romand, Paul, 4,276,643, Cl. 371-8.000.

Agency of Industrial Science & Technology: *See*—
Asai, Michihiko; Sada, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,276,138, Cl. 204-165.000.

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Ohlschlager, Hans; Roesahaha, Lothar; and Sauerteig, Wolfgang, 4,276,373, Cl. 430-507.000.
Pohler, Friedmar; Falk, Hans; Muller, Josef; Klein, Hans J.; and Hoffacker, Franz, 4,276,324, Cl. 427-10.000.
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Eibl, Johann; and Aicher, Helmut, 4,276,259, Cl. 422-71.000.

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Ishihara, Eisuke; Yoeehara, Hiroshi; Akasaki, Katsuyuki; Minowa, Masao; and Kobayashi, Katsumi, 4,276,286, Cl. 424-117.000.

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Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.

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Miyake, Katsuya, 4,275,933, Cl. 308-106.000.

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Patel, Gordhanbhai N., 4,276,190, Cl. 252-408.000.
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Widnell, Shiela E., 4,276,248, Cl. 264-121.000.

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Boutcher, Andrew G., Jr.; and Shatto, Walter C., Jr., 4,275,495, Cl. 29-749.000.

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Andersen, Harold W.; Andersen, Shirley R.; Zenz, Clifford; and Harrison, Charles H., 4,276,263, Cl. 422-292.000.

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Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y. Apparatus for manufacture of corrugated pipes. 4,275,579, Cl. 72-59.000.
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Anschutz, Donald E.: *See*—
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Arguello, Leonard E.; and Blaser, Lawrence M., to Fairchild Camera & Instrument Corp. Ignition control system. 4,275,701, Cl. 123-609.000.
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Muenchow, John R.; Pastorino, Ronald L.; Halle, Reidar; and Lewis, Roger N., 4,276,247, Cl. 264-54.000.
Arkles, Barry C.: *See*—
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Arlt, Klaus-Peter; Grigo, Ulrich; and Binsack, Rudolf, to Bayer Aktiengesellschaft. Catalyst on a solid carrier for the polymerization of α-olefins. 4,276,193, Cl. 252-429.00B.
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Orlowski, Gerald J.; Wicklund, Rodney D.; Sandlas, Richard D.; and Weibler, Walter W., 4,276,318, Cl. 426-513.000.
Armstrong, W. Ted. Tilt pole. 4,275,881, Cl. 272-114.000.
Armstrong World Industries, Inc.: *See*—
Otthofer, Jacob A., Jr., 4,276,148, Cl. 204-281.000.
Arneklev, Duane R.: *See*—
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Artaud, Gerard P.; Schrader, Clarence O.; and Reinke, George W., 4,275,655, Cl. 101-123.000.
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Issei, Katsuta, 4,276,125, Cl. 203-4.000.
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Asher, James C., to Atari, Inc. Joystick controller. 4,275,611, Cl. 74-471.0XY.
Ashida, Shin: *See*—
Sugimoto, Kaname; and Yuen, Shokichi, 4,276,282, Cl. 424-85.000.
Asplund, Arne J. A. Apparatus for controlling the refining of fibrous pulp grist in a drum refiner. 4,275,852, Cl. 241-259.200.
Assmus, Friedrich; Flaig, Hans; Wolber, Robert; and Maurer, Roland, to Gebruder Junghans GmbH. Battery operated clock. 4,276,634, Cl. 368-300.000.
Atari, Inc.: *See*—
Asher, James C., 4,275,611, Cl. 74-471.0XY.
Atkinson, Kenneth R. Cane dipper-planter with liquid treating. 4,275,669, Cl. 111-3.000.
Atlantic Richfield Company: *See*—
Vartuli, James C.; and Zehner, Lee R., 4,276,197, Cl. 252-435.000.
Atwood, John E.; Baugh, John L.; Koehler, William M.; and Waterman, David K., to McMurry-Hughes, Inc. Extractor tool and holder. 4,275,592, Cl. 73-432.00R.
Aubert, Jean. Installation for accelerating navigation of a water ramp and method relating thereto. 4,275,973, Cl. 405-86.000.
Ault, Russell L., to Owens-Corning Fiberglas Corporation. Method of making and using molds for longitudinally curved sections of pipe insulation. 4,276,245, Cl. 264-46.500.
Aurell, Leif E.: *See*—
Claeson, Karl G.; Aurell, Leif E.; and Simonsson, Leif R., 4,276,375, Cl. 435-13.000.
Ausonics Pty. Limited: *See*—
Daniel, Keith P., 4,276,491, Cl. 310-317.000.
Autoipari Kutato Intezet: *See*—
Szarka, Istvan; and Urbantsok, Janos, 4,275,804, Cl. 192-3.580.
Automated Building Components, Inc.: *See*—
Jureit, J. Calvin; Seipos, Andrew G.; and Langevin, William J., 4,275,854, Cl. 242-55.000.
Automobiles Peugeot: *See*—
Largeteau, Pierre A., 4,275,530, Cl. 51-355.000.
Avon Rubber Company Limited: *See*—
Turner, Donald M.; and Smith, Richard, 4,275,600, Cl. 73-843.000.
Axelrod, Robert J.: *See*—
Markezich, Ronald L.; Olander, Walter K.; and Axelrod, Robert J., 4,276,233, Cl. 260-937.000.
Baasch, Holger J.; and Luecke, Francis S., to International Business Machines Corporation. Read/write and tunnel erase magnetic head assembly. 4,276,574, Cl. 360-121.000.
Baba, Michiru, to Nippon Gakki Seizo Kabushiki Kaisha. Auto-steering system. 4,275,676, Cl. 114-144.00E.
Bach, Nicholas J.; and Kornfeld, Edmund C., to Eli Lilly and Company. Amino-substituted-4,5,6,7-tetrahydro-1H (or 2H)-indazoles. 4,276,300, Cl. 424-273.00P.
Badger, Everett H.; and Rogerson, Michael J., to Rogerson Aircraft Controls. Vacuum-flush toilet arrangement for aircraft. 4,275,470, Cl. 4-316.000.
Baer, Stephen C. Sun tracking device employing displaced heating surfaces for automatic morning reorientation. 4,275,712, Cl. 126-425.000.
Bahr, Albert; and Kues, Joachim, to Bahr, Albert. Process for the treatment of aluminum-salt slags. 4,275,847, Cl. 241-20.000.
Baima, Mario; and Tavoni, Gian P., to Centro Ricerche Fiat S.p.A. Device for keeping under control a population of selected species of insects. 4,275,523, Cl. 43-112.000.
Baird, Roy W.; Berger, Robert E.; and Kirk, Richard L., to Goodyear Aerospace Corporation. Non-frangible wheel. 4,275,932, Cl. 301-39.00T.
Baker, Bernard S., to Energy Research Corporation. Matrix member for containing fuel cell acid electrolyte. 4,276,356, Cl. 429-41.000.
Baker, Christopher J. Seed sowing implements. 4,275,671, Cl. 111-85.000.
Baker International Corporation: *See*—
Beimgraben, Herbert W.; and Reinhardt, Paul A., 4,275,795, Cl. 175-26.000.
Bakos, Peter; Bendz, Gerald A.; Darrow, Russell E.; and Rivenburgh, Dennis L., to International Business Machines Corporation. Cleaning composition and use thereof. 4,276,186, Cl. 252-158.000.
Bale, Alain, to C.B.M. Car et Bus Le Mans. Control device for motor road vehicle automatic change-speed transmission mechanism. 4,275,618, Cl. 74-878.000.
Balke, Rodney W.: *See*—
Andrews, James R.; Balke, Rodney W.; and Berry, Victor L., 4,275,992, Cl. 416-146.00R.
Ball Corporation: *See*—
McDowell, Jerry T., 4,275,629, Cl. 83-302.000.
Balzer, Janos: *See*—
Meszaros, Sandor; Kirchner, Gabriella; Balzer, Janos; and Wild, Karoly, 4,276,478, Cl. 250-468.000.

Bamberger, Carlos E.: *See*—
Robinson, Paul R.; and Bamberger, Carlos E., 4,276,279, Cl. 423-648.00R.
Bandag Incorporated: *See*—
Dugger, Doyle L.; and Ho, Morris D., 4,275,589, Cl. 73-146.000.
Bannon, Robert W. Game target. 4,275,886, Cl. 273-178.00R.
Barbedienne, Roger S.: *See*—
Peiffert, Jean; and Barbedienne, Roger S., 4,276,503, Cl. 318-576.000.
Barcelo Rubi, Bartolome. System of solar heating by means of fan radiators with fluid circuit and without storage. 4,275,709, Cl. 126-422.000.
Baret, Denis, to Berthoud, S.A. Combination pressure regulator and manual on-off valve. 4,275,764, Cl. 137-614.190.
Barker, Glenn B.; and Coburn, William K., III, to Standard-Thomson Corporation. Carburetor air control device. 4,276,237, Cl. 261-39.00A.
Barna, Stephen L. Kitchen utensil for making flavored beverages. 4,275,646, Cl. 99-323.000.
Barnes, John W.: *See*—
Bentley, Glenn E.; and Barnes, John W., 4,276,267, Cl. 423-2.000.
Baroni, Adelelmo: *See*—
Baroni, Dante; and Baroni, Adelelmo, 4,275,837, Cl. 239-197.000.
Baroni, Dante; and Baroni, Adelelmo. Mobile apparatus adapted to form a duct for liquid flows, particularly for irrigation purposes. 4,275,837, Cl. 239-197.000.
Barr, John B.; and White, Nicholas F., III, to Union Carbide Corporation. Spin size and thermosetting aid for pitch fibers. 4,276,278, Cl. 423-447.400.
Barth, Wayne E., to Pfizer Inc. Combinations of penicillanic acid 1,1-dioxide with 7-(D-2-[4-ethylpiperazin-2,3-dione-1-carboxamido]-2-[4-hydroxyphenyl]acetamido)-3-([1-methyl-5-tetrazolyl]thiomethyl)-3-desacetoxymethylcephalosporanic acid. 4,276,285, Cl. 424-114.000.
Bartram, David T., to Ferodo Limited. Impregnation of yarns. 4,276,328, Cl. 427-381.000.
Barwegen, Johannes H. M.: *See*—
Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., 4,275,834, Cl. 239-3.000.
BASF Aktiengesellschaft: *See*—
Juenemann, Werner; Lamm, Gunther; and Loeffler, Hermann, 4,276,045, Cl. 8-471.000.
Kilpper, Gerhard; and Grimmer, Johannes, 4,276,433, Cl. 562-458.000.
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, 4,276,209, Cl. 260-28.00P.
Schoettle, Klaus; Hoffmann, Werner; Kaemmer, Eduard; Boehlke, Klaus; and Lewin, Helmut, 4,276,575, Cl. 360-130.210.
BASF Wyandotte Corporation: *See*—
Schmolka, Irving R.; and Niu, Joseph H. Y., 4,276,054, Cl. 44-51.000.
Bassan, Benjamin, to Varian Associates, Inc. Oil flow metering structure for oil sealed mechanical vacuum vane pump. 4,276,005, Cl. 418-13.000.
Bastgen, Wendel, to Alb. Klein GmbH & Co. KG. Device for dewatering sludge. 4,276,168, Cl. 210-396.000.
Batzel, Stephen E. Vehicle with variable height control station. 4,275,800, Cl. 180-317.000.
Baudet, Pierre, to Societe de Recherches et de Syntheses Organiques S.A. Cyano-guanidine geometrical isomers. 4,276,421, Cl. 548-342.000.
Bauer, Hartmut; Schmidt, Peter; Stocker, Herbert; and Przybyla, Bernd, to Robert Bosch GmbH. Device for determining a fuel metering signal for an internal combustion engine. 4,275,695, Cl. 123-486.000.
Baugh, John L.: *See*—
Atwood, John E.; Baugh, John L.; Koehler, William M.; and Waterman, David K., 4,275,592, Cl. 73-432.00R.
Bausch & Lomb Incorporated: *See*—
Chromecek, Richard C.; Deichert, William G.; Falcetta, Joseph J.; and VanBuren, Martin F., 4,276,402, Cl. 526-264.000.
Baxter Travenol Laboratories, Inc.: *See*—
Cobean, Richard W., 4,276,333, Cl. 428-36.000.
Norton, William W.; Stansbeary, Jack L.; Clemens, Johann; and Earl, Roscoe T., 4,275,480, Cl. 17-25.000.
Bayer Aktiengesellschaft: *See*—
Arlt, Klaus-Peter; Grigo, Ulrich; and Binsack, Rudolf, 4,276,193, Cl. 252-429.00B.
Bockmann, Walter; Lipper, Karl-August; and Bruhne, Friedrich, 4,276,231, Cl. 260-544.00D.
Dieterich, Dieter, 4,276,044, Cl. 8-115.500.
Fuchs, Rainer; Hammann, Ingeborg; and Steudel, Wilhelm, 4,276,306, Cl. 424-304.000.
Hardt, Dietrich; Humme, Gert; Ott, Karl-Heinz; and Braese, Hans-Eberhard, 4,276,391, Cl. 525-71.000.
Hendricks, Udo-Winfried; and Jakobs, Karlhans, 4,276,046, Cl. 8-532.000.
Hohlein, Peter; and Schoeps, Jochen, 4,276,210, Cl. 260-29.4UA.
Juffa, Richard; and Boden, Heinrich, 4,275,822, Cl. 222-63.000.
Lantzsch, Reinhard, 4,276,218, Cl. 260-343.600.
Lantzsch, Reinhard; and Hoffmann, Hellmut, 4,276,225, Cl. 260-408.000.
Schnegg, Peter; Rapp, Walter; and Vosteen, Bernhard, 4,276,431, Cl. 560-67.000.
Scholl, Hans-Joachim; Dieterich, Dieter; and Markusch, Peter, 4,276,404, Cl. 528-57.000.
Schwindt, Jurgen; and Grogler, Gerhard, 4,276,386, Cl. 521-160.000.
Sirrenberg, Wilhelm; Klauke, Erich; Hammann, Ingeborg; Krahn, Ingomar; Kraus, Peter; and Steudel, Wilhelm, 4,276,310, Cl. 424-322.000.
Wieder, Wolfgang; Witte, Josef; Moretto, Hans-Heinrich; and Steinberger, Helmut, 4,276,389, Cl. 525-61.000.
Bayer, Dean M., to General Motors Corporation. Multisectioned cellular energy-absorbing unit and mounting therefor. 4,275,912, Cl. 293-120.000.
Bazzea, Cesare, to I.M.I. Industria Macchine Idrauliche S.p.A. Toggle action closing and locking devices for presses. 4,276,013, Cl. 425-451.500.
BBC Brown, Boveri & Company, Limited: *See*—
Buhler, Karl, 4,276,082, Cl. 75-10.00R.
Starcevic, Mihailo, 4,275,936, Cl. 308-73.000.
Beales, Keith J.; Duncon, William J.; Dunn, Anthony G.; and Newns, George R., to Post Office, The. Optical fibres and glasses. 4,275,951, Cl. 350-96.310.
Beatrice Foods Co.: *See*—
Schwitters, Stephen W., 4,275,567, Cl. 62-63.000.
Beck, Christa, Thoms Beck, and Matthias Beck, heirs: *See*—
Beck, Rudolf K., deceased, 4,275,565, Cl. 62-55.000.
Beck, Martin A.; Fabricius, John H.; and Landis, Donald G., to BTU Engineering Corporation. Diffusion furnace microcontroller. 4,276,603, Cl. 364-477.000.
Beck, Rudolf K., deceased (by Beck, Christa, Thoms Beck, and Matthias Beck, heirs), to Siemens Aktiengesellschaft. Transfer device for a cryogenic medium. 4,275,565, Cl. 62-55.000.
Becker, Frank C.; and Li, Jorge P., to Abbott Laboratories. Method for protecting industrial substrates from fungal or bacterial attack. 4,276,090, Cl. 106-18.320.
Becker, Hans; Grimm, Peter; Ranke, Gerhard; and Roth, Dieter, to Linde Aktiengesellschaft. Process for treating pressurized gases to remove unwanted components. 4,276,057, Cl. 55-40.000.
Becker, Howard W. Hydraulically operated flush valve for toilet flush tanks and similar devices. 4,275,471, Cl. 4-387.000.
Beckman Instruments, Inc.: *See*—
Hansen, Paul L., 4,276,593, Cl. 364-119.000.
Hawkins, John J., 4,276,141, Cl. 204-195.00M.
Beckworth, Alden E.: *See*—
Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., 4,276,439, Cl. 585-720.000.
Becton, Dickinson and Company: *See*—
Akerkar, Anandrao S.; and Rutner, Herman, 4,276,280, Cl. 424-1.000.
Hussein, Hany M., 4,275,730, Cl. 128-234.000.
Wand, Bruce, 4,275,591, Cl. 73-425.40P.
Beebe, Otto W.; Lee, Ernest O.; Subria, Richard I.; Brightman, Barrie; and Hanson, George C., to Stromberg-Carlson Corporation. Control system for telephone switching system. 4,276,451, Cl. 179-175.20C.
Behrstock, Barry. Endotracheal intubation device. 4,275,724, Cl. 128-207.140.
Beiersdorf AG: *See*—
Geisler, Diether; and Eckert, Joachim, 4,275,525, Cl. 46-39.000.
Beilstein, Kenneth E., Jr.; and Kotecha, Harish N., to International Business Machines Corporation. Method of making a MOSFET device with reduced sensitivity of threshold voltage to source to substrate voltage variations. 4,276,095, Cl. 148-1.500.
Beimgraben, Herbert W.; and Reinhardt, Paul A., to Baker International Corporation. Fluid pressure actuated by-pass and relief valve. 4,275,795, Cl. 175-26.000.
Beirute, Robert M., to Western Company of North America, The. High temperature cement mud spacer. 4,276,182, Cl. 252-8.55R.
Bell, George E.; Wilson, Clement B.; Thibodo, Daniel H.; and Palumbo, Kenneth S., to Xerox Corporation. Developing apparatus. 4,275,956, Cl. 355-3.0DD.
Bell & Howell Company: *See*—
Akers, Roy, 4,275,875, Cl. 271-5.000.
Rady, Bruce A.; Wells, Thomas R.; and Hendrickson, Kenneth, 4,276,470, Cl. 235-463.000.
Bell, John T.; and Beader, Max E., to Container Corporation of America. Stitching machine for preformed containers. 4,276,042, Cl. 493-118.000.
Bell Telephone Laboratories, Incorporated: *See*—
Embree, Milton L.; Goldthorp, David C.; and Vogelpohl, David R., 4,276,448, Cl. 179-84.00T.
Heller, Adam; Tai, King L.; and Vadimsky, Richard G., 4,276,368, Cl. 430-323.000.
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., 4,276,557, Cl. 357-67.000.
Nelson, Ronald J.; and Wright, Phillip D., 4,276,098, Cl. 148-171.000.
Nelson, Terence J.; and Wolfe, Raymond, 4,276,614, Cl. 365-36.000.
Bello, Ernesto: *See*—
Drbal, Vladimir J.; Ginsberg, Gustave; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan E., 4,276,440, Cl. 422-100.000.
Belofsky, Harold, to Parker-Hannifin Corporation. Hose with braided reinforcement. 4,275,937, Cl. 308-127.000.
Beach, Stephen M.; Dirkes, William R.; Jagielski, Manohar A.; Socora, James C.; and Stephen, Michael A., to Motorola, Inc. Clock circuitry for a data communication system. 4,276,651, Cl. 375-120.000.

Bender, Max E.: *See—*
Bell, John T.; and Bender, Max E., 4,276,042, Cl. 493-118.000.
Bendix Corporation, The: *See—*
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,275,948, Cl. 339-218.00R.
Hartford, Thomas W.; and Kessler, James A., 4,276,600, Cl. 364-431.000.
Krantz, Leonard A.; and Hogan, Edward P., 4,275,945, Cl. 339-147.00R.
Perkey, Russell C.; Thoman, David C.; and Eastman, James M., 4,276,006, Cl. 418-94.000.
Bendz, Gerald A.: *See—*
Bakos, Peter; Bendz, Gerald A.; Darrow, Russell E.; and Rivenburgh, Dennis L., 4,276,186, Cl. 252-158.000.
Benedict, Douglas M.; and Gaskill, James R., Jr., to Hughes Aircraft Company. Multi-master single-slave ECL flip-flop. 4,276,488, Cl. 307-272.00A.
Benke, Frank W.; and Moore, Curtis L., to Electric Power Research Institute, Inc. Vapor-cooled electrical apparatus. 4,276,530, Cl. 336-58.000.
Bentley, Glenn E.; and Barnes, John W., to United States of America, Energy. Hot cell purification of strontium-82, 85 and other isotopes from proton irradiated molybdenum. 4,276,267, Cl. 423-2.000.
Berger, Robert E.: *See—*
Baird, Roy W.; Berger, Robert E.; and Kirk, Richard L., 4,275,932, Cl. 301-39.00T.
Bergkvist, Lars A. Uncoiling and coiling tape measure. 4,275,503, Cl. 33-137.00R.
Bergman, Charles T., to Brandt, Inc. Coin sorter with expanded capability. 4,275,751, Cl. 133-3.00C.
Bergman, Raymond A. Air float fixture clamping system. 4,275,983, Cl. 414-676.000.
Bergner, Robert L.; Rothwarf, Frederick; and Tauber, Arthur, to United States of America, Army. Method of treating Sm_2Co_{17}-based permanent magnet alloys. 4,276,097, Cl. 148-101.000.
Bergsten, M. Brian, to United States of America, Air Force. Cooling system for ramjet engine. 4,275,857, Cl. 244-53.00B.
Bergwerksverband GmbH: *See—*
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,276,178, Cl. 210-662.000.
Bernd, Steinkuhl: *See—*
Merten, Gerhard; Breuer, Oswald; and Bernd, Steinkuhl, 4,275,927, Cl. 299-34.000.
Bernert, Jorg D.: *See—*
de Groot, Fredrik W.; and Bernert, Jorg D., 4,275,802, Cl. 188-134.000.
Berry, Victor L.: *See—*
Andrews, James R.; Balke, Rodney W.; and Berry, Victor L., 4,275,992, Cl. 416-146.00R.
Berthoud, S.A.: *See—*
Baret, Denis, 4,275,764, Cl. 137-614.190.
Bichi, Pasquale, to Gori & Zucchi S.p.A. Machine and a method for constructing a chain having automatically shaped and welded chain links. 4,275,555, Cl. 59-3.000.
Bilanceri, Silvio G., to Black & Decker Inc. Self-tightening keyless chuck. 4,275,893, Cl. 279-64.000.
Bilhorn, John M., to Yardney Electric Corporation. Method of forming a separator integral with an electrode. 4,276,110, Cl. 156-298.000.
Bilow, Norman; and Landis, Abraham L., to Hughes Aircraft Company. Acetylene terminated imide oligomers which melt at low temperatures. 4,276,407, Cl. 528-172.000.
Binder, Kurt: *See—*
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Binks Manufacturing Company: *See—*
Gerdes, Donald F., 4,276,064, Cl. 55-217.000.
Binsack, Rudolf: *See—*
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Bio-Vac Incorporated: *See—*
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Biotechnologie Aktiengesellschaft fur Emulsan: *See—*
Gutnick, David L.; and Rosenberg, Eugene, 4,276,094, Cl. 134-10.000.
Bishop, Gerald B., to Ford Motor Company. Carburetor. 4,276,240, Cl. 261-52.000.
Bissell, Reeder E., to Eastman Kodak Company. Olefin polymerization process using pretreated catalyst. 4,276,400, Cl. 526-152.000.
Bivins, Charles F. Method and apparatus for securing calvarium skull section to basal skull section. 4,275,490, Cl. 27-21.000.
BJ-Hughes Inc.: *See—*
Sweatman, Ronald E., 4,275,788, Cl. 166-292.000.
Black Clawson Company, The: *See—*
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Black & Decker Inc.: *See—*
Bilanceri, Silvio G., 4,275,893, Cl. 279-64.000.
Black & Decker Manufacturing Company, The: *See—*
Speer, Howard D., Jr.; and Proett, Mark A., 4,275,500, Cl. 30-40.000.
Black, William B.: *See—*
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Blair, Lynn J., to General Electric Company. Retractable igniter device for gas turbines. 4,275,559, Cl. 60-39.82S.
Blanchard, Roland H., to Winthrop-Atkins Co., Inc. Photograph mount. 4,275,517, Cl. 40-158.00R.
Blanchard, Ronald J.: *See—*
Disely, Donald D.; and Blanchard, Ronald J., 4,276,597, Cl. 364-300.000.
Blaser, Lawrence M.: *See—*
Arguello, Leonard E.; and Blaser, Lawrence M., 4,275,701, Cl. 123-609.000.
Bleday, Michael P., to United States of America, Air Force. Optical dome protection device. 4,275,859, Cl. 244-121.000.
Blight, Graham J.: *See—*
Stager, Robert F.; and Blight, Graham J., 4,276,498, Cl. 318-6.000.
Blohm, Reinhard; Karl, Rupert; and Sarcander, Hans, to Schubert & Salzer. Process and apparatus for servicing a number of mutually adjacent spinning positions of an open-end spinning machine. 4,275,553, Cl. 57-263.000.
Bludworth, Robert A. Coupling apparatus for articulated bodies. 4,275,678, Cl. 114-248.000.
Blumrich, Walter; Dorr, Karl H.; Konig, Hans J.; and Sander, Ulrich, to Metallgesellschaft Aktiengesellschaft. Process of strengthening dilute phosphoric acid. 4,276,116, Cl. 159-47.00R.
Bly, Kenneth B.; Gutwald, Mark J.; and Ludecke, Otto A., to General Motors Corporation. Monolith diesel exhaust filter with self-regeneration. 4,276,066, Cl. 55-287.000.
Bo, Ermanno, to Societe Anonyme Dite BBM. Marking head for cold stamping symbols on a metallic surface. 4,275,652, Cl. 101-4.000.
Boano, Adolfo: *See—*
Andreoli, Angelo; Boano, Adolfo; and Vesco, Mario, 4,275,900, Cl. 280-710.000.
Bockmann, Walter; Lipper, Karl-August; and Bruhne, Friedrich, to Bayer Aktiengesellschaft. Process for the preparation of optionally substituted benzoyl chloride. 4,276,231, Cl. 260-544.00D.
Boden, Heinrich: *See—*
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Bodig, Bernd; Roozenbeek, Herman; and Jundt, Werner, to Robert Bosch GmbH. Flux control system for a hall generator in an ignition system of an internal combustion engine. 4,275,703, Cl. 123-617.000.
Boehlke, Klaus: *See—*
Schoettle, Klaus; Hoffmann, Werner; Kaemmer, Eduard; Boehlke, Klaus; and Lewin, Helmut, 4,276,575, Cl. 360-130.210.
Boehringer Mannheim GmbH: *See—*
Hundt, Dieter; Sedelmeyer, Marianne; Roschlau, Peter; Stahler, Fritz; and Gruber, Wolfgang, 4,276,376, Cl. 435-17.000.
Boeing Company, The: *See—*
Kalocsay, Joseph, 4,275,603, Cl. 73-861.680.
Steidl, Robert H., 4,275,942, Cl. 312-266.000.
Tomlinson, Lloyd R., 4,276,648, Cl. 371-68.000.
Boekhorst, Antonius, to U.S. Philips Corporation. Tuned switched-mode power supply. 4,276,586, Cl. 363-21.000.
Boes, David J., to Westinghouse Electric Corp. Face type shaft seal for liquid metal pumps. 4,275,891, Cl. 277-96.100.
Bogner, Robert E.: *See—*
Eshraghian, Kamran; and Bogner, Robert E., 4,276,539, Cl. 340-38.00L.
Bogusky, Ronald A.: *See—*
Holmes, Phillip R.; Kehler, James A.; and Bogusky, Ronald A., 4,275,572, Cl. 64-30.00D.
Bohman, Carl E.; and Mitchell, Peter G., to Sperry Corporation. Stone discriminator. 4,275,546, Cl. 56-10.200.
Boisen Schmidt, Egon; Zechner, Josef K. S.; and Frang, Gosta M., to Boliden Aktiebolag. Method of crystallizing aluminium sulphate solutions to form dust-free granules having uniform grain size. 4,276,052, Cl. 23-301.000.
Bokcavage, Richard D.; Fleek, Arthur E.; and Marcus, Mitchell P., to International Business Machines Corporation. Line printer system and method of operation with microprocessor control. 4,275,653, Cl. 101-93.140.
Bolesky, Richard C., to Zimmer USA, Inc. Intramedullary fixation device for fractured tubular bones. 4,275,717, Cl. 128-92.0BC.
Boliden Aktiebolag: *See—*
Boisen Schmidt, Egon; Zechner, Josef K. S.; and Frang, Gosta M., 4,276,052, Cl. 23-301.000.
Bolliger, Frederic E.: *See—*
Hatch, Robert A.; Jansen, Harvey B.; Bolliger, Frederic E.; and Sumegi, Robert B., 4,275,558, Cl. 60-39.16R.
Bolton, Colin B.; Rylands, Harry D.; Turner, Clara; and Turner, Henry W., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Panel breaking systems. 4,275,858, Cl. 244-121.000.
Bommart, Patrick, to Delachaux, C. Apparatus for removing the surplus welding material. 4,275,499, Cl. 30-180.000.
Bonanno, Anthony J.: *See—*
Greenfield, Charles; and Bonanno, Anthony J., 4,276,115, Cl. 159-1.0RW.
Bonn, John W., to Penawalt Corporation. Cryopump apparatus. 4,275,566, Cl. 62-55.500.
Bonus-Bilt, Inc.: *See—*
Silverman, Richard V., 4,275,665, Cl. 108-14.000.
Bonzom, Albert; Crepaux, Alain P.; and Moutard, Anne-Marie E. J., to British Petroleum Company Limited, The. Process for preparing pitch foams and products so produced. 4,276,246, Cl. 264-53.000.
Boothroyd, John A.: *See—*
Willett, Daniel E.; Boothroyd, John A.; and Langlais, William F., 4,276,459, Cl. 200-157.000.
Bopp, Louis A., to General Cable Corporation. Power and control cables having flexible polyolefin insulation. 4,276,251, Cl. 264-174.000.

Boreas, Willem J. L., to Sangamo Weston, Inc. Magnetic systems for long scale electrical meter with multiple side coil sensing. 4,276,511, Cl. 324-150.000.
Borg-Warner Corporation: *See—*
Falk, John C., 4,276,393, Cl. 525-233.000.
Kountz, Kenneth J.; and Norbeck, Dean K., 4,275,987, Cl. 415-17.000.
Bose, Bimal K., to General Electric Company. Microcomputer-based control apparatus for a load-commutated inverter synchronous machine drive system. 4,276,505, Cl. 318-723.000.
Boser, Ronald J.; Watts, Henry J.; and Siegel, Walter P., deceased (by Siegel, Dorothy, executrix), to Union Special Corporation. Apparatus employed in the attachment of hook and eye tape portions to a brassiere. 4,275,673, Cl. 112-105.000.
Bothwell, Bruce E., to Repwell Associates, Inc. Metal-ceramic composite and method for making same. 4,276,331, Cl. 428-36.000.
Boudrot, Robert J.; Shambaugh, John S.; and Zeltzer, Hyman, to GTE Products Corporation. Electrochemical cell with electrode holddown. 4,276,361, Cl. 429-186.000.
Bounds, Edward G. Building foundation method and system, with energy conservation and solar energy utilization features. 4,275,538, Cl. 52-299.000.
Bourne, John W., to Bourne, Joyce Anne. Rotary valves. 4,275,824, Cl. 222-148.000.
Bourne, Joyce Anne: *See—*
Bourne, John W., 4,275,824, Cl. 222-148.000.
Boutcher, Andrew G., Jr.; and Shatto, Walter C., Jr., to AMP Incorporated. Connector terminating tool. 4,275,495, Cl. 29-749.000.
Boutros, Kamal S.; and Coleman, Michael J., to Bunker Ramo Corporation. High density filter connector. 4,276,523, Cl. 333-182.000.
Bowen, Andrew C.: *See—*
Bowen, Michael W.; and Bowen, Andrew C., 4,275,972, Cl. 403-401.000.
Bowen, Howard; and Little, John S., to Research Technology, Inc. Film thickness detection system. 4,276,547, Cl. 340-673.000.
Bowen, Michael W.; and Bowen, Andrew C. Mitre joint and fastener therefor. 4,275,972, Cl. 403-401.000.
Bower, John D. Regeneratable peritoneal dialysis bag. 4,276,175, Cl. 210-636.000.
Bowman, Robert M., to Ciba-Geigy Corporation. Benzofurylpiperazines. 4,276,294, Cl. 424-250.000.
BP Chemicals Limited: *See—*
Tenhagen, Rudolf J., 4,276,385, Cl. 521-112.000.
Brabazon, Jack A. Full span shipboard fueling system for aircraft. 4,275,860, Cl. 244-135.00R.
Braese, Hans-Eberhard: *See—*
Hardt, Dietrich; Humme, Gert; Ott, Karl-Heinz; and Braese, Hans-Eberhard, 4,276,391, Cl. 525-71.000.
Brain, Sally A.: *See—*
Robinson, Joseph G.; and Brain, Sally A., 4,276,408, Cl. 528-247.000.
Bramwell, Michael J., to Imperial Chemical Industries Limited. Thermoplastics articles having a surface fused to cloth. 4,276,346, Cl. 428-286.000.
Brancolini, Emiliano, to Fiat Trattori S.p.A. Gearbox for an agricultural tractor. 4,275,608, Cl. 74-15.630.
Brandt, Inc.: *See—*
Bergman, Charles T., 4,275,751, Cl. 133-3.00C.
Brandt-Pra, Inc.: *See—*
DiBlasio, John A., 4,275,874, Cl. 271-4.000.
Brechbuhler, Hans U.; Mattern, Gunter; and Traber, Walter, to Ciba-Geigy Corporation. Miticidal 2-(phenoxy-alpha-alkyl)-imidenolines. 4,276,302, Cl. 424-273.00R.
Breider, Edmund J.; and Drnevich, Raymond F., to Union Carbide Corporation. Control of sludge temperature in autothermal sludge digestion. 4,276,174, Cl. 210-613.000.
Brennan, Thomas F.: *See—*
Schaeffer, Friedrich K.; and Brennan, Thomas F., 4,276,102, Cl. 156-85.000.
Brereton, David A.; and Stansbery, Buddy F., to International Business Machines Corporation. Microinstruction storage units employing partial address generators. 4,276,595, Cl. 364-200.000.
Breuer, Oswald: *See—*
Merten, Gerhard; Breuer, Oswald; and Bernd, Steinkuhl, 4,275,927, Cl. 299-34.000.
Brewer, Arthur D.; Neidermyer, Robert W.; and McIntire, William S., to Uniroyal, Inc.; and Uniroyal Ltd. Substituted dithiin tetroxide plant growth regulants. 4,276,422, Cl. 549-15.000.
Brewer, James E.: *See—*
Ahuja, Arjan D.; and Brewer, James E., 4,276,486, Cl. 307-252.00B.
Bridges, Chester L. Snow chain release. 4,275,486, Cl. 24-73.0CE.
Bridgestone Tire Co., Ltd.: *See—*
Yamamoto, Megumi, 4,275,770, Cl. 138-133.000.
Briggs, Louis H. Table saw carriage attachment. 4,275,777, Cl. 144-138.000.
Brightman, Barrie: *See—*
Beebe, Otto W.; Lee, Ernest O.; Subria, Richard I.; Brightman, Barrie; and Hanson, George C., 4,276,451, Cl. 179-175.20C.
Brink, Robert E.: *See—*
Karnofsky, George B.; and Brink, Robert E., 4,276,021, Cl. 432-85.000.
British Broadcasting Corporation: *See—*
Dalton, Christopher J.; and Roe, Graham D., 4,276,565, Cl. 358-140.000.
British Petroleum Company Limited, The: *See—*
Bonzom, Albert; Crepaux, Alain P.; and Moutard, Anne-Marie E. J., 4,276,246, Cl. 264-53.000.
Veal, Christopher J.; and Wall, Derek R., 4,276,053, Cl. 44-51.000.
Britton, Ted W.: *See—*
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.
Broacha, Firoze H.: *See—*
Sivachenko, Eugene W.; and Broacha, Firoze H., 4,275,663, Cl. 105-413.000.
Broghammer, Rudolf; and Kaser, Franz, to Kundo - Kieninger + Obergfell. Bell-striking clock. 4,276,625, Cl. 368-75.000.
Brokke, Mervin E.: *See—*
Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Dunne R., 4,276,078, Cl. 71-88.000.
Brooks, Frank P.: *See—*
Brooks, Norman B.; and Brooks, Frank P., 4,275,978, Cl. 414-156.000.
Brooks, Norman B.; and Brooks, Frank P. Transport apparatus. 4,275,978, Cl. 414-156.000.
Brown, Byron R., to International Business Machines Corporation. Close-packed bubble propagation device. 4,276,613, Cl. 365-14.000.
Brown, Galen K.: *See—*
Peterson, Donald L.; Srivastava, Ajit K.; and Brown, Galen K., 4,275,649, Cl. 100-4.000.
Brown, Richard E.; Puchalski, Chester; and Shavel, John, Jr., to Warner-Lambert Company. Substituted benzopyrano[3,4-c]pyridines, compositions and use thereof. 4,276,296, Cl. 424-256.000.
Brown & Root, Inc.: *See—*
Stager, Robert F.; and Blight, Graham J., 4,276,498, Cl. 318-6.000.
Brown, Stuart I. Prevention of collagenase induced disease by treatment with collagenase inhibitors. 4,276,284, Cl. 424-101.000.
Browne, Paul A.; and Morton, Robert W., to Dorr-Oliver Incorporated. Drainage deck assembly for rotary vacuum drum filter. 4,276,169, Cl. 210-404.000.
Browning, Vernon D.: *See—*
Riggs, E. Gray; Simmonds, Joseph K.; and Browning, Vernon D., 4,275,768, Cl. 138-104.000.
Bruce, Joseph R.: *See—*
Heaneman, Richard C.; Burdon, Kenneth A.; and Bruce, Joseph R., 4,275,870, Cl. 254-361.000.
Bruha, Larry C., to LBF Properties, Inc. Vehicle mounted motorcycle carrier. 4,275,981, Cl. 414-462.000.
Bruhne, Friedrich: *See—*
Bockmann, Walter; Lipper, Karl-August; and Bruhne, Friedrich, 4,276,231, Cl. 260-544.00D.
Brun, Didier; Chrysostome, Gerard; Fougier, Alain; and Sale, Bernard, to Institut Francais du Petrole; and Societe Heurtey Petrochem. Process for recovering metal elements from carbonaceous products. 4,276,266, Cl. 423-1.000.
Brunninger, Manfred: *See—*
Theurer, Josef; and Brunninger, Manfred, 4,275,699, Cl. 104-2.000.
Bryant, Lovell D.; and Koontz, Harry S., to PPG Industries, Inc. Probe for testing conductor of an antenna windshield. 4,276,509, Cl. 324-51.000.
Bschorr, Oskar, to Messerschmitt-Boelkow-Blohm Gesellschaft mit beschraakter Haftung. Noise and heat insulating structural component. 4,275,801, Cl. 181-290.000.
BTU Engineering Corporation: *See—*
Beck, Martin A.; Fabricius, John H.; and Landis, Donald G., 4,276,603, Cl. 364-477.000.
Buchholz, Matthew: *See—*
Chen, Gilbert K.; Nyberg, Paul M.; and Buchholz, Matthew, 4,276,242, Cl. 261-111.000.
Buchholz, Rainer: *See—*
Molin, Hans-Werner; Buchholz, Rainer; Hoveler, Egon; and Zodrow, Rudolf, 4,275,807, Cl. 198-344.000.
Buckingham, Henry L. Security seals. 4,275,911, Cl. 292-315.000.
Buckmaster, William F.: *See—*
Garvey, Francis J.; and Buckmaster, William F., 4,275,809, Cl. 198-624.000.
Budish, Joseph D. Door latch. 4,275,910, Cl. 292-57.000.
Buhler, Karl, to BBC Brown, Boveri & Company, Limited. Process for the heating and/or melting of metals and an induction furnace to carry out the process. 4,276,082, Cl. 75-10.00R.
Buhler-Miag GmbH: *See—*
Gorlitz, Frank Otto, 4,276,158, Cl. 209-255.000.
Bullivant, Kenneth W.; and Schuster, Hermann, to K-Tron International Inc. Interchangeable volumetric screw feeder. 4,275,808, Cl. 198-533.000.
Bunker Ramo Corporation: *See—*
Boutros, Kamal S.; and Coleman, Michael J., 4,276,523, Cl. 333-182.000.
Burbeck, Ronald N.; and Keightley, Michael R., to J. K. Lasers Limited. Laser flashtube power supply. 4,276,497, Cl. 315-209.00R.
Burdon, Kenneth A.: *See—*
Heaneman, Richard C.; Burdon, Kenneth A.; and Bruce, Joseph R., 4,275,870, Cl. 254-361.000.
Burkhardt, Jurgen; and Louis, Eckhart, to Wacker-Chemie GmbH. Process for preparing cyclic dimethylpolysiloxanes. 4,276,425, Cl. 556-460.000.
Burnett, John, to Lock Light Corporation. Key with light. 4,276,582, Cl. 362-116.000.

Burrows, Ian E.; and Cheney, Peter A., to Mars Limited. Food product and process. 4,276,311, Cl. 426-56.000.

Burson, Nancy; and Schneider, Thomas D., to Burson, Nancy. Method and apparatus for producing an image of a person's face at a different age. 4,276,570, Cl. 358-903.000.

Bushey, Peter S.: *See—*
Orals, David L.; and Bushey, Peter S., 4,275,541, Cl. 52-483.000.

Bussolati, Camillo: *See—*
Carbonato, Gianfranco; and Bussolati, Camillo, 4,275,674, Cl. 112-158.00E.

Butler, Gordon K.; and Jefferson, Robert T., to Cummins Engine Company, Inc. Seal construction. 4,275,889, Cl. 277-42.000.

Butt, Sheldon H.: *See—*
Popplewell, James M.; and Butt, Sheldon H., 4,275,784, Cl. 165-134.00R.

Butylin, Mikhail Y.: *See—*
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.

Buzzell, Colby E., to General Electric Company. Vibrator type densitometer. 4,275,585, Cl. 73-32.00A.

C.B.M. Car et Bus Le Mans: *See—*
Bale, Alain, 4,275,618, Cl. 74-878.000.

C. J. Rogers Enterprises Inc.: *See—*
Rogers, Charles J., 4,276,580, Cl. 362-22.000.

C.M. Industries: *See—*
Faisandier, Yves, 4,275,742, Cl. 128-703.000.

Cabardo, Alberto, Jr. Periodontal powder. 4,276,287, Cl. 424-154.000.

Cairns, Rodney J.; and Whitelaw, Stefan P., to National Distillers and Chemical Corporation. Plastic valve core. 4,275,756, Cl. 137-234.500.

California Institute of Technology: *See—*
Perkins, Gerald S.; and Moore, Nicholas R., 4,276,003, Cl. 417-415.000.

Campbell, Frank, Jr. Interlocking truncated triangular insulator. 4,275,771, Cl. 138-149.000.

Canadian Gas Research Institute: *See—*
Schaus, Orland O.; and Overall, John C. K., 4,275,705, Cl. 126-110.00R.

Cannelli, Pierino. Thermoelectric generator operating with a cooling device for converting solar energy into electric energy, and system for the use thereof. 4,276,440, Cl. 136-206.000.

Canon Kabushiki Kaisha: *See—*
Harigaya, Isao; and Yamataka, Akihiro, 4,276,606, Cl. 364-709.000.
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Tachika, Tetsuji; Sakamaki, Hisashi; and Hattori, Hiroyuki, 4,275,958, Cl. 355-14.00R.
Terasawa, Koji, 4,276,554, Cl. 346-140.00R.

Carasso, Marino G.: *See—*
de Jager, Frank; van Doorn, Rudolf A.; Verboom, Johannes V.; and Carasso, Marino G., 4,276,650, Cl. 375-110.000.

Carbonaro, Mario, to Compagnie Francaise des Petroles. Tool equipped with a percussive device. 4,275,794, Cl. 173-135.000.

Carbonato, Gianfranco; and Bussolati, Camillo, to Necchi S.p.A. Microprocessor controlled electronic sewing machine. 4,275,674, Cl. 112-158.00E.

Carlsen, W. John; Dakas, Mark L.; and Lambert, Gary M., to GTE Laboratories Incorporated. Winged V-groove fiber optic clamp and splicer. 4,276,113, Cl. 156-502.000.

Carlson, David H. J., to UOP Inc. Catalytic composite, method of manufacture, and process for use. 4,276,194, Cl. 252-430.000.

Carnation Company: *See—*
Chambers, Lee; and Ellertson, Melvin E., 4,275,647, Cl. 99-339.000.

Caroli, Celso. Electrically driven continuous tooth brush. 4,275,749, Cl. 132-11.00A.

Carosone, Giorgio. Cigarette holder. 4,275,745, Cl. 131-270.000.

Cassens, Nicholas, Jr., to Kaiser Aluminum & Chemical Corporation. Refractory gun mix. 4,276,091, Cl. 106-58.000.

Cassinelli, Giuseppe; Ruggieri, Daniela; Arcamone, Federico; and di Marco, Aurelio, to Farmitalia Carlo Erba, S.p.A. Antitumor glycosides, their preparation and use. 4,276,289, Cl. 424-180.000.

Castaldo, Jerry L. Lock device. 4,275,577, Cl. 70-337.000.

Castle, George K. Fire proof cable tray enclosure. 4,276,332, Cl. 428-36.000.

Castle, Thomas M.: *See—*
Dolak, Lester A.; Laborde, Alice L.; and Castle, Thomas M., 4,276,412, Cl. 536-17.00R.

Catalyst Research Corporation: *See—*
Harney, Marilyn J., 4,276,362, Cl. 429-213.000.

Caterpillar Tractor Co.: *See—*
Forney, Melvin L., 4,276,464, Cl. 219-136.000.
Grgurich, William A.; Niles, Albert B.; and Updyke, Kenneth W., 4,275,844, Cl. 239-533.300.
Miller, Kenneth J., 4,275,581, Cl. 72-385.000.
Reinsma, Harold L., 4,275,890, Cl. 277-84.000.

Cavitron Corporation: *See—*
Warrin, George E., 4,276,024, Cl. 433-99.000.

Celanese Corporation: *See—*
Dalton, Charles A.; and Slinkard, William E., 4,276,196, Cl. 252-435.000.
Froix, Michael F., 4,276,397, Cl. 525-448.000.
Rhum, David; and Aluotto, Patrick F., 4,276,432, Cl. 560-190.000.
Soehngen, John W., 4,276,179, Cl. 210-679.000.

Cellu Products Company: *See—*
Miller, Alan H., 4,275,811, Cl. 206-204.000.

Centrilift-Hughes, Inc.: *See—*
Roberts, Leo L., 4,275,938, Cl. 308-162.000.

Centro Ricerche Fiat S.p.A.: *See—*
Baima, Mario; and Tavoni, Gian P., 4,275,523, Cl. 43-112.000.
Franco, Bartolo, 4,275,918, Cl. 296-190.000.

Century International Corp.: *See—*
Smith, Ronald L., 4,275,884, Cl. 273-43.00A.

Chamberlain, Alan D., to Sybron Corporation. Sludge siphon collector with de-gasing header. 4,276,165, Cl. 210-242.100.

Chambers, Lee; and Ellertson, Melvin E., to Carnation Company. Apparatus for producing a centerfilled food product. 4,275,647, Cl. 99-339.000.

Chambers, William M. Macerator. 4,275,849, Cl. 241-46.060.

Chan, Chong H.: *See—*
Van Hook, James P.; Hildebrand, Clair E.; and Chan, Chong H., 4,276,276, Cl. 423-385.000.

Chang, George Q.: *See—*
Kohlenberger, Charles W.; Kirkpatrick, Craig G.; Estrada, John A.; and Chang, George Q., 4,275,599, Cl. 73-774.000.

Chapman, Charles C.: *See—*
Dixon, Rolland E.; and Chapman, Charles C., 4,276,257, Cl. 422-62.000.

Chattha, Mohinder S., to Ford Motor Company. Coating composition catalyzed with phosphonic acid derivative - 3. 4,276,392, Cl. 525-118.000.

Chemap A.G.: *See—*
Mueller, Felix, 4,276,384, Cl. 435-311.000.
Muller, Hans; and Guazzone, Bruno, 4,276,166, Cl. 210-327.000.

Chemetals Corporation: *See—*
Welsh, Jay Y.; Mullier, Alain; and Picquet, Pierre C., 4,276,268, Cl. 423-49.000.

Chen, Gilbert K.; Nyberg, Paul M.; and Buchholz, Matthew, to Koch Engineering Company, Inc. Vapor-liquid contact grid apparatus. 4,276,242, Cl. 261-111.000.

Chene, Richard: *See—*
Irio, Francis; and Chene, Richard, 4,275,484, Cl. 24-20.00R.

Cheney, Peter A.: *See—*
Burrows, Ian E.; and Cheney, Peter A., 4,276,311, Cl. 426-56.000.

Chepurin, Valentin M.: *See—*
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.

Chester, Arthur W.; and Stover, William A., to Mobil Oil Corporation. Steam passivation of metal contaminants on cracking catalysts. 4,276,149, Cl. 208-120.000.

Chester, Victor, to General Porcelain Mfg. Co. Composition of a conductive ceramic glaze and improved method of forming same. 4,276,204, Cl. 252-519.000.

Chevron Research Company: *See—*
Ziman, Stephen D., 4,276,420, Cl. 548-264.000.

Chiarino, Dario: *See—*
Della Bella, Davide; and Chiarino, Dario, 4,276,299, Cl. 424-272.000.

Chikadel, Burt: *See—*
Leighton, Stephen B.; Murano, Genesio; Markowitz, Allen; and Chikadel, Burt, 4,276,383, Cl. 435-291.000.

Chloride Group Limited: *See—*
Henson, Kenneth; and Terrell, Christopher, 4,276,358, Cl. 429-97.000.

Chodorow, Ingram S.; and Dainow, J. David, to Technalytics, Inc. Retention suture bridge. 4,275,736, Cl. 128-335.000.

Chojnacki, Dennis A.: *See—*
Mayers, Richard R.; Huebner, Steven R.; and Chojnacki, Dennis A., 4,275,569, Cl. 62-373.000.

Choma, Charles J.: *See—*
Choma, John R., 4,275,656, Cl. 101-211.000.

Choma, John R., to Choma, Charles J.; and Choma, Lena G. Bubble printing method. 4,275,656, Cl. 101-211.000.

Choma, Lena G.: *See—*
Choma, John R., 4,275,656, Cl. 101-211.000.

Chontos, Stephen G. Cutting saw measuring attachment. 4,275,504, Cl. 33-138.000.

Chore-Time Equipment, Inc.: *See—*
Little, Hercel A., 4,276,506, Cl. 318-806.000.

Chowaniec, Adam, to Northern Telecom Limited. Method and apparatus for improving telephone hybrid network. 4,276,450, Cl. 179-170.00D.

Christensen, Inc.: *See—*
Higginbotham, Eugene E., 4,275,528, Cl. 51-206.00P.

Chromecek, Richard C.; Deichert, William G.; Falcetta, Joseph J.; and VanBuren, Martin F., to Bausch & Lomb Incorporated. Polysiloxane/acrylic acid/polcyclic esters of methacrylic acid polymer contact lens. 4,276,402, Cl. 526-264.000.

Chrysler Corporation: *See—*
Graham, Kenneth A., 4,275,700, Cl. 123-590.000.

Chrysostome, Gerard: *See—*
Brun, Didier; Chrysostome, Gerard; Feugier, Alain; and Sale, Bernard, 4,276,266, Cl. 423-1.000.

Chu, Chin-Chiun, to Mobil Oil Corporation. Shape selective reactions involving zeolite catalyst modified with group IIIB metal. 4,276,437, Cl. 585-467.000.

Chu, Chin-Chiun, to Mobil Oil Corporation. Shape selective reactions with group IB modified zeolite catalysts. 4,276,438, Cl. 585-467.000.

Chung, Alfred: *See—*
Ryan, James W.; and Chung, Alfred, 4,276,378, Cl. 435-23.000.

Church, Robert F., to Paint Brush Holder Company, The. Paint brush holder and wiper. 4,275,818, Cl. 220-90.000.

Chutter, Reinald J. Surgical blade holder. 4,275,735, Cl. 128-305.000.

Ciaffone, John T., to Warner-Lambert Company. Safety razor blade cartridge. 4,275,498, Cl. 30-47.000.

Ciarcia, Ronald D.; and Owens, Robert L., to General Electric Company. Miniature current limiting circuit breaker. 4,276,526, Cl. 335-35.000.

Ciba-Geigy Corporation: *See—*
Bowman, Robert M., 4,276,294, Cl. 424-250.000.
Brechbuhler, Hans U.; Mattern, Gunter; and Traber, Walter, 4,276,302, Cl. 424-273.00R.
Green, George E., 4,276,352, Cl. 428-473.500.
Jost, Max, 4,276,213, Cl. 260-40.00R.
Karrer, Friedrich, 4,276,401, Cl. 526-263.000.
Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, 4,276,303, Cl. 424-273.00R.
Meyer, Hans R., 4,276,188, Cl. 252-301.220.
Randell, Donald R.; and Phillips, Emyr, 4,276,224, Cl. 260-371.000.
Rasberger, Michael, 4,276,232, Cl. 260-936.000.

Cibie Projecteurs: *See—*
Deverrewaere, Alain, 4,276,585, Cl. 362-308.000.
Fratty, Hector, 4,276,583, Cl. 362-214.000.

Cincinnati Mine Machinery Company, The: *See—*
Kretkeler, Claude B., 4,275,929, Cl. 299-91.000.

Citizen Watch Company Limited: *See—*
Komiyama, Katsuhiko, 4,276,627, Cl. 368-84.000.
Matsumura, Osamu; Kato, Yutaka; Sekiguchi, Tsunetoshi; and Namiki, Ryo, 4,276,629, Cl. 368-96.000.
Nomura, Yasushi, 4,276,628, Cl. 368-85.000.

Clad, L. Susan. Dibber. 4,275,672, Cl. 111-99.000.

Claeson, Karl G.; Aurell, Leif E.; and Simonsson, Leif R., to AB Kabi. Determination of serine proteases. 4,276,375, Cl. 435-13.000.

Clarion Co., Ltd.: *See—*
Nishikawa, Yasuhisa; and Hasumi, Ryoichi, 4,275,606, Cl. 74-10.390.
Usugi, Kikuo, 4,276,508, Cl. 323-354.000.

Clark, Ben L. Self-contained toothbrush. 4,275,750, Cl. 132-84.00B.

Clark-Reliance Corporation, The: *See—*
Winiasz, Michael E., 4,276,354, Cl. 428-582.000.

Clark, Robert L.: *See—*
Jones, Howard; Clark, Robert L.; and Zimmerman, Morris, 4,276,298, Cl. 424-270.000.

Clausen, Peter J. M.: *See—*
Zangenberg, Jan; and Clausen, Peter J. M., 4,275,996, Cl. 417-221.000.

Clayton Dewandre & Co. Ltd.: *See—*
Knowles, James G., 4,275,643, Cl. 91-444.000.

Clemen, Rainer: *See—*
Arzubi, Luis M.; Clemen, Rainer; and Gschwendtner, Jorg, 4,276,487, Cl. 307-270.000.

Clemens, Johann: *See—*
Norton, William W.; Stansbeary, Jack L.; Clemens, Johann; and Earl, Roscoe T., 4,275,480, Cl. 17-25.000.

Clement, Robert A.; and Anderson, Burton C., to Du Pont de Nemours, E. I., and Company. Methyl- and chloro- substituted aromatic diketodiols. 4,276,226, Cl. 260-410.500.

Clements, Harold J., to Frank B. Dehn & Co. Air cushion lifting device. 4,275,869, Cl. 254-89.00H.

Clements, John H.: *See—*
Collier, Nigel A.; and Clements, John H., 4,275,752, Cl. 137-7.000.

Coach and Car Equipment Corporation: *See—*
Harder, Arthur J., Jr., 4,275,925, Cl. 297-444.000.

Coal Industry (Patents) Limited: *See—*
Robinson, Joseph G.; and Brain, Sally A., 4,276,408, Cl. 528-247.000.

Cobean, Richard W., to Baxter Travenol Laboratories, Inc. Apparatus and method for solvent adhesion of coiled tubing, and product produced thereby. 4,276,333, Cl. 428-36.000.

Coburn, William K., III: *See—*
Barker, Glenn B.; and Coburn, William K., III, 4,276,237, Cl. 261-39.00A.

Coca-Cola Company, The: *See—*
Coots, James C.; and Howser, Muir G., 4,275,980, Cl. 414-411.000.
Credle, William S., Jr., 4,275,823, Cl. 222-94.000.

Coerver, Leo E., to General Dynamics. Circulator in a stripline microwave transmission line circuit. 4,276,522, Cl. 333-1.100.

Coffee, Ronald A., to Imperial Chemical Industries Limited. Container for electrostatic spraying of liquids. 4,275,846, Cl. 239-690.000.

Coker, Thomas G.; and LaConti, Anthony B., to General Electric Company. Cell having catalytic electrodes bonded to a membrane separator. 4,276,146, Cl. 204-266.000.

Cole, Branham F. Rolled material guide and cutter. 4,275,827, Cl. 225-77.000.

Coleman, Michael J.: *See—*
Bostros, Kanal S.; and Coleman, Michael J., 4,276,523, Cl. 333-182.000.

Colgate-Palmolive Company: *See—*
Joshi, David, 4,276,326, Cl. 427-220.000.

Collier, Nigel A.; and Clements, John H. Fluid flow apparatus and method. 4,275,752, Cl. 137-7.000.

Collins, Bobby W. V. Torque arm for use with a torque wrench. 4,275,620, Cl. 81-57.390.

Collum, Paulette: *See—*
Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, 4,276,413, Cl. 536-17.00R.

Columbus McKinnon Corporation: *See—*
Stone, Franz T.; and Schreyer, Kenneth D., 4,275,556, Cl. 59-93.000.

Colvin, Robert E.; Douda, Bernard E.; Montgomery, Francis E.; and Short, James E., Jr., to United States of America, Navy. Process for disposing of decoy flare material. 4,276,100, Cl. 149-109.600.

Combronde, Roger, to Plastic Auvergne. Process and mold for producing safety footwear. 4,276,254, Cl. 264-251.000.

Combustion Engineering, Inc.: *See—*
Manning, William P.; Rehm, Stephen J.; and Schmehl, Jeffrey L., 4,276,271, Cl. 423-226.000.

Commissariat a l'Energie Atomique: *See—*
Andreucci, Pierre; and Moron, Jacques, 4,276,638, Cl. 370-30.000.

Compagnie Francaise des Petroles: *See—*
Carbonaro, Mario, 4,275,794, Cl. 173-135.000.

Compagnie Industrielle des Telecommunications Cit-Alcatel: *See—*
Le Dieu, Bernard, 4,276,637, Cl. 370-16.000.

Congdon, James S., to National Semiconductor Corporation. Thermal stress reduction in IC power transistors. 4,276,516, Cl. 330-272.000.

Container Corporation of America: *See—*
Bell, John T.; and Bender, Max E., 4,276,042, Cl. 493-118.000.

Convent, Bernard, to Monsanto Company. Synergistic herbicidal composition comprising N-(butoxymethyl)-6'-tert-butyl-2-chloro-o-acetotoluidide and trialfate. 4,276,079, Cl. 71-100.000.

Cooke, Horlse M., to Stratoflex, Inc. Fireguard for hose assembly. 4,275,769, Cl. 138-109.000.

Coonrod, William C., to Fibergrate Corporation. Reinforced plastic grating articles and continuous process for forming same. 4,276,337, Cl. 428-134.000.

Coots, James C.; and Howser, Muir G., to Coca-Cola Company, The. Apparatus for automatically degassing FIGAL containers. 4,275,980, Cl. 414-411.000.

Copelan, James B.: *See—*
Matovich, Edwin; and Copelan, James B., 4,275,493, Cl. 29-454.000.

Cordier, Michel; Labaquere, Herve; and Saint-Dizier, Gilbert, to Degremont. Process and apparatus for separation by coalescence of emulsions. 4,276,181, Cl. 210-741.000.

Cordis Dow Corp.: *See—*
Keil, Michael J.; and Mahoney, Robert D., 4,276,173, Cl. 210-500.200.

Coronelli, Carolina: *See—*
Parenti, Francesco; Coronelli, Carolina; Tamoni, Giorgio; and Lancini, Giancarlo, 4,276,382, Cl. 435-253.000.

Costantino, Joseph A.; Heberley, Jeffrey R.; Neimark, Jerry; and Weiner, Thomas E., to United States of America, Army. Detector for Q-switched laser radiation. 4,276,472, Cl. 250-214.000.

Cotic, Dennis J., to General Electric Company. Radiation detector having a unitary free floating electrode assembly. 4,276,476, Cl. 250-385.000.

Coulter Electronics, Inc.: *See—*
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.
Ginsberg, Guenter; and Horne, Thomas, 4,276,051, Cl. 23-230.00R.
Ginsberg, Guenter; and Hodgins, Bruce J., 4,276,258, Cl. 422-64.000.

Coulter Systems Corporation: *See—*
Kuehnle, Manfred R.; and Perry, George J., 4,275,957, Cl. 355-10.000.

Cowgill, Joseph R.: *See—*
Marvin, Ira E.; and Cowgill, Joseph R., 4,275,557, Cl. 60-39.030.

Cowley, Gerald, to ERCO Industries Limited. Chlorine dioxide generator. 4,276,262, Cl. 422-187.000.

Cox, Lyadon S.: *See—*
Gottron, Richard N.; and Cox, Lyadon S., 4,275,658, Cl. 102-210.000.

CPC International Inc.: *See—*
Heady, Robert E., 4,276,379, Cl. 435-94.000.
Sharma, Shri C., 4,276,316, Cl. 426-466.000.

Crankshaw, John H. Overrunning clutch. 4,275,805, Cl. 192-46.000.

Crawford, Fred L., to Hughes Aircraft Company. Infrared focal plane with automatic responsivity control using photodetector bias modulation. 4,276,474, Cl. 250-349.000.

Credle, William S., Jr., to Coca-Cola Company, The. Automatic change-over system for liquid dispensing system. 4,275,823, Cl. 222-94.000.

Cremer, Joseph; and Harnisch, Heink, to Hoechst Aktiengesellschaft. Active phosphorus nitrides containing hydroxyl and halogen, and process for making them. 4,276,343, Cl. 428-254.000.

Crepaux, Alain P.: *See—*
Bontzos, Albert; Crepaux, Alain P.; and Moutard, Anne-Marie E. J., 4,276,246, Cl. 264-53.000.

Critchlair, George F. Burn treatment. 4,276,281, Cl. 424-94.000.

Crime Fighter, Inc.: *See—*
Jarvis, Clifford W.; and Pearson, John E., 4,276,545, Cl. 340-545.000.

Critikon, Inc.: *See—*
Villhauer, Vincent L., 4,276,170, Cl. 210-436.000.

Crockett, Emmet E., to Otis Engineering Corporation. Line flow electric power generator. 4,276,482, Cl. 290-52.000.

Cromer, Charles F.; and Yoon, Kue H., to Westinghouse Electric Corp. Double-flow puffer-type compressed-gas circuit-interrupter. 4,276,456, Cl. 200-148.00A.

Crone, Jerry L., to Unarco Industries, Inc. Valve with body and stem of plastic material. 4,275,868, Cl. 251-310.000.

Crown Controls Corporation: *See—*
Dammeyer, Ned E., 4,276,622, Cl. 367-118.000.

Crown Zellerbach Corporation: *See—*
Stanley, Hugh E.; and Tokos, George M., 4,276,330, Cl. 428-35.000.

Crucible Inc.: *See—*
Haswell, Walter T.; Stasko, William; and Dax, F. Robert, 4,276,087, Cl. 75-243.000.

Csepel Muvek Hiradastechnikai Gepgyara: *See—*
Varga, Gabor; Szabo, Ferenc; Sztanyik, Ferenc; Vagvolgyi, Laszlo; and Nemeth, Jozsef, 4,275,594, Cl. 73-487.000.

Cummins Engine Company, Inc.: *See—*
Butler, Gordon K.; and Jefferson, Robert T., 4,275,889, Cl. 277-42.000.

Cyphers, Joseph A.: *See—*
Kothmann, Richard E.; and Cyphers, Joseph A., 4,276,355, Cl. 429-26.000.

Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, to Deutsche Gold und Silber Scheideanstalt vormals Roessler. Apparatus for continuously measuring ion concentrations. 4,276,143, Cl. 204-195.00M.

Daikin Kogyo Co., Ltd.: *See—*
Masuda, Kenji, 4,275,758, Cl. 137-489.000.
Yoshimura, Tatsushiro; and Tominaga, Shigetake, 4,276,214, Cl. 260-45.75K.

Daimler-Benz Aktiengesellschaft: *See—*
Forster, Hans-Joachim, 4,275,660, Cl. 104-247.000.
Worner, Gunter; and Schrape, Peter, 4,275,613, Cl. 74-475.000.

Dainippon Screen Seizo Kabushiki Kaisha: *See—*
Hashimoto, Takeji; Okumoto, Kiyofumi; and Andoh, Masayasu, 4,275,573, Cl. 66-75.200.

Dainow, J. David: *See—*
Chodorow, Ingram S.; and Dainow, J. David, 4,275,736, Cl. 128-335.000.

Daito, Michimasa; and Sugino, Tohru, to Nissin Machine Works, Ltd. Centerless grinding machine. 4,275,527, Cl. 51-103.0TF.

Dakin, Thomas W.: *See—*
Mandelcorn, Lyon; Dakin, Thomas W.; and Miller, Robert L., 4,276,184, Cl. 252-579.000.

Dakss, Mark L.: *See—*
Carlsen, W. John; Dakss, Mark L.; and Lambert, Gary M., 4,276,113, Cl. 156-502.000.

Dale, John G.: *See—*
Denton, John B.; Dale, John G.; and Rimmer, Norman L., 4,275,816, Cl. 211-68.000.

Dallet, Francis A., to Societe Nationale des Poudres et Explosifs. Spirally wound pyrotechnic charge useful for the propulsion of an engine and the like. 4,275,657, Cl. 102-531.000.

Dalton, Charles A.; and Slinkard, William E., to Celanese Corporation. Attrition resistant catalysts. 4,276,196, Cl. 252-435.000.

Dalton, Christopher J.; and Roe, Graham D., to British Broadcasting Corporation. Method and apparatus for standards conversion of television signals. 4,276,565, Cl. 358-140.000.

Daman, Ernest L., to Foster Wheeler Energy Corporation. Coal feed system for a fluidized bed combustor. 4,275,668, Cl. 110-245.000.

Dammeyer, Ned E., to Crown Controls Corporation. Ultrasonic distance measuring circuit. 4,276,622, Cl. 367-118.000.

Danfoss A/S: *See—*
Zangenberg, Jan; and Clausen, Peter J. M., 4,275,996, Cl. 417-221.000.

Daniel, Keith P., to Ausonics Pty. Limited. Focusing piezoelectric ultrasonic medical diagnostic system. 4,276,491, Cl. 310-317.000.

Darrow, Russell E.: *See—*
Bakos, Peter; Bendz, Gerald A.; Darrow, Russell E.; and Rivenburgh, Dennis L., 4,276,186, Cl. 252-158.000.

Dart Industries Inc.: *See—*
Morrison, Howard J.; and Montague, Douglas P., 4,275,970, Cl. 401-6.000.
Schriever, Theodore W., 4,275,666, Cl. 108-101.000.

da Silva, Herman: *See—*
Aarsen, Jan A.; and da Silva, Herman, 4,276,653, Cl. 455-56.000.

Datapoint Corporation: *See—*
Halpern, Peter H.; and Lawrence, Charles E., 4,276,573, Cl. 360-45.000.

Davey Compressor Co.: *See—*
Robbins, Melvin E., 4,276,018, Cl. 431-352.000.

Davidheiser, Roger A., to TRW Inc. Quadriphase integrated high-speed microwave modulator. 4,276,521, Cl. 332-23.00R.

Davis, Merwyn C. Nonresetable thermally actuated switch. 4,276,531, Cl. 337-407.000.

Davis, Paul, to Sweetheart Plastics, Inc. Lid. 4,275,815, Cl. 206-508.000.

Davy Inc.: *See—*
Lutz, Irvin H., 4,276,120, Cl. 202-100.000.

Davy-Loewy Limited: *See—*
Hayes, Allan, 4,275,580, Cl. 72-239.000.

Davydenko, Nikolai M.: *See—*
Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M., 4,276,088, Cl. 106-1.120.

Dax, F. Robert: *See—*
Haswell, Walter T.; Stasko, William; and Dax, F. Robert, 4,276,087, Cl. 75-243.000.

Dayco Corporation: *See—*
Johnson, Joseph S.; and Stiles, Carl A., 4,275,829, Cl. 232-17.000.

De La Rue Systems Limited: *See—*
Hilton, Graham H., 4,275,667, Cl. 109-44.000.

Deal, Carl P., Jr. Fruit harvester. 4,275,549, Cl. 56-328.00R.

DeCoene, Frans J. G. C., to Sperry Corporation. Haymaking machine. 4,275,552, Cl. 56-370.000.

Deere & Company: *See—*
Jensen, Thomas C.; and Lowe, Terry L., 4,275,792, Cl. 172-703.000.
Ryan, Edward C.; and Parker, Jimmy J., 4,276,037, Cl. 474-70.000.

De Franco, Samuel M., to Willamette Industries, Inc. Dispensing box construction. 4,275,828, Cl. 229-23.00R.

Degen, Hans-Jurgen; and Grychtol, Klaus. Basic dyes. 4,276,415, Cl. 542-435.000.

Degremont: *See—*
Cordier, Michel; Labaquere, Herve; and Saint-Dizier, Gilbert, 4,276,181, Cl. 210-741.000.

de Groot, Fredrik W.; and Bernert, Jorg D., to Lisega Kraftwerkstechnik GmbH & Co. KG. Mechanical shock absorber. 4,275,802, Cl. 188-134.000.

Degussa AG: *See—*
Hecke, Emil, 4,276,274, Cl. 423-336.000.

Deichert, William G.: *See—*
Chromecek, Richard C.; Deichert, William G.; Falcetta, Joseph J.; and VanBuren, Martin F., 4,276,402, Cl. 526-264.000.

de Jager, Frank; van Doorn, Rudolf A.; Verboom, Johannes V.; and Carasso, Marino G., to U.S. Philips Corporation. Method of synchronizing a quadphase receiver and clock synchronization device for carrying out the method. 4,276,650, Cl. 375-110.000.

Delachaux, C.: *See—*
Bommart, Patrick, 4,275,499, Cl. 30-180.000.

De Laever, Jacques: *See—*
de Lockerente, Serge R.; and De Laever, Jacques, 4,276,269, Cl. 423-101.000.

DeLaney, Gene. Positive safety brake for oil well pumping apparatus. 4,275,609, Cl. 74-41.000.

de Leiris, Jean-Pierre, to La Cellophane. Cellulose packaging films for packaging soft cheeses. 4,276,340, Cl. 428-166.000.

Della Bella, Davide; and Chiarino, Dario, to Zambon S.p.A. 1-(3-Bromo-Isoxazol-5-y)-2-tert.butylaminoethanol. 4,276,299, Cl. 424-272.000.

Della Croce, John B. Intra oral tracing apparatus. 4,276,022, Cl. 433-71.000.

Delmas, Jean R., to Microlec S.A. Apparatus for checking dimensional tolerances. 4,275,505, Cl. 33-172.00E.

de Lockerente, Serge R.; and De Laever, Jacques, to Hollux S.A. Process of hydrometallurgical treatment for eliminating imparities from a solution containing dissolved metals. 4,276,269, Cl. 423-101.000.

Dema Engineering Co.: *See—*
Holmes, Lambert, 4,276,001, Cl. 417-401.000.

Demyanenko, Valentina D.: *See—*
Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M., 4,276,088, Cl. 106-1.120.

Denki Onkyo Company, Limited: *See—*
Masuda, Noboru; and Sugimoto, Masakazu, 4,276,499, Cl. 318-119.000.

Dennetiere, Andre, to Duvant, S.A. Internal combustion engine of the type having two inlet valves per cylinder. 4,275,698, Cl. 123-527.000.

Dennison Manufacturing Company: *See—*
Russell, David B., 4,276,255, Cl. 264-288.800.

Denton, John B.; Dale, John G.; and Rimmer, Norman L. Compact wall mounted cue rack. 4,275,816, Cl. 211-68.000.

Derossi, Piero M. Device for the leveling of the gyroscopic axis of a compass with a mechanical suspension and an antipendular-torque precession system. 4,275,604, Cl. 74-5.120.

Desa Industries, Inc.: *See—*
Kotas, John A., 4,275,778, Cl. 144-193.00A.

deSilva, Dodwell P.: *See—*
Vasishth, Ramesh C.; and deSilva, Dodwell P., 4,276,329, Cl. 427-393.000.

De Thomas, Waldo R.: *See—*
Hort, Eugene V.; and De Thomas, Waldo R., 4,276,215, Cl. 260-326.5FN.

Deutsche Gold und Silber Scheideanstalt vormals Roesuler: *See—*
Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, 4,276,143, Cl. 204-195.00M.

Deverrewaere, Alain, to Cibie Projecteurs. Rectangular-opening sealed beam units for automobile lighting. 4,276,585, Cl. 362-308.000.

De Vries, Jochem J.: *See—*
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., 4,275,497, Cl. 30-43.600.

DeWitte, Gordon J., to General Electric Company. Tester and method for checking meter encoders in automatic meter reading systems. 4,276,644, Cl. 371-25.000.

DeYoung, Simon A. Braiding machine. 4,275,638, Cl. 87-48.000.

Diamond International Corporation: *See—*
Harvey, Albert J., 4,275,856, Cl. 242-75.440.

Diamond Shamrock Corporation: *See—*
Johnson, Grannis S.; and Rose, Ira M., 4,275,906, Cl. 282-27.500.

DiBlasio, John A., to Brandt-Pra, Inc. Extended stacker. 4,275,874, Cl. 271-4.000.

Diehl, Herbert: *See—*
Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, 4,276,143, Cl. 204-195.00M.

Dienes Werke fuer Maschinenteile GmbH & Co. KG: *See—*
Wingen, Peter, 4,275,631, Cl. 83-501.000.

Dieterich, Dieter, to Bayer Aktiengesellschaft. Water-soluble, ultra-filtrable polyurethane anionomers and the use thereof as sizes in the textile industry. 4,276,044, Cl. 8-115.500.

Dieterich, Dieter: *See—*
Scholl, Hans-Joachim; Dieterich, Dieter; and Markusch, Peter, 4,276,404, Cl. 528-57.000.

Dieudonne, Marc P. G.: *See—*
Nguyen, Hieu K.; Dieudonne, Marc P. G.; and Lager, Jean-Paul, 4,276,641, Cl. 370-99.000.

DiGiacomo, Peter M.; and Dines, Martin B., to Occidental Research Corporation. Layered cyano end terminated organophosphorus inorganic polymers. 4,276,409, Cl. 528-362.000.

DiGiacomo, Peter M.; and Dines, Martin B., to Occidental Research Corporation. Layered organophosphorus inorganic polymers containing mercapto or thio groups. 4,276,410, Cl. 528-373.000.

DiGiacomo, Peter M.; and Dines, Martin B., to Occidental Research Corporation. Layered organophosphorus inorganic polymers containing acyclic groups. 4,276,411, Cl. 528-395.000.

di Marco, Aurelio: *See—*
Cassinelli, Giuseppe; Ruggieri, Daniela; Arcamone, Federico; and di Marco, Aurelio, 4,276,289, Cl. 424-180.000.

Dimitroff, Michael V.: *See—*
Parkinson, Martin; and Dimitroff, Michael V., 4,275,511, Cl. 34-92.000.

Dines, Martin B.: *See—*
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,409, Cl. 528-362.000.
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,410, Cl. 528-373.000.
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,411, Cl. 528-395.000.

Dinsmore, Harold L., to John Zink Company. Process and apparatus for recovering hydrocarbons from air-hydrocarbon vapor mixtures. 4,276,058, Cl. 55-48.000.

Dirkes, William R.: *See—*
Bench, Stephen M.; Dirkes, William R.; Juglekar, Manohar A.; Secora, James C.; and Stephen, Michael A., 4,276,651, Cl. 375-120.000.

Dissly, Donald D.; and Blanchard, Ronald J., to Volt Delta Resources, Inc. Method and apparatus for information storage and retrieval. 4,276,597, Cl. 364-300.000.

Dittrick, John W.: *See—*
Willis, Brian J.; and Dittrick, John W., 4,276,220, Cl. 260-345.100.

Dixon, Edgar A.: *See—*
Morgan, Stanley A.; and Dixon, Edgar A., 4,276,636, Cl. 369-291.000.

Dixon, Rolland E.; and Chapman, Charles C., to Phillips Petroleum Company. Catalytic alkylation of hydrocarbons. 4,276,257, Cl. 422-62.000.

Dobashi, Toshio, to Nippon Kogaku K.K. Automatic focusing apparatus for camera. 4,275,954, Cl. 354-198.000.

Dr. Eduard Fresenius, Chemisch-pharmazeutische Industrie KG Apparatebau KG: *See—*
Schael, Wilfried, 4,275,726, Cl. 128-213.00A.

Dr.-Ing Rudolf Hell GmbH: *See—*
Wellendorf, Klaus; and Sing, Gerhard, 4,276,567, Cl. 358-280.000.
Wischer, Hermann, 4,276,568, Cl. 358-282.000.

Dodds, Philip J.: *See—*
Watson, John B.; and Dodds, Philip J., 4,276,564, Cl. 358-139.000.

Doelter, Gandolph, to New Zipper Company Limited, The. Sliding clasp fasteners and garments, articles and sheeting having such fasteners. 4,275,467, Cl. 2-82.000.

Dolak, Lester A.; Laborde, Alice L.; and Castle, Thomas M., to Upjohn Company, The. 3-Trehalosamine compounds. 4,276,412, Cl. 536-17.00R.

DOM-Sicherheitstechnik GmbH & Co. KG: *See—*
Wolter, Heinz, 4,276,453, Cl. 200-44.000.

Domtar Inc.: *See—*
Karnis, Alkibiadis; and Shallhorn, Paul M., 4,276,119, Cl. 162-49.000.

Donitz, Wolfgang: *See—*
Schmidberger, Rainer; and Donitz, Wolfgang, 4,276,202, Cl. 252-462.000.

Donnert, Dietfried; Eberle, Siegfried; and Endres, Gerhard, to Kernforschungszentrum Karlsruhe GmbH. Method for waste water purification with the aid of a sorption agent. 4,276,160, Cl. 210-660.000.

Dornier System GmbH: *See—*
Schmidberger, Rainer; and Donitz, Wolfgang, 4,276,202, Cl. 252-462.000.

Doron Precision Systems, Inc.: *See—*
Radice, John G., 4,276,030, Cl. 434-62.000.

Dorr, Karl H.: *See—*
Bismarich, Walter; Dorr, Karl H.; Konig, Hans J.; and Sander, Ulrich, 4,276,116, Cl. 159-47.00R.

Dorr-Oliver Incorporated: *See—*
Browne, Paul A.; and Morton, Robert W., 4,276,169, Cl. 210-404.000.

Douda, Bernard E.: *See—*
Colvin, Robert E.; Douda, Bernard E.; Montgomery, Francis E.; and Short, James E., Jr., 4,276,100, Cl. 149-109.600.

Doura, Fumihiro: *See—*
Nakabayashi, Masamitsu; Doura, Fumihiro; and Hori, Teruo, 4,276,390, Cl. 525-61.000.

Dow Chemical Company, The: *See—*
Hefner, Robert E., Jr., 4,276,156, Cl. 209-166.000.
Monnerat, Georgia A.; Ham, George E.; Hairston, Thomas J.; and Hatch, Melvin J., 4,276,406, Cl. 528-92.000.
Nestrick, Terry J.; and Stehl, Rudolph H., 4,276,061, Cl. 55-67.000.
Porta, Augusto; and Moretti, Jacques, 4,276,134, Cl. 204-153.000.

Dragerwerk Aktiengesellschaft: *See—*
Warncke, Ernst; and Pasternack, Adalbert, 4,275,723, Cl. 128-202.220.

Draper, Leonard C. Utility cabinet for dentists. 4,275,940, Cl. 312-209.000.

Dravo Corporation: *See—*
Karnofsky, George B.; and Brink, Robert E., 4,276,021, Cl. 432-85.000.

Drbal, Vladimir J.; Ginsberg, Guester; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., to Coulter Electronics, Inc. Fluid transfer mechanism. 4,276,260, Cl. 422-100.000.

Dresser Industries, Inc.: *See—*
Purton, Robert M.; and Hanson, Lloyd D., 4,275,842, Cl. 239-446.000.

Dreyer, Heinz, to Amazonen-Werke. Seed drill mounting arrangement. 4,275,670, Cl. 111-85.000.

Drnevich, Raymond F.: *See—*
Breider, Edmund J.; and Drnevich, Raymond F., 4,276,174, Cl. 210-613.000.

Dron, Sylvain M.; and Evrard, Gerard M. G., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation. Multiple coil electromagnetic pickup. 4,276,489, Cl. 310-155.000.

Dubberly, Gregory T.; and McGowan, Robert J., to Mead Corporation, The. Apparatus for receiving empty beverage containers. 4,276,467, Cl. 235-92.0PK.

Ducellier & Cie: *See—*
Grunon, Michel, 4,276,577, Cl. 361-91.000.

Dudek, Thomas J.: *See—*
Aggarwal, Sunder L.; Marker, Leon F.; Dudek, Thomas J.; and Herold, Robert J., 4,276,009, Cl. 425-130.000.

Dugas, Roger A., to Hewlett-Packard Company. Direction control flush valve. 4,275,765, Cl. 137-625.480.

Dugger, Doyle L.; and Ho, Morris D., to Bandag Incorporated. Method and apparatus for non-destructive inspection of tires. 4,275,589, Cl. 73-146.000.

Dumbeck, Robert F. Solar energy collector system. 4,275,711, Cl. 126-425.000.

Dumortier, Philippe: *See—*
Remillieux, Jean; Rebours, Albert; Dumortier, Philippe; and Marchal, Paul H. L., 4,276,019, Cl. 432-1.000.

Duncon, William J.: *See—*
Beales, Keith J.; Duncon, William J.; Dunn, Anthony G.; and Newns, George R., 4,275,951, Cl. 350-96.310.

Dunlop Limited: *See—*
Kenyon, Dennis, 4,275,832, Cl. 238-310.000.

Dunn, Anthony G.: *See—*
Beales, Keith J.; Duncon, William J.; Dunn, Anthony G.; and Newns, George R., 4,275,951, Cl. 350-96.310.

Dunne, Maurice J.: *See—*
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., 4,275,966, Cl. 414-730.000.

Dusweg, Gustav: *See—*
Henne, Werner; and Dusweg, Gustav, 4,276,172, Cl. 210-490.000.

Du Pont de Nemours, E. I., and Company: *See—*
Clement, Robert A.; and Anderson, Burton C., 4,276,226, Cl. 260-410.500.
Khanna, Ram-Tirth; and Turner, Robert L., 4,276,212, Cl. 260-39.00R.
McCartin, Peter J.; and Nebe, William J., 4,276,366, Cl. 430-291.000.
Phillips, Thomas R., 4,276,351, Cl. 428-437.000.

Durant, Graham J.; Gasellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., to Smith Kline & French Laboratories Limited. Imidazole alkylthioures compounds. 4,276,301, Cl. 424-273.00R.

Duvant, S.A.: *See—*
Dennetiere, Andre, 4,275,698, Cl. 123-527.000.

Dychenhoff & Widmann AG: *See—*
Finsterwalder, Ulrich, 4,275,679, Cl. 114-264.000.

Dynatech AG: *See—*
Lasback, David H., 4,276,048, Cl. 23-230.00B.

Dyneer Corporation: *See—*
Kraft, Derald H., 4,276,038, Cl. 474-110.000.

E. Beaudrey & Cie: *See—*
Jackson, Philip, 4,276,171, Cl. 210-437.000.

E M I Limited: *See—*
Green, Ian M., 4,276,618, Cl. 367-11.000.

E-Systems, Inc.: *See—*
Loposer, Thomas L., 4,276,550, Cl. 343-100.0CL.

Earl, Roscoe T.: *See—*
Norton, William W.; Stansbeary, Jack L.; Clemens, Johnny; and Earl, Roscoe T., 4,275,480, Cl. 17-25.000.

Eastman, James M.: *See*—
Perkey, Russell C.; Thoman, David C.; and Eastman, James M., 4,276,006, Cl. 418-94.000.
Eastman Kodak Company: *See*—
Bissell, Reeder E., 4,276,400, Cl. 526-152.000.
Goodhue, Charles T.; Esders, Theodore W.; and Masurekar, Prakash S., 4,276,377, Cl. 435-18.000.
Gwynn, Donald E., 4,276,396, Cl. 525-338.000.
Leone, Ronald E., 4,276,364, Cl. 430-212.000.
Eaton Corporation: *See*—
Jones, William H., 4,275,508, Cl. 34-43.000.
Kalns, Ilmars, 4,275,617, Cl. 74-750.00R.
Piber, Earl T., 4,276,461, Cl. 200-329.000.
Silvester, Robert C., 4,275,612, Cl. 74-473.00R.
Eberle, Siegfried: *See*—
Donnert, Dietfried; Eberle, Siegfried; and Endres, Gerhard, 4,276,160, Cl. 210-660.000.
Eckert, Joachim: *See*—
Geisler, Diether; and Eckert, Joachim, 4,275,525, Cl. 46-39.000.
Eckhardt, Wolfgang: *See*—
Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, 4,276,303, Cl. 424-273.00R.
Eddy, William R.; and Taylor, Raymond C., to Phillips Petroleum Company. Ring grooving apparatus for use with a packaging machine or the like. 4,276,043, Cl. 493-160.000.
Edelman, Alfred E. Angulation head for dental implant and bending tool for same. 4,276,026, Cl. 433-176.000.
Edo Corporation: *See*—
Miko, Richard J.; and Shapiro, Daniel H., 4,276,065, Cl. 55-278.000.
Edo Western Corporation: *See*—
Jones, Howard P., 4,275,959, Cl. 355-20.000.
Edrich, Jochen. Procedure for noncontacting measurement of subcutaneous temperature distributions. 4,275,741, Cl. 128-653.000.
Edwards, Jesse O. Roller skate brake. 4,275,895, Cl. 280-11.200.
Effem GmbH: *See*—
Kramer, Walter; and Follmann, Rainer, 4,275,684, Cl. 119-1.000.
Egami, Tsuneyuki: *See*—
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,275,590, Cl. 73-204.000.
Egger, Hansruedi, to Intradym Maschinen AG. Method and apparatus for spraying concrete. 4,275,836, Cl. 239-124.000.
Egli, Alwin, to SIG Schweizerische Industrie-Gesellschaft. System for the accurate dosing of bulk material. 4,275,775, Cl. 141-83.000.
Eguchi, Yukuo: *See*—
Ishikawa, Masayuki; Tanaka, Hiromichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, 4,276,295, Cl. 424-251.000.
Ehrlinger, Friedrich; Mann, Egon; Fischer, Manfred; and Jocham, Rudolf, to Zahnradfabrik Friedrichshafen AG. Hydraulic wheel drive. 4,275,616, Cl. 74-730.000.
Eibl, Johann; and Aicher, Helmut, to Immuno Aktiengesellschaft fur chemisch-medizinische Produkte. Apparatus for performing a radioimmunological method of determining antigens or antibodies. 4,276,259, Cl. 422-71.000.
Eibl, Martha; Schwarz, Otto; and Linnau, Yendra, to Immuno Aktiengesellschaft fur chemisch-medizinische Produkte. Method of preparing an intravenously administrable immune globulin preparation containing antibodies and preparations produced according to this method. 4,276,283, Cl. 424-85.000.
Eicher, Josef. Safety mechanism for a carriage insertable into the load space of a vehicle. 4,275,896, Cl. 280-43.100.
Eiermann, Kurt: *See*—
Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, 4,276,143, Cl. 204-195.00M.
Eizumi, Hideo: *See*—
Ohara, Isamu; Muranaka, Tsutomu; and Eizumi, Hideo, 4,276,528, Cl. 335-75.000.
Elast-O-Cor Products & Engineering Limited: *See*—
Macierewicz, Jacek J., 4,276,059, Cl. 55-52.000.
Electric Power Research Institute, Inc.: *See*—
Benke, Frank W.; and Moore, Curtis L., 4,276,530, Cl. 336-58.000.
Kimblin, Clive W.; and Slade, Paul G., 4,276,455, Cl. 200-144.00B.
Pasic, Hajrudin; and Herrmann, George, 4,276,056, Cl. 55-13.000.
Eli Lilly and Company: *See*—
Bach, Nicholas J.; and Kornfeld, Edmund C., 4,276,300, Cl. 424-273.00P.
Elkins, Christopher W.; and Smith, David W., to Teledyne Industries, Inc. Fluid coupling assembly. 4,275,908, Cl. 285-55.000.
Ellertson, Melvin E.: *See*—
Chambers, Lee; and Ellertson, Melvin E., 4,275,647, Cl. 99-339.000.
Elliott, Harry S., to Varco, Inc. Solid state controller. 4,276,502, Cl. 318-565.000.
Ellis, Howard F.: *See*—
Levinson, Lionel M.; Ellis, Howard F.; and Fishman, Herbert, 4,276,578, Cl. 361-127.000.
Embree, Milton L.; Goldthorp, David C.; and Vogelpohl, David R., to Bell Telephone Laboratories, Incorporated. Electronic tone ringer. 4,276,448, Cl. 179-84.00T.
Emery, William G., to Koppers Company, Inc. Coke oven battery bench cleaning apparatus. 4,276,123, Cl. 202-241.000.
Emhart Industries, Inc.: *See*—
Fenton, Frank A., 4,276,076, Cl. 65-241.000.
Endres, Gerhard: *See*—
Donnert, Dietfried; Eberle, Siegfried; and Endres, Gerhard, 4,276,160, Cl. 210-660.000.
Energy Research Corporation: *See*—
Baker, Bernard S., 4,276,356, Cl. 429-41.000.
Enge, Harald A., to Varian Associates, Inc. Focusing apparatus for uniform application of charged particle beam. 4,276,477, Cl. 250-398.000.
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., to Unimation, Inc. Programmable automatic assembly system. 4,275,986, Cl. 414-730.000.
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., to U.S. Philips Corporation. Shaving apparatus. 4,275,497, Cl. 30-43.600.
Engelsberger, Georg: *See*—
Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Riedle, Rudolf; John, Peter; and Engelsberger, Georg, 4,276,426, Cl. 556-479.000.
Engl, Gunter, to Kraftwerk Union Aktiengesellschaft. Ultrasonic testing device. 4,275,598, Cl. 73-622.000.
Ennis, James F.: *See*—
Silver, Jules; and Ennis, James F., 4,275,729, Cl. 128-218.00C.
Enomoto, Hiromu; Yasuda, Yasushi; Ohmichi, Hitoshi; and Mitono, Yoshiharu, to Fujitsu Limited. Semiconductor device. 4,276,556, Cl. 357-52.000.
Enomoto, Kazuo: *See*—
Ogasawara, Tsutomu; and Enomoto, Kazuo, 4,275,941, Cl. 312-223.000.
Envirosol Systems International, Ltd.: *See*—
Vasishth, Ramesh C.; and deSilva, Dodwell P., 4,276,329, Cl. 427-393.000.
Epner, Randolph L.; and Sam, Ahmad. Apparatus for recovery of metals from solution. 4,276,147, Cl. 204-272.000.
Erbach, Emil-Richard; Klunsch, Max; Lindner, Gerhard; and Lingens, Paul. Method for the continuous production of explosive mixtures. 4,275,967, Cl. 366-149.000.
Erck, Edwin E. Recliner. 4,275,472, Cl. 5-60.000.
ERCO Industries Limited: *See*—
Cowley, Gerald, 4,276,262, Cl. 422-187.000.
McGilvery, James D., 4,276,273, Cl. 423-305.000.
Errut Products Limited: *See*—
Jackson, Philip, 4,275,928, Cl. 299-39.000.
Esaki, Shingo: *See*—
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, 4,276,479, Cl. 250-492.00R.
Esders, Theodore W.: *See*—
Goodhue, Charles T.; Esders, Theodore W.; and Masurekar, Prakash S., 4,276,377, Cl. 435-18.000.
Eshraghian, Kamran; and Bogner, Robert E., to U.S. Philips Corporation. Vehicle detection systems. 4,276,539, Cl. 340-38.00L.
Essex Cryogenics of Missouri, Inc.: *See*—
Lyons, Jerry L.; and Mertz, Denny W., 4,275,754, Cl. 137-75.000.
Estrada, John A.: *See*—
Kohlenberger, Charles W.; Kirkpatrick, Craig G.; Estrada, John A.; and Chang, George Q., 4,275,599, Cl. 73-774.000.
Etablissement Caillau: *See*—
Irio, Francis; and Chene, Richard, 4,275,484, Cl. 24-20.00R.
Ethyl Corporation: *See*—
Jackisch, Philip F., 4,276,189, Cl. 252-404.000.
Patton, John S., 4,275,817, Cl. 215-217.000.
Ets Van Doren: *See*—
Van Doren, Bernard M., 4,275,636, Cl. 84-383.00R.
Etschenberg, Eugen; Opitz, Wolfgang; and Raddatz, Siegfried, to Troponwerke GmbH & Co., KG. Dehydrooligopeptides, their production and their medicinal use. 4,276,288, Cl. 424-177.000.
Eventoff, Franklin N.; and Tcherepain, Serge A., to Eventoff, Franklin N. Touch switch keyboard apparatus. 4,276,538, Cl. 338-69.000.
Evrard, Gerard M. G.: *See*—
Dron, Sylvain M.; and Evrard, Gerard M. G., 4,276,489, Cl. 310-155.000.
Excelermatic Inc.: *See*—
Kraus, Charles E., 4,275,610, Cl. 74-200.000.
Expertise Assistance Inc.: *See*—
Ruff, Alonzo W., 4,275,645, Cl. 98-36.000.
Exxon Production Research Company: *See*—
Rickenbacker, James E., 4,276,619, Cl. 367-13.000.
Exxon Research & Engineering Co.: *See*—
Kirk, John H., Jr., 4,276,569, Cl. 358-298.000.
Sawyer, Willard H., 4,276,201, Cl. 252-455.00R.
Fabbrica Italiana Magneti Marelli S.p.A.: *See*—
Ferrarini, Franco, 4,276,357, Cl. 429-63.000.
Fabiano, Anthony: *See*—
Grimaldi, Anthony J.; and Fabiano, Anthony, 4,275,883, Cl. 273-26.00A.
Fabricius, John H.: *See*—
Beck, Martin A.; Fabricius, John H.; and Landis, Donald G., 4,276,603, Cl. 364-477.000.
Fabrique d'Horlogerie de Fontainemelon S.A.: *See*—
Paratte, Daniel, 4,276,630, Cl. 368-88.000.
Fahrig, Robert J., to Standard Oil Company (Indiana). Double-slide valve. 4,275,763, Cl. 137-613.000.
Fairbank, Brian H. Snow-making apparatus. 4,275,833, Cl. 239-2.00S.
Fairchild Camera & Instrument Corp.: *See*—
Arguello, Leonard E.; and Blaser, Lawrence M., 4,275,701, Cl. 123-609.000.
Hennig, Falke, 4,276,616, Cl. 365-177.000.
Faisandier, Yves, to C.M. Industries. Process and device for processing and displaying a read-out signal from an electrocardiogram recording

read at a speed greater than the speed of recording. 4,275,742, Cl. 128-703.000.
Falcetta, Joseph J.: *See*—
Chromecek, Richard C.; Deichert, William G.; Falcetta, Joseph J.; and VanBuren, Martin F., 4,276,402, Cl. 526-264.000.
Falk, Hans: *See*—
Pohler, Friedmar; Falk, Hans; Muller, Josef; Klein, Hans J.; and Hoffacker, Franz, 4,276,324, Cl. 427-10.000.
Falk, John C., to Borg-Warner Corporation. Char-forming additives for olefin polymers. 4,276,393, Cl. 525-233.000.
Fangmeyer, Dennis L., to Ransburg Corporation. Rotating atomizing device. 4,275,838, Cl. 239-223.000.
Fanz, Helmut, to Regie Nationale des Usines Renault. Device for cleaning and defogging, especially for the rear window of an automobile. 4,276,501, Cl. 318-470.000.
Farmhand, Inc.: *See*—
Lenertz, John B., 4,275,984, Cl. 414-686.000.
Farmitalia Carlo Erba, S.p.A.: *See*—
Cassinelli, Giuseppe; Ruggieri, Daniela; Arcamone, Federico; and di Marco, Aurelio, 4,276,289, Cl. 424-180.000.
Fehler, Adolf: *See*—
Kappler, Guenter; and Fehler, Adolf, 4,275,564, Cl. 60-738.000.
Fejer, Andrew A., to Institute of Gas Technology. Composite energy producing gas turbine. 4,275,562, Cl. 60-648.000.
Felber, Betty J.: *See*—
Lawrence, Dan D.; and Felber, Betty J., 4,275,789, Cl. 166-294.000.
Fenton, Frank A., to Emhart Industries, Inc. Transfer means of glassware forming machines. 4,276,076, Cl. 65-241.000.
Ferguson, Gerald D., to United States of America, Navy. Optical oscillator. 4,276,518, Cl. 331-94.50C.
Ferodo Limited: *See*—
Bartram, David T., 4,276,328, Cl. 427-381.000.
Ferrarini, Franco, to Fabbrica Italiana Magneti Marelli S.p.A. Device for self-leveling of electrolyte in electric accumulators. 4,276,357, Cl. 429-63.000.
Ferry, Merle W., to Procter & Gamble Company, The. Detergent compositions containing amine oxide and nonionic surfactants and polyethylene glycol. 4,276,205, Cl. 252-528.000.
Fettel, Bruce E.; Morris, Paul E.; and Lichte, Leo J., to Shiley Incorporated. Electro-chemically machined ring and strut structure for prosthetic heart valves. 4,276,132, Cl. 204-129.100.
Feuerman, Arnold I. Vaporized fuel for internal combustion engine. 4,276,131, Cl. 204-129.000.
Feugier, Alain: *See*—
Brun, Didier; Chrysostome, Gerard; Feugier, Alain; and Sale, Bernard, 4,276,266, Cl. 423-1.000.
Fewell, Larry L.: *See*—
United States of America, National Aeronautics and Space Administration; Allcock, Harry R.; O'Brien, John P.; Scopelianos, Angelo G.; and Fewell, Larry L., 4,276,403, Cl. 528-4.000.
Fiat Trattori S.p.A.: *See*—
Brancolini, Emiliano, 4,275,608, Cl. 74-15.630.
Fibergrate Corporation: *See*—
Coonrod, William C., 4,276,337, Cl. 428-134.000.
Field, Sydney J., to Actionair Equipment Limited. Control damper. 4,275,762, Cl. 137-601.000.
Finnemore, Fred M.: *See*—
Lanno, Joseph P.; and Finnemore, Fred M., 4,275,821, Cl. 222-61.000.
Finsterwalder, Ulrich, to Dyckerhoff & Widmann AG. Floating platform with monolithically formed float members and platform. 4,275,679, Cl. 114-264.000.
Firca, Joseph R.; and Rudbach, Jon A., to Abbott Laboratories. Method for systemic endotoxin detection. 4,276,050, Cl. 23-230.00B.
Firestone Tire & Rubber Company, The: *See*—
Yang, James H. C., 4,276,012, Cl. 425-435.000.
Fischell, Robert E., to Johns Hopkins University, The. Charge control switch responsive to cell casing deflection. 4,275,739, Cl. 128-419.0PS.
Fischer, Kurt: *See*—
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, 4,276,209, Cl. 260-28.00P.
Fischer, Manfred: *See*—
Ehrlinger, Friedrich; Mann, Egon; Fischer, Manfred; and Jocham, Rudolf, 4,275,616, Cl. 74-730.000.
Fisco, Marshall. Apparatus for moving merchandise gondolas. 4,275,982, Cl. 414-459.000.
Fisher, Charles B.; and Fisher, Sidney T. Acoustic transmission system. 4,276,624, Cl. 367-134.000.
Fisher, Sidney T.: *See*—
Fisher, Charles B.; and Fisher, Sidney T., 4,276,624, Cl. 367-134.000.
Fishman, Herbert: *See*—
Levinson, Lionel M.; Ellis, Howard F.; and Fishman, Herbert, 4,276,578, Cl. 361-127.000.
Flaig, Hans: *See*—
Asmus, Friedrich; Flaig, Hans; Wolber, Robert; and Maurer, Roland, 4,276,634, Cl. 368-300.000.
Flavio, Rinaldi, to Sapperforni Rinaldi S.p.A. Electric oven for the continuous baking of pizzas. 4,276,465, Cl. 219-388.000.
Fleck, William C., to Intraspec Inc. Programmable sequencer apparatus. 4,276,610, Cl. 364-900.000.
Fleek, Arthur E.: *See*—
Bolcavage, Richard D.; Fleek, Arthur E.; and Marcus, Mitchell P., 4,275,653, Cl. 101-93.140.
Flo-Con Systems, Inc.: *See*—
King, Patrick D.; and Folk, Gary R., 4,275,825, Cl. 222-590.000.
Flymo Societe Anonyme: *See*—
Lindman, Karl A., 4,276,067, Cl. 55-337.000.
Flynn, Richard T.; and Kindell, Jerry L., to Honeywell Information Systems Inc. Short operand alignment and merge operation. 4,276,596, Cl. 364-200.000.
FMC Corporation: *See*—
Garber, Arnold L., 4,275,639, Cl. 89-41.00E.
Moirano, Arthur L., 4,276,320, Cl. 426-575.000.
Fodor, Lawrence M.: *See*—
Selman, Charles M.; and Fodor, Lawrence M., 4,276,192, Cl. 252-429.00B.
Foerster, Hubert; Horstmann, Winfried; and Sochor, Josef, to Robert Bosch GmbH. System for generating an error signal indicative of differences between recording and playback speeds. 4,276,559, Cl. 358-8.000.
Fohlen, George M.: *See*—
Varma, Indra K.; Fohlen, George M.; Parker, John A.; and Frosch, Robert A., 4,276,344, Cl. 428-260.000.
Folk, Gary R.: *See*—
King, Patrick D.; and Folk, Gary R., 4,275,825, Cl. 222-590.000.
Foller, Werner; and Symanczyk, Hermann, to Gestra-KSB Vertriebsgesellschaft mbH & Co. KG. Steam trap. 4,275,755, Cl. 137-195.000.
Follmann, Rainer: *See*—
Kramer, Walter; and Follmann, Rainer, 4,275,684, Cl. 119-1.000.
Fontana, Emanuel J. Halftone photographic method and apparatus. 4,275,961, Cl. 355-71.000.
Ford Aerospace & Communications Corp.: *See*—
Ho, Pang T.; and Rubin, Michael D., 4,276,558, Cl. 357-74.000.
Ford Motor Company: *See*—
Bishop, Gerald B., 4,276,240, Cl. 261-52.000.
Chattha, Mohinder S., 4,276,392, Cl. 525-118.000.
Ford, Willie. Dual wheel valve stem tool. 4,275,622, Cl. 81-125.100.
Forney, Melvin L., to Caterpillar Tractor Co. Fume extracting device for a welding apparatus. 4,276,464, Cl. 219-136.000.
Forry, Mark E.: *See*—
Ludwa, Raymond J.; Forry, Mark E.; and Haugen, Marilyn M., 4,276,338, Cl. 428-137.000.
Forster, Hans-Joachim, to Daimler-Benz Aktiengesellschaft. Automatically cross-guided vehicle, especially for the public local passenger traffic. 4,275,660, Cl. 104-247.000.
Foster Wheeler Energy Corporation: *See*—
Daman, Ernest L., 4,275,668, Cl. 110-245.000.
Fox, Edward V., Jr.: *See*—
Snitzer, Elias; Anschutz, Donald E.; and Fox, Edward V., Jr, 4,275,965, Cl. 356-375.000.
France, Haywood G.: *See*—
Koleske, Joseph V.; Smith, Oliver W.; France, Haywood G.; and Taller, Robert A., 4,276,405, Cl. 528-58.000.
Franco, Bartolo, to Centro Ricerche Fiat S.p.A. Resilient suspension for the cab of an agricultural tractor. 4,275,918, Cl. 296-190.000.
Frang, Gosta M.: *See*—
Boisen Schmidt, Egon; Zechner, Josef K. S.; and Frang, Gosta M., 4,276,052, Cl. 23-301.000.
Frank B. Dehn & Co.: *See*—
Clements, Harold J., 4,275,869, Cl. 254-89.00H.
Franke, Heinrich; and Joppien, Hartmut, to Schering AG. Acylurea insecticides. 4,276,309, Cl. 424-322.000.
Franz, Helmut, to PPG Industries, Inc. Fluorocarbon treatment for reducing the reactivity of a glass surface and product. 4,276,350, Cl. 428-410.000.
Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See*—
Theurer, Josef; and Brunninger, Manfred, 4,275,659, Cl. 104-2.000.
Fratty, Hector, to Cibie Projecteurs. Novel rectangular headlight for automobile. 4,276,583, Cl. 362-214.000.
French, John B.; and Muttoni, Oscar E., to Nomax Corporation. Individualized label application system. 4,276,112, Cl. 156-360.000.
Frey, Volker: *See*—
Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Riedle, Rudolf; John, Peter; and Engelsberger, Georg, 4,276,426, Cl. 556-479.000.
Muller, Horst; and Frey, Volker, 4,276,423, Cl. 556-411.000.
Fricke, Gunter: *See*—
Singewald, Arno; Fricke, Gunter; Neitzel, Ulrich; and Geisler, Iring, 4,276,154, Cl. 209-3.000.
Fried. Krupp Gesellschaft mit beschrankter Haftung: *See*—
Kolaska, Johannes; and Grewe, Hans, 4,276,096, Cl. 148-16.600.
Friedman, Jon. Earth photo globe. 4,276,561, Cl. 358-78.000.
Friese, Karl-Hermann: *See*—
Topp, Bernhard; Friese, Karl-Hermann; and Haecker, Wolf-Dieter, 4,276,142, Cl. 204-195.000.
Fritzsche Dodge & Olcott, Inc.: *See*—
Willis, Brian J.; and Dittrick, John W., 4,276,220, Cl. 260-345.100.
Froix, Michael F., to Celanese Corporation. Blend of polyarylene sulfide and wholly aromatic polyester. 4,276,397, Cl. 525-448.000.
Frontier Footwear Corporation: *See*—
Zeligman, Robert; and Zengerle, John R., 4,275,512, Cl. 36-11.500.
Frosch, Robert A.: *See*—
McLyman, W. T.; and Frosch, Robert A., 4,276,588, Cl. 363-56.000.
Varma, Indra K.; Fohlen, George M.; Parker, John A.; and Frosch, Robert A., 4,276,344, Cl. 428-260.000.
Fuchs, Reiner; Hammann, Ingeborg; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating arthropods with 3-phenoxybenzyl

2,2-dimethyl-3-vinyl-cyclopropane carboxylates. 4,276,306, Cl. 424-304.000.
Fuji Electric Co., Ltd.: *See*—
Tanaka, Akio; Nakajima, Yoshihisa; and Yokomori, Shinji, 4,275,806, Cl. 194-100.00A.
Fuji Kiko Company, Limited: *See*—
Matsuoka, Hideoki; and Kondo, Yoshinobu, 4,275,903, Cl. 280-803.000.
Fuji Photo Film Co., Ltd.: *See*—
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,276,473, Cl. 250-327.100.
Mifune, Hiroyuki; Miyasaka, Nobuaki; and Fuseya, Yoshiharu, 4,276,374, Cl. 430-611.000.
Fuji Xerox Co., Ltd.: *See*—
Ogasawara, Tsutomu; and Enomoto, Kazuo, 4,275,941, Cl. 312-223.000.
Fujisawa, Norio: *See*—
Okamoto, Eiichi; Fujisawa, Norio; and Hori, Masao, 4,276,605, Cl. 364-483.000.
Fujishiro, Takeshi; and Ozawa, Hiroshige, to Nissan Motor Company, Limited. Fluid flow measuring apparatus. 4,275,602, Cl. 73-861.220.
Fujita, Teizo; Ohashi, Toshiro; and Takimoto, Kouji, to Izumi Denki Corporation. Electronic timer. 4,276,631, Cl. 368-89.000.
Fujitsu Kiden Ltd.: *See*—
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Senba, Shunsuke, 4,276,572, Cl. 360-12.000.
Fujitsu Limited: *See*—
Enomoto, Hiromu; Yasuda, Yasushi; Ohmichi, Hitoshi; and Mitono, Yoshiharu, 4,276,556, Cl. 357-52.000.
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Senba, Shunsuke, 4,276,572, Cl. 360-12.000.
Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, 4,276,365, Cl. 430-270.000.
Fukuda, Takashi: *See*—
Nagano, Hiroo; Oda, Terumi; and Fukuda, Takashi, 4,276,133, Cl. 204-145.00R.
Fukuda, Takeo; Murayama, Tadashi; and Urui, Kiyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Telephone exchange with time shared speech paths and selectively attenuated speech signals. 4,276,639, Cl. 370-62.000.
Fukumori, Yukitsugu; and Sone, Masazumi, to Nissan Motor Company, Limited. Ignition distributor. 4,275,690, Cl. 123-146.50A.
Fukumoto, Teruhisa: *See*—
Ogawa, Yoshinari; Fukumoto, Teruhisa; and Sakai, Kohichi, 4,276,208, Cl. 260-28.00R.
Fukushima, Masakazu; Ando, Kunio; and Fukuzawa, Kenichi, to Hitachi, Ltd. Electron gun for cathode-ray tube. 4,276,495, Cl. 315-16.000.
Fukuzawa, Kenichi: *See*—
Fukushima, Masakazu; Ando, Kunio; and Fukuzawa, Kenichi, 4,276,495, Cl. 315-16.000.
Fuller Company: *See*—
Kline, Kenneth H.; and Kramer, Walter W., 4,275,509, Cl. 34-57.00R.
Fuller, John R. D.: *See*—
Langley, Kenneth R.; and Fuller, John R. D., 4,275,990, Cl. 416-95.000.
Fulton, Martyn R.: *See*—
Sheffield, David J.; and Fulton, Martyn R., 4,275,582, Cl. 72-391.000.
Fuseya, Yoshiharu: *See*—
Mifune, Hiroyuki; Miyasaka, Nobuaki; and Fuseya, Yoshiharu, 4,276,374, Cl. 430-611.000.
Gabbay, Shlomo, to Shelhigh Inc. Prosthetic heart valve. 4,275,469, Cl. 3-1.500.
Gabriel, Richard J., to Matrix Toys, Inc. Removable tire for construction set joint element. 4,275,524, Cl. 46-23.000.
GAF Corporation: *See*—
Gruber, Bruce A.; and Lorenz, Donald H., 4,276,136, Cl. 204-159.220.
Hort, Eugene V.; and De Thomas, Waldo R., 4,276,215, Cl. 260-326.5FN.
Gallusser, David O.; Hemmer, Valentine J.; and Toomba, Gary C., to Bendix Corporation, The. Electrical contact and method for making same. 4,275,948, Cl. 339-218.00R.
Ganellin, Charon R.: *See*—
Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,276,301, Cl. 424-273.00R.
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, to Bergwerksverband GmbH. Apparatus for purification of waste water by means of active carbon. 4,276,178, Cl. 210-662.000.
Garber, Arnold L., to FMC Corporation. Periscopic sight with a unitary lens system. 4,275,639, Cl. 89-41.00E.
Gardner, Horace L.: *See*—
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., 4,275,966, Cl. 414-730.000.
Garmany, William J., to International Telephone and Telegraph Corporation. Automatic synchronization for receivers of a navigational system. 4,276,552, Cl. 343-105.00R.
Garrett Corporation, The: *See*—
Hatch, Robert A.; Jansen, Harvey B.; Bolliger, Frederic E.; and Sumegi, Robert B., 4,275,558, Cl. 60-39.16R.
Garvey Corporation: *See*—
Garvey, Francis J.; and Buckminster, William F., 4,275,809, Cl. 198-624.000.
Garvey, Francis J.; and Buckminster, William F., to Garvey Corporation. Card conveyor with rope belt drive. 4,275,809, Cl. 198-624.000.
Gaskill, James R., Jr.: *See*—
Benedict, Douglas M.; and Gaskill, James R., Jr., 4,276,488, Cl. 307-272.00A.
Gast, Theodor; and Binder, Kurt, to Robert Bosch GmbH. Oscillation sensor, particularly combustion engine knock sensor. 4,275,586, Cl. 73-35.000.
Gavrilov, Anatoly N.: *See*—
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.
Gebruder Heller Verwaltungsgesellschaft mit beschrankter Haftung: *See*—
Kleine, Werner, 4,275,796, Cl. 175-385.000.
Gebruder Junghans GmbH: *See*—
Assmus, Friedrich; Flaig, Hans; Wolber, Robert; and Maurer, Roland, 4,276,634, Cl. 368-300.000.
Geersheuvels, Charles H.: *See*—
Verheijen, Egidius J. M.; and Geersheuvels, Charles H., 4,276,419, Cl. 546-164.000.
Geesen, Donald H., to PPG Industries Canada Ltd. Process of treating potassium chloride brine by evaporation and crystallization. 4,276,117, Cl. 159-47.00R.
Geiger, Werner, to Inventio AG. Molding machine for fabricating boxless molds. 4,275,783, Cl. 164-146.000.
Geisler, Diether; and Eckert, Joachim, to Beiersdorf AG. Housing with motor and solar cell. 4,275,525, Cl. 46-39.000.
Geisler, Iring: *See*—
Singewald, Arno; Fricke, Gunter; Neitzel, Ulrich; and Geisler, Iring, 4,276,154, Cl. 209-3.000.
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, to Shape Inc. Container for a cassette. 4,275,943, Cl. 312-319.000.
Gelardi, Paul: *See*—
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.
Gellatly, John S.; and Richter, Fred T., to Western Electric Company, Inc. Method for bonding a plastic case to a stub cable. 4,276,108, Cl. 156-244.240.
General Cable Corporation: *See*—
Bopp, Louis A., 4,276,251, Cl. 264-174.000.
General Company Limited: *See*—
Sugihara, Tetsuo, 4,276,334, Cl. 428-40.000.
General Dynamics: *See*—
Coerver, Leo E., 4,276,522, Cl. 333-1.100.
General Electric Company: *See*—
Blair, Lynn J., 4,275,559, Cl. 60-39.82S.
Bose, Bimal K., 4,276,505, Cl. 318-723.000.
Buzzell, Colby E., 4,275,585, Cl. 73-32.00A.
Ciarcia, Ronald D.; and Owens, Robert L., 4,276,526, Cl. 335-35.000.
Coker, Thomas G.; and LaConti, Anthony B., 4,276,146, Cl. 204-266.000.
Cotic, Dennis J., 4,276,476, Cl. 250-385.000.
DeWitte, Gordon J., 4,276,644, Cl. 371-25.000.
Lemmond, Charles Q., 4,276,335, Cl. 428-131.000.
Levinson, Lionel M.; Ellis, Howard F.; and Fishman, Herbert, 4,276,578, Cl. 361-127.000.
Markezich, Ronald L.; Olander, Walter K.; and Axelrod, Robert J., 4,276,233, Cl. 260-937.000.
Marvin, Ira E.; and Cowgill, Joseph R., 4,275,557, Cl. 60-39.030.
Schaeffer, Friedrich K.; and Brennan, Thomas F., 4,276,102, Cl. 156-85.000.
Srinivasa, Saroja R.; Shelley, Peter S.; and Hueschen, Robert E., 4,276,493, Cl. 313-330.000.
Tompkins, Russell E.; Walden, John P.; and Walker, Loren H., 4,276,510, Cl. 324-127.000.
Wright, Jack D.; and Snow, Barton H., 4,275,560, Cl. 60-226.00B.
General Foods Corporation: *See*—
Katz, Saul N.; and Gottesman, Martin, 4,276,315, Cl. 426-428.000.
General Motors Corporation: *See*—
Bayer, Dean M., 4,275,912, Cl. 293-120.000.
Bly, Kenneth B.; Gutwald, Mark J.; and Ludecke, Otto A., 4,276,066, Cl. 55-287.000.
McNamee, James W.; Homstad, Gerald E.; Vazquez-Cuervo, Alfonso; and Henry, Kenneth J., 4,276,640, Cl. 370-77.000.
Outland, Robert J., 4,276,071, Cl. 55-523.000.
Stoltman, Donald D., 4,275,697, Cl. 123-520.000.
General Porcelain Mfg. Co.: *See*—
Chester, Victor, 4,276,204, Cl. 252-519.000.
General Tire & Rubber Company, The: *See*—
Aggarwal, Sundar L.; Marker, Leon F.; Dudek, Thomas J.; and Herold, Robert J., 4,276,009, Cl. 425-130.000.
Genin, Paul. Folding hood for chair-lifts. 4,275,921, Cl. 297-184.000.
George, Odean F. Heat recovery in a laundry system. 4,275,510, Cl. 34-90.000.
Geosource Inc.: *See*—
Kahn, Twassul A.; Kiowski, John W.; and Lang, Douglas G., 4,276,620, Cl. 367-60.000.

Gerbert-Gaillard, Alain; and Morel, Robert, to Merlin Gerin. Multipole electrical circuit breaker with improved interchangeable trip units. 4,276,527, Cl. 335-39.000.
Gerdes, Donald F., to Binks Manufacturing Company. Fire control system for spray booth. 4,276,064, Cl. 55-217.000.
Gereg, Gordon A. Suction canister with membrane shut-off valve. 4,275,732, Cl. 128-276.000.
Gerstenberger, Friedrich; Loos, Wolfgang; and Straub, Dieter, to J. G. Anschutz, GmbH. Electro-mechanical triggering mechanism for fire arms. 4,275,521, Cl. 42-84.000.
Gessaga, Rinaldo, to Industrie Pirelli S.p.A. Process and apparatus for stitching the tread of pneumatic tires. 4,276,105, Cl. 156-128.00N.
Gestra-KSB Vertriebsgesellschaft mbH & Co. KG: *See*—
Foller, Werner; and Symanczyk, Hermann, 4,275,755, Cl. 137-195.000.
Gewerkschaft Eisenhutte Westfalia: *See*—
Merten, Gerhard; Breuer, Oswald; and Bernd, Steinkuhl, 4,275,927, Cl. 299-34.000.
Gik, Lev A. Rotary cutting tool. 4,275,626, Cl. 82-36.00R.
Gilbert, Terence; and Sheffield, David J. Breakstem riveting tool with stem disposal device. 4,275,583, Cl. 72-391.000.
Gillespie, George A., to UOP Inc. Screen for collection and distribution of process streams. 4,276,265, Cl. 422-311.000.
Gillessen, Dieter; and Lergier, William, to Hoffmann-La Roche Inc. Method for the determination of an amino or aminosulphonic acid. 4,276,049, Cl. 23-230.00B.
Gilson, Richard D.; Thurston, Marlin O.; Olson, Karl W.; and Ventola, Ronald W., to Ohio State University, The. Visual cue simulator. 4,276,029, Cl. 434-43.000.
Ginsberg, Guenter; and Horne, Thomas, to Coulter Electronics, Inc. System and program for chemical reaction observation with a moving photometer. 4,276,051, Cl. 23-230.00R.
Ginsberg, Guenter; and Hodgins, Bruce J., to Coulter Electronics, Inc. Sample and stat feeding system and sample tray. 4,276,258, Cl. 422-64.000.
Ginsberg, Guenter: *See*—
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.
Givens, Edwin N.: *See*—
Plank, Charles J.; Rosinski, Edward J.; and Givens, Edwin N., 4,276,151, Cl. 208-138.000.
Glaenzer, Spicer: *See*—
Guimbretiere, Pierre L., 4,275,799, Cl. 180-255.000.
Glover, William T. Bait box with passive circulation. 4,275,522, Cl. 43-56.000.
Godin, Eduard M.: *See*—
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.
Goldman, Michael B.; and Morton, George I., to RCA Corporation. A-C Rectifier circuit for powering monolithic integrated circuits. 4,276,592, Cl. 363-147.000.
Goldsmith, Arthur C.; and Kirkgasser, James P., to K-G Devices Corporation. Apparatus for separating ribbon cable. 4,275,630, Cl. 83-500.000.
Goldthorp, David C.: *See*—
Embree, Milton L.; Goldthorp, David C.; and Vogelpohl, David R., 4,276,448, Cl. 179-84.00T.
Goodhue, Charles T.; Eaders, Theodore W.; and Masurekar, Prakash S., to Eastman Kodak Company. Creatinine iminohydrolase free from urease activity. 4,276,377, Cl. 435-18.000.
Goodrich, Roger S.: *See*—
Middleman, Lee M.; and Goodrich, Roger S., 4,276,466, Cl. 219-523.000.
Goodyear Aerospace Corporation: *See*—
Baird, Roy W.; Berger, Robert E.; and Kirk, Richard L., 4,275,932, Cl. 301-39.00T.
Goodyear Tire & Rubber Company, The: *See*—
Kerscher, Frederick C.; and Nowacki, John J., 4,276,261, Cl. 422-131.000.
Riggs, Robert S., 4,276,104, Cl. 156-123.00R.
Wolfe, Merritt W., 4,276,103, Cl. 156-96.000.
Gorbunov, Oleg P.: *See*—
Redikultsev, Jury V.; Shkidchenko, Alexandr N.; Gorbunov, Oleg P.; and Litvinenko, Leonid A., 4,276,264, Cl. 422-307.000.
Gordon, Abraham: *See*—
Adler, Stanford L., Sr.; Gordon, Abraham; and Ornstein, Leonard, 4,276,253, Cl. 264-247.000.
Gordon, Leonard. Hydrostatic relief valve. 4,276,163, Cl. 210-136.000.
Gori & Zucchi S.p.A.: *See*—
Bichi, Pasquale, 4,275,555, Cl. 59-3.000.
Gorlitz, Frank Otto, to Buhler-Miag GmbH. Screen for a screening machine. 4,276,158, Cl. 209-255.000.
Gotoh, Bonpei. Semiautomatic rotary razor. 4,275,496, Cl. 30-43.600.
Gottesman, Martin: *See*—
Katz, Saul N.; and Gottesman, Martin, 4,276,315, Cl. 426-428.000.
Gottron, Richard N.; and Cox, Lyndon S., to United States of America, Army. Safing and arming signature for fuzes. 4,275,658, Cl. 102-210.000.
Gould Inc.: *See*—
Myers, Felix E., 4,276,457, Cl. 200-153.00G.
Gould Inc. Modicon Division: *See*—
Morley, Richard E., 4,276,594, Cl. 364-200.000.
Goyal, Ramesh C.: *See*—
Johnston, Craig E.; and Goyal, Ramesh C., 4,276,513, Cl. 330-9.000.
Grachev, Vladimir V.: *See*—
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.
Gragg, F. Michael; and Self, James, to Occidental Research Corporation; and Occidental Chemical Company. Start-up procedure in producing phosphoric acid by the hemihydrate process. 4,276,270, Cl. 423-167.000.
Graham, Kenneth A., to Chrysler Corporation. Throttle body having a deflector for the throttle blade and improved atomization. 4,275,700, Cl. 123-590.000.
Grams, Harold: *See*—
Karayannis, Nicholas M.; Grams, Harold; and Skryantz, John S., 4,276,191, Cl. 252-429.00C.
Graphic Arts Manufacturing Company: *See*—
Kuhnel, Donald S., 4,276,615, Cl. 365-45.000.
Gray, Charles E., deceased; and Gray, Emma D. W., executrix. Well casing spider. 4,275,487, Cl. 24-263.0DC.
Gray, Charles E., deceased; and by Gray, Emma D. W., executrix. Combined well casing spider and elevator. 4,275,488, Cl. 24-263.0DC.
Gray, Emma D. W., executrix: *See*—
Gray, Charles E., deceased; and Gray, Emma D. W., executrix, 4,275,487, Cl. 24-263.0DC.
Gray, Charles E., deceased; and Gray, Emma D. W., executrix, 4,275,488, Cl. 24-263.0DC.
Graziano, Helen V. Method and composition for modifying filamentous keratins. 4,275,748, Cl. 132-7.000.
Green, George E., to Ciba-Geigy Corporation. Reinforced composites containing unsaturated polyimide resins. 4,276,352, Cl. 428-473.500.
Green, Ian M., to E M I Limited. Mapping systems. 4,276,618, Cl. 367-11.000.
Greenfield, Charles; and Bonanno, Anthony J., to Hanover Research Corporation. Process and apparatus for dehydrating waste solids concentrates. 4,276,115, Cl. 159-1.0RW.
Greenhouse, Hyman D. Syringe and needle destroyer. 4,275,628, Cl. 83-167.000.
Grewe, Hans: *See*—
Kolaska, Johannes; and Grewe, Hans, 4,276,096, Cl. 148-16.600.
Grgurich, William A.; Niles, Albert B.; and Updyke, Kenneth W., to Caterpillar Tractor Co. Fuel injection nozzle. 4,275,844, Cl. 239-533.300.
Grigo, Ulrich: *See*—
Arlt, Klaus-Peter; Grigo, Ulrich; and Binsack, Rudolf, 4,276,193, Cl. 252-429.00B.
Grimaldi, Anthony: *See*—
Grimaldi, Anthony J.; and Fabiano, Anthony, 4,275,883, Cl. 273-26.00A.
Grimaldi, Anthony J.; and Fabiano, Anthony, to Grimaldi, Anthony. Pitching target with ball return. 4,275,883, Cl. 273-26.00A.
Grimm, Peter: *See*—
Becker, Hans; Grimm, Peter; Ranke, Gerhard; and Roth, Dieter, 4,276,057, Cl. 55-40.000.
Grimm, Richard M.: *See*—
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.
Grimmer, Johannes: *See*—
Kilpper, Gerhard; and Grimmer, Johannes, 4,276,433, Cl. 562-458.000.
Groeneadaal, Gradus C.; and Aagaard, Einar A., to U.S. Philips Corporation. Receiver for digital signals in line code. 4,276,649, Cl. 371-55.000.
Grogler, Gerhard: *See*—
Schwindt, Jurgen; and Grogler, Gerhard, 4,276,386, Cl. 521-160.000.
Groothuis, Gerrit J.: *See*—
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., 4,275,497, Cl. 30-43.600.
Grosser, Richard W.; and Long, Virgil L., Sr., to AMF Incorporated. Home exercise gym. 4,275,882, Cl. 272-117.000.
Groth, Hugh F.; Hunt, Guilbert M.; and Shaner, Ronald E., to Lambert Corporation. Compactor refuse and other materials. 4,275,651, Cl. 100-229.00A.
Gruber, Bruce A.; and Lorenz, Donald H., to GAF Corporation. Radiation curable coating composition comprising an ethylenically unsaturated oligomer and an ethylenically unsaturated copolymerizable ultra-violet absorber. 4,276,136, Cl. 204-159.220.
Gruber, Morton A. Combined incense burner and pipe. 4,275,746, Cl. 131-180.000.
Gruber, Wolfgang: *See*—
Hundt, Dieter; Sedelmayer, Marianne; Roschlau, Peter; Stahler, Fritz; and Gruber, Wolfgang, 4,276,376, Cl. 435-17.000.
Grunsted, Jerome A., to Ketchum & McDougall, Inc. Wall mounted telephone index. 4,275,519, Cl. 40-378.000.
Gruppo Lepetit S.p.A.: *See*—
Parenti, Francesco; Coronelli, Carolina; Tuinoni, Giorgio; and Lancini, Giancarlo, 4,276,382, Cl. 435-253.000.
Grunow, Michel, to Ducellier & Cie. Motor vehicle battery charging installation. 4,276,577, Cl. 361-91.000.

Grutzmann, Sigmar: *See*—
Siglow, Joachim; Grutzmann, Sigmar; and Schenk, Erwin, 4,276,642, Cl. 370-100.000.

Grychtol, Klaus: *See*—
Degen, Hans-Jurgen; and Grychtol, Klaus, 4,276,415, Cl. 542-435.000.

Gschwendtner, Jorg: *See*—
Arzubi, Luis M.; Clemen, Rainer; and Gschwendtner, Jorg, 4,276,487, Cl. 307-270.000.

GTE Laboratories Incorporated: *See*—
Carlsen, W. John; Dakss, Mark L.; and Lambert, Gary M., 4,276,113, Cl. 156-502.000.

GTE Products Corporation: *See*—
Boudrot, Robert J.; Shambaugh, John S.; and Zeltzer, Hyman, 4,276,361, Cl. 429-186.000.

Guazzone, Bruno: *See*—
Muller, Hans; and Guazzone, Bruno, 4,276,166, Cl. 210-327.000.

Guimbretiere, Pierre L., to Glaenzer, Spicer. Wheel hub and homokinetic joint assembly. 4,275,799, Cl. 180-255.000.

Gulf Oil Corporation: *See*—
Karim, Khalid A.; and Rea, James H., 4,276,111, Cl. 156-308.200.

Gulf & Western Corporation: *See*—
Anderson, Verner; Logan, David J.; and Wood, Kenneth O., 4,275,627, Cl. 83-152.000.

Gustafson, Inc.: *See*—
Weber, Joseph A., 4,275,682, Cl. 118-303.000.

Gutierrez Atencio, Francisco J. Reversible pump-turbine. 4,275,989, Cl. 415-129.000.

Gutnick, David L.; and Rosenberg, Eugene, to Biotechnologie Aktiengesellschaft fur Emulsan. Cleaning oil-contaminated vessels with α-emulsans. 4,276,094, Cl. 134-10.000.

Gutoff, Edgar B., to Polaroid Corporation. Method and apparatus for dynamic wetting angle measurement. 4,275,587, Cl. 73-64.400.

Gutwald, Mark J.: *See*—
Bly, Kenneth B.; Gutwald, Mark J.; and Ludecke, Otto A., 4,276,066, Cl. 55-287.000.

Gwynn, Donald E., to Eastman Kodak Company. Hydrocarbon resin and process for its preparation. 4,276,396, Cl. 525-338.000.

Gwynn, Eric C., to Singer Company, The. Gunnery training system. 4,276,028, Cl. 434-20.000.

Gyorgy, Fabry; and Takacs, Istvan, to Richter Gedeon Vegyeszeti Gyar Rt. Packing of equipment for the purpose of contacting mainly gaseous and liquid mediums. 4,276,244, Cl. 261-155.000.

Haakonsen, Haakon: *See*—
Mock, Arthur E., 4,276,124, Cl. 202-236.000.

Habegger, Millard A.; and Hooker, Ross B., III, to International Business Machines Corporation. System for enhanced light uniformity in a document scanning system. 4,275,960, Cl. 355-68.000.

Habib, Fred G., Jr. Remote cycle alarm system. 4,276,540, Cl. 340-63.000.

Haecker, Wolf-Dieter: *See*—
Topp, Bernhard; Friese, Karl-Hermann; and Haecker, Wolf-Dieter, 4,276,142, Cl. 204-195.00S.

Haesly, Barry F.; and Jarman, Hall E., to Texas Instruments Incorporated. Printed circuit board switch. 4,276,460, Cl. 200-292.000.

Haggard, Roger L.; Seitchik, Jerold A.; and Rao, T. R. N., to Texas Instruments Incorporated. Method and apparatus for detecting errors in a data set. 4,276,646, Cl. 371-37.000.

Hahn, Allen W.; Nichols, Michael F.; Sharma, Ashok K.; and Hellmuth, Eckhard W., to University of Missouri, The Curators of the. Oxygen electrode and method for preparation thereof. 4,276,144, Cl. 204-195.00P.

Hahn, Andreas, to Messerschmitt-Boelkow-Biochm Gesellschaft mit beschrankter Haftung. Infusion pump. 4,276,004, Cl. 417-479.000.

Haight, Ehrick K. Combination feeder and sifter. 4,276,157, Cl. 209-246.000.

Haire, Darrell W., to Herr, Michael; and Johnson, Keith. Laminate cutting assembly. 4,275,501, Cl. 30-374.000.

Hairston, Thomas J.: *See*—
Monnerat, Georgia A.; Ham, George E.; Hairston, Thomas J.; and Hatch, Melvin J., 4,276,406, Cl. 528-92.000.

Hajos, Zoltan G.; and Wachter, Michael P., to Ortho Pharmaceutical Corporation. Synthesis of dioxabicyclo[3.2.1]octanes and oxepanes. 4,276,216, Cl. 260-340.600.

Hall, Robert A.: *See*—
Szymaszek, Paul G.; and Hall, Robert A., 4,275,570, Cl. 62-468.000.

Halle, Reidar: *See*—
Muenchow, John R.; Pastorino, Ronald L.; Halle, Reidar; and Lewis, Roger N., 4,276,247, Cl. 264-54.000.

Halliburton Company: *See*—
Knox, Lloyd C.; and Sullaway, Bob L., 4,275,974, Cl. 405-225.000.
Martin, Larry D., 4,276,185, Cl. 252-87.000.

Halpern, Peter H.; and Lawrence, Charles E., to Datapoint Corporation. Pulse shaping network for disc read circuitry. 4,276,573, Cl. 360-45.000.

Ham, George E.: *See*—
Monnerat, Georgia A.; Ham, George E.; Hairston, Thomas J.; and Hatch, Melvin J., 4,276,406, Cl. 528-92.000.

Hamisch, Paul H., Jr.; and Pabodie, Robert M., to Monarch Marking Systems, Inc. Selective printing apparatus. 4,275,654, Cl. 101-110.000.

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Hanover Research Corporation: *See*—
Greenfield, Charles; and Bonanno, Anthony J., 4,276,115, Cl. 159-1.0RW.

Hansel, Allen B.; and Natarajan, Thiagarajan, to Perkin-Elmer Corporation, The. Current sharing modular power system. 4,276,590, Cl. 363-71.000.

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Hanson, Lloyd D.: *See*—
Purton, Robert M.; and Hanson, Lloyd D., 4,275,842, Cl. 239-446.000.

Happ, Lawrence R.: *See*—
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Harbeson, William D., to Kay Elemetrics Corp. Speech analysis apparatus. 4,276,445, Cl. 179-1.0SC.

Harder, Arthur J., Jr., to Coach and Car Equipment Corporation. Back shroud for seat. 4,275,925, Cl. 297-444.000.

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Harney, Marilyn J., to Catalyst Research Corporation. Depolarizers for lithium halide batteries. 4,276,362, Cl. 429-213.000.

Harnisch, Heink: *See*—
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Harrison, Charles H.: *See*—
Andersen, Harold W.; Andersen, Shirley R.; Zaner, Clifford; and Harrison, Charles H., 4,276,263, Cl. 422-292.000.

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Kamihama, Kiyoshi, 4,275,930, Cl. 301-37.0SS.

Hashimoto, Takeji; Okumoto, Kiyofumi; and Andoh, Masayasu, to Dainippon Screen Seizo Kabushiki Kaisha. Automatic needle selection mechanism for a knitting machine. 4,275,573, Cl. 66-75.200.

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Hatch, Robert A.; Jansen, Harvey B.; Bolliger, Frederic E.; and Sumegi, Robert B., to Garrett Corporation, The. Gas turbine engine fuel governor. 4,275,558, Cl. 60-39.16R.

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Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Senba, Shunsuke, to Japanese National Railways; Fujitsu Limited; and Fujitsu Kiden Ltd. Automatic message announcement system. 4,276,572, Cl. 360-12.000.

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Heady, Robert E., to CPC International Inc. Preparation of high fructose syrups from sucrose. 4,276,379, Cl. 435-94.000.

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Hecke, Emil, to Degussa AG. Process for the production of finely divided oxides of metals or silicon. 4,276,274, Cl. 423-336.000.

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Heitmann, Jurgen; Illetschko, Gerhard; and Maly, Hans-Peter, to Robert Bosch GmbH. Representing a video signal upon the picture screen of a video display device. 4,276,563, Cl. 358-139.000.

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Helbig, Klaus, to Prakla - Seismos GmbH. Method for monitoring subsurface combustion and gasification processes in coal seams. 4,275,787, Cl. 166-251.000.

Heller, Adam; Tai, King L.; and Vadimsky, Richard G., to Bell Telephone Laboratories, Incorporated. Photoinduced migration of silver into chalcogenide layer. 4,276,368, Cl. 430-323.000.

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Hilton, Graham H., to De La Rue Systems Limited. Sheet counting apparatus. 4,275,667, Cl. 109-44.000.

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Hiraishi, Mamoru, to Heiwado Boeki Kabushiki Kaisha. Hatch locking mechanism for the battery compartment of a wristwatch. 4,276,632, Cl. 368-203.000.

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Hiruma, Hideo; and Maruhashi, Yukio, to Koa Denshi Kogyo Kabushiki Kaisha. Object confirming apparatus. 4,276,621, Cl. 367-97.000.

Hisazumi, Nobuyuki; Yamamoto, Masataka; and Uehara, Tsutomu, to Kureha Kagaku Kogyo Kabushiki Kaisha. Vacuum packaging method. 4,275,544, Cl. 53-433.000.

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Ietaka, Masasori; Yamamura, Masahiro; Watanabe, Kazuo; and Kominami, Yasuo, 4,276,442, Cl. 179-1.00A.
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Manabe, Toshikatsu; Nonogaki, Sabero; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
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Ho, Morris D.: *See*—
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Ho, Pang T.; and Rubin, Michael D., to Ford Aerospace & Communications Corp. Hermetically sealed active microwave integrated circuit. 4,276,558, Cl. 357-74.000.

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Hodges, Everett L. Down hole pump with bottom receptor. 4,275,926, Cl. 299-17.000.

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Ginsberg, Guenter; and Hodgins, Bruce J., 4,276,258, Cl. 422-64.000.

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Ruschenpaul, Klaus-Jorg, 4,275,878, Cl. 271-170.000.

Hoffacker, Franz: *See*—
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Suchy, Milos, 4,276,306, Cl. 424-301.000.

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Hohlein, Peter; and Schoeps, Jochen, to Bayer Aktiengesellschaft. Water-dilutable lacquer binders for chemically resistant coatings. 4,276,210, Cl. 260-29.4UA.

Holladay, Harry P., to Monsanto Company. Processes for sealing hollow fiber membranes arranged in the form of a bundle. 4,276,249, Cl. 264-139.000.

Hollet S.A.: *See*—
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Holmes, Lambert, to Denis Engineering Co. Fluid pump assembly. 4,276,001, Cl. 417-401.800.

Holmes, Phillip R.; Kehler, James A.; and Bogusky, Ronald A. Torque limiting drive system. 4,275,572, Cl. 64-30.00D.
Holweg, Rainer; and Kluting, Bernd, to Keiper Automobiltechnik GmbH & Co. KG. Safety support for adjustable vehicle seats. 4,275,914, Cl. 296-65.00R.
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Honbu, Mitsuyuki: *See—*
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Petryk, Edward M., Jr., 4,276,656, Cl. 455-608.000.
Honig, Milton L.; and Weil, Edward D., to Stauffer Chemical Company. Process for preparing pentaerithritol methylphosphonates having at least one hydroxyl group of pentaerithritol unesterified. 4,276,234, Cl. 260-982.000.
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Hopkins, Donald L., to Alf Hannaford & Co. Pty. Ltd. Apparatus for the handling of sheep. 4,275,685, Cl. 119-20.000.
Hopkins, Evan L.; and Thomas, Robert R., to Hopkins Manufacturing Corporation. Ice scraper. 4,275,476, Cl. 15-236.00R.
Hopkins, Ivan J.: *See—*
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Hopkins Manufacturing Corporation: *See—*
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Hori, Masao: *See—*
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Howarth, Michael S., to Imperial Chemical Industries Limited. Process for the purification of esters of phosphorus thioacids. 4,276,418, Cl. 544-243.000.
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Hoxmeier, Ronald J., to Shell Oil Company. Supported molybdenum/tungsten compositions. 4,276,199, Cl. 252-438.000.
Huang, James P. H. Novel fuel composition and the process of preparing same. 4,276,055, Cl. 44-53.000.
Huang, Marshall Y., to TRW Inc. Wideband, phase compensated amplifier with negative feedback of distortion components in the output signal. 4,276,514, Cl. 330-149.000.
Huang, Shih C. Closure member. 4,275,759, Cl. 137-528.000.
Hubele, Adolf: *See—*
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Hue, Bernard P. H.; and Mercier, Henri A., to Pechiney Ugine Kuhlmann. Process for depositing alumina onto a substrate and alumina regeneration. 4,276,327, Cl. 427-345.000.
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Hueschen, Robert E.: *See—*
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Hummel, Erhard: *See—*
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Huntal Manufacturing Company Incorporated: *See—*
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Hussein, Hany M., to Becton, Dickinson and Company. Syringe with pressure-limited delivery. 4,275,730, Cl. 128-234.000.
Hutchison, Charles L. Sealing devices. 4,275,485, Cl. 24-30.50R.
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Ihara, Tomomi: *See—*
Shibuya, Kyoichi; and Ihara, Tomomi, 4,276,020, Cl. 432-14.000.
Iinuma, Kazumoto, to Nippon Electric Co., Ltd. Code converting circuits. 4,276,544, Cl. 340-347.0DD.
Ikezaki, Muneyoshi; Noguchi, Katsuyuki; Iwai, Hajime; and Inamasu, Masanori, to Tanabe Seiyaku Co., Ltd. Novel benzylalcohol derivative and process for preparing the same. 4,276,304, Cl. 424-282.000.
Illetschko, Gerhard: *See—*
Heitmann, Jurgen; Illetschko, Gerhard; and Maly, Hans-Peter, 4,276,563, Cl. 358-139.000.
Imada, Kiyoshi: *See—*
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,276,138, Cl. 204-165.000.
Imahori, Seiichi; Hihara, Toshio; Yomeyama, Tomio; and Hirota, Takao, to Mitsubishi Chemical Industries Limited. Anthraquinone reactive dyes for cellulose-containing fibers. 4,276,047, Cl. 8-532.000.
Imaizumi, Masaru, to Minolta Camera Kabushiki Kaisha. Electrophotographic copying apparatus. 4,275,876, Cl. 271-8.00R.
Imamura, Akio; Yamaga, Eiichi; and Nakada, Akira, to Nippon Gakki Seizo Kabushiki Kaisha. Electronic musical instrument with automatic arpeggio faculty. 4,275,634, Cl. 84-1.030.
Immuno Aktiengesellschaft fur chemisch-medizinische Produkte: *See—*
Eibl, Johann; and Aicher, Helmut, 4,276,259, Cl. 422-71.000.
Eibl, Martha; Schwarz, Otto; and Linnau, Yendra, 4,276,283, Cl. 424-85.000.
Imperial Chemical Industries Limited: *See—*
Bramwell, Michael J., 4,276,346, Cl. 428-286.000.
Coffee, Ronald A., 4,275,846, Cl. 239-690.000.
Howarth, Michael S., 4,276,418, Cl. 544-243.000.
Porter, Kenneth, 4,276,106, Cl. 156-181.000.
Inamasu, Masanori: *See—*
Ikezaki, Muneyoshi; Noguchi, Katsuyuki; Iwai, Hajime; and Inamasu, Masanori, 4,276,304, Cl. 424-282.000.
Independent Broadcasting Authority: *See—*
Watson, John B.; and Dodds, Philip J., 4,276,564, Cl. 358-139.000.
Industrial Blast Coil Corporation: *See—*
Kerivan, Leo J., 4,275,785, Cl. 165-183.000.
Industrie Pirelli S.p.A.: *See—*
Gessaga, Rinaldo, 4,276,105, Cl. 156-128.00N.
Ing. Waldhauser Maschinenfabrik Ges.m.b.H. & Co. KG: *See—*
Waldhauser, Kurt, 4,275,761, Cl. 137-595.000.
Ingersoll-Rand Company: *See—*
Schivley, George P., Jr.; and Madonna, Peter L., 4,275,793, Cl. 173-9.000.
Willett, Daniel E.; Boothroyd, John A.; and Langlais, William F., 4,276,459, Cl. 200-157.000.
Ingles, Norma: *See—*
Singer, William; Nowak, Milton; and Ingles, Norma, 4,276,211, Cl. 260-29.6MN.
Inoue, Haruhiko; and Nakano, Syuji, to Omron Tateisi Electronics Co. Electronic cash register including means for producing printed validation data. 4,276,598, Cl. 364-405.000.

Inoue, Mitsumasa: *See—*
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,238, Cl. 261-39.00D.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,239, Cl. 261-44.00E.
Inoue, Sakae: *See—*
Ando, Yoshinori; Inoue, Sakae; and Takahashi, Kiyotaka, 4,276,275, Cl. 423-345.000.
Inoue, Tomohiro; Tanimoto, Akira; and Washizuka, Isamu, to Sharp Kabushiki Kaisha. Display control of hand-written, memorized pattern at a preselected time. 4,276,541, Cl. 340-146.3SY.
Institut Francais du Petrole: *See—*
Brun, Didier; Chrysostome, Gerard; Feugier, Alain; and Sale, Bernard, 4,276,266, Cl. 423-1.000.
Institute for Gravitational Strain Pathology, Inc.: *See—*
Jungmann, Martin, deceased, 4,275,718, Cl. 128-95.000.
Institute of Gas Technology: *See—*
Fejer, Andrew A., 4,275,562, Cl. 60-648.000.
International Business Machines Corporation: *See—*
Arzubi, Luis M.; Clemen, Rainer; and Gschwendtner, Jorg, 4,276,487, Cl. 307-270.000.
Beasch, Holger J.; and Luecke, Francis S., 4,276,574, Cl. 360-121.000.
Bakos, Peter; Bendz, Gerald A.; Darrow, Russell E.; and Rivenburgh, Dennis L., 4,276,186, Cl. 252-158.000.
Beilstein, Kenneth E., Jr.; and Kotecha, Harish N., 4,276,095, Cl. 148-1.500.
Bolcavage, Richard D.; Fleek, Arthur E.; and Marcus, Mitchell P., 4,275,653, Cl. 101-93.140.
Brereton, David A.; and Stansbury, Buddy F., 4,276,595, Cl. 364-200.000.
Brown, Byron R., 4,276,613, Cl. 365-14.000.
Habegger, Millard A.; and Hooker, Ross B., III, 4,275,960, Cl. 355-68.000.
Hovel, Harold J.; and Woodall, Jerry M., 4,276,137, Cl. 204-164.000.
Irwin, John W., 4,275,968, Cl. 400-582.000.
Vinal, Albert W., 4,276,555, Cl. 357-13.000.
International Co-op: *See—*
Andersen, Lowell J., 4,276,314, Cl. 426-272.000.
International Telephone and Telegraph Corporation: *See—*
Garmany, William J., 4,276,552, Cl. 343-105.00R.
O'Brien, Brian, Jr., 4,276,072, Cl. 65-3.00A.
Intradyn Maschinen AG: *See—*
Egger, Hansruedi, 4,275,836, Cl. 239-124.000.
Intraspec Inc.: *See—*
Fleck, William C., 4,276,610, Cl. 364-900.000.
Investio AG: *See—*
Geiger, Werner, 4,275,783, Cl. 164-146.000.
Ionics Inc.: *See—*
Jain, Surendar M., 4,276,140, Cl. 204-180.00P.
Iowa State University Research Foundation, Inc.: *See—*
Verkade, John G., 4,276,195, Cl. 252-431.00P.
Irio, Francis; and Chene, Richard, to Etablissement Caillau. Open type clamp. 4,275,484, Cl. 24-20.00R.
Irwin, John W., to International Business Machines Corporation. System for controlling and sequencing a printer. 4,275,968, Cl. 400-582.000.
Ishibashi, Tadashi: *See—*
Kohyama, Masaharu; and Ishibashi, Tadashi, 4,275,494, Cl. 29-592.00R.
Ishida, Masamitsu: *See—*
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,276,473, Cl. 250-327.100.
Ishihara, Eisuke; Yonehara, Hiroshi; Akasaki, Katsuyuki; Misawa, Masao; and Kobayashi, Katsumi, to Kuniei Chemical Industry Co., Ltd. Process for decreasing ammonia concentration in domestic animals or fowls. 4,276,286, Cl. 424-117.000.
Ishihara, Tadashi: *See—*
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, 4,276,479, Cl. 250-492.00R.
Ishikawa, Kozo: *See—*
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Seaba, Shunsuke, 4,276,572, Cl. 360-12.000.
Ishikawa, Masao: *See—*
Orii, Shinichi; and Ishikawa, Masao, 4,276,581, Cl. 362-40.000.
Ishikawa, Masayuki; Tanaka, Hiromichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, to Ishikawa, Masayuki. 3-Aromatic moiety substituted-4(3H)-quinazolinones, process for production thereof, and use thereof. 4,276,295, Cl. 424-251.000.
Ishikawa, Youhei: *See—*
Nishikawa, Toshio; Tamura, Sadahiro; and Ishikawa, Youhei, 4,276,525, Cl. 333-206.000.
Issei, Katsuta, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for purification of crude olefinically unsaturated nitrile and condenser useful for same process. 4,276,125, Cl. 203-4.000.
IT Enviroscience, Inc.: *See—*
Miller, Richard A., 4,276,198, Cl. 252-438.000.
Ito, Masashi: *See—*
Obata, Shuichi; and Ito, Masashi, 4,276,635, Cl. 369-256.000.
Ito, Shigeru: *See—*
Ishikawa, Masayuki; Tanaka, Hiromichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, 4,276,295, Cl. 424-251.000.
Ito, Takuki; and Watanabe, Tokio, to Sumitomo Chemical Company, Limited. Method for controlling wood-damaging insects. 4,276,308, Cl. 424-304.000.
Iwai, Hajime: *See—*
Ikezaki, Muneyoshi; Noguchi, Katsuyuki; Iwai, Hajime; and Inamasu, Masanori, 4,276,304, Cl. 424-282.000.
Iwami, Etsuji; and Saito, Takayuki, to Hitachi Chemical Company, Ltd. Molding resin composition. 4,276,388, Cl. 525-48.000.
Izumi Denki Corporation: *See—*
Fujita, Teizo; Ohashi, Toshiro; and Takimoto, Kouji, 4,276,631, Cl. 368-89.000.
J. G. Anschutz, GmbH: *See—*
Gerstenberger, Friedrich; Loos, Wolfgang; and Straub, Dieter, 4,275,521, Cl. 42-84.000.
J. K. Lasers Limited: *See—*
Burbeck, Ronald N.; and Keightley, Michael R., 4,276,497, Cl. 315-209.00R.
Jackisch, Philip F., to Ethyl Corporation. Stabilization of dibromostyrene. 4,276,189, Cl. 252-404.000.
Jackson, Philip, to Errut Products Limited. Planing apparatus with bridging cutters. 4,275,928, Cl. 299-39.000.
Jackson, Philip, to E. Beaudrey & Cie. Water filter having spiral casing. 4,276,171, Cl. 210-437.000.
Jagenberg-Werke AG: *See—*
Mohn, Hans-Werner; Buchholz, Rainer; Hoveler, Egon; and Zodrow, Rudolf, 4,275,807, Cl. 198-344.000.
Jain, Surendar M., to Ionics Inc. Electrodialysis apparatus and process for fractionating protein mixtures. 4,276,140, Cl. 204-180.00P.
Jakobs, Karlhans: *See—*
Hendricks, Udo-Winfried; and Jakobs, Karlhans, 4,276,046, Cl. 8-532.000.
Jamar, Dwight W., to Newco Company. Operator for a gate valve. 4,275,866, Cl. 251-250.000.
James, Ralph E.: *See—*
Teetzel, Michael L.; and James, Ralph E., 4,275,529, Cl. 51-334.000.
Janiszewski, Michael: *See—*
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.
Jansen, Harvey B.: *See—*
Hatch, Robert A.; Jansen, Harvey B.; Bolliger, Frederic E.; and Sunegi, Robert B., 4,275,558, Cl. 60-39.16R.
Jansen, Pierre G.; and Kessels, Jozef L. W., to U.S. Philips Corporation. Device for the control of data flows. 4,276,611, Cl. 364-900.000.
Japan Music Supply Inc.: *See—*
Takagi, Takatoshi, 4,275,947, Cl. 339-183.000.
Japan Storage Battery Co., Ltd.: *See—*
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, 4,276,479, Cl. 250-492.00R.
Japanese National Railways: *See—*
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Seaba, Shunsuke, 4,276,572, Cl. 360-12.000.
Jarman, Hall E.: *See—*
Haesly, Barry F.; and Jarman, Hall E., 4,276,460, Cl. 200-292.000.
Jarvis, Clifford W.; and Pearson, John E., to Crime Fighter, Inc. Door activated burglar alarm utilizing time delay. 4,276,545, Cl. 340-545.000.
Jefferson, Robert T.: *See—*
Butler, Gordon K.; and Jefferson, Robert T., 4,275,889, Cl. 277-42.000.
Jensen, Thomas C.; and Lowe, Terry L., to Deere & Company. Shovel with soil directing structure. 4,275,792, Cl. 172-703.000.
Jersey Nuclear-Avco Isotopes, Inc.: *See—*
McAllister, Gary L., 4,276,517, Cl. 331-94.50P.
Jochem, Rudolf: *See—*
Ehringer, Friedrich; Mann, Egon; Fischer, Manfred; and Jochem, Rudolf, 4,275,616, Cl. 74-730.000.
Johansson, Jan O.; and Karlsson, Gosta, to Andersstorps Verkstads Aktiebolag. Pipe clamp structures. 4,275,489, Cl. 24-279.000.
John Fluke Mfg. Co., Inc.: *See—*
Johnston, Craig E.; and Goyal, Ramesh C., 4,276,513, Cl. 330-9.000.
John, Peter: *See—*
Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Rindle, Rudolf; John, Peter; and Engelsberger, Georg, 4,276,426, Cl. 556-479.000.
John Zink Company: *See—*
Dinsmore, Harold L., 4,276,058, Cl. 55-48.000.
Johns Hopkins University, The: *See—*
Fischell, Robert E., 4,275,739, Cl. 128-419.0PS.
Johnson, Elwood O. Moisture proof matting. 4,276,342, Cl. 428-247.000.
Johnson, Grannis S.; and Rose, Ira M., to Diamond Shamrock Corporation. Pressure sensitive recording sheets. 4,275,906, Cl. 282-27.500.
Johnson, Joseph S.; and Stiles, Carl A., to Dayco Corporation. Mailbox and method of making same. 4,275,829, Cl. 232-17.000.
Johnson, Keith: *See—*
Haire, Darrell W., 4,275,301, Cl. 30-374.000.
Johnson, Marvin M.: *See—*
Wu, Yulin; Johnson, Marvin M.; and Nowack, Gerhard P., 4,276,200, Cl. 252-443.000.
Johnson, Raymond R. Scaffolding power attachment. 4,275,799, Cl. 180-2.000R.

Johnston, Craig E.; and Goyal, Ramesh C., to John Fluke Mfg. Co., Inc. Auto-zero amplifier circuit with wide dynamic range. 4,276,513, Cl. 330-9.000.

Joice, Richard L. Apparatus and method for individual bag working and stacking. 4,275,977, Cl. 414-51.000.

Jones, Howard; Clark, Robert L.; and Zimmerman, Morris, to Merck & Co., Inc. 2-Aryl-1,2-benzisothiazolinone-1,1-dioxides and their use as selective protease inhibitors. 4,276,298, Cl. 424-270.000.

Jones, Howard P., to Edo Western Corporation. Film processor apparatus. 4,275,959, Cl. 355-20.000.

Jones, Neal K. Method of and means for scanning images. 4,275,949, Cl. 350-6.300.

Jones, Raymond L. Drafting device for producing concentric lines. 4,275,502, Cl. 33-27.00L.

Jones, William H., to Eaton Corporation. Clothes dryer temperature control system. 4,275,508, Cl. 34-43.000.

Joppien, Hartmut: *See*—
Franke, Heinrich; and Joppien, Hartmut, 4,276,309, Cl. 424-322.000.

Joshi, David, to Colgate-Palmolive Company. Free flowing builder beads and detergents. 4,276,326, Cl. 427-220.000.

Joslin, Joel A.: *See*—
Satchell, Fred E.; and Joslin, Joel A., 4,276,250, Cl. 264-167.000.

Jost, Max, to Ciba-Geigy Corporation. Process for the coloration of organic material of high molecular weight in the melt within anthraquinone dyes. 4,276,213, Cl. 260-40.00R.

Juenemann, Werner; Lamm, Gunther; and Loeffler, Hermann, to BASF Aktiengesellschaft. Dyeing and printing of cellulosic textile material. 4,276,045, Cl. 8-471.000.

Juffa, Richard; and Boden, Heinrich, to Bayer Aktiengesellschaft. Apparatus for metering at least two reaction components into a mixing chamber. 4,275,822, Cl. 222-63.000.

Juglekar, Manohar A.: *See*—
Bench, Stephen M.; Dirkes, William R.; Juglekar, Manohar A.; Secora, James C.; and Stephen, Michael A., 4,276,651, Cl. 375-120.000.

Julien, Earl W. Gas torch. 4,276,017, Cl. 431-344.000.

Jundt, Werner; and Roozenbeek, Herman, to Robert Bosch GmbH. Ignition system for an internal combustion engine. 4,275,702, Cl. 123-610.000.

Jundt, Werner: *See*—
Bodig, Bernd; Roozenbeek, Herman; and Jundt, Werner, 4,275,703, Cl. 123-617.000.

Jungmann, Gertrude, heir: *See*—
Jungmann, Martin, deceased, 4,275,718, Cl. 128-95.000.

Jungmann, Martin, deceased (by Jungmann, Gertrude, heir), to Institute for Gravitational Strain Pathology, Inc. Pelvic device. 4,275,718, Cl. 128-95.000.

Juntgen, Harald: *See*—
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,276,178, Cl. 210-662.000.

Jureit, J. Calvin; Seipos, Andrew G.; and Langevin, William J., to Automated Building Components, Inc. Rolled nail strips packed without spools. 4,275,854, Cl. 242-55.000.

Juy, Henri, to Le Simplex. Saddle shank for bicycles and similar vehicles. 4,275,922, Cl. 297-195.000.

K-G Devices Corporation: *See*—
Goldsmith, Arthur C.; and Kirkgasser, James P., 4,275,630, Cl. 83-500.000.

K-Tron International Inc.: *See*—
Bullivant, Kenneth W.; and Schreier, Hermann, 4,275,808, Cl. 198-533.000.

Kabushiki Kaisha Asahi Gomu: *See*—
Tanaka, Kazuyoshi, 4,276,341, Cl. 428-246.000.

Kabushiki Kaisha Daini Seikosha: *See*—
Satoh, Katsuhiko; Asano, Kazuhiro; Mandai, Masaaki; Ueda, Makoto; Torisawa, Akira; and Shida, Masaharu, 4,276,626, Cl. 368-80.000.

Kabushiki Kaisha Maruyama Seisakusho: *See*—
Shimizu, Yoichi, 4,275,772, Cl. 139-91.000.

Kabushiki Kaisha Murao Shoten: *See*—
Murao, Masami, 4,276,086, Cl. 75-134.00C.

Kabushiki Kaisha Takeda Sangyo: *See*—
Shimada, Koji; and Koike, Seiji, 4,276,347, Cl. 428-332.000.

Kabushikikaisha Ohkawara Seisakusho: *See*—
Takeyama, Toshiro; and Ohtani, Shigemori, 4,275,841, Cl. 239-431.000.

Kadota, Michio, to Murata Manufacturing Co., Ltd. Acoustic surface wave device. 4,276,524, Cl. 333-194.000.

Kaemmer, Eduard: *See*—
Schoettle, Klaus; Hoffmann, Werner; Kaemmer, Eduard; Boehlke, Klaus; and Lewin, Helmut, 4,276,575, Cl. 360-130.210.

Kageyama, Hiroshi; and Saito, Tsuyoshi, to Tokyo Shibaura Denki Kabushiki Kaisha. Film containing magazine. 4,275,814, Cl. 206-455.000.

Kahn, Twassul A.; Kiowski, John W.; and Lang, Douglas G., to Geosource Inc. Method and apparatus for obtaining a composite field response to a variable source array using weighting coefficients. 4,276,620, Cl. 367-60.000.

Kaiser Aluminum & Chemical Corporation: *See*—
Cassens, Nicholas, Jr., 4,276,091, Cl. 106-58.000.
Schlager, Richard J.; and Murphy, James F., 4,276,272, Cl. 423-244.000.

Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K. Axial or worm-type centrifugal impeller pump. 4,275,988, Cl. 415-74.000.

Kali and Salz Aktiengesellschaft: *See*—
Singewald, Arno; Fricke, Gunter; Neitzel, Ulrich; and Geisler, Iring, 4,276,154, Cl. 209-3.000.

Kalns, Ilmars, to Eaton Corporation. Hydraulic system for a ratio change transmission. 4,275,617, Cl. 74-750.00R.

Kalocsay, Joseph, to Boeing Company, The. Indirectly heated aircraft probes and masts. 4,275,603, Cl. 73-861.680.

Kamihama, Kiyoshi, to Nissan Motor Company, Limited; and Hashimoto Forming Kogyo Company Limited. Wheel cover comprising two or more cover plates each having spoke-like portions inseparable from other portions. 4,275,930, Cl. 301-37.0SS.

Kamyr Aktiebolag: *See*—
Richter, Johan C. F. C.; and Richter, Ole J., 4,276,167, Cl. 210-331.000.

Kaneko, Kojiro: *See*—
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.

Kanzaki, Nobuyoshi; Toyama, Kenji; Nakano, Katsutoshi; Shimatani, Ryoichi; and Kudo, Fumio, to Matsushita Electric Industrial Co., Ltd. Method for producing foil electrodes for electrolytic capacitor. 4,276,129, Cl. 204-58.000.

Kappler, Guenter; and Fehler, Adolf, to Motoren- und Turbinen Union Munchen GmbH. Combustion chamber for gas turbine engines. 4,275,564, Cl. 60-738.000.

Karamian, Narbik A. Method for preventing bacterial passage into sterile fluid systems. 4,276,256, Cl. 422-24.000.

Karayannis, Nicholas M.; Grams, Harold; and Skryantz, John S., to Standard Oil Company (Indiana). Catalyst and process for polymerization of alpha-olefins. 4,276,191, Cl. 252-429.00C.

Karim, Khalid A.; and Rea, James H., to Gulf Oil Corporation. Blends of ethylene-alkyl acrylate copolymers with rosin esters. 4,276,111, Cl. 156-308.200.

Karl, Rupert: *See*—
Blohm, Reinhard; Karl, Rupert; and Sarcander, Hans, 4,275,553, Cl. 57-263.000.

Karlsson, Gosta: *See*—
Johansson, Jan O.; and Karlsson, Gosta, 4,275,489, Cl. 24-279.000.

Karnis, Alkibiadis; and Shallhorn, Paul M., to Domtar Inc. Method and apparatus for on-line monitoring of specific surface of mechanical pulps. 4,276,119, Cl. 162-49.000.

Karnofsky, George B.; and Brink, Robert E., to Dravo Corporation. Method of recovering heat from hot granular solids. 4,276,021, Cl. 432-85.000.

Karrer, Friedrich, to Ciba-Geigy Corporation. N-Heterocyclic substituted acryloyl polymeric compounds. 4,276,401, Cl. 526-263.000.

Kasei Optonix, Ltd.: *See*—
Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.

Kaser, Franz: *See*—
Broghammer, Rudolf; and Kaser, Franz, 4,276,625, Cl. 368-75.000.

Kashiwaba, Yukio: *See*—
Matsui, Katsuhiko; Kashiwaba, Yukio; and Kishimoto, Yoshioki, 4,276,161, Cl. 210-86.000.

Kashmerick, Gerald E., to Outboard Marine Corporation. Stern drive gear box and clutching arrangement. 4,276,034, Cl. 440-75.000.

Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, to Fuji Photo Film Co., Ltd. Gradation processing method and apparatus for radiation image recording system. 4,276,473, Cl. 250-327.100.

Kato, Shigeo: *See*—
Takano, Yukio; Ogirima, Masahiko; Aoki, Shigeru; Maki, Michiyoshi; and Kato, Shigeo, 4,276,114, Cl. 156-645.000.

Kato, Toshio: *See*—
Sakai, Katsuya; Mita, Ryuichi; Kato, Toshio; Higuchi, Chojiro; and Murakami, Hisamichi, 4,276,187, Cl. 252-186.000.

Kato, Yoshiaki, to Nissan Motor Company, Limited. Vehicle window glass washing system. 4,275,477, Cl. 15-250.020.

Kato, Yutaka: *See*—
Matsumura, Osamu; Kato, Yutaka; Sekiguchi, Tsunetoshi; and Namiki, Ryo, 4,276,629, Cl. 368-86.000.

Katz, David H., to Scripps Clinic & Research Foundation. Immunochemical conjugates: method and composition. 4,276,206, Cl. 260-6.000.

Katz, Otto, to A.W. Faber-Castell. Mechanical pencil. 4,275,971, Cl. 401-80.000.

Katz, Saul N.; and Gottesman, Martin, to General Foods Corporation. Method for decaffeinating coffee. 4,276,315, Cl. 426-428.000.

Kawaguchi, Toshio: *See*—
Okawa, Tadashi; Honbu, Mitsuyuki; Matsuda, Yasuo; Shibata, Takanori; and Kawaguchi, Toshio, 4,276,589, Cl. 363-71.000.

Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, to Nippon Soken, Inc. Gas flow measuring apparatus. 4,275,590, Cl. 73-204.000.

Kay Elemetrics Corp.: *See*—
Harbeson, William D., 4,276,445, Cl. 179-1.0SC.

Kayama, Hiroyki: *See*—
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, 4,275,648, Cl. 99-483.000.

Kazama, Norio: *See*—
Okamoto, Shoji; and Kazama, Norio, 4,275,919, Cl. 296-214.000.

Keen, John M.; and Willoughby, Arthur F. W., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Fabrication of infra-red charge coupled devices. 4,276,099, Cl. 148-187.000.

Keeri-Szanto, Michael. Device for monitoring and controlling self-administered intravenous drug dosage. 4,275,727, Cl. 128-214.00E.

Kehler, James A.: *See*—
Holmes, Phillip R.; Kehler, James A.; and Bogusky, Ronald A., 4,275,572, Cl. 64-30.00D.

Keightley, Michael R.: *See*—
Burbeck, Ronald N.; and Keightley, Michael R., 4,276,497, Cl. 315-209.00R.

Keiper Automobiltechnik GmbH & Co. KG: *See*—
Holweg, Rainer; and Kluting, Bernd, 4,275,914, Cl. 296-65.00R.
Lehmann, Gerhard; and Hummel, Erhard, 4,275,924, Cl. 297-362.000.

Kell, Michael J.; and Mahoney, Robert D., to Cordis Dow Corp. Cellulose acetate hollow fiber and method for making same. 4,276,173, Cl. 210-500.200.

Keller Manufacturing Co., Inc.: *See*—
Keller, William A., 4,275,540, Cl. 52-314.000.

Keller, Walter: *See*—
Kutz, Johannes; Keller, Walter; Kruger, Max; and Kusters, Eduard, 4,275,683, Cl. 118-407.000.

Keller, William A., to Keller Manufacturing Co., Inc. Plastic free standing brick wall section. 4,275,540, Cl. 52-314.000.

Kempf, Jacques G. Method of recovering energy in the manufacture of polymers from monomeric gas and apparatus for carrying out the method. 4,276,398, Cl. 526-68.000.

Kendall Company, The: *See*—
Merry, Jack D., 4,275,728, Cl. 128-215.000.
Wichman, Cynthia A., 4,275,720, Cl. 128-132.00D.

Kennedy, Joseph P.; Smith, Robert A.; and Ross, Louis R., Jr., to University of Akron, The. Novel telechelic polymers, block copolymers and processes for the preparation thereof. 4,276,394, Cl. 525-245.000.

Kennedy, Robert W.: *See*—
Stewart, Richard F.; and Kennedy, Robert W., 4,276,241, Cl. 261-92.000.

Kennel, John M., to Rockwell International Corporation. Acceleration sensitive gyroscope stabilized platform. 4,275,605, Cl. 74-5.340.

Kenyon, Dennis, to Dunlop Limited. Resilient support means. 4,275,832, Cl. 238-310.000.

Kerivan, Leo J., to Industrial Blast Coil Corporation. Heat exchange tubing blade assembly. 4,275,785, Cl. 165-183.000.

Kernforschungszentrum Karlsruhe GmbH: *See*—
Donnert, Dietfried; Eberle, Siegfried; and Endres, Gerhard, 4,276,160, Cl. 210-660.000.

Kerscher, Frederick C.; and Nowacki, John J., to Goodyear Tire & Rubber Company, The. Polymerization apparatus and process. 4,276,261, Cl. 422-131.000.

Kerwin, Kenneth H., II: *See*—
Nations, William N.; and Kerwin, Kenneth H., II, 4,276,654, Cl. 455-160.000.

Kessel, Bernhard. Trap-type drain with built-in strainer. 4,275,760, Cl. 137-546.000.

Kessels, Jozef L. W.: *See*—
Jansen, Pierre G.; and Kessels, Jozef L. W., 4,276,611, Cl. 364-900.000.

Kessler, James A.: *See*—
Hartford, Thomas W.; and Kessler, James A., 4,276,600, Cl. 364-431.000.

Ketchem & McDougall, Inc.: *See*—
Grunstad, Jerome A., 4,275,519, Cl. 40-378.000.

Keystone International, Inc.: *See*—
Schils, Petrus J. R., 4,275,867, Cl. 251-297.000.

Khanna, Ram-Tirth; and Turner, Robert L., to Du Pont de Nemours, E. I., and Company. High solids coating composition of a low molecular weight acrylic polymer and an alkylated melamine cross-linking agent. 4,276,212, Cl. 260-39.00R.

Kilbourn, Edward E.: *See*—
Weir, W. David; and Kilbourn, Edward E., 4,276,290, Cl. 424-200.000.

Killinger, Karl H., to Singer Company, The. Bobbin case with thread guide for cyclic sewing machine. 4,275,675, Cl. 112-229.000.

Kilpper, Gerhard; and Grimmer, Johannes, to BASF Aktiengesellschaft. Continuous preparation of anthranilic acid. 4,276,433, Cl. 562-458.000.

Kimblin, Clive W.; and Slade, Paul G., to Electric Power Research Institute, Inc. Vacuum envelope for current limiter. 4,276,455, Cl. 200-144.00B.

Kime, Wellesley R. Laser powered solid fuel disintegrator. 4,276,463, Cl. 219-121.0LB.

Kindell, Jerry L.: *See*—
Flynn, Richard T.; and Kindell, Jerry L., 4,276,596, Cl. 364-200.000.

Kindig, James K.; and Turner, Ronald L., to Hazen Research, Inc. Process for beneficiating ores. 4,276,081, Cl. 75-7.000.

King, Patrick D.; and Folk, Gary R., to Flo-Con Systems, Inc. Clamp-on tube holder and method. 4,275,825, Cl. 222-590.000.

Kingston, Douglas R.: *See*—
Appleton, Harold L.; and Kingston, Douglas R., 4,275,920, Cl. 40-605.000.

Kiowski, John W.: *See*—
Kahn, Twassul A.; Kiowski, John W.; and Lang, Douglas G., 4,276,620, Cl. 367-60.000.

Kirby, Charles E., to Procter & Gamble Company, The. Method of treating edible oil with alkali using interfacial surface mixer. 4,276,227, Cl. 260-425.000.

Kirchner, Gabriella: *See*—
Meszaros, Sandor; Kirchner, Gabriella; Balzer, Janos; and Wild, Karoly, 4,276,478, Cl. 250-468.000.

Kirk, John H., Jr., to Exxon Research & Engineering Co. Method and apparatus for producing a facsimile gray scale. 4,276,569, Cl. 358-298.000.

Kirk, Richard L.: *See*—
Baird, Roy W.; Berger, Robert E.; and Kirk, Richard L., 4,275,932, Cl. 301-39.00T.

Kirkgasser, James P.: *See*—
Goldsmith, Arthur C.; and Kirkgasser, James P., 4,275,630, Cl. 83-500.000.

Kirkpatrick, Craig G.: *See*—
Kohlenberger, Charles W.; Kirkpatrick, Craig G.; Estrada, John A.; and Chang, George Q., 4,275,599, Cl. 73-774.000.

Kishimoto, Yoshioki: *See*—
Matsui, Katsuhiko; Kashiwaba, Yukio; and Kishimoto, Yoshioki, 4,276,161, Cl. 210-86.000.

Kitai, Kiyoshi; Takazawa, Yuzuru; and Nagaoka, Shinji, to Seiko Koki Kabushiki Kaisha. Shutter release interrupting system. 4,275,955, Cl. 354-268.000.

Kitakohji, Toshisuke: *See*—
Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, 4,276,365, Cl. 430-270.000.

Kitamura, Kenro: *See*—
Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, 4,276,365, Cl. 430-270.000.

Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, to Victor Company of Japan, Limited. Automatic attenuation circuit. 4,276,604, Cl. 364-480.000.

Klaue, Manfred: *See*—
Siewert, Ingo; Klaue, Manfred; and Thietz, Peter, 4,276,109, Cl. 156-273.000.

Klauke, Erich: *See*—
Sirrenberg, Wilhelm; Klauke, Erich; Hammann, Ingeborg; Krehan, Ingomar; Kraus, Peter; and Stendel, Wilhelm, 4,276,310, Cl. 424-322.000.

Kleesattel, Claus. Method and apparatus for the measurement of hardness testing indentations. 4,275,966, Cl. 356-378.000.

Klein, Hans J.: *See*—
Pohler, Friedmar; Falk, Hans; Muller, Josef; Klein, Hans J.; and Hoffacker, Franz, 4,276,324, Cl. 427-10.000.

Klein, Jurgen: *See*—
Gappa, Gunther; Juntgen, Harald; and Klein, Jurgen, 4,276,178, Cl. 210-662.000.

Kleine, Werner, to Gebruder Heller Verwaltungsgesellschaft mit beschrankter Haftung. Rock drilling tool. 4,275,796, Cl. 175-385.000.

Kleinewefers GmbH: *See*—
Schiffer, Gunter, 4,275,575, Cl. 68-5.00E.

Kline, Kenneth H.; and Kramer, Walter W., to Fuller Company. Fluid bed nozzle retainer. 4,275,509, Cl. 34-57.00R.

Klunsch, Max: *See*—
Erbach, Emil-Richard; Klunsch, Max; Lindner, Gerhard; and Lingens, Paul, 4,275,967, Cl. 366-149.000.

Kluting, Bernd: *See*—
Holweg, Rainer; and Kluting, Bernd, 4,275,914, Cl. 296-65.00R.

Knapp, Alan G.: *See*—
Stone, Henry D.; Knapp, Alan G.; Mansell, John R.; Overall, Colin D.; and Washington, Derek, 4,276,127, Cl. 204-24.000.

Knapstein, Bruno; and Vial, Friedrich, to Kronos Titan G.m.b.H. Plate-type paint grinding machine and its use in pigment testing. 4,275,850, Cl. 241-57.000.

Knoll, Francis. Apparatus and method for patterning geometric objects. 4,275,506, Cl. 33-175.000.

Knowles, James G., to Clayton Dewandre & Co. Ltd. Hydraulic control systems. 4,275,643, Cl. 91-444.000.

Knox, Lloyd C.; and Sullaway, Bob L., to Halliburton Company. Inflation and grout system. 4,275,974, Cl. 405-225.000.

Koa Denshi Kogyo Kabushiki Kaisha: *See*—
Hiruma, Hideo; and Maruhashi, Yukio, 4,276,621, Cl. 367-97.000.

Kobayashi, Katsumi: *See*—
Ishihara, Eisuke; Yonehara, Hiroshi; Akasaki, Katsuyuki; Minowa, Masao; and Kobayashi, Katsumi, 4,276,286, Cl. 424-117.000.

Kobayashi, Masahiko: *See*—
Ishikawa, Masayuki; Tanaka, Hironichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, 4,276,295, Cl. 424-251.000.

Kobayashi, Yoshiaki, to Yanaba Hatsudoki Kabushiki Kaisha. Duct systems for water jet propulsion boats. 4,276,035, Cl. 440-47.000.

Koch Engineering Company, Inc.: *See*—
Chen, Gilbert K.; Nyberg, Paul M.; and Buchholz, Matthew, 4,276,242, Cl. 261-111.000.

Koch, Johannes: *See*—
Steinbrecher, Heinrich; Koch, Johannes; and Peglan, Manfred, 4,275,578, Cl. 72-14.000.
Koehler Manufacturing Company: *See*—
Sundberg, Erik, 4,276,359, Cl. 429-140.000.
Koehler, William M.: *See*—
Atwood, John E.; Baugh, John L.; Koehler, William M.; and Waterman, David K., 4,275,592, Cl. 73-432.00R.
Koerwer, John F., to Union Carbide Corporation. Phenoxy-phenoxyalkane carboxylic acids and derivatives as sugar enhancers for plants. 4,276,080, Cl. 71-108.000.
Kohama, Tokio: *See*—
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,275,590, Cl. 73-204.000.
Kohlenberger, Charles W.; Kirkpatrick, Craig G.; Estrada, John A.; and Chang, George Q., to Rockwell International Corporation. Sensor for measuring dynamic variations in strain. 4,275,599, Cl. 73-774.000.
Kohlenberger, Raymond W. Extractor head for cleaning soft surfaces such as carpet or upholstry. 4,275,478, Cl. 15-401.000.
Kohyama, Masaharu; and Ishibashi, Tadashi, to Hitachi, Ltd. Method for manufacturing liquid crystal display elements. 4,275,494, Cl. 29-592.00R.
Koike, Seiji: *See*—
Shimada, Koji; and Koike, Seiji, 4,276,347, Cl. 428-332.000.
Koizumi, Akio, to Sony Corporation. DC to DC Converter. 4,276,587, Cl. 363-26.000.
Koizumi, Jun: *See*—
Sato, Yasuhiko; Koizumi, Jun; and Tokushige, Yuji, 4,276,135, Cl. 204-159.130.
Kojima, Shinichi: *See*—
Watanabe, Yasuaki; Okabe, Yukio; Kojima, Shinichi; and Sato, Mitsuya, 4,276,560, Cl. 358-28.000.
Kolaska, Johannes; and Grewe, Hans, to Fried. Krupp Gesellschaft mit beschrankter Haftung. Method for producing hard metal bodies of increased wear resistance. 4,276,096, Cl. 148-16.600.
Koleske, Joseph V.; Smith, Oliver W.; France, Haywood G.; and Taller, Robert A., to Union Carbide Corporation. Low-energy-curable coatings compositions. 4,276,405, Cl. 528-58.000.
Kominami, Yasuo: *See*—
Ienaka, Masanori; Yamamura, Masahiro; Watanabe, Kazuo; and Kominami, Yasuo, 4,276,442, Cl. 179-1.00A.
Komiyama, Katsuhiko, to Citizen Watch Company Limited. Module structure for electronic digital timepiece. 4,276,627, Cl. 368-84.000.
Kondo, Osamu: *See*—
Yamashita, Mitsuo; and Kondo, Osamu, 4,275,879, Cl. 271-259.000.
Kondo, Yasuo: *See*—
Nishida, Yasuhiro; and Kondo, Yasuo, 4,276,036, Cl. 440-89.000.
Kondo, Yoshinobu: *See*—
Matsuoka, Hideoki; and Kondo, Yoshinobu, 4,275,903, Cl. 280-803.000.
Konig, Hans J.: *See*—
Blumrich, Walter; Dorr, Karl H.; Konig, Hans J.; and Sander, Ulrich, 4,276,116, Cl. 159-47.00R.
Konno, Akihiko: *See*—
Obara, Sanshiro; Tokuda, Hiroatsu; Konno, Akihiko; and Nakamura, Hideo, 4,276,602, Cl. 364-431.000.
Konstantinov, Rjury I.: *See*—
Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K., 4,275,988, Cl. 415-74.000.
Koontz, Harry S.: *See*—
Bryant, Lovell D.; and Koontz, Harry S., 4,276,509, Cl. 324-51.000.
Kopp, Hanspeter, to Zahnradfabrik Friedrichshafen AG. Hydraulic servo cylinder and piston. 4,275,641, Cl. 91-400.000.
Koppers Company, Inc.: *See*—
Emery, William G., 4,276,123, Cl. 202-241.000.
Rogers, Robert C., 4,276,121, Cl. 202-227.000.
Korhonen, Kaarlo J. Device for handling of meat and cutting-up thereof. 4,275,479, Cl. 17-1.00R.
Koritnik, Michael. Vehicle closure. 4,275,915, Cl. 296-76.000.
Kornfeld, Edmund C.: *See*—
Bach, Nicholas J.; and Kornfeld, Edmund C., 4,276,300, Cl. 424-273.00P.
Kotas, John A., to Desa Industries, Inc. Log splitter. 4,275,778, Cl. 144-193.00A.
Kotecha, Harish N.: *See*—
Beilstein, Kenneth E., Jr.; and Kotecha, Harish N., 4,276,095, Cl. 148-1.500.
Kothmann, Richard E.; and Cyphers, Joseph A., to Westinghouse Electric Corp. Fuel cell system configurations. 4,276,355, Cl. 429-26.000.
Kountz, Kenneth J.; and Norbeck, Dean K., to Borg-Warner Corporation. Adjustable surge and capacity control system. 4,275,987, Cl. 415-17.000.
Kowalski, Thomas A.: *See*—
Woodring, Richard H.; Whitmore, Charles H.; Houtman, Paul K.; and Kowalski, Thomas A., 4,275,997, Cl. 417-218.000.
Kozak, Andrei A.: *See*—
Stakhov, Alexei P.; Solyanichenko, Nikolai A.; Luzheisky, Vladimir A.; Ovodenko, Alexandr V.; and Kozak, Andrei A., 4,276,608, Cl. 364-768.000.
Kraemer, Erich H.; and Rolfs, John C., to Sperry Corporation. Integrated circuit planar high frequency mixer. 4,276,655, Cl. 455-327.000.
Kraft, Derald H., to Dyneer Corporation. Hydraulic belt tensioner construction. 4,276,038, Cl. 474-110.000.
Kraftwerk Union Aktiengesellschaft: *See*—
Engl, Gunter, 4,275,598, Cl. 73-622.000.
Kramer, Walter; and Follmann, Rainer, to Effem GmbH. Animal litter. 4,275,684, Cl. 119-1.000.
Kramer, Walter W.: *See*—
Kline, Kenneth H.; and Kramer, Walter W., 4,275,509, Cl. 34-57.00R.
Krantz, Leonard A.; and Hogan, Edward P., to Bendix Corporation, The. Filter connector with compound filter elements. 4,275,945, Cl. 339-147.00R.
Krass, Alvin. Motor skills tester. 4,276,546, Cl. 340-576.000.
Kraus, Charles E., to Excelermatic Inc. Infinitely variable traction roller transmission. 4,275,610, Cl. 74-200.000.
Kraus, Peter: *See*—
Sirrenberg, Wilhelm; Klauke, Erich; Hammann, Ingeborg; Krehan, Ingomar; Kraus, Peter; and Stendel, Wilhelm, 4,276,310, Cl. 424-322.000.
Krause, Hans-Joachim: *See*—
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, 4,276,209, Cl. 260-28.00P.
Krautkramer-Branson, Inc.: *See*—
Primbsch, Erik, 4,275,963, Cl. 356-35.500.
Krehan, Ingomar: *See*—
Sirrenberg, Wilhelm; Klauke, Erich; Hammann, Ingeborg; Krehan, Ingomar; Kraus, Peter; and Stendel, Wilhelm, 4,276,310, Cl. 424-322.000.
Kreis, Gerhard; and Wegehaupt, Karl-Heinrich, to Wacker-Chemie GmbH. Addition of Si-bonded hydrogen to an aliphatic multiple bond. 4,276,252, Cl. 264-222.000.
Krekeler, Claude B., to Cincinnati Mine Machinery Company, The. Means for removably affixing a cutter bit mounting lug to a base member on the driven element of a mining machine or the like. 4,275,929, Cl. 299-91.000.
Kretschmar, Herbert C.: *See*—
Reller, Herbert H.; and Kretschmar, Herbert C., 4,276,430, Cl. 560-66.000.
Kreuz, Ulrich H.; and Wendel, Kurz H. Cutting tool. 4,275,853, Cl. 241-294.000.
Kronos Titan G.m.b.H.: *See*—
Knapstein, Bruno; and Vial, Friedrich, 4,275,850, Cl. 241-57.000.
Krovina, Peter G. Sailing system. 4,276,033, Cl. 440-8.000.
Kruger, Max: *See*—
Kutz, Johannes; Keller, Walter; Kruger, Max; and Kusters, Eduard, 4,275,683, Cl. 118-407.000.
Krupa, Joseph F.: *See*—
McIsaac, Lyle D.; Krupa, Joseph F.; and Schroeder, Norman C., 4,276,235, Cl. 260-990.000.
Kruschel, William A., to Minnesota Mining and Manufacturing Company. Crimping tool. 4,275,584, Cl. 72-410.000.
Kubota Ltd.: *See*—
Yoshizawa, Tadao; and Sakaguchi, Masayuki, 4,275,909, Cl. 285-110.000.
Kubota, Yuzuru: *See*—
Nagae, Hiroshi; Okuyama, Toshiaki; and Kubota, Yuzuru, 4,276,504, Cl. 318-721.000.
Kudiarov, Vladimir N.: *See*—
Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K., 4,275,988, Cl. 415-74.000.
Kudo, Fumio: *See*—
Kanzaki, Nobuyoshi; Toyama, Kenji; Nakano, Katsutoshi; Shimatani, Ryoichi; and Kudo, Fumio, 4,276,129, Cl. 204-58.000.
Kuehnle, Manfred R.; and Perry, George J., to Coulter Systems Corporation. Offset plate image transfer attachment for graphic art cameras. 4,275,957, Cl. 355-10.000.
Kues, Joachim: *See*—
Behr, Albert; and Kues, Joachim, 4,275,847, Cl. 241-20.000.
Kuhnel, Donald S., to Graphic Arts Manufacturing Company. Analog read-only memory system for antilog conversion. 4,276,615, Cl. 365-45.000.
Kumai, Teruo: *See*—
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Kumisai Chemical Industry Co., Ltd.: *See*—
Ishihara, Eisuke; Yonehara, Hiroshi; Akasaki, Katsuyuki; Minowa, Masao; and Kobayashi, Katsumi, 4,276,286, Cl. 424-117.000.
Kummer, Wolfgang H.: *See*—
Williams, Frederick C.; and Kummer, Wolfgang H., 4,276,551, Cl. 343-100.0SA.
Kundo - Kieninger + Obergfell: *See*—
Broghammer, Rudolf; and Kaser, Franz, 4,276,625, Cl. 368-75.000.
Kunets, Vladimir K.: *See*—
Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K., 4,275,988, Cl. 415-74.000.
Kunz, Walter; Eckhardt, Wolfgang; and Hubele, Adolf, to Ciba-Geigy Corporation. Microbicidal compositions. 4,276,303, Cl. 424-273.00R.
Kunze, Claus: *See*—
Meyer, Juergen; Schaaf, Norbert; and Kunze, Claus, 4,276,534, Cl. 338-15.000.
Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Hisazumi, Nobuyuki; Yamamoto, Masataka; and Uehara, Tsutomu, 4,275,544, Cl. 53-433.000.
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sagita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro;

and Oshima, Ryoichiro, to Hitachi, Ltd. Power-generating plant having increased circulating force of working fluid. 4,275,563, Cl. 60-673.000.
Kushnir, Georgy M.: *See*—
Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K., 4,275,988, Cl. 415-74.000.
Kusters, Eduard: *See*—
Kutz, Johannes; Keller, Walter; Kruger, Max; and Kusters, Eduard, 4,275,683, Cl. 118-407.000.
Kutz, Johannes; Keller, Walter; Kruger, Max; and Kusters, Eduard, to Kusters, Eduard. Apparatus for applying foam to a moving web. 4,275,683, Cl. 118-407.000.
La Cellophane: *See*—
de Leiris, Jean-Pierre, 4,276,340, Cl. 428-166.000.
Labaquere, Herve: *See*—
Cordier, Michel; Labaquere, Herve; and Saint-Dizier, Gilbert, 4,276,181, Cl. 210-741.000.
LaBelle, Charles: *See*—
Hetzel, Thomas R.; and LaBelle, Charles, 4,275,999, Cl. 417-299.000.
Laborde, Alice L.: *See*—
Dolak, Lester A.; Laborde, Alice L.; and Castle, Thomas M., 4,276,412, Cl. 536-17.00R.
Lackey, Walter J.; Lowrie, Robert S.; and Sease, John D., to United States of America, Energy. Gas scrubbing liquids. 4,276,063, Cl. 55-84.000.
LaConti, Anthony B.: *See*—
Coker, Thomas G.; and LaConti, Anthony B., 4,276,146, Cl. 204-266.000.
Lafarge Consultants Ltd.: *See*—
St. John, Charles F.; and Mercier, Gil A., 4,276,092, Cl. 106-100.000.
Lager, Jean-Paul; and Vastheria, Daniel A., to Le Material Telephonique. Receiver for simultaneously transmitted clock and auxiliary signals. 4,276,645, Cl. 371-36.000.
Lager, Jean-Paul: *See*—
Nguyen, Hieu K.; Dieudonne, Marc P. G.; and Lager, Jean-Paul, 4,276,641, Cl. 370-99.000.
Lambert Corporation: *See*—
Groth, Hugh F.; Hunt, Guilbert M.; and Shaner, Ronald E., 4,275,651, Cl. 100-229.00A.
Lambert, Gary M.: *See*—
Carlsen, W. John; Dakas, Mark L.; and Lambert, Gary M., 4,276,113, Cl. 156-502.000.
Lamberty, Reinhold: *See*—
Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, 4,276,143, Cl. 204-195.00M.
Lamm, Gunther: *See*—
Juenemann, Werner; Lamm, Gunther; and Loeffler, Hermann, 4,276,045, Cl. 8-471.000.
Lancini, Giancarlo: *See*—
Parenti, Francesco; Coronelli, Carolina; Tamosi, Giorgio; and Lancini, Giancarlo, 4,276,382, Cl. 435-253.000.
Landis, Abraham L.: *See*—
Bilow, Norman; and Landis, Abraham L., 4,276,407, Cl. 528-172.000.
Landis, Donald G.: *See*—
Beck, Martin A.; Fabricius, John H.; and Landis, Donald G., 4,276,603, Cl. 364-477.000.
Landstingens Inkopscentral Lic, Ekonomisk Forening: *See*—
Olson, Karin S. B., 4,275,721, Cl. 128-133.000.
Lane, Ronald S. Permanent calendar construction. 4,275,516, Cl. 40-107.000.
Lang, Douglas G.: *See*—
Kaba, Twassel A.; Kiowski, John W.; and Lang, Douglas G., 4,276,620, Cl. 367-60.000.
Lang, Gusztav: *See*—
Herb, Armin; and Lang, Gusztav, 4,275,637, Cl. 411-78.000.
Langevin, William J.: *See*—
Jureit, J. Calvin; Seipos, Andrew G.; and Langevin, William J., 4,275,854, Cl. 242-55.000.
Langlais, William F.: *See*—
Willett, Daniel E.; Boothroyd, John A.; and Langlais, William F., 4,276,459, Cl. 200-157.000.
Langley, Kenneth R.; and Fuller, John R. D., to Rolls-Royce Limited. Disc channel for cooling rotor blade roots. 4,275,990, Cl. 416-95.000.
Lanno, Joseph P.; and Finamore, Fred M. Drive system and fluid dispenser unit utilizing same. 4,275,821, Cl. 222-61.000.
Lantzsch, Reinhard, to Bayer Aktiengesellschaft. Preparation of dihalogenovinyl-γ-butyrolactones. 4,276,218, Cl. 260-343.600.
Lantzsch, Reinhard; and Hoffmann, Hellmut, to Bayer Aktiengesellschaft. Decarbalkoxylation of carboxylic acid esters. 4,276,233, Cl. 260-408.000.
Laprie, Jean-Claude; Powell, David R.; Alcouffe, Gerard; and Romand, Paul, to Agence Nationale de Valorisation de la Recherche (ANVAR); and Societe Crouzet. Method of and means for routing binary messages through a multinode data-transmission system. 4,276,643, Cl. 371-8.000.
Largeteau, Pierre A., to Societe Anonyme Automobiles Citroen; and Automobiles Peugeot. Grinding heads for grinding machines. 4,275,530, Cl. 51-355.000.
Laughlin, William C.: *See*—
Tolley, William K.; Laughlin, William C.; and Rostoker, William, 4,276,083, Cl. 75-82.000.
Lausermair, Friedrich; and Willeitner, Eberhard, to M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Swirl chamber apparatus. 4,276,068, Cl. 55-348.000.
Lavigne, Ronald L.: *See*—
Martone, Leonard P.; and Lavigne, Ronald L., 4,276,164, Cl. 210-170.000.
Lawrence, Charles E.: *See*—
Halpern, Peter H.; and Lawrence, Charles E., 4,276,573, Cl. 360-45.000.
Lawrence, Dan D.; and Felber, Betty J., to Standard Oil Company (Indiana). Silicate activated lignosulfonate gel treatments of conductive zones. 4,275,789, Cl. 166-294.000.
Lawson, Rommon L. Process for magnetic separation and collection of viable female and male spermatozoa. 4,276,139, Cl. 204-180.00R.
LBF Properties, Inc.: *See*—
Bruha, Larry C., 4,275,981, Cl. 414-462.000.
Le, Hiep T., to Raytheon Company. Transistor switching circuitry. 4,276,617, Cl. 365-189.000.
Le Material Telephonique: *See*—
Lager, Jean-Paul; and Vastheria, Daniel A., 4,276,645, Cl. 371-36.000.
Nguyen, Hieu K.; Dieudonne, Marc P. G.; and Lager, Jean-Paul, 4,276,641, Cl. 370-99.000.
Le Simplex: *See*—
Juy, Henri, 4,275,922, Cl. 297-195.000.
Lesback, David H., to Dynatech AG. Miniature reaction container and a method and apparatus for introducing micro volumes of liquid to such a container. 4,276,048, Cl. 23-230.00R.
LeBlond, J. Paul, to Small, J. W. Personal repellent device. 4,275,820, Cl. 222-3.000.
Le Bras, Andre: *See*—
Aguinet, Gerard; Le Bras, Andre; Manoury, Jean; and Martin, Edouard, 4,276,277, Cl. 423-393.000.
Leckie, William H. Fuel injection timing and control apparatus. 4,275,693, Cl. 123-447.000.
Le Dieu, Bernard, to Compagnie Industrielle des Telecommunications Cit-Alcatel. Time-division switching network and means of mitigating the effect of fault conditions. 4,276,637, Cl. 370-16.000.
Lee, Arley G., to Schlumberger Technology Corporation. Apparatus for selectively coupling cables to well tools. 4,275,786, Cl. 166-65.00R.
Lee, Ernest O.: *See*—
Boube, Otto W.; Lee, Ernest O.; Subria, Richard L.; Brightman, Barrie; and Hanson, George C., 4,276,451, Cl. 179-175.20C.
Lee, Young-Jin, to Union Carbide Corporation. Process for preparing carbamate compounds. 4,276,229, Cl. 260-453.0RW.
Lehman, Donald F., to Black Clawson Company, The. Apparatus for screening paper fiber stock. 4,276,159, Cl. 209-273.000.
Lehmann, Gerhard; and Hummel, Erhard, to Keiper Automobiltechnik GmbH & Co. KG. Hinge mount having a wobble gear adjuster for a tiltable seat back of a motor vehicle seat. 4,275,924, Cl. 297-362.000.
Lehrkind, Nancy Northup: *See*—
Northup, John D., 4,276,073, Cl. 65-77.000.
Leifeld, Ferdinand, to Tratznchler GmbH & Co. KG. Arrangement for forming a sliver from a card web. 4,275,482, Cl. 19-150.000.
Leighton, Stephen B.; Morano, Genesio; Markowitz, Allen; and Chiladel, Burt, to United States of America, Health, Education & Welfare. Clot lysing timer. 4,276,383, Cl. 435-291.000.
Lemmond, Charles Q., to General Electric Company. Electron beam matrix deflector and method of fabrication. 4,276,335, Cl. 428-131.000.
Lenertz, John B., to Farmhand, Inc. Parking stand. 4,275,984, Cl. 414-686.000.
Leone, Ronald E., to Eastman Kodak Company. Acylhydrazinophenylthiourea nucleating agents and photographic emulsions and elements containing such agents. 4,276,364, Cl. 430-212.000.
Lergier, William: *See*—
Gillessen, Dieter; and Lergier, William, 4,276,049, Cl. 23-230.00B.
Lesher, George Y.; Opalka, Chester J., Jr.; and Page, Donald F., to Sterling Drug Inc. Compositions and their preparation. 4,276,293, Cl. 424-248.400.
Lessard, Roy W. Pants rack. 4,275,826, Cl. 223-96.000.
Lester, David; and Aleksander, Robert, to Polymerica, Inc. Pigment agglomerate coloring system. 4,276,207, Cl. 260-17.00R.
Lever Brothers Company: *See*—
Padley, Frederick B.; Paulussen, Cornelis N.; Soetens, Cornelis; and Tremer, David, 4,276,322, Cl. 426-660.000.
Levinson, Lionel M.; Ellis, Howard F.; and Fishman, Herbert, to General Electric Company. Arrester with graded capacitance varistors. 4,276,578, Cl. 361-127.000.
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., to Bell Telephone Laboratories, Incorporated. Integrated semiconductor circuit structure and method for making it. 4,276,557, Cl. 357-67.000.
Lewin, Helmut: *See*—
Schoettle, Klaus; Hoffmann, Werner; Kaemmer, Eduard; Boehlke, Klaus; and Lewin, Helmut, 4,276,575, Cl. 360-130.210.
Lewis, Roger N.: *See*—
Maceachon, John R.; Pastorius, Ronald L.; Hollo, Reider; and Lewis, Roger N., 4,276,247, Cl. 264-54.000.
Lewis, Sidney E. Spinal positioning couch. 4,275,714, Cl. 128-74.000.
Li, Jorge P.: *See*—
Becker, Frank C.; and Li, Jorge P., 4,276,090, Cl. 106-18.320.
Lichte, Leo J.: *See*—
Fettal, Bruce E.; Morris, Paul E.; and Lichte, Leo J., 4,276,132, Cl. 204-129.100.

Lichti, Robert D.; and Hock, Frederick D., to Park Mobile, Inc., a part interest. Conveyor pan immobilizing assembly. 4,275,979, Cl. 414-251.000.

Lightning Location and Protection, Inc.: *See*—
Uman, Martin A.; and Standler, Ronald B., 4,276,576, Cl. 361-1.000.

Lindbom, Torsten H.: *See*—
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., 4,275,986, Cl. 414-730.000.

Linde Aktiengesellschaft: *See*—
Becker, Hans; Grimm, Peter; Ranke, Gerhard; and Roth, Dieter, 4,276,057, Cl. 55-40.000.

Lindman, Karl A., to Flymo Societe Anonyme. Induction air cleaner for a lawn mower engine. 4,276,067, Cl. 55-337.000.

Lindner, Gerhard: *See*—
Erbach, Emil-Richard; Klunsch, Max; Lindner, Gerhard; and Lingens, Paul, 4,275,967, Cl. 366-149.000.

Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Riedle, Rudolf; John, Peter; and Engelsberger, Georg, to Wacker-Chemie GmbH. Process for the preparation of organosilicon compounds. 4,276,426, Cl. 556-479.000.

Lingens, Paul: *See*—
Erbach, Emil-Richard; Klunsch, Max; Lindner, Gerhard; and Lingens, Paul, 4,275,967, Cl. 366-149.000.

Linnau, Yendra: *See*—
Eibl, Martha; Schwarz, Otto; and Linnau, Yendra, 4,276,283, Cl. 424-85.000.

Lipinski, Christopher A., to Pfizer Inc. Pyridylaminotriazole therapeutic agents. 4,276,297, Cl. 424-263.000.

Lipper, Karl-August: *See*—
Bockmann, Walter; Lipper, Karl-August; and Bruhne, Friedrich, 4,276,231, Cl. 260-544.00D.

Lisega Kraftwerkstecknik GmbH & Co. KG: *See*—
de Groot, Fredrik W.; and Bernert, Jorg D., 4,275,802, Cl. 188-134.000.

Little, Hercel A., to Chore-Time Equipment, Inc. Motor control circuit. 4,276,506, Cl. 318-806.000.

Little, John S.: *See*—
Bowen, Howard; and Little, John S., 4,276,547, Cl. 340-675.000.

Littlehorn, John J., Jr. Apparatus for producing leaded glass articles. 4,275,633, Cl. 83-886.000.

Litvinenko, Leonid A.: *See*—
Redikultsev, Jury V.; Shkidchenko, Alexandr N.; Gorbunov, Oleg P.; and Litvinenko, Leonid A., 4,276,264, Cl. 422-307.000.

Llama Gabilondo y. Cia. S.A.: *See*—
Wilhelm, Gary, 4,275,640, Cl. 89-147.000.

Lock Light Corporation: *See*—
Burnett, John, 4,276,582, Cl. 362-116.000.

Lockformer Company, The: *See*—
Anderson, Ronald A., 4,275,707, Cl. 126-318.000.

Lockwood, Francis R.; and Meuse, Kenneth P. Wick device. 4,276,016, Cl. 431-323.000.

Loeffler, Hermann: *See*—
Juenemann, Werner; Lamm, Gunther; and Loeffler, Hermann, 4,276,045, Cl. 8-471.000.

Loev, Bernard: *See*—
St. Georgiev, Vasil; Loev, Bernard; Mack, Robert; and Musser, John, 4,276,292, Cl. 424-248.400.

Logan, David J.: *See*—
Anderson, Verner; Logan, David J.; and Wood, Kenneth O., 4,275,627, Cl. 83-152.000.

Lohr & Bromkamp: *See*—
Welschof, Hans-Heinrich, 4,275,571, Cl. 64-21.000.

Lomenick, William: *See*—
Manina, Mitch; and Lomenick, William, 4,275,946, Cl. 339-183.000.

Long, Virgil L., Sr.: *See*—
Grosser, Richard W.; and Long, Virgil L., Sr., 4,275,882, Cl. 272-117.000.

Loos, Wolfgang: *See*—
Gerstenberger, Friedrich; Loos, Wolfgang; and Straub, Dieter, 4,275,521, Cl. 42-84.000.

Loposer, Thomas L., to E-Systems, Inc. Scan pattern estimator for an electromagnetic sensor. 4,276,550, Cl. 343-100.0CL.

Lord, Billy J.: *See*—
Tellander, Lisa; and Lord, Billy J., 4,275,713, Cl. 128-66.000.

Lorenz, Donald H.: *See*—
Gruber, Bruce A.; and Lorenz, Donald H., 4,276,136, Cl. 204-159.220.

Louis, Eckhart: *See*—
Burkhardt, Jurgen; and Louis, Eckhart, 4,276,425, Cl. 556-460.000.

Lowe, Terry L.: *See*—
Jensen, Thomas C.; and Lowe, Terry L., 4,275,792, Cl. 172-703.000.

Lowrie, Robert S.: *See*—
Lackey, Walter J.; Lowrie, Robert S.; and Sease, John D., 4,276,063, Cl. 55-84.000.

Lucas Industries Limited: *See*—
Turner, Ronald F., 4,275,865, Cl. 251-63.000.
Warwicker, Peter G., 4,276,000, Cl. 417-302.000.

Ludecke, Otto A.: *See*—
Bly, Kenneth B.; Gutwald, Mark J.; and Ludecke, Otto A., 4,276,066, Cl. 55-287.000.

Ludwa, Raymond J.; Forry, Mark E.; and Haugen, Marilyn M., to Procter & Gamble Company, The. Absorbent article. 4,276,338, Cl. 428-137.000.

Lueck, Phyllis E. Method of teaching. 4,276,031, Cl. 434-260.000.

Luecke, Francis S.: *See*—
Baasch, Holger J.; and Luecke, Francis S., 4,276,574, Cl. 360-121.000.

Lustig, Leopold P. Parapulpal dental restorative pins with self-anchoring anti-rotational retention heads. 4,276,027, Cl. 433-225.000.

Lutz, Erno B., to Solfan Systems, Inc. Microwave speed meter. 4,276,548, Cl. 343-7.0PL.

Lutz, Irvin H., to Davy Inc. Purification of coke. 4,276,120, Cl. 202-100.000.

Luzheisky, Vladimir A.: *See*—
Stakhov, Alexei P.; Solyanichenko, Nikolai A.; Luzheisky, Vladimir A.; Ovodenko, Alexandr V.; and Kozak, Andrei A., 4,276,608, Cl. 364-768.000.

Lyon, David; and Moss, Gerald, to United States of America, U.S. Environmental Protection Agency. Fluidized bed systems. 4,276,062, Cl. 55-77.000.

Lyons, Harold D., to Milliken Research Corporation. Breathable leather-like materials and process for making same. 4,276,101, Cl. 156-61.000.

Lyons, Jerry L.; and Mertz, Denny W., to Essex Cryogenics of Missouri, Inc. Automatic valve actuator. 4,275,754, Cl. 137-75.000.

M.A.N. Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft: *See*—
Lausermair, Friedrich; and Willeitner, Eberhard, 4,276,068, Cl. 55-348.000.
Muller, Eckart, 4,275,845, Cl. 239-533.120.

Macdonald, Douglas J. L. Anti-lock brake devices. 4,275,934, Cl. 303-119.000.

MacGillivray, John A. Horse exerciser drive mechanism. 4,275,686, Cl. 119-29.000.

Macierewicz, Jacek J., to Elast-O-Cor Products & Engineering Limited. Deaerator for pulp stock. 4,276,059, Cl. 55-52.000.

Mack, Robert: *See*—
St. Georgiev, Vasil; Loev, Bernard; Mack, Robert; and Musser, John, 4,276,292, Cl. 424-248.400.

Macko, Joseph E., to Westinghouse Electric Corp. Solids mass flow determination. 4,275,601, Cl. 73-861.040.

MacLeod, Robert, Jr.: *See*—
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.

Madonna, Peter L.: *See*—
Schivley, George P., Jr.; and Madonna, Peter L., 4,275,793, Cl. 173-9.000.

Maeda, Toshiyuki: *See*—
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, 4,276,007, Cl. 418-152.000.

Magline, Inc.: *See*—
Mortenson, Carl N., 4,275,894, Cl. 280-5.240.

Mahoney, Robert D.: *See*—
Kell, Michael J.; and Mahoney, Robert D., 4,276,173, Cl. 210-500.200.

Maki, Michiyoshi: *See*—
Takano, Yukio; Ogirima, Masahiko; Aoki, Shigeru; Maki, Michiyoshi; and Kato, Shigeo, 4,276,114, Cl. 156-645.000.

Makovec, Donald J.: *See*—
Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., 4,276,439, Cl. 585-720.000.

Mallott, Louis J., Sr. Implement for attaching hangers. 4,275,621, Cl. 81-111.000.

Maly, Hans-Peter: *See*—
Heitmann, Jurgen; Illetschko, Gerhard; and Maly, Hans-Peter, 4,276,563, Cl. 358-139.000.

Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, to Hitachi, Ltd.; and Kasei Optonix, Ltd. Process for forming phosphor screens with treated phosphors. 4,276,363, Cl. 430-28.000.

Mandai, Masaaki: *See*—
Satoh, Katsuhiko; Asano, Kazuhiro; Mandai, Masaaki; Ueda, Makoto; Torisawa, Akira; and Shida, Masaharu, 4,276,626, Cl. 368-80.000.

Mandelcorn, Lyon; Dakin, Thomas W.; and Miller, Robert L., to Westinghouse Electric Corp. Dielectric fluids comprising non-halogenated mixtures of organic esters and aromatic compounds. 4,276,184, Cl. 252-579.000.

Manina, Mitch; and Lomenick, William. Electrical connecting plug. 4,275,946, Cl. 339-183.000.

Mann, Egon: *See*—
Ehrlinger, Friedrich; Mann, Egon; Fischer, Manfred; and Jocham, Rudolf, 4,275,616, Cl. 74-730.000.

Manning, William P.; Rehm, Stephen J.; and Schmuhl, Jeffrey L., to Combustion Engineering, Inc. Process for the removal of hydrogen sulfide from gas mixtures. 4,276,271, Cl. 423-226.000.

Manoury, Jean: *See*—
Aguinet, Gerard; Le Bras, Andre; Manoury, Jean; and Martin, Edouard, 4,276,277, Cl. 423-393.000.

Mansell, John R.: *See*—
Stone, Henry D.; Knapp, Alan G.; Mansell, John R.; Overall, Colin D.; and Washington, Derek, 4,276,127, Cl. 204-24.000.

Maranghi, Marco, to Prato Commerz, S.p.A. Method for preventing a surface exit of fibers from an unwoven fabric, through a very thin layer of emulsified latex, and product thereby obtained. 4,276,345, Cl. 428-284.000.

Marchal, Paul H. L.: *See*—
Remillieux, Jean; Rebours, Albert; Dumortier, Philippe; and Marchal, Paul H. L., 4,276,019, Cl. 432-1.000.

Marchetti, Augusto. Automatic machine for closing the lower flaps of a parallelepiped box with foldable flaps and for retaining the box in a filling position. 4,275,543, Cl. 53-374.000.

Marcus, Konrad H., to Prince Corporation. Vehicle storage receptacle. 4,275,913, Cl. 296-37.100.

Marcus, Konrad H., to Prince Corporation. Auxiliary visor. 4,275,917, Cl. 296-97.00R.

Marcus, Mitchell P.: *See*—
Bolcavage, Richard D.; Fleek, Arthur E.; and Marcus, Mitchell P., 4,275,653, Cl. 101-93.140.

Maric, Petar. Accordion with a new order of sounds and mechanical reed opening system. 4,275,635, Cl. 84-376.00R.

Maricelli, James J., to Schlumberger Technology Corporation. Method of processing well logging data. 4,276,599, Cl. 364-422.000.

Marinoff, Gerald P. Ophthalmological surgical instrument. 4,275,733, Cl. 128-303.00R.

Marinucci, Roberto. Multi-complex shear device for splitting hot metallic bars into several smaller bars. 4,275,491, Cl. 29-33.00R.

Marker, Leon F.: *See*—
Aggarwal, Sundar L.; Marker, Leon F.; Dudek, Thomas J.; and Herold, Robert J., 4,276,009, Cl. 425-130.000.

Markezich, Ronald L.; Olander, Walter K.; and Axelrod, Robert J., to General Electric Company. Hindered phenol phosphites. 4,276,233, Cl. 260-937.000.

Markowitz, Allen: *See*—
Leighton, Stephen B.; Murano, Genesio; Markowitz, Allen; and Chikadel, Burt, 4,276,383, Cl. 435-291.000.

Markusch, Peter: *See*—
Scholl, Hans-Joachim; Dieterich, Dieter; and Markusch, Peter, 4,276,404, Cl. 528-57.000.

Mars Limited: *See*—
Burrows, Ian E.; and Cheney, Peter A., 4,276,311, Cl. 426-56.000.

Marteau, Jean M., to Quantel S.A. High yield diffraction limited laser oscillator. 4,276,519, Cl. 331-94.50C.

Martin, Charles R.: *See*—
Tarbon, Philip B.; and Martin, Charles R., 4,275,554, Cl. 57-263.000.

Martin, Edouard: *See*—
Aguinet, Gerard; Le Bras, Andre; Manoury, Jean; and Martin, Edouard, 4,276,277, Cl. 423-393.000.

Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, to Abbott Laboratories. Fortimicin intermediates for producing 2-deoxyfortimicins. 4,276,413, Cl. 536-17.00R.

Martin, Larry D., to Halliburton Company. Methods and compositions for removing deposits containing iron sulfide from surfaces comprising basic aqueous solutions of particular chelating agents. 4,276,185, Cl. 252-87.000.

Martin, Lindley, to Mayze, Roderick R. Decorative plate and method of making same. 4,275,518, Cl. 40-324.000.

Martone, Leonard P.; and Lavigne, Ronald L., to Martone, Leonard P. Effluent treatment system. 4,276,164, Cl. 210-170.000.

Maruhashi, Yukio: *See*—
Hiruma, Hideo; and Maruhashi, Yukio, 4,276,621, Cl. 367-97.000.

Marvin, Ira E.; and Cowgill, Joseph R., to General Electric Company. Method and apparatus for controlling thrust in a gas turbine engine. 4,275,557, Cl. 60-39.030.

Massucco, Arthur A.: *See*—
Merrill, Richard E.; and Massucco, Arthur A., 4,276,367, Cl. 430-302.000.

Masuda, Kenji, to Daikin Kogyo Co., Ltd. Pressure control valve assembly. 4,275,758, Cl. 137-489.000.

Masuda, Noboru; and Sugimoto, Masakazu, to Denki Onkyo Company, Limited. Rotary actuator. 4,276,499, Cl. 318-119.000.

Masurekar, Prakash S.: *See*—
Goodhue, Charles T.; Eaders, Theodore W.; and Masurekar, Prakash S., 4,276,377, Cl. 435-18.000.

Masuzawa, Sigeaki: *See*—
Tanimoto, Akira; Masuzawa, Sigeaki; Shibata, Shinya; and Nishizaki, Shinzo, 4,276,444, Cl. 179-1.0SM.

Matejec, Reinhart: *See*—
Wernicke, Ubbo; Matejec, Reinhart; and Moll, Franz, 4,276,372, Cl. 430-505.000.

Matovich, Edwin; and Copelan, James B. Method for making a fabric reactor tube. 4,275,493, Cl. 29-454.000.

Matrix Toys, Inc.: *See*—
Gabriel, Richard J., 4,275,524, Cl. 46-23.000.

Matskevich, Vladimir I.: *See*—
Anoshko, Vladimir A.; Godin, Eduard M.; Gavrilov, Anatoly N.; Zverkov, Garik E.; Matskevich, Vladimir I.; Chepurin, Valentin M.; Semenov, Valentin P.; Grachev, Vladimir V.; and Butylin, Mikhail Y., 4,275,579, Cl. 72-59.000.

Matson, Jack V. Industrial waste-water reuse by selective silica removal over activated alumina. 4,276,180, Cl. 210-683.000.

Matsuda, Yasuo: *See*—
Okawa, Tadashi; Honbu, Mitsuyuki; Matsuda, Yasuo; Shibata, Takanori; and Kawaguchi, Toshio, 4,276,589, Cl. 363-71.000.

Matsuhisa, Koh; and Takezawa, Mamoru, to Ricoh Company, Ltd. Printing machine. 4,275,969, Cl. 400-625.000.

Matsui, Katsuhiko; Kashiwaba, Yukio; and Kishimoto, Yoshioki, to Nissan Motor Company, Limited. Fuel filter provided with a water level detecting means. 4,276,161, Cl. 210-86.000.

Matsui, Yoshiya: *See*—
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.

Matsumoto, Seiji: *See*—
Kato, Hisatoyo; Ishida, Masamitsu; and Matsumoto, Seiji, 4,276,473, Cl. 250-327.100.

Matsumura, Osamu; Kato, Yutaka; Sekiguchi, Tsunetoshi; and Namiki, Ryo, to Citizen Watch Company Limited. Solar battery timepiece. 4,276,629, Cl. 368-86.000.

Matsuoka, Hideoki; and Kondo, Yoshinobu, to Nissan Motor Company, Limited; and Fuji Kiko Company, Limited. Passive seat belt arrangement with wheeled belt carrier. 4,275,903, Cl. 280-803.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Kanzaki, Nobuyoshi; Toyama, Kenji; Nakano, Katsutoshi; Shimatani, Ryoichi; and Kudo, Fumio, 4,276,129, Cl. 204-58.000.
Mitsuyu, Tsuneo; Wasa, Kiyotaka; and Hayakawa, Shigeru, 4,276,535, Cl. 338-22.00R.
Nagamoto, Shun'ichi; and Sakamoto, Kazuho, 4,276,468, Cl. 235-92.0CT.
Nishino, Atsushi; Yoshida, Akihiko; and Ogino, Nobukuni, 4,276,128, Cl. 204-38.00A.
Obata, Shuichi; and Ito, Masashi, 4,276,635, Cl. 369-256.000.

Matsushita Electric Works, Ltd.: *See*—
Takagi, Takeshi; and Abo, Tokushi, 4,275,862, Cl. 248-205.00A.

Matsuzawa, Takashi: *See*—
Takami, Katsumi; and Matsuzawa, Takashi, 4,276,633, Cl. 368-227.000.

Mattern, Gunter: *See*—
Brechbuhler, Hans U.; Mattern, Gunter; and Traber, Walter, 4,276,302, Cl. 424-273.00R.

Maura, Nicholas J. Snowplow extensions. 4,275,514, Cl. 37-42.00R.

Maurer, Roland: *See*—
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Mayer, Nathan. Apparatus and method for providing an aseptic surgical environment. 4,275,719, Cl. 128-132.00D.

Mayer, William N., to Modern Controls, Inc. Plasma display panel. 4,276,492, Cl. 313-188.000.

Mayers, Richard R.; Huebner, Steven R.; and Chojnacki, Dennis A., to Midland-Ross Corporation. Internal cooling of heat exchanger tubes. 4,275,569, Cl. 62-373.000.

Mayze, Roderick R.: *See*—
Martin, Lindley, 4,275,518, Cl. 40-324.000.

McAllister, Gary L., to Jersey Nuclear-Avco Isotopes, Inc. CO Pumped CO_2 16 micron laser. 4,276,517, Cl. 331-94.50P.

McCalmont, Arnold M.; and Slate, Matthew W., to Technical Communications Corp. Secure communication system with improved frequency-hopping arrangement. 4,276,652, Cl. 455-29.000.

McCartin, Peter J.; and Nebe, William J., to Du Pont de Nemours, E. I., and Company. Process of using positive and negative working imaging systems from photoactive plastisols. 4,276,366, Cl. 430-291.000.

McDonald, Ray S.; and Rossing, Martin A., to Medtronic, Inc. Digital cardiac pacemaker clocking means. 4,275,738, Cl. 128-419.0PG.

McDonald, Richard J. Security scrap storage container or bin. 4,275,830, Cl. 232-43.100.

McDowell, Jerry T., to Ball Corporation. Separator-cutter. 4,275,629, Cl. 83-302.000.

McFarlane, Richard B. Pneumatic tire inserts. 4,275,782, Cl. 152-314.000.

McGilvery, James D., to ERCO Industries Limited. Production of sodium polyphosphates. 4,276,273, Cl. 423-305.000.

McGowan, Robert J.: *See*—
Dubberly, Gregory T.; and McGowan, Robert J., 4,276,467, Cl. 235-92.0PK.

McHale, William D.; and Schoennagel, Hans-Juergen, to Mobil Oil Corporation. Reforming of sulfur-containing charge stock. 4,276,152, Cl. 208-139.000.

McHenry, Keith W., Jr., to Standard Oil Company (Indiana). Fluid catalytic cracking of heavy petroleum fractions. 4,276,150, Cl. 208-120.000.

McIntire, William S.: *See*—
Brewer, Arthur D.; Neidermyer, Robert W.; and McIntire, William S., 4,276,422, Cl. 549-15.000.

McIsaac, Lyle D.; Krupa, Joseph F.; and Schroeder, Norman C., to United States of America, Energy. Method for purifying bidentate organophotphorous compounds. 4,276,235, Cl. 260-990.000.

McLyman, W. T.; and Frosch, Robert A. Push-pull converter with energy saving circuit for protecting switching transistors from peak power stress. 4,276,588, Cl. 363-56.000.

McMurry-Hughes, Inc.: *See*—
Abercrombie, Bolling A., 4,275,790, Cl. 166-314.000.
Atwood, John E.; Baugh, John L.; Koehler, William M.; and Waterman, David K., 4,275,592, Cl. 73-432.00R.

McNamee, James W.; Hornstad, Gerald E.; Vazquez-Cuervo, Alfonso; and Henry, Kenneth J., to General Motors Corporation. Noise tolerant multiplex system. 4,276,640, Cl. 370-77.000.

Mead Corporation, The: *See*—
Dubberly, Gregory T.; and McGowan, Robert J., 4,276,467, Cl. 235-92.0PK.

Medicor Muvek: *See*—
Meszaros, Sandor; Kirchner, Gabriella; Balzer, Janos; and Wild, Karoly, 4,276,478, Cl. 250-468.000.

Medtronic, Inc.: *See—*
McDonald, Ray S.; and Rossing, Martin A., 4,275,738, Cl. 128-419.0PG.
Thompson, David L.; and Stein, Marc T., 4,275,737, Cl. 128-419.0PG.
Meetze, Murray O., Jr.: *See—*
Sullivan, William E.; and Meetze, Murray O., Jr., 4,276,236, Cl. 261-30.000.
Mercier, Gil A.: *See—*
St. John, Charles F.; and Mercier, Gil A., 4,276,092, Cl. 106-100.000.
Mercier, Henri A.: *See—*
Hue, Bernard P. H.; and Mercier, Henri A., 4,276,327, Cl. 427-345.000.
Merck & Co., Inc.: *See—*
Jones, Howard; Clark, Robert L.; and Zimmerman, Morris, 4,276,298, Cl. 424-270.000.
Merlin Gerin: *See—*
Gerbert-Gaillard, Alain; and Morel, Robert, 4,276,527, Cl. 335-39.000.
Merrill, Richard E.; and Massucco, Arthur A., to Arthur D. Little, Inc. Method of preparing lithographic printing plates using novel compounds and compositions, and improved lithographic printing plates. 4,276,367, Cl. 430-302.000.
Merritt, Carleton G. Encapsulation of materials. 4,276,312, Cl. 426-96.000.
Merry, Jack D., to Kendall Company, The. Anesthesia device. 4,275,728, Cl. 128-215.000.
Merten, Gerhard; Breuer, Oswald; and Bernd, Steinkuhl, to Gewerkschaft Eisenhutte Westfalia. Mineral mining plough with worm adjustable roof cutter. 4,275,927, Cl. 299-34.000.
Mertz, Denny W.: *See—*
Lyons, Jerry L.; and Mertz, Denny W., 4,275,754, Cl. 137-75.000.
Messerschmitt-Boelkow-Biochm Gesellschaft mit beschrankter Haftung: *See—*
Hahn, Andreas, 4,276,004, Cl. 417-479.000.
Messerschmitt-Boelkow-Biohm Gesellschaft mit beschrankter Haftung: *See—*
Bschorr, Oskar, 4,275,801, Cl. 181-290.000.
Meszaros, Sandor; Kirchner, Gabriella; Balzer, Janos; and Wild, Karoly, to Medicor Muvek. Universal flat-film-changing device. 4,276,478, Cl. 250-468.000.
Metallgesellschaft Aktiengesellschaft: *See—*
Blumrich, Walter; Dorr, Karl H.; Konig, Hans J.; and Sander, Ulrich, 4,276,116, Cl. 159-47.00R.
Metco, Inc.: *See—*
Novinski, Edward R.; and Harrington, John H., 4,276,353, Cl. 428-558.000.
Metzenauer & Jung GmbH: *See—*
Alter, Siegfried, 4,276,458, Cl. 200-153.00J.
Meuse, Kenneth P.: *See—*
Lockwood, Francis R.; and Meuse, Kenneth P., 4,276,016, Cl. 431-323.000.
Meyer, Hans R., to Ciba-Geigy Corporation. Process for manufacturing 2-stilbenyl-1,2,3-triazoles and new 2-stilbenyl-1,2,3-triazoles. 4,276,188, Cl. 252-301.220.
Meyer, Juergen; Schaaf, Norbert; and Kunze, Claus, to Heimann GmbH. A contactless resistance potentiometer. 4,276,534, Cl. 338-15.000.
Meyer, Stanley A. Light-guide lens. 4,275,950, Cl. 350-96.100.
Meyers, Stanley T. Sound reproducing system utilizing motional feedback and velocity-frequency equalization. 4,276,443, Cl. 179-1.00F.
Miano, Jeffrey D.; and Sandler, Stanley R., to Pennwalt Corporation. Ureas containing the 2,2,2-trichloroethyl group as flame retardants for polyurethane foams. 4,276,387, Cl. 521-167.000.
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, to Japan Storage Battery Co., Ltd.; and Nippon Paint Co., Ltd. Apparatus for curing photo-curable composition. 4,276,479, Cl. 250-492.00R.
Microlec S.A.: *See—*
Delmas, Jean R., 4,275,505, Cl. 33-172.00E.
Middleman, Lee M.; and Goodrich, Roger S., to Raychem Corporation. Heater with distributed heating element. 4,276,466, Cl. 219-523.000.
Midland-Ross Corporation: *See—*
Mayers, Richard R.; Huebner, Steven R.; and Chojnacki, Dennis A., 4,275,569, Cl. 62-373.000.
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, to Canon Kabushiki Kaisha. Projection device. 4,275,962, Cl. 355-1.000.
Mifune, Hiroyuki; Miyasaka, Nobuaki; and Fuseya, Yoshiharu, to Fuji Photo Film Co., Ltd. Silver halide photographic emulsion with thioether sensitizer. 4,276,374, Cl. 430-611.000.
Mihara, Teruyoshi: *See—*
Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, 4,276,533, Cl. 338-4.000.
Miko, Richard J.; and Shapiro, Daniel H., to Edo Corporation. Reusable disc filter with spacing bosses for high temperature gasses. 4,276,065, Cl. 55-278.000.
Miksic, Boris A.; and Miller, Robert H. Corrosion inhibiting articles. 4,275,835, Cl. 239-60.000.
Miller, Alan H., to Cellu Products Company. Receptacle for containing and displaying food products. 4,275,811, Cl. 206-204.000.
Miller, David L., to American Air Filter Company, Inc. Filter arrangement. 4,276,069, Cl. 55-379.000.
Miller, Harry C., to Sargent & Greenleaf, Inc. Combination lock for safe doors and the like. 4,275,576, Cl. 70-303.00A.
Miller, Kenneth J., to Caterpillar Tractor Co. Method for increasing the fin density of a heat exchanger. 4,275,581, Cl. 72-385.000.
Miller, Ralph W.; and Peterson, James G., to TRW Inc. Monolithic triple diffusion analog to digital converter. 4,276,543, Cl. 340-347.0AD.
Miller, Richard A., to IT Enviroscience, Inc. Destruction method for the wet combustion of organics. 4,276,198, Cl. 252-438.000.
Miller, Robert E., to Appleton Papers Inc. Pressure-sensitive record material. 4,275,905, Cl. 282-27.500.
Miller, Robert H.: *See—*
Miksic, Boris A.; and Miller, Robert H., 4,275,835, Cl. 239-60.000.
Miller, Robert L.: *See—*
Mandelcorn, Lyon; Dakin, Thomas W.; and Miller, Robert L., 4,276,184, Cl. 252-579.000.
Miller, William L. Smoking pipe. 4,275,747, Cl. 131-195.000.
Milliken Research Corporation: *See—*
Lyons, Harold D., 4,276,101, Cl. 156-61.000.
Mills, Roy H., to Westeel-Rosco Limited-Westeel-Rosco Limitee. Method of disassembly of jointed structure. 4,275,492, Cl. 29-426.500.
Minami, Setsuo: *See—*
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Mink, Hans G.: *See—*
Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., 4,275,834, Cl. 239-3.000.
Minnesota Mining and Manufacturing Company: *See—*
Kruschel, William A., 4,275,584, Cl. 72-410.000.
Teetzel, Michael L.; and James, Ralph E., 4,275,529, Cl. 51-334.000.
Minolta Camera Kabushiki Kaisha: *See—*
Imaizumi, Masaru, 4,275,876, Cl. 271-8.00R.
Uesugi, Kyozo, 4,275,952, Cl. 350-429.000.
Minowa, Masao: *See—*
Ishihara, Eisuke; Yonehara, Hiroshi; Akasaki, Katsuyuki; Minowa, Masao; and Kobayashi, Katsumi, 4,276,286, Cl. 424-117.000.
Mita, Ryuichi: *See—*
Sakai, Katsuya; Mita, Ryuichi; Kato, Toshio; Higuchi, Chojiro; and Murakami, Hisamichi, 4,276,187, Cl. 252-186.000.
Mitchell, Peter G.: *See—*
Bohman, Carl E.; and Mitchell, Peter G., 4,275,546, Cl. 56-10.200.
Mitchiner, Robert K., to Valleylab, Inc. Cryosurgical apparatus and method. 4,275,734, Cl. 128-303.100.
Mitono, Yoshiharu: *See—*
Enomoto, Hiromu; Yasuda, Yasushi; Ohmichi, Hitoshi; and Mitono, Yoshiharu, 4,276,556, Cl. 357-52.000.
Mitsubishi Chemical Industries Limited: *See—*
Imahori, Seiichi; Hihara, Toshio; Yomeyama, Tomio; and Hirota, Takao, 4,276,047, Cl. 8-532.000.
Mitsubishi Petrochemical Co., Ltd.: *See—*
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukazu; and Takayama, Yoshihiro, 4,276,380, Cl. 435-115.000.
Mitsubishi Rayon Company, Ltd.: *See—*
Sakimae, Akihiro; and Onishi, Hisao, 4,276,381, Cl. 435-179.000.
Mitsuboshi Belting Ltd.: *See—*
Takano, Hiroshi, 4,276,039, Cl. 474-205.000.
Mitsui Engineering and Shipbuilding Co., Ltd.: *See—*
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Mitsui Petrochemical Industries, Ltd.: *See—*
Shimada, Koji; and Koike, Seiji, 4,276,347, Cl. 428-332.000.
Yoshitake, Masami; and Yamaguchi, Fumiaki, 4,276,153, Cl. 208-48.00Q.
Mitsui Toatsu Chemicals Incorporated: *See—*
Sakai, Katsuya; Mita, Ryuichi; Kato, Toshio; Higuchi, Chojiro; and Murakami, Hisamichi, 4,276,187, Cl. 252-186.000.
Mitsuyu, Tsuneo; Wasa, Kiyotaka; and Hayakawa, Shigeru, to Matsushita Electric Industrial Co., Ltd. Thermistor. 4,276,535, Cl. 338-22.00R.
Miyake, Katsuya, to Akebono Brake Industry Co. Ltd. Antiskid device. 4,275,933, Cl. 303-106.000.
Miyasaka, Nobuaki: *See—*
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Mobil Oil Corporation: *See—*
Chester, Arthur W.; and Stover, William A., 4,276,149, Cl. 208-120.000.
Chu, Chin-Chiun, 4,276,437, Cl. 585-467.000.
Chu, Chin-Chiun, 4,276,438, Cl. 585-467.000.
McHale, William D.; and Schoennagel, Hans-Juergen, 4,276,152, Cl. 208-139.000.
Plank, Charles J.; Rosinski, Edward J.; and Givens, Edwin N., 4,276,151, Cl. 208-138.000.
Mochizuki, Noritaka: *See—*
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Mock, Arthur E., to Haakonsen, Haakon, a part interest. Distillation system for sea water. 4,276,124, Cl. 202-236.000.
Modern Controls, Inc.: *See—*
Mayer, William N., 4,276,492, Cl. 313-188.000.
Moen, Alfred M., to Stanadyne, Inc. Automatically adjustable shower head. 4,275,843, Cl. 239-499.000.

Mohn, Hans-Werner; Buchholz, Rainer; Hoveler, Egon; and Zodrow, Rudolf, to Jagenberg-Werke AG. Support for rotatable platforms for bottles. 4,275,807, Cl. 198-344.000.
Moirano, Arthur L., to FMC Corporation. Compositions and method for preparing dessert gels. 4,276,320, Cl. 426-575.000.
Moll, Franz: *See—*
Wernicke, Ubbo; Matejec, Reinhart; and Moll, Franz, 4,276,372, Cl. 430-505.000.
Molnar, Thomas G., to Repco Limited. Vehicle cushion. 4,275,923, Cl. 297-250.000.
Monarch Marking Systems, Inc.: *See—*
Hamisch, Paul H., Jr.; and Pabodie, Robert M., 4,275,654, Cl. 101-110.000.
Monnerat, Georgia A.; Ham, George E.; Hairston, Thomas J.; and Hatch, Melvin J., to Dow Chemical Company, The. Catalyst for reacting phenolic hydroxyl groups with epoxy groups. 4,276,406, Cl. 528-92.000.
Monsanto Company: *See—*
Convent, Bernard, 4,276,079, Cl. 71-100.000.
Holladay, Harry P., 4,276,249, Cl. 264-139.000.
Mount, Ramon A.; and Robinson, Warn D., 4,276,222, Cl. 260-346.750.
Wu, Wen-li; and Black, William B., 4,276,348, Cl. 428-373.000.
Montague, Douglas P.: *See—*
Morrison, Howard J.; and Montague, Douglas P., 4,275,970, Cl. 401-6.000.
Montgomery, Francis E.: *See—*
Colvin, Robert E.; Douda, Bernard E.; Montgomery, Francis E.; and Short, James E., Jr., 4,276,100, Cl. 149-109.600.
Montgomery, Robert L.; and Smith, Stuart B., to Southeastern Foam Products, Inc. Apparatus for molding expandable thermoplastic polymer particles. 4,276,008, Cl. 425-4.00R.
Moore, Curtis L.: *See—*
Benke, Frank W.; and Moore, Curtis L., 4,276,530, Cl. 336-58.000.
Moore, Nicholas R.: *See—*
Perkins, Gerald S.; and Moore, Nicholas R., 4,276,003, Cl. 417-415.000.
Moran, Francis, to Union Chimique et Industrielle de l'Ouest S.A. Anticorrosion composition. 4,276,089, Cl. 106-14.120.
Morel, Robert: *See—*
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Moretto, Hans-Heinrich: *See—*
Wieder, Wolfgang; Witte, Josef; Moretto, Hans-Heinrich; and Steinberger, Helmut, 4,276,389, Cl. 525-61.000.
Morgan, Bennie E. Mine roof anchor system. 4,275,975, Cl. 405-261.000.
Morgan, Stanley A.; and Dixon, Edgar A. Cushion disc for phonograph records. 4,276,636, Cl. 369-291.000.
Morimoto, Kengi: *See—*
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, 4,275,648, Cl. 99-483.000.
Morinaga, Shigeki: *See—*
Tokuda, Hiroatsu; Morinaga, Shigeki; and Nakamura, Hideo, 4,276,601, Cl. 364-431.000.
Morishita, Hajime: *See—*
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Moriwaki, Masazumi: *See—*
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Morley, Richard E., to Gould Inc. Modicon Division. Digital computer with multi-processor capability utilizing intelligent composite memory and input/output modules and method for performing the same. 4,276,594, Cl. 364-200.000.
Moro, Christian D.; and Ranini, Daniel G., to Poclain. Welded structure of a power arm. 4,275,542, Cl. 52-731.000.
Moron, Jacques: *See—*
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Morris, Paul E.: *See—*
Fettel, Bruce E.; Morris, Paul E.; and Lichte, Leo J., 4,276,132, Cl. 204-129.100.
Morrison, Howard J.; and Montague, Douglas P., to Dart Industries Inc. Plant care kit. 4,275,970, Cl. 401-6.000.
Mortenson, Carl N., to Magline, Inc. Hand truck construction assembly. 4,275,894, Cl. 280-5.240.
Morton, George L.: *See—*
Goldman, Michael B.; and Morton, George L., 4,276,592, Cl. 363-147.000.
Morton, Robert W.: *See—*
Browne, Paul A.; and Morton, Robert W., 4,276,169, Cl. 210-404.000.
Mosetti, Jacques: *See—*
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Moss, Edward L., to Moss Machinery Manufacturers, Inc. Dual flap carton erecting machine. 4,275,644, Cl. 493-316.000.
Moss, Gerald: *See—*
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Moss Machinery Manufacturers, Inc.: *See—*
Moss, Edward L., 4,275,644, Cl. 493-316.000.
Moss, Mark W. Data card reader. 4,276,469, Cl. 235-458.000.
Motoren- und Turbinen Union Munchen GmbH: *See—*
Kappler, Guenter; and Fehler, Adolf, 4,275,564, Cl. 60-738.000.
Motorola, Inc.: *See—*
Beach, Stephen M.; Dirkes, William R.; Juglekar, Manohar A.; Secora, James C.; and Stephen, Michael A., 4,276,651, Cl. 375-120.000.
Mount, Ramon A.; and Robinson, Warn D., to Monsanto Company. Method of producing maleic anhydride. 4,276,222, Cl. 260-346.750.
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, to Toyo Seikan Kaisha Limited. Method and apparatus for producing fruit juices. 4,275,648, Cl. 99-483.000.
Moutard, Anne-Marie E. J.: *See—*
Bonzom, Albert; Crepaux, Alain P.; and Moutard, Anne-Marie E. J., 4,276,246, Cl. 264-53.000.
Mowles, Keaneth L., to Hennessy Products, Inc. Railway car lubricated center bearing. 4,275,661, Cl. 105-199.00C.
Moyer, James E. Trailer equalizer spring bar holder. 4,275,897, Cl. 280-406.00A.
Mueller, Felix, to Chemap A.G. Fermenter. 4,276,384, Cl. 435-311.000.
Muenchow, John R.; Pastorino, Ronald L.; Halle, Reidar; and Lewis, Roger N., to Argus Chemical Corporation. Cyclic peroxyketal cross-linking/blowing agents for polyethylene. 4,276,247, Cl. 264-54.000.
Muksiyama, Teruaki; and Sakito, Yoji, to Sumitomo Chemical Company, Limited. Method for producing 1,5-dimethyl-6,8-dioxabicyclo[3.2.1]octane. 4,276,217, Cl. 260-340.90R.
Muller, Eckart, to M.A.N Maschinenfabrik Augsburg-Nurnberg Aktiengesellschaft. Fuel injector for internal combustion engines. 4,275,845, Cl. 239-533.120.
Muller, Hans; and Guazzone, Bruno, to Chemap A.G. Filter apparatus and a method of cleaning filter elements thereof. 4,276,166, Cl. 210-327.000.
Muller, Horst; and Frey, Volker, to Wacker-Chemie GmbH. Process for preparing silicon-containing acetamide derivatives. 4,276,423, Cl. 556-411.000.
Muller, Jean-Claude; and Ramuz, Henri, to Hoffmann-La Roche Inc. Oxadiazolotriazine derivatives. 4,276,417, Cl. 544-198.000.
Muller, Josef: *See—*
Pohler, Friedmar; Falk, Hans; Muller, Josef; Klein, Hans J.; and Hoffacker, Franz, 4,276,324, Cl. 427-10.000.
Mullier, Alain: *See—*
Welsh, Jay Y.; Mullier, Alain; and Picquet, Pierre C., 4,276,268, Cl. 423-49.000.
Mullis, Charles. Clamping apparatus. 4,275,872, Cl. 269-72.000.
Multinorm, B.V.: *See—*
Oosterling, Pieter A.; and van Staveren, Hendricus C., 4,275,547, Cl. 56-13.600.
Muns, Joaquin M. Stop mechanism for Rachel or Ketten type knitting machine. 4,275,574, Cl. 66-163.000.
Murakami, Hisamichi: *See—*
Sakai, Katsuya; Mita, Ryuichi; Kato, Toshio; Higuchi, Chojiro; and Murakami, Hisamichi, 4,276,187, Cl. 252-186.000.
Muranaka, Tsutomu: *See—*
Ohara, Isamu; Muranaka, Tsutomu; and Eizumi, Hideo, 4,276,528, Cl. 335-75.000.
Murano, Genesio: *See—*
Leighton, Stephen B.; Murano, Genesio; Markowitz, Allen; and Chikadel, Bert, 4,276,383, Cl. 435-291.000.
Murao, Masami, to Kabushiki Kaisha Murao Shoten. Gold alloy with copper, silver and zinc. 4,276,086, Cl. 75-134.00C.
Murarka, Shyam P.: *See—*
Levinstein, Hyman J.; Murarka, Shyam P.; and Sinha, Ashok K., 4,276,557, Cl. 357-67.000.
Murase, Hidetoshi: *See—*
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Murata Masufucturing Co., Ltd.: *See—*
Aoki, Shigeru, 4,276,532, Cl. 337-408.000.
Kadota, Michio, 4,276,524, Cl. 333-194.000.
Nishikawa, Toshio; Tamura, Sadahiro; and Ishikawa, Youhei, 4,276,525, Cl. 333-206.000.
Murayama, Tadashi: *See—*
Fukuda, Takeo; Murayama, Tadashi; and Urui, Kiyoshi, 4,276,639, Cl. 370-62.000.
Murphy, James F.: *See—*
Schlager, Richard J.; and Murphy, James F., 4,276,272, Cl. 423-244.000.
Murphy, Raymond J. Bearing and support. 4,275,880, Cl. 272-93.000.
Murray, John T., to United Centrifugal Pumps. Internal adjustable grooving bar. 4,275,624, Cl. 82-1.200.
Musser, John: *See—*
St. Georgiev, Vasil; Loev, Bernard; Mack, Robert; and Musser, John, 4,276,292, Cl. 424-248.400.
Muste Llambrich, Pedro. Oscillation absorber for trailer hitches. 4,275,898, Cl. 280-446.00B.
Muttoni, Oscar E.: *See—*
French, John B.; and Muttoni, Oscar E., 4,276,112, Cl. 156-360.000.
Myers, Felix E., to Gould Inc. Circuit breaker having planar cradle with edge portions providing relatching and contact kicker functions. 4,276,457, Cl. 200-153.00G.
Nagaishi, Hatsuo, to Nissan Motor Company, Limited. Electronic controlled fuel injection system. 4,275,694, Cl. 123-463.000.
Nagamoto, Shun'ichi; and Sakamoto, Kazuho, to Matsushita Electric Industrial Co., Ltd. Electric home appliances. 4,276,468, Cl. 235-92.0CT.

Nagano, Hiroo; Oda, Terumi; and Fukuda, Takashi, to Sumitomo Industries, Ltd. Method for continuous electrolytic descaling of steel wire by non-contact current flow. 4,276,133, Cl. 204-145.00R.
Nagaoka, Shinji: *See—*
Kitai, Kiyoshi; Takazawa, Yuzuru; and Nagaoka, Shinji, 4,275,955, Cl. 354-268.000.
Nagase, Hiroshi; Okuyama, Toshiaki; and Kubota, Yuzuru, to Hitachi, Ltd. Control device for commutatorless motor. 4,276,504, Cl. 318-721.000.
Nagatani, Yoshio, to Nagatanien Honpo Co., Ltd. Method of preparing shaped rice food. 4,276,321, Cl. 426-618.000.
Nagatanien Honpo Co., Ltd.: *See—*
Nagatani, Yoshio, 4,276,321, Cl. 426-618.000.
Nagati, Rashed N., to Pennsylvania Engineering Corporation. Metallurgical vessel and supporting means. 4,275,871, Cl. 266-243.000.
Nakabayashi, Masamitsu; Doura, Fumihiro; and Hori, Teruo, to Takeda Chemical Industries, Ltd. Flame-spraying coating. 4,276,390, Cl. 525-61.000.
Nakada, Akira: *See—*
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Nakajima, Yoshihisa: *See—*
Tanaka, Akio; Nakajima, Yoshihisa; and Yokomori, Shinji, 4,275,806, Cl. 194-100.00A.
Nakamura, Hideo: *See—*
Obara, Sanshiro; Tokuda, Hiroatsu; Konno, Akihiko; and Nakamura, Hideo, 4,276,602, Cl. 364-431.000.
Tokuda, Hiroatsu; Morinaga, Shigeki; and Nakamura, Hideo, 4,276,601, Cl. 364-431.000.
Nakamura, Kenji: *See—*
Oka, Hitoshi; and Nakamura, Kenji, 4,276,323, Cl. 427-8.000.
Nakamura, Shozo: *See—*
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.
Nakamura, Yoichi: *See—*
Tsuda, Minoru; and Nakamura, Yoichi, 4,276,369, Cl. 430-326.000.
Nakano, Katsutoshi: *See—*
Kanzaki, Nobuyoshi; Toyama, Kenji; Nakano, Katsutoshi; Shimatani, Ryoichi; and Kudo, Fumio, 4,276,129, Cl. 204-58.000.
Nakano, Syuji: *See—*
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Nakayama, Hiroshi: *See—*
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Namiki, Ryo: *See—*
Matsumura, Osamu; Kato, Yutaka; Sekiguchi, Tsunetoshi; and Namiki, Ryo, 4,276,629, Cl. 368-86.000.
Nara, Terukazu: *See—*
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukazu; and Takayama, Yoshihiro, 4,276,380, Cl. 435-115.000.
Natarajan, Thiagarajan: *See—*
Hansel, Allen B.; and Natarajan, Thiagarajan, 4,276,590, Cl. 363-71.000.
National Distillers and Chemical Corporation: *See—*
Cairns, Rodney J.; and Whitelaw, Stefan P., 4,275,756, Cl. 137-234.500.
Saffer, Bernard A., 4,276,126, Cl. 203-69.000.
National Petro Chemicals Corp.: *See—*
Rekers, Louis J.; and Speca, Anthony N., 4,276,399, Cl. 526-106.000.
National Semiconductor Corporation: *See—*
Congdon, James S., 4,276,516, Cl. 330-272.000.
National Starch and Chemical Corporation: *See—*
Tessler, Martin M., 4,276,414, Cl. 536-114.000.
Nations, William N.; and Kerwin, Kenneth H., II, to Pacific Marine Electronics, Inc. Scan-lock control of solid state digitally synthesized receivers. 4,276,654, Cl. 455-160.000.
NCR Corporation: *See—*
Patel, Narendra M., 4,276,609, Cl. 364-900.000.
Nebe, William J.: *See—*
McCartin, Peter J.; and Nebe, William J., 4,276,366, Cl. 430-291.000.
Necchi S.p.A.: *See—*
Carbonato, Gianfranco; and Bussolati, Camillo, 4,275,674, Cl. 112-158.00E.
Neff, Laurence M.: *See—*
Schwartz, Robert E.; Neff, Laurence M.; and Utter, Gary N., 4,275,475, Cl. 15-104.06R.
Neidermyer, Robert W.: *See—*
Brewer, Arthur D.; Neidermyer, Robert W.; and McIntire, William S., 4,276,422, Cl. 549-15.000.
Neimark, Jerry: *See—*
Costantino, Joseph A.; Heberley, Jeffrey R.; Neimark, Jerry; and Weiner, Thomas E., 4,276,472, Cl. 250-214.00B.
Neitzel, Ulrich: *See—*
Singewald, Arno; Fricke, Gunter; Neitzel, Ulrich; and Geisler, Iring, 4,276,154, Cl. 209-3.000.
Nelson, Arthur J. Tow of barges by tugs. 4,275,677, Cl. 114-246.000.
Nelson, Byron G. Breathing apparatus. 4,275,725, Cl. 128-207.140.
Nelson, John S.: *See—*
Roberts, Colin A.; Nelson, John S.; Annan, David E.; and Robertson, Angus A. J., 4,275,481, Cl. 17-50.000.
Nelson, Kenneth E., to Waters Associates, Inc. Novel photometric system. 4,276,475, Cl. 250-373.000.
Nelson, Ronald J.; and Wright, Phillip D., to Bell Telephone Laboratories, Incorporated. Batch processing of semiconductor devices. 4,276,098, Cl. 148-171.000.
Nelson, Terence J.; and Wolfe, Raymond, to Bell Telephone Laboratories, Incorporated. Ion-implanted magnetic bubble memory with merge port. 4,276,614, Cl. 365-36.000.
Nemeth, Jozsef: *See—*
Varga, Gabor; Szabo, Ferenc; Sztanyik, Ferenc; Vagvolgyi, Laszlo; and Nemeth, Jozsef, 4,275,594, Cl. 73-487.000.
Nestrick, Terry J.; and Stehl, Rudolph H., to Dow Chemical Company, The. Chromatographic column packing having a bonded organosiloxane coating. 4,276,061, Cl. 55-67.000.
New Zipper Company Limited, The: *See—*
Doelter, Gandolph, 4,275,467, Cl. 2-82.000.
Newcon Company: *See—*
Jamar, Dwight W., 4,275,866, Cl. 251-250.000.
Newns, George R.: *See—*
Beales, Keith J.; Duncon, William J.; Dunn, Anthony G.; and Newns, George R., 4,275,951, Cl. 350-96.310.
Nguyen, Hieu K.; Dieudonne, Marc P. G.; and Lager, Jean-Paul, to Le Material Telephonique. Method and apparatus for converting time-division data signals received on an incoming trunk to time-division data signals of different format for transmission over an outgoing trunk. 4,276,641, Cl. 370-99.000.
Nguyen, Thanh V.; and Wagner, Thomas J., to Ralston Purina Company. Process for the production of a granulated protein gel suitable as a meat extender. 4,276,319, Cl. 426-574.000.
Nichols, Michael F.: *See—*
Hahn, Allen W.; Nichols, Michael F.; Sharma, Ashok K.; and Hellmuth, Eckhard W., 4,276,144, Cl. 204-195.00P.
Nichols, Robert L. Suction canister with vortex flow deflector. 4,275,731, Cl. 128-276.000.
Nikolaev, Vadim V.: *See—*
Kalashnikov, Leonid F.; Kudiarov, Vladimir N.; Kushnir, Georgy M.; Shapiro, Anatoly S.; Konstantinov, Rjury I.; Nikolaev, Vadim V.; and Kunets, Vladimir K., 4,275,968, Cl. 415-74.000.
Niles, Albert B.: *See—*
Grgurich, William A.; Niles, Albert B.; and Updyke, Kenneth W., 4,275,844, Cl. 239-533.300.
Nippon Electric Co., Ltd.: *See—*
Iinuma, Kazumoto, 4,276,544, Cl. 340-347.0DD.
Nippon Gakki Seizo Kabushiki Kaisha: *See—*
Baba, Michiru, 4,275,676, Cl. 114-144.00E.
Imamura, Akio; Yamaga, Eiichi; and Nakada, Akira, 4,275,634, Cl. 84-1.030.
Nishimoto, Yutaka, 4,276,515, Cl. 330-253.000.
Nippon Kogaku K.K.: *See—*
Dobashi, Toshio, 4,275,954, Cl. 354-198.000.
Utagawa, Ken, 4,276,471, Cl. 250-201.000.
Wakabayashi, Hiroshi, 4,275,855, Cl. 242-71.200.
Watanabe, Sakuji; Ohtsubo, Yoshiaki; and Toyoda, Kenji, 4,275,953, Cl. 354-33.000.
Nippon Paint Co., Ltd.: *See—*
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, 4,276,479, Cl. 250-492.00R.
Nippon Soken, Inc.: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,275,590, Cl. 73-204.000.
Nischk, Wolfgang: *See—*
Dahm, Franz-Ludwig; Diehl, Herbert; Eiermann, Kurt; Lamberty, Reinhold; and Nischk, Wolfgang, 4,276,143, Cl. 204-195.00M.
Nishida, Yasuhiro; and Kondo, Yasuo, to Yamaha Matsudoki Kabushiki Kaisha. Exhaust means for marine propulsion unit. 4,276,036, Cl. 440-89.000.
Nishikawa, Masao; Aoyama, Toshihiko; and Sato, Yoichi, to Honda Giken Kogyo Kabushiki Kaisha. Power steering apparatus. 4,275,798, Cl. 180-143.000.
Nishikawa, Toshio; Tamura, Sadahiro; and Ishikawa, Youhei, to Murata Manufacturing Co., Ltd. Coaxial resonator with projecting terminal portion and electrical filter employing a coaxial resonator of that type. 4,276,525, Cl. 333-206.000.
Nishikawa, Yasuhisa; and Hasumi, Ryoichi, to Clarion Co., Ltd. Push-button tuner. 4,275,606, Cl. 74-10.390.
Nishimoto, Yutaka, to Nippon Gakki Seizo Kabushiki Kaisha. Differential amplifier circuit arrangement with stabilized input impedance. 4,276,515, Cl. 330-253.000.
Nishino, Atsushi; Yoshida, Akihiko; and Ogino, Nobukuni, to Matsushita Electric Industrial Co., Ltd. Humidity sensing element of electric capacitance change type and method of producing same. 4,276,128, Cl. 204-38.00A.
Nishino, Masaki; and Yasuhara, Yutaka, to Toray Industries, Inc. 1,6,11-Undecane triisocyanate. 4,276,228, Cl. 260-453.0AL.
Nishizaki, Shinzo: *See—*
Tanimoto, Akira; Masuzawa, Sigeaki; Shibata, Shinya; and Nishizaki, Shinzo, 4,276,444, Cl. 179-1.0SM.
Nishizawa, Masahiro: *See—*
Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
Nissan Motor Company, Limited: *See—*
Abe, Fumiyuki; and Hayashi, Yoshimasa, 4,275,688, Cl. 123-41.120.
Fujishiro, Takeshi; and Ozawa, Hiroshige, 4,275,602, Cl. 73-861.220.
Fukumori, Yukitsugu; and Sone, Masazumi, 4,275,690, Cl. 123-146.50A.

Kamihama, Kiyoshi, 4,275,930, Cl. 301-37.0SS.
Kato, Yoshiaki, 4,275,477, Cl. 15-250.020.
Matsui, Katsuhiko; Kashiwabe, Yukio; and Kishimoto, Yoshioki, 4,276,161, Cl. 210-86.000.
Matsuoka, Hideoki; and Kondo, Yoshinobu, 4,275,903, Cl. 280-803.000.
Nagaishi, Hatsuo, 4,275,694, Cl. 123-463.000.
Okamoto, Shoji; and Kazama, Norio, 4,275,919, Cl. 296-214.000.
Orii, Shinichi; and Ishikawa, Masao, 4,276,581, Cl. 362-40.000.
Shibata, Kazuo, 4,275,773, Cl. 139-429.000.
Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, 4,276,533, Cl. 338-4.000.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,238, Cl. 261-39.00D.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,239, Cl. 261-44.00E.
Nissin Machine Works, Ltd.: *See—*
Daito, Michimasa; and Sugino, Tohru, 4,275,527, Cl. 51-103.0TF.
Niu, Joseph H. Y.: *See—*
Schmolka, Irving R.; and Niu, Joseph H. Y., 4,276,054, Cl. 44-51.000.
Noguchi, Katsuyuki: *See—*
Ikezaki, Muneyoshi; Noguchi, Katsuyuki; Iwai, Hajime; and Inamasu, Masanori, 4,276,304, Cl. 424-282.000.
Noiles, Douglas G., to United States Surgical Corporation. Coherent surgical staple array. 4,275,813, Cl. 206-339.000.
Nomax Corporation: *See—*
French, John B.; and Muttoni, Oscar E., 4,276,112, Cl. 156-360.000.
Nomura, Hirokazu: *See—*
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,276,138, Cl. 204-165.000.
Nomura, Yasushi, to Citizen Watch Company Limited. Electronic timepiece. 4,276,628, Cl. 368-85.000.
Nonogaki, Saburo: *See—*
Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
Norbeck, Dean K.: *See—*
Kountz, Kenneth J.; and Norbeck, Dean K., 4,275,987, Cl. 415-17.000.
Norman, Fielding M.: *See—*
Thacker, Charles P.; Norman, Fielding M.; and Rider, Ronald E., 4,276,647, Cl. 371-40.000.
Northern Telecom Limited: *See—*
Chowaniec, Adam, 4,276,450, Cl. 179-170.00D.
Northup, John D., to Northup, Ruth B.; Northup, John D., Jr.; Lehrkind, Nancy Northup; and Northup, Mary E., part interest to each. Method of forming glass bottles. 4,276,073, Cl. 65-77.000.
Northup, John D., Jr.: *See—*
Northup, John D., 4,276,073, Cl. 65-77.000.
Northup, Mary E.: *See—*
Northup, John D., 4,276,073, Cl. 65-77.000.
Northup, Ruth B.: *See—*
Northup, John D., 4,276,073, Cl. 65-77.000.
Norton, William W.; Stansbeary, Jack L.; Clemens, Johann; and Earl, Roscoe T., to Baxter Travenol Laboratories, Inc. Electronic injection metering and monitoring system. 4,275,480, Cl. 17-25.000.
Novinski, Edward R.; and Harrington, John H., to Metco, Inc. Self-bonding flame spray wire for producing a readily grindable coating. 4,276,353, Cl. 428-558.000.
Nowack, Gerhard P.: *See—*
Wu, Yulin; Johnson, Marvin M.; and Nowack, Gerhard P., 4,276,200, Cl. 252-443.000.
Nowacki, John J.: *See—*
Kerscher, Frederick C.; and Nowacki, John J., 4,276,261, Cl. 422-131.000.
Nowak, Milton: *See—*
Singer, William; Nowak, Milton; and Ingles, Norma, 4,276,211, Cl. 260-29.6MN.
Nyberg, Paul M.: *See—*
Chen, Gilbert K.; Nyberg, Paul M.; and Buchholz, Matthew, 4,276,242, Cl. 261-111.000.
Obara, Sanshiro; Tokuda, Hiroatsu; Konno, Akihiko; and Nakamura, Hideo, to Hitachi, Ltd. Electronic engine control apparatus having arrangement for varying fuel injection duration. 4,276,602, Cl. 364-431.000.
Obata, Shuichi; and Ito, Masashi, to Matsushita Electric Industrial Co., Ltd. Pickup cartridge and mounting device therefor. 4,276,635, Cl. 369-256.000.
Obayashi, Hideki: *See—*
Kawai, Hisasi; Egami, Tsuneyuki; Kohama, Tokio; and Obayashi, Hideki, 4,275,590, Cl. 73-204.000.
Obenour, Jerry: *See—*
Thornton, Aaron R.; and Obenour, Jerry, 4,275,744, Cl. 128-731.000.
O'Brien, Brian, Jr., to International Telephone and Telegraph Corporation. Optical fiber fabrication. 4,276,072, Cl. 65-3.00A.
O'Brien, John P.: *See—*
United States of America, National Aeronautics and Space Administration; Allcock, Harry R.; O'Brien, John P.; Scopelianos, Angelo G.; and Fewell, Larry L., 4,276,403, Cl. 528-4.000.
Occidental Chemical Company: *See—*
Gragg, F. Michael; and Self, James, 4,276,270, Cl. 423-167.000.
Occidental Petroleum Corporation: *See—*
Roeschlaub, John G.; and Hopkins, Ivan J., 4,276,155, Cl. 209-10.000.
Occidental Research Corporation: *See—*
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,409, Cl. 528-362.000.
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,410, Cl. 528-373.000.
DiGiacomo, Peter M.; and Dines, Martin B., 4,276,411, Cl. 528-395.000.
Gragg, F. Michael; and Self, James, 4,276,270, Cl. 423-167.000.
Oda, Terumi: *See—*
Nagano, Hiroo; Oda, Terumi; and Fukuda, Takashi, 4,276,133, Cl. 204-145.00R.
Odermann, Charles R., to Singer Company, The. Sewing machine positioning pin. 4,275,939, Cl. 312-208.000.
Ogasawara, Tsutomu; and Enomoto, Kazuo, to Fuji Xerox Co., Ltd. Security device for operation panel. 4,275,941, Cl. 312-223.000.
Ogawa, Shinsaku: *See—*
Seko, Maomi; Ogawa, Shinsaku; and Takemura, Reiji, 4,276,130, Cl. 204-98.000.
Ogawa, Yoshinari; Fukumoto, Teruhisa; and Sakai, Kohichi, to Teijin Limited. Glass fiber-reinforced thermoplastic polyester composition. 4,276,208, Cl. 260-28.00R.
Ogino, Nobukuni: *See—*
Nishino, Atsushi; Yoshida, Akihiko; and Ogino, Nobukuni, 4,276,128, Cl. 204-38.00A.
Ogirima, Masahiko: *See—*
Takano, Yukio; Ogirima, Masahiko; Aoki, Shigeru; Maki, Michiyoshi; and Kato, Shigeo, 4,276,114, Cl. 156-645.000.
Oguro, Takeshi: *See—*
Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, 4,276,533, Cl. 338-4.000.
Ohara, Isamu; Muranaka, Tsutomu; and Eizumi, Hideo, to Omron Tateisi Electronics Co. Electric motor-driven timer. 4,276,528, Cl. 335-75.000.
Ohashi, Toshiro: *See—*
Fujita, Teizo; Ohashi, Toshiro; and Takimoto, Kouji, 4,276,631, Cl. 368-89.000.
Ohio State University, The: *See—*
Gilson, Richard D.; Thurston, Marlin O.; Olson, Karl W.; and Ventola, Ronald W., 4,276,029, Cl. 434-43.000.
Ohlschlager, Hans; Rosenhahn, Lothar; and Sauerteig, Wolfgang, to AGFA-Gevaert, A.G. Photosensitive photographic material containing a light-absorbing dye. 4,276,373, Cl. 430-507.000.
Ohmatoi, Susumu: *See—*
Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
Ohmichi, Hitoshi: *See—*
Enomoto, Hiromu; Yasuda, Yasushi; Ohmichi, Hitoshi; and Mitono, Yoshiharu, 4,276,556, Cl. 357-52.000.
Ohtani, Shigemori: *See—*
Takeyama, Toshiro; and Ohtani, Shigemori, 4,275,841, Cl. 239-431.000.
Ohtsubo, Yoshiaki: *See—*
Watanabe, Sakuji; Ohtsubo, Yoshiaki; and Toyoda, Kenji, 4,275,953, Cl. 354-33.000.
Oka, Hitoshi; and Nakamura, Kenji, to Hitachi, Ltd. Process for controlling of chemical copper plating solution. 4,276,323, Cl. 427-8.000.
Okabe, Yukio: *See—*
Watanabe, Yasuaki; Okabe, Yukio; Kojima, Shinichi; and Sato, Mitsuya, 4,276,560, Cl. 358-28.000.
Okada, Motohiro, to Honda Giken Kogyo Kabushiki Kaisha. Inflatable safety bag system for vehicles. 4,275,901, Cl. 280-741.000.
Okamoto, Eiichi; Fujisawa, Norio; and Hori, Masao, to Tokyo Shibaura Denki Kabushiki Kaisha. Method and apparatus for supervising a digital protective relaying system. 4,276,605, Cl. 364-483.000.
Okamoto, Shoji; and Kazama, Norio, to Nissan Motor Company, Limited. Suspension-type head lining arrangement for automotive vehicle and clip element for use therein. 4,275,919, Cl. 296-214.000.
Okawa, Tadashi; Honbu, Mitsuyuki; Matsuda, Yasuo; Shibata, Takanori; and Kawaguchi, Toshio, to Hitachi, Ltd. Twelve-step current source inverter. 4,276,589, Cl. 363-71.000.
Okazawa, Yukio: *See—*
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, 4,275,648, Cl. 99-483.000.
Okubo, Kiyokazu; and Nakayama, Hiroshi, to Honda Giken Kogyo Kabushiki Kaisha. Apparatus for preventing wrong shift operation in speed change gear for vehicle. 4,275,614, Cl. 74-476.000.
Okumoto, Kiyofumi: *See—*
Hashimoto, Takeji; Okumoto, Kiyofumi; and Andoh, Masayasu, 4,275,573, Cl. 66-75.200.
Okuyama, Toshiaki: *See—*
Nagase, Hiroshi; Okuyama, Toshiaki; and Kubota, Yuzuru, 4,276,504, Cl. 318-721.000.
Olander, Walter K.: *See—*
Markezich, Ronald L.; Olander, Walter K.; and Axelrod, Robert J., 4,276,233, Cl. 260-937.000.
Olin Corporation: *See—*
Popplewell, James M.; and Butt, Sheldon H., 4,275,784, Cl. 165-134.00R.
Seeman, Walter C., 4,276,349, Cl. 428-403.000.

Olivotto, Vanfrido, to Olivotto Vetromeccanica S.a.s. Machine for the manufacture of glass articles by blow moulding glass. 4,276,075, Cl. 65-160.000.
Olivotto Vetromeccanica S.a.s.: *See—*
Olivotto, Vanfrido, 4,276,075, Cl. 65-160.000.
Olson, Donald O. Combination stabilizer and sprinkler support for surface hose. 4,275,839, Cl. 239-272.000.
Olson, Karin S. B., to Landstingens Inkopscentral Lic, Ekonomisk Forening. Vein catheter bandage. 4,275,721, Cl. 128-133.000.
Olson, Karl W.: *See—*
Gilson, Richard D.; Thurston, Marlin O.; Olson, Karl W.; and Ventola, Ronald W., 4,276,029, Cl. 434-43.000.
Omron Tateisi Electronics Co.: *See—*
Inoue, Haruhiko; and Nakano, Syuji, 4,276,598, Cl. 364-405.000.
Ohara, Isamu; Muranaka, Tsutomu; and Eizumi, Hideo, 4,276,528, Cl. 335-75.000.
Onishi, Hisao: *See—*
Sakimae, Akihiro; and Onishi, Hisao, 4,276,381, Cl. 435-179.000.
Onoye, Hideo: *See—*
Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, 4,276,604, Cl. 364-480.000.
Oosterling, Pieter A.; and van Staveren, Hendricus C., to Multinorm, B.V. Mowing device. 4,275,547, Cl. 56-13.600.
Opalka, Chester J., Jr.: *See—*
Lesher, George Y.; Opalka, Chester J., Jr.; and Page, Donald F., 4,276,293, Cl. 424-248.400.
Opitz, Wolfgang: *See—*
Etschenberg, Eugen; Opitz, Wolfgang; and Raddatz, Siegfried, 4,276,288, Cl. 424-177.000.
Optsonic Research Associates, Inc.: *See—*
Horn, Michael, 4,275,596, Cl. 73-607.000.
Orals, David L.; and Bushey, Peter S., to United States Gypsum Company. Fire resistant floor and ceiling assembly. 4,275,541, Cl. 52-483.000.
Orii, Shinichi; and Ishikawa, Masao, to Nissan Motor Company, Limited. Headlight tilting system for vehicles. 4,276,581, Cl. 362-40.000.
Orlowski, Gerald J.; Wicklund, Rodney D.; Sandlas, Richard D.; and Weibler, Walter W., to Armour and Company. Apparatus and method for molding meat patties. 4,276,318, Cl. 426-513.000.
Ornstein, Leonard: *See—*
Adler, Stanford L., Sr.; Gordon, Abraham; and Ornstein, Leonard, 4,276,253, Cl. 264-247.000.
Ortho Pharmaceutical Corporation: *See—*
Hajos, Zoltan G.; and Wachter, Michael P., 4,276,216, Cl. 260-340.600.
Oshima, Ryoichiro: *See—*
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.
Osumi, Kazuoki: *See—*
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukazu; and Takayama, Yoshihiro, 4,276,380, Cl. 435-115.000.
Ota, Tadaki: *See—*
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,238, Cl. 261-39.00D.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,239, Cl. 261-44.00E.
Otis Engineering Corporation: *See—*
Crockett, Emmet E., 4,276,482, Cl. 290-52.000.
Ott, Karl-Heinz: *See—*
Hardt, Dietrich; Humme, Gert; Ott, Karl-Heinz; and Braese, Hans-Eberhard, 4,276,391, Cl. 525-71.000.
Otthofer, Jacob A., Jr., to Armstrong World Industries, Inc. Expandable mandrel. 4,276,148, Cl. 204-281.000.
Outboard Marine Corporation: *See—*
Kashmerick, Gerald E., 4,276,034, Cl. 440-75.000.
Outland, Robert J., to General Motors Corporation. Ceramic filters for diesel exhaust particulates. 4,276,071, Cl. 55-523.000.
Outlaw, Homer G. Winter jersey with hand warmer. 4,275,468, Cl. 2-115.000.
Overall, Colin D.: *See—*
Stone, Henry D.; Knapp, Alan G.; Mansell, John R.; Overall, Colin D.; and Washington, Derek, 4,276,127, Cl. 204-24.000.
Overall, John C. K.: *See—*
Schaus, Orland O.; and Overall, John C. K., 4,275,705, Cl. 126-110.00R.
Ovodenko, Alexandr V.: *See—*
Stakhov, Alexei P.; Solyanichenko, Nikolai A.; Luzheisky, Vladimir A.; Ovodenko, Alexandr V.; and Kozak, Andrei A., 4,276,608, Cl. 364-768.000.
Owen, Geoffrey R.: *See—*
Durant, Graham J.; Ganellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,276,301, Cl. 424-273.00R.
Owens-Corning Fiberglas Corporation: *See—*
Ault, Russell L., 4,276,245, Cl. 264-46.500.
Owens, Robert L.: *See—*
Ciarcia, Ronald D.; and Owens, Robert L., 4,276,526, Cl. 335-35.000.
Ozawa, Hiroshige: *See—*
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P.I.V. Antrieb Werner Reimers Kommanditgesellschaft: *See—*
Steuer, Herbert K., 4,276,041, Cl. 474-243.000.
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Hamisch, Paul H., Jr.; and Pabodie, Robert M., 4,275,654, Cl. 101-110.000.
PACCAR Inc.: *See—*
Henneman, Richard C.; Burdon, Kenneth A.; and Bruce, Joseph R., 4,275,870, Cl. 254-361.000.
Pace, Dan R. Kelp blade harvester. 4,275,545, Cl. 56-8.000.
Pacific Marine Electronics, Inc.: *See—*
Nations, William N.; and Kerwin, Kenneth H., II, 4,276,654, Cl. 455-160.000.
Padley, Frederick B.; Paulussen, Cornelis N.; Soeters, Cornelis; and Tresser, David, to Lever Brothers Company. Chocolate having defined hard fat. 4,276,322, Cl. 426-660.000.
Page, Donald F.: *See—*
Lesher, George Y.; Opalka, Chester J., Jr.; and Page, Donald F., 4,276,293, Cl. 424-248.400.
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Pallos, Ferenc M.; Brokke, Mervin E.; and Arneklev, Duane R., to Stauffer Chemical Company. Herbicide compositions. 4,276,078, Cl. 71-88.000.
Palumbo, Kenneth S.: *See—*
Bell, George E.; Wilson, Clement B.; Thibado, Daniel H.; and Palumbo, Kenneth S., 4,275,956, Cl. 355-3.0DD.
Panpack A.G.: *See—*
Staar, Marcel J. H., 4,275,840, Cl. 239-327.000.
Paratte, Daniel, to Fabrique d'Horlogerie de Fontainemelon S.A. Electronic watch movement. 4,276,630, Cl. 368-88.000.
Parenti, Francesco; Coronelli, Carolina; Tamoni, Giorgio; and Lancini, Giancarlo, to Gruppo Lepetit S.p.A. Antibiotic substances. 4,276,382, Cl. 435-253.000.
Park Mobile, Inc.: *See—*
Lichti, Robert D.; and Hock, Frederick D., 4,275,979, Cl. 414-251.000.
Parker, Denson. Fluid velocity actuated structure for a wind mill/water wheel. 4,276,481, Cl. 290-43.000.
Parker-Hannifin Corporation: *See—*
Belofsky, Harold, 4,275,937, Cl. 308-127.000.
Woodring, Richard H.; Whitmore, Charles H.; Houtman, Paul K.; and Kowalski, Thomas A., 4,275,997, Cl. 417-218.000.
Parker, Jimmy J.: *See—*
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Parker, John A.: *See—*
Varma, Indra K.; Fohlen, George M.; Parker, John A.; and Frosch, Robert A., 4,276,344, Cl. 428-260.000.
Parker, Robert P., to RCA Corporation. Circuit for inhibiting radio frequency interference in a television receiver. 4,276,566, Cl. 358-170.000.
Parkinson, Martin; and Dimitroff, Michael V., to Bio-Vac Incorporated. Evaporator/sublimator flask apparatus. 4,275,511, Cl. 34-92.000.
Partus, Fred P., to Western Electric Company, Inc. Vapor delivery control system and method. 4,276,243, Cl. 261-128.000.
Pasic, Hajrudin; and Herrmann, George, to Electric Power Research Institute, Inc. Method of removing particulate matter from precipitator plate. 4,276,056, Cl. 55-13.000.
Pasternack, Adalbert: *See—*
Warncke, Ernst; and Pasternack, Adalbert, 4,275,723, Cl. 128-202.220.
Pastorino, Ronald L.: *See—*
Muenchow, John R.; Pastorino, Ronald L.; Halle, Reidar; and Lewis, Roger N., 4,276,247, Cl. 264-54.000.
Patel, Gordhanbhai N., to Allied Chemical Corporation. Process for monitoring time-temperature histories of perishables utilizing inactive form of diacetylene. 4,276,190, Cl. 252-408.000.
Patel, Narendra M., to NCR Corporation. CCD memory retrieval system. 4,276,609, Cl. 364-900.000.
Patton, John S., to Ethyl Corporation. Safety closure and container combination. 4,275,817, Cl. 215-217.000.
Pauli, Balduin L., to Warmetechnik Dr. Pauli GmbH & Co. Betriebs KG. Air-cooled grate bar. 4,275,706, Cl. 126-163.00R.
Paulussen, Cornelis N.: *See—*
Padley, Frederick B.; Paulussen, Cornelis N.; Soeters, Cornelis; and Tresser, David, 4,276,322, Cl. 426-660.000.
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Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M., 4,276,088, Cl. 106-1.120.
Pearson, John E.: *See—*
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Pechiney Ugine Kuhlmann: *See—*
Hue, Bernard P. H.; and Mercier, Henri A., 4,276,327, Cl. 427-345.000.
Pedersen, Alec, to Pedersen Industries Ltd. Mononose conversion for twinskis. 4,275,904, Cl. 280-818.000.
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Pedersen, Alec, 4,275,904, Cl. 280-818.000.
Peerless Machinery Corporation: *See—*
Zieladorf, Franklin J., 4,275,568, Cl. 62-342.000.
Peglan, Manfred: *See—*
Steinbrecher, Heinrich; Koch, Johannes; and Peglan, Manfred, 4,275,578, Cl. 72-14.000.
Peiffert, Jean; and Barbedienne, Roger S. Method and apparatus for servo-controlling a rotating workpiece. 4,276,503, Cl. 318-576.000.
Pennington, John W., III; and Thorsted, Kenneth G., to United States of America, Navy. Anchoring system. 4,275,680, Cl. 114-295.000.
Pennsylvania Engineering Corporation: *See—*
Nagati, Rashed N., 4,275,871, Cl. 266-243.000.

Pennwalt Corporation: *See—*
Bonn, John W., 4,275,566, Cl. 62-55.500.
Miano, Jeffrey D.; and Sandler, Stanley R., 4,276,387, Cl. 521-167.000.
Perez, Sergio J. Twenty cigarette dispenser. 4,275,819, Cl. 221-186.000.
Perkey, Russell C.; Thoman, David C.; and Eastman, James M., to Bendix Corporation, The. System for cooling motor bearings. 4,276,006, Cl. 418-94.000.
Perkin-Elmer Corporation, The: *See—*
Hansel, Allen B.; and Natarajan, Thiagarajan, 4,276,590, Cl. 363-71.000.
Quick, Donald L., 4,276,591, Cl. 363-92.000.
Perkins, Gerald S.; and Moore, Nicholas R., to California Institute of Technology. Reciprocating piston pump system with screw drive. 4,276,003, Cl. 417-415.000.
Perkins, Patrick: *See—*
Vollhardt, Kurt P. C.; and Perkins, Patrick, 4,276,395, Cl. 525-332.000.
Perry, George J.: *See—*
Kuehnle, Manfred R.; and Perry, George J., 4,275,957, Cl. 355-10.000.
Pershina, Nina F.: *See—*
Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M., 4,276,088, Cl. 106-1.120.
Perzley, William: *See—*
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., 4,275,986, Cl. 414-730.000.
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, to BASF Aktiengesellschaft. Cocondensates based on phenol-butyraldehyde resins, their preparation and their use. 4,276,209, Cl. 260-28.00P.
Petershack, Victor D., to Rexnord Inc. Pintle chain having extended wear barrel section and sprocket therefor. 4,276,040, Cl. 474-229.000.
Peterson, Donald L.; Srivastava, Ajit K.; and Brown, Galen K., to United States of America, Agriculture. Mechanical buncher for leafy vegetables. 4,275,649, Cl. 100-4.000.
Peterson, James G.: *See—*
Miller, Ralph W.; and Peterson, James G., 4,276,543, Cl. 340-347.0AD.
Peterson, William R., Jr.; and Arkles, Barry C., to Petrarch Systems. Methods for the production of organic polysilanes. 4,276,424, Cl. 556-430.000.
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Petrarch Systems: *See—*
Peterson, William R., Jr.; and Arkles, Barry C., 4,276,424, Cl. 556-430.000.
Petrolite Corporation: *See—*
Quinlan, Patrick M., 4,276,291, Cl. 424-246.000.
Quinlan, Patrick M., 4,276,416, Cl. 544-58.200.
Petryk, Edward M., Jr., to Honeywell Information Systems Inc. Apparatus and method for replacement of a parallel, computer-to-peripheral wire link with a serial optical link. 4,276,656, Cl. 455-608.000.
Pfefferle, William C., to Acurex Corporation. Catalytic system and process for producing it. 4,276,203, Cl. 252-462.000.
Pfizer Inc.: *See—*
Andrews, Glenn C., 4,276,219, Cl. 260-343.700.
Barth, Wayne E., 4,276,285, Cl. 424-114.000.
Lipinski, Christopher A., 4,276,297, Cl. 424-263.000.
Wilson, David M., 4,276,183, Cl. 428-480.000.
Philippe, David: *See—*
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.
Philippe, James: *See—*
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.
Phillips, Earl G.; and Ranger, Dee B., to Stryker Corporation. Fluid flow control console. 4,276,023, Cl. 433-85.000.
Phillips, Emyr: *See—*
Randell, Donald R.; and Phillips, Emyr, 4,276,224, Cl. 260-371.000.
Phillips Petroleum Company: *See—*
Dixon, Rolland E.; and Chapman, Charles C., 4,276,257, Cl. 422-62.000.
Eddy, William R.; and Taylor, Raymond C., 4,276,043, Cl. 493-160.000.
Hutson, Thomas, Jr.; Makovec, Donald J.; and Beckworth, Alden E., 4,276,439, Cl. 585-720.000.
Selman, Charles M.; and Fodor, Lawrence M., 4,276,192, Cl. 252-429.00B.
Wu, Yulin; Johnson, Marvin M.; and Nowack, Gerhard P., 4,276,200, Cl. 252-443.000.
Wu, Yulin, 4,276,223, Cl. 260-348.160.
Phillips, Thomas R., to Du Pont de Nemours, E. I., and Company. Polyvinyl butyral plasticized with tetraethyleneglycol di-2-ethylhexanoate. 4,276,351, Cl. 428-437.000.
Piber, Earl T., to Eaton Corporation. Adjustable trigger stop. 4,276,461, Cl. 200-329.000.
Pickermann, Otto. Asphalt production. 4,276,093, Cl. 106-281.00R.
Picquet, Pierre C.: *See—*
Welsh, Jay Y.; Mullier, Alain; and Picquet, Pierre C., 4,276,268, Cl. 423-49.000.
Pinson, Neal L., to Tension Structures, Inc. Tension members. 4,275,537, Cl. 52-223.00R.
Plank, Charles J.; Rosinski, Edward J.; and Givens, Edwin N., to Mobil Oil Corporation. Novel reforming catalysts. 4,276,151, Cl. 208-138.000.
Plastic Auvergne: *See—*
Combronde, Roger, 4,276,254, Cl. 264-251.000.
Plastic Machinery Corporation: *See—*
Shartzer, Kenneth B., 4,276,010, Cl. 425-143.000.
Platt Saco Lowell Limited: *See—*
Tarbon, Philip B.; and Martin, Charles R., 4,275,554, Cl. 57-263.000.
Poclain: *See—*
Moro, Christian D.; and Ranini, Daniel G., 4,275,542, Cl. 52-731.000.
Pohl, Lothar, to Wisco Corporation. Sliding roof panel. 4,275,920, Cl. 296-222.000.
Pohler, Friedmar; Falk, Hans; Muller, Josef; Klein, Hans J.; and Hoffacker, Franz, to AGFA-Gevaert, A.G. Method for the contact-free continuous measurement and monitoring of magnetic tracks on moving film strips. 4,276,324, Cl. 427-10.000.
Poirier, Jean B. Mattress. 4,275,473, Cl. 9-13.000.
Polaroid Corporation: *See—*
Gutoff, Edgar B., 4,275,587, Cl. 73-64.400.
Taylor, Lloyd D., 4,276,370, Cl. 430-466.000.
Polymerics, Inc.: *See—*
Lester, David; and Alexander, Robert, 4,276,207, Cl. 260-17.00R.
Poncy, George W.: *See—*
Poncy, Mark P.; Poncy, George W.; and Poncy, Richard P., 4,275,812, Cl. 206-278.000.
Poncy, Mark P.; Poncy, George W.; and Poncy, Richard P. Surgical glove package and donning method. 4,275,812, Cl. 206-278.000.
Poncy, Richard P.: *See—*
Poncy, Mark P.; Poncy, George W.; and Poncy, Richard P., 4,275,812, Cl. 206-278.000.
Popplewell, James M.; and Butt, Sheldon H., to Olin Corporation. Fail safe heat exchanger. 4,275,784, Cl. 165-134.00R.
Porta, Augusto; and Mosetti, Jacques, to Dow Chemical Company, The. Method for removing chlorate from caustic solutions with electrolytic iron. 4,276,134, Cl. 204-153.000.
Porter, Kenneth, to Imperial Chemical Industries Limited. Laying oriented fibrous webs. 4,276,106, Cl. 156-181.000.
Porter, William H., to W. H. Porter, Inc. Hexagonal building structures. 4,275,534, Cl. 52-82.000.
Post Office, The: *See—*
Beales, Keith J.; Duncon, William J.; Dunn, Anthony G.; and Newns, George R., 4,275,951, Cl. 350-96.310.
Postupack, Dennis S.; and Allerton, David A., to PPG Industries, Inc. Method for supporting flexible sheet while applying graded shade band thereon. 4,276,325, Cl. 427-14.100.
Powell, David R.: *See—*
Laprie, Jean-Claude; Powell, David R.; Alcouffe, Gerard; and Romand, Paul, 4,276,643, Cl. 371-8.000.
PPG Industries Canada Ltd.: *See—*
Geesen, Donald H., 4,276,117, Cl. 159-47.00R.
PPG Industries, Inc.: *See—*
Bryant, Lovell D.; and Koontz, Harry S., 4,276,509, Cl. 324-51.000.
Franz, Helmut, 4,276,350, Cl. 428-410.000.
Postupack, Dennis S.; and Allerton, David A., 4,276,325, Cl. 427-14.100.
Shuster, James S., 4,276,074, Cl. 65-106.000.
Prakla - Seismos GmbH: *See—*
Helbig, Klaus, 4,275,787, Cl. 166-251.000.
Prato Commerz, S.p.A.: *See—*
Maranghi, Marco, 4,276,345, Cl. 428-284.000.
Primbach, Erik, to Krautkramer-Branson, Inc. Method and apparatus for sensing ultrasonic energy. 4,275,963, Cl. 356-35.500.
Prince Corporation: *See—*
Marcus, Konrad H., 4,275,913, Cl. 296-37.100.
Marcus, Konrad H., 4,275,917, Cl. 296-97.00R.
Skogler, Brian J., 4,275,916, Cl. 296-97.00H.
Procter & Gamble Company, The: *See—*
Ferry, Merle W., 4,276,205, Cl. 252-528.000.
Kirby, Charles E., 4,276,227, Cl. 260-425.000.
Ludwa, Raymond J.; Forry, Mark E.; and Haugen, Marilyn M., 4,276,338, Cl. 428-137.000.
Reller, Herbert H.; and Kretschmar, Herbert C., 4,276,430, Cl. 560-66.000.
Produits Chimiques Ugine Kuhlmann: *See—*
Aguinet, Gerard; Le Bras, Andre; Manoury, Jean; and Martin, Edouard, 4,276,277, Cl. 423-393.000.
Proett, Mark A.: *See—*
Speer, Howard D., Jr.; and Proett, Mark A., 4,275,500, Cl. 30-40.000.
Przybyla, Bernd: *See—*
Bauer, Hartmut; Schmidt, Peter; Stocker, Herbert; and Przybyla, Bernd, 4,275,695, Cl. 123-486.000.
Puchalski, Chester: *See—*
Brown, Richard E.; Puchalski, Chester; and Shavel, John, Jr., 4,276,296, Cl. 424-256.000.
Pufahl, Joseph. Adhesive-coated impregnated polyurethane foam. 4,276,107, Cl. 156-238.000.
Purton, Robert M.; and Hanson, Lloyd D., to Dresser Industries, Inc. Decoking nozzle assembly. 4,275,842, Cl. 239-446.000.
Putney, Gordon A., to Harnischfeger Corporation. Load brake. 4,275,803, Cl. 188-134.000.

Quantel S.A.: *See—*
Marteau, Jean M., 4,276,519, Cl. 331-94.50C.

Quedens, Phillipp J.; Haverl, Ronald A.; and Stoller, Milton, to Smith-Kline Instruments, Inc. Ultrasonic beam scanning technique and apparatus. 4,275,597, Cl. 73-618.000.

Quick, Donald L., to Perkin-Elmer Corporation, The. Programmable power regulating power supply. 4,276,591, Cl. 363-92.000.

Quick, Thomas H., to Weyerhaeuser Company. Deinking waste electrophotography copy paper. 4,276,118, Cl. 162-5.000.

Quinlan, Patrick M., to Petrolite Corporation. Tertiary amino-substituted thiazines. 4,276,291, Cl. 424-246.000.

Quinlan, Patrick M., to Petrolite Corporation. Quaternaries of tertiary amino-substituted thiazines. 4,276,416, Cl. 544-58.200.

Racor Industries, Inc.: *See—*
Wilson, Michael, 4,276,162, Cl. 210-94.000.

Raddatz, Siegfried: *See—*
Etschenberg, Eugen; Opitz, Wolfgang; and Raddatz, Siegfried, 4,276,288, Cl. 424-177.000.

Radice, John G., to Doron Precision Systems, Inc. Pivotable vehicle simulator. 4,276,030, Cl. 434-62.000.

Rady, Bruce A.; Wells, Thomas R.; and Hendrickson, Kenneth, to Bell & Howell Company. Bar code reader. 4,276,470, Cl. 235-463.000.

Ragavan, Soman; and Spector, George. System gas alarm. 4,275,681, Cl. 116-70.000.

Rahdener Maschinenfabrik August Kolbus: *See—*
Rathert, Horst, 4,275,873, Cl. 270-54.000.

Ralston Purina Company: *See—*
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Ramuz, Henri: *See—*
Muller, Jean-Claude; and Ramuz, Henri, 4,276,417, Cl. 544-198.000.

Randell, Donald R.; and Phillips, Emyr, to Ciba-Geigy Corporation. Anthraquinone sulphonamide compounds and preparation. 4,276,224, Cl. 260-371.000.

Ranger, Dee B.: *See—*
Phillips, Earl G.; and Ranger, Dee B., 4,276,023, Cl. 433-85.000.

Ranini, Daniel G.: *See—*
Moro, Christian D.; and Ranini, Daniel G., 4,275,542, Cl. 52-731.000.

Ranke, Gerhard: *See—*
Becker, Hans; Grimm, Peter; Ranke, Gerhard; and Roth, Dieter, 4,276,057, Cl. 55-40.000.

Ransburg Corporation: *See—*
Fangmeyer, Dennis L., 4,275,838, Cl. 239-223.000.

Rao, T. R. N.: *See—*
Haggard, Roger L.; Seitchik, Jerold A.; and Rao, T. R. N., 4,276,646, Cl. 371-37.000.

Rapp, Walter: *See—*
Schnegg, Peter; Rapp, Walter; and Vosteen, Bernhard, 4,276,431, Cl. 560-67.000.

Rasberger, Michael, to Ciba-Geigy Corporation. Phosphorus stabilizers. 4,276,232, Cl. 260-936.000.

Rathert, Horst, to Rahdener Maschinenfabrik August Kolbus. Process and equipment for the opening of folded proof sheets. 4,275,873, Cl. 270-54.000.

Ratzlaff, Howard L.: *See—*
Swenson, Edward L.; and Ratzlaff, Howard L., 4,275,550, Cl. 56-341.000.

Ray, Earl L. Internal combustion engine. 4,275,689, Cl. 123-53.00B.

Raychem Corporation: *See—*
Middleman, Lee M.; and Goodrich, Roger S., 4,276,466, Cl. 219-523.000.

Raytheon Company: *See—*
Le, Hiep T., 4,276,617, Cl. 365-189.000.

RCA Corporation: *See—*
Goldman, Michael B.; and Morton, George I., 4,276,592, Cl. 363-147.000.
Hubert, Carl H., 4,275,861, Cl. 244-165.000.
Parker, Robert P., 4,276,566, Cl. 358-170.000.

Rea, James H.: *See—*
Karim, Khalid A.; and Rea, James H., 4,276,111, Cl. 156-308.200.

Rebours, Albert: *See—*
Remillieux, Jean; Rebours, Albert; Dumortier, Philippe; and Marchal, Paul H. L., 4,276,019, Cl. 432-1.000.

Reddy, Redreddy S., to Vapor Corporation. Step-platform operation. 4,275,664, Cl. 105-430.000.

Redikultsev, Jury V.; Shkidchenko, Alexandr N.; Gorbunov, Oleg P.; and Litvinenko, Leonid A. Device for sterilizing liquid media by steam. 4,276,264, Cl. 422-307.000.

Regie Nationale des Usines Renault: *See—*
Fanz, Helmut, 4,276,501, Cl. 318-470.000.

Rehkopf, John W. Automatic holding device for gasoline pump handles. 4,275,776, Cl. 141-392.000.

Rehm, Stephen J.: *See—*
Manning, William P.; Rehm, Stephen J.; and Schmuhl, Jeffrey L., 4,276,271, Cl. 423-226.000.

Reimer-Nielsen, Ib: *See—*
Andersen, Jorgen; and Reimer-Nielsen, Ib, 4,275,774, Cl. 141-1.000.

Reinhardt, Paul A.: *See—*
Beimgraben, Herbert W.; and Reinhardt, Paul A., 4,275,795, Cl. 175-26.000.

Reinink, Jan: *See—*
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., 4,275,497, Cl. 30-43.600.

Reinke, George W.: *See—*
Artaud, Gerard P.; Schrader, Clarence O.; and Reinke, George W., 4,275,655, Cl. 101-123.000.

Reinsma, Harold L., to Caterpillar Tractor Co. Seal with stiffened force-transmitting portion. 4,275,890, Cl. 277-84.000.

Rekers, Louis J.; and Speca, Anthony N., to National Petro Chemicals Corp. Supported catalyst from chromium for olefin polymerization. 4,276,399, Cl. 526-106.000.

Reller, Herbert H.; and Kretschmar, Herbert C., to Procter & Gamble Company, The. Analgesic and anti-inflammatory compounds and compositions containing same. 4,276,430, Cl. 560-66.000.

Remillieux, Jean; Rebours, Albert; Dumortier, Philippe; and Marchal, Paul H. L., to Air Industrie. Process for regenerating of an adsorbing material in the form of particles charged with at least two volatile compounds having different thermal stabilities. 4,276,019, Cl. 432-1.000.

Repco Limited: *See—*
Molnar, Thomas G., 4,275,923, Cl. 297-250.000.

Reppert, Merlyn R., to W. R. Grace & Co. Offset wire wheel. 4,275,931, Cl. 301-37.00R.

Repwell Associates, Inc.: *See—*
Bothwell, Bruce E., 4,276,331, Cl. 428-36.000.

Research Technology, Inc.: *See—*
Bowen, Howard; and Little, John S., 4,276,547, Cl. 340-675.000.

Rexnord Inc.: *See—*
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Reynolds, James E.; and Williams, Alan R., to Hazen Research, Inc. Hydrometallurgical process for the recovery of lead. 4,276,084, Cl. 75-101.00R.

Rhum, David; and Aluotto, Patrick F., to Celanese Corporation. Low molecular weight acrylates or methacrylates and methods for their preparation. 4,276,432, Cl. 560-190.000.

Richards, Les W. Method and system for cooling a mold. 4,275,864, Cl. 249-79.000.

Richardson, John A.: *See—*
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.

Richmond Tank Car Company: *See—*
Adler, Franklin P.; and Starks, Marvin, 4,275,662, Cl. 105-377.000.

Richter, Fred T.: *See—*
Gellatly, John S.; and Richter, Fred T., 4,276,108, Cl. 156-244.240.

Richter Gedeon Vegyeszeti Gyar Rt.: *See—*
Gyorgy, Fabry; and Takacs, Istvan, 4,276,244, Cl. 261-155.000.

Richter, Johan C. F. C.; and Richter, Ole J., to Kamyr Aktiebolag. Diffuser arrangements. 4,276,167, Cl. 210-331.000.

Richter, Ole J.: *See—*
Richter, Johan C. F. C.; and Richter, Ole J., 4,276,167, Cl. 210-331.000.

Rickenbacker, James E., to Exxon Production Research Company. Impedance and common mode rejection testing of a multi-channel seismic data gathering apparatus. 4,276,619, Cl. 367-13.000.

Ricoh Company, Ltd.: *See—*
Matsuhisa, Koh; and Takezawa, Mamoru, 4,275,969, Cl. 400-625.000.

Rider, Ronald E.: *See—*
Thacker, Charles P.; Norman, Fielding M.; and Rider, Ronald E., 4,276,647, Cl. 371-40.000.

Rieckeheer, Rainer: *See—*
Heinzerling, Jurgen; and Rieckeheer, Rainer, 4,276,529, Cl. 335-300.000.

Riedel, Tilo, to Sesamat Anstalt. Cleated snow chain. 4,275,781, Cl. 152-224.000.

Riedle, Rudolf: *See—*
Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Riedle, Rudolf; John, Peter; and Engelsberger, Georg, 4,276,426, Cl. 556-479.000.

Riggs, E. Gray; Simmonds, Joseph K.; and Browning, Vernon D. Reinforced hose having embedded indicia strip. 4,275,768, Cl. 138-104.000.

Riggs, Robert S., to Goodyear Tire & Rubber Company, The. Transfer drum application of narrow strip components to a tire being built on a tire building drum. 4,276,104, Cl. 156-123.00R.

Rimmer, Norman L.: *See—*
Denton, John B.; Dale, John G.; and Rimmer, Norman L., 4,275,816, Cl. 211-68.000.

Risdon Enterprises, Inc.: *See—*
Sullivan, William E.; and Meetze, Murray O., Jr., 4,276,236, Cl. 261-30.000.

Risman, Per O., to Husqvarna Aktiebolag. Microwave heating apparatus. 4,276,462, Cl. 219-10.55F.

Rivenburgh, Dennis L.: *See—*
Bakos, Peter; Bendz, Gerald A.; Darrow, Russell E.; and Rivenburgh, Dennis L., 4,276,186, Cl. 252-158.000.

Riveros, Carlos A. Method and apparatus for controlling current in inductive loads such as large diameter coils. 4,276,484, Cl. 307-104.000.

Robbins, Melvin E., to Davey Compressor Co. Mobile heater. 4,276,018, Cl. 431-352.000.

Roberson, James H. Control apparatus for a carding machine. 4,275,483, Cl. 19-240.000.

Robert Bosch GmbH: *See—*
Bauer, Hartmut; Schmidt, Peter; Stocker, Herbert; and Przybyla, Bernd, 4,275,695, Cl. 123-486.000.

Bodig, Bernd; Roozenbeek, Herman; and Jundt, Werner, 4,275,703, Cl. 123-617.000.

Foerster, Hubert; Horstmann, Winfried; and Sochor, Josef, 4,276,559, Cl. 358-8.000.

Gast, Theodor; and Binder, Kurt, 4,275,586, Cl. 73-35.000.

Heitmann, Jurgen; Illetschko, Gerhard; and Maly, Hans-Peter, 4,276,563, Cl. 358-139.000.

Jundt, Werner; and Roozenbeek, Herman, 4,275,702, Cl. 123-610.000.

Topp, Bernhard; Friese, Karl-Hermann; and Haecker, Wolf-Dieter, 4,276,142, Cl. 204-195.00S.

Roberts, Colin A.; Nelson, John S.; Annan, David E.; and Robertson, Angus A. J. Carcass scalping. 4,275,481, Cl. 17-50.000.

Roberts, Leo L., to Centrilift-Hughes, Inc. Tandem thrust bearing. 4,275,938, Cl. 308-162.000.

Roberts, Wilbur N.: *See—*
Engelberger, Joseph F.; Lindbom, Torsten H.; Dunne, Maurice J.; Perzley, William; Roberts, Wilbur N.; and Gardner, Horace L., 4,275,986, Cl. 414-730.000.

Robertson, Angus A. J.: *See—*
Roberts, Colin A.; Nelson, John S.; Annan, David E.; and Robertson, Angus A. J., 4,275,481, Cl. 17-50.000.

Robinson, Joseph G.; and Brain, Sally A., to Coal Industry (Patents) Limited. Method of producing a resin for producing heat stable products, the resin and the products. 4,276,408, Cl. 528-247.000.

Robinson, Paul R.; and Bamberger, Carlos E., to United States of America, Energy. Thermochemical generation of hydrogen and oxygen from water. 4,276,279, Cl. 423-648.00R.

Robinson, Warn D.: *See—*
Mount, Ramon A.; and Robinson, Warn D., 4,276,222, Cl. 260-346.750.

Rockwell International Corporation: *See—*
Kennel, John M., 4,275,605, Cl. 74-5.340.
Kohlenberger, Charles W.; Kirkpatrick, Craig G.; Estrada, John A.; and Chang, George Q., 4,275,599, Cl. 73-774.000.

Rodenstock Instruments Corporation: *See—*
Vassiliadis, Arthur, 4,275,964, Cl. 356-125.000.

Rodriguez, Rodolfo R.: *See—*
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.

Roe, Graham D.: *See—*
Dalton, Christopher J.; and Roe, Graham D., 4,276,565, Cl. 358-140.000.

Roeschlaub, John G.; and Hopkins, Ivan J., to Occidental Petroleum Corporation. Method for recycling the water used in a process for recovering glass from municipal waste. 4,276,155, Cl. 209-10.000.

Rogers, Charles J., to C. J. Rogers Enterprises Inc. Pressure actuated electrical system. 4,276,580, Cl. 362-22.000.

Rogers, Richard R. Method and apparatus for molding clay pigeons and the like. 4,276,015, Cl. 425-548.000.

Rogers, Robert C., to Koppers Company, Inc. Coke oven door spillage collection and disposal apparatus. 4,276,121, Cl. 202-227.000.

Rogerson Aircraft Controls: *See—*
Badger, Everett H.; and Rogerson, Michael J., 4,275,470, Cl. 4-316.000.

Rogerson, Michael J.: *See—*
Badger, Everett H.; and Rogerson, Michael J., 4,275,470, Cl. 4-316.000.

Rohm, Gunter H. Force-balanced lathe chuck with safety ring. 4,275,892, Cl. 279-1.00C.

Rohm and Haas Company: *See—*
Weir, W. David; and Kilbourn, Edward E., 4,276,290, Cl. 424-200.000.

Rolfs, John C.: *See—*
Kraemer, Erich H.; and Rolfs, John C., 4,276,655, Cl. 455-327.000.

Rolls-Royce Limited: *See—*
Langley, Kenneth R.; and Fuller, John R. D., 4,275,990, Cl. 416-95.000.

Romand, Paul: *See—*
Laprie, Jean-Claude; Powell, David R.; Alcouffe, Gerard; and Romand, Paul, 4,276,643, Cl. 371-8.000.

Rommag P. Worwag & Co.: *See—*
Hug, Niklaus, 4,276,070, Cl. 55-429.000.

Roozenbeek, Herman: *See—*
Bodig, Bernd; Roozenbeek, Herman; and Jundt, Werner, 4,275,703, Cl. 123-617.000.
Jundt, Werner; and Roozenbeek, Herman, 4,275,702, Cl. 123-610.000.

Roschlau, Peter: *See—*
Hundt, Dieter; Sedelmeyer, Marianne; Roschlau, Peter; Stahler, Fritz; and Gruber, Wolfgang, 4,276,376, Cl. 435-17.000.

Rose, Ira M.: *See—*
Johnson, Grannis S.; and Rose, Ira M., 4,275,906, Cl. 282-27.500.

Rose, Peter W. Process for preparing meat products having reduced shrinkage. 4,276,313, Cl. 426-247.000.

Rosenberg, Eugene: *See—*
Gutnick, David L.; and Rosenberg, Eugene, 4,276,094, Cl. 134-10.000.

Rosenberg, Larry. Portable laser device. 4,276,520, Cl. 331-94.50P.

Rosenhahn, Lothar: *See—*
Ohlschlager, Hans; Rosenhahn, Lothar; and Sauerteig, Wolfgang, 4,276,373, Cl. 430-507.000.

Rosinski, Edward J.: *See—*
Plank, Charles J.; Rosinski, Edward J.; and Givens, Edwin N., 4,276,151, Cl. 208-138.000.

Ross, Louis R., Jr.: *See—*
Kennedy, Joseph P.; Smith, Robert A.; and Ross, Louis R., Jr., 4,276,394, Cl. 525-245.000.

Ross, Warren K. Portable sawmill. 4,275,632, Cl. 83-794.000.

Rossing, Martin A.: *See—*
McDonald, Ray S.; and Rossing, Martin A., 4,275,738, Cl. 128-419.0PG.

Rostoker, William: *See—*
Tolley, William K.; Laughlin, William C.; and Rostoker, William, 4,276,083, Cl. 75-82.000.

Roth, Dieter: *See—*
Becker, Hans; Grimm, Peter; Ranke, Gerhard; and Roth, Dieter, 4,276,057, Cl. 55-40.000.

Rothwarf, Frederick: *See—*
Bergner, Robert L.; Rothwarf, Frederick; and Tauber, Arthur, 4,276,097, Cl. 148-101.000.

Rottinghaus, Robert B. Yieldable disc blade assembly. 4,275,791, Cl. 172-570.000.

Rowe, William D. Log-splitting apparatus. 4,275,779, Cl. 144-193.00A.

Rozenberg, Lev V.: *See—*
Zaslavsky, Dan; and Rozenberg, Lev V., 4,276,077, Cl. 71-64.08C.

Rubin, Michael D.: *See—*
Ho, Pang T.; and Rubin, Michael D., 4,276,558, Cl. 357-74.000.

Rudbach, Jon A.: *See—*
Firca, Joseph R.; and Rudbach, Jon A., 4,276,050, Cl. 23-230.00B.

Ruff, Alonzo W., to Expertise Assistance Inc. Closure for service opening. 4,275,645, Cl. 98-36.000.

Ruggieri, Daniela: *See—*
Cassinelli, Giuseppe; Ruggieri, Daniela; Arcamone, Federico; and di Marco, Aurelio, 4,276,289, Cl. 424-180.000.

Rundell, Herbert A., to Texaco Inc. Heavy duty dynamic high-torque-measurement coupling unit. 4,275,588, Cl. 73-862.320.

Ruschepaul, Klaus-Jorg, to Hoechst Aktiengesellschaft. Device for separating sheets. 4,275,878, Cl. 271-170.000.

Russ, Raymond. Alarm system for dwellings. 4,276,542, Cl. 340-326.000.

Russell, David B., to Dennison Manufacturing Company. Method for the stretching of fasteners. 4,276,255, Cl. 264-288.800.

Rutner, Herman: *See—*
Akerkar, Anandrao S.; and Rutner, Herman, 4,276,280, Cl. 424-1.000.

Ryan, Edward C.; and Parker, Jimmy J., to Deere & Company. Load responsive drive mechanism. 4,276,037, Cl. 474-70.000.

Ryan, James W.; and Chung, Alfred. High sensitivity assays for angiotensin converting enzyme. 4,276,378, Cl. 435-23.000.

Rydval, Peter, to Siemens Aktiengesellschaft. Monolithic digital semiconductor circuit comprising a plurality of bipolar transistors. 4,276,485, Cl. 307-463.000.

Rylands, Harry D.: *See—*
Bolton, Colin B.; Rylands, Harry D.; Turner, Clara; and Turner, Henry W., 4,275,858, Cl. 244-121.000.

S & S Industries, Inc.: *See—*
Weston, Jerome L., 4,275,740, Cl. 128-469.000.

Sabee Products, Inc.: *See—*
Sabee, Reinhardt N., 4,276,336, Cl. 428-132.000.

Sabee, Reinhardt N., to Sabee Products, Inc. Multi-apertured web with incremental orientation in one or more directions. 4,276,336, Cl. 428-132.000.

Seeman, Walter C., to Olin Corporation. Round multi-layered calcium hypochlorite granules. 4,276,349, Cl. 428-403.000.

Saffer, Bernard A., to National Distillers and Chemical Corporation. Separation of ethylene glycol from N-methylpyrrolidone. 4,276,126, Cl. 203-69.000.

Saint-Dizier, Gilbert: *See—*
Cordier, Michel; Labaquere, Herve; and Saint-Dizier, Gilbert, 4,276,181, Cl. 210-741.000.

St. Georgiev, Vasil; Loev, Bernard; Mack, Robert; and Misner, John, to USV Pharmaceutical Corporation. Triazolobenzoxazin-4-ones. 4,276,292, Cl. 424-248.400.

St. John, Charles F.; and Mercier, Gil A., to Lafarge Consultants Ltd. Manufacture of cement. 4,276,092, Cl. 106-100.000.

Saito, Masaki: *See—*
Yoshikawa, Katsushi; Saito, Masaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,238, Cl. 261-39.00D.
Yoshikawa, Katsushi; Saito, Masaki; Ota, Tadaki; and Inoue, Mitsumasa, 4,276,239, Cl. 261-44.00E.

Saito, Takayuki: *See—*
Iwami, Etsuji; and Saito, Takayuki, 4,276,388, Cl. 525-48.000.

Saito, Tsuyoshi: *See—*
Kageyama, Hiroshi; and Saito, Tsuyoshi, 4,275,814, Cl. 206-455.000.

Saitou, Tadashi: *See—*
Sakamaki, Hiroshi; Maeda, Toshiyuki; Uehijima, Fumihiro; and Saitou, Tadashi, 4,276,007, Cl. 418-152.000.

Sakaguchi, Masayuki: *See—*
Yoshizawa, Tadao; and Sakaguchi, Masayuki, 4,275,909, Cl. 285-110.000.

Sakaguchi, Seiichiro: *See—*
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.

Sakai, Katsuya; Mita, Ryuichi; Kato, Toshio; Higuchi, Chojiro; and Murakami, Hisamichi, to Mitsui Toatsu Chemicals Incorporated.

Oxidation-reduction reagents for a wet desulfurization process and a process for preparing same. 4,276,187, Cl. 252-186.000.
Sakai, Kohichi: *See—*
Ogawa, Yoshinari; Fukumoto, Teruhisa; and Sakai, Kohichi, 4,276,208, Cl. 260-28.00R.
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, to Toyota Jidosha Kogyo Kabushiki Kaisha. Rotary pump with carbon vanes and an aluminum cylindrical sleeve in the housing. 4,276,007, Cl. 418-152.000.
Sakamaki, Hisashi: *See—*
Tachika, Tetsuji; Sakamaki, Hisashi; and Hattori, Hiroyuki, 4,275,958, Cl. 355-14.00R.
Sakamoto, Hitoshi, to Sony Corporation. Slow or still mode video signal reproducing apparatus with incremented tape movement. 4,276,571, Cl. 360-10.000.
Sakamoto, Kazuho: *See—*
Nagamoto, Shun'ichi; and Sakamoto, Kazuho, 4,276,468, Cl. 235-92.0CT.
Sakimae, Akihiro; and Onishi, Hisao, to Mitsubishi Rayon Company, Ltd. Preparation of immobilized enzymes of microorganisms. 4,276,381, Cl. 435-179.000.
Sakito, Yoji: *See—*
Mukaiyama, Teruaki; and Sakito, Yoji, 4,276,217, Cl. 260-340.90R.
Saldinger, Neil N., to Vernitron Corporation. Brushless DC motor with rare-earth magnet rotor and segmented stator. 4,276,490, Cl. 310-184.000.
Sale, Bernard: *See—*
Brun, Didier; Chrysostome, Gerard; Feugier, Alain; and Sale, Bernard, 4,276,266, Cl. 423-1.000.
Saltz, Ivan K.: *See—*
Drbal, Vladimir J.; Ginsberg, Guenter; Hodgins, Bruce J.; Richardson, John A.; Britton, Ted W.; Grimm, Richard M.; Bello, Ernesto; Rodriguez, Rodolfo R.; and Saltz, Ivan K., 4,276,260, Cl. 422-100.000.
Sam, Ahmad: *See—*
Epner, Randolph L.; and Sam, Ahmad, 4,276,147, Cl. 204-272.000.
Sander, Ulrich: *See—*
Blumrich, Walter; Dorr, Karl H.; Konig, Hans J.; and Sander, Ulrich, 4,276,116, Cl. 159-47.00R.
Sandlas, Richard D.: *See—*
Orlowski, Gerald J.; Wicklund, Rodney D.; Sandlas, Richard D.; and Weibler, Walter W., 4,276,318, Cl. 426-513.000.
Sandler, Stanley R.: *See—*
Miano, Jeffrey D.; and Sandler, Stanley R., 4,276,387, Cl. 521-167.000.
Sangamo Weston, Inc.: *See—*
Boreas, Willem J. L., 4,276,511, Cl. 324-150.000.
Sanyo Silicon Electronics Co., Ltd.: *See—*
Shimizu, Hiroshi, 4,276,537, Cl. 338-35.000.
Sarcander, Hans: *See—*
Blohm, Reinhard; Karl, Rupert; and Sarcander, Hans, 4,275,553, Cl. 57-263.000.
Sargent & Greenleaf, Inc.: *See—*
Miller, Harry C., 4,275,576, Cl. 70-303.00A.
Sasaki, Jack S. Preheating unit for domestic hot water supply. 4,275,687, Cl. 122-20.00B.
Satchell, Fred E.; and Joslin, Joel A., to Sherwood Medical Industries, Inc. Apparatus and method for producing tubular extrusions having axial sections of materials having different characteristics. 4,276,250, Cl. 264-167.000.
Sato, Mitsuya: *See—*
Watanabe, Yasuaki; Okabe, Yukio; Kojima, Shinichi; and Sato, Mitsuya, 4,276,560, Cl. 358-28.000.
Sato, Yasuhiko; Koizumi, Jun; and Tokushige, Yuji, to Shin-Etsu Chemical Co. Ltd. Photocurable organopolysiloxane compositions. 4,276,135, Cl. 204-159.130.
Sato, Yoichi: *See—*
Nishikawa, Masao; Aoyama, Toshihiko; and Sato, Yoichi, 4,275,798, Cl. 180-143.000.
Satoh, Katsuhiko; Asano, Kazuhiro; Mandai, Masaaki; Ueda, Makoto; Torisawa, Akira; and Shida, Masaharu, to Kabushiki Kaisha Daini Seikosha. Electronic watch. 4,276,626, Cl. 368-80.000.
Sauerteig, Wolfgang: *See—*
Ohlschlager, Hans; Rosenhahn, Lothar; and Sauerteig, Wolfgang, 4,276,373, Cl. 430-507.000.
Savage, Basil W., Sr., to Savage Equipment, Inc. Tree shaker. 4,275,548, Cl. 56-328.0TS.
Savage Equipment, Inc.: *See—*
Savage, Basil W., Sr., 4,275,548, Cl. 56-328.0TS.
Sawada, Daisaku: *See—*
Takeda, Yuji; Shigematsu, Takashi; and Sawada, Daisaku, 4,275,692, Cl. 123-419.000.
Sawafuji, Tadashi. Speaker or microphone having corrugated diaphragm with conductors thereon. 4,276,449, Cl. 179-115.5PV.
Sawyer, Willard H., to Exxon Research & Engineering Co. Catalyst and hydroconversion process utilizing the same. 4,276,201, Cl. 252-455.00R.
SBS Corporation: *See—*
Smith, Jeffrey O., 4,275,831, Cl. 237-2.00R.
Schaaf, Norbert: *See—*
Meyer, Juergen; Schaaf, Norbert; and Kunze, Claus, 4,276,534, Cl. 338-15.000.
Schaefer, Gustave J., to United States of America, National Aeronautics and Space Administration. Apparatus and method for determining the position of a radiant energy source. 4,276,553, Cl. 343-112.00R.
Schaeffer, Friedrich K.; and Brennan, Thomas F., to General Electric Company. Method for compacting transposed cable strands. 4,276,102, Cl. 156-85.000.
Schael, Wilfried, to Dr. Eduard Fresenius, Chemisch-pharmazeutische Industrie KG Apparatebau KG. Apparatus for fluid balancing under sterile conditions. 4,275,726, Cl. 128-213.00A.
Schaus, Orland O.; and Overall, John C. K., to Canadian Gas Research Institute. Two-stage heat exchanger. 4,275,705, Cl. 126-110.00R.
Schenk, Erwin: *See—*
Siglow, Joachim; Grutzmann, Sigmar; and Schenk, Erwin, 4,276,642, Cl. 370-100.000.
Schering AG: *See—*
Franke, Heinrich; and Joppien, Hartmut, 4,276,309, Cl. 424-322.000.
Schiffer, Gunter, to Kleinewefers GmbH. Device for wet pre-treatment of web-shaped textile material in a damper. 4,275,575, Cl. 68-5.00E.
Schils, Petrus J. R., to Keystone International, Inc. Valve assembly and method. 4,275,867, Cl. 251-297.000.
Schivley, George P., Jr.; and Madonna, Peter L., to Ingersoll-Rand Company. Automatic control system for rock drills. 4,275,793, Cl. 173-9.000.
Schlager, Richard J.; and Murphy, James F., to Kaiser Aluminum & Chemical Corporation. Cement waste product as scrubbing medium for sulfur oxides. 4,276,272, Cl. 423-244.000.
Schlumberger Technology Corporation: *See—*
Lee, Arley G., 4,275,786, Cl. 166-65.00R.
Maricelli, James J., 4,276,599, Cl. 364-422.000.
Schmidberger, Rainer; and Donitz, Wolfgang, to Dornier System GmbH. Process for the manufacture of electrodes having perovskite structure for electrochemical high temperature cells. 4,276,202, Cl. 252-462.000.
Schmidt, Peter: *See—*
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Schmolka, Irving R.; and Niu, Joseph H. Y., to BASF Wyandotte Corporation. Coal-oil slurries containing a surfactant. 4,276,054, Cl. 44-51.000.
Schmuhl, Jeffrey L.: *See—*
Manning, William P.; Rehm, Stephen J.; and Schmuhl, Jeffrey L., 4,276,271, Cl. 423-226.000.
Schnegg, Peter; Rapp, Walter; and Vosteen, Bernhard, to Bayer Aktiengesellschaft. Process for the preparation of alkali metal salts of hydroxybenzoates, which are substantially anhydrous and free from hydroxybenzoic acid. 4,276,431, Cl. 560-67.000.
Schneider, Thomas D.: *See—*
Burson, Nancy; and Schneider, Thomas D., 4,276,570, Cl. 358-903.000.
Schoennagel, Hans-Juergen: *See—*
McHale, William D.; and Schoennagel, Hans-Juergen, 4,276,152, Cl. 208-139.000.
Schoeps, Jochen: *See—*
Hohlein, Peter; and Schoeps, Jochen, 4,276,210, Cl. 260-29.4UA.
Schoettle, Klaus; Hoffmann, Werner; Kaemmer, Eduard; Boehlke, Klaus; and Lewin, Helmut, to BASF Aktiengesellschaft. Tape guide for high-speed tape transport apparatus. 4,276,575, Cl. 360-130.210.
Scholl, Hans-Joachim; Dieterich, Dieter; and Markusch, Peter, to Bayer Aktiengesellschaft. Process for the production of inorganic-organic synthetic materials. 4,276,404, Cl. 528-57.000.
Schrader, Clarence O.: *See—*
Artaud, Gerard P.; Schrader, Clarence O.; and Reinke, George W., 4,275,655, Cl. 101-123.000.
Schrape, Peter: *See—*
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Schreier, Hermann: *See—*
Bullivant, Kenneth W.; and Schreier, Hermann, 4,275,808, Cl. 198-533.000.
Schremmer, Stanley M. Hay bale handling device. 4,275,985, Cl. 414-722.000.
Schreyer, Kenneth D.: *See—*
Stone, Franz T.; and Schreyer, Kenneth D., 4,275,556, Cl. 59-93.000.
Schriever, Theodore W., to Dart Industries Inc. Modular taboret kit. 4,275,666, Cl. 108-101.000.
Schroeder, Norman C.: *See—*
McIsaac, Lyle D.; Krupa, Joseph F.; and Schroeder, Norman C., 4,276,235, Cl. 260-990.000.
Schubert & Salzer: *See—*
Blohm, Reinhard; Karl, Rupert; and Sarcander, Hans, 4,275,553, Cl. 57-263.000.
Schwartz, Robert E.; Neff, Laurence M.; and Utter, Gary N. Pipeline pig. 4,275,475, Cl. 15-104.06R.
Schwarz, Otto: *See—*
Eibl, Martha; Schwarz, Otto; and Linnau, Yendra, 4,276,283, Cl. 424-85.000.
Schwindt, Jurgen; and Grogler, Gerhard, to Bayer Aktiengesellschaft. Diisocyanates having urea groups, a process for their preparation and their use in the production of polyurethanes. 4,276,386, Cl. 521-160.000.
Schwitters, Stephen W., to Beatrice Foods Co. Method and apparatus for controlling operation of a soft-serve machine. 4,275,567, Cl. 62-63.000.
Scopelianos, Angelo G.: *See—*
United States of America, National Aeronautics and Space Administration; Allcock, Harry R.; O'Brien, John P.; Scopelianos, Angelo G.; and Fewell, Larry L., 4,276,403, Cl. 528-4.000.
Scott, Linzy, Jr. Knee brace. 4,275,716, Cl. 128-80.00C.

Scott, Peter R. Roll fastener for photographic film. 4,276,371, Cl. 430-501.000.
Scripps Clinic & Research Foundation: *See—*
Katz, David H., 4,276,206, Cl. 260-6.000.
Scully Electronic Systems, Inc.: *See—*
Wisnia, Jeffry A., 4,276,536, Cl. 338-23.000.
Sease, John D.: *See—*
Lackey, Walter J.; Lowrie, Robert S.; and Sease, John D., 4,276,063, Cl. 55-84.000.
Secora, James C.: *See—*
Bench, Stephen M.; Dirkes, William R.; Juglekar, Manohar A.; Secora, James C.; and Stephen, Michael A., 4,276,651, Cl. 375-120.000.
Sedelmeyer, Marianne: *See—*
Hundt, Dieter; Sedelmeyer, Marianne; Roschlau, Peter; Stahler, Fritz; and Gruber, Wolfgang, 4,276,376, Cl. 435-17.000.
Segnitz, Adolph: *See—*
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, 4,276,209, Cl. 260-28.00P.
Seiko Koki Kabushiki Kaisha: *See—*
Kitai, Kiyoshi; Takazawa, Yuzuru; and Nagaoka, Shinji, 4,275,955, Cl. 354-268.000.
Seipos, Andrew G.: *See—*
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Seitchik, Jerold A.: *See—*
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Sekiguchi, Tsunetoshi: *See—*
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Seko, Maomi; Ogawa, Shinsaku; and Takemura, Reiji, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for the production of high purity aqueous alkali hydroxide solution. 4,276,130, Cl. 204-98.000.
Self, James: *See—*
Gragg, F. Michael; and Self, James, 4,276,270, Cl. 423-167.000.
Selman, Charles M.; and Fodor, Lawrence M., to Phillips Petroleum Company. Polymerization catalysts. 4,276,192, Cl. 252-429.00B.
Semenov, Valentin P.: *See—*
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Shartzer, Kenneth B., to Plastic Machinery Corporation. Pipe beller with force determined temperature. 4,276,010, Cl. 425-143.000.
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Shimizu, Akira, to Shin Meiwa Industry Co., Ltd. Roller feed type insulated wire cutting and insulation stripping machine. 4,275,619, Cl. 81-9.510.
Shimizu, Hiroshi, to Sanyo Silicon Electronics Co., Ltd. Moisture-responsive resistor element. 4,276,537, Cl. 338-35.000.
Shimizu, Yoichi, to Kabushiki Kaisha Maruyama Seisakusho. Heddle frame. 4,275,772, Cl. 139-91.000.
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Beck, Rudolf K., deceased, 4,275,565, Cl. 62-55.000.
Hassler, Dieter, 4,275,995, Cl. 73-606.000.
Hjort, Bo, 4,275,743, Cl. 128-731.000.
Rydval, Peter, 4,276,485, Cl. 307-463.000.
Siglow, Joachim; Grutzmann, Sigmar; and Schenk, Erwin, 4,276,642, Cl. 370-100.000.
Straihammer, Reinhard, 4,276,025, Cl. 433-105.000.
Siewert, Ingo; Klaue, Manfred; and Thietz, Peter. Process for high frequency heat sealing of textile sheet members. 4,276,109, Cl. 156-273.000.
SIG Schweizerische Industrie-Gesellschaft: *See—*
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Siglow, Joachim; Grutzmann, Sigmar; and Schenk, Erwin, to Siemens Aktiengesellschaft. Process for the frame synchronization of a time division multiplex system. 4,276,642, Cl. 370-100.000.
Sih, John C., to Upjohn Company, The. 19,20-Didehydro-PG$_1$ compounds. 4,276,427, Cl. 560-53.000.
Sih, John C., to Upjohn Company, The. 19,20-Didehydro-13,14-dihydro-PG$_1$ compounds. 4,276,428, Cl. 560-53.000.

Sih, John C., to Upjohn Company, The. 19,20-Didehydro-13,14-dihydro-PG$_1$, sulfonyl amides. 4,276,434, Cl. 564-98.000.
Sih, John C., to Upjohn Company, The. 19,20-Didehydro-PG$_1$, sulfonyl amides. 4,276,435, Cl. 564-98.000.
Sih, John C., to Upjohn Company, The. 19-Keto-PG sulfonylamides. 4,276,436, Cl. 564-98.000.
Silver, Jules; and Ennis, James F., to Silver, Jules. Adjustable dosage syringe. 4,275,729, Cl. 128-218.00C.
Silverberg, Morton, to Xerox Corporation. Interrupted jet air knife for sheet separator. 4,275,877, Cl. 271-166.000.
Silverman, Richard V., to Bonus-Bilt, Inc. Variable configuration container with modular, easily removable wall or shelf structure. 4,275,665, Cl. 108-14.000.
Silvester, Robert C., to Eaton Corporation. Shift control for change speed gear transmission for vehicle. 4,275,612, Cl. 74-473.00R.
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Killinger, Karl H., 4,275,675, Cl. 112-229.000.
Odermann, Charles R., 4,275,939, Cl. 312-208.000.
Wittke, Ernest C., 4,276,512, Cl. 328-133.000.
Singer, Frederic J. Manhole structure and method of making same. 4,275,757, Cl. 137-363.000.
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Singewald, Arno; Fricke, Gunter; Neitzel, Ulrich; and Geisler, Iring, to Kali and Salz Aktiengesellschaft. Process for the electrostatic separation of crude potash salts. 4,276,154, Cl. 209-3.000.
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Sirrenberg, Wilhelm; Klauke, Erich; Hammann, Ingeborg; Krehan, Ingomar; Kraus, Peter; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Combating pests with N-(4-substituted-phenyl)-N'-(2-substituted-benzoyl)-thioureas. 4,276,310, Cl. 424-322.000.
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Sivachenko, Eugene W.; and Broacha, Firoze H., to Sivachenko, E. W. Corrugated vehicle underframe. 4,275,663, Cl. 105-413.000.
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Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, 4,275,648, Cl. 99-483.000.
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Skogler, Brian I., to Prince Corporation. Visor with storage compartment. 4,275,916, Cl. 296-97.00H.
Skryantz, John S.: *See*—
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Slade, Paul G.: *See*—
Kimblin, Clive W.; and Slade, Paul G., 4,276,455, Cl. 200-144.00B.
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LeBlond, J. Paul, 4,275,820, Cl. 222-3.000.
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Smith, Oliver W.: *See*—
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Smith, Ronald L., to Century International Corp. Method and apparatus for periodic partial deactivation of an automatic pinsetter. 4,275,884, Cl. 273-43.00A.
Smith, Russell G., to Xomox Corporation. Air actuated fail-safe actuator encapsulated within accumulator tank. 4,275,642, Cl. 91-415.000.
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Snyder, Wesley L. Solar distillation apparatus. 4,276,122, Cl. 202-234.000.
Sochor, Jerzy R. Miniature connector receptacles employing contacts with bowed tines and parallel mounting arms. 4,275,944, Cl. 339-74.00R.
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Societe de Recherches et de Syntheses Organiques S.A.: *See*—
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Soderbaum, Carl U., to AB Volvo Penta. Boat propeller. 4,275,991, Cl. 416-142.000.
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Suyama, Hideo; and Ugaji, Masana, 4,276,452, Cl. 179-180.000.
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Spanjersberg, Albertus C.; Mink, Hans G.; and Barwegen, Johannes H. M., to Akzo N.V. Process and apparatus for the electrostatic spraying of electrically conductive paint. 4,275,834, Cl. 239-3.000.
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Srinivasa, Saroja R.; Shelley, Peter S.; and Hueschen, Robert E., to General Electric Company. Attachment means for a graphite x-ray tube target. 4,276,493, Cl. 313-330.000.
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Staar, Marcel J. H., to Panpack A.G. Package for storing and spraying small amounts of liquids. 4,275,840, Cl. 239-327.000.
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Stager, Robert F.; and Blight, Graham J., to Brown & Root, Inc. Adjustable torque control winch system. 4,276,498, Cl. 318-6.000.
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Steinbrecher, Heinrich; Koch, Johannes; and Peglan, Manfred, to Wean United, Inc. Apparatus for manufacturing tubes by continuous hot rolling. 4,275,578, Cl. 72-14.000.
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Steuer, Herbert K., to P.I.V. Antrieb Werner Reimers Kommanditgesellschaft. Chain for friction pulley transmission. 4,276,041, Cl. 474-243.000.
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Stewart, Mark; and Stewart, Lynn. TV Switching system. 4,276,562, Cl. 358-86.000.
Stewart, Richard F.; and Kennedy, Robert W., to White-Westinghouse Corporation. Dispenser-liquid water treatment for room humidifier. 4,276,241, Cl. 261-92.000.
Sticht, Walter. Pneumatic conveyor system. 4,275,976, Cl. 406-28.000.
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Stillwagon, Roy E., to United States of America, Energy. Homopolar machine for reversible energy storage and transfer systems. 4,276,507, Cl. 322-48.000.
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Bauer, Hartmut; Schmidt, Peter; Stocker, Herbert; and Przybyla, Bernd, 4,275,695, Cl. 123-486.000.
Stoller, Milton: *See*—
Quedens, Phillipp J.; Haverl, Ronald A.; and Stoller, Milton, 4,275,597, Cl. 73-618.000.
Stoltman, Donald D., to General Motors Corporation. Closed loop air-fuel ratio control system. 4,275,697, Cl. 123-520.000.
Stone, Franz T.; and Schreyer, Kenneth D., to Columbus McKinnon Corporation. Clevis type connection device. 4,275,556, Cl. 59-93.000.
Stone, Henry D.; Knapp, Alan G.; Mansell, John R.; Overall, Colin D.; and Washington, Derek, to U.S. Philips Corporation. Channel plate electron multipliers. 4,276,127, Cl. 204-24.000.
Stoveken, F. Raymond. Laminated foam-creped paper product and method of production thereof. 4,276,339, Cl. 428-153.000.
Stover, William A.: *See*—
Chester, Arthur W.; and Stover, William A., 4,276,149, Cl. 208-120.000.
Straihammer, Reinhard, to Siemens Aktiengesellschaft. Dental handpiece. 4,276,025, Cl. 433-105.000.
Stratoflex, Inc.: *See*—
Cooke, Horise M., 4,275,769, Cl. 138-109.000.
Straub, Dieter: *See*—
Gerstenberger, Friedrich; Loos, Wolfgang; and Straub, Dieter, 4,275,521, Cl. 42-84.000.
Stromberg-Carlson Corporation: *See*—
Beebe, Otto W.; Lee, Ernest O.; Subrin, Richard I.; Brightman, Barrie; and Hanson, George C., 4,276,451, Cl. 179-175.20C.
Stryker Corporation: *See*—
Phillips, Earl G.; and Ranger, Dee B., 4,276,023, Cl. 433-85.000.
Strzegowski, Joseph C., Jr.: *See*—
Hardigg, James S.; and Strzegowski, Joseph C., Jr., 4,276,360, Cl. 429-175.000.
Subrin, Richard I.: *See*—
Beebe, Otto W.; Lee, Ernest O.; Subrin, Richard I.; Brightman, Barrie; and Hanson, George C., 4,276,451, Cl. 179-175.20C.
Suchy, Milos, to Hoffmann-La Roche Inc. Cycloropane carboxylic acid esters and cyclopropane(thio)-carboxylic acid esters. 4,276,305, Cl. 424-301.000.
Suda, Yoshio: *See*—
Asai, Michihiko; Suda, Yoshio; Imada, Kiyoshi; Ueno, Susumu; and Nomura, Hirokazu, 4,276,138, Cl. 204-165.000.
Sugihara, Akira: *See*—
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Senba, Shunsuke, 4,276,572, Cl. 360-12.000.
Sugihara, Tetsuo, to General Company Limited. Pressure sensitive recording sheet. 4,276,334, Cl. 428-40.000.
Sugimoto, Kaname; and Yuen, Shokichi, to Hayashibara, Kea; and Ashida, Shin. Interferon and preparations containing interferon. 4,276,282, Cl. 424-85.000.
Sugimoto, Masakazu: *See*—
Masuda, Noboru; and Sugimoto, Masakazu, 4,276,499, Cl. 318-119.000.
Sugino, Tohru: *See*—
Daito, Michimasa; and Sugino, Tohru, 4,275,527, Cl. 51-103.0TF.
Sugita, Shigehisa: *See*—
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.
Sullaway, Bob L.: *See*—
Knox, Lloyd C.; and Sullaway, Bob L., 4,275,974, Cl. 405-225.000.
Sullivan, William E.; and Meetze, Murray O., Jr., to Radon Enterprises, Inc. Apparatus for inducing air flow past a product capable of being vaporized. 4,276,236, Cl. 261-30.000.
Sumegi, Robert B.: *See*—
Hatch, Robert A.; Jansen, Harvey B.; Bolliger, Frederic E.; and Sumegi, Robert B., 4,275,558, Cl. 60-39.16R.
Sumitomo Cement Co., Ltd.: *See*—
Shibuya, Kyoichi; and Ihara, Tomomi, 4,276,020, Cl. 432-14.000.
Sumitomo Chemical Company, Limited: *See*—
Ito, Takaaki; and Watanabe, Tokio, 4,276,308, Cl. 424-304.000.
Mukaiyama, Teruaki; and Sakito, Yoji, 4,276,217, Cl. 260-340.90R.
Sumitomo Industries, Ltd.: *See*—
Nagano, Hiroo; Oda, Terumi; and Fukuda, Takashi, 4,276,133, Cl. 204-145.00R.
Sumka, Elmer H.; and Shea, Henry J., to Westinghouse Electric Corp. Braking system. 4,276,500, Cl. 318-369.000.
Sundberg, Erik, to Koehler Manufacturing Company. Lead-acid battery with tubular plate electrode. 4,276,359, Cl. 429-140.000.
Sundins Fabriker AB: *See*—
Peterssos, Ralf C. E., 4,275,998, Cl. 417-269.000.
Superforni Rinaldi S.p.A.: *See*—
Flavio, Rinaldi, 4,276,465, Cl. 219-388.000.
Suyama, Hideo; and Ugaji, Masana, to Sony Corporation. Membrane type electro-acoustic transducer. 4,276,452, Cl. 179-180.000.
Suzuki, Ryo, to Hitachi, Ltd. Magnetic bubble memory device with divided electrical conductors. 4,276,612, Cl. 365-12.000.
Suzuta, Mikio: *See*—
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiyo; Moriwaki, Masayuki; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Sweatman, Ronald E., to BJ-Hughes Inc. Method of plugging a well. 4,275,788, Cl. 166-292.000.
Sweetheart Plastics, Inc.: *See*—
Davis, Paul, 4,275,815, Cl. 206-508.000.

Swenson, Edward L.; and Ratzlaff, Howard L., to Hesston Corporation. Crop baler. 4,275,550, Cl. 56-341.000.
Swinburne, Stephen: *See*—
Gelardi, Anthony; Gelardi, Paul; Swinburne, Stephen; Janiszewski, Michael; MacLeod, Robert, Jr.; Philippe, James; and Philippe, David, 4,275,943, Cl. 312-319.000.
Sybron Corporation: *See*—
Chamberlain, Alan D., 4,276,165, Cl. 210-242.100.
Westfall, Norman R., 4,275,767, Cl. 138-40.000.
Symanczyk, Hermann: *See*—
Foller, Werner; and Symanczyk, Hermann, 4,275,755, Cl. 137-195.000.
Systems Engineering & Manufacturing Corp.: *See*—
Shorr, Jacob, 4,276,176, Cl. 210-637.000.
Szabo, Ferenc: *See*—
Varga, Gabor; Szabo, Ferenc; Sztanyik, Ferenc; Vagvolgyi, Laszlo; and Nemeth, Jozsef, 4,275,594, Cl. 73-487.000.
Szarka, Istvan; and Urbantsok, Janos, to Autoipari Kutato Intezet. Controlling and operating device for friction clutches for motor vehicles. 4,275,804, Cl. 192-3.580.
Sztanyik, Ferenc: *See*—
Varga, Gabor; Szabo, Ferenc; Sztanyik, Ferenc; Vagvolgyi, Laszlo; and Nemeth, Jozsef, 4,275,594, Cl. 73-487.000.
Szymaszek, Paul G.; and Hall, Robert A., to Vilter Manufacturing Corporation. Oil cooling means for refrigeration screw compressor. 4,275,570, Cl. 62-468.000.
Tachika, Tetsuji; Sakamaki, Hisashi; and Hattori, Hiroyuki, to Canon Kabushiki Kaisha. Copying apparatus. 4,275,958, Cl. 355-14.00R.
Tadanier, John S.: *See*—
Martin, Jerry R.; Tadanier, John S.; and Collum, Paulette, 4,276,413, Cl. 536-17.00R.
Taddeo, Anthony R. Acoustic transducer system. 4,276,446, Cl. 179-1.00E.
Tai, King L.: *See*—
Heller, Adam; Tai, King L.; and Vadimsky, Richard G., 4,276,368, Cl. 430-323.000.
Takacs, Istvan: *See*—
Gyorgy, Fabry; and Takacs, Istvan, 4,276,244, Cl. 261-155.000.
Takagi, Takeshi; and Abo, Tokushi, to Matsushita Electric Works, Ltd. Wall hanging holder for electric shaver. 4,275,862, Cl. 248-205.00A.
Takagi, Taketoshi, to Japan Music Supply Inc. Plug for electric connections. 4,275,947, Cl. 339-183.000.
Takahashi, Kiyotaka: *See*—
Ando, Yoshinori; Inoue, Sakae; and Takahashi, Kiyotaka, 4,276,275, Cl. 423-345.000.
Takami, Katsumi; and Matsuzawa, Takashi, to Hitachi, Ltd. Self-luminescent light source for liquid crystal display watch. 4,276,633, Cl. 368-227.000.
Takano, Hiroshi, to Mitsuboshi Belting Ltd. Adjustless V-belt and method of manufacturing. 4,276,039, Cl. 474-205.000.
Takano, Yukio; Ogirima, Masahiko; Aoki, Shigeru; Maki, Michiyoshi; and Kato, Shigeo, to Hitachi, Ltd. Semiconductor substrate and a manufacturing method thereof. 4,276,114, Cl. 156-645.000.
Takara Co., Ltd.: *See*—
Tateyama, Masanobu, 4,275,887, Cl. 273-239.000.
Takashima, Yoshimi: *See*—
Ishikawa, Masayuki; Tanaka, Hiromichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, 4,276,295, Cl. 424-251.000.
Takayama, Yoshihiro: *See*—
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukazu; and Takayama, Yoshihiro, 4,276,380, Cl. 435-115.000.
Takazawa, Yuzuru: *See*—
Kitai, Kiyoshi; Takazawa, Yuzuru; and Nagaoka, Shinji, 4,275,955, Cl. 354-268.000.
Takeda Chemical Industries, Ltd.: *See*—
Nakabayashi, Masamitsu; Doura, Fumihiro; and Hori, Teruo, 4,276,390, Cl. 525-61.000.
Takeda, Yuji; Shigematsu, Takashi; and Sawada, Daisaku, to Toyota Jidosha Kogyo Kabushiki Kaisha. System for controlling ignition timings in engine. 4,275,692, Cl. 123-419.000.
Takemura, Reiji: *See*—
Seko, Maomi; Ogawa, Shinsaku; and Takemura, Reiji, 4,276,130, Cl. 204-98.000.
Takeuchi, Masami: *See*—
Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, 4,276,533, Cl. 338-4.000.
Takeyama, Toshiro; and Ohtani, Shigemori, to Kabushikikaisha Ohkawara Seisakusho. Burner for combustion apparatus. 4,275,841, Cl. 239-431.000.
Takezawa, Mamoru: *See*—
Matsuhisa, Koh; and Takezawa, Mamoru, 4,275,969, Cl. 400-625.000.
Takimoto, Kouji: *See*—
Fujita, Teizo; Ohashi, Toshiro; and Takimoto, Kouji, 4,276,631, Cl. 368-89.000.
Taller, Robert A.: *See*—
Koleske, Joseph V.; Smith, Oliver W.; France, Haywood G.; and Taller, Robert A., 4,276,405, Cl. 528-58.000.
Tamoni, Giorgio: *See*—
Parenti, Francesco; Coronelli, Carolina; Tamoni, Giorgio; and Lancini, Giancarlo, 4,276,382, Cl. 435-253.000.
Tamura, Sadahiro: *See*—
Nishikawa, Toshio; Tamura, Sadahiro; and Ishikawa, Youhei, 4,276,525, Cl. 333-206.000.
Tanabe Seiyaku Co., Ltd.: *See*—
Ikezaki, Muneyoshi; Noguchi, Katsuyuki; Iwai, Hajime; and Inamasu, Masanori, 4,276,304, Cl. 424-282.000.
Tanaka, Akio; Nakajima, Yoshihisa; and Yokomori, Shinji, to Fuji Electric Co., Ltd. Coin sorting machine. 4,275,806, Cl. 194-100.00A.
Tanaka, Chiaki: *See*—
Mibu, Hiroaki; Ishihara, Tadashi; Tanaka, Chiaki; and Esaki, Shingo, 4,276,479, Cl. 250-492.00R.
Tanaka, Hiromichi: *See*—
Ishikawa, Masayuki; Tanaka, Hiromichi; Eguchi, Yukuo; Ito, Shigeru; Takashima, Yoshimi; and Kobayashi, Masahiko, 4,276,295, Cl. 424-251.000.
Tanaka, Kazuyoshi, to Kabushiki Kaisha Asahi Gomu. Wet suit material and wet suit made thereof. 4,276,341, Cl. 428-246.000.
Tanimoto, Akira; Masuzawa, Sigeaki; Shibata, Shinya; and Nishizaki, Shinzo, to Sharp Kabushiki Kaisha. Synthetic-speech calculators. 4,276,444, Cl. 179-1.0SM.
Tanimoto, Akira: *See*—
Inoue, Tomohiro; Tanimoto, Akira; and Washizuka, Isamu, 4,276,541, Cl. 340-146.3SY.
Tarbon, Philip B.; and Martin, Charles R., to Platt Saco Lowell Limited. Clearance-producing means for open-end spinning machine servicing apparatus. 4,275,554, Cl. 57-263.000.
Tateyama, Masanobu, to Takara Co., Ltd. Portable multiple game assembly. 4,275,887, Cl. 273-239.000.
Tauber, Arthur: *See*—
Bergner, Robert L.; Rothwarf, Frederick; and Tauber, Arthur, 4,276,097, Cl. 148-101.000.
Tavoni, Gian P.: *See*—
Baima, Mario; and Tavoni, Gian P., 4,275,523, Cl. 43-112.000.
Taylor, Lloyd D., to Polaroid Corporation. Photographic processing composition containing polymerics oxime. 4,276,370, Cl. 430-466.000.
Taylor, Raymond C.: *See*—
Eddy, William R.; and Taylor, Raymond C., 4,276,043, Cl. 493-160.000.
Taylor, Thomas K. Bilge pump. 4,275,995, Cl. 417-40.000.
Tcherepnin, Serge A.: *See*—
Eventoff, Franklin N.; and Tcherepnin, Serge A., 4,276,538, Cl. 338-69.000.
Technalytics, Inc.: *See*—
Chodorow, Ingram S.; and Dainow, J. David, 4,275,736, Cl. 128-335.000.
Technical Communications Corp.: *See*—
McCalmont, Arnold M.; and Slate, Matthew W., 4,276,652, Cl. 455-29.0u0.
Technicon Instruments Corporation: *See*—
Adler, Stanford L., Sr.; Gordon, Abraham; and Ornstein, Leonard, 4,276,253, Cl. 264-247.000.
Technion Research and Development Foundation Ltd.: *See*—
Zaslavsky, Dan; and Rozenberg, Lev V., 4,276,077, Cl. 71-64.0SC.
Teetzel, Michael L.; and James, Ralph E., to Minnesota Mining and Manufacturing Company. High flap density abrasive flap wheel. 4,275,529, Cl. 51-334.000.
Teijin Limited: *See*—
Ogawa, Yoshinari; Fukumoto, Teruhisa; and Sakai, Kohichi, 4,276,208, Cl. 260-28.00R.
Teja, Mohindar S. Crane or excavator with auxiliary mechanism for transferring superstructure loads to the ground. 4,275,902, Cl. 280-766.000.
Teledyne Industries, Inc.: *See*—
Elkins, Christopher W.; and Smith, David W., 4,275,908, Cl. 285-55.000.
Tellander, Linn; and Lord, Billy J. Hydromassage air injector apparatus. 4,275,713, Cl. 128-66.000.
Telling, Edward F., to Trewhella Brothers (UK) Ltd. Compacting apparatus. 4,275,650, Cl. 100-45.000.
Tenhagen, Rudolf J., to BP Chemicals Limited. Process for preparing cold-cured molded polyurethane flexible from a high molecular weight siloxane and a solvent. 4,276,385, Cl. 521-112.000.
Tension Structures, Inc.: *See*—
Pinson, Neal I., 4,275,537, Cl. 52-223.00R.
Terasawa, Koji, to Canon Kabushiki Kaisha. Ink jet mechanism for purging and activating. 4,276,554, Cl. 346-140.00R.
Terrell, Christopher: *See*—
Henson, Kenneth; and Terrell, Christopher, 4,276,358, Cl. 429-97.000.
Tessler, Martin M., to National Starch and Chemical Corporation. Novel zwitterion polygalactomannan ether derivatives and a method for the preparation thereof. 4,276,414, Cl. 536-114.000.
Texaco Inc.: *See*—
Rundell, Herbert A., 4,275,588, Cl. 73-862.320.
Texas Instruments Incorporated: *See*—
Haesly, Barry F.; and Jarman, Hall E., 4,276,460, Cl. 200-292.000.
Haggard, Roger L.; Seitchik, Jerold A.; and Rao, T. R. N., 4,276,646, Cl. 371-37.000.
Textron, Inc.: *See*—
Andrews, James R.; Balke, Rodney W.; and Berry, Victor L., 4,275,992, Cl. 416-146.00R.
Underhill, William K., Jr., 4,275,994, Cl. 416-226.000.
Thacker, Charles P.; Norman, Fielding M.; and Rider, Ronald E., to Xerox Corporation. High speed Hamming code circuit and method for the correction of error bursts. 4,276,647, Cl. 371-40.000.
Theurer, Josef; and Brunninger, Manfred, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Apparatus for operating transport vehicles movable on a track carried by a train of railroad cars. 4,275,659, Cl. 104-2.000.

Thibado, Daniel H.: *See*—
Bell, George E.; Wilson, Clement B.; Thibado, Daniel H.; and Palumbo, Kenneth S., 4,275,956, Cl. 355-3.0DD.
Thietz, Peter: *See*—
Siewert, Ingo; Klaue, Manfred; and Thietz, Peter, 4,276,109, Cl. 156-273.000.
Thoman, David C.: *See*—
Perkey, Russell C.; Thoman, David C.; and Eastman, James M., 4,276,006, Cl. 418-94.000.
Thomas Industries, Inc.: *See*—
Hetzel, Thomas R.; and LaBelle, Charles, 4,275,999, Cl. 417-299.000.
Thomas, Robert R.: *See*—
Hopkins, Evan L.; and Thomas, Robert R., 4,275,476, Cl. 15-236.00R.
Thompson, Charles M.; and Thompson, Charles T., to American Coldset Corp. Drilling stabilizer. 4,275,935, Cl. 308-4.00A.
Thompson, Charles T.: *See*—
Thompson, Charles M.; and Thompson, Charles T., 4,275,935, Cl. 308-4.00A.
Thompson, David L.; and Stein, Marc T., to Medtronic, Inc. Demand cardiac pacemaker having reduced polarity disparity. 4,275,737, Cl. 128-419.0PG.
Thornton, Aaron R.; and Obenour, Jerry, to Wisconsin Alumni Research Foundation. Auditory response detection method and apparatus. 4,275,744, Cl. 128-731.000.
Thornton-Trump, Walter E. Specific gravity meter for aircraft de-icing equipment. 4,275,593, Cl. 73-454.000.
Thorsted, Kenneth G.: *See*—
Pennington, John W., III; and Thorsted, Kenneth G., 4,275,680, Cl. 114-295.000.
Thurston, Marlin O.: *See*—
Gilson, Richard D.; Thurston, Marlin O.; Olson, Karl W.; and Ventola, Ronald W., 4,276,029, Cl. 434-43.000.
Tietjens, Eduard W.: *See*—
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., 4,275,497, Cl. 30-43.600.
Tisdale, Bert B. Grain auger hopper. 4,275,780, Cl. 150-52.00R.
Tokos, George M.: *See*—
Stanley, Hugh E.; and Tokos, George M., 4,276,330, Cl. 428-35.000.
Tokuda, Hiroatsu; Morinaga, Shigeki; and Nakamura, Hideo, to Hitachi, Ltd. Electronic engine control apparatus. 4,276,601, Cl. 364-431.000.
Tokuda, Hiroatsu: *See*—
Obara, Sanshiro; Tokuda, Hiroatsu; Konno, Akihiko; and Nakamura, Hideo, 4,276,602, Cl. 364-431.000.
Tokushige, Yuji: *See*—
Sato, Yasuhiko; Koizumi, Jun; and Tokushige, Yuji, 4,276,135, Cl. 204-159.130.
Tokyo Ohka Kogyo Kabushiki Kaisha: *See*—
Tsuda, Minoru; and Nakamura, Yoichi, 4,276,369, Cl. 430-326.000.
Tokyo Shibaura Denki Kabushiki Kaisha: *See*—
Fukuda, Takeo; Murayama, Tadashi; and Urui, Kiyoshi, 4,276,639, Cl. 370-62.000.
Kageyama, Hiroshi; and Saito, Tsuyoshi, 4,275,814, Cl. 206-455.000.
Okamoto, Eiichi; Fujisawa, Norio; and Hori, Masao, 4,276,605, Cl. 364-483.000.
Yamashita, Mitsuo; and Kondo, Osamu, 4,275,879, Cl. 271-259.000.
Tolley, William K.; Laughlin, William C.; and Rostoker, William, to UOP Inc. Recovery of metal values from a metal bearing source of nickel and vanadium. 4,276,083, Cl. 75-82.000.
Tomasi, Jean-Pierre, to U.S. Philips Corporation. FM-CW Radar distance measuring apparatus. 4,276,549, Cl. 343-7.500.
Tominaga, Shigetake: *See*—
Yoshimura, Tatsushiro; and Tominaga, Shigetake, 4,276,214, Cl. 260-45.75K.
Tominaga, Tamotsu; Mihara, Teruyoshi; Oguro, Takeshi; and Takeuchi, Masami, to Nissan Motor Company, Limited. Pressure sensor. 4,276,533, Cl. 338-4.000.
Tomita, Yoshifumi: *See*—
Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
Tomlinson, Geoffrey E. S., to White-BSA Tools Ltd. Multi-spindle lathes. 4,275,625, Cl. 82-25.000.
Tomlinson, Lloyd R., to Boeing Company, The. Midvalue signal selection and fault detection apparatus and method. 4,276,648, Cl. 371-68.000.
Tompkins, Russell E.; Walden, John P.; and Walker, Loren H., to General Electric Company. Apparatus for sensing current transformer primary current as a function of differential core inductance. 4,276,510, Cl. 324-127.000.
Toombs, Gary C.: *See*—
Gallusser, David O.; Hemmer, Valentine J.; and Toombs, Gary C., 4,275,948, Cl. 339-218.00R.
Topp, Bernhard; Friese, Karl-Hermann; and Haecker, Wolf-Dieter, to Robert Bosch GmbH. Electrochemical sensor, particularly for internal combustion engine exhaust gas composition determination, and method of its manufacture. 4,276,142, Cl. 204-195.00S.
Toray Industries, Inc.: *See*—
Nishino, Masaki; and Yasuhara, Yutaka, 4,276,228, Cl. 260-453.0AL.
Torisawa, Akira: *See*—
Satoh, Katsuhiko; Asano, Kazuhiro; Mandai, Masaki; Ueda, Makoto; Torisawa, Akira; and Shida, Masaharu, 4,276,626, Cl. 368-80.000.
Toyama, Kenji: *See*—
Kanzaki, Nobuyoshi; Toyama, Kenji; Nakano, Katsutoshi; Shimatani, Ryoichi; and Kudo, Fumio, 4,276,129, Cl. 204-58.000.
Toyo Seikan Kaisha Limited: *See*—
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Iturı; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Toura, 4,275,648, Cl. 99-483.000.
Toyoda, Kenji: *See*—
Watanabe, Sakuji; Ohtsubo, Yoshiaki; and Toyoda, Kenji, 4,275,953, Cl. 354-33.000.
Toyota Jidosha Kogyo Kabushiki Kaisha: *See*—
Sakamaki, Hiroshi; Maeda, Toshiyuki; Ushijima, Fumihiro; and Saitou, Tadashi, 4,276,007, Cl. 418-152.000.
Takeda, Yuji; Shigematsu, Takashi; and Sawada, Daisaku, 4,275,692, Cl. 123-419.000.
Yoshida, Toshiro; and Kumai, Teruo, 4,275,696, Cl. 123-519.000.
Traber, Walter: *See*—
Brechbuhler, Hans U.; Mattern, Gunter; and Traber, Walter, 4,276,302, Cl. 424-273.00R.
Trees, Ferdinand M.: *See*—
Engelhardt, Manfred; Reinink, Jan; De Vries, Jochem J.; Trees, Ferdinand M.; Tietjens, Eduard W.; and Groothuis, Gerrit J., 4,275,497, Cl. 30-43.600.
Tresser, David: *See*—
Padley, Frederick B.; Paulussen, Cornelis N.; Soeters, Cornelis; and Tresser, David, 4,276,322, Cl. 426-660.000.
Trewhella Brothers (UK) Ltd.: *See*—
Telling, Edward F., 4,275,650, Cl. 100-45.000.
Troglin, Jerry D. Gasoline vapor complete burning carburetor. 4,275,699, Cl. 123-557.000.
Troponwerke GmbH & Co., KG: *See*—
Etschenberg, Eugen; Opitz, Wolfgang; and Raddatz, Siegfried, 4,276,288, Cl. 424-177.000.
Troy Chemical Corporation: *See*—
Singer, William; Nowak, Miltos; and Ingles, Norma, 4,276,211, Cl. 260-29.6MN.
Trutzschler GmbH & Co. KG: *See*—
Leifeld, Ferdinard, 4,275,482, Cl. 19-150.000.
TRW Inc.: *See*—
Davidheiser, Roger A., 4,276,521, Cl. 332-23.00R.
Hayden, Rodney, 4,276,483, Cl. 307-10.00R.
Huang, Marshall Y., 4,276,514, Cl. 330-149.000.
Miller, Ralph W.; and Peterson, James G., 4,276,543, Cl. 340-347.0AD.
Tsuda, Minoru; and Nakamura, Yoichi, to Tokyo Ohka Kogyo Kabushiki Kaisha. Photo—imaging a polymethyl isopropenyl ketone (PMIPK) composition. 4,276,369, Cl. 430-326.000.
Tsukahara, Satoshi: *See*—
Kuroda, Michio; Nakamura, Shozo; Tsukahara, Satoshi; Akatu, Yasuaki; Sugita, Shigehisa; Kaneko, Kojiro; Sakaguchi, Seiichiro; and Oshima, Ryoichiro, 4,275,563, Cl. 60-673.000.
Tsunoda, Atsuo: *See*—
Midorikawa, Koyo; Tsunoda, Atsuo; Murase, Hidetoshi; Mochizuki, Noritaka; Minami, Setsuo; Matsui, Yoshiya; Moriwaki, Masazumi; and Suzuta, Mikio, 4,275,962, Cl. 355-1.000.
Turner, Clara: *See*—
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Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
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Koleske, Joseph V.; Smith, Oliver W.; France, Haywood G.; and Taller, Robert A., 4,276,405, Cl. 528-58.000.
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Uniroyal Ltd.: *See—*
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Agriculture: *See—*
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Gottron, Richard N.; and Cox, Lyndon S., 4,275,658, Cl. 102-210.000.
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Stillwagon, Roy E., 4,276,507, Cl. 322-48.000.
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Tomasi, Jean-Pierre, 4,276,549, Cl. 343-7.500.
van Roosmalen, Johannes H. T.; and Vrijssen, Gerardus A. H. M., 4,276,494, Cl. 313-479.000.
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United Technologies Corporation: *See—*
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Urbantsok, Janos: *See—*
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USV Pharmaceutical Corporation: *See—*
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Vahlbrauk, Karl H. Wall element for a construction wall. 4,275,536, Cl. 52-220.000.
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van der Lely, Cornelis. Haymaking machines. 4,275,551, Cl. 56-370.000.
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Van Fossen, Harvey G., to Wheelabrator-Frye, Inc. Abrasive particle blast apparatus for surface treatment. 4,275,531, Cl. 51-425.000.
Van Hook, James P.; Hildebrand, Clair E.; and Chan, Chong H., to Allied Chemical Corporation. Process for nitrite production. 4,276,276, Cl. 423-385.000.
van Roosmalen, Johannes H. T.; and Vrijssen, Gerardus A. H. M., to U.S. Philips Corporation. Cathode ray tube with transversely supported electrode and conductive wall coating. 4,276,494, Cl. 313-479.000.
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Varma, Indra K.; Fohlen, George M.; Parker, John A.; and Frosch, Robert A. Phosphorus-containing bisimide resins. 4,276,344, Cl. 428-260.000.
Vartuli, James C.; and Zehner, Lee R., to Atlantic Richfield Company. Preparation of a titanium promoted $VO(PO_3)_2$ oxidation catalyst. 4,276,197, Cl. 252-435.000.
Vasishth, Ramesh C.; and deSilva, Dodwell P., to Envirosol Systems International, Ltd. Wood treatment process and product thereof. 4,276,329, Cl. 427-393.000.
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Verboom, Johannes V.: *See—*
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Verheijen, Egidius J. M.; and Geersheuvels, Charles H., to Stamicarbon, B.V. Process for the preparation of C-substituted pyridines and/or hydrogenated C-substituted pyridines, C-substituted quinolines and/or hydrogenated quinolines. 4,276,419, Cl. 546-164.000.
Verkade, John G., to Iowa State University Research Foundation, Inc. Converting homogeneous to heterogeneous catalysts. 4,276,195, Cl. 252-431.00P.
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Vinal, Albert W., to International Business Machines Corporation. Controlled avalanche voltage transistor and magnetic sensor. 4,276,555, Cl. 357-13.000.
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von Haas, Rainer, to Wilhelm Fette GmbH, Firma. Device for automatic measurement for engagement pitch of the thread on screw-like work pieces. 4,275,507, Cl. 33-199.00B.
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Vuissoz, Constant. Apparatus for central heating. 4,275,704, Cl. 126-92.00R.
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Waldmeier, Othmar E. Package for diamonds and other precious stones. 4,275,810, Cl. 206-45.340.
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Walter, James. Hand tool. 4,275,623, Cl. 81-126.000.
Wand, Bruce, to Becton, Dickinson and Company. Protective shield for capillary pipette. 4,275,591, Cl. 73-425.40P.
Wang, Frederick E. Energy conversion system. 4,275,561, Cl. 60-527.000.
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Warncke, Ernst; and Pasternack, Adalbert, to Dragerwerk Aktiengesellschaft. Warning device for breathing apparatus having a pressure gas supply. 4,275,723, Cl. 128-202.220.
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Ciaffone, John T., 4,275,498, Cl. 30-47.000.
Warrin, George E., to Cavitron Corporation. Control systems for dental handpieces. 4,276,024, Cl. 433-99.000.
Warwicker, Peter G., to Lucas Industries Limited. Liquid fuel pumping apparatus. 4,276,000, Cl. 417-302.000.
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Waters Associates, Inc.: *See—*
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Watson, John B.; and Dodds, Philip J., to Independent Broadcasting Authority. Television systems. 4,276,564, Cl. 358-139.000.
Watson, Robert M., to AccuRay Corporation. Sensor position independent material property determination using radiant energy. 4,276,480, Cl. 250-560.000.
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Weber, Joseph A., to Gustafson, Inc. Peanut seed treating machine. 4,275,682, Cl. 118-303.000.
Weese, Charles W. Ore sample crusher. 4,275,851, Cl. 241-169.000.
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Weir, W. David; and Kilbourn, Edward E., to Rohm and Haas Company. Phosphonoureide and phosphonothioureide anthelmintics. 4,276,290, Cl. 424-200.000.
Wellendorf, Klaus; and Sing, Gerhard, to Dr.-Ing Rudolf Hell GmbH. Recording line elements. 4,276,567, Cl. 358-280.000.
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Gellatly, John S.; and Richter, Fred T., 4,276,108, Cl. 156-244.240.
Partus, Fred P., 4,276,243, Cl. 261-128.000.
Westfall, Norman R., to Sybron Corporation. Fluid resistor. 4,275,767, Cl. 138-40.000.
Westinghouse Electric Corp.: *See*—
Boes, David J., 4,275,891, Cl. 277-96.100.
Cromer, Charles F.; and Yoon, Kue H., 4,276,456, Cl. 200-148.00A.
Kothmann, Richard E.; and Cyphers, Joseph A., 4,276,355, Cl. 429-26.000.
Macko, Joseph E., 4,275,601, Cl. 73-861.040.
Mandelcorn, Lyon; Dakin, Thomas W.; and Miller, Robert L., 4,276,184, Cl. 252-579.000.
Sumka, Elmer H.; and Shea, Henry J., 4,276,500, Cl. 318-369.000.
Weston, Jerome L., to S & S Industries, Inc. Brassiere frame. 4,275,740, Cl. 128-469.000.
Weyerhaeuser Company: *See*—
Quick, Thomas H., 4,276,118, Cl. 162-5.000.
Wheelabrator-Frye, Inc.: *See*—
Van Fossen, Harvey G., 4,275,531, Cl. 51-425.000.
White-BSA Tools Ltd.: *See*—
Tomlinson, Geoffrey E. S., 4,275,625, Cl. 82-25.000.
White, Nicholas F., III: *See*—
Barr, John B.; and White, Nicholas F., III, 4,276,278, Cl. 423-447.400.
White-Westinghouse Corporation: *See*—
Stewart, Richard F.; and Kennedy, Robert W., 4,276,241, Cl. 261-92.000.
Whitelaw, Stefan P.: *See*—
Cairns, Rodney J.; and Whitelaw, Stefan P., 4,275,756, Cl. 137-234.500.
Whitmore, Charles H.: *See*—
Woodring, Richard H.; Whitmore, Charles H.; Houtman, Paul K.; and Kowalski, Thomas A., 4,275,997, Cl. 417-218.000.
Wichman, Cynthia A., to Kendall Company, The. Surgical drape with barrier member. 4,275,720, Cl. 128-132.00D.
Wicklund, Rodney D.: *See*—
Orlowski, Gerald J.; Wicklund, Rodney D.; Sandlas, Richard D.; and Weibler, Walter W., 4,276,318, Cl. 426-513.000.
Widnall, Shiela E., to American Can Company. Methods for forming fibrous webs. 4,276,248, Cl. 264-121.000.
Wieder, Wolfgang; Witte, Josef; Moretto, Hans-Heinrich; and Steinberger, Helmut, to Bayer Aktiengesellschaft. Graft polymers containing silicon. 4,276,389, Cl. 525-61.000.
Wild, Karoly: *See*—
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Wilhelm Fette GmbH, Firma: *See*—
von Haas, Rainer, 4,275,507, Cl. 33-199.00B.
Wilhelm, Gary, to Llama Gabilondo y. Cia. S.A. Semiautomatic hand gun. 4,275,640, Cl. 89-147.000.
Willamette Industries, Inc.: *See*—
De Franco, Samuel M., 4,275,828, Cl. 229-23.00R.
Willeitner, Eberhard: *See*—
Lausermair, Friedrich; and Willeitner, Eberhard, 4,276,068, Cl. 55-348.000.
Willett, Daniel E.; Boothroyd, John A.; and Langlais, William F., to Ingersoll-Rand Company. Paddle switch safety button. 4,276,459, Cl. 200-157.000.
Williams, Alan R.: *See*—
Reynolds, James E.; and Williams, Alan R., 4,276,084, Cl. 75-101.00R.
Williams, Frederick C.; and Kummer, Wolfgang H., to Hughes Aircraft Company. Electronically scanned antenna. 4,276,551, Cl. 343-100.0SA.
Williams, Robert J. Fuel line cut-off switch. 4,275,753, Cl. 137-45.000.
Willis, Brian J.; and Dittrick, John W., to Fritzsche Dodge & Olcott, Inc. Novel norbornyl-substituted pyrans, method for their synthesis and use thereof in perfumery. 4,276,220, Cl. 260-345.100.
Willoughby, Arthur F. W.: *See*—
Keen, John M.; and Willoughby, Arthur F. W., 4,276,099, Cl. 148-187.000.
Wilson, Clement B.: *See*—
Bell, George E.; Wilson, Clement B.; Thibado, Daniel H.; and Palumbo, Kenneth S., 4,275,956, Cl. 355-3.0DD.
Wilson, David M., to Pfizer Inc. Cobalt modified magnetic iron oxide. 4,276,183, Cl. 428-480.000.
Wilson International Incorporated: *See*—
Wilson, Kenneth T., 4,276,441, Cl. 136-206.000.
Wilson, Kenneth T., to Wilson International Incorporated. Thermoelectric generator and method of forming same. 4,276,441, Cl. 136-206.000.
Wilson, Michael, to Racor Industries, Inc. Flame resistant sump assembly. 4,276,162, Cl. 210-94.000.
Wingen, Peter, to Dienes Werke fuer Maschinenteile GmbH & Co. KG. Slitting apparatus. 4,275,631, Cl. 83-501.000.
Winiasz, Michael E., to Clark-Reliance Corporation, The. Steam traps or the like. 4,276,354, Cl. 428-582.000.
Winthrop-Atkins Co., Inc.: *See*—
Blanchard, Roland H., 4,275,517, Cl. 40-158.00R.
Wischer, Hermann, to Dr.-Ing Rudolf Hell GmbH. Boosting video signals. 4,276,568, Cl. 358-282.000.
Wisco Corporation: *See*—
Pohl, Lothar, 4,275,920, Cl. 296-222.000.
Wisconsin Alumni Research Foundation: *See*—
Thornton, Aaron R.; and Obenour, Jerry, 4,275,744, Cl. 128-731.000.
Wisell, Henry L., to Uddeholms Aktiebolag. High speed steel. 4,276,085, Cl. 75-126.00C.
Wisnia, Jeffry A., to Scully Electronic Systems, Inc. Self-heating thermistor probe for low temperature applications. 4,276,536, Cl. 338-23.000.
Witte, Josef: *See*—
Wieder, Wolfgang; Witte, Josef; Moretto, Hans-Heinrich; and Steinberger, Helmut, 4,276,389, Cl. 525-61.000.
Wittke, Ernest C., to Singer Company, The. Phase detector for phase locked loops. 4,276,512, Cl. 328-133.000.
Wolanin, Michael J.: *See*—
Woley, Paul F.; and Wolanin, Michael J., 4,276,032, Cl. 434-274.000.
Wolber, Robert: *See*—
Assmus, Friedrich; Flaig, Hans; Wolber, Robert; and Maurer, Roland, 4,276,634, Cl. 368-300.000.
Woley, Paul F.; and Wolanin, Michael J. Knee joint for anthropomorphic dummy. 4,276,032, Cl. 434-274.000.
Wolfe, Merritt W., to Goodyear Tire & Rubber Company, The. Adjustable tire tread and method of application of a tread. 4,276,103, Cl. 156-96.000.
Wolfe, Randall R. Ear rack for supporting dog ears erect. 4,275,715, Cl. 128-76.00R.
Wolfe, Raymond: *See*—
Nelson, Terence J.; and Wolfe, Raymond, 4,276,614, Cl. 365-36.000.
Wolff, George D.; and Ziemacki, Michael S. Electromechanical precision governor for internal combustion engines. 4,275,691, Cl. 123-352.000.
Wolter, Heinz, to DOM-Sicherheitstechnik GmbH & Co. KG. Electric switching device on a rotary cylinder lock. 4,276,453, Cl. 200-44.000.
Wong, Wilson T., to Sperry Rand Corporation. Multiplier circuit which detects and skips over trailing zeros. 4,276,607, Cl. 364-760.000.
Wood, Harry E. Combined hot water heating and stripping column furnace and method. 4,275,708, Cl. 126-355.000.
Wood, Kenneth O.: *See*—
Anderson, Verner; Logan, David J.; and Wood, Kenneth O., 4,275,627, Cl. 83-152.000.
Woodall, Jerry M.: *See*—
Hovel, Harold J.; and Woodall, Jerry M., 4,276,137, Cl. 204-164.000.
Woodard, Randle C. Vacuum head for swimming pool cleaning system. 4,275,474, Cl. 15-1.700.
Woodring, Richard H.; Whitmore, Charles H.; Houtman, Paul K.; and Kowalski, Thomas A., to Parker-Hannifin Corporation. Hydraulic pump with proportional pressure controller. 4,275,997, Cl. 417-218.000.
Worner, Gunter; and Schrape, Peter, to Daimler-Benz Aktiengesellschaft. Detent mechanism for the different positions of a change-speed transmission, especially for motor vehicles. 4,275,613, Cl. 74-475.000.
Wright, Darold L. Portable building and method of transporting it. 4,275,533, Cl. 52-79.100.
Wright, Jack D.; and Snow, Barton H., to General Electric Company. Blocker door actuation system. 4,275,560, Cl. 60-226.00B.
Wright, Phillip D.: *See*—
Nelson, Ronald J.; and Wright, Phillip D., 4,276,098, Cl. 148-171.000.
Wu, Wen-li; and Black, William B., to Monsanto Company. High tenacity polyethylene fibers and process for producing same. 4,276,348, Cl. 428-373.000.
Wu, Yulin; Johnson, Marvin M.; and Nowack, Gerhard P., to Phillips Petroleum Company. Catalyst and process for producing hydroperoxides. 4,276,200, Cl. 252-443.000.
Wu, Yulin, to Phillips Petroleum Company. Preparation of vicinal epoxides. 4,276,223, Cl. 260-348.160.

Xerox Corporation: *See*—
Bell, George E.; Wilson, Clement B.; Thibado, Daniel H.; and Palumbo, Kenneth S., 4,275,956, Cl. 355-3.0DD.
Silverberg, Morton, 4,275,877, Cl. 271-166.000.
Thacker, Charles P.; Norman, Fielding M.; and Rider, Ronald E., 4,276,647, Cl. 371-40.000.
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Smith, Russell G., 4,275,642, Cl. 91-415.000.
Yako, Hikoya, to West Electric Co., Ltd. Photographic flash device. 4,276,579, Cl. 362-5.000.
Yakshina, Olga K.: *See*—
Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M., 4,276,088, Cl. 106-1.120.
Yamaga, Eiichi: *See*—
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Yamaguchi, Fumiaki: *See*—
Yoshitake, Masami; and Yamaguchi, Fumiaki, 4,276,153, Cl. 208-48.00Q.
Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Kobayashi, Yoshiaki, 4,276,035, Cl. 440-47.000.
Yamaha Matsudoki Kabushiki Kaisha: *See*—
Nishida, Yasuhiro; and Kondo, Yasuo, 4,276,036, Cl. 440-89.000.
Yamamoto, Masataka: *See*—
Hisazumi, Nobuyuki; Yamamoto, Masataka; and Uehara, Tsutomu, 4,275,544, Cl. 53-433.000.
Yamamoto, Megumi, to Bridgestone Tire Co., Ltd. Wear resistant rubber hose. 4,275,770, Cl. 138-133.000.
Yamamura, Masahiro: *See*—
Ienaka, Masanori; Yamamura, Masahiro; Watanabe, Kazuo; and Kominami, Yasuo, 4,276,442, Cl. 179-1.00A.
Yamanaka, Eiji: *See*—
Hayashi, Yoshiro; Sugihara, Akira; Shimura, Takaki; Ishikawa, Kozo; Wada, Kiyoshi; Yamanaka, Eiji; and Senba, Shunsuke, 4,276,572, Cl. 360-12.000.
Yamashita, Mitsuo; and Kondo, Osamu, to Tokyo Shibaura Denki Kabushiki Kaisha. Abnormal feed condition-detecting apparatus for a printing device. 4,275,879, Cl. 271-259.000.
Yamataka, Akihiro: *See*—
Harigaya, Isao; and Yamataka, Akihiro, 4,276,606, Cl. 364-709.000.
Yamazaki, Masami: *See*—
Kitamura, Masatsugu; Onoye, Hideo; and Yamazaki, Masami, 4,276,604, Cl. 364-480.000.
Yang, James H. C., to Firestone Tire & Rubber Company, The. Mold isolator mechanism for centrifugal casting machine. 4,276,012, Cl. 425-435.000.
Yardney Electric Corporation: *See*—
Bilhorn, John M., 4,276,110, Cl. 156-298.000.
Yasuda, Yasushi: *See*—
Enomoto, Hiromu; Yasuda, Yasushi; Ohmichi, Hitoshi; and Mitono, Yoshiharu, 4,276,556, Cl. 357-52.000.
Yasuhara, Yutaka: *See*—
Nishino, Masaki; and Yasuhara, Yutaka, 4,276,228, Cl. 260-453.0AL.
Yelverton, Roy L.: *See*—
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Manabe, Toshikatsu; Nonogaki, Saburo; Morishita, Hajime; Uchino, Shoichi; Tomita, Yoshifumi; Nishizawa, Masahiro; Yokomizo, Hiroshi; and Ohmatoi, Susumu, 4,276,363, Cl. 430-28.000.
Yokomori, Shinji: *See*—
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Yomeyama, Tomio: *See*—
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Yoneda, Yasuhiro; Kitakohji, Toshisuke; and Kitamura, Kenro, to Fujitsu Limited. Positive resist terpolymer composition and method of forming resist pattern. 4,276,365, Cl. 430-270.000.
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Ishihara, Eisuke; Yonehara, Hiroshi; Akasaki, Katsuyuki; Minowa, Masao; and Kobayashi, Katsumi, 4,276,286, Cl. 424-117.000.
Yoon, Kue H.: *See*—
Cromer, Charles F.; and Yoon, Kue H., 4,276,456, Cl. 200-148.00A.
Yoshida, Akihiko: *See*—
Nishino, Atsushi; Yoshida, Akihiko; and Ogino, Nobukuni, 4,276,128, Cl. 204-38.00A.
Yoshida, Toshiro; and Kumai, Teruo, to Toyota Jidosha Kogyo Kabushiki Kaisha. Carburetor outer vent control device. 4,275,696, Cl. 123-519.000.
Yoshigai Kikai Kinzoku Kabushiki Kaisha: *See*—
Yoshigai, Toshiharu, 4,275,615, Cl. 74-489.000.
Yoshigai, Toshiharu, to Yoshigai Kikai Kinzoku Kabushiki Kaisha. Device for mounting lever assembly on handle bar. 4,275,615, Cl. 74-489.000.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, to Nissan Motor Company, Limited. Carburetor with automatic choking and acceleration device. 4,276,238, Cl. 261-39.00D.
Yoshikawa, Katsushi; Saito, Masaaki; Ota, Tadaki; and Inoue, Mitsumasa, to Nissan Motor Company, Limited. Variable air valve carburetor. 4,276,239, Cl. 261-44.00E.
Yoshimoto, Itaru: *See*—
Mouri, Takenori; Morimoto, Kengi; Yoshimoto, Itaru; Kayama, Hiroyki; Okazawa, Yukio; and Sizukuisi, Touru, 4,275,648, Cl. 99-483.000.
Yoshimura, Tatsushiro; and Tominaga, Shigetake, to Daikin Kogyo Co., Ltd. Fluorine-containing resin composition having improved thermal stability. 4,276,214, Cl. 260-45.75K.
Yoshitake, Masami; and Yamaguchi, Fumiaki, to Mitsui Engineering and Shipbuilding Co., Ltd.; and Mitsui Petrochemical Industries, Ltd. Process for thermal cracking of hydrocarbons and apparatus therefor. 4,276,153, Cl. 208-48.00Q.
Yoshizawa, Tadao; and Sakaguchi, Masayuki, to Kubota Ltd. Flexible plastic pipe joint. 4,275,909, Cl. 285-110.000.
Young, Rodney C.: *See*—
Durant, Graham J.; Ganiellin, Charon R.; Owen, Geoffrey R.; and Young, Rodney C., 4,276,301, Cl. 424-273.00R.
Yuen, Shokichi: *See*—
Sugimoto, Kaname; and Yuen, Shokichi, 4,276,282, Cl. 424-85.000.
Yukawa, Hideaki; Osumi, Kazuoki; Nara, Terukazu; and Takayama, Yoshihiro, to Mitsubishi Petrochemical Co., Ltd. Production of L-amino acids. 4,276,380, Cl. 435-115.000.
Zaets, Inna I.; Davydenko, Nikolai M.; Yakshina, Olga K.; Pershina, Nina F.; Demyanenko, Valentina D.; and Pavlov, Jury M. Composition for diffusion coating of ferrous metals. 4,276,088, Cl. 106-1.120.
Zahnradfabrik Friedrichshafen AG: *See*—
Ehrlinger, Friedrich; Mann, Egon; Fischer, Manfred; and Jocham, Rudolf, 4,275,616, Cl. 74-730.000.
Kopp, Hanspeter, 4,275,641, Cl. 91-400.000.
Zambon S.p.A.: *See*—
Della Bella, Davide; and Chiarino, Dario, 4,276,299, Cl. 424-272.000.
Zaner, Clifford: *See*—
Andersen, Harold W.; Andersen, Shirley R.; Zaner, Clifford; and Harrison, Charles H., 4,276,263, Cl. 422-292.000.
Zangenberg, Jan; and Clausen, Peter J. M., to Danfoss A/S. Control device for adjustable fluid pumps or motors. 4,275,996, Cl. 417-221.000.
Zaslavsky, Dan; and Rozenberg, Lev V., to Technion Research and Development Foundation Ltd. Lignosulfonate-based graft polymers their preparation and uses. 4,276,077, Cl. 71-64.08C.
Zathan, William J. Water level sensor. 4,276,454, Cl. 200-61.050.
Zaunbrecher, Horst: *See*—
Petersen, Harro; Krause, Hans-Joachim; Fischer, Kurt; Segnitz, Adolph; and Zaunbrecher, Horst, 4,276,209, Cl. 260-28.00F.
Zechner, Josef K. S.: *See*—
Boisen Schmidt, Egon; Zechner, Josef K. S.; and Frang, Gosta M., 4,276,052, Cl. 23-301.000.
Zehner, Lee R.: *See*—
Vartuli, James C.; and Zehner, Lee R., 4,276,197, Cl. 252-435.000.
Zeligman, Robert; and Zengerle, John R., to Frontier Footwear Corporation. Sandal structure. 4,275,512, Cl. 36-11.500.
Zeller, Norbert: *See*—
Lindner, Tassilo; Zeller, Norbert; Frey, Volker; Riedle, Rudolf; John, Peter; and Eagelsberger, Georg, 4,276,426, Cl. 556-479.000.
Zeltzer, Hyman: *See*—
Boudrot, Robert J.; Shambaugh, John S.; and Zeltzer, Hyman, 4,276,361, Cl. 429-186.000.
Zengerle, John R.: *See*—
Zeligman, Robert; and Zengerle, John R., 4,275,512, Cl. 36-11.500.
Zieladorf, Franklin J., to Peerless Machinery Corporation. Refrigerated dough mixer. 4,275,568, Cl. 62-342.000.
Ziemacki, Michael S.: *See*—
Wolff, George D.; and Ziemacki, Michael S., 4,275,691, Cl. 123-352.000.
Zinnas, Stephen D., to Chevron Research Company. Herbicidal and plant-growth-regulating 1,2,4-trisubstituted-1,2,4-triazolidin-3-one-5-thione. 4,276,420, Cl. 548-264.000.
Zimmer USA, Inc.: *See*—
Bolesky, Richard C., 4,275,717, Cl. 128-92.0BC.
Zimmerman, Morris: *See*—
Jones, Howard; Clark, Robert L.; and Zimmerman, Morris, 4,276,298, Cl. 424-270.000.
Zodrow, Rudolf: *See*—
Mohs, Hans-Werner; Buchholz, Rainer; Hoveler, Egon; and Zodrow, Rudolf, 4,275,807, Cl. 198-344.000.
Zoecon Corporation: *See*—
Anderson, Richard J., 4,276,230, Cl. 260-465.00D.
Zverkov, Gerik E.: *See*—
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LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 30TH DAY OF JUNE, 1981

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Ando, Kozo: *See—*
Otake, Nobuyuki; Ando, Kozo; Hori, Hironobu; and Sato, Ykinori, Re. 30,659, Cl. 401-209.000.

Arvidsson, Karl E. Apparatus for treating work pieces. Re. 30,658, Cl. 118-50.000.

Davitian, Edward. Weaving system, method of weaving and apparatus. Re. 30,656, Cl. 28-151.000.

Eisenberg, Morris, to Electrochimica Corporation. Electric current producing galvanic cell. Re. 30,661, Cl. 429-194.000.

Electrochimica Corporation: *See—*
Eisenberg, Morris, Re. 30,661, Cl. 429-194.000.

Foley, James P., to Roanwell Corporation. Communications headset with reversible mounting means. Re. 30,662, Cl. 179-156.00A.

Hori, Hironobu: *See—*
Otake, Nobuyuki; Ando, Kozo; Hori, Hironobu; and Sato, Ykinori, Re. 30,659, Cl. 401-209.000.

Laganis, Deno. Water soluble insulating varnish. Re. 30,660, Cl. 260-21.000.

Mason, Stanley I., Jr.; and Richardson, James E., to Simco, Incorporated. Balanced botanical growth container. Re. 30,657, Cl. 47-79.000.

Otake, Nobuyuki; Ando, Kozo; Hori, Hironobu; and Sato, Ykinori, to Tokyo Boshi Kabushiki Kaisha. Pen points for writing instruments. Re. 30,659, Cl. 401-209.000.

Richardson, James E.: *See—*
Mason, Stanley I., Jr.; and Richardson, James E., Re. 30,657, Cl. 47-79.000.

Roanwell Corporation: *See—*
Foley, James P., Re. 30,662, Cl. 179-156.00A.

Sato, Ykinori: *See—*
Otake, Nobuyuki; Ando, Kozo; Hori, Hironobu; and Sato, Ykinori, Re. 30,659, Cl. 401-209.000.

Schnitzius, Klaus, to Stabilus GmbH. Electrically conductive pneumatic spring with door actuated switch means. Re. 30,663, Cl. 200-52.00R.

Simco, Incorporated: *See—*
Mason, Stanley I., Jr.; and Richardson, James E., Re. 30,657, Cl. 47-79.000.

Stabilus GmbH: *See—*
Schnitzius, Klaus, Re. 30,663, Cl. 200-52.00R.

Tokyo Boshi Kabushiki Kaisha: *See—*
Otake, Nobuyuki; Ando, Kozo; Hori, Hironobu; and Sato, Ykinori, Re. 30,659, Cl. 401-209.000.

LIST OF DESIGN PATENTEES

Ackeret, Peter, to IDN Inventions and Development of Novelties AG. Container for tape cassettes. 259,676, 6-30-81, Cl. D3-35.000.

Adidas Fabrique de Chaussures de Sport: *See—*
Joseph, Michel, 259,671, Cl. D2-40.000.
Joseph, Michel, 259,672, Cl. D2-40.000.

Alco Foodservice Equipment Company: *See—*
Wasserstrom, Henry; and Klein, Edward, 259,725, Cl. D15-116.000.

Ambasz, Emilio, to Center for Design Research and Development N.V. Chair shell. 259,688, 6-30-81, Cl. D6-197.000.

American Brush Company, Inc.: *See—*
Furst, Garry, 259,683, Cl. D6-130.000.

Arad, Avi; and Bretschger, Edward B., to Empire of Carolina, Inc. Toy bus. 259,730, 6-30-81, Cl. D21-78.000.

Averitt, Marnie C.: *See—*
Tisserat, Craig R.; Mendoza, Enric C.; Averitt, Marnie C.; and Olivari, Humbert, 259,733, Cl. D23-18.000.

Bagwell, Connice W. Top for a drink cup. 259,705, 6-30-81, Cl. D9-454.000.

Bellini, Mario, to Ing. C. Olivetti & C., S.p.A. Portable typewriting machine. 259,726, 6-30-81, Cl. D18-1.000.

Benjamin Products B.V.: *See—*
Bouwman, Cornelis G., 259,681, Cl. D6-85.000.

Benner-Nawman, Inc.: *See—*
Byberg, Bjarne I.; and Kientz, Robert B., 259,695, Cl. D8-58.000.

Bennington Company, The: *See—*
Handel, David M., 259,689, Cl. D6-200.000.

Benst Holdings Ltd.: *See—*
Stein, Ben, 259,710, Cl. D11-152.000.

Berkline Corporation, The: *See—*
Long, Stapleton, 259,678, Cl. D6-37.000.

Boschetti, Armando, to Paul B. Elder Company. Ultraviolet lamp housing. 259,738, 6-30-81, Cl. D24-68.000.

Bouwman, Cornelis G., to Benjamin Products B.V. Display rack. 259,681, 6-30-81, Cl. D6-85.000.

Bretschger, Edward B.: *See—*
Arad, Avi; and Bretschger, Edward B., 259,730, Cl. D21-78.000.

Brizzolara, Louis E., Jr., to CBS Inc. Utility knife handle. 259,697, 6-30-81, Cl. D8-107.000.

Brown, Jennifer A., to LaBonte, Claudette A. Golfer's pin. 259,709, 6-30-81, Cl. D11-61.000.

Buchsteiner nee Fetzer, Renate, to Johannes Buchsteiner GmbH & Co. KG. Dish with hinged cover. 259,690, 6-30-81, Cl. D7-16.000.

Burlington Furniture Div. of Burlington Industries, Inc.: *See—*
West, Haywood L., 259,686, Cl. D6-164.000.

Byberg, Bjarne I.; and Kientz, Robert B., to Benner-Nawman, Inc. Cable cutter. 259,695, 6-30-81, Cl. D8-58.000.

Cardinal American Corporation: *See—*
Sroub, Joseph W., 259,679, Cl. D6-38.000.

Castronovo, Robert, to Trident Products, Inc. Cap for a disinfectant dispenser. 259,704, 6-30-81, Cl. D9-447.000.

CBS Inc.: *See—*
Brizzolara, Louis E., Jr., 259,697, Cl. D8-107.000.

Center for Design Research and Development N.V.: *See—*
Ambasz, Emilio, 259,688, Cl. D6-197.000.

Cerrato, Vincent, to Vending Components, Inc. Gas pressure regulator. 259,734, 6-30-81, Cl. D23-21.000.

Chasen, Lee R., to Coats & Clark, Inc. Hook. 259,700, 6-30-81, Cl. D8-367.000.

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Corning Glass Works: *See—*
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Davis, Charles L., to Coca-Cola Company, The. Display rack. 259,684, 6-30-81, Cl. D6-148.000.

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Fuller, Stanley E.; and Roeck, Erich F., to Digital Data, Inc. Broadcasting system portable receiving terminal housing. 259,722, 6-30-81, Cl. D14-68.000.

Furst, Garry, to American Brush Company, Inc. Paint roller display rack. 259,683, 6-30-81, Cl. D6-130.000.

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Halacy, Daniel S., Jr. Solar oven. 259,694, 6-30-81, Cl. D7-110.000.

Handel, David M., to Bennington Company, The. Counterbalanced upholstered headrest. 259,689, 6-30-81, Cl. D6-200.000.

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Johnson, Perry B. Airplane. 259,713, 6-30-81, Cl. D12-326.000.

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MacNeill, Arden B. Handle for a golf spike wrench, screw driver, corkscrew and other devices. 259,698, 6-30-81, Cl. D8-107.000.

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Smith, Floyd A. Carpenters' lay-off tape. 259,706, 6-30-81, Cl. D10-71.000.

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Stuetzer, Franz A., to Rowenta-Werke, GmbH. Lighter. 259,741, 6-30-81, Cl. D27-36.000.

Swinstead, Nicholas D., to Solartron Electronic Group Limited. Electronic instrument housing or similar article. 259,708, 6-30-81, Cl. D10-80.000.

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Watanabe, Toshio. Back-up rear view mirror for trucks and like vehicles. 259,716, 6-30-81, Cl. D12-187.000.

West, Haywood L., to Burlington Furniture Div. of Burlington Industries, Inc. Dresser or the like. 259,686, 6-30-81, Cl. D6-164.000.

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LIST OF PLANT PATENTEES

Elliot, Charles P. Rose plant. 4,747, 6-30-81, Cl. 18.000.

Enright, Paul C. Gazania plant. 4,750, 6-30-81, Cl. 68.000.

Hartman, Marsha W., heir: *See—*
Wassiliew, Fedor, deceased; Wassiliew, Nicolaus, heir; Wassiliew, Alexander, heir; Hartman, Marsha W., heir; and Wassiliew, Valentina, heir, 4,748, Cl. 42.000.

Jackson & Perkins Co.: *See—*
Wassiliew, Fedor, deceased; Wassiliew, Nicolaus, heir; Wassiliew, Alexander, heir; Hartman, Marsha W., heir; and Wassiliew, Valentina, heir, 4,748, Cl. 42.000.

Kerrigan, Howard. Azalea plant. 4,749, 6-30-81, Cl. 57.000.

Wassiliew, Alexander, heir: *See*—
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Wassiliew, Fedor, deceased; by Wassiliew, Nicolaus, heir; by Wassiliew, Alexander, heir; by Hartman, Marsha W., heir; and by Wassiliew, Valentina, heir, to Jackson & Perkins Co. Dwarf peach W-110. 4,748, 6-30-81, Cl. 42.000.

Wassiliew, Nicolaus, heir: *See*—
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Wassiliew, Valentina, heir: *See*—
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CLASSIFICATION OF PATENTS

ISSUED JUNE 30, 1981

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134 R 4,275,784
183 4,275,785

CLASS 166

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251 4,275,787
292 4,275,788
294 4,275,789
314 4,275,790

CLASS 172

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703 4,275,792

CLASS 173

9 4,275,793
135 4,275,794

CLASS 175

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385 4,275,796

CLASS 179

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1 E 4,276,446
1 F 4,276,443
1 SC 4,276,445
1 SM 4,276,444
18 FG 4,276,447
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115.5 PV 4,276,449
156 A Re.30,662
170 D 4,276,450
175.2 C 4,276,451
180 4,276,452

CLASS 180

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143 4,275,798
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317 4,275,800

CLASS 181

290 4,275,801

CLASS 188

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4,275,803

CLASS 192

3.58 4,275,804
46 4,275,805

CLASS 194

100 A 4,275,806

CLASS 198

344 4,275,807
533 4,275,808
624 4,275,809

CLASS 200

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52 R Re.30,663
61.05 4,276,454
144 B 4,276,455
148 A 4,276,456
153 G 4,276,457
153 J 4,276,458
157 4,276,459
292 4,276,460
329 4,276,461

CLASS 202

100 4,276,120
227 4,276,121
234 4,276,122
236 4,276,124
241 4,276,123

CLASS 203

4 4,276,125
69 4,276,126

CLASS 204

24 4,276,127
38 A 4,276,128
58 4,276,129
98 4,276,130
129 4,276,131
129.1 4,276,132
145 R 4,276,133
153 4,276,134
159.13 4,276,135
159.22 4,276,136
164 4,276,137
165 4,276,138
180 P 4,276,140
180 R 4,276,139
195 M 4,276,141
4,276,143
195 P 4,276,144
195 S 4,276,142
247 4,276,145
266 4,276,146
272 4,276,147
281 4,276,148

CLASS 206

45.34 4,275,810
204 4,275,811
278 4,275,812
339 4,275,813
455 4,275,814
508 4,275,815

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120 4,276,149
4,276,150
138 4,276,151
139 4,276,152

CLASS 209

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10 4,276,155
166 4,276,156
246 4,276,157
255 4,276,158
273 4,276,159

CLASS 210

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94 4,276,162
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242.1 4,276,165
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613 4,276,174
636 4,276,175
637 4,276,176
638 4,276,177
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662 4,276,178
679 4,276,179
683 4,276,180
741 4,276,181

CLASS 211

68 4,275,816

CLASS 215

217 4,275,817

CLASS 219

10.55 F 4,276,462
121 LB 4,276,463
136 4,276,464
388 4,276,465
523 4,276,466

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CLASS 221

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CLASS 222

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61 4,275,821
63 4,275,822
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148 4,275,824
590 4,275,825

CLASS 223

96 4,275,826

CLASS 225

77 4,275,827

CLASS 229

23 R 4,275,828

CLASS 232

17 4,275,829
43.1 4,275,830

CLASS 235

92 CT 4,276,468
92 PK 4,276,467
458 4,276,469
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CLASS 237

2 R 4,275,831

CLASS 238

310 4,275,832

CLASS 239

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124 4,275,836
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272 4,275,839
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533.3 4,275,844
690 4,275,846

CLASS 241

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46.06 4,275,849
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CLASS 242

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CLASS 244

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121 4,275,858
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205 A 4,275,862
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CLASS 249

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CLASS 250

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250 4,275,866
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310 4,275,868

CLASS 252

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453 RW 4,276,229
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544 D 4,276,231
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251 4,276,254
288.8 4,276,255

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CLASS 269

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CLASS 270

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CLASS 271

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4,275,906

CLASS 285

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110 4,275,909

CLASS 290

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CLASS 292

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315 4,275,911

CLASS 293

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CLASS 296

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97 R 4,275,917
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214 4,275,919
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444 4,275,925

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429 4,275,952

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CLASS 358

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CLASS 362

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214 4,276,583
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CLASS 363

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CLASS 364

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4,276,595
4,276,596
300 4,276,597
405 4,276,598
422 4,276,599
431 4,276,600
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4,276,602
477 4,276,603
480 4,276,604
483 4,276,605
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760 4,276,607
768 4,276,608
900 4,276,609
4,276,610
4,276,611

CLASS 365

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14 4,276,613
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45 4,276,615
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189 4,276,617

CLASS 366

149 4,275,967

CLASS 367

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60 4,276,620
97 4,276,621
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134 4,276,624

CLASS 368

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80 4,276,626
84 4,276,627
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CLASS 369

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291 4,276,636

CLASS 370

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30 4,276,638
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77 4,276,640
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100 4,276,642

CLASS 371

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CLASS 400

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625 4,275,969

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CLASS 405

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225 4,275,974
261 4,275,975
28 4,275,976

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CLASS 414

51 4,275,977
156 4,275,978
251 4,275,979
411 4,275,980
459 4,275,982
462 4,275,981
676 4,275,983
686 4,275,984
722 4,275,985
730 4,275,986

CLASS 415

17 4,275,987
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129 4,275,989

CLASS 416

95 4,275,990
142 4,275,991
146 R 4,275,992
207 4,275,993
226 4,275,994
4,276,310

CLASS 417

40 4,275,995
218 4,275,997
221 4,275,996
269 4,275,998
299 4,275,999
302 4,276,000
401 4,276,001
405 4,276,002
415 4,276,003
479 4,276,004

CLASS 418

13 4,276,005
94 4,276,006
152 4,276,007

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24 4,276,256
62 4,276,257
64 4,276,258
71 4,276,259
100 4,276,260
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187 4,276,262
292 4,276,263
307 4,276,264
311 4,276,265

CLASS 423

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2 4,276,267
49 4,276,268
101 4,276,269
167 4,276,270
226 4,276,271
244 4,276,272
305 4,276,273
336 4,276,274
345 4,276,275
385 4,276,276
393 4,276,277
447.4 4,276,278
648 R 4,276,279

CLASS 424

1 4,276,280
84 4,276,281
85 4,276,282
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101 4,276,284
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154 4,276,287
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322 4,276,309

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660 4,276,322

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286 4,276,346
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437 4,276,351
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352 4,276,018

CLASS 432

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85 4,276,023
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CLASS 440

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89 4,276,036

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327 4,276,655
608 4,276,656

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70 4,276,037
110 4,276,038
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243 4,276,041

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118 4,276,042
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316 4,275,644

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CLASS 525

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61 4,276,389
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71 4,276,391
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106 4,276,399
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264 4,276,402

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395 4,276,411

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CLASS 544

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198 4,276,417
243 4,276,418

CLASS 546

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CLASS 548

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342 4,276,421

CLASS 549

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CLASS 586

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CLASS 560

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55 4,276,429
66 4,276,430
67 4,276,431
190 4,276,432

CLASS 562

458 4,276,433

CLASS 564

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4,276,435
4,276,436

CLASS 585

467 4,276,437
4,276,438
720 4,276,439

CLASSIFICATION OF DESIGNS

D1—	2	259,670		130	259,683		86	259,696	D11—	61	259,709		32	259,721	D23—	18	259,733
D2—	40	259,671		148	259,684		107	259,697		152	259,710	D14—	68	259,722		21	259,734
		259,672		157	259,685			259,698		159	259,711		73	259,723		34	259,735
	229	259,673		164	259,686		367	259,699		164	259,712	D15—	55	259,724		163	259,736
	309	259,674		186	259,687			259,700	D12—	156	259,714		116	259,725	D24—	8	259,737
	318	259,675		197	259,688	D9—	310	259,701		157	259,715	D18—	1	259,726		68	259,738
D3—	35	259,676		200	259,689		314	259,702		187	259,716	D19—	51	259,727	D25—	2	259,739
	37	259,677	D7—	16	259,690		384	259,703		203	259,717	D21—	25	259,728		11	259,740
D6—		259,678		39	259,691		447	259,704		205	259,718		62	259,729	D27—	36	259,741
	38	259,679		65	259,692		454	259,705		209	259,719		78	259,730	D28—	18	259,742
	70	259,680		109	259,693	D10—	71	259,706		326	259,713		104	259,731		46	259,743
	85	259,681		110	259,694		73	259,707		24	259,720		221	259,732	D99—	35	259,744
	97	259,682	D8—	58	259,695		80	259,708	D13—								

CLASSIFICATION OF PLANTS

P.—	18	4,747		42	4,748		57	4,749		68	4,750

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Delaware	10	Montana	30	Vermont	50
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Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
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(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

8 : 4,275,734	4,276,060	4,276,623	4,276,451	4,276,379	4,275,658
01 : 4,275,715	4,276,078	4,276,636	4,276,545	4,276,393	4,275,739
02 : 4,275,501	4,276,091	4,276,647	4,276,569	4,276,413	4,275,826
04 : 4,275,472	4,276,097	4,276,656	4,276,573	4,276,464	4,275,893
4,275,512	4,276,112	08 : 4,275,506	4,276,576	4,276,470	4,275,961
4,275,713	4,276,132	4,275,633	4,276,655	4,276,484	4,276,256
4,276,318	4,276,141	4,275,884	13 : 4,275,716	4,276,540	4,276,268
4,276,342	4,276,155	4,275,885	4,275,777	4,276,547	25 : 4,275,517
4,276,531	4,276,162	4,275,908	4,275,823	4,276,651	4,275,520
4,276,596	4,276,163	4,275,960	4,275,940	18 : 4,275,531	4,275,526
4,276,656	4,276,173	4,275,968	4,275,980	4,275,662	4,275,585
06 : Re.30,661	4,276,206	4,276,081	4,276,008	4,275,717	4,275,656
4,275,470	4,276,230	4,276,084	4,276,243	4,275,779	4,275,744
4,275,474	4,276,247	09 : Re.30,657	4,276,467	4,275,838	4,275,785
4,275,486	4,276,270	4,275,498	16 : 4,276,235	4,275,889	4,275,815
4,275,493	4,276,272	4,275,597	17 : 4,275,480	4,275,912	4,275,821
4,275,533	4,276,329	4,275,640	4,275,485	4,276,006	4,275,833
4,275,599	4,276,330	4,275,729	4,275,508	4,276,100	4,275,859
4,275,605	4,276,344	4,275,784	4,275,535	4,276,233	4,275,957
4,275,609	4,276,395	4,275,813	4,275,541	4,276,300	4,275,978
4,275,611	4,276,397	4,275,818	4,275,562	4,276,566	4,276,005
4,275,623	4,276,407	4,275,965	4,275,567	19 : 4,275,589	4,276,027
4,275,624	4,276,409	4,275,982	4,275,577	4,275,791	4,276,102
4,275,639	4,276,410	4,275,986	4,275,581	4,275,792	4,276,113
4,275,647	4,276,411	4,276,072	4,275,607	4,275,882	4,276,140
4,275,655	4,276,420	4,276,110	4,275,664	4,276,037	4,276,146
4,275,663	4,276,454	4,276,157	4,275,707	4,276,195	4,276,164
4,275,665	4,276,463	4,276,219	4,275,720	20 : 4,275,476	4,276,176
4,275,672	4,276,466	4,276,253	4,275,748	4,275,550	4,276,177
4,275,677	4,276,469	4,276,285	4,275,763	4,275,899	4,276,207
4,275,701	4,276,474	4,276,297	4,275,778	4,275,985	4,276,237
4,275,724	4,276,486	4,276,356	4,275,825	4,276,015	4,276,248
4,275,750	4,276,488	4,276,526	4,275,844	4,276,242	4,276,255
4,275,757	4,276,490	10 : 4,276,212	4,275,848	21 : 4,275,576	4,276,360
4,275,782	4,276,514	4,276,226	4,275,868	4,275,975	4,276,361
4,275,788	4,276,516	12 : 4,275,478	4,275,888	4,276,016	4,276,367
4,275,827	4,276,520	4,275,510	4,275,890	4,276,069	4,276,370
4,275,828	4,276,521	4,275,522	4,275,925	4,276,597	4,276,371
4,275,839	4,276,538	4,275,549	4,275,970	22 : 4,275,468	4,276,459
4,275,842	4,276,543	4,275,558	4,275,987	4,275,487	4,276,475
4,275,849	4,276,548	4,275,644	4,276,034	4,275,488	4,276,477
4,275,881	4,276,551	4,275,691	4,276,042	4,275,620	4,276,536
4,275,895	4,276,553	4,275,812	4,276,050	4,275,708	4,276,652
4,275,897	4,276,558	4,275,854	4,276,064	4,275,725	26 : 4,275,534
4,275,907	4,276,582	4,275,993	4,276,083	4,276,201	4,275,572
4,275,926	4,276,588	4,276,011	4,276,090	4,276,332	4,275,617
4,275,931	4,276,591	4,276,051	4,276,108	4,276,482	4,275,646
4,275,944	4,276,593	4,276,258	4,276,145	23 : 4,275,587	4,275,693
4,275,946	4,276,595	4,276,260	4,276,150	4,275,718	4,275,700
4,275,964	4,276,607	4,276,281	4,276,191	4,275,943	4,275,722
4,275,977	4,276,613	4,276,348	4,276,194	24 : 4,275,513	4,275,831
4,275,979	4,276,616	4,276,378	4,276,313	4,275,538	4,275,894
4,276,003	4,276,617	4,276,441	4,276,333	4,275,561	4,275,913

4,275,916	4,275,719	4,275,559	4,275,642	4,275,601	4,276,111
4,275,917	4,275,730	4,275,596	4,275,651	4,275,621	4,276,122
4,275,920	4,275,736	4,275,630	4,275,654	4,275,627	4,276,139
4,275,972	4,275,808	4,275,653	4,275,747	4,275,645	4,276,156
4,275,997	4,275,809	4,275,666	4,275,768	4,275,732	4,276,180
4,276,023	4,275,861	4,275,673	4,275,776	4,275,805	4,276,182
4,276,031	4,275,874	4,275,681	4,275,843	4,275,871	4,276,196
4,276,032	4,275,906	4,275,697	4,275,856	4,275,891	4,276,199
4,276,054	4,275,939	4,275,733	4,275,857	4,276,002	4,276,307
4,276,061	4,275,995	4,275,740	4,275,886	4,276,021	4,276,337
4,276,066	4,276,026	4,275,745	4,275,929	4,276,022	4,276,396
4,276,071	4,276,065	4,275,746	4,275,932	4,276,074	4,276,400
4,276,131	4,276,098	4,275,766	4,275,937	4,276,080	4,276,406
4,276,189	4,276,115	4,275,767	4,275,950	4,276,121	4,276,460
4,276,240	4,276,149	4,275,819	4,275,983	4,276,123	4,276,498
4,276,287	4,276,151	4,275,830	4,276,009	4,276,148	4,276,502
4,276,331	4,276,152	4,275,877	4,276,012	4,276,165	4,276,522
4,276,392	4,276,170	4,275,883	4,276,018	4,276,183	4,276,550
4,276,412	4,276,179	4,275,945	4,276,029	4,276,184	4,276,609
4,276,427	4,276,190	4,275,948	4,276,038	4,276,197	4,276,615
4,276,428	4,276,203	4,275,956	4,276,073	4,276,290	4,276,619
4,276,429	4,276,204	4,276,024	4,276,103	4,276,325	4,276,620
4,276,434	4,276,211	4,276,030	4,276,104	4,276,350	4,276,646
4,276,435	4,276,215	4,276,087	4,276,120	4,276,355	49 : 4,275,528
4,276,436	4,276,216	4,276,107	4,276,126	4,276,359	4,275,851
4,276,600	4,276,220	4,276,137	4,276,136	4,276,362	4,275,959
27 : 4,275,519	4,276,241	4,276,147	4,276,159	4,276,387	50 : 4,275,504
4,275,529	4,276,251	4,276,174	4,276,205	4,276,403	4,276,603
4,275,584	4,276,276	4,276,186	4,276,227	4,276,424	51 : 4,275,532
4,275,737	4,276,294	4,276,234	4,276,245	4,276,448	4,275,661
4,275,738	4,276,296	4,276,263	4,276,261	4,276,455	4,275,680
4,275,835	4,276,298	4,276,280	4,276,278	4,276,456	4,275,735
4,275,866	4,276,316	4,276,284	4,276,338	4,276,472	4,275,756
4,275,902	4,276,320	4,276,292	4,276,351	4,276,507	4,275,817
4,275,984	4,276,326	4,276,293	4,276,354	4,276,509	4,276,095
4,276,017	4,276,339	4,276,312	4,276,394	4,276,518	53 : 4,275,603
4,276,265	4,276,366	4,276,315	4,276,399	4,276,530	4,275,686
4,276,492	4,276,368	4,276,335	4,276,430	45 : 4,275,483	4,275,797
4,276,506	4,276,383	4,276,353	4,276,480	4,275,554	4,275,870
4,276,574	4,276,414	4,276,364	4,276,481	4,275,728	4,275,942
28 : 4,276,175	4,276,432	4,276,377	4,276,542	4,276,101	4,276,033
29 : 4,275,502	4,276,437	4,276,402	4,276,622	4,276,236	4,276,118
4,275,540	4,276,438	4,276,446	4,276,640	4,276,580	4,276,124
4,275,754	4,276,443	4,276,505	40 : 4,275,473	47 : 4,275,629	4,276,513
4,275,829	4,276,445	4,276,510	4,275,475	4,276,063	4,276,517
4,275,875	4,276,457	4,276,561	4,275,548	4,276,198	4,276,648
4,275,880	4,276,500	4,276,562	4,275,699	4,276,279	54 : 4,275,649
4,276,001	4,276,511	4,276,570	4,275,789	4,276,349	4,275,793
4,276,043	4,276,512	4,276,578	4,275,863	48 : 4,275,588	4,276,229
4,276,144	4,276,546	4,276,599	4,275,938	4,275,592	4,276,405
4,276,222	4,276,552	4,275,490	4,275,974	4,275,610	55 : 4,275,570
4,276,250	4,276,557	37 : 4,275,500	4,276,058	4,275,622	4,275,710
4,276,291	4,276,590	4,275,515	4,276,185	4,275,678	4,275,751
4,276,319	4,276,592	4,275,689	4,276,192	4,275,682	4,275,753
4,276,416	4,276,610	4,275,811	4,276,200	4,275,711	4,275,803
31 : 4,275,593	4,276,614	4,275,872	4,276,223	4,275,731	4,275,864
32 : 4,275,800	35 : 4,275,712	4,276,249	4,276,257	4,275,769	4,275,905
33 : 4,275,632	4,276,267	4,276,555	4,276,271	4,275,771	4,275,910
4,275,765	4,276,644	38 : 4,276,314	4,276,439	4,275,786	4,275,999
4,276,594	36 : Re.30,656	39 : 4,275,557	41 : 4,275,524	4,275,790	4,276,040
34 : 4,275,516	Re.30,660	4,275,560	4,275,537	4,275,795	4,276,336
4,275,539	Re.30,662	4,275,566	4,275,981	4,275,935	4,276,461
4,275,591	4,275,469	4,275,568	42 : 4,275,495	4,275,992	4,276,476
4,275,628	4,275,511	4,275,569	4,275,509	4,275,994	4,276,493
4,275,668	4,275,514	4,275,638	4,275,546	4,276,010	56 : 4,275,915
4,275,675	4,275,556				

DESIGN PATENTS

01 : 259,705	259,712	09 : 259,697	259,683	259,685	39 : 259,679
04 : 259,694	259,715	259,724	259,698	259,687	259,722
259,720	259,716	259,730	259,709	259,688	259,738
06 : 259,670	259,718	10 : 259,743	26 : 259,673	259,691	41 : 259,736
259,682	259,719	13 : 259,684	259,711	259,700	46 : 259,693
259,695	259,721	259,717	32 : 259,714	259,731	47 : 259,678
259,699	259,733	17 : 259,725	34 : 259,689	259,734	48 : 259,727
259,701	259,735	259,732	259,713	259,740	259,744
259,702	259,739	18 : 259,706	259,742	37 : 259,680	55 : 259,677
259,704	08 : 259,696	25 : 259,675	36 : 259,674	259,686	

PLANT PATENTS

6 : 4,748	4,749	4,750	06 : 4,747		

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